

# HEWLETT-PACKARD

COMPUTER APPLICATIONS PTY. LTD.

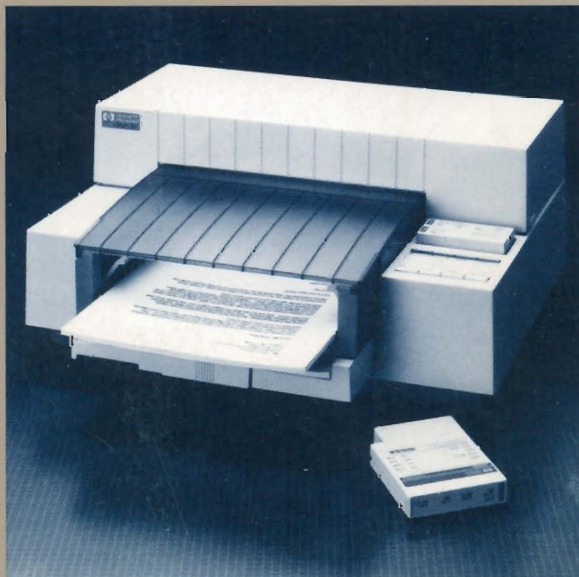
UNIT 2/340 GEORGE ST.

WATERLOO NSW 2017

PH: (02) 318 2911

## Professional Printer DeskJet

### Owner's Manual



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

**For research and education purposes only.**



## Limited Warranty

---

### **One-Year Limited Hardware Warranty**

Except when used as part of an HP system, Hewlett-Packard warrants your printing peripheral hardware product against defects in materials and workmanship for a period of one year from receipt by the end user (proof of purchase required). If HP receives notice of such defects during the warranty period, HP will either, at its option, repair or replace products which prove to be defective.

Should HP be unable to repair or replace the product within a reasonable amount of time, customer's alternative exclusive remedy shall be a refund of the purchase price upon return of the product.

If this product was purchased as part of an HP system in a coordinated shipment or as a system add-on, it is warranted against defects in material and workmanship during the same period as the HP system.

---

### **Exclusions**

The above warranty shall not apply to defects resulting from: improper or inadequate maintenance by customer; customer-supplied software or interfacing; unauthorized modification or misuse; operation outside of the environmental specifications for the product; or improper site preparation and maintenance.

---

## **Obtaining Warranty Service**

To obtain warranty service, products must be returned to a service facility designated by HP. HP may repair on-site at the option of the customer. Customer is responsible for travel charges when on-site repair is requested.

Warranty service for products purchased as part of a system will be subject to service in accordance with the system support services.

Customer shall prepay shipping charges for products returned to HP for warranty service and HP shall pay for return of the products to customer. However, customer shall pay all shipping charges, duties, and taxes for products returned to HP from another country.

---

## **Warranty Limitations**

HP makes no other warranty, either expressed or implied, with respect to this product. HP specifically disclaims the implied warranties of merchantability and fitness for a particular purpose. Some states or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion may not apply to you. However, any implied warranty of merchantability or fitness is limited to the 1-year duration of this written warranty.

This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state, or province to province.

---

## **Exclusive Remedies**

The remedies provided herein are customer's sole and exclusive remedies. In no event shall HP be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

---

## **Obtaining Service During or After Warranty**

### **During the Warranty Period**

If your hardware should fail during the warranty period, follow the HELP! procedures in the owner's manual, then take the failed piece of equipment to an Authorized HP Personal Computer Dealer Repair Center—or send the equipment to one of the HP Field Repair Centers listed in the directory sent with your product. (HP may repair on-site at your option, in which case you are responsible for travel charges.)

### **After the Warranty Period**

If your hardware should fail after the warranty period, follow the HELP! procedures in the owner's manual, then contact an Authorized HP Personal Computer Dealer Repair Center or call your HP Sales and Service Office for details of the services available.

If you are uncertain about which unit to return, call your Authorized HP Personal Computer Dealer or a Field Repair Center for assistance.

---

## **Determining If Your Printer Needs Service**

Your printer is designed to give you years of reliable service. If you are having a problem with your printer, however, see the HELP! Chapter of the owner's manual, for help in determining if your printer needs service.

---

## **Returning Your Printer for Service**

If your printer requires servicing, contact the Hewlett-Packard Dealer or HP Sales and Support Office where you purchased the printer for complete service information.

If you need to ship your printer, be sure it is packed in a protective carton. We recommend that you save the original shipping container for this purpose. If needed, packaging materials and carton may be obtained from Hewlett-Packard. In-transit damage is not covered by the warranty. We suggest that you always insure shipments.

You can help assure effective servicing of your printer by following these guidelines:

- 1.** Follow the instructions in this manual to make certain the malfunction is in your printer and not the result of an interface error or a malfunction in your computer or software. If possible, identify the defective area or function.
- 2.** If you determine that repair is required, please include the following items when you return your printer for service:
  - a. A description of the exact configuration at the time of the malfunction, including the interface cable, computer and peripherals, and software (program) in use.
  - b. A brief description of symptoms for service personnel.
  - c. Hardcopy produced on the printer that might help illustrate the problem area.
  - d. The serial number of the printer.
  - e. If purchased through an HP dealer, a copy of the sales slip or other proof of purchase to establish the warranty coverage period.
- 3.** Include your name, address, and a phone number where you may be reached during the day.
- 4.** Do not include any operating accessories with the printer, unless the problem relates to an accessory. Do include the print cartridge and power supply.

---

# **DeskJet Professional Printer Owner's Manual**



**Manual Part No.  
02276-90018**

Ed. 4.1

---

## Notice

The information contained in this document is subject to change without notice.

**Hewlett-Packard makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.**

Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

---

No part of this document may be photocopied, reproduced, or translated to another program language without the prior written consent of Hewlett-Packard Company.

## Printing History

Edition 1	August 1987	Printed in U.S.A. 7/87
Edition 2	October 1987	Printed in U.S.A. 10/87
Edition 3	December 1987	Printed in U.S.A. 12/87
Edition 4	January 1988 (Europe)	Printed in U.S.A. 1/88
Edition 4.1	May 1988 (Europe)	Printed in Singapore 5/88

---

## Copyright

Copyright 1988, 1987, by Hewlett-Packard Company  
18110 S.E. 34th Street, Camas, WA 98607



## Regulatory Notices

---

### **Potential for Radio/ Television Interference (USA only)**

The DeskJet 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 or 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 the 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 US 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.

## **Funkentstörung Deutschland**

Dieses Gerät wurde in einer typischen Systemkonfiguration geprüft und entspricht den Bestimmungen der Allgemeinen Genehmigung FTZ 1046/84. Als Nachweis ist das Gerät mit dem VDE-Funkschutzzeichen mit Index 0871-B/P für Peripheriegeräte gekennzeichnet.

Wird das Gerät innerhalb einer Anlage betrieben,

- So muß bei Inanspruchnahme der Allgemeinen Genehmigung FTZ 1046/84 die gesamte Anlage der oben genannten Genehmigung entsprechen.
- Die mit einer FTZ-Serienprüfnummer gekennzeichnet ist, und für die eine Betriebsgenehmigung vorliegt oder beantragt wird, so sind in der Regel keine weiteren Schritte notwendig.

### **電波障害について**

この装置は、第二種情報装置(住宅地域又はその隣接した地域において使用されるべき情報装置)で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会(VCCI)基準に適合しております。

しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因になることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

## **Power Module Statement**

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

### **Sweden**

Får endast anslutas till jordat nätuttag.

**Observera!**

Skadas sladden till detta strömförsörjningsdon skall donet kasseras. Sladden går ej att byta ut.

# Table of Contents

## Chapter 1:

	<b>Getting Started</b>
<b>1-1</b>	Unpacking and Setting Up Your Printer
<b>1-2</b>	Unpacking Your Printer
<b>1-4</b>	Before Proceeding
<b>1-5</b>	Abbreviations to Know
<b>1-6</b>	Getting Ready to Print
<b>1-6</b>	ON/OFF Switch
<b>1-6</b>	Connecting the Power Module
<b>1-8</b>	Connecting the Interface Cable
<b>1-9</b>	Installing the Print Cartridge
<b>1-12</b>	First a Word About Paper
<b>1-13</b>	Copier Paper
<b>1-13</b>	Loading Paper—Paper Path
<b>1-13</b>	Single Sheet Paper
<b>1-15</b>	Letterhead Paper
<b>1-15</b>	Envelopes
<b>1-17</b>	Printing!
<b>1-17</b>	Self Test
<b>1-18</b>	Installing the Optional Font Cartridge
<b>1-20</b>	Keypad
<b>1-23</b>	Reloading Paper
<b>1-23</b>	Replacing the Print Cartridge

## Chapter 2:

	<b>Setting Up . . .</b>
<b>2-3</b>	Setting Up Your Hardware and Printer
<b>2-4</b>	HP Vectra to PC
<b>2-6</b>	HP Touchscreen/Touchscreen II/150
<b>2-9</b>	HP Portable
<b>2-11</b>	HP Portable Vectra CS
<b>2-13</b>	HP2392A, HP2394A, HP700/92, HP700/94 Terminals
<b>2-15</b>	HP2393A and HP2397A
<b>2-17</b>	HP700/41 Terminal
<b>2-19</b>	IBM PC Family and Compatibles
<b>2-21</b>	IBM PS/2 Family
<b>2-23</b>	IBM Convertible PC
<b>2-25</b>	Apple IIc

2-27	Apple IIe/II+
2-29	Apple IIgs

## Chapter 3:

### Setting Up Your Software and Printer

3-1	Important Software Information
3-1	Getting Your Printer to Work with Your Software
3-3	What a Printer Driver Is
3-4	How and Where to Get a DeskJet Printer Driver for Your Software Package
3-4	What to Do If a DeskJet Printer Driver Isn't Available for Your Software Package
3-5	Notices
3-6	Software Packages
3-8	Using AdvanceWrite III
3-12	Using CHART-MASTER
3-14	Using Charting Gallery and Drawing Gallery
3-17	Using DisplayWrite
3-18	Using Executive MemoMaker
3-20	Using Framework II
3-22	Using Freelance
3-24	Using Freelance Plus
3-26	Using Harvard Presentation Graphics
3-28	Using HPWORD/PC
3-31	Using Lotus 1-2-3 version 1A
3-34	Using Lotus 1-2-3 version 2.0, 2.01
3-39	Using Lotus Manuscript
3-42	Using Microsoft Chart
3-45	Using Microsoft Windows
3-50	Using Microsoft Word
3-53	Using MultiMate
3-56	Using MultiMate Advantage
3-60	Using <i>pfs:First Choice</i>
3-62	Using <i>pfs:Write</i>
3-65	Using Samna Word III
3-68	Using Samna Word IV
3-71	Using Sideways
3-72	Using SuperCalc3

<b>3-75</b>	Using SuperCalc4
<b>3-78</b>	Using Symphony version 1.0
<b>3-82</b>	Using Symphony version 1.1, 1.2
<b>3-87</b>	Using VolksWriter 3
<b>3-90</b>	Using WordPerfect
<b>3-94</b>	Using WordStar
<b>3-97</b>	Using WordStar Professional
<b>3-101</b>	Using WordStar 2000
<b>3-105</b>	Using Other Software Applications
<b>3-106</b>	Software Matrix Printer Feature Table
<b>3-107</b>	List of Major Software Companies

## Chapter 4:

### Programming

<b>4-1</b>	Introduction to Control Codes and Escape Sequences
<b>4-4</b>	Control Codes
<b>4-6</b>	Using Printer Features
<b>4-6</b>	Before You Begin . . .
<b>4-7</b>	Font Selection
<b>4-7</b>	Using Fonts
<b>4-9</b>	Print Feature Priorities
<b>4-10</b>	Designating Character Sets
<b>4-13</b>	Sub- and Superscripts
<b>4-14</b>	Proportional Spacing
<b>4-14</b>	Print Pitches
<b>4-15</b>	Character Height
<b>4-15</b>	Typestyle
<b>4-16</b>	Stroke Weight
<b>4-16</b>	Typeface
<b>4-16</b>	Print Quality
<b>4-17</b>	Print Enhancements
<b>4-18</b>	Combining Escape Sequences
<b>4-18</b>	Positioning Print on a Page
<b>4-18</b>	Line Spacing
<b>4-19</b>	Paper Size
<b>4-19</b>	Page Length
<b>4-20</b>	Perforation Skip Mode
<b>4-20</b>	Margins

<b>4-22</b>	Text Length
<b>4-23</b>	Paper Control and Print Position
<b>4-23</b>	Paper Feed Control
<b>4-24</b>	Motion Index Definitions
<b>4-25</b>	Print Position
<b>4-29</b>	Half Line Feed
<b>4-30</b>	Printing Graphics
<b>4-30</b>	Graphics Commands
<b>4-31</b>	Raster Graphics Resolution
<b>4-32</b>	Raster Width
<b>4-32</b>	Start Raster Graphics
<b>4-33</b>	Transfer Raster Graphics
<b>4-34</b>	Raster Graphics Modes
<b>4-38</b>	Temporary X Offset
<b>4-40</b>	End Raster Graphics
<b>4-40</b>	Sample Graphics Program
<b>4-44</b>	Miscellaneous Printer Controls
<b>4-44</b>	End-of-Line Wraparound
<b>4-44</b>	Line Terminator Selection
<b>4-45</b>	Print Enhancement Control
<b>4-45</b>	Shift-In/Shift-Out Control
<b>4-45</b>	Print Mode Selection
<b>4-46</b>	Text Scale Mode
<b>4-47</b>	Display Functions Mode
<b>4-47</b>	Transparent Print Mode
<b>4-48</b>	Printer Reset
<b>4-48</b>	Self Test
<b>4-48</b>	Printer Status

---

## Chapter 5:

### Data Communications

<b>5-1</b>	Parallel Interface
<b>5-3</b>	Printer Timing Diagram
<b>5-4</b>	Serial Interface
<b>5-4</b>	Signal Descriptions
<b>5-5</b>	Baud Rate, Bits & Parity
<b>5-6</b>	Handshaking Protocol

---

**Chapter 6:****HELP!**

- 6-1** Printer Problems
- 6-6** Clearing Paper Jams
- 6-7** Using the Print Cartridge
  - 6-7** Print Cartridge Installation Tips
- 6-8** Maintaining Print Quality
- 6-8** Improving Print Quality
- 6-8** Storing Print Cartridges
- 6-9** A Word About the Ink
- 6-9** Non-Printing Self Tests
- 6-9** Maintenance
  - 6-9** Exterior
  - 6-9** Platen

---

**Chapter 7:****Fonts**

- 7-1** Font/Cartridge Directory
- 7-2** Font/Escape Sequence Summary
- 7-40** HP22707E Hewlett-Packard EPSON FX-80 Printer Emulation Cartridge
  - 7-40** Introduction
  - 7-40** How To Proceed
  - 7-41** Getting Started – EPSON FX-80 Emulation Cartridge
    - 7-41** Installing the Cartridge
    - 7-41** Verification Self Test
  - 7-43** Setting Up – EPSON FX-80 Emulation Cartridge
    - 7-43** Setting Up Your DeskJet Printer With Your PC
    - 7-43** Function Switch Settings
    - 7-44** Function Switch Definitions
  - 7-46** Keypad Operation
    - 7-47** Keypad Selection
  - 7-48** Setting Up Your Software – EPSON FX-80 Emulation Cartridge
  - 7-49** Programming – EPSON FX-80 Emulation Cartridge
  - 7-51** Multiple Character Escape Sequences

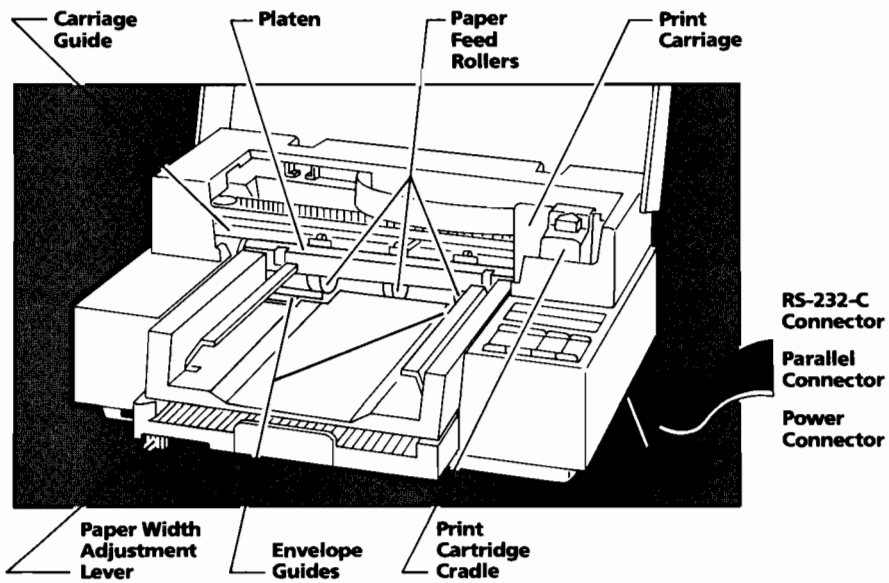
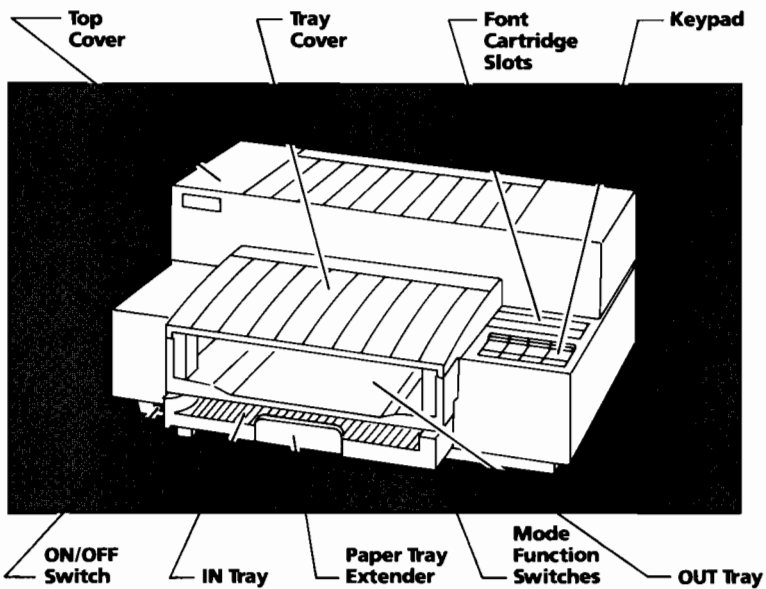
<b>7-52</b>	Control Codes by Function
<b>7-56</b>	Print Mode Priorities
<b>7-56</b>	Using Master Print Mode Select
<b>7-57</b>	Printing Graphics
<b>7-60</b>	Emulation Cartridge and Epson FX-80 Differences
<b>7-60</b>	Printed Text Differences
<b>7-61</b>	Top-of-Form (TOF) and Line Position Differences
<b>7-62</b>	Downloadable Character Differences

## Chapter 8:

	<b>Appendix</b>
<b>8-1</b>	Summary of Switch Settings
<b>8-2</b>	Function Switch Definitions
<b>8-3</b>	Character Set Selection
<b>8-3</b>	Paper/Envelope Size
<b>8-4</b>	RS-232-C Baud Rate Selection
<b>8-4</b>	RS-232-C Parity & Word Length
<b>8-5</b>	Character Set Selection
<b>8-5</b>	Roman8 Character Set Chart
<b>8-5</b>	International (ISO) Character Set Chart
<b>8-6</b>	PC-8 US Character Set Chart
<b>8-6</b>	PC-8 Denmark/Norway Character Set Chart
<b>8-7</b>	ECMA-94 Latin 1 Character Set Chart
<b>8-8</b>	Line Draw Character Set Chart
<b>8-9</b>	Legal Character Set Chart
<b>8-10</b>	Math7 Character Set Chart
<b>8-11</b>	Math8 Character Set Chart
<b>8-12</b>	Math8a Character Set Chart
<b>8-13</b>	Math8b Character Set Chart
<b>8-14</b>	Pi Font Character Set Chart
<b>8-15</b>	Pi Fonta Character Set Chart
<b>8-16</b>	ASCII-Decimal-Hex Table
<b>8-18</b>	HP Terminal Mode—Line Draw
<b>8-19</b>	Escape Sequence/Control Code Summary
<b>8-24</b>	Ordering Information
<b>8-25</b>	Interface and Cable Requirements
<b>8-26</b>	Specifications







# Getting Started

# 1

---

## WELCOME!

This section of your Owner's Manual contains the information you'll need to get started using your new printer. We encourage you to read it from start to finish.

---

## Unpacking and Setting Up Your Printer

Unpack your printer and set it on a flat, stable surface.

Check that the following items were shipped along with your printer:

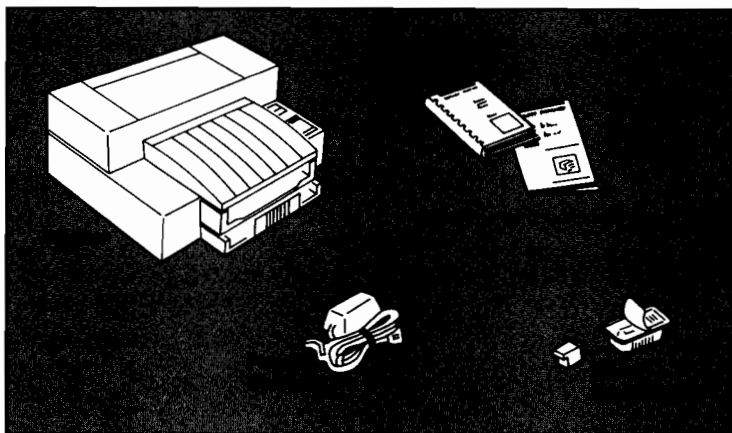
- Owner's Manual (which you are reading)
- Warranty Information (included in the manual)
- Print Cartridge
- Power Module
- DeskJet Printer Font Guide



---

Check the part number on the bottom of your power module against the list located in the Appendix on page 8-24 to be sure that you have the correct power module for your area.

---



If any of these items are missing immediately contact your local HP Sales and Support Office, or the dealer from whom you purchased your unit.



**Note**

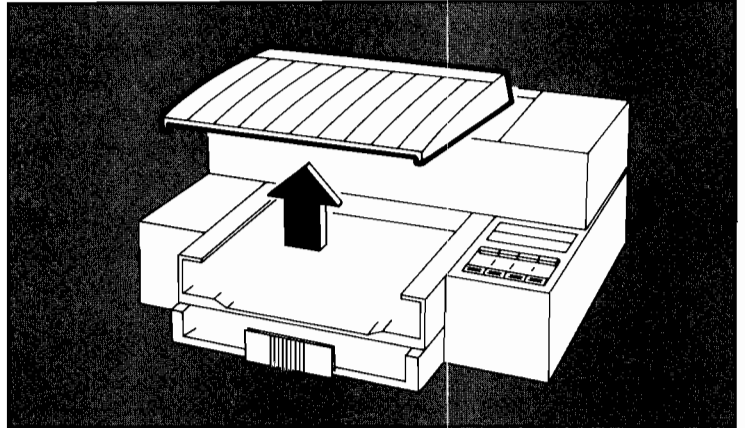
---

The interface cable, used to connect your printer to your PC or terminal, is not provided with your printer. It must be ordered separately. See *Setting Up Your PC or Terminal* in Chapter 2 for information on interface cables used with many popular PC's. If your system is not represented there, contact your nearest HP dealer. Be sure to use only shielded interface cables.

---

## Unpacking Your Printer

- Remove the cardboard packing band wrapped around the tray cover and the IN and OUT trays by sliding the band toward you.
- Remove the tray cover from the OUT tray as shown below.



- Open the top cover and remove the tape securing the print cartridge cradle.

## **Before Proceeding:**

- Be sure your printer is turned OFF (red circle on ON/OFF switch showing)
- Become familiar with the parts of the printer called out at the front of this chapter. Doing so may help you when installing the print cartridge or loading paper.

**Then see the instructions on the following pages to accomplish the steps outlined below.**

- Connect the power module between your printer and the wall outlet.
- Connect the interface cable between the printer and your PC or terminal and configure them.
- Install the print cartridge.
- Load paper in the IN tray.
- Run the printer's self test. The self test will provide you with a printed sample, demonstrating that the printer is working properly.
- Set up your software package to work on your printer.
- Have Fun!

---

## Abbreviations to Know

We'd like to define a few abbreviations you will see often in this manual.

**CPI**—Characters per inch. Also called pitch. Used in describing the number of characters that will print within one horizontal inch. For example, 10 pitch printing will yield 10 characters per inch.

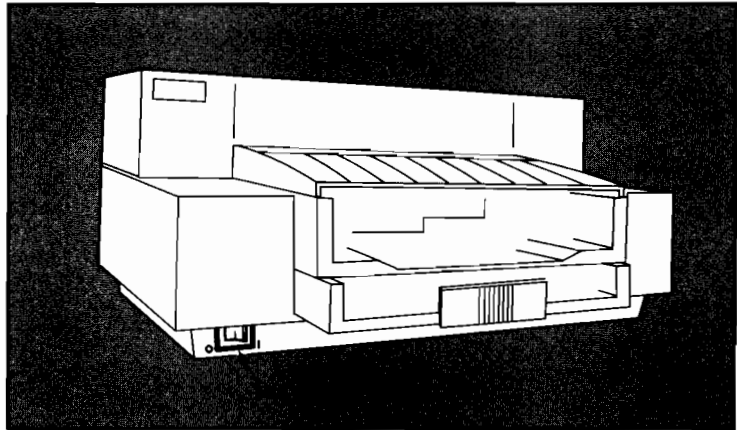
**CPS**—Characters per second. Refers to printing speed. Used in describing the number of characters that will print per second. For example, your printer will print in Letter Quality (LQ) mode at 120 characters per second.

**LPI**—Lines per inch. Used in describing the number of lines that will print within one vertical inch. Most printing is done in 6 or 8 lpi.

## Getting Ready to Print

### ON/OFF Switch

The ON/OFF switch is located on the printer's base, lower left front corner. To turn the printer ON, press the right end of the switch. When the printer is turned ON the print carriage will "home", all keypad lights will flash ON briefly, and the ON LINE light, COUR 10 light, and selected print MODE light will be ON.



### Connecting the Power Module

The power connector is located on the bottom of the printer. To connect the power module to the printer:

1. Begin with the printer turned OFF.
2. Remove the tray cover if it wasn't already, and set it aside.

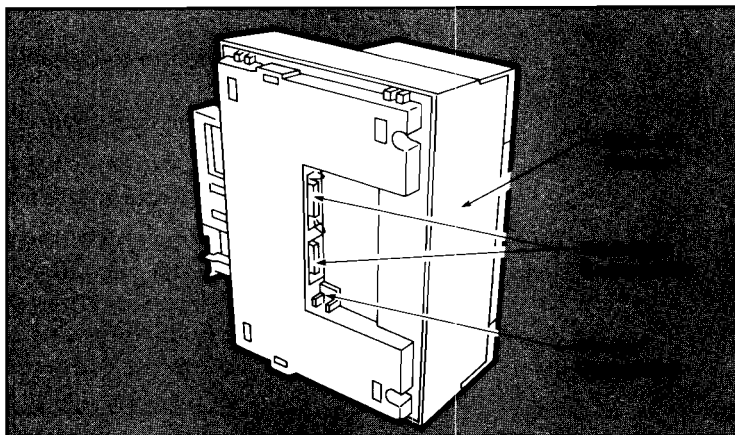


### Warning

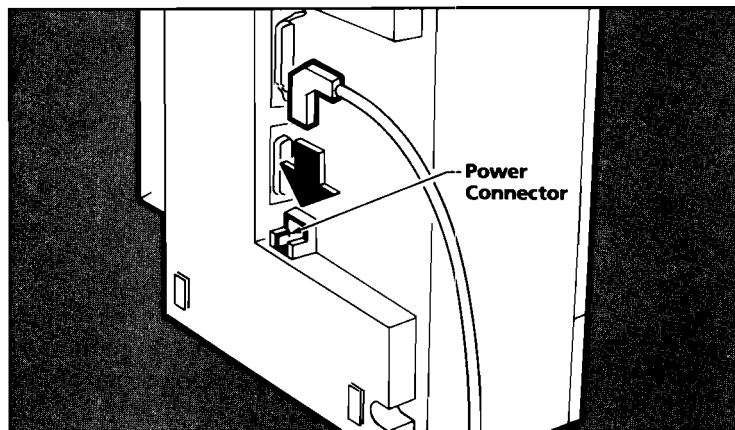
Place the power module on the floor, or at least 1" (2.54 cm) away from your PC, disc drive, or terminal. Use only the power module provided with your printer.



3. With the printer facing you, carefully tilt the printer on its left side and rotate it so that its underside faces you. See below.



4. Plug the power module into the power connector on the bottom of the printer, and route the power cord toward the rear of the printer. See below.



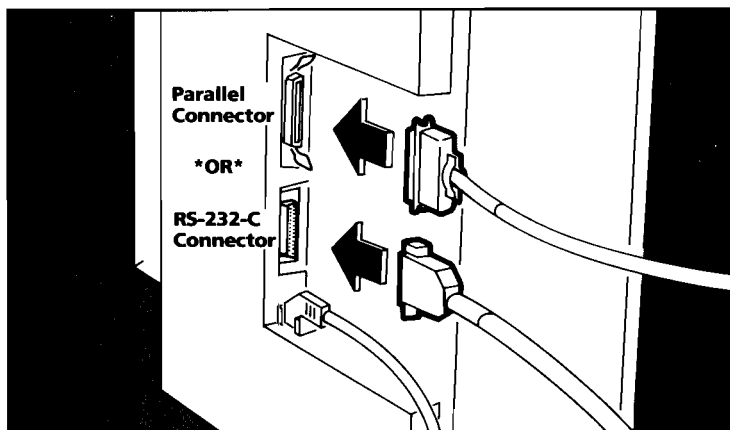
5. Plug the other end of the power module into a grounded 3-prong outlet.

## Connecting the Interface Cable

All DeskJet printers have both RS-232-C and Parallel interface connectors as standard equipment. The interface connectors are located on the bottom of the printer next to the power connector.

To connect the interface cable:

1. Remove the tray cover if it wasn't already.
2. With the printer facing you, carefully tilt the printer on its left side and rotate it so that its underside faces you.
3. Connect one end of the interface cable to the connector (also called a port). If you are using the RS-232-C (serial) interface, connect the cable to the connector labeled RS-232-C. If you are using the Parallel interface, connect the cable to the connector labeled Parallel. See below.



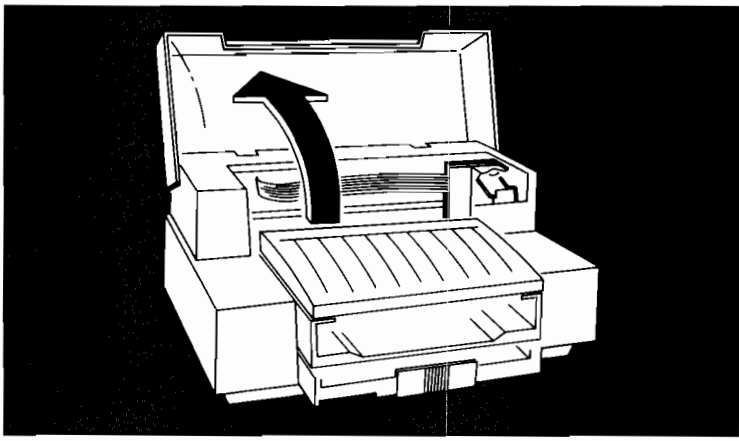
### Note

Do not connect more than one interface cable to the printer. Use only HP approved shielded interface cables.

4. Secure the interface cable to the connector: If you are using the RS-232-C interface, tighten the screws with a small bit screwdriver; if you are using a parallel interface, snap the clips on the sides of the printer's connector over the cable connector.
5. Route the cable toward the rear of the printer.
6. Connect the other end of the interface cable to your PC or terminal. Make sure that you have connected the correct interface cable to the correct connector.
7. Tip the printer back down, making sure that the printer is not sitting on top of the cable or the power cord.
8. Replace the tray cover on the OUT tray.

### Installing the Print Cartridge

1. Open the printer's top cover. See below.



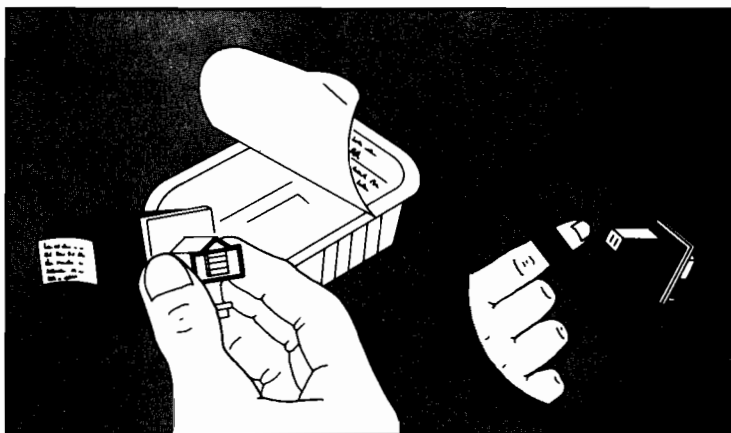
### Warning

---

The ink in the print cartridge contains diethylene glycol which is harmful to children if swallowed. Keep new or used cartridges out of the reach of children.

---

2. Open the print cartridge container. Grasp the print cartridge by the green arrow and remove it from its container. Make sure that you don't touch the gold "ribbon" located on the lower front and bottom (nose) of the print cartridge. See below.



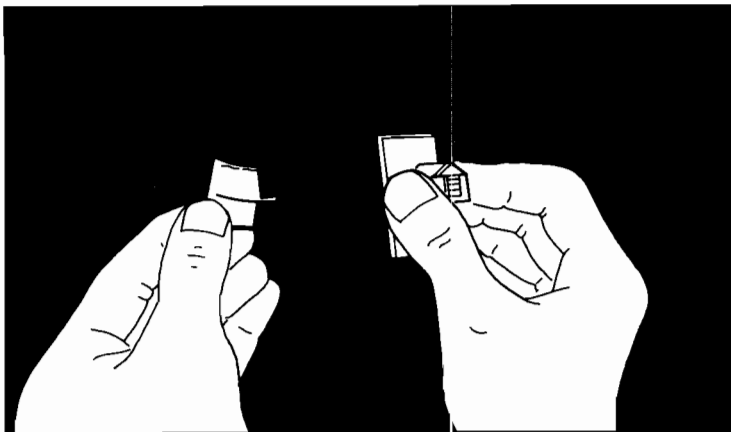
**Attention**

---

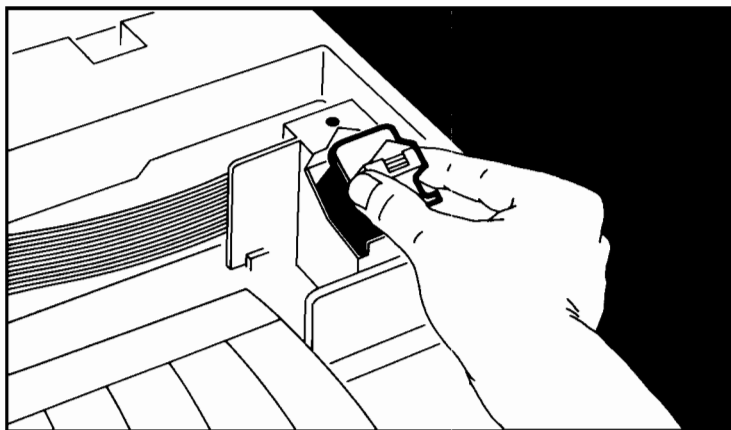
Do not touch the gold "ribbon" on the lower front and bottom of the print cartridge with your fingers, or set the cartridge down so that the gold "ribbon" comes in contact with any surface.

---

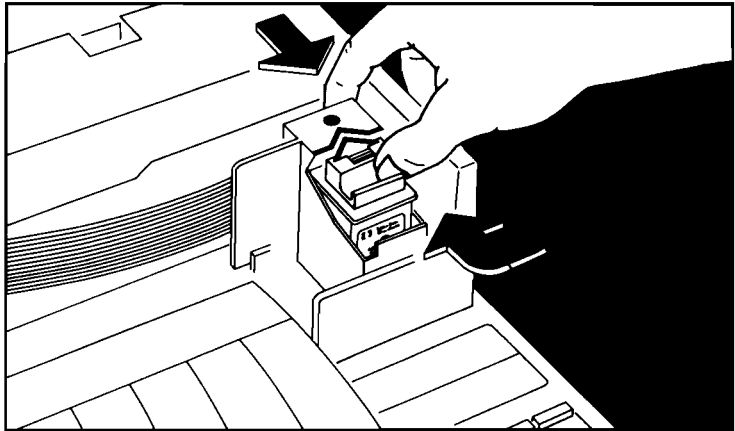
3. Gently remove the tape from the nose of the print cartridge as shown below.



4. Hold the print cartridge by the green arrow located on the cartridge top, and set the cartridge in the cradle with the green arrow on the cartridge top pointing to the green dot on the top of the cradle. See below.



5. Place your thumb on the cartridge top and your forefinger on the cradle and squeeze your thumb and forefinger together, snapping the cartridge into place. See below.



6. Close the printer's top cover and turn ON the printer.
7. Press the PRIME key to activate the print cartridge.

---

## First a Word About Paper

One of the most important things you can do to assure the best possible performance of your DeskJet printer is to select the correct paper (or envelopes).

The DeskJet printer has been designed to work well with most types of paper, although some variables in paper composition may significantly affect print quality and paper handling. Most paper manufactured for high-quality photocopying yields good results for general applications. For other applications, such as company letterhead, most cotton bond papers yield excellent results. Paper should be tested fully before it is purchased in order to ensure desirable performance.

## Copier Paper

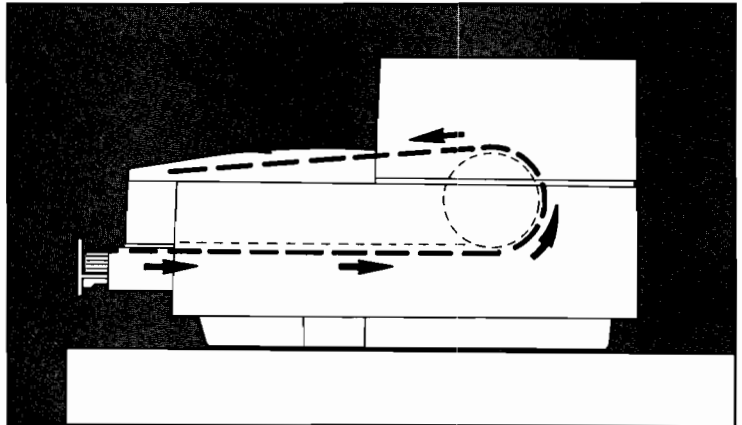
Most people aren't aware that copier paper has a "right" side and a "wrong" side. For best print quality the "right" side of copier paper should be printed upon. This "right" side isn't visible to the naked eye, so before taking copier paper from a ream to use in your DeskJet printer, check the label on the end of the ream. The "right" side will be indicated by an arrow or other symbol or wording. Remove, undisturbed from the ream, the number of sheets of copier paper you wish to use in your printer, and load them "right" side down into your printer's IN tray. You'll be pleased with the print quality you receive.



### Note

Do not use InkJet paper in your DeskJet printer.

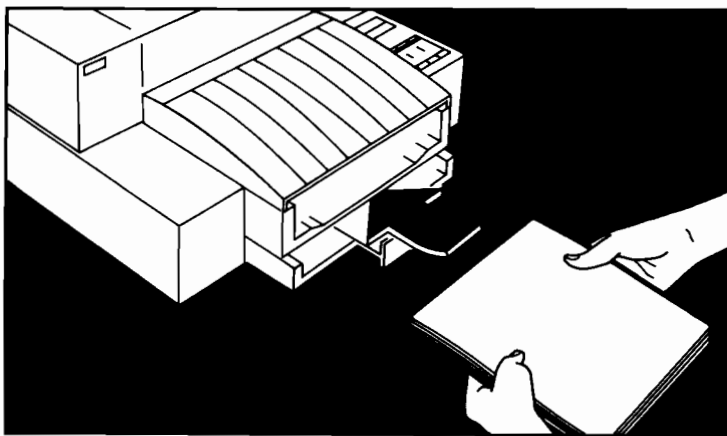
## Loading Paper— Paper Path



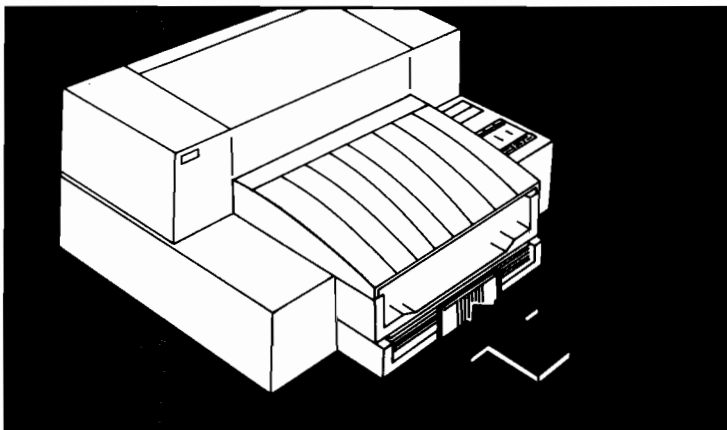
## Loading Paper

(See the discussion on Copier Paper above)

1. If you are using 8½" paper, slide the paper width adjustment lever, located below the left corner of the IN tray, to the left. If you are using A4 (European) paper, slide the paper width adjustment lever to the right.
2. Pull out the paper tray extender located on the center front edge of the IN tray. Insert a stack of paper about ½" thick (approximately 100 sheets of paper) squarely into the IN tray, right side flush against the right side of the tray. See next page.



3. Slide the paper tray extender in toward the paper to hold the paper against the printer. See below.



4. Press the FF key to advance paper into the printer.

You are ready to do the self test, page 1-17.



## Loading Letterhead Paper

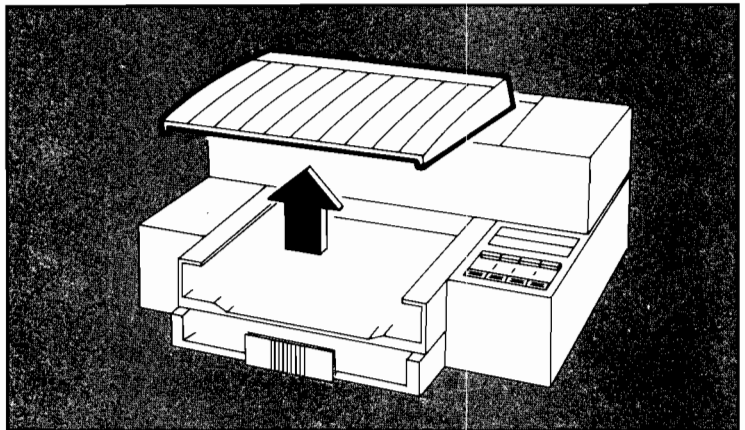
For large printing jobs requiring letterhead paper, follow the paper loading instructions below, inserting a ½" stack of letterhead paper into the printer's IN tray. For smaller jobs, set the number of sheets you want on top of the paper currently in the IN tray.

To load letterhead paper:

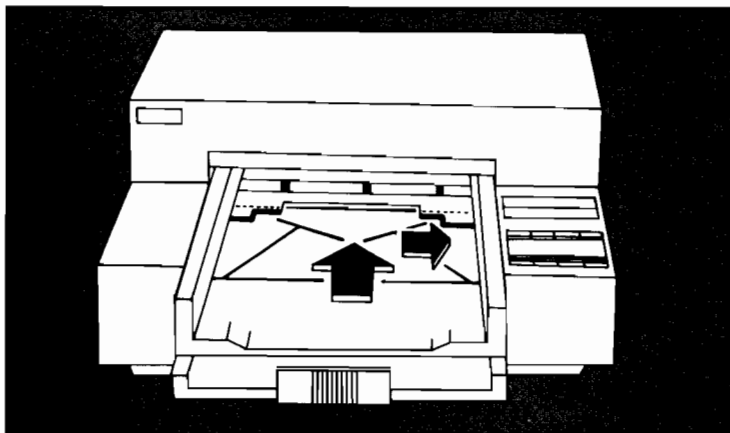
1. Pull out the paper tray extender located on the center front of the IN tray.
2. Insert letterhead paper, head first into the tray with the letterhead facing down. Make sure the right side of the paper is flush against the right side of the tray.
3. Slide the paper tray extender in toward the paper to hold the paper against the printer.
4. Press the FF key to advance paper into the printer.

## Loading Envelopes

1. Consult your software user's manual for information on using envelopes with your software package.
2. Remove the tray cover from the OUT tray and set it aside. See below.



3. Remove any paper from the OUT tray.
4. Insert an envelope head first, flap facing up, into the envelope guides on the OUT tray. With the right side of the envelope flush against the right side of the tray, push the envelope under the paper feed rollers until it stops. See below.



5. Press the UP and DOWN arrow keys simultaneously to load the envelope into the printer.

The envelope is ready to be printed upon.



### Note

---

To remove an envelope that has been loaded but not yet printed on, press the **FF** key and the envelope will be ejected.

---



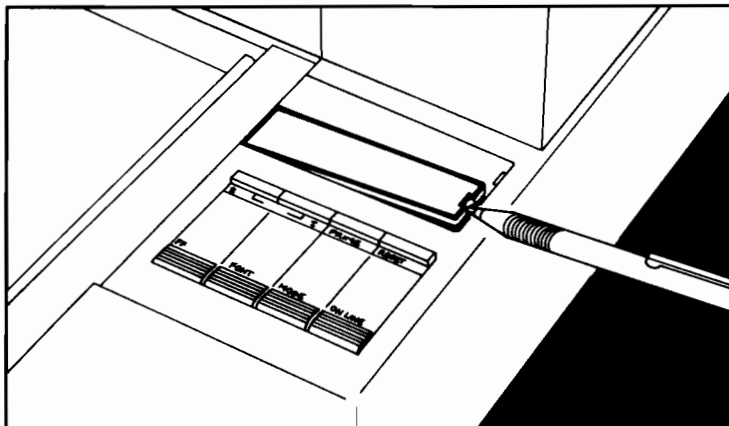
## Installing the Optional Font Cartridge

1

In addition to the Courier 10 pitch (10 cpi) font that is resident in your printer, a wide variety of fonts are available on optional font cartridges that install easily into your printer.

A summary of the fonts available on font cartridges is located in Chapter 7 and in the DeskJet Printer Font Guide that came with your printer.

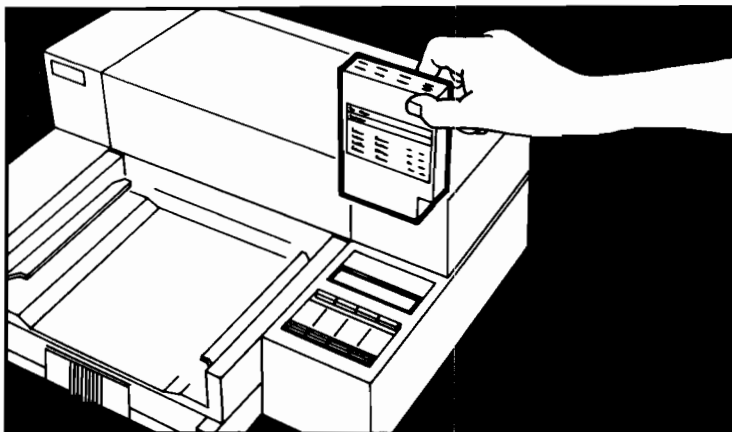
1. Begin with your printer turned OFF.
2. Remove the tray cover from the OUT tray, and set it aside.
3. Remove the cover from the font cartridge slot by using the tip of a pen or similar object to pry the cover loose. See below. Make sure that the cover doesn't flip into the printer cavity. Set the cover aside.



### Note

To prevent small objects from falling into the printer, replace the slot covers when not using a font cartridge.

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.



1

5. Push down 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 FONT light on the keypad will come ON.
7. Press the FONT key until the light on the cartridge that corresponds to the font you wish to use comes on.
8. Replace the tray cover over the OUT tray.

The font cartridge is ready for use.



**Note**

---

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

---



**Warning**

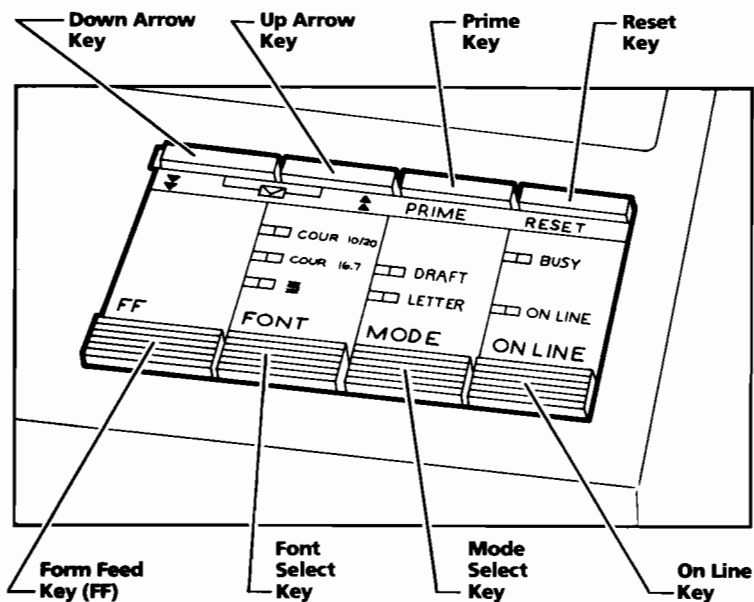
---

**DO NOT TOUCH THE CONNECTOR ON THE BOTTOM OF THE CARTRIDGE OR THE CONNECTOR IN THE PRINTER. DOING SO MAY DAMAGE BOTH UNITS.**

---

# Keypad

1



The following descriptions will help you become acquainted with your printer.



## Note

Selections made through the keypad will be lost when the printer is turned OFF.

## ON LINE

The ON LINE key has several uses.

- A. To stop printing.** Press the ON LINE key and the ON LINE light will go off. The printer will finish printing the line it is on and stop. Press the key once more to resume printing. The printer will begin printing where it left off.

- B. To restart printing after loading paper.** When the printer runs out of paper the printer detects an "error condition". This is reflected by the blinking ON LINE light. The printer will stop printing and the ON LINE light will blink. To clear this error condition, load paper in the IN tray then press the ON LINE key. This will cause paper to load and the printer will resume printing.

### **PRIME**

The PRIME key is used to activate a new print cartridge before printing. It is also used to re-activate the print cartridge if print becomes faint. Only re-activate a print cartridge at the beginning of a print job, or your current print position will be lost.

### **FONT**

The FONT key is used as a toggle key to select between the three fonts that are available in the printer. These fonts are indicated on the printer's keypad. Additional fonts are available on optional font cartridges that install easily into your printer. (See Chapter 7, Fonts, for examples of fonts available on optional cartridges.) When the printer is turned ON it will be in the Courier 10 pitch font, as indicated by the light on next to COUR10/20. When the FONT key is pressed once, the printer will be in the Courier 16.67 pitch font as indicated by the light on next to COUR 16.67. When the key is pressed again the printer will be in Courier 20 pitch font as indicated by the light on next to the burgundy rectangle.

Press the key once more to put the printer back into the Courier 10 pitch font. See pages 1-18, 1-19 for information on installing font cartridges.

**MODE**

The MODE key is used to select between the two print modes offered through the keypad: Letter Quality or Draft Quality. When the printer is turned ON the printer will be in Letter Quality mode, as indicated by the light ON next to Letter. When the key is pressed once the printer will be in Draft Quality mode as indicated by the light on next to Draft. Press the key again to put the printer back into Letter Quality mode.

Letter Quality mode = 120 cps

Draft Quality mode = 240 cps

**When to Use Letter Quality mode or Draft Quality mode**

Letter Quality mode prints at half the speed of the Draft Quality mode and uses more ink than Draft Quality mode. It is typically used for printing jobs that require a polished, business-like appearance.

Draft Quality mode prints faster and uses less ink than Letter Quality mode. Draft Quality mode is recommended for quick, everyday-printing jobs.

**FF (Form Feed)**

The FF key is used to load paper into the printer or to eject paper from the printer. It is also used to eject an envelope that has been loaded. If your printing job is complete, but the last page of the job hasn't ejected, press the FF key.

**UP arrows**

The UP arrow key is used to advance the paper in fine increments. The UP arrow key is also used to load envelopes when it and the DOWN arrow key are pressed simultaneously.

**DOWN arrows**

The DOWN arrow key is used to retract paper in fine increments. The DOWN arrow key is also used to load envelopes when it and the UP arrow key are pressed simultaneously.



**RESET**

The RESET key is used to reset the printer to its default switch settings. Data waiting to print is lost when the RESET key is pressed.

**BUSY Light**

The BUSY light indicates when the printer is receiving data to print: When the BUSY light is ON, the printer is receiving data; when the BUSY light is OFF, the printer is not receiving data. The FE, FONT, and MODE keys are inactive when the BUSY light is ON. If the printer detects a paper jam, the BUSY and ON LINE lights will flash.

**Reloading Paper**

When your printer runs out of paper the ON LINE light will blink and the printer will go "off-line". Data waiting to print is not lost when the printer goes off-line; data waiting to print is lost when the printer is turned OFF, or the RESET key is pressed.

1. Load paper as discussed on page 1-13.
2. Press the ON LINE key. The ON LINE light will stop blinking and the paper will advance.

The printer is ready to resume printing.

**Replacing the Print Cartridge**

Open the printer's top cover as described earlier in this chapter, and refer to the instructions for removing the print cartridge located on the inside of the cover. See pages 1-9 to 1-12 for instructions on installing the print cartridge.





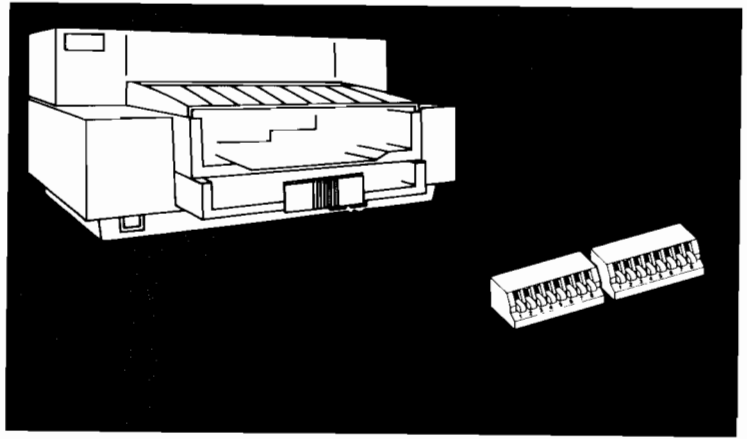


# Setting Up Your Computer or Terminal

---

# 2

This chapter contains hardware application notes that will help you set up your DeskJet printer with your computer or terminal.



## Setting Up Your PC or Terminal

The following application notes describe how to set up your personal computer or terminal with a DeskJet printer.

These notes describe the correct set up when the DeskJet printer is the "primary" and only printer on your system. Most of the personal computers discussed allow connection to more than one printer at a time. If you are using more than one printer, use the following notes for the data communications and printer set up, and refer to your PC or terminal documentation to determine the correct PC set up.

If you are using a system that is not covered by these notes, follow the set up instructions provided in your system documentation for your computer or terminal, then refer to Chapter 5, Data Communications, in this manual for information on data communications and configurations.

Set up information is provided for the following computers and terminals.

- HP Vectra PC
- HP Touchscreen/Touchscreen II/150
- HP Portable
- HP Portable Vectra CS
- HP2392A and HP2394A, HP700/92 and HP 700/94 Terminals
- HP2393A and HP2397A
- HP700/41 Terminal
- IBM PC Family and Compatibles
- IBM PS/2 Family
- IBM Convertible
- Apple IIc
- Apple IIe, Apple II+
- Apple IIgs

---

# HP Vectra PC To The HP DeskJet Printer

## HOST SET UP:

---

Follow the instructions below for the type of interface you will be using with your DeskJet printer.

### Parallel Interface:

When using the HP24540A Serial/Parallel interface card—  
Cable: HP24542D.

From the DOS prompt (A> or C>) enter the following command:

\*> **MODE LPT1:,,P** then press the **Enter** key.

This command sets the parallel interface to continuous retry on all timeouts.

### Serial Interface:

If using the HP24540A—Serial/Parallel interface card—  
Cable: HP24542G.

If using the HP24541A Dual Serial interface card—  
Cable: For port 1 (9 pin connector) use HP24542G cable.  
For port 2 (25 pin connector) use HP13242G cable or HP17255M.

From the DOS prompt (A> or C>) enter the following commands:

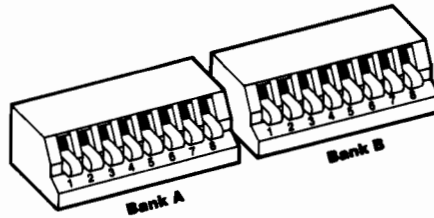
- \*1. **MODE COM1:96,N,8,1,P** then press the **Enter** key.  
This command sets the serial communications at 9600 baud, no parity, 8 data bits, 1 stop bit and continuous retry on all timeouts.
- \*2. **MODE LPT1: = COM1** then press the **Enter** key.  
This command directs the primary communication to serial port 1.

If your printer is connected to the second serial port, change COM1 to COM2 in the two DOS commands above.

\*To eliminate the need to type the MODE commands every time your PC is turned on, create an AUTOEXEC.BAT batch file to AUTOMATICALLY EXECUTE them. Refer to your DOS manual for more information on the MODE command and how to create BATch files.



## PRINTER SETTINGS:



## TO VERIFY:

To verify that your printer is connected properly, type something on your screen and copy it to your printer by doing the following:

1. Make sure that both the printer and PC are ON.
2. Make sure that the correct MODE command(s) have been executed.
3. Hold down the **Shift** key and press the **PrtSc** key.

All text on the screen will print.

# HP Touchscreen/Touchscreen II/ HP 150 To The HP DeskJet Printer

## HOST SET UP:

**Cable: HP13242G or 17255M**

There are four major steps required to set up the HP Touchscreen/HP150 for use with the DeskJet printer. These steps are the MS-DOS Device Configuration, the Device Control Configuration, the Port 2 Configuration, and the Terminal Configuration.

## MS-DOS CONFIGURATION

From P.A.M.

1. Select **DEVICE CONFIG** then **Start Applic** (f1). The menu below will appear.
2. Set the values on your PC to match those shown below. This will establish the DeskJet printer as the PRN device for the PC.

MS-DOS Device	Main	Active Values		
System Devices				
	Print Wheel	Interface Address		
PRN:	Interface	Model	PLT:	
LST:	Port2	SPECIAL	COM1:	
AUX:			COM2:	

Only the fields associated with the set up of the DeskJet printer have values displayed. Refer to your HP Touchscreen/150 Personal Computer Manual for information on changing the values in the fields.

3. Once the changes, if any, have been made, save the information by pressing the **Save Config** key (f4). Press **Exit Config** (f8) to return to P.A.M.

## DEVICE CONTROL CONFIGURATION

From P.A.M.

1. Press the **Terminal** key (f6). The HP Touchscreen/150 enters the Terminal Mode. Press the **User System** key which displays the Main Terminal Keys. Next, press **device control** (f1) followed by "to" devices (f3).

2. Select the appropriate "to" device by pressing **Serial Device** (f2). The selected field will display an asterisk (\*). Ensure that the only field that displays an asterisk (\*) is the SERIAL DEVICE, all others must be off.
3. Press the **User System** key.

## PORT 2 CONFIGURATION

Start from the Main Terminal keys.

1. Press **config keys** (f8), then **port2 config** (f4). The menu below will be displayed.
2. Set the values on your display to match those shown below.

### Terminal Config. Screen

#### FULL DUPLEX HARDWIRED Port 2

BaudRate	<b>19.2K</b>	Parity	<b>None</b>	DataBits	<b>8</b>	Clock	<b>INT</b>
Asterisk	<b>Off</b>	Check Parity	<b>No</b>	Stop Bits	<b>1</b>	EnqAck	<b>No</b>
TR(CD)	<b>Hi</b>			SR(CH)	<b>Lo</b>		
RecvPace	<b>None</b>			SRRXmit	<b>No</b>	RR(CF)Recv	<b>No</b>
XmitPace	<b>Xon/Xoff</b>			SRRInvert	<b>No</b>	CS(CB)Xmit	<b>No</b>
						DM(CC)Xmit	<b>No</b>

3. Once the changes have been made, save the Port 2 Configuration by pressing **Save Config** (f1). This will automatically return the HP Touchscreen/150 to the Main Terminal keys.

## GLOBAL CONFIGURATION

Start from the Main Terminal keys.

1. Press **config keys** (f8), then **global config** (f1). Make sure that the Remote/Serial Dev field displays PORT1/PORT2.
2. Once the changes have been made, save the global configuration by pressing **SAVE CONFIG** (f1).

## TERMINAL CONFIGURATION Required for HP Line Draw

To print using the HP Line Draw Character Set, a DeskJet font cartridge is required. Font Cartridges with HP Part Numbers 22706A, B, C & M all contain line draw characters. With any of these cartridges installed, the following terminal configuration will allow these "special" characters to be printed.

Start from the Main Terminal keys:

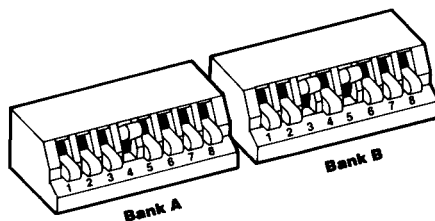
1. Press **config keys** (f8), then **terminal config** (f5).

2. Set the values on your screen to match those shown below. These values must be set to properly print HP Line Draw Characters. (All of the other fields displayed perform other functions.)

ASCII 8 Bits    **Yes**  
ESC Xfer (N)   **Yes**  
Alternate Set   **Line(B)**

3. Once these changes have been made, save the Terminal Configuration by pressing **Save Config** (f1). This will automatically return the HP Touchscreen/150 to the Main Terminal keys.
4. Return to P.A.M. by holding down the **Shift** key and pressing the **Stop** key.

## PRINTER SETTINGS:



These switch settings select the Roman8 character set, Terminal Mode enabled, and 19.2K Baud.

## TO VERIFY:

From P.A.M.

1. Select **MSDOS COMMANDS**, then press **Start Applic** (f1).
2. Once the **A >** system prompt appears, type **dir > prn**, then press the **Return** key. This command will begin printing the directory of disc drive A.
3. Type **exit** and press **Return**. This will exit MS-DOS and return you to P.A.M.

---

# HP Portable To The HP DeskJet Printer

## HOST SET UP:

**Cable: HP92221P**

## Datacom Set Up:

From P.A.M., press the **Datacom Config** key and ensure that the following fields in the Datacom Configuration menu reflect the values shown below. Press **Exit Config** after the changes have been made.

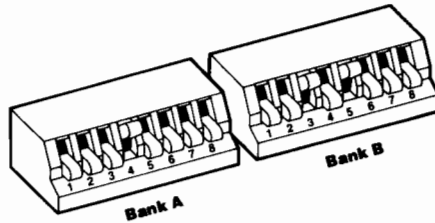
Serial port:	RS-232
Serial baud rate:	19200
Serial word length:	8
Serial stop bits:	1
Serial parity:	None
Serial XON/XOFF pacing:	On
Serial CTS line:	Ignore
Serial DSR line:	Ignore
Serial DCD line:	Ignore

## System Set Up:

From P.A.M., press the **System Config** key and ensure that the following fields in the System Configuration Menu reflect the values shown below. Press **Exit Config** after the changes have been made.

Printer:	HP Graphics/Alpha
Printer Interface:	Serial
Print Pitch:	No config
Print line spacing:	No config
Printer Skip perf:	No config

## PRINTER SETTINGS:



(Make sure the printer is set to 19.2K baud [switch B5 up].)

## TO VERIFY:

2

From P.A.M.:

1. Select **DOS Commands** using the **TAB** key, then press **Start applic (f1)**.
2. Once the **A >** system prompt appears, type **dir > prn**, then press the **Enter** key. This will cause the directory of internal disc A to print.
3. Type **exit**, then press the **Enter** key to return to the P.A.M. screen.

---

# HP Portable Vectra CS To The HP DeskJet Printer

## HOST SET UP:

Follow the instructions below for the type of interface you will be using with your DeskJet printer.

### Parallel Interface:

Use Cable: HP24542D.

From the DOS prompt enter the following commands:

**MODE LPT1:,,P** then press the **Enter** key.

This command sets the parallel interface to continuous retry on all timeouts.

### Serial Interface:

When using HP D1004A Dual Serial Interface Card:

CABLE: For port 1 (9 pin connector) use HP24542G cable.

For port 2 (25 pin connector) use HP13242G cable.

From the DOS prompt enter the following commands:

■ **MODE COM1:96,N,8,1,P** then press the **Enter** key.

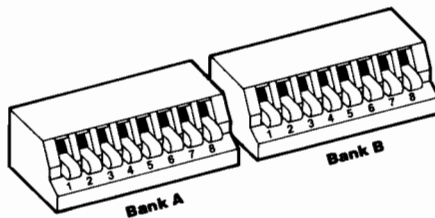
This command sets the serial interface to 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts.

■ **MODE LPT1:=COM1** then press the **Enter** key.

This command directs the primary printer communication to the first serial port.

Refer to your DOS manual for more information on the MODE command.

## PRINTER SETTINGS:



## TO VERIFY:

To verify that your printer is connected properly, type something on your screen and copy it to your printer by doing the following:

1. Make sure that the printer and PC are ON.
2. If you are using the serial interface, make sure that the above MODE commands have been executed.
3. Hold down the **Shift** key and press the **PrtSc** key.

All text on the screen will print.



---

# HP2392A, HP2394A, HP700/92 and HP 700/94 Terminals To The HP DeskJet Printer

## HOST SET UP:

The following instructions provide the necessary information to set up a DeskJet printer and either an HP2392A or HP2394A terminal equipped with a parallel or RS-232-C accessory datacom module, or an HP700/92 or HP 700/94 Terminal using the standard RS-232-C port.

### Parallel Cable: HP40242D

No change to the terminal's external device configuration is required when using the parallel interface.

### Serial Cable: HP40242G

To configure the terminal's port 2 to work with your DeskJet printer, press the **User System** key. Next, press the **config keys** (f8) and the **ext dev config** key (f4). The External Device Configuration Menu will be displayed. Ensure that your settings reflect those shown below. Be sure to exit this display by pressing **Save Config** (f1).

---

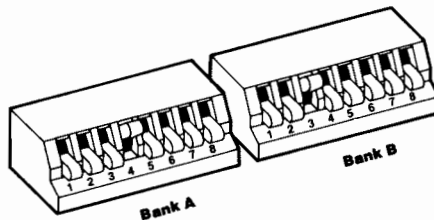
#### EXTERNAL DEVICE CONFIGURATION

BaudRate	<b>9600 *</b>	Parity/DataBits	<b>None/8</b>	PrinterNulls	<b>000</b>
PrinterType	<b>ROMAN8</b>				
XmitPace	<b>Xon/Xoff</b>	SRRXmit	<b>No</b>	SRRInvert	<b>No</b>
		CS(CB)Xmit	<b>No</b>		

---

\*Performance can be improved when using the HP700/92 or HP700/94 by setting the baud rate to 19200 in the external device configuration menu above and setting switch B5 on the printer in the UP position.

## PRINTER SETTINGS:



These switch settings select the Roman8 character set, Terminal Mode enabled, and 9600 Baud.

## TO VERIFY:

To verify that your printer is connected properly, type something on your screen and copy it to your printer by doing the following:

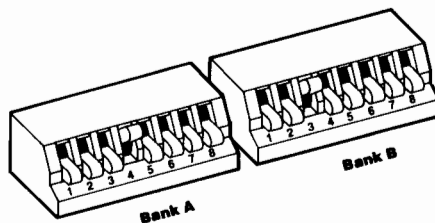
1. Press the **User System** key, then press **Device Control** (f1). Press to **Ext Dev** (f2) until the asterisk (\*) appears.
2. Press the **modes** key (f4).
3. Press **REMOTE MODE** key (f4) until the asterisk (\*) disappears from the **REMOTE MODE** label on the screen. This selects Local Mode.
4. Type **This is a test!** and press the **Enter** key.
5. Hold down the **Shift** key and press the **Print Enter** key. **This is a test!** will print.
6. Press **REMOTE MODE** (f4) until an asterisk (\*) appears. This will return the terminal to the Remote Mode.

## HP Line Draw

To print using the HP Line Draw Character Set a DeskJet font cartridge is required. DeskJet Font Cartridges HP Part #22706A, B, C and M all contain the necessary line draw characters. With any of these cartridges installed, the terminal configuration will allow these "special" characters to be printed using DeskJet.



## PRINTER SETTINGS:



## TO VERIFY:

2

To verify that your printer is connected properly, type something on your screen and copy it to your printer by doing the following:

1. Press the **User System** key.
2. Press the **modes** key (f4).
3. Press **REMOTE MODE** key (f4) until the asterisk (\*) disappears from the **REMOTE MODE** label on the screen. This selects Local Mode.
4. Type **This is a test!** and press the **Enter** key.
5. Hold down the **Shift** key and press the **Print Enter** key. **This is a test!** will print.
6. Press **REMOTE MODE** (f4) until the asterisk (\*) reappears in the **REMOTE MODE** label. Press the **User System** key to return the terminal to normal operation.

## HP Line Draw

To print using the HP Line Draw Character Set, a DeskJet font cartridge is required. The DeskJet Font Cartridges B, C, and M, HP P/N 22706A, all contain the necessary line draw characters. With any of these cartridges installed, the terminal configuration will allow these "special" characters to be printed using the DeskJet printer.

---

# HP700/41 Terminal To The HP DeskJet Printer

## HOST SET UP:

The following instructions provide the necessary information to set up a DeskJet printer and an HP700/41 Terminal using the standard RS-232 port.

### Cable: HP40242G

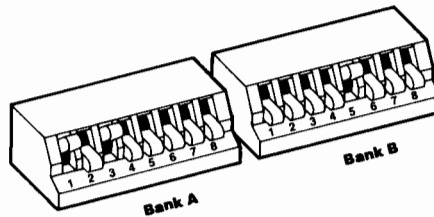
To configure the terminal's port 2 to work with your DeskJet printer, hold down the **Shift** key and press the **SETUP** key. Then display the MAIN and PRINTER PORT Menu by pressing the **DATA COMM SETUP** (f2). Ensure that the Printer Port settings reflect those shown below. Be sure to save these settings before exiting by pressing **SAVE FOR POWER ON** (f1).

---

PRINTER PORT				
Baud Rate	Handshake	Data Length	Parity	Print Mode
F <b>19.2K</b>	G <b>DTR</b>	H <b>8 Bits</b>	I <b>None</b>	J <b>Off</b>

---

## PRINTER SETTINGS:



(These switch settings select the ASCII character set, serial datacom, 19.2K Baud, 8 bits, 1 stop bit, no parity.)

## TO VERIFY:

To verify that your printer is connected properly, type something on your screen and copy it to your printer by doing the following:

1. Press the **SETUP** key while holding down the **Shift** key.
2. Press the **TERMINAL SETUP** key (f1).
3. Move the cursor to the **ON LINE** field labeled E and set this field to **OFF** to select local mode.
4. Press the **SETUP** key to exit set up mode.
5. Type **This is a test!** and press the **Enter** key.
6. Hold down the **Shift** key and press the **PRINT PG / COPY PR** key. **This is a test!** will print.
7. Repeat steps 1 and 2 above, and then return the **ON LINE** field to **ON**.

---

# IBM PC Family and Compatibles To The DeskJet Printer

## HOST SET UP:

Follow the instructions below for the type of interface you will be using with your DeskJet printer.

### Parallel Interface:

Use Cable: HP24542D.

From the DOS prompt enter the following command:

**MODE LPT1:,,P** then press the **Enter** key.

This command sets the parallel interface to continuous retry on all timeouts.

### Serial Interface:

If using the IBM Asynchronous Communications Adapter—  
Cable: HP13242H, or HP17255D (both are 25 pin connectors).

If using the IBM PC AT Serial/Parallel Adapter—  
Cable: HP24542G (9 pin connector).

From the DOS prompt enter the following commands:

**1\*. MODE COM1:96,N,8,1,P** then press the **Enter** key.

This command sets the serial interface to 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts.

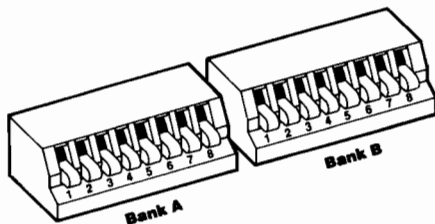
**2\*. MODE LPT1:=COM1** then press the **Enter** key.

This command directs the primary printer communication to the first serial port.

\*To eliminate the need to type the MODE commands every time your PC is turned on, create an AUTOEXEC.BAT batch file to AUTOMATICALLY EXECUTE them. Refer to your DOS manual for more information on the MODE command and how to create BATCH files.

If your printer is connected to the second serial port, change COM1 to COM2 in the two DOS commands above.

## PRINTER SETTINGS:



## TO VERIFY:

2

To verify that your printer is connected properly, type something on your screen and copy it to your printer by doing the following:

1. Make sure that the printer and PC are ON.
2. Make sure that the correct MODE command(s) have been executed.
3. Hold down the **Shift** key and press the **PrtSc** key.

All text on the screen will print.



---

# IBM PS/2 Family To The HP DeskJet Printer

## HOST SET UP:

Follow the instructions below for the type of interface you will be using with your DeskJet printer.

### Parallel Interface:

Use Cable: HP24542D.

From the DOS prompt enter the following command:

**MODE LPT1:,,P** then press the **Enter** key. This command sets the parallel interface to continuous retry on all timeouts.

### Serial Interface:

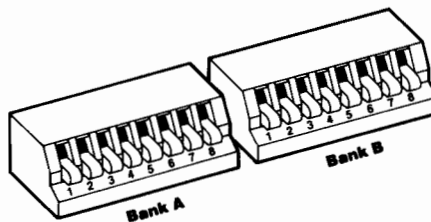
Use Cable: HP13242H, or HP17255D.

From the DOS prompt enter the following commands:

1. **MODE COM1:96,N,8,1,P** then press the **Enter** key. This command sets the serial interface to 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts.
2. **MODE LPT1:=COM1** then press the **Enter** key. This command directs the primary printer communication to the first serial port.

Refer to your DOS manual for more information on the MODE command.

## PRINTER SETTINGS:



## TO VERIFY:

To verify that your printer is connected properly, type something on your screen and copy it to your printer by doing the following:

1. Make sure that the printer and PC are ON.
2. Make sure that the correct MODE command(s) have been executed.
3. Hold down the **Shift** key and press the **PrtSc** key.

All text on the screen will print.

---

# IBM Convertible PC To The HP DeskJet Printer

## HOST SET UP:

Follow the instructions below for the type of interface you will be using with your DeskJet printer.

### Parallel Interface:

Use Cable: HP24542D.

From the DOS prompt (A> or B>) enter the following command:

**\*MODE LPT1:,,P** then press the **Enter** key.

This command sets the parallel interface to continuous retry on all timeouts.

### Serial Interface:

Use Cable: HP13242H, or HP17255D.

From the DOS prompt enter the following commands:

**1\*. MODE COM1:96,N,8,1,P** then press the **Enter** key.

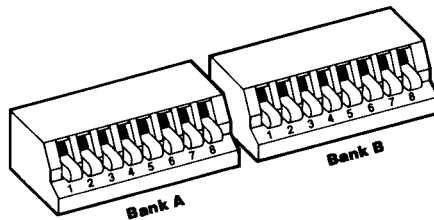
This command sets the serial interface to 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts.

**2\*. MODE LPT1:=COM1** then press the **Enter** key.

This command directs the primary printer communication to the first serial port.

\*To eliminate the need to type the MODE commands every time your PC is turned on, create an AUTOEXEC.BAT batch file to AUTOMATICALLY EXECUTE them. Refer to your DOS manual for more information on the MODE command and how to create BATCh files.

## PRINTER SETTINGS:



## TO VERIFY:

To verify that your printer is connected properly, type something on your screen and copy it to your printer by doing the following:

1. Make sure that the printer and PC are ON.
2. Make sure that the correct MODE command(s) have been executed.
3. Hold down the **Shift** key and press the **PrtSc** key.

All text on the screen will print.

---

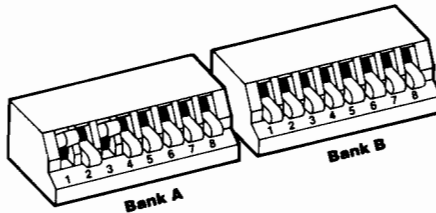
## Apple IIc To The HP DeskJet Printer

### HOST SET UP:

Most application programs for the Apple IIc use EPSON printer drivers. To use your HP DeskJet printer with an Apple IIc requires a Hewlett-Packard "EPSON FX-80 Printer Emulation Cartridge", HP P/N 22707E. This cartridge is installed in one of the two cartridge slots on the printer.

**Cable: HP92219N Serial Printer Cable, or Apple IIc ImageWriter Cable, Apple P/N A2C4515 (590-0191).**

### PRINTER SETTINGS:



(These switch settings select the ASCII Character Set, 9600 Baud, 1 stop bit, 8 data bits, and no parity.)

## TO VERIFY:

The following BASIC program will verify proper connection between the computer and printer. This program will run properly only if DOS is loaded. Type:

```
10 REM CONNECTION VERIFICATION
20 PRINT CHR$(4);"PR#1"
30 FOR I=0 TO 10
40 FOR J=33+I TO 111+I
50 PRINT CHR$(J);
60 NEXT J
70 PRINT
80 NEXT I
90 PRINT
100 PRINT CHR$(4);"PR#0"
110 END
```

Type RUN and press Enter. The following will print:

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnop
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnop
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnop
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopq
r%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrs
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrst
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstu
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuv
)()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvw
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxy
+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxy
```

2

---

## Apple IIe/II+ To The HP DeskJet Printer

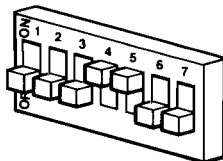
### HOST SET UP:

Most application programs for the Apple IIe and II+ use EPSON printer drivers. To use your HP DeskJet printer with an Apple IIe or II+ requires a Hewlett-Packard "EPSON FX-80 Printer Emulation Cartridge", HP P/N 22707E. This cartridge is installed in one of the two cartridge slots on the printer.

### Apple II Parallel Interface:

**Cable: Apple parallel printer interface cable,  
Apple P/N 590-0042, or equivalent.**

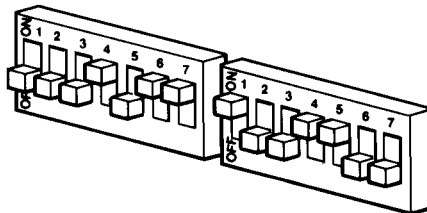
Set the configuration switches on the Parallel Interface Card to the illustration below, and install the board into slot 1 as instructed in the Parallel Interface Card Installation and Operating Manual.



### Apple Super Serial Interface:

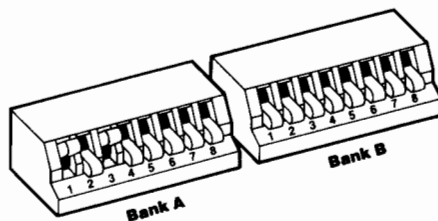
**Cable: HP 17355M Serial Printer Cable or Apple Printer Interface  
Cable, Apple P/N A2C0352 (590-0037).**

Set the configuration switches on the Super Serial Card to match the following illustration and install the card in slot 1 as instructed in the Super Serial Card Installation and Operating Manual.



(These switch settings select 9600 Baud, 1 stop bit, 7 data bits, and no parity.)

## PRINTER SETTINGS:



(These switch settings select the ASCII Character Set, 9600 Baud, 1 stop bit, 8 data bits, and no parity.)

2

## TO VERIFY:

The following BASIC program will verify proper connection between the computer and printer. This program will run properly only if DOS is loaded. Type:

```
10 REM CONNECTION VERIFICATION
20 PRINT CHR$(4);"PR#1"
30 FOR I=0 TO 10
40 FOR J=33+I TO 111+I
50 PRINT CHR$(J);
60 NEXT J
70 PRINT
80 NEXT I
90 PRINT
100 PRINT CHR$(4);"PR#0"
110 END
```

Type **RUN** and press **ENTER**. The following will print:

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnop
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnop
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopq
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqr
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrs
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrst
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstu
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuv
)()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuv
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvw
+,.-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxy
```



---

## Apple IIgs To The HP DeskJet Printer

### HOST SET UP:

Most application programs for the Apple IIgs use EPSON printer drivers. To use your HP DeskJet printer with an Apple IIgs requires an HP22707E EPSON FX-80 Printer Emulation Cartridge. This cartridge is installed in one of the two cartridge slots on the printer.

### Cable:

Single Cable Solution:

Apple IIe Modem-8 Cable, Apple P/N A2C0311 (590-0331)

Dual Cable Solution:

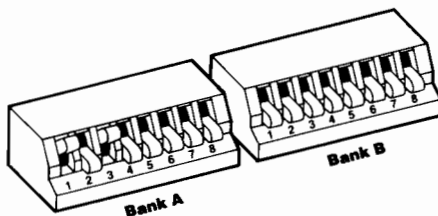
Apple ImageWriter Cable, Apple P/N M0150 (590-0169), and  
Apple Peripheral Adapter Cable, Apple P/N M0189 (590-0341).

or

Hewlett-Packard equivalent cable, HP P/N 92219M, and  
Apple Peripheral Adapter Cable, Apple P/N M0189 (590-0341).

The Apple IIgs will also accept interface cards made for the Apple IIe. These interface cards are installed in internal slots just as they are in the Apple IIe. Refer to the Apple IIe application note for information on how to configure these interface cards. Once installed, the slots are configured using the Apple IIgs Control Panel Program. Refer to your Apple IIgs Owner's Guide.

### PRINTER SETTINGS:



(These switch settings select the ASCII Character Set, 9600 Baud, 1 stop bit, 8 data bits, and no parity.)

## TO VERIFY:

The following BASIC program will verify proper connection between the computer and printer. This program will run properly only if DOS is loaded. Type:

```
10 REM CONNECTION VERIFICATION
20 PRINT CHR$(4);"PR#1"
30 FOR I=0 TO 10
40 FOR J=33+I TO 111+I
50 PRINT CHR$(J);
60 NEXT J
70 PRINT
80 NEXT I
90 PRINT
100 PRINT CHR$(4);"PR#0"
110 END
```

Type RUN and press Enter. The following will print:

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnop
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnop
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnopq
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnopqr
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrs
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrst
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnoprstu
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnoprstuv
)+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnoprstuvw
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnoprstuvwxy
+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnoprstuvwxy
```















# Setting Up Your Software and Printer **3**

## **Important Software Information!!**

**(Please read this section before using any software with your DeskJet printer)**

### **Getting Your Printer to Work with Your Software**

We've got you covered! Hewlett-Packard gives you comprehensive software support to meet your printing needs. The following section describes:

- Getting your printer to work with your software
- What a printer driver is
- How and where to get a DeskJet printer driver for your software package
- What to do if a DeskJet printer driver isn't available for your software package

The steps outlined below are listed in preferential order, to get you started now. For example, using the DeskJet printer driver provided with your software is the best choice. The next best choice is to follow the Software Application Notes that follow these paragraphs. Using the Epson FX-80 driver is the least preferable choice.

- **Check your software for DeskJet printer support**
- **Use the Application Notes that follow this section (U.S.A. only)**
- **Use the Accessory Cartridge for Emulating the Epson FX-80 Printer**

### **1. Check your software for DeskJet printer support**

Install your software application per the instructions supplied by the software vendor. If your software application lists a DeskJet printer driver, your application will work by selecting that driver. (If you are unfamiliar with the term “driver”, see the section entitled “What a Printer Driver Is” in the following discussion.) If a DeskJet printer driver does not exist in your software application, go to step 2. (NOTE: You may wish to contact the software vendor to see if they have recently supported the DeskJet printer. See page 3-107 for a list of major software vendors.)



#### **Note**

---

Software packages are being continually revised. If you wish to receive the latest revision which will in most cases include support for the DeskJet printer, contact the software vendor whose product you are interested in. See page 3-107 for a list of major software vendors.

---

### **2. Use the Application Notes that follow this section (U.S.A. only)**

In some respects, the DeskJet printer is very similar to the HP LaserJet printer. These similarities allow you to use some LaserJet printer drivers with your DeskJet printer. The Application Notes show you how to use the LaserJet drivers for a specific application. NOTE: Some DeskJet printer features are not supported on LaserJet drivers. Refer to the Software Application Notes that follow for further details. If your software application doesn't support the HP DeskJet or HP LaserJet printers, go to step 3.

### **3. Use the Accessory Cartridge for Emulating the Epson FX-80 Printer**

If you have the HP22707E Epson FX-80 Emulation Cartridge you can select an Epson FX-80 printer driver in your software application. (An emulation cartridge is simply a means of making your DeskJet printer act like another printer.) The Epson FX-80 Emulation Cartridge will make your DeskJet printer act like an Epson FX-80 printer. NOTE: You will be limited to the features available on the Epson FX-80 printer. (To order from Hewlett-Packard, call 1-800-538-8787. Your order will be filled within 24 hrs.)

## **What a Printer Driver Is**

To enable the DeskJet printer to work with your software packages, a Printer Driver must be used. A Printer Driver is a program which allows the software to print to and recognize a specific printer. These Printer Driver programs are not only specific to a type of printer, but may also be unique for a particular font or feature. For example, MicroSoft® Word supports a large number of printers and plotters. MS® Word Drivers can be found on the MS® Word diskette as ".PRD" files. (Some software packages may use a single file that contains information on several printers. In these cases we suggest you consult the software package's Reference Manual to see if the DeskJet printer is listed.) Besides being unique to a particular printer or plotter, the software package may have special drivers to access different font attributes or character sets. Printer Drivers written specifically for the DeskJet printer are the only means for getting full feature support from your printer.

Alternatives to using a unique DeskJet "Printer Driver" do exist. However, you will not receive the highest level of performance from your software package and printer when using other printer drivers. Therefore, we recommend that you use a DeskJet unique driver.

## **How and Where To Get a DeskJet Printer Driver for Your Software Package**

When installing, changing, or modifying your software to work with the DeskJet printer, check to see if the DeskJet printer is listed in their directory of printers. If it is, select it. If your software does not list the DeskJet printer (doesn't provide a printer driver program/file), contact the software vendor to see if they have recently supported the DeskJet printer.

3



## **What to Do If a DeskJet Printer Driver Isn't Available for Your Software Package**

The Application Notes supplied in this chapter of the Owner's Manual provide you with a method for using your software with DeskJet unique OR LaserJet printer drivers. If a DeskJet printer driver is not found in your software package you may be able to use a LaserJet driver instead. LaserJet printer drivers may not provide the best feature performance (i.e., proportional spaced print is not supported in most applications), but do support most features. Each Application Note provides a Printer Feature Table describing the printer attributes you can access. If a LaserJet printer driver isn't available in your particular software package, you may select an Epson FX-80 printer driver when using the HP22707E Epson Emulation Cartridge.

---

## Notice

The information contained in the application notes that follow is intended for informational purposes only and is subject to change without notice. Please refer all questions regarding the operation of any application to your software vendor. While every precaution has been taken in the preparation of this material, **Hewlett-Packard makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.** Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

## Software Packages

Setup information is provided for the following software packages on the **HP Vectra, IBM PC Family and Compatibles** (U.S.A. only).

- |             |  |              |  |
|-------------|--|--------------|--|
| <b>3-8</b>  | AdvanceWrite III version F.01.03                                     | <b>3-56</b>  | MultiMate Advantage version 3.6 Rev. B |
| <b>3-12</b> | Chart-Master version 6.2   | <b>3-60</b>  | <i>pfs</i> :First Choice version 1.0   |
| <b>3-14</b> | Charting Gallery version A.01.01 and Drawing Gallery version A.01.00 | <b>3-62</b>  | <i>pfs</i> :Write revision C           |
| <b>3-17</b> | DisplayWrite   | <b>3-65</b>  | Samna Word III version 3.0             |
| <b>3-18</b> | Executive Memomaker version A.02.00                                  | <b>3-68</b>  | Samna Word IV version 1.0              |
| <b>3-20</b> | Framework II versions 1.0, 1.1                                       | <b>3-71</b>  | Sideways                               |
| <b>3-22</b> | Freelance version 1.0 Rev. C   | <b>3-72</b>  | SuperCalc3 version 1.0                 |
| <b>3-24</b> | Freelance Plus version 2.0   | <b>3-75</b>  | SuperCalc4 version 1.0, 1.1            |
| <b>3-26</b> | Harvard Presentation Graphics version A.02                           | <b>3-78</b>  | Symphony version 1.0                   |
| <b>3-28</b> | HPWORD/PC version A.02.00  | <b>3-82</b>  | Symphony version 1.1, 1.2              |
| <b>3-31</b> | Lotus 1-2-3 version 1A   | <b>3-87</b>  | Volkswriter 3 release 1.0              |
| <b>3-34</b> | Lotus 1-2-3 version 2.0, 2.01  | <b>3-90</b>  | WordPerfect versions 4.1, 4.2          |
| <b>3-39</b> | Lotus Manuscript release 1.0   | <b>3-94</b>  | WordStar versions 3.30 and 3.31        |
| <b>3-42</b> | Microsoft Chart version 2.02   | <b>3-97</b>  | WordStar Professional version 4.0      |
| <b>3-45</b> | Microsoft Windows version 1.01, 1.03                                 | <b>3-101</b> | WordStar 2000 version 2.0              |
| <b>3-50</b> | Microsoft Word versions 2.0, 3.0                                     | <b>3-105</b> | Other Software Applications            |
| <b>3-53</b> | MultiMate version 3.3  | <b>3-107</b> | List of Major Software Companies       |

## Using AdvanceWrite III version F.01.03

---

### On the HP Vectra, and the IBM PC Family and Compatibles

#### Introduction

Before proceeding with Setting Up AdvanceWrite:

1. Check the AdvanceWrite manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up AdvanceWrite to work with your DeskJet printer. If it's not supported, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with AdvanceWrite.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your AdvanceWrite manual.



## Setting Up AdvanceWrite

If you are installing AdvanceWrite, the INSTALL program allows you to select the printer you will be using. Proceed with the INSTALL program until a list of printers is displayed and follow the steps below.

If AdvanceWrite is already installed, the CHANGE program (provided on either the AdvanceWrite Printer Disc or the LaserJet Printer Disc) will set up AdvanceWrite to work with another printer of your choice. To begin the CHANGE program, insert the Printer Disc and type **CHANGE** at the DOS prompt.



### Note

---

For AdvanceWrite version E01.03, the HP LaserJet printer files are located on the LASERJET PRINTER DISC. Use this disc when asked to insert the Printer Disc.

---

As the program begins, you will be asked questions concerning your system. These questions deal with the location of the printer disc and the AdvanceWrite program files. Enter the letter of the drive that contains the printer disc (A or B) and the letter of the drive that contains the AdvanceWrite Program Disc (A, B, or C). Next, indicate whether or not the installed program is on a flexible disc and press the **Enter** key. A list of printers will be displayed.

Follow these steps:

1. Tab to **LaserJet+** until an **X** appears in the parentheses, then press the **Enter** key.
2. Answer the next question about your printer interface with either a **P** (Parallel) or **S** (Serial), then press the **Enter** key.
3. Next, there will be a display of available printwheel/ fonts to choose from.

4. Select up to six fonts which correspond to the DeskJet printer cartridge you will be using. If you will not be using all of the cartridges, just select those you will be using and ignore the rest. (See the Printer Features Table in this Application Note for LaserJet font names and available features).
5. Press the **Enter** key.

Next, you will be asked if you are using more than one printer. AdvanceWrite allows you to install more than one printer; each printer program is kept in a separate directory on your AdvanceWrite Program Disc. To ensure support for other currently installed printers or for printers you may want to install, enter **Y** to indicate you are using more than one printer.

The name of the directory where your printer program resides will be displayed. AdvanceWrite uses the directory name to find the printer program to be used with your printer. Press the **Enter** key to accept the given directory name. This directory name must be inserted into the Printer Directory field of AdvanceWrite's Default Page. If you are unfamiliar with the Default Page, refer to the Default Page section in your Using AdvanceWrite manual.

## Using Printer Features

The multiple columns feature is not supported.

It is recommended you do not use more than one DeskJet printer cartridge in the printer at a time.

Font selection within AdvanceWrite is limited to six fonts per printer. If you select a print wheel sequence for a font that you do not have installed in your printer, your text will be printed with the Courier font that is resident in the printer.

If you want to install several different versions of the same printer program (e.g., different font combinations), you can store each one in a different subdirectory under the PRINTERS\ subdirectory. Run the CHANGE program located on your LaserJet Printer Disc. Follow the instructions and add a different PRINTERS\\*\*\*\*\* file for each set of six fonts. Give these directories meaningful names to make it easier to remember what each one is for. For example, you could install a printer program containing a combination of fonts for use with legal documents in PRINTERS\LEGAL.

### AdvanceWrite Printer Feature Table

DeskJet Cartridge	LaserJet Font Selection	Font/ Typeface	Point Size	Printer Features										Notes			
				Italics	Bold	Underline	Double Underline	Super/subscript	Overstrike	Proportional Spacing	Multiple Columns						
None	HP Courier 10 (Resident)	Courier	12														1
A	HP Courier 10 Italic (A)	Courier	12	•	•	•	•	•	•	•							1
A	HP Line Ptr. Lt. 16.6 (H)	Line Printer	6														1
A	HP Legal Courier 10 (H)	Courier	12														1
A	HP Legal Courier 10 Ital (H)	Courier	12	•	•	•	•	•	•	•							1
B	HP Prestige Elite 12 (D)	Prestige Elite	10														1
B	HP Prest El Italic 12 (D)	Prestige Elite	10	•	•	•	•	•	•	•							1
B	HP Leg. Pres. El. 16 Port (G)	Prestige Elite	10														1
C	HP Letter Gothic 12 (E)	Letter Gothic	12														1
C	HP Ltr Gothic Italic 12 (E)	Letter Gothic	12	•	•	•	•	•	•	•							1
B	HP Math8A Prest. El. 12 (J)	Math 8A	10														1
B	HP Math8B Prest. El. 12 (J)	Math 8B	10														1
M	HP Pt Ltr Goth 14 ASC (R)	Letter Gothic	14														1
M	HP Pt Pres. Bold 14 ASC (R)	Presentations	14														1
M	HP Pt Pres. Bold 16 ASC (R)	Presentations	16														1
M	HP Pt Pres. Bold 18 ASC (R)	Presentations	18														1
A, B & C	HP Line Draw 12	Line Draw	12														N/A

NOTE: 1. Pitch = 6, 8, 9, 10, 12, 15

# Using CHART-MASTER® version 6.2

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Chart-Master version 6.2:

1. Check the Chart-Master manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Chart-Master to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Chart-Master version 6.2.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing with Chart-Master, check the index of your Chart-Master manual.

### Setting Up Chart-Master

First time installation:

When starting Chart-Master for the first time (please refer to the Getting Started section of the Chart-Master manual), the program will display a message stating:

"NO CONFIGURATION FILE CONTAINING  
INFORMATION REGARDING YOUR PARTICULAR  
HARDWARE EXISTS. etc. . . ."

CHART-MASTER is a U.S. Registered Trademark of Ashton-Tate, used under license from Chartmasters Inc. Chart Master is a U.S. Registered Trademark of Chartmasters Inc. Please direct all questions regarding CHART-MASTER to Ashton-Tate, 25 Sylvan Road South, Westport, CT 06880; (203) 222-1974.

You will be asked a series of questions concerning your system. Proceed, answering the questions, until the **PRINTER MODEL (FOR PRINTER GRAPHICS PLOTS)** appears.

If you have previously installed Chart-Master, select (7) **CHANGE/DISPLAY CONFIGURATION** from the Main Menu. Type (2) **CHANGE CONFIGURATION** and your current configurations will be displayed.

1. Type the number corresponding to the **PRINTER MODEL** at the **WHICH PRINTER?** prompt (enter the number for **Hewlett-Packard**).
2. A menu of available Hewlett-Packard printers will be displayed. Select the number corresponding to the appropriate Hewlett-Packard **LaserJet Plus** printer. The resolution choices are:  
(Lo-Res) = 75 dpi (dots per inch)  
(Med-Res) = 100 dpi  
(Hi-Res) = 150 dpi  
(V-Hi-Res) = 300 dpi
4. At **PRINTER INITIALIZATION**, select the appropriate printer interface for your printer (LPT1: or LPT2:).



### Note

---

Make sure you have entered the **MODE** command (**MODE LPT1:,,P**) from your DOS prompt prior to running Chart-Master. See the "Setting Up" section of this manual (and your DOS manual) for more information on the **MODE** command.

---

5. Continue with the set up program until all responses are correct and you are back to the Main Menu.

Chart-Master is now ready to print.

# Using Charting Gallery version A.01.01 and Drawing Gallery version A.01.00

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Charting Gallery version A.01.01 or Drawing Gallery version A.01.00:

1. Check the Charting Gallery or Drawing Gallery manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Charting Gallery or Drawing Gallery to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Charting Gallery version A.01.01 or Drawing Gallery version A.01.00.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Charting Gallery or Drawing Gallery manual.

### Setting Up Charting and Drawing Gallery

If you are installing the Gallery products for the first time refer to the "Identifying Printers and Plotters" section of the Setting Up booklet. If these products are already installed, refer to the "Identifying a Device Later" section of Appendix A of the Setting Up booklet.

Charting Gallery and Drawing Gallery are products of Hewlett-Packard Co. Please direct all questions regarding these products to Hewlett-Packard Co., National Response Center, 3300 Scott Blvd., Santa Clara, CA 95054, (800) 858-8867.

If Charting Gallery or Drawing Gallery has already been installed:

1. Insert the Gallery master Utility Disc in drive A:.
2. Type **deviceid** <drive/subdirectory> and press the **Enter** key.
3. Select **F3 Printer/Plotter**, then **F1 Add Device**. A list of printers and plotters will be displayed.
4. Choose **HP LaserJet+**.
5. Press **F1 Device Setup**. Enter the type of interface, etc. you are using with your printer.
6. Press **F7 Test Device**. Several lines of text should be printed.
7. Press **F1 Save Setup**, return to the Main Menu and exit the deviceid program.

If you have not installed Drawing or Charting Gallery, follow the steps below:

1. Insert an Application Master Disc (e.g., Bar Charts for Charting Gallery) into drive A:.
2. Type **INSTALL** <drive/subdirectory> (e.g., **INSTALL C:\Gallery**) then press the **Enter** key.
3. Follow the instructions on each screen/display. When you come to the **Identify Devices** menu follow the steps outlined above (step 3, Deviceid program).
4. Finish the installation and exit.

To select a printer in Charting Gallery or Drawing Gallery:

1. Select **Drawing Keys** (**F2** in Drawing Gallery), or **Draw** (**F6** on the Edit & Draw screen of Charting Gallery)
2. Select **Device Control** (**F2**).

3. Ensure that the printer and port you selected during installation or deviceid appears in the **Device Name/Port** field.
4. Select other settings and save your choices, (F5). These now become your default settings.

### **Using Printer Features**

75, 100, 150 and 300 dpi resolution are available (full page) and are selectable from the Device Control Menu. 300 dpi resolution prints very slowly.



## Using DisplayWrite™

---

### **On the HP Vectra, and the IBM PC Family and Compatibles**

#### **Setting Up DisplayWrite:**

At publication time of this manual a DeskJet printer/  
DisplayWrite driver was under development.

Call your HP dealer or sales representative for updated  
information.

# Using Executive MemoMaker version A.02.00

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Executive MemoMaker version A.02.00:

1. Check the Executive MemoMaker manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Executive MemoMaker to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Executive MemoMaker.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Executive MemoMaker manual.

### Setting Up Executive MemoMaker

To select a printer, follow these steps:

1. Start the Deviceid program (found on the Utility Master disc).
2. Choose **Select Disc** and type the letter of the disc drive that contains the Executive MemoMaker work disc. This displays the Identify Devices MAIN screen.
3. Choose **Printer/Plotter**, then **Add Device**.

Executive MemoMaker is a product of Hewlett-Packard Co. Please direct all questions regarding this product to Hewlett-Packard Co., National Response Center, 3300 Scott Blvd., Santa Clara, CA 95054; (800) 858-8867.

4. Tab to move the arrow to highlight **LaserJet +**.
5. Choose **Device Setup**.
6. In the Device Setup screen, verify that the configuration values match the printer's configuration.
7. Choose **Save Setup**.
8. Choose **Device List**.
9. Press F8 as many times as you need to end the Identify Devices task.



### Note

Executive MemoMaker provides several format files for use with an HP LaserJet or LaserJet Plus printer. They are discussed in the Executive MemoMaker manual, Appendix B: Customized Format Files for LaserJet Users. See the Printer Features Table included with this Application Note to determine the appropriate format file for the DeskJet printer font cartridge you are using.

## Using Printer Features

For italicized print, embed the escape sequence: E<sub>C</sub>(s1S at the beginning of the word and E<sub>C</sub>(s0S at the end of the word.

## Executive MemoMaker Printer Feature Table

DeskJet Cartridge	LaserJet Format File	Font/Typeface	Printer Features												Notes			
			Point Size/Pitch	Italics	Bold	Underline	Double Underline	Striker/Subscript	Strike-through	Proportional Spacing	Multiple Columns	Graphics (75 dpi)	Graphics (90 dpi)	Graphics (150 dpi)		Graphics (300 dpi)		
None	LaserJet.FMT	Courier	12/10	•	•	•												
A	Courier.FMT	Courier	12/10	•	•	•												1
B	Prestige.FMT	Prestige Elite	10/12	•	•	•												1
C	Gothic.FMT	Letter Gothic	10/12	•	•	•												1

NOTE: 1. Italics can be enabled by embedding the escape sequence E<sub>C</sub>(s1S (turn ON italics) at the beginning of the word, then placing E<sub>C</sub>(s0S (turn OFF italics) at the end of the word.

# Using Framework™ II versions 1.0, 1.1

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Framework II versions 1.0, 1.1:

1. Check the Framework II manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Framework II to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Framework II versions 1.0, 1.1.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Framework II manual.

### Setting Up Framework II

To select a printer follow these steps:

1. Start the Framework II Setup program.
2. Proceed until the Main Menu appears.
3. Select option (2) CONFIGURATION.

Framework II is a Trademark of Ashton-Tate®. Please direct all questions regarding this product to Ashton-Tate, 25 Sylvan Road South, Westport, CT 06880; (203) 222-1974.



4. Select option (1) **PRIMARY HARDWARE**.
5. Select option (3) **Printer 1 driver**.
6. Select (3) twice to display **All HP Drivers**.
7. Select option (2) **LaserJet (in 100 dpi graphics mode)**.
8. Select (6) **Printer 1 port assignment**.
9. Select the port assignment you wish to use. (1) for Parallel port 1 (LPT1) or (5) for Serial port 1 (COM1).
10. Select **M** to return to the **MAIN MENU**.
11. Select **7 (SAVE ALL NEW SETTINGS)** to save your selections.

### Using Printer features

The fonts in the A, B, C and M font cartridges can be accessed via the keypad. Ensure that your margins (offset from left) and width of line are set to correspond to the pitch of the font you select.

The LaserJet (in 150 dpi graphics mode) or the LaserJet (in 300 dpi graphics mode) printer file can be used, but the size of your graphics will be limited. Text printing is not affected.

Both **Quality Print** and **Condensed Print** can be activated via the printer keypad (These selections will not work from Framework's "Print Appearance" menu). If you select condensed print via the keypad, make sure you change the left and right margins and the width of line setting for your document (see the **Formatting and Printing** section of the **Using Framework II Manual**).

**Framework II Printer Feature Table**

DeskJet Cartridge	LaserJet PrintFile	Font/Typeface	Printer Features											Notes			
			Point Size/Pitch	Italics	Bold	Underline	Double Underline	Super/Subscript	Strikethrough	Proportional Spacing	Multiple Columns	Graphics (100 dpi)					
None A	HP LaserJet (in 100 dpi graphics mode)	Courier	12/10	•	•	•											
	HP LaserJet (in 100 dpi graphics mode)	Courier	12/10	•	•	•											

# Using Freelance™ version 1.0 Rev. C

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Freelance version 1.0 Rev. C:

1. Check the Freelance manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Freelance to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Freelance version 1.0 Rev. C.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, we suggest you check the index of your Freelance manual.

### Setting Up Freelance

To select a printer, follow these steps:

1. Start the Freelance program.
2. Select **Setup**.
3. Select **Install Devices**.
4. Insert the Utilities 1 Disc.

Freelance is a Trademark of Lotus Development Corp. Please direct all questions regarding this product to Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142; (617) 253-9150.

5. Use the cursor keys to position the cursor at the device you want to replace and press the space bar. Available printers will be displayed.
6. Use the cursor keys to highlight **HP LaserJet** and press the **Enter** key to select it.
7. Press the **ESC** key to exit. Enter **Y** and press the **Enter** key to confirm your selection.
8. Enter **C** to configure your printer.
9. Use the cursor keys to highlight **HP LaserJet** and press the **Enter** key.
10. If the port selection shown is not correct, press the space bar for options and select the correct one using the cursor keys (LPT1, COM1, etc.). Press the **Enter** key to select your choice.
11. Press the **ESC** key to exit, type **Y**, then press the **Enter** key to confirm.
12. Enter **D** to exit Setup, then **Y** and press **Enter** to confirm.

You are now ready to print.

## Using Printer Features

As long as the user stays in the dashed rectangular plotting area of Freelance, no DeskJet printer region problems will occur.

Settings for graphics can be changed in the Options section of the plot menu.

75 and 150 dpi print resolution are available from the Plot Options menu.

# Using Freelance Plus™ version 2.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Freelance Plus version 2.0:

1. Check the Freelance Plus manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Freelance Plus to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Freelance Plus version 2.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Freelance Plus manual.

### Setting Up Freelance Plus

To select a printer, follow these steps:

1. Start the Freelance Plus Access Manager program.
2. Select **Setup**.
3. Select **Install Devices**.
4. Move the cursor to field 1, 2 or 3.

Freelance Plus is a Trademark of Lotus Development Corp. Please direct all questions regarding this product to Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142; (617) 253-9150.



5. Insert the Utility Disk containing the Output Device Drivers.
6. Press the space bar to display the available printer driver choices.
7. Use the cursor keys to highlight **HP LaserJet** and press the **Enter** key.
8. Enter **/Y** to save your selection.
9. Select **Done** to exit the Setup program and return to the Freelance Plus Access Manager.
10. Select **Freelance Plus** to start the Freelance program.
11. From the Main Menu enter **PO (Plot, Options)**.
12. Ensure that HP LaserJet is displayed in the Device field. (If not, press the space bar, use the cursor keys to highlight HP LaserJet, and press the **Enter** key.)
13. Press the **PgDn** key and move the cursor to the Output Port: field.
14. Select the port you have the DeskJet printer connected to (LPT1 for parallel, COM1 for serial).
15. If using serial also select 9600 Baud, and None parity.
16. Enter **/PSR (Plot, Save Defaults, Replace)** to save your new settings.

You are now ready to print.

### **Using Printer Features**

75, 150, 300 dpi print resolution are available from the Plot Options menu.

# Using Harvard™ Presentation Graphics version A.02

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Harvard Presentation Graphics version A.02:

1. Check the Harvard Presentation Graphics manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Harvard Presentation Graphics to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Harvard Presentation Graphics version A.02.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Harvard Presentation Graphics manual.

### Setting Up Harvard Presentation Graphics

To configure and select a printer:

1. Start the HPG program.
2. Select 9. Configuration.
3. Select HP.

Harvard is a Trademark of Software Publishing Corp. Please direct all questions regarding this product to Software Publishing Corp., 1901 Landings Drive, P.O. Box 7210, Mountain View, CA 94039; (415) 962-9564.

4. Select **LaserJet+ 300 dpi**. (If you want 75 dpi choose LaserJet+.)
5. Select **LPT1** for parallel port or select **COM1** for serial port with the following settings:  
Baud Rate: > **9600**  
Parity: > **None**  
Data Bits: > **8**  
Stop Bits: > **1**
6. Select the **Border Style** and **graphic Fonts** you wish to use.
7. Press **F10** to save your selections and return to the **Main Menu**.

Harvard Presentation Graphics is now ready to print.

## **Using Printer Features**

When printing and selecting the **Quality** from the **Print Options** menu, remember the following:

For the **LaserJet+300 dpi** driver:

Quality: **Draft** = 100 dpi  
          **Standard** = 150 dpi  
          **High** = 300 dpi

If you wish to use 75 dpi, select **LaserJet+** in **Configuration**.

Quality: **Draft** = 75 dpi  
          **Standard** = 100 dpi  
          **High** = 150 dpi

When printing more than one graph per page, you **MAY** have to turn **Perf Skip OFF** (switch **A8 UP**) on the printer.

## Using HPWORD/PC version A.02.00

---

### On the HP Vectra, and the IBM PC Family and Compatibles

#### Introduction

Before proceeding with Setting Up HPWORD/PC version A.02.00:

1. Check the HPWORD/PC manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up HPWORD/PC to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with HPWORD/PC version A.02.00.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your HPWORD/PC manual.

#### Setting Up HPWORD/PC

If you have not configured the DeskJet printer into HPWORD/PC, please refer to the Setting Up HPWORD/PC booklet, Installing on the Vectra section, and the Configuring and Running WordUtil section. To configure the HP DeskJet printer with HPWORD/PC follow these steps:

HPWORD/PC is a product of Hewlett-Packard Co. Please direct all questions regarding this product to Hewlett-Packard, National Response Center, 3300 Scott Blvd., Santa Clara, CA 95054; (800) 858-8867.

1. Start the WordUtil program.
2. At **Select Task**: type C (Configuration). (You may type HELP for a list of options.)
3. Disc Drive containing HPWord program? Type the drive letter.
4. Type of printer: (2601) The items in parenthesis are default responses. Type ? for a list of available printers.
5. Type **LaserJet +** and press the **Enter** key.
6. Printer Name: (LJet +) This name will appear in your Print and Print Attend Menus.
7. Printer Connection: (Serial) Enter the type of printer connection you have. Type ? for a list of interface options.

If you are using a Parallel port (LPT1, etc.), type **Centronics**, press **Enter** and continue with step 8.

If you are using a Serial port (COM1, etc.), press the **Enter** key.

8. Port number: (1) Enter the number of your printer port (i.e., 1 for COM1, etc.).
9. Press **Enter** in response to the following questions:

Type of Paper Feed:	(SINGLE)
Standard Form:	(plain bond)
Special Form:	(letterhead)
10-pitch Environment:	(COUR086.ENV)
12-pitch Environment:	(GOTH286.ENV)
Proportional Environment:	(TMSRP86.ENV)
Default Pitch:	(10)
Default Paper Height:	(11.0in)
Default Paper Width:	(8.50in)
Graphics Resolution for figures:	Type <b>75, 100, 150, or 300</b>

10. Continue the WordUtil program until **Select Task** appears.
11. Type E (Exit).
12. **Select Task**: E (Exit).



# Using Lotus® 1-2-3® version 1A

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Lotus 1-2-3 version 1A:

1. Check the Lotus 1-2-3 version 1A manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Lotus 1-2-3 version 1A to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Lotus 1-2-3 version 1A.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Lotus 1-2-3 manual.

### Setting Up Lotus

1-2-3's default printer connection is the first parallel printer port (LPT1). To confirm this setting (or to change it if your printer is connected to the first serial port [COM1]) do the following:

#### 1-2-3:

1. Start the Lotus 1-2-3 program.
2. If you are using the parallel printer interface (LPT1), type **/WGDPI1** (Worksheet, Global, Default, Printer, Interface, Parallel 1).

Lotus and 1-2-3 are U.S. Registered Trademarks of Lotus Development Corp. Please direct all questions regarding this product to Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142; (617) 253-9150.

## Using Printer Features

3. If you are using the serial interface (COM1), type **/WGDPI28** (Worksheet, Global, Default, Printer, Interface, Serial 1, 9600 Baud).
4. After selecting your interface, type **AN** (Auto-LF No).
5. Type **QUQ** (Quit, Update, Quit) to save your selections.

### PrintGraph:

1. Start the GRAPH program.
2. Type **CD** (Configure, Device). Use the cursor to highlight **HP LaserJet**; press the space bar to select. (A "#" should appear to the left of HP LaserJet indicating that it has been selected).
3. Press the **Enter** key.
4. If you are using the parallel interface (LPT1), type **I1** (Interface, Parallel port 1).
5. If you are using the serial interface (COM1), type **I28** (Interface, Serial port, 9600 Baud).
6. Type **SRQ** (Save, Replace, Quit) to exit the setup menu. PrintGraph is ready for printing.

### 1-2-3:

1. To select the maximum print width follow these steps:  
Type **/WGDPR** (Worksheet, Global, Default, Printer, Right).
  - a. If you are printing with 10 pitch, enter **80**.
  - b. If you are printing in compressed mode, enter **132**.  
Type **QUQ** (Quit, Update, Quit) to save your changes.
2. To select the maximum Page Length follow these steps:  
Type **/WGDPP** (Worksheet, Global, Default, Printer, Pg-length).
  - a. If you are printing at 6 lines per inch, enter **60** (Default).



- b. If you are printing at 8 lines per inch, enter **80**. Type **QUQ** (Quit, Update, Quit) to save your changes.

The fonts in the DeskJet A, B, C and M font cartridges can be accessed via the printer's keypad. Margin settings may have to be changed to correspond to the pitch you are using.

1-2-3 provides the ability to send instructions directly to the printer by specifying a set of commands called a setup string.

To send a setup string to 1-2-3:

Type **/WGDPS** (Worksheet, Global, Default, Printer, Setup) and enter the setup string.

The following table shows printer features that may be accessed by sending the corresponding setup string.

<b>Printer Feature</b>	<b>Setup String</b>
Compressed Print	\027(s16.67H
Expanded Print	\027(s5H
10 Pitch	\027(s10H
12 Pitch	\027(s12H
8 lines per inch	\027&l8D
6 lines per inch	\027&l6D
Bold print On	\027(s3B
Bold print Off	\027(s0B
Printer Reset	\027E

### **PrintGraph**

All graphics printing in PrintGraph are at 75 dots per inch resolution.

When printing more than 1 graph per page, make sure that Perf Skip is OFF (Switch A8 is UP).

# Using Lotus® 1-2-3® version 2.0, 2.01

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Lotus 1-2-3 version 2.0, 2.01:

1. Check the Lotus 1-2-3 version 2.0, 2.01 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Lotus 1-2-3 version 2.0, 2.01 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Lotus 1-2-3.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Lotus 1-2-3 manual.

## Running **INSTALL** and Selecting Text and Graphics Printers

To install the appropriate printer driver set follow these steps:

1. Start the Lotus program.
2. Select **INSTALL**.
3. Select **FIRST-TIME** Installation or **CHANGE SELECTED EQUIPMENT** (if you have previously installed 1-2-3) and follow its instructions.
4. For Text Printers select the **HP2686A LaserJet** or **LaserJet**.
5. For Graphics Printers select **HP LaserJet** (if you are using Lotus version 2.0) or select **HP2930 series** (if you are using Lotus version 2.01).
6. Save your selections and exit the installation.

## Setting Up Lotus

1-2-3's default printer connection is the first parallel printer port (LPT1). To confirm this setting (or to change it if your printer is connected to the first serial port [COM1]) do the following:

### **1-2-3:**

1. Start the Lotus 1-2-3 program.
2. If you are using the parallel printer interface, type **/WGDPI1** (Worksheet, Global, Default, Printer, Interface, Parallel 1).
3. If you are using the serial interface, type **/WGDPI28** (Worksheet, Global, Default, Printer, Interface, Serial 1, 9600 Baud).
4. After selecting your interface, type **N** (Name) and enter the number corresponding to the printer you installed.
5. Type **QUQ** (Quit, Update, Quit) to save your selections.

### **PrintGraph:**

Start the PrintGraph program.

If you are using the parallel interface (LPT1), type **SHI1** (Settings, Hardware, Interface, Parallel 1).

If you are using the serial interface (COM1), type **SHI28** (Settings, Hardware, Interface, Serial 1, 9600 Baud).

Type **P** (Printer) and use the cursor keys to highlight **HP2686A LaserJet or HPLaserJet**.

Press the space bar to select it. (A "#" sign should appear to the left of HPLaserJet indicating that it has been selected.) Press the **Enter** key.

Type **QS** (Quit, Save) to exit the setup menu and save your selections.

## Using Printer Features

### 1-2-3:

To select the maximum print width follow these steps:

1. Type **/WGDPR** (Worksheet, Global, Default, Printer, Right).
  - a. If you are printing with 10 pitch, enter **80**.
  - b. If you are printing in compressed mode, enter **132**. Type **QUQ** (Quit, Update, Quit) to save your changes.
2. To select the maximum page length follow these steps: Type **/WGDPP** (Worksheet, Global, Default, Printer, Pg-length).
  - a. If you are printing at 6 lines per inch, enter **60** (Default).
  - b. If you are printing at 8 lines per inch, enter **80**. Type **QUQ** (Quit, Update, Quit) to save your changes.

The fonts in the DeskJet A, B, C and M font cartridges can be accessed via the printer's keypad. Margin settings may have to be changed to correspond to the pitch you are using.

1-2-3 provides the ability to send instructions directly to the printer by specifying a set of commands called a setup string.

To send a setup string to 1-2-3:

Type **/WGDPS** (**W**orksheet, **G**lobal, **D**efault, **P**rinter, **S**etup) and enter the setup string.

The following table shows printer features that may be accessed by sending the corresponding setup string.

Printer Feature	Setup String
Compressed Print	\027(s16.67H
Expanded Print	\027(s5H
10 Pitch	\027(s10H
12 Pitch	\027(s12H
8 lines per inch	\027&l8D
6 lines per inch	\027&l6D
Bold print On	\027(s3B
Bold print Off	\027(s0B
Printer Reset	\027E

### Example

The following example illustrates the use of escape sequences to change fonts from within a Lotus 1-2-3 spreadsheet. It shows how to enter an escape sequence in cell A1 to enable the Prestige Elite 10pt./12 pitch font. See the Appendix for a complete listing of DeskJet printer font selection escape sequences. Note: You *must* have the HP22706B Font Cartridge inserted in your DeskJet printer in order for this particular example to work. The HP22706B cartridge contains the Prestige Elite font.

**Step 1.** Start the Lotus 1-2-3 program.

**Step 2.** In cell A1 type, `;\027(s0u0p12h10v0s0b8t2Q`  
Press the **Enter** key. (Note: If you made a mistake, press **EDIT**, **F2**, correct the mistake, then press the **Enter** key again). Only one vertical bar will appear in the cell preceding the escape sequence.

**Step 3.** When printing the spreadsheet make sure that you include the escape sequence in the print RANGE.



**Note**

---

Ensure that the margin settings correspond to the font you've selected.

---

**PrintGraph:**

To print graphs correctly with PrintGraph (version 2.01), select the **HP2930 series** printer driver set and make the following changes.

For half-size graphs enter:

**SISHMW5.42** (Settings, Image, Size, Half, Manual, Width, 5.42")

Then **H3.91** (Height, 3.91")

Then **QQQS** (Quit, Quit, Quit, Save).

All graphics printed in PrintGraph are at 75 dots per inch resolution.

When printing more than 1 graph per page, make sure that Perf Skip is OFF (Switch A8 is UP).

With PrintGraph (version 2.0) do not set the top margin to zero. This will cause the paper to eject and the printer must then be turned off to clear this error condition.

# Using Lotus® Manuscript™ release 1.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Lotus Manuscript release 1.0:

1. Check the Lotus Manuscript manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Lotus Manuscript to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Lotus Manuscript release 1.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Lotus Manuscript manual.

### Setting Up Lotus Manuscript

To select a printer:

1. Start the Manuscript program.
2. Select **Setup**.
3. Move the cursor to the **Printer Driver:** field and press the space bar.
4. Select **HP LaserJet +**.

Lotus is a U.S. Registered Trademark of Lotus Development Corporation. Manuscript is a Trademark of Lotus Development Corporation. Please direct all questions regarding this product to Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142; (617) 253-9150.

## Using Printer Features

5. Move the cursor to the **Cartridge:** field and press the space bar.
6. Select the cartridge that corresponds to your DeskJet printer cartridge (see the Printer Feature Table).
7. Move the cursor to the **Graphics Density:** field and press the space bar.
8. Select the desired graphics density (the higher the density the higher the quality, but slower).
9. Press the insert (**Ins**) key twice to save the settings and return to the main menu.

If you are using the parallel interface (LPT1, LPT2, etc.) ensure that you issue the DOS MODE command **MODE LPT1:,,P** before entering Manuscript.

If you are using the serial interface (COM1, COM2, etc.) ensure that you issue the DOS MODE commands **MODE COM1:96,N,8,1,P** and **MODE LPT1: =COM1** before entering Manuscript. Refer to the "Setting Up" section of this manual and/or see your DOS manual for more information on the MODE commands.

Combining text and graphics on the same page will produce unpredictable results.

300 dpi graphics resolution prints very slowly.

Borders will not print when using the HP LaserJet + printer files.

It is recommended that you select the Print Borders, Print Pictures and Print Equations in the Graphics Print Options field of the Print Document Menu so that they will not print.



## Lotus Manuscript Printer Feature Table

DeskJet Cartridge	Printer File	LaserJet Cartridge	Font/Typeface	Printer Features											Notes
				Point Size/Pitch	Italics	Bold	Underline	Double Underline	Superscript	Strikethrough	Proportional Spacing	Multiple Columns	Borders	Justification	
None	HP LaserJet+	A – Courier 1	Courier	12/10	•	•	•	•	•	•	•	•	•	•	1
	HP LaserJet+		Line Printer	6/10	•	•	•	•	•	•	•	•	•	•	
A	HP LaserJet+	A – Courier 1	Courier	12/10	•	•	•	•	•	•	•	•	•	•	
B	HP LaserJet+	D – Prestige Elite	Prestige Elite	10/12	•	•	•	•	•	•	•	•	•	•	
C	HP LaserJet+	E – Letter Gothic	Gothic	12/12	•	•	•	•	•	•	•	•	•	•	
B	HP LaserJet+	G – Legal Elite	Legal Prestige	10/12	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Line Draw	12/12	•	•	•	•	•	•	•	•	•	•	
A & B	HP LaserJet+	H – Legal Courier	Legal Courier	12/10	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Courier	12/10	•	•	•	•	•	•	•	•	•	•	
B	HP LaserJet+	J – Math Elite	Legal Prestige	7/16.67	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Line Draw	12/12	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Line Printer	6/10	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Prestige Elite	10/12	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Prestige Elite	7/16.67	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Courier	12/10	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Math 8 Prestige	10/12	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Math 8 Prestige	7/16.67	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Math 8b Prestige	10/12	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Math 8b Prestige	7/16.67	•	•	•	•	•	•	•	•	•	•	
A & C	HP LaserJet+	Q – Memo 1	Math 7 Prestige	10/12	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		PI Prestige	10/12	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Line Printer	6/10	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Gothic	12/12	•	•	•	•	•	•	•	•	•	•	
M	HP LaserJet+	R – Presentations 1	Courier	12/10	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Line Printer	6/10	•	•	•	•	•	•	•	•	•	•	
M	HP LaserJet+		Legal Presentation	14/10	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Legal Presentation	16/8.1	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Legal Presentation	18/6.5	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Courier	12/10	•	•	•	•	•	•	•	•	•	•	
M	HP LaserJet+		Legal Gothic	14/10	•	•	•	•	•	•	•	•	•	•	
	HP LaserJet+		Line Draw	12/10	•	•	•	•	•	•	•	•	•	•	

NOTE: 1. Italics available if A Cartridge is also installed.

# Using Microsoft® Chart version 2.02

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Microsoft Chart version 2.02:

1. Check the Microsoft Chart manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Microsoft Chart to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Microsoft Chart version 2.02.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Microsoft Chart manual.

### Setting Up Microsoft Chart

A complete list of supported devices is available in the Help file under the Devices topic. You can also go to the "device" field of the Print Setup command in the Chart menu and use the direction keys to step through a list of the printers and plotters that can be used with Chart.

Microsoft is a U.S. Registered Trademark of Microsoft Corporation. Please direct all questions regarding Microsoft Chart to Microsoft Corporation, 16011 N.E. 36th Way, Redmond, WA 98073; (206) 882-8089.

To select a printer for Microsoft Chart:

1. Start the Setup program.
2. Proceed with the setup program until the printer/plotter menu is displayed. Follow the instructions provided.
3. Type the number of the appropriate LaserJet printer (see the Printer Features Table).

If you want to use another printer with Microsoft Chart later, just select a new device with the Print Setup command or run Setup again.

To print from Microsoft Chart:

1. Start the Microsoft Chart program.
2. Select **Chart**.
3. Select **Print**.
4. Select **Setup**.
5. Select the appropriate printer device name.
6. Tab to the **adapter** field.
7. Enter the printer port you are using (LPT1: for parallel, COM1: for serial).



**Note**

---

Be sure to issue the DOS MODE commands before starting Microsoft Chart. See the Setting Up Hardware chapter for your particular PC and/or refer to your DOS manual on how to use the MODE command.

---

## Using Printer Features

You may change the device field in the setup menu to HIHPLSR2 or HPLSR to specify HPLJ + HiRes, or HPLJ/LJ+ as printer devices.

Select **options** in the printer menu to specify chart size, etc.

Recommended Settings:

Vertical Orientation:

Page length top: 8.000 left: 10.00 (Auto)

Horizontal Orientation:

Page length top: 8.500 left: 11.00  
 Display area width: 9.500 height: 6.429 (Set)

### Microsoft Chart Printer Feature Table

Selected Printer	Print Setup device:	Point Size										Notes
		Vertical	Horizontal									
HP2686A LaserJet Plus	HPLSR	•	•									1
HP2686A LaserJet Plus, high resolution	HIHPLSR2	•	•									2

NOTES: 1. Graphics density (dpi) = 75  
 2. Graphics density (dpi) = 150

# Using Microsoft® Windows versions 1.01, 1.03

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Microsoft Windows versions 1.01, 1.03:

1. Check the Microsoft Windows versions 1.01, 1.03 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Microsoft Windows versions 1.01, 1.03 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Microsoft Windows versions 1.01, 1.03.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

Microsoft is a U.S. Registered Trademark of Microsoft Corporation. Please direct all questions regarding Microsoft Windows to Microsoft Corp., 16011 N.E. 36th Way, Redmond, WA 98073; (206) 882-8089.

## Setting Up Microsoft Windows

For more information on printing and the Print command, check the index of your Microsoft Windows manual.

The following information describes how to use the CONTROL.EXE program to install your printer driver.



### Note

---

"Select", as used in the following instructions, means to use a mouse or keyboard to choose (or enable) designated menus and/or menu items.

---

1. Select the Control Program (CONTROL.EXE) from the MS<sup>®</sup>DOS Executive screen.
2. Select the **Installation** Menu to add the Printer Driver.
3. Select **Add New Printer**.
4. Enter the drive and directory where your printer drivers are located. For example, if the printer driver is on the disc inserted in drive A, enter **A:\**. Or if your printer driver file is in the WINDOWS directory on drive C, enter **C:\WINDOWS**.
5. Press the **Enter** key or select **OK**.
6. Select the **LaserJet** printer driver, press **Enter** or select **Add**.
7. Select the desired option for copying the driver to your Windows directory.

To Select the Printer Output Port:

8. Select the **Setup** menu.
9. Select **Connections**.
10. Select the **LaserJet** printer.
11. Select the port to which your printer is connected (usually LPT1 for parallel or COM1 for serial).
12. Select **OK** or press the **Enter** key.

If you are using the Serial Printer Port:

- 13.** Select the **Setup** menu.
- 14.** Select **Communications** port.
- 15.** Select the serial port your printer is connected to (COM1: or COM2:), then the settings as listed below:

Baud Rate:	<b>9600</b>
Word Length:	<b>8</b>
Parity:	<b>None</b>
Stop Bits:	<b>1</b>
Handshake:	<b>Hardware</b>

- 16.** Press **Enter** or select **OK**.

To select the default system printer and change printer features:

If you have more than one printer installed, Microsoft Windows allows you to choose any one of the printers to be the current (default) printer. The current printer is the printer that applications designed to run with Windows will use. Once you have selected the HP LaserJet printer as the default system printer you may specify the font cartridge and the graphics density.

- 17.** Select the **Setup** menu.
- 18.** Select **Printer**.
- 19.** Select **HP LaserJet**.
- 20.** Select **OK** or press the **Enter** key.  
Notice that your Windows version and revision number (e.g., SoftStyle V. 2.3) appear in the "window" at the bottom of your screen. Use this information in choosing the correct driver. Refer to the Printer Features Table (included in this Application Note) to see which fonts are available with your particular version.
- 21.** Use the mouse or keyboard keys to select the cartridge and graphics density you want to use with your printer, and select **OK** when you are done.

## **Using Printer Features**

Although Microsoft Windows will support mixed (integrated) text and graphics, the DeskJet printer will work only if the text precedes the graphics on the page. Separate pages for text and graphics are recommended.

LaserJet+ drivers should be avoided. (300 dpi graphics print slowly using SoftStyle drivers, and 300 dpi graphics do not work with Aldus LaserJet+ drivers.)

Do not use the bottom ¼" of the page when using MS® Paint. Doing so will cause the picture to print onto two pages.

Landscape is only used for graphics output. DeskJet printer text fonts will not print sideways.



## Microsoft Windows Printer Feature Table

DeskJet Cartridge	LaserJet Font Cartridge	MS® Windows Write Font Name	Font/Typeface											Notes		
				Point Size/Pitch	Italics	Bold	Underline	Double Underline	Super/Subscripts	Strikeout	Proportional Spacing	Multiple Columns				
None	A/L Courier	Courier 10	Courier	12/10	•	•	•	•								1
A	A/L Courier	Courier 10	Courier	12/10	•	•	•	•								1
A	A/L Courier	Line Printer 8	Courier	6/16.67	•	•	•	•								1
B	D/M Prestige Elite	Courier 10	Courier	12/10	•	•	•	•								1
B	D/M Prestige Elite	Prestige Elite 10	Prestige Elite	10/12	•	•	•	•								1
B	A/L Courier	Line Printer 8	Prestige Elite	7/16.67	•	•	•	•								1
C	E/N Letter Gothic	Courier 10	Courier	12/10	•	•	•	•								1
C	E/N Letter Gothic	Letter Gothic 10	Letter Gothic	12/12	•	•	•	•								1
C	A/L Courier	Line Printer 8	Letter Gothic	9.5/16.66	•	•	•	•								1
M	R Presentations 1	Courier 10	Courier	12/10	•	•	•	•								1
M	R Presentations 1	Presentations 13 or 14	Presentations Bold	14/10	•	•	•	•								1
M	R Presentations 1	Presentations 16	Presentations Bold	18/6.5	•	•	•	•								1
None	A: Courier 1	Courier 12	Courier	12/10	•	•	•	•								2
None	C: International 1	Line Printer 8	Courier	6/16.67	•	•	•	•								2
A	A: Courier 1	Courier 12	Courier	12/10	•	•	•	•								2
A	H: Legal Courier	Linedraw 12	Linedraw	12/10	•	•	•	•								2
B	G: Legal Elite	Prestige (Elite) 10	Prestige Elite	10/12	•	•	•	•								2
B	G: Legal Elite	Linedraw 12	Linedraw	12/12	•	•	•	•								2
B	G: Legal Elite	Prestige (Elite) 7	Prestige Elite	6/16.67	•	•	•	•								2
C	N: Letter Gothic P&L	(Letter) Gothic 12	Letter Gothic	12/12	•	•	•	•								2
M	R: Presentations 1	(Letter) Gothic 14	Letter Gothic	14/10	•	•	•	•								2
M	R: Presentations 1	Linedraw 14	Linedraw	12/10	•	•	•	•								2
M	R: Presentations 1	PCline 14	Courier	12/10	•	•	•	•								2, All Bold
M	R: Presentations 1	Presentations 14	Presentations	14/10	•	•	•	•								2
M	R: Presentations 1	Presentations 16	Presentations	16/8.1	•	•	•	•								2
M	R: Presentations 1	Presentations 18	Presentations	16/8.1	•	•	•	•								2

- NOTES: 1. SoftStyle V 2.3  
 2. Aldus LaserJet only V1.0 (V1.2)



# Using Microsoft® Word versions 2.0, 3.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Microsoft Word versions 2.0, 3.0:

1. Check the Microsoft Word versions 2.0, 3.0 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Microsoft Word versions 2.0, 3.0 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Microsoft Word versions 2.0, 3.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Microsoft Word manual.

## Setting Up Microsoft Word

When using MS® Word to print documents, it is necessary to have a copy of the correct printer driver file (.PRD) on your program disc. A .PRD file is a printer description file that MS Word uses to correctly activate the printer.

For information on the installation and setup of printers refer to your MS Word reference manual.

To select a printer driver file, follow these steps:

1. Start the MS Word program.
2. Press the ESC key, P for Print, then O for Options.
3. Press the down arrow key. All available printer driver file names will be displayed.
4. Refer to the Printer Features Table contained in this Application Note and select an appropriate LaserJet printer driver file for the features you need.



### Note

---

Each LaserJet printer file name corresponds to a particular LaserJet printer font cartridge. Check the printer features table on the next page to select the appropriate DeskJet printer cartridge and the corresponding LaserJet printer file.

---

5. Use the cursor keys to highlight the appropriate printer file.
6. Press the Enter key.

## Using Printer Features

If you have a cartridge, or cartridge combination which does not appear in the table on the next page, select the HPLASCR driver.

## Microsoft Word Printer Feature Table

DeskJet Cartridge	LaserJet Font Cartridge	LaserJet PrintFile	Font/ Typeface												Notes	
				Point Size/Pitch	Italics	Bold	Underline	Double Underline	Superscript	Subscript	Strikethrough	Proportional Spacing	Multiple Columns			
None	Courier 92886A	HPLASCR	Courier (modern a)	12/10	•	•	•	•	•	•	•	•	•	•	•	
A	Courier 92886A	HPLASCR	Courier (modern a)	12/10	•	•	•	•	•	•	•	•	•	•	•	
B	Prestige Elite 92886D	HPLASPR	Courier (modern a)	12/10	•	•	•	•	•	•	•	•	•	•	•	
B	Prestige Elite 92886D	HPLASPR	Prestige (modern d)	10/12	•	•	•	•	•	•	•	•	•	•	•	
B	Math Elite 92886J	HPLSMATH	Math 8 (symbol d)	7/16.67, 10/12	•	•	•	•	•	•	•	•	•	•	•	
B	Math Elite 92886J	HPLSMATH	Prestige (modern d)	7/16.67, 10/12	•	•	•	•	•	•	•	•	•	•	•	
A & B	Legal Prestige Elite 92886G	HPLASLCR	Courier (modern a)	12/10	•	•	•	•	•	•	•	•	•	•	•	
A & B	Legal Prestige Elite 92886G	HPLASLCR	Prestige (modern d)	7/16.67	•	•	•	•	•	•	•	•	•	•	•	
C	Letter Gothic 92886E	HPLASLG	Courier (modern a)	12/10	•	•	•	•	•	•	•	•	•	•	•	
C	Letter Gothic 92886E	HPLASLG	Ltr Gothic (modern b)	12/12	•	•	•	•	•	•	•	•	•	•	•	
A & C	Memo 1 92886Q	HPLSMEMO	Courier (modern a)	12/10	•	•	•	•	•	•	•	•	•	•	•	
A & C	Memo 1 92886Q	HPLSMEMO	Ltr Gothic (modern e)	12/12	•	•	•	•	•	•	•	•	•	•	•	

# Using MultiMate™ version 3.3

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up MultiMate version 3.3:

1. Check the MultiMate version 3.3 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up MultiMate version 3.3 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with MultiMate version 3.3.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing from MultiMate check the index of your MultiMate version 3.3 manual.

3

MultiMate is a Trademark of Ashton-Tate. Support is available to all registered users who have a current Custom Support Plan. Please direct all questions regarding this product to Ashton-Tate, 52 Oakland Avenue, East Hartford, CT 06108; (203) 247-3445.

## Setting Up MultiMate

When using MultiMate to print documents, you must have a copy of the correct printer driver file (.PAT) on your Program Disc. A .PAT file is a printer description file that MultiMate uses to communicate with a printer. The .PAT file you use must be copied onto your system disc (or the disc and directory from which you start MultiMate).

Check the MultiMate Printer Action Table (See the MultiMate Reference Manual, Appendix D) for the list of appropriate .PAT files. Look for comparable HP LaserJet .PAT file(s) (see the Printer Features Table contained within this Application Note) and use the following procedures.

To set up the correct printer file, follow these steps:

1. Start the MultiMate word processing program.
2. Select **4 Printer Control Utilities** from MultiMate's main menu.
3. Select **2 Edit Printer Defaults**. The MODIFY PRINTER DEFAULTS screen will then be displayed. The following information needs to be supplied in the menu fields (use the TAB key to move between fields).

Top Margin = **003** (for a default ½ inch margin using 6 lines per inch. Enter **004** if you are using 8 lines per inch).

Draft Print = **Y**

Default Pitch = Make sure the pitch of the font cartridge you are using and this answer agree. (See the Printer Features Table contained within this Application Note and/or the HP LaserJet Font Capabilities booklet provided with your MultiMate software package.)



# Using MultiMate™ Advantage version 3.6 Revision B

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up MultiMate Advantage version 3.6 Revision B:

1. Check the MultiMate Advantage version 3.6 Revision B manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up MultiMate Advantage version 3.6 Revision B to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with MultiMate Advantage version 3.6 Revision B.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.



For more information on printing check the index of your MultiMate Advantage manual.

## Setting Up MultiMate Advantage

When using MultiMate Advantage to print documents, you must have a copy of the correct printer driver file (.PAT) on your Program Disc. A .PAT file is a printer description file that MultiMate Advantage uses to communicate with a printer. The .PAT file you use must be copied onto your system disc (or the disc and directory from which you start MultiMate).

Check the MultiMate Advantage Printer Action Table (See the MultiMate Advantage Reference Manual, Appendix D) for the list of appropriate .PAT files. Look for comparable HP LaserJet .PAT file(s) (see the Printer Features Table contained within this Application Note) and use the following procedures.

To set up the correct printer file, follow these steps:

1. Start the MultiMate Advantage word processing program.
2. Select **4 Printer Control Utilities** from MultiMate's main menu.
3. Select **2 Edit Printer Defaults**. The MODIFY PRINTER DEFAULTS screen will then be displayed. The following information needs to be supplied in the menu fields (use the TAB key to move between fields).

Top Margin = **003** (for a default ½ inch margin using 6 lines per inch. Enter **004** if you are using 8 lines per inch.)

Draft Print = **Y**

Default Pitch = Make sure the pitch of the font cartridge you are using and this answer agree. (Refer to the HP LaserJet Font Capabilities Booklet provided with your MultiMate Advantage software for the number corresponding to the font you wish to use.)

Printer Action Table = This is the .PAT file that will support the DeskJet cartridge you wish to use.

Document Page Length = 060

P(arallel)/S(erial) = P for Parallel, S for Serial

Device Number = (LPT1 or COM1)

4. Press **F10** to save your selections.
5. Press **F10** to return to the main menu.

### **Using Printer Features**

Switching between letter quality and draft quality is possible through the printer's keypad only.

For a complete listing of fonts supported by the .PAT files listed above, see the Hewlett-Packard LaserJet Font Capabilities Booklet provided with your MultiMate Advantage software documentation.



# Using *pfs*:<sup>®</sup>First Choice version 1.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up *pfs*:First Choice version 1.0:

1. Check the *pfs*:First Choice manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up *pfs*:First Choice to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with *pfs*:First Choice version 1.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your *pfs*:First Choice manual.

### Setting Up *pfs*:First Choice

To select a printer:

1. Start the First Choice program.
2. Choose **Set up equipment**.
3. Choose **Select a printer**.  
At this point, a list of available printers will be displayed. Use **Pg Dn** to see more selections.

3

4. At the **Choose printer** prompt, enter **20** for HP LJet COUR Port (or the appropriate LaserJet printer name for your DeskJet cartridge. See the Printer Features Table).
5. Tab to **Printer connects to** (PRN, COM1, COM2, LPT1, LPT2, LPT3): and enter the appropriate connection for your printer. If you type COM1 or COM2, First Choice will ask you for printer settings.
6. Press **Enter** when done to return to the Set Up Menu.
7. Continue with the set up procedure or return to the Main Menu and begin using First Choice with your DeskJet printer.

## Using Printer Features

When using the HP LaserJet printer drivers with First Choice, you may take advantage of options they do not support by using the \*PRINTER\* command. See the First Choice manual for more information.

**pfs:First Choice Printer Feature Table**

DeskJet Cartridge	LaserJet Printer Name	Font/ Typeface	Printer Features										Notes			
			Point Size/Pitch	Italics	Bold	Underline	Double Underline	Superscript	Justification	Proportional Spacing	Multiple Columns					
None	HP Ljet COUR Port	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	1
A	HP Ljet COUR Port	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	1
B	HP Ljet PRES ELITE	Prestige Elite	10/12	•	•	•	•	•	•	•	•	•	•	•	•	1
C	HP Ljet GOTHIC	Letter Gothic	12/12	•	•	•	•	•	•	•	•	•	•	•	•	1

NOTES: 1. Bold and italics cannot be combined when using this font.

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up *pfs:Write* revision C:

1. Check the *pfs:Write* revision C manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up *pfs:Write* revision C to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with *pfs:Write* revision C.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your *pfs:Write* revision C manual.

### Setting Up *pfs:Write*

To configure your printer with *pfs:Write*:

1. Run the SETUP program.
2. Select option 1. **Select the default printer port.**

3. Type the correct port for your printer. **LPT1** for a parallel port, **COM1** for a serial port.

NOTE: If you select COM1 or COM2, you must answer these questions:

Baud rate:           **9600**  
Data Bits:           **8**  
Stop Bits:           **1**  
Parity:               **None**  
Use XON/XOFF:      **N**

**To select a printer:**

1. Start the *pfs:Write* program.
2. Select 3, then press the **F10** key to select the Print menu.
3. Use the tab key to move the cursor to the **Select a printer (Y/N):** field.
4. Type **Y** and press the **Enter** key.
5. A list of available printers will be displayed.
6. Select one of the following printers by typing its corresponding number, and press **Enter**. (See the Printer Feature Table to help determine the appropriate printer to select.)
  25. **HP LJet Courier**
  27. **HP LJet L Gothic**
  28. **HP LJet Line P**
  29. **HP LJet P Elite**
7. The message "**Put a new page in printer**" will be displayed. Be sure the printer is connected to your computer and turned on. Press the **ESC** key.
8. You will be returned to the main menu.

## **Using Printer Features**

Lines per page should be equal to 60. Select 2. **Define page** at the main menu to modify this answer.

Fonts should be selected from the keypad prior to printing.

## pfs:Write Printer Feature Table

DeskJet Cartridge	Printer Selected	Font/ Typeface	Printer Features											Notes		
			Point Size/Pitch	Italics	Bold	Underline	Double Underline	Super/Subscript	Strikethrough	Proportional Spacing	Multiple Columns					
None	HP Ljet Line P	Courier	12/10	•	•	•	•									
A	HP Ljet Courier	Courier	12/10	•	•	•	•									
B	HP Ljet P Elite	Prestige Elite	10/12	•	•	•	•									
C	HP Ljet L Gothic	Letter Gothic	12/12	•	•	•	•									

3



# Using Samna Word III™ version 3.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Samna Word III version 3.0:

1. Check the Samna Word manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Samna Word to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Samna Word III version 3.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Samna Word manual.

### Setting Up Samna Word

If you have already installed Samna Word, the CHANGE program provided on the Printer Disc will allow you to select another printer.

Samna Word III is a Trademark of Samna Corp. Please direct all questions regarding this product to Samna Corp., 2700 N.E. Expressway, Suite C-700, Atlanta, GA 30345; (404) 321-1719.

## Using Printer Features

If you are installing Samna Word for the first time proceed with the installation until you are asked to insert the Printer Disk into drive A.

1. Tab to **HP LaserJet+** so an "X" appears in the parentheses ( ).
2. Press the **Enter** key.
3. Answer the next question about your printer interface with either a **P** (Parallel) or **S** (Serial).
4. There will appear on your screen a display of available printwheel/fonts to choose from.
5. Select up to six fonts which correspond to the DeskJet printer cartridges you will be using. (See the Printer Features Table for LaserJet font names and available features.)
6. Press **Enter** and continue with the installation program.

Font selection within Samna Word is limited to six fonts per printer. If you select a print wheel sequence for a font that you do not have installed in your printer, your text will be printed with the Courier font that comes with the printer.

If you want to install several different versions of the same printer program (e.g., different font combinations), you can store each one in a different subdirectory off of the `PRINTERS\` subdirectory. Give these directories meaningful names to make it easier to remember what each one is for. For example, you could install a printer program containing a combination of fonts for use with legal documents in `PRINTERS\LEGAL`.

The pitch may be varied with any font selected by using the pitch change command (`MARK` command). Fonts can be changed by selecting the wait/wheel change (`MARK` command).

Set page length to a maximum of 63 lines per page.

## Samna Word III Printer Feature Table

DeskJet Cartridge	LaserJet Printwheel Sequence	Font/Typeface	Printer Features											Notes			
			Point Size	Italics	Bold	Underline	Double Underline	Superscript	Overstrike	Line Drawing							
None	HP Courier 10 (built in)	Courier	12														1
A	HP Courier Ital Light (A)	Courier	12	•													1
A	HP Courier Ital Med (L,Q)	Courier	12	•													1
B	HP Prestige Elite 12 (D,J,M)	Prestige Elite	10	•													1
B	HP Prestige Elite Ital. 12 (D, J, M)	Prestige Elite	10	•													1
B	HP Prestige Elite 16.66 (J)	Prestige Elite	7	•													1
C	HP Ltr Gothic 12 (E, N, Q)	Letter Gothic	12	•													1
C	HP Ltr Gothic 12 Ital (E, N)	Letter Gothic	12	•													1
C	HP Port Ln Ptr 16.7 (E L)	Letter Gothic	6	•													1

NOTE: 1. Pitch: 5, 6, 7, 8, 9, 10, 12, 13, 15, 16.67, 20

# Using Samna Word IV™ version 1.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Samna Word IV version 1.0:

1. Check the Samna Word manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Samna Word to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Samna Word IV version 1.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Samna Word manual.

### Setting Up Samna Word

If you have already installed Samna Word, the CHANGE program provided on the Printer Disc will allow you to select another printer.

If you are installing Samna Word for the first time, proceed with the INSTALL program until Samna Word prompts you to insert the Printer Disc into drive A.

Samna Word IV is a Trademark of Samna Corp. Please direct all questions regarding this product to Samna Corp., 2700 N.E. Expressway, Suite C-700, Atlanta, GA 30345; (404) 321-1719.

1. Tab to **HP LaserJet+** so an "X" appears in the parentheses (X).
2. Press the **Enter** key.
3. Answer the next question about your printer interface with either a **P** (Parallel) or **S** (Serial).
4. Answer the next question with the corresponding number to "Which port number is your printer connected to (1-4)?" (i.e., LPT1, LPT2, COM1, COM2)
5. Next, there will be a display of available printwheel/ fonts to choose from.
6. Select up to 30 fonts which correspond to the DeskJet printer cartridge(s) you will be using. (See the Printer Features Table for LaserJet font names and available features.)
7. Press the **Enter** key and continue with the **INSTALL** program.

## Using Printer Features

The multiple columns feature is available for side-by-side columns only, not newspaper-type columns.

It is recommended you do not use more than one DeskJet cartridge in the printer at a time when using Samna Word.

Font selection within Samna Word is limited to 30 fonts per printer. If you select a print wheel sequence for a font that you do not have installed in your printer, your text will be printed with the Courier font that is resident in the printer.

If you want to install several different versions of the same printer program (e.g., different font combinations), you can store each one in a different subdirectory off of the `PRINTERS\` subdirectory. Give these directories meaningful names to make it easier to remember what each one is for. For example, you could install a printer program containing a combination of fonts for use with legal documents in `PRINTERS\LEGAL`.

## Samna Word IV Printer Feature Table

DeskJet Cartridge	LaserJet Font Selection	Font/Typeface	Printer Features											Notes				
			Point Size	Italics	Bold	Underline	Double Underline	Super/Subscript	Overstrike	Proportional Spacing	Side-by-Side Columns							
None	HP Courier 10 (Built In)	Courier	12															1
A	HP Courier 10 Ital (A)	Courier	12	*														1
A	HP Land Line Ptr Lt. 16 (A)	Line Printer	6		*	*	*	*	*	*	*	*	*	*	*	*	*	1
A	HP Legal Courier 10 (H)	Courier	12															1
A	HP Legal Cour 10 Ital (H)	Courier	12	*														1
B	HP Prestige Elite 12 (D)	Prestige Elite	10		*	*	*	*	*	*	*	*	*	*	*	*	*	1
B	HP Prest. El. Ital 12 (D)	Prestige Elite	10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
B	HP Legal Prestige El. (G)	Prestige Elite	10		*	*	*	*	*	*	*	*	*	*	*	*	*	1
B	HP Legal Pres. El. Ital (G)	Prestige Elite	10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
B	HP Legal Pres. El. 16 (G, H)	Prestige Elite	10		*	*	*	*	*	*	*	*	*	*	*	*	*	1
B	HP Math 7 Pres. El. 12 (J)	Math 7	10		*	*	*	*	*	*	*	*	*	*	*	*	*	1
B	HP Math 8 Pres. El. 12 (J)	Math 8	10		*	*	*	*	*	*	*	*	*	*	*	*	*	1
B	HP Math 8a Pres. El. 12 (J)	Math 8a	10		*	*	*	*	*	*	*	*	*	*	*	*	*	1
B	HP Math 8b Pres. El. 12 (J)	Math 8b	10		*	*	*	*	*	*	*	*	*	*	*	*	*	1
B	HP Pres. El. Pi Font 12 (J)	Pi Font	10		*	*	*	*	*	*	*	*	*	*	*	*	*	1
C	HP Letter Gothic 12 (E)	Letter Gothic	12		*	*	*	*	*	*	*	*	*	*	*	*	*	1
C	HP Land Line Ptr Lt. 16 (A)	Letter Gothic	9.5		*	*	*	*	*	*	*	*	*	*	*	*	*	1
C	HP Letter Gothic Ital 12 (E)	Letter Gothic	12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
A, B, C, M	HP Line Draw (G, H)	Line Draw	12															
M	HP Letter Goth 14 ASC (R)	Letter Gothic	14		*	*	*	*	*	*	*	*	*	*	*	*	*	1
M	HP Pres. Bold 14 ASC (R)	Presentations	14		*	*	*	*	*	*	*	*	*	*	*	*	*	1
M	HP Pres. Bold 16 ASC (R)	Presentations	16		*	*	*	*	*	*	*	*	*	*	*	*	*	1
M	HP Pres. Bold 18 ASC (R)	Presentations	18		*	*	*	*	*	*	*	*	*	*	*	*	*	1

NOTE: 1. Pitch: 5, 6, 7, 8, 9, 10, 12, 13, 15, 16.67, 20

### **On the HP Vectra, and the IBM PC Family and Compatibles**

SIDEWAYS is a software program that will take your spreadsheets, database reports, schedules, and other documents and turn them 90 degrees on your printer.

A DeskJet Printer/Sideways driver is available on Sideways™ version 3.2 from Funk Software, Inc. Contact Funk Software, Inc., Cambridge, MA 02142, (617) 497-6339 for availability information.

# Using SuperCalc®3 version 1.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up SuperCalc3 version 1.0:

1. Check the SuperCalc3 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up SuperCalc3 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with SuperCalc3 version 1.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information, we suggest you review the sections on Output and Printing in the SuperCalc3 manual.

### Setting Up SuperCalc3

To select the appropriate printer interface option:

1. Type *IGGO* (Global, Graphics, Options).
2. Tab to Plotter Interface.
3. Enter *S*(erial) or *P*(arallel), depending on the interface you are using.
4. If *P* is retained, the highlighting moves to Parallel Options.

SuperCalc is a U.S. Registered Trademark of Computer Associates Intl., Inc. Please direct all questions regarding SuperCalc3 to Computer Associates Intl., Inc., Micro Products Division, 2195 Fortune Drive, San Jose, CA 95131; (408) 432-1764.



- 5.** Enter the port number of the printer being used (LPT1) or (LPT2).
- 6.** If **S** is selected, the highlighting moves to Serial Options.
- 7.** Enter the following:  
Com number   **1** (COM1) or **2** (COM2)  
Baud Rate     **9600**  
Parity         **N**  
Data Bits      **8**  
Stop Bits      **1**
- 8.** Press **F10** (View) to exit the options menu.
- 9.** Enter **/GKY** (Global, Keep, Yes) to keep your selections.

To print SuperCalc3 Graphics, follow these steps:

- 1.** Start the SuperCalc3 program.
- 2.** Type **/GGD** (Global, Graphics, Device).
  - a.** Look for the DeskJet printer. If found, select it and go to step 4. If the DeskJet printer is not found, go to step 3.
- 3.** Use the arrow keys to highlight **HP LaserJet**.
- 4.** Press the **Enter** key.
- 5.** Press **O** (Options).
- 6.** Use the tab key or cursor keys to move to the Graphics Printers (Resolution) field and enter:  
S(ingle)        75 dpi  
D(ouble)       100 dpi  
T(riple)       150 dpi  
Q(uad)         300 dpi
- 7.** Press **F10** to exit the Options Menu.
- 8.** Type **/GKY** (Global, Keep, Yes) to save your selections.

SuperCalc3 is now ready to print graphics.

To print a spreadsheet follow these steps:

1. Start the SuperCalc3 program.
2. Type */ODS* (Output, Display, range, Setup).
3. Set the following values:  
Length = 63 lines  
Width = 80 characters (or 132 in compressed mode)  
Auto-form-feed = ON
4. Check the width and margin settings. Set them to correspond to the font you've selected via the keypad.
5. Backspace several times to return to a blank command line.
6. Type */GKY* (Global, Keep, Yes) to save your selections.



### Note

---

SuperCalc3 (Version 1.0) normally defaults to the parallel printer port (LPT1). Make sure the DOS MODE commands are issued before starting the SuperCalc3 program. See the Setting Up Hardware chapter of this manual and refer to your DOS manual for information on MODE commands.

---

### Sideways

Review Appendix D in your SuperCalc3 manual for more information on Sideways Printing.

1. Start the Sideways installation program (SIDEINS.EXE)
2. Select **Hewlett-Packard printer**.
3. Select **HP LaserJet**.
4. Start the Sideways program. The printer you installed will be displayed in the menu.

### Using Printer Features

Fonts available on the DeskJet printer font cartridges can be accessed via the printer keypad. Be sure that your margins and line width are set to correspond to the font pitch you've selected.

# Using SuperCalc®4 version 1.0, 1.1

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up SuperCalc4 version 1.0, 1.1:

1. Check the SuperCalc4 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up SuperCalc4 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with SuperCalc4 version 1.0, 1.1.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing spreadsheets, we suggest you review the sections on Output in the SuperCalc4 manual.

### Setting Up SuperCalc4

There are some minor differences in setting up SuperCalc4 version 1.0 and 1.1. Follow the sections outlined for your particular version.

Start the SuperCalc4 program.

SuperCalc is a U.S. Registered Trademark of Computer Associates Intl., Inc. Please direct all questions regarding SuperCalc4 to Computer Associates Intl., Inc., Micro Products Division, 2195 Fortune Drive, San Jose, CA 95131; (408) 432-1764.

**Version 1.0**

To select your printing device:

1. Type **/GDD** (Global, Graphics, Device).
2. Use the cursor keys to highlight the **HP LaserJet+** printer and press the **Enter** key.
3. Type **Q** (Quit) to return to a blank command line.

**Note**

---

SuperCalc4 normally defaults to the parallel printer port (LPT1). Make sure the DOS MODE commands are issued before starting the SuperCalc4 program. See the Setting Up Hardware chapter of this manual and refer to your DOS manual for information on MODE commands.

---

**Version 1.1**

To select your printing device:

1. Type **/GGDB** (Global, Graphics, Device, B&W printers).
2. Use the cursor keys to highlight **HEWLETT-PACKARD** and press the **Enter** key. A list of Hewlett-Packard printers will be displayed.
3. Select the **HP LaserJet PLUS** printer, and press the **Enter** key.
4. Backspace or press the **ESC** key several times to return to a blank command line.

**Both Versions**

1. Type **/GGO** (Global, Graphics, Options) and the **GRAPH APPEARANCE & DEVICE SETTINGS** menu will be displayed.
2. Use the cursor keys to move to the Plotter Interface field and enter **P** for Parallel or **S** for Serial.
3. If you selected **P**, set the Parallel Options to: Printer number 1 (LPT1), or 2 (LPT2).

4. If you selected **S**, set the Serial Options to:  
Com number 1 (COM1), or 2 (COM2)  
Baud Rate 9600  
Parity N  
DataBits 8  
StopBits 1
5. Use the cursor keys to move to the Graphics Printers field. Select one of the following (resolution):  
S (ingle) 75 dpi  
D (ouble) 100 dpi  
T (riple) 150 dpi  
Q (uad) 300 dpi
6. Backspace or press **ESC** several times to return to a blank command line.
7. Type **JOPOLP60** (Output, Printer, Options, Layout, Pagelength 60).
8. Check the width and margin settings. Set them to correspond to the font you select via the printer's keypad.
9. Backspace or press **ESC** several times to return to a blank command line.
10. Type **JGKY** (Global, Keep, Yes) to save your selections.

### **Sideways**

Start the SWSETUP.EXE program.

Select **Hewlett-Packard Printer**.

Select **HP LaserJet +**.

## **Using Printer Features**

Fonts available on the DeskJet printer font cartridges can be accessed via the printer's keypad. Be sure that your margins and line width are set to correspond to the font pitch you've selected.

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Symphony version 1.0:

1. Check the Symphony version 1.0 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Symphony version 1.0 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Symphony version 1.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Symphony manual.

## Running Install and Selecting Text and Graphics Printers

To install the appropriate driver set follow these steps:

1. Start the **INSTALL** program.
2. Press the **Enter** key. (If you make a mistake, press the **ESC** key to back up to the previous step.)
3. Select option **1 Installation: Create a driver set**.
4. Press the **Enter** key.
5. When asked, "Do you wish to add single drivers to the master library?" type **Y** and press the **Enter** key.
6. Select the type of monitor you are using.
7. Select **HP 2225, 2930 or 2686** as the Text Printer driver and **HP2686A LaserJet** as the Graph Printer driver.
8. Continue with the remainder of the Install program, save your selections and exit to DOS.

## Setting Up Symphony

1. Start the Symphony program.
2. Press the **SERVICES** key (F9).
3. Type **CP** (Configuration, Printer).  
If your printer is connected to the parallel port (LPT1), type **T1** (Type, Parallel interface).  
If your printer is connected to the serial port (COM1), type **T28** (Type, Serial interface, 9600 baud).
4. Type **QUQ** (Quit, Update, Quit) to save your choices.

Symphony is now set up for printing.

## Setting Up PrintGraph

1. Start the PrintGraph program.
2. Set up the printer port:
  - a. For parallel port (LPT1), enter **SHI1** (Settings, Hardware, Interface, Parallel Port).
  - b. For serial port (COM1), enter **SHI28** (Settings, Hardware, Interface, Serial Port, 9600).
3. Enter **P** (Printer).

4. Highlight **HP 2686A LaserJet** and press the space bar until the "#" character appears next to the name.
5. Press the **Enter** key.
6. Enter **QS** (Quit, Save).

PrintGraph is now ready for printing.

## Using Printer Features

### Symphony

Init strings – please refer to those used for Lotus 1-2-3 (setup strings).

The fonts in the DeskJet A, B, C and M font cartridges can be accessed via the printer's keypad. Margin settings may have to be changed to correspond to the pitch you are using.

To set page length:

1. If you are using 6 lines per inch (default) press **SERVICES** (F9), type **CPP60** (Configuration, Printer, Pagelength, 60 lines).
2. If you are using 8 lines per inch, press **SERVICES** (F9), type **CPP80** (Configuration, Printer, Pagelength, 80 lines).

### Example

The following example illustrates the use of escape sequences within a Symphony SPREADsheet or DOCument to change fonts. It shows how to enter an escape sequence in cell A1 to enable the Prestige Elite 10pt./12 pitch font. See the Appendix for a complete listing of DeskJet font selection escape sequences. Note: You *must* have the HP22706B font cartridge inserted in your DeskJet printer in order for this particular example to work. The HP22706B cartridge contains the Prestige Elite font.



**Step 1.** Start the Symphony program and go into the SPREADsheet mode.

**Step 2.** In cell A1 type, `||\027(s0p12h10v0s0b8T`. Press the **Enter** key (Note: If you made a mistake, press **EDIT**, (F2), correct the mistake, then press the **Enter** key again. Only one vertical bar will appear in the cell preceding the escape sequence.)

**Step 3.** When printing the SPREADsheet or DOCUMENT, make sure that you include the escape sequence in the print RANGE.



**Note**

Symphony will *not* allow escape sequences to be entered, removed or edited in the DOCUMENT mode. However, you *can* enter the escape sequence in the SPREADsheet, then switch to DOCUMENT mode. Ensure that the margin settings correspond to the font you've selected.

**PrintGraph**

All graphics print in 75 dots-per-inch resolution.

When printing two half-size graphs on a single page, perforation skip must be OFF (SWITCH A8 UP).

**Symphony 1.0 Printer Feature Table**

DeskJet Cartridge	LaserJet PrintFile	Font/Typeface	Printer Features										Notes		
			Point Size/Pitch	Italic	Bold	Underline	Double Underline	Super/Subscripts	Strike/through	Proportional Spacing					
None	HP2225, 2930 or 2686	Courier	12/10	•	•										
	HP2225, 2930 or 2686	Courier	12/10	•	•										

# Using Symphony® version 1.1, 1.2

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Symphony version 1.1, 1.2:

1. Check the Symphony version 1.1, 1.2 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Symphony version 1.1, 1.2 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Symphony version 1.1, 1.2.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

## Running Install and Selecting Text and Graphics Printers

## Setting Up Symphony

For more information on printing and the Print command, check the index of your Symphony manual.

To install the appropriate driver set follow these steps:

1. Start the **INSTALL** program.
2. At the Main Menu, highlight **First-Time Installation: Create a driver set**, or **Change Selected Equipment** if you have already installed Symphony.
3. Press the **Enter** key. (If you make a mistake, press the **ESC** key to back up to the previous step.)
4. a. Using version 1.1:  
Select **HP 2686A LaserJet** as both the Text and Graphics Printer driver.  
b. Using version 1.2:  
Select **HP 2686 LaserJet or LaserJet+** as the Text Printer.  
Select **HP 2930 Series** as the Graphics Printer.
5. Continue with the remainder of the Install program, save your selections and exit to DOS.

1. Start the Symphony program.
2. Press the **SERVICES** key (F9).
3. Type **CP** (Configuration, Printer).  
For the parallel port (LPT1), type **T1** (Type, Parallel interface).  
For the serial port (COM1), type **T28** (Type, Serial interface, 9600 baud).
4. Type **N** (Name), enter the number corresponding to the printer you installed, and press **Enter**.
5. Type **QUQ** (Quit, Update, Quit) to save your choices.

Symphony is now set up for printing.

## Setting Up PrintGraph

1. Start the PrintGraph program.
2. Set up the printer port:
  - a. For parallel port (LPT1), enter **SHI1** (Settings, Hardware, Interface, Parallel Port).
  - b. For serial port (COM1), enter **SHI28** (Settings, Hardware, Interface, Serial Port, 9600).
3. Enter **P** (Printer).
  - a. Using version 1.1: Select **HP 2686A LaserJet**
  - b. Using version 1.2: Select **HP 2930 Series**
4. Highlight the printer name and press the space bar to select it. (A **"#"** sign should appear to the left of the name you select).
5. Press the **Enter** key.
6. Enter **QS** (Quit, Save).

PrintGraph is now ready for printing.

## Using Printer Features

### Symphony

Init strings—please refer to those used for Lotus 1-2-3 (setup strings).

The fonts in the DeskJet printer A, B, C and M font cartridges can be accessed via the printer's keypad, or through an embedded escape sequence (see example on the next page). Be sure the margin settings correspond to the font you select.

To set page length:

1. If you are using 6 lines per inch (default) press **SERVICES** (F9), type **CPP60** (Configuration, Printer, Pagelength, 60 lines).
2. If you are using 8 lines per inch, enter **SERVICES** (F9), type **CPP80** (Configuration, Printer, Pagelength, 80 lines).

### Example

This example illustrates the use of escape sequences within a Symphony SPREADsheet or DOCument to change fonts. It shows how to enter an escape sequence in cell A1 to enable the Prestige Elite 10pt./12 pitch font. See the Appendix for a complete listing of DeskJet printer font selection escape sequences. Note: You *must* have the HP22706B font cartridge inserted in your DeskJet printer in order for this particular example to work. The HP22706B cartridge contains the Prestige Elite font.

**Step 1.** Start the Symphony program and go into the SPREADsheet mode.

**Step 2.** In cell A1 type, `"\027(s0p12h10v0s0b8T`.

Press the **Enter** key (Note: If you made a mistake, press **EDIT**, (F2), correct the mistake, then press the **Enter** key again. Only one vertical bar will appear in the cell preceding the escape sequence.)

**Step 3.** When printing the SPREADsheet or DOCument, make sure that you include the escape sequence in the print RANGE.



### Note

---

Symphony will *not* allow escape sequences to be entered, removed or edited in the DOCument mode. However, you *can* enter the escape sequence in the SPREADsheet, then switch to DOCument mode. Ensure that the margin settings correspond to the font you've selected.

---

### PrintGraph

All graphics print in 75 dots-per-inch resolution.

#### Version 1.1:

To print two half-size graphs on a single page set the Top Margin of the image size to 0.

#### Version 1.2:

To print two half-size graphs on a single page, turn Perf Skip OFF on the printer (Switch A8 UP).

## Symphony 1.1 Printer Feature Table

DeskJet Cartridge	LaserJet PrintFile	Font/ Typeface	Printer Features											Notes		
			Point Size/Pitch	Italics	Bold	Underline	Double Underline	Super/Subscript	Strike through	Proportional Spacing						
None A	HP2686A LaserJet or LaserJet +	Courier	12/10	•	•	•	•	•								
	HP2686A LaserJet or LaserJet +	Courier	12/10	•	•	•	•	•								

3

# Using Volkswriter® 3 release 1.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up Volkswriter 3 release 1.0:

1. Check the Volkswriter 3 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up Volkswriter 3 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with Volkswriter 3 release 1.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your Volkswriter 3 manual.

### Setting Up Volkswriter 3

To select a printer:

1. Start the CONFIGUR program.
2. Select 3 Select Printer.

Volkswriter is a U.S. Registered Trademark of Lifetree Software. Please direct all questions regarding Volkswriter 3 to Lifetree Software, 411 Pacific Street, Suite 315, Monterey, CA 93940; (408) 373-4904.

3. Press the **Enter** key until the **HP LaserJet** or **HP2686A** printers are displayed.
4. Type **Y**.
5. Type the letter corresponding to the printer selection you will use. (See the Printer Feature Table, e.g., if you want Legal Prestige Elite, insert the B cartridge and select the **HP LaserJet and + (Legal Cart. G/H.)**.)
6. The number assigned to your selection will be displayed. **REMEMBER THIS NUMBER!**
7. Type **2**.
8. Type **4 Select where documents will be printed**.
9. Type the letter corresponding to the port you will use (LPT1, COM1, etc.).
10. Press **X** to return to the main menu.
11. Press **X** to Exit the CONFIGUR program.

All new documents will be created for use with your newly installed printer. For documents that were created using another printer, the printer type will need to be changed. Follow the steps below:

1. Start Volkswriter 3.
2. Bring in the old document.
3. Press **F9** (Layout).
4. Type **D** (Document options).
5. Type **T** (Type of printer).
6. Type the number of your printer (the number displayed in the CONFIGUR program).
7. Press **F9** twice to save these settings.

Repeat the above for other previously created documents.





# Using WordPerfect™ versions 4.1, 4.2

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up WordPerfect versions 4.1, 4.2:

1. Check the WordPerfect manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up WordPerfect to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with WordPerfect versions 4.1, 4.2.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your WordPerfect manual.

## Setting Up WordPerfect

To select a printer follow these steps:

1. Start the WordPerfect program.
2. Select **Print** (shift F7).
3. Select **4 Printer Control**.
4. Select **3 Select Printers**.
5. Press **PgDn** until the **LaserJet and LaserJet+, 500+** printer definitions appear.
6. Check the Printer Features Table to select the LaserJet printer name that corresponds to the appropriate DeskJet cartridge (e.g., [WordPerfect 4.2] **LaserJet Reg, +, 500+ E: Ltr Goth 12** when using the DeskJet 22706C cartridge for one of the Letter Gothic typfaces). Enter the number corresponding to the printer you wish to use.
7. Other printer selections:
  - a. If you are using a Parallel port (LPT1), choose **0 - LPT 1**, then choose **1 - Continuous** from the Type of Forms menu.
  - b. If you are using a Serial port (COM1) choose **4 - COM 1**, then select **7 - 9600** for Baud Select. Choose **0 - None** for Parity, Stop Bits (1 or 2) : **1**, Character Length (7 or 8) : **8**, and **1 - Continuous** for the Type of Forms.

## Using Printer Features

Refer to the Printer Feature Tables for the LaserJet printer name to support your corresponding DeskJet printer cartridge(s). WordPerfect 4.1 users – note the following exceptions.

Italics print is accessed by changing fonts within WordPerfect if an italic font is available on the DeskJet printer cartridge.

Line Drawing is not available using the DeskJet printer internal cartridge and the LaserJet A font printer file.

When italics is available, the REDLINE feature is printed in italics.

Line Drawing is not available when using the DeskJet printer B cartridge with the LaserJet J printer file.

The LaserJet Presentations cartridge is not supported.

### WordPerfect 4.1 Printer Feature Table

DeskJet Cartridge	LaserJet Driver	Font/Typeface	Point Size/Pitch	Printer Features											Notes	
				Italics	Bold	Underline	Double Underline	Super Underline	Overstrike	Proportional Spacing	Multiple Columns	RTM	Reverse Char	6/8 9/9		
None	LaserJet A: Courier 10	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	
A	LaserJet A: Courier 10	Courier	12/17	•	•	•	•	•	•	•	•	•	•	•	•	
A	LaserJet A: Courier 10	Courier Ital	12/10	•	•	•	•	•	•	•	•	•	•	•	•	1 LaserJet C: provides Intl. Character Sets.
B	LaserJet G: Elite Legal	Prestige Elite	10/12	•	•	•	•	•	•	•	•	•	•	•	•	
		Line Draw	12/12													
		Prestige Legal	10/12	•	•	•	•	•	•	•	•	•	•	•	•	1
		Prestige Legal Ital	10/12	•	•	•	•	•	•	•	•	•	•	•	•	1
		Prestige Legal	7/17	•	•	•	•	•	•	•	•	•	•	•	•	
B	LaserJet J: Math Elite	Prestige Elite	10/12	•	•	•	•	•	•	•	•	•	•	•	•	1
		Prestige Elite Ital	10/12	•	•	•	•	•	•	•	•	•	•	•	•	1
		Prestige Elite	7/17	•	•	•	•	•	•	•	•	•	•	•	•	
		Math 8 Elite	10/12	•	•	•	•	•	•	•	•	•	•	•	•	
		Math 8 Elite	7/17	•	•	•	•	•	•	•	•	•	•	•	•	
		Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	
C	LaserJet E: Ltr Gothic 12	Letter Gothic	12/12	•	•	•	•	•	•	•	•	•	•	•	•	1
		Letter Gothic Ital	12/12	•	•	•	•	•	•	•	•	•	•	•	•	1
		Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	
A & B	LaserJet H: Courier Legal	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	1
		Courier Ital	12/10	•	•	•	•	•	•	•	•	•	•	•	•	1
		Prestige Legal	7/17	•	•	•	•	•	•	•	•	•	•	•	•	
		Prestige Elite	7/17	•	•	•	•	•	•	•	•	•	•	•	•	
		Line Draw	12/10													
A & C	LaserJet Q: Cour, Ltr Gothic	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	1
		Courier Ital	12/10	•	•	•	•	•	•	•	•	•	•	•	•	1
		Letter Gothic	12/12	•	•	•	•	•	•	•	•	•	•	•	•	

NOTES: 1. Redline function provides italics

## WordPerfect 4.2 Printer Feature Table

DeskJet Cartridge	LaserJet Driver	Font/Typeface	Printer Features											Notes				
			Point Size/Pitch	Italics	Bold	Underline	Double Underline	Supersubscripts	Overstrike	Proportional Spacing	Multiple Columns	Strikeout	RM		Foreign Chars	68 dpi		
None	LaserJet Reg. +, 500+ A: Courier	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Courier	12/17	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1
A	LaserJet Reg. +, 500+ A: Courier	Courier Ital	12/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1, 2	
B	LaserJet Reg. +, 500+ G: Legal Elite	Prestige Elite	10/12	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Prestige Legal	10/12	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Prestige Legal Ital	10/12	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Prestige Legal	7/17	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Line Draw	12/12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1
		Prestige Elite	10/12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1
		Prestige Elite Ital	10/12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1
		Prestige Elite	7/17	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1
		Math 8 Elite	10/12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1
		Math 8 Elite	7/17	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1
C	LaserJet Reg. +, 500+ E: Gothic	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Letter Gothic	12/12	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Letter Gothic Ital	12/12	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
M	LaserJet Reg. +, 500+ R: Present	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Presentations	14/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Presentations	16/8.1	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Presentations	18/6.5	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Letter Gothic	14/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
A & B	LaserJet Reg. +, 500+ H: Legal C	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Courier Ital	12/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Prestige Legal	7/17	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Prestige Elite	7/17	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Line Draw	12/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
A & C	LaserJet Reg. +, 500+ Q: Cour, LG	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Courier Ital	12/10	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Courier	12/12	•	•	•	•	•	•	•	•	•	•	•	•	•	1	
		Letter Gothic	12/12	•	•	•	•	•	•	•	•	•	•	•	•	•	1	

- NOTES: 1. Font styles can be viewed by starting the PRHELP program provided with your WordPerfect 4.2 program.  
 2. LaserJet Reg. +, 500+ C: Intl 1 provides international character sets.

# Using WordStar® versions 3.30 and 3.31

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up WordStar versions 3.30 and 3.31:

1. Check the WordStar versions 3.30 and 3.31 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up WordStar versions 3.30 and 3.31 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with WordStar versions 3.30 and 3.31.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your WordStar versions 3.30 and 3.31 manual.

### Setting Up WordStar

To install a printer follow these steps:

1. Start the WordStar installation program WINSTALL.
2. At the INSTALLATION menu choose **Menu of Printers**.

WordStar is a U.S. Registered Trademark of MicroPro International Corp. Please direct all questions regarding this product to MicroPro International Corp., 33 San Pablo Avenue, San Rafael, CA 94903; (415) 499-8320.



3. At the STANDARD PRINTER TYPES menu:
  - a. Version 3.30: choose the **backspacing standard** printer. Press the **Enter** key to confirm.
  - b. Version 3.31: choose **HP LaserJet** and go on to step 6.
4. At the COMMUNICATION PROTOCOL menu choose **A None required**. Press the **Enter** key to confirm.
5. At the DRIVER menu choose the letter corresponding to the type of printer interface you are using. Press the **Enter** key to confirm your selection.
6. Press the **Enter** key to confirm your choice(s).



### Note

Winstall version 3.30 displays the COMMUNICATION PROTOCOL and DRIVER menus, whereas version 3.31 does not. With both versions, make sure you set up your interface (LPT1 parallel or COM1 serial) using the DOS MODE commands. See the Setting Up chapters of this manual, or consult your DOS manual for more information on using MODE commands.

7. Select **X Exit from WINSTALL**.
8. Your selections will be displayed along with the EXIT OPTIONS Menu. Choose **A Save the changes made during this WINSTALL session**.

## Using Printer Features

Version 3.31, which has an HP LaserJet printer, driver states that it provides basic support for Courier 10 pitch font cartridges only. If the correct .CW command (see your WordStar Reference Manual for information on dot commands) is sent, and the font and pitch are selected from the front panel prior to printing, other pitches/fonts may be used. When using Presentation fonts (Cartridge M), a larger line spacing should be set using the .LH command.

If you are using the **backspacing standard** printer driver (Version 3.30), superscripts and subscripts are not supported. Fonts (other than the internal Courier 10 pitch) must be selected from the front panel of the printer prior to printing.

Start documents using the HP LaserJet printer information with the following dot commands (see your WordStar Reference manual for further explanation).

.PL 66 (Page Length = 66 lines)  
 .MB 8 (Bottom Margin = 8 lines)

For those not using the HP LaserJet printer information, use the following dot commands.

.PL 60 (Page Length = 60 lines)  
 .MT 2 (Top Margin = 2 lines)  
 .MB 3 (Bottom Margin = 3 lines)

### WordStar 3.30, 3.31 Printer Feature Table

DeskJet Cartridge	LaserJet Printer Cartridge	Font/Typeface											Notes			
			Point Size/Pitch	Italics	Bold	Underline	Double Underline	Super/Subscript	Proportional Spacing	Multiple Columns	Double-Strike	Overprint				
None	HP LaserJet	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	3
None	HP LaserJet	Courier	12/16.66	•	•	•	•	•	•	•	•	•	•	•	•	3
A	HP LaserJet	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	2, 3
B	HP LaserJet	Prestige	10/12	•	•	•	•	•	•	•	•	•	•	•	•	1, 2, 3
B	HP LaserJet	Prestige	7/16.67	•	•	•	•	•	•	•	•	•	•	•	•	1, 3
C	HP LaserJet	Gothic	12/12	•	•	•	•	•	•	•	•	•	•	•	•	1, 2, 3
C	HP LaserJet	Gothic	9.5/16.67	•	•	•	•	•	•	•	•	•	•	•	•	1, 3
M	HP LaserJet	Presentation	18/6.5	•	•	•	•	•	•	•	•	•	•	•	•	1, 3
M	HP LaserJet	Presentation	16/8.1	•	•	•	•	•	•	•	•	•	•	•	•	1, 3
M	HP LaserJet	Presentation	14/10	•	•	•	•	•	•	•	•	•	•	•	•	1, 3
M	HP LaserJet	Gothic	14/10	•	•	•	•	•	•	•	•	•	•	•	•	1, 3

- NOTES: 1. Fonts other than Courier are accessed manually via the printer's keypad.  
 2. Italicized fonts are accessed manually via the printer's keypad. Inserting ^PO printer pause commands are useful for allowing you to make keypad changes in the middle of printing.  
 3. Superscripts and/or subscripts are not possible when using the backspacing standard printer driver (version 3.30).



# Using WordStar® Professional version 4.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up WordStar Professional version 4.0:

1. Check the WordStar Professional version 4.0 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up WordStar Professional version 4.0 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with WordStar Professional.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your WordStar Professional manual.

3

## **Setting Up WordStar Professional**

For first time installation of WordStar Professional 4.0, follow these steps:

- 1.** Start the WordStar Professional installation program, **WINSTALL**. (Refer to the Starting section of your WordStar Professional Manual.)
- 2.** At the Main installation menu, select **B Printer . . . choose your printer**.
- 3.** The Printer Selection Menu #1 is displayed.
- 4.** Select **2 Printer Menu #2, Epson—IBM**.
- 5.** Select **H HP LaserJet** for the printer desired.
- 6.** Press **X Done with this menu**.
- 7.** Press **X Done with installation**.
- 8.** Press **Y** when asked, **"Are you through making changes?"**

To use the HP LaserJet printer files with the DeskJet printer after WordStar Professional has been installed, run **WSCHANGE** program and follow these steps:

- 1.** From the Main Installation Menu, select **B Printer**.
- 2.** Select **A Printer choices**.
- 3.** Select **A Printer selection**.
- 4.** Select **2 Printer Menu #2, Epson—IBM**.
- 5.** Select the letter corresponding to the HP LaserJet and font you wish to use (i.e., **H HP LaserJet**).
- 6.** Press **X (Done with this menu)** twice to return to the Printer Installation Menu.
- 7.** Next, select **F Printer interface**.
- 8.** Select **B Printer busy handshaking**.

9. Select **F Long busy time-out (msec, 0=disable) .20000 PRNDLY.**
10. Answer **0** to "Enter new value (or **Enter** if no change)".
11. Press **X** (Done with this menu) four times and answer **Y** to "Are you through making changes?"

## Using Printer Features

When printing with the DeskJet printer specify **.PL62** for page length.

When printing with either the DeskJet B or C cartridge, specify **.CW10** in the document (add at the beginning of your document) to select the 12 pitch character width environment (and the correct cartridge font).

When printing with the DeskJet A cartridge, specifying **.CW10** will select the Line Printer font in 12 pitch character width.

### Selecting Different Fonts

Different fonts can be accessed only by changing the pitch (or characters per inch). If, for example, you are using the HP22706B Prestige Elite cartridge, type the **.CW10** dot command at the beginning of the document to select 12 pitch Prestige Elite instead of the "default" Courier 10 pitch.

If two cartridges with the same pitch are resident in the DeskJet printer, the WordStar program will select only the one residing in the front slot.



### Note

---

The **.CW10** dot command changes the character spacing to 10/120ths of an inch (where one character occupies 1/12th of an inch so that there are 12 characters per inch). A dot command of **.CW12** would provide 10 characters per inch.

---

# WordStar® Professional 4.0 Printer Feature Table

DeskJet Cartridge	LaserJet Printer Cartridge	Font/ Typeface	Printer Features											Notes		
			Point Size/Pitch	Italics	Bold	Underline	Double Underline	Super Underline	Strikethrough	Proportional Spacing	Multiple Columns	Double-Strike	Overprint			
None	HP Laserjet	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	
A	HP Laserjet	Courier	12/10	•	•	•	•	•	•	•	•	•	•	•	•	
A	HP Laserjet	Line Printer	12/10	•	•	•	•	•	•	•	•	•	•	•	•	
B	HP Laserjet	Prestige Elite	10/12	•	•	•	•	•	•	•	•	•	•	•	•	
C	HP Laserjet	Letter Gothic	12/12	•	•	•	•	•	•	•	•	•	•	•	•	

# Using WordStar® 2000 version 2.0

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

Before proceeding with Setting Up WordStar 2000 version 2.0:

1. Check the WordStar 2000 version 2.0 manual to see if the DeskJet printer is a supported printer. If it is, follow the instructions provided there for setting up WordStar 2000 version 2.0 to work with your DeskJet printer. If it is not, go to step 2.
2. For an interim solution and basic feature support only, follow the procedures outlined in this application note which utilize LaserJet printer files in helping your DeskJet printer work with WordStar 2000 version 2.0.

We suggest you review the introduction to this chapter, page 3-4, for more information on printer drivers.

For more information on printing and the Print command, check the index of your WordStar 2000 manual.

## Setting Up WordStar 2000

To install a printer follow these steps:

1. Start the WordStar 2000 installation program **WS2INS**.
2. Proceed until the Printer Menu appears.  
Select the supported printer of your choice (see the **PRINTER FEATURES TABLE** included with this note):  
HP LaserJet (B cartridge)  
HP LaserJet (Legal cartridges)
3. Name the printer file. Create a file name that can be identified with the DeskJet cartridge you are using (e.g., **LJETB** or **LJETLEGL**). The assigned name will appear in WordStar 2000 when selecting the printer to use.
4. Select **LaserJet Internal** and **Manual** for the sheet feeder.
5. At the **QUIT INSTALLATION MENU** choose **E Change Settings**.
6. Press the **Enter** key.
7. At the **MODIFICATIONS MENU** choose **J Select printer adapter port**.
8. Type the file name you created above (**LJETB**, etc.).
9. Press the **Enter** key.
10. Type the letter **A-E** to select the printer port you are using (**LPT1**, **COM1**, etc.).
11. You will be asked to confirm your choice. You will then be returned to the **MODIFICATIONS MENU**.
12. Choose **X Exit**, then **A Save your answers** at the **QUIT INSTALLATION MENU**.

## Using Printer Features

To select available fonts press **^PF** from within a document. A directory of available fonts will be displayed. Type (or highlight, using the cursor arrow keys) the font name and press **Enter**. Note: Font labels can be displayed in the document by pressing **^O** (Options) then **D** (Display is ON).

Choose the HP LaserJet (B cartridge) installation for use with the DeskJet printer fixed-pitch cartridges. Using proportional (PS) spaced fonts will produce unpredictable results.

WordStar 2000 uses the control code ^PB for embolding text. Do not use the additional control code ^PE (for print emphasis).

When printing with the DeskJet printer from WordStar 2000, use a page length of 62 lines. There are two ways to set the page length:

**Method #1** (Creating a Format design file):

- 1.** At the OPENING MENU—1 of 2, select **F** (Format design).
- 2.** At the CHOOSE A NAME menu, type a new Format file name (or use the existing NORMAL.FRM file). Press the **Enter** key.
- 3.** Type (or highlight, using the cursor arrow keys) the print driver file you installed (e.g., LJETB) and the font you wish to use (see the Printer Feature Table).
- 4.** Answer all questions until "Number of lines per page?" is displayed. Type **62**, then proceed through the rest of the questions.
- 5.** At the QUIT FORMAT menu type **S** (Save changes). If you have made any mistakes, type **C** (Continue formatting).

When creating a new document, type (or highlight) the .FRM format file name when asked the question "Format to use?" If the document existed previously, follow the procedure listed in Method #2 on the next page.

**Method #2** (Changing the Page Length in an existing document):

1. At the beginning of the document (first line) type ^T (Tabs and margins) then M (Margins on page) then P (Page length). At the prompt, "Number of lines per page?" type 62.
2. Press the Enter key.

This will set the page length to 62 lines for the document you are currently editing.

### WordStar® 2000 Printer Feature Table

DeskJet Cartridge	LaserJet PrintFile	Font	Font/Typeface	Printer Features											Notes		
				Pitch Size	Italics	Bold	Underline	Double Underline	Strike/Strikeout	Proportional Spacing	Multiple Columns	Overprint					
None	LaserJet "B" Cartridge	NON PS 10	Courier	6, 12													1
A	LaserJet "B" Cartridge	NON PS 10	Courier	6, 12	•	•	•	•	•	•	•	•	•	•	•	•	1
B	LaserJet "B" Cartridge	NON PS 12	Prestige Elite	5, 10	•	•	•	•	•	•	•	•	•	•	•	•	2
C	LaserJet "B" Cartridge	NON PS 12	Letter Gothic	12	•	•	•	•	•	•	•	•	•	•	•	•	3
A & B	LaserJet Legal	NON PS 10	Courier	12	•	•	•	•	•	•	•	•	•	•	•	•	4
A & B	LaserJet Legal	NON PS 12	Prestige Elite	10	•	•	•	•	•	•	•	•	•	•	•	•	2

- NOTES: 1. Pitch = 10, 12, 16.67  
 2. Pitch = 12, 16.67  
 3. Pitch = 12  
 4. Pitch = 10, 16.67



# Using Other Software Applications

---

## On the HP Vectra, and the IBM PC Family and Compatibles

### Introduction

To use the software application programs with the DeskJet printer:

1. See the matrix on the next page for *basic* feature availability using the HP LaserJet printer files for your selected software program.
2. Check the matrix to determine which "printer driver name" you should use for your application. Most software programs provide the choice of printer driver name during "Installation" or while selecting a printing device. Consult your software reference manual for further printer support information.
3. If you are unable to get your DeskJet printer to work with your software, we recommend you contact your software vendor for assistance. See page 3-107, 3-108 for a list of major software vendors.

### Using Printer Features

When using HP LaserJet printer files, the higher the graphic density selected, the longer the graph takes to print.

See any special notes on specific software programs on the matrix on the next page.

The information contained in this Application Note is intended for information purposes only and is subject to change without notice.

Questions regarding the software packages referred to in this note should be directed to the particular software company. See page 3-107 for a list of major software vendors.



## List of Major Software Companies

Software Package	Company/Address	Telephone Number
AdvanceWrite III	Hewlett-Packard Company National Response Center 3300 Scott Blvd. Santa Clara, CA 95054	(800) 858-8867
AutoCAD®	AutoDesk Inc.	Contact your authorized AutoCAD dealer.
CHART-MASTER®	Ashton-Tate™ 25 Sylvan Road South Westport, CT 06880	(203) 222-1974
ClickArt®	T/Maker Company 1973 Landings Drive Mountain View, CA 94043	(415) 962-0195
DisplayWrite™ 3 DisplayWrite™ 4 Enable™	IBM Corporation	
Executive MemoMaker	The Software Group Northway Ten Executive Park Ballston Lake, NY 12019	(518) 877-8236 (800) 932-0233
Framework™ Framework™ II	Hewlett-Packard Company National Response Center 3300 Scott Blvd. Santa Clara, CA 95054	(800) 858-8867
Freelance™ Freelance™ Plus	Ashton-Tate™ 20101 Hamilton Avenue Torrance, CA 90502-1319	(213) 329-0086
Harvard™ Presentation Graphics Harvard™ Proj. Manager	Lotus Development Corp. 161 First Street Cambridge, MA 02142	(617) 253-9150
The Gallery Collection Charting Gallery Drawing Gallery	Software Publishing Corp. 1901 Landings Drive P.O. Box 7210 Mountain View, CA 94039-7210	(415) 962-8910
HPWORD	Hewlett-Packard Company National Response Center 3300 Scott Blvd. Santa Clara, CA 95054	(800) 858-8867
Lotus® 1-2-3® Lotus® Manuscript™	Hewlett-Packard Company National Response Center 3300 Scott Blvd. Santa Clara, CA 95054	(800) 858-8867
	Lotus Development Corp. 55 Cambridge Parkway Cambridge, MA 02142	(617) 253-9150

Software Package	Company/Address	Telephone Number
<b>Microsoft® Chart</b> <b>Microsoft® Windows</b> <b>Microsoft® Word</b>	Microsoft Corporation 16011 N.E. 36th Way P.O. Box 97017 Redmond, WA 98073-9717	(206) 882-8089
<b>MultiMate™</b> <b>MultiMate™ Advantage</b> <b>OfficeWriter™</b>	Support is available to all registered users who have a current Custom Support Plan.  Office Solutions, Inc. 2802 Coho Street Madison, WI 53713	(203) 247-3445  (608) 274-5047
<b>PageMaker</b>	Aldus Corporation 411 First Avenue South, Suite 200 Seattle, WA 98104	(206) 622-5500
<i>pfs:®First Choice</i> <i>pfs:®Graph</i> <i>pfs:®Professional Write</i> <i>pfs:®Write</i> <b>Q &amp; A™</b>	Software Publishing Corp. 1901 Landings Drive P.O. Box 7210 Mountain View, CA 94039-7210	(415) 962-8910
<b>Samna Word III™</b> <b>Samna Word IV™</b>	Symantec 10201 Torre Avenue Cupertino, CA 95014  Samna Corporation 2700 N.E. Expressway, Suite C-700 Atlanta, GA 30345-9990	(408) 252-5700  (404) 321-1719
<b>Sideways®</b>	Funk Software, Inc. 222 Third Street Cambridge, MA 02142	(617) 497-6339
<b>SIGN-MASTER™</b>	Ashton-Tate™ 25 Sylvan Road South Westport, CT 06880	(203) 222-1974
<b>Smart Ware®</b>	Innovative Software 9875 Widmer Road Lenexa, KS 66215	(913) 492-2086
<b>SuperCalc®3</b> <b>SuperCalc®4</b>	Computer Associates International, Inc. Micro Products Division 2195 Fortune Drive San Jose, CA 95131	(408) 432-1764
<b>Super Project® Plus</b>	Computer Associates International, Inc. Micro Products Division 2195 Fortune Drive San Jose, CA 95131	(408) 432-1764
<b>Symphony™</b>	Lotus Development Corp. 55 Cambridge Drive Cambridge, MA 02142	(617) 253-9150
<b>Volkswriter®3</b>	Lifetree Software 411 Pacific Street, Suite 315 Monterey, CA 93940	(408) 373-4904
<b>WordPerfect™</b>	WordPerfect Corp. 288 W. Center Street Orem, UT 84057	(800) 321-5906
<b>WordStar®</b> <b>WordStar® 2000</b> <b>WordStar® Pro.</b>	MicroPro International Corp. 33 San Pablo Avenue San Rafael, CA 94903	(800) 227-5609











## Introduction to Control Codes and Escape Sequences



### Note

---

Spaces have been imbedded in the control codes and escape sequences found in this chapter for ease of reading only. Do not imbed spaces when sending these commands.

---

This chapter explains how to use the many features of the DeskJet printer. It is written for people who have programming experience and want to write their own programs, and users whose software requires them to input escape sequences.

The features of your printer are controlled by control codes and escape sequences. Control codes are data that, when sent to your printer, do not cause anything to be printed (with the exception of the delete character), they cause an action (such as line feeds and carriage returns). CTRL is used in this manual to specify a control code.

One control code is ESCAPE. ESCAPE is always followed by one or more characters which together form escape sequences used to control specific printer features, such as print pitch and underlining. The ESCAPE control code is represented in this manual by  $E_C$ .

Printer features are controlled by function switches located on the front base of the printer, by escape sequences and control codes, and through the keypad. The default condition of the feature is set through the function switches, but escape sequences and keypad selections override the switches. When the printer is turned OFF and ON or the RESET key is pressed, the feature returns to the setting selected by the switch. When E<sub>C</sub>E, Printer Reset, is sent, the printer reverts to the most current settings selected through the keypad. If no features had been selected through the keypad since the printer was last turned ON, E<sub>C</sub>E will reset the printer to its default state. Note, print mode and font selections made through the keypad are not affected by the Printer Reset escape sequence.

To generate printouts using these print features you must become familiar with the method used by your computer or software to send escape sequences and control codes to your printer. Several of the methods used are:

- Typing escape sequences and control codes directly from the keyboard.

In this manual, control codes always begin with the letters CTRL\*. CTRL is generated by pressing the CONTROL key on your terminal's or PC's keyboard. This key may be labeled on your keyboard as CTRL, CNTL, or CTL. An example of a control code is CTRL N. To generate a control code, hold down the CTRL key while typing the next character.

E<sub>C</sub> is generated by pressing the ESC\* key on your keyboard, or by pressing the CONTROL key and typing "[" (left bracket) simultaneously. An example of an escape sequence is E<sub>C</sub>(s16.67H. A list of the escape sequences recognized by your printer is located in the Appendix.

\* In BASIC, control codes are represented by CHR\$( ). For example, CTRL N is represented by CHR\$(14). The E<sub>C</sub> control code is represented by CHR\$(27).

- Specifying each control code, including  $E_C$ , by its decimal value.

Some software packages require that you specify each control code by its decimal value, usually preceded by a special character such as "\". For example,  $E_C(s16.67H$  would be specified in Lotus 1-2-3 as `\027(s16.67H`.

- Specifying each character of the escape sequence by its decimal value.

Some software packages require that you specify  $E_C$  and the characters following it by their decimal value. For example,  $E_C(s16.67H$  would be specified as `27 40 115 49 54 46 54 55 72`.

If you are using a software package such as a word processor or spreadsheet, refer to your software documentation to see how control codes and escape sequences must be sent.

---

## Control Codes

The control codes and escape sequences described in this section, except where noted, conform to the Hewlett-Packard Printer Command Language.

The DeskJet printer implements the HP PCL Level III printer language, plus some extensions. The PCL printer language is a standard developed by Hewlett-Packard to ensure compatibility between current and future PCL printers. If your software restricts itself to PCL Level III commands, be assured that it will also work with future HP PCL Level III printers.

All control codes and escape sequences in this manual that are extensions to the HP PCL Level III printer language are designated as such.

The control codes recognized by the DeskJet printer are described in the table on the next page. The "Symbol" column lists the standard abbreviation for each control code. The "Value" columns list the decimal and hexadecimal values that correspond to each control code. The "Keystroke" column lists the letter to be used in combination with your PC's CTRL key to generate the control code.

The "current print position" mentioned in some of the code descriptions is the position at which the printer will print the next character.

### DeskJet Printer Control Codes

Code Name	Symbol	Description	Value (dec)	Value (hex)	Key-stroke
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 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. (Refer to the "Font Selection" discussion later in this section for information on primary and secondary fonts.)	14	0E	CTRL N
Shift In	$S_I$	Causes the printer to select the currently-designated primary font for use. (Refer to the "Font Selection" discussion later in this section for information on primary and secondary fonts.)	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. (The Status Request is discussed in this section. See the Data Communications chapter for more information on handshakes.)	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. (See the Data Communications chapter for more information on handshakes.)	19	13	CTRL S
Escape	$E_C$	Indicates to the printer that the characters immediately following are part of an escape sequence command.	27	1B	CTRL [
Space		Causes the printer to move the current print position one character position to the right.	32	20	
Delete		Causes the printer to print the ASCII DELETE character.	127	7F	

## Using Printer Features



### Note

Spaces have been imbedded in the control codes and escape sequences found in this chapter for ease of reading only. Do not imbed spaces in the control codes and escape sequences that you send. (For example, you will see  $E_C ( s 10 H$ , but would send  $E_C(s10H$ .)

### Before You Begin...

Before you begin programming, there are a few things you should be aware of.

- The printer uses a priority system to sort through its print features to select the appropriate font from the fonts available. This means that you may change something that appears high on the printer's priority list, and as a consequence, find that some of the other print features have changed in a way you'd not expected. The printer's priorities, are discussed under Print Feature Priorities, page 4-9.
- With a few exceptions, the print features discussed in this section will remain in effect until they are specifically turned off. For example, if you turn on (enable) superscripting the printer will continue to print superscripted characters until you send the command to stop (disable) superscripting.
- Finally, many of the escape sequences in the first part of this section are structured in such a way that they apply specifically to the primary font (designated by the left parenthesis in an escape sequence, such as  $E_C ( s \# H$ ). The primary font is the set of characters normally in use by the printer. The secondary font (designated by a right parenthesis in an escape sequence) can use all the print features discussed for the primary font. Refer to the discussion entitled, "Font Selection" for details.

## Font Selection



### First, some definitions:

**Character Sets** are collections of the symbols and characters that constitute all the elements of a language or discipline (mathematics, for example), including punctuation and numbers.

There are two kinds 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 8th bit of the character byte must be used in order to access all 256 character codes.

**Typefaces** are the shapes that characters come in. The typeface supported by the standard DeskJet printer is Courier.

**Type Styles** are the angles of italicization that characters can have. The standard printer supports one type style: upright.

**Fonts** are collections of characters that are all the same character set, typeface, quality, pitch, height, type style, stroke weight, and vertical placement (sub- or superscripts). The table on the following page illustrates all the elements that make up a font.

## Using Fonts

Three types of fonts can be used: The printer's internal fonts are always available; and fonts from the optional font cartridges, and soft font discs can also be selected.

**Internal Fonts** are the fonts resident in the printer when it is shipped. The table on the following page lists the font characteristics for the printer's internal fonts. These characteristics are discussed under Print Feature Priorities.

## Internal Fonts (Standard Printer)

Character Set*	PC-8	PC-8	PC-8	PC-8	PC-8	PC-8
Placement	Normal, Sub/ Superscript	Normal, Sub/ Superscript	Normal, Sub/ Superscript	Normal, Sub/ Superscript	Normal, Sub/ Superscript	Normal, Sub/ Superscript
Spacing	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Pitch (cpi)	5, 10, 20	5, 10, 20	16.67	16.67	5, 10, 20	5, 10, 20
Point Size	6, 12	6, 12	6, 12	6, 12	6, 12	6, 12
Type Style	Upright	Upright	Upright	Upright	Upright	Upright
Stroke Weight	Medium	Bold	Medium	Bold	Medium	Bold
Typeface	Courier	Courier	Courier	Courier	Courier	Courier
Quality	LQ Draft	LQ Draft	LQ Draft	LQ Draft	LQ Draft	LQ Draft

\*Additional character sets are offered in the standard printer. See pages 4-10, 4-11.

**Font Cartridges** contain additional fonts. Many optional font cartridges are available. Refer to Chapter 7, or to your Personal Guide to Multiple Fonts, for an example of available HP font cartridges. Ordering information is located in the Appendix.

See Getting Started for font cartridge loading information.

**Soft Fonts** are fonts which can be transferred from discs in your computer to the printer's memory. The process of transferring soft fonts from discs to the printer's memory is called downloading. Before you can download fonts to your printer additional memory is required. This requirement is satisfied with the installation of the optional 128 K RAM cartridge.

Soft fonts are used in the same way as internal fonts or cartridge fonts. While soft fonts require more steps and take a bit more time to use, they allow you to custom mix and match fonts to your needs. If you will be using many different fonts frequently, soft fonts are more cost effective than cartridge fonts. A simple software utility program that downloads the soft fonts into your printer, and instruction booklet, are included with each set of DeskJet printer soft fonts. Ordering information is located in the Appendix.



## **Print Feature Priorities**

Your printer follows a specific decision-making procedure to sort through the various print feature settings, and uses a priority system to make selection decisions. If you will be using escape sequences to control print features, being aware of the printer's feature priorities will enable you to consistently predict your print results.

The printer prioritizes features in the following order:

- 1.** Character Set
- 2.** Placement (Sub- and Superscripts)
- 3.** Proportional Spacing vs. Fixed Pitch
- 4.** Print Pitch
- 5.** Character Height (Point Size)
- 6.** Type Style (Upright)
- 7.** Stroke Weight (Medium, Bold)
- 8.** Typeface (Courier)
- 9.** Print Quality (Draft or Letter Quality)

The printer uses this prioritization scheme to select the appropriate font from the fonts available. When the definition of one of the items in this list is changed, the printer "sorts" through its available fonts performing a process of elimination that begins with the first item on the priority list and continues until it narrows its choices down to just one font.

## **Designating Character Sets**

The definitions of the first 128 characters in the 8-bit character sets are standardized to the American Standard Code for Information Interchange (ASCII). The first 33 codes (decimal 0 through 32, and 127) are defined as control codes. The next 95 codes (decimal 33 through 126) are the letters, numbers, symbols, and punctuation marks used to print the English language.

The remaining 128 characters of the 8-bit character sets contain the special characters and punctuation marks that are used to print languages other than English.

The standard DeskJet printer supports four 8-bit character sets: Roman8, PC-8, PC-8 Denmark/Norway, and ECMA-94 Latin 1. (Other character sets are available on optional font cartridges.)

Seven-bit character sets conform to standard definitions set forth by the International Standards Organization (ISO). The first 33 codes (decimal 0 through 32, and 127) in each of these sets contain the control codes. The control code definitions in these ISO sets are identical to those in the 8-bit sets. The remainder of each 7-bit character set (decimal codes 33 through 126) contains the letters, numbers, punctuation marks, and special symbols required for a specific language, or symbol set.

The standard DeskJet printer supports 14 7-bit character sets: ISO UK, ISO Germany, ISO France, ISO Italy, ISO Norway v. 1, ISO Norway v. 2, ISO Sweden: Names, ISO Sweden, ISO Spain, ASCII, JIS ASCII, ISO Portugal, ISO IRV, and Legal. (Additional character sets are available on optional font cartridges.)

Character set charts are located in the Appendix.

The primary font is the font normally in use. The secondary font may be turned on by sending the printer a Shift Out ( $S_O$ ) control code. Characters generated following the Shift Out will be from the secondary font. Sending a Shift In ( $S_I$ ) control code will return you to the primary font.

For every escape sequence that begins with  $E_C$  ( (designating a primary font), there is a corresponding escape sequence that begins with  $E_C$  ) (designating secondary font) offering a full set of complementary functions that apply to the secondary font.

The default primary character set is selected through switch settings. The default secondary character set is always the same as the default primary character set. To change from the defaults, or to specifically designate the character set you want as the active primary set and which you want as the active secondary set, send the following escape sequences:

$E_C$  ( # ID—Designate Primary Character Set

$E_C$  ) # ID—Designate Secondary Character Set

In this example, the “#” and “ID” designate the character set.

The following table contains all of the character sets supported by your printer and the escape sequences that select them. Character sets listed in bold are resident in the standard DeskJet printer. All others are available on optional font cartridges.

<b>Character Set</b>	<b>Escape Sequence</b>	
<b>PC-8</b>	E <sub>C</sub> ( 10 U	E <sub>C</sub> ) 10 U
<b>Roman8</b>	E <sub>C</sub> ( 8 U	E <sub>C</sub> ) 8 U
<b>PC-8 Denmark/Norway</b>	E <sub>C</sub> ( 11 U	E <sub>C</sub> ) 11 U
<b>ECMA-94 Latin 1</b>	E <sub>C</sub> ( 0 N	E <sub>C</sub> ) 0 N
<b>ISO United Kingdom (04)</b>	E <sub>C</sub> ( 1 E	E <sub>C</sub> ) 1 E
<b>ISO Germany (21)</b>	E <sub>C</sub> ( 1 G	E <sub>C</sub> ) 1 G
<b>ISO France (69)</b>	E <sub>C</sub> ( 1 F	E <sub>C</sub> ) 1 F
<b>ISO Italy (15)</b>	E <sub>C</sub> ( 0 I	E <sub>C</sub> ) 0 I
<b>ISO Norway v. 1 (60)</b>	E <sub>C</sub> ( 0 D	E <sub>C</sub> ) 0 D
<b>ISO Norway v. 2 (61)</b>	E <sub>C</sub> ( 1 D	E <sub>C</sub> ) 1 D
<b>ISO Sweden: Names (11)</b>	E <sub>C</sub> ( 0 S	E <sub>C</sub> ) 0 S
<b>ISO Sweden (10)</b>	E <sub>C</sub> ( 3 S	E <sub>C</sub> ) 3 S
<b>ISO Spain (17)</b>	E <sub>C</sub> ( 2 S	E <sub>C</sub> ) 2 S
<b>ASCII (06)</b>	E <sub>C</sub> ( 0 U	E <sub>C</sub> ) 0 U
<b>ISO IRV (02)</b>	E <sub>C</sub> ( 2 U	E <sub>C</sub> ) 2 U
<b>ISO Portugal (16)</b>	E <sub>C</sub> ( 4 S	E <sub>C</sub> ) 4 S
<b>JIS ASCII (14)</b>	E <sub>C</sub> ( 0 K	E <sub>C</sub> ) 0 K
<b>Legal</b>	E <sub>C</sub> ( 1 U	E <sub>C</sub> ) 1 U
Line Draw	E <sub>C</sub> ( 0 L	E <sub>C</sub> ) 0 L
Math7	E <sub>C</sub> ( 0 M	E <sub>C</sub> ) 0 M
Math8a	E <sub>C</sub> ( 0 Q	E <sub>C</sub> ) 0 Q
Math8b	E <sub>C</sub> ( 1 Q	E <sub>C</sub> ) 1 Q
Math8	E <sub>C</sub> ( 8 M	E <sub>C</sub> ) 8 M
Pi Font	E <sub>C</sub> ( 15 U	E <sub>C</sub> ) 15 U
Pi Fonta	E <sub>C</sub> ( 2 Q	E <sub>C</sub> ) 2 Q

Left parenthesis indicates primary character set. Right parenthesis indicates secondary character set.

Charts showing the characters available in these sets are located in the Appendix.

## Sub- and Superscripts

Sub- and superscripts are text printed higher (superscript) or lower (subscript) than normal printing. To print sub- or superscripts, first send the escape sequence to enable sub/superscripting, then send the text to be sub/superscripted, then instruct the printer to return to normal printing. (This is not a PCL Level III feature.)

$E_C ( s -1 U$ —Begin subscripts

$E_C ( s 0 U$ —Resume normal printing

$E_C ( s 1 U$ —Begin superscripts

**Example:** Sending the printer this:

Chocolate is full of  $CE_C(s-1U6E_C(s0UHE_C(s-1U12E_C(s0UOE_C(s-1U6E_C(s0U$  .

Results in this: Chocolate is full of  $C_6H_{12}O_6$  .

These examples are printed in the 12-point font. To print sub/superscripts in the 6-point font, you must select the 6-point font first by changing the height to 6 by sending  $E_C ( s 6 V$ . After sending the sub/superscript characters return to normal height printing. (12 and 6-point character heights are discussed on page 4-15, this chapter.)

Sending the printer this:

Hot chocolate is full of  $HE_C(s-1UE_C(s6V2E_C(s0UE_C(s12VO$  .

Results in this: Hot chocolate is full of  $H_2O$  .

## **Proportional Spacing**

(Optional Font Cartridge Required)

Proportional Spacing is a feature that makes your printed text resemble set type. In print pitches where the printer prints a certain number of characters per inch (fixed-pitch), each character is allotted the same space, whether the character is a narrow letter like "i" or a wide letter like "w". In Proportional Spacing, the characters are allotted a space proportional to their width requirements. The following example shows the difference between proportional-space and fixed-pitch printing:

This line is proportionally spaced.  
This line is printed in fixed pitch.

`EC ( s 1 P`—Select Proportional Spacing

`EC ( s 0 P`—Return to Fixed Pitch Printing

## **Print Pitches (Characters Per Horizontal Inch)**

The standard printer supports the following print pitches: 5, 10, 16.67 and 20 characters per inch (cpi). Any positive number can be specified as the print pitch. If you select a print pitch that the printer does not support it will substitute the next larger pitch, i.e., next larger number of characters per inch, resulting in narrower or smaller individual characters. (Other print pitches are available on optional font cartridges.)

`This is 5 cpi printing.`  
`This is 10 characters per inch printing.`  
`This is 16.67 characters per inch printing.`  
`This is 20 characters per inch printing.`

`EC ( s # H`—Select print pitch

# = The pitch you wish to print in. For example, to print in 10 pitch you would send `EC ( s 10 H`

## 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.

Your printer supports two character heights without an optional font cartridge installed: 12-point characters, and 6-point characters. Any positive number can be specified as the character height. If you ask for a height that the printer does not support, it will substitute the next closest height.

$E_C (s \# V$  – Select character height

# = The height you wish your printed characters to be. For example, for 12 point characters, you would send  $E_C (s 12 V$ . Remember, the character height is defined in units of  $\frac{1}{72}$ nd of an inch.

**Example:** To select a height of 12 points, send  $E_C(s12V$   
The resulting print:

**These are 12 point characters.**

To select a height of 6 points, send:  $E_C(s6V$   
The resulting print:

**These are 6 point characters.**

## Type Style

(Optional Font Cartridge  
Required)

### Italics

Italics printing provides another way to make certain words or portions of text stand out from the surrounding text.

*Full sentences can be printed in this style.*

Or you can italicize a *single* word or phrase.

$E_C (s 1 S$  – Enable Italic Type Style

$E_C (s 0 S$  – Enable Upright Type Style

## Stroke Weight

### Bold Printing

Bold printing darkens text.

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

E<sub>C</sub> ( s 3 B—Enable Bold Print

E<sub>C</sub> ( s 0 B—Disable Bold Print

## Typeface

One typeface is available in the standard DeskJet printer: Courier. (Other typefaces are available in optional font cartridges.)

E<sub>C</sub> ( s 3 T—Select Courier typeface

Additional typefaces are available on optional font cartridges:

3 = Courier

4 = Helv

5 = TmsRmn

6 = Letter Gothic

8 = Prestige

11 = Presentations

Examples of the typefaces available on font cartridges, and ordering information, are located in the Appendix.

## Print Quality

Your printer offers two print qualities, draft quality at 240 characters per second, and letter quality at 120 characters per second. Letter quality is the power-up default. Draft quality offers you the advantage of fast output and uses less ink than letter quality; letter quality offers you clean, professional-looking print. The print sample on the next page demonstrates the difference between the two print densities. (You may find it more convenient to select print quality through the keypad rather than through a software package.)



This is letter quality (120 characters per second).  
This is draft quality (240 characters per second).

E<sub>C</sub> ( s 0 Q—Select draft quality printing

E<sub>C</sub> ( s 2 Q—Select letter quality printing

## **Print Enhancements**

**Underlining** draws a continuous underline below a portion of text. Your printer supports four types of underlining: single fixed, double fixed, single floating, and double floating. Single and double floating underlines are positioned based on the character font. Fixed underlines are always in the same location independent of the font being used. Once automatic underlining is enabled all succeeding characters will be underlined until E<sub>C</sub> & d @ is sent. The print sample below shows how underlining looks.

These are single fixed underlines for several fonts.

These are double fixed underlines for several fonts.

These are single floating underlines for several fonts.

These are double floating underlines for several fonts.

E <sub>C</sub> & d 0 D—	Select Single Fixed Underline (Default)
E <sub>C</sub> & d 1 D—	Select Single Fixed Underline
E <sub>C</sub> & d 2 D—	Select Double Fixed Underline
E <sub>C</sub> & d 3 D—	Select Single Floating Underline
E <sub>C</sub> & d 4 D—	Select Double Floating Underline
E <sub>C</sub> & d @—	Disable Underline

---

## Combining Escape Sequences

You can save time by combining escape sequences that have the same two characters following the Escape character. To combine escape sequences, begin the sequence with  $E_C$  and the two shared characters, then append the remaining characters from each command.

These escape sequences

$E_C ( s 1 Q$

$E_C ( s 3 B$

$E_C ( s 3 T$

can be combined into

$E_C ( s 3 b 3 t 1 Q$

Notice that " $E_C ( s$ " is the portion of the escape sequence that all three sequences share. Also note that in the combined sequence, "b" and "t" are now lowercase, while "Q", because it is the last character in the sequence (the terminator), remains in uppercase.

Remember, only escape sequences which share the same two characters immediately following " $E_C$ " can be combined.

## 4

---

## Positioning Print on a Page

The features in this group are arranged in the order in which they must be defined for your printer. Each definition in this group of features depends on the definition of the features that came before it. Thus, line spacing must be defined before you specify page length; and the top margin must be set before the text length is specified.

### Line Spacing

Line spacing is the vertical distance between printed lines on the page, measured in number of printed vertical lines per inch (lpi).

$E_C \& l \# D$ —Set Lines Per Inch

# = The number of lines per inch. The default line spacing is 6 lpi. To set line spacing to 8 lpi, send E<sub>C</sub> & ℓ 8 D.

## Paper Size

Paper size is the physical size of the paper being used. Default paper size is set through function switches A5 and A6. An escape sequence is sent to change from the default paper size.

Function Switch		Power On		Value (#)
A5	A6	Width	Size Name	
Dn	Dn	8½" × 11"	U.S. Letter	2
Up	Dn	8½" × 14"	U.S. Legal	3
Up	Up	4¼" × 9½"	#10 Env.	81
Dn	Up	210 × 297 mm	A4	26
Default				0

E<sub>C</sub> & ℓ # A – Select Paper Size

# = The number representing the paper size to which you wish to change. For example, to change to 8½" × 14" paper send E<sub>C</sub> & ℓ 3 A. A value of 0 (zero) returns the paper size to that selected through mode function switches.

## Page Length

Page Length is the actual length of the "page" you wish to print on a sheet of paper. Page Length is expressed in lines of print, defined according to the current line spacing. Therefore, if you will be changing the line spacing from 6 lines per inch, you should do so before defining the Page Length. The default page length is set through function switches A5 and A6.

E<sub>C</sub> & ℓ # P – Define Page Length

# = The page length in number of lines. For example, if you are using 11 inch paper and are printing at 6 lpi, your page will consist of 66 lines. The escape sequence you would send is E<sub>C</sub> & ℓ 66 P.

Make sure that the page length you specify correctly reflects the length of paper you are using.

## **Perforation Skip Mode**

Perforation skip mode controls the top and bottom margin. If perforation skip mode is OFF, no top or bottom margin is established. If perforation skip mode is ON, the next printable position skips to the top margin on the next page when the bottom margin is entered. Whenever perforation skip mode is changed, the top margin and text length are set to their default values.

$E_C \& \ell 1 L$ —Enable Perforation Skip Mode

$E_C \& \ell 0 L$ —Disable Perforation Skip Mode

The perforation region is defined as the area outside the text area but within the page. If perforation skip mode is ON and a line feed or half line feed causes the current print position to enter the perforation region, the next line of print will begin on the next page. The default perforation skip mode is set through function switch A8.

## **Margins**

**Left and right margins** are counted from the extreme left edge of the paper beginning with column 0.

$E_C \& a \# L$ —Set left margin

$E_C \& a \# M$ —Set right margin

$\#$  = The number of the print column where you want printing to begin (left margin) or end (right margin). Columns are specified in terms of the current print pitch (characters per inch). So, if you are printing in 12 cpi and want a one-inch left margin, printing will begin at column 12:  $E_C \& a 12 L$

Note that when the printer is using US Letter or US Legal, the leftmost printable position is column 0, or ¼" in from (to the right of) the left edge of the paper. When using #10 envelopes, the leftmost printable position is ½" in from the left edge of the paper. The leftmost printable position on A4 paper is ⅛" in from the left edge of the paper.

#### E<sub>C</sub> 9 – Clear left and right margins

When the printer receives this escape sequence, it clears both margin settings to their defaults. The escape sequence has no effect on the top margin setting or the text length definition.

The default left and right margins are 0 and 79 respectively (positioned at columns equivalent to 10 characters per inch).

**Top Margin:** (Not a PCL Level III Feature) 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 top margin has a default definition of ½" (three lines at 6 lpi) with perforation skip ON. Top margin is ignored when perforation skip is OFF. Perforation skip ON will default the top margin to ½". If you want to change that definition, you must do so before you set the text length because redefining the top margin resets the text length to its default definition.

#### E<sub>C</sub> & l # E – Set top margin

# = The number of lines in the top margin. The number of lines is interpreted according to the current line spacing definition. You can specify any number of lines for the top margin, from zero lines to the number of lines in the Page Length.

For example, if you are printing at 6 lines per inch, and want a one-inch top margin, send E<sub>C</sub> & l 6 E

**Bottom Margin** is set via the Text Length definition, discussed on the next page.

## Text Length

The text length is defined as the page length minus the top and bottom margins. Because it is only possible to specify page length, top margin, and text length, setting the text length specifies the size of the bottom margin. If you will be changing the definitions of the page length or top margin, you must do so before you can define the Text Length. Text Length is meaningful only when perforation skip mode is enabled.

$E_C \& l \# F$ —Define Text Length

$\#$  = The text length in number of lines at currently defined line spacing.

Suppose that you want to set a 1 inch bottom margin and have the following settings:

Line spacing: 6 lpi.

Page length: 66 lines (11 inches).

Top margin: 6 lines (1 inch).

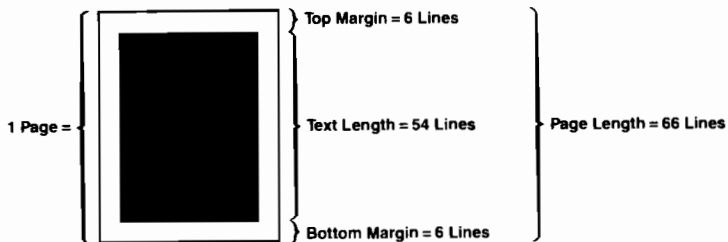
Perforation skip: On.

In order to set a 1 inch (6 line) bottom margin, set the text length to:

Text length = 66 lines – 6 lines – 6 lines = 54 lines.

The escape sequence you would send is:  $E_C \& l 54 F$

The following figure illustrates the above example.



Any number can be specified, but the command will be ignored if the specified number of lines exceeds the available area (page length minus top margin). (A text length of 0 will default to one inch less than the current page length.)

---

## Paper Control and Print Position

### Paper Feed Control

When the printer receives the command to eject the current sheet, it will eject the sheet currently in position to print. When the printer receives the command to accept envelopes, it will eject the sheet currently in position to print and load an envelope from the envelope path. When the printer receives a command to load from the tray, it will eject the sheet currently in position to print, then load a sheet from the tray. Once a new paper path is selected by sending an escape sequence, the printer will continue to use that path until it is changed.

## Motion Index Definitions

The default paper path is from the paper tray.

If the printer receives a Form Feed control code when a cut sheet is in position to print, the printer will eject the current sheet, but will not feed the sheet into the printing position until the printer receives data to print. This keeps the paper from being curled by a long wait in the paper advancing mechanism.

Changing the paper path via escape sequence will not modify the page length. If you have paper of different lengths in the different paths, you should first select the appropriate path, then set the length.

$E_C \& \ell 0 H$ —Eject Current Page

$E_C \& \ell 1 H$ —Feed from Tray

$E_C \& \ell 3 H$ —Feed Envelopes

Paper Feed Control is not a PCL Level III feature.

Motion Index definitions determine the increments of movement by which character spacing and line spacing are defined. The Vertical Motion Index (VMI) defines line spacing, and the Horizontal Motion Index (HMI) defines character spacing.

The VMI is expressed in increments of  $1/48''$ . The default VMI (the VMI defined in the printer before it is shipped) is 8, which yields Line Feeds of  $8/48''$ , or 6 lines per inch. To change the VMI, you must know how to express the size of the Line Feeds you want as  $n/48''$ , and use that value for “#” in the escape sequence. You may use any positive number in the range from 0 to 126, inclusive.

$E_C \& \ell \# C$ —Set Vertical Motion Index

# = The number representing the value of the VMI you want.



The Horizontal Motion Index (HMI) defines how far the current print position moves for each character. The HMI is expressed in increments of  $\frac{1}{120}$ ". To change the HMI, you must figure out how to express the width of the character spacing you want as  $n/120$ ", and use that value for "#" in the escape sequence. You may use any positive number in the range from 0 to 126, inclusive.

$E_C \& k \# H$ —Define Horizontal Motion Index

# = The number representing the value of the HMI you want.

HMI does not affect any proportional spaced character except the space character.

## Print Position

The features discussed in the following paragraphs control print position. Escape sequences in this group move the current print position either vertically or horizontally, by row or column, by decipoint, and by dot.

### Vertical Positioning

The Vertical positioning commands move the current print position up or down, as needed, to position the print as you have specified. Vertical position can be specified by row number, by decipoint, or by dot position.

**Positioning By Row.** When positioning the print on the page by moving the current print position up or down, you are limited to one physical page of movement. Note that when positioning by row back **up** the page from current print position, printing may not end up where you wanted it, due to restrictions in backing up the paper.

In addition, when moving the position to a specified row, you can specify any row in the range from 0 to the end of the page.

The "default" print position is determined as follows: When a new page is loaded or a new paper path is selected, the current print position is initially set to the left margin (horizontal) and the top margin (vertical). See the description of those features for a list of defaults.

$E_C$  & a # R—Move Current Print Position to Specified Row

$E_C$  & a+# R—Move # Rows Down from Current Position

$E_C$  & a -# R—Move # Rows Up from Current Position

# = The number of the row to which the current print position is to be moved. Rows are counted from the first line below the top margin which is row 0, to the bottom of the physical sheet of paper. Rows are counted according to the current line spacing definition.

For example: To move the current print position two and a half inches down from the top margin when printing at 6 lines per inch, position the print head at line 15 by sending  $E_C$  & a 15 R ( $6 \times 2.5 = 15$ .)

**Positioning By Decipoint.** Positioning by decipoint puts the baseline of the next character in line with the decipoint position you specified. A decipoint is  $1/720$ ". Decipoints are counted vertically from 0 (the top margin) downward. Any positive number from 0 (the top margin) to the decipoint that corresponds to the end of the page can be specified.

$E_C$  & a # V—Move Current Print Position to Decipoint

$E_C$  & a+# V—Move # Decipoints Down from Current Position

$E_C$  & a -# V—Move # Decipoints Up from Current Position

# = The number of the decipoint to which you want the current print position moved.

To position the print head two and a half inches down from the top margin, convert that distance into decipoints. You will get 1800 decipoints:  $E_C$  & a 1800 V

**Positioning by Dot.** (Not a PCL Level III Feature)

A dot-position is equal to  $1/300''$ , regardless of the graphics resolution you have defined for the printer. (See the Graphics discussion for more information on graphics resolution.) Any dot position from the top margin to the bottom of the page can be specified. Dot positions are numbered beginning with 0, which is the top margin.

For example: To position the print head at the dot position two and a half inches down from the top margin, convert inches into dot positions. You will find that two and a half inches is equivalent to 750 dots:  $E_C * p 750 Y$

$E_C * p \# Y$ —Move Print Position to Specified Dot

$E_C * p + \# Y$ —Move Down # Dots from Current Print Position

$E_C * p - \# Y$ —Move Up # Dots from Current Print Position

# = The number of the dot to which you want the current print position moved. The baseline of the characters is positioned with their baseline dot at the dot position you have specified (unless you are printing graphics, in which case the first raster row will be printed at that dot position).

**Horizontal Positioning**

Horizontal positioning commands move the print position to the right or left, as needed, to position it as you have specified. You can specify horizontal position by column number, by decipoint, or by dot position.

On  $8\frac{1}{2}'' \times 11''$ ,  $8\frac{1}{2}'' \times 14''$ , and #10 envelopes the leftmost print position is located  $\frac{1}{4}''$  to the right of the left edge of the paper ( $\frac{1}{8}''$  on A4 paper).

**Positioning By Column.** Horizontal positioning is accomplished relative to the leftmost printable position. Columns are numbered left to right, starting with column 0 at the leftmost printable position. Columns are counted in terms of the currently-active print pitch. Horizontal positioning is not limited by margin definitions.

$E_C \& a \# C$ —Move Current Print Position to Specified Column

$E_C \& a +\# C$ —Move # Columns to the Right of Current Print Position

$E_C \& a -\# C$ —Move # Columns to the Left of Current Print Position

# = The number of the column to which you want the current print position to move. For example, if the currently active print pitch is 10 cpi, and you wish your first column to begin 5 inches in from the left edge of the maximum print region ( $\frac{1}{4}$ " in from the left edge of the paper), you would send  $E_C \& a 50 C$

**Positioning By Decipoint.** A Decipoint is  $\frac{1}{720}$ ". Decipoints are counted horizontally from the leftmost printable position toward the right. You can specify any number from 0 (the leftmost print position) to the decipoint that corresponds to the maximum print region.

$E_C \& a \# H$ —Move Current Print Position to Decipoint

$E_C \& a +\# H$ —Move # Decipoints to the Right of Current Print Position

$E_C \& a -\# H$ —Move # Decipoints to the Left of Current Print Position

# = The number of the decipoint at which you want the print head positioned.

For example: To change the print position to five inches in from the left edge of the print region, convert the distance into decipoints. You will find that five inches is equivalent to 3600 decipoints. The escape sequence you will send is  $E_C$  & a 3600 H

**Positioning By Dot.** (Not a PCL Level III Feature)

A dot-position is equal to  $\frac{1}{300}$ ", regardless of the graphics resolution you have defined for the printer. (See the Graphics discussion for more information on graphics resolution.) The dot positions are numbered beginning with 0, which is the leftmost print position.

$E_C * p \# X$ —Move Current Print Position to Specified Dot

$E_C * p + \# X$ —Move Print # Dots to the Right of Current Print Position

$E_C * p - \# X$ —Move Print # Dots to the Left of Current Print Position

# = The dot at which you want the print head positioned.

For example: To move the current print position to a dot position five inches to the right of the left edge of the paper, convert inches into dot-positions. You will find that five inches is equivalent to 1500 dots. The escape sequence you will send is  $E_C * p 1500 X$

**Half Line Feed**

The following escape sequence will instruct the printer to perform a Half Line Feed (half of current line spacing).

$E_C =$  —Perform Half Line Feed

---

## Printing Graphics

Your printer uses a form of graphics called "dot-image" graphics in which pictures are made up of patterns of tiny dots called Pixels (for Picture Element dots). In this system, the paper can be thought of as consisting of a grid of dot positions. Graphics data specifies which of the dot positions should be printed and which should be left blank.

Graphics data is sent to the printer one byte (8 bits) at a time. Each bit specifies whether a dot position is blank or printed. If a bit is zero, the corresponding dot position is left blank. If a bit is one, a dot is printed at the corresponding position. In HP printers, graphics data bytes are sent to the printer in groups, each group containing the graphics data for one raster (horizontal) dot row. The first (most significant) bit of a graphics data byte specifies the leftmost dot; the last (least significant) bit specifies the rightmost dot.

### Graphics Commands

To send raster graphics data to the printer, the following commands are used. The commands should be sent to the printer in the following order:

- **End raster graphics**
- **Set raster graphics resolution**
- **Set raster graphics width**
- **Set raster graphics mode**
- **Start raster graphics**
- **Transfer raster graphics row(s) with or without offsets**
- **End raster graphics**

The start, transfer and end graphics commands must be sent with every block of graphics data you send to the printer. The raster graphics resolution command needs only be sent when you wish to change the resolution. The raster graphics mode can be changed a raster row at a time. There are also graphics offsets that can be applied to each raster row.

## Raster Graphics Resolution

The DeskJet printer has the capability of printing graphics at variable resolutions: 300, 150, 100 and 75 pixels per inch (PPI). The following escape sequence sets the resolution at which the following graphics data will be printed:

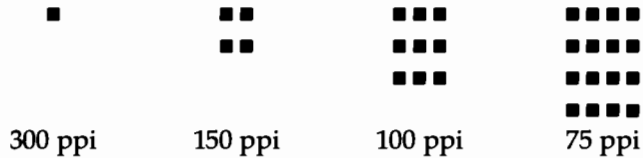
$E_C * t \# R$ —Set Raster Resolution

$\#$  = The resolution (300, 150, 100 or 75) in pixels per inch. For example, to set the resolution to 300 pixels per inch, send  $E_C * t 300 R$

The default resolution is 75 or 300 pixels per inch (dependent on the position of mode function switch B2). This command should be sent before the start graphics command. Once the start graphics command is received by the printer, the  $E_C * t \# R$  command is ignored until the end graphics command is received. The graphics resolution is not defaulted when the  $E_C * rB$  (end graphics) command is received.

Changing the resolution also changes the size of the printed raster image. At 300 pixels per inch, each "1" sent to the printer represents one dot; at lower resolutions, however, each "1" represents a number of dots. Data is transferred to the printer as either a "1" (dot) or "0" (no dot). For example, using 100 pixels per inch resolution, each "1" sent to the printer causes 9 dots to be printed. This is because the printer always prints a  $300 \times 300$  dots per square inch image. In order to print at 100 pixels per inch resolution the printer forms a "pixel" from 9 dots. Therefore, your image printed using 100 pixels per inch resolution will be 9 times larger in area, (three times larger in each direction) than the same image printed using 300 pixels per inch. Likewise, the same image will be four times larger (in area) using 150 pixels per inch resolution, and 16 times larger (in area) using 75 pixels per inch.

The following figure represents the dots generated for "one" value in the various resolutions that the printer supports:



Raster Graphics Resolution is not a PCL Level III feature.

## Raster Width

The following escape sequence can be sent to the printer to set the width of the raster image:

$E_C * r \# S$ —Set Raster Width

# = The number of pixels horizontally that the printer will allow for a given graphics image. The DeskJet printer will default the raster width to the full page width when the printer is reset, turned ON or  $E_C * r B$  is sent. This requires the printer to allocate memory such that an entire page width can be printed at 300 ppi. Setting the raster width to the actual width of the image allows the printer to intelligently use its internal memory, thus increasing the throughput of the printer when printing graphics images. After the image has been sent, the raster width will be set to its maximum value when the end graphics command  $E_C * r B$  is sent. (Not a PCL Level III Feature)

## Start Raster Graphics

The following escape sequence notifies the printer that raster graphics will follow and also specifies the starting position:

$E_C * r 0 A$ —Start Raster Graphics at leftmost position.

$E_C * r 1 A$ —Start Raster Graphics at current position.  
(Not a PCL Level III feature.)



A value field of one specifies that the starting position is the current print position; the left graphics margin is set to the current horizontal position. Before you send this command, you may move the current print position using the cursor-positioning escape sequences. Then, when you start printing, the upper left corner of the graphics image will be printed where you positioned the cursor.

Once the start raster graphics command is received by the printer, the graphics resolution and left graphics margin are fixed (until the end raster graphics command is received).

## **Transfer Raster Graphics**

The following escape sequence prepares the printer to receive a specific number of bytes of data and transfers the graphics data to the printer:

$E_C * b \# W$  <raster data> – Transfer Graphics Data

Note that the brackets in the above escape sequence are used for clarity. Do not include the brackets when sending the escape sequence to the printer.

**#** = The number of bytes of binary data to be sent to the printer. These bytes are interpreted as one line of raster graphics data (one pixel row). The data should immediately follow the **W**, the terminating character of the escape sequence. Note: a transfer raster graphics sequence must be sent to the printer for each line (pixel row) of graphics data.

The bits of raster graphics data (1's and 0's) sent to the printer each describe a single pixel to be printed on the page. The most significant bit (bit 7) of the first byte of data corresponds to the first pixel within that line. A one indicates that the pixel is to be printed, and a zero indicates that the pixel should not be printed.

After this escape sequence is executed, the current active cursor position is at the beginning of the next raster line at the left graphics margin. Each pixel of the raster data is expanded according to the specified resolution. Graphics is independent of the text margins and perforation skip mode—it ignores these boundaries. Graphics is only limited by the printable area, raster width and the page length.

## Raster Graphics Modes

There are three methods (data formats) for sending graphics data to the printer. The following escape sequences select one of the three modes:

$E_C * b 0 M$ —Select Full Graphics Mode

$E_C * b 1 M$ —Select Compacted Graphics Mode 1

$E_C * b 2 M$ —Select Compacted Graphics Mode 2

**Full graphics mode** is the default mode of the printer. In this mode the  $E_C * b \# W$  command transfers the data, and every bit sent is a one-for-one mapping to the pixels that will be printed on the page. For example, if the command  $E_C * b 0 m 1 W U$  is sent to the printer and the density is set to 300 ppi the following will happen. The 1 is the length of the data to follow the **W** in the escape sequence. The **U** is an eight bit value  $(55)_{16}$  representing alternating 1s and 0s  $(01010101)_2$ . The following image would be placed on the page.

Pixel Image	○●○●○●○●
Position (bit)	7 6 5 4 3 2 1 0
Value	0 1 0 1 0 1 0 1



### Note

Throughout this section on graphics, the following convention will be used: a "○" will represent a pixel that is not printed (0), and a "●" will represent a pixel that is printed (1).











It is recommended that applications not set the raster quality. This feature is accessible from the front keypad and should be left for the user to set.

## End Raster Graphics

The following escape sequence informs the printer that all raster graphics data has been transferred to the printer:

$E_C * r B$ —End Raster Graphics

After this sequence is sent to the printer, you can send text to merge with your graphics. NOTE: Remember that at the end of a raster image, the raster width, the left graphics margin, and the raster compaction mode will be reset to their default values to prevent causing difficulties with other software applications.



### Note

The graphics quality is not defaulted when the  $E_C * r B$  (end graphics) command is received.

## Sample Graphics Program

The program on the next page prints raster graphics in the shape of an arrow. The illustration of 1's and 0's shows how each dot is placed to form the arrow. A 1 causes the printer to print a dot, and a 0 causes a space.

In BASIC, data must be sent to the printer in decimal numbers (in the form  $CHR\$(decimal\ number)$ ). Therefore, each group of eight 1's or 0's (each byte) must be converted to a decimal number. The following illustration shows binary (1's and 0's) representation of an arrow and illustrates how the first line of binary data is converted to decimal so that BASIC can interpret the data. NOTE that this example was tested using MicroSoft BASIC, version A2.0 on the IBM PC. Other versions or releases may not support some of the BASIC commands (such as  $WIDTH "LPT1:,255)$ .





To print this arrow: 

```
10 REM *** BASIC program to print an arrow in PCL graphics ***
20 REM
30 REM
40 WIDTH "lpt1:",255 :REM Disable auto CR-LF
50 OPEN"lpt1:" AS #1 :REM Open printer as a file
60 REM
70 PRINT #1,CHR$(27);"*t75R"; :REM Set resolution to 75 dpi
80 REM
90 PRINT #1,CHR$(27);"*rA"; :REM Start raster graphics
100 REM
110 REM Begin loop to read data and print graphics
120 FOR J = 1 TO 32
130 READ A,B,C,D :REM each raster row has four bytes
140 PRINT #1,CHR$(27);"*b4W";CHR$(A);CHR$(B);CHR$(C);CHR$(D);
150 NEXT J
160 REM
170 REM
180 PRINT #1,CHR$(27);"*rB"; :REM end raster graphics
190 REM
200 CLOSE
210 REM
220 REM This is the data for the arrow
230 DATA 0,0,128,0
240 DATA 0,0,192,0
250 DATA 0,0,224,0
260 DATA 0,0,240,0
270 DATA 0,0,248,0
280 DATA 0,0,252,0
290 DATA 0,0,254,0
300 DATA 0,0,255,0
310 DATA 0,0,255,128
320 DATA 255,255,255,192
330 DATA 255,255,255,224
340 DATA 255,255,255,240
350 DATA 255,255,255,248
360 DATA 255,255,255,252
370 DATA 255,255,255,254
380 DATA 255,255,255,255
390 DATA 255,255,255,255
400 DATA 255,255,255,254
410 DATA 255,255,255,252
420 DATA 255,255,255,248
430 DATA 255,255,255,240
440 DATA 255,255,255,224
450 DATA 255,255,255,192
460 DATA 0,0,255,128
470 DATA 0,0,255,0
480 DATA 0,0,254,0
490 DATA 0,0,252,0
500 DATA 0,0,248,0
510 DATA 0,0,240,0
520 DATA 0,0,224,0
530 DATA 0,0,192,0
540 DATA 0,0,128,0
```

To print this arrow: 

To print this arrow, replace line 70 in the above program with this line of code:

```
70 PRINT #1,CHR$(27);"*t100R"; :REM Set resolution to 100 dpi
```

**To print this arrow:**



To print this arrow, replace line 70 in the above program with this line of code:

```
70 PRINT #1,CHR$(27);"*t150R";      :REM Set resolution to 150 dpi
```

**To print this arrow:**



To print this arrow, replace line 70 in the above program with this line of code:

```
70 PRINT #1,CHR$(27);"*t300R";      :REM Set resolution to 300 dpi
```

## Miscellaneous Printer Controls

### End-of-Line Wraparound

The control sequences included in this group are: End-of-Line Wraparound, Line Terminator Selection, Print Enhancement Control, Shift-In/Shift-Out Control, Print Mode Selection, Text Scale Mode, Display Function Mode, Transparent Print Mode, Printer Reset, Self-Test, and Printer Status.

If the printer is sent a line of text that exceeds its right margin, or if the current active position has been moved outside the right margin and the text exceeds the right paper edge, the way the printer responds is dependent on whether or not the end-of-line wraparound feature is enabled. If end-of-line wraparound is disabled, the printer will truncate the text when it reaches the right margin (or paper edge). If end-of-line wraparound is enabled, any text that extends beyond the defined right margin or the physical line length will wrap around to the next line. The text "wrapping" takes place within the current margin settings. (This is not a PCL Level III Feature).

$E_C \& s 0 C$  – Enable End-of-Line Wraparound

$E_C \& s 1 C$  – Disable End-of-Line Wraparound

The default setting is End-of-Line Wraparound disabled.

### Line Terminator Selection

Each line of text has a precise ending which the printer understands to be the end of line. Many software packages (or operating systems) append a carriage return to the end of each line of text, while others terminate lines with a line feed. Still others terminate lines with both characters. When text is sent to the printer it needs to be told what to do with the line feeds or carriage returns that it receives. (This is not a PCL Level III Feature).

$E_C \& k \# G$  – Select Line Terminator

$\#$  = The definition of the line terminator. Replace the " $\#$ " with one of the values defined on the next page.

- 0 – CR causes CR; LF causes LF; FF causes FF.
- 1 – CR causes CR-LF; LF causes LF; FF causes FF.
- 2 – CR causes CR; LF causes CR-LF; FF causes CR-FF.
- 3 – CR causes CR-LF; LF causes CR-LF; FF causes CR-FF.

### **Print Enhancement Control (Underlining Only)**

The Print Enhancement Control determines whether underlining is to work on a mode basis, or a line-by-line basis. Mode basis means that once enabled it will remain in effect until it is specifically turned off. Line-by-line basis means that it automatically turns off when the end of a print line is reached. (This is not a PCL level III feature.)

$E_C \& k 0 E$  – Line-by-Line Enhancement Control

$E_C \& k 1 E$  – Mode Enhancement Control (Default)

### **Shift-In/Shift-Out Control**

The Shift-In/Shift-Out Control determines whether the shift-in and shift-out control codes (decimal values 15 and 14, respectively) will work on a mode basis or a line-by-line basis. On a mode basis, the most-recently-received control code will remain in effect until its complementary control code is received. On a line-by-line basis, the effect of the shift-out control code will be automatically cancelled at the end of a print line. (This is not a PCL level III feature.)

$E_C \& k 0 F$  – Line-by-Line Basis, SI/SO

$E_C \& k 1 F$  – Mode Basis (Default), SI/SO

### **Print Mode Selection**

Print Mode selection is not a PCL level III feature.

$E_C \& k 0 W$  – Enable left-to-right unidirectional printing

$E_C \& k 1 W$  – Enable bidirectional printing (default)

$E_C \& k 2 W$  – Enable right-to-left unidirectional printing.

## Text Scale Mode

The DeskJet printer cannot print on the bottom ½ inch of a sheet of paper. This results in an effective paper length that is ½ inch shorter than its actual length. For example, on an 11 inch page, the effective page length is 10½ inches. To illustrate:

Page length: 11 inches (66 lines\*)

Line spacing: 6 lpi\*

Perforation skip: OFF

Unprintable region: ½ inch (3 lines\*)

Page length = 11 inches (66 lines) – ½ inch (3 lines) = 10½ inches (63 lines) of effective paper length.

There are two ways to resolve this problem:

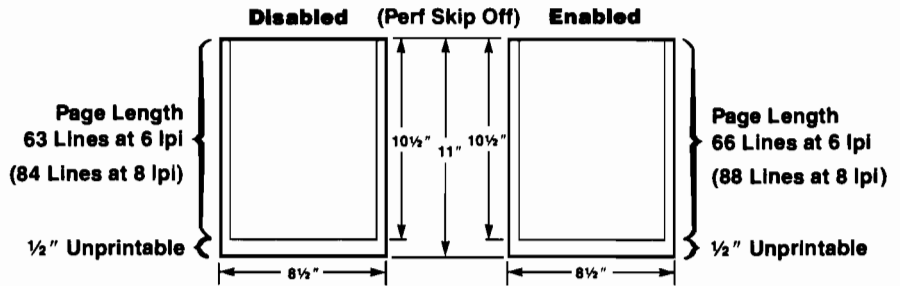
1. Set the page length in the software application to a value equal to, or less than, the effective paper length. In the above example, 63 lines.
2. Enable Text scale mode which allows 66 lines to print on the effective paper length. Thus, on an 11 inch page with an effective paper length of 10½ inches, 66 lines would print. Text scale mode is enabled by setting mode function switch B1 UP, or by sending the following escape sequence:

$E_C$  & k 6 W – Enable Text Scale Mode.

$E_C$  & k 5 W – Disable Text Scale Mode.

Text scale mode is illustrated on the next page.

\* = At 8 lpi: 4 lines per ½ inch, 84 lines per 11 inch page with Text Scale Mode disabled, 88 lines per 11 inch page with Text Scale Mode enabled.



Note, when perforation skip is enabled (default setting) you have an automatic 1/2 inch top margin. This will further reduce the effective page length.

Text Scale Mode should be used only when printing text.

## Display Functions Mode

In display functions mode, the printer prints control codes instead of acting on them. When display functions mode is enabled the printer will execute only a carriage return (CR), and disable display functions (E<sub>C</sub> Z). When in display functions mode, the printer will print a carriage return code and execute it as a carriage return and line feed, and will print and execute the command to disable display functions mode. All other control codes and printer commands are printed, but not executed.

E<sub>C</sub> Y—Enable Display Functions

E<sub>C</sub> Z—Disable Display Functions

## Transparent Print Mode

The transparent print mode serves a function very similar to that of display functions mode: control codes and escape sequences are printed instead of executed. The difference between transparent print mode and display functions is that in transparent print mode, NONE of the control codes or escape sequences are executed.

E<sub>C</sub> & p # X <Data>—Print Data in Transparent Mode

# = The number of <Data> bytes you want to print in Transparent Mode. Any number from 0 to 32,767 inclusive may be specified.

The "<Data>" is the actual text that you want printed transparently. Note that the brackets "<>" have been included for purposes of clarity only. You should not include the brackets with your data.

## **Printer Reset**

Printer reset sets all features to their default settings and moves the current position to the next top-of-form and the left margin. The reset does not clear the print buffer. After a reset, printer features will return to the definitions specified by switch settings, and/or the most recent definitions made through the keypad.

E<sub>C</sub> E – Printer Reset

## **Self-Test**

The printer's self-test verifies the proper operation of its processor and ROM. Before and after printing the self-test, the printer will execute a form feed.

E<sub>C</sub> z – Perform Self-Test

After a self-test, the printer features will return to the definitions specified by switch settings, and/or the most recent definitions made through the keypad. If the self-test fails, the printer will go off line and flash all keypad indicators. See the HELP! section of this manual for more information.

## **Printer Status**

The printer will respond to two different requests for status information: model number and I/O Status. (This is not a PCL Level III Feature).

The model number request is a means for the host system to accurately identify the printer by model number. The model number request is not recognized by printers using the Parallel interface.

E<sub>C</sub> \* r K – Request for Model Number



When the printer receives the I/O status escape sequence it will respond by sending the following to the host:

2276 xxxx C<sub>R</sub> L<sub>F</sub>

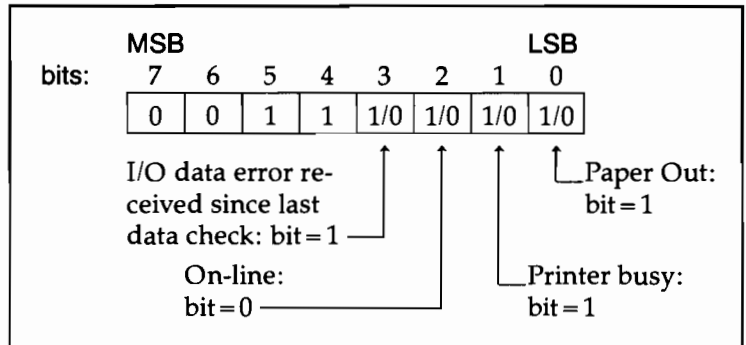
("C<sub>R</sub>" and "L<sub>F</sub>" represent a Carriage Return and Line Feed.)

Note that because the request is placed in the printer's input buffer, the host will not get a response from the printer until the printer has emptied its buffer of everything preceding the request. Therefore, an indeterminate length of time may pass between the receipt of the escape sequence and the return of the printer's response.

The I/O Status request is effective over RS-232-C only and must include the D<sub>C1</sub> (Device Control 1) control code as a trigger. The I/O Status request causes the printer to return a status byte followed by a carriage return and line feed. The escape sequence requesting I/O Status is:

E<sub>C</sub> ? D<sub>C1</sub>—Request for I/O Status (RS-232-C only)

The status byte which the printer returns in response to this request is detailed in the diagram below.





## Data Communications

# 5

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



### Note

For information on which cable to use with your system, refer to the Setting Up Hardware . . . chapter of this manual. Cables can be ordered from Hewlett-Packard by calling toll-free: 1-800-538-8787.

## Parallel Interface

The DeskJet printer uses a standard parallel interface. This interface is the most widely used interface on personal computers because, unlike the serial RS-232 interface, it usually does not require setup commands or special configurations on either the PC or printer.

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

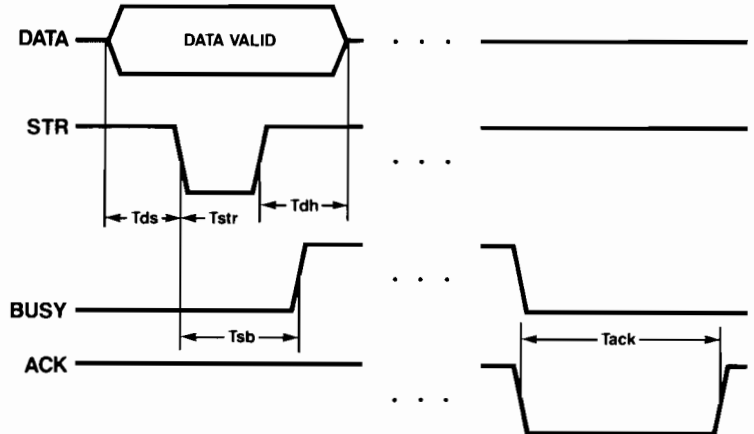
### Pin Assignments

Pin No.	Signal	Direction	Description
1	$\overline{\text{Strobe}}$	In	A LOW pulse of width greater than 1 $\mu\text{s}$ 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	ON LINE	Out	The printer sends a HIGH logic level to indicate to the host that it is in an ON LINE condition.
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	$\overline{\text{Reset/ Input Prime}}$	In	A LOW pulse of width greater than 10 $\mu\text{s}$ (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.
33-36		Not Used	

## Printer Timing Diagram

The timing diagram below illustrates the data and hand-shake 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.

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

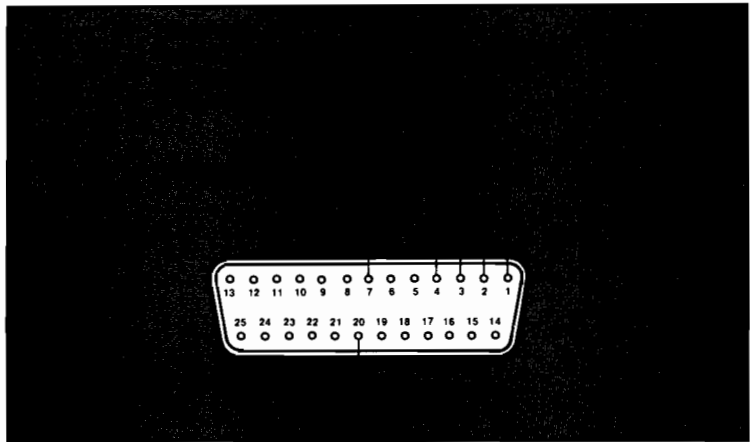


## Serial Interface

The DeskJet 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 probably the most universal. It is widely used on everything from mainframe computers to display terminals and PCs.

The main problem most people encounter when setting up their system and peripheral(s) is making sure all components can "talk" to each other without errors. In order to avoid confusion, the user should understand serial interfacing concepts.

The DeskJet 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 (TxD):** Bit serial data transmitted to the computer system or terminal from the printer.

**Pin 3, Received Data (RxD):** 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 printer must be set to match whatever rate the host computer is set up for. 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 whether or not you want to perform data error checking, also called Parity. Most PC 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 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 data bits.

## **Handshaking Protocol**

The DeskJet printer uses two methods of sending serial data. 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 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 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.







## HELP!

The information in this chapter is provided to help you solve problems that do not require the help of a trained service person. The telephone numbers listed below are those you can call for information on HP products, supplies and accessories, and the location of the nearest HP repair center.

- **For information on HP products and nearest HP dealer:**  
HP Customer Information Center . . . . . 800-752-0900  
(Presales only)
- **For supplies and accessories:**  
HP Direct Marketing Division. . . . . 800-538-8787  
(e.g., print cartridge HP51608A)
- **For your nearest HP authorized repair center:**  
HP Support Sales Center. . . . . 800-835-4747

If your printer is not operating properly, follow the suggestions below, then if you still need help with your printer operation or set up (configuration), call our DeskJet Customer Support Service at 206-253-3099. For obvious hardware problems, contact your local Hewlett-Packard Sales and Support Office, listed in the back of this manual.

### **No Power, Keypad Lights Aren't ON:**

#### **CHECK . . .**

1. That the printer is turned ON.
2. That the printer is connected completely to the computer, and to the electrical power outlet.

**Power ON, Keypad  
Lights Are ON,  
Printer Doesn't  
Print:**

**CHECK . . .**

1. That the printer is ON LINE (the ON LINE light will be ON).
2. That the interface cable is connected to the correct interface connector (port).
3. That the interface cable is connected completely to the printer and to the computer.
4. That the printer is set up correctly for your computer. See Chapter 2, Setting Up . . . Hardware.
5. That the print cartridge is installed properly, with the green arrow on the cartridge top pointing to the green dot on the top of the cradle, and that the cartridge was clicked into place.
6. That the tape has been removed from the "nose" of the print cartridge. See Installing the Print Cartridge on page 1-11.
7. That the print cartridge is not out of ink. See Fading Print on page 6-5.
8. That paper is loaded in the IN tray, and that the paper is loaded properly. See page 1-13 in Getting Started.

**All Lights on the  
Keypad Are  
Blinking:  
*simultaneously***

**CHECK . . .**

1. With qualified HP service personnel if the lights continue to blink after you have tried to clear it by turning the printer OFF for several seconds, then ON again.

***alternately***

**CHECK . . .**

1. That the print carriage hasn't stalled. If it has, turn the printer OFF for several seconds, then ON again.
2. That the packaging tape on the print cartridge cradle has been removed.
3. Non-Printing Self Tests, on page 6-9.

**BUSY and ON LINE  
Lights Are Blinking:****CHECK . . .**

1. That paper hasn't jammed in the printer. See Clearing Paper Jams on page 6-6.

**ON LINE Light Is  
Blinking:****CHECK . . .**

1. That paper is loaded in the IN tray, and that the paper is loaded properly. See page 1-13 in Getting Started.

**ON LINE Light Is  
Blinking, But  
Printer Isn't Out of  
Paper:****CHECK . . .**

1. That the paper is loaded correctly. See pages 1-13, 1-14 in Getting Started.
2. That you are using 16 to 24 pound stock.

**Paper Jams:****CHECK . . .**

1. That paper is loaded squarely in the IN tray, right side flush against the right side of the tray.
2. That the IN tray does not contain more than a ½" stack of paper (about 100 sheets).
3. The Clearing Paper Jams instructions on page 6-6.

**Printing/Paper Is  
Skewed or Slanted:****CHECK . . .**

1. That paper is loaded squarely in the IN tray, right side flush against the right side of the tray.
2. That the IN tray does not contain more than a ½" stack of paper (about 100 sheets).

**Multiple Sheets  
Are Loading Into  
the Printer:****CHECK . . .**

1. That the IN tray does not contain more than a ½" stack of paper (about 100 sheets).
2. That paper isn't stuck together.

**Paper Doesn't Load:****CHECK . . .**

1. That paper is loaded in the IN tray. See page x for the location of the IN tray.
2. That the paper tray extender is holding the paper against the printer.
3. That the IN tray does not contain more than a ½" stack of paper (about 100 sheets)
4. That paper is loaded squarely in the IN tray, right side flush against the right side of the tray.

**Paper Doesn't Eject After Printing:****CHECK . . .**

1. That the BUSY light is OFF. If it is, press the FF key.

**Envelope Doesn't Load:****CHECK . . .**

1. That the envelope is inserted into the envelope guides on the OUT tray. See page 1-16 for the location of the envelope guides.
2. That the envelope is loaded properly, head first, flap facing up, with the right side of the envelope flush against the right side of the tray.
3. That the envelope is pushed under the paper feed rollers until it stops.
4. That both the UP and DOWN arrow keys are pressed simultaneously to load the envelope.
5. For paper loaded in the printer and the BUSY light ON: The BUSY light ON indicates that the printer is receiving data to print.

**Poor Print Quality: Fuzzy Print****CHECK . . .**

1. That the print cartridge is re-activated by pressing the PRIME key. Reevaluate the print quality. If print hasn't improved, try step 2.

**Incomplete Letters  
Are Printing:  
(Dots or Lines Are  
Missing)**

2. That the correct paper (or envelope) is selected for the best possible print quality.

**CHECK . . .**

1. That the print cartridge is re-activated by pressing the PRIME key. Reevaluate the print quality. If print hasn't improved, try step 2.
2. That the print cartridge is installed properly. Remove the print cartridge from the cradle and re-install it. See page 1-9 in Getting Started.

**Inconsistent  
Darkness Within  
Letters:**

**CHECK . . .**

1. That the print cartridge is re-activated by pressing the PRIME key.

**Fading Print:**

**CHECK . . .**

1. That the print cartridge isn't out of ink. When the print cartridge is out of ink, the print will gradually fade and will not improve when you try to re-activate it by pressing the PRIME key. Remove the empty cartridge and discard it. Install a new print cartridge as instructed in Getting Started, page 1-9.

**Faint Print:**

**CHECK . . .**

1. That the correct paper (or envelope) is selected for the best possible print quality. See paper discussion on page 1-12 in Getting Started.
2. The Improving Print Quality section on page 6-8.

**Selected Font from  
Font Cartridge  
Won't Print:**

**CHECK . . .**

1. That the font cartridge is pushed down and snapped into place.
2. That the FONT key is used to select the font.

## Printer Won't Print Self Test:

3. That the light on the font cartridge corresponds to the font you wish to use.

### CHECK . . .

1. That you have followed the self test instructions on page 1-17 in Getting Started.
2. That paper hasn't jammed in the printer. See Clearing Paper Jams, below.
3. With qualified HP Service Personnel.

## Self Test Doesn't Resemble Example Shown:

### CHECK . . .

1. With qualified HP service personnel. Remember that self test patterns will vary from the example shown on page 1-17, depending on the font cartridge installed.

---

## Clearing Paper Jams:

If a paper jam occurs, follow these steps to clear it. **All data waiting to print will be lost if you turn the printer OFF or press the RESET key to clear a paper jam.**

1. Remove the tray cover and the OUT tray and open the top cover.
2. Press the UP or DOWN arrows key to advance or retract the paper out of the printer.

The paper jam should clear. If it doesn't, press the UP or DOWN arrow keys while pulling the paper out with your hand. If the paper tears, pull out the pieces while pressing the UP or DOWN arrow keys.

3. Press the RESET key to clear the error condition.



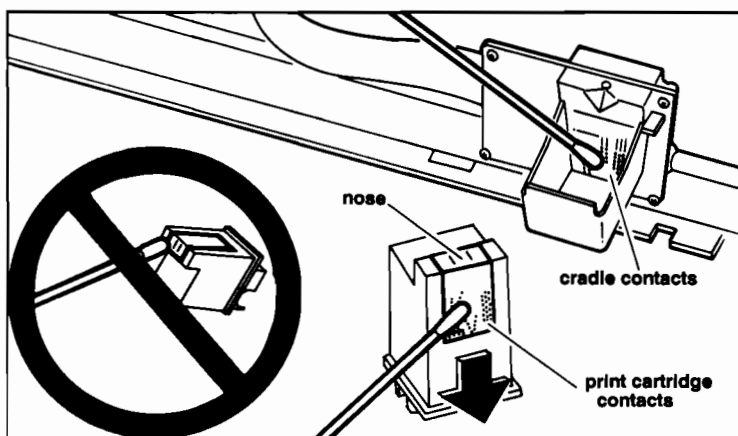
## Using the Print Cartridge

The print cartridge is designed for use with everyday office papers. See paper discussion on pages 1-12 and 1-13, and specifications on page 8-26. Do not use InkJet paper.

### Print Cartridge Installation Tips

Carefully follow the instructions for installing the print cartridge on pages 1-9 to 1-12. The print cartridge will provide excellent print quality after installation but in rare occasions, you may notice that incomplete letters are printing (dots or lines missing). If this occurs, try the following steps:

1. Reactivate the print cartridge by pressing the PRIME key. Reevaluate the print quality. If print hasn't improved, try step 2.
2. Remove the print cartridge from the cradle and re-install it. Reevaluate the print quality. If print hasn't improved, try step 3.
3. Remove the print cartridge from the cradle. Gently clean the contacts on the print cartridge and the contacts on the printer cradle with a swab moistened only with water, as shown below. DO NOT clean the "nose" of the print cartridge. Re-install the print cartridge and reevaluate the print quality.



## **Maintaining Print Quality:**

Keep the print cartridge in the cradle at all times. Removing the cartridge will expose it to air, causing the ink to evaporate, and degrading the print quality.

Keep the print cartridge in its "home" position when the printer isn't in use. Leaving it out of position will cause the ink to evaporate quickly.

## **Improving Print Quality:**

If print becomes faint or fuzzy, try these steps to improve print quality.

- 1.** Check the expiration date on the print cartridge. Discard it if it has expired and install a new print cartridge.
- 2.** Re-activate the print cartridge by pressing the PRIME key. Reevaluate the print quality. If it hasn't improved try step 3.
- 3.** Turn the paper over in the IN tray and reevaluate the print quality. See pages 1-12, 1-13 for discussion about paper. Reevaluate the print quality. If it hasn't improved, try step 4.
- 4.** Try a different paper. See page 1-12 for discussion about paper.

## **Storing Print Cartridges:**

The following instructions will help you when storing unused print cartridges.

- Keep the print cartridge in its sealed container until you are ready to use it.
- Store the print cartridge container at room temperature.
- Check the expiration date on the container and the cartridge, and use before that date.
- Install the print cartridge in the cradle immediately after opening the sealed container.

---

## A Word About the Ink

The ink in the print cartridge contains diethylene glycol, which is harmful if swallowed by children. Keep new or used cartridges out of the reach of children, and immediately discard old cartridges.

Ink may stain hands or clothing.

---

## Non-Printing Self Tests

Your printer does a non-printing self test each time it is turned ON. If the printer fails this test, all of the lights on the keypad will blink alternately, indicating that a RAM/ROM failure has occurred.

This circumstance requires servicing by qualified HP service personnel.

---

## Maintenance

Although your DeskJet printer doesn't require periodic maintenance, we suggest that you perform the following maintenance to keep your printer in good operating condition.

### Exterior

Clean smudges, dust, etc., with a soft cloth moistened with water. Blow out accumulated paper dust from print carriage area.

### Platen

Clean accumulated ink off the metal platen, carriage guide, and paper feed rollers with a soft cloth moistened with water. **Use only water; do not use any cleaning fluids.**



## Font/Cartridge Directory

The following pages contain an alphabetical listing of all available fonts for the HP DeskJet printer. The DeskJet printer cartridge(s) in which the font is contained, is listed in the column to the right of the example of each font. Because some fonts are offered on more than one font cartridge, they may be listed several times. For example, Helv Ital 10/PS is found on both the HP22706G and HP22706Q Cartridges. It is also available as a downloadable font by using the **Soft Font** product and optional RAM cartridge(s).

### Important Notes

1. Cartridges M, P and Q contain ONLY the ASCII character set. All other cartridges (and Soft Fonts) contain additional character sets (i.e., ISO7, ECMA-94 Latin 1, Legal, etc.). Only the HP22706B cartridge contains Math and Pi Font character sets.
2. Use of Soft Fonts requires the optional HP22707A RAM Cartridge(s) and HP22708A Soft Font product. See page 8-24 for ordering information.
3. Each font is available in draft and letter quality.
4. The HP22707E Epson Emulation Cartridge provides several additional fonts. See page 7-47.

## Font/Escape Sequence Summary

With the use of optional font cartridges your DeskJet printer can print several thousand different fonts including draft and letter quality. Most of these fonts and the escape sequences which enable them are included on the following pages.

Due to space constraints we are not able to include all of the escape sequences and font examples for all character sets supported by the DeskJet printer and its optional font cartridges. Most of the examples provided show the default character set, PC-8, being used. When character sets other than PC-8 are included in the escape sequences these are the character sets that are required for that particular font; for example, Line Draw, or ASCII.

The attributes of each escape sequence are called out along the top of each cartridge matrix. When selecting a font the entire escape sequence must be sent. However, if you wish to change from one font to another, a shortcut method can be used.

Example: If you've selected a font on the HP22706A cartridge, the attributes of which are: primary font, "normal" sub-superscript, "normal" spacing, 10 pitch, 12 point, italic type style, "normal" stroke weight, Courier typeface, and letter quality, you would have sent

$E_C(10UE_C(s0u0p10h12v1s0b3t2Q$ . To change to the HP22706B font cartridge where all attributes are the same as those on the HP22706A font cartridge **except** 24 pitch, 10 point, and Prestige typeface, you can send an abbreviated escape sequence wherein only those attributes that differ from the font already selected need be resent. That escape sequence would be  $E_C(s24h10v8T$ .

Currently selected font:  $E_C(10UE_C(s0u0p10h12v1s0b3t2Q$   
You wish to change to:  $E_C(10UE_C(s0u0p24h10v1s0b8t2Q$   
You need only send:  $E_C(s \quad 24h10v \quad 8T$

The primary/secondary font attribute, in the above case— $E_C(s$  must **always** be sent and the last letter **must** be capitalized.

When changing character sets the character set attribute **must** also be sent.

Typeface Pt Size/Pitch	Cartridge
<b>Courier 6/5</b>	Internal
Courier 6/10	Internal
Courier 6/16.67	Internal
Courier 6/20	Internal
<b>Courier 12/5</b>	Internal
Courier 12/10	Internal
Courier 12/16.67	Internal
Courier 12/20	Internal
<b>Courier Ital 6/5</b>	A
Courier Ital 6/10	A
Courier Ital 6/20	A
<b>Courier Ital 12/5</b>	A
Courier Ital 12/10	A
Courier Ital 12/20	A
Helv 4/ps	G,Q
Helv 4/ps	Soft Font
Helv 5/ps	G,Q
Helv 5/ps	Soft Font
Helv 6/ps	H,Q
Helv 6/ps	Soft Font
Helv 7/ps	J,Q
Helv 7/ps	Soft Font
Helv 8/ps	G,Q
Helv 8/ps	Soft Font
Helv 10/ps	G,Q
Helv 10/ps	Soft Font
Helv 12/ps	H,Q
Helv 12/ps	Soft Font
Helv 14/ps	J,Q
Helv 14/ps	Soft Font
Helv Ital 4/ps	G,Q
Helv Ital 4/ps	Soft Font
Helv Ital 5/ps	G,Q

Typeface	Pt Size/Pitch	Cartridge
<i>Helv Ital</i>	5/ps	Soft Font
<i>Helv Ital</i>	6/ps	H,Q
<i>Helv Ital</i>	6/ps	Soft Font
<i>Helv Ital</i>	7/ps	J,Q
<i>Helv Ital</i>	7/ps	Soft Font
<i>Helv Ital</i>	8/ps	G,Q
<i>Helv Ital</i>	8/ps	Soft Font
<i>Helv Ital</i>	10/ps	G,Q
<i>Helv Ital</i>	10/ps	Soft Font
<i>Helv Ital</i>	12/ps	H,Q
<i>Helv Ital</i>	12/ps	Soft Font
<i>Helv Ital</i>	14/ps	J,Q
<i>Helv Ital</i>	14/ps	Soft Font
HP Line Draw	6/5:	A,M
HP Line Draw	6/6:	A,B,C
HP Line Draw	6/10:	A,M
HP Line Draw	6/12:	A,B,C
HP Line Draw	6/20:	A,M
HP Line Draw	6/24:	A,B,C
HP Line Draw	12/5:	A,M
HP Line Draw	12/6:	A,B,C
HP Line Draw	12/10:	A,M
HP Line Draw	12/12:	A,B,C
HP Line Draw	12/20:	A,M
HP Line Draw	12/24:	A,B,C
HP Math7	3.50/8.34: $\alpha\beta\gamma\delta$	B
HP Math7	3.50/16.67: $\alpha\beta\gamma\delta$	B
HP Math7	3.50/33.34: $\alpha\beta$	B
HP Math7	5/6: $\alpha\beta\gamma\delta$	B
HP Math7	5/12: $\alpha\beta\gamma\delta$	B
HP Math7	5/24: $\alpha\beta\gamma\delta$	B
HP Math7	7/8.34: $\alpha\beta\gamma\delta$	B
HP Math7	7/16.67: $\alpha\beta\gamma\delta$	B



Typeface	Pt Size/Pitch	Cartridge
HP Math7	7/33.34: $\alpha\beta\phi$	B
HP Math7	10/6: $\alpha\beta\gamma\phi$	B
HP Math7	10/12: $\alpha\beta\gamma\phi$	B
HP Math7	10/24: $\alpha\beta\gamma\phi$	B
HP Math7	3.50/8.34: $\alpha\beta\gamma\phi$	B
HP Math7	3.50/16.67: $\alpha\beta\gamma\phi$	B
HP Math8	3.50/33.34: $\alpha\beta\gamma\delta$	B
HP Math8	5/6: $\alpha\beta\gamma\delta$	B
HP Math8	5/12: $\alpha\beta\gamma\delta$	B
HP Math8	5/24: $\alpha\beta\gamma\delta$	B
HP Math8	7/8.34: $\alpha\beta\gamma\delta$	B
HP Math8	7/16.67: $\alpha\beta\gamma\delta$	B
HP Math7	7/33.34: $\alpha\beta\phi$	B
HP Math8	10/6: $\alpha\beta\gamma\delta$	B
HP Math8	10/12: $\alpha\beta\gamma\delta$	B
HP Math8	10/24: $\alpha\beta\gamma\delta$	B
HP Math8a	3.50/8.34: $\alpha\beta\gamma\delta$	B
HP Math8a	3.50/16.67: $\alpha\beta\gamma\delta$	B
HP Math8a	3.50/33.34: $\alpha\beta\gamma\delta$	B
HP Math8a	5/6: $\alpha\beta\gamma\delta$	B
HP Math8a	5/12: $\alpha\beta\gamma\delta$	B
HP Math8a	5/24: $\alpha\beta\gamma\delta$	B
HP Math8a	7/8.34: $\alpha\beta\gamma\delta$	B
HP Math8a	7/16.67: $\alpha\beta\gamma\delta$	B
HP Math8a	7/33.34: $\alpha\beta\gamma\delta$	B
HP Math8a	10/6: $\alpha\beta\gamma\delta$	B
HP Math8a	10/12: $\alpha\beta\gamma\delta$	B
HP Math8a	10/24: $\alpha\beta\gamma\delta$	B
HP Math8b	3.50/8.34: $\alpha\beta\gamma\delta$	B
HP Math8b	3.50/16.67: $\alpha\beta\gamma\delta$	B
HP Math8b	3.50/33.34: $\alpha\beta\gamma\delta$	B
HP Math8b	5/6: $\alpha\beta\gamma\delta$	B
HP Math8b	5/12: $\alpha\beta\gamma\delta$	B

Typeface	Pt Size/Pitch	Cartridge
HP Math8b	5/24: ७५५	B
HP Math8b	7/8.34: ७५५	B
HP Math8b	7/16.67: ७५५	B
HP Math8b	7/33.34: ७५५	B
HP Math8b	10/6: ७५५	B
HP Math8b	10/12: ७५५	B
HP Math8b	10/24: ७५५	B
HP Pi Font	3.50/8.34: ७५५	B
HP Pi Font	3.50/16.67: ७५५	B
HP Pi Font	3.50/33.34: ७५५	B
HP Pi Font	5/6: ७५५	B
HP Pi Font	5/12: ७५५	B
HP Pi Font	5/24: ७५५	B
HP Pi Font	7/8.34: ७५५	B
HP Pi Font	7/16.67: ७५५	B
HP Pi Font	7/33.34: ७५५	B
HP Pi Font	10/6: ७५५	B
HP Pi Font	10/12: ७५५	B
HP Pi Font	10/24: ७५५	B
HP Pi Fonta	3.50/8.34: ७५५	B
HP Pi Fonta	3.50/16.67: ७५५	B
HP Pi Fonta	3.50/33.34: ७५५	B
HP Pi Fonta	5/6: ७५५	B
HP Pi Fonta	5/12: ७५५	B
HP Pi Fonta	5/24: ७५५	B
HP Pi Fonta	7/8.34: ७५५	B
HP Pi Fonta	7/16.67: ७५५	B
HP Pi Fonta	7/33.34: ७५५	B
HP Pi Fonta	10/6: ७५५	B
HP Pi Fonta	10/12: ७५५	B
HP Pi Fonta	10/24: ७५५	B
Letter Gothic	4.75/8.34	C
Letter Gothic	4.75/16.67	C

Typeface	Pt Size/Pitch	Cartridge
Letter Gothic	4.75/33.34	C
<b>Letter Gothic</b>	<b>6/6</b>	C
Letter Gothic	6/12	C
Letter Gothic	6/24	C
<b>Letter Gothic</b>	<b>7/5</b>	M
Letter Gothic	7/10	M
Letter Gothic	7/20	M
<b>Letter Gothic</b>	<b>9.50/8.34</b>	C
Letter Gothic	9.50/16.67	C
Letter Gothic	9.50/33.34	C
<b>Letter Gothic</b>	<b>12/6</b>	C
Letter Gothic	12/12	C
Letter Gothic	12/24	C
<b>Letter Gothic</b>	<b>14/5</b>	M
Letter Gothic	14/10	M
Letter Gothic	14/20	M
<b>Letter Gothic Ital</b>	<b>6/6</b>	C
Letter Gothic Ital	6/12	C
Letter Gothic Ital	6/24	C
<b>Letter Gothic Ital</b>	<b>12/6</b>	C
Letter Gothic Ital	12/12	C
Letter Gothic Ital	12/24	C
<b>PRES</b>	<b>7/5</b>	M
<b>PRES</b>	<b>7/10</b>	M
<b>PRES</b>	<b>7/20</b>	M
<b>PRES</b>	<b>8/4.05</b>	M
<b>PRES</b>	<b>8/8.10</b>	M
<b>PRES</b>	<b>8/16.20</b>	M
<b>PRES</b>	<b>9/3.25</b>	M
<b>PRES</b>	<b>9/6.50</b>	M
<b>PRES</b>	<b>9/13</b>	M
<b>PRES</b>	<b>14/5</b>	M
<b>PRES</b>	<b>14/10</b>	M



Font

Typeface	Pt Size/Pitch	Cartridge
PRES	14/20	M
<b>PRES</b>	<b>16/4.05</b>	M
PRES	16/8.10	M
PRES	16/16.20	M
<b>PRES</b>	<b>18/3.25</b>	M
PRES	18/6.50	M
PRES	18/13	M
<i>Prestige</i>	3.50/8.34	B
<i>Prestige</i>	3.50/16.67	B
<i>Prestige</i>	3.50/33.34	B
<i>Prestige Ital</i>	5/6	B
<i>Prestige</i>	5/12	B
<i>Prestige</i>	5/24	B
<i>Prestige</i>	7/8.34	B
<i>Prestige</i>	7/16.67	B
<i>Prestige</i>	7/33.34	B
<i>Prestige</i>	10/6	B
<i>Prestige</i>	10/12	B
<i>Prestige</i>	10/24	B
<i>Prestige Ital</i>	5/6	B
<i>Prestige Ital</i>	5/12	B
<i>Prestige Ital</i>	5/24	B
<i>Prestige Ital</i>	10/6	B
<i>Prestige Ital</i>	10/12	B
<i>Prestige Ital</i>	10/24	B
<i>Tms Rmn</i>	4/ps 4	D,P
<i>Tms Rmn</i>	4/ps 4	Soft Font
<i>Tms Rmn</i>	5/ps	D,P
<i>Tms Rmn</i>	5/ps	Soft Font
<i>Tms Rmn</i>	6/ps 6	E,P
<i>Tms Rmn</i>	6/ps 6	Soft Font
<i>Tms Rmn</i>	7/ps	EP

Typeface	Pt Size/Pitch	Cartridge
	Tms Rmn 7/ps	Soft Font
	<b>Tms Rmn 8/ps 8</b>	D,P
	<b>Tms Rmn 8/ps 8</b>	Soft Font
	Tms Rmn 10/ps	D,P
	Tms Rmn 10/ps	Soft Font
	Tms Rmn 12/ps	E,P
	Tms Rmn 12/ps	Soft Font
	Tms Rmn 14/ps	E,P
	Tms Rmn 14/ps	Soft Font
	<i>Tms Rmn Ital 4/ps</i>	D,P
	<i>Tms Rmn Ital 4/ps</i>	Soft Font
	<i>Tms Rmn Ital 5/ps</i>	D,P
	<i>Tms Rmn Ital 5/ps</i>	Soft Font
	<i>Tms Rmn Ital 6/ps</i>	E,P
	<i>Tms Rmn Ital 6/ps</i>	Soft Font
	<i>Tms Rmn Ital 7/ps</i>	E,P
	<i>Tms Rmn Ital 7/ps</i>	Soft Font
	<i>Tms Rmn Ital 8/ps</i>	D,P
	<i>Tms Rmn Ital 8/ps</i>	Soft Font
	<i>Tms Rmn Ital 10/ps</i>	D,P
	<i>Tms Rmn Ital 10/ps</i>	Soft Font
	<i>Tms Rmn Ital 12/ps</i>	E,P
	<i>Tms Rmn Ital 12/ps</i>	Soft Font
	<i>Tms Rmn Ital 14/ps</i>	E,P
	<i>Tms Rmn Ital 14/ps</i>	Soft Font

7-10 Fonts

Internal (no cartridge installed)

**COURIER 6/5**

Courier 6/10

Courier 6/16.67

Courier 6/20

**Courier 12/5**

Courier 12/10

Courier 12/16.67

Courier 12/20

**COURIER 6/5**

Courier 6/10

Courier 6/16.67

Courier 6/20

**Courier 12/5**

Courier 12/10

Courier 12/16.67

Courier 12/20

Legal 6/5: S I t ™

Legal 6/10: S I t ™

Legal 6/16.67: S I t ™

Legal 6/20: S I t ™

Legal 12/5: S I t ™

PR/SEC CHARACTER SET (Pri.) = Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (Pri.) = Sec	SUB-SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	5h	0s	0s	0b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	10h	0s	0s	0b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	16.67h	0s	0s	0b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	20h	0s	0s	0b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	5h	12v	0s	0b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	10h	12v	0s	0b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	16.67h	12v	0s	0b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	20h	12v	0s	0b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	5h	6v	0s	3b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	10h	6v	0s	3b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	16.67h	6v	0s	3b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	20h	6v	0s	3b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	5h	12v	0s	3b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	10h	12v	0s	3b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	16.67h	12v	0s	3b	3t	2Q
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	0p	20h	12v	0s	3b	3t	2Q
E <sub>C</sub> (	1U	E <sub>C</sub> (s	0u	0p	5h	6v	0s	0b	3t	2Q
E <sub>C</sub> (	1U	E <sub>C</sub> (s	0u	0p	10h	6v	0s	0b	3t	2Q
E <sub>C</sub> (	1U	E <sub>C</sub> (s	0u	0p	16.67h	6v	0s	0b	3t	2Q
E <sub>C</sub> (	1U	E <sub>C</sub> (s	0u	0p	20h	6v	0s	0b	3t	2Q
E <sub>C</sub> (	1U	E <sub>C</sub> (s	0u	0p	5h	12v	0s	0b	3t	2Q

Legal 12/10: S ¶ †™	E_C(	1U	E_C(s	0u	0p	10h	12v	0s	0b	3t	2Q
Legal 12/16.67: S ¶ †™	E_C(	1U	E_C(s	0u	0p	16.67h	12v	0s	0b	3t	2Q
Legal 12/20: S ¶ †™	E_C(	1U	E_C(s	0u	0p	20h	12v	0s	0b	3t	2Q
Legal 6/5: S ¶ †™	E_C(	1U	E_C(s	0u	0p	5h	6v	0s	3b	3t	2Q
Legal 6/10: S ¶ †™	E_C(	1U	E_C(s	0u	0p	10h	6v	0s	3b	3t	2Q
Legal 6/16.67: S ¶ †™	E_C(	1U	E_C(s	0u	0p	16.67h	6v	0s	3b	3t	2Q
Legal 6/20: S ¶ †™	E_C(	1U	E_C(s	0u	0p	20h	6v	0s	3b	3t	2Q
Legal 12/5: S ¶ †™	E_C(	1U	E_C(s	0u	0p	5h	12v	0s	3b	3t	2Q
Legal 12/10: S ¶ †™	F_C(	1U	F_C(s	0u	0p	10h	12v	0s	3b	3t	2Q
Legal 12/16.67: S ¶ †™	E_C(	1U	E_C(s	0u	0p	16.67h	12v	0s	3b	3t	2Q
Legal 12/20: S ¶ †™	E_C(	1U	E_C(s	0u	0p	20h	12v	0s	3b	3t	2Q

**NOTE:** The Legal Character Set is also available on all cartridges except the M, P and Q cartridges. However, the only examples of the Legal Font are those shown above.





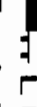










**HP22706A Courier**

*COURIER Ital* 6/10 6/5  
*Courier Ital* 6/10  
*Courier Ital* 6/20  
***Courier Ital*** 12/5  
*Courier Ital* 12/10  
*Courier Ital* 12/20  
***COURIER Ital*** 6/5  
*Courier Ital* 6/10 6/5  
*Courier Ital* 6/20  
***Courier Ital*** 12/5  
*Courier Ital* 12/10  
*Courier Ital* 12/20

Line Draw 6/5: █  
 Line Draw 6/6: █  
 Line Draw 6/10: █  
 Line Draw 6/12: █  
 Line Draw 6/20: █  
 Line Draw 6/24: █  
 Line Draw 12/5: █  
 Line Draw 12/6: █  
 Line Draw 12/10: █

PR/SEC CHARACTER SET (=Plt.)=Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Plt.)=Sec	SUB-/SUPERSCRIP 0=Norm, 1=Super -1=Sub	SPACING 0=Norm, 1=Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0=Upright, 1=Italics	STROKE WEIGHT 0=Normal, 3=Bold	TYPEFACE (Values on page 4-16)	QUALITY 1=Draft, 2=Letter
E_C	10U	E_C(s)	0u	0p	5h	6v	1s	0b	3t	2Q
E_C	10U	E_C(s)	0u	0p	10h	6v	1s	0b	3t	2Q
E_C	10U	E_C(s)	0u	0p	20h	6v	1s	0b	3t	2Q
E_C	10U	E_C(s)	0u	0p	5h	12v	1s	0b	3t	2Q
E_C	10U	E_C(s)	0u	0p	10h	12v	1s	0b	3t	2Q
E_C	10U	E_C(s)	0u	0p	20h	12v	1s	0b	3t	2Q
E_C	10U	E_C(s)	0u	0p	5h	6v	1s	3b	3t	2Q
E_C	10U	E_C(s)	0u	0p	10h	6v	1s	3b	3t	2Q
E_C	10U	E_C(s)	0u	0p	20h	6v	1s	3b	3t	2Q
E_C	10U	E_C(s)	0u	0p	5h	12v	1s	3b	3t	2Q
E_C	10U	E_C(s)	0u	0p	10h	12v	1s	3b	3t	2Q
E_C	10U	E_C(s)	0u	0p	20h	12v	1s	3b	3t	2Q
E_C	0L	E_C(s)	0u	0p	5h	6v	0s	0b	0t	2Q
E_C	0L	E_C(s)	0u	0p	6h	6v	0s	0b	0t	2Q
E_C	0L	E_C(s)	0u	0p	10h	6v	0s	0b	0t	2Q
E_C	0L	E_C(s)	0u	0p	12h	6v	0s	0b	0t	2Q
E_C	0L	E_C(s)	0u	0p	20h	6v	0s	0b	0t	2Q
E_C	0L	E_C(s)	0u	0p	24h	6v	0s	0b	0t	2Q
E_C	0L	E_C(s)	0u	0p	5h	12v	0s	0b	0t	2Q
E_C	0L	E_C(s)	0u	0p	6h	12v	0s	0b	0t	2Q
E_C	0L	E_C(s)	0u	0p	10h	12v	0s	0b	0t	2Q



Line Draw 12/12:   
 Line Draw 12/20:   
 Line Draw 12/24:   
 Line Draw 6/5:   
 Line Draw 6/6:   
 Line Draw 6/10:   
 Line Draw 6/12:   
 Line Draw 6/20:   
 Line Draw 6/24:   
 Line Draw 12/5:   
 Line Draw 12/6:   
 Line Draw 12/10:   
 Line Draw 12/12:   
 Line Draw 12/20:   
 Line Draw 12/24: 

E\_C( 0L E\_C(s 0u 0p 12h 12v 0s 0b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 20h 12v 0s 0b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 24h 12v 0s 0b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 5h 6v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 6h 6v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 10h 6v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 12h 6v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 20h 6v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 24h 6v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 5h 12v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 6h 12v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 10h 12v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 12h 12v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 20h 12v 0s 3b 0t 2Q  
 E\_C( 0L E\_C(s 0u 0p 24h 12v 0s 3b 0t 2Q

7-14 Fonts

**HP22706B Prestige Elite**

Prestige 10/12 3.50/16.67

Prestige 5/12

Prestige 5/74

**PRESTIGE 5/6**

Prestige 5/12

Prestige 5/74

**Prestige 7/8.34**

Prestige 7/16.67

Prestige 7/33.34

**Prestige 10/6**

Prestige 10/12

Prestige 10/74

**PRESTIGE 3.50/16.67**

Prestige 3.50/16.67

Prestige 3.50/33.34

**PRESTIGE 5/6**

Prestige 5/12

Prestige 5/74

**Prestige 7/8.34**

Prestige 7/16.67

Prestige 7/33.34

**Prestige 10/6**

PR/SEC CHARACTER SET (=Pr.) = Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Pr.) = Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
E_C	10U	E_C(s)	0u	0p	8.34h	3.5v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	16.67h	3.5v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	33.34h	3.5v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	6h	5v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	12h	5v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	24h	5v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	8.34h	7v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	16.67h	7v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	33.34h	7v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	6h	10v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	12h	10v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	24h	10v	0s	0b	8t	2Q
E_C	10U	E_C(s)	0u	0p	8.34h	3.5v	0s	3b	8t	2Q
E_C	10U	E_C(s)	0u	0p	16.67h	3.5v	0s	3b	8t	2Q
E_C	10U	E_C(s)	0u	0p	33.34h	3.5v	0s	3b	8t	2Q
E_C	10U	E_C(s)	0u	0p	6h	5v	0s	3b	8t	2Q
E_C	10U	E_C(s)	0u	0p	12h	5v	0s	3b	8t	2Q
E_C	10U	E_C(s)	0u	0p	24h	5v	0s	3b	8t	2Q
E_C	10U	E_C(s)	0u	0p	8.34h	7v	0s	3b	8t	2Q
E_C	10U	E_C(s)	0u	0p	16.67h	7v	0s	3b	8t	2Q
E_C	10U	E_C(s)	0u	0p	33.34h	7v	0s	3b	8t	2Q
E_C	10U	E_C(s)	0u	0p	6h	10v	0s	3b	8t	2Q



7-16 Fonts

cont.

Math7	3.50/8.34:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	8.34h	3.5v	0s	0b	8t	2Q
Math7	3.50/16.67:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	16.67h	3.5v	0s	0b	8t	2Q
Math7	3.50/33.34:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	33.34h	3.5v	0s	0b	8t	2Q
Math7	5/6:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	6h	5v	0s	0b	8t	2Q
Math7	5/12:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	12h	5v	0s	0b	8t	2Q
Math7	5/24:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	24h	5v	0s	0b	8t	2Q
Math7	7/8.34:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	8.34h	7v	0s	0b	8t	2Q
Math7	7/16.67:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	16.67h	7v	0s	0b	8t	2Q
Math7	7/33.34:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	33.34h	7v	0s	0b	8t	2Q
Math7	10/6:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	6h	10v	0s	0b	8t	2Q
Math7	10/12:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	12h	10v	0s	0b	8t	2Q
Math7	10/24:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	24h	10v	0s	0b	8t	2Q
Math7	3.50/8.34:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	8.34h	3.5v	0s	3b	8t	2Q
Math7	3.50/16.67:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	16.67h	3.5v	0s	3b	8t	2Q
Math7	3.50/33.34:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	33.34h	3.5v	0s	3b	8t	2Q
Math7	5/6:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	6h	5v	0s	3b	8t	2Q
Math7	5/12:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	12h	5v	0s	3b	8t	2Q
Math7	5/24:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	24h	5v	0s	3b	8t	2Q
Math7	7/8.34:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	8.34h	7v	0s	3b	8t	2Q
Math7	7/16.67:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	16.67h	7v	0s	3b	8t	2Q
Math7	7/33.34:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	33.34h	7v	0s	3b	8t	2Q
Math7	10/6:	αβϑϕ	E <sub>C</sub> (	0M	E <sub>C</sub> (s	0u	0p	6h	10v	0s	3b	8t	2Q

PR/SEC CHARACTER SET (Pri.) = Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (Pri.) = Sec	SUB-SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
--------------------------------------	---	--	--	---------------------------------------	--------------------------------	---	---------------------------------------	---------------------------------------	-----------------------------------	----------------------------------

Math7 10/12:  $\alpha\beta\zeta\phi$   
Math7 10/24:  $\omega\eta\iota$

$E_C$  0M  $E_C$ (s) 0u 0p 12h 10v 0s 3b 8t 2Q  
 $E_C$  0M  $E_C$ (s) 0u 0p 24h 10v 0s 3b 8t 2Q

Math8 3.50/8.34:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 8.34h 3.5v 0s 0b 8t 2Q

Math8 3.50/16.67:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 16.67h 3.5v 0s 0b 8t 2Q

Math8 3.50/33.34:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 33.34h 3.5v 0s 0b 8t 2Q

Math8 5/6:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 6h 5v 0s 0b 8t 2Q

Math8 5/12:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 12h 5v 0s 0b 8t 2Q

Math8 5/24:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 24h 5v 0s 0b 8t 2Q

Math8 7/8.34:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 8.34h 7v 0s 0b 8t 2Q

Math8 7/16.67:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 16.67h 7v 0s 0b 8t 2Q

Math8 7/33.34:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 33.34h 7v 0s 0b 8t 2Q

Math8 10/6:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 6h 10v 0s 0b 8t 2Q

Math8 10/12:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 12h 10v 0s 0b 8t 2Q

Math8 10/24:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 24h 10v 0s 0b 8t 2Q

Math8 3.50/8.34:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 8.34h 3.5v 0s 3b 8t 2Q

Math8 3.50/16.67:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 16.67h 3.5v 0s 3b 8t 2Q

Math8 3.50/33.34:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 33.34h 3.5v 0s 3b 8t 2Q

Math8 5/6:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 6h 5v 0s 3b 8t 2Q

Math8 5/12:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 12h 5v 0s 3b 8t 2Q

Math8 5/24:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 24h 5v 0s 3b 8t 2Q

Math8 7/8.34:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 8.34h 7v 0s 3b 8t 2Q

Math8 7/16.67:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 16.67h 7v 0s 3b 8t 2Q

Math8 7/33.34:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 33.34h 7v 0s 3b 8t 2Q

Math8 10/6:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 6h 10v 0s 3b 8t 2Q

Math8 10/12:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 12h 10v 0s 3b 8t 2Q

Math8 10/24:  $A B \theta \delta$

$E_C$  8M  $E_C$ (s) 0u 0p 24h 10v 0s 3b 8t 2Q

7-18 Fonts

cont.

Math8a	3.50/8.34:		E_C	0Q	E_C(s)	0u	0p	8.34h	3.5v	0s	0b	8t	2Q
Math8a	3.50/16.67:		E_C	0Q	E_C(s)	0u	0p	16.67h	3.5v	0s	0b	8t	2Q
Math8a	3.50/33.34:		E_C	0Q	E_C(s)	0u	0p	33.34h	3.5v	0s	0b	8t	2Q
Math8a	5/6:		E_C	0Q	E_C(s)	0u	0p	6h	5v	0s	0b	8t	2Q
Math8a	5/12:		E_C	0Q	E_C(s)	0u	0p	12h	5v	0s	0b	8t	2Q
Math8a	5/24:		E_C	0Q	E_C(s)	0u	0p	24h	5v	0s	0b	8t	2Q
Math8a	7/8.34:		E_C	0Q	E_C(s)	0u	0p	8.34h	7v	0s	0b	8t	2Q
Math8a	7/16.67:		E_C	0Q	E_C(s)	0u	0p	16.67h	7v	0s	0b	8t	2Q
Math8a	7/33.34:		E_C	0Q	E_C(s)	0u	0p	33.34h	7v	0s	0b	8t	2Q
Math8a	10/6:		E_C	0Q	E_C(s)	0u	0p	6h	10v	0s	0b	8t	2Q
Math8a	10/12:		E_C	0Q	E_C(s)	0u	0p	12h	10v	0s	0b	8t	2Q
Math8a	10/24:		E_C	0Q	E_C(s)	0u	0p	24h	10v	0s	0b	8t	2Q
Math8a	3.50/8.34:		E_C	0Q	E_C(s)	0u	0p	8.34h	3.5v	0s	3b	8t	2Q
Math8a	3.50/16.67:		E_C	0Q	E_C(s)	0u	0p	16.67h	3.5v	0s	3b	8t	2Q
Math8a	3.50/33.34:		E_C	0Q	E_C(s)	0u	0p	33.34h	3.5v	0s	3b	8t	2Q
Math8a	5/6:		E_C	0Q	E_C(s)	0u	0p	6h	5v	0s	3b	8t	2Q
Math8a	5/12:		E_C	0Q	E_C(s)	0u	0p	12h	5v	0s	3b	8t	2Q
Math8a	5/24:		E_C	0Q	E_C(s)	0u	0p	24h	5v	0s	3b	8t	2Q
Math8a	7/8.34:		E_C	0Q	E_C(s)	0u	0p	8.34h	7v	0s	3b	8t	2Q
Math8a	7/16.67:		E_C	0Q	E_C(s)	0u	0p	16.67h	7v	0s	3b	8t	2Q
Math8a	7/33.34:		E_C	0Q	E_C(s)	0u	0p	33.34h	7v	0s	3b	8t	2Q
Math8a	10/6:		E_C	0Q	E_C(s)	0u	0p	6h	10v	0s	3b	8t	2Q

PR/SEC CHARACTER SET (=Pri.) =Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Pri.) =Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY (1 = Draft, 2 = Letter)
--------------------------------------	---	--	---	---------------------------------------	--------------------------------	---	---------------------------------------	---------------------------------------	-----------------------------------	------------------------------------

Math8a 10/12: $\frac{10}{12}$	E_C(	0Q	E_C(s	0u	0p	12h	10v	0s	3b	8t	2Q
Math8a 10/24: $\frac{10}{24}$	E_C(	0Q	E_C(s	0u	0p	24h	10v	0s	3b	8t	2Q
Math8b 3.50/8.34: $\frac{3.50}{8.34}$	E_C(	1Q	E_C(s	0u	0p	8.34h	3.5v	0s	0b	8t	2Q
Math8b 3.50/16.67: $\frac{3.50}{16.67}$	E_C(	1Q	E_C(s	0u	0p	16.67h	3.5v	0s	0b	8t	2Q
Math8b 3.50/33.34: $\frac{3.50}{33.34}$	E_C(	1Q	E_C(s	0u	0p	33.34h	3.5v	0s	0b	8t	2Q
Math8b 5/6: $\frac{5}{6}$	E_C(	1Q	E_C(s	0u	0p	6h	5v	0s	0b	8t	2Q
Math8b 5/12: $\frac{5}{12}$	E_C(	1Q	E_C(s	0u	0p	12h	5v	0s	0b	8t	2Q
Math8b 5/24: $\frac{5}{24}$	E_C(	1Q	E_C(s	0u	0p	24h	5v	0s	0b	8t	2Q
Math8b 7/8.34: $\frac{7}{8.34}$	E_C(	1Q	E_C(s	0u	0p	8.34h	7v	0s	0b	8t	2Q
Math8b 7/16.67: $\frac{7}{16.67}$	E_C(	1Q	E_C(s	0u	0p	16.67h	7v	0s	0b	8t	2Q
Math8b 7/33.34: $\frac{7}{33.34}$	E_C(	1Q	E_C(s	0u	0p	33.34h	7v	0s	0b	8t	2Q
Math8b 10/6: $\frac{10}{6}$	E_C(	1Q	E_C(s	0u	0p	6h	10v	0s	0b	8t	2Q
Math8b 10/12: $\frac{10}{12}$	E_C(	1Q	E_C(s	0u	0p	12h	10v	0s	0b	8t	2Q
Math8b 10/24: $\frac{10}{24}$	E_C(	1Q	E_C(s	0u	0p	24h	10v	0s	0b	8t	2Q
Math8b 3.50/8.34: $\frac{3.50}{8.34}$	E_C(	1Q	E_C(s	0u	0p	8.34h	3.5v	0s	3b	8t	2Q
Math8b 3.50/16.67: $\frac{3.50}{16.67}$	E_C(	1Q	E_C(s	0u	0p	16.67h	3.5v	0s	3b	8t	2Q
Math8b 3.50/33.34: $\frac{3.50}{33.34}$	E_C(	1Q	E_C(s	0u	0p	33.34h	3.5v	0s	3b	8t	2Q
Math8b 5/6: $\frac{5}{6}$	E_C(	1Q	E_C(s	0u	0p	6h	5v	0s	3b	8t	2Q
Math8b 5/12: $\frac{5}{12}$	E_C(	1Q	E_C(s	0u	0p	12h	5v	0s	3b	8t	2Q
Math8b 5/24: $\frac{5}{24}$	E_C(	1Q	E_C(s	0u	0p	24h	5v	0s	3b	8t	2Q
Math8b 7/8.34: $\frac{7}{8.34}$	E_C(	1Q	E_C(s	0u	0p	8.34h	7v	0s	3b	8t	2Q
Math8b 7/16.67: $\frac{7}{16.67}$	E_C(	1Q	E_C(s	0u	0p	16.67h	7v	0s	3b	8t	2Q
Math8b 7/33.34: $\frac{7}{33.34}$	E_C(	1Q	E_C(s	0u	0p	33.34h	7v	0s	3b	8t	2Q
Math8b 10/6: $\frac{10}{6}$	E_C(	1Q	E_C(s	0u	0p	6h	10v	0s	3b	8t	2Q
Math8b 10/12: $\frac{10}{12}$	E_C(	1Q	E_C(s	0u	0p	12h	10v	0s	3b	8t	2Q
Math8b 10/24: $\frac{10}{24}$	E_C(	1Q	E_C(s	0u	0p	24h	10v	0s	3b	8t	2Q

7-20 Fonts

cont.

Pi Font 3.50/8.34: **3.50/8.34**  
 Pi Font 3.50/16.67: **3.50/16.67**  
 Pi Font 3.50/33.34: **3.50/33.34**  
 Pi Font 5/6: **5/6**  
 Pi Font 5/12: **5/12**  
 Pi Font 5/24: **5/24**  
 Pi Font 7/8.34: **7/8.34**  
 Pi Font 7/16.67: **7/16.67**  
 Pi Font 7/33.34: **7/33.34**  
 Pi Font 10/6: **10/6**  
 Pi Font 10/12: **10/12**  
 Pi Font 10/24: **10/24**  
 Pi Font 3.50/8.34: **3.50/8.34**  
 Pi Font 3.50/16.67: **3.50/16.67**  
 Pi Font 3.50/33.34: **3.50/33.34**  
 Pi Font 5/6: **5/6**  
 Pi Font 5/12: **5/12**  
 Pi Font 5/24: **5/24**  
 Pi Font 7/8.34: **7/8.34**  
 Pi Font 7/16.67: **7/16.67**  
 Pi Font 7/33.34: **7/33.34**  
 Pi Font 10/6: **10/6**

PR/SEC CHARACTER SET (=Pr.) = Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Pr.) = Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
E_C	15U	E_C(s)	0u	0p	8.34h	3.5v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	16.67h	3.5v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	33.34h	3.5v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	6h	5v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	12h	5v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	24h	5v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	8.34h	7v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	16.67h	7v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	33.34h	7v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	6h	10v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	12h	10v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	24h	10v	0s	0b	8t	2Q
E_C	15U	E_C(s)	0u	0p	8.34h	3.5v	0s	3b	8t	2Q
E_C	15U	E_C(s)	0u	0p	16.67h	3.5v	0s	3b	8t	2Q
E_C	15U	E_C(s)	0u	0p	33.34h	3.5v	0s	3b	8t	2Q
E_C	15U	E_C(s)	0u	0p	6h	5v	0s	3b	8t	2Q
E_C	15U	E_C(s)	0u	0p	12h	5v	0s	3b	8t	2Q
E_C	15U	E_C(s)	0u	0p	24h	5v	0s	3b	8t	2Q
E_C	15U	E_C(s)	0u	0p	8.34h	7v	0s	3b	8t	2Q
E_C	15U	E_C(s)	0u	0p	16.67h	7v	0s	3b	8t	2Q
E_C	15U	E_C(s)	0u	0p	33.34h	7v	0s	3b	8t	2Q
E_C	15U	E_C(s)	0u	0p	6h	10v	0s	3b	8t	2Q



Pi Font 10/12: Røſſſ

Pi Font 10/24: Røſſ

E\_C( 15U E\_C(s 0u 0p 12h 10v 0s 3b 8t 2Q

E\_C( 15U E\_C(s 0u 0p 24h 10v 0s 3b 8t 2Q

Pi Fonta 3.50/8.34: Røſſ

Pi Fonta 3.50/16.67: Røſſ

Pi Fonta 3.50/33.34: Røſſ

Pi Fonta 5/6: Røſſ

Pi Fonta 5/12: Røſſ

Pi Fonta 5/24: Røſſ

Pi Fonta 7/8.34: Røſſ

Pi Fonta 7/16.67: Røſſ

Pi Fonta 7/33.34: Røſſ

Pi Fonta 10/6: Røſſ

Pi Fonta 10/12: Røſſ

Pi Fonta 10/24: Røſſ

Pi Fonta 3.50/8.34: Røſſ

Pi Fonta 3.50/16.67: Røſſ

Pi Fonta 3.50/33.34: Røſſ

Pi Fonta 5/6: Røſſ

Pi Fonta 5/12: Røſſ

Pi Fonta 5/24: Røſſ

Pi Fonta 7/8.34: Røſſ

Pi Fonta 7/16.67: Røſſ

Pi Fonta 7/33.34: Røſſ

Pi Fonta 10/6: Røſſ

Pi Fonta 10/12: Røſſ

Pi Fonta 10/24: Røſſ

E\_C( 2Q E\_C(s 0u 0p 8.34h 3.5v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 16.67h 3.5v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 33.34h 3.5v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 6h 5v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 12h 5v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 24h 5v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 8.34h 7v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 16.67h 7v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 33.34h 7v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 6h 10v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 12h 10v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 24h 10v 0s 0b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 8.34h 3.5v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 16.67h 3.5v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 33.34h 3.5v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 6h 5v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 12h 5v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 24h 5v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 8.34h 7v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 16.67h 7v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 33.34h 7v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 6h 10v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 12h 10v 0s 3b 8t 2Q

E\_C( 2Q E\_C(s 0u 0p 24h 10v 0s 3b 8t 2Q

7-22 Fonts

**HP22706C Letter Gothic**

Letter Gothic 4./5/8.34

Letter Gothic 4./5/16.67

Letter Gothic 4./16/33.34

**Letter Gothic 6/6**

Letter Gothic 6/12

Letter Gothic 6/24

Letter Gothic 9.50/8.34

Letter Gothic 9.50/16.67

Letter Gothic 9.50/33.34

**Letter Gothic 12/6**

Letter Gothic 12/12

Letter Gothic 12/24

**Letter Gothic 4./5/8.34**

Letter Gothic 4./5/16.67

Letter Gothic 4./16/33.34

**Letter Gothic 6/6**

Letter Gothic 6/12

Letter Gothic 6/24

Letter Gothic 9.50/8.34

Letter Gothic 9.50/16.67

Letter Gothic 9.50/33.34

**Letter Gothic 12/6**

PR/SEC CHARACTER SET (=Pr1.)=Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Pr1.)=Sec	SUB-SUPERSCRIPT 0=Norm, 1=Super -1=Sub	SPACING 0=Norm, 1=Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0=Upright, 1=Italics	STROKE WEIGHT 0=Normal, 3=Bold	TYPEFACE (Values on page 4-16)	QUALITY 1=Draft, 2=Letter
E_C	10U	E_C(s)	0u	0p	8.34h	4.75v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	16.67h	4.75v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	33.34h	4.75v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	6h	6v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	12h	6v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	24h	6v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	8.34h	9.5v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	16.67h	9.5v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	33.34h	9.5v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	6h	12v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	12h	12v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	24h	12v	0s	0b	6t	2Q
E_C	10U	E_C(s)	0u	0p	8.34h	4.75v	0s	3b	6t	2Q
E_C	10U	E_C(s)	0u	0p	16.67h	4.75v	0s	3b	6t	2Q
E_C	10U	E_C(s)	0u	0p	33.34h	4.75v	0s	3b	6t	2Q
E_C	10U	E_C(s)	0u	0p	6h	6v	0s	3b	6t	2Q
E_C	10U	E_C(s)	0u	0p	12h	6v	0s	3b	6t	2Q
E_C	10U	E_C(s)	0u	0p	24h	6v	0s	3b	6t	2Q
E_C	10U	E_C(s)	0u	0p	8.34h	9.5v	0s	3b	6t	2Q
E_C	10U	E_C(s)	0u	0p	16.67h	9.5v	0s	3b	6t	2Q
E_C	10U	E_C(s)	0u	0p	33.34h	9.5v	0s	3b	6t	2Q
E_C	10U	E_C(s)	0u	0p	6h	12v	0s	3b	6t	2Q

**Letter Gothic 12/12**

Letter Gothic 12/24

*L E T T E R G O T H I C I T A L 6 / 6*

*Letter Gothic Ital 6/12*

*Letter Gothic Ital 6/24*

***Letter Gothic Ital 12/6***

Letter Gothic Ital 12/12

Letter Gothic Ital 12/24

*L E T T E R G O T H I C I T A L 6 / 6*

*Letter Gothic Ital 6/12*

*Letter Gothic Ital 6/24*

***Letter Gothic Ital 12/6***

Letter Gothic Ital 12/12

Letter Gothic Ital 12/24

Ec(	10U	Ec(s	0u	0p	12h	12v	0s	3b	6t	2Q
Ec(	10U	Ec(s	0u	0p	24h	12v	0s	3b	6t	2Q
Ec(	10U	Ec(s	0u	0p	6h	6v	1s	0b	6t	2Q
Ec(	10U	Ec(s	0u	0p	12h	6v	1s	0b	6t	2Q
Ec(	10U	Ec(s	0u	0p	24h	6v	1s	0b	6t	2Q
Ec(	10U	Ec(s	0u	0p	6h	12v	1s	0b	6t	2Q
Ec(	10U	Ec(s	0u	0p	12h	12v	1s	0b	6t	2Q
Ec(	10U	Ec(s	0u	0p	24h	12v	1s	0b	6t	2Q
Ec(	10U	Ec(s	0u	0p	6h	6v	1s	3b	6t	2Q
Ec(	10U	Ec(s	0u	0p	12h	6v	1s	3b	6t	2Q
Ec(	10U	Ec(s	0u	0p	24h	6v	1s	3b	6t	2Q
Ec(	10U	Ec(s	0u	0p	6h	12v	1s	3b	6t	2Q
Ec(	10U	Ec(s	0u	0p	12h	12v	1s	3b	6t	2Q
Ec(	10U	Ec(s	0u	0p	24h	12v	1s	3b	6t	2Q

Line Draw 6/6: = 7 11

Line Draw 6/12: = 7 11

Line Draw 6/24: = 7 11

Line Draw 12/6: = 7 11

Line Draw 12/12: = 7 11

Line Draw 12/24: = 7 11

Line Draw 6/6: = 7 11

Line Draw 6/12: = 7 11

Line Draw 6/24: = 7 11

Line Draw 12/6: = 7 11

Line Draw 12/12: = 7 11

Line Draw 12/24: = 7 11

Ec(	0L	Ec(s	0u	0p	6h	6v	0s	0b	0t	2Q
Ec(	0L	Ec(s	0u	0p	12h	6v	0s	0b	0t	2Q
Ec(	0L	Ec(s	0u	0p	24h	6v	0s	0b	0t	2Q
Ec(	0L	Ec(s	0u	0p	6h	12v	0s	0b	0t	2Q
Ec(	0L	Ec(s	0u	0p	12h	12v	0s	0b	0t	2Q
Ec(	0L	Ec(s	0u	0p	24h	12v	0s	0b	0t	2Q
Ec(	0L	Ec(s	0u	0p	6h	6v	0s	3b	0t	2Q
Ec(	0L	Ec(s	0u	0p	12h	6v	0s	3b	0t	2Q
Ec(	0L	Ec(s	0u	0p	24h	6v	0s	3b	0t	2Q
Ec(	0L	Ec(s	0u	0p	6h	12v	0s	3b	0t	2Q
Ec(	0L	Ec(s	0u	0p	12h	12v	0s	3b	0t	2Q
Ec(	0L	Ec(s	0u	0p	24h	12v	0s	3b	0t	2Q

# HP22706D TmsRmn 8 & 10 Point

PRISC CHARACTER SET (=Pl, )=Sec	CHARACTER SET (See page 4-12, Programming)	PRISC FONT ATTRIBUTES (=Pl, )=Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super -1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	4v	0s	0b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	5v	0s	0b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	8v	0s	0b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	10v	0s	0b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	4v	0s	3b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	5v	0s	3b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	8v	0s	3b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	10v	0s	3b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	4v	1s	0b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	5v	1s	0b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	8v	1s	0b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	10v	1s	0b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	4v	1s	3b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	5v	1s	3b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	8v	1s	3b	5t	2Q	
E <sub>C</sub> (	10U	E <sub>C</sub> (s	0u	1p	10v	1s	3b	5t	2Q	

Tms Rmn 4/ps

Tms Rmn 5/ps

Tms Rmn 8/ps

Tms Rmn 10/ps

Tms Rmn 4/ps

Tms Rmn 5/ps

Tms Rmn 8/ps

Tms Rmn 10/ps

Tms Rmn Ital 4/ps

Tms Rmn Ital 5/ps

Tms Rmn Ital 8/ps

Tms Rmn Ital 10/ps

Tms Rmn Ital 4/ps

Tms Rmn Ital 5/ps

Tms Rmn Ital 8/ps

Tms Rmn Ital 10/ps

**NOTE:** TmsRmn fonts are also available as downloadable Soft Fonts. Use of Soft Fonts requires the optional HP22707A RAM cartridge and HP22708A Soft Font product. To order, contact your local dealer or call HP toll-free at (800) 538-8787.

## HP22706E TmsRmn 12 Point

Tms Rmn 6/ps

Tms Rmn 12/ps

Tms Rmn 6/ps

Tms Rmn 12/ps

Tms Rmn Ital 6/ps

Tms Rmn Ital 12/ps

Tms Rmn Ital 6/ps

Tms Rmn Ital 12/ps

## HP22706F TmsRmn 14 Point

Tms Rmn 7/ps

Tms Rmn 14/ps

Tms Rmn 7/ps

Tms Rmn 14/ps

Tms Rmn Ital 7/ps

Tms Rmn Ital 7/ps

Tms Rmn Ital 14/ps

Tms Rmn Ital 14/ps

PR/SEC CHARACTER SET (=Pt.) =Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Pt.) =Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super -1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
-------------------------------------	---	---------------------------------------	--	---------------------------------------	--------------------------------	---	---------------------------------------	---------------------------------------	-----------------------------------	----------------------------------

E_C(	10U	E_C(s	0u	1p		6v	0s	0b	5t	2Q
E_C(	10U	E_C(s	0u	1p		12v	0s	0b	5t	2Q
E_C(	10U	E_C(s	0u	1p		6v	0s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p		12v	0s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p		6v	1s	0b	5t	2Q
E_C(	10U	E_C(s	0u	1p		12v	1s	0b	5t	2Q
E_C(	10U	E_C(s	0u	1p		6v	1s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p		12v	1s	3b	5t	2Q

E_C(	10U	E_C(s	0u	1p		7v	0s	0b	5t	2Q
E_C(	10U	E_C(s	0u	1p		14v	0s	0b	5t	2Q
E_C(	10U	E_C(s	0u	1p		7v	0s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p		14v	0s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p		7v	1s	0b	5t	2Q
E_C(	10U	E_C(s	0u	1p		14v	1s	0b	5t	2Q
E_C(	10U	E_C(s	0u	1p		7v	1s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p		14v	1s	3b	5t	2Q

**NOTE:** TmsRmn fonts are also available as downloadable Soft Fonts. Use of Soft Fonts requires the optional HP22707A RAM cartridge(s) and HP22708A Soft Font product. To order, contact your local dealer or call HP toll-free at (800) 538-8787.

7-26 Fonts

**HP22706G Helv 8 & 10 Point**

PR/SEC CHARACTER SET (=Prt.) =Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Prt.) =Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE 0 = Normal, 3 = Bold	VALUES ON PAGE 4-16 (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
E_C( 10U	E_C(s	0u	1p	1p	4v	0s	0b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	5v	0s	0b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	8v	0s	0b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	10v	0s	0b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	4v	0s	3b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	5v	0s	3b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	8v	0s	3b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	10v	0s	3b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	4v	1s	0b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	5v	1s	0b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	8v	1s	0b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	10v	1s	0b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	4v	1s	3b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	5v	1s	3b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	8v	1s	3b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	10v	1s	3b	4t	2Q		
E_C( 10U	E_C(s	0u	1p	1p	4v	1s	3b	4t	2Q		

**Helv Ital 8/ps**

**Helv Ital 10/ps**

**NOTE:** Helv fonts are also available as downloadable Soft Fonts. Use of Soft Fonts requires the optional HP22707A RAM cartridge and HP22708A Soft Font product. To order, contact your local dealer or call HP toll-free at (800) 538-8787.

## HP22706H Helv 12 Point

PRI/SEC CHARACTER SET (=Pri, ) =Sec	CHARACTER SET (See page 4-12, Programming)	PRI/SEC FONT ATTRIBUTES (=Pri, ) =Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
Helv 6/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	6v 0s 0b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv 12/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	12v 0s 0b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv 6/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	6v 0s 3b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv 12/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	12v 0s 3b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv Ital 6/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	6v 1s 0b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv Ital 12/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	12v 1s 0b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv Ital 6/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	6v 1s 3b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv Ital 12/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	12v 1s 3b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter

## HP22706J Helv 14 Point

Helv 7/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	7v 0s 0b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv 14/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	14v 0s 0b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv 7/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	7v 0s 3b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv 14/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	14v 0s 3b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv Ital 7/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	7v 1s 0b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv Ital 14/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	14v 1s 0b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv Ital 7/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	7v 1s 3b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter
Helv Ital 14/ps	E_C( 10U E_C(s 0u 1p	E_C(s 0u 1p	0u 1p	0 = Norm, 1 = Proportional	(Characters per inch)	14v 1s 3b 4t 2Q	0 = Upright, 1 = Italics	0 = Normal, 3 = Bold	(Values on page 4-16)	1 = Draft, 2 = Letter

**NOTE:** TmsRmn fonts are also available as downloadable Soft Fonts. Use of Soft Fonts requires the optional HP22707A RAM cartridge(s) and HP22708A Soft Font product. To order, contact your local dealer or call HP toll-free at (800) 538-8787.

**HP22706M Presentations**

**L E T T E R G O T H I C 7 / 5**

Letter Gothic 7/10

Letter Gothic 7/20

**L e t t e r G o t h i c 1 4 / 5**

Letter Gothic 14/10

Letter Gothic 14/20

**L E T T E R G O T H I C 7 / 5**

Letter Gothic 7/10

Letter Gothic 7/20

**L e t t e r G o t h i c 1 4 / 5**

Letter Gothic 14/10

Letter Gothic 14/20

**P R E S 7 / 5**

PRES 7/10

PRES 7/20

**P R E S 8 / 4 - 0 5**

PRES 8/8.10

PRES 8/16.20

**P R E S 9 / 3 - 2 5**

PRES 9/6.50

PRES 9/13

PR/SEC CHARACTER SET (=Pr,) =Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Pr,) =Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super -1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Uprght, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	QUALITY 1 = Draft, 2 = Letter (Values on page 4-16)
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	5h	7v	0s	0b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	10h	7v	0s	0b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	20h	7v	0s	0b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	5h	14v	0s	0b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	10h	14v	0s	0b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	20h	14v	0s	0b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	5h	7v	0s	3b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	10h	7v	0s	3b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	20h	7v	0s	3b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	5h	14v	0s	3b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	10h	14v	0s	3b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	20h	14v	0s	3b	2Q
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	5h	7v	0s	0b	11t
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	10h	7v	0s	0b	11t
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	20h	7v	0s	0b	11t
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	4.05h	8v	0s	0b	11t
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	8.1h	8v	0s	0b	11t
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	16.2h	8v	0s	0b	11t
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	3.25h	9v	0s	0b	11t
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	6.5h	9v	0s	0b	11t
E <sub>d</sub>	0U	E <sub>c</sub> (s)	0u	0p	13h	9v	0s	0b	11t



**PRES 14/5**

**PRES 14/10**

**PRES 14/20**

**PRES 16/4.05**

**PRES 16/8.10**

**PRES 16/16.20**

**PRES 18/3.25**

**PRES 18/6.50**

**PRES 18/13**

E_C(	0U	E_C(s	0u	0p	5h	14v	0s	0b	11t	2Q
E_C(	0U	E_C(s	0u	0p	10h	14v	0s	0b	11t	2Q
E_C(	0U	E_C(s	0u	0p	20h	14v	0s	0b	11t	2Q
E_C(	0U	E_C(s	0u	0p	4.05h	16v	0s	0b	11t	2Q
E_C(	0U	E_C(s	0u	0p	8.1h	16v	0s	0b	11t	2Q
E_C(	0U	E_C(s	0u	0p	16.2h	16v	0s	0b	11t	2Q
E_C(	0U	E_C(s	0u	0p	3.25h	18v	0s	0b	11t	2Q
E_C(	0U	E_C(s	0u	0p	6.5h	18v	0s	0b	11t	2Q
E_C(	0U	E_C(s	0u	0p	13h	18v	0s	0b	11t	2Q
E_C(	0L	E_C(s	0u	0p	5h	6v	0s	0b	0t	2Q
E_C(	0L	E_C(s	0u	0p	10h	6v	0s	0b	0t	2Q
E_C(	0L	E_C(s	0u	0p	20h	6v	0s	0b	0t	2Q
E_C(	0L	E_C(s	0u	0p	5h	12v	0s	0b	0t	2Q
E_C(	0L	E_C(s	0u	0p	10h	12v	0s	0b	0t	2Q
E_C(	0L	E_C(s	0u	0p	20h	12v	0s	0b	0t	2Q
E_C(	0L	E_C(s	0u	0p	5h	6v	0s	3b	0t	2Q
E_C(	0L	E_C(s	0u	0p	10h	6v	0s	3b	0t	2Q
E_C(	0L	E_C(s	0u	0p	20h	6v	0s	3b	0t	2Q
E_C(	0L	E_C(s	0u	0p	5h	12v	0s	3b	0t	2Q
E_C(	0L	E_C(s	0u	0p	10h	12v	0s	3b	0t	2Q
E_C(	0L	E_C(s	0u	0p	20h	12v	0s	3b	0t	2Q

**Line Draw 6/5: = 7 11 11**

**Line Draw 6/10: = 7 11 11**

**Line Draw 6/20: = 7 11 11**

**Line Draw 12/5: = 7 11 11**

**Line Draw 12/10: = 7 11 11**

**Line Draw 12/20: = 7 11 11**

**Line Draw 6/5: = 7 11 11**

**Line Draw 6/10: = 7 11 11**

**Line Draw 6/20: = 7 11 11**

**Line Draw 12/5: = 7 11 11**

**Line Draw 12/10: = 7 11 11**

**Line Draw 12/20: = 7 11 11**

**NOTE:** With the exception of Line Draw, ONLY the ASCII Character Set is available in this cartridge.

7-30 Fonts

**HP22706P TmsRmn ASCII**

*Tms Rmn 4/ps*

*Tms Rmn 5/ps*

*Tms Rmn 6/ps*

*Tms Rmn 7/ps*

*Tms Rmn 8/ps*

*Tms Rmn 10/ps*

*Tms Rmn 12/ps*

*Tms Rmn 14/ps*

*Tms Rmn 4/ps*

*Tms Rmn 5/ps*

*Tms Rmn 6/ps*

*Tms Rmn 7/ps*

*Tms Rmn 8/ps*

*Tms Rmn 10/ps*

*Tms Rmn 12/ps*

*Tms Rmn 14/ps*

*Tms Rmn Ital 4/ps*

*Tms Rmn Ital 5/ps*

*Tms Rmn Ital 6/ps*

*Tms Rmn Ital 7/ps*

*Tms Rmn Ital 8/ps*

*Tms Rmn Ital 10/ps*

*Tms Rmn Ital 12/ps*

PR/SEC CHARACTER SET (=Pr.) =Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Pr.) =Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super -1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per Inch)	POINT SIZE (Char Ht in 72nds of an Inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	4v	0s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	5v	0s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	6v	0s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	7v	0s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	8v	0s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	10v	0s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	12v	0s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	14v	0s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	4v	0s	3b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	5v	0s	3b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	6v	0s	3b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	7v	0s	3b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	8v	0s	3b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	10v	0s	3b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	12v	0s	3b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	14v	0s	3b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	4v	1s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	5v	1s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	6v	1s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	7v	1s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	8v	1s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	10v	1s	0b	5t	2Q	
E <sub>C</sub>	0U	E <sub>C</sub> \$	0u	1p	12v	1s	0b	5t	2Q	

*Tms Rmn Ital 14/ps*

*Tms Rmn Ital 4/ps*

*Tms Rmn Ital 5/ps*

*Tms Rmn Ital 6/ps*

*Tms Rmn Ital 7/ps*

*Tms Rmn Ital 8/ps*

*Tms Rmn Ital 10/ps*

*Tms Rmn Ital 12/ps*

*Tms Rmn Ital 14/ps*

E_C(	0U	E_C(s	0u	1p	14v	1s	0b	5t	2Q
E_C(	0U	E_C(s	0u	1p	4v	1s	3b	5t	2Q
E_C(	0U	E_C(s	0u	1p	5v	1s	3b	5t	2Q
E_C(	0U	E_C(s	0u	1p	6v	1s	3b	5t	2Q
E_C(	0U	E_C(s	0u	1p	7v	1s	3b	5t	2Q
E_C(	0U	E_C(s	0u	1p	8v	1s	3b	5t	2Q
E_C(	0U	E_C(s	0u	1p	10v	1s	3b	5t	2Q
E_C(	0U	E_C(s	0u	1p	12v	1s	3b	5t	2Q
E_C(	0U	E_C(s	0u	1p	14v	1s	3b	5t	2Q

**NOTES:** 1. ONLY the ASCII Character Set is available in this cartridge.

2. TmsRmn fonts are also available as downloadable Soft Fonts. Use of Soft Fonts requires the optional HP22707A RAM cartridge(s) and HP22708A Soft Font product. To order, contact your local dealer or call HP toll-free at (800) 538-8787.

7-32 Fonts

**HP22706Q Helv ASCII**

PR/SEC CHARACTER SET (=Pl.) = Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=Pl.) = Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per Inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter
--------------------------------------	---	--	---	---------------------------------------	--------------------------------	---	---------------------------------------	---------------------------------------	-----------------------------------	----------------------------------

Helv 4/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	4v	0s	0b	4t	2Q
Helv 5/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	5v	0s	0b	4t	2Q
Helv 6/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	6v	0s	0b	4t	2Q
Helv 7/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	7v	0s	0b	4t	2Q
Helv 8/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	8v	0s	0b	4t	2Q
Helv 10/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	10v	0s	0b	4t	2Q
Helv 12/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	12v	0s	0b	4t	2Q
Helv 14/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	14v	0s	0b	4t	2Q
Helv 4/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	4v	0s	3b	4t	2Q
Helv 5/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	5v	0s	3b	4t	2Q
Helv 6/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	6v	0s	3b	4t	2Q
Helv 7/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	7v	0s	3b	4t	2Q
Helv 8/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	8v	0s	3b	4t	2Q
Helv 10/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	10v	0s	3b	4t	2Q
Helv 12/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	12v	0s	3b	4t	2Q
Helv 14/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	14v	0s	3b	4t	2Q
Helv Ital 4/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	4v	1s	0b	4t	2Q
Helv Ital 5/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	5v	1s	0b	4t	2Q
Helv Ital 6/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	6v	1s	0b	4t	2Q
Helv Ital 7/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	7v	1s	0b	4t	2Q
Helv Ital 8/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	8v	1s	0b	4t	2Q
Helv Ital 10/ps	Eꞑ	0U	Eꞑ(s)	0u	1p	10v	1s	0b	4t	2Q



## HP22707A RAM Cartridge(s) and the HP22708A Soft Font Product

- NOTES:**
1. Use of Soft Fonts requires at least one optional HP22707A RAM cartridge and the HP22708A Soft Font product. To order, contact your local dealer or call HP toll-free at (800) 538-8787.
  2. Up to two HP22707A RAM cartridges may be installed in the Deskjet printer, providing the maximum amount of memory for downloading fonts.
  3. Fonts designated with an asterisk (\*) are not downloaded. They are a result of an algorithmic "halving" of the downloaded font by the printer. For example, Helv 4/PS is created algorithmically from a downloaded Helv 8/PS font. Bold fonts are not downloaded either. They are an enhancement of the downloaded font.
  4. All character sets are available in the downloadable fonts, with the exception of Line Draw, Math, Pi Font and Pi Fonta. However, if you've downloaded any ASCII fonts (shown in the last two tables) you'll only be able to access the ASCII Character Set.
  5. The far right column denotes the approximate amount of memory that each font occupies (1K of memory is 1024 bytes). This is helpful in determining how many fonts can be downloaded to your Deskjet printer.

PR/SEC CHARACTER SET (=Prt.) =Sec		CHARACTER SET (See page 4-12, Programming)		PR/SEC FONT ATTRIBUTES (=Prt.) =Sec		SUB-/SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub		SPACING 0 = Norm, 1 = Proportional		PITCH (Characters per Inch)		POINT SIZE (Char Ht in 72nds of an Inch)		TYPESTYLE 0 = Upright, 1 = Italics		STROKE WEIGHT 0 = Normal, 3 = Bold		TYPEFACE 0 = Normal, 3 = Bold		QUALITY (Values on page 4-16)		MEMORY (1K = 1024 bytes)	
E <sub>C</sub>	10U	E <sub>C</sub> (s)	0u	1p	4v	0s	0b	4t	2Q	1K = 1024 bytes													
E <sub>C</sub>	10U	E <sub>C</sub> (s)	0u	1p	5v	0s	0b	4t	2Q	1 = Draft, 2 = Letter													
E <sub>C</sub>	10U	E <sub>C</sub> (s)	0u	1p	6v	0s	0b	4t	2Q	1 = Draft, 2 = Letter													
E <sub>C</sub>	10U	E <sub>C</sub> (s)	0u	1p	7v	0s	0b	4t	2Q	1 = Draft, 2 = Letter													
E <sub>C</sub>	10U	E <sub>C</sub> (s)	0u	1p	8v	0s	0b	4t	2Q	1 = Draft, 2 = Letter													
E <sub>C</sub>	10U	E <sub>C</sub> (s)	0u	1p	10v	0s	0b	4t	2Q	1 = Draft, 2 = Letter													

\* Helv 4/ps

\* Helv 5/ps

\* Helv 6/ps

\* Helv 7/ps

Helv 8/ps

Helv 10/ps

Helv 12/ps  
Helv 14/ps

\* Helv 4/ps

\* Helv 5/ps

\* Helv 6/ps

\* Helv 7/ps

\* Helv 8/ps

\* Helv 10/ps

\* Helv 12/ps

\* Helv 14/ps

\* Helv Ital 4/ps

\* Helv Ital 5/ps

\* Helv Ital 6/ps

\* Helv Ital 7/ps

Helv Ital 8/ps

Helv Ital 10/ps

Helv Ital 12/ps

Helv Ital 14/ps

\* Helv Ital 4/ps

\* Helv Ital 5/ps

\* Helv Ital 6/ps

\* Helv Ital 7/ps

\* Helv Ital 8/ps

\* Helv Ital 10/ps

\* Helv Ital 12/ps

\* Helv Ital 14/ps

E_C(	10U	E_C(s	0u	1p	12v	0s	0b	4t	2Q	52K
E_C(	10U	E_C(s	0u	1p	14v	0s	0b	4t	2Q	60K
E_C(	10U	E_C(s	0u	1p	4v	0s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	5v	0s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	6v	0s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	7v	0s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	8v	0s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	10v	0s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	12v	0s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	14v	0s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	4v	1s	0b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	5v	1s	0b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	6v	1s	0b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	7v	1s	0b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	8v	1s	0b	4t	2Q	24K
E_C(	10U	E_C(s	0u	1p	10v	1s	0b	4t	2Q	32K
E_C(	10U	E_C(s	0u	1p	12v	1s	0b	4t	2Q	56K
E_C(	10U	E_C(s	0u	1p	14v	1s	0b	4t	2Q	64K
E_C(	10U	E_C(s	0u	1p	4v	1s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	5v	1s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	6v	1s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	7v	1s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	8v	1s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	10v	1s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	12v	1s	3b	4t	2Q	
E_C(	10U	E_C(s	0u	1p	14v	1s	3b	4t	2Q	

\* Tms Rnd 4/ps

\* Tms Rnd 5/ps

E_C(	10U	E_C(s	0u	1p	4v	0s	0b	5t	2Q	
E_C(	10U	E_C(s	0u	1p	5v	0s	0b	5t	2Q	

7-36 Fonts

cont.

\* Tms Rmn 6/ps

\* Tms Rmn 7/ps

\* Tms Rmn 8/ps

Tms Rmn 10/ps

Tms Rmn 12/ps

Tms Rmn 14/ps

Tms Rmn 4/ps

\* Tms Rmn 5/ps

\* Tms Rmn 6/ps

\* Tms Rmn 7/ps

\* Tms Rmn 8/ps

\* Tms Rmn 10/ps

\* Tms Rmn 12/ps

\* Tms Rmn 14/ps

\* Tms Rmn Ital 4/ps

\* Tms Rmn Ital 5/ps

\* Tms Rmn Ital 6/ps

\* Tms Rmn Ital 7/ps

Tms Rmn Ital 8/ps

Tms Rmn Ital 10/ps

Tms Rmn Ital 12/ps

Tms Rmn Ital 14/ps

CHARACTER SET (=Pri.) =Sec	CHARACTER SET (See page 4-12, Programming)	PAI/SEC FONT ATTRIBUTES (=Pri.) =Sec	SUB-/SUPERSCRIPT 0=Norm, 1=Super -1=Sub	SPACING 0=Norm, 1=Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0=Upright, 1=Italics	STROKE WEIGHT 0=Normal, 3=Bold	TYPEFACE (Values on page 4-16)	QUALITY (1=Draft, 2=Letter)	MEMORY (1K=1024 bytes)
E_C 10U	E_C(s) 0u	1p	0	0	6v	0s	0b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	7v	0s	0b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	8v	0s	0b	5t	2Q	24K	
E_C 10U	E_C(s) 0u	1p	0	0	10v	0s	0b	5t	2Q	28K	
E_C 10U	E_C(s) 0u	1p	0	0	12v	0s	0b	5t	2Q	52K	
E_C 10U	E_C(s) 0u	1p	0	0	14v	0s	0b	5t	2Q	60K	
E_C 10U	E_C(s) 0u	1p	0	0	4v	0s	3b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	5v	0s	3b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	6v	0s	3b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	7v	0s	3b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	8v	0s	3b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	10v	0s	3b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	12v	0s	3b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	14v	0s	3b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	4v	1s	0b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	5v	1s	0b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	6v	1s	0b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	7v	1s	0b	5t	2Q		
E_C 10U	E_C(s) 0u	1p	0	0	8v	1s	0b	5t	2Q	24K	
E_C 10U	E_C(s) 0u	1p	0	0	10v	1s	0b	5t	2Q	32K	
E_C 10U	E_C(s) 0u	1p	0	0	12v	1s	0b	5t	2Q	52K	
E_C 10U	E_C(s) 0u	1p	0	0	14v	1s	0b	5t	2Q	64K	



\* *Tms Rmn Ital 4/ps*  
 \* *Tms Rmn Ital 5/ps*  
 \* *Tms Rmn Ital 6/ps*  
 \* *Tms Rmn Ital 7/ps*  
 \* *Tms Rmn Ital 8/ps*  
 \* *Tms Rmn Ital 10/ps*  
 \* *Tms Rmn Ital 12/ps*  
 \* *Tms Rmn Ital 14/ps*

E_C(	10U	E_C(s	0u	1p	4v	1s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p	5v	1s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p	6v	1s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p	7v	1s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p	8v	1s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p	10v	1s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p	12v	1s	3b	5t	2Q
E_C(	10U	E_C(s	0u	1p	14v	1s	3b	5t	2Q

\* *Helv 4/ps*  
 \* *Helv 5/ps*  
 \* *Helv 6/ps*  
 \* *Helv 7/ps*  
 Helv 8/ps  
 Helv 10/ps  
 Helv 12/ps  
 Helv 14/ps

E_C(	0U	E_C(s	0u	1p	4v	0s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	5v	0s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	6v	0s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	7v	0s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	8v	0s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	10v	0s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	12v	0s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	14v	0s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	4v	0s	3b	4t	2Q
E_C(	0U	E_C(s	0u	1p	5v	0s	3b	4t	2Q
E_C(	0U	E_C(s	0u	1p	6v	0s	3b	4t	2Q
E_C(	0U	E_C(s	0u	1p	7v	0s	3b	4t	2Q
E_C(	0U	E_C(s	0u	1p	8v	0s	3b	4t	2Q
E_C(	0U	E_C(s	0u	1p	10v	0s	3b	4t	2Q
E_C(	0U	E_C(s	0u	1p	12v	0s	3b	4t	2Q
E_C(	0U	E_C(s	0u	1p	14v	0s	3b	4t	2Q
E_C(	0U	E_C(s	0u	1p	4v	1s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	5v	1s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	6v	1s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	7v	1s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	8v	1s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	10v	1s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	12v	1s	0b	4t	2Q
E_C(	0U	E_C(s	0u	1p	14v	1s	0b	4t	2Q

\* *Helv 4/ps*  
 \* *Helv 5/ps*  
 \* *Helv 6/ps*  
 \* *Helv 7/ps*  
 \* *Helv 8/ps*  
 \* *Helv 10/ps*  
 \* *Helv 12/ps*  
 \* *Helv 14/ps*  
 \* *Helv Ital 4/ps*  
 \* *Helv Ital 5/ps*  
 \* *Helv Ital 6/ps*  
 \* *Helv Ital 7/ps*

7-38 Fonts

cont.

- Helv Ital 8/ps
- Helv Ital 10/ps
- Helv Ital 12/ps
- Helv Ital 14/ps
- \* Helv Ital 4/ps
- \* Helv Ital 5/ps
- \* Helv Ital 6/ps
- \* Helv Ital 7/ps
- \* Helv Ital 8/ps
- \* Helv Ital 10/ps
- \* Helv Ital 12/ps
- \* Helv Ital 14/ps

- \* Tms Rmn 4/ps
- \* Tms Rmn 5/ps
- \* Tms Rmn 6/ps
- \* Tms Rmn 7/ps
- \* Tms Rmn 8/ps
- Tms Rmn 10/ps
- Tms Rmn 12/ps
- Tms Rmn 14/ps

PR/SEC CHARACTER SET (=PrL) =Sec	CHARACTER SET (See page 4-12, Programming)	PR/SEC FONT ATTRIBUTES (=PrL) =Sec	SUB-/SUPERSCRIPT 0 = Norm, 1 = Super - 1 = Sub	SPACING 0 = Norm, 1 = Proportional	PITCH (Characters per inch)	POINT SIZE (Char Ht in 72nds of an inch)	TYPESTYLE 0 = Upright, 1 = Italics	STROKE WEIGHT 0 = Normal, 3 = Bold	TYPEFACE (Values on page 4-16)	QUALITY 1 = Draft, 2 = Letter	MEMORY (1K = 1024 bytes)
E_C(	0U	E_C(s	0u	1p	8v	1s	0b	4t	2Q	12K	
E_C(	0U	E_C(s	0u	1p	10v	1s	0b	4t	2Q	12K	
E_C(	0U	E_C(s	0u	1p	12v	1s	0b	4t	2Q	16K	
E_C(	0U	E_C(s	0u	1p	14v	1s	0b	4t	2Q	28K	
E_C(	0U	E_C(s	0u	1p	4v	1s	3b	4t	2Q		
E_C(	0U	E_C(s	0u	1p	5v	1s	3b	4t	2Q		
E_C(	0U	E_C(s	0u	1p	6v	1s	3b	4t	2Q		
E_C(	0U	E_C(s	0u	1p	7v	1s	3b	4t	2Q		
E_C(	0U	E_C(s	0u	1p	8v	1s	3b	4t	2Q		
E_C(	0U	E_C(s	0u	1p	10v	1s	3b	4t	2Q		
E_C(	0U	E_C(s	0u	1p	12v	1s	3b	4t	2Q		
E_C(	0U	E_C(s	0u	1p	14v	1s	3b	4t	2Q		
E_C(	0U	E_C(s	0u	1p	4v	0s	0b	5t	2Q		
E_C(	0U	E_C(s	0u	1p	5v	0s	0b	5t	2Q		
E_C(	0U	E_C(s	0u	1p	6v	0s	0b	5t	2Q		
E_C(	0U	E_C(s	0u	1p	7v	0s	0b	5t	2Q		
E_C(	0U	E_C(s	0u	1p	8v	0s	0b	5t	2Q	8K	
E_C(	0U	E_C(s	0u	1p	10v	0s	0b	5t	2Q	12K	
E_C(	0U	E_C(s	0u	1p	12v	0s	0b	5t	2Q	16K	
E_C(	0U	E_C(s	0u	1p	14v	0s	0b	5t	2Q	24K	

<i>Tms Rmn 4/ps</i>	E_C(	0U	E_C(s	0u	1p	4v	0s	3b	5t	2Q
* <i>Tms Rmn 5/ps</i>	E_C(	0U	E_C(s	0u	1p	5v	0s	3b	5t	2Q
* <i>Tms Rmn 6/ps</i>	E_C(	0U	E_C(s	0u	1p	6v	0s	3b	5t	2Q
* <i>Tms Rmn 7/ps</i>	E_C(	0U	E_C(s	0u	1p	7v	0s	3b	5t	2Q
* <i>Tms Rmn 8/ps</i>	E_C(	0U	E_C(s	0u	1p	8v	0s	3b	5t	2Q
* <i>Tms Rmn 10/ps</i>	E_C(	0U	E_C(s	0u	1p	10v	0s	3b	5t	2Q
* <i>Tms Rmn 12/ps</i>	E_C(	0U	E_C(s	0u	1p	12v	0s	3b	5t	2Q
* <i>Tms Rmn 14/ps</i>	E_C(	0U	E_C(s	0u	1p	14v	0s	3b	5t	2Q
* <i>Tms Rmn Ital 4/ps</i>	E_C(	0U	E_C(s	0u	1p	4v	1s	0b	5t	2Q
* <i>Tms Rmn Ital 5/ps</i>	E_C(	0U	E_C(s	0u	1p	5v	1s	0b	5t	2Q
* <i>Tms Rmn Ital 6/ps</i>	E_C(	0U	E_C(s	0u	1p	6v	1s	0b	5t	2Q
* <i>Tms Rmn Ital 7/ps</i>	E_C(	0U	E_C(s	0u	1p	7v	1s	0b	5t	2Q
<i>Tms Rmn Ital 8/ps</i>	E_C(	0U	E_C(s	0u	1p	8v	1s	0b	5t	2Q
<i>Tms Rmn Ital 10/ps</i>	E_C(	0U	E_C(s	0u	1p	10v	1s	0b	5t	2Q
<i>Tms Rmn Ital 12/ps</i>	E_C(	0U	E_C(s	0u	1p	12v	1s	0b	5t	2Q
<i>Tms Rmn Ital 14/ps</i>	E_C(	0U	E_C(s	0u	1p	14v	1s	0b	5t	2Q
* <i>Tms Rmn Ital 4/ps</i>	E_C(	0U	E_C(s	0u	1p	4v	1s	3b	5t	2Q
* <i>Tms Rmn Ital 5/ps</i>	E_C(	0U	E_C(s	0u	1p	5v	1s	3b	5t	2Q
* <i>Tms Rmn Ital 6/ps</i>	E_C(	0U	E_C(s	0u	1p	6v	1s	3b	5t	2Q
* <i>Tms Rmn Ital 7/ps</i>	E_C(	0U	E_C(s	0u	1p	7v	1s	3b	5t	2Q
* <i>Tms Rmn Ital 8/ps</i>	E_C(	0U	E_C(s	0u	1p	8v	1s	3b	5t	2Q
* <i>Tms Rmn Ital 10/ps</i>	E_C(	0U	E_C(s	0u	1p	10v	1s	3b	5t	2Q
* <i>Tms Rmn Ital 12/ps</i>	E_C(	0U	E_C(s	0u	1p	12v	1s	3b	5t	2Q
* <i>Tms Rmn Ital 14/ps</i>	E_C(	0U	E_C(s	0u	1p	14v	1s	3b	5t	2Q

---

# HP22707E Hewlett-Packard EPSON FX-80 Printer Emulation Cartridge

## Introduction

The HP22707E Epson FX-80 Printer Emulation Cartridge provides you with the capability of using your DeskJet printer as you would an EPSON FX-80 printer, but with the added bonus of high quality, professional looking print. The word "emulation" means "to act like". This cartridge will make your DeskJet printer act like the EPSON FX-80 printer. This gives you the added flexibility to print from your software applications that do not support the DeskJet printer, yet can print to an EPSON FX-80 printer.

## How To Proceed

This section contains information specific to the set up and use of the HP22707E Hewlett-Packard EPSON FX-80 Printer Emulation Cartridge. The information is intended to be rather brief, yet should provide you with information sufficient for most printing applications.

The following topics are discussed:

- 7-41** Installing the Emulation Cartridge and performing the self test.
- 7-43** Setting function switches on your printer.
- 7-46** Keypad operation with the emulation cartridge installed.
- 7-48** Setting up your software.
- 7-49** Programming.

---

## Getting Started—EPSON FX-80 Emulation Cartridge

### Installing the Cartridge

Refer to the Getting Started section of this manual, pages 1-18, 1-19, for information on installing DeskJet printer cartridges. Additional information is detailed below.



### Warning!

---

**Make sure that the printer's power is OFF before inserting or removing cartridges! DO NOT TOUCH THE CONNECTOR ON THE BOTTOM OF THE CARTRIDGE OR THE CONNECTOR IN THE PRINTER. DOING SO MAY CAUSE DAMAGE DUE TO STATIC ELECTRICITY.**

---

Installing the cartridge into either of the two font cartridge slots will automatically activate the emulation mode. The printer will display an error condition if two emulation cartridges are inserted. The emulation cartridge will ignore any RAM cartridges or demo ROMs. The printer's standard mode (PCL) is only available if the emulation cartridge is removed, and cannot be activated via escape/control sequences or switch settings with the Epson cartridge installed.

### Verification Self Test

Once the emulation cartridge has been installed, we recommend that you perform a self test to verify proper operation of the printer and emulation cartridge.

1. Begin with the printer OFF and the emulation cartridge installed into one of the slots.
2. Turn ON the printer while holding down the FONT key.
3. A self test pattern will be printed, indicating functionality of the emulation cartridge. A sample test pattern is shown on the next page.



---

## Setting Up—EPSON FX-80 Emulation Cartridge

This section covers the following topics:

- Setting Up Your DeskJet Printer With Your PC
- Function Switch Settings
- Keypad Operation

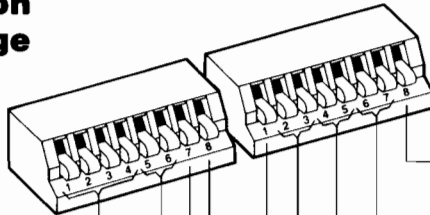
### **Setting Up Your DeskJet Printer With Your PC**

Follow the set up information contained in Setting Up . . . Hardware (Chapter 2), for your PC or terminal.

### **Function Switch Settings**

The majority of function switch settings do not change when an emulation cartridge is installed in the printer. Generally the emulation cartridge can be inserted “as is” without concern for switch settings. Listed on the next page are the special settings available when using the Epson FX-80 Emulation Cartridge. Refer to page 8-2 of the Appendix for a complete description of the other function switches.

# Function Switch Definitions— HP22707E Epson FX-80 Printer Emulation Cartridge



Font

**Default Character Set**  
(See next page)

**Paper/Envelope Size**  
(See page 8-3, Appendix)

**Carriage Return Definition\***  
(Up = CR and LF, Down = CR only)

**Perforation Skip**  
(Up = Disable, Down = Enable)

**RS-232-C Handshaking**  
(Up = DTR, Down = DTR & Xon/Xoff)

**RS-232-C Parity**  
DD = None, 8 data bits  
DU = Odd, 7 data bits  
UD = Even, 7 data bits  
UU = None, 8 data bits

**RS-232-C Baud Rate**  
DD = 9600  
DU = 19.2K  
UD = 2400  
UU = 1200

**Reserved**

**Text Scale Mode**  
(Up = 66 Lines/Page, Down = Disable)

\*CR = Carriage Return, LF = Line Feed

Function switches B2 and B3 are "RESERVED". Therefore, their positions do not matter when the HP22707E EPSON FX-80 Printer Emulation Cartridge is used.



Shown below are the Character Set switch settings, some of which vary from the DeskJet definitions when the Emulation Cartridge is removed.

HP22707E EPSON FX-80 Emulation Cartridge Character Sets	Switches				Notes	Functionality
	A1	A2	A3	A4		
USA (Default)	D	D	D	D	1	Full
IBM PC USA	D	D	D	U	2	Limited
IBM PC Euro	D	D	U	D	2	Limited
England	D	D	U	U	3	Full
Germany	D	U	D	D	3	Full
France	D	U	D	U	3	Full
Italy	D	U	U	D	3	Full
Denmark	D	U	U	U	3	Full
Sweden	U	D	D	D	3	Full
Spain	U	D	D	U	3	Full
USA	U	D	U	D	3	Full
ISO Portugal	U	D	U	U	4	Limited
Japan	U	U	D	D	3	Full
ECMA-94	U	U	D	U	2	Limited
Legal7	U	U	U	D	4	Limited
Front Cartridge	U	U	U	U	5	Limited

- NOTES:**
1. USA set is default (same as Epson FX-80).
  2. Only the PICA (Courier) font will support these 8-bit sets. ELITE and PROPORTIONAL fonts will not work in these character sets unless an 8-bit ELITE or PROPORTIONAL font cartridge is inserted. Italics print will not be accessed by the most-significant-bit when using one of these character sets.
  3. See the table on the next page for the unique country characters when using the nine International sets resident in the EPSON FX-80 Printer.
  4. This 7-bit set has been added (not available on an EPSON FX-80 printer).
  5. The default character set will be what is in the front cartridge. If more than one character set exists, the first one is used.

## International Character Sets

Dec. Code	Hex.	U.S.A.	France	Germany	England	Denmark	Sweden	Italy	Spain	Japan
35 (23)		#	#	#	£	#	#	#	Pt	#
36 (24)		\$	\$	\$	\$	\$	¤	\$	\$	\$
64 (40)		@	à	§	@	@	É	@	@	@
91 (5B)		[	°	Ä	[	Æ	Ä	°	¡	[
92 (5C)		\	ç	Ö	\	Ø	Ö	\	Ñ	¥
93 (5D)		]	§	Ü	]	Å	Å	é	¿	]
94 (5E)		^	^	^	^	^	Ü	^	^	^
96 (60)		`	`	`	`	`	é	ù	ˆ	`
123 (7B)		{	é	ä	{	æ	ä	à	ˆ	{
124 (7C)			ù	ö		ø	ö	ò	ñ	
125 (7D)		}	è	ü	}	å	å	è	}	}
126 (7E)		~	ˆ	ß	~	~	ü	ì	~	~

## Keypad Operation

All keys but the FONT Key perform the same functions as when used in the standard mode (no emulation cartridge inserted). Keypad operation is discussed in Getting Started, pages 1-20 to 1-22.

With the HP22707E EPSON FX-80 Printer Emulation Cartridge installed, repeatedly pressing the FONT key lets you choose one of the fonts offered on the cartridge. Most of the fonts can also be selected by sending escape/ctrl codes.

If a DeskJet printer font cartridge is inserted (in addition to the Emulation Cartridge) and one of its fonts is selected via the keypad, the cartridge font effectively overrides the corresponding font in the Emulation Cartridge if it matches one of the EPSON pitches (i.e., 10, 12 or PS). This feature works best when a fixed 10 or 12 pitch cartridge is inserted. A proportionally spaced cartridge will work in a similar fashion; however, DeskJet printer character widths may differ from EPSON character widths. Therefore, proper functioning with your application (i.e., using an FX-80 driver) cannot be guaranteed when using another cartridge with PS fonts. Note also that compressed double pitch is not available since compressed is already implemented using a double pitch font.

## Keypad Selection

The following table shows the light that will be ON when the desired font is selected. Actual font samples are shown in left column. Repeatedly pressing the FONT key will change to another font.

Font	Keypad Lights		Emulation Cartridge Lights			
	COUR 10	COUR 16.7	Elite/12cpi	Compressed/17.1cpi	Proportional/PS	Italic
PICA 10cpi	■	□	□	□	□	□
PICA 16.67cpi *	□	■	□	□	□	□
PICA 20cpi *	■	□	■	□	□	□
ELITE 12cpi	□	□	□	■	□	□
PICA 17.1cpi	□	□	□	□	■	□
PROP SPACE	□	□	□	□	□	■
ELITE 24cpi *	□	□	■	■	□	□
PS Half Width *	□	□	■	□	□	■
<i>PICA Ital 10cpi</i>	■	□	□	□	□	■
<i>ELITE Ital 12cpi</i>	□	□	□	■	□	■
<i>PICA Ital 17.1cpi</i>	□	□	□	□	■	■
<i>PS Ital</i>	□	□	□	□	□	■
<i>PICA Ital 20cpi *</i>	■	□	■	□	□	■
<i>ELITE Ital 24cpi *</i>	□	□	■	■	□	■
<i>PS Half Width Ital *</i>	□	□	■	□	■	■

\*These unique pitch/font selections are not supported in the FX-80 printer, but have been added to provide the user with full functionality of the DeskJet printer keypad. These selections are only activated via the keypad, and not by escape sequences, thus support of these selections on software applications using FX-80 drivers will not be available.

## Setting Up Your Software—EPSON FX-80 Emulation Cartridge

Chapter 3, Setting Up . . . Software of the Owner's Manual describes how to set up your DeskJet printer with various software applications. We recommend that you review page 3-1 of Chapter 3 before proceeding. A definition and discussion of printer "drivers" is contained within that section.

Many of the Software Application Notes included in Chapter 3 deal with using LaserJet printer driver files (provided as a temporary means of software support until additional DeskJet printer drivers become available). In most cases you should be able to select and/or install the EPSON FX-80 printer from within your software package. Other EPSON printer driver files may work, but are not guaranteed. In these cases it is recommended that the user evaluate and decide whether their use would provide satisfactory results. If an FX-80 driver is not available, select from the following drivers **in the order in which they are listed**: EPSON FX driver, EPSON FX-85 driver, any FX-type driver, EPSON RX driver, or EPSON MX driver. The DeskJet printer and EPSON FX-80 Emulation Cartridge will provide an appropriate feature-to-feature match with the EPSON FX-80 printer. There are, however, a few codes that are not supported, but these codes generally have no impact on the appearance of output. Review the following programming section for specific differences before using your software.

When using a software application that requires the insertion of escape or control codes, make certain that you are using EPSON FX-80 codes as described in the following Programming section, instead of the standard (PCL) codes. For example, if you are entering a Set-up String from within Lotus 1-2-3 to enable compressed print, make sure you use `\015` instead of the PCL equivalent escape sequence.

---

## Programming—EPSON FX-80 Emulation Cartridge

This section covers the following topics:

- Introduction to Control Codes and Escape Sequences
- Single Character Control Codes
- Multiple Character Escape Sequences
- Print Mode Priorities
- Using Master Print Mode Select
- Emulation Cartridge and EPSON FX-80 Differences

### Introduction to Control Codes and Escape Sequences

This section describes how to access the features available on your DeskJet printer when used with the HP22707E EPSON FX-80 Printer Emulation Cartridge. This chapter is intended for the experienced user who will be sending escape sequences and/or control codes to access various printer features.

There are two types of control codes: One-byte or single-character control codes, consisting mostly of characters in the range of zero through decimal 31 (see the following table); and multiple-byte escape sequences, which are preceded by the escape character (decimal 27).



#### Note

---

Spaces have been imbedded in the Escape/Control codes found in this section for ease of reading only. Do not imbed spaces when sending these commands.

---

### Single Character Control Codes

The following table gives specific information about each single-character control code.

The following is a one line BASIC programming example of using a single character control code to generate a Form Feed:

```
10 LPRINT CHR$(12);
```

## EPSON FX-80 Emulation Cartridge Single Character Control Codes

Symbol	Full Name	Description	Value Dec (Hex)	Keystroke
BS	Backspace	Next print position returns to the left by one column.	08 (08)	CTRL H
CAN	Cancel	Data previously stored in the print buffer on the same line is cancelled (text only).	24 (18)	CTRL X
HT	Horiz Tab	Positions to the next horizontal tab stop.	09 (09)	CTRL I
LF	Line Feed	Forces printing of any previously received data, then advances to the next line.	10 (0A)	CTRL J
VT	Vert Tab	Forces printing of any previously received data, then advances to a previously defined vertical tab position (See ESC B or ESC b). If no vertical tab has been set, a line feed will be performed.	11 (0B)	CTRL K
FF	Form Feed	Forces printing of any previously received data, then advances the paper an amount specified by a predefined page length.	12 (0C)	CTRL L
CR	Carriage Return	Forces printing of any previously received data, then returns to the beginning of the current print line. If switch A7 is UP, it will also perform a line feed.	13 (0D)	CTRL M
SO	Shift Out	All data following this character on the same line will print out in expanded mode. This print mode is cancelled by LF, DC4, ESC ! or ESC W.	14 (0E)	CTRL N
SI	Shift In	All data following this character on the same line will print out in condensed mode (17.1 cpi). This print mode is cancelled by DC2 or ESC ! sequence. SO and SI together will produce 8.55 cpi text print mode.	15 (0F)	CTRL O
DC2	Cancel Condensed Mode	Cancels condensed mode set by the SI code.	18 (12)	CTRL R
DC4	Cancel Expanded Mode	Cancels expanded mode set by the SO code.	20 (14)	CTRL T
DEL	Delete	Deletes the last character stored in the print buffer (text only).	127 (7F)	

### Unsupported One-Byte Control Codes

Symbol	Full Name	Description	Value Dec (Hex)	Keystroke
BEL	Bell	NOT SUPPORTED (the DeskJet printer does not have a bell)	07 (07)	CTRL G
DC1	Selection of the printer	NOT SUPPORTED (Enables the printer to receive data but is not critical to most host/software requirements. The printer is always selected.)	17 (11)	CTRL Q
DC3	Deselection of the printer	NOT SUPPORTED (Disables the printer from receiving data but is not critical to most host/software requirements.)	19 (13)	CTRL S

## Multiple Character Escape Sequences

The following section provides specific information on multiple-character escape sequences. These escape sequences allow you to control a wide variety of printer functions.

Below is a one line BASIC programming example of using a multiple character escape sequence to set line spacing to 8 lines per inch:

```
10 LPRINT CHR$(27);"0";
```

## Control Codes by Function

Function	Command
<b>Width Commands</b>	
Elite ON	E <sub>C</sub> M
Elite OFF	E <sub>C</sub> P
Compressed ON	CHR\$(15) or E <sub>C</sub> CHR\$(15)
Compressed OFF	CHR\$(18)
One-Line Expanded ON	CHR\$(14) or E <sub>C</sub> CHR\$(14)
One-Line Expanded OFF	CHR\$(20)
Continuous Expanded ON	E <sub>C</sub> W1
Expanded OFF	E <sub>C</sub> W0
<b>Quality Commands</b>	
Emphasized ON	E <sub>C</sub> E
Emphasized OFF	E <sub>C</sub> F
Double-Strike ON	E <sub>C</sub> G
Double-Strike OFF	E <sub>C</sub> H
Superscript ON	E <sub>C</sub> S0
Subscript ON	E <sub>C</sub> S1
Superscript or Subscript OFF	E <sub>C</sub> T
Proportional ON	E <sub>C</sub> p1
Proportional OFF	E <sub>C</sub> p0
Underline ON	E <sub>C</sub> -1
Underline OFF	E <sub>C</sub> -0
Italics ON	E <sub>C</sub> 4
Italics OFF	E <sub>C</sub> 5
<b>Selecting Modes</b>	
Master Select n=0 to 255	E <sub>C</sub> ! CHR\$(n)
Master Reset	E <sub>C</sub> @
<b>Special Features</b>	
*Bell	CHR\$(7)
Backspace	CHR\$(8)
*Printer receive enable	CHR\$(17)
*Printer receive disable	CHR\$(19)
Cancel print buffer test	CHR\$(24)
Delete last text character in the print buffer	CHR\$(127)

\* = Ignored.



Function	Command
<b>Special Features</b> (cont.)	
#High-order bit ON	E <sub>C</sub> >
#High-order bit OFF	E <sub>C</sub> =
Accept the 8th bit	E <sub>C</sub> #
Select the international character set 0 ≤ n ≤ 8	E <sub>C</sub> R CHR\$(n)
n=Country	
0=USA	4=Denmark
1=France	5=Sweden
2=Germany	6=Italy
3=England	7=Spain
	8=Japan
*Immediate ON	E <sub>C</sub> i1
*Immediate OFF	E <sub>C</sub> i0
*Half-Speed ON	E <sub>C</sub> s1
*Normal Speed	E <sub>C</sub> s0
<b>Paper Commands</b>	
Line feed	CHR\$(10)
Line spacing = 1/8 inch (8 lpi)	E <sub>C</sub> 0
Line spacing = 7/2 inch	E <sub>C</sub> 1
Line spacing = 1/6 inch default (6 lpi)	E <sub>C</sub> 2
Line spacing = n/72 inch	E <sub>C</sub> A CHR\$(n)
Line spacing = n/216 inch	E <sub>C</sub> 3 CHR\$(n)
One-time line feed of n/216 inch without a carriage return	E <sub>C</sub> J CHR\$(n)
One-time reverse feed of n/216 inch without a carriage return	E <sub>C</sub> j CHR\$(n)
<b>Forms Commands</b>	
Form Feed	CHR\$(12)
Carriage Return	CHR\$(13)
*Paper-out sensor OFF	E <sub>C</sub> 8
*Paper-out sensor ON	E <sub>C</sub> 9
Form length = n lines (n=0 to 127)	E <sub>C</sub> C CHR\$(n)
Form length = n inches (n=0 to 22)	E <sub>C</sub> C CHR\$(0)CHR\$(n)
Variable perforation skip where n=0 – form length	E <sub>C</sub> N CHR\$(n)
Perforation Skip OFF	E <sub>C</sub> O

\* = Ignored.

# = Full functionality set only.

Function	Command
<b>Format</b>	
<b>Commands</b>	
Tab to column n	TAB(n)
Horizontal tab stops at n1, n2, . . . , nk. (k ≤ 32, 0 < nk < margin length.)	E <sub>C</sub> D CHR\$(n1) . . . CHR\$(nk)CHR\$(0)
Activate horizontal tab	CHR\$(9)
Vertical tab stops at n1 – nk. (k ≤ 16, 0 < nk < form length.)	E <sub>C</sub> B CHR\$(n1) . . . CHR\$(nk)CHR\$(0)
Vertical tab stops in channel n, (0 ≤ n ≤ 7.) (Channel 0 is the same as E <sub>C</sub> B.)	E <sub>C</sub> b CHR\$(n)CHR\$(n1) CHR\$(n2) . . . CHR\$(nk)CHR\$(0)
Channel n selected	E <sub>C</sub> / CHR\$(n)
Activate vertical tab	CHR\$(11)
Set the right margin at n n = 2–80 in Pica, 3–96 in Elite, and 4–137 in Compressed	E <sub>C</sub> Q CHR\$(n)
Set the left margin at n n = 0–78 in Pica, 0–93 in Elite, and 0–133 in Compressed	E <sub>C</sub> ℓ CHR\$(n)
Continuous Unidirectional ON	E <sub>C</sub> U1
Continuous Unidirectional OFF	E <sub>C</sub> U0
One-Line Unidirectional ON	E <sub>C</sub> <
<b>Graphics Modes</b>	
Fire pin X when sent as graphics data (0 ≤ X ≤ 7)	CHR\$(2^X)
Single-Density Graphics ON (width = n1 + 256*n2)	E <sub>C</sub> K CHR\$(n1) CHR\$(n2)
Double-Density Graphics ON	E <sub>C</sub> L CHR\$(n1) CHR\$(n2)
High-Speed Double-Density Graphics ON	E <sub>C</sub> Y CHR\$(n1) CHR\$(n2)
Quadruple-Density ON	E <sub>C</sub> Z CHR\$(n1) CHR\$(n2)

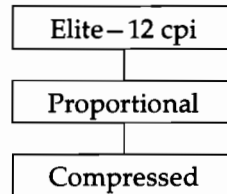
Function	Command
Select Graphic Density n=0=60 dots per inch (same as E <sub>C</sub> K) 1=120 dpi (same as E <sub>C</sub> L) 2=120 dpi (same as E <sub>C</sub> Y) 3=240 dpi (same as E <sub>C</sub> Z) 4=80 dpi 5=72 dpi (1-to-1 ratio) 6=90 dpi	E <sub>C</sub> * CHR\$(n)CHR\$(n1) CHR\$(n2)
Single-Density Nine-Pin Graphics ON	E <sub>C</sub> ^ CHR\$(0)CHR\$(n1) CHR\$(n2)
Double-Density Nine-Pin Graphics ON	E <sub>C</sub> ^ CHR\$(1)CHR\$(n1) CHR\$(n2)
**Select a character set where n1 selects ROM (0) or RAM (1) and n2 is 0	E <sub>C</sub> % CHR\$(n1)CHR\$(n2)
**Define characters c1 through c2 in RAM area; n is 0. Character definitions require an attribute byte (A), followed by 11 data numbers (d1 to d11)	E <sub>C</sub> & CHR\$(n)CHR\$(c1) CHR\$(c2)CHR\$(A) CHR\$(d1)... CHR\$(d11)...
**Copy ROM characters to user RAM area. (All numbers must be zero.)	E <sub>C</sub> : CHR\$(n1) CHR\$(n2)CHR\$(n3)
Enables printing of the symbols (not control codes) stored in locations 0-31	E <sub>C</sub> I1
Disables printing of codes 0-31 as characters	E <sub>C</sub> I0
Enables printing of characters in locations 128-159	E <sub>C</sub> 6
Print codes 128-159 as control codes	E <sub>C</sub> 7

\*\* = These escape sequences pertain to downloadable characters. The following items should be noted when utilizing downloadable characters (see page 7-62 for more information on downloadable characters):

1. Downloaded characters can be of two modes of quality. One type has a dot-density like those on the Epson FX-80, and the other is a better quality mode where the DeskJet printer will "fill" second/ consecutive dots, thereby doubling the horizontal dot resolution.
2. Downloaded characters will suffer severe throughput limitations (print slower).
3. Downloading an entire character set is discouraged. Although it depends on your particular application, the use of downloadable characters is better suited to the creation of one or two unique symbols (e.g., company logo, math symbol) rather than a complete font.

## Print Mode Priorities

Listed below is a prioritized diagram of print modes (these are identical to the EPSON FX-80 printer). Pica (10 pitch) and Elite (12 pitch) fonts have the highest priority. Each mode has priority over the one below it. For example, if Elite and Compressed are on, the printing will be in Elite. If Elite is turned off, the print will change to Compressed.



## Using Master Print Mode Select

This section will explain how to use the mixed print modes to obtain different print styles.

Print modes can be mixed by using the Master Print Mode Select escape sequence:

$E_C ! CHR\$(n) \dots$  where  $n$  is a value equivalent to the attributes you wish to combine.

The following diagram outlines which incremental values must be enabled or disabled to obtain different font attributes. It also explains a method for determining the value "n".

### Definition of Each Incremental Value

Value	32	16	8	4	2	1
"1" →	Expanded	Double-strike	Emphasized	Condensed	Always "0"	Elite
"0" →	—	—	—	—		Pica

**Example:**

To enable the Elite Expanded font, use the following BASIC programming statement.

```
10 LPRINT CHR$(27);"!";CHR$(33);
```

The method used to get 33 for "n" in this example was simply to add the 32 (above Expanded) and 1 (above Elite).

## Printing Graphics

The Epson FX-80 printer is capable of printing graphics in several dot densities. See page 7-55 for the densities supported.

**Column Graphics.** Each bit of a graphics byte specifies one dot position. If a bit is zero, the corresponding dot position is left blank. If a bit is one, a dot is printed at the corresponding position. Each byte of graphics data specifies one column of 8 dots. The most significant bit specifies the top dot of the column. The least significant bit specifies the bottom dot of the column. The number of bytes of graphics data specifies the number of columns (dots) of graphics horizontally across the page. If more data are sent than will fit in the print region, the extra data are ignored.

Before sending any graphics data, line spacing should be set to 8 dot rows by the ESC A CTL H escape sequence. From BASIC, send `CHR$(27);"A";CHR$(8);`. After sending all the graphics columns across one row, you must send a carriage return and line feed to the printer to cause it to advance the paper and return to the left margin.

Some computer systems do not have the capability of controlling the most significant bit of data bytes sent to the printer. If your computer system always clears this bit you can still print graphics by setting the line spacing to 7 dot rows, with ESC 1 or ESC A CTL G, before sending graphics data. From BASIC, send `CHR$(27);"A";CHR$(7);`.

**Example: Column Graphics.** The following example program prints column graphics in the shape of a small arrow. The illustration of 1's and 0's shows how each dot is placed to form the arrow. A one causes the printer to print a dot and a zero causes a space.

In BASIC, data must be sent to the printer in decimal numbers (in the form CHR\$(decimal number)). Therefore, each group of eight 1's or 0's (each byte) must be converted to a decimal number. The following illustration shows the binary (1's and 0's) representation of the arrow and illustrates how the first line of binary data is converted to decimal so that BASIC can interpret the data. NOTE: The example has been tested using GWBASIC, version 3.01 on the HP Vectra. Other versions or releases may or may not support some of the BASIC commands (such as WIDTH "LPT1:",255).

**Binary Representation**

```

byte
0   0   1   2   3
1   8   6   4   1

Row 1
00000000000000001000000000000000
00000000000000001100000000000000
00000000000000001100000000000000
00000000000000001111000000000000
00000000000000001111100000000000
00000000000000001111110000000000
00000000000000001111111000000000
00000000000000001111111100000000
00000000000000001111111110000000
11111111111111111111111100000000
11111111111111111111111110000000
11111111111111111111111111000000
11111111111111111111111111000000
11111111111111111111111111100000
11111111111111111111111111110000
11111111111111111111111111111000
11111111111111111111111111111100
11111111111111111111111111111110
11111111111111111111111111111111
11111111111111111111111111111111
11111111111111111111111111111111
11111111111111111111111111111110
11111111111111111111111111111110
11111111111111111111111111111100
11111111111111111111111111111100
11111111111111111111111111111000
11111111111111111111111111111000
11111111111111111111111111111000
11111111111111111111111111111000
11111111111111111111111111111000
11111111111111111111111111111000
00000000000000001111111100000000
00000000000000001111111100000000
00000000000000001111111100000000
00000000000000001111111100000000
00000000000000001111111100000000
00000000000000001111111100000000
00000000000000001111111100000000
00000000000000001111111100000000
00000000000000001000000000000000
00000000000000001000000000000000

```

Row 1 decimal conversion

byte 01...	byte 16	byte 17	byte 18	byte 19	byte 20	byte 21	byte 22	byte 23	byte 24	byte 25 ...	byte 31	
00000000...	00000000	11111111	01111111	00111111	00011111	00001111	00000111	00000011	00000001	00000000	...	
↓	...	↓	↓	↓	↓	↓	↓	↓	↓	↓	...	
0	...	0	255	127	63	31	15	7	3	1	0	...

To print this arrow: ➡

```
10 REM *** BASIC program to print an arrow in column graphics ***
20 REM
30 WIDTH "lpt1:" ,255 :REM Disable auto CR-LF
40 OPEN "lpt1:" AS #1 :REM Open printer as a file
50 REM
60 REM
70 PRINT #1,CHR$(27);"A";CHR$(8); :REM Set line spacing to 8 dot rows
80 REM
90 REM Loop to read data and print graphics
100 FOR I = 1 TO 4 :REM Loop for each row
110 REM Single density column graphics with 32 bytes of data.
120 PRINT #1,CHR$(27);"K";CHR$(32);CHR$(0);
130 FOR J = 1 TO 32
140 READ COL :REM Read one byte
150 PRINT #1,CHR$(COL); :REM Print one column
160 NEXT J
170 PRINT #1,CHR$(10); :REM Advance and return to left margin
180 NEXT I
190 PRINT #1,CHR$(27);"2"; :REM Reset line spacing to 6 lpi
200 REM
210 CLOSE
220 REM
230 REM Data for the arrow
240 REM
250 REM Row 1
260 REM
270 DATA 0,0,0,0,0,0,0,0
280 DATA 0,0,0,0,0,0,0,0
290 DATA 255,127,63,31,15,7,3,1
300 DATA 0,0,0,0,0,0,0,0
310 REM
320 REM Row 2
330 REM
340 DATA 127,127,127,127,127,127,127,127
350 DATA 127,127,127,127,127,127,127,127
360 DATA 255,255,255,255,255,255,255,255
370 DATA 255,127,63,31,15,7,3,1
380 REM
390 REM row 3
400 REM
410 DATA 254,254,254,254,254,254,254,254
420 DATA 254,254,254,254,254,254,254,254
430 DATA 255,255,255,255,255,255,255,255
440 DATA 255,254,252,248,240,224,192,128
450 REM
460 REM Row 4
470 REM
480 DATA 0,0,0,0,0,0,0,0
490 DATA 0,0,0,0,0,0,0,0
500 DATA 255,254,252,248,240,224,192,128
510 DATA 0,0,0,0,0,0,0,0
```

To print this arrow: ➡

To print this arrow, replace lines 110 and 120 in the above program with these two lines of code:

```
110 REM Double density column graphics with 32 bytes of data.
120 PRINT #1,CHR$(27);"L";CHR$(32);CHR$(0);
```

## Emulation Cartridge and EPSON FX-80 Differences

### Printed Text Differences

The previous sections have already covered differences between the HP22707E Epson FX-80 Printer Emulation Cartridge and the Epson FX-80 printer. These included the following:

1. Additional Character Set support.
2. Additional font selections from the keypad.
3. Single and multiple escape/control code support limitations.

1. Emphasized and double-strike text: ( $E_C E$ ,  $E_C F$ ,  $E_C G$ ,  $E_C H$ ) The FX-80 provides two distinct modes of enhancement for displaying emphasized and double-strike text. The emulation cartridge displays both enhancements as bold text. (See also items 3 and 4.)
2. Proportional space super/subscripts: ( $E_C p 1$ ,  $E_C p 0$ ,  $E_C S 0$ ,  $E_C S 1$ ,  $E_C T$ ) The FX-80 cannot do super/subscripts when in proportional space text mode, and will ignore these codes. The emulation cartridge will print super/subscripts with proportionally spaced text.
3. Emphasized proportional space text: ( $E_C E$ ,  $E_C F$ ,  $E_C G$ ,  $E_C H$ ,  $E_C p 1$ ,  $E_C p 0$ ) the FX-80 will automatically emphasize proportional space text in an effort to enhance print quality. The emulation cartridge provides high quality proportional space text, and if the emphasized code is received, the text will be bolded.
4. Emphasized compressed and elite text: ( $E_C E$ ,  $E_C F$ ,  $E_C G$ ,  $E_C H$ ,  $E_C SI$ ,  $SI$ ,  $SO$ ,  $E_C M$ ,  $E_C P$ ) The FX-80 will support double-strike for compressed and elite text but will not emphasize them (emphasize has priority over compressed, and elite has priority over emphasized). The emulation cartridge will perform both of these enhancements by bolding the compressed or elite text.
5. Double-strike of super/subscripts: ( $E_C S 0$ ,  $E_C S 1$ ) The FX-80 will always double-strike super/subscripted text. The emulation cartridge provides high quality super/subscripted text without automatically adding this enhancement.





## Top-Of-Form (TOF) and Line Position Differences

1. TOF location following a Master Reset: ( $E_C @$ ) The FX-80 will reset the TOF to the current location following a Master Reset. The emulation cartridge will force TOF to the top of the page by ejecting to a new page if not currently at the top.
2. Perf-skip spacing location: (Function Switch A8,  $E_C N 'n'$ ,  $E_C O$ ) The FX-80 assumes that space allocated for perf-skip, whether set via switch or escape code, will be at the bottom of the page, thus requiring a manual adjustment to position the perforation in the middle. The emulation cartridge will automatically divide the perf-skip area, placing half at the top of the page and the remainder at the bottom.
3. Page length realignment to TOF: ( $E_C C 'n'$ ,  $E_C C 0 'n'$ ) The emulation cartridge will resync TOF with the top of the page following each page, whereas the FX-80 printer will not attempt to resync with the top of the page. This would be noticeable if the defined page were to be set larger or smaller than the physical page. Changing the page length will cause the emulation cartridge to eject a page if it has been printed on already.
4. Reverse line feed distance: ( $E_C j 'n'$ ) Though not recommended by EPSON, the FX-80 printer will allow multiple reverse line feeds, even across page boundaries. The emulation cartridge will only guarantee reverse line feeds up to a maximum of approximately one-sixth of an inch, regardless of how many escape sequences are sent.

5. Default lines per page: When the Perf-Skip switches on the FX-80 and DeskJet printer (function switch A8 UP) are set to the ON position, both printers default to 60 lines per page. However, when they are both OFF, the FX-80 will print 66 lines per page, whereas the DeskJet will only print 63. If this is a problem for an existing application, then Text Scale Mode on the DeskJet printer should be set ON (function switch B1 UP). This will allow 66 lines per page in text printing. Note, however, that an equivalent page of graphics would not be possible, and merging of text and graphics may not produce optimal results in this mode. Therefore, use of the Text Scale Mode should be limited.

### **Downloadable Character Differences**

#### **Definition.**

The DeskJet printer uses Epson's format for downloading. It does not restrict the definition of a character to non-consecutive dots. Therefore, more fully-formed characters may be defined than is possible with the Epson FX-80 because they do not take full advantage of their resolution.

#### **Print method.**

On the Epson FX-80 printer, downloaded characters are a direct replacement for their counterpart in ROM, and are printed as normal text characters. This is not the case for the emulation cartridge, however. Since downloaded characters must be received in Epson format and resolution, the characters are printed out in graphics mode so that they may be scaled appropriately. Also, since Epson does all character enhancements algorithmically (with the exception of italics), the best way to reproduce these enhancements is to apply the same algorithms to the downloaded images in graphics mode. Only one downloaded character is printed at a time, so head movement is somewhat jerky if many downloaded characters appear on one line. The good news is that only printing one download at a time guarantees that the character will look the same no matter where it is placed on the page, which is not the case (due to scaling roundoffs) if sequential characters were concatenated.

**Character set mapping.**

All downloaded characters assume Epson character set mapping. Normally, this should pose no problem. However, if the user has selected a character set that is non-Epson (e.g., by setting the language function switches to a PC-8 set), any characters that are mapped (e.g., international characters) will not be addressable the same way the Epson characters are. For example, to replace the Epson Spanish character 91 (the upside-down exclamation point), download character 7 in the Epson set. Replacing character 7 with the PC-8 USA set selected would replace the backwards single quote mark.

**Enhancements.****Double strike:**

As with normal text mode, the DeskJet printer does not distinguish between double strike and emphasized modes. Double strike for downloaded characters is the same as emphasized for downloaded characters: each column is ORed with the next column.

**Margin enforcement.**

If there is not enough room for a download character at the end of a line, Epson will wrap that character to the next line. The emulation, since it does the characters in graphics, will print as much of the character as will fit and truncate the rest. Subsequent characters (downloaded or not) will wrap to the next line.









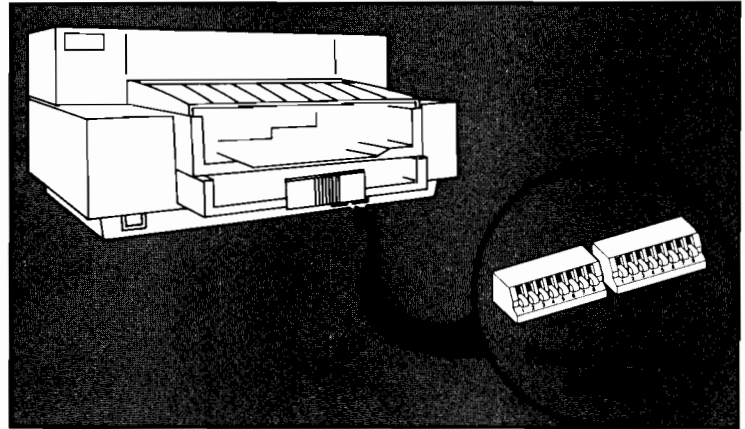




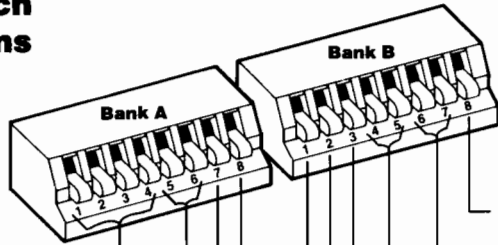
## Appendix

### Summary of Switch Settings

The DeskJet printer has two banks of mode function switches located on the printer's front base, under the paper tray. These switches define a number of printer settings, ranging from page length to data communications settings. The illustration below shows the function switches in their default positions.



# Function Switch Definitions



**Default Character Set**  
(See page 8-3)

**Paper/Envelope Size**  
(See page 8-3)

**Carriage Return Definition\***  
(Up = CR and LF, Down = CR only)

**Perforation Skip**  
(Up = Disable, Down = Enable)

**RS-232-C Handshaking**  
(Up = DTR, Down = DTR & Xon/Xoff)

**RS-232-C Parity & Word Length**  
(See page 8-4)

**RS-232-C Baud Rate**  
(See page 8-4)

**Terminal Mode**  
(Up = Enable, Down = Disable)  
(See page 8-18)

**Graphics Density**  
(Up = 300 PPI, Down = 75 PPI)

**Text Scale Mode**  
(Up = 66 Lines/Page, Down = Disable)

\*CR = Carriage Return, LF = Line Feed

## Default Character Set Selection

Character Set	Switch Setting			
	A1	A2	A3	A4
PC-8	down	down	down	down
HP Roman8	down	down	down	up
PC-8 Denmark/Norway	down	down	up	down
United Kingdom (ISO 04)	down	down	up	up
Germany (ISO 21)	down	up	down	down
France (ISO 69)	down	up	down	up
Italy (ISO 15)	down	up	up	down
Norway (ISO 60) V. 1	down	up	up	up
Sweden (ISO 11): Names	up	down	down	down
Spain (ISO 17)	up	down	down	up
ASCII	up	down	up	down
Portugal (ISO 16)	up	down	up	up
JIS ASCII	up	up	down	down
ECMA-94 Latin 1	up	up	down	up
Legal	up	up	up	down
Default Set in Front Cartridge	up	up	up	up

## Paper/Envelope Size

Paper/Envelope Size	Switch A5	Switch A6
US Letter (8½" × 11")	down	down
A4 (210 × 297mm)	down	up
US Legal (8½" × 14")	up	down
Envelope (4½" × 9½")	up	up

## 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 & 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

# Character Set Selection

## HP Roman8 Character Set Chart

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0			0	@	P	`		p				-	â	Á	À	þ
1		!	1	A	Q	a	q			À	Ý	è	ê	î	Ã	þ
2		"	2	B	R	b	r			Â	ÿ	ô	ø	ä	·	
3		#	3	C	S	c	s			È	°	û	Æ	Ð	µ	
4		\$	4	D	T	d	t			Ê	Ç	á	à	ð	¶	
5		%	5	E	U	e	u			Ë	ç	é	í	Í	¾	
6		&	6	F	V	f	v			Ï	Ñ	ó	ø	Ì	-	
7		'	7	G	W	g	w			Ë	ñ	ú	æ	Ó	¼	
8		(	8	H	X	h	x			´	í	à	À	Ö	½	
9		)	9	I	Y	i	y			˘	ı	è	ì	Õ	¾	
A	*	:	J	Z	j	z			ˆ	ˆ	ò	ò	Ö	õ	°	
B	+	;	K	[	k	{			˜	˜	ù	ù	Ü	Š	«	
C	,	<	L	\	l				˘	˘	ÿ	ÿ	ä	É	»	
D	-	=	M	]	m	}			˘	˘	Û	Û	ë	Ï	»	
E	.	>	N	^	n	~			˘	˘	Ü	Ü	ö	Û	±	
F	/	?	O	_	o	¸			˘	˘	£	£	ü	Ô	ÿ	

## International Character Set Chart (ISO)

ISO Reg. #	ASCII	Swedish Names	Swedish	Spanish	French	German	UK	Portuguese	Norwegian1	Norwegian2	ISO IRV	Italian
6	6	11	10	17	69	21	4	16	60	61	2	15
35	#	#	#	£	£	#	£	#	#	§	#	£
36	\$	¤	¤	\$	\$	\$	\$	\$	\$	\$	¤	\$
64	@	É	@	§	à	§	@	§	@	@	@	§
91	[	Ä	Ä	ı	°	Ä	[	Ä	Æ	Æ	[	°
92	\	Ö	Ö	Ñ	ç	Ö	\	Ç	Ø	Ø	\	ç
93	]	À	À	˘	˘	Û	]	Ö	À	À	]	˘
94	^	Ü	Ü	˘	˘	˘	^	˘	˘	˘	˘	˘
96	˘	é	˘	˘	µ	˘	˘	˘	˘	˘	˘	ù
123	{	ä	ä	°	é	ä	{	ä	æ	æ	{	à
124		ö	ö	ñ	ù	ö		ç	ø	ø		ò
125	~	å	å	ç	è	ü	~	ö	å	å	~	è
126	˘	ü	˘	˘	˘	ß	˘	°	˘	˘	˘	ı

# PC-8 Character Set Chart

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		▶		0	@	P	`	p	Ç	É	á	⋮	⊥	▲	α	≡
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	⋮	⊥	▾	β	±
2	☹	↑	"	2	B	R	b	r	é	Æ	ó	⋮	⊥	▾	Γ	≥
3	♥	!!	#	3	C	S	c	s	â	ô	ú		⊥	▾	π	≤
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ		⊥	▾	Σ	∫
5	♣	§	%	5	E	U	e	u	à	ò	Ñ		⊥	▾	σ	∫
6	♠	¶	&	6	F	V	f	v	á	û	ã		⊥	▾	μ	÷
7	·	↑	'	7	G	W	g	w	ç	ù	õ		⊥	▾	τ	≈
8	■	↑	(	8	H	X	h	x	ê	ÿ	¿		⊥	▾	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	Γ		⊥	▾	Θ	•
A	◼	→	*	:	J	Z	j	z	è	Ü	Γ		⊥	▾	Ω	·
B	♂	←	+	;	K	[	k	{	ï	ç	½		⊥	▾	δ	√
C	♀	⊥	,	<	L	\	l		î	£	¼		⊥	▾	∞	n <sup>2</sup>
D	🎵	↔	-	=	M	]	m	}	ì	¥	;		⊥	▾	φ	ε
E	🎵	▲	.	>	N	^	n	~	Ä	Pls	«		⊥	▾	ε	■
F	✳	▼	/	?	O	_	o	⌘	Å	f	»		⊥	▾	∩	■

Appendix

# PC-8 Denmark/ Norway Character Set Chart

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		▶		0	@	P	`	p	Ç	É	á	⋮	⊥	▲	α	≡
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	⋮	⊥	▾	β	±
2	☹	↑	"	2	B	R	b	r	é	Æ	ó	⋮	⊥	▾	Γ	≥
3	♥	!!	#	3	C	S	c	s	â	ô	ú		⊥	▾	π	≤
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ		⊥	▾	Σ	∫
5	♣	§	%	5	E	U	e	u	à	ò	Ñ		⊥	▾	σ	∫
6	♠	¶	&	6	F	V	f	v	á	û	ã		⊥	▾	μ	÷
7	·	↑	'	7	G	W	g	w	ç	ù	õ		⊥	▾	τ	≈
8	■	↑	(	8	H	X	h	x	ê	ÿ	¿		⊥	▾	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	ã		⊥	▾	Θ	•
A	◼	→	*	:	J	Z	j	z	è	Ü	Ã		⊥	▾	Ω	·
B	♂	←	+	;	K	[	k	{	ï	ø	ℓ		⊥	▾	δ	√
C	♀	⊥	,	<	L	\	l		î	£	ñ		⊥	▾	∞	n <sup>2</sup>
D	🎵	↔	-	=	M	]	m	}	ì	Ø	;		⊥	▾	φ	ε
E	🎵	▲	.	>	N	^	n	~	Ä	l	»		⊥	▾	ε	■
F	✳	▼	/	?	O	_	o	⌘	Å	l	»		⊥	▾	∩	■

# ECMA-94 Latin 1 Character Set Chart

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0			0	@	P	`	p					°	À	Ð	à	ð
1		!	1	A	Q	a	q				ı	±	Á	Ñ	á	ñ
2		"	2	B	R	b	r				ı	²	Â	Ò	â	ò
3		#	3	C	S	c	s				£	³	Ã	Ó	ã	ó
4		\$	4	D	T	d	t				¤	´	Ä	Ô	ä	ô
5		%	5	E	U	e	u				¥	µ	Å	Õ	å	õ
6		&	6	F	V	f	v					¶	Æ	Ö	æ	ö
7		'	7	G	W	g	w				§	•	Ç	×	ç	÷
8		(	8	H	X	h	x				¨	.	È	Ø	è	ø
9		)	9	I	Y	i	y				©	ı	É	Ù	é	ù
A		*	:	J	Z	j	z				ª	º	Ê	Û	ê	ú
B		+	;	K	[	k	{				«	»	Ë	Ü	ë	û
C		,	<	L	\	l					¬	¼	Ì	Û	ì	ü
D		-	=	M	]	m	}				–	½	Í	Ý	í	ý
E		.	>	N	^	n	~				®	¾	Î	Þ	î	þ
F		/	?	O	_	o					–	¿	Ï	ß	ï	ÿ



# Line Draw Character Set (Seven Bit)

(Available only on optional  
font cartridge.)

	0	1	2	3	4	5	6	7
0		†	‡	§	¶	‡	§	¶
1	†	‡	§	¶	‡	§	¶	¶
2	‡	‡	‡	¶	¶	‡	¶	¶
3	‡	‡	■	¶	■	¶	¶	¶
4	‡	‡	■	¶	■	¶	¶	¶
5		†		†		†		†
6		†	‡	‡	‡	‡	‡	‡
7	‡	‡	¶	¶	¶	¶	¶	¶
8	≠	‡	¶	■	¶	■	■	■
9		=	¶	¶	¶	¶	¶	¶
A	†		‡	■	‡	■	■	■
B	†	-	¶	¶	¶	¶	¶	¶
C	-	¶	¶	¶	¶	¶	¶	¶
D	‡	‡	‡	¶	‡	¶	¶	¶
E		‡	‡	-	‡	-	-	-
F	†	#	¶	¶	¶	¶	¶	¶



# Legal Character Set Chart

	0	1	2	3	4	5	6	7
0			0	@	P	°		p
1		!	1	A	Q	a		q
2		"	2	B	R	b		r
3		#	3	C	S	c		s
4		\$	4	D	T	d		t
5		%	5	E	U	e		u
6		&	6	F	V	f		v
7		'	7	G	W	g		w
8		(	8	H	X	h		x
9		)	9	I	Y	i		y
A		*	:	J	Z	j		z
B		+	;	K	[	k		§
C		,	=	L	•	l		¶
D		-	=	M	]	m		†
E		.	ç	N	©	n		™
F		/	?	O	—	o		®

Appendix

# Math7 Character Set Chart

(Available only on optional font cartridge.)

	0	1	2	3	4	5	6	7
0			0	¶	π	¶	π	
1		√	1	α	γ	α	γ	
2			2	β	θ	β	θ	
3		§	3	ψ	σ	ψ	σ	
4		∇	4	φ	τ	φ	τ	
5		±	5	ε	ξ	ε	ξ	
6		α	6	∂	Δ	∂	Δ	
7		f	7	λ	δ	λ	δ	
8		÷	8	η	χ	η	χ	
9		≈	9	ι	υ	ι	υ	
A		Π	Ω	Θ	ζ	Θ	ζ	
B		Γ	Λ	κ	↑	κ	↑	
C		Ψ	∞	ω	→	ω	→	
D		≡	J	μ	↑	μ	↑	
E		Φ	†	ν	←	ν	←	
F		Ξ	Σ	ρ	↓	ρ	⌘	

# Math8 Character Set Chart

(Available only on optional font cartridge.)

	(A Version)									(B Version)						
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	∴	∏	∴	π					¬	⊕	Å	Γ	∟
1		√	1	A	P	α	ρ				↑	∇	⊙	¬	∟	∟
2		"	2	B	Σ	β	σ				→	∃	⊗	⊥	∟	∟
3		°	3	Γ	T	γ	τ				↓	T	⊙		{	}
4		∞	4	Δ	T	δ	υ				←	⊥	⊙		∟	∟
5		÷	5	E	Φ	ε	φ				↑	U	∧	∫	∫	
6		α	6	Z	X	ζ	χ				⇒	∩	∨	∫	⊕	
7		'	7	H	Ψ	η	ψ				↓	ε	∇	∠	J	√
8		(	8	Θ	Ω	θ	ω				≡	∃	¬	⊗	∟	∟
9		)	9	I	∇	ι	∂				↑	≠	°	∞	∥	>
A		×	e	K	∂	κ	φ				↔	∩	·	∩	∟	∟
B		+	ε	Λ	ς	λ	ω				⊕	∩	·	∩	/	\
C		,	<	M	≤	μ	≡				⇔	∩	·	∩		
D		-	=	N	≠	ν	≡				↔	∩	∩	∩		≠
E		.	>	∞	≥	ξ	≠				↔	∩	+	∞		±
F		/	≈	O	—	o	≡				→	∩	†	∩		

# Math8a Character Set Chart

(Available only on optional font cartridge.)

	0	1	2	3	4	5	6	7
0			0	∴	Π	∴	π	
1		√	1	Λ	Ρ	α	ρ	
2		"	2	Β	Σ	β	σ	
3		°	3	Γ	Τ	γ	τ	
4		∞	4	Δ	Υ	δ	υ	
5		÷	5	Ε	Φ	ε	φ	
6		α	6	Ζ	Χ	ζ	χ	
7		'	7	Η	Ψ	η	ψ	
8		(	8	Θ	Ω	θ	ω	
9		)	9	Ι	∇	ι	∂	
A		×	e	Κ	∂	κ	φ	
B		+	ε	Λ	ς	λ	ε	
C		,	<	Μ	≤	μ	≅	
D		-	=	Ν	≠	ν	≡	
E		.	>	Ξ	≥	ξ	≠	
F		/	≈	Ο	—	ο	∞	

## Math8b Character Set Chart

(Available only on optional font cartridge.)

	0	1	2	3	4	5	6	7
0			—	⊙	Å	┌	┐	
1		↑	∇	⊙	←	└	┘	
2		→	∃	⊙	└	┌	┐	
3		↓	⊥	⊙		┌	┐	
4		←	⊥	⊙		└	┘	
5		↑	U	∧	∫	∫		
6		⇒	∩	∇	∫	∅		
7		⇓	ε	∇	∠	J	√	
8		⇐	∃	└	∅	∇	└	
9		↕	∫	°	∞		>	
A		↔	C	·	∩	∠	└	
B		⇄	∩	·	∩	/	\	
C		⇄	∩	·	∩			
D		↔	∩	○	∩		≠	
E		↔	∩	+	∩		±	
F		·	∩	‡	3			

# PIFont Character Set Chart

(Available only on optional font cartridge.)

	(A Version)									(B Version)						
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				—	::	Ⓟ	[	]								
1			˘	△	ρ	]	]									
2			˘		℞	(	)									
3			·		Σ	(	)									
4			“	↗												
5			”	↘												
6			‘	↙	F											
7			’	↖												
8			<	△	ħ											
9			>	▽												
A			™	▽												
B			SM	△												
C			®	Ⓐ	ℒ	□	■									
D			©	ℳ	ℓ	◇	◆									
E			Ⓢ	▽												
F				†												

HP Designation Sequences: ESC ( 15 U ← Primary Set  
 ESC ) 15 U ← Secondary Set

# PIFonta Character Set Chart

(Available only on optional font cartridge.)

	0	1	2	3	4	5	6	7
0			—	::	⊙	⌈	⌋	
1			∨	△	ρ	⌊	⌋	
2			∨		℞	⌈	⌋	
3			·		Σ	⌊	⌋	
4	“	↗				†	‡	
5	”	↘				‡	†	
6	‘	↙	F			—	⊥	
7	’	↖						
8	<	△	h			U		
9	>	▽				∩	∏	
A	™	▽						
B	SM	△			⌈	⌊		
C	©	⚠	ℓ			□	■	
D	©	§	ℓ		⌋	◇	◆	
E	Ⓜ	⚠						
F		¶					⚡	

# ASCII-Decimal-Hex Table

The Roman8 symbol set is an 8-bit symbol set. In addition to the symbols of the standard ASCII symbol set, it also contains international characters and symbols.

## ASCII-Decimal-Hex Table

CHAR.	DEC.	HEX.
CTL@	N <sub>0</sub>	0 00
CTLA	S <sub>H</sub>	1 01
CTLB	S <sub>X</sub>	2 02
CTLC	E <sub>X</sub>	3 03
CTLD	E <sub>T</sub>	4 04
CTLE	E <sub>G</sub>	5 05
CTLF	A <sub>K</sub>	6 06
CTLG	Q	7 07
CTLH	B <sub>S</sub>	8 08
CTLI	H <sub>T</sub>	9 09
CTLJ	L <sub>F</sub>	10 0A
CTLK	V <sub>I</sub>	11 0B
CTLL	F <sub>F</sub>	12 0C
CTLM	C <sub>R</sub>	13 0D
CTLN	S <sub>O</sub>	14 0E
CTLD	S <sub>I</sub>	15 0F
CTLP	D <sub>L</sub>	16 10
CTLO	D <sub>I</sub>	17 11
CTLR	D <sub>S</sub>	18 12
CTLS	D <sub>G</sub>	19 13
CTLT	D <sub>4</sub>	20 14
CTLU	N <sub>K</sub>	21 15
CTLV	S <sub>V</sub>	22 16
CTLW	E <sub>B</sub>	23 17
CTLX	C <sub>N</sub>	24 18
CTLY	E <sub>M</sub>	25 19
CTLZ	S <sub>B</sub>	26 1A
CTL[	E <sub>C</sub>	27 1B
CTL\	F <sub>S</sub>	28 1C
CTL]	G <sub>S</sub>	29 1D
CTL^	R <sub>S</sub>	30 1E
CTL_	U <sub>S</sub>	31 1F

CHAR.	DEC.	HEX.
	32	20
!	33	21
"	34	22
#	35	23
\$	36	24
%	37	25
&	38	26
'	39	27
(	40	28
)	41	29
*	42	2A
+	43	2B
,	44	2C
-	45	2D
	46	2E
	47	2F
0	48	30
1	49	31
2	50	32
3	51	33
4	52	34
5	53	35
6	54	36
7	55	37
8	56	38
9	57	39
:	58	3A
:	59	3B
~	60	3C
=	61	3D
.	62	3E
?	63	3F

CHAR.	DEC.	HEX.
@	64	40
A	65	41
B	66	42
C	67	43
D	68	44
E	69	45
F	70	46
G	71	47
H	72	48
I	73	49
J	74	4A
K	75	4B
L	76	4C
M	77	4D
N	78	4E
O	79	4F
P	80	50
Q	81	51
R	82	52
S	83	53
T	84	54
U	85	55
V	86	56
W	87	57
X	88	58
Y	89	59
Z	90	5A
[	91	5B
\	92	5C
]	93	5D
.	94	5E
_	95	5F

CHAR.	DEC.	HEX.
^	96	60
a	97	61
b	98	62
c	99	63
d	100	64
e	101	65
f	102	66
g	103	67
h	104	68
i	105	69
j	106	6A
k	107	6B
l	108	6C
m	109	6D
n	110	6E
o	111	6F
p	112	70
q	113	71
r	114	72
s	115	73
t	116	74
u	117	75
v	118	76
w	119	77
x	120	78
y	121	79
z	122	7A
{	123	7B
	124	7C
}	125	7D
~	126	7E
⌘	127	7F



## ASCII-Decimal-Hex (continued)

CHAR. DEC. HEX.

0	128	80
1	129	81
2	130	82
3	131	83
4	132	84
5	133	85
6	134	86
7	135	87
8	136	88
9	137	89
A	138	8A
B	139	8B
C	140	8C
D	141	8D
E	142	8E
F	143	8F
0	144	90
1	145	91
2	146	92
3	147	93
4	148	94
5	149	95
6	150	96
7	151	97
8	152	98
9	153	99
A	154	9A
B	155	9B
C	156	9C
D	157	9D
E	158	9E
F	159	9F

CHAR. DEC. HEX.

	160	A0
À	161	A1
Á	162	A2
Â	163	A3
Ë	164	A4
É	165	A5
Ì	166	A6
Í	167	A7
	168	A8
	169	A9
	170	AA
	171	AB
	172	AC
Û	173	AD
Ü	174	AE
Ë	175	AF
—	176	B0
ÿ	177	B1
ÿ	178	B2
°	179	B3
Ç	180	B4
ç	181	B5
Ñ	182	B6
ñ	183	B7
ı	184	B8
ı	185	B9
ı	186	BA
£	187	BB
¥	188	BC
§	189	BD
f	190	BE
ç	191	BF

CHAR. DEC. HEX.

à	192	C0
ê	193	C1
ô	194	C2
û	195	C3
à	196	C4
é	197	C5
ó	198	C6
u	199	C7
à	200	C8
è	201	C9
ò	202	CA
ü	203	CB
ä	204	CC
è	205	CD
ö	206	CE
ü	207	CF
À	208	D0
ı	209	D1
Ø	210	D2
Æ	211	D3
à	212	D4
ı	213	D5
ø	214	D6
æ	215	D7
À	216	D8
ı	217	D9
Ö	218	DA
U	219	DB
É	220	DC
ı	221	DD
ß	222	DE
Ô	223	DF

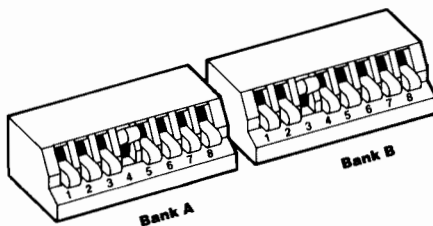
CHAR. DEC. HEX.

A	224	E0
À	225	E1
à	226	E2
o	227	E3
d	228	E4
ı	229	E5
ı	230	E6
Ó	231	E7
Ó	232	E8
Ó	233	E9
ó	234	EA
Š	235	EB
š	236	EC
U	237	ED
ÿ	238	EE
y	239	EF
ƒ	240	F0
ƒ	241	F1
•	242	F2
μ	243	F3
¶	244	F4
¶	245	F5
—	246	F6
¼	247	F7
½	248	F8
¾	249	F9
°	250	FA
«	251	FB
■	252	FC
»	253	FD
±	254	FE
DEL	255	FF

## HP Terminal Mode— Line Draw

The Line Draw characters displayed on your HP terminal can be printed on DeskJet printers by using your terminal's normal print controls.

Follow the hardware configuration for your terminal as described in Chapter 2. Make sure that the function switches located on the front base of your printer are set as shown below.



# Escape Sequence/ Control Code Summary

Print Features	Escape Sequence	Decimal Equiv.	Hex. Equiv.
<b>FONT SELECTION</b>			
HP Roman8	E <sub>C</sub> (8U)	027 040 056 085	1B 28 38 55
ASCII	E <sub>C</sub> (0U)	027 040 048 085	1B 28 30 55
ECMA-94 Latin 1	E <sub>C</sub> (0N)	027 040 048 078	1B 28 30 4E
PC-8	E <sub>C</sub> (10U)	027 040 049 048 085	1B 28 31 30 55
PC-8 Denmark/Norway	E <sub>C</sub> (11U)	027 040 049 049 085	1B 28 31 31 55
ISO Sweden: Names	E <sub>C</sub> (0S)	027 040 048 083	1B 28 30 53
ISO Sweden	E <sub>C</sub> (3S)	027 040 051 083	1B 28 33 53
ISO Norway v.1	E <sub>C</sub> (0D)	027 040 048 068	1B 28 30 44
ISO Norway v.2	E <sub>C</sub> (1D)	027 040 049 068	1B 28 31 44
ISO UK	E <sub>C</sub> (1E)	027 040 049 069	1B 28 31 45
ISO France	E <sub>C</sub> (1F)	027 040 049 070	1B 28 31 46
ISO Germany	E <sub>C</sub> (1G)	027 040 049 071	1B 28 31 47
ISO Italy	E <sub>C</sub> (0I)	027 040 048 073	1B 28 30 49
ISO Spain	E <sub>C</sub> (2S)	027 040 050 083	1B 28 32 53
ISO Portugal	E <sub>C</sub> (4S)	027 040 052 083	1B 28 34 53
ISO IRV	E <sub>C</sub> (2U)	027 040 051 085	1B 28 32 55
JIS ASCII	E <sub>C</sub> (0K)	027 040 048 075	1B 28 30 4B
Legal	E <sub>C</sub> (1U)	027 040 049 085	1B 28 31 55
Line Draw*	E <sub>C</sub> (0L)	027 040 048 076	1B 28 30 4C
Math7*	E <sub>C</sub> (0M)	027 040 048 077	1B 28 30 4D
Math8*	E <sub>C</sub> (8M)	027 040 056 077	1B 28 38 4D
Math8a*	E <sub>C</sub> (0Q)	027 040 048 081	1B 28 30 51
Math8b*	E <sub>C</sub> (1Q)	027 040 049 081	1B 28 31 51
PIFont*	E <sub>C</sub> (15U)	027 040 049 053 085	1B 28 31 35 55
PIFonta*	E <sub>C</sub> (2Q)	027 040 050 081	1B 28 32 51
<b>SPACING</b>			
Proportional*	E <sub>C</sub> (s1P)	027 040 115 049 080	1B 28 73 31 50
Fixed	E <sub>C</sub> (s0P)	027 040 115 048 080	1B 28 73 30 50
<b>QUALITY</b>			
Letter	E <sub>C</sub> (s2Q)	027 040 115 050 081	1B 28 73 32 51
Draft	E <sub>C</sub> (s1Q)	027 040 115 049 081	1B 28 73 31 51
<b>PLACEMENT</b>			
Super	E <sub>C</sub> (s + 1U)	027 040 115 043 049 085	1B 28 73 2B 31 55
Normal	E <sub>C</sub> (s0U)	027 040 115 048 085	1B 28 73 30 55
Sub	E <sub>C</sub> (s - 1U)	027 040 115 045 049 085	1B 28 73 2D 31 55
<b>PITCH</b>			
# of Characters	E <sub>C</sub> (s#H)	027 040 115 # . . . # 072	1B 28 73 # . . . # 48

\* Optional font cartridges required.

Print Features (Cont.)	Escape Sequence	Decimal Equiv.	Hex. Equiv.
<b>POINT SIZE</b> # of $\frac{1}{72}$ inch	E <sub>C</sub> (s#V	027 040 115 #...# 086	1B 28 73 #...# 56
<b>STYLE</b> Upright	E <sub>C</sub> (s0S	027 040 115 048 083	1B 28 73 30 53
Italic*	E <sub>C</sub> (s1S	027 040 115 049 083	1B 28 73 31 53
<b>STROKE WEIGHT</b> Normal	E <sub>C</sub> (s0B	027 040 115 048 066	1B 28 73 30 42
Bold	E <sub>C</sub> (s3B	027 040 115 051 066	1B 28 73 33 42
Extra Bold*	E <sub>C</sub> (s7B	027 040 115 055 066	1B 28 73 37 42
<b>TYPEFACE</b> Line Printer*	E <sub>C</sub> (s0T	027 040 115 048 084	1B 28 73 30 54
Pica*	E <sub>C</sub> (s1T	027 040 115 049 084	1B 28 73 31 54
Elite*	E <sub>C</sub> (s2T	027 040 115 050 084	1B 28 73 32 54
Courier	E <sub>C</sub> (s3T	027 040 115 051 084	1B 28 73 33 54
Helv.*	E <sub>C</sub> (s4T	027 040 115 052 084	1B 28 73 34 54
Tms Rmn*	E <sub>C</sub> (s5T	027 040 115 053 084	1B 28 73 35 54
Gothic*	E <sub>C</sub> (s6T	027 040 115 054 084	1B 28 73 36 54
Script*	E <sub>C</sub> (s7T	027 040 115 055 084	1B 28 73 37 54
Prestige*	E <sub>C</sub> (s8T	027 040 115 056 084	1B 28 73 38 54
Presentations*	E <sub>C</sub> (s11T	027 040 115 049 049 084	1B 28 73 31 31 54
<b>PAGE LENGTH</b> # of Lines	E <sub>C</sub> &l#P	027 038 108 #...# 080	1B 26 6C #...# 50
<b>TOP MARGIN</b> # of Lines	E <sub>C</sub> &l#E	027 038 108 #...# 069	1B 26 6C #...# 45
<b>TEXT LENGTH</b> # of Lines	E <sub>C</sub> &l#F	027 038 108 #...# 070	1B 26 6C #...# 46
<b>MARGINS</b> Clear	E <sub>C</sub> 9	027 057	1B 39
Left	E <sub>C</sub> &a#L	027 038 097 #...# 076	1B 26 61 #...# 4C
Right	E <sub>C</sub> &a#M	027 038 097 #...# 077	1B 26 61 #...# 4D
<b>VERTICAL LINE SPACING</b> Motion Index # $\frac{1}{48}$ inch	E <sub>C</sub> &l#C	027 038 108 #...# 067	1B 26 6C #...# 43
Lines per Inch # of Lines	E <sub>C</sub> &l#D	027 038 108 #...# 068	1B 26 6C #...# 44
<b>HALF-LINE FEED</b>	E <sub>C</sub> =	027 061	1B 3D

\* Optional font cartridges required.

Print Features (Cont.)	Escape Sequence	Decimal Equiv.	Hex. Equiv.
<b>CURSOR POSITIONING</b>			
Move to Row #	E <sub>C</sub> &a#R	027 038 097 #...# 082	1B 26 61 #...# 52
Move to Col. #	E <sub>C</sub> &a#C	027 038 097 #...# 067	1B 26 61 #...# 43
Horizontal # decipoint	E <sub>C</sub> &a#H	027 038 097 #...# 072	1B 26 61 #...# 48
Vertical # decipoint	E <sub>C</sub> &a#V	027 038 097 #...# 086	1B 26 61 #...# 56
Horizontal # dots	E <sub>C</sub> *p#X	027 042 112 #...# 088	1B 2A 70 #...# 58
Vertical # dots	E <sub>C</sub> *p#Y	027 042 112 #...# 089	1B 2A 70 #...# 59
Motion Index # <sup>1</sup> / <sub>120</sub> Inch	E <sub>C</sub> &k#H	027 038 107 #...# 072	1B 26 6B #...# 48
<b>GRAPHICS</b>			
<b>Resolution</b>			
75 Pixels/inch	E <sub>C</sub> *t75R	027 042 116 055 053 082	1B 2A 74 37 35 52
100 Pixels/inch	E <sub>C</sub> *t100R	027 042 116 049 048 048 082	1B 2A 74 31 30 30 52
150 Pixels/inch	E <sub>C</sub> *t150R	027 042 116 049 053 048 082	1B 2A 74 31 35 30 52
300 Pixels/inch	E <sub>C</sub> *t300R	027 042 116 051 048 048 082	1B 2A 74 33 30 30 52
<b>Width</b>			
# pixels	E <sub>C</sub> *r#S	027 042 114 #...# 083	1B 2A 72 #...# 53
<b>X Offset</b>			
# dots	E <sub>C</sub> *b#X	027 042 098 #...# 088	1B 2A 62 #...# 58
<b>Y Offset</b>			
# dots	E <sub>C</sub> *b#Y	027 042 098 #...# 089	1B 2A 62 #...# 59
<b>Compaction</b>			
Compaction OFF	E <sub>C</sub> *b0M	027 042 098 048 077	1B 2A 62 30 4D
Mode 1	E <sub>C</sub> *b1M	027 042 098 049 077	1B 2A 62 31 4D
Mode 2	E <sub>C</sub> *b2M	027 042 098 050 077	1B 2A 62 32 4D
<b>Misc. Graphics Commands</b>			
Set to default (high)	E <sub>C</sub> *r0Q	027 042 114 048 081	1B 2A 72 30 51
Quality Set to draft	E <sub>C</sub> *r1Q	027 042 114 049 081	1B 2A 72 31 51
Quality Set to high	E <sub>C</sub> *r2Q	027 042 114 050 081	1B 2A 72 32 51
<b>Transfer Graphics</b>			
# bytes	E <sub>C</sub> *b#Wdata	027 042 098 #...# 087 data	1B 2A 62 #...# 57 data
<b>Start Graphics</b>			
At Left most print pos.	E <sub>C</sub> *r0A	027 042 114 048 065	1B 2A 72 30 41
Current Cursor pos.	E <sub>C</sub> *r1A	027 042 114 049 065	1B 2A 72 31 41
<b>End Graphics</b>			
	E <sub>C</sub> *rB	027 042 114 066	1B 2A 72 42
<b>MISC. PRINTER CONTROL</b>			
Reset	E <sub>C</sub> E	027 069	1B 45
Self Test	E <sub>C</sub> z	027 122	1B 7A
Return Model Number	E <sub>C</sub> *rK	027 042 114 075	1B 2A 72 4B

Print Features (Cont.)	Escape Sequence	Decimal Equiv.	Hex. Equiv.
<b>UNDERLINE</b>			
Single fixed	E <sub>C</sub> &d1D	027 038 100 049 068	1B 26 64 31 44
Double fixed	E <sub>C</sub> &d2D	027 038 100 050 068	1B 26 64 32 44
Single float	E <sub>C</sub> &d3D	027 038 100 051 068	1B 26 64 33 44
Double float	E <sub>C</sub> &d4D	027 038 100 052 068	1B 26 64 34 44
Off	E <sub>C</sub> &d@	027 038 100 064	1B 26 64 40
<b>DISPLAY FUNCTIONS</b>			
Display ON	E <sub>C</sub> Y	027 089	1B 59
Display OFF	E <sub>C</sub> Z	027 090	1B 5A
<b>TRANSPARENT PRINT DATA</b>			
# bytes	E <sub>C</sub> &p#X	027 038 112 #...# 088	1B 26 70 #...# 58
<b>PERFORATION SKIP</b>			
Perforation Skip ON	E <sub>C</sub> &l1L	027 038 108 049 076	1B 26 6C 31 4C
Perforation Skip OFF	E <sub>C</sub> &l0L	027 038 108 048 076	1B 26 6C 30 4C
<b>END-OF-LINE WRAP</b>			
End-of-Line Wrap ON	E <sub>C</sub> &s0C	027 038 115 048 067	1B 26 73 30 43
End-of-Line Wrap OFF	E <sub>C</sub> &s1C	027 038 115 049 067	1B 26 73 31 43
<b>LINE TERMINATION</b>			
CR→CR	E <sub>C</sub> &k0G	027 038 107 048 071	1B 26 6B 30 47
LF→LF			
FF→FF			
CR→CR+LF	E <sub>C</sub> &k1G	027 038 107 049 071	1B 26 6B 31 47
LF→LF			
FF→FF			
CR→CR	E <sub>C</sub> &k2G	027 038 107 050 071	1B 26 6B 32 47
LF→CR+LF			
FF→CR+FF			
CR→CR+LF	E <sub>C</sub> &k3G	027 038 107 051 071	1B 26 6B 33 47
LF→CR+LF			
FF→CR+FF			
<b>ENHANCEMENT CONTROL</b>			
Line-by-Line ON	E <sub>C</sub> &k0E	027 038 107 048 069	1B 26 6B 30 45
Line-by-Line OFF	E <sub>C</sub> &k1E	027 038 107 049 069	1B 26 6B 31 45
<b>SI/SO CONTROL</b>			
Line-by-Line ON	E <sub>C</sub> &k0F	027 038 107 048 070	1B 26 6B 30 46
Line-by-Line OFF	E <sub>C</sub> &k1F	027 038 107 049 070	1B 26 6B 31 46
<b>PRINT MODE</b>			
Left to Right	E <sub>C</sub> &k0W	027 038 107 048 087	1B 26 6B 30 57
Bidirectional	E <sub>C</sub> &k1W	027 038 107 049 087	1B 26 6B 31 57
Right to Left	E <sub>C</sub> &k2W	027 038 107 050 087	1B 26 6B 32 57

Print Features (Cont.)	Escape Sequence	Decimal Equiv.	Hex. Equiv.
<b>TEXT SCALE</b>			
Text Scale OFF	E <sub>C</sub> &l5W	027 038 107 053 087	1B 26 6B 35 57
Text Scale ON	E <sub>C</sub> &l6W	027 038 107 054 087	1B 26 6B 36 57
<b>PAPER SIZE</b>			
Default Size	E <sub>C</sub> &l0A	027 038 108 048 065	1B 26 6C 30 41
US-Letter	E <sub>C</sub> &l2A	027 038 108 050 065	1B 26 6C 32 41
US-Legal	E <sub>C</sub> &l3A	027 038 108 051 065	1B 26 6C 33 41
ISO A4	E <sub>C</sub> &l26A	027 038 108 050 054 065	1B 26 6C 32 36 41
#10 Envelope	E <sub>C</sub> &l81A	027 038 108 056 049 065	1B 26 6C 38 31 41
<b>PAPER INPUT CONTROL</b>			
Eject Page	E <sub>C</sub> &l0H	027 038 108 048 072	1B 26 6C 30 48
Feed from Tray	E <sub>C</sub> &l1H	027 038 108 049 072	1B 26 6C 31 48
Envelope Feed	E <sub>C</sub> &l3H	027 038 108 051 072	1B 26 6C 33 48
<b>DOWNLOAD FONT MANAGEMENT</b>			
Font ID #	E <sub>C</sub> *c#D	027 042 099 #...# 068	1B 2A 63 #...# 44
ASCII Code #	E <sub>C</sub> *c#E	027 042 099 #...# 069	1B 2A 63 #...# 45
Delete All	E <sub>C</sub> *c0F	027 042 099 048 070	1B 2A 63 30 46
Delete Temp	E <sub>C</sub> *c1F	027 042 099 049 070	1B 2A 63 31 46
Delete Last	E <sub>C</sub> *c2F	027 042 099 050 070	1B 2A 63 32 46
Make Temp	E <sub>C</sub> *c4F	027 042 099 052 070	1B 2A 63 34 46
Make Perm	E <sub>C</sub> *c5F	027 042 099 053 070	1B 2A 63 35 46
Create Font # bytes	E <sub>C</sub> )s#Wdata	027 041 115 #...# 087 data	1B 29 73 #...# 57 data
Download Chr. # bytes	E <sub>C</sub> (s#Wdata	027 040 115 #...# 087 data	1B 28 73 #...# 57 data
Select Primary ID#	E <sub>C</sub> (#X	027 040 #...# 088	1B 28 #...# 58
Select Secondary ID#	E <sub>C</sub> )#X	027 041 #...# 088	1B 29 #...# 58
<b>PRIMARY FONT DESIGNATORS</b>			
Primary Default	E <sub>C</sub> (#@	027 040 #...# 064	1B 28 #...# 40
Default Chr. Set	E <sub>C</sub> (0@	027 040 048 088	1B 28 30 58
Current Primary Chr. Set	E <sub>C</sub> (2@	027 040 050 088	1B 28 32 58
Default Font	E <sub>C</sub> (3@	027 040 051 088	1B 28 33 58
<b>SECONDARY FONT DESIGNATORS</b>			
Secondary Default	E <sub>C</sub> )#@	027 041 #...# 064	1B 29 #...# 40
Default Chr. Set	E <sub>C</sub> )0@	027 041 048 088	1B 29 30 58
Default Primary Chr. Set	E <sub>C</sub> )1@	027 041 049 088	1B 29 31 58
Current Primary Chr. Set	E <sub>C</sub> )2@	027 041 050 088	1B 29 32 58
Default Secondary Font	E <sub>C</sub> )3@	027 041 051 088	1B 29 33 58

## Ordering Information

Standard unit includes:

1 DeskJet printer, 1 print cartridge, 1 external power supply, 1 acrylic paper tray cover, *Personal Guide to Multiple Fonts*, and owner's manual. Cables must be ordered separately.

### Fast phones for price and availability by location:

Austria: (0222) 25 00 or 615/616 • Belgium/Luxembourg: (02) 7 62 32 00 • Denmark: (02) 8166 40, Ext. 258 • Finland: (90) 4 55 0211 • France: (6) 9 28 32 64 • Greece: (01) 6473360-1 • Italy: (02) 92 36 91 or (06) 5 48 31 • Middle East: Athens—(01) 808-0359 • Norway: (02) 17 1180 • South Africa: Johannesburg—(011) 802 5111; Cape Town—(021) 53 79554; Durban—(031) 28 4178 • Spain: (01) 6 38 4013 • Sweden: (08) 750 20 28 • The Netherlands: (020) 47 0639 • Switzerland: (057) 312254/59 • United Kingdom: (0734) 69 72 01 • United States: (800) 538-8787; California—(408) 738-4133 • West Germany: 0130 33 22.

### Supplies and Accessories

All printer supplies are available at authorized HP dealers or through HP's Direct Marketing Division, 1-(800) 538-8787.

Supplies	Reorder Number	Supplies	Reorder Number
Print Cartridge—black ink	HP51608A	Other Cartridges	
Fonts		128Kbyte RAM Cartridge	HP22707A
See Chapter 7 for the fonts contained in each font cartridge.		Demo Cartridge	HP22707C
Cartridges		Epson FX-80 Printer Emulation Cartridge	HP22707E
Courier	HP22706A	Power Module	
Prestige Elite	HP22706B	USA, Canada, 120V/50/60H	17122B
Letter Gothic	HP22706C	Euro, 220V/50H	17222B
TmsRmn 8&10 point	HP22706D	Japan, 100V/50H	17322B
TmsRmn 12 point	HP22706E	U.K., 240V/50H	17422B
TmsRmn 14 point	HP22706F	Switzerland, 220V/50H	17522B
Helv 8&10 point	HP22706G	South Africa, 220V/50H	17622B
Helv 12 point	HP22706H	Australia, 240V/50H	17722B
Helv 14 point	HP22706J	Denmark, 220V/50H	17822B
Presentations	HP22706M	China, 220V/50H	17922B
TmsRmn ASCII	HP22706P	DeskJet printer dust cover	HP92250R
Helv ASCII	HP22706Q	Manuals	
Soft Fonts		DeskJet Owner's Manual	HP02276-90004
Tms Rmn/Helv Soft Font (Requires at least one HP22707A RAM cartridge)	HP22708A	DeskJet Service Manual	HP02276-90002



# Interface and Cable Requirements

HP SYSTEM SERIES MODEL	PRINTER I/O	HOST INTERFACE	HP CABLE #
Vectra PC	Parallel	HP24540A Serial/Parallel Interface Card	24542D
	Serial	HP24540A Serial/Parallel Interface Card	24542G
Touchscreen PC	Serial	HP24541A Dual Serial Interface Card	24542G (using 9 pin connector)
			13242G or 17255M (using 25 pin connector)
Portable PC	Serial	Built-in	13242G or 17255M
Portable PC III	Parallel	Built-in	92221P
	Serial	HPD1004A Dual Serial Interface Card	24542D
HP Terminals 700/41, 700/92, 700/94 (2392A, 2393A, 2394A, 2397A)	Serial	Built-in	24542G (using 9 pin connector) or 13242G (using 25 pin connector)
	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 #
Apple II, II+, IIe	Parallel	Apple II Parallel Interface Card or Grappler+	Not Available	Apple #590-0042
	Serial	Apple Super-serial Card	17355M	Apple #590-0037
Apple IIc	Serial	Built-in	92219N	Apple #590-0191
Apple IIgs	Serial	Built-in	Single Cable Soln	Apple #590-0331
			Dual Cable Soln:	Apple #590-0169 and Apple #590-0341, or HP92219M and Apple #590-0341
IBM PC, PC / XT	Parallel	IBM Parallel Printer Adaptor	24542D	IBM Parallel Printer Cable
IBM AT	Serial	IBM Asyn. Com. Adaptor	17255D or 13242H	Not available
	Parallel	IBM Serial/Parallel Adaptor	24542D	IBM Parallel Printer Cable
IBM PS/2	Serial	IBM Serial/Parallel Adaptor	24542G	
	Parallel		24542D	
IBM Convertible PC	Serial		17255D or 13242H	
	Parallel		24542D	
	Serial		17255D or 13242H	

# Specifications

<b>Print Method</b>	Plain paper drop-on-demand thermal inkjet printing
<b>Print Speed</b>	Letter Quality mode: 120 cps at 10 cpi Draft Quality mode: 240 cps at 10 cpi
<b>Character Cell Structure</b>	Letter Quality mode: 30 (h) × 50 (v) Draft Quality mode: 15 (h) × 50 (v)
<b>Character Sets</b>	Roman8, PC-8, PC-8 (D/N), ISO 7-bit languages (Germany, France, Italy, Norway, Portugal, Sweden, Spain, U.K.), JISASCII, ASCII, ECMA-94 Latin 1, Legal, Line Draw, Math, PI.
<b>Graphics</b>	Full-page 75, 100, 150, 300 dpi
<b>Standard Print Characteristics</b>	Pitch: 5, 10, 16.67, or 20, depending on printer mode and font selection Point Size: 6 or 12, depending on font selection Style: Upright Stroke Weight: Normal or Bold, depending on font selection Typeface: Courier
<b>Paper Size</b>	U.S. letter (8½" × 11"), U.S. legal (8½" × 14"), European A4 (210 × 297 mm), #10 envelope (4½" × 9½" inches), Paper weight: 60-90 g/m <sup>2</sup> (16 to 24 pound)
<b>Command Language and Emulation</b>	HP Printer Command Language PCL Level 3, optional HP22707E Epson FX-80 Printer Emulation Cartridge
<b>Paper Handling</b>	Built-in sheet feeder (up to 100 sheets) Manual envelope feed
<b>Keypad</b>	ON LINE, PRIME, FF (Form Feed), UP and DOWN Arrow keys (Envelope Feed), FONT, MODE, RESET
<b>Dual I/O Interface</b>	Centronics parallel and RS-232-C serial

<b>Power Requirements</b>	Power modules 100 volts AC (+ 10%, - 10%) 47.5-63Hz 120 volts AC (+ 10%, - 10%) 47.5-63Hz 220 volts AC (+ 10%, - 10%) 47.5-63Hz 240 volts AC (+ 10%, - 10%) 47.5-63Hz Power consumption at 120 VAC, 60 Hz 8 watts maximum non-printing 25 watts maximum printing
<b>Environmental</b>	Maximum operating temperature: 10°C (50°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: 10-70% RH non-condensing Acoustics per ISO 7779 standard: Sound pressure level-L <sub>pa</sub> : 44 dB(A) @ front by-stander position.
<b>Dimensions</b>	440mm (17.3") W × 202mm (8") H × 377mm (14.8") D
<b>Weight</b>	6.5 kg (14.3 lb)
<b>Buffer Size</b>	16 K bytes
<b>Estimated Usage</b>	50 pages per day average use
<b>Reliability</b>	60,000 page life. MTBF 20,000 hours. 2000 hours power-on and 12,000 printed pages per year. 50 pages per day average use.
<b>Product Certifications</b>	UL, CSA, NEMKO, TUV, VDE/FTZ, SETI, SEMKO, DEMKO, KEMA, SEV, SECV, Homologation (Spain), VCCI (Japan), SABS (South Africa) compliance. FCC Class B certified per FCC Rules, Part 15, Subpart J, when used with a Class B computing device. Any questions concerning regulatory certifications should be directed to your local HP sales office.





# Index

---

## A

Abbreviations to Know	1-5
Abort Paper, First a Word	1-12, 1-13
Accessories	8-24
Activating the Print Cartridge	1-12, 1-21
Appendix	8-1 to 8-26
Application Notes, Hardware	2-1 to 2-32
Application Notes, Software	3-1 to 3-108
ASCII Decimal/Hex Equivalents	8-19 to 8-23
ASCII-Decimal-Hex Table	8-16, 8-17

---

## B

Baud Rate, Bits and Parity	5-5
Binary Representation, Graphics	4-41
Blinking Keypad Lights	1-21, 1-22, 6-2
Bold Print	4-16
BUSY Light	1-23

---

## C

Cables, Interface:	
Connecting	1-8, 1-9
Ordering	8-25
Cartridge, Font:	
Available	See Chapter 7
Installing	1-18, 1-19
Ordering	8-24
Selecting	1-21
Using	4-8
Cartridge, Print:	
Installing	1-9, 1-11, 1-12
Ordering	8-24
Activating (Prime)	1-12, 1-21
Character Height	4-15
Character Set Charts	8-5 to 8-15
Character Set Default	4-11, 8-2, 8-3
Character Sets, Designating	4-10 to 4-12

---

Character Set Selection, Default	8-3
Character Sets, Supported	4-12
Characters Per Inch (CPI)	1-5, 4-14
Characters Per Second (CPS)	1-5, 1-22
Combining Escape Sequences	4-18
Compressed Print	1-20, 1-21
Copier Paper, Using	1-13
Computers and Terminals, Supported	2-1 to 2-32
Connecting the Interface Cable	1-8, 1-9
Connecting the Power Module	1-6, 1-7
Control Codes, Introduction to	4-1 to 4-3
Control Codes, Supported	4-4, 4-5

---

## D

Data Communications:	
Parallel	5-1 to 5-3
Serial	5-4 to 5-6
Data Communications Ready (DTR)	5-6
Decimal-Hex Table, ASCII	8-16, 8-17
Default Character Set Selection	8-3
Default Settings, Factory	8-1
Defining Margins	4-20, 4-21
Denmark/Norway Character Set Chart, PC-8	8-6
Designating Character Sets	4-10 to 4-12
Display Functions Mode	4-47
DOWN Arrows Key	1-22
Downloading Characters (Soft Fonts)	4-8
Draft Quality Mode	1-22, 4-16, 4-17
Driver Disc	3-1 to 3-5

---

## E

ECMA-94 Latin 1 Character Set Chart	8-7
End-of-line Wraparound	4-44
Envelopes, Loading	1-15, 1-16, 1-22
Epson Emulation Cartridge	7-40 to 7-63
Escape Sequences, Combining	4-18
Escape Sequence/Control Code Summary	8-19 to 8-23

---

---

**F**

Factory Default Settings	<b>8-1</b>
FF (Form Feed) Key	<b>1-22</b>
Font/Cartridge Directory	<b>7-1</b>
Font Cartridge, Installing	<b>1-18, 1-19</b>
Font/Escape Sequence Summary	<b>7-2</b>
Font, Escape Sequence to Select	<b>7-10 to 7-39</b>
Fonts, Examples of	<b>7-3 to 7-9</b>
FONT Key	<b>1-21</b>
Font Selection	<b>4-7</b>
Fonts:	
Available	<b>See Ch. 7</b>
Cartridge	<b>4-8</b>
Cartridge Installation	<b>1-18, 1-19</b>
Internal	<b>4-7</b>
Key	<b>1-21</b>
Soft	<b>4-8</b>
Using	<b>4-7, 4-8</b>
Function Switch Summary	<b>8-2 to 8-4</b>

---

**G**

Getting Started	<b>1-1 to 1-23</b>
Getting Your Printer to Work with Your Software	<b>3-1 to 3-3</b>
Graphics, Printing	<b>4-30 to 4-43</b>
Graphics:	
Commands	<b>4-30</b>
End Raster Graphics	<b>4-40</b>
Raster Graphics Modes	<b>4-34</b>
Raster Graphics Resolution	<b>4-31</b>
Raster Width	<b>4-32</b>
Sample Program	<b>4-40 to 4-43</b>
Start Raster Graphics	<b>4-32</b>
Transfer Raster Graphics	<b>4-33</b>

---

**H**

Half-line Feed	<b>4-29</b>
Hardware Setup	<b>2-1 to 2-36</b>

Handshaking Protocol, Serial	<b>5-8</b>
HELP!	<b>6-1 to 6-8</b>
Horizontal Positioning:	
Introduction	<b>4-27</b>
By Column	<b>4-28</b>
By Decipoint	<b>4-28, 4-29</b>
By Dot	<b>4-29</b>
HP Terminal Mode—Line Draw	<b>8-18</b>
HP Roman8 Character Set	<b>8-5</b>

---

**I**

Important Software Information	<b>3-1 to 3-4</b>
Ink	<b>6-9</b>
Installing a Font Cartridge	<b>1-18, 1-19</b>
Installing a Print Cartridge	<b>1-9 to 1-12</b>
Interface Cables:	
Connecting	<b>1-8, 1-9</b>
Ordering	<b>8-25</b>
Requirements	<b>8-25</b>
Internal Fonts	<b>4-7, 4-8</b>
Interface, Printer:	
Parallel	<b>5-1 to 5-3</b>
Serial	<b>5-4 to 5-6</b>
International Character Set Chart	<b>8-5</b>
Introduction to Control Codes and Escape Sequences	<b>4-1 to 4-3</b>
ISO Character Set Charts	<b>8-5</b>
Italics	<b>4-15</b>

---

**J**

Jams, Clearing Paper	<b>6-6</b>
----------------------	------------

---

**K**

Keypad:	
Keys	<b>1-20 to 1-22</b>
Lights	<b>1-20 to 1-22, 6-1, 6-2</b>
Selecting Fonts Through	<b>1-21</b>
Selecting Print Modes Through	<b>1-22</b>

---

**L**

Legal Character Set Chart	8-9
Letterhead Paper, Loading	1-15
Letter Quality Mode	1-22, 4-16, 4-17
Lights, Interpreting Keypad	1-20 to 1-22, 6-1, 6-2
Line Draw Character Set Chart	8-8
Line Draw, HP Terminal Mode	8-18
Lines Per Inch (LPI)	1-5, 4-18, 4-19
Line Spacing	4-18, 4-19
Line Terminator Selection	4-44, 4-45
Loading:	
Envelopes	1-15, 1-16
Letterhead Paper	1-15
Paper	1-13, 1-14

---

**M**

Maintenance, Printer	6-9
Major Software Companies,	
List of	3-107, 3-108
Margins, Defining	4-20, 4-21
Math7 Character Set Chart	8-10
Math8 Character Set Chart	8-11
Math8a Character Set Chart	8-12
Math8b Character Set Chart	8-13
Miscellaneous Printer Controls	4-44 to 4-48
Mode Key	1-22
Motion Index Definitions	4-24, 4-25

---

**N**

Non-Printing Self Tests	6-9
Norway/Denmark Character Set Chart,	
PC-8	8-6

---

**O**

On/Off Switch	1-6
ON LINE Key	1-20, 1-21
Ordering Information	8-24

---

**P**

Page/Envelope Size Selection	8-3
Page Length	4-19, 4-20
Paper Control and Print Position	4-23 to 4-29
Paper Feed Control	4-23, 4-24
Paper, First a Word About	1-12, 1-13
Paper, Loading	1-12 to 1-15
Paper Paths	1-13
Paper, Reloading	1-23
Paper Size	4-19
Parallel Interface	5-1 to 5-3
Parity and Word Length Selection	8-4
Parity, Baud Rate, Bits and	5-5
PC's and Terminals Setup	2-1 to 2-32
PC-8 Character Set Chart	8-6
PC-8 Denmark/Norway Character Set Chart	8-6
Perforation Skip Mode	4-20
PIFont Character Set Chart	8-14
PIFont Character Set Chart	8-15
Pin Connector Assignments:	
Parallel	5-2
Serial	5-4, 5-5
Positioning Print on a Page	4-18 to 4-23
Power Module, Connecting	1-6, 1-7
Power Switch (On/Off)	1-6
PRIME Key	1-21
Print Cartridge:	
Activating	1-12, 1-21
Installing	1-9 to 1-12, 6-7 to 6-9
Ordering	8-24
Print Quality	6-6 to 6-8
Storing	6-7
Print Enhancement Control	4-45
Print Enhancements	4-17
Print Feature Priorities	4-9
Print Modes	1-22
Print Mode Selection	4-45
Print Pitches	4-14
Print Position	4-25 to 4-29
Print Quality	4-16, 4-17
Printer Driver, What is a	3-3
Printer Reset	4-48
Printer Specifications	8-26
Printer Status	4-48, 4-49

Printer Timing Diagram	<b>5-3</b>
Printing Self Test	<b>1-17</b>
Programming	<b>4-1 to 4-48</b>
Proportional Spacing	<b>4-14</b>

## Q

Quality, Print	<b>1-22, 4-16, 4-17</b>
----------------	-------------------------

## R

RAM Cartridge, Optional	<b>4-8, See Chapter 7</b>
RAM Cartridge, Ordering	<b>8-24</b>
Raster Graphics:	
End	<b>4-40</b>
Modes	<b>4-34 to 4-37</b>
Resolution	<b>4-31, 4-32</b>
Start	<b>4-32</b>
Transfer	<b>4-33, 4-34</b>
Width	<b>4-32</b>
Reloading Paper	<b>1-23</b>
Replacing the Print Cartridge	<b>1-23</b>
RESET Key	<b>1-22</b>
Reset, Printer	<b>4-47</b>
Roman8 Character Set Chart	<b>8-5</b>
RS-232-C Interface	<b>5-4 to 5-6</b>

## S

Self Test	<b>1-17, 4-48</b>
Serial Interface	<b>5-4 to 5-6</b>
Setting Mode Function Switches	<b>8-1 to 8-4</b>
Setting Up . . . Hardware (PC)	<b>2-1 to 2-32</b>
Setting Up . . . Software	<b>3-1 to 3-108</b>
Shift On/Shift Out Control	<b>4-45</b>
Soft Fonts	<b>4-8</b>
Software Setup	<b>3-1 to 3-112</b>
Specifications, Printer	<b>8-26</b>
Stroke Weight	<b>4-16</b>
Sub- Superscripts	<b>4-13</b>

Summary of Switch Settings	<b>8-1, 8-2</b>
Supplies and Accessories, Ordering	<b>8-24</b>
Supported Character Sets	<b>4-12</b>
Supported PC's and Terminals	<b>2-1 to 2-32</b>
Supported Software Packages	<b>3-1 to 3-108</b>

## T

Temporary X Offset	<b>4-38 to 4-40</b>
Terminal Mode, HP	<b>8-18</b>
Terminals, Supported	<b>2-1 to 2-32</b>
Text Length	<b>4-22, 4-23</b>
Text Scale Mode	<b>4-46, 4-47</b>
Transparent Print Mode	<b>4-47</b>
Troubleshooting	<b>6-1 to 6-9</b>
Typeface	<b>4-7, 4-16</b>
Type Style	<b>4-7, 4-15</b>

## U

Underlining	<b>4-17, 4-45</b>
Unpacking and Setting Up Your Printer	<b>1-1 to 1-4</b>
UP Arrows Key	<b>1-22</b>
Using Printer Features	<b>4-6 to 4-17</b>
Using Fonts	<b>4-7, 4-8</b>
Using the Print Cartridge	<b>6-7, 6-8</b>

## V

Vertical Positioning:	
By Decipoint	<b>4-26, 4-27</b>
By Dot	<b>4-27</b>
By Row	<b>4-25, 4-26</b>

## X

Xon/Xoff Handshaking (Serial)	<b>5-6</b>
-------------------------------	------------