Technical
Reference
Guide

**Printers
and Scanners**
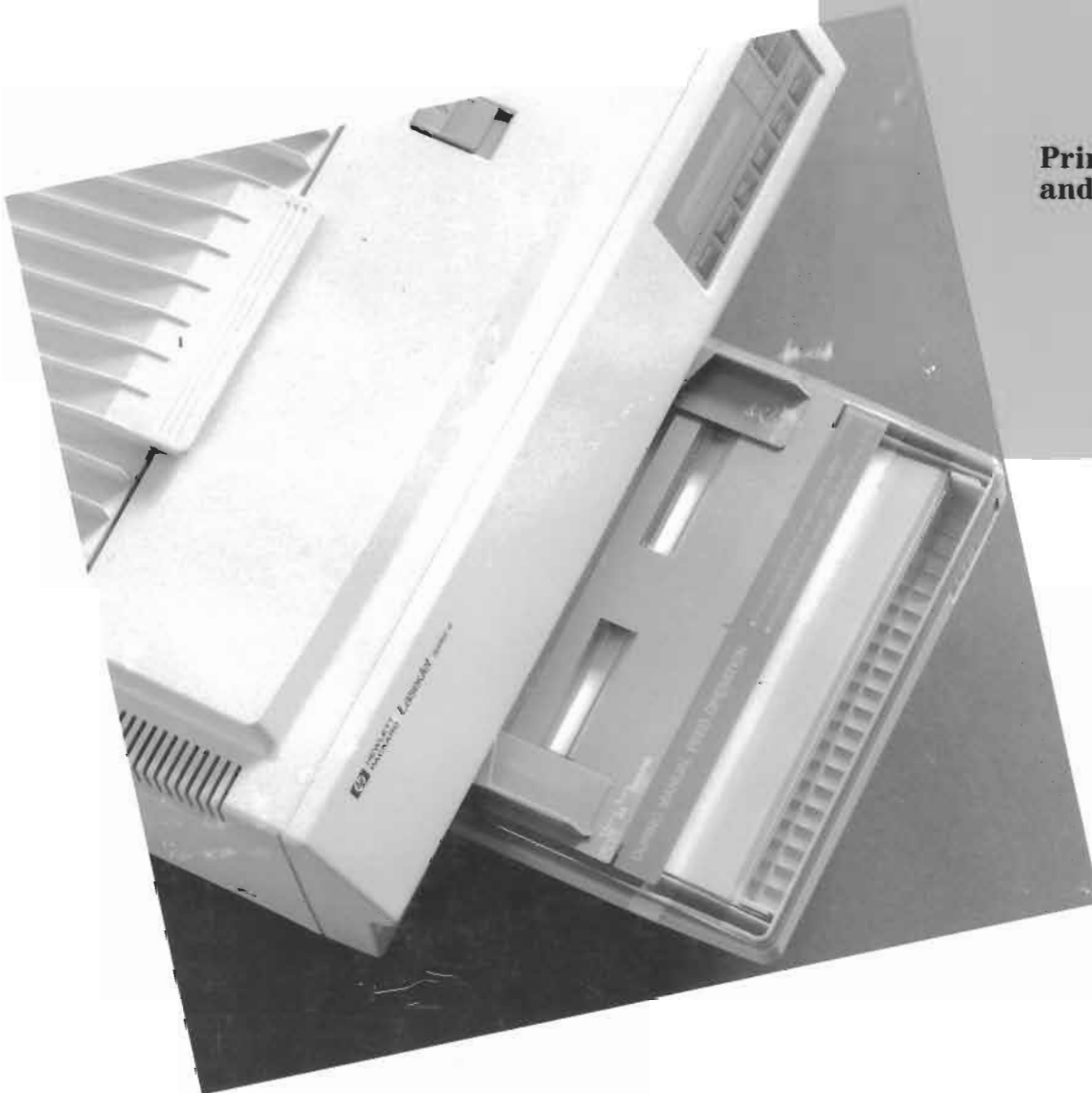
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HEWLETT PACKARD

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HP LaserJet Printers

HP RuggedWriter 480 Printer

HP Scanners

Dealer Response Line Services

USA Only

Authorization Process

Dealer Response Line Services are provided exclusively for employees of authorized Hewlett-Packard dealerships. When users call the response line, a computer will ask them to enter an "Outlet ID Number" (unique to their location) to gain access to the Dealer Response engineering staff.

Note: A touch-tone telephone or handheld, tone-dialing device is required for access.

Users of the Service

Each Hewlett-Packard authorized dealership is allowed one primary and one secondary support contact at each location.

Supported Products

- HP dealer programs, promotions, and activities.
- HP Dealer Products (listed on PC and Peripheral Product Exhibit R-2)

Provided Services

- Clarification of dealer programs and promotions.
- Clarification of HP documentation with reference to any product on the PC and Peripheral Product Exhibit R-2.
- Information on configuring HP personal computers to tested non-HP peripherals.
- Information on configuring non-HP personal computers to tested HP peripherals.
- Verification of available information related to HP product compatibility with third-party applications.
- Identification of available HP-created application notes.
- Explanation of syntax, commands, and capabilities of HP-distributed, PC-based software.
- Information on any bugs found in HP-distributed, PC-based software including all known workarounds.
- Identification of capabilities and possible limitations of HP personal computer products and peripherals.

Services Not Provided

- Direct support for end users: customers, DAVARS, consultants, etc.
- Technical assistance on untested configurations.
- Technical assistance on PC and peripheral hardware repair.
- Consulting/training on application software and programming.

Dealer Responsibilities

- Users take available training on all HP products sold.
- Users attempt to determine solutions based on manuals, data sheets, sales training guides, and catalogs before calling.
- Users have manuals and relevant documentation on hand before calling.
- Users are able to explain symptoms and measures already taken to resolve the problem.

Customer Assistance Numbers (USA only)

Number	Description
(800) 752-0900	Dealer Referral and Literature
(800) 538-8787	Direct Marketing Catalog Purchases
(800) 858-8867	PC Hotline—End-User Support ($45/incident)
(503) 757-2002	Calculator Repair
(503) 757-2004	Calculator Technical Support
(208) 323-2551	LaserJet/ScanJet Technical Support
(206) 253-3000	ThinkJet/QuietJet Technical Support
(206) 253-3095	RuggedWriter 480 Technical Support

HEWLETT
PACKARD

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Custom-Designed Supplies and Accessories

Make sure that your customers get the most from their peripherals by offering them genuine Hewlett-Packard supplies and accessories. An extensive range of products has been designed and tested to ensure optimum performance of HP equipment along with maximum convenience and ease of use.

For example, take HP's Jet Paper for ThinkJet and QuietJet printers. This paper meets rigorous standards of surface quality, ink absorption, smear resistance, and low dust operation. It not only gives satisfaction by producing top quality output, but also guarantees the best long term performance of the printer. Genuine HP paper has been tested to conform to these standards.

And we make sure you can always offer the most up-to-date supply products—like the recently introduced designer pen colors for HP plotters.

There are many space saving ideas and storage products, such as the terminal top ThinkJet printer stand, the graphics organizer for the HP ColorPro and 7475A plotters, and a large choice of floppy disc storage items.

Be sure you and your customers receive a copy of the latest Computer Users Catalog. This publication is available free of charge by calling one of the listed telephone numbers. These numbers are also your direct line to your nearest contact for all genuine Hewlett-Packard supplies and accessories.

Location	Telephone Number
Argentina	7814061
Australia	(008) 339861 (toll free)
Melbourne	8952861
Austria	(0222) 2500-614
	(0222) 2500-615
	(0222) 2500-616
Belgium/Luxembourg	(02) 761 31 11
Brazil	(011) 4213474
Canada	800-387-3154 (toll free)
Toronto	671-8383
China (Shanghai)	2032480
Denmark	(043) 01 640
Finland	(90) 887 2361
France	(1) 69 86 17 25
Greece	(01) 6726090
Hong Kong	(5) 8487569
Italy	(02) 9210 3301
Japan	0427 59 1321
Korea	7842666
Malaysia	(03) 2986555
Mexico	6767892
Middle East/Athens	(01) 6828811
New Zealand	(04) 820400
Norway	(02) 24 60 90
Singapore	2798824
South Africa	
Johannesburg	(011) 8025111
Cape Town	(021) 537954
Spain	(91) 6374013
	(91) 6370011
Sweden	(08) 7502400
Switzerland	(057) 31 22 53
	(057) 31 22 54
	(057) 31 22 59
Taiwan	(02) 7179608
The Netherlands	(020) 06 05 01
United Kingdom	(0734) 697201
United States	800-538-8787
Alaska, California and Hawaii	408-738-4133
West Germany	(0130) 3322
Venezuela	2394477

European Ordering Information

When ordering Hewlett-Packard peripheral products in Europe, a double alpha code is used to ensure that the correct power supply versions are supplied with the product. This code also ensures that a customer receives the appropriate power cable and language manual, when available.

The following listings are subject to change.

Product	HP-IB	HP-IL	Centronics Parallel	RS-232-C	Centronics Parallel Battery	Manual Version	Power Cord
HP ThinkJet (HP 2225)	AB	BB	CB	DB	PB	English	
	AE	BE	CE	DE	PE	English	Euro (Spain)
	AQ	--	CQ	DQ	--	English	Switzerland
	AU	BU	CU	DU	PU	English	UK
	AY	--	CY	DY	--	English	Denmark
HP QuietJet	BA		AA			English	South Africa
(HP 2227/2228)	BB		AB			English	Euro
	BD		AD			German	Euro
	BE		AE			Spanish	Euro
	BF		AF			French	Euro
	BP		AP			German	Switzerland
	BQ		AQ			French	Switzerland
	BU		AU			English	UK
	BY		AY			English	Denmark
	BZ		AZ			Italian	Euro
HP PaintJet	BA		DA	AA		English	South Africa
(HP 3630)	BB		DB	AB		English	Euro
	BD		DD	AD		German	Euro
	BE		DE	AE		Spanish	Euro
	BF		DF	AF		French	Euro
	BQ		DQ	AQ		French/German	Switzerland
	BU		DU	AU		English	UK
	BY		DY	AY		English	Denmark
	BZ		DZ	AZ		English	Euro
HP DeskJet				AA		English	South Africa
(HP 2276A)				AB		English	Euro
				AQ		English	Switzerland
				AU		English	UK
				AY		English	Denmark

Product	HP-IB	HP-IL	Centronics Parallel	RS-232-C	Centronics Parallel Battery	Manual Version	Power Cord
HP ScanJet			AA			English	South Africa
(HP 9190)			AB			English	Euro
			AQ			English	Switzerland
			AU			English	UK
			AY			English	Denmark

Product	Centronics Parallel and RS-232-C/RS-422-A	Manual Version	Power Cord
HP LaserJet Series II	AA	English	South Africa
(HP 33440A)	AB	English	Euro
	AD	Multi-language	Euro
	AE	Multi-language	Euro
	AF	Multi-language	Euro
	AQ	Multi-language	Switzerland
	AU	English	UK
	AY	English	Denmark
	AZ	English	Euro
HP LaserJet IID	AA	English	South Africa
(HP 33447A)	AB	English	Euro
	AD	German	Euro
	AE	Spanish	Euro
	AF	French	Euro
	AP	German	Switzerland
	AQ	French	Switzerland
	AU	English	UK
	AY	English	Denmark
	AZ	Italian	Euro

Product	Interface, option dependent Standard	Duplex	Paper Stack	Manual Version	Power Cord
HP LaserJet 2000	AA	DA	PA	English	South Africa
(HP 2684)	AB	DB	PB	English	Euro
	AQ	DQ	PQ	English	Switzerland
	AU	DU	PU	English	UK
	AY	DY	PY	English	Denmark

Product	Centronics Parallel and RS-232-C	HP-IB and RS-232-C	A+SF*	B+SF*	Manual Version	Power Cord
HP RuggedWriter	AA	BA	CA	DA	English	South Africa
(HP 2235)	AB	BB	CB	DB	English	Euro
	AP	BP	CP	DP	English	Switzerland
	AU	BU	CU	DU	English	UK
	AY	BY	CY	DY	English	Denmark

*SF = Sheet Feeder

Technical
Reference
Guide

Printers

HP ThinkJet and HP QuietJet Printers

Technical Data

Quiet Printing for Personal Productivity

Features
- Plain-paper printing
- Excellent compatibility

The ThinkJet (HP 2225) and QuietJet (HP 2227 and HP 2228) Series printers comprise a whole family of quiet personal convenience printers. So quiet it is possible to talk on the telephone. So small any of them can fit easily into a work area. From a small, battery-operated printer to a wide-carriage desktop printer, there's a printer to meet many different needs.

Plain-paper Printing
An optional plain-paper print cartridge gives the freedom to use common office papers. For true economy and convenience, the paper of choice is the paper to use.

Excellent Compatibility
ThinkJet and QuietJet printers work with most popular software and personal or portable computers—HP, Apple, IBM, IBM-compatibles.

HP ThinkJet Printers
HP 2225 Series
- Portable for desk or on the road
- Quality mode for letters and reports

The very compact and versatile ThinkJet Series printer delivers quick, quiet, dependable printing for office, home, or on-the-go. It produces easy-to-read text and graphics for personal productivity needs.
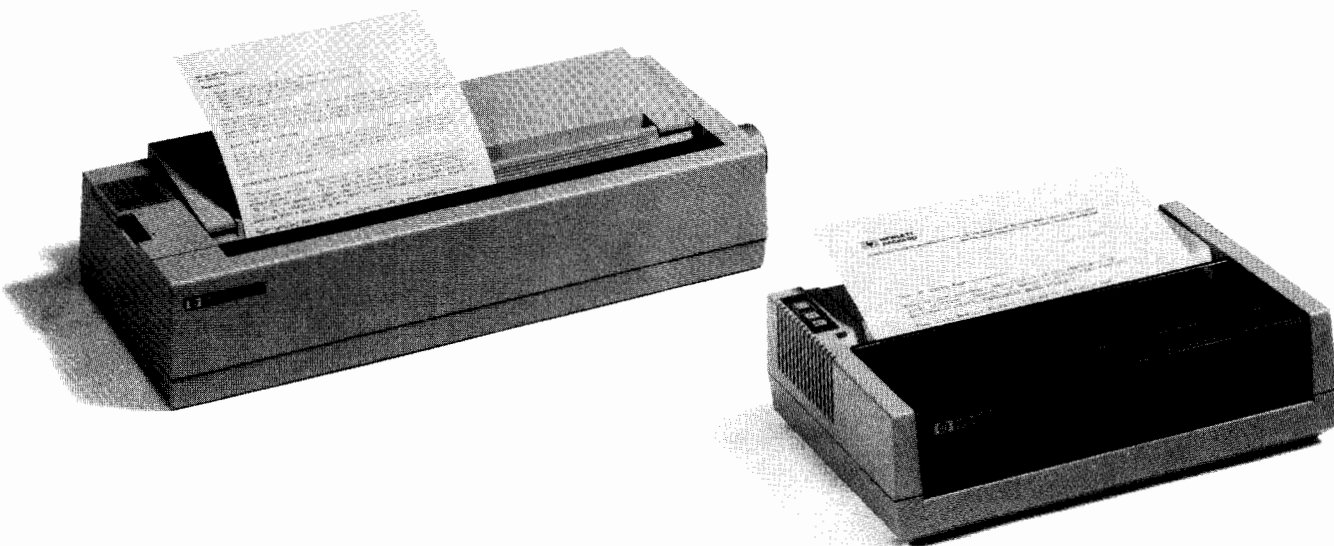
Portable for Desk or on the Road

The ThinkJet printer (HP 2225 B/P) connects with portable computers. It's rugged and lightweight. And its long battery life (about 200 pages between recharges) assures printing dependability in many locations.

Quality Mode for Letters and Reports

Now the ThinkJet printer family offers a new 150-cps quality-mode printing for important letters and reports.

HP QuietJet Printers HP 2227 and 2228 Series

- Quick 192-cps draft and 48-cps NLQ printing
- Convenient front control panel
- Paper-handling convenience

Whether choosing the narrow-carriage QuietJet printer (HP 2228A) or the wide-carriage QuietJet Plus printer (HP 2227A/B), it provides quiet, quality printing for word processing, data base management, and computer graphics.

Convenient Front Control Panel

The convenient front control panel allows selection of 48-cps NLQ, 192-cps draft, and compressed print with just one keystroke. In addition, six print pitches, superscripts, subscripts, boldface, and underline are available.

Paper-handling Versatility

Adjustable tractors, last-form tearoff, and a paper advance knob allow for inserting, adjusting, even tearing off paper quickly and easily.

HP ThinkJet Printer Technical Information

Printing Process
Thermal inkjet printing

Print Speed
Draft mode: 150 characters per second at 12 characters per inch

Quality mode: 150 characters per second at 12 characters per inch

Command Language and Emulation
HP Printer Command Language PCL level 1+; Epson MX80 compatible

Switch selectable HP/alternate (Epson) modes

Character Cell Structure
11×12 dot character cell

Graphics Resolution
96×96 dots per inch dot-addressable graphics

192×96 dots per inch, double density mode

Character Sets
Roman8, PC8, PC8 (Danish/Norwegian), ASCII, ISO 7-bit languages (U.K., German, French, Italian, Norwegian, Swedish, Spanish, Portuguese, JIS ASCII)

Print Mode

Mode	Char./in.	Char./line
Normal	12	80
Expanded	6	40
Compressed	21.3	142
Expanded/compressed	10.7	71

Paper Sizes
Letter: 8.5×11 in.

A4: 210×297 mm

NOTE: For optimal print quality use HP JetPaper.

Paper Handling
Friction feed for single sheets

Pin feed for continuous fan-fold paper

Control Panel
Buttons: top-of-form, line feed, form feed

Indicators: power on, paper out

Interfaces and Power Sources

Printer	Interface	Power Source
2225A	HP-IB parallel	AC line
2225B	HP-IL serial	DC battery
2225C	Centronics parallel	AC line
2225D	RS-232-C serial	AC line
2225P	Centronics parallel	DC battery

Buffer Size
1 Kbyte

Environmental Ranges
Temperature
Operating: 10 to 40 degrees C (50 to 104 degrees F)

Storage: -20 to 60 degrees C (-4 to 140 degrees F)

Humidity
10 to 90% RH, non-condensing

Acoustics (per ISO DP7779 standard)
Sound pressure level-Lpa: less than 50 dB(A) @ 1 m bystander position

Power Requirements
Source
120 volts AC (+5%, -10%)

Frequency
47.5 to 63.0 Hz

Consumption
Operating: 18 W maximum
Standby: 10 W maximum

Physical Specifications

Height: 8.9 cm (3.5 in.)

Width: 2.92 cm (11.5 in.)

Depth: 20.6 cm (8.1 in.)

Weight: HP 2225A—3.36 kg
(7.4 lbs); HP 2225B—2.5 kg
(5.5 lbs); HP 2225C/D—3.1 kg
(6.8 lbs); HP 2225P—3.54 kg
(7.8 lbs)

Product Certifications

UL, CSA, FEI, NEMKO, TUV,
VDE/FTZ, IEC compliance, FCC
Class B Certified per FCC
Rules, Part 15, Subpart J, when
used with a Class B computing
device

Estimated Typical Usage

40 pages per day

HP QuietJet Printer Technical Information

Printing Process

Thermal inkjet printing

Print Speed

Mode	Char./sec.	Char./in.
Draft	160	10
	192	12
NLQ	40	10
	48	12

Command Language and Emulation

HP Printer Command Language
PCL level 1+; Epson MX80
compatible

Switch selectable HP/alternate
(Epson-type) modes

Character Cell Structure

Draft mode: 19 × 16 dot
character cell

NLQ mode: 19 × 32 dot
character cell

Graphics Resolution

96 × 96 dots per inch dot-
addressable graphics

192 × 96 dots per inch, double
density mode

192 × 192 dots per inch,
quadruple density mode

Character Sets

Roman8, PC8, PC8 (Danish/
Norwegian), ASCII, ISO 7-bit
languages (U.K., German,
French, Italian, Norwegian,
Swedish, Spanish, Portuguese,
JIS ASCII)

Printing Format

HP 2227A/B

Mode	Char./in.	Char./line
Normal	10	132
	12	158
Expanded	5	66
	6	79
	10.7	141
Compressed	21.3	281

HP 2228A

Mode	Char./in.	Char./line
Normal	10	80
	12	96
Expanded	5	40
	6	48
	10.7	85
Compressed	21.3	170

Paper Widths

2227—10.2 to 38.1 cm (4.0 to
15.0 in.)

2228—10.2 to 24.8 cm (4.0 to
9.75 in.)

NOTE: For optimal print
quality, use HP JetPaper.

Paper Handling

Friction feed for single sheets

Tractor feed for continuous Z-
fold paper

Control Panel

Buttons: on-line, form feed,
line feed

Indicators: NLQ mode, draft
mode, compressed mode

Interfaces

Centronics parallel and
RS-232-C serial (2227A/2228A)
HP-IB parallel (2227B)

Buffer Size

2 Kbytes, expandable up to 18
Kbytes

Environmental Ranges

Temperature
Operating: 10 to 40 degrees C
(50 to 104 degrees F)

Storage: -20 to 60 degrees C (-4
to 140 degrees F)

Humidity
10 to 90% RH, non-condensing

*Acoustics (per ISO DP7779
standard)*
Sound pressure level-Lpa: less
than 48.5 dB(A) @ 1 m
bystander position

Power Requirements

Source
100, 120, 220, 240 volts AC
(+10%, -10%)

Frequency
47.5 to 63.0 Hz

Consumption at 120 VAC
Operating: 18 W maximum
Standby: 10 W maximum

Physical Specifications
HP 2227
Height: 12.1 cm (4.8 in.)
Width: 52.7 cm (20.8 in.)
Depth: 22.1 cm (8.7 in.)
Weight: 4.7 kg (10.0 lbs 7.0 oz)

HP 2228
Height: 11.8 cm (4.6 in.)
Width: 39.5 cm (15.5 in.)
Depth: 21.4 cm (8.4 in.)
Weight: 3.9 kg (8.0 lbs 9.0 oz)

Product Certifications
UL, CSA, FEI, NEMKO, TUV, VDE/FTZ, IEC compliance, FCC Class B Certified per FCC Rules, Part 15, Subpart J, when used with a Class B computing device

Estimated Typical Usage
40 pages per day

Interface and Cable Requirements

HP ThinkJet Printers

HP System	ThinkJet Model	Interface	HP Cable
HP-41C, CV, CX	2225B	82160A	82167A, B, or D
HP-71B	2225B	8240A	82167A, B, or D
HP-75C and D	2225B	Built-in	82167A, B, or D
HP-85*	2225B	82937A	10833A, B, C, or D
	2225B	82938A	82167A, B, or D
HP-86A	2225C	Built-in	92957A
HP-86B and 87	2225A	Built-in	10833A, B, C, or D
Series 100	2225A	Built-in	10833A, B, C, or D
	2225D	Built-in	13242G
Series 200	2225A	Built-in	10833A, B, C, or D

HP ThinkJet and QuietJet Printers

HP System	Printer I/O	Interface	HP Cable
Vectra PC	Parallel	HP 24540A Interface Card	24542D
	Serial	HP 24540A Interface Card	24542G
		HP 24541A Interface Card	24542G (using 9-pin connector) 13242G (using 25-pin connector)
Vectra CS, ES, RS	Parallel	Built-in	24542D
	Serial	Built-in	24542G
HP 150 PC	Serial	Built-in	13242G or 17255M
	HP-IB	Built-in	10833A
Portable PC	Serial	Built-in	92221P
HP Terminals (2392A, 2393A, 2394A, 2397A)	Parallel	Opt 093 or HP 40210P*	40242D or 13242D
	Serial	Opt 092 or HP 40210R*	40242G or 13242G

Other Systems	Printer I/O	Interface	HP Cable	Other Cable
Apple II, II+, IIe	Parallel	Apple II Parallel Interface Card or Grappler+	Not available	Apple 590-0042
	Serial	Apple Superserial Card	17355M	Apple 590-0037
Apple IIc	Serial	Built-in	92219N	Apple 590-0191-A
Macintosh†	Serial	Built-in	92219M	Standard Macintosh Printer Cable
IBM PC, PC XT	Parallel	IBM Parallel Printer Adapter	24542D	IBM Printer Cable
	Serial	IBM Asyn. Com. Adapter	17255D or 13242H	Not available
IBM PCjr	Parallel	IBM Parallel Printer Attach.	92219K	IBM Parallel Printer Cable
	Serial	Built-in	92219P	Not available
IBM AT	Parallel	IBM Serial/ Parallel Adapter	24542D	IBM Printer Cable
	Serial	IBM Serial/ Parallel Adapter	24542G	
IBM PS/2	Parallel	Built-in	24542D	
	Serial	Built-in	17255D or 13242H	
IBM Convertible	Serial	IBM Serial/ Parallel Adapter	17255D or 13242H	

*Requires an HP 00085-15002 Plotter/Printer ROM and does not require the 10833 cable when no other peripherals are attached.

†Requires software driver (35177M, available from HP Direct Marketing).

Ordering Information

Standard Unit

2225A
ThinkJet Printer (HP-IB)

2225B
ThinkJet Printer (HP-IL battery-power)

2225C
ThinkJet Printer (Centronics parallel)

2225D
ThinkJet Printer (RS-232-C serial)

2225P
ThinkJet Printer (Centronics/battery-power)

Standard unit includes: print cartridge, packet of Z-fold JetPaper, owner's manual, and warranty card. The HP 2225A, 2225C and 2225D include a power cord. The HP 2225B includes a 1-meter HP-IL cable, battery pack, and recharger. The HP 2225P includes a battery pack and recharger.

HP-IB, Centronics-type, and RS-232-C-type cable must be ordered separately. Non-HP interface boards and cards must be ordered through the personal computer supplier. The HP 2225P requires a 92219Z cable.

Standard Unit

2227A
QuietJet Plus Printer (RS-232 and Centronics/wide carriage)

2227B
QuietJet Plus Printer (HP-IB/ wide carriage)

2228A
QuietJet Printer (RS-232 and Centronics)

Standard unit includes: Print cartridge, packet of Z-fold JetPaper, power module/cord, owner's manual, and warranty card.

Supplies*

92261D	ThinkJet accessory kit (includes two black ink print cartridges, one acrylic printer stand, one dust cover, 500 sheets of 8.5 × 11 in. Z-fold paper, 500 sheets of 8.5 × 11 in. cut-sheet paper)
92261A	Black ink print cartridge (for use with JetPaper)
51605R	Red ink print cartridge (for use with JetPaper)
51605B	Blue ink print cartridge (for use with JetPaper)
51605G	Green ink print cartridge (for use with JetPaper)
51604A	Plain-paper black ink cartridge (for use with common office papers)
51630A	Z-fold JetPaper (8½ × 11 in. finished size, 500-sheet box; 20 lb, microperforated)
51630J	CutSheet JetPaper (8½ × 11 in. 500-sheet box; 20 lb, single sheets)
92261N	Z-fold JetPaper (8.5 × 11 in. finished size, 2500-sheet carton, 20 lb, microperforated)
51630L	JetLabels (2000 address labels [3½ × ¹⁶/₁₆ in. labels—two across], 9½ in. form width, pressure sensitive)

Accessories Available*

92171X	ThinkJet printer stand (for use with HP Touchscreen II or the HP 2392 terminal)
92261S	Smoked-acrylic ThinkJet printer stand
92261R	ThinkJet wire paper catcher (requires printer stand 92261S)
92250V	ThinkJet dust cover
13269TT	ThinkJet carrying case
82199A	ThinkJet battery pack (for HP 2225B and HP 2225P)
82059D	ThinkJet recharger (for HP 2225B and HP 2225P)
92250W	QuietJet Plus printer dust cover
92250X	QuietJet printer dust cover
92261T	QuietJet Plus printer stand
92261U	QuietJet printer stand
92261G	QuietJet Series wire paper catcher (requires printer stand 92261T or 92261U)

*Printer supplies are available at authorized HP dealers or through HP's Direct Marketing Operation (800-538-8787).

United States:
Hewlett-Packard Company
4 Choke Cherry Road
Rockville, MD 20850
301 670 4300

Hewlett-Packard Company
5201 Tollview Drive
Rolling Meadows, IL 60008
312 255 9800

Hewlett-Packard Company
5161 Lankershim Blvd.
No. Hollywood, CA 91601
818 505 5600

Hewlett Packard Company
2015 South Park Place
Atlanta, GA 30339
404 955 1500

Canada:
Hewlett-Packard Ltd.
6877 Goreway Drive
Mississauga, Ontario L4V1M8
416 678 9430

Australia/New Zealand:
Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
Australia
03 895 2895

Europe/Africa/Middle East:
Hewlett-Packard S.A.
Central Mailing Department
P.O. Box 529
1180 AM Amstelveen
The Netherlands
31 20/547 9999

Far East:
Hewlett-Packard Asia Ltd.
22/F Bond Centre
West Tower
89 Queensway
Central, Hong Kong
5 848 7777

Japan:
Yokogawa Hewlett-Packard Ltd.
29-21, Takaido-Higashi 3-chome
Suginami-ku, Tokyo 168
03 331 6111

Latin America:
Latin American Region Headquarters
Monte Pelvoux Nbr. 111
Lomas de Chapultepec
11000 Mexico D.F., Mexico
905 596 79 33

HP ThinkJet and
HP QuietJet Printers

Product Note

Questions and Answers

Following are answers to some of the most frequently asked questions about the HP QuietJet and HP ThinkJet series of printers.

Q: What happens when I access my HP QuietJet printer via an HP ThinkJet software driver in the application software?

A: The QuietJet will behave much like a ThinkJet in formatting; however, the print quality will be improved. NLQ (near letter-quality) printing is selectable via the convenient QuietJet keypanel on the top of the printer.

Q: Does the HP QuietJet support the full "IBM-8" personal computer character set?

A: Yes. QuietJet supports both the U.S. and European versions of the IBM PC character set. This means IBM line draw and other special symbols are standard in every printer.

Q: How many pages will the printed cartridge print before replacement is necessary?

A: In 10-pitch draft mode, there is enough ink for about 500,000 characters, or approximately 500 pages of text. Ink usage will vary when printing NLQ, bold, and graphics, because these applications require more ink.

Q: Can you back up and reposition the paper in an HP QuietJet printer, then reprint using the different color ink cartridges? What is the registration accuracy when this is done?

A: The QuietJet printer was not designed to perform this function. Paper can be backed up and repositioned using the paper advance knob; however, registration will be insufficient to produce acceptable multi-color output. To order different single-color ink cartridges, see the "Ordering Information" section of the Blue Book.

Q: Do HP ThinkJet or HP QuietJet printers support line drawing?

A: The ThinkJet printers do not support IBM or HP Linedraw. However, the QuietJet printers support both (in HP Mode only).

Q: What happens if I do not use the special HP-recommended inkjet paper in my HP QuietJet or HP ThinkJet printer?

A: In general, both QuietJet and ThinkJet printers experience degradation of print quality and reliability in plain papers containing a high dust content are used. HP inkjet paper has been specifically designed to obtain the maximum print quality and reliability from the inkjet printing system. With unqualified papers, large amounts of dust may float and settle in the printhead area and clog one of the nozzles. A low-dust, short-fiber paper is part of the complete printing system.

Q: Which Epson printers can the HP QuietJet printers emulate?

A: QuietJet printers perform a large number of features from the IBM graphics printer, Epson MX-80, and Epson FX-80 printer. The QuietJet does not fully emulate any of these printers. However, in most cases, the user can select any of these drivers if QuietJet or ThinkJet drivers are unavailable and achieve satisfactory performance. See the QuietJet or ThinkJet operating manual for more information.

Q: Is the extra RAM available for the HP QuietJet user installable?

A: No. The additional RAM chip for QuietJet printers must be installed by a trained, authorized HP service representative. Installation by someone other than an authorized representative could void the warranty for the printer.

Q: What is the HP part number of the 8K RAM chip that expands the buffer size of the HP QuietJet and HP QuietJet Plus printers?

A: The part number is 1818-3183. HP customers: Order the RAM chip from your dealer or HP sales representative. HP internal and dealers: The RAM chip is orderable from the HP Corporate Parts Center.

Q: Does the battery-powered Centronics HP ThinkJet printer use power faster than the HP-IL version, meaning the battery charge will not last as long?

A: Yes. The Centronics connection uses more current to communicate that the HP-IL link; therefore, the battery will need to be recharged before the average 200 pages. Battery life varies depending on usage and application.

Q: Why do the HP QuietJet printers have an external transformer? Does this provide any benefits to the user?

A: The external transformer provides a longer cord for increased distance from the electrical outlet; makes the QuietJet lighter, allowing it to be moved easier; and is less expensive than an internal version, resulting in a lower price for the customer.

HP ThinkJet and
HP QuietJet Printers

Product Note

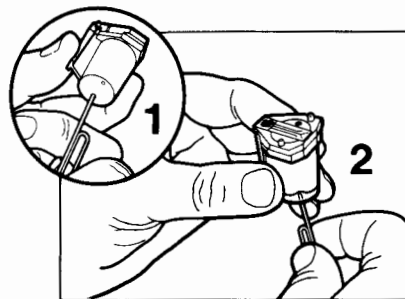### Printhead Cartridge Activation

The following information describes how to maintain and get the best use out of your HP QuietJet and ThinkJet printhead cartridge.

Activating the Printhead Cartridge

The Hewlett-Packard printhead cartridge is durable, disposable, and easy to maintain. Observing a few simple rules will keep your printhead trouble-free.

During shipping an air bubble may collect in the printhead, causing the print to fade after a few lines. To correct, follow these three steps:

1. Hold printhead upright and insert a straightened paper clip into the hole in the center of the clear plastic casing. (See illustration 1.)

2. Press paper clip gently against inner bladder until a large droplet of ink (size of a pea) covers most of the top silver plate. (See illustration 2.)

3. Remove paper clip and allow ink to absorb back into printhead for about 30 seconds. Wipe off excess ink with a tissue. (See illustration 3.)
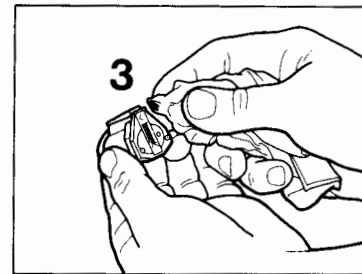
The printhead is now activated and ready to install in the printer.

Periodically, the printing surface (top silver plate) may require cleaning with a tissue to remove paper dust that can accumulate and block one of the inkjets. (See illustration 3.)

For best results, begin use of the printhead cartridge prior to the expiration date printed on the package.

ThinkJet/QuietJet

Product Note

HP 2225C, D, and P ThinkJet Printers

Software Guide

ThinkJet/QuietJet

Product Note

Printer Notes

Symbol Sets

The correct symbol sets must be selected via switches on the HP ThinkJet printer (see Owners Manual). Remember to switch the printer off and on to activate switch changes.

NOTE: The IBM European-8 character set on the printer contains only standard English and European characters (no line drawing, mathematics or special symbols).

Control Code Modes

The printer allows two modes of operation:
- Printer Command Language (PCL); switch 5 down.
- Alternate Mode (similar to Epson MX-80 and IBM Graphics Printer); switch 5 up.

Graphics Modes

- In PCL mode, the printer processes the graphics data, dot row by dot row.
- In the Alternate mode, the graphics data coming from the computer is processed column by column across the page in columns 8 dot rows high.

NOTE: Some software package drivers may not be compatible or may result in a reduced (smaller) image.

Printer Buffer

1 Kbyte for combined text and graphics

Margins

The HP ThinkJet printer has fixed 1-inch left and right margins, leaving a 6.67-inch print region.

General Software Set-up

Some packages require general information on the printer:

Port (2225C/P): Parallel/ Centronics (LPT 1 or LPT 2)

Port (2225D): Serial Port (COM 1 or COM 2), 9600 baud, no parity

Auto Line-feed (LF): NO

Wait or Pause: OFF or NO (fan-fold paper)

If the software package does not contain a specific HP ThinkJet driver, select the Epson MX-80 driver and set switch 5 up.

Control Codes

See the back of this page for commonly used control codes for the HP ThinkJet printer.

Commonly Used Control Codes for the HP ThinkJet Printer

ThinkJet Features	Characters	Decimal Codes	Hexadecimal Codes
Compressed print (142 characters per line, 21.3 cpi)	Esc & k 2 S	27, 38, 107, 50, 83	1B, 26, 6B, 32, 53
Expanded-compressed (71 characters per line, 10.7 cpi)	Esc & k 3 S	27, 38, 107, 51, 83	1B, 26, 6B, 33, 53
Expanded print (40 characters per line, 6 cpi)	Esc & k 1 S	27, 38, 107, 49, 83	1B, 26, 6B, 31, 53
Normal print (80 characters per line, 12 cpi)	Esc & k 0 5	27, 38, 107, 48, 83	1B, 26, 6B, 30, 53
Line spacing of 8 lines per inch	Esc & l 8 D	27, 38, 108, 56, 68	1B, 26, 6C, 38, 44
Underline on	Esc & d D	27, 38, 100, 68	1B, 26, 64, 44
Underline off	Esc & d @	27, 38, 100, 64	1B, 26, 64, 40
Bold print on	Ctl N	14	0E
Bold print off	Ctl O	15	0F
Half-line feed	Esc =	27, 61	1B, 3D

Graphics

ThinkJet Features	Characters	Decimal Codes	Hexadecimal Codes
Select low density graphics	Esc * r 640 S	27, 42, 114, 54, 52, 48, 83	1B, 2A, 72, 36, 34, 30, 53
Select high density graphics	Esc * r 1280 S	27, 42, 114, 49, 50, 56, 48, 83	1B, 2A, 72, 31, 32, 38, 30, 53
Begin raster graphics	Esc * r A	27, 42, 114, 65	1B, 2A, 72, 41
Transfer raster dot row	Esc * b # W	27, 42, 98, #, ..., #, 87	1B, 2A, 62, #, ..., #, 57
End raster graphics	Esc * r B	27, 42, 114, 66	1B, 2A, 72, 42

HP 2225C, D, and P ThinkJet Printers

Product Note

Escape Sequence Comparison

The following information compares the escape sequences of the HP 2225C, D, and P ThinkJet printers with those of the Epson MX-80 type III, the Epson FX-80, and IBM Graphics printer. The ThinkJet printer has two sets of control sequences: HP Mode and Alternate Mode. The HP Mode is recommended for two reasons:

- Software drivers can be leveraged through both the present and future Hewlett-Packard printer product line.
- The system will perform better. For example, single-density graphics is 50% faster in HP Mode than in Alternate Mode.

However, if the system has used an Epson printer, the use of the HP ThinkJet's Alternate Mode may save you time as changes may not be needed to your installation. The table below lists all the escape sequences used in Epson's FX-80, Epson's MX-80 type III, IBM Graphics printer, and HP ThinkJet printer's Alternate Mode.

Implementation Differences

These are a few implementation differences between Epson printers and ThinkJet printer's Alternate Mode.

Print Pitches

In normal pitch, the HP ThinkJet printer prints 80 characters across a 6.67-inch line; Epson printers print 80 characters across an 8-inch line. In compressed pitch, ThinkJet prints 142 characters per line; Epson prints 137 characters per line. Any software that mixes pitches on a line and expects columns to line up vertically may have to be rewritten.

Vertical Resolution

One dot-row to an HP ThinkJet is $1/96$th of an inch. One dot-row to an Epson printer is $1/72$nd of an inch. In addition, the HP ThinkJet can advance paper in one dot-row increments. The Epson printers can advance paper in one-third dot-row increments. Esc 1, Esc 3, and Esc A are affected by this difference.

Horizontal Resolution

The HP ThinkJet's horizontal dot density is 96 or 192 dpi. An Epson MX-80 or IBM Graphics printer's horizontal dot density is 60 or 120 dpi; the FX-80 has six different horizontal dot densities. The HP ThinkJet printer does not support true quadruple density graphics; it maps Epson's quadruple density graphics into its own double density. The HP ThinkJet has no restrictions in its graphics mode about how often dots may be fired. Esc J, Esc K, Esc Y, Esc Z, and Esc* are affected by this difference.

Aspect Ratio

The HP ThinkJet's single density is square (i.e., the horizontal and vertical dot-to-dot distances are the same). Epson single-density graphics is not square.

Expanded Mode

If an Epson receives a SO or EscSO to start expanded printing, a CR will stop expanded printing. The HP ThinkJet continues expanded printing until a DC4 or EscW is received; CR will not stop expanded printing.

Used Escape Sequences

Code	Description	HP ThinkJet Printer (2225C/D/P)	IBM Graphics Printer	Epson MX-80 (III)	Epson FX-80
BEL	Sound buzzer		•	•	•
BS	Backspace	•	•	•	•
DEL	Ignore last datum			•	•
HT	Horizontal tab		•	•	•
LF	Line feed	•	•	•	•
VT	Vertical tab			[1]	•
FF	Form feed	•	•	•	•
CR	Carriage return	•	•	•	•
SO	Start expanded print	•	•	•	•
SI	Start compressed print	•	•	•	•
DC 1	Select printer				•
DC 2	Stop compressed print	•	•	•	•
DC 3	Oeselect printer				•
DC 4	Stop expanded print	•	•	•	•
CAN	Clear print buffer		•		•
EscSO	Start expanded print	•			•
EscSI	Start compressed print	•			•
Esc!	Print mode set				•
Esc#	MSB mode cancel				•
Esc%	Select ROM or download character set				•
Esc:	Copy ROM to download character set				•
Esc&	Oefine download character set				•
Esc*	8-dot column graphics	•			•
Esc/	Set vertical forms control				•
Esc—	Turn underline mode on-off	•	•	•	•
Esc	9-dot column graphics				•
Esc 0	Set vertical spacing to 8 LPI	•	•	•	•
Esc 1	Set vertical spacing to 7 dot-rows	•	•	•	•
Esc 2	Set vertical spacing 6 LPI	•	•	•	•
Esc 3	Set vertical spacing to 1/3 dot-rows	•	•	•	•
Esc 4	Start italic print				•
Esc 5	Stop italic print				•
Esc 6	Make 80-9F (hex) printable		•		•
Esc 7	Make 80-9F (hex) control codes		•		•
Esc 8	Ignore out-of-paper detector		•	•	•
Esc 9	Heed out-of-paper detector		•	•	•
Esc <	Home printhead		•		•
Esc >	Set MSB of all data to one				•
Esc =	Clear MSB of all data to zero				•
Esc@	Reset print features	•		•	•
EscA	Set vertical spacing in dot rows	•	•	•	•
EscB	Set vertical tabs				•
EscC	Set page length	•	•	•	•
EscD	Set horizontal tabs			•	•
EscE	Turn on bold print	•	•	•	•
EscF	Turn off bold print	•	•	•	•
EscG	Turn on double-strike print	•	•	•	•
EscH	Turn off double-strike print	•	•	•	•
EscI	Make 00-1F, 80-9F (hex) printable				•
EscJ	Line feed in 1/3 dot-rows		•	•	•
EscK	Single-density column graphics	•	•	•	•
EscL	Double-density column graphics	•	•	•	•
EscM	Start 12 cpi print				•
EscN	Set perf skip length	•	•	•	•
EscO	Disable perf skip	•	•	•	•
EscP	Start 10 cpi print				•
EscQ	Set right margin			•	•
EscR	Select ISO character set			[1]	•
EscS	Start super/subscripts		•	•	•
EscT	Stop super/subscripts		•	•	•
EscU	Start/stop undirectional printing	•	•	•	•
EscW	Start/stop expanded print	•	•	•	•
EscY	Oouble-density column graphics	•	•		•
EscZ	Quadruple-density column graphics	•	•		•
Escb	Set VFC position				•
Esci	Start/stop typewriter mode				•
Escj	Reverse paper feed				•
Escl	Set left margin				•
Escp	Start/stop proportional spacing				•
Escs	Print at half speed				•

[1] Not included in the U.S. version

HP ThinkJet Printers

Product Note

Interface Specifications

Parallel Interface Specifications

The HP ThinkJet printer uses a standard parallel printer interface, which is compatible with many personal computers.

Printer Connector Pin Assignments

The printer interface connector is compatible with a standard Amphenol-type, 36-pin connector.

The direction conventions used in the following table are:

In—The signal is received by the printer from the computer.

Out—The signal is transmitted by the printer to the computer.

Pin Assignments

Pin No.	Signal	Direction	Description
1	Strobe	In	A LOW pulse of width greater than 0.5 μs causes the printer to read one byte of data.
2	DATA 1	In	Data bit 0
3	DATA 2	In	Data bit 1
4	OATA 3	In	Data bit 2
5	DATA 4	In	Data bit 3
6	DATA 5	In	Data bit 4
7	DATA 6	In	Data bit 5
8	DATA 7	in	Data bit 6
9	DATA 8	In	Data bit 7
10	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	A HIGH logic level indicates the printer cannot receive data due to data entry, a full buffer, or error status.
12	OOP	Out	A HIGH logic level indicates the printer is out of paper.
13	Selected	Out	Always HIGH
14,15			Not used
16	Logic Gnd		
17,18			Not used
19 to 30	Logic Gnd		
31	Input Prime	In	A LOW pulse of width greater than 40 μs resets the printer and clears the print buffer.
32	Error	Out	A LOW level indicates the printer has reached an error state: self-test failed or carriage position lost.
33	Logic Gnd		
34 to 36			Not used

Printer Timing Diagram

The timing diagram below illustrates the data and handshake lines during transfer of one data byte to the printer.

DATA 1 through DATA 8 and the Strobe line are driven by the computer; the Acknlg. line is driven by the printer.

Minimum and Typical Timing Intervals

Interval	Description	Minimum Value	Typical Value
t_D	Delay from DATA written to data Strobe	0.5 μs	
t_{SB}	Data Strobe width	0.5 μs	
t_{ACK}	Acknlg pulse width		5 μs
t_H	Duration of valid data after Strobe	0.5 μs	

Timing Diagram
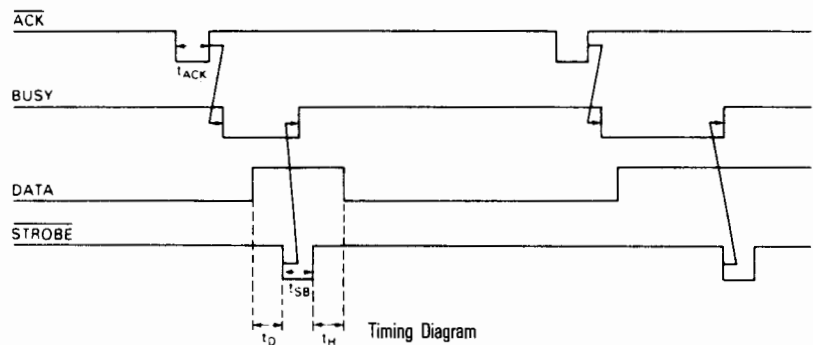
Serial Interface Specifications

The HP ThinkJet printer uses a standard serial interface which is compatible with many computers and terminals.

Printer Connector Pin Assignment

The direction conventions used in the table below are:

Input—The signal is received by the printer from the host.

Output—The signal is transmitted by the printer to the host.

Pin Assignments

Pin No.	Description	Signal	Direction
1	Protective Ground Shield	AA (101)	
2	Transmitted Data	BA (103)	Output
3	Received Data	BB (104)	Input
4	Request to Send	CA (105)	Output
7	Signal Ground	AB (102)	
11	Reverse Channel	SA	Output
20	Data Terminal Ready	CD (108.2)	Output

Signal Descriptions

Protective Ground: Ground line to connect to the cable shield.

Transmitted Data: Bit serial data transmitted to the computer system or terminal from the printer. This line is used with XON/XOFF handshaking.

Received Data: Bit serial data transmitted to the printer from the computer system or terminal.

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Request to Send: An output from the printer that is always at +10 V (SPACE or logic 0) when the printer is on.

Data Terminal Ready and Reverse Channel: Outputs from the printer to enable and disable transmission of data to the printer. Data transmission is enabled when at +10 V (SPACE or logic 0) and is disabled when at -10 V (MARK or logic 1).

Handshaking Protocol
Handshaking involves the printer and its host exchanging signals to prevent the printer's buffer from overflowing and losing data. The type of handshaking you use will depend on which type your computer system or terminal uses. The handshakes available are XON/XOFF (Transmission On/Transmission Off) and Data Terminal Ready (Printer Busy, hardware or DTR).

NOTE: Transmitting data to the printer without using handshaking may result in loss of data and is therefore not recommended.

XON/XOFF
When the printer's buffer has room for only 8 more characters, the printer will send the host an XOFF (ASCII DC3) character 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 100 more characters, the printer sends the host an XON character to resume data transmission. The XON character used is the ASCII DC1.

Data Terminal Ready
Unlike the XON/XOFF handshake, DTR or hardware handshakes use electrical signals to signal the host that it is ready to receive data. The printer will accept data until it has room for only 8 more characters. It will then turn off its hardware signal to the host device, indicating that it is no longer ready to receive data. The signal used is on pin 11 or 20. The off state is at -10 V (MARK or logic 1). When the printer's buffer has room for 100 more characters, it will turn on the hardware signal, enabling the host to resume data transmission. The on state is at +10 V (SPACE or logic 0).

RS-232-C Protocol Switches
The five segments of the RS-232-C switch on the back panel of your HP ThinkJet printer panel allow you to configure the RS-232-C section of the printer for most computer systems or terminals. You can set the RS-232-C interface to any of the following states.

Baud rates: 1200, 2400, 9600, 19 200

Parity and data bits: none and 8 bits; zero and 7 bits; odd and 7 bits; even and 7 bits; one and 7 bits

Handshake modes: XON/XOFF or Data Terminal Ready (DTR)

Switch 1: handshake mode

Set Switch 1 UP: for DTR (Printer Busy) handshaking with computer

Set Switch 1 DOWN: for XON/XOFF (DC 1/DC 3) handshaking with computer

Switch 2 & 3—Parity Settings

Switch Settings

2	3	Parity	Word Length
dn	dn	None	8 [or Zero & 7]
dn	up	Odd	7
up	dn	Even	7
up	up	ONE	7

Switch 4 & 5— Baud Rate Settings

Switch Settings

4	5	Baud Rate
dn	dn	9600
dn	up	19 200
up	dn	2400
up	up	1200

NOTE: These are the *only* baud rates available on the HP ThinkJet printer. If your application requires a different baud rate, you may need to use an in-line "spooler"/buffer.

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HP ThinkJet or HP QuietJet Printers and the HP 150 or Touchscreen Computers

Computer
Museum

Set-up Instructions

HP-IB and Serial Interfaces

HP-IB Interface

These instructions show how to set up the HP ThinkJet or QuietJet printer so that it can communicate with the HP 150 or Touchscreen personal computer.

Typical Configuration
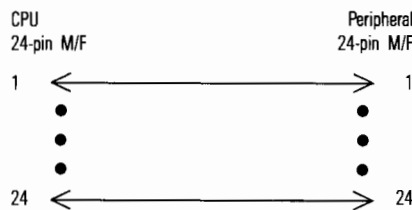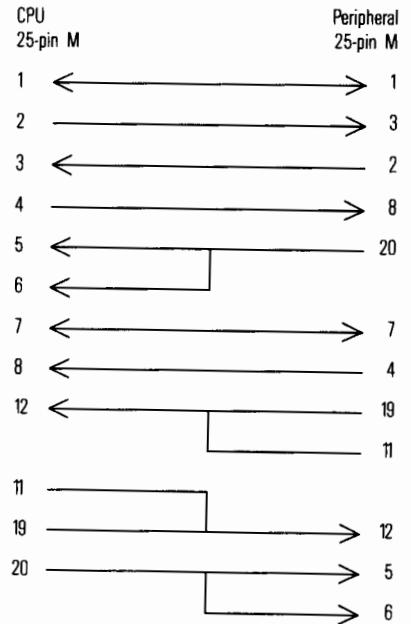
Computer Equipment
- HP 150 or Touchscreen Computer

Printer Equipment
- HP 2225A ThinkJet printer or HP 2227B QuietJet printer
- HP-IB Interface Cable (HP 10833A/B/C/D)

HP-IB Cable

HP 10833A/B/C/D
Length: A—1.0 m (3.3 ft)
        B—2.0 m (6.6 ft)
        C—4.0 m (13.2 ft)
        D—0.5 m (1.6 ft)

CPU   Peripheral
24-pin M/F   24-pin M/F

1   <————————————>   1
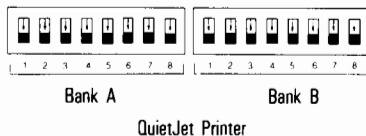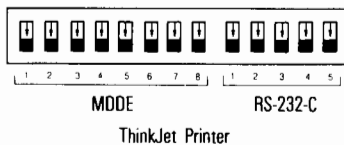24 <————————————>   24

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustration (8½ × 11 inch paper)*: (HP-IB Address 1).

```
┌─────────────────────┐
│ █ ▽ ▽ ▽ ▽ ▽ █ │
│ ▲         ▲ │
└─────────────────────┘
  1  2  3  4  5  6  7
        MODE
```

3. Connect the printer to the HP-IB Port of the HP 150 or Touchscreen computer.

4. Turn on the power to the equipment.
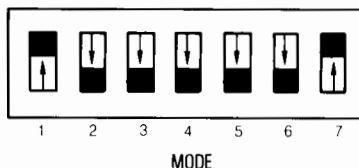
MS-DOS Configuration

5. Enter PAM (included on the same disk as MS-DOS).

6. Touch **DEVICE CONFIG** and **Start Applic** (illuminated "boxes" on your screen). This will run the MS-DOS Device Configuration Program.

7. Touch **PRN:Interface** field. Touch **Previous Choice** or **Next Choice** until **HPIB** appears in the interface field box.

8. Touch **PRN:Address** field, then **Previous Choice** or **Next Choice** until **1** appears in the address field.

9. Touch **PRN:Model** field, then **Previous Choice** or **Next Choice** until **THINKJET** appears in the model field; if ThinkJet is not among the choices offered, select **Other**.

10. Touch **Save Config**, then **Exit Config**.

*For A4 (8¼ × 12 inch) paper, set ThinkJet Mode switch 4 or QuietJet Bank A switch 4 UP.

Terminal Configuration

11. Touch **Terminal.**

12. Press the **User System** key.

13. Touch **Device Control**, then **"to" devices.**

14. Touch **HP-IB DEVICE.** An asterisk (*) will appear in the **HP-IB DEVICE** field.

15. Press **SHIFT** and **CTRL** simultaneously, hold, and press **RESET/BREAK.** This will return you to PAM.

Communication Verification

1. From PAM touch **MSDOS COMMANDS**, then **Start Applic.**

2. When the A > prompt appears, type **dir/w > prn**, then press the **RETURN** key. This will cause the directory of disk A to be printed out on your ThinkJet printer.

3. Type **EXIT**, then press the **RETURN** key. This will return you to PAM.

RS-232-C Interface

These instructions show how to set up the HP ThinkJet or QuietJet printer so that it can communicate with the HP 150 or Touchscreen personal computer.

Typical Configuration

Computer Equipment
- HP 150 or Touchscreen Computer

Printer Equipment
- HP 2225D ThinkJet printer or HP QuietJet printer
- M-to-M RS-232-C Cable (HP 13242G)

Special Serial Cable

HP 13242G
Length: 5.0 m (16.7 ft)

CPU 25-pin M		Peripheral 25-pin M
1	⟵————————⟶	1
2	————————⟶	3
3	⟵————————	2
4	————————⟶	8
5	⟵——————⌐	20
6	⟵————⌐	
7	⟵————————⟶	7
8	⟵————————	4
12	⟵——————⌐	19
	└————	11
11	——————⌐	
19	————————⟶	12
20	——————⌐	5
	└————⟶	6

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations (8½ × 11 inch paper).*

```
MODE            RS-232-C
ThinkJet Printer
```

```
Bank A            Bank B
QuietJet Printer
```

NOTE: Standard switch settings are shown. Individual software packages or terminal applications may require the user to modify these settings.

3. Connect the printer to Port 2 of the HP 150 or Touch-screen computer.

MS-DOS Configuration

4. Turn on the power to the equipment and enter PAM (included on the same disk as MS-DOS).

5. Touch **DEVICE CONFIG**, then **Start Applic.** (illuminated "boxes" on your screen). This will run the MS-DOS Device Configuration Program.
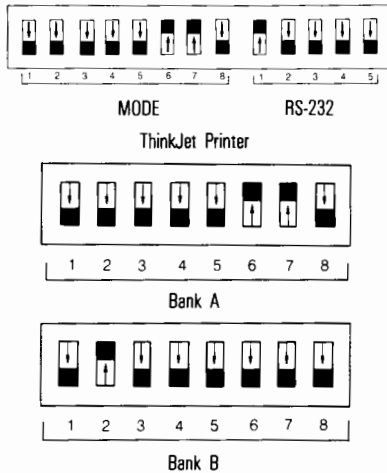
6. Touch **PRN:Interface** field. Touch **Previous Choice** or **Next Choice** until **Port 2** appears in the interface field box.

7. Touch the **PRN:Model** field. Touch **Previous Choice** or **Next Choice** until **THINKJET** appears in the model field; if Think-Jet is not among the choices offered, select **Other.**

8. Touch **Save Config**, then **Exit Config.**

Terminal Configuration

9. Touch **Terminal.**

10. Press the **User System** key.

11. Touch **device control,** then touch **"to" devices.**

12. Touch **SERIAL DEVICE.** An asterisk (*) will appear in the **SERIAL DEVICE** field.

13. Press the **User System** key.

Port 2 Configuration

14. Touch **config keys,** then **port2 config.**

15. Set the fields displayed as shown below. Touch the fields that you want to change and touch **Previous Choice** or **Next Choice** until the correction selection appears.

Baud Rate:	9600
Parity:	None
Data Bits:	8
Clock:	INT
Asterisk:	Off
Stop Bits:	1
EnqAck:	No
TR(CD):	Hi
Check Parity:	No
SR(CH):	Lo
RecvPace:	None
SRRXmit:	No
RR(CF)Recv:	No
XmitPace:	Xon/Xoff
SRRInvert:	No
CS(CB)Xmit:	No
DM(CC)Xmit:	No

16. Touch **Save Config.** This will save and use the new settings and return you to terminal mode.

17. Press **SHIFT** and **CTRL** simultaneously, hold, and press **RESET/BREAK.** This will return you to PAM.

Communication Verification

1. From PAM touch **MSDOS,** then touch **Start Applic.**

2. When the A> prompt appears, type **dir>prn,** then press the **RETURN** key. This will cause the directory of disk A to be printed.

3. Type **Exit,** then press the **RETURN** key. This will return you to PAM.

*For A4 (8¼ × 12 inch) paper, set ThinkJet Mode switch 4 or QuietJet Bank A switch 4 UP.

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HP ThinkJet or HP QuietJet Printers and the HP Vectra PC

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up the HP 2225D ThinkJet or HP QuietJet printer so that it can communicate with the HP Vectra PC.

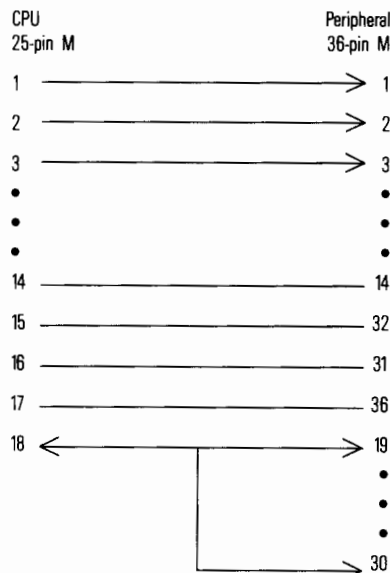### Typical Configuration

Computer Equipment
- HP Vectra PC
- Vectra Serial/Parallel Interface Card (HP 24540A)

Printer Equipment
- HP 2225D ThinkJet printer or HP QuietJet printer
- M-to-F RS-232-C Cable (HP 24542G)

or

Computer Equipment
- HP Vectra PC
- Vectra Dual Serial Interface Card (HP 24541A)

Printer Equipment
- HP ThinkJet printer or HP QuietJet printer
- For Port 1 (9-pin connector) use M-to-F RS 232-C Cable (HP 24542G)
- For Port 2 (25-pin connector) use M-to-M RS-232-C Cable (HP 13242G)

Special Serial Cables

HP 24542G
Length: 3.0 m (9.9 ft)

CPU 9-pin F		Peripheral 25-pin M
1	←	4
2	←	2
3	→	3
4	→	5
	→	6
5	← →	7
6	←	20
8	←	
7	→	8

HP 13242G
Length: 5.0 m (16.7 ft)

CPU 25-pin M		Peripheral 25-pin M
1	← →	1
2	→	3
3	←	2
4	→	8
5	←	20
6	←	
7	← →	7
8	←	4
12	←	19
		11
11		
19	→	12
20	→	5
	→	6

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Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations (for 8½ × 11 inch paper).*

MODE   RS-232

ThinkJet Printer

Bank A

Bank B

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the appropriate RS-232-C Port.

4. Turn on the power to the equipment.

5. Load the operating system.

6. Type
   MODE COM1:9600,N,8,1,P
   then press **ENTER.**

7. Type **MODE LPT1: = COM1**
   and press **ENTER.**

NOTE: If your printer is connected to Port 2, change **COM1** in the previous commands to **COM2.**

Communication Verification

Hold down the computer's **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

Centronics Parallel Interface

These instruction show how to set up the HP 2225C ThinkJet or QuietJet printer so that it can communicate with the HP Vectra PC.

Typical Configuration

Computer Equipment
- HP Vectra PC
- Vectra Serial/Parallel Interface Card (HP 24540A)

Printer Equipment
- HP 2225C ThinkJet or QuietJet printer
- M-to-M Centronics Parallel Cable (HP 24542D)

Centronics Parallel Cable

HP 24542D
Length: 2.0 m (6.6 ft)

CPU 25-pin M	Peripheral 36-pin M
1	1
2	2
3	3
•	•
•	•
•	•
14	14
15	32
16	31
17	36
18	19
	•
	•
	30

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the, function switches on the printer per the following illustrations (for 8½ × 11 inch paper).*

MODE

ThinkJet Printer

Bank A

Bank B

QuietJet Printer

3. Connect your printer to the parallel port of the computer.

Communication Verification

1. Turn on the power to the equipment.

2. Load the operating system.

3. Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

*For A4 (8¼ × 12 inch) paper, set ThinkJet Mode switch 4 or QuietJet Bank A switch 4 UP.

HP ThinkJet or HP QuietJet Printers and the IBM PC AT

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface
These instructions show how to set up the HP 2225D ThinkJet or QuietJet printer so that it can communicate with the IBM PC AT.

Typical Configuration

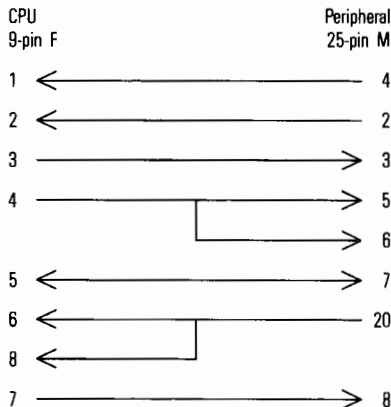**Computer Equipment**
- IBM PC AT
- IBM Serial/Parallel Adapter

Printer Equipment
- HP 2225D ThinkJet or QuietJet printer
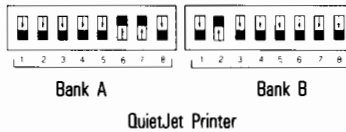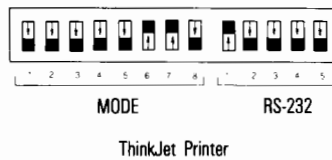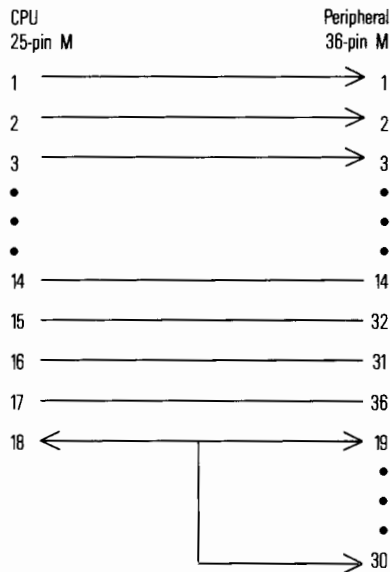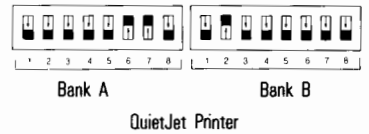- M-to-F RS-232-C Cable (HP 24542G)

Special Serial Cable

HP 24542G
Length: 3.0 m (9.9 ft)

CPU 9-pin F		Peripheral 25-pin M
1	←	4
2	←	2
3	→	3
4	→	5
	→	6
5	←→	7
6	←	20
8	←	
7	→	8

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations (for 8½ × 11 inch paper)*.

MODE   RS-232

ThinkJet Printer

Bank A   Bank B

QuietJet Printer

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the appropriate RS-232-C Port.

4. Turn on the power to the equipment.

5. Load the operating system.

6. Type
MODE COM1:9600,N,8,1,P
then press **ENTER.**

7. Type **MODE LPT1: = COM1**
and press **ENTER.**

NOTE: If your printer is connected to Port 2, change **COM1** in the previous commands to **COM2.**

Communication Verification
Hold down the computer's **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

Centronics Parallel Interface

These instruction show how to set up the HP 2225C ThinkJet or QuietJet printer so that it can communicate with the IBM PC AT.

Typical Configuration

Computer Equipment
- IBM PC AT
- IBM Serial/Parallel Adapter

Printer Equipment
- HP 2225C ThinkJet or QuietJet printer
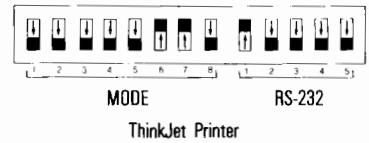- M-to-M Centronics Parallel Cable (HP 24542D)

Centronics Parallel Cable

HP 24542D
Length: 2.0 m (6.6 ft)

| CPU 25-pin M		Peripheral 36-pin M
1	⟶	1
2	⟶	2
3	⟶	3
•		•
•		•
•		•
•		•
14	——	14
15	——	32
16	——	31
17	——	36
18	⟵ ⟶	19
		•
		•
		•
	⟶	30

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations (for 8½ × 11 inch paper).*

MODE   RS-232

ThinkJet Printer

Bank A   Bank B

QuietJet Printer

3. Connect your printer to the parallel port of the computer.

Communication Verification

1. Turn on the power to the equipment.

2. Load the operating system.

3. Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

*For A4 (8¼ × 12 inch) paper, set ThinkJet Mode switch 4 or QuietJet Bank A switch 4 UP.

HP ThinkJet or HP QuietJet Printers and the IBM PC or PC-XT

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface
These instructions show how to set up the HP 2225D ThinkJet or QuietJet printer so that it can communicate with the IBM PC or PC-XT personal computers.

Typical Configuration
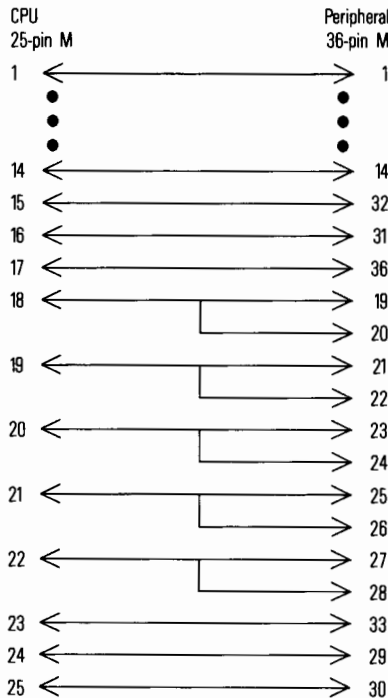**Computer Equipment**
- IBM PC or IBM PC-XT (with IBM Asynchronous Communications Adapter)

Printer Equipment
- HP 2225D ThinkJet or QuietJet printer
- M-to-F RS-232-C Cable (HP 17255D or HP 13242H)
- Epson MX-80 Driver (IBM Graphics Printer) or ThinkJet Printer driver supplied with software.

Special Serial Cables
HP 17255D
Length: 1.5 m (5.0 ft)
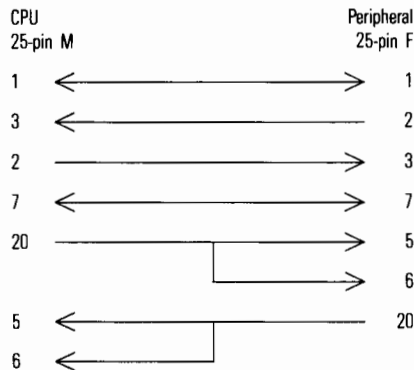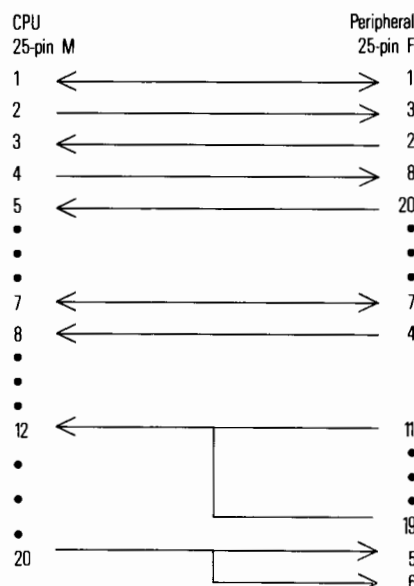
CPU 25-pin M		Peripheral 25-pin F
1	⟵⟶	1
3	⟵	2
2	⟶	3
7	⟵⟶	7
20	⟶	5
	⟶	6
5	⟵	20
6	⟵	

HP 13242H
Length: 5.0 m (16.7 ft)

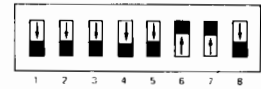| CPU 25-pin M		Peripheral 25-pin F
1	⟵⟶	1
2	⟶	3
3	⟵	2
4	⟶	8
5	⟵	20
•		•
•		•
•		•
7	⟵⟶	7
8	⟵	4
•		•
•		•
•		•
12	⟵	11
•		•
•		•
•		•
•		19
20	⟶	5
	⟶	6

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations (8½ × 11 inch paper).*

MOOE   RS-232-C

ThinkJet Printer

Bank A   Bank B
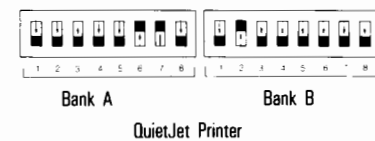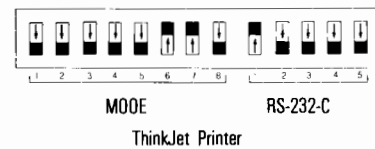
QuietJet Printer

NOTE: Standard switch settings are shown. Individual packages may require the user to modify these settings.

3. Connect the printer to the RS-232-C Port 1 (asynchronous adapter port).

4. Turn on the power to the equipment.

5. Load the operating system.

6. Type
   MODE COM1:9600,N,8,1,P
   and press **ENTER.**

7. Type **MODE LPT1: = COM1**
   and press **ENTER.**

NOTE: Commands 6 and 7 can be added to the **AUTOEXEC.BAT.** Consult the IBM DOS manual (in the "Batch Commands" section under AUTOEXEC.BAT) if you need more information.

Communication Verification
Hold down the **SHIFT** key and press the **PrtSc** key on the computer keyboard. Any text on the screen will print out.

Centronics Parallel Interface
These instructions show how to set up the HP 2225C ThinkJet or QuietJet printer so that it can communicate with the IBM PC or PC-XT personal computers.

Typical Configuration
Computer Equipment
• IBM PC or IBM PC-XT (with IBM Parallel Printer Interface Adapter)

Printer Equipment
• HP 2225C ThinkJet or QuietJet printer
• HP 92219K or IBM Parallel Printer Cable
• Epson MX-80 Driver (IBM Graphics Printer) or printer driver supplied with software

Centronics Parallel Cable
HP 92219K
Length: 2.7 m (9.0 ft)

CPU 25-pin M	Peripheral 36-pin M
1	1
●	●
●	●
●	●
14	14
15	32
16	31
17	36
18	19
	20
19	21
	22
20	23
	24
21	25
	26
22	27
	28
23	33
24	29
25	30

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations (8½ × 11 inch paper).*

MODE
ThinkJet Printer

Bank A

Bank B
QuietJet Printer

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect the printer to the parallel port of the computer.

4. Turn on the power to the equipment.

5. Load the operating system.

Communication Verification
Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out.

*For A4 (8¼ × 12 inch) paper, set ThinkJet Mode switch 4 or QuietJet Bank A switch 4 UP.

HP ThinkJet or HP QuietJet Printers and the Apple Macintosh

Computer Museum

Set-up Instructions

Serial Interface

These instructions show how to set up the HP 2225D ThinkJet or QuietJet printer so that it can communicate with the Apple Macintosh personal computer.

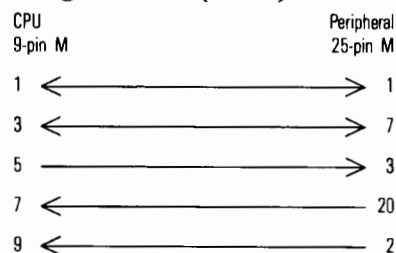### Typical Configuration

Computer Equipment
- Apple Macintosh

Printer Equipment
- HP 2225D ThinkJet or QuietJet printer
- HP 92219M or Standard Apple Imagewriter Cable
- HP 35177M Jetstart (software utility)

Special Serial Cable

HP 92219M
Length: 1.5 m (5.0 ft)

CPU 9-pin M		Peripheral 25-pin M
1	←——————→	1
3	←——————→	7
5	——————→	3
7	←——————	20
9	←——————	2

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations (8½ × 11 inch paper).*

MODE   RS-232-C

ThinkJet Printer

Bank A   Bank B
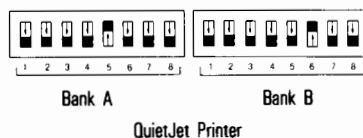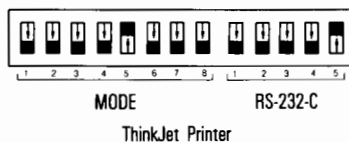
QuietJet Printer

3. Connect the printer to the Printer Port of the Macintosh.

4. Turn on the power to the equipment.

5. Load the operating system.

6. Eject your System Disk and load Jetstart.

7. Select **Printer Port** and select **ThinkJet Printer**.

8. Eject Jetstart disk.

9. Insert and modify each application disk.

10. **Quit** Jetstart, eject the disk, turn the Apple Macintosh off and on again.

Communication Verification

Hold down the **SHIFT** key and simultaneously press the **COMMAND** and the number **4** key. Any text or picture on the screen will print out.

*For A4 (8¼ × 12 inch) paper, set ThinkJet Mode switch 4 or QuietJet Bank A switch 4 UP.

ThinkJet/QuietJet

Apple Set-up

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PACKARD

HP ThinkJet or HP QuietJet Printers and the Apple II+ or IIe

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up the HP 2225D ThinkJet or QuietJet printer so that it can communicate with the Apple II+ or IIe Personal Computer.

Typical Configuration

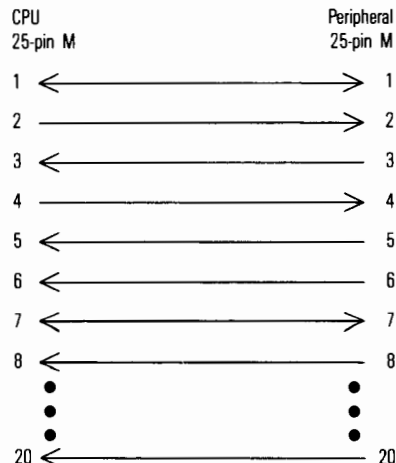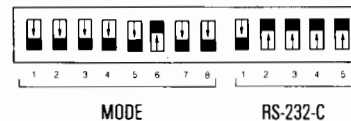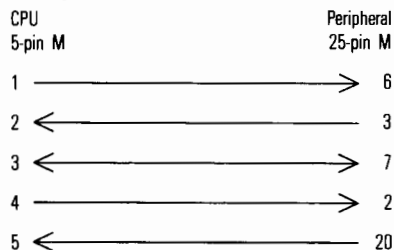**Computer Equipment**
- Apple II+ or Apple IIe with Apple Super Serial Card

Printer Equipment
- HP 2225D ThinkJet or QuietJet printer
- HP 17355M Serial Printer Cable or Apple Serial Printer Interface Cable (Apple P/N 590-0037)

Special Serial Cable

HP 17355M
Length: 3.0 m (9.9 ft)

CPU 25-pin M		Peripheral 25-pin M
1	⟵⟶	1
2	⟶	2
3	⟵	3
4	⟶	4
5	⟵	5
6	⟵	6
7	⟵⟶	7
8	⟵	8
•	•	
•	•	
•	•	
20	⟵	20

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the Apple Super Serial Card per the following illustrations and install the card in slot 1 as instructed in the Apple Super Serial Card Installation and Operating Manual.

Bank A   Bank B

3. Set the function switches on the printer according to the following illustration (8½ × 11 inch paper).*

MODE   RS-232-C

4. Put the System Master Disk into drive 1.

5. Turn on the power to the equipment.

Communication Verification

1. The following BASIC program will verify proper connection between 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
```

*For A4 (8¼ × 12 inch) paper, set ThinkJet Mode switch 4 or QuietJet Bank A switch 4 UP.

2. Type **RUN** and press **RETURN.**

3. The following pattern will print:

```
]RUN
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOP
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQ
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQR
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRS
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRST
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTU
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUV
)*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVW
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWX
```

From CP/M

Press the **CONTROL** key and **P** simultaneously to copy all characters on the screen to the printer. Use this command and, at the A> prompt, type **DIR**, then press the **RETURN** key to list all files and copy them to the printer.

Centronics Parallel Interface

These instructions show how to set up the HP 2225C ThinkJet or QuietJet printer so that it can communicate with the Apple II+ or IIe personal computer.

Typical Configuration

Computer Equipment
- Apple II+ or IIe with the Apple Parallel Interface Card

Printer Equipment
- HP 2225C ThinkJet or QuietJet printer
- Apple Parallel Printer Interface Cable (Apple P/N 590-0042) or equivalent

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the Apple Parallel Interface Card according to the illustration below, and install the board into interface Slot 1 as instructed in Chapter 1 of the Apple Parallel Interface Card Installation and Operating Manual.

MODE

3. Set function switches on the printer per the following illustration (8½ × 11 inch paper).*

MODE

4. Put the System Master Disk into drive 1.

5. Turn on the power to the equipment.

Communication Verification

1. The following BASIC program will verify proper connection between 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
```

2. Type **RUN** and press **RETURN.**

3. The following pattern will print:

```
]RUN
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRS
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRST
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTU
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUV
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVW
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWX
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXY
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ
)*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\
+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]
```

*For A4 (8¼ × 12 inch) paper, set ThinkJet Mode switch 4 or QuietJet Bank A switch 4 UP.

HP ThinkJet or HP QuietJet Printers and the Apple IIc

Set-up Instructions

Serial Interface

These instructions show how to set up the HP 2225D ThinkJet or QuietJet printer so that it can communicate with the Apple IIc personal computer.

Typical Configuration

Computer Equipment
• Apple IIc

Printer Equipment
• HP 2225D ThinkJet or QuietJet printer
• HP 92219N or Apple Serial Printer Interface Cable (Apple P/N 590-0191-A)

Special Serial Cable

HP 92219N
Length: 1.5 m (5.0 ft)

CPU 5-pin M	Peripheral 25-pin M
1 ——————→	6
2 ←——————	3
3 ←—————→	7
4 ——————→	2
5 ←——————	20

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer according to the following illustration (8½ × 11 inch paper).*

MODE   RS-232-C
ThinkJet Printer

Bank A   Bank B
QuietJet Printer

3. Put the System Master Disk into drive 1.

4. Turn on the power to the equipment.

Communication Verification

1. The following BASIC program will verify proper connection between 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
```

2. Type **RUN** and press **RETURN**.

3. The following pattern will print:

```
]RUN
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRS
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRST
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTU
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUV
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVW
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWX
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXY
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ
)*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\
+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]
```

*For A4 (8¼ × 12 inch) paper, set ThinkJet Mode switch 4 or QuietJet Bank A switch 4 UP.

HEWLETT PACKARD

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HP 3630A PaintJet Color Graphics Printer

Technical Data

Affordable color printer for high-quality graphics and text

Features
- High-quality color graphics
- Fast near-letter-quality (NLQ) text
- Prints on paper or transparency film
- Attractive price
- IBM® compatibility
- Macintosh™ compatibility

The Hewlett-Packard PaintJet color graphics printer (HP 3630A) creates brilliant color graphics and near-letter-quality (NLQ) text on both paper and transparency film. It makes reports, memos, and presentation materials more effective by adding affordable, high-quality color.

High-Quality Color Graphics
The HP PaintJet printer produces smooth curves and lines because of its 180 dpi resolution. It has the capability of printing from eight colors to thousands of shades and hues, depending on application software.

Fast NLQ Text
Near-letter-quality text is printed at 167 characters per second (10 characters per inch), using internal ROM fonts. The HP PaintJet color graphics printer produces a page of text in 30-40 seconds.

Prints on Paper or Transparency Film
Special HP PaintJet paper and HP PaintJet transparency film are recommended for the brightest and sharpest color printing. Plain printer paper may be used for draft-quality output.

Attractive Price
The HP PaintJet color graphics printer's affordable price, combined with its quiet operation, makes it ideal for use at individual workstations.

IBM Compatibility
The HP PaintJet color graphics printer is compatible with the HP Vectra PC, IBM XT/AT and compatibles, and IBM PS/2. It is supported by leading MS®-DOS application software packages, including Lotus® 1-2-3® and Freelance® Plus, WordPerfect®, Harvard™ Graphics, HP Graphics Gallery, and Ashton-Tate® Draw Applause™. HP also offers a software driver that enables the HP PaintJet color graphics printer to work with Microsoft® Windows/286 2.1. With this new driver, you can use popular packages in the Microsoft Windows operating environment, including Microsoft Excel, Aldus PageMaker®, and Micrografx Designer®.
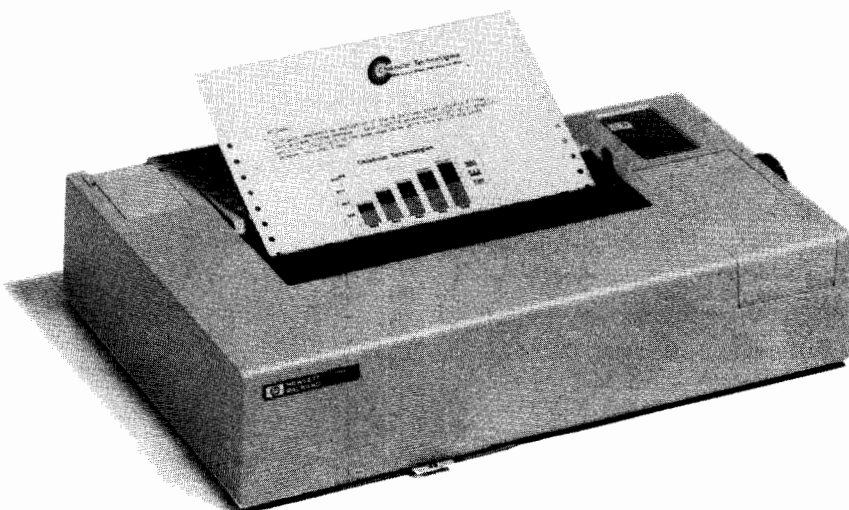
(For more software information, call 1-800-752-0900 toll-free and ask for "Software Features Support for the HP PaintJet Color Graphics Printer," P/N (11) 5957-3784.)

Macintosh Compatibility

The HP PaintJet color graphics printer, when teamed with the HP PaintJet Printer Interface Kit for Macintosh™ Computers, produces high-quality color output on Apple® Macintosh Plus, SE, and II computers (a hard disk is required to access all printer fonts). The interface kit, compatible with System Software 5.0 (System 4.2, Finder 6.0) and System Software 6.0.2 (System 6.0.2, Finder 6.1), includes a chooser-selectable driver that converts QuickDraw™ images to PCL™ (the HP PaintJet's printer control language). It is compatible with application software that follows standard Apple printing guidelines, including MacDraw® II, Microsoft Word, Excel, PowerPoint, Cricket Presents, and many more.

Technical Information

Printing Process

Thermal inkjet drop-on-demand printing

Unidirectional and bidirectional black text printing

Unidirectional color printing on paper and transparency film

Cartridges: two disposable print cartridges—one black, one color

Nozzles: total of 60 in two print cartridges—30 black, 10 cyan, 10 magenta, 10 yellow

Typical cartridge lifetime:
Black pen: 1100 text pages (approximately 1.1 million characters)
Color pen: 180 pages of color graphics (with 13 percent solid area fill) or 160 overhead transparencies

Print Speed (NLQ)

167 characters per second at 10 pitch

200 characters per second at 12 pitch

30-40 seconds per typical page of text

Full-page color graphics, 4 minutes or less on paper, 8 minutes or less on transparency film*

Character Cell Structure

15 × 30-dot print character cells

Graphics Resolution

180 × 180 dots-per-inch

Character Sets

HP Roman8, PC-8, PC-8 (Danish/Norwegian), ECMA-94, Latin 1; US ASCII

ISO 7-bit languages; supports German, French, Italian, Danish/Norwegian, Finnish/Swedish, Spanish, United Kingdom

Printing Format

Print Mode	Print Size	Char./in.	Char./line
Courier	12 point	10	80
Letter Gothic	10 point	12	96
Letter Gothic	8 point	18	144

Also bold, underline, superscript, and subscript

Media

Cut sheet paper, A4 (210 × 297 mm) and 8.5 × 11 in.

Z-fold paper, 210 mm × 12 in. (304.8 mm) and 8.5 × 11 in.

Single-sheet film, A4 (210 × 297 mm) and 8.4 × 11 in. (finished size)

HP PaintJet paper is recommended for best results. Other papers may be used for draft-quality output. Only HP PaintJet transparency film should be used to produce presentation overheads.

Media Handling

Friction and sprocket feed
Z-fold and cut sheet paper
Single-sheet transparency film

Control Panel

Buttons: power on, top-of-form, line feed, form feed

Indicators: paper out (amber), power light (green)

Single Interface Options

RS-232-C/CCITT V.24 serial
HP-IB (IEEE 488-1978)
Centronics parallel

Buffer Size

500 to 8000 bytes, depending on use of downloaded characters

*Output times will vary, depending on image complexity, application software, and model of computer.

Environmental Ranges
Temperature:
Operating: 15 to 30 degrees C
(59 to 86 degrees F)

Storage: −40 to 70 degrees C
(−40 to 158 degrees F)

Humidity:
Paper: 20 to 80% RH (at 10 to 30 degrees C)

Transparency film: 20 to 50% RH (at 10 to 35 degrees C)

Acoustics (per ISO DP 7779 standard):
Sound power level-Lwa:
5.3 bels (A) typical

Sound pressure level-Lpa:
43 dB(A) @ 1 meter bystander position

Power Requirements
Source: 100, 120, 220, 240 volts AC (±10%)

Frequency: 48-66 Hz

Consumption: 20 W maximum

Physical Specifications
Height: 98 mm (3.86 in.)

Width: 442 mm (17.40 in.)

Depth: 302 mm (11.89 in.)

Net weight: 5 kg (11 lb)

Shipping weight: 10.6 kg (23.3 lb)

Product Certifications
CSA approved, CSA C22.2 No. 220; UL Listed, UL-478; TUV Approved, GS Mark, IEC-380; FCC Certified, Class B; VDE Radio Protection Mark, Level B; VCCI Approved, Class 2

Estimated Typical Usage
Less than 50 pages per day

Interface and Cable Requirements

System	Interface	Cable
HP Vectra PC with HP 24540A/B serial/parallel interface card or HP 24541A/B dual serial interface card using 9-pin connector	Serial	HP 24542G
HP Vectra PC with HP 24541A/B dual serial interface card using 25-pin connector	Serial	HP 17255M
HP Vectra PC with HP 24540A/B serial/parallel interface card	Parallel	HP 92219K
HP Touchscreen PC	Serial	HP 17255M
HP Touchscreen PC	Parallel	HP 13242D
HP Touchscreen PC and HP 9000, Series 300	HP-IB	HP 10833A (1.0 m) HP 10833B (2.0 m) HP 10833C (3.0 m) HP 10833D (0.5 m)
IBM PS/2, PC, PC-XT, and compatibles	Serial	HP 17255D
IBM PS/2, PC, PC-XT and compatibles	Parallel	HP 92219K
IBM AT and compatibles	Serial	HP 24542G
IBM AT and compatibles	Parallel	HP 92219K
Apple Macintosh Plus, SE, and II	Serial	HP 17302A

Ordering Information

Standard Unit
3630A
HP PaintJet color graphics printer

Option number:
001 RS-232-C/CCITT V.24 serial interface
002 HP-IB (IEEE 488-1978) interface
004 Centronics parallel interface

Note: Interface cables must be ordered separately.

Included with all HP PaintJet printer options
User's guide (language appropriate to destination)

Power module (appropriate to destination)

One black print cartridge

One color print cartridge

250 sheets of HP PaintJet paper

5 sheet of HP PaintJet transparency film with protective sleeves

Supplies
51606A	Black print cartridge	
51606C	Color print cartridge	
51630P	Z-fold paper, 8.5 × 11 in., 250 sheets	
51630R	Z-fold paper, 210 mm × 12 in. (304.8 mm), 250 sheets	
51630Y	Cut sheet paper, 8.5 × 11 in., 250 sheets	
51630Z	Cut sheet paper, A4 (210 × 297 mm), 250 sheets	
51630Q	Single-sheet transparency film, 8.4 × 11 in. (finished size), 50 sheets (with plastic sleeves)	
51630S	Single-sheet transparency film, A4 (210 × 297 mm), 50 sheets (with plastic sleeves)	
92269A	Printer stand	
92250Z	Dust cover	
03630-90000	Hardware support manual	

Accessories
17305A	HP PaintJet Printer Interface Kit for Macintosh Computers*
	Interface kit includes: one disk with chooser-selectable, QuickDraw™-compatible driver and installer; one disk with printer fonts corresponding to Macintosh Times®, Helvetica®, Courier, and Symbol screen fonts in 10-, 12-, 14-, 18-, 24-, 30-, and 36-point sizes; "plug-and-go" cable; users' guide
17301A	HP PaintJet Soft Fonts for Microsoft Windows

*Requires RS-232 serial interface (Opt. 001)

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Fonts from **HP PaintJet Soft Fonts for Microsoft Windows** (in 8, 10, 12, and 14 point sizes)

Tms Rmn 10 pt. Normal
ABCDEFGHIJKLMNOPQR
abcdefghijklmnopqrstuvwxyz

Tms Rmn 10 pt. Bold
ABCDEFGHIJKLMNOPQRS
abcdefghijklmnopqrstuvwxyz

Tms Rmn 12 pt. Normal
ABCDEFGHIJKLMNOP
abcdefghijklmnopqrstuvw

Tms Rmn 12 pt. Bold
ABCDEFGHIJKLMNOP
abcdefghijklmnopqrstuvw

Helvetica10 pt. Normal
ABCDEFGHIJKLMNOPQRST
abcdefghijklmnopqrstuvwxyz

Helvetica 10 pt. Bold
ABCDEFGHIJKLMNOPQRS
abcdefghijklmnopqrstuvwxy

Helvetica 12 pt. Normal
ABCDEFGHIJKLMNOPQ
abcdefghijklmnopqrstuv

Helvetica 12 pt. Bold
ABCDEFGHIJKLMNOP
abcdefghijklmnopqrstu

Fonts from **The HP PaintJet Printer Interface Kit for Macintosh Computers** (in 10, 12, 14, 18, 24, 30, and 36 point sizes)

CS Times
ABCDEFGHIJKLMNOPQ
abcdefghijklmnopqrstuvwx

CS Helv
ABCDEFGHIJKLMNOP
abcdefghijklmnopqrstuv

CS Courier
ABCDEFGHIJKLMNOPQRST
abcdefghijklmnopqrst

CS Symbol
αβχδεφγηιφκλνοπθρστ

HP PaintJet Printer Internal (ROM) Fonts

Courier,
10 pitch, 12 point
ABCDEFGHIJKLMNOPQR
abcdefghijklmnopqr

Letter Gothic,
12 pitch, 10 point
ABCDEFGHIJKLMNOPQRSTUV
abcdefghijklmnopqrstuv

Letter Gothic,
18 pitch, 8 point
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

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HP PaintJet
Color Graphics Printer

Product Note

Questions and Answers

Q: Is the PaintJet printer compatible with my PC?

A: The PaintJet color graphics printer is available with one of three interfaces—RS-232-C, Centronics Parallel, and HP-IB—so it works with all popular personal computers including the Apple Macintosh and Commodore Amiga. Macintosh connectivity is supported through an HP-developed and -supported product, the HP PaintJet Interface Kit for Macintosh™ Computers (P/N 17305A). The kit includes a driver, high-quality fonts, plug-and-go cable, and user documentation.

Amiga support is provided through a driver written by Commodore and shipped with the Amiga PC operating system.

Q: How do I run the self test or the demo?

A: To run the self test: With the power off, hold down the FF button while pressing then releasing the on/off button. Finally, release the FF button. (If you prime the color pen just before running the self test, the colored bars may have mixed colors on the left side. This is normal; simply run the self test again.)

To run the demo: With the power off, hold down the LF button while pressing then releasing the on/off button. Finally, release the LF button.

Note: The self test and the demo should be run on paper only. Do not use transparency film.

Q: When do I need to prime and wipe the PaintJet print cartridges?

A: You may never need to prime and wipe a PaintJet print cartridge. Priming and wiping is only necessary if your PaintJet printer fails the "self test." The self test should be run after installation of a new PaintJet print cartridge or whenever poor print quality is observed.

Q: Can the PaintJet printer understand HP-GL, Hewlett-Packard's plotter language?

A: No. The PaintJet printer only understands PCL, HP's Printer Command Language. "PrintPlot," a software package from Insight Development Corporation, can convert HP-GL files to PCL for output to the PaintJet printer. Print-Plot is available through authorized HP Dealers. For more PrintPlot software information, contact Insight Development Corporation at (415) 376-9451.

Q: When I turn the power on, a red light comes on and won't go off unless I turn off the printer. What's wrong?

A: The red light will flash during paper loading. The paper bail must be pushed back against the paper before the power is turned on. Otherwise, the pen carriage cannot move and an error occurs.

The red light will stay on without flashing if the printer is out of paper. Load paper. If the red light stays on, the printer may need service.

Q: Is the PaintJet printer a plotter replacement?

A: No. HP's color desktop plotters and the PaintJet color graphics printer serve very different customer needs.

Plotters excel at vector graphics and produce graphics with the highest line quality and most intense color saturation. They are most often used to produce technical drawings, as well as high-quality charts and graphs for business applications. Plotters also produce the highest-quality presentation overheads when six or eight distinct colors are sufficient.

The PaintJet color graphics printer excels at raster graphics and produces thousands of colors for smooth shading, imaging, or solid modeling graphics needs. As a printer, the HP PaintJet provides fast, high-quality text capability, permitting the integration of both text and graphics on a single page. While PaintJet provides greater print flexibility than plotters, as well as faster output for area-fill graphics, plotters remain the output device of choice for the highest-quality graphics output.

Connecting and Configuring Your HP Pen Plotter or Color Graphics Printer

Set-up Instructions

For HP Vectra, IBM, and Compatible Personal Computers

These instructions will show you how to set up your HP pen plotter or PaintJet color graphics printer so that it can communicate with an HP Vectra PC; IBM PC, PC-XT, PC-AT, PS/2; or compatible computer.

The Right Equipment

The information given is for typical configurations. Hardware and memory requirements may vary depending on the software package or application being used; check with your software supplier or consult the software documentation. Also, you may want to add a buffer box or plot spooler for increased productivity.

Computer

- Computer with disk drive
- B/W or color monitor
- Interface card with RS-232-C connector (9- or 25-pin) or Centronics parallel connector (25-pin)*

Plotter or Printer

- For RS-232-C connections:
  HP ColorPro (HP 7440A) Option 001,
  HP 7475A Option 001,
  HP 7550A,
  HP DraftPro (HP 7570A),
  HP DraftPro DXL (HP 7575A),
  HP DraftPro EXL (HP 7576A),
  HP DraftMaster I (HP 7595A),
  HP DraftMaster II (HP 7596A), or
  HP PaintJet (HP 3630A) Option 001

- For Centronics parallel connections:
  HP PaintJet (HP 3630A) Option 004

* Centronics parallel interface may be used for the PaintJet color graphics printer only.

Cables

To select the right cable, consult the table below. Cable schematics follow.

Computer System	Interface	HP ColorPro, 7475A, DraftPro Series, Draft-Master I and II Plotters	HP 7550A Plotter	HP PaintJet Printer
HP Vectra PC or other IBM AT compatible with HP 24540 serial/parallel interface card	RS-232-C	HP 24542G	HP 24542H	HP 24542G
	Parallel			HP 92219
HP Vectra PC or other IBM AT compatible with HP 24541 dual serial interface card using 9-pin connector	RS-232-C	HP 24542G	HP 24542H	HP 24542G
HP Vectra PC or other IBM AT compatible with HP 24541 dual serial interface card using 25-pin connector	RS-232-C	HP 17255M	HP 17255D	HP 17255M
IBM PC, PC-XT, or PS/2; COMPAQ Portable; AT&T PC 6300; or compatible using 25-pin serial port	RS-232-C	HP 17255D	HP 17255F	HP 17255D
	Parallel			HP 92219K
IBM AT or PS/2; COMPAQ 286, 386, or Portable II; or compatible using 9-pin serial port	RS-232-C	HP 24542G	HP 24542H	HP 24542G
	Parallel			HP 92219K

Centronics Parallel Cable
HP 92219K
2.7 m (9.0 ft)

25-pin female   36-pin male

```
1   <--------------->   1
    •                   •
    •                   •
    •                   •
14  <--------------->   14
15  <--------------->   32
16  <--------------->   31
17  <--------------->   36
18  <--------------->   19
                        20
19  <--------------->   21
                        22
20  <--------------->   23
                        24
21  <--------------->   25
                        26
22  <--------------->   27
                        28
23  <--------------->   33
24  <--------------->   29
25  <--------------->   30
```
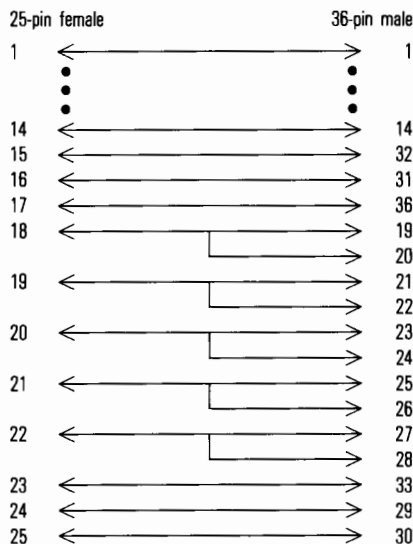
RS-232-C Cable
HP 17255D/F/M
1.2 m (4.0 ft)

25-pin female HP 17255M	25-pin male HP 17255M/D
25-pin female HP 17255D/F	25-pin female HP 17255F

```
1   <--------------->   1
2   --------------->    3
3   <---------------    2
5   <--------------->   20
6   <---------
7   <--------------->   7
20  --------------->    5
                        6
```
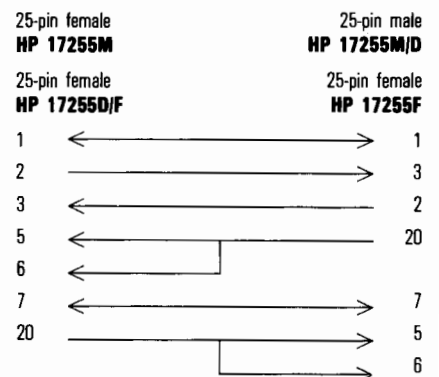
RS-232-C Cable
HP 24542G/H
3.0 m (9.9 ft)
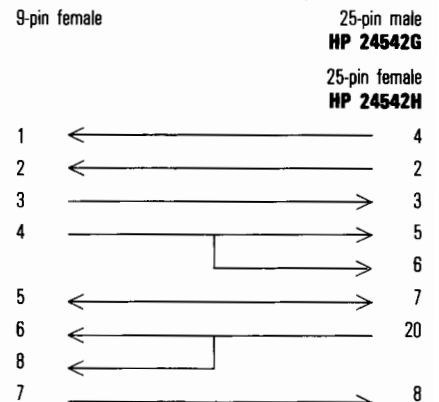
9-pin female   25-pin male HP 24542G

           25-pin female HP 24542H

```
1   <---------------    4
2   <---------------    2
3   --------------->    3
4   --------------->    5
                        6
5   <--------------->   7
6   <---------          20
8   <---------
7   --------------->    8
```

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Connecting your Equipment

1. Turn off both the computer and the plotter or color graphics printer.

2. Connect the peripheral to the computer. Attach one end of the interface cable to the computer, and the other end to the plotter or printer. If the plotter has two RS-232-C connectors, attach the cable to the one labeled *COMPUTER*. Some typical configurations are shown in the following illustrations.
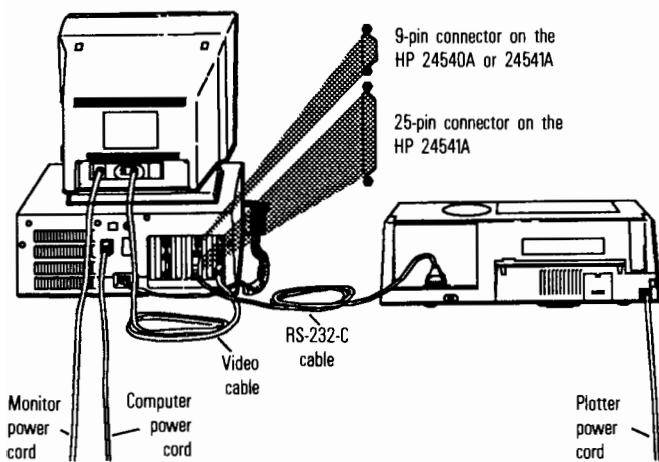
HP Vectra PC — HP 7550A
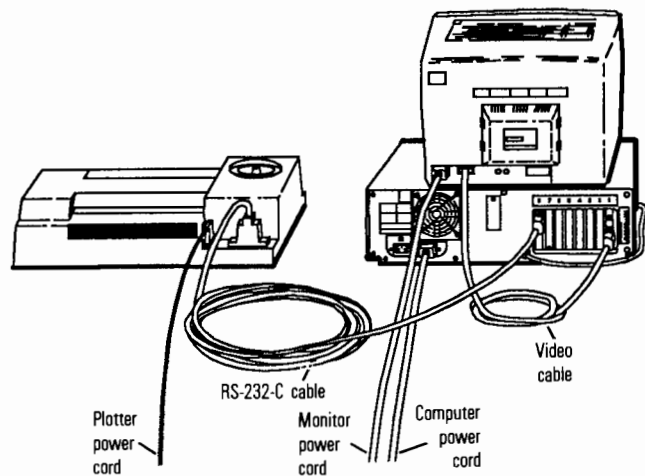
IBM AT — HP ColorPro
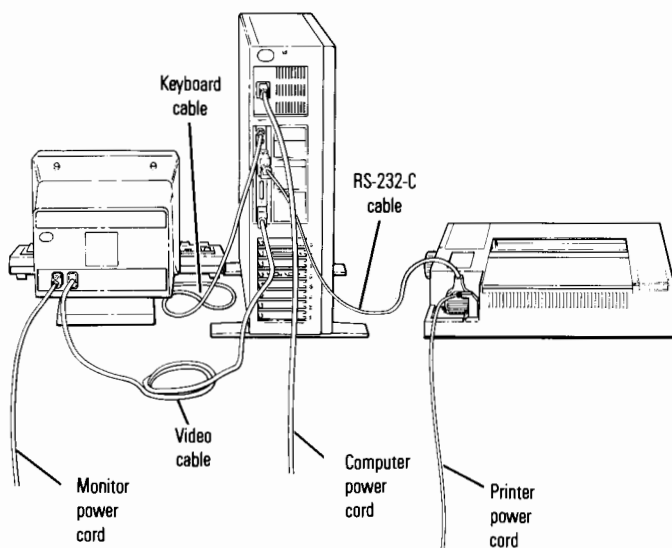
IBM PS/2 — HP PaintJet
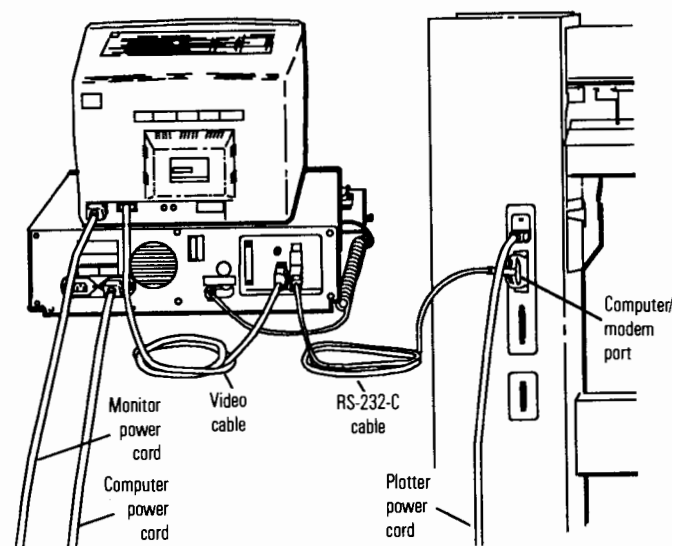
IBM PC-XT — HP DraftMaster I

Configuring Your Plotter

ColorPro, 7475A, and DraftPro Series

1. Turn to the rear of the plotter. Set the plotter switches as shown below. These switches establish a baud rate of 9600.

   You can change the baud rate to match the needs of your computer, network, or software. If you wish to set a different baud rate, refer to the appropriate plotter manual.
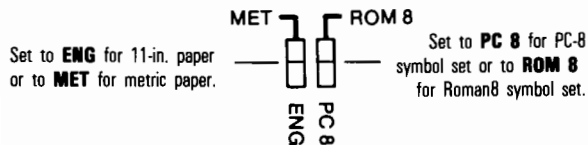

HP ColorPro

HP 7475A

HP DraftPro

2. Turn on the plotter and load pens and paper. (For more details on loading, refer to the appropriate plotter manual.)

HP DraftMaster I and II

1. Load pens in the appropriate carousel and place the carousel in the plotter. (Refer to the plotter manual for more details.)

2. Hold down the **FAST** button on the plotter's front panel while turning on the plotter. This will set all parameters to the appropriate default settings, including 9600 baud.

   You can change the baud rate to match the needs of your computer, network, or software. If you wish to set a different baud rate, refer to the appropriate plotter manual.

3. Load paper. Make sure the right edge of the media is aligned with the front and rear paper stops. (Refer to the plotter manual for more details.) The line on the left pinch wheel should lie over the left edge of the paper.

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HP 7550A

1. Load pens in the appropriate carousel and place the carousel in the plotter. (Refer to the plotter manual for more details.)

2. Hold down the "Up" arrow on the plotter's control panel while turning on the plotter. If the words **DEFAULT CONDITIONS** appear in the LCD display, all parameters are set to the appropriate default settings, including 9600 baud. Load paper either manually or automatically, and skip to "Verifying Plotter Communication."

3. If the words **DEFAULT CONDITIONS** do not appear in the LCD, the proper communication parameters will have to be set manually. Load paper either manually or automatically, and press the **ENTER** button, then the **NEXT DISPLAY** button to access the LCD window shown here.

4. Press the softkey below the word **SERIAL** once. The LCD should now read like the window shown here.

5. Press the softkey above the word **DATA** in **DATA FLOW.** Now press the softkey under the word **EAVESDROP.** This should change the setting to **STANDALONE,** and the display should match the one shown.

6. Press the **ENTER** button on the plotter to save this configuration. The LCD window should change.

7. Press the button below **HANDSHAKE** then press the button below **NONE** three times until the display reads **HARDWIRE**. The display should match the one shown. Press **ENTER** to save the configuration.

8. Press **NEXT DISPLAY** to get to this display.
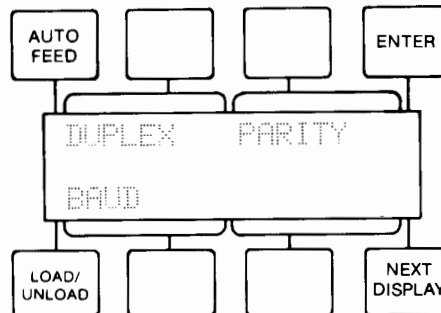
9. Press the softkey under **BAUD.** Press the softkey under **2400** twice, until it reads **9600**. Press **ENTER**.

   You can change the baud rate to match the needs of your computer, network, or software. If you wish to set a different baud rate, refer to the appropriate plotter manual.

10. Finally, press **ENTER,** then **NEXT DISPLAY** twice to return to the main LCD window. Your HP 7550A will maintain these parameters even if you turn your plotter off.

Configuring your PaintJet Printer

1. Set the switches on the rear panel of the printer as shown below.

Set to **ENG** for 11-in. paper
or to **MET** for metric paper.

Set to **PC 8** for
PC-8 symbol set
or to **ROM 8** for
Roman8 symbol set.

ENG
PC 8
XON-XOFF

BAUD
PARITY

Option 001 — RS-232-C

MET   ROM 8

Set to **ENG** for 11-in. paper
or to **MET** for metric paper.

Set to **PC 8** for PC-8
symbol set or to **ROM 8**
for Roman8 symbol set.

ENG   PC 8
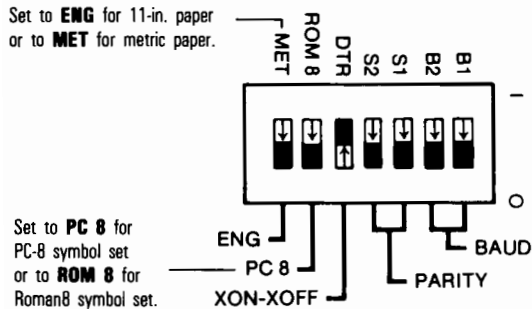
Option 004 — Centronics Parallel

The switches for the RS-232-C option establish 9600 baud, no
parity, and hardwire handshake. You can change the baud rate
to match the needs of your computer or software. If you wish
to set a different baud rate, refer to the manual.

2. Turn on the printer.

3. Load paper, and run the self-test. If necessary, prime and wipe
the print cartridges. (Refer to the manual for details.)

Verifying Plotter Communication

These instructions assume your plotter is configured for 9600 baud. If you have selected a different baud rate, replace 9600 with the baud rate you have chosen in the commands that follow. Also, if you have more than one asynchronous communications adapter or interface card, COM1 in the instructions that follow may have to be changed. Please consult your computer documentation for more details.

Without BASIC

1. Turn on the computer and load the operating system.

2. At the DOS prompt, type the following:

```
MODE COM1:9600,N,8,1,P
```

   Press the **ENTER** key on the keyboard. This will set the RS-232-C port for 9600 baud, no parity, 8 data bits, and one stop bit; and specify hardwire handshake with continuous retry

3. Type the following:

```
ECHO IN;SP1;PA2000,1500;PD0,1500,2000,3500,2000,1500;SP0;>COM1
```

   Press **ENTER**. The plotter should select pen one, draw a triangle on the page, and return the pen to the carousel.

With BASIC

1. Turn on the computer and load the operating system.

2. Load BASIC and run the following program:

```
10 OPEN "COM1:9600,N,8,1,RS,CS65535,DS,CD" AS #1
20 PRINT #1, "IN;OI;"
30 INPUT #1, ID$
40 PRINT #1, "SP1;PA500,500;"
50 PRINT #1, "LB"+ID$+" PLOTTER OK"+CHR$(3)
60 PRINT #1, "PA0,0;SP0;"
70 END
```

3. Type **RUN** and press **ENTER**. The plotter should label its model number followed by PLOTTER OK.

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Verifying Printer Communication

These instructions assume your RS-232-C printer is configured for 9600 baud. If you have selected a different baud rate, replace 9600 with the baud rate you have chosen in the commands that follow. Also, if you have more than one asynchronous communications adapter or serial interface card, COM1 in the instructions that follow may have to be changed. Please consult your computer documentation for more details.

Without BASIC

1. Turn on the computer and load the operating system.

2. If you are using an RS-232-C interface, you must configure the computer. (If you are using a parallel option, skip to step 3.)

   At the DOS prompt, type:
   ```
   MODE COM1:9600,N,8,1,P
   ```
   and press **ENTER**. This will set up the communications port for 9600 baud, no parity, 8 data bits, and one stop bit. Now type:
   ```
   MODE LPT1:=COM1:
   ```
   and press **ENTER** to direct the parallel printer output to the serial port.

3. Make sure only text (no graphics) appear on your screen. If there is no text, type in any comment at the DOS prompt.

4. Hold down the **Shift** key on your keyboard and press the **PrtSc** key. Any text on the screen will print out. (Any attempt to print graphics without software will produce unpredictable results.)

With BASIC

1. Turn on the computer and load the operating system.

2. If you are using an RS-232-C interface, you must configure the computer. (If you are using a parallel option, skip to step 3.)

   At the DOS prompt, type:
   ```
   MODE COM1:9600,N,8,1,P
   ```
   and press **ENTER**. This will set up the communications port for 9600 baud, no parity, 8 data bits, and one stop bit. Now type:
   ```
   MODE LPT1:=COM1:
   ```
   and press **ENTER** to direct the parallel printer output to the serial port.

3. Load BASIC.

4. Enter and run the following program:
   ```
   10 LPRINT CHR$(27)+"E"          'resets the printer
   20 LPRINT "COMMUNICATION OK"
   30 LPRINT CHR$(13)              'carriage return
   40 LPRINT CHR$(12)              'form feed
   50 END
   ```

5. The printer will print COMMUNICATION OK.

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Adding Software

If you have followed these steps carefully, your computer and HP graphics peripheral should be communicating. Now the system is ready for your own software package. Since some packages may require the baud rate or configuration to be altered, consult the software documentation before proceeding.

Connecting and Configuring your HP Pen Plotter or Color Graphics Printer

Set-up Instructions

**For Macintosh
Personal Computers**

PaintJet

These instructions will show you how to set up your HP pen plotter or PaintJet color graphics printer so that it can communicate with an Apple Macintosh, Macintosh Plus, SE, or II computer.

The Right Equipment

The information given is for typical configurations. Hardware and memory requirements may vary depending on the software package or application being used; check with your software supplier or consult the software documentation. Also, you may want to add a buffer box or plot spooler for increased productivity.

Computer

- Computer with disk drive
- Microsoft® BASIC, Version 2.0 or higher*

Plotter or Printer

- For RS-232-C connections:

  HP ColorPro (HP 7440A) Option 001,
  HP 7475A Option 001,
  HP 7550A,
  HP DraftPro (HP 7570A),
  HP DraftPro DXL (HP 7575A),
  HP DraftPro EXL (HP 7576A),
  HP DraftMaster I (HP 7595A),
  HP DraftMaster II (HP 7596A), or
  HP PaintJet (HP 3630A) Option 001†

- HP 17305A PaintJet Printer Interface Kit for Macintosh Computers (for PaintJet users only)‡

* BASIC is necessary only to run the communication verification program for plotters listed at the end of these instructions. It is not needed to run most graphics applications.

† Although information is given here to connect an HP PaintJet printer to a Macintosh 128K or 512K computer, a Macintosh Plus, SE, or II used with the HP PaintJet Interface Kit for Macintosh Computers is the recommended solution.

‡ The interface kit includes an HP 17302A interface cable, printer resource, fonts, and manual.

Set-up

Cables

To select the right cable, consult the table shown below. Cable schematics follow.

Computer System	Interface	HP ColorPro, 7475A, DraftPro Series, DraftMaster I and II Plotters	HP 7550A Plotter	HP PaintJet Printer
Apple Macintosh	RS-232-C	HP 92219M	HP 92219M plus HP 92224F	HP 92219M
Apple Macintosh Plus, SE, or II	RS-232-C	HP 17302A	HP 17302A plus HP 92224F	HP 17302A

RS-232-C Cable
HP 92219M
1.5 m (5.0 ft)

9-pin male   25-pin male

```
1  <---------------->  1
3  <---------------->  7
5  ---------------->   3
7  <----------------   20
9  <----------------   2
```

RS-232-C Cable
HP 17302A
1.5 m (5.0 ft)
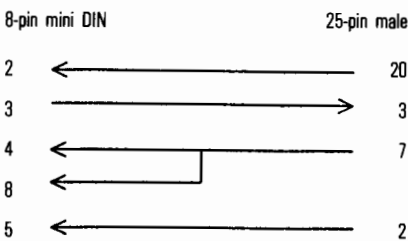
8-pin mini DIN   25-pin male

```
2  <----------------   20
3  ---------------->   3
4  <----------------   7
8  <----
5  <----------------   2
```

RS-232-C Gender Converter
HP 92224F
0.06 m (0.2 ft)

25-pin female   25-pin female
HP 92224F   **HP 92224F**
25-pin male   25-pin male
HP 92224M   **HP 92224M**

```
1  <---------------->  1
2  ---------------->   2
3  <----------------   3
4  ---------------->   4
5  <----------------   5
6  <----------------   6
7  <---------------->  7
8  <----------------   8
9  ----------------    9
         .                   .
         .                   .
19 ----------------    19
20 <----------------   20
```

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Connecting Your Equipment

1. Turn off both the computer and the plotter or color graphics printer.

2. Connect the peripheral to the computer.

   For the Macintosh: Attach the small end of the interface cable to the printer or modem port on the back of the computer, and attach the other end of the cable to the plotter or printer. If the plotter has two RS-232-C connectors, attach the cable to the one labeled *COMPUTER*. (Note that the communication verification program for plotters at the end of these instructions will work for plotters connected to the modem port only.)

   For the Macintosh Plus, SE, or II: Attach the round end of the cable to either the modem or printer port on the back of the computer. Attach the other end of the cable to the plotter or printer. If the plotter has two RS-232-C connectors, attach the cable to the one labeled *COMPUTER*. (Note that the communication verification program for plotters at the end of these instructions will work for plotters connected to the modem port only.)

   Some typical configurations are shown in the following illustrations.
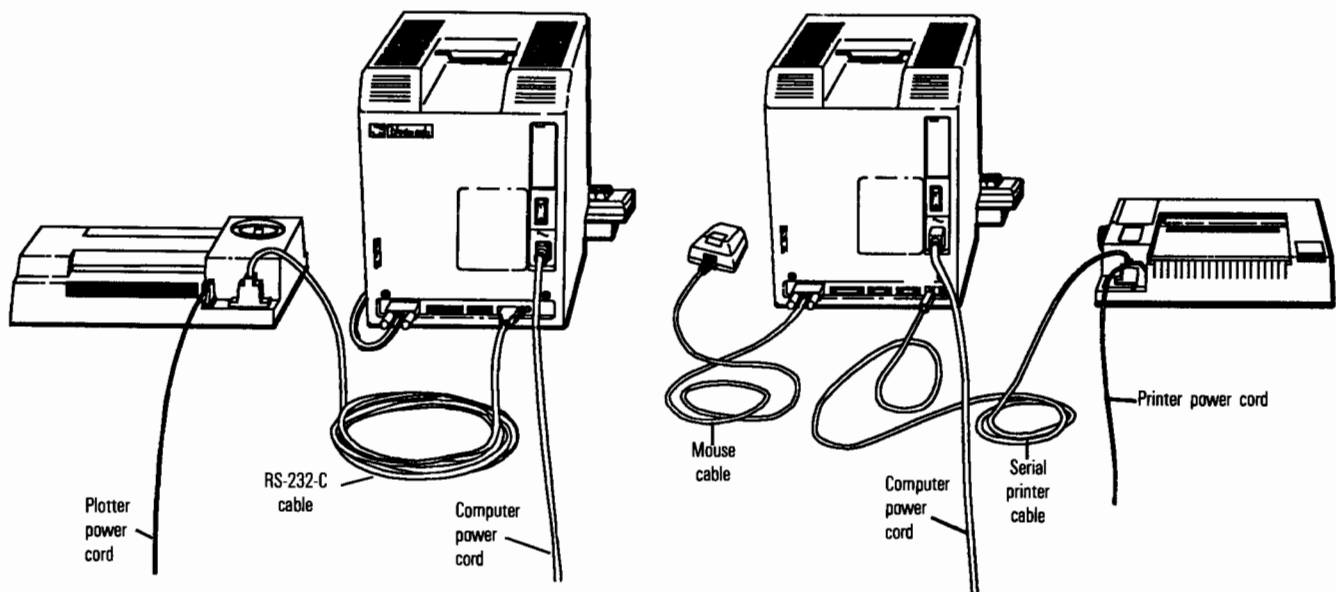
Macintosh — ColorPro

Macintosh Plus — PaintJet

Configuring Your Plotter

ColorPro, 7475A, and DraftPro Series

1. Turn to the rear of the plotter. Set the plotter switches as shown below. These switches establish a baud rate of 9600.

   You can change the baud rate to match the needs of your computer, network, or software. If you wish to set a different baud rate, refer to the appropriate plotter manual.

HP ColorPro

HP 7475A

HP DraftPro

2. Turn on the plotter and load pens and paper. (For more details on loading, refer to the appropriate plotter manual.)

HP DraftMaster I and II

1. Load pens in the appropriate carousel and place the carousel in the plotter. (Refer to the plotter manual for more details.)

2. Hold down the **FAST** button on the plotter's front panel while turning on the plotter. This will set all parameters to the appropriate default settings, including 9600 baud.

   You can change the baud rate to match the needs of your computer, network, or software. If you wish to set a different baud rate, refer to the appropriate plotter manual.

3. Load paper. Make sure the right edge of the media is aligned with the front and rear paper stops. (Refer to the plotter manual for more details.) The line on the left pinch wheel should lie over the left edge of the paper.

HP 7550A

1. Load pens in the appropriate carousel and place the carousel in the plotter. (Refer to the plotter manual for more details.)

2. Hold down the "Up" arrow on the plotter's control panel while turning on the plotter. If the words **DEFAULT CONDITONS** appear in the LCD display, all parameters are set to the appropriate default settings, including 9600 baud. Load paper either manually or automatically, and skip to "Verifying Plotter Communication."

3. If the words **DEFAULT CONDITIONS** do not appear in the LCD, the proper communication parameters will have to be set manually. Load paper either manually or automatically, and press the **ENTER** button, then the **NEXT DISPLAY** button to access the LCD window shown here.

4. Press the softkey below the word **SERIAL** once. The LCD should now read like the window shown here.

5. Press the softkey above the word **DATA** in **DATA FLOW**. Now press the softkey under the word **EAVESDROP.** This should change the setting to **STANDALONE,** and the display should match the one shown.

6. Press the **ENTER** button on the plotter to save this configuration. The LCD window should change.

7. Press the button below **HANDSHAKE** then press the button below **NONE** three times until the display reads **HARDWIRE**. The display should match the one shown. Press **ENTER** to save the configuration.

```
┌──────┐  ┌──────┐  ┌──────┐  ┌──────┐
│ AUTO │  │      │  │      │  │ENTER │
│ FEED │  │      │  │      │  │      │
└──────┘  └──────┘  └──────┘  └──────┘
   ┌────────────────────────────────┐
   │  HANDSHAKE    MODE        *     │
   │                                │
   │  HARDWIRE     DIRECT           │
   └────────────────────────────────┘
┌──────┐  ┌──────┐  ┌──────┐  ┌──────┐
│LOAD/ │  │      │  │      │  │ NEXT │
│UNLOAD│  │      │  │      │  │DISPLAY│
└──────┘  └──────┘  └──────┘  └──────┘
```

8. Press **NEXT DISPLAY** to get to this display.

```
┌──────┐  ┌──────┐  ┌──────┐  ┌──────┐
│ AUTO │  │      │  │      │  │ENTER │
│ FEED │  │      │  │      │  │      │
└──────┘  └──────┘  └──────┘  └──────┘
   ┌────────────────────────────────┐
   │  DUPLEX       PARITY           │
   │                                │
   │  BAUD                          │
   └────────────────────────────────┘
┌──────┐  ┌──────┐  ┌──────┐  ┌──────┐
│LOAD/ │  │      │  │      │  │ NEXT │
│UNLOAD│  │      │  │      │  │DISPLAY│
└──────┘  └──────┘  └──────┘  └──────┘
```

9. Press the softkey under **BAUD.** Press the softkey under **2400** twice, until it reads **9600.** Press **ENTER.**

   You can change the baud rate to match the needs of your computer, network, or software. If you wish to set a different baud rate, refer to the appropriate plotter manual.

10. Finally, press **ENTER,** then **NEXT DISPLAY** twice to return to the main LCD window. Your HP 7550A will maintain these parameters even if you turn your plotter off.

Configuring your PaintJet Printer

1. Set the switches on the rear panel of the printer as shown below.

Set to **ENG** for 11-in. paper or to **MET** for metric paper.

Set to **PC 8** for PC-8 symbol set or to **ROM 8** for Roman8 symbol set.

MET ROM 8 DTR S2 S1 B2 B1

ENG
PC 8
XON-XOFF
PARITY
BAUD

Option 001 — RS-232-C

These settings establish 9600 baud, XON/XOFF, and no parity.

2. Turn on the printer.

3. Load paper, and run the self-test. If necessary, prime and wipe the print cartridges. (Refer to the manual for details.)

Installing the Printer Resource and Fonts

If you are using the PaintJet printer, the PaintJet Printer Interface Kit for Macintosh Computers, and a Macintosh Plus, SE, or II, you will need to install the printer resource and fonts.

1. Turn on the computer.

2. Insert Disk #1 from the interface kit.

3. Start the *HP Installer application by double-clicking on the HP Installer* icon.

4. Click *OK* in the *HP Installer Introduction* screen. You will see the *HP Installer Main* dialog:

HP PaintJet Installer

— Installation —
1. Install Driver
2. Install Fonts
3. Choose Printer
4. Test Printer

Help
HP Tech Support
Diagnostics
Quit
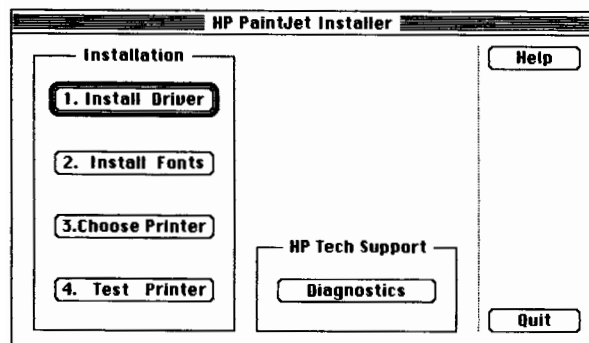
5. Click buttons 1 through 4 in order. This will install the printer software, choose the PaintJet printer as your active printer, and verify that your computer is able to send data to your printer.

Verifying Plotter Communication

These instructions assume your plotter is configured for 9600 baud. If you have selected a different baud rate, replace 9600 with the baud rate you have chosen in the commands that follow.

1. Turn on the computer and load the operating system.

2. Verify that you have version 2.0 or higher of the Microsoft BASIC. Place the disk in the drive. You will see a watch icon, then a menu bar across the top of the screen.

3. Make sure the BASIC disk is selected. Select **FILE** from the menu bar, then select **OPEN** from the **FILE** menu. If prompted to do so, correct the date and time. Press **RETURN.**

4. You should now have a window displaying Microsoft BASIC. Choose the BASIC(b) icon.

5. Select **FILE** from the menu bar, and **OPEN** from the **FILE** menu.

6. You should have a window, headed by **LIST** on your screen. Type in the following BASIC program:

```
10 OPEN "COM1:9600,N,8,1,RS,CS65535,DS,CD" AS #1
20 PRINT #1, "IN;OI;"
30 INPUT #1, ID$
40 PRINT #1, "SP1;PA500,500;"
50 PRINT #1, "LB";ID$;" PLOTTER OK";CHR$(3)
60 PRINT #1, "PA0,0;SP0;"
70 END
```

7. Select **RUN** from the menu bar, and **START** from the **RUN** menu. The plotter will label its model number followed by PLOTTER OK.

Adding Software

If you have followed these steps carefully, your Macintosh computer and HP graphics peripheral should be communicating. Now the system is ready for your own software package. Since some packages may require the baud rate or configuration to be altered, consult the software documentation before proceeding.

HP 2276A, HP 2277A DeskJet and DeskJet PLUS Printers

Technical Data

Fast, reliable operation

Features
- Laser-quality output at a personal printer price
- Multiple fonts and full-page, high-resolution graphics
- Attractive desktop design
- Simple operation
- Industry-standard compatibility

Laser-Quality Output at a Personal Printer Price
If you want to upgrade your professional image with sophisticated, high-quality letters and documents that show you at your best, you may be thinking about acquiring a 24-wire impact printer. If so, here's a better solution for you—the *new* Hewlett-Packard DeskJet PLUS printer, for laser-quality output at a personal printer

price. With the new DeskJet PLUS printer, you can quickly and quietly produce top-quality letters, reports, spreadsheets, and graphics right at your own desk.

The new DeskJet PLUS printer offers faster throughput and improved print quality with ten built-in fonts—six portrait and four landscape. Four new font cartridges offer improved proortional spacing and character sizes **up to 30 point.**

Multiple Fonts and Full-page, High-resolution Graphics
Two cartridge slots allow you to add additional font capability. So, for the look of success, you can mix and match type sizes and styles. Or merge text and graphics. And with the DeskJet PLUS printers, you can print beautiful full-page (300 dpi) graphics without additional memory.

Attractive Desktop Design, Simple Operation
Fits in your budget. Sits neatly on your desk. Compact, whisper-quiet, unobtrusive. The DeskJet PLUS printer's attractive desktop design includes a built-in sheet feeder and a recessed area where cables fit neatly out of the way.
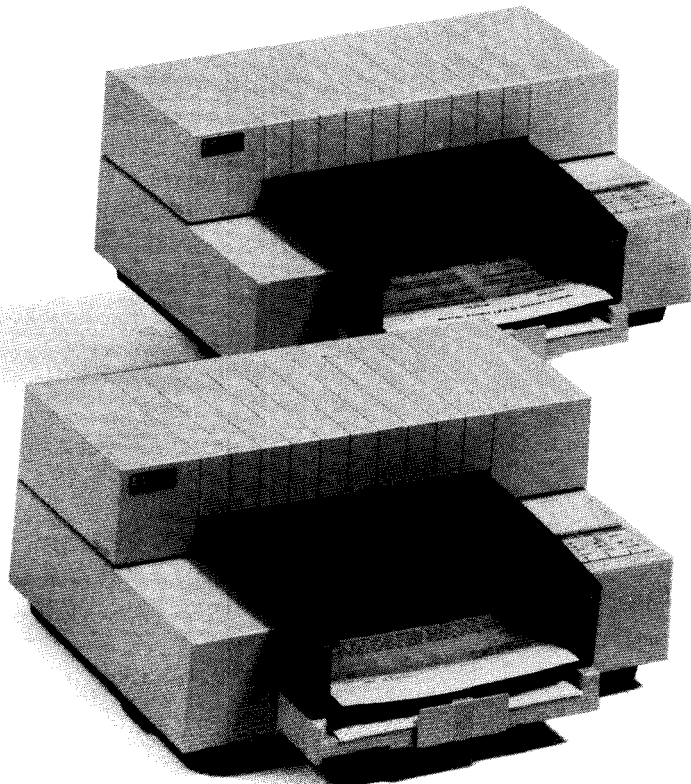
Conveniently located in the front, the built-in automatic cut-sheet feeder allows you to easily add paper and to see when paper is getting low. The friendly printer control panel allows you to select print mode, print features, and font styles.

Industry-standard Compatibility

Most popular personal computer software supports the HP DeskJet PLUS printers. It uses Hewlett-Packard HP PCL (printer language), which means you can use many LaserJet printer drivers as well. An optional Epson FX-80 emulation cartridge enables you to use the DeskJet PLUS printer with Epson-compatible software. Excellent support and documentation assure a quick start for everyone.

Now there are two HP DeskJet printers: the acclaimed HP DeskJet Printer, 1988 Datek Printer of the Year, and the new HP DeskJet PLUS printer. The new DeskJet PLUS printer prints text up to two times faster and graphics up to five times faster than the DeskJet printer. It offers improved print quality, larger font sizes, and built-in landscape printing. The new, higher-performance HP DeskJet PLUS printer is the right printer for your office; the low-cost DeskJet printer, just the printer for your office at home.

Technical Information

Printing Method
Plain paper drop-on-demand thermal inkjet printing

Print Speed
Letter-quality mode: 120 cps at 10 cpi
Draft mode: 240 cps at 10 cpi

Processor
DeskJet printer: Z80
DeskJet PLUS printer: Z180

Command Language and Emulation
HP PCL printer language, Level 3; optional Epson FX-80 emulation

Character Cell Structure
Letter-quality mode: 300 × 300 dpi, 30 (h) × 50 (v)
Draft mode: 300 × 150 dpi, 15 (h) × 50 (v)

Graphics Resolution
Full-page 75, 100, 150, 300 dpi

Character Sets
HP Roman8, PC-850 (DeskJet PLUS only), PC-8 (Dn/No), ASCII, ISO 7-bit languages (German, French, Italian, Norwegian, Portuguese, Swedish, Spanish, British), JIS ASCII, ECMA-94 Latin 1, Legal.

Other character sets are available depending on font cartridge selected.

Printing Format
Portrait
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

Landscape (internal to HP 2277A only).
Pitch: 10, 16.67, or 20, depending on printer mode and font selection

Point Size: 6, 12, 24, depending on font selection

Style: Upright

Stroke Weight: Normal or Bold, depending on font selection
Typeface (internal to printer): Courier (HP 2276A, HP 2277A), Courier Italic (HP 2277A)

Other print features: bold, expanded, underlined, double underline,super-subscript. Also half-height and half-width, depending on printer mode and font selection.

Paper
Size: U.S. letter (8½ × 11 in.), U.S. legal (8½ × 14 in.), A4 (210 × 297 mm), #10 envelope (4⅛ × 9½ in.)

Weight: 16 to 24 pound

Types: HP DeskJet printers work well with most types of paper, although some variables in paper composition may significantly affect print quality and paper handling. Bond paper, such as letterhead, gives excellent quality. Paper should be tested to ensure best performance. **HP JetPaper should not be used.**

Paper Handling
Built-in sheet feeder (up to 100 sheets)

Manual envelope feed

Control Panel
On-line, Prime, FF (Form Feed), Envelope Feed (Up and Down Arrow Keys), Font, Mode, Up Arrow, Down Arrow, Reset

Dual I/O Interface
Centronics parallel and RS-232 serial

Environmental Ranges
Temperature
10 to 40 degrees C (50 to 104 degrees F) maximum operation; 15 to 35 degrees C (59 to 95 degrees F) recommended for best print quality; -40 to 60 degrees C (-40 to 140 degrees F) storage

Humidity
10-70% RH non-condensing

Acoustics per ISO SP 770 Standard
Sound pressure level—L_{PA}: 44 dB(A) @ 1 m bystander position

Power Requirements
Power modules
100 volts AC (+10%, -10%) 47.5–63 Hz

120 volts AC (+10%, -10%) 47.5–63 Hz

220 volts AC (+10%, -10%) 47.5–63 Hz

240 volts AC (+10%, -10%) 47.5–63 Hz

Power consumption at 20 VAC
8 watts maximum non-printing
25 watts maximum printing

Physical Specifications
Height: 202 mm (8 in.)

Width: 440 mm (17.3 in.)

Depth: 377 mm (14.8 in.)

Weight: 6.5 kg (14.3 lb)

Buffer Size
16 K bytes

Product Certifications
Safety Certifications—Power Module
UL, CSA, TUV or VDE, BSI, SEMKO, NEMKO, FEI, LCIE, SECV

Safety Certifications—Printer with Power Module
UL, CSA, TUV; others not required

EMI Certifications—Printer with Power Module:
FCC Class B when used with a Class B computing device (USA), VDE/FTZ level B (Germany), VCCI (Japan), SABS (South Africa)

Reliability and Estimated Usage
MTBF: 20,000 hours; 2,000 hours power-on and 12,000 printed pages per year; 50 pages per day average use, 60,000 page life

Ordering Information
HP 2276A DeskJet printer
HP 2277A DeskJet PLUS printer

The standard unit includes 1 printer, 1 print cartridge, 1 external power supply, 1 acrylic paper tray cover, and owner's manual.

Interface and Cable Requirements

System	Printer I/O	Host Interface	Cable #
Vectra PC	Parallel	HP24540A Interface Card	24542D
	Serial	HP24540A Interface Card	24542G
		HP24541A Interface Card	24542G (using 9-pin connector) 13242G or 17255M (using 25-pin connector)
HP150 PC	Serial	Built-in	13242G or 17255M
Portable PC	Serial	Built-in	92221P
Portable Vectra CS	Parallel	Built-in	24542D
	Serial	HPD1004A Interface Card	24542G (using 9-pin connector) or 13242G (using 25-pin connector)
HP Terminals 700/41, 700/92, 700/94	Serial	Built-in	40242G
2392A, 2393A	Parallel	Opt 093 or HP 40210P*	40242D
2394A, 2397A	Serial	Opt 092 or HP40210R*	40242G
Apple II, II+, IIe	Parallel	Apple II Parallel Interface Card or Grappler+	Apple #590-0042
	Serial	Apple Super-serial Card	17355M or Apple #590-0037
Apple IIc	Serial	Built-in	92219N or Apple #590-0191
Apple IIgs	Serial	Built-in	Apple #590-0331 or Apple #590-0169 with #590-0341
IBM PC, PC/XT	Parallel	IBM Parallel Printer Adaptor	24542D or IBM Parallel Printer Cable
	Serial	IBM Asyn. Com. Adaptor	17255D or 13242H
IBM AT	Parallel	IBM Serial/Parallel Adaptor	24542D or IBM Parallel Printer Cable
	Serial	IBM Serial/Parallel Adaptor	24542G
IBM PS/2	Parallel	Built-in	24542D
	Serial	Built-in	17255D or 13242H
IBM Convertible	Parallel	IBM Serial/Parallel Adaptor	24542D
	Serial	IBM Serial/Parallel Adaptor	17255D or 13242H

*Host interface to order when adding DeskJet/DeskJet PLUS printer to standard terminal

Supplies and Accessories

Printer supplies are available at authorized HP dealers worldwide. Or through HP's Direct Marketing Operation in the U.S. (800-538-8787).

Print Cartridge for DeskJet and DeskJet PLUS Printers

HP 51608A Black ink print cartridge 1,000,000 draft characters; 500,000 letter-quality characters

Font Cartridges and Soft Fonts

FOR DESKJET AND DESKJET PLUS PRINTERS
HP 22706A Courier Italic (built-in to DeskJet PLUS printer)
HP 22706B Prestige Elite
HP 22706C Letter Gothic
HP 22706D TmsRmn 8 & 10 Point
HP 22706E TmsRmn 12 Point
HP 22706F TmsRmn 14 Point
HP 22706G Helv 8 & 10 Point
HP 22706H Helv 12 Point
HP 22706J Helv 14 Point
HP 22707L Landscape Fonts (additional fonts for DeskJet printer when using HP 22707K Landscape Upgrade cartridge)
HP 22706M* Presentations 18 Point
HP 22706P* TmsRmn 8/10/12/14 Point
HP 22706Q* Helv 8/10/12/14 Point
HP 22708A† TmsRmn/Helv Soft Font
HP 22708C‡ TmsRmn/Helv Soft Font
HP 22708D‡ Univers Soft Font

FOR DESKJET PLUS PRINTERS ONLY
DeskJet PLUS font cartridges offer improved print quality and are not for use on the DeskJet HP 2276A printer.
HP 22706R TmsRmn 8/10/12/14 Point (equivalent to 22706D/E/F/P)
HP 22706T Helv 8/10/12/14 Point (equivalent to 22706G/H/J/Q)
HP 22706U* TmsRmn 30 Point Headlines
HP 22706V* Helv 30 Point Headlines

*This font cartridge contains ASCII characters only and may not be suitable for use in countries requiring non-English characters and symbols.

†Requires an additional 128K or 256K of RAM, depending on application.

‡The DeskJet printer cannot access fonts larger than 14 points.

Other Accessories

HP 22707A 128 Kbyte RAM
For use with DeskJet/DeskJet PLUS printer for downloading soft fonts only
HP 22707B 256 Kbyte RAM
For use with DeskJet PLUS printer for downloading soft fonts only
HP 22707E Emulation Cartridge
Allows the HP 2276A DeskJet printer to emulate Epson FX-80 printer
HP22707F Emulation Cartridge
Allows the HP 2277A DeskJet PLUS printer to emulate Epson FX-80 printer
HP22707K Landscape Upgrade
For the HP 2276A DeskJet printer. Note: Landscape capability is built in to the HP 2277A DeskJet PLUS printer.
HP 92177Z DeskJet Organizer
For DeskJet and DeskJet PLUS printer supplies.
HP 92250R DeskJet printer dust cover
HP 02276-90004 DeskJet owner's manual
HP 02277-90001 DeskJet PLUS owner's manual (in English, French, German, Italian, and Spanish)

Note: The HP 2276A DeskJet printer can access 128K RAM only and cannot utilize 30-point characters.

HP 2278A
DeskWriter Printer

Technical Data

Laser-Quality Output at Your Desktop

Features
- Laser-quality output
- Convenient, affordable desktop design
- Designed exclusively for the Macintosh computer
- Fast
- Quiet

Imagine the convenience of being able to print word processing, spreadsheet, graphics, desktop presentation, and database applications in high resolution output from your Macintosh computer without ever having to leave your desk! The HP DeskWriter printer

puts smooth, crisp laser-quality text and graphic Macintosh computer output at your fingertips. Quickly and quietly.

Laser-quality output
At 300 dpi (dots per inch) the HP DeskWriter printer delivers the laser-quality output you require. And comes complete with the standard Macintosh fonts you expect—Helvetica, Times, Symbol, and Courier, in plain, bold, italic, and bold italic versions, fully scalable up to 250 points and anything in between. HP DeskWriter fonts can also be rotated or "flipped." And you can add more

font styles later: Palatino, Century Schoolbook, Bookman, Avant Garde Gothic, Helvetica Narrow, and Zapf Chancery and Zapf Dingbats. They're available individually or as an HP Desk-Writer Printer Font Collection, a specially priced, complete set.

The HP DeskWriter printer's graphics, smoothing techniques and 300 dpi resolution ensure your graphics are "laser" smooth, not jagged. And your final document can be reduced to 25% or enlarged up to 400%.

Convenient, desktop design
The HP DeskWriter personal printer gives you greater control over your printing tasks. Avoid queueing up at the laser printer, retrieve your output without having to leave your work space, easily keep your confidential documents . . . confidential. All without giving up the laser-quality look and capabilities your work requires.

DeskWriter

Technical Data
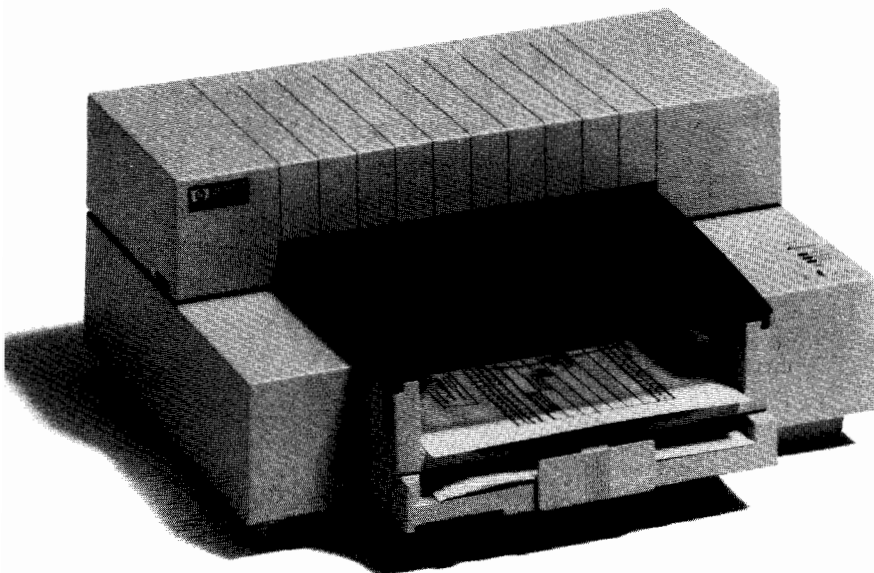
"Plug and go" Macintosh computer compatibility

Designed exclusively for the Macintosh computer, the HP DeskWriter printer provides full system integration with the Macintosh computer operating system and software applications*. You can use the same software applications as the Apple's QuickDraw-based printers: the ImageWriter printer family and the LaserWriter II SC printer.†

As a product specifically designed for your Macintosh computer, the HP DeskWriter printer uses the same familiar dialog boxes you're used to using when making your print selection choices. The DeskWriter printer even uses the same 8-pin (Apple System/Peripheral-8) cable used to plug in Apple printers—a high-speed serial interface for fast, high-quality text and graphics processing.

Fast

At 1 PPM printing for an average mixed text and graphics document in "best" mode,‡ the HP DeskWriter printer is a fast desktop printer. Printing in draft mode, or printing from a Macintosh II or SE system with more than 1 MB of memory, is even faster. In many cases, the HP Desk-Writer printer will print a page at speeds corresponding to popular Macintosh laser printers. Overall, exact print times will vary by system, application, and content.

Quiet operation

The whisper-quiet HP Desk-Writer printer is ideal for business and professional settings.

*The HP DeskWriter printer is based on Apple's QuickDraw technology.

†The HP DeskWriter printer is not a PostScript printer. Software applications with features that require PostScript language commands are not fully supported by the DeskWriter printer. Only a few high-end graphic arts software applications actually require the full functionality of the PostScript language.

‡ Based on average times for printing, a combination of typical business applications utilizing formatted text, graphcis, and mixed text and graphics from a Macintosh SE computer with 1 MB of resident RAM.

Technical Information

Print Method
Plain-paper, drop-on-demand thermal inkjet printing

Print Speed
"Best" mode: 1 ppm
"Faster" mode: 2 ppm

Dot Resolution
"Best" mode: 300 × 300 dpi
"Faster" mode: 150 × 150 dpi

Paper Size
Letter (8.5 × 11 in.)
Legal (8.5 × 14 in.)
A4 (210 × 297 mm)
#10 envelope (4.12 × 9.5 in.)

Paper Weight
60 to 90 g/m_2 (16 to 24 lb)

Paper Handling
Built-in sheet feeder
(up to 100 sheets)

Manual envelope feed

Imageable Area
Letter (8.5 × 11 in.); 8.0 × 10.13 in. (203 × 258 mm)

Legal (8.5 × 14 in.); 8.0 × 13.15 in. (203 × 334 mm)

A4 (210 × 297 mm); 8.0 × 10.83 in. (203 × 275 mm)

AGFA Compugraphic Printer Fonts
CS Courier, CS Times, CS Triumvirate, and CS Symbol. Scalable: up to 250 points.

Apple Screen Fonts
Courier, Times, Helvetica, and Symbol

Sizes: 9, 10, 12, 14, 18 and 24 points

Keypad
PRIME, SELECT, error light, power light, ready light

I/O Interface
RS-422-A serial 57.6 Kbaud

Buffer Size
12 Kbyte receive buffer

Power Requirements
Power modules:
Input voltage (power module dependent): 100, 120, 220, or 240 VAC (+10%,−10%)

Frequency:

100 VAC	50/60 Hz (±3 Hz)
120 VAC	60 Hz (±3 Hz)
220 VAC	50 Hz (±3Hz)
240 VAC	50 Hz (±3 Hz)

Power consumption at 120 VAC, 60 Hz: 8 watts maximum non-printing; 25 watts maximum printing

Environmental Ranges
Maximum operating temperature: 5 to 40 degrees C (41 to 104 degrees F)

Recommended operating temperature for best print quality: 15 to 35 degrees C (59 to 95 degrees F)

Storage temperature: −40 to 70 degrees C (−40 to 158 degrees F)

Humidity: 5-80% RH non-condensing

Noise Levels per ISO 9296:

	"Best"	"Faster"
Sound Power, L$_{wAd}$:	5.6 B(A)	5.8 B(A)
Sound Pressure, L$_{pAm}$:	43 dB(A)	45 dB(A)

Dimensions
440 mm (17.3 in.) W × 202 mm (8.0 in.) H × 377 mm (14.8 in.) D

Weight
6.5 kg (14.3 lb)

Reliability
60,000 page life; MTBF 20,000 hours; 2000 hours power-on; 12,000 printed pages/year

20-25 pages per day average use; 50 pages per day maximum use

Product Certifications
Safety: UL 478, CSA 22.2-154M/1983, IEC 380, IEC 435, TUV GS (VDE 0806)

EMI: VDE Level B; FCC Class B per FCC Rules, Part 15, subpart J when used with a Class B computing device; VCCI Class 2, SABS Approved

Interface and Cable Requirements

Host	Printer/IO	Host Interface	Cable
Macintosh Plus, SE, SE/30 II, IIx, IIcx	Serial	Built-in	Apple System/ Peripheral-8

Ordering Information
Standard Unit
HP 2278A
DeskWriter Printer
The standard unit includes: one DeskWriter printer, three floppy disks (containing four fonts on two disks and an installation disk), one external power module, one print cartridge, one acrylic paper tray cover, "More fonts" optional HP DeskWriter Printer Font pamphlet, Owner's Manual.

Supplies and Accessories

Number	Description
22709B	CS Palacio (includes Palatino screen font) optional font set
22709C	CS Century Schoolbook (includes Century Schoolbook screen font) optional font set
22709D	CS ITC Bookman (includes ITC Bookman screen font) optional font set
22709E	CS ITC Avant Garde Gothic (includes Avant Garde Gothic screen font) optional font set
22709F	CS Triumvirate Narrow (includes Helvetica Narrow screen font) optional font set
22709G	CS ITC Zapf Chancery and CS ITC Zapf Dingbats (includes ITC Zapf Chancery and ITC Zapf Dingbats screen fonts) optional font set
22709A	DeskWriter Font Collection optional font bundle, includes CS Palacio, CS ITC Century Schoolbook, CS ITC Bookman, CS ITC Avant Garde Gothic, CS Triumvirate Narrow, CS ITC Zapf Chancery, and CS ITC Zapf Dingbats
92250R	DeskJet/DeskWriter printer dust cover
02278-90001	DeskWriter printer owner's manual, English
02278-90005	DeskWriter printer owner's manual, French
02278-90006	DeskWriter printer owner's manual, German
02278-90007	DeskWriter printer owner's manual, Italian
02278-90008	DeskWriter printer owner's manual, Spanish
02278-90009	DeskWriter printer owner's manual, Swedish

Order by phone: In the U.S.A., call toll free 1-800-752-0900 for the sales office or dealer nearest you.

HP DeskJet/DeskJet PLUS Printers and the HP Vectra PC

Computer Museum

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the HP Vectra PC.

Typical Configuration

Computer Equipment
- HP Vectra PC
- Vectra Serial/Parallel Interface Card (HP 24540A)

Printer Equipment
- M-to-F RS-232-C Cable (HP 24542G)
- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

or

Computer Equipment
- HP Vectra PC
- Vectra Dual Serial Interface Card (HP 24541A)

Printer Equipment
- For Port 1 (9-pin connector) use M-to-F RS-232-C Cable (HP 24542G)
- For Port 2 (25-pin connector) use M-to-M RS-232-C Cable (HP 13242G or HP 17255M)
- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

Special Serial Cables

HP 24542G
Length: 3.0 m (9.9 ft)

CPU 9-pin F		Peripheral 25-pin M
1	←	4
2	←	2
3	→	3
4	→	5
	→	6
5	←	7
6	←	20
8	←	
7	→	8

HP 13242G
Length: 5.0 m (16.7 ft)

CPU 25-pin M		Peripheral 25-pin M
1	← →	1
2	→	3
3	←	2
4	→	8
5	←	20
6	←	
7	← →	7
8	←	4
12	←	19
		11
11		
19	→	12
20	→	5
	→	6

HP 17255M
Length: 1.0 m (3.3 ft)

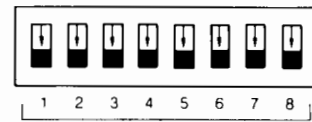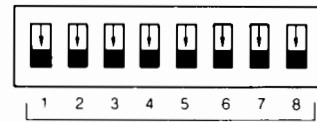| CPU 25-pin M		Peripheral 25-pin M
1	← →	1
3	←	2
2	→	3
7	← →	7
20	→	5
	→	6
5	←	20
6	←	

Connection Instructions

1. Turn off the power to all of the equipment.
2. Set the function switches on the printer per the following illustrations.

1 2 3 4 5 6 7 8

Bank A

1 2 3 4 5 6 7 8

Bank B

DeskJet/DeskJet PLUS printers

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the appropriate RS-232-C Port.

4. Turn on the power to the equipment.

5. Load the operating system.

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

6. Type **MODE COM1:9600,N,8,1,P** then press **ENTER**. This command sets the serial communications at 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts.

7. Type **MODE LPT1:=COM1** and press **ENTER**. This command directs the primary communication to serial port 1.

NOTE: If your printer is connected to Port 2, change **COM1** in the previous commands to **COM2.**

NOTE: 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.

Communication Verification

Hold down the computer's **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

Centronics Parallel Interface

These instructions show how to set up the HP DeskJet/ DeskJet PLUS printers so that they can communicate with the HP Vectra PC.
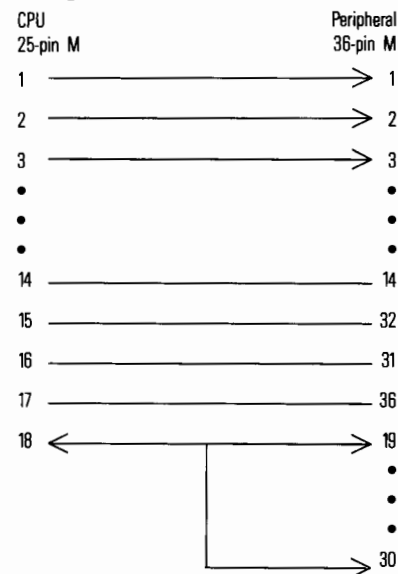
Typical Configuration

Computer Equipment
- HP Vectra PC
- Vectra Serial/Parallel Interface Card (HP 24540A)

Printer Equipment
- M-to-M Centronics Parallel Cable (HP 24542D)
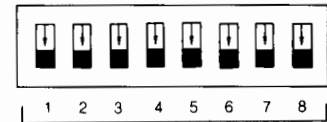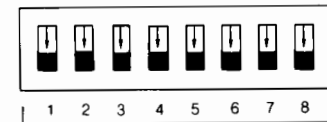- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

Centronics Parallel Cable

HP 24542D
Length: 2.0 m (6.6 ft)

CPU 25-pin M		Peripheral 36-pin M
1	⟶	1
2	⟶	2
3	⟶	3
•		•
•		•
•		•
•		•
14	⟶	14
15	⟶	32
16	⟶	31
17	⟶	36
18	⟵	19
		•
		•
		•
	⟶	30

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

3. Connect your printer to the parallel port of the computer.

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

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

Communication Verification

1. Turn on the power to the equipment.

2. Load the operating system.

3. Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

HP DeskJet/DeskJet PLUS Printers and the HP 150 or Touchscreen Computers

Set-up Instructions

These instructions show how to set up the HP DeskJet/ DeskJet PLUS printers so that they can communicate with the HP 150 or Touchscreen Personal Computer.

Typical Configuration

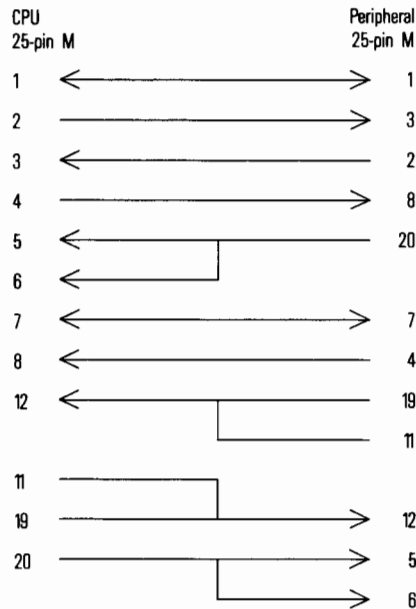**Computer Equipment**
- HP 150 or Touchscreen Computer

Printer Equipment
- M-to-M RS-232-C Cable (HP 13242G or 17255M)
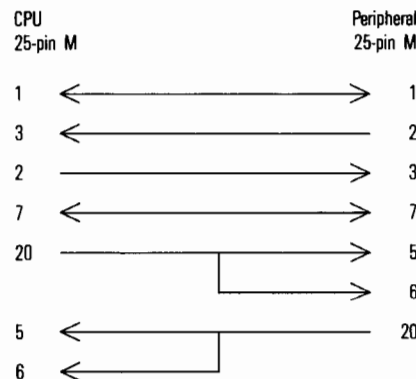- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

Special Serial Cables

HP 13242G
Length: 5.0 m (16.7 ft)

CPU 25-pin M		Peripheral 25-pin M
1	⟷	1
2	⟶	3
3	⟵	2
4	⟶	8
5	⟵	20
6	⟵	
7	⟷	7
8	⟵	4
12	⟵	19
		11
11		
19	⟶	12
20	⟶	5
	⟶	6

HP 17255M
Length: 1.0 m (3.3 ft)

CPU 25-pin M		Peripheral 25-pin M
1	⟷	1
3	⟵	2
2	⟶	3
7	⟷	7
20	⟶	5
	⟶	6
5	⟵	20
6	⟵	

Serial Interface

Connection Instructions

There are five major steps required to set up the HP Touch-screen/HP 150 for use with the DeskJet/DeskJet PLUS printers. These steps are the MS-DOS Device Configuration, the Terminal Configuration, the Port 2 Configuration, the Global Configuration, and the Terminal Configuration for HP Line Draw.

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations

Bank A

Bank B
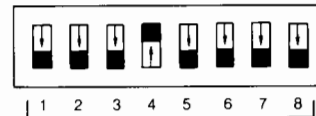
DeskJet/DeskJet PLUS printers

NOTE: Standard switch settings are shown. Individual software packages or terminal applications may require the user to modify these settings.

3. Connect your printer to Port 2 of the HP 150 or Touchscreen computer.

MS-DOS Configuration
4. Turn on the power to the equipment and enter PAM (included on the same disk as MS-DOS).

5. Touch **DEVICE CONFIG** then **Start Applic.** (f1) (illuminated "boxes" on your screen). This will run the MS-DOS Device Configuration Program.

6. Touch **PRN:Interface** field. Touch **Previous Choice** or **Next Choice** until **Port 2** appears in the interface field box.

7. Touch the **PRN:Model** field. Touch **Previous Choice** or **Next Choice** until SPECIAL appears in the model field.

8. Touch **Save Config** (f4) then **Exit Config** (f8).

Terminal Configuration
9. Touch **Terminal** (f6).

10. Press the **User System** key.

11. Touch **device control** (f1) then touch **"to" devices** (f3).

12. Touch **SERIAL DEVICE** (f2). An asterisk (*) will appear in the **SERIAL DEVICE** field.

13. Press the **User System** key.

Port 2 Configuration
14. Touch **config keys** (f8) then **port2 config** (f4).

15. Set the fields displayed as shown below. Touch the fields that you want to change and touch **Previous Choice** or **Next Choice** until the correct selection appears.

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

16. Touch **Save Config** (f1). This will save and use the new settings, and return you to terminal mode.

17. Press **SHIFT** and **CTRL** simultaneously, hold, and press **RESET/BREAK**. This will return you to PAM.

Global Configuration
Start from the Main Terminal keys.

18. Press **config keys** (f8), then **global config** (f1). Make sure that the Remote/Serial Dev field displays PORT1/PORT2.

19. Once the changes have been made, save the global configuration by pressing **SAVE CONFIG** (f1).

Terminal Configuration for HP Line Draw
To print the HP Line Draw Character Set, a font cartridge is required. Font cartridges with HP Part Numbers 22706A, B, C, and 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:

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

21. 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)

22. Press **Save Config** (f1). This will automatically return the HP Touchscreen/150 to the Main Terminal keys.

23. Return to PAM by holding down the **Shift** key and pressing the **Stop** key.

Communication Verification
1. From PAM touch **MSDOS**, then touch **Start Applic** (f1).

2. When the A> prompt appears, type **dir>prn**, then press the **RETURN** key. This will cause the directory of disk A to be printed.

3. Type **Exit**, then press the **RETURN** key. This will return you to PAM.

HP DeskJet/DeskJet PLUS Printers and the HP Portable Computer

Set-up Instructions

These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the HP Portable Computer.

Typical Configuration
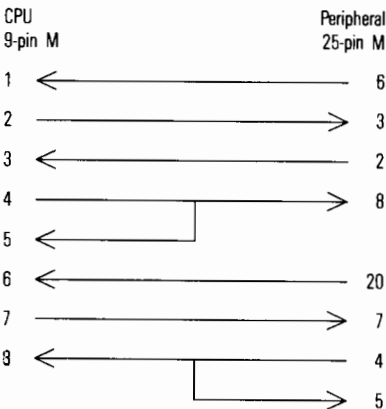
Computer Equipment
- HP Portable Computer

Printer Equipment
- M-to-M RS-232-C Cable (HP 92221P)
- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers
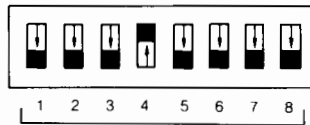
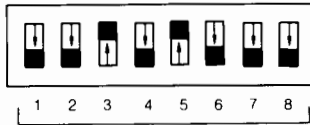### Special Serial Cables

HP 92221P
Length: 1.5 m (5.0 ft)

CPU 9-pin M		Peripheral 25-pin M
1	←	6
2	→	3
3	←	2
4	→	8
5	←	
6	←	20
7	→	7
8	←	4
	→	5

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

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

NOTE: Standard switch settings are shown. Individual software packages or terminal applications may require the user to modify these settings.

3. Connect your printer to the serial port of the HP Portable computer.

Serial Interface

System Configuration

4. Turn on the power to the equipment and enter PAM.

5. Press **SYSTEM CONFIG.**

6. Move the cursor to **Printer Interface.** Press **PRN:Interface** field. Press **Previous Choice** or **Next Choice** until **Serial** appears in the interface field box.

7. Move the cursor to **Printer.** Press **Previous Choice** or **Next Choice** until **HP Graphics/Alpha** appears in the model field.

8. Press **Save Config** then **Exit Config.**

Datacom Configuration

9. Press **Datacom Config.**

10. Set the fields displayed as shown below. Move the cursor to the fields that you want to change. Press **Previous Choice** or **Next Choice** until the correct selection appears.

Serial port:	RS-232
Serial baud rate:	19 200
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 DCO line:	Ignore

10. Press **Save Config.** This will save and use the new settings.

11. Press **Exit Config.**

Communication Verification from PAM

1. Select **DOS Commands** using the **TAB** key, then press **Start applic** (f1).

2. When the A > prompt appears, type **dir > prn,** then press the **ENTER** key. This will cause the directory of disk A to be printed.

3. Type **Exit,** then press the **ENTER** key. This will return you to PAM.

HP DeskJet/DeskJet PLUS Printers and the HP Portable Vectra CS

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the HP Portable Vectra CS.

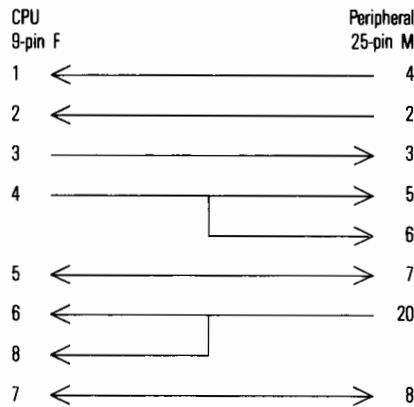### Typical Configuration

Computer Equipment
- HP Portable Vectra CS
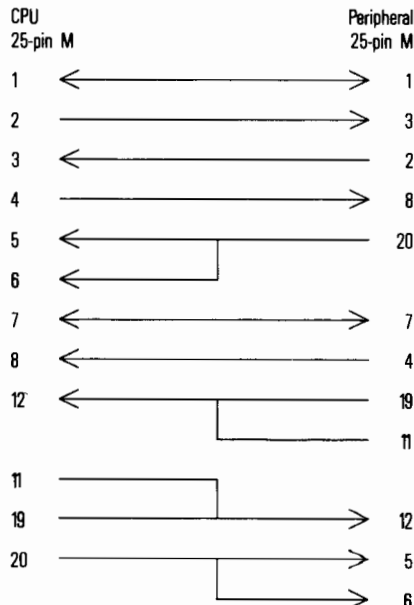- Portable Vectra CS Dual Serial Interface Card (HP D1004A)

Printer Equipment
- For Port 1 (9-pin connector) use M-to-F RS-232-C Cable (HP 2454G)
- For Port 2 (25-pin connector) use M-to-M RS-232-C Cable (HP 13242G or 17255M)
- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers
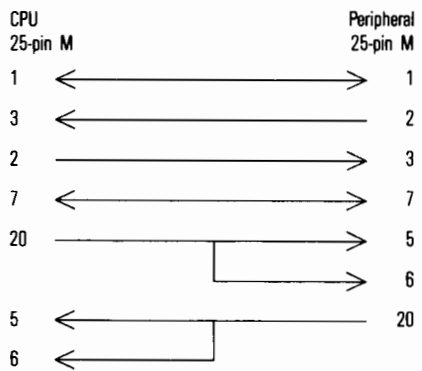
Special Serial Cables

HP 24542G
Length: 3.0 m (9.9 ft)

CPU 9-pin F		Peripheral 25-pin M
1	←	4
2	←	2
3	→	3
4	→	5
	→	6
5	← →	7
6	←	20
8	←	
7	← →	8

HP 13242G
Length: 5.0 m (16.7 ft)

CPU 25-pin M		Peripheral 25-pin M
1	← →	1
2	→	3
3	←	2
4	→	8
5	←	20
6	←	
7	← →	7
8	←	4
12	←	19
		11
11		
19	→	12
20	→	5
	→	6

HP 17255M
Length: 1.0 m (3.3 ft)

CPU 25-pin M		Peripheral 25-pin M
1	← →	1
3	←	2
2	→	3
7	← →	7
20	→	5
	→	6
5	←	20
6	←	

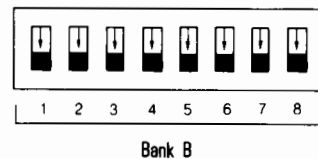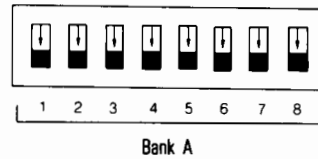### Connection Instructions

1. Turn off the power to all of the equipment.
2. Set the function switches on the printer per the following illustrations.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the appropriate RS-232-C Port.

4. Turn on the power to the equipment.

From the DOS prompt enter the following commands:

5. Load the operating system.

6. Type **MODE COM1:9600,N,8,1,P** then press **ENTER**. This command sets the serial interface to 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts.

7. Type **MODE LPT1: = COM1** and press **ENTER**. This command directs the primary printer communication to the first serial port. ,

NOTE: If your printer is connected to Port 2, change **COM1** in the previous commands to **COM2**.

Communication Verification

Hold down the computer's **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

Centronics Parallel Interface

These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the HP Portable Vectra CS.

Typical Configuration

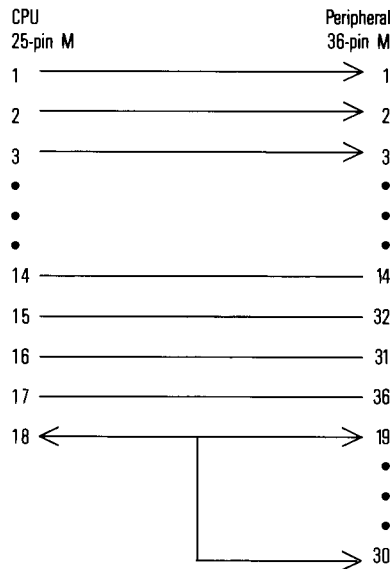**Computer Equipment**
• HP Portable Vectra CS

Printer Equipment
• M-to-M Centronics Parallel Cable (HP 24542D)
• HP 2276A DeskJet/HP 2277A DeskJet PLUS printes
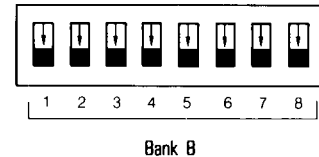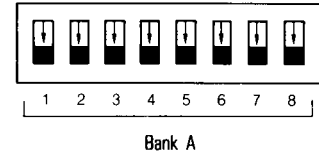
Centronics Parallel Cable

HP 24542D
Length: 2.0 m (6.6 ft)

CPU
25-pin M

Peripheral
36-pin M

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

3. Connect your printer to the parallel port of the computer.

4. Turn on the power to the equipment.

5. Load the operating system.

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

Communication Verification

1. Turn on the power to the equipment.

2. Load the operating system.

3. Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

HP DeskJet/DeskJet PLUS Printers and the IBM PC/XT/AT and Compatibles

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface
These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the IBM PC/XT/AT and Compatibles.

Typical Configuration
Computer Equipment
- IBM PC/XT/AT (with IBM Asynchronous Communications Adapter)

Printer Equipment
- M-to-F RS-232-C Cable (HP 17255D or HP 13242H)
- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

or

Computer Equipment
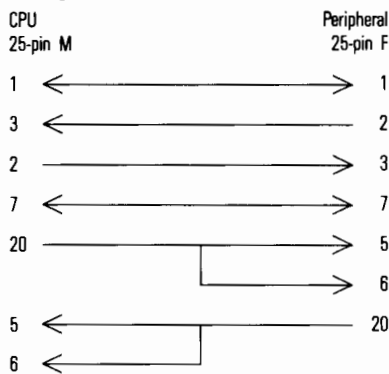- IBM PC AT (with IBM Serial/Parallel Adapter)

Printer Equipment
- F-to-M RS-232-C Cable (HP 24542G)
- HP 2276A DeskJet Printer
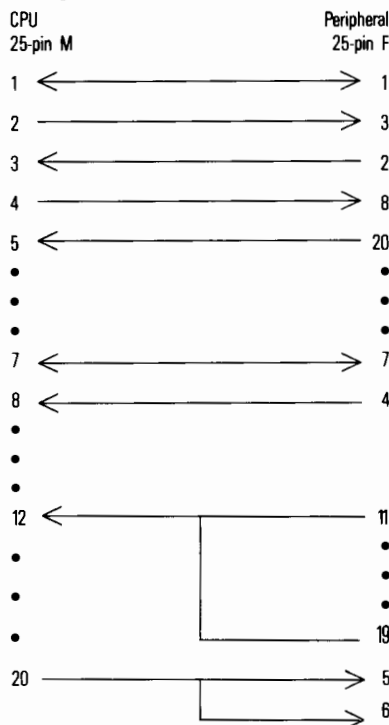
Special Serial Cables
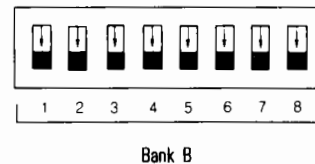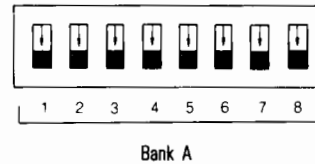**HP 17255D**
Length: 1.5 m (5.0 ft)

CPU 25-pin M — Peripheral 25-pin F

CPU	Peripheral
1	1
3	2
2	3
7	7
20	5
	6
5	20
6	

HP 13242H
Length: 5.0 m (16.7 ft)

CPU 25-pin M — Peripheral 25-pin F

CPU	Peripheral
1	1
2	3
3	2
4	8
5	20
7	7
8	4
12	11
	19
20	5
	6

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the RS-232-C Port 1 (asynchronous adapter port).

4. Turn on the power to the equipment.

5. Load the operating system.

6. Type **MODE COM1:9600,N,8,1,P** then press **ENTER**. This command sets the serial interface to 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts.

7. Type **MODE LPT1: = COM1** and press **ENTER**. This command directs the primary printer communication to the first serial port.

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

NOTE: Commands 6 and 7 can be added to the **AUTOEXEC.BAT.** Consult the IBM DOS manual (in the "Batch Commands" section under AUTOEXEC.BAT) if you need more information.

Communication Verification

Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out.

Centronics Parallel Interface

These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the IBM PC/XT/AT and Compatibles.
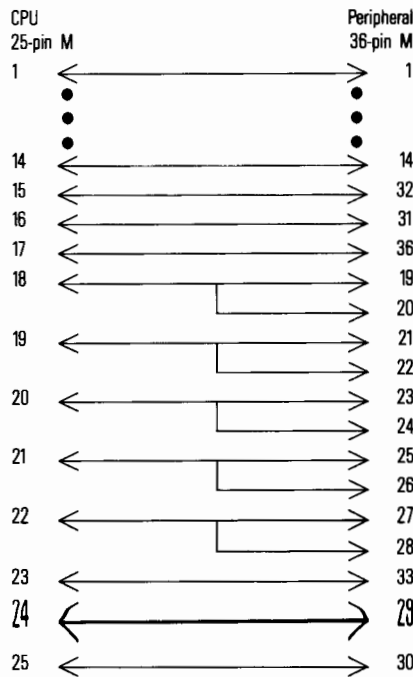
Typical Configuration

Computer Equipment
• IBM PC/XT/AT and Compatibles

Printer Equipment
• HP 92219K Cable
• HP 2276A DeskJet/HP 2277A DeskJet PLUS Printer

Centronics Parallel Cable
HP 92219K
Length: 2.7 m (9.0 ft)

CPU 25-pin M		Peripheral 36-pin M
1	⟷	1
14	⟷	14
15	⟷	32
16	⟷	31
17	⟷	36
18	⟷	19
		20
19	⟷	21
		22
20	⟷	23
		24
21	⟷	25
		26
22	⟷	27
		28
23	⟷	33
24	⟷	29
25	⟷	30

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the parallel port of the computer.

4. Turn on the power to the equipment.

5. Load the operating system.

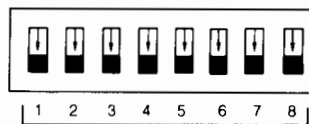From the DOS prompt enter the following command:

6. Type **MODE LPT1:,,P** then press **ENTER**. This command sets the parallel interface to continuous retry on all timeouts.
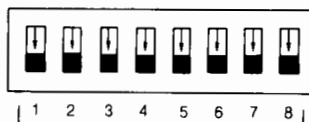
Communication Verification
Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out.

HP DeskJet/DeskJet PLUS Printers and the IBM PS/2 Family

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface
These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the IBM PS/2 Family Personal Computers.
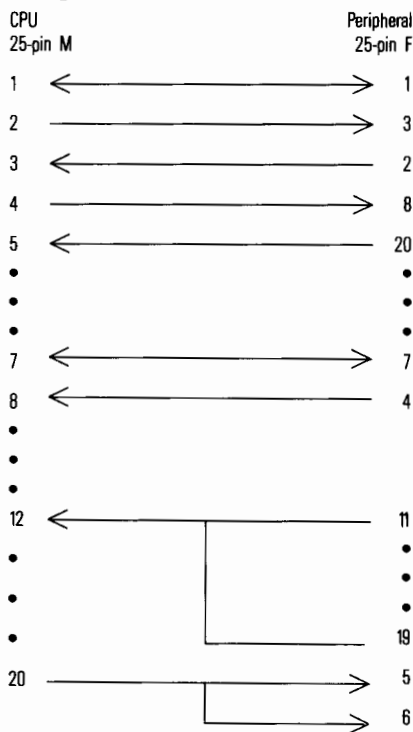
Typical Configuration
Computer Equipment
• IBM PS/2

Printer Equipment
• M-to-F RS-232-C Cable
  (HP 17255D or HP 13242H)
• HP 2276A DeskJet/HP 2277A DeskJet PLUS printers
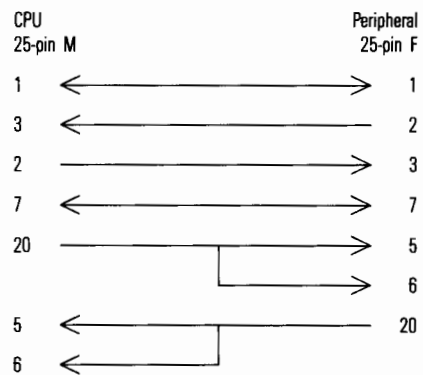
Special Serial Cables
HP 13242H
Length: 5.0 m (16.7 ft)

CPU 25-pin M	Peripheral 25-pin F
1	1
2	3
3	2
4	8
5	20
•	•
•	•
•	•
7	7
8	4
•	
•	
•	
12	11
•	•
•	•
•	•
•	19
20	5
	6

HP 17255D
Length: 1.5 m (5.0 ft)

CPU 25-pin M	Peripheral 25-pin F
1	1
3	2
2	3
7	7
20	5
	6
5	20
6	

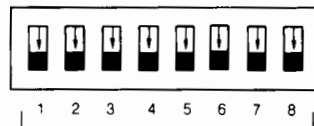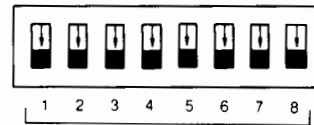### Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

| 1 2 3 4 5 6 7 8 |
Bank A

| 1 2 3 4 5 6 7 8 |
Bank B

DeskJet/DeskJet PLUS printers

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

DeskJet/DeskJet PLUS

IBM Set-up

3. Connect your printer to the RS-232-C Port.

4. Turn on the power to the equipment.

5. Load the operating system.

6. Type **MODE COM1:9600,N,8,1,P** then press **ENTER**. This command sets the serial interface to 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts.

7. Type **MODE LPT1: = COM1** and press **ENTER**. This command directs the primary printer communication to the first serial port.

NOTE: Commands 6 and 7 can be added to the **AUTOEXEC.BAT.** Consult the IBM DOS manual (in the "Batch Commands" section under AUTOEXEC.BAT) if you need more information.

Communication Verification
Hold down the **SHIFT** key and press the **PrtSc** key on the computer keyboard. Any text on the screen will print out.

Centronics Parallel Interface
These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the IBM PS/2 Family Personal Computers.

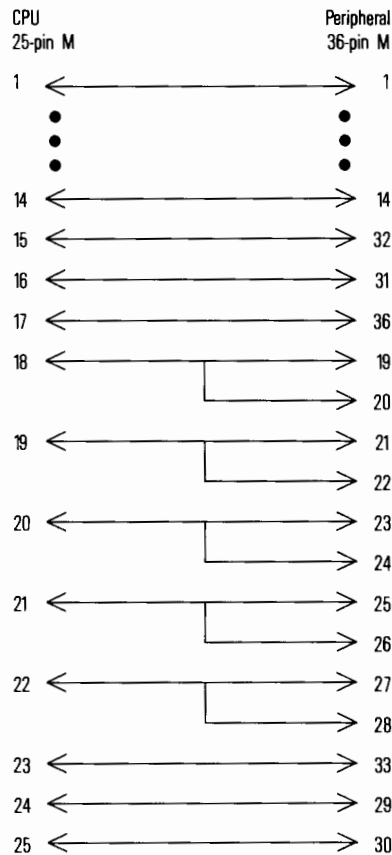## Typical Configuration
Computer Equipment
• IBM PS/2

Printer Equipment
• HP 92219K Cable
• HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

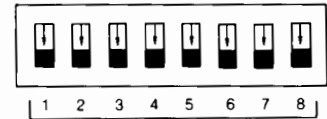## Centronics Parallel Cable
HP 92219K
Length: 2.7 m (9.0 ft)

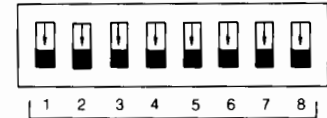| CPU 25-pin M		Peripheral 36-pin M
1	← →	1
•		•
•		•
•		•
14	← →	14
15	← →	32
16	← →	31
17	← →	36
18	← →	19
	→	20
19	← →	21
	→	22
20	← →	23
	→	24
21	← →	25
	→	26
22	← →	27
	→	28
23	← →	33
24	← →	29
25	← →	30

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the parallel port of the computer.

4. Turn on the power to the equipment.

5. Load the operating system.

From the DOS prompt enter the following command:

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

Communication Verification
Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out.

HP DeskJet/DeskJet PLUS Printers and the IBM Convertible PC

Set-up Instructions

RS-232-C Interface

These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the IBM Convertible PC.

Typical Configuration
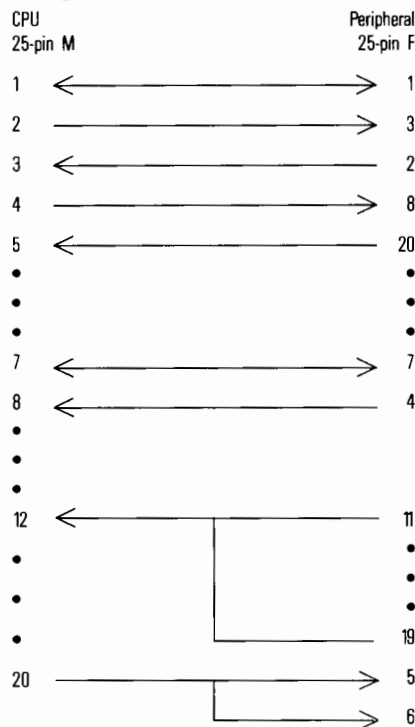
Computer Equipment
• IBM Convertible PC

Printer Equipment
• M-to-F RS-232-C Cable (HP 17255D or HP 13242H)
• HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

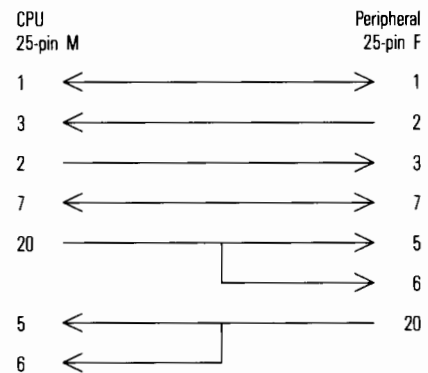### Special Serial Cables

HP 13242H
Length: 5.0 m (16.7 ft)

CPU 25-pin M		Peripheral 25-pin F
1	⟷	1
2	⟶	3
3	⟵	2
4	⟶	8
5	⟵	20
•		•
•		•
•		•
7	⟷	7
8	⟵	4
•		•
•		•
•		•
12	⟵	11
•		•
•		•
•		19
20	⟶	5
		6

Serial and Parallel Interfaces

HP 17255D
Length: 1.5 m (5.0 ft)

CPU 25-pin M		Peripheral 25-pin F
1	⟷	1
3	⟵	2
2	⟶	3
7	⟷	7
20	⟶	5
		6
5	⟵	20
6	⟵	

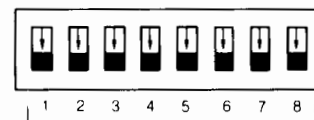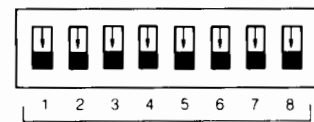### Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

DeskJet/DeskJet PLUS

IBM Set-up

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3. Connect the printer to the RS-232-C Port.

4. Turn on the power to the equipment.

5. Load the operating system.

From the DOS prompt, enter the following commands:

6. Type **MODE COM1:9600,N,8,1,P** then press **ENTER**. This command sets the serial interface to 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts.

7. Type **MODE LPT1: = COM1** and press **ENTER**. This command directs the primary printer communication to the first serial port.

NOTE: Commands 6 and 7 can be added to the **AUTOEXEC.BAT**. Consult the IBM DOS manual (in the "Batch Commands" section under AUTOEXEC.BAT) if you need more information.

Communication Verification
Hold down the **SHIFT** key and press the **PrtSc** key on the computer keyboard. Any text on the screen will print out.

Centronics Parallel Interface
These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the IBM Convertible PC.
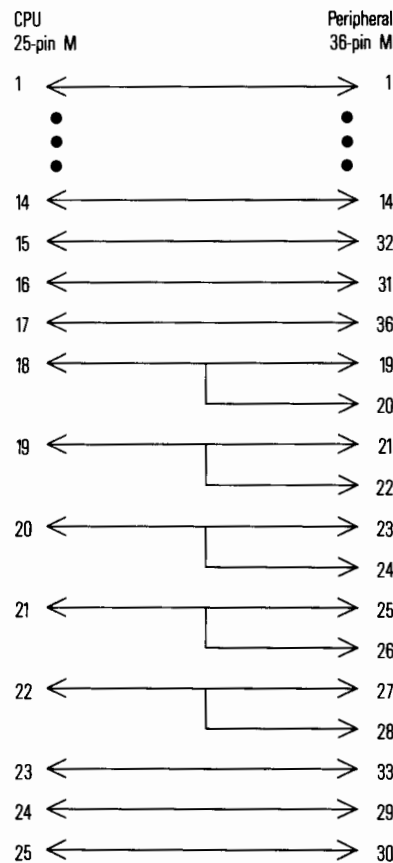
Typical Configuration

Computer Equipment
• IBM Convertible PC

Printer Equipment
• HP 92219K or IBM Parallel Printer Cable
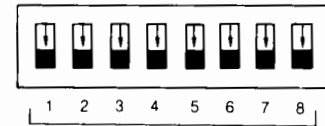• HP 2276A DeskJet/HP 2277A DeskJet PLUS Printer

Centronics Parallel Cable

HP 92219K
Length: 2.7 m (9.0 ft)

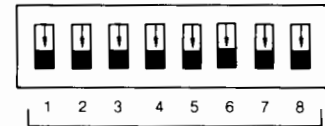| CPU 25-pin M		Peripheral 36-pin M
1	⟵⟶	1
•		•
•		•
•		•
14	⟵⟶	14
15	⟵⟶	32
16	⟵⟶	31
17	⟵⟶	36
18	⟵⟶	19
	⟶	20
19	⟵⟶	21
	⟶	22
20	⟵⟶	23
	⟶	24
21	⟵⟶	25
	⟶	26
22	⟵⟶	27
	⟶	28
23	⟵⟶	33
24	⟵⟶	29
25	⟵⟶	30

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

NOTE: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect the printer to the parallel port of the computer.

4. Turn on the power to the equipment.

5. Load the operating system.

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

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

Communication Verification
Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out.

HP DeskJet/DeskJet PLUS Printers and the Apple II+ or IIe

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the Apple II+ or IIe Personal Computer.

Typical Configuration

Computer Equipment
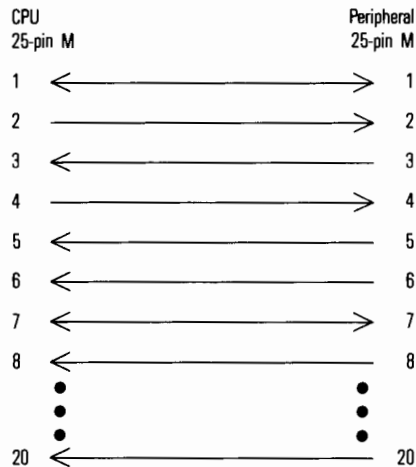- Apple II+ or Apple IIe with Apple Super Serial Card

Printer Equipment
- HP 17355M Serial Printer Cable, or Apple Serial Printer Interface Cable (Apple P/N A2C0352 (590-0037))
- Epson MX-80 Printer Emulation Cartridge (HP 22707E) or printer driver supplied with software
- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

Special Serial Cable

HP 17355M
Length: 3.0 m (9.9 ft)

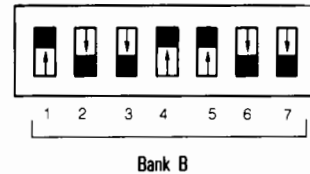| CPU 25-pin M		Peripheral 25-pin M
1	⟵⟶	1
2	⟶	2
3	⟵	3
4	⟶	4
5	⟵	5
6	⟵	6
7	⟵⟶	7
8	⟵	8
20	⟵	20

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the Apple Super Serial Card per the following illustrations and install the card in slot 1 as instructed in the Apple Super Serial Card Installation and Operating Manual.

Bank A

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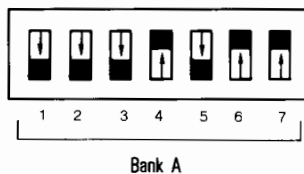
These switch settings select 9600 Baud, 1 stop bit, 7 data bits, and no parity.

3. Set the function switches on the printer according to the following illustration.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

These switch settings select the ASCII Character Set, 9600 Baud, 1 stop bit, 7 data bits, and no parity.

4. Put the System Master Disk into drive 1.

5. Turn on the power to the equipment.

Communication Verification

1. The following BASIC program will verify proper connection between 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
```

2. Type **RUN** and press **ENTER.**

3. The following pattern will print:

```
]RUN
 !$%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPC
!$%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQR
!$%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRS
$%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRST
%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTU
&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUV
'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUV
()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUVWX
)*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXY
```

Centronics Parallel Interface

These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the Apple II+ or IIe personal computers.
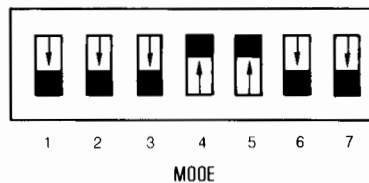
Typical Configuration

Computer Equipment
- Apple II+ or IIe with the Apple Parallel Interface Card
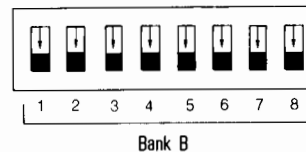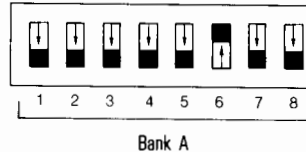
Printer Equipment
- Apple Parallel Printer Interface Cable (Apple P/N 590-0042) or equivalent
- Epson MX-80 Printer Emulation Cartridge (HP 22707E) or printer driver applied with software
- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the Apple Parallel Interface Card according to the illustration below, and install the board into interface Slot 1 as instructed in Chapter 1 of the Apple Parallel Interface Card Installation and Operating Manual.

MODE

3. Set function switches on the printer per the following illustration.

Bank A

Bank B

DeskJet/DeskJet PLUS printers

These switch settings select the ASCII Character Set, 9600 Baud, 1 stop bit, 7 data bits, and no parity.

4. Put the System Master Disk into drive 1.

5. Turn on the power to the equipment.

Communication Verification

1. The following BASIC program will verify proper connection between 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
```

2. Type **RUN** and press **ENTER.**

3. The following pattern will print:

```
]RUN
 !$%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQ
!$%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQR
!$%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRS
$%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRST
%&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTU
&'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUV
'()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUVW
()*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUVWX
)*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXY
*+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ
+,-./0123456789 :;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[
```

HP DeskJet/DeskJet PLUS Printers and the Apple IIc

Set-up Instructions

Serial Interface

These instructions show how to set up the HP DeskJet/ HP DeskJet PLUS printers so that they can communicate with the Apple IIc personal computer.

Typical Configuration

Computer Equipment
• Apple IIc

Printer Equipment
• HP 92219N or Apple IIc ImageWriter Cable (Apple P/N A2C4515 (590-0191-A)
• Epson MX-80 Printer Emulation Cartridge (HP 22707E) or printer driver supplied with software
• HP 2276A DeskJet Printer

Special Serial Cable

HP 92219N
Length: 1.5 m (5.0 ft)

CPU 5-pin M		Peripheral 25-pin M
1	⟶	6
2	⟵	3
3	⟷	7
4	⟶	2
5	⟵	20

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustrations.

1 2 3 4 5 6 7 8
Bank A

1 2 3 4 5 6 7 8
Bank B

DeskJet/DeskJet PLUS printers

These switch settings select the ASCII Character Set, 9600 Baud, 1 stop bit, 7 data bits, and no parity.

3. Put the System Master Disk into drive 1.

4. Turn on the power to the equipment.

Communication Verification

1. The following BASIC program will verify proper connection between 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
```

2. Type **RUN** and press **ENTER.**

3. The following pattern will print:

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

HP DeskJet/DeskJet PLUS Printers and the Apple IIgs

Set-up Instructions

These instructions show how to set up the HP DeskJet/DeskJet PLUS printers so that they can communicate with the Apple IIgs personal computer.

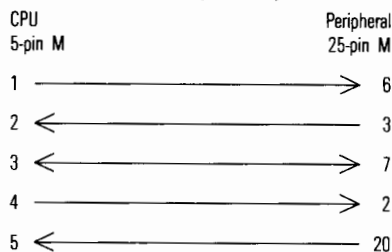### Typical Configuration

Computer Equipment
- Apple IIgs with Apple Super Serial Card

Printer Equipment
- Apple IIe Modem-8 Cable (Apple P/N A2C0311 (590-0331)) for single cable solution or HP 92219M or Apple ImageWriter Cable (Apple P/N M0150 (590-0169)) and Apple Peripheral Adapter Cable, Apple P/N M0189 (590-0341) for dual cable solution
- Epson MX-80 Printer Emulation Cartridge (HP 22707E) or printer driver supplied with software
- HP 2276A DeskJet/HP 2277A DeskJet PLUS printers

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.

Special Serial Cable
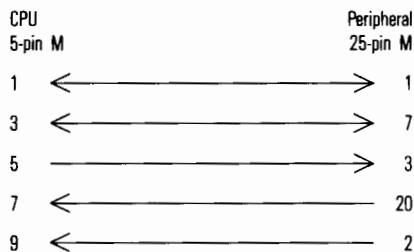
HP 92219M
Length: 1.5 m (5.0 ft)

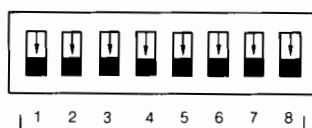| CPU 5-pin M		Peripheral 25-pin M
1	⟵———————⟶	1
3	⟵———————⟶	7
5	————————⟶	3
7	⟵———————	20
9	⟵———————	2

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer according to the following illustration.

Serial Interface

Bank A

Bank B

DeskJet/DeskJet Plus printers

These switch settings select the ASCII Character Set, 9600 Baud, 1 stop bit, 7 data bits, and no parity.

3. Put the System Master Disk into drive 1.

4. Turn on the power to the equipment.

Communication Verification

1. The following BASIC program will verify proper connection between 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
```

2. Type **RUN** and press **RETURN.**

3. The following pattern will print:

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

Connecting Your
HP DeskWriter Printer

Set-up Instructions

**For Macintosh
Computers**

These instructions will show you how to set up your
HP DeskWriter printer to work with an Apple Macintosh
computer.

Typical Configuration

Computer Equipment
- Apple Macintosh PLUS, SE, SE/30, II, IIx, or IIcx computer with
  at least one megabyte of system memory and a hard disk drive

Printer Equipment
- Apple System/Peripheral-8 cable (Apple Part No. M0197) or the
  equivalent (purchased separately)
- HP 2278A DeskWriter printer
- The HP DeskWriter printer Installation Disk, Font Disks 1 and
  2, and power module

Connection Instructions
1. Turn the printer off by depressing the left "0" side of the
   switch at the lower left front of the printer.

2. Remove the out-tray cover and set it aside.

3. With the printer facing you, carefully tilt the printer on its
   left side and rotate it so the bottom of the printer faces you.

4. Plug the power module connector *firmly* into the power
   socket on the bottom of the printer. Plug the other end of the
   cable into a grounded electrical outlet.

5. Insert one end of the Apple System/Peripheral-8 cable into
   the printer interface connector (next to the power module
   plug).

6. Plug the other end of the Apple System/Peripheral-8 cable
   into the appropriate Macintosh computer serial port.
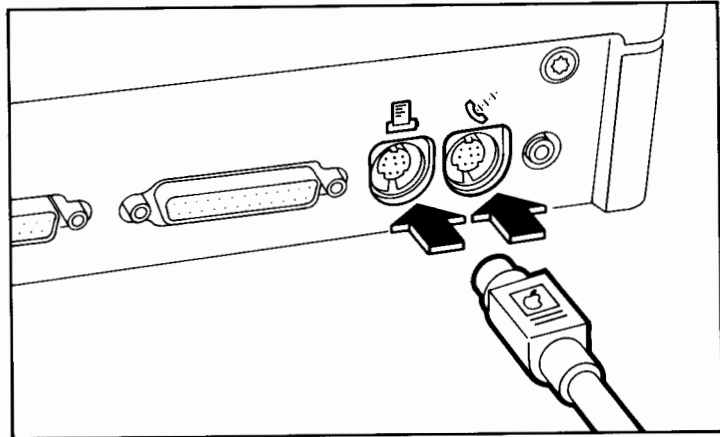
Connecting to a Macintosh Plus or Macintosh SE computer.
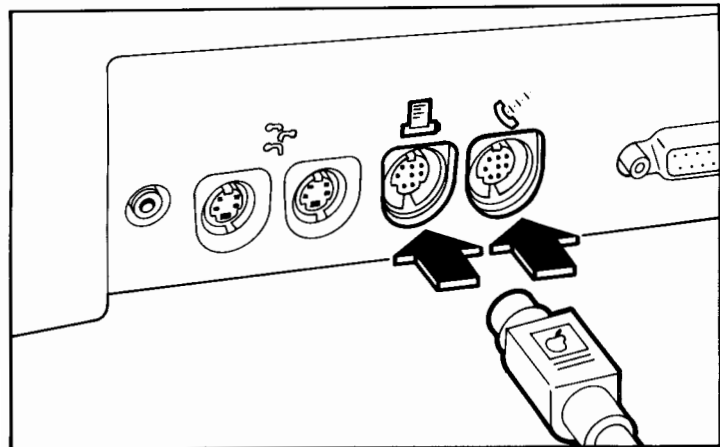
Connecting to a Macintosh II or Macintosh IIx computer.

Installation

To ensure optimal quality text output, you will need to install the DeskWriter printer resource and fonts, screen fonts, and printer fonts.

Installing the Printer Resource and Fonts

1. Turn on your Macintosh computer.

2. Open the System Folder.

3. Insert the Installation Disk and open it.

4. Select and drag the printer resource icon from the Installation Disk to the System Folder.

5. Select and drag the DeskWriter Fonts folder icon from the Installation Disk to the System Folder.

6. Close and eject the Installation Disk.

Installing Printer Fonts

1. Insert Font Disk 1 and open it.
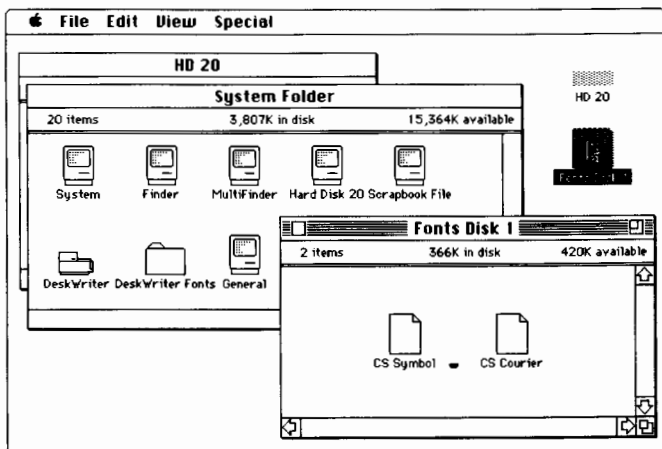
2. Select and drag the CS Courier printer font file from the Font
   Disk 1 to the DeskWriter Fonts folder in the System Folder.
   Repeat this process for the CS Symbol printer font.
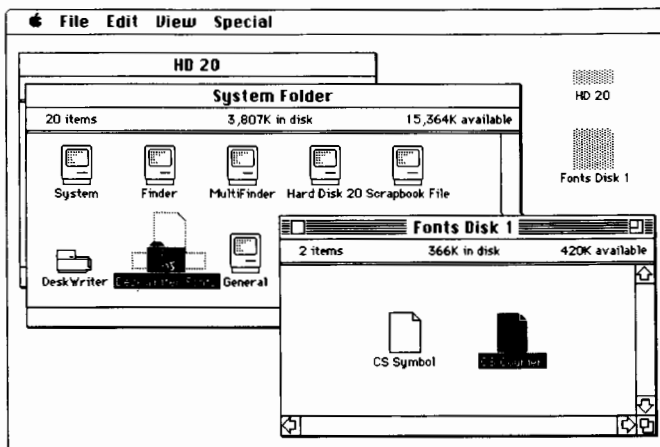
3. Eject the Font Disk 1; insert the Font Disk 2 and open it.

4. Repeat select and drag procedure from step 2 with CS Times
   and CS Triumvirate printer fonts.

5. Keep Font Disk 2 in system to proceed to Installing Screen Fonts.

Installing Screen Fonts

1. If you are working under MultiFinder, restart your computer under Finder before you install your Screen Fonts.

```
  File  Edit  View  Special
```

```
            Start up "HD 20" with:                 HD 20

             ● Finder    ○ MultiFinder

        Upon startup, automatically open:
             ○ Selected Items
             ○ Opened Applications and DAs
             ● Finder Only

                          [ Cancel ]  [  OK  ]
```

Trash
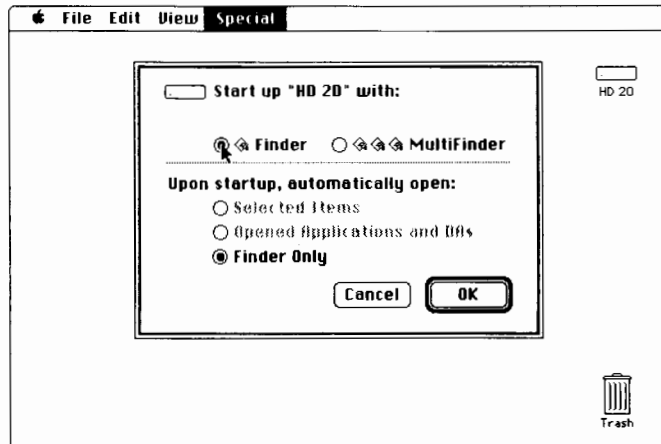
2. Open the Font Disk 2 Screen Font file, which automatically Opens the Font/DA Mover.

3. Open the empty list on the right by clicking the Open button below the empty list, Click the Drive button to display the files on your hard disk.

```
 3.8

                      ● Font          Mover
                      ○ Desk Accessory

        Courier 10           [ Copy ]
        Courier 12
        Courier 14           [ Remove ]
        Courier 18
        Courier 24
        Helvetica 9
        Helvetica 10

        Screen Fonts
        on Installation D...   [  Help  ]
           311K free
        [  Close  ]          [  Quit  ]     [ Open... ]
```
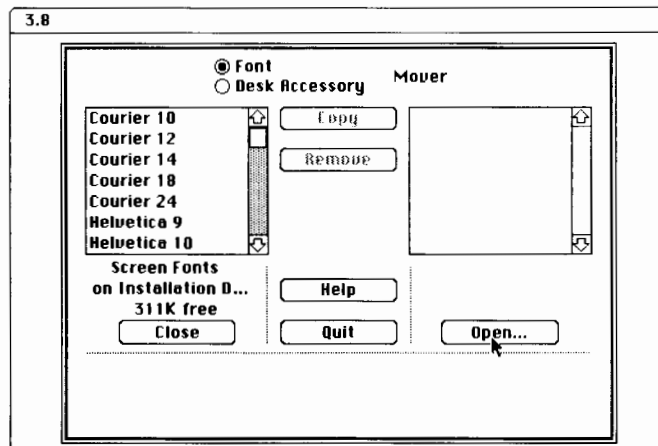
4. Select the System file by double clicking on its name.

6. Click Copy to copy the selected fonts from the screen fonts file to the System file. Click on the Quit button to close the Font/DA Mover.

```
┌─────────────────────────────────────────────────────────┐
│ 3.8                                                       │
│  ┌────────────────────────────────────────────────────┐ │
│  │            ⦿ Font                                    │ │
│  │            ○ Desk Accessory    Mover                │ │
│  │   ┌──────────────┐   ┌──────────┐  ┌──────────────┐ │ │
│  │   │Courier 10   ⬆│   │ >> Copy >>│  │Avant Garde 10⬆│ │ │
│  │   │Courier 12    │   └──────────┘  │Avant Garde 12 │ │ │
│  │   │Courier 14    │   ┌──────────┐  │Avant Garde 14 │ │ │
│  │   │Courier 18    │   │ Remove   │  │Avant Garde 18 │ │ │
│  │   │Courier 24    │   └──────────┘  │Avant Garde 24 │ │ │
│  │   │Helvetica 9   │    38466 bytes  │Bookman 10     │ │ │
│  │   │Helvetica 10 ⬇│     selected    │Bookman 12    ⬇│ │ │
│  │   └──────────────┘                 └──────────────┘ │ │
│  │     Screen Fonts                      System        │ │
│  │   on Installation D...  ┌────────┐   on HD 20       │ │
│  │       311K free         │  Help  │   15465K free    │ │
│  │   ┌──────────┐          └────────┘  ┌──────────┐    │ │
│  │   │  Close   │         ┌────────┐   │  Close   │    │ │
│  │   └──────────┘         │  Quit  │   └──────────┘    │ │
│  │                        └────────┘                   │ │
│  └────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────┘
```
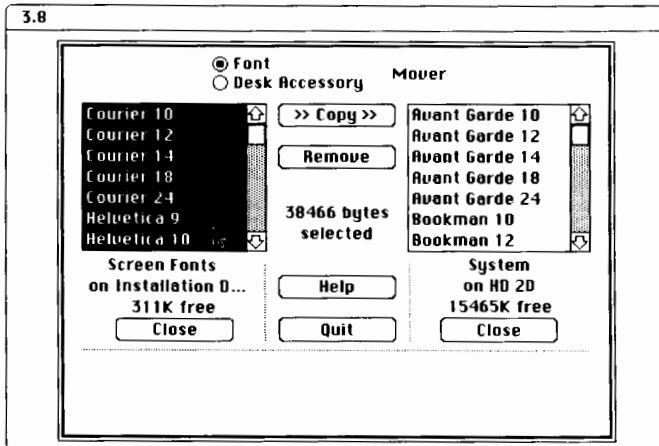
5. Select the font sizes you want to install from the screen font file to your System file by holding down the Shift key while clicking on each font size to the list on the left.

```
┌─────────────────────────────────────────────────────────┐
│ 3.8                                                       │
│  ┌────────────────────────────────────────────────────┐ │
│  │            ⦿ Font                                    │ │
│  │            ○ Desk Accessory    Mover                │ │
│  │   ┌──────────────┐   ┌──────────┐  ┌──────────────┐ │ │
│  │   │Courier 10 ▶ ⬆│   │  Copy    │  │Avant Garde 10⬆│ │ │
│  │   │Courier 12    │   └──────────┘  │Avant Garde 12 │ │ │
│  │   │Courier 14    │   ┌──────────┐  │Avant Garde 14 │ │ │
│  │   │Courier 18    │   │ Remove   │  │Avant Garde 18 │ │ │
│  │   │Courier 24    │   └──────────┘  │Avant Garde 24 │ │ │
│  │   │Helvetica 9   │                 │Bookman 10     │ │ │
│  │   │Helvetica 10 ⬇│                 │Bookman 12    ⬇│ │ │
│  │   └──────────────┘                 └──────────────┘ │ │
│  │     Screen Fonts                      System        │ │
│  │   on Installation D...  ┌────────┐   on HD 20       │ │
│  │       311K free         │  Help  │   15465K free    │ │
│  │   ┌──────────┐          └────────┘  ┌──────────┐    │ │
│  │   │  Close   │         ┌────────┐   │  Close   │    │ │
│  │   └──────────┘         │  Quit  │   └──────────┘    │ │
│  │                        └────────┘                   │ │
│  └────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────┘
```
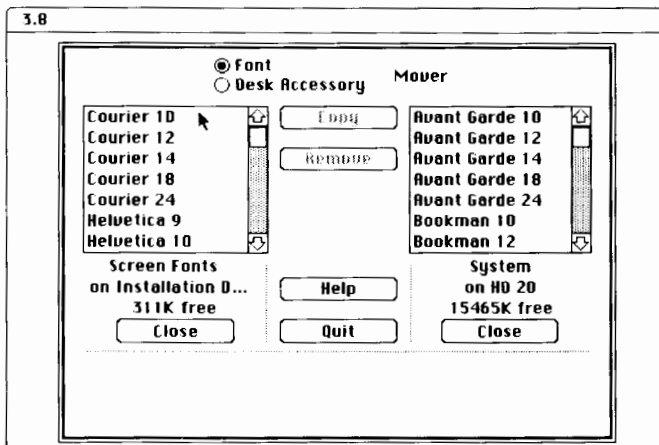
HEWLETT
PACKARD

HP LaserJet Series II Desktop Office Printer

Technical Data

Publication-quality laser printing for the office

Features
- High-resolution text and graphics
- Prints up to eight pages per minute
- Memory expansion capability
- Selection of high quality fonts
- Extensive software support
- LaserJet PLUS printer compatibility
- Excellent paper handling and ease of use

The HP 33440A LaserJet Series II printer is designed for business and technical professionals who require a quiet, high-resolution printer. It is well suited for applications such as:

general, technical, and legal word processing; spreadsheets; reports; forms; and desktop publishing. With a printing speed of up to eight pages per minute, the LaserJet Series II printer offers more fonts or 300 dpi full-page graphics, as well as complex applications.

Publication-quality Printing
The LaserJet Series II printer prints at 300 × 300 dots-per-inch resolution, providing crisp, easy-to-read text and graphics. The SX engine design and toner composition ensure dense, even coverage throughout each page.

A wide selection of font cartridges and downloadable soft fonts are available to complement the printer's built-in fonts and two font cartridge slots. Professional-looking documents can be produced in a wide variety of typefaces, styles, and point sizes.

Extensive Software Support
With HP's industry-standard PCL printer language built into the printer, the LaserJet Series II printer works with most popular PC software packages. It is compatible with the same software, font cartridges, and soft fonts that work with the original LaserJet, LaserJet PLUS, and LaserJet 500 PLUS printers. The printer is equipped with a Centronics parallel interface and an RS-232-C/RS-422-A serial interface for compatibility with most PCs.

Excellent Paper Handling
The LaserJet Series II printer holds 200 sheets of paper in a letter-, legal- A4-, or B5-size input tray, and stacks up to 100 sheets in the correct order in the output tray. The printer handles envelopes using the

manual feed feature or an envelope tray accessory. Heavier paper (up to 35 lb), labels, and overhead transparencies can also be used.

Easy to Use

The 16-character LCD control panel on the LaserJet Series II printer lets the user configure and customize the printing environment. For example, the number of copies, number of lines per page, type of interface, and primary font can be selected from the control panel.

The single component, easy-to-replace toner cartridge prints approximately 4000 pages of normal text. The print drum is part of each toner cartridge, keeping print quality high at a low printing cost (approximately three cents per page, excluding paper costs).

Technical Information

Printing Process
Dry type electrophotography

Printing Speed
First page less than 16 seconds after receipt of data. Subsequent pages at 8 pages per minute—job throughput is application and system dependent.

Warm-up Time
Less than 30 seconds from cold turn on.

Text Resolution
300 × 300 dots-per-inch

Graphics Resolution
75, 100, 150, or 300 dpi

Printing Format
Print Orientation:
Portrait (printing across the width of the page)

Landscape (printing across the length of the page)

Internal Fonts

	Courier Medium*	Courier Bold	Compressed Line Printer
Orientation	Portrait Landscape	Portrait Landscape	Portrait Landscape
Symbol Set**	Roman-8 IBM-US IBM-DN ECMA-94	Roman-8 IBM-US IBM-DN ECMA-94	Roman-8 IBM-US IBM-DN ECMA-94
Spacing	Fixed	Fixed	Fixed
Pitch	10 cpi	10 cpi	16.66 cpi
Point Size	12 point	12 point	8.5 point
Style	Upright	Upright	Upright
Stroke Weight	Medium	Bold	Medium
Typeface	Courier	Courier	Line Printer

*The Courier Portrait (medium) font is the printer's factory default font. This font is used unless the user: selects another default using the control panel; sends a font selection command to request a font in place of the default; or installs a cartridge with a default font.

**These additional symbol sets can be used with internal fonts: ISO 2, 4, 6, 10, 11, 14, 15, 16, 17, 21, 25, 57, 60, 61, 69, 84, 85, HP Spanish, and HP German. ISO denotes International Standards Organization symbol sets, primarily for use in Europe or for printing non-English characters.

Paper Type
Single-sheet copier paper

Note: The LaserJet Series II printer is designed for use with high-quality copier bond paper. To obtain the clearest, sharpest images, paper manufactured for photocopiers such as Canon NP, Xerox 4024, Gilbert or Nutech should be used. Most cotton bond paper also works well on the LaserJet Series II printer. The printer can accommodate a wide variety of special application paper, such as label stock; colored and pre-printed paper; and overhead transparency film

designed for laser printers. It is strongly recommended that all media be tested before purchasing. Consult the HP LaserJet Series II Paper Specifications Guide (P/N 5954-7339) for more information.

Paper Weight
60 to 135 g/m² (16 to 35 lb)

Paper Size
Letter (8½ × 11 in.)
Legal (8½ × 14 in.)
A4 (European) (210 × 297 mm)
Executive (7¼ × 10½ in.)

Note: Best results will be obtained if paper is stored and used within the listed ranges.

Temperature: 17 to 23 degrees C (63 to 73 degrees F)

Relative Humidity: 40 to 50%

Paper Handling
200-sheet input paper tray

Correct-order output through top output tray (100 sheets)

Reverse-order output through rear output tray (20 sheets)

Manual feed for envelopes, heavier paper stock, and odd size paper

Envelope input tray accessory also available

Printable Surface (Portrait)

	Letter	Legal	A4	Exec.
Width				
inches	8.0	8.0	7.8	6.75
mm	203	203	198	171
Length				
inches	10.6	13.6	11.3	10.1
mm	269	345	287	257

Control Panel
Buttons: on-line, continue/reset, print fonts/test, form feed, enter/reset menu, menu, +, −
Indicators: ready, manual feed, on-line, form feed

Interfaces

Centronics parallel, RS-232-C/ RS-422-A serial (300-19.2 baud)

Buffer Size

512 Kbytes standard memory (395 Kbytes of user-accessible memory)

Environmental Ranges

Temperature (Printer and Toner Cartridge)
Operating: 10 to 32.5 degrees C (50 to 91 degrees F)

Storage: 0 to 35 degrees C (32 to 95 degrees F)

Altitude
Operating: 0 to 2500 m (0 to 8200 ft)

Storage: 0 to 15000 m (1 to 49200 ft)

Humidity
Operating: 20 to 80% RH
Storage: 10 to 80% RH

Acoustics (average sound pressure measured at 1 m per ISO 7779)
Printing:
Maximum sound power level-Lwa: 6.3 bels(A)

Maximum sound pressure level-Lpa: 50 dB(A)

Standby:
Maximum sound power level-Lwa: 5.3 bels(A)

Maximum sound pressure level-Lpa: 40 dB(A)

Power Requirements

Source: 100 to 115 volts or 220 to 240 volts ($\pm$10%) (the printer's voltage range depends on the country in which the printer is purchased)

Frequency: 50 or 60 Hz

Consumption at 115 VAC:
Printing: 870 watts maximum
Standby: 170 watts (nominal)

Physical Specifications

Height: 22.8 cm (8.5 in.)

Width: 45.4 cm (18.0 in.)

Depth (body only): 48.2 cm (19.0 in.)

Depth (with tray): 81.5 cm (24.5 in. all trays but legal 27.0 in.)

Net Weight: 22.4 kg (50.0 lb)

Product Certifications

UL 478 listed; CSA 22.2 154 Certified; complies with IEC 380 and IEC 435; FCC level B; VDE 0871B, VDE 0836, IEC-TC76 and VBG 93; BRH Certified Class 1 Laser Product (safe for office/EDP use).

Estimated Typical Usage

Up to 5000 pages per month

Note: Estimated typical usage is offered as the recommended monthly volume to comfortably accommodate several users. It is given as a guideline for selecting the correct printer model. The usage limit of the LaserJet Series II printer is 12000 pages per month.

Interface and Cable Requirements

System	Interface	HP Cable	Cable Length
HP Vectra (9-pin to 25-pin)	Serial	24542G	3.0 m (9.9 ft)
HP Vectra (25-pin to 25-pin)	Serial	17255D	1.2 m (4.0 ft)
HP Vectra	Parallel	24542D	2.0 m (6.6 ft)
HP 150	Serial	13242G	5.0 m (16.7 ft)
HP 150	Serial	92219H	5.0 m (16.7 ft)
HP 150	Parallel	13242D	2.0 m (6.6 ft)
IBM PS/2 Models 30,50,60	Serial	17255D	1.2 m (4.0 ft)
IBM PS/2 Models 30,50,60	Parallel	24542D	2.0 m (6.6 ft)
IBM PC-AT	Serial	24542G	3.0 m (9.9 ft)
IBM PC-AT	Parallel	24542D	2.0 m (6.6 ft)
IBM PC, PC-XT	Serial	17255D	1.2 m (4.0 ft)
IBM PC, PC-XT	Parallel	24542D	2.0 m (6.6 ft)
COMPAQ DeskPro	Serial	17255D	1.2 m (4.0 ft)
COMPAQ DeskPro	Parallel	24542D	2.0 m (6.6 ft)
COMPAQ Portable	Serial	17255D	1.2 m (4.0 ft)
AT&T PC 6300	Serial	17255D	1.2 m (4.0 ft)
Cables for PCs Not Included in Configuration Notes			
HP 110	Serial	92221P	1.5 m (5.0 ft)
DEC Rainbow 100	Serial	17355M	3.0 m (9.9 ft)

Ordering Information

Standard Unit

33440A
LaserJet Series II printer, includes Getting Started Manual, User's Manual, Paper Specifications Guide, 512 Kbyte RAM memory (up to 395 Kbyte user memory), Centronics parallel and RS-232-C/RS-422-A serial interfaces, EP-S toner cartridge, 200-sheet letter-size input paper tray and a power cord. (Cables for computer interfaces are not supplied.)

Accessories

Memory Boards
33443B	1 Mbyte memory board
33444B	2 Mbyte memory board
33445B	4 Mbyte memory board
88141A	JetScript Accessory Kit

Manuals
33440-90901*	LaserJet Series II User's Manual
33440-90904	LaserJet Series II Printer Service Manual
33440-90905	LaserJet Series II Technical Reference Manual
33440-90908*	LaserJet Series II Getting Started Manual

Supplies

Toner Cartridges
92295B	Black toner cartridge (EP-S)

Paper Trays
92295B	Letter-size paper tray (8½ × 11 in.)
92295C	Legal-size paper tray (8½ × 14 in.)
92295D	A4-size paper tray (210 × 297 mm)
92295E	Executive-size paper tray (7¼ × 10½ in.)
92295R	Replacement top cover for 92295B, 92295D, and 92295E paper trays
92295S	Replacement top cover for 92295C paper tray
92295F	LaserJet Series II envelope tray (maximum of 15 envelopes)

Overhead Transparencies
92285J	50 sheets per box

Labels (100 sheets per box)
92285K	1 × 2⅝ in. (33 per page)
92157K	1 × 2⅝ in. (33 per page with border)
92285L	1⅜ × 2⅝ in. (24 per page)
92157N	1½ × 2⅝ in. (21 per page with border)
92157P	2 × 4¼ in. (10 per page with border)
92285M	2¾ × 4¼ in. (8 per page)
92285W	8½ × 11 in. (1 per page)

* Included with printer.

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Soft Fonts†
33412AC	Tms/Helv Base, ASCII, 5¼ in. disk
33412AD‡	Tms/Helv Base, Roman-8, 5¼ in. disk
33412AE	Tms/Helv Supplement, ASCII, 5¼ in. disk
33412AF‡	Tms/Helv Supplement, Roman-8, 5¼ in. disk
33412DA‡	Letter Gothic Family, 5¼ in. disk
33412DC	Presentations/Letter Gothic, 3½ in. IBM disk, 5¼ in. disk
33412EA‡	Prestige Elite Family, 5¼ in. disk
33412RA	ITC Garamond®, ASCII, 5¼ in. disk
33412RB	ITC Garamond, Roman-8, 5¼ in. disk
33412SA	Century Schoolbook®, ASCII, 5¼ in. disk
33412SB	Century Schoolbook, Roman-8, 5¼ in. disk
33412TA	Zapf Humanist™, ASCII, 5¼ in. disk
33412TB	Zapf Humanist, Roman-8, 5¼ in. disk
33412UA	Headline Typefaces™ 1, ASCII, 5¼ in. disk
33412UB	Headline Typefaces 1, Roman-8, 5¼ in. disk
33412AG	Helv Headlines, 5¼ in. disk
33407B	FontLoad™, 5¼ in. disk
33413DC	Presentations/Letter Gothic, 3½ in. disk
92290S1	Courier 1
92290S2	TmsRmn/Helv. Report

Note: 33412AD and 33412AF also include the ASCII characters contained in 33412AC and 33412AE, respectively.

Font Cartridges
92286A	Courier
92286B	TmsRmn Proportional 1
92286C	International 1
92286D	Prestige Elite
92286E	Letter Gothic
92286F	TmsRmn 2
92286G	Legal Elite
92286H	Legal Courier
92286J	Math Elite
92286K	Math Tms
92286L	Courier P & L
92286M	Prestige Elite P & L
92286N	Letter Gothic P & L
92286P	TmsRmn P & L
92286PC	ProCollection (ASCII & Legal)
92286Q	Memo 1
92286R	Presentations 1
92286T	Tax 1
92286U	Forms Portrait
92286V	Forms Landscape
92286W1	Bar Code 3-of-9/OCR-A
92286X	EAN/UPC/OCR-B
92286Y	Courier PC 1
92286Z	Microsoft® 1A
92290S1	Courier PC 1
92290S2	TmsRmn/Helv Report 1

Note: For font print samples and other font information, ask your HP Dealer or Sales Representative for the LaserJet Printer Supplies and Accessories brochure, part number 5956-4268.

†Soft fonts are licensed for use with up to three printers.

‡ Also available with corporate license for use with up to 100 printers (option 100).

Printer supplies are available at authorized HP dealers or through HP's Direct Marketing Operation in the U.S. (800-538-8787); in California call (408) 738-4133 collect.

Scalable Typeface Products
C2050A	#001	CG Times typefaces, 5¼ in. and 3½ in. disks
C2050A	#002	Univers 1 typefaces, 5¼ in. and 3½ in. disks
C2050A	#003	Decorative 1 typefaces, 5¼ in. and 3½ in. disks
C2051A	#ABA	Type Director, font and typeface management program, 5¼ in. and 3½ in. disks (includes 2 typefaces)
C2502A	#ABA	Premier Collection, 3½ in. disk
C2054A	#ABA	Premier Collection, 5¼ in. disk (Type Director program plus 12 typefaces)

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HP LaserJet IID
Desktop Office Printer

Technical Data

Publication-quality laser printing with advanced paper handling

Features
- High-resolution text and graphics
- Two paper input trays handle larger volumes
- Two-sided page printing for excellent paper usage
- Envelope feeder adds a third input source
- 24 fonts standard with the printer
- Extensive software support
- Expandable with more memory and fonts
- Automatic font rotation

The HP 33447A LaserJet IID printer is designed for business and technical professionals who require a quiet, high-resolution printer with the flexibility and paper capacity to serve one high-volume user or several users. Like the HP LaserJet Series II printer, the LaserJet IID printer is excellent for applications such as general, technical, and legal word processing, spreadsheets, reports, forms, and desktop publishing.

Printing That Looks Great
Printing at up to eight pages per minute, the LaserJet IID printer produces crisp, easy-to-read text and graphics at 300 × 300 dots-per-inch resolution. The toner composition and printer engine design ensure dense, even print coverage throughout each page.

Professional-looking documents can be produced from a wide variety of typefaces and type sizes available in built-in, cartridge, and disk-based (soft) fonts. The LaserJet IID printer comes standard with 14 built-in fonts and a 92290S2 font cartridge containing 10 proportional fonts.

The LaserJet IID can automatically rotate cartridge and soft fonts to either a portrait (vertical) or a landscape (horizontal) orientation.

More Paper for More Users
The LaserJet IID printer holds up to 200 sheets in each of two input trays. Combined with duplex (two-sided) printing, up to 800 pages (400 sheets of paper) can be printed without reloading paper. The LaserJet IID paper trays are interchangeable with the LaserJet Series II printer trays and are offered in letter, legal, European A4, and
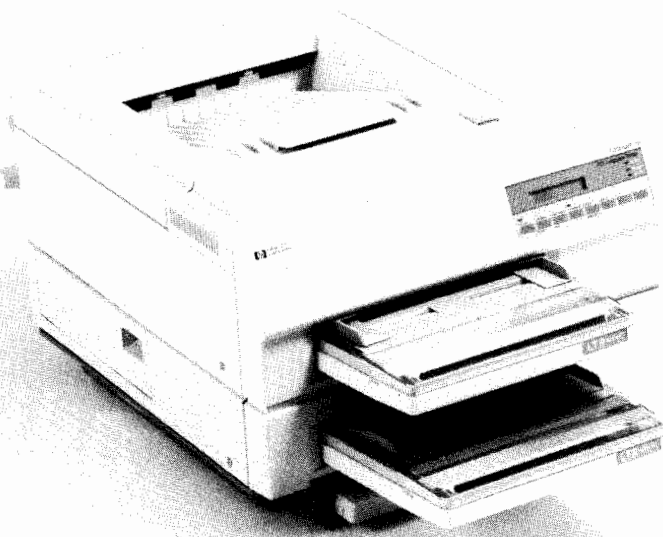
executive sizes. Heavier paper (up to 35 lb when printing on one side only), labels, and overhead transparencies can be used in the upper paper tray.

Two-sided Printing Offers Savings

Duplex (two-sided) printing offers significant savings in paper purchase, filing, storage, and mailing costs. The LaserJet IID printer makes duplex printing easy to use by allowing a duplex document to be opened and read either book-style or calendar-style. Designating a long-edge or short-edge page binding makes the printer automatically rotate the second page on each sheet of paper for correct reading placement.

Envelope Feeder Adds Flexibility

The envelope feeder (available as an accessory) offers a third input source for printing a batch of envelopes or envelopes alternated with letters. With the two paper input trays, it allows printing on letterhead, plain paper, and envelopes without touching the printer. The feeder holds up to 50 envelopes in Commercial #10, Monarch, or DL sizes. Manual paper feed through the lower paper tray is still available with the envelope feeder installed on the printer.

Extensive Software Support

With HP's industry-standard PCL printer language built in, the LaserJet IID printer works with software packages covering a wide range of applications. It is compatible with the same software, font cartridges, and soft fonts that work with the LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, and LaserJet 2000 printers. The printer is equipped with a front panel-selectable Centronics parallel and RS-232-C/RS-422-A serial interface for connectivity with most computers.

Expandable to Serve Several Users

The LaserJet IID printer is well suited for sharing among several users. A 1, 2, or 4 megabyte memory board can be added for users needing full-page 300×300 dpi graphics, more downloaded fonts or macros, or memory-dependent applications. The printer's extended I/O slot allows the addition of a printer sharing or spooling device.

Easy to Use

The 16-character LCD control panel on the LaserJet IID printer provides convenient configuration and customization of the printing environment. A quick self-test printout lists the configuration and printing menu settings. A font printout will list all internal, cartridge, and soft fonts currently available in the printer, the escape sequences to access each font, and print samples of each font.

The single-component, easy-to-replace toner cartridge prints approximately 4000 pages of normal text. The print drum is part of each toner cartridge, keeping print quality high at a low printing cost (approximately three cents per single-sided page, excluding paper costs).

Feature Comparison Matrix

Feature	LaserJet Series II Printer	LaserJet IID Printer
Print speed	Up to 8 pages per min. (simplex printing on one side of 8 sheets of paper)	Up to 8 pages per min. (simplex printing on one side of 8 sheets of paper) Up to 7.4 pages per min. (duplex printing on both sides of 4 sheets of paper)
Text resolution	300 × 300 dots per in.	300 × 300 dots per in.
Graphics resolution with standard memory 75 dpi 100 dpi 150 dpi 300 dpi	Simplex printing: 1 page 1 page 1 page 0.5 page	Simplex:　　　　Duplex: 1 page　　　　2 pages 1 page　　　　1.5 pages 1 page　　　　1 page 0.5 page　　　0.5 page
Memory required to print full-page 300 dpi graphics	Add 1, 2, or 4 Mbyte memory board	Add 1, 2, or 4 Mbyte memory board (simplex) Add 2 or 4 Mbyte memory board (duplex)
Number of input trays	One	Two
Number of sheets per input tray	200	200 each tray for a total of 400
Envelope printing capabilities	Envelope input tray Manual feed	Envelope feeder Envelope input tray Manual feed
Automatic duplex (two-sided) printing?	No	Yes
Page-binding considerations (for duplex printing)	Not applicable	Long-edge or short-edge binding in portrait or landscape orientations
Font orientations	Depends on font, not printer	Printer can rotate font to either portrait or landscape
Internal fonts	6 internal	14 internal
Internal symbol sets	24 internal	24 internal plus PC-850 and Legal(= 26)
Standard font cartridges with printer	None	92290S2 cartridge provides 10 fonts (TmsRmn and Helv)
Font cartridge slots	Two	Two
Number of downloaded fonts or macros	Maximum of 32 or memory space limit, whichever is reached first	Limited only by memory space available
Number of fonts per page allowed	Maximum of 16 or memory space limit, whichever is reached first	Limited only by memory space available
Standard memory (user memory)	512 Kbytes (395 Kbytes)	640 Kbytes (395 Kbytes)
Additional memory available	1 Mbyte (33443A or B) 2 Mbytes (33444A or B) 4 Mbytes (33445A or B)	1 Mbyte (33443B) 2 Mbytes (33444B) 4 Mbytes (33445B)
Hardware interfaces	Centronics parallel RS-232-C/RS-422-A	Centronics parallel RS-232-C/RS-422-A
Video interface	Yes	No
Extended I/O slot	Yes	Yes (requires different printer sharing devices than LaserJet Series II printer)

Memory Requirements for Graphics Printing

Pages of graphics:	Graphics resolution (dpi):				Printing mode:
	300 dpi	150 dpi	100 dpi	75 dpi	
0.5 pg*	640 KB	640 KB	640 KB	640 KB	simplex or duplex
1.0 pg	1.6 MB	640 KB	640 KB	640 KB	simplex or duplex
1.5 pgs	1.6 MB	1.6 MB	640 KB	640 KB	duplex
2.0 pgs	2.6 MB	1.6 MB	1.6 MB	640 KB	duplex

* The graphics page space shown for duplex printing represents the *total* space for graphics printed on both sides of a single sheet. For instance, a ¼-page, 300 dpi graphic may be printed on the front side and a ¼-page, 300 dpi graphic on the back side, for a total of ½-page of 300 dpi duplex printing with the standard 640 Kbytes memory. This table assumes nothing else is in printer memory, such as downloaded fonts or macros.

Technical Information

Printing Process
Dry-type electrophotography

Printing Speed
First sheet less than 16 seconds after receipt of data. Subsequent sheets at 8 pages per minute simplex printing, or up to 7.4 pages per minute duplex printing (printing pages on both sides of a sheet of paper). Job throughput is application and system dependent.

Warm-up Time
Less than 30 seconds from cold turn on

Text Resolution
300 × 300 dpi

Graphics Resolution
75, 100, 150, or 300 dpi

Printing Format
Simplex (single-sided) or duplex (two-sided) printing selectable from front control panel or via supporting software

Long-edge or short-edge page binding rotation (for duplex printing) selectable from front control panel or via supporting software

Portrait (printing across the width of the page) or landscape (printing across the length of the page) orientations selectable from front control panel or via supporting software

Duplex options:

	Long-edge binding	Short-edge binding
Portrait orientation	reads book-style	reads calendar-style
Landscape orientation	reads calendar-style	reads book-style

Internal Fonts

Typeface	Treatment	Pitch	Point	Orientation**
Courier*	Medium	10	12	Portrait and landscape
Courier	Bold	10	12	Portrait and landscape
Courier	Italic	10	12	Portrait and landscape
Courier	Medium	12	10	Portrait and landscape
Courier	Bold	12	10	Portrait and landscape
Courier	Italic	12	10	Portrait and landscape
Line Printer	Medium	16.66	8.5	Portrait and landscape

*The Courier Portrait 10-pitch (medium) font is the printer's factory default font. This font is used unless the user: selects another default using the control panel; sends a font selection command (via escape sequence or supporting software product) to request a font in place of the default; or installs a cartridge with a default font.

**The LaserJet IID printer automatically rotates fonts to the orientation specified.

Internal Symbol Sets
Roman-8, PC-8 (IBM-US), PC-DN (IBM-DN), ECMA-94, Latin-1 PC-850, Legal

These additional symbol sets can be used with internal fonts: ISO 2, 4, 6, 10, 11, 14, 15, 16, 17, 21, 25, 57, 60, 61, 69, 84, 85, HP Spanish, and HP German. ISO denotes International Standards Organization symbol sets, primarily for use in Europe or for printing non-English characters.

100

92290S2 Cartridge Fonts

Typeface	Treatment	Pitch	Point	Orientation*
TmsRmn	Medium	Proportional	8	Portrait and landscape
TmsRmn	Medium	Proportional	12	Portrait and landscape
TmsRmn	Bold	Proportional	12	Portrait and landscape
TmsRmn	Italic	Proportional	12	Portrait and landscape
Helv	Bold	Proportional	14	Portrait and landscape

*The LaserJet IID printer automatically rotates fonts to the orientation specified.

92290S2 Cartridge Symbol Sets
Roman-8, PC-8, PC-8 D/N, ECMA-94 Latin 1.

Paper Type
Single-sheet copier paper

Note: The LaserJet IID printer is designed for use with copier bond paper of high-quality construction. To obtain the clearest, sharpest images, paper manufactured for photocopiers such as Canon NP, Xerox 4024, Gilbert, or NuTech should be used. Most cotton bond paper also works well on the LaserJet IID printer. The printer can also accommodate a variety of special application paper, such as label stock, colored and pre-printed paper, and overhead transparency film designed for laser printers. It is strongly recommended that all media be tested before purchasing. Consult the HP LaserJet IID Paper Specifications Guide (P/N 5954-8970) for additional information.

Paper Weight
Top tray: 60 to 135 g/m² (16 to 35 lb) simplex printing

Bottom tray (or duplex printing from any source): 60 to 90 g/m² (16 to 24 lb)

Paper Size
Letter (8½ × 11 in.)
Legal (8½ × 14 in.)
A4 (European) (210 × 297 mm)
Executive (7¼ × 10½ in.)

Note: Best results will be obtained if paper is stored and used within the listed ranges.

Temperature: 17 to 23 degrees C (63 to 73 degrees F)

Relative Humidity: 40 to 50%

Paper Handling
Two 200-sheet input trays

Correct-order output through top output tray (100 sheets)

Reverse-order output through rear output tray (20 sheets, simplex printing only)

Manual feed for envelopes, heavier paper stock, and odd-size paper

Envelope feeder or envelope input tray accessories also available

Printable Surface (Portrait)

	Letter	Legal	A4	Exec.
Width				
inches	8.0	8.0	7.8	6.75
mm	203	203	198	171
Length				
inches	10.6	13.6	11.3	10.1
mm	269	345	287	257

Envelope Handling

	Envelope feeder	Envelope tray	Manual Feed
Capacity	Up to 50	Up to 15	One at a time
Types	Comm. #10 Monarch DL	Comm. #10 Monarch DL C5	Comm. #10 Monarch DL C5

Envelope Weight
Envelope feeder accessory: 60 to 90 g/m² (16 to 24 lb)

Envelope tray accessory: 60 to 90 g/m² (16 to 24 lb)

Manual feed: 60 to 90 g/m² (16 to 24 lb)

Note: For additional specifications on envelopes for laser printing, consult the HP LaserJet IID Paper Specifications Guide (P/N 5954-8970). It is strongly recommended that all media be tested before purchase.

Envelope Size
Commercial #10: 4⅛ × 9½ in.
Monarch: 3⅞ × 7½ in.
DL: 110 × 220 mm
C5: 162 × 129 mm

Note: Best results are obtained if envelopes are stored and used within the listed ranges.

Temperature: 17 to 23 degrees C (63 to 73 degrees F)

Relative humidity: 45 to 55%

Printable Surface (Landscape)

	Comm. #10	Monarch	DL	C5
Width				
inches	9.10	7.10	8.27	8.62
mm	231	180	210	219
Length				
inches	3.72	3.47	3.86	5.91
mm	94	88	98	150

Control Panel
Buttons: on line, continue/reset, print fonts/test, form feed, enter/reset menu, menu, +, −

Indicators: (16-segment display indicator), ready, manual, duplex, on line, form feed

Interfaces
Centronics parallel, RS-232-C/RS-422-A (300-19.2 baud)

Buffer Size
640 Kbytes standard memory (395 Kbytes of user-accessible memory)

Environmental Ranges
Temperature (Printer and Toner Cartridge)
Operating: 10 to 32.5 degrees C (50 to 91 degrees F)

Storage: 0 to 35 degrees C (32 to 95 degrees F)

Altitude
Operating: 0 to 2500 m (0 to 8200 ft)

Storage: 0 to 15000 m (0 to 49200 ft)

Humidity
Operating: 20 to 80% RH
Storage: 10 to 80% RH

Acoustics (average sound pressure measured at 1 m per ISO 7779)
Printing:
Maximum sound power level-L_{wAd}: 6.3 bels(A)

Maximum sound pressure level-L_{pAm}: 50 dB(A)

Standby:
Maximum sound power level-L_{wAd}: 5.3 bels(A)

Maximum sound pressure level-L_{pAm}: 40 dB(A)

Power Requirements
Source: 100 to 115 volts or 220 to 240 volts ($\pm 10\%$) (the printer's voltage range depends on the country in which the printer is purchased)

Frequency: 50 or 60 Hz

Consumption at 115 VAC:
Printing: 870 watts maximum
Standby: 170 watts (nominal)

Physical Specifications
Height: 31.3 cm (12.3 in.)

Width: 45.4 cm (18.0 in.)

Depth (body only): 62.5 cm (25.0 in.)

Depth (with tray): 88.8 cm (35.0 in. all trays but legal 37.5 in.)

Net Weight: 33.6 kg (74 lb)

Product Certifications
UL 478 listed; CSA 22.2 154 Certified; complies with IEC 380 and IEC 435; FCC level B; VDE 0871B, VDE 0836, IEC-TC76, and VBG 93; BRH Certified Class 1 Laser Product (safe for office/EDP use).

Estimated Typical Usage
Up to 7500 pages per month

Note: Estimated typical usage is offered as the recommended monthly volume to comfortably accommodate several users. It is given as a guideline for selecting the correct printer model. The warranty coverage and usage limit of the LaserJet IID printer is 16000 pages per month (simplex printing).

Interface and Cable Requirements

System	Interface	HP Cable	Cable Length
HP 150	Serial	13242G	5.0 m (16.7 ft)
HP 150 (45643A interface required)	Parallel	13242D	2.0 m (6.6 ft)
HP Vectra (24540A interface required)	Serial	24542G	3.0 m (9.9 ft)
HP Vectra (24540A interface required)	Parallel	24542D	2.0 m (6.6 ft)
IBM PC-AT, and most AT compatibles	Serial	24542G	3.0 m (9.9 ft)
	Parallel	24542D	2.0 m (6.6 ft)
IBM PC, PC-XT & PS/2 and most PC	Serial	17255D	1.0 m (3.0 ft)
COMPAQ Portable	Serial	17255D	1.0 m (3.0 ft)
COMPAQ Portable	Parallel	24542D	2.0 m (6.6 ft)
COMPAQ DeskPro	Serial	24542G	3.0 m (9.9 ft)
COMPAQ DeskPro	Parallel	24542D	2.0 m (6.6 ft)
AT&T PC	Serial	17255D	1.0 m (3.0 ft)

Note: Some PCs require specific interface accessory cards installed to connect to a printer. Consult your PC salesperson for additional information.

Ordering Information
Standard Unit
33447A
HP LaserJet IID printer, includes Getting Started Road Map, User's Manual, Quick Reference Card, Software Applications, Paper Specifications Guide, 640 Kbyte RAM memory (up to 395 Kbyte user memory), Centronics parallel and RS-232-C/RS-422-A interface, EP-S toner cartridge, two 200-sheet letter size paper input trays, an S2 font cartridge, and a power cord. (Cables for computer interfaces are not supplied.)

Supplies

Toner Cartridge
92295A   Black toner cartridge (EP-S)

Overhead Transparencies
92285J   50 sheets per box

Labels (100 sheets per box)
92285K   1 × 2⅝ in. (33 per page)
92157K   1 × 2⅝ in. (33 per page with border)
92285L   1⅜ × 2⅝ in. (24 per page)
92157N   1½ × 2⅝ in. (21 per page with border)
92157P   2 × 4¼ in. (10 per page with border)
92285M   2¾ × 4¼ in. (8 per page)
92285W   8½ × 11 in. (1 per page)

Other Supplies
92295Q   Ozone filter replacement

Accessories

Memory Boards
33443B   1 Mbyte memory board
33444B   2 Mbyte memory board
33445B   4 Mbyte memory board

Note: HP 33443A, 33444A, and 33445A (old model) memory boards for the LaserJet Series II printer do not work with the LaserJet IID printer.

Envelope Feeders
33457A   Envelope feeder (holds up to 50 envelopes)
92295F   Envelope input tray (holds up to 15 envelopes)

Paper Trays
92295B   Letter-size paper tray (8½ × 11 in.)
92295C   Legal-size paper tray (8½ × 14 in.)
92295D   A4-size paper tray (210 × 297 mm)
92295E   Executive-size paper tray (7¼ × 10½)
92295R   Replacement top cover for 92295B, D, and E paper trays
92295S   Replacement top cover for 92295C paper tray
92295U   Top cover for all paper tray sizes to be used with envelope feeder (33457A)

Manuals
33447-90901   LaserJet IID Printer User's Manual
33447-90905   LaserJet IID Printer Technical Reference Manual
33447-90908   LaserJet IID Printer Getting Started Road Map
33447-90911   LaserJet IID Printer User's Quick Reference Card
33447-90912   LaserJet IID Printer Envelope Feeder User's Guide
33447-90914   LaserJet IID Printer Paper Specifications Guide
—   LaserJet IID Printer Software Application Notes (call 208-323-2551 in the United States)

Font Cartridges
92286A   Courier
92286B   TmsRmn Proportional 1
92286C   International 1
92286D   Prestige Elite
92286E   Letter Gothic
92286F   TmsRmn 2
92286G   Legal Elite
92286H   Legal Courier
92286J   Math Elite
92286K   Math TmsRmn
92286L   Courier P & L
92286M   Prestige Elite P & L
92286N   Letter Gothic P & L
92286P   TmsRmn P & L
92286PC ProCollection (ASCII and Legal)
92286Q   Memo 1
92286R   Presentations 1
92286T   Tax 1
92286U   Forms Portrait
92286V   Forms Landscape
92286W1 Bar Code 3-of-9/OCR-A
92286X   EAN/UPC/OCR-B
92286Y   Courier PC 1
92286Z   Microsoft® 1A
92290S1 Courier PC 1
92290S2 TmsRmn/Helv Report 1

Soft Fonts*
33412AC   Tms/Helv Base, ASCII, 5¼ in. disk
33412AD   Tms/Helv Base, Roman-8, 5¼ in. disk
33412AE   Tms/Helv Supplement, ASCII, 5¼ in. disk
33412AF   Tms/Helv Supplement, Roman-8, 5¼ in. disk
33412DA   Letter Gothic Family, 5¼ in. disk
33412EA   Prestige Elite Family, 5¼ in. disk
33412RA   ITC Garamond®, ASCII, 5¼ in. disk
33412RB   ITC Garamond, Roman-8, 5¼ in. disk
33412SA   Century Schoolbook®, ASCII, 5¼ in. disk
33412SB   Century Schoolbook, Roman-8, 5¼ in. disk
33412TA   Zapf Humanist™, ASCII, 5¼ in. disk
33412TB   Zapf Humanist, Roman-8, 5¼ in. disk
33412UA   Headline Typefaces™ 1, ASCII, 5¼ in. disk
33412UB   Headline Typefaces, 1, Roman-8, 5¼ in. disk
33412AG   Helv Headlines, 5¼ in. disk
33407B   FontLoad™, 5¼ in. disk (utility)
33412DC   Presentations/Letter Gothic, 5¼ in. disk
33413DC   Presentations/Letter Gothic, 3½ in. disk

Note: All the above soft fonts are available with corporate license for use with up to 100 printers (option 100). 33412AD and 33412AF also include the ASCII characters contained in 33412AC and 33412AE, respectively.

*Soft fonts are licensed for use with up to three printers.

Scalable Typeface Products
C2050A   #001   CG Times typefaces, 5¼ in. and 3½ in. disks
C2050A   #002   Univers 1 typefaces, 5¼ in. and 3½ in. disks
C2050A   #003   Decorative 1 typefaces, 5¼ in. and 3½ in. disks
C2051A   #ABA   Type Director, font and typeface management program, 5¼ in. and 3½ in. disks (includes 2 typefaces)
C2502A   #ABA   Premier Collection, 3½ in. disk
C2054A   #ABA   Premier Collection, 5¼ in. disk (Type Director program plus 12 typefaces)

For print samples and other font information, ask your HP Dealer or Sales Representative for the brochure, ''Supplies, Accessories and Software for Your HP LaserJet Printer,'' Part Number 5956-4268.

Printer supplies are available at authorized HP dealers or through HP's Direct Marketing Operation in the U.S. (800-538-8787); in California, call (408) 738-4133 collect.

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Lomas de Chapultepec
11000 Mexico D.F., Mexico
905 596 79 33

HP LaserJet 2000 Departmental Printer

Computer Museum

Technical Data

High-speed, high-volume, publication-quality laser printing for PC networks, minicomputers, and mainframes

Features

- High-speed, high-resolution text and graphics
- LaserJet family software compatibility
- High-volume capability
- Paper-handling features for less operator intervention
- Low operating costs
- Prints on six paper sizes up to and including ledger size (11 × 17 in., A3)
- Automatic two-sided printing (duplex)
- Automatic font and graphics rotation
- Contains 34 internal fonts

The HP 2684 LaserJet 2000 laser printer provides publication-quality printing for departments requiring a high-performance, heavy-usage printer. The LaserJet 2000 printer offers LaserJet PLUS/LaserJet Series II software compatibility with increased paper handling, speed, and graphics memory. The printer's low cost per page and higher print volume capacity make it a great fit in shared printer environments such as PC networks, minicomputer systems, and mainframe systems.

Quick Job Turnaround

At up to 20 pages per minute, the LaserJet 2000 printer prints a job at twice the speed of most desktop laser printers.

LaserJet Compatibility

The LaserJet 2000 printer offers LaserJet PLUS/LaserJet Series II compatibility—compatible software, formatting, and fonts. The LaserJet 2000 printer uses HP's PCL printer language and is supported by over 600 popular software packages.

Quiet, High-volume Printing

For departments printing large volumes of work, the printer can handle up to 70,000 pages per month. And unlike many high-volume printers, the LaserJet 2000 printer is quiet enough to locate in an office (<57 dB(A)).

LaserJet

Technical Data
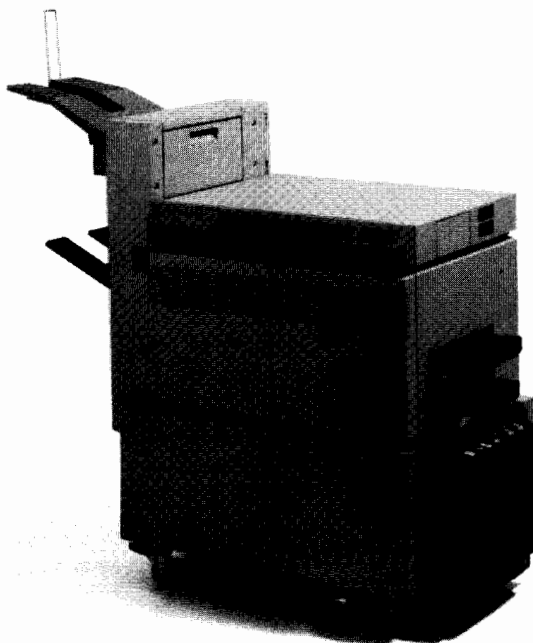
Extensive Paper Handling

The LaserJet 2000 printer handles paper sizes from 8.5 × 11 inches to 11 × 17 inches, including legal, executive, and A3 and A4 European sizes. All LaserJet 2000 printer models offer two 250-sheet input trays and a 1500-sheet correct-order output stacker as standard equipment. Printed output may be easily separated using the job separation feature, which prints a black bar on the edge of a job separation sheet.

Multiple Fonts

The printer is equipped with 34 resident fonts and is compatible with LaserJet family font cartridges and down-loadable soft fonts. All LaserJet printer fonts, whether resident, down-loaded, or cartridge, may be printed in either portrait or landscape orientation via the LaserJet 2000 printer automatic font rotation feature.

Low Operating Costs

The LaserJet 2000 printer can be operated at better than half the cost of desktop laser printers. The duplex (automatic printing on both sides of the paper) model saves even more money by cutting paper costs in half.

Memory Expansion

The standard LaserJet 2000 printer includes 1.5 Mbytes of memory and can be expanded in 1 Mbyte increments to 5.5 Mbytes. Extra printer memory allows downloading of more forms, fonts, and macros.

Technical Information

Printing Process

Dry Type Electrphotography
Semiconductor Laser
Monocomponent Toner

Print Speed

First image less than 22 seconds for receipt of data. Subsequent pages at up to 20 pages per minute. Print speed is paper-size dependent as well as input-source (cassette/PDX) dependent. See table below.

Paper Size	Simplex		Duplex	
	Cassette	Paper Deck	Cassette	Paper Deck
Letter	20*	20	15	20
Legal	13	–	11	–
Ledger	11	–	9	–
Executive	16	–	14	–
A4	20	20	16	20
A3	11	–	10	–

* All numbers represent pages per minute. One sheet equals two pages.

Text Resolution

300 dpi

Graphics Resolution

75, 100, 150, and 300 dpi resolutions
Standard 300 dpi Full-Page Raster Graphics (8½ × 11 in. page)

Printing Format

Print orientation:
Portrait (printing across the width of the paper)
Landscape (printing across the length of the paper)

Internal Fonts

TYPEFACE	ORIENTATION	POINT	PITCH	ASCII	ROMAN-8	PC-8[1]	PC-8 D/N[2]	ECMA 94	LEGAL	MATH-8	TECHNICAL-7[3]	OEM1[4]	ISO[5]	FONT CARTRIDGE	SOFT FONT
Line Printer	Portrait	8.5	15	•	•	•	•	•				•	•		
			16.66	•	•	•	•	•				•	•	C, F, L, Y	
	Landscape	8.5	15	•	•	•	•	•				•	•		
			16.66	•	•	•	•	•				•	•	A, B, C, L, Y	
Line Draw	Portrait	8.5	16.66												
	Landscape														
	Portrait	12	10											H, U, W, X	
	Landscape														V	
Prestige Elite	Portrait	7	16.66	•	•	•	•	•				•	•	G, H, J	EA
	Landscape			•	•	•	•	•				•	•	G, H	EA
	Portrait	10	12	•	•	•	•	•	•	•	•	•	•	D, G, J, M	EA
	Landscape			•	•	•	•	•	•	•	•	•	•	M	EA
Prestige Elite (Bold)	Portrait	10	12	•	•	•	•	•	•			•	•	D, G, J, M	EA
	Landscape			•	•	•	•	•	•			•	•	M	EA
Prestige Elite (Italic)	Portrait	10	12	•	•	•	•	•	•			•	•	D, G, J, M	EA
	Landscape			•	•	•	•	•	•			•	•	M	EA
Courier*	Portrait	10	12	•	•	•	•	•				•	•		
	Landscape			•	•	•	•	•				•	•		
	Portrait	12	10	•	•	•	•	•	•	•	•	•	•	C, H, Y	
	Landscape			•	•	•	•	•	•	•	•	•	•		
Courier (Bold)	Portrait	12	10	•	•	•	•	•	•			•	•	A, C, H, L, Q, Y	
	Landscape			•	•	•	•	•	•			•	•	L, Q	
Courier (Italic)	Portrait	12	10	•	•	•	•	•	•			•	•	A, C, H, L, Q, Y	
	Landscape			•	•	•	•	•	•			•	•	L, Q	
Tms Rmn	Portrait	8	Prop	•	•								•		AD
	Landscape			•	•								•		AD
	Portrait	10	Prop	•	•								•		AD
	Landscape			•	•								•		AD
Tms Rmn (Bold)	Portrait	10	Prop	•	•								•		AD
	Landscape			•	•								•		AD
Tms Rmn (Italic)	Portrait	10	Prop	•	•								•		AD
	Landscape			•	•								•		AD
Helv (Bold)	Portrait	14	Prop	•	•								•		AD
	Landscape			•	•								•		AD

Paper Types
The printer was designed for use with high-quality photocopier paper. Transparency, label stock, and envelopes are not supported.

Paper Weight
60 g/m² to 90 g/m² (16 to 24 lb)

Paper Sizes
Letter: 8½ × 11 in.
A4 (European): 210 × 297 mm
Legal: 8½ × 14 in.
Executive: 7¼ × 10½ in.
Ledger: 11 × 17 in.
A3 (European): 297 × 420 mm

Paper Handling
All Models (A/D/P)
Two input bins (each holds 250 sheets)
1500-sheet output tray (correct order)
Reject print output tray
Paper tray security
Job separation

Model P also includes
2000-sheet input paper deck (Letter/A4)

Model D also includes
2000-sheet input paper deck
Automatic duplex (two-sided printing)

Printable Surface (Portrait)

	Std.	Legal	A4	Exec.	A3	Ledger
Width:						
inches	8.0	8.0	7.8	6.75	11.1	10.6
mm	203	203	198	171	282	271
Length:						
inches	10.6	13.6	11.3	10.1	16.1	17
mm	269	345	287	257	410	432

Control Panel

Paper size, orientation, form length, primary font, secondary font, secure source, attendance bell, auto-continue, job separation

Interfaces

RS-232/422 serial
Centronics parallel
Dataproducts Short Line
Dataproducts Long Line

NOTE: Interfaces do not come standard with the printer but are ordered as accessories. Serial interface is not recommended for extensive graphics applications.

Buffer Sizes

1.5 Mbytes of user memory standard (expandable to 5.5 Mbytes in 1 Mbyte increments)

Environmental Ranges

Temperature
Operating: 10 to 32.5 degrees C (50 to 91 degrees F)
Storage: 0 to 35 degrees C (32 to 95 degrees F)

Humidity
Operating: 20 to 80 percent RH
Storage: 10 to 80 percent RH

Altitude
Operating: 0 to 2500 m (0 to 8200 ft)
Storage: 0 to 15,000 m (1 to 49200 ft)

Acoustics (average sound pressure measured at 1 m per ISO 3745)

	Model A/P	**Model D**
Printing:	57 dB(A)	59 dB(A)
Standby:	46 dB(A)	46 dB(A)

Power Requirements

Voltage, frequencies, and amperage
115 VAC $\pm$10%, 60 Hz $\pm$ 2 Hz, 12 A
220 VAC $\pm$10%, 50 Hz $\pm$ 2 Hz, 6.3 A
240 VAC $\pm$10%, 50 Hz $\pm$ 2 Hz, 5.8 A

Consumption and heat dissipation
1400 W at 115 VAC, 4776 BTU/hr
1250 W at 220 VAC, 4776 BTU/hr
1300 W at 240 VAC, 4776 BTU/hr

Physical Specifications
LaserJet 2000 Model A (Simplex only)
Height: 125.0 cm (48.8 in.)
Width: 137.0 cm (53.4 in.)
Depth: 64.0 cm (25.0 in.)
Net Weight: 163. 0 kg (358.0 lb)

LaserJet 2000 Model D (Duplex and Paper Deck)
Height: 125.0 cm (48.8 in.)
Width: 145.0 cm (56.55 in.)
Depth: 64.0 cm (25.0 in.)
Net Weight: 204.0 kg (448.0 lb)

LaserJet 2000 Model P (Simplex and Paper Deck)
Height: 125.0 cm (48.8 in.)
Width: 145.0 cm (56.55 in.)
Depth: 64.0 cm (25.0 in.)
Net Weight: 180.0 kg (395.0 lb)

Packaged for shipping (including pallet)
Height: 135.9 cm (53.0 in.)
Width: 102.6 cm (40.0 in.)
Depth: 111.5 cm (43.5 in.)
Net Weight: 277.0 kg (609.0 lb)*

Interface and Cable Requirements

PC Systems	Printer Interface		
	Type	Product/Option	Cable
HP Vectra PC	RS-232/422	26843A	24542G
HP Vectra PC	Centronics	26843B	24542D
IBM PC	RS-232/422	26843A	24542G
IBM PC	Centronics	26843B	24542D
Mini/Mainframe Systems			
Data General MV	RS-232	26843A	Note 1
Data General MV	Dataproducts	26843C/D	Note 1
DEC VAX	RS-232	26843A	Note 2
DEC VAX	Dataproducts	26843C/D	Note 2
IBM 3X	RS-232	26843A	Note 3
IBM 3X	Centronics	26843B	Note 3
IBM 37X-309X	RS-232	26843A	Note 4
IBM 37X-309X	Centronics	26843B	Note 4

Note 1—Refer to Data General Configuration Guide P/N 5954-8951.

Note 2—Refer to DEC VAX Configuration Guide P/N 5954-8952.

Note 3—Refer to third-party protocol manufacturer for cable requirements.

Note 4—Refer to IBM Configuration Guide P/N 5954-8959.

Ordering Information

LaserJet 2000 Model A (2684A) printer includes: Two 250-sheet input trays, reject print output tray, operator's manual, technical reference manual, toner (1 kg box), EP drum (500,000 letter/A4 image life)

LaserJet 2000 Model P (2684P) printer (in addition to HP 2684A features) includes: 2000-sheet input paper deck (letter & A4 only)

LaserJet 2000 Model D (2684D) printer (in addition to HP 2684A features) includes: automatic duplex and 2000-sheet input paper deck (letter & A4 only)

Power Options
LaserJet 2000 Model A, D, and P printers are supplied in either 115 VAC 60 Hz or 220/240 VAC 50 Hz power.

Required Field-installable Accessories (one required)

26843A	RS-232/422 interface
26843B	Centronics parallel interface
26843C	Dataproducts Short Line interface
26843D	Dataproducts Long Line interface

Additional Field-installable Accessories

26842A	2000-sheet paper deck input bin, 115 V upgrade
26842A/B	2000-sheet paper deck input bin, 220/240 V upgrade
26845A	1 Mbyte memory expansion kit (supports up to four per printer)

*LaserJet 2000 Model D

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Memory Configuration

This table serves as a guide in determining the approximate amount of printer memory needed to support full-page 300 dpi graphics capabilities on the LaserJet 2000 printer.

Single-sided (simplex)

Paper Size	Memory Requirement
Letter, A4, Exec	Standard printer memory (1.5 Mbytes)
Legal	Standard printer memory (1.5 Mbytes)
Ledger, A3	One additional 26845A memory kit

Double-sided (duplex)

Letter, A4, Exec.	One additional 26845A memory kit
Legal	Two additional 26845A memory kits
Ledger, A3	Three additional 26845A memory kits

These memory configuration requirements are provided for convenience as an ordering guide. Applications supporting functions such as LaserJet printer font cartridges, downloaded soft fonts, electronic forms, or complex desktop publishing may require additional printer memory. When in doubt, add an additional 26845A memory kit (1 Mbyte each) to the memory requirements shown.

Supplies and Accessories

Paper cassettes:
92282B	Letter
92282C	Legal
92282F	Ledger
92282E	Executive
92282D	A4 (Europe)
92282G	A3 (Europe)

Toner (estimates only):
92282A	14,000 images/kg @ 5% print coverage
92282P	Disposal Box (life—40,000 images)

EP Drum (estimates only):
R44-0230-000CN	500,000-image drum life

Maintenance and Warranty

Operator training is provided at installation. Also, the initial 90 days after installation are covered by an on-site warranty that provides next-day service of parts and labor for repair of defects in workmanship. After this period, repair and maintenance coverage can be continued by contacting the nearest Authorized Service Dealer or Hewlett-Packard Sales/Service Office and requesting a Customer Maintenance Agreement. The Customer Maintenance Agreement offers:

- Extended coverage service plans in most areas
- Defined response time for maintenance
- Customer maintenance

Details on tailoring a service program to meet the customer's particular needs are available through local HP Sales/Service Offices.

Data General MV is a product of Data General. DEC VAX is a product of Digital Equipment Corporation. IBM PC 3X/37X through 309X are products of International Business Machines Corporation. PCL is a trademark of the Hewlett-Packard Company.

HP LaserJet Printers

Product Note

Questions and Answers

Q: When I send data to the printer, why doesn't anything seem to happen? How can I make the LaserJet printer print my page?

A: Since the LaserJet is a page printer, a page is ejected when one of the following five conditions occurs:
1) The printer receives a form feed (control character decimal 12), either from the software or from the control panel of the LaserJet printer.
2) The printer reaches the perforation skip region at the bottom of the page. The page is ejected and the printer continues at the top of the next page.
3) The printer receives the paper input escape sequence with a value of zero (ESC&1OH).
4) A reset occurs (ESC E). If there is something in memory, a reset ejects the page.
5) There is an orientation change (ESC & 1#0). The printer can only print in one orientation per page. Once data has been received, the printer has started formatting that page. When it receives an orientation change, it ejects the current page and starts formatting a new page in the new orientation.

If none of the above occurs, data remaining in the buffer is not ejected, and data received afterwards is added to the page currently in the buffer.

Q: Can my LaserJet printer emulate an Epson or Diablo printer?

A: No, HP did not emulate Epson or Diablo because LaserJet printers are capable of more features through the Printer Command Language (PCL). If you wish to emulate one of these or other popular printer languages, Insight Development Corporation offers Laser Control, a pop-up software program designed for IBM PCs and compatibles. Laser-Control solves the compatibility problem between computer and application software. Price: $150.00.

Q: Why doesn't my printer print eight pages per minute?

A: Your printer's speed depends upon your software application's ability to format the document and transmit it to the printer quickly. Word processing and desktop publishing applications are usually printed slowly because of the special formatting and graphics used in those documents. If data is provided by your applications to the printer at a rate of eight pages per minute, your LaserJet printer will print eight pages per minute.

Q: What is the benefit of using the Centronics parallel interface on my HP LaserJet printer instead of the serial interface?

A: Using the Centronics parallel interface allows graphics data (raster graphics, downloadable fonts, rules, etc.) to be transferred to the printer up to four times faster than the serial interface. Using the Centronics interface has no effect on the speed at which your text or spreadsheet data will be transferred.

Q: Is there any way to create a document on my IBM PC that uses the IBM Line-drawing set and have it print correctly on my HP LaserJet printers?

A: For the LaserJet PLUS and 500 PLUS LaserJet printers, HP offers the HP 92286Y font cartridge (Courier PC 1). This cartridge contains all of the characters associated with the IBM-8

symbol set mapped into the correct locations. For the LaserJet Series II and LaserJet IID printers, the IBM-8 is a built-in symbol set that can be accessed from the front panel.

Q: The LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, and LaserJet IID printers have the ability to use "soft" (downloadable) as well as "hard" (cartridge) fonts. The standard LaserJet printer can use font cartridges only. There are several factors you should consider when deciding which type of font to purchase. What are some of the pros and cons of each?

A: Cartridge Advantages:
- Hard fonts are stored entirely in the cartridge; fonts are immediately available to the printer.
- No downloading is necessary.
- The printer memory is not utilized. The font cartridge contains all the memory needed to store the font data.
- It is easy to see what is available. All accessible fonts are shown on the cartridge label.

Soft Font Advantages:
- There is more versatility in the combinations you can use. You can "mix and match" soft fonts as you wish.
- The cost is less—because no hardware is involved, you get more fonts for the money.

Q: I am using a proportionally spaced font cartridge, but I can't seem to get a straight right margin. Why?

A: Right justification with proportionally spaced fonts is a capability dependent on the software package. Contact an HP authorized dealer or your local HP sales representative for more information. If your software is not listed or does not provide right justification, check with the software vendor to see if this feature will be provided on a new release. HP can supply software vendors with the metrics of each character font to allow them to incorporate into their software the algorithm to generate a right-justified document.

Q: Even though I have changed the font ID number on the panel of the printer, the printer is not recognizing the change. How do I get the printer to recognize my new font choice?

A: Although you have selected the new font, you still need to reset the printer for it to recognize your new font choice. After selecting the font, press the menu key until you display "00 Ready" on your screen. Now depress the Continue/ Reset key until the message "07 Reset" is displayed. Release the button and the printer will automatically come back on line. This procedure is not necessary on the LaserJet IID printer.

Q: On the LaserJet Series II printer, how do I get to the two levels of menu options?

A: To get to the top level (printing level) of the **MENU** key, first press **ON LINE** to take the printer off line. Then press **MENU** and toggle through

choices using the + and − keys. To get to the second level (configuration level), press **ON LINE** to take the printer off line, then press and hold the **MENU** key for approximately 4 seconds. When "SYM SET=..." appears, you have reached the second-level menu.

Q: I have performed a font printout and am trying to access the internal font for Courier bold typeface, #I04. When I use the printer command that is in the manual on page A-14 for accessing a font by its ID number, Esc(#X, it does not recognize that command. What am I doing wrong?

A: You will not be able to access the internal fonts using the above escape sequence. This sequence is used to access soft fonts that you have previously downloaded and to which you assigned an ID number, or set up an internal font as a soft font.

Q: I made changes to the default settings using my LaserJet Series II printer's front panel, but documents are still printing with my previous default settings. Why?

A: After you make a new default selection using the front panel, you must press the **RESET** key once an * appears after that selection. This tells you that this selection is now the default setting. If you do not see an * after your selection, you will experience the problem described. (LaserJet Series II printers only.)

Q: Why am I receiving an Error 40 (line error) when I re-boot the operating system in my computer?

A: Many computers will send a string of null characters through the serial interface port when powered on or re-booted. These characters will put the printer in an Error 40 condition. The printer must then be powered off and back on to clear it. It is recommended that the printer always be powered on AFTER the computer to eliminate this situation.

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

A: The LaserJet printer is designed to work well with most types of paper, although some variables in their composition may significantly affect print quality and paper handling. Paper manufactured for photocopying (such as Canon NP or Xerox 4024) provides good results for general purpose applications. For other applications where cotton bond is desirable (i.e., company letterhead), HP has obtained good results with papers such as Gilbert Neu-Tech and Neenah NP. Textured papers with woven or rough finishes may adversely affect print quality. Note: HP does not recommend or advocate the use of any particular paper—the papers mentioned above are only a few that tested well with the LaserJet printer. Always test paper prior to purchase to ensure desirable performance. Refer to the section on paper specifications in your LaserJet operator's or user's reference manual.

Q: When installing the EP cartridge, I flexed the removable tab until it broke off. When I pulled the tab, it broke away from the attached sealing tape. How do I remove the tape?

A: Try grasping the tape with pliers or your hands to remove it. If this doesn't work, you should return the defective cartridge to your local HP dealer. HP will reimburse the dealer for replacing the cartridge.

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

A: You probably forgot to remove the sealing tape before inserting. Refer to the owner's manual for more information.

Q: When my EP cartridge runs out of toner, why can't I have it refilled rather than purchase a new one?

A: HP does not recommend the use of refilled toner cartridges. The toner cartridge is a consumable with a finite expected life. When cartridges are re-filled, they exceed their designed life, and the customer has no way to replace the cartridge if it fails soon after being refilled.

The electrophotographic (EP) drum in the cartridge shows performance degradation with use. A refilled cartridge may show unacceptable print quality very soon after being refilled, causing unnecessary and unjustified service calls for the printer. HP will honor the printer warranty but will not honor the warranty if the refilled cartridge toner caused a problem.

Currently, many companies offer toner cartridge refilling services with a broad range of quality. Already some refilled cartridges have caused background (the white of the page appears gray) in the printed document and accelerated wear on the paper path of the machine. The liability to the customer using a refilled cartridge may be greater than the potential savings.

Q: The first page of my document prints with the correct top margin, but each succeeding page starts lower, with a larger top margin. Why?

A: This is referred to as "creeping text" and results from the number of lines per page in your software application not being equal to the number of lines per page of the printer. The printer has a default margin of three lines at both the top and bottom of the page and, by default, prints only 60 lines per page. (Most applications default at 66 lines per page.) If you set the application program to send only 60 lines to the printer, the problem will be solved. Or simply adjust the vertical line spacing of the printer to allow 66 lines to print. Do this in your application software, or by sending EC&17.28C for portrait orientation or EC&llo5.456C for landscape orientation. (Note: "1" is the number one, and "l" is a lowercase "L.")

Q: I do not have the HP LaserJet Series II printer driver available on my WordPerfect printer disk. What should I use?

A: If the HP LaserJet Series II printer driver is not available, select the "LaserJet Reg, +, 500+Y: PC Courier printer definition. This definition is the closest to the HP LaserJet Series II printer internal fonts. You can contact the Word-Perfect corporation and request an updated version of its printer drivers.

Q: Why doesn't the last page of my document in Lotus 1-2-3 eject automatically?

A: The reason your last page does not eject automatically is that Lotus does not send a form feed character at the end of the last page. There are, however, several ways to enable the printer to eject the page. They include:

• Take the printer off line by pressing the on-line button. Press the form feed button, which will then eject whatever the printer's buffer contains.

• In the left-most column, embed the control code || \ 012 and include it in your print range—this sequence represents the form feed control code.

If you use the page command in Lotus, it will leave a trailing Carriage Return and Line Feed, which can cause a blank page to print before the next job. One of the aforementioned options is best.

Q: In Lotus 1-2-3, how do I print in landscape compressed mode on a legal-size sheet of paper?

A: In the SETUP string of Lotus, send the following string: \ 027E \ 027&l84p1o2H \ 027(s16.66H. This sends a reset to the printer, sends a page length of 84 lines (@ 6

lines per inch × 14-inch legal paper), sets the orientation of the character set to landscape, sets the printer in manual feed mode, and selects compressed print (16.66 cpi).

Q: Which printer drivers should I select for my 'text printer' in Lotus 1-2-3?

A: In versions 2.0 and 2.01, choose Unlisted as your text printer.

Q: Can I print two separate ranges of my spreadsheet on the same printed page?

A: Yes. However, the setup string for your second range must not contain a \ 027E command. This command performs a reset of the printer and will eject any data previously sent but not yet printed.

Q: With the LaserJet IID printer, what does "auto-rotation of fonts" mean?

A: The LaserJet IID printer has the ability to automatically rotate any font (internal, cartridge, or soft) from its existing print orientation (portrait or landscape) into the other. For example, if you downloaded a portrait TMS RMN 10-point font into the printer, the landscape TMS RMN 10-point font also would be available if selected from your application software. This feature essentially doubles the number of fonts available to the printer.

Q: What does the TRAY function, accessible from the front panel of the LaserJet IID printer, allow me to do?

A: This function has three options. TRAY=BOTH instructs the printer to pull paper from the upper tray until empty, then automatically pull from

the lower tray for continuous printing. Setting the selection to either TRAY=UPPER or TRAY=LOWER "locks out" the other tray. This can be used, for example, if special letter-head is located in one of the trays, and you don't want the printer to automatically use it. However, that tray can always be accessed by your software application if the proper printer control is sent from your software.

Q: Do I just need to change the front panel of the LaserJet IID printer to make use of the duplexing feature?

A: No, you must also rotate the duplexing knob located on the back of the printer into the '2' position. If this is not done, the printer will display an "error 56" on the front panel.

Q: What is the maximum number of fonts that I can download to the LaserJet IID printer?

A: The 32-font limit on the LaserJet Series II printer has been eliminated on the Laser-Jet IID printer. The only limits now are the number of fonts available in the printer and the memory available for soft fonts.

Q: What is the maximum number of fonts that I can print on one page with the LaserJet IID printer?

A: The only limit on the number of fonts per page is memory. More sophisticated, complex pages may require more memory. The maximum number of fonts per page on the LaserJet Series II printer was 16.

Using the HP LaserJet Series II Printer's Front Panel Display

Product Note

Serial and Parallel Interfaces

The following information describes how to use the HP LaserJet Series II printer's front panel display to configure the printer.

RS-232-C Interface

To configure an HP LaserJet Series II printer to use a serial interface:

1. Turn on the power to the printer.

2. Take the printer off line by pressing the **ON LINE** key.

3. Hold down the **MENU** key seven seconds until the display shows: **SYM SET = ROMAN-8*** (ROMAN-8 is the factory setting; a variety of settings is available).

4. Press the **MENU** key to display **AUTO CONT = OFF***.

5. Press the **MENU** key again until **I/O = SERIAL*** is displayed. (If **I/O = PARALLEL*** is displayed, press the **PLUS** key to change the display to **I/O = SERIAL** and press the **ENTER/RESET MENU** key to save the selection. An * will appear in the display.)

6. Press the **MENU** key to show **BAUD RATE = 9600***. (Press the **PLUS** or **MINUS** key if the baud rate needs to be changed from 9600 to match the computer's baud rate. Choices include 300, 600, 1200, 2400, 4800, 9600, and 19,200 (19,200 is supported on RS-422-A and RS-232.) Press the **ENTER/RESET MENU** key to save the selection. An * will appear in the display.)

7. Press the **MENU** key to show **ROBUST XON = ON***. (If **ROBUST XON = OFF*** appears, use the **PLUS** key to show **ROBUST XON = ON** and press the **ENTER/RESET MENU** key to save the selection. An * will appear in the display. Most computers run using the ON setting.)

8. Press the **MENU** key to show **DTR POLARITY = HI***. (If **DTR POLARITY = LO*** appears, use the **PLUS** key to show **DTR POLARITY = HI** and press the **ENTER/RESET MENU** key to save the selection. An * will appear in the display. Most computers run using the HI setting.)

9. Press the **ON LINE** key to put the printer back on line.

Centronics Parallel Interface

To configure an HP LaserJet Series II printer to use a Centronics parallel interface:

1. Turn on the power to the printer.

2. Take the printer off line by pressing the **ON LINE** key.

3. Hold down the **MENU** key seven seconds until the display shows: **SYM SET = ROMAN-8*** (ROMAN-8* is the factory setting; a variety of settings is available).

4. Press the **MENU** key to display **AUTO CONT = OFF***.

5. Press the **MENU** key again until **I/O = SERIAL*** is displayed (If **I/O = PARALLEL*** appears, go to the last step.)

6. Press the **PLUS** key to select **I/O = PARALLEL.**

7. Press the **ENTER/RESET MENU** key to save the selection. An * will appear in the display.

8. Press the **ON LINE** key to put the printer back on line.

Using the HP LaserJet IID Printer's Front Panel Display

Product Note

Serial and Parallel Interfaces

The following information describes how to use the HP LaserJet IID printer's front panel display to configure the printer.

RS-232-C Interface

To configure an HP LaserJet IID printer to use a serial interface:

1. Turn on the power to the printer.

2. Take the printer off line by pressing the **ON LINE** key.

3. Hold down the **MENU** key seven seconds until the display shows: **AUTO CONT = OFF*** (OFF is the factory setting; it may also be set to ON).

4. Press the **MENU** key to display **I/O = SERIAL***. (If **I/O = PARALLEL*** is displayed, press the **PLUS** key to change the display to **I/O = SERIAL** and press the **ENTER** key to save the selection. An * will appear in the display.)

5. Press the **MENU** key to display **SERIAL = RS-232***. (If **SERIAL = RS422*** is displayed, press the **PLUS** key to change the display to **SERIAL = RS-232** and press the **ENTER** key to save the selection. An * will appear in the display.)

6. Press the **MENU** key to show **BAUD RATE = 9600***. (Press the **PLUS** or **MINUS** key if the baud rate needs to be changed from 9600 to match the computer's baud rate. Choices include 300, 600, 1200, 2400, 4800, 9600, and 19,200. Press the **ENTER** key to save the selection. An * will appear in the display.)

7. Press the **MENU** key to show **ROBUST XON = ON***. (If **ROBUST XON = OFF*** appears, use the **PLUS** key to show **ROBUST XON = ON** and press the **ENTER** key to save the selection. An * will appear in the display.)

8. Press the **MENU** key to show **DTR POLARITY = HI***. (If **DTR POLARITY = LO*** appears, use the **PLUS** key to show **DTR POLARITY = HI** and press the **ENTER** key to save the selection. An * will appear in the display.)

9. Press the **ON LINE** key to put the printer back on line.

Centronics Parallel Interface

To configure an HP LaserJet IID printer to use a Centronics parallel interface:

1. Turn on the power to the printer.

2. Take the printer off line by pressing the **ON LINE** key.

3. Hold down the **MENU** key seven seconds until the display shows: **AUTO CONT = OFF*** (OFF is the factory setting; it may also be set to ON).

4. Press the **MENU** key to display I/O = SERIAL*. (If I/O = PARALLEL* is displayed, go to the last step.)

5. Press the **PLUS** key to select I/O = PARALLEL.

6. Press the **ENTER** key to save the selection. An * will appear in the display.

8. Press the **ON LINE** key to put the printer back on line.

HP LaserJet Printers and Other PC CPUs

Set-up Instructions

Since the introduction of the first HP LaserJet printer, there has been a tremendous interest in connecting these printers to a wide variety of computers. The purpose of these instructions is to simplify and explain the configuration process and to quickly eliminate the few computers that cannot currently connect to the HP LaserJet printers.

The procedure consists of the following five steps:

1. Serial Interface
2. Signal Protocol
3. Cabling
4. CPU Configuration
5. Testing

Serial Interface Instructions

Although the HP LaserJet printers are configured with an RS-232-C serial interface when shipped, they may also be configured with an RS-422-A serial interface by performing the following steps:

HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS printers

1. Turn off the power to the printer.

2. Remove the rear panel of the printer by removing the four screws as shown below.

Rear panel location.
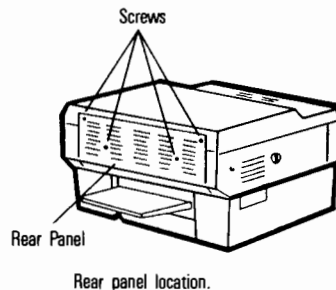
Serial Interface

3. Set the jumper sockets of JP2 to the positions shown below.

Jumper pin settings
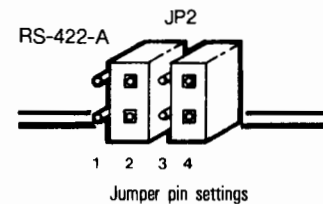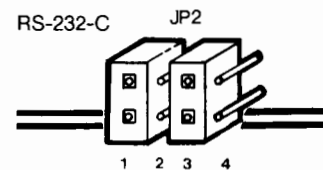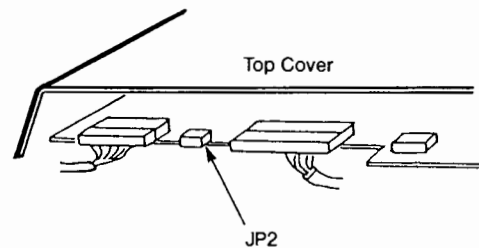
4. Replace the rear panel with the four screws removed in step 2.

5. Turn on the power to the printer.

HP LaserJet Series II and LaserJet IID printers

To configure the printer with an RS-422-A serial interface instead of the standard RS-232-C serial interface, perform the following steps:

1. Turn off the power to the printer.

2. Remove the Extended I/O cover.

3. Find dip switch SW1 (on the Interface PCA) to the right of the opening (it is the only switch in that location).

4. Switch both halves of SW1 from the DOWN to the UP position.

5. Replace the Extended I/O cover.

6. Turn on the power to the printer.

These printers can be configured with an RS-422-A serial interface and RS-232-C serial interface from the front control panel of the LaserJet Series II print.

Signal Protocol

It is important to remember that RS-2323-C is not really a standard, but a set of guidelines. There are several popular implementations of RS-232-C. The protocols or hand-shakes that are supported on the HP LaserJet printer are XON/XOFF and DTR (hardware handshake). The HP LaserJet printer does not support Enq/Ack. therefore, if the computer in question only supports Enq/Ack protocol, it will probably not be able to successfully communicate with the HP LaserJet printers.

The question to answer regarding signal protocol is, "Which data flow control method will be sensed by the computer, XON/XOFF or DTR (hardware handshake)?" The HP LaserJet printers support both methods or protocols concurrently. (Refer to the next section on cabling to ensure that the correct cable is used for the protocol chosen.)

Interface Cables

The RS-232-C interface connector on the HP LaserJet printer is a standard 25-pin female connector. This requires that the HP LaserJet printer end of the cable coming from the computer has a male connector.

Of the 25 pins in the connector, the HP LaserJet printer only utilizes those listed in the table below. From the HP LaserJet printer's pinouts and the correct pinouts from the computer's port, obtain a compatible cable taking into consideration the protocol to be used.

Note: The pin defined as "transmit data" from the computer must go to "receive data" (Pin 3) on the HP Laser-Jet printer. The pin defined as "receive data" from the computer must go to "transmit data" (Pin 2) on the HP Laser-Jet printer.

HP LaserJet Pin Assignments

Pin #	Description	RS-232-C (XON/XOFF)	RS-232-C DTR	RS-422-A
1	CG-Chassis Ground	•	•	•
2	TD-Transmit Data to the computer	•	•	•
3	RD-Receive Data from the computer	•	•	•
7	SG-Signal Ground	•	•	•
9	SDA-Send Data			•
10	SDB-Not Send Data			•
18	RDB-Not Received Data			•
20	DTR-Data Terminal Ready		•	

Configure the Computer

Once the correct cable is connected between the CPU and the printer, the computer's port must be configured for the HP LaserJet printer. The configuration should be set to the following parameters:

Start Bits: 1 (Usually assumed)
Data Bits: 8
Stop Bits: 1
Parity: None
Baud Rate: 9600 or desired baud

Except for the baud rate, none of the above parameters may be changed in the HP LaserJet printer configuration. If, however, the baud rate needs to be changed, perform the following steps:

HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS printers

1. Turn off the power to the printer.

2. Remove the rear panel of the printer by removing the four screws. (See illustration on first page.)

3. Remove the vertical support bracket (1 screw) located at the center of the cabinet as shown below.

Vertical Support Bracket Location
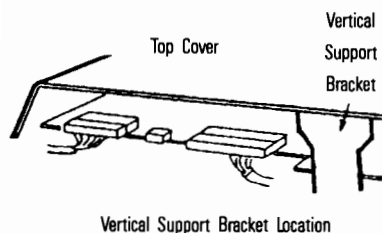
4. Position the SW 1 dip switches (2,3 and 4) to the desired baud rate by consulting the table. (See below for location of SW 1).

SW 1 Location
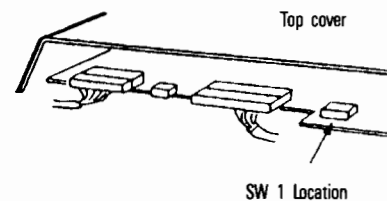
Note: SW 1 is set at the factory as follows:

Switch	1	2	3	4	5	6	7	8
Position	OFF	ON	OFF	ON	OFF	OFF	OFF	ON

Baud Rate Switch Settings

SWITCH #			
2	3	4	BAUD RATE
OFF	OFF	OFF	300
OFF	OFF	ON	600
OFF	ON	OFF	1200
OFF	ON	ON	2400
ON	OFF	OFF	4800
ON	OFF	ON	9600
ON	ON	OFF	19200

5. Replace the vertical support bracket removed in step 3.

6. Replace the rear panel with the four screws removed in step 2.

7. Turn on the power to the printer.

HP LaserJet Series II and LaserJet IID printers

Use the front panel display to change the baud rate according to the instructions explained in the product notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Communication Verification with MS® -DOS

1. Turn on the power to the printer and set **ON LINE**.

2. Verify that the HP LaserJet printer and the computer are successfully communicating by typing the following at the DOS prompt **DIR > PRN** and press **ENTER** or **RETURN**.

   This will cause the directory of the disk to be printed on your HP LaserJet printer.

   To print, flush the printer buffer:
   a. Press the **ON LINE** key to take the printer off line.
   b. Press the **FORM FEED** key.
   c. Press the **ON LINE** key again.

3. If there is no communication, read step 4 under "Communication Verification with BASIC."

Communication Verification with BASIC

1. Turn on the power to the printer and set **ON LINE**.

2. Verify that the HP LaserJet printer and the computer are successfully communicating by typing in the following BASIC program:

```
10 LPRINT CHR$(27);"E";
20 LPRINT >>LASERJET
   COMMUNICATION OKAY<<
30 LPRINT CHR$(13);
40 LPRINT CHR$(12);
50 END
```

3. Type **RUN** and press **ENTER** or **RETURN** to execute. The HP LaserJet printer will print LASERJET COMMUNICATION OKAY.

4. If there is no communication, check the following:
   • Ensure the printer is on line.
   • Ensure the printer is working properly through self-test and test print.
   • Ensure the computer is working properly by running an application you know works.
   • Ensure the computer's port is working properly by running another peripheral connected to the port.
   • Ensure the cable is seated properly at both ends.
   • Ensure the proper cabling was chosen by consulting the pin assignments for the HP LaserJet printer and the computer.

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HP LaserJet Printers and the HP Vectra PC

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with an HP Vectra PC.

Typical Configuration

Computer Equipment
- HP Vectra PC
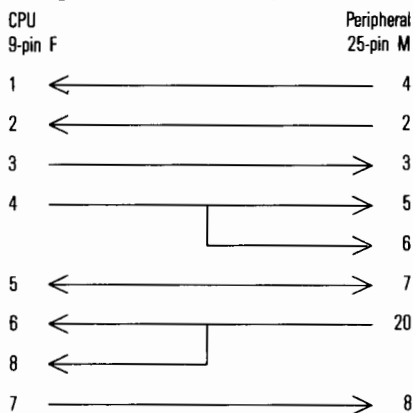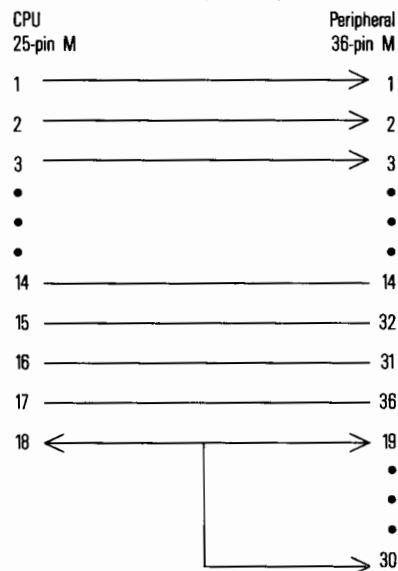- Serial/Parallel Interface Card (HP 24540A) or Dual Interface Card (HP 24541A)

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Special Serial Cable (HP 24542G or HP 17255D)

Special Serial Cables
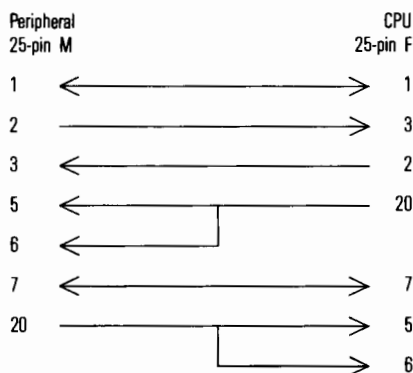
HP 24542G
Length: 3.0 m (9.9 ft)

```
CPU                        Peripheral
9-pin F                    25-pin M

1   <-----------------------  4
2   <-----------------------  2
3   ----------------------->  3
4   ----------------------->  5
                             6
5   <----------------------->  7
6   <-----------------------  20
8   <-----------------------
7   ----------------------->  8
```

HP 17255D
Length: 1.2 m (4.0 ft)

```
Peripheral                 CPU
25-pin M                   25-pin F

1   <----------------------->  1
2   ----------------------->  3
3   <-----------------------  2
5   <-----------------------  20
6   <-----------------------
7   <----------------------->  7
20  ----------------------->  5
                             6
```

Connection Instructions

Configure the Printer

1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the HP Vectra PC (refer to the manual "Setting up Vectra" supplied with the computer).

3. Connect the printer to the serial connector on the accessory card in the HP Vectra PC. This configuration assumes the use of COM1.)

4. The HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS Printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, refer to the set-up instructions titled *HP LaserJet Printers and Other PC CPUs* in the *Blue Book*.

The HP LaserJet Series II and LaserJet IID printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

Note: The following steps assume you are using COM1. If you are using COM2 instead, replace COM1 with COM2 in steps 4 and 5.

1. Turn on the power to the computer and printer. Load a work copy of the MS®-DOS disk. (The disk write-protect should be off.)

2. Select **MS-DOS** commands and press **ENTER**.

3. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER**.

4. If an AUTOEXEC.BAT file exists (if it does not, see step 5), add the following two lines to the AUTOEXEC.BAT file on the MS-DOS disk (consult the manual "Connecting Peripherals to Vectra," Appendix B: AUTOEXEC File, for further information), and then proceed to step 6. Type:

```
MODE COM1:9600,N,8,1,P
MODE LPT1:=COM1
```

Note: The command "MODE COM1:9600,N,8,1,P" sets the first serial port (COM1) for 9600 baud, no parity, 8 data bits, 1 stop bit, and the "P" option indicates that the serial port is being used as the system printer port.

The command "MODE LPT1:=COM1" reroutes the computer's output from the default first parallel port (LPT1) to the first serial port (COM1).

4. If an AUTOEXEC.BAT file does not exist on your MS®-DOS disk create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER**.
   b. Type **MODE COM1:9600,N,8,1,P** and press **ENTER**.
   c. Type **MODE LPT1: = COM1** and press **ENTER**.
   d. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

5. Press the **CTRL, ALT,** and **DEL** key simultaneously to reboot DOS (to reload the operating system).

Centronics Parallel Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with an HP Vectra PC.

Typical Configuration

Computer Equipment
- HP Vectra PC
- HP 24540A Serial/Parallel Interface

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Centronics Parallel Cable (HP 24542D)

Centronics Parallel Cable

HP 24542D
Length: 2.0 m (6.6 ft)

CPU 25-pin M		Peripheral 36-pin M
1	⟶	1
2	⟶	2
3	⟶	3
•		•
•		•
•		•
•		•
14	——	14
15	——	32
16	——	31
17	——	36
18	⟵	19
		•
		•
		•
	⟶	30

Connection Instructions

Configure the Printer

HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS printers

1. Turn off the power to the printer.

2. Remove the rear panel of the printer by removing the four screws as shown below.

Screws

Rear Panel

Rear panel location

3. Remove the vertical support bracket (1 screw) at the center of the cabinet.

4. Change the dip switch number 1 of SW 1 to the ON position (the OFF position indicates serial interface).

5. Replace the vertical support bracket removed in step 3 above.

6. Replace the rear panel with the four screws removed in step 2.

HP LaserJet Series II and LaserJet IID printers
Use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II or LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the HP Vectra PC (refer to the manual "Setting up Vectra" supplied with the computer).

3. Connect the printer to the parallel connector on the accessory card in the HP Vectra PC.

4. Turn on the power to the computer and printer. Load a work copy of the HP Vectra DOS disk. The HP Vectra PC sends output to the parallel port (LPT1:) by default.

5. Select **MS-DOS** commands and press **ENTER.**

6. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER.**

7. If an AUTOEXEC.BAT file exists (if it does not, see step 8), add the following line to the AUTOEXEC.BAT file on the MS-DOS disk (consult the manual "Connecting Peripherals to Vectra," Appendix B: AUTOEXEC File, for further information) and then proceed to step 9. Type:

MODE LPT1:,,P

Note: The command sets the primary parallel output port (LPT1) for an infinite printer retry.

8. If an AUTOEXEC.BAT file does not exist on your MS®-DOS disk, create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER.**
   b. Type **MODE LPT1:,,P** and press **ENTER.**
   c. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

9. Press the **CTRL, ALT,** and **DEL** keys simultaneously to reboot DOS (to reload the operating system).

Computer Museum

Communication Verification with MS®-DOS.

1. Turn on the power to the printer and set it **ON LINE**.

2. Verify that the HP LaserJet printer and the computer are successfully communicating by typing the following at the MS-DOS prompt **DIR > PRN** and press **ENTER**.

   This will cause the directory of the disk to be printed on your HP LaserJet printer.

   To print, flush the printer buffer:
   a. Press the **ON LINE** key to take the printer off line.
   b. Press the **FORM FEED** key.
   c. Press the **ON LINE** key again.

3. If there is no communication, check the following:
   • Ensure the printer is on line.
   • Ensure the printer is working properly through self-test and test print.
   • Ensure the computer is working properly by running an application you know works.
   • Ensure the computer's port is working properly by running another peripheral connected to the port.
   • Ensure the cable is seated properly at both ends.
   • Ensure the proper cabling was chosen by consulting the pin assignments for the HP LaserJet printer and the computer.

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HP LaserJet Printers and the HP 150 or HP Touchscreen PC

Set-up Instructions

Serial and Parallel Interfaces

LaserJet

RS-232-C Interface
These instructions show how to set up an HP LaserJet printer so that it can communicate with an HP 150 or HP Touchscreen personal computer.

Typical Configuration
Computer Equipment
- HP 150 or HP Touchscreen Computer

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Special Serial Cable (HP 13242G or HP 92219H)

Special Serial Cables
HP 13242G
Length: 5.0 m (16.7 ft)

CPU 25-pin M		Peripheral 25-pin M
1	<──────>	1
2	──────>	3
3	<──────	2
4	──────>	8
5	<──────	20
6	<──────	
7	<──────>	7
8	<──────	4
12	<──────	19
		11
11	──────	
19	──────>	12
20	──────>	5
	──────>	6

HP 92219H
Length: 5.0 m (16.7 ft)
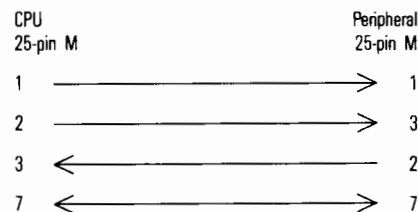
CPU 25-pin M		Peripheral 25-pin M
1	──────>	1
2	──────>	3
3	<──────	2
7	<──────>	7

Connection Instructions
Configure the Printer
1. Turn off the power to the computer and printer.

2. Connect the printer to one of the DATACOMM ports on the HP 150. (This configuration assumes the use of DATACOMM Port 2.)

3. The HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS Printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, refer to the set-up instructions titled *HP LaserJet Printers and Other PC CPUs* in the *Blue Book*.

   The HP LaserJet Series II and LaserJet IID printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II or LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

4. Turn on the computer and printer.

HP Set-up

Configure the Computer

1. Load the operating system.

2. Select **DEVICE CONFIG** in P.A.M. (Personal Application Manager).

3. Set **PRN:INTERFACE** to **PORT2** and the field under **MODEL** to **LASERJET** (or **OTHER**).

4. Set **COM2:INTERFACE** to **PORT2**.

5. Select **SAVE CONFIG**.

6. Press the **USER SYSTEM** key and select **CONFIG** keys on the screen menu.

7. Select **PORT2 CONFIG** on the screen menu and set the port 2 configuration to the following values:

Baud Rate:	9600	Check Parity:	No
Parity:	None	SR(CH):	Lo
Data Bits:	8	RecvPace:	None
Clock:	INT	SRRXmit:	No
Asterisk:	Off	RR(CF)Recv:	No
Stop Bits:	1	XmitPace:	None*
EnqAck:	No	SRRInvert:	No
TR(CO):	Hi	CS(CB)Xmit:	Yes*
		DM(CC)Xmit:	No

8. Touch **SAVE CONFIG**.

9. Press **DEVICE CONTROL**. Select **TO** devices. Verify asterisk (*) in the **SERIAL DEVICE** field.

10. If the printer is internal, make sure there is no asterisk in the **INTERNAL PRINTER** field. If so, press the **INTERNAL PRINTER** key to remove.

11. Press **USER SYSTEM**. Press **CONFIG KEYS**. Press **TERMINAL CONFIG**. Set the **PRINTER CODE 4** field to **EXT**. Press **SAVE CONFIG**.

12. Press **CONFIG KEYS**, then **GLOBAL CONFIG**. Set the **REMOTE/SERIAL DEV** field to **PORT1/PORT2**. Press **SAVE CONFIG**.

13. Press the **MENU** key. Press **EXIT CONFIG**.

Centronics Parallel Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with an HP Touchscreen personal computer.

Typical Configuration

Computer Equipment
- HP 150 or HP Touchscreen Computer
- HP 45643A Extended Input/Output Accessory Card

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Centronics Parallel Cable (HP 13242D)

Special Parallel Cable

HP 13242D
Length: 2.0 m (6.6 ft)

CPU 25-pin M		Peripheral 36-pin M
1	———————→	13
2	←———————	12
3	←———————	11
4	←———————	10
5	———————→	9
6	———————→	8
7	———————→	7
8	———————→	6
9	———————→	5
10	———————→	4
11	———————→	3
12	———————→	2
13	———————→	1
14	←——————→	30
15	←——————→	29
16	←——————→	27
17	←——————→	25
18	←——————→	23
19	←——————→	21
20	←——————→	19
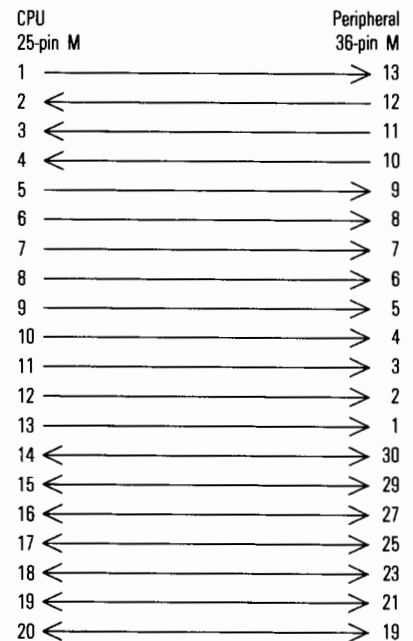
*For Xon/Xoff operation, change the **XMITPACE** field to **XON/XOFF** and the **CS(CB)XMIT** field to **NO**.

Connection Instructions

Configure the Printer

HP LaserJet, LaserJet PLUS, and LaserJet 500 Plus printers

1. Turn off the power to the printer.

2. Remove the rear panel of the printer by removing the four screws as shown below.

Rear panel location
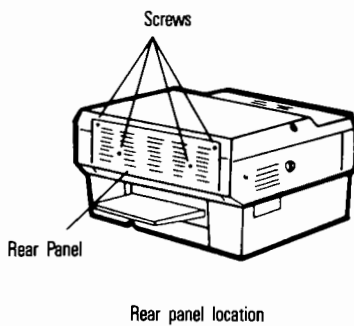
3. Remove the vertical support bracket (1 screw) at the center of the cabinet.

4. Change the dip switch number 1 of switch SW 1 to the ON position (the OFF position indicates serial interface).

   Note: The Shift-Print screen dump function will not operate in this configuration. If the screen dump feature is needed, use the RS-232-C serial interface.

5. Replace the vertical support bracket removed in step 3 above.

6. Replace the rear panel with the four screws removed in step 2.

7. Turn on the power to the printer.

HP LaserJet Series II and LaserJet IID printers
Use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

1. Turn off the power to the computer and printer.

2. Remove the cover plate on the rear panel of the HP 150 from the accessory slot where you want to install the Extended I/O Accessory Card (HP 45643A). The accessory card may be installed in any available slot. (See your I/O Accessory Card documentation for thorough installation information and illustrations.)

3. Connect the HP LaserJet printer to the parallel port of the Extended I/O Accessory Card on the HP 150.

4. If you are using an HP 150 with dual microfloppy disk drives, place your working System Master disk in drive A and your Extended I/O disk in drive B. If you are using an HP 150 with a hard disk drive, place your Extended I/O in drive B.

5. Turn on the power to the computer and printer.

6. Select **MS-DOS COMMANDS** from the P.A.M. menu. After the DOS prompt >, type **VER**, then press **RETURN.**

A message will be displayed showing the version of the operating system you are currently running. If the message says MS-DOS Version 2.01, follow the instructions in the next section, *MS-DOS Configuration for Version 2.01*.

If the message says MS-DOS Version 2.11, skip the next section and follow the instructions under *MS-DOS Configuration for Version 2.11*.

MS-DOS Configuration for Version 2.01

1. Type **EXIT.** Press **RETURN.** This will return you to P.A.M.

2. Select **EXTEND I/O** from the P.A.M. Menu. Press **START APPLIC.**

3. Type **A.** Press **RETURN.** This identifies the drive containing the working System Master as the target.

4. Press **ADD PARALLEL.** This adds the parallel printer software to your working System Master. The Extended I/O Accessory can provide support for either a parallel printer or an HP-IL printer, but not both at the same time. If the HP-IL software is currently on your working System Master, adding the parallel software will automatically remove the HP-IL.

5. Press **EXIT.** You are done configuring your system and will be returned to P.A.M.

6. Hold down the **SHIFT** and **CTRL** keys simultaneously and press **RESET**. This will re-boot your operating system.*

MS-DOS Configuration for Version 2.11 (Version B)
1. Select **DEVICE CONFIG** from the P.A.M. Menu. Press **START APPLIC.**

2. Press **PRN:INTERFACE FIELD.** Set to **PARALLEL** using **PREVIOUS CHOICE** or **NEXT CHOICE.**

3. Press the **PRN:MODEL FIELD.** Set LaserJet Series II or LaserJet IID printers using **PREVIOUS CHOICE** or **NEXT CHOICE.**

4. Press **SAVE CONFIG** and then **EXIT CONFIG.**

5. Hold down the **SHIFT** and **CTRL** keys simultaneously and press **RESET**. This will re-boot your operating system.*

Communication Verification with MS® -DOS

1. Turn on the power to the printer and set it **ON LINE.**

2. Verify the HP LaserJet printer and the computer are successfully communicating by typing the following at the MS-DOS prompt **DIR>PRN** and press **ENTER.**

This will cause the directory of the disk to be printed on your HP LaserJet printer.

To print, flush the printer buffer:
a. Press the **ON LINE** key to take the printer off line.
b. Press the **FORM FEED** key.
c. Press the **ON LINE** key again.

3. Type **EXIT**, the press **RETURN.** This will return you to P.A.M.

4. If there is no communication, check the following:
   • Ensure the printer is on line.
   • Ensure the printer is working properly through self-test and test print.
   • Ensure the computer is working properly by running an application you know works.
   • Ensure the computer's port is working properly by running another peripheral connected to the port.
   • Ensure the cable is seated properly at both ends.
   • Ensure the proper cabling was chosen by consulting the pin assignments for the HP LaserJet printer and the computer.

*Reloading the system means your parallel LaserJet Series II or LaserJet IID printers are now the PRN printers in the system regardless of what appears in Device Config. For any other printer on the system to function, it will need to be configured as the system LST device. To properly configure the LST device, run the Device Config Program on your System Master as explained in your HP 150 PC Owner's Guide.

MS® -DOS is a U.S. registered trademark of Microsoft, Inc.

HP LaserJet Printers and the IBM PS/2 Models 30, 50, or 60

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with an IBM PS/2.

Typical Configuration

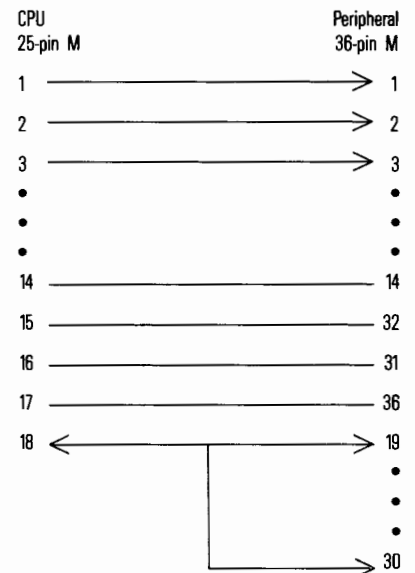**Computer Equipment**
- IBM PS/2
- Asynchronous Communications Adapter (standard for the IBM PS/2)

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Special Serial Cable (HP 17255D)

Special Serial Cable

HP 17255D
Length: 1.2 m (4.0 ft)

Peripheral 25-pin M		CPU 25-pin F
1	⟵───────⟶	1
2	────────⟶	3
3	⟵────────	2
5	⟵────────	20
6	⟵────	
7	⟵───────⟶	7
20	────────⟶	5
	└────⟶	6

Connection Instructions

Configure the Printer
1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the IBM PS/2 (refer to the I/O accessory card documentation which provides graphics and complete installation instructions.)

3. Connect the printer to the serial connector on the accessory card in the IBM PS/2.

4. The HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, refer to the set-up instructions titled *HP LaserJet Printers and Other PC CPUs* in the *Blue Book*.

The HP LaserJet Series II and LaserJet IID printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

Note: The following steps assume you are using COM1. If you are using COM2 instead, replace COM1 with COM2 in steps 4 and 5.

1. Turn on the power to the computer and printer. Load a work copy of the MS®-DOS disk. (The disk write-protect should be off.)

2. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt >**DIR AUTOEXEC.BAT** and then pressing **ENTER**.

3. If an AUTOEXEC.BAT file exists (if it does not, see step 4), add the following two lines to the AUTOEXEC.BAT file on the MS-DOS disk (consult the IBM DOS manual in the "Batch Commands" section under AUTOEXEC.BAT for further information), and the proceed to step 5. Type:

```
MODE COM1:9600,N,8,1,P
MODE LPT1:=COM1
```

Note: The command "MODE COM1:9600,N,8,1,P" sets the first serial port (COM1) for 9600 baud, no parity, 8 data bits, 1 stop bit and the "P" option indicates that the serial port is being used as the system printer port.

The command "MODE LPT1:=COM1" reroutes the computer's output from the default first parallel port (LPT1) to the first serial port (COM1).

4. If an AUTOEXEC.BAT file does not exist on your MS®-DOS disk create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER**.
   b. Type **MODE COM1:9600,N,8,1,P** and press **ENTER**.
   c. Type **MODE LPT1: = COM1** and press **ENTER**.
   d. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

5. Press the **CTRL, ALT,** and **DEL** key simultaneously to reboot DOS (to reload the operating system).

Centronics Parallel Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with a IBM PS/2.

Typical Configuration

Computer Equipment
- IBM PS/2
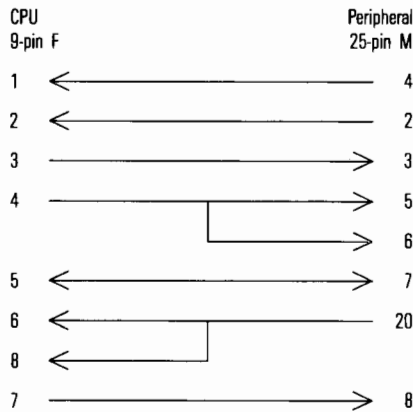- Parallel Communications Interface

Printer Equipment
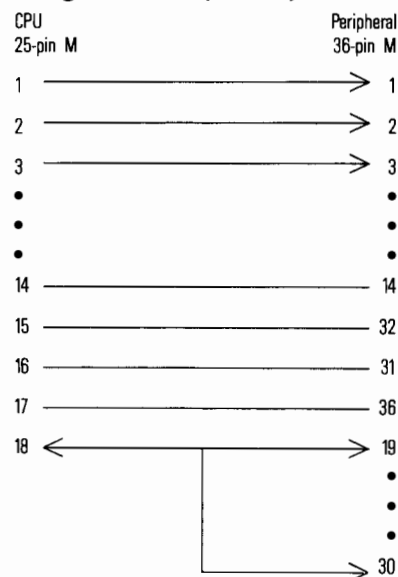- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Centronics Parallel Cable (HP 24542D)

Centronics Parallel Cable

HP 24542D
Length: 2.0 m (6.6 ft.)

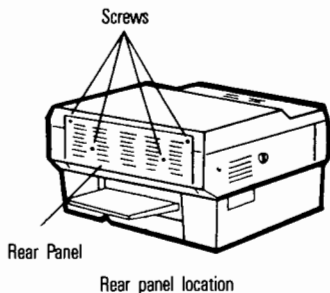| CPU 25-pin M	Peripheral 36-pin M
1	1
2	2
3	3
•	•
•	•
•	•
14	14
15	32
16	31
17	36
18	19
	•
	•
	•
	30

Connection Instructions

Configure the Printer

HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS

1. Turn off the power to the printer.

2. Remove the rear panel of the printer by removing the four screws as shown below.

Screws

Rear Panel

Rear panel location

3. Remove the vertical support bracket (1 screw) at the center of the cabinet.

4. Change the dip switch number 1 of SW 1 to the ON position (the OFF position indicates serial interface).

5. Replace the vertical support bracket removed in step 3 above.

6. Replace the rear panel with the four screws removed in step 2.

HP LaserJet Series II and LaserJet IID printers
Use the front panel display according to the instructions explained in the produce notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the IBM PS/2 (refer to the I/O accessory card documentation which provides graphics and complete installation instructions).

3. Connect the printer to the parallel connector on the accessory card in the IBM PS/2.

4. Turn on the power to the computer and printer. Load a work copy of the DOS disk. The IBM PS/2 sends output to the parallel port (LPT1:) by default.

5. Select **MS-DOS** commands and press **ENTER.**

6. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER.**

7. If an AUTOEXEC.BAT file exists (if it does not, see step 8), add the following line to the AUTOEXEC.BAT file on the MS-DOS disk (consult the IBM DOS manual in the "Batch Command" section under AUTOEXEC.BAT for further information) and then proceed to step 9. Type:

```
MODE LPT1:,,P
```

Note: The command sets the primary parallel output port (LPT1) for an infinite printer retry.

8. If an AUTOEXEC.BAT file does not exist on your MS®-DOS disk, create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER.**
   b. Type **MODE LPT1:,,P** and press **ENTER.**
   c. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

9. Press the **CTRL, ALT,** and **DEL** keys simultaneously to reboot DOS (to reload the operating system).

Computer Museum

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Communication Verification with MS® -DOS.

1. Turn on the power to the printer and set it **ON LINE.**

2. Verify the HP LaserJet printer and the computer are successfully communicating by typing the following at the MS-DOS prompt **DIR > PRN** and press **ENTER.**

   This will cause the directory of the disk to be printed on your HP LaserJet printer.

   To print, flush the printer buffer:
   a. Press the **ON LINE** key to take the printer off line.
   b. Press the **FORM FEED** key.
   c. Press the **ON LINE** key again.

3. If there is no communication, check the following:
   • Ensure the printer is on line.
   • Ensure the printer is working properly through self-test and test print.
   • Ensure the computer is working properly by running an application you know works.
   • Ensure the computer's port is working properly by running another peripheral connected to the port.
   • Ensure the cable is seated properly at both ends.
   • Ensure the proper cabling was chosen by consulting the pin assignments for the HP LaserJet printer and the computer.

HP LaserJet Printers and the IBM PC-AT

Set-up Instructions

Serial and Parallel Interfaces

LaserJet

RS-232-C Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with an IBM PC-AT.

Typical Configuration

Computer Equipment
- IBM PC-AT
- IBM PC-AT Serial/Parallel Adapter

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Special Serial Cable (HP 24542G)

Special Serial Cable

HP 24542G
Length: 3.0 m (9.9 ft)

CPU 9-pin F		Peripheral 25-pin M
1	←	4
2	←	2
3	→	3
4	→	5
		6
5	←→	7
6	←	20
8	←	
7	→	8

Connection Instructions

Configure the Printer

1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the IBM PC-AT (refer to the I/O accessory card documentation which provides graphics and complete installation instructions.)

3. Connect the printer to the serial connector on the accessory card in the IBM PC-AT.

4. The HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS printers have ad default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, refer to the set-up instructions titled *HP LaserJet Printers and Other PC CPUs* in the *Blue Book*.

The HP LaserJet Series II and LaserJet IID printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

Note: The following steps assume you are using COM1. If you are using COM2 instead, replace COM1 with COM2 in steps 4 and 5.

IBM Set-up

1. Turn on the power to the computer and printer. Load a work copy of the MS®-DOS disk. (The disk write-protect should be off.)

2. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER.**

3. If an AUTOEXEC.BAT file exists (if it does not, see step 4), add the following two lines to the AUTOEXEC.BAT file on the MS-DOS disk (consult the IBM DOS manual in the "Batch Commands" section under AUTOEXEC.BAT for further information), and the proceed to step 5. Type:

```
MODE COM1:9600,N,8,1,P
MODE LPT1:=COM1
```

Note: The command "MODE COM1:9600,N,8,1,P" sets the first serial port (COM1) for 9600 baud, no parity, 8 data bits, 1 stop bit and the "P" option indicates that the serial port is being used as the system printer port.

The command "MODE LPT1:=COM1" reroutes the computer's output from the default first parallel port (LPT1) to the first serial port (COM1).

4. If an AUTOEXEC.BAT file does not exist on your MS®-DOS disk create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER.**
   b. Type **MODE COM1:9600,N,8,1,P** and press **ENTER.**
   c. Type **MODE LPT1:=COM1** and press **ENTER.**
   d. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

5. Press the **CTRL, ALT,** and **DEL** key simultaneously to re-boot DOS (to reload the operating system).

Centronics Parallel Interface
These instructions show how to set up an HP LaserJet printer so that it can communicate with an IBM PC-AT.

Typical Configuration
Computer Equipment
- IBM PC-AT
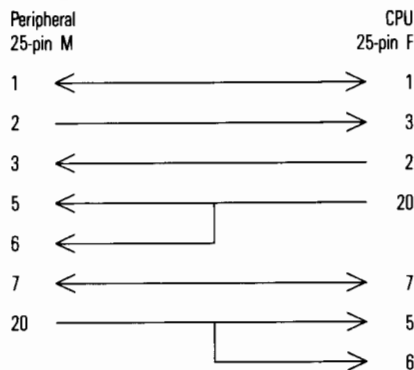- IBM PC-AT Serial/Parallel Interface

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Centronics Parallel Cable (HP 24542D)

Centronics Parallel Cable

HP 24542D
Length: 2.0 m (6.6 ft.)

CPU 25-pin M		Peripheral 36-pin M
1	———————→	1
2	———————→	2
3	———————→	3
•		•
•		•
•		•
14	———————	14
15	———————	32
16	———————	31
17	———————	36
18	←———————→	19
		•
		•
		•
	———————→	30

Connection Instructions

Configure the Printer
HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS

1. Turn off the power to the printer.

2. Remove the rear panel of the printer by removing the four screws as shown below.

Rear panel location

3. Remove the vertical support bracket (1 screw) at the center of the cabinet.

4. Change the dip switch number 1 of SW 1 to the ON position (the OFF position indicates serial interface).

5. Replace the vertical support bracket removed in step 3 above.

6. Replace the rear panel with the four screws removed in step 2.

HP LaserJet Series II and LaserJet IID printers
Use the front panel display according to the instructions explained in the produce notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer
1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the IBM PC-AT (refer to the I/O accessory card documentation which provides graphics and complete installation instructions.)

3. Connect the printer to the parallel connector on the accessory card in the IBM PC-AT.

4. Turn on the power to the computer and printer. Load a work copy of the DOS disk. The IBM PC-AT sends output to the parallel port (LPT1:) by default.

5. Select **MS-DOS** commands and press **ENTER.**

6. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER.**

7. If an AUTOEXEC.BAT file exists (if it does not, see step 8), add the following line to the AUTOEXEC.BAT file on the MS-DOS 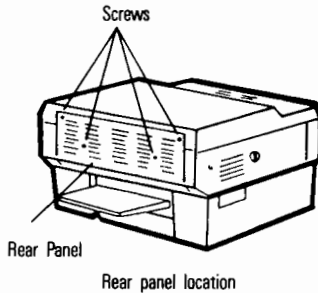disk (consult the IBM DOS manual in the "Batch Command" section under AUTOEXEC.BAT for further information) and then proceed to step 9. Type:

```
MODE LPT1:,,P
```

Note: The command sets the primary parallel output port (LPT1) for an infinite printer retry.

8. If an AUTOEXEC.BAT file does not exist on your MS® -DOS disk, create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER.**
   b. Type **MODE LPT1:,,P** and press **ENTER.**
   c. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

9. Press the **CTRL, ALT,** and **DEL** keys simultaneously to re-boot DOS (to reload the operating system).

Communication Verification with MS®-DOS.

1. Turn on the power to the printer and set it **ON LINE**.

2. Verify the HP LaserJet printer and the computer are successfully communicating by typing the following at the MS-DOS prompt **DIR>PRN** and press **ENTER**.

   This will cause the directory of the disk to be printed on your HP LaserJet printer.

   To print, flush the printer buffer:
   a. Press the **ON LINE** key to take the printer off line.
   b. Press the **FORM FEED** key.
   c. Press the **ON LINE** key again.

3. If there is no communication, check the following:
   • Ensure the printer is on line.
   • Ensure the printer is working properly through self-test and test print.
   • Ensure the computer is working properly by running an application you know works.
   • Ensure the computer's port is working properly by running another peripheral connected to the port.
   • Ensure the cable is seated properly at both ends.
   • Ensure the proper cabling was chosen by consulting the pin assignments for the HP LaserJet printer and the computer.

HP LaserJet Printers and the IBM PC or PC-XT

Set-up Instructions

Serial and Parallel Interfaces

LaserJet

RS-232-C Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with an IBM PC or PC-XT.

Typical Configuration

Computer Equipment
- IBM PC or PC-XT
- Asynchronous Communications Adapter (standard for the IBM PC-XT)

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Special Serial Cable (HP 17255D)

Special Serial Cable

HP 17255D
Length: 1.2 m (4.0 ft)

Peripheral 25-pin M		CPU 25-pin F
1	⟷	1
2	⟶	3
3	⟵	2
5	⟵	20
6	⟵	
7	⟷	7
20	⟶	5
	⟶	6

Connection Instructions

Configure the Printer

1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the IBM PC or PC-XT (refer to the I/O accessory card documentation which provides graphics and complete installation instructions.)

3. Connect the printer to the serial connector on the accessory card in the IBM PC or PC-XT.

4. The HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, refer to the set-up instructions titled *HP LaserJet Printers and Other PC CPUs* in the *Blue Book*.

The HP LaserJet Series II and LaserJet IID printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

Note: The following steps assume you are using COM1. If you are using COM2 instead, replace COM1 with COM2 in steps 4 and 5.

IBM Set-up

1. Turn on the power to the computer and printer. Load a work copy of the MS®-DOS disk. (The disk write-protect should be off.)

2. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER.**

3. If an AUTOEXEC.BAT file exists (if it does not, see step 4), add the following two lines to the AUTOEXEC.BAT file on the MS-DOS disk (consult the IBM DOS manual in the "Batch Commands" section under AUTOEXEC.BAT for further information), and the proceed to step 5. Type:

```
MODE COM1:9600,N,8,1,P
MODE LPT1:=COM1
```

Note: The command "MODE COM1:9600,N,8,1,P" sets the first serial port (COM1) for 9600 baud, no parity, 8 data bits, 1 stop bit and the "P" option indicates that the serial port is being used as the system printer port.

The command "MODE LPT1:=COM1" reroutes the computer's output from the default first parallel port (LPT1) to the first serial port (COM1).

4. If an AUTOEXEC.BAT file does not exist on your MS® -DOS disk create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER.**
   b. Type **MODE COM1:9600,N,8,1,P** and press **ENTER.**
   c. Type **MODE LPT1: = COM1** and press **ENTER.**
   d. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

5. Press the **CTRL, ALT,** and **DEL** key simultaneously to re-boot DOS (to reload the operating system).

Centronics Parallel Interface
These instructions show how to set up an HP LaserJet printer so that it can communicate with a IBM PC or PC-XT.

Typical Configuration
Computer Equipment
- IBM PC or PC-XT
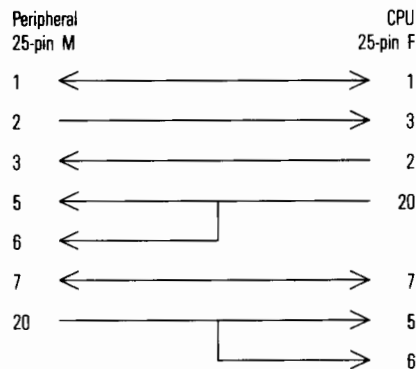- Parallel Communications Interface

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Centronics Parallel Cable (HP 24542D)

Centronics Parallel Cable
HP 24542D
Length: 2.0 m (6.6 ft.)

CPU 25-pin M		Peripheral 36-pin M
1	———————→	1
2	———————→	2
3	———————→	3
•		•
•		•
•		•
14	———————	14
15	———————	32
16	———————	31
17	———————	36
18	←———————→	19
		•
		•
		•
	———————→	30

Connection Instructions

Configure the Printer
HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS

1. Turn off the power to the printer.

2. Remove the rear panel of the printer by removing the four screws as shown below.

Screws

Rear Panel

Rear panel location

3. Remove the vertical support bracket (1 screw) at the center of the cabinet.

4. Change the dip switch number 1 of SW 1 to the ON position (the OFF position indicates serial interface).

5. Replace the vertical support bracket removed in step 3 above.

6. Replace the rear panel with the four screws removed in step 2.

HP LaserJet Series II and LaserJet IID printers
Use the front panel display according to the instructions explained in the produce notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer
1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the IBM PC or PC-XT.

3. Connect the printer to the parallel connector on the accessory card in the IBM PC or PC-XT.

4. Turn on the power to the computer and printer. Load a work copy of the DOS disk. The IBM PC or PC-XT sends output to the parallel port (LPT1:) by default.

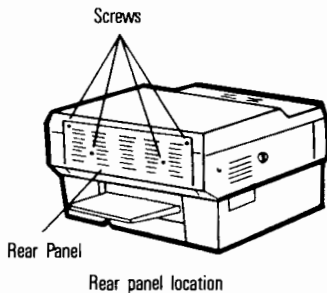5. Select **MS-DOS** commands and press **ENTER**.

6. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER**.

7. If an AUTOEXEC.BAT file exists (if it does not, see step 8), add the following line to the AUTOEXEC.BAT file on the MS-DOS disk (consult the IBM DOS manual in the "Batch Command" section under AUTOEXEC.BAT for further information) and then proceed to step 9. Type:

MODE LPT1:,,P

Note: The command sets the primary parallel output port (LPT1) for an infinite printer retry.

8. If an AUTOEXEC.BAT file does not exist on your MS® -DOS disk, create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER**.
   b. Type **MODE LPT1:,,P** and press **ENTER**.
   c. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

9. Press the **CTRL, ALT,** and **DEL** keys simultaneously to re-boot DOS (to reload the operating system).

Communication Verification with MS®-DOS.

1. Turn on the power to the printer and set it **ON LINE**.

2. Verify the HP LaserJet printer and the computer are successfully communicating by typing the following at the MS-DOS prompt **DIR>PRN** and press **ENTER**.

   This will cause the directory of the disk to be printed on your HP LaserJet printer.

   To print, flush the printer buffer:
   a. Press the **ON LINE** key to take the printer off line.
   b. Press the **FORM FEED** key.
   c. Press the **ON LINE** key again.

3. If there is no communication, check the following:
   • Ensure the printer is on line.
   • Ensure the printer is working properly through self-test and test print.
   • Ensure the computer is working properly by running an application you know works.
   • Ensure the computer's port is working properly by running another peripheral connected to the port.
   • Ensure the cable is seated properly at both ends.
   • Ensure the proper cabling was chosen by consulting the pin assignments for the HP LaserJet printer and the computer.

HP LaserJet Printers and the COMPAQ DeskPro PC

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with an COMPAQ DeskPro PC.

Typical Configuration

Computer Equipment
- COMPAQ DeskPro PC
- Asynchronous Communications Adapter

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Special Serial Cable (HP 17255D)

Special Serial Cable

HP 17255D
Length: 1.2 m (4.0 ft)

Peripheral 25-pin M		CPU 25-pin F
1	⟵——————⟶	1
2	——————⟶	3
3	⟵——————	2
5	⟵———————┐	20
6	⟵——————┘	
7	⟵——————⟶	7
20	——————┐	5
	└——⟶	6

Connection Instructions

Configure the Printer
1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the COMPAQ DeskPro (refer to the I/O accessory card documentation which provides graphics and complete installation instructions.)

3. Connect the printer to the serial connector on the accessory card in the COMPAQ DeskPro.

4. The HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS Printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, refer to the set-up instructions titled *HP LaserJet Printers and Other PC CPUs* in the *Blue Book*.

The HP LaserJet Series II and LaserJet IID printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

Note: The following steps assume you are using COM1. If you are using COM2 instead, replace COM1 with COM2 in steps 4 and 5.

1. Turn on the power to the computer and printer. Load a work copy of the MS®-DOS disk. (The disk write-protect should be off.)

2. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER**.

3. If an AUTOEXEC.BAT file exists (if it does not, see step 4), add the following two lines to the AUTOEXEC.BAT file on the MS-DOS disk (consult the IBM DOS manual in the "Batch Commands" section under AUTOEXEC.BAT for further information), and the proceed to step 5. Type:

```
MODE COM1:9600,N,8,1,P
MODE LPT1:=COM1
```

Note: The command "MODE COM1:9600,N,8,1,P" sets the first serial port (COM1) for 9600 baud, no parity, 8 data bits, 1 stop bit and the "P" option indicates that the serial port is being used as the system printer port.

The command "MODE LPT1:=COM1" reroutes the computer's output from the default first parallel port (LPT1) to the first serial port (COM1).

4. If an AUTOEXEC.BAT file does not exist on your MS®-DOS disk create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER**.
   b. Type **MODE COM1:9600,N,8,1,P** and press **ENTER**.
   c. Type **MODE LPT1: = COM1** and press **ENTER**.
   d. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

5. Press the **CTRL, ALT,** and **DEL** key simultaneously to re-boot DOS (to reload the operating system).

Centronics Parallel Interface
These instructions show how to set up an HP LaserJet printer so that it can communicate with a COMPAQ DeskPro PC.

Typical Configuration
Computer Equipment
- COMPAQ DeskPro PC with floppy/printer board P/N 000045 Rev. B
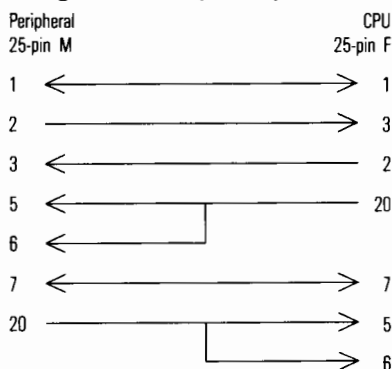- Parallel Communications Interface

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Centronics Parallel Cable (HP 24542D)

Centronics Parallel Cable

HP 24542D
Length: 2.0 m (6.6 ft.)

CPU 25-pin M		Peripheral 36-pin M
1	———————————>	1
2	———————————>	2
3	———————————>	3
•		•
•		•
•		•
14	———————————	14
15	———————————	32
16	———————————	31
17	———————————	36
18	<———————————>	19
		•
		•
		•
	————————>	30

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Connection Instructions

Configure the Printer
HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS

1. Turn off the power to the printer.

2. Remove the rear panel of the printer by removing the four screws as shown below.

Screws

Rear Panel

Rear panel location

3. Remove the vertical support bracket (1 screw) at the center of the cabinet.

4. Change the dip switch number 1 of SW 1 to the ON position (the OFF position indicates serial interface).

5. Replace the vertical support bracket removed in step 3 above.

6. Replace the rear panel with the four screws removed in step 2.

HP LaserJet Series II and LaserJet IID printers
Use the front panel display according to the instructions explained in the produce notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book.*

Configure the Computer
1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the COMPAQ DeskPro PC.

3. Connect the printer to the parallel connector on the accessory card in the COMPAQ DeskPro.

4. Turn on the power to the computer and printer. Load a work copy of the DOS disk. The COMPAQ DeskPro sends output to the parallel port (LPT1:) by default.

5. Select **MS-DOS** commands and press **ENTER.**

6. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER.**

7. If an AUTOEXEC.BAT file exists (if it does not, see step 8), add the following line to the AUTOEXEC.BAT file on the MS-DOS disk (consult the IBM DOS manual in the "Batch Command" section under AUTOEXEC.BAT for further information) and then proceed to step 9. Type:

```
MODE LPT1:,,P
```

Note: The command sets the primary parallel output port (LPT1) for an infinite printer retry.

8. If an AUTOEXEC.BAT file does not exist on your MS® -DOS disk, create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER.**
   b. Type **MODE LPT1:,,P** and press **ENTER.**
   c. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

9. Press the **CTRL, ALT,** and **DEL** keys simultaneously to re-boot DOS (to reload the operating system).

Communication Verification with MS®-DOS.

1. Turn on the power to the printer and set it **ON LINE.**

2. Verify the HP LaserJet printer and the computer are successfully communicating by typing the following at the MS-DOS prompt **DIR>PRN** and press **ENTER.**

   This will cause the directory of the disk to be printed on your HP LaserJet printer.

   To print, flush the printer buffer:
   a. Press the **ON LINE** key to take the printer off line.
   b. Press the **FORM FEED** key.
   c. Press the **ON LINE** key again.

3. If there is no communication, check the following:
   * Ensure the printer is on line.
   * Ensure the printer is working properly through self-test and test print.
   * Ensure the computer is working properly by running an application you know works.
   * Ensure the computer's port is working properly by running another peripheral connected to the port.
   * Ensure the cable is seated properly at both ends.
   * Ensure the proper cabling was chosen by consulting the pin assignments for the HP LaserJet printer and the computer.

HP LaserJet Printers and the COMPAQ Portable

Set-up Instructions

Serial Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with a COMPAQ Portable computer.

Typical Configuration

Computer Equipment
- COMPAQ Portable computer
- Asynchronous Communications Adapter

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Special Serial Cable (HP 17255D)

Special Serial Cable

HP 17255D
Length: 2.1 m (4.0 ft)

Peripheral 25-pin M		CPU 25-pin F
1	← →	1
2	→	3
3	←	2
5	←	20
6	←	
7	← →	7
20	→	5
	→	6

Connection Instructions

Configure the Printer

1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the COMPAQ Portable computer (refer to the I/O accessory card documentation which provides graphics and complete installation instructions).

3. Connect the printer to the serial connector on the accessory card in the COMPAQ Portable.

4. The HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS Printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, refer to the set-up instructions titled *HP LaserJet Printers and Other PC CPUs* in the *Blue Book*.

The HP LaserJet Series II and LaserJet IID printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

Note: The following steps assume you are using COM1. If you are using COM2 instead, replace COM1 with COM2 in steps 4 and 5.

1. Turn on the power to the computer and printer. Load a work copy of the MS®-DOS disk. (The disk write-protect should be off.)

2. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER**.

3. If an AUTOEXEC.BAT file exists (if it does not, see step 4), add the following two lines to the AUTOEXEC.BAT file on the MS-DOS disk (consult the IBM DOS manual in the "Batch Commands" section under AUTOEXEC.BAT for further information), and then proceed to step 5. Type:

```
MODE COM1:9600,N,8,1,P
MODE LPT1:=COM1
```

NOTE: The command "MODE COM1:9600,N,8,1,P" sets the first serial port (COM1) for 9600 baud, no parity, 8 data bits, 1 stop bit, and the "P" option indicates that the serial port is being used as the system printer port.

The command "MODE LPT1:=COM1" reroutes the computer's output from the default first parallel port (LPT1) to the first serial port (COM1).

4. If an AUTOEXEC.BAT file does not exist on your MS® -DOS disk create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER.**
   b. Type **MODE COM1:9600,N,8,1,P** and press **ENTER.**
   c. Type **MODE LPT1: = COM1** and press **ENTER.**
   d. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

5. Press the **CTRL, ALT,** and **DEL** keys simultaneously to re-boot DOS (to reload the operating system).

Communication Verification with MS® -DOS

1. Turn on the power to the printer and set it **ON LINE.**

2. Verify that the HP LaserJet printer and the computer are successfully communicating by typing the following at the MS-DOS prompt **DIR > PRN,** and press **ENTER.**

   This will cause the directory of the disk to be printed on your HP LaserJet printer.

   To print, flush the printer buffer:
   a. Press the **ON LINE** key to take the printer off line.
   b. Press the **FORM FEED** key.
   c. Press the **ON LINE** key again.

3. If there is no communication, check the following:
   • Ensure the printer is on line.
   • Ensure the printer is working properly through self-test and test print.
   • Ensure the computer is working properly by running an application you know works.
   • Ensure the computer's port is working properly by running another peripheral connected to the port.
   • Ensure the cable is seated properly at both ends.
   • Ensure the proper cabling was chosen by consulting the pin assignments for the HP LaserJet printer and the computer.

HP LaserJet Printers
and the AT&T PC 6300

Set-up Instructions

Serial Interface

These instructions show how to set up an HP LaserJet printer so that it can communicate with an AT&T PC 6300.

Typical Configuration

Computer Equipment
- AT&T PC 6300 with MS®-DOS Version 2.11 Release 1.1 or higher
- Serial Communications Interface

Printer Equipment
- HP LaserJet, LaserJet PLUS, LaserJet 500 PLUS, LaserJet Series II, or LaserJet IID printer
- Special Serial Cable (HP 17255D)

Special Serial Cable

HP 17255D
Length: 1.2 m (4.0 ft)

Peripheral 25-pin M		CPU 25-pin F
1	⟷	1
2	⟶	3
3	⟵	2
5	⟵	20
6	⟵	
7	⟷	7
20	⟶	5
	⟶	6
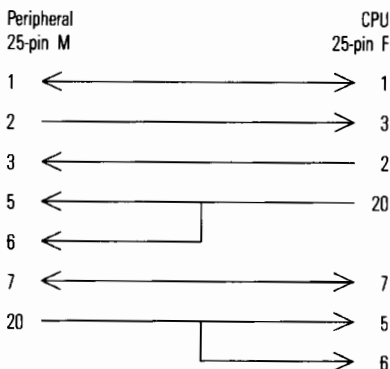
Connection Instructions

Configure the Printer
1. Turn off the power to the computer and printer.

2. Install the interface accessory card in the AT&T PC 6300 (refer to the I/O accessory card documentation which provides graphics and complete installation instructions).

3. Connect the printer to the serial connector on the accessory card in the AT&T PC 6300.

4. The HP LaserJet, LaserJet PLUS, and LaserJet 500 PLUS Printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, refer to the set-up instructions titled *HP Laser-Jet Printers and Other PC CPUs* in the *Blue Book*.

The HP LaserJet Series II and LaserJet IID printers have a default setting for a serial interface with a baud rate of 9600. If you want to change the baud rate, use the front panel display according to the instructions explained in the product notes titled *Using the HP LaserJet Series II* or *LaserJet IID Printer's Front Panel Display* in the *Blue Book*.

Configure the Computer

Note: The following steps assume you are using COM1. If you are using COM2 instead, replace COM1 with COM2 in steps 4 and 5.

1. Turn on the power to the computer and printer. Load a work copy of the MS®-DOS disk. (The disk write-protect should be off.)

2. Check to see that you already have an AUTOEXEC.BAT file on your DOS disk. You can verify this by typing at the DOS prompt > **DIR AUTOEXEC.BAT** and then pressing **ENTER.**

LaserJet

AT&T Set-up

3. If an AUTOEXEC.BAT file exists (if it does not, see step 4), add the following two lines to the AUTOEXEC.BAT file on the MS-DOS disk (consult the IBM DOS manual in the "Batch Commands" section under AUTOEXEC.BAT for further information), and then proceed to step 5. Type:

```
MODE COM1:9600,N,8,1,P
MODE LPT1:=COM1
```

NOTE: The command "MODE COM1:9600,N,8,1,P" sets the first serial port (COM1) for 9600 baud, no parity, 8 data bits, 1 stop bit and the "P" option indicates that the serial port is being used as the system printer port.

The command "MODE LPT1:=COM1" reroutes the computer's output from the default first parallel port (LPT1) to the first serial port (COM1).

4. If an AUTOEXEC.BAT file does not exist on your MS®-DOS disk, create an AUTOEXEC.BAT file by following these steps:
   a. Type **COPY CON:AUTOEXEC.BAT** and press **ENTER.**
   b. Type **MODE COM1:9600,N,8,1,P** and press **ENTER.**
   c. Type **MODE LPT1: = COM1** and press **ENTER.**
   d. Press the **CTRL** and **Z** keys simultaneously and then press the **ENTER** key. The system will respond with 1 FILE(S) COPIED.

5. Press the **CTRL, ALT,** and **DEL** keys simultaneously to re-boot DOS (to reload the operating system).

Communication Verification with MS®-DOS

1. Turn on the power to the printer and set it **ON LINE.**

2. Verify the HP LaserJet printer and the computer are successfully communicating by typing the following at the MS-DOS prompt **DIR > PRN** and press **ENTER.**

This will cause the directory of the disk to be printed on your HP LaserJet printer.

To print, flush the printer buffer:
a. Press the **ON LINE** key to take the printer off line.
b. Press the **FORM FEED** key.
c. Press the **ON LINE** key again.

3. If there is no communication, check the following:
   • Ensure the printer is on line.
   • Ensure the printer is working properly through self-test and test print.
   • Ensure the computer is working properly by running an application you know works.
   • Ensure the computer's port is working properly by running another peripheral connected to the port.
   • Ensure the cable is seated properly at both ends.
   • Ensure the proper cabling was chosen by consulting the pin assignments for the HP LaserJet printer and the computer.

HP RuggedWriter 480 Printer

Technical Data

Fast, rugged operation

Features
- A multi-user printer for multiple applications
- A dedicated printer for transaction applications
- Comprehensive print features
- Full compatibility for application flexibility

The new HP RuggedWriter 480 printer (HP 2235 Series) offers *top-quality* 24-wire impact printing that's fast— 480-cps draft and 240-cps letter-quality printing. And it's rugged—with 20 000 hours MTBF-designed for printing up to 5000 pages per month average usage.

A Multi-user Printer for Multiple Applications
When several users share the RuggedWriter 480 printer, it zips through many tasks: top-quality letters, multipart forms (up to six parts or 0.018 inches), or spreadsheets.

Three independent paper paths accommodate hand-fed paper, tractor-fed paper and the sheet feeder accessory.

A Dedicated Printer for Transaction Applications
RuggedWriter 480 is a dedicated printer for transactions like purchase orders, shipping documents, paychecks or invoices. With a minimum of attention, it performs such tasks quickly, efficiently, and reliably.

Comprehensive Print Features
Bold, underline, and italics; superscripts and subscripts; and proportional spacing assure the printing versatility needed by today's business and technical professionals. A character cartridge accessory expands printing capability with four additional print styles and 16 Kbyte RAM. In addition, a full range of print styles and pitches accommodates both custom and industry-standard preprinted forms.

Full Compatibility for Applications Flexibility
The RuggedWriter 480 printer has a dual I/O (HP-IB/serial or centronics parallel/serial) for use with a variety of computer systems. It supports most popular software via HP and Epson command languages.
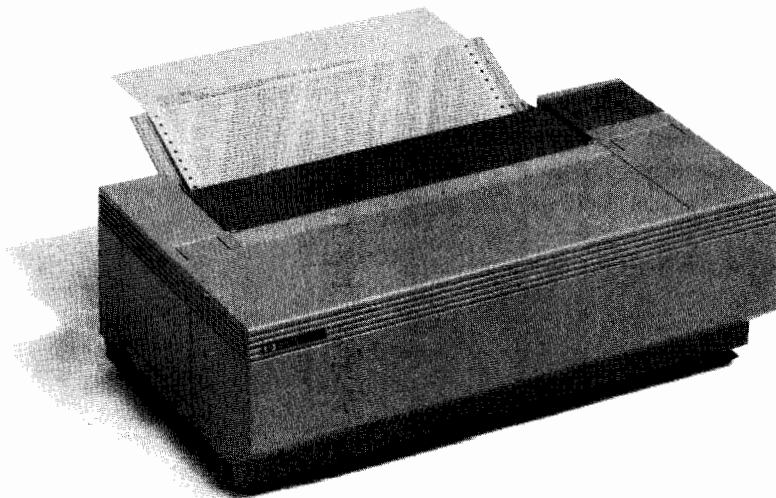
Technical Information

Printing Process
24-wire dot matrix impact printing

Print Speed
Draft Mode: 480 characters per second (12 characters per inch); 400 characters per second (10 characters per inch)

Letter-quality mode: 240 characters per second (12 characters per inch); 200 characters per second (10 characters per inch)

Command Language and Emulation
Switch selectable Epson and HP modes: HP Printer Command Language (PCL) level 3;

Epson ESC/P (LQ-100Q/LG-1500)

Character Cell Structure
Draft mode: 12 × 12 character cell

Letter-quality mode: 36 × 24 character cell

Wire size: 0.28 mm (0.011 in.)

Graphics Resolution
Resolution for PCL mode control format: 90 × 90 dots per inch normal; 180 × 180 dots per inch high resolution

Resolution for Epson mode format (dots per inch): 60 × 60; 120 × 60; 90 × 180; 180 × 180; 80 × 60; 240 × 60; 120 × 180; 360 × 180; 90 × 60; 60 × 180

Character Sets
PCL mode: HP Roman-8, PC-8 (Danish/Norwegian), JIS ASCII, ECMA-94 Latin 1, ISO 7-bit languages (support UK, German, French, Italian, Norwegian, Swedish, Spanish, Portuguese)

EPSON mode: PC-8 (Danish/Norwegian), Epson 7-bit languages (support USA, English, German, French, Italian, Norwegian, Swedish, Spanish, Japanese, Denmark, DenmarkII, SpainII, and Latin America)

Printing Format
Print pitch (character per inch) for PCL mode control format:

10—Pica (136 columns)
12—Elite (163 columns)
16.7—Compressed (227 columns)
20—Compressed (272 columns)
5—Expanded (68 columns)
Proportional space, true sub/superscript (italics, bold, and underline available in all pitches). Line spacing variable.

Print pitch (characters per inch) for Epson mode control format:
10—Pica (136 columns)
12—Elite (163 columns)
15—Compressed (204 columns)
17.13—Compressed (232 columns)
20—Compressed (272 columns)
5—Expanded (68 columns)
6—Expanded (81 columns)
8.53—Expanded (116 columns)
Proportional space, true sub/superscript (italics, bold, and underline available in all pitches). Line spacing variable.

Paper
Maximum widths edge to edge: 380.0 mm (14.95 in.)

Paper length minimum: 104.14 mm (4.1 in.)

Minimum width between holes: 76.2 mm (3.0 in.)

Maximum printable line: 345.4 mm (13.6 in.)

Forms thickness maximum: 0.457 mm (0.018 in.)

Paper Handling
Triple paper path: Adjustable tractors, Friction feed, Single-bin sheet feeder accessory (up to 100-sheet capacity)

Automatic paper load

6-part forms

Last-form tear-off

Control Panel
Buttons: On-line, Select Print Mode, Up Arrow, Down Arrow, Select Paper Path, Form Feed, Line Feed

Indicators: Ready, Tractor Fed, Bin Fed, Hand Fed, Draft, Compressed, Letter Quality

Interfaces and Datacomm
HP 2235A: Centronics Parallel and RS-232-C Serial

HP 2235B: HP-IB and RS-232-C Serial

HP 2235C: Centronics Parallel and RS-232-C Serial (with sheet feeder)

HP 2235D: HP-IB and RS-232-C Serial (with sheet feeder) Xon/Xoff Protocol, DTR Busy Handshake

Buffer Size
2 Kbytes (optional 16 Kbytes with font cartridge)

Environmental Ranges
Temperature, free space ambient
Operating: 5 to 40 degrees C (41 to 104 degrees F)

Storage: −40 to 70 degrees C (−40 to 158 degrees F)

Humidity
15 to 80% RH (non-condensing)

Acoustics (per ISO DP 7779 standard)
Sound pressure level-Lpa: 56 dB(A) @ 1 m bystander position

Power Requirements
Source
100, 120, 220, 240, VA (±10%) user selectable

Frequency
47.5 to 63.0 Hz

Consumption
Printing: 80 W maximum
Standby: 20 W maximum

Physical Specifications
Height: 20.9 cm (8.2 in)
Width: 60.0 cm (23.6 in.)
Depth: 35.0 cm (13.7 in.)
Net weight: 15.9 kg (35.0 lbs)

Product Certifications
UL, CSA, IEC compliance. FCC Class B certified per FCC Rules, Part 15, subpart J, when used with a Class B computer device.

Reliability
No duty cycle limitations—5000 pages per month maximum recommended usage

MTBF 20,000 hours based on 2000 hours power-on

Interface and Cable Requirements

System	Printer I/O	Interface	HP Cable
Touchscreen PC/150	Serial	Built-in	13242G
	HP-IB	Built-in	10833A/B/C/D
Vectra PC	Parallel	HP 24540A	24542D
	Serial	HP 24541A (25-pin)	13242G
		HP 24540A/41A (9-pin)	24542G
HP 250/260	Serial	See 250/260 documentation	13242N/M
	HP-IB	See 250/260 documentation	10833A/B/C/D
HP 1000 A/E/F	Serial	12040 C/D/ Multiplexer	92219G
	HP-IB	12009A HP-IB	10833A/B/C/D
HP 3000 (3X, 4X, 5X, 6X, 70, Micro3000, Micro 3000XE)	Serial	ADCC and ATP (25-pin)	13242Y, 92219G, or 13242N
		ATP (3-pin)	13242X
HP 9000 (200, 300, 500)	HP-IB	Built-in	10833A/B/C/D
HP 2392/93/ 94/97 Terminal	Parallel	Opt. 093 or HP 40210P	13242D or 40242D
	Serial	Opt. 092 or HP 40210R	13242G or 40242G
IBM PC Family and compatibles	Parallel	IBM Parallel Printer Adaptor or HP 24540A	24542D
	Serial	IBM Asyn. Com. Adaptor (25-pin)	13242H
		IBM Serial/ Parallel Adaptor (9-pin)	24542G

Ordering Information
Standard Unit
2235A
Centronics parallel and RS-232 dual I/O without sheetfeeder

2235B
HP-IB and RS-232 dual I/O without sheetfeeder

2235C
Centronics parallel and RS-232 dual I/O with sheetfeeder

2235D
HP-IB and RS-232 dual I/O with sheetfeeder

Standard unit includes: printer, power cord, ribbon, owner's manual. Sheetfeeder accessory is included for HP 2235C and HP 2235D. Power supply voltage is user-configurable to 100, 120, 200 or 240V. Cables must be ordered separately.

Supplies and Accessories

12235A	Font cartridge (includes: Prestige Elite 12, Letter Gothic 12, TmsRmn PS, Helv 10, 16 Kbyte RAM for download or buffer)
12235C	Demonstration cartridge
12239A	Single-bin Sheet Feeder (8½ × 11 inch size)
12239B	Single-bin Sheet Feeder (EUR A4 size paper)
92166A	Desktop printer stand
92214P	Floor printer stand
92156S	Ribbon (box of three; each ribbon is five million draft character-life)
02235-90002	HP RuggedWriter 480 owner's manual
02235-90003	HP RuggedWriter 480 service manual

Printer supplies are available at authorized HP dealers or through HP's Direct Marketing Operation (800-538-8787).

HP RuggedWriter 480 Printer

Product Note

Questions and Answers

Following are the answers to some of the most frequently asked questions about the RuggedWriter 480.

Q: What is the warranty period?

A: One year return to HP or authorized dealer.

Q: What printer control codes does the printer use?

A: It used the HP PCL level 3 control codes similar to the codes used by the HP LaserJet printers. For software, the LaserJet printer driver often will work. In addition, the printer uses the Epson LQ 1000 printer control codes. Epson emulation means that Epson FX, MX, and IBM Graphics-Printer drivers will work well with the printer.

Q: Can the printer handle forms?

A: Yes; a forms tractor is built-in. It handles six forms or up to 0.018 inches maximum pack thickness.

Q: Is the cut-sheet feeder user-installable?

A: Yes; however, the non-technical user may find it difficult to install. The add-on cut-sheet feeder is product number 12239A. The product numbers for the printers with the sheet feeders already installed are 2235C and 2235D.

Q: Does the printer print the HP Line Draw or IBM graphics characters?

A: HP Line Draw is included in the optional font cartridge. IBM Line Draw character (PC-8 character set) are included in the feature set of the base printer.

Q: Do LaserJet font cartridges work with the RuggedWriter 480 printer?

A: No. An optional $150 font cartridge for the RuggedWriter 480 printer gives TmsRmn, Helv, Prestige and Letter Gothic fonts in 10, 12, 24 pitch as well as proportional spacing. Without a font cartridge, the printer prints letter-quality Courier 10, 12, 24 and proportional fonts. The printer also prints draft and compressed fonts, selectable from the front panel.

HP RuggedWriter 480 Printer and the HP Vectra PC

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up the HP RuggedWriter 480 printer so that it can communicate with the HP Vectra PC.

Typical Configuration

Computer Equipment
- HP Vectra PC
- Vectra Serial/Parallel Interface Card (HP 24540A)

Printer Equipment
- HP RuggedWriter 480 printer
- M-to-F RS-232-C Cable (HP 24542G)

or

Computer Equipment
- HP Vectra PC
- Vectra Dual Serial Interface Card (HP 24541A)

Printer Equipment
- HP RuggedWriter 480 printer
- For Port 1 (9-pin connector) use M-to-F RS-232-C Cable (HP 24542G)
- For Port 2 (25-pin connector) use M-to-M RS-232-C Cable (HP 13242G)

Special Serial Cables

HP 24542G
Length: 3.0 m (9.9 ft)

CPU 9-pin F		Peripheral 25-pin M
1	←	4
2	←	2
3	→	3
4	→	5
	→	6
5	→	7
6	←	20
8	←	
7	→	8

HP 13242G
Length: 5.0 m (16.7 ft)

CPU 25-pin M		Peripheral 25-pin M
1	← →	1
2	→	3
3	←	2
4	→	8
5	←	20
6	←	
7	← →	7
8	←	4
12	←	19
		11
11		
19	→	12
20	→	5
	→	6

Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustration.

Bank A

Bank B

RuggedWriter 480 Printer*

The above printer settings match the Host set up and select the Epson Control Mode and PC-8 character set. Using Epson Mode and the PC-8 character set will provide the best match with your IBM PC/compatible software.

Note: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the appropriate RS-232-C Port.

4. Turn on the power to the equipment.

5. Load the operating system.

6. From the DOS prompt (A> or C>) enter commands.

7. Type **MODE COM1:9600,N,8,1,P** then press **ENTER**. This command sets the serial communications at 9600 baud, no parity, 8 data bits, and 1 stop bit.

8. Type **MODE LPT: = COM1** and press **ENTER**. This command directs the primary communication to the first serial port (COM1).

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 two MODE commands every time your PC is turned on, create and 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.

Communication Verification
Hold down the computer's **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

Centronics Parallel Interface
These instructions show how to set up the HP RuggedWriter 480 printer so that it can communicate with the HP Vectra PC.

Typical Configuration

Computer Equipment
- HP Vectra PC
- Vectra Serial/Parallel Interface Card (HP 24540A)

Printer Equipment
- HP RuggedWriter 480 printer
- M-to-M Centronics Parallel Cable (HP 24542D)

Centronics Parallel Cable

HP 24542D
Length: 2.0 m (6.6 ft)

CPU 25-pin M	Peripheral 36-pin M
1	1
2	2
3	3
•	•
•	•
•	•
14	14
15	32
16	31
17	36
18	19
	•
	•
	•
	30

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustration.

Bank A

Bank B
RuggedWriter 480 Printer*

The above printer settings match the Host set up and select the Epson Control Mode and PC-8 character set. Using Epson Mode and the PC-8 character set will provide the best match with your IBM PC/ compatible software.

3. Connect your printer to the parallel port of the computer.

Communication Verification
1. Turn on the power to the equipment.

2. Load the operating system.

3. Hold down the **SHIFT** key and press the **PrtSc** key. Any text on the screen will print out. (Graphics will not print correctly.)

*Switches B9 and B10 are only present on RuggedWriter 480 printers equipped with the HP-IB interface, and do not affect this set up. Both the parallel and HP-IB versions of the printer can be used with an IBM PC/compatible over the serial interface with the switches set as shown above.

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HP RuggedWriter 480 Printer and the HP 150 or Touchscreen Computers

Set-up Instructions

HP-IB and Serial Interfaces

HP-IB Interface
These instructions show how to set up the HP RuggedWriter 480 printer so that it can communicate with the HP 150 or Touchscreen computer.

Typical Configuration
Computer Equipment
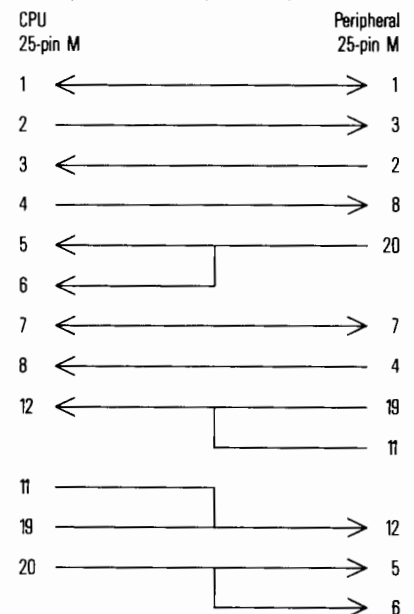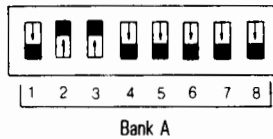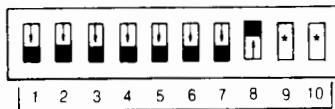• HP 150 or Touchscreen Computer

Printer Equipment
• HP RuggedWriter 480 printer
• HP-IB Interface Cable (HP 10833A/B/C/D)

Three or four major steps (depending on the interface) are required to set up the Touchscreen for use with the RuggedWriter 480 printer. These steps are the MS-DOS Device Configuration, the device control configuration, and the Terminal Configuration. Carefully follow the steps outlined below as they apply to the HP-IB interface.

HP-IB Cable
HP 10833A/B/C/D
Length: A—1.0 m (3.3 ft)
B—2.0 m (6.6 ft)
C—4.0 m (13.2 ft)
D—0.5 m (1.6 ft)
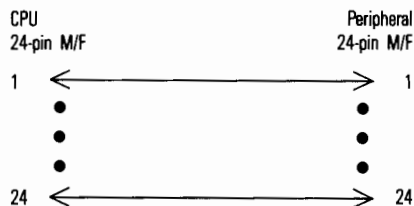
```
CPU                         Peripheral
24-pin M/F                  24-pin M/F
1    <--------------->  1
     •                 •
     •                 •
     •                 •
24   <--------------->  24
```

Connection Instructions
1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustration.

Bank A

Bank B

RuggedWriter 480 Printer*
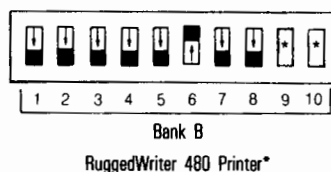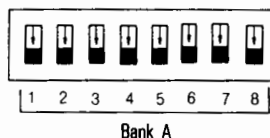
3. Connect the printer to the HP-IB Port of the HP 150 or Touchscreen computer.

4. Turn on the power to the equipment.

MS-DOS Configuration
From PAM
5. Touch the **DEVICE CONFIG** and **Start Applic** (f1) (illuminated "boxes" on your screen). This will run the MS-DOS Device Configuration Program.

6. Touch **PRN:Interface** field. Touch **Previous Choice** or **Next Choice** until **HPIB** appears in the interface field box.

7. Touch **PRN:Address** field then the **Previous Choice** or **Next Choice** until 1 appears in the address field.

8. Touch **PRN:Model** field, then **Previous Choice** or **Next Choice** until **2934A** appears in the model field.

9. Touch **Save Config** (f4) then **Exit Config** (f8) to save the information and return to PAM.

*Switches B9 and B10 are present only on RuggedWriter 480 printers with the optional HP-IB interface.

Terminal Configuration

10. Touch **Terminal** (f6).

11. Press the **User System** key.

12. Touch **Device Control** (f1) then **"to" devices** (f3).

13. Touch **HP-IB DEVICE** (f5). An asterisk (*) will appear in the **HP-IB DEVICE** field.

14. Press the **User System** key.

HP Line Draw—Terminal Configuration

The HP Line Draw Character Set for the RuggedWriter 480 printer is contained in a Character Cartridge, HP P/N 12235A. With this cartridge installed, the following terminal configuration will allow these "special" characters to be printed.

From PAM

15. Press the **Terminal** key (f6).

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

17. Set the values on your screen to match those shown below. (The other values on your screen govern other functions and do not apply specifically to Line Draw.)

    ASCII 8 Bits **Yes**
    Alternate Set **Line (B)**

18. Once these changes have been made, save the terminal configuration by pressing **Save Config** (f1).

19. Return to PAM by holding down the **Shift** key and pressing the **Stop** key.

Communication Verification

From PAM.

1. Touch **MSDOS COMMANDS** then **Start Applic** (f1).

2. When the A> prompt appears type **dir>prn** then press the **RETURN** key. This will cause the directory of disk A to be printed out on your RuggedWriter 480 printer.

3. Type **EXIT** then press the **RETURN** key. This will exit MS-DOS and return you to PAM.

RS-232-C Interface

These instructions show how to set up the HP RuggedWriter 480 printer so that it can communicate with the HP 150 or Touchscreen personal computer.

Typical Configuration

Computer Equipment
• HP 150 or Touchscreen Computer

Printer Equipment
• HP RuggedWriter 480 printer
• M-to-M RS-232-C Cable (HP 13242G)

Three or four major steps (depending on the interface) are required to set up the Touchscreen for use with the RuggedWriter 480 printer. These steps are the MS-DOS Device Configuration, the device control configuration, and the Terminal Configuration. Carefully follow the steps outlined below as they apply to the Serial Interface.

Special Serial Cable

HP 13242G
Length: 5.0 m (16.7 ft)

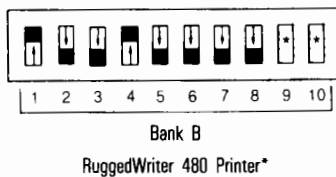| CPU 25-pin M		Peripheral 25-pin M
1	←——————→	1
2	——————→	3
3	←——————	2
4	——————→	8
5	←————┐	20
6	←———┘	
7	←——————→	7
8	←——————	4
12	←————┐	19
	└————	11
11	————┐	
19	————┼——→	12
20	————┼——→	5
	└——→	6

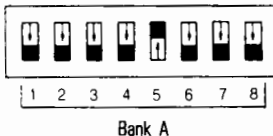## Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustration.

1 2 3 4 5 6 7 8

Bank A

1 2 3 4 5 6 7 8 9 10

Bank B

RuggedWriter 480 Printer*

Note: Standard switch settings are shown. Individual software packages or terminal applications may require the user to modify these settings.

3. Connect the printer to Port 2 of the HP 150 or Touchscreen computer.

MS-DOS Configuration

4. Turn on the power to the equipment and enter PAM (included on the same disk as MS-DOS).

5. Touch **DEVICE CONFIG** then **Start Applic** (f1) (illuminated "boxes" on your screen). This will run the MS-DOS Device Configuration Program.

6. Touch **PRN:Interface** field. Touch **Previous Choice** or **Next Choice** until **Port 2** appears in the interface field box.

7. Touch the **PRN:Model**. Touch **Previous Choice** or **Next Choice** until **2934A** appears in the model field.

8. Touch **Save Config** then **Exit Config** to return to PAM.

Terminal Configuration

From PAM

9. Touch **Terminal** (f6).

10. Press the **User System** key.

11. Touch **device control** (f1) then touch **"to" devices** (f3).

12. Touch **SERIAL DEVICE** (f2). An asterisk (*) will appear in the **SERIAL DEVICE** field.

13. Press the **User System** key.

Port 2 Configuration

From PAM

14. Touch **Terminal** (f6).

15. Press the **User System** key.

16. Touch **config keys** (f8) then **port2 config** (f4).

17. Set the fields displayed as shown below. Touch the fields that you want to change and touch **Previous Choice** or **Next Choice** until the correct selection appears.

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

18. Touch **Save Config** (f1). This will save and use the new settings, and return you to terminal mode.

19. Press **SHIFT** and **CTRL** simultaneously, hold, and press **RESET/BREAK**. This will return you to PAM.

Global Configuration

From PAM

20. Touch **Terminal** (f6).

21. Press the **User System** key.

22. Press **config keys** (f8).

23. Press **global config** (f1). Make sure Remote/Serial Dev field displays PORT1/PORT2.

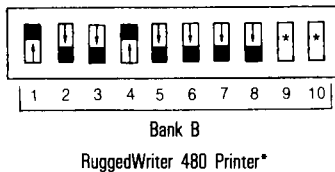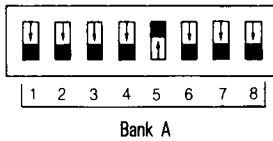24. Save the global configuration by pressing **SAVE CONFIG** (f1).

HP Line Draw—Terminal Configuration

The HP Line Draw Character Set for the RuggedWriter 480 printer is contained in a Character Cartridge, HP P/N 12235A. With this cartridge installed, the following terminal configuration will allow these "special" characters to be printed.

From PAM

25. Press the **Terminal** key (f6).

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

27. Set the values on your screen to match those shown below. (The other values on your screen govern other functions and do not apply specifically to Line Draw.)

ASCII 8 Bits **Yes**
Alternate Set **Line(B)**

28. Once these changes have been made, save the terminal configuration by pressing **Save Config** (f1).

29. Return to PAM by holding down the **Shift** key and pressing the **Stop** key.

*Switches B9 and B10 are present only on RuggedWriter 480 printers with the optional HP-IB interface.

Communication Verification

1. From PAM touch MSDOS, then touch Start Applic (f1).

2. When the A> prompt appears type **dir>prn**, then press the **RETURN** key. This will cause the directory of disk A to be printed.

3. Type **Exit**, then press the **RETURN** key. This will exit MS-DOS and return you to PAM.

HP RuggedWriter 480 Printer and the IBM PC/XT/AT, PS/2 and Compatibles

Set-up Instructions

Serial and Parallel Interfaces

RS-232-C Interface

These instructions show how to set up the HP RuggedWriter 480 printer so that it can communicate with the IBM PC/XT/AT, PS/2 and compatible personal computers.

Typical Configuration

Computer Equipment
- IBM PC/XT/AT, PS/2 (with IBM Asynchronous Communications Adapter)

Printer Equipment
- HP RuggedWriter 480 printer
- M-to-F RS-232-C Cable (HP 17255D or HP 13242H)
- HP 92219K (with Serial/ Parallel Dual Interface Card on PC/AT)

Special Serial Cables

HP 17255D
Length: 1.5 m (5.0 ft)
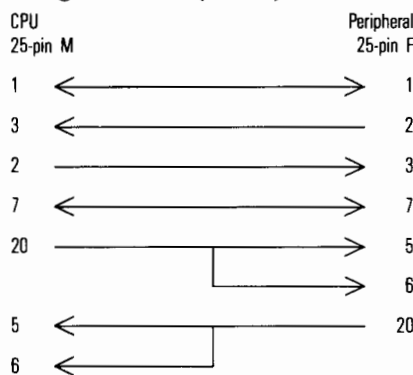
HP 13242H
Length: 5.0 m (16.7 ft)

HP 92219K
Length: 2.7 m (9.0 ft)
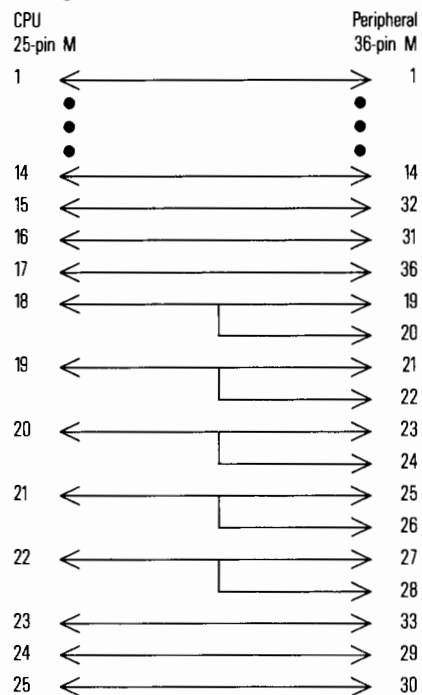
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Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustration.

Bank A

Bank B

RuggedWriter 480 Printer*

The above printer settings match the Host set up and select the Epson Control Mode and PC-8 character set. Using Epson Mode and the PC-8 character set will provide the best match with your IBM PC compatible software.

Note: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the RS-232-C Port 1 (asynchronous adapter port).

4. Turn on the power to the equipment.

5. Load the operating system.

*Switches B9 and B10 are only present on RuggedWriter 480 printers equipped with the HP-IB interface, and do not affect this set up. Both the parallel and HP-IB versions of the printer can be used with an IBM PC/compatible over the serial interface with the switches set as shown above.

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

6. **MODE COM1:9600,N,8,1,P** then press the **ENTER** key. This command sets the serial communications to 9600 baud, no parity, 8 data bits, and 1 stop bit.

8. **MODE LPT: = COM1** and then press the **ENTER** key. This command directs the primary printer communication to the first serial port (COM1).

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 two MODE commands every time your PC is turned on, create and 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.

Communication Verification
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 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.

Centronics Parallel Interface

These instructions show how to set up the HP RuggedWriter 480 printer so that they can communicate with the IBM PC/XT/AT, PS/2, and compatible personal computers.

Typical Configuration

Computer Equipment
- IBM PC/XT/AT, PS/2 (with IBM Parallel Printer Interface Adapter)

Printer Equipment
- HP RuggedWriter 480 printer
- HP 92219K or IBM Parallel Printer Cable

Centronics Parallel Cable

HP 92219K
Length: 2.7 m (9.0 ft)

CPU 25-pin M		Peripheral 36-pin M
1	← →	1
14	← →	14
15	← →	32
16	← →	31
17	← →	36
18	← →	19
	→	20
19	← →	21
	→	22
20	← →	23
	→	24
21	← →	25
	→	26
22	← →	27
	→	28
23	← →	33
24	← →	29
25	← →	30

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Connection Instructions

1. Turn off the power to all of the equipment.

2. Set the function switches on the printer per the following illustration.

Bank A

Bank B

RuggedWriter 480 Printer*

The above printer settings match the Host set up and select the Epson Control Mode and PC-8 character set. Using Epson Mode and the PC-8 character set will provide the best match with your IBM PC/compatible software.

Note: Standard switch settings are shown. Individual software packages may require the user to modify these settings.

3. Connect your printer to the parallel port of the computer.

4. Turn on the power to the equipment.

5. Load the operating system.

Communication Verification

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. Hold down the **SHIFT** key and press the **PrtSc** key.

All text on the screen will print.

*Switches B9 and B10 are only present on RuggedWriter 480 printers equipped with the HP-IB interface, and do not affect this set up. Both the parallel and HP-IB versions of the printer can be used with an IBM PC/compatible over the serial interface with the switches set as shown above.

Technical
Reference
Guide

Scanners

HP ScanJet Plus
HP 9195A Image/OCR
Desktop Scanner

Technical Data

Desktop scanner for graphics and text

Features
- Captures high quality images
- Easy to use
- Automated entry of text
- Macintosh™ compatibility
- IBM™ compatibility

The Hewlett-Packard ScanJet Plus scanner advances the standards of excellence by providing easy capture of high quality images and automated entry of text at a breakthrough price. The ScanJet Plus scanner provides an easy way to include photos, text, line art, and graphics from a variety of sources.

Captures High Quality Images
The ScanJet Plus 8-bit grayscale high resolution scanner reads 256 levels of gray and has a wide range of contrast/intensity controls in grayscale, dithered, and line art modes.

Easy to Use
Intuitive operation for PC systems allows interactive scaling and launchable OCR. The Macintosh desk accessory solution includes Live Preview/Zoom features and DeskPaint for image editing. Both solutions provide on-line HELP.

Automated Entry of Text
Optical character recognition (OCR) software and the HP ScanJet Plus scanner allow typed text to be entered into the computer without retyping, saving valuable time. OCR solutions are available from various software vendors providing the ability to read a wide range of text including typeset text.

Macintosh Compatibility

The HP ScanJet Plus scanner is supported on the Macintosh Plus, SE, and II. The Desk Gallery Plus software package included with the Macintosh Interface Kit consists of two components, DeskScan Plus and DeskPaint™ Version 2.01. Together the desk accessories provide easy scanning, editing, and enhancement of images. Extensive software support is provided for a variety of packages through storage of images in popular Macintosh DTP file formats: TIFF, MacPaint, EPSF, and PICT.

IBM Compatibility

The HP ScanJet Plus scanner is supported on the HP Vectra PC, IBM PC-XT/AT and IBM PS/2 (models 50 and above). Hewlett-Packard's Scanning Gallery Plus software, included with the ScanJet Plus PC and PS/2 Interface Kits, allows easy scanning, intuitive operation, interactive scaling, and launchable OCR. Files are stored and brought to application software via industry-standard file formats: TIFF, Microsoft Paint, GEM, EPSF, and PC Paintbrush. Scanning Gallery Plus works under MS®-DOS Version 3.1 and Microsoft Windows Version 2.1.

Technical Information

Scanning Speed
10 seconds* for A4 size or letter size, line art or dithered mode, 300 dpi (dots per inch)

Output Resolution
12-1500 dpi, selectable in 1 dpi increments

Optical Resolution
300 dpi

Scaling
4 to 200% in 1% increments at 300 dpi resolution (Scaling range dependent upon resolution)

Scanner Type
Flatbed

Light Source
Fluorescent lamp with automatic calibration

Interface
Bidirectional Centronics for PC systems and SCSI for Macintosh

Maximum Document Size
Flatbed glass: 216 × 297 mm (8.5 × 11.7 in.)

Optional automatic document feeder: 216 × 356 mm (8.5 × 14.0 in.) will hold approximately 20 sheets

Drop Out Color
Yellow

Grayscale
4-bit (16 grayscale levels) and 8-bit (256 grayscale levels)

Environmental Ranges
Temperature
Operating: 5 to 40 degrees C (41 to 104 degrees F)
Storage: −40 to 60 degrees C (-40 to 140 degrees F)

Humidity
Operating: 10 to 90% non-condensing (5 to 35 degrees C); 10 to 60% non-condensing (35 to 40 degrees C)
Storage: 10 to 90% (0 to 40 degrees C); 10 to 60% (40 to 60 degrees C)

Power Requirements
Voltage
Range: 100/115 VAC (9195A) or 220/240 VAC (9195AB)

Frequency
50/60 Hz (9195A) or 50 Hz (9195AB)

Consumption
40W maximum

Physical Specifications
Scanner
Height: 107 mm (4.2 in.)
Width: 345 mm (13.6 in.)
Depth: 480 mm (18.9 in.)
Net weight: 7.5 kg (16.5 lb)
Shipping weight: 9.0 kg (19.8 lb)

Automatic Document Feeder
Height: 73 mm (2.9 in.)
Width: 343 mm (13.5 in.)
Depth: 526 mm (20.1 in.)
Net weight: 3 kg (6.6 lb)
Shipping weight: 5.8 kg (12.7 lb)

* Does not include lamp warmup time.

Product Certifications

9195A: UL 478: Electronic Data Processing Equipment (EMRT) Fifth Ed.; UL 114: Office Appliances and Business Equipment (QAOT); CSA C22.2 #220: Data Processing Equipment; FCC: Class B Part 15 for computing equipment

9195AB: IEC 380 and 435; VDE: FTX 1046/84 (VDE Level B).

Questions concerning regulatory agency compliance should be directed to the local Hewlett-Packard Sales and Service Office.

Interface and Cable Requirements

System	Interface Kit*
HP Vectra, IBM PC-XT/AT, and compatibles	HP88295A
IBM PS/2 (30)	HP88295A and HP 88293B
IBM PS/2 (50, 60, 70, 80)	HP 88495A
Mac Plus/SE/II	HP 88395A

Ordering Information

Standard Unit

HP 9195A
HP ScanJet Plus desktop scanner 100/115V

HP 9195AB
HP ScanJet Plus desktop scanner 220/240V

Accessories

HP 88195A	20-sheet Automatic Document Feeder
HP 88400A	ReadRight™ OCR software
HP 88401A	ReadRight™ OCR International software (not available in USA)

*Interface kits include interface board, interface cable, software, and manuals. SCSI cable not included for Macintosh.

HP ScanJet Plus Desktop Scanner and the HP Vectra PC

Set-up Instructions

These instructions show how to set up the HP ScanJet Plus desktop scanner so that it can communicate with the HP Vectra PC.

Typical Configuration

Computer Equipment
- HP Vectra PC with 512 Kbyte memory and MS®-DOS, version 3.1 or above, Microsoft® Windows, version 2.1
- Flexible Disk Drive
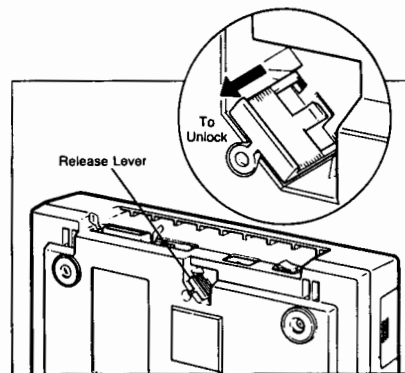- Hard Disk Drive with at least 20 Mbyte of memory

Scanner Equipment
- HP 9195A ScanJet Plus desktop scanner
- HP 88295A ScanJet Plus Interface Kit (includes: interface card, interface cable, Scantest software, HP Scanning Gallery Plus software, manual)

Connection Instructions

Unlocking the Scanner

1. Tilt the scanner on end so that the underside of the scanner faces you.

2. Locate the release lever on the underside of the scanner.

3. Slide the release lever out from the scanner until the bottom of the release lever is even with the scanner body and you feel a click.

Release Lever / To Unlock

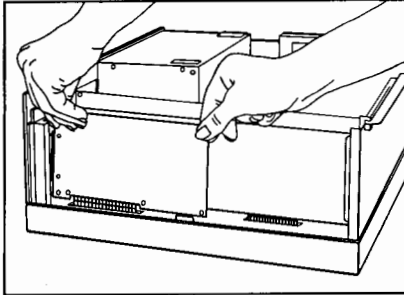4. Return the scanner to a level position.

Installing the Software

1. Insert the ScanJet Plus Installation Disk into drive A.

2. Type **A:** Press **Enter**

3. Type **SJSETUP**

4. Follow the instructions on the screen. If you need help, refer to the Software Installation Help booklet in the front of the manual binder.
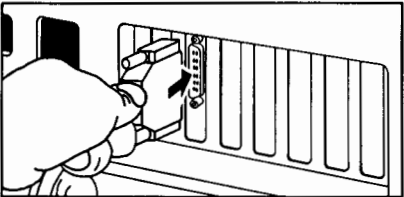
Installing the Interface Card

1. Turn off your computer.

2. Unplug the computer system power cords from the electrical outlets.

3. Remove the interface card from its protective antistatic bag.

4. Remove the plastic cover from the switches.

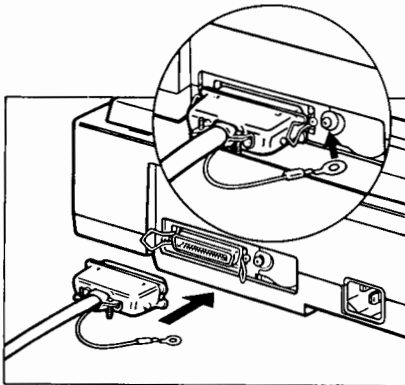5. Set the switches to the positions suggested for your system in the installation program.

Scanners

HP Set-up

6. Insert the HP 88295A interface card into an empty expansion slot in your HP Vectra. Press the card down firmly.

7. Attach the smaller end of the interface cable to the connector on the scanner interface card.

8. Tighten the screws on the cable.

9. Attach the other end of the interface cable to the connector on the back of the scanner by pushing the wire loop connectors into the holders on the interface cable.

10. Remove the screw located to the right of the scanner connector, insert the screw into the loop end of the ground wire, and replace the screw in the scanner.

Testing Your Installation

1. Attach the power cord to the scanner.

2. Plug the scanner power cord into an electrical outlet.

3. Turn on the scanner's rear power switch. The power indicator on the front side of the scanner should be lit.

4. Turn on your computer system.

5. Type: **CD \ SCANGAL**

6. Type: **WIN**

7. Double-click on **SCANTEST.EXE**

8. Follow the instructions on the screen. For more information about running Scantest, refer to chapter 2 of the *ScanJet Plus User's Guide.*

HP ScanJet Plus Desktop Scanner and the IBM XT/AT PC

Set-up Instructions

These instructions show how to set up the HP ScanJet Plus desktop scanner so that it can communicate with the IBM XT/AT personal computer.

Typical Configuration

Computer Equipment
- IBM XT/AT with 512 Kbyte memory and MS®-DOS, version 3.1 or above, Microsoft® Windows, version 2.1
- Flexible Disk Drive
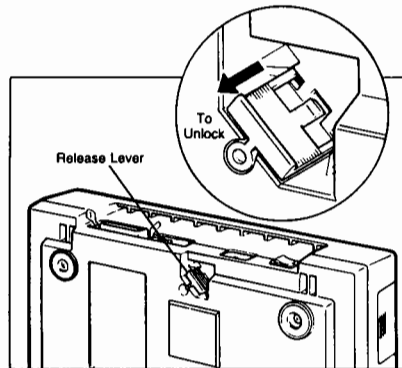- Hard Disk Drive with at least 20 Mbyte of memory

Scanner Equipment
- HP 9195A ScanJet Plus desktop scanner
- HP 88295A ScanJet Plus Interface Kit (includes: interface card, interface cable, Scantest software, HP Scanning Gallery Plus software, manual)

Connection Instructions

Unlocking the Scanner

1. Tilt the scanner on end so that the underside of the scanner faces you.

2. Locate the release lever on the underside of the scanner.

3. Slide the release lever out from the scanner until the bottom of the release lever is even with the scanner body and you feel a click.

4. Return the scanner to a level position.

Installing the Software

1. Insert the ScanJet Plus Installation Disk into drive A.

2. Type **A:** Press **Enter**

3. Type **SJSETUP**

4. Follow the instructions on the screen. If you need help, refer to the Software Installation Help booklet in the front of the manual binder.

Installing the Interface Card

1. Turn off your computer.

2. Unplug the computer system power cords from the electrical outlets.

3. Remove the interface card from its protective antistatic bag.

4. Remove the plastic cover from the switches.

5. Set the switches to the positions suggested for your system in the installation program.

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6. Insert the HP 88295A interface card into an empty expansion slot in your computer. Press the card down firmly.

7. Attach the smaller end of the interface cable to the connector on the scanner interface card.

8. Tighten the screws on the cable.

9. Attach the other end of the interface cable to the connector on the back of the scanner by pushing the wire loop connectors into the holders on the interface cable.

10. Remove the screw located to the right of the scanner connector, insert the screw into the loop end of the ground wire, and replace the screw in the scanner.
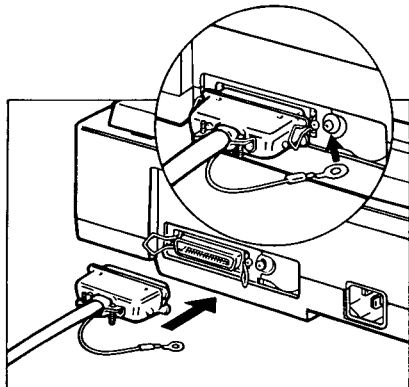
Testing Your Installation

1. Attach the power cord to the scanner.

2. Plug the scanner power cord into an electrical outlet.

3. Turn on the scanner's rear power switch. The power indicator on the front side of the scanner should be lit.

4. Turn on your computer system.

5. Type: **CD \ SCANGAL**

6. Type: **WIN**

7. Double-click on **SCANTEST.EXE**

8. Follow the instructions on the screen. For more information about running Scantest, refer to chapter 2 of the *ScanJet Plus User's Guide.*

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HP ScanJet Plus Desktop Scanner and the IBM PS/2

Set-up Instructions

These instructions show how to set up the HP ScanJet Plus desktop scanner so that it can communicate with the IBM PS/2.

Typical Configuration

Computer Equipment
- IBM PS/2 Model 50, 60, 70, 80 with 640 Kbyte memory and MS®-DOS, version 3.1 or above, Microsoft® Windows, version 2.1
- Flexible Disk Drive
- Hard Disk Drive with at least 20 Mbyte of memory

Scanner Equipment
- HP 9195A ScanJet Plus desktop scanner
- HP 88495A ScanJet Plus Interface Kit (includes: adapter card, interface card, interface cable, Scantest software, HP Scanning Gallery Plus software, manual)

Connection Instructions

Unlocking the Scanner
1. Tilt the scanner on end so that the underside of the scanner faces you.

2. Locate the release lever on the underside of the scanner.

3. Slide the release lever out from the scanner until the bottom of the release lever is even with the scanner body and you feel a click.

4. Return the scanner to a level position.

Installing the Software
1. Insert the ScanJet Plus Installation Disk into drive A.

2. Type **A:** Press **Enter**

3. Type **SJSETUP**

4. Follow the instructions on the screen. If you need help, refer to the Software Installation Help booklet in the front of the manual binder.

Installing the Adapter
1. Turn off your computer.

2. Unplug the computer system power cords from the electrical outlets.

3. Remove the adapter card from its protective antistatic bag.

4. Insert the HP 88495A adapter card into an empty expansion slot in your computer. Press the card down firmly.

Scanners

IBM Set-up
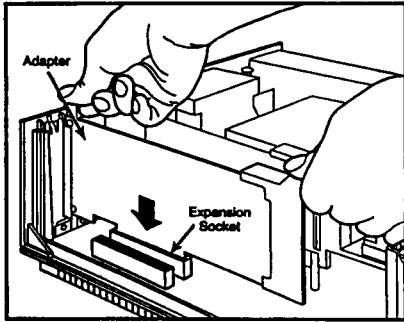
5. Attach the smaller end of the interface cable to the connector on the scanner adapter card.
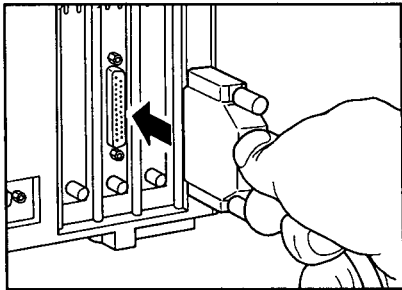
6. Tighten the screws on the cable.

7. Attach the other end of the interface cable to the connector on the back of the scanner by pushing the wire loop connectors into the holders on the interface cable.

8. Remove the screw located to the right of the scanner connector, insert the screw into the loop end of the ground wire, and replace the screw in the scanner.

Reconfiguring Your System

1. Attach the power cord to the scanner.

2. Plug the scanner power cord into an electrical outlet.

3. Turn on the scanner's rear power switch. The power indicator on the front side of the scanner should be lit.

4. Insert your *backup copy* of the IBM PS/2 Reference Diskette in drive A.

5. Turn on your computer system. If "Adapter Configuration Error" or 00165 appears in the screen title, the system is working correctly. If not, refer to chapter 2 of the *ScanJet Plus User's Guide.*

6. Reconfigure the system by following the step-by-step instructions on the screen. Remember to remove the backup Reference Diskette from drive A.

Testing Your Installation

1. Type: **CD \ SCANGAL**

2. Type: **WIN**

3. Double-click on **SCANTEST.EXE**

4. Follow the instructions on the screen. For more information about running Scantest, refer to chapter 2 of the *ScanJet Plus User's Guide.*

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HP ScanJet Plus Desktop Scanner and the Apple Macintosh Plus/SE/II Computers

Set-up Instructions

These instructions show how to set up the HP ScanJet Plus desktop scanner so that it can communicate with the Apple Macintosh Plus/SE/II computers.

Typical Configuration

Computer Equipment
- Macintosh Plus/SE/II
- 20 Mbyte hard disk drive

Scanner Equipment
- HP 9195A ScanJet Plus desktop scanner
- HP 88395A Macintosh Interface Kit (includes: interface converter box, power supply, interface cable, cable terminator, software, and manual)

Connection Instructions

Unlocking the Scanner
1. Tilt the scanner on end so that the underside of the scanner faces you.

2. Locate the release lever on the underside of the scanner.

3. Slide the release lever out from the scanner until the bottom of the release lever is even with the scanner body and you feel a click.
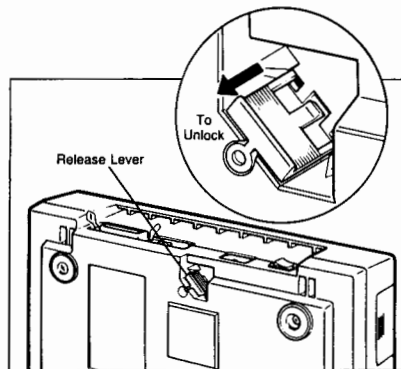
4. Return the scanner to a level position.

Installing the Software
1. Copy the Desk Gallery Plus Program and Utilities disks to a folder on the hard disk.

2. Copy DeskScan Help and DeskPaint Help files to the system folder.

3. Install Desk Gallery Plus software using Font/DA Mover.

4. Click on the ScanJet Switch icon to find which SCSI priority setting is available. Set priority switch on the interface converter box to the position indicated by SCSI switch.
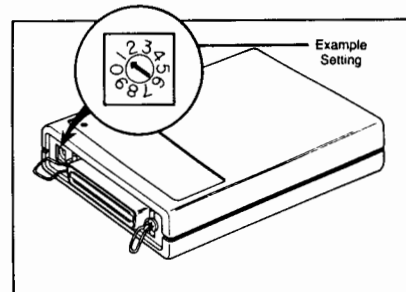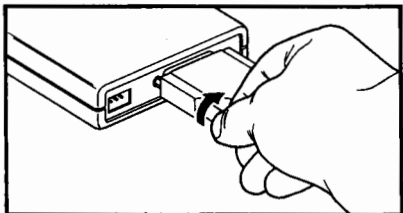
### Connecting ScanJet Plus to Macintosh

1. Turn off your computer.

2. Unplug the computer system power cords from the electrical outlets.

3. Attach the end of the parallel interface cable that has a ground wire to the ScanJet Plus scanner. Attach the ground wire as shown.
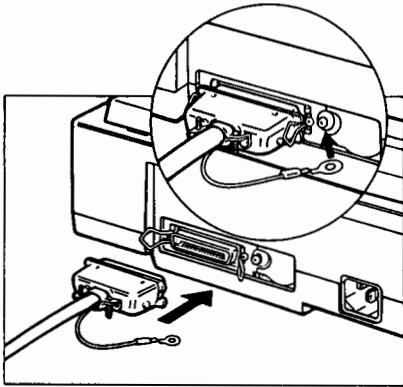
4. Connect the other end of the parallel interface cable to the interface converter box.


5. Connect the power supply by pushing the right-angle connector onto the rear of the converter box as shown. Do not plug the power supply into an AC outlet yet.
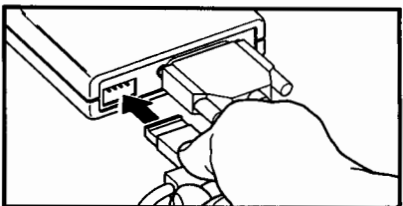
6. Attach the cable terminator to the interface converter box as shown. Remember these rules for terminators:

   a. No more than two terminators on a SCSI chain.

   b. Terminators connect to first and last devices in the chain.

   c. A terminator is built into an internal hard disk.
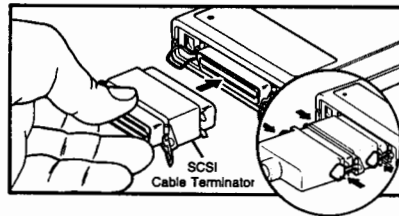
7. Connect the interface converter box to the system as shown. (See the interface kit box label for cabling requirements.)
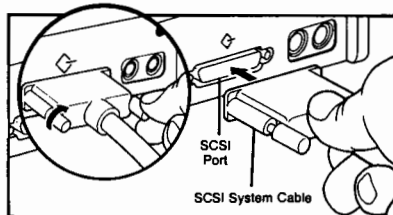
Connecting a SCSI System Cable
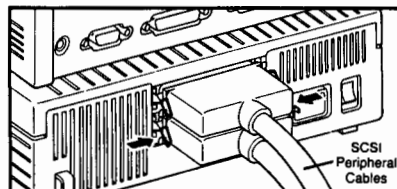
Connecting a SCSI Peripheral Cable

Testing Your Installation

1. Plug the scanner and the power supply for the interface converter box into an AC outlet. Turn on the computer, scanner, and all connected peripheral devices.

2. Click on the Scanner Test icon to test the scanner.

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