Model Number and Description

HP DeskJet 870C Printer
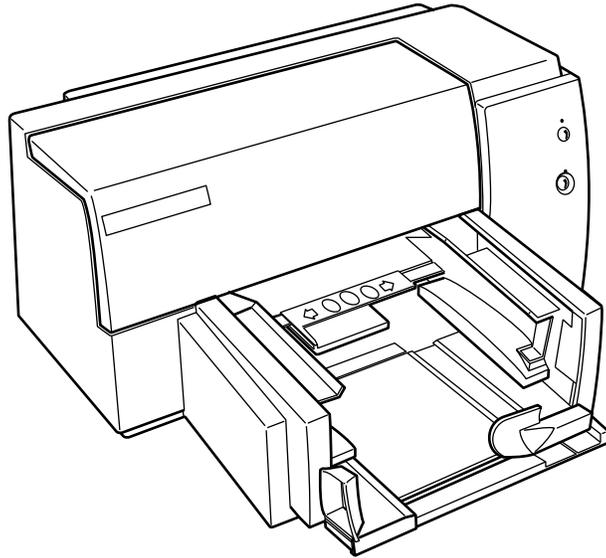
Printer Name	Model Numbers	Availability	Description
HP DeskJet 870Cse Printer	C4565A	U.S. only	Fast black and color personal printer for professionals. Printer may be locally shared, or network connected.
HP DeskJet 870Cxi Printer	C4555A	Worldwide	Fast black and color personal printer for professionals. Printer may be locally shared, or network connected.

Front View

Access Door

Resume Button & Light

Print Cartridge Latches

Print Cartridge Cradles

Single Sheet Feeder

IN Tray

Paper Width Adjuster

Paper Length Adjuster

Power Button & Light
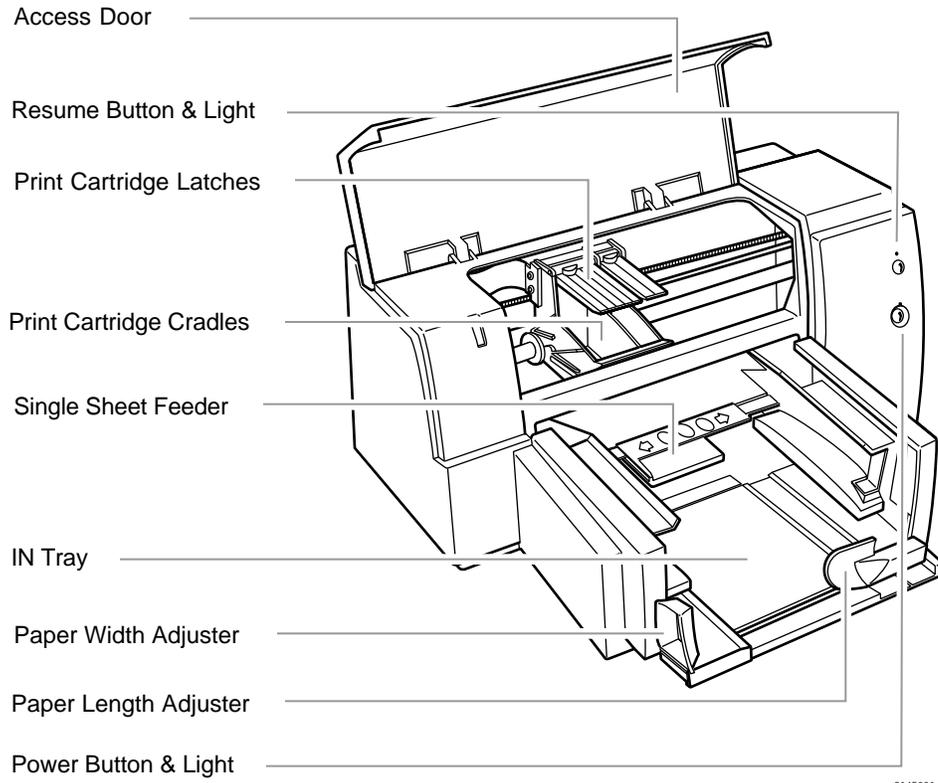
2145001

Rear View

IEEE-1284 Interface Port (MS DOS/Windows)

2145896
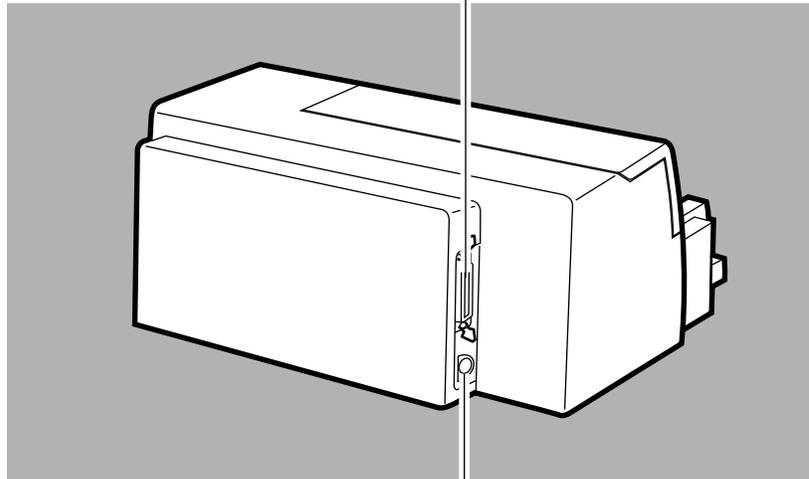
Macintosh Interface Port

| **Note** | When looking at the rear, the power plug is on the left side of the printer. |

Ordering Printer Options

Localized Printer Options (HP DeskJet 870Cxi)

Region or Country	Manual Language	Printer Option Number	Power Cable	Manual Kit	Printer Software Kit
Argentina	Spanish	C4555A AC8	8120-6175	C4565-60047	PC: C4565-60022 MAC: C4565-60003
Asia Pacific/ U.K. cord	Int'l English	C4555A ARS	8120-6173	C4565-60040	PC: C4565-60002 MAC: C4565-60003
Australia	English	C4555A ABG	8120-6175	C4565-60040	PC: C4565-60002 MAC: C4565-60003
Brazil	Portu-guese	C4555A AC4	8120-6836	C4565-60045	PC: C4565-60020 MAC: C4565-60003
Canada	Int'l English and French	C4555A A2L	8120-6836	C4565-60040 C4565-60034	PC: C4565-60002 MAC: C4565-60003 PC: C4565-60012 MAC: C4565-60025
Caribbean	Int'l English	ARV	8120-6174	C4565-60040	PC: C4565-60002 MAC: C4565-60003
Czech. Republic	Czecho-slovakian	C4555A AKB	8120-6174	C4565-60030	PC: C4565-60008 MAC: C4565-60003
Denmark	Danish	C4555A ABY	8120-6178	C4565-60031	PC: C4565-60009 MAC: C4565-60003
Europe	Int'l English	C4555A ABB	8120-6174	C4565-60040	PC: C4565-60002 MAC: C4565-60003
Europe	French	C4555A ACS	8120-6174	C4565-60034	PC: C4565-60012 MAC: C4565-60025
Europe	German	C4555A ACT	8120-6174	C4565-60035	PC: C4565-60013 MAC: C4565-60026
Europe	Dutch	C4555A ACU	8120-6174	C4565-60032	PC: C4565-60010 MAC: C4565-60003
Europe	Italian	C4555A ARP	8120-6174	C4565-60041	PC: C4565-60016 MAC: C4565-60003
Finland	Finnish	C4555A ABX	8120-6174	C4565-60033	PC: C4565-60011 MAC: C4565-60003
Greece	Greek	C4555A AB7	8120-6174	C4565-60036	PC: C4565-60052 MAC: C4565-60003

Localized Printer Options (HP DeskJet 870Cxi) (Cont.)

Region or Country	Manual Language	Printer Option Number	Power Cable	Manual Kit	Printer Software Kit
Hong Kong	Int'l English	C4555A AB5	8120-6173	C4565-60040	PC: C4565-60002 MAC: C4565-60003
Hungary	Hungarian	C4555A AKC	8120-6174	C4565-60038	PC: C4565-60014 MAC: C4565-60003
India	Int'l English	C4555A ACJ	8120-6180	C4565-60040	PC: C4565-60002 MAC: C4565-60003
Israel	Hebrew	C4555A ABT	8120-6181	C4565-60037	PC: C4565-60052 MAC: C4565-60003
Jordan, Lebanon, N. Africa	Arabic	C4555A ARW	8120-6174	C4565-60029	PC: C4565-60052 MAC: C4565-60003
Latin America	Spanish	C4555A ABM	8120-6836	C4565-60047	PC: C4565-60022 MAC: C4565-60003
Latin America	English	C4555A ACH	8120-6836	C4565-60004	PC: C4565-60002 MAC: C4565-60003
Middle East	Arabic	C4555A ARU	8120-6173	C4565-60029	PC: C4565-60052 MAC: C4565-60003
North Asia	Int'l English	C4555A ART	8120-6174	C4565-60040	PC: C4565-60002 MAC: C4565-60003
Norway	Norwegian	C4555A ABN	8120-6174	C4565-60043	PC: C4565-60018 MAC: C4565-60003
Philippines	Int'l English	C4555A A2K	8120-6836	C4565-60040	PC: C4565-60002 MAC: C4565-60003
Poland	Polish	C4555A AKD	8120-6174	C4565-60044	PC: C4565-60019 MAC: C4565-60003
Portugal	Portuguese	C4555A AB9	8120-6174	C4565-60045	PC: C4565-60020 MAC: C4565-60003
Russia	Cyrillic	C4555A ACB	8120-6174	C4565-60046	PC: C4565-60021 MAC: C4565-60003
Russia	Int'l English	C4555A AR3	8120-6174	C4565-60040	PC: C4565-60052 MAC: C4565-60003
Saudi Arabia	Arabic	C4555A ARG	8120-6836	C4565-60029	PC: C4565-60052 MAC: C4565-60003
Singapore	Int'l English	C4555A AB4	8120-6173	C4565-60040	PC: C4565-60002 MAC: C4565-60003

Localized Printer Options (HP DeskJet 870Cxi) (Cont.)

Region or Country	Manual Language	Printer Option Number	Power Cable	Manual Kit	Printer Software Kit
South Africa	Int'l English	C4555A ACQ	8120-6180	C4565-60040	PC: C4565-60002 MAC: C4565-60003
South America	Spanish	C4555A AKV	8120-6174	C4565-60047	PC: C4565-60022 MAC: C4565-60003
Spain	Spanish	C4555A ABE	8120-6174	C4565-60047	PC: C4565-60022 MAC: C4565-60003
Swedish	Swedish	C4555A ABS	8120-6174	C4565-60048	PC: C4565-60023 MAC: C4565-60003
Switzerland	German	C4555A ABP	8120-6179	C4565-60035	PC: C4565-60013 MAC: C4565-60026
Switzerland	French	C4555A ABQ	8120-6179	C4565-60034	PC: C4565-60012 MAC: C4565-60025
Switzerland	Int'l English	C4555A ACD	8120-6179	C4565-60040	PC: C4565-60002 MAC: C4565-60003
Switzerland	Italian	C4555A ACN	8120-6179	C4565-60041	PC: C4565-60016 MAC: C4565-60003
Thailand	Thai	C4555A AB3	8120-6174	C4565-60049	PC: C4565-60002 MAC: C4565-60003
Turkey	Turkish	C4555A AB8	8120-6174	C4565-60051	PC: C4565-60002 MAC: C4565-60003
U.K.	Int'l English	C4555A ABU	8120-6173	C4565-60040	PC: C4565-60002 MAC: C4565-60003
United States	U.S. English	C4555A ABA	8120-6836	C4565-60004	PC: C4565-60002 MAC: C4565-60003

Localized Printer Options (HP DeskJet 870Cse)

Region or Country	Manual Language	Printer Option Number	Power Cable	Manual Kit	Printer Software Kit
U.S.	U.S. English	C4565A ABA	8120-6177	C4565-60004	PC: C4565-60002 MAC: C4565-60003

Available Power Cords

Power Cord Region or Country	HP Reorder Number
U.S.A., Canada, Mexico, Korea, Taiwan	8120-6836
Europe (except U.K.)	8120-6174
U.K.	8120-6173
South Africa, India	8120-6180
Australia, New Zealand, mainland China	8120-6175
Switzerland	8120-6179
Denmark	8120-6178

Available User's Guide Kits

User's Guide Kit Name	HP Reorder Number
U.S. English User's Guide Kit	C4564-60004
Int'l English User's Guide Kit	C4564-60040
Arabic User's Guide Kit	C4564-60029
Simplified Chinese User's Guide Kit	C4564-60053
Traditional Chinese User's Guide Kit	C4564-60050
Czechoslovakian User's Guide Kit	C4564-60030
Danish User's Guide Kit	C4564-60031
Dutch User's Guide Kit	C4564-60032
Finnish User's Guide Kit	C4564-60033
French User's Guide Kit	C4564-60034
German User's Guide Kit	C4564-60035
Greek User's Guide Kit	C4564-60036
Hebrew User's Guide Kit	C4564-60037
Hungarian User's Guide Kit	C4564-60038
Italian User's Guide Kit	C4564-60041
Japanese User's Guide Kit	C4564-60042
Norwegian User's Guide Kit	C4564-60043
Polish User's Guide Kit	C4564-60044
Portuguese User's Guide Kit	C4564-60045
Russian User's Guide Kit	C4564-60046
Spanish User's Guide Kit	C4564-60047
Swedish User's Guide Kit	C4564-60048
Thai User's Guide Kit	C4564-60049
Turkish User's Guide Kit	C4564-60051

Items Included

HP DeskJet 870Cxi

- HP DeskJet 870Cse printer with power cord (see "Localized Printer Options" for details)
- User's Guide Kit (see "Localized Printer Options" for details)
- Printer driver software for MS Windows and Macintosh (diskettes) (see "Localized Printer Options" for details)
- One black and one color print cartridge
- Ready, Set, Create Print Kit (See below)

HP DeskJet 870Cse

- HP DeskJet 870Cxi printer with power cord (see "Localized Printer Options" for details)
- User's Guide and DOS Printing Guide (see "Localized Printer Options" for details)
- Printer software (diskettes) (see "Localized Printer Options" for details)
- One black and one color print cartridge
- From Start to Business Print Kit (See below)

Ready, Set, Create Print Kit

- CD-ROM with 648 templates designed for internal business communications (memos, reports, analyses, presentations)
- How-to guide for effective business communications
- Media samples: 5 transparencies, 5 sheets of premium inkjet paper, 20 sheets of bright white inkjet paper

From Start to Business Print Kit

- CD-ROM with 660 templates designed for internal business communications (letterhead, proposals, flyers/brochures, business cards, etc.)
- How-to guide for effective business communications and creating a positive business image
- Media samples: 10 sheets of premium inkjet paper, 30 sheets of bright white inkjet paper

Fonts Included

Note   HP FontSmart for MS Windows (included with your printer's software) displays each font's appearance, and allows you to add or remove fonts from your font list as you need them.

Scaleable TrueType fonts for MS Windows

Albertus	Corsiva	Nadianne Bold
Albertus Extra Bold	Courier	Old English
Antique Olive	Garamond	CG Omega
Antique Olive Compact	Gill Sans	Ozzie Black
Arial	Gill Sans Light	Party
Arial Narrow	Gill Sans Light	CG Poster Bodini
Arial Black	Gill Sans Condensed	Pompeii Capitals
PL Benguiat Frisky	Gill Sans Extra Bold	Signet Roundhand
Bertram	Gloworm	Sorts
Bodoni	CG Goudy Oldstyle	Strider
Bodoni Black	CG Goudy Oldstyle Extra Bold	Symbol
Book Antiqua	Graphite Light	Theatre Antione
ITC Bookman Old Style	Graphos	CG Times
Century Gothic	Letter Gothic	Times New Roman
Century Schoolbook	Lucida Casual	Univers
Challenge Extra Bold	Lucida Casual Italic	Univers Condensed
Clarendon	Marigold	Univers Light Condensed
Clarendon Condensed Bold	Metrostyle	Univers Extended
Clarendon Extra Bold	Metrostyle Extended	Wingdings
Coronet	Milestones	

Scaleable TrueType fonts for Macintosh

Arial Black	ITC Bookman Bold	New Century Schoolbook
Arial Narrow	ITC Bookman Bold Italic	New Century Schoolbook Bold
Arial Narrow Italic	Cooper Black	New Century Schoolbook Bold Italic
ITC Avant Garde	Dom Casual	Phyllis
ITC Avant Garde Bold	Graphite Light	CG Poster Bodini
PL Benguiat Frisky	Graphite Light Narrow	Signet Roundhand
Bernhard Modern	Lucida Casual	ITC Zapf Chancery
ITC Bookman	Lucida Casual Italic	ITC Zapf Dingbats
ITC Bookman Italic	Milestones	

Internal Fonts

All fonts included with the HP DeskJet 870C series printers are scalable fonts. These fonts are available in portrait and landscape orientation. There are no bitmapped fonts installed in the printer.

Internal Fonts (Scalable)	Technology	Treatment
Arial	Intellifont (TT)	Text, Bold, Italic, Bold Italic
CG Times	Convergent	Roman, Bold, Italic, Bold Italic
Courier	Intellifont	Roman, Bold, Italic, Bold Italic
Letter Gothic	Intellifont	Roman, Bold, Italic, Bold Italic
Symbol	TrueType	Symbol
Times New Roman	Convergent	Text, Bold, Italic, Bold Italic
Univers	Intellifont	Text, Bold, Italic, Bold Italic
Wingdings	TrueType	Symbol

Symbol Sets

- PC-8
- PC-8 Danish/Norwegian
- United Kingdom (ISO 4)
- Italian (ISO 15)
- PC-870 Multilingual
- Legal
- Windows Latin 2
- PC-850

- HP Roman-8
- PC-8 Turkish
- French (ISO 69)
- Spanish (17)
- PC-852 Latin 2
- Windows Latin 1
- Windows Latin 5
- PC-852

- Danish/Norwegian (ISO 60)
- ANSI/ASCII (ISO 6)
- German (ISO 21)
- Swedish (ISO 11)
- ECMA-94 Latin 1 (8859/1)
- ECMA-94 Latin 2 (8859/2)
- ECMA-128 Latin 5 (8859/5)

Part Numbers

Item	Description	Part Number
Interface Cables	DOS/MS Windows HP IEEE-1284 Parallel Interface Cable (2 meter length)	C2950A
	DOS/MS Windows HP IEEE-1284 Parallel Interface Cable (3 meter length)	C2951A
	Macintosh RS-422 Serial Cable	92215S
	Macintosh AppleTalk Network Cable	92215N
	HP Centronics Parallel Interface Cable	C2912B or HP24542D
Print Cartridges	Black Inkjet Print Cartridge	51645A
	Color Inkjet Print Cartridge	51641A
Media	Premium Transparency Film (U.S. letter, 50 sheets)	C3834A
	Premium Transparency Film (U.S. letter, 20 sheets)	C3828A
	Premium Transparency Film (European A4, 50 sheets)	C3835A
	Premium Transparency Film (European A4, 20 sheets)	C3832A
	Premium Glossy Paper (U.S. letter, 50 sheets)	C3836A
	Premium Glossy Paper (U.S. letter, 10 sheets)	C3833A
	Premium Glossy Paper (European A4, 50 sheets)	C3837A
	Premium Glossy Paper (European A4, 10 sheets)	C3831A
	Premium InkJet Paper (U.S. letter, 200 sheets)	51634Y
	Premium InkJet Paper (European A4, 200 sheets)	51634Z
Accessories	HP PrinterPal Accessory	C2970A
	HP SupportPack	Contact your local dealer

User Replaceable Components

Access Door (Top Cover) Assembly
(C4555-67903 or C4565-67903)

Base Foot Assembly (4 ea.)
(C2128-40063) (Shown below
printer)

I/O Tray Assembly (C4555-67902)

Service Station Assembly (C2145-67904)

2145898
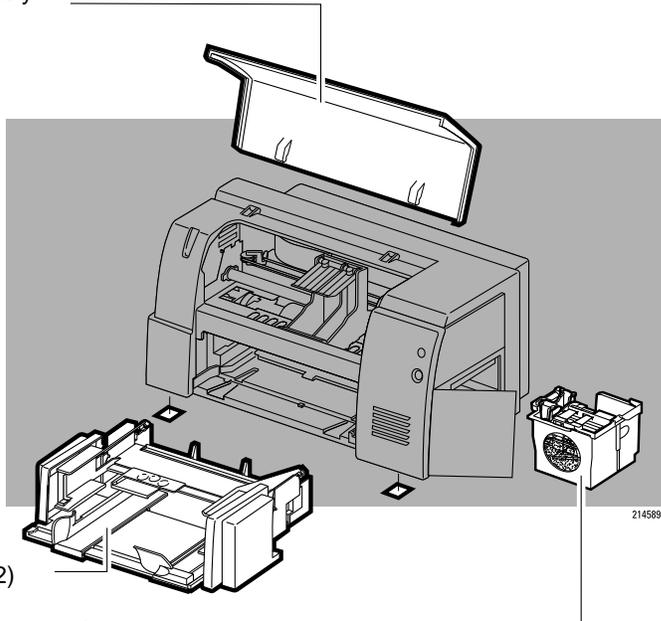
Host/System Requirements

DOS

- DOS version 3.3 or later
- 80286 (or faster) processor
- At least 2 MB of RAM to print in black or at least 4 MB of RAM to print in color

MS Windows 3.x

- 80386 (or faster) processor
- At least 2 MB of RAM to print in black or at least 4 MB of RAM to print in color
- 10 - 20 MB free hard disk space

MS Windows 95

- 80386 (or faster) processor
- At least 8 MB of RAM
- 10 - 20 MB free hard disk space

Macintosh

Minimum System Requirements

- Macintosh system software version 7.1
- 68030/33 MHz with at least 4 MB of system memory
- Power PC with at least 8 MB of system memory
- At least 7.5 MB free hard disk space (1.5 MB for the printer drivers and 6.0 MB for the optional fonts). If you have less than 7.5 MB of free disk space, your software may not install properly.

Recommended System Requirements

- Macintosh system software version 7.5 or later
- Power PC with at least 16 MB of system memory
- At least 7.5 MB free hard disk space

Driver Installation

For the printer to operate properly, an HP DeskJet 870C printer driver must be installed in your computer. Refer to "Printer Driver Information/Installing the Printer Driver" for more detailed information.

Interface Specifications

HP DeskJet 870C series printers have two interface connectors to support both DOS and Macintosh computers. The 36-pin Centronics style connector is used with DOS/MS Windows based computers. The 8-pin mini-circular DIN connector is used with Macintosh computers.

Note that only one connector can be active at a time. At power-up, the first connector that senses active incoming data will be the dedicated I/O port. The other connector will remain inactive.

Category	DOS I/O Connector	Macintosh I/O Connector
Communication Modes Available	Compatible (Centronics parallel, IEEE 1284 compliant with 1284-B receptacle) Nibble Byte Extended Capabilities Port (ECP)	RS-422 Serial (57.6 Kbaud) AppleTalk (230.4 Kbaud) High-Speed Externally-Clocked Serial Mode
Supported Macintosh Protocols		Serial Pacing Protocol (SPP) AppleTalk Transaction Protocol (ATP) AppleTalk Link Access Protocol (ALAP) Datagram Delivery Protocol (DDP) Echo Protocol (EP) Name Binding Protocol (NBP) Printer Access Protocol (PAP) Routing Table Maintenance Protocol (RTMP)

Compatible (standard Centronics) is the default communication mode

Printer Memory

Category	Specification
Built-In ROM	2 MB
Built-In RAM	0.5 MB
Receive Buffer	32 Kbytes

Product Performance Specifications

HP DeskJet 870C series printers print a true 600 DPI dot size. In the Normal mode, 300x300 data is sent which the printer REts to 600x600. This happens very quickly because the conversion uses a hard-coded table to convert to 600x600 rather than an on-the-fly algorithm.

In the Best mode, 600x600 data is sent to the printer and used directly. Although somewhat slower than the Normal mode, this approach produces the highest quality.

In either case, internal fonts are stored as outlines which are rendered directly to 600x600 or 300x300 depending upon print mode.

Print Speed

Print Mode	Black Text Print Speed[1]	Color Print Speed[1]
Best	4 ppm	1.0 ppm
Normal	7 ppm	2.0 ppm
EconoFast	8.0 ppm	4 ppm

1. Approximate figures. Exact speed will vary depending on the system configuration, software program, and document complexity.

Print Modes

Print Mode	Plain Paper	HP Premium	Glossy Paper	Transparency
EconoFast	300 x 300 1 Pass Color 1 Pass Black	N/A	N/A	N/A
Normal[1]	300x300 Black (REt to 600x600) 300x300 Color (with CREt) 2 Pass Color 1 Pass Black	300x300 Black (REt to 600x600) 300x300 Color (with CREt) 4 Pass Color 3 Pass Black	300x300 Black (REt to 600x600) 300x300 Color (with CREt) 4 Pass Color 3 Pass Black	300x300 Black (REt to 600x600) 300x300 Color (with CREt) 4 Pass Color 3 Pass Black
Best	600 x 600 Black 600 x 300 Color (with CREt) 4 Pass Color 3 Pass Black	600 x 600 Black 600 x 300 Color (with CREt) 8 Pass Color 4 Pass Black	600 x 600 Black 600 x 300 Color (with CREt) 8 Pass Color 4 Pass Black	600 x 600 Black 600 x 300 Color (with CREt) 8 Pass Color 4 Pass Black

1. In the Normal mode, a special Text/Lines mode is supported that optimizes performance and quality when only text and lines are present on the page. The printer uses this mode on a page-by-page basis if the following are true:

- All text (of any color) is less than 24 pt.

- All lines (of any color) are less than 4 pt. (including framed objects)

- There are no more than 75 lines on the page

- Only lines and text occur on the page.

DOS Graphics Resolution

- 75 dpi
- 150 dpi
- 300 dpi

Paper Handling

Category	Specification
Paper Grain	Long Grain Only
Paper Weight	16 to 36 lb (60 to 135 g/m^2)
Envelope Weight	20 to 24 lb (75to 90 g/m^2)
Card Stock Weight	110 lb Maximum, 8.5 pt Maximum Thickness (110 to 200 g/m^2)
IN Tray Capacity	150 Sheets of 20 lb Paper
Envelope Feeder Capacity	Up to 15 Envelopes
OUT Tray Paper Capacity	Up to 50 Sheets of 20 lb Paper
OUT Tray Envelope Capacity	Up to 15
Single Sheet Capacity	1 Sheet at a Time
Card Stock Capacity	Up to 30 Cards
Label Capacity	Up to 25 Sheets

Supported Media/Sizes

Media	English Size	Metric Size
U.S. Letter	8 1/2 in. x 11 in.	215.9 mm x 279.4 mm
U.S. Legal	8 1/2 in. x 14 in.	215.9 mm x 355.6 mm
U.S. Executive	7 1/4 in. x 10 1/2 in.	184.1 mm x 266.7 mm
ISO & JIS A4	8.27 in. x 11.69 in.	210 mm x 297 mm
ISO & JIS A5	5.85 in. x 8.27 in.	148.5 mm x 210 mm
JIS B5	7.17 in. x 10.12 in.	182 mm x 257 mm
U.S. No. 10 Envelope	4 1/8 in. x 9 1/2 in.	104.8 mm x 241.3 mm
International DL Envelope	4.33 in. x 8.66 in.	110 mm x 220 mm
International C6 Envelope	4.49 in. x 6.38 in.	114 mm x 162 mm
U.S. Size Card Stock	4 in. x 6 in.	101.6 mm x 152.4 mm
U.S. Size Card Stock	5 in. x 8 in.	127 mm x 203.2 mm
ISO & JIS A6 Postcard	4.13 in. x 5.85 in.	105 mm x 148.5 mm
Japanese Hagaki Postcard	3.94 in. x 5.83 in.	100 mm x 148 mm
Custom Minimum Size	3.94 in. x 5.83 in.	100 mm x 148 mm
Custom Maximum Size	8.5 in. x 14 in.	216 mm x 356 mm
U.S. Transparency	8 1/2 in. x 11 in.	215.9 mm x 279.4 mm
European Transparency	8.27 in. x 11.69 in.	210 mm x 297 mm
U.S. glossy	8 1/2 in. x 11 in.	215.9 mm x 279.4 mm
European A4 glossy	8.27 in. x 11.69 in.	210 mm x 297 mm
Special U.S.	8 1/2 in. x 11 in.	215.9 mm x 279.4 mm
Special A4	8.27 in. x 11.69 in.	210 mm x 297 mm
U.S. labels	8 1/2 in. x 11 in.	215.9 mm x 279.4 mm
European labels	8.27 in. x 11.69 in.	210 mm x 297 mm

Printable Areas

U.S. Paper

U.S. Executive
7.25" x 10.5"

U.S. Letter
8.5" x 11"
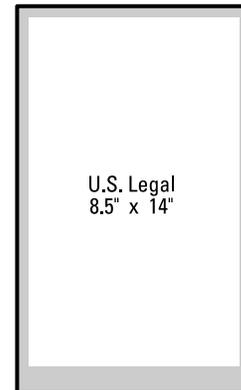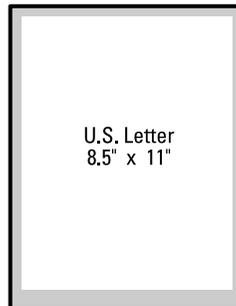
U.S. Legal
8.5" x 14"

2162985

Supported Media

Media	Media Size	Printable Area
U.S. Letter	8.5 in. X 11 in. (215.9 mm X 279.4 mm)	8.0 in. X 10.50 in. (203.2 mm X 266.7 mm)
U.S. Legal	8.5 in. X 14 in. (215.9 mm X 355.6 mm)	8.0 in. X 13.50 in. (203.2 mm X 342.9 mm)
U.S. Executive	7.25 in. X 10.5 in. (184.1 mm X 266.7 mm)	6.75 in. X 10.00 in. (172.5 mm X 254.0 mm)

Margins (Portrait Orientation)

Media	Top	Bottom	Left	Right
U.S. Letter	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.25 in. (6.3 mm)	0.25 in. (6.3 mm)
U.S. Legal	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.25 in. (6.3 mm)	0.25 in. (6.3 mm)
U.S. Executive	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.25 in. (6.3 mm)	0.25 in. (6.3 mm)

A4, A5, B5 Paper

A4
210mm x 297mm

A5
148mm x 210mm

B5
182mm x 257mm
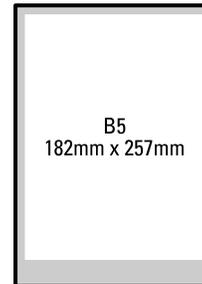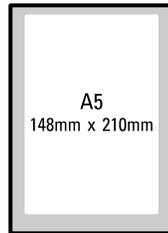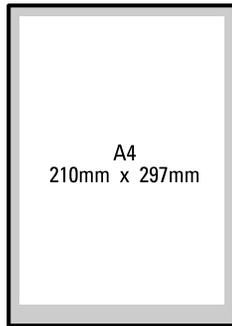
2162987

Supported Media

Media	Media Size	Printable Area
ISO & JIS A4	8.27 in. X 11.69 in. (210mm X 297 mm)	8.0 in. X 11.19 in. (203.2 mm X 284.3 mm)
ISO & JIS A5	5.83 in. X 8.27 in. (148mm X 210 mm)	5.57 in. X 7.77 in. (141.6 mm X 197.3 mm)
JIS B5	7.17 in. X 10.12 in. (182 mm X 257mm)	6.91 in. X 9.62 in. (175.6 mm X 244.3 mm)

Margins (Portrait Orientation)

Media	Top	Bottom	Left	Right
ISO & JIS A4	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.13 in. (3.44 mm)	0.13 in. (3.44 mm)
ISO & JIS A5	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.13 in. (3.44 mm)	0.13 in. (3.44 mm)
JIS B5	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.13 in. (3.44 mm)	0.13 in. (3.44 mm)

Card Stock

| U.S. Card 4" x 6" | U.S. Card 5" x 8" | A6 Card 105mm x 148mm | Japanese Hagaki Postcard 100mm x 148mm |

2162988

Supported Media

Media	Media Size	Printable Area
U.S. Card Stock	4 in. X 6 in. (101.6 mm X 152.4mm	3.75 in. X5.50 in. 95.3 mm X 139.7 mm)
U.S. Card Stock	5 in. X 8 in. (127.0 mm X 203.2 mm)	4.75 in. 7.50 in. (120.7 mm X 190.5 mm)
ISO & JIS A6 Cards	4.13 in. X 5.83 in. (105 mm X 148 mm)	3.88 in. X 5.34 in. (98.6 mm X 135.3 mm)
Japanese Hagaki Postcard	3.94 in. X 5.85 in. (100 mm X 148.5 mm)	3.69 in. X 5.33 in. (93.6 mm X 135.3 mm)

Margins (Portrait Orientation)

Media	Top	Bottom	Left	Right
U.S. Card Stock	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.125 in. (3.2 mm)	0.125 in. (3.2 mm)
U.S. Card Stock	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.125 in. (3.2 mm)	0.125 in. (3.2 mm)
ISO & JIS A6 Cards	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.125 in. (3.2 mm)	0.125 in. (3.2 mm)
Japanese Hagaki Postcard	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.125 in. (3.2 mm)	0.125 in. (3.2 mm)

Envelopes

| #10 Envelope 9.5" x 4.125" | DL Envelope 220mm x 110mm | C6 Envelope 162mm x 114mm |
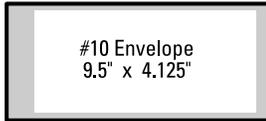
2162986

Supported Media

Media	Media Size	Printable Area
No. 10 Envelope	4.125 in. X 9.5 in. (104.8 mm X 241.3 mm)	3.88 in. X 8.59 in. (98.4mm X 218.3 mm)
International DL Envelope	4.33 in. X 8.66 in. (110 mm X 220 mm)	4.08 in. X 7.76 in. (103.6 mm X 197.0 mm)
International C6 Envelope	4.49 in. X 6.38 in. (114 mm X 162 mm)	4.24 in. X 5.47 in. (107.6 mm X 139.0 mm)

Margins (Portrait Orientation)

Media	Top	Bottom	Left	Right
No. 10 Envelope	0.125 in. (3.2 mm)	0.125 in. (3.2 mm)	0.87 in. (22.0 mm)	0.04 in. (1.0 mm)
International DL Envelope	0.125 in. (3.2 mm)	0.125 in. (3.2 mm)	0.87 in. (22.0 mm)	0.04 in. (1.0 mm)
International C6 Envelope	0.125 in. (3.2 mm)	0.125 in. (3.2 mm)	0.87 in. (22.0 mm)	0.04 in. (1.0 mm)

Note   The bottom margin is the left side (return address side) of the envelope.

Custom Page

Minimum Page Size		Margins			
Width	Length	Top	Bottom	Left	Right
3.94 in. (100 mm)	5.83 in. (148mm)	0.04 in. (1.0 mm)	0.46 in. (11.7 mm)	0.13 in. (3.44 mm)	0.13 in. (3.44 mm)

Physical Specifications
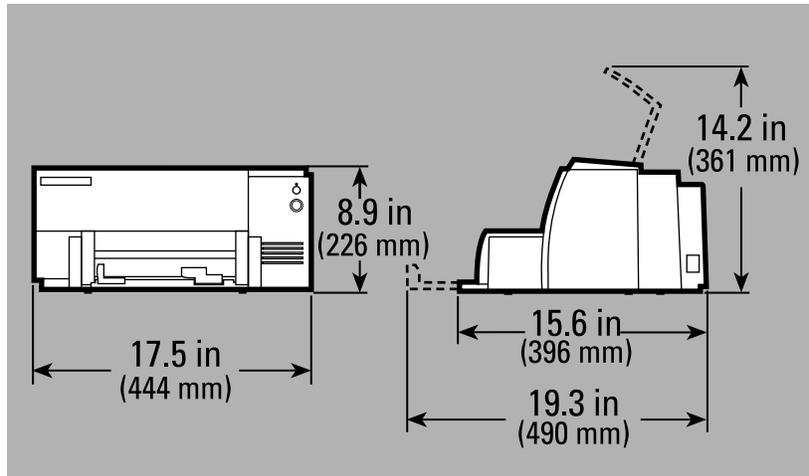
Weight: 6.5 kg (14.3 lb.)

Electrical Specifications

Category	Specification
Input Voltage	100 VAC-240 VAC ± 10%
Frequency	50/60 Hz ± 3 Hz
Power consumption	0.5 Watts (Off) 5.25 Watts (non-printing) 48 Watts Maximum (Printing)

Environmental Specifications

Attributes	Specification
Operating temperature	5 C to 4 C (41 F to 104 F)
Optimum temperature	15 C to 35 C (59 F to 95 F)
Storage temperature	-40 C to 60 C (-40 F to140 F)
Operating humidity (noncondensing)	20% to 80% relative humidity, maximum wet bulb 35 C (95 F)
Storage humidity (noncondensing)	15% to 80% relative humidity, maximum wet bulb 60 C (140 F)
Noise Levels ISO 9296[1] Sound Power, L_{wAd}: Sound Pressure, L_{pAm}:	**Best Mode** **EconoFast Mode** 6.3 B(A) 6.5 B(A) 50 dB(A) 53 dB(A)

1. Bystander position

Optimal Operating Conditions

2145894

Safety and EMI Specifications

Category	Specification
Safety Certifications	UL, CSA, TUV, NOM
EMI Certifications	FCC Part 15, Class B, when used with a Class B computing device (USA), EMC Directive 89/336/EEC (European Community), VCCI Class 2 (Japan)

Reliability Specifications

Category	Specification
Printer usage rate	1,000 Pages per Month (Black) 160 Pages per Month (Color)
Mean time between failures (MTBF)	20,000 hours (2,000 hours Power On and 12,000 Printed Pages per Year)
Mechanism life	60,000 Pages

Packaging Specifications
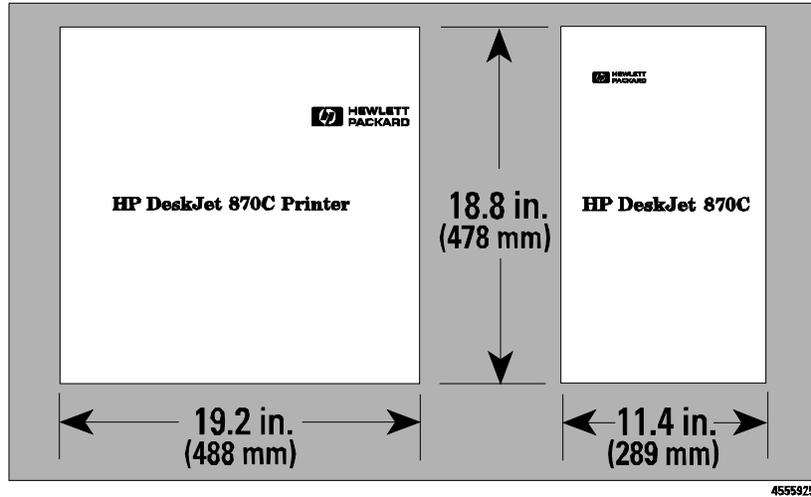
Weight: 8.432 kg (18.59 lb.)

General Refilling Policy

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

Hewlett-Packard does not support the refilling of print cartridges. Hewlett-Packard cannot guarantee the print quality from refilled print cartridges. *Attempting to refill the high-capacity print cartridge may result in a sudden loss of ink from the print cartridge.* Printer damage caused by refilling high-capacity black ink or color ink print cartridges is not covered by the Hewlett-Packard warranty or customer service agreements.

Part Numbers

Part Number	Description
51641A	Color Inkjet Print Cartridge (Cyan, Magenta, and Yellow Inks)
51645A	High Capacity Inkjet Print Cartridge (Black)

Print Cartridge Specifications

Specification	Hewlett-Packard Print Cartridges
Type	Plain paper drop-on-demand Thermal InkJet printing
Ink Base 51645A (Black) 51641A (Color)	Pigment Based Ink Dye Based Ink
Print Cartridge Life 51645A (Black)[1] 51641A (Color)[2]	840 Pages at 5% Density 460 Pages at 15% Density
Typical Usable Ink 51645A (Black) 51641A (Color)	41 ml 16 ml per Chamber
Number of Nozzles 51645A (Black) 51641A (Color)	300 Nozzles 192 Nozzles (64 per Color)
Pen Speed 51645A (Black) 51641A (Color)	12 kHz 6 kHz
Shelf Life	18 Months
Vertical Resolution	300 dpi

1. The 51645A print cartridge life is based on an 8 in. x 10 in. printable area with a 5% printing density.

2. The 51641A print cartridge life is based on an 8 in. x 10 in. printable area with a 15% printing density. The printing consists of 10% composite black and 15% of the following colors: cyan, magenta, yellow, green, red and blue.

Thermal Inkjet Technology

The HP DeskJet printer family uses Thermal InkJet II (TIJ II) technology. This technology centers on a disposable print cartridge which propels ink out of 300 nozzles (192 nozzles on the color print cartridge). The basic principle of TIJ II is to apply heat to a tiny measure of ink until it expands and is propelled through a nozzle.

This is achieved by first filling a small reservoir, known as the firing chamber, with ink. The next step is to heat the ink with a thin-film resistor layered above the firing chamber. As the ink heats up, it expands to form a bubble. As the bubble continues to expand and burst, it is forced through the nozzle located below the firing chamber.

This process is repeated up to 12,000 times per second and creates residual heat in the resistor which must be removed. A layer of silicon placed above the resistor transfers the residual heat from the resistor.

Print Cartridge Safety

If ink is accidentally ingested, contact the HP Health Line
1 (800) 457-4209 in North America. From all other international
locations the HP Health Line can be reached by calling
1 (503) 494-7199. For health related issues, this line is staffed
24 hours per day.

Material Safety Data Sheet (MSDS)

A Material Safety Data Sheet (MSDS) is available for the print cartridges. The MSDS includes product identification, characteristics of the ink, and precautions for handling and use. You can request a MSDS at the following address:

>   Hewlett-Packard Customer Information Center
>   Department MSDS
>   19310 Pruneridge Avenue
>   Cupertino, CA 95014
>   Mailstop 49AS
>
>   Telephone 1 (800) 752-0900
>   Ask for Department MSDS (6:00 AM to 5:00 PM Pacific Time)

The Material Safety Data Sheet is also available from the following sources:

- HP forums of electronic bulletin board services
- HP FIRST
- Customer Support Centers

Refer to "Service and Support/Resources" for access to the above resources.

Maintaining Print Cartridges

The printer automatically performs operations of spitting, wiping, and capping of the print cartridge nozzles to maintain optimum print quality. These operations occur transparently to the user.

Proper use and handling will provide optimum print quality and print cartridge life.

Note   See "Print Cartridge Information/Maintenance and Troubleshooting" for more print cartridge troubleshooting information.

Print Cartridge Tips

Print Cartridge Dos and Don'ts

Do:	Don't:
Keep print cartridges sealed in their packaging until ready for use. (The print cartridges have a longer life sealed in the packaging than in the printer or the print cartridge storage container.)	Do not use print cartridges after the expiration date. See "Print Cartridge Information/ Maintenance and Troubleshooting".
Keep opened print cartridges in the printer.	Do not unplug the printer without turning the power off from the power button. Pressing the power button caps the print cartridge in the service station, keeping the ink from drying in the print cartridge nozzles.
If the printout is missing dots or white lines appear to run through the printout, refer to "Troubleshooting Information/Print Quality Problems/Missing Dots".	Do not allow the print cartridge contacts and nozzles to touch any surface or object, including your fingers. Skin oil and dust can cause print quality problems.
Store print cartridges at room temperature.	Do not install a print cartridge that has crusting of dried ink around the print cartridge nozzles. Discard it and install a new print cartridge.
Press the Power button to turn off the printer rather than unplugging the printer.	

Note   On the HP DeskJet 850 Printer, opening the access door automatically moves the print cartridge to the center of the mechanism for easy access.

Modifying or Refilling Print Cartridges

See "Print Cartridge Information/General/Refilling Policy".

Identifying the Expiration Date

Print quality problems may be caused by print cartridges that have passed their expiration date. The print cartridge expiration date is 18 months after the date of manufacture.

## Methods for Identifying Print Cartridge Expiration Dates

Method 1 - Read the Date on the Box

If the print cartridge is in a box, read the "Use Before" date printed on the box.

JUN 1998

USE BEFORE JUNE 1998

USE BEFORE JUNE 1998
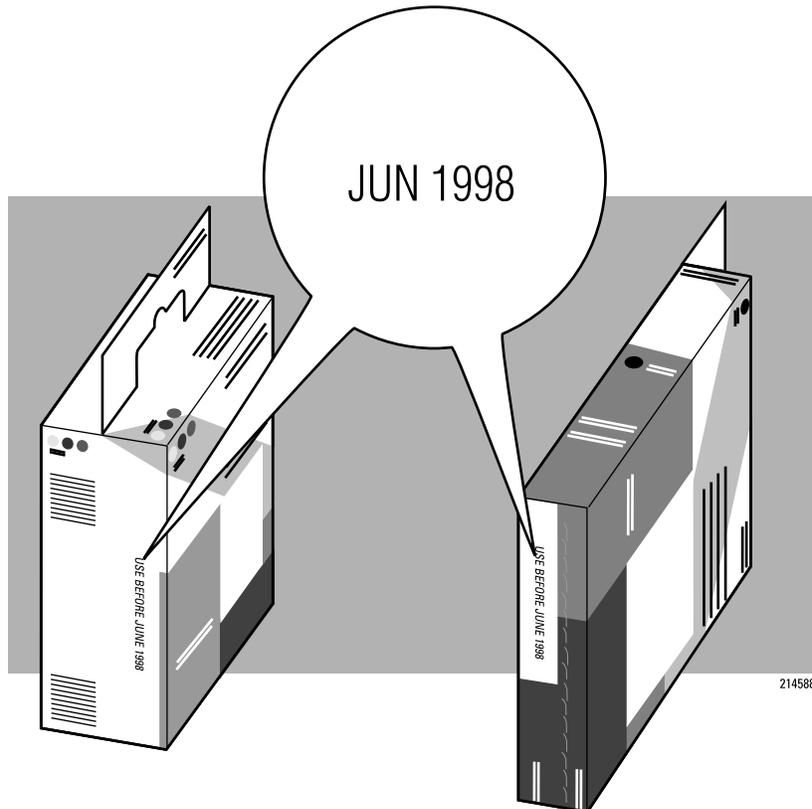
2145889

Method 2 - Read the Code on the Print Cartridge

1. Determine the manufacturing date from the code printed on the print cartridge.

YEAR
MONTH
DAY
X 30328
XXXXX

YEAR
MONTH
DAY
94OCT20XX

XXXX 41116
XXXXXX XX

94 OCT 20 XX XX

2145893

51641A (Color)

51645A (Black)
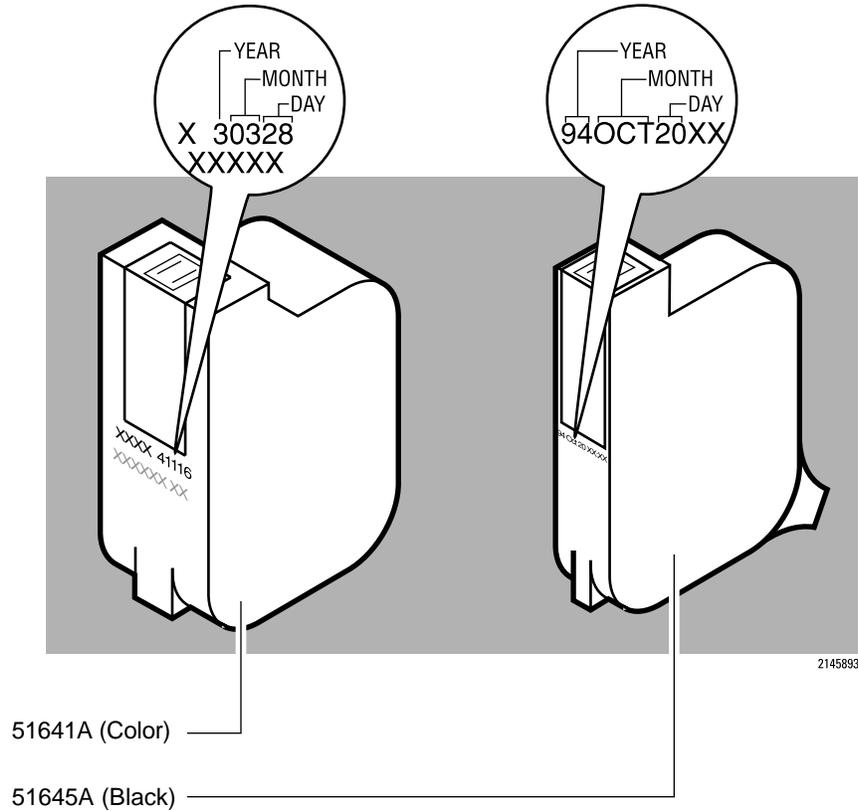
2. Replace the print cartridge if it is more than 18 months after the manufacturing date code.

Note   Ink can evaporate through the nozzles, reducing the print cartridge life. Therefore, keep print cartridges in their sealed container or capped by the service station at the right end of the mechanism.

Use a FIFO (First In, First Out) inventory control process to avoid having print cartridges longer than the print cartridge shelf-life specification.

Short Print Cartridge Life

There are several causes for a short print cartridge life. The information below identifies the average print cartridge life and possible causes for a reduction to this cartridge life.

Print Cartridge Life Specifications

Print Cartridge	Part Number	5% Density	15% Density	Sealed in its Container (Shelf Life)
Black	51645A	840 Pages		18 Months
Color	51641A		560 Pages	18 Months

1. The 51645A print cartridge life is based on an 8 in. x 10 in. printable area with a 5% printing density.
2. The 51641A print cartridge life is based on an 8 in. x 10 in. printable area with a 15% printing density. The printing consists of 10% composite black and 15% of the following colors: cyan, magenta, yellow, green, red and blue.

Possible Causes for Short Print Cartridge Life

Cause	Reason
Higher coverage rate than listed in the specifications	The rate of coverage on the page significantly impacts the number of pages per print cartridge. Heavy concentrations of ink and higher print quality settings significantly reduce the number of pages per print cartridge.
Pages contain graphics	Generally, graphics use ink at a much higher rate than text. If possible, print drafts of documents without the graphics.
Selected print mode	Higher quality print modes use more ink than a draft print mode. To maximize print cartridge life, print drafts of documents in EconoFast mode, then print the final copies in Best mode.
Print cartridge past its expiration date	Replace the print cartridge. Use a FIFO (First In-First Out) inventory process to minimize having a stock of expired print cartridges.

Possible Causes for Short Print Cartridge Life (Cont.)

Cause	Reason
Printer unplugged with the print cartridge out of its home position	A service station is located at the right end of the mechanism. This service station caps the print cartridge nozzles to minimize ink drying in the nozzles. Turning off the printer caps the print cartridge and returns it to the service station. Always allow the print cartridge to return to the home position by pressing the Power button rather than unplugging the printer.
Print cartridge may need to be restored	Run the print cartridge cleaning routine. If print quality is not restored after a page of printing, replace the print cartridge.
Excessive use of the print cartridge cleaning routine	The process of restoring print cartridges by running the cleaning routine uses ink. Avoid excessive use of the cleaning routine.
Print cartridge stored outside of the printer	Open print cartridges must be stored in the printer.
Refilled print cartridge	Hewlett-Packard does not recommend or guarantee the print quality or life from the refilling of print cartridges. Replace the print cartridge with a new print cartridge.
Print cartridge prematurely removed from its sealed container	The print cartridge has a longer life sealed in its packaging than in the printer or the print cartridge storage container. Keep print cartridges sealed in their packaging until needed. Then, install the print cartridge promptly into the printer.
Incorrect estimate of pages printed with the print cartridge	It is very easy to underestimate the number of pages printed. When counting pages per cartridge, be sure to count drafts that are thrown away.
Faulty print cartridge	Replace the print cartridge. If there becomes a pattern of faulty print cartridges, the printer may be causing the print cartridges to fail. In this case, return the printer for repair and indicate the history of the faulty print cartridges.
Printer hardware problem	The service station may be faulty, or the printer may be damaging the print cartridges. If the problem recurs with the printer, return the printer for repair and indicate the history of the faulty print cartridges.
Short color print cartridge life	Most of the causes for short black print cartridge life also apply to the color print cartridge. Review the other possible causes in this table.

Print Cartridge Cleaning Routine

If rows of dots are missing on printouts, try cleaning the print cartridge by using the print cartridge cleaning routine in the printer. Refer to "Troubleshooting Information/Printer Diagnostic Information/Print Cartridge Cleaning".

Clearing Clogged Nozzles

If rows of dots are missing, if the print cartridge contains ink, and if the print cartridge cleaning procedure did not solve the problem, the print cartridge may have clogged nozzles. Replace the print cartridge.

Printout Missing Dots

Horizontal rows of dots missing on printouts may be the result of a connection problem between the printer carriage contacts and the print cartridge contacts. For information about solving missing dot problems, refer to "Troubleshooting Information/Print Quality Problems/Missing Dots".

Print Quality Problems

Refer to "Troubleshooting Information/Print Quality Problems/Misc. Print Quality Problems".

Media Part Numbers

The following are general guidelines for the selection and loading of paper and media in HP DeskJet and DeskWriter printers. For information about your specific printer, refer to "User's Guide/Printable Area and Paper Handling."

HP Media Part Numbers

Product Name	Description	Dimensions	Package Size	Part Number
HP Premium Inkjet Paper (Not for use with photo pen)	U.S. Letter/A-size coated paper for premium DeskJet printing	216 x 279 mm (8.5 x 11 in)	200 sheets	51634Y
HP Premium Inkjet Papern (Not for use with photo pen)	European/A4-size coated paper for premium DeskJet printing	210 x 297 mm	200 sheets	51634Z
HP Premium Transparency Film	U.S. Letter/A-size transparency film for presentation-quality overheads	216 x 279 mm (8.5 x 11 in)	20 sheets	C3828A
HP Premium Transparency Film	European/A4-size transparency film for presentation-quality overheads	210 x 297 mm	20 sheets	C3832A
HP Premium Transparency Film	U.S. Letter/A-size transparency film for presentation-quality overheads	216 x 279 mm (8.5 x 11 in)	50 sheets	C3834A
HP Premium Transparency Film	European/A4-size transparency film for presentation-quality overheads	210 x 297 mm	50 sheets	C3835A
HP Premium Glossy Paper	U.S. Letter/A-size glossy paper	216 x 279 mm (8.5 x 11 in)	10 sheets	C3833A
HP Premium Glossy Paper	European/A4-size glossy paper	210 x 297 mm	10 sheets	C3831A
HP Premium Glossy Paper	U.S. Letter/A-size glossy paper	216 x 279 mm (8.5 x 11 in)	50 sheets	C3836A
HP Premium Glossy Paper	European/A4-size glossy paper	210 x 297 mm	50 sheets	C3837A
HP Greeting Card Paper	A-size paper and matching envelope for Quarter fold cards	216 x 279 mm (8.5 x 11 in)	20 ea	C1812A

HP Media Part Numbers (Cont.)

Product Name	Description	Dimensions	Sheets per Pack	Part Number
HP Bright White InkJet Paper	U.S. Letter/A-size treated paper great for two-sided printing	216 x 279 mm (8.5 x 11 in)	500 sheets	C1824A
HP Bright White InkJet Paper	European/A4-size treated paper great for two-sided printing	210 x 297 mm	500 sheets	C1825A
HP Banner Paper[1]	U.S. Letter/A-size Z-Fold, both-side printable	216 x 279 mm (8.5 x 11 in)	100 sheets	C1820A
HP Banner Paper[1]	European/A4, Z-fold, both-side printable	210 x 297 mm	100 sheets	C1821A
HP Photo Paper[2]	U.S. Letter/A-size glossy paper great for photos	216 x 279 mm (8.5 x 11 in)	20 sheets	C1846A
HP Photo Paper[2]	European/A4-size glossy paper great for photos	210 x 297 mm	20 sheets	C1847A
HP Photo Paper Greeting Card (Available Spring '97)[2]	U.S. Letter/A-size glossy paper great for photos	216 x 148.5 mm (8.5 x 5.5 in)	20 sheets	C1848A
HP Photo Paper Greeting Card (Available Spring '97)[2]	European/A4-size glossy paper great for photos	210 x 297 mm	20 sheets	C1849A
HP Photo Paper Invite Card (Available Spring '97)[2]	Glossy paper and matching envelopes for half-fold Invite Card with two-sided printing	216 x 148.5 mm (8.5 x 5.5 in)	20 sheets	C1850A
HP Photo Paper Invite Card (Available Spring '97)[2]	Glossy paper and matching envelopes for half-fold Invite Card with two-sided printing	148 x 210 mm	20 sheets	C1851A

1. Verify through your User's Guide the applicability of using banner paper with your printer.

2. Verify through your User's Guide the applicability of using photo paper with your printer.

Selecting Paper Tips

Tips for Selecting and Using Paper

- For paper handling and printable area specifications, refer to "Product Information/Specifications."

- Always use paper that conforms to the product's specifications. Refer to "Product Information/Specifications."

- Most plain paper manufactured for photo-copying produces good results for most printing needs. However, cotton bond paper, HP Premium Inkjet Paper, and HP Premium Glossy Paper produce excellent printing results for special projects.

- Before you purchase large quantities of a certain type of paper, print on both sides of a few sheets to determine if it provides acceptable quality printing on its "print side." (See "Determining the Print Side of Media.")

- Be sure that your paper does not have tears, dust, wrinkles, or curled or bent edges.

Tips for Selecting and Using Envelopes

- Always use envelopes that conform to the product's Specifications. Refer to "Product Information/Specifications."

- Before you purchase large quantities of a certain type of envelope, first sample its ease of use with the printer to determine whether it's compatible.

- Use high quality envelopes that are thin and sharply creased.

- Do not use envelopes that are shiny or embossed or that have clasps or windows.

- Do not use envelopes with thick or crooked edges, or envelopes that are damaged, curled, wrinkled, or irregularly shaped.

Tips for Selecting and Using Transparencies and other Media

- Always use transparencies, index cards, postcards, and other media that conform to the product's Specifications. Refer to "Product Information/Specifications."

- For best results when printing on transparencies, use HP Premium Transparency Film.

- Do not use paper that is damaged, curled, or wrinkled.

- Do not use paper with cutouts or perforations.

- Do not use multiple-part forms.

- Do not use paper that is heavily textured or embossed.

Tips for Selecting and Using Labels

The following Hewlett-Packard printers support labels:

HP DeskJet 510	HP DeskWriter 510
HP DeskJet 520	HP DeskWriter 520
HP DeskJet 540	HP DeskWriter 540
HP DeskJet 550C	HP DeskWriter 550C
HP DeskJet 560C	HP DeskWriter 560C
HP DeskJet 600 Series	HP DeskWriter 600 Series
HP DeskJet 750C	
HP DeskJet 800 Series	

While label support is not officially recognized in the User's Guides, the printers listed above can successfully be used if the following guidelines are STRICTLY followed:

Caution   Failure to follow the suggestions below can permanently damage your printer.

The following are guidelines when using labels in HP DeskJet printers:

- Use only Avery paper labels that are specifically designed for use with HP inkjet printers. These labels are less likely to peel when inside the printer.

- Do not use plastic or clear labels. DeskJet inks are formulated for use with paper or specially treated plastic papers and will not dry properly when used with plastic or clear labels.

- Do not use ANY label material which is damaged, folded, curled, or wrinkled in any fashion. These conditions are frequent causes of jams caused by labels peeling inside the printer. Labels that have peeled inside the printer are difficult to remove and may necessitate returning the printer to HP for service.

- Do not use labels that are over two years old. Older label materials are more likely to peel inside the printer.

- Do not print on partially used sheets of label material. The varying thicknesses of material passing over the print rollers can cause label jams or print skew.

Observe the following guidelines when storing label materials:

- Always store label materials in the manufacturer's packaging until ready for use. The manufacturer's packaging protects the labels and adhesives from humidity extremes which could prematurely age the labels.

- Always store label materials out of direct sunlight.

- Keep label materials flat in the original packaging to help prevent premature aging, wrinkling or bending.

Tips for Selecting and Using Banner Paper

- For paper handling and printable area specifications, refer to "Product Information/Specifications."

- Always use paper that conforms to the product's specifications. Refer to "Product Information/Specifications."

- Most 20 lb Z-fold banner-type paper will produce good results for your banner printing needs. However, HP Premium Inkjet Banner Paper, will produce excellent printing results for all your banner printing projects.

- Before you purchase large quantities of a certain type of paper, print a few sheets to determine if it provides acceptable quality printing.

- Be sure that your paper does not have tears, dust, wrinkles, or curled or bent edges.

Tips for Selecting and Using HP Photo Paper with the HP Photo Cartridge

- Verify that the HP Photo Cartridge is intended for use in your printer. Refer to the "User's Guide" for your printer.

- Remove the black print cartridge and replace it with the HP Photo Cartridge. Refer to the "User's Guide" for your printer for instructions.

- Be certain that you have selected "Use HP Photo Cartridge" in the Page Setup box.

- Use HP Photo Paper (loaded glossy-side down) in your printer's IN tray, not HP Premium InkJet paper when you print photographs. Using HP Photo paper will ensure high-quality, fade-resistant images.

- For paper handling and printable area specifications, refer to the "User's Guide" for your printer.

- Before you purchase large quantities of a certain type of paper, print a few sheets to determine if the paper provides acceptable quality printing.

- Be sure that your paper does not have tears, dust, wrinkles, or is curled, or has bent edges.

- For best results with the HP Photo paper/HP Photo cartridge combination, scan your photographs at 100 or 150 dpi. If you scan them at a higher dpi, you won't improve the print quality, and your photographs will take longer to print.

- Printing in Best mode yields the most vivid colors. (If the slower printing speed is acceptable.)

Loading Paper Tips

General Tips for Loading Media Effectively

- To obtain the best print quality and avoid getting media jammed in the paper feed rollers, always use paper and other media that conform to the product's specifications. Refer to "Product Information/Specifications."

- Load only one media type at a time into the IN tray making sure the right edge of the media is aligned with the right edge of the IN tray.

- Insert all paper, cards, envelopes, labels, transparencies and banner paper print-side-down into the IN tray of the printer. (See "Determining the Print Side of Media.")

- Never load more than the recommended amount of media into the IN tray at one time.

- Always load index cards, postcards, and envelopes in portrait orientation (that is, where the paper is longer than wide when placed in the IN tray).

- Always use print settings in the printer driver that match the media type, size, and orientation.

- Before inserting a stack of media into the IN tray, always tap its edges on a flat surface to even it out.

Determining the Print Side of Media

Insert all paper, cards, envelopes, labels, transparencies and banner paper print-side down into the IN tray of the printer. Here are some tips for loading media print side down:

- For plain paper, load the side identified by the paper's packaging as the printside face down.

- For letterhead paper, load the letterhead side down and facing the back of the paper tray.

- For HP Premium Inkjet Paper, load face down the side identified on the packaging as the print side with the corner arrow facing the back of the paper tray.

- For HP Premium Glossy Paper, load the glossy side down.

- For index cards or postcards, load the side designed to be written upon face down.

- For envelopes, load the side you address face down

- For labels, load the paper side down (the slick side up).

- For HP Premium Transparency Film, load the rough side down with the sensing strip facing the back of the paper tray.

- For HP Premium Banner Paper, load face down the side identified on the packaging as the print side with the corner arrow facing the back of the paper tray.

Using the Single-Sheet Feeder

If your printer is equipped with a single-sheet feeder, the single-sheet feeder allows you to feed a single sheet of paper or other media into the printer without unloading the IN tray. The single-sheet feeder slides freely to the right and left to accommodate the width of the media you insert. Always use paper and other media that conform to the product's Specifications. Refer to "Product Information/Specifications."

Part Numbers

Part Numbers and Other Information

Power Cord Plug Type	Country or Region	Region's AC Voltage	HP Part Number
2121601	US, Canada, Mexico, Korea, Taiwan, Arabic Countries	120V	8120-6836
	Japan	100 V	8120-6176
2121602	Eastern and Western Europe, Jordan, Lebanon, North Africa, Russia	220V	8120-6174
2121603	UK	220V	8120-6173
2121604	Switzerland	220V	8120-6179
2121605	South Africa India	220V	8120-6180
2121606	Australia New Zealand Mainland China	220V	8120-6175
2121607	Denmark	220V	8120-6178
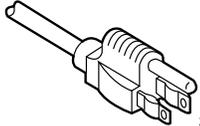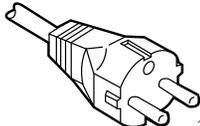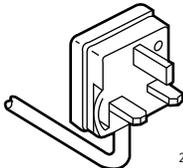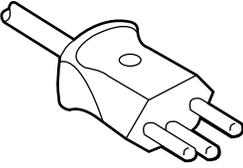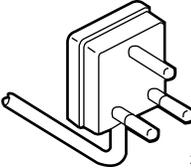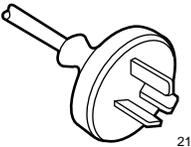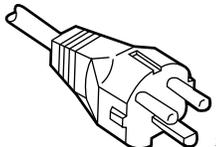
Warranty Information

The warranty for HP DeskJet/DeskWriter printers varies depending upon the product and the date and country of purchase.

For products returned under warranty, Hewlett-Packard may use one of the following options:

- Repair the product
- Replace the product with a re-manufactured unit
- Replace the product with a product of equal or greater functionality
- Refund the purchase price

Hewlett-Packard Limited Warranty Statement

HP Product	Duration of Limited Warranty (Unless otherwise stated in the printer's documentation)
Software	90 days
Print Cartridges	90 days
Printer and Peripheral Hardware	1 Year

Extent of Limited Warranty

1.   Hewlett-Packard (HP) warrants to the end user customer that HP products will be free from defects in materials and workmanship, for a specified time after the date of purchase by the customer. The duration of this limited warranty is stated above. Certain additional conditions and limitations of HP's warranty are stated in the user's guide. Those conditions and limitations include:

    a.   For software products, the warranty applies only to the media upon which the product is recorded; and

    b.   HP does not warrant the operation of any product to be uninterrupted or error free.

2.   HP's limited warranty covers only those defects which arise as a result of normal use of the product, and do not apply to any:

   a.   Improper or inadequate maintenance;

   b.   Software or interfacing not supplied by HP;

   c.   Unauthorized modification or misuse;

   d.   Operation outside the product's environmental specifications, including duty cycle abuse or use of a mechanical switchbox without a designated surge protector;

   e.   Use of non-supported printing media or memory boards; or

   f.   Improper site preparation or maintenance.

3.   For HP printer products, the use of a non-HP print cartridge or a refilled print cartridge does not affect either the warranty to the customer or any HP support contract with the customer; print cartridge includes both toner cartridges and ink cartridges. However, if printer failure or damage is attributable to the use of a non-HP or refilled print cartridge, HP will charge its standard time and materials charges to service the printer for the particular failure or damage.

4.   If any software media product or print cartridge product proves defective during the applicable warranty period, and if the product is covered by HP's warranty, the customer shall return the product for replacement.

5.   If HP receives, during the applicable warranty period, notice of a defect in a hardware product which is covered by HP's warranty, HP shall either repair or replace the product, at its option. Any replacement product may be either new or like-new, provided that it has functionality at least equal to that of the product being replaced.

6.   If HP is unable to repair or replace, as applicable, a defective product which is covered by HP's warranty, HP shall within a reasonable time after being notified of the defect, refund the purchase price for the product, provided the customer returns the product.

7.   Your warranty is valid in any country where this product is distributed by Hewlett-Packard. Contracts for additional services such as on-site service are available from any authorized HP service facility in countries where this product is distributed by HP or an authorized importer.

8.   This limited Warranty Statement gives the customer specific legal rights. The customer may also have other legal rights which vary from state to state in the United States, from province to province in Canada, and from country to country elsewhere in the world.

Limitations of Warranty

1.   NEITHER HP NOR ANY OF ITS THIRD PARTY SUPPLIERS MAKES ANY OTHER WARRANTY OF ANY KIND, WHETHER EXPRESS OR IMPLIED, WITH RESPECT TO HP PRODUCTS. HP AND ITS THIRD PARTY SUPPLIERS SPECIFICALLY DISCLAIM THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

2.   To the extent that this Limited Warranty Statement is inconsistent with the law of the locality where the customer uses the HP product, this Limited Warranty Statement shall be deemed modified to be consistent with such local law. Under such local law, certain limitations of this Limited Warranty Statement may not apply to the customer. For example, some states in the United States, as well as some governments outside the United States (including provinces in Canada), may:

   a.   Preclude the disclaimers and limitations in this Warranty Statement from limiting the statutory rights of a customer (e.g. Australia and the United Kingdom);

   b.   Otherwise restrict the ability of a manufacturer to make such disclaimers or impose such limitations; or

   c.   Grant the customer additional warranty rights, specify the duration of implied warranties which the manufacturer cannot disclaim, or not allow limitations on how long an implied warranty lasts.

3.   To the extent allowed by local law, the remedies provided in this Warranty Statement are the customer's sole and exclusive remedies.

Limitations of Liability

1.   EXCEPT FOR THE OBLIGATIONS SPECIFICALLY SET FORTH IN THIS WARRANTY STATEMENT, IN NO EVENT SHALL HP BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY AND WHETHER ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Obtaining Printer Drivers

Updates to the HP Printer Driver software occur periodically. New versions can be obtained from authorized Hewlett-Packard dealers or any of the sources listed below.

24-hour modem access

HP BBS Library

HP's electronic bulletin board library service is available 7 days a week, 24 hours a day for your convenient access to HP printer drivers and support information.

In the United States (for the following baud rates: 300, 1200, 2400, 4800, 9600, 14400), call (208) 344-1691.

In the United Kingdom (for baud rates up to 14400) call, 44 (1344) 361891.

World-wide (for the following baud rates: 300, 1200, 2400, 4800, 9600, 14400), call 1 (208) 344-1691.

Set your modem communications software to N,8,1.

CompuServe

Printer drivers and interactive sharing of technical information are available on CompuServe's HP Peripherals forum (GO HPPER).

To subscribe in the United States, call CompuServe, Inc., at (800) 524-3388 and ask for representative #51 (This service is not operated by Hewlett-Packard).

To subscribe in the United Kingdom, call toll-free (0800) 289378 or (614) 529-1349.

To subscribe world-wide, call (614) 529-1349.

Internet

Printer drivers and product support information can be obtained through the World-Wide Web as follows:
URL ttp://www.hp.com/home.html
or, www.hp.com/go/cposupport

Updated Printer Drivers by Mail

HP's Distribution Centers provide printer drivers and printer driver updates.

Worldwide Fulfillment Information

Driver Distribution	Languages Available	Telephone Orders	Fax Orders	Mail Orders
US and Canada	English French Spanish	970-339-7009 Mon - Sat, 24 Hours per day	970-330-7655	US Driver Fulfillment for Hewlett-Packard PO Box 1754 Greeley, CO 80623
UK (0) is used only when calling within the country	English - - 44 (0) 1429 865 511 French - - - 44 (0) 1429 863 343 German - - 44 (0) 1429 863 353 Spanish - - 44 (0) 1429 520 012 Italian - - - 44 (0) 1429 520 013 Mon - Fri, 8:30 am to 6 pm CET, (except Wed 8:30 am to 4 pm CET)		(Within UK) 0 1429 866 000 (Outside UK) 44 1429 866 000	European Fulfillment for Hewlett-Packard c/o Starpack International, Ltd. PO Box 63 Hartlepool Cleveland TS25 2YP United Kingdom
Asia Pacific (Singapore)	All localized languages	65 740 4477 Mon - Fri 8:30 am-5:30 pm Singapore time	65 740 4499 (24 hours a day - 7 days a week)	Fulfillment: Plus Pte Ltd. No. 51, Ubi Ave 3 Singapore 1440
Australia (Sidney)	All localized languages	612 565 6099 Mon - Fri 8:30 am-5:30 pm Australian Eastern Time	612 519 5631 (24 hours a day - 7 days a week)	Fulfillment: Plus Pty Ltd. Private Bag 75 Alexandria NSW Australia 2015

U.S. Service Support Contracts

HP Express Exchange Service

Hewlett-Packard offers an express exchange service to minimize product downtime. With HP Express Exchange Service, a replacement unit is available by 10:30 the next working day.

HP Express Exchange provides next day exchange service (same as HP SupportPack) but the fee is based on a per incident of repair rather than throughout the warranty period. This service does not need to be purchased within 30 days of the printer purchase date.

To order the HP Express Exchange Service, call toll-free at 800-835-4747; ask for ext. 524.

HP SupportPack

The HP SupportPack is an enhancement to the customer's original one-year warranty repair service. The HP SupportPack provides next day express exchange service (see above) for the duration of a three-year warranty period. This service enhancement provides customers with a cost-effective and timely way to achieve quality support. The HP SupportPack (ordered like any other HP product) is sold exclusively through resellers and is not available directly from Hewlett-Packard. Customers must purchase this service enhancement within 30 days of purchasing the printer. The HP SupportPack is not transferable from one piece of equipment Additional information on HP SupportPack and the prices for the service upgrade are available through HPNN and the In-Touch newsletter.

HP Customer Return Repair Service

If uptime is less critical, the HP Customer Return Repair Service provides maintenance service at the HP Customer Service Center located in Corvallis, Oregon. HP will repair the product within two working days from receipt and return via surface transportation.

To order the HP Customer Return Repair Service for customers with non-critical applications, call toll-free 800-835-4747; ask for ext. 524.

Non-U.S. Service Support Contracts

HP SupportPack

The HP SupportPack enhances the service offering during the warranty period by upgrading warranty repair service to a next day exchange service. This service enhancement provides customers with a cost-effective and timely way to achieve quality support. HP SupportPack is sold exclusively through resellers (ordered like any other HP product) and is not available directly from Hewlett-Packard. Additional information on HP SupportPack and the prices for the service upgrade is available through HPNN.

For other service and support contracts, contact the Hewlett-Packard office or Response Center for that country.

Returning a Printer for Service

In the USA

If a printer requires service, the customer can contact a service authorized reseller. The reseller should verify that the printer is in need of repair and contact the HP Corvallis Service Center. Sales authorized resellers should call (800) 544-9976 to arrange for repair. Service authorized resellers should call (503) 750-2035.

Customers can contact Hewlett-Packard directly by calling HP Customer Support Center at (208) 323-2551. They will verify that the printer is in need of repair and transfer the customer to the HP-Corvallis Repair Center. If packaging materials are needed, call the HP Resellers Response Line at (800) 544-9976.

Printer Return Instructions

If the printer needs to be shipped, be sure it is packed in a protective carton. Hewlett-Packard recommends that the original shipping container be saved for this purpose. In-transit damage is not covered by the warranty. It is suggested that shipments are always insured.

When either a customer or reseller calls HP to arrange for service, the HP Corvallis Service Center will dispatch a premium carrier to pick up the product at the reseller or customer location. The printer will be delivered to HP, at HP's expense, using second day delivery. The customer or reseller must still package the printer for shipment.

Once the printer is repaired, HP will ship it to the customer or reseller location using second day delivery.

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

Procedure:

1.   Follow the troubleshooting instructions in this manual to make certain the malfunction is in the printer and not the result of an interface error or a malfunction in the computer or software. If possible, identify the defective area or function.

2.   If you determine that repair is required, please provide the following with the printer when returning the printer for service:

   a.   Printout a copy of the "HP Printer Repair Sheet." (For information regarding printouts, see the note at the top of the HP Printer Repair Sheet.)

   b.   Determine the appropriate customer code from the Printer Repair Feedback Information section which follows.

   c.   Fill out the repair sheet. Include specific information, such as the configuration at the time of the malfunction, the type of interface cable, a description of the computer or host, and a description of the software application in use.

   d.   If purchased through a Hewlett-Packard reseller, include a copy of the sales slip or other proof of purchase to establish the warranty coverage period.

In the UK, France, Germany, Switzerland, Austria, Belgium, Norway, Sweden, Denmark, Finland, and the Netherlands

If a printer fails during the warranty period, the customer should do the following:

1.   Follow the troubleshooting procedures in this document or consult the HP FIRST facsimile assistance services.

2.   If the customer is still unable to determine the cause of the failure, the customer should contact their local reseller or the European Customer Support Center.

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

        If available for your country and language, phone numbers for HP FIRST and the European Customer Support Center are given in a separate document shipped with the printer. If additional information is needed, customers can call the reseller or the nearest HP Sales and Support Office.

If a printer fails after the warranty period:

1.   Follow the troubleshooting procedures in this document or the printer user's guide.

2.   If the customer is unable to determine the cause of the failure, the customer should contact their local reseller or the nearest HP Sales and Support Office for instructions on returning your printer for service and repair.

Elsewhere in the World

If a printer fails during or after the warranty period:

1.   Follow the troubleshooting procedures in this document or the printer user's guide.

2.   If the customer is unable to determine the cause of the failure, the customer should contact their local reseller or the nearest HP Sales and Support Office for instructions on returning your printer for service and repair.

Notes

- Operating accessories (such as, optional plug-in cartridges, print cartridges, and software) should not be included with the printer unless the problem relates to an accessory.

- In the U.S., the power module should not be included with the printer unless instructed otherwise.

- Outside of the U.S., the power module should be included when returning the printer for repair.

Service and Support Resources

HP Support Assistant (CD-ROM)

HP Support Assistant is an on-line tool providing technical information on a variety of Hewlett-Packard computers and peripheral products. This information is contained on a CD-ROM which is updated quarterly and mailed to you as part of the subscription. This system runs on any PC under MS Windows.

Obtaining HP Support Assistant CD-ROM

Country	Telephone Number	Fax Number	Mailing Address
U.S., Canada	1 (800) 457-1762 (24 Hours) 7 Days)	(317) 364-8888	Hewlett-Packard Company PO Box 4700 Crawfordsville, IN 47933 USA
Latin America	01 (317) 364-8882 (24 Hours) (7 Days)	(317) 364-8888	Hewlett-Packard Company PO Box 4700 Crawfordsville, IN 47933 USA
UK	1 (800) 457-1762 (24 Hours) (7 Days)	0-800-960-273	Hewlett-Packard Company PO Box 501 7300 AM Apeldoorn The Netherlands
Europe	31 (55) 384279 (9:00 - 6:00) (Monday - Friday)	31 (55) 434455	Hewlett-Packard Company PO Box 501 7300 AM Apeldoorn The Netherlands
Asia Pacific	65 740-4629 65 740-4477 (8:30 - 5:30) (Monday - Friday)	65 740-4617 65 740-4477	Hewlett-Packard Company Circuit Road PO Box 0131 Singapore 9137 Singapore

Hewlett-Packard News Network (HPNN)

HPNN is an electronic bulletin board service available only to HP authorized resellers. This service provides the following information:

- Presales Information
- Printer Drivers
- HP SupportPack Information
- Software Notes
- Postsales Information

For more information, call 1 (408) 553-7303.

HP Distribution Center

The HP Distribution Center has current printer drivers for Hewlett-Packard products. Call 1 (303) 339-7009 except Sundays.

HP Customer Information Center

The HP Customer Information Center provides presales product information. This service is available for resellers and end-user customers. Call 1 (800) 752-0900, Monday - Friday, 6:00 AM - 5:00 PM Pacific Time.

HP Reseller Response Line

The HP Reseller Response Line provides pre-sales and post-sales technical support for HP authorized resellers. Call 1 (800) 544-9976, Monday - Friday, 8:00 AM - 4:00 PM Pacific Time.

Ordering Supplies

Ordering Supplies

Country	Telephone Number
Austria	(1) 25000 536
Australia/New Zealand	(03) 895-2895
Belgium/Luxembourg	02-778 34 00
Canada (Except Toronto)	1 (800) 387-3154
Canada (Toronto)	(416) 671-8383
Community of Independent Sales	(095) 181 8002
Czech Republic	(2) 47 17 230
Denmark	4599 1000
Europe (East Central Headquarters)	(1) 25 000 0
Finland	(90) 887 21
France	Minitel 3616 HPMICRO, Rubrique 2: "Points de Vente" agréés
Germany	0180-53262-22
Greece	30-1-689 64 11
Hungary	(1) 142 09 86
Iceland	(1) 67 10 00
Israel	00972 3 53 80 380
Italy	02/9212 4378
Japan	(03) 331-6111
Latin America	(525) 326-40-00
Lebanon	009611 89 31 13
Norway	22 73 56 00
Poland	(22) 37 50 65
Portugal	(01) 301 7343
Slovenia	(61) 159 33 22
South Africa	002711 806 10 00
Spain	900 123 123
Sweden	(0) 8 750 2000
Switzerland	01 / 735 71 11
The Netherlands	020 - 547 6666
Tunisia	002161 28 01 44
Turkey	(0) 212 224 59 25
United Arabian Emirates	009714 37 75 91
United Kingdom	01344 369 369
U.S.	1 (800) 538-8787

HP BBS Library

The HP electronic bulletin board library service contains drivers and support information which can be downloaded to your PC via modem.

HP BBS Library

Country	Number	Baud Rate
Austria	+ 43 (222) 251658	2400, 4800, 9600, 14400, 19200, 28000, or ISDN
Belgium	+ 32 (2) 778-3819	1200, 2400, 4800, 9600, 14400
Denmark	+ 45 (45) 991905	300, 1200, 2400, 4800, 9600, 14400
Finland	(9600) 7280	2400, 4800, 9600, 14400
France	3616 HP MICRO	1200 to 14400 (Service Minitel)
Germany	*HP#	Datex J-BTX System
Italy	+ 39 (2) 9210-4244	Up to 14400
Netherlands	+ 31 (20) 647-5433	2400, 9600, 14400
Norway	+ 47 (2) 273-5697	2400, 4800, 9600, 14400, 19200
Sweden	+ 46 (8) 750-6262	2400, 4800, 9600, 14400
Switzerland	+ 41 (64) 560200	Up to 19200 or ISDN
United Kingdom	+ 44 (1344) 361891	Up to 14400
United States	+ 1 (208) 344-1691	300, 1200, 2400, 4800, 9600, 14400
Worldwide	Int Code + 1 (208) 344-1691	300, 1200, 2400, 4800, 9600, 14400

Set your modem for no parity, 8 data bits, and 1 stop bit (N, 8, 1).

HP FAXback on Demand - HP FIRST

You can use this service to select documents, such as product descriptions and technical information, which are then faxed to you. To access this service, use the handset on your fax machine and dial the appropriate number from the table in this section.

Use the following steps to use HP FIRST:

1. Call the system. You will need to use a touch-tone telephone or the phone set of your fax machine. A voice prompt will welcome you and guide you to the information you need. You will also need to give the phone number of the fax machine where you wish to receive the documents you select.

2. We suggest you initially request the index which lists all available documents.

3. Once you receive the HP FIRST index, choose the documents you need.

4. Call HP FIRST again. A voice prompt will ask you for the index number of the documents you have selected and would like to have faxed to you.

5. Selected documents will be sent immediately to the fax number you have specified.

Note   To obtain documents in English from outside the UK, dial your international access code and then (31) 20 681 5792 (international toll rates applicable).

HP FIRST Telephone Numbers

Country (Language)	Telephone Number
Austria (German)	0660-8128
Australia (English)	61-3-272 26 27
Denmark (Danish)	800-10453
Belgium (French)	0800 1 7043
Belgium (Dutch)	0800 1 1906
Europe (English)	(31) 20 681 5792
Finland (Finnish)	9800-13134
France (French)	05-905900
Germany (German)	0130-810061
Hong Kong (English)	506 24 22
Italy (Italian)	1678-59020
Korea (Korean)	82-2-769 05 43
Netherlands (Dutch)	06-0222420
Norway (Norwegian)	800-11319
Singapore (English)	65-291 79 51
Spain (Spanish)	900-993123
Sweden (Swedish)	020-795743
Switzerland (French)	155-1526
Switzerland (German)	155-1527
UK	0800 96 02 71
US	1 (800) 333-1917
Worldwide	Int Code + 1 (208) 344-4809

HP Audio Tips (U.S. Only)

HP Audio Tips is an automated audio (voice) problem-solving tips for your most frequently asked questions. Use the following telephone number:

- 1 (800) 333-1917

HP Forum on CompuServe

The HP Systems Forum on CompuServe is an on-line service accessible via modem. This service provides information about Hewlett-Packard products, and allows you to communicate with other Hewlett-Packard users.

You can join CompuServe at no charge by calling a telephone number in the table below. CompuServe will send you a free introductory membership immediately, including information on how to access CompuServe. From the CompuServe prompt, type:

GO HP <Enter>

CompuServe Telephone Numbers by Country Table

Country	Local Call/ Free-Phone Number	Direct Number
Argentina		54 (1) 345-3871
Australia	(008) 025240	61 (2) 410-4260
Canada	1 (800) 848-8199	1 (614) 529-1349
Chile		56 (2) 696-8807
France	36,638,122	33 (1) 4714-2160
Germany	(0130) 3732	49 (89) 6655-0111
Hong Kong		852 867-0118
Hungary		36 (1) 156-5366
Israel		972 (3) 290466
Japan	(0120) 221200	81 (3) 5471-5806
New Zealand	(0800) 446113	61 (2) 410-4260
Portugal		33 (1) 4714-2160
South Africa		27 (12) 841-2530
South Korea	(080) 022-7400	82 (2) 411-1327
Spain		33 (1) 4714-2160
Taiwan		866 (2) 651-6899
UK	(0800) 289378	44 (1272) 760680
U.S.	1 (800) 848-8199	1 (614) 529-1349
Venezuela		58 (2) 793-2984
Worldwide		Int Code + 1 (614) 529-1349

Hewlett-Packard Telephone Support

Technical Phone Support for Customers

The HP Customer Support Center provides free live technical assistance for peripherals during the hardware warranty of the product. If the product is still under warranty, the customer should call (208) 323-2551. If the product is out of warranty, the customer has two options.

- The customer can call 1 (900) 555-1500 at $2.50 per minute.
- The customer can call 1 (800) 999-1148 at $25.00 per call using VISA or MasterCard.

(The above prices are subject to change without notice)

To ensure the call is dealt with quickly, have the following information ready:

- The product model number and serial number.
- The operating system version and the configuration.
- A description of the software installed and the accessories used.

HP North American Customer Support Center

Assistance from the Hewlett-Packard North American Customer Support Center is available Monday to Friday, 7:00 AM to 6:00 PM Mountain time, except Wednesday when the hours are 7:00 AM to 4:00 PM.

- 1 (303) 635-1000

HP European Customer Support Center

Assistance from the Hewlett-Packard European Customer Support Center is available in English, Monday to Friday, 8:30 AM to 6:00 PM Central European time, except Wednesday when the hours are 8:30 AM to 4:00 PM.

- Int Code + 31 (20) 682-8291

Contacting Hewlett-Packard

To contact Hewlett-Packard, check your local telephone directory for the HP Sales and Service Office near you. If you cannot find an HP office, contact one of the major HP Sales and Service Offices or one of the following Worldwide Marketing Headquarters.

- Asia
  Far East Sales Region Headquarters
  Hewlett-Packard Asia Ltd.
  22/F Peregrine Tower
  Lipp Centre
  89 Queensway, Central
  Hong Kong

- Canada
  Hewlett-Packard Ltd.
  6877 Goreway Drive
  Mississauga
  Ontario L4V 1M8, Canada

- Europe
  European Operations Headquarters
  Hewlett-Packard S.A.
  150, route du Nant-d'Avril
  PO Box 1217
  Meyrin 2/Geneva, Switzerland

- Latin America
  Hewlett-Packard Latin Am. Headquarters
  Monte Pelvoux 111
  Lomas de Chapultepec
  11000 Mexico D.F.

- Middle East/Africa
  Middle East/Central Africa Sales Headquarters
  Hewlett-Packard S.A.
  Rue de Veyrot 39
  CH-1217 Meyrin 1/Geneva, Switzerland

- U.S.
  Intercon Operations Headquarters
  Hewlett-Packard Company
  3495 Deer Creek Road
  PO Box 10495
  Palo Alto, CA 94303-0896, USA

Printer Repair Feedback Information

Procedure for Providing Repair Feedback Information:

1.   Make a copy of the HP DeskJet Printer Family Repair Sheet found on the following page.

2.   Observe the problem with the printer. Verify the problem is repeatable.

3.   Determine the customer code from the table below.

4.   Fill out the repair sheet and return the repair sheet with the printer.

HP DeskJet Printer Family Customer Codes

Customer Code	Failure Keywords	Failure Description
	STARTUP PROBLEMS	
CPS100	Power-Up Failed	No lights, no noise, no movement, power failure, dead
CPS105	Self-Test Failed	Self-test does not print or is incomplete/wrong
CPS110	Erratic/Intermittent Operation	Product behaves inconsistently or exhibits an intermittent failure
CPS200	Lights On Steady	LEDs on front panel ON steady
CPS205	Lights Flash in Unison	LEDs on front panel ON and flashing
CPS210	No Lights/Fan Only/No Lamp	No LEDs On or no LEDs and the fan is ON or lamp not on
CPS215	Lights Flashing Alternately	Different LED's flash On and Off alternately
	QUALITY	
CWP000	Multiple Exchange	Customer has received more than one exchange per incident
CWP005	Customer Return	Customer returns exchanged unit
CWP010	Re-Repair 90 days	Unit fails within 90 days of previous repair
CWP015	Defective from Stock	Unit shipped to customer is defective from stock
CWP020	Customer Damaged	Customer/Reseller has damaged or mis-repaired unit
CWP025	Wrong Model	Wrong model or product sent to customer
	PERFORMANCE	
CPG100	Won't Print	Printer will not print or locks up while printing
CPG105	Stops Printing	Prints part of a page then stops
CPP100	Burning Smell	During operation, unit emits a burning smell
CPN100	Grinding, Squeaking, Scraping Noise	Unusual, persistent grinding, squeaking, scraping noise
CPN105	Knocking, Clicking, Chattering Noise	Frequent shock or clicking or chattering noise

HP DeskJet Printer Family Customer Codes (Cont.)

Customer Code	Failure Keywords	Failure Description
	MEDIA HANDLING	
CMM100	No Media Pick-Up	Paper/envelope/transparency not loading
CMM105	Multiple Pick	Several sheets/envelopes are picked together
CMM110	Incomplete Load	Sheet/envelope loads then stops or media slips
CMM115	Media Jams	Sheet/envelope/labels stuck inside of product/obstruction
CMM120	Skewed/Slanted Page	Sheet/envelope loads unevenly
CMM135	Media Eject Problem	Sheet/envelope fails to eject
CMM140	Continuous Media Feed	Continuously picks and feeds media
CMM150	Tracks on Media	Excessive force on pinch wheels causes tracks on media
	PRINT/IMAGE QUALITY	
CGT100	Missing Dots	White line or streak through text or graphics, partial characters
CGT105	Fuzzy/Blurred/Wavy or Unusual Print	Overspray of dots or print appears wavy or compressed or faded
CGT110	Vertical Misalignment	Table columns of text/vertical lines are not well aligned (bi-directional shift)
CGT115	Underlines or Streaks in Printing	Prints extra lines across media when printing self-test
CGT120	Incomplete/Faded Print	Parts of printed characters are missing on self-test or print is faded
CGT125	Won't Print	Carriage moving but not printing
CGT130	Wrong Colors	Printing wrong colors or ink appears mixed
CPG115	Hardware Banding	Printed page exhibits banding in print not caused by the print cartridge

HP DeskJet Printer Family Customer Codes (Cont.)

Customer Code	Failure Keywords	Failure Description
	CARRIAGE PROBLEMS	
CCP100	Left-Side Collision	Carriage slams to left side and stays there
CCP105	Right-Side Collision	Carriage slams to right side and stays there
CCP120	Erratic/Slow Movement	Erratic, slow movement or carriage stalls or hangs
CCP125	Pen Won't Lock	Pen cartridge won't lock in carriage
	COMMUNICATION	
CKK100	I/O Port Fail	Serial or parallel Input/Output from PC fails to print...not cable or PC
CKK105	LAN/MIO Fail	Local Area Network communications failed
	PRINT CARTRIDGE (PEN)	
CTT105	Leaking Pen	Print cartridge has leaked in printer and damaged printer
CTT110	Rejects Cartridge	Printer rejects cartridge or cartridge will not install properly
CTT120	Short Pen Life	Cartridge life not to specifications
	MISCELLANEOUS	
CYD100	Loose/Damaged part	Broken, scratched, damaged or loose part
CZZ000	NTF	No trouble found

HP Printer Repair Sheet

Note   To print this form, select "Print" under the "File" menu.

Company Information

Company name: _____
Address: _____
_____
Phone number:_____
Your name: _____

Printer Information

Printer model: _____
Serial number: _____
Date of purchase: _____
Date that you are sending the printer: _____
Customer code: _____
Failure is:

Occasionally intermittent: ___
Frequently intermittent: ___
Continuous: ___

Brand and model of your computer: _____
Version of software you are using: _____
The driver you are using: _____
Other information about the problem: _____
_____

Included Information

Check the following if able to provide additional troubleshooting
information.
___Sample printout included
___Printer self-test included
___Unable to print the printer self-test
___Actions taken to resolve the problem and the results

_____
_____
_____

MS Windows Printing

The HP DeskJet 870C series printer drivers are compatible with MS Windows 3.x and MS Windows 95.

Note   Only a printer driver containing the designation "870C" should be used with HP DeskJet 870C series printers. Other HP DeskJet or DeskWriter printer drivers should not be used.

Access to the printer driver to change specific settings is available from within each software application program. Changing settings within the software application is recommended since settings made in this way can override settings made in the Printers control panel.

Steps to access the printer driver vary depending upon the software application. Generally, the printer driver is accessed from the "File, Print" or " File, Print Setup" in the software program.

You can also access the printer driver through MS Windows' Printers control panel to change default settings. The Printers control panel allows you to:

- Select the default printer from the list of available printer drivers.
- Add printer drivers.
- Remove unneeded printer drivers.
- Set various printer options (which may be superseded by the printer settings selected in the software application program).
- Confirm the port which the printer is using.

Although the Printers control panel provides access to various printer settings, like paper type and page orientation, these settings are overridden by settings made from within an application. The Printers control panel settings are used when an application does not specify certain defaults.

Note   Drivers are available for DOS printing, and DOS printing can be accommodated through MS Windows (see "DOS Printer Drivers" which follows.)

To open the Printers Control Panel in MS Windows 3.x:

1. Double-click **Main** in the Program Manager.

2. Double-click **Control Panel**.

3. Double-click **Printers**.

The default printer is listed in the text box at the top of the dialog box. To select a different default printer, double-click a printer from the list of installed printers.

To Open the HP Printer Properties Dialog Box in MS Windows 95:

1. From the **Start** button on the task bar, select **Settings.**

2. Select **Printers.**

3. Double-click the **HP DeskJet 870C Series Printer** icon as shown:

4. Select **Printer** from the HP DeskJet 870C Series Printer dialog box:

5. Selecting **Properties** reveals the control panel shown below.

Printer Properties Dialog Box (MS Windows 95)

4555912C
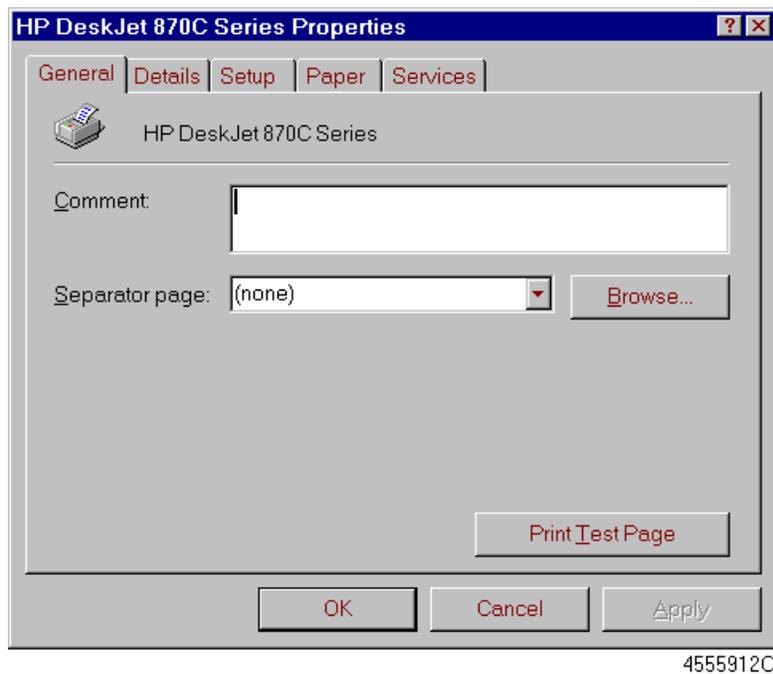
Because you can connect your printer to any LPT: (parallel) port, it is important to make sure the proper port is selected. The steps below describe how to select or change a printer port from the control panels, MS Windows 3.x or MS Windows 95 Printers control panel.

To select a port:

1. Open the **Printers** control panel.
2. Click **Connect** and select the port from the list.

The default printer's name is followed by the port to which it is connected.

To Select a Printer Port in MS Windows 95:

1. From the **Start** button on the task bar, select **Settings**.

2. Select **Printers** and double-click the HP DeskJet 870C Series printer.

3. Select **Printer**

4. Select **Properties**

5. Select **Details**

6. From the list under **Print to the Following Port:** select the appropriate printer port.

MS Windows Printer Software

The HP DeskJet 870C printer software for MS Windows includes:

- HP DeskJet 870C series printer driver
- HP DeskJet 870C Toolbox
  - How do I? (on-screen procedures to help user's use and maintain their printers)
  - Troubleshooting
  - Printer Services (Maintenance and Status)
- TrueType Fonts
- Release Notes

The HP DeskJet 870C Toolbox allows you to:

- View step-by-step tutorials for common printer tasks
- Diagnose and solve common printer problems
- Monitor a current print job
- Monitor the printer's status at any time
- Align the print cartridges (through Properties/Services)
- Clean the print cartridges (through Properties/Services)
- Print a self-test page (through Properties/General and Services)
- Test printer communication (through Properties/Services)

Installing the Printer Driver

The minimum system requirements to run the HP Printing System for MS Windows are:

- MS Windows 3.x
- An 80386 processor
- 2 MB of RAM to print in black or 4 MB of RAM to print in color
- 10 MB free hard disk space

Before you install the printer software:

1. Unpack the printer and set it up with the procedures described in the "User's Guide" and "Setup" Documentation.

2. Make sure the computer and the printer are both turned on and connected with the proper cable.

3. Close any screen savers or other software running in the background on your computer.

Installing the HP Printing System for MS Windows 3.x

1. Insert Installation Disk 1 into the computer's disk drive.

2. Click **File** in the menu bar of the **Program Manager** window.

3. Choose **Run** in the **File** menu to open the Run dialog box.

4. Type **A:\SETUP** or **B:\SETUP** (depending on the computer's configuration) in the text box and click **OK**.

5. Follow the on-screen instructions during the installation process and provide appropriate computer system information.

6. Restart MS Windows to activate the HP DeskJet 870C printer driver.

Installing the printer software in MS Windows 95:

1. Insert Installation Disk 1 into your computer's disk drive.

2. From the **Start** button on the task bar, select **Settings.**

3. Select **Printers.**

4. When the Printers dialog box opens, double-click on the **Add Printer** icon**.**

5. Follow the instructions when the Add Printer Wizard opens.

Aligning the Print Cartridges

After installing the software, the print cartridges need to be aligned before beginning any print jobs. You will also need to perform this procedure whenever you install a new print cartridge.

Note   You may skip the next procedure if you have already performed the print cartridge alignment as part of the installation routine.

To align the print cartridges:

4555910C

Double click the Desktop icon (MS Windows 95 version shown above) and proceed from step 6 below, or:

1. Select **Start** from the task bar
2. Select **Programs**
3. Select **HP DeskJet Utilities**
4. Select **HP DeskJet 870C Toolbox**
5. Double-click the **HP DeskJet 870C Toolbox** icon
6. Select **Printer Services**
7. Select **Align the Print Cartridges** and follow the instructions.

About the Printer Driver

HP DeskJet 870C series printer drivers provide access to all the capabilities of the HP DeskJet 870C printer. The following options are available from the printer driver:

- Automatic or Manual printing
- Color or Grayscale printing
- Best, Normal, or EconoFast print quality
- Paper Type (including HP's special papers)
- Paper Size
- Two-sided printing
- Number of Copies
- Ordered printing
- Print iron-on transfers or flip a document
- Portrait or Landscape print orientation
- Connect printer to a network

For detailed help, click the **Help** button in the HP DeskJet print settings dialog box.

Using the Printer Driver

Accessing HP's print settings dialog box from MS Windows 3.x or MS Windows 95 applications (recommended):

1. Choose "**File, Print**" or "**File, Print Setup.**" This varies with the software program you are using. (For example: MS Word uses "File, Print, Printer, Options", and FrameMaker uses "File, Print Setup, Options" to access the menu)

2. Click the **Setup** button.

Accessing HP's print settings dialog box from the MS Windows control panel:

From MS Windows 3.x:

1. Double-click **Main** in the Program Manager window.

2. Double-click **Control Panel**.

3. Double-click **Printers**.

4. Select the **HP DeskJet 870C** printer in the Installed Printers list and click the **Setup** button.

From MS Windows 95:

1. From **Start**, select **Settings**.

2. Select **Printers.**

3. Double-click the **HP DeskJet 870C Series Printer** icon to reveal the dialog box shown below.

MS Windows Printer Status Dialog Box

HP DeskJet 870C Series				
Printer Document View Help				
Document Name	Status	Owner	Progress	Started At
Microsoft Word - ADDEN...	Spooling		478 bytes	4:53:06 PM
1 jobs in queue				

4555920C

4. Select **Printer**, then select **Properties** to reveal the HP DeskJet 870C
   Printer Properties dialog box.

The dialog box has five tabs; General, Details, Setup, Paper, and Services
which are described below. The General and Details tabs are provided by
MS Windows, the Setup, Paper and Services tabs are provided by the HP
DeskJet 870C series printer driver.

General Property Page (MS Windows)
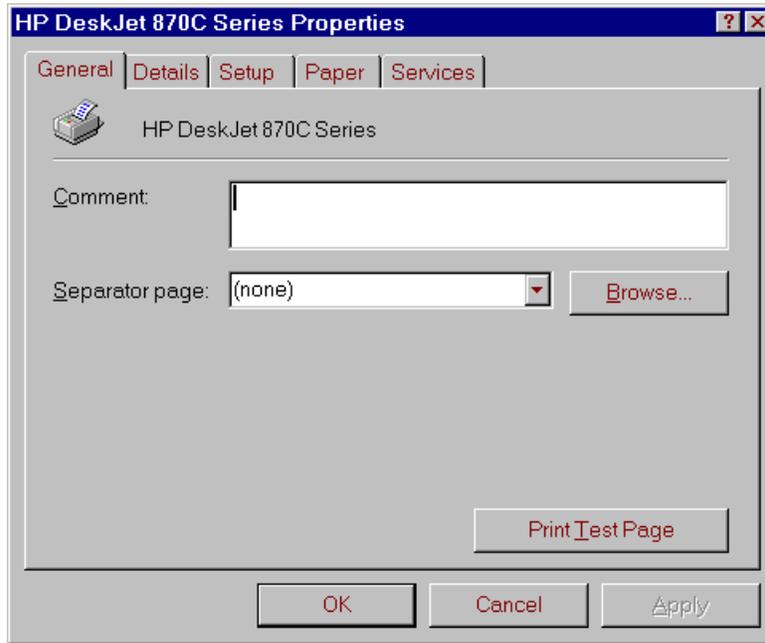
4555912C

General Property Page Options (MS Windows)

Option	Description
Comment	Allows you to include special printing instructions, etc. Next time you print the document, these instructions will be found in this box.
Separator page	Allows you to insert a separator page file between print jobs. Browse allows you to locate and specify the separator page to be printed.
Print Test Page	Prints a test page.
OK	Accepts changes.
Cancel	Cancel changes.
Apply	Applies the current settings.

Details Property Page (MS Windows)
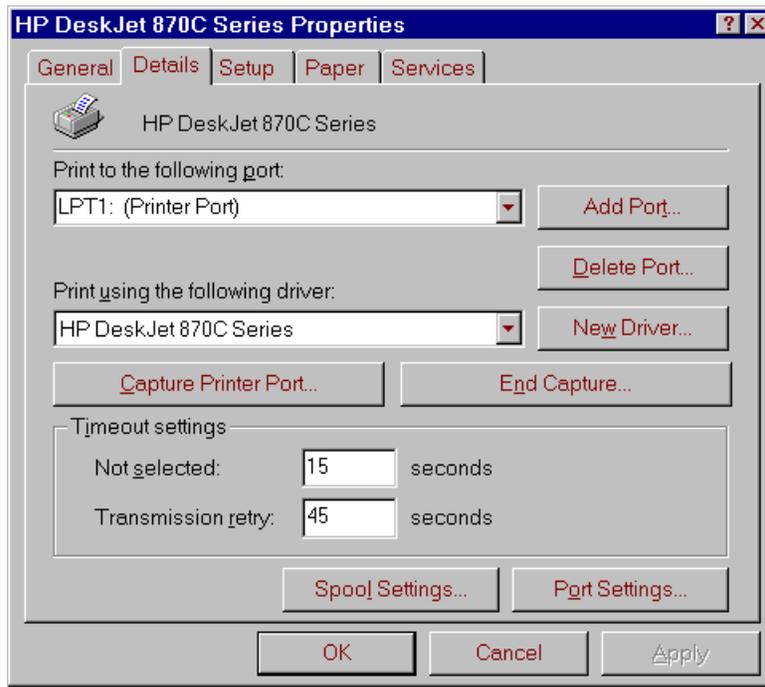
4555913C

Details Property Page Options (MS Windows)

Option	Description
Print to the following port:	Provides options to add or delete printer ports. This selection also allows you to print to fax or file.
Print using the following driver:	Allows you to change printer drivers or install updated ones. (To install an updated driver, for example, click the New Driver button, then click Have Disk and follow the directions presented there.)
Capture Printer Port and End Capture	Permits you to capture, or terminate the capture of, a network printer. A selection allows you to reconnect to a network printer each time at logon.
Time-out Settings	Not Selected: sets the time Windows waits before sending an error message that your printer is off or off line after you send a print job.
	Transmission Retry: sets the time Windows waits for your printer if your printer is on line but engaged. (If your printer is setup on a busy network, and/or if you send large graphics files, your printer might display an error message before your files have had a chance to print. To prevent this, increase this setting somewhat.)
Spool Settings...	Allows you to spool documents or print directly to the printer. Also allows you to disable bi-directional support.
Port Settings...	Allows spooling of MS-DOS print jobs. You may also elect to have the driver check the port state before printing.
OK	Accepts changes.
Cancel	Cancel changes.
Apply	Applies the current settings.

Setup Property Page
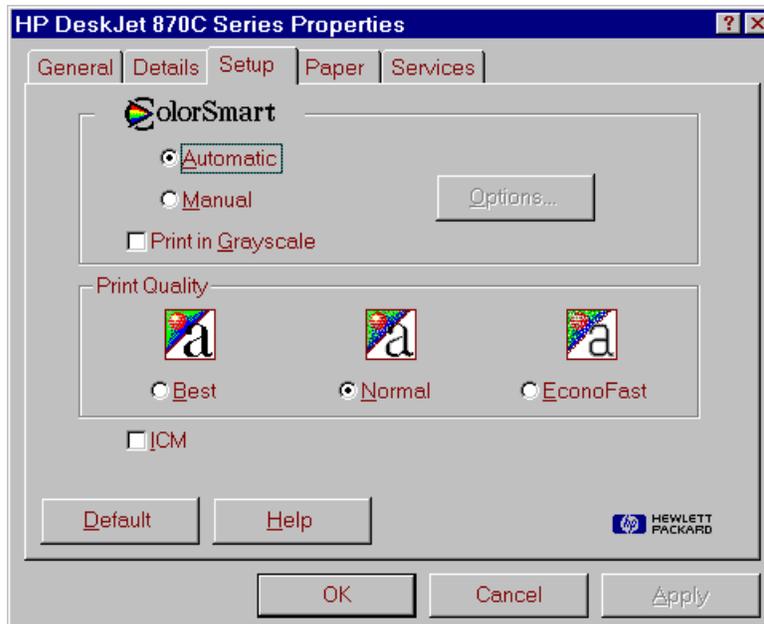
4555914C

Setup Property Page Options

Option	Description
ColorSmart (see ColorSmart: Automatic vs. Manual Printing below)	Permits selection of Automatic or Manual screen-to-printer color mapping. Automatic (recommended) selects the best Halftoning, Intensity and Color Control settings for all areas of your document. Selecting Manual permits opening the Options dialog box which provides adjustments for Intensity and Halftoning, and allows selection of two types of Color Control.
Print In Grayscale (see Grayscale Printing which follows)	Prints different colors as shades of gray. Has both Automatic (recommended) and Manual modes. Selecting Manual permits opening the Options dialog box which provides adjustments for Intensity and Halftoning. The Grayscale mode may be used to produce photocopying documents or to save the color cartridge when printing draft copies.
Print Quality	Best (presentation quality), Normal (letter quality), or EconoFast (draft quality).
ICM (Independent Color Matching)	Improves consistency between the printer and other color devices connected to your system.
Default	Saves the current settings as the default settings for the printer.
Help	Opens the on-line help.
OK	Accepts changes.
Cancel	Cancel changes.
Apply	Applies the settings only to document to be printed. Does not change the default settings.

ColorSmart: Automatic vs. Manual Printing

In most cases the best print output is obtained by choosing Automatic ColorSmart printing. In automatic mode, the printer driver analyzes each element in a document to provide the best color output.

If the color output obtained using the Automatic ColorSmart option is not satisfactory, use the Manual option.

The Manual ColorSmart Options dialog box provides control over Intensity, Color Control, and Halftoning.

The Intensity slider bar adjusts the amount of ink applied to the paper—Darker means more ink, Lighter means less ink.

Color Control offers two options: Vivid (Color) and Match (Screen). To print the document so it looks like it looks on the computer screen, choose Match. To make the colors of the printed output brighter and more vivid than they appear on the screen, choose Vivid.

Halftoning describes how the driver places individual drops of ink on the page to reproduce different shades of the same color. Scatter halftoning, the default setting, usually gives the best results. Pattern halftoning applies different patterns of dots for different shades of a color.

ColorSmart Options Dialog Box
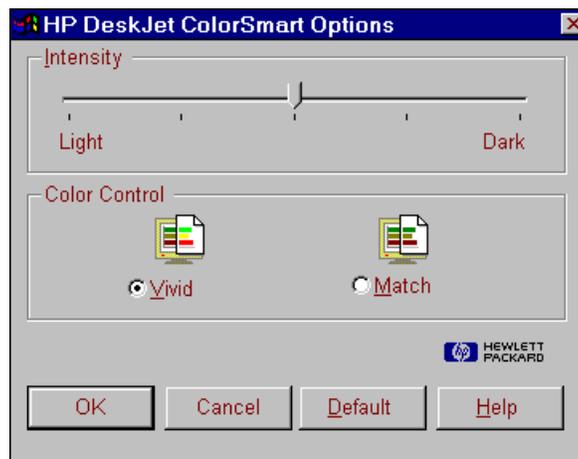
Grayscale Printing

ColorSmart also allows printing color documents in monochrome with discernible shades of gray. Pages with grayscale images can be photocopied or faxed on a monochrome device and retain their full meaning and impact.

Grayscale printing is also faster than color printing and is ideal for printing draft copies.

To print in grayscale, select **Automatic** and the **Print in Grayscale** option in the ColorSmart dialog box.

Setup Dialog Box with "Automatic" and "Print in Grayscale" Selected
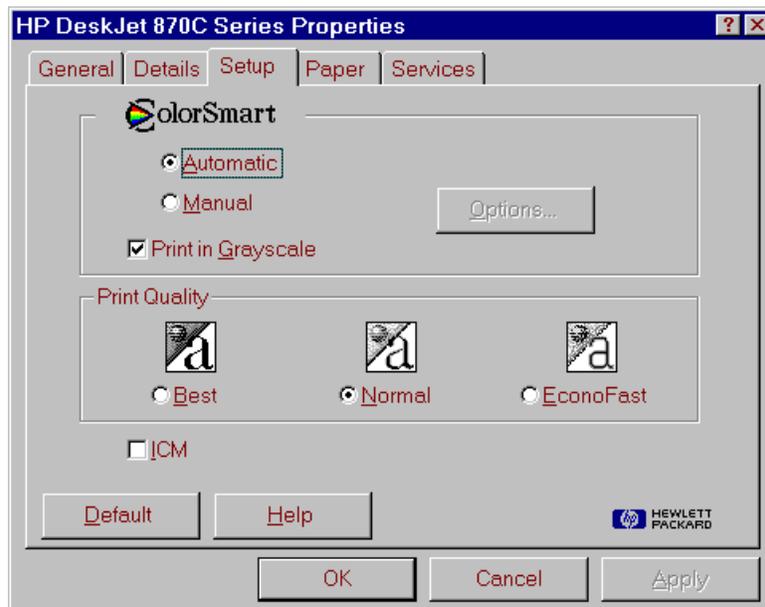
4555918C

Selecting **Manual** with **Print in Grayscale** selected, allows access to the **Option** dialog box which provides control over intensity and halftoning.

Manual Grayscale Options Dialog Box
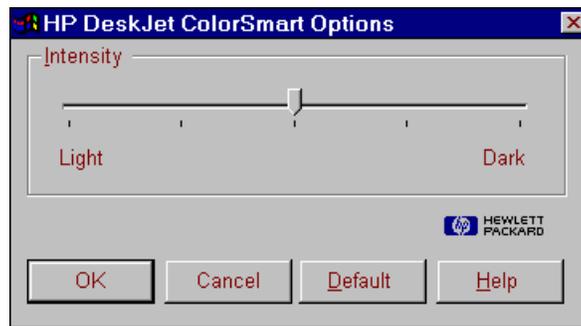
4555917C

Paper Property Page
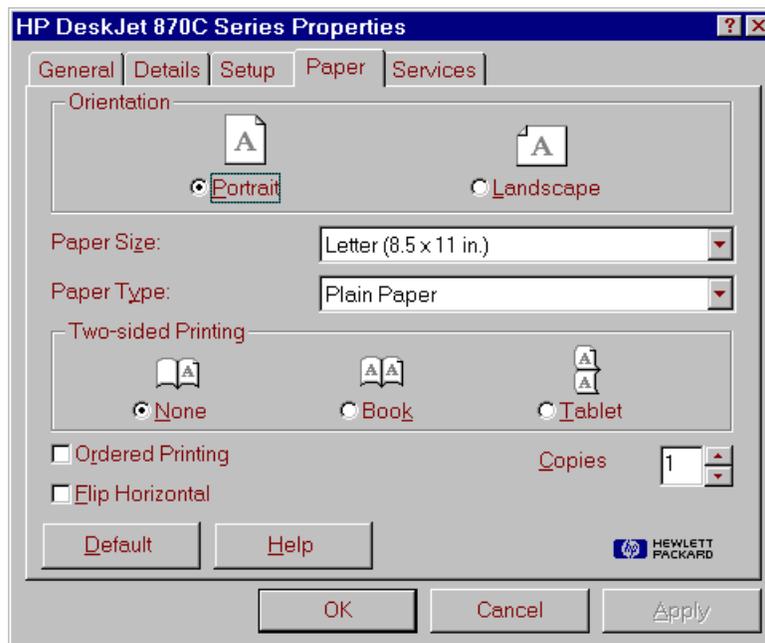
4555915C

Paper Property Page Options

Option	Description
Orientation	Choose portrait or landscape.
Paper Options	Paper Size: Allows selection of numerous paper sizes. To use a paper size not listed, select Custom.
	Paper Type: Allows you to t
	ell the printer the type of paper upon which you are about to print. (Lets the printer decide which settings to use to give you the best results.)
	Cut-Sheet: Allows the use of cut-sheet paper, or,
	Banner: Allows the use of continuous-feed (Z-fold) banner paper. See description of banner printing below.
Two-Sided (Manual Duplex) Printing	Allows you to manually print both sides of plain paper to economize and help conserve resources. Allows you to select the two-sided mode you prefer: Book or Tablet. For more information about two-sided printing, see below.
Ordered Printing	Prints in reverse order (last page first). Collates pages when printing multiple copies.
Flip Horizontal	Allows you to reverse the printout horizontally.

Paper Property Page Options (Cont.)

Option	Description
Copies	Allows selection of multiple copies. (Do not change this setting unless you want multiple copies all the time. Generally, specify the number of copies required from within your application.)
Default	Saves the current settings as the default settings for the printer.
Help	Opens the on-line HP DeskJet 820 Help.
OK	Accepts changes.
Cancel	Cancel changes.
Apply	Applies the settings only to document to be printed. Does not change the default settings.

Two-Sided Printing (Manual Duplex)

The printer driver can be set to print both sides of plain paper to economize and help conserve resources.

Note   Two-sided printing is available for all sizes of paper. However, you cannot use two-sided printing on envelopes, transparencies, labels, glossy paper, or premium paper.

Two-Sided Printing Procedure:

1. Select **Two-sided printing**.

2. Start printing your document. Observe that the odd-numbered pages print first.

3. After the printer finishes printing the odd-numbered pages, instructions for printing the other side appear on your computer's screen.

4. Carefully remove the newly printed pages from the OUT tray and, leaving them face-up, turn the pages around (NOT OVER) and re-insert the pages in the IN tray. Verify that the tops of the pages feed into the printer first. (You should be able to read the pages from in front of the printer when the pages are correctly placed in the IN tray.)

5. Restart the printer by clicking the **Continue** button on the computer message. Observe that the even-numbered pages begin printing on the back of the previously printed odd-numbered pages.

Note   Do not click the **Continue** button until you have positioned the odd-numbered pages in the IN tray.

Services Page
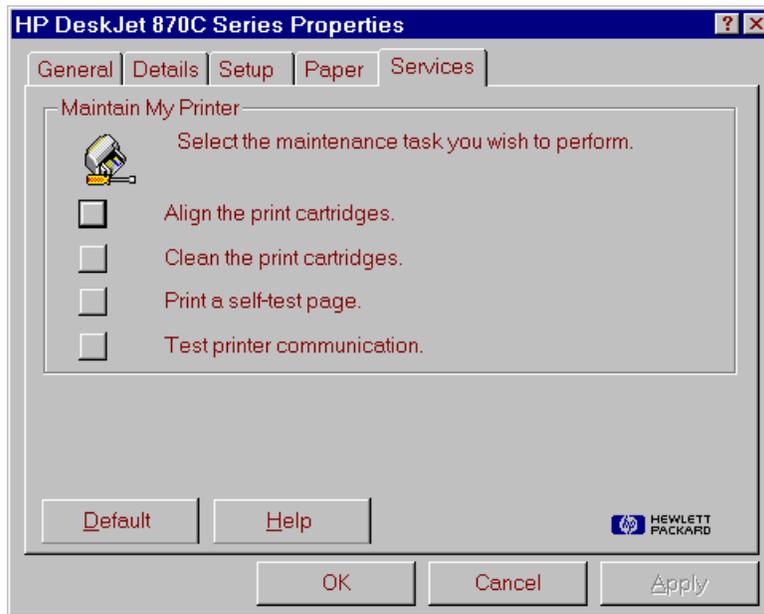
4555919C

Services Page Options

Option	Description
Align the print cartridges	Initializes the routine that aligns the print cartridges. Follow the on-screen instructions.
Clean the print cartridges	Initializes the routine that cleans the print cartridges. Use only if print cartridges are not functioning correctly. This routine uses a great deal of ink. Follow the on-screen instructions.
Print a self-test page	Initializes the routine that prints a test page. Use this function to verify the connection between your computer and the printer.
Test printer communication	This procedure test the communication between the computer and the printer. This test takes up to 3 minutes. An on-screen message appears giving status information. No printout is involved.
Default	Saves the current settings as the default for the printer.
Help	Opens the on-line help.
OK	Accepts changes.
Cancel	Cancel changes.
Apply	Applies the settings only to document to be printed. Does not change the default settings.

Optimizing Performance

The print speed and overall performance of the HP DeskJet 870C printer can be affected by several things:

- The amount of RAM can determine how fast documents are sent to the printer. Increasing RAM can speed up this process as well as make the computer work more efficiently at other things beside printing.

- The size and complexity of the documents printed can make a difference in the printer's performance. Graphics are usually more complex - especially color graphics - and print more slowly than text.

- The processing speed of the computer will determine how fast a document is sent to the printer. For example, a computer with a 486 processor runs faster than a computer with a 386 or a 286 processor.

- Running numerous software programs at one time slows down printing; each open program uses RAM. Therefore, limit the number of programs or documents open at one time.

- Screen fonts are stored in RAM, which means they use up memory that the printer may need in order to print. Delete screen fonts or printer fonts that are not needed.

Using On-line Help

On-line help provides information about the printer's software and status.

Printer Software Help

Type of help:	Provides:	How to access/where to find:
HP DeskJet Toolbox	Tutorials and troubleshooting for common print tasks and problems	Click on the icon on the desktop, or in the Program group.
Error Message Help	Comprehensive context sensitive information designed for error recovery.	Button available on most pop-up error messages.
Print Settings Help	Information to help you make print settings choices.	Click the help button for any tab in the HP print settings dialog box.
Release Notes	Up-to-date information for specific conflicts.	From the Program Utilities: select HP DeskJet 870C Release Notes.

Cleaning and Aligning Print Cartridges

These functions are available from the Services Page (see above) and from within the HP DeskJet 870C Toolbox.

DOS Printing

Printer Drivers Available

Since DOS applications are developed independently under different standards, each DOS application requires its own printer driver. Current software drivers for most HP DeskJet printers are available from the individual software manufacturers. A list of DOS software manufacturers is in the DOS Printing Guide, part of the User's Guide Kit. Information on installing a DOS printer driver for a particular DOS application is supplied by the software manufacturer.

If there is no driver available for your HP DeskJet 870C printer, use a driver for a different HP DeskJet printer. In some cases, the substitute driver will not provide access to all of the HP DeskJet 870C printer's capabilities.

The following table outlines usable drivers and their capabilities when used with HP DeskJet 870C printer.

Substituting Printer Drivers

Printer Driver	Supported Features
HP DeskJet 855C	Color Printing
HP DeskJet 660C	Color Printing
HP DeskJet 560C	Color Printing
HP DeskJet 540	Color Printing
HP DeskJet 500C	Color Printing
HP DeskJet 320	Color Printing
HP DeskJet 310	Color Printing
HP DeskJet 520	Monochrome Printing Only
HP DeskJet 510	Monochrome Printing Only
HP DeskJet 500	Monochrome Printing Only
HP DeskJet PLUS	Monochrome Printing Only
HP DeskJet	Monochrome Printing Only

HP DeskJet 870C Control Panel for DOS

The HP DeskJet 870C Control Panel for DOS is software that replaces the front panel switches found on older printers. The Control Panel for DOS does not replace printer drivers; it must be used along with DOS software printer drivers. When there is no specific HP DeskJet 870C printer driver available for an application, the HP Control Panel for DOS gives the user access to print settings and features not available through the DOS application. If settings are available in the DOS application printer driver and the DOS Control Panel, the settings made in the DOS application usually override those made in the HP Control Panel for DOS.

The HP Control Panel for DOS lets the user monitor the printer's status, and clean and align the print cartridges.

Minimum System Requirements

- DOS version 3.3 (or newer)
- An 80286 (or better) processor
- 2 MB of RAM to print in black or 4 MB of RAM to print in color

Installation

Before you install the HP Control Panel for DOS:
1. Unpack the printer and set it up.
2. Make sure the computer and the printer are both turned on and connected with the proper cable.

To install the Control Panel for DOS:
1. Insert the disk containing the control panel software into the disk drive.
2. At the DOS prompt, type **A:\Install** (or **B:\Install** depending on the floppy drive configuration) and press Enter.
3. Follow the on-screen instructions.

After installing the software, the print cartridges need to be aligned before beginning any print jobs.

To align the print cartridges:

1. Type **DJCP** at the DOS prompt to open the stand-alone DOS Control Panel.

2. Select Align Print Cartridges and follow the on-screen instructions.

Two Ways to Use the HP Control Panel for DOS

The DOS Control Panel can run either as a stand-alone application or as a memory resident application. To run the DOS Control Panel as a stand-alone application: type **DJCP** at the DOS prompt.


```
                HP DeskJet 870C Control Panel for DOS
  ┌Print Status──────────     ┌Print Quality───────        ┌──────────┐
                                                            │   Done   │
  ┌──────────────────────┐      ( ) Best                   └──────────┘
  │                      │      ( ) Normal
  │   Printer is OK      │      (*) EconoFast               ┌──────────┐
  │                      │                                  │About This│
  │                      │    ┌Orientation─────────         │ Program  │
  │                      │                                  └──────────┘
  └──────────────────────┘
                               (*) Portrait                 ┌──────────┐
  ┌Print Cartridge Services─   ( ) Landscape                │  Reset   │
                                                            │   All    │
     ┌──────────────────┐                                  │ Settings │
     │     Clean        │                                  └──────────┘
     │ Print Cartridges │    ┌Font Size──────────
     └──────────────────┘
                                                            ┌──────────┐
     ┌──────────────────┐      (*) Normal                  │   More   │
     │     Align        │      ( ) Compressed              │ Settings │
     │ Print Cartridges │                                  └──────────┘
     └──────────────────┘
  ┌──────────────────────────────────────────────────────────────────┐
  └──────────────────────────────────────────────────────────────────┘
```
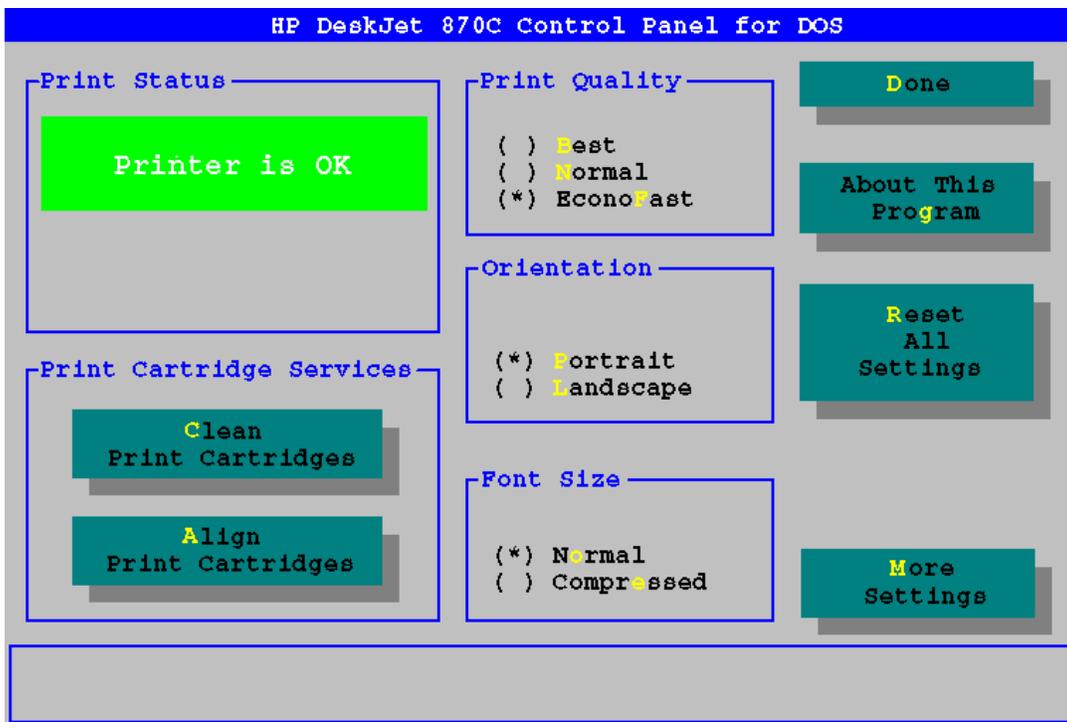
4555926C

The DOS Control Panel must be loaded into memory at start-up to work as a memory resident application.

To set up the HP Control Panel for DOS as a memory resident application:

1. Type **DJCP** at the DOS prompt to open the stand-alone DOS Control Panel.

2. Select **More Settings**.

3. Select **Memory Resident Functions**.

4. Select **Make Memory Resident**.

5. Select **Done** and reboot the computer.

To open the memory resident DOS Control Panel: type the DOS Control Panel hot key.

The memory resident DOS Control Panel is a subset of the stand-alone application due to memory considerations.

Memory Resident DOS Control Panel

Whether stand-alone or memory resident, the DOS Control Panel allows the user to control or view the following:

- Pen Services (clean, prime, and align the pens)
- Print Quality
- Page Orientation
- Font Width (normal or compressed)
- Status Reports (limited in the resident Control Panel for DOS)
- Context-Sensitive Help

In addition to these, the stand-alone DOS Control Panel provides access to:

- Paper Size
- Media Type (paper or transparencies)
- Character Set
- Lines per Page
- Line Termination
- Reset All Settings
- Memory Resident Controls

Troubleshooting

Problems with the DOS Control Panel

Problem	Cause	Solution
Installation was unsuccessful	Disk error	Reinstall Control Panel
	Bad floppy disk	Contact authorized HP dealer

OS/2

The HP ColorSmart printer driver for the HP DeskJet 870C printer can be accessed through OS/2 by using MS Windows in OS/2.

Macintosh Printing

The HP DeskJet 870C printer comes with a Macintosh Driver Installation Disk which contains the printer driver. Before the printer can print, the software that enables the computer to communicate with the printer must be installed.

Look at the system requirements shown below to determine your system's compatibility with the printer driver.

System Requirements

Note   If you find only one serial port on your computer, your older model of Macintosh computer is not supported for use with this printer. If you do use this type of computer you will experience an unexpected printing of garbled text the first time your computer is turned on. To remedy this problem, either upgrade your computer or always turn on the computer before you turn on the printer.

Minimum System Requirements

- Macintosh system software version 7.1
- 69030/33 MHz with at least 4 MB of system memory
- Power PC with at least 8 MB of system memory
- At least 7.5 MB free hard disk space

Recommended System Requirements

- Macintosh system software version 7.5 or later
- Power PC with at least 16 MB of system memory
- At least 7.5 MB free hard disk space

Installing the Printer Driver

This section provides instructions for installing the printer driver. The default installation procedure copies the printer driver contained on the HP Driver Installation Disk to the correct location in the System folder.

The driver installer provides both Easy and Customize installation options. Use the Easy Install option to install *all* of the printer software in the correct locations on your hard disk. Use the Customize option to install only selected portions of the printer software. See the ReadMe files on the Driver Installation disk for further information about the Customize option.

What about QuickDraw GX?

The standard printer software supplied with the HP DeskJet 870C printer is QuickDraw compatible, but *not* compatible with QuickDraw GX. If, after installing the printer driver, the printer driver does not appear in the Chooser, make sure that the QuickDraw GX extension is disabled in the extension manager, restart your computer, open the Chooser, and select the printer.

Note   Before installing the printer driver, make a copy of the disks, turn off any virus protection applications, and quit any open applications.

Installation Procedure

1. Switch your computer on.

2. Insert the Driver Installation Disk.

3. Double-click the Installer icon.

4. Select Easy (recommended) or Customize installation.

5. Follow the instructions on the screen.

Note   If the installer finds a file with the same name, it replaces it with the most current version.

6. You may also wish to install the TrueType fonts at this time (see "Font Information" below).

7. You must select the HP DeskJet 870C printer in your Chooser before you can start printing.

8. After you have finished the printer driver installation, align the print cartridges as described in "Aligning the Printer Cartridges."

Font Information

You can choose to install any or all of the 27 TrueType fonts contained on the Font Installation disk. Each font requires between 36K and 64K of hard disk space.

Available Fonts

TrueType Fonts from the Fonts Installation Disk		
Arial Black	New Century Schoolbook	CG Poster Bodini
Arial Narrow	New Century Schoolbook Italic	Graphite Light
Arial Narrow Italics	New Century Schoolbook Bold	Graphite Light Narrow
ITC Avant Garde	New Century Schoolbook Bold Italic	Lucida® Casual
ITC Avant Garde Bold	ITC Zapf Chancery	Lucida® Casual Italic
ITC Bookman	ITC Zapf Dingbats	PL Benguiat Frisky
ITC Bookman Italic	Bernhard Modern	Phyllis
ITC Bookman Bold	Cooper Black	Signet Roundhand
ITC Bookman Bold Italic	Dom Casual	Milestones™

Installing and Using Fonts

The Font Installer copies the font files to the Fonts Folder in the System Folder.

Installing the TrueType fonts

1. Insert the Fonts Installation disk

2. Double-click on the Installer icon.

3. Follow the instructions on the screen.

4. After the installation is complete, restart your computer.

PostScript Compatibility

PostScript fonts are compatible with the HP DeskJet 870C printer. Creating high-quality output using Type 1 fonts requires Adobe Type Manager (ATM).

Font Priorities

If a system has both ATM and TrueType fonts installed, the printer driver uses the following order to choose fonts for printing.

1. ATM fonts
2. TrueType fonts
3. Screen fonts (when no printer outline fonts are available.)

Note TrueType (and Type 1) fonts are variable-sized fonts, sometimes called outline fonts. Bitmapped or screen fonts are fixed size fonts.

Removing Fonts

If you have used previous HP printer drivers you may have fonts that you no longer need.

To delete unneeded font folders:

1. Open the System Folder.
2. Open the Preferences Folder.
3. If you see a DeskWriter Fonts Folder or an HP Fonts Folder drag it to the trash.
4. Choose Empty Trash from the Special menu.

Removing Extra Printer Drivers

Users with limited hard disk space may choose to remove printer drivers not being used.

To remove extra printer drivers:
1. Open the System Folder.
2. Locate and open the Extensions Folder in the Systems Folder.
3. Click the icon for the printer driver you want to remove.
4. Drag the icon to the Trash, then choose Empty Trash from the Special menu.
5. Close the Extensions Folder and the System Folder.

Choosing a Printer

Before printing, you must choose the HP DeskJet 870C as the printer you wish to use, even if it's the only printer connected to your computer. To do this, select Chooser from the Apple menu.

If the printer is connected directly to your computer:
1. Click the icon for the HP DeskJet 870C printer.
2. Click the icon indicating to which port you connected the printer. (Both the printer and modem ports are serial ports.)

If the printer is connected via a network:
1. Make sure AppleTalk is active.
2. Click the icon for the HP DeskJet 870C printer.
3. If your network is divided into zones click the zone for your printer.
4. Select the HP DeskJet 870C printer.

Sharing Printers

You can place an icon representing the printer on your desktop. Desktop printer icons are necessary in order to share printers with other network users. It is also a convenient way to use a printer no matter where it is physically located.

Creating a Desktop Printer Icon

To create a desktop printer icon:
1. Choose Chooser from the Apple menu.
2. Click Create. A printer icon appears on your desktop.
3. Close the Chooser.

To share the printer:
1. Click the icon for the printer to be shared.
2. Choose Sharing from the File menu.
3. Specify whether other users can use the printer or not.

Printer Icon Sharing Options

Sharing options	
Other systems may also use this printer	Provides access to all specified network users, groups, and guests.
Share this printer	Provides access only to specified users, groups, and guests.
User/Group, Guest	Use the Users and Groups Control Panel dialog box to restrict access to unqualified users.

Deleting a Desktop Printer Icon

To delete a desktop printer, make sure the print queue is empty, then drag the icon to the Trash.

About the Printer Driver

The print driver software communicates the printer's features and design to your computer. The HP ColorSmart technology within the HP printer driver analyzes your documents for the best quality printout every time you print. ColorSmart identifies each element on a page - text, graphics, photographs - and automatically applies the appropriate colors and ink amounts to each of them.

The DeskJet 870C QuickDraw printer driver provides:

- Background or foreground printing.

- Desktop printer icons.

- Drag and drop printing to the desktop printer icon.

- Printing status messages, allowing you to view the jobs in queue; stop, pause, or remove jobs; change the printing order of the jobs in queue.

- Added options to the Print and Page Setup dialog boxes allowing print quality control.

- 27 TrueType fonts.

- Laser-quality text and graphics printing in portrait and landscape orientations.

- Exceptional print quality even when mixing text and graphics on the same page.

- Near photographic quality when printing images. HP color printers use ColorSmart technology allowing halftone pattern removal, edge sharpening, and tone smoothing.

- Print preview.

- "Back to front" printing.

- Multiple copy printing.

- A default save for the print settings so that documents print the same way every time.

- Reduce or enlarge options. Reducing a document allows you to fit the document's contents to sizes corresponding to the printer's media capabilities . Enlarging a document allows you to more easily see the documents contents. Reducing or enlarging a document for printing does not affect the page dimensions in the application.

Languages Supported

The QuickDraw and QuickDraw GX Printer Drivers Support:		
English	Italian	Dutch
French	Spanish	Swedish
German	Portuguese	Japanese

Using the Printer Driver

The printer driver provides dialog boxes for communicating specific printing instructions to the printer.

- Select the general print settings, such as the paper size and type, and the page orientation from within a software application by choosing Page Setup from the File menu. This displays the Page Setup dialog box.

- Select specific print settings, such as intensity, halftoning patterns, and color matching, from within the software application by choosing Options from either the Page Setup or the Print dialog boxes. This displays the Options dialog box. In general, leaving the Options settings at Auto allows ColorSmart to provide the best printing possible.

Page Setup

Before printing choose Page Setup from the File menu.

The Page Setup Dialog Box
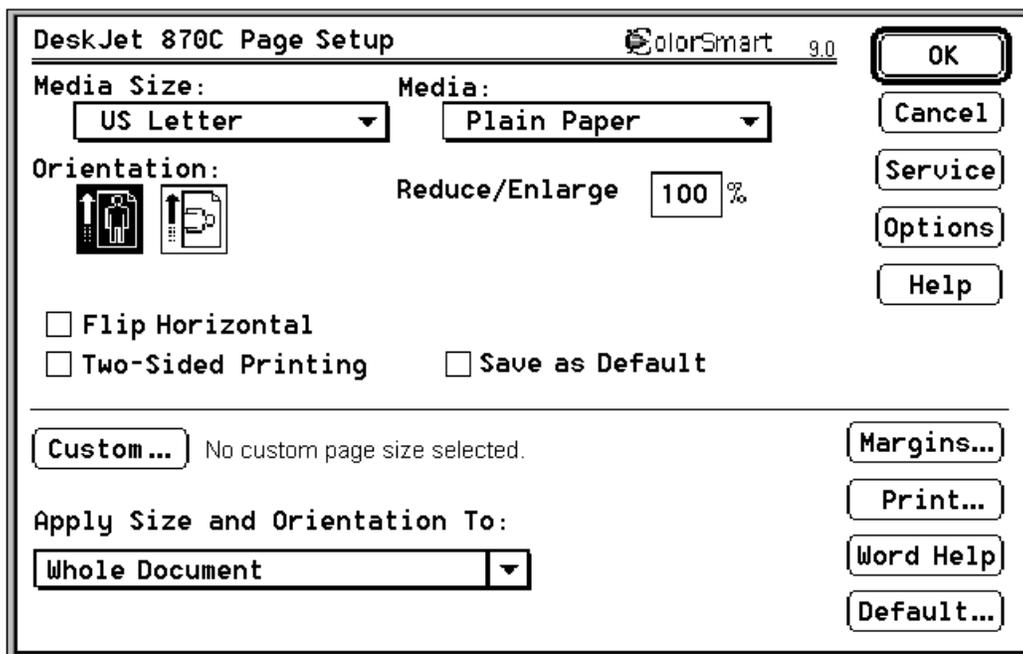
Page Setup Options

HP DeskJet 870C Page Setup Options	
Media Size:	The pop-up menu displays selections supported by the printer.
Media:	The media may be either plain paper or one of HP's special media types.
Orientation:	Portrait or landscape.
Reduce/Enlarge	Valid range: 25% – 400%.
Flip Horizontal	Allows the printout to be reversed horizontally.
Two-sided Printing	Allows manual duplex (two-sided) printing.
Save as Default	Save the current settings as the default settings for the Page Setup and ColorSmart options.
Service	Opens the Service dialog box, which is used for print cartridge maintenance.
Options	Opens the ColorSmart Options dialog box which is used to change some of the ColorSmart options.
Help	Opens the HP DeskJet 870C on-screen help.
Custom...	Allows you define custom paper for the printer.
Margins...	Provides access to the margin settings menu for the program from which you are printing.
Print...	Provides immediate access to the Print menu.
{Current Program} Help	Opens the on-screen help provided by the program from which you are printing.
Default...	Allows you to change the default settings for document layout.
Apply Size and Orientation To:	Allows you to apply size and orientation changes to selected sections of a document, or the whole document.

Printing Documents

When printing from the Finder, you can select multiple documents for printing in succession. These documents need not have the same specifications nor have been created with the same software application. The printing specifications for each document are used when that document is printed. However, the printer does not notify you if the documents require different sizes or types of paper. Choose Print from the File menu to see the Print Dialog box.

How to Print

Two Ways to Access the Print Dialog	
From within an application	Choose Print from the File menu.
From the Finder	Select the document you want to print by clicking on the document icon(s) and choosing Print from the File menu.

The Print Dialog Box

4555922C

Print Options

HP DeskJet 870C Print Options	
Quality:	■ Best ■ Normal ■ EconoFast
Pages:	Print all pages or a specified range of pages.
Copies:	Print multiple copies of a document. (The range is 1 to 9999.)
Print in Grayscale	Print color documents in grayscale (black and white and shades of gray).
Print Back to Front	Print the last page of a document first so that the first page is on top of the stack in the output tray. This provides documents in the correct order when printing is complete
Preview	Display a preview of the printer output.
Options...	Provides access to the ColorSmart Options dialog.
Help	Opens the HP DeskJet 870C on-screen help.

Note   If your software application offers the option of printing back-to-front *and* you also select the printer driver's Back-to-Front option, the document will print front-to-back...the two commands *offset* each other.

Print Options (Cont.)

HP DeskJet 870C Print Options		
Print... This heading contains <u>two</u> pull-down menus which allow you to:	Select printable items:	▪ Document (see below) ▪ Summary Info ▪ Annotations ▪ Styles ▪ AutoText Entries ▪ Key Assignments
	Select the pages from within the document you wish to print: (Active only if Document is selected above)	▪ All Pages in Range ▪ Odd Pages ▪ Even Pages The "Range..." button (see below) applies to this section.
Range...	If you elect to use "All Pages In Range" (see above), this button allows you to select:	▪ Use Print Dialog Page Range (See "Pages..." above) ▪ All (Print all pages in the document) ▪ Current Page (Prints only the page upon which the cursor was placed within the document. Typically, the page currently on screen) ▪ Pages: (Allows you to define a wide range of pages from within the document to print.)
{Current Program} Help	Opens the on-screen help provided by the program from which you are printing.	
Print Selection Only	Allows you to print selected text only. (To activate this selection, highlight a block of text within the document that you wish to print <u>before</u> opening the Print dialog box.)	

Printing in Color

The HP DeskJet 870C printer prints in color when using a color-capable application. To print in color, be sure you have created colored text or pictures within a document, then turn on color printing in the application.

The quality of the color printing depends partly on how the four inks - black, cyan, yellow, and magenta - are placed on the printed page. HP's ColorSmart technology enables the printer to intelligently analyze documents at the time of printing to provide the best color output. ColorSmart identifies each element on a page - text, simple graphics, or compels graphics such as photographic images - and automatically applies the appropriate color settings.

It's a good idea to print draft copies of color documents in grayscale using the black print cartridge. Grayscale printing is much faster than color printing, and printing grayscale drafts helps conserve color cartridges. To print in grayscale, set Grayscale in the Print dialog.

To open the ColorSmart dialog:

1. Choose Page Setup from the File menu.
2. Click Options.

Options Dialog Box

```
DeskJet 870C Options          ColorSmart  9.0        ┌──────────┐
                                                     │    OK    │
Intensity:                    Color Matching:        └──────────┘
┌─────────────────┐           ┌─────────────────┐    ┌──────────┐
│  Auto         ▼ │           │  Auto         ▼ │    │  Cancel  │
└─────────────────┘           └─────────────────┘    └──────────┘
Halftoning:                                          ┌──────────┐
┌─────────────────┐                                  │   Help   │
│  Auto         ▼ │                                  └──────────┘
└─────────────────┘
```
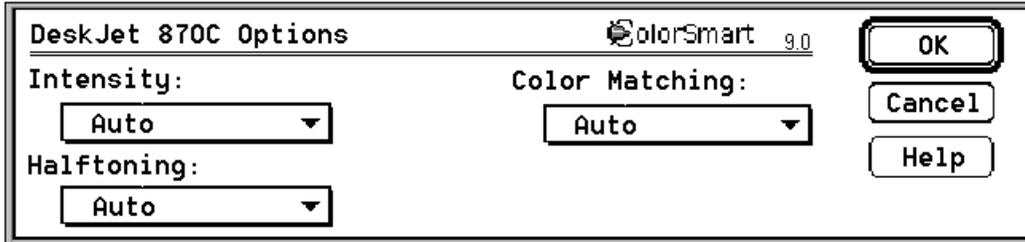
4555924C

ColorSmart Options

HP DeskJet 870C ColorSmart Options	
Intensity: Used to compensate for environmental and media variations by adjusting the amount of ink used. Users can specify:	▪ Auto (This is the default setting which uses a sophisticated algorithm to control the amount of ink used based on the media type and other factors.) ▪ Lightest ▪ Lighter ▪ Normal ▪ Darker ▪ Darkest
Halftoning:	▪ Auto (Default...uses Scatter) ▪ Scatter ▪ Pattern.
Color Matching:	▪ Auto (Default) ▪ Text/Graphics ▪ Photographic ▪ ColorSync.

ColorSync Support

Macintosh system support for ColorSync	
System 7.0.1	Supports ColorSync
System 7.0 and earlier	Does not support ColorSync

Background Printing

The background printing option enables you to work on other documents while printing. When background printing is on, a copy of your document is saved in the PrintMonitor Documents folder, a temporary folder in the Systems folder on your hard disk. This copy is then sent to the printer. Although background printing lets you regain control of your computer sooner; the actual printing of the document is slower.

If you send several documents to the printer, a queue forms in the PrintMonitor Documents folder. Documents print in the order received.

To use background printing, select the Chooser from the Apple menu, select the printer you are using, and turn on background printing.

The HP PrintMonitor

Use the HP PrintMonitor during background printing to:

- See which file is currently printing.
- View and re-arrange the order of files waiting to be printed.
- Cancel a file from printing.
- Remove a file from the print queue.
- Establish preferences for the level of notification used when the printer needs attention.

Note   You cannot directly print a file from the HP PrintMonitor. The HP PrintMonitor prints in the background until the PrintMonitor Documents folder is empty.

Using the PrintMonitor

To open the HP PrintMonitor	
During background printing:	Select HP PrintMonitor from the Application menu in the top right corner of the menu bar.
When the printer is inactive:	Double-click the HP PrintMonitor icon in the Extensions folder.
With desktop printer icons	Double-click the desktop printer icon while printing.

Once the HP PrintMonitor is displayed, change the settings by choosing Preferences from the File menu.

Note   By default, the HP PrintMonitor is not displayed during printing. To automatically display the HP PrintMonitor during printing change the settings in the Preferences dialog box.

Optimizing Performance

The printer driver is designed to deliver the best possible performance. However, printer output speed can be affected by the amount of available system memory (RAM) and the amount of available disk space.

The following list provides ideas on how to enhance the printer's performance:

- Increase the amount of RAM in your computer. The printer driver requires at least 8 MB of RAM. Use additional memory (4 MB or more) to increase the printer's flexibility in using applications.

- Limit the number of documents and programs that you open at one time.

- Free system memory (RAM) by removing start-up screens, INITs, and control panels from the System Folder.

- Turn off background printing.

- Decrease the Disk Cache in the Memory Control Panel.

- Remove unneeded fonts.

Servicing the Print Cartridge

The printer software Service dialog box provides access to cleaning and alignment routines. Use the cleaning routines only when necessary because they use large amounts of ink.

To access the Service dialog box:

1. Choose Page Setup from the File menu.

2. Click Service.

Alternatively, select the desktop printer icon and click Print Cartridge Cleaning or Print Cartridge Alignment from the Print menu.

The Service Dialog Box

```
┌─────────────────────────────────────────────────────────┐
│  DeskJet 870C Service          ColorSmart  9.0  ┌──────┐ │
│                                                 │  OK  │ │
│  Clean Print Cartridge: ┌ Start ┐               └──────┘ │
│                                                 ┌────────┐│
│  Align Print Cartridges: ┌ Start ┐              │ Cancel ││
│                                                 └────────┘│
│                                                 ┌────────┐│
│                                                 │  Help  ││
│                                                 └────────┘│
└─────────────────────────────────────────────────────────┘
```

4555923C
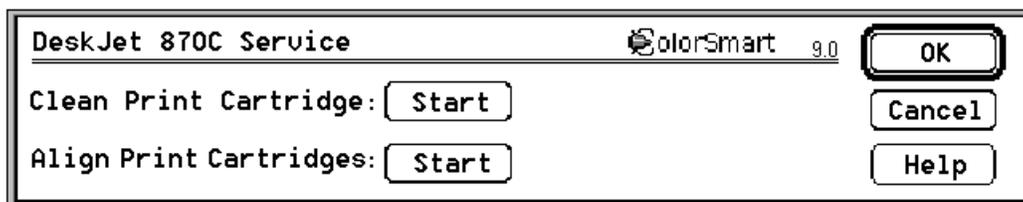
Cleaning

The HP DeskJet 870C printer provides multiple levels of maintenance for cleaning the printer cartridge.

- Clean, also referred to as "Surface Clean"
- Standard Clean
- Prime

Click Start to initiate the Clean process, then click Clean to initiate the clean cycle. A test page prints after the cycle finishes.

If not satisfied with the results, continue with the Standard Clean cycle. A test page prints after the Standard Clean finishes.

If still not satisfied, continue with the Prime procedure.

Caution   Priming extracts large amounts of ink and should not be performed as a routine operation.

Aligning

If necessary, click Align in the Service dialog box to align the color and black cartridges with one another. HP recommends aligning each time one of the cartridges is changed.

Troubleshooting

HP periodically provides updates of the printer software. These updates may include enhancements that improve printer performance.

Problems and Solutions

Problem	Solution
Printer won't print.	Open the Chooser and verify that the correct printer is selected.
Printer icon does not appear on the left side of the Chooser.	Make sure that the printer is turned on.
	Make sure that the printer driver icon is in the Extensions Folder.
The printer name does not appear on the right side of the Chooser or the HP DeskJet family printer is not listed.	Make sure the printer is turned on.
	Open the Chooser and make sure AppleTalk is active if connecting to a network printer.
Power light is On, the Resume light is Off.	Check that the printer appears in the Chooser then close all applications and restart. If this doesn't work it may be necessary to reinstall the printer driver software.

Using On-line Help

Two types of on-line help provide information about the printer software.

Printer Software Help

Type of help	Provides	How to access/where to find
Balloon Help	Pop-up information about options in the dialog boxes when you move the mouse cursor over certain parts of the screen.	1. Choose Show Balloons from the Help menu in the upper right corner of the menu bar. (If this option is not available Balloon help is already on.) 2. To turn off Balloon help, choose Hide Balloons from the Help menu.
ReadMe Files	Release notes and current information.	1. On the Driver Installation Disk. 2. On the Fonts Installation Disk.

The Printing System

Printing systems contain hardware and software components which must work together properly before printing can take place. The printer driver provides the interface between the software applications that support printing, the computer's hardware, and the printer. The basic printing system consists of the following:

1. Host computer (PC or Macintosh)

2. Application software (word processing, graphics design, desktop publishing, etc.)

3. Printer driver (specific to your printer and, in some cases, your application software)

4. Printer cable

5. Printer (HP DeskJet or DeskWriter)

6. The paper or other media upon which printing will take place

Note   Printing systems in networks may contain a somewhat different configuration of hardware and software.

HP ColorSmart printer drivers not only provide the hardware/software interface, but also allow bi-directional communication between the printer and the computer. Bi-directional communication allows printing information to flow from the computer to the printer, and printer status and error information to flow back from the printer to the computer.

Resolving Printing System Problems

Many printer problems and their solutions are reported in error messages that appear on the computer's screen. When one of these messages is received, follow the instructions given. Check the HP DeskJet Status Monitor (MS Windows users) or the Print Monitor (Macintosh) for information on the current status of the printer.

If you haven't received an error message on the computer's screen but have noted a problem with your printer, read through the troubleshooting topics that follow to find one that matches your printer's symptoms.

Troubleshooting Hints

The table below describes DeskJet and DeskWriter printing system problems along with their causes and solutions.

Note   To save time diagnosing printing system problems, the Possible Cause column in the table below is given with the most likely cause listed first. If the printing system does not respond correctly after trying the first solution, proceed the next, etc.

Printing System Problems, Causes and Solutions

Problem	Possible Cause	Solution
Printer does not print. (Power light on, Form Feed light off)	The printer driver is still preparing data to send to the printer.	Wait a few minutes. Some computers take several minutes of processing time before sending any data to the printer.
	The interface connection or the interface cable has failed.	1. Verify the interface cable is an approved interface cable. (Must conform to IEEE 1284-B standards) 2. The interface cable may be faulty. Check the interface cable connections or try another interface cable. 3. Wrong interface connection. For example, the printer is connected to the serial port (e.g. COM1) rather than a parallel interface port.
	Failure of the host computer.	1. Verify the host is operating correctly by printing to another printer. 2. The computer-to-printer connection has failed. Unplug the printer from the host computer and try printing a self-test. If the self-test prints OK, verify the host computer and interface cable are functional by printing to a different printer using the same printer port and printer cable.
	The problem is caused by TSR programs or the application software.	1. Close (or "rem-out") any screen saver or other TSR (Terminate Stay Resident) software programs (such as MacDisk) that are open and running in the background. Restart your computer. 2. Your software program is not set up for the printer. Follow the instructions in your software program manual for setting up the software to run with the printer.

Printing System Problems, Causes and Solutions (Cont.)

Problem	Possible Cause	Solution
Printer does not print. (Cont.) (Power light is on, the Form Feed light is off)	The wrong printer is selected	(MS Windows) Open the Printers dialog box in the MS Windows Control Panel and verify that the correct printer is selected. (An on-screen message may ask you to open Page Setup in your application.) (Macintosh) Open the Chooser, select the correct printer, and close the Chooser. (An on-screen message may ask you to open Page Setup in your application.)
	The problem is caused by the printer driver.	It may be necessary to reinstall the printer driver software using the instructions from the setup card.
	The printer's name does not appear in the Installed Printers list in the Printers dialog box in the MS Windows Control Panel.	1. Close all TSRs (screen savers and other software that runs in the background). 2. Exit and then restart MS Windows. 3. Verify all TSRs remained closed. 4. Reinstall the printer driver using the instructions from the setup card.
	The problem is caused by the application software or the printer driver.	1. Restart Windows and print the self-test from the HP Toolbox. 2. Verify the proper printer driver and parallel port are selected. The printer driver's name should appear in the Installed Printers dialog box. 3. Close any screen saver or other TSR (Terminate Stay Resident) software programs that are open and running in the background. Restart your computer. 4. It may be necessary to reinstall the printer driver software using the instructions from the setup card. 5. Your software program is not set up for the printer. Follow the instructions in your software program manual for setting up the software to run with the printer.

Printing System Problems, Causes and Solutions (Cont.)

Problem	Possible Cause	Solution
The printer does not print. (All lights are blinking)	The printer-to-computer connection failed.	1. Switch off the printer, disconnect the printer cable, switch the printer on. 2. If the Power light comes on and the Form Feed light remain off, print a sample page. 3. If the sample page prints, the printer is not the problem. 4. Reconnect the printer cable and re-send the file. 5. If the problem persists, the problem may be with the printer cable, the cable connections, or the computer port. (First, try another printer cable.)
	The printer has failed.	1. Switch off the printer, disconnect the printer cable, switch the printer on. 2. If all lights begin blinking again, the printer is faulty.
The printout contains garbled or strange text characters (such as hearts or smiling faces), or contains distorted graphic images.	The wrong printer may be selected.	Verify that the proper printer driver is selected. The printer driver's name should appear in the installed printer's dialog box (MS Windows) or the Chooser menu (Macintosh).
	The printer-to-computer connection failed.	1. Switch off the printer, disconnect the printer cable, and switch the printer on. 2. Print a self-test (or demo) page. 3. If the self-test page prints, the printer is not the problem. 4. Reconnect the printer cable and re-send the file to the printer. 5. If the printout is still garbled, the problem may be with the printer cable, the cable connections, or the computer host. Try another printer cable. Try a different computer.
The paper does not eject from the printer.	The printer did not receive a form-feed command.	If the software does not send automatic form-feed commands, press the Form Feed key on the printer to initiate a manual form-feed.

Printing System Problems, Causes and Solutions (Cont.)

Problem	Possible Cause	Solution
The colors in the printout do not match the colors on the host computer's monitor.	The printer driver settings may not be correct for your monitor.	Verify that your print cartridges are at room temperature and have plenty of ink, then try the following: 1. Verify that Complex Color Printing or Color Match option is selected in the Options menu of the Printer Setup menu. 2. Try a different dithering method. See the "User's Guide" for your printer for dithering recommendations.
The printout contains faint or fuzzy print.	The printer driver settings, the pens, or the selected media may be faulty.	Verify the print cartridges are at room temperature, and have plenty of ink. Verify that the print settings are appropriate for the media selected. Make sure the correct print settings are selected in the printer driver. (The printer driver settings should appear in the Installed Printers dialog box.)

Printer Troubleshooting Hints

Troubleshooting Tools

The following table lists the tools needed for general printer maintenance.

Recommended Troubleshooting Tools and Supplies

Tool	Purpose
Tissue	Print Cartridge Cleaning Operations.
Lint -free cloth	Cleaning the Printer and the Print Cartridge Contacts.
Computer vacuum	Loosening and removing paper dust and other particulate matter from the interior of the printer.
Distilled water	Used for all cleaning purposes requiring water.

HP Toolbox (MS Windows Users)

HP Toolbox helps you diagnose and solve common printing problems. To access HP Toolbox, double-click the Toolbox icon in the HP DeskJet Utilities program group. Then follow the symptoms and solutions that apply.

Note   Instead of the HP Toolbox, earlier versions of MS Windows printer drivers used Dr. DeskJet which performed similar functions. To access Dr. DeskJet, double-click the Dr. DeskJet icon in the HP DeskJet Utilities program group. Then follow the symptoms and solutions that apply.

Troubleshooting Flowcharts

Troubleshooting Flowcharts - Power-On Section

See "EX" and "EZ" See "CSP200"

Power-On Section

Start

Turn on the printer.

Power light turns on? — No → 1. Verify the power module is plugged into a powered AC receptacle.
2. Verify the power module is plugged into the printer.
3. Check the power module with another printer.
4. Unplug the interface cable.

Yes

Yes ← Power light turns on? — No → Return for service. See "CSP100" and "CSP210" customer codes.

Printer noisy? — Yes → 1. Check for obstructions or loose parts.
2. Determine noise is excessive for product.

No

No ← Still Noisy? — Yes → Return for service. See "CPN100" or "CPN105" customer codes.

Carriage Moves & Power/Ready light on steady? — No → Control panel light(s) flashing? — No → 1. Verify the computer is on.
2. Disconnect the printer from the computer.

Yes   Yes

1. Check for carriage obstruction.
2. Check for missing/incorrect print cartridge.

Yes ← Flashing? — No → Return for service. See "CSP200" customer code.

Go to the Self-Test section of the Flowchart ← No — Still flashing? — Yes → See Printer Diagnostic Information/Error Light Indications. See "CSP205", and "CSP215" customer codes.

Troubleshooting Flowcharts - Self-Test Section

Self-Test Section

Run the printing self-test.

Does the self-test match the example in Printer Diagnostic Information? — **No** → Control panel lights flashing? — **Yes** → See Printer Diagnostic Information/Error Light Indications. See "CSP205" and "CSP215" customer codes.

Control panel lights flashing? — **No** → Is the printout complete? — **No** → Return for service. See "CGT100" through "CPG115" customer codes.

Is the printout complete? — **Yes** → Is the print quality good? — **No** → See Print Quality Problems. See "CGT100" through "CPG115" customer codes.

Is the print quality good? — **Yes** → (to Printer noisy?)

Does the self-test match... — **Yes** → Printer noisy?

Printer noisy? — **Yes** → 1. Check for obstructions or loose parts.
2. Determine noise is excessive for product.

→ Still Noisy? — **Yes** → Return for service. See "CPN100" and CPN105" customer codes.

Still Noisy? — **No** → Go to the Macintosh or PC Connect Sections of the Flowchart

Printer noisy? — **No** → Go to the Macintosh or PC Connect Sections of the Flowchart

Troubleshooting Flowcharts - PC Connect Section

PC Connect Section

From the Self-Test Section

Can standard ASCII text be printed (dir, edit)?

No

1. Reconnect the interface cable.
2. Try another interface cable.
3. Verify the printer and computer are properly configured.
4. Try the printer with another computer.

Yes

Print ASCII text?

Yes

No

Return for service. See "CKK100 " and "CKK105" customer codes.

Print from an MS Windows Application?

No

1. Check that the driver version is correct.
2. Check the configuration in the MS Windows control panel.

Yes

Print from MS Windows?

Yes

No

Return printer for service and document the error and its symptoms. See "Warranty and Support Information" for customer code information.

At this point, the printer should be operating normally. However, if it is not, return it for service along with a complete description of the problem.

Troubleshooting Flowcharts - Macintosh Connect Section

Macintosh Connect Section

From the Self-Test Section

Prints from a Macintosh Computer?

No →

1. Verify the correct printer is selected in the Chooser (AppleTalk or Serial).
2. If AppleTalk, verify that AppleTalk is active in the Chooser.
3. If connected serially, verify that AppleTalk is inactive in the Chooser.
4. Verify the correct port is selected in the Chooser.
5. Reconnect the interface cable.
6. Try another interface cable.
7. Try the printer with another computer.

Yes

Print ok?

Yes

No →

Return for Service. See "CKK100 " and "CKK105 " customer codes.

At this point, the printer should be operating normally. However, if it is not, return the printer for service and document the error and its symptoms. See "Warranty and Support Information" for additional customer code information.

MacIntosh Troubleshooting

Note   HP periodically provides updates of the printer software.
           These updates may include enhancements that improve
           printer performance.

Problems and Solutions

Problem	Solution
Printer won't print	Open the Chooser and verify that the correct printer is selected.
Printer icon does not appear on the left side of the Chooser.	Make sure that the printer is turned on.
	Make sure that the printer driver icon is in the Extensions Folder.
The printer name does not appear on the right side of the Chooser or the HP DeskWriter family printer is not listed.	Make sure the printer is turned on.
	Open the Chooser and make sure AppleTalk is active.
Power light is On, the Resume light is Off.	Check that the correct printer is in the Chooser, then close all applications and restart. If this doesn't work it may be necessary to reinstall the printer driver software.

HP DeskJet Printers

Cable and Connector Information

Recommended Interface Cables

| Host Interface	HP Cable Part Number	Cable Length	Cable Connectors
HP IEEE-1284 Compliant Cable	C2950A	2 Meters	DB-25 Male to 36-Pin Centronics Male
HP IEEE-1284 Compliant Cable	C2951A	3 Meters	DB-25 Male to 36-Pin Centronics Male

Interface Specifications

HP DeskJet printers communicate with computers through a single IEEE1284-B parallel I/O interface connector. For more information about interface connection and operation, see "DOS I/O Interface Description."

Communication Modes and Supported Protocols

Category	Specification
Interface Protocol	IEEE-1284 Compatible
Communication Modes Available	Compatible (Centronics) Nibble ECP

IEEE-1284 Interface Connector
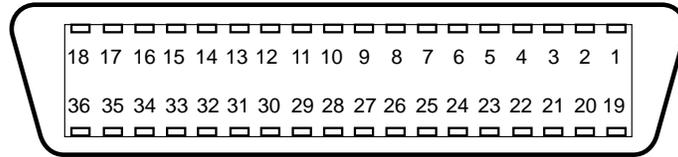
2162989

IEEE-1284 Interface Port (DOS/MS Windows)

Pin Number	Source	Compatibility Mode	Nibble Mode	ECP Mode
1	Host	nStrobe	HostClk	HostClk
2	Bi-Directional		Data 1 (LSB)	
3	Bi-Directional		Data 2	
4	Bi-Directional		Data 3	
5	Bi-Directional		Data 4	
6	Bi-Directional		Data 5	
7	Bi-Directional		Data 6	
8	Bi-Directional		Data 7	
9	Bi-Directional		Data 8	
10	Bi-Directional	nAck	PrtClk	PeriphClk
11	Bi-Directional	Busy	PrtBusy	PeriphAck
12	Bi-Directional	PError	AckDataReq	nAckReverse
13	Bi-Directional	Select	Xflag	Xflag
14	Host	nAutoFd	HostBusy	HostAck
15				

IEEE-1284 Interface Port (DOS/MS Windows) (Cont.)

Pin Number	Source	Compatibility Mode	Nibble Mode	ECP Mode
16			Logic Gnd	
17			Chassis Gnd	
18	Peripheral		Peripheral Logic High	
19			Signal Ground (nStrobe)	
20			Signal Ground (Data 1)	
21			Signal Ground (Data 2)	
22			Signal Ground (Data 3)	
23			Signal Ground (Data 4)	
24			Signal Ground (Data 5)	
25			Signal Ground (Data 6)	
26			Signal Ground (Data 7)	
27			Signal Ground (Data 8)	
28			Signal Ground (Perror, Select, nAck)	
29			Signal Ground (Busy, nFault)	
30			Signal Ground (nAuto Fd, nSelectLn, nInit)	
31	Host	nInit	nInit	nReverseRequest
32	Peripheral	nFault	nDataAvail	nPeriphRequest
36	Host	nSelectLn	1284 Active	1284 Active

DOS I/O Interface Description

The IEEE-1284 standard defines a signaling method for bi-directional parallel communications between hosts and printers or other peripheral devices. This standard provides improved performance and bi-directional (two-way) communication, allowing a new generation of "intelligent" peripherals to talk and listen to the host device.

HP DeskJet printers have an IEEE 1284-B parallel I/O interface connector. This interface adheres to the IEEE 1284-B parallel interface standard which was derived from the earlier "Centronics®" interface. Firmware in HP DeskJet printers support the following modes of operation through the IEEE 1284-B parallel interface port:

- Compatibility Mode
- Nibble Mode
- Extended Capabilities Port (ECP) mode

Printer drivers on host computers "negotiate" with the printer to switch from one mode to another. If an error occurs while in Nibble or ECP mode, the interface automatically reverts to Compatibility mode.

HP DeskJet printer drivers meet the IEEE 1284-B standard for Level 1 devices. Input receivers meet the standard for Level 2 devices. This allows HP DeskJet printers to be connected to either a Level 1 or Level 2 host.

Level 1 devices drive the interface with 5 V TTL circuits. Their requirements are consistent with pre-existing installed devices and they can operate with any other Level 1 compliant device. Level 1 devices are characterized by steady-state electrical specifications.

Level 2 devices use output drivers with 45-55 ohms output impedance and TTL receivers with 0.2 V- 1.2 V hysteresis. Level 2 devices capitalize on the transmission-line characteristics of the connecting cable, providing faster data transmission.

Compatibility Mode

Compatibility mode is a unidirectional mode of operation in which data flows from the host computer to the printer. It is the mode that has, in the past, been called "Centronics."

Nibble Mode

Nibble mode is a unidirectional mode of operation in which data moves from the printer to the host computer. HP DeskJet printers and most computer hosts can operate in nibble mode. Hosts can switch back and forth between compatibility and nibble modes, thus establishing limited two-way (bi-directional) communication. The host must place itself and the printer into nibble mode to receive status from the printer. This type of bi-directional communication has previously been called "Bitronics."

ECP Mode

ECP mode provides a true bi-directional link between the printer and the host computer. HP DeskJet printers and most computer hosts can operate in ECP mode. ECP mode, combined with the HP proprietary communication protocol, allows the Remote Control Panel for DOS and the HP DeskJet Status Monitor for MS Windows to receive and display status information from the printer.

HP DeskWriter Printers

Cable and Connector Information

Recommended Interface Cables

| Cable Type	HP Cable Part Number	Apple Cable Part Number
AppleTalk Network	92215N	M2068
RS-422-A High-Speed Clocked Serial	92215S	M0197

Interface Specifications

HP DeskWriter printers have an 8-pin mini-DIN interface connector port. This connector port is compatible with RS-422-A serial, AppleTalk, and high-speed externally-clocked serial mode communication. The printer automatically determines if it is connected to an AppleTalk network or directly to a Macintosh printer port.

Communication Modes and Supported Protocols

Category	Macintosh I/O Connector
Communication Modes	RS-422-A High-speed Serial
	AppleTalk (230.4 Kbaud)
Macintosh Protocols	Serial Pacing Protocol (SPP)
	AppleTalk Transaction Protocol (ATP)
	AppleTalk Link Access Protocol (ALAP)
	Datagram Delivery Protocol (DDP)
	Echo Protocol (EP)
	Name Binding Protocol (NBP)
	Printer Access Protocol (PAP)
	Routing Table Maintenance Protocol (RTMP)

RS-422 Interface Connector (8-pin Mini-DIN)

TxD+
RxD+
TxD-
RxD-
Ground
HSKo or DTR[1]
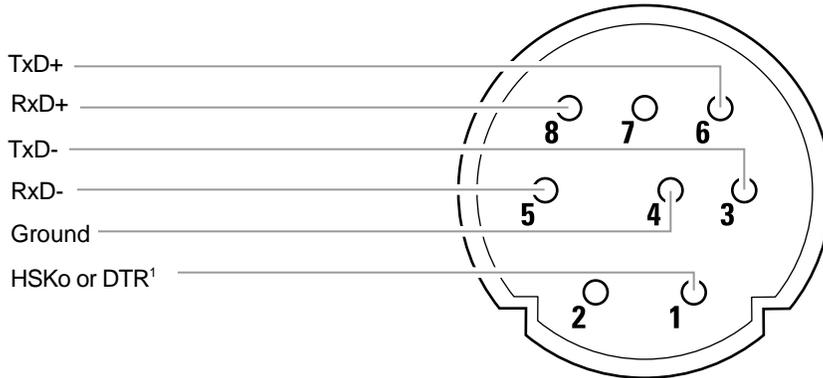
2124073

RS-422 Interface Port (AppleTalk)

Pin Number	Interface Pin Name	Interface Pine Description
1	DTR	Data Terminal Ready Output Handshake
2	NC	No Connection in Printer (Do not connect to ground or any other pin)
3	TxD-	Transmit Data Line
4	Ground	Shield Ground
5	RxD-	Receive Data Line
6	TxD+	Transmit Data Line
7	NC	No Connection
8	RxD+	Receive Data Line

Note   HP DeskWriter printer interface ports conform to RS-422 and cannot be configured to operate as RS-232-C.

Mac I/O Description

HP DeskWriter printers detect and monitor which interface mode (serial or LocalTalk) is present, and automatically switch to the appropriate protocol. The printers determine if they are connected to a LocalTalk node by detecting the presence or absence of a transformer at the interface connector port. (A transformer detected at the interface connector indicates the printer is connected to an LocalTalk network.) If the mode changes while the printer is on, the printer restarts.

HP DeskWriter printers are compatible with two Macintosh serial interface modes:

- RS-422-A (57.6 Kbaud)
- Clocked

RS-422-A signals are modulated against an inverted copy of the modulated signal (for example RxD- and RxD+). Data communication occurs by sensing which line is more negative than the other. Sensing line polarity in respect to an inverted signal is more immune to interference and noise than to a signal compared to a common ground. The signal is also less likely to degrade over longer cable distances.

If a serial connection is made and "clocked" mode is detected, the printer switches from DTR mode (the default at power-up) to SPP mode. The printer selects a frequency for the clocking and clocks the DTR line at that frequency.

In AppleTalk mode, the printer receives data in a synchronous serial bit stream at 230.4 K bits per second and converts the data to parallel.

Note   The Macintosh I/0 connector is RS-422-A compatible. It is not possible to use this port as an RS-232-C serial interface port.