

HP DeskWriter 500 Printer Family Technical Support Solutions Guide

**HP DeskWriter, HP DeskWriter C, HP DeskWriter 510,
HP DeskWriter 520, HP DeskWriter 550C, and HP DeskWriter 560C Printers**



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This document, which is the fourth in a series of *HP DeskWriter Printer Family Technical Support Solutions Guides*, replaces the preceding *HP DeskWriter Printer Family Technical Support Solutions Guides*. The printing history of this guide is as follows:

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¹ For more information on technical support solution guides, see "Lists of Technical Support Solutions Guides" in chapter 1 of this document.

² The third version applies to the HP DeskWriter Printer family in the U.S. and Intercon.

³ The fourth version applies to the HP DeskWriter Printer family in Europe only.

⁴ The fifth version is this current document. This document replaces the third and fourth versions of the document.

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This document uses special conventions to clarify information and ensure your safety and the safety of the product. Pay special attention to the information highlighted in the following ways:

Italic type is used for titles of publications and to emphasize information in a paragraph.

Warning

The warning text is used where potential danger to an individual may occur.

Caution

The caution text is used where potential danger to equipment may occur.

Note

The note text is used where attention to special instructions appear.

About This Guide

This guide is designed as a reference for people who provide post-sale technical support to end-users of the HP DeskWriter, HP DeskWriter with AppleTalk, HP DeskWriter C, HP DeskWriter 510, HP DeskWriter 520, HP DeskWriter 550C, and HP DeskWriter 560C printers. It represents a collection of information gathered from Hewlett-Packard's dealer and end-user support organizations. The purpose of this guide is to provide answers to frequently asked questions and solutions to common problems.

While the content of this guide is quite comprehensive, it is not all inclusive. Therefore, it is not a substitute for other types of product documentation, such as the user's guide and the setup guide.

Organization

This guide is organized to help you quickly locate the information you need. You will find a table of contents in the front of this guide and a comprehensive index at the back of this guide. The first page of each chapter also contains a table of contents for that chapter.

Your constructive criticism will help us create better guides in the future. If you have comments concerning this guide, please complete the Reader's Comment Sheet located in the front of this guide.

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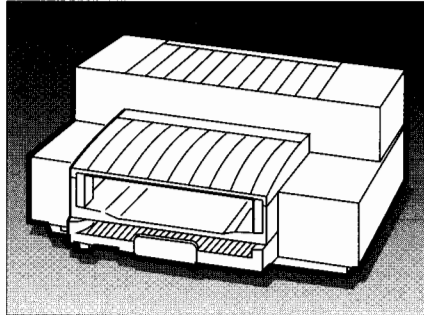
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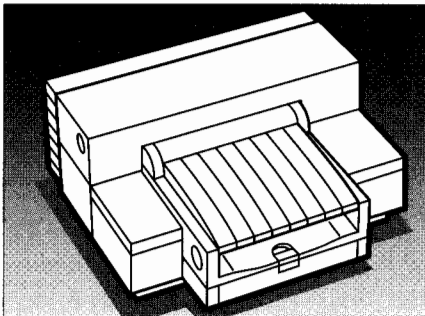
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HP DeskWriter Series Printers

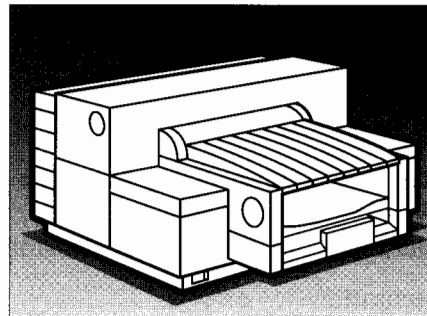
Overview



HP DeskWriter and HP DeskWriter C



HP DeskWriter 550C
(with an IN Tray Drawer)



HP DeskWriter 510, HP DeskWriter 520,
HP DeskWriter 550C, and HP DeskWriter 560C
(with a Paper Tray Extender)

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Figure 1-1. HP DeskWriter Printer Family (Distinguished by the Top Covers and In Tray Design)

Note

The current products are the HP DeskWriter C, HP DeskWriter 520, HP DeskWriter 550C, and HP DeskWriter 560C printers.

HP DeskWriter Series Printers Model Numbers

Table 1-1. Monochrome HP DeskWriter Series Printers

Printer	Model Number	Status	Comments
HP DeskWriter 520	C2171A	Available	HP's most affordable high-quality desktop printer.
HP DeskWriter 510	C2106A	Discontinued	<ul style="list-style-type: none"> The HP DeskWriter 510 printer was available in Europe only. Discontinued in Europe as of the introduction of the HP DeskJet 520 printer.
HP DeskWriter with AppleTalk	HP 2279A	Discontinued	<ul style="list-style-type: none"> Discontinued in Europe after the introduction of the HP DeskWriter 510 printer. Discontinued in the U.S. and intercon as of the introduction of the HP DeskWriter 520 printer.
HP DeskWriter	HP 2278A	Discontinued	<ul style="list-style-type: none"> Discontinued after the introduction of the HP DeskWriter with AppleTalk (HP 2279A)

Table 1-2. One Print Cartridge (Black or Color) HP DeskWriter Series Printers

Printer	Model Number	Status	Comments
HP DeskWriter C	C2113A	Available	This printer can hold one print cartridge at a time (black or color).

Table 1-3. Two Print Cartridge (Black and Color) HP DeskWriter Series Printers

Printer	Model Number	Status	Comments
HP DeskWriter 560C	C2169A	Available	HP's affordable high-quality black and color printer.
HP DeskWriter 550C	C2124A	Available	Earlier versions had an IN tray drawer design. Later versions had a paper tray extender IN tray design. See "Views" in this chapter.

Views

Note

For physical dimensions, see "Physical Specifications" later in this chapter.

Front Views

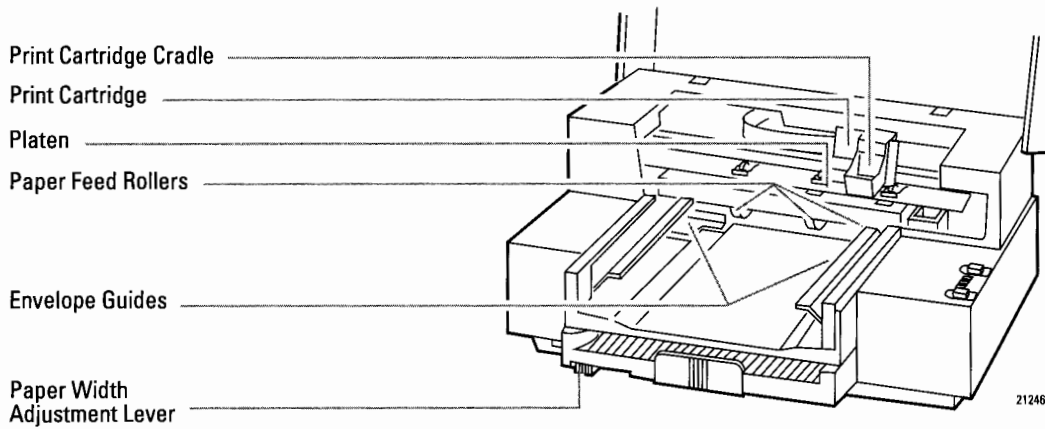
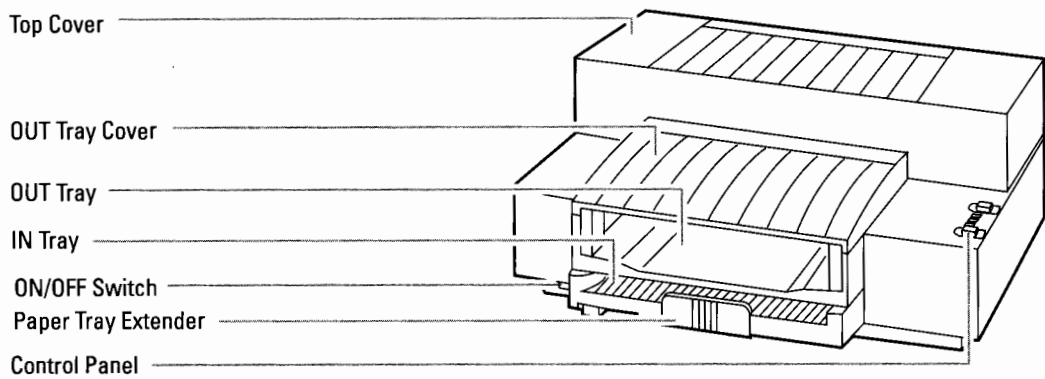
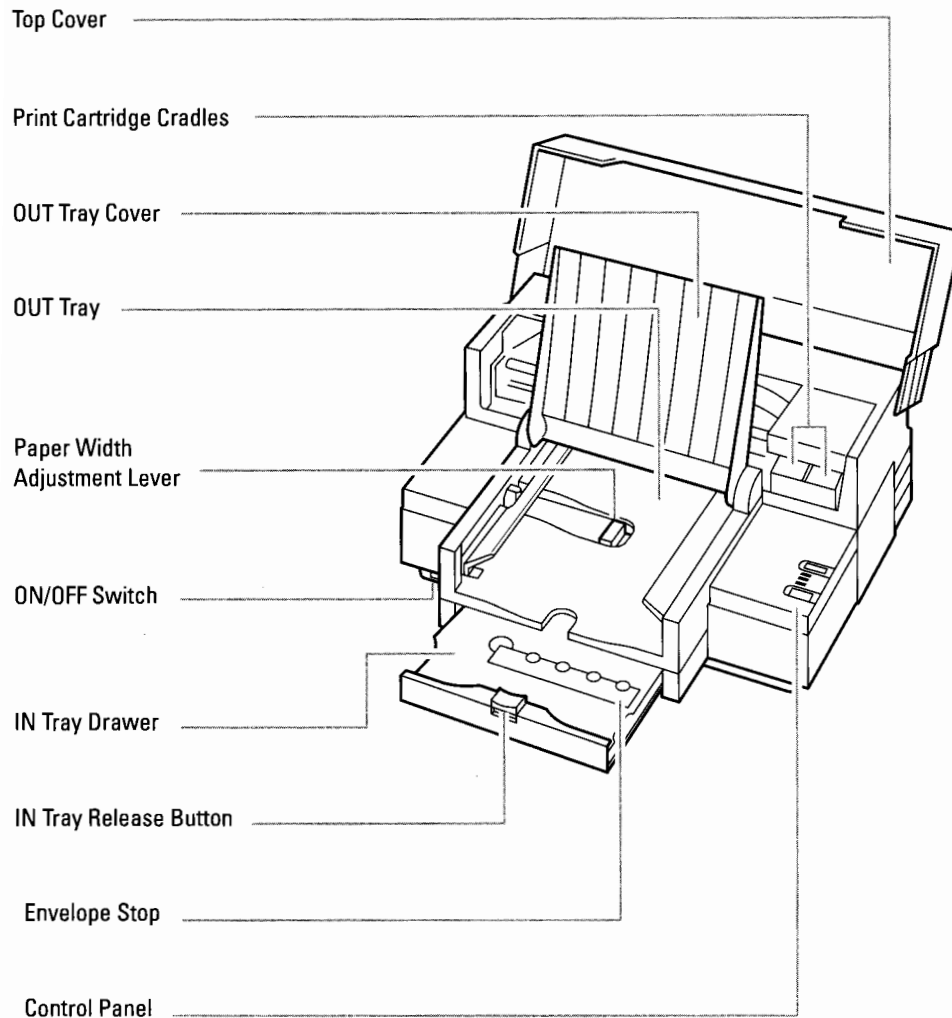
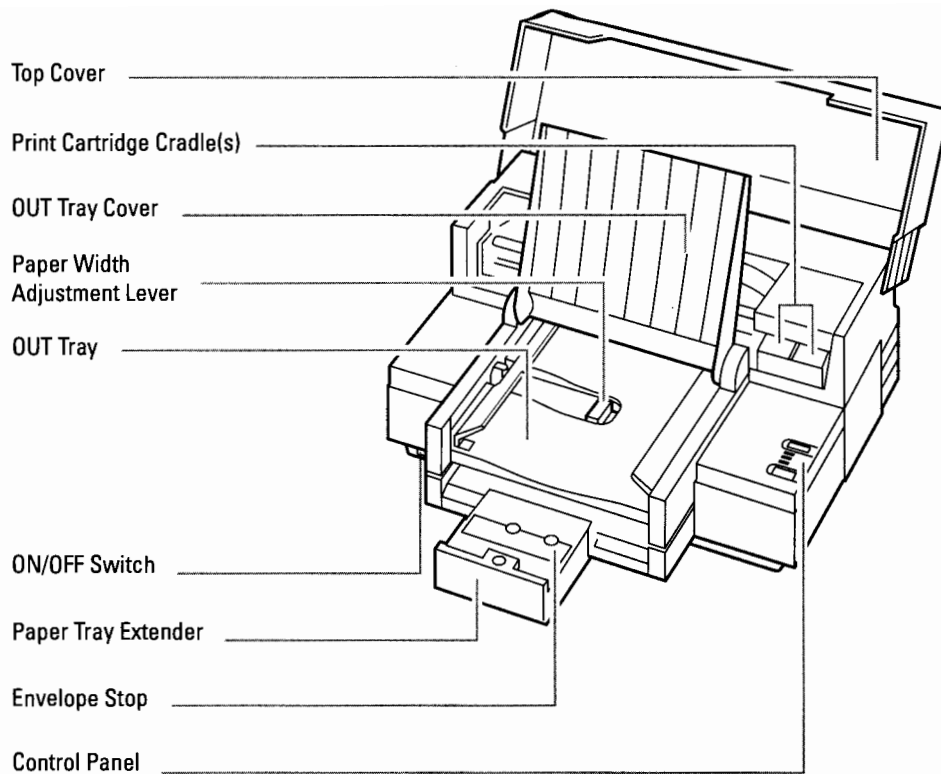


Figure 1-2. HP DeskWriter and HP DeskWriter C Printers



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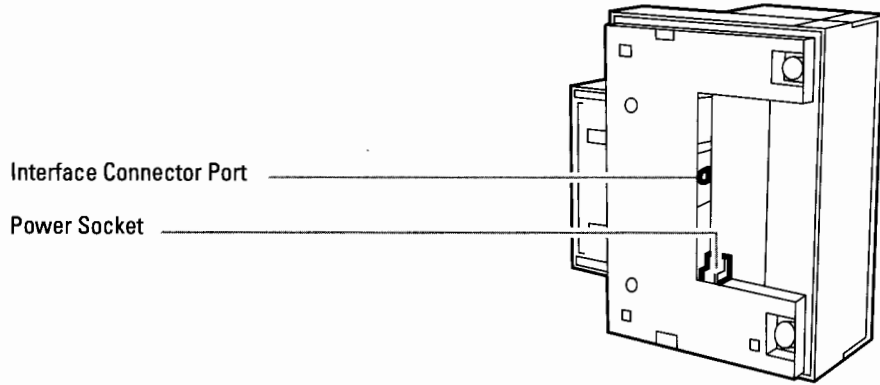
Figure 1-3. HP DeskWriter 550C Printer (With IN Tray Drawer)



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Figure 1-4. HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C (with Paper Tray Extender)

Rear View



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Figure 1-5. HP DeskWriter Printer Family, Rear and Bottom View

Ordering Printer Options

The printers in the HP DeskWriter printer family are the same for all countries. The power module and the set of user documentation, however, varies for the region's needs.

Note

- The following table does not list the printer option numbers for the discontinued HP DeskWriter Series printers.
- There are no other printer options for the HP DeskWriter Series printers. See table 1-7 for available supplies and accessories.

Table 1-4. Printer Options in the HP DeskWriter Printer Family

Region or Country	Available Printer Option Numbers				Power Module Included	Language of User Documentation
	DeskWriter C	DeskWriter 520	DeskWriter 550C	DeskWriter 560C		
Argentina	C2113A AC8	C2171A AC8	C2124A AC8	C2169A AC8	17922B	Spanish
Australia	C2113A ABG	C2171A ABG	C2124A ABG	C2169A ABG	17722B	English-Europe
Brazil		C2171A AC4	C2124A AC4	C2169A AC4	17122B	Portuguese
Canada (English)	C2113A ABA	C2171A ABA	C2124A ABA	C2169A ABA	17122B	English
Canada (French)	C2113A ABC	C2171A ABC	C2124A ABC	C2169A ABC	17122B	French
Czechoslovakia		C2171A AKB		C2169A AKB	17222B	Czechoslovakian
Denmark		C2171A ABY	C2124A ABY	C2169A ABY	17822B	Danish
Denmark	C2113A ACE				17822B	English-Europe
Europe	C2113A ABB	C2171A ABB	C2124A ABB	C2169A ABB	17222B	English-Europe
Finland		C2171A ABX	C2124A ABX	C2169A ABX	17222B	Finnish
France	C2113A ACS	C2171A ACS	C2124A ACS	C2169A ACS	17222B	French
Germany	C2113A ACT	C2171A ACT	C2124A ACT	C2169A ACT	17222B	German
Hungary		C2171A AKC		C2169A AKC	17222B	Hungarian
Intercon	C2113A ABK	C2171A ABK	C2124A ABK	C2169A ABK	None	English-Europe
Italy	C2113A ABZ	C2171A ABZ	C2124A ABZ	C2169A ABZ	17222B	Italian
Japan	C2113A ABJ	C2171A ABJ	C2124A ABJ	C2169A ABJ	9100-5009	Japanese
Latin America	C2113A ABM	C2171A ABM	C2124A ABM	C2169A ABM	17122B	Spanish
Norway		C2171A ABN	C2124A ABN	C2169A ABN	17222B	Norwegian

Table 1-4. Printer Options in the HP DeskWriter Printer Family (Continued)

Region or Country	Available Printer Option Numbers				Power Module Included	Language of User Documentation
	DeskWriter C	DeskWriter 520	DeskWriter 550C	DeskWriter 560C		
Netherlands	C2113A ACU	C2171A ACU	C2124A ACU	C2169A ACU	17222B	Dutch
Poland		C2171A AKD		C2169A AKD	17222B	Polish
Portugal		C2171A AB9	C2124A AB9	C2169A AB9	17222B	Portuguese
South Africa	C2113A ACQ	C2171A ACQ	C2124A ACQ	C2169A ACQ	17622B	English-Europe
Spain	C2113A ABE	C2171A ABE	C2124A ABE	C2169A ABE	17222B	Spanish
Sweden	C2113A ABS	C2171A ABS	C2124A ABS	C2169A ABS	17222B	Swedish
Switzerland (French)	C2113A ABQ	C2171A ABQ	C2124A ABQ	C2169A ABQ	17522B	French
Switzerland (German)	C2113A ABP	C2171A ABP	C2124A ABP	C2169A ABP	17522B	German
Switzerland (Italian)	C2113A ACN	C2171A ACN	C2124A ACN	C2169A ACN	17522B	Italian
United Kingdom	C2113A ABU	C2171A ABU	C2124A ABU	C2169A ABU	17422B	English-Europe
USA	C2113A ABA	C2171A ABA	C2124A ABA	C2169A ABA	17122B	English

Supplies and Accessories

Table 1-5. Supplies and Accessories for the HP DeskWriter Printer Family

Item	Part Number	Supply/Accessory Description
Print Cartridges	51608A 51626A 51625A	Original Inkjet Print Cartridge (Black Ink) High-Capacity Inkjet Print Cartridge (Black Ink) Color Inkjet Print Cartridge (Cyan, Magenta, and Yellow Inks) ¹
Miscellaneous Accessories	92250R 92177Z C2113-60003	Dust Cover Printer Organizer Print Cartridge Storage Container ²
Special Media	51636F 51636G 51636H 51636J 51630Y 51630Z	LX JetSeries Transparency Film ³ U.S. Letter Size European A4 Size LX JetSeries Glossy Paper ³ U.S. Letter Size European A4 Size CX JetSeries CutSheet Paper ⁴ U.S. Letter Size European A4 Size
PostScript Drivers	See table 1-6	PostScript™ Software for the HP DeskWriter Family
Power Modules	See table 1-7.	
Interface Cables	See table 2-4.	
Special Tools	02279-60004 02227-60030	HP DeskWriter test box (I/O self-test troubleshooting tool) Fuse Module Troubleshooting Tool (See "Fuse Module" in chapter 5.)
Documentation	See table 1-8.	

1. The 51625A color print cartridge is not compatible with the HP DeskWriter, DeskWriter 510 and DeskWriter 520 printers.
2. The print cartridge storage container, which holds one black and one color print cartridge, is included with the HP DeskWriter C printer.
3. The LX JetSeries Transparency Film is intended for printing on the HP DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers. The LX JetSeries Glossy Paper is intended for printing on the HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers.
4. The CX JetSeries Paper is intended for high-quality color-only printing with the HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C printers. When printing black on CX JetSeries paper, use composite black (from a color print cartridge) rather than black ink (from a black print cartridge).

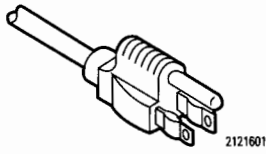
Table 1-6. PostScript™ Software for the HP DeskWriter Family¹

Language	HP Product Number
English (USA and Canada)	C2137AA
English (Europe)	C2137AB
French	C2137AF
Spanish	C2137AE
German	C2137AD
Italian	C2137AZ
Swedish	C2137AS

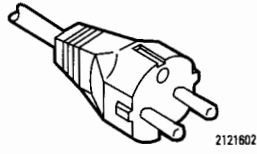
1. For HP DeskWriter 520, DeskWriter 550C, and DeskWriter 560C Printers Only.

Power Module Information

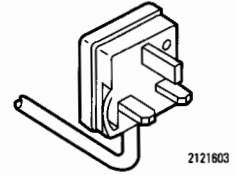
Plug Types



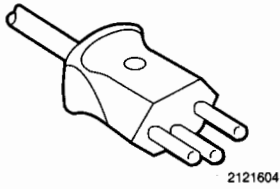
17122B
17322B



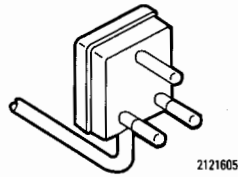
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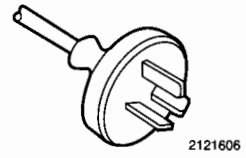
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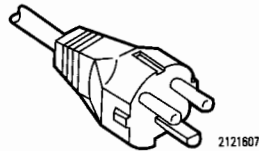
17522B



17622B



17722B
17922B



17822B

Figure 1-6. Power Module Plug Types

Part Numbers for Countries and Regions

Table 1-7. Power Module Product Numbers and Part Numbers

Country or Region	Region's AC Voltage	Order Power Module	
		HP Product Number	HP Part Number
Argentina	220 VAC	17922B	9100-4519
Australia	240 VAC	17722B	9100-4522
Canada	120 VAC	17122B	9100-4503
China	220 VAC	17222B	9100-4505
Cyprus	240 VAC	17422B	9100-4509
Denmark	220 VAC	17822B	9100-4528
Egypt	220 VAC	17222B	9100-4505
Europe, East and West	220 VAC	17222B	9100-4505
India	220 VAC	17622B	9100-4526
Japan	100 VAC	17322B	9100-4507
Korea	100 VAC	17322B	9100-4507
Libya	220 VAC	17622B	9100-4526
Mexico	120 VAC	17122B	9100-4503
New Zealand	240 VAC	17722B	9100-4522
Papua New Guinea	220 VAC	17922B	9100-4519
Philippines	120 VAC	17122B	9100-4503
Saudi Arabia	220 VAC	17222B	9100-4505
Singapore	240 VAC	17422B	9100-4509
South Africa	220 VAC	17622B	9100-4526
Spain	220 VAC	17222B	9100-4505
Sudan	240 VAC	17422B	9100-4509
Switzerland	220 VAC	17522B	9100-4524
Taiwan	120 VAC	17122B	9100-4503
United Kingdom	240 VAC	17422B	9100-4509
Uruguay	220 VAC	17922B	9100-4519
USA	120 VAC	17122B	9100-4503

User Documentation

Table 1-8. User Documentation for the HP DeskWriter Printer Family

Language	DeskWriter (Z778A)	DeskWriter (Z779A)	DeskWriter C	DeskWriter 510	DeskWriter 520	DeskWriter 550C ¹	DeskWriter 550C ²	DeskWriter 560C
English	02278-60034	02279-60056	C2113-60123		C2171-60010	C2124-60009	C2124-60120	C2169-60010
Danish				C2128-60032	C2171-60012	C2124-60025	C2124-60122	C2169-60012
Dutch		02279-60064	C2113-60125	C2128-60033	C2171-60013	C2124-60026	C2124-60123	C2169-60013
English-Europe		02279-60057	C2113-60124	C2128-60031	C2171-60011	C2124-60024	C2124-60121	C2169-60011
Finnish				C2128-60034	C2171-60014	C2124-60027	C2124-60124	C2169-60014
French	02278-60035	02279-60058	C2113-60126	C2128-60035	C2171-60015	C2124-60028	C2124-60125	C2169-60015
German	02278-60036	02279-60059	C2113-60127	C2128-60036	C2171-60016	C2124-60029	C2124-60126	C2169-60016
Italian	02278-60037	02279-60061	C2113-60128	C2128-60037	C2171-60017	C2124-60030	C2124-60127	C2169-60017
Japanese		02279-60008	C2113-60131		C2171-60023	C2124-60035	C2124-60132	C2169-60023
Norwegian				C2128-60038	C2171-60018	C2124-60031	C2124-60128	C2169-60018
Portuguese				C2128-60039	C2171-60019	C2124-60032	C2124-60129	C2169-60019
Spanish	02278-60038	02279-60062	C2113-60129	C2128-60040	C2171-60020	C2124-60033	C2124-60130	C2169-60020
Swedish	02278-60039	02279-60063	C2113-60130	C2128-60041	C2171-60021	C2124-60034	C2124-60131	C2169-60021

1. HP DeskWriter 550C printer with an IN tray drawer. See figure 1-3.
2. HP DeskWriter 550C printer with a paper tray extender. See figure 1-4.

Table 1-9. Information Provided in User Documentation

Information	DeskWriter (2278A)	DeskWriter (2279A)	DeskWriter C	DeskWriter 510	DeskWriter 520	DeskWriter 550C	DeskWriter 560C
Setup Guide	•	•	•	•	•	•	•
User's Guide	•	•	•	•	•	•	•
Troubleshooting	• ¹	• ¹	• ¹	• ¹	• ¹	• ¹	• ¹
Color Guide			•			•	•
Software Installation	• ²	• ²	• ²	• ³	• ³	• ³	• ³

1. Included in the User's Guide.
2. Included in the Setup Guide.
3. Included in the Accessory Kit (see table 1-13).

Accessory Kits

The accessory kits listed in the following table support the following printers:

- HP DeskWriter
- HP DeskWriter C
- HP DeskWriter 510
- HP DeskWriter 520
- HP DeskWriter 550C
- HP DeskWriter 560C

Table 1-10. Accessory Kits¹ for the HP DeskWriter Printer Family

English	Danish	Dutch	English-Europe	Finnish	French	German	Italian	Japanese	Norwegian	Portuguese	Spanish	Swedish
C2169-60025	C2169-60027	C2169-60028	C2169-60026	C2169-60029	C2169-60030	C2169-60031	C2169-60032	C2169-60037	C2169-60033	C2169-60034	C2169-60035	C2169-60036

1. Accessory kits include: Printer Driver, Fonts, Printer Software Guide, and Software Notes in a ReadMe file on the installation disks

Fonts

Table 1-11. Fonts Included in the HP DeskWriter Printer Family

Fonts	DeskWriter 2278A	DeskWriter 2279A	DeskWriter C	DeskWriter 510	DeskWriter 520	DeskWriter 550C	DeskWriter 560C	Comments
TrueType Fonts¹			•		•	•	•	
ITC Avant Garde Gothic Book			•		•	•	•	
ITC Avant Garde Gothic Demi			•		•	•	•	
ITC Bookman Light			•		•	•	•	
ITC Bookman Light Italic			•		•	•	•	
ITC Bookman Demi			•		•	•	•	
ITC Bookman Demi Italic			•		•	•	•	
Courier			•		•	•	•	
Helvetica™			•		•	•	•	
Helvetica™ Bold			•		•	•	•	
Helvetica™ Narrow			•		•	•	•	
Helvetica™ Narrow Bold			•		•	•	•	
New Century Schoolbook			•		•	•	•	
New Century Schoolbook Italic			•		•	•	•	
New Century Schoolbook Bold			•		•	•	•	
New Century Schoolbook Bold Italic			•		•	•	•	
Symbol			•		•	•	•	
Times			•		•	•	•	
Times Italic			•		•	•	•	
Times Bold			•		•	•	•	
Times Bold Italic			•		•	•	•	
ITC Zapf Chancery Medium Italic			•		•	•	•	
ITC Zapf Dingbats			•		•	•	•	
Bernhard Modern			•		•	•	•	
Cooper Black			•		•	•	•	
Dom Casual			•		•	•	•	
PL Torino Outline			•		•	•	•	
CG Poster Bodoni			•		•	•	•	
Graphite Light			•		•	•	•	
Graphite Light Narrow			•		•	•	•	
Lucida® Casual			•		•	•	•	
Lucida® Casual Italic			•		•	•	•	
PL Benguiat Frisky			•		•	•	•	
Phyllis			•		•	•	•	
Signet Roundhand			•		•	•	•	
Milestones™			•		•	•	•	

Table 1-11. Fonts Included in the HP DeskWriter Printer Family

Fonts	DeskWriter 2278A	DeskWriter 2279A	DeskWriter C	DeskWriter 510	DeskWriter 520	DeskWriter 550C	DeskWriter 560C	Comments
Screen Font/Printer Outline Fonts²								
ITC Avant Garde/CS ITC Avant Garde Gothic		• ³	• ³	•		•		Printer fonts are scalable from 4 to 250 points. Screen font sizes include 9, 10, 12, 14, 18, and 24 points. Font-dependent enhancements may include: <ul style="list-style-type: none"> - Bold - Italic - Bold-Italic - Underline - Outline - Shadow - Strikethru - Small Caps - Superscript - Subscript - Condensed - Expanded
ITC Bookman/CS ITC Bookman		• ³	• ³	•		•		
Courier/CS Courier	•	•	•	•		•		
Helvetica/CS Triumvirate	•	•	•	•		•		
New Century Schoolbook/CS Century Schoolbook		• ³	• ³	•		•		
N Helvetica Narrow/CS Triumvirate Condensed		• ³	• ³	•		•		
Palatino/CS Palacio		• ³	• ³	•		•		
Symbol/CS Symbol (αβχδε)	•	•	•	•		•		
Times/CS Times	•	•	•	•		•		
ITC Zapf Chancery/CS ITC Zapf Chancery		• ³	• ³	•		•		
ITC Zapf Dingbats/CS ITC Zapf Dingbats (☺☻☼☽☾☿)		• ³	• ³	•		•		

1. Included with printers after 03/04/94
2. Replaced by TrueType fonts as of 03/04/94
3. Included as of 05/01/93.

Support Documentation

Technical Support Solutions Guides (TSSGs) Editions

This manual provides technical support information for the HP DeskWriter family of printers. Previous versions of this document are obsolete as of the printing of this document. Table 1-1 lists the versions of the HP DeskWriter Printer Family Technical Support Solutions Guides and identifies what products are supported in each version.

Table 1-12. List of HP DeskWriter Printer Family Technical Support Solutions Guides

Part Number	Print Date	Manual Status	Printers Supported						
			DeskWriter (2278A)	DeskWriter (2279A)	DeskWriter 510	DeskWriter 520	DeskWriter C	DeskWriter 550C	DeskWriter 560C
5962-6849E	March 1994	Available	•	•	•	•	•	•	•
5091-6494EE	May 1993	Obsolete as of March 1994	•	•	•		•	•	
5091-4835E	November 1992	Obsolete in Europe as of May 1993	•	•			•	•	
5091-2179	July 1991	Obsolete as of November 1992	•	•			•		
5954-6983	April 1990	Obsolete as of July 1991	•						

Specifications

Product Performance Specifications

Table 1-13. Product Performance Specifications

Category (Applicable Printers)	Specification
Print Quality Modes ¹	Best, Normal, Draft
Print Speed ² Black Best Normal EconoMode (Draft) Color, HP DeskWriter C and HP DeskWriter 550C Printers Best Normal EconoMode (Draft)	 1 ppm (pages per minute) 2 ppm 2.5 ppm (DeskWriter 510) 3 ppm 7 mpp (minutes per page) 4 mpp 3 mpp
Printable Area Paper Envelope	See table 1-23 and figure 1-9. See table 1-24 and figure 1-10.
Black Print Resolution Best HP DeskWriter 520 and DeskWriter 560C Printers HP DeskWriter, DeskWriter C, DeskWriter 510, and DeskWriter 550C Printers Normal EconoMode (Draft)	 600 × 300 dpi 300 × 300 dpi 300 × 300 dpi 150 × 150 dpi
Color Print Resolution HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C Printers Best Normal EconoMode (Draft)	 300 × 300 dpi 300 × 300 dpi 150 × 150 dpi
Carriage Return Rate	24 ips (inches per second)
Vertical Alignment DeskWriter and DeskWriter C Printers Unidirectional Bidirectional DeskWriter 510, DeskWriter 520, DeskWriter 550C and DeskWriter 560C Printers	 ±0.002 in. ±0.0035 in. ±0.002 in.
Printer and Screen Fonts Included	See table 1-11.
Font Rotation	1° increments
Command Set	Macintosh Computer QuickDraw Imaging System

Table 1-13. Product Performance Specifications (Continued)

Category (Applicable Printers)	Specification
IN Tray Capacity Paper Envelopes DeskWriter and DeskWriter C Printers DeskWriter 510, DeskWriter 520, DeskWriter 550C and DeskWriter 560C Printers	Approximately 100 sheets (< 1/2 in.) Manual single feed Up to 20 envelopes
OUT Tray Capacity DeskWriter and DeskWriter C DeskWriter 510, DeskWriter 520, DeskWriter 550C and DeskWriter 560C	25 sheets 50 sheets
Control Panel Lights and Buttons	See figure 3-1.

1. For HP DeskWriter printers using printer drivers versions 1.x and 2.x, print quality modes are Best and Faster, with print speeds of 1ppm and 2ppm, respectively.
2. Print speeds vary, depending on system configuration, software application, and amount of data per page.

Reliability Specifications

Table 1-14. Reliability Specifications

Subject	Specification
Printer Usage All DeskWriter Family Printers DeskWriter C, DeskWriter 550C, and DeskWriter 560C Printers	1000 pages per month (maximum) Up to 160 pages per month of color printing
Mean Time Between Failures (MTBF)	20,000 Hours (2000 hours power-on and 12,000 printed pages per year)
Mechanism Life	60,000 Pages

Interface Specifications

Table 1-15. Interface Specifications

Subject	Specification
Connector Port	8-pin mini-circular DIN
Compatibility <ul style="list-style-type: none"><li>• DeskWriter 2278A Printer<li>• All Other DeskWriter Family Printers	RS-422-A Serial RS-422-A Serial and AppleTalk network
Serial <ul style="list-style-type: none"><li>• Handshaking<li>• Bit Rate	DTR 57.6K bps (bits per second)
Apple Talk Network <ul style="list-style-type: none"><li>• Protocols <ul style="list-style-type: none"><li>• Bit Rate	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) 230.4K bps (bits per second)

Physical Specifications

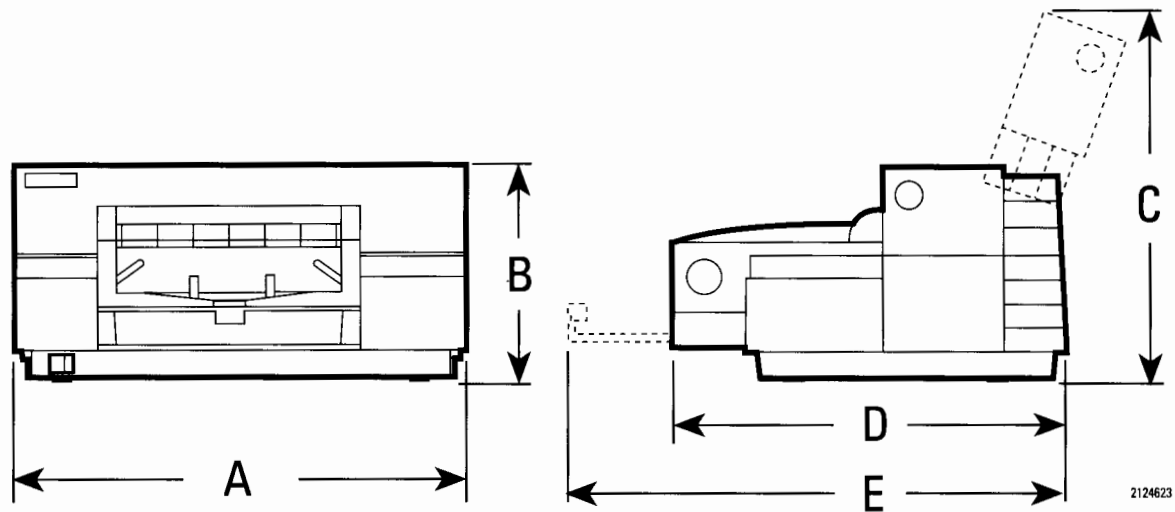


Figure 1-7. Printer Physical Specifications

Table 1-16. Physical Specifications

Specification	Figure 1-6 Reference	DeskWriter and DeskWriter C Printers	DeskWriter 510, DeskWriter 520, DeskWriter 550C and DeskWriter 560C Printers
Product Dimensions			
Width	A	17.3 in. (438 mm)	17.5 in. (443 mm)
Height (Top Cover Closed)	B	8.0 in. (200 mm)	8.2 in. (206 mm)
Height (Top Cover Open)	C	13.5 in. (343 mm)	13.5 in. (343 mm)
Depth (Drawer Closed)	D	14.8 in. (376 mm)	15.3 in. (389 mm)
Depth (Drawer Open)	E	18.2 in. (462 mm)	18.9 in. (480 mm)
Product Weight		14.3 lb (6.5 kg)	14.5 lb (6.6 kg)

Packaging Specifications

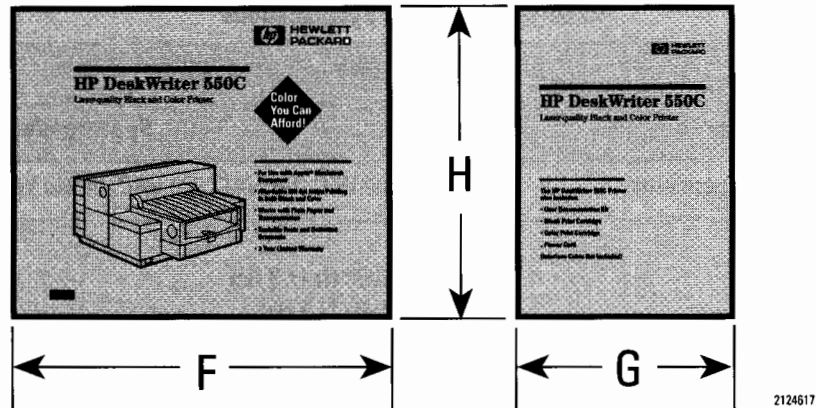


Figure 1-8. Packaging Dimensions Specifications

Table 1-17. Packaging Dimensions Specifications

Specifications	Figure 1-8 Reference	DeskWriter Printer Family
Packaging Dimensions		
Length	F	19.5 in. (495 mm)
Width	G	11.63 in. (295 mm)
Height	H	16.75 in. (425 mm)

Electrical Specifications

Table 1-18. Electrical Specifications

Power Module	
Subject	Specification
Input Voltage (power module dependent)	100 VAC, 120 VAC, 220 VAC, or 240 VAC ($\pm 10\%$)
Frequency 100 VAC 120 VAC 220 VAC 240 VAC	50/60 Hz (± 3 Hz) 60 Hz (± 3 Hz) 50 Hz (± 3 Hz) 50 Hz (± 3 Hz)
Output (open circuit) Nominal Current Voltage Range	20 VAC, 50-60 Hz 2 amps 18 to 27 VAC
Printer with Power Module	
Subject	Specification
Transient Spike Immunity Amplitude Pulse Width Rise Time	1 kV 50 μ seconds 1.2 μ seconds
Surge Immunity Amplitude Duration	20% above nominal 0.500 seconds
Dropout Carry-Through Time at Minimum Line Voltage	0.020 seconds
Power Consumption at 120 VAC, 60 Hz	8 Watts maximum non-printing 25 Watts maximum printing

Environmental Specifications

Table 1-19. Environmental Specifications

Subject	Specification
Temperature Printer Operating Non-Operating Recommended Operating Media	41 to 104° F (5 to 40° C) -40 to 140° F (-40 to 60° C) 59 to 95° F (15 to 35° C) 50 to 104° F (10 to 40° C)
Relative Humidity Printer Operating Non-Operating Media	10% to 80% RH at 86° F (30° C) 90% RH at 149° F (65° C) 10% to 70% RH at 86° F (30° C)
Altitude Operating Non-Operating	0 to 10,000 ft. (3048 m) 0 to 15,000 ft. (4572 m)
Mechanical Vibration Frequency Range Operating Random Non-Operating Random Swept sine	5 to 500 Hz Approximately 0.21 G rms Approximately 2.09 G rms 0.5 G (0 to peak)
Noise Levels per ISO 9296	See table 1-23.
Electro-Static Discharge No Soft Failures 2.5% or Fewer Soft Failures No Hard Failures	0 to 5000 V < 15,000 V ≤ 25,000 V ¹



- ESD waivers include the print cartridge connector contacts and the print cartridge flex circuit, HP DeskWriter and HP DeskWriter C printers.

Table 1-20. Noise Levels Per ISO 9296

Specification	DeskWriter and DeskWriter C		DeskWriter 510 and DeskWriter 520		DeskWriter 550C and DeskWriter 560C	
	Normal	Draft	Normal	Draft	Normal	Draft
Sound Power, L_{wAd}	5.7 B(A)	5.8 B(A)	6.1 B(A)	6.4 B(A)	6.2 B(A)	6.4 B(A)
Sound Pressure, L_{pAm}	44 dB(A)	45 dB(A)	47 dB(A)	49 dB(A)	49 dB(A)	50 dB(A)

Product Safety Specifications

Table 1-21. Product Safety Specifications

Item	Safety Certification
Power Module	UL CSA TÜV or VDE BSI SEMKO NEMKO FEI LCIE SECV
Printer with Power Module	UL CSA TÜV ETL
Item	EMI Certifications
Printer with Power Module	FCC Class B when used with a Class B computing device (USA) EMC Directive 89/336/EED (European Community) VCCI (Japan) SABS (South Africa) RRL (South Korea)

Paper Specifications

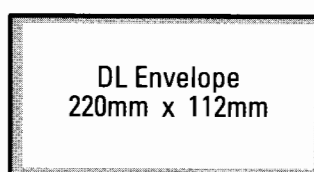
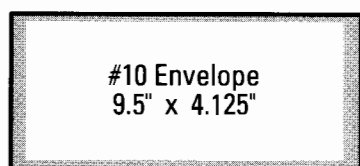
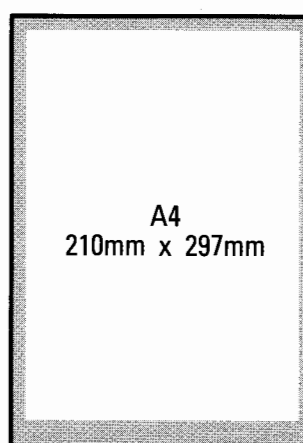
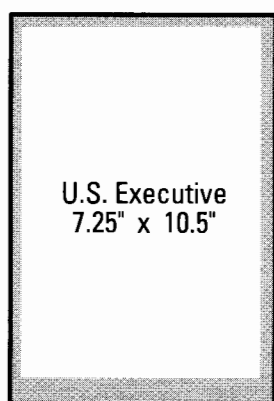
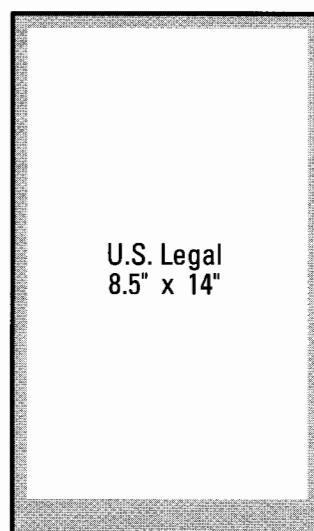
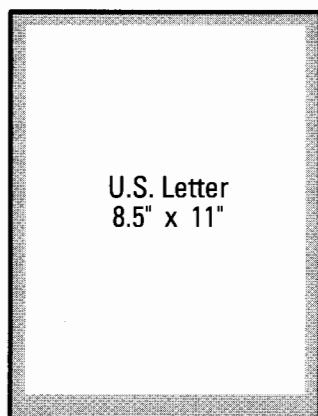
Table 1-22. Paper Handling Specifications

Subject	Specification
<p>Paper Paths DeskWriter and DeskWriter C Printers</p> <p>DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C Printers</p>	<p>Cut Sheet Envelope (Manual Single Feed)</p> <p>Cut Sheet Envelope (Multiple)</p>
<p>Paper Grain</p>	<p>Long Grain Only</p>
<p>Cut Sheet Page Size</p> <ul style="list-style-type: none"> Letter A4 Legal Executive (DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C Printers) <p>Envelope Size</p> <ul style="list-style-type: none"> No. 10 Envelope European DL 	<p>8 1/2 in. × 11 in. 210 mm × 297 mm</p> <p>8 1/2 in. × 14 in. 7 1/4 in. × 10 1/2 in.</p> <p>4 1/8 in. × 9 1/2 in. 110 mm × 220 mm</p>
<p>Paper Weight</p> <ul style="list-style-type: none"> DeskWriter and DeskWriter C Printers DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C Printers <p>Envelope Weight</p> <ul style="list-style-type: none"> DeskWriter and DeskWriter C Printers DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C Printers 	<p>16 to 24 lb (60 to 90 g/m²) 16 to 36 lb (60 to 135 g/m²)</p> <p>16 to 24 lb (60 to 90 g/m²) 20 to 24 lb (75 to 90 g/m²)</p>
<p>Print Skew</p>	<p>± 0.0006 in. /in.</p>
<p>IN Tray Capacity</p> <ul style="list-style-type: none"> Paper Envelopes DeskWriter and DeskWriter C Printers DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C Printers 	<p>Approximately 100 sheets (< 1/2 in.)</p> <p>Manual single feed Up to 20 envelopes</p>
<p>OUT Tray Capacity</p> <ul style="list-style-type: none"> DeskWriter and DeskWriter C Printers DeskWriter 510 DeskWriter 520, DeskWriter 550C, and DeskWriter 560C Printers 	<p>25 sheets 50 sheets</p>

Notes

- The HP DeskWriter printer family works well with most types of paper, although variables in paper composition may affect print quality and paper handling. Most plain paper manufactured for high-quality photocopying yields excellent results. Paper should be tested to ensure best performance.
 - HP CX JetSeries paper is intended for high-quality color-only printing with the HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C printers.
 - The LX JetSeries Transparency Film is intended for printing on the HP DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers. The LX JetSeries Glossy Paper is intended for printing on the HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers.
 - To minimize print skew, use envelopes with rectangular flaps, rather than triangular flaps, in the HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers.
-

Printable Area Specifications

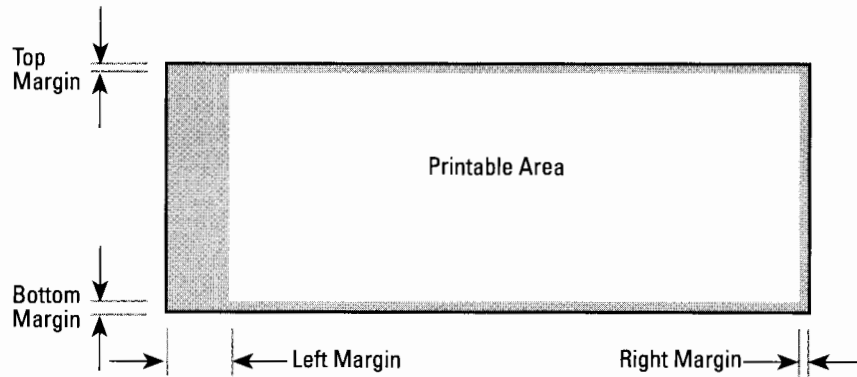


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Figure 1-9. Page Printable Area

Table 1-23. Page Printable Area

DeskWriter Printers					
Page Size	Printable Area	Top Margin	Bottom Margin	Left Margin	Right Margin
U.S. Letter 8 1/2 in. × 11 in. (215.9 mm × 279.4 mm)	8.0 in. × 10.15 in. (203.2 mm × 257.8 mm)	0.31 in. (7.9 mm)	0.54 in. (13.7 mm)	0.25 in. (6.4 mm)	0.25 in. (6.4 mm)
A4 210 mm × 297 mm	203.2 mm × 275.1 mm				
U.S. Legal 8 1/2 in. × 14 in. (215.9 mm × 355.6 mm)	8.0 in. × 13.15 in. (203.2 mm × 334.0 mm)				
DeskWriter C Printer					
Page Size	Printable Area	Top Margin	Bottom Margin	Left Margin	Right Margin
U.S. Letter 8 1/2 in. × 11 in. (215.9 mm × 279.4 mm)	8.0 in. × 10.15 in. (203.2 mm × 257.8 mm)	0.26 in. (6.6 mm)	0.59 in. (15.0 mm)	0.25 in. (6.4 mm)	0.25 in. (6.4 mm)
A4 210 mm × 297 mm	203.2 mm × 275.1 mm				
U.S. Legal 8 1/2 in. × 14 in. (215.9 mm × 355.6 mm)	8.0 in. × 13.15 in. (203.2 mm × 334.0 mm)				
DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560CC printers					
Page Size	Printable Area	Top Margin	Bottom Margin	Left Margin	Right Margin
U.S. Letter 8 1/2 in. × 11 in. (215.9 mm × 279.4 mm)	8.0 in. × 10.15 in. (203.2 mm × 257.8 mm)	0.26 in. (6.6 mm)	0.59 in. (15.0 mm)	0.25 in. (6.4 mm)	0.25 in. (6.4 mm)
A4 210 mm × 297 mm	203.2 mm × 275.1 mm				
U.S. Legal 8 1/2 in. × 14 in. (215.9 mm × 355.6 mm)	8.0 in. × 13.15 in. (203.2 mm × 334.0 mm)				
U.S. Executive 7 1/4 in. × 10 1/2 in. (184.2 mm × 266.7 mm)	6.75 in. × 9.65 in. (171.5 mm × 245.1 mm)				



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Figure 1-10. Envelope Printable Area

Table 1-24. Envelope Printable Area

DeskWriter and DeskWriter C Printers					
Envelope Size	Printable Area	Top Margin	Bottom Margin	Left Margin	Right Margin
No. 10 Envelope 4 1/8 in. × 9 1/2 in. (104.8 mm × 241.3 mm)	3.57 in. × 8.0 in. (90.7 mm × 203.2 mm)	0.00 in. (0.00 mm)	0.57 in. (14.2 mm)	0.75 in. (19.1 mm)	0.75 in. (19.1 mm)
DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560CC printers¹					
Envelope Size	Printable Area	Top Margin	Bottom Margin	Left Margin	Right Margin
No. 10 Envelope 4 1/8 in. × 9 1/2 in. (104.8 mm × 241.3 mm)	3.88 in. × 8.46 in. (98.6 mm × 214.9 mm)	0.125 in. (3.2 mm)	0.125 in. (3.2 mm)	Black 0.75 in. (19.1 mm)	Black 0.29 in. (7.4 mm)
DL Envelope 110mm × 220 mm	103.6 mm × 193.6 mm			Color 0.92 in. (23.0 mm)	Color 0.125 in. (3.2 mm)

1. While the envelope printable area remains the same for black or color printing, the margins vary. The printable area shifts 1/6 inch to the right with color printing.

Print Cartridge Specifications

Table 1-25. Print Cartridge Specifications

Specification	Hewlett-Packard Print Cartridges
Type	Plain Paper Drop-On-Demand Thermal Inkjet Printing
Cartridge Life Original (51608A) ¹ 1000 Characters Per Page Coverage 1500 Characters Per Page Coverage High-Capacity (51626A) ¹ 1000 Characters Per Page Coverage 1500 Characters Per Page Coverage Color (51625A) ²	500 to 1000 Pages 333 to 666 Pages 1000 to 2000 Pages 666 to 1332 Pages 250 Pages
Interconnect Specifications (DeskWriter C) Print Cartridge Printer	24 inserts/withdraws per month 122 inserts/withdraws per life of the cartridge 1440 inserts/withdraws per life of the printer
Number of Nozzles 51608A and 51626A (Black) 51625A (Color)	50 48
Vertical Resolution	300 dpi
Dot Size	130 µm on 25% cotton bond paper

1. The 51608A and 51626A print cartridge life specifications are based on printing Courier 10. The lower numbers in the specifications are based on using Best print quality and the higher numbers in the specifications are based on using Draft print quality.
2. The 51625A print cartridge life specification is based on using Normal print mode with an average 8% area fill.

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 Company.

Hewlett-Packard does not support refilling the print cartridges. Hewlett-Packard cannot guarantee the print quality from refilled print cartridges. Printer damage caused by refilling print cartridges is not covered by the Hewlett-Packard warranty or customer service agreements.

Attempting to refill a high-capacity print cartridge may cause sudden drainage of ink from the print cartridge.

Installation and Configuration

Chapter Contents

Section Title	Page
Items Included	2-2
Host Requirements	2-4
Color Output From Macintosh Computers	2-6
Hard Disk Space Requirements	2-8
Cabling and Interface Pinout Information	2-10
Cable Requirements.	2-10
Interface Pinout Information.	2-11
Connecting the Interface Cable	2-12

Items Included

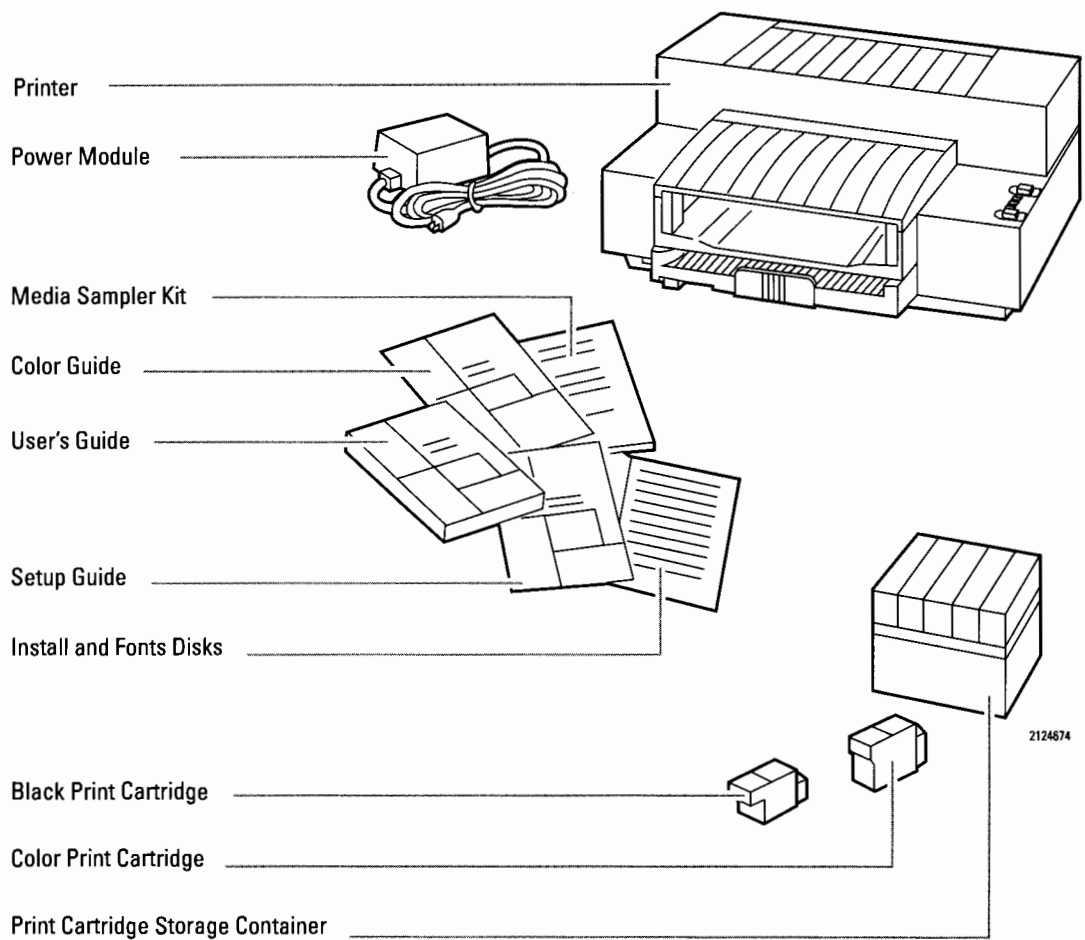


Figure 2-1. Items Included (See table 2-1.)

Table 2-1. Items Included

Item	DeskWriter (2278A)	DeskWriter (2279A)	DeskWriter C	DeskWriter 510	DeskWriter 520	DeskWriter 550C	DeskWriter 560C
Printer	•	•	•	•	•	•	•
Power Module	•	•	•	•	•	•	•
Setup Guide	•	•	•	•	•	•	•
User's Guide	•	•	•	•	•	•	•
Color Guide			•			•	•
Accessory Kit (Printer Drivers and Fonts)	•	•	•	•	•	•	•
Black Print Cartridge	•	•	•	•	•	•	•
Color Print Cartridge			•			•	•
Print Cartridge Storage Container			•				

Note An interface cable *is not* included with any of the HP DeskWriter family printers. See table 2-6 for interface cable part numbers.

Host Requirements

This section identifies compatible systems and minimum configurations for the Macintosh computers. All of the information applies to all HP DeskWriter family printers unless otherwise specified.

Table 2-2. Host Requirements

Specification	HP DeskWriter Printer Family Compatibility
Compatible Systems	<ul style="list-style-type: none"> • Macintosh Plus • Macintosh SE, SE/30 • Macintosh Portable • Macintosh LC, LC II, LC III, Classic, Classic II, Color Classic • Macintosh Performa 200, 400, 600 • Macintosh II, IIx, IIcx, IIci, IIsi, IIfx, IIvx • Centris 610, 650 • Macintosh PowerBooks 100, 140, 145, 160, 165c, 170, 180 • Macintosh Duo 210, 230 • Macintosh Quadra 700/800/900/950
Minimum Hardware Configuration	<ul style="list-style-type: none"> • Hard disk drive with at least 7.5 MB of free disk space • System memory indicated in table 2-3.¹
Interface Compatibility	<ul style="list-style-type: none"> • RS-422-A Serial and AppleTalk Network Communication²
Minimum System Configuration ³	<ul style="list-style-type: none"> • System 6.0.5 or later • Finder • MultiFinder⁴
System 7 Compatibility	<ul style="list-style-type: none"> • Fully compatible with System 7⁵

1. Since HP DeskWriter family printer drivers image the page in system memory, the amount of available memory affects printer performance. Increasing the system memory increases printer performance. See chapter 4 for information on optimizing the system and its memory.
2. The HP DeskWriter printer, model 2278A, is not compatible with the AppleTalk network communication. The HP 2278A DeskWriter printer is RS-422-A serial interface only.
3. HP DW Series printer driver version 4.0 requires System 6.0.7 or later.
4. Using System 6, the default Finder partition may be too small to print in color under MultiFinder. Read "Increasing the Finder Partition Size" in chapter 4 for information on increasing the Finder partition. Multifinder is required for background printing.
5. System 7 support is available with the following printer driver versions:
 - HP DeskWriter printer drivers, versions 3.1 or later.
 - HP DW Series printer drivers, versions 4.0 or later.
 - HP DeskWriter C printer drivers, versions 2.0 or later.
 - HP DeskWriter 510 printer drivers, versions 4.0 or later.
 - HP DeskWriter 550C printer drivers, versions 1.0 or later.

Table 2-3. Minimum System Memory for Printer Drivers

Printer Driver	Version	Serial Mode		AppleTalk Mode	
		System 6	System 7	System 6	System 7
DW Series Printer Driver <ul style="list-style-type: none"> • HP DeskWriter HP DeskWriter 510 HP DeskWriter 520 • HP DeskWriter C HP DeskWriter 550C HP DeskWriter 560C 	5.0	2 MB (Minimum)	4 MB (Minimum)	2 MB (Minimum)	4 MB (Minimum)
		4 MB (Minimum)	4 MB (Minimum)	4 MB (Minimum)	4 MB (Minimum)
DW Series Printer Driver <ul style="list-style-type: none"> • HP DeskWriter HP DeskWriter 510 	4.0	1 MB (Minimum) 2 MB (Recommended)	4 MB (Minimum)	2 MB (Minimum) 4 MB (Recommended)	2 MB (Minimum) 4 MB (Recommended)
DeskWriter C Printer Driver	3.0	2 MB (Minimum) 4 MB (Recommended)	4 MB (Minimum)	4 MB (Minimum)	4 MB (Minimum)
DeskWriter 550C Printer Driver	2.0	2 MB (Minimum) 4 MB (Recommended)	4 MB (Minimum)	4 MB (Minimum)	4 MB (Minimum)

Color Output From Macintosh Computers

- a. The color output capability from an HP DeskWriter C, DeskWriter 550C, or DeskWriter 560C printer depends upon the type of Macintosh computer and imaging system. Color output capabilities are listed in the table below.

Table 2-4. Color Output Capability, HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C Printers

Imaging System (See Note below)	Typical Macintosh Computer	HP DeskWriter C/HP DeskWriter 550C/ HP DeskWriter 560C Printer Color Output Capability
QuickDraw	Black-and-white Macintosh computers, including the Macintosh Plus, SE, Portable, Classic and other computers listed in table 2-2.	8 colors: black, white, red, green, blue, cyan, magenta, and yellow. ¹
Color QuickDraw	Color Macintosh computers, including the SE/30, the Macintosh II series, and other computers listed in table 2-2.	No more than 256 colors per page, including black and white.
32-bit QuickDraw	Macintosh II series computers with 32-bit QuickDraw either in ROM or running as an INIT, and other computers listed in table 2-2, with operating systems 6.05 and above. ²	Approximately 16 million colors.

1. Some applications (for example, MacDraw) allow you to select patterns of color to produce mixtures that look like other colors. For example, you can mix yellow and red dots to produce orange fill patterns.
2. If you have a Macintosh II series computer that does not have 32-bit QuickDraw in ROM, the 32-bit QuickDraw INIT must be installed in your System folder to print more than 256 colors.

Notes

- The HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C printers have ColorSync™ support using the HP DeskWriter C printer driver, version 3.0, the HP DeskWriter 550C printer driver, version 2.0, and the HP DeskWriter Series printer driver, version 5.0.
- The software application also determines how the color output will appear. If an application only supports eight colors, then the printout will look the same for QuickDraw, Color QuickDraw, or 32-bit QuickDraw Macintosh computers. Additionally, some applications send only black-and-white data to the printer when running on a non-color QuickDraw Macintosh computer.

Hard Disk Space Requirements

Table 2-5. Hard Disk Space Needs

File or Font ¹	Size	DeskWriter (2278A)	DeskWriter 2279A	DeskWriter C	DeskWriter 510	DeskWriter 520	DeskWriter 550C	DeskWriter 560C
Printer Driver								
DW Series, Version 5.0								
Serial	438K	•	•	•	•	•	•	•
AppleTalk	452K	•	•	•	•	•	•	•
DW Series, Version 4.0								
Serial	392K	•	•		•			
AppleTalk	396K	•	•		•			
DeskWriter C, Version 3.0								
Serial	403K			•				
AppleTalk	410K			•				
DeskWriter 550C, Version 2.0								
Serial	441K						•	
AppleTalk	448K						•	
Spooler								
HP Background	15K	•	•	•	•	•	•	•
HP Print Monitor	66K	•	•	•	•	•	•	•
HP Background Startup	10K	•	•	•	•	•	•	•
TrueType™ Fonts ²								
Avant Garde	36K	•	•	•	•	•	•	•
Avant Garde (bold)	36K	•	•	•	•	•	•	•
Benguiat Frisky	48K	•	•	•	•	•	•	•
Bernhard Modern	50K	•	•	•	•	•	•	•
Bookman	48K	•	•	•	•	•	•	•
Bookman (bold)	49K	•	•	•	•	•	•	•
Bookman (bold, italic)	49K	•	•	•	•	•	•	•
Bookman (italic)	49K	•	•	•	•	•	•	•
Cooper Black	69K	•	•	•	•	•	•	•
Courier	58K	•	•	•	•	•	•	•
Dom Casual	61K	•	•	•	•	•	•	•
Graphite Light	46K	•	•	•	•	•	•	•
Graphite Light Narrow	50K	•	•	•	•	•	•	•
Helvetica	61K	•	•	•	•	•	•	•
Helvetica (bold)	56K	•	•	•	•	•	•	•
Helvetica Narrow	54K	•	•	•	•	•	•	•
Helvetica Narrow (bold)	55K	•	•	•	•	•	•	•
Lucida Casual	54K	•	•	•	•	•	•	•
Lucida Casual (italic)	56K	•	•	•	•	•	•	•
Milestones	48K	•	•	•	•	•	•	•
New Century Schoolbook	55K	•	•	•	•	•	•	•
New Century Schoolbook (bold)	57K	•	•	•	•	•	•	•
New Century Schoolbook (italic)	55K	•	•	•	•	•	•	•
New Century Schoolbook (bold, italic)	56K	•	•	•	•	•	•	•
Phyllis	51K	•	•	•	•	•	•	•

Table 2-5. Hard Disk Space Needs

File or Font¹	Size	DeskWriter (2278A)	DeskWriter 2279A	DeskWriter C	DeskWriter 510	DeskWriter 520	DeskWriter 550C	DeskWriter 560C
Poster Bodoni	52K	•	•	•	•	•	•	•
Signet Roundhand	60K	•	•	•	•	•	•	•
Symbol	41K	•	•	•	•	•	•	•
Times	49K	•	•	•	•	•	•	•
Times (bold)	50K	•	•	•	•	•	•	•
Times (bold, italic)	52K	•	•	•	•	•	•	•
Times (italic)	52K	•	•	•	•	•	•	•
Torino Outline	62K	•	•	•	•	•	•	•
Zapf Chancery	54K	•	•	•	•	•	•	•
Zapf Dingbats	64K	•	•	•	•	•	•	•
ColorTest ³	410							
Color Files	64K			•			•	•
ColorSync	63K			•			•	•

1. The actual size of the file may vary, depending on the version of software included with the printer.
2. TrueType™ fonts are provided with the HP DeskWriter Series Printer Driver, Version 5.0.
3. The ColorTest is not included with any of the current printer drivers. It was included with the DeskWriter C printer drivers prior to version 3.0.

If the system disk or System folder is too full, remove any printer drivers, applications, fonts, or documents that are not used frequently.

Caution Before removing anything from the hard disk, be sure to make backup copies of items that may be needed in the future. New printers come with printer drivers. However, it is suggested that printer drivers be copied to a backup disk before removal from the hard disk. Be sure to remove only printer drivers from the System folder. Do not remove any other files from the System folder.

Cabling and Interface Pinout Information

Cable Requirements

All HP DeskWriter family printers can be connected serially to a Macintosh computer. With the exception of the HP DeskWriter printer (model 2278A), all other HP DeskWriter family printers can be connected to an AppleTalk network

Table 2-6. Cable Requirements

Connection	HP Cable Part Number	Apple Cable Part Number
AppleTalk Network	92215N	M2068
Serial Connection (except Macintosh 512K computer)	92215S	M0197
Serial Connection for Macintosh 512K computer ¹		M0196

1. The Macintosh 512K computer must be upgraded to the minimum configuration listed in the "Host Requirements" section of this chapter.

Interface Pinout Information

The HP DeskWriter family printers have an 8-pin mini-circular DIN interface connector port.

- On the HP DeskWriter 2278A printer, this connector port is only compatible with RS-422-A serial communication.
- On the HP DeskWriter 2279A, DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers, this connector port is compatible with RS-422-A serial and AppleTalk network data communication. The printer automatically determines if it is connected to an AppleTalk network or directly connected to a Macintosh computer.

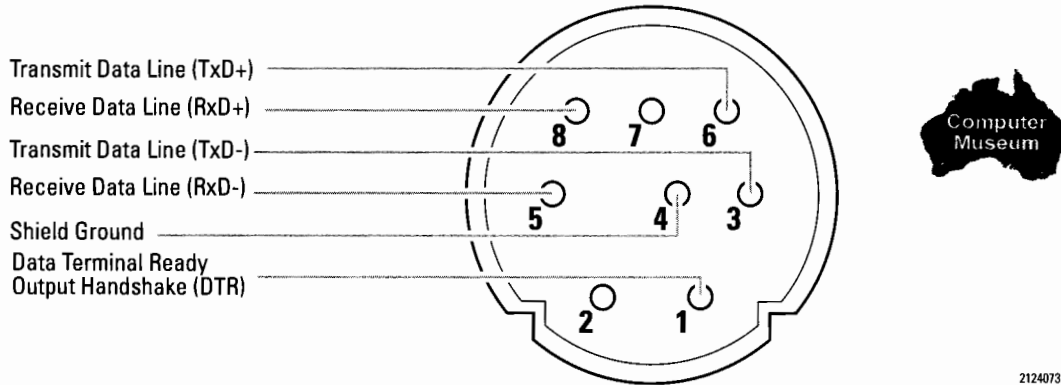


Figure 2-2. HP DeskWriter Printer Family Interface Connector Port

Caution Do not attempt to insert an interface cable into the “Apple Desktop Bus” (keyboard or mouse plugs) on the back of the computer. The number of pins and pinout configuration is different for a keyboard and a printer interface cable.

Table 2-7. Interface Connector Port Pinout Description

Interface Pin	Interface Pin Name	Interface Pin Description
1	DTR	Data Terminal Ready Output Handshake
2	NC	No Connection in the 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 The interface port cannot be configured to operate as an RS-232-C interface on any HP DeskWriter family printer.

Connecting the Interface Cable

- The HP DeskWriter 2278A printer must be connected serially to a Macintosh computer.
- The HP DeskWriter 2279A, DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers can be connected to an AppleTalk network or connected serially to a Macintosh computer.
- Connect the serial or AppleTalk interface cable to the same interface port on the printer. The HP DeskWriter (2279A), DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, or DeskWriter 560C printer automatically determines if it is connected serially or to an AppleTalk network by measuring the interface impedance.

Table 2-8. Cable Requirements

Connection	HP Cable Part Number	Apple Cable Part Number
AppleTalk Network	92215N	M2068
Serial Connection, except Macintosh 512K computer	92215S	M0197
Serial Connection for Macintosh 512K computer ¹		M0196

1. The Macintosh 512K computer must be upgraded to the minimum configuration listed in the "Host Requirements" section of this chapter.

Operation and Usage

Chapter Contents

Section Title	Page
HP DeskWriter Series Control Panels	3-2
Common Print Cartridge Related Problems.	3-3
Media Loading Tips	3-4
Common Paper Related Problems	3-5
Maintenance	3-6
Maintaining Print Cartridges	3-6
Maintaining the Printer.	3-8
Thermal Inkjet II Technology	3-10
High-Capacity versus Standard Print Cartridges	3-10

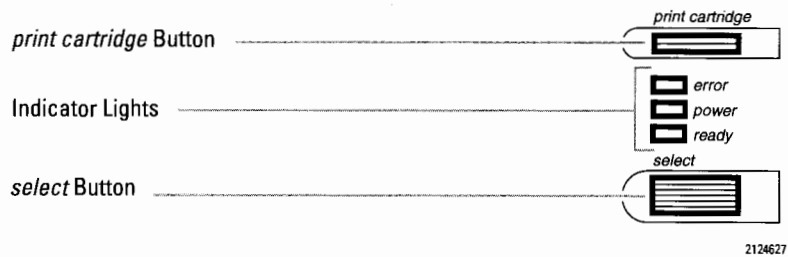
HP DeskWriter Series Control Panels

Note See the user documentation included with each printer for a description of the buttons and lights.

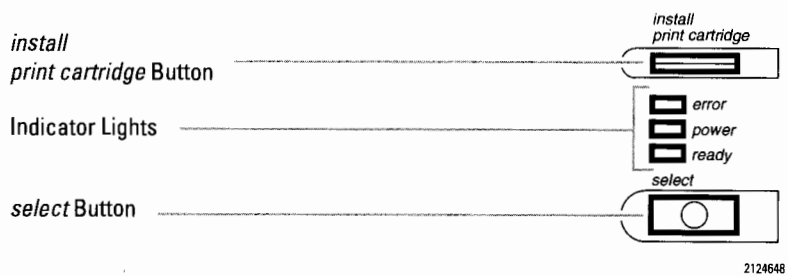
HP DeskWriter Printers



HP DeskWriter C Printer



HP DeskWriter 510 and DeskWriter 550C Printers



HP DeskWriter 520 and DeskWriter 560C Printers

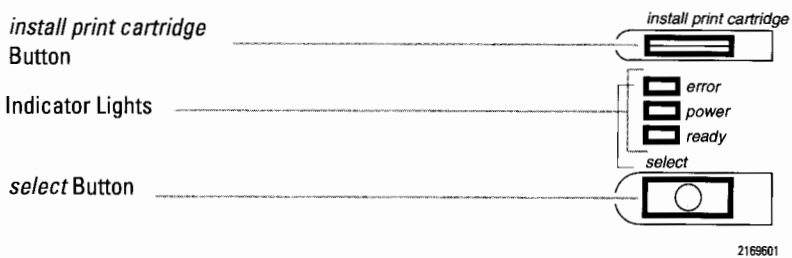


Figure 3-1. HP DeskWriter Printer Family Control Panels

Common Print Cartridge Related Problems

Note For more information, see “Troubleshooting Print Cartridges” in chapter 5.

Caution Do not let the print cartridge contacts and nozzles touch any surface or object, including your fingers. Skin oil and dust can cause print quality or missing dot problems. For more information on the contacts and the nozzles, see “Solving Print Cartridge Interconnect Problems” in chapter 5.

Table 3-1. Troubleshooting Common Print Cartridge Problems

Problem	Possible Causes	Solution
No printout as the print cartridge moves across the mechanism.	<ul style="list-style-type: none"> • Tape may be covering the print cartridge nozzles. • Print cartridge is out of ink. • Faulty print cartridge. • The printer may be faulty. 	See “Troubleshooting Print Cartridges” and “Solving Print Quality Problems” in chapter 5.
Fading print, rows of dots missing, or generally poor print quality.	<ul style="list-style-type: none"> • The print cartridge may be running out of ink. • The print cartridge may be faulty. • The media may be causing unsatisfactory print quality. • The printer settings may not be set for optimum print quality. • The printer may be faulty. 	See “Troubleshooting Print Cartridges” and “Solving Print Quality Problems” in chapter 5.
An alert box on the computer screen indicates an interconnect problem between the print cartridge and the printer (HP DeskWriter C printer).	The print cartridge has 10 or more open circuits between the printer and the print cartridge. This is known as an <i>interconnect problem</i> .	See “Solving Print Cartridge Interconnect Problems” in chapter 5.
The print cartridge(s) won’t home (move to the right end of the carriage path) after pressing the <i>print cartridge</i> or <i>install print cartridge</i> button (HP DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers).	<ul style="list-style-type: none"> • The printer does not recognize the print cartridge. • There may be an interconnect problem. 	<ol style="list-style-type: none"> 1. Replace the print cartridge, then press the <i>print cartridge</i> or <i>install print cartridge</i> button. 2. See “Solving Print Cartridge Interconnect Problems” in chapter 5.
Printer accepts the print cartridge without an interconnect problem alert, but dots are missing on the printout (HP DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers).	<ul style="list-style-type: none"> • The print cartridge nozzles may be clogged. • The print cartridge may be running out of ink. • There may be an interconnect problem. • The print cartridge may be faulty. • The printer may be faulty. 	<ol style="list-style-type: none"> 1. Clean the print cartridge. 2. See “Troubleshooting Print Cartridges” and “Solving Print Quality Problems” in chapter 5.

Media Loading Tips

Table 3-2. Media Loading Tips

Topic	Information
Printing on letterhead.	Place the letterhead face down in the IN tray, with the top of the letterhead toward the printer.
Loading media.	<ul style="list-style-type: none">• The OUT tray must be installed in the printer to properly load media.• Always load a stack of media into an empty IN tray, rather than placing it on top of media already in the IN tray.• Do not slam the IN tray drawer closed on the HP DeskWriter 550C printer. Slamming the IN tray drawer closed may result in multiple paper feeds or other media feed problems.• Be careful not to buckle the paper by pushing too hard on the paper tray extender.• Avoid mixing media in the IN tray.• The HP DeskWriter and HP DeskWriter C printers require at least 10 sheets of media in the IN tray. If the user does not have enough of one type of media to maintain 10 sheets in the IN tray, place it on top of other media and load the mixed media as one stack. It is more critical to maintain 10 sheets in the IN tray than to avoid mixing media.
Avoiding print skew.	<ul style="list-style-type: none">• To minimize print skew, make sure the media in the IN tray is against the right wall of the IN tray. Remove the OUT tray and verify that the media is against the right wall. If the media is not against the right wall, tap the media against the IN tray right wall and reinstall the OUT tray.

Common Paper Related Problems

Table 3-3. Common Paper-Related Problems

Problem	Possible Causes and Solutions
The <i>error</i> light is on.	<ol style="list-style-type: none">1. The printer is out of paper in the IN tray. Load media in the IN tray. Press the <i>select</i> button.2. Something may have hindered the printer from loading the media (single occurrence rather than a continuing problem). Press the <i>select</i> button to attempt to manually load the media from the IN tray.3. The paper feed rollers won't pick the media from the IN tray. Clean the paper feed rollers. See "Maintaining the Printer" in this chapter.4. The printer is faulty. Return the printer for repair.
The <i>error</i> light is flashing.	<ol style="list-style-type: none">1. The printer detects a paper jam. (The printer tried to eject the media to the OUT tray, but detects media at the platen.) See "Clearing Paper Jams" in chapter 5.2. The printer is faulty. Return the printer for repair.
Printouts appear skewed (inconsistent margin down the page).	<ol style="list-style-type: none">1. Media is not loaded flush against the right wall of the IN tray. Reload the media, making sure it is flush against the right wall of the IN tray.2. The IN tray contains mixed media, less than 10 sheets, or improperly loaded media. See "Media Loading Tips" in this section for tips on properly loading media in the IN tray.3. The printer may be printing out-of-specification for print skew. See "Avoiding Print Skew" in chapter 5.

Maintenance

HP DeskWriter family printers do not require any scheduled maintenance. Periodic cleaning, however, not only enhances product appearance, but also maintains the printer in optimum condition. Also, visually diagnosing problems may be easier on a clean unit.

Note	Office dust can contaminate the paper feed guide in the HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printer, causing scratched transparencies. See "Avoiding Scratched Transparencies" in chapter 5.
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Maintaining Print Cartridges

The printer automatically performs operations of spitting, wiping, and capping to maintain the print cartridge(s) for optimum print quality. These operations occur transparently to the user. Although the print cartridges require no routine maintenance, proper use and handling of print cartridges provides optimum print quality and print cartridge life. Read "Print Cartridge Tips" in this section for tips on using and handling print cartridges.

Notes	Always store open print cartridges in the printer or in the print cartridge storage container. See "Troubleshooting Print Cartridges" and "Solving Print Quality Problems" in chapter 5 for more print cartridge troubleshooting information
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Material Safety Data Sheet

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 an MSDS at the following address:

Hewlett-Packard Company
Customer Information Center
Department MSDS
19310 Pruneridge Avenue
Cupertino, CA 95014
Mailstop 49AS

Telephone (800) 752-0900
Ask for Department MSDS (6:00 am to 5:00 pm Pacific Time)

Note	Material Safety Data Sheets are also available on electronic bulletin board services supported by Hewlett-Packard, such as AppleLink and CompuServe.
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Print Cartridge Safety

Ink used in the print cartridge does not pose a health hazard to customers. During the development of ink formulas, all the ingredients are screened and researched for known potential health related issues. Only those chemicals that meet or exceed worldwide safety and regulatory requirements are used in HP inks.

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

Print Cartridge Tips

- Do not use print cartridges after the expiration date. See “Identifying the Print Cartridge Expiration Date” in chapter 5.
- Keep print cartridges sealed in their packaging container until ready for use. Print cartridges have a longer life sealed in the packaging container than in the printer or the storage container.
- Keep opened print cartridges (black and color) in the printer or the storage container.
- Do not turn off the printer with the print cartridge out of the home position (right end of the carriage path). When in the home position, the service station cap seals the print cartridge nozzles from exposure to air, avoiding dried ink in the print cartridge nozzles.
- 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.
- Always have a black print cartridge and color print cartridge in an HP DeskWriter 550C or DeskWriter 560C printer, even if one of the print cartridges is empty. This minimizes the risk of contaminating the printer carriage contacts with ink spray.
- If printouts are missing dots, see “Printout Missing Dots” in chapter 5.
- Print cartridges left out of the printer or the print cartridge storage container may experience a crusting of dried ink on the print cartridge nozzles. If this occurs, *do not install the print cartridge in the printer*. Replace the print cartridge.
- Store print cartridges at room temperature.

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 Company.

Hewlett-Packard does not support refilling the print cartridges. Hewlett-Packard cannot guarantee the print quality from refilled print cartridges. Printer damage caused by refilling print cartridges is not covered by the Hewlett-Packard warranty or customer service agreements.

Attempting to refill a high-capacity print cartridge may cause sudden drainage of ink from the print cartridge.

Maintaining the Printer

Examine the interior and exterior of the printer for smudges, dust, and so forth. Clean the exterior with a soft cloth moistened with mild detergent and water. Open the top cover and examine the interior areas of the printer. Remove accumulations of paper or lint by carefully brushing the loose material onto a cloth, or by using a computer vacuum cleaner.

Caution

Clean the interior of HP DeskWriter family printers with water only. Platen cleaners or alcohol may damage the printer.

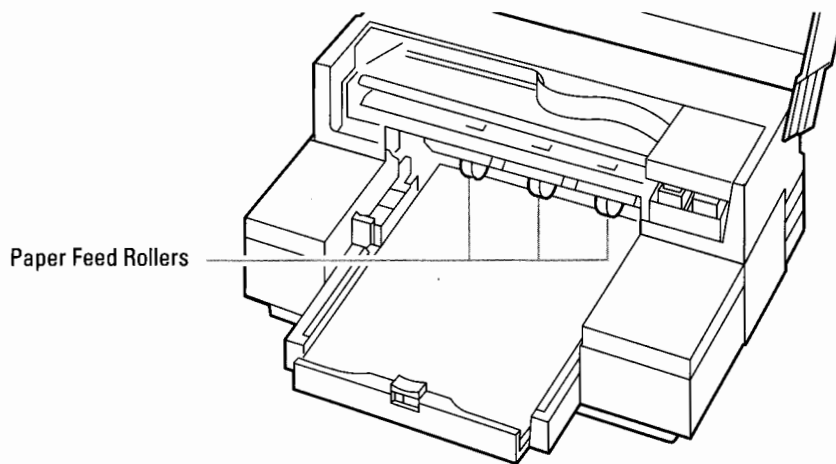


Figure 3-2. Cleaning HP DeskWriter 500 Printer Family

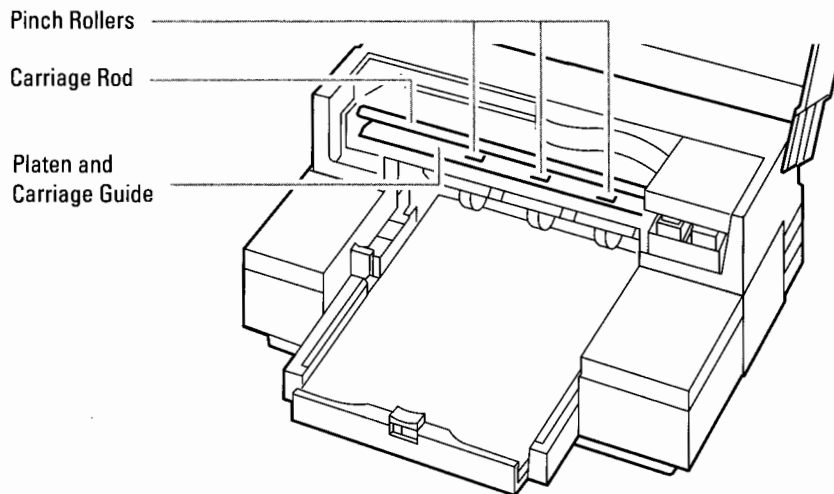


Figure 3-3. Mechanism Parts to Avoid Cleaning

Cleaning the Paper Feed Rollers

If an HP DeskWriter family printer has problems picking paper, clean any paper dust from the paper feed rollers with a cloth moistened with only water as follows:

Caution	When cleaning the paper feed rollers in the following position, hold the cloth away from the paper feed rollers when the pivoting platen lowers during the power-on routine. This reduces the possibility of getting the cloth caught in the paper feed rollers and pivoting platen.
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1. Turn off the printer.	2. Remove the OUT tray and OUT tray cover.
3. Remove any paper from the IN tray.	4. Hold a cloth moistened with water against one of the three paper feed rollers and turn on the printer. The paper feed rollers turn during the power-on routine.
5. Turn off the printer.	6. Repeat steps 4 and 5 for each paper feed roller.
7. Load paper in the IN tray and install the OUT tray.	8. Verify that the printer will pick paper from the IN tray.
9. Repeat the cleaning procedure if the printer does not pick paper from the IN tray.	10. If paper picking problems continue, return the printer for repair.

Cleaning Other Mechanism Parts

To prevent scratched transparencies from HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers, clean the paper feed guide attached to the OUT tray. See "Avoiding Scratched Transparencies" in chapter 5.

Caution	<i>Do not clean the carriage rod, carriage guide, platen, and pinch rollers. Cleaning these parts may reduce the life of the parts. Ink present on these parts will not hinder operation of the product.</i>
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Thermal Inkjet II Technology

HP DeskWriter family printers use Thermal InkJet II (TIJ II) technology. This technology incorporates a disposable print cartridge which propels ink out of 50 nozzles (48 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 5,000 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.

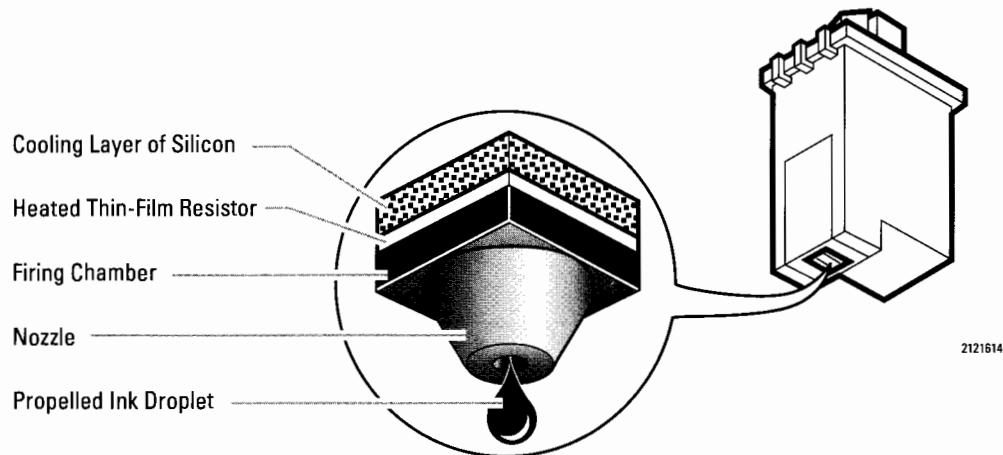


Figure 3-4. Thermal Inkjet II Technology

High-Capacity versus Standard Print Cartridges

The high-capacity black print cartridge, part number 51626A, contains twice the ink of the original print cartridge, part number 51608A, resulting in a lower operating cost per page.

In the original print cartridge, an ink-saturated foam sponge delivers ink to the inkjet nozzles for printing. At the same time, the capillary action in the sponge maintains *back pressure* to keep ink from leaking out of the nozzles.

The high-capacity print cartridge has internal components that perform the sponge function, but require much less volume in the print cartridge. A bubble generator lets air into the chamber as ink is used, and two lung-like spring bags compensate for atmospheric pressure changes.

Caution

Hewlett-Packard does not support refilling the print cartridges. The ink in the print cartridges has been carefully formulated by Hewlett-Packard to ensure superior print quality and compatibility with the printer. Hewlett-Packard cannot guarantee the print quality from refilled print cartridges. Printer damage caused by refilling print cartridges is not covered by the Hewlett-Packard warranty or customer service agreements. Attempting to refill a high-capacity print cartridge may cause a sudden drainage of ink.

Optimization

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Current Printer Driver

As of the printing of this manual, the current printer driver for the HP DeskWriter, DeskWriter 510, DeskWriter 520, HP DeskWriter 550C, and HP DeskWriter 560C printers is the HP DeskWriter Series Printer Driver, Version 5.0.

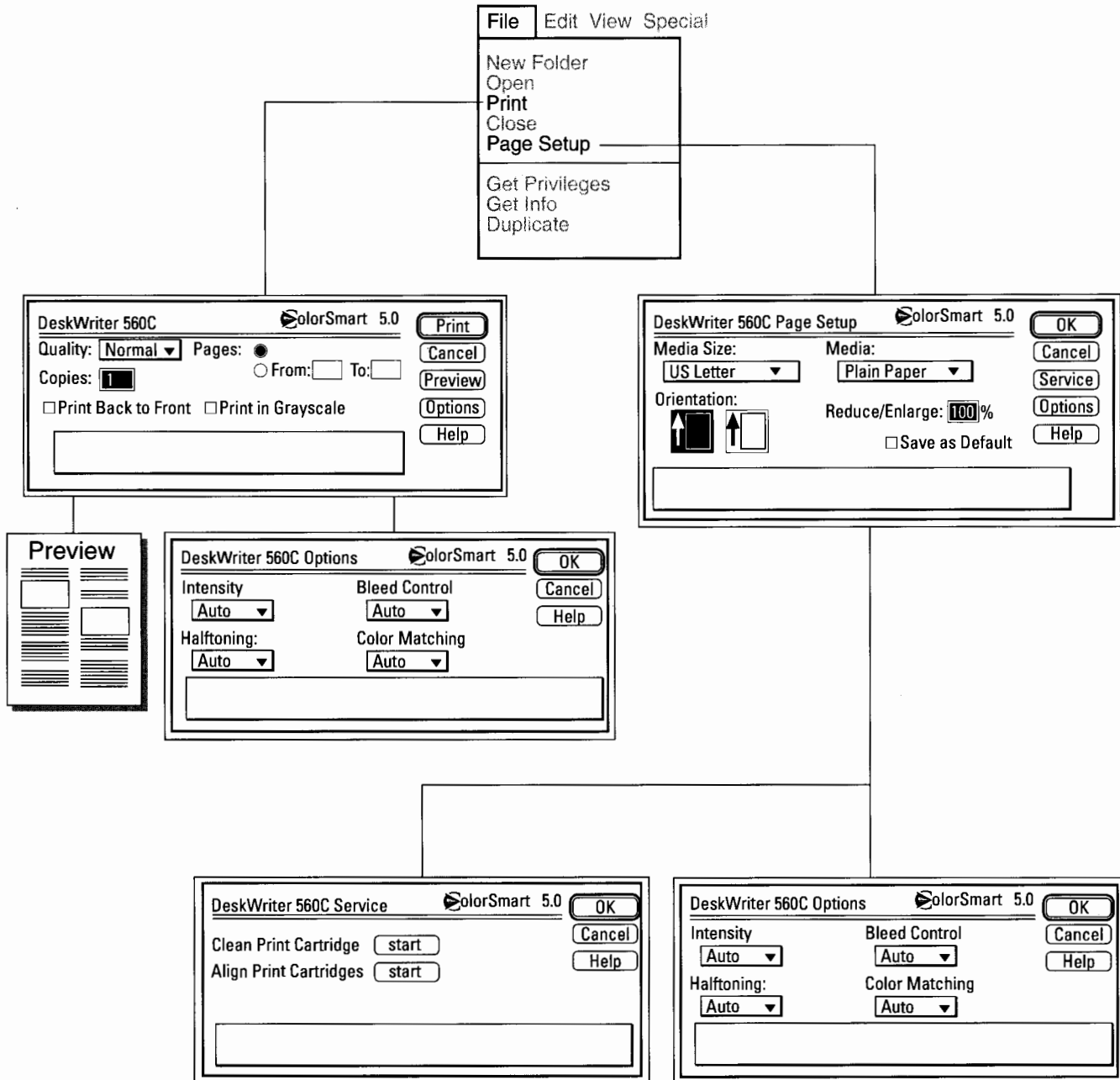
Notes

- For instructions on installing and choosing the printer driver, see the README file on the printer driver installation disk.
 - For a summary of the history of printer drivers, see “Software Maintenance” in chapter 6.
 - For information on obtaining the current printer driver, see “Obtaining Printer Drivers” in chapter 6.
-

Printer Driver Dialog Boxes

DW Series Printer Driver, Version 5.0

Note Use this printer driver with HP DeskWriter family printers.

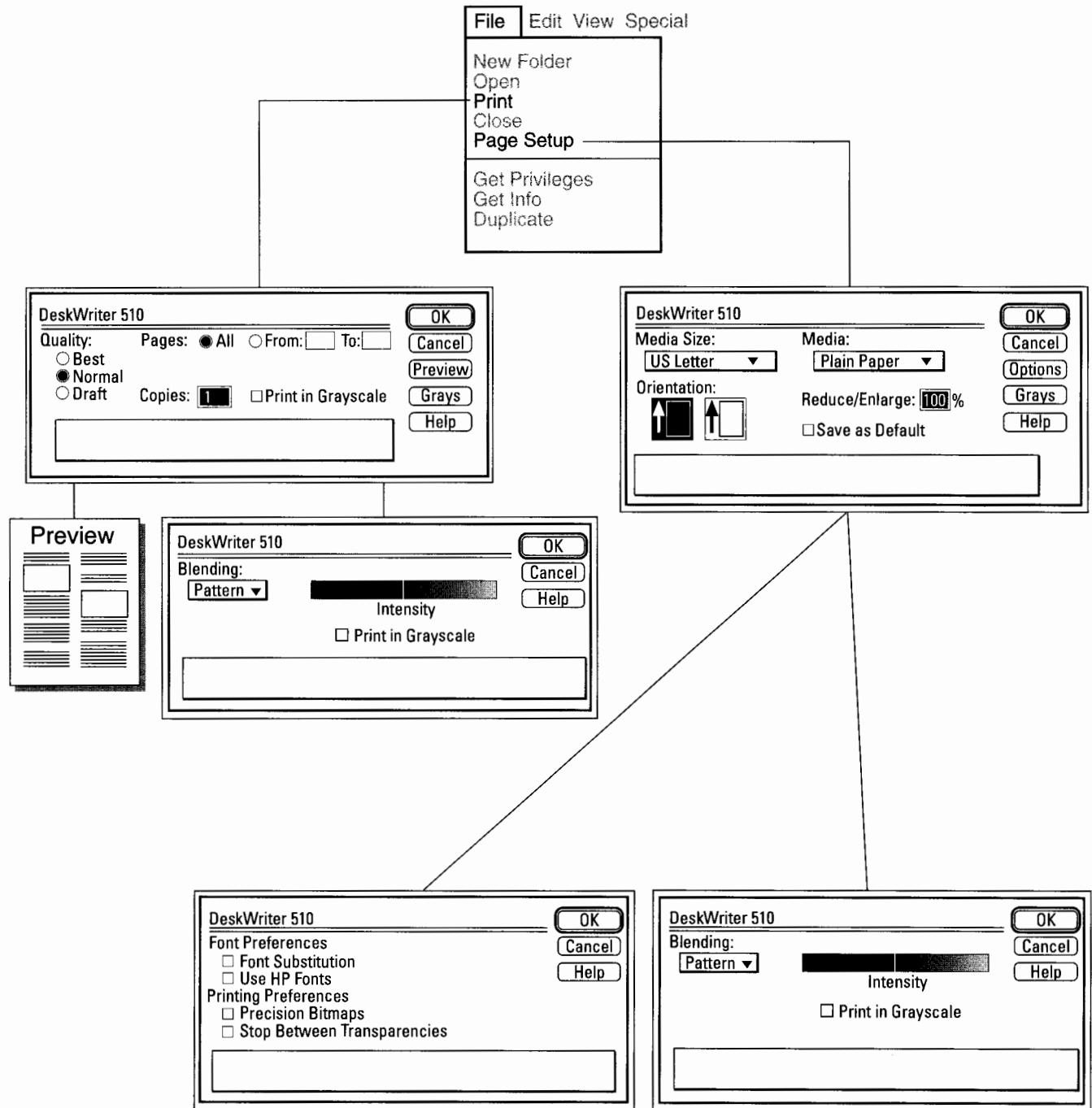


2169600

Figure 4-1. DW Series Printer Driver Version 5.0 Dialog Box Roadmap

DW Series Printer Driver, Version 4.0

Note This version of the printer driver is obsolete. Use the DW Series printer driver, version 5.0.

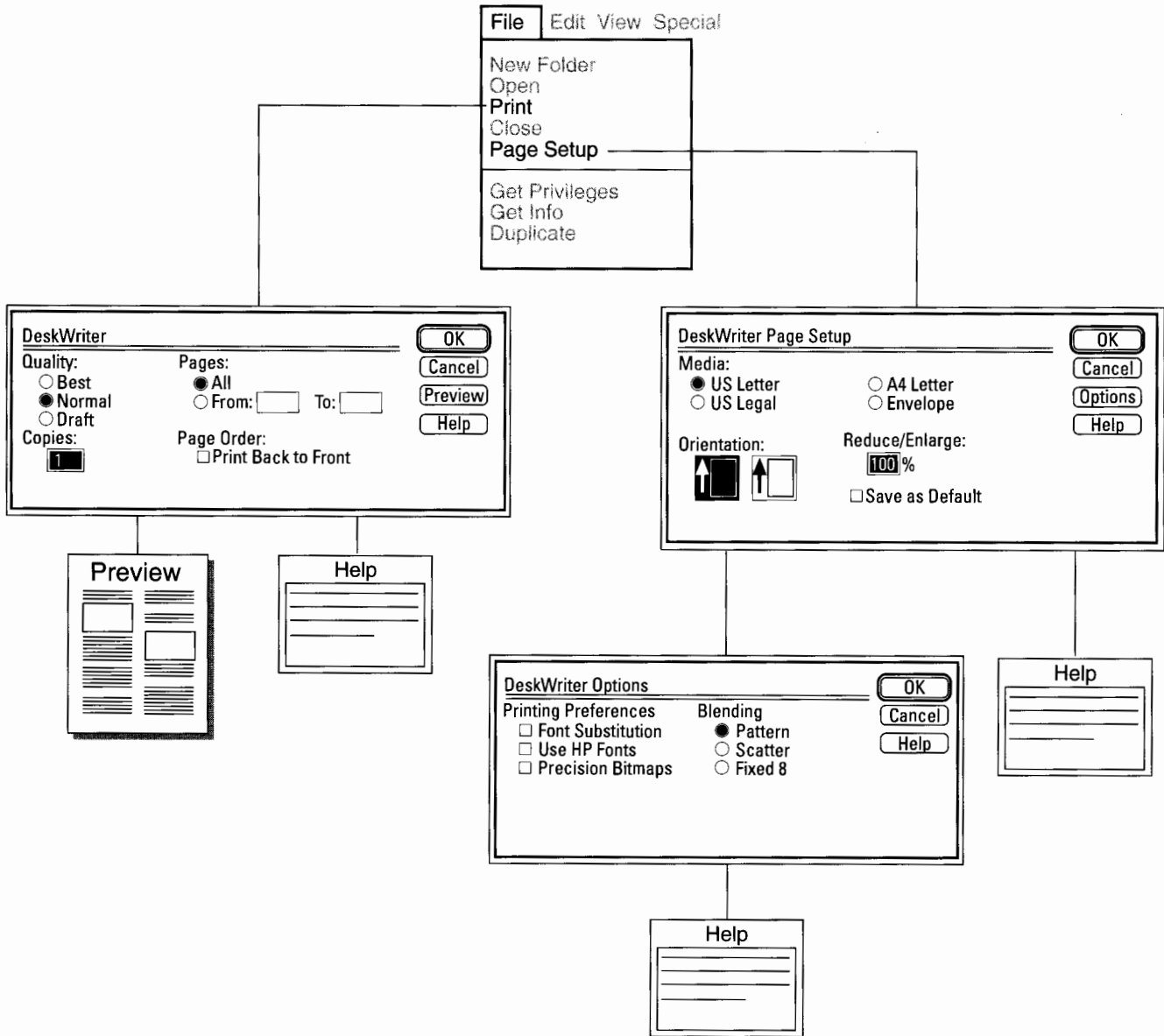


2124672

Figure 4-2. DW Series Printer Driver Version 4.0 Dialog Box Roadmap

HP DeskWriter Printer Driver, Version 3.1

Note This version of the printer driver is obsolete. Use the DW Series printer driver, version 5.0.



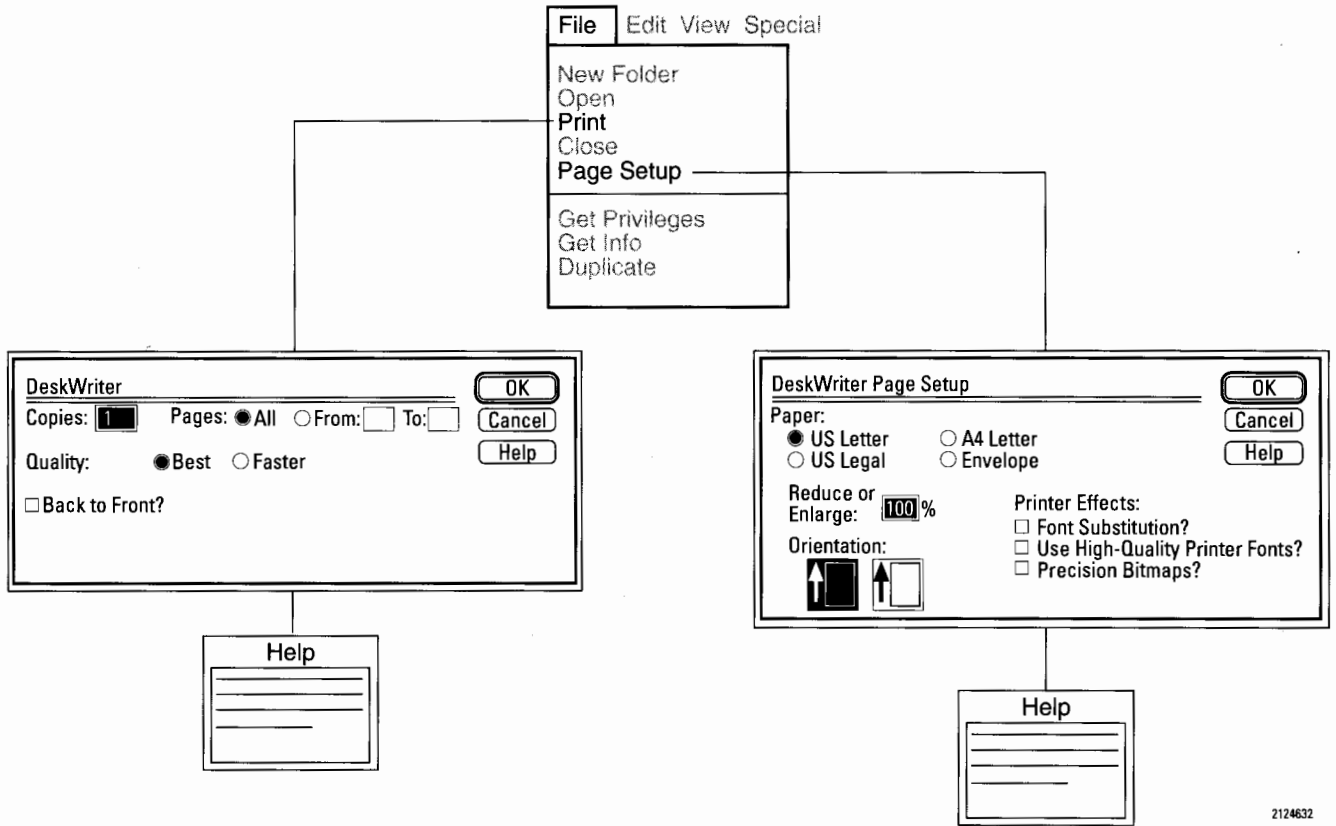
2124668

Figure 4-3. HP DeskWriter Printer Driver Version 3.1 Dialog Box Roadmap

HP DeskWriter Printer Driver, Versions 1.0, 2.0, 2.1, 2.2

Note

These versions of the printer driver are obsolete. Use the DW Series printer driver, version 5.0.



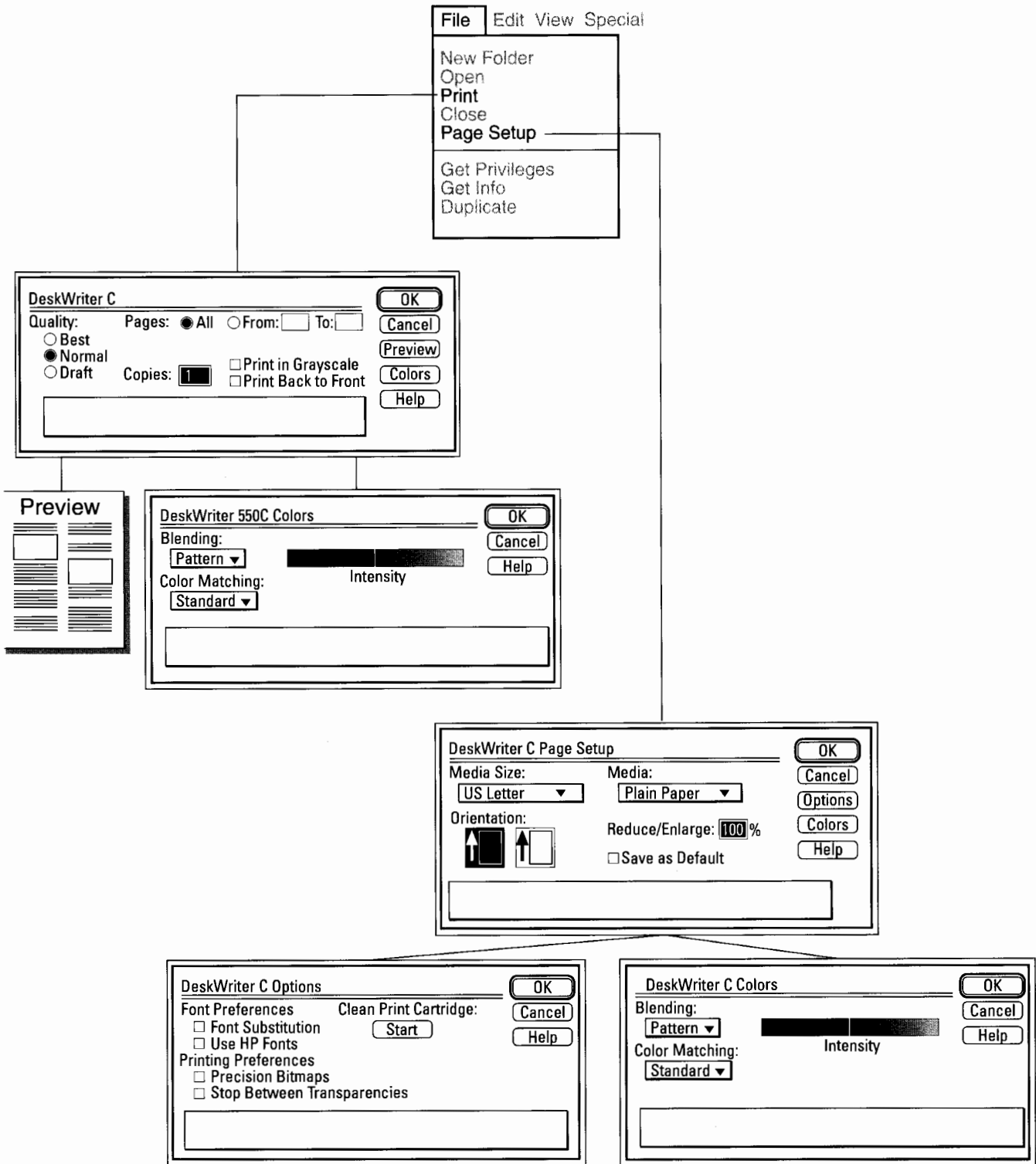
2124632

Figure 4-4. HP DeskWriter Printer Driver Versions 1.0, 2.0, 2.1, 2.2 Dialog Box Roadmap

HP DeskWriter C Printer Driver, Version 3.0

Note

This version of the printer driver is obsolete. Use the DW Series printer driver, version 5.0.



2124671

Figure 4-5. HP DeskWriter C Printer Driver Version 3.0 Dialog Box Roadmap

HP DeskWriter C Printer Driver, Versions 1.0, 2.0

Note These versions of the printer driver are obsolete. Use the DW Series printer driver, version 5.0.

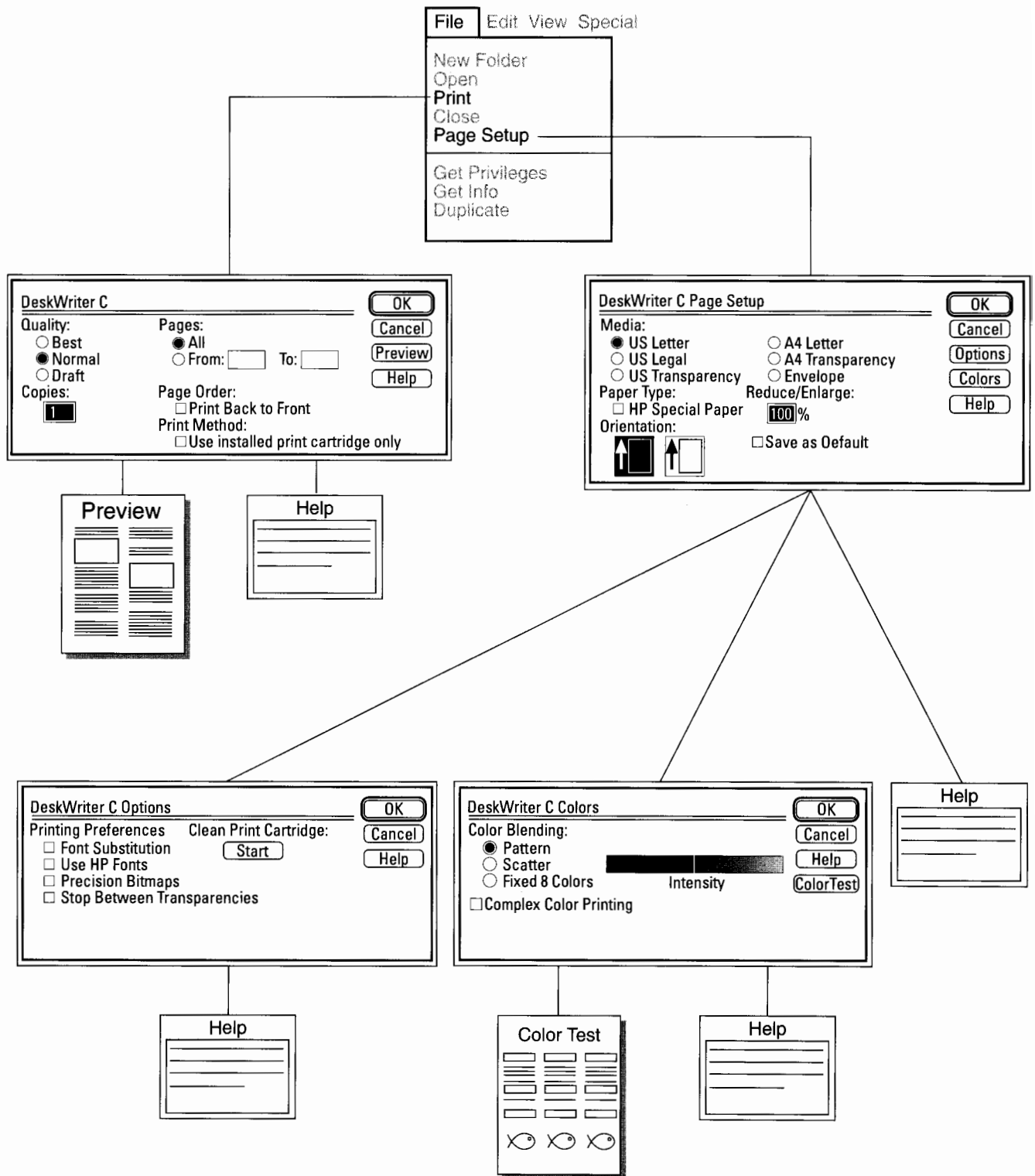


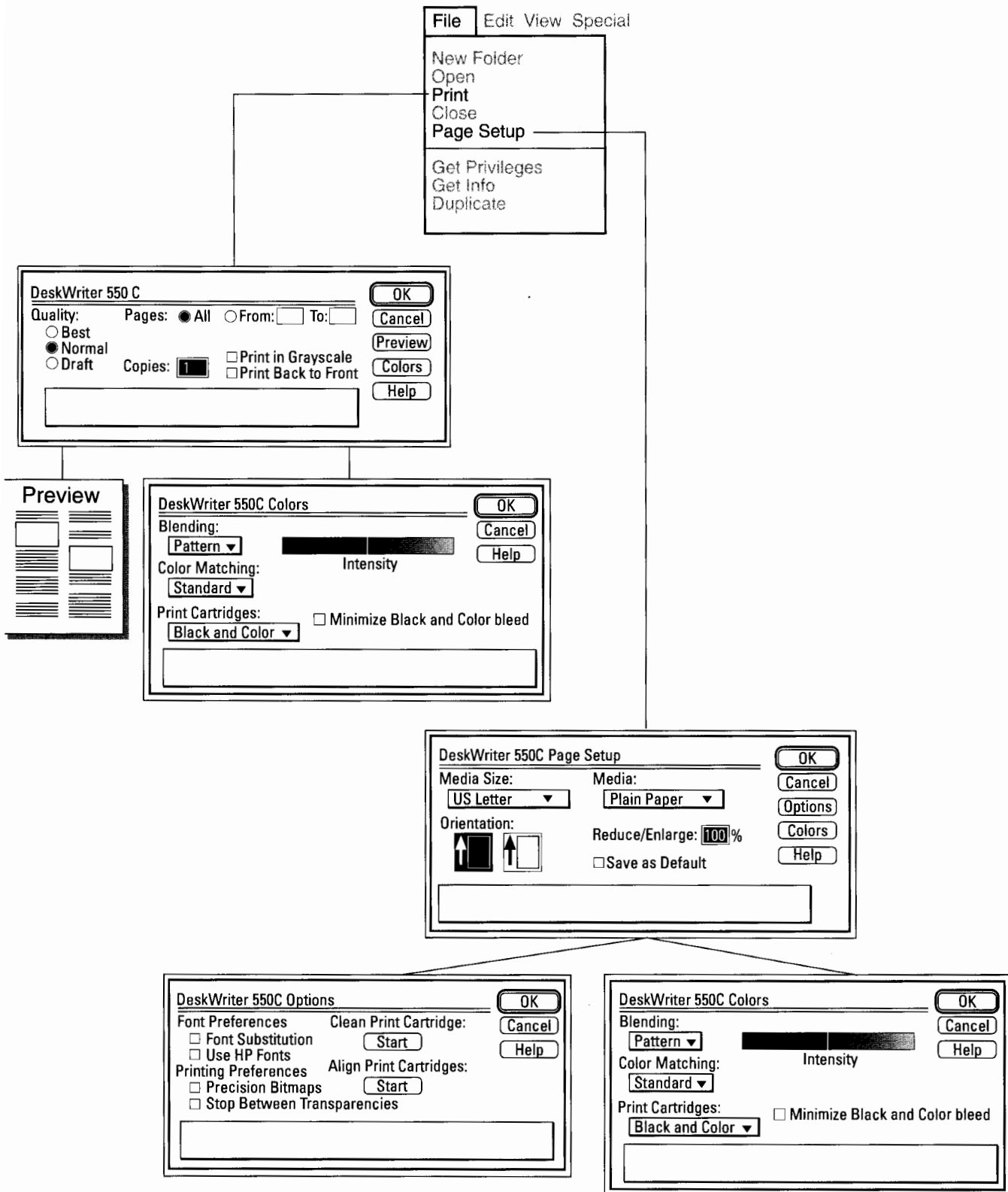
Figure 4-6. HP DeskWriter C Printer Driver Versions 1.0, 2.0 Dialog Box Roadmap

2124667

HP DeskWriter 550C Printer Driver, Version 2.0

Note

This version of the printer driver is obsolete. Use the DW Series printer driver, version 5.0.



212466E

Figure 4-7. HP DeskWriter 550C Printer Driver Version 2.0 Dialog Box Road Map

HP DeskWriter 550C Printer Driver, Version 1.0

Note This version of the printer driver is obsolete. Use the DW Series printer driver, version 5.0.

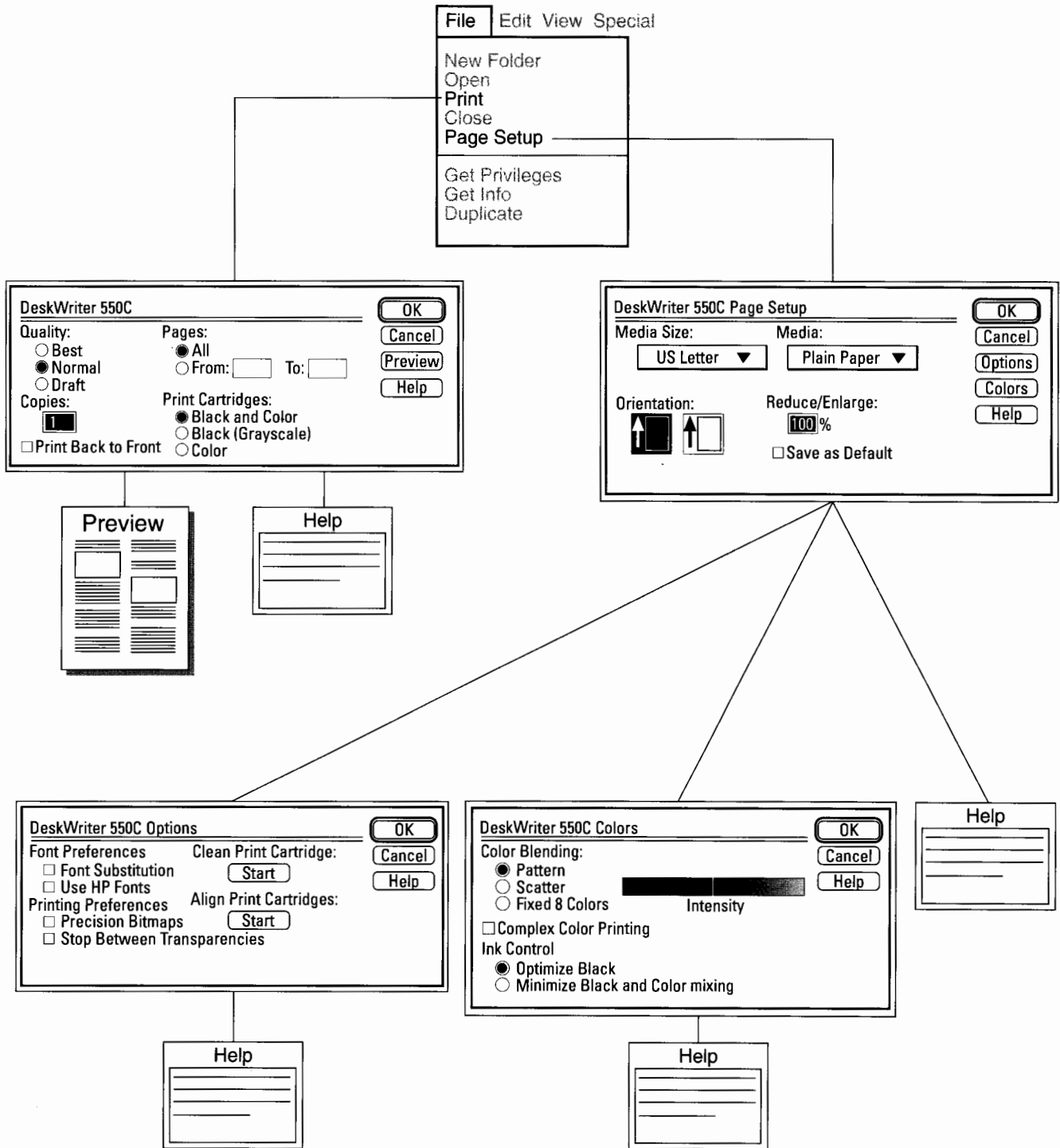


Figure 4-8. HP DeskWriter 550C Printer Driver Version 1.0 Dialog Box Road Map

2124670

HP DeskWriter Series Printer Driver, Version 5.0

The HP DeskWriter Series Ver 5.0 printer driver uses HP's ColorSmart technology to select the best printer settings for documents when using color printer models. ColorSmart analyzes the document and automatically selects the Halftoning, Intensity, Color Matching, and Bleed Control settings that provide the best quality printout of the document. Color Smart is enabled when all of the options in the Options dialog box are set to *Auto*. Auto is the default setting and is the recommended setting for all documents.

Table 4-1 identifies the black and color capabilities of the HP DeskWriter family printers.

Table 4-1. Black and Color Capabilities with the Latest Version Printer Drivers

HP DeskWriter Family Printer	Black and Color Capabilities with the Latest Version Printer Driver
HP DeskWriter, DeskWriter 510, and DeskWriter 520 Printers	<ul style="list-style-type: none"> • The HP DeskWriter, DeskWriter 510, and DeskWriter 520 printers do not have color output capability. All output is black ink from a black print cartridge. • Grayscale images can be produced by selecting <i>Best</i> quality and <i>Print in Grayscale</i> in the Print dialog box. Select <i>Auto</i> or <i>Scatter</i> Halftoning method in the Options dialog box. Grayscale printing is the blending of dots in a fixed or random pattern to produce an appearance of various shades of gray.
HP DeskWriter C Printer	<ul style="list-style-type: none"> • All black on a page with color is printed using composite black. • With the black print cartridge installed, any color on a page is printed in grayscale.
HP DeskWriter 550C and DeskWriter 560C Printer	<p>The HP DeskWriter 550C and DeskWriter 560C printers are the only printers in the HP DeskWriter printer family that are capable of mixing black ink on a page with color.</p> <ul style="list-style-type: none"> • When <i>Print in Grayscale</i> in the Print dialog box is selected, color on a page is printed in grayscale. The blending method depends on the Halftoning selection in the Options dialog box. • When <i>Bleed</i> control is set to <i>Off</i> in the Options dialog box, the printer uses the black print cartridge for black areas and the color print cartridge for color areas. This provides faster print speed and black ink for all black areas. Black ink may mix with color ink in areas where black and color are adjacent. • When <i>Bleed</i> control is set to <i>Auto</i> or <i>On</i> in the Options dialog box, the printer driver scans pages before printing. When it finds areas where color ink and black ink are $\frac{1}{10}$ in. or closer, the printer uses a process to create black that does not mix into color areas. The printer uses the black print cartridge (black ink) for all other areas of black that are $\frac{1}{10}$ in. or more away from a color area. This option prints more slowly than <i>Off</i>. <p>For additional information, see the documentation included with the printer.</p>

Table 4-2. Printing Tips, HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C Printers

Printed Output	Printer Settings
Black text on plain paper.	Default settings in all dialog boxes.
Black or color text and complex color graphics on plain paper, with adjacent black and color areas.	Default settings <i>and Best</i> quality in the Print dialog box.
Highest quality color scanned images or computer graphics.	Use HP Special Paper, HP Glossy Paper, or Transparency film and select the matching Media Type setting in the Page Setup dialog box.
Highest quality grayscale images from color or grayscale documents.	Use HP Glossy Paper and select <i>HP Glossy Paper</i> in the Page Setup dialog box. <i>Print in Grayscale</i> in the Print dialog box.

Optimizing Memory

Since HP DeskWriter family printer drivers image the pages in system memory, the amount of available system memory affects printer performance—the more memory available, the less time required to print a page. This section describes how the HP DeskWriter family printer drivers use memory.

The Macintosh RAM is a large stack:

- The HP DeskWriter family printers require a total memory size of at least 2 MB for System 6 or 4 MB for System 7.
- For HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C, recommended total memory size is 4 MB *minimum* for color and grayscale printing.
- Additional memory (5 MB or more) increases flexibility in working with applications.

The system heap loads into the lower portion of computer memory. The system heap includes the system code, the Finder code, and free allocated memory for the system heap.

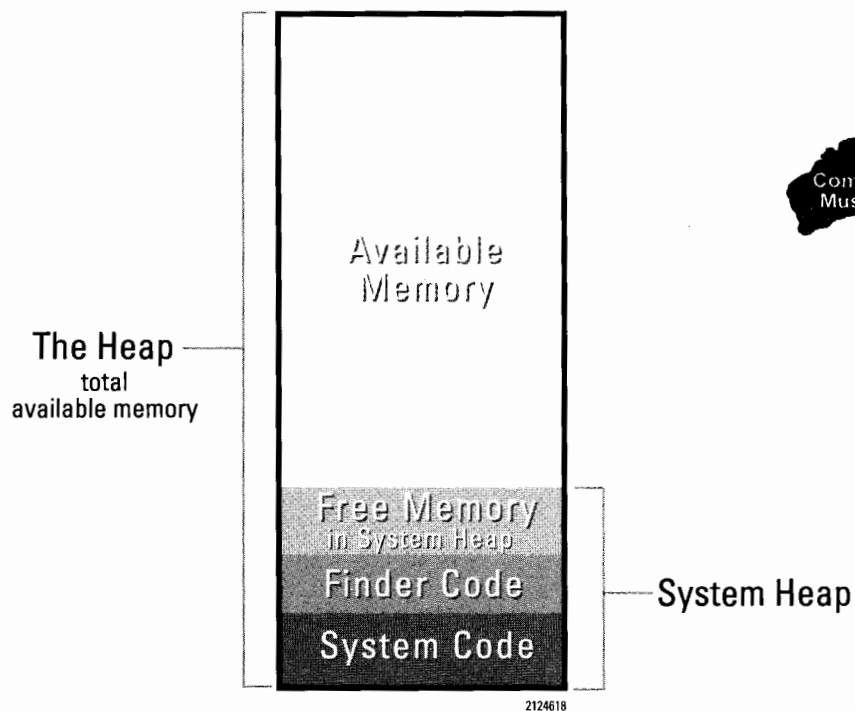


Figure 4-9. Macintosh Memory Stack

Table 4-3. Finder and MultiFinder Memory Usage

Finder (System 6)	System 6 MultiFinder or System 7 Finder
Allows only one application open at a time.	Allows multiple applications open at the same time. Requires more system memory.
Application memory usage differs. System memory usage differs within its heap.	

Running Under Finder (System 6)

Under Finder, memory is allocated as follows:

- An application loads into available memory.
- The application does not allocate a specific amount of memory—it takes memory as it is needed.
- The printer driver uses the remaining portion of memory.

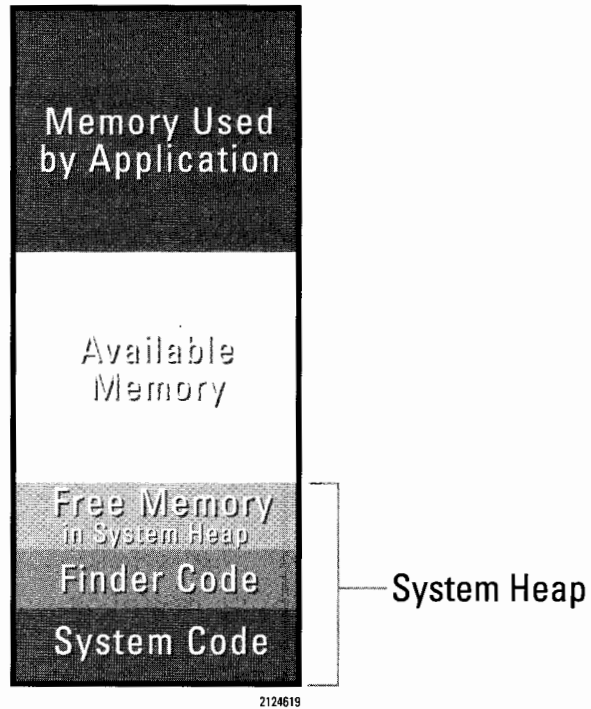


Figure 4-10. Memory Allocation Under Finder

Running Under System 6 MultiFinder or System 7 Finder

Under MultiFinder or System 7 Finder, applications load into memory from the top (high memory) portion of the stack.

- Applications may have as much or little memory as they need, limited only by the amount of memory available.
- Additional applications load into memory from the top of the available memory.
- Any number of applications may be loaded, limited only by the amount of available memory.

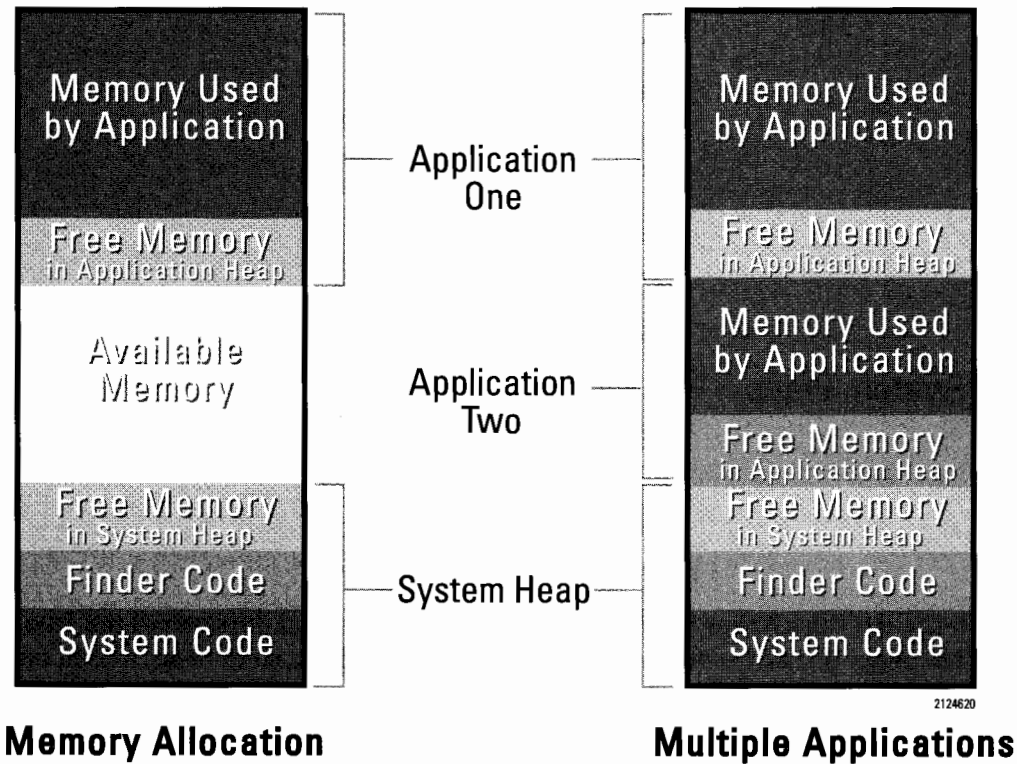


Figure 4-11. Memory Allocation Under MultiFinder or System 7 Finder

MultiFinder Memory Allocation Example

The following diagram is an example of how memory may look while printing to an HP DeskWriter family printer under MultiFinder.

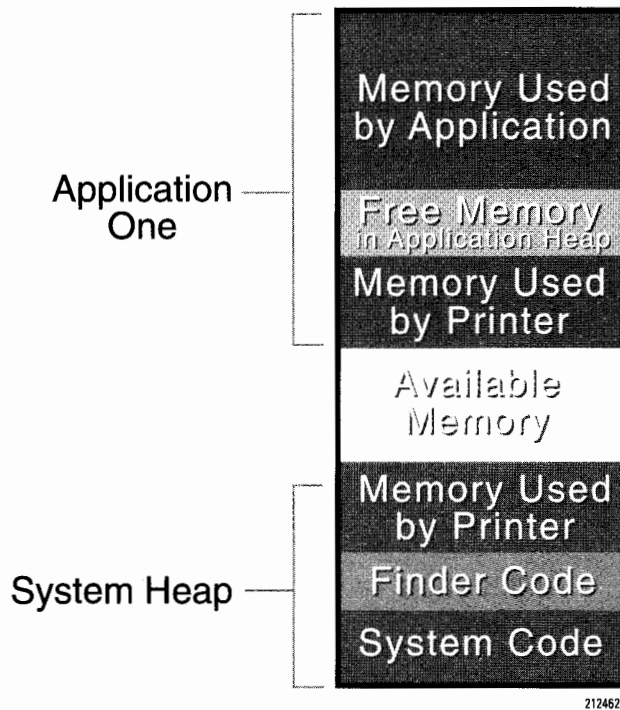


Figure 4-12. A Sample Print Session

During a print job the HP DeskWriter family printer driver uses several portions of the free memory. It expands the system heap. If there is no available memory above the system heap, a “Not enough memory...” dialog box appears and the printer does not print.

The spool file itself is not that large, but the PCL graphics data to generate each page are quite large:

- A full page of compacted black-and-white 300 dpi graphics requires approximately 1 MB.
- A color page is at least three times larger than a full page of black-and-white 300 dpi graphics.

There is often not enough memory to generate an entire page in memory at one time. When low memory occurs, the page is divided into equally-sized bands of data, which are sent to the printer one after the other. The fewer bands required, the faster the print job.

In addition to the bands of data, memory is used for other purposes. Table 4-6 identifies other memory uses.

Table 4-4. Additional Memory Uses

Memory Use	Description
Font Cache	Characters are saved so they don't need to be scaled and generated every time they are used.
I/O Buffer	Data being sent to the printer. This allows the computer to begin generating the next band, before the printer has completed printing the current band.
System Needs	8K to 10K is left available for the system.

When computing band sizes, several factors affect the printer driver:

- The band must load into a contiguous block of memory.
- Space for the largest character or object must be available. Statistics about the data are collected while creating the spool file—largest object, largest character, and so forth.
- The printer driver searches for the “worst case” and determines whether to continue or not.
- If the printer driver cannot continue, it displays a dialog box to inform the user that there is not enough memory to print.

The size of the application heap is set in the Get Info dialog box. In general, the application size should be set 300K larger than the default. To increase the partition size for an application, follow these steps:

1. Quit the application if it is currently running.
2. Click the application icon to select it.
3. Choose Get Info from the File menu.
4. Click the Current Size box under Memory.
5. Enter a new number that is 300 larger than the Suggested size or the existing current size.
6. Close the Get Info dialog box and start the application.

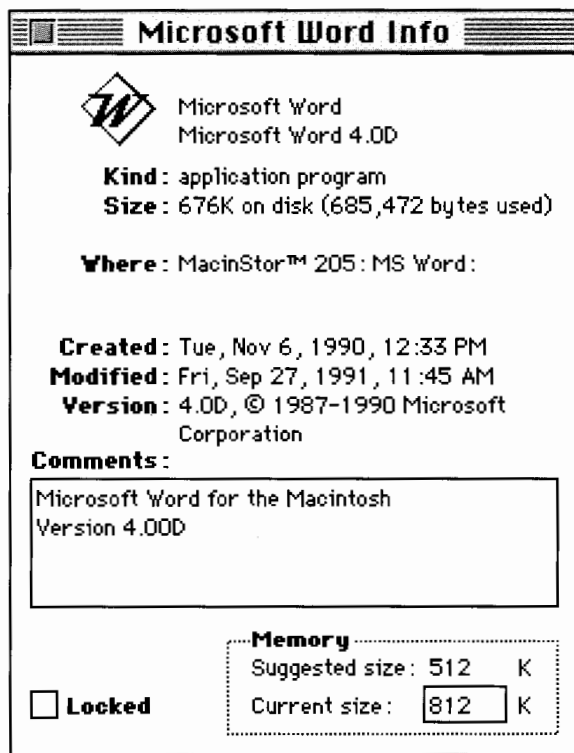


Figure 4-13. The Get Info Box

Note

For System 6, also see "Increasing the Finder Partition Size" in this chapter.

Optimizing the Macintosh Computer for Printer Performance

HP DeskWriter family printer drivers are designed to deliver the best possible performance. The Installer program on the latest version printer drivers automatically increases System 7 memory size. However, printer output speed can be affected by the following:

- The amount of system memory available in the Macintosh computer, which depends on:
 - Whether Finder or MultiFinder is used in System 6. If MultiFinder is typically used, system memory available also depends on the number of applications open at once.
 - The start-up screen and number of initialization routines (INITs) or Control Panel devices (CDEVs) stored in the System folder of the hard disk.
 - The degree of fragmentation of system memory.
 - The amount of memory reserved in the RAM cache.
- The amount of disk space available on the hard disk, which depends on:
 - The number of printer drivers, documents, and applications stored on the hard disk that are not frequently used. (This is most applicable when the hard disk is nearly full.)
 - The number of fonts and desk accessories installed in the System folder.
 - The degree of fragmentation of hard disk space.

Most techniques for optimizing printer performance require freeing Macintosh memory for the printer driver to use.

Table 4-5. Optimizing the Macintosh Computer for HP DeskWriter Family Printers

Recommendation	Description
Install more RAM in the computer.	HP DeskWriter family printers <i>require</i> at least 2 MB of memory for System 6 or 4 MB of memory for System 7. Color and grayscale printing <i>require</i> 4 MB. Use additional memory (5 MB or more) to increase flexibility in using applications.
Free system memory.	Close all other applications running in Multifinder or System 7 Finder. Remove start-up screens and INITs or CDEVs from the System folder. (Removing one or two of these files, however, may or may not significantly affect printer speed, depending on the size of the files.) Use Background printing only with sufficient RAM, or turn off background printing. Read the Macintosh documentation for information on improving system performance.
Turn off or decrease the RAM cache.	The RAM cache allows some memory to be reserved where software applications can store information for quick retrieval. Turning off the RAM cache in the Control Panel increases the amount of system memory available for the printer driver. For information on turning off the RAM cache, see "Turning Off or Decreasing the RAM Cache" later in this section.
Print under Finder, System 6 only.	In almost all cases, switching from MultiFinder to Finder will improve printer output speed.
Increase the Finder partition, System 6 only.	The default Finder partition size on a Macintosh computer is 160K. This may be too small for the HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C printers to print in color under MultiFinder. Error messages may appear indicating not enough memory to print. See "Increasing the Finder Partition Size" later in this section.

Turning Off or Decreasing the RAM Cache

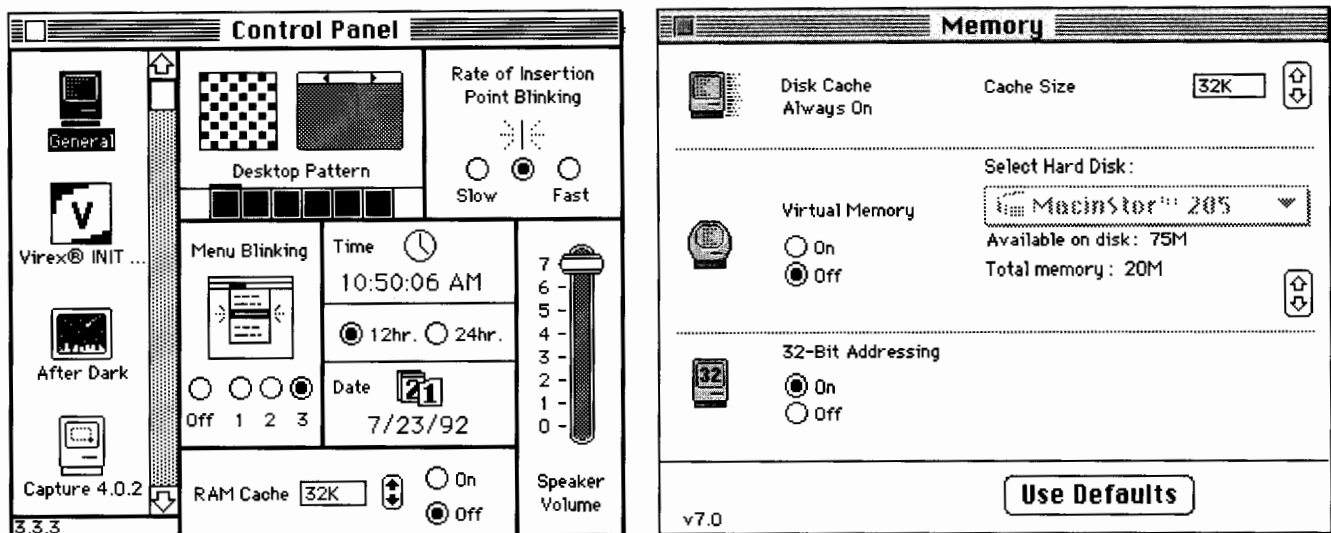


Figure 4-14. Turning Off or Decreasing the RAM Cache

System 6	System 7
<ol style="list-style-type: none"> 1. Choose the Control Panel from the Apple menu. 2. Check to see if the RAM cache is off. If it is not, turn off the RAM cache by clicking the OFF button. 	<ol style="list-style-type: none"> 1. From the Apple menu, choose Control Panels/Memory. 2. Click the arrows next to the Cache Size box to reduce the disk cache to 32K. You must use at least a 32K cache.

Increasing the Finder Partition Size (System 6)

Increase the Finder partition (which increases the system heap memory), if you receive one of the following error messages:

- “There is not enough memory to print (-108).”
- “The directory could not be printed (out of Finder memory). Check that a printer file is in the System folder and that a printer is selected in the Chooser.”

Change the Finder partition size to 400K as follows:

1. Open the System folder, and click the Finder icon.
2. From the File menu, choose Get Info (or press Command and i).
3. Click the box next to Application Memory Size (K). Change the number to 400.
4. Close the Get Info dialog box.
5. Restart the computer.

Notes

- You may either use background printing or increase the partition size. If you do both, you will use more memory than needed. In most cases background printing is the preferred solution. Try using background printing before changing the partition size.
- This solution does not work with System 7. (With the Install program in System 7, the Finder size is increased.)

Additional Printing Information

Table 4-6. Additional Printing Information

Topic	Information
Online help.	There are up to four locations of online help from the File menu: Page Setup dialog box, Options dialog box from the Page Setup dialog box, Colors dialog box from the Page Setup dialog box, and the Print dialog box. See "Printer Driver Dialog Boxes" toward the front of this chapter.
Balloon Help, System 7 only.	Choose <i>Show Balloons</i> from the Help menu in the upper right corner of the menu bar. If <i>Show Balloons</i> is not an option in the menu, Balloon Help is already on. To turn off Balloon Help, choose <i>Hide Balloons</i> from the Help menu icon.
Avoiding print option conflicts.	Some applications provide printing option boxes, buttons, or fields in addition to the Page Setup and Print dialog boxes. A conflict can occur when these options are also covered by the printer driver. When the printer driver and software application both try to perform the same function, the result is often unexpected output. It is a good practice to ignore extra options provided by an application, if a similar option is already handled through the printer driver. It is usually preferable to choose the option provided by the printer driver.
Printing from preview, HP DeskWriter C printer.	<p>When previewing a range of pages, some of which contain black/text and some color/graphics, two or more of those pages can be printed. However, when trying to print only one of those pages, the printer driver prompts to change the print cartridge after that page has printed. It is not necessary to switch print cartridges; simply click <i>OK</i> when the message appears. With a document/print cartridge mismatch (for example, the black print cartridge is installed when trying to print a color page), the printer driver prompts to change the print cartridge before printing. As usual, either switch print cartridges or proceed with the installed print cartridge. When the page has finished printing, a message indicates that the remainder of the document is in a different color. It is not necessary to take any action other than clicking <i>OK</i>.</p> <p>Note: Some applications do not print from the Preview screen.</p>
Printing the eight basic colors from a Macintosh computer.	Along with the type of Macintosh computer, the software application determines how color output appears. If an application supports only eight colors, the color output will look the same, whether using a QuickDraw, Color QuickDraw, or 32-bit QuickDraw Macintosh computer. Additionally, some applications send only black-and-white data to the printer when running on a non-color QuickDraw Macintosh computer.
Printing a color document with the black print cartridge, HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C printers.	<p>Printing draft copies of a color document with a black print cartridge saves the color print cartridges and reduces the time to print the document. For best results when printing a color image with a black print cartridge, select <i>Best Quality</i> mode. With the HP DeskWriter 550C and DeskWriter 560C, also select <i>Print in Grayscale</i>.</p> <p>Note: HP DeskWriter printers using the latest version printer driver, are capable of grayscale printing.</p>

Table 4-6. Additional Printing Information (Continued)

Topic	Information
<p>Unexpected print cartridge swap message (black pages seen as color), HP DeskWriter C printer.</p>	<p>Sometimes the HP DeskWriter C printer driver interprets black-and-white data as color. The printer driver may also identify grayscale scanned images as color. Some applications, such as Photoshop and PixelPaint Professional, use black and white pixels from a color palette to draw black-and-white objects. Because the pixels originate from a color palette, the HP DeskWriter C printer driver interprets them as color data.</p> <p>When attempting to print a single page document with the black print cartridge installed, the printer driver provides a message that the document contains color and an option to change print cartridges or continue printing. Click <i>Continue</i> to print the document with the black print cartridge. The color print cartridge will not produce satisfactory results.</p> <p>With a multipage document, one or more of the black pages will be printed in composite black with the color print cartridge. Reprint the pages where the error occurred, making sure that the black print cartridge is installed. From the Print dialog box, check the <i>Use installed print cartridge only</i> box. The printer will now print the pages with the black print cartridge. When printing is complete, return to the Print dialog box and uncheck the <i>Use installed print cartridge only</i> box so that the printer driver warns of future document/print cartridge mismatches.</p>
<p>Printed text and graphics are out of alignment</p>	<p>Sometimes, text and graphics that align on the computer screen are out of alignment on the printed output. If available in the application, try turning on <i>Fractional Widths</i> in the Page Setup dialog box to obtain a closer match of text and graphics alignment. The printout will appear closer to what is on the screen. However, turning on <i>Fractional Widths</i> automatically turns off <i>Font Substitution</i>.</p> <p>After installing or replacing a print cartridge in the HP DeskWriter 550C or DeskWriter 560C printer, <i>always align the print cartridges</i> before starting to print.</p> <ol style="list-style-type: none"> 1. Choose Page Setup from the File menu. 2. Click <i>Service</i> to go to the Service dialog box. 3. Click the <i>Start</i> button for Align Print Cartridges, and follow the instructions on the screen and on the printouts.

System 7 Problems

The current versions of the printer drivers are fully System 7 compatible. System 7 problems with earlier-version printer drivers are described in following table.

Table 4-7. List of System 7 Problems with Early Printer Drivers

Problem	Driver Update Required
Background printing does not work	The following printer drivers <i>support</i> background printing: <ul style="list-style-type: none">• HP DeskWriter Series printer driver, all versions• HP DeskWriter printer driver, version 3.1• HP DeskWriter C printer driver, versions 2.0 or later• HP DeskWriter 550C printer drivers, all versions
Virtual Memory does not work	The following printer drivers <i>support</i> Virtual Memory: <ul style="list-style-type: none">• HP DeskWriter Series printer driver, all versions• HP DeskWriter printer drivers, versions 2.2 or later• HP DeskWriter C printer drivers, versions 2.0 or later• HP DeskWriter 550C printer drivers, all versions

Printer Driver Upgrades

Updated printer drivers may be obtained from the following sources:

- HP Forum on CompuServe.
- AppleLink bulletin board.
- HP Distribution Center.

For complete information, see “Obtaining Printer Drivers” and “Obtaining Software Support Information” in chapter 6.

Problem Resolution

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Troubleshooting Tools

Recommended Troubleshooting Tools

The following tools are recommended for troubleshooting the HP DeskWriter printer family:

- HP DeskWriter test box, part number 02279-60004.
- Fuse module, part number 02227-60030.
- Foam rubber or lint-free swabs, such as part number 9300-0767—*do not use cotton swabs*.
- Digital voltmeter, dial caliper or accurate linear scale.
- Tissue, lint-free cloth, brush or small computer vacuum cleaner.

Using the Fuse Module

The HP DeskWriter printer family uses a power module to supply power to the printer. *These power modules contain non-replaceable fuses.* Before troubleshooting any HP DeskWriter family printer, connect the fuse module, as shown below, to protect the non-replaceable fuses in the power module.

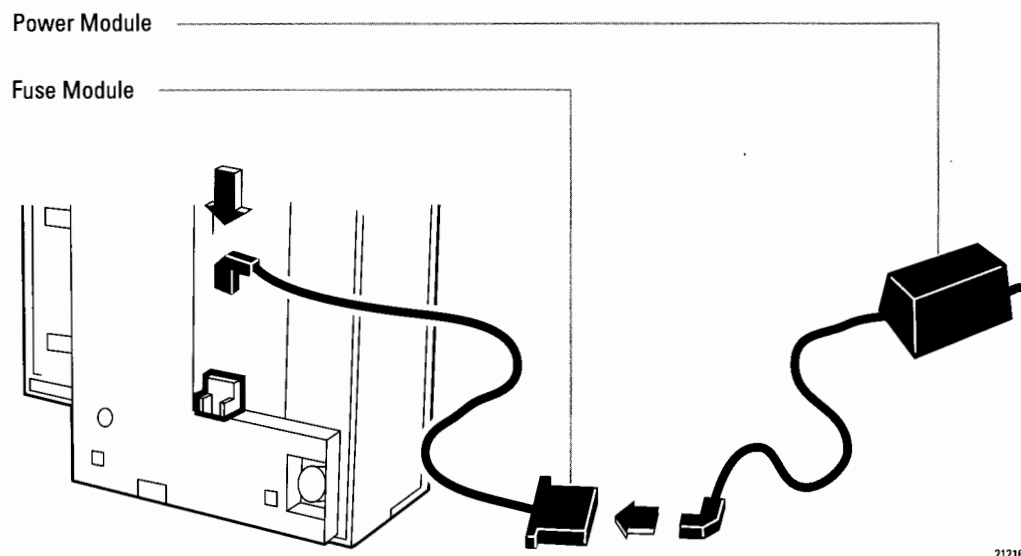


Figure 5-1. Connecting the Fuse Module Accessory

Table 5-1. Fuse Module Information

Fuse Module Topic	Information
Purpose of the fuse module.	<ul style="list-style-type: none">• Protects the non-replaceable fuses in the power module from inadvertent damage while troubleshooting.• Indicates whether the voltage out of the power module is OK.
LEDs on the fuse module are lit.	<ul style="list-style-type: none">• Power module is plugged into a powered receptacle.• Power Module and its non-replaceable fuses are good.• Fuse module replaceable fuses are good.
LED(s) on fuse the module are not lit.	If the printer damages one of the fuses in the fuse module, the corresponding LED goes out.

Overall Troubleshooting

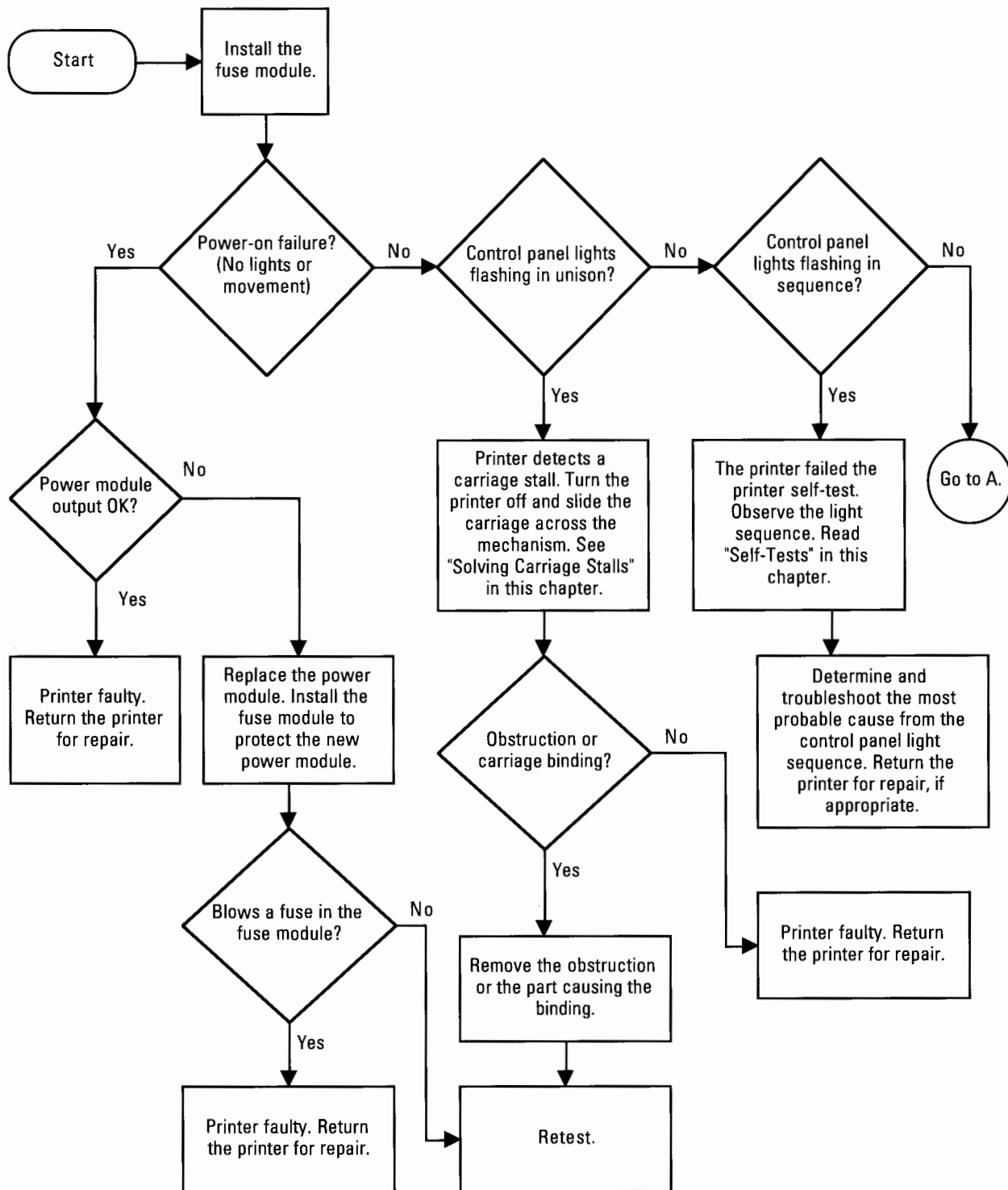


Figure 5-2. Overall Troubleshooting Block Diagram

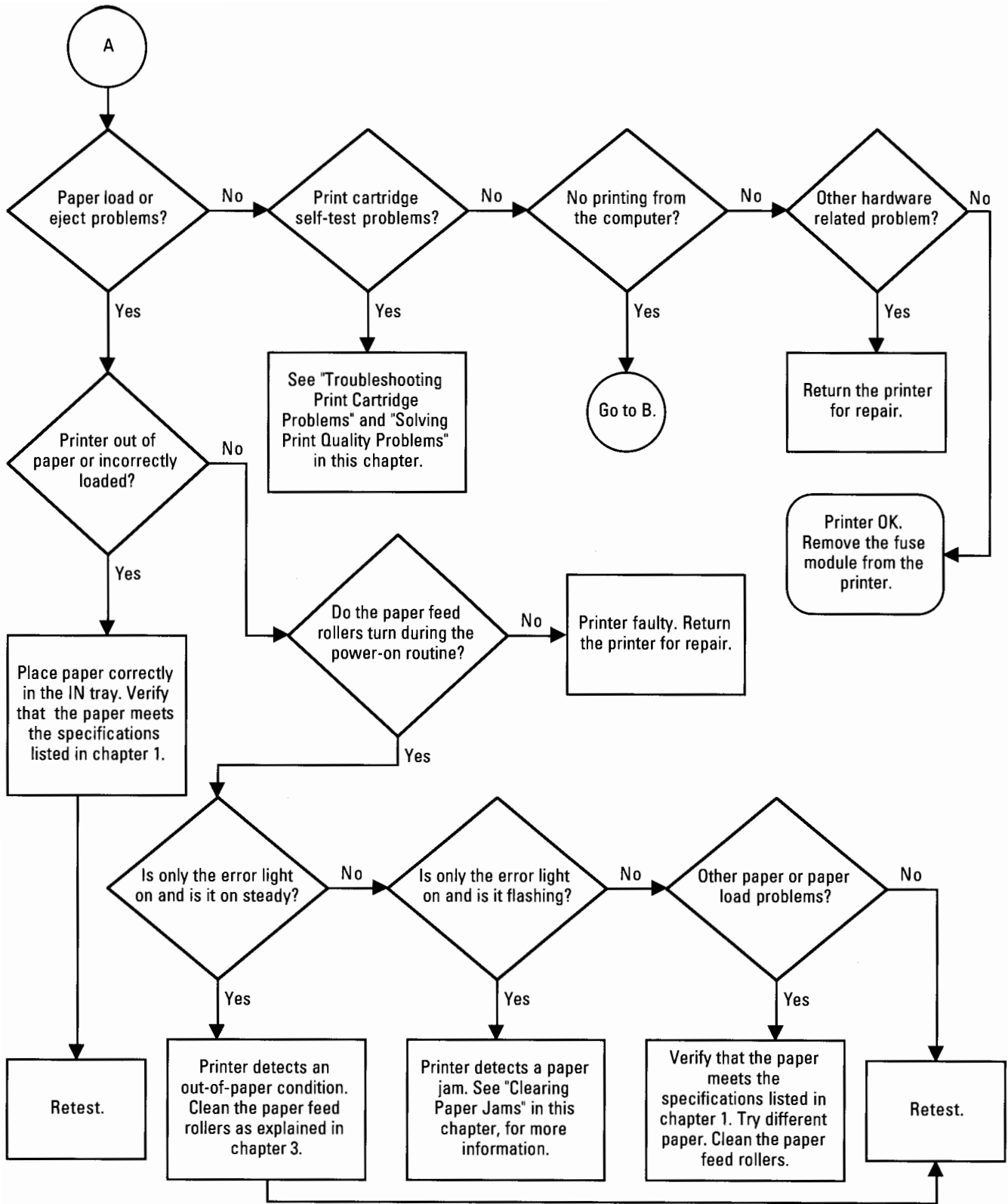


Figure 5-2. Overall Troubleshooting Block Diagram (Continued)

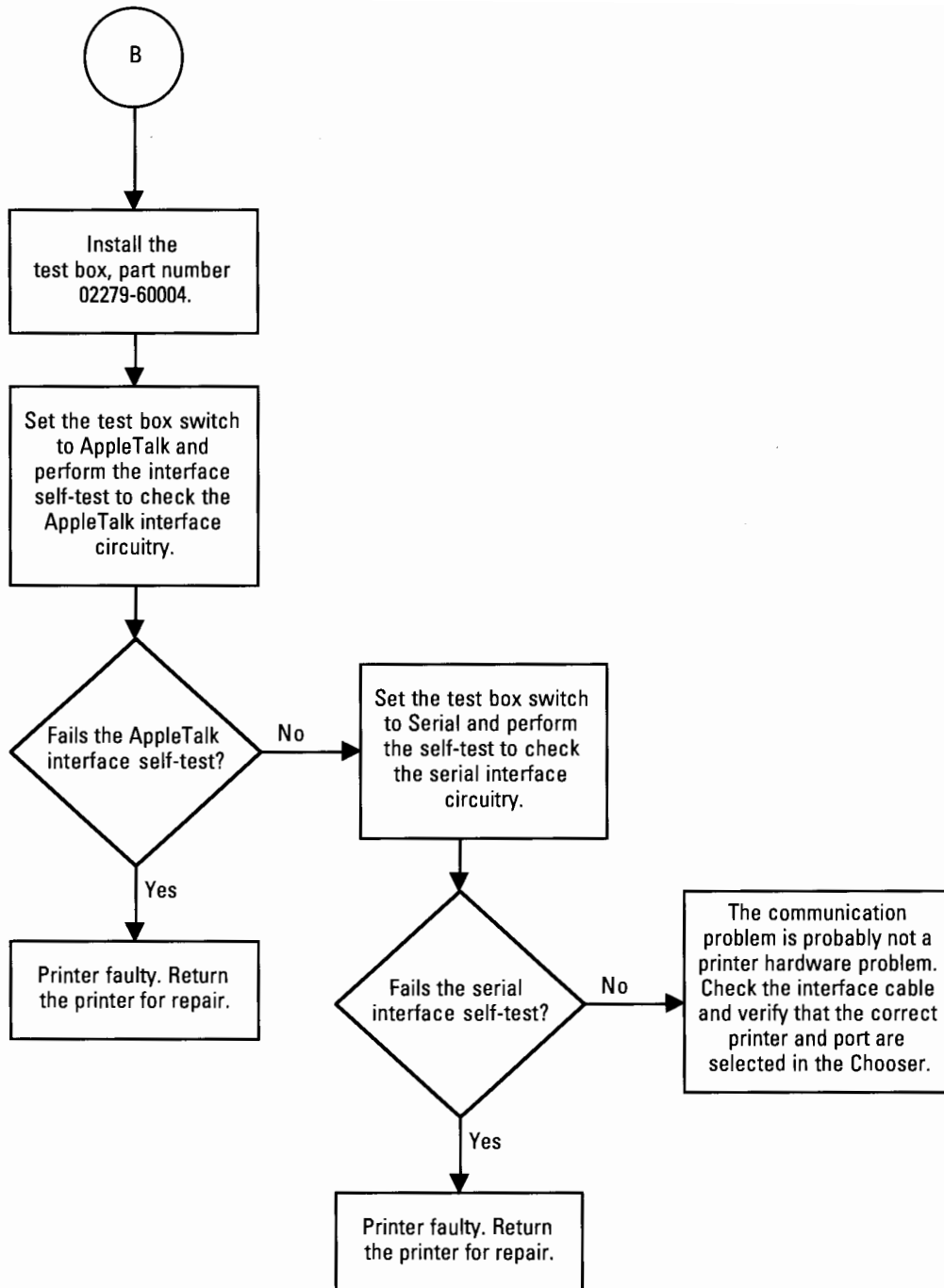


Figure 5-2. Overall Troubleshooting Block Diagram (Continued)

Troubleshooting the Power Module

Disconnect the power module from the printer. With the power module plugged into a powered receptacle, measure the voltage with a voltmeter as shown below.

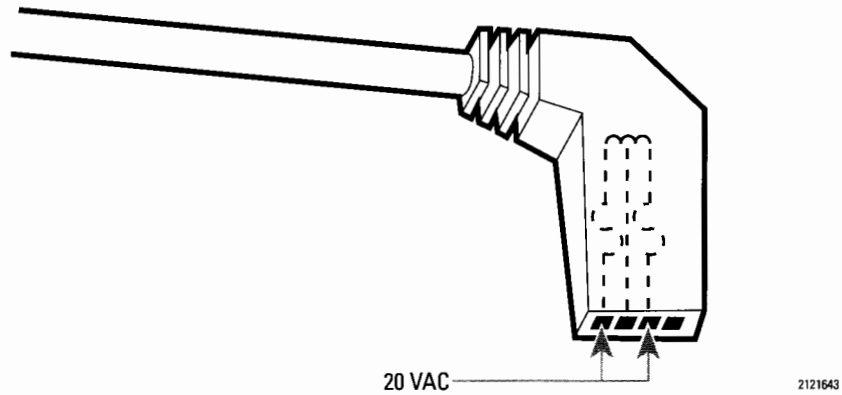


Figure 5-3. Power Module Connector

Note

The acceptable measured voltage range for the power module is 18 to 27 VAC.

Troubleshooting the Printer

Control Panel Light Indications

Under normal operating conditions with the printer idle, HP DeskWriter family printer control panel *power* and *ready* lights are on and the *error* light is off. The control panel also identifies the conditions listed in the table below.

Table 5-2. Control Panel Light Indications

Control Panel Light Indication	Cause	Solution
<i>error</i> Light On	Out-of-Paper Condition	<p>An out-of-paper error occurs if the printer tries to load paper to the printing position, but the out-of-paper sensor (also called the OOPS flag) does not detect paper at the platen.</p> <p>If the printer is out of paper, load paper in the IN tray and press the <i>select</i> button. If the printer continues to detect an out-of-paper condition with paper in the IN tray, clean the paper feed rollers as discussed in chapter 3.</p>
<i>error</i> Light Flashing	Paper Jam Error	<p>The printer identifies a paper jam error if the OOPS flag detects paper at the platen, after an attempt to eject paper to the OUT tray. See "Clearing Paper Jams" in this chapter.</p>
<i>ready</i> Light Flashing	Waiting for a Manual Paper Load	<p>The <i>ready</i> light flashing indicates that the printer is ready for a manual paper or envelope load. After the paper or envelope is loaded into the printer, press the <i>select</i> button.</p>
<i>ready</i> and <i>power</i> Lights Alternately Flashing, (DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C)	Waiting to Change the Print Cartridge	<p>Install the desired print cartridge and press the <i>print cartridge</i> or <i>install print cartridge</i> button to return the print cartridge to the home position.</p> <p>If the print cartridge will not return to the home position, the printer probably cannot identify the type of print cartridge, due to an interconnect problem.</p>
All Lights Flashing in Unison	Carriage Stall	<p>The printer detects a problem with carriage movement. See "Solving Carriage Stalls" in this chapter.</p>
Lights Flashing in a Series of Patterns	Printer Self-Test Failure	<p>The printer control panel lights identify logic PCA and data communication problems. See "Self-Tests" later in this chapter for more information on the printer self-test and control panel light patterns.</p>

Printed Error Messages

The HP DeskWriter printer family indicates certain error conditions with an error message on the printed output. These conditions are listed in the table below.

Table 5-3. Printed Error Messages

Printed Error Message	Solution
Datacomm buffer overrun - no DTR handshaking	<p>This printed error message indicates that the printer had a buffer overflow condition. Both control panel buttons operate as a reset button in this condition.</p> <ul style="list-style-type: none"> • If you are running System 7, make sure that you are using the correct printer driver. For the HP DeskWriter printer, you must use the HP DeskWriter Printer Driver, Version 3.1 or later. For the HP DeskWriter C printer, you must use the HP DeskWriter C Printer Driver, Version 2.0 or later. • Verify that you have the correct interface cable and the interface cable is firmly seated in the computer and printer ports. • Verify that the interface cable is in good condition. Check the continuity of the interface cable connections. Replace the interface cable if the cable is faulty. • Run the interface self-test. If the self-test fails, return the printer for repair. (See "Interface Self-Tests" in the "Self-Tests" section of this chapter.) • Verify that the problem is not caused by a hardware failure in the Macintosh computer.
SCC error	<p>This printed error message indicates that a component inside the printer is faulty. Return the printer for repair.</p>
Datacomm error	<p>This error message occurs if a Macintosh computer is not transmitting data at the correct baud rate, or if the computer is powered on after the printer.</p> <ul style="list-style-type: none"> • Verify that you have the correct interface cable. • Check the host baud rate setting. This can occur if modem data (300 or 1200 baud) is sent to the printer. • If the problem continues, return the printer for repair.
Duplicate node, AppleTalk-compatible models	<p>This error message indicates that two or more devices on the AppleTalk network have the same address. HP DeskWriter family printers connected to an AppleTalk network are given unique identification numbers at power on.</p> <ul style="list-style-type: none"> • Turn off the printer, wait a few seconds, then turn on the printer. • If the problem continues, return the printer for repair.

Self-Tests

The HP DeskWriter printer family includes several self-tests to test and verify printer and print cartridge operation:

Table 5-4. Self-Tests

Self-Test	DeskWriter (2278A)	DeskWriter (2279A)	DeskWriter C	DeskWriter 510	DeskWriter 520	DeskWriter 550C	DeskWriter 560C
Printer Self-Test	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Print Cartridge Self-Test (Black)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Print Cartridge Self-Test (Color)	No	No	Yes	No	No	Yes	Yes
I/O Serial Interface Self-Test	Yes	Yes	Yes	Yes	Yes	Yes	Yes
I/O AppleTalk Interface Self-Test	No	Yes	Yes	Yes	Yes	Yes	Yes

You do not need an Apple Macintosh computer to test and troubleshoot the HP DeskWriter family printers. The black print cartridge self-test is the same for the original inkjet print cartridge (51608A) and the high-capacity inkjet print cartridge (51626A). The I/O serial and I/O AppleTalk self-tests require the DeskWriter test box, part number 02279-60004, attached to the printer interface connector port.

Note

The HP DeskWriter, DeskWriter 510, and DeskWriter 520 printers have a black print cartridge cleaning routine. The HP DeskWriter C printer has a black and color print cartridge cleaning routine to clean and verify print cartridge operation. The HP DeskWriter 550C and DeskWriter 560C has a color print cartridge cleaning routine. See "Using the Print Cartridge Cleaning Routines" in the "Troubleshooting Print Cartridges" section of this chapter.

Printer Self-Test

The printer self-test checks printer operation automatically as the printer is turned on. There is no printout associated with the printer self-test (pass or fail).

- If the printer self-test passes, the printer powers-up to its default configuration.
 - *power* light on, *ready* light on, *error* light off.
- If the printer self-test fails, the printer remains off-line and the control panel lights flash in a repetitive series of three light patterns to identify the error. All control panel error patterns begin with the three control panel lights off. See table 5-5.

The printer self-test can also identify problems during printer operation, such as the wrong baud rate, DTR handshake problem, or carriage stall.

Table 5-5. Printer Self-Test Flashing-Light Error Patterns

Control Panel Light Pattern #1	Control Panel Light Pattern #2	Control Panel Light Pattern #3	Probable Cause
All Control Panel Lights Off	<i>error</i> Light	<i>ready</i> Light, or <i>power</i> Light, or <i>error</i> Light	Printer failure. Return the printer for repair.
		<i>power</i> and <i>ready</i> Lights	Firmware failure. Return the printer for repair.
		<i>error</i> and <i>ready</i> Lights	Baud rate transmission error.
		<i>error</i> , <i>power</i> , and <i>ready</i> Lights	DTR handshake, interface cable, or computer problem.
	<i>power</i> Light	Any Light Combination	Printer failure. Return the printer for repair.
	All Lights		Carriage stall. See "Control Panel Indications" in this chapter.

If the printer control panel displays a repetitive light pattern not covered in the table above, turn off the printer then turn it on again. Attempt to duplicate the error pattern. If the error pattern recurs, return the printer for repair.

Printer Self-Test Example

If all control panel lights are off, then the error light flashes on, then the power and ready lights flash on together, the printer failed the printer self-test and is identifying a firmware failure. (See figure 5-4 and table 5-5.) Return the printer for repair.

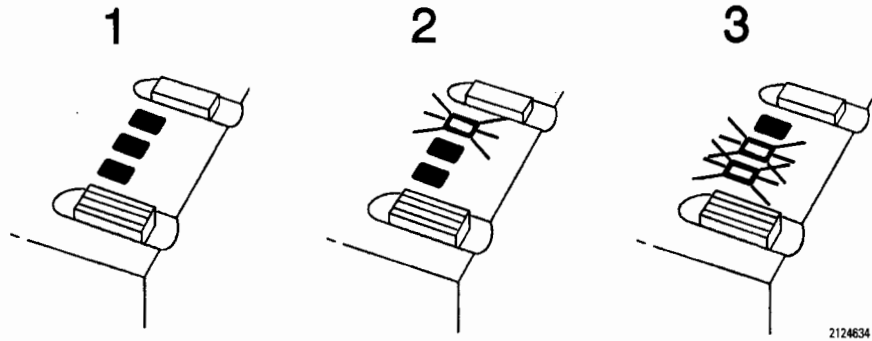


Figure 5-4. Printer Self-Test Error Pattern Example

Print Cartridge Self-Tests

The print cartridge self-test checks the print cartridge, the printer electronics circuitry, the carriage assembly, and the printer mechanism operation. The print cartridge self-test should look *similar* to the self-test patterns shown in the following figures. Be sure to look at the appropriate self-test pattern for the printer model.

Table 5-6. HP DeskWriter Printer Family Print Cartridge Self Tests

Self-Test	DeskWriter DeskWriter C DeskWriter 510 DeskWriter 520 DeskWriter 550C DeskWriter 560C	Self-Test Purpose
Black Print Cartridge Self-Test	• • • •	The print cartridge self-tests perform the following: <ul style="list-style-type: none"> • Identifies the HP DeskWriter family printer model. • Identifies the type of print cartridge installed (HP DeskWriter and HP DeskWriter C printers only). • Identifies any interconnect failures between the print cartridge and the printer carriage contacts (HP DeskWriter and HP DeskWriter C printers). • Lists the firmware revision and date. • Prints a diagonal test pattern.
Color Print Cartridge Self-Test	•	
Black and Color Print Cartridge Self-Test	• •	

The diagonal test pattern identifies any nozzles not printing. If the diagonal line has a gap, one or more nozzles are not *firing* ink to the paper. For possible causes of missing dots in the print cartridge self-test, see “Printout Missing Dots” in this chapter.

For an HP DeskWriter C printer with a color print cartridge installed, the diagonal line prints the first third of the line in yellow with magenta numbers, the second third in magenta with cyan numbers, and the last third in cyan with magenta numbers.

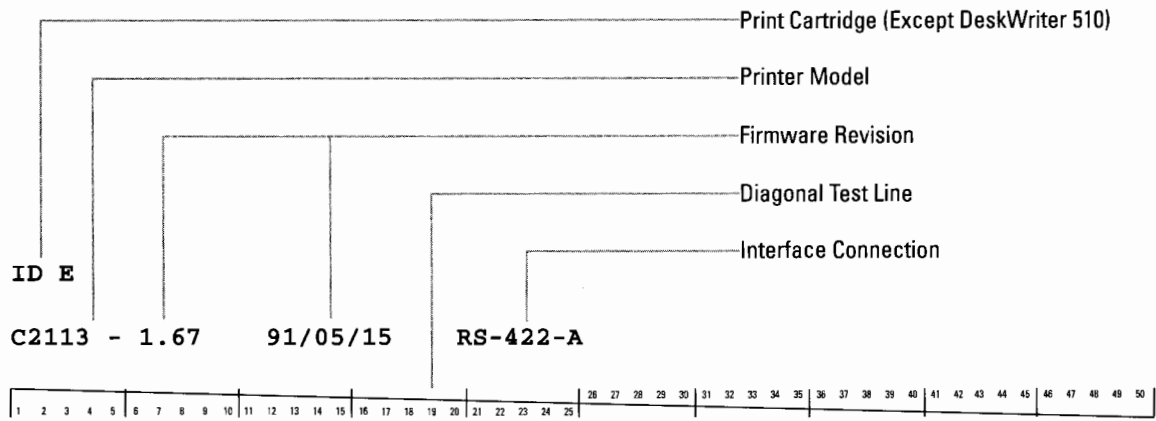
For an HP DeskWriter 550C and DeskWriter 560C printer with black and color print cartridges installed, the diagonal line prints in black, then prints in color. The color diagonal line prints the first third of the line in yellow with magenta numbers, the second third in magenta with cyan numbers, and the last third in cyan with magenta numbers.

Starting the Print Cartridge Self-Test

Table 5-7. Starting the Print Cartridge Self-Test

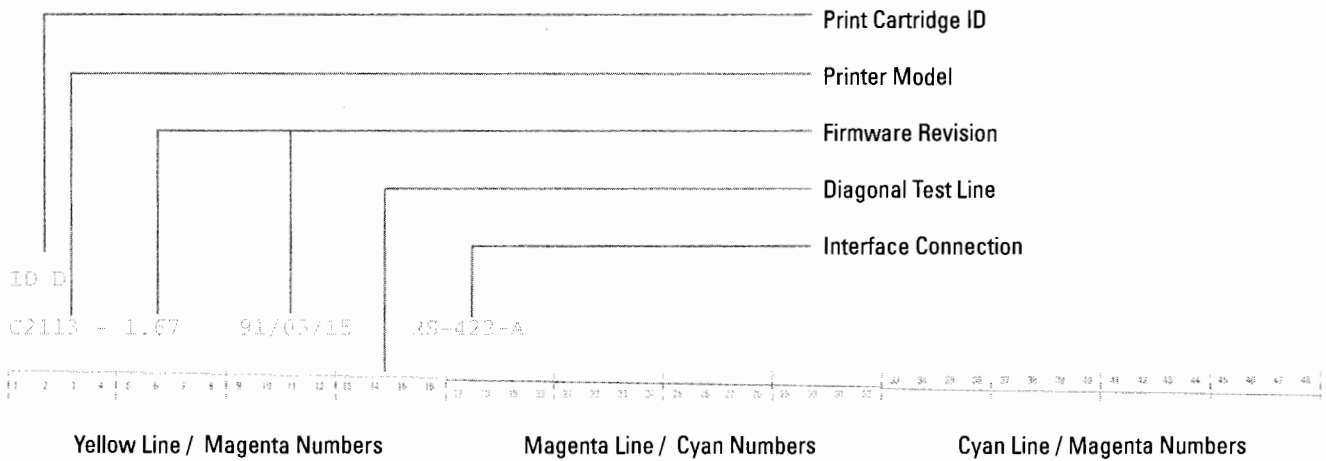
Action	Comments
Install the appropriate print cartridge(s) for the self-test.	If necessary, refer to “Installing Print Cartridges” in chapter 3.
While pressing the <i>select</i> button, turn on the printer. Then release the <i>select</i> button.	The print cartridge self-test occurs after the printer passes the printer self-test.

If the print cartridge self-test fails (missing dots, missing color, lights flashing, light print, and so forth), see “Troubleshooting Print Cartridges” in this chapter.



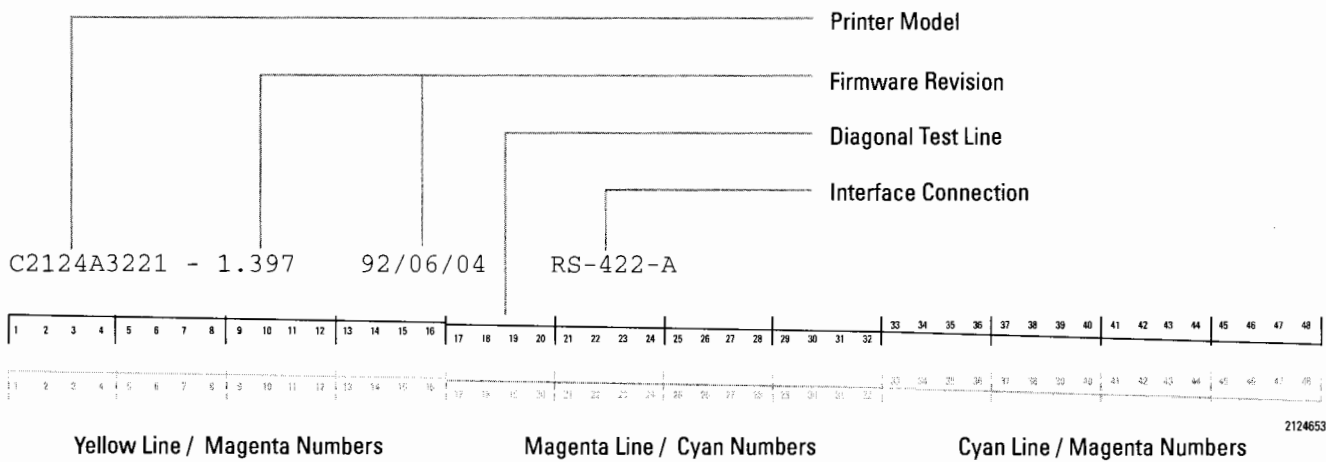
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Figure 5-5. Black Print Cartridge Self-Test Pattern, HP DeskWriter, DeskWriter C, DeskWriter 510, and DeskWriter 520 Printers



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Figure 5-6. Color Print Cartridge Self-Test Pattern, HP DeskWriter C Printer



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Figure 5-7. Black and Color Print Cartridge Self-Test Pattern, HP DeskWriter 550C and DeskWriter 560C Printer

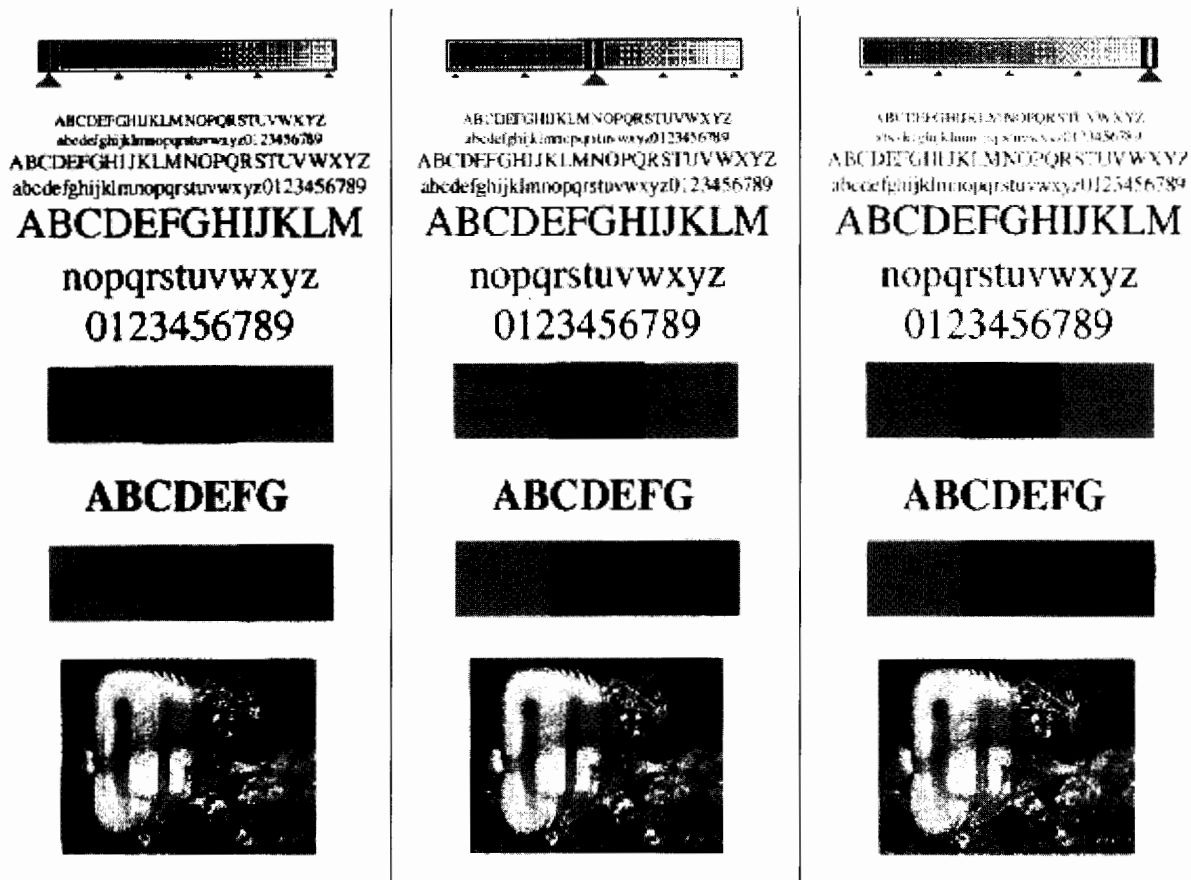
Color Quality Test (HP DeskWriter C Printer Drivers, Versions 1.0, 2.0 Only)

The HP DeskWriter C printer drivers, versions 1.0 and 2.0, have a test called "ColorTest" is selectable from the Page Setup dialog box on the Macintosh computer screen. It is available to check the quality of color printing. (The HP DeskWriter C printer driver, version 3.0, does not have the ColorTest option.)

Starting the ColorTest Self-Test

1. If not installed, install the color print cartridge as follows:
 - a. With the printer on, press the *print cartridge* button.
 - b. Remove the black print cartridge, and place it in the print cartridge storage container.
 - c. Install the color print cartridge.
 - d. Press the *print cartridge* button.
2. From the File menu on the Macintosh computer screen, select the Page Setup dialog box.
3. Click the Colors button in the Page Setup dialog box.
4. Click the ColorTest button in the Colors dialog box.

Figure 5-8 shows a monochrome version of the ColorTest pattern. If the test will not print, verify that the ColorTest file is properly installed. If colors are not satisfactory, try another print cartridge.



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Figure 5-8. ColorTest Pattern, HP DeskWriter C Printer

Interface Self-Tests

HP DeskWriter family printers have one or two self-tests to check the printer interface circuitry:

Table 5-8. Interface Self-Tests

Self-Test	DeskWriter (2278A) DeskWriter (2279A) DeskWriter C DeskWriter 510 DeskWriter 520 DeskWriter 550C DeskWriter 560C	Comments
I/O serial self-test I/O AppleTalk self-test	<ul style="list-style-type: none"> • • • • • • • 	Interface self-tests require an HP DeskWriter printer test box attached to the printer interface connector port. Interface self-tests perform the printer self-test and print cartridge self-test prior to the I/O serial or I/O AppleTalk self-tests.

Note

If the printer passes the interface circuitry self-test but will not print when connected to a Macintosh computer, the printer hardware is probably not the cause. Check the interface cables, connector boxes (if applicable), and the printer driver configuration.

HP DeskWriter Test Box

The HP DeskWriter test box, part number 02279-60004, has two LEDs and a switch:

- Set the switch toward the yellow LED to check the AppleTalk interface circuitry.
- Set the switch toward the green LED to check the serial interface circuitry.

The LED indication should correspond to the information in the “I/O AppleTalk Interface Self-Test” and “I/O Serial Interface Self-Test” sections in this chapter.

I/O AppleTalk Self-Test

For HP DeskWriter family printers with AppleTalk network capability, use the following procedure to test AppleTalk circuitry:

1. Turn off the printer and disconnect the Apple LocalTalk locking connector box from the printer interface port.
2. Attach the HP DeskWriter test box to the printer interface port.
3. Set the test box switch toward the yellow LED.
4. While pressing the two control panel buttons, turn on the printer. Then release the buttons.

The yellow LED should go on and off during the self-test as the printer polls to detect an AppleTalk network using the AppleTalk interface circuitry. There is no printout associated with the AppleTalk interface self-test. (However, the print cartridge test pattern prints out prior to the interface self-test.)

The I/O AppleTalk interface self-test does not test the data path in the interface circuitry. Use the I/O serial interface self-test to check the data path in the printer interface circuitry.

I/O Serial Interface Self-Test

All HP DeskWriter family printers can be configured serially to a Macintosh computer. Use the following procedure to test the serial interface circuitry in an HP DeskWriter family printer:

1. Turn off the printer and disconnect the interface cable from the printer.
2. Attach the HP DeskWriter test box to the printer interface port, located on the bottom of the printer.
3. Set the test box switch toward the green LED.
4. While pressing the two control panel buttons, turn on the printer. Then release the buttons.

Note	The printer will not print the I/O self-test unless the printer first passes the printer self-test and prints out the print cartridge self-test.
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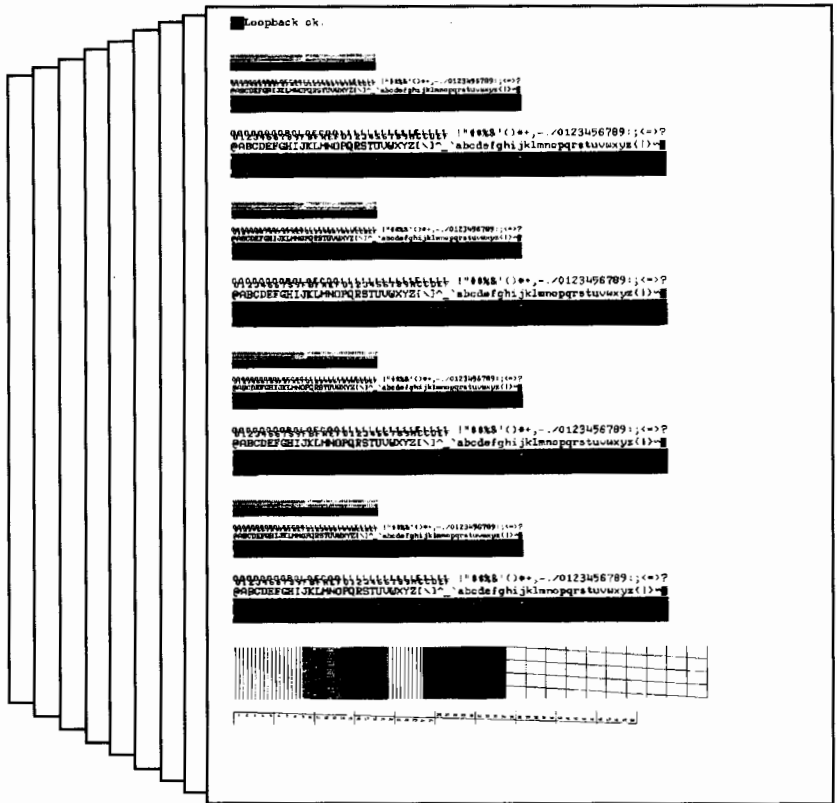
Checking the DTR Line

The green LED on the test box verifies the DTR line. The LED should be off during the initial portion of the self-test. (All three control panel lights are on immediately after invoking the self-test.) The test box green LED should come on just before the *error* light goes off, after the initial portion of the self-test.

If the test box green LED is on immediately after invoking the interface self-test or goes off during the remainder of the self-test, the DTR line is faulty. Return the printer for repair.

Table 5-9. Checking the Transmit and Receive Lines

HP DeskWriter and HP DeskWriter C Printers	HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C Printers
Figure 5-9 shows the interface self-test pattern.	Figure 5-10 shows the interface self-test pattern.
The printer interface transmit and receive lines are functional if the self-test pattern includes "loopback ok" followed by several sizes of an internal printer font, inverse characters, printout patterns, and the diagonal line test pattern.	If the printer interface transmit and receive lines are functional (loopback ok), the printer prints the self-test pattern shown in figure 5-10.
This self-test pattern printout is continuous until the printer is turned off.	The self-test pattern prints only once.
<p>If the printer does not print the I/O serial self-test pattern, one of the following problems probably exists:</p> <ul style="list-style-type: none"> • The test box is faulty or not connected to the printer interface port. • The test box switch is set for AppleTalk (toward the yellow LED). • One or more of the transmit or receive lines are faulty. 	
<p>Verify that the test box is connected to the printer interface connector port and the test box switch is set toward the green LED. If the test box is properly connected, return the printer for repair.</p>	



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Figure 5-9. I/O Serial Self-Test Pattern, HP DeskWriter and DeskWriter C Printers

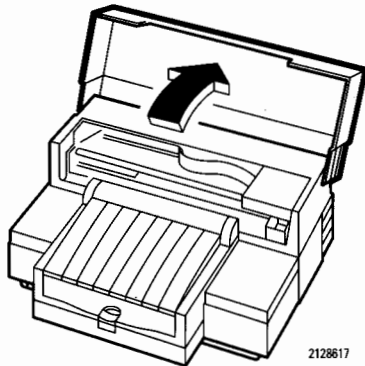
Loopback ok.
 @ABCDEFGHIJKLMN0PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxy<|>~❏
 @ABCDEFGHIJKLMN0PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxy<|>~❏ 2124657

Figure 5-10. I/O Serial Self-Test Pattern, HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C Printers

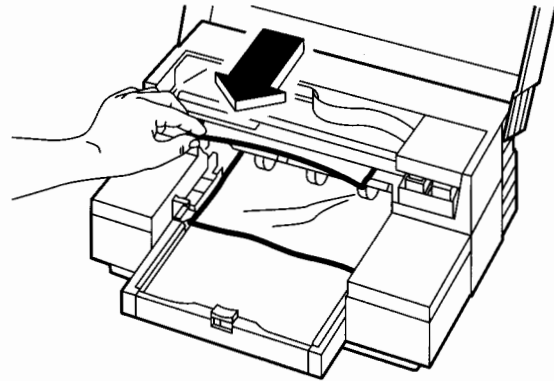
Clearing Paper Jams (HP DeskWriter 510, DeskWriter 520, DeskWriter 550C and DeskWriter 560C)

If the *error* light is flashing, the printer detects a paper jam. A paper jam occurs if the OOPS flag (Out Of Paper Sensor on the carriage guide and platen) detects paper at the platen, after an attempt to eject paper to the OUT tray.

1. Open the top cover and remove the OUT tray.



2. Pull the jammed media out of the printer.
If the jammed paper is torn, make sure all pieces are removed from the paper path. Small scraps of paper remaining may skew printing, cause further media jams, or cause top margin printing problems.



3. Remove any wrinkled or torn paper from the IN tray. If the stack was skewed by the jam, reload the paper stack.

4. Replace the OUT tray and close the top cover.
If the error light continues to flash, make sure all of the jammed paper is removed from the paper path.

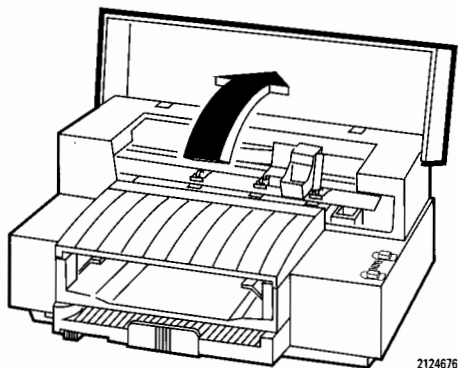
Note

This procedure applies to HP DeskWriter 510 and DeskWriter 550C printers with an IN Tray Drawer and a paper tray extender. See figures 1-3 and 1-4.

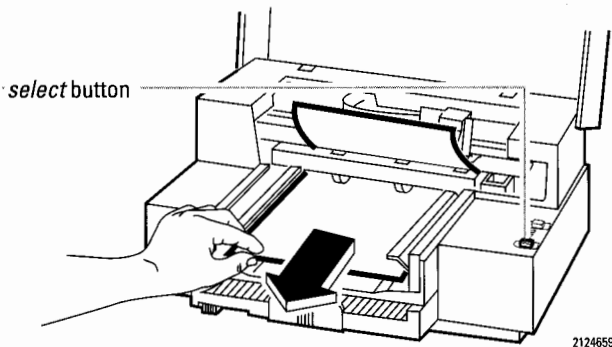
Clearing Paper Jams (HP DeskWriter and DeskWriter C)

If the *error* light is flashing, the printer detects a paper jam. A paper jam occurs if the OOPS flag (Out Of Paper Sensor on the carriage guide and platen) detects paper at the platen, after an attempt to eject paper to the OUT tray.

1. Open the top cover and remove the OUT tray.



2. Press the *select* button to retract the remaining paper jammed around the paper feed rollers. *The select button will not turn the paper feed rollers unless the error light is flashing.*



3. Turn off the printer. (The printer must be turned off to clear a paper jam error state.)

4. Turn on the printer.

5. With the paper jam removed, try to determine the cause of the paper jam. See table 5-10.

6. With the paper jam removed, monitor printer operation for paper jam related problems. If paper jam problems recur and there are no visible causes for a paper jam, return the printer for repair.

Table 5-10. Possible Causes of Paper Jams

Possible Cause	Solution
OUT tray removed, (HP DeskWriter 550C Printer with an IN Tray Drawer)	The OUT tray must be installed in an HP DeskWriter 550C printer, in order for it to properly load and eject paper.
Paper buckled in the IN tray.	Paper buckled in the IN tray may be caused by slamming the IN tray drawer or paper tray extender shut. Also, the paper may not be properly positioned between the paper width adjustment lever on the left side of the IN tray and the right wall on the right side.
Paper improperly installed.	Reload the paper, using the instructions in chapter 3 of this manual or in the user documentation included with the printer.
IN tray too full.	Verify that the IN tray contains no more than a 1/2 in. stack of paper.
OUT tray too full.	Make sure the OUT tray contains no more than the OUT tray capacity listed in chapter 1.
Paper too long.	The printer cannot operate with paper longer than 14 inches.
Paper out of specification.	Make sure the paper meets the specifications listed in chapter 1.
More than one type or brand of media in the IN tray.	Remove the media from the IN tray. Reload with only one type and brand of media in the IN tray. See "Loading Paper and Other Media" in chapter 3 or see the user documentation included with the printer.
Paper added to the stack of paper in the IN tray.	Remove paper from the IN tray, add paper to the stack out of the printer, and load the paper in the IN tray as one stack.
Obstruction blocking the paper path.	Look for obstructions that block the paper path, and remove the obstruction(s).
Faulty printer.	Return the printer for repair.

Solving Carriage Stalls

If all control panel lights flash in unison, the printer has detected a problem with the carriage movement (movement of the print cartridge across the mechanism). *The printer must be turned off to exit from a carriage stall error condition.*

Caution

On HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers, do not attempt to move the carriage if the carriage is in the home position. The printer locks the carriage when in the home position and attempting to slide the carriage in the locked position may damage the printer.

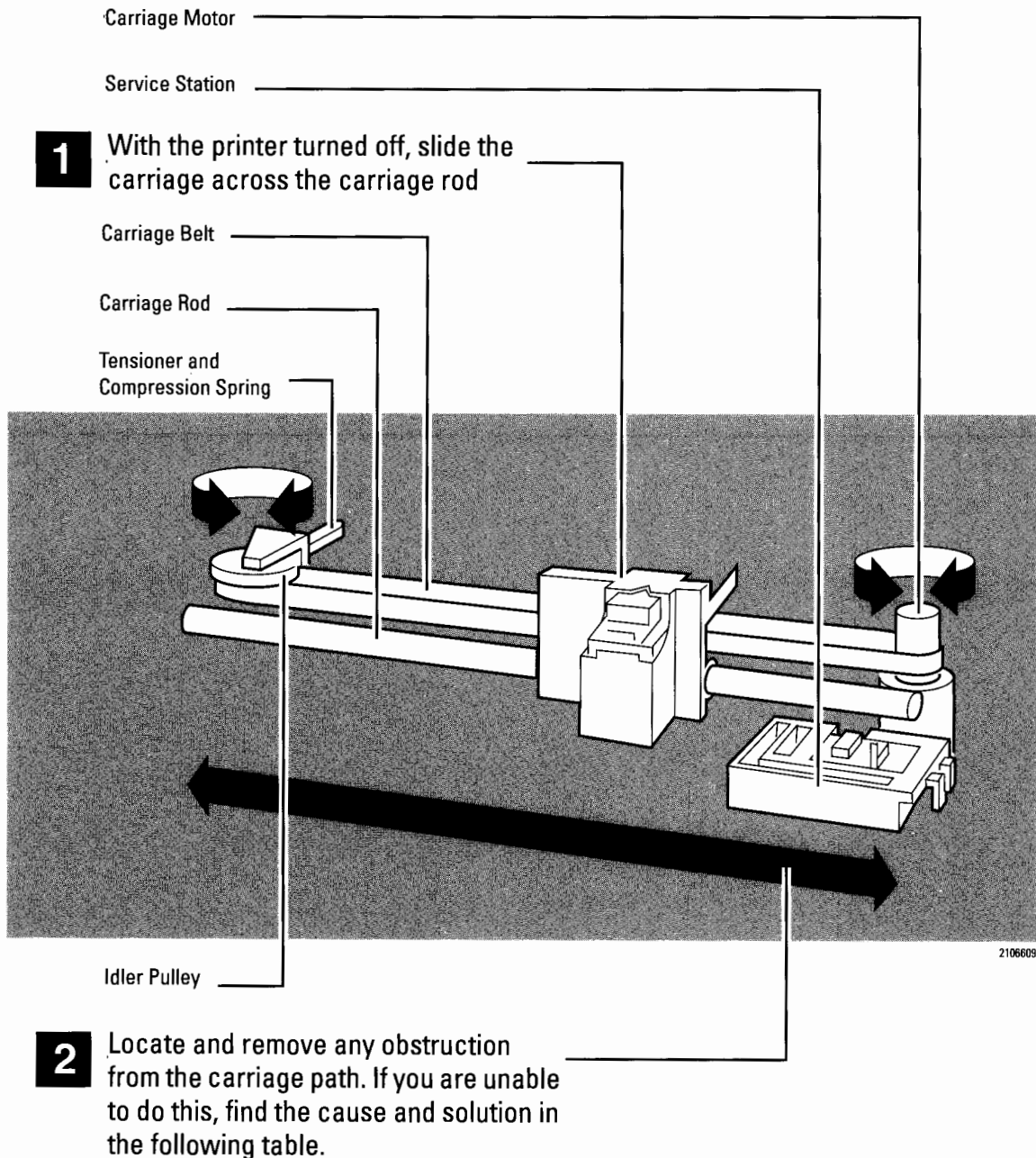


Figure 5-11. Solving Printer Carriage Stalls

Table 5-11. Possible Causes for Carriage Stalls

Possible Cause	Solution
The power module connector is not fully seated	Remove and reinsert the power module connector into the printer. A power module not fully seated can cause a carriage stall problem.
Obstruction Blocking the Carriage Path	Inspect the carriage path for any obstructions that may interfere with the carriage movement. Slide the carriage assembly across the carriage rod. Remove any obstructions along the carriage path.
Carriage Belt Broken, Frayed, or Worn	Inspect the carriage belt. If the carriage belt is damaged, return the printer for repair.
Damaged Carriage Assembly	Inspect the carriage assembly for any signs of damage. Slide the carriage assembly across the carriage rod. If damaged, return the printer for repair.
Service Station Interfering with the Carriage Path	Inspect the service station. Verify the service station is properly installed. Verify the sled in the service station slides within the service station bracket. If faulty, replace the service station assembly with the service station upgrade kit.
Damaged Carriage Rod	Inspect the carriage rod for any signs of damage or foreign debris. Slide the carriage assembly across the carriage rod. If damaged, return the printer for repair.
Faulty Mechanism	Other parts of the mechanism may be interfering with the carriage movement. Return the printer for repair.

Avoiding Scratched Transparencies (HP DeskWriter 510, DeskWriter 520, DeskWriter 550C and DeskWriter 560C Printers)

Contamination from office dust (not paper dust) can build up on the paper feed guide in the HP DeskWriter 510, DeskWriter 520, DeskWriter 550C and DeskWriter 560C printers. Dust may scratch transparencies as they feed through the printer. These scratches, which may or may not be visible when projected on a screen, run down the page (vertically, when printing in portrait mode).

If scratching occurs on transparencies, clean the paper feed guide attached to the OUT tray with tissue, as shown in the figure below.

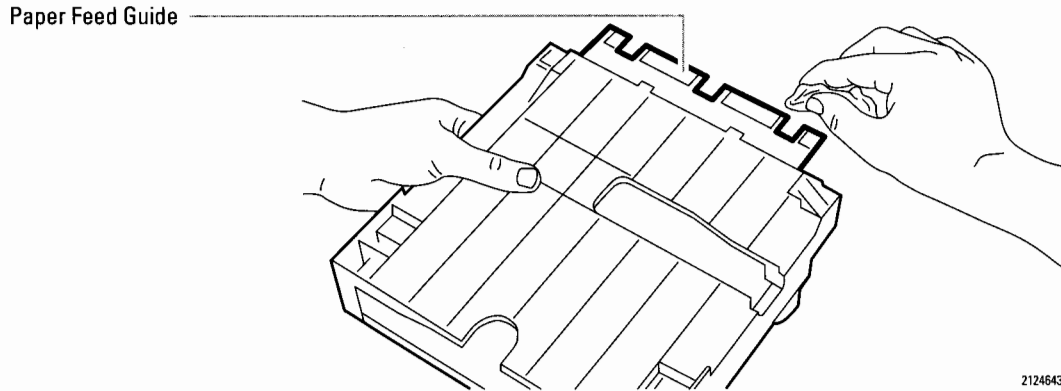


Figure 5-12. Cleaning the Paper Feed Guide

Note

This procedure applies to HP DeskWriter 510 and DeskWriter 550C printers with an IN Tray drawer and a paper tray extender. See figures 1-3 and 1-4.

Avoiding Print Skew

Print skew occurs when the movement of paper in the mechanism is not square to the carriage movement. The result is inconsistent print margins along the paper's edge (printing appears tilted on the page). Several factors must be understood when dealing with print skew:

- The measured print skew is a result of the printer and the paper skew. Know the printer's and paper's skew specifications.
- Proper loading and handling of the paper can minimize print skew. Make sure the paper is loaded evenly against the right wall of the IN tray.
- On HP DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers, use envelopes with rectangular flaps rather than triangular flaps.
- Maintain a stack of paper in the IN tray. The HP DeskWriter and DeskWriter C printers are more likely to experience print skew on the last few pages in the IN tray.
- Load only one type of media (paper or transparencies) in the IN tray. However for the HP DeskWriter and DeskWriter C printers, you may want to place the transparencies on a stack of paper to avoid printing on the last few pages from the IN tray. It is more critical to avoid printing of the last few pages in the IN tray than to avoid mixing media in the IN tray.
- Some types of paper and pre-printed forms can impact print skew.
- Understand how to measure and correct print skew.

Note Always load a stack of paper into an empty IN tray rather than placing paper on top of paper in the IN tray.

Printer Skew Specification

The print skew specification for the HP DeskWriter printer family mechanism is 0.006 inches per inch on 95% of all pages printed. How paper is loaded and the squareness of the paper can impact print skew. Pre-printed forms can increase the print skew appearance if the form is skewed in the opposite direction of the printer's skew. Any skew on the printed form must be taken into account when measuring print skew.

Measuring Paper Squareness

Print skew may be impacted by the squareness of the paper. The industry standard for paper squareness is 0.003 inches per inch. This measurement must be added to the print skew specification to obtain a true overall print skew specification. Test the paper squareness by printing on one side of the paper, flipping the paper over, then printing on the other side. If the print slopes down on one side and up on the other side, the squareness of the paper may be impacting the print skew. In this case, try a different paper to improve the printer's print skew.

Loading Paper to Avoid Skew

Loading paper can impact print skew. It is important to have the paper placed squarely in the IN tray and aligned against the right wall. See "Loading Paper" in chapter 3 of this manual or paper loading instructions in the user documentation to minimize print skew from paper loading operations. Remove the OUT tray and try tapping the stack of paper against the right wall of the IN tray. Install the OUT tray and check for skew.

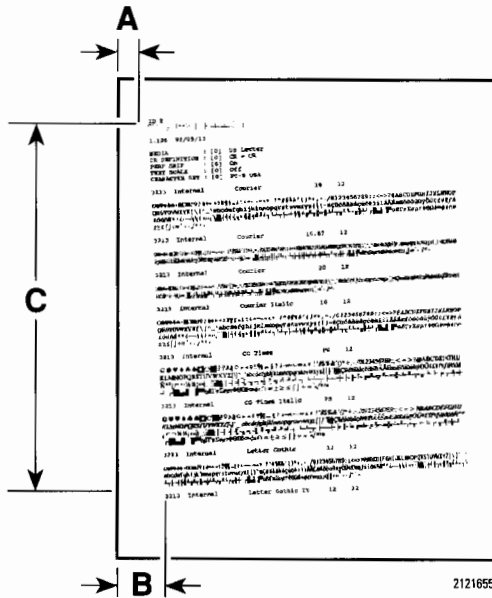
Measuring Print Skew

1. Load a full stack of paper in the printer, but no more than one-half inch thick.

2. Print a page of information that should display a consistent left margin down the page. For example, print the printing self-test.

3. Take measurements to determine the print skew on the page.

- Measure the distance from the left edge of the paper to the upper left corner of the printout. This is distance "A" in the figure below.
- Measure the distance from the left edge of the paper to the lower left corner of the pattern. This is distance "B" in the figure in this section.
- Measure the vertical distance between "A" and "B." This is distance "C" in the figure in this section.



4. Use one of the following equations to determine the print skew on the page:

- If $A > B$, use the equation $(A-B)/C$
- If $B > A$, use the equation $(B-A)/C$

5. Repeat the process on at least 20 pages. The measurement should be within the print skew specification on 19 out of 20 pages.

6. Try the process again with a different type of paper.

7. If the print skew is consistently out of tolerance, return the printer for repair.

Troubleshooting Print Cartridges

Table 5-12. Locating Print Cartridge Information

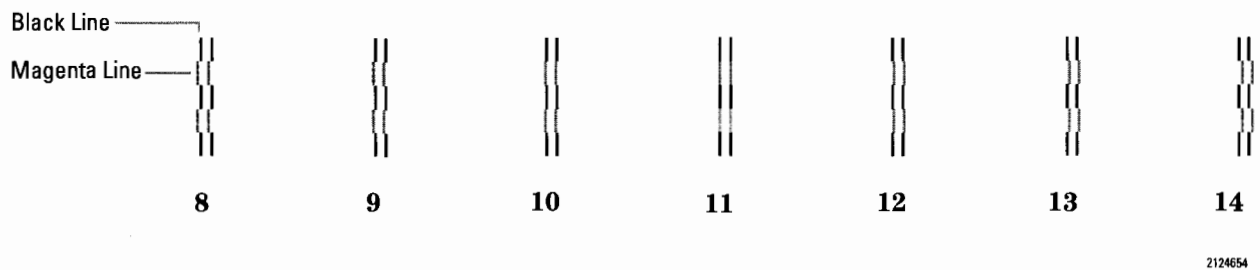
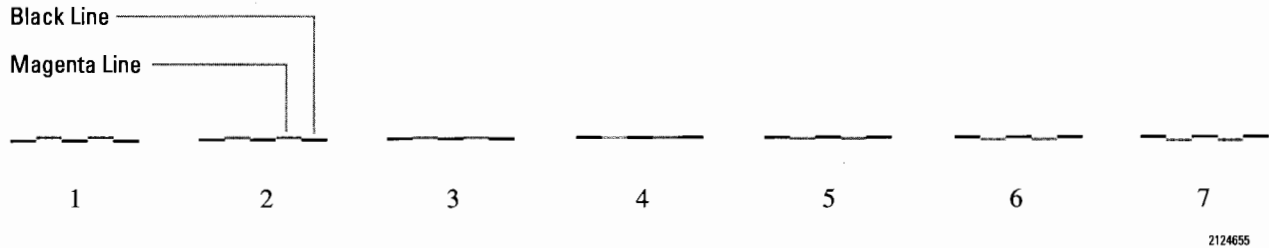
Problem or Desired Information	Recommended Action
Print cartridge part numbers and specifications.	See table 1-8 and "Print Cartridge Specifications" in chapter 1.
Information on installing print cartridges.	Read "Installing Print Cartridges" in chapter 3. Also, read the user documentation included with the printer.
Generally not satisfied with the print quality of printouts.	Read "Aligning the Print Cartridges" and "Solving Print Quality Problems" in this chapter and "Maintaining Print Cartridges" in chapter 3.
The printer won't home the print cartridge to the right after pressing the <i>print cartridge</i> or <i>install print cartridge</i> button. (HP DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers)	The printer does not recognize the print cartridge. This is probably caused by an interconnect problem between the printer and the print cartridge. Read "Solving Print Cartridge Interconnect Problems" in this chapter.
An alert box on the Macintosh computer screen indicates that an interconnect problem exists between the print cartridge(s) and the printer. (HP DeskWriter C, DeskWriter 550C, and DeskWriter 560C printers)	Read "Solving Print Cartridge Interconnect Problems" in this chapter.
The printer accepts the print cartridge(s) without an interconnect problem alert, but dots are missing on the printout. (HP DeskWriter C, DeskWriter 510, DeskWriter 520, DeskWriter 550C, and DeskWriter 560C printers)	Read "Printout Missing Dots" in the "Solving Print Quality Problems" section of this chapter.
Dry crusted ink is built up on the nozzles of a black print cartridge.	Read "Crusted Ink on the Black Print Cartridge Nozzles" in this chapter.
Print cartridge self-test information.	Read "Print Cartridge Self-Tests" in the "Self-Tests" section of this chapter.
Desire more information on the ink in the print cartridges.	Request a Material Safety Data Sheet. See "Maintaining Print Cartridges" in chapter 3.

Aligning Print Cartridges (HP DeskWriter 550C and DeskWriter 560C Printer)

For optimum print quality on HP DeskWriter 550C and DeskWriter 560C printers, the black and color print cartridges should be aligned *every time* a print cartridge is removed and replaced. Use the following procedure to align the print cartridges.

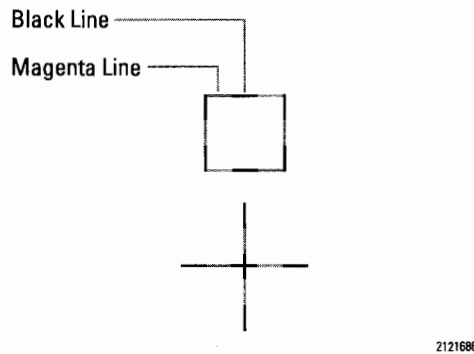
1. On the computer screen, open the Page Setup/Options dialog box.

2. Click the *Start* button under Align Print Cartridges and follow the instructions on the screen. A series of horizontal and vertical alignment patterns prints.



3. In the dialog box, select the pattern with the best horizontal alignment and the pattern with the best vertical alignment.

A square and cross pattern prints to show the results of the horizontal and vertical alignment selections.



Disregard very slight differences in the square and cross patterns, as these differences are difficult to distinguish in normal printing.

Short Print Cartridge Life

There are several causes for a short print cartridge life. The information below identifies the average print cartridge life for the three print cartridges used with the HP DeskWriter printer family, along with possible causes for a reduction to print cartridge life.

Table 5-13. Print Cartridge Life Specifications

Print Cartridge	Part Number	Print Cartridge Life		
		1000 Characters Per Page Coverage	1500 Characters Per Page Coverage	Normal Print Mode (8% Area Fill)
Original Print Cartridge ¹	51608A	500 to 1000 Pages	333 to 666 Pages	
High-Capacity Print Cartridge ¹	51626A	1000 to 2000 Pages	666 to 1332 Pages	
Color Print Cartridge ²	51625A			250 Pages

1. The 51608A and 51626A print cartridge life specifications are based on printing Courier 10. The lower numbers in the specifications are based on using Normal print mode and the higher numbers in the specifications are based on using Draft print mode.
2. The 51625A print cartridge life specification is based on using Normal print mode with an average 8% area fill.

Table 5-14. Possible Causes for Short Print Cartridge Life

Possible Cause	Explanation
The pages have a higher rate of ink coverage than specified by the print cartridge life specifications.	The rate of coverage on the page has a very significant impact on the number of pages per print cartridge. Heavy concentrations of ink and higher print quality significantly reduce the number of pages per print cartridge.
Pages contain graphics.	Generally, graphics use ink at a much higher rate than the Courier 10 font at 1500 characters per page specification. If possible, print drafts of documents without the graphics.
The selected print mode uses ink at a higher rate.	Higher quality print modes use more ink than a draft print mode. To maximize print cartridge life, print drafts of documents in Draft mode, then print the final copies in a higher quality mode.
Tape covering the bubble generator was not removed from the bottom of a high-capacity print cartridge (part number 51626A).	<p>The high-capacity print cartridge has two pieces of tape: one tape covers the print cartridge nozzles and the other tape covers the bubble generator. Removing tape from the nozzles without removing tape from the bubble generator results in a short print cartridge life.</p> <p>Remove the tape from the high-capacity print cartridge and press the <i>prime</i> button on HP DeskWriter printers or use the cleaning routine on HP DeskWriter 510 and DeskWriter C printers. (The HP DeskWriter 550C and DeskWriter 560C printers do not have a cleaning routine for the black print cartridge). If this does not restore the print cartridge, replace the print cartridge. Be sure to remove both pieces of tape on all high-capacity print cartridges before installing them in the printer.</p>
The print cartridge is 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.

Table 5-14. Possible Causes for Short Print Cartridge Life (Continued)

Possible Cause	Explanation
The printer was turned off with the print cartridge out of its home position.	A service station is located at the right end of the carriage path. This service station caps the print cartridge nozzles to minimize dried ink in the nozzles. Always allow the print cartridge to return to the home position, so that the service station can cap the print cartridge nozzles when the printer is not in use.
The print cartridge may need to be cleaned.	See "Using the Print Cartridge Cleaning Routines" in this chapter. If print quality is not restored after a page of printing, replace the print cartridge.
Excessive print cartridge cleaning.	The process of restoring or cleaning print cartridges uses ink. Avoid excessive use of the cleaning routines.
The print cartridge is stored outside of the printer or print cartridge storage container.	Open print cartridges must be stored in the printer or in a print cartridge storage container to avoid rapid drying of ink in the cartridge.
The print cartridge was refilled rather than new.	Hewlett-Packard does not support refilling print cartridges and does not guarantee the print quality or life from refilled print cartridges. Replace the print cartridge with a new print cartridge.
The print cartridge packaging container was opened.	The print cartridge has a longer life sealed in its packaging, rather than in the printer or a print cartridge storage container. Keep print cartridges sealed in their packaging until needed. Then, promptly install the print cartridge into the printer.
Incorrect estimate of pages printed with the print cartridge.	It is very easy to under-estimate the number of pages printed. When counting pages per cartridge, be sure to count drafts that are thrown away.
The print cartridge is faulty.	Replace the print cartridge. If a pattern of faulty print cartridges develops, the printer may be causing the print cartridges to fail.
The printer is depriving the print cartridge, due to a faulty service station in the printer.	The service station may be in need of repair or modification. For example, the service station may be forcing air into the print cartridge nozzles, resulting in the print cartridge losing its prime.
A printer hardware problem occurred.	The service station may be faulty, or the printer may be damaging the print cartridges.
Short print cartridge life with color print cartridges.	<p>Most causes for short black print cartridge life also apply to color print cartridges. Review the other possible causes in this table.</p> <p>When printing to an HP DeskWriter 550C or DeskWriter 560C printer, the printer may be printing black with the color print cartridge (composite black), rather than the black print cartridge. See "HP DeskWriter Series Printer Driver" in chapter 4, for tips on optimizing the use of the black and color print cartridges.</p>

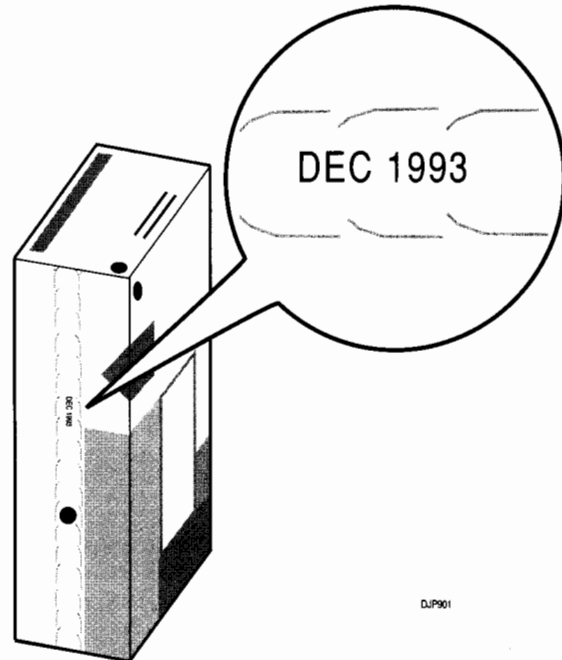
Identifying the Print Cartridge Expiration Date

Print quality problems may be caused by print cartridges that are past their expiration date. There are two methods for determining if a print cartridge is past its expiration date:

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 as shown on the right.

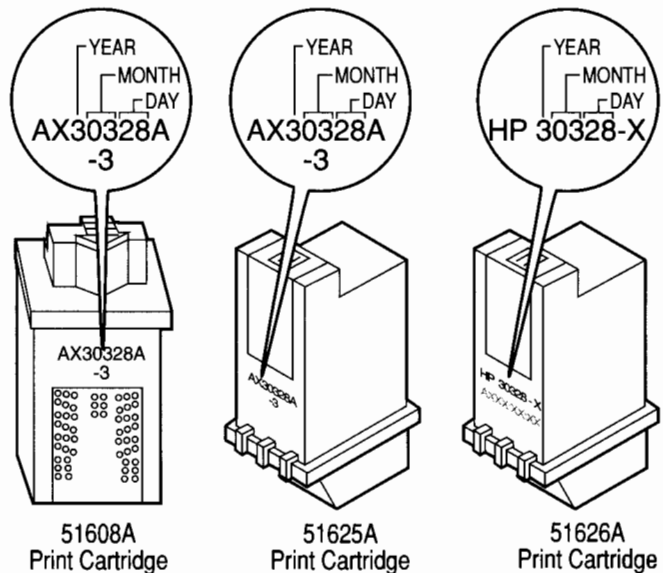


Method 2 - Read the Code on the Print Cartridge

1. Determine the earliest and latest possible expiration dates from the code printed on the print cartridge.

- A. Determine the manufacturing date from the code printed on the print cartridge. In the example on the right, the print cartridges were produced on March 28, 1993.
- B. Determine the earliest and latest possible expiration dates from the code printed on the print cartridge.
 - Earliest Possible Expiration Date = Manufacturing Date + Open Life Specification
 - Latest Possible Expiration Date = Manufacturing Date + Shelf Life (Sealed in its Container)

2. From this data, replace the print cartridge if you suspect the print cartridge may have exceeded its expiration date.



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Notes

Ink can evaporate through the nozzles, reducing print cartridge life. Therefore, keep print cartridges in their sealed container, capped by the service station at the right end of the carriage path, or stored in the storage container included with the DeskWriter C printer.

For more tips on maintaining print cartridge life, read "Maintaining Print Cartridges" in chapter 3.

Table 5-15. Print Cartridge Life Specifications

Print Cartridge		Print Cartridge Life	
Part Number	Description	Sealed in its Container (Shelf Life)	Open, In the Printer or Storage Container ¹
51608A	Original Black Print Cartridge	18 Months	180 Days
51626A	High-Capacity Black Print Cartridge		
51625A	Color Print Cartridge		

1. In an office environment, printing at least once a month.

Table 5-16. Determining Print Cartridge Expiration

Period of Time After the Manufacturing Date	Print Cartridge Expired	Reason
From the Manufacturing Date to the Open Life Specification (Less than 180 days after the Manufacturing Date)	No	The print cartridge has yet to exceed the open life specification.
Open Life Specification to 18 months from the Manufacturing Date (180 days to 18 months after the Manufacturing Date)	Maybe	Expired if the print cartridge has been out of its packaging longer than the open life specification.
Longer than 18 months after the Manufacturing Date	Yes	The print cartridge has exceeded its 18-month shelf life.

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

Removing Crusted Ink from the Black Print Cartridge Nozzles

Black print cartridges left out of the printer or storage container may experience a crusting of ink on the print cartridge nozzles. *Do not install an ink-crusted print cartridge in the printer or in the storage container.* Replace the black print cartridge with a new cartridge.

Using the Print Cartridge Cleaning Routines

The HP DeskWriter printer family contains the following print cartridge cleaning routines:

Table 5-17. Available Print Cartridge Cleaning Routines

Cleaning Routine	DeskWriter (Z278A)	DeskWriter (Z279A)	DeskWriter C	DeskWriter 510	DeskWriter 520	DeskWriter 550C	DeskWriter 560C
Black Print Cartridge	•	•	•	•	•		
Color Print Cartridge			•			•	•

All routines spit ink into the service station and perform multiple wipes on the print cartridge nozzles. The routines are different for black and color print cartridges. The procedures differ for each printer.

Note Do not clean the print cartridge(s) unnecessarily, as this shortens print cartridge life.

HP DeskWriter Print Cartridge Cleaning Routine

Use the following method to clean the print cartridge:

- Press the *prime* button. The printer wipes the orifice plate on the print cartridge and refreshes ink in the print cartridge nozzles.
- No printout is associated with this cleaning routine.

Print a full page. If print quality does not improve, repeat the cleaning process one time, or replace the print cartridge.

HP DeskWriter C Print Cartridge Cleaning Routines

Install the desired print cartridge (black or color), then use *one* of the following methods to clean the print cartridge:

- While pressing the *select* button, press and release the *print cartridge* button. Then release the *select* button. Or,
- Click the Start button under Clean Print Cartridge in the Page Setup/Options dialog box on the computer screen.

The printer identifies the type of print cartridge and performs the appropriate routine for that type of print cartridge. The cleaning routine printouts include the following:

- Diagonal test line to verify all print cartridge nozzles are firing.
- Alignment patterns to test mechanism operation.
- Horizontal bars using the three chambers of cyan, yellow, and magenta ink (color print cartridge cleaning routine only).

After cleaning, print a full page. If print quality does not improve, repeat the cleaning process one time, or replace the print cartridge.

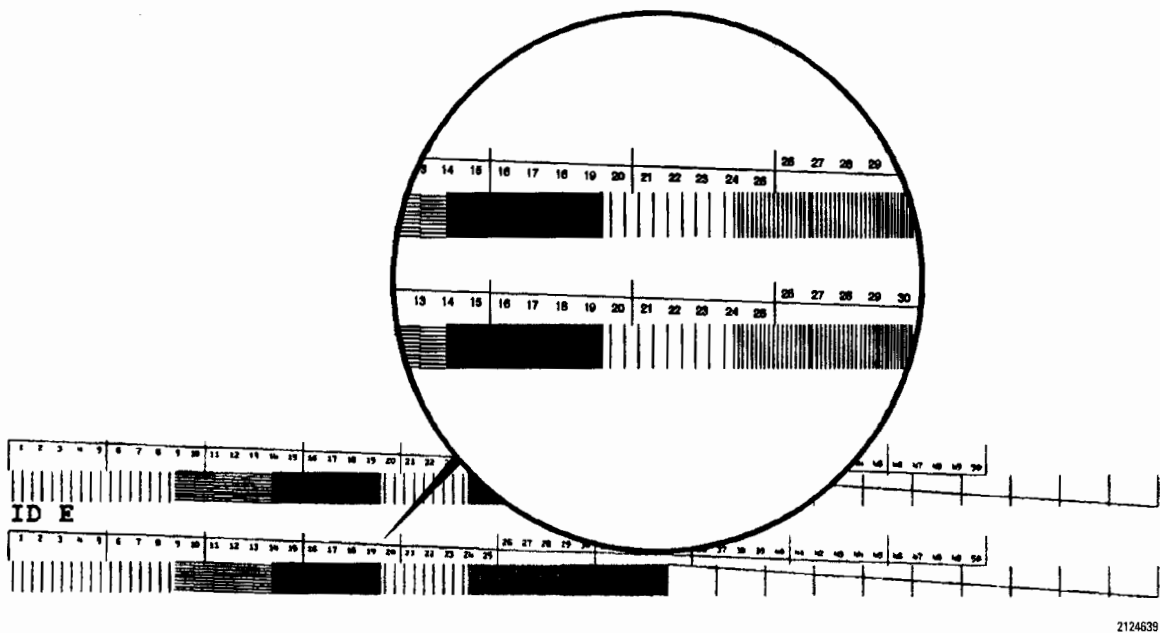


Figure 5-13. HP DeskWriter C Print Cartridge Cleaning Routine (Black)

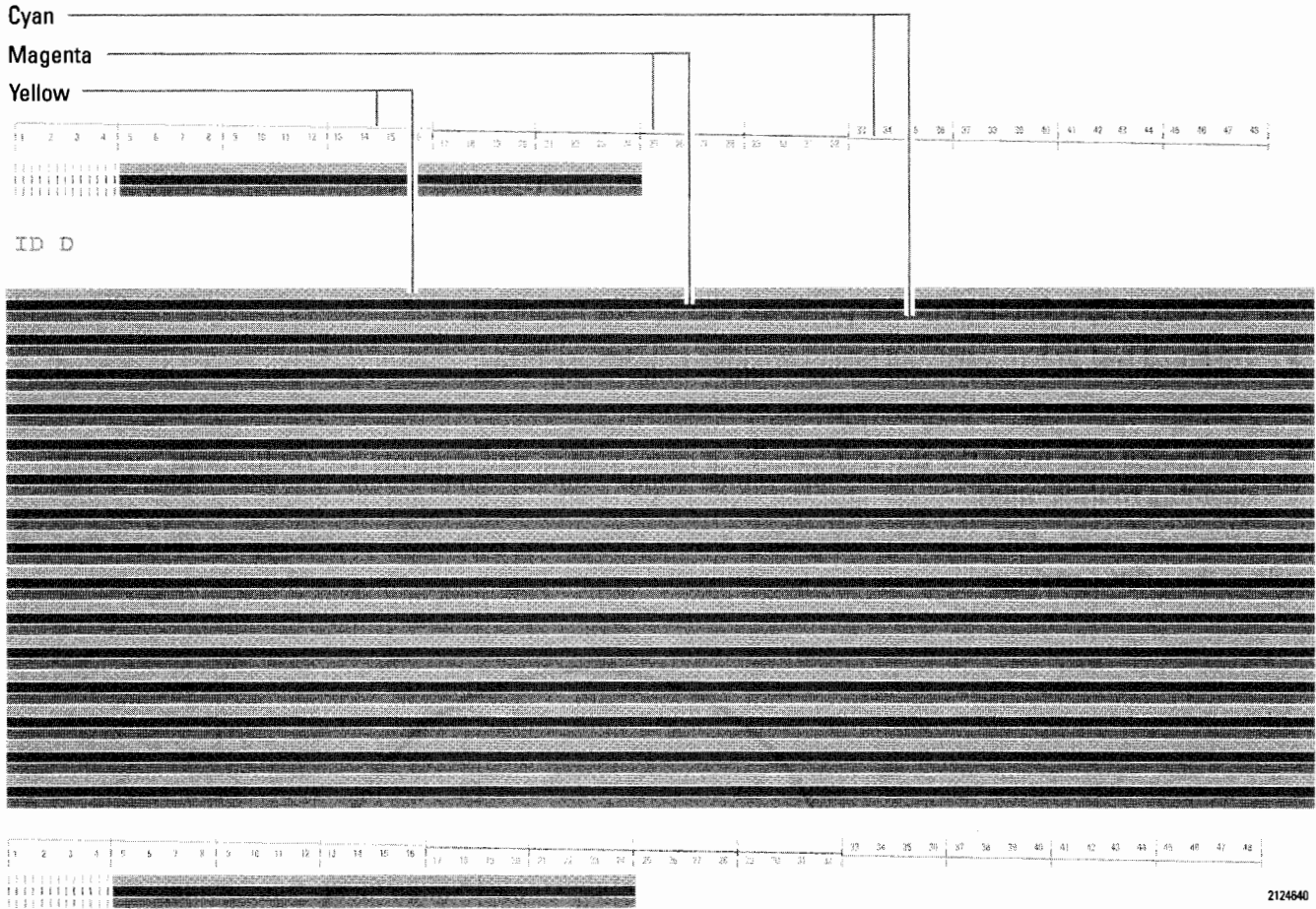


Figure 5-14. HP DeskWriter C Print Cartridge Cleaning Routine (Color)

HP DeskWriter 510 and DeskWriter 520 Print Cartridge Cleaning Routine

Use the following method to clean the black print cartridge:

- While pressing the *select* button, press and release the *install print cartridge* button. Then release the *select* button.

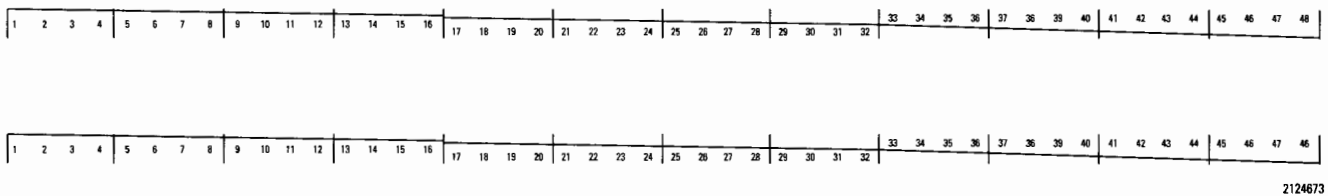


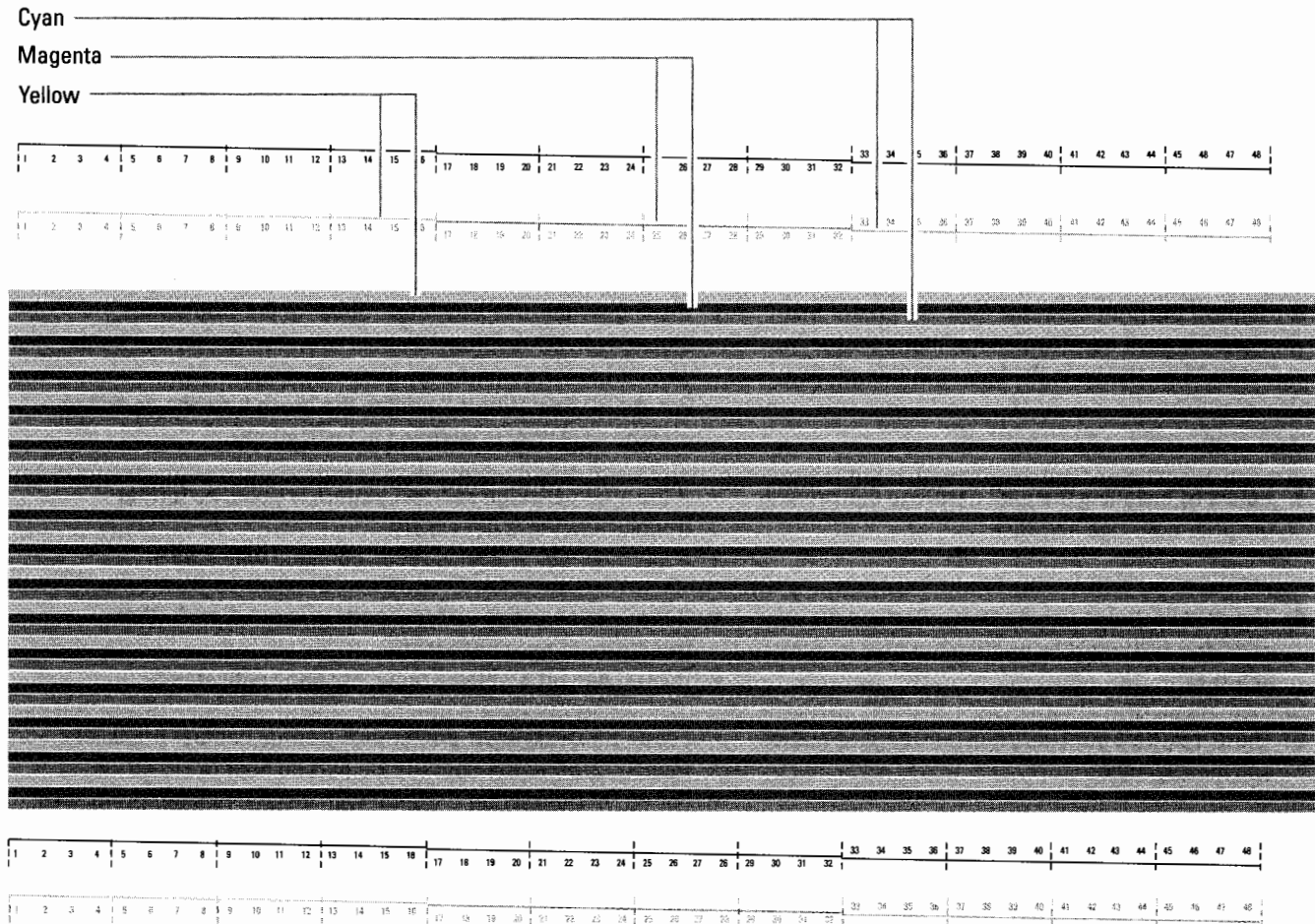
Figure 5-15. HP DeskWriter 510 Print Cartridge Cleaning Routine (Black)

HP DeskWriter 550C and DeskWriter 560C Print Cartridge Cleaning Routine

Use *one* of the following methods to clean the color print cartridge:

- While pressing the *select* button, press and release the *install print cartridge* button. Then release the *select* button. Or,
- Click the Start button under Clean Print Cartridge in the Page Setup/Options dialog box on the computer screen.

A color clean pattern prints. After cleaning, print a full page. If print quality does not improve, repeat the cleaning process one time, or replace the print cartridge.



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Figure 5-16. HP DeskWriter 550C and DeskWriter 560C Print Cartridge Cleaning Routine

Solving Print Cartridge Interconnect Problems

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. This is known as an *interconnect* problem. See “Missing Dots Due to an Interconnect Problem” in this chapter.

Note The HP DeskWriter 510, DeskWriter 520, DeskWriter 550C and DeskWriter 560C print cartridge self-tests do *not* identify interconnect problems. However, rows of missing dots may indicate an interconnect problem (especially if every other dot is missing). Try the following procedure to correct rows of missing dots.

Use the following procedure to solve interconnect problems on an HP DeskWriter family printer.

1. Remove and reinstall the print cartridge.	Make sure the print cartridge snaps into place in the print cartridge cradle.
2. Retest by printing the print cartridge self-test.	<ul style="list-style-type: none"> • If the print cartridge self-test pattern is good, no further troubleshooting is necessary. • If interconnect problems recur, continue with step 3.
3. Remove the print cartridge from the printer and clean the print cartridge and printer carriage contacts as shown in the figures in this section.	<ul style="list-style-type: none"> • If using swabs, use only foam rubber or lint-free swabs, moistened with isopropyl alcohol or water. <i>Do not use cotton swabs.</i> Let the contacts dry after cleaning. • For the HP DeskWriter C printer, the brush from the cartridge storage container is intended to be used <i>dry</i>.
4. Retest by installing the print cartridge and printing the print cartridge self-test.	<ul style="list-style-type: none"> • If the print cartridge self-test pattern is good, no further troubleshooting is necessary. • If interconnect problems recur, continue with step 5.
5. The print cartridge may be faulty. Replace the print cartridge and retest by printing the print cartridge self-test.	<ul style="list-style-type: none"> • If the print cartridge self-test pattern is good, no further troubleshooting is necessary. • If interconnect problems recur, continue with step 6.
6. There may be a print cartridge and service station cap misalignment.	<ul style="list-style-type: none"> • For an HP DeskWriter printer with a serial number prefix less than 3212, order the upgrade kit, part number 02276-60106. • For an HP DeskWriter C printer with a serial number prefix less than 3206, order the upgrade kit, part number C2113-60103. <p>These kits are available from CrSC (503) 757-2002.</p>
7. Repeat the steps of installing the print cartridge, cleaning the print cartridge contacts, and cleaning the printer carriage contacts several times.	If the problem consistently appears in the print cartridge self-test, with the same rows of dots missing on different print cartridges, return the printer for repair.

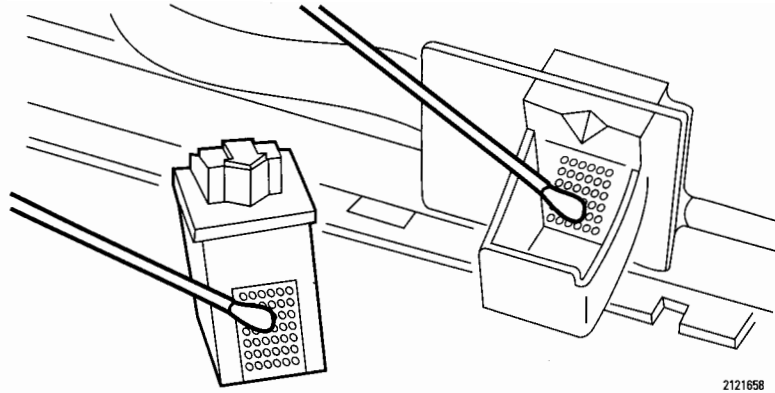


Figure 5-17. Cleaning the Contacts, HP DeskWriter, DeskWriter 510, and DeskWriter 520 Printers

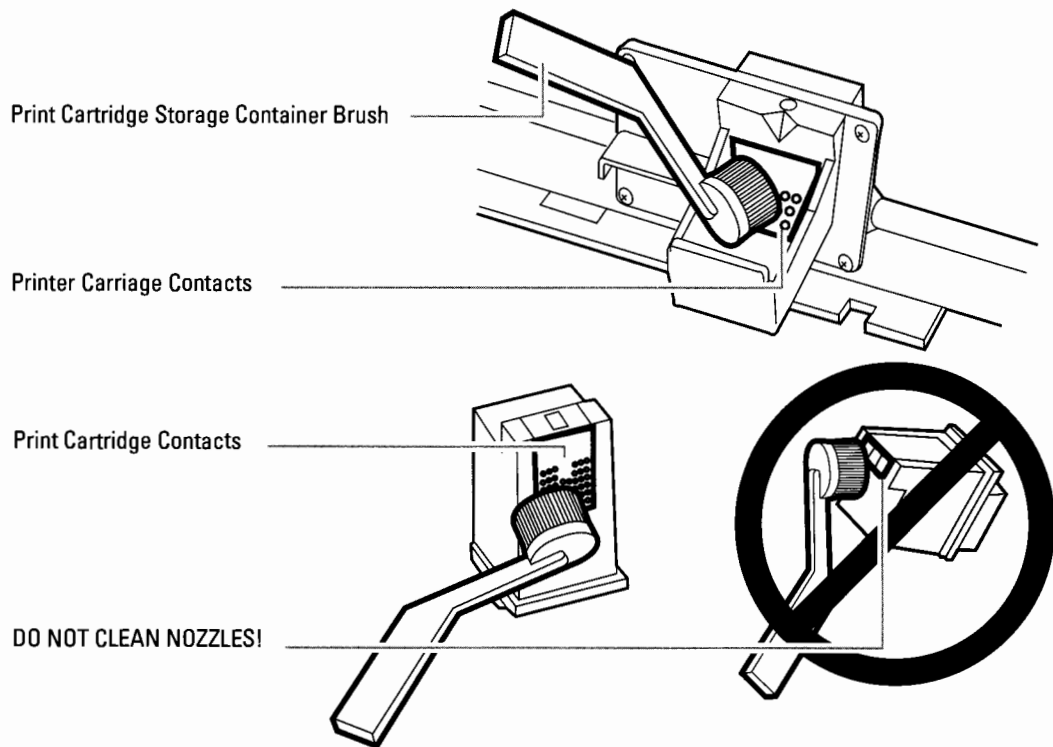
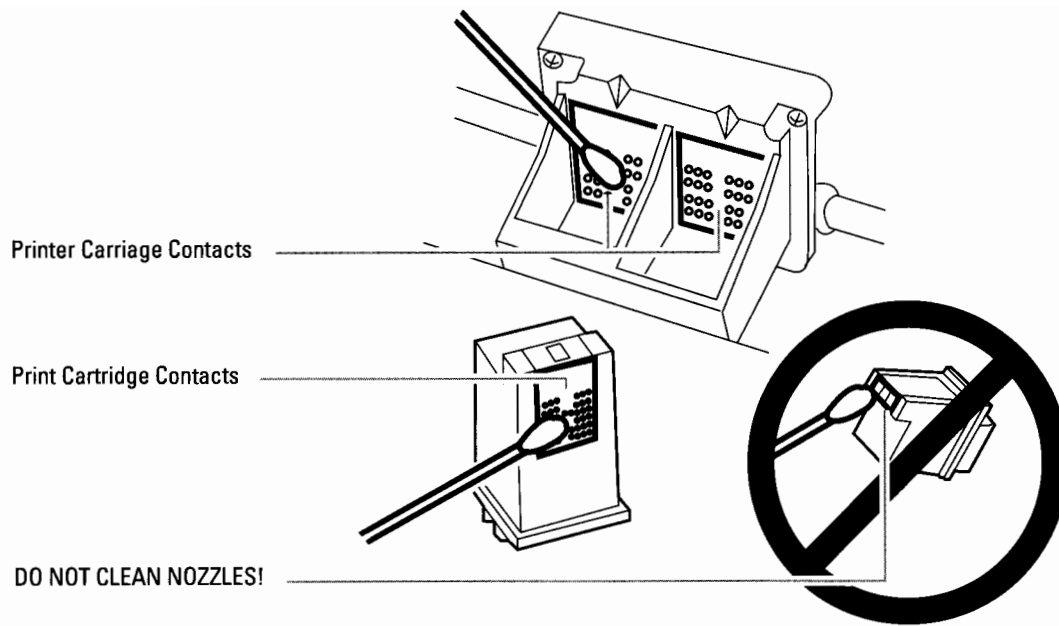


Figure 5-18. Cleaning the Contacts, HP DeskWriter C Printer



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Figure 5-19. Cleaning the Contacts, HP DeskWriter 550C DeskWriter 560C Printers

Troubleshooting Print Quality

Print quality problems may be produced by the print cartridge(s), the media, improper loading of paper or print cartridges, or printer hardware problems.

Solving Black Print Quality Problems

Table 5-18. Solving Black Print Quality Problems

Black Print Quality Issue	Possible Cause
Faint or fuzzy print.	<ol style="list-style-type: none"> 1. Check the printer settings: <ul style="list-style-type: none"> • Verify that the printer settings are set for optimum quality, rather than draft quality. For text, verify that the Color Blending selection is set to <i>Pattern</i>. 2. Check the media: <ul style="list-style-type: none"> • Verify that the media meets the specifications in chapter 1. Some paper that meets specifications will not produce satisfactory results. Try a different brand of paper. • Turn the paper over and print on the other side. All papers have a recommended print side. See the paper packaging for identification of the print side of the paper. • Verify that the paper is not inkjet, ThinkJet, or special coated paper, unless recommended for the HP DeskWriter printer family. • If printing on CX JetSeries paper, verify that the black is composite black from a color print cartridge. With an HP DeskWriter 550C or DeskWriter 560C printer, use the <i>HP Special Paper Media</i> mode. • If printing on transparencies or glossy paper, verify that the transparencies or glossy paper are LX JetSeries media, and that the printer supports the media. 3. Check the print cartridge(s): <ul style="list-style-type: none"> • If the print cartridge was refilled (rather than new) when installed, replace the print cartridge with a new one. Hewlett-Packard does not support refilling print cartridges and cannot guarantee the quality from a refilled print cartridge. • The print cartridge may be running out of ink. Replace the print cartridge. • Verify that the print cartridge has not expired. See "Identifying the Print Cartridge Expiration Date" in this chapter. • Run the print cartridge cleaning routine. • The print cartridge may be faulty. Try another print cartridge.
Ink smearing.	<ol style="list-style-type: none"> 1. Check the media: <ul style="list-style-type: none"> • Verify that the media meets the specifications in chapter 1. Some paper that meets specifications will not produce satisfactory results. Try a different brand of paper. • Verify that the paper is not inkjet, ThinkJet, or special coated paper, unless recommended for the HP DeskWriter printer family. • If printing on CX JetSeries paper, verify that the black is composite black from a color print cartridge. With an HP DeskWriter 550C or DeskWriter 560C printer, use the <i>HP Special Paper Media</i> mode. • If printing on transparencies or glossy paper, verify that the transparencies or glossy paper are LX JetSeries media, and that the printer supports the media. • When printing on transparencies and glossy paper, use the <i>Stop Between Transparencies</i> (dry timer) option, if available, in the Options dialog box. • Allow the ink to dry before stacking media or placing pages in sleeves. 2. Check the print cartridge(s): <ul style="list-style-type: none"> • Verify that there is no crusted ink on the print cartridge nozzles. • Run the print cartridge cleaning routine.

Table 5-18. Solving Black Print Quality Problems (Continued)

Black Print Quality Issue	Possible Cause
Output appears jagged.	<ol style="list-style-type: none"> 1. Verify that <i>Best</i> mode is selected, rather than <i>Draft</i> mode, in the Print dialog box. 2. In the software application, verify that the highest quality mode is used. 3. In the software application, verify that the selected printer font is available.
Rows of dots missing.	Dots missing may be caused by the print cartridge(s), printer hardware problems, or connections between the printer and the print cartridge. See "Printout Missing Dots" and "Solving Print Cartridge Interconnect Problems" in this chapter.
Black pages interpreted as color/ unexpected cartridge swap message, HP DeskWriter C printer.	<p>The HP DeskWriter C printer driver occasionally interprets black-and-white data or grayscale scanned images as color. Some applications, such as Photoshop and PixelPaint Professional, use black and white pixels from a color palette to draw black-and-white objects. Because the pixels originate from a color palette, the HP DeskWriter C printer driver interprets them as color.</p> <p>Single Page Documents</p> <ol style="list-style-type: none"> 1. If the black print cartridge is installed and a message appears indicating that the document contains color, click <i>Continue</i> to print the document with the black print cartridge. <p>Multiple Page Documents</p> <p>Perform the following if the printer prints one or more pages of a multiple page document with composite black from the color print cartridge.</p> <ol style="list-style-type: none"> 1. From the Print dialog box, check the <i>Use installed print cartridge only</i> box. 2. Install the black print cartridge and reprint the pages where the error occurred. 3. When printing is complete, uncheck the <i>Use installed print cartridge only</i> box to again receive warnings of document and print cartridge mismatches.
Grayscale images not satisfactory.	The Halftoning method may be set to <i>Pattern</i> . In the Options dialog box, set Halftoning to <i>Auto</i> or <i>Scatter</i> . In the Print dialog box, select <i>Best</i> quality mode and <i>Print in Grayscale</i> .
Black output appears greenish in color, HP DeskWriter C printer.	The HP DeskWriter C printer cannot mix black from a black print cartridge with color on a page. The HP DeskWriter C printer uses composite black (from the color print cartridge) on any page with color. Composite black may appear greenish in color.
Black output appears grayish in color, HP DeskWriter 550C and DeskWriter 560C printers.	<p>The printer is using composite black (from the color print cartridge) for the black output. Try the following:</p> <ol style="list-style-type: none"> 1. Set Bleed Control to <i>On</i> in the Options dialog box. This prints all black elements with the black print cartridge. 2. If unsatisfactory mixing occurs between the black and color inks, modify the document so that black does not touch color ($1/10$ in. of separation). 3. For documents without color, select <i>Print in Grayscale</i> in the Print dialog box. This mode prints with only the black print cartridge.
Black ink mixes with color ink, HP DeskWriter 550C and DeskWriter 560C printers.	Black ink may mix with color ink in areas where they touch. See "Color and black mixing" in table 5-19.
Large areas of composite black, HP DeskWriter 550C and DeskWriter 560C printers.	<ol style="list-style-type: none"> 1. Set Bleed Control to <i>On</i> in the Options dialog box. This prints all black elements with the black print cartridge. 2. If black and color mixing occurs, set Bleed Control to <i>On</i> in the Options dialog box. 3. If the output is unacceptable, modify the document so that black does not touch color ($1/10$ in. of separation).