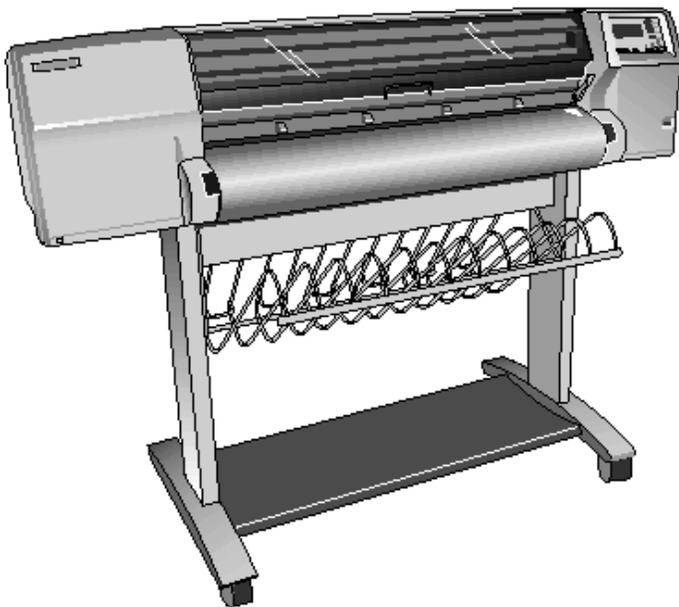
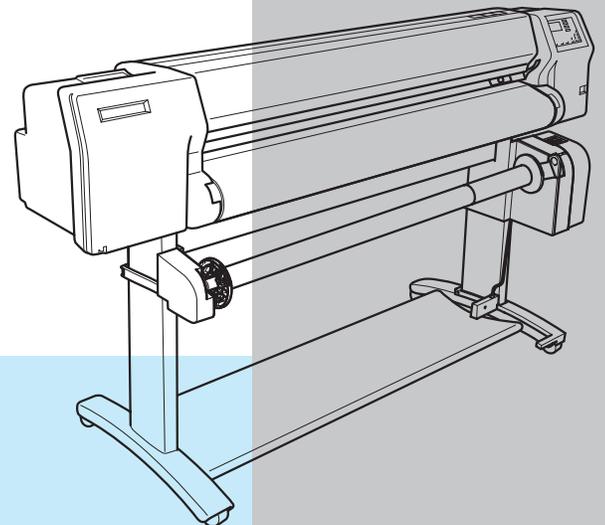


Product: 1998-1999 HP DesignJet 2000CP/2500CP/2800CP/3000CP/3000CP/3800CP Printers Service Repair Workshop Manual
Full Download: <https://www.arepairmanual.com/downloads/1998-1999-hp-designjet-2000cp2500cp2800cp3000cp3000cp3800cp-printers-service-repair-workshop-manual/>



Service Manual

HP DesignJet 2000CP
HP DesignJet 2500CP
HP DesignJet 2800CP
HP DesignJet 3000CP
HP DesignJet 3500CP
HP DesignJet 3800CP
Printers



Sample of manual. Download All 348 pages at:
<https://www.arepairmanual.com/downloads/1998-1999-hp-designjet-2000cp2500cp2800cp3000cp3000cp3800cp-printers-service-repair-workshop-manual/>

For HP Internal Use Only

© Copyright Hewlett-Packard Company 1998

This document contains proprietary information that is protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced, or translated into another language without the prior written consent of Hewlett-Packard Company.

First edition, March 1998
Second edition, Nov 1998
Third Edition, September 1999

Warranty

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

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

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

WARNING

The procedures described in this manual are to be performed by HP-qualified service personnel only.

Electrical Shock Hazard

Serious shock hazard leading to death or injury may result if you do not take the following precautions:

- Ensure that the ac power outlet (mains) has a protective earth (ground) terminal.
- Disconnect the Printer from the power source prior to performing any maintenance.
- Prevent water or other liquids from running onto electrical components or circuits, or through openings in the enclosure.

Electrostatic Discharge

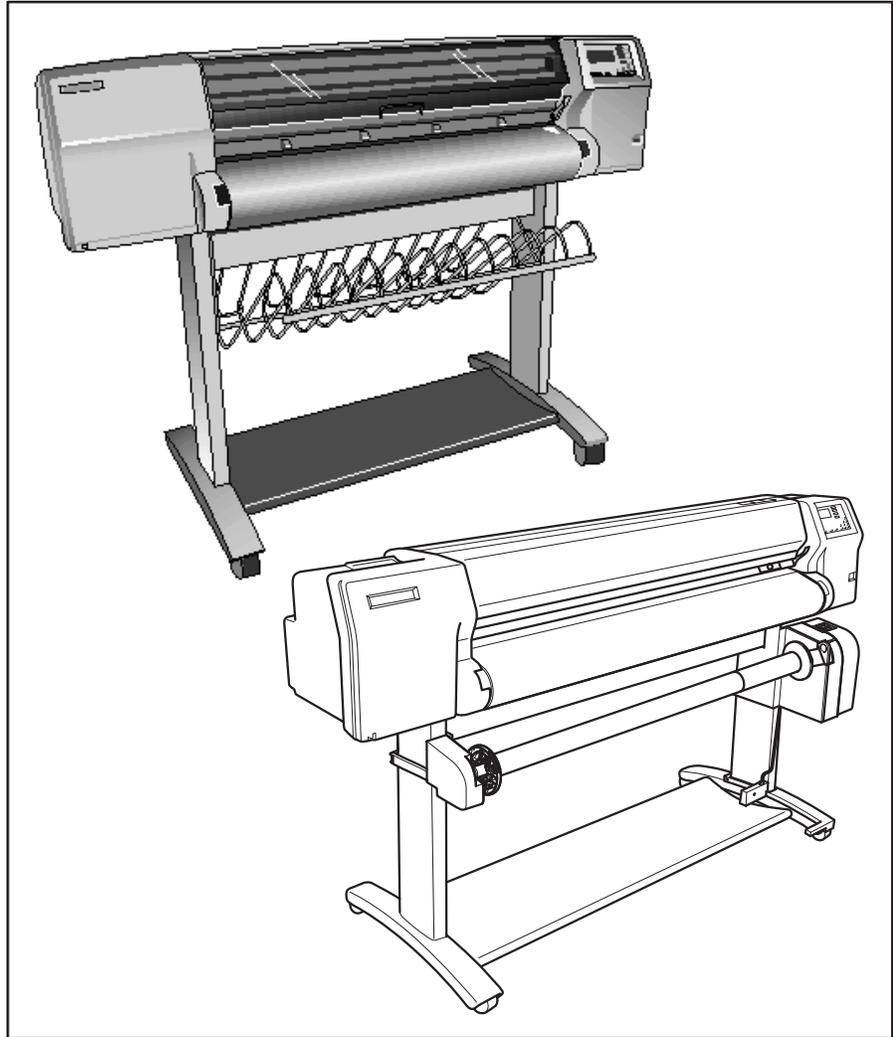
Refer to the beginning of Chapter 8 of this manual, for precautions you should take to prevent damage to the Printer circuits from electrostatic discharge.

Safety Symbols

General definitions of safety symbols are given immediately after the table of contents.

Technical Marketing, Barcelona Division
Hewlett-Packard Española, S.A.
Avda. Graells, 501
08190 Sant Cugat del Vallès
Spain

Service Manual



HP DesignJet 2000CP
HP DesignJet 2500CP
HP DesignJet 2800CP
HP DesignJet 3000CP
HP DesignJet 3500CP
HP DesignJet 3800CP
Printers

Using this Manual

Purpose

This manual contains information necessary to test, calibrate and service:

- HP DesignJet 2000CP printer (model C4703A)
- HP DesignJet 2500CP printer (model C4704A)
- • HP DesignJet 2800CP printer (model C6085A)
- HP DesignJet 3000CP printer (model C4723A)
- HP DesignJet 3500CP printer (model C4724A)
- • HP DesignJet 3800CP printer (model C6084A)

For information about using these printers, refer to the corresponding user and quick-reference guides.

Readership

The procedures described in this manual are to be performed by HP-certified service personnel only.

Part Numbers

Part numbers for plotter options, accessories and service parts are located in chapter 7.

Conventions

This manual contains information for the color HP DesignJet 2000CP, 2500CP, 2800CP, 3000CP, 3500CP and 3800CP printers. Throughout this Manual, these printers will be referred to as the HP DesignJet CP Series Printers.

Concerning the hardware perspective, DesignJets 2800CP and 3800CP are basically DesignJets 2000CP and 3000CP (respectively) connected with an external Fiery RIP. Therefore, all information applicable to the DesignJets 2000CP/3000CP will also be applicable to DesignJets 2800CP/3800CP.

A small arrow ► is used to indicate other parts of the Service Manual or User's Guide where you can find information related to the topic you are consulting.

Contents

Using this Manual	ii
Safety Symbols	x

1 Troubleshooting

Which Firmware relates to which Ink system?	1-2
How do I Check the Hard Disk Drive Version? (Only applicable to HP DesignJet 2500CP/3500CP)	1-2
Is the Printer Using the Latest Firmware Revision?	1-2
How do I upgrade the Firmware Revision on the Flash SIMM?	1-3
How do I upgrade the PostScript Revision on the Flash SIMM?	1-4
How can I Copy Firmware Data from One Flash SIMM to a Second Flash SIMM?	1-6
What Can I do when a System Error Code Appears on the Front-Panel Display?	1-7
Have you performed a Service Test on the Failed Component/Assembly?	1-7
Have you Performed the Necessary Service Calibrations?	1-8
What can I do to Solve Image Quality Problems?	1-8
What can I do if the Carriage is Noisy?	1-9
What can I do if the Service Station is Noisy?	1-9
What can I do if the Printer continuously rejects Printheads?	1-9
What can I do if the Printer has problems with Media Loading?	1-9
What can I do if the Cover Sensors aren't Working?	1-10
What can I do if the "Switch Power Off / Check Printhead Path" message appears when the Printer is about to cut or is cutting?	1-10
What can I do if the Bail Assembly does not lower all the way?	1-10
What can I do if the "Lens Maintenance" message appears on the Front-Panel?	1-10
Troubleshooting Media Jams/Printhead Crashes	1-10
What can I do if the Printer does not Power ON?	1-12
What can I do if the Line Sensor has Problems Detecting Media?	1-12
What is the Ink System?	1-13
How Do I Troubleshoot the Ink System?	1-13
Does the Customer have Mid-Print Refill Problems in HP DesignJets 3500CP/3000CP?	1-15
How Do I Clean the Electrical Contacts?	1-17
How Do I Print some of the Internal Prints?	1-18
The Service Print	1-18
The Usage report	1-19
The PostScript Config	1-20
How to Navigate through the Front-Panel Menu on HP DesignJets 2500CP and 2000CP	1-21

2 System Error Codes

System Error: 0000D8 XXXXXXXX	2-3
System Error: 010020	2-3
System Error: 010021 AXXXXXXX	2-4
System Error: 010022	2-4
System Error: 010023	2-5
System Error: 010024	2-5
System Error: 010030	2-5
System Error: 010031	2-6
System Error: 010032 000000XX	2-7
System Error: 010033	2-8
System Error: 010034 000X0000	2-8
System Error: 010035 0XABCDEF	2-9
System Error: 010036	2-10
System Error: 010036 0000XX00	2-11
System Error: 010037	2-12
System Error: 010038	2-12
System Error: 010039	2-13
System Error: 010040	2-13
System Error: 010041	2-13
System Error: 010042 0000000X	2-14
System Error: 010043	2-15
System Error: 010100	2-16
System Error: 010101	2-16
System Error: 010102	2-16
System Error: 010110	2-17
System Error: 010111	2-17
System Error: 010120	2-18
System Error: 010121	2-18
System Error: 020000	2-19
System Error: 020001	2-20
System Error: 020002	2-21
System Error: 020003	2-22
System Error: 020004	2-23
System Error: 020005	2-24
System Error: 020006	2-25
System Error: 020010	2-25
System Error: 020011	2-26
System Error: 040xxx	2-26
System Error: 040601	2-27
System Error: 050000	2-27
System Error: 060000	2-28
System Error: 060100	2-28
System Error: 060200	2-28
System Error: 060300	2-29
System Error: 060400	2-29
System Error: 060500	2-29
System Error: 07xxxx XXXXXXXX	2-29
System Error: 08xxxx	2-30
System Error: 080001	2-30
System Error: 09xxxx	2-31

System Error: 090004	2-31
Error Message: Ink System Error XX-YYYY	2-31

3 User Messages

User Messages for HP DesignJets 2500CP and 2000CP with Firmware Version A.02.14 or Higher and HP DesignJets 3500CP and 3000CP	3-2
--	-----

4 Service Tests

Introduction	4-2
Diagnostics - Self Test	4-2
Initialization Sequences	4-2
Service Tests (Diagnostics)	4-3
Entering the Service Tests (Diagnostics) Menu System	4-5
D01. Electronics	4-6
D02. Line Sensor	4-9
D03. Carriage Axis (Y-axis)	4-11
D04. Media Axis (X-axis)	4-13
D05. Service Station	4-15
D06. Refill	4-16
D07. Front Panel	4-17
D08. Sensors	4-18
D09. MIO Presence	4-21
D10. Cutter	4-22
D11. Bail	4-23
D12. Image Quality	4-24
D13. Printhead ID	4-26
D14. Printhead Continuity	4-27
D15. Clean Roller	4-28
D16. Erase EEROM	4-29
D17. Reset Counters	4-30
D19. Hard Disk Drive Revision (Only 2500CP/3500CP)	4-31

5 Service Calibrations

Service Calibrations	5-3
Entering the Service Calibrations Menu System	5-5
C01. Carriage	5-6
C02. Refill	5-8
C03. Line Sensor	5-9
C04. Service Station	5-11
C05. Printheads Alignment	5-12
C06. Printheads Check	5-13
C07. Color Calib. (Only available in DesignJet 2500CP/3500CP printer) .	5-15
C08. Service Accuracy	5-16
C09. Maintenance	5-18
C10. Font Type Set (Only available in DesignJet 2500CP/3500CP printer)	5-19

6 Image Quality

Image Quality Troubleshooting Checklist	6-2
Print Modes	6-4
Image Quality Print	6-5
Introduction	6-5
Using the Image Quality Print	6-5
Producing the Image Quality Print	6-5
Analyzing the Image Quality Print	6-7
No Printing Defects Found in the Image Quality Print	6-17
Media	6-17
Print Quality Problems	6-18

7 Parts List

Printer Support (HP DesignJets 2500CP and 2000CP Only)	7-4
Printer Support (HP DesignJets 3500CP and 3000CP Only)	7-6
Right Hand Cover Area	7-8
Left Hand Cover Area	7-10
Printer Rear (HP DesignJets 2500CP and 2000CP Only)	7-12
Printer Rear (HP DesignJets 3500CP and 3000CP Only)	7-14
Electronics Module (Internal)	7-16
Y-axis Assembly	7-18
Elevator Assembly	7-24
Refill Assembly	7-26
Carriage Assembly	7-28
Roll Cover Area	7-30
Service Station Assembly Area	7-32
X-axis Motor Assembly	7-34
Drive Roller Area (HP DesignJets 2500CP and 2000CP Only)	7-36
Drive Roller Area (HP DesignJets 3500CP and 3000CP Only)	7-38
Entry Platen Area	7-40
Pincharm Assembly	7-42
Refill Interconnect PCA and Cutter Assembly	7-44
Media Button (HP DesignJets 3500CP and 3000CP Only)	7-46
Compatible Documentation	7-48
Front Panel Overlays (HP DesignJets 2500CP and 2000CP Only)	7-51
Front Panel Overlays (HP DesignJets 3500CP and 3000CP Only)	7-51
Interface Cables	7-52
Plug-in memory (DRAMM SIMM)	7-52
Ink Delivery Systems	7-52

8 Removal and Installation

Introduction	8-3
Safety Precautions	8-4
Electrostatic Discharge (ESD) Precautions	8-4
Required Tools	8-5
Electronics Module	8-6
Removal	8-6
Installation	8-7

Additional Rear Cover (Only applicable to HP DesignJets 3500CP and 3000CP)	8-10
Removal	8-10
Installation	8-10
Hard Disk Drive, Power Switch Cable	8-12
Removal	8-12
Installation	8-13
Window and Top Cover	8-15
Removal	8-15
Installation	8-15
Left Hand Cover and Left Hand Trim Assembly	8-18
Removal	8-18
Installation	8-19
Right Hand Cover and Right Hand Trim Assembly	8-21
Removal	8-21
Installation	8-22
Front Panel and Stand-by Button	8-24
Removal	8-24
Installation	8-24
Service Station Assembly and Service Station Flag	8-26
Removal of the Service Station Assembly	8-26
Removal of the Service Station Flag	8-26
Installation of the Service Station Assembly	8-27
Installation of the Service Station Flag	8-27
Primer Assembly (Only Applicable to HP DesignJets 2500CP/2000CP)	8-29
Removal	8-29
Installation	8-30
Encoder Strip	8-32
Removal	8-32
Installation	8-33
Trailing Cable	8-36
Removal	8-36
Installation	8-37
Y-Axis Belt	8-39
Removal	8-39
Installation	8-40
Carriage Assembly	8-42
Removal	8-42
Installation	8-43
Y-Axis Motor Assembly	8-45
Removal	8-45
Installation	8-46
Cutter Assembly (Only Applicable to HP DesignJets 2500CP and 2000CP)	8-48
Removal	8-48
Installation	8-48
Cutter Assembly (Only Applicable to HP DesignJets 3500CP and 3000CP)	8-50
Removal	8-50
Installation	8-50
Elevator Assembly	8-52
Removal	8-52
Installation	8-53

Refill Assembly	8-55
Removal	8-55
Installation	8-56
Bail Assembly and Star Wheel Assemblies	8-58
Removal	8-58
Installation	8-58
Starguard Assembly	8-60
Removal	8-60
Installation	8-60
Bail Stepper Motor	8-62
Removal	8-62
Installation	8-62
Refill Interconnect PCA	8-64
Removal	8-64
Installation	8-64
X-Axis Assembly	8-66
Removal	8-66
Installation	8-67
Overdrive Assembly and Drive Roller (Only Applicable to HP DesignJets 2500CP and 2000CP)	8-69
To remove the Drive Roller only	8-69
Installation of the drive roller	8-70
Installation of the overdrive assembly	8-70
Overdrive Assembly and Drive Roller (Only Applicable to HP DesignJets 3500CP and 3000CP)	8-72
To remove the Drive Roller only	8-72
Installation of the drive roller	8-73
Installation of the overdrive assembly	8-73
Entry Platen	8-78
Removal	8-78
Installation	8-79
Roll Cover and Roll Feed Assemblies	8-81
Removal	8-81
Installation	8-82
Pincharm Assemblies, Pincharm Shaft and Pincharm Sensor	8-84
Removal of the pincharm sensor	8-84
Removal of the pincharm assemblies and the pincharm shaft.	8-84
Installation of the pincharm sensor.	8-85
Installation of the pincharm assemblies and the pincharm shaft.	8-85
Interconnect Cables	8-87
Removal of the refill interconnect cable.	8-87
Removal of the service station interconnect cable.	8-87
Installation of the service station interconnect cable	8-88
Installation of the refill interconnect cable	8-88
Media Button (Only Applicable to HP DesignJets 3500CP and 3000CP)	8-90
Removal	8-90
Installation	8-90

9 Preventive Maintenance

Moisture on the Printer	9-2
-------------------------------	-----

Noisy Carriage Bushing	9-2
Belt Swelling	9-2
Cleaning the Printer	9-2
General Cleaning	9-2
Cleaning the Drive Roller	9-3
Cleaning the Electrical Contacts?	9-4
Scheduled Maintenance	9-4
Level of Printer Usage	9-4
Preventive Maintenance Kit - Part Number C4704-60198	9-5
Y-axis Maintenance Parts	9-5

10 Functional Overview

DesignJet 2500CP-PostScript SKU	10-3
DesignJet 2000CP-RTL SKU	10-3
Printed Circuit Assemblies (PCA)	10-3
Y-Axis Assembly	10-4
Carriage	10-4
Y-axis belt and Y-axis belt tensioner	10-4
Y-axis motor assembly	10-4
Encoder Strip	10-4
Trailing cable	10-5
Service Station Assembly	10-5
Primer Assembly	10-5
Refill Assembly	10-5
Elevator Assembly	10-6
X-Axis Assembly	10-6
Electronics Module	10-6
Stepper Motors	10-7
Sensors	10-7
Line Sensor	10-7
Cover Sensors	10-7
Mechanical Interface Sensors	10-8

APPENDIX - Reinstalling the Fiery Box

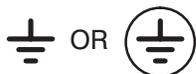
General Definition of Safety Symbols



International caution symbol (refer to manual): the product is marked with this symbol when it is necessary for the user to refer to the instruction manual in order to protect against damage to the instrument.



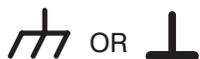
Indicates dangerous voltage (terminals fed from the interior by voltage exceeding 1000 volts must also be marked).



Protective conductor terminal. For protection against electrical shock in case of a fault. Used with field wiring terminals to indicate the terminal that must be connected to ground before operating equipment.



Low-noise or noiseless, clean ground (earth) terminal. Used for a signal common, as well as providing protection against electrical shock in case of a fault. A terminal marked with this symbol must be connected to ground in the manner described in the installation (operating) manual, and before operating the equipment.



Frame or chassis terminal. A connection to the frame (chassis) of the equipment, which normally includes all exposed metal.



Alternating current



Direct current



Alternating or direct current

WARNING

The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury.



Take care not to cut yourself on the encoder strip inside the plotter.

CAUTION

The CAUTION sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product.

Troubleshooting

Introduction

This chapter will guide you through the relevant steps to take when troubleshooting the printer.

Which Firmware relates to which Ink system?

A.01.XX - This firmware revision is applicable to HP DesignJets 2500CP and 2000CP and means that the Printers can **only** use Imaging Inks.

A.02.XX - This firmware revision is applicable to HP DesignJets 2500CP and 2000CP and means that the Printers can use both the Imaging Inks and the new UV Durable Inks.

A.03.XX - This firmware revision is applicable to HP DesignJets 3500CP and 3000CP and means that the Printers can use both the Imaging Inks and the new UV Durable Inks.

A.04.XX - This firmware revision is applicable to all HP DesignJet CP Series Printers and means that the Printers can use both the Imaging Inks and the new UV Durable Inks.

How do I Check the Hard Disk Drive Version? (Only applicable to HP DesignJet 2500CP/3500CP)

For HP DesignJet 2500CP - To check which Hard Disk Drive Version the printer is using, print the PostScript Configuration using the front-panel menu in *Internal Prints / PostScript Config*.

For HP DesignJet 3500CP - To check which Hard Disk Drive Version the printer is using, use the front-panel menu in *Utilities / Statistics / Disk Rev*.

Is the Printer Using the Latest Firmware Revision?

Before spending time troubleshooting the problem by doing the various tests or replacing parts (which may not need replacing), check which firmware revision the printer is using. To check which firmware revision the printer is using, use the front-panel menu in *Utilities / Statistics / Code Rev*. Some problems which occurred in earlier firmware releases may have been solved in later revisions. So if there is a new firmware revision then update the Flash SIMM before replacing any parts. See below for information on upgrading the Flash SIMM.

Remember that:

- For the **HP DesignJet 2000CP/3000CP**, the first slot from the left contains an 8MB SIMM with the firmware code inside.
- For the **HP DesignJet 2500CP/3500CP**, the first slot from the left contains an 8MB SIMM with the firmware code inside and the second slot contains a 4 MB SIMM with the PostScript code inside.

How do I upgrade the Firmware Revision on the Flash SIMM?

You will need to have the Printer connected to a PC or a UNIX Workstation with a Parallel cable. Download the latest Firmware Revision from the Plotter Support WEB to your local drive and then follow these instructions:

- 1 Make sure the printer is switched OFF from the power switch on the back of the printer and **not** from the standby button on the front of the printer.
- 2 Hold the CANCEL key down and switch the printer **ON**. Wait until the message “Flash Programmer 1.X / Push to continue” is displayed on the front-panel before releasing the CANCEL key.
- 3 Press the **Down Arrow** key and the message “Program Flash / Copy to 2nd Flash” is displayed on the front-panel.
- 4 Press the **Up Arrow** key and the message “Program 2nd Flash / Program 1st Flash” is displayed on the front-panel.
- 5 Press the **Down Arrow** key and the message “Really Erase Yes / 1st Flash? No” is displayed on the front-panel.

If you do not wish to continue press the Down Arrow key and the message “Cancelled Program / Power off the board” is displayed on the front-panel. Switch the Printer OFF from the power switch on the back of the printer.

- 6 Press the **Up Arrow** key and the message “Erasing Flash” is displayed.

***THE DATA ON THE FLASH SIMM IS BEING ERASED AT THIS POINT.
DO NOT SWITCH OFF THE PRINTER BECAUSE IT WILL DAMAGE
THE FLASH SIMM.***

- 7 When the data on the Flash SIMM is erased the message “Please Download Binary Code” is displayed on the front-panel.
- 8 To download the firmware data to the Flash SIMM follow these instructions:
 - If using a UNIX Workstation, type:

```
$ cat filename > device.file
```

Substitute “filename” with the name of the file that contains the firmware data which you downloaded from the Plotter Support WEB. Substitute “device.file” with the name of your Workstation parallel device file.

- If using a PC, type in MS-DOS:

```
C:\> copy /b filename lpt1:
```

Substitute “filename” with the name of the file that contains the firmware data which you downloaded from the Plotter Support WEB. Substitute “lpt1” with name of the parallel port that you have your Printer connected to on the PC.

- 9 While the firmware data is being received by the printer, the message “Receiving Binary Code” will be displayed on the front-panel.

THE DATA IS BEING DOWNLOADED ONTO THE FLASH SIMM AT THIS POINT. DO NOT SWITCH OFF THE PRINTER BECAUSE IT WILL DAMAGE THE FLASH SIMM.

- 10 When the Flash SIMM is completely programmed, the message “Finished Programming / Power OFF the board” will be displayed on the front-panel.
- 11 Switch the Printer OFF from the power switch on the back of the printer.
- 12 Switch the Printer ON from the power switch on the back of the printer and the Printer will start the initialization procedure.
- 13 When the message “Status/Ready” is displayed on the front-panel, check that the new firmware revision has been correctly downloaded by using the front-panel menu in *Utilities / Statistics / Code Rev.* The front-panel should now show the new Firmware Revision of the Flash SIMM.

How do I upgrade the PostScript Revision on the Flash SIMM?

YOU ONLY NEED TO UPGRADE THE POSTSCRIPT SIMM IF THE FIRMWARE CODE IS A.02.08 OR HIGHER.

- 1 Make sure the printer is switched OFF from the power switch on the back of the printer and **not** from the standby button on the front of the printer.
- 2 Install an additional 4MB Flash SIMM into the second slot.
- 3 Hold the CANCEL key down and switch the printer **ON**. Wait until the message “Flash Programmer 1.X / Push to continue” is displayed on the front-panel before releasing the CANCEL key.

If the Printer has problems starting up, the 8MB flash SIMM with the firmware code has been incorrectly upgraded (it can be dead) or it is incorrectly installed.

- 4 Press the **Down Arrow** key and the message “Program Flash / Copy to 2nd Flash” is displayed on the front-panel.
- 5 Press the **Up Arrow** key and the message “Program 2nd Flash / Program 1st Flash” is displayed on the front-panel.
- 6 Press the **Up Arrow** key and the message “Flash Size 8MB / 4MB” is displayed on the front-panel. The printer is asking you if you want to program a 4MB or 8MB SIMM.
- 7 Press the **Down Arrow** key and the message “Erasing Flash” is displayed on the front-panel.

THE DATA ON THE FLASH SIMM IS BEING ERASED AT THIS POINT. DO NOT SWITCH OFF THE PRINTER BECAUSE IT WILL DAMAGE THE FLASH SIMM.

8 When the data on the Flash SIMM is erased the message “Please Download Binary Code” is displayed on the front-panel.

9 To download the PostScript data to the Flash SIMM follow these instructions:

- If using a UNIX Workstation, type:

```
$ cat filename > device.file
```

Substitute “filename” with the name of the file that contains the PostScript data which you downloaded from the Plotter Support WEB. Substitute “device.file” with the name of your Workstation parallel device file.

- If using a PC, type in MS-DOS:

```
C:\> copy /b filename lpt1:
```

Substitute “filename” with the name of the file that contains the PostScript data which you downloaded from the Plotter Support WEB. Substitute “lpt1” with name of the parallel port that you have your Printer connected to on the PC.

10 While the PostScript data is being received by the printer, the message “Receiving Binary Code” will be displayed on the front-panel.

THE DATA IS BEING DOWNLOADED ONTO THE FLASH SIMM AT THIS POINT. DO NOT SWITCH OFF THE PRINTER BECAUSE IT WILL DAMAGE THE FLASH SIMM.

11 When the Flash SIMM is completely programmed, the message “Finished Programming / Power OFF the board” will be displayed on the front-panel.

12 Switch the Printer OFF from the power switch on the back of the printer.

13 Switch the Printer ON from the power switch on the back of the printer and the Printer will start the initialization procedure.

14 When the message “Status/Ready” is displayed on the front-panel, check that the new PostScript revision has been correctly downloaded by using the front-panel menu in *Utilities / Statistics / PS rev = PostScript*. The front-panel should now show the new PostScript Revision of the Flash SIMM.

How can I Copy Firmware Data from One Flash SIMM to a Second Flash SIMM?

This procedure can be used to copy Data from one Flash SIMM to another. This is very useful when you have to update the Firmware Revision of several Printers and is much faster than updating from the PC.

- 1 Make sure the printer is switched OFF from the power switch on the back of the printer and **not** from the standby button on the front of the printer.
- 2 Remove the SIMM cover on the back of the Electronics Module.
- 3 Make sure that the master Flash SIMM is in the first slot from the left.
- 4 Install the 2nd Flash SIMM (that needs to be programmed) in the second slot from the left. If a DRAM SIMM is installed in the 3rd slot, then remove it first to allow more space to install the 2nd Flash SIMM.
- 5 Hold the CANCEL key down and switch the printer ON. Wait until the message “Flash Programmer 1.X / Push to continue” is displayed on the front-panel before releasing the CANCEL key.
- 6 Press the **Down Arrow** key and the message “Program Flash / Copy to 2nd Flash” is displayed on the front-panel.
- 7 Press the **Down Arrow** key and the message “Erasing Flash” is displayed on the front-panel.

THE DATA ON THE SECOND FLASH SIMM IS BEING ERASED AT THIS POINT. DO NOT SWITCH OFF THE PRINTER BECAUSE IT WILL DAMAGE THE FLASH SIMM.

- 8 After a short while the message “Copying Binary Code” will be displayed on the front-panel while the firmware data is being received by the printer.

THE DATA IS BEING DOWNLOADED ONTO THE SECOND FLASH SIMM AT THIS POINT. DO NOT SWITCH OFF THE PRINTER BECAUSE IT WILL DAMAGE THE FLASH SIMM.

- 9 When the Second Flash SIMM is completely programmed, the message “Finished Programming / Power OFF the board” will be displayed on the front-panel.
- 10 Switch the Printer OFF from the power switch on the back of the printer.
- 11 Remove the master Flash SIMM from the first slot from the left and remove the 2nd Flash SIMM (that has just been programmed) from the second slot from the left.
- 12 To verify if the Second Flash SIMM is programmed correctly, install the 2nd Flash SIMM in the first slot from the left and switch the Printer ON from the power switch on the back of the printer. If the Printer initializes correctly, then the Flash SIMM has been programmed correctly.

What Can I do when a System Error Code Appears on the Front-Panel Display?

Chapter 2 contains a list of system error codes and their respective descriptions and recommended corrective actions. Only try one recommended action at a time and check if the error code has disappeared.

If you have an error code which is not documented in this Service Manual or you have an error which you cannot resolve, then report the error to the HP Response Center or the nearest HP Support Office. When reporting the error, have the following information ready:

- Model and Serial Number of the printer.
- Which firmware revision the printer is using.
- The complete error number.
- The Service Print (*Utilities / Service Tests*).
- The Current configuration sheet.
- Which software application the customer is using (name, version, etc.).
- Is the problem reproducible by you?
- Additional comments about the usage, the setting, etc..

Have you performed a Service Test on the Failed Component/Assembly?

If possible, always perform a Service Test on the component/assembly that you are about to replace, just to make sure that is the component/assembly that has failed. **If the test on that component/assembly passes, you should NOT replace it.** For information on the Service Tests and how to use them ▶ Chapter 4.

Have you Performed the Necessary Service Calibrations?

Is the printer calibrated correctly after replacing a component? Refer to the table below to determine when a calibration is required. For information on the Service Calibrations and how to use them ▶ Chapter 5.

REMEMBER THAT CERTAIN CALIBRATIONS ARE REQUIRED EVEN IF AN ASSEMBLY HAS BEEN DISASSEMBLED TO GAIN ACCESS TO ANOTHER ASSEMBLY OR COMPONENT.

When Required	Calibrations To Be Done								
	C01	C02	C03	C05	C06	C07	C08	C09	C10
Electronics Module is replaced	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Carriage is disassembled or replaced	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Refill Assembly is disassembled or replaced	No	Yes	No	Yes	No	Yes	No	No	No
X-axis Assembly is disassembled or replaced	No	No	No	No	No	No	Yes	No	No
Drive Roller is disassembled or replaced	No	No	No	No	No	No	Yes	No	No
Banding Problem	No	No	Yes	Yes	Yes	No	Yes	No	No
Edge Detect Problem	No	No	Yes	No	No	No	No	No	No
Misalignment between Colors	No	No	Yes	Yes	Yes	No	Yes	No	No
Color Accuracy Problem	No	No	Yes	No	No	Yes	No	No	No
Nozzles Out or Misdirected	No	No	No	No	Yes	No	No	No	No

What can I do to Solve Image Quality Problems?

Whenever an Image Quality problem appears, it is advisable to print the Image Quality Print to help diagnose the problem. The Image Quality Print will help you differentiate between possible printhead errors and other problems such as incorrect front-panel selection, driver or RIP configuration or mechanical problems. For information on solving Image Quality problems ▶ Chapter 6.

What can I do if the Carriage is Noisy?

- 1 Dirty Carriage bushings. Remove dust particles from the Carriage bushings and from the slider rods along which the Carriage moves. If necessary, apply lubricant to the slider rods.
- 2 Check for a faulty Carriage. Perform the Carriage Axis Test [▶ page 4-12](#).

What can I do if the Service Station is Noisy?

- 1 Dirty Service Station slider rod. Remove dust particles from the Service Station slider rod along which the Service Station moves. If necessary, apply lubricant to the slider rod.
- 2 Check for a faulty Service Station. Perform the Service Station Test [▶ page 4-16](#).

What can I do if the Printer continuously rejects Printheads?

- 1 Clean the contacts on the Printhead and in the Carriage using the Ink Cleaner Part Number C6247A.
- 2 Remove all the Printheads from the Carriage and try installing just the rejected Printhead. If the Printhead is still rejected then replace the Printhead with a new one. If the new Printhead is not rejected then check, one by one, if the other Printheads are rejected or not.
- 3 Perform the Printhead Continuity Test [▶ page 4-29](#).
- 4 Perform the Electronics Test [▶ page 4-7](#).
- 5 Replace the Trailing Cable [▶ page 8-36](#).
- 6 Replace the Carriage Assembly [▶ page 8-42](#).

What can I do if the Printer has problems with Media Loading?

On HP DesignJets 3500CP and 3000CP a new Media Button has been installed to assist in Media Loading.

- 1 Check that the Media Sensor/Media Button is installed correctly.
- 2 Check if the cable for the Media Sensor/Media Button is connected correctly.
- 3 Check if the Pincharms are down (the Pincharm lever should be **up**).
- 4 Perform the Line Sensor calibration [▶ page 5-10](#).
- 5 If the media is continuously rejected during the media edge check, then make sure that the Line Sensor is installed correctly. If necessary, replace the Carriage Assembly [▶ page 8-42](#).
- 6 Replace the Media Sensor/Media Button [▶ page 8-78](#).
- 7 Perform the Electronics Test [▶ page 4-7](#).

What can I do if the Cover Sensors aren't Working?

- 1 Check if the faulty sensor is installed correctly.
- 2 Check if the cable for the faulty sensor is connected correctly.
- 3 Replace the faulty Sensor.

What can I do if the “Switch Power Off / Check Printhead Path” message appears when the Printer is about to cut or is cutting?

- 1 Check the media path and clear it if necessary.
- 2 Perform the Cutter Test ▶ page 4-24.
- 3 Replace the Cutter Assembly ▶ page 8-48.

What can I do if the Bail Assembly does not lower all the way?

- 1 Check that there are no obstructions in the way of the Bail Assembly.
- 2 Perform the Bail Test ▶ page 4-25.

What can I do if the “Lens Maintenance” message appears on the Front-Panel?

- 1 The Mark Encoder, on the Drive Roller, is dirty. Clean the Mark Encoder first before trying anything else.
- 2 The lens cover, which is installed on the line sensor, is dirty. Replace the lens cover ▶ Users Guide, Chapter 10 (Lens Maintenance).

Troubleshooting Media Jams/Printhead Crashes

The failure modes “media jam” and “head crash” are grouped together because in many cases a media jam causes the media to lift up into the carriage path and cause a head crash, thus causing many media jam failures to be reported as head crashes.

- 1 Did the media jam occur when loading media?
 - If the client has had media jams, it is common for pieces of media to get stuck in the media path. Clear the media path.
- 2 Is the customer using non-HP media?
 - The use of non-HP media can easily be the cause of media jams and head crashes (especially head crashes because HP media is specially formulated to avoid cockle, one of the primary causes of head crashes). If the media is not HP approved, advise the customer to use HP media and check to see if the problem now solved.

- 3** Is the client using Best Mode on Coated Media in high humidity?
- In this particular case, head crashes could occur due to worst casing. Recommend a change of media, print mode, or humidity conditions.
- 4** What is the Firmware Revision? (**Only applicable to HP DesignJets 2500CP and 2000CP**)
- Must be A02.01 or more recent. If not, upgrade.
 - Explanation - In earlier releases of firmware a media jam/head crash can be caused at the start of a plot. This can occur in the “POME” pen alignment or closed loop color calibration, because the leading edge of the media is brought back very close to the Media Separator edge. If the edges cross, the media can lift up when it is advanced, causing a media jam or head crash. It is more likely to occur the more curled the media is.
- 5** Check the Media Separator (**Only applicable to HP DesignJets 2500CP and 2000CP**)
- For units fabricated before Serial Numbers C4703A ESA7C04586 and C4704A ESA7C10343. If the Media Separator is detaching do not stick it down again, as it will detach again. Also, never reposition a Media Separator, because it has an extremely tight positioning tolerance. For Media Separators that are lifting off the Overdrive Assembly, replace the entire Overdrive Assembly.
 - Explanation - The previous adhesive used under the Media Separator can detach from the Overdrive Assembly. New Overdrive Assemblies use a much better adhesive – it can be easily differentiated from the old adhesive because it is white instead of transparent. The Media Separator should never be repositioned; it has an extremely tight tolerance. If it is too far from the linear blade it can cause media crashes against the Linear Blade. If it is too close it can cause media jams between the leading edges of the media and the Media Separator.
- 6** Did the failure occur at the end of the media roll?
- There are two known failure modes in this case. One is with Vinyl media, in which case the end of the media was glued too strongly to the roll, which can cause a head crash. The other is with Coated Media, where some rolls have the final edge of the media bent in a “C” shape which could cause a head crash when passing under the carriage. In both cases the problem has been fixed and a new roll of media should solve it.

- 7 Replace the Overdrive Assembly and the Clutch ▶ page 8-69.
 - Explanation - For a unit fabricated before September of 1997 the clutch could cause intermittent media jams. Refer to the applicable Service Note. For a printer fabricated before July 1997 the linear blade could be too high, causing media jams.
- 8 Check for missing/blocked starwheels or starwheel mount assemblies.
 - Explanation - These parts can lead to media jams if missing or blocked.
- 9 The Carriage is at the incorrect height in relation to the Drive Roller. Perform the Refill Calibration ▶ page 5-9 and try to load the media again.
 - The refill station positioning must be checked afterwards since it is affected. The refill station can be adjusted to accommodate the change in Printhead Height. The specification for Printhead Height is 1.2 - 1.4mm. Printhead Heights higher than this can adversely affect print quality.

What can I do if the Printer does not Power ON?

- 1 Check that the power cord is connected correctly.
- 2 Check that the Flash SIMM is installed correctly in the correct slot (the first slot from the left) at the back of the Printer.
- 3 On the Main PCA, in the Electronics Module, there are other fuses that are not controlled by the firmware so that, if they are burnt, they can cause a no-power-up problem. **It is recommended to check the resistance of the motors in a no-power-up situation before installing a new Electronics Module.** If you have a short in one motor, you will burn the new Electronics Module.
- 4 Try to disconnect all the cables, apart from the Front Panel Cable, from the Electronics Module and then try to power ON the Printer again. If nothing appears on the front-panel display, then replace the Electronics Module ▶ page 8-6. If the Printer does Power On with the cables disconnected, then the problem must be with another component of the Printer. To find the faulty component, power OFF the Printer and connect one of the cables and power ON again. Once the faulty component is connected, it will not allow the Printer to power ON. This component should then be replaced.

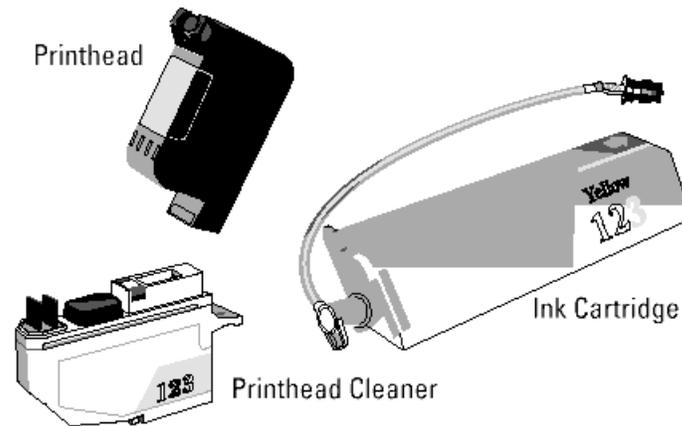
What can I do if the Line Sensor has Problems Detecting Media?

- 1 Excessive ink deposits on the drive-roller surface can fool the sensor by reflecting the light. Clean the drive-roller ▶ page 9-3.

- 2** The lens cover, which is installed on the line sensor, is dirty. Replace the lens cover ▶ Users Guide, Chapter 10 (Lens Maintenance).
- 3** The Line Sensor is not calibrated correctly. Perform the Line Sensor calibration ▶ page 5-10.
- 4** The Line Sensor is installed incorrectly. Try to reinstall it and make sure that it is connected and seated correctly. If the problem continues, replace the Carriage Assembly ▶ page 8-42.

What is the Ink System?

For each of the four colors of ink in your printer's ink system, there are three separate components that work together as a system. The components for each ink color are color-coded to help you install them correctly.



Ink Cartridge

The ink cartridges are a large-capacity ink supply from which the printheads are refilled whenever the ink volume in the printhead drops below a minimum level.

Printhead

The printhead has a 600 dpi thermal inkjet head for firing ink droplets onto the media and a reservoir which holds enough ink for a large number of prints. The actual number of prints between refills depends on the size and type of images you are printing.

Printhead Cleaner

The printer uses the printhead cleaner to clean and maintain the printhead to ensure the best possible image quality, and to seal the printhead when it is not in use to prevent it from drying out.

How Do I Troubleshoot the Ink System?

- 1 If the error message "**Ink system Incomplt**" appears on the front-panel it means that the ink cartridge valve has been disconnected, so:
 - If this is the first failure try to **REINSTALL** the failing Ink System.
 - If the failure has been very frequent **REPLACE** the failing Ink System (The valve could be damaged).

If this doesn't solve the problem, continue with the following process.

2 Reinstall the Ink Delivery System as follows:

- 1 Remove the four printheads from the carriage. On the front panel you will see the four squares representing the printheads flashing.
 - 2 Clean the electrical contacts using the Ink Cleaner Part Number C6247A.
 - 3 Reinstall all the printheads, one by one, checking on the front panel that the squares representing the reinstalled printheads are steady.
 - DO NOT INSERT THE NEXT PRINTHEAD UNTIL THE PRINTER HAS ACCEPTED THE CURRENT PRINTHEAD.
 - If, even after the electrical contacts have been cleaned, the printhead is not accepted REPLACE THE COMPLETE INK SYSTEM (Printhead/Head Cleaner/Ink Cartridge) for this color.
 - If, after inserting a NEW Ink System, the printhead is not accepted, the problem may be with the printer. Replace the Carriage Assembly ▶ 8-42.
 - 4 If you have reinserted the four printheads and the printer has accepted them continue reinstalling the head cleaners.
 - 5 Remove and reinstall the ink cartridge valves, one by one, checking on the front panel that the squares representing the reinstalled ink cartridge are steady.
 - If the ink cartridge is not accepted, REPLACE THE COMPLETE INK SYSTEM (Printhead/Head Cleaner/Ink Cartridge) for this color.
 - If, after reinserting the NEW Ink System, the ink cartridge is not accepted, the problem may be with the printer. Make sure that the Refill Assembly cable is not damaged and is correctly connected to the Interconnect PCA. If the cable is correctly connected and is not damaged then replace the Refill Assembly ▶ page 8-55.
- 3** If the problem is fixed, but it reappears frequently, contact a HP dealer for a replacement (the Ink System may be damaged.)

Does the Customer have Mid-Print Refill Problems in HP DesignJets 3500CP/3000CP?

New Refill Features in HP DesignJet CP Series (in the case of DesignJets 2X00CP, the firmware release must be at least A.04.05)

- 1 Adaptive trigger. The printer looks for low density places to stop and refill in the print where it will be less noticeable. This feature becomes active when 75% of the ink in the printhead has been used up. RIP's may have disabled this feature, or enabled it at a different ink level.
- 2 Slightly more useable ink for Imaging printheads. There is an additional 10% of usable ink.
- 3 New refill type selections. User can select from three different refill types through the front panel (**Device Setup / Refill=**). RIP's may support these selections, too:
 - Type A is similar to what HP DesignJet 2xxxCP does at refill.
 - Type B finishes the print to a clean edge before refilling.
 - Type C does a quicker, more frequent refill.
 - The Default type makes the correct selection for HP media types.
 - When using non-HP medias, the following settings are probably best:

Glossy - B or C **Coated** - A or B **Backlit** - B or A

- 4 Additional printhead servicing and warming activities are done during refills, which improves the quality over the 2xxxCP. The user may notice some new servicing (i.e. noises) at mid-page refills.
- 5 "Big print" feature. When a refill happens during a large print, the printer will automatically refill again at the end of the print, to make sure the maximum ink is available for the next print, which might also be expected to be large. The user is unlikely to notice this difference in behavior, since the printer often refills at the end of large pages.

Working with refill problems

General tips:

- Check media type is loaded correctly.
- Check refill type is set to default.
- Try a higher image quality setting for better performance.
- Check user's expectations - refill performance is not always "perfect", but almost always is acceptable for poster-type applications. Photo medias are the most sensitive to defects.

Troubleshooting Table 1

Problem	Hazy stripe in dark or black area with Hi/Semi Gloss Photo	Light line, any media	High Gloss/ Semi Gloss Photo problems	Non-HP medias
Solutions	Check that black contains undercolor (send RGB to printer, or add 33% CMY to black areas yourself)	Try higher image quality setting	Try higher image quality setting	Try different refill types A,B or C
	Make sure type B or default refill is selected	Switch between Type A and B refills	Make sure type B or default refill is selected	Use higher image quality settings
	Use higher image quality settings			
	Use a LOWER image quality setting			
	Use HP media			

Troubleshooting Table 2

Problem	Missing color PRIOR to refill	Missing nozzles AFTER refill	Poor start-up AFTER refill
Reason	Printhead is out of ink (but got a little more when it refilled)	Error hiding does not work in the first swath after a type B refill	Occasional occurrence
		First swath after a Type B refill	
Solution	Replace printhead	None/ replace printhead	Check printheads/ recover printheads

Refill Avoidance Tips

Printer:

- 1 Try to “top off” printheads before large prints with “Refill Now” option in Front Panel (*Image Quality / Printhead Service / Refill now*). If a refill happened at the end of the last print (usually happens with big prints), this is not necessary.
- 2 If you have just canceled a print, you may need to use the “refill now” option to guarantee the maximum ink available for the next print.

Print Composition Tips:

- 1 Don't try to nest more than 15 ft² of prints.
- 2 If the print is lighter in color at one end, rotate print so that it is the last part to be printed. Refills are less noticeable in light prints.
- 3 If possible, lighten background colors or use a gradient in place of a solid fill.
- 4 Textured areas make refills less noticeable than “flat” color areas.

How Do I Clean the Electrical Contacts?

The problem.

The printer fires drops by sending electrical signals from the printhead carriage to the printhead through the electrical contacts present on the carriage and on the printheads. The problem is that when you load the printheads into their stalls, sometimes some ink goes over the carriage electrical contacts, and when the printhead is installed over the printhead electrical contacts. When the printer prints, some ink goes to the bottom of the electrical contacts. This causes electrical continuity problems that can be fixed very easily.

The solution.

A new tool has been created especially to clean the electrical contacts and is called the Ink Cleaner (Part Number C6247A - includes the instructions).