

HP Designjet Z6100 Printer series

Service manual



For HP Internal Use Only Warranty

©Copyright Hewlett-Packard Company 2007

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 to another language without the prior written consent of Hewlett-Packard Company.

First Edition, March 2007

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 any other liquids from running onto electrical components or circuits, or through openings in the enclosure.

Electrostatic Discharge

Refer to the beginning of Chapter 4 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.

WARNING

The Warning symbol calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a Warning symbol until the indicated conditions are fully understood and met.

CAUTION

The Caution symbol 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. Do not proceed beyond a Caution symbol until the indicated conditions are fully understood and met.

HP Designjet Z6100 Printer series



Service manual



Using this Manual

Purpose

This Service Manual contains information necessary to test, calibrate and service:

- HP Designjet Z6100 42-inch Printer (Model Q6651A)
- HP Designjet Z6100 60-inch Printer (Model Q6652A)

For information about using these printers, refer to the corresponding User and Quick Reference Guides.

Readership

The procedures described in this Service Manual are to be performed by HP Certified service personnel only.

Part Numbers

Part Numbers for Printer options, accessories and service parts are located in Chapter 7.

Conventions

A small arrow \Rightarrow is used to indicate other parts of the Service Manual where you can find information related to the topic you are consulting.

Table of Contents

1	Troubleshooting	
	Guide to troubleshooting the printer	2
	Troubleshooting system error codes.....	2
	Performing a service test on a failed assembly.....	2
	Performing the necessary service calibrations	2
	Solving print quality problems	3
	The printer does not power on.....	3
	The printer continuously rejects printheads	3
	Cover sensors are not working	3
	The line sensor has problems detecting media	3
	Troubleshooting Media Jams/Printhead Crashes.....	4
	Troubleshooting shutdowns	4
	Printhead Maintenance Cartridge Path	4
	Paper Path	4
	Printhead path.....	5
	PWM shutdown	5
	Velocity shutdown	5
	Energy shutdown	5
	Vacuum suction much lower at high altitudes.....	5
	Banding at variable extreme environmental conditions	6
	Printhead Crashes/Smears on High Density Prints Using Coated Media	6
	Banding due to ink cartridge replacement while printing	6
	34" Rice Paper not supported	7
	Worm marks on HP Coated media with light area fills	7
	Solving Media-Handling Problems	7
	Difficult to load media "Too much skew"	7
	Using the buzzer at power-up for troubleshooting problems	7
	Using the Power-up Sequence to Troubleshoot.....	8
	Corrective Actions for Power-Up Problems	10
	Using the Power Switch LEDs to Troubleshoot	11
	Using the PCA LEDs to Troubleshoot.....	12
	Interconnect PCA	12
	PrintMech PCA	13
	Identifying faults from LED status	13
	How to Interpret the Service Information Pages.....	15
	Main Characteristics	16
	Current Configuration.....	17
	Current Media, Printhead and Ink Information	18
	Printer Usage Information.....	19
	Media Used Sections.....	20
	Event Logs.....	21
	Calibrations Status	22
	Connectivity Configuration	24
2	System Error Codes	
	Introduction.....	26
	System Error Codes and Warnings - Explanation.....	26
	Continuable and Non-Continuable Error Codes.....	28

3	Ink Supplies	
	What are Ink Supplies?	66
	Ink Cartridges.....	66
	Printheads.....	67
	Maintenance Cartridge.....	68
	General Information About the Ink Supplies	68
	General Precautions When Handling Ink Supplies	68
	Priming the Ink System.....	69
	When Should You Replace the Ink Supplies?.....	69
	Obtaining Ink Cartridge Information	69
	Obtaining Printhead Information.....	71
	Ink Cartridge Status Messages.....	72
	Ink Cartridge Status While Printing.....	72
	Ink Cartridge Status While Replacing	72
	Printhead Status Messages While Printing.....	73
	Printhead Status Messages While Replacing.....	73
	Maintenance Cartridge Status Messages While Printing	74
	Maintenance Cartridge Status Messages While Replacing.....	74
	Summary of Solving Ink Supplies Problems.....	74
	Problems reseating the printhead	75
	You Cannot Insert the Ink Cartridge Into the Printer.....	75
	You Cannot Insert the Printhead Into the Printer.....	75
	You Cannot Insert the Maintenance Cartridge Into the Printer	75
	Troubleshooting Printhead Error Codes.....	76
	Carriage Interconnect Wiper	77
	Warranty Information for Ink Supplies	77
	Ink Cartridge.....	77
	Printheads.....	78
4	Service Tests and Utilities	
	Introduction.....	80
	Diagnostics - Self Test.....	80
	Phone Support.....	80
	Service Tests (Diagnostics)	80
	Entering the Service Tests Menu.....	82
	1. Scan Axis Test.....	83
	2. Paper Drive Test.....	88
	3. Electronics Module Test.....	92
	4. Carriage Assembly Test	100
	5. Sensors Test	100
	6. Ink Delivery System Test	104
	7. SVS Test	104
	8. Air Pump System Test	104
	9. Vacuum Fans Test	105
	10. OMAS Module Test.....	106
	11. EEROM Reset	106
	12. Color Sensor Test.....	107
	13. Aerosol Test	110
	14. Primer Test	110
	15.1 Service Special Utilities >>> Bag Broken Recovery.....	112
	15.2 Service Special Utilities >>> Error 71:19 Recovery	114
	15.3 Service Special Utilities >>> IO Information	116
	15.4 Service Special Utilities >>> Unit Information	117
	15.5 Service Special Utilities >>> Check Ink Supplies	118
	15.6 Service Special Utilities >>> Change primer status.....	120
	Service Utilities.....	121
	Entering the Service Utilities Menu	122
	1. Turn Drive Roller	123
	2. Prime Tubes.....	124
	3. Set SN	127

	4. Reset Life Counters	128
	5. Diagnostic Print	130
	6. Sleep Mode	130
	7. Replace Cutter	131
	8. Set RTC Clock.....	132
	9. Enable/Disable Firewall	133
	10. Prime Printhead X.....	134
	11. Open/Close SOL.....	135
	12. Disk Wipe DoD 5330.22'M	136
	13. Enable/Disable SCAPA	138
5	Service Calibrations	
	Service Calibrations	140
	Entering the Service Calibrations Menu	141
	1. Scan Axis Calibration.....	142
	2. Paper Advance Calibration	146
	3. Drop Detector Calibration	151
	4. Line Sensor Calibration.....	152
	5. Vacuum Calibration	156
	6. OMAS Calibration.....	156
	7. Primer Calibration.....	162
	8. Platen Blue Line Calibration.....	166
6	Print Quality	
	Print Quality Troubleshooting Actions	170
	How to Use the Service Image Quality Diagnostic Print	170
	What is the Service Image Quality Diagnostic Print?	170
	Considerations for Printing the Diagnostic Print	171
	Printing the Service Image Quality Diagnostic Print.....	172
	Diagnostic Part 1: Printhead Problems	172
	Diagnostic Part 2: Alignment Test.....	174
	Diagnostic Part 3: Printheads & Paper Advance Test.....	175
	No Printing Defects Found in the Diagnostic Print	176
	Advanced Diagnostic: Visual Alignment Diagnostic Print.....	176
	Advance Diagnostic: Nozzle Health Diagnostic Print.....	180
	Advance Diagnostic: Force Drop Detection	182
	Advanced Diagnostics: Disable Paper Advance Sensor	182
	General advice	182
	Fix paper advance issues.....	183
	Clean the paper advance sensor window	185
	User Advance Calibration.....	185
	Visual Paper Advance Diagnostics	186
	Advance Diagnostic: Visual Paper Advance Diagnostic	187
	Interrupting plot results.....	188
	Lines are too thick, too thin, or missing	190
	Lines appear stepped or jagged	191
	Parts of lines or text are missing.....	191
	Lines are blurred (ink bleeds from lines)	192
	Lines are slightly warped	193
	Dark or light horizontal lines across the image (banding).....	193
	The image is grainy.	194
	The image has a metallic hue (bronzing).....	194
	The printed output is not flat	195
	The print smudges when touched	195
	Defects near the top of a print	196
	There are ink marks on the paper.....	196
	Colors are inaccurate	197
	Colors between different HP Designjets do not match	197
	Print via separate HP-GL/2 drivers	198
	The output is completely blank	199
	The output contains only a partial print	199

The image is clipped	200
The image is in one portion of the printing area	200
The image is unexpectedly rotated	200
The print is a mirror image of the original	201
The print is distorted or unintelligible	201
One image overlays another on the same print	201
Pen settings seem to have no effect	201
The image has a wood-grain appearance (aeroworms)	201
Printheads fail repeatedly	201

7 Parts and Diagrams

Printer Support	206
Center Covers	208
Electronics Module	210
Right Cover	212
Left Cover	214
Right Hand Assemblies	216
Left Hand Assemblies	218
Carriage Assembly	220
Scan-Axis Assemblies	222
Drive Roller and Media-Axis Motor	224
Paper Path Assemblies	226
Center Guide and Pinchwheel Assembly	228
Media Entry Assemblies	230
Take-Up Reel Assembly	232
Miscellaneous Parts	234

8 Removal & Installation

Service Part Order	237
Disassembly Order	239
Introduction	241
Safety Precautions	241
Electrostatic Discharge (ESD) Precautions	241
Required Tools	241
Screw Types	243
Window (42-inch)	244
Installation of New Window	245
Window (60-inch)	246
Right Cover	248
Right Trim	251
Left Cover	254
Left Trim	256
Top Cover (42-inch)	257
Top Cover (60-inch)	261
Rear Door (42-inch)	265
Rear Door (60-inch)	267
Right Connector Cover	269
Left Connector Cover (42-inch)	271
Electronics Module Extension (60-inch only)	272
Window Position Sensor	273
Front Panel	276
Primer Assembly	278
Primer Valves	280
Service Station	284
Vacuum Fan	288
Aerosol Fan and Filter	291
Drop Detector	293
Ink Supply Tubes and Trailing Cable	296
ISS to Cartridge Cables	302
Cutter Assembly	303
Ink Supply Station (ISS)	305

APS Assembly	308
Left Spittoon	312
Encoder Strip and Encoder Sensor	315
Carriage PCA	318
Carriage Flex Cables	321
Carriage Assembly	323
Belt Assembly	329
Scan-Axis Motor	330
Media-Axis Motor	333
Optical Media Advance Sensor (OMAS)	335
Interconnect PCA	341
EIO to PCA Interface Card	344
OMAS Controller Card	346
OMAS Cable	348
Sausalito PCI PCA	353
Memory Module	355
Main PCA Formatter	357
Hard Disk Drive (HDD)	359
Power Supply Unit (PSU)	361
PrintMech PCA	366
Formatter Battery	368
Electronics Module	370
Line Sensor Assembly	372
Color Sensor Assembly	374
Color Sensor Actuator Assembly	377
Media Deflector	379
Output Platen	380
Center Platen	382
Cartridge Tray	391
Input Roller	393
Maintenance Cartridge Door	395
Maintenance Cartridge Door Sensor	396
Media Sensor	397
Encoder Disc and Sensor	399
Media Lever Assembly	402
Media Lever Sensor	405
Pinchwheel Assembly	407
Center Guide	412
Drive Roller	415
Right Rollfeed Module Assembly	422
Left Rollfeed Module Assembly	423
Take-Up Reel Motor	425
Take-Up Reel Left Hand Module	427
Take-Up Reel Deflector Supports	428
Take-Up Reel Sensors	430
9 Preventive Maintenance	434
Moisture on the Printer	434
Noisy Carriage Bushing	434
Belt Swelling	434
Cleaning the Printer	434
General Cleaning	434
Cleaning the Drive Roller and Overdrive	434
Cleaning the Platen	435
Clean the paper-advance sensor window	436
Applying Oil to the Overdrive	436
Lubricating the Carriage Assembly	437
Change the maintenance absorber	437
Scheduled Maintenance	439

	Level of Printer Usage	439
10	Repacking instructions	
	Special Set-up checks and re-packaging instructions for EMU units.....	442
	Carefully read the Instructions.....	443
	ReUse the packaging material	443
	Check the printer status before switching on the unit.....	443
	Do not dispose the packaging elements	443
	Step 1: Removing the consumables from the printer	444
	Re-packaging the Ink consumables	445
	Removing the Left Spittoon Absorber and cleaning the ink excess.....	446
	Step 2: Re-installing the retention parts	448
	PRIMER retention foam.....	448
	Carriage Retention Foam	449
	INK TUBES Carton Pad.....	451
	Window retainer foams	454
	Spindle retention carton pad	454
	Special checks before turning-ON the printer	457
	Check the Left spittoon absorber is installed.....	458