



HP PageWide Pro 750 and MFP 772, 777

HP PageWide Managed P75050

HP PageWide Managed MFP P77740, P77750, P77760

Service Manual: Troubleshooting



[www.hp.com/videos/pagewide](http://www.hp.com/videos/pagewide)

[www.hp.com/support/pagewidecolor750](http://www.hp.com/support/pagewidecolor750)





HP PageWide Pro 750 and MFP 772, 777  
HP PageWide Managed P75050 and  
MFP P77740, P77750 ,P77760

Troubleshooting Manual

## Copyright and License

© Copyright 2018 HP Development Company, L.P.

Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.

The information contained herein is subject to change without notice.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Edition 2, 9/2018

## Trademark Credits


Microsoft®, Windows®, Windows® XP, and Windows Vista® are U.S. registered trademarks of Microsoft Corporation.


Adobe®, Acrobat®, and PostScript® are trademarks of Adobe Systems Incorporated.


UNIX® is a registered trademark of The Open Group.


## Conventions used in this guide

---


 **TIP:** Helpful hints or shortcuts.

 **NOTE:** Information that explains a concept or how to complete a task.

 **Reinstallation tip:** Reinstallation helpful hints, shortcuts, or considerations.

 **IMPORTANT:** Information that help the user to avoid potential printer error conditions.

 **CAUTION:** Procedures that the user must follow to avoid losing data or damaging the printer.

 **WARNING!** Procedures that the user must follow to avoid personal injury, catastrophic loss of data, or extensive damage to the printer.

---



## Related documentation and software

HP service personnel, go to one of the following Web-based Interactive Search Engines (WISE) sites:

### AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

### APJ

- <https://support.hp.com/wise/home/apj-en>
- <https://support.hp.com/wise/home/apj-ja>
- <https://support.hp.com/wise/home/apj-ko>
- <https://support.hp.com/wise/home/apj-zh-Hans>
- <https://support.hp.com/wise/home/apj-zh-Hant>

### EMEA

- <https://support.hp.com/wise/home/emea-en>

Channel partners, go to HP Channel Services Network (CSN) at [www.hp.com/partners/csn](http://www.hp.com/partners/csn).

Channel partners, access training materials in the HP University and Partner Learning Center at <https://content.ext.hp.com/sites/LMS/HPU.page>.





---

# Table of contents

1 Theory of operation .....	1
Basic operation .....	2
Function structure .....	2
Operation sequence .....	3
System control .....	6
MPCA and data path .....	6
Engine control .....	7
Pen interface (I/F) .....	10
Power supply .....	10
AC control module .....	11
Cabling system .....	12
Flat Flexible Cables .....	12
FFC routing .....	15
Discrete cables .....	18
Ground wires .....	19
Connectors .....	20
Ferrites .....	22
Cable management .....	22
Print subsystem .....	24
Printhead .....	24
Printhead air management system .....	25
Printhead lift .....	25
Print cartridges .....	25
Optical scan carriage .....	25
Print system operational states .....	25
Paper-handling system .....	28
Printer sensors .....	28
High Capacity Input (HCI) sensors .....	29
3x550 tray sensors .....	30
1x550 tray sensors .....	31
Printer motors/solenoids .....	32
High capacity input (HCI) motors/solenoids .....	33

3x550 tray motors/solenoids .....	34
1x550 tray motors/solenoids .....	35
Printer printing system .....	36
Input trays .....	36
Paper path zones .....	40
Jam detection .....	42
Servicing system .....	45
Printhead wiper .....	45
Service fluid and aerosol management systems .....	46
Airflow system .....	48
Function .....	48
Heating .....	48
Airflow .....	48
Modes .....	48
Components .....	49
Document feeder system .....	50
Document feed system .....	50
Rollers and sensors in the document feeder .....	50
Document feeder operation .....	51
Deskew operation .....	53
Scanning and image capture system .....	53
Fax functions and operation .....	54
Computer and network security features .....	54
PSTN operation .....	54
The fax subsystem .....	54
Fax card in the fax subsystem .....	54
Fax page storage in flash memory .....	56
<b>2 Solve problems .....</b>	<b>57</b>
Problem-solving checklist .....	58
Problem-solving flowchart .....	59
Step 1: Check that the printer power is on .....	60
Step 2: Check the control panel for error messages .....	61
Step 3: Test print functionality .....	62
Step 4: Test copy functionality (MFP models only) .....	62
Step 5: Test the fax sending functionality (fax models only) .....	62
Step 6: Test the fax receiving functionality (fax models only) .....	62
Step 7: Try sending a print job from a computer .....	63
Step 8: Test the Plug and Print USB Drive printing functionality .....	63
Factors that affect printer performance .....	63
Troubleshooting process .....	64

Determine the problem source .....	64
Power subsystem .....	66
Tools for troubleshooting .....	78
Print the print status and printhead information pages .....	78
Event log messages .....	81
Individual component diagnostics .....	82
Diagrams .....	87
Print-quality troubleshooting tools .....	112
Control-panel menus .....	120
Control Panel Messages Document (CPMD) .....	65
Print quality troubleshooting guide .....	162
How to search for printer documentation .....	162
Printer pre-checks .....	165
Printer specific image defects .....	178
Solve copy/scan problems (MFP models only) .....	219
Solve copy problems (MFP models only) .....	219
Solve scan problems (MFP models only) .....	222
Solve paper jam or feed problems .....	228
Printer does not pick up paper or misfeeds .....	228
Clear paper jams .....	230
Solve performance problems .....	254
Factors affecting print performance .....	254
The printer does not print or it prints slowly .....	255
The printer prints slowly .....	256
Solve connectivity problems .....	257
Solve USB connection problems .....	257
Solve wired network problems .....	257
Service mode functions .....	259
Print Quality Tools .....	259
Maintenance .....	265
System Diagnostics .....	269
Report a Problem .....	279
Print from USB .....	280
Firmware upgrades .....	281
Determine the installed revision of firmware .....	281
Perform a firmware upgrade .....	282
Fax problems .....	284
<b>Appendix A Printer specifications .....</b>	<b>287</b>
Printer dimensions and weight .....	288
Printer space requirements .....	288

Power consumption, electrical specifications, and acoustic emissions .....	288
Operating-environment range .....	288
Certificate of Volatility .....	289

Index .....	333
-------------	-----

---

# List of tables

Table 1-1	Operation sequence .....	3
Table 1-2	Printbar components .....	24
Table 1-3	Service Fluid and Aerosol Management System Components .....	47
Table 1-4	Document feeder rollers and sensors .....	50
Table 2-1	Troubleshooting flowchart .....	64
Table 2-2	MPCA LEDs .....	68
Table 2-3	MPCA LED sequence at printer power on .....	68
Table 2-4	MPCA LEDs .....	82
Table 2-5	MPCA LED sequence at printer power on .....	83
Table 2-6	ACCM LEDs .....	83
Table 2-7	ACCM LED sequence at printer power on .....	84
Table 2-8	Plug/jack locations .....	87
Table 2-9	<a href="#">Setup</a> menu .....	120
Table 2-10	<a href="#">Network Summary</a> menu .....	130
Table 2-11	<a href="#">Wi-Fi Direct Details</a> menu .....	133
Table 2-12	<a href="#">Cartridges</a> menu .....	134
Table 2-13	<a href="#">Tray Configuration</a> menu .....	135
Table 2-14	<a href="#">Fax Status</a> menu .....	137
Table 2-15	<a href="#">Environmental Settings</a> menu .....	137
Table 2-16	<a href="#">Sign In</a> menu .....	139
Table 2-17	<a href="#">Copy</a> menu (MFP models) .....	140
Table 2-18	<a href="#">Scan</a> menu (MFP models) .....	144
Table 2-19	<a href="#">Print</a> menu .....	147
Table 2-20	<a href="#">Fax</a> menu (fax models) .....	149
Table 2-21	<a href="#">Support Tools</a> menu .....	154
Table 2-22	Printhead health score .....	172
Table 2-23	Solve performance problems .....	254
Table 2-24	<a href="#">Print Quality Tools</a> menu .....	260
Table 2-25	<a href="#">Maintenance</a> menu .....	265
Table 2-26	<a href="#">System Diagnostics</a> menu .....	269
Table 2-27	<a href="#">Report a Problem</a> menu .....	280
Table 2-28	Print from USB <sup>1</sup> .....	280

Table A-1	Printer dimensions and weight .....	288
Table A-2	Operating-environment specifications .....	288

---

# List of figures

Figure 1-3	FFC insertion line .....	12
Figure 1-4	FFC support tape .....	13
Figure 1-5	FFC label .....	13
Figure 1-6	FFC wing feature .....	14
Figure 1-7	ZIF connector .....	14
Figure 1-8	FFC hook arm retainers .....	15
Figure 1-9	FFC pill bump retainers .....	16
Figure 1-10	FFC die-cut retainers .....	17
Figure 1-11	FFC double-sided tape retainer .....	17
Figure 1-12	Discrete cable ferrite .....	18
Figure 1-13	Discrete cable tie-wraps .....	19
Figure 1-14	Ground wires .....	20
Figure 1-16	FFC wing feature .....	21
Figure 1-17	ZIF connector .....	22
Figure 1-18	FFC spacing .....	23
Figure 1-19	Printhead components .....	24
Figure 1-20	Print engine sensors .....	28
Figure 1-21	HCI sensors .....	29
Figure 1-22	3x550 Tray sensors .....	30
Figure 1-23	1x550 tray sensors .....	31
Figure 1-24	Printer motors/solenoids .....	32
Figure 1-25	HCI motors/solenoids .....	33
Figure 1-26	3x550 tray motors/solenoids .....	34
Figure 1-27	1x550 tray motors/solenoids .....	35
Figure 1-28	Printer printing system .....	36
Figure 1-29	Tray 1 pick and separation system .....	37
Figure 1-30	Service fluid and aerosol management system .....	47
Figure 1-31	Airflow system components .....	49
Figure 1-32	Document feeder rollers and sensors .....	50
Figure 1-33	Document feeder operation .....	51
Figure 1-34	Deskew operation .....	53
Figure 2-1	Problem-solving flowchart (1 of 2) .....	59

Figure 2-2	Problem-solving flowchart (2 of 2)	60
Figure 2-3	MPCA LEDs	68
Figure 2-4	Diagnostic-tests access button (MFP)	73
Figure 2-5	Press and hold down the diagnostics-access button	74
Figure 2-6	Enter the diagnostic mode	75
Figure 2-7	Enter the diagnostic mode	76
Figure 2-8	Test the control panel LED buttons	76
Figure 2-9	Printer status page	79
Figure 2-10	Printhead information page	80
Figure 2-11	MPCA LEDs	82
Figure 2-12	ACCM LEDs	83
Figure 2-13	Plug/jack locations	87
Figure 2-14	Sample product search criteria	90
Figure 2-15	Print engine sensors	92
Figure 2-16	HCI sensors	93
Figure 2-17	3x550 tray sensors	94
Figure 2-18	1x550 tray sensors	95
Figure 2-19	Printer motors/solenoids	96
Figure 2-20	HCI motors/solenoids	97
Figure 2-21	3x550 tray motors/solenoids	98
Figure 2-22	1x550 tray motors/solenoids	99
Figure 2-23	Printer printing system	100
Figure 2-24	MPCA, distribution, and SLB PCA map	102
Figure 2-25	Large touchscreen subsystem map (1 of 2)	103
Figure 2-26	Large touchscreen subsystem map (2 of 2)	104
Figure 2-27	Distribution and SLB PCA map 1	105
Figure 2-28	Distribution and SLB PCA map 2	106
Figure 2-29	Distribution and SLB PCA map 3 (1 of 2)	107
Figure 2-30	Distribution and SLB PCA map 3 (2 of 2)	108
Figure 2-31	Distribution and SLB PCA map 4 (1 of 2)	109
Figure 2-32	Distribution and SLB PCA map 4 (2 of 2)	110
Figure 2-33	AC power subsystem map	111
Figure 2-34	Sample product search criteria	164
Figure 2-37	Ink smear/redeposit	176
Figure 2-38	Print Quality Tools menu sample	181
Figure 2-39	Print Quality Report page	182
Figure 2-40	Print a Nozzle Health Page	184
Figure 2-41	Printhead Details page	186
Figure A-1	Certificate of Volatility (750dn; 1 of 3)	289
Figure A-2	Certificate of Volatility (750dn; 2 of 3)	290
Figure A-3	Certificate of Volatility (750dn; 3 of 3)	291



Figure A-4	Certificate of Volatility (750dw; 1 of 4)	292
Figure A-5	Certificate of Volatility (750dw; 2 of 4)	293
Figure A-6	Certificate of Volatility (750dw; 3 of 4)	294
Figure A-7	Certificate of Volatility (750dw; 4 of 4)	295
Figure A-8	Certificate of Volatility (772dn; 1 of 3)	296
Figure A-9	Certificate of Volatility (772dn; 2 of 3)	297
Figure A-10	Certificate of Volatility (772dn; 3 of 3)	298
Figure A-11	Certificate of Volatility (772dw; 1 of 4)	299
Figure A-12	Certificate of Volatility (772dw; 2 of 4)	300
Figure A-13	Certificate of Volatility (772dw; 3 of 4)	301
Figure A-14	Certificate of Volatility (772dw; 4 of 4)	302
Figure A-15	Certificate of Volatility (777z; 1 of 4)	303
Figure A-16	Certificate of Volatility (777z; 2 of 4)	304
Figure A-17	Certificate of Volatility (777z; 3 of 4)	305
Figure A-18	Certificate of Volatility (777z; 4 of 4)	306
Figure A-19	Certificate of Volatility (75050dn; 1 of 3)	307
Figure A-20	Certificate of Volatility (75050dn; 2 of 3)	308
Figure A-21	Certificate of Volatility (75050dn; 3 of 3)	309
Figure A-22	Certificate of Volatility (75050dw; 1 of 4)	310
Figure A-23	Certificate of Volatility (75050dw; 2 of 4)	311
Figure A-24	Certificate of Volatility (75050dw; 3 of 4)	312
Figure A-25	Certificate of Volatility (75050dw; 4 of 4)	313
Figure A-26	Certificate of Volatility (77740dn; 1 of 3)	314
Figure A-27	Certificate of Volatility (77740dn; 2 of 3)	315
Figure A-28	Certificate of Volatility (77740dn; 3 of 3)	316
Figure A-29	Certificate of Volatility (77740dw; 1 of 4)	317
Figure A-30	Certificate of Volatility (77740dw; 2 of 4)	318
Figure A-31	Certificate of Volatility (77740dw; 3 of 4)	319
Figure A-32	Certificate of Volatility (77740dw; 4 of 4)	320
Figure A-33	Certificate of Volatility (77740z; 1 of 4)	321
Figure A-34	Certificate of Volatility (77740z; 2 of 4)	322
Figure A-35	Certificate of Volatility (77740z; 3 of 4)	323
Figure A-36	Certificate of Volatility (77740z; 4 of 4)	324
Figure A-37	Certificate of Volatility (77750z; 1 of 4)	325
Figure A-38	Certificate of Volatility (77750z; 2 of 4)	326
Figure A-39	Certificate of Volatility (77750z; 3 of 4)	327
Figure A-40	Certificate of Volatility (77750z; 4 of 4)	328
Figure A-41	Certificate of Volatility (77760z; 1 of 4)	329
Figure A-42	Certificate of Volatility (77760z; 2 of 4)	330
Figure A-43	Certificate of Volatility (77760z; 3 of 4)	331
Figure A-44	Certificate of Volatility (77760z; 4 of 4)	332



---

# 1 Theory of operation

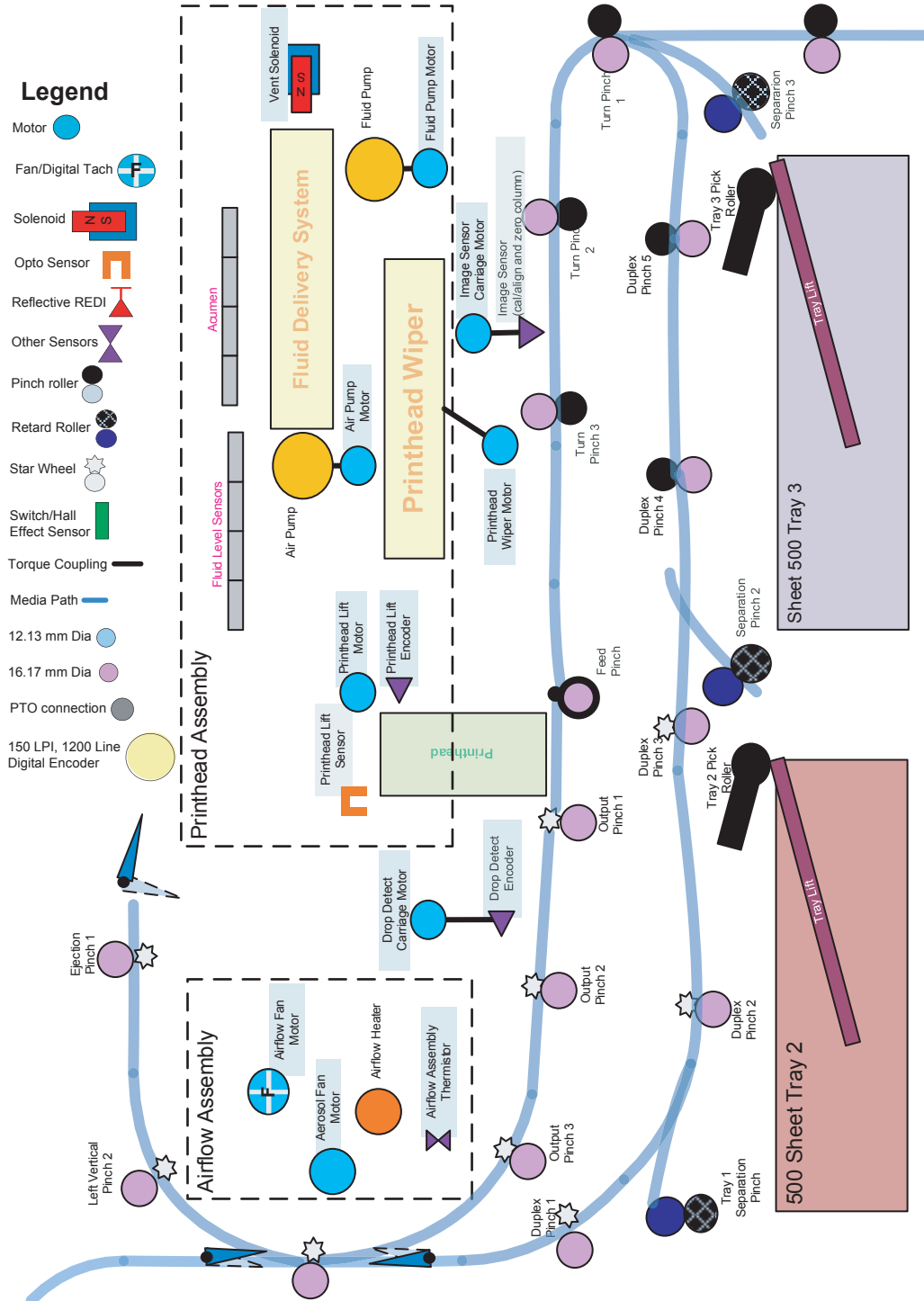
- [Basic operation](#)
- [System control](#)
- [Cabling system](#)
- [Print subsystem](#)
- [Paper-handling system](#)
- [Servicing system](#)
- [Service fluid and aerosol management systems](#)
- [Airflow system](#)
- [Document feeder system](#)
- [Fax functions and operation](#)

# Basic operation

## Function structure


HP recommends printing the following document (on A3 size paper) for troubleshooting reference. It is available on the HP Web-based Interactive Search Engines (WISE). See [HP Web-based Interactive Search Engines \(WISE\) on page 3](#).

Figure 1-1 Printer printing system



## HP Web-based Interactive Search Engines (WISE)

The printer print system document is available on the HP Web-based Interactive Search Engines (WISE). Go to the appropriate Web site (listed below), and then search information by printer name.

 **NOTE:** Make sure that this document is printed on A3 size paper.

### AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

### APJ

- <https://support.hp.com/wise/home/apj-en>
- <https://support.hp.com/wise/home/apj-ja>
- <https://support.hp.com/wise/home/apj-ko>
- <https://support.hp.com/wise/home/apj-zh-Hans>
- <https://support.hp.com/wise/home/apj-zh-Hant>

### EMEA

- <https://support.hp.com/wise/home/emea-en>

## Operation sequence

The engine-control system on the main printed circuit assembly (MPCA) controls the operational sequences. The following table describes the durations and the operations for each period of a print operation from when the printer is turned on to when the motors stop rotating.

**Table 1-1** Operation sequence

Period	Duration	Purpose
Initial startup and calibrations	When the printer is set up for the first time from the factory.  <b>NOTE:</b> Startup is disabled if the temperature is 5°C (41°F) or lower. The recommend temperature range for this function is 15°C (59°F) to 40°C (104°F).	This one-time setup process gets the printer ready to print for the first time. <ul style="list-style-type: none"><li>• <b>Fluid replacement</b>—The printer flushes the shipping and handling fluid out of the printhead and replaces it with ink. No pages are printed.</li><li>• <b>Pen energy calibration (TTOE)</b>—No pages are printed.</li><li>• <b>Die alignment</b>—The printer aligns the 14 die on the printhead active face, and then prints and internally analyzes one page.</li><li>• <b>Die density leveling</b>—The printer measures and compensates for the drop variation, and then prints and internally analyzes multiple pages.</li></ul>

**Table 1-1 Operation sequence (continued)**

Period	Duration	Purpose
Servicing operations	Performed just before the printhead enters the capped state after printing, when leaving the capped state after a print job is initiated, or during printer idle times when a print job is not impacted.	<p>Servicing maintains print quality by removing debris and excess ink. Nozzle presence detection is employed to replace missing nozzles.</p> <ul style="list-style-type: none"> <li>• <b>Nozzle presence detection</b>—The optical scan carriage detects and disables inoperable nozzles, and replaces them with operable nozzles.</li> <li>• <b>Printhead servicing</b>—The web wipe on the printhead wiper moves under the printhead to clean the active face and fires the nozzles into the ink collection unit to clear clogged or blocked nozzles.</li> </ul>
Print preparation	From the time the printer receives a print command until paper enters the print zone.	<p>Prepares the printer for a print job.</p> <ul style="list-style-type: none"> <li>• The printhead leaves the capping state as the printhead wiper moves away from the printhead.</li> <li>• If needed, some servicing occurs.</li> <li>• The printhead lowers to the printing position. The media type and printing mode determine the print zone height.</li> <li>• The printer picks paper from one of the input trays.</li> <li>• Every page from Tray 1 is measured for edge detection. For Tray 2/3 and optional trays, the printer performs media edge detection after printing the first sheet. The last sheet of each job is also measured for edge detection if at least five sheets have been printed.</li> <li>• The printer monitors environmental conditions. The printer can slow the print speed if conditions are significantly different from a normal office environment (23°C (73.4°F), 50% relative humidity).</li> <li>• The MPCA processes print data and transmits the data to the printhead.</li> </ul>

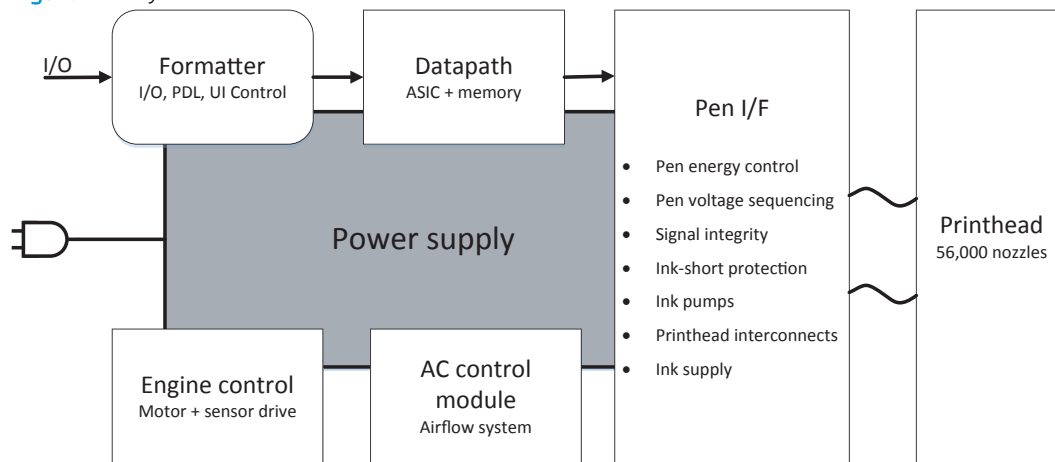
**Table 1-1** Operation sequence (continued)

Period	Duration	Purpose
Printing	From the start of media pick in the designated input tray until the last sheet is delivered to the designated output bin.	<p>Processes the print job.</p> <ul style="list-style-type: none"> <li>• The page is picked from the designated tray and travels through the media path to the print zone.</li> <li>• As the page passes under the printhead, the printhead applies ink to the page.</li> <li>• The page then enters the airflow assembly area where heated air might be applied to reduce the moisture content of the page.</li> <li>• For Simplex print jobs, The page then proceeds to the output bin (face-down).</li> <li>• For Duplex print jobs, The page then advances until the trailing edge of the media moves past the left side vertical path sensor.</li> </ul> <p>The page then reverses direction and proceeds down through the duplex path and underneath the left duplexer (service fluid container). Then the page turns upward, and re-enters the print zone.</p> <p>Ink is then applied to the second side of the page by the printhead.</p> <ul style="list-style-type: none"> <li>• The process continues until all the pages of the print job are completed. The process might be interrupted by occasional printhead servicing events if the job includes many pages.</li> </ul>
End of print job	Performed after the print job is completed, and continues until the next job is initiated.	<p>This period puts the printer in a state where it's ready for the next print job.</p> <ul style="list-style-type: none"> <li>• After a short dwell interval, the printhead will be allowed to cap.</li> <li>• If needed, servicing or nozzle presence detection occurs, but these events are interruptible if another job is initiated.</li> <li>• The printhead moves to the capping position.</li> <li>• The printhead wiper moves to cap the printhead.</li> </ul>
Standby	The printer is sitting idle, waiting for the next print job to be initiated.	<p>This period is intended to conserve energy while the printer is sitting idle. Certain functions might be disabled to save power, and then restarted when needed. The printer has two standby modes:</p> <ul style="list-style-type: none"> <li>• <b>Idle mode</b>—The printhead is capped and the printer is ready to immediately start a new job</li> <li>• <b>Sleep mode</b>—After the printer is inactive for about 10 minutes (a setting that can be adjusted from the control panel or the Embedded Web Server), the control panel turns off and the power LED blinks to indicate the unit is in Sleep mode. When in Sleep mode, the printer must wake up and go to idle mode before all printer functions are available. The printer is designed to wake up from Sleep mode based on certain interactions with the printer, such as touching the control panel or opening a paper tray.</li> </ul>

# System control

The system control coordinates all the other systems, according to commands from the MPCA.

Figure 1-2 System control



The system consists of five major sections:

- MPCA
- Data path
- Engine control
- Pen interface
- Power supply
- AC control module

The MPCA integrates both formatter and engine control electronics into a single assembly. The wireless radio unit (wireless models only) is mounted on the front of the printer behind the middle internal front cover and connects to the MPCA using a wire cable. The fax connects to the PCA using a short, flat flexible cable (FFC).

## MPCA and data path

The MPCA controller ASIC controls the input/output (I/O) control, the user interface, and the rendering of page description language files into printer-specific commands.

## Input/output control

The printer supports 10/100/1000 Ethernet, 802.11 wireless (HP wireless direct models), a rear USB device port, a rear USB host port, and a control panel USB host port on all models. All multi-function models support near field communication (NFC) and an analog fax port.

The MPCA ASIC controls the USB device and USB host ports and NFC as well as the fax and Wi-Fi functionality

Wireless I/O is provided via a separate radio module, which also has Bluetooth capability.

NFC is enabled via the control panel.



## Control panel

The user interface includes either an (203 mm) (8 in) X VGA or a (109 mm) (4.3 in) V GA full-color control panel. Both touchscreen-enabled control panels support an adjustable viewing angle.

The (203 mm) (8 in) control panel uses capacitive touch technology. The control panel can be rotated flush with the surrounding front panel surface and it will latch when pressed fully into that position. A release button just below the front panel surface allows the control panel to pop up from the latched position. An easy-access USB port for walk-up printing is located on the left side of the printer. Some models support a hardware integration pocket, located underneath a removable cover on the front panel surface. This pocket enables third-party USB devices, such as card readers. The 8-inch control panel also has a diagnostic mode button located on the back of the control panel.

The (109 mm) (4.3 in) control panel uses optical (infrared) touch technology. An easy-access USB port for walk-up printing is located on the left side of the printer. A hardware integration pocket for third-party USB devices, such as card readers, can be attached to the control-panel housing.

## MPCA digital ASIC

The MPCA digital ASIC contains dual ARM CPUs (one at 1.5 GHz and one at 600MHz) that execute firmware code that provides high-level device control. The digital ASIC uses a standard PCIe interface to pass data to the engine control ASIC.

## MPCA analog ASIC

The MPCA analog ASIC generates the system voltage for the MPCA, drives the scanner and ADF motors, manages the real-time clock, and drives the fax speaker.

## Real-time clock

The real-time clock (RTC) allows the fax module to time-stamp outgoing faxes. In addition, it determines the elapsed time between print-head and ISS calibration events. The RTC uses a special block inside the engine analog ASIC, along with a crystal and a battery.

## Engine control

The engine controller digital ASIC receives high-level commands from the MPCA, and it then provides low-level control to the print mechanism. In particular, the engine controller digital ASIC and its firmware control motors, system sensors, and the printhead. The engine controller analog ASICs integrate motor drivers, voltage regulators, sensor interfaces, and supervisory circuits.

## Engine controller digital ASIC

The engine controller digital ASIC has a high-performance 480 MHz ARM CPU and DSP co-processors that execute firmware code to provide low-level engine control. It also drives a FPGA which then creates the printhead 15 high-speed LVDS transmission signals. The signals are routed from the engine PCA to the printhead via two large FFC cables. The engine controller digital ASIC receives pre-rendered data from the MPCA digital ASIC over a standard PCIe interface.


When a printer enters Sleep mode, many functions of the printer go into a low-power mode. If a print job is received while the printer is in Sleep mode, the printer will take a short period of time to "wake up". This can take up to 15 seconds, which will delay the first page out (FPO) time accordingly.

## Engine controller analog ASICs

The engine uses six analog ASICs to generate the system voltages for the engine, drive the engine motors, control various engine sensors, and monitor printhead power delivery for correct operation.

The engine contains 24 motors, 3 solenoids and 1 fan:

---

 **NOTE:** The air flow fan is created using a DC motor.

Certain models might have fewer motors, depending upon the exact configuration of the paper trays.

---

### Motors

- Tray 1 pick motor
- Tray 2 lift motor
- Tray 3 lift motor
- Tray 1 separation motor
- Tray 2 separation motor
- Tray 3 separation motor
- Duplex diverter motor
- Duplex entry motor
- Duplex exit motor
- Vertical motor
- Deskew motor (front)
- Deskew turn motor (back)
- Scanning carriage motor
- Stack control motor
- Printhead wiper motor
- Eject motor
- Drop detect carriage motor
- Print zone feed motor
- Ink pump motor
- Ink prime motor
- Air flow fan motor (for the air flow fan)
- Printhead lift motor

## Solenoids

- Tray 2 pick solenoid (E-clutch)
- Tray 3 pick solenoid (E-clutch)
- Ink prime vent solenoid

## Fan

- Aerosol Fan

Most motors are DC motors with encoder feedback, to provide precision servo control. These motors are driven directly by one of the engine analog ASICs.

The printer uses many sensors to track the media as it travels through the paper path. Most of these are optical reflective edge detection interrupter (REDI) sensors, which are used in conjunction with mirrors to sense the presence or absence of paper in the paper path. These are carefully aligned and calibrated at the factory, so care must be taken when servicing these sensors. See the remove and Replace chapter of the *Repair* manual for more details.

## Other printed circuit assemblies

In addition to hosting the system ASICs, the engine printed circuit assembly (PCA) incorporates many or the circuits required to interface with sensors and other sub-system components. In some cases, this circuitry is located on a smaller remote PCAs (SLBs) to optimize cable interconnects. The following table lists the various PCAs in the base mechanism engine/MPCA.

Name	Description/Function	Name	Description/Function
Left door PCA	Distribution	Main bin full sensor PCA	Main bin paper out sensor
Printhead lift encoder PCA	Printhead lift	Heat zone temperature thermistor PCA	Air flow assembly temperature sense
Feed motor encoder PCA	Feed motor	Contact size detect PCA	Paper length/width detect
Left front upper PCA	Distribution	SIM PCA	SHAID and distribution
Air flow assembly PCA	Air flow assembly	TT dashboard PCA	Tabletop control panel interface
Center rear lower PCA	Distribution	HE1 PCA	Hall effect sensor
Left rear lower PCA	Distribution	Button on/off PCA	Base mechanism on/off interface
AC control module PCA	AC control for air flow assembly	Power button interface PCA	Base mechanism on/off button
Printhead registration sensor PCA	Printhead sensor	eMMC module PCA (8 GB)	eMMC module
Main logic PCA	MPCA and engine	Power button PCA	Base mechanism on/off button
Through beam optical drop detect (TBODD) PCA	TBODD sensor	Light pipe PCA	Light pipe LED
Drop detect carriage PCA	TBODD carriage	Main bin LED PCA	Main bin LED
Opto OOP lift plate sensor PCA	Tandem tray sensor	Hall effect left door PCA	Left door hall effect
Separation PCA	Tandem tray distribution	Temperature/humidity sensor/NVM/HE PCA	Multiple sensors

Name	Description/Function	Name	Description/Function
Connector width adjust sensor PCA	Multi-purpose tray sensor	Carriage drop detect motor PCA	Motor cable connect
Duplex spittoon contact PCA	Duplex spittoon contact	Flatbed scan interconnect PCA	Flatbed scan interface
Duplex spittoon EEPROM PCA	Duplex spittoon EEPROM	ADF PCA	ADF interface
Right rear lower PCA	Distribution	eMMC module PCA (16 GB)	eMMC module
Left rear upper PCA	Distribution	Acumen contact PCA	Acumen PCA

## Pen interface (I/F)

The printhead is the key component that differentiates this printer from other inkjet printers. The conventional approach is to print a page in horizontal swaths by moving a “scanning” printhead horizontally over a fixed sheet of paper, advancing the paper a fixed amount, and then printing the next swath. This printer moves the paper underneath a fixed page-wide printhead in a single, smooth motion.

Single-pass page-wide printing requires that data and power be delivered to the printhead at a very high rate, while also maintaining good control of paper position as it moves past the printhead nozzles.

The engine printed circuit assembly (PCA) sends power and data to the printhead via two large flat flexible cables (80 pins for the data and 26 pins for the power). The printhead PCA routes power and data to 14 printhead die, which are attached to the printhead PCA using a flexible tab circuit and wire-bonding process.

The printers also contain electronics to control the ink supply station (ISS). The SIM PCA has several functions. It detects low-ink conditions by detecting presence of ink and/or ink foam in the X-chamber. The SIM PCA also collects and distributes electrical signals that drive the ink pump and prime motors, engage the solenoids, and read the ink supply acumen data. All data communications between the ISS and engine PCA are routed through a single 20-pin FFC.

Each ink supply has a memory tag that stores information about its type of ink, the amount of ink remaining, and other critical data. It uses a special authentication scheme to ensure that only genuine HP supplies are used and the printer is not damaged by using invalid supplies. Acumen uses a two-line serial bus which, along with 3.3 V and ground, is cabled via the SIM PCA to the engine PCA and the engine control digital ASIC.

## Power supply

The power supply module converts 100-240 VAC to 34 VDC to power the system. The power supply module has a sleep mode that reduces power consumption in system low-power modes. When in its sleep mode, the power supply generates less than 20 W.

The power supply module supplies 34 V to the engine PCA. The power supply module has two operating modes, depending upon the state of its nSLEEP input pin:

- **Printing** = up to 170 W (nSLEEP = high logic level)
- **Sleep mode** = < 20 W (nSLEEP = low logic level)

The power supply is a self-contained module that can be replaced if it is defective (see the Remove and Replace chapter of the *Repair* manual).

To ensure safe operation, the power supply will “latch off” if a persistent over-current fault condition exists. This would typically be caused by a short-circuit from 34 V to ground in the printer. Less severe faults can cause the power supply to latch off, if present for an extended period of time, or if the printer is operated above the

recommended operating temperature range. In addition, the power supply output is split into 7 “rails”, each with separate output fusing as an additional safety feature.



---

**NOTE:** The power supply includes fuseable links for the AC output from the power supply to the AC control module, and then to the airflow assembly.

---


## AC control module

The AC control module performs the following functions related to the heating elements in the air flow assembly:

- Low-cost voltage monitor
  - a. The voltage of the outlet, which the printer is attached, is monitored to ensure the printer remains operational, even in a low-quality-power environment. This is done by instantly shutting off heater power until the minimum voltage threshold is met. Hysteresis is included to avoid rapid fluctuations in voltage.
  - b. This circuit generates a frequency modulated signal that is sent across the isolation barrier, and interpreted by firmware in the engine.
- Isolation
  - Isolates the low voltage heater control signals from the high voltage AC power that is applied to the heater. This is a safety feature to ensure line transients (i.e. lightning) aren't coupled into the low voltage system, which could cause damage to the printer or user.
- AC switch
  - Switches AC power on/off to the heater using TRIACs.
- Heating Element Configuration
  - Using relays, the heating element configuration is changed between series and parallel, in coordination with applied voltage. This is done to have a predictable temperature profile that is functional across the full range of worldwide voltages (90-240VAC).

## Cabling system

The printer cabling system includes both discrete cables and flat-flexible conductor (FFC) cables.

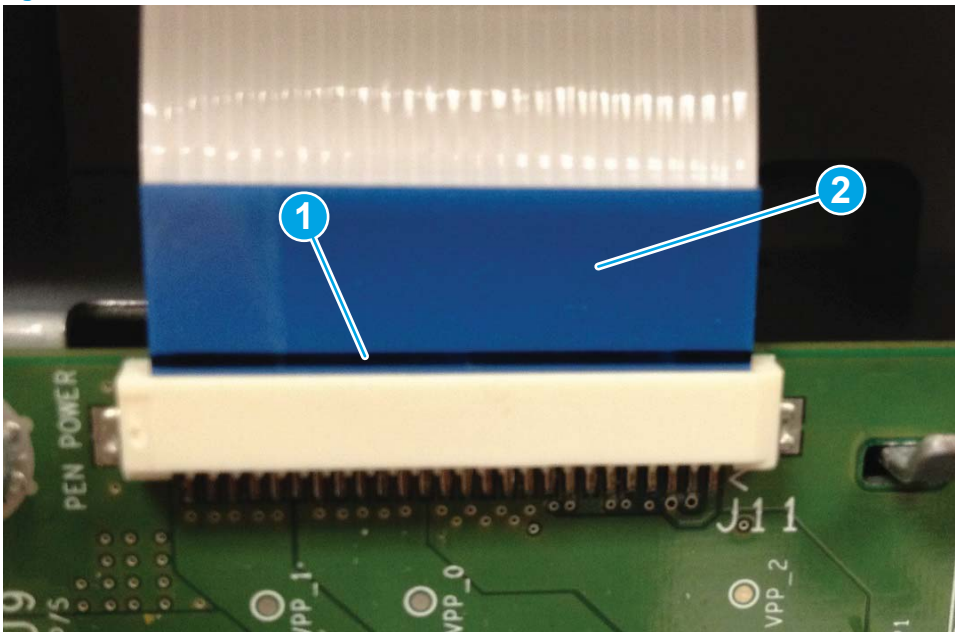
- ⚠ CAUTION:**  Cables and printed circuit assemblies (PCAs) are sensitive to electrostatic discharge (ESD). If an ESD workstation or mat is not available, touch the sheet-metal chassis to provide a static ground before touching an ESD-sensitive assembly. Protect the ESD-sensitive assemblies by placing them in ESD pouches when they are out of the printer.

### Flat Flexible Cables

The printer flat flexible cables (FFCs) have several standard attributes.

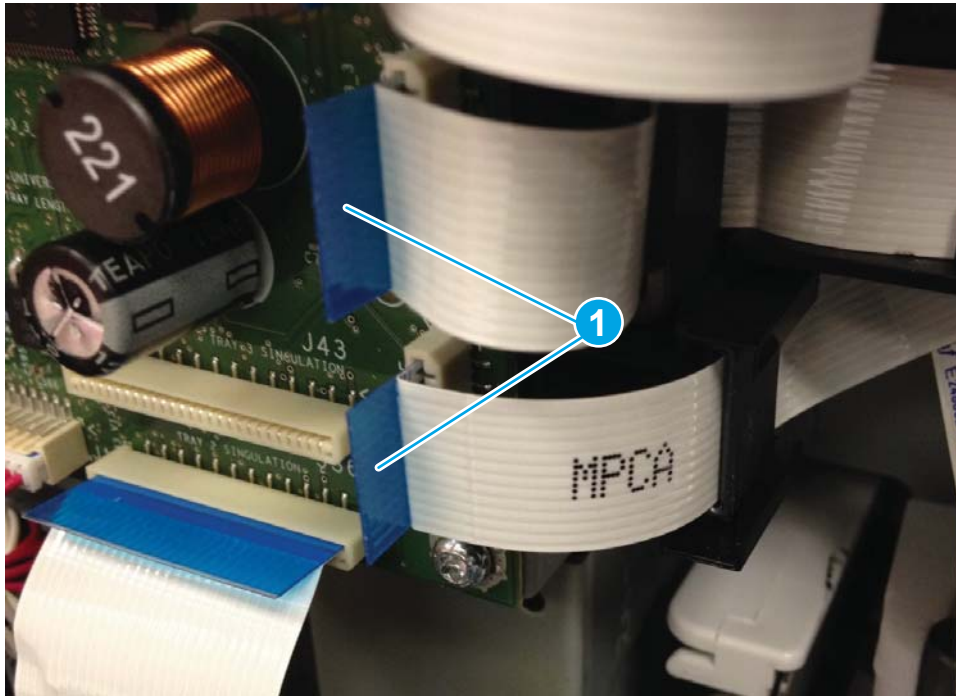
- Each end of the cable has a contrasting color line (callout 1) that shows the shape and depth of insertion into the PCA connector. Each end of the cable has a support tape (callout 2), typically blue, on the non-conductor side.

Figure 1-3 FFC insertion line



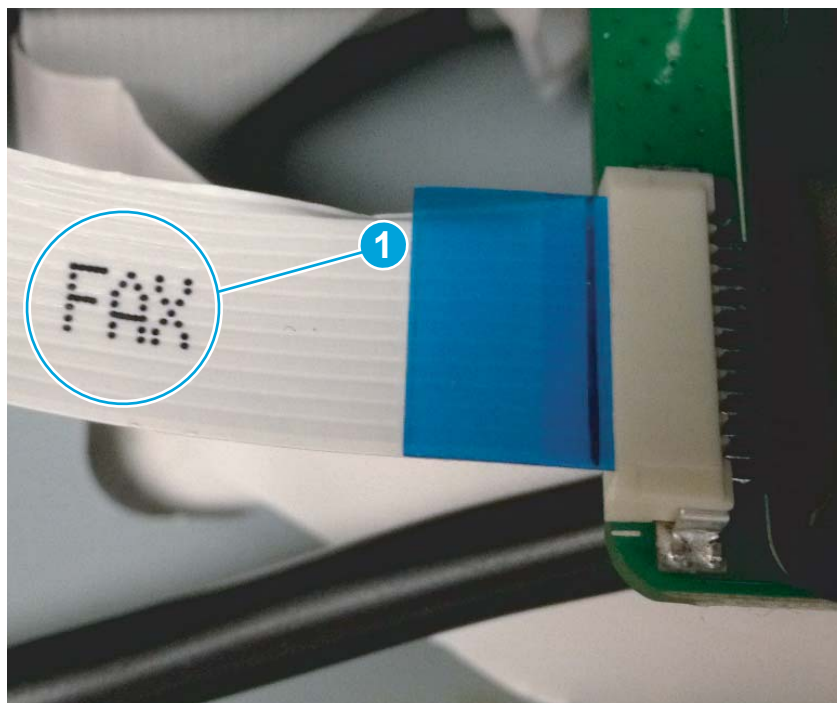
- Each end of the FFC has a support tape (typically blue) on the non-conductor side. The support tape usually has a free region (callout 1) for use as a handle to insert and remove the cable.

Figure 1-4 FFC support tape



- Some FFCs have a label printed on them that shows the function or the corresponding connector number.

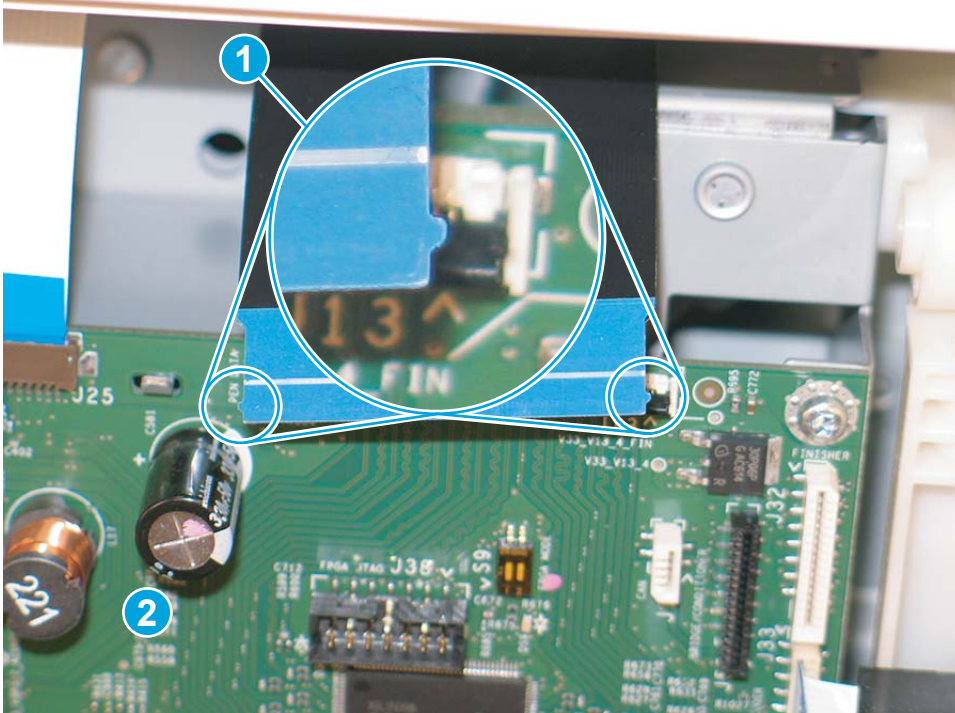
Figure 1-5 FFC label



- The 0.5 mm (fine pitch) FFC ends have an extra wing feature (callout 1) that locks into the PCA connector (callout 2) and defines the installation motion. These FFC cables also have gold contacts instead of tin contacts to prevent dendrite growth between lines.

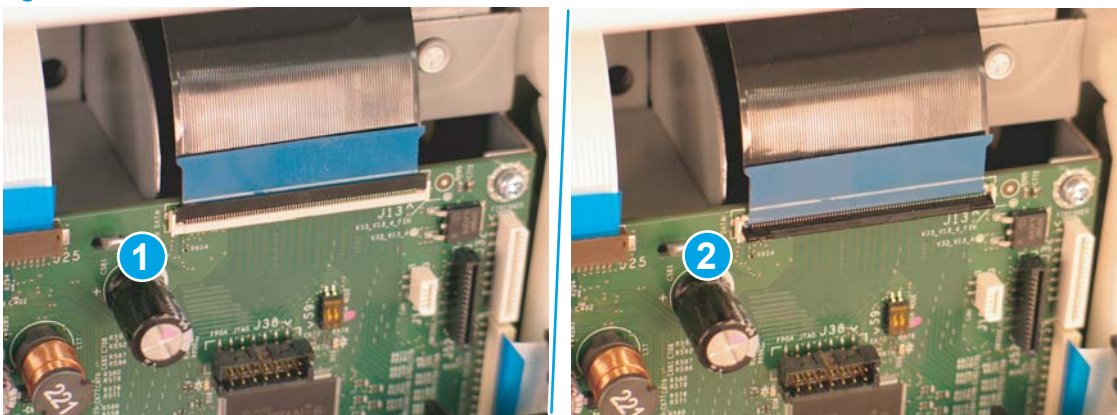
**⚠ CAUTION:** FFCs must be inserted and removed straight into a connector, not rocked in side-to-side.

Figure 1-6 FFC wing feature



- The example shown in the following figure is a zero insertion force (ZIF) connector. Open the latch to remove or install a FFC in a ZIF connector. This figure shows the latch in the closed (callout 1) position, and in the open (callout 2) position. See [Zero insertion force on page 21](#) for more information.

Figure 1-7 ZIF connector



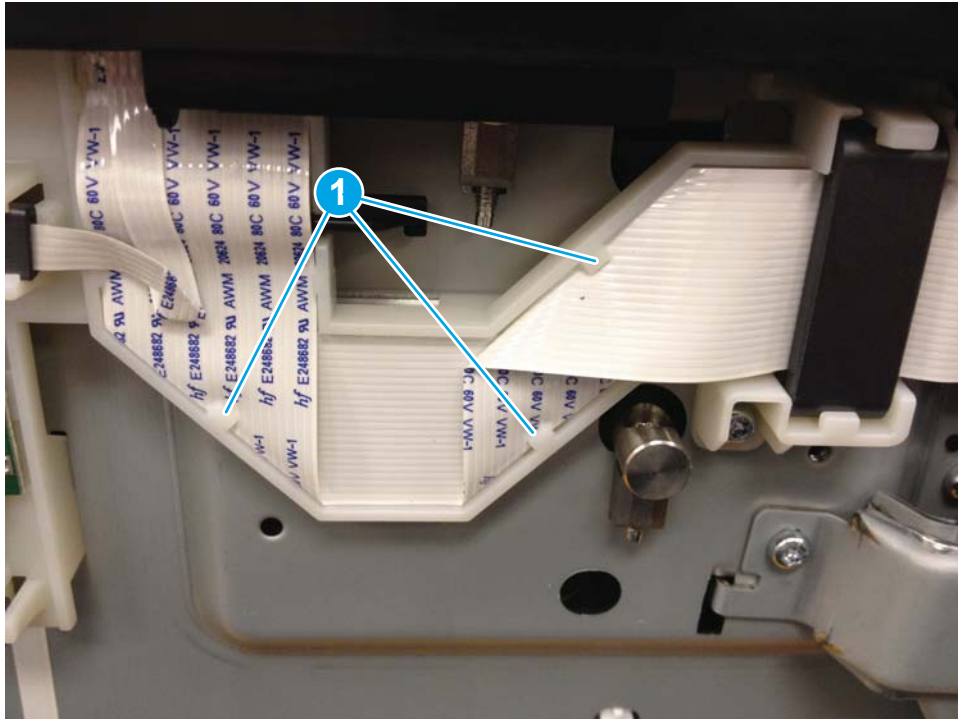


## FFC routing

The printer FFCs are routed using a set of common retaining methods.

- Hook arms (callout 1) retain the edges of the FFCs. Installation and removal involves sequentially positioning and releasing the FFC edges under the hooks.

Figure 1-8 FFC hook arm retainers



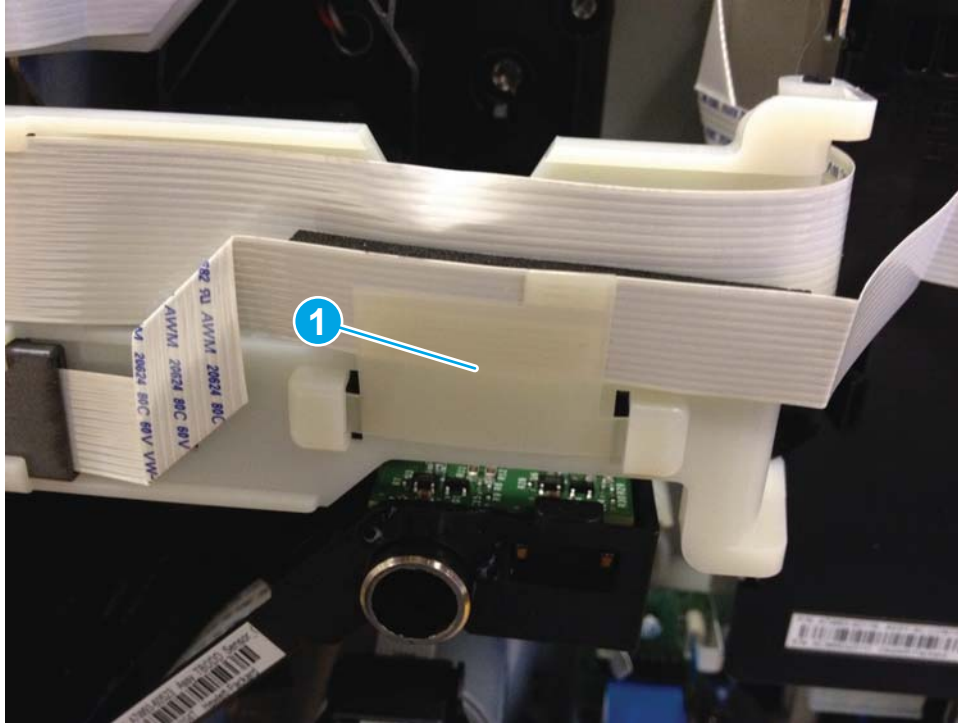
- Pill bumps also retain the edges of the FFCs. The FFC is pressed down against the plastic mount until the edges are positioned under the bumps. Removal involves lifting the FFC out of the bumps.

Figure 1-9 FFC pill bump retainers



- Die-cut pieces (callout 1), adhered to FFCs and hooked into plastic mounts, are used to prevent wear in regions where vibration or motion might damage the FFC.

Figure 1-10 FFC die-cut retainers



- Double-sided-tape (DST) is used to secure FFCs directly to a sheet-metal or plastic part. This is a special case, acceptable only for some simple electrical circuits, due to EMC or EMI risks.

Figure 1-11 FFC double-sided tape retainer



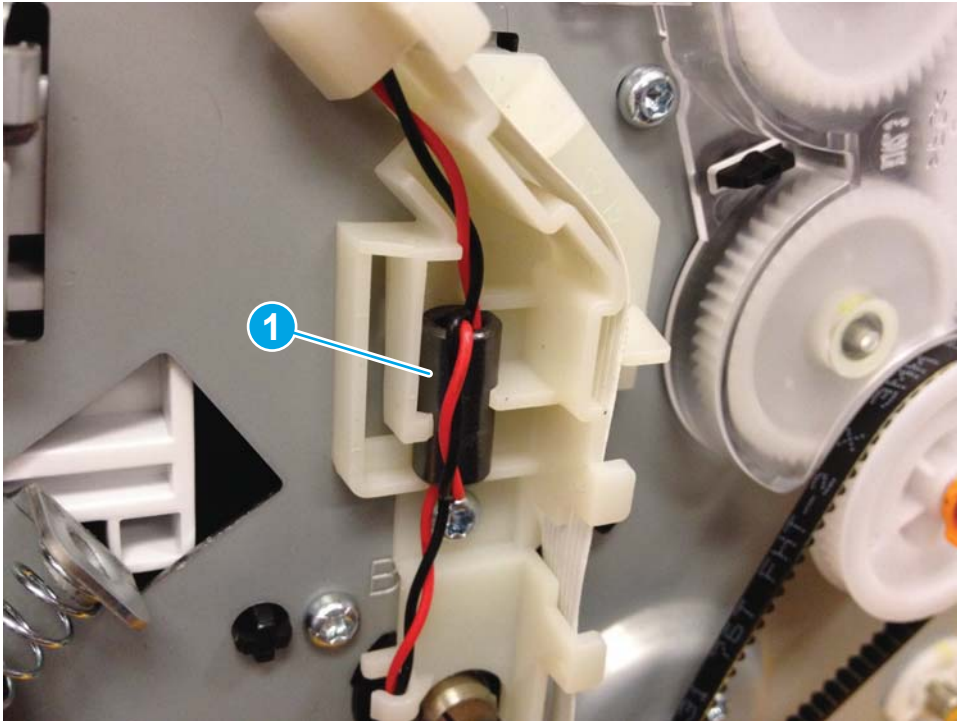
## Discrete cables

 **NOTE:** Remove discrete cable connectors by grasping the connector body rather than pulling on the wires.

The printer discrete cables share many standard attributes.

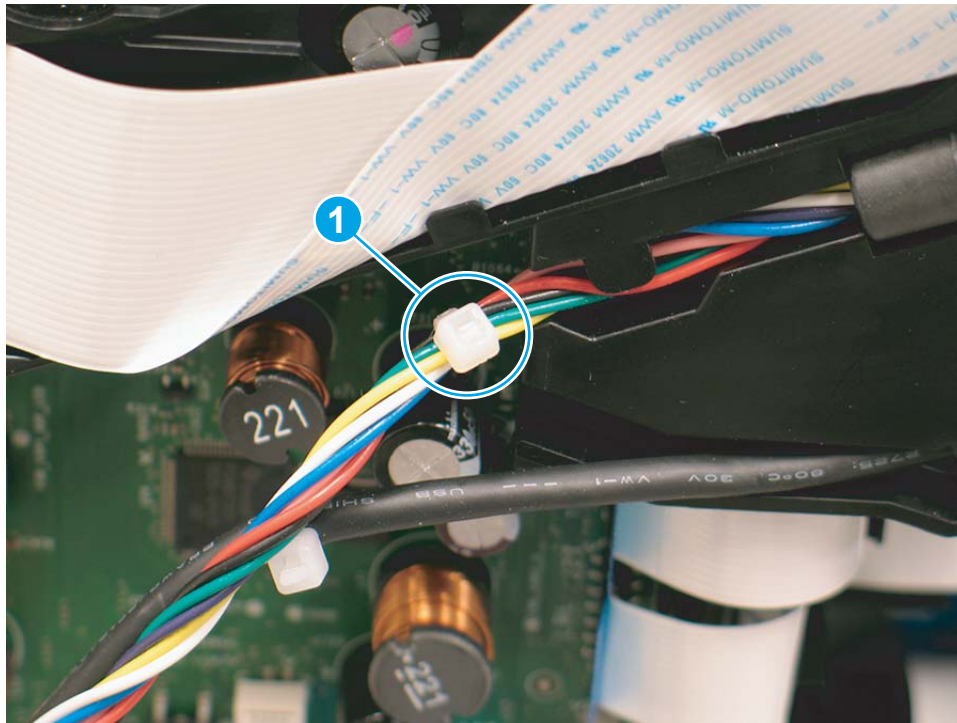
- Ferrites (callout 1) might be located in a stationary location or slide freely along the wires.

**Figure 1-12** Discrete cable ferrite



- Tie-wraps (callout 1) constrain the wire bundle and the define position for installation.

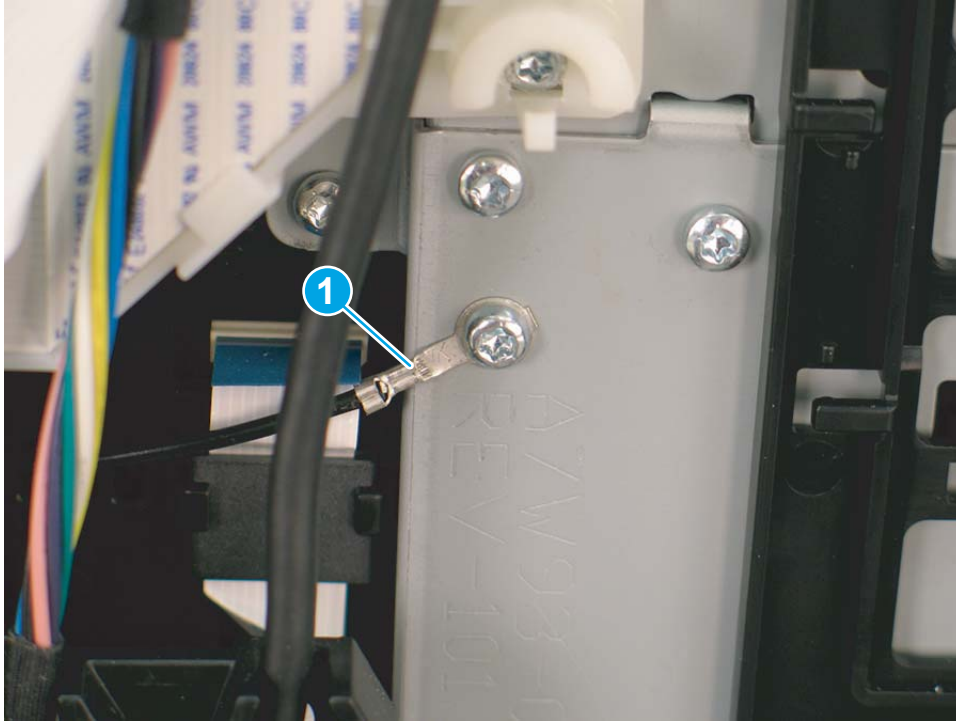
Figure 1-13 Discrete cable tie-wraps



## Ground wires

Ground wires (callout 1) on several components, including the document feeder and FAX modules, must be secured to the indicated locations to perform correctly.

Figure 1-14 Ground wires



## Connectors

FFC connectors on PCAs are oriented so the installation line is visible when holding the blue support handle.


 **NOTE:** When correctly installed, the installation line is parallel to the edge of the connector body (callout 1).


Figure 1-15 Connectors



## Low insertion force

The standard low insertion force (LIF) connectors require a straight-in motion when removing and installing the FFC. Friction between the conductive arms of the connector retain the FFC.

## Zero insertion force

 **NOTE:** This printer uses very few of this type of connector.

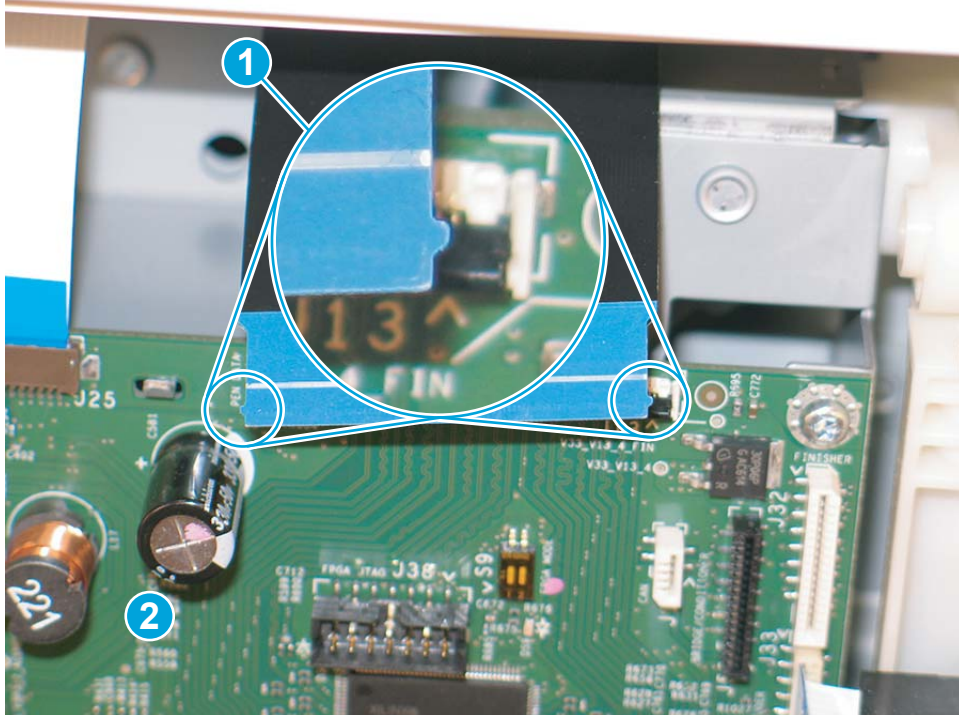
Zero insertion force (ZIF) connectors use a mechanical locking method to secure 0.5 mm (fine pitch) FFCs with extra wing features at each end. These wing features interface with posts on the PCA connector and are then secured by a rotating lock-door.

### ZIF connectors

Following are examples of where ZIF connectors are used in the printer.

- Main printed circuit board (MPCA) to printhead assembly
- MPCA to control panel PCA

**Figure 1-16** FFC wing feature



### Follow these instructions to install a ZIF connector

1. Rotate the lock-door open.
2. Place the FFC into the bottom of the installation zone at a slight angle.
3. Stand the FFC upright in the connector to trap the wing features behind the locking posts.
4. Rotate the lock-door closed.

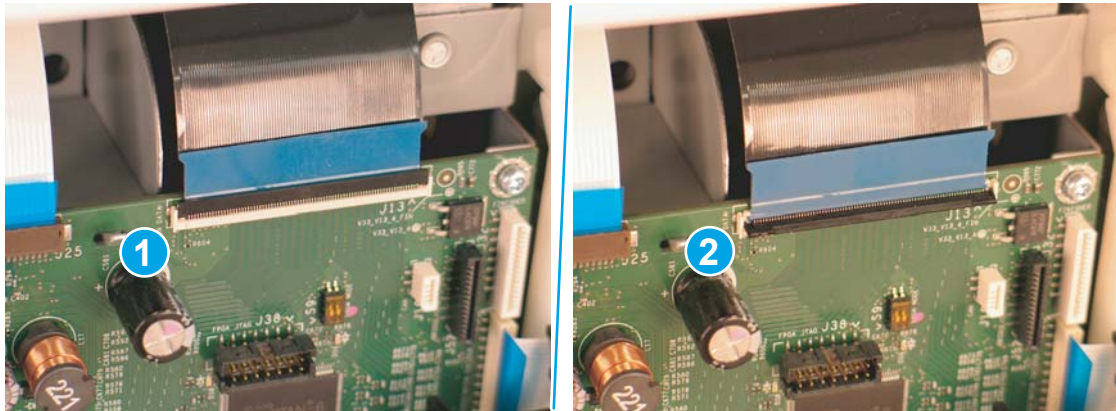
---

 **NOTE:** To remove the FFC, rotate the lock-door open.

The example shown in the following figure is a ZIF connector. This figure shows the latch in the closed (callout 1) position, and in the open (callout 2) position.

---

Figure 1-17 ZIF connector



## Ferrites

The printer cabling system includes many ferrites to enable proper EMC/EMI performance for regulatory agencies. All ferrites on FFCs and discrete cables must be included and located in the intended position to make sure performance matches the tested behavior.

---

 **CAUTION:** Ferrites are fragile. Use care when removing or installing them.

---

## Cable management

The printer cabling system uses several distribution PCAs to connect many sensors and motors to the main PCA (MPCA) in a controlled manner. One FFC delivers signals, power, and ground lines from the MPCA to the distribution PCA. Then FFCs connect from the distribution PCA to individual components. The printer has several rooftop modules that integrate to the common engine. Cable routing of the different rooftops to the MPCA creates the top layer of cable routing in the rear region.

## Spacing

Proper spacing is required between FFCs to prevent crosstalk, maintain signal integrity, and perform to EMC/EMI expectations. The printer cables utilize plastic mounts, die-cut spacers adhered to FFCs, and foam adhered to FFCs to maintain spacing to other FFCs or sheet-metal components. All spacing must be maintained for proper performance.



Figure 1-18 FFC spacing



### Electrostatic discharge prevention

Electrostatic charge might build up on plastic and metal surfaces due to tape removal, dry conditions, or other causes. Exposing the conductors at the ends of FFCs and discrete cables to these surfaces might cause electrostatic discharge (ESD) and damage the cables.

# Print subsystem

## Printhead

The fundamental purpose of the printhead is to convert the digital firing instructions from the printer electronics into properly formed and timed microscopic drops of the four ink colors. The printhead spans the full length of a letter/A4-size sheet (297 mm / 11.0 in), which allows the printhead to be statically positioned within the printer and have the media move sideways underneath it; printing the entire page in a single motion.

Figure 1-19 Printhead components

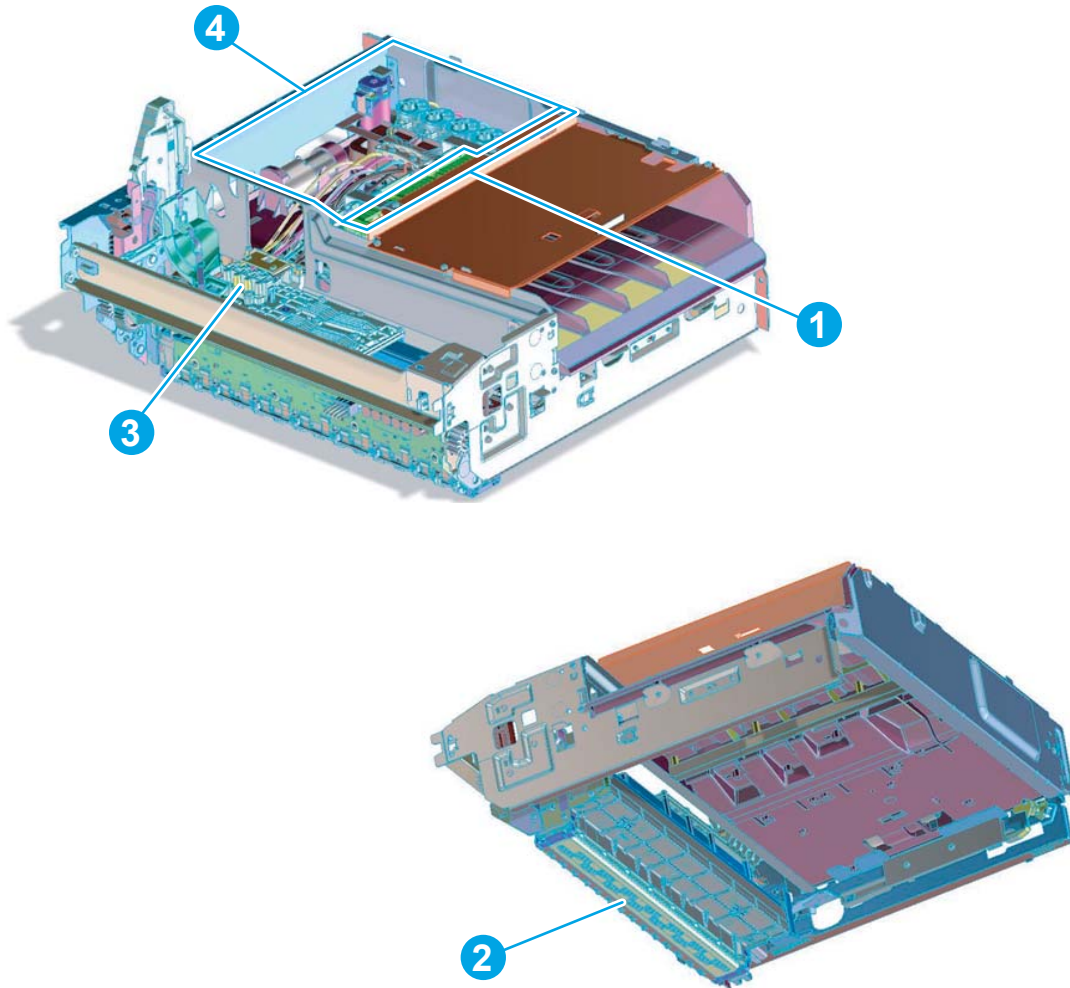


Table 1-2 Printbar components

Item	Description
1	Cartridge connections
2	Thermal inkjet (TIJ) die array
3	Data/power flow and regulation
4	Ink flow channels and pressure regulation

The printhead has a fixed array of 14 thermal inkjet (TIJ) dice oriented in two staggered rows. Each die contains more than 1,000 nozzles for each of the four ink colors—black (K), cyan (C), magenta (M) and yellow (Y).

Behind the dice array are the ink flow channels and pressure regulation mechanisms that supply the dice array with ink at the proper pressure and flow. The dice must also be fed power and data at the appropriate levels and rates, which is the function of the onboard electronic circuitry. Finally, situated at the top of the printhead, are connections to four cartridge receptacles, one for each color. These cartridges are connected by tubes to the printhead and supply the ink necessary for its operation.

## Printhead air management system

The printhead uses a passive air gain management system. Air can enter the printhead from the following sources:

- Die outgassing (from air in the ink).
- Air entering nozzles due to temperature or pressure variations.
- Air entry through the printhead and tubing materials.
- Air entry through the nozzles due to shipment vibration.

Air that enters the printhead is warehoused. There is no mechanism to remove the air in the field. Of the various mechanisms for air entry, the first three are generally benign, and rarely cause issues during the expected life of the printer. The fourth mechanism generally occurs during shipment. When not printing, the print bar is kept in a zero-clearance condition that does not allow lateral motion of the print bar. This condition is automatic and requires no user intervention to activate.

## Printhead lift

The printhead lift is responsible for positioning the printhead within the printer and moving it up and down as required. This vertical motion is both to establish proper spacing to the paper during printing, and to raise it to access the active face or to perform necessary calibrations.

During printing, the lift mechanism sets the printhead height depending on the type of paper, image content, and other print job specific information.

## Print cartridges

These printers have new, state-of-the-art pigmented inks. They are filtered using proprietary processes to prevent printhead contamination. These inks are designed to produce optimal print quality on ColorLok office papers, but also produce very good print quality on regular office papers and specialty paper.

## Optical scan carriage

The optical scan carriage has an optical sensor used for calibration. Its motion is along the long axis of the printhead. This sensor is used by a number of printer calibration features that are important for proper subsystem function. The Through Beam Optical Drop Detect (TBODD) sensor is located on the optical scan carriage.

## Print system operational states

### Startup

When it leaves the factory, the printhead is initially filled with an inert ink-substitute called Shipping and Handling Fluid (SHF). This fluid, essential for the manufacture and transportation of the printhead, must be flushed and

replaced with actual ink. This is accomplished during the Startup phase. The flushing process automatically commences when user chooses to initialize the system, following the prompts to install ink supplies and paper, and then confirms they want to perform initialization. The SHF is removed by sustained printhead operation and replaced by ink from the supplies. The process terminates once all the SHF is flushed from the printhead.

Special host supplies are supplied with the printer prior to its first use. These host (or setup) supplies can only be used to initialize the printer. If they are inserted in an already initialized printer, they will be rejected—**do not use setup supplies**. These supplies contain additional ink so that there is a 100 percent ink level after the startup is complete.



**NOTE:** The initial startup is immediately followed by calibrations. Total time for startup and calibrations is approximately 25 minutes.

## Pen energy calibration

The printer automatically runs a pen energy calibration called Thermal Turn On Energy (TTOE) after start up. This calibration varies the energy to each die while watching the die temperature. At optimal pen energy, all of the energy will go to ejecting the drop. If the energy is too low, then the drop is not ejected and the fire pulse will heat up the die. If the energy is too high, then some of that energy will go to ejecting the drop but the rest will go to heating up the die. During TTOE, the printer varies the pen energy to the die and then watches the die temperature. Once the optimal energy setting is found, the printer increases the energy slightly to make sure that the die will always fire ink. If TTOE fails for some reason, there are default values that have been stored in the printer. These energy values are higher than optimal but not too high to cause a problem. The pen will have no problem surviving printer life with the default values.

## Die alignment

Ten die comprise the printhead active face each with associated positional tolerances. An active calibration must be performed to prevent errors and allow a uniform ink application to the paper (without any gaps or overlaps between adjacent die). The die alignment is done by printing a special diagnostic image on a sheet of paper and then scanning it with the optical scan carriage. Die alignment is performed as part of initial unit startup, and can be performed manually as part of the print quality recovery tool.

## Die density leveling

Tolerances are also associated with the drops fired by the individual printhead die. Variations are measured and compensated by another active calibration to produce a visually uniform ink application to the paper. Another set of diagnostic images are printed and scanned by the optical scan carriage to achieve this die density leveling. Die alignment and die density leveling are usually paired together.

## Nozzle presence detection

In printing, all the ink is applied in a single smooth motion of the paper past the printhead; any inoperable nozzle can show up as a noticeable streak. The operational state of each of the thousands of nozzles on the printhead is periodically measured. The printhead lift raises the printhead, and the Through-Beam Optical Drop-Detect (TBODD) assembly on the optical scan carriage watches for drop presence as each nozzle is fired. Inoperable nozzles are turned off and other operable nozzles are used on subsequent printed pages to apply the missing ink. Nozzle presence detection is fully interruptible by new incoming print jobs.

## Media edge position detection

The printer uses a learning algorithm to define media center as a function of input source—all trays, including optional accessory trays, are all tracked independently. The calibration scanner is located upstream of the print zone. A measurement is taken roughly every five pages. The rear edge is measured just after being deskewed.

As paper is scanned, the media center database is updated. The image is registered to the page using the media center database.

## Servicing and capping

When in the capped state, the printhead is fully raised, the printhead wiper is positioned underneath, and the printhead cap is engaged against the printhead active face. Storing the printhead in a capped state re-humidifies the nozzles when not in active use.

Service spitting is the firing of the nozzles to help maintain nozzle health. This also is effective at clearing ink plugs, external debris, or color mixing. These error conditions might occur when uncapping the printhead, or between pages when nozzles prepare for printing, or following a job or service wipe.

Service spitting to correct these error conditions might occur when uncapping can also be implemented by using menus on the control panel.

## Printing

The printing state begins by the printbar leaving the capping state, and being lowered to the printing position after the service sled moves out of the way. At the same time, a sheet of paper is picked from one of the three trays and the leading edge staged at the entrance to the print zone. Once the print data has been sent, the sheet of paper is fed at a constant velocity through the print zone and the ink applied by the printbar.

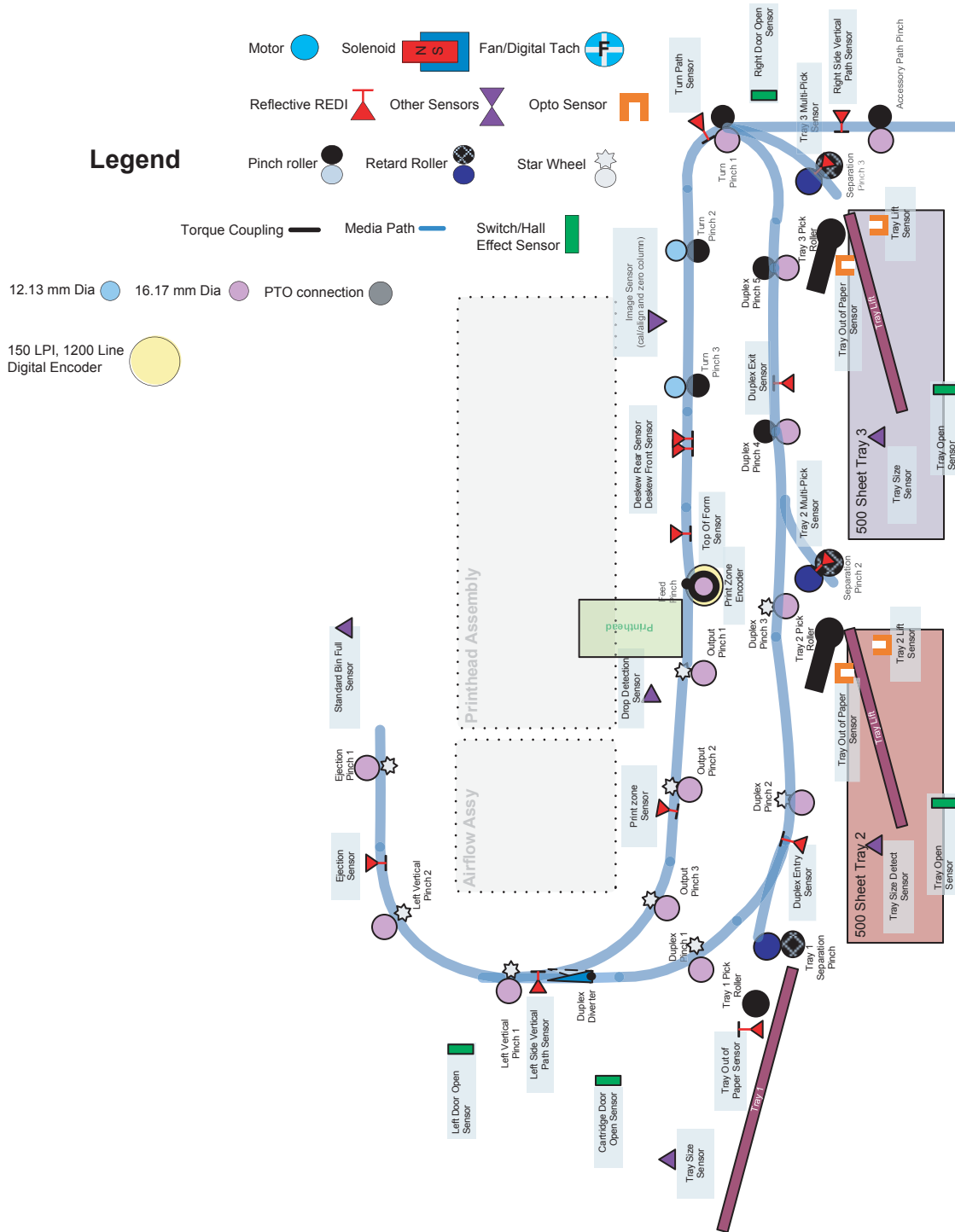
In the case of one-sided printing, the inked sheet is moved up, over and out to the output tray. For two-sided printing, the sheet is moved until its trailing edge is past the merge to the vertical path, and then it is reversed down through the duplex path underneath the maintenance ink module, and reintroduced into the print zone for inking of the second side.

This process continues until all the pages of the print job are completed. If the print job is large enough, it can be interrupted by servicing processes.

# Paper-handling system

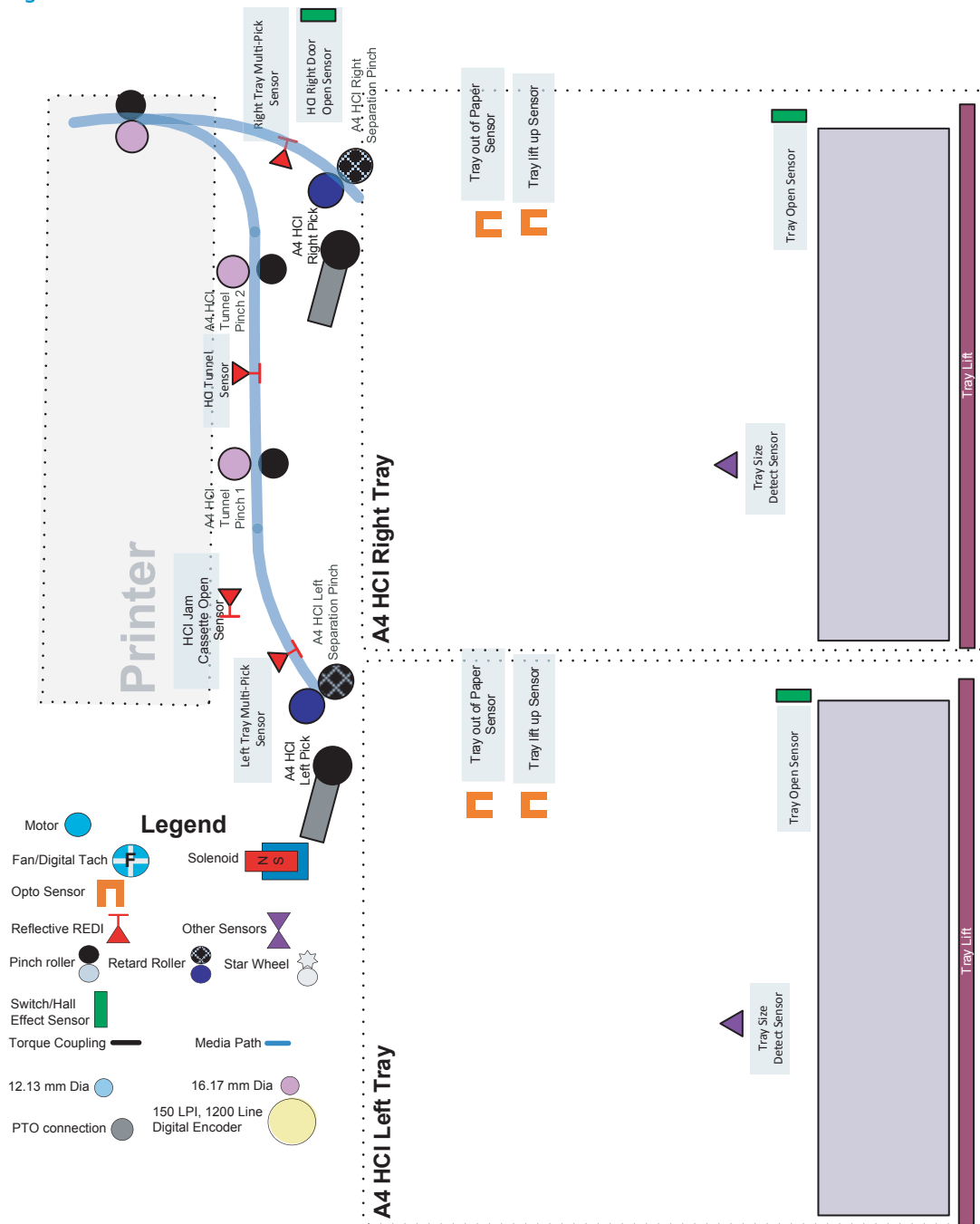
## Printer sensors

Figure 1-20 Print engine sensors



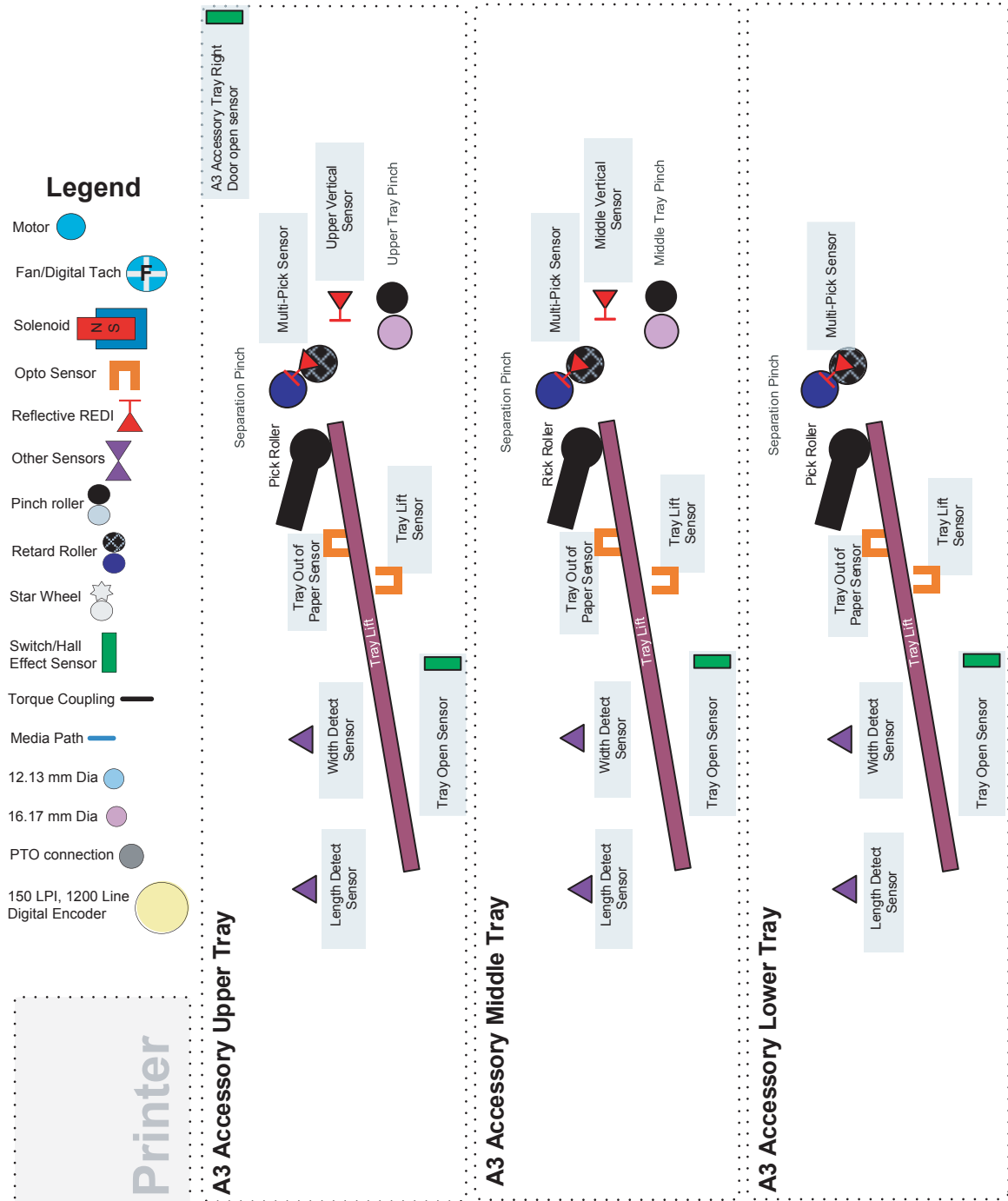
# High Capacity Input (HCI) sensors

Figure 1-21 HCI sensors



# 3x550 tray sensors

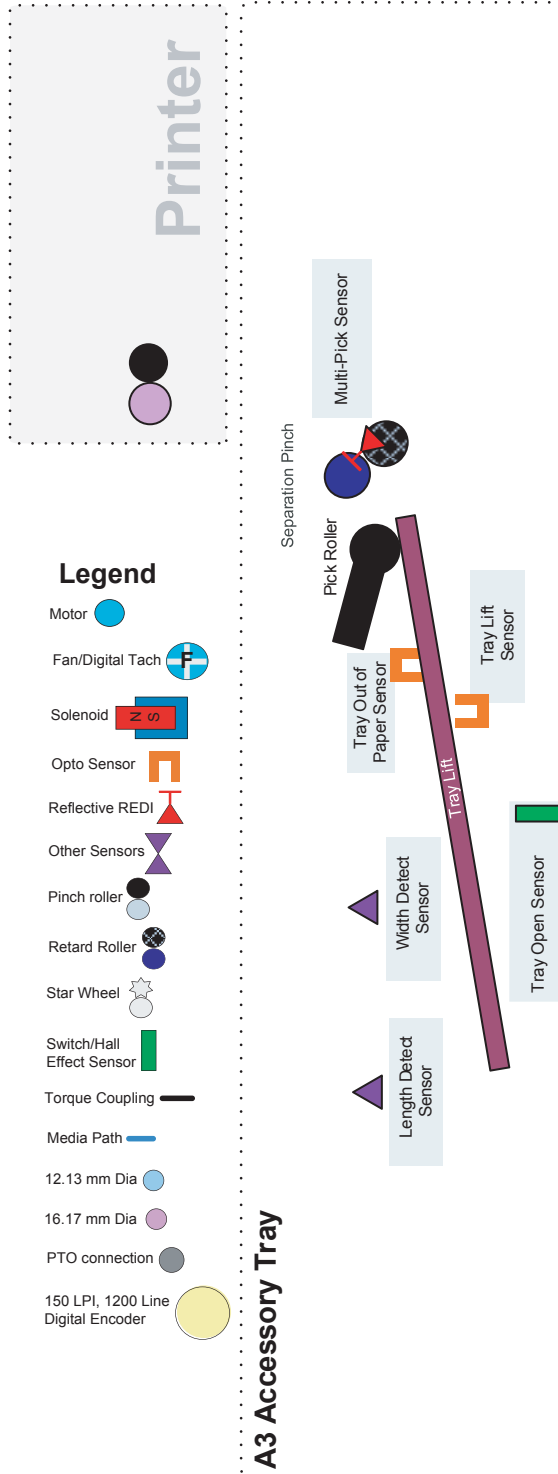
Figure 1-22 3x550 Tray sensors





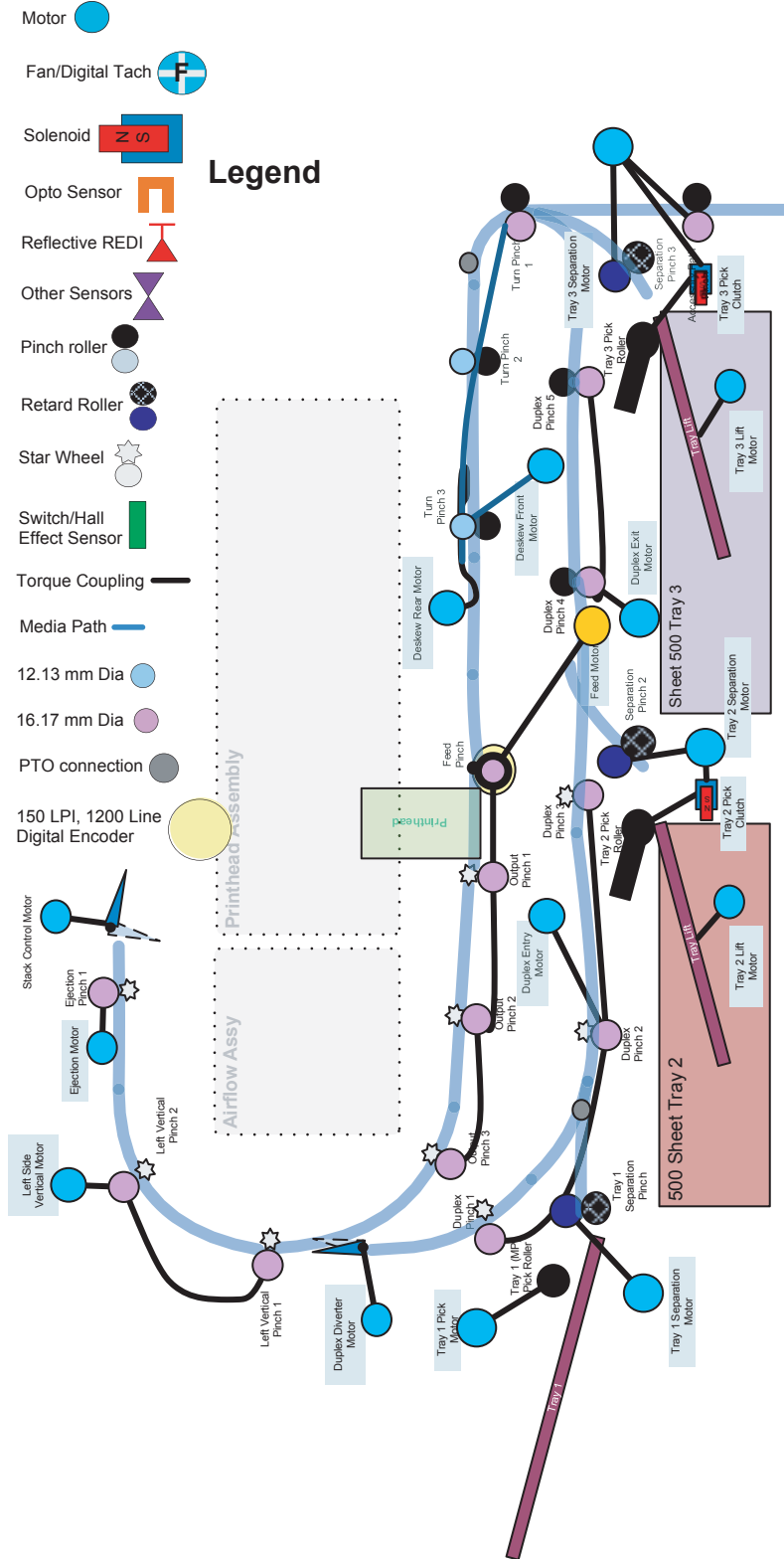
# 1x550 tray sensors

Figure 1-23 1x550 tray sensors



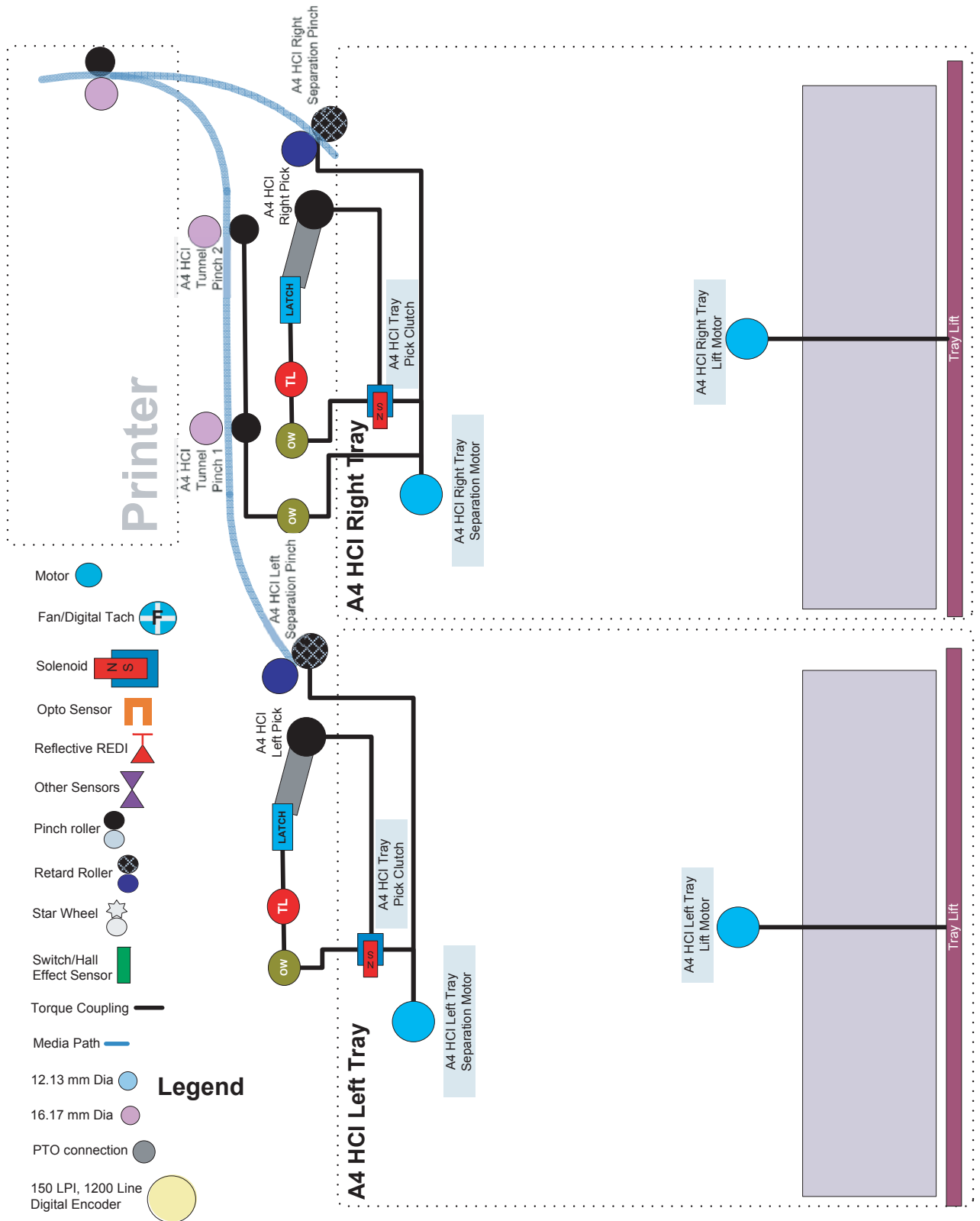
# Printer motors/solenoids

Figure 1-24 Printer motors/solenoids



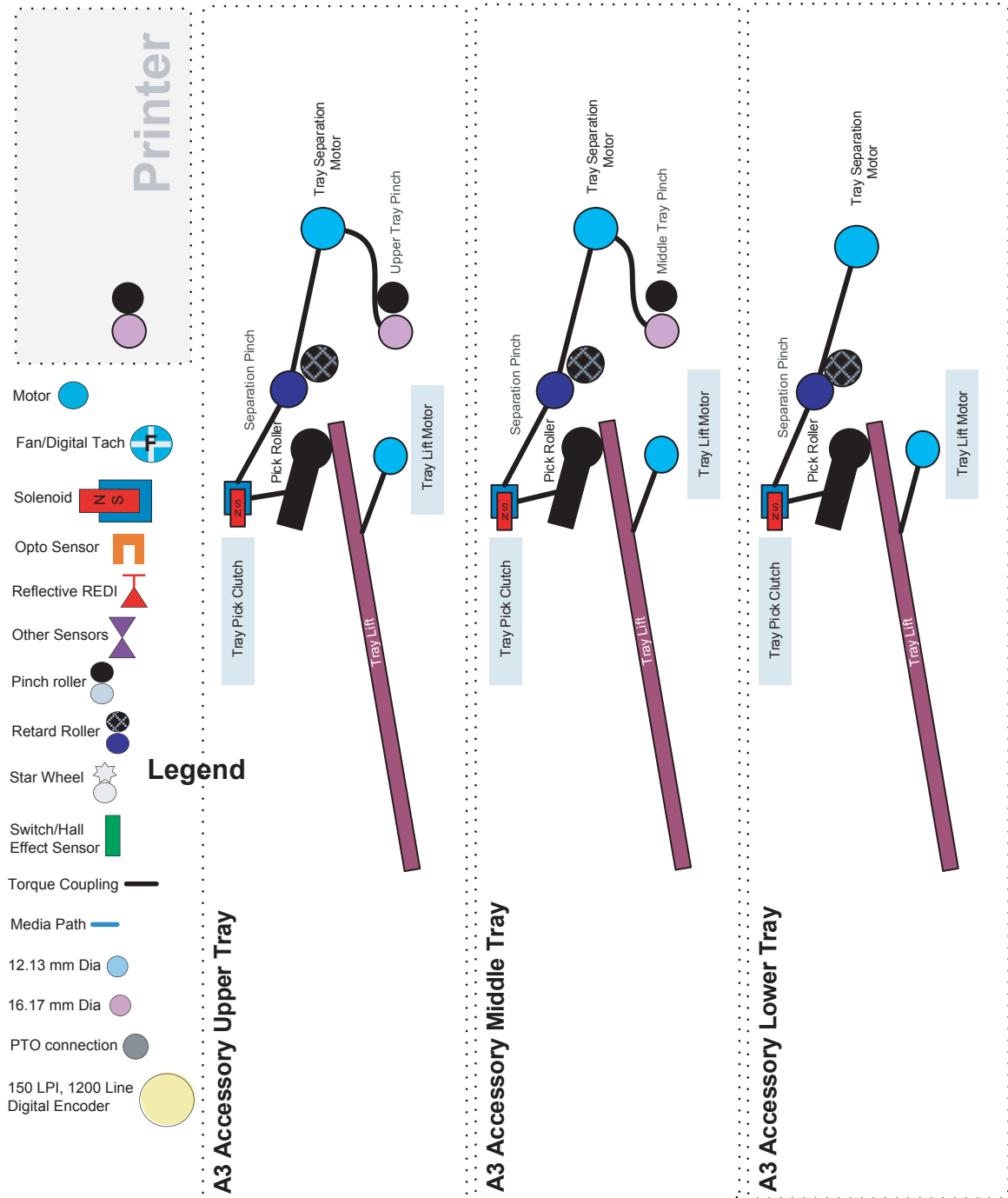
# High capacity input (HCI) motors/solenoids

Figure 1-25 HCI motors/solenoids



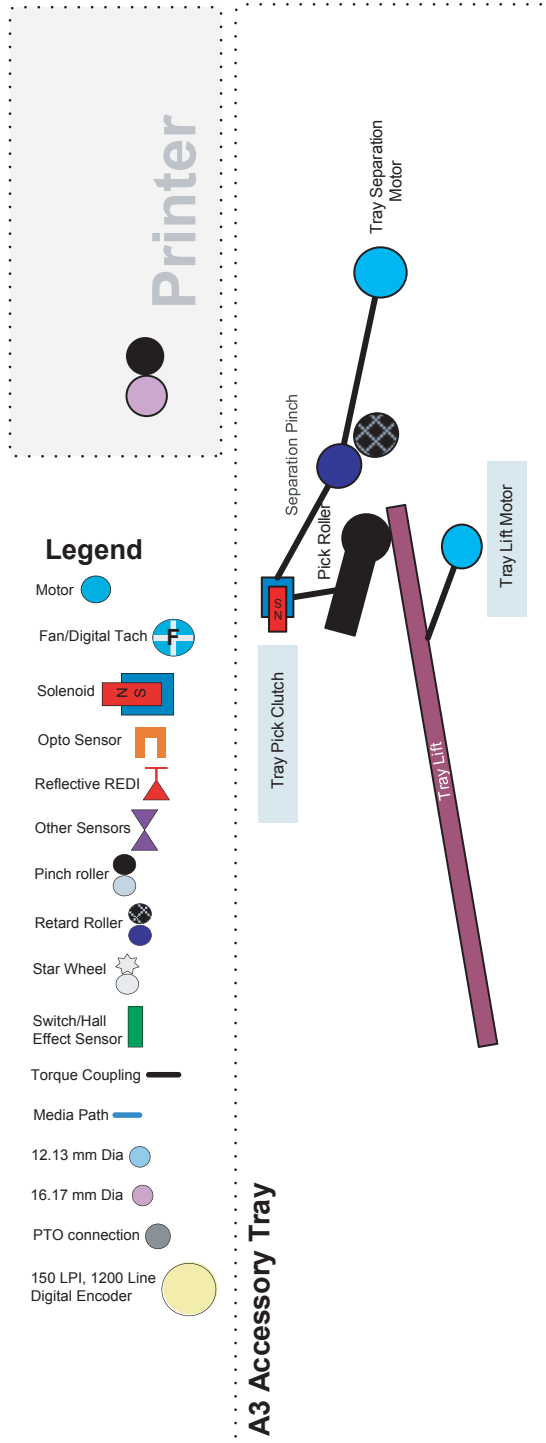
# 3x550 tray motors/solenoids

Figure 1-26 3x550 tray motors/solenoids



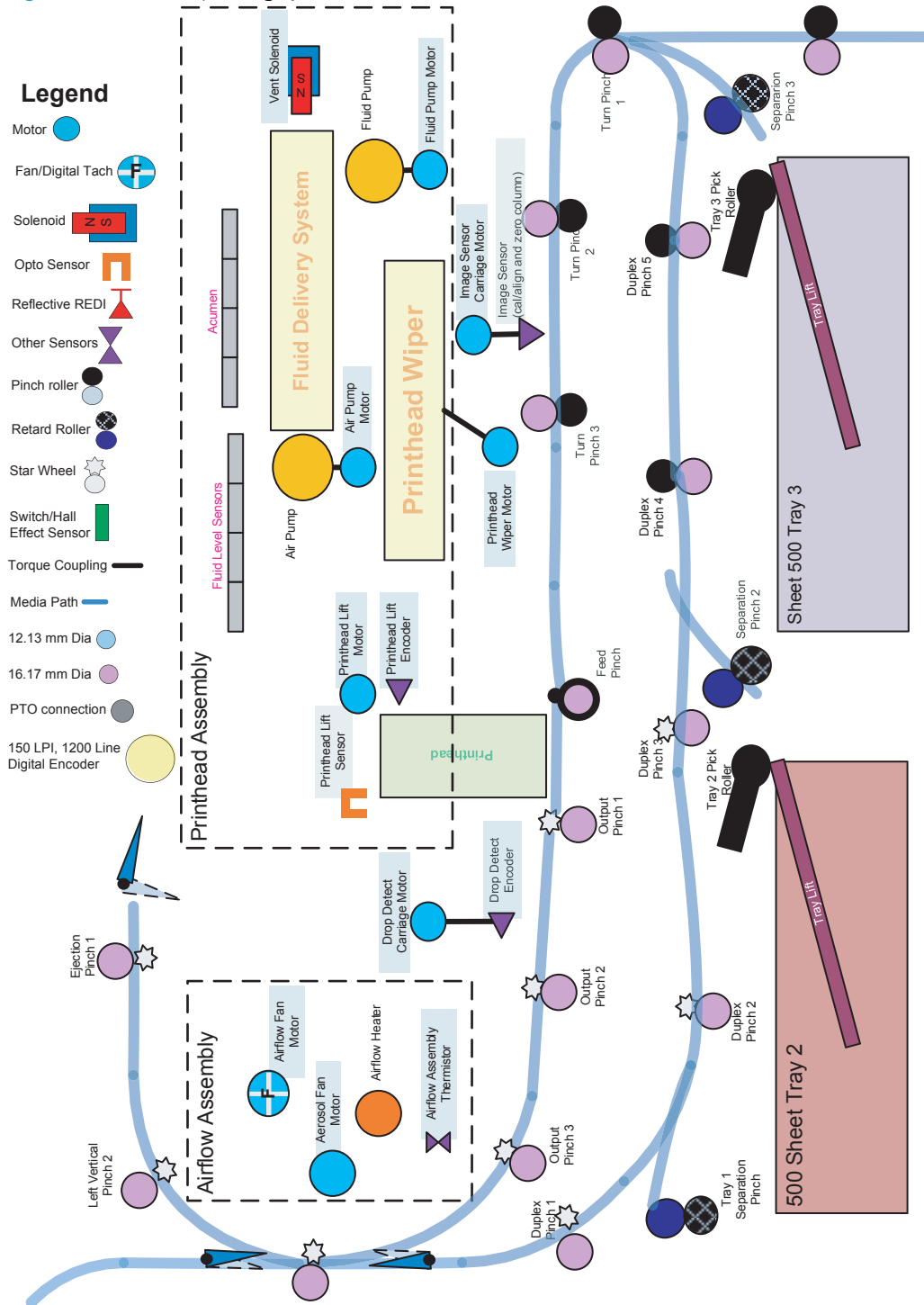
# 1x550 tray motors/solenoids

Figure 1-27 1x550 tray motors/solenoids



# Printer printing system

Figure 1-28 Printer printing system



## Input trays

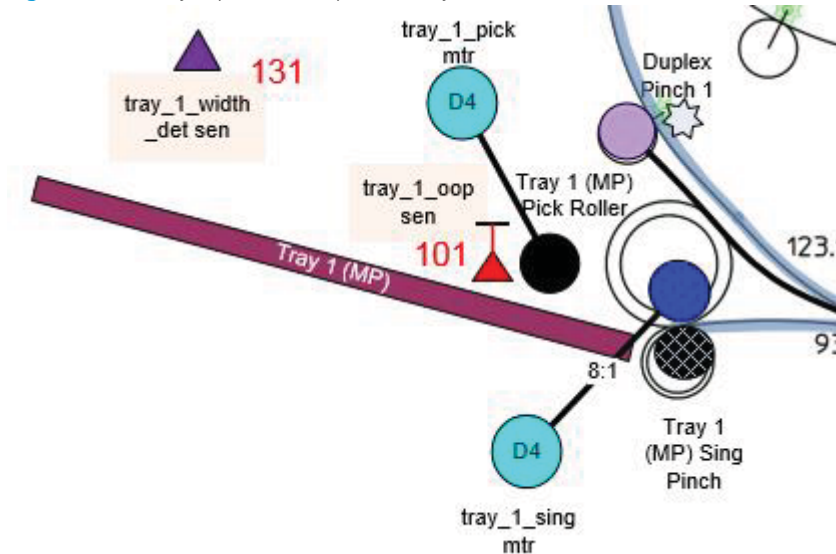
### Tray 1 (Multipurpose)

Tray 1 consists of two subsystems.

- The media support tray with media guides and width sensor.
- The pick and separation system.

The pick and separation system includes the upper pick roller, the lower separation roller, a lift plate, two motors, and an out-of-paper (OOP) sensor.

**Figure 1-29** Tray 1 pick and separation system



When a sheet is picked, the following sequence occurs:

1. Both motors are started simultaneously.
2. The **tray\_1\_pick** motor drives the upper pick roller forward and moves the lift plate upwards, so the paper contacts the pick roller. The lift plate spring controls the force applied by the lift plate to the pick roller.
3. The lift plate will lower after the page enters the roller nip.
4. The **tray\_1\_sing** motor turns the lower separation roller in the reverse direction. There is a slip clutch on the separation roller and when only one sheet of media is in the nip, the roller is forced to follow the upper pick roller and paper as it moves forward. As the separation roller is over-driven in the forward direction, a reverse torque is applied by the slip clutch. This action will separate multiple-fed sheets so that only one page at a time enters the printer. The separation spring controls the force applied by the separation roller and the pick roller.

The OOP sensor is attached to the lift plate. It is a REDI type sensor using a mirror attached to the upper paper guide. Paper present in the tray will block the light path from the sensor to the mirror.

---

 **NOTE:** Both the pick roller and the separation roller are replaceable in the field.

---

## Trays 2/3 (A4 main trays)

Some printer models include two side-by-side 500-sheet letter/A4 size main trays. Each tray includes the following components:

- A removable tray body that holds the printer paper. The tray body includes the following components:

- Width and length adjusters to support and align the paper.
- A lift plate to raise the paper.
- A Hall Effect sensor determines if the tray is closed. The sensor is located at the back of the printer and detects a magnet located in the tray body.
- A lift mechanism with a DC motor and encoder mounted on the rear wall that engages the lift plate to raise the paper to the height where it can be picked and fed into the printer.
- A size detect module mounted on the rear wall to detect the paper size loaded in the tray based on the position of the width adjusters.
- A pick system mounted above the tray to feed paper into the paper path. The pick system includes the following components:
  - A replaceable pick roller.
  - An electric solenoid to engage the pick gear train.
  - A spring plunger to raise the pick arm when the paper tray is opened.
- A separation system mounted above the tray to separate multiple sheets of paper into single sheets. The separation system includes the following components:
  - Two replaceable separation tires.
  - A torque limiter to provide resistance to the lower roller for paper separation.
  - A DC motor and encoder to drive the mechanism.
  - An optical sensor to determine if the paper stack is raised to the correct height.
  - An optical sensor to detect if there is paper loaded in the tray.
  - An optical sensor and reflector to detect paper presence at the separation rollers.
  - A spring mechanism to separate the tires when the tray is open to aid in jam clearing and roller replacement.

Following is the operational sequence for paper pick and feed from Tray 2 and Tray 3. This process repeats for each page:

1. The lift mechanism raises the lift plate until the tray lift sensor detects that it is raised to the correct height.
2. The paper presence sensor is checked to be sure paper is loaded before proceeding.
3. The electric solenoid is engaged to connect the pick shaft to the drive train.
4. The motor runs, turning the pick roller and the separation tires and advancing the paper out of the tray into the separation system.
5. The electric solenoid is disengaged after paper is detected at the separation roller sensor, but the motor continues to turn the separation tires and advance the paper into the printer.
6. After the trailing edge of the paper leaves the separation tires the motor stops.

In between each page, the lift motor may make small motor moves to adjust the height of paper stack as paper is depleted from the tray.



After a sheet is picked, it is not uncommon for an additional sheet to be left in the separation roller. If the sensor detects this has occurred on the last page of a print job, the tray will lower, the electric solenoid will engage to lift the pick roller, and the motor will run in reverse to pull the sheet back in the input tray.



**NOTE:** The construction and operation of Tray 4, 5, and 6 is a similar sequence.

## 1x550-sheet tray

The 1x550-sheet tray is a table top or floor standing input capacity accessory for the printer (both have the same operational mode). It holds 500 sheets of additional input capacity (media sizes A5 up to A3).

The accessory is driven by the lift motor and the separation motors. In addition to the two motors, an electric clutch arrangement transfers torque from the separation motor to the pick shaft.

The lift motor lifts the paper stack to the pick roller and keeps the paper stack at the correct height while the paper stack is depleted. The separation motor drives the tray paper drive components.

In the forward direction, the separation motor drives the counter rotating separation system and also the pick shaft. The drive of the separation system feeds and separates sheets into the print mechanism.

During the forward separation motor rotation, an e-clutch (which is electrically powered) transfers torque to the pick shaft to pick sheets from the stack.

A reverse separation motor rotation has two functions:

- It moves sheets left on the curved separation wall (or sheets separated by the separation system) back into the stack (healing).
- When the e-clutch is engaged it raises the pick arm away from the paper stack which allows sheets being healed to return to the input stack.

Sheets picked from the accessory are fed into the vertical path of the printer, where a reversing separation motor from Tray 2 or Tray 3 (depending on printer configuration) turns the vertical path shaft in reverse, which drives sheets into the turn roller path

## 3x550-sheet tray

The 3x500-sheet accessory is a floor standing accessory for the printer. It holds an additional 1500 sheets of additional input capacity (media sizes A5-11x17). The accessory is a duplicate of the 1x500-sheet tray with two additional trays in one accessory.

The accessory functions similarly to the 1x500-sheet tray. It uses a two motor arrangement. In each tray a lift motor and a separation motor drive the system, and an electric clutch engages the pick roller when the clutch is activated.

For all trays, the lift motor lifts the paper stack to the paper position sensor and out of the paper sensor. The lift motor keeps the top sheet of the stack in the optimal position to pick it onto the curved pick wall.

Picking from Tray 4 is done the in the same way as the 1x500-sheet tray. Rotating the Tray 4 separation motor forward, and then engaging the clutch to pick a sheet of paper into the paper path.

Tray 5 and Tray 6 perform in the same manner (separation motor runs forward, and the clutch is engaged to pick a sheet).

To feed a sheet up the accessory vertical path (while picking from Tray 5 or Tray 6), the separation motors in the downstream trays are run in reverse. This rotates the vertical path turn shafts which are linked to the separation system by a set of gears.

For example; when picking from Tray 6, the Tray 6 separation motor rotates in the forward direction and the vertical path feed shafts for Tray 5 and Tray 4 (the downstream trays) rotate the associated separation motors in reverse to activate the vertical path shafts.

## 4,000-sheet HCI tray

Two optional 2000-sheet A4 size accessory trays are available for the printer: These optional trays use the same media pick and feed system as Tray 2/3. See [Trays 2/3 \(A4 main trays\) on page 37](#) for more information.

## Tray sensors

The Trays 1 and 2 (A3 and A4) and optional accessory trays (A3) contain the following sensors (HCI tray not included):

- A Hall Effect sensor and magnet determines if the tray is closed.
- A flag/opto sensor determines if there is paper in the tray.
- A flag/opto sensor determines if the lift plate is in the lifted position.
- A separation REDI sensor and REDI sensors in the paper path determine if the printer successfully picked the paper.

## Paper size detection

The paper size detection system utilizes movable surfaces on the rear of the input tray to interact with a size detect module when the input tray is installed in the printer. These surfaces on the tray press a combination of mechanical buttons on the module that indicates to the printer the position of the paper adjusters. On A4 size trays the movable surface consists simply of a rotating barrel that is positioned by the rear width adjuster. On A3 size trays, in addition to a barrel, a sliding piece positioned by the length adjuster is also used. The size detect modules are located on the rear wall of the printer chassis directly behind the input trays. Each module includes three spring-loaded buttons which, when pressed, actuate respective electrical switches on a printed circuit board. The combination of activated electrical switches communicates to the printer the position of the width adjuster (for A4 trays) or the position of both the width and length adjusters (for A3 trays), along with the presumed paper size.

## Paper path zones

### Turnpath/deskew

The turnpath zone is the paper path between separation pinch of Tray 3 and turnshaft 2 as well as the paper path between duplex exit shaft 5 and turnpath 2 that is between accessory vertical path roller1 and turnshaft 2. This zone has only one roller, turn 1 roller, which is driven by deskew-turn motor. This zone also has only one paper edge sensor, deskew-turn sensor, which is housed in the right door paper guide and is downstream of turn 1 roller. Turnpath is the region where different paper paths (duplex path, simplex path from Tray 3 and vertical path from accessory trays) come together to feed into the deskew zone. The function of turnpath is to collect paper from different sources and feed into the deskew zone.

The deskew zone is the paper path between turnshaft 2 and the feed roller. This zone has four half-length shafts, turnshaft 2 front/rear and turnshaft 3 front/rear. The two front half shafts are driven by the deskew motor, independent of the two rear halves, which are driven by the deskew-turn motor. The deskew zone also has two edge detect sensors, deskew and deskew-offset, past turnshaft 3, which together measure the paper skew. In response to this measured skew, two pairs of half-shafts are driven at different speeds for a particular distance to achieve skew correction. Skew correction is completed before the paper leading edge reaches the top-of-form (TOF) sensor, which is another edge detect sensor in the deskew zone, upstream of the feed roller.

A jam in turnpath occurs when paper arrives at the TOF sensor, any of the two deskew sensors, or to the deskew-turn sensor after a specified time period. Jams can also be declared if paper is determined to not clear any of these sensors in time. When the control panel indicates removing a jam at the right door, the right paper tray may be removed to access and remove jammed paper. This tray may be pulled out using any combination of the three green handles. When pulled out, the tray remains attached to the printer via telescoping links. If needed, the right tray can be completely separated from the printer by removing two black locks on the front and rear white chassis rails.

The deskew zone also houses the calibration scanner on the upper paper guide in between the turnshaft 2 pair and turnshaft 3 pair. Some portion of the upper paper guide in this region is made of glass. The calibration scanner is used for print head calibrations, skew system calibrations, and print margin calibrations. It is also used to detect the zero column of paper dynamically during printer's operation. During print head calibrations, the paper is pushed up closer to the scan glass by a pressure plate. This plate is housed inside of the right tray and can be deployed by the duplex exit motor running in reverse.

## Print zone

This is the section of the paper path between the feed roller and output 1 pinch roller. The feed roller, which has a high resolution digital quadrature encoder, precisely controls the paper in the paper feed direction. Printing of the image is controlled by this encoder to reduce errors from rotational velocity variation of the feed roller. The feed roller is precisely positioned in the axial direction by a bias spring in the rear of the shaft and a center pivot at the front. For approximately the last 20 mm (0.78 in) of a page, the paper is controlled by the output 1 pinch roller through a series of high accuracy gears.

A combination of the feed roller, paper bias guides, platen, floating star-wheel carrier and output 1 pinch roller controls the paper vertical position during printing. The user can remove the left duplex module after opening the left door for jam access. This opens the pinches at output 1, 2 and 3 to facilitate removal of jammed paper.

The print zone contains no paper path sensors. If a jam occurs in the print zone, it is not detected until the leading edge of the paper is determined to be late in reaching the jam sensor in the output path.

When a user pulls on jammed paper in the print zone that is still partially in the feed roller pinch, the servo control detects a slight movement of the feed roller and assists the user by applying a forward torque to the roller. This feature reduces the pulling force needed by the user and which reduces the chance of leaving torn pieces of paper in the paper path.

## Left duplex / service fluid container

After opening the left door, the left duplexer can be pulled out of the printer to clear jams. The left duplexer remains attached to the printer, but can be completely removed by releasing the left duplexer latch on the rear duplexer mounting rail. The duplex assembly also serves as an ink-collection unit for the printhead (termed the service fluid container).

The left duplexer includes an EEPROM that is used to detect if the left duplexer is present, stores the occurrence of a startup event, and records the number of ink spits. The EEPROM information prevents the left duplexer (service fluid container) from experiencing more than one start up event, and also disables the printer when the service fluid container is full (printing is restored when a replacement unit is installed).

## Output

The output path begins at output pinch roller 1 and continues to eject pinch. Three REDI sensors in this path detect leading and trailing edges and jams.

The feed motor drives the output pinch 1, 2 and 3 rollers. The vertical motor drives rollers vertical pinch 1 and 2. The Eject pinch is the only roller driven by the eject motor. All the pinch rollers in the output and exit path are star

wheels to prevent roller tracking on wet or damp ink. However, the feed roller pinch is solid and has a high amount of force for media control in the print zone.

The vertical path paper guides and drive rollers are attached to the left door. The left door can be opened for jam clearance, and includes a hall-effect sensor to determine if it is closed.

## Ejection

The eject portion of the paper path includes the zone from vertical pinch 2 to the eject roller. The eject motor only rotates the eject roller.

To control media the printer has 4 sheet kickers that straddle each eject cot. The sheet kickers help direct the trailing edge of the media towards the output bin.

The eject system also has a bail which is used to control output stack quality. The bail is controlled by an eject drive shaft with a cross pin that interacts with the bail.

The bail has 3 modes:

- Down with full bail weight mode. This mode is used for A4 printed in portrait mode and all smaller media.
- Counter weighted with a spring mode. This mode is used for larger media that needs to push under the bail.
- Bail up mode. This mode can be used for media that is too light to get under the bail when in counter weight mode.

## Jam detection

The product makes use of various device sensors to detect and report printer jams.

### Jam detection during boot

When the product is powered on and was left in an uncapped state, the state of the following REDI sensors is checked to identify if paper was left in the paper path when the printer was previously shutdown.

- DESKEW
- DESKEW\_TURN
- DUPLEX\_JAM1
- DUPLEX\_JAM3
- EJECT\_TRIGGER
- PZONE\_JAM
- PZONE\_TOF
- VERTICAL\_JAM

If any of the above sensors indicate paper presence, the printer will attempt to flush the paper path. If unsuccessful, the printer reports a power on jam.



**NOTE:** While booting into service mode, sensors are read to determine paper presence, but the printer will not attempt to flush the paper and instead proceed to reporting a power-on jam if paper is detected.

## Jam detection during print

The printer detects paper jams that occur when a door is opened while printing or when paper jams in the paper path.

### Door open jams while printing

If the left or right doors are opened while processing a job, paper motion is halted, and a jam reported. This condition is detected and reported when the left or right door Hall Effect sensors indicate the door has been opened, and the printer is processing a job.

---


 **NOTE:** Opening Tray 1 when the printer is printing does not cause a jam.

---

The following sensors are monitored for the left and right doors:

- DOOR\_LEFT (Hall Effect)
- DOOR\_LEFT\_SAFETY (Hall Effect)
- DOOR\_RIGHT (Hall Effect)

---

 **NOTE:** If the front door (ink supply door) is opened during print operation, the printer will complete printing any pages which have been successfully picked and then halt, waiting for the front door to be closed. A jam is not reported for this condition.

---

### Paper path jams while printing

The following REDI sensors are used to detect paper movement through the paper path during printing. If paper fails to arrive or leave a given sensor position at the expected time, then a paper jam is reported, entered into the event log and presented displayed on the control panel as one of the following:

- EJECT\_TRIGGER
- VERTICAL\_JAM
- PZONE\_JAM
- PZONE\_TOF
- DESKEW
- DESKEW\_OFFSET
- DESKEW\_TURN
- TRAY\_ACCY\_VERT\_PATH
- TRAY\_X\_MULTIPICK
- DUPLEX\_JAM3
- DUPLEX\_JAM1
- TRAY\_4\_JAM
- TRAY\_5\_JAM


Paper path jams may occur while recovering from a previous error (such as a residual paper jam) and other errors (including paper jams) which halt printer transport of paper. These jams are recoverable. If paper is

detected in the paper path when the printer re-initializes, the printer attempts are made to eject it into the standard output bin. If unsuccessful, a residual paper jam error occurs.

## Jam event codes

When a paper jam is detected, a jam condition is reported as an event code and/or control-panel message. Event code and control-panel message descriptions and solutions are provided in a separate *Control Panel Message Document*. See [Control Panel Messages Document \(CPMD\) on page 44](#), and then search by the printer name.

---


 **NOTE:** For instructions about clearing specific jams in the printer, see the Clear jams section in the printer troubleshooting manual.

---

## Control Panel Messages Document (CPMD)

The Control Panel Messages Document (CPMD) is not provided in this service manual. The CPMD for this printer is available to HP service personnel on the HP Web-Based Interactive Search Engine (WISE) website. Go to one of the WISE websites listed below, and then search by printer name.

---

 **NOTE:** The CPMD is available to channel partners through the HP Channel Services Network (CSN) at [www.hp.com/partners/csn](http://www.hp.com/partners/csn).

---

▲ To access the CPMD, go to one of the following:

### AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

### APJ

- <https://support.hp.com/wise/home/apj-en>
- <https://support.hp.com/wise/home/apj-ja>
- <https://support.hp.com/wise/home/apj-ko>
- <https://support.hp.com/wise/home/apj-zh-Hans>
- <https://support.hp.com/wise/home/apj-zh-Hant>

### EMEA

- <https://support.hp.com/wise/home/emea-en>

## Motor stalls

When a motor is detected to have stalled unexpectedly, a motor stall condition is reported. Motor stalls are uniquely identified by a different event code indicating a stall occurred as opposed to a paper jam. The control panel messaging and recovery behavior of stall events is very similar to paper jams in most cases.

# Servicing system

## Printhead wiper

The printhead wiper system keeps the printhead nozzles firing correctly throughout the life of the printer as it performs the wiping and capping functions.

- The wiping function cleans the nozzles of ink residue and particulates.
- The capping function keeps the nozzles moist during storage and when the printer is idle.

The printhead wiper system uses its own motor to power the horizontal sled motion as it perform its functions.

The web fabric is on a supply reel that advances after wiping takes place. Advancing is done by backing into a stationary trigger mechanism located on the rear frame that turns a gear to advance the web. Because the web is on a supply reel, the web will eventually run out of material. The printer reports a low-web condition with approximately 12,000 pages remaining. If the sled is not replaced after the low warning is given and the printer continues to be used, the printer mechanism will reach a point where the web is so low that the unit will stop functioning until a new sled is installed. The estimated life of a printhead wiper is approximately 150,000 pages.

To perform the capping function, the printhead wiper moves underneath the printhead (which is elevated from the print position). This allows the rubber cap to seal the print nozzles from the environment.

## Service fluid and aerosol management systems

There are two types of service fluid, shipping fluid and ink. New printheads are filled with shipping fluid to prevent nozzles from clogging. Printing with shipping fluid results in very poor print quality. Shipping fluid must be discharged from the printhead and replaced with ink before the printhead is used for printing. Once all the shipping fluid is replaced with ink, the printhead periodically discharges ink out the nozzles before, between, and after printed pages in order to prevent the nozzles from clogging.

The service fluid management system is contained entirely within the duplexer module. Service fluid is discharged out of the nozzles of the printhead through the holes in the platen and into the container inside the duplexer module. Absorbers in the container capture the service fluid and prevent it from leaking out when the duplexer module is tipped.

The service fluid is discharged out of the nozzles in drops. As the drop travels through the air, it starts to break up into multiple droplets of varying size. Some of the droplets are called aerosol because they are so small that they are lighter than air. Aerosol can float inside the printer and collect on the lens of optical sensors, producing false failures.

The aerosol management system transports the aerosol and collects it in a safe place where it can do the printer no harm. It consists of an aerosol fan, mounted on the rear wall of the air flow assembly, which creates air flow that pulls the aerosol through the holes in the platen and into the aerosol filter inside the duplexer module. Most of the aerosol is captured in the aerosol filter. Over time, the aerosol filter will get clogged and must be replaced. Some aerosol does pass through the aerosol filter and get into the aerosol fan. If too much aerosol gets to the aerosol fan, the fan stalls.

There is an EPROM memory device on the duplexer module that keeps track of how much service fluid has been discharged into it. When the duplexer module is full of service fluid, it must be replaced. Because the aerosol filter is inside the duplexer module, replacing the duplexer module also replaces the aerosol filter.



Figure 1-30 Service fluid and aerosol management system

## Service Fluid and Aerosol Management System

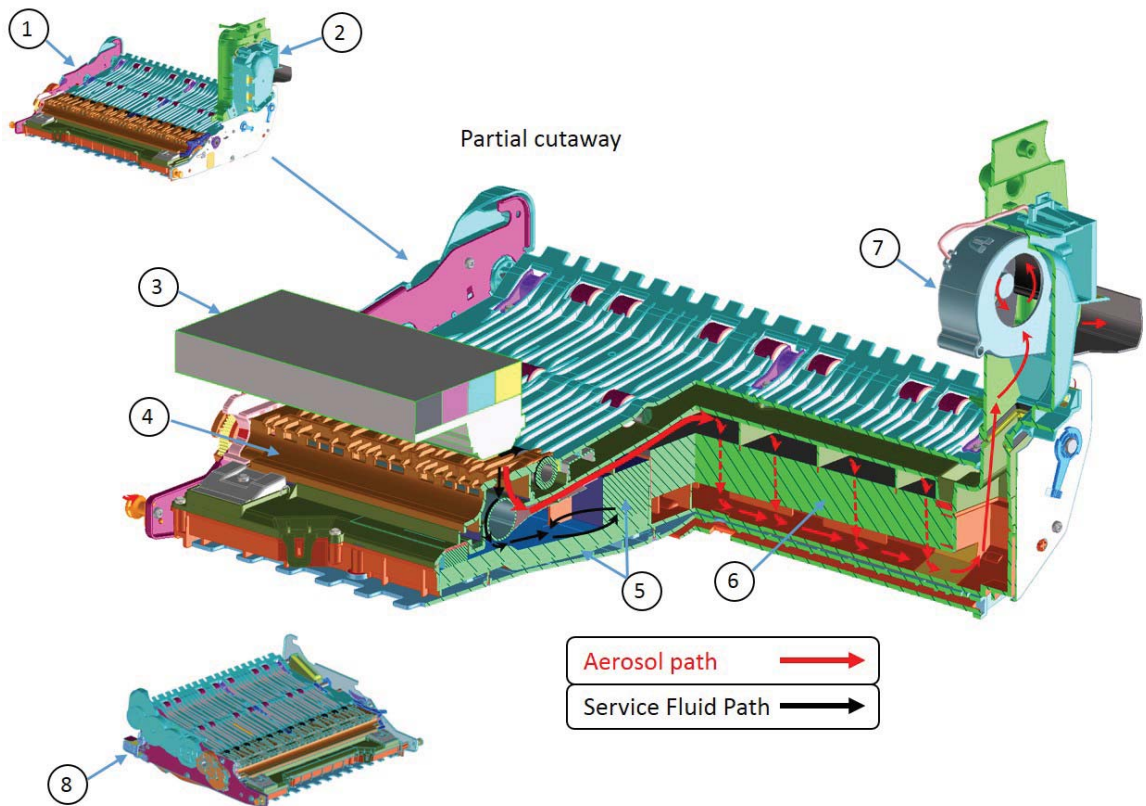


Table 1-3 Service Fluid and Aerosol Management System Components

Item	Description
1	Duplexer Module
2	Air Flow Rear Wall Assembly
3	Printhead
4	Platen (component of the Duplexer Module)
5	Absorbers (component of the Duplexer Module)
6	Aerosol Filter (component of the Duplexer Module)
7	Aerosol Fan
8	EPROM memory device (component of the Duplexer Module)

# Airflow system

## Function

The airflow system conditions the printed pages to avoid page curling due to the ink on the page.

The setting of the airflow system is dictated by the attributes of the image to be printed on the page and the ambient air temperature.

The airflow system functionally consists of a fan and heating elements. The pressurized air is blown on the page through the nozzles that are placed on the paper path of the airflow system between print and eject zone.

## Heating

Heating elements are programmed to heat the air for variable temperatures above ambient.

Independent of the ambient temperature maximum air temperature allowed is 56°C (133°F).

Each side (front and rear) of the heating element is protected by a thermal fuse which would open the circuit if elevated temperatures are sustained due to unexpected malfunctions to the rest of the system.

## Airflow

The fan produces airflow which dissipates heat generated by the heating element coil. Heated air is exhausted on to the page.

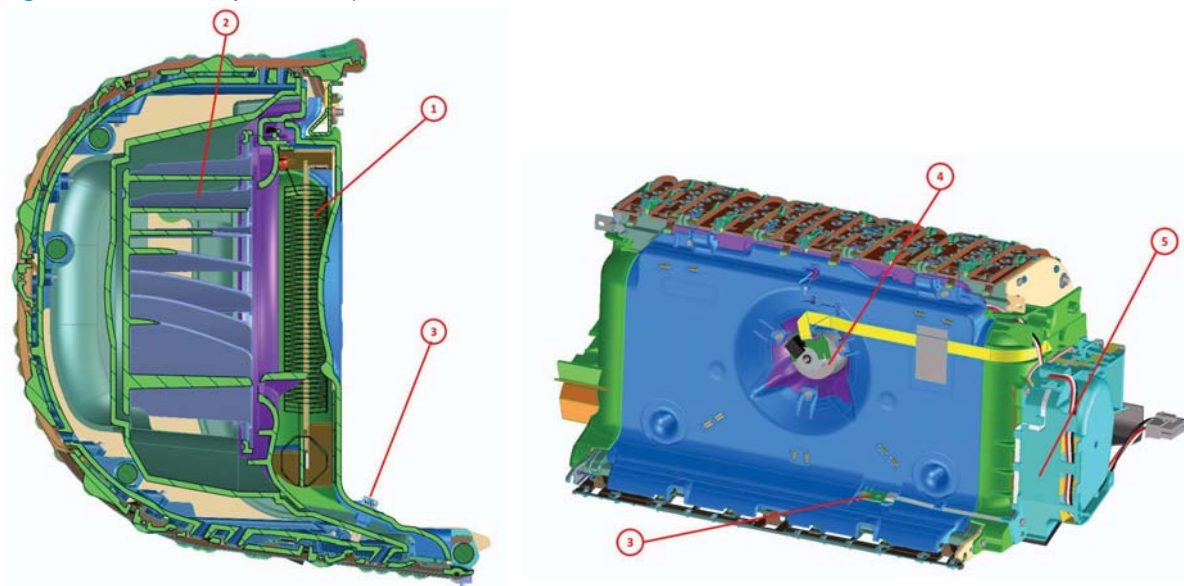
The control schemes for the airflow are varied in combination with the heating element controls.

## Modes

Mode	Description
1	Fan speed: 1700 RPM, Air Temperature: Ambient + 32° F (0° C)
2	Fan speed: 1700 RPM, Air Temperature: Ambient + 41° F (5° C)
3	Fan speed: 1700 RPM, Air Temperature: Ambient + 79-90° F (15° C)
4	Fan speed: 1700 RPM, Air Temperature: Ambient + 79-90° F (26-32° C)
5	Fan speed: 2200 RPM, Air Temperature: Ambient + 79-90° (26-32° C)
6	Fan speed: 2800 RPM, Air Temperature: Ambient + 79-90° (26-32° C)

## Components

Figure 1-31 Airflow system components



Item	Description
1	Heating Element
2	Impeller
3	Thermistor
4	Motor
5	Aerosol System

# Document feeder system

## Document feed system

This section describes the following:

- Rollers and sensors in the document feeder
- Document feeder operation
- Deskew operation

The printer supports single-pass electronic duplexing (e-duplex) copy jobs. Two separate scan modules scan the front-side and back-side of an e-duplex copy job page in a single pass through the document feeder.

## Rollers and sensors in the document feeder

The document feeder contains the following rollers and sensors:

Figure 1-32 Document feeder rollers and sensors

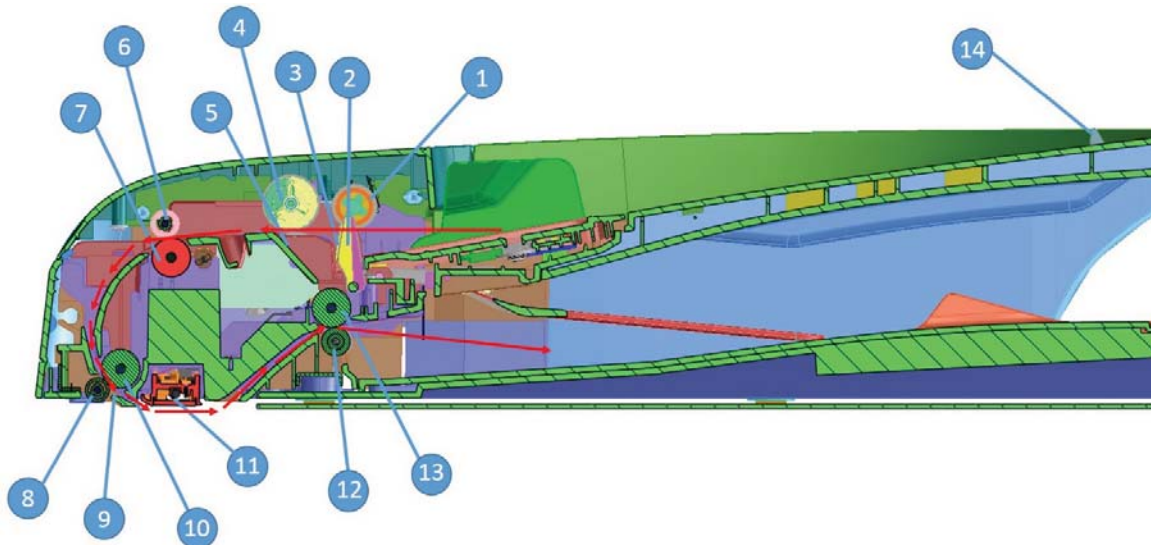


Table 1-4 Document feeder rollers and sensors

Item	Description
1	Pick Roller
2	Document Load Flag
3	Document Width Flag
4	Separation Roller
5	Separation Pad
6	Intermediate Pinch Roller
7	Intermediate Feed Roller
8	Prescan pinch roller
9	TOF Flag

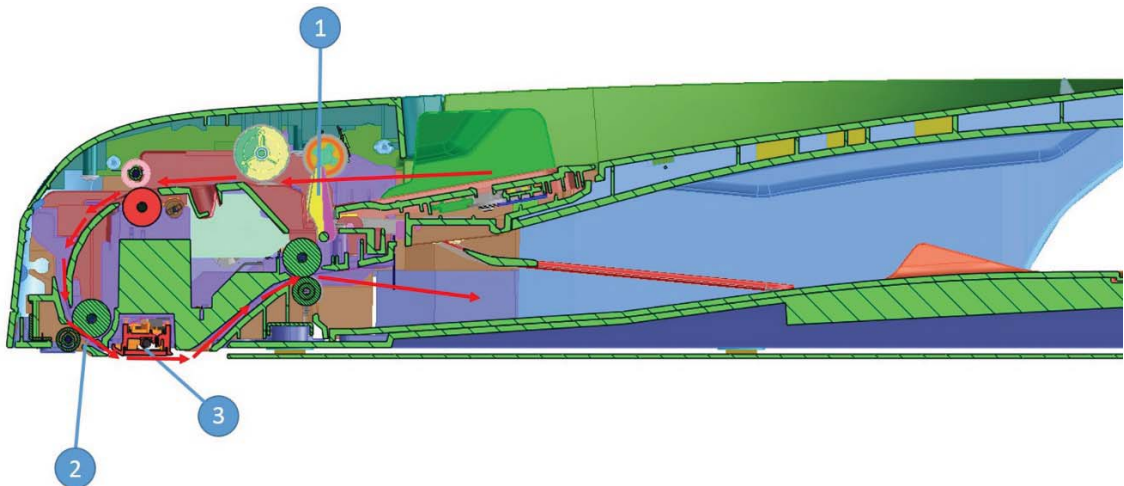
Table 1-4 Document feeder rollers and sensors (continued)

Item	Description
10	Prescan feed roller
11	E-Duplex Sensor
12	Post-Scan Pinch Roller
13	Post-Scan Feed Roller
14	Document Length Flag

## Document feeder operation

The following is the basic sequence of operation for a document feeder job:

Figure 1-33 Document feeder operation



1. When the original pages to be copied are loaded in the document feeder input tray, the document flag (callout 1) activates (state switches to 1). A **Document loaded** message appears on the control panel. With this flag activated, the document feeder becomes the default copy or scan source. This flag remains activated until all pages feed through the document feeder.
2. When a copy or scan is initiated, the pick system engages and begins feeding the first page. The leading edge of the page triggers the TOF flag (callout 2) (state switches to 1) and the page feeds through the scan-zone.
3. The flatbed scan sensor collects the image of the front of the page. For duplex or two-sided scans, the e-duplex scan sensor (callout 3) collects the scanned image of the back of the page. For a multiple-page document, the document flag (callout 1) remains triggered (state remains at 1).
4. The trailing edge of the first page disengages the TOF flag (callout 2) (state switches to 0). The leading edge of the next page engages the TOF flag (callout 2) (state switches to 1), initiating the scan of the second page. All of the originals feed through the document feeder with the leading and trailing edges of the pages engaging and disengaging the TOF flag in this manner.


5. When the last page feeds through the document feeder, the document flag (callout 1) disengages (state switches to 0). This signals that the job is complete. After the TOF flag (callout 2) sees the last trailing edge (state switches to 0), the last sheet ejects, the pick system disengages, and the scan or copy job completes.
6. A pick failure occurs if the page does not reach the TOF flag (callout 2) within a certain time frame. If this failure occurs, the pick system will make two more attempts to pick the page before displaying a **Reload original** message on the control panel.

## Deskew operation

Sliding side guides on the document feeder input tray make sure the paper stack is correctly aligned at the center of the input tray when paper is loaded in the tray. The correct position of the loaded paper is parallel with the direction of travel into the document feeder paper path.

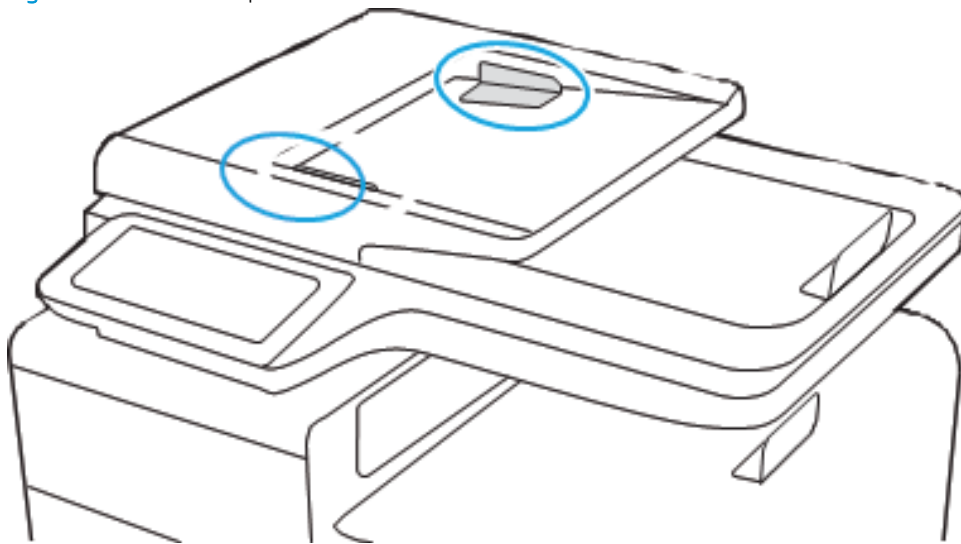
In addition to the sliding side guides, excessive skew can be corrected by a skew correction routine. This routine is accessed on the front control panel and is applied to the print job **after** the page is scanned.

---

 **NOTE:** If the original is smaller than the minimal sliding guide setting, do not use the document feeder for the copy job. Attempting to copy too small of a page using the document feeder might result in document feeder jams and/or damage to the original document. Instead, use the flatbed glass to copy the document.

---

Figure 1-34 Deskew operation



## Scanning and image capture system

The scanner is a contact image sensor carriage-type platen scanner that includes the frame, glass, LED illumination, lens, and a 1200 pixels per inch (ppi) sensor PCA. The scanner has two paper sensors to detect paper size and a switch to indicate when the document feeder is lifted. The scanner rides on a slider rod and is driven by a DC motor with a belt, gear and pulley system.

## Fax functions and operation

The following sections describe the printer fax capabilities.

### Computer and network security features

The printer can send and receive fax data over telephone lines that conform to public switch telephone network (PSTN) standards. The secure fax protocols make it impossible for computer viruses to be transferred from the telephone line to a computer or network.

The following printer features prevent virus transmission:

- No direct connection exists between the fax line and any devices that are connected to the USB or Ethernet ports.
- The internal firmware cannot be modified through the fax connection.
- All fax communications go through the fax subsystem, which does not use Internet data-exchange protocols.

### PSTN operation

The PSTN operates through a central office (CO) that generates a constant voltage on the TIP and RING wires, usually 48 V. A device goes off-hook by connecting impedance, such as 600  $\Omega$  for the USA, across the TIP and RING so that a line current can flow. The CO can detect this current and send impulses like dial tones. The printer generates more signaling tones, such as dialing digits, to tell the CO how to connect the call. The printer can also detect tones, such as a busy tone from the CO, which tells it how to behave.

When the call is connected, the CO behaves like a wire connecting the sender and receiver. This is the period during which all of the fax signaling and data transfer occurs. When a call is completed, the circuit opens again and the line-current flow ceases, removing the CO connection from both the sender and the receiver.

On most phone systems, the TIP and RING signals appear on pins three and four of the RJ-11 modular jack (the one on the fax card, as defined in the common 6-wire RJ standard). These two signals do not have to be polarized because all the equipment works with TIP on one pin and RING on the other pin. This means that cables of either polarity can interconnect and still work.

These basic functions of PSTN operation are assumed in the design of the fax subsystem. The printer generates and detects the signaling tones, currents, and data signals that are required to transmit and receive faxes using the PSTN.

### The fax subsystem

The MPCA, fax card, firmware, and software all contribute to the printer fax functionality. The designs of the MPCA and fax card, along with parameters in the firmware, determine the majority of the regulatory requirements for telephony on the printer.

The fax subsystem is designed to support V.34 fax transmission, medium speeds (such as V.17 fax), and the lower speeds of older fax machines.

### Fax card in the fax subsystem

The fax card contains the modem chipset (DSP and CODEC) that controls the basic fax functions of tone generation and detection, along with channel control for fax transmissions. The CODEC and its associated circuitry act as the third-generation silicon data access arrangement (DAA) to comply with worldwide regulatory requirements.



## Safety isolation

The fax card provides safety isolation between the high-voltage, transient-prone environment of the telephone network (telephone network voltage—TNV) and the low-voltage analog and digital circuitry of the MPCA (secondary extra-low voltage—SELV). This safety isolation provides both customer safety and printer reliability in the telecom environment.

Any signals that cross the isolation barrier do so magnetically. The breakdown voltage rating of barrier-critical components is greater than 5 kV.

## Safety-protection circuitry

In addition to the safety barrier, the fax card protects against overvoltage and overcurrent events.

Telephone overvoltage events can be either differential mode or common mode. The event can be transient in nature (a lightning-induced surge or ESD) or continuous (a power line crossed with a phone line). The fax card protection circuitry provides a margin of safety against combinations of overvoltage and overcurrent events.

Common mode protection is provided by the selection of high-voltage, barrier-critical components (transformer and relay). The safety barrier of the fax card PCA and the clearance between the fax card and surrounding components also contribute to common mode protection.

A voltage suppressor (a crowbar-type thyristor) provides differential protection. This device becomes low impedance at approximately 300 V differential, and crowbars to a low voltage.

## Data path

TIP and RING are the two-wire paths for all signals from the telephone network. All signaling and data information comes across them, including fax tones and fax data.

The telephone network uses DC current to determine the hook state of the telephone, so the line current must be present during a call. The silicon DAA provides a DC holding circuit to keep the line current constant during a fax call.

The silicon DAA converts the analog signal to a digital signal for DSP processing, and also converts the digital signal to an analog signal for transmitting data through a telephone line.

The magnetically coupled signals that cross the isolation barrier go through a transformer.

The DSP in the fax card communicates with the ASIC on the MPCA using the high-speed serial interface.

## Ring detect

Ring detect is performed by the line voltage monitoring module of the silicon DAA, and is a combination of voltage levels and cadence (time on and time off). Both must be present to detect a valid ring. The CODEC works with DSP and the firmware to determine if an incoming signal is an answerable ring.

## Line current control

The DC current from the CO needs to have a path to flow from TIP to RING. The DC impedance emulation line modulator and DC termination modules in the silicon DAA act as a DC holding circuit, and work with the firmware to achieve the voltage-current characteristic between TIP and RING. The impedance (the current-voltage characteristic) changes in correspondence to certain special events (for example, pulse dialing or when the printer goes on-hook).

## Fax page storage in flash memory

Fax pages are the electronic images of the document page. They can be created in one of three ways:

- Scanned, to be sent to another fax machine.
- Generated, to be sent by the computer.
- Received from a fax machine, to be printed.

The printer automatically stores all fax pages in flash memory. After these pages are written into flash memory, they are stored until the pages are sent to another fax machine, printed on the printer, transmitted to the computer, or erased by the user.

These pages are stored in flash memory, which is the nonvolatile memory that can be repeatedly read from, written to, and erased. The printer can have different amounts of flash memory, shared between firmware, customer settings, job storage and fax storage.



**NOTE:** The exact amount of flash memory depends upon the model and options of the printer.

---

## Advantages of flash memory storage

Fax pages that are stored in flash memory are persistent. They are not lost as a result of a power failure, no matter how long the power is off. Users can reprint faxes if a cartridge runs out of ink or the printer experiences other errors while printing faxes.

The printer also has scan-ahead functionality that makes use of flash memory. Scan-ahead automatically scans pages into flash memory before a fax job is sent. This allows the sender to pick up the original document immediately after it is scanned, eliminating the need to wait until the fax transmission is complete.

Because fax pages are stored in flash memory rather than RAM, more RAM is available to handle larger and more complicated copy and print jobs.

---

## 2 Solve problems

- [Problem-solving checklist](#)
- [Troubleshooting process](#)
- [Tools for troubleshooting](#)
- [Print quality troubleshooting guide](#)
- [Solve copy/scan problems \(MFP models only\)](#)
- [Solve paper jam or feed problems](#)
- [Solve performance problems](#)
- [Solve connectivity problems](#)
- [Service mode functions](#)
- [Firmware upgrades](#)
- [Fax problems](#)

# Problem-solving checklist

Follow these steps when trying to solve a problem with the printer.



**NOTE:** Use the procedures in this section to gather information from a customer to help troubleshoot the printer prior to a field service call.



**TIP:** If possible have the customer briefly push in on the power switch (printer power off), and then use the problem-solving flowchart (in this section) to diagnose the problem (before using the checklist).

- [Problem-solving flowchart](#)
- [Step 1: Check that the printer power is on](#)
- [Step 2: Check the control panel for error messages](#)
- [Step 3: Test print functionality](#)
- [Step 4: Test copy functionality \(MFP models only\)](#)
- [Step 5: Test the fax sending functionality \(fax models only\)](#)
- [Step 6: Test the fax receiving functionality \(fax models only\)](#)
- [Step 7: Try sending a print job from a computer](#)
- [Step 8: Test the Plug and Print USB Drive printing functionality](#)
- [Factors that affect printer performance](#)

# Problem-solving flowchart

Figure 2-1 Problem-solving flowchart (1 of 2)

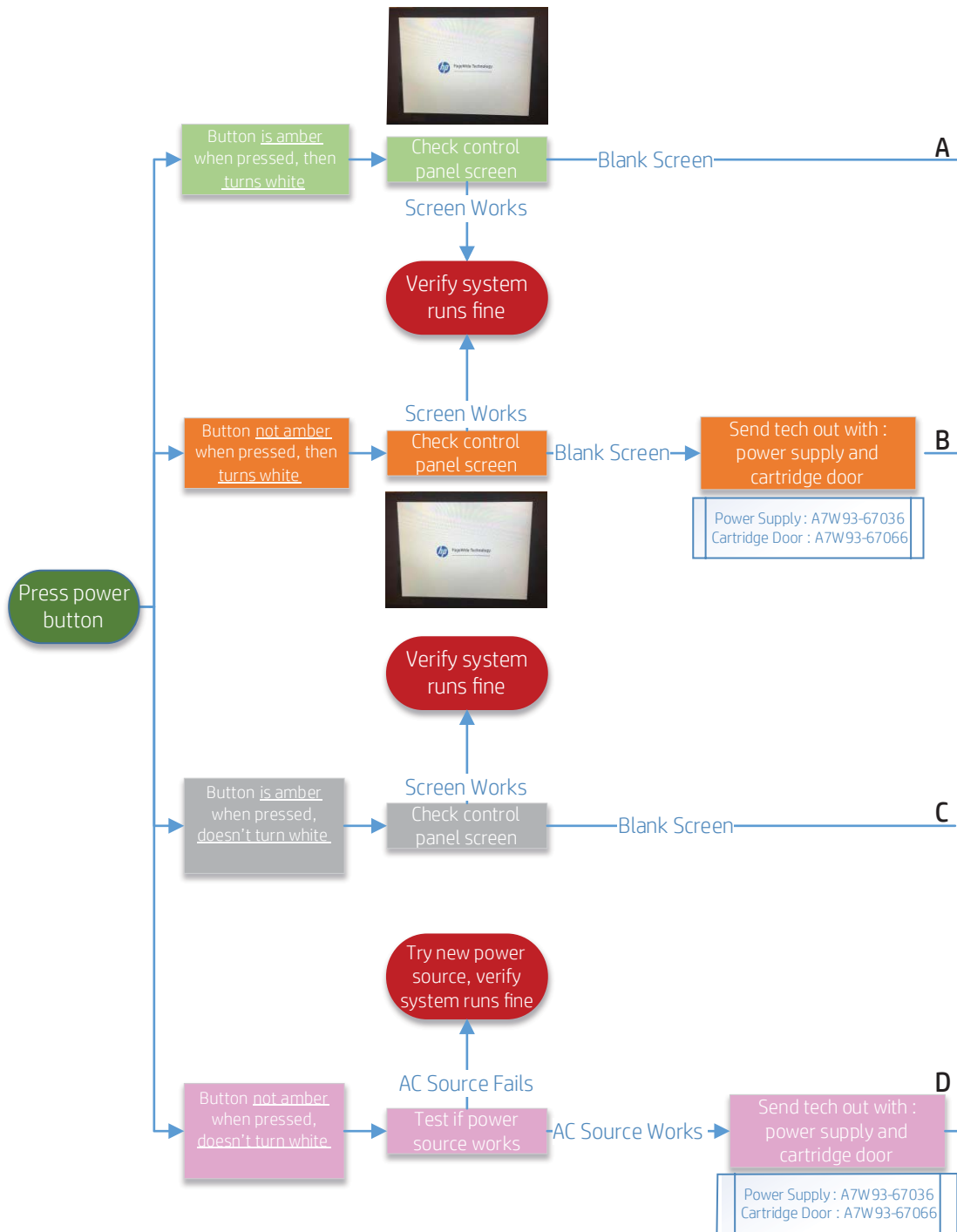
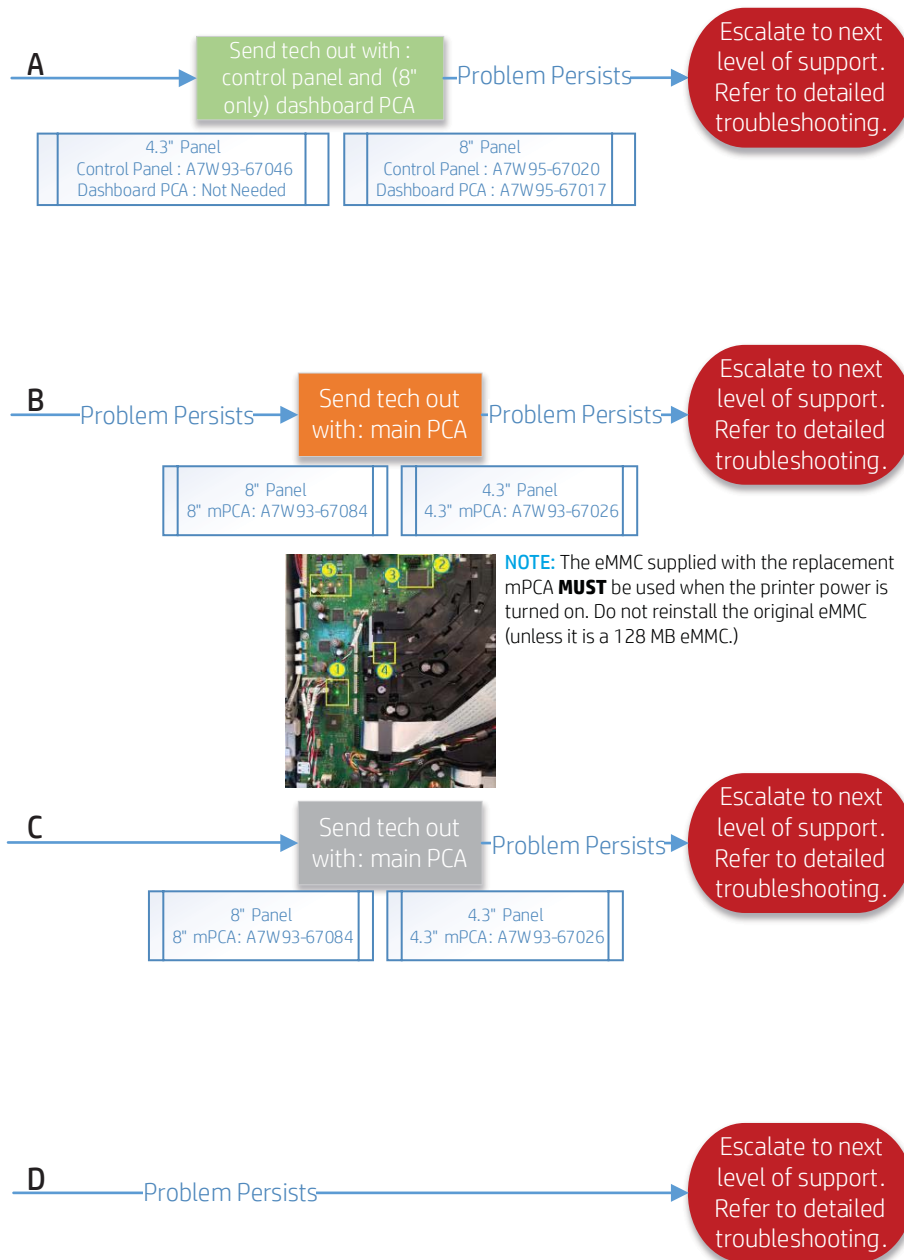


Figure 2-2 Problem-solving flowchart (2 of 2)



## Step 1: Check that the printer power is on


Make sure that the printer is plugged in and turned on.

1. Is the printer operating? If not, check the following:

### Does the printer have power?

- a. If the power button light is white, the printer power is on and the power supply is functioning correctly.
  - b. If the power button light is **not** white, check the following:
    1. Push the power button. If the power button light is amber, the printer power is on and the power supply is functioning correctly. Go to the next step.
    2. Push the power button. If the power button light is **not** amber, check the following:
      - a. Try using a different electrical receptacle (plug the printer directly into the wall receptacle—remove any surge protection devices if installed). Make sure that the wall receptacle supply voltage is correct for this printer.
      - b. If the supply voltage is correct and the power button light is **not** amber when pushed, replace the power supply. An on-site visit by a field service technician is required.
  - c. Does the printer initialize to the Ready state?
    - If **yes**, send a print job (by using the network or the USB port), to verify that the printer is functioning correctly. If the printer is functioning, go to the next step.


---

 **NOTE:** After about 90 seconds after the power button is pressed (at the end of the power on sequence), the output bin LED flashes. After that, various mechanical assemblies in the printer should start moving (for example motors rotate and fans spin).

---


    - If **no**, on-site troubleshooting by a field service technician is required.

---

 **NOTE:** The probable cause for the printer not reaching the Ready state is a failed eMMC or MPCA.

---
  - d. Does the Home screen appear on the control-panel display?
    - If **yes**, verify that the touchscreen is functioning correctly. If the touchscreen is functioning, go to the next step.

---

 **NOTE:** The probable cause for the touchscreen not functioning is a failed control panel. An on-site visit by a field service technician is required.

---

    - If **no**, does the control-panel display illuminate during printer initialization? Check the following:
      - For 203 mm (8 in) control panels, check the connectors under the control panel. If the problem persists, replace the dashboard PCA.
      - For 109 mm (4.3 in) control panels, check the connectors under the control panel.
      - The control panel or dashboard PCA might have failed. On-site troubleshooting by a field service technician is required.
2. Check the control-panel display for error messages. Use the control panel message document (CPMD) to find the error and solution.

## Step 2: Check the control panel for error messages

The control panel should indicate ready status. If an error message appears, resolve the error.



**IMPORTANT:** The CPMD is not provided in this service manual. See the **Control Panel Messages Document (CPMD)** section in the printer troubleshooting manual, and then search by the printer name.

- Service fluid container (W1B44 / A7W93-67081): estimated life is 150,000 cycles.
- Print head wiper (W1B43 / A7W93-67080): estimated life is 150,000 cycles.
- Tray rollers (550-sheet feeders) (W1B45 / A7W93-67082): estimated life is 150,000 cycles.
- **MFP only:** Document feeder (ADF) roller kit (W1B47 / A7W93-67083): estimated life is 50,000 cycles.



**NOTE:** HP consumable and maintenance kit life specifications are estimations. Actual individual life or yield during normal use will vary depending on usage, environment, media, and other factors. Estimated life is not an implied warranty.

### Step 3: Test print functionality

1. From the control panel Home screen, touch the blue bar located at the top of the display.
2. Touch the **Setup** button at the top left of the display.
3. Scroll to, and then touch the **Reports** item.
4. Touch the **Printer Status Report** item.
5. If the report does not print, make sure that paper is loaded in the trays, and check the control panel to see if paper is jammed inside the printer.



**NOTE:** Make sure that the paper in the tray meets specifications for this printer.

### Step 4: Test copy functionality (MFP models only)

1. Place the configuration page into the document feeder and make a copy. If paper does not feed smoothly through the document feeder, you might need to clean the document feeder rollers and separation pad. Make sure that the paper meets specifications for this printer.
2. Place the configuration page onto the scanner glass and make a copy.
3. If the print quality on the copied pages is not acceptable, clean the scanner glass and the small glass strip.

### Step 5: Test the fax sending functionality (fax models only)

1. From the control panel Home screen, scroll to and then touch the **Support Tools** button.
2. Touch the **Troubleshooting** button.
3. Touch the **Fax** item, and then touch the **Run Fax Test** item to test the fax functionality.
4. Wait for the printer to check fax functionality. When the test is complete, a fax test report prints. If the test fails, follow the instructions on the report page to solve the problem.

### Step 6: Test the fax receiving functionality (fax models only)

1. Use another fax machine to send a fax to the printer.
2. Review and reset the printer fax settings.



## Step 7: Try sending a print job from a computer

1. Use a word-processing program to send a print job to the printer.
2. If the job does not print, make sure that you selected the correct printer driver.
3. Uninstall and then reinstall the printer software.

## Step 8: Test the Plug and Print USB Drive printing functionality

1. Load a .PDF document or .JPEG photo onto a USB flash drive, and insert it in the USB port.
2. The [Memory Device Options](#) menu appears on the control panel display.
3. Touch the [Print Documents](#) button.
4. Scroll to and then touch the desired test print file.
5. If no documents are listed, try a different type of USB flash drive.
6. When the print preview screen appears, make the appropriate selections to print the file.
7. After the file prints, touch the [Back Arrow](#) button to return to the [Print from USB](#) screen, or touch the [Home](#) button to return to the printer home screen.

## Factors that affect printer performance

Several factors affect the time it takes to print a job:

- The software that you are using and its settings
- The use of special paper (such as heavy paper or custom-size paper)
- Printer processing and download time
- The complexity and size of graphics
- The speed of the computer you are using
- The USB or network connection
- How much ink must be used to print the page
- The type of USB drive, if you are using one
- Environmental factors, such as low temperature or high humidity

# Troubleshooting process

## Determine the problem source

When the printer malfunctions or encounters an unexpected situation, the printer control panel might display a error message. This section contains a pre-troubleshooting checklist to filter out many possible causes of the problem. A troubleshooting flowchart helps to diagnose the root cause of the problem. The remainder of this chapter provides steps for correcting problems.

- Use the troubleshooting flowchart to pinpoint the root cause of hardware malfunctions. The flowchart guides you to the section of this chapter that contains steps for correcting the malfunction.

Before beginning any troubleshooting procedure, check the following issues:

- Are supply items within their rated life?
- Are supply items Genuine HP supplies?
- Does the printer status page reveal any configuration errors?



**NOTE:** The customer is responsible for checking supplies and for using supplies that are in good condition.

## Troubleshooting flowchart

This flowchart highlights the general processes to follow that quickly isolate and solve printer hardware problems.

Each row depicts a major troubleshooting step. A “yes” answer to a question indicates that proceeding to the next major step is the correct action. A “no” answer indicates that more testing is needed. Go to the appropriate section in this chapter, and follow the instructions there. After completing the instructions, go to the next major step in this troubleshooting flowchart.

Table 2-1 Troubleshooting flowchart

1 Power on	Is the printer on and does a readable message display?	Follow the power-on troubleshooting checks. See <a href="#">Power subsystem on page 66</a> .
	Yes ↓      No →	After the control-panel display is functional, see step 2.
2 Control-panel messages	Does an error message appear on the control panel display?	After the errors have been corrected, go to step 3. Use the control-panel messages document (CPDM) for this printer to diagnose the error. See <a href="#">Control Panel Messages Document (CPMD) on page 65</a> .
	No ↓      Yes →	
3 Event log	Open the <a href="#">Support Tools Troubleshooting</a> sub menu and print an event log to see the history of errors with this printer.	If the event log does not print, check for error messages. Use the control-panel messages document (CPDM) for this printer to diagnose the error. See <a href="#">Control Panel Messages Document (CPMD) on page 65</a> .
	Does the event log print?	If paper jams inside the printer, clear the jam. See the clear paper jams section of the printer troubleshooting manual.
	No ↓      Yes →	After successfully printing and evaluating the event log, see step 4.

**Table 2-1 Troubleshooting flowchart (continued)**

<p><b>4</b></p> <p><b>Information pages</b></p>	<p>Print a <a href="#">Printer Status</a> page, and verify printer information and printhead information.</p> <p>Are all the accessories installed?</p> <table border="1"> <tr> <td>Yes ↓</td> <td>No →</td> </tr> </table>	Yes ↓	No →	<ol style="list-style-type: none"> <li>From the control panel Home screen, touch the blue bar (dashboard) located at the top of the display</li> <li>Touch the <a href="#">Setup</a> button at the top left of the display</li> <li>Scroll to, and then touch the <a href="#">Reports</a> item.</li> <li>Touch the <a href="#">Printer Status Report</a> item.</li> </ol> <p>Evaluate the printer status pages.</p> <p>After evaluating the printer status pages, see step 5.</p> <p><b>NOTE:</b> Resolve any problems found by evaluating the status page. If the printer problem is resolved, the troubleshooting process is complete.</p>		
Yes ↓	No →					
<p><b>5</b></p> <p><b>Print quality</b></p>	<p>Does the print quality meet the customer's requirements?</p> <table border="1"> <tr> <td>Yes ↓</td> <td>No →</td> </tr> </table>	Yes ↓	No →	<ol style="list-style-type: none"> <li>Open the following menus: <ul style="list-style-type: none"> <li><a href="#">Support Tools</a></li> <li><a href="#">Troubleshooting</a></li> <li><a href="#">Diagnostic pages</a></li> </ul> </li> <li>Open the sub menu and print a Print Quality page. Follow the instructions on the report page.</li> <li>Compare the customer's images with the print quality section of the printer troubleshooting manual.</li> <li>After the print quality is acceptable, see step 6 (MFP printers) or step 8 (SFP printers).</li> </ol>		
Yes ↓	No →					
<p><b>6</b></p> <p><b>Integrated scanner assembly (MFP printers)</b></p>	<p>Can copies be made by using the document feeder and the flatbed glass?</p> <table border="1"> <tr> <td>Yes ↓</td> <td>No →</td> </tr> </table>	Yes ↓	No →	<p>If error messages display on the control panel when making copies with the document feeder or flatbed glass, see the control-panel messages document (CPDM) for this printer. See <a href="#">Control Panel Messages Document (CPMD) on page 65</a>.</p> <p>If the document feeder mispicks pages, check the rollers for deterioration or contamination (replace if necessary).</p>		
Yes ↓	No →					
<p><b>7</b></p> <p><b>Interface</b></p>	<p>Can the customer print successfully from the host computer?</p> <table border="1"> <tr> <td>Yes ↓</td> <td>No →</td> </tr> <tr> <td>Yes. This is the end of the troubleshooting process.</td> <td></td> </tr> </table>	Yes ↓	No →	Yes. This is the end of the troubleshooting process.		<p>Verify that all I/O cables are connected correctly and that a valid IP address is listed on the printer status page.</p> <p>If error messages display on the control panel when you try to print an event log, see the control-panel messages document (CPDM) for this printer. See <a href="#">Control Panel Messages Document (CPMD) on page 65</a>.</p> <p>When the customer can print from the host computer, this is the end of the troubleshooting process.</p>
Yes ↓	No →					
Yes. This is the end of the troubleshooting process.						

## Control Panel Messages Document (CPMD)

The Control Panel Messages Document (CPMD) is not provided in this service manual. The CPMD for this printer is available to HP service personnel on the HP Web-Based Interactive Search Engine (WISE) website. Go to one of the WISE websites listed below, and then search by printer name.

The CPMD is available to channel partners through the HP Channel Services Network (CSN) at [www.hp.com/partners/csn](http://www.hp.com/partners/csn).

## AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

## APJ

- <https://support.hp.com/wise/home/apj-en>
- <https://support.hp.com/wise/home/apj-ja>
- <https://support.hp.com/wise/home/apj-ko>
- <https://support.hp.com/wise/home/apj-zh-Hans>
- <https://support.hp.com/wise/home/apj-zh-Hant>

## EMEA

- <https://support.hp.com/wise/home/emea-en>

## Power subsystem

### Power-on checks

The basic printer functions should start up when the printer is connected into an electrical outlet and the power switch is pushed to the *on* position. If the printer does not start, use the information in this section to isolate and solve the problem.



---

**NOTE:** Use the procedures in this section to help troubleshoot the printer during a field service call.



**TIP:** When printer power is off, briefly push in on the power switch. If it lights up amber, the power supply is correctly functioning.

---

If the control-panel display remains blank, perform power-on checks to find the cause of the problem.


### Power-on troubleshooting overview

Various sounds should be heard during normal startup.

If the control panel is blank when you turn on the printer, check the following items:

1. Make sure that the printer is connected directly into an active electrical outlet (not a power strip) that delivers the correct voltage.
2. Make sure that the power switch is in the *on* position. It should be illuminated white.
3. Make sure that the power supply is operational. With the printer power off, briefly push in on the power switch. If it lights up amber, the power supply is correctly functioning.

---

 **NOTE:** A condition can exist where the amber light is on, but one of the other power rails is fused. If a failed power supply is suspected, measure the voltage on each of the seven power rails (the rails are connected to the red wires that connect the MPCA to the power supply).

- When the printer is in PowerSave mode (control panel off), each rail measures 12.66V.
- When the printer is operational, each rail measures 33.34V

If any rail deviates from these measurements, replace the power supply.

---

4. Check the control-panel connectors at the control-panel end and the main PCS (MPCA).
5. Make sure the power switch is in the on position, and then verify that the LEDs on the MPCA are illuminated and/or blinking.
6. Remove any external solutions, and then try to turn the printer on again.

Check the main PCA (MPCA) LEDs for correct functionality (see the following figure and tables).

Figure 2-3 MPCA LEDs

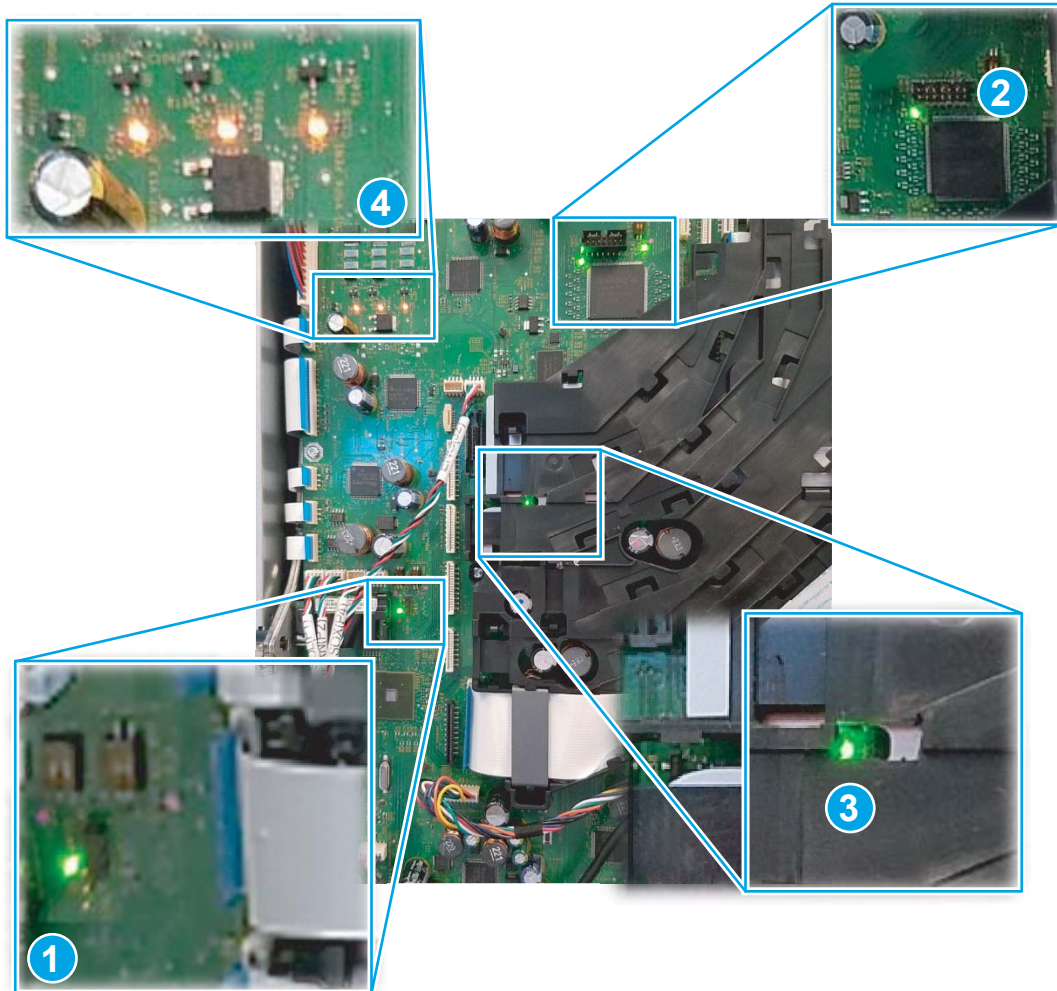


Table 2-2 MPCA LEDs

Item	Description	Item	Description
1	Heartbeat LED (four blinks per second)	3	Heartbeat LED (two blinks per second)
2	FPGA programmed	4	Printhead power on LEDs

**NOTE:** Illuminates when the FPGA is programmed (at every printer initialization).

Table 2-3 MPCA LED sequence at printer power on

Time from Power on (mm:ss)	Item	Description
00:09	1	Formatter digital ASIC heartbeat LED starts blinking a couple of seconds after power button is pressed.
00:19	2	FPGA programmed LED (2) illuminates (and remains on).
00:20	3	FPGA heartbeat LEDs begins blinking after FPGA starts up.

**Table 2-3** MPCA LED sequence at printer power on (continued)

Time from Power on (mm:ss)	Item	Description
00:45	4	Print controller digital ASIC heartbeat LED starts blinking about one minute after the FPGA heartbeat LED starts up.
01:48	5	Printhead power LEDs illuminate.

## Control panel checks



**NOTE:** The printer includes a diagnostic test mode for the large touchscreen control panels.

- [Troubleshooting a blank display, black display, no display, or no power situation](#)
- [Control panel diagnostics](#)

The control-panel display should briefly illuminate when the printer power is turned on and the printer is initializing. This indicates the following:

- The control panel flat-flexible cable (FFC) is connected at the control panel and the main PCA (MPCA).

If the control-panel display does not briefly illuminate during printer initialization, first verify that the control panel FFC connections at both ends are connected and fully seated.

Secondly, check to make sure that the MPCA LEDs are functioning—non-existent or incorrectly functioning MPCA LEDs indicate that there is a problem with the MPCA. See [Figure 2-3 MPCA LEDs on page 68](#).

If the control panel is not functioning after the product initialization is complete, see [Troubleshooting a blank display, black display, no display, or no power situation on page 71](#).



## Troubleshooting a blank display, black display, no display, or no power situation

Customers usually report that the control-panel display is not showing anything. It is very important to collect as much information as possible from the customer about the issue to help resolve it.

Following are some possible causes of a blank control-panel display:

- No power to the printer.
- The control-panel connectors at the MPCA are not fully seated.
- A faulty component is installed on the MPCA (for example a fax PCA, USB device, eMMC, or other component).
- The MPCA is defective.
- The control-panel dashboard PCA is defective.
- The control panel connector is not fully seated, or the control panel is defective.


Following are some questions to ask the customer:


- Was the printer newly install or has the printer been properly functioning?
  - For a new install, investigate to see if there was any shipping damage to the printer.
  - Did the customer notice any damage to the shipping box or any visible damage to the printer?
- What happened just prior to the control panel going blank?
  - Was the printer serviced recently, or has a power outage recently occurred?
  - Has a lightning storm recently occurred?
  - Did the customer recently install a third-party component?
- Make sure to get a complete description of the failure.
  - Is the control-panel display completely blank?
  - Has a print job been sent to the printer? The customer might report that their print jobs seemed to print but when they go to the printer the control-panel display is blank.

### Recommended actions

If the control-panel display is completely blank, check to see if the printer is getting power. Listen for startup sounds when the power is turned on.

---

 **IMPORTANT:** Check the main PCA (MPCA) LEDs for correct functionality (see the following figure and tables). See [Figure 2-3 MPCA LEDs on page 68](#).

 **NOTE:** With the printer power off, briefly push in on the power switch. If it lights up amber, the power supply is correctly functioning.

---

If there are no signs of power, then perform the following:

1. Make sure that the printer is plugged directly into an active electrical outlet (not a power strip or interruptible power supply) that delivers the correct voltage.


---

 **TIP:** Try using a different power cable if possible.

---

2. Turn the printer power on, and make sure that normal startup sound occur.
3. Turn the printer power off.
4. Make sure that the control-panel display wire harness (and/or flat cable) is properly connected (and fully seated), and then turn the printer power on again.
5. From a host computer, send a print job to the printer.

---

 **NOTE:** If the print job correctly prints, then the problem is most likely a defective control panel.

---

6. Turn the printer power off, and then make sure that the eMMC is fully seated.
7. Turn the printer power on, and then check the control-panel display.
8. If the control-panel display is still blank after performing the above troubleshooting steps, replace the following:
  - **Touchscreen (MFP/SFP small touchscreen):** MPCA.
  - **Touchscreen (MFP large touchscreen):** control-panel dashboard PCA and/or MPCA.

## Control panel diagnostics

- [Touchscreen diagnostic mode \(MFP\)](#)
- [Control panel system diagnostics](#)

### Touchscreen diagnostic mode (MFP)

Use the diagnostics in this section to test the control panel hardware and embedded firmware. These tests are useful for checking control panel functionality independent of the printer control panel system diagnostics. To test the control panel using the system diagnostics, see [Control panel system diagnostics on page 76](#).

1. **MFP only:** Locate the diagnostic-tests access button on the back of the control panel.

**Figure 2-4** Diagnostic-tests access button (MFP)



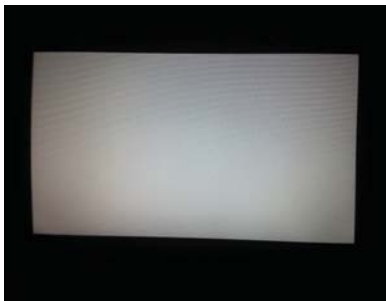
2. Press and hold down the diagnostics-access button to cycle through test patterns and gradients screens.

 **NOTE:** Press and release the button to display the touchscreen diagnostic screen.

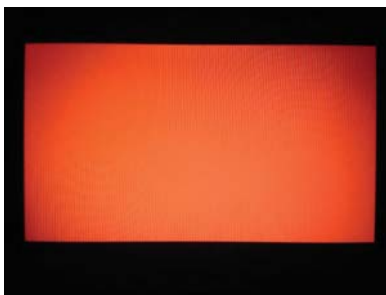
Figure 2-5 Press and hold down the diagnostics-access button



- A white screen.



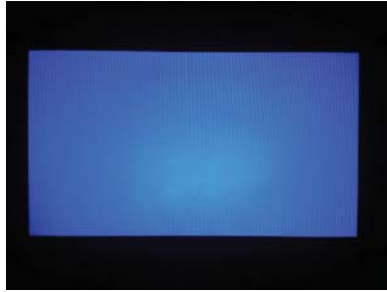
- A red screen.



- A green screen.

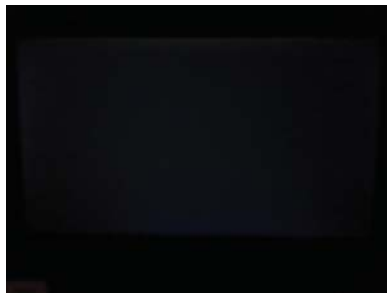


- A blue screen.



- A black screen.

 **TIP:** Holding the diagnostics-access button continues to cycle through the test pattern and gradient screens.



3. Release the diagnostics-access button to display the touchscreen diagnostic screen.

 **TIP:** To skip the test pattern and gradient screens, press and release the diagnostic access button once.

**Figure 2-6** Enter the diagnostic mode



## Control panel system diagnostics

Use the diagnostics in this section to test the control panel hardware and display using the control-panel firmware system diagnostics.

### Enter the control panel system diagnostics (MFP)

 **NOTE:** After about 30 seconds of inactivity, the control panel automatically exits diagnostic mode.



1. Press and release the diagnostics-access button (located on the back side of the control panel) to display the touchscreen diagnostic screen.
2. Touch the LED buttons on the touchscreen to illuminate the associated button icons on the display (callouts 1/2/3).

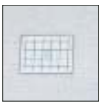
 **NOTE:** A blue button illuminates on the display when the LED button is selected.

Figure 2-8 Test the control panel LED buttons



3. On the control-panel touchscreen, use the following selections to test functionalities.

 **NOTE:** Touch the back-arrow button  to revert to the diagnostic home screen.



Select this item to display a touchscreen grid on the display.  
Test the touchscreen by dragging a finger across the display.



Select this item to display touchscreen coordinates on the display.  
Test the touchscreen by touching various displayed coordinates. The selected coordinates appear on the display above the back button (located at the center of the screen).



Select this item to display various test screens and patterns.

**NOTE:** Use the up and down arrow buttons (located on the right side of the display) to cycle through the available test screens and patterns.



Select his item to test screen brightness.

**NOTE:** Use the up and down arrow buttons (located on the right side of the display) to change the screen brightness (range: 100% to 30%).



Select his item to test the sound function.

**NOTE:** Use the up and down arrow buttons (located on the right side of the display) to change the sound volume (range: 10 to 0), and then touch the speaker icon to test the sound level.



Select his item to display control-panel information (for example, firmware version).

---


# Tools for troubleshooting

## Print the print status and printhead information pages

In addition to the main status page, the printhead information page prints.

## Print the printer status and printhead information pages

Use the printer status and printhead information pages to view product information, view cartridge system information, and to help troubleshoot printer problems.

1. From the control panel Home screen, touch the blue bar (dashboard) located at the top of the display.
2. Touch the [Setup](#)  button at the top left of the display.
3. Scroll to, and then touch the [Reports](#) item.
4. Touch the [Printer Status Report](#) item.
5. If the report does not print, make sure that paper is loaded in the trays, and check the control panel to see if paper is jammed inside the printer.



**NOTE:** Make sure that the paper in the tray meets specifications for this printer.



Figure 2-9 Printer status page

**Printer Status Report**

**1 Product Information**  
 1. Model Name: HP PageWide Pro 750  
 2. Model Number: 7500n  
 3. Serial Number: MY68J4C039  
 4. Product Number: Y3Z44A  
 5. Service ID: 26294  
 6. Printer Zone (PX): 2  
 7. Firmware Version: LIMOFWMP1A002.1646C.00  
 8. Country/Region: 15 / 1  
 9. Duplexer: Installed  
 10. ADF: Installed  
 11. DII: UD  
 12. Date/Time: 11/28/2016 04:51:56 PM

**2 Connectivity Settings**  
 16. Network Settings: Offline  
 17. Active Connection Type: Offline  
 18. URL: http://0.0.0.0  
 19. Hostname: HP64429B  
 20. Admin Password: Not Set

**3 Fax Settings**  
 25. Speed: Medium (14400)  
 26. Backup Fax Reception: On  
 27. Fax Forwarding: Off  
 28. Auto Answer: On  
 29. Rings to Answer: 5  
 30. Distinctive Ring: All Rings  
 31. (ECM) Error Correction Mode: On  
 32. Fax to PC: Off  
 33. Digital Fax: E-mail  
 34. Digital Fax: Network

**4 Scan Settings**  
 21. Front Panel Destinations List: 0  
 22. Scanner Glass Test: Not Run

**5 Scan Usage Information**  
 23. Pages Scanned: 15  
 24. Scans From ADF: 0

**6 Fax Usage Information**  
 35. Faxes Sent: 0  
 36. Faxes Received: 0

**7 Print Usage Information**  
 13. Total Pages Printed: 205  
 14. Total Color Pages Printed: 61  
 15. Duplex page count: 0

**8 Cartridge System information**  
 37. Cartridge  
 38. Estimated Cartridge Level:

	Yellow	Magenta	Cyan	Black
39. Cartridge Number:	HP 990X	HP 990X	HP 990X	HP 990X
40. End of warranty date (Y-M-D):	2019/07/09	2019/09/10	2019/07/09	2019/09/10
41. First installation date (Y-M-D):	2016/10/21	2016/10/21	2016/10/21	2016/10/21
42. Cartridge Zone:	2	2	2	2
43. USE:	0	0	0	0
44. CM:	255	255	255	255
45. HP:	1	1	1	1
46. Approximate Pages Remaining:	> 12000	> 12000	> 12000	> 16000
47. Supported Cartridges*:	HP 990A HP 990X	HP 990A HP 990X	HP 990A HP 990X	HP 990A HP 990X
**Not all cartridges are available in all regions.				
48. NHIO:	0	0	0	0
49. IRO:	0	0	0	0
50. SS:	0	0	0	0
51. Cartridge status slider:	-1	-1	-1	-1
52. Supply Serial Number:	430999635	441092570	430975539	440494476
53. Mfg Date:	2016/07/08	2016/09/09	2016/07/08	2016/09/09
54. SHAID Status:	0	0	0	0
55. SHAID Functional:	0	0	0	0
56. Supplies Host/Trade acumen bit:	0	0	0	0
57. Startup complete acumen bit:	0	0	0	0
58. HPSuppliesOnly-State:	Disabled			

1	<b>Product Information</b> includes the firmware version and the service ID.	5	<b>Scan Usage Information</b> includes number of pages scanned from the ADF.
2	<b>Connectivity Settings</b> includes network status.	6	<b>Fax Usage Information</b> includes number of faxes sent.
3	<b>Fax Settings</b> includes fax speed settings and auto answer status.	7	<b>Print Usage Information</b> includes total pages printed and total color pages printed.
4	<b>Scan Settings</b> includes scanner glass test status.	8	<b>Cartridge System Information</b> includes estimated ink levels and end of warranty date.

## Print Head Information page

The second page printed is the printhead information page, which contains the following information:

Figure 2-10 Printhead information page

1

**Print Head Information**

59. Registers:

1.		61	5c	61	5c	5d	60	5b	5c	5f	60
2.		29	2d	2a	2b	2b	2b	2d	2c	2b	2a
3.		d8	cd	d7	de	d8	cb	c8	cf	d9	c9
4.		35	5	15	5	15	15	5	5	15	15
5.		1f	29	1f	1b	1d	1e	1e	29	1d	1e
6.		54	54	54	54	54	54	54	54	54	54
7.		a8	a8	a8	a8	a8	a8	a8	a8	a8	a8
8.		0	0	0	0	0	0	0	0	0	0

Pen Revision: 206 206

60. TVAL: 210, OT: 260, OA: 213, A: 215

61. Total Dot Count (in ml):

a. Yellow: 228

b. Cyan: 264

c. Magenta: 285

d. Black: 286

62. TTOE Done: 1

63. Pages printed since last paper jam: 205

64. Wipe counter: 89

65. DD-SYS: 100

66. DD-HIS: 30 100 100 100

67. DD-CURR: 30 100 100 100

68. Startup complete: 1 255 1 2 0 0

69. Last successful calibration at page count: 189

70. Last failed calibration at page count: 0

71. Number of calibrations performed:

	PEN_ALIGN_0	PEN_ALIGN_1	PEN_ALIGN_2	COLOR_CAL_0	COLOR_CAL_1	COLOR_CAL_2
Success:	10	0	0	10	10	10
Failed:	0	0	0	0	0	0

72. HW Events:

1. 11/21/2016 14:07:51 Error Code:0x04e0d0f Host ID:3 File Name:EC\_hw\_mis02\_v6.e Line:1472
2. 11/11/2016 12:26:51 Error Code:0x0229bd3 Host ID:3 File Name:EC\_hw\_m\_keywords\_page.e Line:549
3. 11/11/2016 11:10:41 Error Code:0x0499a5e Host ID:2 File Name:UT\_FAULT\_0x00000060 Line:0
4. 11/11/2016 09:32:59 Error Code:0x0024176 Host ID:2 File Name:US\_scaBack.zip Line:34
5. 11/10/2016 20:14:53 Error Code:0x0229bd3 Host ID:3 File Name:EC\_hw\_m\_keywords\_page.e Line:549

73. System Events:

1. Seq Num: 38 Date-Time: 11/28/2016 16:22:23 Page-Count: 136 Event-Code:011313 Resp: 0 Desc-ID: 0
2. Seq Num: 37 Date-Time: 11/28/2016 15:34:10 Page-Count: 134 Event-Code:010425 Resp: 0 Desc-ID: 0
3. Seq Num: 36 Date-Time: 11/28/2016 15:33:44 Page-Count: 134 Event-Code:010525 Resp: 1 Desc-ID: 0
4. Seq Num: 35 Date-Time: 11/28/2016 15:33:19 Page-Count: 134 Event-Code:0105E0 Resp: 0 Desc-ID: 0
5. Seq Num: 34 Date-Time: 11/18/2016 16:15:20 Page-Count: 129 Event-Code:012C59 Resp: 0 Desc-ID: 0

2

3

4

**Additional Assistance**

For more information about how to change settings and diagnose problems, see the user documentation for your device. This documentation is available on your computer after you install the software—either from the HP PageWide Pro 750 Printer Software (Windows) or the Help Viewer (Mac OS).

**Fax Test Setup**

To verify that your product is setup correctly for Fax, run the Fax Test. You can access this test from the device control panel or from the HP PageWide Pro 750 Printer Software.

**Wireless Network Test**

To verify your product is setup correctly for Wireless, run the Wireless Network Test. You can access this test from the device control panel.

1	<p><b>Printhead Information</b> includes wipe counter and last successful calibration (at page count).</p>	3	<p><b>Fax Test Setup</b> includes information about performing the printer fax test.</p>
2	<p><b>Additional Assistance</b> includes locating changing settings and problem diagnostic information for customers.</p>	4	<p><b>Wireless Network Test</b> includes information about performing the printer wireless functionality test.</p>

80 Chapter 2 Solve problems

ENWW


## Event log messages

See the printer control-panel message document (CPMD) for event-log entry descriptions and solutions.



**IMPORTANT:** The CPMD is not provided in this service manual. See the **Control Panel Messages Document (CPMD)** section in the printer troubleshooting manual, and then search by the printer name.

### View, sort, filter, or print an event log

1. From the [Home](#) screen, scroll to and then touch the [Support Tools](#) button.
2. Touch the [Troubleshooting](#) button.
3. Do one of the following:
  - **MFP large touchscreen:** Touch the [Reports](#) button.
  - **MFP/SFP small touchscreen:** Touch the [Setup](#)  button (located at the lower left corner of the display).
4. Touch the [Event Logs](#) item to display the log.



**NOTE:** Touch an event log entry to display more information about the error event. This information might be sufficient to resolve the error without referring to the control panel message document (CPMD).

Swipe your finger down or up the control panel display to scroll through log entries, or use the three icons at the bottom left of the event log screen to do the following (from left to right):

- Sort entries by the following criteria:
  - [Event Class](#)
  - [Date/Time \(ascending\)](#)
  - [Date/Time \(descending\)](#)
  - [Event Code \(ascending\)](#)
  - [Event Code \(descending\)](#)
  - [Repetitions \(ascending\)](#)
  - [Repetitions \(descending\)](#)
- Filter entries by the following criteria:
  - [Show all](#)
  - [F6.-.-.-](#)
  - [44.-.-.-](#)
  - [17.-.-.-](#)
  - [61.-.-.-](#)
  - [31.-.-.-](#)
- Print the event log page (touch the printer icon).

# Individual component diagnostics

## LED diagnostics

### Understand lights on the main PCA (MPCA)

The LEDs on the main printed circuit assembly (MPCA) and the AC control module (ACCM) indicate that the printer is functioning correctly.

#### MPCA LEDs

Figure 2-11 MPCA LEDs

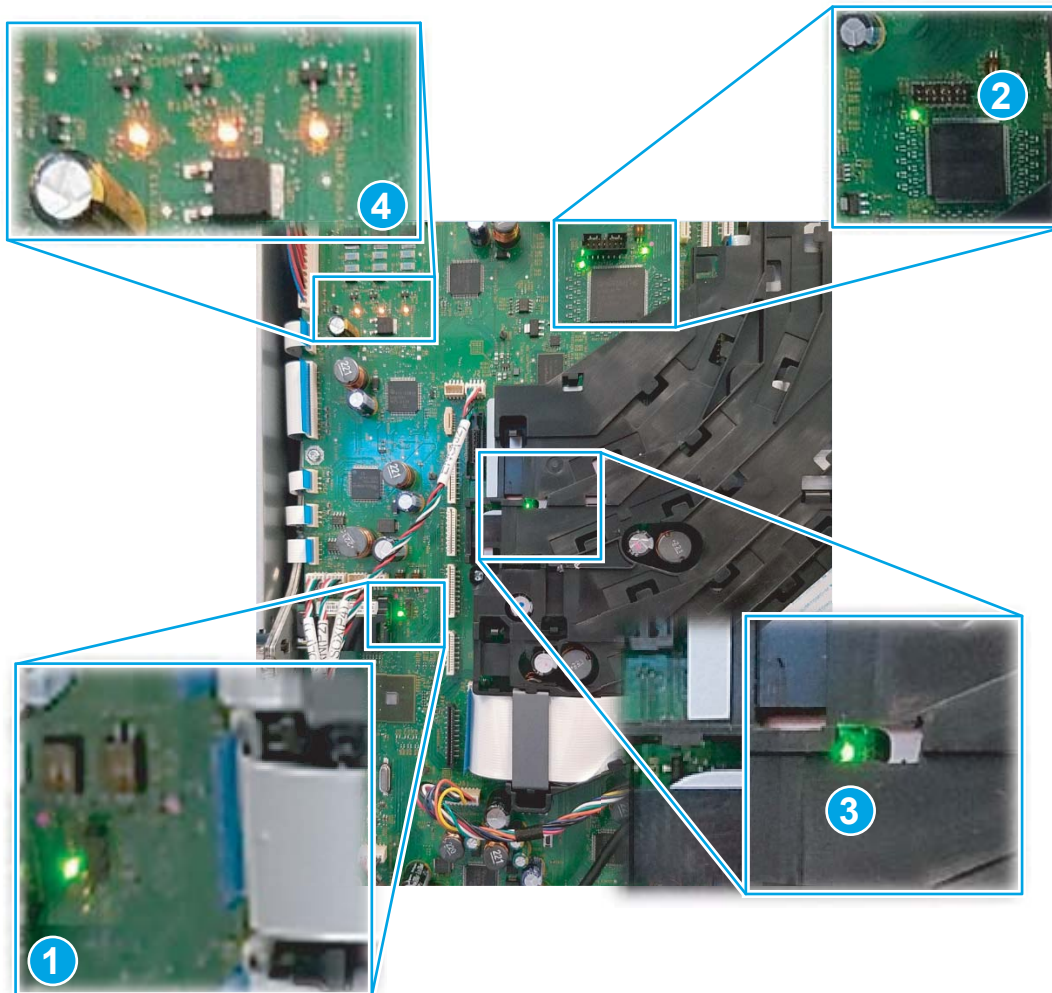


Table 2-4 MPCA LEDs

Item	Description	Item	Description
1	Heartbeat LED (four blinks per second)	4	Heartbeat LED (two blinks per second)
2	Heartbeat LED (one blink per second)	5	Printhead power on LEDs
3	FPGA programmed		

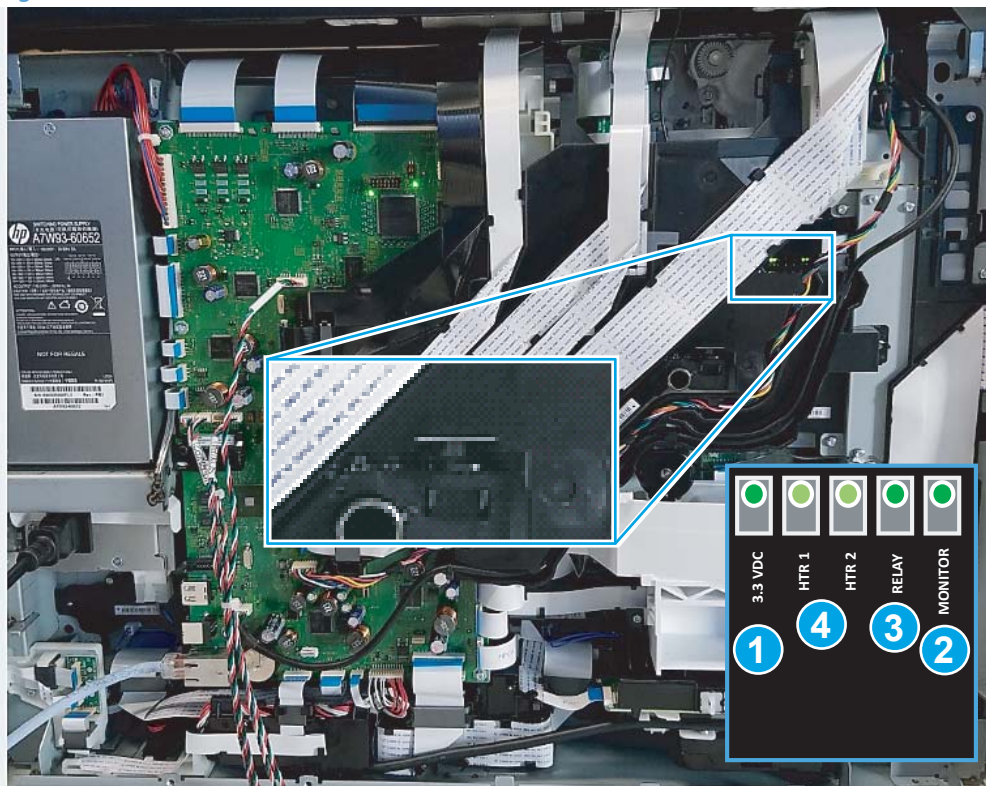
**NOTE:** Illuminates when the FPGA is programmed (at every printer initialization).

**Table 2-5** MPCA LED sequence at printer power on

Time from Power on (mm:ss)	Item	Description
00:09	1	Formatter digital ASIC heartbeat LED starts blinking a couple of seconds after power button is pressed.
00:19	2	FPGA programmed LED (2) illuminates (and remains on).
00:20	3	FPGA heartbeat LEDs begins blinking after FPGA starts up.
00:45	4	Print controller digital ASIC heartbeat LED starts blinking about one minute after the FPGA heartbeat LED starts up.
01:48	5	Printhead power LEDs illuminate.

ACCM LEDs

**Figure 2-12** ACCM LEDs



**Table 2-6** ACCM LEDs

Item	Description	Item	Description
1	3.3 VDC (from MPCA)	3	Relay (ON = 120 VAC mode)
2	VAC input power monitor	4	Heating element power

**NOTE:** Illuminates when the FPGA is programmed (at every printer initialization).

**Table 2-7** ACCMA LED sequence at printer power on


Time from Power on (mm:ss)	Item	Description
00:02	1	3.3 VDC LED illuminates (and remains on) a couple of seconds after power button is pressed.
00:19	2	VAC input power monitor LED (2) illuminates (and remains on).

## Paper path test

Use the paper path test to perform [Tests and Calibrations](#), [Media Sensing diagnostics](#), and test the [Transport System](#). See the Service mode function section of the printer *Troubleshooting Manual* for more information.

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access Type](#) area. Touch the [Enter Access Code](#) item to display the on-screen keypad.
4. Type in the following service access code for the printer:
  - 05075017
5. Touch the [Done](#) button to enter the [Service](#) menu.

---

 **NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

6. Open the following menus:
  - [System Diagnostics](#)
  - [Paper Path](#)
  - [Paper Path Test](#)
7. Touch the [OK](#) button. Follow the prompts (if displayed) on the control-panel display to complete the procedure).

---

 **NOTE:** See the Service mode function section of the printer *Troubleshooting Manual* for more information.

---

## Scanner and document feeder tests (MFP models only)

Use these diagnostic tests to manually test the document feeder and scanner.

### Scanner tests

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access Type](#) area. Touch the [Enter Access Code](#) item to display the on-screen keypad.
4. Type in the following service access code for the printer:
  - 05075017
5. Touch the [Done](#) button to enter the [Service](#) menu.



**NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

6. Open the following menus:
  - [System Diagnostics](#)
  - [Scanning System](#)
7. Select the desired component ([Scanner Glass](#) or [Automatic Document Feeder](#)) and then touch the [OK](#) button. Select from the list of available calibrations or tests for that component, and then touch [OK](#) to begin the procedure.



**NOTE:** See the Service mode function section of the printer *Troubleshooting Manual* for more information.

---



## Diagrams

- [Plug/jack locations](#)
- [Paper handling control diagrams](#)
- [Subsystem map diagrams](#)

### Plug/jack locations

Figure 2-13 Plug/jack locations



Table 2-8 Plug/jack locations

Item	Description
1	Power receptacle
2	Kensington security slot
3	USB port for connecting external USB devices
4	Hi-Speed USB 2.0 printing port
5	Local area network (LAN) Ethernet (RJ-45) network port
Not shown	Fax port (fax models only)

**NOTE:** When looking at the rear of the printer, the fax ports are located under the right-side rear lift assist handle.

## Paper handling control diagrams

The diagrams in this section are portions of an all inclusive paper handling diagram that is too large to include here.

HP recommends downloading this document from one of the following Web-based Interactive Search Engines (WISE) sites. Go to the appropriate Web site (listed below), and then enter **c05384799** in the search box.

### AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

### APJ

- <https://support.hp.com/wise/home/apj-en>
- <https://support.hp.com/wise/home/apj-ja>
- <https://support.hp.com/wise/home/apj-ko>
- <https://support.hp.com/wise/home/apj-zh-Hans>
- <https://support.hp.com/wise/home/apj-zh-Hant>

### EMEA

- <https://support.hp.com/wise/home/emea-en>

Channel partners, go to HP Channel Services Network (CSN) at [www.hp.com/partners/csn](http://www.hp.com/partners/csn).

- [How to search for printer documentation](#)
- [Printer sensors](#)
- [High capacity input \(HCI\) sensors](#)
- [3x550 tray sensors](#)
- [1x550 tray sensors](#)
- [Printer motors/solenoids](#)
- [High capacity input \(HCI\) motors/solenoids](#)
- [3x550 tray motors/solenoids](#)
- [1x550 tray motors/solenoids](#)
- [Printer printing system](#)

### How to search for printer documentation

The CPMD, error codes, and other support documentation for each printer is found on the internal HP portals [GCSN](#) and [WISE](#) (formerly SAW). GCSN is available to HP channel partners and WISE is available to call agents, service technicians, and other HP internal users. The level of detail available will depend on your access credentials.

## How to search WISE for printer documentation

These instructions are for HP internal use by call agents, service technicians, and other internal users. To learn how to find support content in WISE, watch the video [here](#).

To view a list of control panel message documents per printer in **WISE**, enter document ID **c05048451**, to locate CPMD list.

Go to **WISE** and enter this document ID **c05791539** for written instructions.

## How to search GCSN for printer documentation

These instructions are for internal use by HP Channel Partners. To learn how to find support content in GCSN, watch the video [here](#) or follow these steps:

1. On the Home screen in GCSN, open **Technical information** using one of the following two methods:
  - Type **TINF** in the **Speedcode** field found in the upper right corner and press **Enter**, or
  - On the Home page, click **Technical information** in the left pane.

Contact HP CSN My favorites Tools Useful links Profile Logout

Speedcode

Message center  
FAQ  
Change partner  
Printable version

### HP Channel Services Network

Welcome

HP service delivery  
HP Care Pack services  
HP Warranty lookup  
Unit configuration  
HP part catalog  
HP parts store  
**Technical information**  
Service provider news  
Service Media Library Page

service delivery service sales Programs, training & documentation Reporting & administration

Entitlement  
> HP Warranty lookup  
> Unit configuration

Parts ordering & claims  
HP service delivery  
> HP part catalog

Technical support  
Support tools & information

Additional resources  
> Service Media Library Page  
> HP Unison Partner Portal

- Under **Product Search**, select the **Type**, **Category**, **Family**, and **Series** that match your product model (leave the **Model** field as blank or the default).


 **NOTE:** Make sure to login to GCSN using your service-qualified credentials to access the most comprehensive content list available. To find out how to become service-qualified, contact your HP representative.

Figure 2-14 Sample product search criteria

**Product Search** **Add Favorites**

**Type**  
Printers and Multifunction

**Category**  
Multifunction and All-in-One

**Family**  
HP LaserJet MFP and All-in-One Products

**Series**  
HP Color LaserJet Enterprise MFP M682 series

**Model**  
Select a Model

- Click **Add Favorites** and then click **Add** to add the printer to your Favorites list and allow you to bypass the **Product Search** fields next time for that particular model (Optional).

**Product Search** **Add Favorites**

**Type**  
Printers and Multifunction

**Category**  
Multifunction and All-in-One

**Family**  
HP LaserJet MFP and All-in-One Products

- Clear all of the high-level check boxes.

Select the appropriate check boxes for the document types you wish to review.

<input type="checkbox"/> <b>Support Communications</b>	<input type="checkbox"/> <b>Manuals and Guides</b>	<input type="checkbox"/> <b>Support Information</b>
<input type="checkbox"/> Customer Advisory	<input type="checkbox"/> Illustrated Parts Map	<input type="checkbox"/> ActionProcedureMap
<input type="checkbox"/> Customer Bulletin	<input type="checkbox"/> Install Guide	<input type="checkbox"/> CPMDMap
<input type="checkbox"/> Customer Notice	<input type="checkbox"/> Maintenance/Service Guide	<input type="checkbox"/> Support Information
<input type="checkbox"/> Customer Work Instruction (CSR)	<input type="checkbox"/> Parts Guide	<input type="checkbox"/> Top Issue (Notes: If you are selecting top issue it will return only top issue documents)
<input type="checkbox"/> Product Change Notification	<input type="checkbox"/> QuickSpec	<input type="checkbox"/> Software Support & Drivers Information
<input type="checkbox"/> Security Bulletin	<input type="checkbox"/> Reference Manual	<input type="checkbox"/> Product Bulletin/QuickSpec
<input type="checkbox"/> Service Action Advisory	<input type="checkbox"/> Service Guide/Mannual	<input type="checkbox"/> Buy Care Packs
<input type="checkbox"/> Service Advisory	<input type="checkbox"/> Technical Reference Guide	
<input type="checkbox"/> Service Bulletin	<input type="checkbox"/> Training Material	


- Select the check boxes for the document types for which you want to search.

 **NOTE:** Select only the high-level **Manuals and Guides** search option if you are not sure in which type of manual or guide the content might be listed.

Select the appropriate check boxes for the document types you wish to review.

<input type="checkbox"/> Support Communications	<input type="checkbox"/> Manuals and Guides	<input type="checkbox"/> Support Information
<input type="checkbox"/> Customer Advisory	<input type="checkbox"/> Illustrated Parts Map	<input type="checkbox"/> ActionProcedureMap
<input type="checkbox"/> Customer Bulletin	<input type="checkbox"/> Install Guide	<input checked="" type="checkbox"/> CPMDMap
<input type="checkbox"/> Customer Notice	<input checked="" type="checkbox"/> Maintenance/Service Guide	<input checked="" type="checkbox"/> Support Information
<input type="checkbox"/> Customer Work Instruction (CSR)	<input type="checkbox"/> Parts Guide	<input type="checkbox"/> Top Issue (Note: If you are selecting top issue it will return only top issue documents)
<input type="checkbox"/> Product Change Notification	<input type="checkbox"/> QuickSpec	<input type="checkbox"/> Software Support & Drivers Information
<input type="checkbox"/> Security Bulletin	<input type="checkbox"/> Reference Manual	<input type="checkbox"/> Product Bulletin/QuickSpec
<input type="checkbox"/> Service Action Advisory	<input checked="" type="checkbox"/> Service Guide/Manual	<input type="checkbox"/> Buy Care Packs
<input type="checkbox"/> Service Advisory	<input type="checkbox"/> Technical Reference Guide	
<input type="checkbox"/> Service Bulletin	<input type="checkbox"/> Training Material	
<input type="checkbox"/> Service Notice	<input type="checkbox"/> Troubleshooting Guide	
<input type="checkbox"/> Service Product Announcement	<input type="checkbox"/> Upgrade Manual	
<input type="checkbox"/> Service Program Announcement	<input checked="" type="checkbox"/> User Guide	
<input type="checkbox"/> Technical Work Instruction (TWI)	<input type="checkbox"/> Warranty Statement	
	<input type="checkbox"/> White Papers	

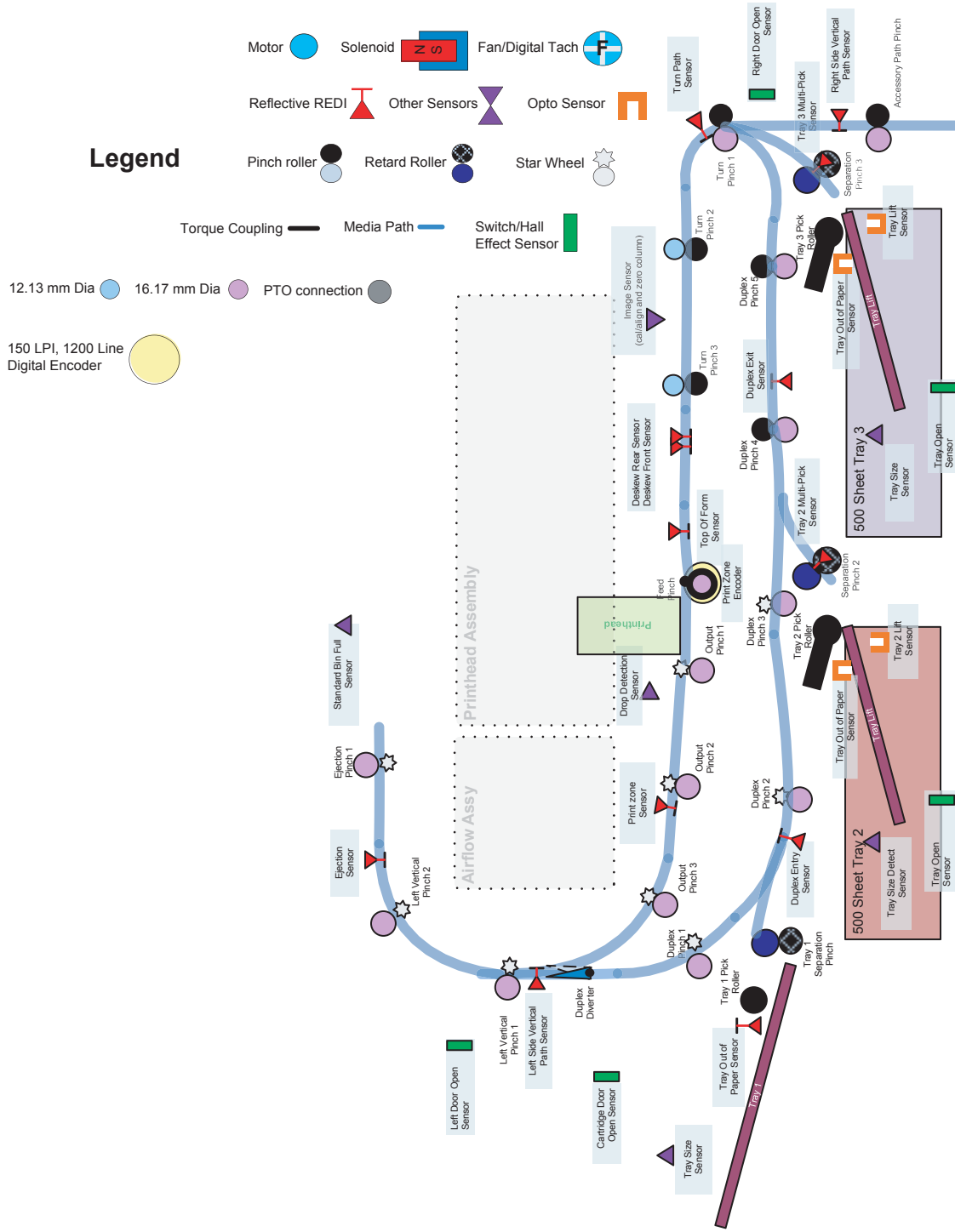
- Select **Submit**.
- If needed, click **Back To selection Criteria** and narrow your search (the maximum allowed search result is 100 documents).

 **NOTE:** Do not select the **Top Issue** option unless you only want to view top issues for that model. All other available content will be filtered out.

Technical information type	Select this checkbox
CPMD	CPMD-Map
List of all CPMDs per product	Support Information
Installation Guide or Hardware Install Guide	Maintenance/Service Guide or Install Guide
Service cost document	Install Guide or Service Guide/Manual
Service guide or Service manual	Service Guide/Manual
Self-solve or troubleshooting document	Support Information
User manual or User guide	User Guide
Warranty and Legal Guide	Warranty Statement

Printer sensors

Figure 2-15 Print engine sensors



# High capacity input (HCI) sensors

Figure 2-16 HCI sensors

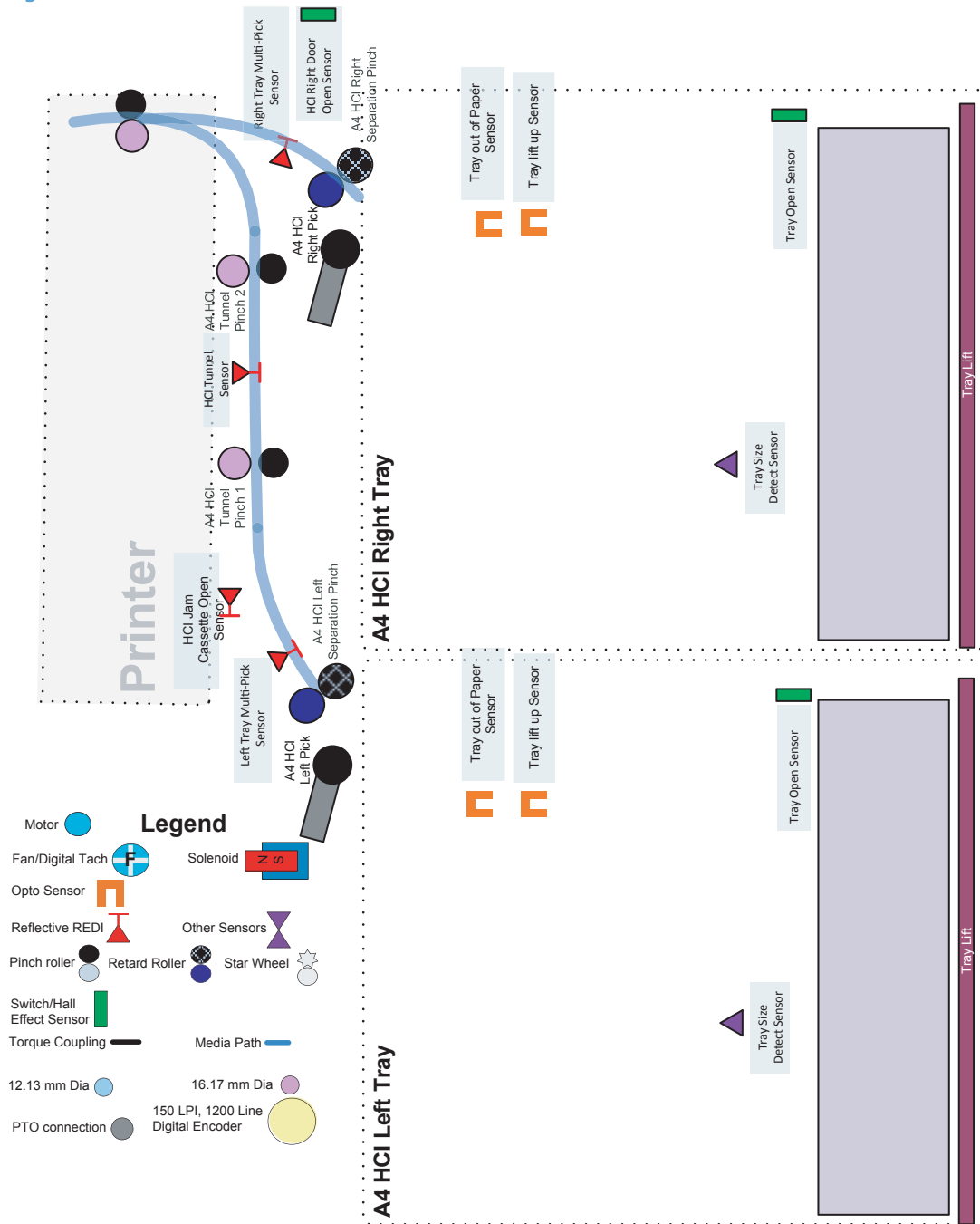
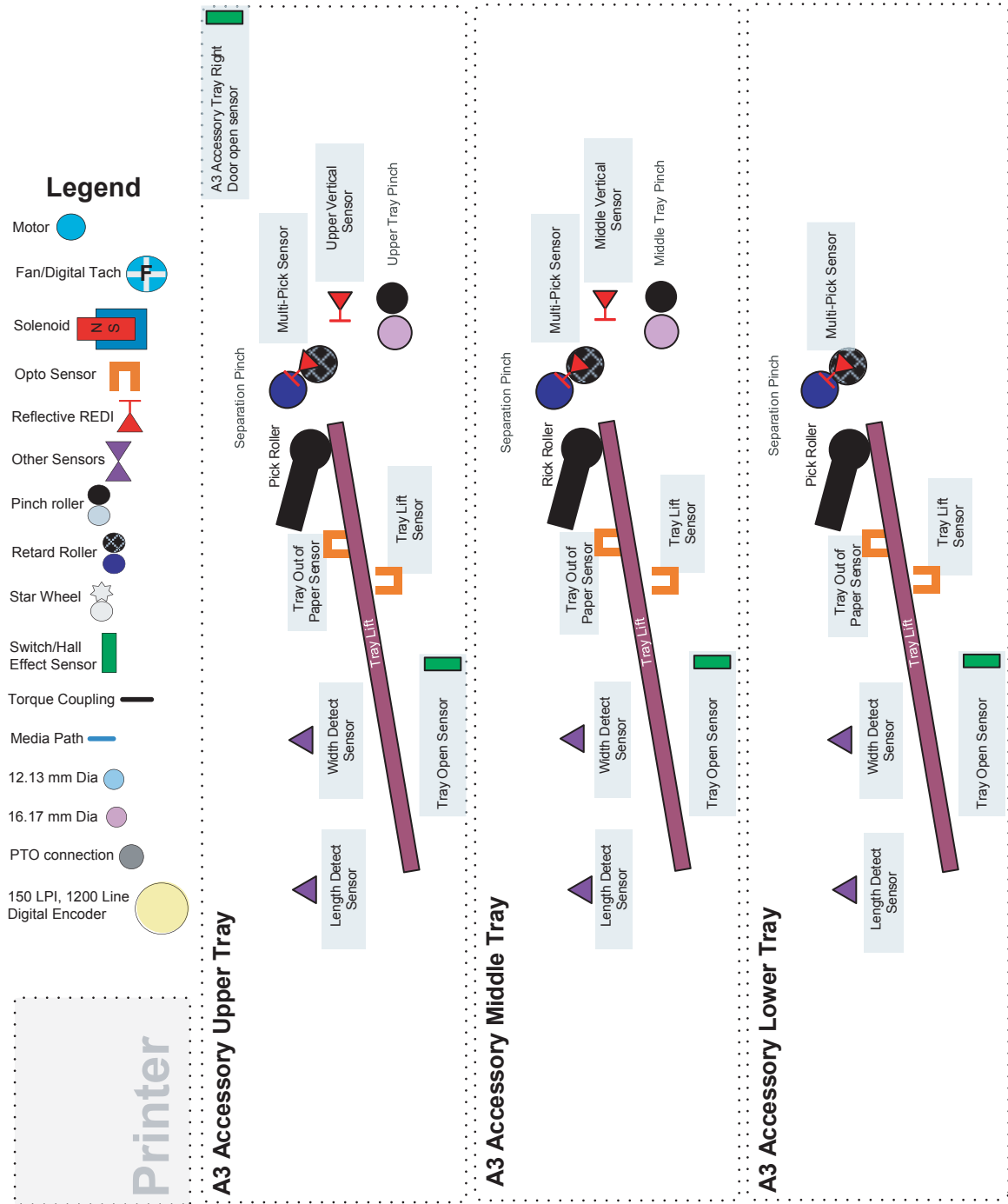


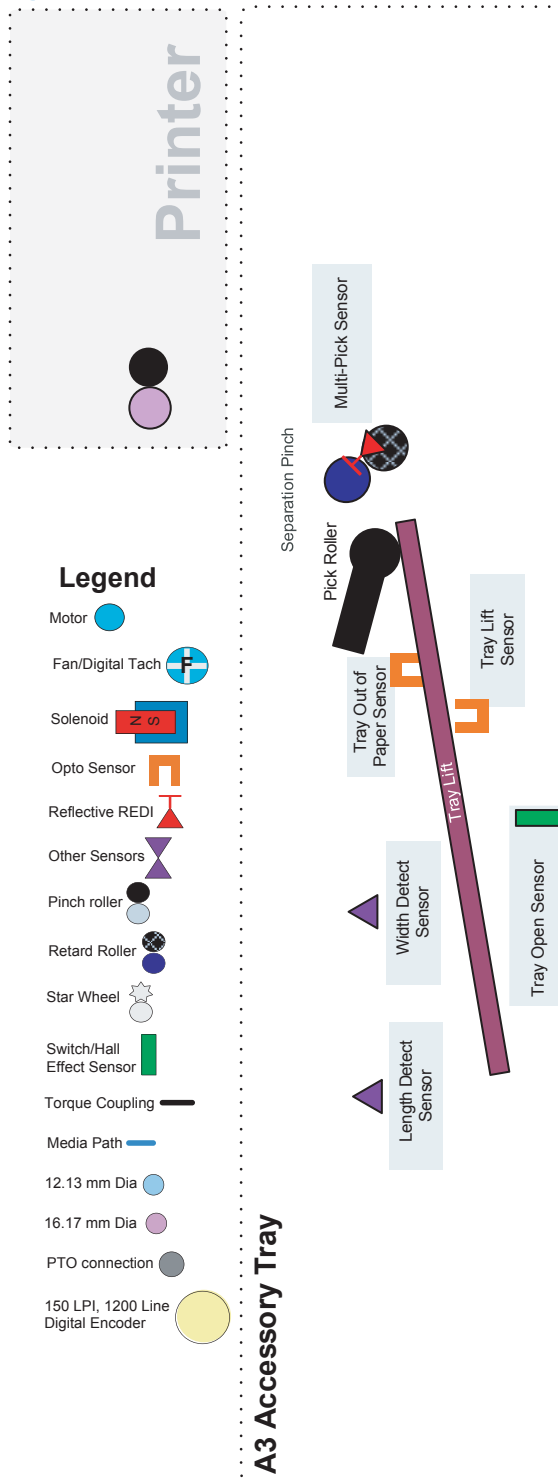
Figure 2-17 3x550 tray sensors





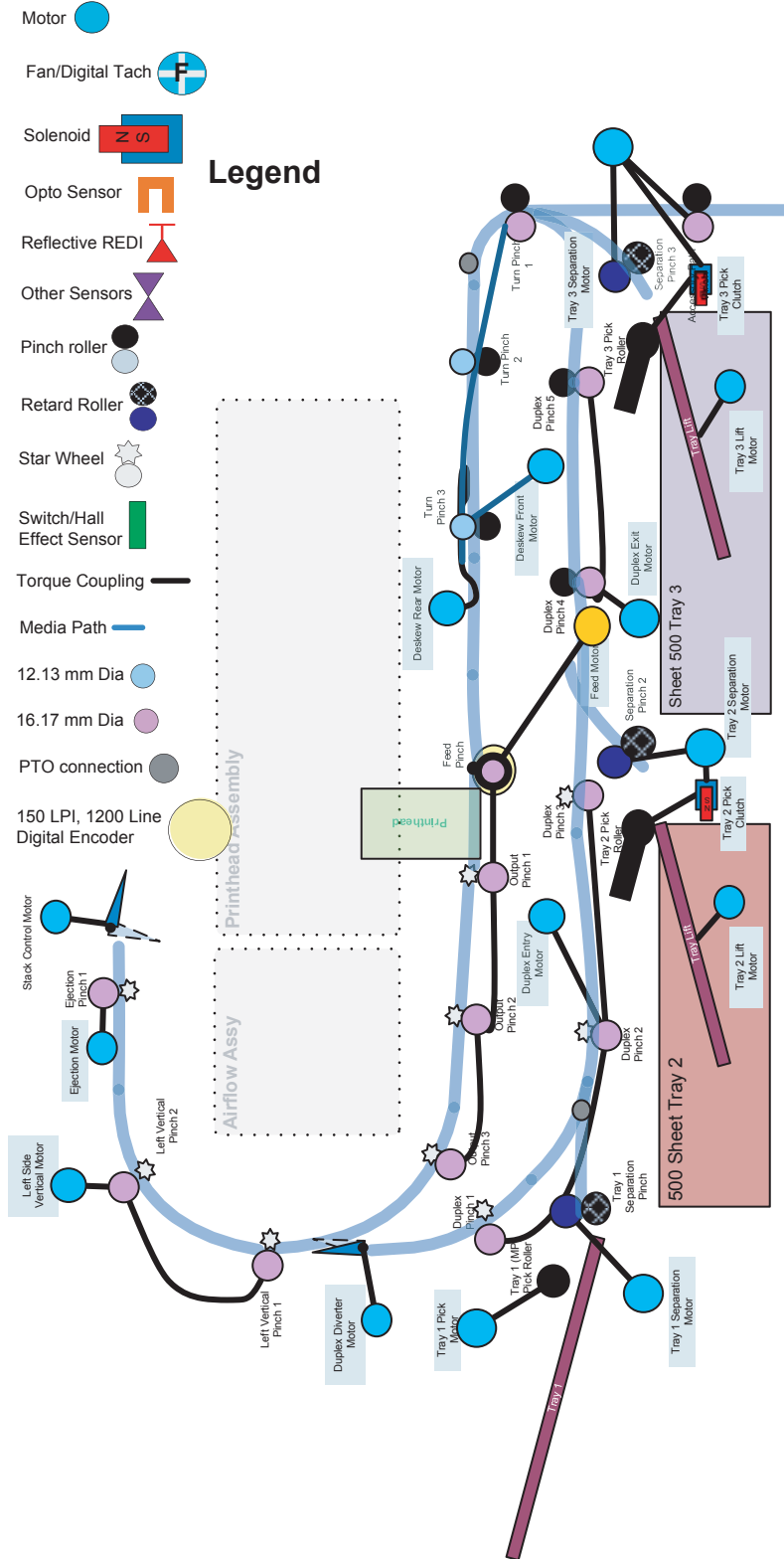
1x550 tray sensors

Figure 2-18 1x550 tray sensors



Printer motors/solenoids

Figure 2-19 Printer motors/solenoids



# High capacity input (HCI) motors/solenoids

Figure 2-20 HCI motors/solenoids

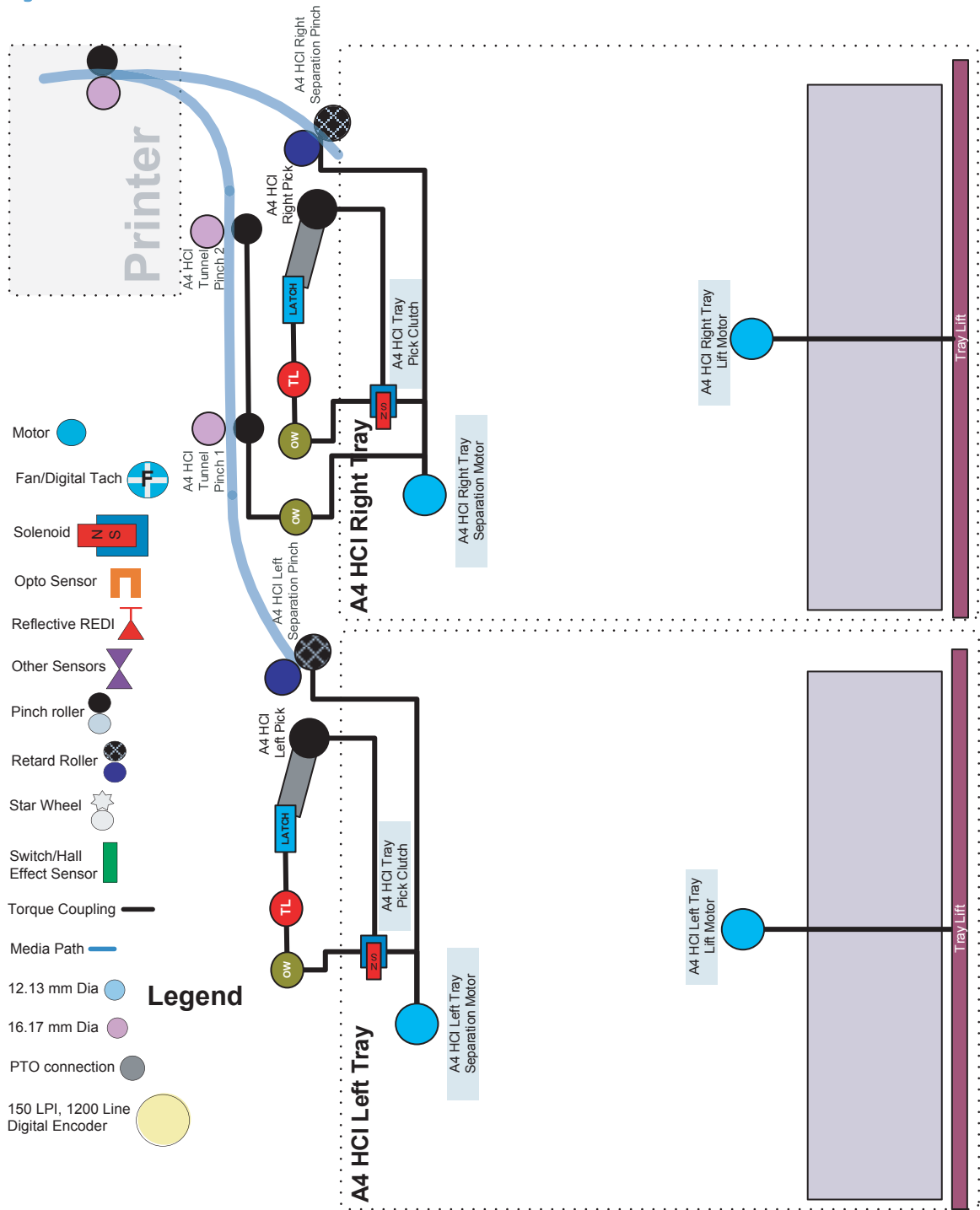
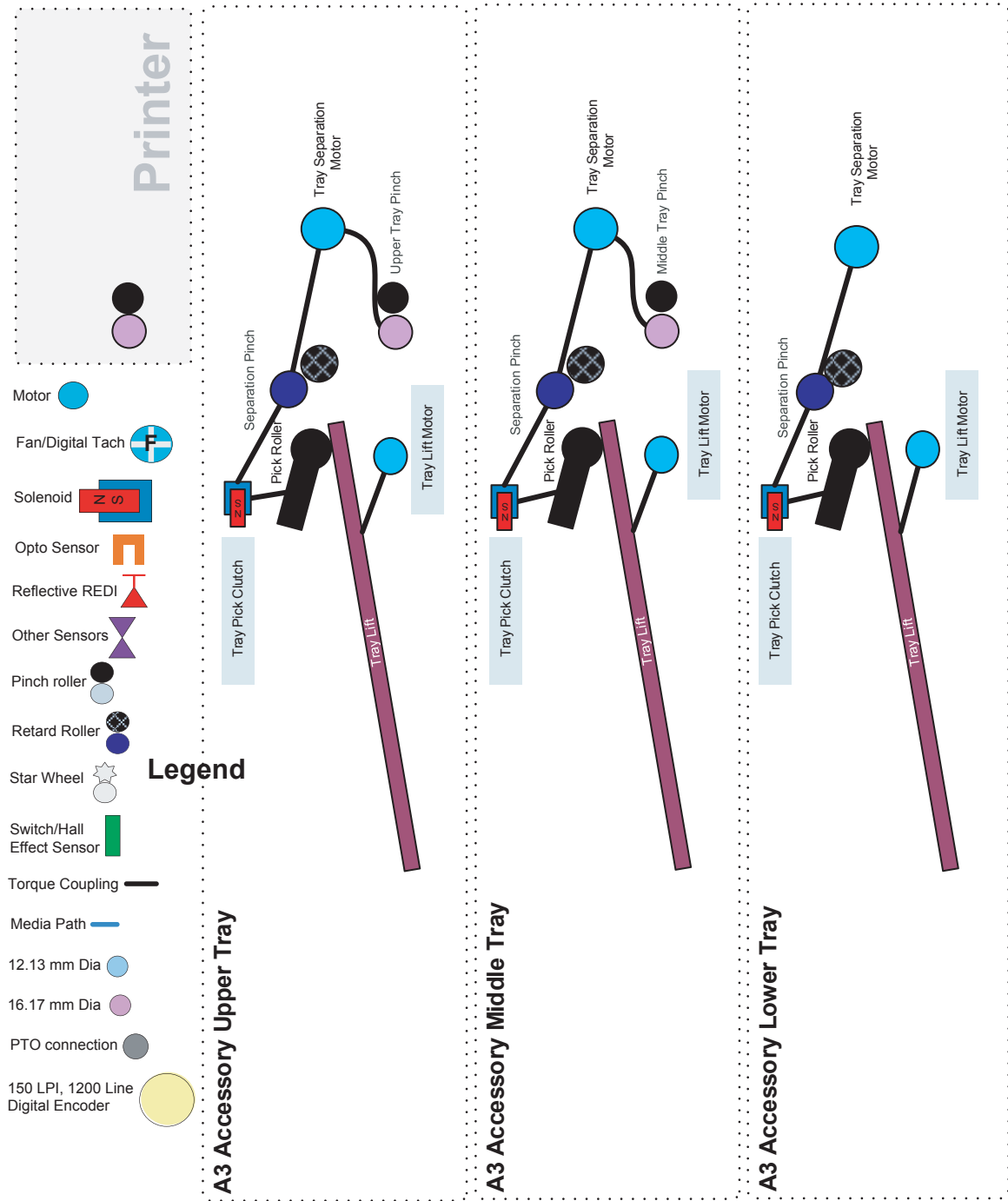


Figure 2-21 3x550 tray motors/solenoids



1x550 tray motors/solenoids

Figure 2-22 1x550 tray motors/solenoids

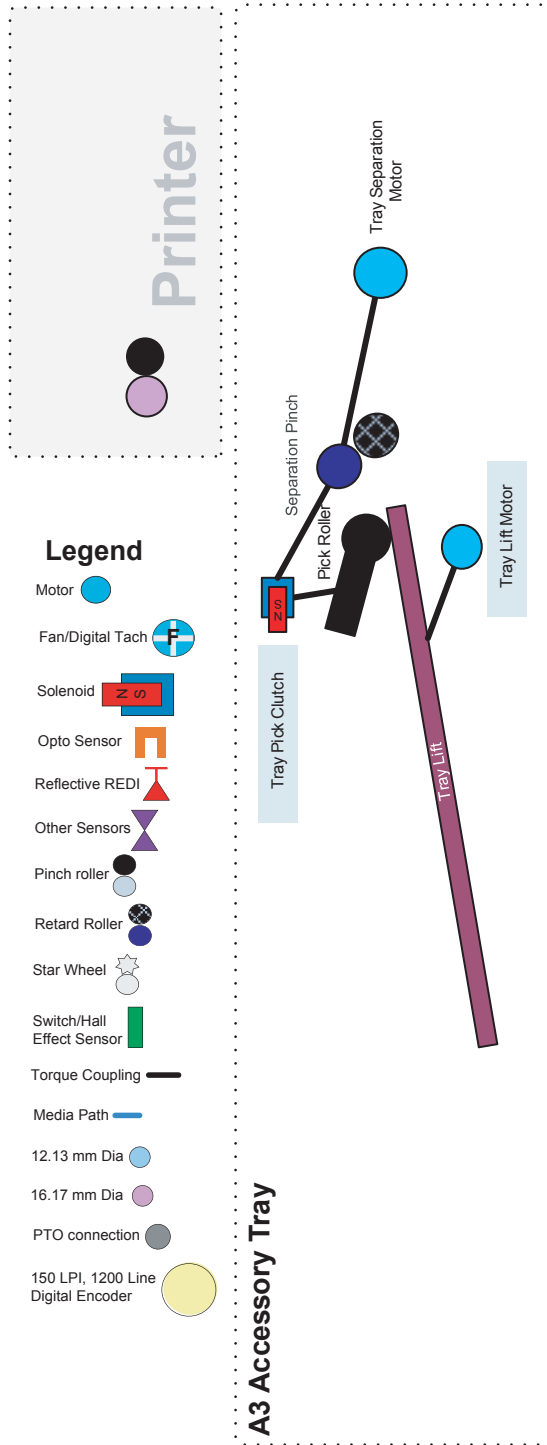
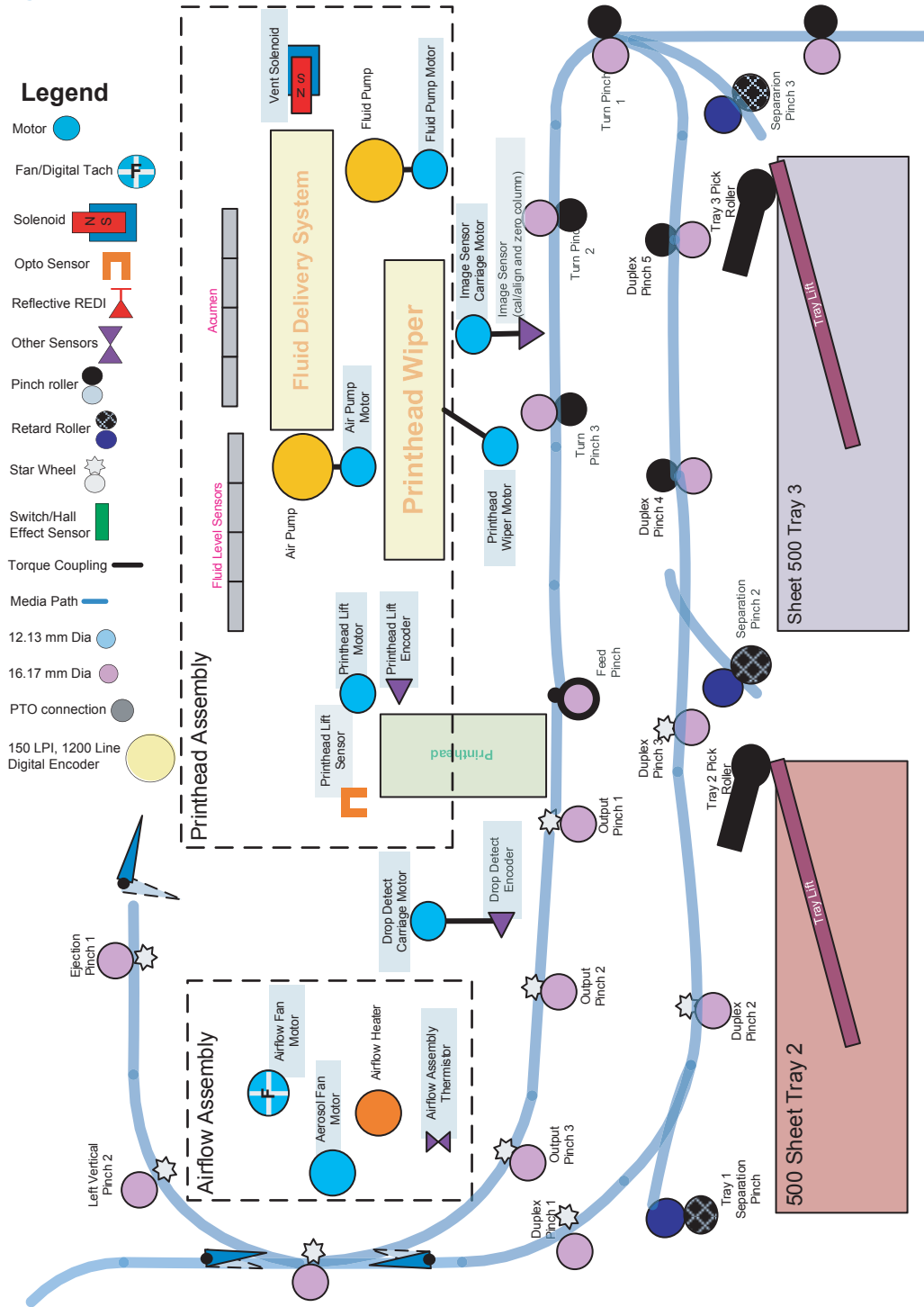


Figure 2-23 Printer printing system



## Subsystem map diagrams

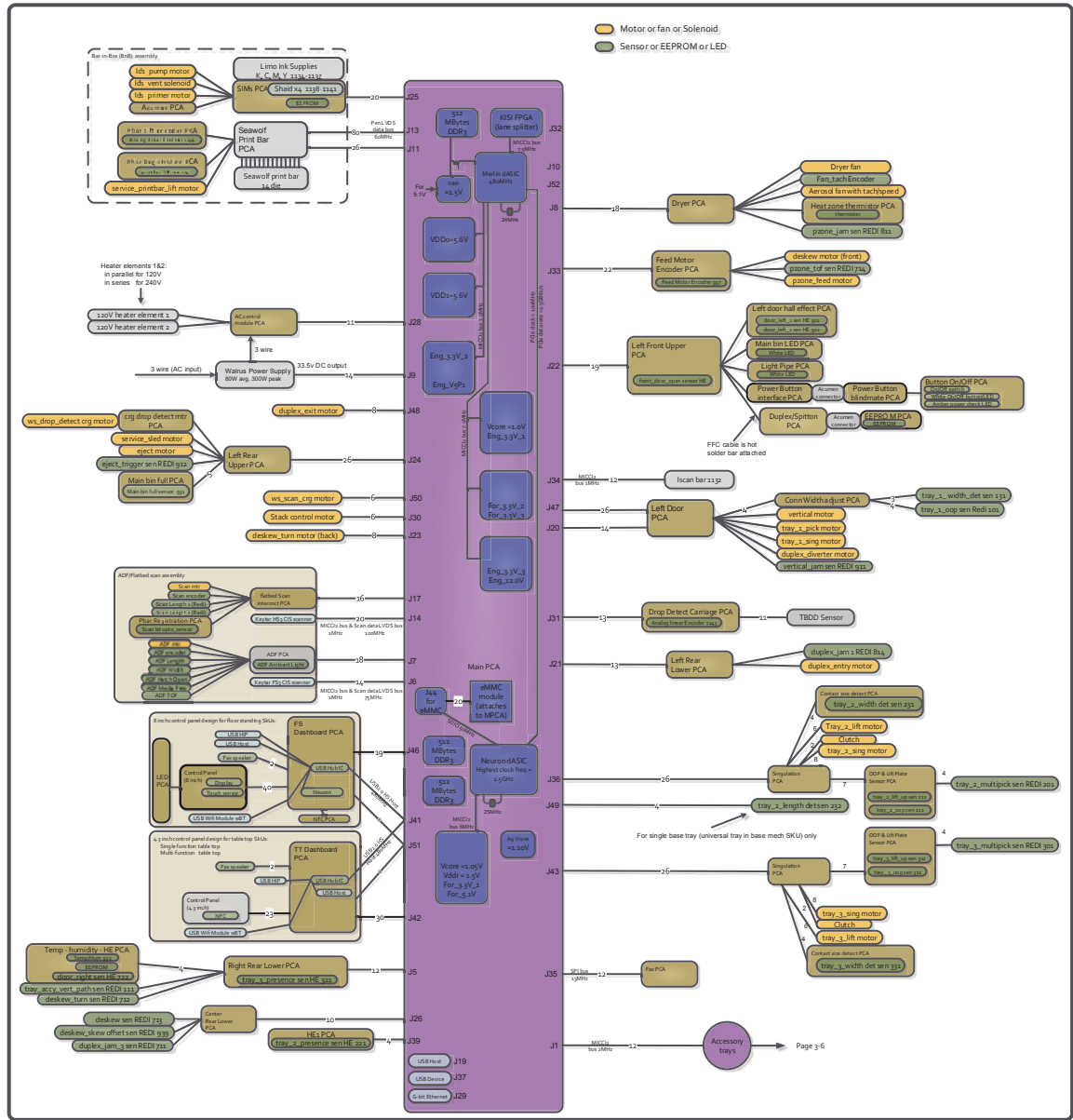


**NOTE:** Use the diagrams in this section to see how the subsystems in the printer relate to each other.

---

- [MPCA, distribution, and SLB PCA map](#)
- [Large touchscreen subsystem map](#)
- [Distribution and SLB PCA map](#)
- [AC power subsystem map](#)

Figure 2-24 MPCA, distribution, and SLB PCA map





# Large touchscreen subsystem map

Figure 2-25 Large touchscreen subsystem map (1 of 2)

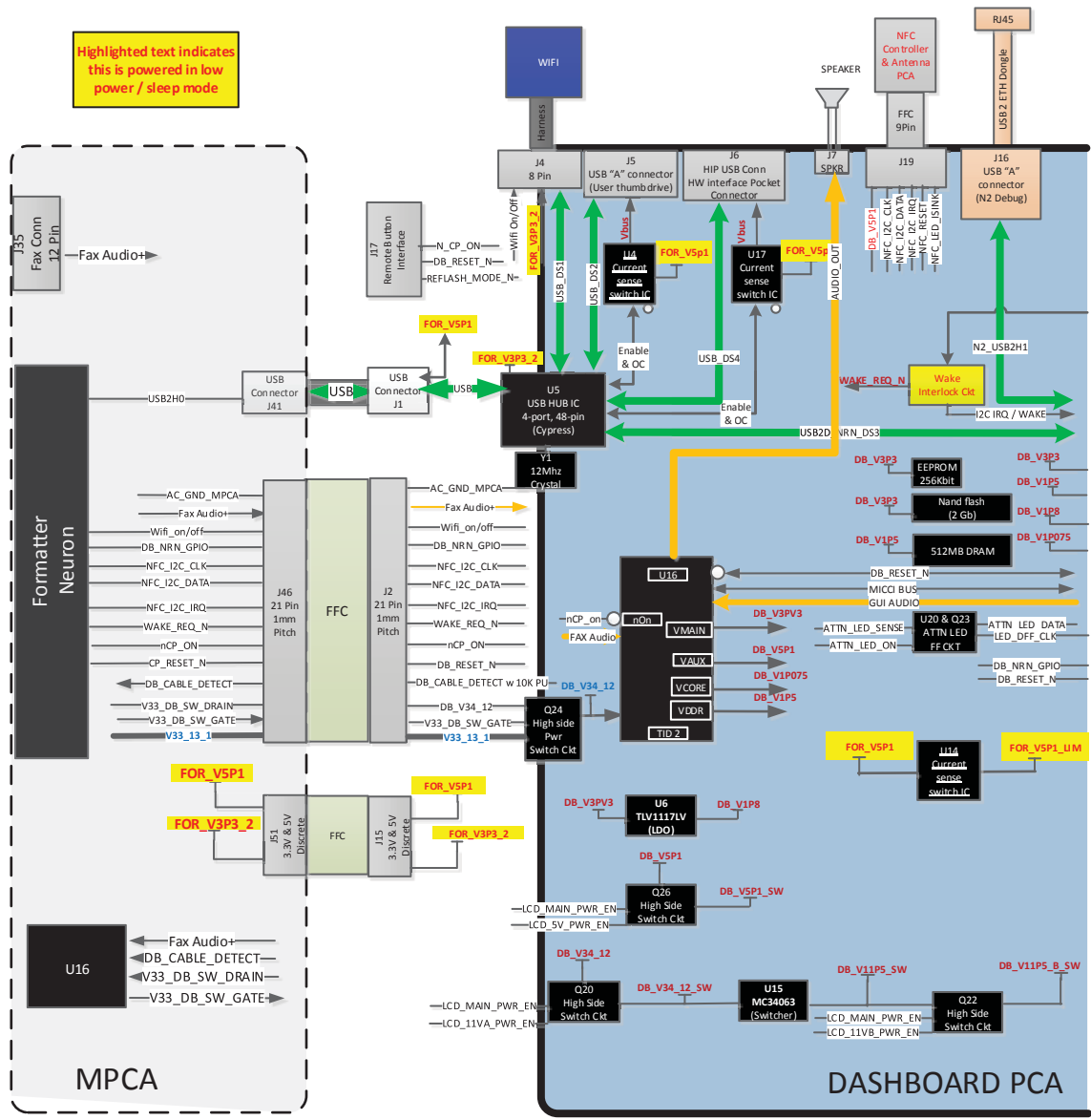
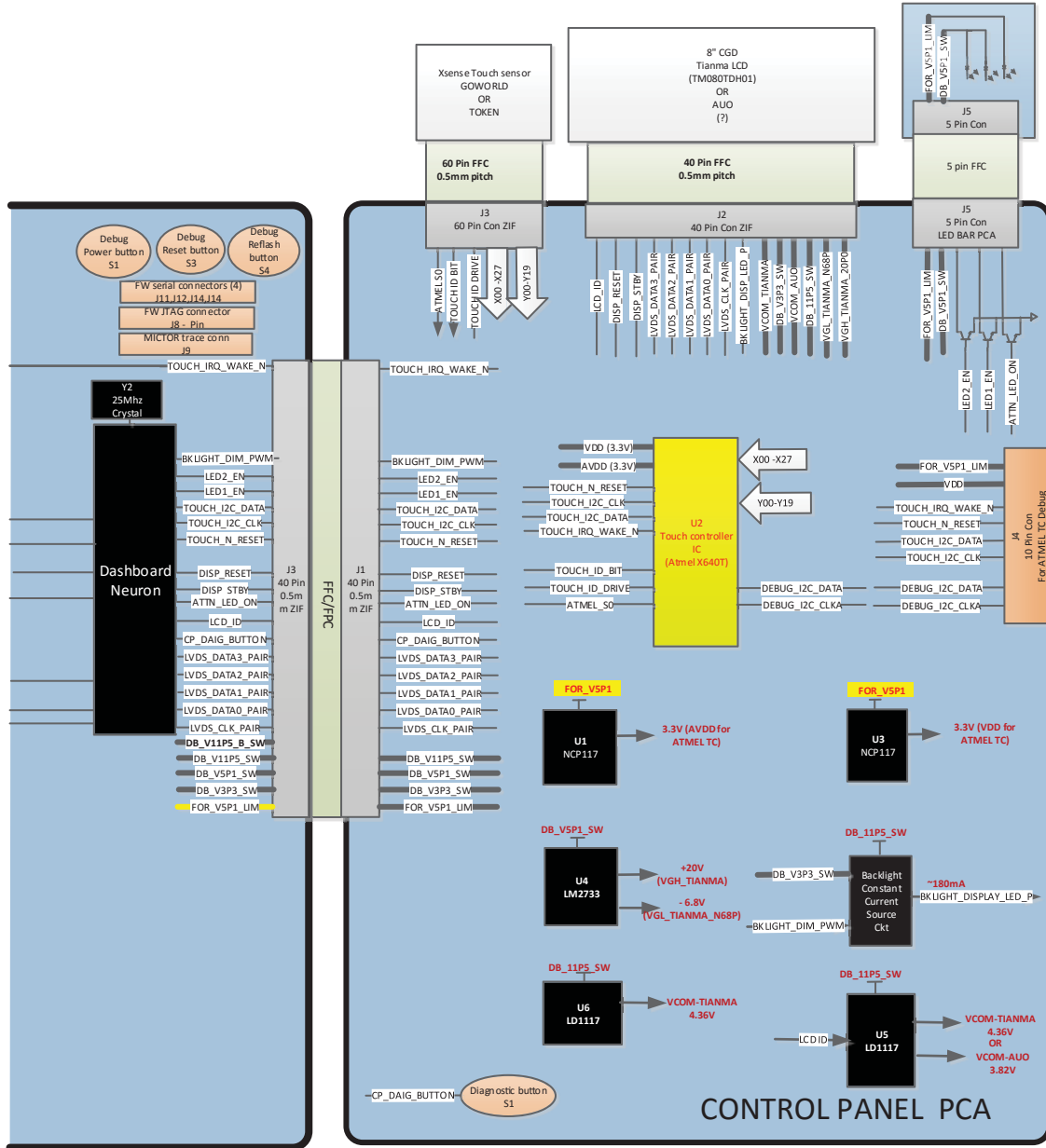


Figure 2-26 Large touchscreen subsystem map (2 of 2)



## Distribution and SLB PCA map

Figure 2-27 Distribution and SLB PCA map 1

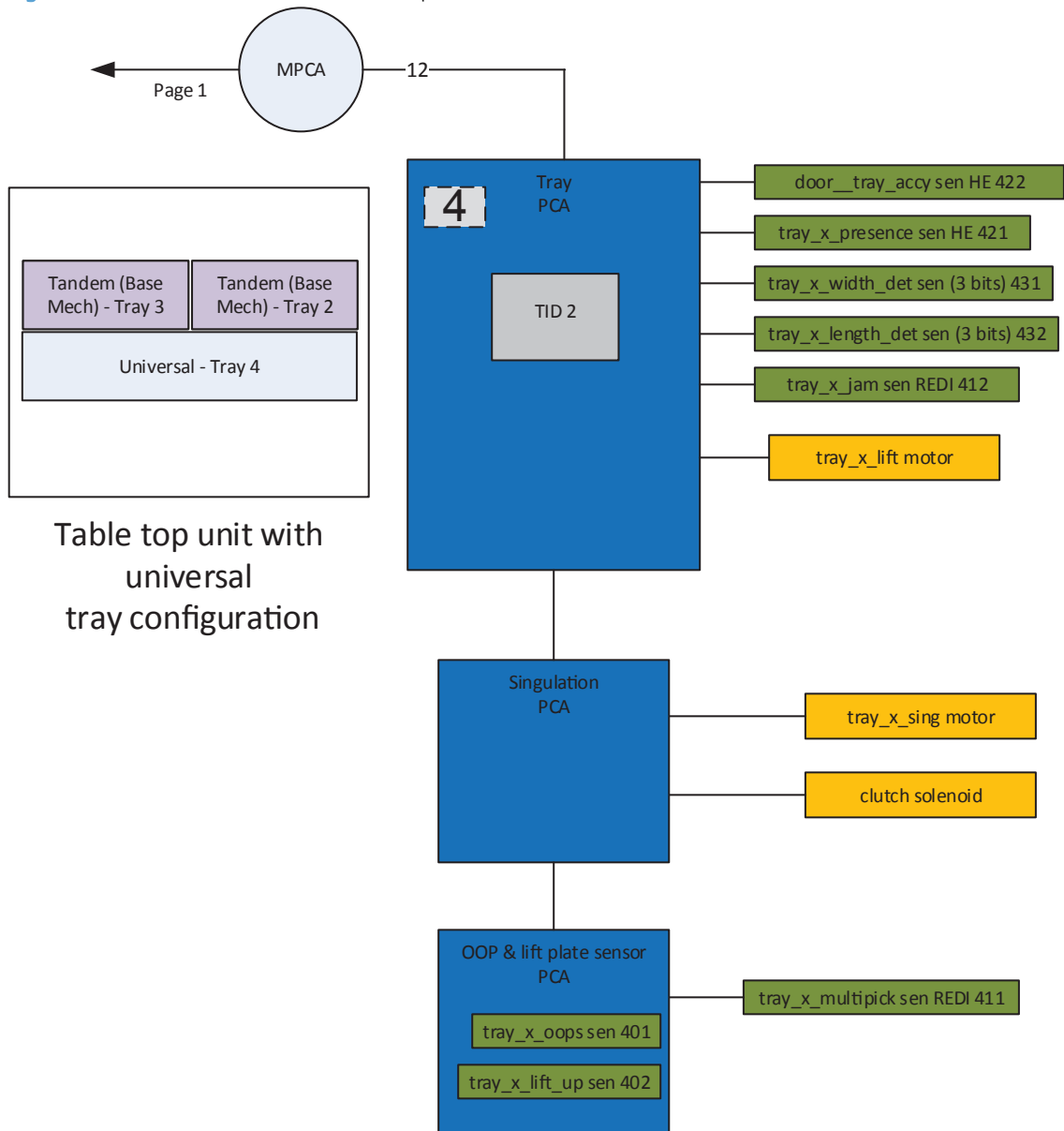


Figure 2-28 Distribution and SLB PCA map 2

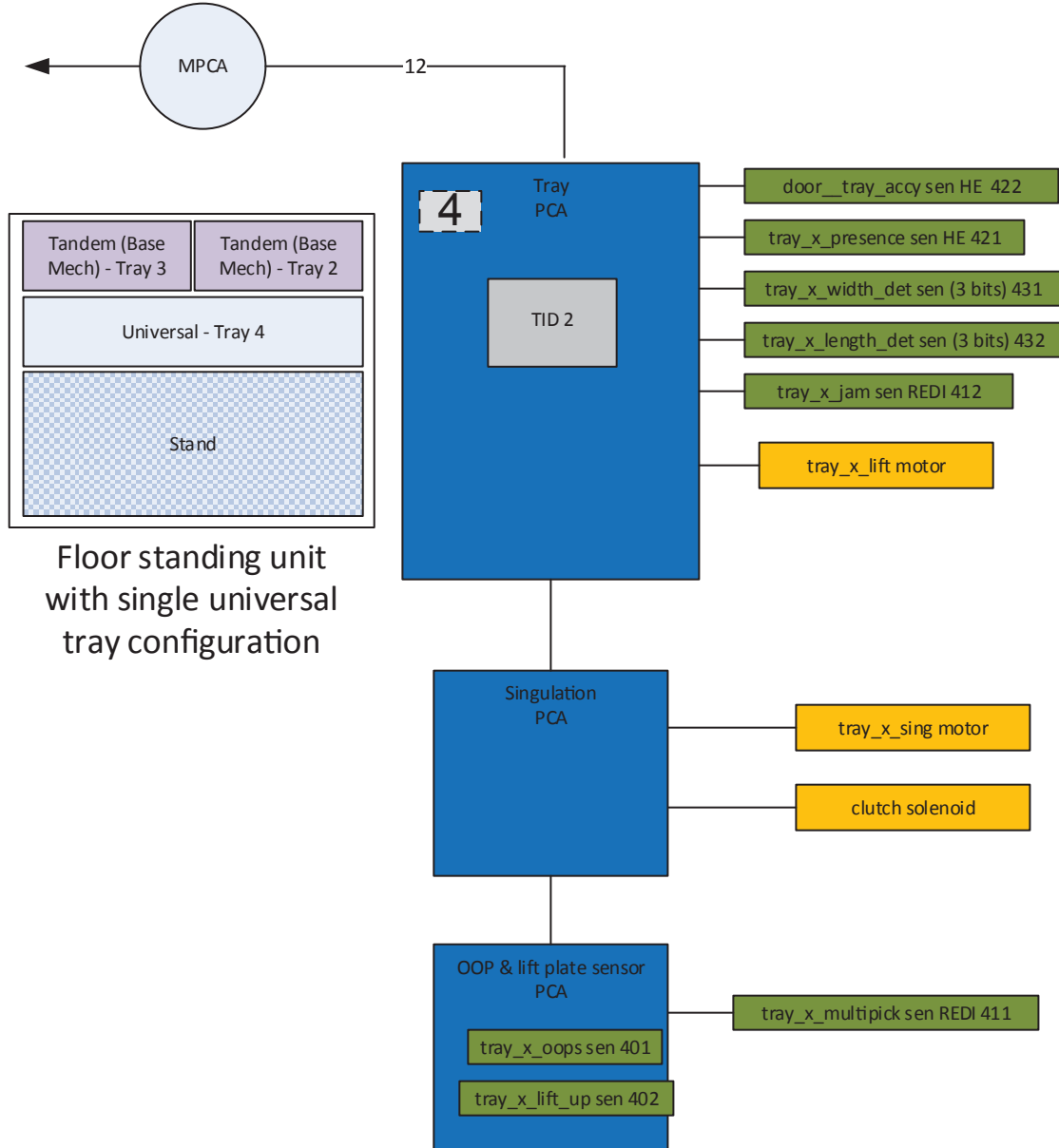


Figure 2-29 Distribution and SLB PCA map 3 (1 of 2)

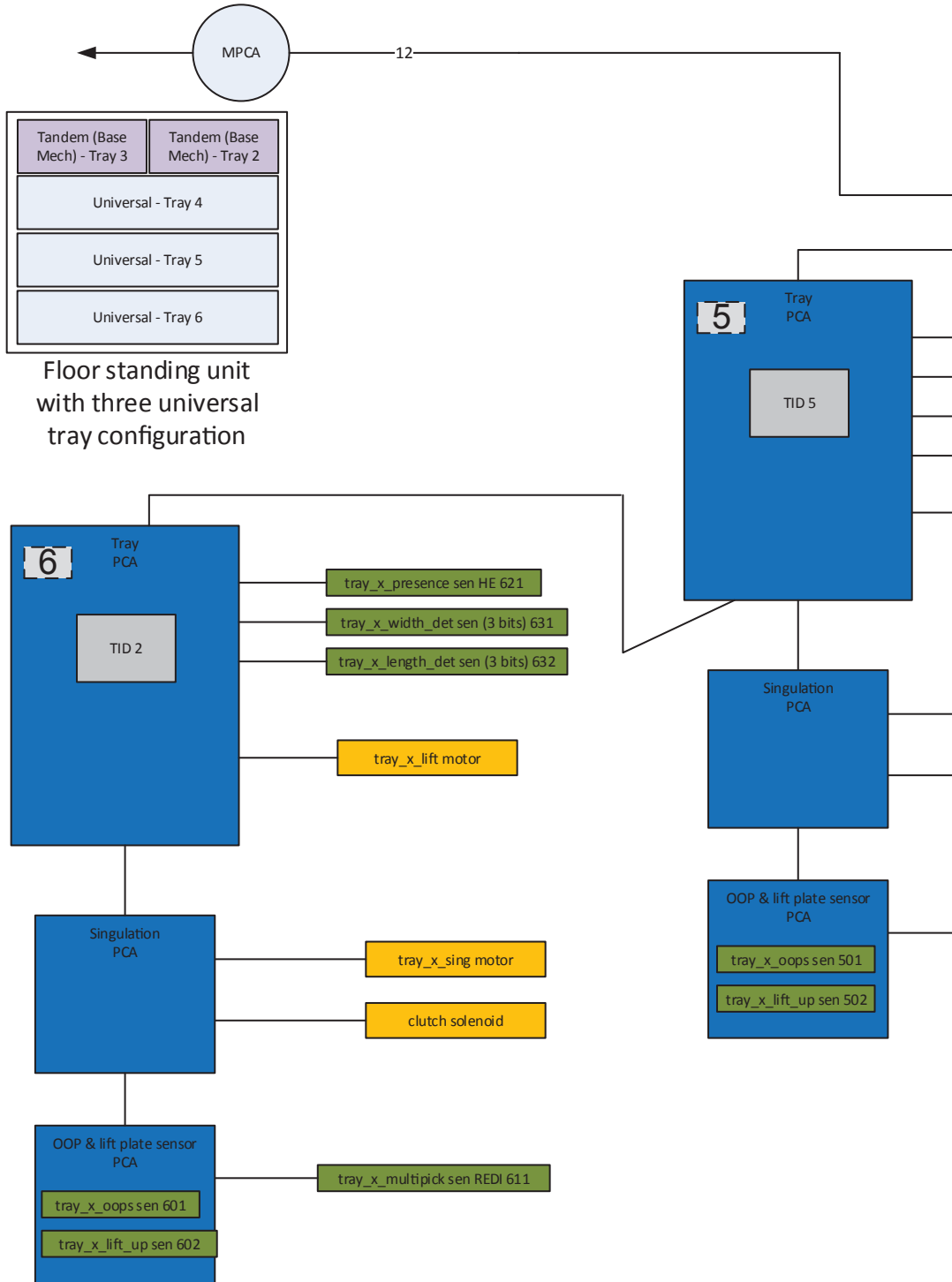


Figure 2-30 Distribution and SLB PCA map 3 (2 of 2)

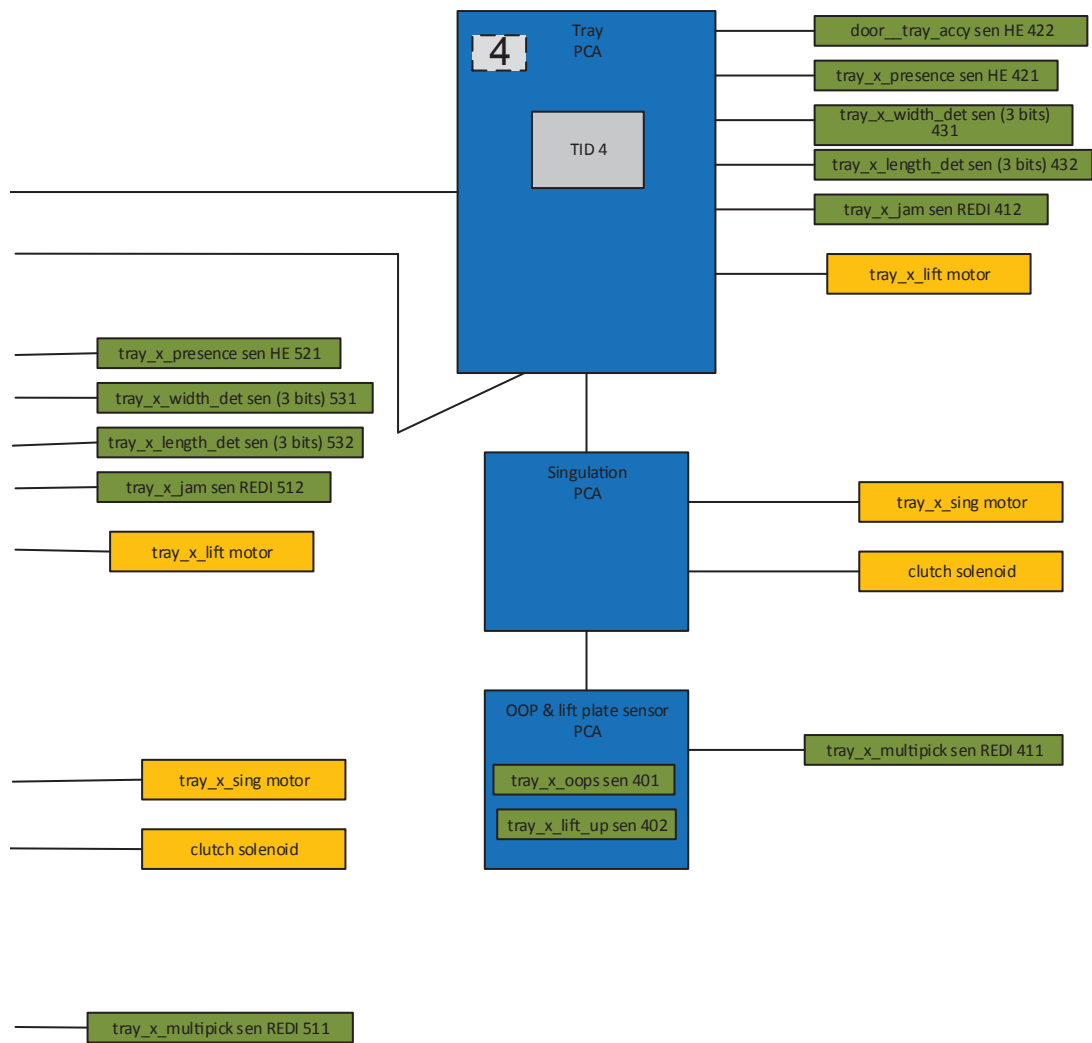


Figure 2-31 Distribution and SLB PCA map 4 (1 of 2)

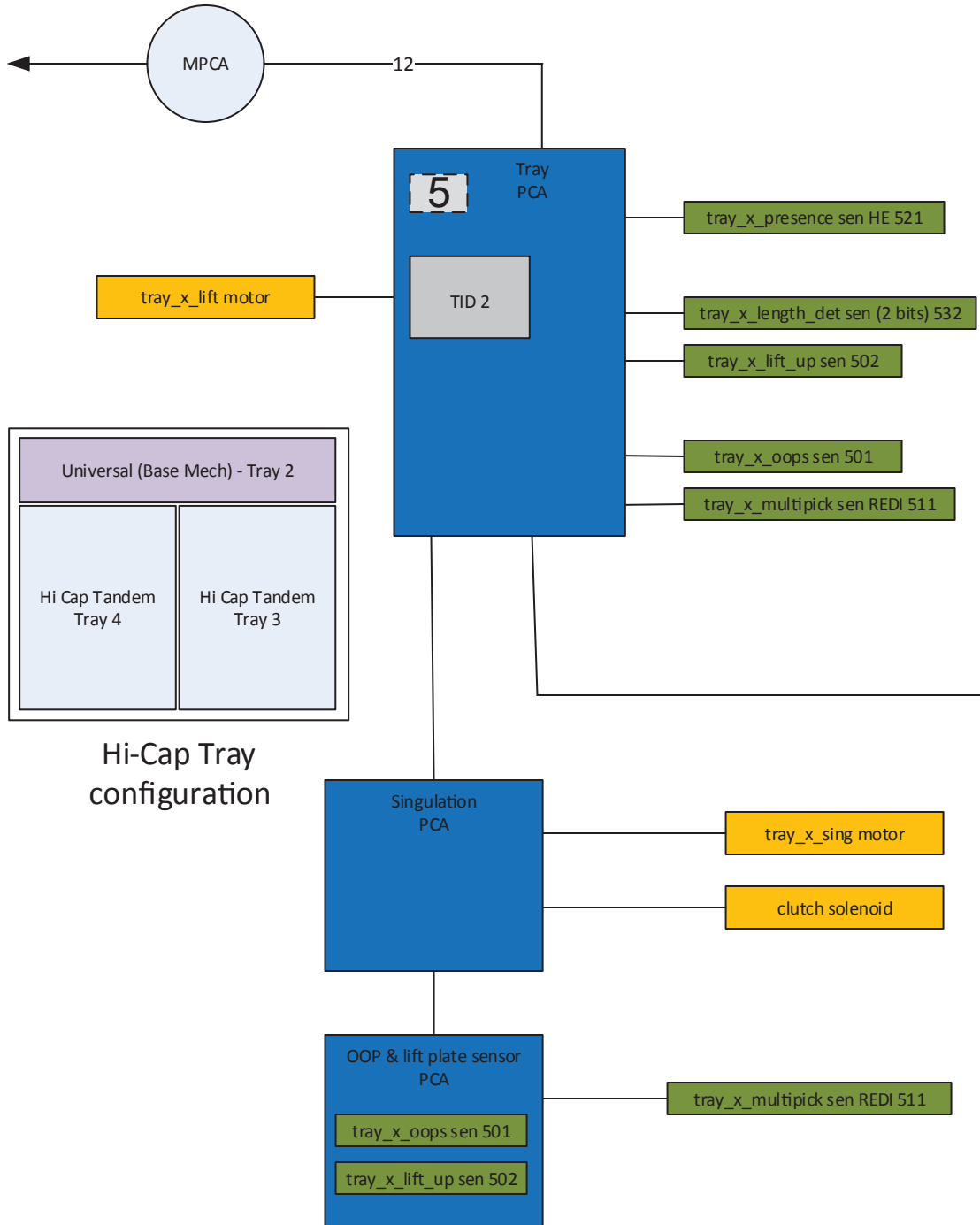
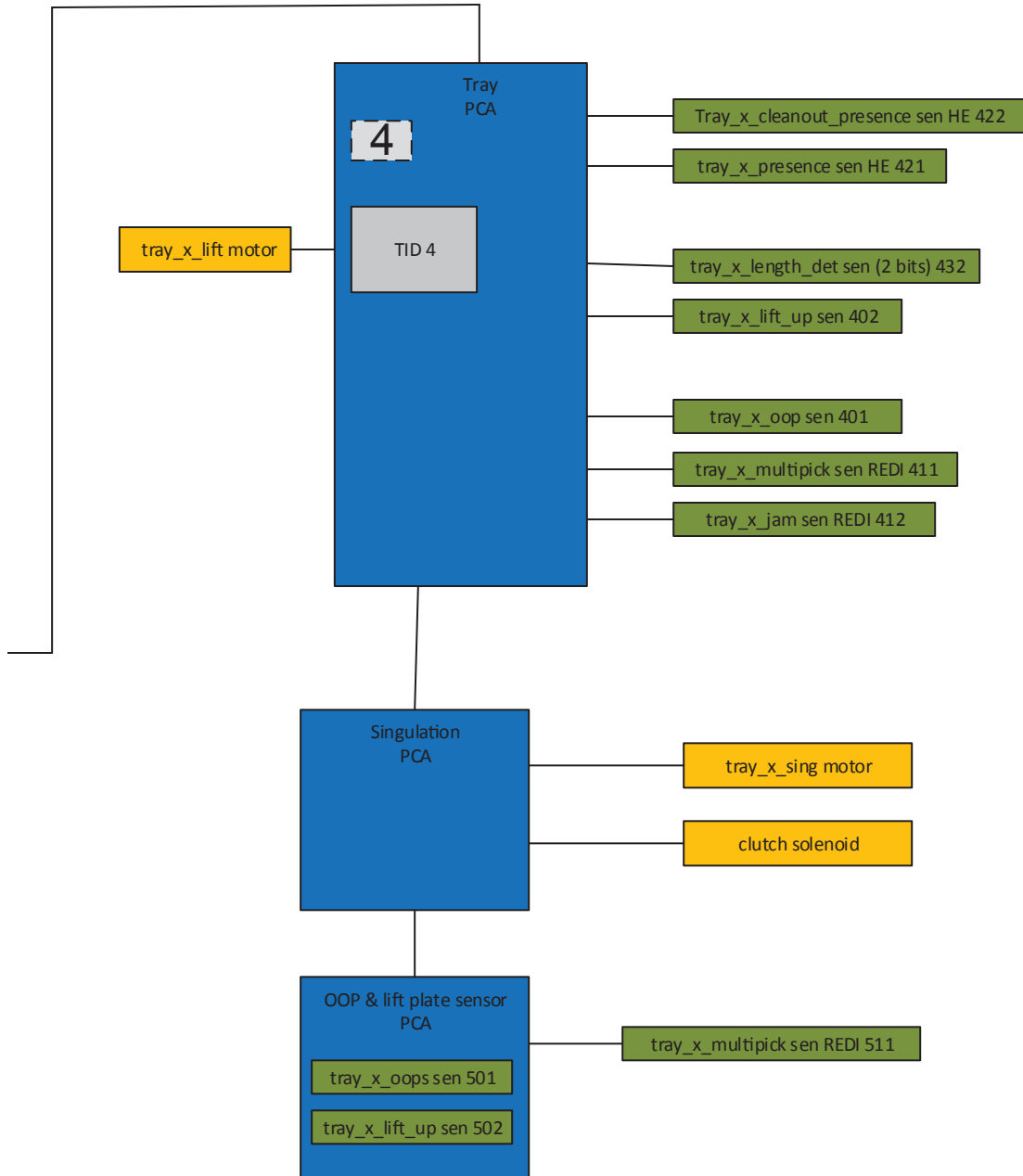


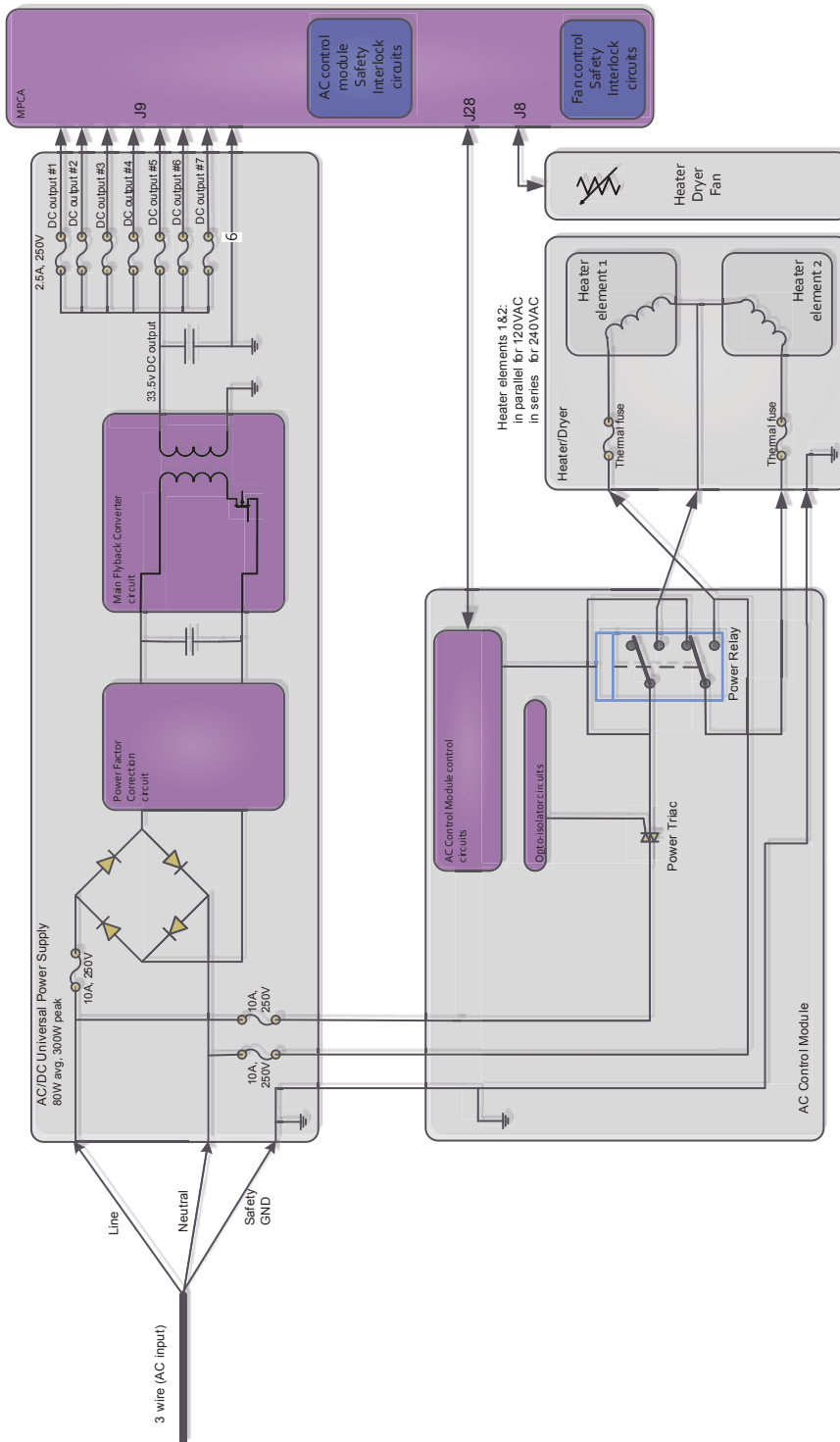
Figure 2-32 Distribution and SLB PCA map 4 (2 of 2)






AC power subsystem map

Figure 2-33 AC power subsystem map



## Print-quality troubleshooting tools


 **IMPORTANT:** Use the following processes and tools to solve most (if not all) print-quality (PQ) problems. Only consider replacing a printhead after exhausting all other PQ solutions.

---

### Internal print-quality test pages


#### Print-quality troubleshooting pages

Use the print-quality troubleshooting pages to help diagnose and solve print-quality problems.

 **NOTE:** To get further assistance in print-quality troubleshooting, go to [www.hp.com/support/pagewidecolor750](http://www.hp.com/support/pagewidecolor750), [www.hp.com/support/pagewidecolor772MFP](http://www.hp.com/support/pagewidecolor772MFP) and select **PQ Troubleshooting Tools**.

---

1. From the Home screen on the printer control panel, scroll to and touch the **Support Tools** button.
2. Open the following menus:
  - **Troubleshooting**

 **NOTE:** For more extensive print-quality troubleshooting tools, use the **Service** menu. See [Service mode functions on page 259](#) for more information.

---

- **Print Quality**
  - **Diagnostic Pages**
3. Select one of the following documents to print:
  - **Demo page**
  - **Print Quality Report**

#### Print and interpret the print quality report

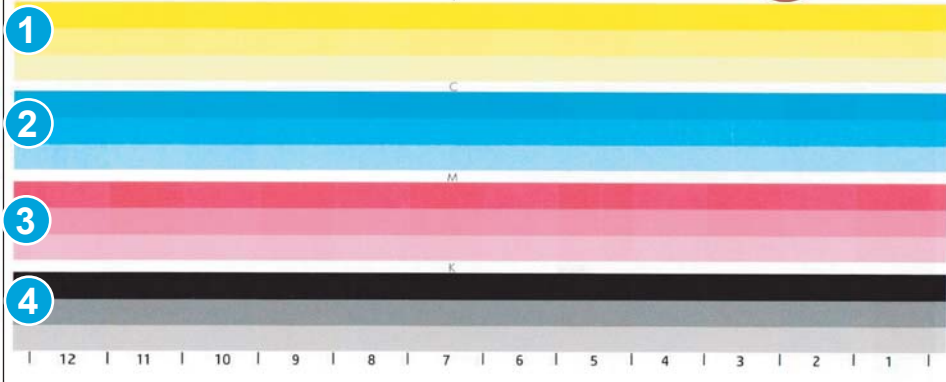
1. Load the printer with regular, unused white paper.
2. From the Home screen on the printer control panel, scroll to and touch the **Support Tools** button.
3. Open the following menus:
  - **Troubleshooting**
  - **Print Quality**
  - **Diagnostic Pages**
4. Select the **Print a Print Quality Report** item to print the page.

This page contains four bands of color, which are divided into the groups as indicated in the following illustration. By examining each group, you can isolate the problem to a particular cartridge.


## Print Quality Report

[MY68J4C039 2016/12/02 10:28 232 230 100 00 00]

- Review the color bars below. If the bars show significant streaks or uneven colors, clean the printhead. Note that cleaning uses ink.
- If printhead cleaning does not fix the problem, get more help at [hp.com/support](http://hp.com/support).
- HP recommends original HP ink and ColorLok® paper.




Section	Cartridge
1	Yellow
2	Cyan
3	Magenta
4	Black

 **TIP:** Mark this page with a “1” in a corner. If you clean the printhead later, you will want to keep track of which page was printed first, in order to note any progress.

In general, if the ink system is working correctly, all the color bars are present and not streaked. Each bar has three distinct shades, but otherwise the color should not vary across the bar. The bars should also be evenly lined up. The black text on the page should not show ink streaks.

The following table shows some representative examples of defects on the print quality report.

 **NOTE:** The relative position of the color bars might be different than they appear on the printed report, but the defects are representative of the defects that are shown.

---

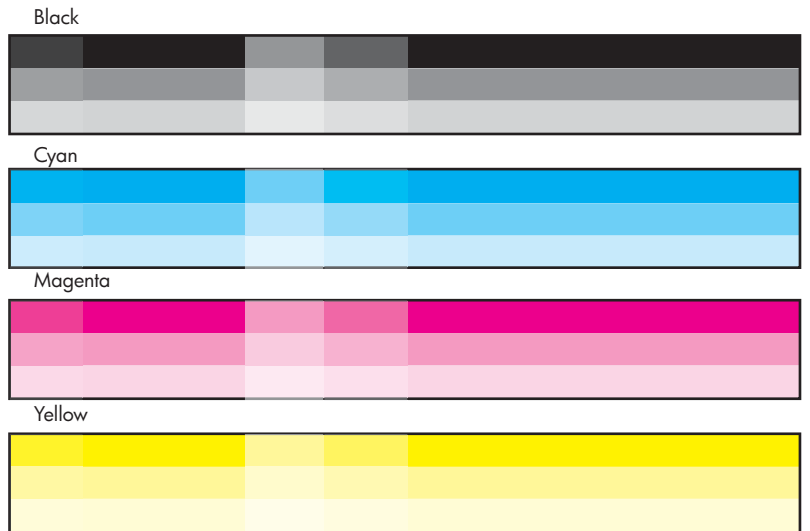
**Defect****Example**

---

Color variation across bar



Color intensity variation across bars

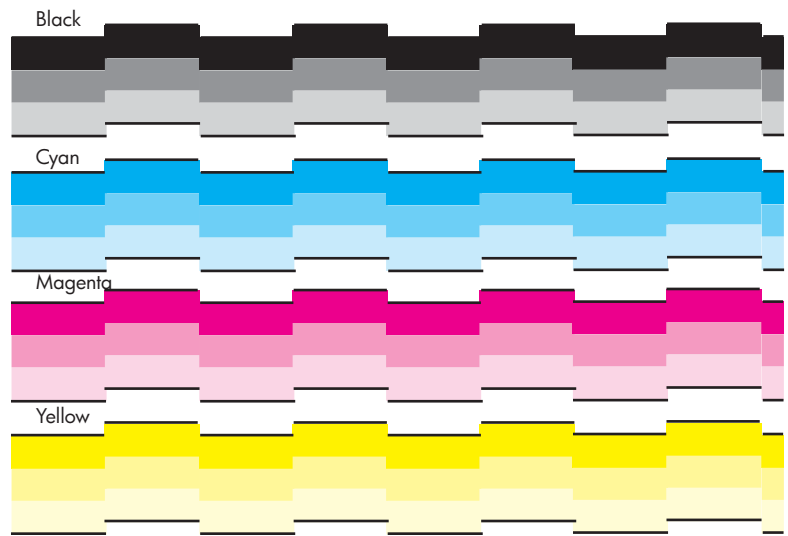


---

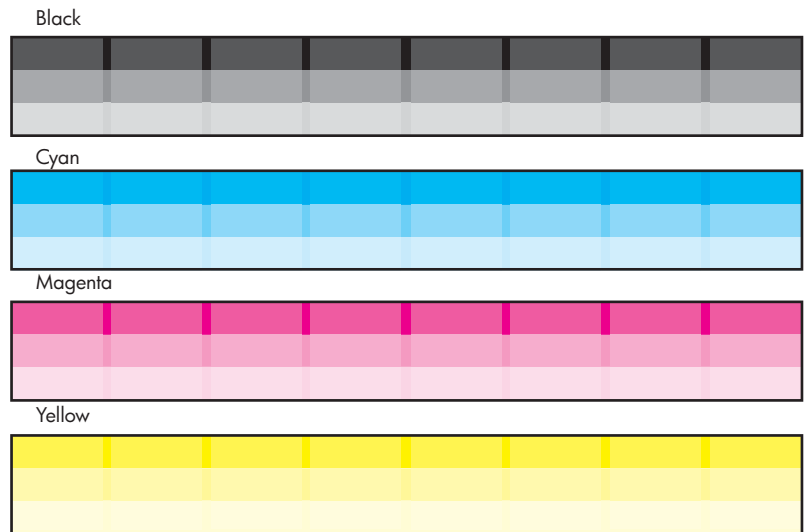
**Defect**

**Example**

Uneven bars



Vertical dark lines



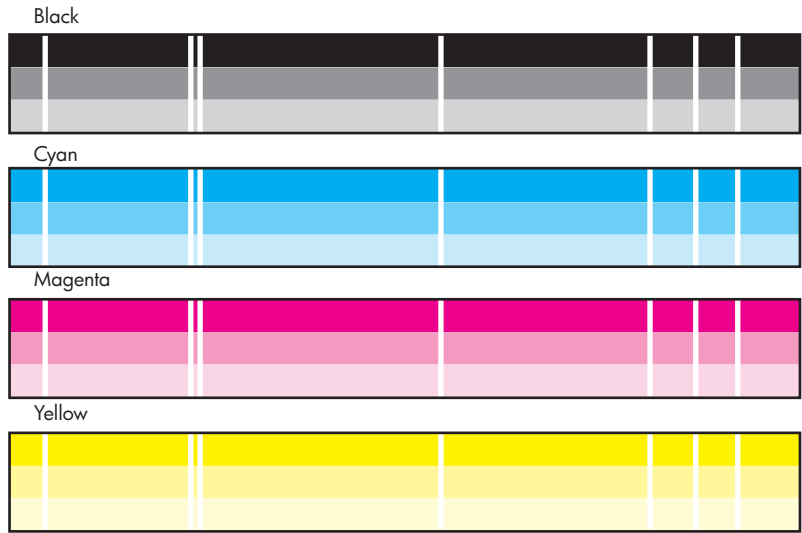
---

**Defect**

**Example**

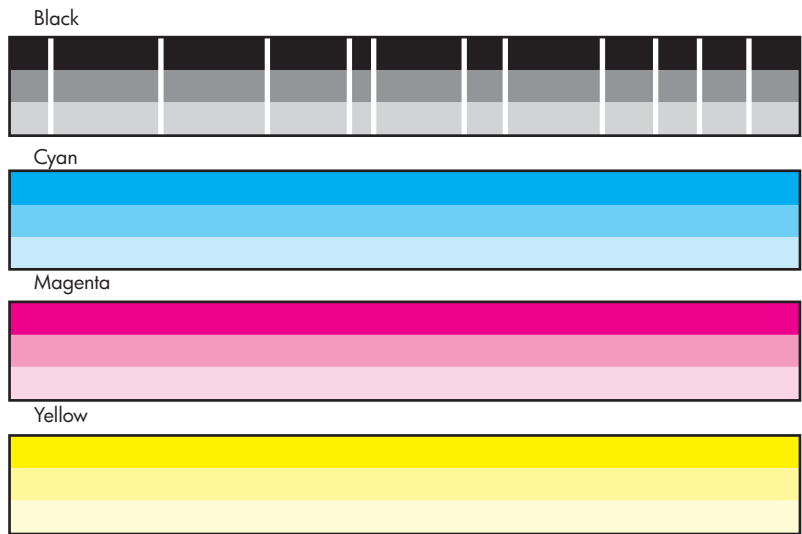
---

Vertical white lines on all bars



---

Vertical white lines on select bars



**Defect**

**Example**

Shade gradations not sharp

Black



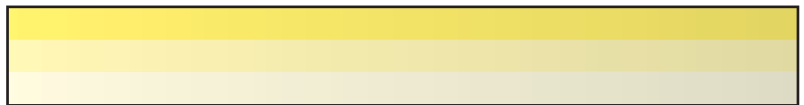
Cyan



Magenta



Yellow



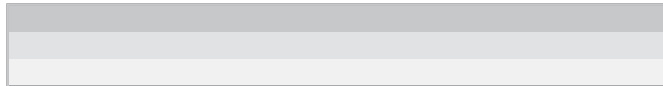
Page is blank or only partially printed

**Print Quality Printhead Cleaning Diagnostic**

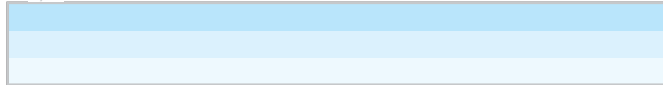
```
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

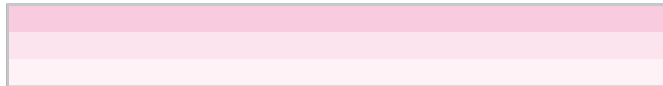
Black



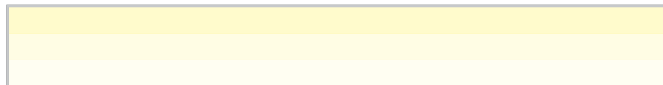
Cyan



Magenta



Yellow



1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

If the print quality report shows defects like the ones above, clean the printhead as follows:

1. Load paper in the default input source tray (usually this is the A3 Tray 2 or the A4 Tray 3).
2. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
3. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
4. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process.

The cleaning process has several steps. After each of them, the printer prints the print quality report again. Evaluate each of these pages to determine if the original defect has been fixed – if it has, there is no reason to go on to the next cleaning stage.



---

**NOTE:** The cleaning process take about 4 minutes. Make sure clean unused paper is loaded in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

---

5. Touch the [OK](#) button. A print quality report prints. Compare this report to the previously printed report to confirm that the print quality improved.
6. If the print quality report still shows defects after a second cleaning, go to the next section to service the printer.



---

**TIP:** A printhead deep cleaning item is available in the service menu. See [Print quality advanced tools on page 187](#) for more information.

---

If the defect on the print quality report is color variation across the bars (see the table of defects above), and if the problem seems to go away after a cleaning, but then reoccurs in the same location on the color bar the next day, complete the following procedure:

1. Check to see if any of the following conditions are true:
  - Prior to the print quality problem, the printer was unused for more than three weeks.
  - The printer was recently moved or experienced a large temperature shift.
  - There was a recent paper jam.
  - The print quality problem seems to be getting better as the printer is used (especially if print jobs with dense backgrounds are printed).
2. If none of the conditions above are true, the color problem is likely to reoccur, even if a cleaning fixes it temporarily.


If the print quality report has no defects, then the ink system is working correctly. There is no reason to clean the printhead, which unnecessarily wastes ink and paper. Complete the following steps:

1. Retry the original print job. Just printing the print quality report can solve some problems. If the print job meets print quality standards, stop troubleshooting here.
2. If problems still exist on print jobs, review the earlier steps in this document: make sure the ink and paper are appropriate, and that the print settings are correct. In addition, these suggestions may help with some problems:



- If you are printing an image, make sure it has sufficient resolution. Images that have been enlarged too much might appear fuzzy or blurry.
- If the problem is confined to a band near the edge of a printout, use the software you installed with the printer or another software program to rotate the image 180°. The problem might not appear on the other end of the printout.
- Always use the power button to turn the printer off. This protects the printhead from exposure to air.
- If yellow is missing from color jobs, there might be an ink sludge buildup on the printhead. Clean the printhead several times and then see if print quality has improved.

---

 **TIP:** A printhead deep cleaning item is available in the service menu. See [Print quality advanced tools on page 187](#) for more information.


---

- If all colors are experiencing poor print quality, there might be an issue with the web wipe not advancing.

Remove the printhead wiper, and inspect it for damage or wear.

3. If the problem persists, install a replacement printhead.

---

 **IMPORTANT:** Before replacing the printhead, make sure that you use all of the print-quality tools provided in the Service menu to try and resolve a print quality problem. See [Service mode functions on page 259](#) for more information.


---

## Calibrate the printer color density or align the printhead

Calibration is a printer function that optimizes print quality. If you experience any image-quality problems, calibrate the printer color density or align the printhead.

1. Load paper in the default input source tray (usually this is the A3 Tray 2 or the A4 Tray 3).
2. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
3. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
4. Touch one of the following:
  - [Align the Printhead](#)
  - [Calibrate the Color Density](#)
5. Touch the [OK](#) button.

---

 **NOTE:** During color density calibration, several internal test pages eject to the output bin. Discard these pages.

---


6. Print a Print Quality Report page and compare it to the previously printed page. If print quality does not improve, see the printer specific image quality section of the printer Troubleshooting Manual. See [Printer specific image defects on page 178](#) for more information.

# Control-panel menus

## Dashboard menus

- [Setup menu](#)
- [Network Summary menu](#)
- [Wi-Fi Direct Details menu](#)
- [Cartridges menu](#)
- [Tray Configuration menu](#)
- [Fax Status menu](#)
- [Environmental Settings menu](#)
- [Sign In menu](#)

## Setup menu

At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the [Setup](#)  button.

In the following table, asterisks (\*) indicate the factory default setting.

Table 2-9 Setup menu

First level	Second-level	Third-level	Fourth-level	Description	
Preferences  <b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the main menu.	Date and Time	Set the Date		Use your finger to swipe and set the month, day, and year. When finished, touch <a href="#">Done</a> to save the settings.	
		Set the Time		Use your finger to swipe and set the hour, minute and time period (AM/PM). When finished, touch <a href="#">Done</a> to save the settings.	
		Time Zone		Use your finger to swipe and scroll to the desired time zone. Touch the associated radio button to select it.	
		24-Hour Format		Use the radio button to toggle between settings.	
		Daylight Saving Time		Use the radio button to toggle between settings (default is on).	
	Language		A list of available languages appears on the control-panel display.		Use your finger to swipe and scroll to the desired language. Touch the associated radio button to select it. Touch <a href="#">Confirm</a> to save the setting.
	Country/Region		A list of available country/regions appears on the control-panel display.		Use your finger to swipe and scroll to the desired country/region. Touch the associated radio button to select it. Touch <a href="#">Confirm</a> to save the setting.

Table 2-9 Setup menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Keyboard	QWERTY*		Use the radio button to select a keyboard type.
		AZERTY		
		QWERTZ		
	Screen Brightness			Use your finger to swipe and change the sliding bar setting. When finished, touch <b>Done</b> to save the setting.
	Sound Effects Volume	Mute		Use the radio button to select sound effects volume.
		Soft		
		Normal*		
		Loud		
	Continuable Events	Touch OK to Continue*		Use the radio button to select how the printer behaves when a continuable event occurs.
		Auto-Continue		
	Store Anonymous Usage Information			Use the radio button to enable or disable this feature (default is off).
	Automatically Send Anonymous Usage Information			Use the radio button to enable or disable this feature (default is off).
Network Setup	Ethernet Settings	View Ethernet Settings		Use this item to view the current Ethernet settings (like the IP address). Touch <b>Print Details</b> to print the setting, or touch <b>OK</b> to return to the <b>Ethernet Setting</b> sub menu.
		Advanced Settings	IP Settings	Use the radio button to select from <b>Automatic (DHCP)</b> or <b>Manual (Static)</b> .
			IPv6	Use the radio button to enable or disable this feature (default is on).
			Legacy Default IP	Touch <b>Yes</b> to connect the printer to the network legacy default IP. Touch <b>No</b> to return to the <b>Advanced Settings</b> sub menu.
			Host Name	Touch <b>Change</b> to type in a different host name. Touch <b>OK</b> to return to the <b>Advanced Settings</b> sub menu.  <b>CAUTION:</b> Changing the host name might disrupt the existing network connection. If you are unable to print, try turning the printer and the computer off and then turning them on again.

**NOTE:** Use the **Back** button to navigate back to the main menu.

Table 2-9 Setup menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
			Bonjour Name	<p>Touch <a href="#">Change</a> to type in a different host name. Touch <a href="#">OK</a> to return to the <a href="#">Advanced Settings</a> sub menu.</p> <p><b>NOTE:</b> After changing the Bonjour name, anyone connected to this printer must reconnect using the new name.</p>
			Proxy Settings	<p><b>On:</b> Use <a href="#">Auto Detect</a> to automatically detect proxy settings, or manually type in the <a href="#">Address</a>, <a href="#">Port</a>, and <a href="#">Authentication</a> fields. Touch <a href="#">Apply</a> to save the settings.</p> <p><b>Off:</b> <a href="#">Proxy Settings</a> disabled</p>
			Link Speed	<p>Use the radio buttons to choose from a list of link speeds.</p> <p><a href="#">Automatic</a></p> <p><a href="#">10-Full</a></p> <p><a href="#">10-Half</a></p> <p><a href="#">100-Full</a></p> <p><a href="#">10-Half</a></p> <p><a href="#">1000BT</a></p>
	<a href="#">Wireless Settings</a>	<a href="#">Wireless</a>		Use the radio button to enable or disable this feature (default is off).
			<a href="#">Print the Start Guide</a>	Use this item to print the wireless start guide.
			<a href="#">Wireless Setup Wizard</a>	Use this item to start the wireless setup wizard.
			<a href="#">Wi-Fi Protected Setup</a>	<p>Follow the prompts to setup the printer/router handshake (<a href="#">Push Button</a>), and then obtain then obtain the required router PIN (select <a href="#">PIN</a> on the <a href="#">Wi-Fi Protected Setup</a> menu.</p> <p><b>NOTE:</b> The PIN must be entered in the router web-based configuration page.</p>
			<a href="#">View Wireless Details</a>	Use this item to view details about the wireless network (like the IP address for example). Touch <a href="#">Print</a> to print the details, or press <a href="#">OK</a> to return to the <a href="#">Wireless Settings</a> sub menu.
		<a href="#">Advanced Settings</a>	<a href="#">IP Settings</a>	Use the radio button to select from <a href="#">Automatic (DHCP)</a> or <a href="#">Manual (Static)</a> .

Table 2-9 Setup menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
			IPv6	Use the radio button to enable or disable this feature (default is on).
			Legacy Default IP	Touch <a href="#">Yes</a> to connect the printer to the network legacy default IP. Touch <a href="#">No</a> to return to the <a href="#">Advanced Settings</a> sub menu.
			Host Name	Touch <a href="#">Change</a> to type in a different host name. Touch <a href="#">OK</a> to return to the <a href="#">Advanced Settings</a> sub menu.  <b>CAUTION:</b> Changing the host name might disrupt the existing network connection. If you are unable to print, try turning the printer and the computer off and then turning them on again.
			Bonjour Name	Touch <a href="#">Change</a> to type in a different host name. Touch <a href="#">OK</a> to return to the <a href="#">Advanced Settings</a> sub menu.  <b>NOTE:</b> After changing the Bonjour name, anyone connected to this printer must reconnect using the new name.
			Proxy Settings	<b>On:</b> Use <a href="#">Auto Detect</a> to automatically detect proxy settings, or manually type in the <a href="#">Address</a> , <a href="#">Port</a> , and <a href="#">Authentication</a> fields. Touch <a href="#">Apply</a> to save the settings.  <b>Off:</b> <a href="#">Proxy Settings</a> disabled
	<a href="#">Reports</a>	<a href="#">Network Configuration Page</a>		Use this item to print the network configuration page (with information like the HP Embedded Web Server address for example).
		<a href="#">Wireless Test Report</a>		Use this item to print the wireless test page. If the test is unsuccessful, follow the suggested solution on the page to fix the problem.
	<a href="#">Restore Network Settings</a>			Use this item to attempt to restore the printer network settings. Touch <a href="#">Yes</a> to recover the settings. Touch <a href="#">No</a> to return to the <a href="#">Network Settings</a> sub menu.  <b>CAUTION:</b> Restoring network settings (including proxy settings) resets the administrator password for the HP Embedded Web Server (EWS).

Table 2-9 Setup menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Reset 802.1X Security			Use this item to attempt to restore the printer network settings. Touch <b>Yes</b> to recover the settings. Touch <b>No</b> to return to the Network Settings sub menu.
Wi-Fi Direct				Use the radio button to enable or disable this feature (default is off).  When <b>Wi-Fi Direct</b> is enabled, Touch <b>Connection Method</b> and then select either <b>Automatic</b> or <b>Manual</b> connection method.  <b>NOTE:</b> Use <b>Wi-Fi Direct</b> to connect a computer, smartphone, or tablet directly to the printer without connecting to an existing wireless network.
Bluetooth Smart				Use the radio button to enable or disable this feature (default is off).
Fax Setup	Setup Wizard			Use this item to start the fax setup wizard. Follow the prompts on the display to complete the fax setup wizard.
	Preferences	Scan and Fax Method		Use the radio buttons to enable or disable this feature (default is on).  <b>NOTE:</b> <b>Scan and Fax Method</b> can only be used with A4- and Letter-size paper.  Setting <b>Scan and Fax Method</b> as the default disables color fax.
		Auto Answer		Use the radio buttons to enable or disable this feature (default is on).
		Auto Redial		Use the radio buttons to enable or disable this feature.  <b>Busy Redial*</b>  <b>No Answer Redial</b>  <b>Connection Problem Redial*</b>
		Auto Reduction		Use the radio buttons to enable or disable this feature (default is on).
		2-Sided Fax Printing		Use the radio button to enable or disable this item (default is off).

Table 2-9 Setup menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
		Tray Selection	Choose from a list of trays.  <b>NOTE:</b> The list of trays depends on the printer model and installed accessory input feeders.	Use this item to select the source tray for the copy job.  <b>NOTE:</b> The A3 Tray 2 or the A4 Tray 3 is the default tray.
		Stamping		Use the radio button to enable or disable this item (default is off).
		Dialing Prefix	Off*  On	Use this item to enable or disable using a prefix when sending a fax.
	Tools	Run Fax Test		Use this item to validate fax functionality  <b>NOTE:</b> A fax test page prints. If the test was unsuccessful, follow the solutions on this page to fix the problem.
		Clear Fax Logs/Memory		Use this item to clear the fax log and remove faxes stored in printer memory.
	Reports	Fax Confirmation	On (Fax Send)*  On (Fax Receive)  On (Fax Send and Receive)  Off	On (Fax Send)*: Prints a fax confirmation report for every fax you send.  On (Fax Receive): Prints a fax confirmation report for every fax you receive.  On (Fax Send and Receive): Prints a fax confirmation report for every fax you send and receive.  Off: Does not print a fax confirmation report when you send and receive faxes successfully.
		Fax Error Reports	On (Fax Send)*  On (Fax Receive)  On (Fax Send and Receive)  Off	On (Fax Send)*: Prints whenever a transmission error occurs.  On (Fax Receive): Prints whenever a receiving error occurs  On (Fax Send and Receive): Prints whenever a fax error occurs.  Off: Does not print any fax error reports.

Table 2-9 Setup menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
		Print Fax Reports	<a href="#">Last Transaction Log*</a> <a href="#">Last 30 Transaction Logs</a> <a href="#">Caller ID Report</a> <a href="#">Junk Fax Report</a>	<p>Use the <a href="#">Print Fax Reports</a> checkbox to select a report, and then touch <a href="#">Print</a> to print the report.</p> <p><a href="#">Last Transaction Log</a>: Prints the details of the last fax transaction that occurred. Details include the fax number, number of pages, and the fax status.</p> <p><a href="#">Last 30 Transaction Logs</a>: Prints the last 30 transactions and the results.</p> <p><a href="#">Caller ID Report</a>: Prints a history of caller ID fax numbers.</p> <p><a href="#">Junk Fax Report</a>: Prints a history of blocked fax numbers.</p>
<a href="#">Tray Management</a>  Select from a list of available trays (the list of trays depends on the installed input feeders).  <b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the main menu.  When finished, touch <a href="#">Done</a> to save the settings.	<a href="#">Tray Assignment</a>  <b>NOTE:</b> When finished, touch <a href="#">Done</a> to save the settings.	<a href="#">Default Tray</a>  <hr/> <a href="#">Copy</a> <hr/> <a href="#">Fax Printing</a> <hr/> <a href="#">USB Printing</a>		<p>Use the radio buttons to select a default tray.</p> <p><b>NOTE:</b> The list of available trays depends on the installed input feeders.</p>
	<a href="#">Tray Lock</a>  <a href="#">Image Adjustment</a>			<p>Use the radio buttons to prevent a tray from being used.</p> <p><b>NOTE:</b> The list of available trays depends on the installed input feeders.</p> <p>Touch a tray in the list, and then adjust the <a href="#">Y#</a> and <a href="#">X#</a> alignment for images printed on the page from that tray. Press <a href="#">Done</a>.</p> <p>Touch <a href="#">Print Test Page</a> to print a page with the adjusted offsets, and then touch <a href="#">Apply</a> to save the settings.</p> <p><b>NOTE:</b> The list of available trays depends on the installed input feeders.</p>
	<a href="#">Colorlok Optimization</a>  <a href="#">Paper Size/Type Prompt</a>	<a href="#">Display</a>		<p>Use the radio button to enable or disable this item (default is on).</p> <p>Use the radio buttons to select how the printer acts when paper is loaded in a tray (default is <a href="#">Display</a>). Touch done to save the setting.</p>



Table 2-9 Setup menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
		Do Not Display		
	Paper Size/Type Prompt	Exclusively		Use the radio buttons to select how the printer acts when a print job processes (default is <a href="#">Exclusively</a> ). Touch <a href="#">Done</a> to save the setting.
		First		
	Alternative Letterhead Mode			Use the radio button to enable or disable this item (default is off).
	Override A4/Letter			Use the radio button to enable or disable this item (default is on).
	Manually Feed Prompt	Always		Use the radio buttons to select how the printer acts when a print job processes (default is <a href="#">Always</a> ). Touch <a href="#">Done</a> to save the setting.  <b>NOTE:</b> Prompt for paper to be loaded manually for all print jobs unless a specific tray is selected.
		Unless Loaded		
	Manually Feed			Use the radio button to enable or disable this item (default is off).  <b>NOTE:</b> When <a href="#">Manually Feed</a> is turned on, all print jobs sent from a computer using the printer are sent to Tray 1 unless a specific tray is selected (in the printer driver).
Tray Setup	Paper Size			Use the radio buttons to select the default paper size (default is <a href="#">Letter (8.5x11)</a> ). Touch <a href="#">Done</a> to save the setting.
Select from a list of available trays (the list of trays depends on the installed input feeders).	Letter (8.5x11)			
	16K (197x273 mm)			
	Any Custom			
<b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the main menu.	Paper Type			Use the radio buttons to select from a list of paper types (default is <a href="#">Plain</a> ). Touch <a href="#">Done</a> to save the setting.
When finished, touch <a href="#">Done</a> to save the settings.	How to Load Paper			Use this item to view a short animation of how to load the select tray.  <b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the sub menu.
<b>TIP:</b> Tray <a href="#">Settings</a> are also available from this sub menu				
Cartridge Information	Estimated Cartridge levels			Use this item to view the estimated ink level and number of pages remaining for each cartridge.
<b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the main menu.	<b>NOTE:</b> Touch <a href="#">OK</a> to return to the <a href="#">Cartridge Information</a> sub menu.			


Table 2-9 Setup menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Cartridge Low Alert	Yellow Magenta Cyan Black	Automatic Custom	Use the radio buttons to select how the printer acts when a cartridge low condition exists.
Print Settings	Personality	Automatic PCL 5 Only PCL 6 Only PS Only		Use the radio buttons to select the printer language personality.
	Copies			Use your finger to swipe and set the default number of copies when a print job is initiated (default is 1). When finished, touch <a href="#">Done</a> to save the settings.
	Quality	General Office Professional* Presentation		Use the radio buttons to select the default output quality for print jobs.
	Margin	Normal (Recommended) Edge-to-Edge		Use the radio buttons to select the default output margin for print jobs.
	Duplex	Disable Long-Edge Portrait* Short-Edge Portrait		Use the radio buttons to select the default duplex orientation for print jobs.
	PCL Settings	Form Length Append CR to LF		Use your finger to swipe and set the default <a href="#">Form Length</a> for a print job. When finished, touch <a href="#">Done</a> to save the settings.
		Orientation	Portrait* Landscape	Use the radio buttons to select the default <a href="#">Orientation</a> for print jobs.
		Font Number		Use your finger to swipe and set the default <a href="#">Font Number</a> for a print job. When finished, touch <a href="#">Done</a> to save the settings.
		Font Pitch		Use your finger to swipe and set the default <a href="#">Font Pitch</a> for a print job. When finished, touch <a href="#">Done</a> to save the settings.
		Font Point Size		Use your finger to swipe and set the default <a href="#">Font Point Size</a> for a print job. When finished, touch <a href="#">Done</a> to save the settings.


Table 2-9 Setup menu (continued)


First level	Second-level	Third-level	Fourth-level	Description
		Symbol Set		Use the radio buttons to select from a list of available symbol sets.
		Append CR to LF	Off* On	Use the radio button to enable or disable this item (default is off).
Power Management	Sleep Mode	After 5 minutes After 10 minutes After 15 minutes After 30 minutes After 1 hour After 2 hours		Use the radio buttons to set the amount of printer inactive time before the printer enters <a href="#">Sleep Mode</a> .
<b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the main menu.	Schedule Wake/Sleep	Schedule On Schedule On	Schedule On (appears when <a href="#">Schedule On</a> is enabled) Schedule Off (appears when <a href="#">Schedule Off</a> is enabled)	Use the radio buttons to select the days of the week that the printer enables <a href="#">Schedule Wake/Sleep</a> events.  Touch <a href="#">Next</a> , and then use your finger to swipe and set the hour, minute and time period (AM/PM) for <a href="#">Schedule Wake/Sleep</a> events.  Touch <a href="#">Next</a> , and then touch <a href="#">Confirm</a> to save the settings and return to the <a href="#">Schedule Printer On/Off</a> sub menu.  <b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the <a href="#">Power Management</a> sub menu.
Reports	Printer Status Report Print Quality Report Web Access Test Report Usage page Network Configuration Page Fax Reports PCL Fonts List PCL6 Font List PS Font List			Touch <a href="#">Print</a> to print the report.  <b>NOTE:</b> when selecting the <a href="#">Fax Reports</a> item, use the radio buttons to select from a list of available fax reports, and then touch <a href="#">Print</a> . Use the <a href="#">Back</a> button to navigate back to the <a href="#">Reports</a> sub menu.
Security	Device Announcement Agent			Use the radio button to enable or disable this item (default is on).
<b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the main menu.				

## Network Summary menu

At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the [Ethernet Summary](#) (network icon) button.  button.

In the following table, asterisks (\*) indicate the factory default setting.

 **NOTE:** If the printer is not connected to a network, the icon for accessing the network summary screen appears as a radio antenna icon. This screen has the same menu item described below.

 **TIP:** The [Network Summary](#) screen provides information about the network (for example, the printer IP address and the Bonjour Name).

**Table 2-10 Network Summary menu**


First level	Second-level	Third-level	Fourth-level	Description
Setup 	Ethernet Settings	View Ethernet Settings		Use this item to view the current Ethernet settings (like the IP address). Touch <a href="#">Print Details</a> to print the setting, or touch <a href="#">OK</a> to return to the <a href="#">Ethernet Setting</a> sub menu.
		Advanced Settings	IP Settings	Use the radio button to select from <a href="#">Automatic</a> (DHCP) or <a href="#">Manual (Static)</a> .
			IPv6	Use the radio button to enable or disable this feature (default is on).
			Legacy Default IP	Touch <a href="#">Yes</a> to connect the printer to the network legacy default IP. Touch <a href="#">No</a> to return to the <a href="#">Advanced Settings</a> sub menu.
			Host Name	Touch <a href="#">Change</a> to type in a different host name. Touch <a href="#">OK</a> to return to the <a href="#">Advanced Settings</a> sub menu.  <b>CAUTION:</b> Changing the host name might disrupt the existing network connection. If you are unable to print, try turning the printer and the computer off and then turning them on again.
			Bonjour Name	Touch <a href="#">Change</a> to type in a different host name. Touch <a href="#">OK</a> to return to the <a href="#">Advanced Settings</a> sub menu.  <b>NOTE:</b> After changing the Bonjour name, anyone connected to this printer must reconnect using the new name.

Table 2-10 Network Summary menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
			Proxy Settings	<p>On: Use <a href="#">Auto Detect</a> to automatically detect proxy settings, or manually type in the <a href="#">Address</a>, <a href="#">Port</a>, and <a href="#">Authentication</a> fields. Touch <a href="#">Apply</a> to save the settings.</p> <p>Off: <a href="#">Proxy Settings</a> disabled</p>
			Link Speed	<p>Use the radio buttons to choose from a list of link speeds.</p> <p><a href="#">Automatic</a></p> <p>10-Full</p> <p>10-Half</p> <p>100-Full</p> <p>10-Half</p> <p>1000BT</p>
	Wireless Settings	Wireless		Use the radio button to enable or disable this feature (default is off).
			Print the Start Guide	Use this item to print the wireless start guide.
			Wireless Setup Wizard	Use this item to start the wireless setup wizard.
			Wi-Fi Protected Setup	<p>Follow the prompts to setup the printer/router handshake (<a href="#">Push Button</a>), and then obtain then obtain the required router PIN (select <a href="#">PIN</a> on the <a href="#">Wi-Fi Protected Setup</a> menu.</p> <p><b>NOTE:</b> The PIN must be entered in the router web-based configuration page.</p>
			View Wireless Details	Use this item to view details about the wireless network (like the IP address for example). Touch <a href="#">Print</a> to print the details, or press <a href="#">OK</a> to return to the <a href="#">Wireless Settings</a> sub menu.
		Advanced Settings	IP Settings	Use the radio button to select from <a href="#">Automatic (DHCP)</a> or <a href="#">Manual (Static)</a> .
			IPv6	Use the radio button to enable or disable this feature (default is on).

Table 2-10 Network Summary menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
			Legacy Default IP	Touch <a href="#">Yes</a> to connect the printer to the network legacy default IP. Touch <a href="#">No</a> to return to the <a href="#">Advanced Settings</a> sub menu.
			Host Name	Touch <a href="#">Change</a> to type in a different host name. Touch <a href="#">OK</a> to return to the <a href="#">Advanced Settings</a> sub menu.  <b>CAUTION:</b> Changing the host name might disrupt the existing network connection. If you are unable to print, try turning the printer and the computer off and then turning them on again.
			Bonjour Name	Touch <a href="#">Change</a> to type in a different host name. Touch <a href="#">OK</a> to return to the <a href="#">Advanced Settings</a> sub menu.  <b>NOTE:</b> After changing the Bonjour name, anyone connected to this printer must reconnect using the new name.
			Proxy Settings	<b>On:</b> Use <a href="#">Auto Detect</a> to automatically detect proxy settings, or manually type in the <a href="#">Address</a> , <a href="#">Port</a> , and <a href="#">Authentication</a> fields. Touch <a href="#">Apply</a> to save the settings.  <b>Off:</b> <a href="#">Proxy Settings</a> disabled
	<a href="#">Reports</a>	<a href="#">Network Configuration Page</a>		Use this item to print the network configuration page (with information like the HP Embedded Web Server address for example).
		<a href="#">Wireless Test Report</a>		Use this item to print the wireless test page. If the test is unsuccessful, follow the suggested solution on the page to fix the problem.

Table 2-10 Network Summary menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Restore Network Settings			Use this item to attempt to restore the printer network settings. Touch <b>Yes</b> to recover the settings. Touch <b>No</b> to return to the Network Settings sub menu.  <b>CAUTION:</b> Restoring network settings (including proxy settings) resets the administrator password for the HP Embedded Web Server (EWS).
	Reset 802.1X Security			Use this item to attempt to restore the printer network settings. Touch <b>Yes</b> to recover the settings. Touch <b>No</b> to return to the Network Settings sub menu.
	Print Details			Touch <b>Print Details</b> to print the HP Network Configuration Page which contains information about the network (for example, the Embedded Web Service address and the firmware version).
	OK			Touch <b>OK</b> to return to the main printer menu.

### Wi-Fi Direct Details menu

At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the **Wi-Fi Direct Details** (Wi-Fi broadcast icon) button.

In the following table, asterisks (\*) indicate the factory default setting.


 **TIP:** The **Wi-Fi Direct Details** screen provides information about the Wi-Fi network (for example, the printer Wi-Fi name and the password).

Table 2-11 Wi-Fi Direct Details menu

First level	Second-level	Third-level	Fourth-level	Description
Wi-Fi Direct				Use the radio button to enable or disable this feature (default is off).  When <b>Wi-Fi Direct</b> is enabled, Touch <b>Connection Method</b> and then select either <b>Automatic</b> or <b>Manual</b> connection method.

Table 2-11 Wi-Fi Direct Details menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Print Guide			Touch <a href="#">Print Guide</a> to print the Welcome to Wi-Fi Direct page which contains information about how to check and customize Wi-Fi Direct settings  <b>NOTE:</b> Use <a href="#">Wi-Fi Direct</a> to connect a computer, smartphone, or tablet directly to the printer without connecting to an existing wireless network.
	OK			Touch <a href="#">OK</a> to return to the main printer menu.

### Cartridges menu

At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the Cartridges (droplet icon) button.

In the following table, asterisks (\*) indicate the factory default setting.

Table 2-12 Cartridges menu

First level	Second-level	Third-level	Fourth-level	Description
The <a href="#">Cartridges</a> item is not a menu. It is a graphical display of the estimated ink level and number of pages remaining for each cartridge	OK			Touch <a href="#">OK</a> to return to the main printer menu.

### Tray Configuration menu

At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the [Tray Configuration](#) (stacked trays icon) button.

In the following table, asterisks (\*) indicate the factory default setting.



Table 2-13 Tray Configuration menu

First level	Second-level	Third-level	Fourth-level	Description	
<p>Tray Setup</p> <p>Select from a list of available trays (the list of trays depends on the installed input feeders).</p> <p><b>NOTE:</b> Use the <b>Back</b> button to navigate back to the main menu.</p> <p>When finished, touch <b>Done</b> to save the settings.</p> <p><b>TIP:</b> Tray <b>Settings</b> are also available from this sub menu</p>	<p>Paper Size</p> <p>Letter (8.5x11)</p> <p>16K (197x273 mm)</p> <p>Any Custom</p> <hr/> <p>Paper Type</p> <hr/> <p>How to Load Paper</p>			<p>Use the radio buttons to select the default paper size (default is <b>Letter (8.5x11)</b>). Touch <b>Done</b> to save the setting.</p> <hr/> <p>Use the radio buttons to select from a list of paper types (default is <b>Plain</b>). Touch <b>Done</b> to save the setting.</p> <hr/> <p>Use this item to view a short animation of how to load the select tray.</p> <p><b>NOTE:</b> Use the <b>Back</b> button to navigate back to the sub menu.</p>	
		Settings	Tray Assignment	Default Tray	<p>Use the radio buttons to select a default tray.</p> <p><b>NOTE:</b> The list of available trays depends on the installed input feeders.</p>
				Copy	
				Fax Printing	
		USB Printing			
	Tray Lock			<p>Use the radio buttons to prevent a tray from being used.</p> <p><b>NOTE:</b> The list of available trays depends on the installed input feeders.</p>	
	Image Adjustment			<p>Touch a tray in the list, and then adjust the <b>Y#</b> and <b>X#</b> alignment for images printed on the page from that tray. Press <b>Done</b>.</p> <p>Touch <b>Print Test Page</b> to print a page with the adjusted offsets, and then touch <b>Apply</b> to save the settings.</p> <p><b>NOTE:</b> The list of available trays depends on the installed input feeders.</p>	
	ColorLok Optimization			<p>Use the radio button to enable or disable this item (default is on).</p>	

Table 2-13 Tray Configuration menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Paper Size/Type Prompt	Display		Use the radio buttons to select how the printer acts when paper is loaded in a tray (default is <a href="#">Display</a> ). Touch done to save the setting.
		Do Not Display		
	Paper Size/Type Prompt	Exclusively		Use the radio buttons to select how the printer acts when a print job processes (default is <a href="#">Exclusively</a> ). Touch done to save the setting.
		First		
	Alternative Letterhead Mode			Use the radio button to enable or disable this item (default is off).
	Override A4/Letter			Use the radio button to enable or disable this item (default is on).
	Manually Feed Prompt	Always		Use the radio buttons to select how the printer acts when a print job processes (default is <a href="#">Always</a> ). Touch done to save the setting.
		Unless Loaded		<b>NOTE:</b> Prompt for paper to be loaded manually for all print jobs unless a specific tray is selected.
	Manually Feed			Use the radio button to enable or disable this item (default is off).
				<b>NOTE:</b> When <a href="#">Manually Feed</a> is turned on, all print jobs sent from a computer using the printer are sent to Tray 1 unless a specific tray is selected (in the printer driver).

### Fax Status menu

At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the [Fax Status](#) (telephone handset icon) button.

In the following table, asterisks (\*) indicate the factory default setting.

Table 2-14 Fax Status menu

First level	Second-level	Third-level	Fourth-level	Description	
Fax Status  <b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the main menu.	Auto Answer			Use the radio buttons to enable or disable this feature (default is on).	
	Fax Logs		Logs for Sent Faxes	Use these items to view the fax logs.	
			Logs for Received Faxes		
	Fax Sound Volume		Soft		Use the radio buttons to set the fax sound volume.
			Loud		
		Off			

### Environmental Settings menu

At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the [Environmental Settings](#) (twin leaves icon) button.

In the following table, asterisks (\*) indicate the factory default setting.



**NOTE:** Use the [Back](#) button to navigate back to the main menu.

Table 2-15 Environmental Settings menu

First level	Second-level	Third-level	Fourth-level	Description
2-Sided Copying	1 -> 1 Sided			Use the radio buttons to select the default copying job option.
	1 -> 2 Sided			
	2 -> 1 Sided			
	2 -> 2 Sided			
2-Sided Fax Printing				Use the radio button to enable or disable this feature (default is off).  <b>NOTE:</b> When enabled, all incoming faxes are scaled automatically so that they can be printed on both sides of a page.
Sleep Mode	After 5 minutes			Use the radio buttons to set the amount of printer inactive time before the printer enters <a href="#">Sleep Mode</a> .
	After 10 minutes			
	After 15 minutes			
	After 30 minutes			
	After 1 hour			
	After 2 hours			

Table 2-15 Environmental Settings menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
Schedule Printer On/Off	Schedule On	Schedule On (appears when Schedule On is enabled)		<p>Use the radio buttons to select the days of the week that the printer enables <a href="#">Schedule Wake/Sleep</a> events.</p> <p>Touch <a href="#">Next</a>, and then use your finger to swipe and set the hour, minute and time period (AM/PM) for <a href="#">Schedule Wake/Sleep</a> events.</p> <p>Touch <a href="#">Next</a>, and then touch <a href="#">Confirm</a> to save the settings and return to the <a href="#">Schedule Printer On/Off</a> sub menu.</p> <p><b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the <a href="#">Schedule Printer On/Off</a> sub menu.</p>
	Schedule Off	Schedule Off (appears when Schedule Off is enabled)		
Screen Brightness				<p>Use your finger to swipe and change the sliding bar setting. When finished, touch <a href="#">Done</a> to save the setting.</p>

### Sign In menu

At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the [Sign In](#) (rubber stamp icon) button.

In the following table, asterisks (\*) indicate the factory default setting.

Table 2-16 Sign In menu

First level	Second-level	Third-level	Fourth-level	Description
Sign In	Access Type	User Access Code*		Use the radio button to select the type of Sign In access desired.
<b>NOTE:</b> Use the <a href="#">Back</a> button to navigate back to the main menu.	<b>NOTE:</b> The <a href="#">Administrator Access Code</a> is set by the user by accessing the printer HP Embedded Web Server (EWS) page.	<a href="#">Administrator Access Code</a>	<a href="#">Service Access Code</a>	
	<a href="#">Access Code</a>			When <a href="#">Access Code</a> is selected, a 10-keypad appears on the control-panel display. Type in the personal identification number (PIN) for the type of <a href="#">Sign In</a> access selected. Touch <a href="#">Done</a> to access the selected <a href="#">Sign In</a> access selection.  <b>NOTE:</b> For the <a href="#">Service Access Code Sign In</a> access selection, use <b>05075017</b> for this printer.

## Copy menu (MFP models only)

**To display:** At the printer control panel, touch the [Copy](#) button.

In the following table, asterisks (\*) indicate the factory default setting.

**Table 2-17 Copy menu (MFP models)**


First level	Second level	Third level	Fourth-level	Description
Document	2-Sided Copying	1 - > 1 Sided*		Use this item to indicate whether the original document is printed on one or both sides, and whether the copies should be printed on one or both sides.
		1 - > 2 Sided		
		2- > 1 Sided		
		2- > 2Sided		
	Tray Selection	Choose from a list of trays.  <b>NOTE:</b> The list of trays depends on the printer model and installed accessory input feeders.		Use this item top select the source tray for the copy job.  <b>NOTE:</b> The A3 Tray 2 or the A3 Tray 3 is the default tray.
	Color/Black*	Automatically detect color or black*  Print copy in color  Print copy in black		Use this item to determine if the copy job is always printed in color or black, or if the printer automatically determines this from the source document.
	Touch to Preview			Use this item to preview the copy job. The preview window displays the source document laying on the flatbed glass.
	Copies			Use this item to set the number of copies desired.  <b>NOTE:</b> When touched, a 10-key numeric pad appears on the control-panel display.
	Copy			Touch <a href="#">Copy</a> to start the copy job.
	 Setup button at the bottom left of the display.	2-Sided Copying	1 - > 1 Sided*  1 - > 2Sided  2- > 1 Sided  2- > 2Sided	Use to indicate whether the original document is printed on one or both sides, and whether the copies should be printed on one or both sides.

Table 2-17 Copy menu (MFP models) (continued)

First level	Second level	Third level	Fourth-level	Description
		2-Sided Format	Book-style* Flip-style	<p>If you are making two-sided copies, select a 2-sided format option.</p> <p><b>Book-style:</b> The back side of the original is printed right-side-up, and the back side of the copy is printed the same way. Use this option for originals and copies that are bound along the left edge.</p> <p><b>Flip-style:</b> The back side of the original is printed upside-down, and the back side of the copy is printed the same way. Use this option for originals and copies that are to be bound along the top edge.</p>
		Resize	None* Custom Fit to Page 2 Pages/sheet Full Page (91%) Legal to Letter (91%) A4 to Letter (91%) Letter to A4 (94%)	Use this item to select either a reduced or enlarged image size for the copy job.
		Tray Selection	Choose from a list of trays. <b>NOTE:</b> The list of trays depends on the printer model and installed accessory input feeders.	Use this item to select the source tray for the copy job. <b>NOTE:</b> The A3 Tray 2 or the A4 Tray 3 is the default tray.
		Quality	Presentation Professional* General Office	Use this item to set the image quality for the copy job.
		Lighter/Darker	Normal* <b>NOTE:</b> Use the sliding scale to adjust this item.	Use this item to improve the overall quality of the copy. Touch <b>Done</b> to return to the <b>Document Setup</b> menu.
		Color/Black	Automatically detect color or black* Print copy in color Print copy in black	Use this item to determine if the copy job is always printed in color or black, or if the printer automatically determines this from the source document.

Table 2-17 Copy menu (MFP models) (continued)


First level	Second level	Third level	Fourth-level	Description
		Enhancements	None Text Photo Mixed*	Use this setting to optimize the output for a particular type of content.
		Binding Margin	On Off*	Use this item to offset (on setting) the printed content to allow for a binding.
		Save Current Setting		Use this item to save changes made to the settings
		Restore Factory Defaults		Use this item to restore the factory default settings.
ID Card  <b>NOTE:</b> Use the ID Card function to automatically place the images from a two sided identification card (like a drivers licence for example) on a single page.	Orientation	Portrait* Landscape		Use this item to determine the orientation of the images on the paper.
	Tray Selection	Choose from a list of trays. <b>NOTE:</b> The list of trays depends on the printer model and installed accessory input feeders.		Use this item top select the source tray for the copy job. <b>NOTE:</b> The A3 Tray 2 or the A4 Tray 3 is the default tray.
	Color/Black*	Automatically detect color or black* Print copy in color Print copy in black		Use this item to determine if the copy job is always printed in color or black, or if the printer automatically determines this from the source document.
	 Setup button at the bottom left of the display.	Tray Selection	Choose from a list of trays. <b>NOTE:</b> The list of trays depends on the printer model and installed accessory input feeders.	
		Quality	Presentation Professional* General Office	Use this item to set the image quality for the copy job.
		Lighter/Darker	Normal* <b>NOTE:</b> Use the sliding scale to adjust this item.	Use this item to improve the overall quality of the copy. Touch Done to return to the Document Setup menu.



Table 2-17 Copy menu (MFP models) (continued)

First level	Second level	Third level	Fourth-level	Description
		Color/Black	Automatically detect color or black* Print copy in color Print copy in black	Use this item to determine if the copy job is always printed in color or black, or if the printer automatically determines this from the source document.
		Orientation	Portrait* Landscape	

## Scan menu (MFP models only)

**To display:** At the printer control panel, touch the [Scan](#) button.

In the following table, asterisks (\*) indicate the factory default setting.

**Table 2-18** Scan menu (MFP models)

First level	Second-level	Third-level	Fourth-level	Description
Email	File Name			Use this item to change the default file name (scan) to a custom file name.
				When touched, a QWERTY keyboard appears on the control-panel display. Touch <a href="#">Done</a> when finished typing the file name to return to the <a href="#">Scan to USB</a> menu.
	Save As	PDF*		Use this item to select the file type for saving the scanned original.
		PDF/A		
		JPEG		
		TIFF		
		XPS		
	2-Sided Original			Use the radio button to enable or disable this item (default is off).
Settings	File Name			Use this item to change the default file name (scan) to a custom file name.
				When touched, a QWERTY keyboard appears on the control-panel display. Touch <a href="#">Done</a> when finished typing the file name to return to the <a href="#">Scan to USB</a> menu.
	Save As		PDF*	Use this item to select the file type for saving the scanned original.
			PDF/A	
			JPEG	
			TIFF	
			XPS	
	PDF Encryption			Use the radio button to enable or disable this item (default is off).
	Color Format		Color*	Use this item to select the color format of the original document.
			Grey Scale	
			Monochrome/Black	

Table 2-18 Scan menu (MFP models) (continued)

First level	Second-level	Third-level	Fourth-level	Description
		Original Size		Use this item to select the size of the original document (select from a displayed list; letter is the default).
		File Compression		Use the radio button to enable or disable this item (default is off).
		Resolution	300 dpi 200 dpi* 150 dpi 75 dpi	Use this item to set the resolution for saving the scanned original document.
		Quality	High Medium* Low	Use this item to set the image quality for saving the scanned original document.
		Lighter/Darker		Use this item to improve the overall quality of the copy.  Use the sliding scale to adjust this item.
		Orientation	Portrait* Landscape	Use this item to set the page orientation for saving the scanned original document.
		Save Current Setting		Use this item to save changes made to the settings.
		Restore Factory Defaults		Use this item to restore the factory default settings.
Network Folder				Use this item to scan and save originals to a network folder without using a computer. Send or retrieve files to a network location.  <b>NOTE:</b> Make sure that the folder has been created on the server and that you have permission for saving files to that folder.

**NOTE:** The sub menus for this item are the same as for the [Email](#) menus.

Table 2-18 Scan menu (MFP models) (continued)

First level	Second-level	Third-level	Fourth-level	Description
SharePoint				<p>Use this item to scan and save originals to a SharePoint folder without using a computer. Send or retrieve files to a SharePoint location.</p> <p><b>NOTE:</b> Make sure that the folder has been created on the SharePoint and that you have permission for saving files to that folder.</p>
Computer				<p>To scan to a computer, make sure that the scanning software is installed and configured on the computer.</p> <p><b>Windows:</b> Open the HP printer software, select the <b>Scanner Actions</b> item, and then select the <b>Manage Scan to Computer</b> item.</p> <p><b>Mac OS X:</b> The HP recommended software is required for this feature. If installed, open the <b>HP Utility</b>. Under the <b>Scan Settings</b> item, click <b>Scan to Computer</b>, and then make sure that <b>Enable Scan to Computer</b> is selected.</p>
USB				<p>Use this item to scan originals to a USB flash drive.</p> <p><b>NOTE:</b> Plug the USB flash drive into the USB port before selecting this option.</p>

## Print menu

**To display:** At the printer control panel, touch the [Print](#) button.

In the following table, asterisks (\*) indicate the factory default setting.

**Table 2-19** Print menu

First level	Second-level	Third-level	Fourth-level	Description
USB	<p><b>NOTE:</b> When a file is selected to print, the following options appear on the control-panel display.</p> <ul style="list-style-type: none"> <li>• <a href="#">2-Sided</a></li> <li>• <a href="#">Collate</a></li> <li>• <a href="#">Output bin</a></li> <li>• <a href="#">Quality</a></li> <li>• <a href="#">Tray Selection</a></li> <li>• <a href="#">Save Current Setting</a></li> <li>• <a href="#">Copies</a></li> <li>• <a href="#">Black</a></li> <li>• <a href="#">Color</a></li> </ul>			<p>Select from a list of available files to print.</p> <ul style="list-style-type: none"> <li>• <b>2-Sided:</b> Use the radio button to enable or disable this item (default is off).</li> <li>• <b>Collate:</b> Use the radio button to enable or disable this item (default is off).</li> <li>• <b>Output bin:</b> Select <a href="#">Automatic</a> or <a href="#">Lower Bin</a>.</li> <li>• <b>Quality:</b> Use this item to set the image quality for the copy job.</li> <li>• <b>Tray Selection:</b> Use this item to select the source tray for the print job.</li> </ul> <p><b>NOTE:</b> The A3 Tray 2 or the A4 Tray 3 is the default tray.</p> <ul style="list-style-type: none"> <li>• <b>Save Current Setting:</b> Use this item to save any changed settings.</li> <li>• <b>Copies:</b> Use this item to set the number of copies desired.</li> </ul> <p><b>NOTE:</b> When touched, a 10-key numeric pad appears on the control-panel display.</p> <ul style="list-style-type: none"> <li>• <b>Black:</b> Use this item to print the selected file in black only.</li> <li>• <b>Color:</b> Use this item to print the selected file in color.</li> </ul>
	<p><a href="#">Filter</a></p> <p><b>NOTE:</b> This is the funnel icon at the lower left corner of the control-panel display.</p>	<p><a href="#">All*</a></p> <p><a href="#">JPG</a></p> <p><a href="#">PNG</a></p> <p><a href="#">TIFF</a></p> <p><a href="#">PDF</a></p> <p><a href="#">PPT</a></p> <p><a href="#">DOC</a></p> <p><a href="#">PS</a></p>		<p>Use this item to filter the list of available files to print by file extension type.</p>

Table 2-19 Print menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Sort	Name*		Use this item to sort the list of available files to print by file attributes.
	<b>NOTE:</b> This is the stack icon at the lower left corner of the control-panel display.	Date*		
		Size		
		Type		
	Search			Use this item to search for a specific file to print by typing in a search term.
	<b>NOTE:</b> This is the magnifying glass icon at the lower left corner of the control-panel display.			
Print Private Job				Use this item to print private files stored in the printer memory.
<b>NOTE:</b> The sub menus for this item are the same as for the USB menus.				Select from a list of available files to print.
				<b>NOTE:</b> When prompted, enter a personal identification number (PIN) to access the file.
Stored Job				Use this item to print files stored in the printer memory.
<b>NOTE:</b> The sub menus for this item are the same as for the USB menus.				Select from a list of available files to print.

## Fax menu (fax models only)

**To display:** At the printer control panel, touch the [Fax](#) button.

In the following table, asterisks (\*) indicate the factory default setting.

**Table 2-20 Fax menu (fax models)**

First level	Second-level	Third-level	Fourth-level	Description
Send Now	Call History			Use this item to view a list of past used fax phone numbers.
				Use your finger to change (swipe) the hour, minute, and AM or PM settings for scheduling a future fax send operation.
	Reset			Use this item to reset the schedule send to the current time.
	Done			<b>NOTE:</b> The sub menus for this item are the same as for the <a href="#">Email</a> menus.
		Lighter/Darker		Use this item to improve the overall quality of the copy.  Use the sliding scale to adjust this item.
		Color	Send Fax as Black Send Fax as Color	Use this item to send the scanned fax as black only or in color.
		Save current Setting		Use this item to save changes made to the settings.
Send Later				<b>NOTE:</b> The sub menus for this item are the same as for the <a href="#">Send Now</a> menu.
Reprint				Use this item to print previously received faxes.  Select from a displayed list of previously displayed faxes.
Setup	Setup Wizard			Use this item to start the fax setup wizard. Follow the prompts on the control-panel display to complete the fax setup.

Table 2-20 Fax menu (fax models) (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Preferences	Scan and Fax Method		Use the radio button to enable or disable this item (default is enabled).  <b>NOTE:</b> This item can only be used with A4- and letter-size paper.  Setting <a href="#">Scan and Fax Method</a> as the default disables color fax.
	Auto Answer			Use the radio button to enable or disable this item (default is enabled).
	Auto Redial			Use the radio button to enable or disable this item (default is enabled).
	Automatic Reduction			Use the radio button to enable or disable this item (default is enabled).
	2-Sided Fax Printing			Use the radio button to enable or disable this item (default is off).
	Tray Selection	Choose from a list of trays.  <b>NOTE:</b> The list of trays depends on the printer model and installed accessory input feeders.		Use this item to select the source tray for the copy job.  <b>NOTE:</b> The A3 Tray 2 or the A4 Tray 3 is the default tray.
	Stamping			Use the radio button to enable or disable this item (default is off).
	Dialing Prefix	Off*  On		Use this item to enable or disable using a prefix when sending a fax.
	Fax Header			Use this item to type in a fax header to be applied to outgoing faxes.
	HP Digital Fax			Use this item to use HP digital faxing software.  <b>NOTE:</b> Follow the prompts on the control-panel display to set up the <a href="#">HP Digital Fax</a> feature.
	Fax Forwarding	Off*  On		Use this item to enable or disable the fax forwarding feature.
	Junk Fax Blocking			Use this item to type in phone numbers to block acceptance of faxes.



Table 2-20 Fax menu (fax models) (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Distinctive Ring	Ring Pattern Detection		<p>Use this item to select a distinctive ring type (using a distinctive ring service through your telephone company).</p> <p>If you have a special ring pattern for your fax phone number, make sure that the Distinctive Ring feature on the printer is set to match.</p> <p><b>NOTE:</b> If you are not using a distinctive ring service, check to make sure that the Distinctive Ring feature on the printer is set to All Standard Rings</p>
		Single Rings		
		Double Rings		
		Triple Rings		
		Double and Triple Rings		
		All Standard Rings*		
	Rings to Answer			Use your finger to change (swipe) the number of ring before the printer answers to an incoming fax (default is 5).
	Fax Volume	Soft*		Use this item to set the volume of the speaker when incoming faxes arrive.
		Loud		
		Off		
	Dial Type	Tone*		Use this item to set the type of outgoing telephone line to use for sending faxes.
		Pulse		
	Fax Speed	Fast (3360 bbs)		Use this item to set the fax PCA transmission rate (baud).
		Medium (1440 bbs)*		
		Slow (9600 bbs)		
	Restore Setting			Use this item to restore the factory default settings.
Tools	Run Fax Test			<p>Use this item to validate fax functionality.</p> <p><b>NOTE:</b> A fax test page prints. If the test was unsuccessful, follow the solutions on this page to fix the problem.</p>
	Clear Fax Logs/ Memory			Use this item to clear the fax log and remove faxes stored in printer memory.

Table 2-20 Fax menu (fax models) (continued)

First level	Second-level	Third-level	Fourth-level	Description
Reports	Fax Confirmation	On (Fax Send)*		On (Fax Send)*: Prints a fax confirmation report for every fax you send.
		On (Fax Receive)		On (Fax Receive): Prints a fax confirmation report for every fax you receive.
		On (Fax Send and Receive)		On (Fax Send and Receive): Prints a fax confirmation report for every fax you send and receive.
		Off		Off: Does not print a fax confirmation report when you send and receive faxes successfully.
	Fax Error Reports	On (Fax Send)*		On (Fax Send)*: Prints whenever a transmission error occurs.
		On (Fax Receive)		On (Fax Receive): Prints whenever a receiving error occurs
		On (Fax Send and Receive)		On (Fax Send and Receive): Prints whenever a fax error occurs.
		Off		Off: Does not print any fax error reports.

Table 2-20 Fax menu (fax models) (continued)

First level	Second-level	Third-level	Fourth-level	Description
	Print Fax Reports	Last Transaction Log*		Use the <a href="#">Print Fax Reports</a> checkbox to select a report, and then touch <a href="#">Print</a> to print the report.
		Last 30 Transaction Logs		<a href="#">Last Transaction Log</a> : Prints the details of the last fax transaction that occurred. Details include the fax number, number of pages, and the fax status.
		Caller ID Report		<a href="#">Last 30 Transaction Logs</a> : Prints the last 30 transactions and the results.
		Junk Fax Report		<a href="#">Caller ID Report</a> : Prints a history of caller ID fax numbers.
				<a href="#">Junk Fax Report</a> : Prints a history of blocked fax numbers.
Phone Book				Choose from a list of existing fax phone contacts, or type in a new contact and phone number to add to a phone book.  When touched, a QWERTY keyboard or 10-key numeric pad appears on the control-panel display. Touch <a href="#">Save</a> when finished typing to save the contact information <a href="#">Phone Book</a> menu.

## Support Tools menu

**To display:** At the printer control panel, touch the [Support Tools](#) button.

In the following table, asterisks (\*) indicate the factory default setting.



**NOTE:** A [Reports](#) menu is available for all [Support Tools](#) menus. At the bottom left of a support tools menu screen, touch [Reports](#) to access the following:

- [Print a Demo Page](#)
- [System Information](#)

Use this item to view information like firmware version, printer installation date, and page counts.

- [Event Logs](#)

Use this item to view the printer event log.

**Table 2-21 Support Tools menu**

First level	Second-level	Third-level	Fourth-level	Description
Troubleshooting	Print Quality	Print Quality Calibration	Select the Tray	<p><a href="#">Print Quality Calibration</a> ensures the best possible print quality on both plain and specialty papers.</p> <p>These procedures use several sheets of paper, and can take up to 15 minutes to complete.</p> <p><b>NOTE:</b> <a href="#">Print Quality Calibration</a> requires A4- or letter-sized paper.</p>
			Align the Printhead	
			Calibrate the Color Density	
			Print your test documents	
		Printhead Status		Use this item to view a list of printhead information (for example, printhead health score).
		Diagnostic Pages	Print a Demo Page	Use this item to print the demo page.
	Print a Print Quality Report		Use this item to print the print quality report page.	
		Tools	Clean the Printhead	<p>Use this item to solve problems that the printer cannot automatically resolve. For example, streaks or incorrect or missing colors. This process takes about 3 to 4 minutes.</p> <p><b>NOTE:</b> A print quality report page prints after the printhead is cleaned.</p>

Table 2-21 Support Tools menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
			Align the Printhead	<p>This process takes about 1 minute. The date of the last alignment also displays.</p> <p><b>NOTE:</b> When the processes completes, a page that was used internally is ejected. Discard this page.</p>
			Calibrate the Color Density	<p>This process takes about 1 minute. The date of the last alignment also displays.</p> <p><b>NOTE:</b> When the processes completes, a page that was used internally is ejected. Discard this page.</p>
		Advanced Tools	Calibrate the Image Sensor	<p>Use this item to perform an image scanner calibration.</p> <p>This check takes about 1 minute. The date of the last calibration also displays.</p>
			Calibrate the Deskew Subsystem	<p>This item calibrates the deskew reflective edge detection interrupter (REDI) sensors.</p>
			Calibrate the Print Margin	<p>This item sets how the image scanner sensor reads the edge of the page.</p>
			Restore Factory Defaults (Printhead Alignment Calibration)	<p>Touch <b>Reset</b> to restore the factory printhead alignment calibration settings.</p> <p><b>NOTE:</b> After restoring factory print head alignment, print a <b>Print Quality Report</b>. If the print quality problem persist, perform the printhead alignment calibration again.</p>
			Restore Factory Defaults (Color Density Calibration)	<p>Touch <b>Reset</b> to restore the factory color density calibration settings.</p> <p><b>NOTE:</b> After restoring factory print head alignment, print a <b>Print Quality Report</b>. If the print quality problem persist, perform the color density calibration again.</p>

Table 2-21 Support Tools menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
			Print a Yellow Page (Print Quality Diagnostics)	If other colors than the selected page appear on the page, keep printing this page until they disappear.
			Print a Magenta Page (Print Quality Diagnostics)	If other colors than the selected page appear on the page, keep printing this page until they disappear.
			Print a Cyan Page (Print Quality Diagnostics)	If other colors than the selected page appear on the page, keep printing this page until they disappear.
			Print a Black Page (Print Quality Diagnostics)	If other colors than the selected page appear on the page, keep printing this page until they disappear.
			Print a Dimensional PQ Page (Letter) (Print Quality Diagnostics)	Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
			Print a Dimensional PQ Page (A4) (Print Quality Diagnostics)	Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
	Report a Problem	Generate Debug Data		Use this item to generate and then write debug data to a USB flash drive.
		NOTE: Use this item to generate system information that can be sent to HP to help solve printer error conditions.		
		Retrieve Data		Use this item to retrieve debug data from a USB flash drive.
	Fax	Run Fax Test		Use this item to validate fax functionality.
				NOTE: A fax test page prints. If the test was unsuccessful, follow the solutions on this page to fix the problem.

Table 2-21 Support Tools menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
Maintenance	Service Fluid Container	Life Remaining		This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.  <b>NOTE:</b> Not selectable
<p><b>NOTE:</b> Select <b>Next</b> to enter the sub menus listed in the next column.</p> <p>Touch <b>Done</b> when navigating the sub menus to return to the assembly menu.</p>		Replace the Service Fluid Container		This item describes the amount of time required to replace the assembly. Touch <b>Next</b> to begin the procedure.
		Settings	Notify When Low	Use the Radio button to enable or disable low notification (default is on).
			Notify When Low Prompt to Continue	Select <b>Stop</b> (stop printing), <b>Prompt to Continue*</b> (prompt to continue printing), or <b>Continue</b> (do not stop printing) to determine how the printer acts when a low condition is reached.
			Reset the Remaining Life Counter	Use this item to reset the service fluid container counter. Touch <b>OK</b> when prompted to reset the counter. Touch <b>Cancel</b> to exit the menu without resetting the counter.
	Printhead Wiper	Life Remaining		This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.  <b>NOTE:</b> Not selectable
		Replace the Printhead Wiper		This item describes the amount of time required to replace the assembly. Touch <b>Next</b> to begin the procedure.  <b>CAUTION:</b> To avoid printer damage, have a replacement printhead wiper ready before proceeding and complete this task within 25 minutes.
		Settings	Notify When Low	Use the Radio button to enable or disable low notification (default is on).

Table 2-21 Support Tools menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
			Notify When Low Prompt to Continue	Select <b>Stop</b> (stop printing), <b>Prompt to Continue*</b> (prompt to continue printing), or <b>Continue</b> (do not stop printing) to determine how the printer acts when a low condition is reached.
			Reset the Remaining Life Counter	Use this item to reset the printhead wiper counter. Touch <b>OK</b> when prompted to reset the counter. Touch <b>Cancel</b> to exit the menu without resetting the counter.
	Tray <X> Rollers	Life Remaining		This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.  <b>NOTE:</b> Not selectable
	<b>NOTE:</b> Depending on printer configuration, the menu might list up to six tray roller items.  <b>TIP:</b> Tray 1/2/3 will always be displayed.		Replace the Tray Rollers	<b>OK</b>  This item describes the amount of time required to replace the assembly. Touch <b>OK</b> to return to the <b>Tray &lt;X&gt; Rollers</b> maintenance menu.
		Settings	Reset the Remaining life Counter	Use this item to reset the remaining life counter.
			Notify When Low	Use the Radio button to enable or disable low notification (default is on).
			Set the Low Notification Threshold	Type in a percentage of life left to determine when the printer notifies a very low life remaining condition.
			Restore the Default Low Notification Threshold	Restore the factory percentage of life left used to determine when the printer notifies a very low life remaining condition.
			Notify When Low Prompt to Continue	Select <b>Stop</b> (stop printing), <b>Prompt to Continue*</b> (prompt to continue printing), or <b>Continue</b> (do not stop printing) to determine how the printer acts when a low condition is reached.
			Set the Maximum Life Limit	Use this item to set the maximum life limit (cycles) for the assembly.



Table 2-21 Support Tools menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
			Restore the Default Limit	Use this item to restore the factory set maximum life (cycles) for the assembly.
	Document Feeder Rollers	Life Remaining		<p>This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.</p> <p><b>NOTE:</b> Not selectable</p>
		Replace the Document Feeder Rollers	OK	This item describes the amount of time required to replace the assembly. Touch <b>OK</b> to return to the <b>Tray &lt;X&gt; Rollers</b> maintenance menu.
		Settings	Reset the Remaining life Counter	Use this item to reset the remaining life counter.
			Notify When Low	Use the Radio button to enable or disable low notification (default is on).
			Set the Low Notification Threshold	Type in a percentage of life left to determine when the printer notifies a very low life remaining condition.
			Restore the Default Low Notification Threshold	Restore the factory percentage of life left used to determine when the printer notifies a very low life remaining condition.
			Notify When Low Prompt to Continue	Select <b>Stop</b> (stop printing), <b>Prompt to Continue*</b> (prompt to continue printing), or <b>Continue</b> (do not stop printing) to determine how the printer acts when a low condition is reached.
			Set the Maximum Life Limit	Use this item to set the maximum life limit (cycles) for the assembly.

Table 2-21 Support Tools menu (continued)

First level	Second-level	Third-level	Fourth-level	Description
			Restore the Default Limit	Use this item to restore the factory set maximum life (cycles) for the assembly.
Service				<p>The <a href="#">Service</a> menu is for authorized service personal only and is protected by a personal identification number (PIN).</p> <p><b>NOTE:</b> See the <b>Service mode functions</b> section in the printer <i>Troubleshooting Service Manual</i> for more information.</p>

## Control Panel Messages Document (CPMD)

The Control Panel Messages Document (CPMD) is not provided in this service manual. The CPMD for this printer is available to HP service personnel on the HP Web-Based Interactive Search Engine (WISE) website. Go to one of the WISE websites listed below, and then search by printer name.

The CPMD is available to channel partners through the HP Channel Services Network (CSN) at [www.hp.com/partners/csn](http://www.hp.com/partners/csn).

### AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

### APJ

- <https://support.hp.com/wise/home/apj-en>
- <https://support.hp.com/wise/home/apj-ja>
- <https://support.hp.com/wise/home/apj-ko>
- <https://support.hp.com/wise/home/apj-zh-Hans>
- <https://support.hp.com/wise/home/apj-zh-Hant>


### EMEA


- <https://support.hp.com/wise/home/emea-en>

# Print quality troubleshooting guide

- [How to search for printer documentation](#)
- [Printer pre-checks](#)
- [Printer specific image defects](#)

---

 **NOTE:** Use the procedures in this section to resolve most print-quality issues (for example, streaks or fading, missing black or other colors, blurred or fuzzy text, and ink streaks or smears). Try the following solutions in the order presented. When one of the solutions resolves the issue, there is no need to continue with the other procedures. If the issue only occurs on copy print jobs (MFP models only), go to [Copy quality troubleshooting \(MFP\) on page 178](#).

 **TIP:** An all-inclusive paper handling diagram is available that is too large to include here. HP recommends downloading this document from the HP Web-based Interactive Search Engine (WISE) Web site, and then print it on A3 size paper to use as a troubleshooting reference.

Go to the appropriate Web site (listed below), and then enter **c05384799** in the search box.

## AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

## APJ

- <https://support.hp.com/wise/home/apj-en>
- <https://support.hp.com/wise/home/apj-ja>
- <https://support.hp.com/wise/home/apj-ko>
- <https://support.hp.com/wise/home/apj-zh-Hans>
- <https://support.hp.com/wise/home/apj-zh-Hant>

## EMEA

- <https://support.hp.com/wise/home/emea-en>

Channel partners, go to HP Channel Services Network (CSN) at [www.hp.com/partners/csn](http://www.hp.com/partners/csn).

---

## How to search for printer documentation

The CPMD, error codes, and other support documentation for each printer is found on the internal HP portals [GCSN](#) and [WISE](#) (formerly SAW). GCSN is available to HP channel partners and WISE is available to call agents, service technicians, and other HP internal users. The level of detail available will depend on your access credentials.

## How to search WISE for printer documentation

These instructions are for HP internal use by call agents, service technicians, and other internal users. To learn how to find support content in WISE, watch the video [here](#).

To view a list of control panel message documents per printer in **WISE**, enter document ID **c05048451**, to locate CPMD list.

Go to **WISE** and enter this document ID **c05791539** for written instructions.

## How to search GCSN for printer documentation

These instructions are for internal use by HP Channel Partners. To learn how to find support content in GCSN, watch the video [here](#) or follow these steps:

1. On the Home screen in GCSN, open **Technical information** using one of the following two methods:
  - Type **TINF** in the **Speedcode** field found in the upper right corner and press **Enter**, or
  - On the Home page, click **Technical information** in the left pane.

Contact HP CSN My favorites Tools Useful links Profile Logout

Speedcode

Message center  
FAQ  
Change partner  
Printable version

### HP Channel Services Network

Welcome

HP service delivery  
HP Care Pack services  
HP Warranty lookup  
Unit configuration  
HP part catalog  
HP parts store  
**Technical information**  
Service provider news  
Service Media Library Page

**service delivery** service sales Programs, training & documentation Reporting & administration

**Entitlement**  
> HP Warranty lookup  
> Unit configuration

**Parts ordering & claims**  
☐ HP service delivery  
> HP part catalog

**Technical support**  
☐ Support tools & information

**Additional resources**  
> Service Media Library Page  
> HP Unison Partner Portal

- Under **Product Search**, select the **Type**, **Category**, **Family**, and **Series** that match your product model (leave the **Model** field as blank or the default).


 **NOTE:** Make sure to login to GCSN using your service-qualified credentials to access the most comprehensive content list available. To find out how to become service-qualified, contact your HP representative.

Figure 2-34 Sample product search criteria

**Product Search** **Add Favorites**

**Type**  
Printers and Multifunction

**Category**  
Multifunction and All-in-One

**Family**  
HP LaserJet MFP and All-in-One Products

**Series**  
HP Color LaserJet Enterprise MFP M682 series

**Model**  
Select a Model

- Click **Add Favorites** and then click **Add** to add the printer to your Favorites list and allow you to bypass the **Product Search** fields next time for that particular model (Optional).

**Product Search** **Add Favorites**

**Type**  
Printers and Multifunction

**Category**  
Multifunction and All-in-One

**Family**  
HP LaserJet MFP and All-in-One Products

- Clear all of the high-level check boxes.

Select the appropriate check boxes for the document types you wish to review.

<input type="checkbox"/> <b>Support Communications</b>	<input type="checkbox"/> <b>Manuals and Guides</b>	<input type="checkbox"/> <b>Support Information</b>
<input type="checkbox"/> Customer Advisory	<input type="checkbox"/> Illustrated Parts Map	<input type="checkbox"/> ActionProcedureMap
<input type="checkbox"/> Customer Bulletin	<input type="checkbox"/> Install Guide	<input type="checkbox"/> CPMDMap
<input type="checkbox"/> Customer Notice	<input type="checkbox"/> Maintenance/Service Guide	<input type="checkbox"/> Support Information
<input type="checkbox"/> Customer Work Instruction (CSR)	<input type="checkbox"/> Parts Guide	<input type="checkbox"/> Top Issue (Notes: If you are selecting top issue it will return only top issue documents)
<input type="checkbox"/> Product Change Notification	<input type="checkbox"/> QuickSpec	<input type="checkbox"/> Software Support & Drivers Information
<input type="checkbox"/> Security Bulletin	<input type="checkbox"/> Reference Manual	<input type="checkbox"/> Product Bulletin/QuickSpec
<input type="checkbox"/> Service Action Advisory	<input type="checkbox"/> Service Guide/Mannual	<input type="checkbox"/> Buy Care Packs
<input type="checkbox"/> Service Advisory	<input type="checkbox"/> Technical Reference Guide	
<input type="checkbox"/> Service Bulletin	<input type="checkbox"/> Training Material	


- Select the check boxes for the document types for which you want to search.

 **NOTE:** Select only the high-level **Manuals and Guides** search option if you are not sure in which type of manual or guide the content might be listed.

Select the appropriate check boxes for the document types you wish to review.

<input type="checkbox"/> Support Communications	<input type="checkbox"/> Manuals and Guides	<input type="checkbox"/> Support Information
<input type="checkbox"/> Customer Advisory	<input type="checkbox"/> Illustrated Parts Map	<input type="checkbox"/> ActionProcedureMap
<input type="checkbox"/> Customer Bulletin	<input type="checkbox"/> Install Guide	<input checked="" type="checkbox"/> CPMDMap
<input type="checkbox"/> Customer Notice	<input checked="" type="checkbox"/> Maintenance/Service Guide	<input checked="" type="checkbox"/> Support Information
<input type="checkbox"/> Customer Work Instruction (CSR)	<input type="checkbox"/> Parts Guide	<input type="checkbox"/> Top Issue (Note: If you are selecting top issue it will return only top issue documents)
<input type="checkbox"/> Product Change Notification	<input type="checkbox"/> QuickSpec	<input type="checkbox"/> Software Support & Drivers Information
<input type="checkbox"/> Security Bulletin	<input type="checkbox"/> Reference Manual	<input type="checkbox"/> Product Bulletin/QuickSpec
<input type="checkbox"/> Service Action Advisory	<input checked="" type="checkbox"/> Service Guide/Manual	<input type="checkbox"/> Buy Care Packs
<input type="checkbox"/> Service Advisory	<input type="checkbox"/> Technical Reference Guide	
<input type="checkbox"/> Service Bulletin	<input type="checkbox"/> Training Material	
<input type="checkbox"/> Service Notice	<input type="checkbox"/> Troubleshooting Guide	
<input type="checkbox"/> Service Product Announcement	<input type="checkbox"/> Upgrade Manual	
<input type="checkbox"/> Service Program Announcement	<input checked="" type="checkbox"/> User Guide	
<input type="checkbox"/> Technical Work Instruction (TWI)	<input type="checkbox"/> Warranty Statement	
	<input type="checkbox"/> White Papers	

- Select **Submit**.
- If needed, click **Back To selection Criteria** and narrow your search (the maximum allowed search result is 100 documents).

 **NOTE:** Do not select the **Top Issue** option unless you only want to view top issues for that model. All other available content will be filtered out.

Technical information type	Select this checkbox
CPMD	CPMD-Map
List of all CPMDs per product	Support Information
Installation Guide or Hardware Install Guide	Maintenance/Service Guide or Install Guide
Service cost document	Install Guide or Service Guide/Manual
Service guide or Service manual	Service Guide/Manual
Self-solve or troubleshooting document	Support Information
User manual or User guide	User Guide
Warranty and Legal Guide	Warranty Statement

## Printer pre-checks

- [Check the control-panel display](#)
- [Inspect the cartridges for damage](#)
- [Check the print settings](#)
- [Printer driver considerations](#)
- [Printhead status](#)

- [Cleaning procedures](#)
- [Resolve Ink smear/redeposit](#)
- [Copy quality troubleshooting \(MFP\)](#)



## Check the control-panel display

Check the control panel to see if it displays any messages that indicate that a supply needs to be replaced or that a supply is in the very low condition. If it does, replace the supply item.

## Inspect the cartridges for damage

1. Remove the each cartridge from the product and verify that there is no debris in the cartridge path.
2. Examine the metal connector of the cartridge.

---

**⚠ CAUTION:** Do not touch the metal connector that is on the edge of the cartridge. Fingerprints on the metal connector can cause print-quality problems.

**📝 NOTE:** If there are scratches or other damage on the metal connector, replace the ink cartridge.

If a cartridge must be replaced, look on the cartridge or print the Printer Status Report to find the part numbers for genuine HP cartridges.

---

Figure 2-35 Examine the cartridges



3. If the metal connector does not appear to be damaged, push the cartridge gently back into its slot until it locks in place. Print a few pages to see if the problem has resolved.

## Refilled or remanufactured cartridges

HP does not recommend using non-HP supplies, either new or remanufactured. Because they are not HP products, HP cannot control the design or quality of non-HP supplies. If you are using a refilled or remanufactured cartridge and are not satisfied with the print quality, replace the cartridge with a genuine HP cartridge.

---

**📝 NOTE:** If you replace a non-HP cartridge with a genuine HP cartridge, the printhead still contains non-HP ink. Until the printhead is depleted of that ink and is supplied with ink from the newly installed genuine HP cartridge, the print defect might remain. Depleting the ink might require printing as many as several thousand pages of normal text.

---

## Verify type of paper in use

The type of paper used can contribute to print-quality problems, such as those listed below:

- The printing is too light or seems faded in areas.
- Specks of ink are on the printed pages.
- Ink is smearing on the printed pages.
- Printed characters seem malformed.
- Printed pages are curled.

Check the type of paper used. Always use a paper type and weight that this printer supports. In addition, follow these guidelines when selecting paper:

- Use paper that is of good quality and free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, voids, staples, and curled or bent edges.
- Use paper that has not been previously printed on.
- Use paper that is designed for use in inkjet printers.



**NOTE:** HP recommends using HP ColorLok paper. Go to [www.youtube.com/watch?v=MEh2FRzEtXM](http://www.youtube.com/watch?v=MEh2FRzEtXM) to view a short video about ColorLok technology.

---

- Use paper that is not too rough. Using smoother paper generally results in better print quality.
- Check that the paper type is correctly set for the trays in use and that the paper type for the trays matches the paper type selected in the driver.



**NOTE:** Use the [Tray Configuration](#) dashboard menu to verify or change default paper types for each tray.

---



**NOTE:** Based on HP internal testing using a range of plain papers, HP highly recommends using papers with the ColorLok logo for this product. For more information, go to <http://www.hp.com/go/printpermanence>.



## Check the print settings

### Print quality settings

1. Open the print dialog box in the software program being used to send the print job.
2. Select your printer, and then click **Properties**. The printer properties dialog box opens.
3. Choose the correct tab to find the settings.
4. Review the following options, and then make changes if necessary.
  - Paper size: Make sure that the selected option matches the selected paper size.
  - Paper type: If one of the options matches required paper type exactly, select that option.
  - Print quality: If the print-quality of the print job is unacceptable, increase the print quality. To print more quickly, decrease the print quality.
5. Click **OK**, and then click **OK** again to start the print job.

### Print in grayscale setting

1. Open the print dialog box in the software program being used to send the print job.
2. Select your printer, and then click **Properties**. The printer properties dialog box opens.
3. Choose the correct tab to find the color settings either under **Features** or **Color**.
4. Under **Color Options**, make sure that **Print in grayscale** is *not* selected.
5. Click **OK**, and then click **OK** again to start the print job.



**NOTE:** If these steps resolved the issue, further troubleshooting is not required. If the issue persists, continue to [Printer driver considerations on page 170](#).

---

## Printer driver considerations

Use the printer driver that best meets the print job. Use a different printer driver if the printed page has unexpected lines in graphics, missing text, missing graphics, incorrect formatting, or substituted fonts. The available print drivers are listed in this section.

### HP PCL 6 driver

- This driver is provided as the default driver. This driver is automatically installed when using the printer CD.
- This driver is recommended for all Windows environments.
- This driver provides the overall best speed, print quality, and product-feature support for most users, and was developed to align with the Windows Graphic Device Interface (GDI) for the best speed in Windows environments.
- This driver might not be fully compatible with third-party and custom software programs that are based on PCL 5.
- Download this drive at [www.123.hp.com](http://www.123.hp.com).

### HP UPD PS driver

- This driver is recommended for printing with Adobe software programs or with other highly graphics-intensive software programs
- This driver provides support for printing from postscript emulation needs, or for postscript flash font support.
- Download this drive at <http://www.hp.com/go/upd>.

### HP UPD PCL5

- This driver is recommended for general office printing in Windows environments.
- This driver is compatible with previous PCL versions and older HP Inkjet printers.
- This driver is the best choice for printing from third-party or custom software programs.
- This driver is the best choice when operating with mixed environments that require the product to be set to PCL 5 (UNIX, Linux, main frame).
- This driver is designed for use in corporate Windows environments to provide a single driver for use with multiple printer models. This driver is preferred when printing to multiple printer models from a mobile Windows computer.
- Download this drive at <http://www.hp.com/go/upd>.

### HP UPD PCL6

- This driver is recommended for printing in all Windows environments.
- This driver provides the overall best speed, print quality, and product-feature support for most users, and was developed to align with the Windows Graphic Device Interface (GDI) for the best speed in Windows environments.


- This driver might not be fully compatible with third-party and custom software programs that are based on PCL 5.
- Download this driver at <http://www.hp.com/go/upd>.

## Printhead status

When print-quality problems are detected, check the printhead status.

- If non HP ink is in use, the printhead status is: **Not Available**.
- If the printhead status indicates missing nozzles (poor health), perform a printhead cleaning procedure.

---

 **TIP:** See [Advanced Print Quality Tools](#) the **Service mode functions** section of the printer *Troubleshooting Manual*.

---

- If the printhead status is **OK**, print a nozzle health page and check the drop detect item to verify the gauge reading is correct.

---

 **TIP:** See [Major functionalities for PQ troubleshooting](#) the printer *Troubleshooting Manual*.


---

If the gauge reading matches the nozzle health page pattern, other issues might be causing the print quality problem. **Do not** replace the printhead.

## Check the printhead status

1. From the control panel **Home** screen, scroll to and touch the **Support Tools** button.
2. Open the following menus:
  - **Troubleshooting**
  - **Print Quality**
3. Touch the **Printhead Status** item, and then check the following:
  - **Printhead Status:**
    - **OK:** This indicates that the printhead is correctly functioning (no missing nozzles or a few compensated for missing nozzles).
    - **Monitor Print Quality:** This indicates that the number of missing nozzles might cause print quality problems for some print jobs (but not all print jobs). Performing a nozzle cleaning might solve the problem.
    - **Attention Needed:** This indicates that the printhead needs to be replaced because the printer cannot compensate for the number of missing nozzles.


---

 **NOTE:** Only replace the printhead if the customer objects to output print quality.

---

  - **Not Available:** This indicates that the printer detected non HP ink in use.

---

 **NOTE:** Printhead status might not be reliable if non HP ink refilled cartridges are installed.

---
- **Status Date:** The number of pages printed since the last drop detection.
- **Printhead Health Score:** Contains the following information:

Table 2-22 Printhead health score

Printhead health score format: I - KKKK - CCCC - Pppppp - MMMM - pppppp - NN.WX.YZ						
I	KKKK	CCCC	MMMM	PPPPPP	pppppp	NN.WX.YZ
NonHPInk	Kscore	CMYMaxScore	PH months	PH pages	Printer page count at last update	LastError

## Cleaning procedures

### Print quality report

These steps involve printing a page with color bars to identify print-quality issues.

1. At the printer control panel, open the following dashboard menus:
  - Setup Ⓞ
  - Reports
2. Touch **Print Quality Report**, and then touch **Print** to print the report.

This page contains four bands of color, which are divided into the groups as indicated in the figure below. By examining each group, you can determine if the problem is due to a particular cartridge.



 **NOTE:** Each bar has three distinct shades, but otherwise the color should vary minimally across the bar. If any major defects appear in one or more color bars, clean the printhead as explained below. If all the color bars show little or no streaking, go to [Resolve Ink smear/redeposit on page 175](#).

Figure 2-36 Print quality report



### Printhead Cleaning

Use this procedure to clean the printhead.

 **NOTE:** Always print a print quality report before cleaning the printhead so it can be compared to the report that prints after the cleaning process is complete. See [Print quality report on page 173](#) for more information.

1. Load paper in the default input source tray (usually this is the A3 Tray 2 or the A4 Tray 3).
2. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button, and then open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
3. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process.



**NOTE:** The cleaning process takes about 4 minutes. Make sure clean unused paper is loaded in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

---

4. Touch the [OK](#) button. A print quality report prints. Compare this report to the previously printed report to confirm that the print quality improved.



**TIP:** A printhead deep cleaning item is available in the service menu. See [Print quality advanced tools on page 187](#) for more information.

---




## Resolve Ink smear/redeposit

### Perform a smear test

This process uses paper. Make sure there is clean unused paper in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
4. Enter the following service access personal identification number (PIN) for the printer:
  - 05075017
5. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
6. Touch the Sign In button to enter the [Service](#) menu.

---

 **NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.


---

7. Open the following menus:
  - [Printing System](#)
  - [Service Fluid Container](#)
  - [Special Tools](#)
8. Scroll the pointer to [Smear Test](#), and then touch the [OK](#) button.
9. Check the page that eject to the output bin for smeared or redeposited ink.

### Resolve ink smear/redeposit problems

---


 **NOTE:** If the error persists, contact your Global Business Unit (GBU).

 **TIP:** Ink smear/redeposit problems can appear on duplex or simplex printed pages at any location on the page, but might not be visible on the Print Quality Report page.

---

1. Print a Print Quality Report page.


---

 **NOTE:** Make sure that genuine HP ink is in use.

---

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Touch the [Troubleshooting](#) button.
- c. Open the following menus:
  - [Print Quality](#)
  - [Diagnostic Pages](#)
- d. Touch Print a [Print Quality Report](#) to print the page.

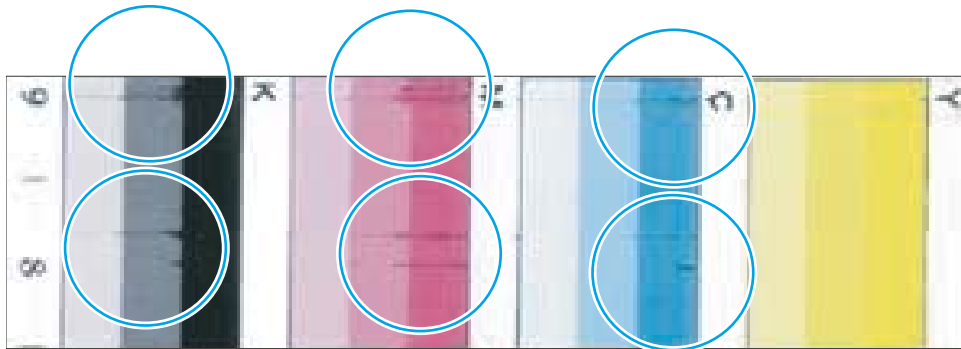
- e. Examine the page for ink smear/redeposit problems.

 **NOTE:** Ink smear/redeposit problems might not be visible on the Print Quality Report page.

- f. If the Print Quality Report Page shows the smear/redeposit defect, go to [Printer specific image defects on page 178](#).



If the Print Quality Report page **does not** shows the smear/redeposit defect, continue with the steps in this section to resolve the problem.

**Figure 2-37** Ink smear/redeposit



2. Specify the [Paper Type](#) setting for the print job source tray.
  - a. At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the [Tray Configuration](#) (stacked trays icon) button.
  - b. Select the print job source tray from the list of trays.
  - c. Open the following menus:
    - [Paper Type](#)
  - d. Use the radio buttons to select from a list of paper types. Touch Done to save the setting.
  - e. Print some additional pages and make sure that the smear/redeposit problem is resolved. If the problem is resolved, skip the remaining steps in this procedure.
3. Try using a different brand of paper.

Print some additional pages and make sure that the smear/redeposit problem is resolved. If the problem is resolved, skip the remaining steps in this procedure.
4. Make sure that the correct paper type is in use, and that the paper type selection in the print driver is correct.
  - a. Select the **Color** tab in the print driver settings.
  - b. Deselect the **HP EasyColor** option.
  - c. Check the **Ink Settings** item.
  - d. Select from the following settings:

- **Dry Time:** Use this item to change the print speed (default setting is 0). Select **Medium** or **Minimum** to reduce ink smears.
  - **Saturation:** Use this item to change the amount of ink used (default setting is 0). Select **-1** or **-2** to reduce ink smears.
5. Touch the [Reports](#) button, and then touch [Event Logs](#) to view the event log.
- a. Check the event log for **61.DX.YZ** error entries (airflow system errors).
- If **61.DX.YZ** are found, see the printer control panel message document (CPMD) for solutions to the problem.
- 
-  **NOTE:** The message **The Airflow Assembly for the printer is not functioning properly. Printing will slow down until it is repaired** might appear on the control-panel display when air flow assembly problems are present.
- 
- b. If an airflow assembly problem is fixed, print some additional pages and make sure that the smear/redeposit problem is resolved. If the problem is resolved, skip the remaining steps in this procedure.
6. Remove, and then reinstall the service fluid container.
7. Obtain a cleaning pad kit, and follow the instruction supplied in the kit.
- If the problem is resolved, skip the remaining steps in this procedure.
8. Try using a lower print quality setting.
- a. At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the Setup  button.
- b. Open the following menus:
- [Print Settings](#)
  - [Quality](#)
- c. Use the radio buttons to select change the default output quality for print jobs.
- d. Print some additional pages and make sure that the smear/redeposit problem is resolved. If the problem is resolved, skip the remaining steps in this procedure.

## Copy quality troubleshooting (MFP)

Use the following procedures to resolve quality defects that occur only on copies.

### Speckles on copies from the scan bed

Create a color copy, then rotate the original 180 degrees (do not turn the paper over) and make a second copy. Compare the location of the defect on the two copies.

- If the defect appears in a different position, clean the scanner glass using a soft, lint-free cloth that has been moistened with warm water. Dry the glass with a dry, soft, lint-free cloth.
- If the defect appears in the same location on both copies, contact HP support.

### Lines on copies from the document feeder

Mark the corner of a blank sheet of paper and create a copy from the document feeder.

Place the copy on the glass with the mark in the same orientation as the original. Make sure the page is even with the upper-left corner of the scan area.


The defect lines on the page should indicate the location of debris on the thin strip of glass to the left of the scan area. Use a fingernail or blunt object to loosen debris, and then clean the glass using a soft, lint-free cloth that has been moistened with warm water. Dry the glass with a dry, soft, lint-free cloth.


## Printer specific image defects

- [Major functionalities for PQ troubleshooting](#)
- [Image-quality defects \(printer specific\)](#)

---

 **IMPORTANT:** To access the most recent HP online image defect troubleshooting web page, [click here](#).

 **NOTE:** The image defects described in this section are printer-specific image defects.

 **TIP:** An all-inclusive paper handling diagram is available that is too large to include here. HP recommends downloading this document from the HP Web-based Interactive Search Engine (WISE) Web site, and then print it on A3 size paper to use as a troubleshooting reference.

Go to the appropriate Web site (listed below), and then enter **c05384799** in the search box.

#### AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

#### APJ

- <https://support.hp.com/wise/home/apj-en>
- <https://support.hp.com/wise/home/apj-ja>
- <https://support.hp.com/wise/home/apj-ko>
- <https://support.hp.com/wise/home/apj-zh-Hans>
- <https://support.hp.com/wise/home/apj-zh-Hant>

#### EMEA

- <https://support.hp.com/wise/home/emea-en>
-

## Major functionalities for PQ troubleshooting

- [Print quality tools suggested sequence](#)
- [Print Quality Report page](#)
- [Print a Nozzle Health Page](#)
- [Print a Printhead Details page](#)
- [Print quality advanced tools](#)

### Print quality tools suggested sequence

#### Open the Print Quality Tools menu

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
4. Enter the following service access personal identification number (PIN) for the printer:
  - 05075017
5. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
6. Touch the Sign In button to enter the [Service](#) menu.



---

**NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

7. Open the following menus:
  - [Print Quality Tools](#)

Use the print quality troubleshooting sequence below to solve common print quality defects. This process is useful if the print defect is not easily matched the defect samples included in this manual.



---

**NOTE:** It is important to follow the print quality troubleshooting sequence in the order presented. It is very important to have a healthy printhead nozzle health prior to performing the calibrations in the troubleshooting sequence (steps four and five in the sample menu sample below).

---

Failure to follow the print quality troubleshooting sequence can result in failed calibrations and poor or not optimized print quality.

---

### Print quality troubleshooting sequence

Follow the print quality recommended internal diagnostic page below to solve common print quality defects.

Use the recommended internal diagnostic page as a before and after comparison reference of print quality output. Each step outlines a diagnostic routine and/or a calibration to perform.

For each step in the troubleshooting sequence, do the following:

- Print the recommended internal diagnostic page (or pages).
- Perform the suggested diagnostic routine and/or a calibration.

- Print the internal diagnostic page (or pages) again, and then compare it (or them) to the first page (or pages).

Figure 2-38 Print Quality Tools menu sample

<b>Step 1: Print Quality Pre Check</b>
Print a Demo Page Stabilize the Printhead Printhead Assembly Details Printhead Status
<b>Step 2: Drop Detect Status Check</b>
Run Drop Detect Print a Streak Test Page Print a Nozzle Health Page
<b>Step 3: Nozzle Health Evaluation</b>
Clean the Printhead Print a Streak Test Page Print a Nozzle Health Page
<b>Step 4: Printhead Alignment Calibration</b>
Align the Printhead Print an All <u>Colors</u> Page (Letter / A4)
<b>Step 5: Color Density Calibration</b>
Calibrate the <u>Color</u> Density Print an All <u>Colors</u> Page (Letter / A4) Print a Demo Page Print a Print Quality Report

## Print Quality Report page

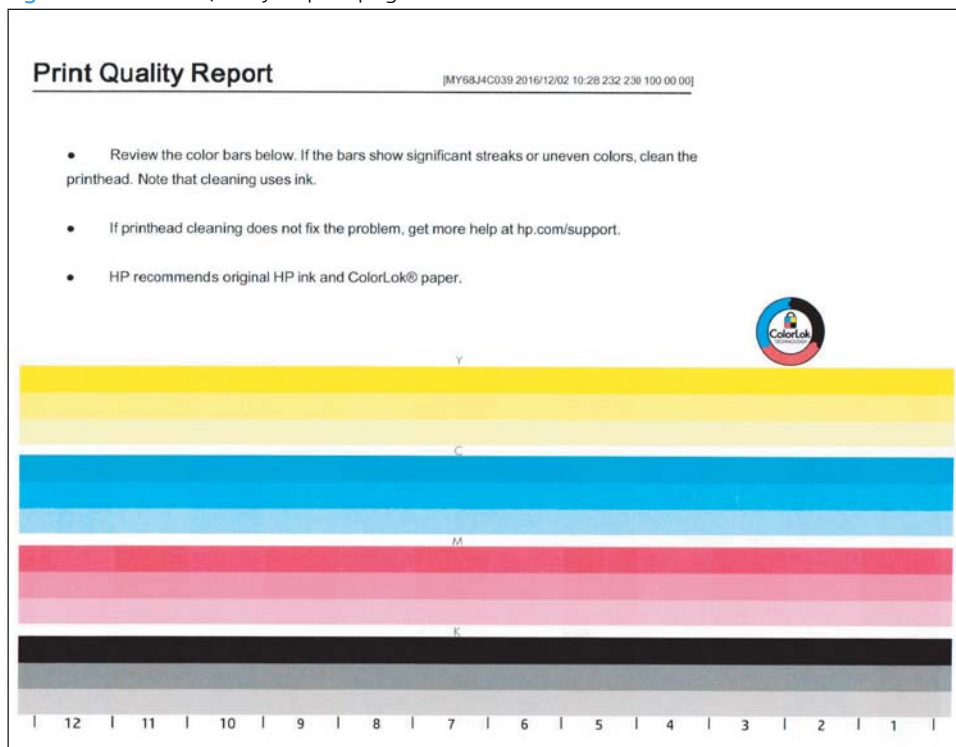
The Print Quality Report is a useful page which shows different density fill bar chart with four colors. There are numbers below the bar to indicate the printhead numbering, and the line in between indicates the printhead boundary.

### Print the Print Quality Report page

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Touch the [Troubleshooting](#) button.
3. Open the following menus:
  - [Print Quality](#)
  - [Diagnostic Pages](#)
4. Touch Print a [Print Quality Report](#) to print the page.

This page contains four bands of color, which are divided into the groups as indicated in the figure below. By examining each group, you can determine if the problem is due to a particular cartridge.

**Figure 2-39** Print Quality Report page





## Print a Nozzle Health Page

The printhead diagnostic pages are useful to determine the health of the print bar. There are thirteen blocks of lines, and each block represents a printhead die, and each line corresponds to a nozzle. Check whether the line is missing or being misdirected, to evaluate the health of the print bar.

## Print a Nozzle Health Page

This process uses paper. Make sure there is clean unused paper in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
4. Enter the following service access personal identification number (PIN) for the printer:
  - 05075017
5. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
6. Touch the Sign In button to enter the [Service](#) menu.



---

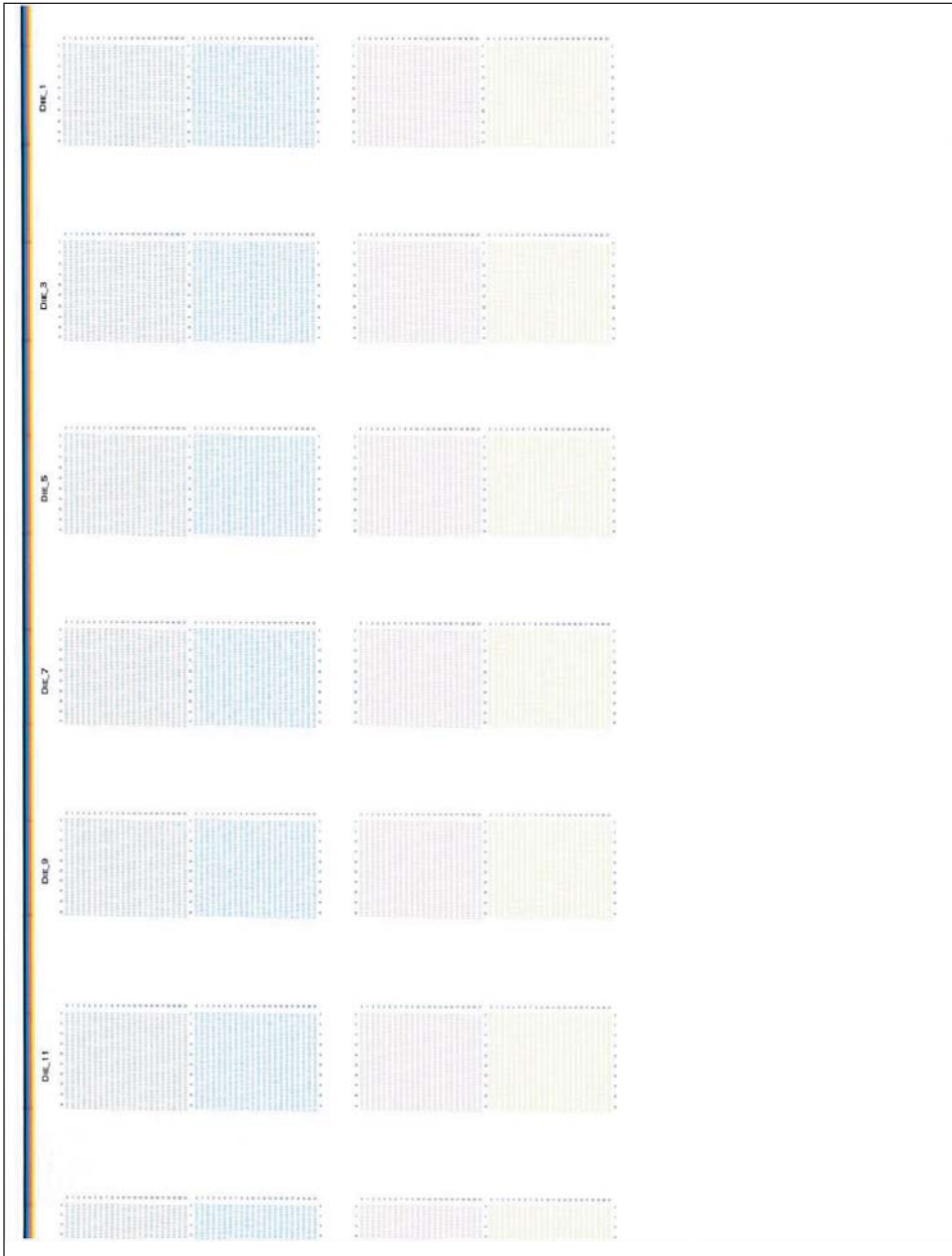
**NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

7. Open the following menus:
  - [Print Quality Tools](#)

8. Scroll to and then touch the [Print a Nozzle Health Page](#) item.

Figure 2-40 Print a Nozzle Health Page



## Print a Printhead Details page

The Printhead Details page is a useful page to find printhead and cartridge information.

- Generic product information (for example, the printer serial number and printhead wipe counts)
- Cartridge system information (for example, the printhead total pages and print zone jams count)

## Print a Printhead Details page

This process uses paper. Make sure there is clean unused paper in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
4. Enter the following service access personal identification number (PIN) for the printer:
  - 05075017
5. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
6. Touch the Sign In button to enter the [Service](#) menu.



---

**NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

7. Open the following menus:
  - [Print Quality Tools](#)
  - [Advanced Print Quality Tools](#)
  - Touch the [Reports](#) button.
  - [Reports](#)
  - [Printhead Assembly Report](#)

8. Touch the **Printer** icon located at the bottom left-hand corner of the display to print the page.

Figure 2-41 Printhead Details page

**PRINTHEAD DETAILS**

**Product Information**

1. Model Name: HP PageWide Pro 750	6. Real time Clock: 12/5/2016 08:17:35 AM
2. Serial Number: MY6B4C039	7. Date/Time: 12/5/2016 08:17:35 AM
3. Service ID: 26294	8. Printhead Ambient Temperature: 234 C / 453 F
4. Firmware Version: LIMOFWMP1A002.1646C.00	9. Printer Humidity: 16
5. Printer Total Pages: 237	

**Cartridge System information**

10. Printhead Assembly Serial Number: BNB65Q2001	19. Nozzle Defects: 0
11. Printhead Assembly Manufacturing date: 224-6-23	20. Black Nozzle Score: 2
12. Printhead Assembly First Initialization Date: 209-5-3	21. Cyan Nozzle Score: 2
13. Printhead Assembly Startup Date: 209-5-4	22. Magenta Nozzle Score: 2
14. Printhead Serial Number: 2622001000014028	23. Yellow Nozzle Score : 2
15. Printhead Wiper Serial Number:	24. Printers Seen: 1
16. Service Fluid Container Serial Number : -- NOT IMPLEMENTED --	25. Print zone jams: 2
17. Printhead Lift calibration: 382	26. Pages since last print zone jam: 2
18. Printhead Total Pages: 88	
27. Startup service pages (Level 1   Level 2   Level 3): Lvl 1: 0 Lvl 2: 0 Lvl 3: 0	
28. Uncap service pages (Level 0   Level 1   Level 2   Level 3   Level 4): Lvl 0: 21 Lvl 1: 0 Lvl 2: 0 Lvl 3: 1 Lvl 4: 0	
29. Cap service pages (Level 0   Level 1   Level 2   Level 3): Lvl 0: 45 Lvl 1: 0 Lvl 2: 0 Lvl 3: 0	
30. Midjob service pages (Level 0   Level 1): Lvl 0: 0 Lvl 1: 0	
31. Dirty Power Up service pages (Level 0   Level 1): Lvl 0: 2 Lvl 1: 0 Lvl 2: 0 Lvl 3: 0 Lvl 4: 0	
32. Pen Recovery service pages (Level 0   Level 1   Level 2): Lvl 0: 0 Lvl 1: 2 Lvl 2: 0	
33. Decap service pages (Level 0   Level 1   Level 2   Level 3): Lvl 0: 0 Lvl 1: 0 Lvl 2: 0 Lvl 3: 0	
34. Decap Timed: 0	
35. Print zone jam service pages: (Level 0   Level 1): Lvl 0: 0 Lvl 1: 0	
36. Background service pages: (Level 0   Level 1   Level 2): Lvl 0: 2 Lvl 1: 0 Lvl 2: 0 Lvl 3: 0 Lvl 4: 0	
37. Last Printhead wipe at page: 233	45. Pump Cycles: 5
38. Printhead wipe counts: 21	46. Pump Durations: 11500
39. Web advance counts: 16	47. Cumulative Printhead power on time: 3530
40. Printhead Black usage: 0	48. Black Cartridge Insertions: 0
41. Printhead Cyan usage: 0	49. Cyan Cartridge Insertions: 0
42. Printhead Magenta usage: 0	50. Magenta Cartridge Insertions: 0
43. Printhead Yellow usage: 0	51. Yellow Cartridge Insertions: 0
44. Printhead Ambient Temperature: 234 C / 453 F	52. Drop Detect Status: 0
53. Last Printhead Calibration date: 224-12-2	
54. Last Failure Events:	
	1. 00:00:00 on 00-00-0000 at page 0 (0) times.
	2. 00:00:00 on 00-00-0000 at page 0 (0) times.
	3. 00:00:00 on 00-00-0000 at page 0 (0) times.
	4. 00:00:00 on 00-00-0000 at page 0 (0) times.
	5. 00:00:00 on 00-00-0000 at page 0 (0) times.
	6. 00:00:00 on 00-00-0000 at page 0 (0) times.
	7. 00:00:00 on 00-00-0000 at page 0 (0) times.
	8. 00:00:00 on 00-00-0000 at page 0 (0) times.
55. Black Non-HP: 0	
56. Color Non-HP: 0	
57. Altered Cartridge (YMCK): 2	
58. Black Spilt count: -1	62. Total Black count (ml): -1
59. Cyan Spilt count: -1	63. Total Cyan count (ml): -1
60. Magenta Spilt count: -1	64. Total Magenta count (ml): -1
61. Yellow Spilt count: -1	65. Total Yellow count (ml): -1
66. Black Drop Detect history: -1	
67. Cyan Drop Detect history: -1	
68. Magenta Drop Detect history: -1	
69. Yellow Drop Detect history: -1	

## Print quality advanced tools

---


 **NOTE:** To use the extensive cleaning feature, use the [Clean the Printhead \(Extensive\)](#) item.

The [Clean the Printhead \(Extensive\)](#) process takes a considerable amount of time. The process uses a minimal amount of ink.

---


### Clean the Printhead (Extensive)

This process uses paper. Make sure there is clean unused paper in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

 **NOTE:** The [Clean the Printhead \(Extensive\)](#) process takes a considerable amount of time. The process uses a minimal amount of ink.

---

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
4. Enter the following service access personal identification number (PIN) for the printer:
  - 05075017
5. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
6. Touch the Sign In button to enter the [Service](#) menu.

 **NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

7. Open the following menus:
  - [Print Quality Tools](#)
  - [Advance Print Quality Tools](#)
8. Touch the [Clean the Printhead \(Extensive\)](#) item, and then touch [Continue](#).

Touching [Cancel](#) exits the sub menu without performing a [Clean the Printhead \(Extensive\)](#) procedure and return to the [Advance Print Quality Tools](#) menu.

 **NOTE:** This process take about 4 minutes to complete.

---

## Image-quality defects (printer specific)

- [Vertical bands](#)
- [White streaks across one or all colors](#)
- [Streaks improve down the page](#)
- [Streaks across the entire page – single or multiple colors consistent down the page](#)
- [Color mixing](#)
- [Color variation across bar](#)
- [Color intensity variation across bars](#)
- [Bars not even, columns of misaligned print, or vertical dark lines](#)
- [Streaks in yellow](#)
- [In-line streak\(s\) and drip\(s\)](#)
- [Large sections of wrong or missing color](#)
- [Vertical white lines](#)
- [Ink smear / redeposit](#)

## Vertical bands


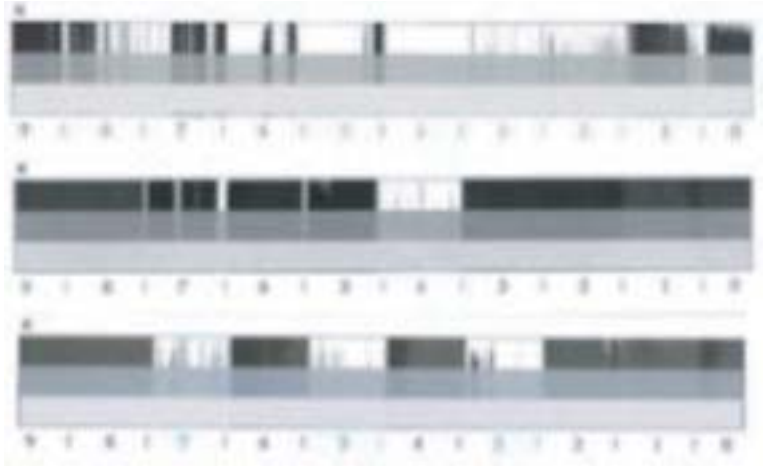
 **IMPORTANT:** This defect can be caused by using non HP genuine cartridges (or HP cartridges that have been refilled with non HP ink) and is not covered by the HP warranty.

Figure 2-42 Vertical bands



### Description

Mainly appears in the black color plane, but can appear across all color planes.

### Troubleshooting

1. Make sure that genuine HP cartridges are installed.
2. Print a print quality report page (see [Print Quality Report page on page 182](#)).
3. If random sections of missing print or areas of darker and lighter print appear, try the following:


#### Clean the Printhead

 **NOTE:** Do not perform the printhead cleaning process more than four times.

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
- c. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process

The cleaning process has several steps. After each of them, the printer prints the print quality report page again. Evaluate each of these pages to determine if the original defect has been fixed – if it has, there is no reason to go on to the next cleaning stage.

---

 **NOTE:** The cleaning process takes about 4 minutes. Make sure clean unused paper is loaded in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

---

- d. Touch the **OK** button. A print quality report page prints. Compare this report to the previously printed report to confirm that the print quality improved.

4. Do one of the following:

- If the print quality report page shows improved and acceptable print quality, the troubleshooting process is complete.

---

 **NOTE:** Perform one more printhead cleaning procedure for optimum print quality.

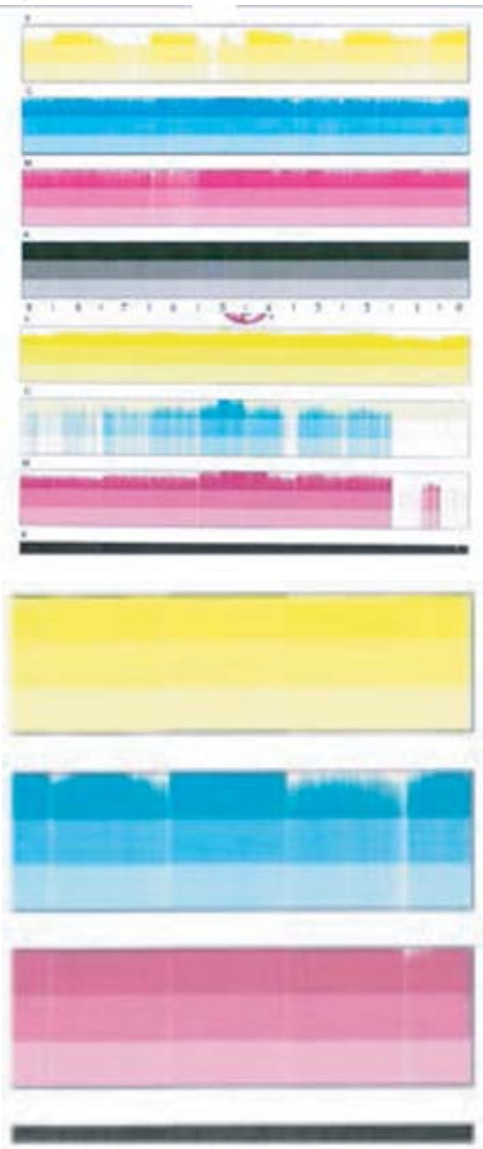
---

- If the print quality report page does not show improved and acceptable print quality, go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).



## White streaks across one or all colors

Figure 2-43 White streaks across one or all colors



### Description

This defect might be accompanied with streaking on the paper.

### Troubleshooting

1. Make sure that genuine HP cartridges are installed.
2. Print a print quality report page (see [Print Quality Report page on page 182](#)).
3. If random sections of missing print or areas of darker and lighter print appear, try the following:

## Clean the Printhead

---


 **NOTE:** Do not perform the printhead cleaning process more than four times.

---

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
- c. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process

The cleaning process has several steps. After each of them, the printer prints the print quality report page again. Evaluate each of these pages to determine if the original defect has been fixed – if it has, there is no reason to go on to the next cleaning stage.

---

 **NOTE:** The cleaning process takes about 4 minutes. Make sure clean unused paper is loaded in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

---

- d. Touch the [OK](#) button. A print quality report page prints. Compare this report to the previously printed report to confirm that the print quality improved.
4. Do one of the following:
- If the print quality report page shows improved and acceptable print quality, the troubleshooting process is complete.

---

 **NOTE:** Perform one more printhead cleaning procedure for optimum print quality.

---

- If the print quality report page does not show improved or slightly improved print quality, do the following:

### Clean the Printhead (Extensive)

The [Clean the Printhead \(Extensive\)](#) process takes a considerable amount of time. The process uses a minimal amount of ink.

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Touch the [Service](#) button to display the [Sign In](#) screen.
- c. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
- d. Enter the following service access personal identification number (PIN) for the printer:
  - 05075017
- e. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
- f. Touch the Sign In button to enter the Service menu.

---

 **NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

Open the following menus:

- o [Print Quality Tools](#)
- o [Advance Print Quality Tools](#)

g. Touch the [Clean the Printhead \(Extensive\)](#) item, and then touch [Continue](#).

5. Print a print quality report page (see [Print Quality Report page on page 182](#)). If the streak appears in the magenta color plane only, do the following:

a. Perform a [Printhead Cleaning](#) procedure.



**NOTE:** Do not perform the printhead cleaning process more than three times.

---

b. Print a print quality report page (see [Print Quality Report page on page 182](#)). If the print quality does not improve, replace the printhead assembly.

c. If the print quality report page shows improved and acceptable print quality, the troubleshooting process is complete.

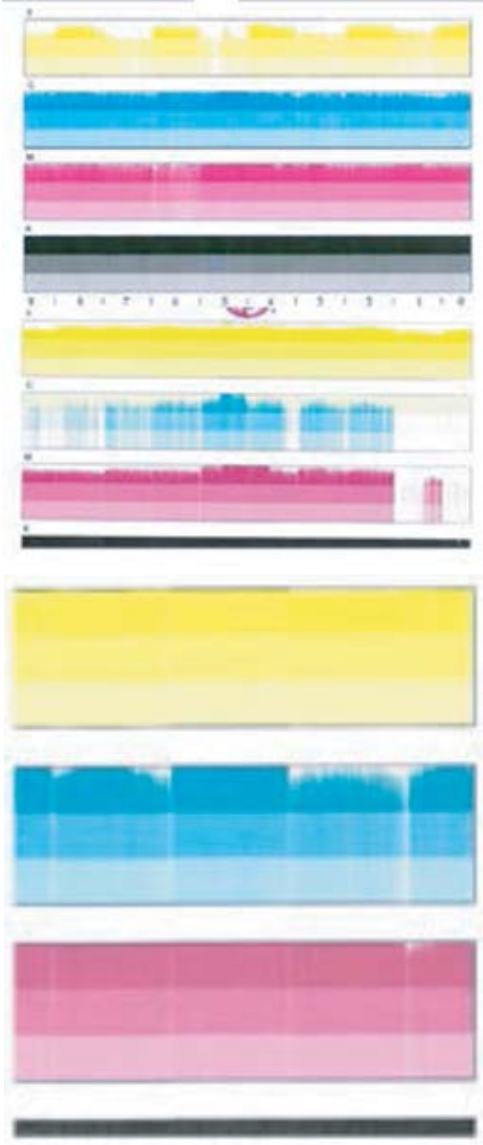


**NOTE:** Perform one more printhead cleaning procedure for optimum print quality.

---

## Streaks improve down the page

Figure 2-44 Streaks improve down the page



### Description

Streaking is more pronounced in cyan, magenta, or yellow (black is minimally impacted).

### Troubleshooting

1. Make sure that genuine HP cartridges are installed.
2. Print a print quality report page (see [Print Quality Report page on page 182](#)).
3. If the print quality report page has multiple colors impacted with the top color planes being the most impacted and the lower color panes improving down the page, try the following:

## Clean the Printhead

---


 **NOTE:** Do not perform the printhead cleaning process more than four times.

---

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
- c. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process

The cleaning process has several steps. After each of them, the printer prints the print quality report page again. Evaluate each of these pages to determine if the original defect has been fixed – if it has, there is no reason to go on to the next cleaning stage.

---

 **NOTE:** The cleaning process takes about 4 minutes. Make sure clean unused paper is loaded in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

---


- d. Touch the [OK](#) button. A print quality report page prints. Compare this report to the previously printed report to confirm that the print quality improved.

If the print quality report page has consistent streaks throughout the page, go to the image defects section of the printer troubleshooting manual to solve the problem (see [image-quality defects \(printer specific\) on page 188](#)).

4. Print a print quality report page (see [Print Quality Report page on page 182](#)). If the streak appears in the magenta color plane only, do the following:

- a. Perform a [Printhead Cleaning](#) procedure.

---

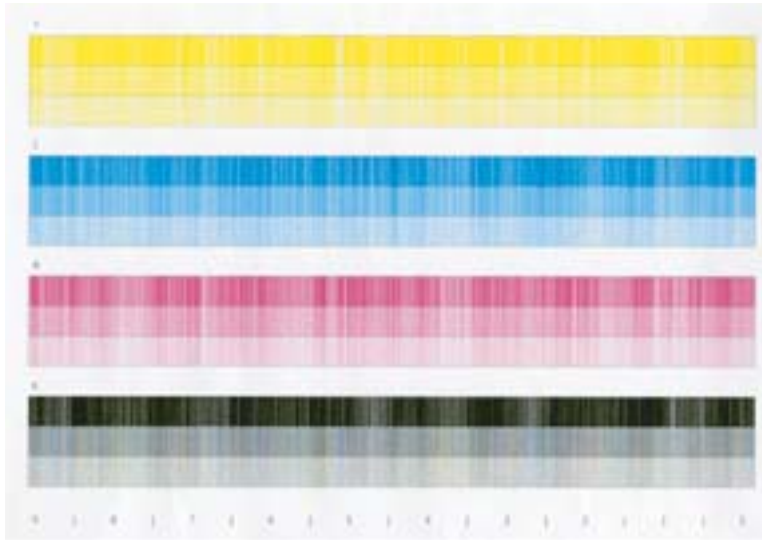
 **NOTE:** Do not perform the printhead cleaning process more than three times.

---

- b. Print a print quality report page (see [Print Quality Report page on page 182](#)). If the print quality does not improve, replace the printhead assembly.
- c. If the print quality report page shows improved and acceptable print quality, the troubleshooting process is complete.
- d. If the print quality report page does not show improved print quality, ask the customer if the defect is always present and then check the following:
  - Remove a power strip if one is being used. Plug the printer directly into a wall receptacle that supplies the correct line voltage for this printer.

## Streaks across the entire page – single or multiple colors consistent down the page

Figure 2-45 Streaks across the entire page



### Description

Streaks appear across the entire page in single or multiple color planes and they are consistent down the page.

### Troubleshooting


1. Make sure that genuine HP cartridges are installed.
2. Print a print quality report page (see [Print Quality Report page on page 182](#)).
3. Try the following:

#### Clean the Printhead

 **NOTE:** Do not perform the printhead cleaning process more than four times.

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
- c. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process

The cleaning process has several steps. After each of them, the printer prints the print quality report page again. Evaluate each of these pages to determine if the original defect has been fixed – if it has, there is no reason to go on to the next cleaning stage.

 **NOTE:** The cleaning process takes about 4 minutes. Make sure clean unused paper is loaded in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

- d. Touch the [OK](#) button. A print quality report page prints. Compare this report to the previously printed report to confirm that the print quality improved.

If the print quality report page shows improved and acceptable print quality, the troubleshooting process is complete.

---


 **NOTE:** Perform one more printhead cleaning procedure for optimum print quality.

---

4. If the second print quality report page still shows streak throughout the page across multiple color planes, try the following:
  - a. Perform a [Printhead Cleaning](#) procedure.
  - b. Print a print quality report page (see [Print Quality Report page on page 182](#)). If the print quality does not improve, replace the printhead assembly.
  - c. If the third print quality report page shows fine streaks throughout the page, but in different locations that those on the second print quality report page, try the following:

#### [Clean the Printhead \(Extensive\)](#)


---

 **NOTE:** The [Clean the Printhead \(Extensive\)](#) process takes a considerable amount of time. The process uses a minimal amount of ink.

---

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Touch the [Service](#) button to display the [Sign In](#) screen.
- c. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
- d. Enter the following service access personal identification number (PIN) for the printer:
  - o 05075017
- e. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
- f. Touch the Sign In button to enter the Service menu.

---

 **NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

Open the following menus:

- o [Print Quality Tools](#)
  - o [Advance Print Quality Tools](#)
- g. Touch the [Clean the Printhead \(Extensive\)](#) item, and then touch [Continue](#).
  - h. If the print quality report page shows improved and acceptable print quality, the troubleshooting process is complete.

If the print quality report page shows any other defect than fine streaks, go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).

If the streaking error persists, replace the printhead wiper.

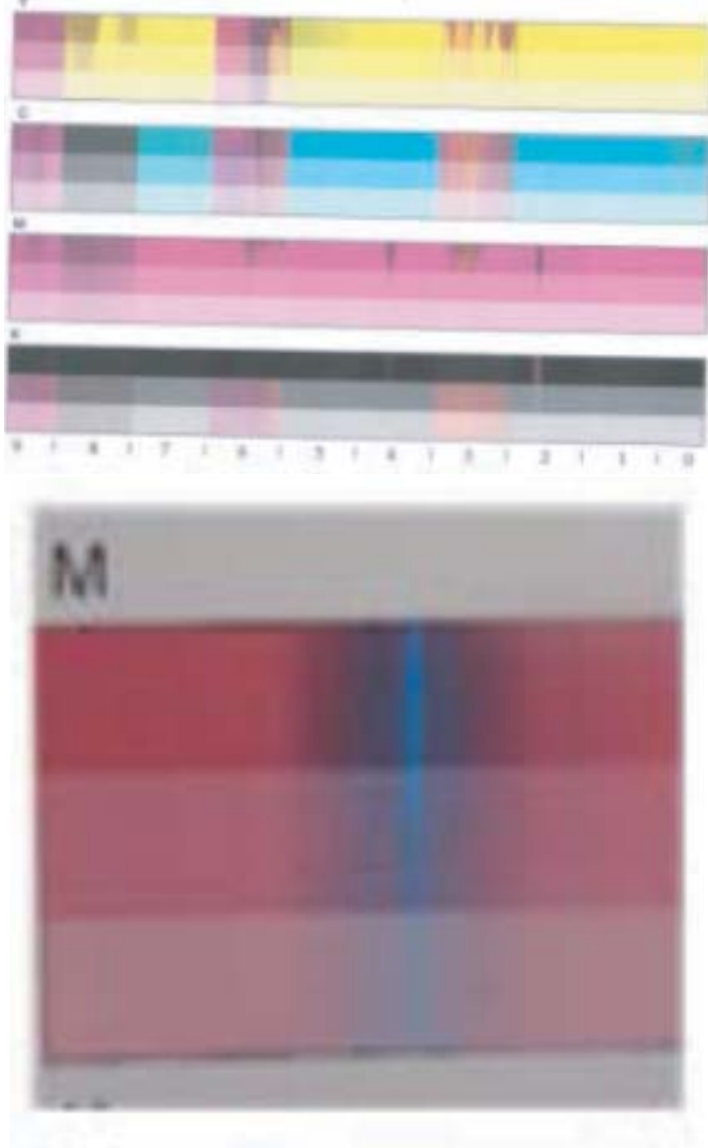
5. If the print quality report page shows fine streaks in the black color plane only, try the following:

- a. Perform a [Printhead Cleaning](#) procedure.
- b. If the streaking error persists, go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).



## Color mixing

Figure 2-46 Color mixing



## Description


Color mixing might be localized (not the entire die) or appear across an entire die.

## Troubleshooting

1. Make sure that genuine HP cartridges are installed.
2. Print a print quality report page (see [Print Quality Report page on page 182](#)).
3. If the print quality report page shows ink mixing on a die pair, try the following:

## Clean the Printhead

---


 **NOTE:** Do not perform the printhead cleaning process more than four times.

---

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
- c. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process

The cleaning process has several steps. After each of them, the printer prints the print quality report page again. Evaluate each of these pages to determine if the original defect has been fixed – if it has, there is no reason to go on to the next cleaning stage.

---

 **NOTE:** The cleaning process takes about 4 minutes. Make sure clean unused paper is loaded in the default source tray (usually this is the A3 Tray 2 or the A4 Tray 3).

---

- d. Touch the [OK](#) button. A print quality report page prints. Compare this report to the previously printed report to confirm that the print quality improved.
- e. If the print quality report page shows improved and acceptable print quality, the troubleshooting process is complete.

---

 **NOTE:** Perform one more printhead cleaning procedure for optimum print quality.


---

- f. If the color mixing error goes away or improves but is still present, Try the remaining solutions in this section. If the error persists, replace the printhead assembly.
4. If the print quality report page shows ink mixing with clusters of missing print, go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).
  5. If the print quality report page shows localized ink mixing (not across an entire die) or ink mixing across an entire die, try the following:

### Print one copy of a single color page

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Touch the [Service](#) button to display the [Sign In](#) screen.
- c. Make sure that [Service Access Code](#) displays in the [Access Type](#) area. Touch the [Enter Access Code](#) item to display the on-screen keypad.
- d. Type in the following service access personal identification number (PIN) for the printer:
  - 05075017
- e. Touch the [Done](#) button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.

---

 **NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

- f. Open the following menus:
  - [Print Quality Tools](#)
  - [Advanced Print Quality Tools](#)
  - [Color Mixing Recovery pages](#)
- g. Touch the single color page item to print the page.
  - [Print a Yellow Page](#)
  - [Print a Magenta Page](#)
  - [Print a Cyan Page](#)
  - [Print a Black Page](#)
- h. Identify the page with a color mixing error, and then repeat printing that page ten times.
- i. Do one of the following:
  - If the color mixing error improves after printing the page ten times but is still present, replace the printhead assembly.
  - If the color mixing error is no longer present, perform one more printhead cleaning procedure for optimum print quality.



**NOTE:** If the color mixing error returns, find out if the printer has recently been moved, and then perform the print one copy of a single color page procedure again.

---

## Color variation across bar

Figure 2-47 Color variation across bar



### Description

This defect appears as light and dark regions within a die for cyan and/or magenta.

### Troubleshooting

1. Print a print quality report page (see [Print Quality Report page on page 182](#)).



**NOTE:** If the print quality report page shows a different defect, go to the image defects section of the printer troubleshooting manual to solve the problem (see [image-quality defects \(printer specific\) on page 188](#)).

2. If the print quality report page shows light and dark regions within a die, try the following:
  - If the print quality report page shows improved and acceptable print quality, the troubleshooting process is complete.
  - If the print quality report page shows improvement but the defect remains, repeat the [Clean the Printhead \(Extensive\)](#) procedure (up to three times).
3. If the defect persists, try the following:

#### Calibrate the printer color density or align the printhead

- a. Load plain letter-size or A4-size paper in the default input source tray (usually this is the A3 Tray 2 or the A4 Tray 3).
- b. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- c. Open the following menus:

- [Troubleshooting](#)
- [Print Quality](#)
- [Tools](#)

d. Touch one of the following:

- [Align the Printhead](#)
- [Calibrate the Color Density](#)

e. Touch the [OK](#) button.

---


 **NOTE:** During color density calibration, several internal test page eject to the output bin. Discard these pages.

---

4. Print a print quality report page (see [Print Quality Report page on page 182](#)) If the print quality report page shows light and dark regions within a die, try the following:

▲ Perform a [Clean the Printhead \(Extensive\)](#) procedure.

---

 **NOTE:** The [Clean the Printhead \(Extensive\)](#) process takes a considerable amount of time. The process uses a minimal amount of ink.

---

#### [Clean the Printhead \(Extensive\)](#)

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Touch the [Service](#) button to display the [Sign In](#) screen.
- c. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
- d. Enter the following service access personal identification number (PIN) for the printer:
  - 05075017
- e. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
- f. Touch the Sign In button to enter the Service menu.

---

 **NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

Open the following menus:

- [Print Quality Tools](#)
- [Advance Print Quality Tools](#)

g. Touch the [Clean the Printhead \(Extensive\)](#) item, and then touch [Continue](#).

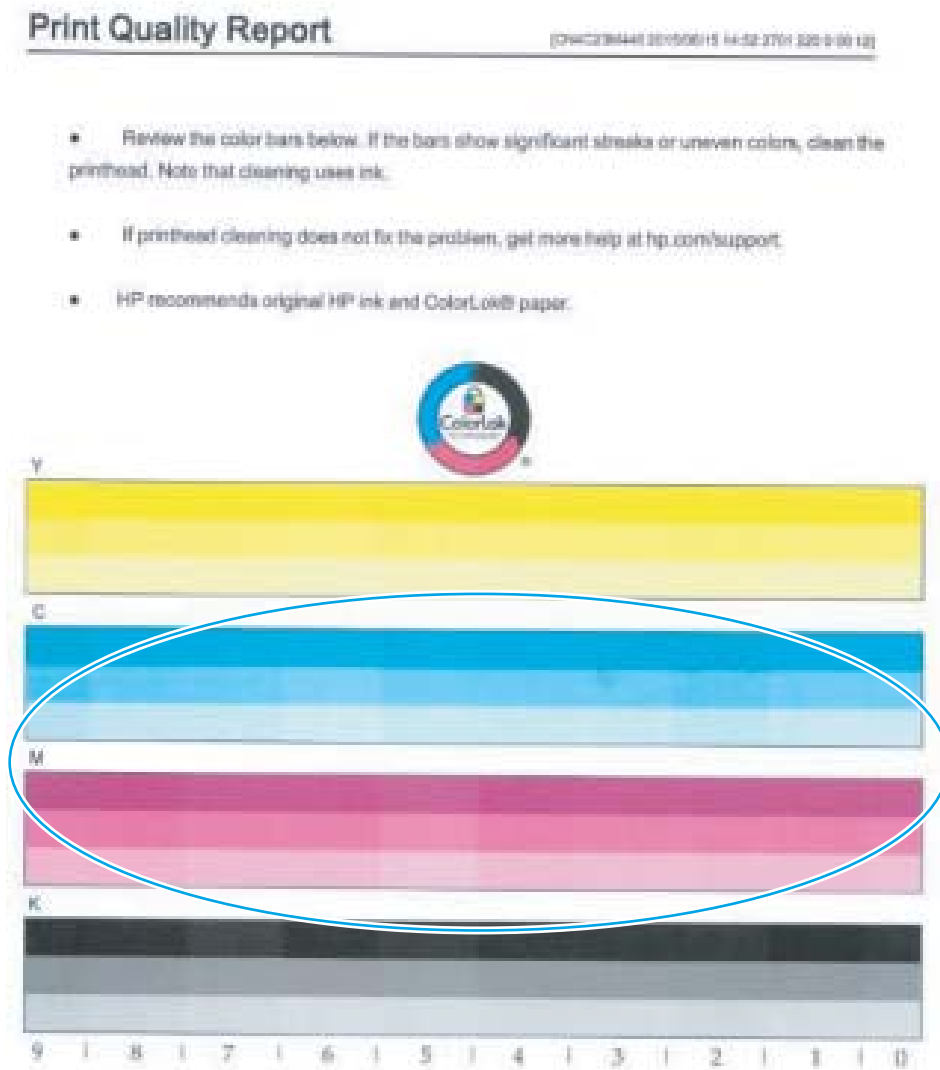
---

 **NOTE:** Do not perform a [Clean the Printhead \(Extensive\)](#) procedure more than three times.

---

## Color intensity variation across bars

Figure 2-48 Color intensity variation across bars



### Description

The intensity of the color bars varies on the page.

### Troubleshooting

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
4. Enter the following service access personal identification number (PIN) for the printer:
  - 05075017

5. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
6. Touch the Sign In button to enter the Service menu.



**NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

7. Open the following menus:
  - [Print Quality Tools](#)
8. Perform the items associated with the following [Print Quality Tools](#) guided workflow items:
  - [Step 3: Nozzle Health Evaluation](#)
    - [Clean the Printhead](#)
    - [Print a Streak Test Page](#)
    - [Print a Nozzle Health Page](#)



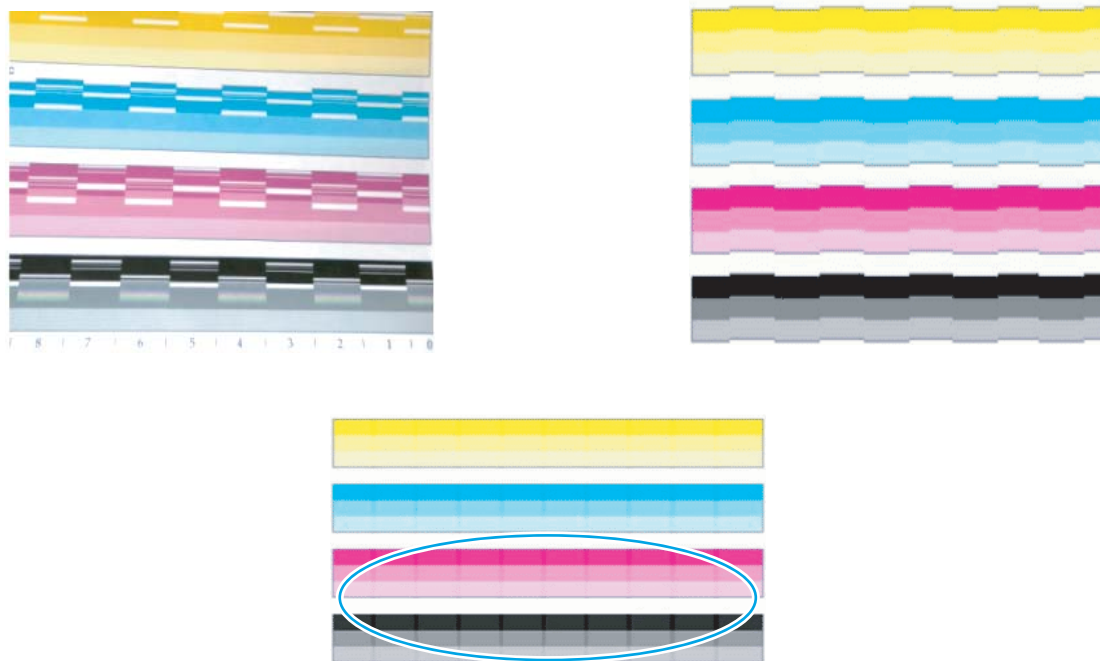
**NOTE:** There are blocks of lines on the page and each block represents a printhead die, and each line corresponds to a nozzle.

Check whether a line is missing or being misdirected to evaluate the health of the print bar.

- [Step 4: Printhead Alignment Calibration](#)
  - [Align the Printhead](#)
  - [Print an All Colors Page \(Letter / A4\)](#)
- [Step 5: Color Density Calibration](#)
  - [Calibrate the Color Density](#)
  - [Print an All Colors Page \(Letter\)](#)
  - [Print a Demo Page](#)
  - [Print a Print Quality Report page](#)

## Bars not even, columns of misaligned print, or vertical dark lines

Figure 2-49 Bars not even, columns of misaligned print, or vertical dark lines




### Description

This defect appears as large areas of uneven bars, misaligned columns, or vertical dark lines on the page.

### Troubleshooting

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access type](#) area. Touch the [Enter Access Code](#) item to display the on screen keypad.
4. Enter the following service access personal identification number (PIN) for the printer:
  - 05075017
5. Touch the blue button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.
6. Touch the [Sign In](#) button to enter the Service menu.

 **NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

7. Open the following menus:
  - [Print Quality Tools](#)
8. Perform the items associated with the following [Print Quality Tools](#) guided workflow items:
  - [Step 1: Nozzle Health Evaluation](#)
    - [Stabilize the Printhead](#)



---

 **NOTE:** Ink is ejected through the nozzles, and then the printhead wiper wipes the printhead.

---

- Step 2: Drop Detect Status Check

- Run Drop Detect

 **NOTE:** Performs a color drop detect calibration.

---

- Print a Streak Test Page
- Print a Nozzle Health Page

 **NOTE:** There are blocks of lines on the page and each block represents a printhead die, and each line corresponds to a nozzle.

Check whether a line is missing or being misdirected to evaluate the health of the print bar.

---

- Step 3: Nozzle Health Evaluation

- Clean the Printhead
- Print a Streak Test Page
- Print a Nozzle Health Page

 **NOTE:** There are blocks of lines on the page and each block represents a printhead die, and each line corresponds to a nozzle.

Check whether a line is missing or being misdirected to evaluate the health of the print bar.

---

- Step 4: Printhead Alignment Calibration

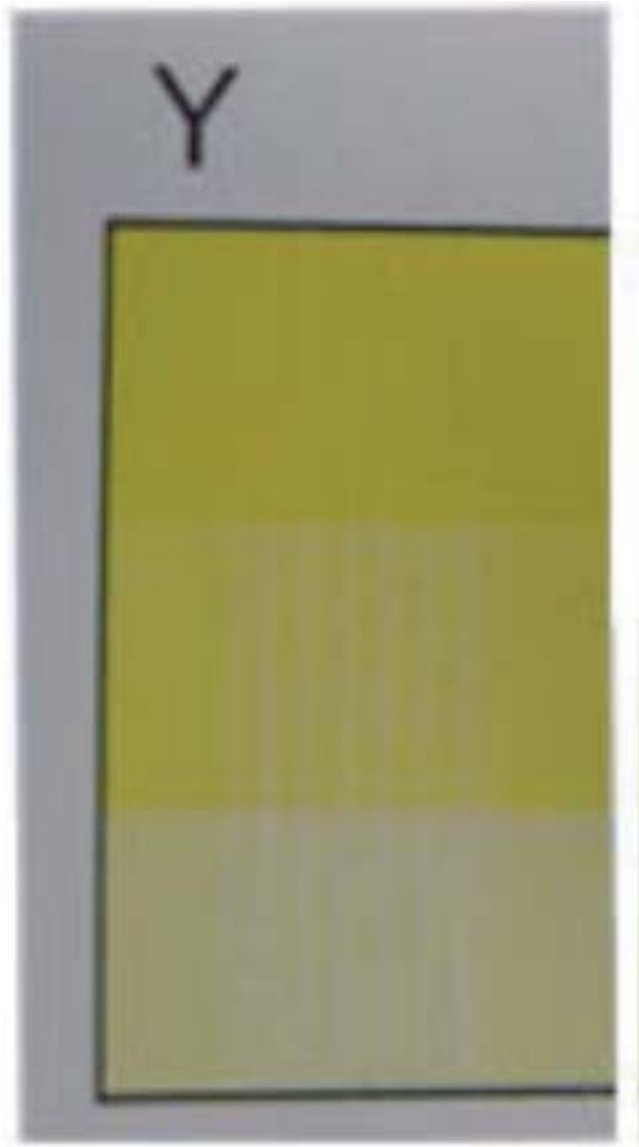
- Align the Printhead
- Print an All Colors Page (Letter / A4)

- Step 5: Color Density Calibration

- Calibrate the Color Density
- Print an All Colors Page (Letter)
- Print a Demo Page
- Print a Print Quality Report page

## Streaks in yellow

Figure 2-50 Streaks in yellow




### Description

Streaks in the yellow color plane make greys appear purple, oranges appear pink, and greens appear blueish.

### Troubleshooting

1. Make sure that genuine HP cartridges are installed.
2. Print a print quality report page (see [Print Quality Report page on page 182](#)).

---

 **NOTE:** If the print quality report page shows a different defect, go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).

---

3. Use the [Service](#) menu to perform a [Print a Streak \(Yellow\) Test Page](#).

### Print a streak test page

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Touch the [Service](#) button to display the [Sign In](#) screen.
- c. Make sure that [Service Access Code](#) displays in the [Access Type](#) area. Touch the [Enter Access Code](#) item to display the on-screen keypad.
- d. Type in the following service access personal identification number (PIN) for the printer:
  - 05075017
- e. Touch the [Done](#) button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.



---

**NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

- f. Open the following menus:
  - [Print Quality Tools](#)
  - [Advanced Print Quality Tools](#)
- g. Touch [Print a Streak \(Yellow\) Test Page](#) to print the page.

Check to see if the page shows fine clustered together bluish lines in the green blocks or pinkish lines in the orange blocks.

4. Use the [Service](#) menu to perform a [Clean the Printhead \(Extensive\)](#) procedure.



---

**NOTE:** The [Clean the Printhead \(Extensive\)](#) process takes a considerable amount of time. The process uses a minimal amount of ink.

---

### Clean the Printhead (Extensive)

- a. From the [Service](#) menu Home screen, open the following menus:
    - [Print Quality Tools](#)
    - [Advance Print Quality Tools](#)
  - b. Touch [Clean the Printhead \(Extensive\)](#) to begin the procedure.
5. Print another [Print a Streak \(Yellow\) Test Page](#) and compare to the original printed earlier. Do one of the following:
    - If the page shows a different defect, go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).
    - If the page shows improvement in the defect, do the following:
      - ▲ Turn the printer power off, and then wait 30 minutes. Turn the printer power on, and then perform a [Yellow Streaks Recovery](#) procedure.

---

**⚠ CAUTION:** Only use the [Yellow Streaks Recovery](#) procedure if magenta or cyan line show in the [Print a Streak \(Yellow\) Test Page](#) (printed earlier).

The process takes about 36 minutes to complete. Do not interrupt the process or turn the printer power off during the process.

---

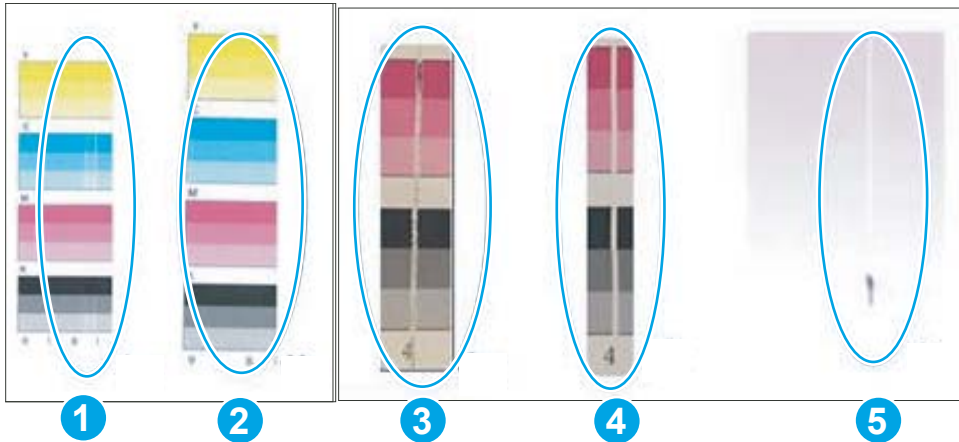
1. From the [Service](#) menu Home screen, open the following menus:
  - [Subsystems](#)
  - [Printing System](#)
  - [Printhead Assembly](#)
  - [Components Tests](#)
2. Select the [Tests and Calibrations](#) item, and then touch the [OK](#) button.
3. When [Yellow Streaks Recovery](#) appears on the control-panel display, and then touch the [OK](#) button to begin the process.

Print another [Print a Streak \(Yellow\) Test Page](#). If the page does not show improvement in the defect (or it shows a different defect), go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).

If the [Print a Streak \(Yellow\) Test Page](#) shows no defect, perform one more printhead cleaning procedure for optimum print quality.

## In-line streak(s) and drip(s)

Figure 2-51 In-line streak(s) and drip(s)



### Description

This defect might be accompanied with streaking on the paper.

### Troubleshooting

1. Make sure that genuine HP cartridges are installed.
2. Print a print quality report page (see [Print Quality Report page on page 182](#)).
3. If the print quality report page shows either multiple colors or a single color (other than magenta) with a small cluster of missing print (callouts 3/5 above), try the following:

#### Clean the Printhead



**NOTE:** Do not perform the printhead cleaning process more than four times.

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
- c. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process



**NOTE:** Do not perform the printhead cleaning process more than three times.

- d. Touch the [OK](#) button. A print quality report page prints. Compare this report to the previously printed report to confirm that the print quality improved.
- e. If the print quality report page shows improved (callout 1) and acceptable print quality, the troubleshooting process is complete.



---

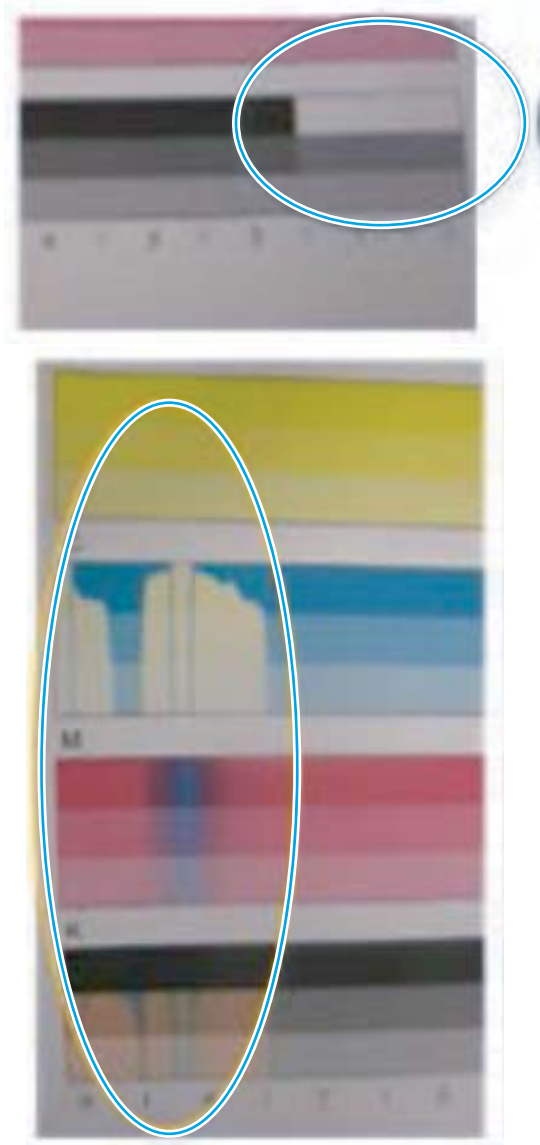
**NOTE:** Perform one more printhead cleaning procedure for optimum print quality.

---

4. If the print quality report page shows some improvement (or no improvement in the defect), try the following:
  - a. If the print quality report page shows some improvement but the defect remains, repeat the [Clean the Printhead \(Extensive\)](#) procedure (up to three times).
  - b. If the print quality report page shows no improvement in the defect, use an Advanced Cleaning Kit to clean the printhead. Follow the instruction that come with the kit.

## Large sections of wrong or missing color

Figure 2-52 Large sections of wrong or missing color



### Description

Colors might be present at the top of the page, but go missing by the bottom of the page.

### Troubleshooting

1. Make sure that genuine HP cartridges are installed.
2. Print a print quality report page (see [Print Quality Report page on page 182](#)).

Check the print quality report page for the following:

- The page shows no defect.
- Printing multiple pages cause the defect to go away.

- The page shows color mixing.
  - The defect shows across multiple colors
3. If the print quality report page shows any (or all) of the defects described above, try the following:

### Clean the Printhead



---

**NOTE:** Do not perform the printhead cleaning process more than four times.

---

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
- c. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process



---

**NOTE:** Do not perform the printhead cleaning process more than three times.

---

- d. Touch the [OK](#) button. A print quality report page prints. Compare this report to the previously printed report to confirm that the print quality improved.
- e. If the print quality report page shows improved (callout 1) and acceptable print quality, the troubleshooting process is complete.



---

**NOTE:** Perform one more printhead cleaning procedure for optimum print quality.

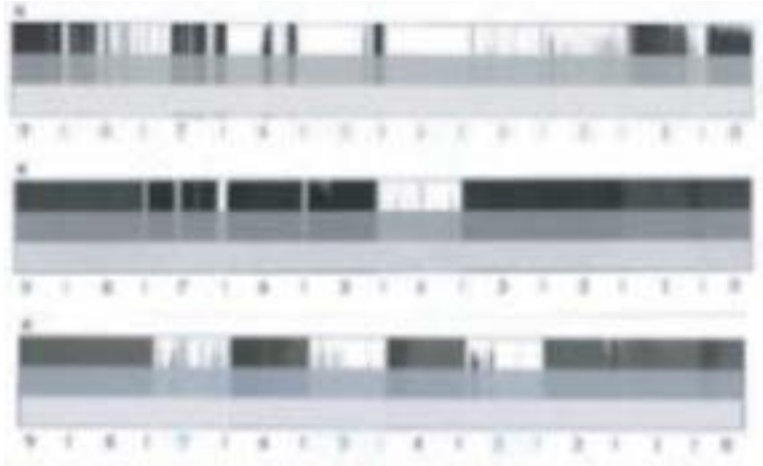
---

- f. If the print quality report page shows a defect not related to the die bouncer or is improving, go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).
4. If the print quality report page shows a single color missing for an entire die, die pair, or the entire bar, replace the printhead assembly.



## Vertical white lines

Figure 2-53 Vertical white lines



### Description

This defect appears when the printer is first installed.

### Troubleshooting

1. Print a print quality report page (see [Print Quality Report page on page 182](#)).
2. If the print quality report page shows white lines in the black color bar, try the following:

#### Clean the Printhead



**NOTE:** Do not perform the printhead cleaning process more than four times.

- a. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
- b. Open the following menus:
  - [Troubleshooting](#)
  - [Print Quality](#)
  - [Tools](#)
- c. Touch [Printhead Cleaning](#), and then touch [Continue](#) to begin the cleaning process.



**NOTE:** Do not perform the printhead cleaning process more than three times.

- d. Touch the [OK](#) button. A print quality report page prints. Compare this report to the previously printed report to confirm that the print quality improved.
- e. If the print quality report page shows improvement and acceptable print quality, the troubleshooting process is complete.



**NOTE:** Perform one more printhead cleaning procedure for optimum print quality.

- f. If the print quality report page shows large sections of white lines (or anything else), go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).

3. If the print quality report page shows streaks in the black color bar but the streak that are in different locations than they are on the first report page, try the following:

 **NOTE:** The defect might be severe.

- Is this the first day of printer use (less than 100 pages printed)?
- Print the Printer Status Report and Print Head Information pages.

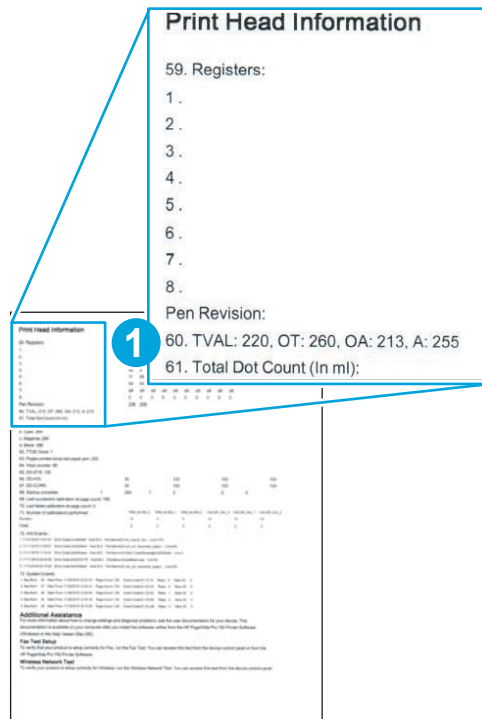
### Print the Printer Status Report and Print Head Information pages

Make sure that paper is loaded in the default input tray (usually Tray 3).

- a. From the control panel Home screen, touch the blue bar (dashboard) located at the top of the display
- b. Touch the **Setup** button at the top left of the display.
- c. Scroll to, and then touch the **Reports** item.
- d. Touch the **Printer Status Report** item to print the pages.

 **NOTE:** The printhead information page is the second page that prints.

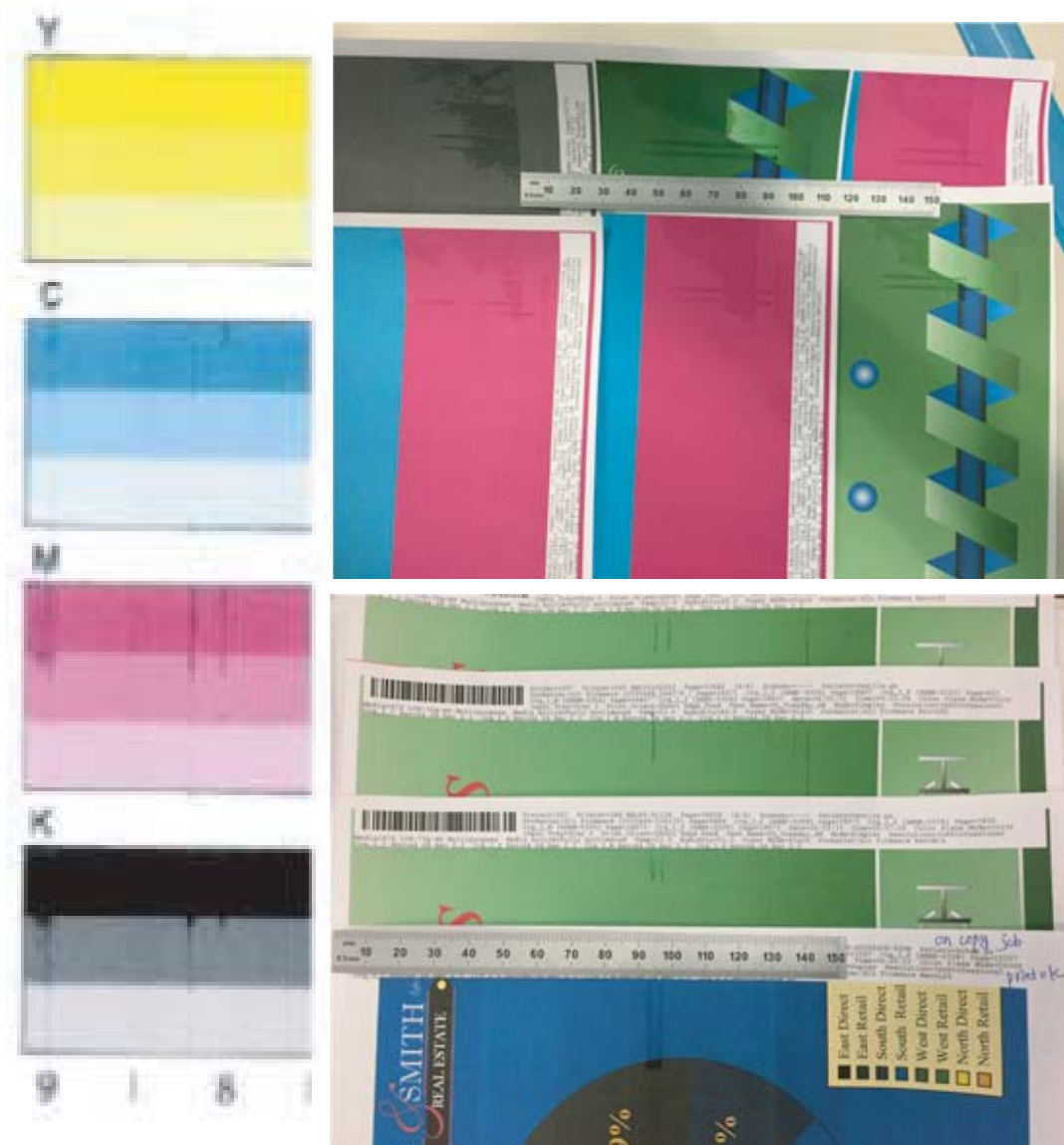
- e. On the Print Head Information page, verify that the **TVAL** entry (callout 1) is less than a 180 value.



- f. After checking the **TVAL** entry, do one of the following:
  - **TVAL** less than 180: Let the printer sit idle for 24 hours. Print quality will recover.
  - **TVAL** greater than 180: Let the printer sit idle for 30 minutes. Make sure that the environment where the printer is installed is above 15° C (59° F). Print quality will recover.

## Ink smear / redeposit

Figure 2-54 Ink smear / redeposit




### Description

This defect appears as smeared ink. It can appear on simplex and/or duplex print jobs, but it might not be visible on the Print Quality Report page.

### Troubleshooting

1. Make sure genuine HP ink is installed.
2. Print a print quality report page (see [Print Quality Report page on page 182](#)).

 **NOTE:** If the print quality report page shows a defect but it does not look like a smear or ink transfer defect, go to the image defects section of the printer troubleshooting manual to solve the problem (see [Image-quality defects \(printer specific\) on page 188](#)).

3. If the print quality report page shows nothing or smears on the page, try the following:

- a. Make sure that the correct paper type is being used, and that the correct printer driver is selected.
- b. Check the event log:
  1. From the [Home](#) screen, scroll to and then touch the [Support Tools](#) button.
  2. Touch the [Troubleshooting](#) button.
  3. Touch the [Reports](#) button.
  4. Touch the [Event Logs](#) item to display the log.
  5. Check the event log for an airflow system **61.Dx.yz** error entry.



---

**NOTE:** A **The Airflow Assembly for the printer is not functioning properly. Printing will slow down until it is repaired.** might also appear on the control-panel display.

---

6. After the airflow problem is resolved, send a print job to the printer and check the print quality. If print quality has improved and is acceptable, the troubleshooting process is complete.
4. If the page still shows the defect, try the following:
  - a. Remove, and then reinstall the service fluid container.
  - b. Use an Advanced Cleaning Kit to clean the printhead. Follow the instruction that come with the kit.
  - c. Send a print job to the printer and check the print quality. If print quality has improved and is acceptable, the troubleshooting process is complete.
5. Make sure that the correct paper type for the print job is being used.

Send a print job to the printer and check the print quality. If print quality has improved and is acceptable, the troubleshooting process is complete.
6. Try using a different brand of paper.

Send a print job to the printer and check the print quality. If print quality has improved and is acceptable, the troubleshooting process is complete.

# Solve copy/scan problems (MFP models only)

## Solve copy problems (MFP models only)

If the printer is having copy quality problems, try the following solutions in the order presented to resolve the issue.

- [Check the scanner glass for dirt and smudges](#)
- [Check the paper settings](#)
- [Clean the pickup rollers and separation pad in the document feeder](#)

Try these few simple steps first:

- Use the flatbed scanner rather than the document feeder.
- Use high-quality originals.
- When using the document feeder, load the original document into the feeder correctly, using the paper guides, to avoid unclear or skewed images.

If the problem still exists, try these additional solutions. If they do not fix the problem, see “Improve print quality” for further solutions.

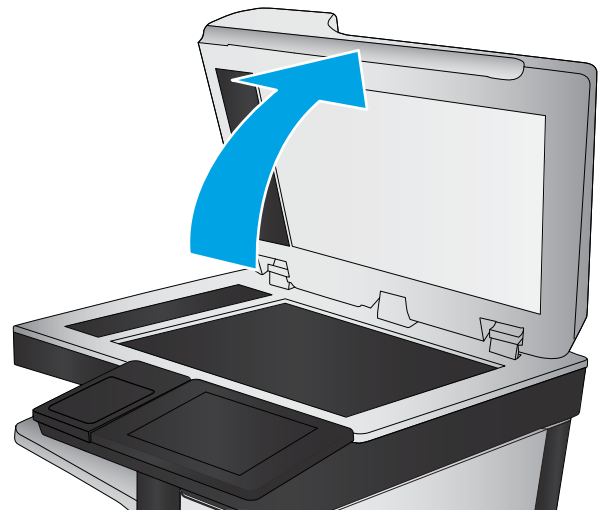
## Check the scanner glass for dirt and smudges

Over time, specks of debris might collect on the scanner glass and white plastic backing, which can affect performance. Use the following procedure to clean the scanner if the printed pages have streaks, unwanted lines, black dots, poor print quality, or unclear text.

1. Press the power button to turn the printer off, and then disconnect the power cable from the electrical outlet.



2. Open the scanner lid.



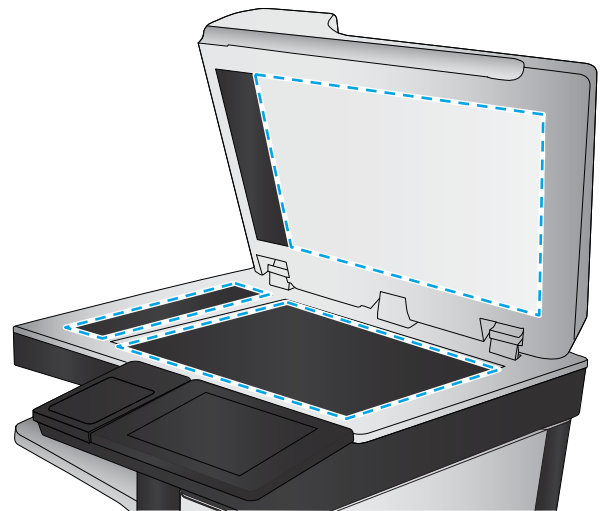
3. Clean the scanner glass, the document feeder strips, and the white plastic backing with a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.

**CAUTION:** Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the printer; these can damage the printer. Do not place liquids directly on the glass or platen. They might seep and damage the printer.

**NOTE:** If you are having trouble with streaks on copies when you are using the document feeder, be sure to clean the small strip of glass on the left side of the scanner.

**TIP:** A customer-self repair kit (CSR) is available for the white backing (document reflector).

4. Dry the glass and white plastic parts with a chamois or a cellulose sponge to prevent spotting.
5. Connect the power cable to an outlet, and then press the power button to turn the printer on.




## Check the paper settings

Follow these steps if copied pages have smears, fuzzy or dark print, curled paper, or areas where pigment has dropped out.

### Check the paper size and type configuration

1. At the printer control panel, use your finger to swipe down on the dashboard (the blue bar at the top of the display), and then touch the **Tray Configuration** (stacked trays icon) button.
2. Select from a list of available trays (the list of trays depends on the installed input feeders).
3. Touch the **Paper Type** item, and then Use the radio buttons to select from a list of paper types (default is Plain). If changed, touch **Done** to save the setting.
4. Touch the **OK** button to save the selection.

---


 **NOTE:** Use the [Back](#) button to navigate back to the sub menu.

---

### Select the tray to use for the copy

1. From the Home screen on the printer control panel, touch the [Copy](#) button.
2. Touch either the [Document](#) or [ID Card](#) button.
3. Select [Paper Tray](#), and then select one of the paper trays.
4. Touch the [Tray Selection](#) item, use the radio buttons to select a default tray, and then touch [OK](#) to save the setting.

---

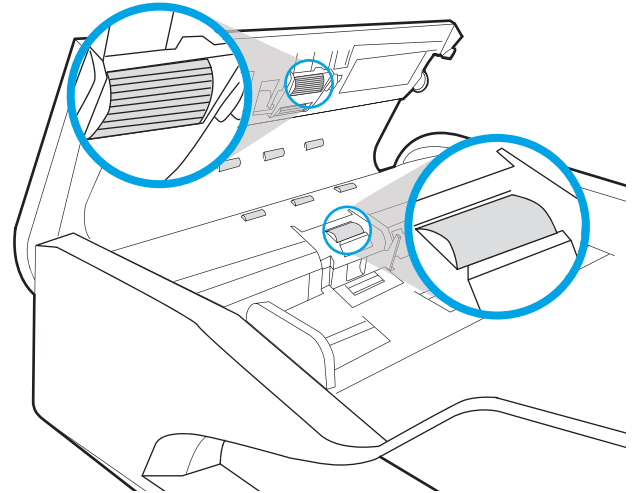
 **NOTE:** These settings are temporary. After you have finished the job, the printer returns to the default settings.

---

## Clean the pickup rollers and separation pad in the document feeder

Follow these steps if the document feeder does not pick up pages correctly or produces skewed output.

1. Lift the latch to release the document-feeder cover.
2. Remove any visible lint or dust from each of the feed rollers and the separation pad using compressed air or a clean lint-free cloth moistened with warm water.



If the problem persists, check the document feeder separation pad and rollers for damage or wear, and replace them if necessary.



**NOTE:** New rollers have a rough surface. As rollers wear, they become smooth.

## Solve scan problems (MFP models only)

- [Check the scanner glass for dirt and smudges](#)
- [Check the image quality settings](#)
- [Check the color settings](#)
- [Optimize scan quality for text or pictures](#)
- [Clean the pickup rollers and separation pad in the document feeder](#)

Try these few simple steps first:

- Use the flatbed scanner rather than the document feeder.
- Use high-quality originals.
- When using the document feeder, load the original document into the feeder correctly, using the paper guides, to avoid unclear or skewed images.

If the problem still exists, try these additional solutions. If they do not fix the problem, see “Improve print quality” for further solutions.



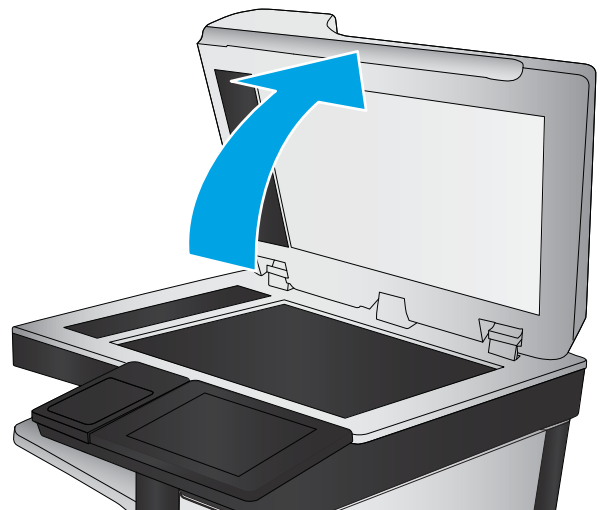
## Check the scanner glass for dirt and smudges

Over time, specks of debris might collect on the scanner glass and white plastic backing, which can affect performance. Use the following procedure to clean the scanner if the printed pages have streaks, unwanted lines, black dots, poor print quality, or unclear text.

1. Press the power button to turn the printer off, and then disconnect the power cable from the electrical outlet.



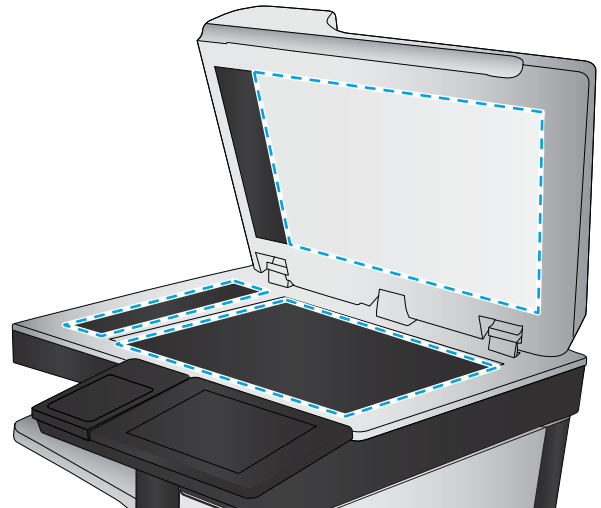
2. Open the scanner lid.



3. Clean the scanner glass, the document feeder strips, and the white plastic backing with a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.

**CAUTION:** Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the printer; these can damage the printer. Do not place liquids directly on the glass or platen. They might seep and damage the printer.

**NOTE:** If you are having trouble with streaks on copies when you are using the document feeder, be sure to clean the small strip of glass on the left side of the scanner.



4. Dry the glass and white plastic parts with a chamois or a cellulose sponge to prevent spotting.
5. Connect the power cable to an outlet, and then press the power button to turn the printer on.

## Check the image quality settings

Follow these steps to adjust the image quality setting:

1. From the Home screen on the printer control panel, touch the **Copy** button.
2. Touch either the **Document** or **ID Card** button.
3. Touch the **Settings** button.
4. Touch the **Quality** button, and then use the radio buttons to choose the quality setting:
  - **Presentation** (highest quality)
  - **Professional**
  - **General Office** (lowest setting)
5. Use the **Back** button or **Home** button to return to the main menu.

## Check the color settings

Follow these steps to adjust the color setting:

1. From the Home screen on the printer control panel, touch the **Copy** button.
2. Touch either the **Document** or **ID Card** button.
3. Touch the **Color/Black** button, and then use the radio buttons to choose the quality setting:

- [Automatically detect color or black](#)
  - [Print copy in color](#)
  - [Print copy in black](#)
4. Use the [Back](#) button or [Home](#) button to return to the main menu.



**NOTE:** These settings are temporary. After you have finished the job, the printer returns to the default settings.

---

## Optimize scan quality for text or pictures

Optimize the scan job for the type of image being scanned: text, graphics, or photos.



**NOTE:** These settings are temporary. After you have finished the job, the printer returns to the default settings.

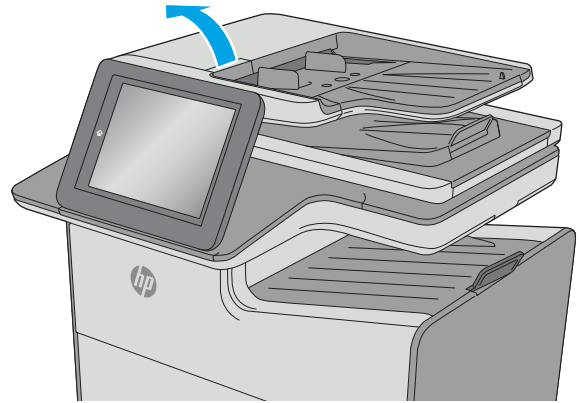
---

1. From the Home screen on the printer control panel, touch the [Copy](#) button.
2. Touch either the [Document](#) or [ID Card](#) button.
3. Touch the [Enhancements](#) button, and then use the radio buttons to choose the quality setting:
  - [None](#)
  - [Text](#)
  - [Photo](#)
  - [Mixed](#)
4. Use the [Back](#) button or [Home](#) button to return to the main menu.

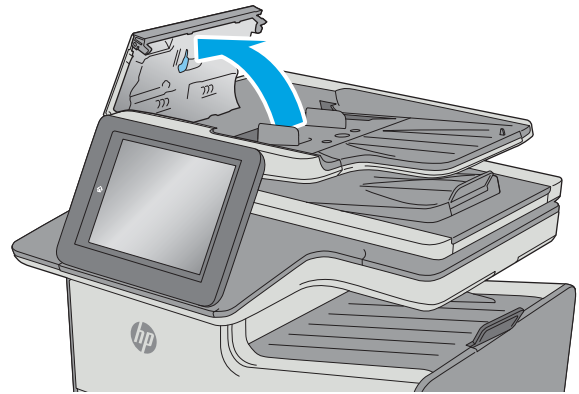
## Clean the pickup rollers and separation pad in the document feeder

Follow these steps if the document feeder does not pick up pages correctly or produces skewed output.

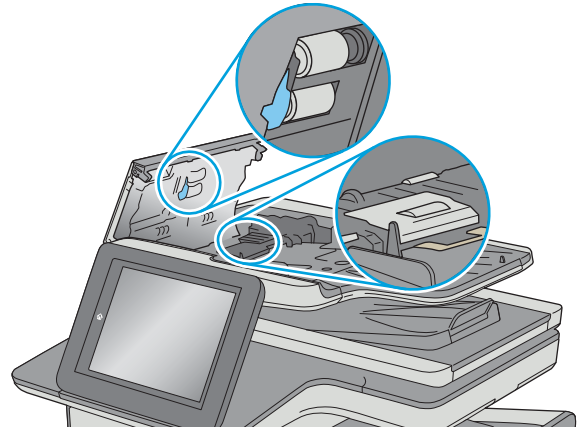
1. Lift the latch to release the document-feeder cover.



2. Open the document-feeder cover.

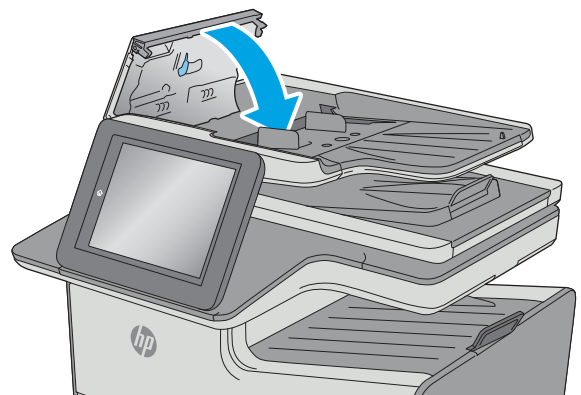


3. Remove any visible lint or dust from each of the feed rollers and the separation pad using compressed air or a clean lint-free cloth moistened with warm water.



4. Close the document-feeder cover.

**NOTE:** Verify that the latch on the top of the document-feeder cover is completely closed.



If the problem persists, check the document feeder separation pad and rollers for damage or wear, and replace them if necessary.

---

 **NOTE:** New rollers have a rough surface. As rollers wear, they become smooth.

Make sure to properly adjust the sliding paper guides (they should be touching the paper stack, but not be overly tight against it) or the copied pages might be skewed.

---

# Solve paper jam or feed problems

## Printer does not pick up paper or misfeeds

- [The printer does not pick up paper](#)
- [The printer picks up multiple sheets of paper](#)
- [The document feeder jams, skews, or picks up multiple sheets of paper \(MFP models only\)](#)

### The printer does not pick up paper

If the printer does not pick up paper from the tray, try these solutions.

1. Open the printer and remove any jammed sheets of paper.
2. Load the tray with the correct size of paper for your job.
3. Make sure the paper size and type are set correctly on the printer control panel.
4. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides to the appropriate indentation in the tray.
5. Check the printer control panel to see if the printer is waiting for you to acknowledge a prompt to feed the paper manually. Load paper, and continue.
6. The rollers above the tray might be contaminated. Clean the rollers with a lint-free cloth dampened with warm water.
7. If the error persists, the rollers might be worn. Replace the rollers.

### The printer picks up multiple sheets of paper

If the printer picks up multiple sheets of paper from the tray, try these solutions.

1. Remove the stack of paper from the tray and flex it, rotate it 180 degrees, and flip it over. *Do not fan the paper.* Return the stack of paper to the tray.
2. Use only paper that meets HP specifications for this printer.
3. Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.
4. Make sure the tray is not overfilled. If it is, remove the entire stack of paper from the tray, straighten the stack, and then return some of the paper to the tray.
5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides to the appropriate indentation in the tray.
6. Make sure the printing environment is within recommended specifications.
7. The rollers above the tray might be contaminated. Clean the rollers with a lint-free cloth dampened with warm water.
8. If the error persists, the rollers might be worn. Replace the rollers.

## The document feeder jams, skews, or picks up multiple sheets of paper (MFP models only)

- The original might have something on it, such as staples or self-adhesive notes that must be removed.
- Check that all rollers are in place and that the roller-access cover inside the document feeder is closed.
- Make sure that the top document-feeder cover is closed.
- The pages might not be placed correctly. Straighten the pages and adjust the paper guides to center the stack.
- The paper guides must be touching the sides of the paper stack to work correctly. Make sure that the paper stack is straight and the guides are against the paper stack.
- The document feeder input tray or output bin might contain more than the maximum number of pages. Make sure the paper stack fits below the guides in the input tray, and remove pages from the output bin.
- Verify that there are no pieces of paper, staples, paper clips, or other debris in the paper path.
- Clean the document-feeder rollers and the separation pad. Use compressed air or a clean, lint-free cloth moistened with warm water. If misfeeds still occur, replace the rollers.
- From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button, touch the [Maintenance](#) button, touch the [Document Feeder Rollers](#) item, and then touch the [Next](#) button. Check the remaining life of the document feeder rollers, and replace them if necessary.

# Clear paper jams

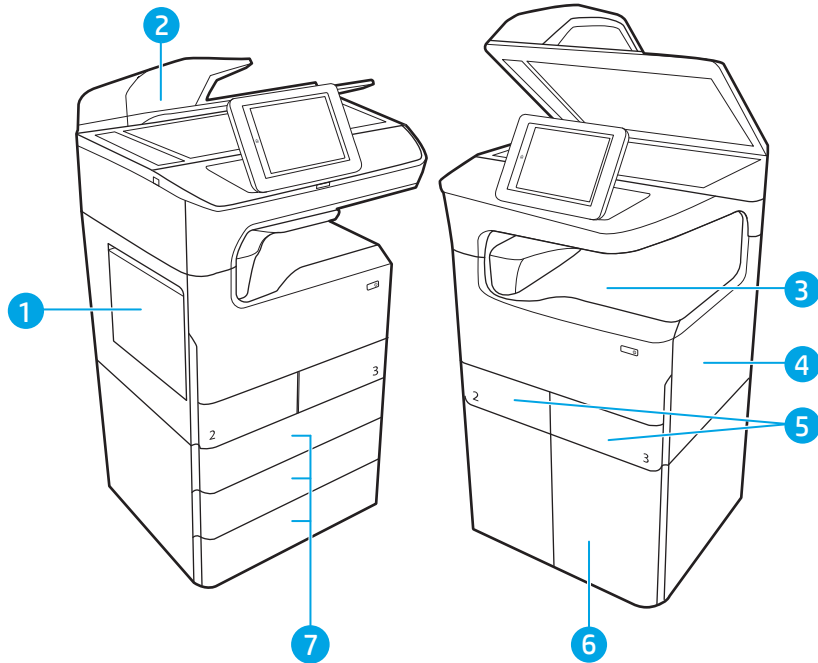
## Introduction

The following information includes instructions for clearing paper jams from the printer.

- [Paper jam locations \(MFP models\)](#)
- [Paper jam locations \(SFP models\)](#)
- [Auto-navigation for clearing paper jams](#)
- [Experiencing frequent or recurring paper jams?](#)
- [Clear paper jams in the document feeder \(MFP models only\)](#)
- [Clear paper jams in Tray 1](#)
- [Clear paper jams in Tray 2/3](#)
- [Clear paper jams in Tray 4](#)
- [Clear paper jams in the output bin](#)
- [Clear paper jams in the right duplexer](#)
- [Clear paper jams in the 3x550-sheet trays](#)
- [Clear paper jams in the 4,000-sheet high-capacity input tray](#)



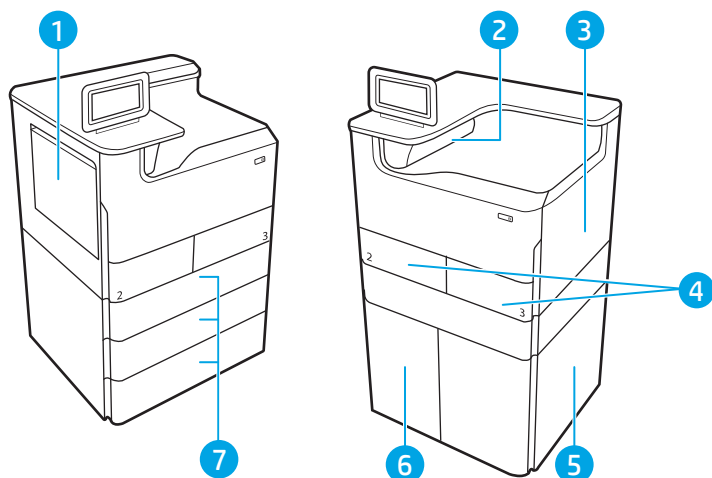
## Paper jam locations (MFP models)



1	Tray 1 and left door
2	Document feeder
3	Output bin
4	Right door (duplexer) and lower right door
5	A4 Tray 2/3
6	4,000-sheet HCI feeder
7	Trays 4-6

**NOTE:** A single 550-sheet feeder with a storage compartment and an optional table-top 550-sheet feeder are also available (not shown).

## Paper jam locations (SFP models)



1	Tray 1 and left door
2	Output bin
3	Duplexer
4	A4 Tray 2/3
5	Lower right door
6	4,000-sheet HCL feeder
7	Trays 4-6


**NOTE:** A single 550-sheet feeder with a storage compartment and an optional table-top 550-sheet feeder are also available (not shown).

## Auto-navigation for clearing paper jams

The auto-navigation feature assists in clearing jams by providing step-by-step instructions on the control panel. When you complete a step, the printer displays instructions for the next step until you have completed all steps in the procedure.

## Experiencing frequent or recurring paper jams?

To reduce the number of paper jams, try these solutions.

 **NOTE:** To see a video that demonstrates how to load paper in a way that reduces the number of paper jams, click [here](#).

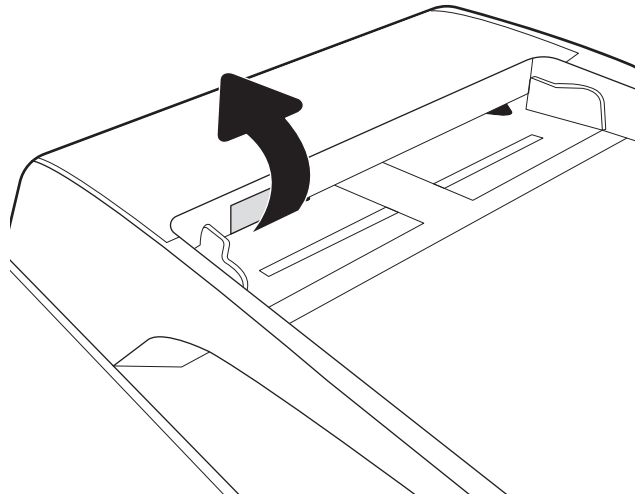
1. Use only paper that meets HP specifications for this printer.
2. Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.
3. Use paper that has not previously been printed or copied on.
4. Make sure the tray is not overfilled. If it is, remove the entire stack of paper from the tray, straighten the stack, and then return some of the paper to the tray.
5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides so they are touching the paper stack without bending it.

6. Make sure that the tray is fully inserted in the printer.
7. If you are printing on heavy, embossed, or perforated paper, use the manual feed feature and feed sheets one at a time.
8. Open the [Trays](#) menu on the printer control panel. Verify that the tray is configured correctly for the paper type and size.
9. Make sure the printing environment is within recommended specifications.

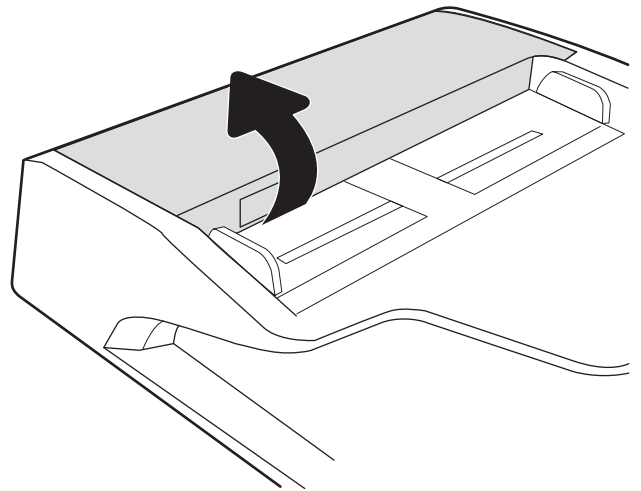
## Clear paper jams in the document feeder (MFP models only)

The following information describes how to clear paper jams in the document feeder. When a jam occurs, the control panel displays a message and an animation that assists in clearing the jam.

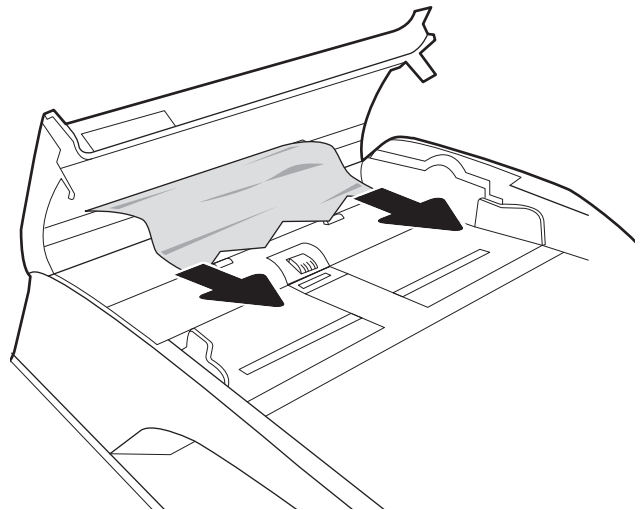
1. Lift the latch to release the document-feeder cover.



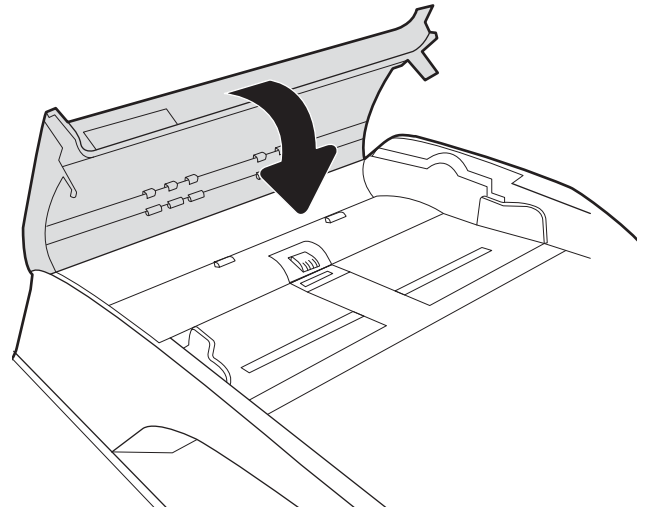
2. Open the document-feeder cover.



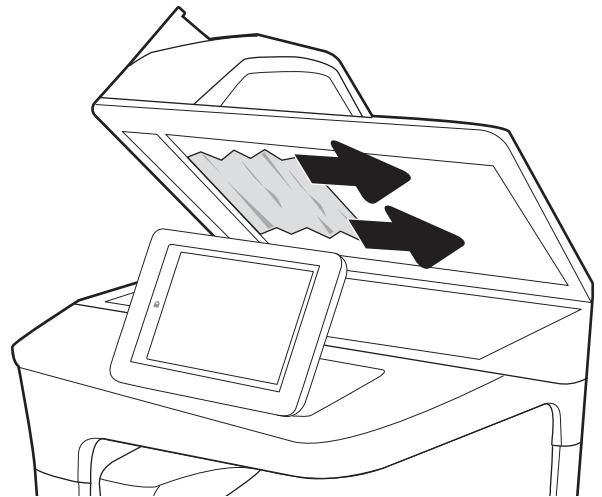
3. Remove any jammed paper.



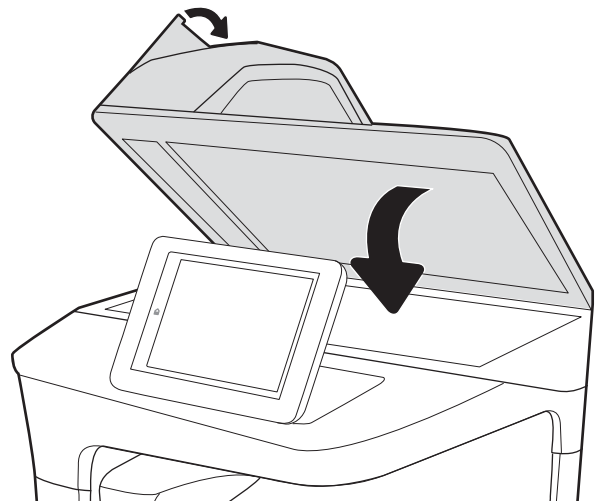
4. Close the document-feeder cover.



5. Lift the scanner lid and remove any jammed paper from the bottom of the scanner lid.



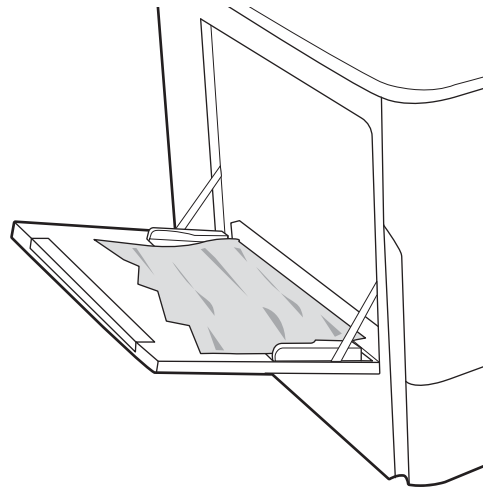
6. Close the scanner lid.



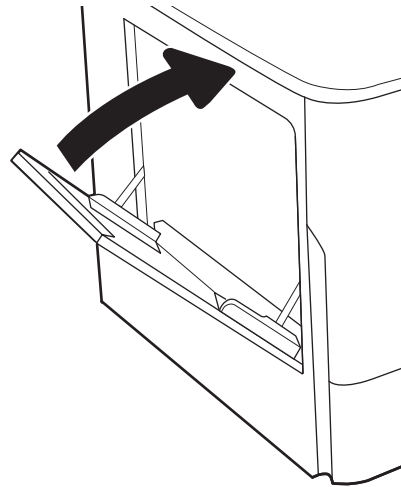
## Clear paper jams in Tray 1

The following information describes how to clear a paper jam in Tray 1. When a jam occurs, the control panel displays a message and an animation that assists in clearing the jam.

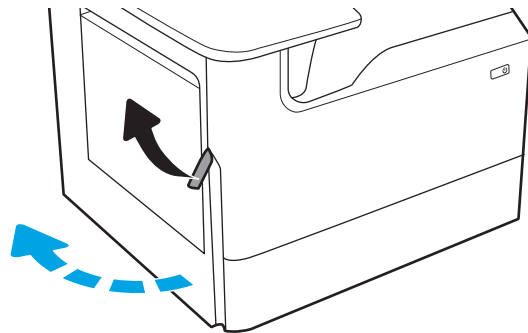
1. If jammed paper is visible in Tray 1, clear the jam by gently pulling the paper straight out.



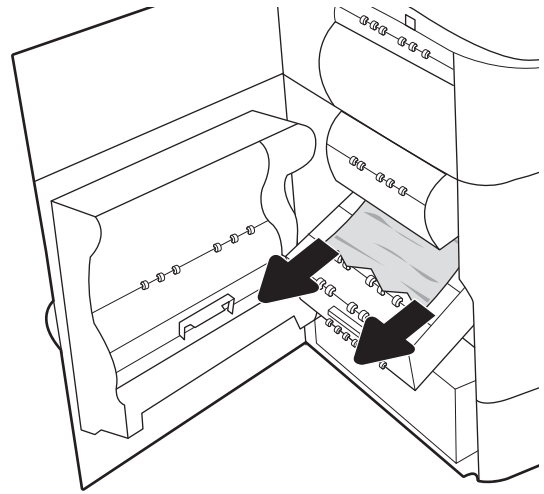
2. Close Tray 1.



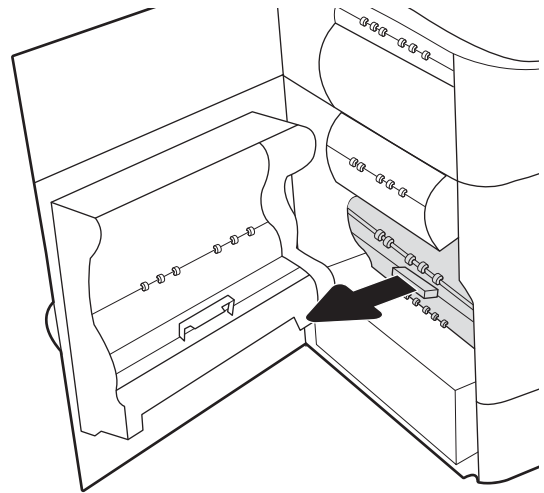
3. Open the left door.



4. Pull any jammed paper straight out.

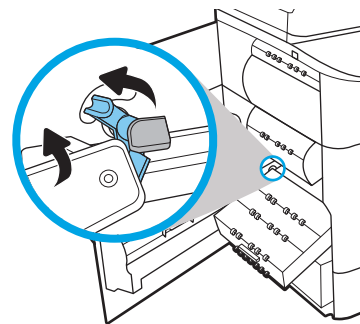


5. If no jammed paper is visible, pull the service fluid container out.



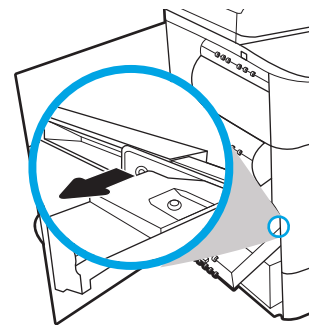
6. On the left side of the service fluid container, release the latch that holds the unit in the alignment track, and then remove the left side of the unit.

**TIP:** If there is sufficient clearance to reach the jammed page with the service fluid container pulled out to the printer, skip this step.

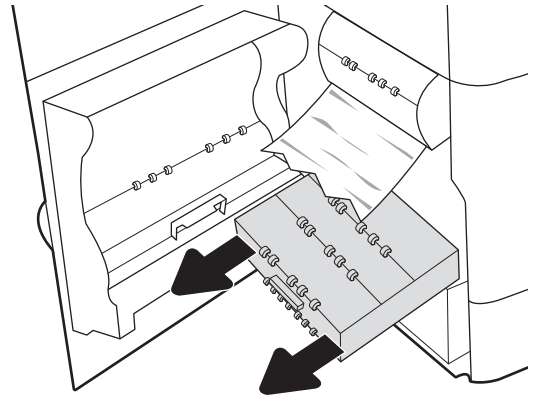


7. Remove the right side from the alignment track, and then remove the unit from the printer. Set the unit aside, upright, on a piece of paper to prevent spills.

**TIP:** If there is sufficient clearance to reach the jammed page with the service fluid container pulled out to the printer, skip this step.

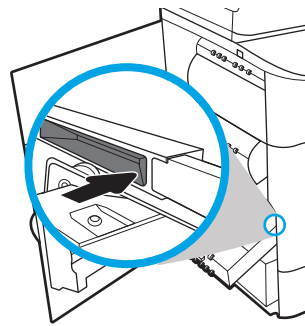


8. Pull any jammed paper straight out.



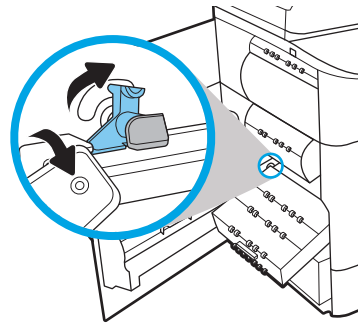
9. Insert the right end of the service fluid container into the alignment track first.

**TIP:** If the service fluid container was not removed, skip this step.



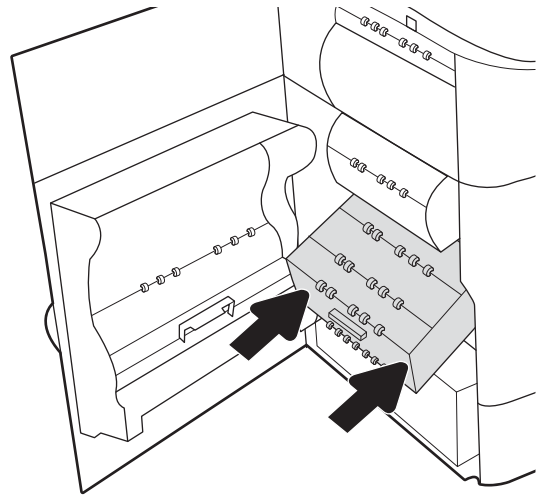
10. Insert the left end of the service fluid container into the alignment track, and then lock the latch that holds the unit in the track.

**TIP:** If the service fluid container was not removed, skip this step.

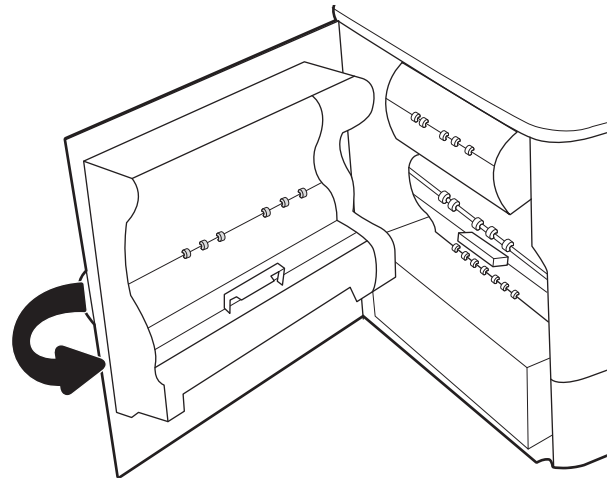




11. Push the service fluid container into the printer.



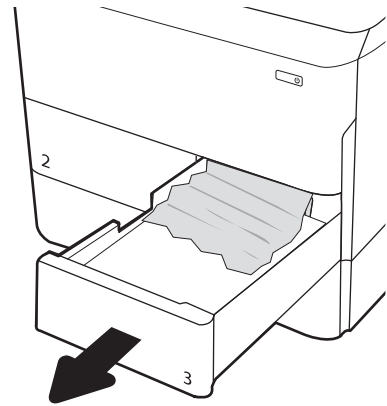
12. Close the left door.



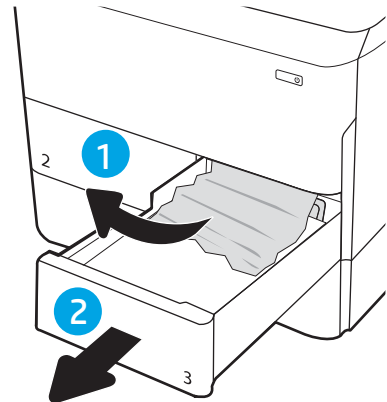
## Clear paper jams in Tray 2/3

The following information describes how to clear a paper jam in Trays 2/3. When a jam occurs, the control panel displays a message and an animation that assists in clearing the jam.

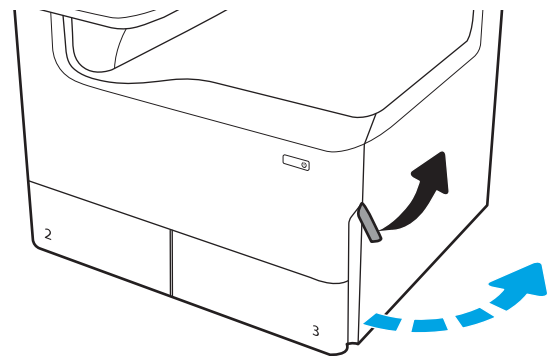
1. Open the tray.



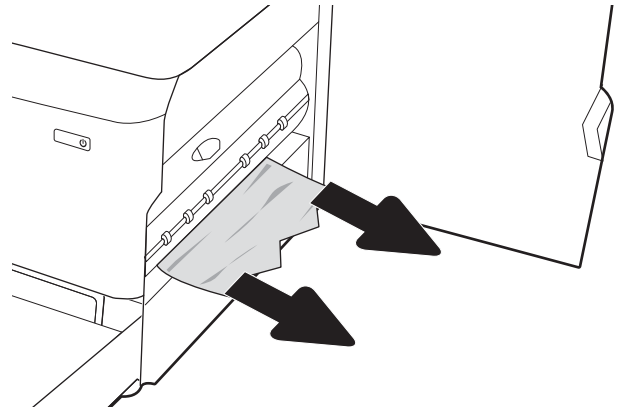
2. Remove the jammed paper from the feed rollers inside the printer. First pull the paper to the left, and then pull it forward to remove it.



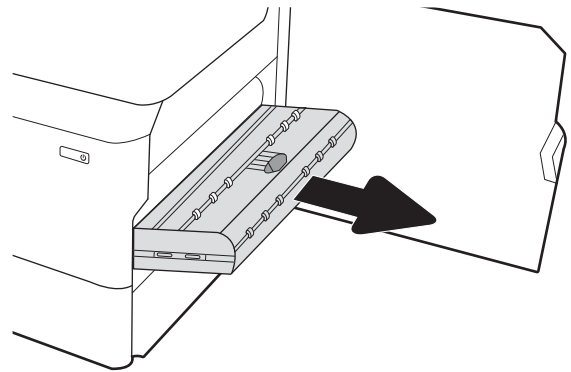
3. Open the right door.



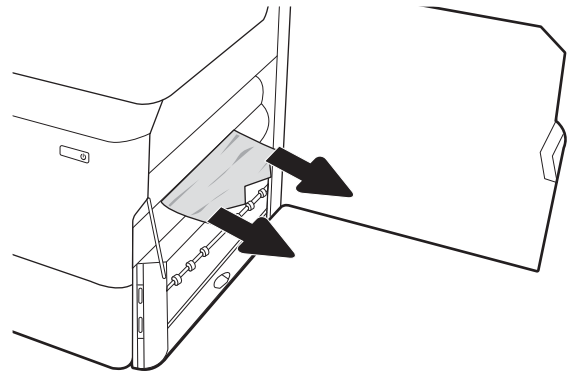
4. Remove any jammed paper.



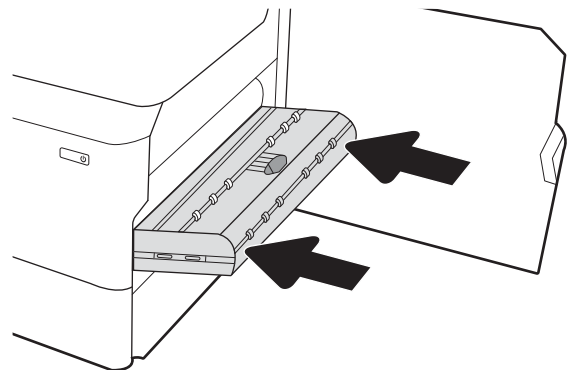
5. If no jammed paper is visible, pull out the right duplexer until it stops.



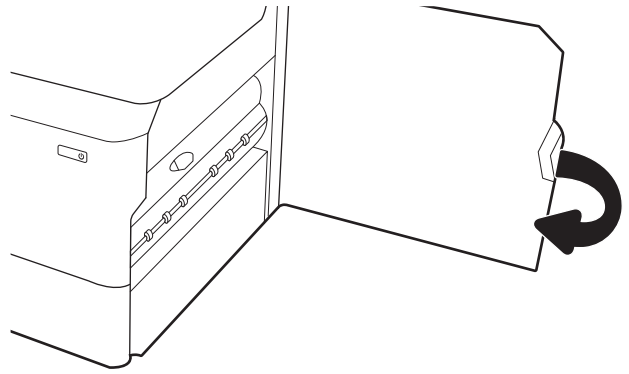
6. Pull any jammed paper straight out.



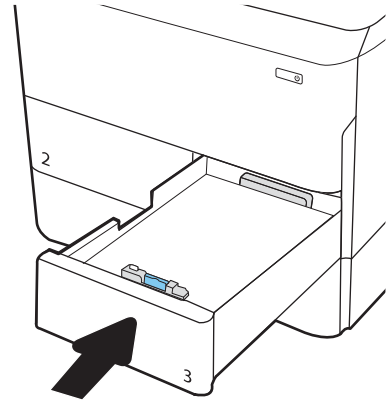
7. Reinsert the duplexer.



8. Close the right door.



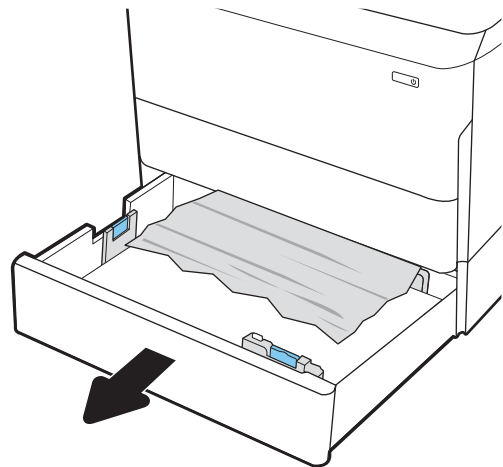
9. Close the tray.



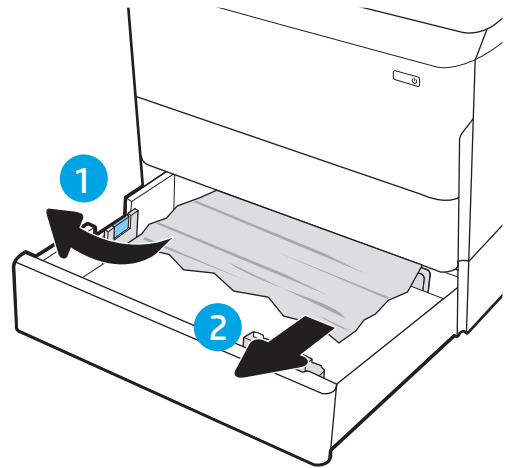
### Clear paper jams in Tray 4

Use the following procedure to check for paper in all possible jam locations related to the 550-sheet trays. When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

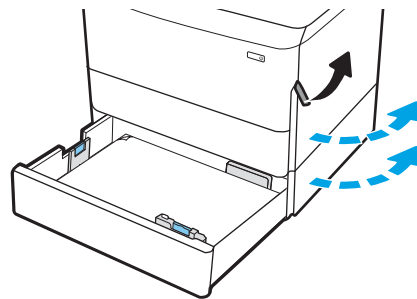
1. Open the tray.



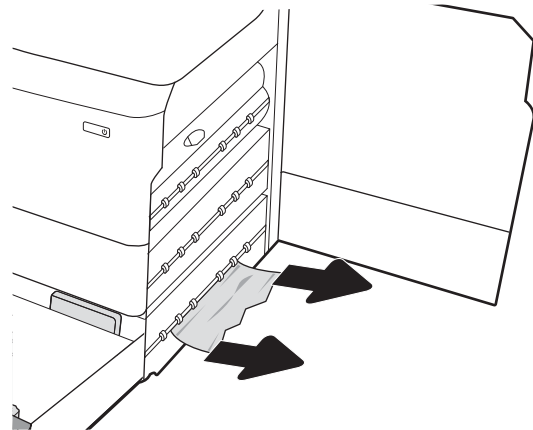
2. Remove the jammed paper from the feed rollers inside the printer. First pull the paper to the left, and then pull it forward to remove it.



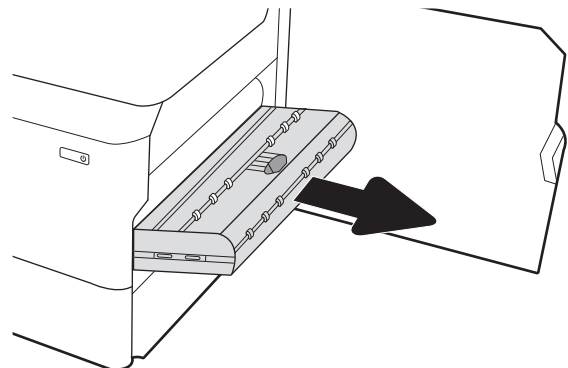
3. Open the right door and the lower-right door.



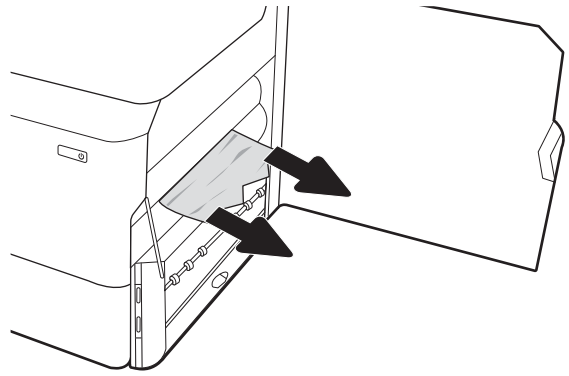
4. Gently pull out any jammed paper.



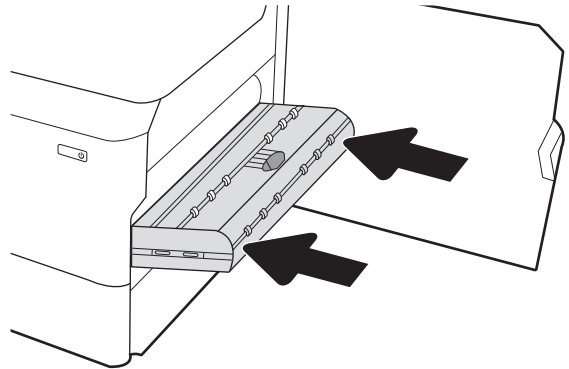
5. If no jammed paper is visible, pull out the right duplexer until it stops.



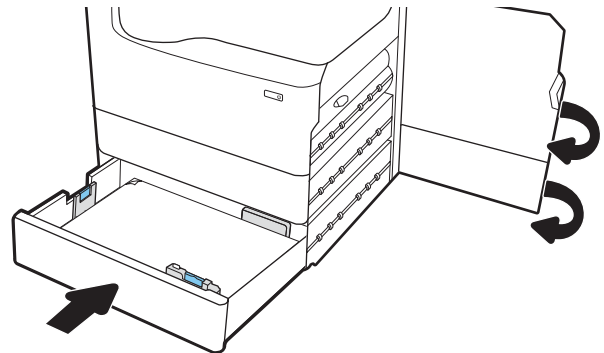
6. Pull any jammed paper straight out.



7. Reinsert the duplexer.



8. Close the lower-right door and the right door, and then close the tray.



## Clear paper jams in the output bin

The following information describes how to clear a paper jam in the output bin. When a jam occurs, the control panel displays a message and an animation that assists in clearing the jam.

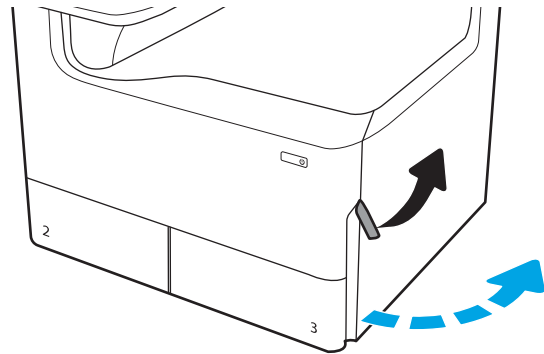
1. If paper is visible in the output bin, grasp the leading edge and remove it.



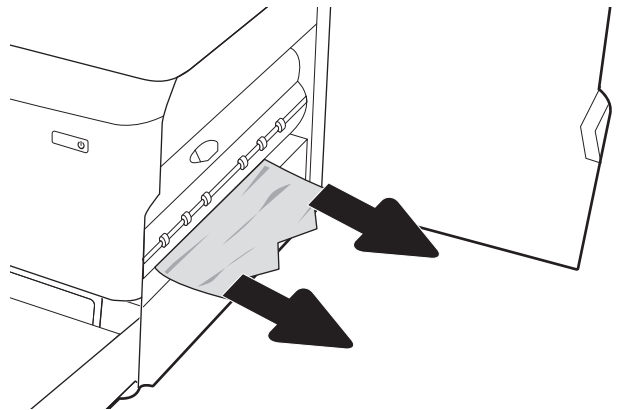
## Clear paper jams in the right duplexer

The following information describes how to clear a paper jam in the automatic duplexer. When a jam occurs, the control panel displays a message and an animation that assists in clearing the jam.

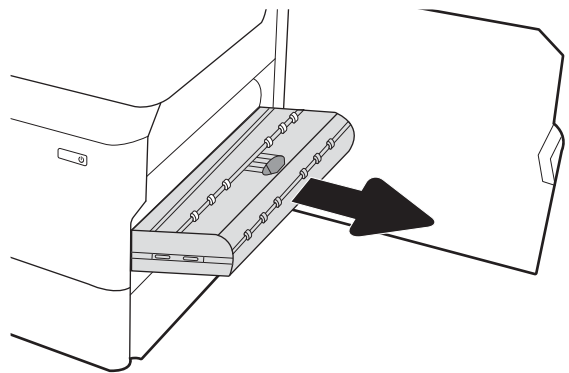
1. Open the right door.



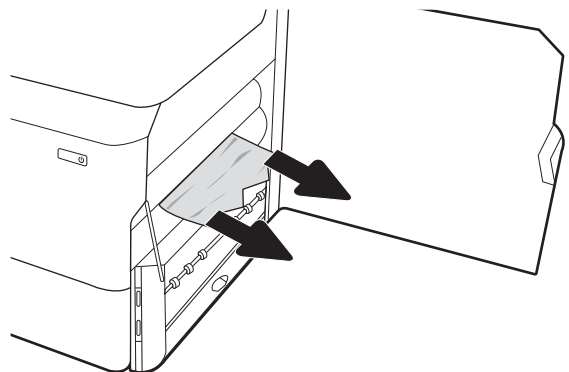
2. Remove any jammed paper.



3. If no jammed paper is visible, remove the duplexer.

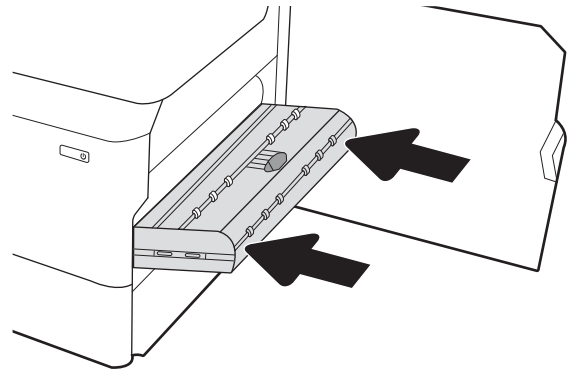


4. Pull any jammed paper straight out.

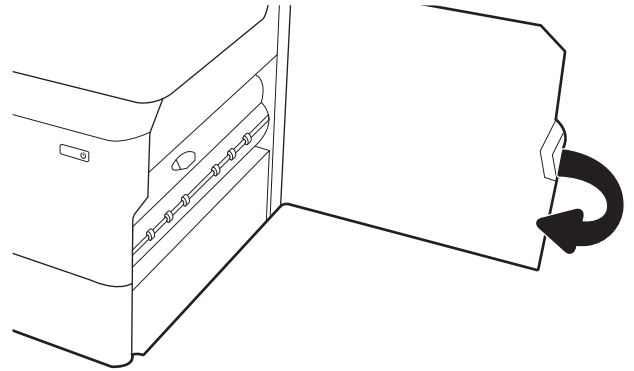




5. Reinstall the duplexer.



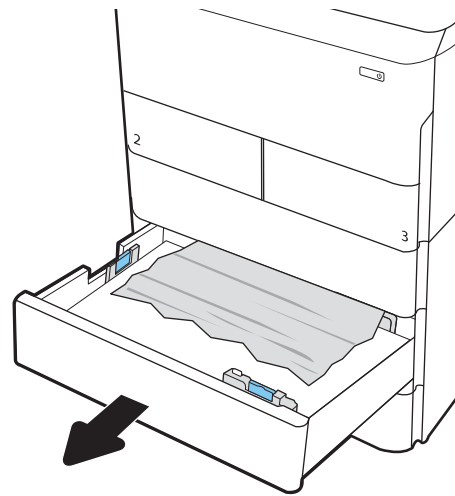
6. Close the right door



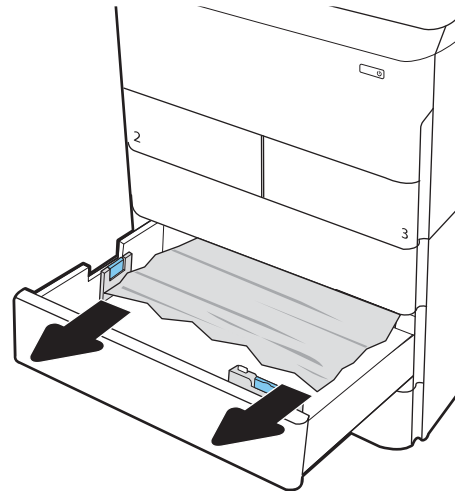
## Clear paper jams in the 3x550-sheet trays

Use the following procedure to check for paper in all possible jam locations related to the 3x550-sheet trays. When a jam occurs, the control panel displays a message and an animation that assists in clearing the jam.

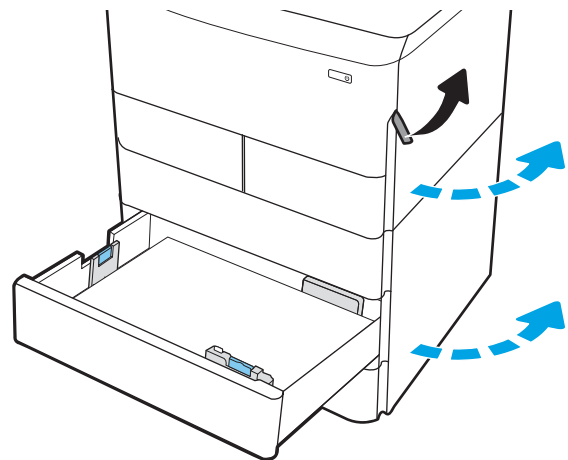
1. Open one of the trays.



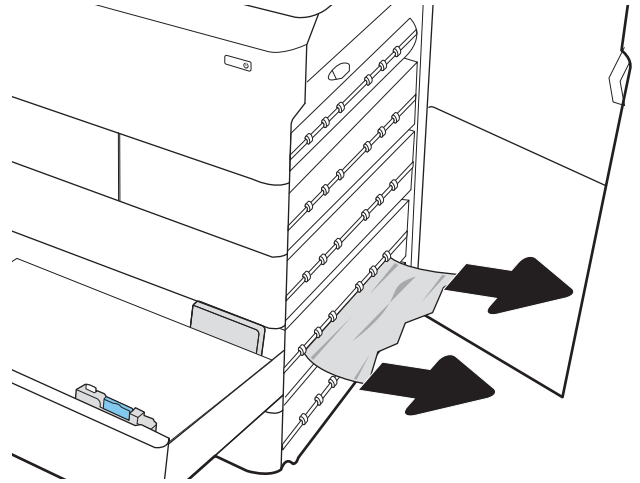
2. Remove the jammed paper from the feed rollers inside the printer. First pull the paper to the left, and then pull it forward to remove it.



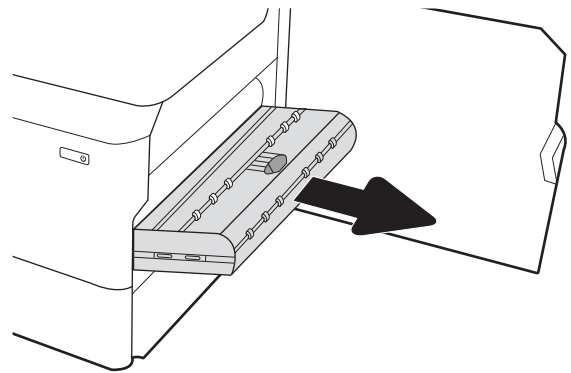
3. Open the right door and the lower-right door.



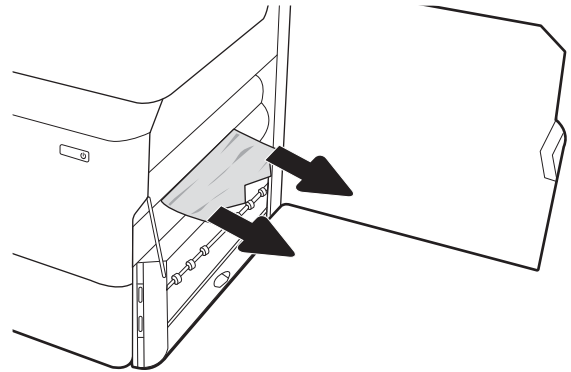
4. Gently pull out any jammed paper.



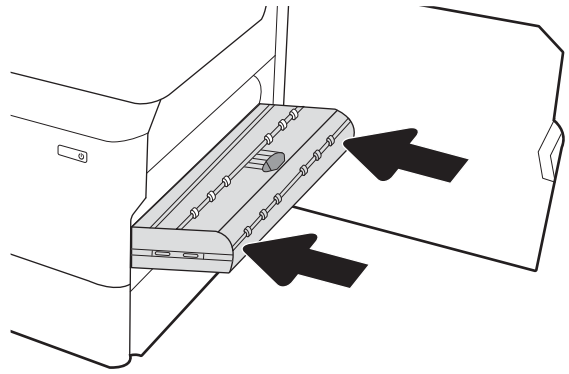
5. If no jammed paper is visible, remove the duplexer.



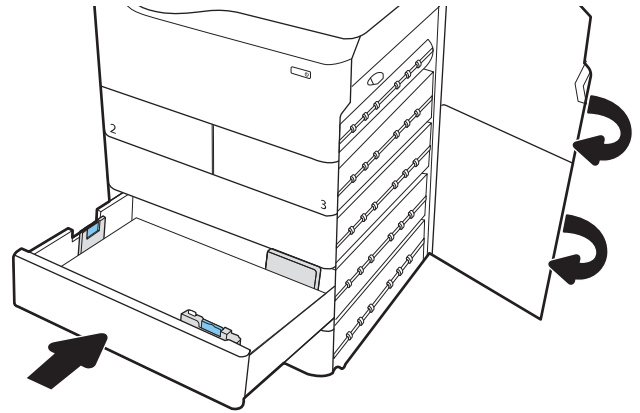
6. Pull any jammed paper straight out.



7. Reinstall the duplexer.



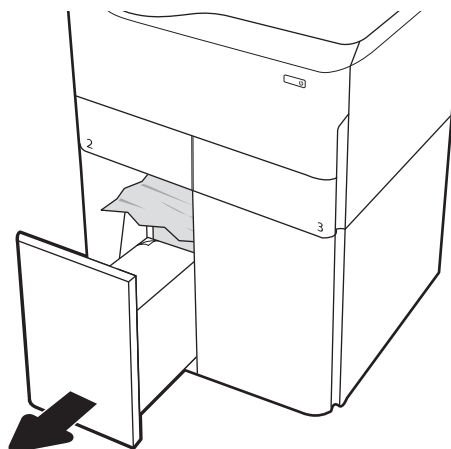
8. Close the right door and the lower-right door, and then close the tray.



## Clear paper jams in the 4,000-sheet high-capacity input tray

The following information describes how to clear a paper jam in the 4,000-sheet high-capacity tray. When a jam occurs, the control panel displays a message and an animation that assists in clearing the jam.

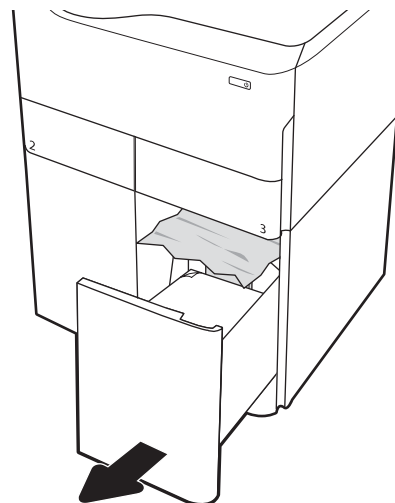
1. Open the left high-capacity input tray.



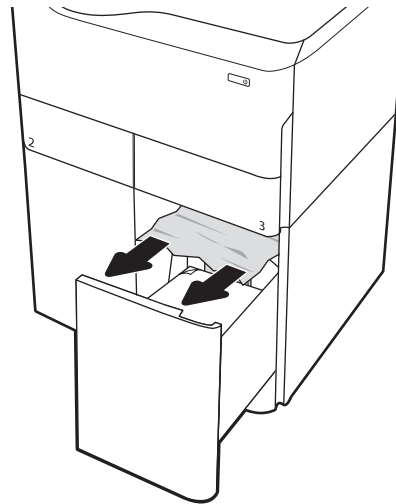
2. Remove the jammed paper from the feed rollers inside the printer. First pull the paper to the left, and then pull it forward to remove it.



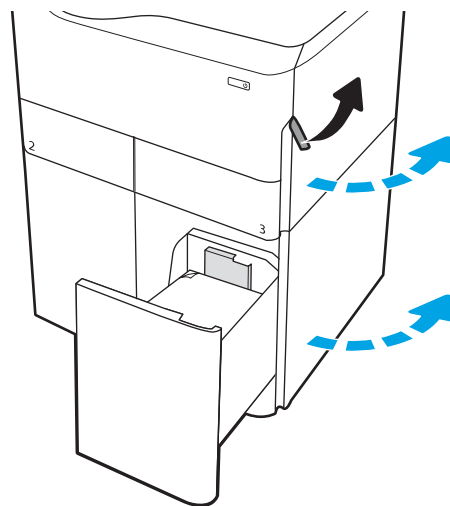
3. Close the left tray and open the right high-capacity input tray.



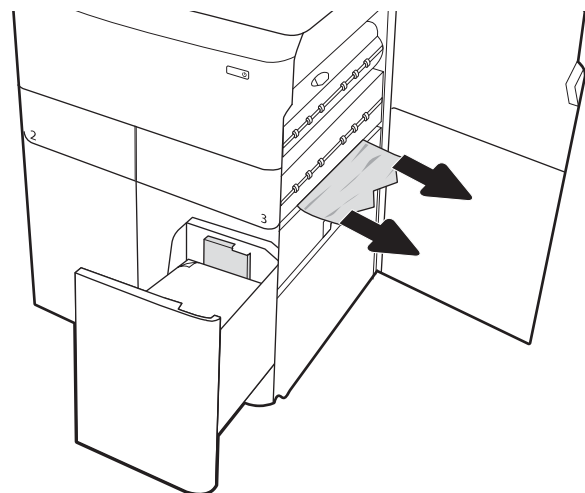
- 4. Remove the jammed paper from the feed rollers inside the printer. First pull the paper to the left, and then pull it forward to remove it.



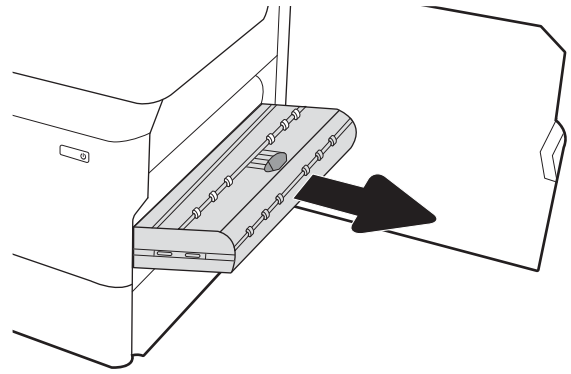
- 5. Open the right door and the lower right door.



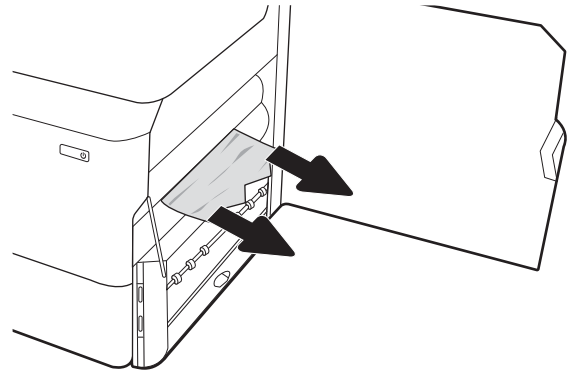
- 6. Remove any damaged sheets.



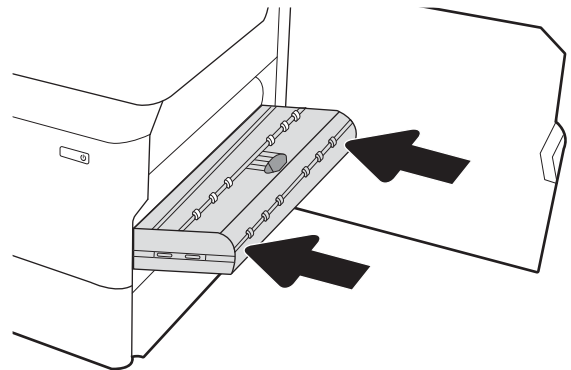
7. If no jammed paper is visible, remove the duplexer.



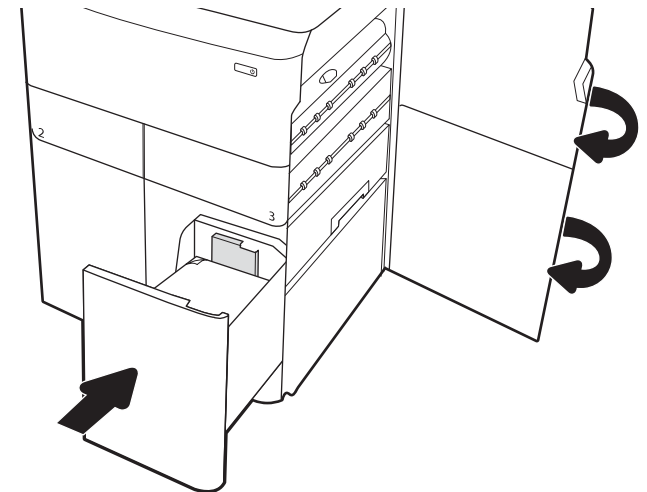
8. Pull any jammed paper straight out.




9. Reinstall the duplexer.



10. Close the right door and the lower right door, and then close the right tray.



## Solve performance problems

 **NOTE:** Tray 1, Tray 2 and Tray 3 are optimal for paper pickup when using special paper or media other than 20lb plain paper. For Tray 1, Tray 2 and Tray 3 the printer increases the number of attempts to pick up a page, which increases the reliability of successfully picking the page from the tray and decreases the possibility of a mis-pick jam.

HP recommends using Tray 1, Tray 2 or Tray 3 if the printer is experiencing excessive or reoccurring jams from trays other than Tray 1, Tray 2 and Tray 3, or for print jobs that require media other than 20lb plain paper.

- [Factors affecting print performance](#)
- [The printer does not print or it prints slowly](#)
- [The printer prints slowly](#)

## Factors affecting print performance

**Table 2-23** Solve performance problems

Problem	Cause	Solution
Pages print but are totally blank.	The document might contain blank pages.	Check the original document to see if content is present on all of the pages.
	The printer might be malfunctioning.	To check the printer, print a Printer Status Report page.
Pages print very slowly. <b>NOTE:</b> For more information, see <a href="#">The printer does not print or it prints slowly on page 255</a> .	The environment where the printer is installed does not meet HP recommendations.	Move the printer to another location.
	The printer is in an error state.	Check the event log for subsystem errors. Resolve the errors as necessary.
	Print quality settings are incorrect for the print job.	Check the default print quality settings.
	Heavier paper types can slow the print job.	Print on a different type of paper.
	Complex pages can print slowly.	Proper fusing might require a slower print speed to ensure the best print quality.
Pages did not print.	Large batches, narrow paper, and special paper such as gloss, transparency, cardstock, and HP Tough Paper can slow the print job.	Print in smaller batches, on a different type of paper, or on a different size of paper.
	The printer might not be pulling paper correctly.	Make sure paper is loaded in the tray correctly.
	The paper is jamming in the printer.	Clear the jam.



Table 2-23 Solve performance problems (continued)

Problem	Cause	Solution
	The USB cable might be defective or incorrectly connected.	<ul style="list-style-type: none"> <li>• Disconnect the USB cable at both ends and reconnect it.</li> <li>• Try printing a job that has printed in the past.</li> <li>• Try using a different USB cable.</li> </ul>
	Other devices are running on the host computer.	The printer might not share a USB port. If an external hard drive or network switchbox is connected to the same port as the printer, the other device might be interfering with the printer. To connect and use the printer, disconnect the other device or use two USB ports on the host computer.


## The printer does not print or it prints slowly

### The printer does not print

If the printer does not print at all, try the following solutions.

1. Make sure the printer is turned on and that the control panel indicates it is ready.
  - If the control panel does not indicate the printer is ready, turn the printer off and then on again.
  - If the control panel indicates the printer is ready, try sending the job again.
2. If the control panel indicates the printer has an error, resolve the error and then do the following:
 

Print a [Printer Status Report](#) page.

  - a. From the control panel [Home](#) screen, touch the blue bar (dashboard) located at the top of the display.
  - b. Touch the [Setup](#)  button at the top left of the display.
  - c. Scroll to, and then touch the [Reports](#) item.




**NOTE:** Make sure that paper is loaded in the default input tray (usually Tray 3).


- If the [Printer Status Report](#) page prints, the error is external to the printer (for example, a communication error).
3. Make sure the cables are all connected correctly. If the printer is connected to a network, check the following items:
    - Check the LED next to the network connection on the printer. If the network is active, the bottom light is solid amber, and the top LED is blinking green.
    - Make sure that a network cable and not a phone cord is used to connect to the network.
    - Make sure the network router, hub, or switch is turned on and that it is working correctly.
  4. Install HP software for this printer (go to [www.hp.com/support/pagewidecolor750](http://www.hp.com/support/pagewidecolor750), [www.hp.com/support/pagewidecolor772MFP](http://www.hp.com/support/pagewidecolor772MFP)). Using generic printer drivers can cause delays clearing jobs from the print queue.

5. From the list of printers on your computer, right-click the name of this printer, click **Properties**, and open the **Ports** tab.
  - If a network cable is used to connect to the network, make sure the printer name listed on the **Ports** tab matches the printer name on the Printer Status Report page.
  - If a USB cable is used, and the printer is connected to a wireless network, make sure the box is checked next to **Virtual printer port for USB**.
6. If a personal firewall system on the computer is used, it might be blocking communication with the printer. Try temporarily disabling the firewall to see if it is the source of the problem.
7. Check the control panel for an event log error message. Also check the event log for subsystem errors. Resolve the errors as necessary.

Open the internal event log

- a. From the **Home** screen, scroll to and then touch the **Support Tools** button.
- b. Touch the **Troubleshooting** button.
- c. Do one of the following:
  - **MFP large touchscreen**: Touch the **Reports** button.
  - **MFP/SFP small touchscreen**: Touch the **Setup**  button (located at the lower left corner of the display).
- d. Touch the **Event Logs** item to display the log.

---

 **NOTE:** Touch an event log entry to display more information about the error event. This information might be sufficient to resolve the error without referring to the control panel message document (CPMD).

---

8. If the host computer or the printer is connected to a wireless network, low signal quality or interference might be delaying print jobs.

## The printer prints slowly

### The printer prints slowly

If the printer prints, but it seems slow, try the following solutions.

1. Make sure the computer meets the minimum specifications for this printer. For a list of specifications, go to this Web site: [www.hp.com/support/pagewidecolor750](http://www.hp.com/support/pagewidecolor750), [www.hp.com/support/pagewidecolor772MFP](http://www.hp.com/support/pagewidecolor772MFP).
2. If the host computer or the printer is connected to a wireless network, low signal quality or interference might be delaying print jobs.

## Solve connectivity problems

- [Solve USB connection problems](#)
- [Solve wired network problems](#)

### Solve USB connection problems

If you have connected the printer directly to a computer, check the cable.

- Verify that the cable is connected to the computer and to the printer.
- Verify that the cable is no longer than 2 m (6.65 ft). Try using a shorter cable.
- Verify that the cable is working correctly by connecting it to another printer. Replace the cable if necessary.


### Solve wired network problems

#### Introduction

Check the following items to verify that the printer is communicating with the network. Before beginning, print a configuration page from the printer control panel and locate the printer IP address that is listed on this page.

- [Poor physical connection](#)
- [The computer is using the incorrect IP address for the printer](#)
- [The computer is unable to communicate with the printer](#)
- [The printer is using incorrect link speed and duplex settings for the network](#)
- [New software programs might be causing compatibility problems](#)
- [The computer or workstation might be set up incorrectly](#)
- [The printer is disabled, or other network settings are incorrect](#)

---

 **NOTE:** HP does not support peer-to-peer networking, as the feature is a function of Microsoft operating systems and not of the HP print drivers. For more information, go to Microsoft at [www.microsoft.com](http://www.microsoft.com).

---

#### Poor physical connection

1. Verify that the printer is attached to the correct network port using a cable of the correct length.
2. Verify that cable connections are secure.
3. Look at the network port connection on the back of the printer, and verify that the amber activity light and the green link-status light are lit.
4. If the problem continues, try a different cable or port on the hub.

#### The computer is using the incorrect IP address for the printer

1. Open the printer properties and click the **Ports** tab. Verify that the current IP address for the printer is selected. The printer IP address is listed on the printer configuration page.
2. If you installed the printer using the HP standard TCP/IP port, select the box labeled **Always print to this printer, even if its IP address changes**.

3. If you installed the printer using a Microsoft standard TCP/IP port, use the hostname instead of the IP address.
4. If the IP address is correct, delete the printer and then add it again.

### The computer is unable to communicate with the printer

1. Test network communication by pinging the network.
  - a. Open a command-line prompt on your computer.
    - For Windows, click **Start**, click **Run**, type `cmd`, and then press **Enter**.
    - For OS X, go to **Applications**, then **Utilities**, and open **Terminal**.
  - b. Type `ping` followed by the IP address for your printer.
  - c. If the window displays round-trip times, the network is working.
2. If the ping command failed, verify that the network hubs are on, and then verify that the network settings, the printer, and the computer are all configured for the same network.

### The printer is using incorrect link speed and duplex settings for the network

HP recommends leaving these settings in automatic mode (the default setting). If you change these settings, you must also change them for your network.

### New software programs might be causing compatibility problems

Verify that any new software programs are correctly installed and that they use the correct print driver.

### The computer or workstation might be set up incorrectly

1. Check the network drivers, print drivers, and the network redirection settings.
2. Verify that the operating system is configured correctly.

### The printer is disabled, or other network settings are incorrect

1. Review the configuration page to check the status of the network protocol. Enable it if necessary.
2. Reconfigure the network settings if necessary.

## Service mode functions

- [Print Quality Tools](#)
- [Maintenance](#)
- [System Diagnostics](#)
- [Report a Problem](#)
- [Print from USB](#)

The [Service](#) menu is PIN-protected for added security. Only authorized service people have access to the [Service](#) menu. When selecting [Service](#) from the list of menus, the printer prompts the user to enter an eight-digit personal identification number (PIN).



---

**NOTE:** The printer automatically exits the [Service](#) menu if no items are selected or changed.

---

### Access the service menu

1. From the Home screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Touch the [Service](#) button to display the [Sign In](#) screen.
3. Make sure that [Service Access Code](#) displays in the [Access Type](#) area. Touch the [Enter Access Code](#) item to display the on-screen keypad.
4. Type in the following service access personal identification number (PIN) for the printer:
  - 05075017
5. Touch the [Done](#) button located at the bottom of the keypad screen (just to the right of the number keys) to close the keypad screen.



---

**NOTE:** The printer must restart to enter the [Service](#) menu. This can take up to 2 minutes.

---

A [Reports](#) menu is available for all [Service](#) menus. At the bottom left of the service screen, touch [Reports](#) to access the following:

- [Advance Print Controls](#)
- [Print a Demo Page](#)
- [System Information](#)
- [Reports](#)

Use this item to view printhead details.

- [Event Logs](#)
- 

### Print Quality Tools

Access the [Service](#) menu (see [Access the service menu on page 259](#)), and then touch [Print Quality Tools](#) to access the following submenus.



---

**NOTE:** Some of these items use paper. Make sure paper is loaded in the default input source tray (usually Tray 3).

---

Table 2-24 Print Quality Tools menu

First level	Second level	Third level	Description
Step 1: Print Quality Pre-Check	Print a Demo Page		Use this item to produce a page that can serve as a print-quality base line page.
	Stabilize the Printhead		This item checks the printhead nozzles by ejecting ink through them, and then the printhead wiper wipes the printhead.
	Printhead Assembly Report		Provides information about the printhead. For example, the serial number, nozzle defects, last printhead calibration, etc.
	Printhead Status		Use this item to display information about the health of the printhead.
Step 2: Drop Detect Status Check	Run Drop Detect		Use this item to perform an A4 color drop detect calibration.  This check takes about 1 minute. The date of the last calibration also displays.
	Print a Streak Test Page		Use this page to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
	Print a Nozzle Health Page		The printhead nozzle health page is a useful page to determine the health of the print bar.  There are blocks of lines on the page and each block represents a printhead die, and each line corresponds to a nozzle.  Check whether a line is missing or being misdirected to evaluate the health of the print bar.  See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
Step 3: Nozzle Health Evaluation	Clean the Printhead		Use this item to solve problems that the printer cannot automatically resolve. For example, streaks or incorrect or missing colors. This process takes about 3 to 4 minutes.  <b>NOTE:</b> A print quality report page prints after the printhead is cleaned.

Table 2-24 Print Quality Tools menu (continued)

First level	Second level	Third level	Description
	Print a Streak Test Page		Use this page to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
	Print a Nozzle Health Page		<p>The printhead nozzle health page is a useful page to determine the health of the print bar.</p> <p>There are blocks of lines on the page and each block represents a printhead die, and each line corresponds to a nozzle.</p> <p>Check whether a line is missing or being misdirected to evaluate the health of the print bar.</p> <p>See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.</p>
Step 4: Printhead Alignment Calibration	Align the Printhead		This process takes about 1 minute. The date of the last alignment also displays.
	Print an All Colors Page (Letter)		Use this page to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
Step 5: Color Density Calibration	Calibrate the Color Density		<p>This process takes about 1 minute. The date of the last alignment also displays.</p> <p><b>NOTE:</b> When the processes completes, a page that was used internally is ejected. Discard this page.</p>
	Print an All Colors Page (Letter)		Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
	Print a Demo Page		Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.

Table 2-24 Print Quality Tools menu (continued)

First level	Second level	Third level	Description
	Print a Print Quality Report		Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
Print Quality Diagnostics Page	Print an All Colors Page (Letter)		Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
	Print a Print Test Quality Page (Letter)		Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
	Print a Dimensional PQ Page (Letter)		Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
	Print All Diagnostic Pages (Letter)		Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.



Table 2-24 Print Quality Tools menu (continued)

First level	Second level	Third level	Description	
<p><b>Advanced Print Quality Tools</b></p> <p><b>TIP:</b> Many items in the previous guided work flow section are duplicated here. Use the <a href="#">Advanced Print Quality Tools</a> to quickly access a test or calibration procedure rather than stepping through a guided work flow process.</p>	<p>Special Media Calibration</p>	<p>Print Quality Calibration</p>	<p>Use this item to ensure the best possible print quality on both plain and special types of paper.</p> <p>Select from a displayed list of calibration types (for example, <a href="#">Calibrate the Color Density</a>).</p> <p>Perform unique calibrations for the following paper types:</p> <ul style="list-style-type: none"> <li>• Plain paper</li> <li>• HP photo paper</li> <li>• HP glossy brochure paper</li> <li>• HP matte brochure paper</li> </ul> <p><b>NOTE:</b> These calibration procedures require A4- or letter-size paper. After calibration, print on any supported size paper from any supported tray.</p>	
		<p>Advanced Cleaning</p>	<p>Print a Streak (Yellow) Test Page</p> <p><b>NOTE:</b> This process takes about 30 minutes to complete and uses a minimal amount of ink.</p> <p>For a print-quality problems, use the <a href="#">Print a Streak (Yellow) Test Page</a> item as the last effort to resolve the problem before replacing the printhead assembly.</p>	<p>Use this page to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.</p> <p><b>NOTE:</b> See <a href="#">Yellow Streaks Recovery</a> below.</p>
			<p>Clean the Printhead (Extensive)</p>	<p>Use this item to perform a printhead deep cleaning.</p>
			<p>Yellow Streaks Recovery</p>	<p>Only perform this procedure if magenta or cyan line appear in the red or green block on a yellow streaks test page.</p> <p><b>NOTE:</b> This process takes about 30 minutes to complete and uses approximately 5% of the printhead wiper.</p> <p>This process uses paper. Make sure unused plain white A4- or letter-size paper is loaded and then select the <a href="#">Continue</a> button.</p>
	<p>Subsystem Calibration</p>	<p>Calibrate the Drop Detect Subsystem</p> <p><b>NOTE:</b> Use this item to enable drop detect calibration if it was disabled for any/some reason.</p>	<p>Use this item to perform an A4 color drop detect calibration.</p> <p>This check takes about 1 minute. The date of the last calibration also displays.</p>	

Table 2-24 Print Quality Tools menu (continued)

First level	Second level	Third level	Description
		Calibrate the Image Sensor	Use this item to perform an image scanner calibration.  This check takes about 1 minute. The date of the last calibration also displays.
	Image Registration	Calibrate the Print Margin	This item sets how the image scanner sensor reads the edge of the page.
		Calibrate the Deskew Subsystem	This item calibrates the deskew reflective edge detection interrupter (REDI) sensors.
		Print a Dimensional PQ Page (Letter)	Compare this page to previously printed pages to identify print-quality issues. See the print quality section of the printer <i>Troubleshooting Manual</i> for solutions to print-quality problems.
	Color Mixing Recovery pages	Print a Yellow Page	If other colors than the selected page appear on the page, keep printing this page until they disappear.
		Print a Magenta Page	If other colors than the selected page appear on the page, keep printing this page until they disappear.
		Print a Cyan Page	If other colors than the selected page appear on the page, keep printing this page until they disappear.
		Print a Black Page	If other colors than the selected page appear on the page, keep printing this page until they disappear.
	Restore Factory Defaults	Reset the Nozzle Health History	Touch <b>Reset</b> to zero the nozzle health firmware counter.  <b>NOTE:</b> This also initiates a drop detect subsystem calibration.

Table 2-24 Print Quality Tools menu (continued)

First level	Second level	Third level	Description
		Restore Printhead Alignment	Touch <b>Reset</b> to restore the factory printhead alignment calibration settings.  <b>NOTE:</b> After restoring factory print head alignment, print a <b>Print Quality Report</b> . If the print quality problem persist, perform the printhead alignment calibration again.
		Restore Color Density	Touch <b>Reset</b> to restore the factory color density calibration settings.  <b>NOTE:</b> After restoring factory print head alignment, print a <b>Print Quality Report</b> . If the print quality problem persist, perform the color density calibration again.

## Maintenance

Access the **Service** menu (see [Access the service menu on page 259](#)), and then touch **Maintenance** to access the following submenus.

Touch the **Next** button to navigate the submenus, and then touch the **Done** button to return to the service **Maintenance** menu.



**NOTE:** The **Maintenance** submenu screen also displays the percentage of remaining life of the listed assemblies.

Table 2-25 Maintenance menu

First level	Second level	Third level	Description
Service Fluid Container	Life Remaining		This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.  <b>NOTE:</b> Not selectable
	Part Information		This item displays the assembly part number (includes a bar code for part ordering).
	Replace the Service Fluid Container	OK	This item describes the amount of time required to replace the assembly. Touch <b>OK</b> to return to the <b>Service Fluid Container</b> maintenance menu.

Table 2-25 Maintenance menu (continued)

First level	Second level	Third level	Description	
Printhead Wiper	Life Remaining		This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.  <b>NOTE:</b> Not selectable	
	Part Information		This item displays the assembly part number (includes a bar code for part ordering).	
	Replace the Printhead Wiper		This item describes the amount of time required to replace the assembly. Touch <b>Next</b> to begin the procedure.  <b>CAUTION:</b> To avoid printer damage, have a replacement printhead wiper ready before proceeding and complete this task within 25 minutes.	
	Settings	Reset the Remaining Life Counter	Use this item to reset the printhead wiper counter. Touch <b>OK</b> when prompted to reset the counter. Touch <b>Cancel</b> to exit the menu without resetting the counter.	
Tray <X> Rollers  <b>NOTE:</b> Depending on printer configuration, the menu might list up to six tray roller items.  <b>TIP:</b> Tray 1/2/3 will always be displayed.	Life Remaining		This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.  <b>NOTE:</b> Not selectable	
	Part Information		This item displays the assembly part number (includes a bar code for part ordering).	
	Replace the Tray Rollers	OK	This item describes the amount of time required to replace the assembly. Touch <b>OK</b> to return to the <b>Tray &lt;X&gt; Rollers</b> maintenance menu.	
	Settings	Reset the Remaining life Counter		Use this item to reset the remaining life counter.
		Set the Maximum Life Limit		Use this item to set the maximum life limit (cycles) for the assembly.
		Restore the Default Maximum	Use this item to restore the factory set maximum life (cycles) for the assembly.	
Document Feeder Rollers  <b>NOTE:</b> MFP models only.	Life Remaining		This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.  <b>NOTE:</b> Not selectable	

Table 2-25 Maintenance menu (continued)

First level	Second level	Third level	Description
	Part Information		This item displays the assembly part number (includes a bar code for part ordering).
	Replace the Document Feeder Rollers	OK	This item describes the amount of time required to replace the assembly. Touch <b>OK</b> to return to the <b>Tray &lt;X&gt; Rollers</b> maintenance menu.
	Settings	Reset the Remaining life Counter	Use this item to reset the remaining life counter.
		Set the Maximum Life Limit	Use this item to set the maximum life limit (cycles) for the assembly.
		Restore the Default Maximum	Use this item to restore the factory set maximum life (cycles) for the assembly.
Tray <X> Separation Assembly	Life Remaining		This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.  <b>NOTE:</b> Not selectable
	Replace the Tray Separation Assembly	OK	This item describes the amount of time required to replace the assembly. Touch <b>Next</b> to begin the procedure.
	Settings	Reset the Remaining life Counter	Use this item to reset the remaining life counter.
		Set the Maximum Life Limit	Use this item to set the maximum life limit (cycles) for the assembly.
		Restore the Default Maximum	Use this item to restore the factory set maximum life (cycles) for the assembly.
Printhead Assembly	Setup the Printhead Assembly		Use this item to validate a replaced printhead assembly.  <b>NOTE:</b> When prompted, touch continue to initialize the printhead and pair it with the printer.
	Settings	Reset the Remaining life Counter	Use this item to view the remaining life counter for the assembly.
		Set the Maximum Life Limit	Use this item to set the maximum life limit (cycles) for the assembly.
		Restore the Default Maximum	Use this item to restore the factory set maximum life (cycles) for the assembly.

Table 2-25 Maintenance menu (continued)

First level	Second level	Third level	Description
Document Feeder Assembly	Life Remaining		This item shows the percentage of remaining life, number of used cycles, and the total cycles count for the assembly.  <b>NOTE:</b> Not selectable
			Setup the Document Feeder Assembly Use this item to validate a replaced document feeder assembly.
		Settings	Reset the Remaining life Counter Use this item to reset the remaining life counter.
			Set the Maximum Life Limit Use this item to set the maximum life limit (cycles) for the assembly.
		Restore the Default Maximum Use this item to restore the factory set maximum life (cycles) for the assembly.	
Scanner Assembly  <b>NOTE:</b> MFP models only.	Replace the Scanner Assembly		This item describes the amount of time required to replace the assembly. Touch <b>OK</b> to return to the <a href="#">Scanner Assembly</a> maintenance menu.
		Settings	Reset the Remaining life Counter Use this item to reset the remaining life counter.
			Set the Maximum Life Limit Use this item to set the maximum life limit (cycles) for the assembly.
			Restore the Default Maximum Use this item to restore the factory set maximum life (cycles) for the assembly.
Restore Factory Defaults	Restore Settings  <b>NOTE:</b> The list of restorable settings is model dependant.	Copy	Touch the desired item to restore, and then when prompted, touch <b>Restore</b> to reset the setting(s).
		Scan	
		Fax	
		Photo	
		Network	

Table 2-25 Maintenance menu (continued)

First level	Second level	Third level	Description
	Restore Factory Defaults		<p>When prompted, touch <a href="#">Continue</a> to reset all printer settings to the original factory settings.</p> <p><b>CAUTION:</b> This reset includes the administrator Embedded Web Server (EWS) password, address book entries for scan, phone book, and fax. Web Services account information is removed, and must be setup again on this printer.</p>
	Cold Reset		<p>This item will delete all configured settings and restore them to original factory settings.</p> <p><b>CAUTION:</b> This includes the administrator password for the embedded web server (EWS), network configurations, stored print or fax jobs, selected country/region, address book entries for scan, and phone book entries for fax. Also, JetAdvantage licenses and OXP account information will be removed.</p> <p>Select the <a href="#">Continue</a> button to perform the <a href="#">Cold Reset</a> operation.</p>

## System Diagnostics

Access the [Service](#) menu (see [Access the service menu on page 259](#)), and then touch [System diagnostics](#) to access the following submenus.

Touch the [Done](#) button to return to the previous service [System Diagnostics](#) menu.


 **IMPORTANT:** Most test display a control-panel message if the test fails. See the printer control panel message document (CPMD) to decode the error message and find solutions to the problem. The CPMD for this printer is available to HP service personnel on the HP Web-Based Interactive Search Engine (WISE) website (search by p and search by the printer name). For more information about accessing WISE, see the printer troubleshooting manual.

Table 2-26 System Diagnostics menu

First level	Second level	Third level	Fourth level	Fifth level	Description
Scanning System	Document Feeder	Status	Document feeder Scan Interface	Document Feeder Interface Cable	This item indicates if the cable is connected or disconnected.

Table 2-26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
		Controlled Tests	Continuous Pick Test		Follow the prompts on the control-panel display to perform a document feeder paper pick operation.
			ADF Motor Distance Adjustment	Choose the adjustment  <b>NOTE:</b> Select the <a href="#">Read Current</a> item to display the current setting.	Select the desired adjustment (from a displayed list), and then touch the <a href="#">Start Test</a> button.
		Components Test	Sensors		This item displays the document feeder sensor status. If possible, toggle a sensor to change its status in the list.
	Scanner Glass	Calibrations	Length Sensor Calibration		Select this item to calibrate the sensor.
		Component Tests	Motors		Select this item to test the motor.  Select the <a href="#">Start Test</a> button to test the motor.
			Sensors		This item displays the scanner sensor status. If possible, toggle a sensor to change its status in the list.
			Last Width Measurement		Select this tem to display the <a href="#">Last Width Measurement</a> .



Table 2-26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
Printing System	Printhead Assembly	Controlled Tests	Choose from the following list:		Touch <a href="#">Stop Test</a> to stop the test.
			<ul style="list-style-type: none"> <li>• <a href="#">Move the Printhead Up</a></li> <li>• <a href="#">Home Print Zone Motors</a></li> <li>• <a href="#">Printhead Lift System Test</a></li> <li>• <a href="#">Cycle the Valve Vent</a></li> <li>• <a href="#">Cycle the Air Pump</a></li> <li>• <a href="#">Cycle the Fluid Pump</a></li> </ul>		<b>NOTE:</b> Look at the control-panel display for component actuation information, descriptions, or error codes. For error codes, see the printer control panel message document (CPMD).
			Calibrations	Cartridge Prime	
			Set Startup to Completed		<b>NOTE:</b> Only run this routine if the printer continues to display Initializing on the control panel—even after the printhead initialization and startup have completed.
	Drop Detect Subsystem	Status	Drop Detect Status		Use this item to view the following: <ul style="list-style-type: none"> <li>• Acceptable PWM range</li> <li>• Sensor PWM percentages and status</li> <li>• Number of pages printed since the last calibration</li> <li>• Printer Total Page Count</li> </ul>

Table 2-26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
		Controlled Tests	Choose from the following: <ul style="list-style-type: none"> <li>Home the Print Zone Motors</li> <li>Drop Detect Carriage Test</li> </ul>		Touch <a href="#">Stop Test</a> to stop the test.  <b>NOTE:</b> Look at the control-panel display for component actuation information, descriptions, or error codes. For error codes, see the printer control panel message document (CPMD).
	Image Sensor Subsystem	Controlled Tests	Choose from the following tests: <ul style="list-style-type: none"> <li>Image Sensor Test (moves the image sensor)</li> <li>Back Plate Lift test (rotates the duplex exit rear motor)</li> </ul>		Touch <a href="#">Stop Test</a> to stop the test.  <b>NOTE:</b> Look at the control-panel display for component actuation information, descriptions, or error codes (for error codes, see the printer CPMD).
	Deskew Subsystem	Status	Display Skew Factory Calibration Values		Use this item to view the factory set skew factors.
		Component Tests	Motors	Select the following: <ul style="list-style-type: none"> <li>Choose from a list of motors.</li> <li>Chose a direction for motor testing.</li> </ul>	Touch <a href="#">Start Test</a> or <a href="#">Stop Test</a> to start/stop the test.
			Sensors		Touch <a href="#">Stop Test</a> to stop the test.  <b>NOTE:</b> Look at the control-panel display for component actuation information, descriptions, or error codes (for error codes, see the printer CPMD).
		Maintenance and Settings	Reset Skew Correction Factors	<a href="#">Choose the Paper Size</a>	Select from a list of options, and then touch <a href="#">Start Test</a> to begin the process.

Table 2-26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
			Skew Auto Turning	Choose the Setting	Select <b>ON</b> or <b>OFF</b> to enable or disable <b>Skew Auto Turning</b> .
	Airflow Subsystems	Status	Airflow Status		<p>Touch <b>Stop Test</b> to stop the test.</p> <p>View the following information:</p> <ul style="list-style-type: none"> <li>• Line Voltage Configuration</li> <li>• Detected Line Voltage</li> <li>• SAG Events</li> <li>• Surge Events</li> <li>• Too Few Samples Events</li> <li>• Other Events</li> </ul>
		Controlled Tests	Choose from the tests:		<p>Touch <b>Stop Test</b> to stop the test.</p> <p><b>NOTE:</b> For the <b>Airflow Assembly Fan</b> test, select a desired fan speed.</p> <ul style="list-style-type: none"> <li>• Airflow Assembly Test</li> <li>• Airflow Assembly Fan</li> <li>• Cycle the Exhaust Fan</li> </ul>
	Printhead Wiper Subsystem	Status	Printhead Wiper Status		<p>View the following information:</p> <ul style="list-style-type: none"> <li>• Web Remaining</li> <li>• Web Advances</li> <li>• Web Advances at Last Check</li> <li>• Web Check Counter</li> </ul>

Table 2-26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
		Controlled Tests	Choose from the tests:		Touch <a href="#">Stop Test</a> to stop the test.
			<ul style="list-style-type: none"> <li>• <a href="#">Home the Print Zone Motors</a></li> <li>• <a href="#">Uncap and Cap the Printhead</a></li> <li>• <a href="#">Web Advance Check</a></li> </ul>		
	<a href="#">Service Fluid Container Subsystem</a>	Status	<a href="#">Service Fluid Container Status</a>		View the following information: <ul style="list-style-type: none"> <li>• Remaining Life</li> <li>• Kit Total Pages</li> <li>• Installation Date</li> <li>• Installation Page Count</li> <li>• Startup Performed</li> <li>• Insertion Counter</li> <li>• EEPROM Version</li> <li>• Original HP Ink</li> <li>• Number of Kits Replaced</li> </ul>
		Controlled Tests	<a href="#">Smear Test</a>		A page feeds through the paper path to check for smears.
			<a href="#">Waste Transfer Roller Test</a>		<b>NOTE:</b> Look at the control-panel display for component actuation information, descriptions, or error codes (for error codes, see the printer CPMD).

Table 2-26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
Paper Path	Systems Tests	Paper Path Test	Select the following options:		Touch <b>Start Test</b> to start the test.
			<ul style="list-style-type: none"> <li>Paper Tray</li> <li>Output Bin</li> <li>Two-Sided</li> <li>Copies</li> </ul>		A page feeds through the paper path and paper path sensor information appears on the control-panel display.
		Tray (X)	Status	Paper Size	<p>The current paper size for the selected tray appears on the control-panel display.</p> <p><b>NOTE:</b> Slide the page guides to known page adjustments to view the page size.</p>
			Calibrations	Calibrate the Paper Width Sensor	<p>Use this item to calibrate the minimum and maximum sensors for paper in Tray 1.</p> <p><b>NOTE:</b> Tray 1 only.</p>
			Controlled Tests	Tray Lift Test	<p>Follow the prompts on the control-panel display to test the selected tray lift mechanism. Information about the tray and tray sensors appears on the control-panel display.</p> <p><b>NOTE:</b> Tray 2 - X only.</p>
			Component Tests		<p>Touch <b>Start Test</b> to start the test.</p> <p>Select from the following tests:</p> <ul style="list-style-type: none"> <li>Tray (X) Motors</li> <li>Tray (X) Sensors</li> </ul> <p><b>NOTE:</b> For some motor tests, choose the desired motor and rotation direction for the test.</p> <p>For sensor tests, if possible, toggle a sensor to change its status in the list.</p>

Table 2–26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
		Subsystems	Media Sensing Subsystem	<p>Select from the following tests:</p> <p><b>Calibrations</b></p> <ul style="list-style-type: none"> <li>Calibrate the Media Sensors</li> <li>Calibrate the Standard Output Bin Sensors</li> </ul> <p><b>Component Tests</b></p> <ul style="list-style-type: none"> <li>Deskew Zone</li> <li>Print Zone</li> <li>Duplex Zone</li> <li>Left Vertical Zone</li> <li>Right Vertical Zone</li> <li>Ejection Zone</li> <li>Standard Bin</li> </ul>	<p>For <a href="#">Calibrate the Media Sensors</a>, touch the <a href="#">Continue</a> button to calibrate the sensors.</p> <p>For <a href="#">Calibrate the Standard Output Bin Sensors</a>, follow the prompts on the control-panel display, and then touch the <a href="#">Continue</a> button to calibrate the sensors.</p> <p>For <a href="#">Component Tests</a>, look at the control-panel display for component actuation information, descriptions, or error codes (for error codes, see the printer CPMD).</p>
Door Sensors	Main Door Sensors	Cartridge Door Sensor			This item displays the sensor status. If possible, toggle a sensor (for example, open a listed door) to change its status in the list.
		Left Door Sensor			
		Left Door Safety Sensor			
		Right Door Sensor			
		Accessory Tray Door Sensors			This item displays the sensor status. If possible, toggle a sensor (for example, open a listed door) to change its status in the list.
Connectivity	Status	Print a Connectivity Status Report			Print the desired status report.
		Print a Wireless Network Test Report			
		Print a Wireless Metrics Report			
	Maintenance and Settings	Ethernet Capability		Select <b>ON</b> or <b>OFF</b> to enable or disable <a href="#">Ethernet Capability</a> .	

Table 2-26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
Fax System	Status	Fax Reports	Choose from the following reports:		Print the desired status report.
			<ul style="list-style-type: none"> <li>Print the Fax Parameter Report</li> <li>Print the Most Recent Fax Trace Report</li> <li>Print the Last Error Fax Trace Report</li> <li>Print the Fax Status Report</li> <li>Print the Most Recent Fax Detail</li> <li>Print the Last Error Fax Detail</li> </ul>		
	Maintenance and Settings	Fax Parameters	Non-country Parameters	Get Non-country Parameters	Get information about the following Fax parameters: <ul style="list-style-type: none"> <li>Max DIS Size</li> <li>Fax Log Diagnostics</li> <li>Color Fax Support</li> <li>On-Hook Threshold Voltage</li> </ul>
				Max DIS Size	This item displays the current Max DIS Size setting.
				Fax Log Diagnostics	Toggle Fax Log Diagnostics on or off.
				Color Fax Support	Toggle Color Fax Support on or off.
				On-Hook Threshold Voltage	Use this item to set the On-Hook Threshold Voltage.
			Country/Region Parameters	Get Country/Region Parameters	This item displays the current Phone line type parameter.

Table 2-26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
				Phone line type	This item displays the current <a href="#">Phone line type</a> parameter.
			Ring Detect	<p>Choose from the following parameters:</p> <ul style="list-style-type: none"> <li>• <a href="#">Get Ring Detect Parameters</a></li> <li>• <a href="#">Low Frequency</a></li> <li>• <a href="#">High Frequency</a></li> <li>• <a href="#">Minimum On Time</a></li> <li>• <a href="#">Maximum On Time</a></li> <li>• <a href="#">Minimum Off Time</a></li> <li>• <a href="#">Maximum Off Time</a></li> <li>• <a href="#">Minimum Burst On</a></li> <li>• <a href="#">Maximum Burst Off</a></li> </ul>	<p><a href="#">Get Ring Detect Parameters</a> displays a list of all ring detect parameters.</p> <p>Use the printer virtual keypad to set/change all other ring detect parameters.</p>
			Eavesdrop Detect	<p>Choose from the following parameters:</p> <ul style="list-style-type: none"> <li>• <a href="#">Get Eavesdrop Params</a></li> <li>• <a href="#">Eavesdrop Time</a></li> <li>• <a href="#">Minimum CNG Count</a></li> <li>• <a href="#">CNG Threshold</a></li> <li>• <a href="#">Side Tone Frequency</a></li> <li>• <a href="#">Silence Detect</a></li> <li>• <a href="#">Minimum Silence</a></li> <li>• <a href="#">DTMF Code</a></li> </ul>	<p><a href="#">Get Eavesdrop Params</a> displays a list of all ring detect parameters.</p> <p>Use the printer virtual keypad to set/change all other eavsdrop parameters.</p>
			Connection Establishment	<a href="#">Get Connection Params</a>	This item displays the current <a href="#">Blind Dial Wait</a> parameter.



Table 2-26 System Diagnostics menu (continued)

First level	Second level	Third level	Fourth level	Fifth level	Description
				Blind Dial Wait	Use the printer virtual keypad to set/change the <a href="#">Blind Dial Wait</a> parameter.
			Dial Tone Detect	Get Dial Tone Detect Params	This item displays the current <a href="#">DTMF Duration</a> parameter.
				DTMF Duration	Use the printer virtual keypad to set/change the <a href="#">DTMF Duration</a> parameter.
			R/W Parameters	Get R/Wt Parameters	This item displays the current <a href="#">Parameter Number</a> parameter.
				Set R/W Parameters	Use the printer virtual keypad to set/change the <a href="#">Parameter Number</a> and <a href="#">Parameter Value</a> parameters.
			Reset the Fax Parameter	Reset the Fax Parameter	Touch the <b>OK</b> button to reset all fax parameters.
		Fax Settings	Select from the following tests:		Information about the test appears on the control-panel display
			<ul style="list-style-type: none"> <li>• Ring Monitor Test</li> <li>• CNG Monitor Test</li> <li>• Signal Monitor Test</li> </ul>		
			Speaker Mode	Get Speaker Mode	This item displays the current <a href="#">Speaker Mode</a> parameter.
				Speaker Mode	Set the speaker mode to <a href="#">Normal</a> or <a href="#">Diagnostic</a> mode.

## Report a Problem


Access the [Service](#) menu (see [Access the service menu on page 259](#)), and then touch [Report a Problem](#) to access the following submenu.

Table 2-27 Report a Problem menu

First level	Description
Generate Debug Data	Use these items to generate/retrieve printer debug data.
Retrieve Data	

## Print from USB

Access the [Service](#) menu (see [Access the service menu on page 259](#)), and then touch [Print from USB](#) to access the following submenus.

 **NOTE:** The [Print from USB](#) menu only appears if a USB flash drive is connected (to the walk-up USB port next to the control-panel display) to the printer when the [Service](#) menu is accessed.


 **TIP:** Use the [Print from USB](#) item to send a known valid print job to the printer without exiting the service menu to help diagnose printer problems.

Table 2-28 Print from USB<sup>1</sup>

First level	Second level	Description
HPSCANS	<b>NOTE:</b> The available list of print options varies depending on the file type selected.	After selecting a file to print, do the following:
<b>NOTE:</b> Select from a list of files to print.	<a href="#">2-Sided</a>	<ul style="list-style-type: none"> <li>• Touch <a href="#">Copies</a> to change the number of copies to print (a virtual keyboard appears on the control-panel display).</li> </ul>
The list only contains supported file types to print.	<a href="#">Collate</a>	<ul style="list-style-type: none"> <li>• Touch <a href="#">Black</a> to print a mono tone version of the selected file.</li> </ul>
	<a href="#">Quality</a>	<ul style="list-style-type: none"> <li>• Touch <a href="#">Color</a> to print a color version of the selected file.</li> </ul>
	<a href="#">Tray Selection</a>	
	<a href="#">Save Current Settings</a>	


<sup>1</sup> The printer does not support encrypted USB flash drives.

# Firmware upgrades


To download the most recent firmware upgrade for the printer, go to:

- In the US, go to [www.hp.com/support/pagewidecolor750](http://www.hp.com/support/pagewidecolor750), [www.hp.com/support/pagewidecolor772MFP](http://www.hp.com/support/pagewidecolor772MFP).
  - a. Select **Get drivers, Software, and Firmware**, and then select the appropriate product by name.


---

 **NOTE:** More than one printer model might be listed. Make sure to select the correct model so that the upgraded firmware supports all of the printer functions.
  - b. Select the driver language and operating system.
  - c. Locate the firmware download, and then select **Download**.
- Outside the U.S., go to [www.hp.com/support](http://www.hp.com/support).
  - a. Select your country/region.
  - b. Select **Drivers & Downloads**.
  - c. Enter the product name in the **Find my product** dialogue box, and then select **Go**.

---

 **TIP:** Click on the **How do I find my product name/number?** link to see a short video on identifying the printer name and number.
  - d. Select the appropriate product by name.

---

 **NOTE:** More than one printer model might be listed. Make sure to select the correct model so that the upgraded firmware supports all of the printer functions.
  - e. Select the driver language and operating system.
  - f. Locate the firmware download, and then select **Download**.
- [Determine the installed revision of firmware](#)
- [Perform a firmware upgrade](#)

## Determine the installed revision of firmware

---


 **NOTE:** Print a configuration page to determine the installed revision of firmware.

---

### Determine the installed revision of firmware (large touchscreen)

1. From the **Home** screen on the printer control panel, scroll to and touch the **Support Tools** button.
2. Open the following menus:
  - **Maintenance**
  - **Reports**
3. Touch the **System Information** item.
4. Find the firmware version in the list that appears on the control-panel display. Touch **Done** to return to the **Troubleshooting** sub menu, or use the **Back** button or **Home** button to return to the main menu.

## Determine the installed revision of firmware (small touchscreen)

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the following menus:
  - [Maintenance](#)
3. Touch the [Setup](#)  button (located at the lower left corner of the display).
4. Touch the [System Information](#) item.
5. Find the firmware version in the list that appears on the control-panel display. Touch [Done](#) to return to the [Troubleshooting](#) sub menu, or use the [Back](#) button or [Home](#) button to return to the main menu.

## Perform a firmware upgrade

The printer firmware upgrades use either the USB port or HP Embedded Web Server (EWS) method. Following are the types of firmware upgrade files available:

- **EXE file:** When this file is opened, the user selects the printer to be upgraded, and the program installs the upgrade firmware on that printer.
- **FUL2 file:** This file is copied to the root directory of a USB flash drive. The flash drive is inserted into the USB port on the printer, which automatically detects the upgrade firmware. The printer prompts the user to upgrade the firmware.



---

**NOTE:** USB flash drive firmware upgrades are enabled or disabled by using the HP EWS.

---

## Firmware upgrade using a USB flash drive



---

**IMPORTANT:** Always print a Printer Status Report page and verify that the upgrade firmware version was installed.



**NOTE:** USB flash drives that are not using a FAT32 format, or do not have a CD formatted partition, might not be recognized by the printer. If the printer does not recognize a USB flash drive, try using a different USB flash drive.

If the firmware version on the USB flash drive is the same as the version already installed on the printer, nothing happens when a USB flash drive firmware upgrade is attempted.

---

The USB flash drive firmware upgrade process takes 5 to 7 minutes to complete.

1. Copy the .FUL2 file to a portable USB flash drive.



---

**TIP:** There should not be more than one .FUL2 file on the storage device.


---

2. Turn the printer on, and then wait until it initializes (the Home screen displays on the control panel).
3. Insert the USB flash drive in the USB port on the printer.
4. The [Memory Device Options](#) screen appears on the control-panel display.
5. Touch [Update Now](#).
6. The printer automatically downloads the firmware file from the USB flash drive, and the following process initiates:

- A rotating circle appears on the control-panel display.
  - The printer start up screen appears on the control-panel display.
  - A rotating circle and seconds remaining countdown appears on the control-panel display.
  - A blue HP logo and grey progress bar appears on the control-panel display.
  - A second blue HP logo and grey progress bar appears on the control-panel display.
  - A flashing blue HP logo and blue bar appears on the control-panel display.
  - The printer restarts with a normal initialization control-panel display
7. When the upgrade is complete, the printer initializes and the Home screen appears on the control-panel display. Use the control-panel menus, or print a Printer Status Report page to verify that the upgrade firmware version is installed.

If the firmware upgrade fails, see [Troubleshooting a firmware upgrade on page 284](#).

## Firmware upgrade using the HP Embedded Web Server

 **NOTE:** The printer should be initialized (the Home screen displays on the control panel).

The firmware update might take 10 minutes or longer based on the input/output (I/O) transfer rates and the time it takes for the printer to reinitialize.

1. Open an Internet browser window.
2. Enter the printer IP address in the URL line.
3. Open the following menus:
  - Tools
  - Printer Updates
  - Firmware Updates
4. When the **Redirecting to Secure Page** dialog box appears, select **OK** to proceed.

 **NOTE:** The web browser might display a message about the security certificate or connection being invalid. If so, follow the instructions to accept the certificate or connection.

5. The current version of firmware installed is displayed on the screen. To check for available firmware updates, click **Check Now**. If an update is available, click **Apply** to install it.

 **NOTE:** Choose form the following **Printer Update Options**:


- Install updates automatically (recommended)
  - Alert me when updates are available
  - Do not check for updates
6. When the firmware upgrade is complete, print a Printer Status Report page and verify that the latest firmware version has been installed.

If the firmware upgrade fails, see [Troubleshooting a firmware upgrade on page 284](#).

## Troubleshooting a firmware upgrade

If a firmware upgrade fails, check the following:

---

 **NOTE:** If the firmware upgrade fails and the printer will not recover to a usable state, escalate the problem to a Global Business Unit (GBU).

---

### After a firmware upgrade, the Printer Status Page does not show the upgrade file

1. Access the printer HP Embedded Web Server (EWS) page.
2. Open the following EWS menus:
  - **Settings**
  - **Security**
  - **Administrator Settings**
3. Find the **Printer Updates** item, and verify the following:
  - The **All Firmware Updates** item must be enabled.
  - The **Only Web-Downloaded Firmware Updates** item can be enabled or disabled.

### The firmware upgrade stalls for more than 10 minutes and printer is idle

1. Disconnect the power cord.
2. Connect the power cord, and then turn the printer power on.
3. The printer initializes, and the Home screen appears on the control-panel display.
4. Make sure that firmware updates are enabled (see [Troubleshooting a firmware upgrade on page 284](#)), and then retry the firmware upgrade.

## Fax problems

Fax problem solving information is not provided in this service manual. Fax troubleshooting information for this printer is available on one of the following Web-based Interactive Search Engines (WISE) sites.

HP service personnel, go to one of the following WISE sites:

### AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

### APJ

- <https://support.hp.com/wise/home/apj-en>
- <https://support.hp.com/wise/home/apj-ja>
- <https://support.hp.com/wise/home/apj-ko>

- <https://support.hp.com/wise/home/apj-zh-Hans>
- <https://support.hp.com/wise/home/apj-zh-Hant>

## EMEA

- <https://support.hp.com/wise/home/emea-en>

Channel partners, go to HP Channel Services Network (CSN) at [www.hp.com/partners/csn](http://www.hp.com/partners/csn).





---

# A Printer specifications

- [Printer dimensions and weight](#)
- [Printer space requirements](#)
- [Power consumption, electrical specifications, and acoustic emissions](#)
- [Operating-environment range](#)
- [Certificate of Volatility](#)

# Printer dimensions and weight

Table A-1 Printer dimensions and weight

Product	Length	Width	Height	Weight
Single function printer base	790 mm (31.1 in)	760 mm (29.9 in)	761 mm (30.0 in)	50.3 kg (111 lbs)
Single function printer base with the 1x550-sheet input feeder	790 mm (31.1 in)	760 mm (29.9 in)	993 mm (39.1 in)	59.9 kg (132 lbs)
Multi function printer base	790 mm (31.1 in)	760 mm (29.9 in)	877 mm (34.5 in)	59.4 kg (131 lbs)
Multi function printer base with 1x550-sheet input feeder with storage cabinet	790 mm (31.1 in)	760 mm (29.9 in)	1365 mm (53.7 in)	94.3 kg (208 lbs)
Multi function printer base with 3x550-sheet input feeder	790 mm (31.1 in)	760 mm (29.9 in)	1365 mm (53.7 in)	113.9 kg (251 lbs)
Multi function printer base with high capacity input (HCI) feeder	790 mm (31.1 in)	760 mm (29.9 in)	1365 mm (53.7 in)	121.6 kg (268 lbs)
1x550-sheet input feeder	790 mm (31.1 in)	760 mm (29.9 in)	232 mm (9.1 in)	9.5 kg (21 lbs)
1x550-sheet input feeder with storage cabinet	790 mm (31.1 in)	760 mm (29.9 in)	619 mm (24.4 in)	29.9 kg (66 lbs)
3x550-sheet input feeder	790 mm (31.1 in)	760 mm (29.9 in)	619 mm (24.4 in)	33.6 kg (74 lbs)
High capacity input (HCI) feeder	790 mm (31.1 in)	760 mm (29.9 in)	619 mm (24.4 in)	42.9 kg (93 lbs)

## Printer space requirements

HP recommends that 30 mm (1.81 in) be added to the printer dimensions provided in this chapter to make sure there is sufficient space to open doors and covers, and to provide proper ventilation. See [Printer dimensions and weight on page 288](#).

## Power consumption, electrical specifications, and acoustic emissions

See [www.hp.com/support/pagewidecolor750](http://www.hp.com/support/pagewidecolor750), [www.hp.com/support/pagewidecolor772MFP](http://www.hp.com/support/pagewidecolor772MFP) for current information.

**CAUTION:** Power requirements are based on the country/region where the printer is sold. Do not convert operating voltages. This will damage the printer and void the printer warranty.

## Operating-environment range

Table A-2 Operating-environment specifications

Environment	Recommended	Allowed
Temperature	17° to 25°C (62.6° to 77°F)	15° to 30°C (59° to 86°F)
Relative humidity	30% to 70% relative humidity (RH)	10% to 80% (RH)

# Certificate of Volatility

Figure A-1 Certificate of Volatility (750dn; 1 of 3)

Letter of Volatility				
Model Number: HP PageWide Pro 750dn	Part Number: Y3Z44A	Manufacturer: Street Address: HP, Inc. 1115 SE 165 <sup>th</sup> Ave, Suite 210 Vancouver, WA 98683		
Volatile Memory				
Does the item contain volatile memory (i.e., memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
If the answer is "Yes", please provide the following information for each type (use additional sheets if required)				
Type (SRAM, DRAM, etc): DDR3 DRAM (3 devices)	Size: 512MB + 512MB, and 512MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains decompressed system firmware and print data during printing	Process to Sanitize: Power Off printer
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Process to Sanitize:
Non-Volatile Memory				
Does the item contain non-volatile memory (i.e., memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (eMMC, Flash, EEPROM, etc): eMMC (1 device)	Size: 8GB eMMC	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, 32kB	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: Contains system control data, user preferences, and user variables.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.

Figure A-2 Certificate of Volatility (750dn; 2 of 3)

Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): Secure EEPROM	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): EEPROM (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<p><b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 8GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.</p>				
<b>USB</b>				
<p>Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> <b>Yes</b> - Purpose is for Print Jobs, Device FW updates, scan uploads and 3<sup>rd</sup> party application loading.</p> <p>Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> <b>Yes</b> -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.</p>				
<p><b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal connector enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3<sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.</p>				

Figure A-3 Certificate of Volatility (750dn; 3 of 3)

RF/RFID			
Does the item use RF or RFID for receive or transmit of <u>any</u> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> <u>No</u>			
Additional Information:			
Other Transmission Capabilities			
Does the device employ any other methods of <u>non-wired access</u> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> <u>No</u>			
Additional Information:			
Other Capabilities			
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever?			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> <u>No</u>			
Additional Information:			
Vendor Engineer/SME Representative Information			
<b>Name:</b>	<b>Title:</b>	<b>Office Phone:</b>	<b>Fax/Email:</b>
Date Completed: <u>1/24/2017</u>	Lead EE R&D Engineer Lead FW R&D Engineer R&D FW Program Manager		



Figure A-5 Certificate of Volatility (750dw; 2 of 4)

Type (eMMC, Flash, EEPROM, etc): <b>EEPROM</b> (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): <b>Secure EEPROM</b>	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): <b>EEPROM</b> (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 8GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> <b>Yes</b> - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> <b>Yes</b> -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal connector enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				

Figure A-6 Certificate of Volatility (750dw; 3 of 4)

RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Wifi <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>WiFi connectivity for printer activity such as print jobs and printer configuration</u></p> <p>If yes, what is the frequency <u>2.4GHz ISM band (2400-2500MHz) and 5GHz U-NII-1,2,3 band (5.1-5.9GHz)</u></p> <p>Bandwidth <u>20MHz and 40MHz; Typical speed for 20MHz BW = 50Mbps/ 40MHz BW = 100Mbps</u></p> <p>Modulation <u>DSSS(Direct sequence spread spectrum), DBPSK, DQPSK, CCK, OFDM</u></p> <p>Effective Radiate Power (ERP) <u>20.5 dbm</u></p> <p>Specifications <u>802.11a/n</u></p>
<p>Additional Information: This product uses WiFi connectivity for printer activity such as print jobs and printer configuration.</p>
RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Bluetooth 4.0 <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>2.4-2.5 GHz</u></p> <p>Bandwidth <u>~2 MHz</u></p> <p>Modulation <u>1 Mbps GFSK</u></p> <p>Effective Radiate Power (ERP) <u>less than 10 dbm</u></p> <p>Specifications <u>BT 4.0 compliant</u></p>
<p>Additional Information: This product uses Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</p>
Other Transmission Capabilities
<p>Does the device employ any other methods of <b>non-wired access</b> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - NFC <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose: <u>Near-Field Authentication (NFC) with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>13.56 MHz</u>; Bandwidth <u>848 kbit/s max</u>:</p> <p>Modulation: <u>ISO/IEC 14443B</u>;</p> <p>Effective Radiate Power (ERP): <u>0 Watts</u> (passive writer only).</p> <p>Specifications <u>RF Standard ISO/IEC 14443B and NFC Tag Type 4B</u></p>
<p>Additional Information: This product uses NFC connectivity for Authentication with printer Networking subsystems.</p>



Figure A-7 Certificate of Volatility (750dw; 4 of 4)

Other Capabilities			
<p><b>Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever?</b></p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> <b>No</b></p>			
Additional Information:			
Vendor Engineer/SME Representative Information			
<p><b>Name:</b></p> <p>Date Completed: <u>1/24/2017</u></p>	<p><b>Title:</b></p> <p>Lead EE R&amp;D Engineer Lead FW R&amp;D Engineer R&amp;D FW Program Manager</p>	<p><b>Office Phone:</b></p>	<p><b>Fax/Email:</b></p>

Figure A-8 Certificate of Volatility (772dn; 1 of 3)

Letter of Volatility				
Model Number: HP PageWide Pro MFP 772dn	Part Number: Y3Z54A	Manufacturer: Street Address: HP, Inc. 1115 SE 165 <sup>th</sup> Ave, Suite 210 Vancouver, WA 98683		
Volatile Memory				
Does the item contain volatile memory (i.e., memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No				
If the answer is "Yes", please provide the following information for each type (use additional sheets if required)				
Type (SRAM, DRAM, etc): DDR3 DRAM (3 devices)	Size 512MB + 512MB, and 512MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <u>No</u>	Function: Contains decompressed system firmware and print data during printing	Process to Sanitize: Power Off printer
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Process to Sanitize:
Non-Volatile Memory				
Does the item contain non-volatile memory (i.e., memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No				
Type (eMMC, Flash, EEPROM, etc): eMMC (1 device)	Size: 16GB eMMC	User Modifiable: <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, 32kB	User Modifiable: <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No	Function: Contains system control data, user preferences, and user variables.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.

Figure A-9 Certificate of Volatility (772dn; 2 of 3)

Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): Secure EEPROM	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): EEPROM (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 16GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> Yes - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> Yes - Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal connector enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				

Figure A-10 Certificate of Volatility (772dn; 3 of 3)

<b>RF/RFID</b>			
Does the item use RF or RFID for receive or transmit of <u>any</u> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)			
<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> <b>No</b>	
Additional Information:			
<b>Other Transmission Capabilities</b>			
Does the device employ any other methods of <u>non-wired access</u> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?			
<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> <b>No</b>	
Additional Information:			
<b>Other Capabilities</b>			
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever?			
<input checked="" type="checkbox"/> <b>Yes</b>		<input type="checkbox"/> No	
If yes, what is the purpose: <b>FAX</b>			
Specifications: T.30 FAX protocol standard for FAX communication.			
Within T.30, we use V21 protocol as control channel			
Within T.30, we use V.17, V.29, and V.34 as data transfer protocols			
Speeds = Slow (9.6Kbps), Medium (14.4Kbps), and Fast (33.6Kbps).			
Default setting = Medium (14.4Kbps)			
Note: Kbps = thousand bits per second			
Note: If line transmission is poor, the data protocols may lower speed.			
Additional Information: This product can send and receive FAX transmissions over a standard telephone line.			
<b>Vendor Engineer/SME Representative Information</b>			
<b>Name:</b>	<b>Title:</b>	<b>Office Phone:</b>	<b>Fax/Email:</b>
Date Completed: <u>1/24/2017</u>	Lead EE R&D Engineer Lead FW R&D Engineer R&D FW Program Manager		



Figure A-12 Certificate of Volatility (772dw; 2 of 4)

Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): Secure EEPROM	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): EEPROM (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 16GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> <b>Yes</b> - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> <b>Yes</b> -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal connector enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				

Figure A-13 Certificate of Volatility (772dw; 3 of 4)

RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Wifi <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>WiFi connectivity for printer activity such as print jobs and printer configuration</u></p> <p>If yes, what is the frequency <u>2.4GHz ISM band (2400-2500MHz) and 5GHz U-NII-1,2,3 band (5.1-5.9GHz)</u></p> <p>Bandwidth <u>20MHz and 40MHz; Typical speed for 20MHz BW = 50Mbps/ 40MHz BW = 100Mbps</u></p> <p>Modulation <u>DSSS(Direct sequence spread spectrum), DBPSK, DQPSK, CCK, OFDM</u></p> <p>Effective Radiate Power (ERP) <u>20.5 dbm</u></p> <p>Specifications <u>802.11a/n</u></p>
<p>Additional Information: <u>This product uses WiFi connectivity for printer activity such as print jobs and printer configuration.</u></p>
RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Bluetooth 4.0 <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>2.4-2.5 GHz</u></p> <p>Bandwidth <u>~2 MHz</u></p> <p>Modulation <u>1 Mbps GFSK</u></p> <p>Effective Radiate Power (ERP) <u>less than 10 dbm</u></p> <p>Specifications <u>BT 4.0 compliant</u></p>
<p>Additional Information: <u>This product uses Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems.</u></p>
Other Transmission Capabilities
<p>Does the device employ any other methods of <b>non-wired access</b> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - NFC <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose: <u>Near-Field Authentication (NFC) with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>13.56 MHz</u>; Bandwidth <u>848 kbit/s max</u>:</p> <p>Modulation: <u>ISO/IEC 14443B;</u></p> <p>Effective Radiate Power (ERP): <u>0 Watts (passive writer only).</u></p> <p>Specifications <u>RF Standard ISO/IEC 14443B and NFC Tag Type 4B</u></p>
<p>Additional Information: <u>This product uses NFC connectivity for Authentication with printer Networking subsystems.</u></p>





Figure A-15 Certificate of Volatility (777z; 1 of 4)

<b>Letter of Volatility</b>				
Model Number: HP PageWide Pro MFP P777z		Part Number: Y3Z55A	Manufacturer: Street Address: HP, Inc. 1115 SE 165 <sup>th</sup> Ave, Suite 210 Vancouver, WA 98683	
<b>Volatile Memory</b>				
Does the item contain volatile memory (i.e., memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
If the answer is "Yes", please provide the following information for each type (use additional sheets if required)				
Type (SRAM, DRAM, etc): DDR3 DRAM (3 devices)	Size 512MB + 512MB, and 512MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains decompressed system firmware and print data during printing	Process to Sanitize: Power Off printer
Type (SRAM, DRAM, etc): DDR3 DRAM (1 device)	Size: 256MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains decompressed system firmware	Process to Sanitize: Power Off printer
<b>Non-Volatile Memory</b>				
Does the item contain non-volatile memory (i.e., memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (eMMC, Flash, EEPROM, etc): eMMC (1 device), Flash (1 device)	Size: 16GB eMMC and 256MB Flash	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
Type (eMMC, Flash, EEPROM, etc): EEPROM (3 devices)	Size: 64kB, 32kB and 32kB	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: Contains system control data, user preferences, and user variables.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.

Figure A-16 Certificate of Volatility (777z; 2 of 4)

Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): Secure EEPROM	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): EEPROM (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 16GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> Yes - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> Yes -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal mini-B USB port enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				

Figure A-17 Certificate of Volatility (777z; 3 of 4)

RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Wifi <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>WiFi connectivity for printer activity such as print jobs and printer configuration</u></p> <p>If yes, what is the frequency <u>2.4GHz ISM band (2400-2500MHz) and 5GHz U-NII-1,2,3 band (5.1-5.9GHz)</u></p> <p>Bandwidth <u>20MHz and 40MHz; Typical speed for 20MHz BW = 50Mbps/ 40MHz BW = 100Mbps</u></p> <p>Modulation <u>DSSS(Direct sequence spread spectrum), DBPSK, DQPSK, CCK, OFDM</u></p> <p>Effective Radiate Power (ERP) <u>20.5 dbm</u></p> <p>Specifications <u>802.11a/n</u></p>
<p>Additional Information: <u>This product uses WiFi connectivity for printer activity such as print jobs and printer configuration.</u></p>
RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Bluetooth 4.0 <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>2.4-2.5 GHz</u></p> <p>Bandwidth <u>~2 MHz</u></p> <p>Modulation <u>1 Mbps GFSK</u></p> <p>Effective Radiate Power (ERP) <u>less than 10 dbm</u></p> <p>Specifications <u>BT 4.0 compliant</u></p>
<p>Additional Information: <u>This product uses Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems.</u></p>
Other Transmission Capabilities
<p>Does the device employ any other methods of <b>non-wired access</b> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - NFC <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose: <u>Near-Field Authentication (NFC) with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>13.56 MHz</u>; Bandwidth <u>848 kbit/s max</u>:</p> <p>Modulation: <u>ISO/IEC 14443B;</u></p> <p>Effective Radiate Power (ERP): <u>0 Watts (passive writer only).</u></p> <p>Specifications <u>RF Standard ISO/IEC 14443B and NFC Tag Type 4B</u></p>
<p>Additional Information: <u>This product uses NFC connectivity for Authentication with printer Networking subsystems.</u></p>



Figure A-19 Certificate of Volatility (75050dn; 1 of 3)

Letter of Volatility				
Model Number: HP PageWide Managed P75050dn	Part Number: Y3Z45A	Manufacturer: Street Address: HP, Inc. 1115 SE 165 <sup>th</sup> Ave, Suite 210 Vancouver, WA 98683		
Volatile Memory				
Does the item contain volatile memory (i.e., memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
If the answer is "Yes", please provide the following information for each type (use additional sheets if required)				
Type (SRAM, DRAM, etc): DDR3 DRAM (3 devices)	Size 512MB + 512MB, and 512MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains decompressed system firmware and print data during printing	Process to Sanitize: Power Off printer
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Process to Sanitize:
Non-Volatile Memory				
Does the item contain non-volatile memory (i.e., memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (eMMC, Flash, EEPROM, etc): eMMC (1 device)	Size: 8GB eMMC	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, 32kB	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: Contains system control data, user preferences, and user variables.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.

Figure A-20 Certificate of Volatility (75050dn; 2 of 3)

Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): Secure EEPROM	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): EEPROM (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<p><b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 8GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.</p>				
<b>USB</b>				
<p>Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> <b>Yes</b> - Purpose is for Print Jobs, Device FW updates, scan uploads and 3<sup>rd</sup> party application loading.</p> <p>Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> <b>Yes</b> -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.</p>				
<p><b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal connector enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3<sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.</p>				

Figure A-21 Certificate of Volatility (75050dn; 3 of 3)

RF/RFID			
Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)			
<input type="checkbox"/> Yes <span style="margin-left: 150px;"><input checked="" type="checkbox"/> <u>No</u></span>			
Additional Information:			
Other Transmission Capabilities			
Does the device employ any other methods of <b>non-wired access</b> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?			
<input type="checkbox"/> Yes <span style="margin-left: 150px;"><input checked="" type="checkbox"/> <u>No</u></span>			
Additional Information:			
Other Capabilities			
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever?			
<input type="checkbox"/> Yes <span style="margin-left: 150px;"><input checked="" type="checkbox"/> <u>No</u></span>			
Additional Information:			
Vendor Engineer/SME Representative Information			
<b>Name:</b>	<b>Title:</b>	<b>Office Phone:</b>	<b>Fax/Email:</b>
Date Completed: <u>1/24/2017</u>	Lead EE R&D Engineer Lead FW R&D Engineer R&D FW Program Manager		





Figure A-23 Certificate of Volatility (75050dw; 2 of 4)

Type (eMMC, Flash, EEPROM, etc): <b>EEPROM</b> (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): <b>Secure EEPROM</b>	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): <b>EEPROM</b> (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 8GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> <b>Yes</b> - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> <b>Yes</b> -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal connector enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				

Figure A-24 Certificate of Volatility (75050dw; 3 of 4)

RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Wifi <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>WiFi connectivity for printer activity such as print jobs and printer configuration</u></p> <p>If yes, what is the frequency <u>2.4GHz ISM band (2400-2500MHz) and 5GHz U-NII-1,2,3 band (5.1-5.9GHz)</u></p> <p>Bandwidth <u>20MHz and 40MHz; Typical speed for 20MHz BW = 50Mbps/ 40MHz BW = 100Mbps</u></p> <p>Modulation <u>DSSS(Direct sequence spread spectrum), DBPSK, DQPSK, CCK, OFDM</u></p> <p>Effective Radiate Power (ERP) <u>20.5 dbm</u></p> <p>Specifications <u>802.11a/n</u></p>
<p>Additional Information: This product uses WiFi connectivity for printer activity such as print jobs and printer configuration.</p>
RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Bluetooth 4.0 <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>2.4-2.5 GHz</u></p> <p>Bandwidth <u>~2 MHz</u></p> <p>Modulation <u>1 Mbps GFSK</u></p> <p>Effective Radiate Power (ERP) <u>less than 10 dbm</u></p> <p>Specifications <u>BT 4.0 compliant</u></p>
<p>Additional Information: This product uses Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</p>
Other Transmission Capabilities
<p>Does the device employ any other methods <b>of non-wired access</b> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - NFC <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose: <u>Near-Field Authentication (NFC) with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>13.56 MHz</u>; Bandwidth <u>848 kbit/s max</u>:</p> <p>Modulation: <u>ISO/IEC 14443B</u>;</p> <p>Effective Radiate Power (ERP): <u>0 Watts</u> (passive writer only).</p> <p>Specifications <u>RF Standard ISO/IEC 14443B and NFC Tag Type 4B</u></p>
<p>Additional Information: This product uses NFC connectivity for Authentication with printer Networking subsystems.</p>

Figure A-25 Certificate of Volatility (75050dw; 4 of 4)

Other Capabilities			
<p><b>Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever?</b></p> <p><input type="checkbox"/> Yes <span style="margin-left: 150px;"><input checked="" type="checkbox"/> <b>No</b></span></p>			
Additional Information:			
Vendor Engineer/SME Representative Information			
<p><b>Name:</b></p>	<p><b>Title:</b></p>	<p><b>Office Phone:</b></p>	<p><b>Fax/Email:</b></p>
<p>Date Completed: <u>1/24/2017</u></p>	<p>Lead EE R&amp;D Engineer Lead FW R&amp;D Engineer R&amp;D FW Program Manager</p>		

Figure A-26 Certificate of Volatility (77740dn; 1 of 3)

Letter of Volatility				
Model Number: HP PageWide Managed MFP P77740dn	Part Number: Y3Z57A	Manufacturer: Street Address: HP, Inc. 1115 SE 165 <sup>th</sup> Ave, Suite 210 Vancouver, WA 98683		
Volatile Memory				
Does the item contain volatile memory (i.e., memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No				
If the answer is "Yes", please provide the following information for each type (use additional sheets if required)				
Type (SRAM, DRAM, etc): DDR3 DRAM (3 devices)	Size 512MB + 512MB,  and 512MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <u>No</u>	Function: Contains decompressed system firmware and print data during printing	Process to Sanitize: Power Off printer
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Process to Sanitize:
Non-Volatile Memory				
Does the item contain non-volatile memory (i.e., memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No				
Type (eMMC, Flash, EEPROM, etc): eMMC (1 device)	Size: 16GB eMMC	User Modifiable: <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory- defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, 32kB	User Modifiable: <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No	Function: Contains system control data, user preferences, and user variables.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory- defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.

Figure A-27 Certificate of Volatility (77740dn; 2 of 3)

Type (eMMC, Flash, EEPROM, etc): <b>EEPROM (2 devices)</b>	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): <b>Secure EEPROM</b>	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): <b>EEPROM (1 device)</b>	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): <b>Memory Card: eMMC module</b> Removable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 16GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> <b>Yes</b> - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> <b>Yes</b> -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal mini-B USB port enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				

Figure A-28 Certificate of Volatility (77740dn; 3 of 3)

<b>RF/RFID</b>			
Does the item use RF or RFID for receive or transmit of <u>any</u> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>			
Additional Information:			
<b>Other Transmission Capabilities</b>			
Does the device employ any other methods of <u>non-wired access</u> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>			
Additional Information:			
<b>Other Capabilities</b>			
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever?			
<input checked="" type="checkbox"/> <b>Yes</b> - FAX <input type="checkbox"/> No			
If yes, what is the purpose: FAX			
Specifications: T.30 FAX protocol standard for FAX communication.			
Within T.30, we use V21 protocol as control channel Within T.30, we use V.17, V.29, and V.34 as data transfer protocols Speeds = Slow (9.6Kbps), Medium (14.4Kbps), and Fast (33.6Kbps). Default setting = Medium (14.4Kbps) Note: Kbps = thousand bits per second Note: If line transmission is poor, the data protocols may lower speed.			
Additional Information: This product can send and receive FAX transmissions over a standard telephone line.			
<b>Vendor Engineer/SME Representative Information</b>			
<b>Name:</b>	<b>Title:</b>	<b>Office Phone:</b>	<b>Fax/Email:</b>
Date Completed: <u>1/24/2017</u>	Lead EE R&D Engineer Lead FW R&D Engineer R&D FW Program Manager		



Figure A-30 Certificate of Volatility (77740dw; 2 of 4)

Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): Secure EEPROM	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): EEPROM (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 16GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> Yes - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> Yes -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal mini-B USB port enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				



Figure A-31 Certificate of Volatility (77740dw; 3 of 4)

RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Wifi <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>WiFi connectivity for printer activity such as print jobs and printer configuration</u></p> <p>If yes, what is the frequency <u>2.4GHz ISM band (2400-2500MHz) and 5GHz U-NII-1,2,3 band (5.1-5.9GHz)</u></p> <p>Bandwidth <u>20MHz and 40MHz; Typical speed for 20MHz BW = 50Mbps/ 40MHz BW = 100Mbps</u></p> <p>Modulation <u>DSSS(Direct sequence spread spectrum), DBPSK, DQPSK, CCK, OFDM</u></p> <p>Effective Radiate Power (ERP) <u>20.5 dbm</u></p> <p>Specifications <u>802.11a/n</u></p>
<p>Additional Information: <u>This product uses WiFi connectivity for printer activity such as print jobs and printer configuration.</u></p>
RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Bluetooth 4.0 <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>2.4-2.5 GHz</u></p> <p>Bandwidth <u>~2 MHz</u></p> <p>Modulation <u>1 Mbps GFSK</u></p> <p>Effective Radiate Power (ERP) <u>less than 10 dbm</u></p> <p>Specifications <u>BT 4.0 compliant</u></p>
<p>Additional Information: <u>This product uses Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p>
Other Transmission Capabilities
<p>Does the device employ any other methods of <b>non-wired access</b> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - NFC <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose: <u>Near-Field Authentication (NFC) with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>13.56 MHz</u>; Bandwidth <u>848 kbit/s max</u>:</p> <p>Modulation: <u>ISO/IEC 14443B;</u></p> <p>Effective Radiate Power (ERP): <u>0 Watts (passive writer only).</u></p> <p>Specifications <u>RF Standard ISO/IEC 14443B and NFC Tag Type 4B</u></p>
<p>Additional Information: <u>This product uses NFC connectivity for Authentication with printer Networking subsystems.</u></p>



Figure A-33 Certificate of Volatility (77740z; 1 of 4)

<b>Letter of Volatility</b>				
Model Number: HP PageWide Managed MFP P77740z		Part Number: W1B39A	Manufacturer: Street Address: HP, Inc. 1115 SE 165 <sup>th</sup> Ave, Suite 210 Vancouver, WA 98683	
<b>Volatile Memory</b>				
Does the item contain volatile memory (i.e., memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No				
If the answer is "Yes", please provide the following information for each type (use additional sheets if required)				
Type (SRAM, DRAM, etc): DDR3 DRAM (3 devices)	Size 512MB + 512MB, and 512MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <u>No</u>	Function: Contains decompressed system firmware and print data during printing	Process to Sanitize: Power Off printer
Type (SRAM, DRAM, etc): DDR3 DRAM (1 device)	Size: 256MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <u>No</u>	Function: Contains decompressed system firmware	Process to Sanitize: Power Off printer
<b>Non-Volatile Memory</b>				
Does the item contain non-volatile memory (i.e., memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No				
Type (eMMC, Flash, EEPROM, etc): eMMC (1 device), Flash (1 device)	Size: 16GB eMMC and 256MB Flash	User Modifiable: <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
Type (eMMC, Flash, EEPROM, etc): EEPROM (3 devices)	Size: 64kB, 32kB and 32kB	User Modifiable: <input checked="" type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No	Function: Contains system control data, user preferences, and user variables.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.

Figure A-34 Certificate of Volatility (77740z; 2 of 4)

Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): Secure EEPROM	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): EEPROM (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 16GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> <b>Yes</b> - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> <b>Yes</b> -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal mini-B USB port enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				

Figure A-35 Certificate of Volatility (77740z; 3 of 4)

RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Wifi <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>WiFi connectivity for printer activity such as print jobs and printer configuration</u></p> <p>If yes, what is the frequency <u>2.4GHz ISM band (2400-2500MHz) and 5GHz U-NII-1,2,3 band (5.1-5.9GHz)</u></p> <p>Bandwidth <u>20MHz and 40MHz; Typical speed for 20MHz BW = 50Mbps/ 40MHz BW = 100Mbps</u></p> <p>Modulation <u>DSSS(Direct sequence spread spectrum), DBPSK, DQPSK, CCK, OFDM</u></p> <p>Effective Radiate Power (ERP) <u>20.5 dbm</u></p> <p>Specifications <u>802.11a/n</u></p>
<p>Additional Information: <u>This product uses WiFi connectivity for printer activity such as print jobs and printer configuration.</u></p>
RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Bluetooth 4.0 <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>2.4-2.5 GHz</u></p> <p>Bandwidth <u>~2 MHz</u></p> <p>Modulation <u>1 Mbps GFSK</u></p> <p>Effective Radiate Power (ERP) <u>less than 10 dbm</u></p> <p>Specifications <u>BT 4.0 compliant</u></p>
<p>Additional Information: <u>This product uses Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p>
Other Transmission Capabilities
<p>Does the device employ any other methods of <b>non-wired access</b> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - NFC <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose: <u>Near-Field Authentication (NFC) with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>13.56 MHz</u>; Bandwidth <u>848 kbit/s max</u>:</p> <p>Modulation: <u>ISO/IEC 14443B;</u></p> <p>Effective Radiate Power (ERP): <u>0 Watts (passive writer only).</u></p> <p>Specifications <u>RF Standard ISO/IEC 14443B and NFC Tag Type 4B</u></p>
<p>Additional Information: <u>This product uses NFC connectivity for Authentication with printer Networking subsystems.</u></p>

Figure A-36 Certificate of Volatility (77740z; 4 of 4)

<b>Other Capabilities</b>			
<p><b>Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever?</b></p> <p><input checked="" type="checkbox"/> <b>Yes</b> - FAX <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose: FAX</p> <p>Specifications: T.30 FAX protocol standard for FAX communication.                      Within T.30, we use V21 protocol as control channel                      Within T.30, we use V.17, V.29, and V.34 as data transfer protocols                      Speeds = Slow (9.6Kbps), Medium (14.4Kbps), and Fast (33.6Kbps).                      Default setting = Medium (14.4Kbps)                      Note: Kbps = thousand bits per second                      Note: If line transmission is poor, the data protocols may lower speed.</p>			
<p><b>Additional Information:</b> This product can send and receive FAX transmissions over a standard telephone line.</p>			
<b>Vendor Engineer/SME Representative Information</b>			
<p><b>Name:</b></p> <p>Date Completed: <u>1/24/2017</u></p>	<p><b>Title:</b></p> <p>Lead EE R&amp;D Engineer                      Lead FW R&amp;D Engineer                      R&amp;D FW Program Manager</p>	<p><b>Office Phone:</b></p>	<p><b>Fax/Email:</b></p>

Figure A-37 Certificate of Volatility (77750z; 1 of 4)

<b>Letter of Volatility</b>				
Model Number: HP PageWide Managed MFP P77750z		Part Number: W1B37A	Manufacturer: Street Address: HP, Inc. 1115 SE 165 <sup>th</sup> Ave, Suite 210 Vancouver, WA 98683	
<b>Volatile Memory</b>				
Does the item contain volatile memory (i.e., memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
If the answer is "Yes", please provide the following information for each type (use additional sheets if required)				
Type (SRAM, DRAM, etc): DDR3 DRAM (3 devices)	Size 512MB + 512MB, and 512MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains decompressed system firmware and print data during printing	Process to Sanitize: Power Off printer
Type (SRAM, DRAM, etc): DDR3 DRAM (1 device)	Size: 256MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains decompressed system firmware	Process to Sanitize: Power Off printer
<b>Non-Volatile Memory</b>				
Does the item contain non-volatile memory (i.e., memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (eMMC, Flash, EEPROM, etc): eMMC (1 device), Flash (1 device)	Size: 16GB eMMC and 256MB Flash	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory- defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
Type (eMMC, Flash, EEPROM, etc): EEPROM (3 devices)	Size: 64kB, 32kB and 32kB	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: Contains system control data, user preferences, and user variables.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory- defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.

Figure A-38 Certificate of Volatility (77750z; 2 of 4)

Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): Secure EEPROM	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): EEPROM (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 16GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> <b>Yes</b> - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> <b>Yes</b> -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal mini-B USB port enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				



Figure A-39 Certificate of Volatility (77750z; 3 of 4)

RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Wifi <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>WiFi connectivity for printer activity such as print jobs and printer configuration</u></p> <p>If yes, what is the frequency <u>2.4GHz ISM band (2400-2500MHz) and 5GHz U-NII-1,2,3 band (5.1-5.9GHz)</u></p> <p>Bandwidth <u>20MHz and 40MHz; Typical speed for 20MHz BW = 50Mbps/ 40MHz BW = 100Mbps</u></p> <p>Modulation <u>DSSS(Direct sequence spread spectrum), DBPSK, DQPSK, CCK, OFDM</u></p> <p>Effective Radiate Power (ERP) <u>20.5 dbm</u></p> <p>Specifications <u>802.11a/n</u></p>
<p>Additional Information: <u>This product uses WiFi connectivity for printer activity such as print jobs and printer configuration.</u></p>
RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Bluetooth 4.0 <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>2.4-2.5 GHz</u></p> <p>Bandwidth <u>~2 MHz</u></p> <p>Modulation <u>1 Mbps GFSK</u></p> <p>Effective Radiate Power (ERP) <u>less than 10 dbm</u></p> <p>Specifications <u>BT 4.0 compliant</u></p>
<p>Additional Information: <u>This product uses Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p>
Other Transmission Capabilities
<p>Does the device employ any other methods of <b>non-wired access</b> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - NFC <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose: <u>Near-Field Authentication (NFC) with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>13.56 MHz</u>; Bandwidth <u>848 kbit/s max</u>:</p> <p>Modulation: <u>ISO/IEC 14443B;</u></p> <p>Effective Radiate Power (ERP): <u>0 Watts (passive writer only).</u></p> <p>Specifications <u>RF Standard ISO/IEC 14443B and NFC Tag Type 4B</u></p>
<p>Additional Information: <u>This product uses NFC connectivity for Authentication with printer Networking subsystems.</u></p>



Figure A-41 Certificate of Volatility (77760z; 1 of 4)

<b>Letter of Volatility</b>				
Model Number: HP PageWide Managed MFP P77760z		Part Number: W1B38A	Manufacturer: Street Address: HP, Inc. 1115 SE 165 <sup>th</sup> Ave, Suite 210 Vancouver, WA 98683	
<b>Volatile Memory</b>				
Does the item contain volatile memory (i.e., memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
If the answer is "Yes", please provide the following information for each type (use additional sheets if required)				
Type (SRAM, DRAM, etc): DDR3 DRAM (3 devices)	Size 512MB + 512MB, and 512MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains decompressed system firmware and print data during printing	Process to Sanitize: Power Off printer
Type (SRAM, DRAM, etc): DDR3 DRAM (1 device)	Size: 256MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	Function: Contains decompressed system firmware	Process to Sanitize: Power Off printer
<b>Non-Volatile Memory</b>				
Does the item contain non-volatile memory (i.e., memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (eMMC, Flash, EEPROM, etc): eMMC (1 device), Flash (1 device)	Size: 16GB eMMC and 256MB Flash	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
Type (eMMC, Flash, EEPROM, etc): EEPROM (3 devices)	Size: 64kB, 32kB and 32kB	User Modifiable: <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No	Function: Contains system control data, user preferences, and user variables.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.

Figure A-42 Certificate of Volatility (77760z; 2 of 4)

Type (eMMC, Flash, EEPROM, etc): EEPROM (2 devices)	Size: 64kB, and 64kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains backup of critical system control data and critical user preferences.	Process to Sanitize: Cleared by backing up data from a previously reset system.
Type (eMMC, Flash, EEPROM, etc): Secure EEPROM	Size: 18kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains secure internal printer data.	Process to Sanitize: N/A
Type (eMMC, Flash, EEPROM, etc): EEPROM (1 device)	Size: 1kB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Contains internal printer data.	Process to Sanitize: N/A
<b>Media</b>				
Does the item contain media storage capability (i.e., removable or non-removable disk drives, tape drives, memory cards, etc.)? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No				
Type (Disk, Tape, Memory Card, etc): Memory Card: eMMC module Removable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size: Upgrade option = 128GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: System Firmware and firmware upgrade, system control data, user preferences, user variables, image data, and encrypted job storage and PIN printing.	Process to Sanitize: User preferences and user variables, image data, and encrypted job storage and PIN printing cleared by performing a reset from "Restore Factory Defaults". Access to this function can be found under: Home menu Support tools Maintenance "Restore Factory Defaults"  See the Administrator's Guide for more details. Note: Restoring the factory-defaults clears all customer data such as fax header, phonebook, and pages stored in memory. This procedure also returns many product settings to factory defaults.
<b>Additional Information:</b> The media storage capability described here is an option where the internal eMMC memory system can be upgraded from the standard 16GB to the optional 128GB. The fact this memory can be upgraded makes it "removable" from the upgrade standpoint, but it is not "removable" in the same fashion as is a USB thumb drive. Job storage is encrypted using an AES 256 encryption algorithm by default.				
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> <b>Yes</b> - Purpose is for Print Jobs, Device FW updates, scan uploads and 3 <sup>rd</sup> part application loading.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> <b>Yes</b> -Diagnostic service logs can be uploaded. Back-up of encrypted system settings. Supports Hardware Integration Pocket (HIP) devices.				
<b>Additional Information:</b> This product has both a USB device port and 2 USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal mini-B USB port enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and 3 <sup>rd</sup> party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				

Figure A-43 Certificate of Volatility (77760z; 3 of 4)

RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Wifi <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>WiFi connectivity for printer activity such as print jobs and printer configuration</u></p> <p>If yes, what is the frequency <u>2.4GHz ISM band (2400-2500MHz) and 5GHz U-NII-1,2,3 band (5.1-5.9GHz)</u></p> <p>Bandwidth <u>20MHz and 40MHz; Typical speed for 20MHz BW = 50Mbps/ 40MHz BW = 100Mbps</u></p> <p>Modulation <u>DSSS(Direct sequence spread spectrum), DBPSK, DQPSK, CCK, OFDM</u></p> <p>Effective Radiate Power (ERP) <u>20.5 dbm</u></p> <p>Specifications <u>802.11a/n</u></p>
<p>Additional Information: <u>This product uses WiFi connectivity for printer activity such as print jobs and printer configuration.</u></p>
RF/RFID
<p>Does the item use RF or RFID for receive or transmit of <b>any</b> data including remote diagnostics. (e.g. Cellular Phone, Wifi, Bluetooth)</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - Bluetooth 4.0 <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose <u>Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>2.4-2.5 GHz</u></p> <p>Bandwidth <u>~2 MHz</u></p> <p>Modulation <u>1 Mbps GFSK</u></p> <p>Effective Radiate Power (ERP) <u>less than 10 dbm</u></p> <p>Specifications <u>BT 4.0 compliant</u></p>
<p>Additional Information: <u>This product uses Bluetooth 4.0 connectivity for easier attachment with printer Networking subsystems</u></p>
Other Transmission Capabilities
<p>Does the device employ any other methods of <b>non-wired access</b> to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)?</p> <p><input checked="" type="checkbox"/> <b>Yes</b> - NFC <span style="margin-left: 150px;"><input type="checkbox"/> No</span></p> <p>If yes, what is the purpose: <u>Near-Field Authentication (NFC) with printer Networking subsystems</u></p> <p>If yes, what is the frequency <u>13.56 MHz</u>; Bandwidth <u>848 kbit/s max</u>:</p> <p>Modulation: <u>ISO/IEC 14443B;</u></p> <p>Effective Radiate Power (ERP): <u>0 Watts (passive writer only).</u></p> <p>Specifications <u>RF Standard ISO/IEC 14443B and NFC Tag Type 4B</u></p>
<p>Additional Information: <u>This product uses NFC connectivity for Authentication with printer Networking subsystems.</u></p>

Figure A-44 Certificate of Volatility (77760z; 4 of 4)

<b>Other Capabilities</b>			
<b>Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever?</b>			
<input checked="" type="checkbox"/> <b>Yes</b> - FAX <span style="margin-left: 200px;"><input type="checkbox"/> No</span>			
If yes, what is the purpose: FAX			
Specifications: T.30 FAX protocol standard for FAX communication.			
Within T.30, we use V21 protocol as control channel			
Within T.30, we use V.17, V.29, and V.34 as data transfer protocols			
Speeds = Slow (9.6Kbps), Medium (14.4Kbps), and Fast (33.6Kbps).			
Default setting = Medium (14.4Kbps)			
Note: Kbps = thousand bits per second			
Note: If line transmission is poor, the data protocols may lower speed.			
Additional Information: This product can send and receive FAX transmissions over a standard telephone line.			
<b>Vendor Engineer/SME Representative Information</b>			
<b>Name:</b> Date Completed: <u>1/24/2017</u>	<b>Title:</b> Lead EE R&D Engineer Lead FW R&D Engineer R&D FW Program Manager	<b>Office Phone:</b>	<b>Fax/Email:</b>

# Index

## Symbols/Numerics

- 3x550 tray motors/solenoids
  - control diagrams 98
- 3x550 tray sensors
  - control diagrams 94
- 550-sheet trays
  - jams 242, 248

## A

- ACCM LEDs 82
- acoustic specifications 288
- automatic document feeder
  - scanning and image capture 50

## B

- blank pages
  - troubleshooting 254

## C

- cables
  - USB, troubleshooting 255
- calibration period 3
- Cartridges menu (Dashboard), control panel 134
- cautions iii
- certificate of volatility 289
- clean the Printhead (Extensive) 187
- cleaning
  - glass 219, 223
  - rollers 222, 226
- CO operations 54
- components
  - diagrams of 87
- control diagrams 88
  - 3x550 tray motors/solenoids 98
  - 3x550 tray sensors 94
  - HCI motors/solenoids 97
  - HCI sensors 93

- printer motors/solenoids 96
- printer sensors 92
- control panel
  - Cartridges menu, Dashboard 134
  - Copy menu (MFP models only) 140
  - Dashboard menus 120
  - Environmental Settings menu, Dashboard 137
  - Fax menu (fax models only) 149
  - Fax Status menu, Dashboard 136
  - Network Summary, Dashboard 130
  - Print menu 147
  - Scan menu (MFP models only) 144
  - Setup menu, Dashboard 120
  - Sign In menu, Dashboard 138
  - Support Tools menu 154
  - Tray Configuration menu, Dashboard 134
  - Wi-Fi Direct Details menu, Dashboard 133
- control-panel menus 120
- conventions, document iii
- Copy menu (MFP models only), control panel 140
- current control, fax line 55

## D

- Dashboard menus, control panel 120
- data path
  - fax 55
- defects
  - image-quality (printer specific) 188
- determine problem source 64

- determine the installed revision of firmware 281
- determine the installed revision of firmware (large touchscreen) 281
- determine the installed revision of firmware (large touchscreen) 282
- diagnostics
  - LED 82
- diagrams 101
  - AC power subsystem map 111
  - components 87
  - distribution and SLB PCA map 105
  - large touchscreen subsystem map 103
  - MPCA, distribution, and SLB PCA map 102
- dimensions, printer 288
- document conventions iii
- document feeder
  - automatic document feeder 50
- document feeder (MFP models only)
  - jams 234
  - paper-feeding problems 229
  - tests 86
- duplexer, right
  - clearing jams 246

## E

- electrical specifications 288
- embedded web server 283
- end of print job period 5
- engine control system operations 6
- Environmental Settings menu (Dashboard), control panel 137
- event log
  - view, sort, filter, or print 81
- event-log messages 81

- F**
- fax
  - card 54
  - data path 55
  - flash memory storage 56
  - functions 54
  - line current control 55
  - operations 54
  - page storage 56
  - PSTN operations 54
  - ring detect 55
  - safety isolation 55
  - safety protection circuitry 55
  - subsystem 54
- fax card
  - CODEC 54
  - DSP 54
  - fax subsystem 54
  - regional versions 54
  - ring detect 55
- Fax menu (fax models only), control panel 149
- fax problems
  - get help from WISE 284
- fax security
  - security features, computer 54
  - security features, network 54
- Fax Status menu (Dashboard), control panel 136
- fax subsystem
  - fax card 54
  - operations 54
- firmware
  - upgrade 282
- firmware, downloading new 281
- flash memory, fax 56
- flatbed
  - scanning and image capture (MFP only) 53
- flowcharts
  - troubleshooting 64
- G**
- glass, cleaning 219, 223
- guide, print-quality troubleshooting 162
- H**
- HCI. *See* high-capacity input tray
- HCI motors/solenoids
  - control diagrams 97
- HCI sensors
  - control diagrams 93
- I**
- image capture system
  - scanning (MFP only) 53
- image defects, printer specific 178
- image-quality defects (printer specific) 188
- individual component diagnostics 82
- internal test and information pages
  - printing 78
- J**
- jack locations 87
- jams
  - 550-sheet trays 242, 248
  - auto-navigation 232
  - causes of 232
  - diagnostic test for 85
  - document feeder (MFP models only) 234
  - duplexer, right 246
  - high-capacity input tray 251
  - output bin 245
  - Tray 1 236
  - Tray 2/3 240
- jams, paper (MFP models)
  - locations 231
- jams, paper (SFP models)
  - locations 232
- L**
- LEDs. *See* lights
- lights
  - ACCM LEDs 82
  - MPCA LEDs 82
  - troubleshooting with 82
- line current control, fax 55
- M**
- maintenance
  - service menu 265
- map
  - AC power subsystem 111
  - distribution and SLB PCA 105
  - large touchscreen subsystem 103
  - MPCA, distribution, and SLB PCA 102
- memory
  - flash, fax 56
- menus, control panel
  - Cartridges menu, Dashboard 134
  - Copy menu (MFP models only) 140
  - Dashboard menus 120
  - Environmental Settings menu, Dashboard 137
  - Fax menu (fax models only) 149
  - Fax Status menu, Dashboard 136
  - Network Summary, Dashboard 130
  - Print menu 147
  - Scan menu (MFP models only) 144
  - Setup menu, Dashboard 120
  - Sign In menu, Dashboard 138
  - Support Tools menu 154
  - Tray Configuration menu, Dashboard 134
  - Wi-Fi Direct Details menu, Dashboard 133
- MPCA LEDs 82
- N**
- Network Summary menu (Dashboard), control panel 130
- networks
  - security features 54
- notes iii
- nozzle health page 183
- O**
- operation sequence 3
- operations
  - engine control system 6
  - fax 54
  - fax card in subsystem 54
  - fax subsystem 54
  - fax, PSTN 54
  - PSTN 54
- optimize scanned images 225
- output bin
  - clear jams 245



## P

- pages
  - blank 254
  - not printing 254
  - printing slowly 254
- paper
  - jams 232
- paper handling components
  - control diagrams 88
- paper handling, control diagrams 88
- paper jams
  - 550-sheet trays 242, 248
  - document feeder (MFP models only) 234
  - high-capacity input tray 251
  - output bin 245
  - Tray 1 236
- paper jams (MFP models)
  - locations 231
- paper jams (SFP models)
  - locations 232
- paper path
  - diagnostic test 85
- paper pickup problems
  - solving 228
- password
  - Service menu PIN 259
- plug/jack locations 87
- port locations 87
- power
  - consumption 288
  - fax line current control 55
- power subsystem 66
- power supply
  - troubleshooting 66
- power-on troubleshooting overview 66
- print from USB
  - service menu 280
- Print menu, control panel 147
- print preparation period 4
- print quality
  - built-in troubleshooting pages 112
  - test pages 112
- print quality report page 182
  - interpreting 112
  - printing 112
- print quality tools
  - service menu 259

- print quality troubleshooting 112
- print-quality
  - defects (printer specific) 188
- printer
  - fax, functions 54
- printer motors/solenoids
  - control diagrams 96
- printer pre-checks, check the control-panel display 167
- printer pre-checks, check the print settings 169
- printer pre-checks, cleaning procedures 173
- printer pre-checks, copy quality troubleshooting (MFP) 178
- printer pre-checks, inspect the cartridges for damage 167
- printer pre-checks, print-quality troubleshooting 165
- printer pre-checks, printer driver considerations 170
- printer pre-checks, resolver ink smear/redeposit 175
- printer pre-checks, verify type of paper in use 168
- printer sensors
  - control diagrams 92
- printer space requirements 288
- printer status page
  - information 78
- printhead cleaning
  - extensive deep clean 187
- Printhead Details page 185
- printhead information page
  - information 78, 80
- printing
  - troubleshooting 254
- printing period 5
- problem-solving
  - event-log messages 81
- PSTN operations 54

## R

- regional versions
  - fax card 54
- report a problem
  - service menu 279
- ring detect
  - fax card 55
- RING operations 54

- rollers
  - cleaning 222, 226

## S

- safety
  - protection circuitry, fax 55
  - isolation, fax 55
- Scan menu (MFP models only), control panel 144
- scanner
  - glass cleaning 219, 223
- scanner (MFP models only)
  - tests 86
- scanner and document feeder tests (MFP models only)
  - tests MFP 86
- scanning
  - image capture (MFP only) 53
  - optimize for text or pictures 225
- security features
  - computer 54
  - network 54
- service and support information v
- service menu
  - maintenance 265
  - print from USB 280
  - print quality tools 259
  - report a problem 279
  - system diagnostics 269
- service mode functions 259
- servicing operations 4
- Setup menu (Dashboard), control panel 120
- Sign In menu (Dashboard), control panel 138
- solve connectivity problems 257
- solve performance problems 254
  - factors affecting print performance 254
  - product does not print or it prints slowly 255
  - product prints slowly 256
- solving
  - direct-connect problems 257
- space requirements, printer 288
- specifications
  - electrical and acoustic 288
  - space requirements 288
- startup period 3

- storing
  - fax pages in flash memory 56
- subsystem map 101
  - diagrams 101
- Support Tools menu, control panel 154
- system diagnostics
  - service menu 269

## T

- tests
  - paper path 85
  - scanner and document feeder
    - tests (MFP models only) 86
  - scanner tests 86
- theory of operations
  - engine control system 6
- TIP operations 54
- tips iii
- Tray 1
  - jams 236
- Tray 2/3
  - jams 240
- Tray Configuration menu (Dashboard), control panel 134
- troubleshooting
  - blank pages 254
  - checklist 58
  - control panel checks 70
  - direct-connect problems 257
  - flowchart 64
  - internal test and information pages 78
  - jams 232
  - lights, using 82
  - network problems 257
  - pages not printing 254
  - pages printing slowly 254
  - paper feed problems 228
  - power 66
  - process 64
  - USB cables 255
  - wired network 257

## U

- understand lights on the MPCA
  - MPCA lights 82
- understand the lights on the ACCM
  - ACCM LEDs 83

- understand the lights on the MPCA
  - MPCA LEDs 82
- upgrade firmware 282
- upgrades, downloading product firmware 281
- USB flash drive
  - firmware upgrade, control panel 282
- USB port
  - troubleshooting 255

## W

- warnings iii
- weight, printer 288
- Wi-Fi Direct Details menu (Dashboard), control panel 133
- WISE
  - solve fax problems 284