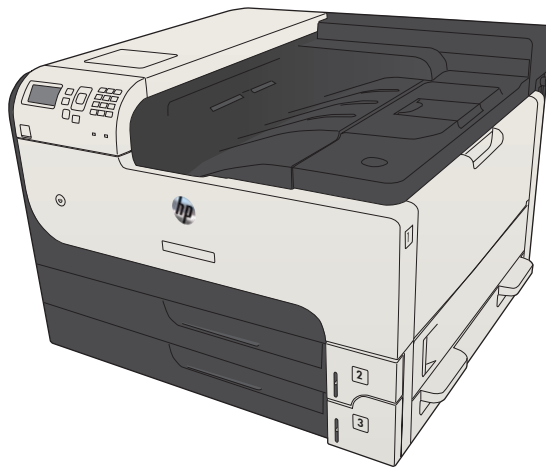




# LASERJET ENTERPRISE 700

## Troubleshooting Manual



M712





# HP LaserJet Enterprise 700 M712

## Troubleshooting Manual

## Copyright and License

© 2013 Copyright Hewlett-Packard 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.

Part number: CF235-90963

Edition 2, 01/2013

## Trademark Credits

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


Apple and the Apple logo are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. iPod is a trademark of Apple Computer, Inc. iPod is for legal or rightholder-authorized copying only. Don't steal music.

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


UNIX® is a registered trademark of The Open Group.


## Conventions used in this guide

---

 **TIP:** Tips provide helpful hints or shortcuts.

 **NOTE:** Notes provide important information to explain a concept or to complete a task.

 **CAUTION:** Cautions indicate procedures that you should follow to avoid losing data or damaging the product.

 **WARNING!** Warnings alert you to specific procedures that you should follow to avoid personal injury, catastrophic loss of data, or extensive damage to the product.

---



---

# Table of contents

<b>1 Theory of operation .....</b>	<b>1</b>
Basic operation .....	2
Function structure .....	2
Operation sequence .....	2
Engine control system .....	4
DC controller PCA .....	5
Motor control .....	6
Motor locations .....	7
Failure detection .....	7
Fan control .....	8
Fan locations .....	9
Failure detection .....	9
Low-voltage power-supply PCA .....	10
Over-current/over-voltage/overload protection .....	11
Safety interruption .....	11
Power supply voltage detection .....	11
Sleep mode .....	12
Power supply illumination control .....	12
High-voltage power-supply PCA .....	13
Fuser control .....	15
Fuser temperature control .....	17
Fuser heater protective function .....	17
Fuser failure detection .....	18
Pressure roller cleaning .....	19
Laser scanner system .....	20
Laser scanner failure detection .....	21
Laser scanner safety function .....	21
Image-formation system .....	22
Image-formation process .....	23
Latent-image formation block .....	24
Step 1: primary charging .....	24
Step 2: laser-beam exposure .....	25

Development block .....	25
Step 3: developing .....	25
Transfer block .....	26
Step 4: image transfer .....	26
Step 5: separation from the drum .....	26
Fuser block .....	27
Step 6: fusing .....	27
Drum-cleaning block .....	27
Step 7: drum cleaning .....	27
Toner cartridge .....	27
Other image-formation functions .....	29
Drum discharge .....	29
Transfer roller cleaning .....	29
Environment change control .....	30
Pickup, feed, and delivery system .....	31
Pickup and feed block .....	34
Cassette pickup .....	35
Cassette media-size detection and cassette-presence detection .....	35
Cassette lift operation .....	36
Lift-up operation .....	36
Lift-down operation .....	36
Cassette media-presence detection .....	37
Cassette multiple-feed prevention .....	37
MP tray pickup .....	39
MP tray media-presence detection .....	39
MP tray multiple-feed prevention .....	40
Feed-speed control .....	40
Skew-feed prevention .....	42
Media-length detection .....	43
Fuse and delivery block .....	44
Loop control .....	44
Output bin media-full detection .....	46
Jam detection .....	47
No pick jam 1 .....	47
Feed stay jam 1 .....	48
Fuser output delay jam 1 .....	48
Fuser output stay jam 1 .....	48
Output delay jam 1 .....	48
Output delay jam 2 .....	48
Output stay jam 1 .....	48
Residual paper jam 1 .....	49



Fuser wrap jam 1 .....	49
Door open jam 1 .....	49
Multiple-feed jam 1 .....	49
Automatic delivery .....	49
500-sheet paper feeder (Tray 4) .....	50
500-sheet paper feeder motor control .....	51
500-sheet paper feeder failure detection .....	51
500-sheet paper feeder pickup and feed operation .....	52
500-sheet paper feeder cassette pickup .....	53
500-sheet paper feeder cassette media-size detection and cassette-presence detection .....	53
500-sheet paper feeder lift-up operation .....	54
500-sheet paper feeder cassette media-presence detection .....	55
500-sheet paper feeder cassette multiple-feed prevention .....	55
500-sheet paper feeder jam detection .....	56
No pick jam 2 .....	56
Residual paper jam 1 .....	56
Door open jam 1 .....	57
500-sheet paper feeder automatic delivery .....	57
1x500 and 3x500 paper feeder and stand .....	58
Paper deck motor control .....	61
Paper deck failure detection .....	61
Paper deck pickup-and-feed operation .....	61
Paper deck cassette media-size detection and cassette-presence detection .....	63
Paper deck lift-up operation .....	64
Paper deck cassette media-presence detection .....	65
Paper deck jam detection .....	65
No pick jam 2 .....	65
No pick jam 3 (3x500-sheet paper deck only) .....	66
Residual paper jam 1 .....	66
Door open jam 1 .....	66
Paper deck automatic delivery .....	66
3,500-sheet high-capacity input (HCI) feeder .....	67
HCI motor control .....	69
HCI failure detection .....	69
HCI pickup-and-feed operation .....	70
HCI cassette media-size detection and cassette-presence detection .....	71
HCI lift-up operation .....	72
HCI cassette media-presence detection .....	72
HCI jam detection .....	74
No pick jam 2 .....	74

No pick jam 3 .....	74
Residual paper jam 1 .....	75
Door open jam 1 .....	75
HCI automatic delivery .....	75
Duplexer .....	76
Duplexer motor control .....	77
Duplexer motor failure detection .....	77
Duplexer fan control .....	78
Duplexer fan failure detection .....	78
Duplexer reverse and feed operation .....	78
Duplexer reverse and feed operation sequence .....	79
Side misregistration detection .....	80
Side misregistration failure detection .....	82
Duplexer jam detection .....	82
Fuser output stay jam 2 .....	82
Reverse jam 1 .....	83
Duplex re-pickup jam 1 .....	83
Duplex re-pickup jam 2 .....	83
Duplex re-pickup jam 3 .....	83
Residual paper jam 1 .....	83
Duplexer automatic delivery .....	83

## **2 Solve problems ..... 85**

Solve problems checklist .....	86
Menu map .....	88
Preboot menu options .....	89
Current settings pages .....	97
Troubleshooting process .....	98
Determine the problem source .....	98
Troubleshooting flowchart .....	98
Power subsystem .....	99
Power-on checks .....	99
Power-on troubleshooting overview .....	99
Tools for troubleshooting .....	101
Individual component diagnostics .....	101
LED diagnostics .....	101
Understand lights on the formatter .....	101
Engine diagnostics .....	104
Engine-test button .....	104
Paper path test .....	106
Paper path sensor tests .....	106

Manual sensor tests .....	108
Cartridge door switch (SW3) .....	110
Left door switch (SW1) .....	111
Right door sensor (SR8) .....	112
Cartridge install sensor (SR1) .....	113
Top (top-of-page) sensor (SR9) .....	114
Fuser loop sensor (SR6) .....	115
Fuser output sensor (SR12) .....	116
Duplex switchback sensor (SR1) .....	117
Duplexer refeed sensor (SR2) .....	118
Tray 4 feed sensor (SR1) .....	119
Output sensor (SR3) .....	120
Tray/bin manual sensor tests .....	121
Main product trays .....	123
Optional 500-sheet paper tray (Tray 4) .....	131
1x500 and 3x500 paper deck trays .....	136
HCl trays .....	138
Print/stop test .....	144
Component tests .....	145
Control-panel tests .....	145
Half self-test .....	145
Drum rotation test check .....	146
Component test (special-mode test) .....	146
Diagrams .....	148
Block diagrams .....	148
Location of connectors .....	153
DC controller connections .....	153
Plug/jack locations .....	155
Locations of major components .....	156
General timing charts .....	171
Circuit diagrams .....	172
Internal test pages .....	174
Clean the paper path .....	174
Set up an auto cleaning page .....	174
Print a configuration page .....	175
Configuration page .....	175
HP embedded Jetdirect page .....	176
Finding important information on the configuration pages .....	177
Control panel menus .....	178
Administration menu .....	178
Reports menu .....	178

General Settings menu .....	179
General Print Settings menu .....	185
Default Print Options menu .....	188
Display Settings menu .....	189
Manage Supplies menu .....	191
Manage Trays menu .....	192
Network Settings menu .....	194
Troubleshooting menu .....	208
Device Maintenance menu .....	210
Backup/Restore menu .....	210
Calibration/Cleaning menu .....	211
USB Firmware Upgrade menu .....	212
Service menu .....	212
Interpret control-panel messages .....	213
Control-panel message types .....	213
Control-panel messages .....	213
11.00.YY Internal clock error To continue, touch "OK" .....	213
20.00.00 Insufficient memory: <Device> To continue, touch "OK" .....	213
21.00.00 Page too complex To continue, touch "OK" .....	214
33.WX.YZ Used board/disk installed .....	214
40.00.01 USB I/O buffer overflow To continue, touch "OK" .....	214
40.00.02 Embedded I/O buffer overflow To continue, touch "OK" .....	214
40.00.03 EIO <X> buffer overflow To continue, touch "OK" .....	214
40.00.04 EIO <X> bad transmission To continue, touch "OK" .....	215
40.00.05 Embedded I/O bad transmission To continue, touch "OK" .....	215
41.03.YZ Unexpected size in Tray <X> .....	215
41.03.YZ Unexpected size in Tray <X> To use another tray, touch "Options" .....	216
41.05.YZ Unexpected type in Tray <X> .....	216
41.05.YZ Unexpected type in Tray <X> To use another tray, touch "Options" .....	217
41.WX.YZ Error To use another tray, touch "Options" .....	218
47.FC.YZ Printer calibration failed To continue, touch "OK" .....	220
47.WX.YZ Printer calibration failed .....	221
49.XX.YY Error To continue turn off then on .....	221
50.WX.YZ Fuser error To continue turn off then on .....	221
51.00.YY Error To continue turn off then on .....	225
52.00.00 Error To continue turn off then on .....	225
52.00.20 Error To continue turn off then on .....	226
52.<XX>.00 Error To continue turn off then on .....	226

54.XX.YY Error .....	226
55.XX.YY DC controller error To continue turn off then on .....	227
56.00.YY Error To continue turn off then on .....	227
57.00.0X Error .....	228
58.00.04 Error To continue turn off then on .....	228
59.00.00 Error To continue turn off then on .....	228
59.00.20 Error To continue turn off then on .....	229
59.00.30 Error To continue turn off then on .....	229
59.00.40 Error To continue turn off then on .....	229
59.05.50 Error To continue turn off then on .....	229
59.05.60 Error To continue turn off then on .....	230
60.00.0Y Tray <Y> lifting error .....	230
62.00.00 No system To continue turn off then on .....	230
69.11.YY Error To continue, touch "OK" .....	231
70.00.00 Error To continue turn off then on .....	231
81.WX.YZ Embedded JetDirect Error To continue turn off then on ..	231
81.YY.YY EIO Error To continue turn off then on .....	232
98.00.0X Corrupt data in X volume .....	232
<Binname> full Remove all paper from bin .....	232
Bad optional tray connection .....	233
Black Cartridge low .....	233
Black Cartridge very low .....	233
Black Cartridge very low To continue, touch "OK" .....	233
Card slot device failure To clear touch "Clear" .....	234
Card slot file operation failed To clear touch "Clear" .....	234
Card slot file system is full To clear touch "Clear" .....	234
Card slot is write protected To clear touch "Clear" .....	234
Card slot not initialized To clear touch "Clear" .....	234
Cartridge ship mode .....	235
Chosen personality not available To continue, touch "OK" .....	235
Cleaning disk <X>% complete Do not power off .....	235
Close left door .....	235
Close top cover .....	236
Data received .....	236
Disk full Delete stored jobs .....	236
Disk low Delete stored jobs .....	236
EIO <X> disk not functional .....	237
EIO <X> disk spinning up .....	237
EIO device failure To clear touch "Clear" .....	237
EIO file operation failed To clear touch "Clear" .....	237
EIO file system is full To clear touch "Clear" .....	237

EIO is write protected To clear touch "Clear" .....	238
EIO not initialized To clear touch "Clear" .....	238
Event log is empty .....	238
Fuser Kit Low .....	238
Fuser Kit very low .....	238
Fuser Kit very low To continue, touch "OK" .....	239
Incompatible <supply> .....	239
Incompatible supplies .....	239
Initializing... .....	240
Install Black Cartridge .....	240
Install Fuser Unit .....	240
Install supplies .....	240
Internal disk device failure To clear touch "Clear" .....	240
Internal disk file operation failed To clear touch "Clear" .....	241
Internal disk file system is full To clear touch "Clear" .....	241
Internal disk is write protected To clear touch "Clear" .....	241
Internal disk not found .....	241
Internal disk not functional .....	241
Internal disk not initialized To clear touch "Clear" .....	242
Internal disk spinning up .....	242
Load Tray 1 [Type] [Size] .....	242
Load Tray 1 [Type] [Size] To continue, touch "OK" .....	242
Load Tray <X>: [Size] .....	242
Load Tray <X>: [Size] To continue, touch "OK" .....	243
Load Tray <X>: [Size] To use another tray, touch "Options" .....	243
Load Tray <X>: [Type], [Size] .....	243
Load Tray <X>: [Type], [Size] To use another tray, touch "Options" .....	244
Manually feed output stack Then touch "OK" to print second sides	244
Manually feed: [Size] .....	245
Manually feed: [Size] To continue, touch "OK" .....	245
Manually feed: [Size] To use another tray, touch "Options" .....	245
Manually feed: [Type], [Size] To continue, touch "OK" .....	246
Manually feed: [Type], [Size] To use another tray, touch "Options" .....	246
No job to cancel .....	246
Output Bin full .....	246
Paperless mode .....	247
Printing Engine Test... .....	247
Printing stopped To continue, touch "OK" .....	247
RAM Disk device failure To clear touch "Clear" .....	247

RAM Disk file operation failed To clear touch "Clear" .....	247
RAM Disk file system is full To clear touch "Clear" .....	248
RAM Disk is write protected To clear touch "Clear" .....	248
RAM Disk not initialized To clear touch "Clear" .....	248
Remove cartridge lock .....	248
Remove the toner cartridge .....	248
Replace Black Cartridge .....	249
Replace Fuser Kit .....	249
Replace supplies .....	249
ROM disk device failed To clear touch "Clear" .....	250
ROM disk file operation failed To clear touch "Clear" .....	250
ROM disk file system is full To clear touch "Clear" .....	250
ROM disk is write protected To clear touch "Clear" .....	250
ROM disk not initialized To clear touch "Clear" .....	250
Size mismatch in Tray <X> .....	251
Standard bin full Remove all paper from bin .....	251
Supplies low .....	251
Supplies very low To continue, touch "OK" .....	251
Supply memory warning .....	252
Tray <X> empty: [Size] .....	252
Tray <X> empty: [Type], [Size] .....	252
Tray <X> open .....	252
Tray <X> overfilled Remove excess paper .....	253
Tray <X> overfilled To use another tray, touch "Options" .....	253
Type mismatch Tray <X> .....	253
Unable to cancel firmware update job .....	254
Unable to install the firmware .....	254
Unsupported drive installed .....	254
Unsupported supply in use .....	254
Unsupported supply installed .....	255
Unsupported supply installed To continue, touch "OK" .....	255
Unsupported tray configuration .....	255
Unsupported USB accessory detected Remove USB accessory .....	255
Upgrade complete To continue turn off then on .....	256
USB accessory needs too much power Remove USB and turn off then on .....	256
USB accessory not functional .....	256
USB hubs are not fully supported Some operations may not work properly .....	256
USB is write protected To clear touch "Clear" .....	256
USB not initialized To clear touch "Clear" .....	257

USB storage accessory removed Clearing any associated data .....	257
USB storage device failure To clear touch "Clear" .....	257
USB storage file operation failed To clear touch "Clear" .....	257
USB storage file system is full To clear touch "Clear" .....	257
Used supply in use .....	257
Used supply installed To continue, touch "OK" .....	258
Event log messages .....	259
Print or view an event log .....	260
Clear an event log .....	260
Event log message table .....	260
Clear jams .....	263
Jam locations .....	263
Auto-navigation for clearing jams .....	263
Clear jams in the output-bin area .....	264
Clear jams in Tray 1 .....	264
Clear jams in Tray 2 or Tray 3 .....	265
Clear jams in the 500-sheet trays .....	267
Clear jams in the 3,500-sheet high-capacity tray .....	268
Clear jams from the toner-cartridge area .....	271
Clear jams in the fuser .....	274
Clear jams from the duplexer .....	276
Solve paper-handling problems .....	277
The product picks up multiple sheets of paper .....	277
The product does not pick up paper .....	277
Use manual print modes .....	278
Print quality troubleshooting tools .....	280
Repetitive defects measurements .....	280
Solve image-quality problems .....	281
Image defect examples .....	281
Clean the product .....	289
Print a cleaning page .....	289
Solve performance problems .....	290
Solve connectivity problems .....	291
Solve USB connection problems .....	291
Solve wired network problems .....	291
The product has a poor physical connection. ....	291
The computer is using the incorrect IP address for the product .....	291
The computer is unable to communicate with the product .....	292
The product is using incorrect link and duplex settings for the network .....	292
New software programs might be causing compatibility problems .....	292
The computer or workstation might be set up incorrectly .....	292



The product is disabled, or other network settings are incorrect .....	292
Service mode functions .....	293
Service menu .....	293
Product resets .....	294
Restore factory-set defaults .....	294
Restore the service ID .....	294
Product cold reset .....	295
Format Disk and Partial Clean functions .....	296
Active and repository firmware locations .....	296
Partial Clean .....	296
Execute a 3 Partial Clean .....	297
Format Disk .....	297
Execute a 2 Format Disk .....	298
Product firmware upgrades .....	299
Determine the installed revision of firmware .....	299
Perform a firmware upgrade .....	299
Embedded Web Server .....	299
USB storage device (Preboot menu) .....	300
USB storage device (control-panel menu) .....	302

## **Appendix A Service and support ..... 303**

Hewlett-Packard limited warranty statement .....	304
HP's Premium Protection Warranty: LaserJet toner cartridge limited warranty statement .....	306
HP policy on non-HP supplies .....	307
HP anticounterfeit Web site .....	308
Data stored on the toner cartridge .....	309
End User License Agreement .....	310
OpenSSL .....	313
Customer self-repair warranty service .....	314
Customer support .....	315

## **Appendix B Product specifications ..... 317**

Physical specifications .....	318
Power consumption, electrical specifications, and acoustic emissions .....	318
Environmental specifications .....	318

## **Appendix C Regulatory information ..... 319**

FCC regulations .....	320
Environmental product stewardship program .....	321
Protecting the environment .....	321

Ozone production .....	321
Power consumption .....	321
Toner consumption .....	321
Paper use .....	321
Plastics .....	321
HP LaserJet print supplies .....	322
Return and recycling instructions .....	322
United States and Puerto Rico .....	322
Multiple returns (more than one cartridge) .....	322
Single returns .....	322
Shipping .....	322
Non-U.S. returns .....	323
Paper .....	323
Material restrictions .....	323
Disposal of waste equipment by users .....	324
Electronic hardware recycling .....	324
Chemical substances .....	324
Material Safety Data Sheet (MSDS) .....	324
For more information .....	324
Declaration of conformity .....	326
Safety statements .....	328
Laser safety .....	328
Canadian DOC regulations .....	328
VCCI statement (Japan) .....	328
Power cord instructions .....	328
Power cord statement (Japan) .....	328
EMC statement (China) .....	329
EMC statement (Korea) .....	329
EMI statement (Taiwan) .....	329
Laser statement for Finland .....	329
GS statement (Germany) .....	331
Substances Table (China) .....	331
Restriction on Hazardous Substances statement (Turkey) .....	331
Restriction on Hazardous Substances statement (Ukraine) .....	331

<b>Index .....</b>	<b>333</b>
--------------------	------------

---

# List of tables

Table 1-1	Operation sequence .....	3
Table 1-2	Motor locations .....	7
Table 1-3	Fan locations .....	9
Table 1-4	Low voltage power supply DC power specifications .....	10
Table 1-5	Pickup, feed, and delivery system sensors and switches .....	32
Table 1-6	Pickup, feed, and delivery system solenoid and motors .....	33
Table 1-7	Media switch combinations .....	36
Table 1-8	500-sheet paper feeder electrical components .....	51
Table 1-9	500-sheet paper feeder motors .....	51
Table 1-10	500-sheet paper feeder pickup and feed components .....	52
Table 1-11	500-sheet paper feeder media switch combinations .....	54
Table 1-12	Paper deck electrical components .....	59
Table 1-13	Paper deck motors .....	61
Table 1-14	Paper deck pickup-and-feed operation components .....	62
Table 1-15	Paper deck media switch combinations .....	63
Table 1-16	HCI electrical components .....	68
Table 1-17	HCI motors .....	69
Table 1-18	HCI pickup-and-feed operation components .....	70
Table 1-19	Duplexer electrical components .....	77
Table 1-20	Duplexer motor .....	77
Table 1-21	Duplexer fan .....	78
Table 1-22	Duplexer reverse and feed components .....	79
Table 2-1	Preboot menu options (1 of 6) .....	90
Table 2-2	Preboot menu options (2 of 6) .....	92
Table 2-3	Preboot menu options (3 of 6) .....	93
Table 2-4	Preboot menu options (4 of 6) .....	94
Table 2-5	Preboot menu options (5 of 6) .....	94
Table 2-6	Preboot menu options (6 of 6) .....	95
Table 2-7	Troubleshooting flowchart .....	98
Table 2-8	Heartbeat LED, product initialization .....	102
Table 2-9	Paper-path sensors .....	107
Table 2-10	Manual sensor tests .....	108

Table 2-11	Tray/bin manual sensor test .....	121
Table 2-12	Component tests .....	146
Table 2-13	Product cross section .....	148
Table 2-14	Optional paper feeder (Tray 4) cross section .....	149
Table 2-15	1x500-sheet paper deck cross section .....	150
Table 2-16	3x500-sheet paper deck cross section .....	151
Table 2-17	3,500-sheet HCI cross section .....	152
Table 2-18	DC controller connections .....	153
Table 2-19	Plug/jack locations .....	155
Table 2-20	External component locations .....	156
Table 2-21	Major component locations (1 of 3) .....	157
Table 2-22	Major component locations (2 of 3) .....	158
Table 2-23	Major component locations (3 of 3) .....	158
Table 2-24	PCA locations .....	159
Table 2-25	Motor locations .....	160
Table 2-26	Fan locations .....	160
Table 2-27	Roller locations .....	161
Table 2-28	500-sheet feeder external component locations .....	162
Table 2-29	500-sheet feeder internal component locations .....	163
Table 2-30	1x500 paper deck external component locations .....	164
Table 2-31	1x500 paper deck internal component locations .....	165
Table 2-32	3x500 paper deck external component locations .....	166
Table 2-33	3x500 paper deck internal component locations .....	167
Table 2-34	HCI external component locations .....	168
Table 2-35	HCI internal component locations (1 of 2) .....	169
Table 2-36	HCI internal component locations (2 of 2) .....	170
Table 2-37	Important information on the configuration pages .....	177
Table 2-38	<b>Reports</b> menu .....	178
Table 2-39	<b>General Settings</b> menu .....	179
Table 2-40	<b>General Print Settings</b> menu .....	186
Table 2-41	<b>Default Print Options</b> menu .....	188
Table 2-42	<b>Display Settings</b> menu .....	190
Table 2-43	<b>Manage Supplies</b> menu .....	191
Table 2-44	<b>Manage Trays</b> menu .....	193
Table 2-45	<b>Network Settings</b> menu .....	195
Table 2-46	<b>Jetdirect Menu</b> .....	195
Table 2-47	<b>Troubleshooting</b> menu .....	208
Table 2-48	<b>Backup/Restore</b> menu .....	211
Table 2-49	<b>Calibration/Cleaning</b> menu .....	211
Table 2-50	Print modes under the <b>Adjust Paper Types</b> sub menu .....	278
Table 2-51	MP modes under the <b>Optimize</b> submenu .....	279

Table 2-52	Image defect examples .....	281
Table 2-53	Solve performance problems .....	290
Table B-1	Product dimensions and weights .....	318
Table B-2	Product dimensions with all doors and trays fully opened .....	318
Table B-3	Operating-environment specifications .....	318



---

# List of figures

Figure 1-1	Function structure .....	2
Figure 1-2	Engine control system .....	4
Figure 1-3	DC controller PCA .....	5
Figure 1-4	Motor locations .....	7
Figure 1-5	Fan locations .....	9
Figure 1-6	Low-voltage power-supply PCA .....	10
Figure 1-7	High-voltage power-supply PCA .....	13
Figure 1-8	Fuser components .....	15
Figure 1-9	Fuser control system .....	16
Figure 1-10	Laser scanner system .....	20
Figure 1-11	Image-formation system .....	22
Figure 1-12	Image-formation components .....	23
Figure 1-13	Image-formation process .....	24
Figure 1-14	Primary charging .....	24
Figure 1-15	Laser-beam exposure .....	25
Figure 1-16	Developing .....	25
Figure 1-17	Image transfer .....	26
Figure 1-18	Separation from the drum .....	26
Figure 1-19	Fusing .....	27
Figure 1-20	Drum cleaning .....	27
Figure 1-21	Toner cartridge components .....	28
Figure 1-22	Drum discharge .....	29
Figure 1-23	Transfer roller cleaning .....	30
Figure 1-24	Pickup, feed, and delivery system .....	31
Figure 1-25	Pickup, feed, and delivery system sensors and switches .....	32
Figure 1-26	Pickup, feed, and delivery-system solenoid and motors .....	33
Figure 1-27	Pickup and feed block .....	34
Figure 1-28	Cassette pickup mechanism .....	35
Figure 1-29	Cassette lift operation .....	37
Figure 1-30	Cassette multiple feed prevention .....	38
Figure 1-31	MP tray pickup .....	39
Figure 1-32	MP tray multiple-feed prevention .....	40

Figure 1-33	Skew-feed prevention .....	42
Figure 1-34	Fuse and delivery block .....	44
Figure 1-35	Loop control .....	45
Figure 1-36	Output bin media-full detection .....	46
Figure 1-37	Product engine jam detection sensors and switches .....	47
Figure 1-38	500-sheet paper feeder paper path .....	50
Figure 1-39	500-sheet paper feeder signal flow .....	50
Figure 1-40	500-sheet paper feeder motor locations .....	51
Figure 1-41	500-sheet paper feeder pickup and feed components .....	52
Figure 1-42	500-sheet paper feeder pickup and feed cassette pickup .....	53
Figure 1-43	500-sheet paper feeder lift-up operation .....	54
Figure 1-44	500-sheet paper feeder multiple-feed prevention .....	56
Figure 1-45	500-sheet paper feeder cassette jam detection sensor .....	56
Figure 1-46	Paper deck paper path .....	58
Figure 1-47	Paper deck signal flow .....	59
Figure 1-48	Paper deck motors .....	61
Figure 1-49	Paper deck pickup and feed components .....	62
Figure 1-50	Paper deck lift-up operation .....	64
Figure 1-51	Paper deck jam detection sensors .....	65
Figure 1-52	HCI paper path .....	67
Figure 1-53	HCI signal flow .....	68
Figure 1-54	HCI motors .....	69
Figure 1-55	HCI pickup-and-feed operation .....	70
Figure 1-56	HCI lift-up operation .....	72
Figure 1-57	HCI jam detection sensors .....	74
Figure 1-58	Duplexer paper path .....	76
Figure 1-59	Duplexer signal flow .....	76
Figure 1-60	Duplexer motor .....	77
Figure 1-61	Duplexer fan .....	78
Figure 1-62	Duplexer reverse and feed operation .....	79
Figure 1-63	Duplexer side misregistration detection .....	81
Figure 1-64	Duplexer jam detection sensors .....	82
Figure 2-1	Locating the engine-test-page switch .....	105
Figure 2-2	Test the cartridge door switch .....	110
Figure 2-3	Test the left door switch .....	111
Figure 2-4	Test the top sensor .....	114
Figure 2-5	Fuser loop sensor .....	115
Figure 2-6	Fuser output sensor .....	116
Figure 2-7	Duplex switchback sensor .....	117
Figure 2-8	Duplexer refeed sensor .....	118
Figure 2-9	Tray 4 feed sensor .....	119



Figure 2-10	Output sensor .....	120
Figure 2-11	Tray 1 paper sensor .....	123
Figure 2-12	Tray 2 paper sensor .....	124
Figure 2-13	Tray 2 paper surface sensor .....	125
Figure 2-14	Tray 2 paper size switches .....	126
Figure 2-15	Tray 3 paper sensor .....	127
Figure 2-16	Tray 3 paper surface sensor .....	128
Figure 2-17	Tray 3 paper size switches .....	129
Figure 2-18	Output bin full sensor .....	130
Figure 2-19	Tray 4 paper sensor .....	131
Figure 2-20	Tray 4 paper surface sensor .....	132
Figure 2-21	Tray 4 paper size switches .....	133
Figure 2-22	Tray 4 feed sensor .....	134
Figure 2-23	Lower right door sensor .....	135
Figure 2-24	Test the Tray 4 door switch .....	136
Figure 2-25	Tray 4 paper sensor .....	138
Figure 2-26	Tray 4 paper surface sensor .....	139
Figure 2-27	Tray 4 paper size sensor .....	139
Figure 2-28	Tray 4 paper feed sensor .....	140
Figure 2-29	Tray 4 door open sensor .....	141
Figure 2-30	Tray 5 paper sensor .....	141
Figure 2-31	Tray paper surface sensor .....	142
Figure 2-32	Tray 5 paper size sensor .....	143
Figure 2-33	Tray 5 feed sensor .....	143
Figure 2-34	HCI exit sensor .....	144
Figure 2-35	Product cross section .....	148
Figure 2-36	Optional paper feeder (Tray 4) cross section .....	149
Figure 2-37	1x500-sheet paper deck cross section .....	150
Figure 2-38	3x500-sheet paper deck cross section .....	151
Figure 2-39	3,500-sheet HCI cross section .....	152
Figure 2-40	DC controller connections .....	153
Figure 2-41	External component locations .....	156
Figure 2-42	Major component locations (1 of 3) .....	157
Figure 2-43	Major component locations (2 of 3) .....	158
Figure 2-44	Major component locations (3 of 3) .....	158
Figure 2-45	PCA locations .....	159
Figure 2-46	Motor locations .....	160
Figure 2-47	Fan locations .....	160
Figure 2-48	Roller locations .....	161
Figure 2-49	500-sheet feeder external component locations .....	162
Figure 2-50	500-sheet feeder internal component locations .....	163

Figure 2-51	1x500 paper deck external component locations .....	164
Figure 2-52	1x500 paper deck internal component locations .....	165
Figure 2-53	3x500 paper deck external component locations .....	166
Figure 2-54	3x500 paper deck internal component locations .....	167
Figure 2-55	HCI external component locations .....	168
Figure 2-56	HCI internal component locations (1 of 2) .....	169
Figure 2-57	HCI internal component locations (2 of 2) .....	170
Figure 2-58	General timing chart .....	171
Figure 2-59	General circuit diagram (1 of 2) .....	172
Figure 2-60	General circuit diagram (2 of 2) .....	173
Figure 2-61	Configuration page .....	175
Figure 2-62	HP embedded Jetdirect page .....	176
Figure 2-63	Sample event log .....	259

---

# 1 Theory of operation

- [Basic operation](#)
- [Engine control system](#)
- [Laser scanner system](#)
- [Image-formation system](#)
- [Pickup, feed, and delivery system](#)
- [500-sheet paper feeder \(Tray 4\)](#)
- [1x500 and 3x500 paper feeder and stand](#)
- [3,500-sheet high-capacity input \(HCI\) feeder](#)
- [Duplexer](#)

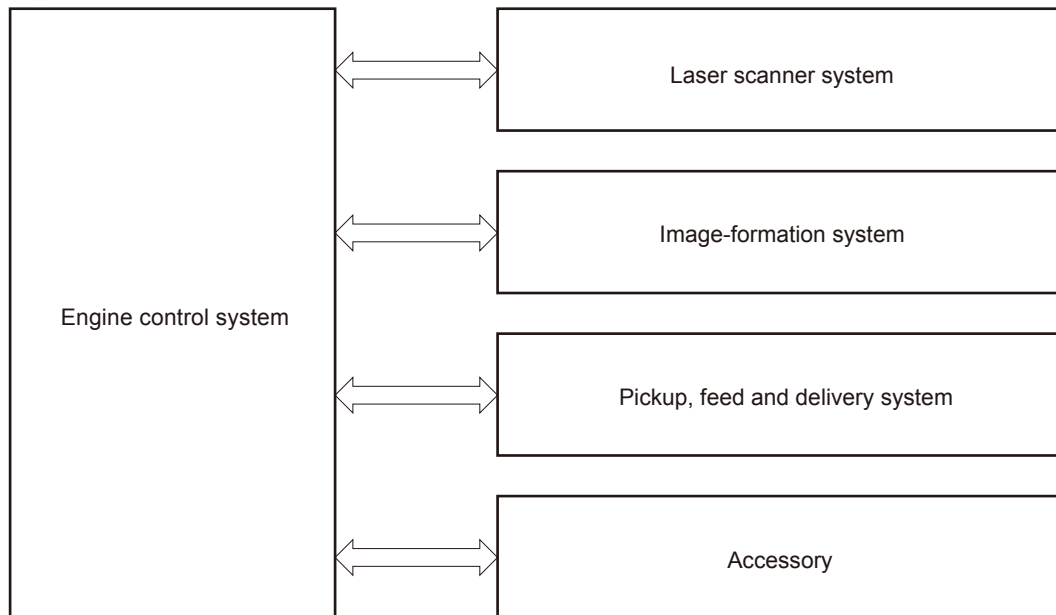
# Basic operation

## Function structure

The product contains the following systems:

- Engine control system
- Laser scanner system
- Image-formation system
- Pickup, feed and delivery system
- Accessory

**Figure 1-1** Function structure



## Operation sequence

The DC controller in the engine-control system controls the operational sequences. The following table describes durations and operations for each period of a print operation from when the product is turned on until the motors stop rotating.

**Table 1-1 Operation sequence**

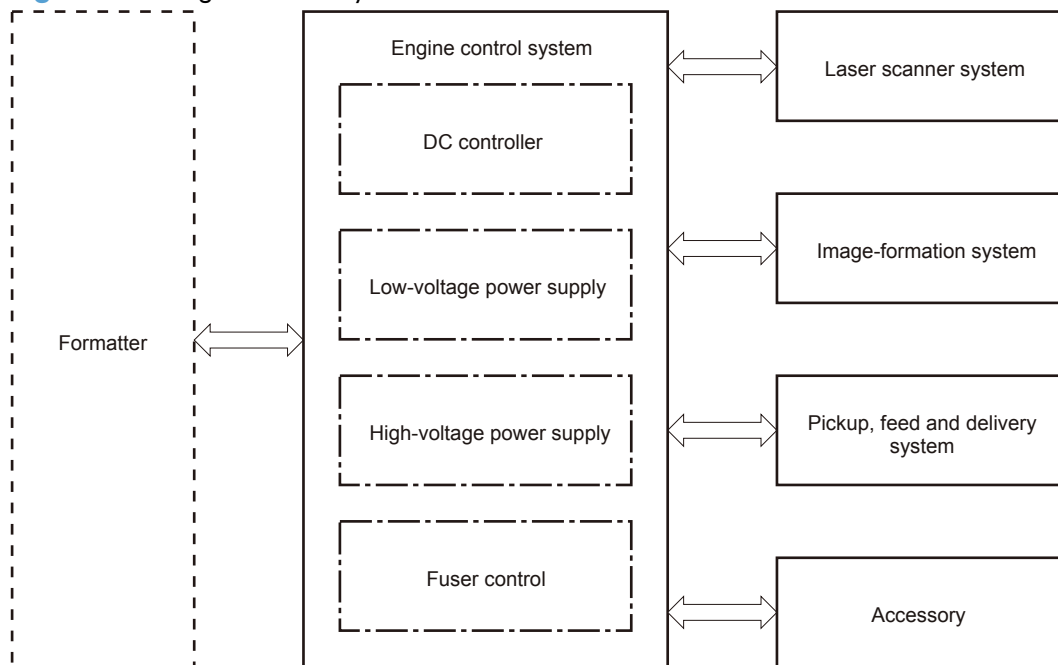
<b>Period</b>	<b>Duration</b>	<b>Purpose</b>
WAIT period	From the time the power switch is turned on, the door is closed or product exits Sleep mode until the product is ready for a print operation.	Brings the product to the Ready state. <ul style="list-style-type: none"><li>• Detects the failure of the low-voltage power supply</li><li>• Detects the connection with the accessories</li><li>• Detects the presence of cartridge</li><li>• Rotates and then stops each motor and fan</li><li>• Checks the fuser temperature</li><li>• Heats the fuser film</li><li>• Detects any residual paper and clears it automatically</li><li>• Initializes the high-voltage bias</li><li>• Cleans the photosensitive drum</li><li>• Detects the toner level</li></ul>
STBY (Standby period)	From the end of WAIT or LSTR period until either a print command is sent or the power switch is turned off.	Maintains the product in printable condition. <ul style="list-style-type: none"><li>• Enters Sleep mode if the sleep command is received</li><li>• Rotates and then stops each fan</li></ul>
INTR (Initial rotation)	From the time the print command is received until the product picks up the paper.	Prepares the product for a print job. <ul style="list-style-type: none"><li>• Rotate the motors</li><li>• Rotate the fans</li><li>• Outputs the high-voltage bias</li><li>• Starts up the laser scanner assembly</li><li>• Warms up the fuser heater</li></ul>
PRINT	From the end of the INTR period until the last sheet is delivered.	Processes the print job. <ul style="list-style-type: none"><li>• Forms the image on the photosensitive drum</li><li>• Transfers toner to the paper</li><li>• Fuses the toner image onto the paper</li></ul>
LSTR (Last rotation)	From the end of the PRINT period until the motor stops rotating.	Stops each load. <ul style="list-style-type: none"><li>• Stops the motors and fans</li><li>• Stops the high-voltage bias</li><li>• Stops the laser scanner assembly</li><li>• Stops the fuser heater</li></ul> <p>The product enters the INTR period as the LSTR period is complete if the formatter sends another print command.</p>

# Engine control system

The engine-control system coordinates all the other systems, according to commands from the formatter. The engine-control system contains the following components:

- DC controller PCA
- Low-voltage power supply unit
- High-voltage power supply PCA
- Fuser control

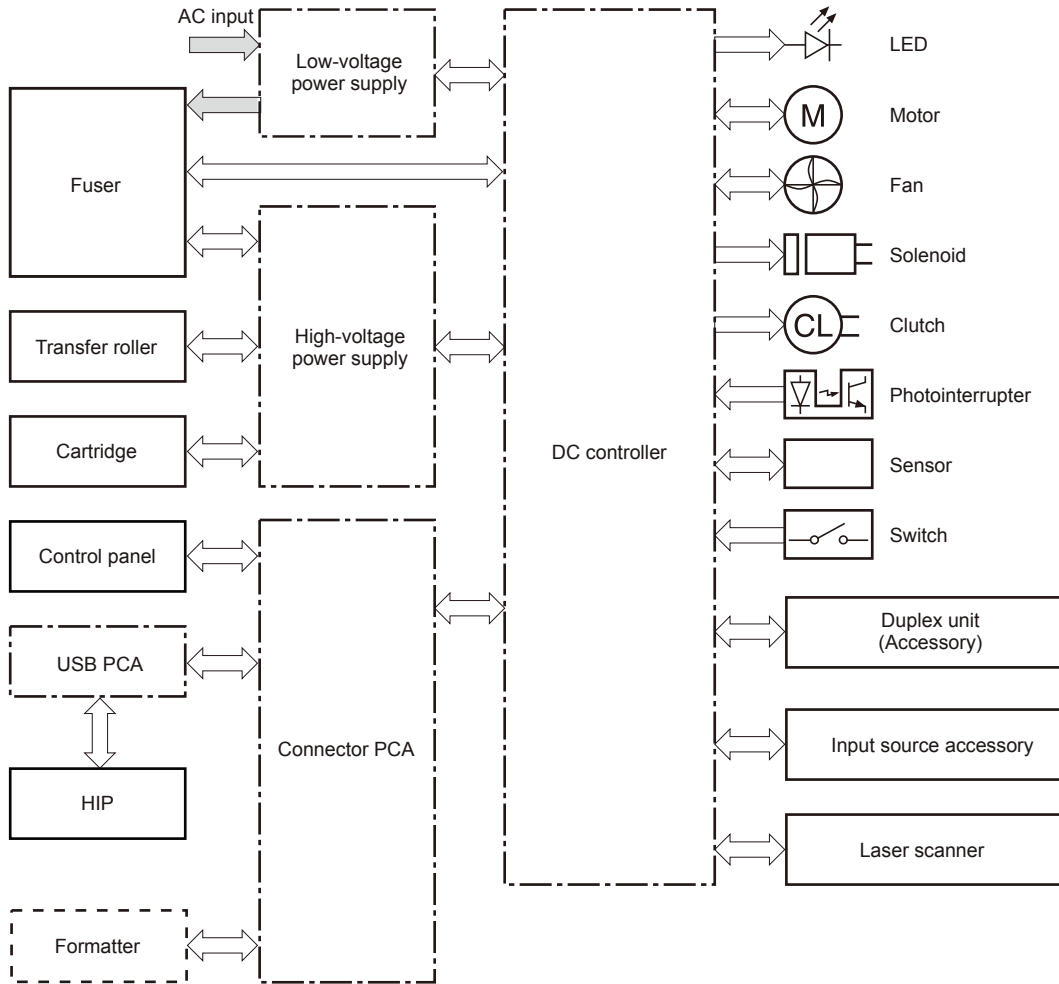
**Figure 1-2** Engine control system



# DC controller PCA

The DC controller PCA controls the product operation sequence.

**Figure 1-3** DC controller PCA



The following table lists the product electrical components.

Component type	Component abbreviation	Component name
Switch	SW1	Left door interlock switch
	SW2	Cartridge door interlock switch
	SW3	Cartridge door open detection switch
	SW4	Upper cassette media width switch
	SW5	Lower cassette media width switch
	SW6	Upper cassette media end switch
	SW7	Lower cassette media end switch
	—	Power switch

<b>Component type</b>	<b>Component abbreviation</b>	<b>Component name</b>
Solenoid	SL1	Tray 1 (MP tray) pickup solenoid
Clutch	CL1	Upper cassette pickup clutch
	CL2	Lower cassette pickup clutch
Fan	FM1	Rear fan
	FM2	Front fan
	FM3	Fuser fan
Photointerrupter	SR1	Cartridge presence sensor
	SR2	MP tray media out sensor
	SR3	Output sensor
	SR4	Output bin media full sensor
	SR5	Lower cassette media out sensor
	SR6	Loop sensor
	SR7	Upper cassette media out sensor
	SR8	Right door sensor
	SR9	TOP sensor
	SR10	Upper cassette lift-up sensor
	SR11	Lower cassette lift-up sensor
	SR12	Fuser output sensor
Sensor	—	Environment sensor
Motor	M1	Drum motor
	M2	Scanner motor
	M3	Fuser motor
	M4	Upper cassette lifter motor
	M5	Lower cassette lifter motor

## Motor control

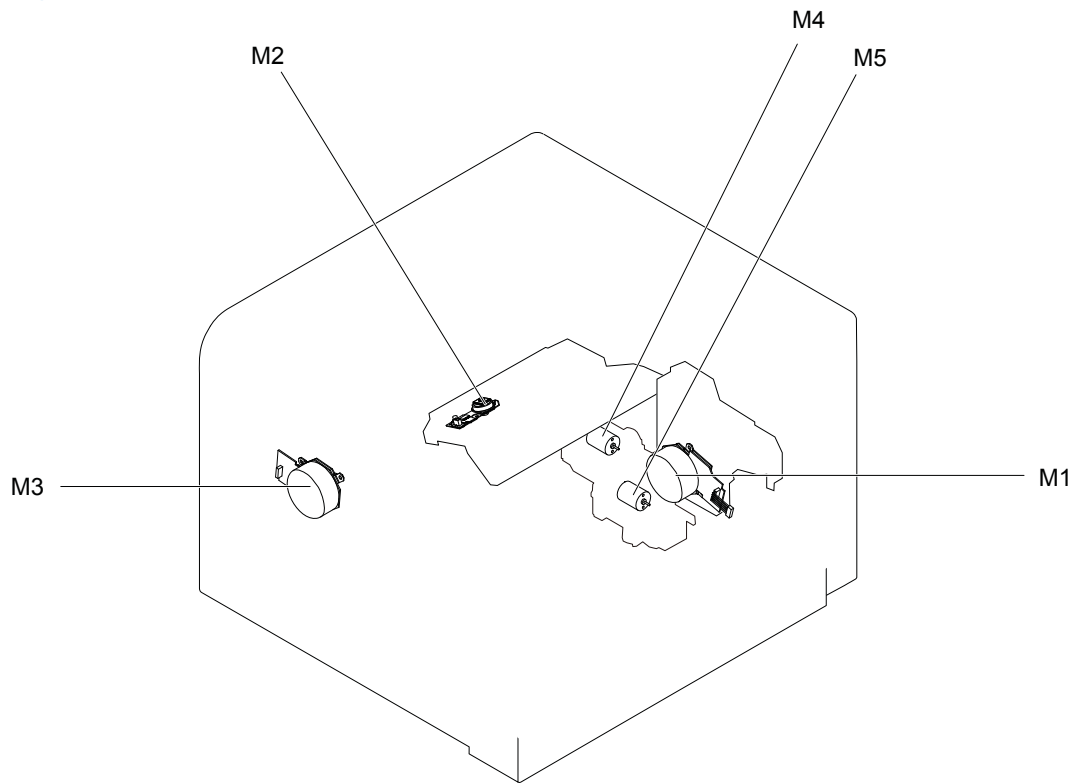
The product has five motors for the paper-feed and image-formation.



## Motor locations

The following figure shows the product motor locations.

**Figure 1-4** Motor locations



**Table 1-2** Motor locations

Motor		Components driven by motor
M1	Drum motor	Photosensitive drum, transfer roller, registration roller, MP tray pickup roller, cassette pickup roller, and feed roller
M2	Scanner motor	Laser scanner mirror
M3	Fuser motor	Pressure roller, fuser output roller, intermediate output roller and paper delivery roller
M4	Upper cassette lifter motor	Lifter for the upper cassette
M5	Lower cassette lifter motor	Lifter for the lower cassette

## Failure detection

The DC controller monitors the following motors to determine a motor failure:

- Drum motor
- Scanner motor
- Fuser motor

The DC controller determines if the motor has failed and notifies the formatter when the motor encounters the following conditions:

- Startup failure — The motor does not reach a specified rotational count within a specified time from when the motor starts.
- Rotational failure — The rotational speed of the motor is not in the specified range for a specified time after the motor reaches a specified speed.

The DC controller notifies the formatter of a BD (beam detect) failure when it detects a rotational failure of the scanner motor.

The DC controller monitors the related part condition of the following motors to determine a motor failure:

- Upper cassette lifter motor
- Lower cassette lifter motor

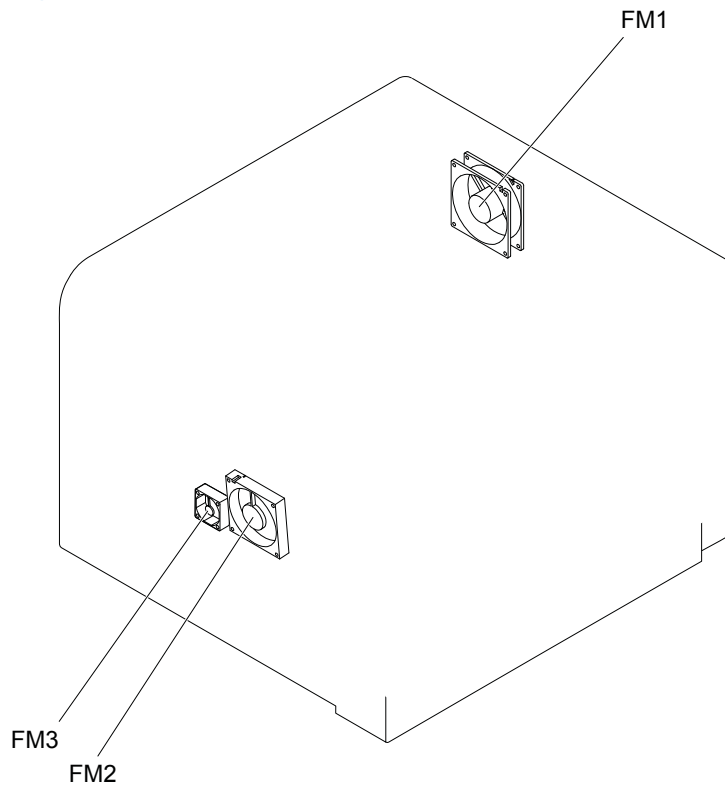
## Fan control

The product has three fans for preventing the temperature from rising in the product and cooling down the delivered paper.

## Fan locations

The following figure shows the product fan locations.

**Figure 1-5** Fan locations



**Table 1-3** Fan locations

Fan		Cooling area	Type	Speed
FM1	Rear fan	Product inside and low-voltage power supply area	Exhaust	Full/Mid/Low
FM2	Front fan	Product inside	Intake	Full
FM3	Fuser fan	Fuser area	Intake	Full

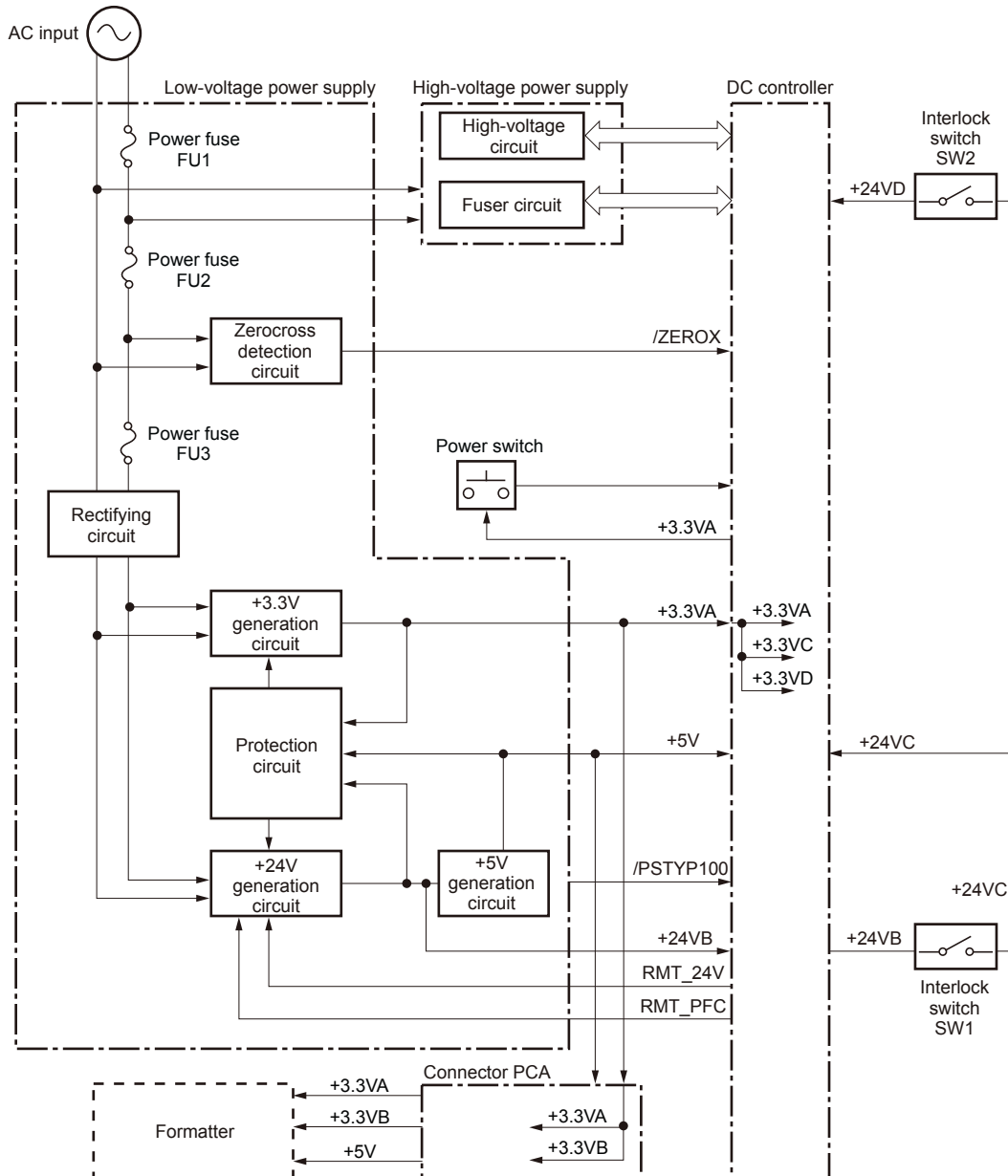
## Failure detection

The DC controller determines if the fan has failed and notifies the formatter when the fan stops rotating for a specified time during start-up.

## Low-voltage power-supply PCA

The low-voltage power supply converts AC power into the DC voltage that product components use.

**Figure 1-6** Low-voltage power-supply PCA



The following table shows the specifications for the DC power supply.

**Table 1-4** Low voltage power supply DC power specifications

DC voltage	Behavior
+24V +24VB	Off during Sleep mode (sleep level1, active off and inactive off)
+24VC	Off during Sleep mode (sleep level1, active off and inactive off) Interrupted when the left door open
+24VD	Off during Sleep mode (sleep level1, active off and inactive off) Interrupted when the left door or the cartridge door open

**Table 1-4 Low voltage power supply DC power specifications (continued)**

DC voltage		Behavior
+5V	+5V	Off during Sleep mode (sleep level1, active off and inactive off)
+3.3V	+3.3VA	Constantly supplied
	+3.3VB	Off during Sleep mode (inactive off)
	+3.3VC	Off during Sleep mode (active off and inactive off)
	+3.3VD	Off during Sleep mode (sleep level1, active off and inactive off)

## Over-current/over-voltage/overload protection

The over-current/overvoltage protection automatically stops the DC voltage to the product components whenever an excessive current or abnormal voltage is detected. The overload protection automatically stops the DC voltage to the product components whenever the temperature of the low-voltage power supply PCA rises to specified degrees.

The low-voltage power supply has a protective circuit against over-current, over-voltage and overload to prevent failures in the power supply circuit. If DC voltage is not being supplied from the low-voltage power supply, the protective function might be running. In this case, turn the power off and unplug the power cord. Do not turn the product switch on until the root cause is found and corrected.

The DC controller determines a low-voltage power supply failure and notifies the formatter when the protective function runs.

In addition, the low-voltage power supply has three fuses to protect against over-current. If over-current flows into the AC line, the fuse blows to stop AC power.

## Safety interruption

For user and service technician's safety, the product interrupts the power supply of +24V by turning off the interlock switch. The DC power to the following components is interrupted:

- High-voltage power supply
- Fuser motor

The remote switch control circuit turns on or off the product so that the AC power flows even the power switch is turned off. Be sure to unplug the power cord before disassembling the product.

## Power supply voltage detection

The power supply voltage detection controls the fuser properly according to the voltage. The DC controller detects whether the low-voltage power supply voltage is 100V or 220V according to the POWER SUPPLY VOLTAGE signal (/PSTYP100).

## Sleep mode

The Sleep mode reduces the power consumption of the product. There are three types of sleep mode:

- Sleep level 1

The DC controller stops the power supply of +24V according to the +24V CONTROL signal (RMT\_24V) and POWER FACTOR CORRECTION ACTIVATE signal (RMT\_PFC) after a specified period of time from when a sleep command signal is sent from the formatter. The DC controller supplies +24V and the product exits sleep level 1 when a recover signal is sent from the formatter.

- Active off

The DC controller stops the power supplies except for +3.3VA and +3.3VB to the formatter when an active off command signal is sent from the formatter during sleep level 1 or STBY period. The DC controller supplies all power supplies and the product exits active off when a recover signal is sent from the formatter or the power switch is depressed for shorter than three seconds.

- Inactive off

The DC controller stops the power supplies except for +3.3VA to the formatter when an inactive off command signal is sent from the formatter during sleep level 1 or STBY period. The product enters inactive off when the power switch is depressed for longer than three seconds. The DC controller supplies all power supplies and the product exits inactive off when a recover signal is sent from the formatter or the power switch is depressed for shorter than three seconds.

## Power supply illumination control

The DC controller changes the light of the LED (power supply illumination) for the power switch according to the power supply condition as follows:

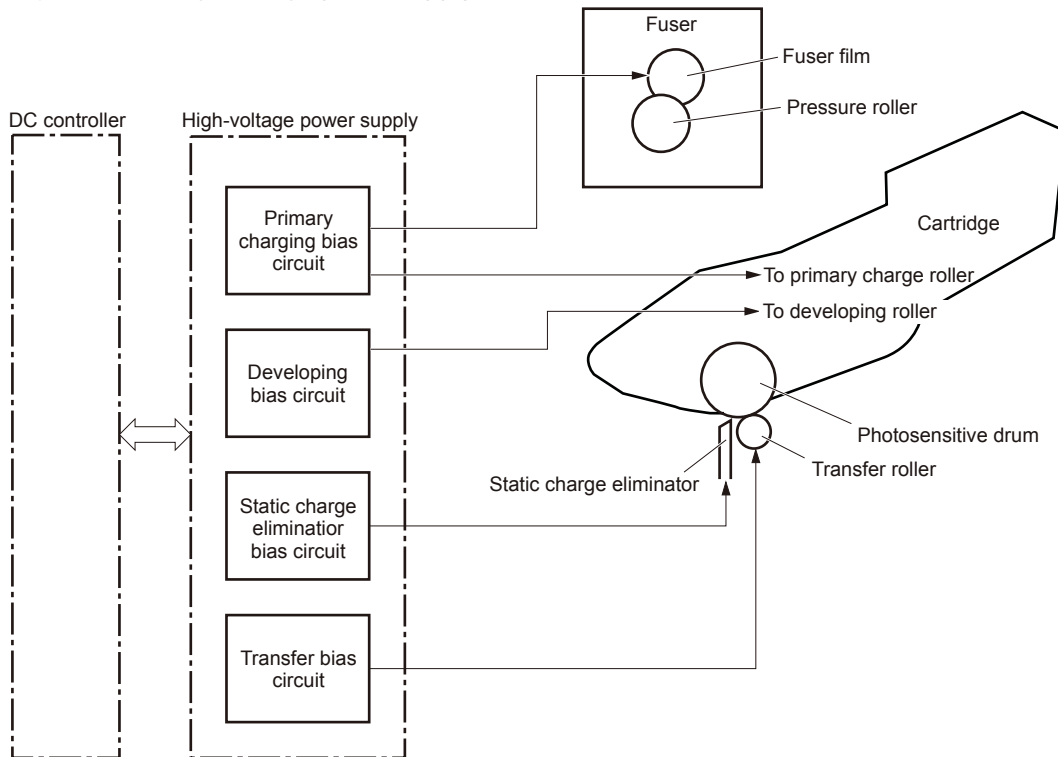
- Lighting-up: STBY period or sleep level 1
- Blinking: Active off
- Lighting-out: Inactive off

## High-voltage power-supply PCA

The high-voltage power supply applies positive or negative voltage biases to the following components:

- Primary charging roller
- Developing roller
- Transfer roller
- Static charge eliminator
- Fuser film

**Figure 1-7** High-voltage power-supply PCA



The DC controller controls the high-voltage power supply to generate the following biases.

- Primary charging bias

The primary charging bias is used to charge the surface of the photosensitive drum evenly to prepare for image formation. The primary charging bias circuit generates the bias.

- Developing bias

The developing bias is used to adhere toner to an electrostatic latent image formed on the photosensitive drum. The developing bias circuit generates the bias.

- Transfer bias

The transfer bias is used to transfer the toner from the photosensitive drum onto the paper. The transfer bias circuit generates the bias. The transfer bias circuit also generates the reverse bias to clean the transfer roller.

- Static charge eliminator bias

The static charge eliminator bias is used to improve the paper-feed performance and image-quality. The static charge eliminator bias circuit generates the bias.

- Fusing bias

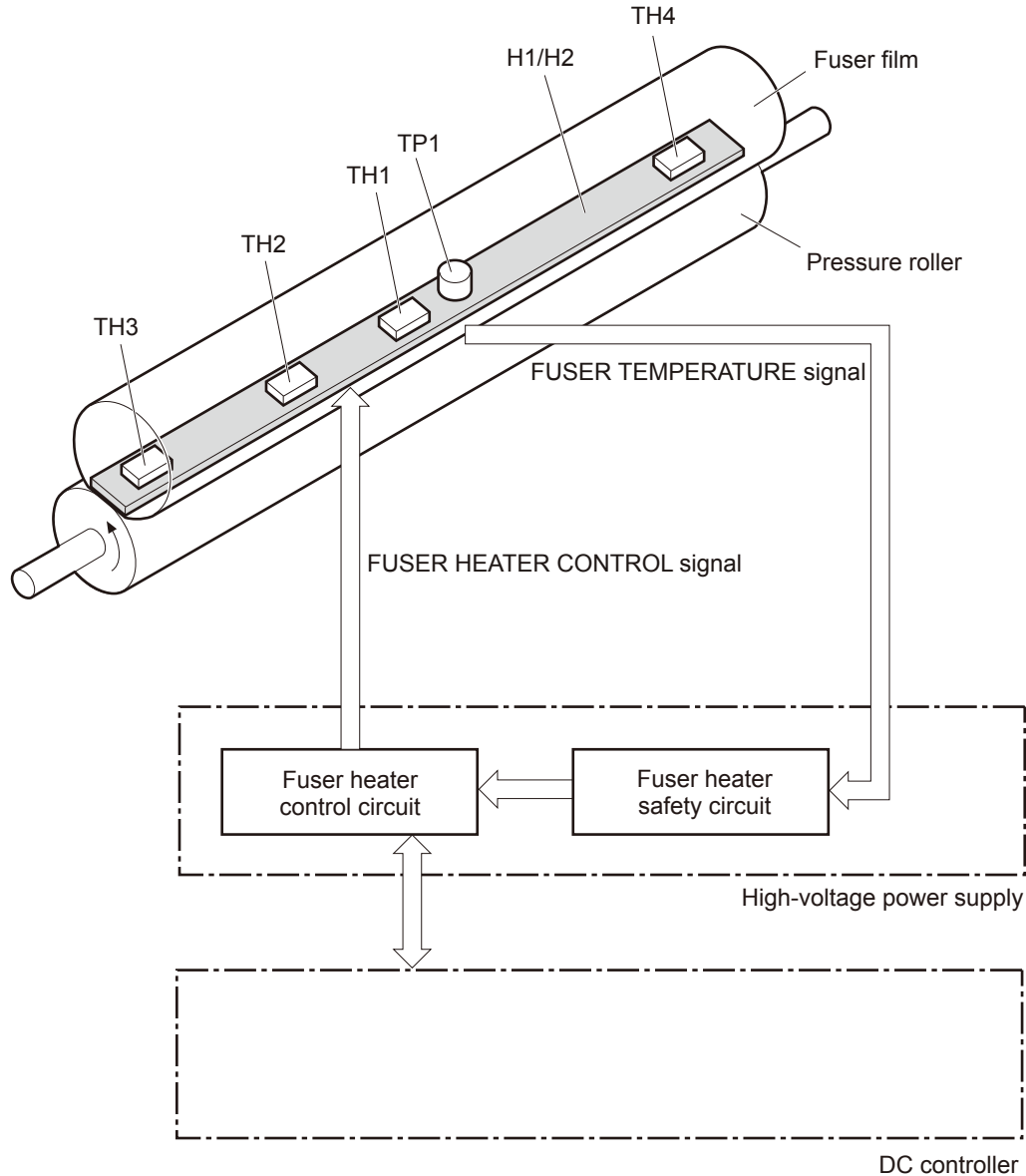
The fusing bias is used to improve the image-quality. The primary charging bias circuit generates the bias.



## Fuser control

The fuser heater control circuit and the fuser heater safety circuit control the fuser temperature according to commands from the DC controller. The product uses an on-demand fusing method.

**Figure 1-8** Fuser components

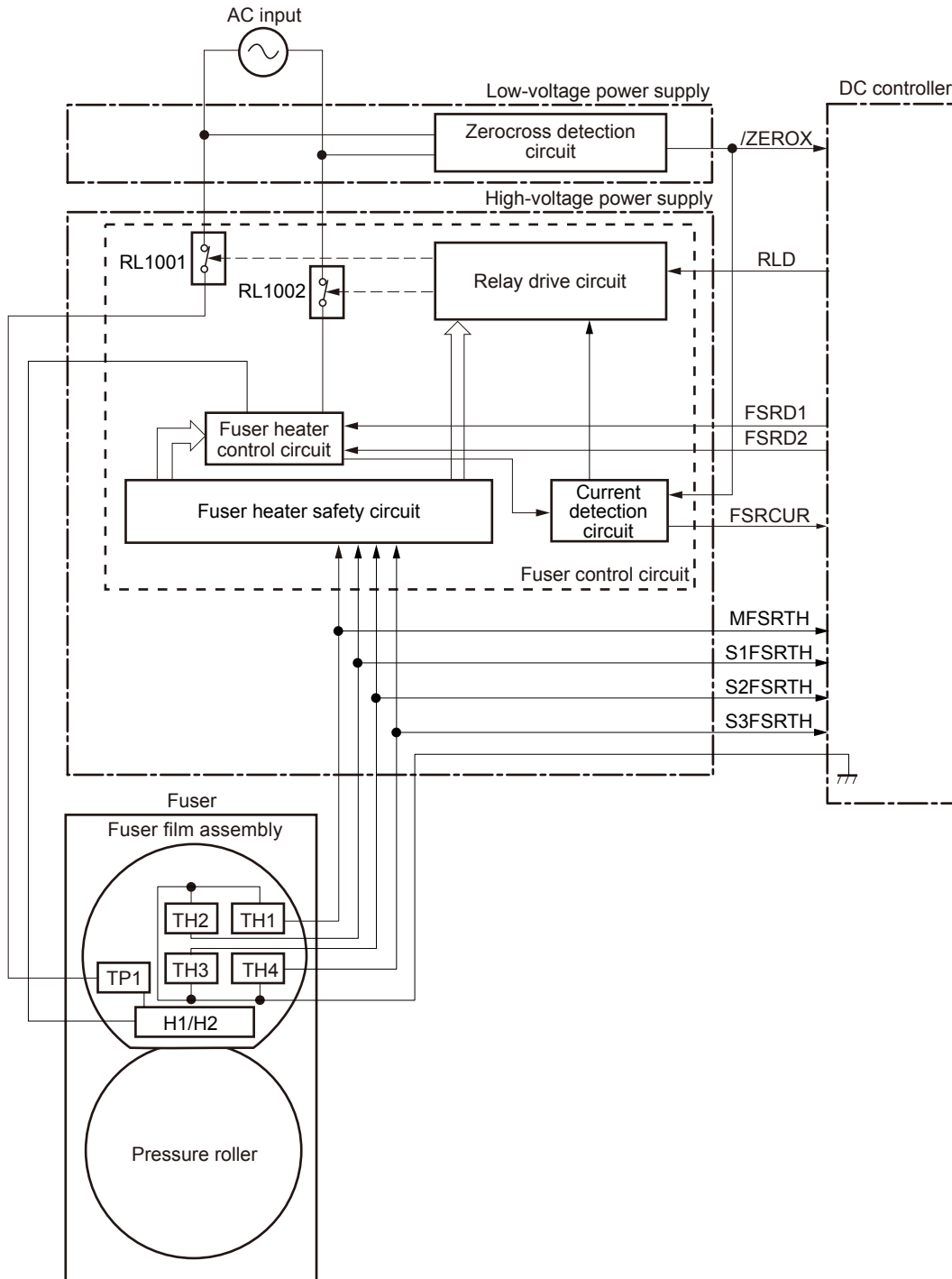


The following table shows the function of each fuser component.

Component		Function
H1	Fuser main heater	Heats center area of the fuser film
H2	Fuser sub heater	Heats both ends of the fuser film
TP1	Thermoswitch	Prevents an abnormal temperature rise of the fuser heater (contact type)
TH1	Main thermistor	Detects the temperature at center of the fuser heater (contact type)

Component		Function
TH2	Sub thermistor 1	Detects the temperature at ends of the fuser heater (contact type)
TH3	Sub thermistor 2	
TH4	Sub thermistor 3	

**Figure 1-9** Fuser control system



## Fuser temperature control

The fuser temperature control maintains the temperature of the fuser heater at its targeted temperature.

The DC controller monitors the FUSER TEMPERATURE signals (MFSRTH, S1FSRTH, S2FSRTH and S3FSRTH) and sends the FUSER HEATER CONTROL signals (FSRD1 and FSRD2). The fuser heater control circuit controls the fuser heater depending on the signals so that the fuser heater remains at the targeted temperature.

## Fuser heater protective function

The fuser heater protective function detects an abnormal temperature rise of the fuser and interrupts power supply to the fuser heater. The following protective components prevent an abnormal temperature rise of the fuser heater:

- DC controller

The DC controller monitors the detected temperature of the thermistor. The DC controller releases the relay (RL1001) to interrupt power supply to the fuser heater when it detects an abnormal temperature.

- Fuser heater safety circuit

The fuser heater safety circuit monitors the detected temperature of the thermistor. The fuser heater safety circuit releases the relays (RL1001 and RL1002) or deactivates the fuser heater control circuit to interrupt power supply to the fuser heater when it detects an abnormal temperature.

- Thermoswitch

The contact of the thermoswitch is broken to interrupt power supply to the fuser heater when the temperature of the fuser heater is abnormally high.

- Current detection circuit

The current detection circuit monitors the current value flowing in the fuser heater control circuit, and it releases the relay to interrupt power supply to the fuser heater when it detects an abnormal current flow.

The DC controller deactivates the FUSER HEATER CONTROL signal and releases the relays (RL1001 and RL1002) to interrupt power supply to the fuser heater when it detects out of a specified current value of the CURRENT DETECTION signal (FSRCUR).

## Fuser failure detection

The DC controller determines if the fuser functions properly. The DC controller determines a fuser failure, interrupts power supply to the fuser heater and notifies the formatter of a failure state when it encounters the following conditions:

- Abnormally high temperature 1  
The main thermistor detects 240°C (464°F) or higher for a specified period.
- Abnormally high temperature 2  
The sub thermistor 1 detects 230°C (446°F) or higher for a specified period during WAIT period.  
The sub thermistor 1 detects 230°C (446°F) or higher for a specified period before INTR starts.  
The sub thermistor 1 detects 300°C (572°F) or higher for a specified period.
- Abnormally high temperature 3  
Either one of the sub thermistor 2 or sub thermistor 3 detects 230°C (446°F) or higher for a specified period during WAIT period.  
Either one of the sub thermistor 2 or sub thermistor 3 detects 230°C (446°F) or higher for a specified period before INTR starts.  
Either one of the sub thermistor 2 or sub thermistor 3 detects 300°C (572°F) or higher for a specified period.
- Abnormally low temperature 1  
The main thermistor detects 60°C (140°F) or lower for a specified period during WAIT period.  
The main thermistor detects 70°C (158°F) or lower for a specified period during heater temperature control of INTR period.  
The main thermistor detects the targeted temperature minus 40°C (104°F) or lower for a specified period during heater temperature control or pressure roller cleaning of PRINT period.  
The main thermistor detects 80°C (176°F) or lower for a specified period during heater temperature control or pressure roller cleaning of PRINT period.
- Abnormally low temperature 2  
The sub thermistor 1 detects 60°C (140°F) or lower for a specified period during WAIT period.
- Abnormally low temperature 3  
Either one of the sub thermistor 2 or sub thermistor 3 detects 60°C (140°F) or lower for a specified period during WAIT period.
- Abnormal temperature rise  
The main thermistor detects the targeted temperature minus 10°C (50°F) or lower for a specified period during heater temperature control of INTR period.
- Drive circuit failure

The frequency of the ZEROCROSS signal is not detected in a specified value within a specified period after power-on.

The frequency of the ZEROCROSS signal is not detected in a specified value for a specified period after power-on and once the signal is detected.

- Heater failure

A specified current value or lower is detected during the heater drive period of the WAIT period or when more than a specified electrical power is input.

## Pressure roller cleaning

The pressure roller cleaning clears toner on the pressure roller surface by adhering to the paper according to a command from the formatter. This is executed only when the paper size is A4-R (rotated) or Letter-R (rotated). The operational sequence of the pressure roller cleaning is as follows:

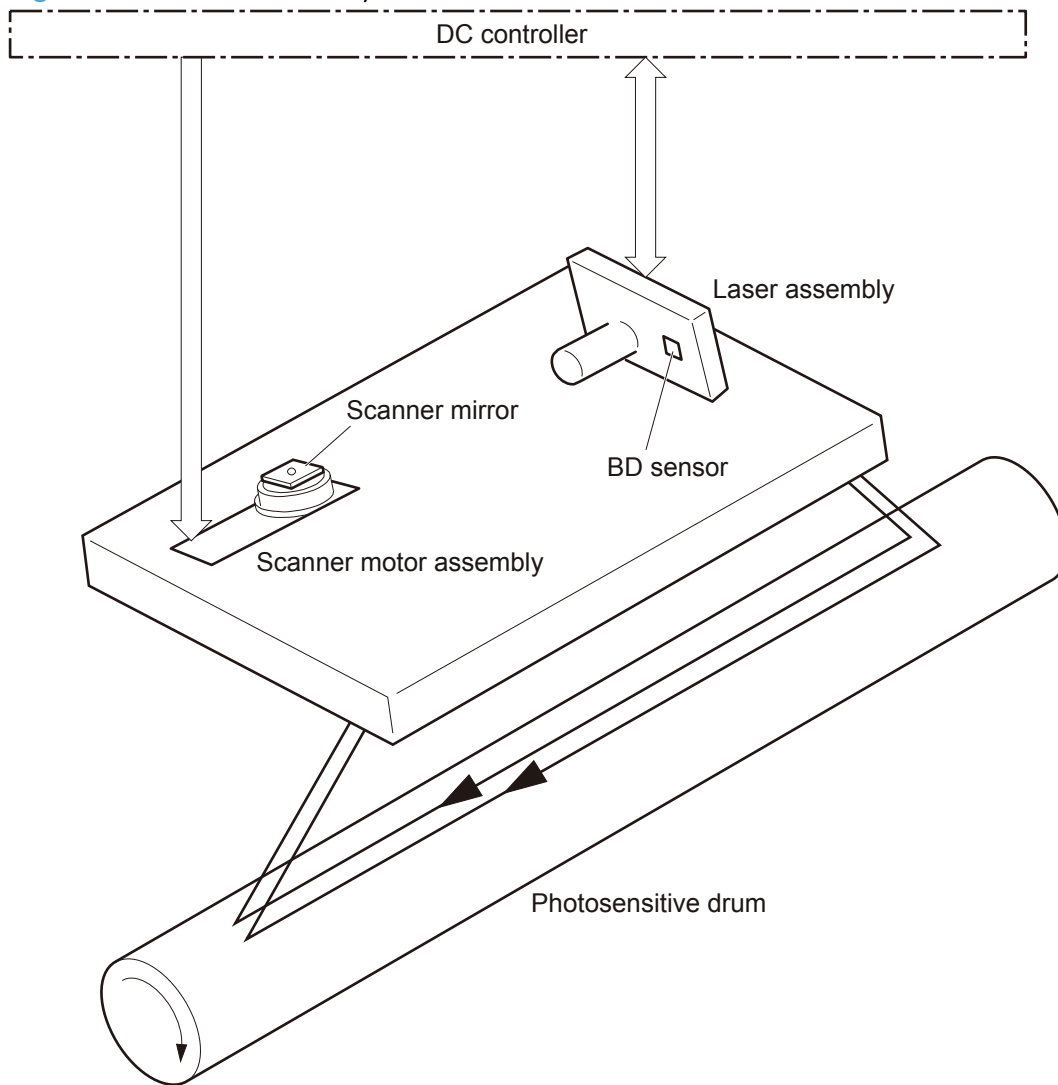
1. The DC controller picks up the paper from the designated input source when a cleaning command is sent from the formatter.
2. When the trailing edge of paper passes through the transfer roller, the fuser motor repeats to rotate-and-stop at regular intervals and the fuser heater turns on-and-off at the same time.
3. The toner on the pressure roller fuses onto the paper and the roller clears.
4. The paper with fused toner is delivered out of the product.

# Laser scanner system

The DC controller controls the laser scanner system according to commands from the formatter. The DC controller controls the internal components in the laser scanner system to form latent electrostatic image on the photosensitive drum according to the VIDEO signals. The following are the main components of the laser scanner system:

- Laser assembly
- Scanner motor assembly
- BD (beam detect) sensor
- Scanner mirror

**Figure 1-10** Laser scanner system



## Laser scanner failure detection

The DC controller determines a laser scanner failure and notifies the formatter of the error state when any of the following conditions occurs:

- **BD failure**  
A specified BD interval is not detected within a specified period during the scanner motor drive.
- **Scanner motor start-up failure**  
The scanner motor does not reach a specified rotation within a specified period from when the laser scanner starts driving.
- **Laser failure**  
A specified laser intensity is not detected.

## Laser scanner safety function

The laser scanner has a mechanical shutter. For user and service technician safety, the laser shutter interrupts optical path of the laser scanner when the cartridge door is open.

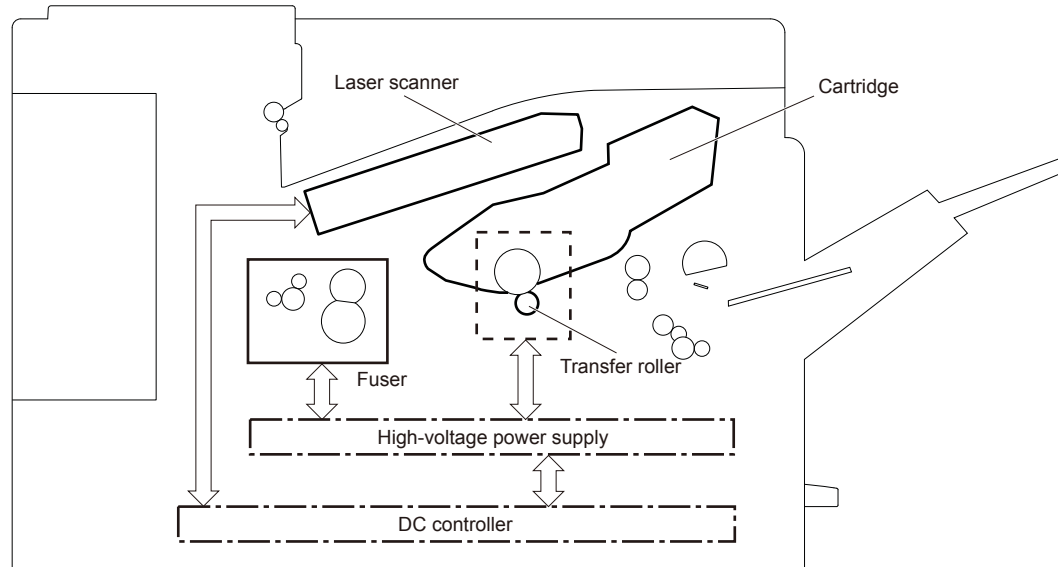
# Image-formation system

The DC controller controls the image-formation system according to commands from the formatter. The DC controller controls the internal components of the image-formation system to form the toner image on the photosensitive drum surface. The toner image is transferred to the paper and fused.

The following are the main components of the image-formation system:

- Cartridge
- Transfer roller
- Fuser
- Laser scanner
- High-voltage power supply

**Figure 1-11** Image-formation system



The DC controller rotates the drum motor to drive the following components:

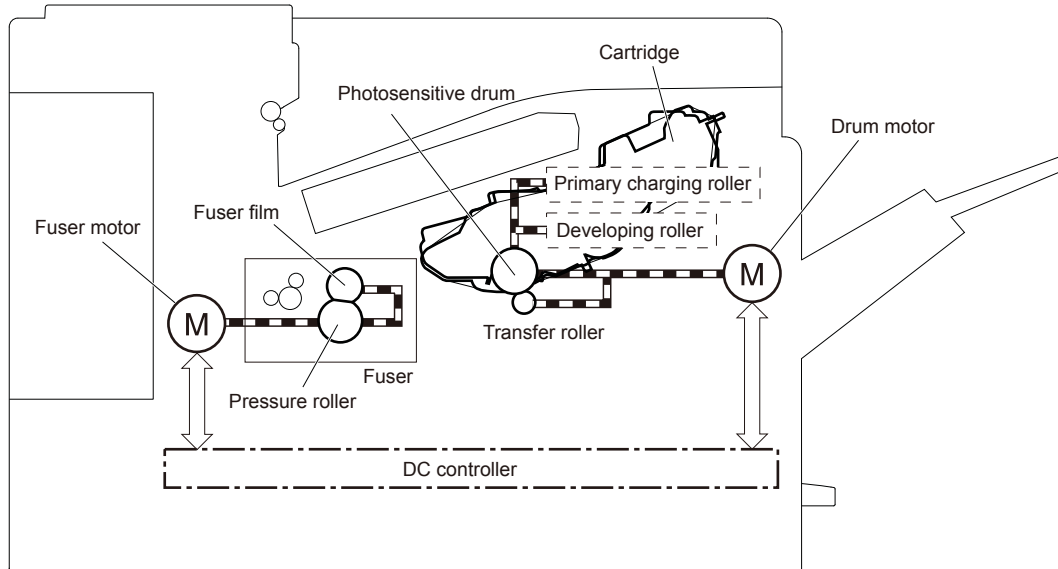
- Photosensitive drum
- Developing roller (follows the photosensitive drum)
- Primary charging roller (follows the photosensitive drum)
- Transfer roller

The DC controller rotates the fuser motor to drive the following components:

- Pressure roller
- Fuser film (follows the pressure roller)



**Figure 1-12** Image-formation components



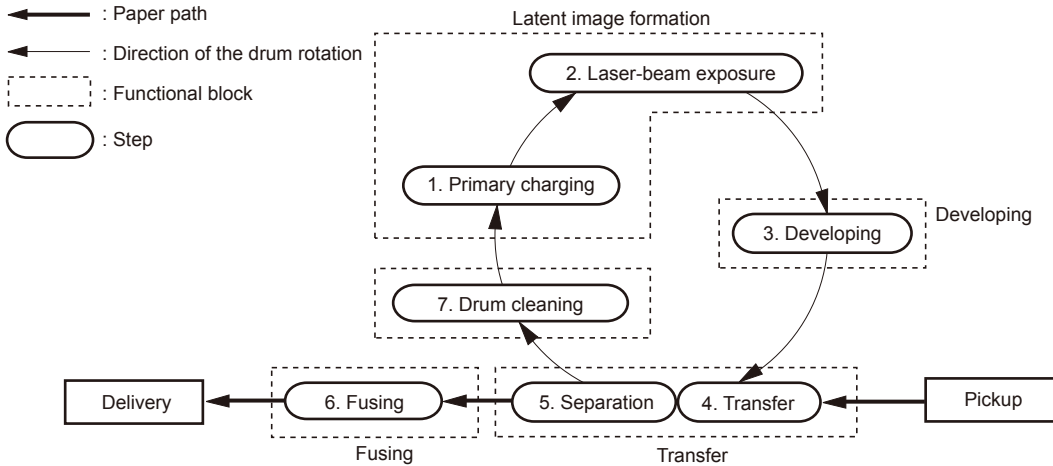
## Image-formation process

The image-formation process consists of seven steps divided into five functional blocks:

- Latent-image-formation system
  - Step 1: Primary charging
  - Step 2: Laser-beam exposure
- Developing system
  - Step 3: Developing
- Transfer system
  - Step 4: Transfer
  - Step 5: Separation

- Fuser system
  - Step 6: Fusing
- Drum cleaning
  - Step 7: Drum cleaning

**Figure 1-13** Image-formation process



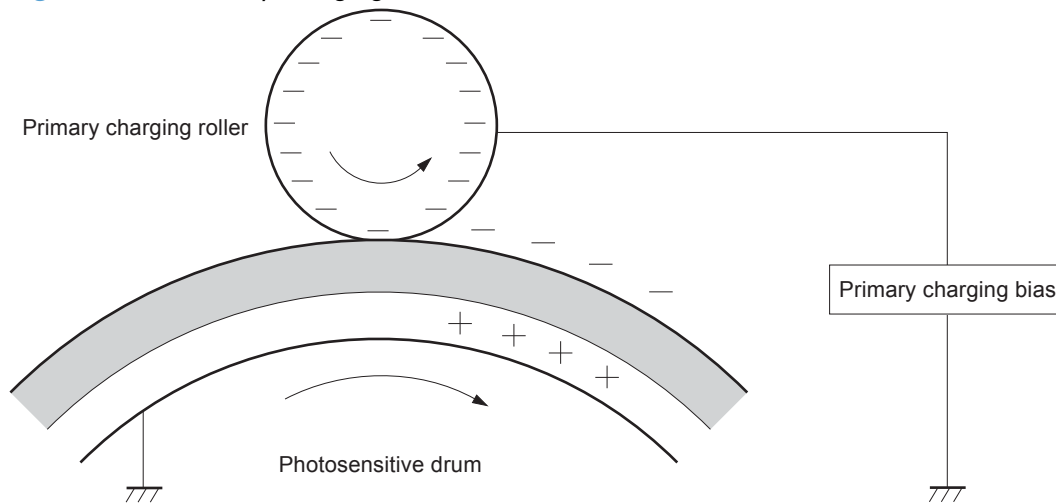
## Latent-image formation block

During the two steps that comprise this block, an invisible latent image is formed on the photosensitive drum.

### Step 1: primary charging

To prepare for latent image formation, the surface of the photosensitive drum is charged with a uniform negative potential. The primary charging roller charges the photosensitive drum directly. The primary charging bias is applied to the primary charging roller to keep a negative potential on the drum surface.

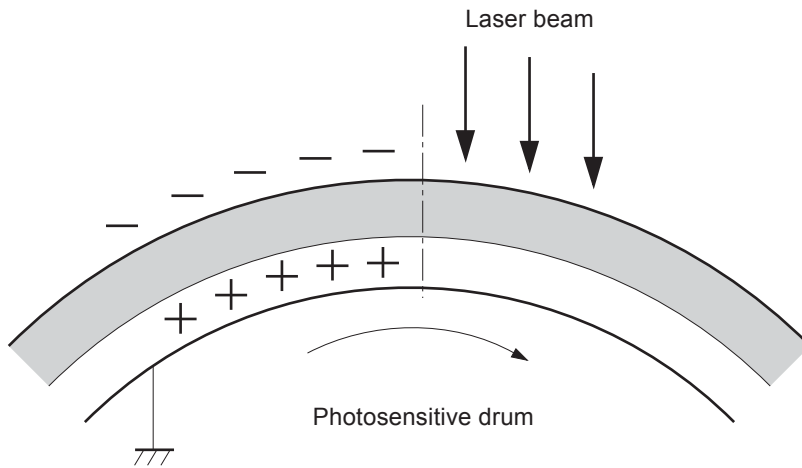
**Figure 1-14** Primary charging



## Step 2: laser-beam exposure

The laser-beam strikes the surface of the photosensitive drum to neutralize the negative charge. An electrostatic latent image forms where the negative charge was neutralized.

**Figure 1-15** Laser-beam exposure



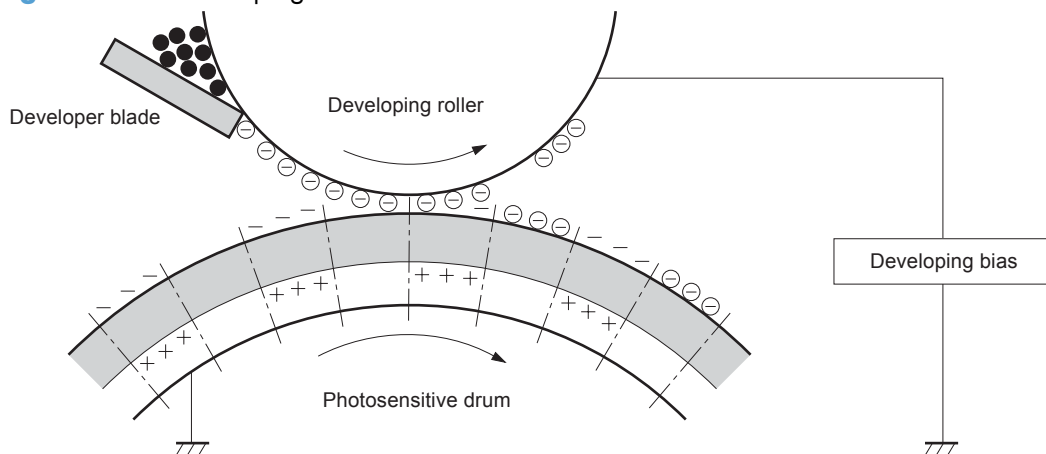
## Development block

Toner adheres to the electrostatic latent image on the photosensitive drum, which becomes visible.

## Step 3: developing

Toner acquires a negative charge from the friction that occurs when the developing roller rotates against the developer blade. The developing bias is applied to the developing roller to make difference in the electric potential of the drum. The negatively charged toner is attracted to the latent image on the photosensitive drum because the drum surface has a higher potential. The latent image becomes visible on the drum.

**Figure 1-16** Developing



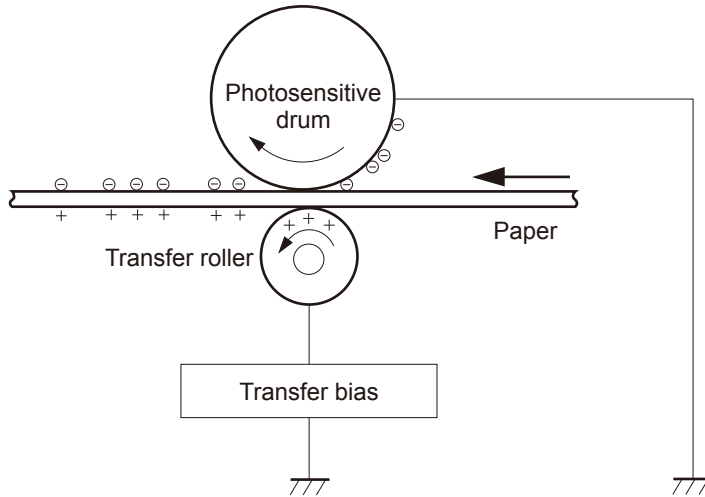
## Transfer block

During the two steps that comprise this block, a toner image on the photosensitive drum transfers to the paper.

### Step 4: image transfer

The toner on the photosensitive drum is transferred to the paper. The transfer bias is applied to the transfer roller to charge the paper positive. The negatively charged toner on the drum surface transfers onto the paper.

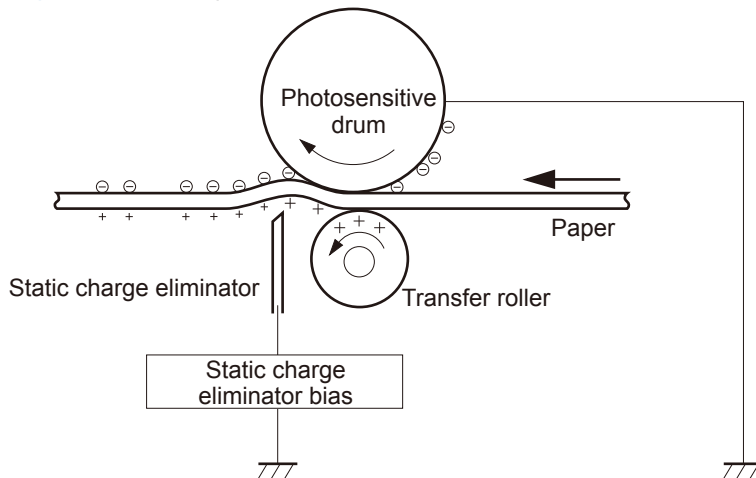
**Figure 1-17** Image transfer



### Step 5: separation from the drum

The elasticity of the paper and the curvature of the photosensitive drum cause the paper to separate from the photosensitive drum. The static charge eliminator bias is applied to the static charge eliminator. The static charge eliminator reduces back side static discharge of the paper after the transfer process for stable paper-feed and print-quality.

**Figure 1-18** Separation from the drum



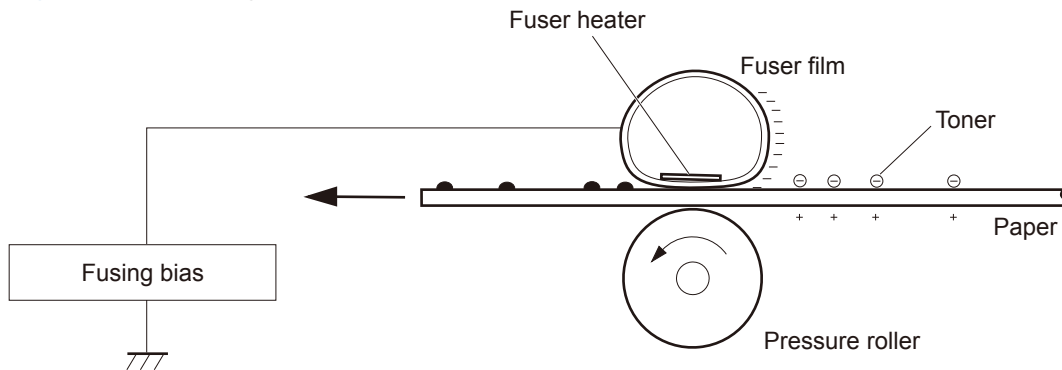
## Fuser block

Until the fusing stage is complete, the image is not permanently affixed to the paper. The toner can be easily smudged until the heat and pressure of the fusing process fix the image to the sheet.

### Step 6: fusing

The toner melts by the heat and pressure as the paper passes through the rollers. The toner image is permanently fused to the paper. The fusing bias is applied to the fuser film to improve print-quality.

**Figure 1-19** Fusing



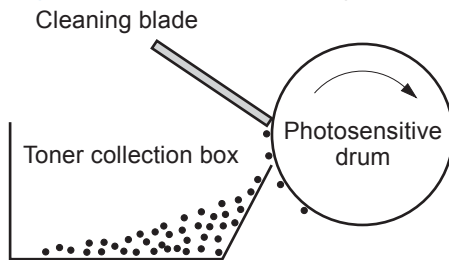
## Drum-cleaning block

The residual toner is removed from the photosensitive drum surface

### Step 7: drum cleaning

The cleaning blade scrapes the residual toner off the surface of the photosensitive drum and toner is deposited in the toner collection box.

**Figure 1-20** Drum cleaning



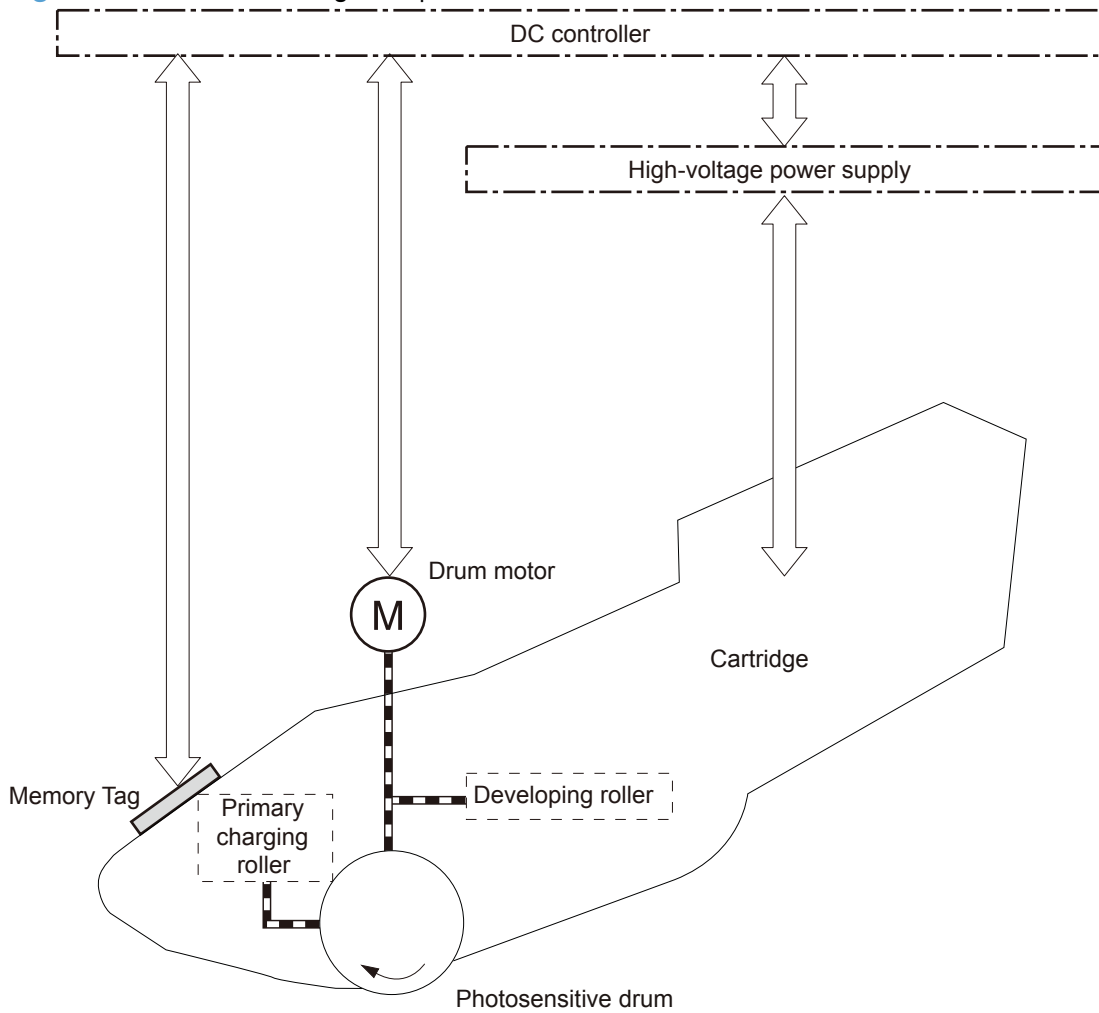
## Toner cartridge

The cartridge is filled with toner and consists of the following components:

- Photosensitive drum
- Developing roller

- Primary charging roller
- Memory tag

**Figure 1-21** Toner cartridge components



The cartridge serves a role in the following functions:

- Memory tag

The memory tag is a non-volatile memory in the cartridge and the DC controller controls it. The memory tag stores information about usage for the cartridge and the DC controller reads and writes the data in the memory tag. The DC controller determines a memory tag error and notifies the formatter when it fails to either read from or write to the memory tag.

- Cartridge-presence detection

The DC controller detects whether the cartridge is installed in the product by monitoring the cartridge presence sensor. The DC controller notifies the formatter when it determines a cartridge absence.

- Toner-level detection

The DC controller detects the remaining toner level in a cartridge according to the TONER LEVEL signal. The DC controller determines a cartridge low warning or cartridge end of life when the toner level drops below a specified level and notifies the formatter.

- Cartridge-life detection

The DC controller detects the cartridge life of components that wear out. The DC controller determines a cartridge end of life and notifies the formatter.

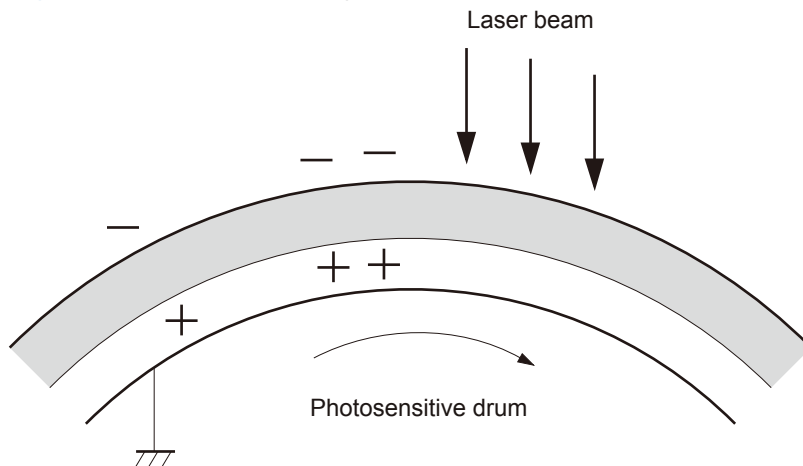
## Other image-formation functions

### Drum discharge

The drum discharge is a feature to remove residual charge on the photosensitive drum surface for preventing the uneven image density. The laser-beam strikes the surface of the photosensitive drum to remove the residual charge.

The drum discharge is performed during LSTR period.

**Figure 1-22** Drum discharge



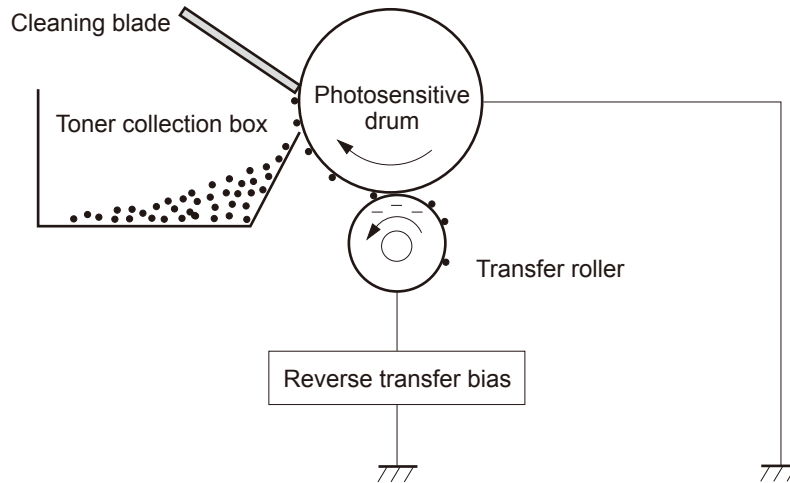
### Transfer roller cleaning

The transfer roller cleaning is a feature to remove residual toner on the transfer roller surface for preventing the back side toner stain of the paper.

The residual toner reverse transfers to the photosensitive drum by applying the reverse transfer bias to the transfer roller. The residual toner is deposited in the toner collection box.

The transfer roller cleaning is performed during WAIT period, INTR period, LSTR period and after forming the image for the front side of page when duplex printing.

**Figure 1-23** Transfer roller cleaning



## Environment change control

The environment change control calibrates each high-voltage bias to obtain an appropriate image according to the environment changes.

The DC controller determines the environment, where the product is installed, based on the surrounding temperature and humidity data from the environment sensor. It adjusts the high-voltage biases to accommodate environmental changes.

The DC controller determines an environment sensor abnormality and notifies the formatter when it detects out of specified range data from the environment sensor.

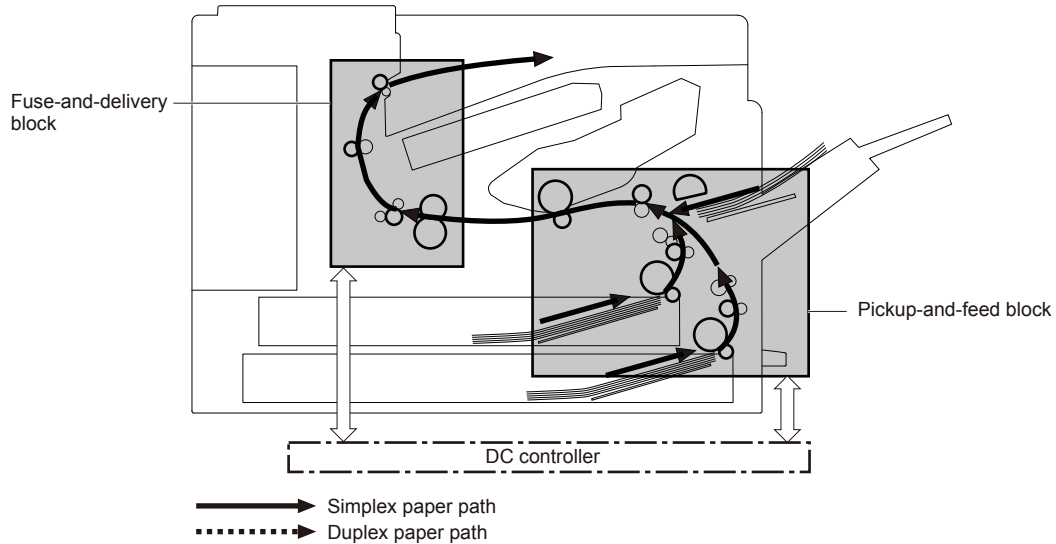


# Pickup, feed, and delivery system

The DC controller controls the pickup, feed and delivery system according to commands from the formatter. The DC controller controls each block to pickup, feed and deliver the paper. The pickup, feed and delivery system consists of following three functional blocks:

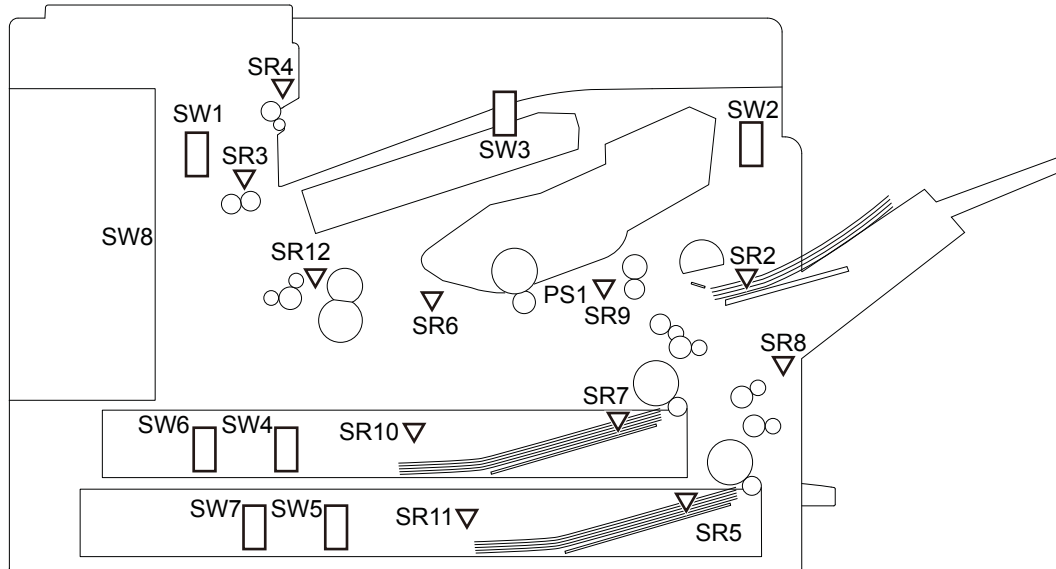
- Pickup-and-feed block
- Fuse-and-delivery block
- Duplex block

**Figure 1-24** Pickup, feed, and delivery system



The figure below shows the sensors and switches for the pickup, feed and delivery system.

**Figure 1-25** Pickup, feed, and delivery system sensors and switches

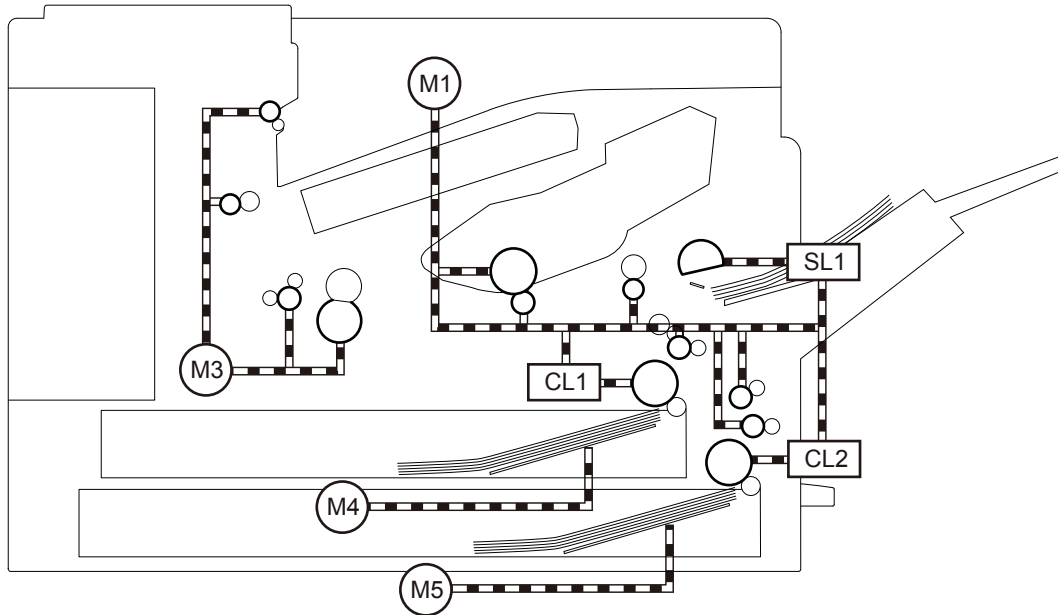


**Table 1-5** Pickup, feed, and delivery system sensors and switches

Component		Signal
SW1	Left door interlock switch	LEFT DOOR OPEN DETECTION signal
SW2	Cartridge door interlock switch	CARTRIDGE DOOR OPEN DETECTION signal
SW3	Cartridge door open detection switch	CARTRIDGE DOOR OPEN DETECTION signal
SW4	Upper cassette media width switch	UPPER CASSETTE MEDIA WIDTH signal
SW5	Lower cassette media width switch	LOWER CASSETTE MEDIA WIDTH signal
SW6	Upper cassette media end switch	UPPER CASSETTE MEDIA END signal
SW7	Lower cassette media end switch	LOWER CASSETTE MEDIA END signal
SR2	MP tray media out sensor	MP TRAY MEDIA OUT signal
SR3	Output sensor	OUTPUT signal
SR4	Output bin media full sensor	OUTPUT BIN MEDIA FULL signal
SR5	Lower cassette media out sensor	LOWER CASSETTE MEDIA OUT signal
SR6	Loop sensor	LOOP LEVEL signal
SR7	Upper cassette media out sensor	UPPER CASSETTE MEDIA OUT signal
SR8	Right door sensor	RIGHT DOOR OPEN DETECTION signal
SR9	TOP sensor	TOP signal
SR10	Upper cassette lift-up sensor	UPPER CASSETTE LIFT-UP signal
SR11	Lower cassette lift-up sensor	LOWER CASSETTE LIFT-UP signal
SR12	Fuser output sensor	FUSER OUTPUT signal

The figure below shows the solenoid and motors for the pickup, feed and delivery system.

**Figure 1-26** Pickup, feed, and delivery-system solenoid and motors



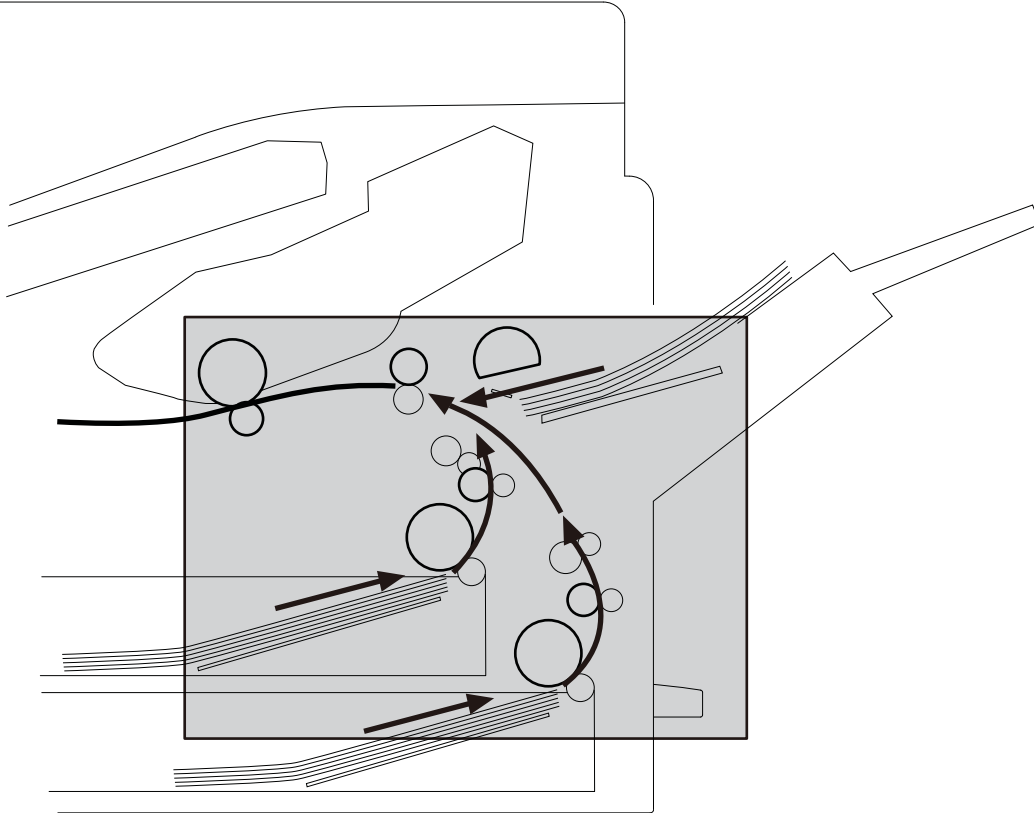
**Table 1-6** Pickup, feed, and delivery system solenoid and motors

Component		Signal
SL1	MP tray pickup solenoid	MP TRAY PICKUP SOLENOID signal
CL1	Upper cassette pickup clutch	UPPER CASSETTE PICKUP CLUTCH signal
CL2	Lower cassette pickup clutch	LOWER CASSETTE PICKUP CLUTCH signal
M1	Drum motor	DRUM MOTOR CONTROL signal
M3	Fuser motor	FUSER MOTOR CONTROL signal
M4	Upper cassette lifter motor	UPPER CASSETTE LIFTER MOTOR CONTROL signal
M5	Lower cassette lifter motor	LOWER CASSETTE LIFTER MOTOR CONTROL signal

## Pickup and feed block

The pickup-and-feed block picks one sheet of paper from the cassette or the MP tray and feeds it into the fuser.

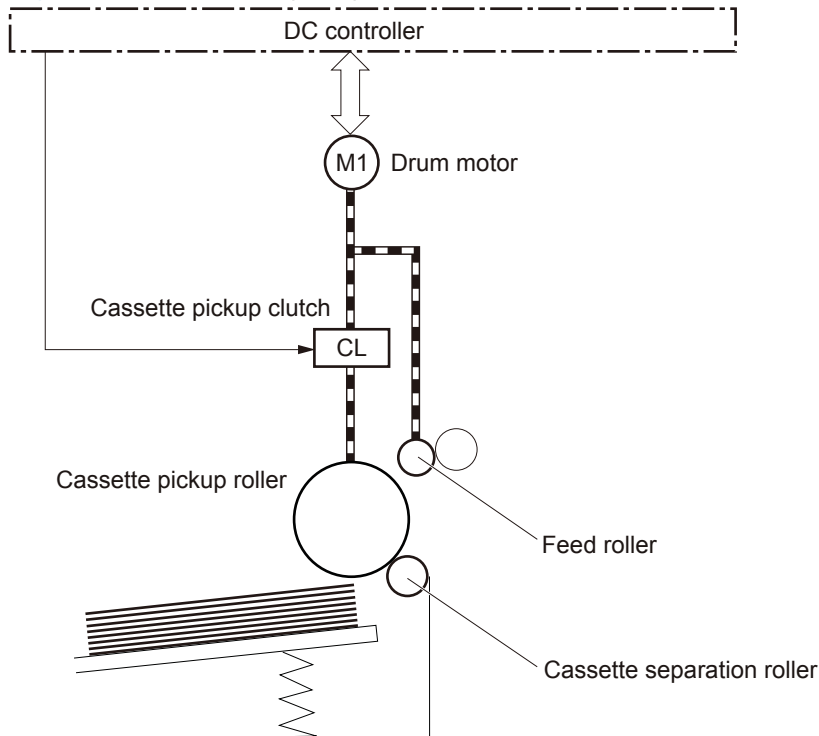
**Figure 1-27** Pickup and feed block



## Cassette pickup

The product picks up one sheet of paper from the cassette. The following figure shows the cassette pickup mechanism. Both trays have the same mechanism.

**Figure 1-28** Cassette pickup mechanism



The operational sequence of the cassette pickup is as follows:

1. The DC controller rotates the drum motor when it receives a print command from the formatter.
2. The feed roller rotates.
3. The cassette pickup solenoid is driven at a specified timing.
4. The cassette pickup roller rotates and picks up the top paper
5. The cassette separation roller removes any multiple-fed sheets.
6. One sheet of paper is fed into the product.

## Cassette media-size detection and cassette-presence detection

The DC controller determines the size of the paper loaded in the cassette and also whether the cassette is installed to the product by monitoring the cassette media width switch and the cassette media end switch.

The cassette media width switch and the cassette media end switch contain three sub-switches each. The DC controller detects the size of paper and the presence of cassette according to the combination of the switches and notifies the formatter.

The cassette media-size detection and the cassette-presence detection are not performed during Sleep mode. The following table lists the combination of the switches.

**Table 1-7 Media switch combinations**

Paper size	Cassette media width switch			Cassette media end switch		
	Top	Center	Bottom	Top	Center	Bottom
Cassette absence	OFF	OFF	OFF	—	OFF	OFF
A5-R	OFF	OFF	OFF	—	ON	ON
B5-R	ON	ON	OFF	—	ON	ON
Executive-R	OFF	ON	OFF	—	ON	ON
Letter-R	OFF	ON	ON	—	ON	ON
A4-R	ON	ON	ON	—	ON	ON
8.5 x 13 in	OFF	OFF	OFF	—	ON	OFF
Legal	OFF	OFF	OFF	—	OFF	ON
B4	ON	ON	OFF	—	OFF	ON
Ledger	OFF	ON	ON	—	OFF	ON
A3	ON	ON	ON	—	OFF	ON

## Cassette lift operation

There are two types of cassette lift operation: cassette lift-up and cassette lift-down. The paper stack surface is lifted up to the pickup position. The lifting plate is lifted down when the pickup operation is not performed. The lift-up and lift-down operations are described in the following. Both upper and lower cassettes perform the same operation.

### Lift-up operation

The DC controller rotates the cassette lifter motor until the cassette lift-up sensor detects the lifter rack. Accordingly the lifter moves up and the lifting plate moves up to the pickup position. The lift-up operation is performed when the product is turned on or when the cassette is installed.

The DC controller determines a cassette lifter motor failure and notifies the formatter when the cassette lift-up sensor does not detect the lifter rack within a specified period from when the lift-up operation starts.

### Lift-down operation

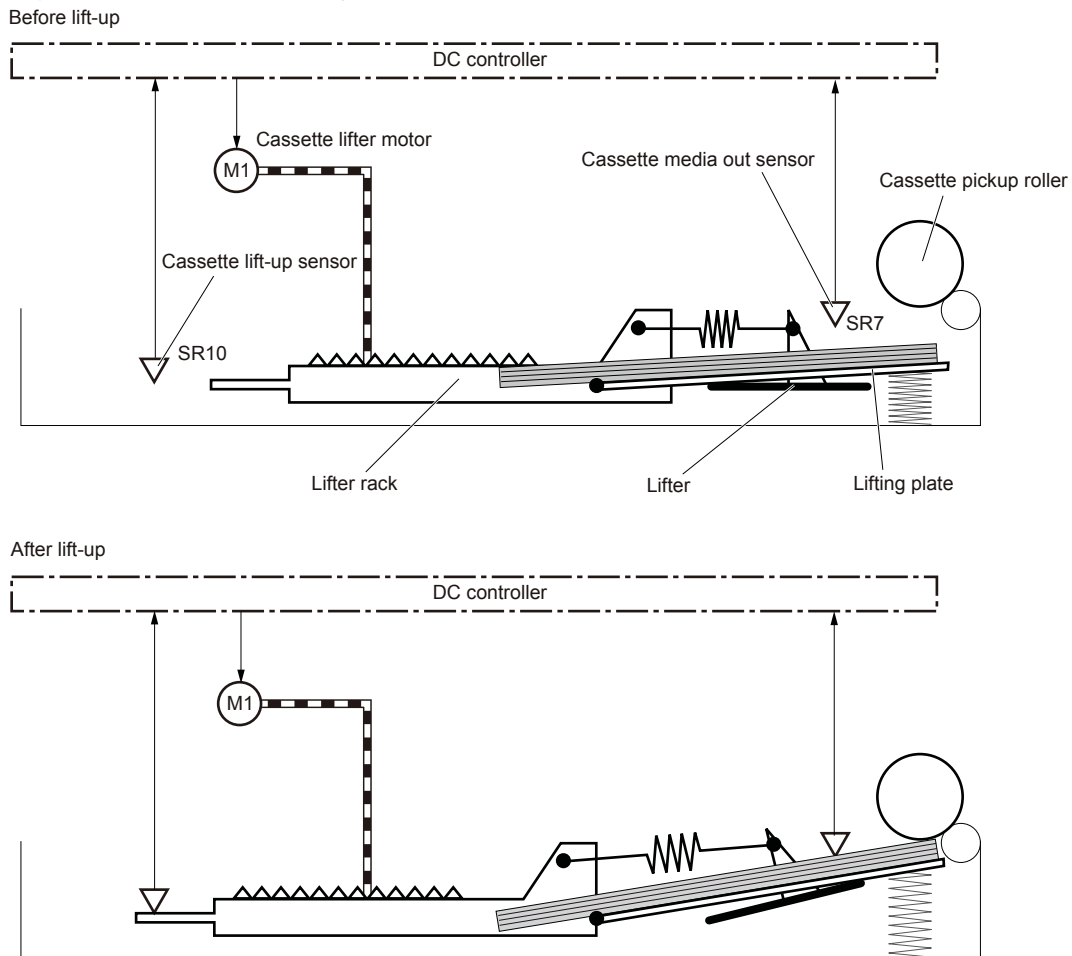
The paper loaded in the cassette presses against the cassette pickup roller when the lifting plate is in the pickup position. If this condition is kept for a long time, the paper deformed and a pickup failure may occur. Therefore, the lifting plate is moved down to release the paper from the pickup roller when a print operation is not performed.

The DC controller reverses the cassette lifter motor until the cassette lift-up sensor stops sensing the lifter rack when a print job is not sent for a specified period.

The DC controller determines a cassette lifter motor failure and notifies the formatter when the cassette lift-up sensor keeps sensing the lifter rack for a specified period from when the lift-down operation starts.

The following figure shows the mechanism of the cassette lift operation for the upper cassette. Both upper and lower cassettes have the same mechanism.

**Figure 1-29** Cassette lift operation



## Cassette media-presence detection

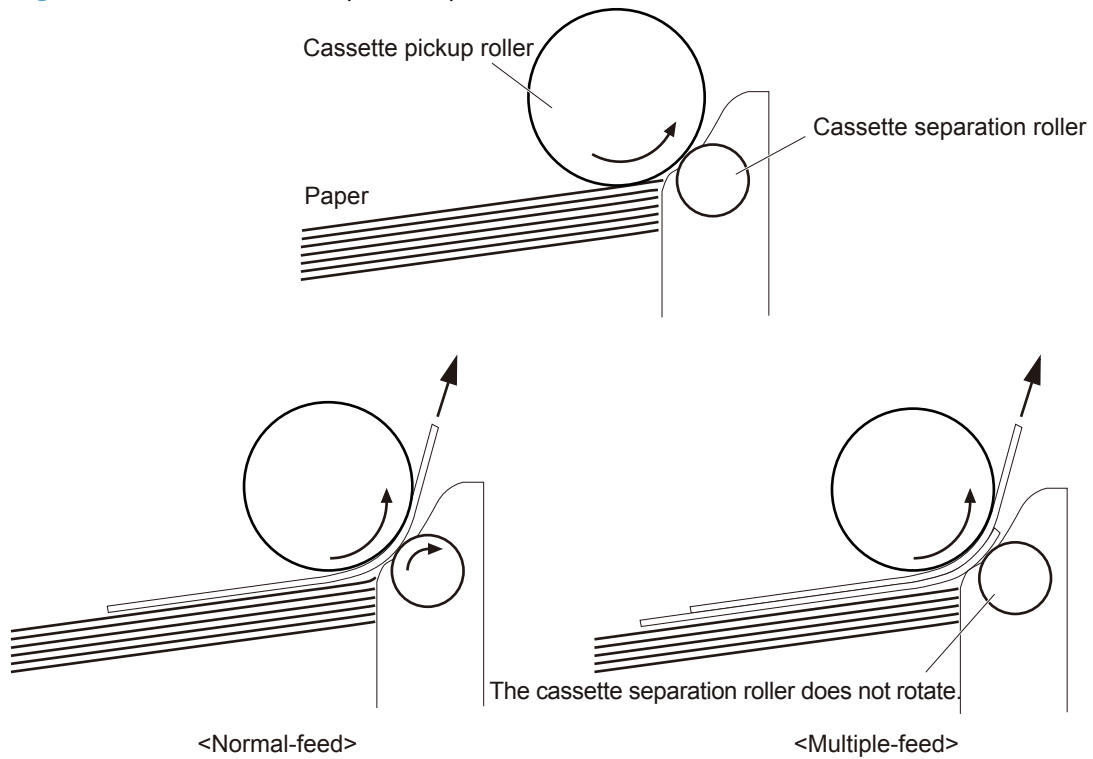
The DC controller detects whether the paper is loaded in the cassette by monitoring the cassette media out sensor. The cassette media-presence detection is not performed during Sleep mode. The DC controller determines a media-absence and notifies the formatter when the cassette media out sensor does not detect the paper.

## Cassette multiple-feed prevention

The product uses a cassette separation roller to prevent the multiple sheets of paper from entering to the product. The cassette separation roller follows the rotation of the cassette pickup roller. When multiple

sheets are picked up, the cassette separation roller does not rotate and only one sheet is fed into the product.

**Figure 1-30** Cassette multiple feed prevention

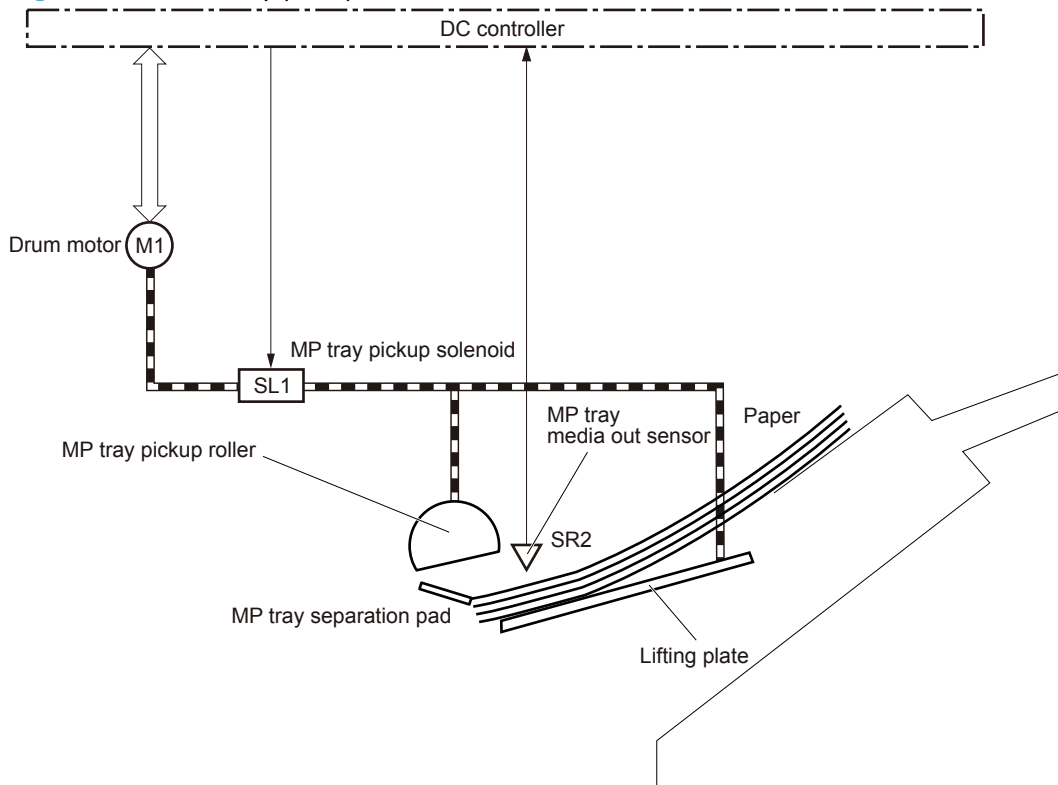




## MP tray pickup

The product picks up one sheet of paper from the MP tray.

**Figure 1-31** MP tray pickup



The operational sequence of the MP tray pickup is as follows:

1. The DC controller rotates the drum motor when it receives a print command from the formatter.
2. The MP tray pickup solenoid is driven at a specified timing.
3. The MP tray pickup roller rotates.
4. The lifting plate moves up.
5. The MP tray pickup roller picks up the top paper.
6. The MP tray separation pad removes any multiple-fed sheets.
7. One sheet of paper is fed into the product.

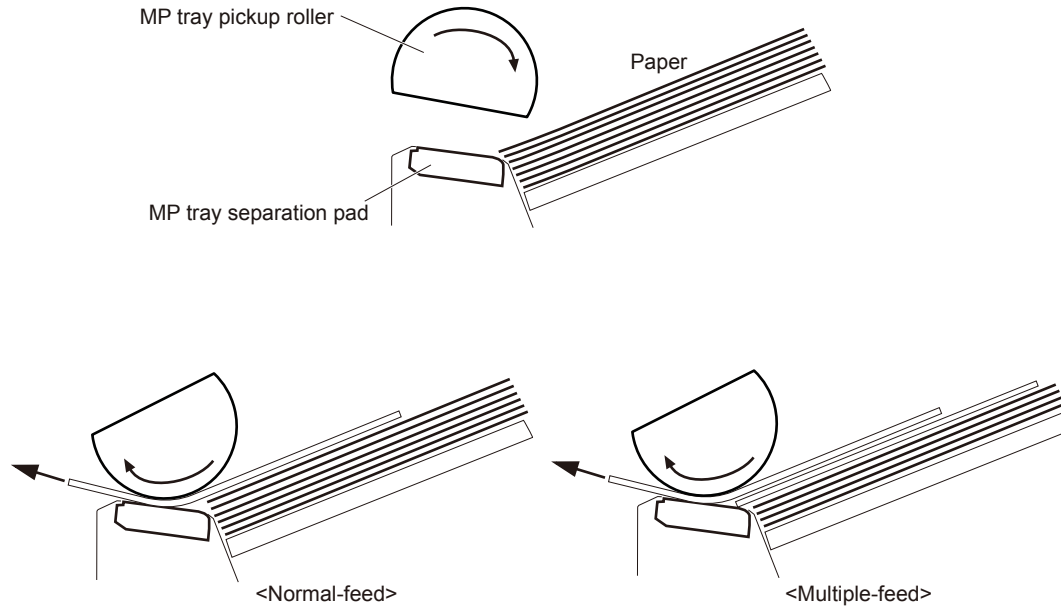
## MP tray media-presence detection

The DC controller detects whether the paper is loaded in the MP tray by monitoring the MP tray media out sensor. The MP tray media-presence detection is not performed during Sleep mode. The DC controller determines a media-absence and notifies the formatter when the MP tray media out sensor does not detect the paper.

## MP tray multiple-feed prevention

The product uses a MP tray separation pad to prevent the multiple sheets of paper from entering to the product. When multiple sheets are picked up, multiple sheets stop due to the friction against the MP tray separation pad.

**Figure 1-32** MP tray multiple-feed prevention



## Feed-speed control

The feed-speed control adjusts the paper feeding speed to improve the print-quality depending on the paper types. The DC controller feeds the paper at a specified speed according to the print mode designated by the formatter.

The following table shows the print mode and corresponding feed-speed.

Print mode	Feed-speed
Auto	—
Normal	1/1, 1/2 <sup>1</sup>
Heavy media 1	1/1
Heavy media 2	1/2
Heavy media 3	—
Light media 1	1/1
Light media 2	1/1
Light media 3	—
Glossy media 1	—
Glossy media 2	—

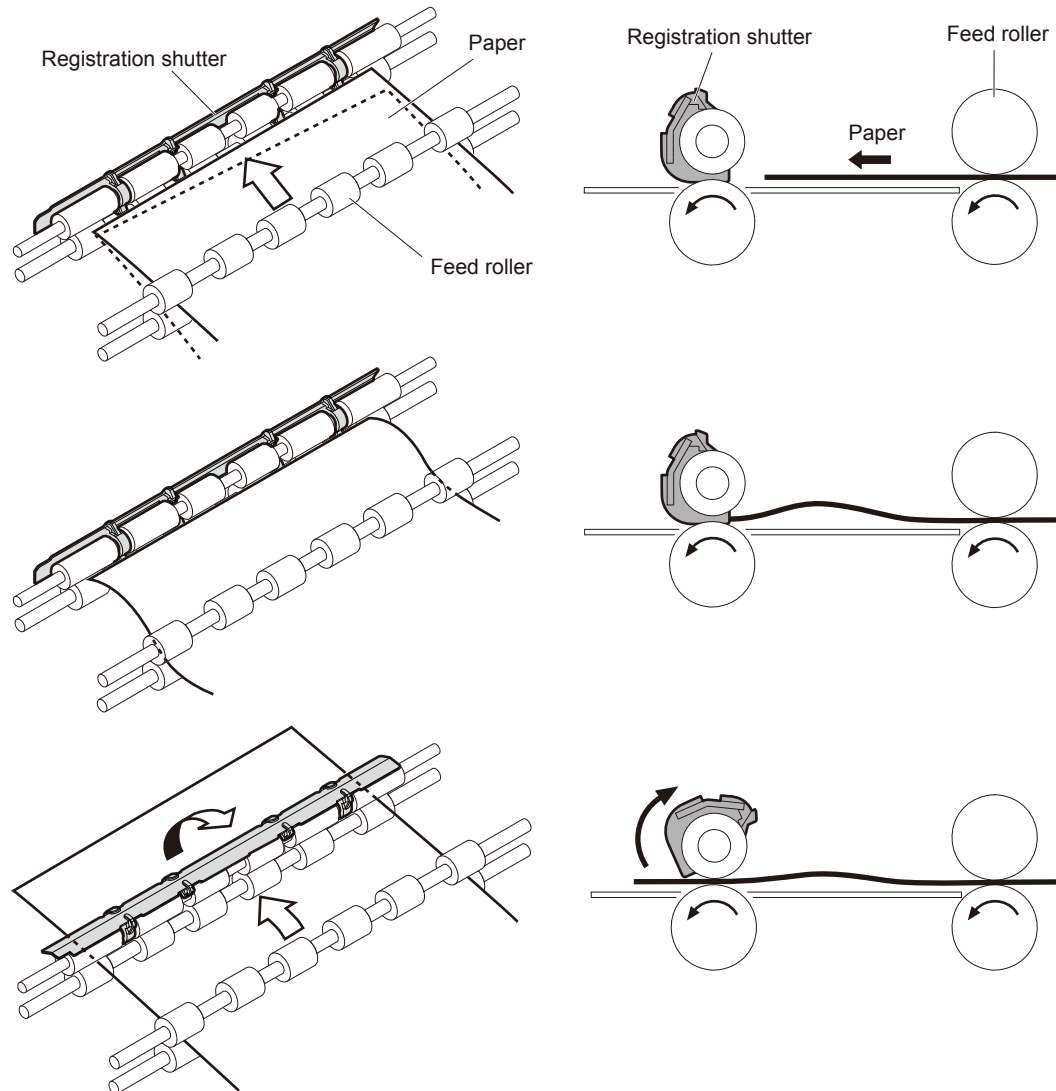
<b>Print mode</b>	<b>Feed-speed</b>
Glossy media 3	—
Glossy film	—
Photo media 1	—
Photo media 2	—
Photo media 3	—
Envelope 1	1/1
Envelope 2	1/2
Envelope 3	—
OHT	1/2
Label	—
Designated media 1	—
Designated media 2	—
Designated media 3	—

<sup>1</sup> The product will run at half speed in normal mode when the specific Print Quality, Optimize mode for reducing toner explosions is selected.

## Skew-feed prevention

The product uses a registration shutter to correct the skew feed without decreasing the feeding speed.

**Figure 1-33** Skew-feed prevention



The operational sequence of the skew-feed prevention is as follows:

1. The leading edge of paper strikes the registration shutter as the paper is fed.
2. The leading edge of paper is aligned with the shutter.
3. As the feed roller keeps pushing the paper, the paper warps.
4. The stiffness of paper pushes up the registration shutter.
5. The paper passes through the registration shutter and straightens.

## Media-length detection

The DC controller detects the length of paper to prevent the toner stain on the transfer roller and also to minimize jam occurrences in the duplexer. The DC controller measures the length of paper by monitoring the time from when the leading edge of paper reaches at the TOP sensor until when the trailing edge passes through and determines the paper size.

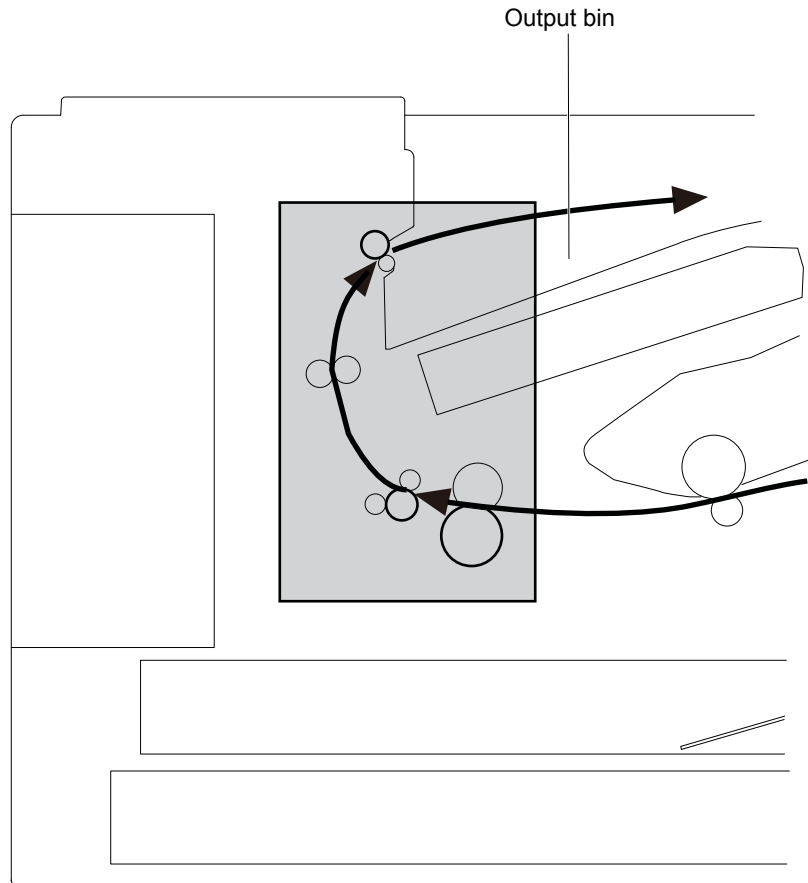
The DC controller determines a media-size mismatch and notifies the formatter when the detected paper size is under the following conditions:

- The detected paper size is different from the size designated by the formatter.
- The detected paper size is different from the size detected by the cassette media size switch.

## Fuse and delivery block

The fuse and delivery block fuses the toner image onto the paper and delivers the printed page to the face-down output bin.

**Figure 1-34** Fuse and delivery block



## Loop control

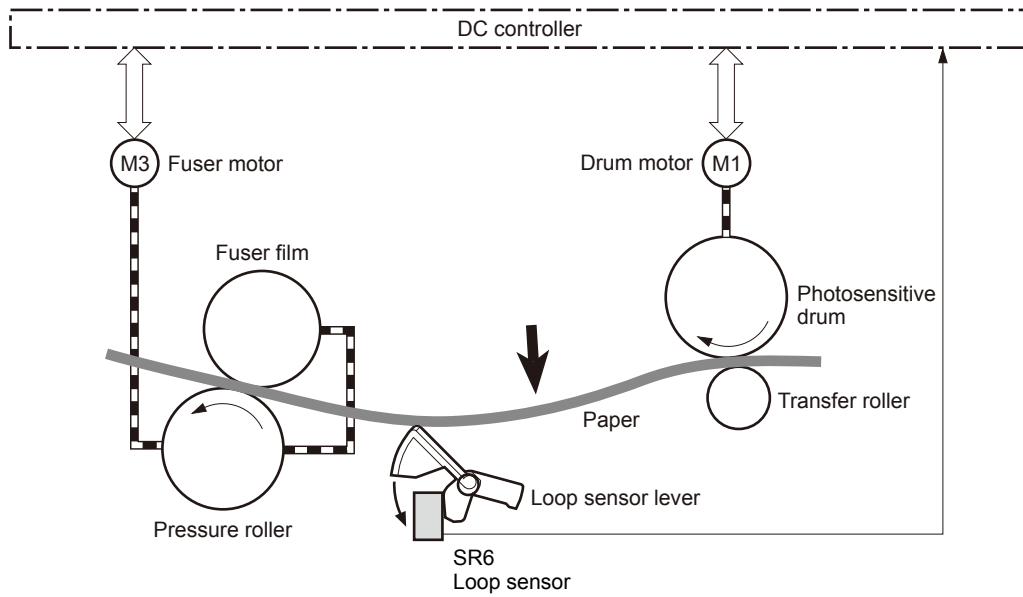
The product controls the loop of paper to prevent the defects of print-quality and paper-feed.

- If the fuser film/pressure roller rotates slower than the photosensitive drum/transfer roller, the paper loop increases.
- If the fuser film/pressure roller rotates faster than the photosensitive drum/transfer roller, the paper loop decreases.

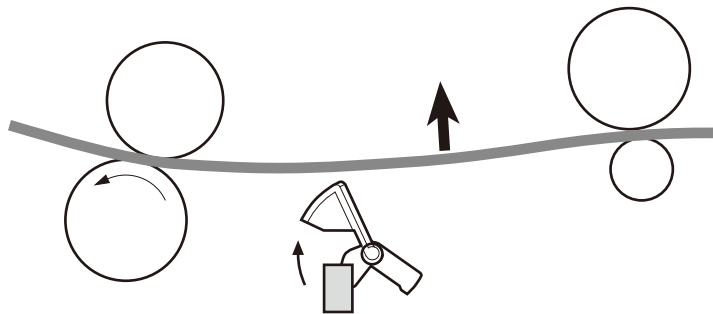
The DC controller detects the loop amount by monitoring the loop sensor and controls the rotational speed of the fuser motor.

**Figure 1-35** Loop control

Fuser film/Pressure roller rotates slower than photosensitive drum/transfer roller.



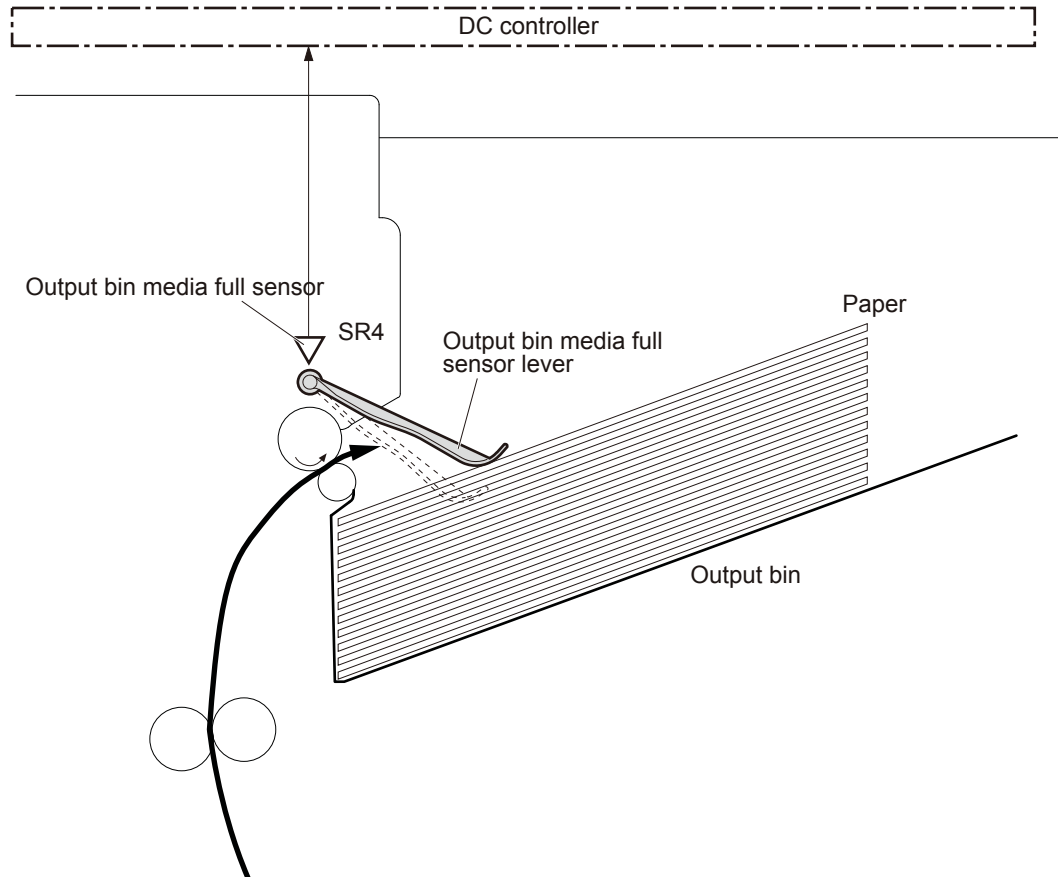
Fuser film/Pressure roller rotates faster than photosensitive drum/transfer roller.



## Output bin media-full detection

The DC controller detects whether the output bin is full by monitoring the output bin media full sensor.

**Figure 1-36** Output bin media-full detection



The DC controller determines an output bin media full and notifies the formatter when the output bin media full sensor detects the paper for a specified period during a print operation.

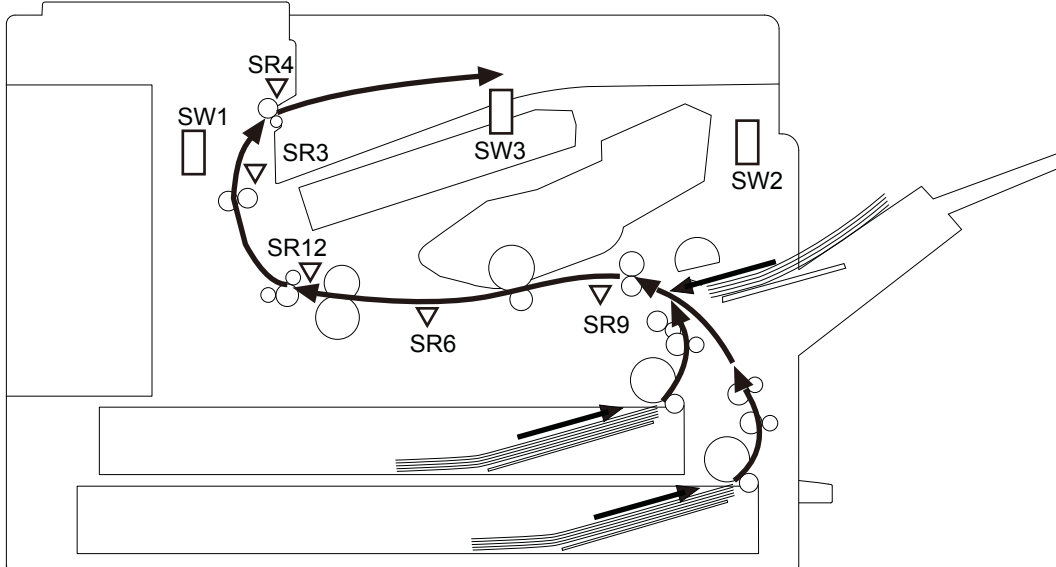


## Jam detection

The product uses the following sensors and switches to detect the presence of paper and to check whether the paper is being fed correctly or has jammed:

- Left door interlock switch (SW1)
- Cartridge door interlock switch (SW2)
- Cartridge door open detection switch (SW3)
- TOP sensor (SR9)
- Loop sensor (SR6)
- Fuser output sensor (SR12)
- Output sensor (SR3)
- Output bin media full sensor (SR4)
- Right door sensor (SR8)

**Figure 1-37** Product engine jam detection sensors and switches



### No pick jam 1

- MP tray  
The TOP sensor does not detect the leading edge of paper within a specified period (including two retries) from when the MP tray pickup solenoid is turned on.
- Standard cassette  
The TOP sensor does not detect the leading edge of paper within a specified period (including two retries) from when the cassette pickup clutch is driven.
- Duplexer

The TOP sensor does not detect the leading edge of paper within a specified period from when the paper passes through the duplex waiting position.

- **Input accessory**

The TOP sensor does not detect the leading edge of paper within a specified period from when the following sensor of the input accessory installed on the top detects the leading edge.

- 500-sheet paper feeder: PF cassette media feed sensor
- 1x500-sheet paper deck: PD cassette 1 media feed sensor
- 3x500-sheet paper deck: PD cassette 1 media feed sensor
- 3,500-sheet paper deck: HCI cassette media feed sensor

## **Feed stay jam 1**

The TOP sensor does not detect the trailing edge of paper within a specified period from when it detects the leading edge.

## **Fuser output delay jam 1**

The fuser output sensor does not detect the leading edge of paper within a specified period from when the TOP sensor detects the leading edge.

## **Fuser output stay jam 1**

The fuser output sensor does not detect the trailing edge of paper within a specified period from when the TOP sensor detects the trailing edge.

## **Output delay jam 1**

The output sensor does not detect the leading edge of paper within a specified period from when the TOP sensor detects the leading edge.

## **Output delay jam 2**

The output bin media full sensor does not detect the leading edge of paper within a specified period from when the TOP sensor detects the leading edge.

## **Output stay jam 1**

The output sensor does not detect the trailing edge of paper within a specified period from when the fuser TOP sensor detects the trailing edge.

## Residual paper jam 1

Either one of the following sensors detects a paper-presence when the product is turned on or when the door is closed:

- TOP sensor
- Loop sensor
- Fuser output sensor

Either one of the following sensors detects a paper-presence when the automatic delivery is complete:

- TOP sensor
- Loop sensor
- Fuser output sensor
- Output sensor

## Fuser wrap jam 1

The fuser output sensor detects a paper-absence within a specified period from when it detects the leading edge of paper.

## Door open jam 1

Either one of the following switches or sensor detects a door open during a paper feed operation:

- Left door interlock switch
- Cartridge door interlock switch
- Cartridge door open detection switch
- Right door sensor

## Multiple-feed jam 1

The sub thermistor 1 detects 300°C (572°F) or higher for a specified period from when the multiple fed sheets passes through the TOP sensor.

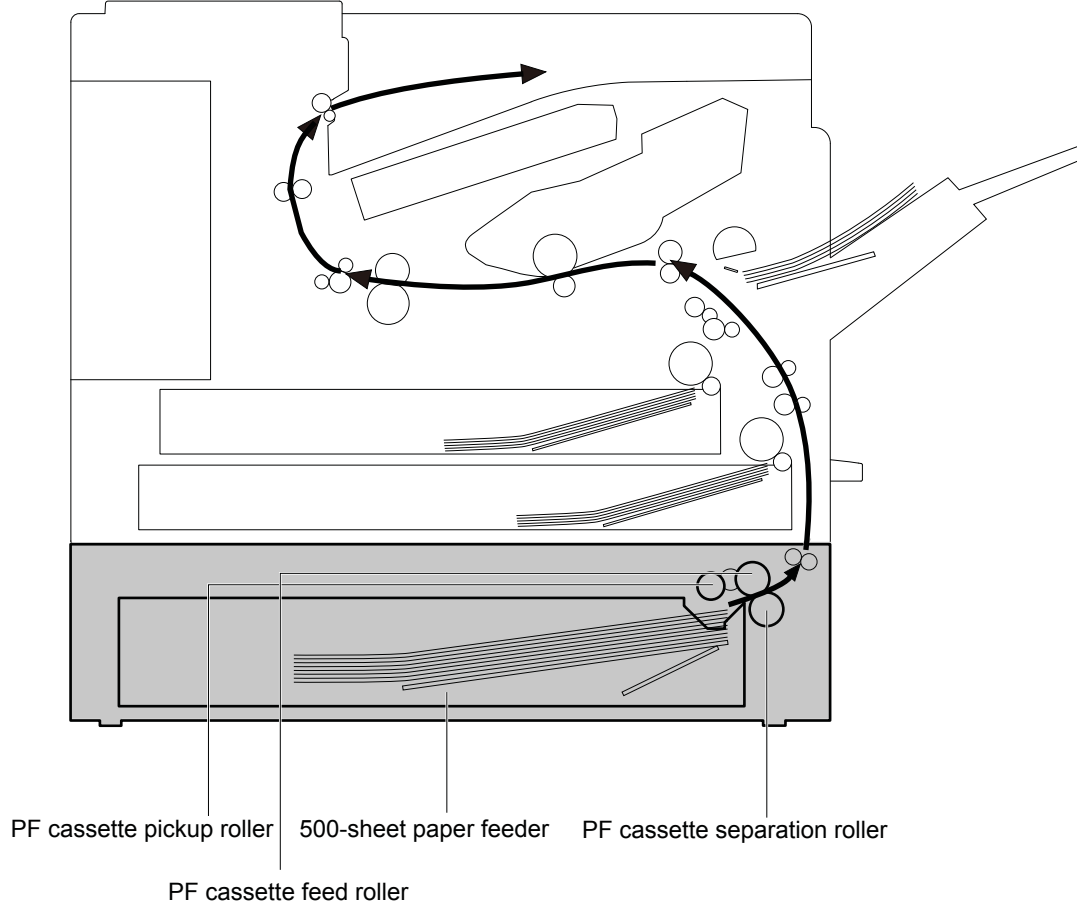
## Automatic delivery

The product automatically clears the paper if the output sensor detects the residual paper when the product is turned on or when the door is closed.

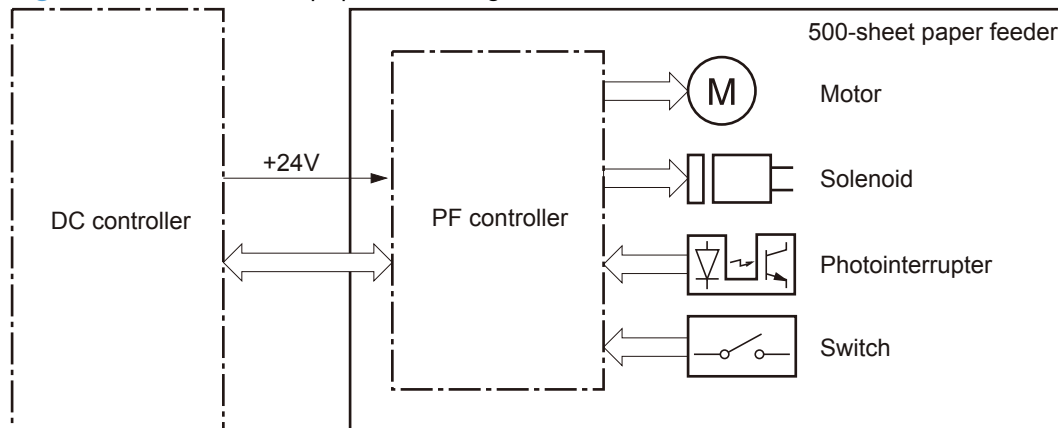
## 500-sheet paper feeder (Tray 4)

The paper feeder is optionally installed at bottom of the product. It picks up the paper and feeds it to the product. The paper feeder controller controls the operational sequence of the paper feeder.

**Figure 1-38** 500-sheet paper feeder paper path



**Figure 1-39** 500-sheet paper feeder signal flow

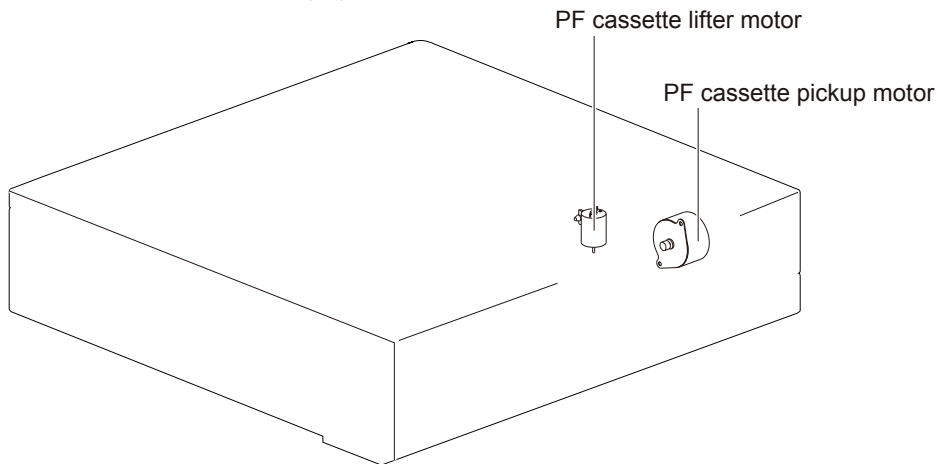


**Table 1-8 500-sheet paper feeder electrical components**

Component	Abbreviation	Component name
Motor	M1	PF cassette pickup motor
	M2	PF cassette lifter motor
Solenoid	SL1	PF cassette pickup solenoid
Photointerrupter	SR1	PF cassette media feed sensor
	SR2	PF cassette media stack surface sensor
	SR3	PF cassette media out sensor
Switch	SW1	PF right door open detection switch
	SW2	PF cassette media width switch
	SW3	PF cassette media end switch

## 500-sheet paper feeder motor control

The paper feeder has two motors for the paper-feed and cassette lift-up.

**Figure 1-40** 500-sheet paper feeder motor locations**Table 1-9 500-sheet paper feeder motors**

Motor	Components driven
M1	PF cassette pickup motor Pickup roller, separation roller and feed roller for the PF cassette
M2	PF cassette lifter motor Lifter for the PF cassette

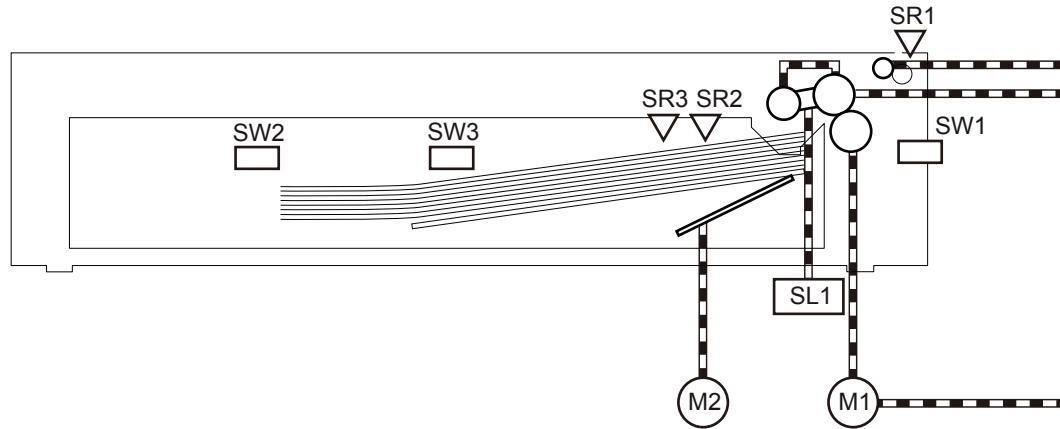
## 500-sheet paper feeder failure detection

The paper feeder controller determines a cassette lifter motor failure according to the condition of the related part. The paper feeder controller does not determine if the cassette pickup motor has failed; therefore, a jam occurs when the motor fails.

## 500-sheet paper feeder pickup and feed operation

The pickup-and-feed operation picks up one sheet of paper in the paper feeder cassette and feeds it to the product.

**Figure 1-41** 500-sheet paper feeder pickup and feed components



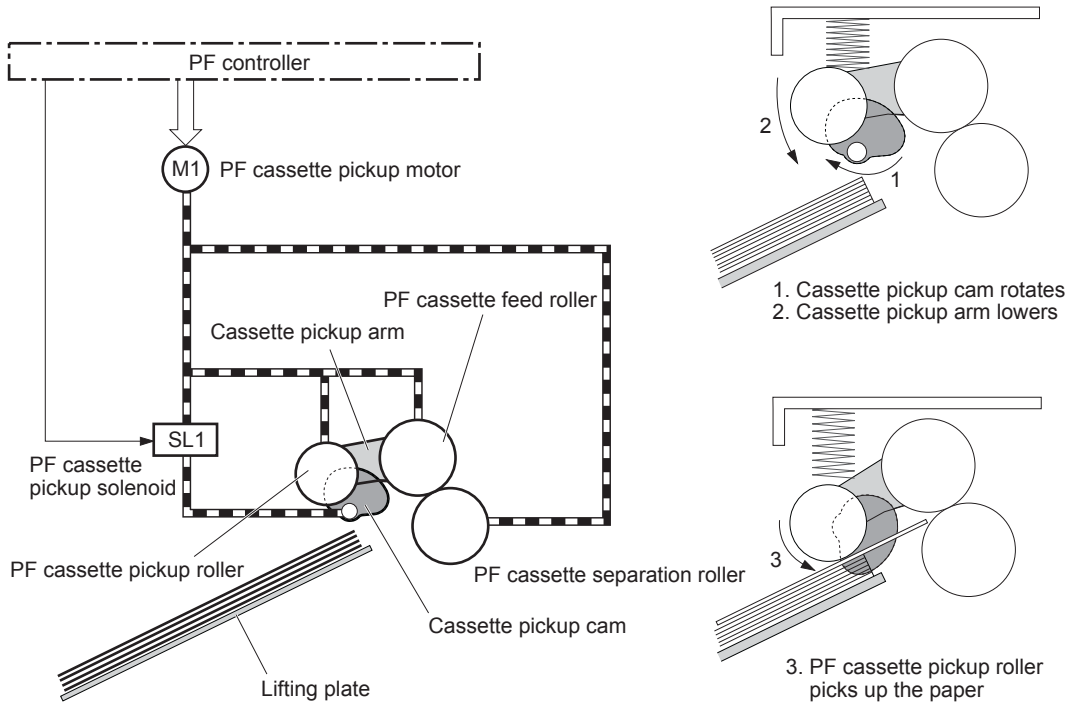
**Table 1-10** 500-sheet paper feeder pickup and feed components

Component		Signal
M1	PF cassette pickup motor	PF CASSETTE PICKUP MOTOR CONTROL signal
M2	PF cassette lifter motor	PF CASSETTE LIFTER MOTOR CONTROL signal
SL1	PF cassette pickup solenoid	PF CASSETTE PICKUP SOLENOID signal
SR1	PF cassette media feed sensor	PF CASSETTE MEDIA FEED signal
SR2	PF cassette media stack surface sensor	PF CASSETTE MEDIA STACK SURFACE signal
SR3	PF cassette media out sensor	PF CASSETTE MEDIA OUT signal
SW1	PF right door open detection switch	PF RIGHT DOOR OPEN DETECTION signal
SW2	PF cassette media width switch	PF CASSETTE MEDIA WIDTH signal
SW3	PF cassette media end switch	PF CASSETTE MEDIA END signal

## 500-sheet paper feeder cassette pickup

The paper feeder picks up one sheet of paper from the cassette.

**Figure 1-42** 500-sheet paper feeder pickup and feed cassette pickup



The operational sequence of the cassette pickup is as follows:

1. The paper feeder controller rotates the PF cassette pickup motor when it receives a print command from the formatter.
2. The PF cassette pickup roller, PF cassette feed roller and PF cassette separation roller rotate.
3. The PF cassette pickup solenoid is driven at a specified timing.
4. The cassette pickup cam rotates.
5. The cassette pickup arm lowers and the PF cassette pickup roller picks up the top paper.
6. The PF cassette separation roller removes any multiple-fed sheets.
7. One sheet of paper is fed into the product.

## 500-sheet paper feeder cassette media-size detection and cassette-presence detection

The paper feeder controller determines the size of paper loaded in the cassette and also whether the cassette is installed to the paper feeder by monitoring the PF cassette media width switch and the PF cassette media end switch.

The PF cassette media width switch and the PF cassette media end switch contain three sub-switches each. The paper feeder controller detects the size of paper and the presence of cassette according to the combination of the sub-switches and notifies the formatter.

The cassette media-size detection and the cassette-presence detection are not performed during Sleep mode.

**Table 1-11 500-sheet paper feeder media switch combinations**

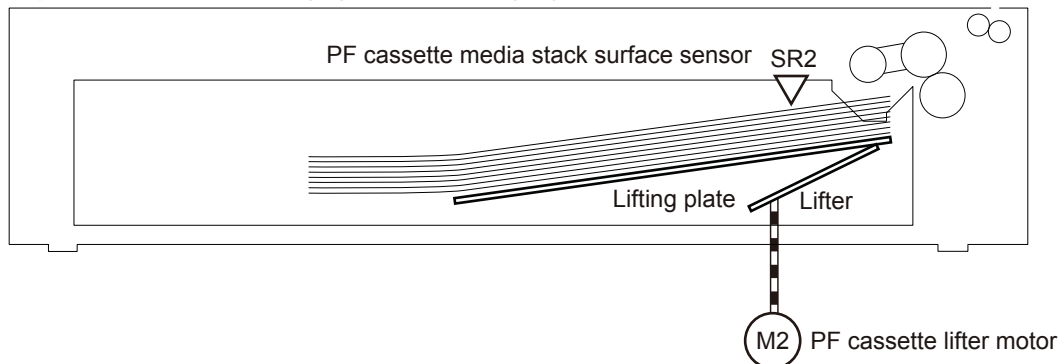
Paper size	Cassette media width switch			Cassette media end switch		
	Top	Center	Bottom	Top	Center	Bottom
Cassette absence	OFF	OFF	OFF	OFF	OFF	OFF
A5-R	ON	ON	OFF	ON	ON	ON
B5-R	OFF	ON	OFF	ON	ON	ON
Executive-R	OFF	ON	ON	ON	ON	ON
Letter-R	OFF	OFF	ON	ON	ON	ON
A4-R	OFF	OFF	OFF	ON	ON	ON
8.5 x 13 in	ON	ON	OFF	OFF	ON	ON
Legal	ON	ON	OFF	OFF	OFF	ON
B4	OFF	ON	OFF	OFF	OFF	ON
Ledger	OFF	OFF	ON	OFF	OFF	ON
A3	OFF	OFF	OFF	OFF	OFF	ON

## 500-sheet paper feeder lift-up operation

The paper feeder performs the lift-up operation to keep the surface of paper at the pickup position whenever the following occurs:

- The product is turned on
- The cassette is installed
- The paper stack surface lowers by pickup operation

**Figure 1-43** 500-sheet paper feeder lift-up operation





The operational sequence of the lift-up is as follows:

1. The lifter motor rotates to raise the lifter.
2. The lifter motor stops when the PF cassette media stack surface sensor detects the paper surface.
3. The lifter motor rotates again when the PF cassette media stack surface sensor detects that the stack surface lowers during a print operation.

The paper feeder controller determines a PF cassette lifter motor failure and notifies the formatter through the DC controller when the PF cassette media stack surface sensor does not detect the paper surface within a specified period from when the PF cassette lifter motor starts rotating.

## 500-sheet paper feeder cassette media-presence detection

The paper feeder controller detects whether the paper is loaded in the cassette by monitoring the PF cassette media out sensor.

The cassette media-presence detection is not performed during Sleep mode.

The paper feeder controller determines a media-absence and notifies the formatter through the DC controller when the PF cassette media out sensor does not detect the paper.

## 500-sheet paper feeder cassette multiple-feed prevention

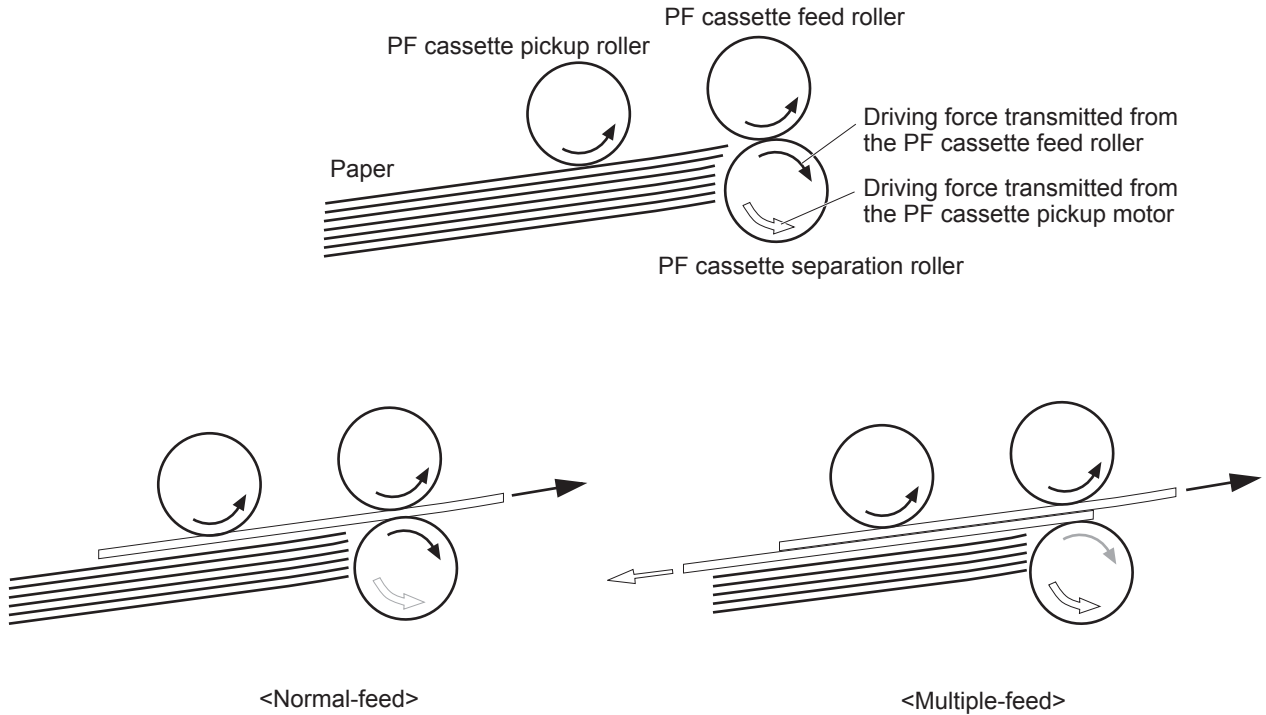
The paper feeder uses a PF cassette separation roller to prevent the multiple sheets of paper from entering to the product.

The PF cassette separation roller transmits its driving force so that the roller rotates in the same direction with the PF cassette feed roller.

- When one sheet of paper is picked up, driving force from the PF cassette feed roller transmits through the single sheet of paper because the torque limiter functions and the PF cassette separation roller follows the PF cassette feed roller. Therefore, single sheet is fed into the product.
- When multiple sheets of paper are picked up, driving force from the PF cassette feed roller becomes weak due to a low friction between the sheets. The PF cassette separation roller rotates

by its own driving force and the multiple-fed paper are pushed back to the cassette. Therefore, single sheet is fed into the product.

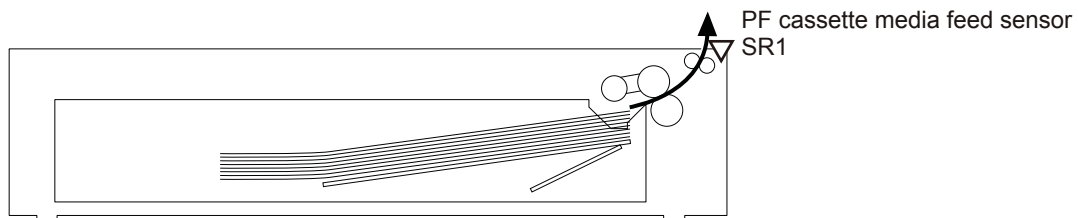
**Figure 1-44** 500-sheet paper feeder multiple-feed prevention



## 500-sheet paper feeder jam detection

The paper feeder uses the PF cassette media feed sensor (SR1) to detect the presence of paper and to check whether paper is being fed correctly or has jammed.

**Figure 1-45** 500-sheet paper feeder cassette jam detection sensor



### No pick jam 2

The PF cassette media feed sensor does not detect the leading edge of paper within a specified period (including 2 retries) from when the PF cassette pickup solenoid is turned on.

### Residual paper jam 1

The PF cassette media feed sensor detects a paper-presence when the automatic delivery is complete.

## Door open jam 1

A PF right door open is detected during a paper feed operation.

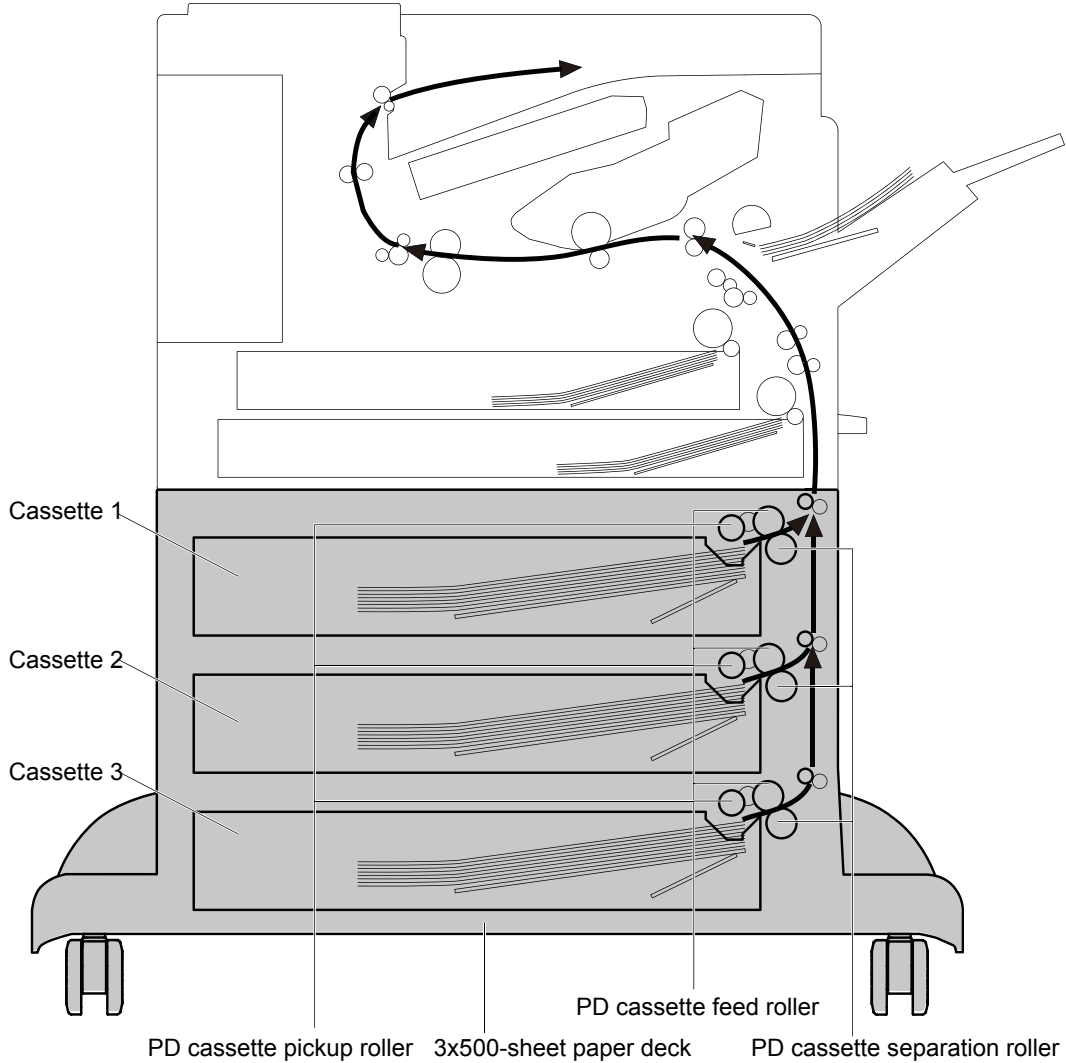
## 500-sheet paper feeder automatic delivery

The paper feeder automatically clears the paper if the PF cassette media feed sensor detects the residual paper when the product is turned on or when the door is closed.

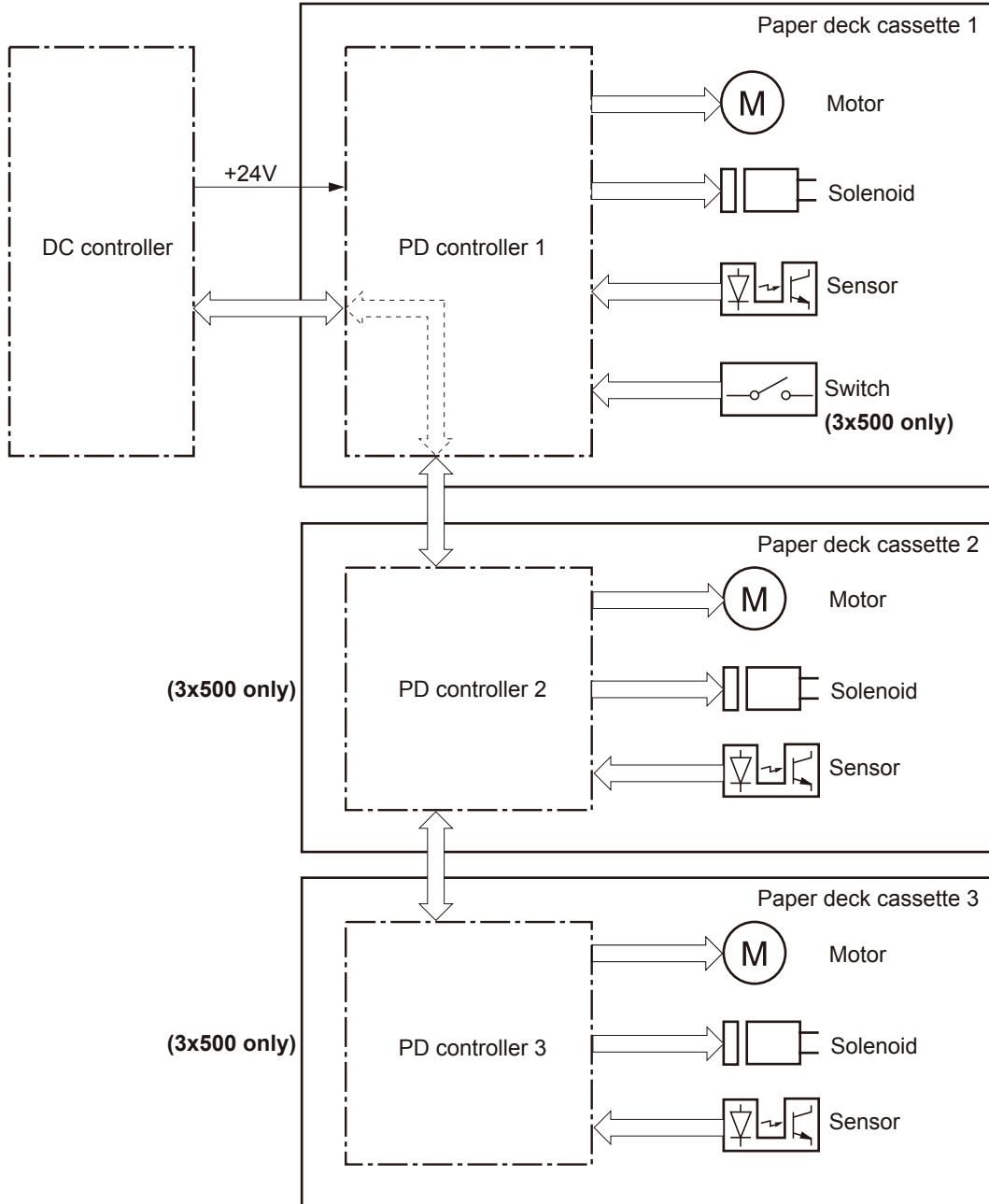
# 1x500 and 3x500 paper feeder and stand

The 1x500-sheet paper feeder is optionally installed at the bottom of the product or 500-sheet paper feeder. The 3x500-sheet paper feeder is optionally installed at bottom of the product only. Each of the paper feeders pick up the paper and feed it to the product. The paper feeder controller controls the operational sequence of the paper feeder.

**Figure 1-46** Paper deck paper path



**Figure 1-47** Paper deck signal flow



**Table 1-12** Paper deck electrical components

Component	Abbreviation	Component name
Motor	M1	PD cassette 1 pickup motor
	M2	PD cassette 1 lifter motor
	M81	PD cassette 2 pickup motor <sup>1</sup>
	M82	PD cassette 2 lifter motor <sup>1</sup>
	M91	PD cassette 3 pickup motor <sup>1</sup>
	M92	PD cassette 3 lifter motor <sup>1</sup>

**Table 1-12 Paper deck electrical components (continued)**

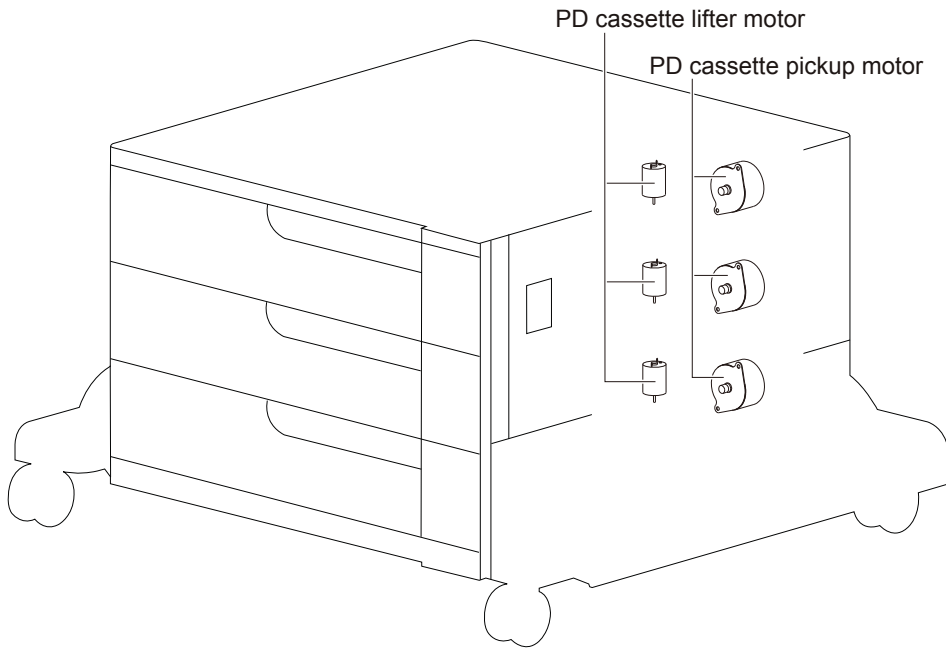
<b>Component</b>	<b>Abbreviation</b>	<b>Component name</b>
Solenoid	SL1	PD cassette 1 pickup solenoid
	SL82	PD cassette 2 pickup solenoid <sup>1</sup>
	SL92	PD cassette 3 pickup solenoid <sup>1</sup>
Photointerrupter	SR1	PD cassette 1 media feed sensor
	SR1	PD cassette 1 media feed sensor
	SR3	PD cassette 1 media out sensor
	SR81	PD cassette 2 media feed sensor <sup>1</sup>
	SR82	PD cassette 2 media stack surface sensor <sup>1</sup>
	SR83	PD cassette 2 media out sensor <sup>1</sup>
	SR91	PD cassette 3 media feed sensor <sup>1</sup>
	SR92	PD cassette 3 media stack surface sensor <sup>1</sup>
	SR93	PD cassette 3 media out sensor <sup>1</sup>
Switch	SW1	PD right door open detection switch <sup>1</sup>
	SW2	PD cassette 1 media width switch
	SW3	PD cassette 1 media end switch
	SW82	PD cassette 2 media width switch <sup>1</sup>
	SW83	PD cassette 2 media end switch <sup>1</sup>
	SW92	PD cassette 3 media width switch <sup>1</sup>
	SW93	PD cassette 3 media end switch <sup>1</sup>

<sup>1</sup> Applies to the 3x500 paper deck only.

## Paper deck motor control

The paper deck has two motors in each cassette for the paper-feed and cassette lift-up.

**Figure 1-48** Paper deck motors



**Table 1-13** Paper deck motors

Motor		Components driven
M1	PD cassette 1 pickup motor	Pickup roller, separation roller and feed roller for the PD cassette 1
M2	PD cassette 1 lifter motor	Lifter for the PD cassette 1
M81	PD cassette 2 pickup motor	Pickup roller, separation roller and feed roller for the PD cassette 2
M82	PD cassette 2 lifter motor	Lifter for the PD cassette 2
M91	PD cassette 3 pickup motor	Pickup roller, separation roller and feed roller for the PD cassette 3
M92	PD cassette 3 lifter motor	Lifter for the PD cassette 3

## Paper deck failure detection

The paper deck controller determines a PD cassette lifter motor failure according to the condition of the related part.

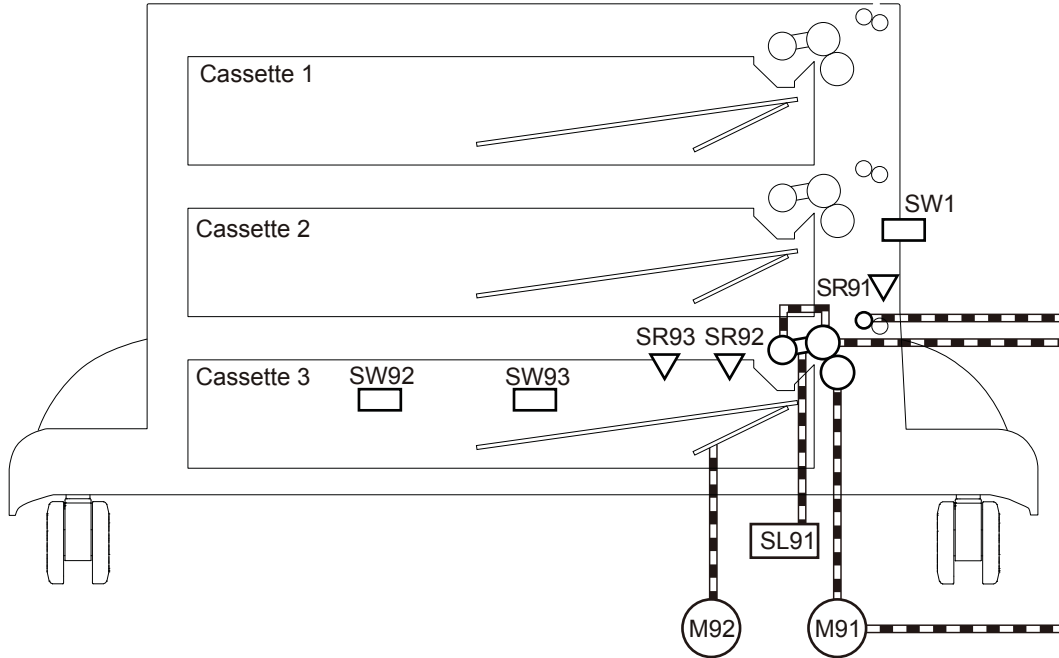
The paper deck controller does not determine if the PD cassette pickup motor has failed; therefore, a jam occurs when the motor fails.

## Paper deck pickup-and-feed operation

The pickup-and-feed operation picks up one sheet of paper in the paper deck cassette and feeds it to the product.

**NOTE:** The following figure illustrates the mechanism for paper deck cassette 3, but each paper deck cassette has the same mechanism.

**Figure 1-49** Paper deck pickup and feed components



**Table 1-14** Paper deck pickup-and-feed operation components

Abbreviation	Component	Signal
M1	PD cassette 1 pickup motor	PD CASSETTE 1 PICKUP MOTOR CONTROL signal
M2	PD cassette 1 lifter motor	PD CASSETTE 1 LIFTER MOTOR CONTROL signal
SL1	PD cassette 1 pickup solenoid	PD CASSETTE 1 PICKUP SOLENOID signal
SR1	PD cassette 1 media feed sensor	PD CASSETTE 1 MEDIA FEED signal
SR2	PD cassette 1 media stack surface sensor	PD CASSETTE 1 MEDIA STACK SURFACE signal
SR3	PD cassette 1 media out sensor	PD CASSETTE 1 MEDIA OUT signal
SW1	PD right door open detection switch	PD RIGHT DOOR OPEN DETECTION signal
SW2	PD cassette 1 media width switch	PD CASSETTE 1 MEDIA WIDTH signal
SW3	PD cassette 1 media end switch	PD CASSETTE 1 MEDIA END signal
M81	PD cassette 2 pickup motor	PD CASSETTE 2 PICKUP MOTOR CONTROL signal
M82	PD cassette 2 lifter motor	PD CASSETTE 2 LIFTER MOTOR CONTROL signal
SL81	PD cassette 2 pickup solenoid	PD CASSETTE 2 PICKUP SOLENOID signal
SR81	PD cassette 2 media feed sensor	PD CASSETTE 2 MEDIA FEED signal
SR82	PD cassette 2 media stack surface sensor	PD CASSETTE 2 MEDIA STACK SURFACE signal
SR83	PD cassette 2 media out sensor	PD CASSETTE 2 MEDIA OUT signal
SW82	PD cassette 2 media width switch	PD CASSETTE 2 MEDIA WIDTH signal



**Table 1-14 Paper deck pickup-and-feed operation components (continued)**

Abbreviation	Component	Signal
SW83	PD cassette 2 media end switch	PD CASSETTE 2 MEDIA END signal
M91	PD cassette 3 pickup motor	PD CASSETTE 3 PICKUP MOTOR CONTROL signal
M92	PD cassette 3 lifter motor	PD CASSETTE 3 LIFTER MOTOR CONTROL signal
SL91	PD cassette 3 pickup solenoid	PD CASSETTE 3 PICKUP SOLENOID signal
SR91	PD cassette 3 media feed sensor	PD CASSETTE 3 MEDIA FEED signal
SR92	PD cassette 3 media stack surface sensor	PD CASSETTE 3 MEDIA STACK SURFACE signal
SR93	PD cassette 3 media out sensor	PD CASSETTE 3 MEDIA OUT signal
SW92	PD cassette 3 media width switch	PD CASSETTE 3 MEDIA WIDTH signal
SW93	PD cassette 3 media end switch	PD CASSETTE 3 MEDIA END signal

## Paper deck cassette media-size detection and cassette-presence detection

The paper deck controller detects the size of paper loaded in the cassette and also whether the cassette is installed to the paper deck by monitoring the PD cassette media width switch and the PD cassette media end switch.

The PD cassette media width switch and the PD cassette media end switch contain three subswitches each. The paper deck controller detects the size of paper and the presence of cassette according to the combination of the sub-switches and notifies the formatter.

The cassette media-size detection and the cassette-presence detection are not performed during Sleep mode.

**Table 1-15 Paper deck media switch combinations**

Paper size	Cassette media width switch			Cassette media end switch		
	Top	Center	Bottom	Top	Center	Bottom
Cassette absence	OFF	OFF	OFF	OFF	OFF	OFF
A5-R	ON	ON	OFF	ON	ON	ON
B5-R	OFF	ON	OFF	ON	ON	ON
Executive-R	OFF	ON	ON	ON	ON	ON
Letter-R	OFF	OFF	ON	ON	ON	ON
A4-R	OFF	OFF	OFF	ON	ON	ON
8.5 x 13 in	ON	ON	OFF	OFF	ON	ON
Legal	ON	ON	OFF	OFF	OFF	ON
B4	OFF	ON	OFF	OFF	OFF	ON


**Table 1-15 Paper deck media switch combinations (continued)**

Paper size	Cassette media width switch			Cassette media end switch		
	Top	Center	Bottom	Top	Center	Bottom
Ledger	OFF	OFF	ON	OFF	OFF	ON
A3	OFF	OFF	OFF	OFF	OFF	ON

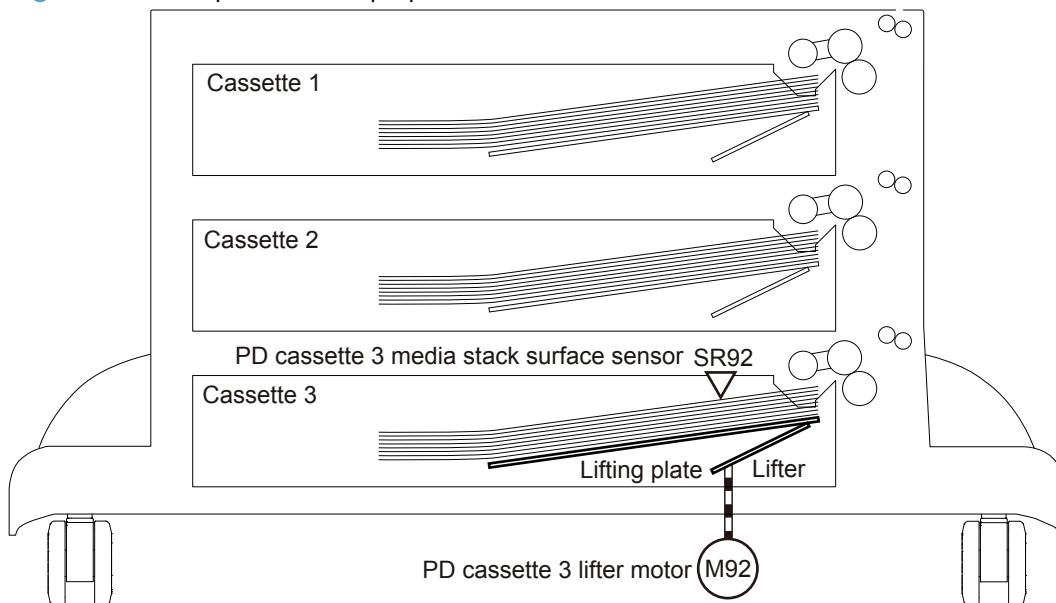
## Paper deck lift-up operation

The paper deck lifts up the tray to keep the surface of paper at the pickup position whenever the following occurs:

- The product is turned on
- The cassette is installed
- The paper stack surface lowers by pickup operation

 **NOTE:** The following figure illustrates the mechanism for paper deck cassette 3, but each paper deck cassette has the same mechanism.

**Figure 1-50** Paper deck lift-up operation



The operational sequence of the lift-up is as follows:

1. The PD cassette 3 lifter motor rotates to raise the lifter.
2. The PD cassette 3 lifter motor stops when the PD cassette 3 media stack surface sensor detects the paper surface.
3. The PD cassette 3 lifter motor rotates again when the PD cassette 3 media stack surface sensor detects that the stack surface lowers during a print operation.

The paper deck controller 3 determines a PD cassette 3 lifter motor failure and notifies the formatter through the DC controller when the PD cassette 3 media stack surface sensor does not detect the paper surface within a specified period from when the PD cassette 3 lifter motor starts rotating.

## Paper deck cassette media-presence detection

The paper deck controller detects whether the paper is loaded in the cassette by monitoring the PD cassette media out sensor.

The cassette media-presence detection is not performed during Sleep mode.

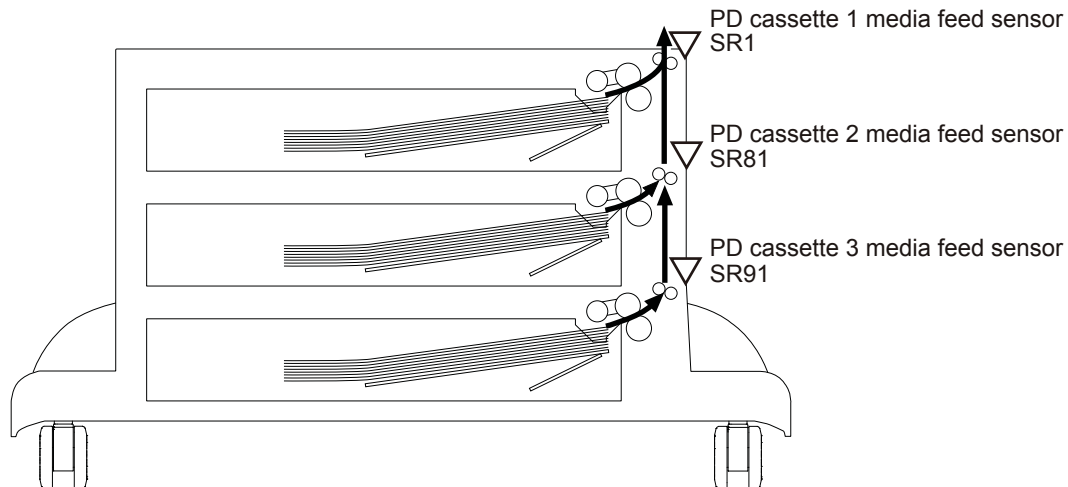
The paper deck controller determines a media-absence and notifies the formatter through the DC controller when the PD cassette media out sensor does not detect the paper.

## Paper deck jam detection

The paper deck uses the following sensors to detect the presence of paper and to check whether paper is being fed correctly or has jammed:

- PD cassette 1 media feed sensor (SR1)
- PD cassette 2 media feed sensor (SR81) (3x500-sheet paper deck only)
- PD cassette 3 media feed sensor (SR91) (3x500-sheet paper deck only)

**Figure 1-51** Paper deck jam detection sensors



## No pick jam 2

The PD cassette 1 media feed sensor does not detect the leading edge of paper within a specified period (including 2 retries) from when the PD cassette 1 pickup solenoid is turned on.

The PD cassette 1 media feed sensor does not detect the leading edge of paper within a specified period from when the PD cassette 2 media feed sensor detects the leading edge. (3x500-sheet paper deck only)

The PD cassette 1 media feed sensor does not detect the leading edge of paper within a specified period from when the PD cassette 3 media feed sensor detects the leading edge. (3x500-sheet paper deck only)

### **No pick jam 3 (3x500-sheet paper deck only)**

The PD cassette 2 media feed sensor does not detect the leading edge of paper within a specified period (including two retries) from when the PD cassette 2 pickup solenoid is turned on.

The PD cassette 3 media feed sensor does not detect the leading edge of paper within a specified period (including two retries) from when the PD cassette 3 pickup solenoid is turned on.

### **Residual paper jam 1**

The following sensor detects a paper-presence when the automatic delivery is complete.

- PD cassette 1 media feed sensor
- PD cassette 2 media feed sensor (3x500-sheet paper deck only)
- PD cassette 3 media feed sensor (3x500-sheet paper deck only)

### **Door open jam 1**

A PD right door open is detected during a paper feed operation.

### **Paper deck automatic delivery**

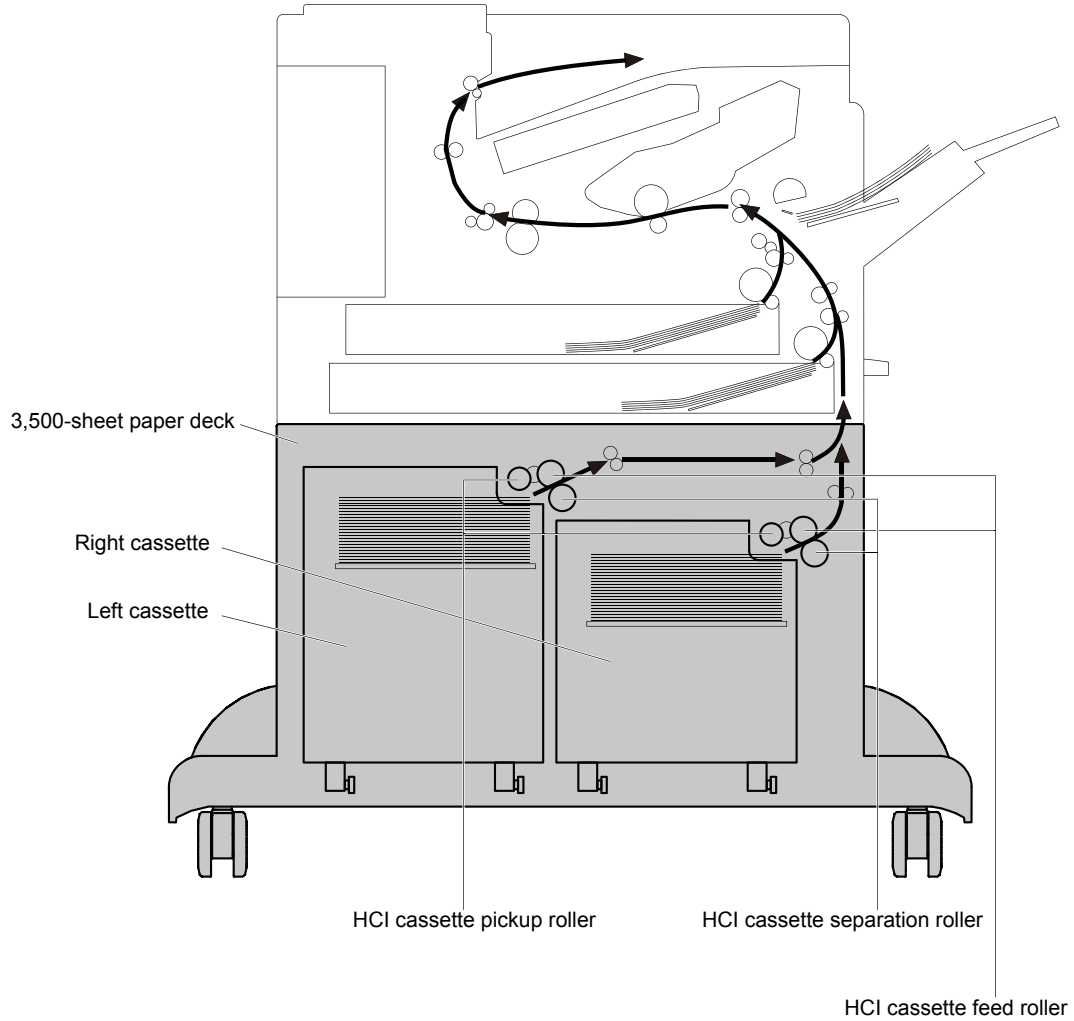
The paper deck automatically clears the paper if either one of the following sensor detects the residual paper when the product is turned on or when the door is closed:

- PD cassette 1 media feed sensor
- PD cassette 2 media feed sensor (3x500-sheet paper deck only)
- PD cassette 3 media feed sensor (3x500-sheet paper deck only)

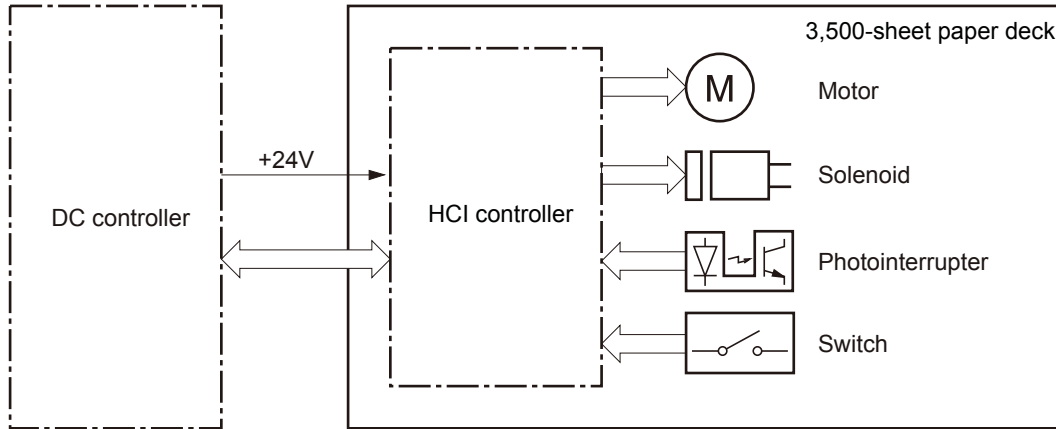
# 3,500-sheet high-capacity input (HCI) feeder

The 3,500-sheet paper deck is optionally installed at bottom of the product or the 500-sheet paper feeder. It picks up the paper and feeds it to the product. The HCI controller controls the operational sequence of the 3,500-sheet paper deck.

**Figure 1-52** HCI paper path



**Figure 1-53** HCl signal flow



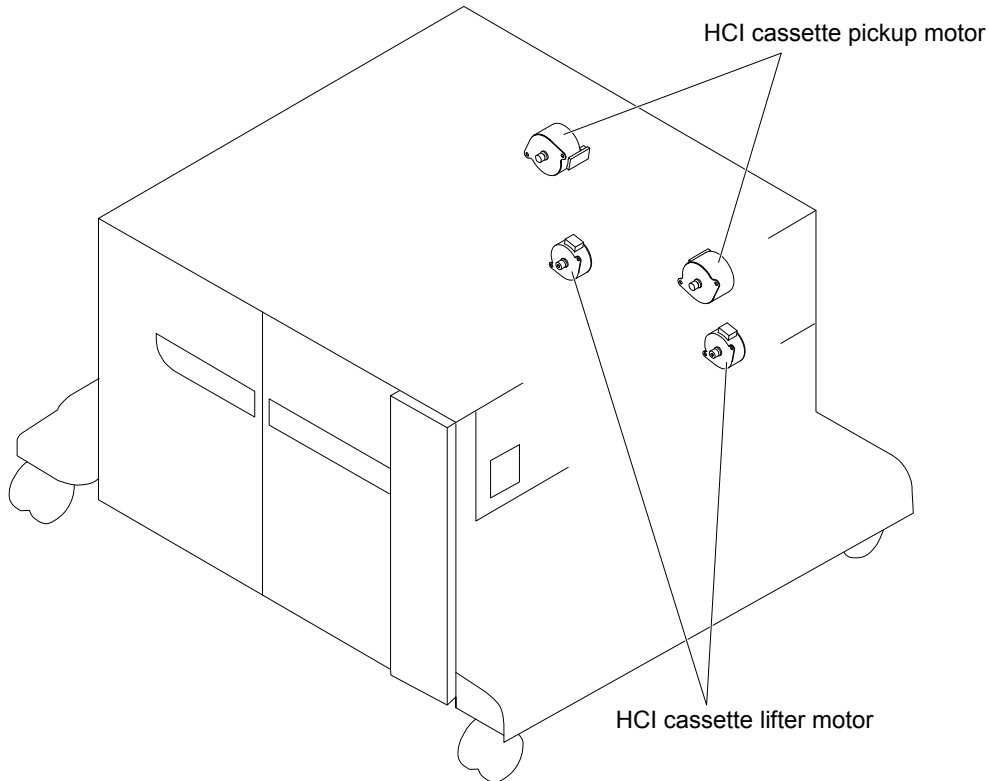
**Table 1-16** HCl electrical components

Component	Abbreviation	Component name
Motor	M3301	HCl right cassette pickup motor
	M3302	HCl right cassette lifter motor
	M3303	HCl left cassette lifter motor
	M3304	HCl left cassette pickup motor
Solenoid	SL3301	HCl right cassette pickup solenoid
	SL3302	HCl left cassette pickup solenoid
Photointerrupter	PS3101	HCl right cassette media stack surface 2 sensor
	PS3102	HCl right cassette media stack surface 1 sensor
	PS3103	HCl right cassette media out sensor
	PS3201	HCl left cassette media stack surface 2 sensor
	PS3202	HCl left cassette media stack surface 1 sensor
	PS3203	HCl left cassette media out sensor
	PS3301	HCl media feed sensor
	PS3302	HCl right cassette media feed sensor
	PS3303	HCl right cassette media size sensor
	PS3304	HCl left cassette media size sensor
Switch	SW3305	HCl left cassette media feed sensor
	PS3306	HCl long edge feed guide open detection sensor
	SW3301	HCl right door open detection switch
	SW3302	HCl right cassette open detection switch
	SW3303	HCl left cassette open detection switch

## HCI motor control

The HCI has two motors in each cassette for the paper-feed and cassette lift-up.

**Figure 1-54** HCI motors



**Table 1-17** HCI motors

Motor		Components driven
M3301	HCI right cassette pickup motor	Pickup roller, separation roller and feed roller for the HCI right cassette
M3302	HCI right cassette lifter motor	Lifter for the HCI right cassette
M3303	HCI left cassette lifter motor	Lifter for the HCI left cassette
M3304	HCI left cassette pickup motor	Pickup roller, separation roller and feed roller for the HCI left cassette

## HCI failure detection

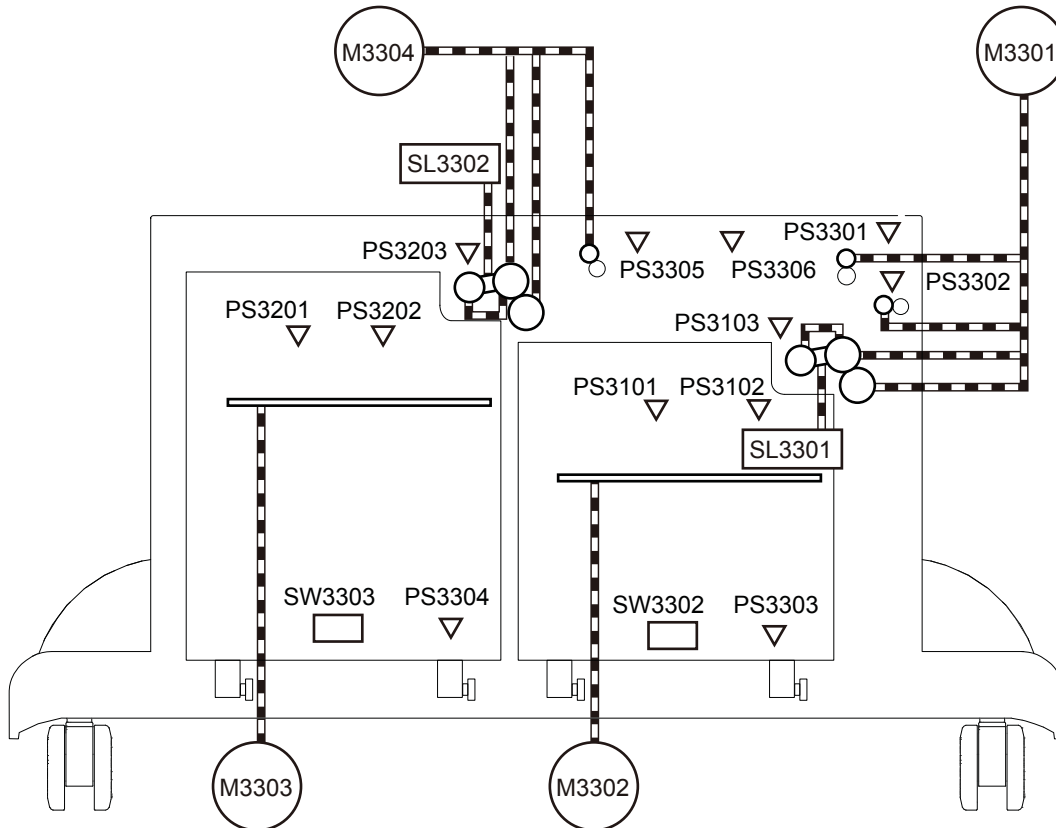
The HCI controller determines a lifter motor failure according to the condition of the related part.

The HCI controller does not determine if the HCI cassette pickup motor has failed; therefore, a jam occurs when the motor fails.

## HCI pickup-and-feed operation

The pickup-and-feed operation picks up one sheet of paper in the 3,500-sheet paper deck cassette and feeds it to the product.

**Figure 1-55** HCI pickup-and-feed operation



**Table 1-18** HCI pickup-and-feed operation components

Abbreviation	Component	Signal
M3301	HCI right cassette pickup motor	HCI RIGHT CASSETTE PICKUP MOTOR CONTROL signal
M3302	HCI right cassette lifter motor	HCI RIGHT CASSETTE LIFTER MOTOR CONTROL signal
M3303	HCI left cassette lifter motor	HCI LEFT CASSETTE LIFTER MOTOR CONTROL signal
M3304	HCI left cassette pickup motor	HCI LEFT CASSETTE PICKUP MOTOR CONTROL signal
SL3301	HCI right cassette pickup solenoid	HCI RIGHT CASSETTE PICKUP SOLENOID signal
SL3302	HCI left cassette pickup solenoid	HCI LEFT CASSETTE PICKUP SOLENOID signal
PS3101	HCI right cassette media stack surface 2 sensor	HCI RIGHT CASSETTE MEDIA STACK SURFACE 2 signal
PS3102	HCI right cassette media stack surface 1 sensor	HCI RIGHT CASSETTE MEDIA STACK SURFACE 1 signal



**Table 1-18 HCI pickup-and-feed operation components (continued)**

<b>Abbreviation</b>	<b>Component</b>	<b>Signal</b>
PS3103	HCI right cassette media out sensor	HCI RIGHT CASSETTE MEDIA OUT signal
PS3201	HCI left cassette media stack surface 2 sensor	HCI LEFT CASSETTE MEDIA STACK SURFACE 2 signal
PS3202	HCI left cassette media stack surface 1 sensor	HCI LEFT CASSETTE MEDIA STACK SURFACE 1 signal
PS3203	HCI left cassette media out sensor	HCI LEFT CASSETTE MEDIA OUT signal
PS3301	HCI media feed sensor	HCI MEDIA FEED signal
PS3302	HCI right cassette media feed sensor	HCI RIGHT CASSETTE MEDIA FEED signal
PS3303	HCI right cassette media size sensor	HCI RIGHT CASSETTE MEDIA SIZE signal
PS3304	HCI left cassette media size sensor	HCI LEFT CASSETTE MEDIA SIZE signal
PS3305	HCI left cassette media feed sensor	HCI LEFT CASSETTE MEDIA FEED signal
PS3306	HCI long edge feed guide open detection sensor	HCI LONG EDGE FEED GUIDE OPEN DETECTION signal
SW3301	HCI right door open detection switch	HCI RIGHT DOOR OPEN DETECTION signal
SW3302	HCI right cassette open detection switch	HCI RIGHT CASSETTE OPEN DETECTION signal
SW3303	HCI left cassette open detection switch	HCI LEFT CASSETTE OPEN DETECTION signal

## HCI cassette media-size detection and cassette-presence detection

The HCI controller detects the size of paper loaded in the cassette by monitoring the HCI cassette media size sensors. It determines whether A4-R or Letter-R is loaded and notifies the formatter through the DC controller. It also detects whether the cassette is installed to the 3,500-sheet paper deck by monitoring the HCI cassette open detection switches and notifies the formatter through the DC controller.

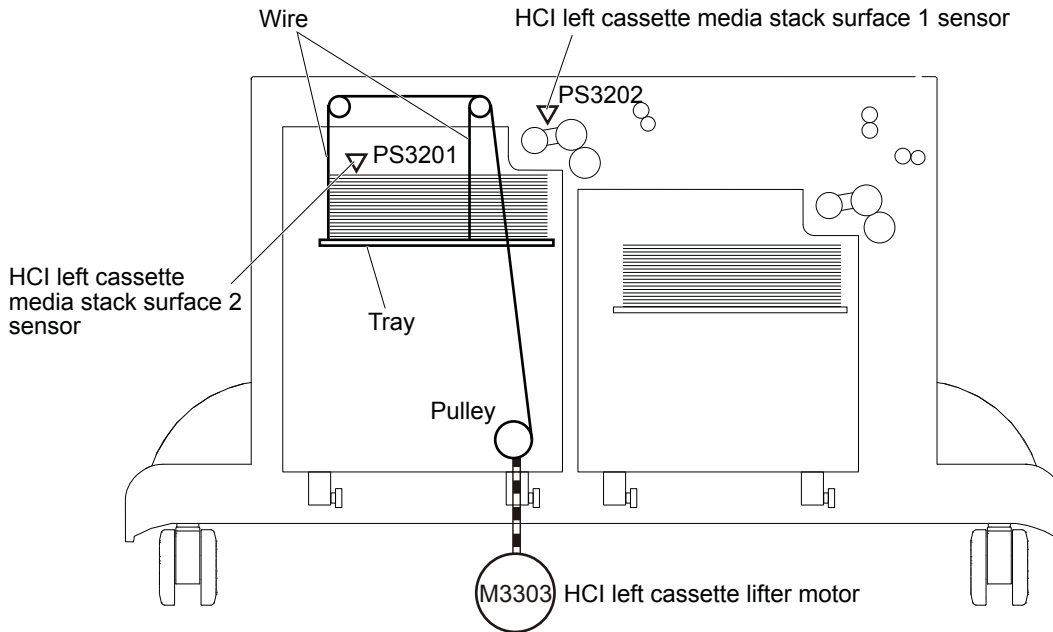
The cassette media-size detection and the cassette-presence detection are not performed during Sleep mode.

## HCI lift-up operation

The HCI lifts up the tray to keep the surface of the paper at the pickup position whenever the following occurs:

- The product is turned on
- The cassette is installed
- The paper stack surface lowers by pickup operation

**Figure 1-56** HCI lift-up operation



The figure above illustrates the mechanism for the left cassette, but each HCI cassette has the same mechanism.

The operational sequence of the lift-up is as follows:

1. The HCI cassette lifter motor rotates the pulley to reel the wire. Accordingly the tray moves up.
2. The HCI cassette lifter motor stops when the HCI cassette media stack surface 2 sensor detects the paper surface.
3. The HCI cassette lifter motor rotates again when the HCI cassette media stack surface 1 sensor detects that the stack surface lowers during a print operation.

The HCI controller determines an HCI cassette lifter motor failure and notifies the formatter through the DC controller when the HCI cassette media stack surface 2 sensor does not detect the paper surface within a specified period from when the HCI cassette lifter motor starts rotating.

## HCI cassette media-presence detection

The HCI controller detects whether the paper is loaded in the cassette by monitoring the HCI cassette media out sensor.

The cassette media-presence detection is not performed during Sleep mode.

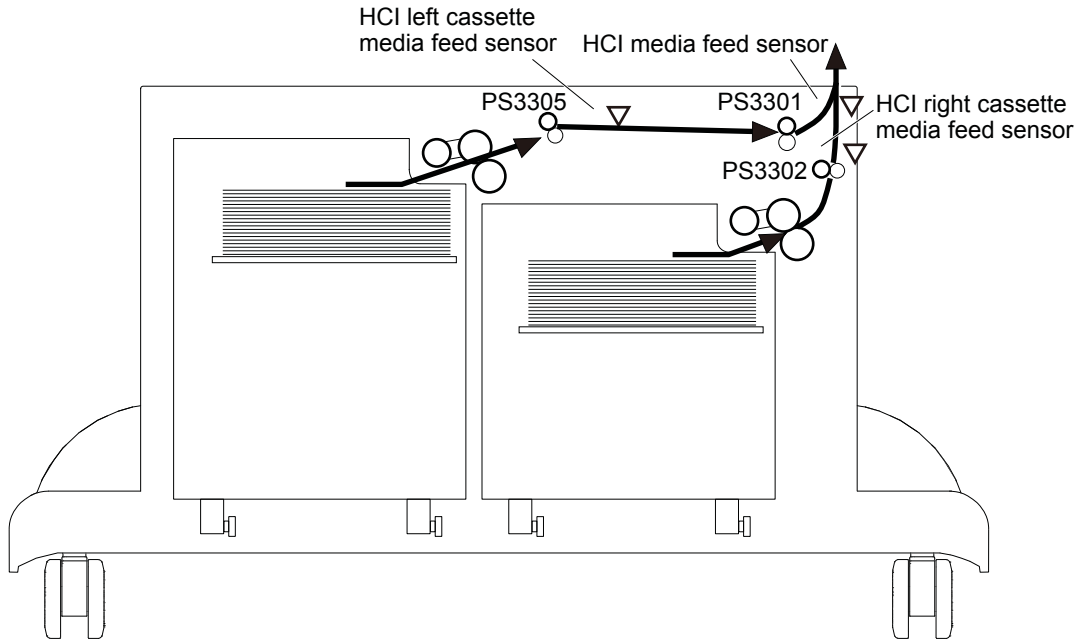
The HCI controller determines a media-absence and notifies the formatter through the DC controller when the HCI cassette media out sensor does not detect the paper.

## HCI jam detection

The HCI uses the following sensors to detect the presence of paper and to check whether paper is being fed correctly or has jammed:

- HCI media feed sensor (PS3301)
- HCI right cassette media feed sensor (PS3302)
- HCI left cassette media feed sensor (PS3305)

**Figure 1-57** HCI jam detection sensors



### No pick jam 2

The HCI media feed sensor does not detect the leading edge of paper within a specified period from when the HCI right cassette media feed sensor detects the leading edge.

The HCI media feed sensor does not detect the leading edge of paper within a specified period from when the HCI left cassette media feed sensor detects the leading edge.

### No pick jam 3

The HCI right cassette media feed sensor does not detect the leading edge of paper within a specified period, including two times retry, from when the HCI right cassette pickup solenoid is turned on.

The HCI left cassette media feed sensor does not detect the leading edge of paper within a specified period, including two times retry, from when the HCI left cassette pickup solenoid is turned on.

## Residual paper jam 1

Either one of the following sensors detects a paper-presence when the automatic delivery is complete:

- HCl media feed sensor
- HCl right cassette media feed sensor
- HCl left cassette media feed sensor

## Door open jam 1

An HCl right door open or an HCl long edge feed guide open is detected during a paper-feed operation.

## HCl automatic delivery

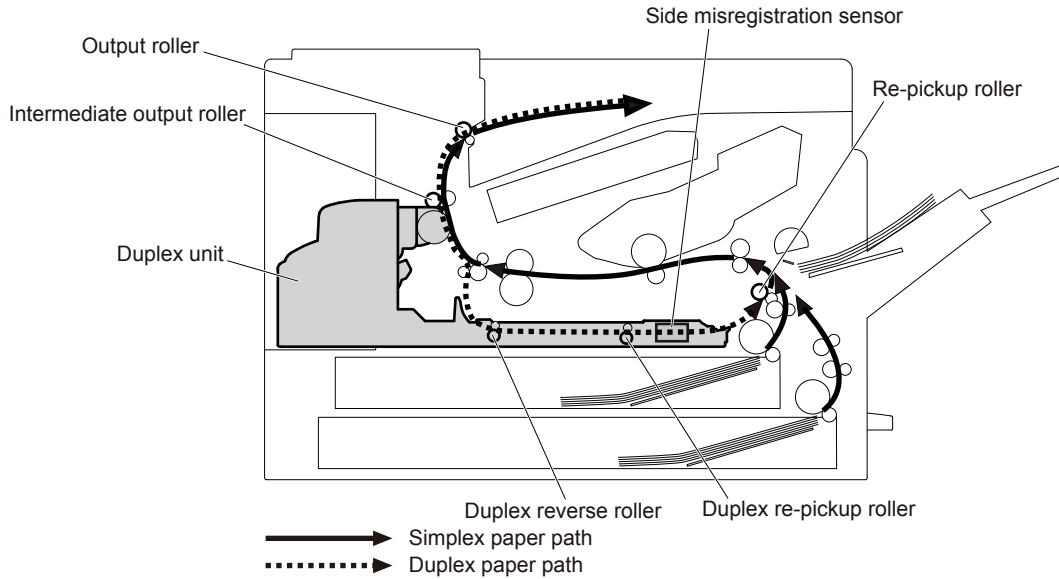
The HCl automatically clears the paper if either one of the following sensors detects the residual paper when the product is turned on or when the door is closed:

- HCl media feed sensor
- HCl right cassette media feed sensor
- HCl left cassette media feed sensor

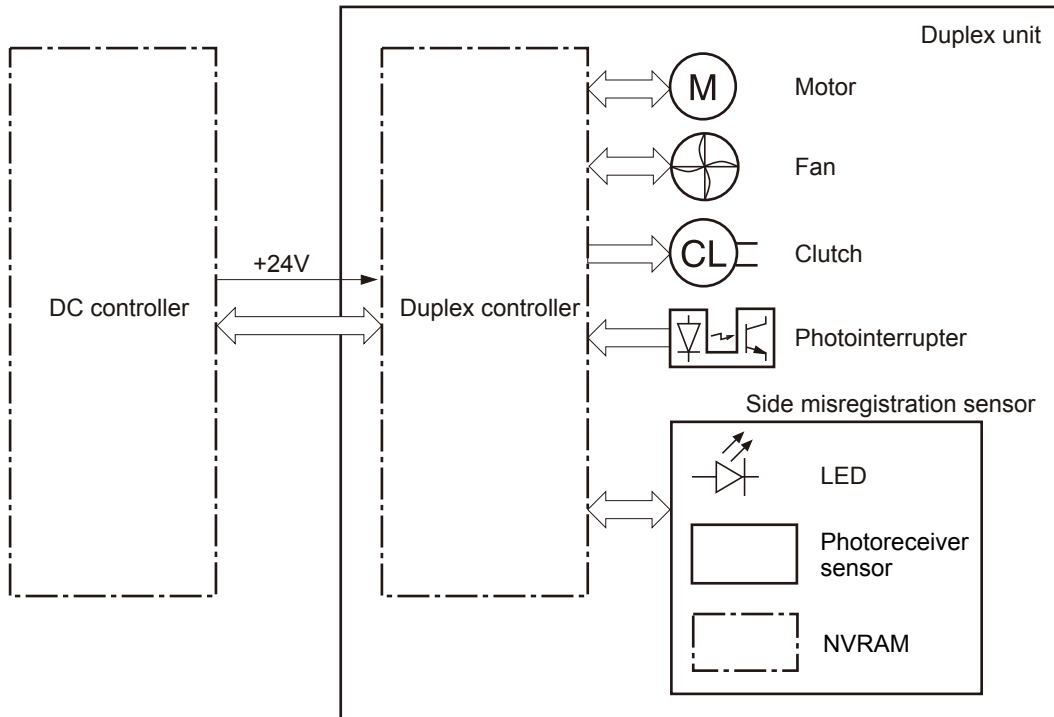
# Duplexer

The optional duplexer is installed in the left side of the product. The duplexer reverses the output roller and intermediate output roller in the product engine, reverses and feeds the paper passed through the fuser. Then it detects side misregistration to adjust the starting position of the scanning direction for the second side of paper according to the command from the formatter and feeds it to the product engine.

**Figure 1-58** Duplexer paper path



**Figure 1-59** Duplexer signal flow



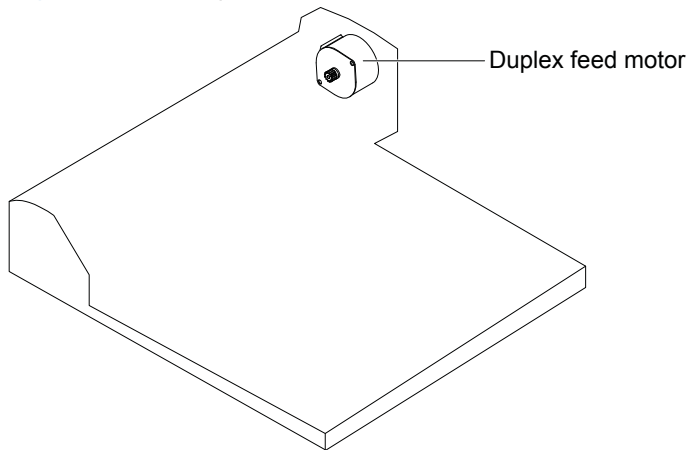
**Table 1-19 Duplexer electrical components**

Component	Abbreviation	Component name
Motor	M1	Duplex feed motor
Fan	FM1	Duplex fan
Clutch	CL1	Duplex feed clutch
Photointerrupter	SR1	Duplex reverse sensor
	SR2	Duplex re-pickup sensor

## Duplexer motor control

The duplexer has one motor. The duplex feed motor reverses the output roller and the intermediate output roller. Also it drives the duplex reverse roller and the duplex re-pickup roller to feed the paper and to drive the side misregistration sensor and the re-pickup roller.

**Figure 1-60** Duplexer motor



**Table 1-20 Duplexer motor**

Motor		Components driven
M1	Duplex feed motor	Duplex reverse roller, duplex re-pickup roller, re-pickup roller, output roller and intermediate output roller

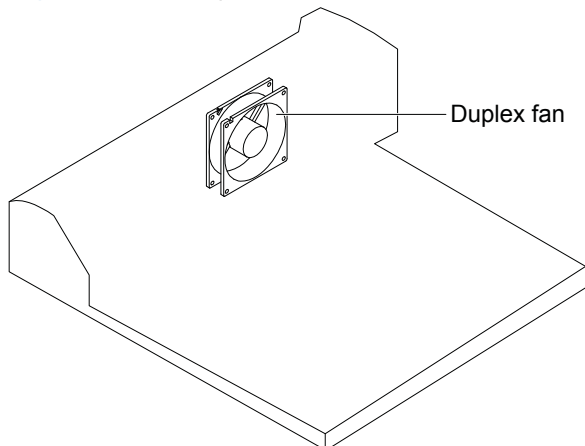
## Duplexer motor failure detection

The duplex controller does not determine if the duplex feed motor has failed; therefore, a jam occurs when the motor fails.

## Duplexer fan control

The duplex unit has one fan for preventing the temperature from rising in the duplex unit. The duplex controller determines if the duplex fan has failed and notifies the formatter through the DC controller when the fan fails to operate for a specified time during start-up.

**Figure 1-61** Duplexer fan



**Table 1-21 Duplexer fan**

Fan		Cooling area	Type	Speed
FM1	Duplex fan	Duplexer inside	Exhaust	Full

## Duplexer fan failure detection

The duplex controller determines if the duplex fan has failed and notifies the formatter when the fan locks for a specified time during start-up.

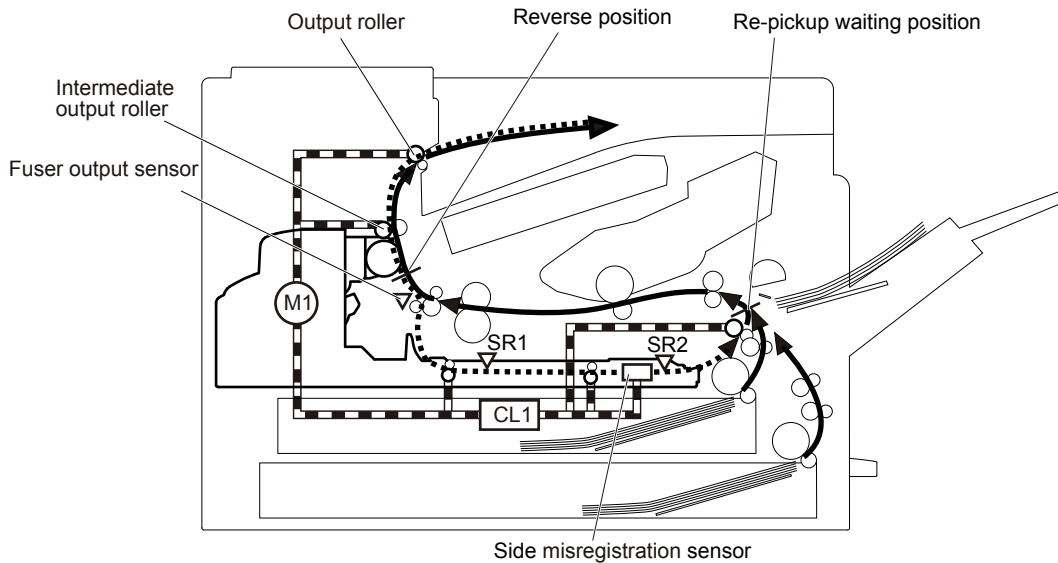
## Duplexer reverse and feed operation

The duplexer reverses the feed and delivery rollers in the product to print on both sides. The paper that passed through the fuser unit reverses its feeding direction and is fed to the duplexer. The duplexer



feeds the paper and performs horizontal registration to align the starting position of the main scan for the second-side print. Then, the paper is fed into the product engine unit again.

**Figure 1-62** Duplexer reverse and feed operation



**Table 1-22** Duplexer reverse and feed components

Component		Signal
M1	Duplex feed motor	DUPLEX FEED MOTOR CONTROL signal
CL1	Duplex feed clutch	DUPLEX FEED CLUTCH signal
SR1	Duplex reverse sensor	DUPLEX FEED signal
SR2	Duplex re-pickup sensor	DUPLEX RE-PICKUP signal

## Duplexer reverse and feed operation sequence

The operational sequence of the reverse-and-feed operation is as follows:

1. The paper printed on the first side passes through the fuser.
2. The DC controller feeds the paper until the trailing edge of paper reaches the reverse position after the fuser output sensor detects the trailing edge.
3. The duplex controller reverses the output roller and the intermediate output roller to feed the paper to the duplexer from the reverse position.
4. The duplex controller detects the image starting position according to the side misregistration sensor and feeds the paper to the re-pickup waiting position.
5. The duplex controller stops the paper temporarily at the re-pickup waiting position when the paper is standard size but shorter than Letter-R. It feeds the paper to the product engine again if a print

command is sent from the formatter. If a print command is sent before the paper reaches the repickup waiting position, the duplex controller does not stop the paper.

If the paper is other than standard size or standard size but longer than Letter-R and a print command is sent before the paper reaches the re-pickup waiting position, the duplex controller does not stop the paper. If a print command is not sent before the paper reaches the re-pickup waiting position, the duplex controller notifies the formatter of duplex re-pickup jam 3 through the DC controller.

## Side misregistration detection

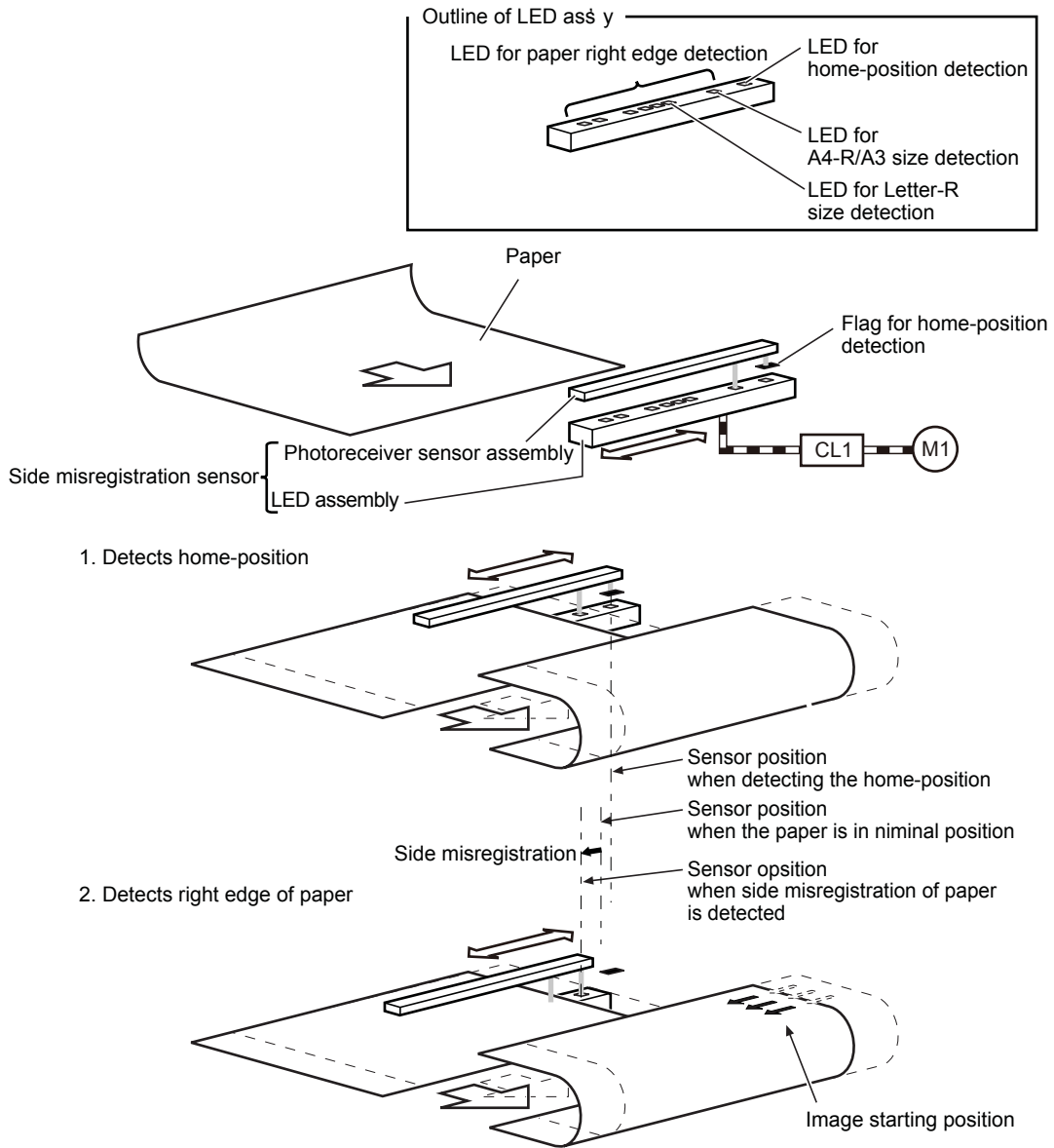
The side misregistration detection is a feature to determine the starting position in scanning direction for the second side printing of the paper fed to the duplexer.

The LED and photoreceiver sensor of the side misregistration sensor are located paired at the position of right edge of each standard size paper. The side misregistration sensor reciprocates while lighting the LED which is corresponding to the paper size. The paper passes through in between the LED and photoreceiver sensor.

The side misregistration detection is performed when the duplex re-pickup sensor detects the leading edge of paper. The moving distance of the sensor is measured according to the home-position of the side misregistration sensor and the position where the right edge of paper interrupts LED light. Then the side misregistration amount is calculated by subtracting the distance of nominal position (without side

misregistration) for each paper size. The side misregistration amount is notified to the formatter through the DC controller as a correction value of scanning start position for the second side printing.

**Figure 1-63** Duplexer side misregistration detection



## Side misregistration failure detection

The duplex controller determines a side misregistration sensor failure and notifies the formatter when it encounters any one of the following condition:

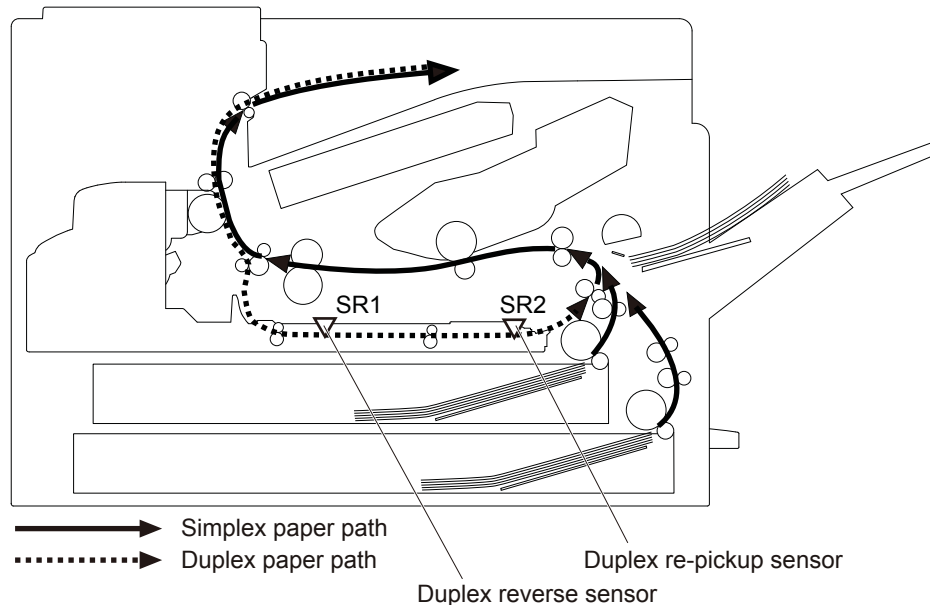
- The photoreceiver sensor does not output as prescribed when the product is turned on, when the duplexer is installed to the product or when the light intensity is adjusted before the paper is fed to the duplexer.
- The side registration sensor does not detect the home-position.
- An NVRAM data abnormality or communication error occurs when the product is turned on, when the duplexer is installed to the product or when the light intensity is adjusted and write/read the NVRAM data during duplex printing.

## Duplexer jam detection

The duplexer uses the following sensors to detect the presence of paper and to check whether the paper is being fed correctly or has jammed:

- Duplex reverse sensor (SR1)
- Duplex re-pickup sensor (SR2)

**Figure 1-64** Duplexer jam detection sensors



## Fuser output stay jam 2

The fuser output sensor does not detect the trailing edge of paper within a specified period from when it detects the leading edge.

## Reverse jam 1

The duplex reverse sensor does not detect the leading edge of paper within a specified period from when a reverse operation starts.

## Duplex re-pickup jam 1

The duplex re-pickup sensor does not detect the leading edge of paper within a specified period from when the duplex reverse sensor detects the leading edge.

## Duplex re-pickup jam 2

The duplexer is removed or the communication with the duplexer is failed during a period from when the reverse operation starts until the paper reaches the re-pickup waiting position.

## Duplex re-pickup jam 3

A print command is not sent from the formatter before the paper reaches the re-pickup waiting position if the paper is other than standard size or standard size but longer than Letter-R.

## Residual paper jam 1

Either one of the following sensors detects a paper-presence when the automatic delivery is complete:

- Duplex reverse sensor
- Duplex re-pickup sensor

## Duplexer automatic delivery

The product automatically clears the paper if any one of the following sensors detects the residual paper when the product is turned on or when the door is closed:

- Duplex reverse sensor (SR1)
- Duplex re-pickup sensor (SR2)




---

## 2 Solve problems

- [Solve problems checklist](#)
- [Menu map](#)
- [Preboot menu options](#)
- [Current settings pages](#)
- [Troubleshooting process](#)
- [Tools for troubleshooting](#)
- [Clear jams](#)
- [Solve paper-handling problems](#)
- [Use manual print modes](#)
- [Print quality troubleshooting tools](#)
- [Solve image-quality problems](#)
- [Clean the product](#)
- [Solve performance problems](#)
- [Solve connectivity problems](#)
- [Service mode functions](#)
- [Product firmware upgrades](#)

# Solve problems checklist

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

1. If the control panel is blank or black, complete these steps:
  - a. Check the power cable.
  - b. Check that the power is turned on.
  - c. Make sure that the line voltage is correct for the product power configuration. (See the label that is on the back of the product for voltage requirements.) If you are using a power strip and its voltage is not within specifications, connect the product directly into the electrical outlet. If it is already connected into the outlet, try a different outlet.
2. The control panel should indicate a **Ready** status. If an error message displays, resolve the error.
3. Check the cabling.
  - a. Check the cable connection between the product and the computer or network port. Make sure that the connection is secure.
  - b. Make sure that the cable itself is not faulty by using a different cable, if possible.
  - c. Check the network connection.
4. Ensure that the selected paper size and type meet specifications. Also open the **Trays** menu on the product control panel and verify that the tray is configured correctly for the paper type and size.
5. Print a configuration page. If the product is connected to a network, an HP Jetdirect page also prints.
  - a. At the product control panel, press the Home  button.
  - b. Open the following menus:
    - **Administration**
    - **Reports**
    - **Configuration/Status Pages**
  - c. Select the **Configuration Page** option, and then press the **OK** button.
  - d. Scroll to the **Print** option, and then press the **OK** button to print the page.

If the pages do not print, check that at least one tray contains paper.

If the page jams in the product, follow the instructions on the control panel to clear the jam.

If the page does not print correctly, the problem is with the product hardware.


If the page prints correctly, then the product hardware is working. The problem is with the computer you are using, with the print driver, or with the program.



- 6.** Verify that you have installed the print driver for this product. Check the program to make sure that you are using the print driver for this product. The print driver is on the CD that came with the product. You can also download the print driver from this Web site: [www.hp.com/go/lj700M712\\_software](http://www.hp.com/go/lj700M712_software).
- 7.** Print a short document from a different program that has worked in the past. If this solution works, then the problem is with the program. If this solution does not work (the document does not print), complete these steps:
  - a.** Try printing the job from another computer that has the product software installed.
  - b.** If you connected the product to the network, connect the product directly to a computer with a USB cable. Redirect the product to the correct port, or reinstall the software, selecting the new connection type that you are using.

## Menu map


You can print a report of the complete product menus so you can more easily navigate to the individual settings you need.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Reports**
  - **Configuration/Status Pages**
3. Select the **Administration Menu Map** option, and then press the **OK** button.
4. Scroll to the **Print** option, and then press the **OK** button to print the report.

# Preboot menu options


If an error occurs while the product is initializing, an error message displays on the control-panel display. The user can open the Preboot menus. The error menu item will not be seen if an error did not occur.



---

 **CAUTION:** The **2 Format Disk** option performs a disk initialization for the entire disk. The operating system, firmware files, and third-party files (among other files) will be completely lost. HP does not recommend this action without contacting support first.

---

## Open the Preboot menu


1. Turn the product on.
2. Wait for both the **Ready** and **Attention** LEDs to illuminate and then dim out. The HP logo will appear on the control panel display.
3. When the LEDs illuminate again, press the **Stop**  button on the control panel.



 **NOTE:** The period of time for opening the Preboot menu, while the **Ready** and **Attention** LEDs are illuminated, is around one second. You might need to press the **Stop**  button repeatedly while the product is starting up to make you sure you gain access to the Preboot menu.

---

4. Use the **Down** arrow button to navigate the Preboot menu options.
5. Press the **OK** button to select a menu item.


## Cold reset using the Preboot menu

1. Open the Preboot menu.
  - a. Turn the product on.
  - b. Wait for both the **Ready** and **Attention** LEDs at the bottom right side of the control panel to illuminate and then dim out. The HP logo will appear on the control panel display.
  - c. When the **Ready** and **Attention** LEDs illuminate again, press the **Stop**  button on the control panel.

 **NOTE:** The period of time for accessing the preboot menu, while the **Ready** and **Attention** LEDs are illuminated, is around one second. You may need to press the **Stop**  button repeatedly while the product is starting up to make you sure you gain access to the Preboot menu.

---

- d. Use the **Down** arrow button to navigate the preboot menu options.
  - e. Press the **OK** button to select a menu item.
2. Select the **3 Administrator** item, and then press the **OK** button.
  3. Select the **8 Startup Options** item, and then press the **OK** button.

4. Select the **2 Cold Reset** item, and then press the **OK** button.
5. Press the Home  button to highlight the **1 Continue** item, and then press the **OK** button.

 **NOTE:** The product will initialize.

**Table 2-1 Preboot menu options (1 of 6)**

Menu option	First level	Second level	Third level	Description
<b>1 Continue</b>				<p>Selecting the <b>1 Continue</b> item exits the Preboot menu and continues the normal boot process.</p> <p>If a selection is not made in the initial menu within 30 seconds, the product returns to a normal boot (the same as selecting <b>1 Continue</b>).</p> <p>If the user navigates to another menu, the timeout does not apply.</p>
<b>2 Sign In</b>				Enter the administrator PIN or service PIN if one is required to open the Preboot menu.

**Table 2-1 Preboot menu options (1 of 6) (continued)**

Menu option	First level	Second level	Third level	Description
<b>3 Administrator</b>				<p>This item navigates to the <b>3 Administrator</b> sub menus.</p> <p>If authentication is required (and the user is not already signed in) the <b>2 Sign In</b> displays. The user is required to sign in.</p>
	<b>1 Download</b>	<b>1 Network</b>		<p>This item initiates a preboot firmware download process. A USB device interface or a Network connection can be used to download firmware.</p>
		<b>2 USB</b>		
		<b>3 USB Thumbdrive</b>		
	<b>2 Format Disk</b>			<p>This item reinitializes the disk and cleans all disk partitions.</p> <p><b>CAUTION:</b> Selecting the <b>2 Format Disk</b> item removes <b>all</b> data.</p> <p>A delete confirmation prompt is <b>not</b> provided.</p> <p>The system is <b>not</b> bootable after this action—a firmware download must be performed to return the system to a bootable state.</p>
	<b>3 Partial Clean</b>			<p>This item reinitializes the disk (removing all data except the firmware repository where the master firmware bundle is downloaded and saved).</p> <p><b>CAUTION:</b> Selecting the <b>3 Partial Clean</b> item removes <b>all</b> data except the firmware repository.</p> <p>A delete confirmation prompt is <b>not</b> provided.</p> <p>This allows user to reformat the disk by removing the firmware image from the active directory without having to download new firmware code (product remains bootable).</p>
	<b>4 Change Password</b>			<p>Select this item to set or change the administrator password.</p>
	<b>5 Clear Password</b>			<p>Select the <b>5 Clear Password</b> item to remove a password from the Administrator menu. Before the password is actually cleared, a message will be shown asking to confirm that the password should be cleared. Press the <b>OK</b> button to confirm the action.</p> <p>When the confirmation prompt displays, press the <b>OK</b> button to clear the password.</p>

**Table 2-2 Preboot menu options (2 of 6)**

Menu option	First level	Second level	Third level	Description	
3 Administrator continued	6 Manage Disk	1 Clear disk		Select the <b>1 Clear disk</b> item to enable an external device for job storage. Job storage is normally enabled only for the Boot device. This will be grayed out unless the <b>99.09.68</b> error is displayed.	
		2 Lock Disk		Select the <b>2 Lock Disk</b> item to lock (mate) a new secure disk to this product.  The secure disk already locked to this product will remain accessible to this product. Use this function to have more than one encrypted disk accessible by the product when using them interchangeably.  The data stored on the secure disk locked to this product always remains accessible to this product.	
		3 Leave Unlocked		Select the <b>3 Leave Unlocked</b> item to use a new secure disk in an unlocked mode for single service event. The secure disk that is already locked to this product will remain accessible to this product and uses the old disk's encryption password with the new disk.  The secure disk that is already locked to this product remains accessible to this product.	
		4 Clear Disk Pwd		Select the <b>4 Clear Disk Pwd</b> item to continue using the non-secure disk and clear the password associated with the yet to be installed secure disk.  <b>CAUTION:</b> Data on the missing secure disk will be permanently inaccessible.	
		5 Retain Password		Select the <b>5 Retain Password</b> item to use the non-secure disk for this session only, and then search for the missing secure disk in future sessions.	
		6 Boot Device	1 Secure Erase		Select the <b>1 Secure Erase</b> item to erase all of the data on the disk and unlock it if required.  This might take a long time.  <b>NOTE:</b> The system will be unusable until the system files are reinstalled. ATA secure-erase command one pass over write. Erases entire disk including firmware. The disk remains an encrypted disk.
			2 Erase/Unlock		Select the <b>2 Erase/Unlock</b> item to cryptographically erase all data on disk and unlock the disk to allow access to it from any product.  <b>NOTE:</b> The system will be unusable until the system files are reinstalled. Erases the crypto key. The disk becomes a non-encrypted disk.
		3 Get Status	This item provides disk status information if any is available.		

**Table 2-3 Preboot menu options (3 of 6)**

Menu option	First level	Second level	Third level	Description
3 Administrator continued	6 Manage Disk  continued	7 Internal Device		Select the <b>7 Internal Device</b> item to erase the internal device or get status about the internal device.
			<b>1 Secure Erase</b>	Select the <b>1 Secure Erase</b> item to erase all of the data on the disk and unlock it if required.  This might take a long time.  <b>NOTE:</b> The system will be unusable until the system files are reinstalled. ATA secure-erase command one pass over write. Erases the entire disk, including firmware. The disk remains an encrypted disk.
			<b>2 Erase/Unlock</b>	Select the <b>2 Erase/Unlock</b> item to cryptographically erase all data on disk and unlock the disk to allow access to it from any product.  <b>NOTE:</b> The system will be unusable until the system files are reinstalled. Erases the HP High Performance Secure Hard Disk. The disk becomes a non-encrypted disk.
			<b>3 Get Status</b>	This item provides disk status information if any is available.
		8 External Device		Select the <b>8 External Device</b> item to erase the internal device or get status about the internal device.
			<b>1 Secure Erase</b>	Select the <b>1 Secure Erase</b> item to erase all of the data on the disk and unlock it if required.  This might take a long time.  <b>NOTE:</b> The system will be unusable until the system files are reinstalled.  The ATA secure-erase command erases the entire disk, including firmware. The disk remains an encrypted disk.
			<b>2 Erase/Unlock</b>	Select the <b>2 Erase/Unlock</b> item to cryptographically erase all data on disk and unlock the disk to allow access to it from any product.  <b>NOTE:</b> The system will be unusable until the system files are reinstalled. Erases the crypto key. The disk becomes a non-encrypted disk.
			<b>3 Get Status</b>	This item provides disk status information if any is available.

**Table 2-4 Preboot menu options (4 of 6)**

Menu option	First level	Second level	Third level	Description
3 Administrator continued	7 Configure LAN			Select the <b>7 Configure LAN</b> item to setup the network settings for the Preboot menu firmware upgrade.  The network can be configured obtain the network settings from a DHCP server or as static.
			IP Mode [DHCP]	Use this item for automatic IP address acquisition from the DHCP server.
			IP Mode [STATIC]	Use this item to manually assign the network addresses.
			IP Address	Use this item to manually enter the IP addresses.
			Subnet Mask	Use this item to manually enter the subnet mask.
			Default Gateway	Use this item to manually enter the default gateway.
			Save	Select the <b>Save</b> item to save the manual settings.

**Table 2-5 Preboot menu options (5 of 6)**

Menu option	First level	Second level	Third level	Description
3 Administrator continued	8 Startup Options			Select the <b>8 Startup Options</b> item to specify options that can be set for the next time the product is turned on and initializes to the Ready state.
			1 Show Revision	Not currently functional: Check the <b>1 Show Revision</b> item to allow the product to initialize and show the firmware version when the product reaches the Ready state.  Once the product power is turned on the next time, the <b>1 Show Revision</b> item is unchecked so that the firmware revision is not shown.
			2 Cold Reset	Check the <b>2 Cold Reset</b> item to clear the IP address and all customer settings (this item also returns all settings to factory defaults).  <b>NOTE:</b> Items in the <b>Service</b> menu are not reset.
			3 Skip Disk Load	
			4 Skip Cal	Select the <b>4 Skip Cal</b> item to initialize the product the next time the power is turned on without calibrating.
			5 Lock Service	<b>CAUTION:</b> Select the <b>5 Lock Service</b> item to lock the <b>Service</b> menu access (both in the preboot menu and the <b>Device Maintenance</b> menu).  Service personnel must have the administrator remove the <b>5 Lock Service</b> setting before they can open the <b>Service</b> menu.



**Table 2-5 Preboot menu options (5 of 6) (continued)**

Menu option	First level	Second level	Third level	Description
		<b>6 Skip FSCK</b>		Select the <b>6 Skip FSCK</b> item to disable Chkdisk/ScanVolume during startup.
<b>3 Administrator</b> continued	<b>8 Startup Options</b> continued	<b>7 First Power</b>		<p>Not currently functional: This item allows the product to initialize as if it is the first time it has been turned on.</p> <p>For example, the user is prompted to configure first-time settings like date/time, language, and other settings.</p> <p>Check this item so that it is enabled for the next time the product power is turned on.</p> <p>When the product power is turned on the next time, this item is unchecked so that the pre-configured settings are used during configuration, and the first-time setting prompt is not used.</p>
		<b>8 Embedded JetDirect Off</b>		<p>Check the <b>8 Embedded JetDirect Off</b> item to disable the embedded Jetdirect.</p> <p>By default this item is unchecked so that Jetdirect is always enabled.</p>

**Table 2-6 Preboot menu options (6 of 6)**


Menu option	First level	Second level	Third level	Description
<b>3 Administrator</b> continued	<b>9 Diagnostics</b>	<b>1 Memory</b>	<b>a Do Not Run</b>	
			<b>b Short</b>	
			<b>c Long</b>	
		<b>2 Disk</b>	<b>a Do Not Run</b>	
			<b>b Short</b>	
			<b>c Long</b>	
			<b>d Optimized</b>	
			<b>e Raw</b>	
			<b>f Smart</b>	
		<b>3 ICB</b>		
		<b>4 CPB</b>		
		<b>5 Interconnect Run Selected</b>		
	<b>A Remote Admin</b>	<b>1 Start Telnet</b>		The <b>A Remote Admin</b> item allows a service technician to access the product remotely to troubleshoot issues.

**Table 2-6 Preboot menu options (6 of 6) (continued)**

Menu option	First level	Second level	Third level	Description
		<b>2 Stop Telnet</b>		
		<b>3 Refresh IP</b>		
	<b>B System Triage</b>	<b>1 Copy Logs</b>		
<b>4 Service Tools</b>				This item requires the service access code. If the product does not reach the <b>Ready</b> state, you can use this item to print the error logs. The logs can be copied to a USB storage accessory when the product is initialized, and then these encrypted files can be sent to HP to help determine what is causing the problem.
	<b>3 Reset Password</b>			Use this item to reset the administrator password.
	<b>2 Subsystems</b>			For manufacturing use only. Do not change these values.
<b>5 Developer Tools</b>	<b>1 Netexec</b>			

## Current settings pages

Printing the current settings pages provides a map of the user configurable settings that might be helpful in the troubleshooting process.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Reports**
  - **Configuration/Status Pages**
3. Select the **Current Settings Page** option, and then press the **OK** button.
4. Scroll to the **Print** option, and then press the **OK** button to print the report.

# Troubleshooting process


## Determine the problem source

When the product malfunctions or encounters an unexpected situation, the product control panel alerts you to the situation. A troubleshooting flowchart helps you 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?
- Does the configuration 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 that you can follow to quickly isolate and solve product hardware problems.

Each row depicts a major troubleshooting step. A “yes” answer to a question allows you to proceed to the next major step. 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 2-7 Troubleshooting flowchart**

<b>1</b> <b>Power on</b>	Is the product on and does a readable message display?		Follow the power-on troubleshooting checks. See <a href="#">Power subsystem on page 99</a> .  After the control panel display is functional, see step 2.
	Yes ↓	No →	
<b>2</b> <b>Control panel messages</b>	Does the message <b>Ready</b> display on the control panel?		After the errors have been corrected, go to step 3.
	Yes ↓	No →	
<b>3</b> <b>Event log</b>	Open the <b>Troubleshooting</b> menu and print an event log to see the history of errors with this product.  Does the event log print?		If the event log does not print, check for error messages.  If paper jams inside the product, see the jams section of the product service manual.  If error messages display on the control panel when you try to print an event log, see the control panel message section of the service manual.  After successfully printing and evaluating the event log, see step 4.
	Yes ↓	No →	

**Table 2-7 Troubleshooting flowchart (continued)**

<b>4</b> <b>Information pages</b>	Open the <b>Reports</b> menu and print the configuration pages to verify that all the accessories are installed.  Are all the accessories installed?		If accessories that are installed are not listed on the configuration page, remove the accessory and reinstall it.  After evaluating the configuration pages, see step 5.
	Yes ↓	No →	
<b>5</b> <b>Image quality</b>	Does the print quality meet the customer's requirements?		Compare the images with the sample defects in the image defect tables. See the images defects table in the product service manual.  After the print quality is acceptable, see step 6.
	Yes ↓	No →	
<b>6</b> <b>Interface</b>	Can the customer print successfully from the host computer?		Verify that all I/O cables are connected correctly and that a valid IP address is listed on the Jetdirect configuration page.  If error messages display on the control panel when you try to print an event log, see the control panel message section of the service manual.  When the customer can print from the host computer, this is the end of the troubleshooting process.
	Yes. This is the end of the troubleshooting process.	No →	

## Power subsystem

### Power-on checks

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

### Power-on troubleshooting overview

Turn on the product power. If the control panel display remains blank, random patterns display, or asterisks remain on the control panel display, perform power-on checks to find the cause of the problem.

During normal operation, the main cooling fan begins to spin briefly after the product power is turned on. Place your hand over the holes in the left-side cover, near the formatter. If the fan is operating, you will feel air passing out of the product. You can also lean close to the product and hear the fan operating. You can also place your hand over the hole in the right-rear lower corner. If the fan is operating, you should feel air being drawn into the product. When this fan is operational, the DC side of the power supply is functioning correctly.

After the fan is operating, the main motor turns on (unless the right or front cover is open, a jam condition is sensed, or the paper-path sensors are damaged). You might be able to visually and audibly determine if the main motor is turned on.

If the fan and main motor are operating correctly, the next troubleshooting step is to isolate print engine, formatter, and control panel problems. Perform an engine test. If the formatter is damaged, it might interfere with the engine test. If the engine-test page does not print, try removing the formatter

and then performing the engine test again. If the engine test is then successful, the problem is almost certainly with the formatter, the control panel, or the cable that connects them.

If the control panel is blank when you turn on the product, check the following items.

1. Make sure that the product 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.
3. Make sure that the fan runs briefly, which indicates that the power supply is operational.
4. Make sure that the control panel display wire harness is connected.
5. Make sure that the formatter is seated and operating correctly. Turn off the product and remove the formatter. Reinstall the formatter, and then verify that the heartbeat LED is blinking.
6. Remove any external solutions, and then try to turn the product on again.



---

**NOTE:** If the control panel display is blank, but the main cooling fan runs briefly after the product power is turned on, try printing an engine-test page to determine whether the problem is with the control-panel display, formatter, or other product assemblies.

---

# Tools for troubleshooting

The section describes the tools that can help you solve problems with your device.

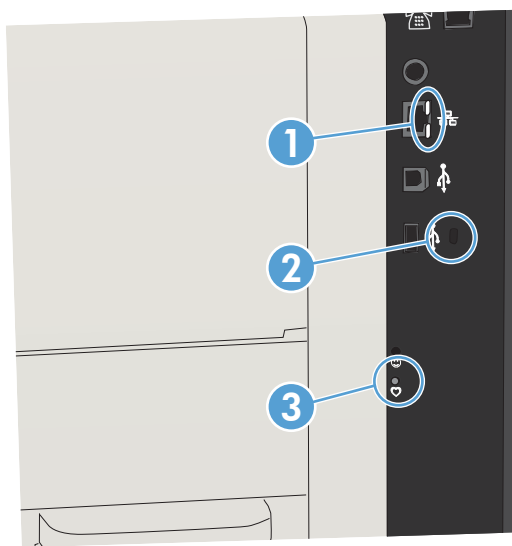
## Individual component diagnostics

### LED diagnostics

LED, engine, and individual diagnostics can identify and troubleshoot product problems.

### Understand lights on the formatter


Two LEDs on the formatter indicate that the product is functioning correctly.



1	HP Jetdirect LEDs
2	Connectivity LED
3	Heartbeat LED


### Heartbeat LED

The heartbeat LED provides information about product operation. If a product error occurs, the formatter displays a message on the control-panel display. However, error situations can occur causing the formatter to control panel communication to be interrupted.

 **NOTE:** HP recommends fully troubleshooting the formatter and control panel before replacing either assembly. Use the heartbeat LED to troubleshoot formatter and control panel errors to avoid unnecessarily replacing these assemblies.

## Formatter to control panel communication interruptions


- The firmware does not fully initialize and configure the control panel interface.
- The control panel is not functioning (either a failed assembly or power problem).
- Interface cabling between the formatter and control panel is damaged or disconnected.

 **TIP:** If the connectivity LED is illuminated, the formatter is fully seated and the power is on. The pins for the LED circuit in the formatter connector are recessed so that this LED will not illuminate unless the formatter is fully seated.

The heartbeat LED operates according to the product state. When the product is initializing, see [Heartbeat LED, product initialization on page 102](#).

## Heartbeat LED, product initialization

The following table describes the heartbeat LED operation while the product is executing the firmware boot process.

 **NOTE:** When the initialization process completes the heartbeat LED should be illuminated solid green—the LED is off if the product is in **Sleep Mode**.

**Table 2-8 Heartbeat LED, product initialization**

Product initializing state	Heartbeat LED, normal state	Heartbeat LED, error state
No power (power cable disconnected or power switch off)	Off	Not applicable
Power on (immediately after the power switch pressed)	Red, solid <ul style="list-style-type: none"> <li>• Duration should be 1 second or less</li> </ul>	Red, solid <ul style="list-style-type: none"> <li>• Firmware error; problem finding hardware and booting the serial peripheral interface flash memory               <ul style="list-style-type: none"> <li>◦ Boot process halted</li> </ul> </li> </ul> Replace the formatter.
Serial peripheral interface (SPI) flash memory boot	Green, solid	Red, solid <ul style="list-style-type: none"> <li>• Firmware error; problem corrupt or missing SPI flash memory               <ul style="list-style-type: none"> <li>◦ Boot process halted</li> </ul> </li> </ul> Replace the formatter.
HW checks on board DRAM	Green, solid	Red, solid <ul style="list-style-type: none"> <li>• Power on self check failure               <ul style="list-style-type: none"> <li>◦ Boot process halted</li> </ul> </li> </ul> Replace the formatter.



**Table 2-8 Heartbeat LED, product initialization (continued)**

<b>Product initializing state</b>	<b>Heartbeat LED, normal state</b>	<b>Heartbeat LED, error state</b>
Control panel connection initializes	Green, solid  <b>NOTE:</b> Control panel communication successful. If an error occurs, a message should appear on the control-panel display.	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Formatter to control panel connection failed <ul style="list-style-type: none"> <li>◦ Boot process continues</li> </ul> </li> </ul> <p>Check the cables between the formatter and control panel for damage. Make sure that the cables are fully seated.</p>
Preboot menu available (including diagnostics)	Green, solid	Red, solid  <ul style="list-style-type: none"> <li>• Diagnostic failure <ul style="list-style-type: none"> <li>◦ Follow diagnostic instructions</li> </ul> </li> </ul> <p>Turn the power off, and then on again to restart the initialization process.</p>
Accessing disk for firmware image	Green, solid  <b>NOTE:</b> If applicable, disk error messages appear on the control-panel display.	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Control panel not connected</li> </ul>
Firmware boot	Green, solid  <b>NOTE:</b> If applicable, error messages appear on the control-panel display.	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Control panel not connected</li> </ul>
Product operational	Green, heartbeat blink  <b>NOTE:</b> If applicable, error messages appear on the control-panel display.	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Control panel not connected</li> </ul>
<b>49.xx.yy</b>	Not applicable	LED off  <b>NOTE:</b> An error message (for example, <b>49.xx.yy</b> ) might appear on the control-panel display.  Eventually a formatter connection missing message will appear.  Turn the power off, and then on again to restart the initialization process.  If the error persists, perform a firmware upgrade.
Control panel connection interrupted after the product is operational	Not applicable	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Control panel not connected</li> </ul>
<b>Sleep Mode</b>	Green, slow blink	Not applicable
Approaching <b>Sleep Mode</b>	Green, slow blink	Not applicable


**Table 2-8 Heartbeat LED, product initialization (continued)**

<b>Product initializing state</b>	<b>Heartbeat LED, normal state</b>	<b>Heartbeat LED, error state</b>
Wake up from <b>Sleep Mode</b>	Follows initialization progression.	Follows initialization progression.
Approaching wake up from <b>Sleep Mode</b>	Follows initialization progression.	Follows initialization progression.

## HP Jetdirect LEDs

The embedded HP Jetdirect print server has two LEDs. The yellow LED indicates network activity, and the green LED indicates the link status. A blinking yellow LED indicates network traffic. If the green LED is off, a link has failed.

For link failures, check all the network cable connections. In addition, you can try to manually configure the link settings on the embedded print server by using the product control-panel menus.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Network Settings**
  - **Embedded Jetdirect Menu**
  - **Link Speed**
3. Select the appropriate link speed, and then press the **OK** button.


## Engine diagnostics

The product contains extensive internal engine diagnostics that help in troubleshooting print quality, paper path, noise, assembly, and timing issues.

### Engine-test button

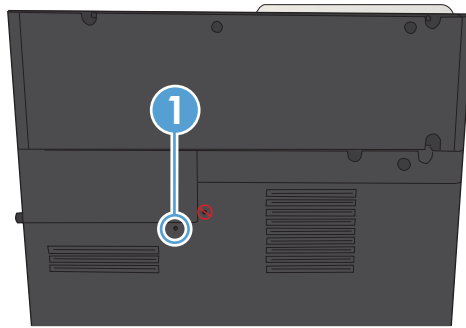
To verify that the product engine is functioning, print an engine-test page.


## Print the engine test pages

 **NOTE:** A damaged formatter might interfere with the engine test. If the engine test page does not print, try removing the formatter and performing the engine test again. If the engine test is then successful, the problem is in the formatter, the control panel, or the cable that connects them together.

1. On the rear cover, locate the port for the engine test button (callout 1) located below the rear pocket cover.

**Figure 2-1** Locating the engine-test-page switch




 **NOTE:** Make sure you are not looking at the rear pocket cover release latch port to the right and above the engine test button port.

2. Use a paper clip or very small screwdriver to press the engine test-page button.

The test page should have a series of horizontal lines. The test page prints from the last tray that the product used to print, unless the product has been turned off and then turned on again since the most recent print job. If the product has been turned off and then on again since the most recent print job, then the page will print from Tray 2. The product continuously prints test pages as long as the test-page switch is depressed. The product will not print a test page if it is in Sleep mode.

## Print formatter test pages


If the engine test was successful with the formatter removed, reinstall the formatter and then print a configuration page to test the functionality of the formatter.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Troubleshooting**
  - **Print Quality Pages**
  - **Print Fuser Test Page**
3. Select the **Print** item, and then press the **OK** button.

## Paper path test


This diagnostic test generates one or more test pages that you can use to isolate the cause of jams.

To isolate a problem, specify which input tray to use, specify whether to use the duplex path, and specify the number of copies to print. Multiple copies can be printed to help isolate intermittent problems. The following options become available after you start the diagnostic feature:

- **Print Test Page.** Run the paper-path test from the default settings: Tray 2, no duplex, and one copy. To specify other settings, scroll down the menu and select the setting, and then scroll back up and select **Print Test Page** to start the test.
  - **Source Tray.** Select Tray 1, Tray 2, or the optional tray.
  - **Output Bin.** Select **All bins**, **Face down**, or **Face up**.
  - **Test Duplex Path.** Enable or disable two-sided printing.
  - **Number of Copies.** Set the numbers of copies to be printed; the choices are 1, 10, 50, 100, or 500.
1. At the product control panel, press the Home  button.
  2. Open the following menus:
    - **Administration**
    - **Troubleshooting**
    - **Diagnostic Tests**
    - **Paper Path Test**
  3. Select the paper-path test options for the test you want to run.

## Paper path sensor tests

This test displays the status of each paper-path sensor and allows viewing of sensor status while printing internal pages.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Troubleshooting**
  - **Diagnostic Tests**
  - **Paper Path Sensors**




**NOTE:** Exiting the **Paper Path Sensors** menu and then reentering it will clear the test values from the previous test.

**Table 2-9 Paper-path sensors**

<b>Sensor name</b>	<b>Sensor number</b>	<b>Replacement part number</b>	<b>Description</b>	<b>Paper-path sensor test name</b>
Top of page sensor	SR9		Top sensor PCA	SR9 Top sensor
Fuser output sensor	SR12		Fuser output sensor PCA	SR12 Fuser output sensor
Fuser loop sensor	SR 6		Fuser loop sensor	SR6 Fuser loop 1 sensor
Duplexer refeed sensor	SR2		Duplexer refeed sensor	SR2 Duplexer Refeed
Duplexer switchback sensor	SR1		Duplexer switchback sensor	SR1 Duplexer switchback sensor
Output sensor	SR3		Output sensor	SR3 Output sensor
Tray 4 paper feed sensor (if optional Tray 4 is installed)	SR1		Tray 4 feed sensor	SR1 Tray 4 feed

## Manual sensor tests

Performs tests to determine whether the paper-path sensors are operating correctly.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Troubleshooting**
  - **Diagnostic Tests**
  - **Manual Sensor Test**

**Table 2-10** Manual sensor tests

Sensor or switch name	Sensor number	Replacement part number	Description	Paper-path sensor test name	Testing of sensor
Cartridge-door switch	SW3	CN	Toner cartridge door switch	SW3 Cartridge Door	Open the cartridge door.
Left door switch	SW1	CN	Left door open switch	SW1 Left Door	Open the left door.
Right door sensor	SR8	CN	Right door open sensor	SR8 Right door	Open the right door.
Cartridge install sensor	SR1	CN	Toner cartridge installed sensor	SR1 Cartridge install sensor	Open the cartridge door, and then remove the toner cartridge.
Top sensor	SR9	CN	Top sensor PCA	Sr9 Top Sensor	Open the cartridge door, remove the toner cartridge, raise the registration shutter, and then use a small flat-blade screwdriver to activate the sensor.
Fuser loop sensor	SR6	CN	Fuser loop sensor	SR6 Fuser loop 1 sensor	Open the cartridge door, remove the toner cartridge, and then press the sensor lever.
Fuser output sensor	SR12	CN	Fuser output sensor	SR12 Fuser output sensor	Open the left door, pull down the fuser shutter, and then use a screwdriver to activate the sensor.
Duplex refeed sensor	SR2	CN	Duplexer refeed sensor	SR2 Duplexer refeed	Remove the duplexer, insert a sheet of paper so that it covers the refeed sensor, and then reinstall the duplexer.

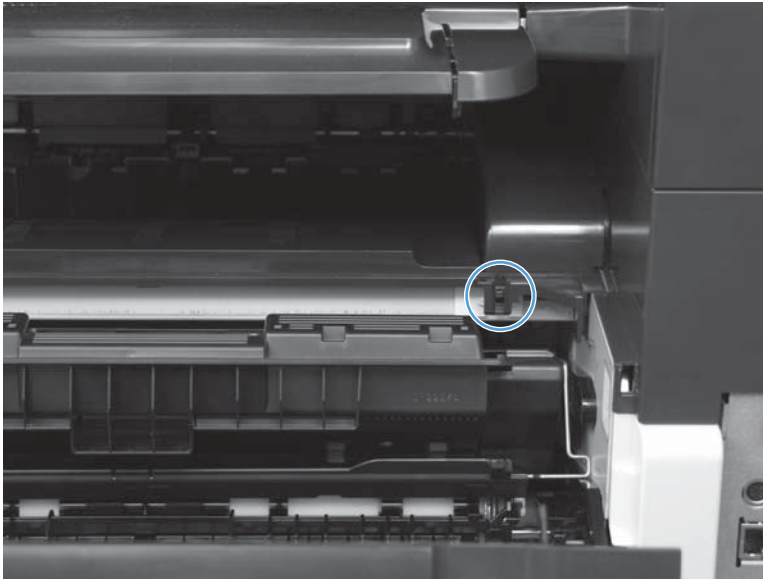
**Table 2-10 Manual sensor tests (continued)**

<b>Sensor or switch name</b>	<b>Sensor number</b>	<b>Replacement part number</b>	<b>Description</b>	<b>Paper-path sensor test name</b>	<b>Testing of sensor</b>
Duplex switchback sensor	SR1	CN	Duplexer switchback sensor	SR1 Duplexer switchback sensor	Remove the duplexer, insert a sheet of paper so that it covers the switchback sensor, and then reinstall the duplexer.
Tray 4 feed sensor (Optional 500-sheet feeder only)	SR1	CN	Tray 4 feeder sensor	SR1 Tray 4 feed	Open the lower right door, and use a small flat-blade screwdriver to activate the sensor.
Output sensor	SR3	CN	Output sensor	SR3 Output sensor	Open the left door and press the sensor lever..

## Cartridge door switch (SW3)

1. Open the cartridge door to activate the sensor.

**Figure 2-2** Test the cartridge door switch



2. Check the control-panel display for sensor response.
3. If there is no response, make sure that the sensor-actuator tab on the door is not damaged or missing.

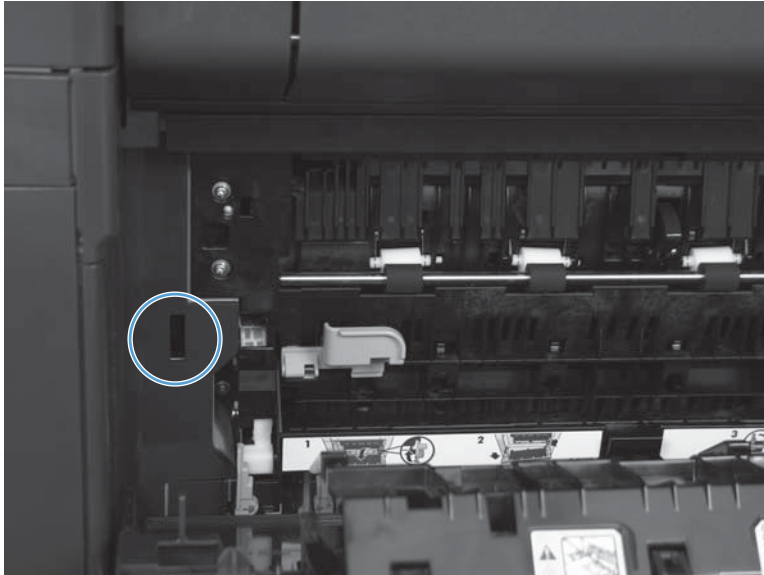
If necessary, replace the cartridge-door switch.



## Left door switch (SW1)

1. Open the left door, gently release the door arm and lower the door until it is fully open, and then use a small flat-blade screwdriver to activate the switch.

**Figure 2-3** Test the left door switch

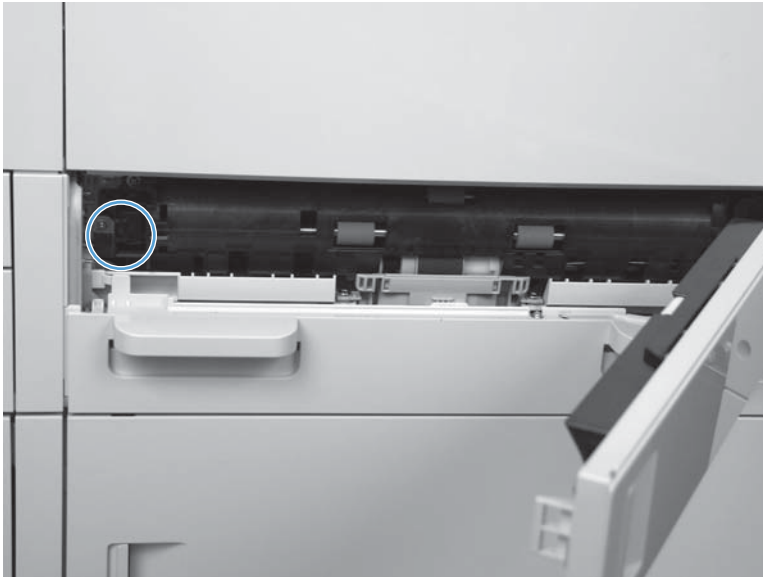


2. Check the control-panel display for sensor response.
3. If there is no response, make sure that the sensor-actuator tab on the door is not damaged or missing.

If necessary, replace the switch.

## Right door sensor (SR8)

1. Open the right door, and then press the sensor.

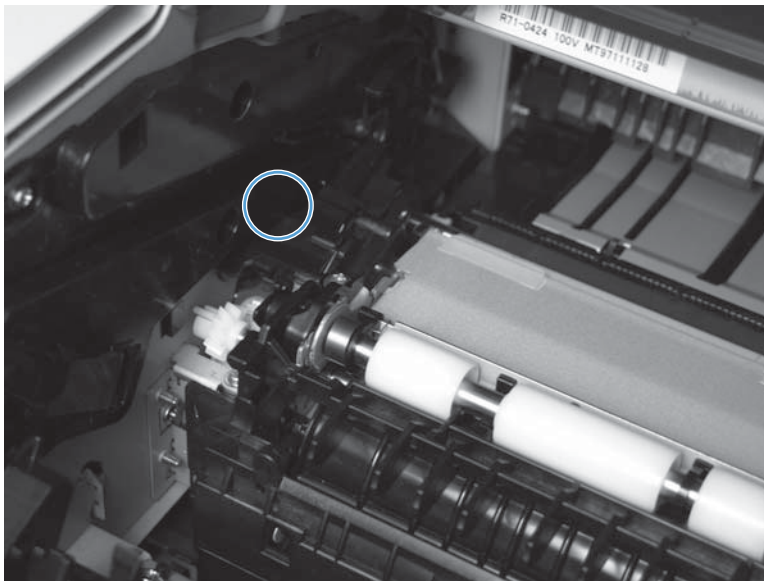


2. Check the control-panel display for sensor response.
3. If there is no response, make sure that the sensor-actuator tab on the door is not damaged or missing.

If necessary, replace the sensor.

## Cartridge install sensor (SR1)

1. Open the cartridge door, remove the print cartridge, and then activate the sensor on the left side of the cartridge cavity.

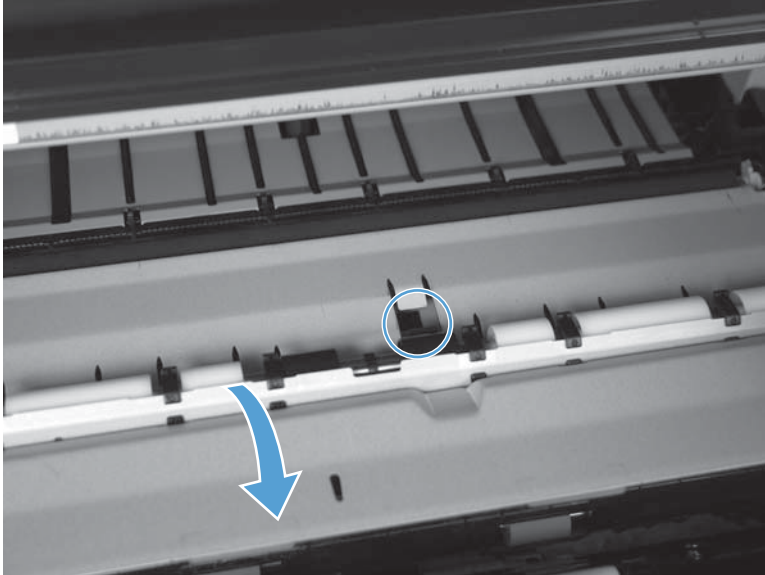


2. Check the control-panel display for sensor response.
3. If necessary, replace the sensor.

### Top (top-of-page) sensor (SR9)

1. Open the cartridge door, and then remove the toner cartridge.
2. Raise the registration shutter.
3. Use a small screwdriver to activate the top sensor.

**Figure 2-4** Test the top sensor



4. Check the control-panel display for sensor response.
5. If there is no response, replace the sensor.

### Fuser loop sensor (SR6)

1. Open the cartridge door, and then remove the toner cartridge.
2. Press the sensor lever to activate the sensor.

**Figure 2-5** Fuser loop sensor

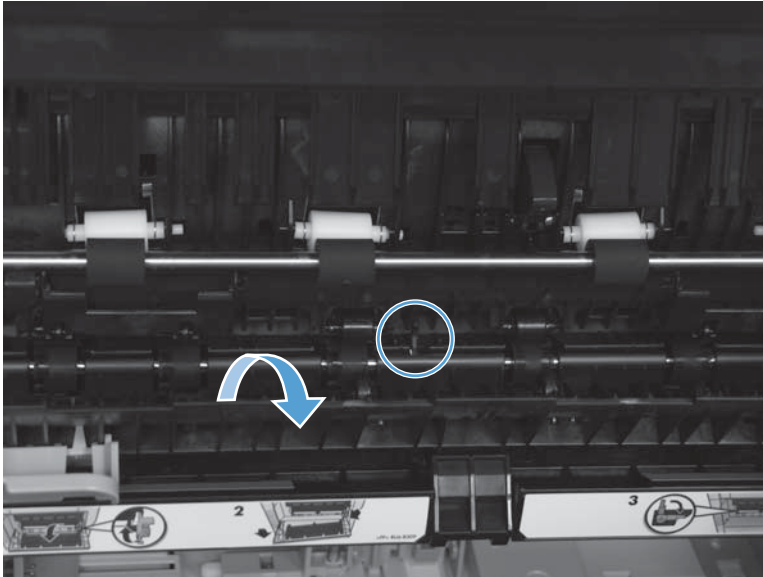


3. Check the control-panel display for a sensor response.
4. If there is no response, replace the sensor.

## Fuser output sensor (SR12)

1. Open the left door.
2. Pull down the fuser shutter, and then use a small flat-blade screwdriver to pull the sensor lever toward you.

**Figure 2-6** Fuser output sensor

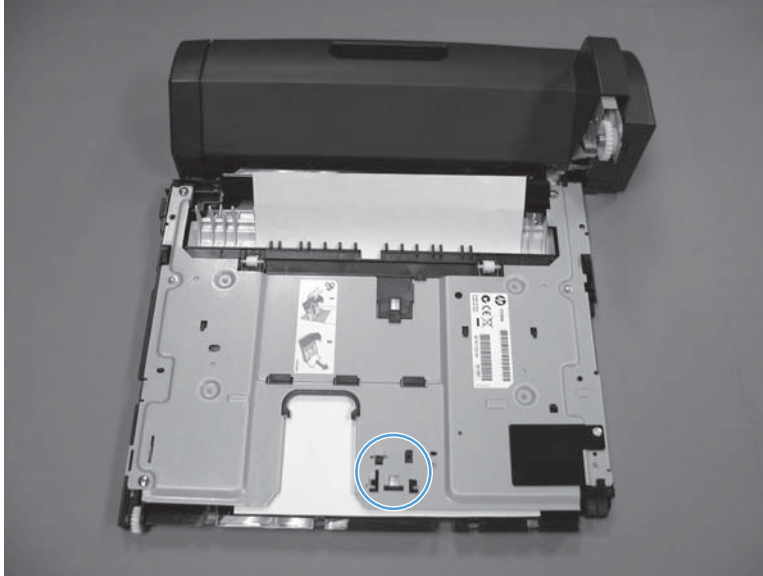


3. Check the control-panel display for a sensor response.
4. If there is no response, replace the fuser.

### Duplex switchback sensor (SR1)

1. Remove the duplexer from the product.
2. Insert a sheet of paper in the duplexer until the sheet covers the sensor.

**Figure 2-7** Duplex switchback sensor

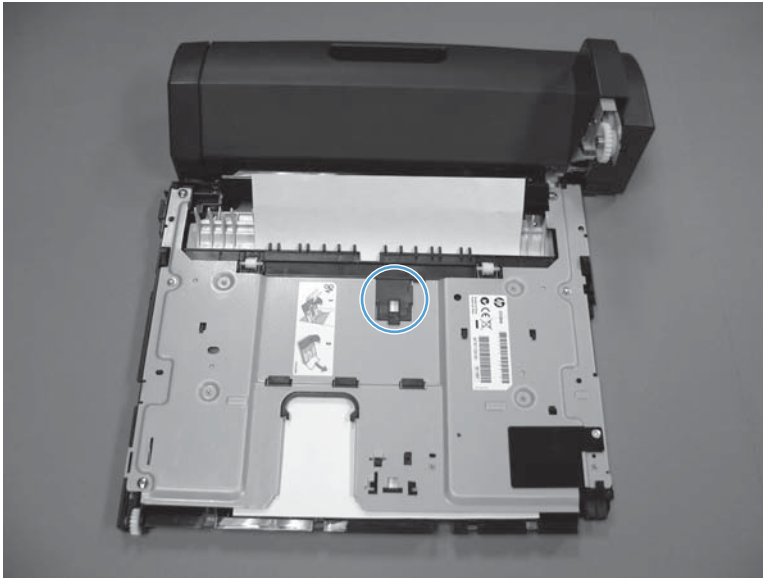


3. Reinstall the duplexer, and then check the control-panel display for sensor response.
4. If there is no response, replace the duplexer.

## Duplexer refeed sensor (SR2)

1. Remove the duplexer from the product.
2. Insert a sheet of paper in the duplexer until the sheet covers the sensor.

**Figure 2-8** Duplexer refeed sensor



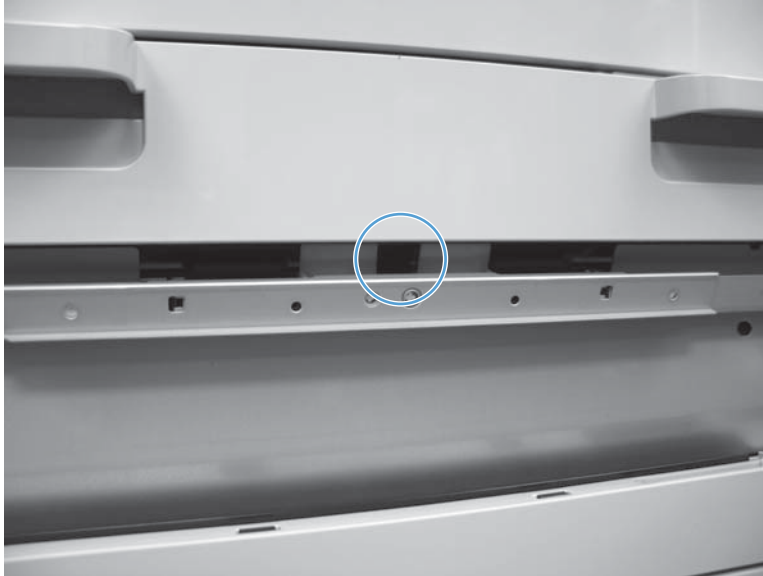
3. Reinstall the duplexer, and then check the control-panel display for sensor response.
4. If there is no response, replace the duplexer.



### Tray 4 feed sensor (SR1)

1. Open the lower right door.
2. Use a small flatblade screwdriver to activate the sensor.

**Figure 2-9** Tray 4 feed sensor

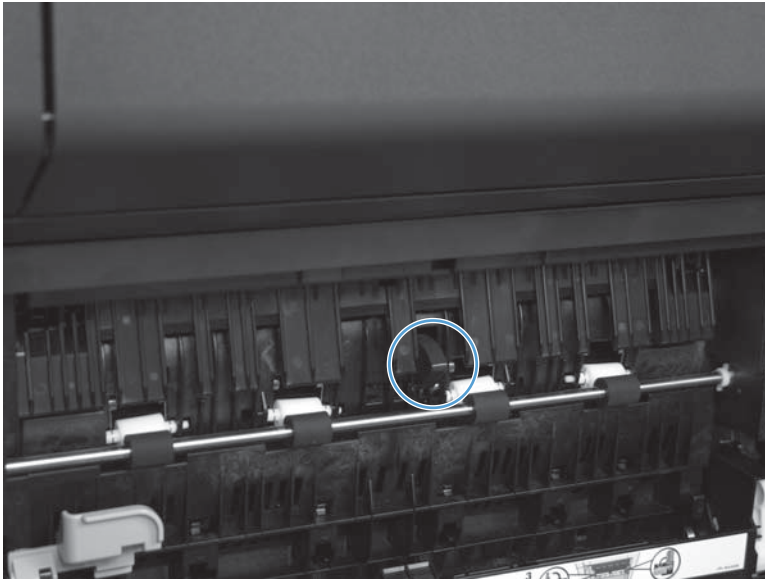


3. Check the control-panel display for sensor response.
4. If there is no response, replace the optional Tray 4 assembly.

### Output sensor (SR3)

1. Open the left door, and then press the output sensor lever.


**Figure 2-10** Output sensor



2. Check the control-panel display for sensor response.
3. If there is no response, replace the paper delivery assembly.

## Tray/bin manual sensor tests

Use this test to test paper-path sensors and the paper-size switches manually. The following illustrations and table show the locations of these sensors.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Troubleshooting**
  - **Diagnostic Tests**
  - **Tray/Bin Manual Sensor Test**

**Table 2-11** Tray/bin manual sensor test

Sensor or switch name	Sensor number	Replacement part number	Description	Paper-path sensor test name	Testing of sensor
Multipurpose tray paper-presence sensor	SR1	CN	Multipurpose tray paper-presence sensor	SR1 Tray 1 paper	Push the sensor lever and hold it there for 3 seconds.
Tray 2 paper-presence sensor	SR7	CN	Tray 2 paper-presence sensor	SR7 Tray 2 paper	Remove Tray 2 and Tray 3, and then push the sensor lever on the right side of the tray cavity.
Tray 2 paper surface sensor	SR10	CN	Tray 2 paper surface sensor	SR10 Tray 2 paper surface	Remove Tray 2 and Tray 3, and then push the sensor at the back of the tray cavity.
Tray 2 paper size switches	SW 4, SW6	CN	Tray 2 paper size sensor	SW4, 6 Tray 2 Paper Size	Remove Tray 2 and Tray 3, and then push the switches at the back of the tray cavity.
Tray 3 paper-presence sensor	SR5	CN	Tray 3 paper-presence sensor	SR5 Tray 3 paper	Remove Tray 2 and Tray 3, and then push the sensor lever on the right side of the tray cavity.
Tray 3 paper surface sensor	SR11	CN	Tray 3 feeder unit	SR11 Tray 3 paper surface	Remove Tray 2 and Tray 3, and then push the sensor at the back of the tray cavity.

**Table 2-11 Tray/bin manual sensor test (continued)**

<b>Sensor or switch name</b>	<b>Sensor number</b>	<b>Replacement part number</b>	<b>Description</b>	<b>Paper-path sensor test name</b>	<b>Testing of sensor</b>
Tray 3 paper size switches	SW5, SW7	CN	Tray 3 paper size switches	SW5, 7 Tray 3 Paper Size	Remove Tray 2 and Tray 3, and then push the switches at the back of the tray cavity.
Tray 4 paper-presence sensor	SR3	CN	Tray 4 paper-presence sensor	SR3 Tray 4 paper	Remove Tray 4, and then push the sensor lever.
Tray 4 paper surface sensor	SR2	CN	Tray 4 paper surface sensor	SR2 Tray 4 paper surface	Remove Tray 4, and then push the sensor at the back of the tray cavity.
Tray 4 paper size switches	SW2, SW3	CN	Tray 4 paper size switches	SW2, 3 Tray 4 Paper Size	Remove Tray 4, and then push the switches at the back of the tray cavity.
Tray 4 feed sensor	SR1	CN	Tray 4 feed sensor	SR1 Tray 4 feed	Open the lower right door, and then activate the feed sensor with a small flat-blade screwdriver.
Lower right door switch	SW1	CN	Lower right door switch	SW1 Lower right door 1 sensor	Open the lower right door, and then activate the door switch with a small flat-blade screwdriver.
Output bin full sensor	SR4	CN	Output bin full sensor	SR4 Output Bin Full	Lift the output bin sensor levers.

## Main product trays

### Tray 1 paper sensor (SR1)

1. Open Tray 1, push the sensor lever down, and hold it for 3 seconds to activate the sensor.

**Figure 2-11** Tray 1 paper sensor

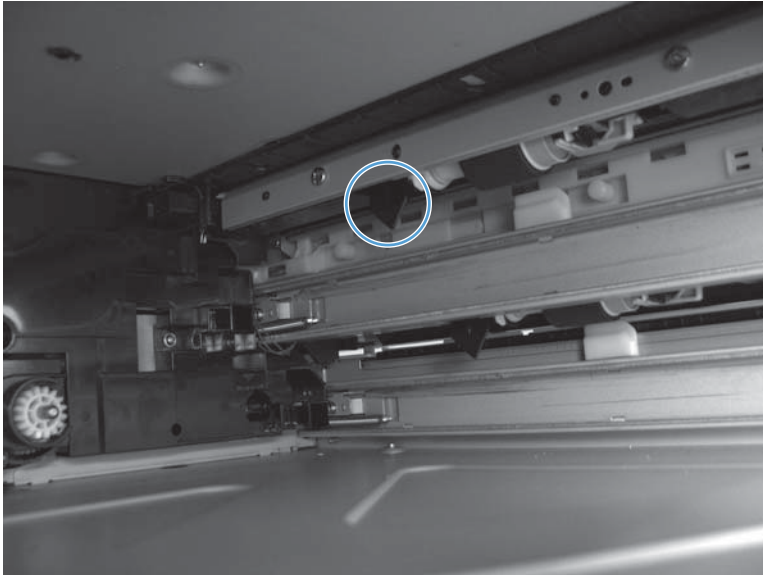


2. Check the control-panel display for sensor response.
3. If there is no response, replace the cartridge door assembly.

## Tray 2 Paper sensor (SR7)

1. Remove Tray 2 and Tray 3, and then push the sensor levers on the right side of the cavity to activate the sensor.

**Figure 2-12** Tray 2 paper sensor

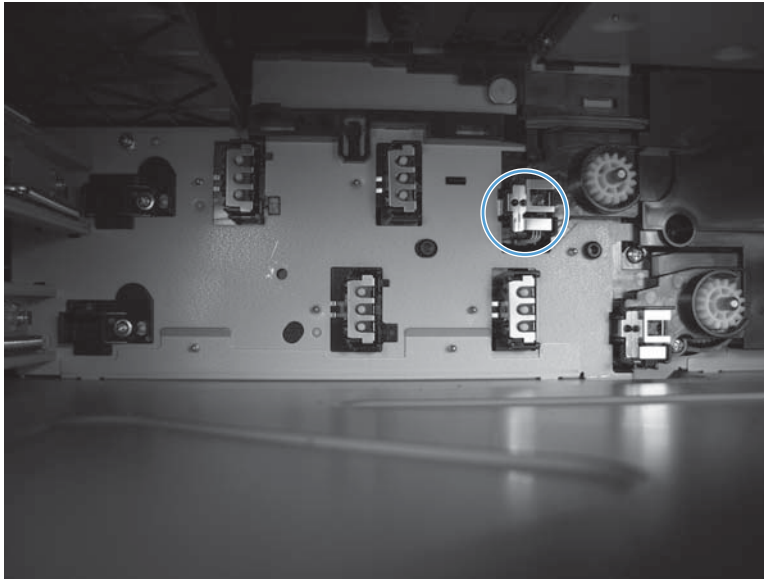


2. Check the control-panel display for sensor response.
3. If there is no response, replace the upper cassette pickup assembly.

### Tray 2 paper surface sensor (SR10)

1. Remove Tray 2 and Tray 3, and then push the sensor at the back of the tray cavity.

**Figure 2-13** Tray 2 paper surface sensor

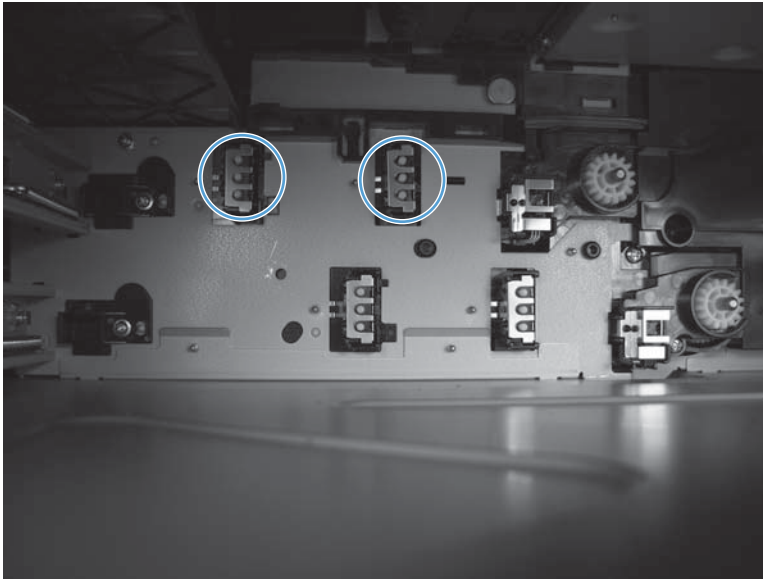


2. Check the control-panel display for sensor response.
3. If there is no response, replace the lifter drive assembly.

## Tray 2 paper size switches (SW4, SW6)

1. Remove Tray 2 and Tray 3, and then push the switches at the back of the tray cavity.

**Figure 2-14** Tray 2 paper size switches



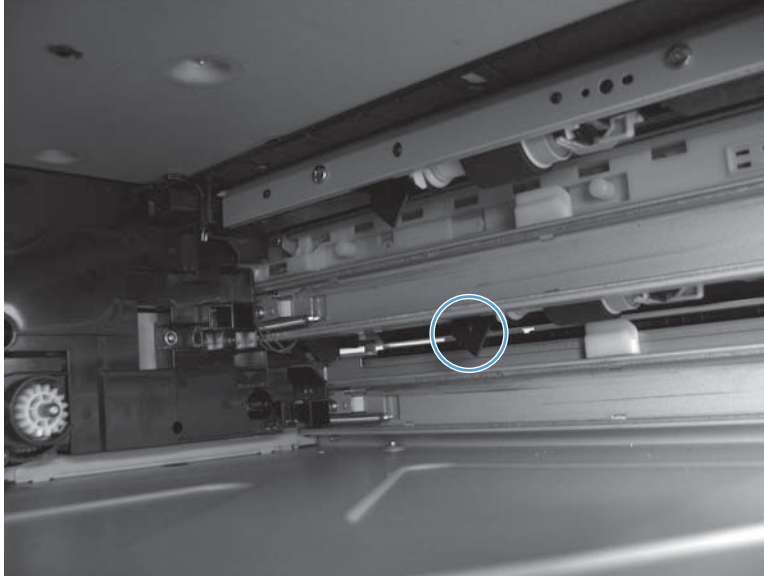
2. Check the control-panel display for sensor response.
3. If there is no response, replace the lifter drive assembly.



### Tray 3 paper sensor (SR5)

1. Remove Tray 2 and Tray 3, and then push the sensor lever on the right side of the cavity to activate the sensor.

**Figure 2-15** Tray 3 paper sensor

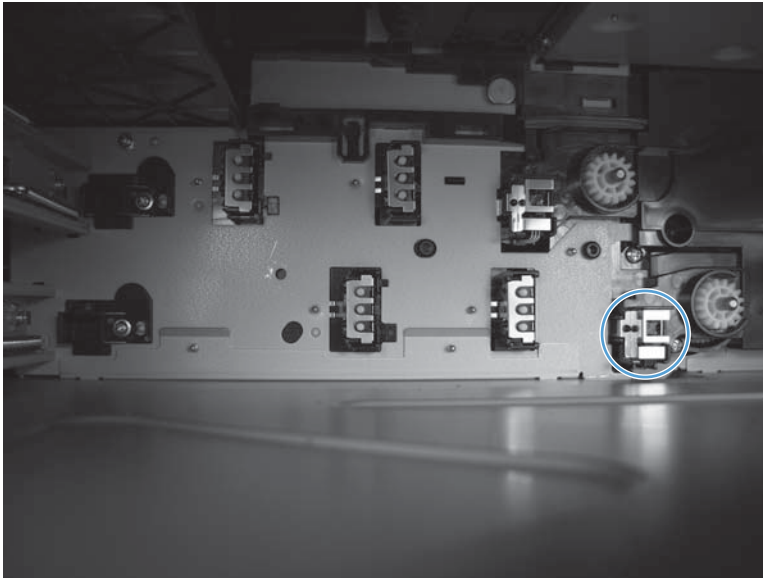


2. Check the control-panel display for sensor response.
3. If there is no response, replace the lower cassette pickup assembly.

### Tray 3 paper surface sensor (SR11)

1. Remove Tray 2 and Tray 3, and then push the sensor at the back of the tray cavity.

**Figure 2-16** Tray 3 paper surface sensor

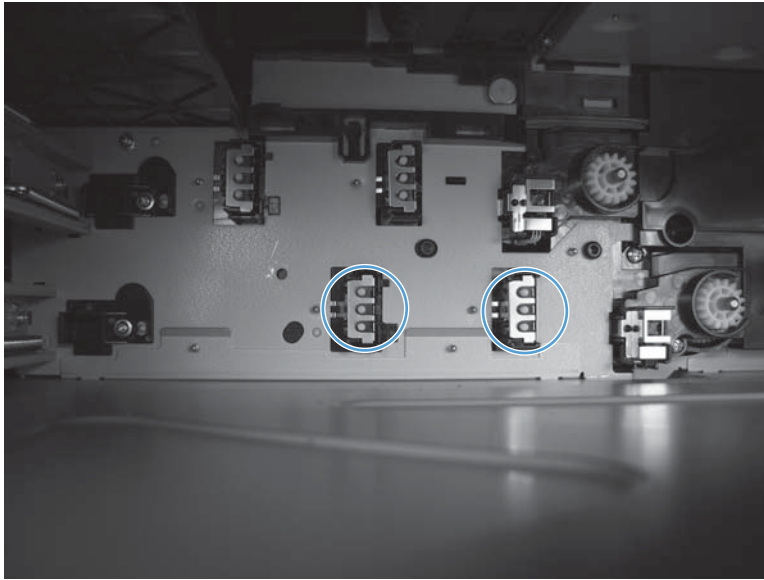


2. Check the control-panel display for sensor response.
3. If there is no response, replace the lifter drive assembly.

### Tray 3 paper size switches (SW5, SW7)

1. Remove Tray 2 and Tray 3, and then push the switches at the back of the tray cavity.

**Figure 2-17** Tray 3 paper size switches



2. Check the control-panel display for sensor response.
3. If there is no response, replace the lifter drive assembly.

## Output bin full sensor (SR4)

1. Raise and then lower the output-bin levers to activate the sensor.

**Figure 2-18** Output bin full sensor



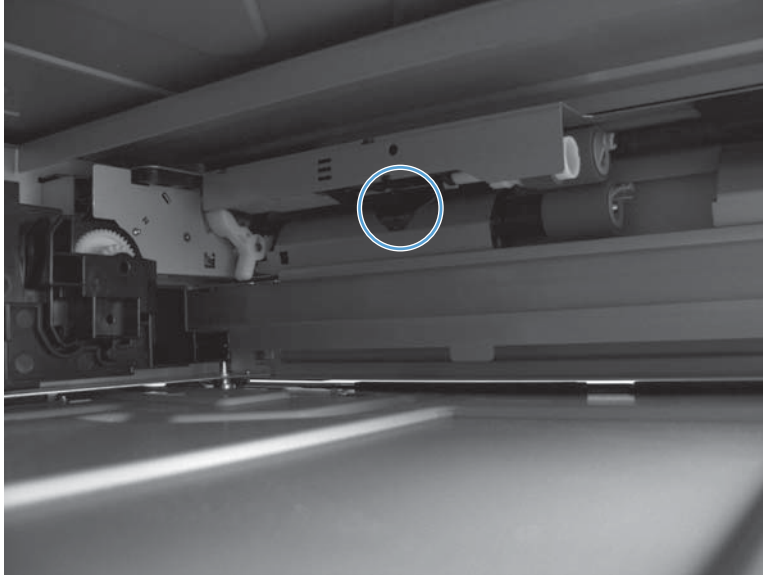
2. Check the control-panel display for sensor response.
3. If there is no response, replace the top-cover flag or the photo interrupter.

## Optional 500-sheet paper tray (Tray 4)

### Tray 4 paper sensor (SR3)

1. Remove the Tray 4 cassette, and then push the sensor lever on the right side of the cavity to activate the sensor.

**Figure 2-19** Tray 4 paper sensor

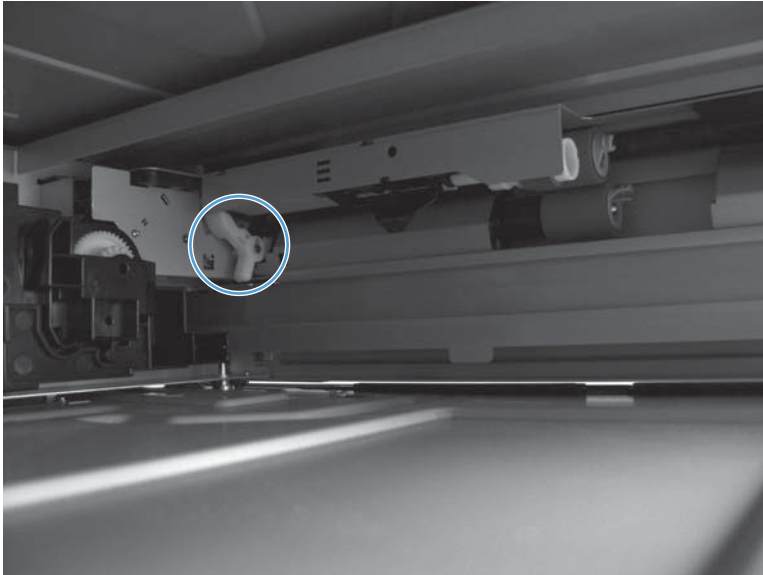


2. Check the control-panel display for sensor response.
3. If there is no response, replace the optional 500-sheet feeder.

### Tray 4 paper surface (SR2)

1. Remove Tray 4, and then press the sensor lever in the back right corner of the tray cavity to activate the sensor.

**Figure 2-20** Tray 4 paper surface sensor



2. Check the control-panel display for sensor response.
3. If there is no response, replace the optional 500-sheet feeder.

### Tray 4 paper size switches (SW2, SW3)

1. Remove Tray 4, and then push the switches at the back of the tray cavity.

**Figure 2-21** Tray 4 paper size switches

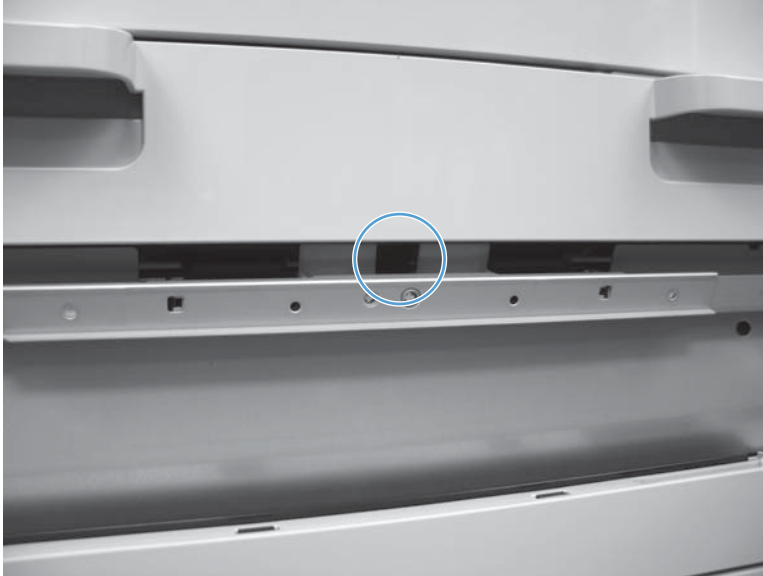


2. Check the control-panel display for sensor response.
3. If there is no response, replace the optional 500-sheet feeder.

### Tray 4 Feed sensor (SR1)

1. Open the lower right door.
2. Use a small flatblade screwdriver to activate the sensor.

**Figure 2-22** Tray 4 feed sensor



3. Check the control-panel display for sensor response.
4. If there is no response, replace the optional Tray 4 assembly.



### Lower right door sensor (SW1)

1. Open the lower right door, and then use a small screwdriver to activate the sensor.

**Figure 2-23** Lower right door sensor



2. Check the control-panel display for sensor response.
3. If there is no response, replace the optional 500-sheet paper tray assembly.

## 1x500 and 3x500 paper deck trays

### Tray 4 paper sensor (SR3)

See [Tray 4 paper sensor \(SR3\) on page 131](#).

### Tray 4 paper surface sensor (SR2)

See [Tray 4 paper surface \(SR2\) on page 132](#).

### Tray 4 paper size switches (SW2, SW3)

See [Tray 4 paper size switches \(SW2, SW3\) on page 133](#).

### Tray 4 feed sensor (SR1)

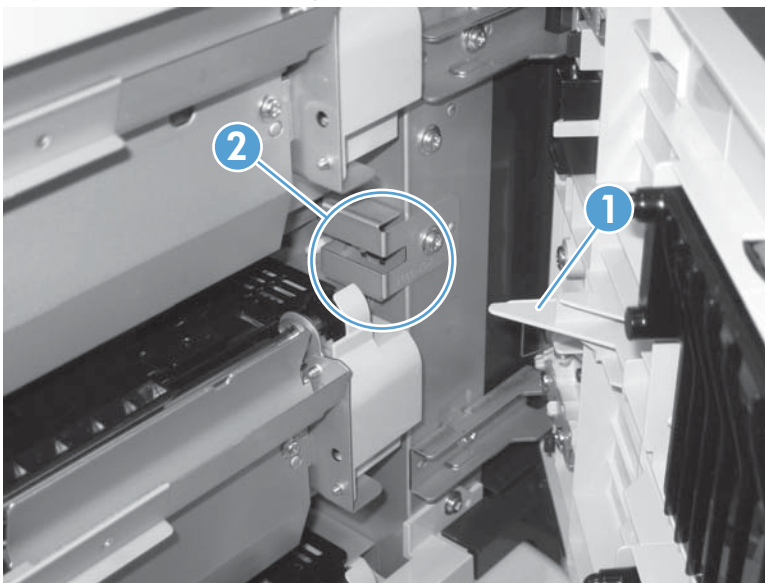
See [Tray 4 Feed sensor \(SR1\) on page 134](#).

### Tray 4 door opening/closing door switch (SW1)

 **NOTE:** Tray 4, Tray 5, and Tray 6 use the same door switch (SW1).

1. Open and then close the paper-feeder door to ensure that the tab on the door (callout 1) activates the switch (callout 2).

**Figure 2-24** Test the Tray 4 door switch



2. Check the control-panel display for sensor response.
3. If no response, replace the button switch.

### **Tray 5 paper sensor (SR83)**

See [Tray 4 paper sensor \(SR3\) on page 131](#).

### **Tray 5 paper surface sensor (SR82)**

See [Tray 4 paper surface \(SR2\) on page 132](#).

### **Tray 5 paper size switches (SW82, SW83)**

See [Tray 4 paper size switches \(SW2, SW3\) on page 133](#).

### **Tray 5 feed sensor (SR81)**

See [Tray 4 Feed sensor \(SR1\) on page 134](#).

### **Tray 5 door opening/closing switch (SW1)**

See [Tray 4 door opening/closing door switch \(SW1\) on page 136](#).

### **Tray 6 paper sensor (SR93)**

See [Tray 4 paper sensor \(SR3\) on page 131](#).

### **Tray 6 paper surface sensor (SR92)**

See [Tray 4 paper surface \(SR2\) on page 132](#).

### **Tray 6 paper size switches (SW92, SW93)**

See [Tray 4 paper size switches \(SW2, SW3\) on page 133](#).

### **Tray 6 feed sensor (SR91)**

See [Tray 4 Feed sensor \(SR1\) on page 134](#).

### **Tray 6 door opening/closing switch (SW1)**

See [Tray 4 door opening/closing door switch \(SW1\) on page 136](#).

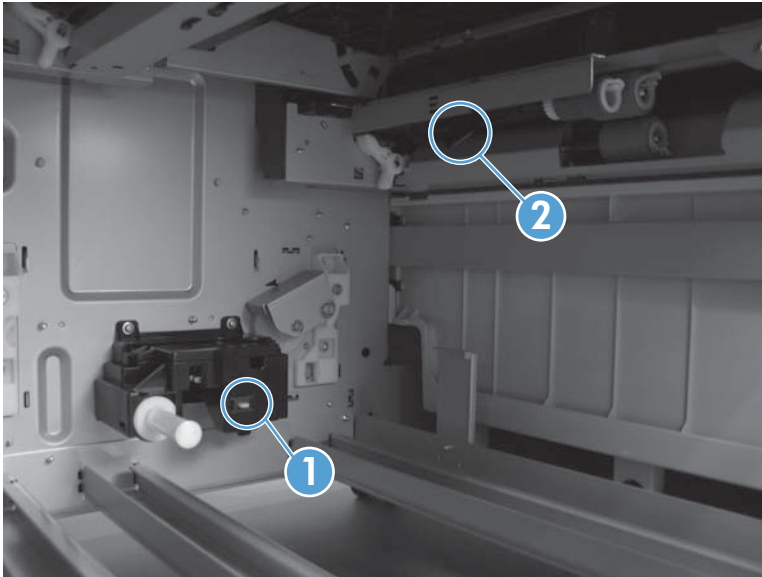
## HCI trays

**NOTE:** For the purposes of this section, the tray numbers reflect a base unit with the HCI installed. If your product has an optional 500-sheet paper feeder (Tray 4) installed, the tray numbers in this section will differ. In this section, Tray 4 refers to the right tray, and Tray 5 refers to the left tray.

### Tray 4 paper sensor (PS3103)

1. Remove Tray 4 from the HCI.
2. In the tray cavity, press and hold the tray presence switch (callout 1), and then lift the paper sensor lever (callout 2).

**Figure 2-25** Tray 4 paper sensor



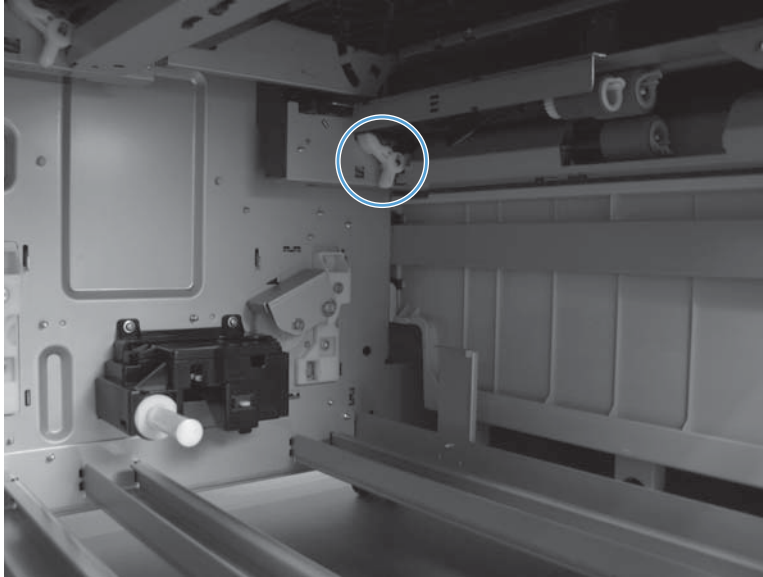
3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.

### Tray 4 paper surface sensor (PS3101 and PS3102)

1. Remove Tray 4 from the HCI.

2. In the tray cavity, in the upper right-hand corner, toggle the sensor lever.

**Figure 2-26** Tray 4 paper surface sensor

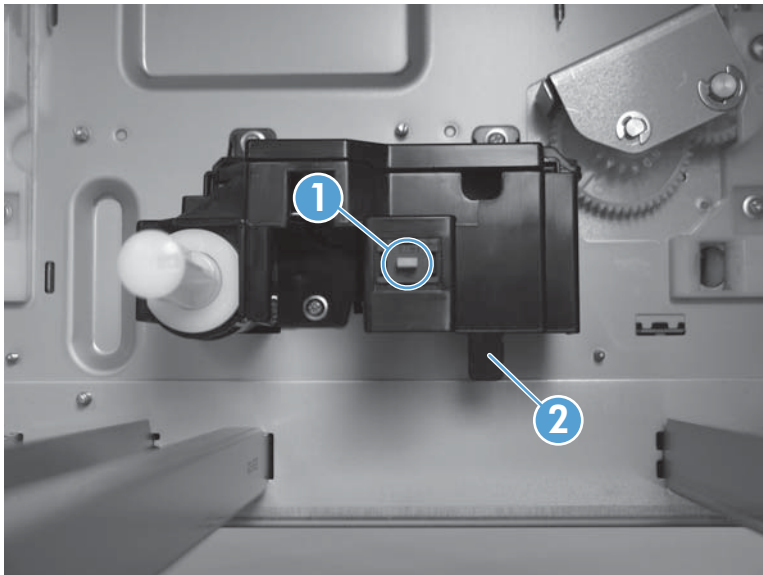


3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.

#### Tray 4 paper size sensor (PS3303)

1. Remove Tray 4 from the HCl.
2. In the tray cavity, press and hold the tray presence switch (callout 1), and then lift the paper size sensor lever (callout 2).

**Figure 2-27** Tray 4 paper size sensor

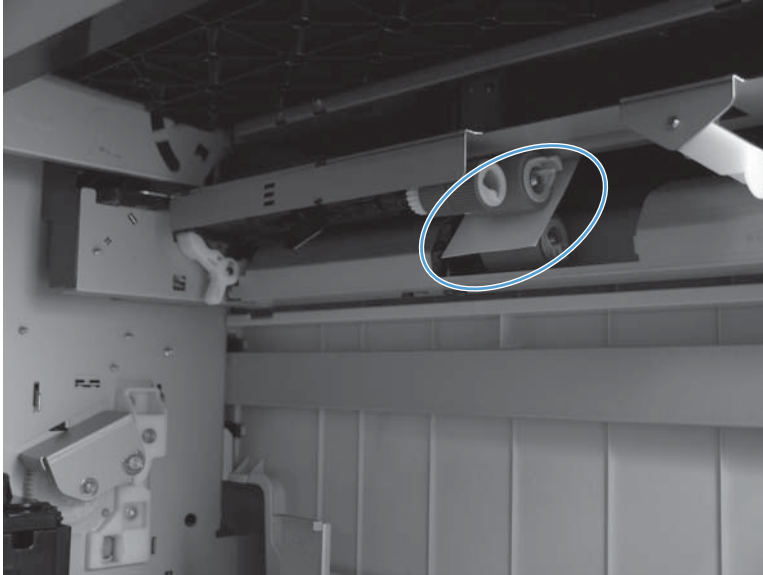


3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.

#### Tray 4 paper feed sensor (PS3302)

1. Remove Tray 4 from the HCI.
2. Place a business card between the feed roller and the separation roller as far as it will go to activate the feed sensor.

**Figure 2-28** Tray 4 paper feed sensor



3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.

#### Tray 4 door open sensor (SW3301)

1. Open the HCI right door.

2. Use a small flat-blade screwdriver to activate the door sensor.

**Figure 2-29** Tray 4 door open sensor

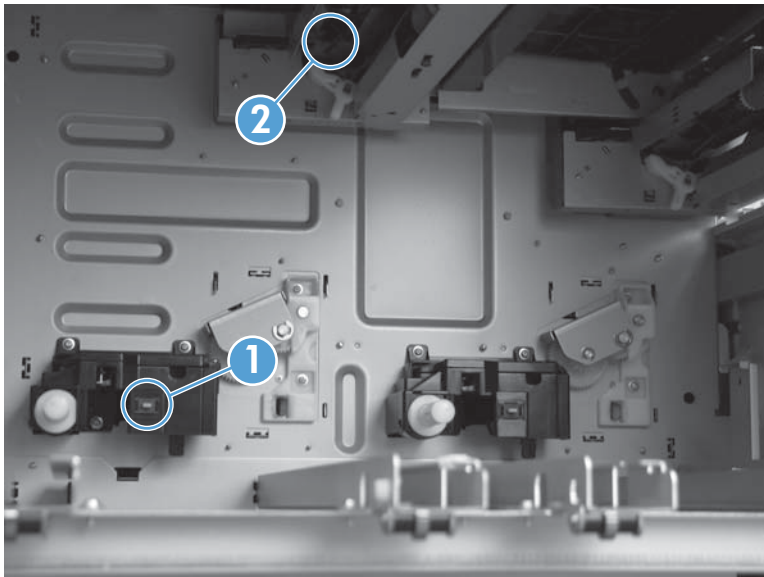


3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.

### Tray 5 paper sensor (PS3203)

1. Remove Tray 5 from the HCl.
2. In the tray cavity, press and hold the tray presence switch (callout 1), and then lift the paper sensor lever (callout 2).

**Figure 2-30** Tray 5 paper sensor

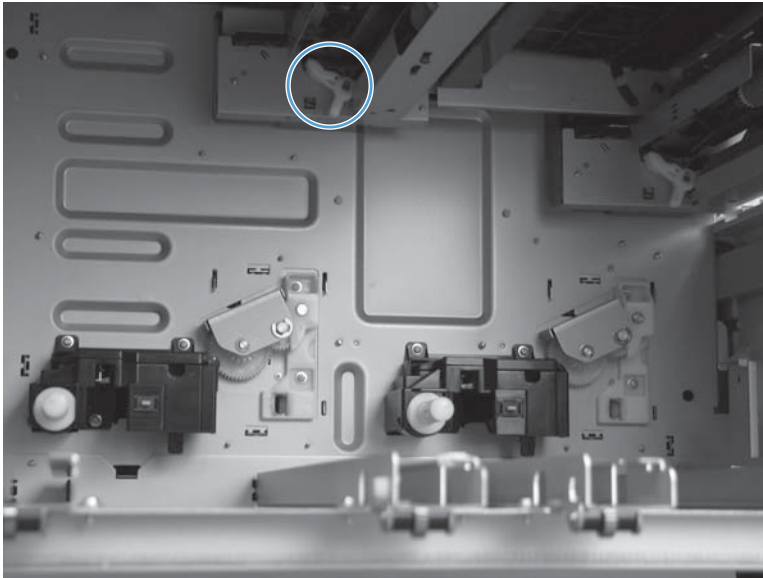


3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.

### Tray paper surface sensor (PS3201 and PS3202)

1. Remove Tray 5 from the HCl.
2. At the back of the tray cavity, toggle the sensor lever.

**Figure 2-31** Tray paper surface sensor



3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.

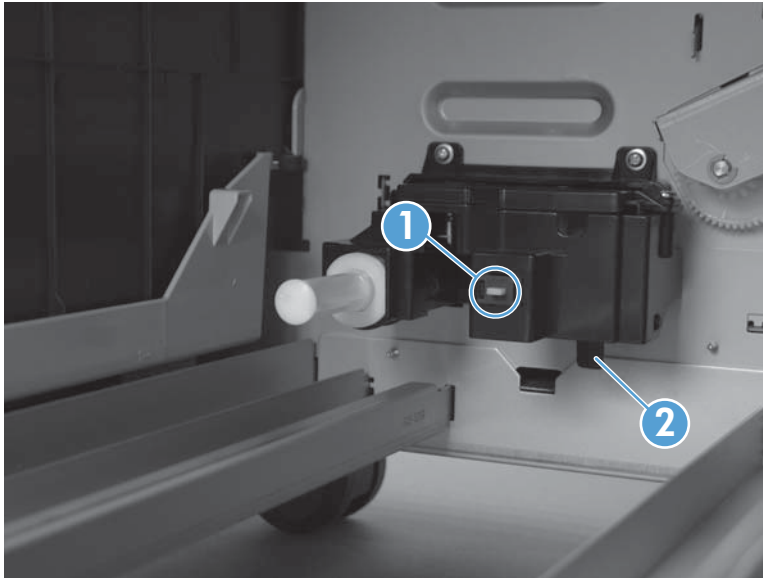
### Tray 5 paper size sensor (PS3304)

1. Remove Tray 5 from the HCl.



2. In the tray cavity, press and hold the tray presence switch (callout 1), and then lift the paper size sensor lever (callout 2).

**Figure 2-32** Tray 5 paper size sensor

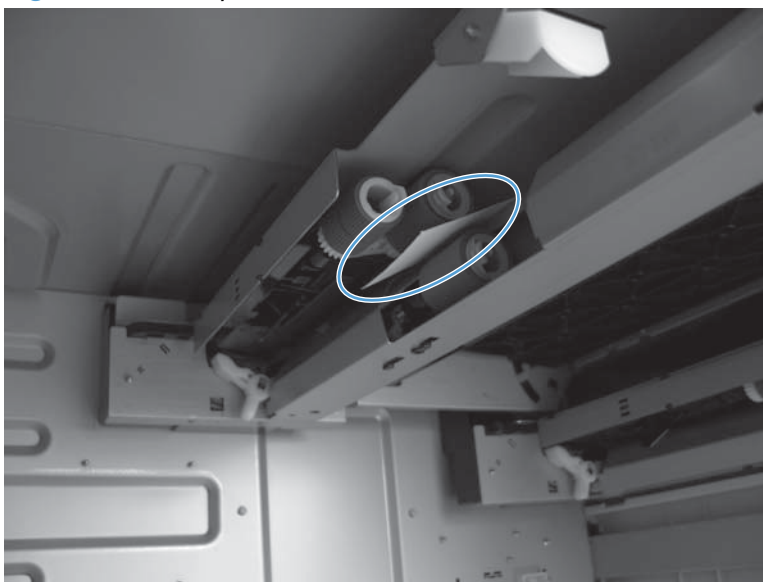


3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.

#### **Tray 5 feed sensor (PS3305)**

1. Remove Tray 5 from the HCl.
2. Place a business card between the feed roller and the separation roller as far as it will go to activate the feed sensor.

**Figure 2-33** Tray 5 feed sensor

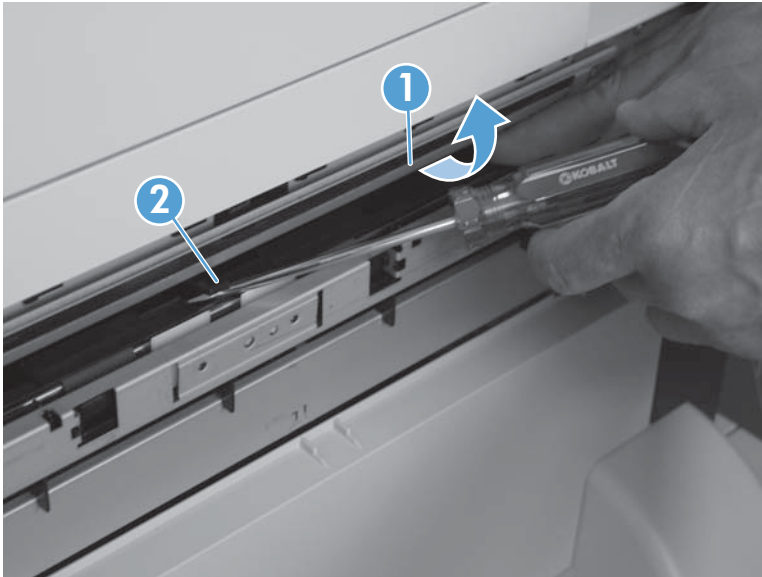


3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.

### HCI exit sensor (PS3301)

1. Open the HCI right door.
2. Lift the jam access flap (callout 1), and then use a small flat-blade screwdriver to lift the sensor lever (callout 2).


**Figure 2-34** HCI exit sensor



3. Check the control-panel display for sensor response.
4. If there is no response, replace the sensor.


### Print/stop test

Use this diagnostic test to isolate the cause of problems such as image-formation defects and jams within the engine. During this test you can stop the paper anywhere along the product paper path. The test can be programmed to stop printing internal pages or an external print job when the paper reaches a certain position. The test can also be programmed to stop from 0 to 60,000 ms. If the timer is set to a value that is greater than the job-print time, you can recover the product in one of two ways.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Troubleshooting**
  - **Diagnostic Tests**

3. Scroll to the **Print/Stop Test** item, and then press the **OK** button .
4. Enter a range, and then press the **OK** button.
  - After the print job is completed, press the **OK** button to return to the **Troubleshooting** menu before the timer times out.
  - After the timer times out, press the **Stop** ⊗ button. Activate the door switch to restart the engine and return it to a normal state.

---

 **NOTE:** Do not try to perform a print/stop test while the product is calibrating, because you might be required to restart the product. If a jam message displays on the control panel during testing, activate the door switch.

---

## Component tests

### Control-panel tests

Open the following menus:

- **Administration**
- **Troubleshooting**
- **Diagnostic Tests**


### Available control-panel tests

- LEDs: test the LEDs on the control panel.
- Display: sequence through display tests.
- Buttons: tests the key pad and other buttons.

### Half self-test

Perform a half self-test to determine which image-formation process might be malfunctioning.

---

 **NOTE:** It might be easier to perform the print/stop test to stop the product during the printing process. See [Print/stop test on page 144](#).

---

1. Print a configuration page from the control panel.
2. Open the cartridge door after the paper advances half-way through the product, which is about 3 to 5 seconds after the main motor begins to rotate. The leading edge of the paper should have advanced past the toner cartridge.
3. Remove the toner cartridge.
4. Open the toner cartridge drum shield to view the drum surface.

If a dark and distinct toner image is present on the drum surface, assume that the cleaning, conditioning, writing, and developing functions of the electrophotographic process are functioning correctly. Troubleshoot the failure as a transfer or fusing problem. If no image is present on the drum, perform the drum rotation test check. See [Drum rotation test check on page 146](#).

## Drum rotation test check



**NOTE:** This test is especially important if refilled toner cartridges are in use.

The photosensitive drum, which is located in the toner cartridge, must rotate in order for the print process to work. The photosensitive drum receives its drive from the main gear assembly. Use this procedure to determine whether the drum is rotating.


1. Open the cartridge door.
2. Remove the toner cartridge.
3. Mark the cartridge drive gear with a felt-tipped marker. Note the position of the mark.
4. Install the toner cartridge, and then close the cartridge door. The start-up sequence should rotate the drum enough to move the mark on the gear.
5. Open the product and inspect the mark on the cartridge drive gear.

Verify that the mark moved. If there was no movement, inspect the main gear assembly to make sure that it connects with the toner-cartridge gears. If the drive gears function but the drum does not move, replace the toner cartridge.

## Component test (special-mode test)

This test activates individual parts independently to isolate problems.

Each component test can be performed once or repeatedly. If you turn on the **Repeat** option from the drop-down menu, the test cycles the component on and off. This process continues for two minutes, and then the test terminates.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Troubleshooting**
  - **Diagnostic Tests**
  - **Component Test**
3. Select the component test options for the test you want to run.

**Table 2-12** Component tests

Component test	Item	Control-panel display message	Description
Main motor test	M8001	Drum Motor	Activates the main motor for 10 seconds.
Fuser motor test	M8002	Fuser Motor	Activates the fuser motor for 10 seconds.
Tray 1 (multipurpose tray) pickup solenoid test	SL1	Tray 1 Pickup Solenoid	Activates the Tray 1 pickup solenoid for 10 seconds.

**Table 2-12 Component tests (continued)**

<b>Component test</b>	<b>Item</b>	<b>Control-panel display message</b>	<b>Description</b>
Tray 2 pickup solenoid test	SL2	Tray 2 Pickup Solenoid	Activates the Tray 3 cassette pickup solenoid for 10 seconds.
Clutch drive test	CL1	Feed Roller Clutch	Activates the main motor to activate the paper feeder pickup clutch for 10 seconds.
Scanner motor test	Not applicable	Laser Scanner Motor	Activates the laser scanner motor for 10 seconds.
Tray 3 pickup solenoid test	SL3 <sup>1</sup>	Tray 3 Pickup Solenoid	Activates the Tray 4 cassette pickup solenoid for 10 seconds.
Tray 4 pickup solenoid test	SL3 <sup>1</sup>	Tray 4 Pickup Solenoid	Activates the Tray 4 cassette pickup solenoid for 10 seconds.

<sup>1</sup> Tray 3 and Tray 4 both use an SL3.

# Diagrams

## Block diagrams

Figure 2-35 Product cross section

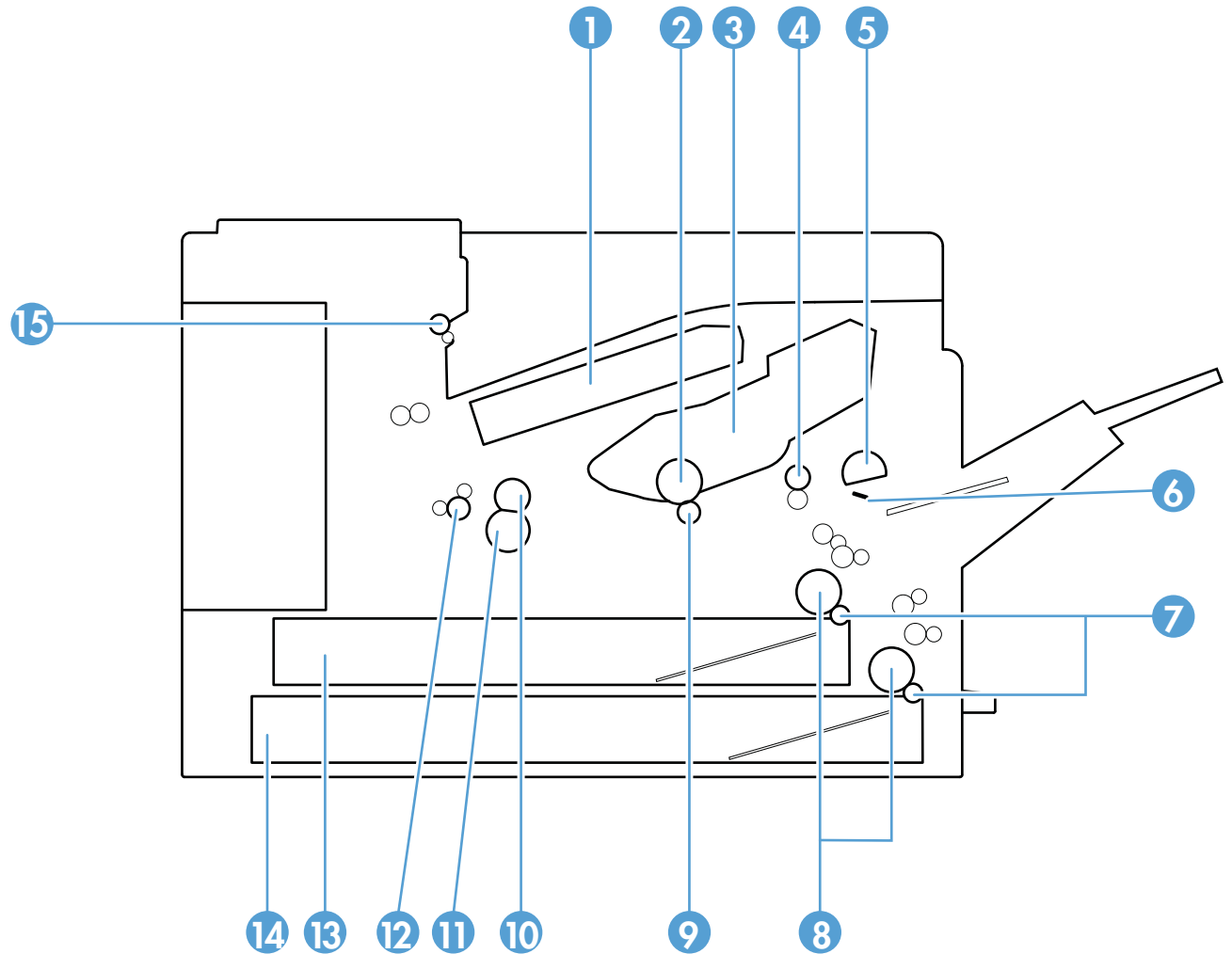
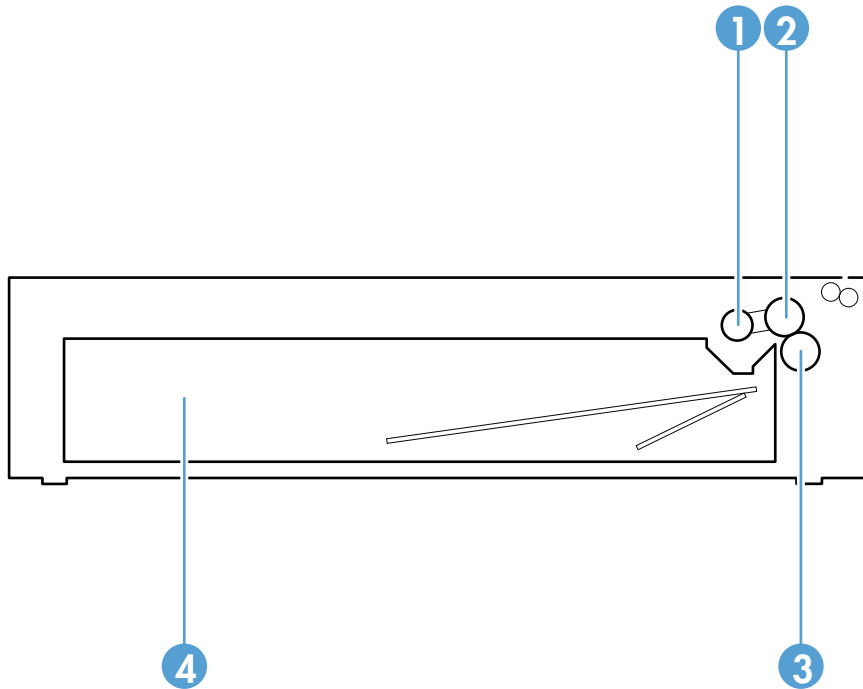


Table 2-13 Product cross section

Item	Description	Item	Description
1	Laser scanner	9	Transfer roller
2	Photosensitive drum	10	Fuser film
3	Toner cartridge	11	Pressure roller
4	Registration roller	12	Fuser output roller
5	Tray 1 (multipurpose tray) pickup roller	13	Upper cassette
6	Tray 1 (multipurpose tray) separation pad	14	Lower cassette
7	Cassette separation roller	15	Output roller
8	Cassette pickup roller		

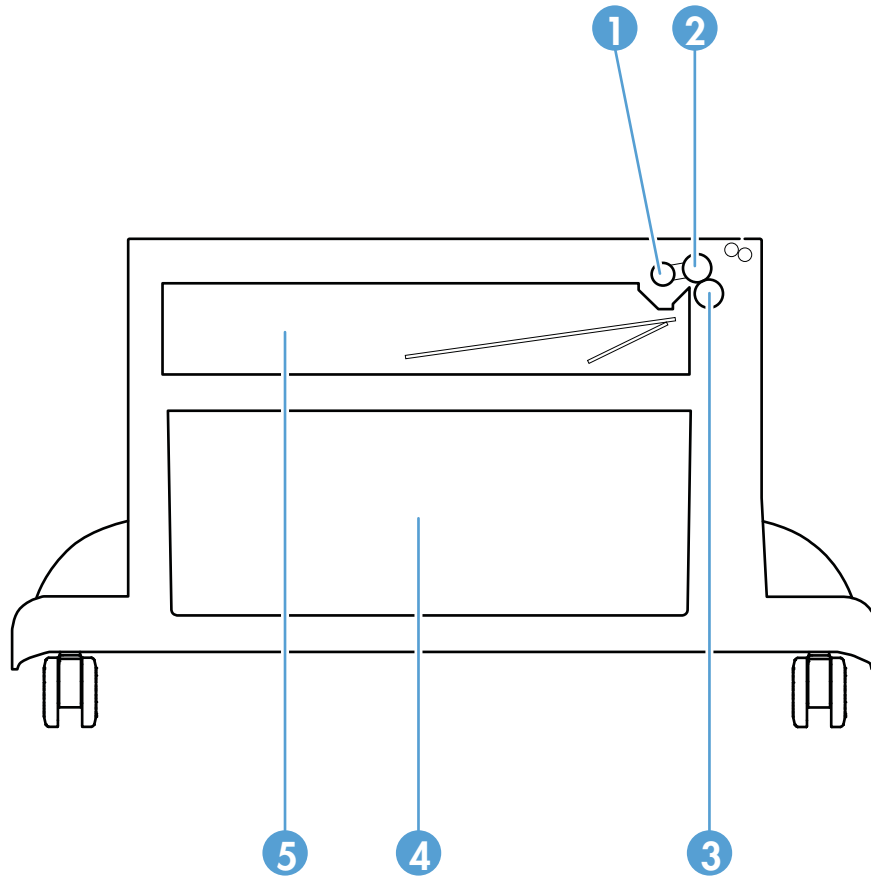
**Figure 2-36** Optional paper feeder (Tray 4) cross section



**Table 2-14** Optional paper feeder (Tray 4) cross section

Item	Description	Item	Description
1	Pickup roller	3	Separation roller
2	Feed roller	4	Cassette

**Figure 2-37** 1x500-sheet paper deck cross section

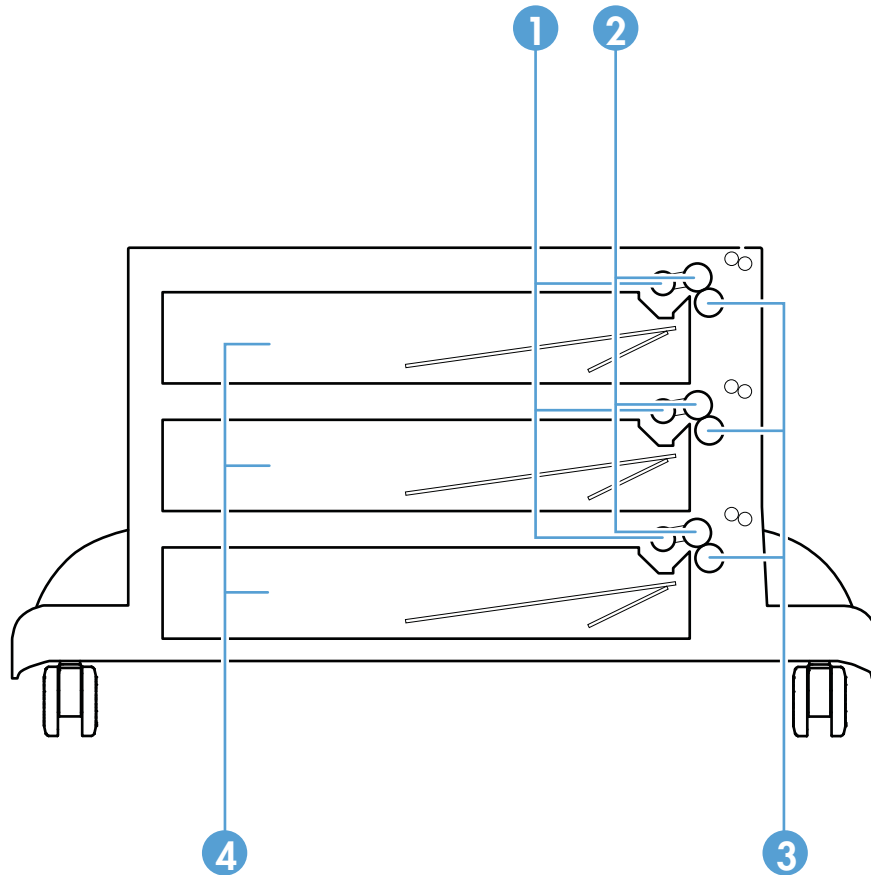


**Table 2-15** 1x500-sheet paper deck cross section

Item	Description	Item	Description
1	Pickup roller	4	Storage box
2	Feed roller	5	Cassette
3	Separation roller		



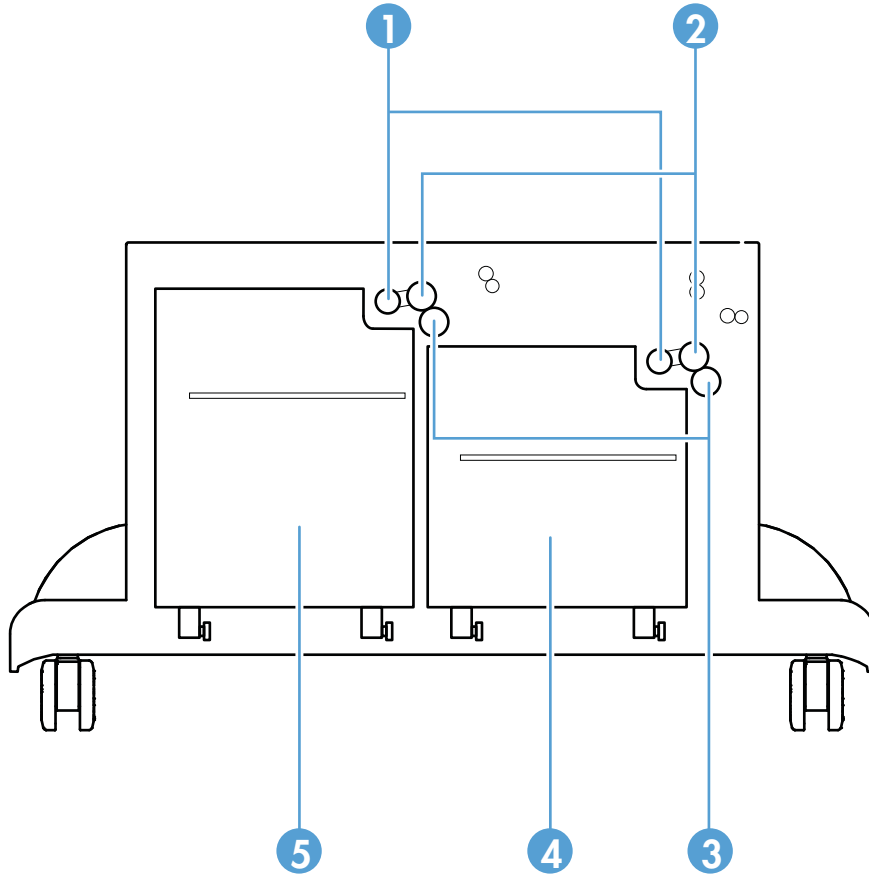
**Figure 2-38** 3x500-sheet paper deck cross section



**Table 2-16** 3x500-sheet paper deck cross section

Item	Description	Item	Description
1	Pickup roller	3	Separation roller
2	Feed roller	4	Cassette

**Figure 2-39** 3,500-sheet HCI cross section



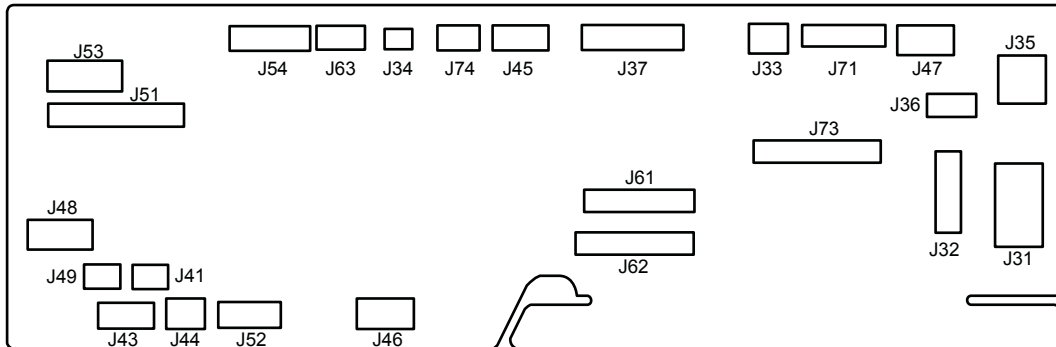
**Table 2-17** 3,500-sheet HCI cross section

Item	Description	Item	Description
1	Pickup roller	4	Right cassette
2	Feed roller	5	Left cassette
3	Separation roller		

## Location of connectors

### DC controller connections

**Figure 2-40** DC controller connections



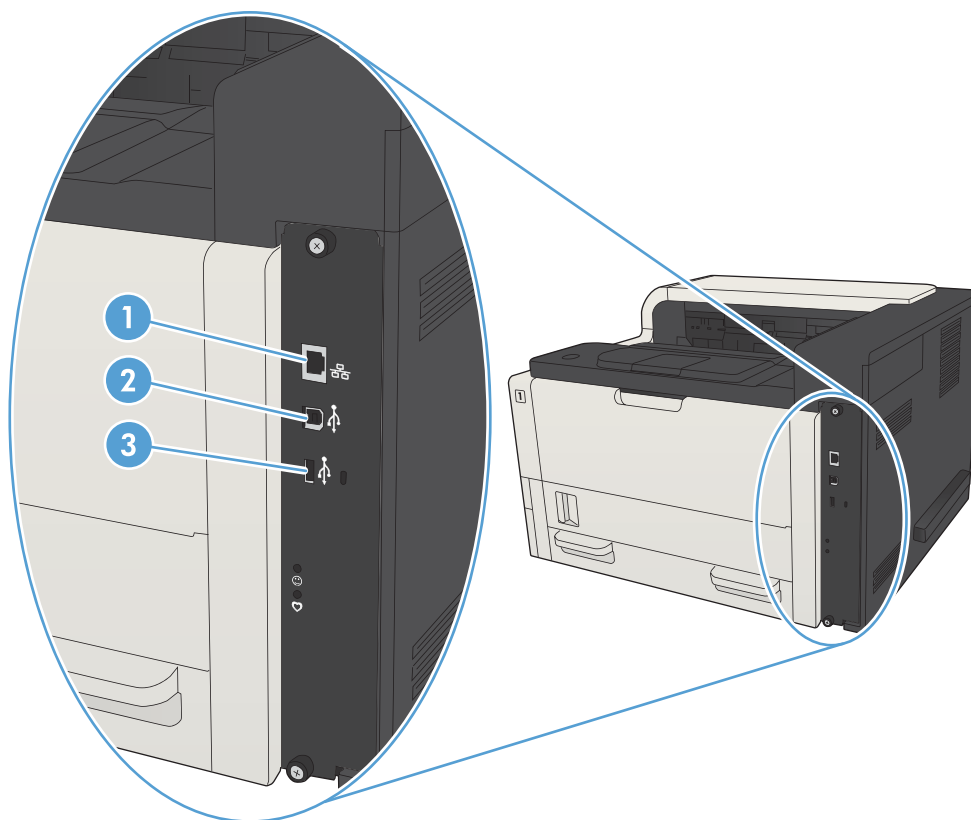
**Table 2-18** DC controller connections

Item	Description	Item	Description	Item	Description
J31	Low-voltage power supply	J44	Right door sensor	J53	Upper cassette media end switch Lower cassette media end switch
J32	Low-voltage power supply	J45	Output sensor Output bin media full sensor	J54	Input accessory
J33	Rear fan	J46	Drum motor	J61	High-voltage power supply
J34	Power switch	J47	Fuser motor	J62	High-voltage power supply
J35	Left door interlock switch	J48	Upper cassette media out sensor Upper cassette pickup clutch	J63	Environment sensor
J36	Cartridge door interlock switch	J49	Tray 1 (multipurpose tray) pickup solenoid	J71	Laser scanner

**Table 2-18 DC controller connections (continued)**

<b>Item</b>	<b>Description</b>	<b>Item</b>	<b>Description</b>	<b>Item</b>	<b>Description</b>
J37	Cartridge presence sensor Front fan Scanner motor Fuser fan	J51	Upper cassette lifter motor Lower cassette lifter motor Upper cassette lift up sensor Lower cassette lift-up sensor Upper cassette media width switch Lower cassette media width switch	J73	Connector PCA
J41	Tray 1 (multipurpose tray) media out sensor	J52	Duplexer	J74	Cartridge memory tag Cartridge door switch
J43	Lower cassette media out sensor Lower cassette pickup clutch				

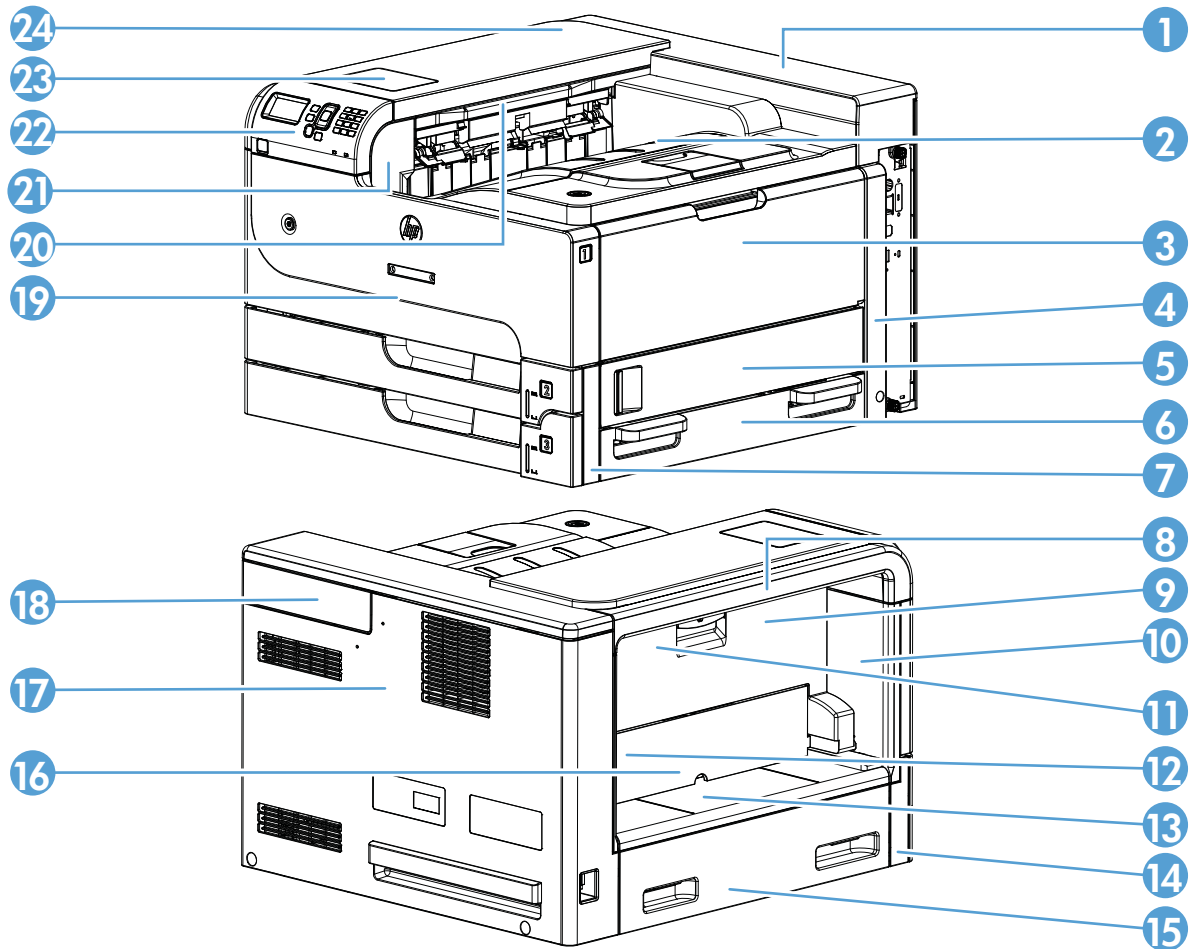
## Plug/jack locations



1	Local area network (LAN) Ethernet (RJ-45) network port
2	Hi-Speed USB 2.0 printing port
3	Host USB port (for connecting third-party devices)

## Locations of major components

**Figure 2-41** External component locations



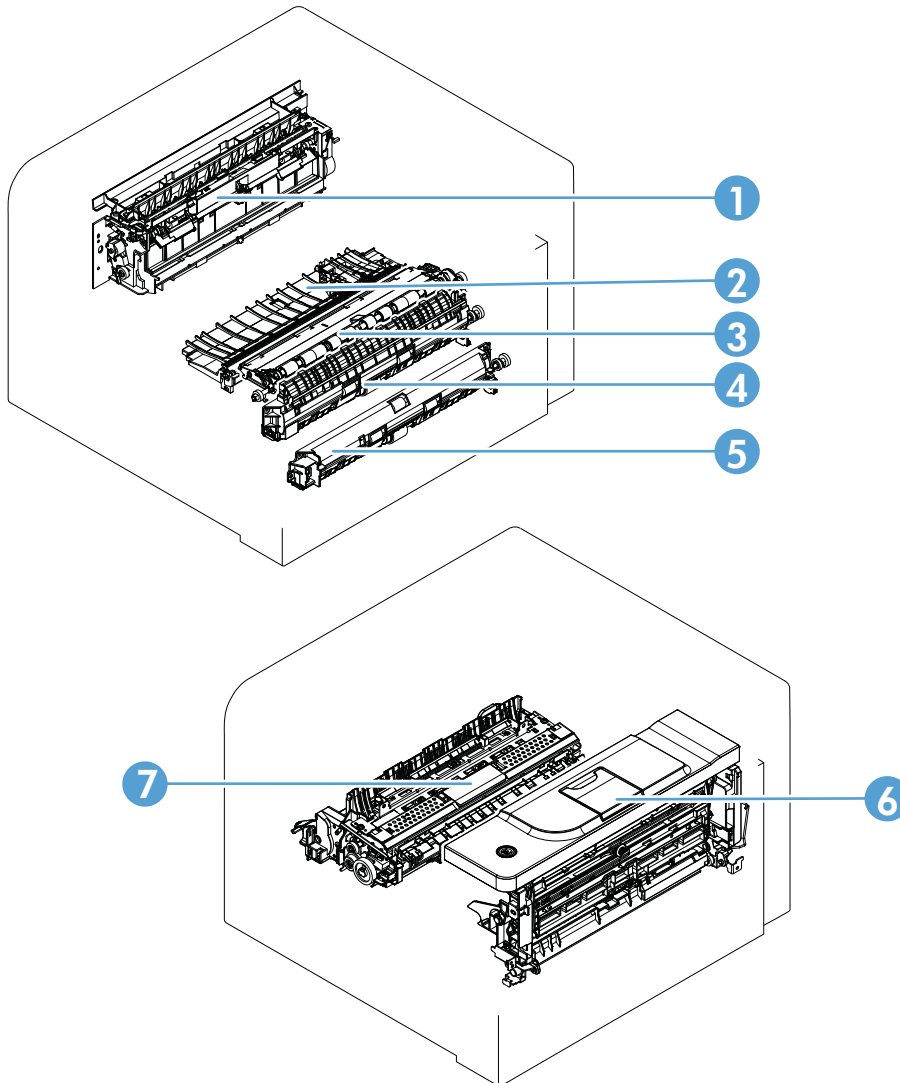
**Table 2-20** External component locations

Item	Description	Item	Description
1	Top rear cover	13	Left inner lower cover
2	Face-down cover	14	Front left lower cover
3	Tray 1 (multipurpose tray) cover	15	Left handle cover
4	Right rear cover	16	Duplex blanking cover
5	Right door	17	Rear cover
6	Right handle cover	18	Rear pocket cover
7	Front right lower cover	19	Front cover
8	Left upper cover	20	Face-down upper cover
9	Left door	21	Face-down side cover
10	Left inner front cover	22	Control panel

**Table 2-20 External component locations (continued)**

Item	Description	Item	Description
11	Left inner upper cover	23	HIP cover
12	Left inner rear cover	24	Top cover

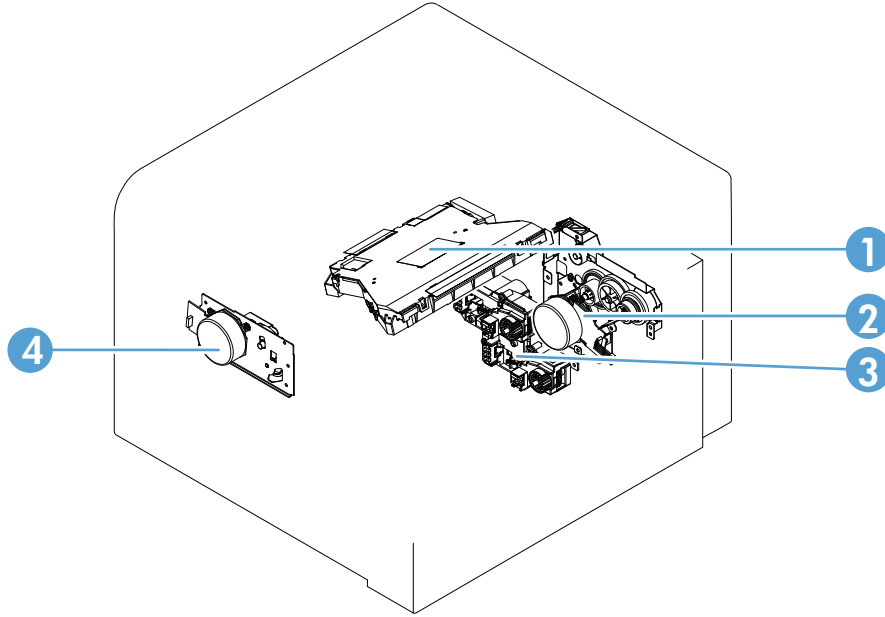
**Figure 2-42 Major component locations (1 of 3)**



**Table 2-21 Major component locations (1 of 3)**

Item	Description	Item	Description
1	Output assembly	5	Lower cassette pickup assembly
2	Feed assembly	6	Cartridge door
3	Registration assembly	7	Fuser
4	Upper cassette pickup assembly		

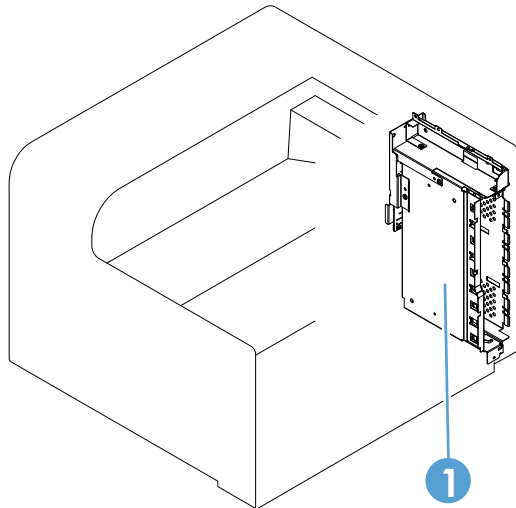
**Figure 2-43** Major component locations (2 of 3)



**Table 2-22** Major component locations (2 of 3)

Item	Description	Item	Description
1	Laser scanner	3	Lifter drive assembly
2	Main drive assembly	4	Fuser drive assembly

**Figure 2-44** Major component locations (3 of 3)

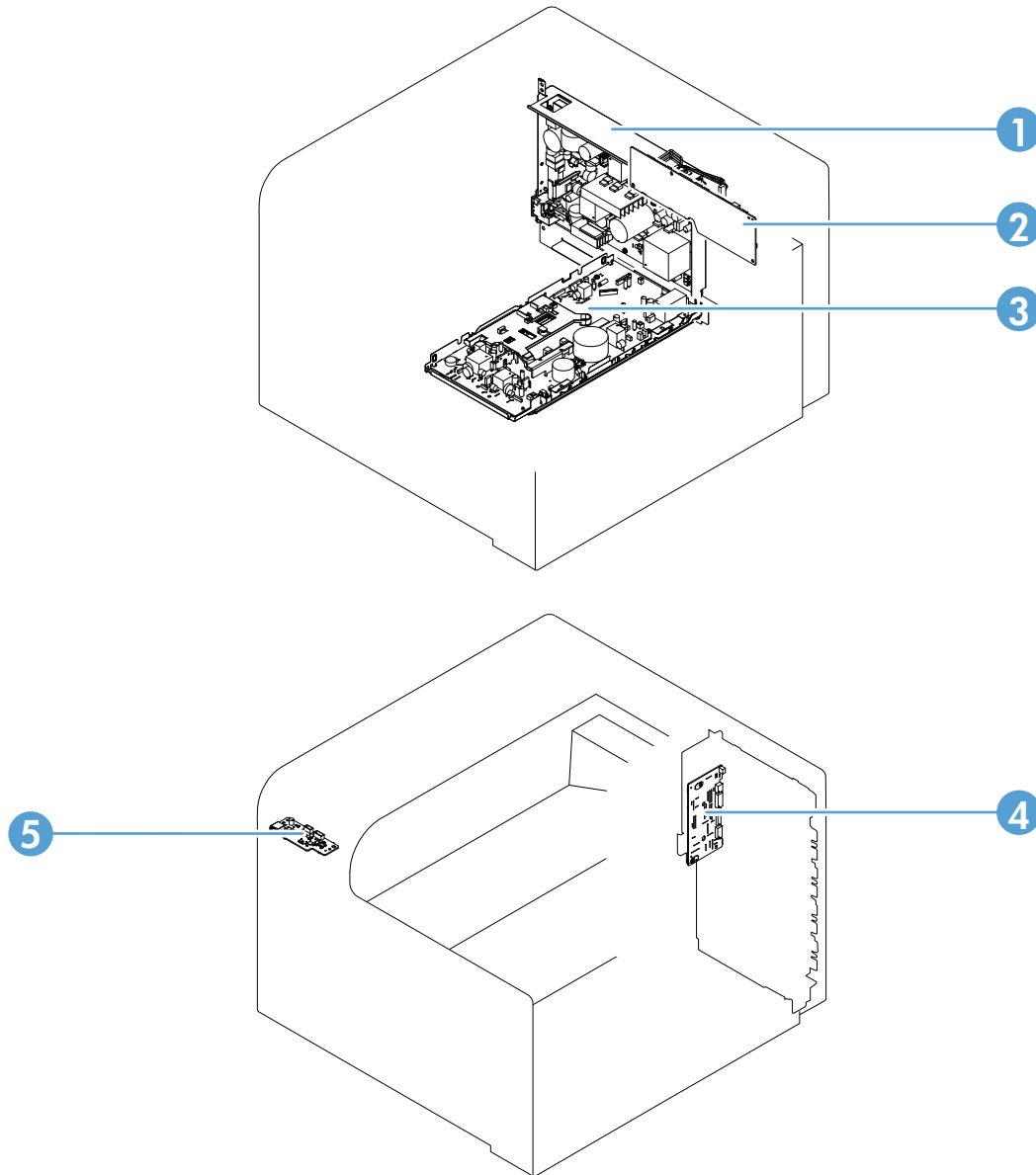


**Table 2-23** Major component locations (3 of 3)

Item	Description
1	Formatter



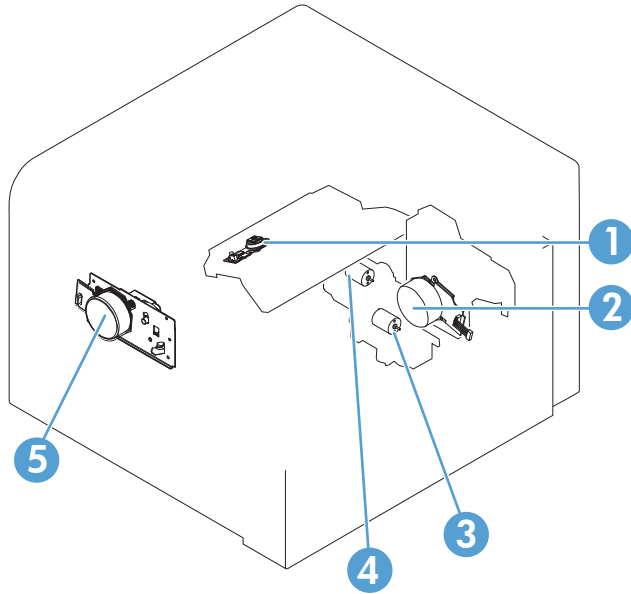
**Figure 2-45** PCA locations



**Table 2-24** PCA locations

Item	Description	Item	Description
1	Low-voltage power supply	4	USB PCA
2	DC controller PCA	5	Connector PCA
3	High-voltage power supply		

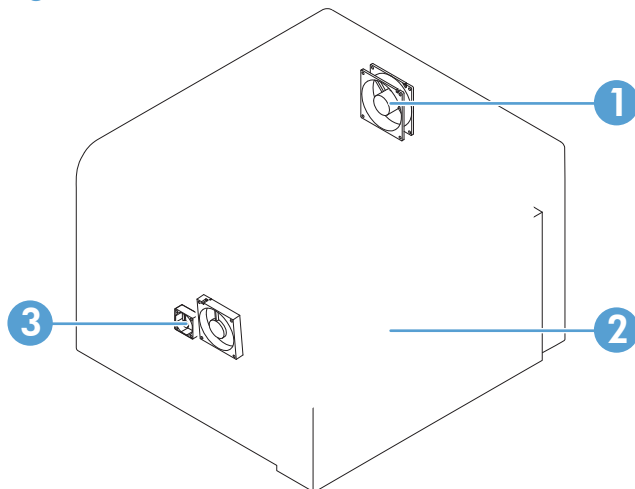
**Figure 2-46** Motor locations



**Table 2-25** Motor locations

Item	Description	Item	Description
1	Scanner motor	4	Lower cassette lifter motor
2	Drum motor	5	Fuser motor
3	Upper cassette lifter motor		

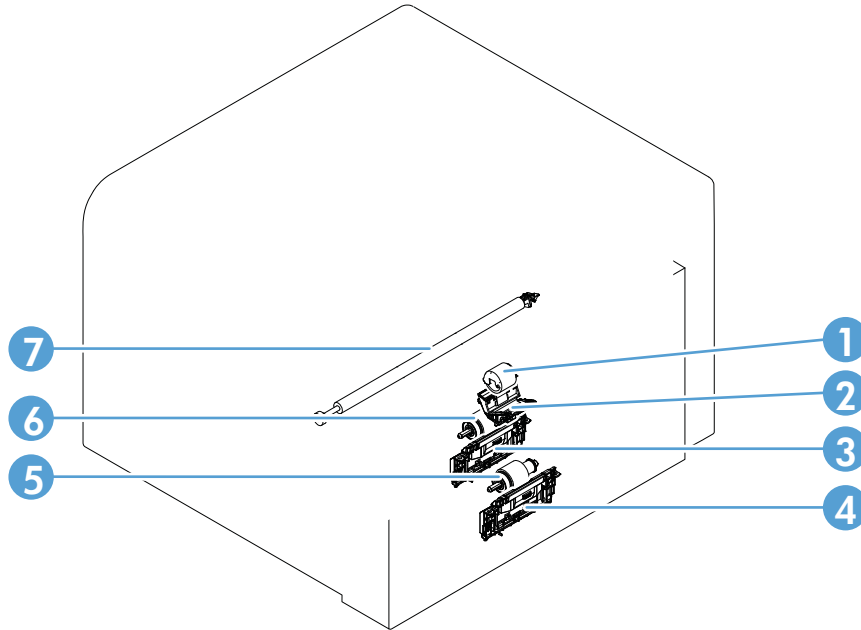
**Figure 2-47** Fan locations



**Table 2-26** Fan locations

Item	Description	Item	Description
1	Rear fan	3	Fuser fan
2	Front fan		

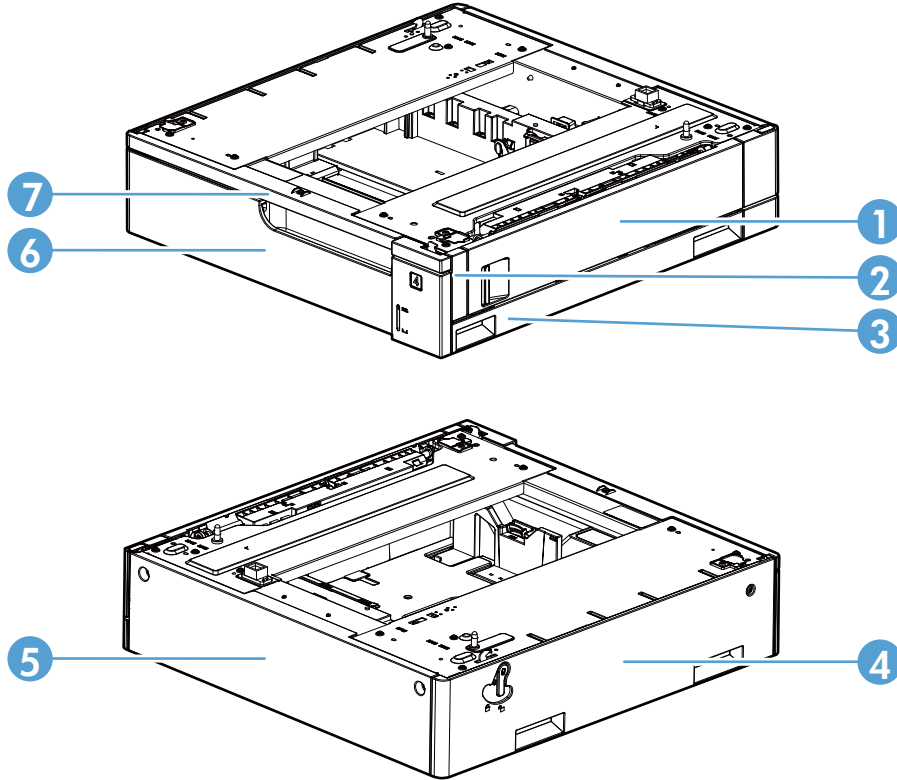
**Figure 2-48** Roller locations



**Table 2-27** Roller locations

Item	Description	Item	Description
1	Tray 1 (multipurpose tray) pickup roller	5	Upper cassette pickup roller
2	Tray 1 (multipurpose tray) separation pad	6	Lower cassette pickup roller
3	Upper cassette separation roller	7	Transfer roller
4	Lower cassette separation roller		

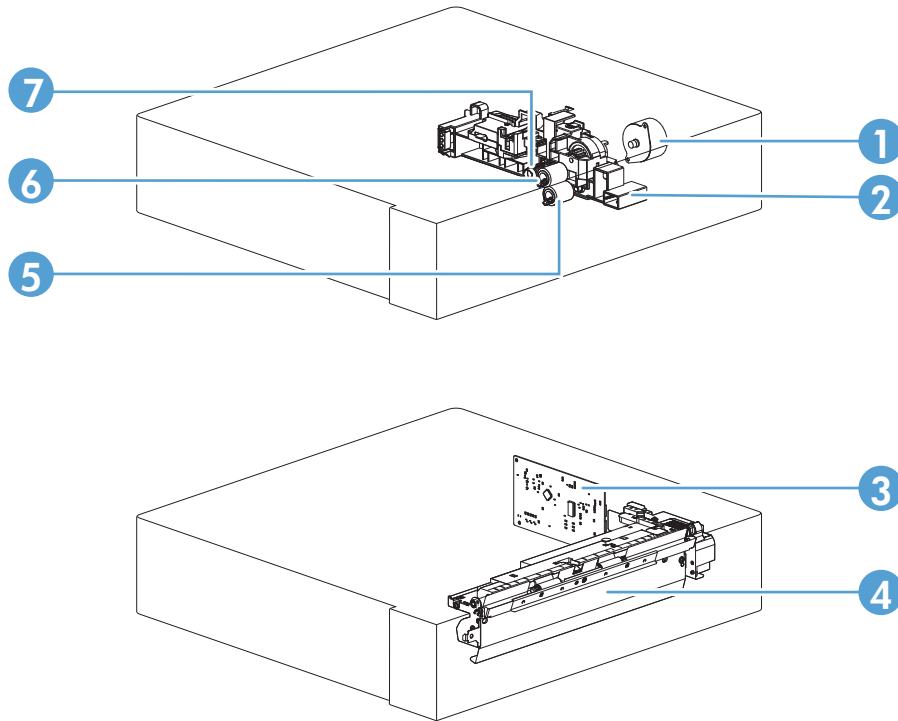
**Figure 2-49** 500-sheet feeder external component locations



**Table 2-28** 500-sheet feeder external component locations

Item	Description	Item	Description
1	Right door	5	Rear cover
2	Right front cover	6	Cassette
3	Right lower cover	7	Front upper cover
4	Left cover		

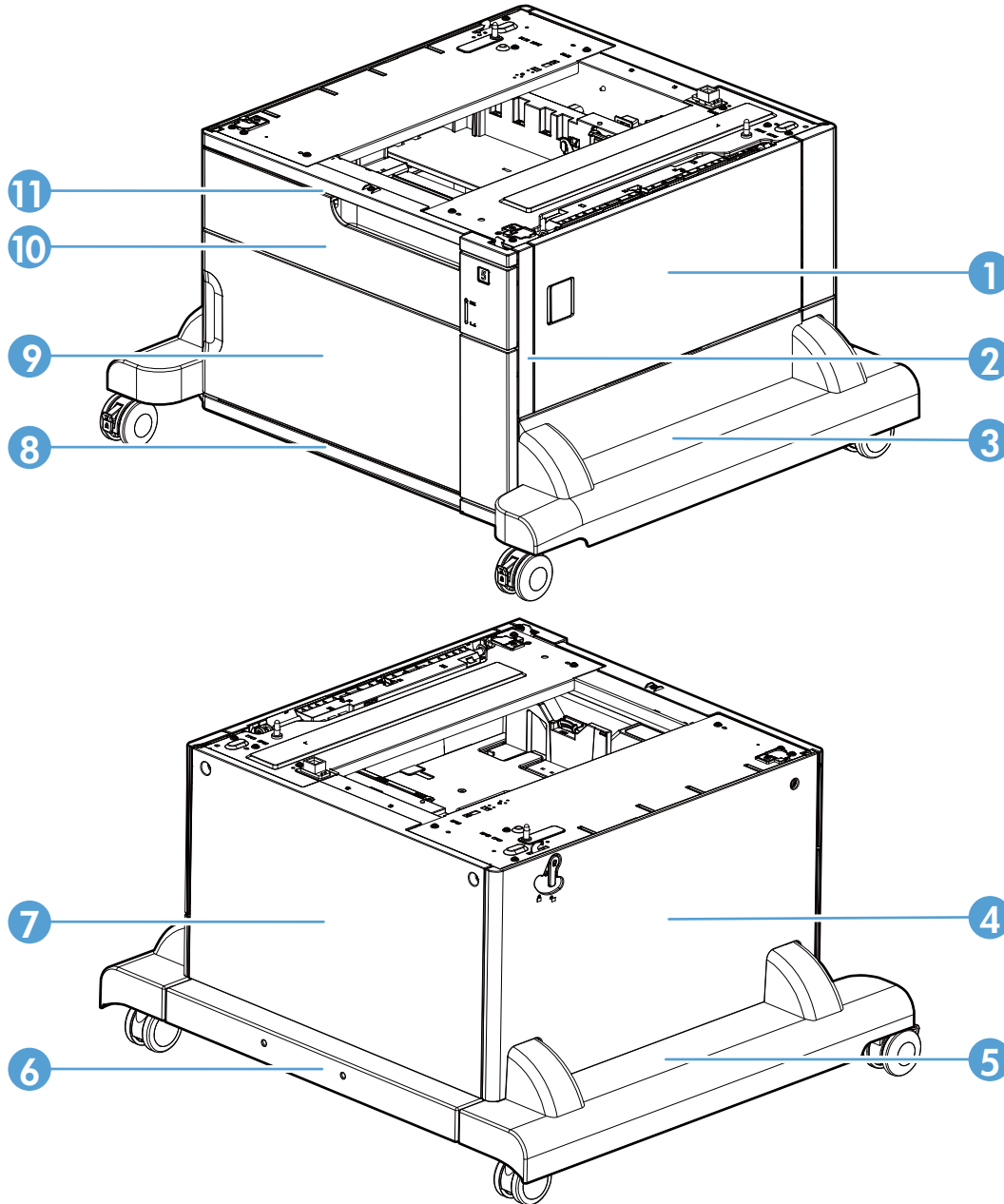
**Figure 2-50** 500-sheet feeder internal component locations



**Table 2-29** 500-sheet feeder internal component locations

Item	Description	Item	Description
1	Pickup motor	5	Separation roller
2	Lifter drive	6	Feed roller
3	Controller PCA	7	Pickup roller
4	Pickup assembly		

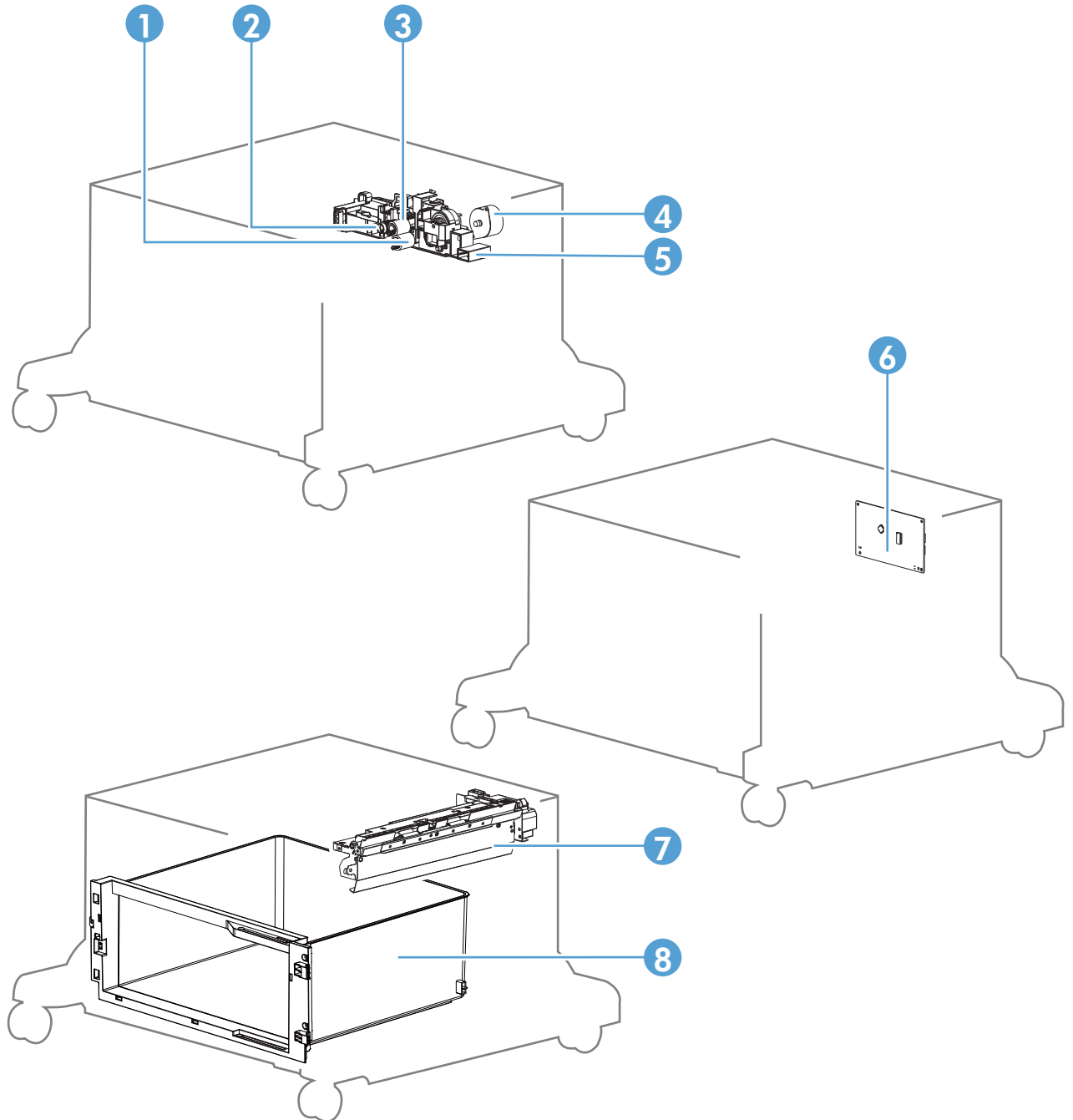
**Figure 2-51** 1x500 paper deck external component locations



**Table 2-30** 1x500 paper deck external component locations

Item	Description	Item	Description
1	Right door	7	Rear cover
2	Right front cover	8	Front lower cover
3	Right lower cover	9	Front door
4	Left cover	10	Cassette
5	Left lower cover	11	Front upper cover
6	Rear lower cover		

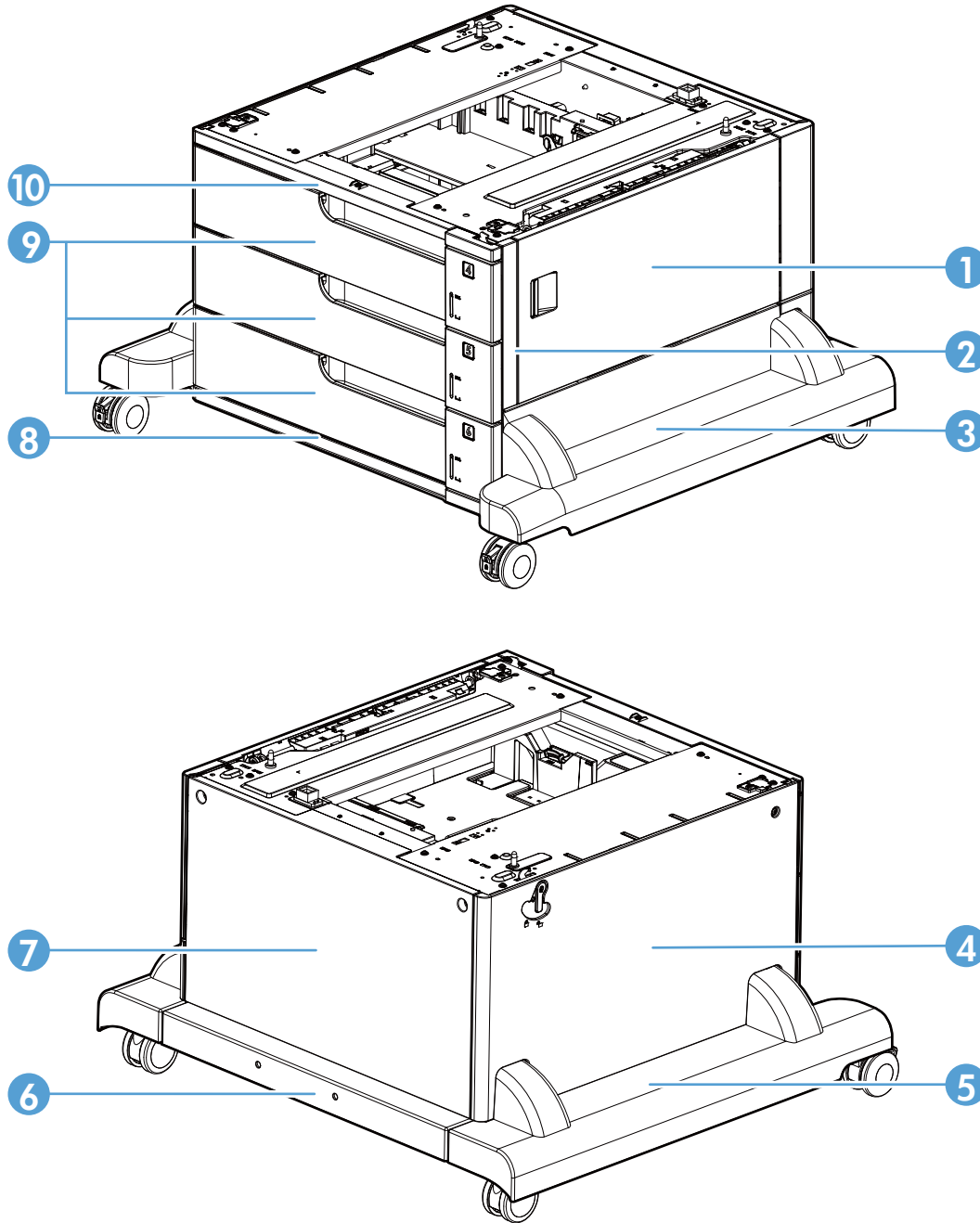
**Figure 2-52** 1x500 paper deck internal component locations



**Table 2-31** 1x500 paper deck internal component locations

Item	Description	Item	Description
1	Separation roller	5	Lifter drive assembly
2	Pickup roller	6	Controller PCA
3	Feed roller	7	Cassette pickup assembly
4	Pickup motor	8	Storage box

**Figure 2-53** 3x500 paper deck external component locations

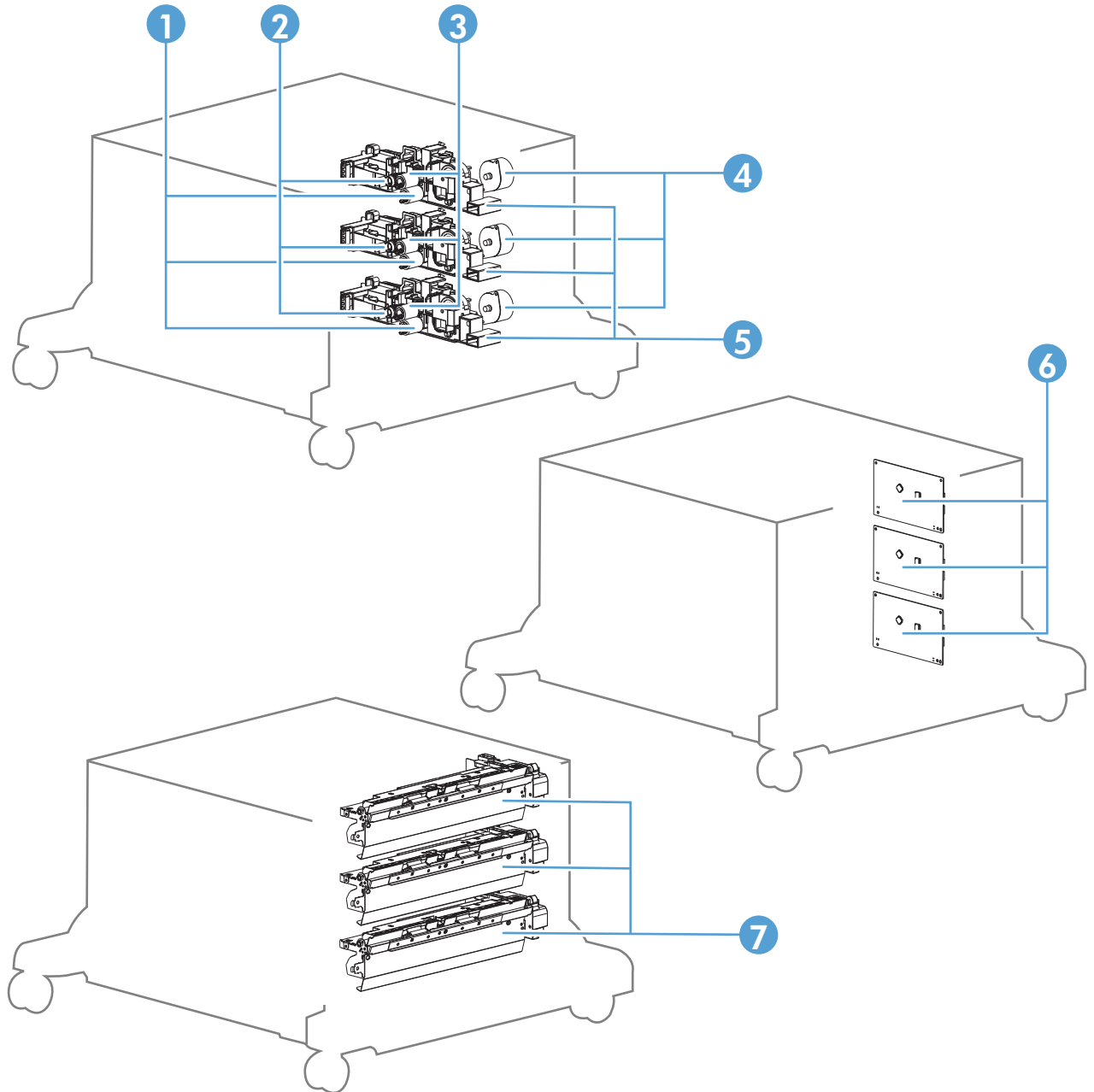


**Table 2-32** 3x500 paper deck external component locations

Item	Description	Item	Description
1	Right door	6	Rear lower cover
2	Right front cover	7	Rear cover
3	Right lower cover	8	Front lower cover
4	Left cover	9	Cassette
5	Left lower cover	10	Front upper cover



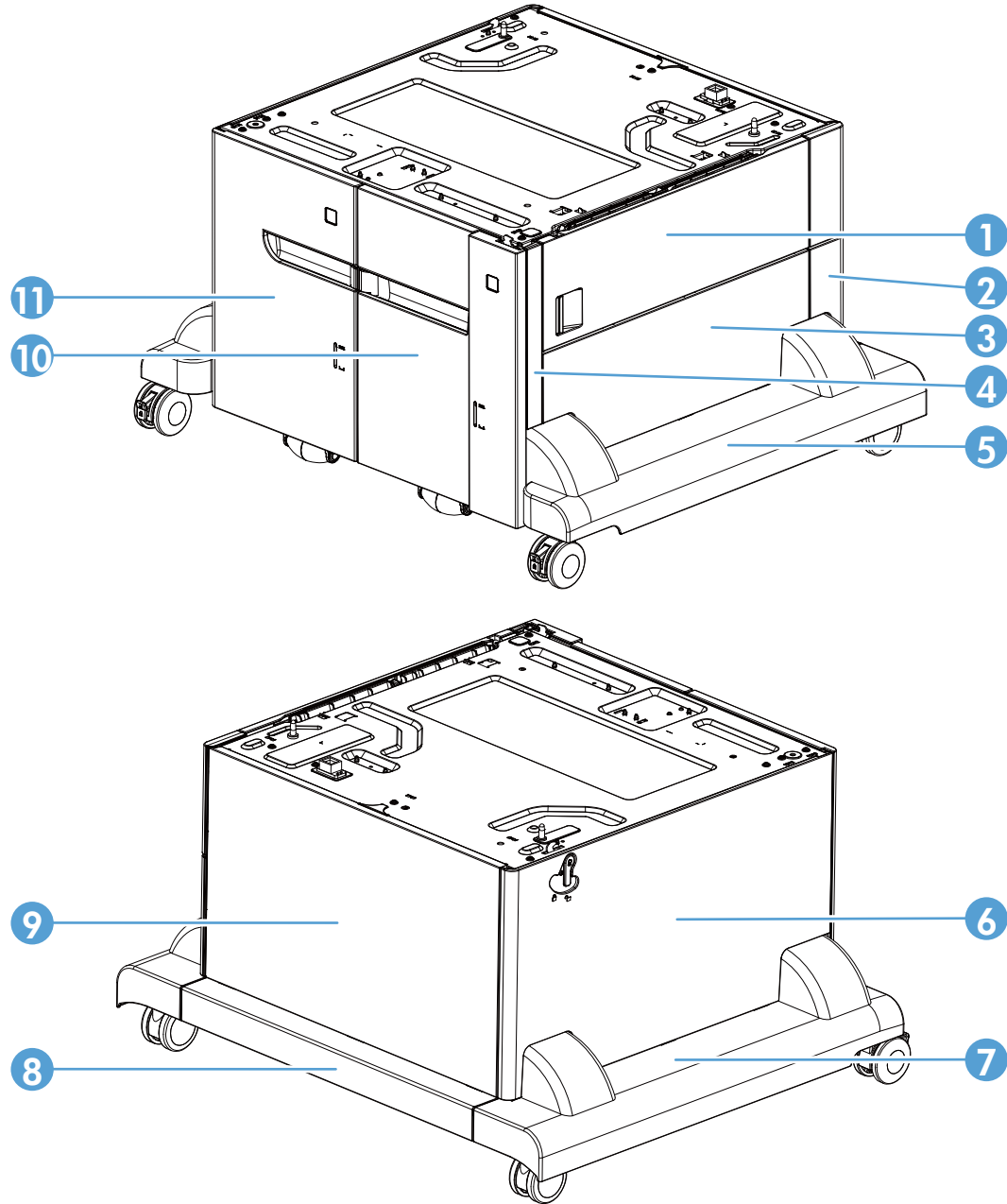
**Figure 2-54** 3x500 paper deck internal component locations



**Table 2-33** 3x500 paper deck internal component locations

Item	Description	Item	Description
1	Separation roller	5	Lifter drive assembly
2	Pickup roller	6	Controller PCA
3	Feed roller	7	Cassette pickup assembly
4	Pickup motor		

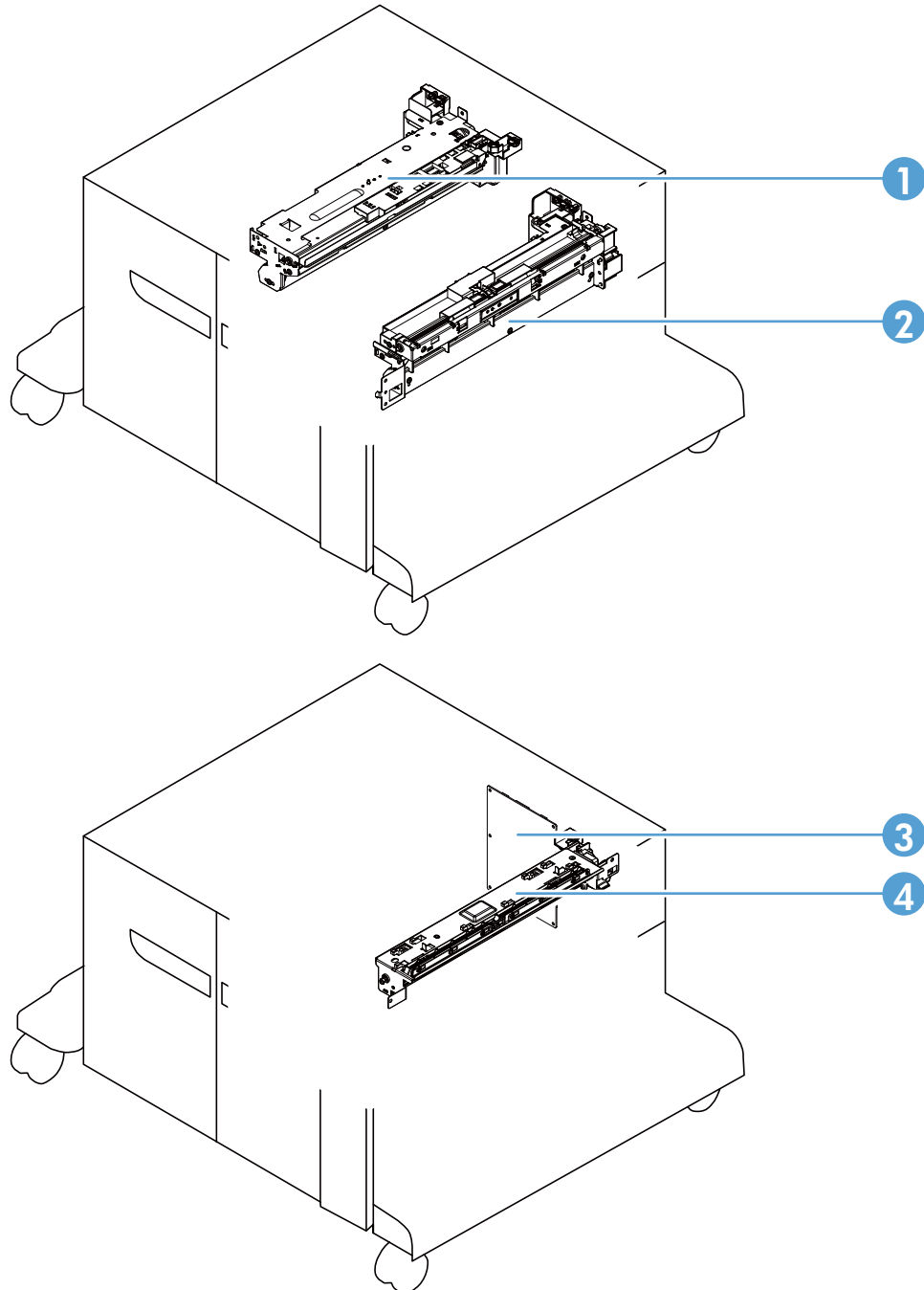
**Figure 2-55** HCI external component locations



**Table 2-34** HCI external component locations

Item	Description	Item	Description
1	Right door	7	Left lower cover
2	Right rear cover	8	Rear lower cover
3	Right center cover	9	Rear cover
4	Right front cover	10	Right cassette
5	Right lower cover	11	Left cassette
6	Left cover		

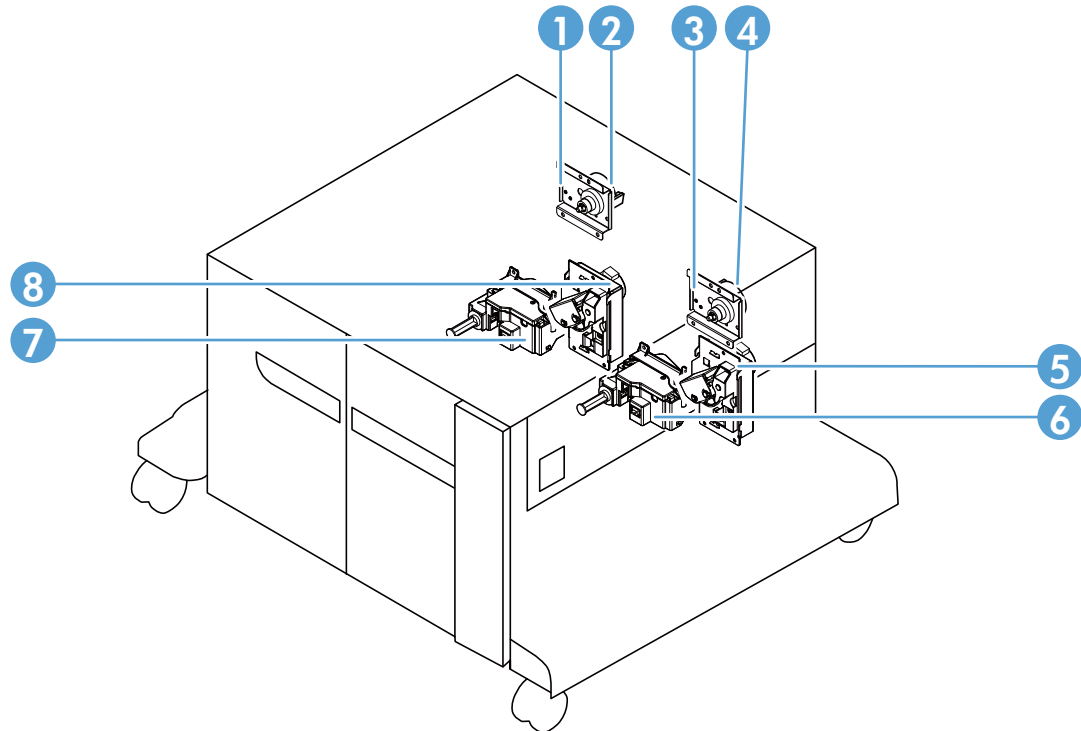
**Figure 2-56** HCI internal component locations (1 of 2)



**Table 2-35** HCI internal component locations (1 of 2)

Item	Description	Item	Description
1	Left pickup assembly	3	Controller PCA
2	Right pickup assembly	4	Merge assembly

**Figure 2-57** HCI internal component locations (2 of 2)

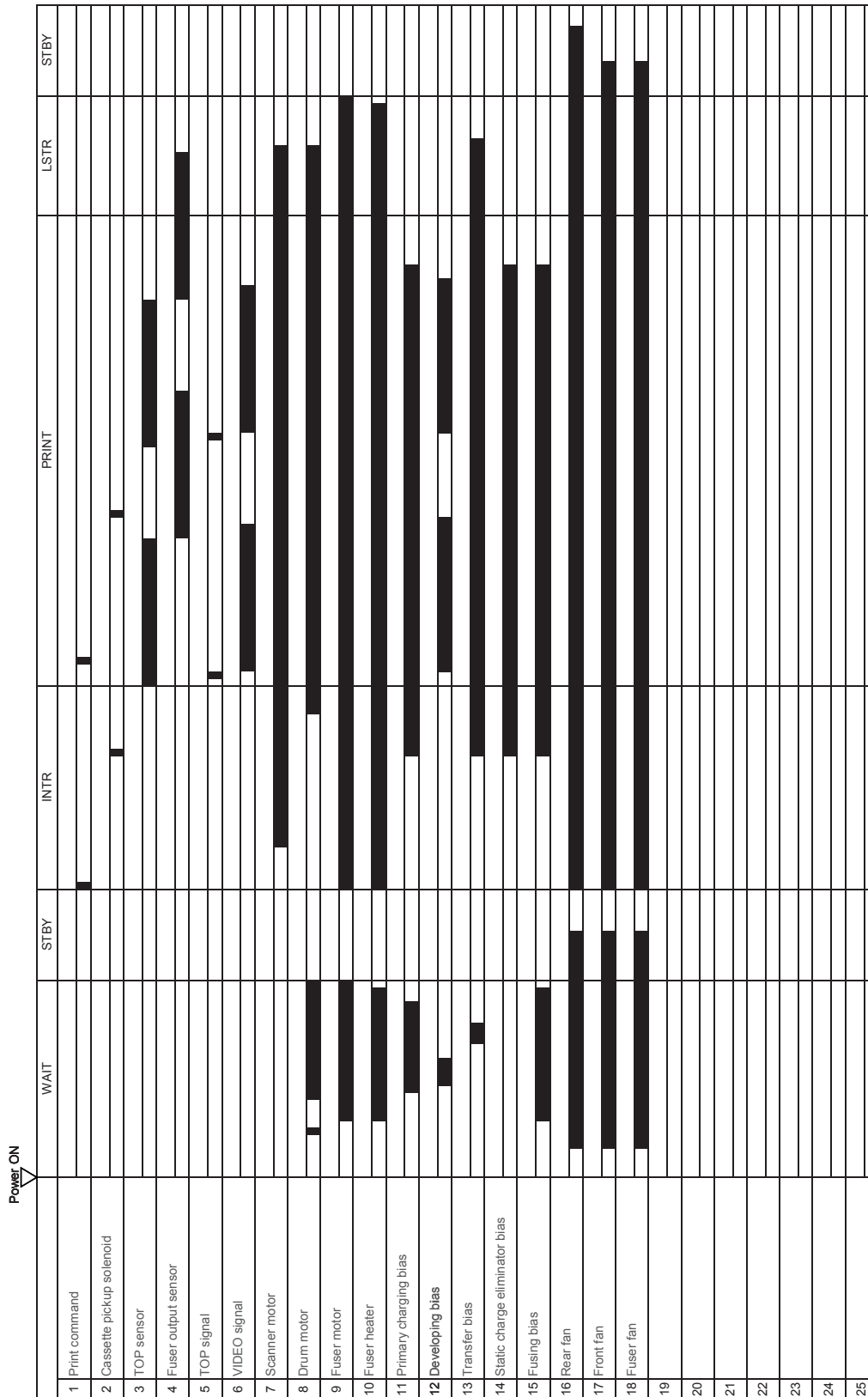


**Table 2-36** HCI internal component locations (2 of 2)

Item	Description	Item	Description
1	Left cassette pickup drive	5	Right cassette lifter drive assembly
2	Left cassette pickup motor	6	Right cassette automatic close assembly
3	Right cassette pickup drive	7	Left cassette automatic close assembly
4	Right cassette pickup motor	8	Left cassette lifter drive assembly

# General timing charts

Figure 2-58 General timing chart



# Circuit diagrams

Figure 2-59 General circuit diagram (1 of 2)

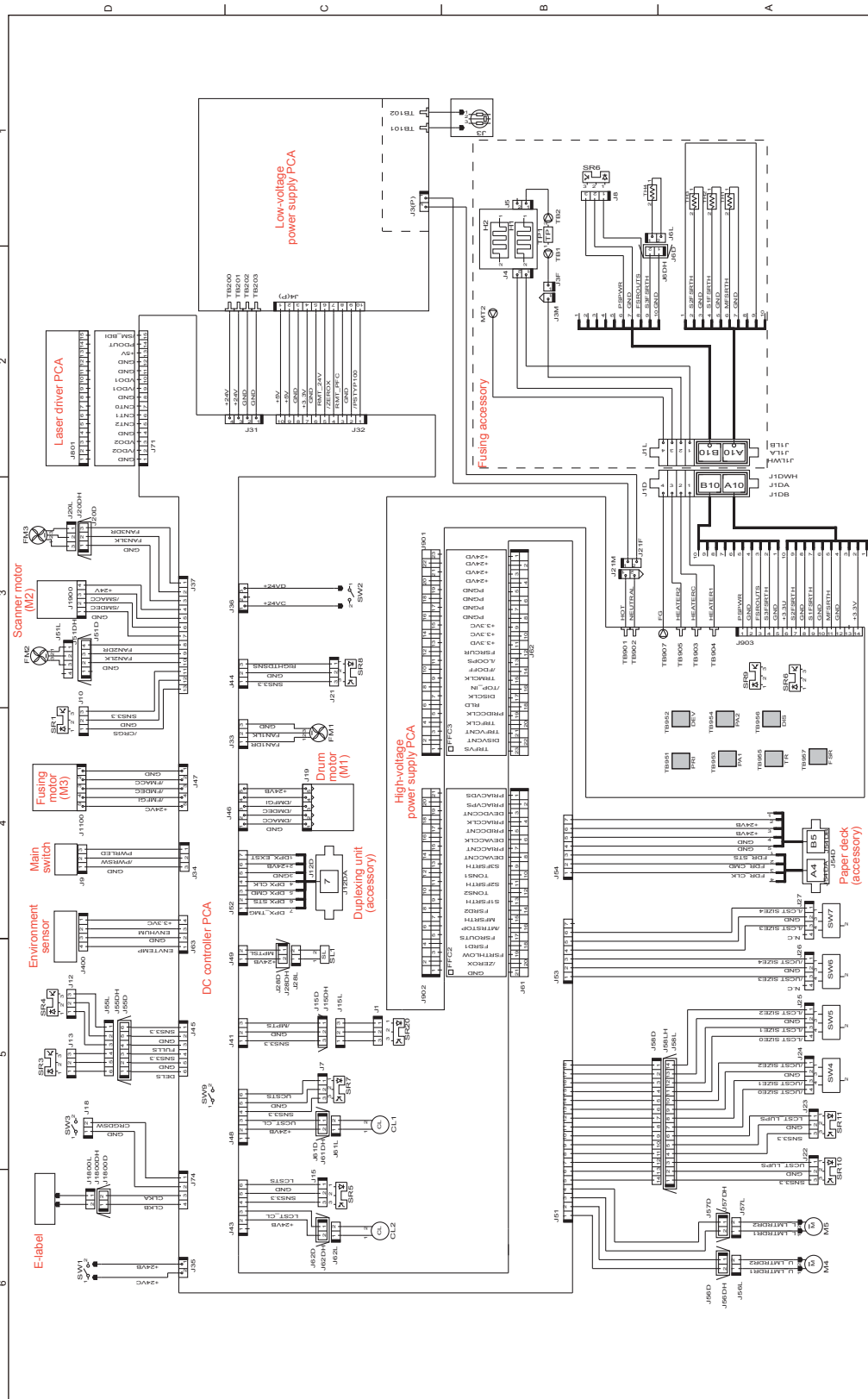
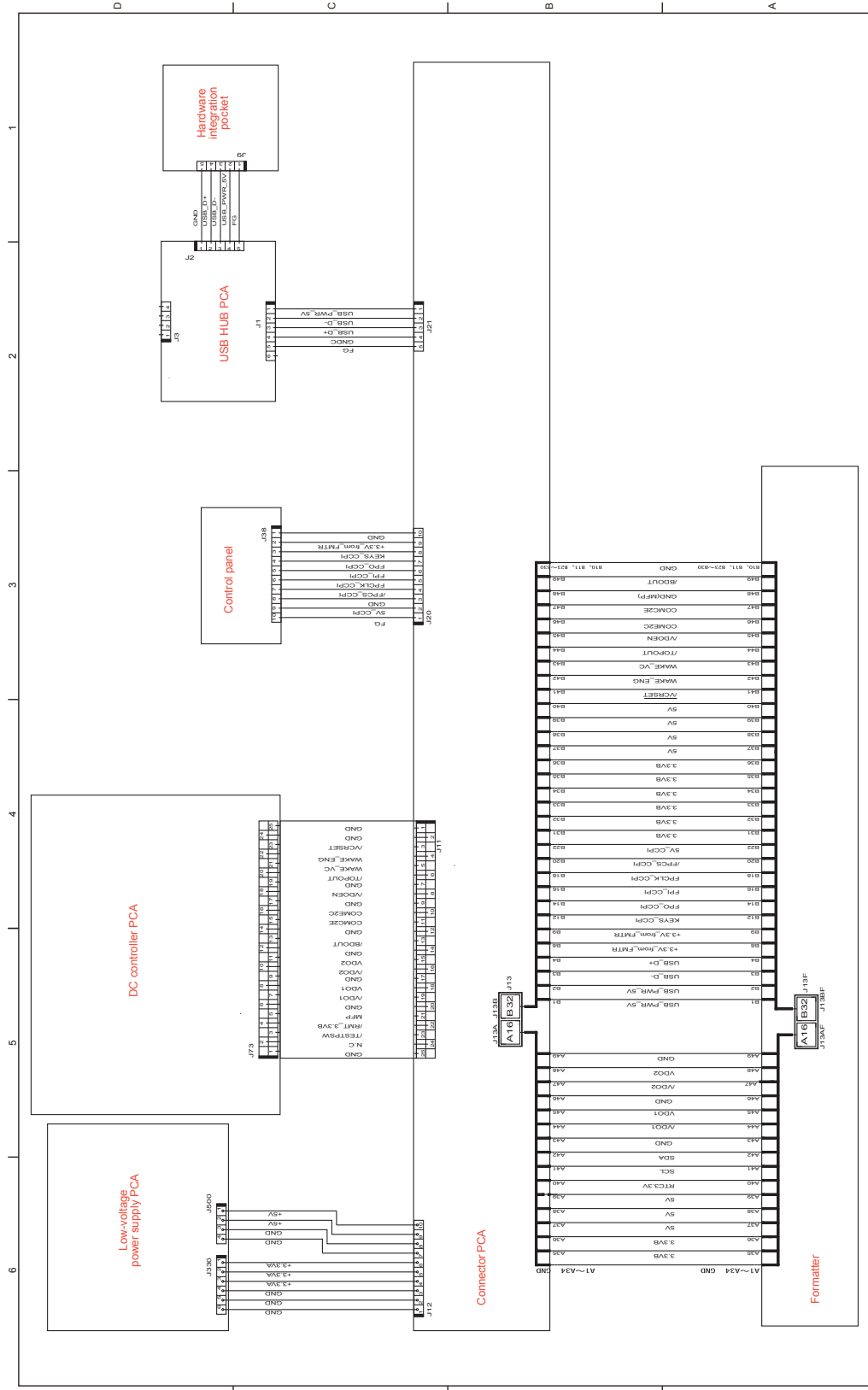



Figure 2-60 General circuit diagram (2 of 2)





## Internal test pages

### Clean the paper path

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Device Maintenance**
  - **Calibration/Cleaning**
  - **Print Cleaning Page**
3. The cleaning process can take several minutes. When it is finished, discard the printed page.

### Set up an auto cleaning page

Use the procedure in this section to set up an automatic cleaning page.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Device Maintenance**
  - **Calibration/Cleaning**
  - **Auto Cleaning**
3. Select the **Enabled** item, and then press the **OK** button.
4. Scroll to the **Cleaning Interval** option, and then press the **OK** button.
5. Scroll to the correct interval value, and then press the **OK** button.
6. Scroll to the **Auto Cleaning Size** option, and then press the **OK** button.
7. Scroll to the correct paper size option, and then press the **OK** button.
8. Press the Home  button to return the product to the ready state.




## Print a configuration page

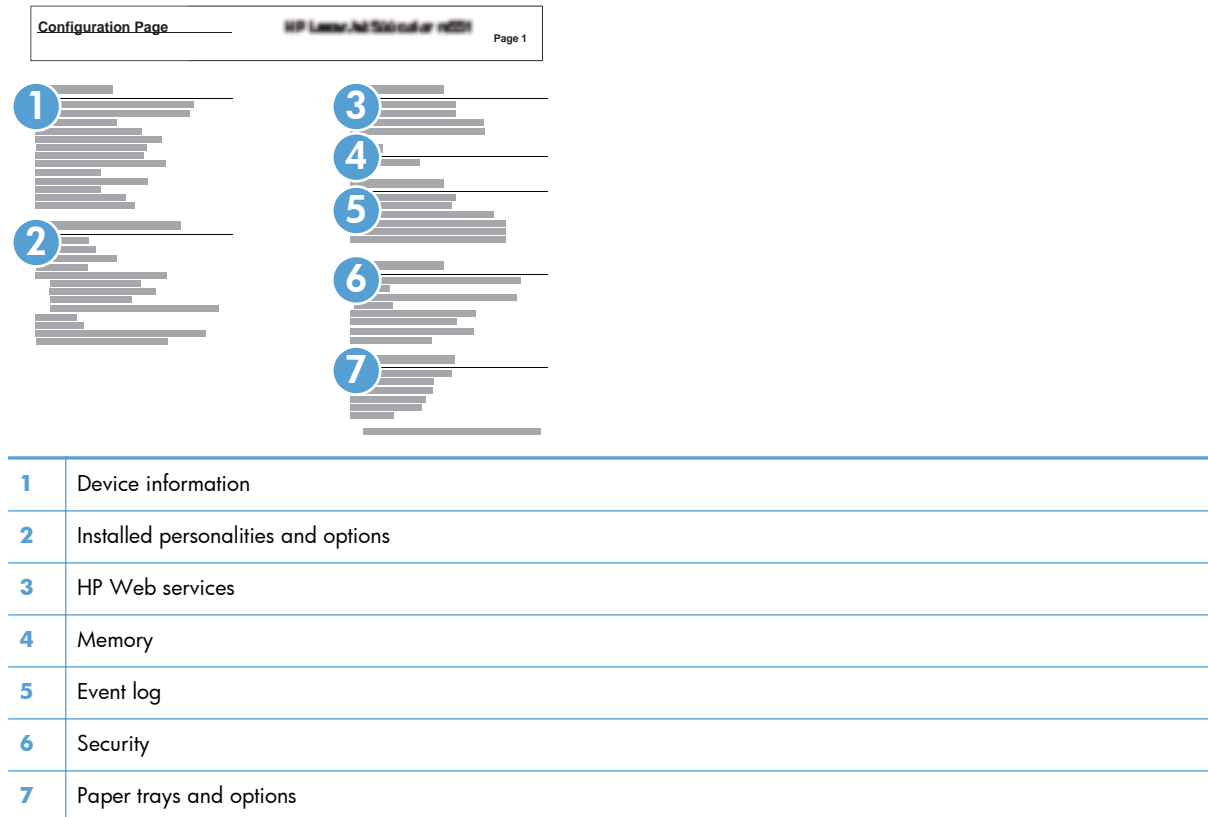
Depending on the model, up to three pages print when you print a configuration page. In addition to the main configuration page, the embedded Jetdirect configuration pages print.

### Configuration page

Use the configuration page to view current product settings, to help troubleshoot product problems, or to verify installation of optional accessories, such as memory (DIMMs), paper trays, and product languages.

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **Reports**
  - **Configuration/Status Pages**
3. Scroll to the **Configuration Page** item, and then press the **OK** button.
4. Scroll to the **Print** item, and then press the **OK** button to print the pages.

**Figure 2-61** Configuration page

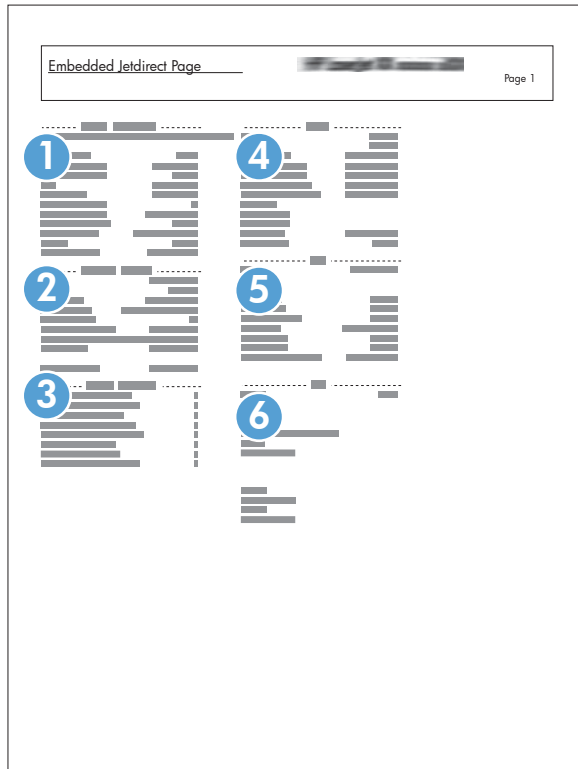


## HP embedded Jetdirect page

The second configuration page is the HP embedded Jetdirect page, which contains the following information:

Always make sure the status line under the general information line indicates "I/O Card Ready."

**Figure 2-62** HP embedded Jetdirect page



1	<b>General Information</b> indicates the product status, model number, hardware firmware version, port select, port configuration, auto negotiation, manufacturing identification, and manufactured date.
2	<b>Security Settings</b> information
3	<b>Network Statistics</b> indicates the total packets received, unicast packets received, bad packets received, framing errors received, total packets transmitted, unsendable packets, transmit collisions, and transmit late collisions.
4	<b>TCP/IP</b> information, including the IP address
5	<b>IPv4</b> information
6	<b>IPv6</b> information

## Finding important information on the configuration pages

Certain information, such as the firmware date codes, the IP address, and the e-mail gateways, is especially helpful while servicing the product. This information is on the various configuration pages.

**Table 2-37 Important information on the configuration pages**

Type of information	Specific information	Configuration page
<p><b>Firmware date codes</b></p> <p>When you use the remote firmware upgrade procedure, all of these firmware components are upgraded.</p>	DC controller	Look on the main configuration page, under "Device Information."
	Firmware datecode	Look on the main configuration page, under "Device Information."
	Embedded Jetdirect firmware version	Look on the embedded Jetdirect page, under "General Information."
<p><b>Accessories and internal storage</b></p> <p>All optional devices that are installed on the product should be listed on the main configuration page.</p> <p>In addition, separate pages print for the optional paper handling devices. These pages list more-detailed information for those devices.</p>	External disk (optional)	Look on the main configuration page, under "Installed Personalities and Options." Shows model and capacity.
	Embedded HP Jetdirect	Look on the main configuration page, under "Installed Personalities and Options." Shows model and ID.
	Total RAM	Look on the main configuration page, under "Memory."
	Duplex unit	Look on the main configuration page, under "Paper Trays and Options."
Additional 500-sheet feeders	Additional 500-sheet feeders	Look on the main configuration page, under "Paper Trays and Options."
<p><b>Engine cycles and event logs</b></p> <p>Total page counts and maintenance kit counts are important for ongoing product maintenance.</p> <p>The configuration page lists only the three most recent errors. To see a list of the 50 most recent errors, print an event log from the <b>Diagnostics</b> menu.</p>	Engine cycles	Look on the main configuration page, under "Device Information."
	Event-log information	Event-log information

## Control panel menus

### Administration menu

You can perform basic product setup by using the **Administration** menu. Use the HP Embedded Web Server for more advanced product setup. To open the HP Embedded Web Server, enter the product IP address or host name in the address bar of a Web browser.

### Reports menu

**To display:** At the product control panel, open the **Administration** menu, and then open the **Reports** menu.

**Table 2-38** Reports menu

First level	Second level	Values	Description
<b>Configuration/Status Pages</b>	<b>Administration Menu Map</b>	<b>Print</b>	Shows a map of the entire <b>Administration</b> menu and the selected values for each setting.
		<b>View</b>	
	<b>Current Settings Page</b>	<b>Print</b>	Print a summary of the current settings for the product. This might be helpful if you plan to make changes and need a record of the present configuration.
		<b>View</b>	
	<b>Configuration Page</b>	<b>Print</b>	Shows the product settings and installed accessories.
		<b>View</b>	
	<b>Supplies Status Page</b>	<b>Print</b>	Shows the approximate remaining life for the supplies; reports statistics on total number of pages and jobs processed, serial number, page counts, and maintenance information.
		<b>View</b>	
	<b>Usage Page</b>	<b>Print</b>	HP provides approximations of the remaining life for the supplies as a customer convenience. The actual remaining supply levels might be different than the approximations provided.
		<b>View</b>	
	<b>File Directory Page</b>	<b>Print</b>	Shows the file name and folder name for files that are stored in the product memory.
		<b>View</b>	

**Table 2-38 Reports menu (continued)**

First level	Second level	Values	Description
	<b>Web Services Status Page</b>	<b>Print</b> <b>View</b>	Shows the detected Web Services for the product.
<b>Other Pages</b>	<b>PCL Font List</b>	<b>Print</b>	Prints the available PCL fonts.
	<b>PS Font List</b>	<b>Print</b>	Prints the available PS fonts.

## General Settings menu

**To display:** At the product control panel, open the **Administration** menu, and then open the **General Settings** menu.

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

**Table 2-39 General Settings menu**

First level	Second level	Third level	Fourth level	Values	Description
<b>Date/Time Settings</b>	<b>Date/Time Format</b>	<b>Date Format</b>		<b>DD/MMM/YYYY</b>	Use the <b>Date/Time Settings</b> menu to specify the date and time and to configure date/time settings.
				<b>MMM/DD/YYYY</b>	
			<b>YYYY/MMM/DD</b>		
		<b>Time Format</b>		<b>12 hour (AM/PM)</b> <b>24 hours</b>	Select the format that the product uses to show the date and time, for example 12-hour format or 24-hour format.
	<b>Date/Time</b>	<b>Time Zone</b>			Select the time zone from a list.
		<b>Date</b>			Select the date from a pop-up calendar.
		<b>Time</b>			Select the time from a pop-up keypad.
		<b>Adjust for Daylight Savings</b>		Checkbox	If you are in an area that uses daylight savings time, select the <b>Adjust for Daylight Savings</b> box.
<b>Energy Settings</b>	<b>Sleep Timer Settings</b>	<b>Sleep/Auto Off Timer</b>		<b>Enabled*</b> <b>Disabled</b>	Enable or disable the product sleep or auto off function.

**Table 2-39 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
		<b>Sleep/Auto Off After</b>		Range: 1 to 120 minutes Default = 60 minutes	Set the number of minutes after which the product enters Sleep or Auto Off mode. Use the arrow buttons on the control panel to increase or decrease the number of minutes.
<b>Print Quality</b>	<b>Image Registration</b>	<b>Adjust Tray &lt;X&gt;</b>	<b>Print Test Page</b>		<p>Shift the margin alignment to center the image on the page from top to bottom and from left to right. You can also align the image on the front with the image printed on the back.</p> <p>Use the <b>Adjust Tray &lt;X&gt;</b> menu to adjust the registration settings for each tray. Before adjusting these values, print a registration test page. It provides alignment guides in the X and Y directions so you can determine which adjustments are necessary. You can adjust values for X1 Shift, X2 Shift, Y1 Shift, and Y2 Shift.</p> <p>Use the <b>Print Test Page</b> option to print a page to test the image registration. It provides alignment guides in the X and Y directions so you can determine which adjustments are necessary.</p>

**Table 2-39 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
			<b>X1 Shift</b>	-5.00 mm to 5.00 mm	The direction that is perpendicular to the way the paper passes through the product is referred to as X. This is also known as the scan direction. X1 is the scan direction for a single-sided page or for the second side of a two-sided page. X2 is the scan direction for the first side of a two-sided page.
			<b>Y1 Shift</b>		
			<b>X2 Shift</b>		
			<b>Y2 Shift</b>		
	<b>Adjust Paper Types</b>	Select from a list of paper types that the product supports. The available options are the same for each paper type.	<b>Print Mode</b>	Select from a list of print modes.	Changing the <b>Print Mode</b> setting is usually the first thing to try to resolve print-quality problems. Problems can include toner not sticking well to the page, a faint image of the page repeated on the same or following page, incorrect gloss level, etc.
			<b>Separation Mode</b>	<b>Normal*</b> <b>Alternate</b>	Use the <b>Alternate</b> setting when you are having issues with light-weight paper during duplex print jobs.

**Table 2-39 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
			<b>Resistance Mode</b>	<b>Normal*</b> <b>Up</b> <b>Down</b>	Use this setting to correct print quality problems in low-humidity environments and highly resistive paper. Use the <b>Up</b> option to solve print quality problems that are related to poor toner-transfer. Use the <b>Down</b> option in the event that small, "pin-hole" defects occur.
			<b>Pre-Rotation Mode</b>	<b>Off</b> <b>On*</b>	
			<b>Fuser Temp Mode</b>	<b>Up</b> <b>Down</b> <b>Normal*</b>	Use this feature to eliminate ghost images on printed pages.
			<b>Paper Curl Mode</b>	<b>Normal*</b> <b>Alternate 1</b> <b>Alternate 2</b> <b>Alternate 3</b>	Use this setting to reduce paper curl in print jobs.
	<b>Optimize</b>	<b>Line Detail</b>		<b>Normal*</b> <b>Alternate 1</b> <b>Off</b>	Use this setting if you are experiencing issues with scattered lines in printed pages.
		<b>Restore Optimize</b>			Use to return all the settings in the <b>Optimize</b> menu to the factory-default values.
	<b>Resolution</b>			<b>600 x 600 dpi*</b> <b>FastRes 1200</b> <b>ProRes 1200</b>	Sets the resolution at which the product prints.



**Table 2-39 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
	<b>REt</b>			<b>On</b> <b>Off</b>	Use this setting to enable or disable Resolution Enhancement technology (REt), which produces smoother angles, curves, and edges.
	<b>Economode</b>			<b>On</b> <b>Off*</b>	Use this setting to enable or disable the Economode feature, which conserves toner.
	<b>Toner density</b>			Range: 1 to 5 The default value is 3.	Use this setting to increase or decrease the toner density on printed pages.

**Table 2-39 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
<b>Jam Recovery</b>				<b>Auto*</b>	<p>This product provides a jam recovery feature that reprints jammed pages. Select one of the following options:</p> <p><b>Auto:</b> The product attempts to reprint jammed pages when sufficient memory is available. This is the default setting.</p> <p><b>Off:</b> The product does not attempt to reprint jammed pages. Because no memory is used to store the most recent pages, performance is optimal.</p> <p><b>NOTE:</b> When using this option, if the product runs out of paper and the job is being printed on both sides, some pages can be lost.</p> <p><b>On:</b> The product always reprints jammed pages. Additional memory is allocated to store the last few pages printed. This might cause overall performance to suffer.</p>
				<b>Off</b>	
				<b>On</b>	
<b>Auto Recovery</b>				<b>Enabled</b> <b>Disabled*</b>	<p>The product attempts to reprint jammed pages when sufficient memory is available. This is the default setting.</p>
<b>Manage Stored Jobs</b>	<b>Sort Stored Jobs By</b>			<b>Job Name*</b> <b>Date</b>	<p>This option allows you list the jobs either alphabetically or chronologically.</p>

**Table 2-39 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
	<b>Quick Copy Job Held Timeout</b>			<b>Off*</b> <b>1 Hour</b> <b>4 Hours</b> <b>1 Day</b> <b>1 Week</b>	Sets a maximum storage-time limit for stored Quick Copy and Proof and Hold jobs. If a stored job is not printed during this period, it is deleted.
	<b>Quick Copy Job Storage Limit</b>			1-100 Default = 32	Configure global settings for jobs that are stored in the product memory.  The <b>Quick Copy Job Storage Limit</b> feature specifies the number of Quick Copy and Proof and Hold jobs that can be stored on the product. The maximum allowed value is 100.
	<b>Default Folder Name</b>				Type the name for the stored jobs folder that is accessible to all users.
	<b>Enable Retrieve from USB</b>			<b>Enabled</b> <b>Disabled*</b>	Enables the product to open a file from a USB device.
	<b>Hold Off Print Job</b>			<b>Enabled</b> <b>Disabled*</b>	Use this setting to prevent network print jobs from starting within a specified period after a job is completed.
	<b>Restore Factory Settings</b>			<b>Cancel</b> <b>Reset</b>	Use this setting to restore all product settings to their factory defaults.

### General Print Settings menu

**To display:** At the product control panel, open the **Administration** menu, and then open the **General Print Settings** menu.

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

**Table 2-40 General Print Settings menu**

First level	Second level	Values	Description
<b>Manual Feed</b>		<b>Enabled</b> <b>Disabled*</b>	Use to enable or disable the manual-feed feature, which allows the user to feed paper into the product by hand. When this feature is enabled, the user can select manual feed from the control panel as the paper source for a job. If a tray is not specified as part of a job, manual feed is selected.
<b>Courier Font</b>		<b>Regular*</b> <b>Dark</b>	Select which version of the Courier font you want to use. The factory default setting is <b>Regular</b> , which uses an average stroke width. The <b>Dark</b> setting can be used if a heavier Courier font is needed.
<b>Wide A4</b>		<b>Enabled</b> <b>Disabled*</b>	Changes the printable area of A4-size paper. If you enable this option, eighty 10-pitch characters can be printed on a single line of A4 paper.
<b>Print PS Errors</b>		<b>Enabled</b> <b>Disabled*</b>	Use this feature to select whether a PostScript (PS) error page is printed when the product encounters a PS error.
<b>Print PDF Errors</b>		<b>Enabled</b> <b>Disabled*</b>	Selects whether a PDF error page is printed when the product encounters a PDF error.
<b>Personality</b>		<b>Auto*</b> <b>PCL</b> <b>POSTSCRIPT</b> <b>PDF</b>	Configures the default print language or personality for the product. Normally you should not change the product language. If you change the setting to a specific product language, the product does not automatically switch from one language to another unless specific software commands are sent to it.
<b>PCL</b>	<b>Form Length</b>	Range: 5 – 128 Default = 60	Controls the PCL print-command options. PCL is a set of product commands that Hewlett-Packard developed to provide access to product features.  Use the <b>Form Length</b> feature to select the user-soft default vertical form length.

**Table 2-40 General Print Settings menu (continued)**

<b>First level</b>	<b>Second level</b>	<b>Values</b>	<b>Description</b>
	<b>Orientation</b>	<b>Portrait*</b> <b>Landscape</b>	Select the orientation that is most often used for copy or scan originals. Select the <b>Portrait</b> option if the short edge is at the top or select the <b>Landscape</b> option if the long edge is at the top.
	<b>Font Source</b>	<b>Internal*</b>	Selects the font source for the user-soft default font. The list of available options varies depending on the installed product options.
	<b>Font Number</b>	Range: 0 – 110 Default = 0	Specifies the font number for the user-soft default font using the source that is specified in the <b>Font Source</b> menu. The product assigns a number to each font and lists it on the PCL font list. The font number displays in the Font # column of the printout.
	<b>Font Pitch</b>	Range: 0.44 – 99.99 Default = 10	If the <b>Font Source</b> option and the <b>Font Number</b> setting indicate a contour font, then use this feature to select a default pitch (for a fixed-spaced font).
	<b>Font Point Size</b>	Range: 4.00 – 999.75 Default = 12.00	If the <b>Font Source</b> option and the <b>Font Number</b> setting indicate a contour font, then use this feature to select a default point size (for a proportional-spaced font).
	<b>Symbol Set</b>	Select from a list of symbol sets.	Select any one of several available symbol sets from the control panel. A symbol set is a unique grouping of all the characters in a font. The factory default value for this option is PC-8. Either PC-8 or PC-850 are recommended for line-draw characters.

**Table 2-40 General Print Settings menu (continued)**

First level	Second level	Values	Description
	<b>Append CR to LF</b>	<b>No*</b> <b>Yes</b>	Configure whether a carriage return (CR) is appended to each line feed (LF) encountered in backwards-compatible PCL jobs (pure text, no job control). Select <b>Yes</b> to append the carriage return. The default setting is <b>No</b> . Some environments, such as UNIX, indicate a new line by using only the line-feed control code. This option allows the user to append the required carriage return to each line feed.
	<b>Suppress Blank Pages</b>	<b>No*</b> <b>Yes</b>	This option is for users who are generating their own PCL, which could include extra form feeds that would cause blank pages to be printed. When the <b>Yes</b> option is selected, form feeds are ignored if the page is blank.
	<b>Media Source Mapping</b>	<b>Standard*</b> <b>Classic</b>	Use to select and maintain input trays by number when you are not using the product driver, or when the software program has no option for tray selection. The following options are available:  <b>Standard:</b> Tray numbering is based on newer HP LaserJet models.  <b>Classic:</b> Tray numbering is based on HP LaserJet 4 and older models.

### Default Print Options menu

**To display:** At the product control panel, open the **Administration** menu, and then open the **Default Print Options** menu.

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

**Table 2-41 Default Print Options menu**

First level	Second level	Values	Description
<b>Number of Copies</b>		Range: 1–32000  Default = 1	Sets the default number of copies for a copy job. This default applies when the <b>Copy</b> function or the <b>Quick Copy</b> function is initiated from the product Home screen.

**Table 2-41 Default Print Options menu (continued)**

First level	Second level	Values	Description
<b>Default Paper Size</b>		Select from a list of sizes that the product supports.	Configures the default paper size used for print jobs.
<b>Default Custom Paper Size</b>	<b>inches</b>	<b>X Dimension</b>	Configures the default paper size that is used when the user selects <b>Custom</b> as the paper size for a print job.  X dimension range: 3-8.5 in  X dimension default = 8.5 in  Y dimension range: 5-14 in  Y dimension default = 14 in
	<b>mm</b>	<b>Y Dimension</b>	
<b>Sides</b>		<b>1-sided*</b>	
		<b>2-sided</b>	
<b>2-Sided Format</b>		<b>Book-style*</b>  <b>Flip-style</b>	Configures the default style for 2-sided print jobs. If the <b>Book-style</b> option is selected, the back side of the page is printed the right way up. This option is for print jobs that are bound along the left edge. If the <b>Flip-style</b> option is selected, the back side of the page is printed upside-down. This option is for print jobs that are bound along the top edge.
<b>Edge-to-Edge</b>		<b>Normal (recommended)*</b>	Use to avoid shadows that can appear along the edges of copies when the original document is printed close to the edges.
		<b>Edge-to-Edge output</b>	

## Display Settings menu

**To display:** At the product control panel, open the **Administration** menu, and then open the **Display Settings** menu.

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

**Table 2-42 Display Settings menu**

First level	Values	Description
<b>Display Brightness</b>	Range: -10 to 10  The default value is 0.	Use to specify the intensity of the LCD control panel display.
<b>Language</b>	Select from a list of languages that the product supports.	Use to select a different language for control-panel messages and specify the default keyboard layout. When you select a new language, the keyboard layout automatically changes to match the factory default for the selected language.
<b>Show IP Address</b>	<b>Display*</b>  <b>Hide</b>	Use this menu item to display or hide the IP address on the Home screen.
<b>Inactivity Timeout</b>	Range: 10 – 300 seconds  Default = 60 seconds	Specifies the amount of time that elapses between any activity on the control panel and when the product resets to the default settings. When the timeout expires, the control-panel display returns to the Home menu, and any user signed in to the product is signed out.
<b>Clearable Warnings</b>	<b>On</b>  <b>Job*</b>	Use this feature to set the period that a clearable warning displays on the control panel. If the <b>On</b> setting is selected, clearable warnings appear until the <b>Clearable Warnings</b> button is pressed. If the <b>Job</b> setting is selected, clearable warnings stay on the display during the job that generated the warning and disappear from the display when the next job starts.
<b>Continuable Events</b>	<b>Auto-continue (10 seconds)*</b>  <b>Press OK to continue</b>	Use this option to configure the product behavior when the product encounters certain errors. If the <b>Auto-continue (10 seconds)</b> option is selected, the job will continue after 10 seconds. If the <b>Press OK to continue</b> option is selected, the job will stop and require the user to press the <b>OK</b> button before continuing.



## Manage Supplies menu

**To display:** At the product control panel, open the **Administration** menu, and then open the **Manage Supplies** menu.

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

**Table 2-43** Manage Supplies menu

First level	Second level	Third level	Fourth level	Values	Description
<b>Print Supplies Status</b>					Print the supplies status page.
<b>Supply Settings</b>	<b>Black Cartridge</b>	<b>Low Threshold Settings</b>		1-100% Default = 10%	Set the estimated percentage at which the product notifies you when the toner cartridge is very low.
		<b>Very Low Settings</b>		<b>Stop</b> <b>Prompt to continue*</b> <b>Continue</b>	Specifies how the product notifies you when the toner cartridge is very low.  <b>Stop:</b> The product stops until you replace the toner cartridge.  <b>Prompt to continue:</b> The product stops and prompts you to replace the toner cartridge. You can acknowledge the prompt and continue printing.  <b>Continue:</b> The product alerts you that a toner cartridge is very low, but it continues printing.
	<b>Maintenance Kit</b>	<b>Low Threshold Settings</b>		Range of 1% to 100%. The default value is 10%.	Set the estimated percentage at which the product notifies you when the toner cartridge is very low.
		<b>Very Low Settings</b>		<b>Stop</b> <b>Prompt to continue*</b> <b>Continue</b>	Specifies how the product notifies you when the fuser is very low.

**Table 2-43 Manage Supplies menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
	<b>Store Usage Data</b>			<b>On supplies</b> <b>Not on supplies</b>	The <b>Store Usage Data</b> menu provides a way to suppress the toner cartridges from storing most of the information gathered exclusively for the purpose of understanding the usage of the product. Select the <b>On supplies</b> setting to store the data on the toner cartridge memory chip. Select the <b>Not on supplies</b> setting to suppress the information from being stored on the memory chip.
<b>Supply Messages</b>	<b>Low Message</b>			<b>On*</b> <b>Off</b>	Use to configure whether a message displays on the control panel when supplies are getting low, but have not yet reached the low threshold.
	<b>Level Gauge</b>			<b>On*</b> <b>Off</b>	Use this setting to show or hide a supplies level gauge on the product control panel.
<b>Reset Supplies</b>	<b>New Maintenance Kit</b>			<b>Reset</b> <b>Cancel</b>	Select this option if you have installed a new maintenance kit.

### Manage Trays menu

**To display:** At the product control panel, select the **Administration** menu, and then select the **Manage Trays** menu.

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

**Table 2-44 Manage Trays menu**

<b>First level</b>	<b>Values</b>	<b>Description</b>
<b>Use Requested Tray</b>	<b>Exclusively*</b>	Controls how the product handles jobs that have specified a specific input tray. Two options are available:  <b>Exclusively:</b> The product never selects a different tray when the user has indicated that a specific tray should be used, even if that tray is empty.  <b>First:</b> The product pulls from another tray if the specified tray is empty, even though the user specifically indicated a tray for the job.
	<b>First</b>	
<b>Manually Feed Prompt</b>	<b>Always*</b>	Indicate whether a prompt should appear when the type or size for a job does not match the specified tray and the product pulls from the multipurpose tray instead. Two options are available:  <b>Always:</b> A prompt always displays before using the multipurpose tray.  <b>Unless loaded:</b> A message displays only if the multipurpose tray is empty.
	<b>Unless loaded</b>	
<b>Size/Type Prompt</b>	<b>Display*</b>	Controls whether the tray configuration message displays whenever a tray is closed. Two options are available:  <b>Display:</b> This option shows the tray configuration message when a tray is closed. The user is able to configure the tray settings directly from this message.  <b>Do not display:</b> This option prevents the tray configuration message from automatically appearing.
	<b>Do not display</b>	
<b>Use Another Tray</b>	<b>Enabled*</b>	Use to turn on or off the control-panel prompt to select another tray when the specified tray is empty. Two options are available:  <b>Enabled:</b> When this option is selected, the user is prompted either to add paper to the selected tray or to choose a different tray.  <b>Disabled:</b> When this option is selected, the user is not given the option of selecting a different tray. The product prompts the user to add paper to the tray that was initially selected.
	<b>Disabled</b>	

**Table 2-44 Manage Trays menu (continued)**

First level	Values	Description
<b>Alternative Letterhead Mode</b>	<b>Disabled*</b>	Use to load letterhead or preprinted paper into the tray the same way for all print jobs, whether you are printing to one side of the sheet or to both sides of the sheet. When this option is selected, load the paper as you would for printing on both sides. See the user documentation that came with the product for instructions about loading letterhead for printing on both sides. When this option is selected, the product speed slows to the speed required for printing on both sides.
	<b>Enabled</b>	
<b>Duplex Blank Pages</b>	<b>Auto*</b>	Control how the product handles two-sided jobs (duplexing). Two options are available:  <b>Auto:</b> This option enables Smart Duplexing, which instructs the product not to process blank pages.  <b>Yes:</b> This option disables Smart Duplexing and forces the duplexer to flip the sheet of paper even if it is printed on only one side. This might be preferable for certain jobs that use paper types such as letterhead or prepunched paper.
	<b>Yes</b>	
<b>Override A4/Letter</b>	<b>Yes*</b>	Prints on letter-size paper when an A4 job is sent but no A4-size paper is loaded in the product (or to print on A4 paper when a letter-size job is sent but no letter-size paper is loaded). This option will also override A3 with ledger-size paper and ledger with A3-size paper.
	<b>No</b>	

## Network Settings menu

**To display:** At the product control panel, select the **Administration** menu, and then select the **Network Settings** menu.

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

**Table 2-45 Network Settings menu**

First level	Values	Description
<b>I/O Timeout</b>	Range: 5 – 300 sec Default = 15	Use to set the I/O timeout period in seconds. I/O timeout refers to the elapsed time before a print job fails. If the stream of data that the product receives for a print job gets interrupted, this setting indicates how long the product will wait before it reports that the job has failed.
<b>Jetdirect Menu</b>	See the table that follows for details. These menus have the same structure. If an additional HP Jetdirect network card is installed in the EIO slot, then both menus are available.	

**Table 2-46 Jetdirect Menu**

First level	Second level	Third level	Fourth level	Values	Description
<b>Information</b>	<b>Print Sec Report</b>			<b>Yes</b> <b>No*</b>	<b>Yes:</b> Prints a page that contains the current security settings on the HP Jetdirect print server. <b>No:</b> A security settings page is not printed.
<b>TCP/IP</b>	<b>Enable</b>			<b>On*</b> <b>Off</b>	<b>On:</b> Enable the TCP/IP protocol. <b>Off:</b> Disable the TCP/IP protocol.
	<b>Host Name</b>			Use the arrow buttons to edit the host name. <b>NP XXXXXX*</b>	An alphanumeric string, up to 32 characters, used to identify the product. This name is listed on the HP Jetdirect configuration page. The default host name is NP xxxxxx, where xxxxxx is the last six digits of the LAN hardware (MAC) address.

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
	<b>IPV4 Settings</b>	<b>Config Method</b>		<b>Bootp</b> <b>DHCP*</b> <b>Auto IP</b> <b>Manual</b>	<p>Specifies the method that TCP/IPv4 parameters will be configured on the HP Jetdirect print server.</p> <p><b>Bootp</b> (Bootstrap Protocol): Use for automatic configuration from a BootP server.</p> <p><b>DHCP</b> (Dynamic Host Configuration Protocol): Use for automatic configuration from a DHCPv4 server. If selected and a DHCP lease exists, the <b>DHCP Release</b> menu and the <b>DHCP Renew</b> menu are available to set DHCP lease options.</p> <p><b>Auto IP</b>: Use for automatic link-local IPv4 addressing. An address in the form 169.254.x.x is assigned automatically.</p> <p>If you set this option to the <b>Manual</b> setting, use the <b>Manual Settings</b> menu to configure TCP/IPv4 parameters.</p>
		<b>Manual Settings</b>	<b>IP Address</b>	Enter the address.	<p>(Available only if the <b>Config Method</b> option is set to the <b>Manual</b> option.) Configure parameters directly from the product control panel:</p>
			<b>Subnet Mask</b>	Enter the address.	
			<b>Default Gateway</b>	Enter the address.	

**NOTE:** This menu is available only if you select the **Manual** option under the **Config Method** menu.

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
		<b>Default IP</b>		<b>Auto IP*</b> <b>Legacy</b>	Specify the IP address to default to when the print server is unable to obtain an IP address from the network during a forced TCP/IP reconfiguration (for example, when manually configured to use BootP or DHCP).  <b>NOTE:</b> This feature assigns a static IP address that might interfere with a managed network.  <b>Auto IP:</b> A link-local IP address 169.254.x.x is set.  <b>Legacy:</b> The address 192.0.0.192 is set, consistent with older HP Jetdirect products.
		<b>Primary DNS</b>		Range: 0 – 255 Default = <b>xxx.xxx.xx.xx</b>	Specify the IP address (n.n.n.n) of a Primary Domain Name System (DNS) Server.
		<b>Secondary DNS</b>		Range: 0 – 255 Default = <b>0.0.0.0</b>	Specify the IP address (n.n.n.n) of a Secondary DNS Server.
	<b>IPv6 Settings</b>	<b>Enable</b>		<b>Off</b> <b>On*</b>	Use this item to enable or disable IPv6 operation on the print server.  <b>Off:</b> IPv6 is disabled.  <b>On:</b> IPv6 is enabled.
		<b>Address</b>	<b>Manual Settings</b>	<b>Enable</b> <b>Address</b>	Use this item to enable and manually configure a TCP/IPv6 address.

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
		<b>DHCPV6 Policy</b>		<b>Router Specified</b>  <b>Router Unavailable*</b>  <b>Always</b>	<p><b>Router Specified:</b> The stateful auto-configuration method to be used by the print server is determined by a router. The router specifies whether the print server obtains its address, its configuration information, or both from a DHCPv6 server.</p> <p><b>Router Unavailable:</b> If a router is not available, the print server should attempt to obtain its stateful configuration from a DHCPv6 server.</p> <p><b>Always:</b> Whether a router is available, the print server always attempts to obtain its stateful configuration from a DHCPv6 server.</p>
		<b>Primary DNS</b>			
		<b>Secondary DNS</b>			



**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
	<b>Proxy Server</b>			Select from a provided list.	<p>Specifies the proxy server to be used by embedded applications in the product. A proxy server is typically used by network clients for Internet access. It caches Web pages, and provides a degree of Internet security, for those clients.</p> <p>To specify a proxy server, enter its IPv4 address or fully-qualified domain name. The name can be up to 255 octets.</p> <p>For some networks, you might need to contact your Internet Service Provider (ISP) for the proxy server address.</p>
	<b>Proxy Port</b>			Default = <b>0080</b>	Enter the port number used by the proxy server for client support. The port number identifies the port reserved for proxy activity on your network, and can be a value from 0 to 65535.
	<b>Idle Timeout</b>			Default = <b>0270</b>	The time period, in seconds, after which an idle TCP print data connection is closed (default is 270 seconds, 0 disables the timeout).

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Security	Secure Web			<b>HTTPS Required*</b> <b>HTTPS Optional</b>	<p>For configuration management, specify whether the HP Embedded Web Server will accept communications using HTTPS (Secure HTTP) only, or both HTTP and HTTPS.</p> <p><b>HTTPS Required:</b> For secure, encrypted communications, only HTTPS access is accepted. The print server will appear as a secure site.</p>
		IPSEC		<b>Keep</b> <b>Disable*</b>	<p>Specify the IPsec status on the print server.</p> <p><b>Keep:</b> IPsec status remains the same as currently configured.</p> <p><b>Disable:</b> IPsec operation on the print server is disabled.</p>
		802.1X		<b>Reset</b> <b>Keep*</b>	<p>Specify whether the 802.1X settings on the print server are reset to the factory defaults.</p> <p><b>Reset:</b> The 802.1X settings are reset to the factory defaults.</p> <p><b>Keep:</b> The current 802.1X settings are maintained.</p>

**Table 2-46 Jetdirect Menu (continued)**

<b>First level</b>	<b>Second level</b>	<b>Third level</b>	<b>Fourth level</b>	<b>Values</b>	<b>Description</b>
	<b>Reset Security</b>			<b>Yes</b> <b>No*</b>	Specify whether the current security settings on the print server will be saved or reset to factory defaults.  <b>Yes:</b> Security settings are reset to factory defaults.  <b>No:</b> The current security settings are maintained.

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
<b>Diagnostics</b>	<b>Embedded Tests</b>	<b>LAN HW Test</b>		<b>Yes</b> <b>No*</b>	<p>Provides tests to help diagnose network hardware or TCP/IP network connection problems.</p> <p>Embedded tests help to identify whether a network fault is internal or external to the product. Use an embedded test to check hardware and communication paths on the print server. After you select and enable a test and set the execution time, you must select the <b>Execute</b> option to initiate the test.</p> <p>Depending on the execution time, a selected test runs continuously until either the product is turned off, or an error occurs and a diagnostic page is printed.</p> <p><b>CAUTION:</b> Running this embedded test will erase your TCP/IP configuration.</p> <p>This test performs an internal loopback test. An internal loopback test will send and receive packets only on the internal network hardware. There are no external transmissions on your network.</p>

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
		<b>HTTP Test</b>		<b>Yes</b> <b>No*</b>	<p>This test checks operation of HTTP by retrieving predefined pages from the product, and tests the HP Embedded Web Server.</p> <p>Select the <b>Yes</b> option to choose this test, or the <b>No</b> option to not choose it.</p>
		<b>SNMP Test</b>		<b>Yes</b> <b>No*</b>	<p>This test checks operation of SNMP communications by accessing predefined SNMP objects on the product.</p> <p>Select the <b>Yes</b> option to choose this test, or the <b>No</b> option to not choose it.</p>
		<b>Data Path Test</b>		<b>Yes</b> <b>No*</b>	<p>This test helps to identify data path and corruption problems on an HP postscript level 3 emulation product. It sends a predefined PS file to the product, However, the test is paperless; the file will not print.</p> <p>Select the <b>Yes</b> option to choose this test, or the <b>No</b> option to not choose it.</p>
		<b>Select All Tests</b>		<b>Yes</b> <b>No*</b>	<p>Use this item to select all available embedded tests.</p> <p>Select the <b>Yes</b> option to choose all tests. Select the <b>No</b> option to select individual tests.</p>

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
		<b>Execution Time [H]</b>		Range: 1 – 24 hours Default = 1 hour	Specify the length of time (in hours) that an embedded test will be run. If you select zero (0), the test runs indefinitely until an error occurs or the product is turned off.  Data gathered from the HTTP, SNMP, and Data Path tests is printed after the tests have completed.
		<b>Execute</b>		<b>No*</b> <b>Yes</b>	<b>No:</b> Do not initiate the selected tests.  <b>Yes:</b> Initiate the selected tests.
	<b>Ping Test</b>	<b>Dest Type</b>		<b>IPv4</b> <b>IPv6</b>	This test is used to check network communications. This test sends link-level packets to a remote network host, then waits for an appropriate response. To run a ping test, set the following items:  <b>Dest Type</b>  Specify whether the target product is an IPv4 or IPv6 node.
		<b>Dest IPv4</b>		Range: 0 – 255 Default = <b>127.0.0.1</b>	Enter the IPv4 address.
		<b>Dest IPv6</b>		Select from a provided list. Default = <b>:::1</b>	Enter the IPv6 address.
		<b>Packet Size</b>		Default = <b>64</b>	Specify the size of each packet, in bytes, to be sent to the remote host. The minimum is 64 (default) and the maximum is 2048.

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
		<b>Timeout</b>		Default = <b>001</b>	Specify the length of time, in seconds, to wait for a response from the remote host. The maximum is 100.
		<b>Count</b>		Default = <b>004</b>	Specify the number of ping test packets to send for this test. Select a value from 0 to 100. To configure the test to run continuously, select 0.
		<b>Print Results</b>		<b>Yes</b> <b>No*</b>	
		<b>Execute</b>		<b>Yes</b> <b>No*</b>	<b>No:</b> Do not initiate the selected tests. <b>Yes:</b> Initiate the selected tests.
	<b>Ping Results</b>	<b>Packets Sent</b>		Default = <b>00000</b>	Shows the number of packets (0 - 65535) sent to the remote host since the most recent test was initiated or completed..
		<b>Packets Received</b>		Default = <b>00000</b>	Shows the number of packets (0 - 65535) received from the remote host since the most recent test was initiated or completed. The default is 0.
		<b>Percent Lost</b>		Default = <b>000</b>	Shows the percent (0 to 100) of ping test packets that were sent with no response from the remote host since the most recent test was initiated or completed.

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
		<b>RTT Min</b>		Default = <b>0000</b>	Shows the minimum detected roundtrip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		<b>RTT Max</b>		Default = <b>0000</b>	Shows the maximum detected roundtrip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		<b>RTT Average</b>		Default = <b>0000</b>	Shows the average round-trip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		<b>Ping In Progress</b>		<b>Yes</b> <b>No*</b>	Shows whether a ping test is in progress. <b>Yes</b> : Indicates a test in progress. <b>No</b> : Indicates that a test completed or was not run.
		<b>Refresh</b>		<b>Yes</b> <b>No*</b>	When viewing the ping test results, this item upgrades the ping test data with current results. Select the <b>Yes</b> option to upgrade the data, or the <b>No</b> option to maintain the existing data. However, a refresh automatically occurs when the menu times out or you manually return to the main menu.



**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
<b>Link Speed</b>				<b>Auto*</b>	<p>The link speed and communication mode of the print server must match the network. The available settings depend on the product and installed print server. Select one of the following link configuration settings:</p> <p><b>CAUTION:</b> If you change the link setting, network communications with the print server and network product might be lost.</p> <p>The print server uses auto-negotiation to configure itself with the highest link speed and communication mode allowed. If auto-negotiation fails, either the <b>100TX Half</b> feature or the <b>10T Half</b> feature is set depending on the detected link speed of the hub/switch port. (A 1000T half-duplex selection is not supported.)</p>
				<b>10T Half</b>	10 Mbps, half-duplex operation.
				<b>10T Full</b>	10 Mbps, full-duplex operation.
				<b>10T Auto</b>	100 Mbps, half-duplex operation.
				<b>100TX Half</b>	100 Mbps, full-duplex operation.

**Table 2-46 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
				<b>100TX Full</b>	Limits auto-negotiation to a maximum link speed of 100 Mbps.
				<b>100TX Auto</b>	1000 Mbps, full-duplex operation.

### Troubleshooting menu

**To display:** At the product control panel, select the **Administration** menu, and then select the **Troubleshooting** menu.

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

**Table 2-47 Troubleshooting menu**

First level	Second level	Third level	Fourth level	Values	Description
<b>Print Event Log</b>					Print or view a list of the 1,000 most recent events in the event log. For each event, the printed log shows the error number, page count, error code, and description or personality.
<b>View Event Log</b>					
<b>Print Paper Path Page</b>					Shows how many pages were printed from each tray.
<b>Print Quality Pages</b>	<b>Print Fuser Test Page</b>				Use to print pages that help you resolve problems with print quality.
<b>Diagnostic Tests</b>	<b>Paper Path Sensors</b>			Select from a list of the product sensors.	Initiates a test of the paper path sensors.
	<b>Paper Path Test</b>	<b>Print Test Page</b>			Generates a test page for testing paper handling features. You can define the path that is used for the test in order to test specific paper paths.
		<b>Source Tray</b>		Select from a list of the available trays.	

**Table 2-47 Troubleshooting menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
		<b>Test Duplex Path</b>		<b>Off*</b> <b>On</b>	
		<b>Number of Copies</b>		Range: 1–500 Default = 1	Sets the default number of copies for a copy job. This default applies when the Copy or Quick Copy function is initiated from the product Home screen. The factory default setting is 1.
	<b>Manual Sensor Test</b>			Select from a list of available components. <b>Reset Sensors</b>	Test the product sensors and switches for correct operation. Each sensor is displayed on the control-panel screen, along with its status. Manually trip each sensor and watch for it to change on the screen. Press the <b>Stop</b> button to abort the test.
	<b>Tray/Bin Manual Sensor Test</b>			Select from a list of available components. <b>Reset Sensors</b>	Test the sensors in the trays and bins for correct operation. Each sensor is displayed on the control-panel screen, along with its status. Manually trip each sensor and watch for it to change on the screen. Press the <b>Stop</b> button to abort the test.

**Table 2-47 Troubleshooting menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
	<b>Component Test</b>			Select from a list of available components.	Use to exercise individual parts independently to isolate noise, leaking, or other issues. To start the test, select one of the components. The test will run the number of times specified by the <b>Repeat</b> option. You might be prompted to remove parts from the product during the test. Press the <b>Stop</b> button to abort the test.
	<b>Print/Stop Test</b>				Specify the length of time in milliseconds (0-60,000).
<b>Retrieve Diagnostic Data</b>				<b>Export to USB Diagnostic Files</b> <b>Include crash dump files</b> <b>Clean up debug info</b>	Create files that contain information about the product that can help identify the cause of problems.
<b>Generate Debug Data</b>				<b>Start</b>	

## Device Maintenance menu

### Backup/Restore menu

**To display:** At the product control panel, select the **Device Maintenance** menu, and then select the **Backup/Restore** menu.

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

**Table 2-48 Backup/Restore menu**

First level	Second level	Third level	Values	Description
<b>Backup Data</b>	<b>Backup Now</b>			Insert a USB drive to which the product will save a backup file.
<b>Restore Data</b>				Insert a USB drive that contains the backup file.

### Calibration/Cleaning menu

**To display:** At the product control panel, select the **Device Maintenance** menu, and then select the **Calibration/Cleaning** menu.

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

**Table 2-49 Calibration/Cleaning menu**

First level	Second level	Values	Description
<b>Auto Cleaning</b>		<b>Off*</b> <b>On</b>	Use to set an automatic cleaning period for the product.
<b>Cleaning Interval</b>		Select from a list of cleaning intervals.	Use to set the interval when the automatic cleaning page should be printed. The interval is measured by the number of pages printed.
<b>Auto Cleaning Size</b>		Select from a list of support sizes.	Select the paper size to use for the automatic cleaning page.
<b>Print Cleaning Page</b>			Prints a page to clean the paper path. The process takes up to 1.5 minutes.

## USB Firmware Upgrade menu

**To display:** At the product control panel, select the **Device Maintenance** menu, and then select the **USB Firmware Upgrade** menu.

Insert a USB storage device with a firmware upgrade bundle into the USB port, and follow the on-screen instructions.

## Service menu


**To display:** At the product control panel, select the **Device Maintenance** menu, and then select the **Service** menu.

The **Service** menu is locked and requires a PIN for access. This menu is intended for use by authorized service personnel.

# Interpret control-panel messages

## Control-panel message types

The control-panel messages and event code errors indicate the current product status or situations that might require action.

 **NOTE:** Event log errors may or may not appear on the control-panel display. Access the event log to view or print the event log errors.

Control-panel messages appear temporarily and might require that you acknowledge the message by pressing the **OK** button to resume printing or by pressing the **Stop** button to cancel the job. With certain messages, the job might not finish printing or the print quality might be affected. If the message is related to printing and the auto-continue feature is on, the product will attempt to resume printing after the message has appeared for 10 seconds without acknowledgement.

For some messages, restarting the product might fix the problem. If a critical error persists, the product might require service.

## Control-panel messages

### 11.00.YY Internal clock error To continue, touch "OK"

#### Description

The product real-time clock has experienced an error.

- XX = 01: Clock battery failed
- XX = 02: Real-time clock failed

#### Recommended action

Whenever the product is turned off and then turned on again, set the time and date at the control panel.

If the error persists, replace the formatter.

### 20.00.00 Insufficient memory: <Device> To continue, touch "OK"

#### Description

The product has experienced a memory error. You might have tried to transfer too many fonts or macros.

#### Recommended action

Press the **OK** button to print the transferred data. Some data might be lost. Reduce the page complexity or add product memory.

### 21.00.00 Page too complex To continue, touch "OK"

#### **Description**

The page decompression process was too slow for the product.

#### **Recommended action**

Press the OK button to continue. There may be some data loss.

### 33.WX.YZ Used board/disk installed

#### **Description**

An encrypted board or disk with existing data previously locked to a different product has replaced the original. If you continue, data is permanently lost.

#### **Recommended action**

- To save the data on the board or disk, turn the product off. Replace the board or disk with another board or disk.
- To delete the data on the board or disk and continue, press the OK button.

### 40.00.01 USB I/O buffer overflow To continue, touch "OK"

#### **Description**

The USB buffer overflowed during a busy state.

#### **Recommended action**

1. Press the OK button to print the transferred data. Some data might be lost.
2. Check the host configuration.

### 40.00.02 Embedded I/O buffer overflow To continue, touch "OK"

#### **Description**

Too much data was sent to the embedded HP Jetdirect print server. An incorrect communications protocol might be in use.

#### **Recommended action**

1. Press the OK button to print the transferred data. Some data might be lost.
2. Check the host configuration.

### 40.00.03 EIO <X> buffer overflow To continue, touch "OK"

#### **Description**

The product displays this message when the EIO card in the indicated slot has overflowed its I/O buffer during a busy state.



### **Recommended action**

Press the **OK** button to continue.

#### **40.00.04 EIO <X> bad transmission To continue, touch "OK"**

### **Description**

The product displays this message when a connection with the card in the indicated slot has been abnormally broken.

### **Recommended action**

Press the **OK** button to continue.

#### **40.00.05 Embedded I/O bad transmission To continue, touch "OK"**

### **Description**

The product experienced a temporary printing error. The connection between the product and the EIO card in the specified slot has been broken.

### **Recommended action**

Press the **OK** button to clear the error message and continue printing.

#### **41.03.YZ Unexpected size in Tray <X>**

### **Description**

The product detected a different paper size than expected.

Y = Size mismatch, Z = Source

- Y = 0: Detected paper is longer or shorter than expected
- Y = A: Detected paper too long
- Y = B: Detected paper too short
- Z = 1: Tray 1
- Z = 2: Tray 2
- Z = 3: Tray 3

### **Recommended action**

- 1.** Make sure that the tray is loaded with the correct paper size and that the sliding paper guides are correctly adjusted.
- 2.** Use the [Tray/Bin manual sensor test](#) to verify that the tray paper switch is correctly functioning.
- 3.** If the error persists, replace the lifter assembly.

### 41.03.YZ Unexpected size in Tray <X> To use another tray, touch "Options"

#### Description

The product detected a different paper size than expected.

Y = Size mismatch, Z = Source

- Y = 0: Detected paper is longer or shorter than expected
- Y = A: Detected paper too long
- Y = B: Detected paper too short
- Z = 1: Tray 1
- Z = 2: Tray 2
- Z = 3: Tray 3

#### Recommended action

1. Make sure that the tray is loaded with the correct paper size and that the sliding paper guides are correctly adjusted.
2. Use the [Tray/Bin manual sensor test](#) to verify that the tray paper switch is correctly functioning.
3. If the error persists, replace the lifter assembly.

### 41.05.YZ Unexpected type in Tray <X>

#### Description

The product detected a different paper type than expected.

Y = Expected type, Z = Detected type

- Y = 0: Unknown
- Y = 1: Normal paper
- Y = 3: LBP transparency
- Y = 4: Glossy paper
- Y = 5: Gloss film
- Y = 6: Non-assured transparency
- Y = 7: Heavy paper
- Y = 8: Light paper
- Y = 9: Rough paper
- Y = A: Extra heavy glossy paper (glossy paper 3)
- Y = B: Heavy glossy paper (glossy paper 2)

- Y = C: Heavy paper 3
- Y = D: Heavy paper 2
- Z = 1: Normal paper
- Z = 3: LBP transparency
- Z = 4: Glossy paper
- Z = 5: Gloss film
- Z = 6: Non-assured transparency
- Z = 7: Heavy paper
- Z = 8: Light paper
- Z = 9: Rough paper
- Z = A: Extra heavy glossy paper (glossy paper 3)
- Z = B: Heavy glossy paper (glossy paper 2)
- Z = C: Heavy paper 3
- Z = D: Heavy paper 2

#### **Recommended action**

- 1.** Load the tray with the size and type of paper indicated, or use another tray if available.
- 2.** If this message appears and the tray is loaded with the correct paper type, check the print driver settings to make sure that they match the tray type settings.
- 3.** Clean the paper sensor.
- 4.** If the error persists, replace the paper pickup assembly.

### **41.05.YZ Unexpected type in Tray <X> To use another tray, touch "Options"**

#### **Description**

The product detected a different paper type than expected and another tray is available for use.

Y = Expected type, Z = Detected type

- Y = 0: Unknown
- Y = 1: Normal paper
- Y = 3: LBP transparency
- Y = 4: Glossy paper
- Y = 5: Gloss film
- Y = 6: Non-assured transparency

- Y = 7: Heavy paper
- Y = 8: Light paper
- Y = 9: Rough paper
- Y = A: Extra heavy glossy paper (glossy paper 3)
- Y = B: Heavy glossy paper (glossy paper 2)
- Y = C: Heavy paper 3
- Y = D: Heavy paper 2
- Z = 1: Normal paper
- Z = 3: LBP transparency
- Z = 4: Glossy paper
- Z = 5: Gloss film
- Z = 6: Non-assured transparency
- Z = 7: Heavy paper
- Z = 8: Light paper
- Z = 9: Rough paper
- Z = A: Extra heavy glossy paper (glossy paper 3)
- Z = B: Heavy glossy paper (glossy paper 2)
- Z = C: Heavy paper 3
- Z = D: Heavy paper 2

**Recommended action**

- 1.** Load the tray with the size and type of paper indicated, or use another tray if available.
- 2.** If this message appears and the tray is loaded with the correct paper type, check the print driver settings to make sure that they match the tray type settings.
- 3.** Clean the paper sensor.
- 4.** If the error persists, replace the paper pickup assembly.

**41.WX.YZ Error To use another tray, touch "Options"**

**Description**

A printer error has occurred.

WX =

- 02: Beam detected misprint error
- 06: ITB top detection error
- 07: Paper transportation error
- 08: Optional input source delay
- 09: Sub-thermistor abnormally high temperature
- 18: Scan line inclination adjustment request
- 19: T2 roller HV
- 20: Image drum HV

Y = fuser mode

- 0: Photo paper 1, Photo paper 2, Photo paper 3, Designated paper 2, Designated paper 3, or NA, typed or Autosense
- 1: Autosense (normal): special case distinguished from typed Normal
- 2: Normal, typed (not Autosense)
- 3: Light paper 1, 2, or 3, typed or Autosense
- 4: Heavy paper 1, typed or Autosense
- 5: Heavy paper 2, typed or Autosense
- 6: Heavy paper 3, typed or Autosense
- 7: Glossy paper 1, typed or Autosense
- 8: Glossy paper 2, typed or Autosense
- 9: Glossy paper 3, typed or Autosense
- A: Glossy film, typed or Autosense
- B: Transparency, typed or Autosense
- C: Label
- D: Envelope 1, Envelope 2, Envelope 3
- E: Rough (designated paper 1), typed or Autosense
- F: reserved for future fuser mode

Z = source tray

- 1: Tray 1
- 2: Tray 2

- 3: Tray 3
- D: Duplexer

**Recommended action**

1. To clear message, press the **OK** button.
2. If the message reappears, turn the product off and then on.
3. If the error persists, replace the DC controller PCA.

**47.FC.YZ Printer calibration failed To continue, touch “OK”**

**Description**

The product is unable to access or implement one of the image pattern files.

**Y = calibration type, Z = event**

- **47.FC.00** (event code): Color plane registration (CPR) image not found at system initialization
- **47.FC.01** (event code): CPR store image failure
- **47.FC.02** (event code): CPR image not found
- **47.FC.03** (event code): CPR print engine execution failure
- **47.FC.10** (event code): Consecutive Dmax Dhalf image not found at system initialization
- **47.FC.11** (event code): Consecutive Dmax Dhalf store image failure
- **47.FC.12** (event code): Consecutive Dmax Dhalf image not found
- **47.FC.13** (event code): Consecutive Dmax Dhalf print engine execution failure
- **47.FC.20** (event code): Error diffusion image not found at system initialization
- **47.FC.21** (event code): Error diffusion store image failure
- **47.FC.22** (event code): Error diffusion image not found
- **47.FC.23** (event code): Error diffusion print engine execution failure
- **47.FC.30** (event code): Drum speed adjustment Image not found at system initialization
- **47.FC.31** (event code): Drum speed adjustment store image failure
- **47.FC.32** (event code): Drum speed adjustment image not found
- **47.FC.33** (event code): Drum speed adjustment print engine execution failure
- **47.FC.40** (event code): Pulse width modulation image not found at system initialization
- **47.FC.41** (event code): Pulse width modulation store image failure

- **47.FC.42** (event code): Pulse width modulation image not found
- **47.FC.43** (event code): Pulse width modulation print engine execution failure

**Recommended action**

1. Turn the product off and then on.
2. If the error persists, reload the firmware.

**47.WX.YZ Printer calibration failed**

**Description**

The print quality calibration failed. This message is for development and will not be seen by customers.

**Recommended action**

Turn the product off and then on.

**49.XX.YY Error To continue turn off then on**

**Description**

A firmware error has occurred. This error can be caused by corrupted print jobs, software applications issues, non-product specific print drivers, poor-quality USB or network cables, bad network connections or incorrect configurations, invalid firmware operations, or unsupported accessories.

**Recommended action**

1. Turn the product off and then on.
2. If the error persists, check the following:
  - The error might be caused by a network connectivity problem, such as a bad interface cable, a bad USB port, or an invalid network configuration setting.
  - The error might be caused by the print job, such as an invalid print driver, a problem with the software application, or a problem with the file you are printing.
  - Upgrading the product firmware might help resolve the error. See the product user guide for more information.

**50.WX.YZ Fuser error To continue turn off then on**

**Description**

The product experienced a fuser error.

- W = fuser error code
- X = fuser mode
  - 0: Photo paper 1, 2, 3, Designated paper 2, 3, or NA, typed or AutoSense
  - 1: AutoSense (Normal special case distinguished from typed Normal)

- 2: Normal, typed (not AutoSense)
  - 3: Light paper 1, 2, or 3, typed or AutoSense
  - 4: Heavy paper 1, typed or AutoSense
  - 5: Heavy paper 2, typed or AutoSense
  - 6: Heavy paper 3, typed or AutoSense
  - 7: Glossy paper 1, typed or AutoSense
  - 8: Glossy paper 2, typed or AutoSense
  - 9: Glossy paper 3, typed or AutoSense
  - A: Glossy film, typed or AutoSense
  - B: Transparency, typed or AutoSense
  - C: Label
  - D: Envelope1, Envelope2, or Envelope3
  - E: Rough (designated paper 1), typed or AutoSense
  - F: Reserved for future fuser mode
- Y = previous product sleep state
  - Z = next product sleep state
    - 0: Printing
    - 1: Standby level 1 (no temperature control)
    - 2: Standby level 2 (high temperature control)
    - 3: Standby level 3 (middle temperature control)
    - 4: Standby level 4 (low temperature control)
    - 5: Middle sleep
    - 6: Deep sleep
    - F: Off

### **Recommended action**

#### **W = A: High fuser temperature 2**

- 1.** Remove and then reseal the fuser. Make sure there is no residual paper in the fuser. Make sure the product is not located in front of a vent or window where cool air may interfere with the ability of the fuser to heat up.
- 2.** Check the product power source. Make sure the power source meets product requirements. Make sure this is the only device using the circuit.



3. Check the connector (J1) between the fuser and the product. If it is damaged, replace the fuser.
4. If this product was previously serviced, check the connector (J61) on the DC controller PCA.
5. If the error persists, replace the fuser.

**W = B: High fuser temperature 3**

1. Remove and then reseal the fuser. Remove any residual paper in the product.
2. Check the paper type setting using the product menus and in the print driver. Making sure that they match and are correct for the type of paper being used.
3. If this product was previously serviced, check the connector (J61) on the DC controller PCA.
4. If the error persists, replace the fuser.

**W = 1, Low fuser error temperature error**

1. Remove and then reseal the fuser.
2. Check the paper type setting using the product menus and in the product driver. Make sure that they match and are correct for the type of paper being used.
3. If this product was previously serviced, check the connector (J61) on the DC controller PCA.
4. If the error persists, replace the fuser.

**W = 2, Fuser warm-up failure**

1. Reconnect the connector (J61) between the fuser and the DC controller PCA.
2. Turn the product off. Remove the fuser, and then reinstall it.
3. Replace the fuser wire harness.
4. If the error persists, replace the fuser.

**W = 3, High fuser temperature 1**


1. Remove and then reseal the fuser.
2. Check the paper type setting using the product menus and in the product driver. Make sure that they match and are correct for the type of paper being used.
3. If this product was previously serviced, check the connector (J61) on the DC controller PCA.
4. If the error persists, replace the fuser.

**W = 4, Fuser power supply driving circuit error**

1. Remove and then reseal the fuser.
2. If this product was previously serviced, check the connector (J61) on the DC controller PCA.
3. If the error persists, replace the fuser.

### **W = 6, Open fuser, breaking of a heater wire**

1. Check the power source. Make sure the power source meets product requirements.

 **NOTE:** If the power source does not meet the power frequency requirement of 43 to 67Hz, the fuser temperature control does not work properly and causes this error.

---

2. If this product was previously serviced, check the connector (J61) on the DC controller PCA.
3. If the error persists, replace the low-voltage power supply.

### **W = 7, Fuser pressure-release mechanism failure**

1. Remove and then reseal the fuser. Make sure there is no residual paper in the fuser.
2. Check the fuser pressure-release sensor flag. If it is damaged, replace the fuser.
3. Use the fuser pressure-release drive test in the component test to verify that the fuser motor (M3) is properly functioning. If it is not, replace the fuser motor (M3).
4. If this product was previously serviced, check the connector (J61) on the DC controller PCA.
5. If the error persists, replace the fuser.

### **W = 8, Low fuser temperature 2**

1. Remove and then reseal the fuser. Make sure there is no residual paper in the fuser. Make sure the product is not located in front of a vent or window where cool air may interfere with the ability of the fuser to heat up.
2. Check the product power source. Make sure the power source meets product requirements. Make sure this is the only device using the circuit.
3. Check the connector (J1) between the fuser and the product. If it is damaged, replace the fuser.
4. If this product was previously serviced, check the connector (J61) on the DC controller PCA.
5. If the error persists, replace the fuser.

### **W = 9, High fuser temperature 2**

1. Remove and then reseal the fuser. Make sure there is no residual paper in the fuser. Make sure the product is not located in front of a vent or window where cool air may interfere with the ability of the fuser to heat up.
2. Check the product power source. Make sure the power source meets product requirements. Make sure this is the only device using the circuit.
3. Check the connector (J1) between the fuser and the product. If it is damaged, replace the fuser.
4. If this product was previously serviced, check the connector (J61) on the DC controller PCA.
5. If the error persists, replace the fuser.

## 51.00.YY Error To continue turn off then on

### Description

An error with the laser scanner assembly has occurred in the product.

- YY = 10: Beam detect error
- YY = 19: Laser malfunction
- YY = 20: Black laser scanner error

### Recommended action

#### 51.00.10

1. Turn the product off and then on.
2. Check the flat flexible cable (FFC) connection to the laser scanner.
3. Check connector J71 at the DC controller, and check the laser scanner connectors.
4. Replace the laser scanner.

#### 51.00.19

1. Turn the product off and then on.
2. Check the connectors on the laser scanner.
3. Replace the laser scanner.

#### 51.00.20

1. Perform the laser scanner component tests in the **Troubleshooting** menu. Verify that you can hear the motor rotate.
2. If you cannot hear the motor rotate, verify that connector J71 is fully seated on the DC controller PCA.
3. Verify that the connector on the laser scanner assembly is securely attached.
4. If the error persists, replace the laser scanner.

## 52.00.00 Error To continue turn off then on

### Description

A scanner rotation error has occurred.

### Recommended action

1. Turn the product off and then on.
2. Perform the laser scanner component tests in the **Troubleshooting** menu.

3. If the component tests showed a failure, reconnect the connectors of the scanner motor (J1900 and J801) and the DC controller PCA (J71).
4. Replace the laser-scanner assembly.

### 52.00.20 Error To continue turn off then on

#### Description

A scanner rotation error has occurred.

#### Recommended action

1. Turn the product off and then on.
2. Perform the laser scanner component tests in the **Troubleshooting** menu.
3. If the component tests showed a startup failure, reconnect the connectors of the scanner motor (J1900 and J801) and the DC controller PCA (J71).
4. Replace the laser-scanner assembly.

### 52.<XX>.00 Error To continue turn off then on

#### Description

The laser scanner experienced a startup error.

- XX = 04 or 05: Laser scanner motor startup error
- XX = 05: Laser scanner rotation error

#### Recommended action

##### XX = 04

1. Perform the laser scanner component tests in the **Troubleshooting** menu.
2. Check the connectors (J1900 and J801) on the laser scanner driver PCA and the connector (J71) on the DC controller PCA.
3. If the error persists, replace the laser scanner.

##### XX = 05

1. Perform the laser scanner component tests in the **Troubleshooting** menu.
2. Check the connectors (J1900 and J801) on the laser scanner driver PCA and the connector (J71) on the DC controller PCA.
3. If the error persists, replace the laser scanner.

### 54.XX.YY Error

#### Description

A sensor error has occurred.

### **Recommended action**

#### **54.00.03: Environmental sensor failure**

1. Turn the product off and then on.
2. If the environment sensor has been removed or replaced, check the connector on the environment sensor and the connector (J63) on the DC controller PCA.
3. If the error persists, replace the environment sensor assembly.

#### **54.00.04: Engine temperature sensor 1 abnormality warning**

1. Turn the product off and then on.

### **55.XX.YY DC controller error To continue turn off then on**

#### **Description**

The communication link between the formatter and DC controller was lost.

- **55.00.00** (event code): Internal communication error
- **55.00.01** (event code): DC controller memory error
- **55.00.03** (event code): DC controller no engine response
- **55.00.04** (event code): DC controller communications timeout

#### **Recommended action**

1. Turn the product off and then on.
2. Perform an engine test.
3. Verify the connectors on the DC controller.
4. If the error persists, replace the DC controller.

### **56.00.YY Error To continue turn off then on**

#### **Description**

The product experienced a communication error with the optional paper tray.

- **56.00.01** (event code): Illegal input, selected paper input tray is unavailable
- **56.00.02** (event code): Illegal output, selected paper output bin is unavailable

#### **Recommended action**

1. Turn the product off and then on.
2. Reseat the optional paper tray.
3. Check the input connectors for damage. If a connector is damaged, replace the connector.

## 57.00.0X Error

### Description

A fan error has occurred.

### Recommended action

#### 57.00.01: Fan motor 1 (rear) malfunction

1. Turn the product off and then on. Listen for fan noise at the rear of the product. If no noise is heard, replace the power supply fan (FM1).
2. If this part has been removed or replaced, check the connector (J33) on the DC controller PCA.

#### 57.00.02: Fan motor 2 (front) malfunction

1. Turn the product off and then on. Listen for fan noise at the front of the product. If no noise is heard, replace the toner cartridge fan (FM2).
2. If this part has been removed or replaced, check the connector (J37) on the DC controller.

#### 57.00.03: Fan motor 3 (fuser) malfunction

1. Turn the product off and then on. Listen for fan noise at the lower back-center of the product. If no noise is heard, replace the fuser fan (FM3).
2. If this part has been removed or replaced, check the connector J37 on the DCC.

## 58.00.04 Error To continue turn off then on

### Description

The low-voltage power supply is defective.

### Recommended action

1. Turn the product off and then on.
2. Check the connectors (J31 and J32) on the DC controller PCA.
3. If the error persists, replace the low voltage power supply.

## 59.00.00 Error To continue turn off then on

### Description

A paper path malfunction error has occurred.

### Recommended action

Turn the product off then on.

### 59.00.20 Error To continue turn off then on

#### **Description**

A motor rotation error has occurred.

#### **Recommended action**

Turn the product off and then on.

### 59.00.30 Error To continue turn off then on

#### **Description**

A fuser motor startup error has occurred.

#### **Recommended action**

1. Turn the product off and then on.
2. Perform the fuser motor component test in the **Troubleshooting** menu.
3. Reconnect the connector (J47) on the DC controller PCA.
4. Replace the fuser motor.

### 59.00.40 Error To continue turn off then on

#### **Description**

A fuser motor rotational error has occurred.

#### **Recommended action**

1. Turn the product off and then on.
2. Perform the fuser motor component test in the **Troubleshooting** menu.
3. Reconnect the connector (J47) on the DC controller PCA.
4. Replace the fuser motor.

### 59.05.50 Error To continue turn off then on

#### **Description**

The product experienced a drum motor startup error.

### **Recommended action**

1. Perform the drum-motor component test in the **Troubleshooting** menu.
2. Use the disable toner cartridge check and run the drum motor component test with the toner cartridge removed. If the test passes, replace the toner cartridge. If the test fails, replace the drum motor.
3. If the product was previously serviced, check the connector at the drum motor assembly and the DC controller. See the circuit diagram for details.

### **59.05.60 Error To continue turn off then on**

#### **Description**

The product experienced a drum motor rotation error.

#### **Recommended action**

1. Perform the drum-motor component test in the **Troubleshooting** menu.
2. Use the disable toner cartridge check and run the drum motor component test with the toner cartridge removed. If the test passes, replace the toner cartridge. If the test fails, replace the drum motor.
3. If the product was previously serviced, check the connector at the drum motor assembly and the DC controller. See the circuit diagram for details.

### **60.00.0Y Tray <Y> lifting error**

#### **Description**

The indicated tray has not lifted into the paper feed position.

#### **Recommended action**

#### **60.00.11: Lifter motor failure (M7)**

1. Turn the product off and then on.
2. Check the connector (J51) on the DC controller PCA.
3. Check the connectors on the lifter motors.
4. Use the tray lifter sensor test in the **Tray/ Bin manual sensor test** menu to verify that the sensor is properly functioning. If it is not, replace the lifter drive assembly.
5. If the error persists, replace the lifter drive assembly.

### **62.00.00 No system To continue turn off then on**

#### **Description**

The product experienced an internal system failure.



### **Recommended action**

1. Turn the product off and then on.
2. Reload the firmware.
3. Perform a firmware upgrade.
4. If the error persists, replace the hard disk.

## **69.11.YY Error To continue, touch "OK"**

### **Description**

This message displays to indicate an error during a duplex operation.

### **Recommended action**

Turn the product off and then on.

## **70.00.00 Error To continue turn off then on**

### **Description**

The product experienced a DC controller failure.

### **Recommended action**

1. Turn the product off and then on.
2. If the error persists, replace the DC controller.

## **81.WX.YZ Embedded JetDirect Error To continue turn off then on**

### **Description**

The product experienced an embedded HP Jetdirect print server critical error.

- **81.01.00** (event code): EIO Networking Event <UVWXYZ>
- **81.02.00** (event code): Wireless Networking Event <UVWXYZ>
- **81.03.00** (event code): Access Point Wireless Networking Event <UVWXYZ>
- **81.04.00** (event code): Jetdirect Inside Networking Event <UVWXYZ>
- **81.06.00** (event code): Internal EIO Networking Event <UVWXYZ>
- **81.07.00** (event code): Internal Wireless Networking Event <UVWXYZ>
- **81.08.00** (event code): Internal Access Point Wireless Networking Event <UVWXYZ>
- **81.09.00** (event code): Internal Jetdirect Inside Networking Event <UVWXYZ>

### **Recommended action**

1. Turn the product off and then on.
2. Turn the product off, reseal the EIO accessory, and then turn the product on.
3. If the error persists, replace the formatter.

## **81.YY.YY EIO Error To continue turn off then on**

### **Description**

An external I/O card has failed on the product.

### **Recommended action**

1. Turn the product off and then on.
2. Turn the product off, reseal the EIO accessory, and then turn the product on.
3. If the error persists, replace the EIO card.

## **98.00.0X Corrupt data in X volume**

### **Description**

Data corruption has occurred in the firmware volume.

- **98.00.01 Corrupt data in firmware volume Reinstall firmware**
- **98.00.02 Corrupt data in solutions volume Re-install accessory solutions**
- **98.00.03 Corrupt data in configuration volume Re-configure the product**
- **98.00.04 Corrupt data in job data volume All job data was erased**

### **Recommended action**

## **98.00.01 or 98.00.02 or 98.00.03**

1. Turn the product off and then on.
2. Use the **1 Clear disk** item in the Preboot menu.
3. Reload the firmware.

## **98.00.04**

1. Turn the product off and then on.
2. Rerun the file erase function.

## **<Binname> full Remove all paper from bin**

### **Description**

The specified output bin is full.

### **Recommended action**

Empty the bin to continue printing.

### **Bad optional tray connection**

#### **Description**

The optional tray is not connected, not connected correctly, or a connection is not working correctly.

#### **Recommended action**

1. Turn the product off.
2. Remove and reinstall the optional tray.
3. Reconnect connectors for the tray.
4. Turn the product on.

### **Black Cartridge low**

#### **Description**

The toner cartridge is at the low condition.

#### **Recommended action**

Actual supply life remaining may vary. Consider having a replacement available to install when print quality is no longer acceptable. The supply does not need to be replaced now.



---

**NOTE:** When an HP supply has reached its approximated end of life, the HP Premium Protection Warranty ends.

---

### **Black Cartridge very low**

#### **Description**

The toner cartridge has reached the very low condition.

#### **Recommended action**

Actual supply life remaining may vary. Consider having a replacement available. The supply does not need to be replaced now unless the print quality is no longer acceptable. Once an HP supply has reached the very low condition, HP's warranty on that supply has ended.



---

**NOTE:** When an HP supply has reached its approximated end of life, the HP Premium Protection Warranty ends.

---

### **Black Cartridge very low To continue, touch "OK"**

#### **Description**

The toner cartridge has reached the very low condition.

### **Recommended action**

Actual supply life remaining may vary. Consider having a replacement available. The supply does not need to be replaced now unless the print quality is no longer acceptable. Once an HP supply has reached the very low condition, HP's warranty on that supply has ended.



---

**NOTE:** When an HP supply has reached its approximated end of life, the HP Premium Protection Warranty ends.

---

### **Card slot device failure To clear touch "Clear"**

#### **Description**

The specified device has failed.

#### **Recommended action**

Press the [Clear](#) button to clear the error.

### **Card slot file operation failed To clear touch "Clear"**

#### **Description**

A PJI file system command attempted to perform an illogical operation.

#### **Recommended action**

Press the [Clear](#) button to clear the error.

### **Card slot file system is full To clear touch "Clear"**

#### **Description**

A PJI file system command could not store something on the file system because the file system was full.

#### **Recommended action**

Press the [Clear](#) button to clear the error.

### **Card slot is write protected To clear touch "Clear"**

#### **Description**

The file system device is protected and no new files can be written to it.

#### **Recommended action**

Press the [Clear](#) button to clear the error.

### **Card slot not initialized To clear touch "Clear"**

#### **Description**

This file-storage component must be initialized before use.

**Recommended action**

Use the embedded Web server or HP Web Jetadmin to initialize the component.

**Cartridge ship mode****Description**

Manufacturing use only - should not be seen in field.

**Recommended action**

Contact HP support for steps to resolve this condition.

**Chosen personality not available To continue, touch "OK"****Description**

A print job requested a product language (personality) that is not available for this product. The job will not print and will be cleared from memory.

**Recommended action**

Print the job by using a product driver for a different print language, or add the requested language to the product (if possible). To see a list of available personalities, print a configuration page.

**Cleaning disk <X>% complete Do not power off****Description**

A storage device is being sanitized or cleaned.

**Recommended action**

Do not turn off the product. The product's functions are unavailable. The product will automatically restart when finished.

**Close left door****Description**

The left door is open.

**Recommended action**

1. Close the left door.
2. If the error persists, verify the J35 connector is fully seated on the DC controller PCA.
3. Use the manual sensor test to verify the left-door sensor functionality. If necessary, replace the sensor.

## Close top cover

### Description

The cartridge door is open.

### Recommended action

1. Close the cartridge door.
2. Make sure that the connectors are fully seated on the cartridge door switch SW3.
3. Make sure that the tab on the cartridge door that activates the switch is not missing or damaged. Replace the cartridge-door assembly if necessary.
4. Replace the door switch.

## Data received

### Description

The product is waiting for more data to continue the print job.

### Recommended action

Press the [OK](#) button to print the last page of the job. To print the existing data, press the [Print](#) button.

## Disk full Delete stored jobs

### Description

The disk is out of storage space and there is not enough space to process any jobs.

### Recommended action

- Press the [View Jobs](#) option to view and delete the stored jobs.
- Press the [Print](#) option to print and delete stored jobs. Sign in might be required.

The error will automatically clear when there is enough disk space to process jobs.

## Disk low Delete stored jobs

### Description

The disk is running out of storage space. If the user does not delete stored jobs, the disk will run out of space and there will not be enough space to process any jobs. If the storage space goes lower, an error condition will occur.

### Recommended action

- Press the [View Jobs](#) option to view and delete stored jobs.
- Press the [Print](#) option to print and delete stored jobs. Sign in might be required.

To increase available disk space, go to [Job Status](#) to cancel scheduled jobs.

## EIO <X> disk not functional

### Description

The EIO disk in slot indicated is not working correctly.

### Recommended action

1. Turn the product off.
2. Remove the EIO disk from the slot indicated.
3. Install a new EIO disk.
4. Turn the product on.

## EIO <X> disk spinning up

### Description

The EIO disk product in the indicated slot is spinning up. Jobs that require disk access must wait.

- X = 1: Slot 1
- X = 2: Slot 2

### Recommended action

No action is necessary.

## EIO device failure To clear touch "Clear"

### Description

The specified device failed.

### Recommended action

Press the [Clear](#) button to clear the message.

## EIO file operation failed To clear touch "Clear"

### Description

A PJI file system command attempted to perform an illogical operation.

### Recommended action

Press the [Clear](#) button to clear the message.

## EIO file system is full To clear touch "Clear"

### Description

A PJI file system command could not store something on the file system because the file system was full.

### **Recommended action**

Press the [Clear](#) button to clear the error.

## **EIO is write protected To clear touch “Clear”**

### **Description**

The device is protected and no new files can be written to it.

### **Recommended action**

Press the [Clear](#) button to clear the message.

## **EIO not initialized To clear touch “Clear”**

### **Description**

This file-storage component must be initialized before use.

### **Recommended action**

Use the HP Embedded Web Server or HP Web Jetadmin to initialize the file system.

## **Event log is empty**

### **Description**

No product events are in the log.

### **Recommended action**

No action is necessary.

## **Fuser Kit Low**

### **Description**

The product indicates when a supply level is low.

### **Recommended action**

Replace the fuser kit.



---

**NOTE:** After replacing the fuser kit, reset the fuser page counter by selecting the **New Fuser Kit** item in the **Reset Supplies** sub-menu.

---

## **Fuser Kit very low**

### **Description**

The product indicates when a supply level is very low.



---


**NOTE:** After an HP supply has reached the very low threshold, the HP Premium Protection Warranty for that supply has ended.

---



### Recommended action

Replace the fuser kit.


 **NOTE:** After replacing the fuser kit, reset the fuser page counter by selecting the **New Fuser Kit** item in the **Reset Supplies** sub-menu.

---

### Fuser Kit very low To continue, touch "OK"

#### Description


The product indicates when a supply level is very low.

 **NOTE:** After an HP supply has reached the very low threshold, the HP Premium Protection Warranty for that supply has ended.

---

#### Recommended action

Replace the fuser kit.

 **NOTE:** After replacing the fuser kit, reset the fuser page counter by selecting the **New Fuser Kit** item in the **Reset Supplies** sub-menu.

---

### Incompatible <supply>

#### Description

The indicated <supply> is not compatible with this product.

- **10.00.35** (event code): Black toner cartridge
- **10.23.35** (event code): Fuser kit

#### Recommended action

Replace the incompatible supply.

### Incompatible supplies

#### Description

The toner cartridge or other supply items are installed that were not designed for this product. The product cannot print with these supplies installed.

Event codes are supply specific.

#### Recommended action

Press the **OK** button to identify the incompatible supplies.

Replace the supplies with those that are designed for this product.

## Initializing...

### Description

The product is starting.

### Recommended action

No action is necessary. Wait until the **Ready** message appears on the display.

## Install Black Cartridge

### Description

A supply is either not installed or not correctly installed in the product.

### Recommended action

Replace or reinstall the toner cartridge correctly to continue printing.


## Install Fuser Unit

### Description

The fuser is either not installed or not correctly installed in the product.

### Recommended action

---

 **CAUTION:** The fuser can be hot while the product is in use.

---

Reseat the fuser.

## Install supplies

### Description

More than one supply is missing or is installed incorrectly.

- **10.00.15** (event code): Black toner cartridge
- **10.23.15** (event code): Fuser kit

### Recommended action

1. Press the **OK** button to identify which supplies need to be replaced.
2. Press the **OK** button a second time for more information about the specific supply.
3. Insert the supply item or make sure the installed supply item is fully seated.

## Internal disk device failure To clear touch “Clear”

### Description

The specified device has failed.

**Recommended action**

Press the [Clear](#) button to clear the message.

**Internal disk file operation failed To clear touch “Clear”****Description**

A PJI file system command attempted to perform an illogical operation.

**Recommended action**

Press the [Clear](#) button to clear the message.

**Internal disk file system is full To clear touch “Clear”****Description**

A PJI file system command could not store something on the file system because the file system was full.

**Recommended action**

Press the [Clear](#) button to clear the error.

**Internal disk is write protected To clear touch “Clear”****Description**

The internal disk is protected and no new files can be written to it.

**Recommended action**

Press the [Clear](#) button to clear the message.

**Internal disk not found****Description**

The product cannot find the hard drive.

**Recommended action**

Check the hard drive cable connections.

**Internal disk not functional****Description**

The product internal disk is not working correctly.

**Recommended action**

1. Turn off the product, and then remove and reinstall the disk. Turn on the product.
2. If the error persists, replace the internal hard drive.

## Internal disk not initialized To clear touch “Clear”

### Description

This file-storage component must be initialized before use.

### Recommended action

Use the HP Embedded Web Server or HP Web Jetadmin to initialize the file system.

## Internal disk spinning up

### Description

Internal disk device is spinning up its platter. Jobs that require disk access must wait.

### Recommended action

No action is necessary.

## Load Tray 1 [Type] [Size]

### Description

Tray 1 is not loaded, but there is not another tray available for the user to use instead.

### Recommended action

Load the tray with the requested paper.

## Load Tray 1 [Type] [Size] To continue, touch “OK”

### Description

Tray 1 is empty.

### Recommended action

- Load Tray 1 with the requested paper. Or, if paper is already in Tray 1, press the **OK** button to print.
- If paper is in another tray, remove the paper and insert it in Tray 1, and then press the **OK** button.

## Load Tray <X>: [Size]

### Description

This message appears even though there is paper loaded in the tray.

### Recommended action

1. Load the tray with the requested paper or adjust the paper guides.
2. If the error persists, use the tray paper present sensor test in the **Tray/ Bin manual sensor test** to verify that the sensor is correctly functioning.

3. Make sure that the sensor flag on the paper presence sensor is not damaged and moves freely.
4. Reconnect the corresponding connector:
  - Tray 1 (multipurpose tray): Connectors (J1) on the Tray 1 paper out sensor and the connector (J41) on the DC controller PCA.
  - Input trays: Connectors (J15 and J7) on the tray paper out sensor and the connectors (J43, J48) on the DC controller PCA.
  - 1x500-sheet paper feeder tray: Connector (J752) on the paper feeder tray paper out sensor and the connector (J2003) on the paper feeder controller PCA.
  - 3x500-sheet paper feeder tray: Connector (J752, J852, J952) on the paper feeder tray paper out sensor and the connector (J2003) on the paper feeder controller PCA.
  - HCI: Connector (J3201) on the paper feeder tray paper out sensor and the connector (J3005 or J3015) on the HCI controller PCA.

### Load Tray <X>: [Size] To continue, touch "OK"

#### Description

This message appears when the indicated tray is selected but is not loaded, and other paper trays are available for use. It also appears when the tray is configured for a different paper type or size than the print job requires.

#### Recommended action

1. Load the correct paper in the tray.
2. If prompted, confirm the size and type of paper loaded.
3. Otherwise, press the **OK** button to select another tray.

### Load Tray <X>: [Size] To use another tray, touch "Options"

#### Description

This message appears when the indicated tray is selected but is not loaded, and other paper trays are available for use. It also appears when the tray is configured for a different paper type or size than the print job requires.

#### Recommended action

1. Load the correct paper in the tray.
2. If prompted, confirm the size and type of paper loaded.
3. Otherwise, press the **OK** button to select another tray.

### Load Tray <X>: [Type], [Size]

#### Description

This message appears even though there is paper loaded in the tray.

### Recommended action

1. Load the tray with the requested paper or adjust the paper guides.
2. If the error persists, use the tray paper present sensor test in the **Tray/ Bin manual sensor test** to verify that the sensor is correctly functioning.
3. Make sure that the sensor flag on the paper presence sensor is not damaged and moves freely.
4. Reconnect the corresponding connector:
  - Tray 1 (multipurpose tray): Connector (J1) on the Tray 1 paper out sensor and the connector (J41) on the DC controller PCA.
  - Input trays: Connectors (J15 and J7) on the tray paper out sensor and the connectors (J43, J48) on the DC controller PCA.
  - 1x500-sheet paper feeder tray: Connector (J752) on the paper feeder tray paper out sensor and the connector (J2003) on the paper feeder controller PCA.
  - 3x500-sheet paper feeder tray: Connectors (J752, J852, J952) on the paper feeder tray paper out sensor and the connector (J2003) on the paper feeder controller PCA.
  - HCI: Connector (J3201) on the paper feeder tray paper out sensor and the connector (J3005 or J3015) on the HCI controller PCA.

### Load Tray <X>: [Type], [Size] To use another tray, touch "Options"

#### Description

This message appears when the indicated tray is selected but is not loaded, and other paper trays are available for use. It also appears when the tray is configured for a different paper type or size than the print job requires.

#### Recommended action

1. Load the correct paper in the tray.
2. If prompted, confirm the size and type of paper loaded.
3. Otherwise, press the **OK** button to select another tray.

### Manually feed output stack Then touch "OK" to print second sides

#### Description

The product has printed the first side of a manual duplex job and is waiting for the user to insert the output stack to print the second side.

### **Recommended action**

The even-numbered pages of the two-sided document have printed. Follow the next steps to print the odd-numbered pages.

1. Maintaining the same orientation, remove the document from the output bin. Do not discard blank pages.
2. Flip the document over so the printed side is up.
3. Load document in Tray 1.
4. Press the **OK** button to print the second side of the job.

### **Manually feed: [Size]**

#### **Description**

This message appears when manual feed is selected, Tray 1 is not loaded.

#### **Recommended action**

Load tray with requested paper.

### **Manually feed: [Size] To continue, touch "OK"**

#### **Description**

This message appears when manual feed is selected, Tray 1 is not loaded, and other trays are available.

#### **Recommended action**

- Load tray with requested paper.
- If paper is already in tray, press the **Help** button to exit the message and then press the **OK** button to print.
- To use another tray, clear paper from Tray 1, press the **Help** button to exit the message and then press the **OK** button.

### **Manually feed: [Size] To use another tray, touch "Options"**

#### **Description**

This message appears when manual feed is selected, Tray 1 is not loaded, and other trays are available.

#### **Recommended action**

- Load tray with requested paper.
- To use another tray, clear paper from Tray 1, press **Options** to select a different tray.

## Manually feed: [Type], [Size] To continue, touch "OK"

### Description

This message appears when manual feed is selected, Tray 1 is not loaded, and other trays are available.

### Recommended action

- Load tray with requested paper.
- If paper is already in tray, press the **Help** button to exit the message and then press the **OK** button to print.
- To use another tray, clear paper from Tray 1, press the **Help** button to exit the message and then press the **OK** button.

## Manually feed: [Type], [Size] To use another tray, touch "Options"

### Description

This message appears when manual feed is selected, Tray 1 is not loaded, and other trays are available.

### Recommended action

- Load tray with requested paper.
- To use another tray, clear paper from Tray 1, press **Options** to select a different tray.

## No job to cancel

### Description

You have pressed the stop button but the product is not actively processing any jobs.

### Recommended action

No action necessary.

## Output Bin full

### Description

The output bin is full and must be emptied for printing to continue.

### Recommended action

1. Empty the bin to continue printing.
2. Make sure that the paper full sensor flag is not damaged and can freely move. If the sensor flag is damaged, replace the top-cover assembly.



3. Make sure that the connector is fully seated on the sensor and connector J45 is fully seated on the DC controller.
4. Use the **Manual Sensor Test** menu items to test the sensor functionality. If necessary, replace the sensor (PS1).

### Paperless mode

#### Description

This is a test mode used in manufacturing and should not be seen on a normally operating product.

#### Recommended action

Contact HP support for steps to resolve this condition.

### Printing Engine Test...

#### Description

The product is printing an engine test page.

#### Recommended action

No action is necessary.

### Printing stopped To continue, touch "OK"

#### Description

Time has expired on the print/stop test.

#### Recommended action

Press the **OK** button to continue.

### RAM Disk device failure To clear touch "Clear"

#### Description

The specified device failed.

#### Recommended action

Press the **Clear** button to clear the message.

### RAM Disk file operation failed To clear touch "Clear"

#### Description

A PJI file system command attempted to perform an illogical operation.

#### Recommended action

Press the **Clear** button to clear the message.

## RAM Disk file system is full To clear touch “Clear”

### Description

A PJI file system command could not store something on the file system because the file system was full.

### Recommended action

Press the [Clear](#) button to clear the error.

## RAM Disk is write protected To clear touch “Clear”

### Description

The product is protected and no new files can be written to it.

### Recommended action

Press the [Clear](#) button to clear the message.

## RAM Disk not initialized To clear touch “Clear”

### Description

The RAM disk file system must be initialized before it can be used.

### Recommended action

Use the HP Embedded Web Server or HP Web Jetadmin to initialize the file system.

## Remove cartridge lock

### Description

The product has been turned on with a cartridge shipping lock installed on the toner cartridge.

### Recommended action


1. Open the top cover and remove the toner cartridge.
2. Pull the orange tab to remove the strip.
3. Remove the paper with the plastic insert.
4. Reinstall cartridge, and then close the top cover.

## Remove the toner cartridge

### Description

The product is component testing the belt.

### Recommended action

- To perform the test, remove the toner cartridge.
- To cancel the test, press the [Stop](#)  button.

## Replace Black Cartridge

### Description

The black cartridge has reached the out condition.

### Recommended action

Install a new toner cartridge.

## Replace Fuser Kit

### Description

The product indicates when the fuser kit is at its estimated end of life. The actual life remaining might be different than the estimation. Have a replacement fuser kit available to install when print quality is no longer acceptable.

The fuser kit does not need to be replaced now unless the print quality is no longer acceptable.



---

**NOTE:** After the fuser kit reaches its approximated end of life, the HP Premium Protection Warranty on that fuser kit ends.

---

### Recommended action

Replace the fuser kit.



---

**WARNING!** The fuser can be hot while the product is in use.

---

## Replace supplies

### Description

This alert appears only if the product is configured to stop when a supplies reach the very low threshold. Two or more supplies have reached the estimated end of life. The product indicates when a supply level is at its estimated end of life. The actual life remaining might be different than estimated.

The supply does not need to be replaced now unless the print quality is no longer acceptable.

HP recommends that the customer have a replacement supply available to install when print quality is no longer acceptable.



---

**NOTE:** When an HP supply has reached its approximated end of life, the HP Premium Protection Warranty on that supply ends.

---

Recorded event codes depend on which supplies are at the end of life.

- **10.00.70** (event code): Black toner cartridge
- **10.23.70** (event code): Fuser kit
- **10.22.70** (event code): Transfer kit

**Recommended action**

- Press the **OK** button to find out which supplies need to be replaced.
- Configure the product to continue printing by using the **Manage Supplies** menu.

**ROM disk device failed To clear touch “Clear”****Description**

The specified device failed.

**Recommended action**

Press the **Clear** button to clear the message.

**ROM disk file operation failed To clear touch “Clear”****Description**

A PJI file system command attempted to perform an illogical operation.

**Recommended action**

Press the **Clear** button to clear the message.

**ROM disk file system is full To clear touch “Clear”****Description**

A PJI file system command could not store something on the file system because the file system was full.

**Recommended action**

Press the **Clear** button to clear the error.

**ROM disk is write protected To clear touch “Clear”****Description**

The device is protected and no new files can be written to it.

**Recommended action**

Press the **Clear** button to clear the message.

**ROM disk not initialized To clear touch “Clear”****Description**

The ROM disk file system must be initialized before it can be used.

**Recommended action**

Use the HP Embedded Web Server or HP Web Jetadmin to initialize the file system.

## Size mismatch in Tray <X>

### Description

The paper in the listed tray does not match the size specified for that tray.

### Recommended action

1. Load the correct paper.
2. Verify that the paper is positioned correctly.
3. Close the tray and verify that the control panel lists the correct paper size and type. Reconfigure the size and type if necessary.
4. If necessary, use the control-panel menus to reconfigure the size and type settings for the specified tray.
5. Make sure that connectors J513, J507, and J501 are fully seated on the high-voltage power supply.
6. Make sure that connector J601 is fully seated on the DC controller PCA.
7. If the error persists, replace the high-voltage power supply.
8. If the error persists, replace the DC controller PCA.

## Standard bin full Remove all paper from bin

### Description

The specified output bin is full and must be emptied for printing to continue.

### Recommended action

Empty the specified output bin.

## Supplies low

### Description

Multiple supplies on the product have reached the low threshold.

### Recommended action

Replace the supply when print quality is no longer acceptable.



**NOTE:** When an HP supply has reached its approximated end of life, the HP Premium Protection Warranty ends.

## Supplies very low To continue, touch "OK"


### Description

More than one color supply on the product has reached the very low condition.

### Recommended action

- Replace the supply when print quality is no longer acceptable.
- To continue printing in color, either replace the supply or reconfigure the product by using the **Manage Supplies** menu on the control panel.

---

 **NOTE:** When an HP supply has reached its approximated end of life, the HP Premium Protection Warranty ends.


---

## Supply memory warning

### Description

Unable to read cartridge data.

---

 **NOTE:** Any repair required as a result of using cartridges with unreadable cartridge data is not covered under warranty.

---

### Recommended action

Replace the cartridge with a genuine HP toner cartridge.

## Tray <X> empty: [Size]


### Description

The specified tray is empty and needs to be loaded.

### Recommended action

Refill the tray.

---

 **NOTE:** This could be a false message. If the tray is loaded without removing the shipping lock, the product does not sense that the paper is loaded. Remove the shipping lock, and then load the tray.

---

## Tray <X> empty: [Type], [Size]


### Description

The specified tray is empty and needs to be loaded, but the current job does not need this tray to print.

### Recommended action

Refill the tray at a convenient time.

---

 **NOTE:** This could be a false message. If the tray is loaded without removing the shipping lock, the product does not sense that the paper is loaded. Remove the shipping lock, and then load the tray.

---

## Tray <X> open

### Description

The specified tray is open or not closed completely.

### Recommended action

1. Close the tray.
2. If this message appears and the lifter-base assembly was removed or replaced, make sure that the connector on the assembly is correctly connected and fully seated.
3. If the error persists, use the paper size switches (SW2,3 - SW82,83 - SW92,93) test in the **Tray/Bin manual sensor test** to test the switches. If they do not respond, replace associated the lifter drive assembly.

### Tray <X> overfilled Remove excess paper


#### Description

A tray in the product is overfilled with paper. Printing can continue from a different tray.

#### Recommended action

Remove enough paper so that the paper stack does not exceed the limit for the tray.

---

 **NOTE:** If this message appears and the paper-pickup assembly was removed or replaced, make sure that the connector at the back of the assembly is correctly connected and fully seated.

---

### Tray <X> overfilled To use another tray, touch "Options"


#### Description

Too much paper was loaded into the indicated tray.

#### Recommended action

Remove enough paper so that the paper stack does not exceed the limit for the tray or press the **Options** button to use another tray.

---

 **NOTE:** If this message appears after lifter drive assembly was removed or replaced, make sure that the connector on the assembly is correctly connected and fully seated.

---

### Type mismatch Tray <X>

#### Description

The specified tray contains a paper type that does not match the configured type.

#### Recommended action

The specified tray will not be used until this condition is addressed. Printing can continue from other trays.

1. Load the correct paper in the specified tray.
2. At the control panel, verify the type configuration.

## Unable to cancel firmware update job

### Description

The product is processing of downloading a remote firmware upgrade and cannot cancel it.

### Recommended action

Firmware updates cannot be canceled once started. The product will restart automatically to complete the firmware update.

## Unable to install the firmware

### Description

The product displays this message when one of the following conditions occurs during a firmware upgrade.

- A file I/O error occurs when there is an interruption while reading the firmware upgrade file.
- A firmware installation is already in progress, possibly by a remote service application.
- A firmware installation is pending.
- An internal system failure has occurred while doing firmware upgrades.
- An unknown error occurs while doing firmware upgrades.
- The memory is full when the user is doing firmware upgrades.
- The firmware upgrade file does not support this product.
- The upgrade file is invalid or corrupted while doing firmware upgrades.

### Recommended action

Refer to the walk-up help for each of these error conditions for specific instructions on resolving the error.

## Unsupported drive installed

### Description

A non-supported hard drive has been installed. The drive is unusable by this product.

### Recommended action

Replace the unsupported drive.

## Unsupported supply in use

### Description

A non-supported supply has been installed.



Or, the toner cartridge is for a different HP product.

- **10.00.41** (event code): Black toner cartridge

### **Recommended action**

Install the correct supplies for this product. See the parts chapter in the service manual for supply part numbers.

## **Unsupported supply installed**

### **Description**

The product has one or more HP genuine supplies, designed for a different product, installed. The product will either shut down or slow down unless the user acknowledges the condition.

### **Recommended action**

Press the **OK** button to continue.

## **Unsupported supply installed To continue, touch "OK"**

### **Description**

One or more genuine HP supplies designed for a different product are installed. These supplies are not supported by the product. The product may either shut down or slow down.

### **Recommended action**

The installed supply was not designed for this product and is not supported. Results may vary when used with this product. To continue printing with the unsupported supply, press the **OK** button.

## **Unsupported tray configuration**

### **Description**

More than the allowable tray accessories are installed on the product. Printing cannot continue until the extra trays are removed and the product is turned off and then on.

### **Recommended action**

Turn product off and remove the excess tray accessories. Turn the product on.

## **Unsupported USB accessory detected Remove USB accessory**

### **Description**

A non-supported USB accessory has been installed.

### **Recommended action**

Turn the product off, remove the USB accessory, and then turn the product on.

### Upgrade complete To continue turn off then on

#### **Description**

The firmware upgrade is complete.

#### **Recommended action**

Turn the product off and then on.

### USB accessory needs too much power Remove USB and turn off then on

#### **Description**

A USB accessory is drawing too much electrical current. Printing cannot continue.

#### **Recommended action**

Remove the USB accessory, and then turn the product off and then on.

Use a USB accessory that uses less power or that contains its own power supply.

### USB accessory not functional

#### **Description**

A USB accessory is not working correctly.

#### **Recommended action**

1. Turn the product off.
2. Remove the USB accessory.
3. Insert a replacement USB accessory.

### USB hubs are not fully supported Some operations may not work properly

#### **Description**

Some USB hubs require more power than the product has available.

#### **Recommended action**

Remove the USB hub.

### USB is write protected To clear touch "Clear"

#### **Description**

The device is protected and no new files can be written to it.

#### **Recommended action**

Press the [Clear](#) button to clear the message.

### USB not initialized To clear touch “Clear”

#### **Description**

The USB device file system must be initialized before it can be used.

#### **Recommended action**

Use the embedded Web server or HP Web Jetadmin to initialize the component.

### USB storage accessory removed Clearing any associated data

#### **Description**

This message displays for six seconds after removal of the USB storage accessory.

#### **Recommended action**

Press the **Hide** button to remove this message.

### USB storage device failure To clear touch “Clear”

#### **Description**

The specified device failed.

#### **Recommended action**

Press the **Clear** button to clear the message.

### USB storage file operation failed To clear touch “Clear”

#### **Description**

A PJP file system command attempted to perform an illogical operation.

#### **Recommended action**

Press the **Clear** button to clear the message.

### USB storage file system is full To clear touch “Clear”

#### **Description**

A PJP file system command could not store something on the file system because the file system was full.

#### **Recommended action**

Press the **Clear** button to clear the error.

### Used supply in use

#### **Description**

One or more used supplies have been installed.

### **Recommended action**

- Install new supplies.
- If you believe you purchased a genuine HP supply, go to [www.hp.com/go/anticounterfeit](http://www.hp.com/go/anticounterfeit). Any repair required as a result of using used cartridges is not covered under warranty. Supply status and features depending on supply status are not available.

### **Used supply installed To continue, touch “OK”**

#### **Description**

The product displays this message when a used supply (a remanufactured or refilled genuine HP or non-HP product) has been installed.

- **10.00.34** (event code): Black toner cartridge

#### **Recommended action**

- Install new supplies.
- If you believe you purchased a genuine HP supply, go to [www.hp.com/go/anticounterfeit](http://www.hp.com/go/anticounterfeit). Any repair required as a result of using used cartridges is not covered under warranty. Supply status and features depending on supply status are not available.

## Event log messages

Some messages appear only in the event log. For additional numeric messages, see the control-panel message section of this manual.

**Figure 2-63** Sample event log

1	2	3	4	5	6	7	8
Product information	Event number	Date and time	Engine cycles	Event log code	Firmware version number	Description of personality	Consecutive Repeats

1	Product information
2	Event number
3	Date and time
4	Engine cycles
5	Event log code
6	Firmware version number
7	Description of personality
8	Consecutive Repeats

## Print or view an event log



**NOTE:** The event log in using the **Administration** menu shows only a subset of events. For a complete event log, use the **Service** menu.

### Print or view the event log from the Administration menu

1. At the product control panel, press the Home button.
2. Open the following menus:
  - **Administration**
  - **Troubleshooting**
3. Select either **View Event Log** or **Print Event Log**, and then press the **OK** button.

### Print or view the event log from the Service menu

1. At the product control panel, press the Home button.
2. Open the following menus:
  - **Device Maintenance**
  - **Service**
3. Select the **Service Access Code** option.
4. Enter the following service access code for this product: **11071212**.
5. Select either **View Event Log** or **Print Event Log**, and then press the **OK** button.

## Clear an event log

1. At the product control panel, press the Home button.
2. Open the following menus:
  - **Device Maintenance**
  - **Service**
3. Select the **Service Access Code** option.
4. Enter the following service access code for this product: **11071212**.
5. Select the **Clear Event Log** item, and then press the **OK** button.

## Event log message table

Event log message	Description	Action
30.03.14	Non-fatal error	This is an informational message, and no action is required.

Event log message	Description	Action
99.00.01	Remote firmware upgrade (.bdl) was not performed. The file is corrupt.	The firmware file is corrupt. Download the firmware file and attempt the upgrade again.
99.00.02	Remote firmware upgrade (.bdl) was not performed. Timeout during receipt.	The IO timed out during the firmware download. The most common cause is an issue with the network environment. Ensure a good connection to the product, and attempt the upgrade again or upgrade using the USB walk-up port.
99.00.03	Remote firmware upgrade (.bdl) was not performed. An error occurred when writing to the hard disk.	<ol style="list-style-type: none"> <li>1. Download the firmware again.</li> <li>2. If the error persists, perform the clean disk/format disk process.</li> <li>3. Download the firmware from the Preboot menu.</li> <li>4. If the error persists, replace the hard disk.</li> </ol>
99.00.04 99.00.05	Remote firmware upgrade (.bdl) was not performed. There was a timeout during the download.	The I/O timed out during the firmware download. The most common cause is an issue with the network environment. Ensure there is a good connection to the product, and attempt the firmware upgrade again or upgrade the firmware using the USB walk-up port.
99.00.06 99.00.07 99.00.08	Remote firmware upgrade (.bdl) was not performed. There was an error reading the firmware file.	<ol style="list-style-type: none"> <li>1. Download the firmware again.</li> <li>2. If the error persists, perform the clean disk/format disk process.</li> <li>3. Download the firmware from the Preboot menu.</li> <li>4. If the error persists, replace the hard disk.</li> </ol>
99.00.09 99.00.10	The firmware upgrade was canceled by the user.	Resend the firmware upgrade to the product.
99.00.11	The preboot partition is full.	<ol style="list-style-type: none"> <li>1. Download the firmware again.</li> <li>2. If the error persists, perform the clean disk/format disk process.</li> <li>3. Download the firmware from the Preboot menu.</li> </ol>
99.00.12	Remote firmware upgrade (.bdl) was not performed. An invalid file was sent.	The firmware file sent was not the correct file. Download the firmware file again, making sure to download the file for the correct product model. Attempt the upgrade again.

<b>Event log message</b>	<b>Description</b>	<b>Action</b>
99.00.13 99.00.14	Remote firmware upgrade (.bdl) was not performed. An invalid file was sent.	The firmware file sent was not the correct file. Download the firmware file again, making sure to download the file for the correct product model. Attempt the upgrade again.
99.00.20	The bundle is not for this product.	Download the firmware file again, and attempt the upgrade again.
99.00.21	The bundle is not signed with the correct signature, or the signature is invalid.	
99.00.22	The bundle header version is not supported by this firmware.	
99.00.23	The package header version is not supported by this firmware.	
99.00.24 99.00.25 99.00.26	The format of the firmware bundle not correct.	



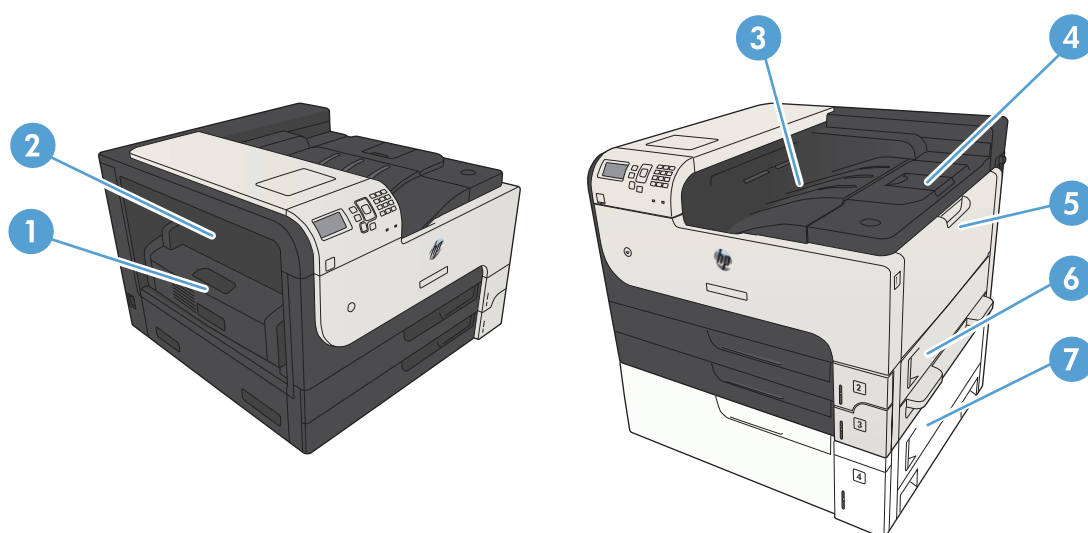
# Clear jams

## General paper jam guidelines

For jams of any type, check the following:

- Make sure that the paper guides are correctly positioned against the paper.
- Verify the paper meets the product specifications.
- Use the control panel or the HP Embedded Web Server to make sure that the tray is configured properly.

## Jam locations



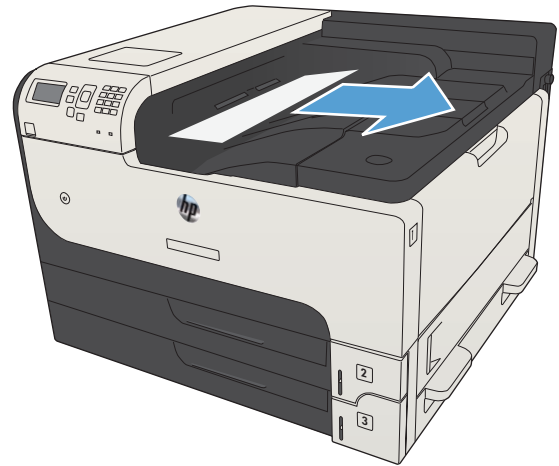
1	Duplexer
2	Fuser jam-access door
3	Output bin
4	Top cover (access to the toner cartridge)
5	Tray 1
6	Tray 2 jam-access door
7	Jam-access for the 500-sheet input tray

## Auto-navigation for clearing jams

The auto-navigation feature assists you in clearing jams by providing step-by-step instructions on the control panel. When you complete a step, the product displays instructions for the next step until you have completed all steps in the procedure.

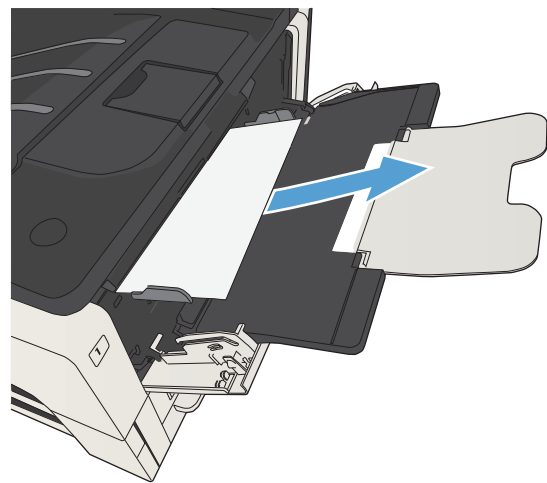
## Clear jams in the output-bin area

1. If paper is visible from the output bin, grasp the leading edge and remove it.



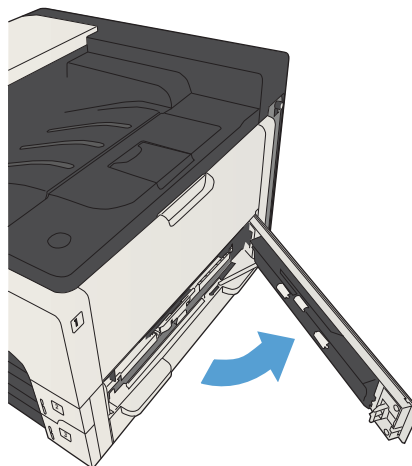
## Clear jams in Tray 1

1. Slowly pull the jammed paper out of the product.

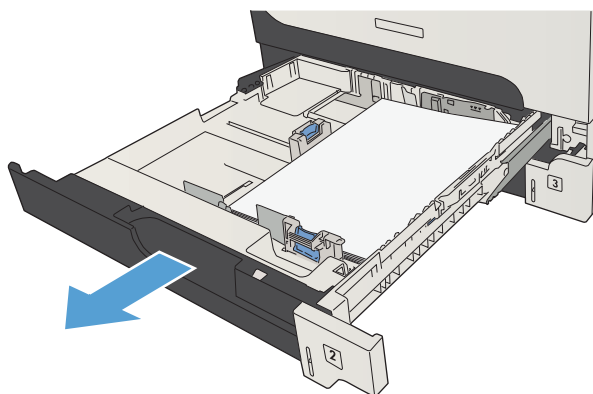


## Clear jams in Tray 2 or Tray 3

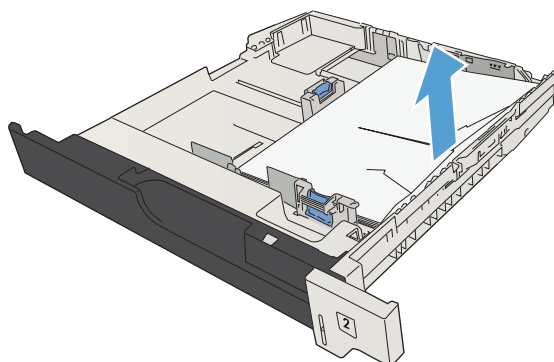
1. Open the right-side access door. If the jammed page is visible, gently pull it out of the product.



2. If you were not able to clear the jam by using the right-side access door, slide the tray out of the product.

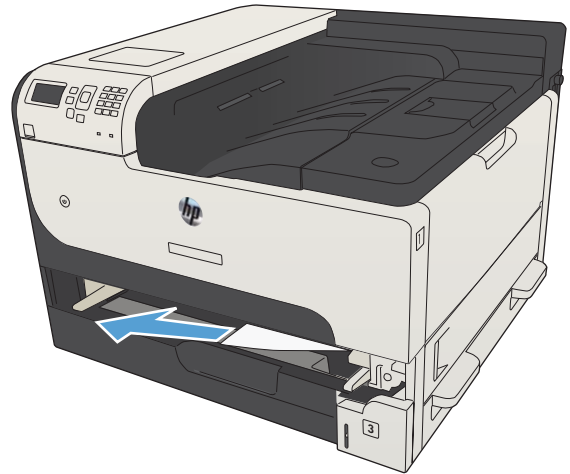


3. Remove any damaged paper from the tray.



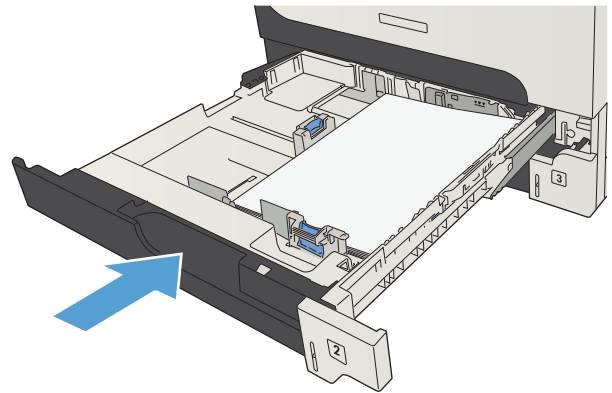
4. If the edge of the paper is visible in the feed area, slowly pull the paper toward the left side and then out of the product.

**NOTE:** Do not force the paper if it will not move easily. If the paper is stuck in a tray, try removing it through the tray above (if applicable) or through the toner-cartridge area.

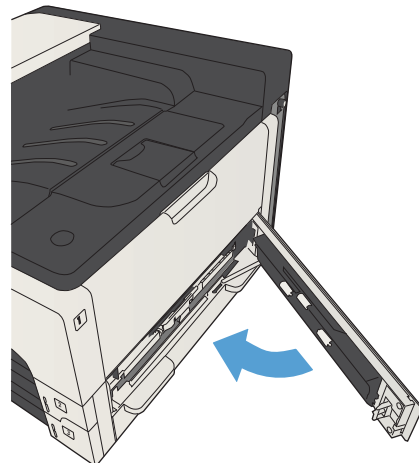


5. Close the tray.

**NOTE:** Before replacing the tray, make sure the paper is flat in the tray at all four corners and below the tabs on the guides.

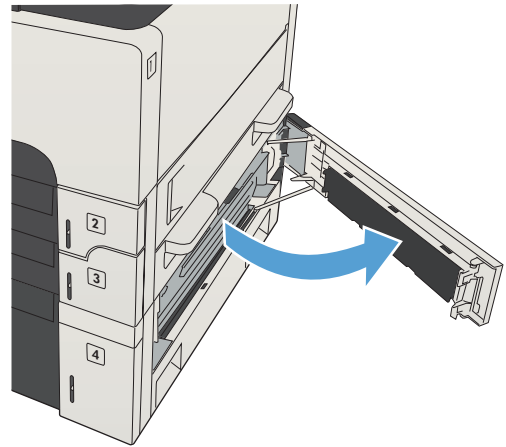


6. Close the right-side access door.

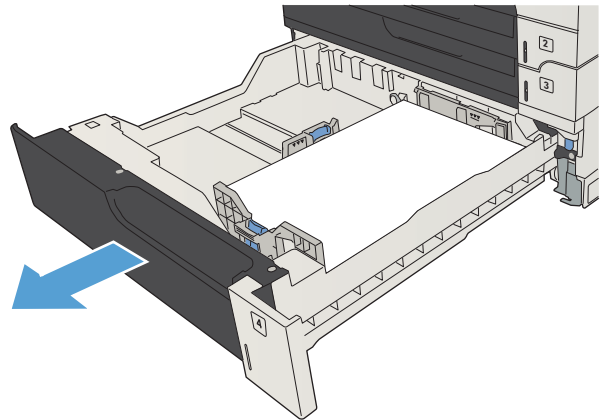


## Clear jams in the 500-sheet trays

1. Open the right-side access door and the 500-sheet tray jam-access door.



2. Remove the 500-sheet tray.

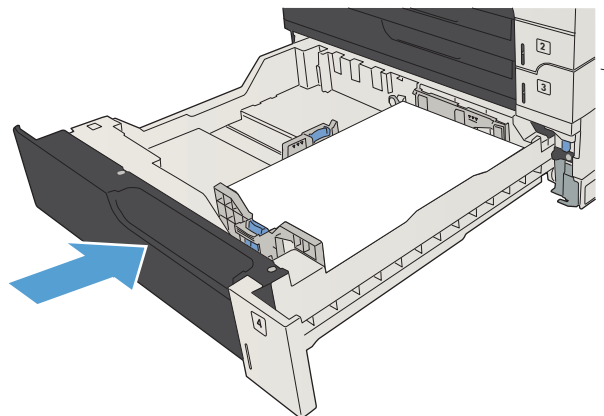


3. If the edge of the paper is visible in the feed area, slowly pull the paper toward the right side and out of the product.

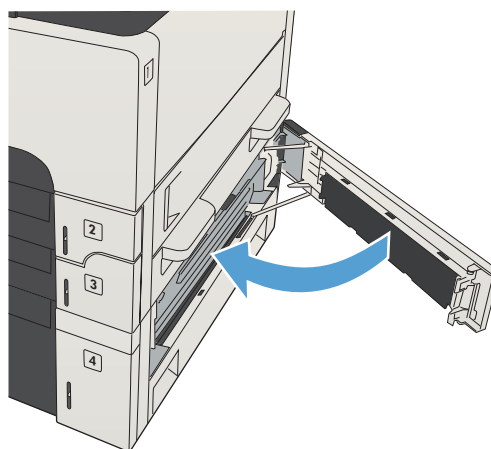
**NOTE:** Do not force the paper if it will not move easily. If the paper is stuck in a tray, try removing it through the tray above (if applicable) or through the upper, right door.



4. Close the 500-sheet tray.

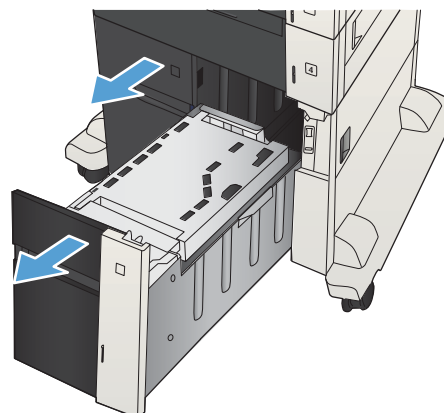


5. Close the right-side access door and the 500-sheet tray jam-access door.

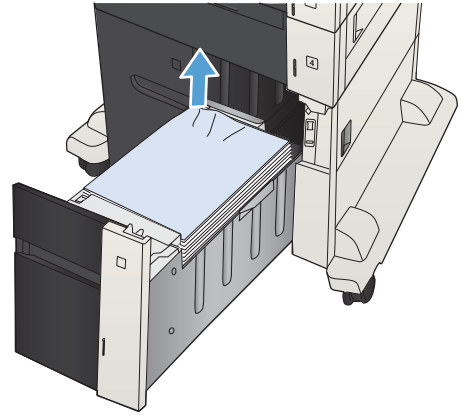


## Clear jams in the 3,500-sheet high-capacity tray

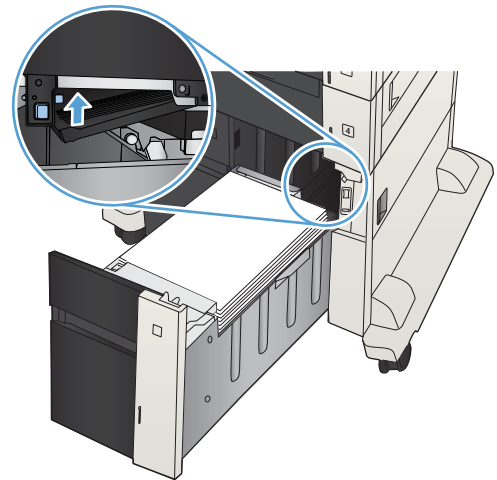
1. Open the right and left sides of the tray.



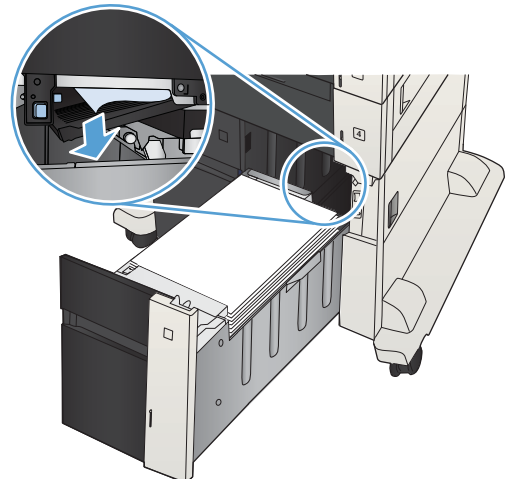
2. Remove any damaged sheets of paper.



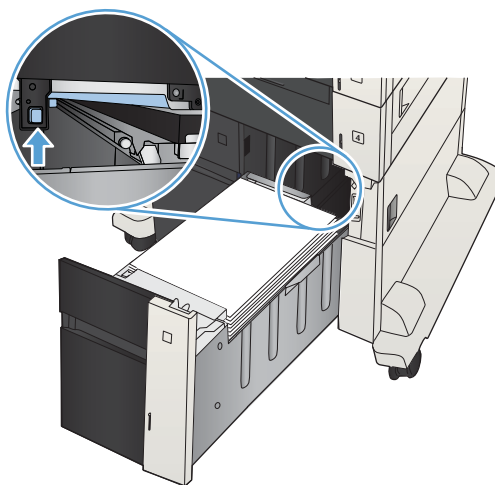
3. Above the right-side tray, press the green button to release the jam-access plate.



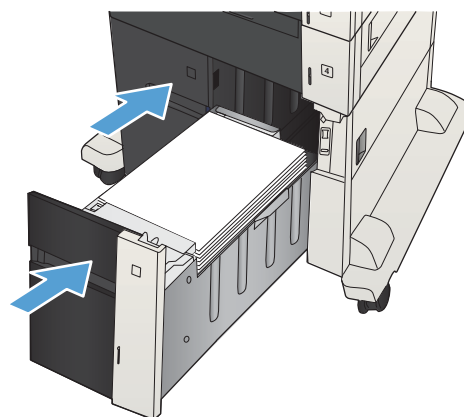
4. If jammed paper is in the feed area, pull it down to remove it.



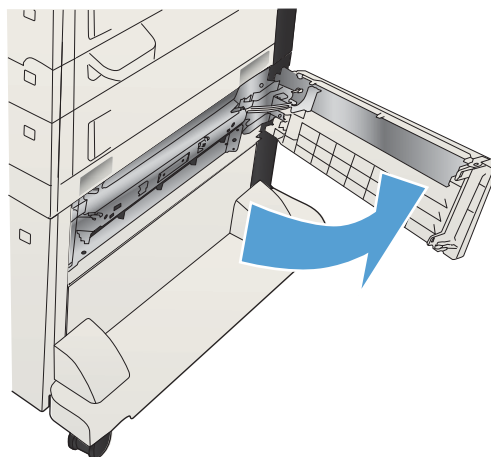
5. Push up on the jam-access plate to close it.



6. Close the right and left sides of the tray.

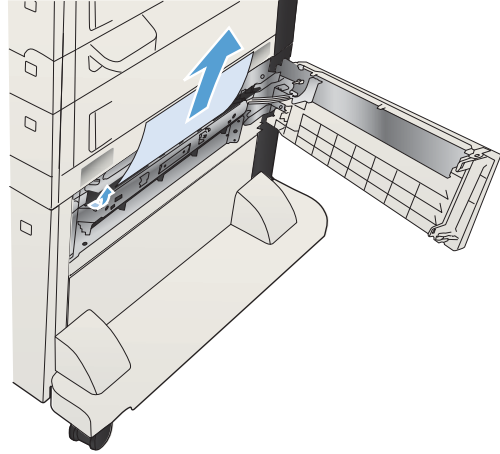


7. Open the jam-access door on the right side of the high-capacity tray cabinet.

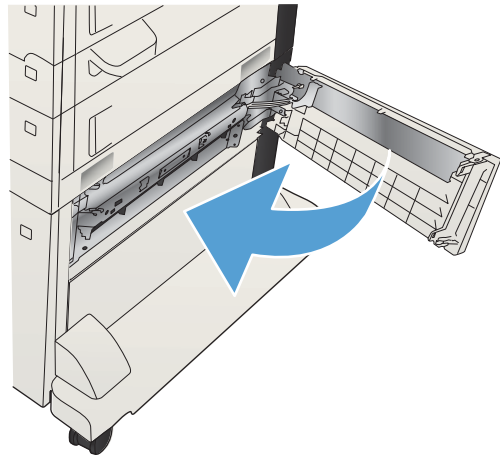




8. Lift up the jam-release plate and remove any jammed paper.

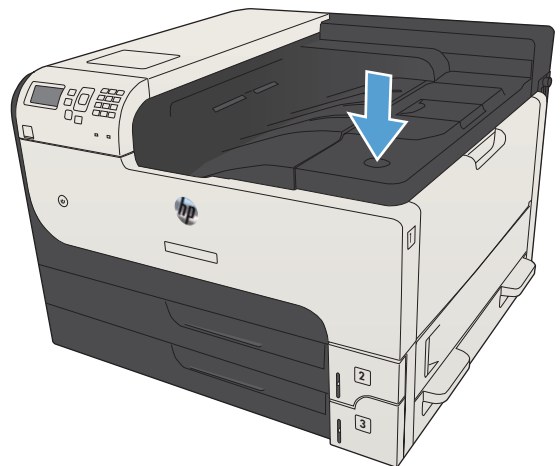


9. Close the jam-access door on the right side of the high-capacity tray cabinet.

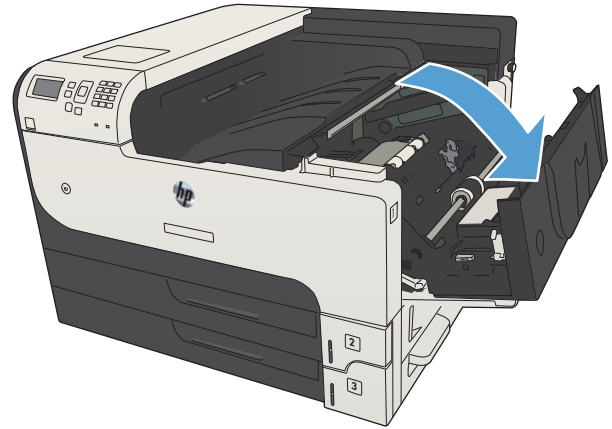


## Clear jams from the toner-cartridge area

1. Press the cartridge-door-release button.

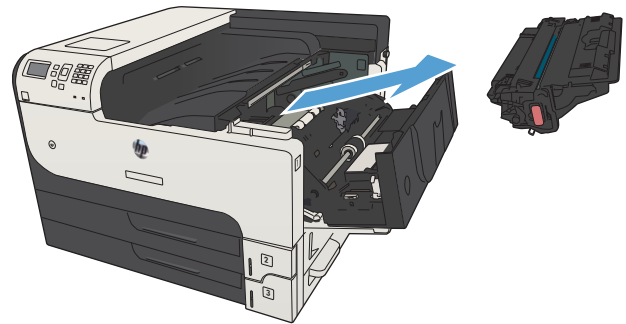


2. Open the cartridge door.

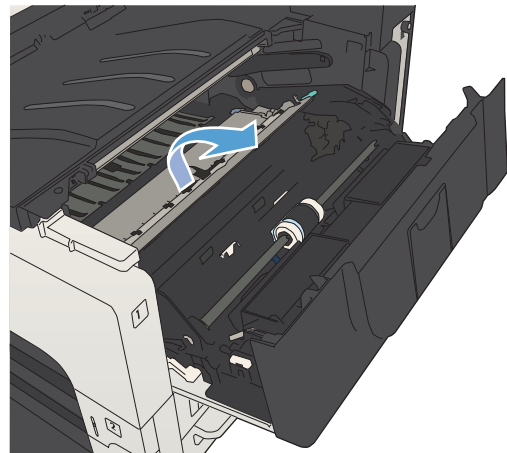


3. Remove the toner cartridge.

**CAUTION:** To prevent damage to the toner cartridge, do not expose it to light for more than a few minutes.

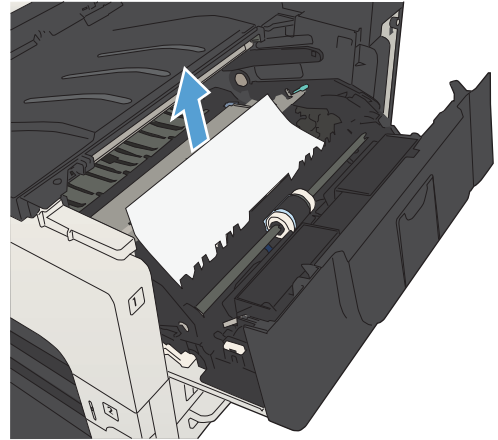


4. Pull the green tab down to open the metal plate inside the product.

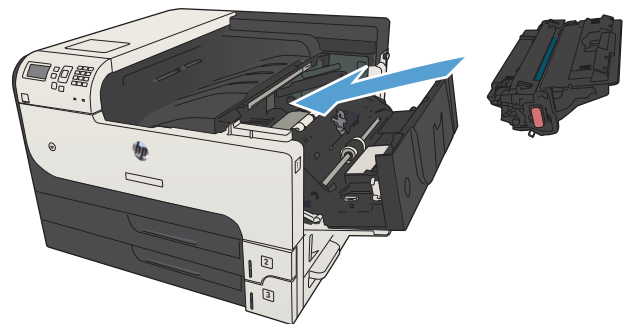


5. Slowly pull the paper out of the product. Be careful to not tear the paper.

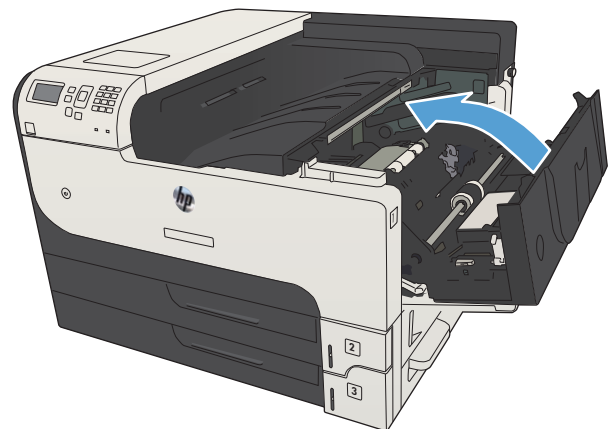
**CAUTION:** Avoid spilling loose toner. Use a dry, lint-free cloth to clean any toner that might have fallen into the product. If loose toner falls into the product, it might cause temporary problems with print quality. Loose toner should clear from the paper path after a few pages are printed. If toner gets on your clothing, wipe it off with a dry cloth and wash clothing in cold water. (Hot water sets toner into fabric.)



6. Replace the toner cartridge.



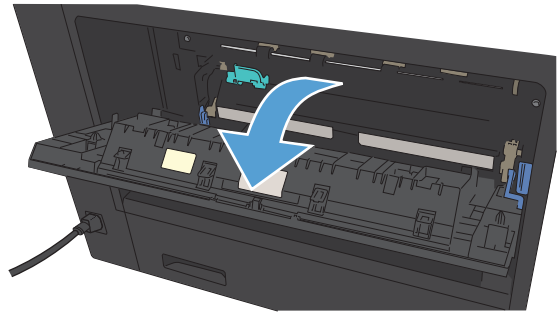
7. Close the cartridge door.



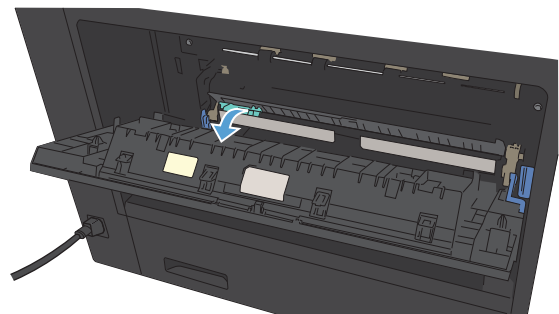
## Clear jams in the fuser

1. Open the fuser door on the left side of the product.

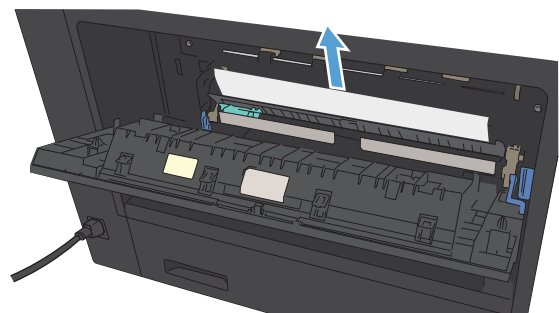
**CAUTION:** The fuser can be hot while the product is in use.



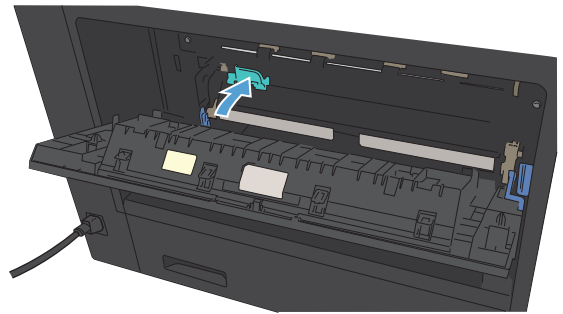
2. Push down on the green tab to open the fuser jam-access cover.



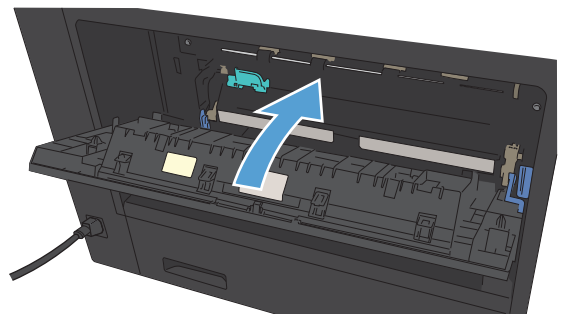
3. Remove any paper from the fuser.



4. Close the fuser jam-access cover.

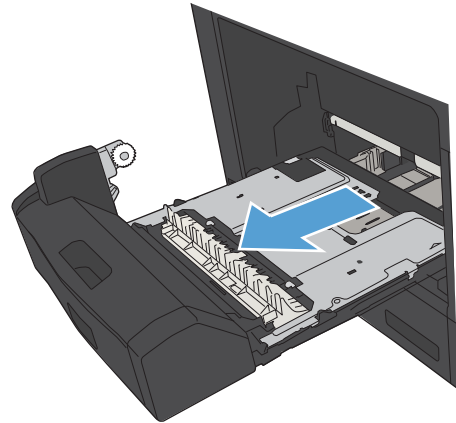


5. Close the fuser door.

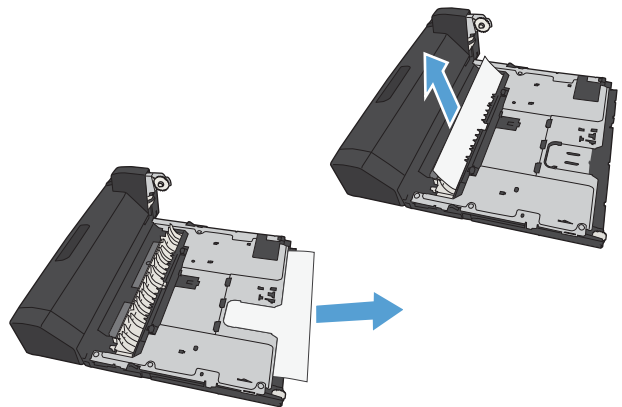


## Clear jams from the duplexer

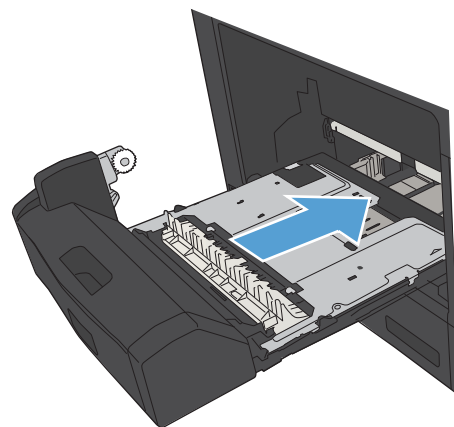
1. Remove the duplexer.



2. Remove any paper from the duplexer.



3. Reinstall the duplexer.



# Solve paper-handling problems

- [The product picks up multiple sheets of paper](#)
- [The product does not pick up paper](#)

## The product picks up multiple sheets of paper

If the product 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 product.
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.

## The product does not pick up paper


If the product does not pick up paper from the tray, try these solutions.

1. Open the product 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 product 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 product control panel to see if the product 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.

# Use manual print modes

Try the following manual print modes to see if they solve the image-quality problems.

## Select a manual print mode

1. At the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **General Settings**
  - **Print Quality**
  - **Adjust Paper Types**
3. Select a paper type, and then select the mode to adjust.
4. Select a value for the mode, and then press the **OK** button.

**Table 2-50** Print modes under the Adjust Paper Types sub menu

---

**Print Mode**

- **Normal mode**
- **Heavy Mode**
- **Card Stock Mode**
- **Transparency Mode**
- **Envelope Control**
- **Label Mode**
- **Extra Heavy Mode**
- **Light Mode**
- **Extra Light Mode**
- **Rough Mode**
- **Bond mode**
- **Mid-weight mode**

**NOTE:** Not all print modes are available for all paper types.

---



**Table 2-50 Print modes under the Adjust Paper Types sub menu (continued)**

<b>Resistance Mode</b>	Set to <b>Up</b> to resolve print-quality issues caused by poor secondary transfer in low-humidity environments with resistive or rough surface paper.
<b>Humidity Mode</b>	With glossy film, set to <b>High</b> when the product is in a high-humidity environment and print-quality defects occur on HP Tough Paper or Opaque film.  With transparencies, set to <b>High</b> when the product is in a high-humidity environment and print-quality defects occur on color transparencies on the first page of a print job.  With all other paper types, set to <b>High</b> when the product is in a high-humidity environment and light density occurs on the first page of a print job.

**Table 2-51 MP modes under the Optimize submenu**


<b>Line Detail</b>	<b>Normal</b> <b>Up</b> <b>Off</b>
<b>Environment</b>	Set to <b>Low Temp</b> if the product is operating in a low-temperature environment and you are having problems with print quality such as blisters in the printed image.
<b>Restore Optimize</b>	Use this item to reset the menu defaults.

# Print quality troubleshooting tools

## Repetitive defects measurements

Use a ruler to measure occurrences of repetitive image defects to help solve image quality problems. Place the ruler next to the first occurrence of the defect on the page. Find the distance between identical defects and use the figure below to identify the component that is causing the defect.

Distance between defects	Product components that cause the defect
32 mm	Duplex reverse roller or duplex re-pickup roller
38 mm	Input accessory feed roller
42 mm	Output roller, intermediate output roller
43 mm	Fuser output roller
44 mm	Primary charging roller, cassette separation roller, registration roller, output accessory feed roller 1, re-pickup roller
47 mm	Transfer roller
48 mm	Feed roller
57 mm	Developer roller, output accessory feed roller 2
75 mm	Fuser film
79 mm	
94 mm	Pressure sensitive drum, pressure roller
98 mm	Cassette pickup roller


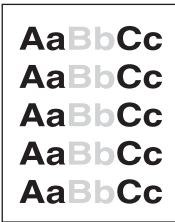

 **NOTE:** The primary charging roller, photosensitive drum and developing roller cannot be cleaned. If these rollers are indicated, replace the toner cartridge.

# Solve image-quality problems

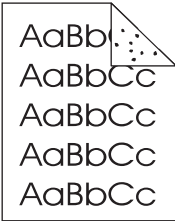
## Image defect examples

These examples identify the most common print-quality problems.


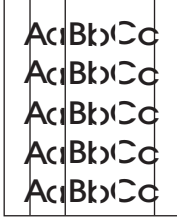
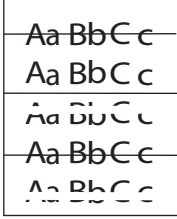
**Table 2-52 Image defect examples**

Problem	Image example	Solution
Blank page		<ol style="list-style-type: none"> <li>1. The shutter on the toner cartridge might be damaged. Replace the toner cartridge.</li> <li>2. The laser scanner shutter on the laser scanner might be damaged. Replace the laser scanner.</li> <li>3. The laser scanner might be damaged. Replace the laser scanner.</li> <li>4. Poor developing bias with the cartridge contacts. Clean the contact on the toner cartridge.</li> <li>5. The high-voltage power supply might be damaged. Replace the high-voltage power supply.</li> </ol>
Light print (partial page)		<ol style="list-style-type: none"> <li>1. Make sure that the toner cartridge is fully installed.</li> <li>2. The toner cartridge might be almost empty. Check the supplies status, and replace the toner cartridge if necessary.</li> <li>3. The paper might not meet HP specifications (for example, the paper is too moist or too rough).</li> </ol>
Light print (entire page)		<ol style="list-style-type: none"> <li>1. Make sure that the toner cartridge is fully installed.</li> <li>2. Make sure that the <b>Economode</b> setting is turned off at the control panel and in the print driver. For more information, see the product user guide.</li> <li>3. Open the <b>Administration</b> menu at the product control panel. Open the <b>General Settings</b> menu and then open the <b>Print Quality</b> menu. Increase the <b>Toner density</b> setting.</li> <li>4. Try using a different type of paper.</li> <li>5. The toner cartridge might be reaching its estimated end of life. Check the supplies status, and replace the toner cartridge if necessary.</li> </ol>



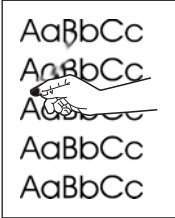
**Table 2-52 Image defect examples (continued)**

Problem	Image example	Solution
		<p><b>Perform the following test</b></p> <p>Stop a print job during the print operation before it is complete, then remove the toner cartridge. Open the photosensitive drum shield, and look at the toner image on the drum.</p> <ul style="list-style-type: none"> <li>◦ If the image is not fully transferring to the page, replace the transfer roller.</li> <li>◦ If the toner on the drum is faint, replace the laser scanner.</li> </ul> <ol style="list-style-type: none"> <li>6. The transfer roller shaft might be dirty. Remove the transfer roller and clean the shaft to ensure good contact.</li> <li>7. If the transfer roller is deformed or damaged, replace the roller.</li> <li>8. The high-voltage power supply might be damaged. Replace the high-voltage power supply.</li> <li>9. The laser scanner might be damaged. Replace the laser scanner.</li> </ol> <p>If replacing the laser scanner does not resolve the problem and the high-voltage power supply was not replaced (step 8), replace the high-voltage power supply.</p>
<p>Specks (front or back of the page is dirty)</p>		<p>Specks might appear on a page after a jam has been cleared.</p> <ol style="list-style-type: none"> <li>1. The paper might be dirty. Use a new package of paper. make sure that the paper is stored correctly. See your product user guide.</li> <li>2. Print a few more pages to see if the problem corrects itself.</li> <li>3. Clean the inside of the product and run a cleaning page to clean the fuser.</li> <li>4. Try using a different type of paper.</li> <li>5. Check the toner cartridge for leaks. If the toner cartridge is leaking, replace it.</li> <li>6. The cassette pickup roller might be dirty. Clean the roller. If it cannot be cleaned, replace the roller.</li> <li>7. Repetitive dirt marks can be caused by the registration roller, transfer roller or pressure roller. Use the repetitive defects ruler to identify the problem, and then replace the appropriate assembly.</li> <li>8. The media-feed guide, or the fuser-inlet guide might be dirty. Clean the guide.</li> <li>9. The delivery rollers might be dirty. Clean the rollers.</li> </ol>

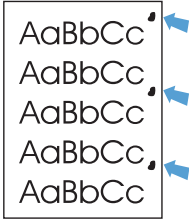
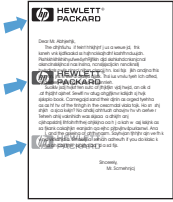
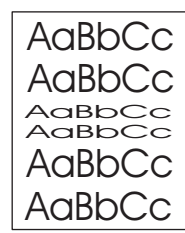
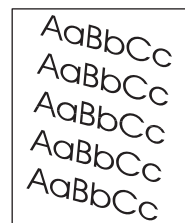
**Table 2-52 Image defect examples (continued)**

Problem	Image example	Solution
Dropouts		<ol style="list-style-type: none"> <li>1. Make sure that the environmental specifications for the product are being met.</li> <li>2. Try using a smoother paper.</li> <li>3. If the transfer roller is deformed or damaged, replace the roller.</li> <li>4. The high-voltage contact of the static eliminator with the toner cartridge might be dirty. Clean the contact.</li> <li>5. The photosensitive drum, primary charging roller, or developing roller might be damaged. Replace the toner cartridge.</li> <li>6. The fuser film might be scratched or dirty. Replace the fuser.</li> <li>7. The high-voltage power supply might be damaged. Replace the high-voltage power supply.</li> </ol>
Lines		<ol style="list-style-type: none"> <li>1. Print a few more pages to see if the problem corrects itself.</li> <li>2. Clean the inside of the product and run a cleaning page to clean the fuser.</li> <li>3. The photosensitive drum might be scratched. Replace the toner cartridge.</li> <li>4. The fuser-inlet guide might be dirty. Clean the guide.</li> <li>5. The fuser film might be scratched. Replace the fuser.</li> </ol>
Horizontal lines		<ol style="list-style-type: none"> <li>1. The photosensitive drum might be scratched. Replace the toner cartridge.</li> <li>2. The fuser film might be dirty or damaged. Replace the fuser.</li> </ol>

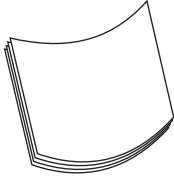
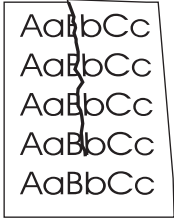
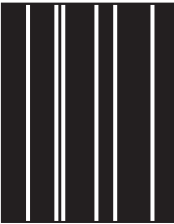
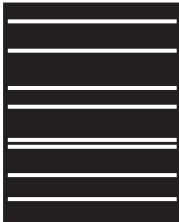

**Table 2-52 Image defect examples (continued)**

Problem	Image example	Solution
Gray background (image is obviously dark)		<ol style="list-style-type: none"> <li>1. Do not use paper that has already been run through the product.</li> <li>2. Try using a different type of paper.</li> <li>3. Print a few more pages to see if the problem corrects itself.</li> <li>4. Turn over the paper in the tray. Also, try rotating the paper 180°.</li> <li>5. Open the <b>Administration</b> menu at the product control panel. Open the <b>General Settings</b> menu and then open the <b>Print Quality</b> menu. Increase the <b>Toner density</b> setting.</li> <li>6. Make sure that the environmental specifications for the product are being met.</li> <li>7. The toner cartridge might need to be replaced.</li> <li>8. The print-cartridge ground or bias contacts might be dirty. Clean the contacts.</li> <li>9. Stop a print job before it is complete, and then remove the toner cartridge. Open the photosensitive drum shield, and look at the toner image on the drum. <ul style="list-style-type: none"> <li>◦ If the image is not fully transferring to the page, replace the transfer roller.</li> <li>◦ If the toner on the drum is faint, replace the laser scanner.</li> </ul> </li> <li>10. The high-voltage power supply might be damaged. Replace the high-voltage power supply.</li> </ol>
Toner smear		<ol style="list-style-type: none"> <li>1. Print a few more pages to see if the problem corrects itself.</li> <li>2. Try using a different type of paper.</li> <li>3. Make sure that the environmental specifications for the product are being met.</li> <li>4. Clean the inside of the product and run a cleaning page to clean the fuser.</li> <li>5. The toner cartridge might need to be replaced.</li> </ol>
Loose toner		<p>Loose toner, in this context, is defined as toner that can be rubbed off the page.</p> <ol style="list-style-type: none"> <li>1. If you have observed a rougher texture on one side of your paper, try printing on the smoother side.</li> <li>2. Make sure that the environmental specifications for the product are being met.</li> <li>3. Make sure that the type and quality of the paper you are using meet HP specifications. For more information, see the product user guide.</li> <li>4. The pressure roller is dirty, the fuser film is scratched, or a foreign substance is on the fuser film. Use the <b>Print Fuser Test Page</b> option in the <b>Troubleshooting</b> menu to test the fuser. If the error persists, replace the fuser.</li> </ol>

**Table 2-52 Image defect examples (continued)**

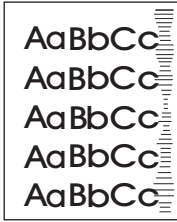
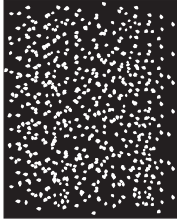
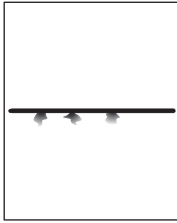
Problem	Image example	Solution
Repeat defects		<ol style="list-style-type: none"> <li>1. Print a few more pages to see if the problem corrects itself.</li> <li>2. Clean the inside of the product and run a cleaning page to clean the fuser.</li> <li>3. Use the repetitive defect ruler to determine if the defect is caused by the fuser or the toner cartridge. <ul style="list-style-type: none"> <li>◦ If the toner cartridge is causing the defect, run the print/stop test at the 500 msec setting. If the test shows a defect, replace the toner cartridge.</li> <li>◦ Use the <b>Print Fuser Test Page</b> option in the <b>Troubleshooting</b> menu to test the fuser. If the error persists, replace the fuser.</li> </ul> </li> </ol>
Repeat image		<p>This type of defect might occur when using preprinted forms or a large quantity of narrow paper. Verify that the preprinted ink used on forms meet HP specifications for use in laser printers.</p> <ol style="list-style-type: none"> <li>1. Print a few more pages to see if the problem corrects itself.</li> <li>2. Make sure that the type and quality of the paper you are using meet HP specifications. For more information, see the product user guide.</li> <li>3. Verify that the product is configured for the correct paper type.</li> <li>4. Use the <b>Print Fuser Test Page</b> option in the <b>Troubleshooting</b> menu to test the fuser. If the error persists, replace the fuser.</li> </ol>
Misformed characters		<ol style="list-style-type: none"> <li>1. Print a few more pages to see if the problem corrects itself.</li> <li>2. Make sure that the environmental specifications for the product are being met.</li> <li>3. Make sure that the type and quality of the paper you are using meet HP specifications. For more information, see the product user guide.</li> <li>4. The laser scanner wire connectors might have poor contact. Reconnect the connectors (J1900 and J801).</li> <li>5. The laser scanner might be damaged. Replace the laser scanner.</li> </ol>
Page skew		<ol style="list-style-type: none"> <li>1. Print a few more pages to see if the problem corrects itself.</li> <li>2. Verify that no torn pieces of paper are inside the product.</li> <li>3. Make sure that paper is loaded correctly and that all adjustments have been made. Make sure that the guides in the tray are not too tight or too loose against the paper.</li> <li>4. Turn over the paper in the tray. Also, try rotating the paper 180°.</li> <li>5. Make sure that the type and quality of the paper you are using meet HP specifications. For more information, see the product user guide.</li> <li>6. Make sure that the environmental specifications for the product are being met.</li> </ol>

**Table 2-52 Image defect examples (continued)**

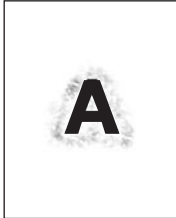

<b>Problem</b>	<b>Image example</b>	<b>Solution</b>
Curl or wave		<ol style="list-style-type: none"><li>1. Turn over the paper in the tray. Also, try rotating the paper 180°.</li><li>2. Make sure that the type and quality of the paper you are using meet HP specifications. For more information, see the product user guide.</li><li>3. Make sure that the environmental specifications for the product are being met.</li><li>4. Try printing to a different output bin.</li></ol>
Wrinkles or creases		<ol style="list-style-type: none"><li>1. Print a few more pages to see if the problem corrects itself.</li><li>2. Make sure that the environmental specifications for the product are being met.</li><li>3. Turn over the paper in the tray. Also, try rotating the paper 180°.</li><li>4. Make sure that paper is loaded correctly and all adjustments have been made. For more information, see the product user guide.</li><li>5. Make sure that the type and quality of the paper you are using meet HP specifications. See the product user guide.</li><li>6. If envelopes are creasing, try storing envelopes so that they lie flat.</li></ol>
Vertical white lines		<ol style="list-style-type: none"><li>1. Print a few more pages to see if the problem corrects itself.</li><li>2. Make sure that the type and quality of the paper you are using meet HP specifications. For more information, see the product user guide.</li><li>3. The photosensitive drum might be scratched, or the developing roller might be damaged. Replace the toner cartridge.</li><li>4. The laser beam window might be dirty. Clean the laser beam window on the laser scanner.</li><li>5. The fuser inlet guide might be dirty. Clean the guide.</li><li>6. The fuser film might be scratched or dirty. Replace the fuser.</li><li>7. The laser scanner might be damaged. Replace the laser scanner.</li></ol>
Horizontal white lines		<ol style="list-style-type: none"><li>1. The photosensitive drum might be scratched, or the developing roller might be damaged. Replace the toner cartridge.</li><li>2. The fuser film might be damaged. Replace the fuser.</li></ol>
Black page		<ol style="list-style-type: none"><li>1. The toner-cartridge ground or bias contacts might be dirty. Clean the contacts.</li><li>2. The primary charging roller might be defective. Replace the toner cartridge.</li><li>3. The high-voltage power supply might be damaged. Replace the high-voltage power supply.</li></ol>



**Table 2-52 Image defect examples (continued)**

<b>Problem</b>	<b>Image example</b>	<b>Solution</b>
Tire tracks		<p>This defect typically occurs when the toner cartridge has far exceeded its estimated life. For example, if you are printing a very large quantity of pages with very little toner coverage.</p> <ol style="list-style-type: none"><li>1. The toner cartridge might need to be replaced.</li><li>2. Reduce the number of pages that you print with very low toner coverage.</li></ol>
White spots on black or in the image		<ol style="list-style-type: none"><li>1. Print a few more pages to see if the problem corrects itself.</li><li>2. Make sure that the type and quality of the paper you are using meet HP specifications. For more information, see the product user guide.</li><li>3. Make sure that the environmental specifications for the product are being met.</li><li>4. The toner cartridge might need to be replaced.</li><li>5. If the transfer roller is deformed or damaged, replace the roller.</li><li>6. The transfer roller shaft might be dirty (poor contact). Remove the transfer roller and clean the shaft.</li><li>7. The high-voltage power supply might be damaged. Replace the high-voltage power supply.</li></ol>
Scattered lines		<ol style="list-style-type: none"><li>1. Make sure that the type and quality of the paper you are using meet HP specifications. For more information, see the product user guide.</li><li>2. Make sure that the environmental specifications for the product are being met.</li><li>3. Turn over the paper in the tray. Also, try rotating the paper 180°.</li><li>4. Change the toner density. Open the <b>Administration</b> menu at the product control panel. Open the <b>General Settings</b> menu and then open the <b>Print Quality</b> menu. Change the <b>Toner density</b> setting.</li><li>5. Open the <b>Administration</b> menu at the product control panel. Open the <b>General Settings</b> menu and then open the <b>Print Quality</b> menu. Open the <b>Optimize</b> menu and set the <b>Line Detail</b> setting to <b>Up</b>.</li></ol>

**Table 2-52 Image defect examples (continued)**

Problem	Image example	Solution
Blurred print		<ol style="list-style-type: none"><li>1. Make sure that the type and quality of the paper you are using meet HP specifications. For more information, see the product user guide.</li><li>2. Make sure that the environmental specifications for the product are being met.</li><li>3. Turn over the paper in the tray. Also, try rotating the paper 180°.</li><li>4. Do not use paper that already has been run through the product.</li><li>5. Decrease the toner density. Open the <b>Administration</b> menu at the product control panel. Open the <b>General Settings</b> menu and then open the <b>Print Quality</b> menu. Decrease the <b>Toner density</b> setting.</li></ol>
Random image repetition		<p>If an image that appears at the top of the page (in solid black) repeats further down the page (in a gray field), the toner might not have been completely erased from the last job. (The repeated image might be lighter or darker than the field it appears in.)</p> <ul style="list-style-type: none"><li>• Change the tone (darkness) of the field that the repeated image appears in.</li><li>• Change the order in which the images are printed. For example, have the lighter image at the top of the page, and the darker image farther down the page.</li><li>• From your software program, rotate the whole page 180° to print the lighter image first.</li><li>• If the defect occurs later in a print job, turn the product off for 10 minutes, and then turn it on to restart the print job.</li></ul>

## Clean the product

Over time, particles of toner and paper accumulate inside the product. This can cause print-quality problems during printing. Cleaning the product eliminates or reduces these problems.

Clean the paper path and print-cartridge areas every time that you change the toner cartridge or whenever print-quality problems occur. As much as possible, keep the product free from dust and debris.


To clean the product exterior, use a soft, water-moistened cloth.

## Print a cleaning page

Print a cleaning page to remove dust and excess toner from the paper path if you are having any of the following problems:

- Specks of toner are on the printed pages.
- Toner is smearing on the printed pages.
- Repeated marks occur on the printed pages.

Use the following procedure to print a cleaning page.

1. On the product control panel, press the Home  button.
2. Open the following menus:
  - **Device Maintenance**
  - **Calibration/Cleaning**
  - **Print Cleaning Page**
3. The cleaning process can take several minutes. When it is finished, discard the printed page.

# Solve performance problems

**Table 2-53 Solve performance problems**

Problem	Cause	Solution
Pages print but are totally blank.	The document might contain blank pages.	Check the document that you are printing to see if content displays on all of the pages.
	The product might be malfunctioning.	To check the product, print a configuration page.
Pages print very slowly.	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.
	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.
Pages did not print.	The product might not be pulling paper correctly.	Make sure paper is loaded in the tray correctly.
	The paper is jamming in the product.	Clear the jam.
	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 your computer.	The product might not share a USB port. If you have an external hard drive or network switchbox that is connected to the same port as the product, the other device might be interfering. To connect and use the product, you must disconnect the other device or you must use two USB ports on the computer.

# Solve connectivity problems

## Solve USB connection problems

If you have connected the product directly to a computer, check the cable.

- Verify that the cable is connected to the computer and to the product.
- Verify that the cable is not longer than 2 m (6.65 ft). Try using a shorter cable.
- Verify that the cable is working correctly by connecting it to another product. Replace the cable if necessary.

## Solve wired network problems

Check the following items to verify that the product is communicating with the network. Before beginning, print a configuration page from the product control panel and locate the product IP address that is listed on this page.

- [The product has a poor physical connection.](#)
- [The computer is using the incorrect IP address for the product](#)
- [The computer is unable to communicate with the product](#)
- [The product is using incorrect link and duplex settings for the network](#)
- [New software programs might be causing compatibility problems](#)
- [The computer or workstation might be set up incorrectly](#)
- [The product is disabled, or other network settings are incorrect](#)

### The product has a poor physical connection.

1. Verify that the product 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 product, 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 product

1. Open the printer properties and click the **Ports** tab. Verify that the current IP address for the product is selected. The product IP address is listed on the product configuration page.
2. If you installed the product 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 product using a Microsoft standard TCP/IP port, use the hostname instead of the IP address.
4. If the IP address is correct, delete the product and then add it again.

### The computer is unable to communicate with the product

1. Test network communication by pinging the product.
  - a. Open a command-line prompt on your computer. For Windows, click **Start**, click **Run**, and then type `cmd`.
  - b. Type `ping` followed by the IP address for your product.
  - 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 product, and the computer are all configured for the same network.

### The product is using incorrect link and duplex settings for the network

Hewlett-Packard recommends leaving this setting 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.
2. Verify that the operating system is configured correctly.

### The product 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

## Service menu

The **Service** menu is PIN-protected for added security. Only authorized service people have access to the **Service** menu. When you select **Service** from the list of menus, the product prompts you to type an eight-digit personal identification number (PIN).



**NOTE:** The product automatically exits the **Service** menu after about one minute if no items are selected or changed.

1. At the product control panel, press the Home  button.
2. Open the **Device Maintenance** button.
3. Open the **Service** menu.
4. Select the **Service Access Code** option.
5. Enter the following service access code for this product: **11071212**, and then press the **OK** button.


The following menu items appear in the **Service** menu:

First level	Second level	Value	Description
<b>Print Event Log</b>			Allows you to print or view the product event log.
<b>View Event Log</b>			
<b>Clear Event Log</b>			Use this item to clear the product event log.
<b>Cycle Counts</b>	<b>Total Engine Cycles</b>		Set the page count that was stored in NVRAM prior to installing a new formatter.
	<b>Refurbish Cycle Count</b>		Use this item to record the page count when the product was refurbished.
	<b>Maintenance Kit Count</b>		
	<b>Maintenance Kit Interval</b>		
<b>Serial Number</b>			Set the serial number.
<b>Service ID</b>			Use this item to show the date that the product was first used on the control panel. This eliminates the need for users to keep paper receipts for proof of warranty.

First level	Second level	Value	Description
<b>Cold Reset Paper</b>			When you perform a cold reset, the paper size that is stored in NVRAM is reset to the default factory setting. If you replace a formatter board in a country/region that uses A4 as the standard paper size, use this menu to reset the default paper size to A4. LETTER and A4 are the only available values.
<b>Test Support</b>	<b>Continuous Print from USB</b>		

## Product resets

### Restore factory-set defaults

1. On the product control panel, press the Home  button.
2. Open the following menus:
  - **Administration**
  - **General Settings**
  - **Restore Factory Settings**
3. Select the **Reset** option, and then press the **OK** button.

### Restore the service ID

#### Restore the service ID

If you replace the formatter, the date is lost. Use this menu item to reset the date to the original date that the product was first used. The date format is YYDDD. Use the following formula to calculate the dates:

1. To calculate YY, subtract 1990 from the calendar year. For instance, if the product was first used in 2002, calculate YY as follows:  $2002 - 1990 = 12$ .  $YY = 12$ .
2. Subtract 1 from 10 (October is the tenth month of the year):  $10 - 1 = 9$ .
  - Multiply 9 by 30:  $9 \times 30 = 270$  or add 17 to 270:  $270 + 17 = 287$ . Thus,  $DDD = 287$ .



## Convert the service ID to an actual date

You can use the product Service ID number to determine whether the product is still under warranty. Use the following formula to convert the Service ID into the installation date as follows:

1. Add 1990 to YY to get the actual year that the product was installed.
2. Divide DDD by 30. If there is a remainder, add 1 to the result. This is the month.
3. The remainder from the calculation in step 2 is the date.

Using the Service ID 12287 as an example, the date conversion is as follows:

1.  $12 + 1990 = 2002$ , so the year is 2002.
2.  $287 \text{ divided by } 30 = 9 \text{ with a remainder of } 17$ . Because there is a remainder, add 1 to 9 to get 10, which represents October.
3. The remainder in step 2 is 17, so that is the date.
4. The complete date is 17-October-2002.


---

 **NOTE:** A six-day grace period is built into the date system.


---

## Product cold reset




### Cold reset using the Preboot menu

1. Turn the product on.
2. Press the **Stop**  button when the Ready, Data, and Attention LEDs are illuminated solid until the **Preboot** menu opens.

---

 **NOTE:** The window for accessing the Preboot menu, while the Ready, Data, and Attention LEDs are illuminated solid, is around one second. You can press the button repeatedly while the product is starting up to make you sure you gain access to the Preboot menu.

---

3. Use the down arrow  button to highlight the **3 Administrator** item, and then press the **OK** button.
4. Use the down arrow  button to highlight the **8 Startup Options** item, and then press the **OK** button.
5. Use the down arrow  button to highlight the **2 Cold Reset** item, and then press the **OK** button.
6. Select the **1 Continue** item, and then press the **OK** button.

---

 **NOTE:** The product will initialize.

---

# Format Disk and Partial Clean functions

## Active and repository firmware locations

The firmware bundle consists of multiple parts. The main components are the Windows CE Operating System and the product/peripheral firmware files.


There are two locations/partitions on the hard drive where the firmware components are stored:

- The Active – where the Operating System and firmware currently are executing
- The Repository – the recovery location

If the Active location is damaged, or a **3 Partial Clean** was performed, the product automatically copies over the OS and firmware files from the Repository location and the product recovers.

If both the Active and Repository locations are damaged, or a **2 Format Disk** was performed, then both locations are gone and the error message **99.09.67** displays on the control-panel display. The user must upload the firmware to the product in order for it to function again.

---

 **CAUTION:** The **2 Format Disk** option performs a disk initialization for the entire disk. The operating system, firmware files, and third party files (among other files) will be completely lost. HP does not recommend this action without first contacting support.

---


## Partial Clean

The **3 Partial Clean** option erases all partitions and data on the disk drive, except for the firmware repository where a backup copy of the firmware file is stored. This allows the disk drive to be reformatted without having to download a firmware upgrade file to return the product to a bootable state.

### Characteristics of a partial clean

- Customer-defined settings, third-party solutions, firmware files, and the operating system are deleted.
- Rebooting the product restores the firmware files from the Repository location, but does not restore any customer-defined settings.
- For previous HP products, a Hard Disk Initialization is similar to executing the **3 Partial Clean** function for this product.

---


 **CAUTION:** HP recommends backing-up product configuration data before executing a **3 Partial Clean** if you need to retain customer-defined settings. See the **Backup/Restore** item in the **Device Maintenance** menu.

---

### Reasons for performing partial clean

- The product continually boots up in an error state.

---




 **NOTE:** Try clearing the error prior to executing a **3 Partial Clean**.

---


- The product will not respond to commands from the control panel.

- Executing the **3 Partial Clean** function is helpful for troubleshooting hard disk problems.
- To reset the product by deleting all solutions and customer-defined settings.
- The product default settings are not properly working.

### Execute a 3 Partial Clean

1. Turn the product on.
2. Press the **Stop**  button when the Ready, Data, and Attention LEDs are illuminated solid until the **Preboot** menu opens.  
Touch the HP logo that displays in the center of the touchscreen until the **Preboot** menu opens.
3. Use the down arrow  button to highlight the **3 Administrator** item, and then press the **OK** button.
4. Use the down arrow  button to highlight the **3 Partial Clean** item, and then press the **OK** button.
5. Press the **OK** button again.
6. Select the **1 Continue** item, and then press the **OK** button.

---

 **NOTE:** The product initializes.

---

### Format Disk

The **2 Format Disk** option erases the entire disk drive.

---

 **CAUTION:** After executing a **2 Format Disk** option, the product is *not* bootable.

---

### Characteristics of a format disk

- Customer-defined settings, third-party solutions, firmware files, and the operating system are deleted.


---

 **NOTE:** Rebooting the product *does not* restore the firmware files.

---

- Rebooting the product restores the firmware files from the Repository location, but does not restore any customer-defined settings.
- After executing the **2 Format Disk** function, the message **99.09.67** displays on the control panel.
- After executing the **2 Format Disk** function, the product firmware must be reloaded.

---


 **CAUTION:** HP recommends that you do not use the **2 Format Disk** option unless an error occurs and the solution in the product service manual recommends this solution. After executing the **2 Format Disk** function, the product is unusable.

HP recommends backing-up product configuration data before executing a **2 Format Disk** if you need to retain customer-defined settings. See the **Backup/Restore** item in the **Device Maintenance** menu.

---

### Reasons for performing a format disk

- The product continually boots up in an error state.


 **NOTE:** Try clearing the error prior to executing a **2 Format Disk**.

---

- The product will not respond to commands from the control panel.
- Executing the **2 Format Disk** function is helpful for troubleshooting hard disk problems.
- To reset the product by deleting all solutions and customer-defined settings.

### Execute a 2 Format Disk

1. Turn the product on.
2. Touch the HP logo that displays in the center of the touchscreen until the **Preboot** menu opens.  
Press the **Stop** ⊗ button when the Ready, Data, and Attention LEDs are illuminated solid until the **Preboot** menu opens.
3. Use the down arrow ▼ button to highlight the **3 Administrator** item, and then press the **OK** button.
4. Use the down arrow ▼ button to highlight the **2 Format Disk** item, and then press the **OK** button.
5. Press the **OK** button again.

 **NOTE:** When the **2 Format Disk** operation is complete, you will need to reload the product firmware.

---

# Product firmware upgrades

To download the most recent firmware upgrade for the product, go to [www.hp.com/go/lj700M712\\_firmware](http://www.hp.com/go/lj700M712_firmware).

## Determine the installed revision of firmware

Print a configuration page to determine the installed revision of firmware.

On the configuration page, look in the section marked Device Information for the firmware datecode and firmware revision.

### Firmware datecode and firmware revision examples

- 20100831 (firmware datecode)
- 103067\_104746 (firmware revision)


## Perform a firmware upgrade

The firmware bundle is a `xxxxxxx.bdl` file. This file requires an interactive upgrade method. You cannot upgrade the product using the traditional FTP, LPR or Port 9100 methods of upgrading. Use one of the following methods to upgrade the firmware for this product.

### Embedded Web Server

1. Open an browser window.
2. Enter the product IP address in the URL line.
3. Select the **Firmware upgrade** link from within the **Troubleshooting** tab.


---

 **NOTE:** If you get a warning screen, follow the instructions for setting an administrator password from the **Security** tab.

---

4. Browse to the location that the firmware upgrade file was downloaded to, and then select the firmware file. Select the Install button to perform the upgrade.

---

 **NOTE:** Do not close the browser window until the Embedded Web Server (EWS) displays the confirmation page.

---

5. Select **Restart Now** from the EWS confirmation page, or turn the product off, and then on again using the power switch.

## USB storage device (Preboot menu)

1. Copy the firmware upgrade file to the root directory of a USB flash drive. The firmware upgrade file has a .bdl extension.
2. Insert the USB flash drive into the USB port on the product control panel.
3. Turn the product on.
4. Open the preboot menu.
  - a. Turn the product on.
  - b. Wait for both the **Ready** and **Attention** LEDs at the bottom right side of the control panel to illuminate and then dim out. The HP logo will appear on the control panel display.
  - c. Press the **Stop** ⓧ button when the Ready, Data, and Attention LEDs are illuminated solid until the **Preboot** menu opens.



---

**NOTE:** The period of time for accessing the preboot menu is around one second. You may need to press the **Stop** ⓧ button repeatedly while the product is starting up to make you sure you gain access to the preboot menu.

---

- d. Use the down arrow ▼ arrow button to navigate the preboot menu options.
  - e. Press the **OK** button to select a menu item.
5. Wait for the Preboot menu to appear on the control-panel display, and then press the down arrow ▼ button to scroll to **Administrator**. Press the **OK** button to select it.
  6. Press the down arrow ▼ button to scroll to **Manage Disk**. Press the **OK** button to select it.
  7. Press the down arrow ▼ button to scroll to **Clear Disk Pwd**. Press the **OK** button to select it.
  8. The message **Proceed with Requested Action** displays. Press the **OK** button.
  9. Press the back arrow ↶ button to return to the Preboot menu home screen.
  10. Press the down arrow ▼ button to scroll to **Administrator**. Press the **OK** button to select it.
  11. Press the down arrow ▼ button to scroll to **Download**. Press the **OK** button to select it.
  12. Press the down arrow ▼ button to scroll to **USB Thumbdrive**. Press the **OK** button to select it.
  13. Several .bdl files might be listed. Press the down arrow ▼ button to scroll to the firmware upgrade file that you downloaded. Press the **OK** button to select it.




---

**NOTE:** If no .bdl files are listed, try saving the file to a different USB flash drive


---

14. Wait while the file transfers. When the transfer is complete, the message **Complete** displays on the screen.
15. Turn the product off, remove the USB flash drive, and then turn the product on. Wait for several minutes while the product initializes.
  - If the upgrade is unsuccessful, try sending the firmware upgrade file again.
  - If the upgrade fails again, contact HP support at [www.hp.com/support/lj700M712](http://www.hp.com/support/lj700M712).

## USB storage device (control-panel menu)

1. Copy the xxxxxxxx.bdl file to a portable USB flash drive.
2. Turn the product on, and then wait until it reaches the Ready state.
3. At the product control panel, press the Home  button.
4. Open the **Device Maintenance** menu.
5. Select the **USB Firmware Upgrade** item, and then press the **OK** button.
6. Insert the portable USB storage device with the xxxxxxxx.bdl file on it into the USB port on the front of the product, and then press the **OK** button.
7. Select the xxxxxxxx.bdl file, and then press the **OK** button.

---


 **TIP:** If there is more than one xxxxxxxx.bdl file on the storage device, make sure that you select the correct file for this product.

---

8. When the product prompts you to confirm the upgrade, press the **OK** button.

When the upgrade is complete, the product will initialize.

---

 **NOTE:** The upgrade process can take up to 10 minutes to complete.

---

9. When the upgrade process is complete, print a configuration page and verify that the upgrade firmware version was installed.



---

# A Service and support

- [Hewlett-Packard limited warranty statement](#)
- [HP's Premium Protection Warranty: LaserJet toner cartridge limited warranty statement](#)
- [HP policy on non-HP supplies](#)
- [HP anticounterfeit Web site](#)
- [Data stored on the toner cartridge](#)
- [End User License Agreement](#)
- [OpenSSL](#)
- [Customer self-repair warranty service](#)
- [Customer support](#)

# Hewlett-Packard limited warranty statement

HP PRODUCT	DURATION OF LIMITED WARRANTY
HP LaserJet Enterprise 700 M712n, M712dn, M712xh	One-year on-site warranty

HP warrants to you, the end-user customer, that HP hardware and accessories will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or equivalent in performance to new.

HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software which does not execute its programming instructions due to such defects.

HP does not warrant that the operation of HP products will be uninterrupted or error free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.

HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE. Some countries/regions, states or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from country/region to country/region, state to state, or province to province.

HP's limited warranty is valid in any country/region or locality where HP has a support presence for this product and where HP has marketed this product. The level of warranty service you receive may vary according to local standards. HP will not alter form, fit or function of the product to make it operate in a country/region for which it was never intended to function for legal or regulatory reasons.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some countries/regions, states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

# HP's Premium Protection Warranty: LaserJet toner cartridge limited warranty statement

This HP product is warranted to be free from defects in materials and workmanship.

This warranty does not apply to products that (a) have been refilled, refurbished, remanufactured or tampered with in any way, (b) experience problems resulting from misuse, improper storage, or operation outside of the published environmental specifications for the printer product or (c) exhibit wear from ordinary use.

To obtain warranty service, please return the product to place of purchase (with a written description of the problem and print samples) or contact HP customer support. At HP's option, HP will either replace products that prove to be defective or refund your purchase price.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTY IS EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE.


TO THE EXTENT ALLOWED BY LOCAL LAW, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

## HP policy on non-HP supplies

Hewlett-Packard Company cannot recommend the use of non-HP toner cartridges, either new or remanufactured.

---

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

---

## HP anticounterfeit Web site

Go to [www.hp.com/go/anticounterfeit](http://www.hp.com/go/anticounterfeit) when you install an HP toner cartridge and the control-panel message says the cartridge is non-HP. HP will help determine if the cartridge is genuine and take steps to resolve the problem.

Your toner cartridge might not be a genuine HP toner cartridge if you notice the following:

- The supplies status page indicates that a non-HP supply is installed.
- You are experiencing a high number of problems with the cartridge.
- The cartridge does not look like it usually does (for example, the packaging differs from HP packaging).

## Data stored on the toner cartridge

The HP toner cartridges used with this product contain a memory chip that assists in the operation of the product.

In addition, this memory chip collects a limited set of information about the usage of the product, which might include the following: the date when the toner cartridge was first installed, the date when the toner cartridge was last used, the number of pages printed using the toner cartridge, the page coverage, the printing modes used, any printing errors that might have occurred, and the product model. This information helps HP design future products to meet our customers' printing needs.

The data collected from the toner cartridge memory chip does not contain information that can be used to identify a customer or user of the toner cartridge or their product.

HP collects a sampling of the memory chips from toner cartridges returned to HP's free return and recycling program (HP Planet Partners: [www.hp.com/recycle](http://www.hp.com/recycle)). The memory chips from this sampling are read and studied in order to improve future HP products. HP partners who assist in recycling this toner cartridge might have access to this data, as well.

Any third party possessing the toner cartridge might have access to the anonymous information on the memory chip.

# End User License Agreement

PLEASE READ CAREFULLY BEFORE USING THIS SOFTWARE PRODUCT: This End-User License Agreement (“EULA”) is a contract between (a) you (either an individual or the entity you represent) and (b) Hewlett-Packard Company (“HP”) that governs your use of the software product (“Software”). This EULA does not apply if there is a separate license agreement between you and HP or its suppliers for the Software, including a license agreement in online documentation. The term “Software” may include (i) associated media, (ii) a user guide and other printed materials, and (iii) “online” or electronic documentation (collectively “User Documentation”).

RIGHTS IN THE SOFTWARE ARE OFFERED ONLY ON THE CONDITION THAT YOU AGREE TO ALL TERMS AND CONDITIONS OF THIS EULA. BY INSTALLING, COPYING, DOWNLOADING, OR OTHERWISE USING THE SOFTWARE, YOU AGREE TO BE BOUND BY THIS EULA. IF YOU DO NOT ACCEPT THIS EULA, DO NOT INSTALL, DOWNLOAD, OR OTHERWISE USE THE SOFTWARE. IF YOU PURCHASED THE SOFTWARE BUT DO NOT AGREE TO THIS EULA, PLEASE RETURN THE SOFTWARE TO YOUR PLACE OF PURCHASE WITHIN FOURTEEN DAYS FOR A REFUND OF THE PURCHASE PRICE; IF THE SOFTWARE IS INSTALLED ON OR MADE AVAILABLE WITH ANOTHER HP PRODUCT, YOU MAY RETURN THE ENTIRE UNUSED PRODUCT.

- 1. THIRD PARTY SOFTWARE.** The Software may include, in addition to HP proprietary software (“HP Software”), software under licenses from third parties (“Third Party Software” and “Third Party License”). Any Third Party Software is licensed to you subject to the terms and conditions of the corresponding Third Party License. Generally, the Third Party License is in a file such as “license.txt” or a “readme” file. You should contact HP support if you cannot find a Third Party License. If the Third Party Licenses include licenses that provide for the availability of source code (such as the GNU General Public License) and the corresponding source code is not included with the Software, then check the product support pages of HP's website (hp.com) to learn how to obtain such source code.
- 2. LICENSE RIGHTS.** You will have the following rights provided you comply with all terms and conditions of this EULA:
  - a. Use.** HP grants you a license to Use one copy of the HP Software. “Use” means installing, copying, storing, loading, executing, displaying, or otherwise using the HP Software. You may not modify the HP Software or disable any licensing or control feature of the HP Software. If this Software is provided by HP for Use with an imaging or printing product (for example, if the Software is a printer driver, firmware, or add-on), the HP Software may only be used with such product (“HP Product”). Additional restrictions on Use may appear in the User Documentation. You may not separate component parts of the HP Software for Use. You do not have the right to distribute the HP Software.
  - b. Copying.** Your right to copy means you may make archival or back-up copies of the HP Software, provided each copy contains all the original HP Software’s proprietary notices and is used only for back-up purposes.
- 3. UPGRADES.** To Use HP Software provided by HP as an upgrade, update, or supplement (collectively “Upgrade”), you must first be licensed for the original HP Software identified by HP as eligible for the Upgrade. To the extent the Upgrade supersedes the original HP Software, you may no longer use such HP Software. This EULA applies to each Upgrade unless HP provides other terms with the Upgrade. In case of a conflict between this EULA and such other terms, the other terms will prevail.



- 4. TRANSFER.**
  - a.** Third Party Transfer. The initial end user of the HP Software may make a one-time transfer of the HP Software to another end user. Any transfer will include all component parts, media, User Documentation, this EULA, and if applicable, the Certificate of Authenticity. The transfer may not be an indirect transfer, such as a consignment. Prior to the transfer, the end user receiving the transferred Software will agree to this EULA. Upon transfer of the HP Software, your license is automatically terminated.
  - b.** Restrictions. You may not rent, lease or lend the HP Software or Use the HP Software for commercial timesharing or bureau use. You may not sublicense, assign or otherwise transfer the HP Software except as expressly provided in this EULA.
- 5. PROPRIETARY RIGHTS.** All intellectual property rights in the Software and User Documentation are owned by HP or its suppliers and are protected by law, including applicable copyright, trade secret, patent, and trademark laws. You will not remove any product identification, copyright notice, or proprietary restriction from the Software.
- 6. LIMITATION ON REVERSE ENGINEERING.** You may not reverse engineer, decompile, or disassemble the HP Software, except and only to the extent that the right to do so is allowed under applicable law.
- 7. CONSENT TO USE OF DATA.** HP and its affiliates may collect and use technical information you provide in relation to (i) your Use of the Software or the HP Product, or (ii) the provision of support services related to the Software or the HP Product. All such information will be subject to HP's privacy policy. HP will not use such information in a form that personally identifies you except to the extent necessary to enhance your Use or provide support services.
- 8. LIMITATION OF LIABILITY.** Notwithstanding any damages that you might incur, the entire liability of HP and its suppliers under this EULA and your exclusive remedy under this EULA will be limited to the greater of the amount actually paid by you for the Product or U.S. \$5.00. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOST PROFITS, LOST DATA, BUSINESS INTERRUPTION, PERSONAL INJURY, OR LOSS OF PRIVACY) RELATED IN ANY WAY TO THE USE OF OR INABILITY TO USE THE SOFTWARE, EVEN IF HP OR ANY SUPPLIER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND EVEN IF THE ABOVE REMEDY FAILS OF ITS ESSENTIAL PURPOSE. Some states or other jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
- 9. U.S. GOVERNMENT CUSTOMERS.** Software was developed entirely at private expense. All Software is commercial computer software within the meaning of the applicable acquisition regulations. Accordingly, pursuant to US FAR 48 CFR 12.212 and DFAR 48 CFR 227.7202, use, duplication and disclosure of the Software by or for the U.S. Government or a U.S. Government subcontractor is subject solely to the terms and conditions set forth in this End User License Agreement, except for provisions which are contrary to applicable mandatory federal laws.
- 10. COMPLIANCE WITH EXPORT LAWS.** You will comply with all laws, rules, and regulations (i) applicable to the export or import of the Software, or (ii) restricting the Use of the Software, including any restrictions on nuclear, chemical, or biological weapons proliferation.
- 11. RESERVATION OF RIGHTS.** HP and its suppliers reserve all rights not expressly granted to you in this EULA.

© 2009 Hewlett-Packard Development Company, L.P.

Rev. 04/09

# OpenSSL

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;

LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes cryptographic software written by Eric Young ([ey@cryptsoft.com](mailto:ey@cryptsoft.com)). This product includes software written by Tim Hudson ([tjh@cryptsoft.com](mailto:tjh@cryptsoft.com)).

## Customer self-repair warranty service

HP products are designed with many Customer Self Repair (CSR) parts to minimize repair time and allow for greater flexibility in performing defective parts replacement. If during the diagnosis period, HP identifies that the repair can be accomplished by the use of a CSR part, HP will ship that part directly to you for replacement. There are two categories of CSR parts: 1) Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service. 2) Parts for which customer self repair is optional. These parts are also designed for Customer Self Repair. If, however, you require that HP replace them for you, this may be done at no additional charge under the type of warranty service designated for your product.

Based on availability and where geography permits, CSR parts will be shipped for next business day delivery. Same-day or four-hour delivery may be offered at an additional charge where geography permits. If assistance is required, you can call the HP Technical Support Center and a technician will help you over the phone. HP specifies in the materials shipped with a replacement CSR part whether a defective part must be returned to HP. In cases where it is required to return the defective part to HP, you must ship the defective part back to HP within a defined period of time, normally five (5) business days. The defective part must be returned with the associated documentation in the provided shipping material. Failure to return the defective part may result in HP billing you for the replacement. With a customer self repair, HP will pay all shipping and part return costs and determine the courier/carrier to be used.

# Customer support

---

Get telephone support for your country/region	Country/region phone numbers are on the flyer that was in the box with your product or at <a href="http://www.hp.com/support/">www.hp.com/support/</a> .
Have the product name, serial number, date of purchase, and problem description ready.	
Get 24-hour Internet support	<a href="http://www.hp.com/support/lj700M712">www.hp.com/support/lj700M712</a>
Download software utilities, drivers, and electronic information	<a href="http://www.hp.com/go/lj700M712_software">www.hp.com/go/lj700M712_software</a>
Order additional HP service or maintenance agreements	<a href="http://www.hp.com/go/carepack">www.hp.com/go/carepack</a>
Register your product	<a href="http://www.register.hp.com">www.register.hp.com</a>

---



---

## B Product specifications

- [Physical specifications](#)
- [Power consumption, electrical specifications, and acoustic emissions](#)
- [Environmental specifications](#)

# Physical specifications

**Table B-1 Product dimensions and weights**

Product model	Height	Depth	Width	Weight
M712n	389 mm (15.3 in)	585 mm (23.0 in)	568 mm (22.4 in)	34.7 kg (76.5 lb) <sup>1</sup>
M712dn	389 mm (15.3 in)	585 mm (23.0 in)	568 mm (22.4 in)	38.5 kg (84.8 lb) <sup>1</sup>
M712xh	514 mm (20.2 in)	585 mm (23.0 in)	568 mm (22.4 in)	49.4 kg (109 lb) <sup>1</sup>
Optional 500-sheet feeder	125 mm (4.9 in)	585 mm (23.0 in)	568 mm (22.4 in)	11.3 kg (25 lb)
Optional 1x500-sheet feeder and stand	551 mm (21.7 in)	681 mm (26.8 in)	745 mm (29.3 in)	22.7 kg (50 lb)
Optional 3x500-sheet feeder and stand	551 mm (21.7 in)	681 mm (26.8 in)	745 mm (29.3 in)	29.9 kg (66 lb)
Optional 3,500-sheet high-capacity input feeder and stand	551 mm (21.7 in)	681 mm (26.8 in)	745 mm (29.3 in)	38.6 kg (85 lb)

<sup>1</sup> With toner installed

**Table B-2 Product dimensions with all doors and trays fully opened**

Product model	Height	Depth	Width
M712n	389 mm (15.3 in)	998 mm (39.3 in)	805 mm (31.7 in)
M712dn	389 mm (15.3 in)	998 mm (39.3 in)	805 mm (31.7 in)
M712xh	514 mm (20.2 in)	998 mm (39.3 in)	805 mm (31.7 in)

## Power consumption, electrical specifications, and acoustic emissions

See [www.hp.com/go/lj700M712\\_regulatory-environmental](http://www.hp.com/go/lj700M712_regulatory-environmental) for current information.

**CAUTION:** Power requirements are based on the country/region where the product is sold. Do not convert operating voltages. This will damage the product and void the product warranty.

## Environmental specifications

**Table B-3 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
Altitude	Not applicable	0 to 3048 m (0 to 10,000 ft)



---

# C Regulatory information

- [FCC regulations](#)
- [Environmental product stewardship program](#)
- [Declaration of conformity](#)
- [Safety statements](#)

## FCC regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



**NOTE:** Any changes or modifications to the printer that are not expressly approved by HP could void the user's authority to operate this equipment.

Use of a shielded interface cable is required to comply with the Class A limits of Part 15 of FCC rules.

# Environmental product stewardship program

## Protecting the environment

Hewlett-Packard Company is committed to providing quality products in an environmentally sound manner. This product has been designed with several attributes to minimize impacts on our environment.

## Ozone production

This product generates no appreciable ozone gas (O<sub>3</sub>).

## Power consumption

Power usage drops significantly while in Ready or Sleep mode, which saves natural resources and saves money without affecting the high performance of this product. Hewlett-Packard printing and imaging equipment marked with the ENERGY STAR® logo is qualified to the U.S. Environmental Protection Agency's ENERGY STAR specifications for imaging equipment. The following mark will appear on ENERGY STAR qualified imaging products:



Additional ENERGY STAR qualified imaging product model information is listed at:

[www.hp.com/go/energystar](http://www.hp.com/go/energystar)

## Toner consumption

EconoMode uses less toner, which might extend the life of the toner cartridge. HP does not recommend the full-time use of EconoMode. If EconoMode is used full-time, the toner supply might outlast the mechanical parts in the toner cartridge. If print quality begins to degrade and is no longer acceptable, consider replacing the toner cartridge.

## Paper use

This product's manual/automatic duplex feature (two-sided printing) and N-up printing (multiple pages printed on one page) capability can reduce paper usage and the resulting demands on natural resources.


## Plastics

Plastic parts over 25 grams are marked according to international standards that enhance the ability to identify plastics for recycling purposes at the end of the product's life.

## HP LaserJet print supplies

It's easy to return and recycle your HP LaserJet toner cartridges after use—free of charge—with HP Planet Partners. Multilingual program information and instructions are included in every new HP LaserJet toner cartridge and supplies package. You help reduce the toll on the environment further when you return multiple cartridges together rather than separately.

HP is committed to providing inventive, high-quality products and services that are environmentally sound, from product design and manufacturing to distribution, customer use and recycling. When you participate in the HP Planet Partners program, we ensure your HP LaserJet toner cartridges are recycled properly, processing them to recover plastics and metals for new products and diverting millions of tons of waste from landfills. Since this cartridge is being recycled and used in new materials, it will not be returned to you. Thank you for being environmentally responsible!

 **NOTE:** Use the return label to return original HP LaserJet toner cartridges only. Please do not use this label for HP inkjet cartridges, non-HP cartridges, refilled or remanufactured cartridges or warranty returns. For information about recycling your HP inkjet cartridges please go to <http://www.hp.com/recycle>.

## Return and recycling instructions

### United States and Puerto Rico

The enclosed label in the HP LaserJet toner cartridge box is for the return and recycling of one or more HP LaserJet toner cartridges after use. Please follow the applicable instructions below.

#### Multiple returns (more than one cartridge)

1. Package each HP LaserJet toner cartridge in its original box and bag.
2. Tape the boxes together using strapping or packaging tape. The package can weigh up to 31 kg (70 lb).
3. Use a single pre-paid shipping label.

#### **OR**

1. Use your own suitable box, or request a free bulk collection box from [www.hp.com/recycle](http://www.hp.com/recycle) or 1-800-340-2445 (holds up to 31 kg (70 lb) of HP LaserJet toner cartridges).
2. Use a single pre-paid shipping label.

#### Single returns

1. Package the HP LaserJet toner cartridge in its original bag and box.
2. Place the shipping label on the front of the box.

#### Shipping

For US and Puerto Rico HP LaserJet toner cartridge recycling returns, use the pre-paid, pre-addressed shipping label contained in the box. To use the UPS label, give the package to the UPS driver during

your next delivery or pick-up, or take it to an authorized UPS drop-off center. (Requested UPS Ground pickup will be charged normal pick-up rates) For the location of your local UPS drop-off center, call 1-800-PICKUPS or visit [www.ups.com](http://www.ups.com).

If you are returning the package with the FedEx label, give the package to either the U.S. Postal Service carrier or FedEx driver during your next pick-up or delivery. (Requested FedEx Ground pickup will be charged normal pick-up rates). Or, you can drop off your packaged toner cartridge(s) at any U.S. Post Office or any FedEx shipping center or store. For the location of your nearest U.S. Post Office, please call 1-800-ASK-USPS or visit [www.usps.com](http://www.usps.com). For the location of your nearest FedEx shipping center/store, please call 1-800-GOFEDEX or visit [www.fedex.com](http://www.fedex.com).

For more information, or to order additional labels or boxes for bulk returns, visit [www.hp.com/recycle](http://www.hp.com/recycle) or call 1-800-340-2445. Information subject to change without notice.

## Residents of Alaska and Hawaii

Do not use the UPS label. Call 1-800-340-2445 for information and instructions. The U.S. Postal Service provides no-cost cartridge return transportation services under an arrangement with HP for Alaska and Hawaii.

## Non-U.S. returns

To participate in HP Planet Partners return and recycling program, just follow the simple directions in the recycling guide (found inside the packaging of your new product supply item) or visit [www.hp.com/recycle](http://www.hp.com/recycle). Select your country/region for information on how to return your HP LaserJet printing supplies.

## Paper

This product is capable of using recycled papers when the paper meets the guidelines outlined in the *HP LaserJet Printer Family Print Media Guide*. This product is suitable for the use of recycled paper according to EN12281:2002.

## Material restrictions

This HP product does not contain added mercury.

This HP product contains a battery that might require special handling at end-of-life. The batteries contained in or supplied by Hewlett-Packard for this product include the following:

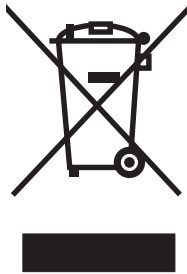
<b>HP LaserJet Enterprise 700 M712</b>	
Type	Carbon monofluoride lithium
Weight	0.8 g
Location	On formatter board
User-removable	No



## 廢電池請回收

For recycling information, you can go to [www.hp.com/recycle](http://www.hp.com/recycle), or contact your local authorities or the Electronics Industries Alliance: [www.eiae.org](http://www.eiae.org).

## Disposal of waste equipment by users



This symbol means do not dispose of your product with your other household waste. Instead, you should protect human health and the environment by handing over your waste equipment to a designated collection point for the recycling of waste electrical and electronic equipment. For more information, please contact your household waste disposal service, or go to: [www.hp.com/recycle](http://www.hp.com/recycle).

## Electronic hardware recycling

HP encourages customers to recycle used electronic hardware. For more information about recycling programs go to: [www.hp.com/recycle](http://www.hp.com/recycle).

## Chemical substances

HP is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at: [www.hp.com/go/reach](http://www.hp.com/go/reach).

## Material Safety Data Sheet (MSDS)

Material Safety Data Sheets (MSDS) for supplies containing chemical substances (for example, toner) can be obtained by accessing the HP Web site at [www.hp.com/go/msds](http://www.hp.com/go/msds) or [www.hp.com/hpinfo/community/environment/productinfo/safety](http://www.hp.com/hpinfo/community/environment/productinfo/safety).

## For more information

To obtain information about these environmental topics:

- Product environmental profile sheet for this and many related HP products
- HP's commitment to the environment

- HP's environmental management system
- HP's end-of-life product return and recycling program
- Material Safety Data Sheets

Visit [www.hp.com/go/environment](http://www.hp.com/go/environment) or [www.hp.com/hpinfo/globalcitizenship/environment](http://www.hp.com/hpinfo/globalcitizenship/environment).

# Declaration of conformity

## Declaration of Conformity

according to ISO/IEC 17050-1 and EN 17050-1

**Manufacturer's Name:** Hewlett-Packard Company DoC#: BOISB-1105-00-Rel.1.0

**Manufacturer's Address:** 11311 Chinden Boulevard  
Boise, Idaho 83714-1021, USA

### declares, that the product

**Product Name:** HP LaserJet Enterprise 700 M712 series

**Regulatory Model Numbers:<sup>2)</sup>** BOISB-1105-00

**Product Options:** All

**Toner Cartridges:** CF214A, CF214X

### conforms to the following Product Specifications:

**SAFETY:** IEC 60950-1:2005 +A1 / EN60950-1: 2006 +A11:2009 +A1:2010 +A12:2011

IEC 60825-1:2007 / EN 60825-1:2007 (Class 1 Laser/LED Product)

IEC 62311:2007 / EN 62311:2008

GB4943-2001

**EMC:** CISPR22:2008/ EN55022:2010 - Class A<sup>1), 3)</sup>

EN 61000-3-2:2006 +A1:2009 +A2:2009

EN 61000-3-3:2008

EN 55024:1998 +A1 +A2

FCC Title 47 CFR, Part 15 Class A<sup>1)</sup> / ICES-003, Issue 4

GB9254-2008, GB17625.1-2003

### Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 2004/108/EC, the Low Voltage Directive 2006/95/EC, and **the EuP Directive 2005/32/EC**, and carries the CE-Marking  accordingly.

This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two Conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

1. The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.
2. For regulatory purposes, these products are assigned a Regulatory model number. This number should not be confused with the product name or the product number(s).
3. The product includes LAN (Local Area Network) options. When the interface cable is attached to LAN connectors, the product meets the requirements of EN55022 & CNS13438 Class **A** in which case the following applies: "Warning – This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures."



**Boise, Idaho USA**

**June 2012**

**For Regulatory Topics only, contact:**

European Contact: Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Straße 140, D-71034 Böblingen, Germany (FAX: +49-7031-14-3143) [www.hp.com/go/certificates](http://www.hp.com/go/certificates)

USA Contact: Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, Idaho 83707-0015 (Phone: 208-396-6000)

# Safety statements

## Laser safety

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration has implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States. The device is certified as a "Class 1" laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside the device is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

**⚠ WARNING!** Using controls, making adjustments, or performing procedures other than those specified in this user guide may result in exposure to hazardous radiation.

## Canadian DOC regulations

Complies with Canadian EMC Class A requirements.

« Conforme à la classe A des normes canadiennes de compatibilité électromagnétiques. « CEM ». »

## VCCI statement (Japan)

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者は適切な対策を講ずるよう要求されることがあります。

VCCI-A

## Power cord instructions

Make sure your power source is adequate for the product voltage rating. The voltage rating is on the product label. The product uses either 100-127 Vac or 220-240 Vac and 50/60 Hz.

Connect the power cord between the product and a grounded AC outlet.

**⚠ CAUTION:** To prevent damage to the product, use only the power cord that is provided with the product.

## Power cord statement (Japan)

製品には、同梱された電源コードをお使い下さい。  
同梱された電源コードは、他の製品では使用出来ません。

## EMC statement (China)

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

## EMC statement (Korea)

A급 기기 (업무용 방송통신기기)	이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.
-----------------------	--

## EMI statement (Taiwan)

**警告使用者：**  
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

## Laser statement for Finland

### Luokan 1 laserlaite

Klass 1 Laser Apparät

HP LaserJet Enterprise 700 M712n, M712dn, M712xh, laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaaliassa käytössä kirjoittimen suojakoteloointi estää lasersäteiden pääsyn laitteen ulkopuolelle. Laitteen turvallisuusluokka on määritetty standardin EN 60825-1 (2007) mukaisesti.

### VAROITUS !

Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

### VARNING !

Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

### HUOLTO

HP LaserJet Enterprise 700 M712n, M712dn, M712xh - kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota väriainekasetin vaihtamista, paperiradan puhdistusta

tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoistyökaluja.

**VARO !**

Mikäli kirjoittimen suojakotelo avataan, olet alltiina näkymättömällelasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.

**VARNING !**

Om laserprinterns skyddshölje öppnas då apparaten är i funktion, utsätts användaren för osynlig laserstrålning. Betrakta ej strålen.

Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista: Aallonpituus 775-795 nm Teho 5 m W Luokan 3B laser.

## GS statement (Germany)

Das Gerät ist nicht für die Benutzung im unmittelbaren Gesichtsfeld am Bildschirmarbeitsplatz vorgesehen. Um störende Reflexionen am Bildschirmarbeitsplatz zu vermeiden, darf dieses Produkt nicht im unmittelbaren Gesichtsfeld platziert werden.

Das Gerät ist kein Bildschirmarbeitsplatz gemäß BildscharbV. Bei ungünstigen Lichtverhältnissen (z. B. direkte Sonneneinstrahlung) kann es zu Reflexionen auf dem Display und damit zu Einschränkungen der Lesbarkeit der dargestellten Zeichen kommen.

## Substances Table (China)

### 有毒有害物质表

根据中国电子信息产品污染控制管理办法的要求而出台

部件名称	有毒有害物质和元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
打印引擎	X	0	0	0	0	0
复印机组件	X	0	0	0	0	0
控制面板	0	0	0	0	0	0
塑料外壳	0	0	0	0	0	0
格式化板组件	X	0	0	0	0	0
碳粉盒	X	0	0	0	0	0

0614

0：表示在此部件所用的所有同类材料中，所含的此有毒或有害物质均低于 SJ/T11363-2006 的限制要求。

X：表示在此部件所用的所有同类材料中，至少一种所含的此有毒或有害物质高于 SJ/T11363-2006 的限制要求。

注：引用的“环保使用期限”是根据在正常温度和湿度条件下操作使用产品而确定的。

## Restriction on Hazardous Substances statement (Turkey)

Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

## Restriction on Hazardous Substances statement (Ukraine)

Обладнання відповідає вимогам Технічного регламенту щодо обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні, затвердженого постановою Кабінету Міністрів України від 3 грудня 2008 № 1057



# Index

## Symbols/Numerics

- 3,500-sheet high-capacity tray
  - clear jams 268
- 500-sheet tray
  - clearing paper jams 267

## A

- Accessories
  - 3,500-sheet high-capacity input feeder 67
- accessories installed, information 177
- acoustic specifications 318
- Administration menu, control panel 178
- antcounterfeit supplies 308

## B

- Backup/Restore menu, control panel 210
- batteries included 323
- black page, problem-solving 286
- blank page
  - problem-solving 281
- blank pages
  - troubleshooting 290
- blurred print, problem-solving 288
- buffer overflow errors 214

## C

- cables
  - USB, troubleshooting 290
- Calibrate/Cleaning menu, control panel 211
- Canadian DOC regulations 328
- cartridge
  - image-formation operations 22
  - operations 27

- cartridges
  - error messages 249
  - jams, clearing 271
  - non-HP 307
  - recycling 322
  - replace message 249
  - warranty 306
- cautions iii
- characters, misformed 285
- checklist
  - problems 86
- circuit diagrams
  - general 172
- clean the paper path
  - cleaning page printing 174
- cleaning
  - paper path 289
  - product 289
- cleaning page 211
- cleaning stage, image-formation operations 27
- clock
  - error message 213
- cold reset 294
- components
  - diagnostic tests 145
  - diagrams of 148
- configuration page 101
- configuration pages
  - information 177
  - printing 175
- control panel
  - Administration menu 178
  - Backup/Restore menu 210
  - Calibrate/Cleaning menu 211
  - Display Settings menu 189
  - General Settings menu 179
  - Manage Supplies menu 191
  - Manage Trays menu 192

- messages, numerical list 213
  - messages, types of 213
  - Network Settings menu 194
  - Print Options menu 188
  - Print Settings menu 185
  - Reports menu 178
  - Service menu 212
  - Troubleshooting menu 208
  - troubleshooting tests 145
  - USB Firmware Upgrade menu 212
  - conventions, document iii
  - counterfeit supplies 308
  - counts 293
    - page, reset 293
    - refurbish cycle 293
    - reset after replacing formatter 293
    - See also pages counts
  - creased paper, problem-solving 286
  - crooked pages 285
  - curled paper, problem-solving 286
  - customer support
    - online 315
- ## D
- date
    - codes for firmware 177
    - manufacture 176
    - product first used 293
  - DC controller
    - engine control system
      - operations 4
    - image-formation operations 22
    - laser scanner operations 20
  - DC controller PCA
    - sequence 5

- demo page 101
- density
  - problem-solving 281
- developing stage 25
- development block 25
- diagnostics
  - component 145
  - control panel 145
  - engine 104
  - LED 101
  - networks 202
- dimensions, product 318
- Display Settings menu, control panel 189
- disposal, end-of-life 323
- document conventions iii
- dots, problem-solving 282, 287
- dropouts, problem-solving 283
- drum
  - image-formation operations 22, 24, 25, 26, 27
  - laser scanner operations 20
  - toner cartridge components 27
- duplexer 76
  - jam detection 82
  - jams, clearing 276
- Duplexing
  - reverse feed/operation 78

**E**

- EIO cards
  - buffer overflow 214
- electrical specifications 318
- electronic hardware recycling 324
- end-of-life disposal 323
- engine
  - diagnostics 104
- engine control system operations 4
- engine test 104
- envelopes
  - wrinkled, problem-solving 286
- environmental stewardship program 321
- error messages
  - event log, listed numerically 260
  - numerical list 213
  - types of 213

- event log 101
  - clear 260, 293
  - information 177
  - messages, listed numerically 260
  - print 260
  - view 260
- event log messages 259

**F**

- FCC regulations 320
- Finnish laser safety statement 329
- firmware
  - date codes 177
  - version information 176
- firmware, downloading new 299
- fixing unit, image-formation operations 22
- flowcharts
  - troubleshooting 98
- formatter
  - 20
  - image-formation operations 22
  - resets after replacing 293
- formatter lights 101
- fraud Web site 308
- fuser
  - jams 274
- fuser control 15
- fuser unit, image-formation operations 27
- fuser/delivery block 44
- fusing operations 27

**G**

- General Settings menu, control panel 179
- gray background, problem-solving 284

**H**

- HCI
  - jam detection 74
  - lift-up 72
- high-capacity tray
  - clear jams 268
- high-voltage power supply
  - engine control system operations 4
  - image-formation operations 22

- high-voltage power supply PCA 13
- HP Customer Care 315
- HP fraud Web site 308
- HP Jetdirect print server
  - configuration page 176
  - lights 101

**I**

- image defects, problem-solving 281
- image formation
  - laser scanner operations 20
  - system operations 22
- image repetition, problem-solving 288
- image transfer stage 26
- installation
  - date calculation 293
  - verify for optional accessories 175
- internal clock errors 213
- INTR (initial rotation) period 3
- IPv4 information 176
- IPv6 information 176

**J**

- jams
  - 3,500-sheet high-capacity tray 268
  - 500-sheet tray 267
  - auto-navigation 263
  - detection operations 47
  - diagnostic test for 106
  - duplexer, clearing 276
  - fuser 274
  - locations 263
  - output bin 264
  - toner-cartridge area 271
  - Tray 1 264
  - Tray 2 or Tray 3 265
- Japanese VCCI statement 328
- Jetdirect print server
  - lights 101

**K**

- Korean EMC statement 329

**L**

- laser safety statements 328, 329



- laser scanner
  - image-formation operations 22
  - operations 20
- laser-beam exposure stage, image formation operations 25
- latent-image formation 24
- leading edge detection 47
- LEDs. *See* lights
- lenses, laser scanner operations 20
- license, software 310
- light print
  - problem-solving 281
- lights
  - formatter 101
  - troubleshooting with 101
- lines horizontal, problem-solving 283, 286
- lines vertical, problem-solving 286
- lines, problem-solving 283, 287
- link speed settings 207
- log of events
  - messages, listed numerically 260
- loop control 44
- loose toner, problem-solving 284
- low-voltage power supply
  - engine control system operations 4
- low-voltage power-supply PCA 10
- LSTR (last rotation) period 3

**M**

- Manage Supplies menu, control panel 191
- Manage Trays menu, control panel 192
- manual print modes 278
- material restrictions 323
- Material Safety Data Sheet (MSDS) 324
- media jams
  - detection operations 47
- memory
  - information 175
  - insufficient 213
- memory chip, toner cartridge description 309

- menus, control panel
  - Administration 178
  - Backup/Restore 210
  - Calibrate/Cleaning 211
  - Display Settings 189
  - General Settings 179
  - Manage Supplies 191
  - Manage Trays 192
  - Network Settings 194
  - Print Options 188
  - Print Settings 185
  - Reports 178
  - Service 212
  - Troubleshooting 208
  - USB Firmware Upgrade 212
- mercury-free product 323
- messages
  - event log, listed numerically 260
  - numerical list 213
  - types of 213
- mirrors, laser scanner operations 20
- misformed characters, problem-solving 285
- model number 176

**N**

- Network Settings menu, control panel 194

networks

- diagnostics 202
- HP embedded Jetdirect configuration page 176
- link speed settings 207

non-HP supplies 307

notes iii

**O**

- online support 315
- operation sequence 2
- operations
  - engine control system 4
  - image-formation system 22
  - laser scanner system 20
  - pickup, feed, and delivery system 31
- output bin
  - jams 264

**P**

- pages
  - blank 290
  - not printing 290
  - printing slowly 290
- pages count 293
  - from product refurbish date 293
  - reset 293
  - See also* counts
- paper
  - curled 286
  - default size reset 294
  - pickup-and-feed system operations 31
  - skewed 285
  - stop in path for testing 144
  - wrinkled 286
- paper jams
  - 3,500-sheet high-capacity tray 268
  - detection operations 47
- paper path
  - diagnostic test 106
  - stop movement for testing 144
- paper pickup problems
  - solving 277
- paper-path
  - test, sensors 106
- password
  - Service menu PIN 293
- photosensitive drum
  - image-formation operations 22, 24, 25, 26, 27
  - laser scanner operations 20
  - toner cartridge components 27
- physical specifications 318
- pickup, feed, and delivery system
  - sensors 31
- pickup/feed operation 70
- port configuration information 176
- power
  - consumption 318
  - sequence of operations 4
- power supplies
  - engine control system operations 4
  - image-formation operations 22

- power supply
    - troubleshooting 99
  - primary charging operations 24
  - Print Options menu, control panel 188
  - PRINT period 3
  - print quality
    - black page 286
    - blurred 288
    - dropouts 283
    - gray background 284
    - horizontal lines 283
    - image defects 281
    - light print 281
    - lines 283
    - loose toner 284
    - manual print modes 278
    - misformed characters 285
    - repeating defects 285
    - repetitive images 288
    - scattered lines 287
    - smearred toner 284
    - specks 282
    - test pages 174
    - tire tracks 287
    - white horizontal lines 286
    - white lines vertical 286
    - white spots 287
  - Print Quality menu options 278
  - Print Settings menu, control panel 185
  - Print Test Page 180
  - printing
    - modes, manual 278
    - stop for testing 144
    - troubleshooting 290
  - problem-solving
    - black page 286
    - blank page 281
    - blurred print 288
    - curled paper 286
    - dropouts 283
    - event log messages 259
    - gray background 284
    - image defects 281
    - light print 281
    - lines 283
    - lines horizontal 283, 286
    - lines vertical 286
    - messages, types of 213
  - networks 202
  - repeating defects 285
  - repetitive images 288
  - scattered lines 287
  - skewed pages 285
  - smearred toner 284
  - specks 282
  - text quality 285, 288
  - tire tracks 287
  - white spots 287
  - wrinkled paper 286
- R**
- recycling 322
    - electronic hardware 324
    - HP printing supplies returns and environmental program 322
  - repeating defects, problem-solving 285, 288
  - replace supplies message 249
  - Reports menu, control panel 178
  - restore factory settings 294
  - rollers
    - image-formation operations 22, 24
    - toner cartridge 27
- S**
- safety statements 328, 329
  - security settings information 176
  - sensor tests manual
    - tray 4 paper size sensors (SW2 and SW3) 136
  - sensor tests manual tray/bin
    - tray 4 door opening/closing door sensor (SW1) 136
    - tray 4 feed sensor (X) 136
    - tray 4 paper sensor (SR3) 136
    - tray 4 paper surface sensor (SR2) 136
    - tray 5 door opening/closing sensor (SW1) 137
    - tray 5 feed sensor (SR81) 137
    - tray 5 paper sensor (SR83) 137
    - tray 5 paper size sensors (SW82 and SW83) 137
    - tray 5 paper surface sensor (SR82) 137
  - tray 6 door opening/closing sensor (SW1) 137
  - tray 6 feed sensor (SR91) 137
  - tray 6 paper sensor (SR93) 137
  - tray 6 paper size sensors (SW92 and SW93) 137
  - tray 6 paper surface sensor (SR92) 137
  - sensor tests, manual
    - cartridge door switch 110
    - duplexer refeed sensor 118
    - fuser output sensor 116
    - left door switch 111
    - lower right door 135
    - output bin full sensor 130
    - output sensor 120
    - paper width sensor 1 115
    - rear bin sensor 117
    - TOP sensor 114
    - Tray 1 paper sensor 123
    - Tray 2 paper sensor 124
    - Tray 2 paper surface sensor 125
    - Tray 3 cassette sensor 128
    - Tray 3 paper sensor 127
    - Tray 4 feed sensor 119, 134
    - Tray 4 paper sensor 131
    - Tray 4 paper surface sensor 132
  - sensors
    - diagnostic tests 106
    - jam detection operations 47
    - pickup-and-feed system operations 31
    - tests, manual 108
    - tests, manual tray/bin 121
  - separation stage 26
  - sequence of operations 4
  - serial number 293
  - Service ID
    - convert to date 293
    - restore 293
  - Service menu options 293
  - Service menu, control panel 212
  - settings
    - restore factory 294
  - skewed pages 285

- smear toner, problem-solving 284
- software
  - software license agreement 310
- solve problems 85
- solving
  - direct-connect problems 291
  - network problems 291
- specifications
  - electrical and acoustic 318
  - physical 318
- specks, problem-solving 282, 287
- spots, problem-solving 282, 287
- status
  - messages, types of 213
- status page 101
- STBY (standby) period 3
- stop printing for test 144
- supplies
  - counterfeit 308
  - error messages 249
  - non-HP 307
  - recycling 322
  - replace message 249
- support
  - online 315

## T

- Taiwan EMI statement 329
- TCP/IP information 176
- technical support
  - online 315
- tests
  - engine 104
  - manual sensor 108
  - networks 202
  - paper path 106
  - paper-path sensors 106
  - print/stop 144
  - tray/bin manual sensor 121
- text, problem-solving
  - blurred 288
  - misformed characters 285
- theory of operations
  - engine control system 4
  - image-formation system 22

- laser scanner system 20
  - pickup, feed, and delivery system 31
- tips iii
- tire tracks, problem-solving 287
- toner
  - image-formation operations 22, 25, 27
  - output quality, problem-solving 284
  - toner-cartridge operations 27
- toner cartridge
  - image-formation operations 22
  - operations 27
- toner cartridges
  - error messages 249
  - jams, clearing 271
  - memory chips 309
  - non-HP 307
  - recycling 322
  - replace message 249
  - warranty 306
- transfer block 26
- transfer roller
  - image-formation operations 22, 26
  - sequence of operations 4
- transfer stage 26
- Tray 1
  - jams 264
- tray 1
  - pickup-and-feed system operations 31
- Tray 2
  - clearing jams 265
- tray 2
  - pickup-and-feed system operations 31
- Tray 3
  - clearing jams 265
  - physical specifications 318
- tray selection - use requested tray 193
- trays
  - pickup-and-feed system operations 31
- troubleshooting 85
  - blank pages 290
  - checklist 86
  - clean the paper path 174

- configuration page 101
- configuration pages for 175
- control panel 145
- control panel messages, numerical 213
- demo page 101
- direct-connect problems 291
- engine test 104
- event log 101
- event log messages, numerical list 260
- flowchart 98
- jams 263
- lights, using 101
- network problems 291
- pages not printing 290
- pages printing slowly 290
- paper feed problems 277
- power 99
- process 98
- reports and tools 101
- status page 101
- USB cables 290
- Troubleshooting menu, control panel 208

## U

- upgrades, downloading product 299
- USB Firmware Upgrade menu, control panel 212
- USB port
  - troubleshooting 290
- Use Requested Tray 193

## V

- version, hardware firmware 176

## W

- WAIT period 3
- warnings iii
- warranty
  - customer self repair 314
  - license 310
  - product 304
  - toner cartridges 306
- warranty date information 293
- waste disposal 324
- wavy paper, problem-solving 286
- Web sites
  - customer support 315

fraud reports 308  
Material Safety Data Sheet  
(MSDS) 324  
weight, product 318  
white horizontal lines or spots,  
problem-solving 286  
white vertical lines or spots,  
problem-solving 286  
wrinkled paper, problem-solving  
286





CF235-90963

