HP COLOR LASERJET CP5220

SERIES PRINTER

Service Manual



HP Color LaserJet CP5220 Series Printer
Service Manual



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Table of contents

1 Theory of operation

Basic operation 2
Major product systems 2
Product block diagram 2
Sequence of operation 3
Normal sequence of operation 3
Formatter-control system 5
Sleep mode 5
Input/output 5
CPU 6
Memory 6
Firmware 6
Nonvolatile memory 6
PJL overview 6
PML 6
Control panel 6
Engine-control system 7
DC controller 8
Motors 11
Fans 13
Fuser-control circuit 14
Fuser temperature control 15
Fuser protective function 16
Fuser failure detection 17
Low-voltage power supply 18
Overcurrent/overvoltage protection 20
High-voltage power supply 21
Laser scanner system 23
Laser failure detection 24
Image-formation system 25
Electrophotographic process 25
Image formation process 27
Latent-image formation block 28
Pre-exposure 28

Primary charging 28
Laser beam exposure 29
Developing block 30
Transfer block 31
Primary transfer 31
Secondary transfer 31
Separation 32
Fusing block 32
ITB cleaning block 33
Drum cleaning block 33
Print cartridges 34
Memory tag 35
Cartridge presence detection 35
Toner level detection 35
Cartridge life detection 35
Developing unit engagement and disengagement control 35
ITB unit 37
Primary transfer roller engagement and disengagement control 38
ITB unit presence detection 39
ITB cleaning mechanism 39
Calibration 40
Color-misregistration control 40
Environment change control 41
Image stabilization control 41
Image density control (DMAX) 42
Image halftone control (DHALF) 42
Pickup, feed, and delivery system 43
Photo sensors 44
Motors and solenoids 45
Pickup and feed block 45
Cassette pickup 45
Cassette multiple-feed prevention 46
Tray 1 (MP tray) paper pickup 47
Tray 1 (MP tray) last-paper detection 48
Paper feed 49
Skew-feed prevention 50
Feed-speed control 51
Fusing and delivery block 52
Loop control 52
Pressure roller pressurization and depressurization control 53
Output bin full detection 55
Duplex block (duplex models only) 56
Jam detection 57
Paper feeder 59

Paper-feeder motors 60
Paper-feeder paper pickup and feed 61
Paper-feeder cassette lift operation 61
Paper-feeder jam detection 62

2 Removal and replacement

Introduction 64
Removal and replacement strategy 65
Electrostatic discharge 66
Required tools 67
Service approach 68
Before performing service 68
After performing service 68
Post-service test 68
Print-quality test 68
Removal and replacement procedures 69
Customer self repair (CSR) components 69
Print cartridges 69
Toner-collection unit 72
Memory DIMM 74
Product memory 74
Install memory and font DIMMs 74
Enable memory 78
Check DIMM installation 78
Fuser 79
Pickup roller (Tray 1) 80
Separation pad (Tray 1) 81
Separation roller assembly (Tray 2) 82
Pickup roller (Tray 2) 84
Pickup roller, separation roller, and feed roller (Tray 3) 85
Secondary transfer roller 86
Intermediate transfer belt (ITB) 87
External panels, covers, and doors 89
Identification and location 89
Right-front cover and control-panel assembly 90
Left cover 92
Rear cover 93
Remove the rear cover 93
Toner collection unit access door 93
Right-rear cover 95
Top cover 96
Remove the top cover 96
Front-door assembly 98

Right-door assembly 102
Internal assemblies 104
Laser scanner assembly 105
Remove the laser scanner assembly 105
Cassette pickup drive assembly 108
Remove the cassette pickup drive assembly 108
Registration sensor assembly 112
Remove the registration sensor assembly 112
Lifter-drive assembly 115
Remove the lifter-drive assembly 115
ITB front guide assembly 117
ITB rear guide assembly 119
Residual toner full sensor 120
Remove the residual toner full sensor 121
Formatter case 123
Delivery assembly 124
Remove the delivery assembly 124
Duplex drive assembly (duplex models) 127
Remove the duplex-drive assembly 127
Delivery drive assembly (simplex models) 129
Remove the delivery drive assembly 129
Residual-toner-feed assembly 130
Remove the residual-toner-feed assembly 130
ITB motor 132
Remove the ITB motor 132
Drum motor 134
Remove the drum motor 134
Developing motor 135
Remove the developing motor 135
Fuser motor 136
Remove the fuser motor 136
Developing-disengagement motor 137
Remove the developing-disengagement motor 137
Power-supply fan 139
Remove the power-supply fan 139
Fuser fan 142
Remove the fuser fan 142
Formatter PCA 144
Formatter resets 144
DC controller PCA 146
Remove the DC controller PCA 146
Low-voltage power supply 148
Remove the low-voltage power supply 148
Imaging (developing) high-voltage power supply 152

Remove the imaging (developing) high-voltage power supply 152
First transfer high-voltage power supply 153
Remove the first transfer high-voltage power supply 153
Second transfer high-voltage power supply 155
Remove the second transfer high-voltage power supply 155
Driver PCA 157
Remove the driver PCA 157
Power switch PCA 159
Remove the power switch PCA 159
Environmental sensor 160
Remove the environmental sensor 160
Optional paper feeder assembly (Tray 3) 161
Tray 3 rear cover 161
Tray 3 left cover 161
Tray 3 right-front cover 163
Tray 3 front-upper cover 164
Tray 3 right door 164
Tray 3 right-lower cover 166
Tray 3 pickup assembly 167
Tray 3 lifter drive assembly 168
Tray 3 pickup motor 169
Tray 3 driver PCA 170

3 Solve problems

Solve problems checklist 172
Menu map 173
Troubleshooting process 174
Pretroubleshooting checklist 174
Power-on checks 176
Tools for troubleshooting 177
Diagrams 177
Block diagrams 177
Plug/jack locations 179
Location of connectors 180
DC controller connections 180
Product connections 182
Locations of major components 189
General timing charts 196
General circuit diagram 197
HP ToolboxFX 200
Open HP ToolboxFX 200
Status 201
Event log 201

Alerts 202
Set up Status Alerts 202
Set up E-mail Alerts 202
Product information 202
Set password 202
Help 203
System Settings 204
Device Information 204
Paper Setup 205
Print Quality 206
Print Density 206
Paper Types 206
Extended Print Modes 206
System Setup 206
Save/Restore Settings 206
Product Security 207
Print Settings 207
Printing 207
PCL5 207
PostScript 207
Network Settings 207
Shop for Supplies 207
Other Links 207
Internal print quality test pages 208
Use HP ToolboxFX to troubleshoot print-quality problems 208
Configuration page 209
Print quality troubleshooting tools 209
Repetitive image-defect ruler 209
Calibrate the product 210
Control-panel menus 211
Use the menus 211
Reports menu 211
System Setup menu 213
Service menu 216
Network Configuration menu 217
Interpret control-panel and status-alert messages 218
Event-log messages 229
Print an event log 229
Event-log messages 229
Clear jams 230
Common causes of jams 230
Jam locations 231
Change Jam Recovery setting 231
Clear jams in the right door 232

Clear jams in the output bin area 235
Clear jams in Tray 1 235
Clear jams in Tray 2 237
Clear jams in the optional 500-sheet paper and heavy media tray (Tray 3) 238
Clear jams in the lower right door (Tray 3) 239
Solve image-quality problems 240
Image defects table 240
Clean the product 246
Solve performance problems 247
Solve connectivity problems 248
Solve direct-connect problems 248
Solve network problems 248
Service mode functions 249
Secondary service menu 249
Open the secondary service menu 249
Secondary service menu structure 249
Product resets 250
Restore the factory-set defaults 250
Engine test page 250
Cold reset 250
NVRAM initialization 251
Super NVRAM initialization 251
Product updates 252

4 Parts and diagrams

Order parts by authorized service providers 254
Order parts, accessories, and supplies 254
Related documentation and software 254
Supplies part numbers 255
Customer self repair parts 255
Accessories part numbers 257
How to use the parts lists and diagrams 258
Assembly locations 259
External covers, panels, and doors 260
Right door assembly 262
Internal components (1 of 6) 264
Internal components (2 of 6) 266
Internal components (3 of 6) 268
Internal components (4 of 6) 270
Internal components (5 of 6) 272
Internal components (6 of 6) 274
Cassette 276
Paper pickup assembly 278

Paper delivery assembly 280
Printed circuit assemblies 282
Paper feeder external components 284
Paper feeder internal components 286
Paper feeder PCA 288
Alphabetical parts list 290
Numerical parts list 297

Appendix A Service and support

Hewlett-Packard limited warranty statement 306
HP's Premium Protection Warranty: LaserJet print cartridge limited warranty statement 307
HP Color LaserJet Fuser Kit Limited Warranty Statement 308
End User License Agreement 309
Customer self-repair warranty service 311
Customer support 312

Appendix B Product specifications

Physical specifications 314
Performance specifications 314
Electrical specifications 314
Acoustic specifications 314
Environmental specifications 315
Skew specifications 316

Appendix C Regulatory information

FCC regulations 318
Declaration of conformity 319
Safety statements 320
Laser safety 320
Canadian DOC regulations 320
VCCI statement (Japan) 320
Power cord statement (Japan) 320
EMC statement (Korea) 320
Laser statement for Finland 320
Substances Table (China) 321

Index 323

1 Theory of operation

- Basic operation
- Formatter-control system
- Engine-control system
- Image-formation system
- Pickup, feed, and delivery system
- Paper feeder

Basic operation

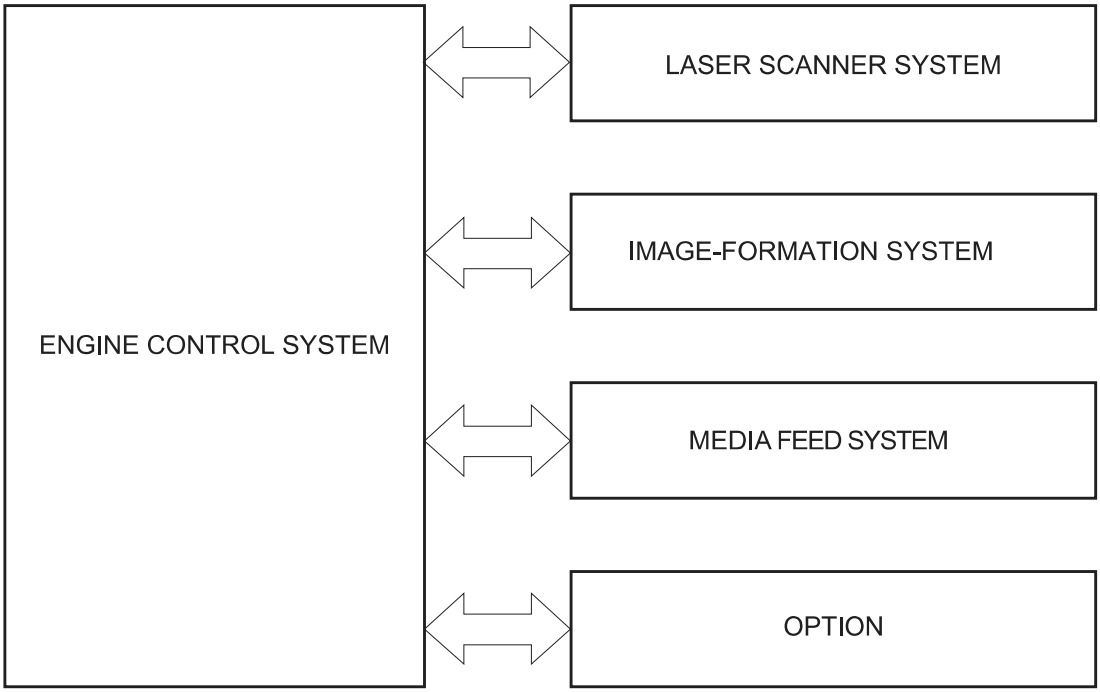
Major product systems

The product contains the following five systems:

- Engine-control system
- Laser scanner system
- Image-formation system
- Media feed system
- Optional paper feeder system

Product block diagram

Figure 1-1 Product block diagram



Sequence of operation

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

Normal sequence of operation

Table 1-1 Sequence of operation

Name	Timing	Purpose
WAIT	From the time the power switch is turned on, the door is closed, or the product exits Sleep mode until the product is ready for a print operation.	Brings the product to printable condition: • Detects and heats the fuser • Detects the print cartridge and any cartridge changes • Detects the ITB, and moves the ITB and the developing unit to the home position • Cleans residual toner from the ITB and the secondary transfer roller
STBY (standby)	From the end of the WAIT or LSTR period until either a print command is sent or the power switch is turned off.	Maintains the product in printable condition: • Enters Sleep mode if the sleep command is received • Performs a calibration if the calibration command is received
INTR (initial rotation)	From the time the print command is received until the product picks up a piece of paper.	Prepares for the print job • Activates the high-voltage power supply • Activates the laser scanner • Opens the laser shutter • Cleans the protective laser glass • Engages the print cartridges • Warms the fuser

Table 1-1 **Sequence of operation (continued)**

Name	Timing	Purpose
PRINT	From the end of the INTR period until the last sheet completes the fusing operation.	Prints • Forms the image on the photosensitive drum • Transfers the toner image to the paper • Fuses the toner image to the paper
LSTR (last rotation)	From the end of the PRINT period until the main motor stops rotating.	Moves the last printed sheet to the output bin. • Stops the high-voltage power supply • Stops the laser scanner • Closes the laser shutter • Cleans the protective laser glass • Disengages the print cartridges • Stops the fuser The product enters the INTR period as the LSTR period is completed, if the formatter sends another print command.

Formatter-control system

The formatter is responsible for the following procedures:

- Controlling sleep mode
- Receiving and processing print data from the various product interfaces
- Monitoring control-panel functions and relaying product-status information (through the control panel and the network or bidirectional interface)
- Developing and coordinating data placement and timing with the DC controller PCA
- Storing font information
- Communicating with the host computer through the network or the bidirectional interface

The formatter receives a print job from the network or bidirectional interface and separates it into image information and instructions that control the printing process. The DC controller PCA synchronizes the image-formation system with the paper-input and -output systems, and then signals the formatter to send the print-image data.

The formatter also provides the electrical interface and mounting locations for an additional DIMM.

Sleep mode

NOTE: In the **System Setup** menu, this item is termed **Sleep Delay**.

This feature conserves power after the product has been idle for an adjustable period of time. When the product is in **Sleep Delay**, the control-panel backlight is turned off, but the product retains all settings, downloaded fonts, and macros. The default setting is for **Sleep Delay** to be enabled, and the product enters **Sleep Delay** after a 30-minute idle time.

The product exits **Sleep Delay** and enters the warm-up cycle when any of the following events occur:

- A print job, valid data, or a PML or PJL command is received
- A control-panel button is pressed
- A cover is opened
- A paper tray is opened
- The engine-test switch is pressed

NOTE: Product error messages override the Sleep message. The product enters **Sleep Delay** at the appropriate time, but the error message continues to appear.

Input/output

The product has two I/O interfaces:

- A USB 2.0 port for connecting directly to a computer
- An internal 10/100Base-T network port.

CPU

The formatter incorporates a 540 MHz Coldfire processor.

Memory

The random access memory (RAM) on the formatter PCA contains the page, I/O buffers, and the font storage area. It stores printing and font information received from the host system, and can also serve to temporarily store a full page of print-image data before the data is sent to the print engine. Memory capacity can be increased by adding a DIMM to the formatter. Note that adding memory might also increase the print speed for complex graphics.

NOTE: If the product encounters a problem when managing available memory, a clearable warning message appears on the control-panel display.

Firmware

The firmware is contained on NAND flash memory soldered on the formatter board. A remote firmware upgrade process is available, which overwrites the firmware in the NAND flash.

Nonvolatile memory

The product uses nonvolatile memory (NVRAM) to store device and user configuration settings. The contents of NVRAM are retained when the product is turned off or disconnected.

PJL overview

The printer job language (PJL) is an integral part of configuration, in addition to the standard printer command language (PCL). With standard cabling, the product can use PJL to perform a variety of functions such as these:

- Two-way communication with the host computer through a network connection or a USB connection. The product can inform the host about such things as the control-panel settings, and the control-panel settings can be changed from the host.
- Dynamic I/O switching. The product uses this switching to be configured with a host on each I/O. The product can receive data from more than one I/O simultaneously, until the I/O buffer is full. This can occur even when the product is offline.
- Context-sensitive switching. The product can automatically recognize the personality (PS or PCL) of each job and configure itself to serve that personality.
- Isolation of print environment settings from one print job to the next. For example, if a print job is sent to the product in landscape mode, the subsequent print jobs print in landscape mode only if they are formatted for landscape printing.

PML

The printer management language (PML) allows remote configuration and status read-back through the I/O ports.

Control panel

The formatter sends and receives product status and command data to and from the control-panel PCA.

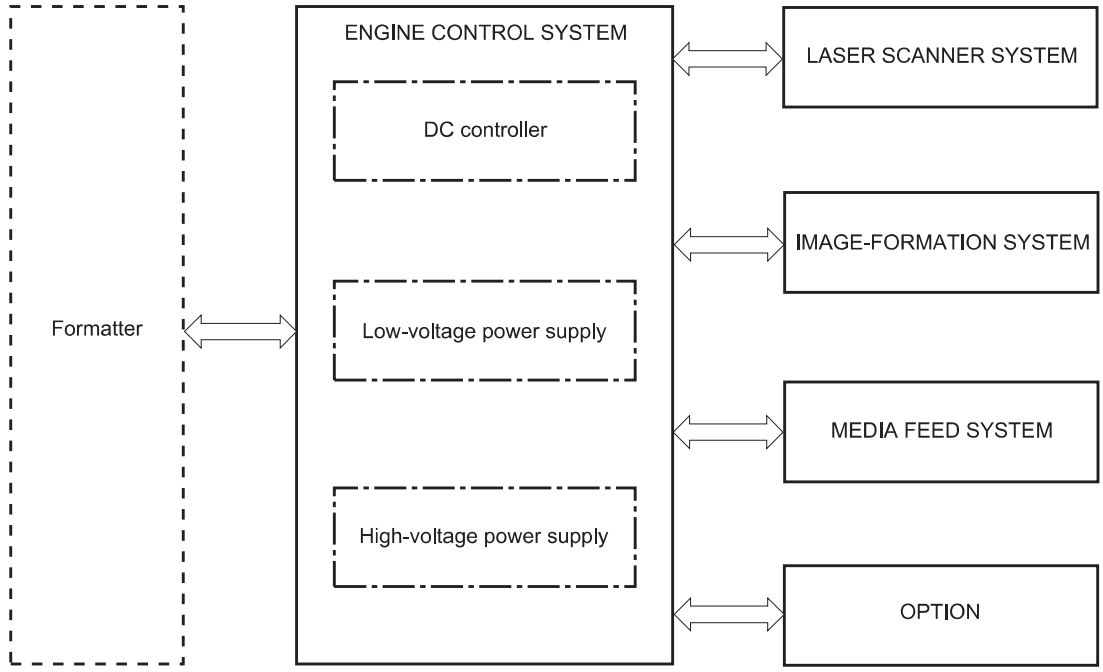
Engine-control system

The engine-control system coordinates all product functions, according to commands that the formatter sends. The engine-control system drives the laser/scanner system, the image formation system, and the pickup/feed/delivery system.

The engine control system contains the following major components:

- DC controller
- Low-voltage power supply
- High-voltage power supply

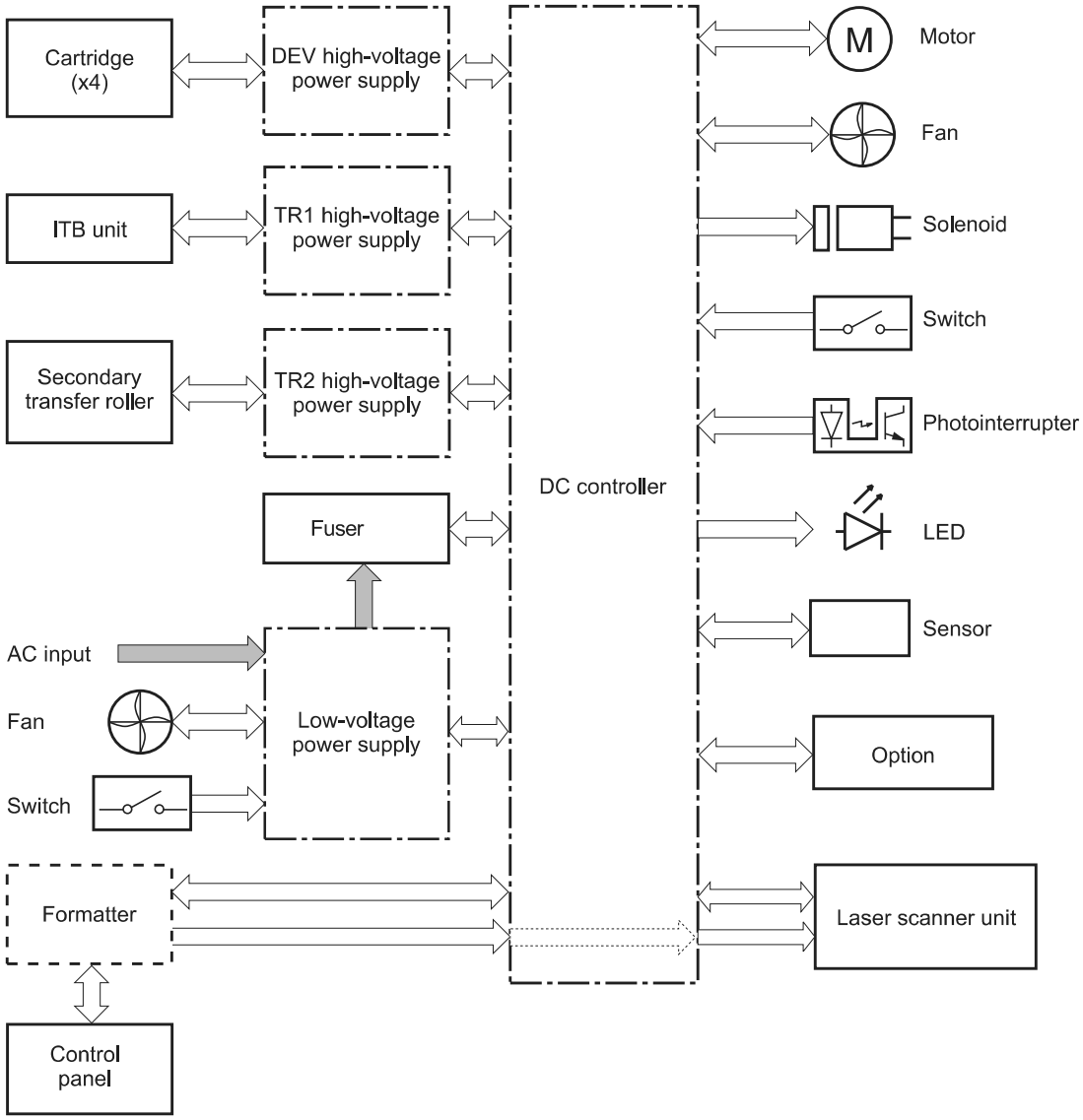
Figure 1-2 Engine-control system



DC controller

The DC controller controls the operational sequence of the product.

Figure 1-3 DC controller diagram



The DC controller controls the product's electrical components, listed in the following table.

Table 1-2 **Electrical components**

Component type	Abbreviation	Name
Switch	SW1	Power switch
	SW2	24V interlock switch
	SW3	5V interlock switch 1
	SW4	5V interlock switch 2
	SW5	Primary transfer disengagement switch
	SW6	Toner collection unit switch
	SW7	Cassette media end guide position switch
	SW8	Cassette media width guide position switch
Solenoid	SL1	Cassette pickup solenoid
	SL2	Tray 1 pickup solenoid
	SL3	Duplex reverse solenoid 1 (duplex models only)
	SL5	Primary transfer disengagement solenoid
	SL7	Duplex reverse solenoid 2 (duplex models only)
Fan	FM1	Power supply fan
	FM2	Fuser fan
Photointerrupter (sensor)	PS1	Cassette paper-presence sensor
	PS2	Tray 1 paper-presence sensor
	PS3	Last-paper sensor
	PS4	Cassette paper-stack surface sensor
	PS5	Top-of-page (TOP) sensor
	PS6	Fuser delivery sensor
	PS7	Loop sensor 1
	PS8	Loop sensor 2
	PS9	Fuser pressure-release sensor
	PS10	Output bin full sensor
	PS11	Developing disengagement sensor
	PS12	Black drum home-position sensor
	PS13	YMC drum home-position sensor
	PS14	Front door sensor
	PS15	Right door sensor

Table 1-2 **Electrical components (continued)**

Component type	Abbreviation	Name
Motor	M1	ITB Motor
	M2	Drum motor
	M3	Developing motor
	M4	Fuser motor
	M5	Pickup motor
	M6	Developing disengagement motor
	M9	Cassette lifter motor
	M10	Scanner motor

Motors

The product has eight motors for paper feed and image formation. The DC controller determines a motor failure if a motor does not reach a specified speed within a specified period after motor startup or if the rotational speed is outside a specified range for a specified period.`

Figure 1-4 Motors

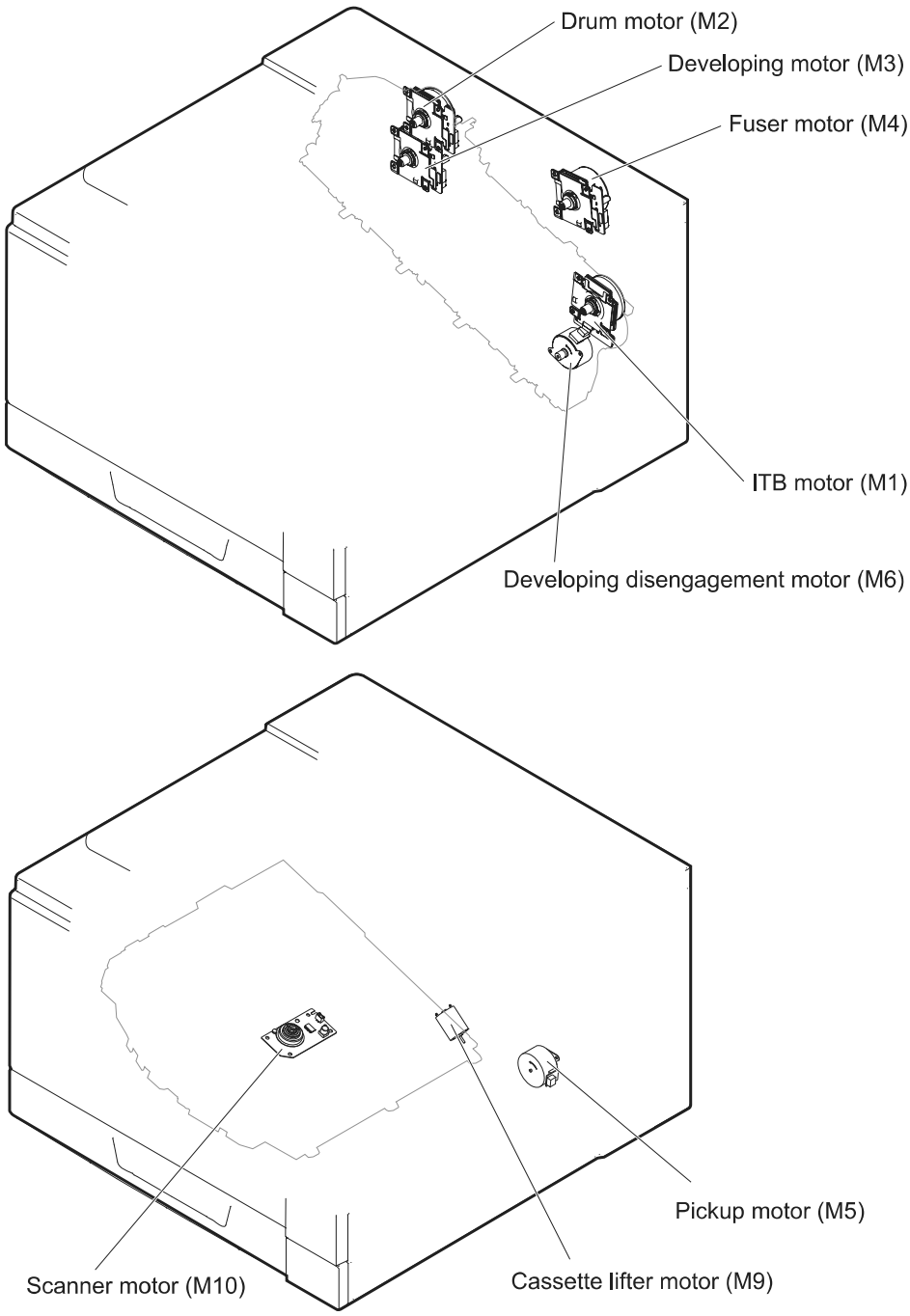


Table 1-3 **Motors**

Description	Components driven	Failure detection
ITB motor (M1)	ITB	Yes
	Black photosensitive drum	
	Developing roller	
Drum motor (M2)	Yellow, magenta, and cyan photosensitive drums	Yes
Developing motor (M3)	Yellow, magenta, and cyan developing rollers	Yes
Fuser motor (M4)	Fuser pressure and delivery rollers	Yes
	Pressurizes and depressurizes the pressure roller	
	Engages and disengages the primary transfer roller	
Pickup motor (M5)	Tray 1 pickup roller	No
	Cassette pickup roller	
	Feed roller	
	Duplex feed roller (duplex models only)	
Developing disengagement motor (M6)	Engages and disengages the developing unit	No
Cassette lifter motor (M9)	Lifter for the cassette	No
Scanner motor (M10)	Scanner mirror	No

Fans

The product uses to fans to maintain the correct internal temperature. The DC controller determines a fan failure when a fan locks for a specified period after it starts driving.

Figure 1-5 Fans

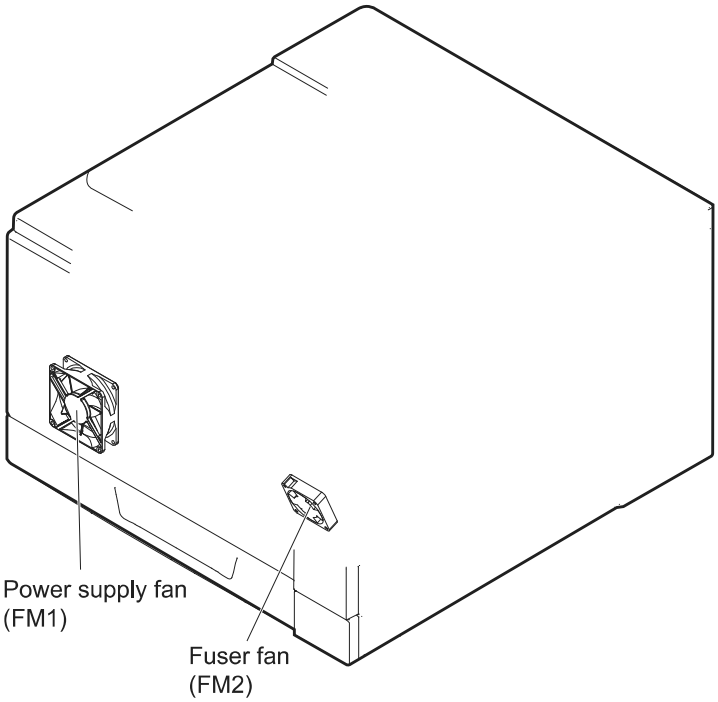


Table 1-4 Fans

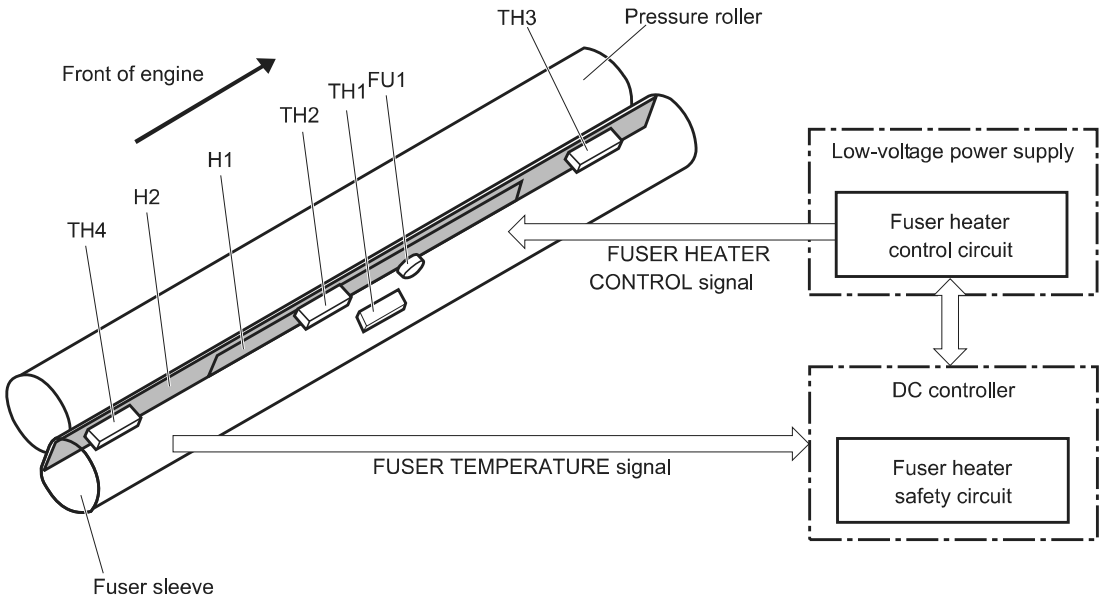
Description	Area cooled	Type	Speed
Power supply fan (FM1)	Low-voltage power supply Output bin Delivery unit Laser scanner unit	Intake	Full/Half
Fuser (FM2)	Duplex feed unit ITB area	Intake	Full

Fuser-control circuit

The fuser-control circuit monitors and controls the temperature in the fuser. The product uses on-demand fusing. The fuser-control circuit consists of the following major components:

- Fuser main heater (H1): heats the center of the fuser sleeve
- Fuser sub heater (H2): heats the ends of the fuser sleeve
- Thermistors; detects the fuser temperature (contact type)
  - Sleeve thermistor (TH1): Detects the temperature at the center of the fuser sleeve
  - Main thermistor (TH2): Detects the temperature at the center of the fuser heater
  - Sub thermistor 1 (TH3): Detects the temperature at the end of the fuser heater nearest the front of the product
  - Sub thermistor 2 (TH4): Detects the temperature at the end of the fuser heater nearest the rear of the product
- Thermal fuse (FU1): prevents abnormal temperature rise in the fuser heater (non-contact type)

Figure 1-6 Fuser-control circuit



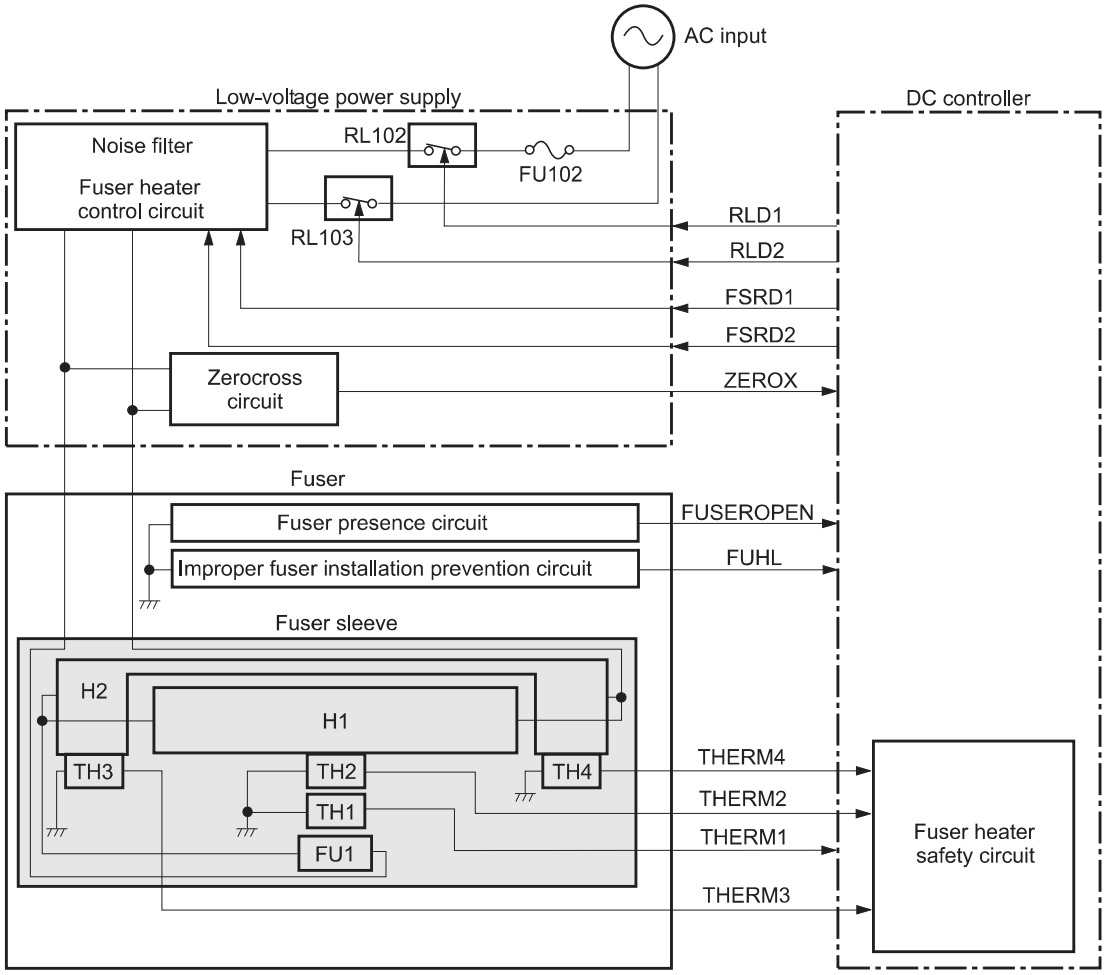
Fuser temperature control

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

The fuser main heater and sub heater control the temperature of the fuser sleeve.

The DC controller monitors the main thermistor and the sleeve thermistor. The DC controller controls the FUSER MAIN HEATER CONTROL (FSRD1) and the FUSER SUB-HEATER CONTROL (FSRD2) signals according to the detected temperature. The fuser-heater control circuit controls the fuser heater depending on the signal so that the heater remains at the targeted temperature.

Figure 1-7 Fuser-heater control circuit



Fuser protective function

The protective function detects an abnormal temperature rise of the fuser unit and interrupts power supply to the fuser heater.

The following three protective components prevent an abnormal temperature rise of the fuser heater:

- DC controller
  - The DC controller interrupts power supply to the fuser heater when it detects an abnormal temperature of the fuser heater.
- Fuser-heater safety circuit
  - The fuser heater safety circuit interrupts power supply to the fuser heater when the detected temperature of the main and sub thermistors is abnormal.
- Thermal fuse
  - The thermal fuse is broken to interrupt power supply to the fuser heater when the thermoswitch detects an abnormal temperature of the fuser heater.

Fuser failure detection

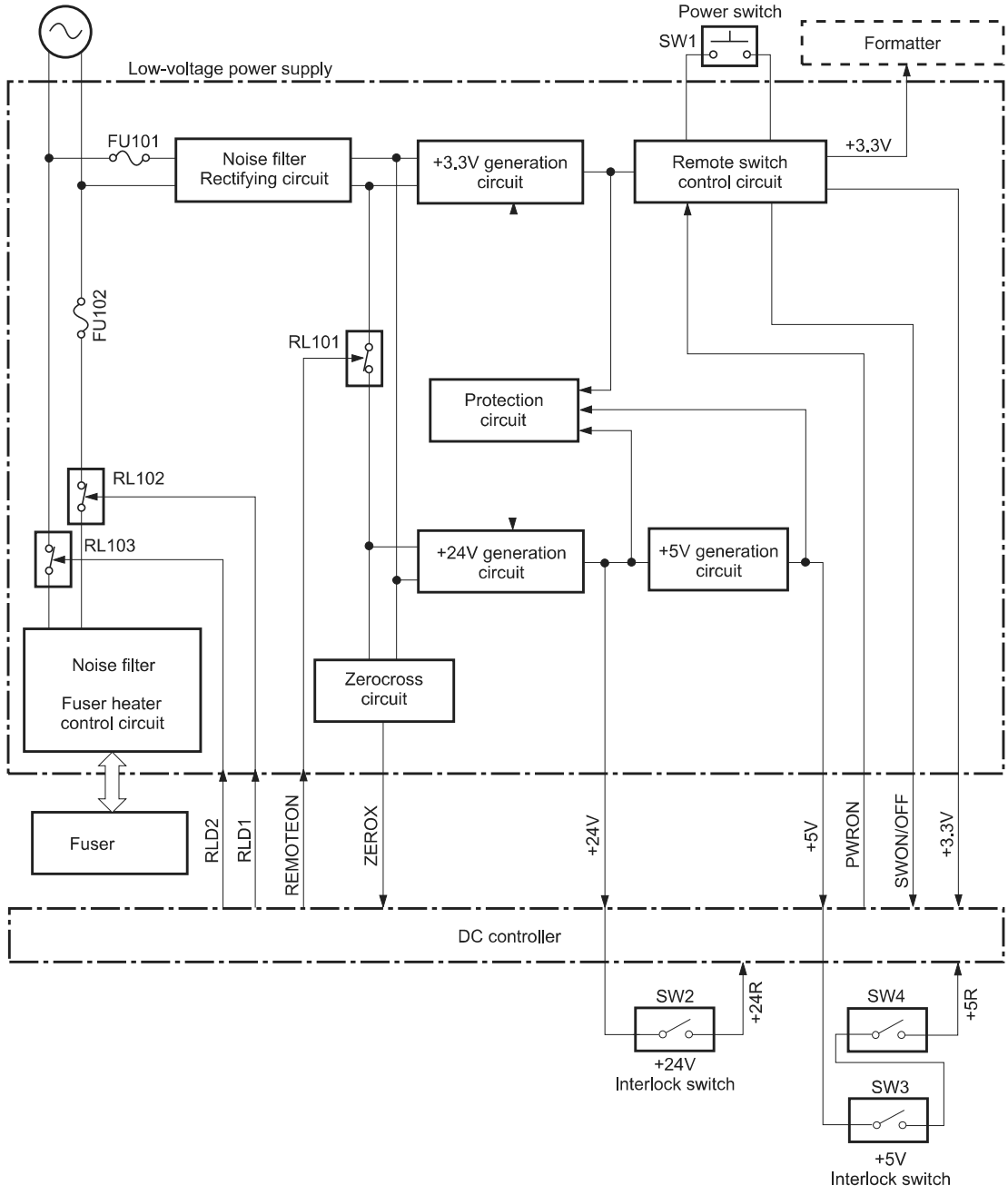
The DC controller determines a fuser unit failure, deactivates the FUSER HEATER CONTROL signal, releases the relay to interrupt power supply to the fuser heater and notifies the formatter of a failure state when it encounters the following conditions:

- Abnormal temperature rise: The sleeve thermistor does not rise at a specified temperature within a specified period after the fuser heater control starts.
- Abnormally low temperature: The thermistors are at a specified temperature or lower during a print operation or other fuser heating cycle.
- Abnormally high temperature: The thermistors are at a specified temperature or higher, regardless of the fuser control status.
- Drive circuit abnormality: The frequency in the zerocross circuit is out of a specified range when the product is turned on or is in the standby period.

Low-voltage power supply

The low-voltage power supply (LVPS) converts AC input voltage to DC voltage.

Figure 1-8 Low-voltage power supply



The product uses three DC voltages: 24V, 5V, and 3.3V. The voltages are subdivided as follows:

+24V	Supplied constantly
	Stopped during Sleep mode
+24R	Interrupted when the front or right door is opened

+5V	Supplied constantly Stopped during Sleep mode
+5R	Interrupted when the front or right door is opened
+3.3V	Supplied constantly

Overcurrent/overvoltage protection

The low-voltage power supply has a protective circuit against overcurrent and overvoltage to prevent failures in the power supply circuit. The low-voltage power supply automatically stops supplying the DC voltage whenever excessive current flows or voltage abnormally increases.

If the dc voltage is not being supplied from the low-voltage power supply, the protective function may be running. In this case, turn off the power switch and unplug the power cord. Do not turn the power switch on until the root cause is found.

The LVPS has two fuses on the PCA. The LVPS 24V output is interrupted to the fuser and the high-voltage power supply if the either of the interlock switches (SW3 and SW4) is in the off position (door open).

⚠ **WARNING!** The product power switch only interrupts dc voltage from the LVPS. The AC voltage is present in the product when the power cord is plugged into a power receptacle and the power switch is in the off position. You must unplug the product power cord before servicing the product.

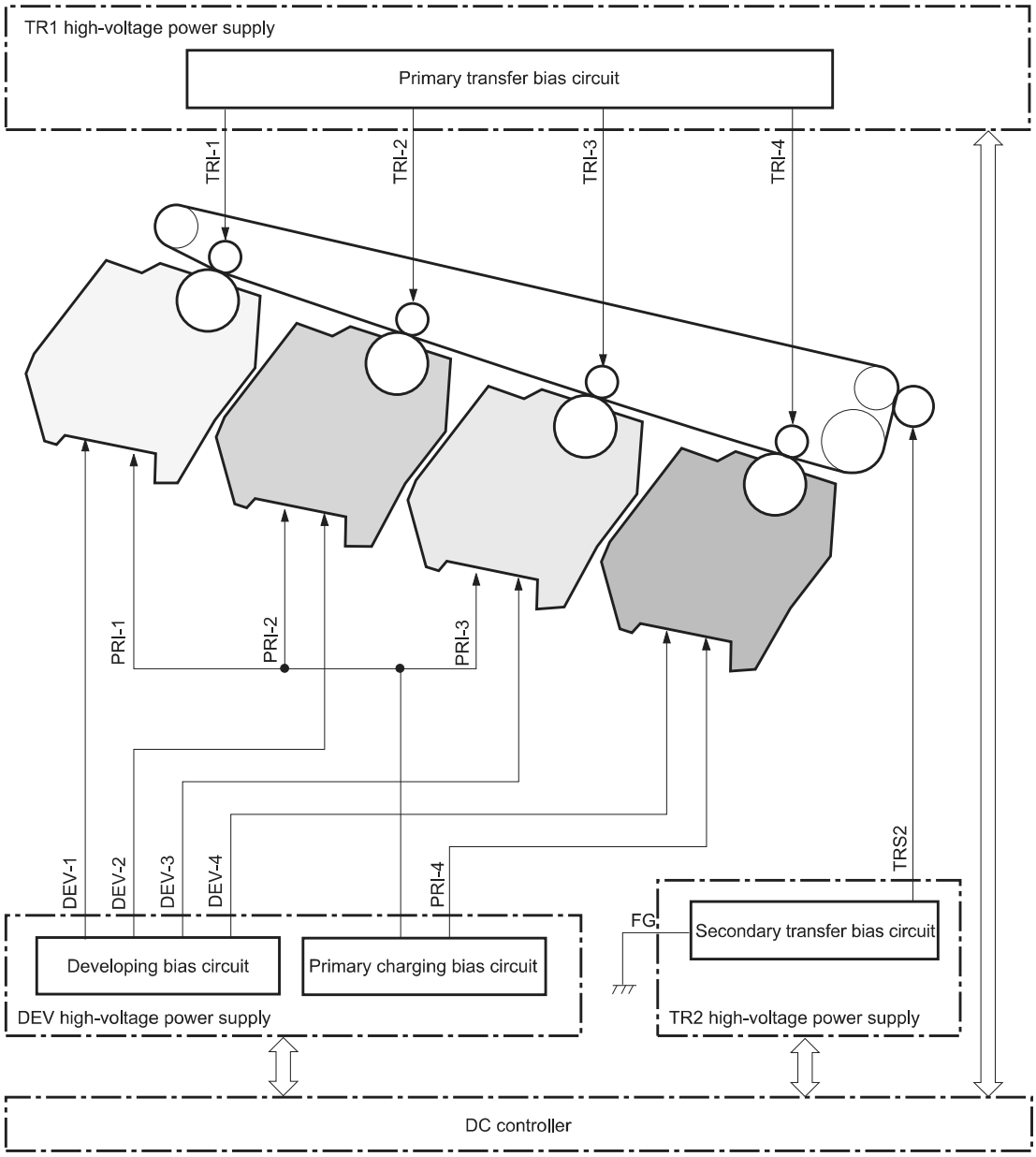
WARNING! If you believe the overcurrent or overvoltage protection circuits have been activated, do not plug in the product power cord or turn on the product power until the cause of the failure is found and corrected.

In addition, fuses in the low-voltage power supply protect against overcurrent. If overcurrent flows into the AC line, the fuses melt and cut off the power distribution.

High-voltage power supply

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

Figure 1-9 High-voltage power supply



The high-voltage power supply (HVPS) applies biases to the following components:

- Primary charging roller: The primary charging bias is applied to the surface of the photosensitive drum to charge it uniformly negative as a preparation for the image formation.
- Developing roller: The developing bias is used to adhere toner to an electrostatic latent image formed on the photosensitive drum.

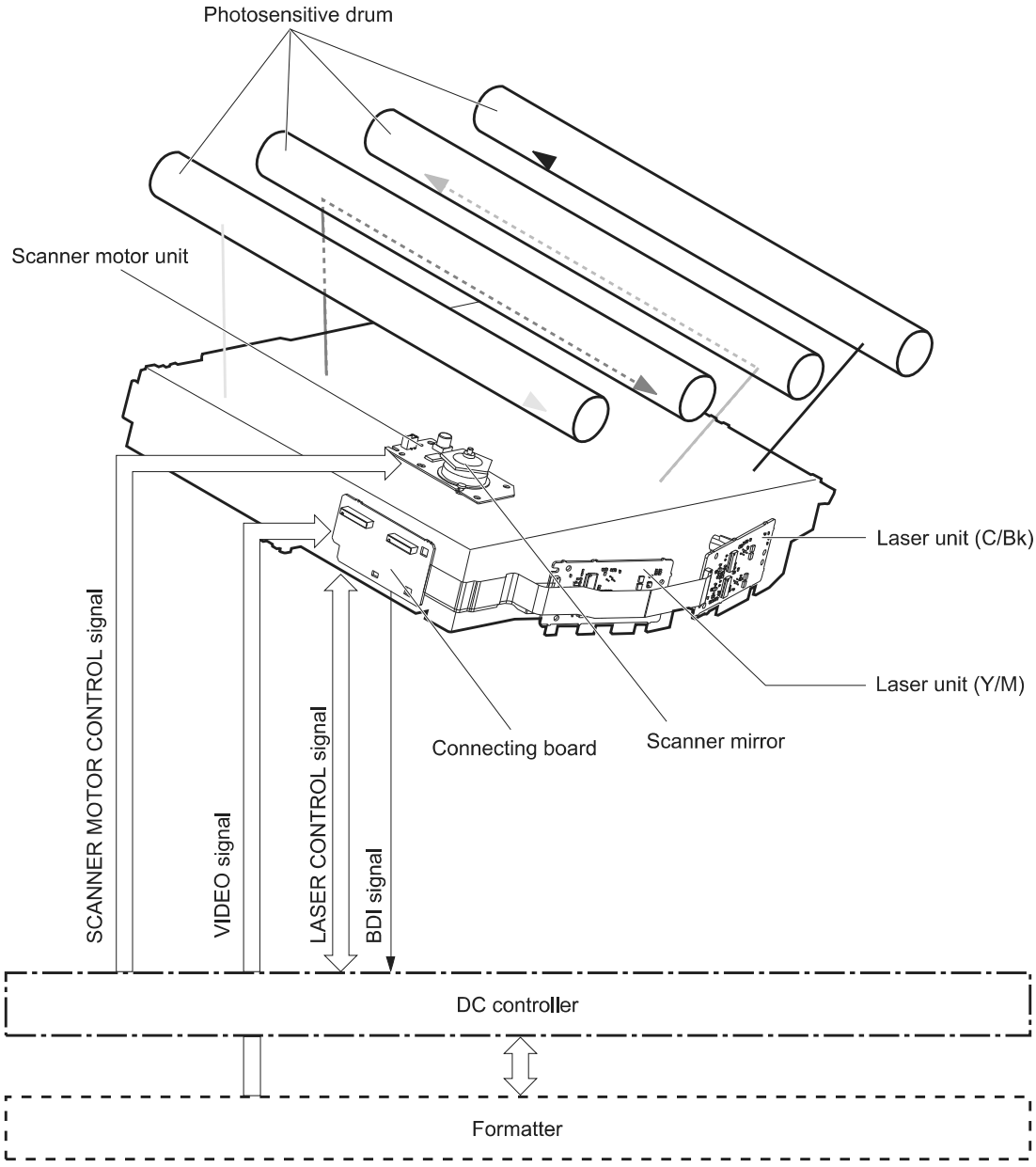
- Primary transfer roller: The primary transfer bias is used to transfer the toner from each photosensitive drum onto the ITB.
- Secondary transfer roller: The secondary transfer bias is used to transfer the toner image from the ITB onto the paper. The reversed bias is applied to transfer residual toner on the secondary transfer roller back to the ITB. The residual toner on the ITB is deposited in the toner collection unit.

Laser scanner system

The laser scanner system forms latent images on the photosensitive drums according to the VIDEO signals sent from the formatter.

The main components of the laser/scanner are the laser unit and the scanner motor unit. The DC controller sends signals to the laser/scanner to control the functions of these components.

Figure 1-10 Laser/scanner system



Laser failure detection

The DC controller determines an optical unit failure and notifies the formatter, if the laser/scanner encounters the following conditions:

- The scanner motor does not reach a specified rotation frequency within a specified period of the scanner motor start up.
- The beam detect (BD) interval is out of a specified value during a print operation.

Image-formation system

Electrophotographic process

The electrophotographic process forms an image on the paper. Following are the major components used in the process:

- Print cartridges
- Intermediate transfer belt (ITB)
- Secondary transfer roller
- Fuser
- Laser scanner

The DC controller uses the laser scanner and HVPS to form the toner image on the photosensitive drum. The image is transferred to the print media and then fused onto the paper.

Figure 1-11 Electrophotographic process block diagram

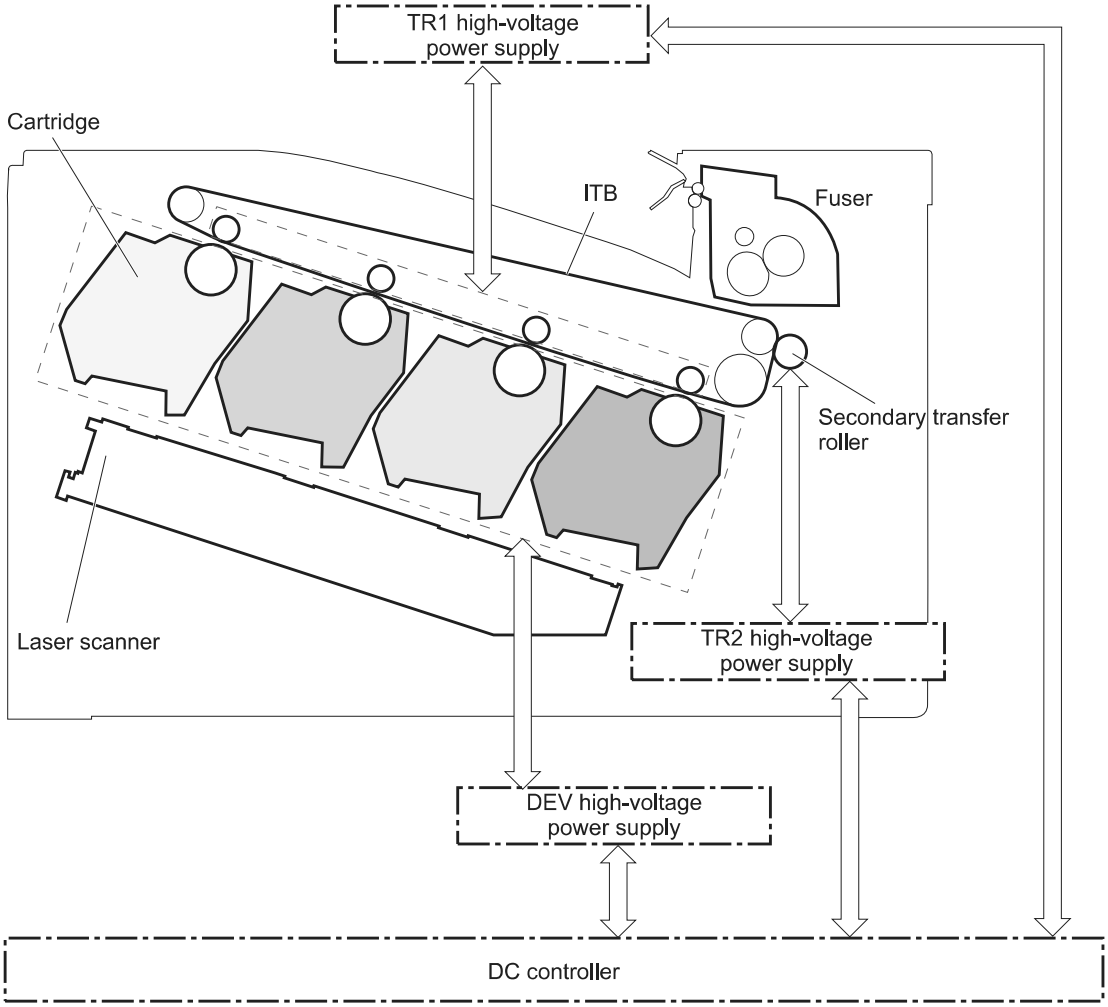


Figure 1-12 Electrophotographic process drive system

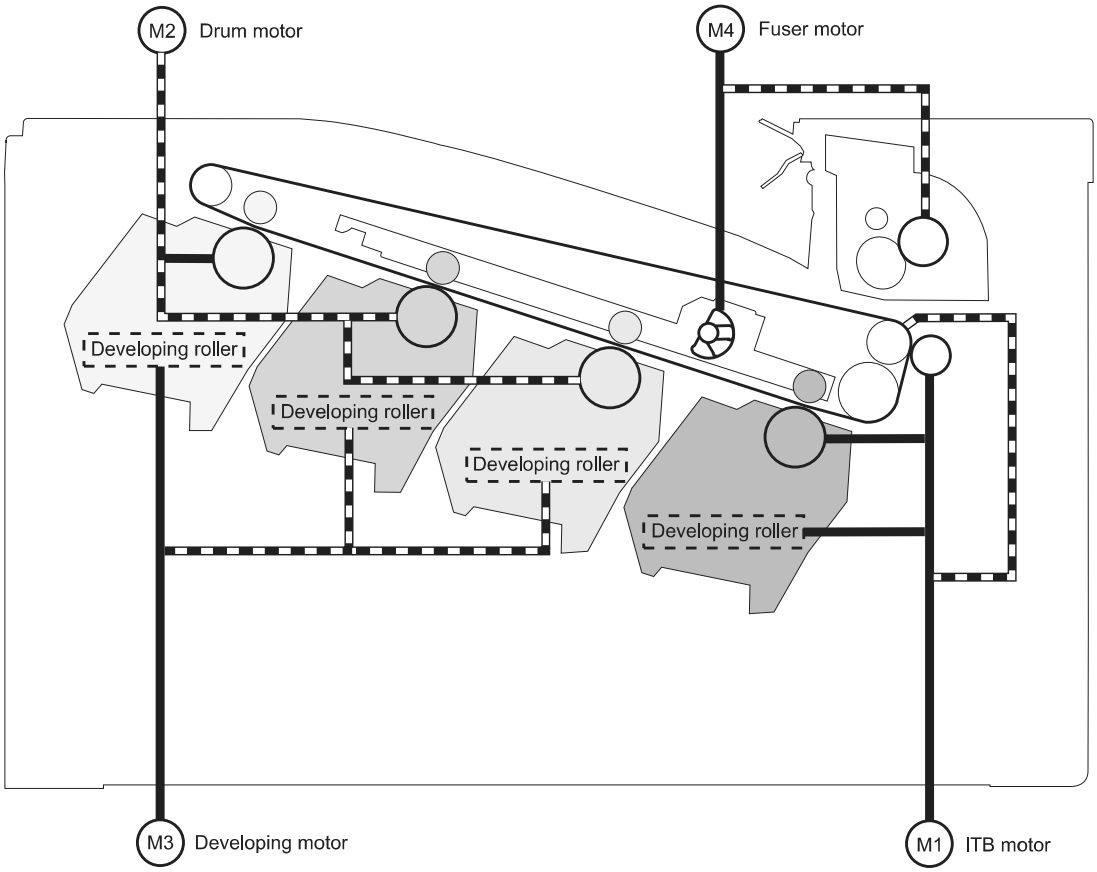
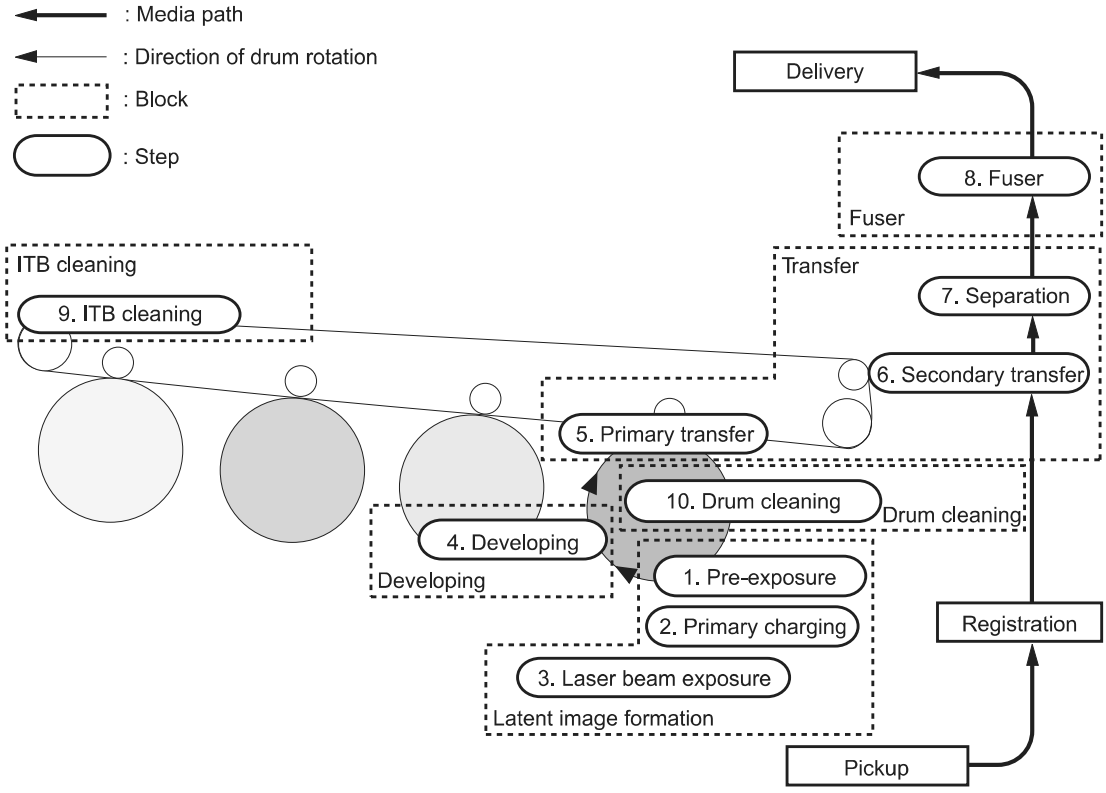


Image formation process

Each of the following processes functions independently and must be coordinated with the other product processes. Image formation consists of the following processes:

Latent-image formation block	Step 1: pre-exposure
	Step 2: primary charging
	Step 3: laser-beam exposure
Developing block	Step 4: developing
Transfer block	Step 5: primary transfer
	Step 6: secondary transfer
	Step 7: separation
Fusing block	Step 8: fusing
ITB cleaning block	Step 9: ITB cleaning
Drum cleaning block	Step 10: Drum cleaning

Figure 1-13 Image formation process



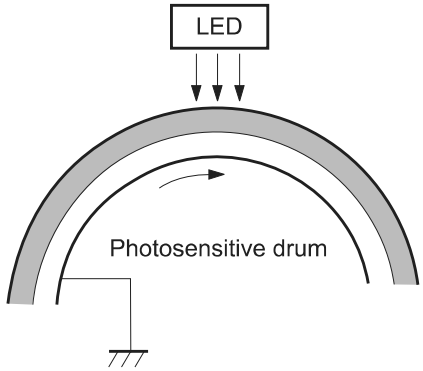
Latent-image formation block

During the latent-image formation stage, the laser scanner forms invisible images on the photosensitive drums in the print cartridges.

Pre-exposure

Step 1: Light from the pre-exposure LED strikes the photosensitive drum surface. This eliminates the residual electrical charges on the drum surface.

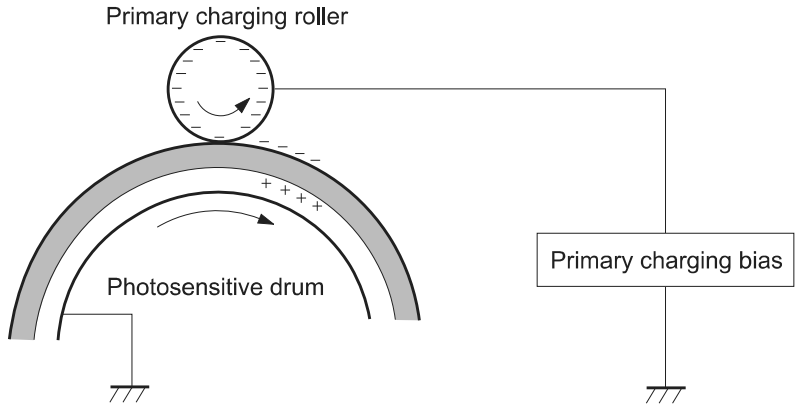
Figure 1-14 Pre-exposure



Primary charging

Step 2: DC and AC biases are applied to the primary charging roller, which transfers a uniform negative potential to the photosensitive drum.

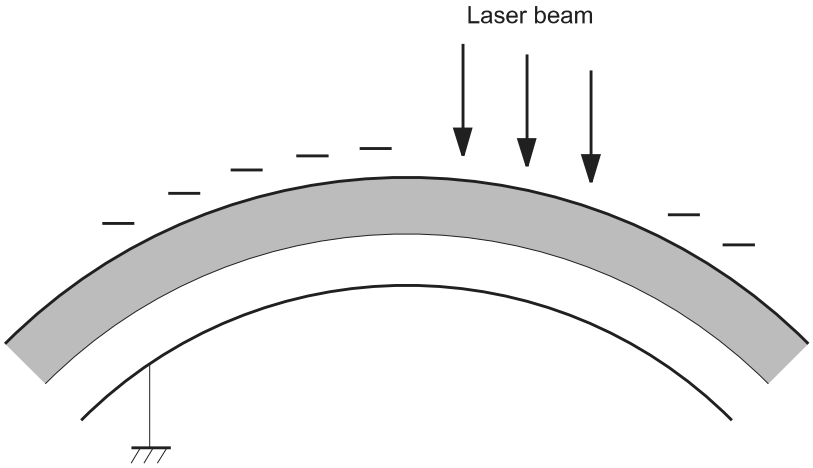
Figure 1-15 Primary charging



Laser beam exposure

Step 3: The laser beam scans the photosensitive drum to neutralize negative charges on parts of the drum surface. An electrostatic latent image is formed on the drum where negative charges were neutralized.

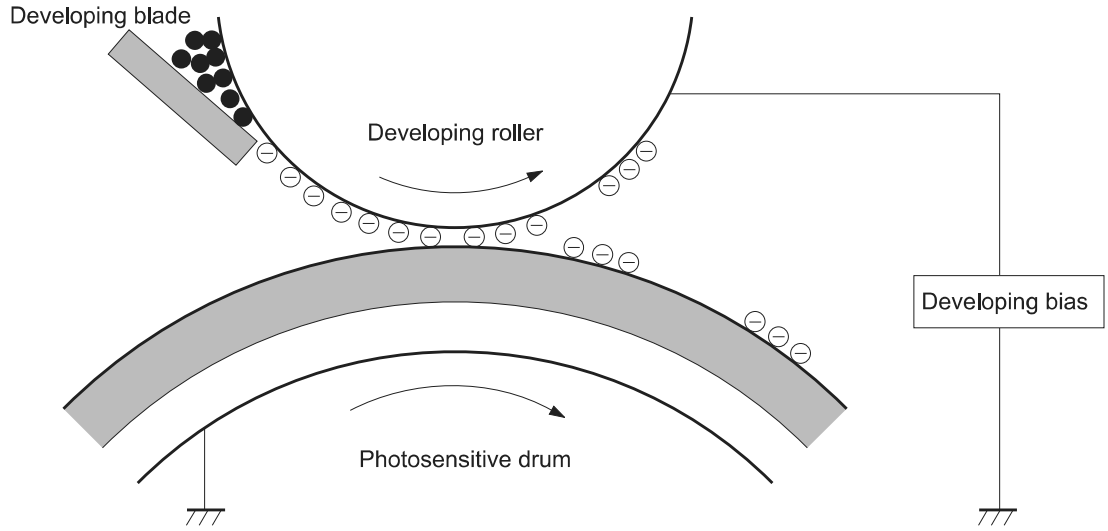
Figure 1-16 Laser beam exposure



Developing block

Step 4: In the print cartridge, toner acquires a negative charge from the friction that occurs when the developing roller rotates against the developing blade. The developing bias is applied to the developing roller to create a difference in the electric potential of the drum. When the negatively charged toner comes in contact with the photosensitive drum, it adheres to the latent image because the drum surface has a higher potential.

Figure 1-17 Developing

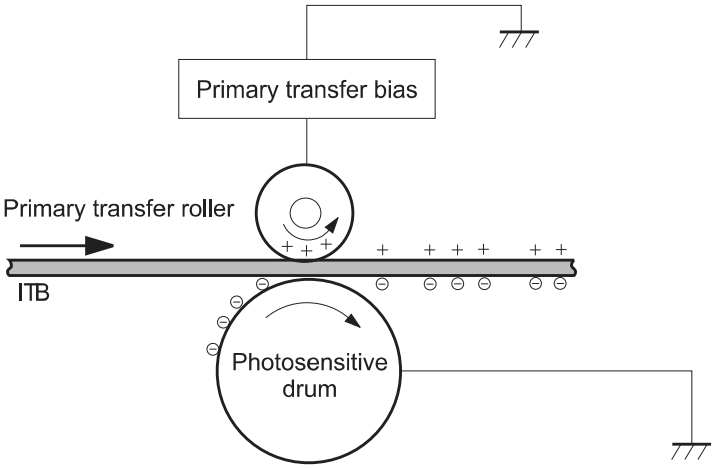


Transfer block

Primary transfer

Step 5: The toner on the photosensitive drum is transferred to the intermediate transfer belt (ITB). The ITB is given a positive charge by the bias of the primary transfer roller. The negatively charged toner on the drum surface is transferred onto the ITB. All four color planes are transferred onto the ITB in this step.

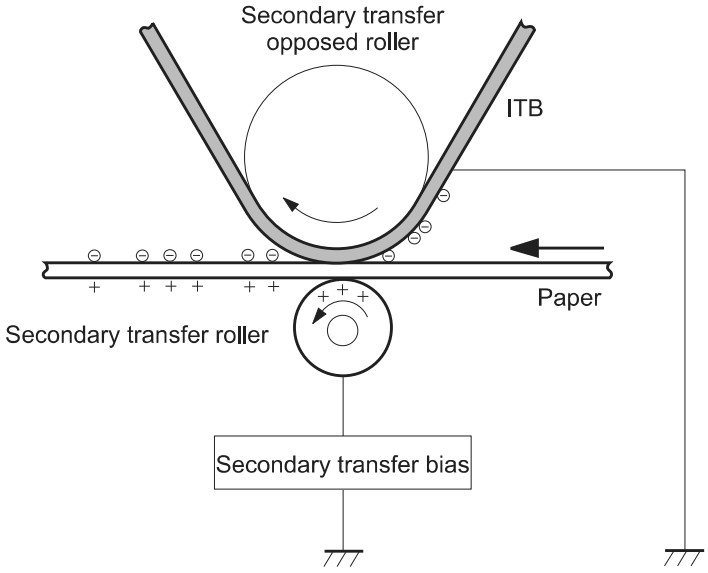
Figure 1-18 Primary transfer



Secondary transfer

Step 6: The toner image on the ITB is transferred to the paper. The secondary transfer bias is applied to the secondary transfer roller to charge the paper positive. As the paper passes between the secondary transfer roller and the ITB, the complete toner image on the ITB is transferred onto the paper.

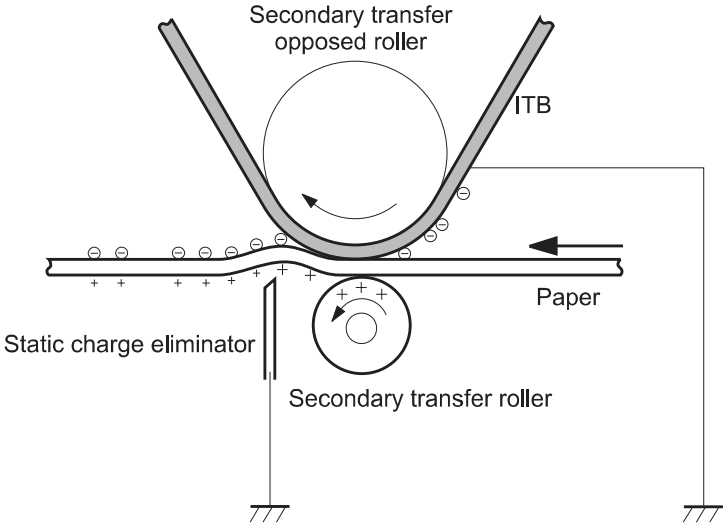
Figure 1-19 Secondary transfer



Separation

Step 7: The elasticity of the paper and the curvature of the secondary transfer opposed roller cause the paper to separate from the ITB. The static charge eliminator reduces back side static charge of the paper and controls excess discharge after the transfer process for stable media feed and image quality.

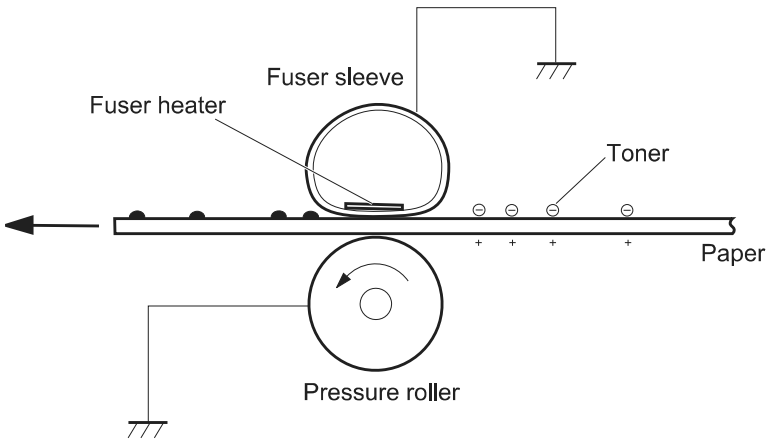
Figure 1-20 Separation



Fusing block

Step 8: The product uses an on-demand fuser. The toner image is permanently affixed to the printing paper by heat and pressure.

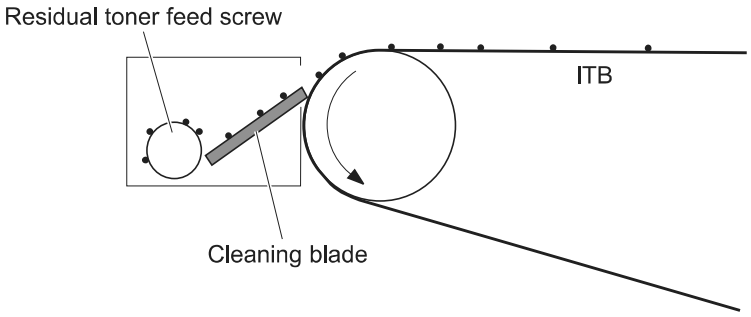
Figure 1-21 Fusing



ITB cleaning block

Step 9: The cleaning blade scrapes the residual toner off the surface of the ITB. The residual toner feed screw deposits residual toner in the toner collection unit.

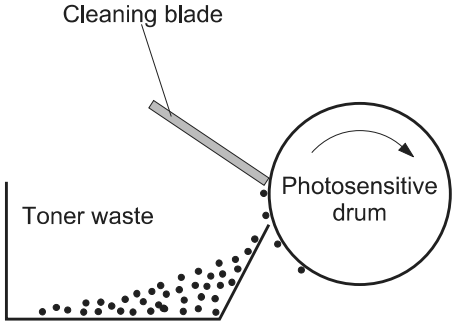
Figure 1-22 ITB cleaning



Drum cleaning block

Step 10: The cleaning blade scrapes the residual toner off the surface of the photosensitive drum, and toner is deposited in the waste section inside the print cartridge.

Figure 1-23 Drum cleaning



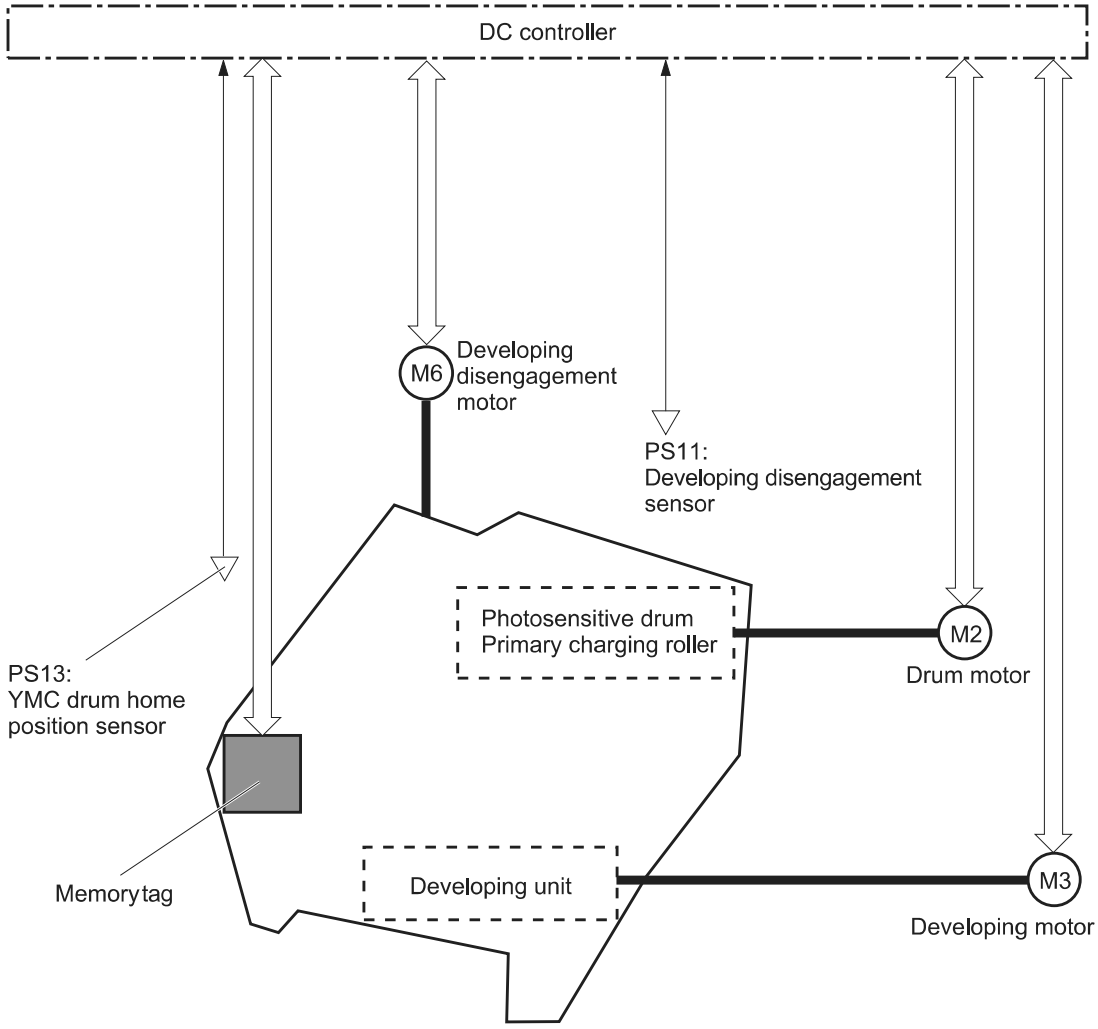
Print cartridges

The product has four print cartridges, one for each color: yellow, magenta, cyan, and black. Each of them has the same structure. The cartridges are filled with toner and consist of the following components:

- Photosensitive drum
- Developing unit
- Primary charging roller

The DC controller rotates the motors to drive the photosensitive drum, developing unit, and primary charging roller.

Figure 1-24 Print cartridge block diagram



Memory tag

The memory tag is a non-volatile memory chip in the cartridge that stores information about usage for the cartridge. The product 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 the presence of the cartridges by monitoring the RD sensor. When the DC controller determines a cartridge absence, it notifies the formatter.

Toner level detection

The DC controller detects the remaining toner level in a cartridge by the optical detection method. The DC controller notifies the formatter of the remaining toner level.

Cartridge life detection

The DC controller detects the cartridge life by monitoring the total operational wear limit or remaining toner level of the cartridge. The DC controller determines a cartridge end of life and notifies the formatter when the operational wear limit of the cartridge reaches a specified amount or the cartridge runs out of toner.

Developing unit engagement and disengagement control

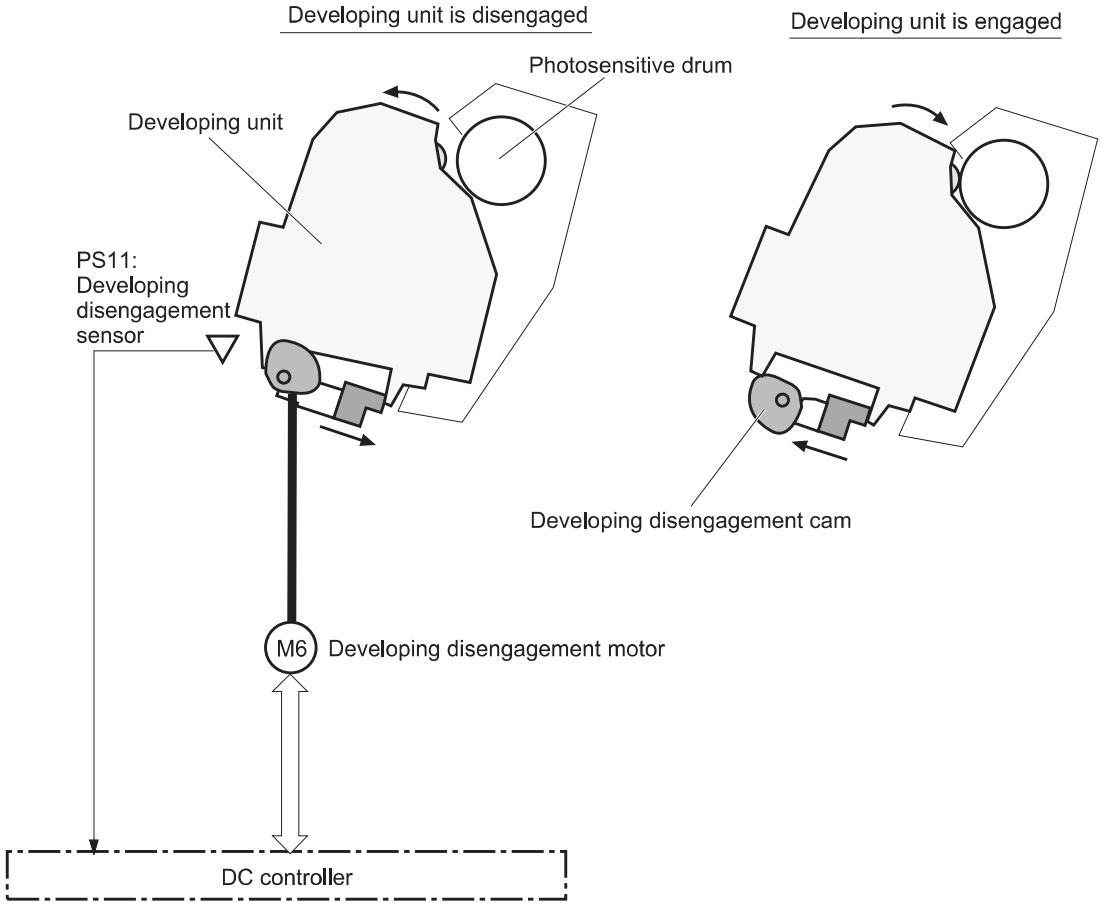
The developing unit engagement and disengagement control engages the developing unit with the photosensitive drum or disengages the developing unit from the drum depending on the print mode: full-color mode or black-only mode. The developing unit is engaged only when required, preventing a deterioration of the drums and maximizing their life.

The developing disengagement motor rotates the developing disengagement cam. As the cam rotates, the developing unit engages with or separates from the photosensitive drum.

When the product is turned on and when each print job is completed, all four of the developing units disengage from the photosensitive drums. When the print mode is in full-color mode, all of the developing units engage with the drums. When the print mode is in black-only mode, only black developing unit engages with the drum.

The DC controller determines a developing disengagement motor abnormality and notifies the formatter when it does not detect a specified signal from the developing disengagement sensor during the developing roller engagement and disengagement operation.

Figure 1-25 Developing unit engagement and disengagement control



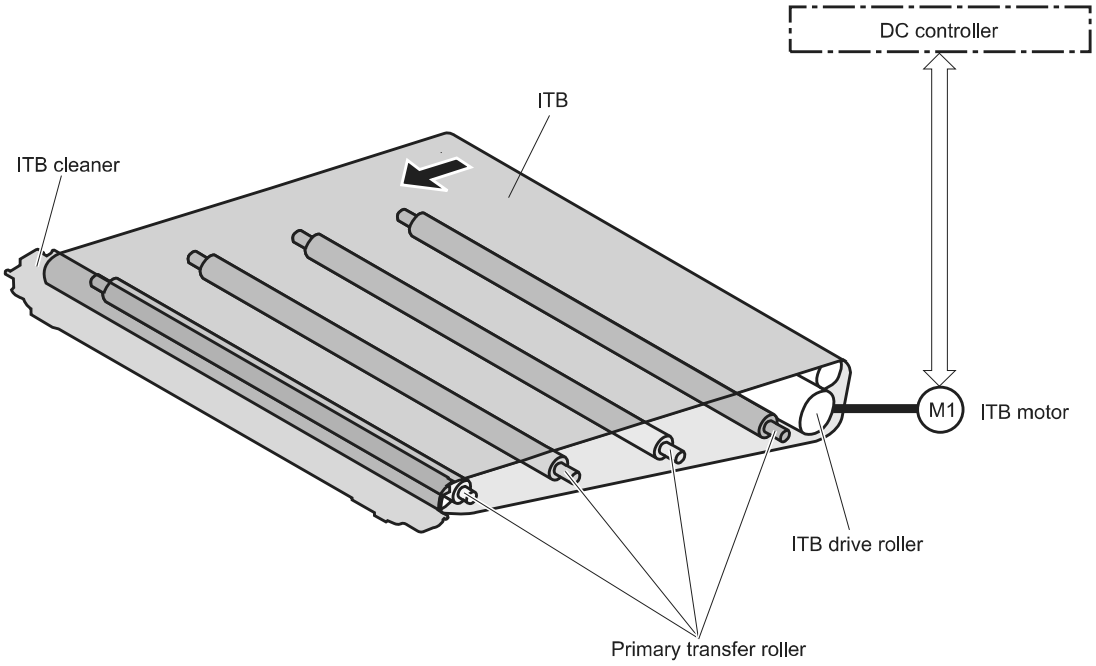
ITB unit

The ITB unit receives the toner image from the photosensitive drums and transfers the complete toner image to the print media. The ITB unit consists of the following components:

- ITB
- ITB drive roller
- Primary transfer rollers
- ITB cleaner

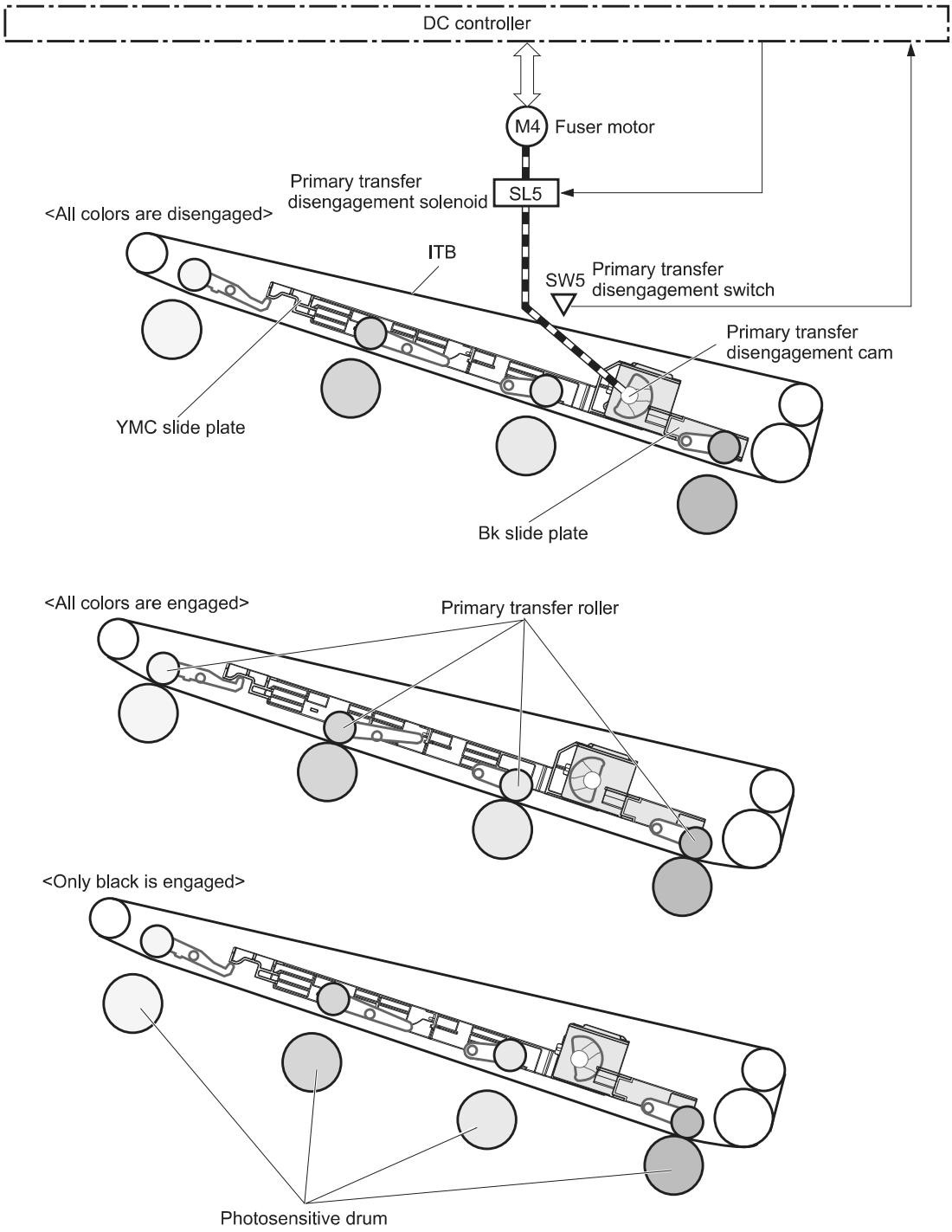
The ITB motor drives the ITB drive roller which rotates the ITB. The rotation of the ITB causes the primary transfer rollers to rotate. The ITB cleaner cleans the ITB surface.

Figure 1-26 ITB unit block diagram



Primary transfer roller engagement and disengagement control

Figure 1-27 Primary transfer roller engagement and disengagement control



The primary transfer roller engagement and disengagement control engages the ITB with the photosensitive drum or disengages the ITB from the drum depending on the requirements of the print job. There are three states of the primary transfer rollers.

- **All rollers disengaged**: The ITB disengages from all the four photosensitive drums. This is the state during a standby period, and it is the home position for the primary transfer rollers.
- **All rollers engaged**: The ITB engages with all the four photosensitive drums. This is the state for full-color jobs.
- **Only black roller engaged**: The ITB engages with only the black photosensitive drum. This is the state for the black-only jobs.

The operational sequence of the primary transfer roller engagement and disengagement control is as follows:

1. The fuser motor drives the primary transfer disengagement solenoid to rotate the primary transfer disengagement cam.
2. As the cam rotates, the YMC slide plate or the Bk slide plate moves to right or left. This causes the primary transfer roller to move up or down.
3. The ITB engages with or disengages from the photosensitive drum depending on the movement of the primary transfer rollers.

The DC controller determines an abnormal primary transfer roller disengagement mechanism and notifies the formatter when it does not detect a specified signal from the primary transfer disengagement switch even though the primary transfer disengagement solenoid is driven.

ITB unit presence detection

The DC controller detects the ITB unit presence by monitoring the primary transfer disengagement switch. The DC controller drives the primary transfer disengagement solenoid for specified times during the initial rotation period of the following:

- The product is turned on
- The product exits Sleep mode
- The door is closed

The DC controller determines an ITB unit absence and notifies the formatter when it does not detect a specified signal from the primary transfer disengagement switch.

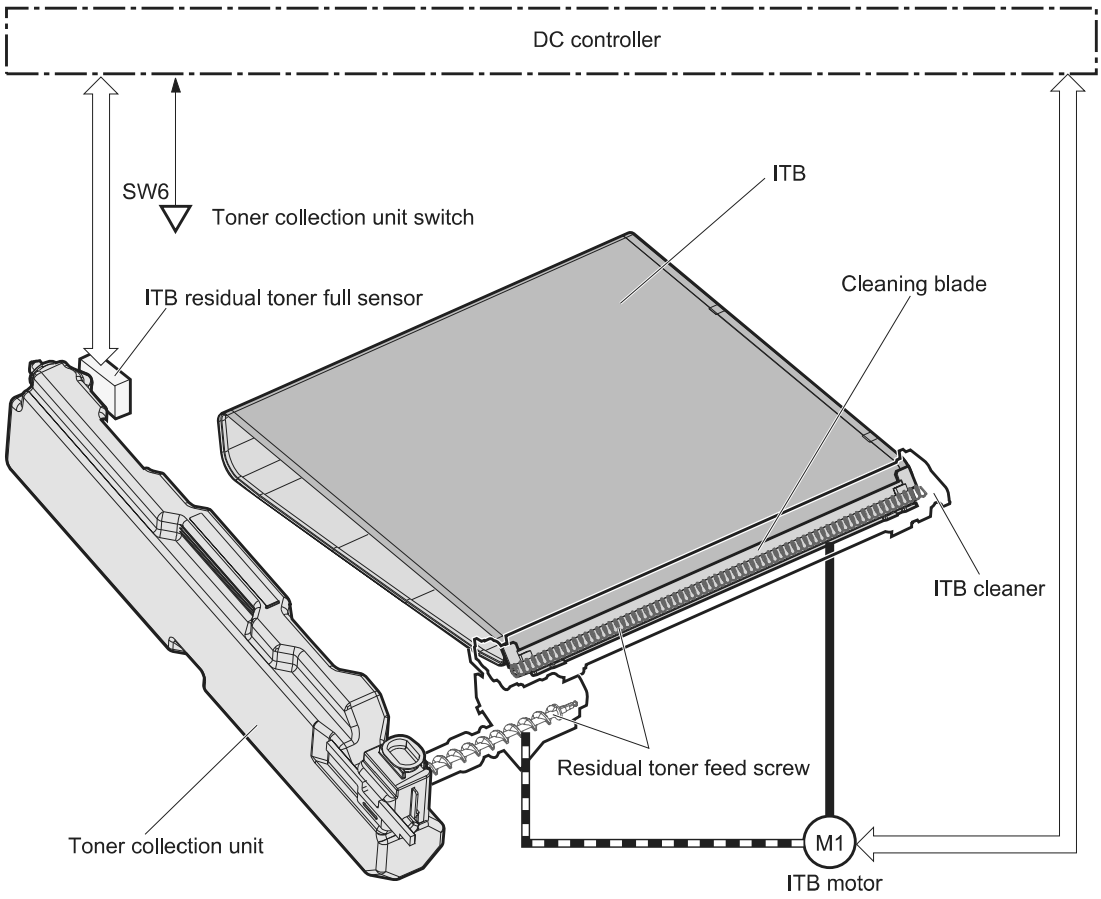
ITB cleaning mechanism

The cleaning blade in the ITB cleaner scrapes the residual toner off the ITB surface. The ITB motor drives the residual toner feed screw and the screw deposits the residual toner in the toner collection unit.

The DC controller detects whether the toner collection unit is full by monitoring the ITB residual toner full sensor. When the DC controller determines the toner collection unit is full, it notifies the formatter.

The DC controller also detects the presence of the toner collection unit by monitoring the toner collection unit switch.

Figure 1-28 ITB cleaning mechanism



Calibration

The product calibrates itself to print a high-quality image. The calibration corrects a color-misregistration and color-density variation caused by environment changes or variation inherent in the product. The product performs the following calibrations:

- Color-misregistration control
- Environment change control
- Image stabilization control

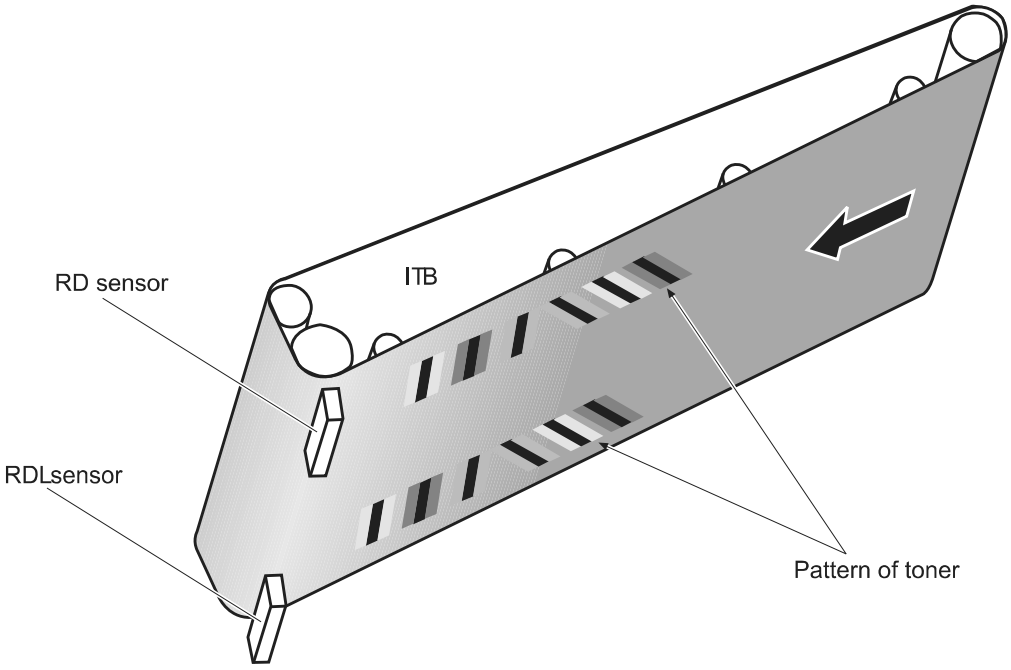
Color-misregistration control

The color-misregistration control corrects the misaligned color caused by the variation inherent in the laser scanner units or cartridges. The color-misregistration control corrects the following:

- Horizontal scanning start position
- Horizontal scanning magnification
- Vertical scanning start position

The DC controller forms pattern of toner on the surface of the ITB and measures a misaligned length with the RD sensor and the RDL sensor. Accordingly, the formatter calibrates the color-misregistration.

Figure 1-29 Color-misregistration control



The DC controller commands the formatter to perform the color-misregistration control whenever one of the following occurs:

- The product is turned on or the door is closed, after replacing any one of the cartridges
- The product is turned on or the door is closed, after replacing the ITB unit or the laser scanner unit
- A specified number of pages have been printed
- Continuous printing for a specified period of time
- Cold starting of the fuser when the product is turned on

If data from the RD or RDL sensor is out of a specified range during the cartridge-presence detection or when starting the color-misregistration control, the DC controller determines an abnormal sensor and notifies the formatter.

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.

Image stabilization control

The image stabilization control reduces the fluctuations in image density caused by environmental changes or deterioration of the photosensitive drums or toner. The two kinds of image stabilization controls are image density control (DMAX) and image halftone control (DHALF).

Image density control (DMAX)

The image density control calibrates each high-voltage bias to stabilize the image density variation caused by the deterioration of the photosensitive drum or toner. The DC controller commands the formatter to control the image density under the following conditions:

- The detected temperature of the fuser is a specified degree or lower when the product is turned on
- The product is turned on or the door is closed and also whenever a specified number is printed after replacing any one of the cartridges
- The product is turned on or the door is closed after replacing the ITB unit or the laser scanner unit
- A specified number of pages have been printed
- After a specified period of time from the previous image density control
- The environment is changed for a specified condition after the previous image density control

Image halftone control (DHALF)

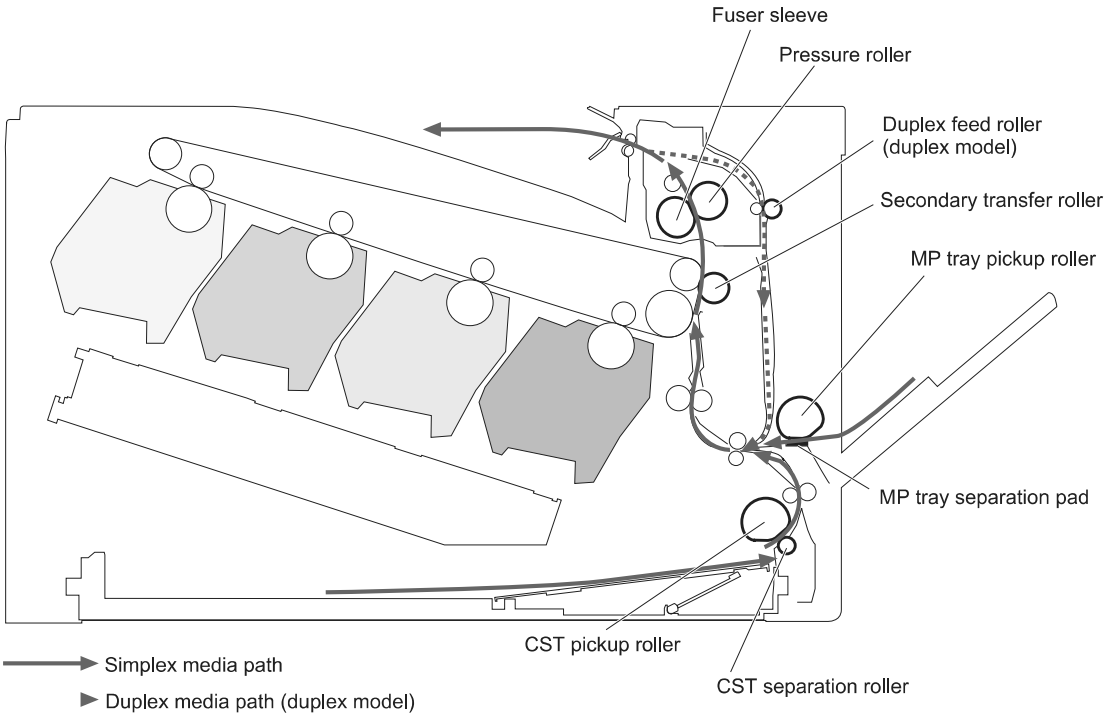
The image halftone control is performed by the formatter to calibrate the halftone. The DC controller measures the halftone pattern according to a command from the formatter. Accordingly, the formatter calibrates the halftone. The DC controller controls the image halftone under the following conditions:

- The image density control is completed
- The formatter sends a command

Pickup, feed, and delivery system

The pickup/feed/delivery system consists of several types of feed rollers and sensors. The duplex model has a mechanism that reverses and refeeds the print media to print two sides automatically.

Figure 1-30 Pickup, feed, and delivery system



The pickup/feed/delivery system can be divided into the following three blocks:

- **Pickup-and-feed block**: From each input source to the fuser inlet
- **Fuser-and-delivery block**: From the fuser to the output bin
- **Duplex block**: From the duplex reverse unit to the duplex re-pickup unit (duplex models only)

Figure 1-31 Pickup, feed, and delivery system blocks

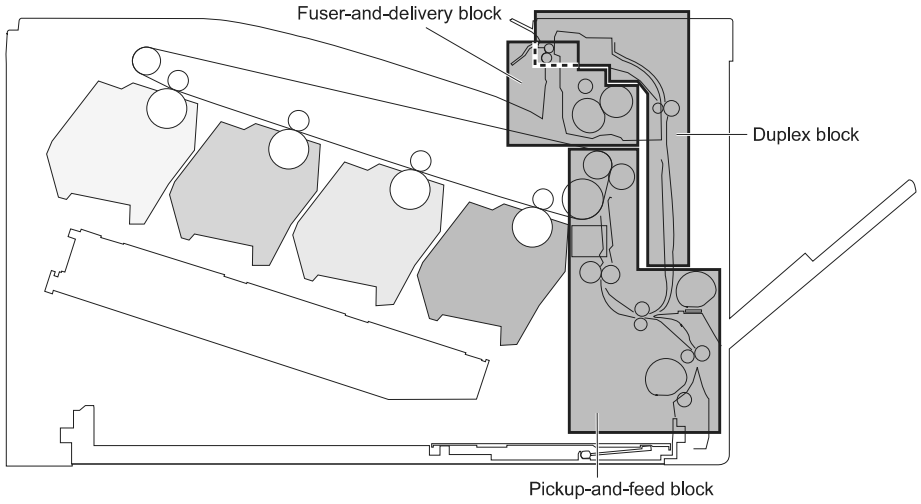


Photo sensors

Figure 1-32 Photo sensors (paper path)

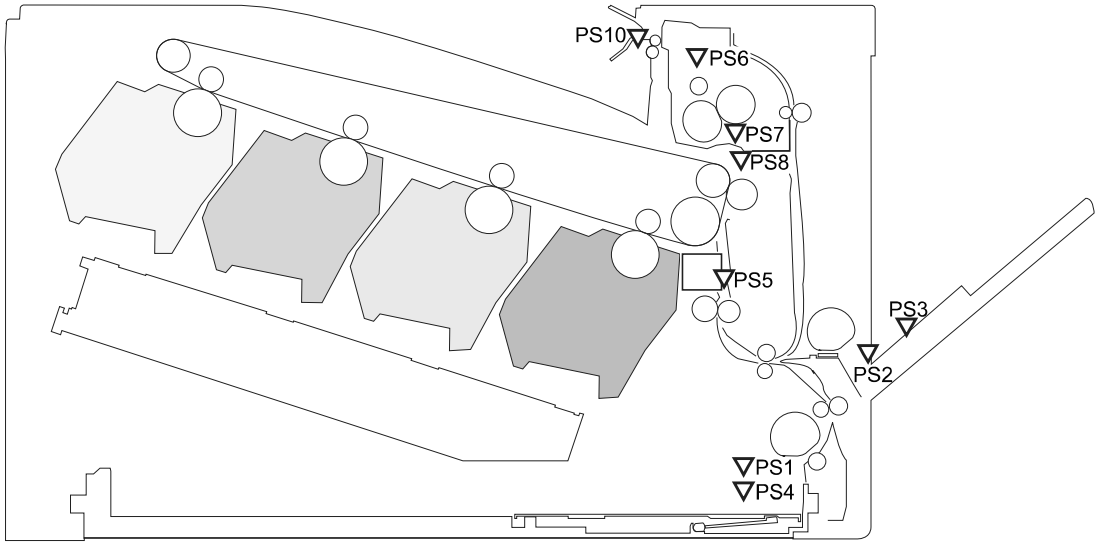


Table 1-5 **Photo sensors and switches (product)**

Item	Description	Item	Description
PS1	Cassette paper-presence sensor	PS6	Fuser delivery sensor
PS2	Tray 1 (MP tray) paper-presence sensor	PS7	Loop sensor 1
PS3	Last-paper sensor	PS8	Loop sensor 1
PS4	Cassette paper-stack surface sensor	PS10	Output bin media-full sensor
PS5	Top-of-Page (TOP) sensor		

Motors and solenoids

Figure 1-33 Motors and solenoids (paper path)

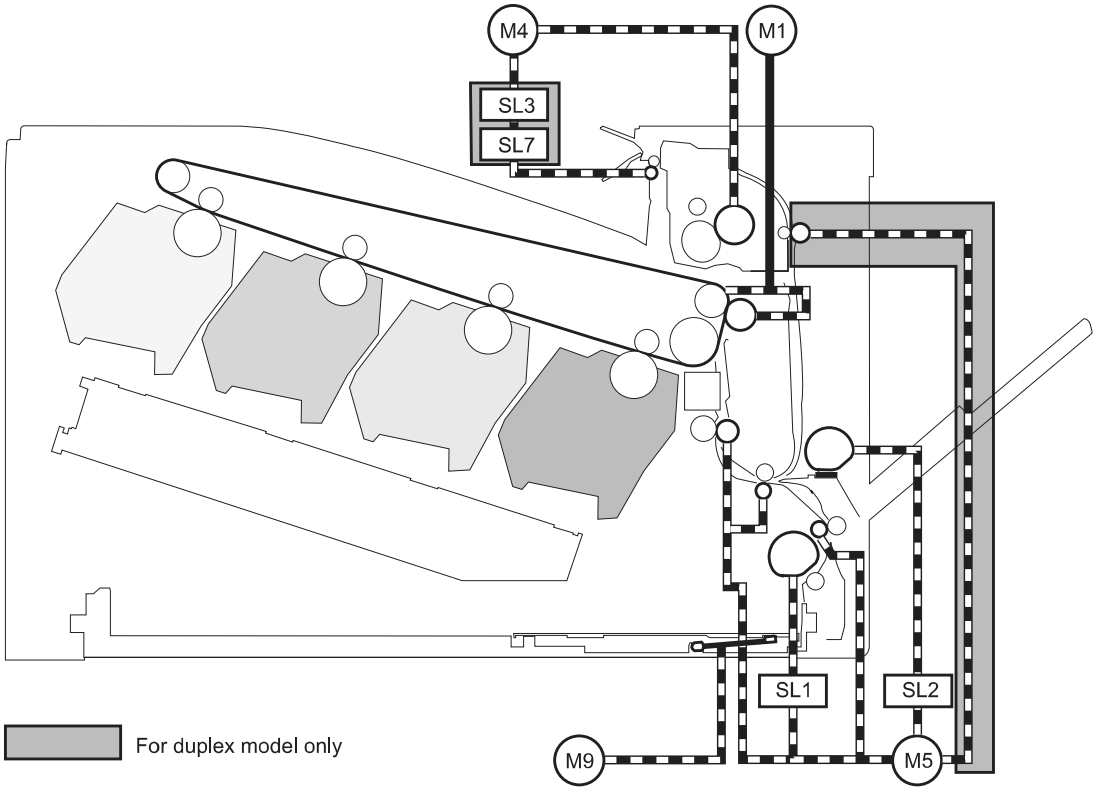


Table 1-6 **Motors and solenoids (paper path)**

Item	Description	Item	Description
M1	ITB motor	SL1	Cassette pickup solenoid
M4	Fuser motor	SL2	Tray 1 (MP tray) pickup solenoid
M5	Pickup motor	SL3	Duplex reverse solenoid 1 (duplex models only)
M9	Cassette lifter motor	SL7	Duplex reverse solenoid 2 (duplex models only)

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.

Cassette pickup

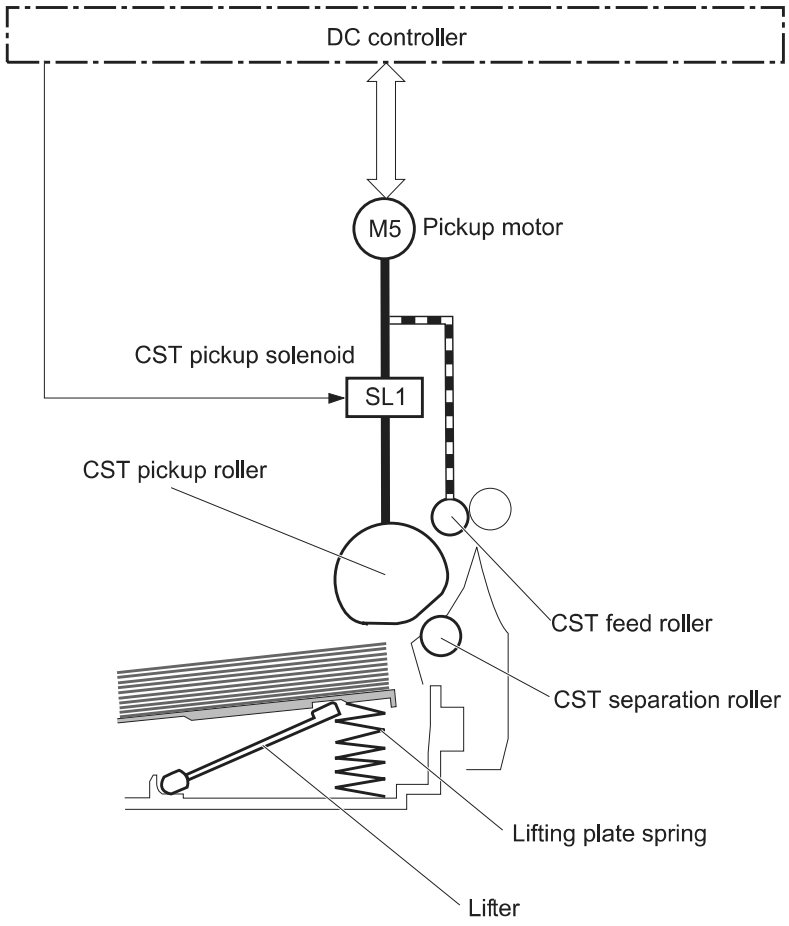
The operational sequence of the cassette pickup is as follows:

1. The product is turned on or the cassette is inserted.
2. The lift-up operation and the lifting plate spring move up the lifting plate to the position where the paper can be picked up.
3. The DC controller rotates the pickup motor when it receives a print command from the formatter.

4. The cassette (CST) feed roller rotates.
5. The cassette (CST) pickup solenoid is driven at a specified timing.
6. The cassette (CST) pickup roller rotates and picks up the paper.
7. The cassette (CST) separation roller removes any multiple-fed sheets.
8. One sheet of paper is fed into the product.

NOTE: The lift-up operation pushes up the lifting plate to keep the stack surface of paper at the pickup position.

Figure 1-34 Cassette pickup operation



Cassette multiple-feed prevention

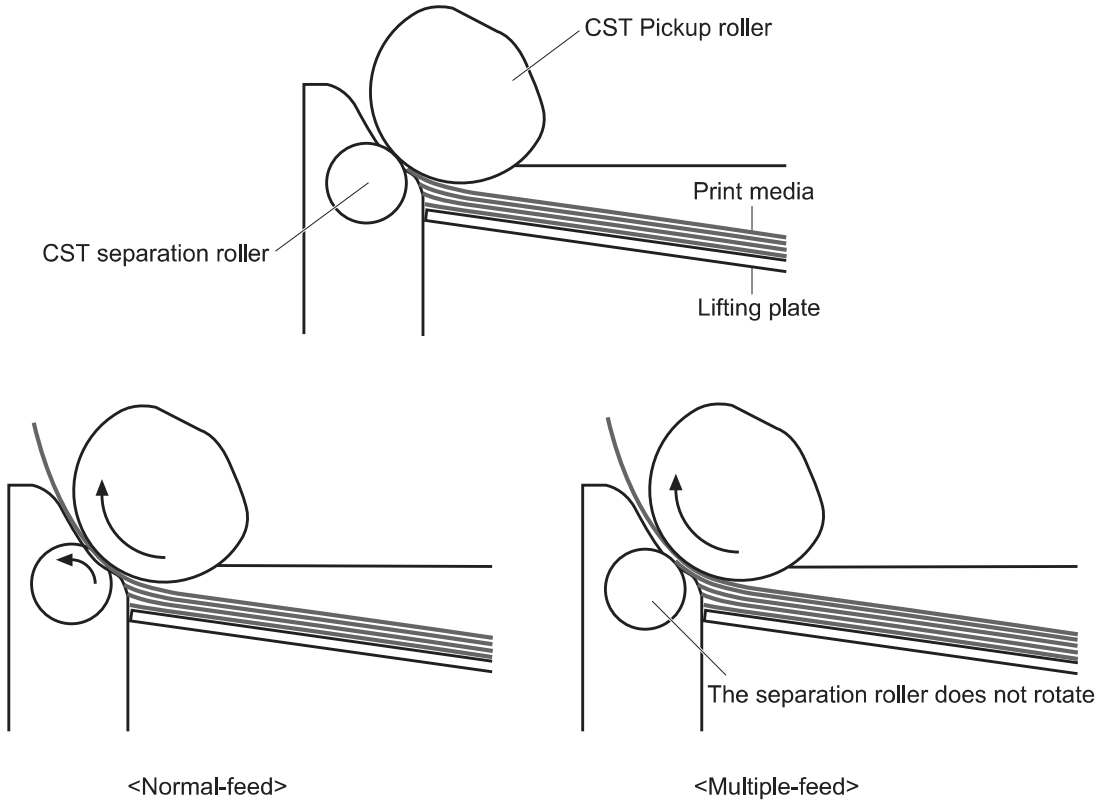
The product uses a separation roller method to prevent multiple sheets of print media from entering the paper path. The cassette separation roller does not have its own driving force. Therefore the cassette separation roller follows the rotation of the cassette pickup roller.

During normal feed, when the product picks up one piece of paper, the cassette separation roller is driven by the cassette pickup roller through one sheet of paper. Thus the separation roller rotates in the paper feed direction.

During multiple-feed, when the product picks up more than one piece of paper, the low friction force between the sheets weakens the driving force from the cassette pickup roller. In addition, some braking

force is always applied to the cassette separation roller, so the weak rotational force of the pickup roller is not enough to rotate the separation roller. Therefore, the separation roller holds back any multiple-fed sheets, and one sheet of paper is fed into the product.

Figure 1-35 Cassette multiple-feed prevention



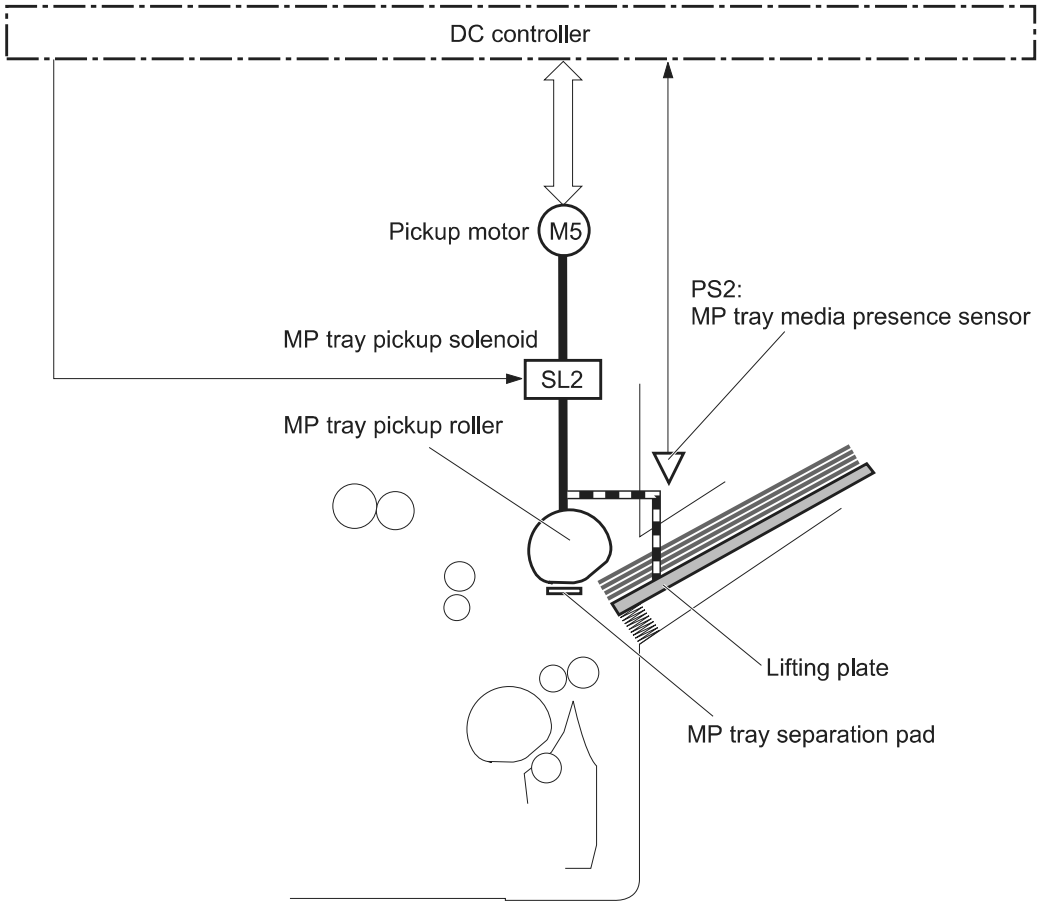
Tray 1 (MP tray) paper pickup

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

1. The DC controller rotates the pickup motor when it receives a print command from the formatter.
2. As the MP tray pickup solenoid is driven, the MP tray pickup roller rotates and the lifting plate moves up.
3. The MP tray pickup roller picks up the paper.
4. The MP tray separation pad removes any multiple-fed sheets and one sheet of paper is fed into the product.

The MP tray media presence sensor detects the presence of print media on the MP tray.

Figure 1-36 Tray 1 (MP tray) paper pickup



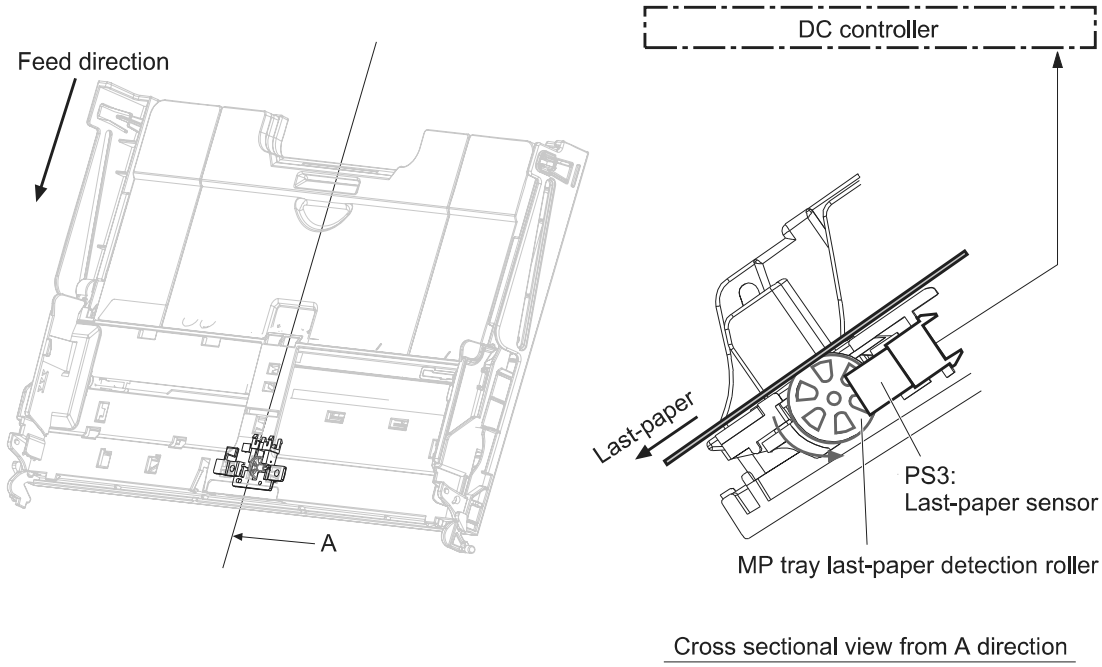
Tray 1 (MP tray) last-paper detection

The product detects whether the print media on the MP tray is the last sheet during continuous printing to prevent toner contamination on the photosensitive drums and the ITB.

The product attempts to form the next image before the DC controller detects a media absence because the paper path between the MP tray media-presence sensor and the registration roller is short. To prevent the photosensitive drums and the ITB from being contaminated with toner, the last-paper sensor detects the last-paper. The MP tray last-paper detection roller rotates when the last-paper is picked up.

The DC controller notifies the formatter of a media absence when it detects the last-paper by the last-paper sensor.

Figure 1-37 Tray 1 (MP tray) last-paper detection



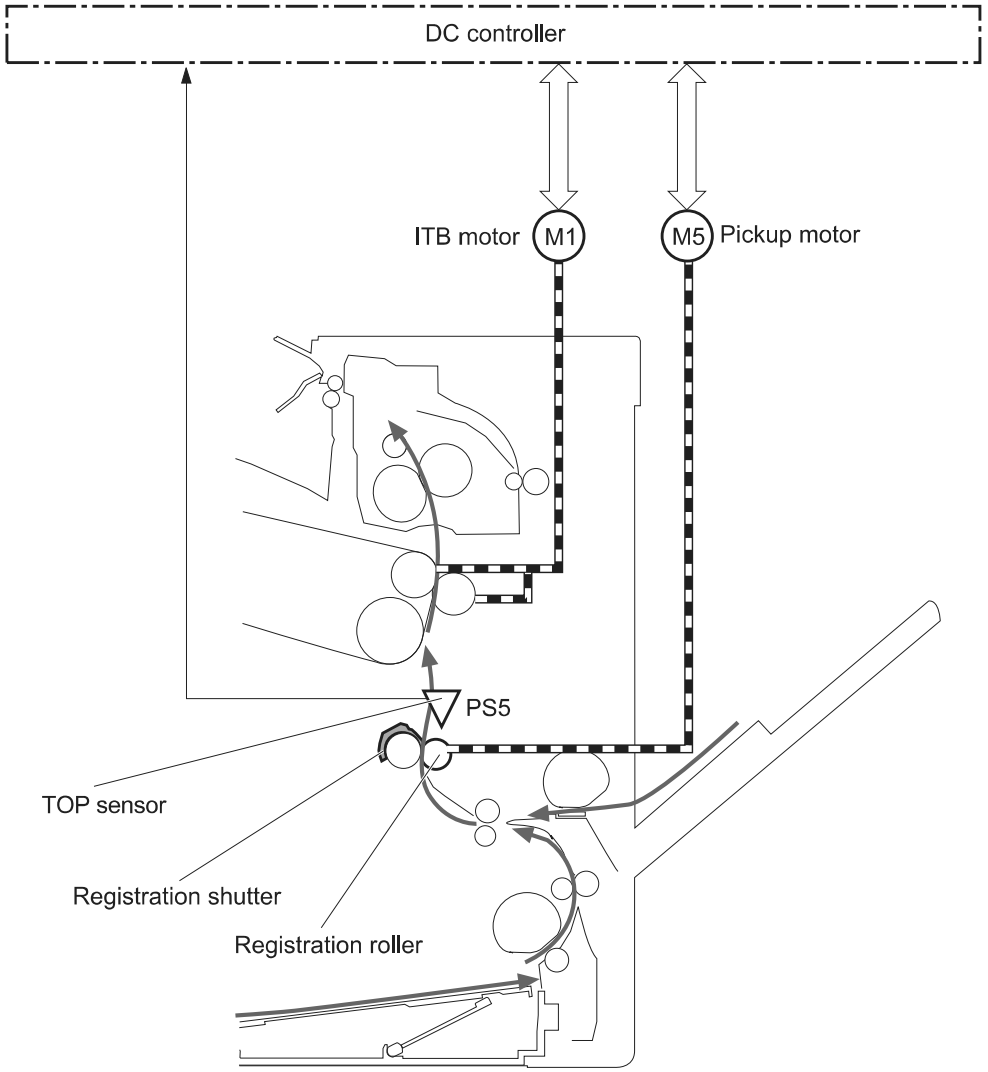
Paper feed

After the paper pickup operation, the paper picked up from either the cassette or MP tray is then fed to the fixing-and-delivery block.

1. The registration shutter corrects the skew-feeding of the paper that is picked up from the cassette or MP tray.
2. When the TOP sensor detects the leading edge of paper, the DC controller controls the rotational speed of the pickup motor to align with the leading edge of toner image on the ITB.
3. The toner image on the ITB is transferred onto the paper, and the paper is fed to the fusing-and delivery block.

The DC controller notifies the formatter of a paper size mismatch error when the paper length detected by the TOP sensor does not match the paper size specified by the formatter.

Figure 1-38 Paper feed

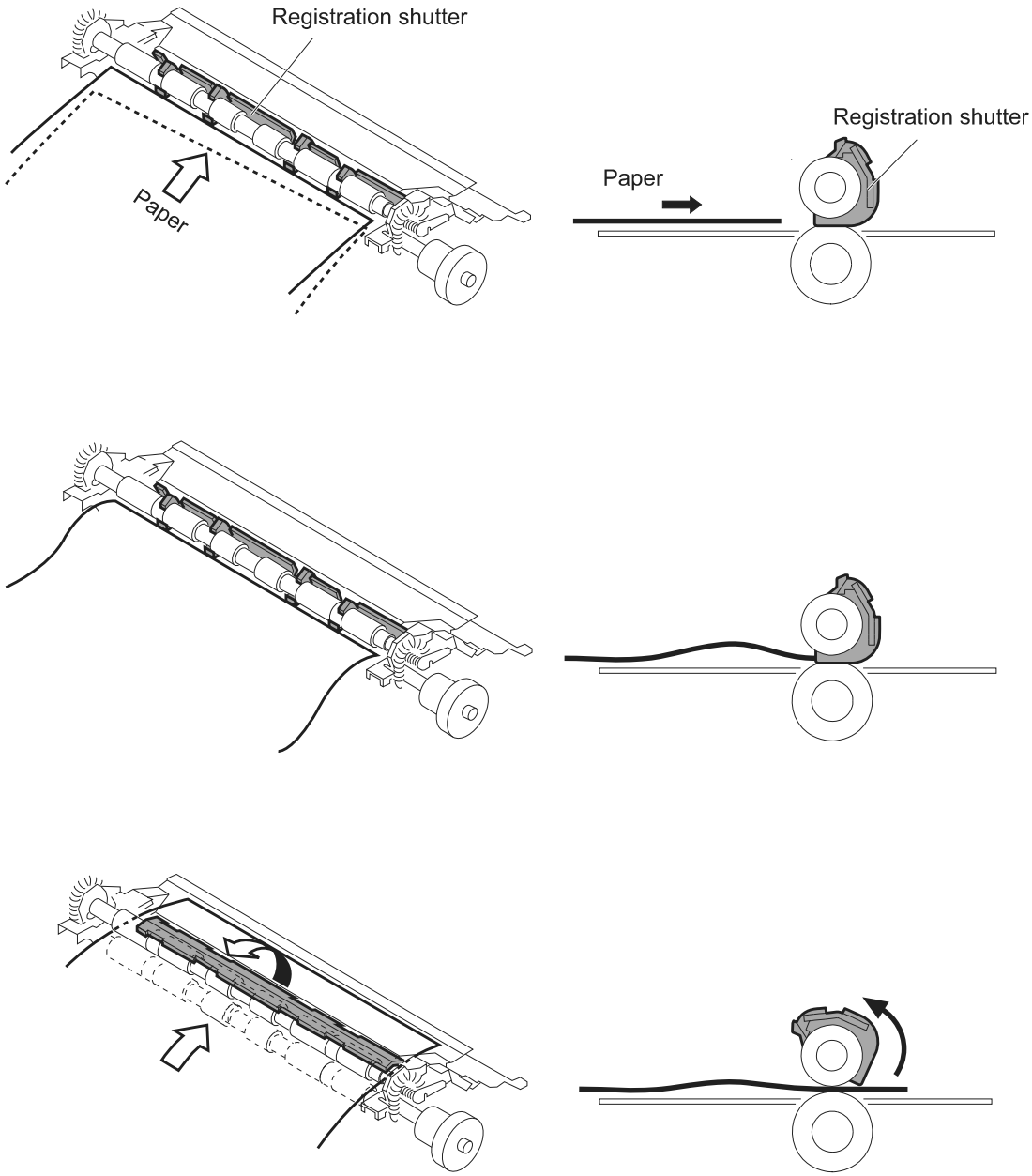


Skew-feed prevention

The printer corrects the skew feed without decreasing the throughput.

1. The leading edge of paper strikes the registration shutter and aligns.
2. As the feed rollers keep pushing the paper, the paper gets warped against the registration shutter.
3. The stiffness of paper pushes up the registration shutter and the realigned paper passes through straightened.

Figure 1-39 Skew-feed prevention



Feed-speed control

The product adjusts the feed speed to obtain the best print quality depending on the type of print media. The product prints at the speed corresponding to the print mode specified by the formatter.

Print mode	Feed speed	Print mode	Feed speed
Normal	Full	Photo media 1	Half
Heavy media 1	Full	Photo media 2	Half
Heavy media 2	Half	Photo media 3	Half
Heavy media 3	Half	Envelope	Full
Light media 1	Full	OHT	Half
Glossy media 1	Half	Label	Half
Glossy media 2	Half	Rough	Full
Glossy media 3	Half	Normal gloss	Full
Glossy film	Half		

Fusing and delivery block

The fusing-and-delivery block fuses the toner image onto the print media and delivers the printed page to the output bin.

Loop control

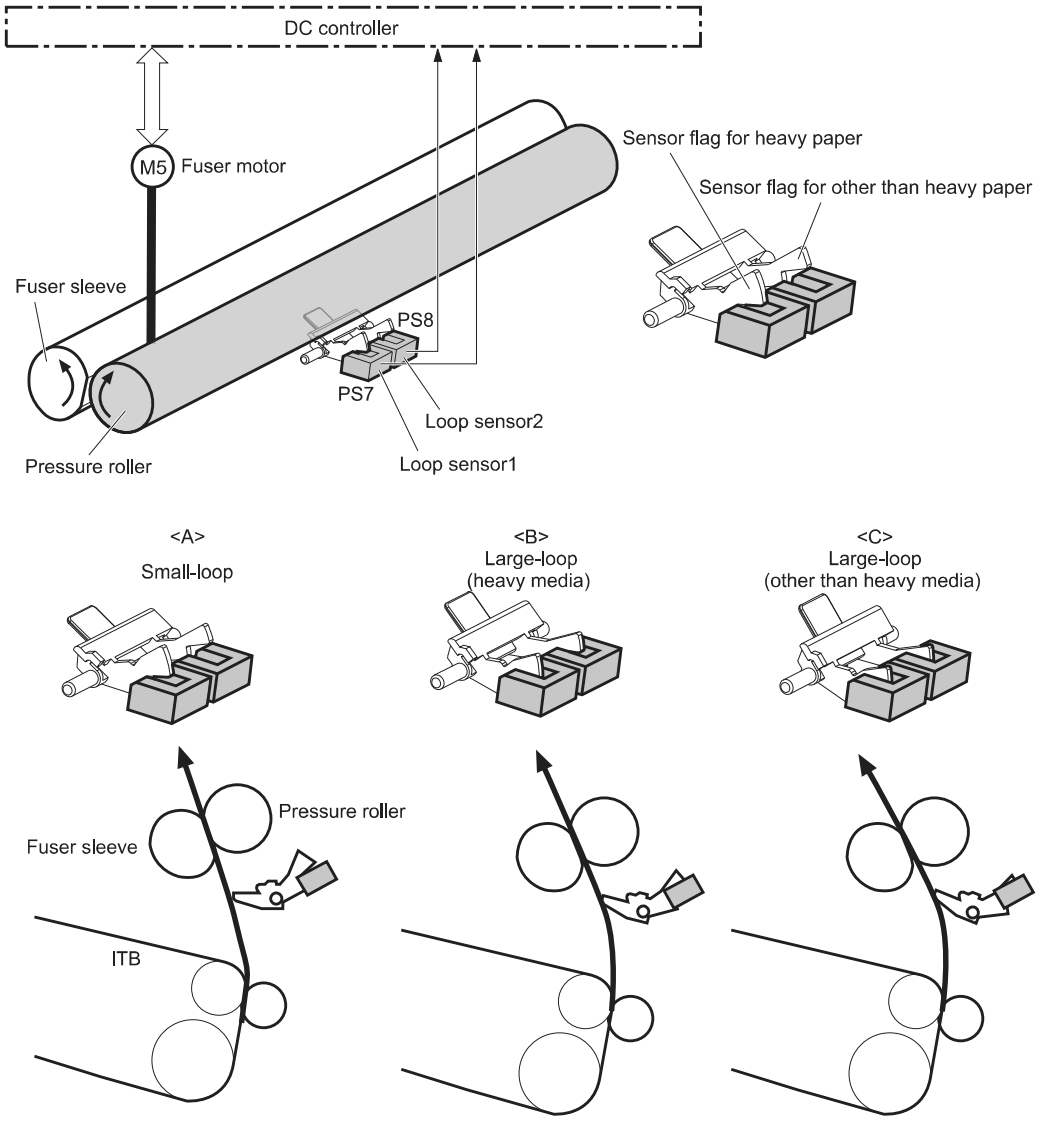
The product controls the loop (slackness) of print media to prevent the defects of print quality and media feed.

- If the fuser sleeve rotates slower than the ITB, the paper loop increases and an image defect or paper crease occurs.
- If the fuser sleeve rotates faster than the ITB, the paper loop decreases and an image is stretched because the toner image is not transferred to the paper correctly

Two loop sensors located between the fuser sleeve and the ITB detect the paper loop. Accordingly the DC controller controls the rotational speed of the fuser motor to keep the loop amount properly.

- Loop sensor 1: Detects the paper loop for heavy media
- Loop sensor 2: Detects the paper loop for plain media other than heavy media

Figure 1-40 Loop control



Loop sensor1	Loop sensor2	Speed of fuser motor	Illus.
OFF	OFF	Speed down	A
ON	OFF	Heavy media: Speed up Other media: Speed down	B
ON	ON	Speed up	C

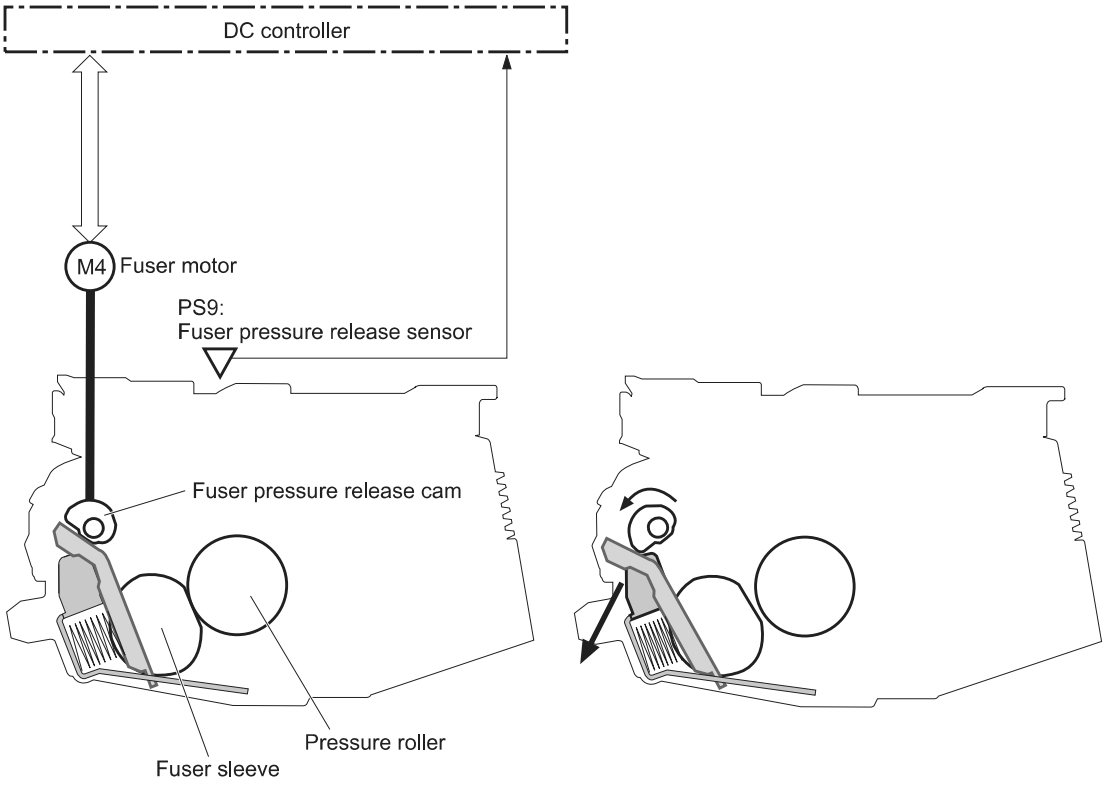
Pressure roller pressurization and depressurization control

The product releases the pressure roller from the fuser sleeve, except during printing, to prevent deforming the fuser sleeve and the pressure roller and to facilitate the jam-clearing procedure.

1. The DC controller reverses the fuser motor to rotate the fixing pressure release cam.
2. The pressure roller is pressurized or depressurized depending on the position of the cam.

The DC controller determines a fuser pressure-release mechanism abnormality and notifies the formatter when it does not sense the fuser pressure-release sensor for a specified period from when it reverses the fuser motor.

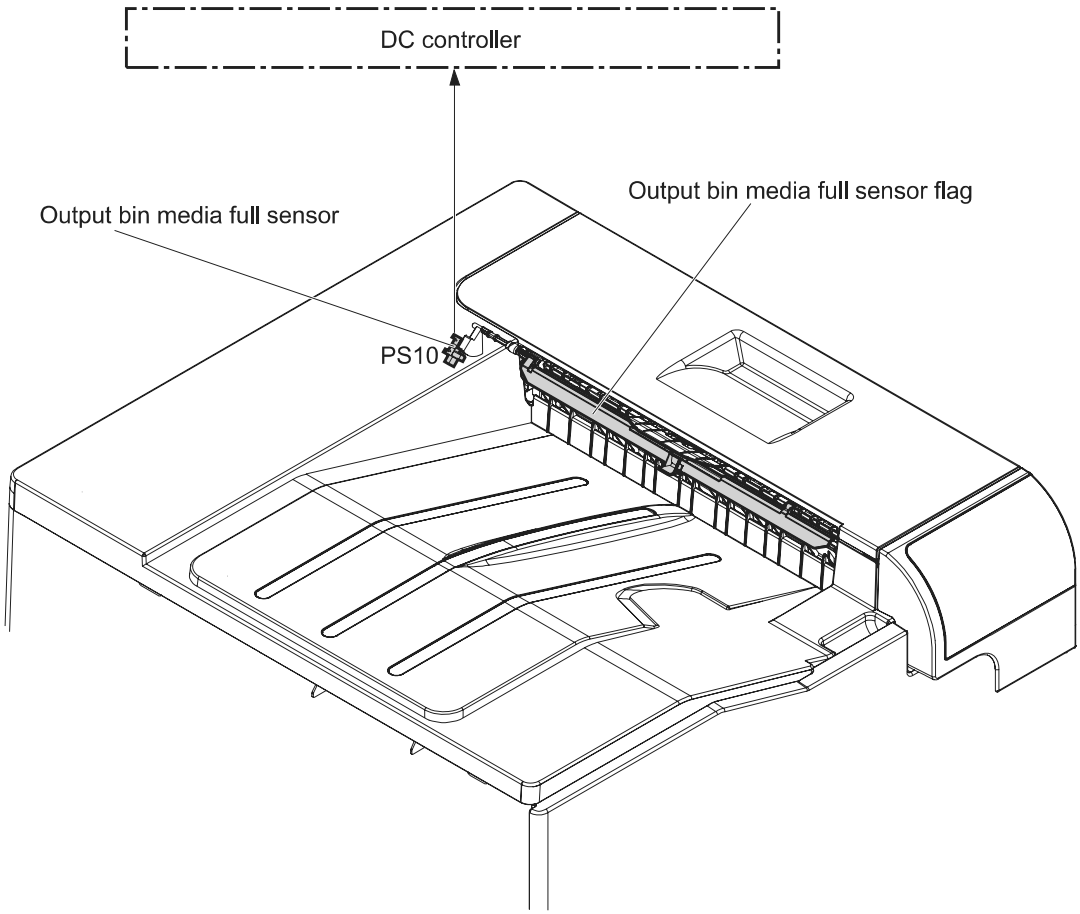
Figure 1-41 Pressure roller pressurization and depressurization control



Output bin full detection

The output bin media-full sensor detects whether the output bin is full of printed pages. The DC controller determines the output bin is full and notifies the formatter when it senses the output bin media-full sensor is on for a specified period during standby or printing.

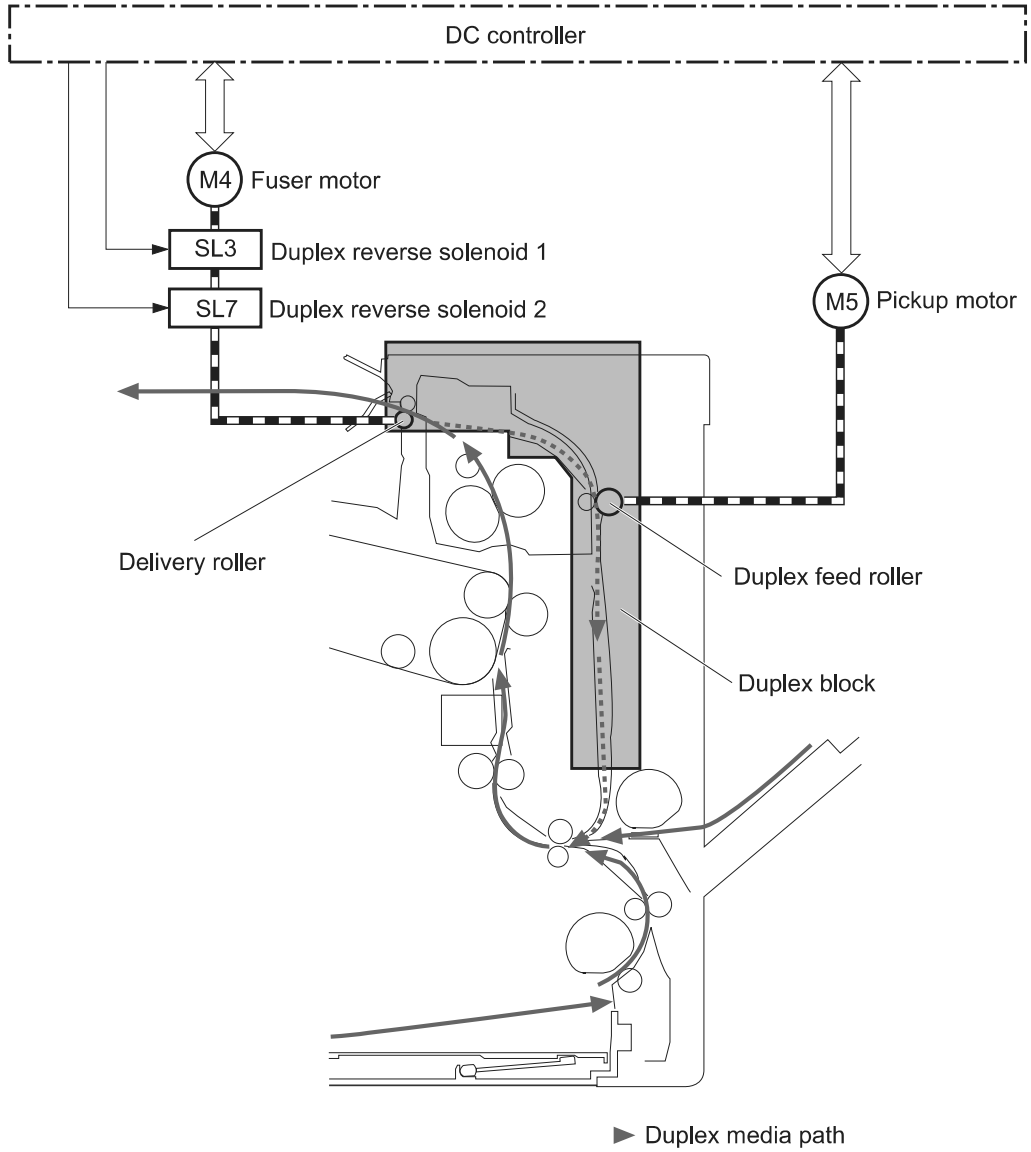
Figure 1-42 Output bin full detection



Duplex block (duplex models only)

The duplex reverse control reverses the paper after the first side is printed. The duplex feed control feeds the paper to the duplex block to print the second side of the page.

Figure 1-43 Duplex operation



1. The DC controller controls the duplex reverse solenoid 1 and duplex reverse solenoid 2 at a specified timing after the first side is printed.

Duplex reverse solenoid 1	Duplex reverse solenoid 2	Delivery roller
Off	Off	Rotates
On	Off	Stops
On	On	Reverses

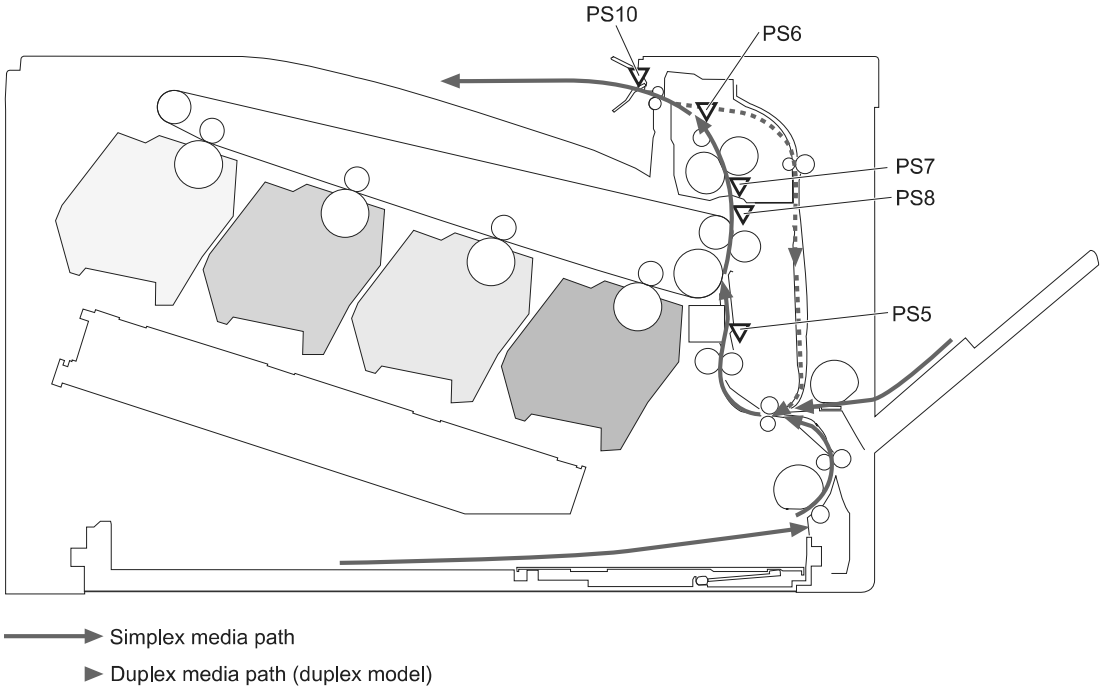
2. The DC controller reverses the delivery roller and the paper is reversed.
3. The duplex feed roller feeds the paper.

Jam detection

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

- TOP sensor (PS5)
- Fuser delivery sensor (PS6)
- Loop sensor 1 (PS7)
- Loop sensor 2 (PS8)
- Output bin media full sensor (PS10)

Figure 1-44 Sensors for jam detection



The product detects the following jams:

Pickup delay jam	**Tray 1 (MP tray)**: The TOP sensor does not detect the leading edge of paper within a specified period, including a retry, after the MP tray pickup solenoid is turned on. **Cassette**: The TOP sensor does not detect the leading edge of paper within a specified period, including a retry, after the cassette pickup solenoid is turned on. **Paper feeder**: The TOP sensor does not detect the leading edge of paper within a specified period after the paper-feeder (PF) feed sensor detects the leading edge.
Pickup stationary jam	The TOP sensor does not detect the trailing edge of paper within a specified period after the leading edge of paper reaches the secondary transfer roller unit.
Fuser delivery delay jam	The fuser delivery sensor does not detect the leading edge of paper within a specified period after the leading edge of paper reaches the secondary transfer roller unit.
Fuser delivery stationary jam	The fuser delivery sensor does not detect the trailing edge of paper within a specified period after the TOP sensor detects the trailing edge. The output bin media full sensor does not detect the leading edge of paper within a specified period after the fuser delivery sensor detects the leading edge.

Wrapping jam	The fuser delivery sensor detects a paper absence yet it does not detect the trailing edge of paper after it detects the leading edge.
Residual paper jam	One of the following sensors detects a presence of paper when the printer is turned on or when the door is closed. • TOP sensor • Fuser delivery sensor • Loop sensor 1 • Loop sensor 2 NOTE: The product automatically clears all paper from the paper path if the TOP sensor detects residual paper when the product is turned on or a door is closed.
Door open jam	The door open is detected during a paper feed operation.
Duplex re-pickup jam (duplex model only)	The TOP sensor does not detect the leading edge of paper within a specified period after the paper is reversed during a duplex print operation.

Paper feeder

This product supports an optional 500-sheet tray (Tray 3). The operational sequence of the paper feeder is controlled by the paper feeder controller PCA.

Figure 1-45 Paper-feeder paper path

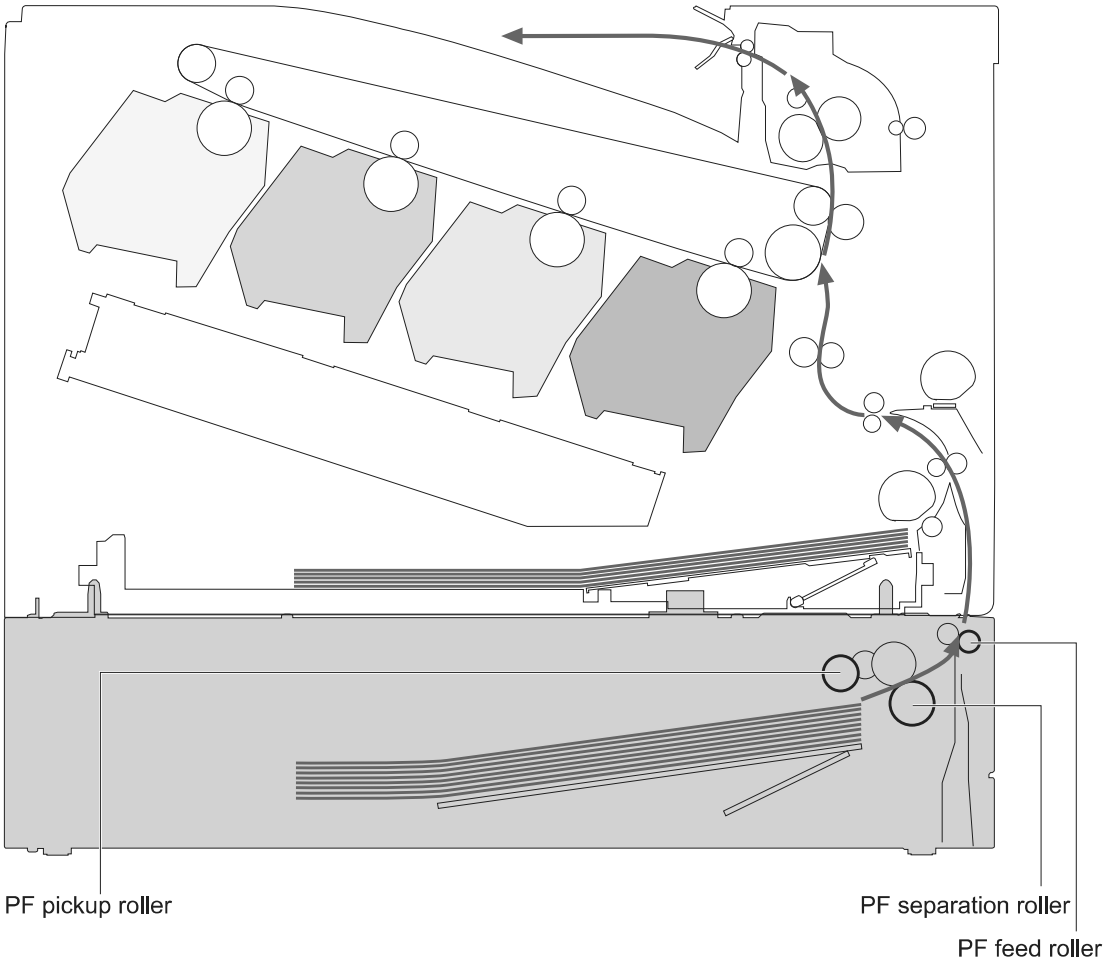
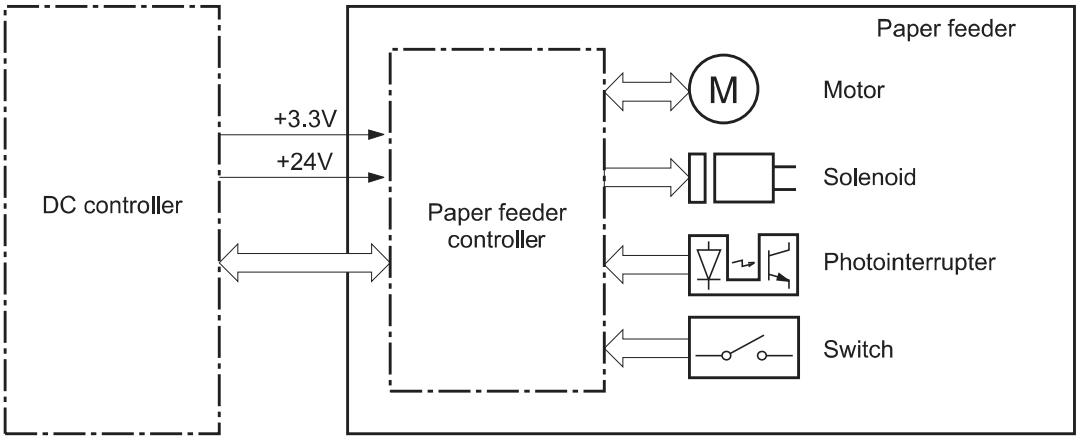


Figure 1-46 Paper-feeder block diagram



Paper-feeder motors

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

Figure 1-47 Paper-feeder motors

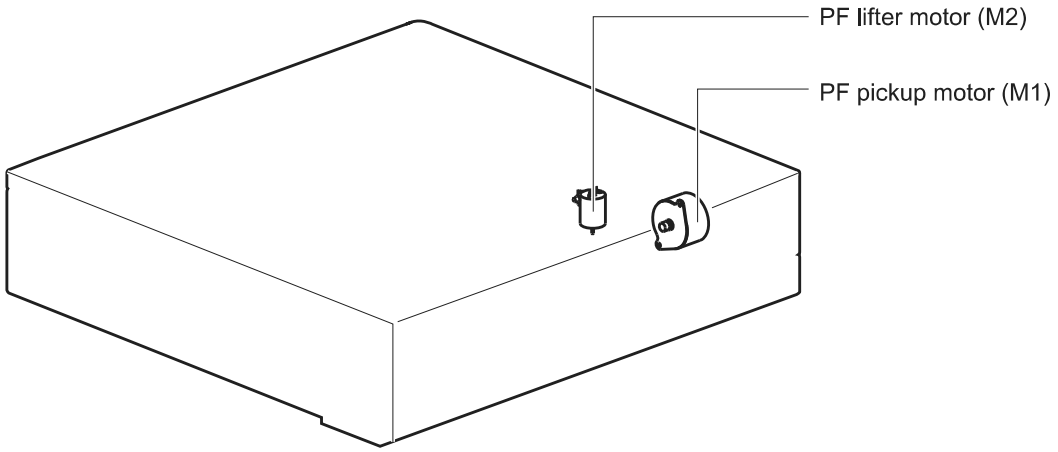


Table 1-7 Paper-feeder motors

Motor	Driving part	Failure detection
PF pickup motor (M1)	PF pickup roller	No
	PF separation roller	
	PF feed roller	
PF lifter motor (M2)	Lifter for the PF cassette	No

Paper-feeder paper pickup and feed

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

Figure 1-48 Paper-feeder electrical components

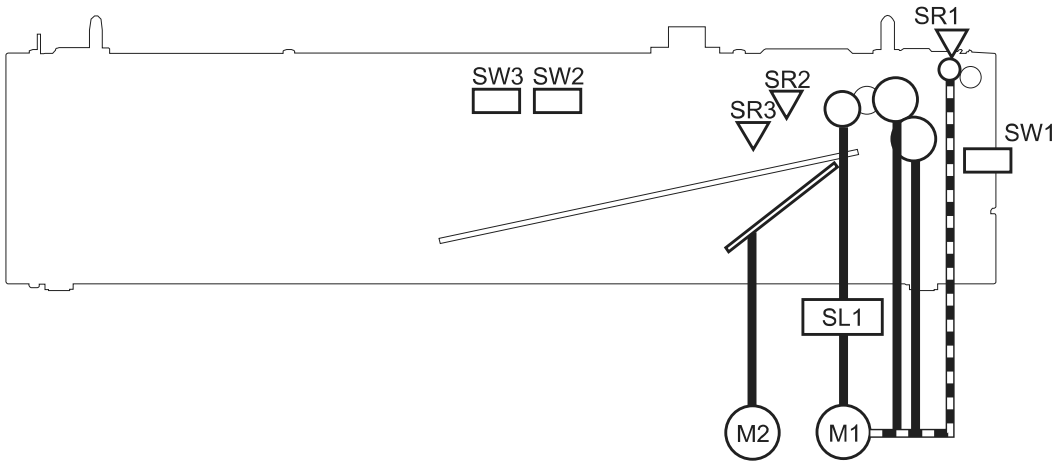


Table 1-8 Paper-feeder electrical components

Component type	Abbreviation	Description
Motor	M1	PF pickup motor
	M2	PF lifter motor
Solenoid	SL01	PF pickup solenoid
Photointerruptor (sensor)	SR1	PF paper-feed sensor
	SR2	PF paper-stack surface sensor
	SR3	PF cassette paper-presence sensor
Switch	SW1	PF door-open switch
	SW2	PF cassette paper end-plate position switch
	SW3	PF cassette paper-width switch

Paper-feeder cassette lift operation

The cassette lift-up operation keeps the surface of the paper stack at the pickup position whenever the following occurs:

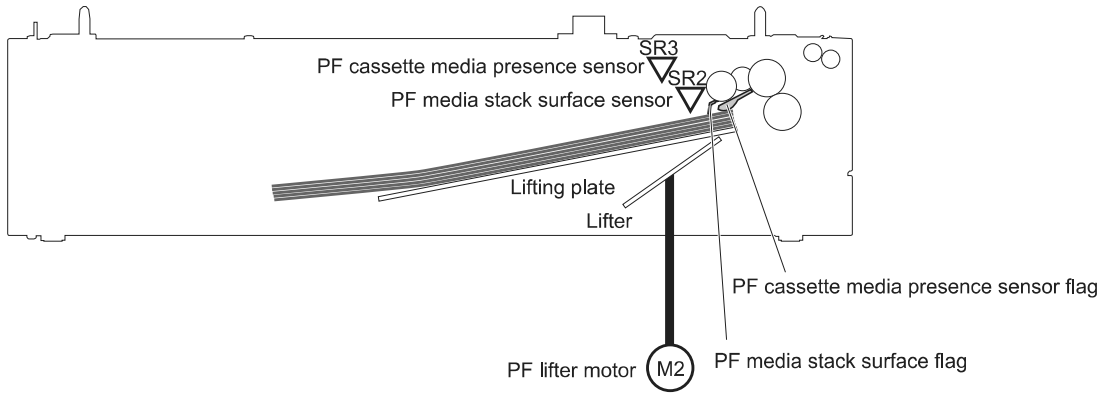
- Product is turned on
- Cassette is inserted
- Stack surface in the cassette lowers

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

1. The PF lifter motor rotates to raise the lifter.
2. When the PF paper-stack surface sensor detects the surface of the paper stack, the PF lifter motor stops.
3. The lifter motor rotates again when the PF paper-stack surface detects that the paper surface is lowered during a print operation.

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

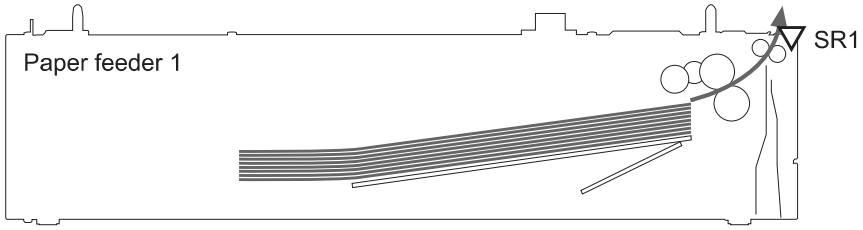
Figure 1-49 Paper-feeder cassette lift operation



Paper-feeder jam detection

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

Figure 1-50 Paper-feeder jam detection



The paper feeder detects the following jams:

PF pickup delay jam	The PF paper-feed sensor does not detect the leading edge of paper within a specified period, including a retry, after the PF pickup solenoid is turned on.
PF residual paper jam	The PF paper-feed sensor detects a presence of paper when the printer is turned on, when the door is closed or when the automatic delivery is performed.
PF door open jam	A door open is detected during paper-feed operation.

2 Removal and replacement

- Introduction
- Removal and replacement strategy
- Electrostatic discharge
- Required tools
- Service approach
- Removal and replacement procedures

Introduction

This chapter describes the removal and replacement of field-replaceable units (FRUs) only.

Replacing FRUs is generally the reverse of removal. Occasionally, notes and tips are included to provide directions for difficult or critical replacement procedures.

HP does *not* support repairing individual subassemblies or troubleshooting to the component level.

Note the length, diameter, color, type, and location of each screw. Be sure to return each screw to its original location during reassembly.

Incorrectly routed or loose wire harnesses can interfere with other internal components and can become damaged or broken. Frayed or pinched harness wires can be difficult to find. When replacing wire harnesses, always use the provided wire loops, lance points, or wire-harness guides and retainers.

Removal and replacement strategy

WARNING! Turn the product off, wait 5 seconds, and then remove the power cord before attempting to service the product. If this warning is not followed, severe injury can result, in addition to damage to the product. The power must be on for certain functional checks during troubleshooting. However, disconnect the power supply during parts removal.

Never operate or service the product with the protective cover removed from the laser/scanner assembly. The reflected beam, although invisible, can damage your eyes.

The sheet-metal parts can have sharp edges. Be careful when handling sheet-metal parts.

CAUTION: Do not bend or fold the flat flexible cables (FFCs) during removal or installation. Also, do not straighten pre-folds in the FFCs. You *must* fully seat all FFCs in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.

NOTE: To install a self-tapping screw, first turn it counterclockwise to align it with the existing thread pattern, and then carefully turn it clockwise to tighten. Do not overtighten. If a self-tapping screw-hole becomes stripped, repair the screw-hole or replace the affected assembly.

TIP: For clarity, some photos in this chapter show components removed that would not be removed to service the product. If necessary, remove the components listed at the beginning of a procedure before proceeding to service the product.

Electrostatic discharge

△ **CAUTION:**  Some parts are sensitive to electrostatic discharge (ESD). Look for the ESD reminder when removing product parts. Always perform service work at an ESD-protected workstation or mat, or use an ESD strap. If an ESD workstation, mat, or strap is not available, ground yourself by touching the sheet-metal chassis *before* touching an ESD-sensitive part.

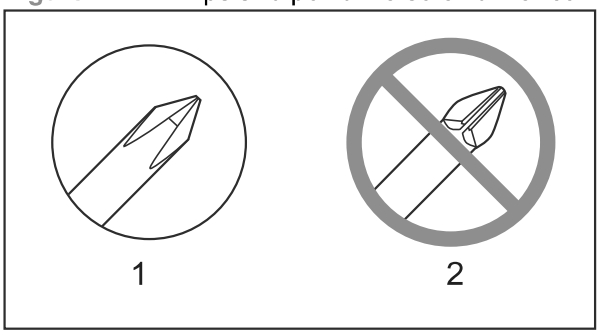
Protect the ESD-sensitive parts by placing them in ESD pouches when they are out of the product.

Required tools

- #2 Phillips screwdriver with a magnetic tip and a 152-mm (6-inch) shaft length
- Small flat blade screwdriver
- Needle-nose pliers
- ESD mat or ESD strap (if one is available)
- Penlight (optional)

△ **CAUTION:** Always use a Phillips screwdriver (callout 1). Do not use a pozidrive screwdriver (callout 2) or any motorized screwdriver. These can damage screws or screw threads.

Figure 2-1 Phillips and pozidrive screwdriver comparison



Service approach

Before performing service

- Remove all media from the product.
- Turn off the power using the power switch.
- Unplug the power cable and interface cable or cables.
- Place the product on an ESD workstation or mat, or use an ESD strap (if one is available). If an ESD workstation, mat, or strap is not available, ground yourself by touching the sheet-metal chassis *before* touching an ESD-sensitive part.
- Remove the print cartridges. See Print cartridges on page 69.
- Remove the tray cassette or cassettes.

After performing service

- Plug in the power cable.
- Reinstall the print cartridges.
- Reinstall the tray cassette or cassettes.
- If the optional paper feeder was removed for service, place the product on the feeder. Engage the optional feeder tray locks to secure the feeder to the product.

Post-service test

Perform the following test to verify that the repair or replacement was successful.

Print-quality test

1. Verify that you have completed the necessary reassembly steps.
2. Make sure that the tray contains clean, unmarked paper.
3. Attach the power cord and interface cable or interface cables, and then turn on the product.
4. Verify that the expected startup sounds occur.
5. Print a configuration page, and then verify that the expected printing sounds occur.
6. Print a demo page, and then verify that the print quality is as expected.
7. Send a print job from the host computer, and then verify that the output meets expectations.
8. If necessary, restore any customer-specified settings.
9. Clean the outside of the product with a damp cloth.

Removal and replacement procedures

Customer self repair (CSR) components

Print cartridges

When a print cartridge approaches the end of its estimated useful life, the control panel displays a message recommending that you order a replacement. The product can continue to print using the current print cartridge until the control panel displays a message instructing you to replace the cartridge, unless you have selected the option to override the message by using the **Replace supplies** menu.

NOTE: Cartridge life remaining is used to determine if a supply is near or at estimated end of life. Cartridge life remaining is approximate only and varies depending on types of documents printed and other factors.

The product uses four colors and has a different print cartridge for each color: black (K), magenta (M), cyan (C), and yellow (Y).

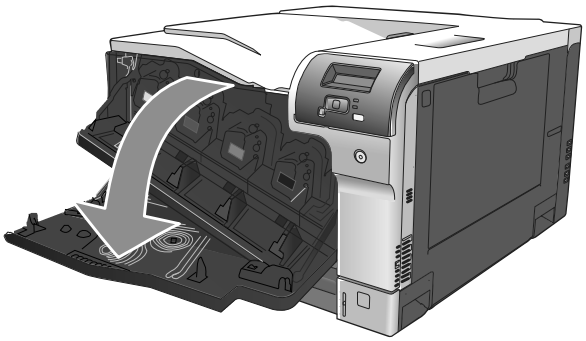
You can replace a print cartridge when the print quality is no longer acceptable. The control-panel message also indicates the color of the cartridge that has reached the end of its estimated useful life (for cartridges that are not used). Replacement instructions are provided on the label on the print cartridge.

CAUTION: If toner gets on clothing, wipe it off with a dry cloth and wash the clothes in cold water. Hot water sets toner into fabric.

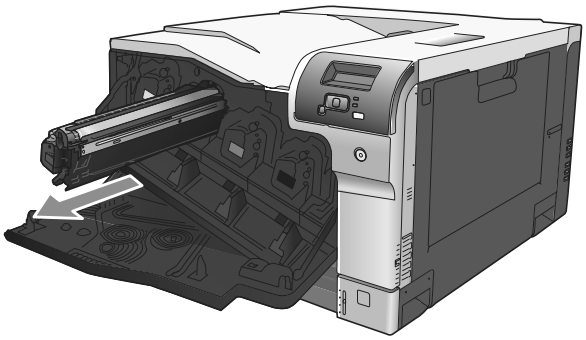
NOTE: Information about recycling used print cartridges is on the print-cartridge box.

Replace print cartridges

1. Open the front door. Make sure that the door is completely open.

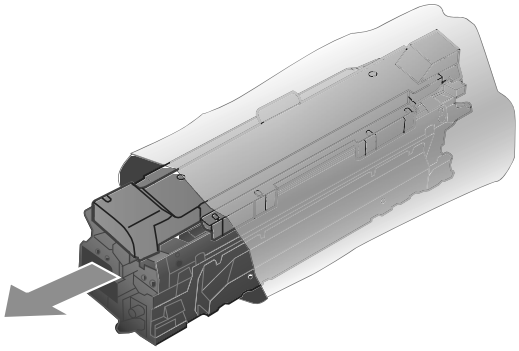


2. Grasp the handle of the used print cartridge and pull out to remove.

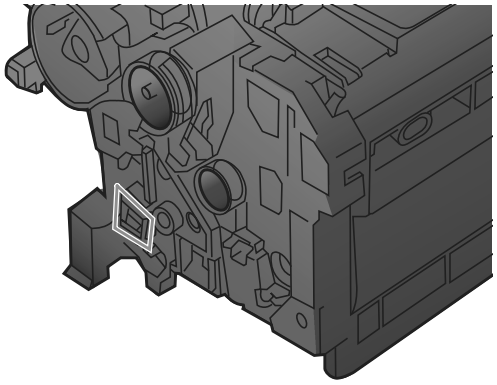


3. Store the used print cartridge in a protective bag. Information about recycling used print cartridges is on the print-cartridge box.

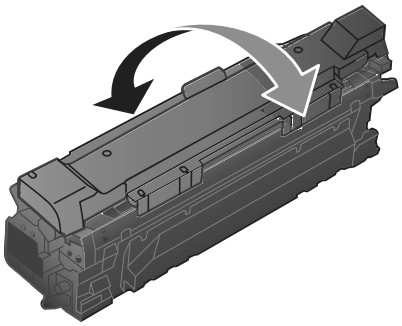
4. Remove the new print cartridge from its protective bag.



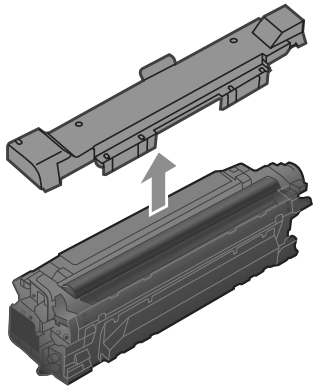
NOTE: Be careful not to damage the memory tag on the print cartridge.



5. Grasp both sides of the print cartridge and distribute the toner by gently rocking the print cartridge.



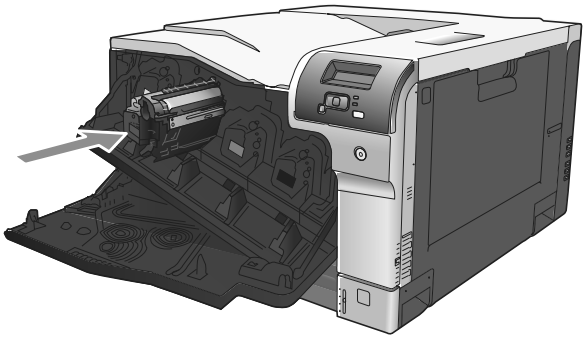
6. Remove the orange protective cover from the print cartridge. Place the protective cover on the used print cartridge to protect it during shipping.



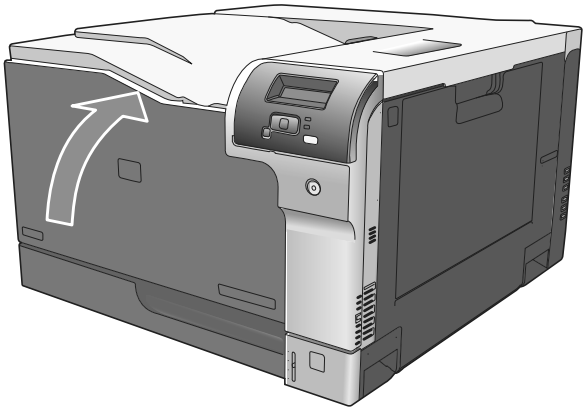
△ **CAUTION:** Avoid prolonged exposure to light.

CAUTION: Do not touch the green roller. Doing so can damage the cartridge.

7. Align the print cartridge with its slot and insert the print cartridge until it clicks into place.



8. Close the front door.

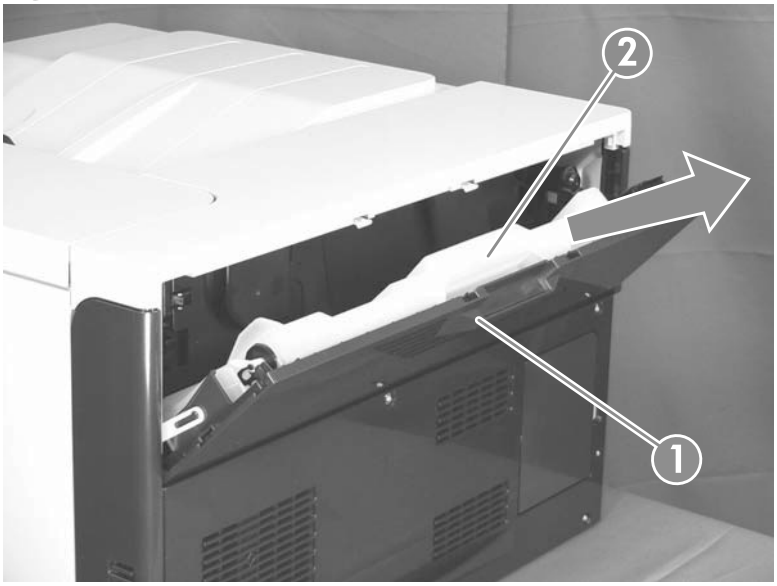


Toner-collection unit

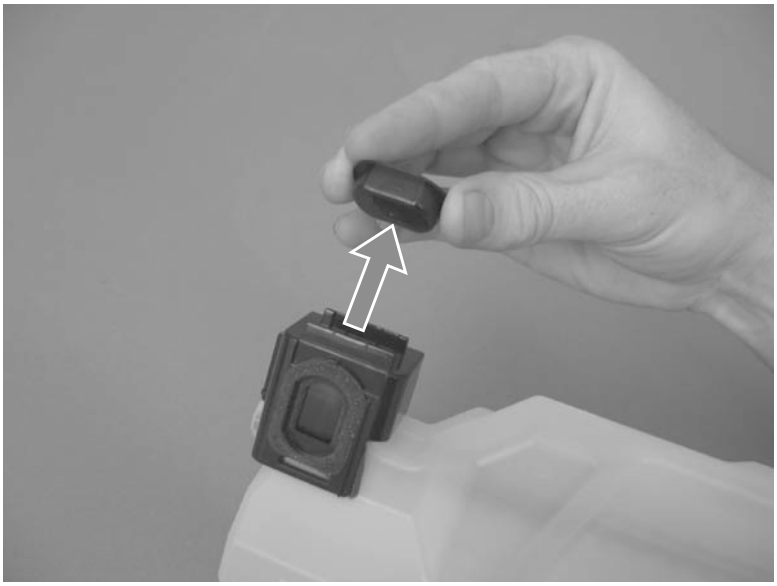
NOTE: The toner-collection unit is designed for a single use. Do not try to empty the toner-collection unit and reuse it. Doing so could cause damage to the product. For recycling information, see the product user guide.

1. Open the toner collection unit access door (callout 1) on the product back side.
2. Grasp the top of the toner-collection unit (callout 2), and then remove it from the product.

Figure 2-2 Remove the toner-collection unit



TIP: When changing the toner-collection unit, take the plug off the new unit, as shown below.



Take the plug and insert it into the old toner-collection unit before putting it into the box and mailing it for recycling.



Memory DIMM

Product memory

The product has one dual inline memory module (DIMM) slot. Use the DIMM slot to upgrade the product with the following items:

- More product memory (DIMMs are available in 64, 128, and 256 MB)
- Other DIMM-based printer languages and product options
- Support-language character sets (for example, Chinese characters or Cyrillic alphabet characters).

NOTE: To order DIMMs, see Order parts by authorized service providers on page 254.

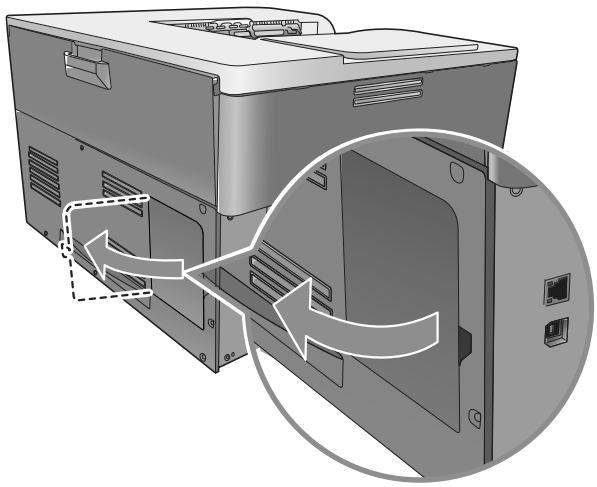
You might want to increase product memory if you often print complex graphics or HP postscript level 3 emulation documents, or if you use many downloaded fonts. Additional memory also enables multiple collated copies to print at the maximum speed.

Before ordering additional memory, see how much memory is currently installed by printing a configuration page. See Configuration page on page 209.

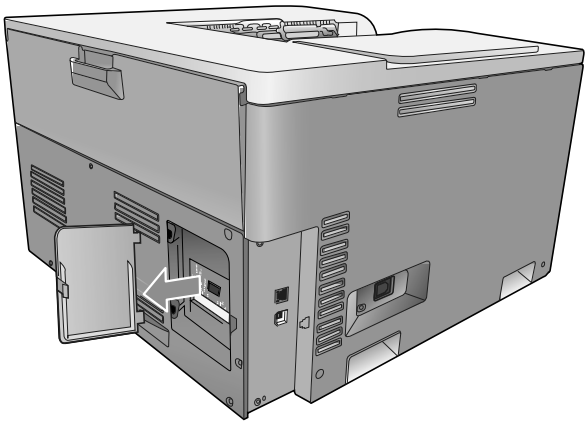
CAUTION: Static electricity can damage electronic parts. When installing DIMMs, either wear an antistatic wrist strap, or frequently touch the surface of the DIMM antistatic package and then touch bare metal on the product.

Install memory and font DIMMs

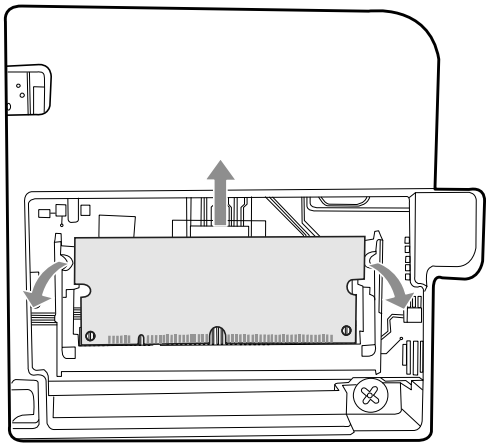
1. Turn the product off, and then disconnect all power and interface cables.
2. On the back of the product, open the DIMM access door.



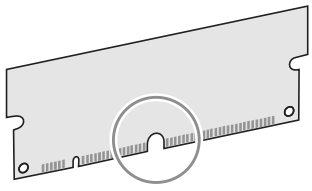
3. Remove the DIMM access door.



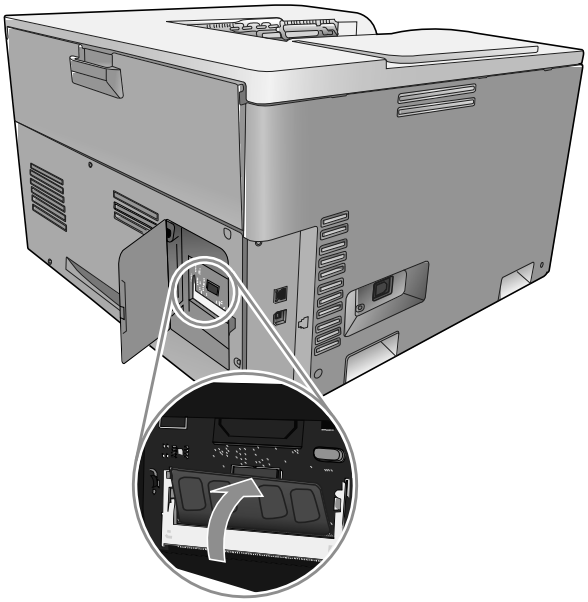
4. To replace a DIMM that is currently installed, spread the latches apart on each side of the DIMM slot, lift the DIMM up at an angle, and pull it out.



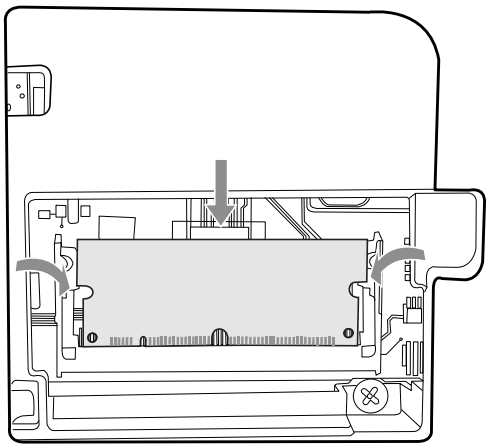
5. Remove the new DIMM from the antistatic package, and then locate the alignment notch on the bottom edge of the DIMM.



6. Holding the DIMM by the edges, align the notch on the DIMM with the bar in the DIMM slot at an angle.

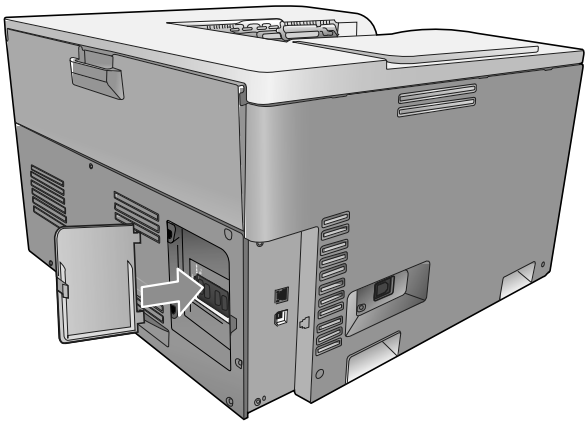


7. Push down on the DIMM until both latches engage the DIMM. When the installation is correct, the metal contacts are not visible.

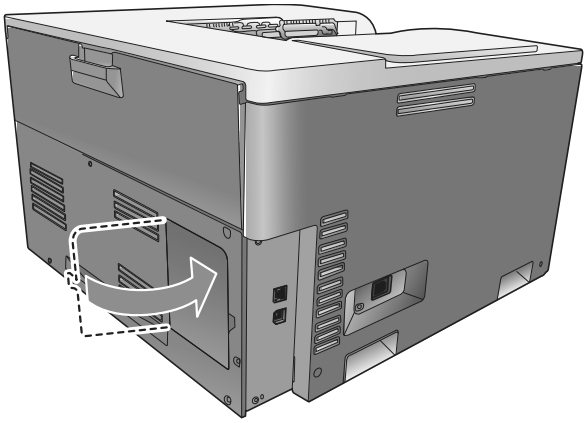


NOTE: If you have difficulty inserting the DIMM, make sure that the notch on the bottom of the DIMM is aligned with the bar in the slot. If the DIMM still does not go in, make sure that you are using the correct DIMM type.

8. Reinsert the DIMM access door.



9. Close the DIMM access door.



10. Reconnect the power cable and USB or network cable, and then turn on the product.
11. After installing a memory DIMM, see Enable memory on page 78.

Enable memory

If you installed a memory DIMM, set the printer driver to recognize the newly added memory.

Enable memory for Windows

1. On the **Start** menu, point to **Settings**, and click **Printers** or **Printers and Faxes**.
2. Select this product, and then select **Properties**.
3. On the **Configure** tab, click **More**.
4. In the **Total Memory** field, type or select the total amount of memory that is now installed.
5. Click **OK**.

Check DIMM installation

Turn the product on. Check that the product is in the **Ready** state after it has gone through the startup sequence. If an error message appears, do the following:

1. Print a configuration page. See Configuration page on page 209.
2. Check the Installed Personalities and Options section on the configuration page and compare it with the configuration page that you printed before the DIMM installation.
3. The DIMM might not be installed correctly. Repeat the installation procedure.

   -or-

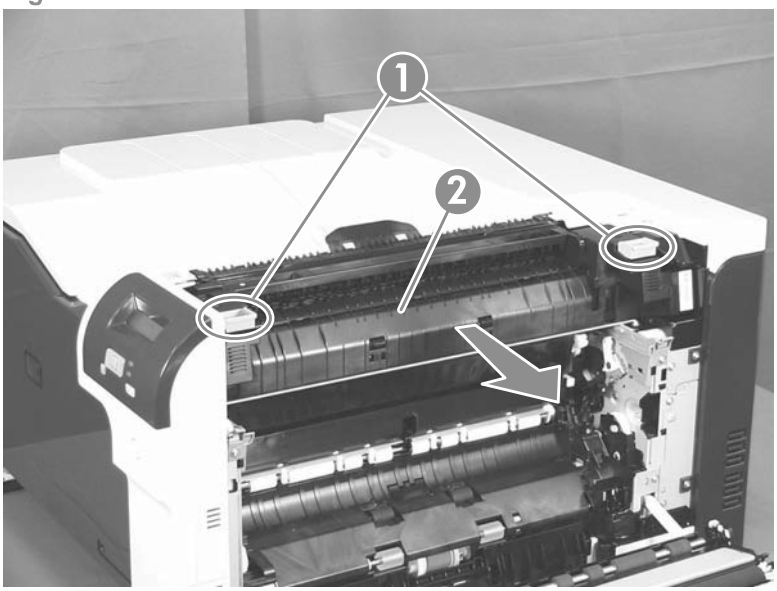
   The DIMM may be defective. Try a new DIMM.

Fuser

△ **CAUTION:** The fuser might be hot. Allow enough time after turning off the product power for the fuser to cool.

1. Open the right-door assembly.
2. Grasp the handles and squeeze the blue release levers (callout 1).

Figure 2-3 Remove the fuser



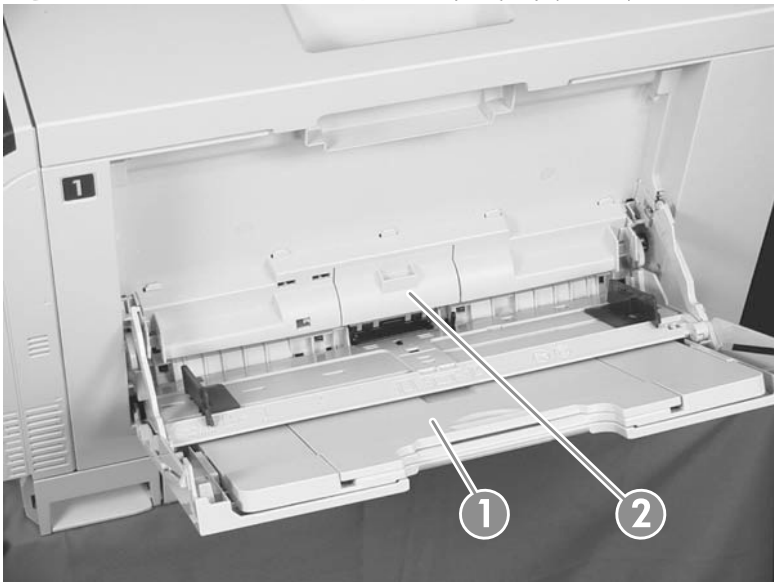
3. Pull the fuser (callout 2) straight out of the product to remove it.

Pickup roller (Tray 1)

△ **CAUTION:** Do not touch the spongy roller surface unless you are replacing the roller. Skin oils on the roller can cause paper pickup problems.

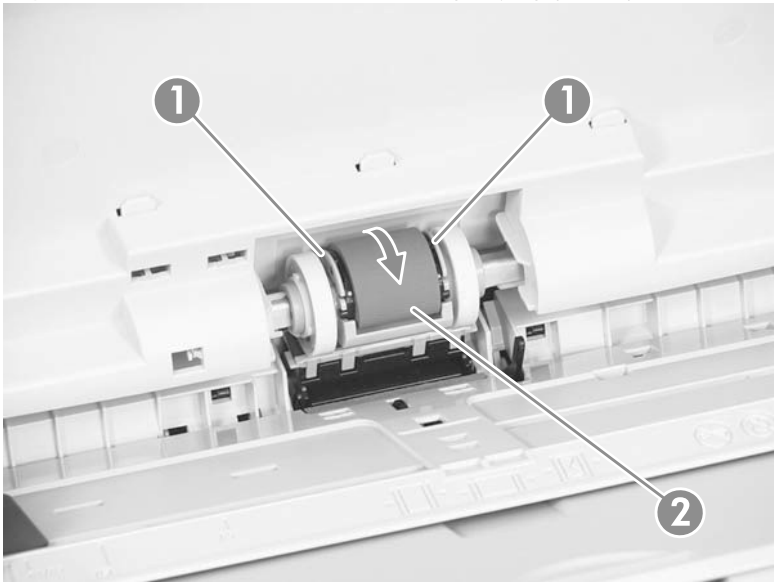
1. Open Tray 1 (callout 1), and then remove the pickup roller cover (callout 2).

Figure 2-4 Remove the pickup roller (Tray 1) (1 of 2)



2. Spead out the pickup roller retainers (callout 1) until both sides unlatch, and then remove the pickup roller (callout 2).

Figure 2-5 Remove the pickup roller (Tray 1) (2 of 2)

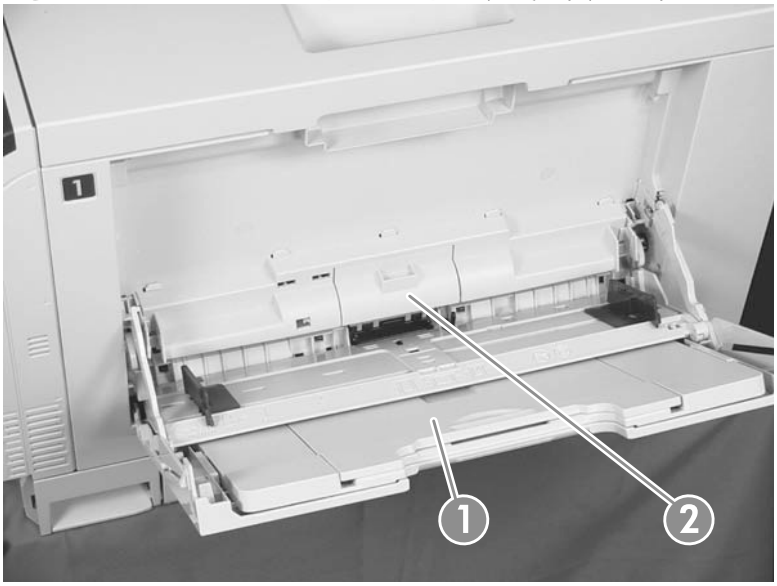


Separation pad (Tray 1)

△ **CAUTION:** Do not touch the spongy roller surface unless you are replacing the roller. Skin oils on the roller can cause paper pickup problems.

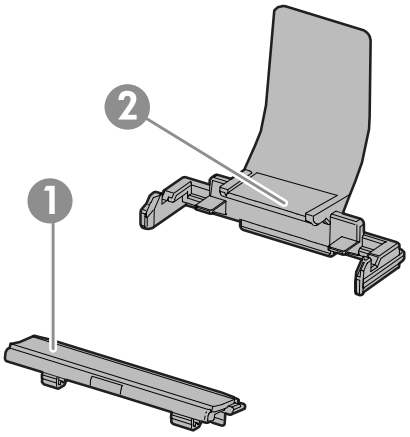
1. Open Tray 1 (callout 1), and then remove the pickup roller cover (callout 2).

Figure 2-6 Remove the separation pad (Tray 1) (1 of 4)



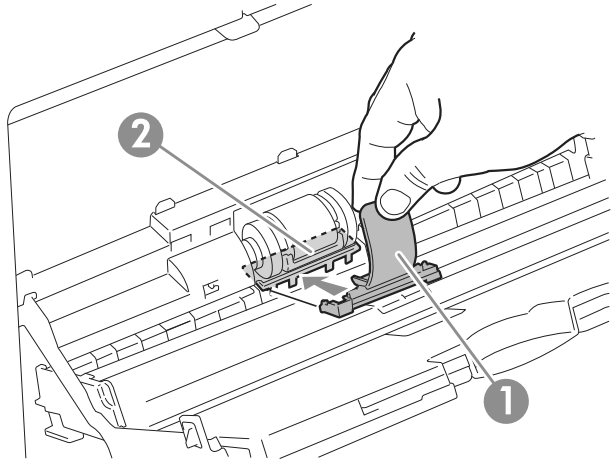
2. Take out the tool (callout 2) supplied with a new separation pad (callout 1).

Figure 2-7 Remove the separation pad (Tray 1) (2 of 4)



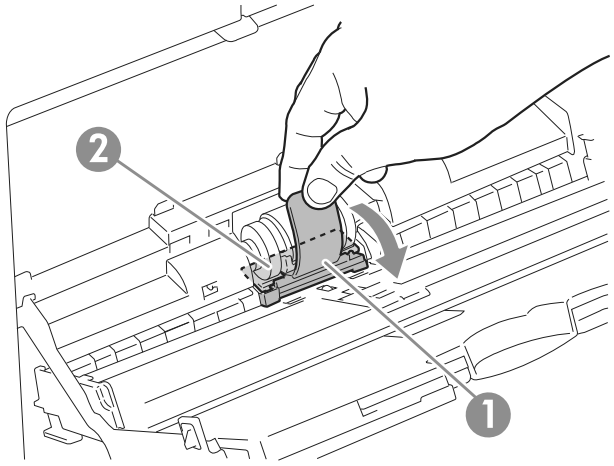
3. Insert the tool (callout 1) under the separation pad (callout 2).

Figure 2-8 Remove the separation pad (Tray 1) (3 of 4)



4. Turn the tool (callout 1) in the direction that the arrow indicates, and then remove the tool and the separation pad (callout 2) together.

Figure 2-9 Remove the separation pad (Tray 1) (4 of 4)



Reinstallation tip You do not need to use the tool to install the new separation pad. Press the new pad with your hand until it snaps into place and engages with the engine.

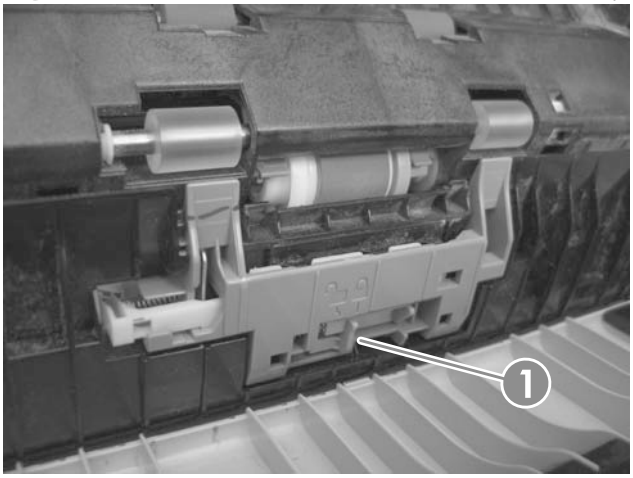
Separation roller assembly (Tray 2)

CAUTION: Do not touch the spongy roller surface unless you are replacing the roller. Skin oils on the roller can cause paper pickup problems.

1. Remove Tray 2 from the product.
2. Open the right-door assembly.

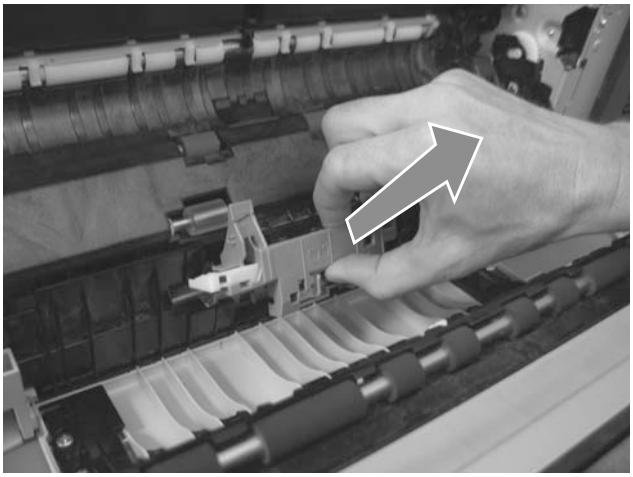
3. On the separation roller assembly, slide the lever (callout 1) toward the unlocked icon until it clicks into the unlocked position.

Figure 2-10 Remove the separation roller assembly (Tray 2) (1 of 2)



4. Pull the separation roller assembly up and remove it from the product.

Figure 2-11 Remove the separation roller assembly (Tray 2) (2 of 2)

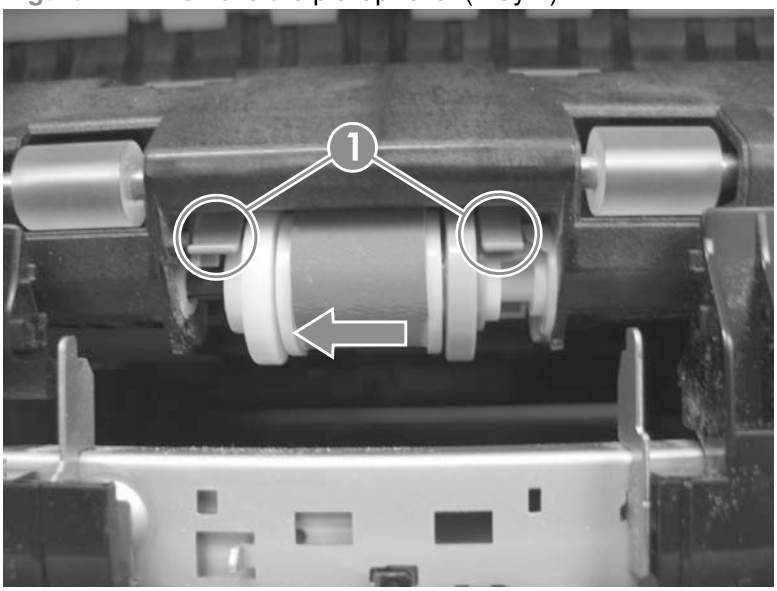


Pickup roller (Tray 2)

△ **CAUTION:** Do not touch the spongy roller surface unless you are replacing the roller. Skin oils on the roller can cause paper pickup problems.

1. Open Tray 2.
2. Open the right-door assembly.
3. Remove the separation roller assembly (see Separation roller assembly (Tray 2) on page 82)
4. Lift one of the two levers (callout 1) on either side of the pickup roller, and then push the right side of the roller in the direction of the arrow.

Figure 2-12 Remove the pickup roller (Tray 2)



5. Remove the pickup roller.

Reinstallation tip Insert the left side of the roller into the product first.

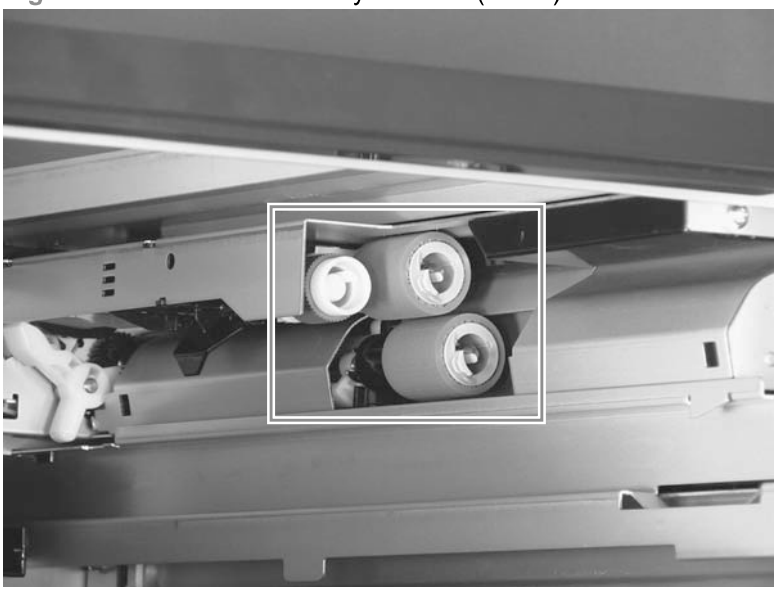
Pickup roller, separation roller, and feed roller (Tray 3)

△ **CAUTION:** Do not touch the spongy roller surface unless you are replacing the roller. Skin oils on the roller can cause paper pickup problems.

TIP: You do not have to separate the product from the feeder to remove these rollers.

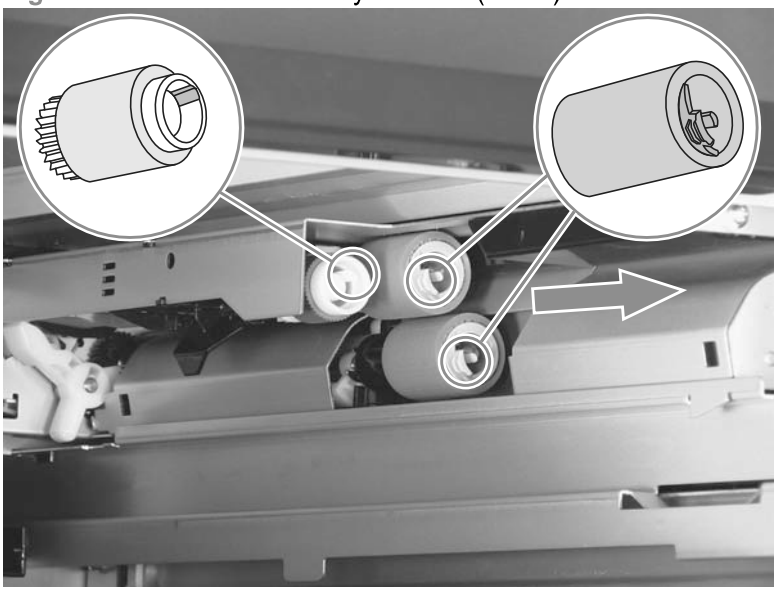
1. Remove Tray 3 from the product, and then locate the Tray 3 rollers on the righthand side of the tray cavity.

Figure 2-13 Remove the Tray 3 rollers (1 of 2)



2. Release three tabs, and then pull the rollers in the direction of the arrow.

Figure 2-14 Remove the Tray 3 rollers (2 of 2)



Reinstallation tip When you reinstall the rollers, make sure that the rollers snap into place.

Secondary transfer roller

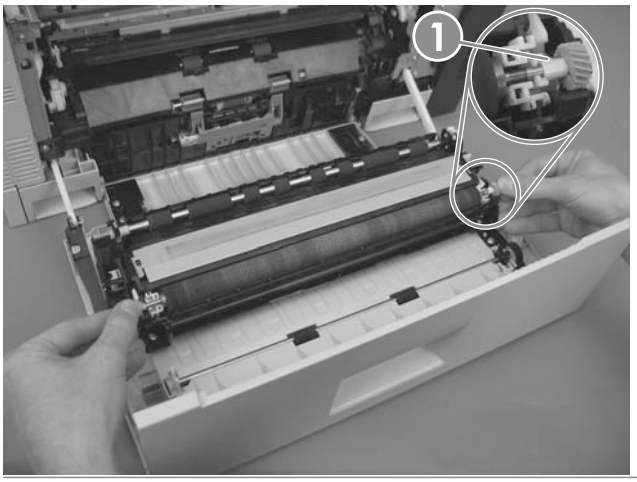
△ **CAUTION:** Do not touch the spongy roller surface unless you are replacing the roller. Skin oils on the roller can cause image quality problems.

1. Open the right-door assembly.
2. Grasp one of the blue features (callout 1) on either end of the transfer roller, and then lift the transfer roller (callout 2) off of the product.

Figure 2-15 Remove the transfer roller



TIP: Place the new roller assembly in place with the roller gear (callout 1) on the right side, and then press down to ensure that the roller shaft seats securely in the roller clasps.

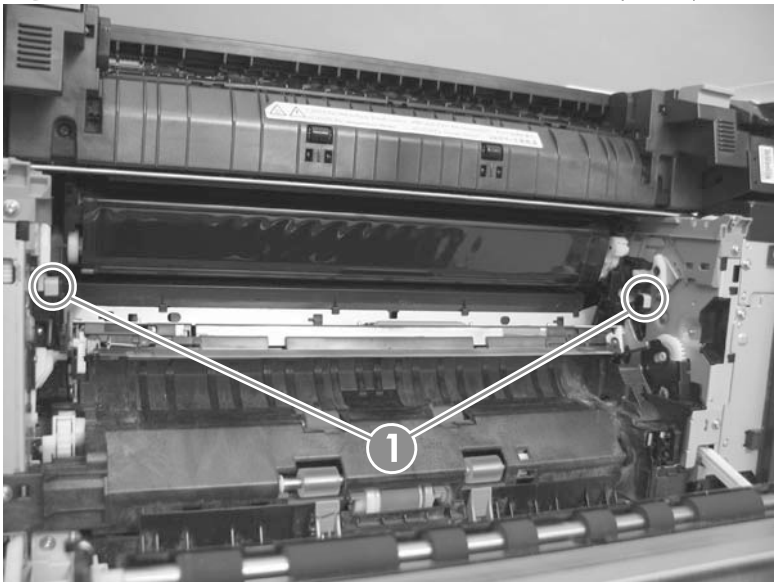


Intermediate transfer belt (ITB)

△ **CAUTION:** Do not touch the black-plastic belt. Skin oils and fingerprints on the belt can cause print-quality problems. Always place the ITB on a flat surface in a safe and protected location.

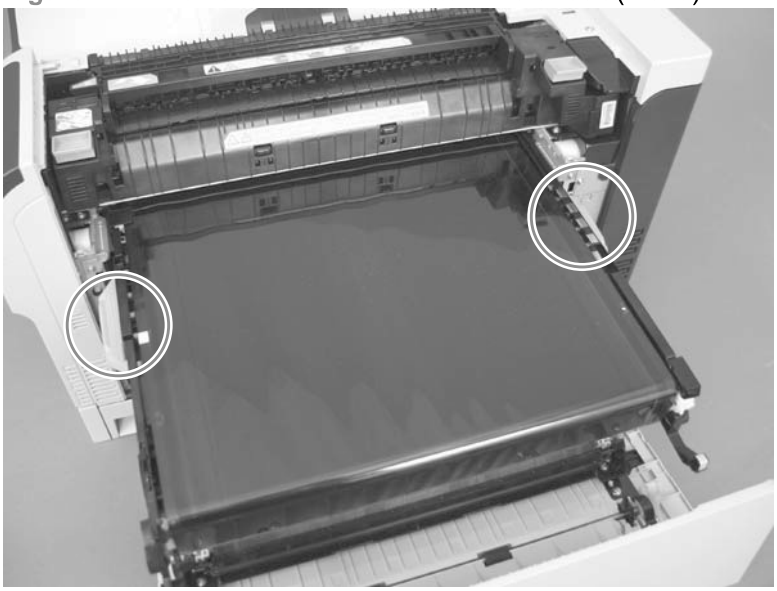
1. Open the right-door assembly.
2. Use both hands to grasp the blue levers (callout 1), apply slight downward pressure, and pull the ITB toward you at a downward angle.

Figure 2-16 Remove the intermediate transfer belt (1 of 3)



3. Pull the ITB out of the product until two large handles expand along the right and left side of the ITB.

Figure 2-17 Remove the intermediate transfer belt (2 of 3)



4. Grasp the large handles on the ITB and then pull the ITB straight out of the product until it stops, and then pull up to remove it from the product..

△ **CAUTION:** The ITB is a sensitive component. Be careful when handling the ITB so that it is not damaged. Always place the ITB in a safe and protected location.

Figure 2-18 Remove the intermediate transfer belt (3 of 3)



Reinstallation tip If you are installing a replacement ITB, make sure that you remove all of the packing tape and the protective cover sheet.

External panels, covers, and doors

Identification and location

Figure 2-19 External panels, covers, and doors

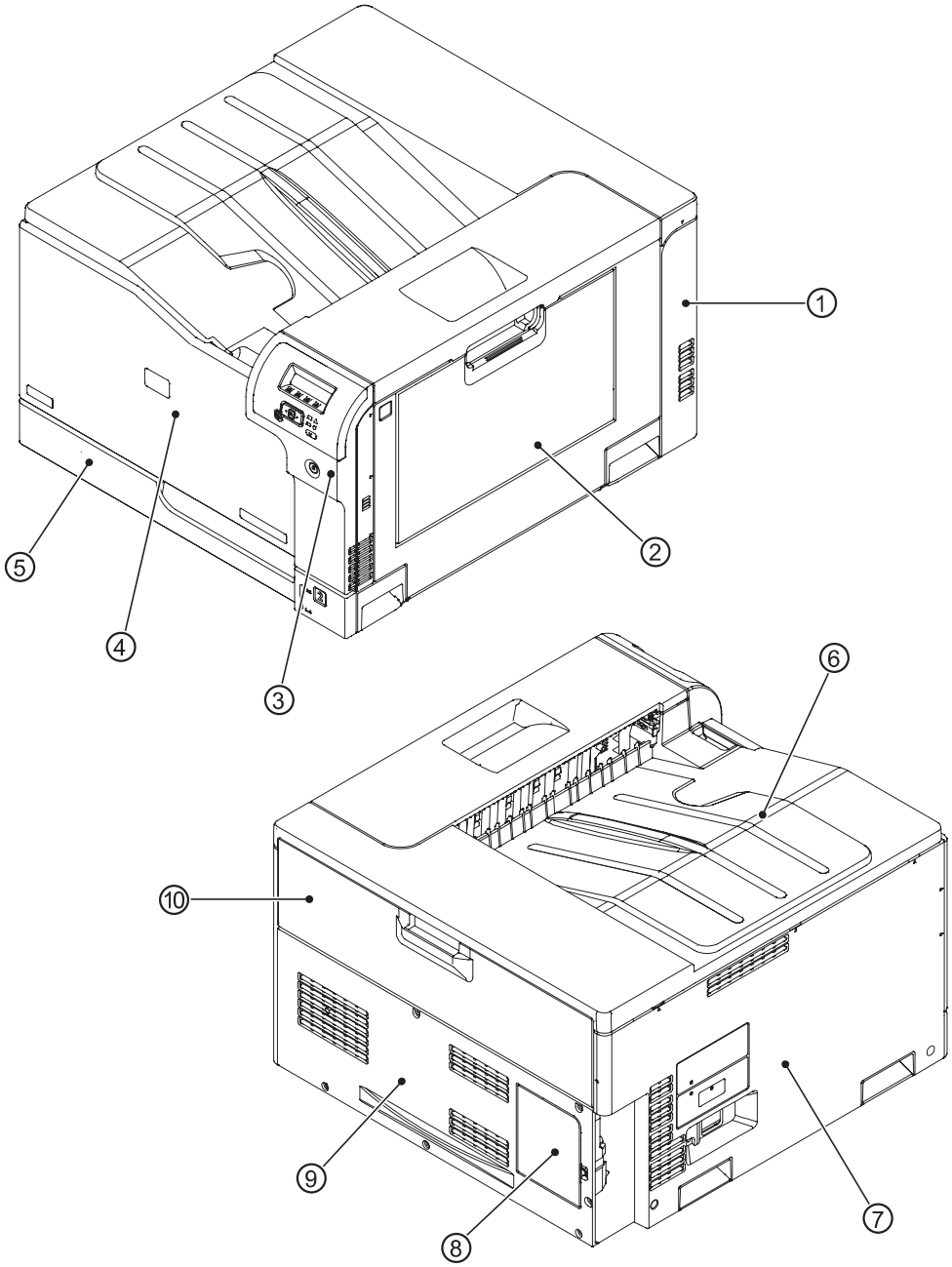


Table 2-1 **External panels, covers, and doors**

Item	Description	Item	Description
1	Rear-right cover (see Right-rear cover on page 95)	6	Top cover (see Top cover on page 96)
2	Right-door assembly (see Right-door assembly on page 102)	7	Left cover (see Left cover on page 92)

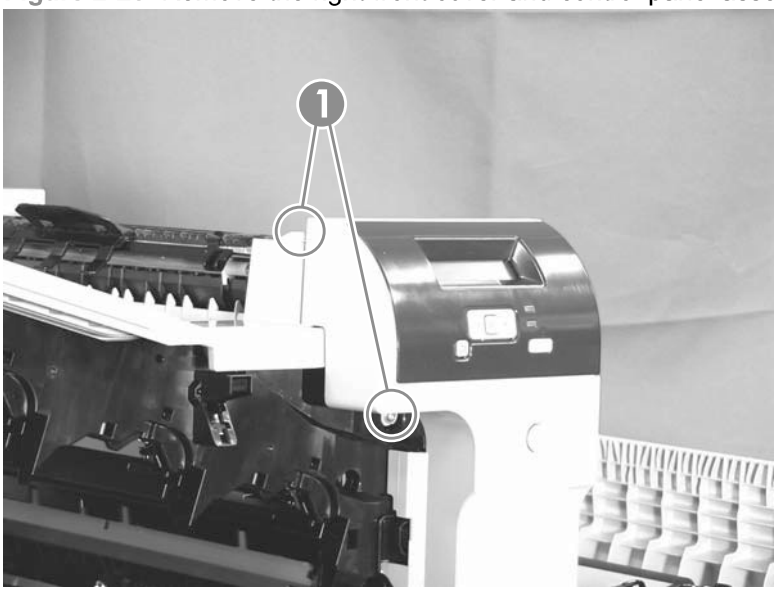
Table 2-1 **External panels, covers, and doors (continued)**

Item	Description	Item	Description
3	Right-front cover and control-panel assembly (see Right-front cover and control-panel assembly on page 90)	8	DIMM cover
4	Front-door assembly (see Front-door assembly on page 98)	9	Rear cover (see Rear cover on page 93)
5	Tray 2 cassette	10	Toner collection unit access door (see Toner collection unit access door on page 93)

Right-front cover and control-panel assembly

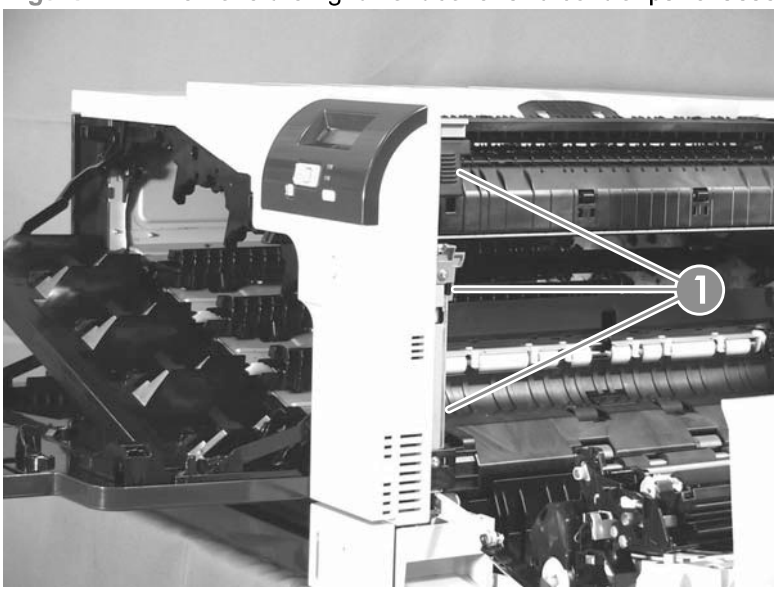
1. Open the front door and the right door.
2. Remove two screws (callout 1).

Figure 2-20 Remove the right-front cover and control-panel assembly (1 of 3)



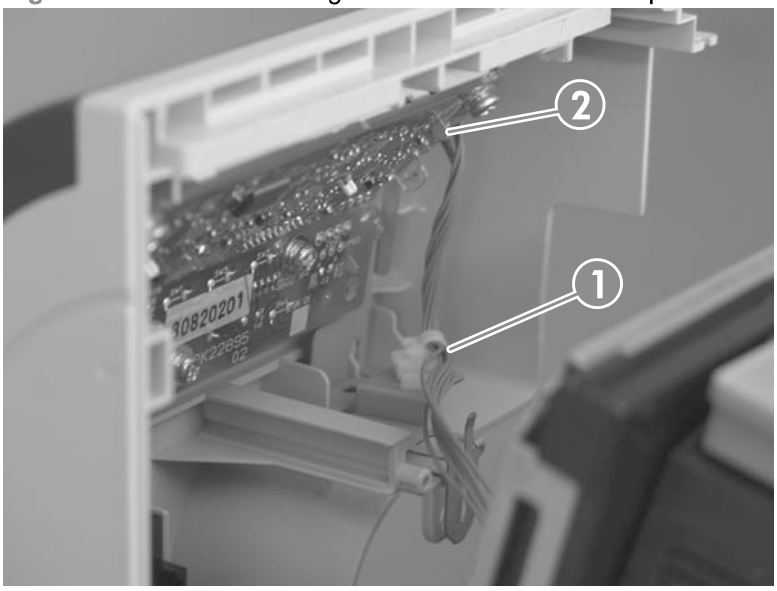
3. Release 3 tabs (callout 1) on the right side of the assembly.

Figure 2-21 Remove the right-front cover and control-panel assembly (2 of 3)



4. While holding the assembly up, pull the cable holder (callout 1) from the assembly and disconnect one connector (callout 2).

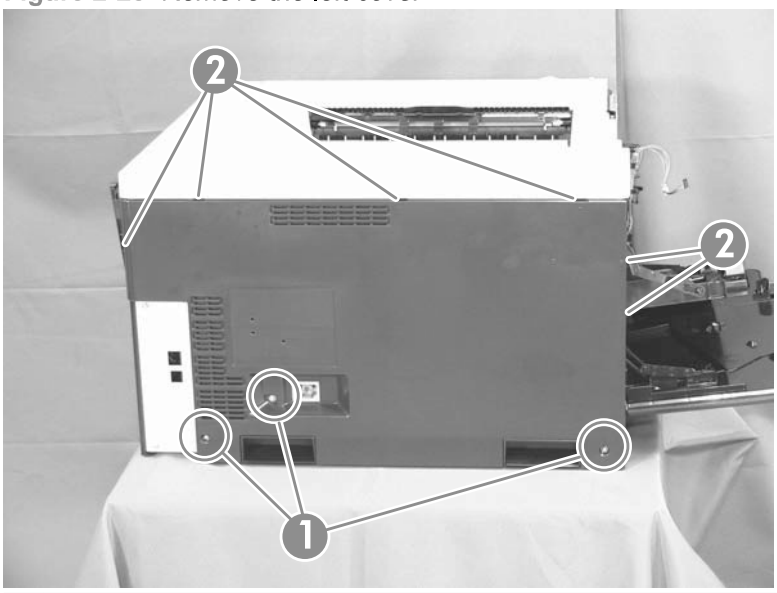
Figure 2-22 Remove the right-front cover and control-panel assembly (3 of 3)



Left cover

1. Remove Tray 2 from the product.
2. Open the front door.
3. Remove three screws (callout 1). Starting from the left side of the cover, release six tabs (callout 2), and then remove the cover from the product.

Figure 2-23 Remove the left cover



TIP: Opening the toner-collection door might make it easier to release the tabs on the left side of the cover.

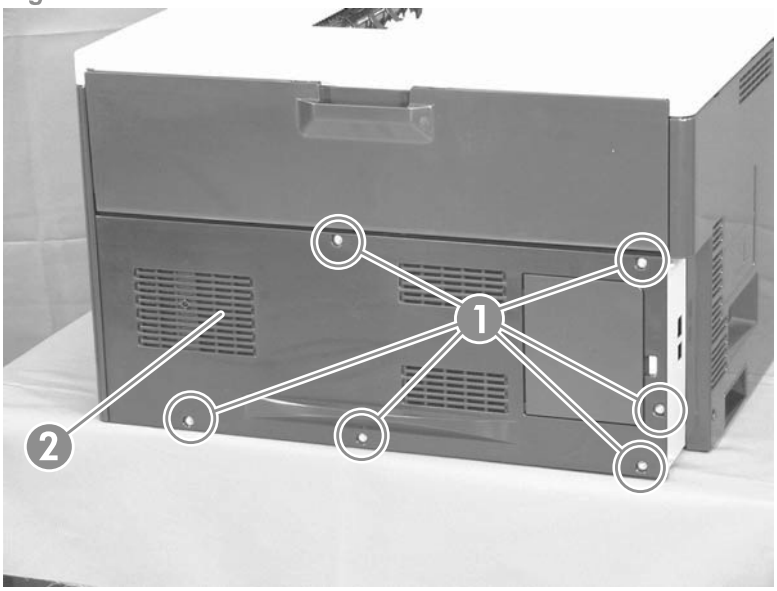
Reinstallation tip If the front door will not close after the left cover has been reinstalled, verify that the two tabs on the right side of the cover have been aligned correctly with the product chassis.

Rear cover

Remove the rear cover

☐ Remove six screws (callout 1), and then remove the cover from the product.

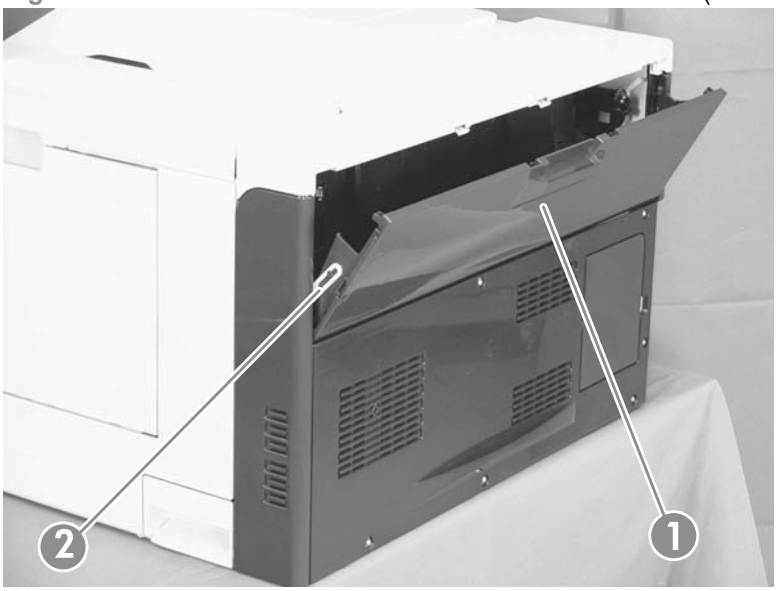
Figure 2-24 Remove the rear cover



Toner collection unit access door

1. Open the toner collection unit access door (callout 1), remove the toner collection unit, and then release the link arm (callout 2) on the left side of the door.

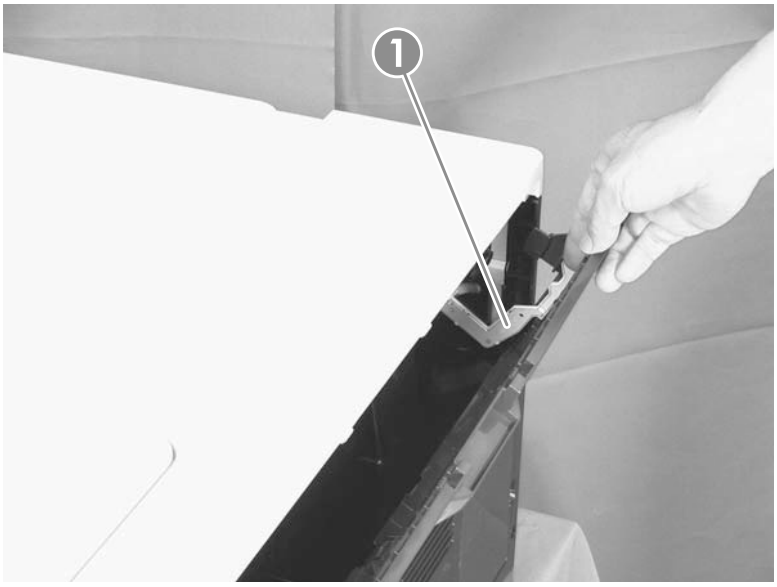
Figure 2-25 Remove the toner collection unit access door (1 of 3)



2. Partially close the door, and then disconnect the right-hand link arm (callout 1) from the door.

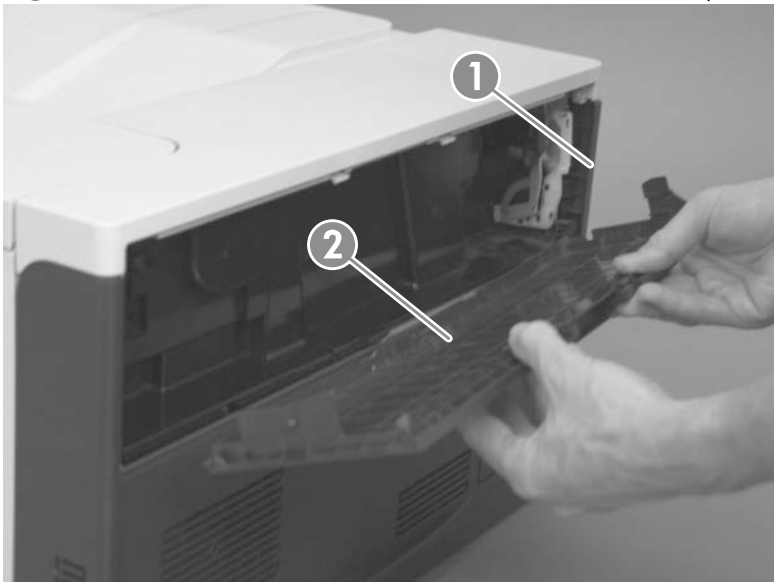
△ **CAUTION:** Do not disconnect the right-hand link arm when the door is completely open. Doing so can disconnect the link arm spring.

Figure 2-26 Remove the toner collection unit access door (2 of 3)



3. Rotate the access door down 90 degrees, and then pull on the left side of the door to remove the access door.

Figure 2-27 Remove the toner collection unit access door (3 of 3)

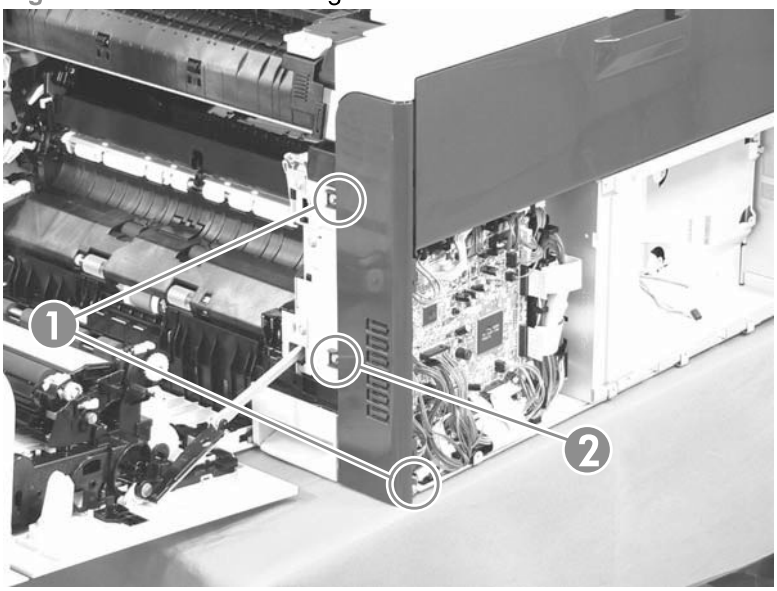


Right-rear cover

1. Remove the rear cover. See Rear cover on page 93.
2. Open the right-door assembly.
3. Remove two screws (callout 1), release one tab (callout 2), and then remove the cover.

△ **CAUTION:** The grounding spring on the back fo the cover falls off easily. Be careful not to lose it.

Figure 2-28 Remove the right-rear cover



Top cover

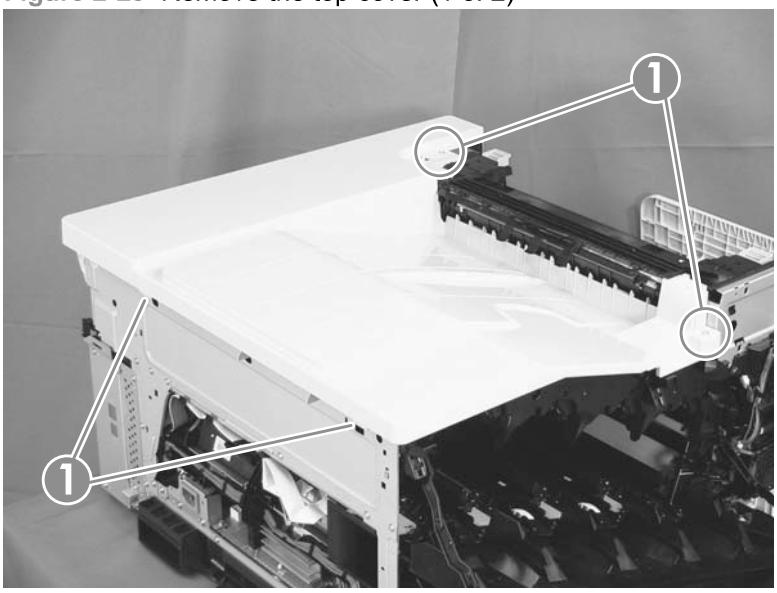
Before proceeding, remove the following components:

- Left cover. See Left cover on page 92.
- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Right-rear cover. See Right-rear cover on page 95.

Remove the top cover

1. Remove four screws (callout 1).

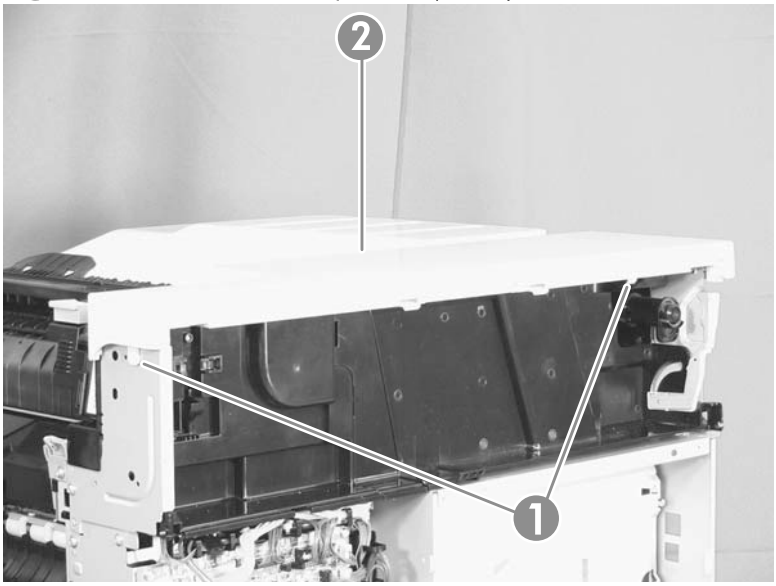
Figure 2-29 Remove the top cover (1 of 2)



2. Open the toner-collection door.

3. Release two tabs (callout 1), and then remove the cover.

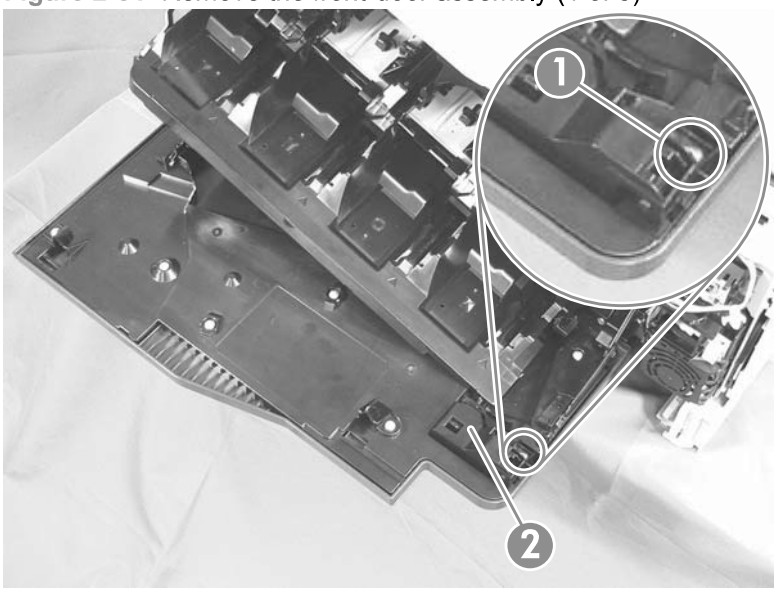
Figure 2-30 Remove the top cover (2 of 2)



Front-door assembly

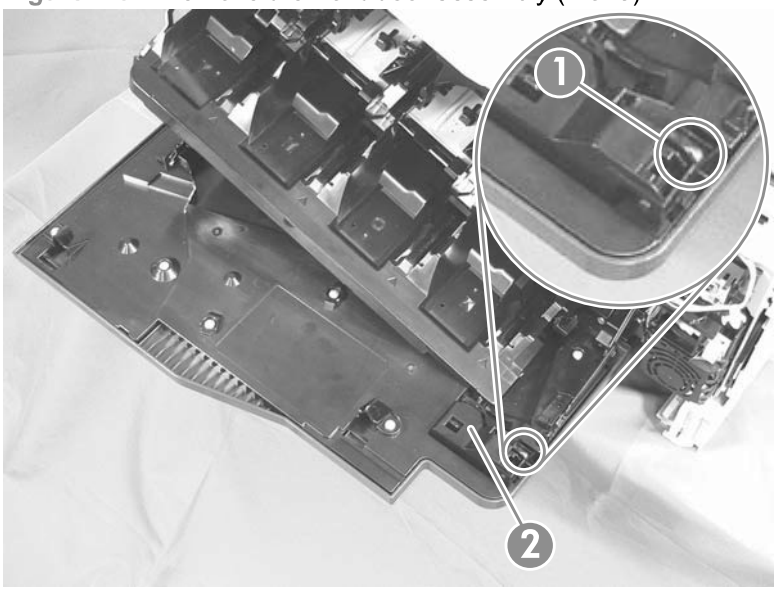
1. Remove the control panel. See Right-front cover and control-panel assembly on page 90.
2. Open the front door.
3. Remove one screw (callout 1).

Figure 2-31 Remove the front-door assembly (1 of 5)



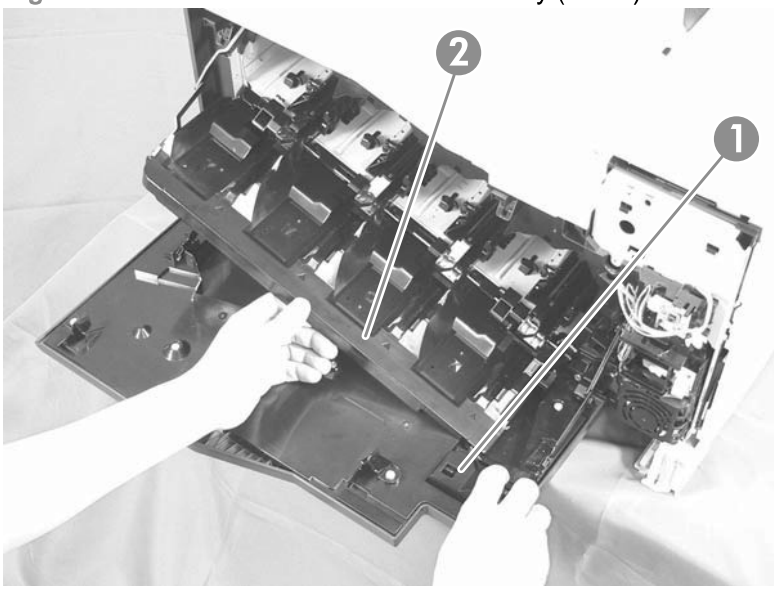
4. Remove the inner cover rail mount (callout 1).

Figure 2-32 Remove the front-door assembly (2 of 5)



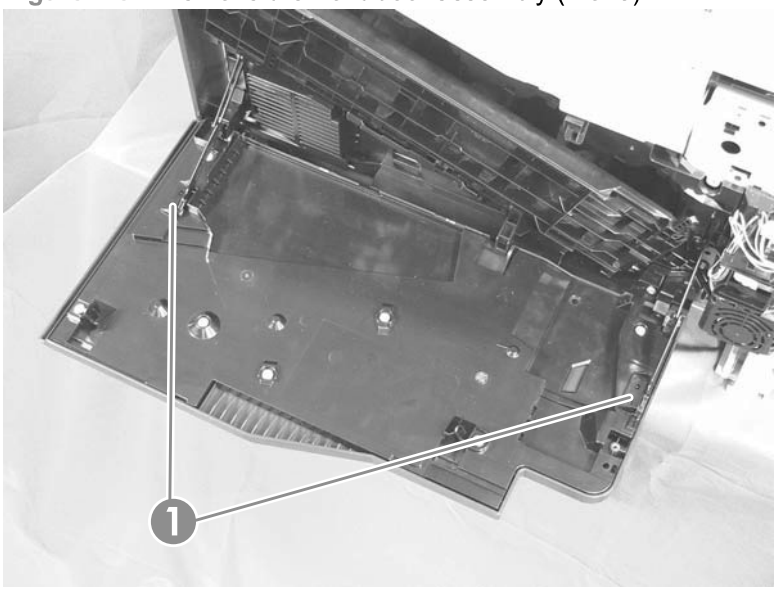
△ **CAUTION:** As shown in the figure below, when removing the inner cover rail mount (callout 1), hold down the inner cover (callout 2) with one hand to prevent it from springing back at the product.

Figure 2-33 Remove the front-door assembly (3 of 5)

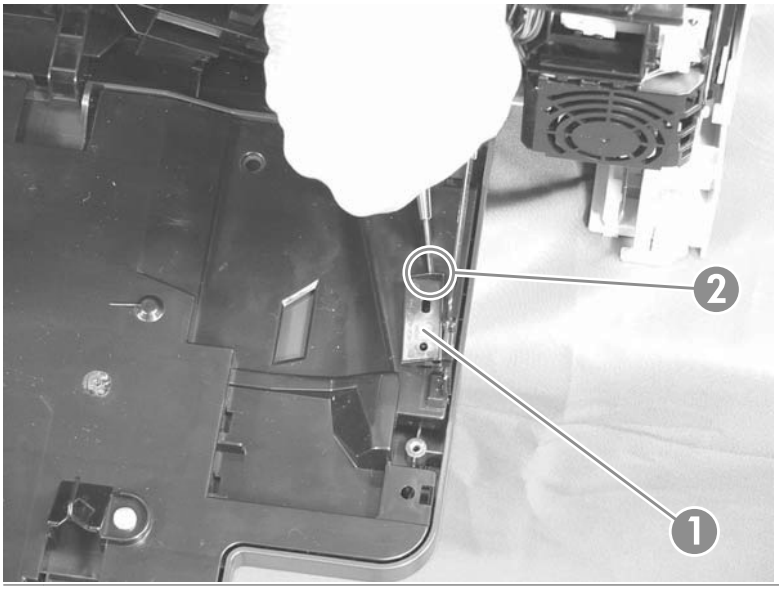


5. Release two tabs on each stopper (callout 1) with a small flat-blade screwdriver.

Figure 2-34 Remove the front-door assembly (4 of 5)

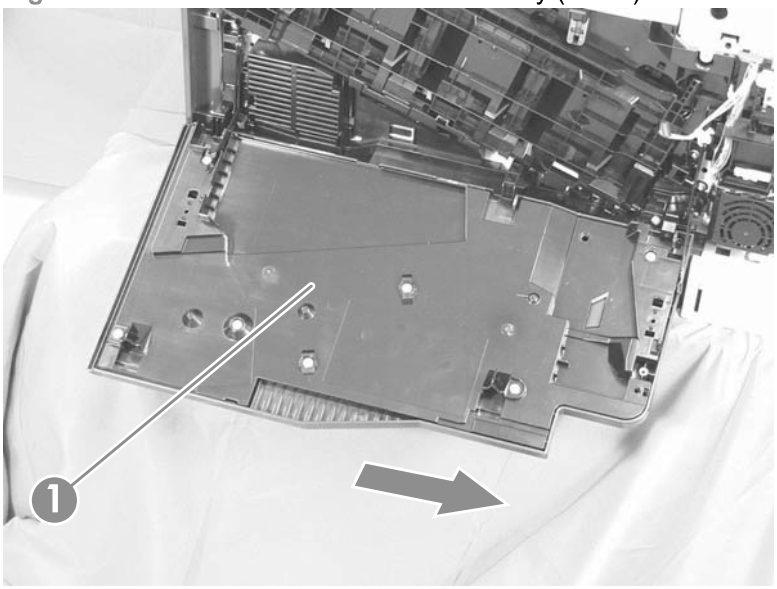


NOTE: Each tab is at the end of the stopper that is closest to the product. See the figure below.



6. Position the door as shown below, and then slide the front-door assembly in the direction that the arrow indicates to remove it from the product.

Figure 2-35 Remove the front-door assembly (5 of 5)



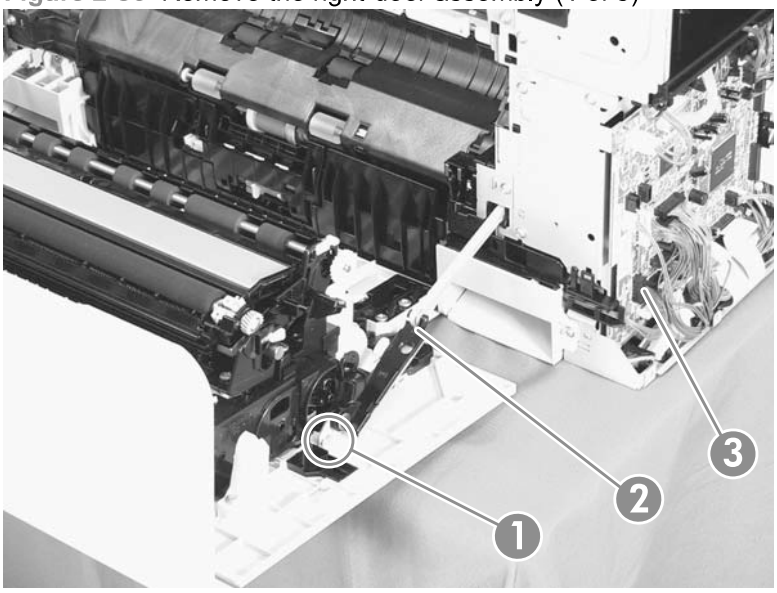
Right-door assembly

Remove the following components:

- Rear cover (see Rear cover on page 93)
- Right rear cover (see Right-rear cover on page 95)

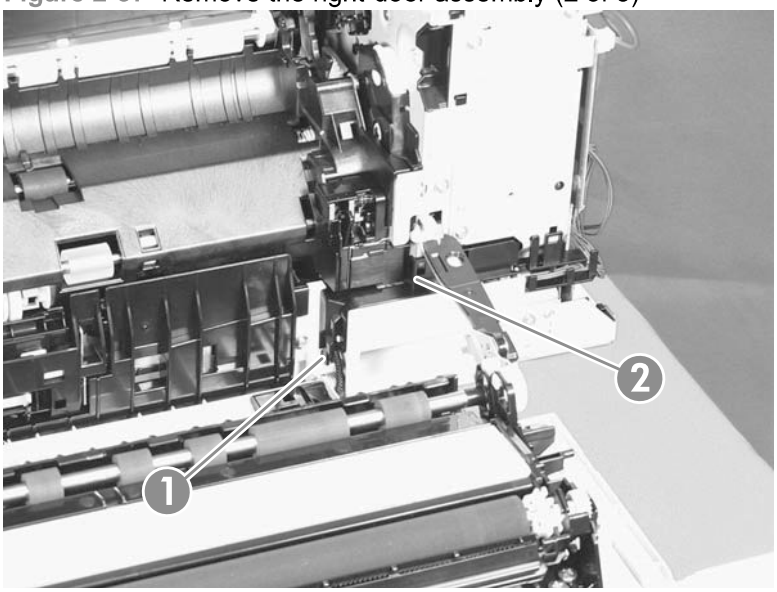
1. Open the right-door assembly
2. Remove one screw (callout 1), release the link arm (callout 2), and then disconnect one connector (callout 3). You must remove two zip ties to disconnect the connector.

Figure 2-36 Remove the right-door assembly (1 of 5)



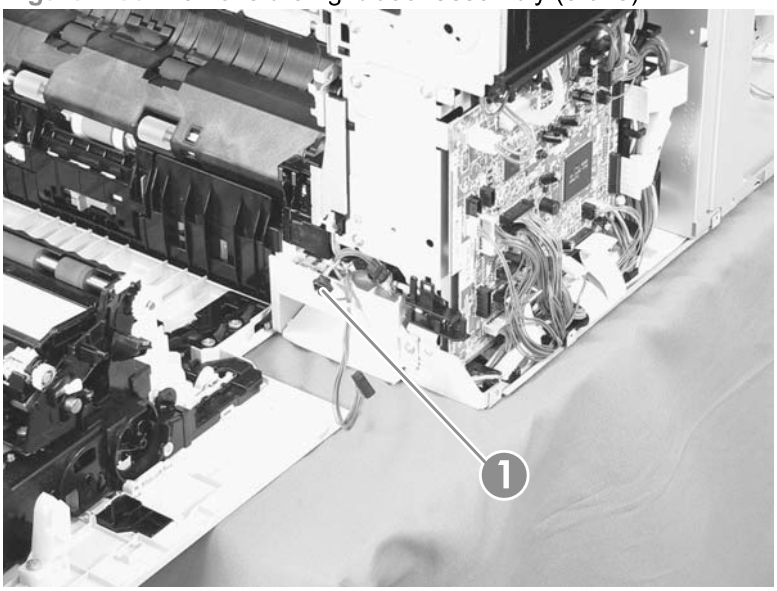
3. Carefully release one tab (callout 1), and then remove the cable cover (callout 2).

Figure 2-37 Remove the right-door assembly (2 of 5)



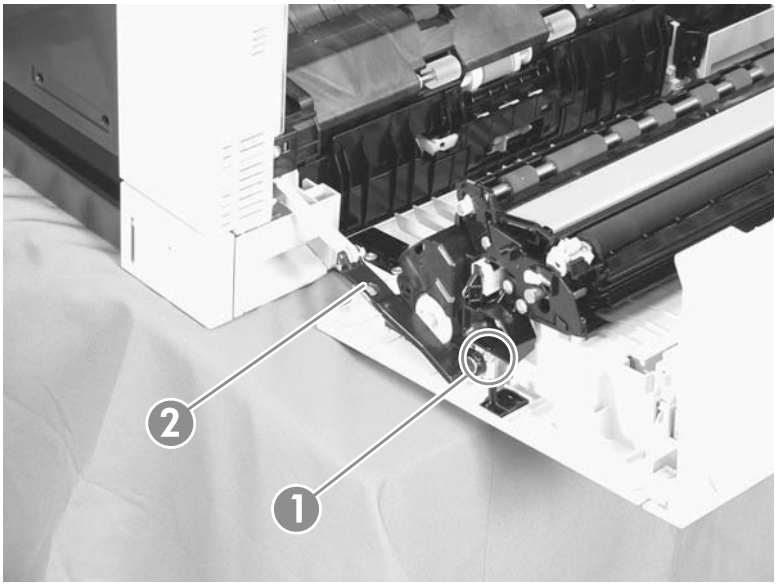
4. Remove one connector (callout 1)

Figure 2-38 Remove the right-door assembly (3 of 5)



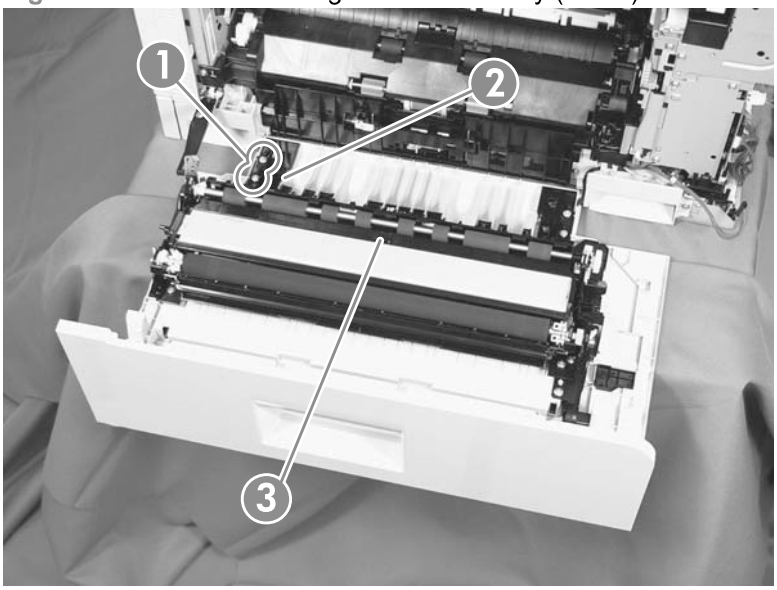
5. Remove one screw (callout 1), and then release the link arm (callout 2).

Figure 2-39 Remove the right-door assembly (4 of 5)



6. Remove two screws (callout 1), remove the hinge (callout 2), and then pull the right-door assembly away from the product.

Figure 2-40 Remove the right-door assembly (5 of 5)



Internal assemblies

TIP: For clarity, some photos in this chapter show components removed that would not be removed to service the product. If necessary, remove the components listed at the beginning of a procedure before proceeding to service the product.

Laser scanner assembly

△ **CAUTION:** Do not replace the laser scanner and the formatter PCA at the same time. The settings for the laser scanner are stored in the formatter RAM. When you install a new laser scanner, it reads the settings from the formatter.

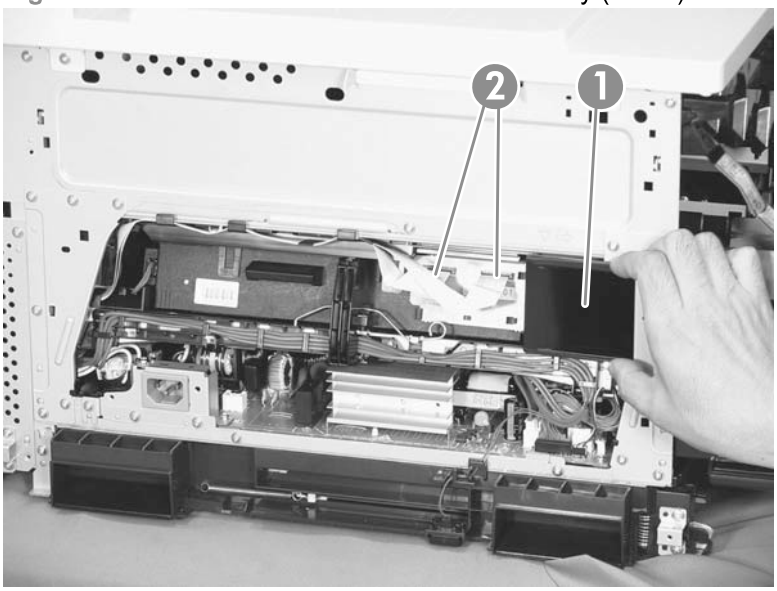
Before proceeding, remove the following components:

- Tray 2
- Left cover. See Left cover on page 92.

Remove the laser scanner assembly

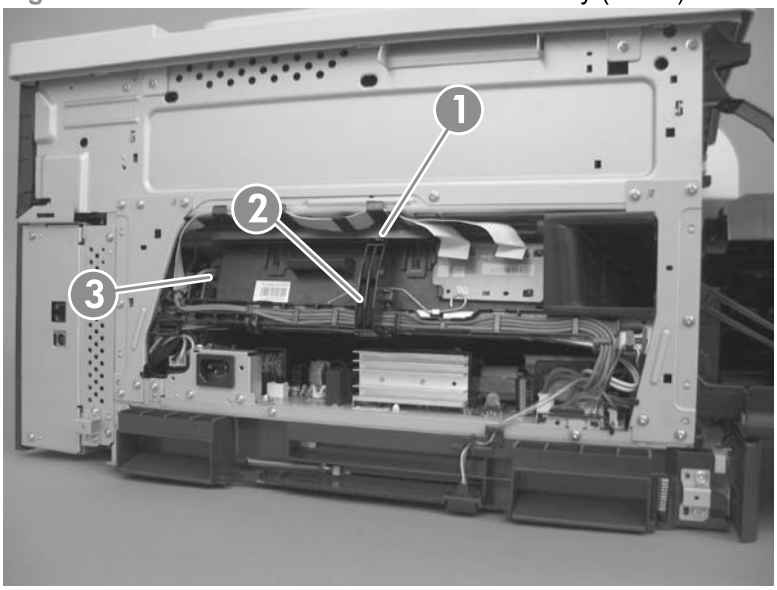
1. Open the front door.
2. On the left side of the product, pinch and remove the fan duct (callout 1), and then disconnect the two flat cables (callout 2).

Figure 2-41 Remove the laser/scanner assembly (1 of 4)



3. Release one tab (callout 1), remove the stopper (callout 2), and then disconnect one connector (callout 3).

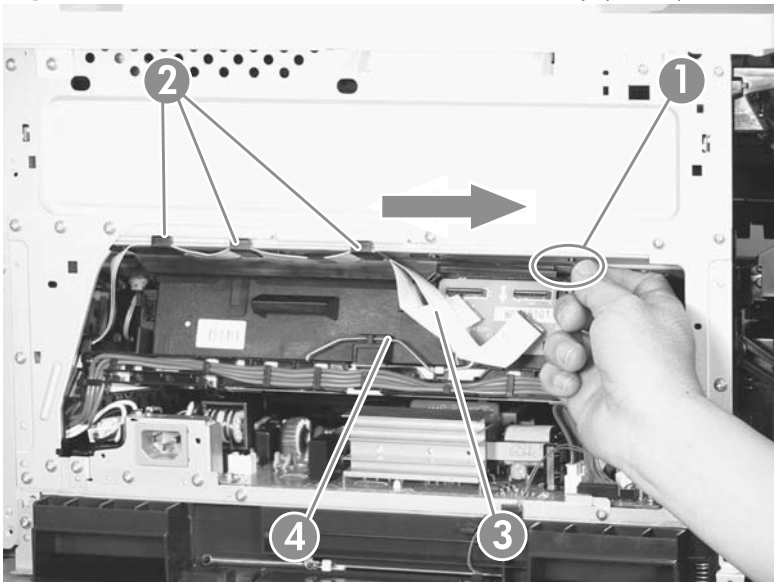
Figure 2-42 Remove the laser scanner assembly (2 of 4)



4. Release one tab (callout 1), and then slide the cable guide (callout 2) in the direction that the arrow indicates.

5. Remove the cable guide (callout 2) and the flat cables (callout 3) together, and then remove one spring (callout 4).

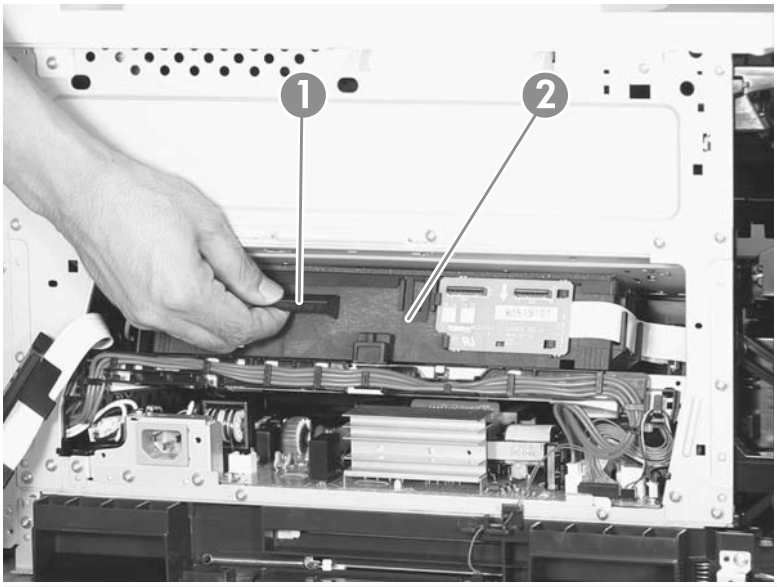
Figure 2-43 Remove the laser scanner assembly (3 of 4)



6. While holding up the handle (callout 1), pull the laser scanner (callout 2) up slightly and then out of the product.

△ **CAUTION:** Do not touch the protective glass strip on top of the assembly.

Figure 2-44 Remove the laser scanner assembly (4 of 4)



Reinstallation tip Align the assembly with the guides on the left side of the opening when reinstalling the assembly.

Reinstallation tip Align the pin on the bottom of the assembly with the notch in the product when reinstalling the assembly. After pushing the assembly into the product, you might have to pull the assembly slightly forward to seat the pin in the notch.



Cassette pickup drive assembly

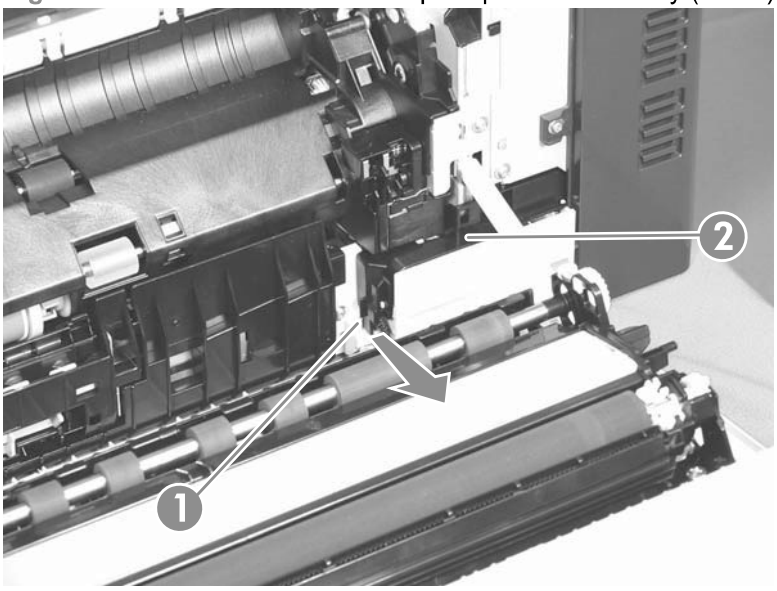
Before proceeding, remove the following components:

- ITB. See Intermediate transfer belt (ITB) on page 87.
- Cassette separation roller assembly. See Separation roller assembly (Tray 2) on page 82.

Remove the cassette pickup drive assembly

1. Pull out one tab (callout 1), pull the bottom of the cable cover out, and then pull up to remove the cable cover (callout 2).

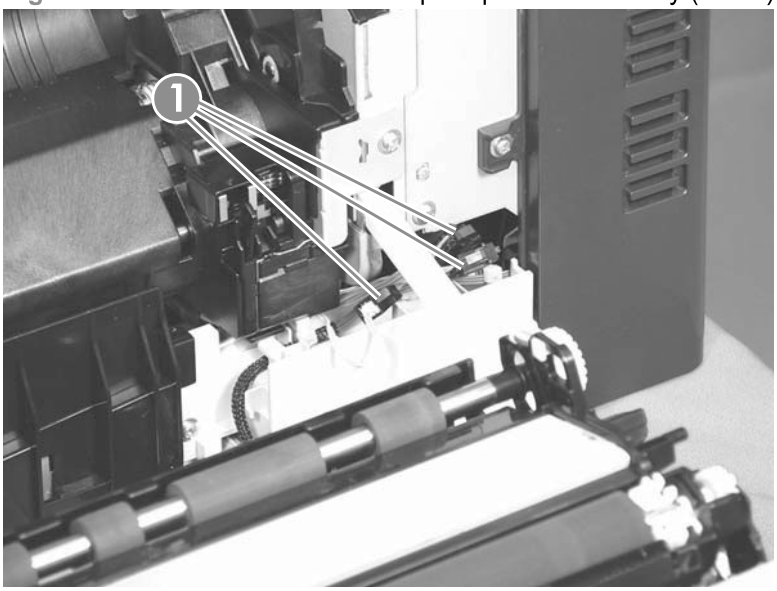
Figure 2-45 Remove the cassette pickup drive assembly (1 of 3)



2. Disconnect three connectors (callout 1). You will need to cut the zip ties in order to disconnect the connectors, and then install new zip ties when reinstalling the assembly.

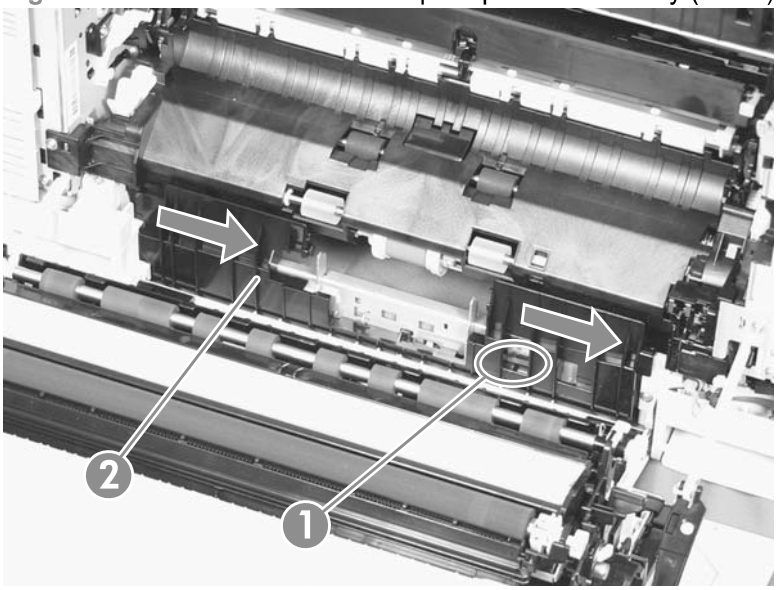
NOTE: The connectors might be hidden behind the assembly.

Figure 2-46 Remove the cassette pickup drive assembly (2 of 3)



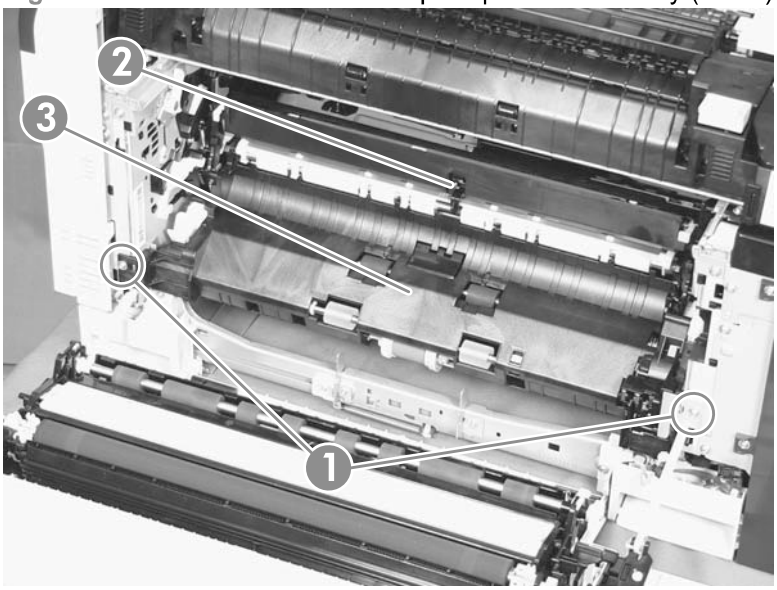
3. Pull out one tab (callout 1), and then slide the guide (callout 2) to the right to remove it.

Figure 2-47 Remove the cassette pickup drive assembly (3 of 3)



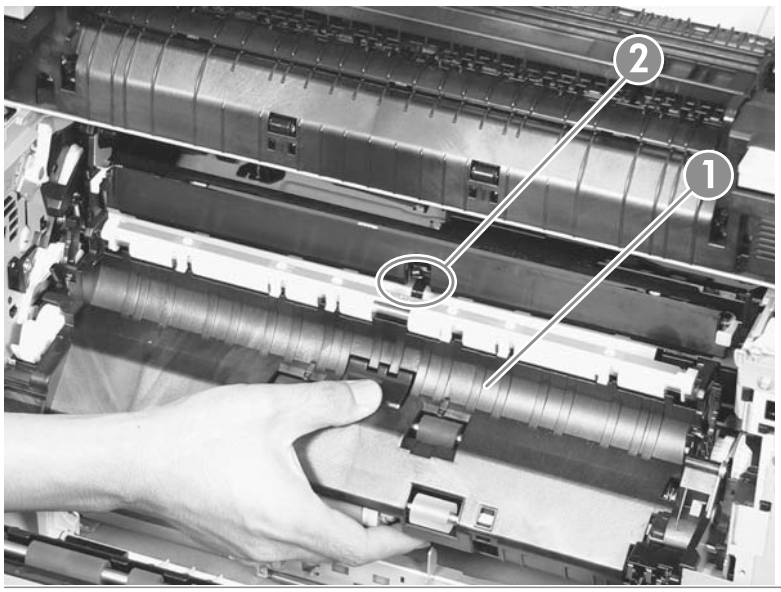
4. Remove two screws (callout 1), move the registration sensor lever (callout 2) to the up position, and then pull the cassette pickup drive assembly (callout 3) toward you to remove it.

Figure 2-48 Remove the cassette pickup drive assembly (4 of x)

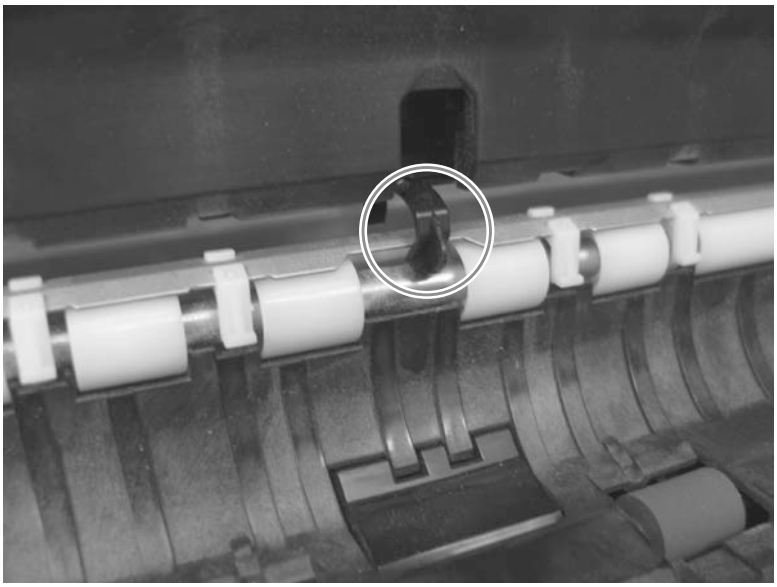


5. After replacing the cassette pickup drive assembly, use the **Secondary service menu** menu to reset the registration roller page count to zero. The registration roller is part of the cassette pickup drive assembly.

Reinstallation tip When reassembling the cassette pickup drive unit (callout 1), the sensor flag (callout 2) is in the way. Be sure to hold up the sensor flag when reassembling. Verify that the sensor flag moves properly after reassembling the cassette pickup drive unit.



The figure below shows the assembly reinstalled correctly.



The figure below shows the assembly reinstalled *incorrectly*.



Registration sensor assembly

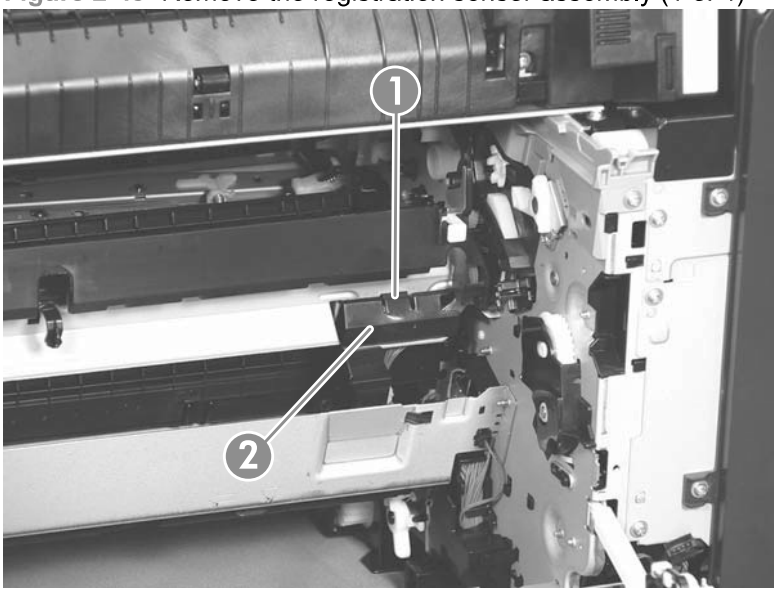
Before proceeding, remove the following components:

- Cassette separation roller assembly. See Separation roller assembly (Tray 2) on page 82.
- Cassette pickup drive assembly. See Cassette pickup drive assembly on page 108.
- Intermediate transfer belt (ITB). See Intermediate transfer belt (ITB) on page 87.

Remove the registration sensor assembly

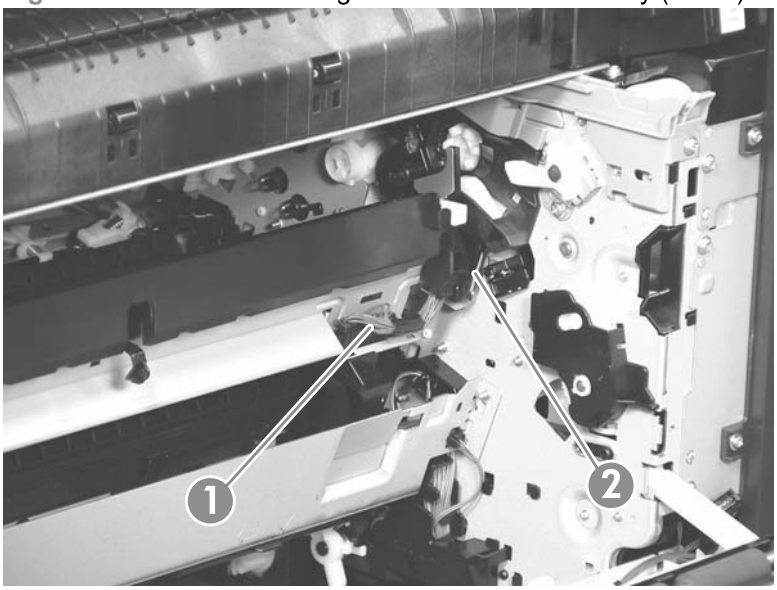
1. Push the tab (callout 1) down, and then pull the top of the cover to remove the cover (callout 2). You might need a small flat-blade screwdriver to press down the tab.

Figure 2-49 Remove the registration sensor assembly (1 of 4)



2. Disconnect one connector (callout 1), and then detach the bottom part of the spring (callout 2). If necessary, use a pick or needle-nose pliers to detach the spring.

Figure 2-50 Remove the registration sensor assembly (2 of 4)



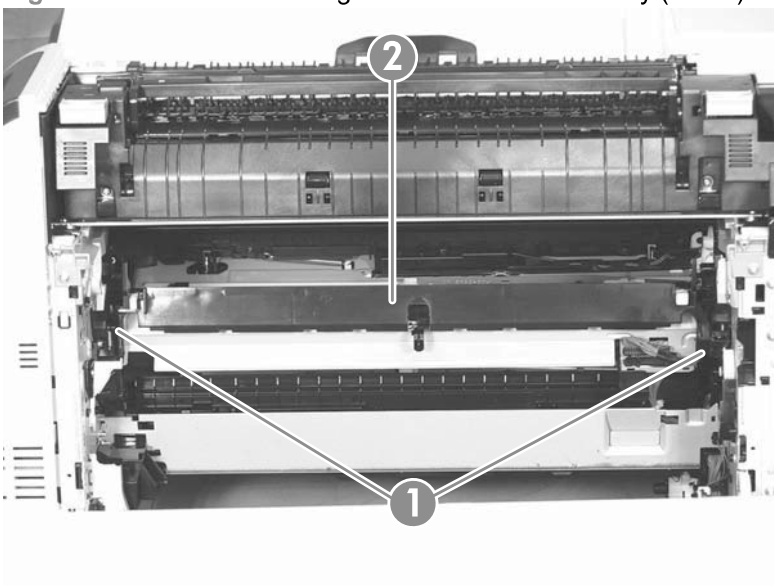
3. Detach the bottom of one spring (callout 1).

Figure 2-51 Remove the registration sensor assembly (3 of 4)



4. Release one of the registration sensor unit pivot hinges from the shafts (callout 1), pull out that end of the assembly (callout 2), and then repeat the procedure on the other pivot hinge.

Figure 2-52 Remove the registration sensor assembly (4 of 4)



Lifter-drive assembly

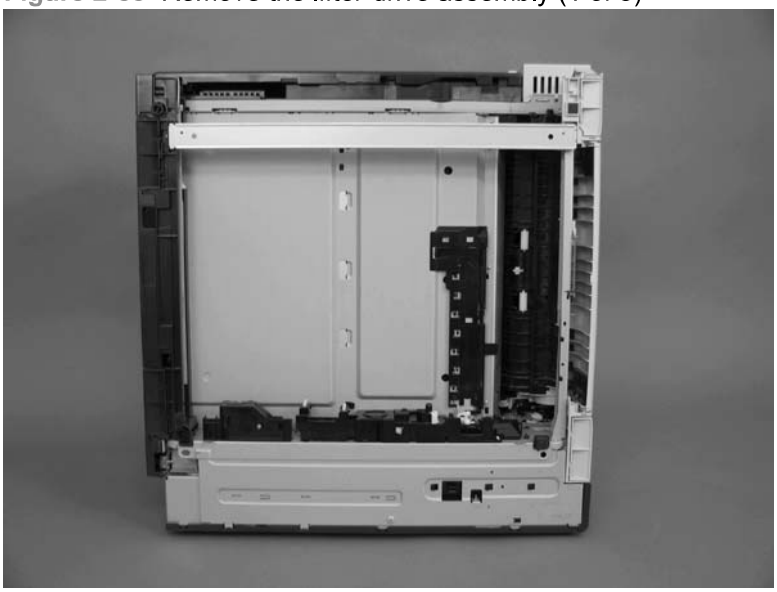
Before proceeding, remove the following components:

- Optional paper feeder assembly (Tray 3).
- Tray 2.
- Cassette pickup drive assembly. See Cassette pickup drive assembly on page 108.

Remove the lifter-drive assembly

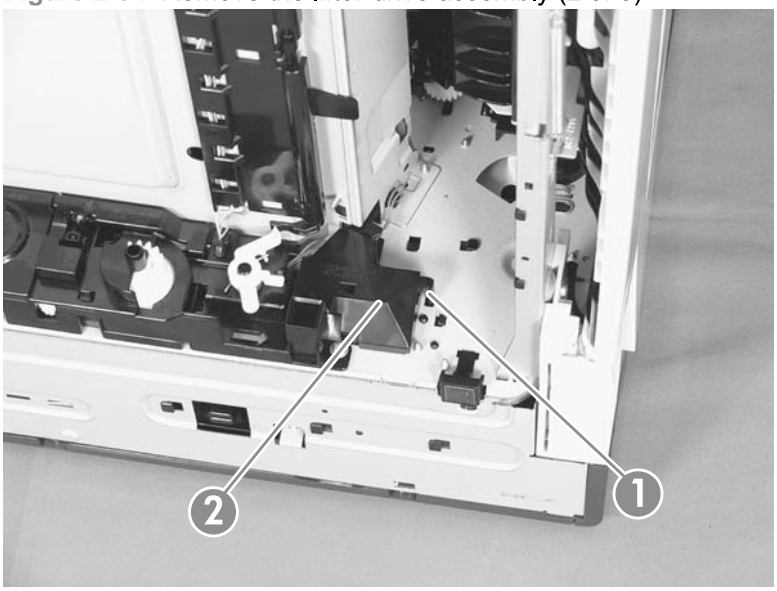
1. Verify that the right door is closed, and then turn the product so that the front side faces up.

   Figure 2-53 Remove the lifter-drive assembly (1 of 3)

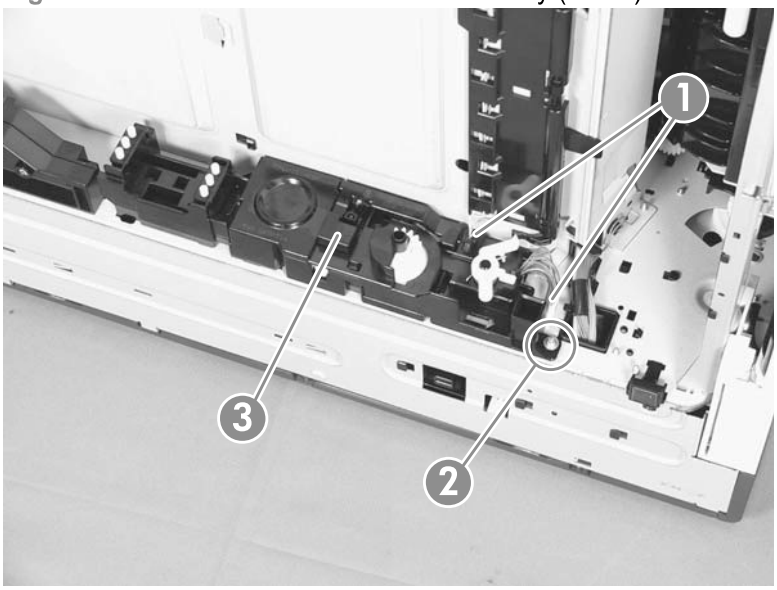
2. Release the tab (callout 1), and then pull up to remove the cover (callout 2).

   Figure 2-54 Remove the lifter-drive assembly (2 of 3)

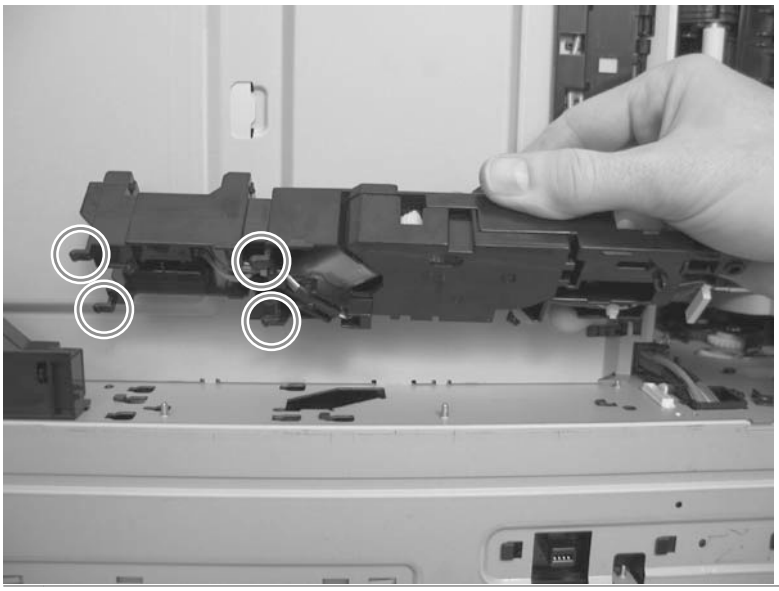
   

3. Disconnect two connectors (callout 1), remove one screw (callout 2), and then remove the lifter drive unit (callout 3).

Figure 2-55 Remove the lifter-drive assembly (3 of 3)



Reinstallation tip Make sure that the tabs align correctly when reinstalling the lifter-drive assembly.



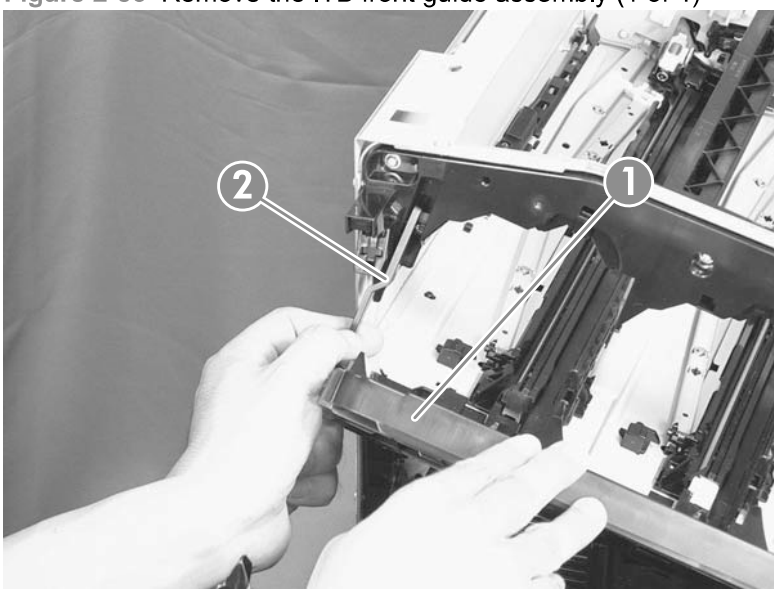
ITB front guide assembly

Before proceeding, remove the following components:

- ITB. See Intermediate transfer belt (ITB) on page 87.
- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Left cover. See Left cover on page 92.
- Top cover. See Top cover on page 96.

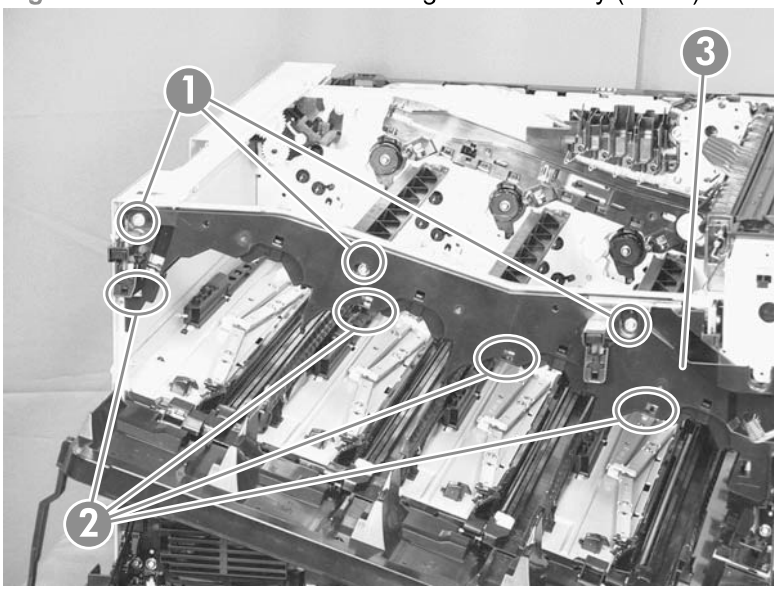
1. Open the front door (callout 1) halfway, and then push up the upper part of the link arm (callout 2) to detach it from the product chassis.

Figure 2-56 Remove the ITB front guide assembly (1 of 4)



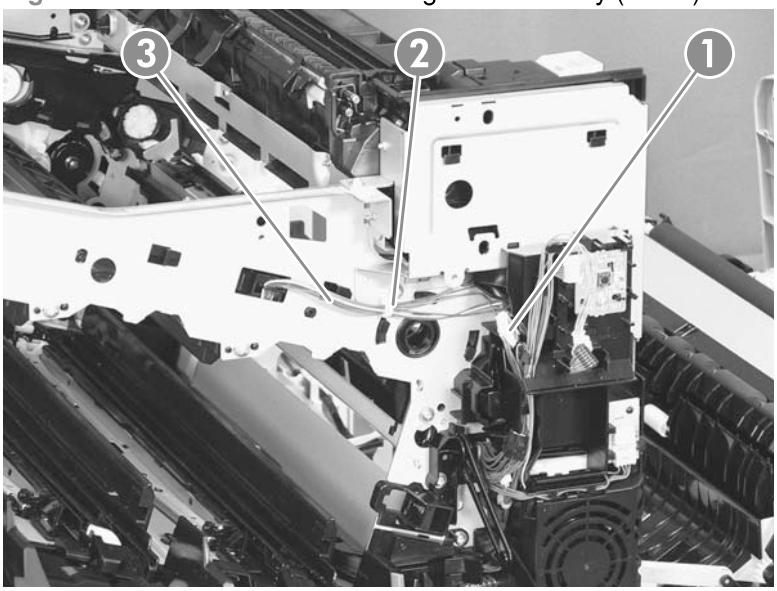
2. Remove three screws (callout 1), release four tabs (callout 2), and then remove the cartridge upper guide unit (callout 3).

Figure 2-57 Remove the ITB front guide assembly (2 of 4)



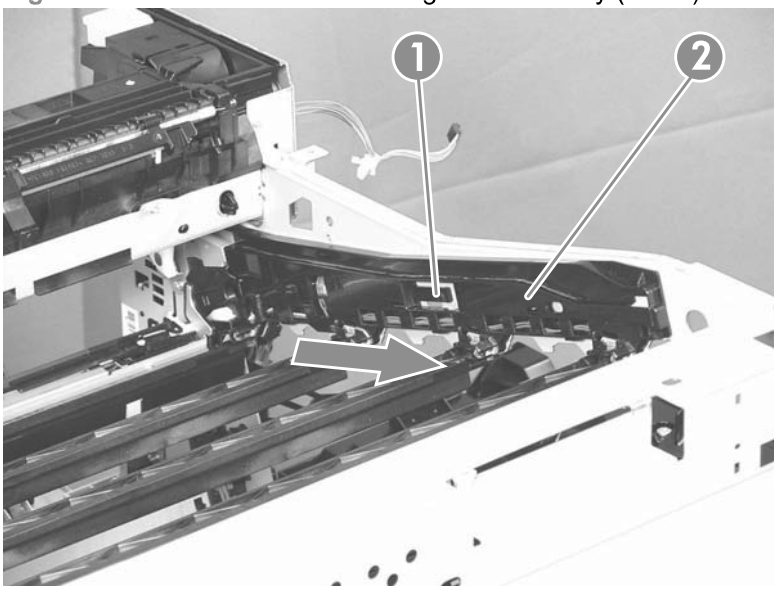
3. Disconnect one connector (callout 1), and then release the cables (callout 3) from the cable clamp (callout 2).

Figure 2-58 Remove the ITB front guide assembly (3 of 4)



4. Release one tab (callout 1), and then slide the ITB front guide assembly (callout 2) in the direction that the arrow indicates to remove it.

Figure 2-59 Remove the ITB front guide assembly (4 of 4)



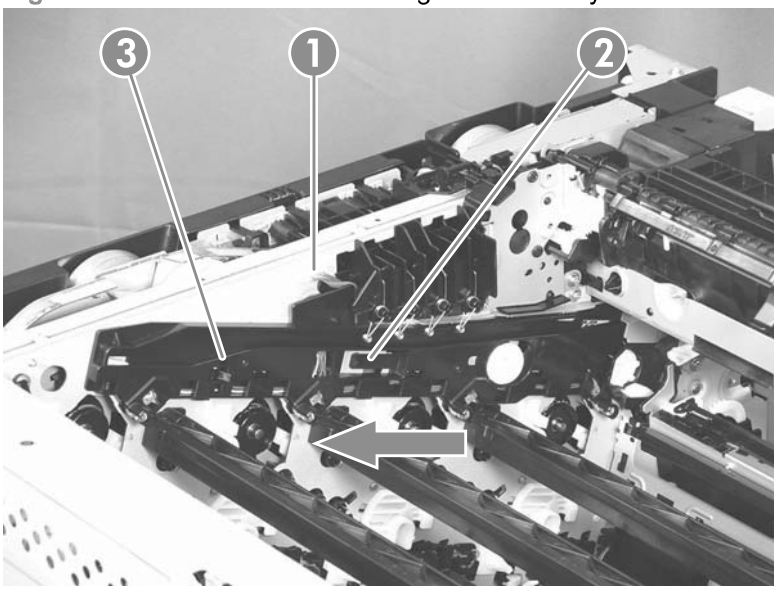
ITB rear guide assembly

Before proceeding, remove the following components:

- ITB. See Intermediate transfer belt (ITB) on page 87.
- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Left cover. See Left cover on page 92.
- Top cover. See Top cover on page 96.

☐ Disconnect one connector (callout 1), release one tab (callout 2), and then slide the ITB rear guide unit (callout 3) in the direction that the arrow indicates to remove it.

Figure 2-60 Remove the ITB rear guide assembly



Residual toner full sensor

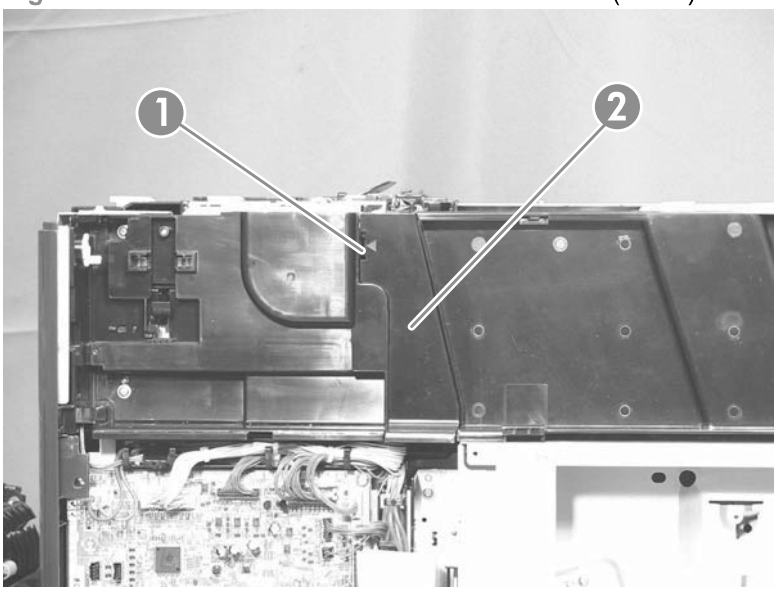
Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Rear cover. See Rear cover on page 93.
- Right-rear cover. See Right-rear cover on page 95.
- Left cover. See Left cover on page 92.
- Top cover. See Top cover on page 96.
- Toner-collection unit. See Toner-collection unit on page 72.
- Toner collection unit access door. See Toner collection unit access door on page 93.

Remove the residual toner full sensor

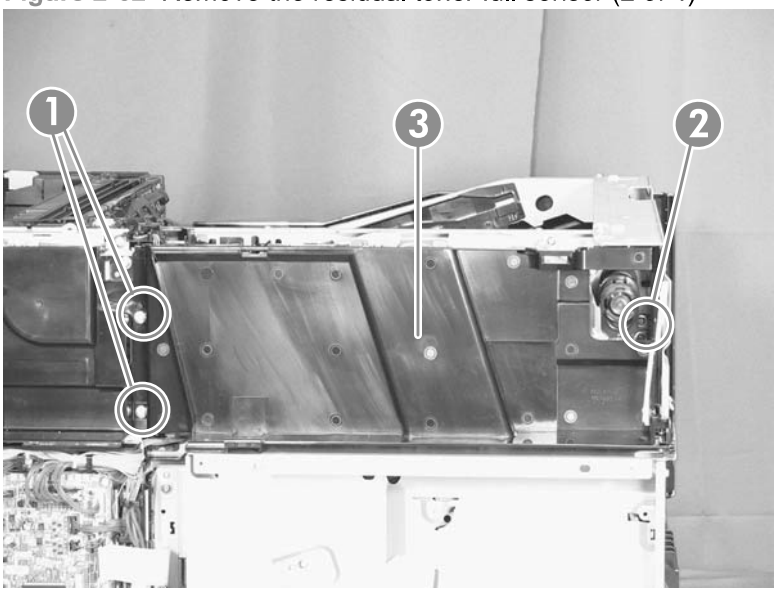
1. Release one tab (callout 1), and then remove the cover (callout 2).

Figure 2-61 Remove the residual toner full sensor (1 of 4)



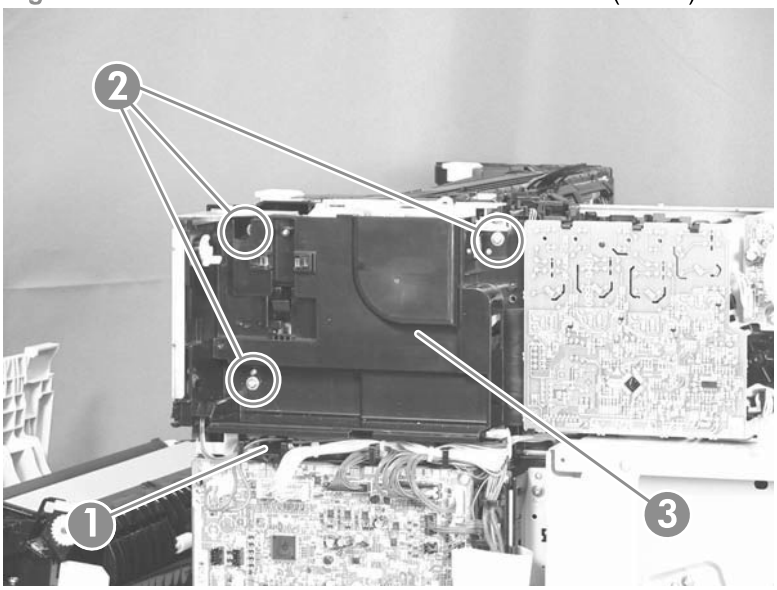
2. Remove two M4-screws (callout 1) and one M3-screw (callout 2). Then remove the toner cover (callout 3).

Figure 2-62 Remove the residual toner full sensor (2 of 4)



3. Disconnect one connector (callout 1), remove three screws (callout 2), and then remove the residual toner full sensor assembly (callout 3).

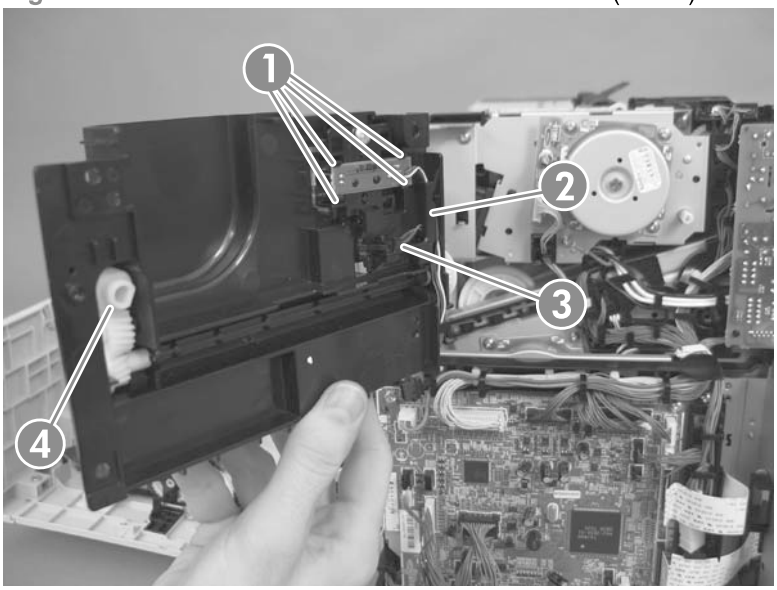
Figure 2-63 Remove the residual toner full sensor (3 of 4)



4. Remove the sensor from the assembly by releasing four clips (callout 1), removing the wiring from the routing guide (callout 2), and releasing the switch (callout 3).

△ **CAUTION:** During the removal process, ensure that the gear box (callout 4) does not fall out of the assembly.

Figure 2-64 Remove the residual toner full sensor (4 of 4)



Formatter case

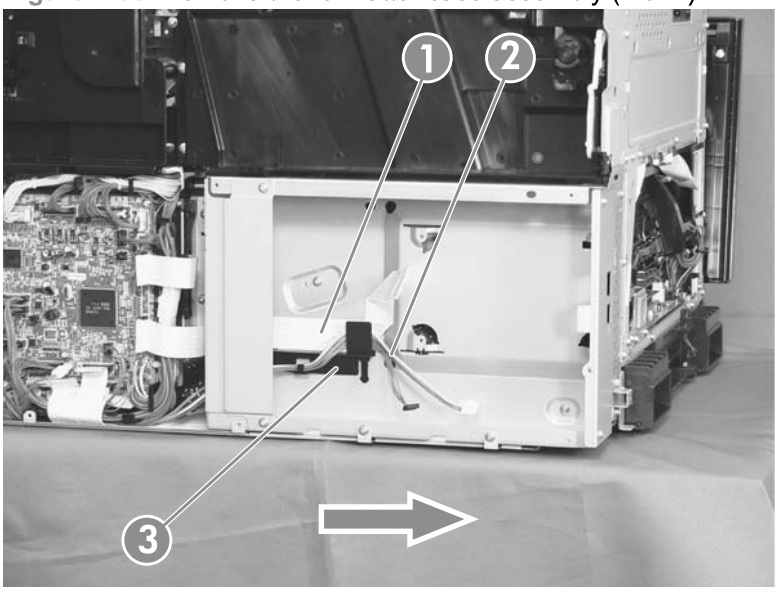
Before proceeding, remove the following components:

- Left cover. See Left cover on page 92.
- Rear cover. See Rear cover on page 93.

NOTE: These photos show the formatter PCA removed from the formatter cage. However, you do not need to remove the formatter PCA to remove the formatter cage.

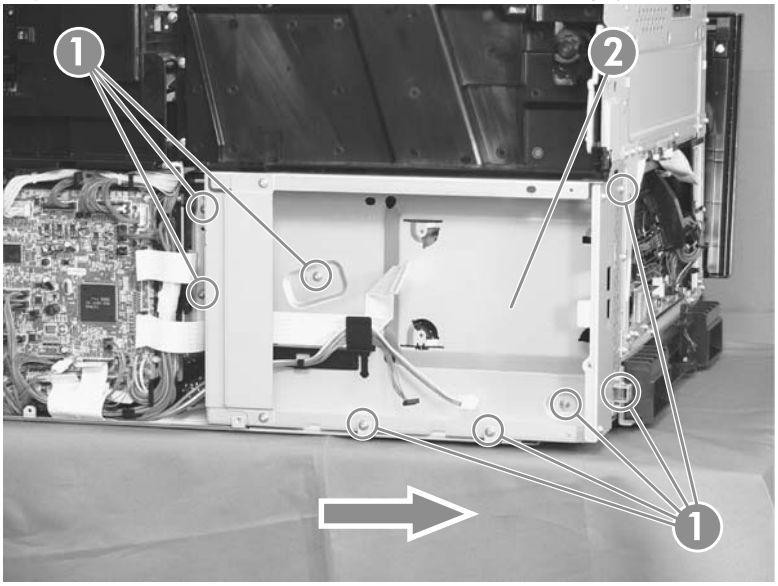
1. Release the flat cable (callout 1) and the cables (callout 2) from the cable guide (callout 3).

Figure 2-65 Remove the formatter case assembly (1 of 2)



2. Remove eight screws (callout 1) that have a small triangular icon next to them, and then slide the formatter case unit (callout 2) in the direction that the arrow indicates to remove it.

Figure 2-66 Remove the formatter case assembly (2 of 2)



Delivery assembly

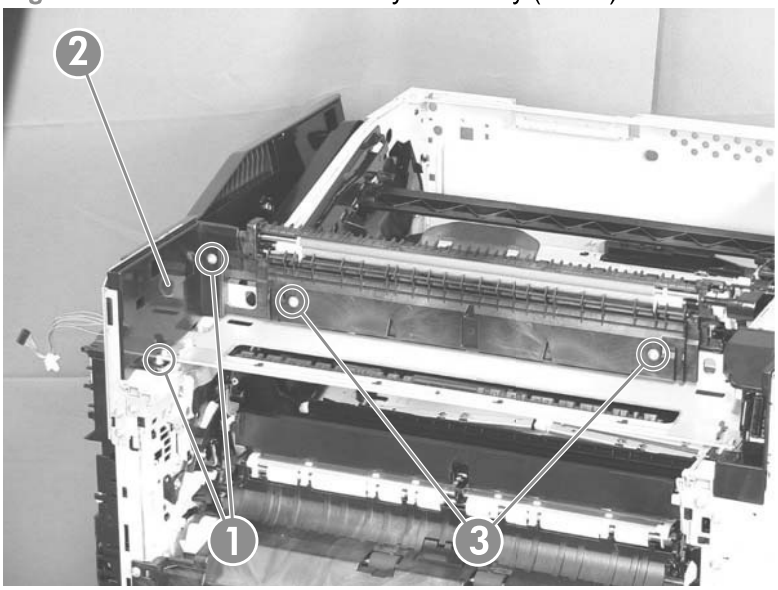
Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Left cover. See Left cover on page 92.
- Top cover. See Top cover on page 96.
- Intermediate transfer belt (ITB). See Intermediate transfer belt (ITB) on page 87.

Remove the delivery assembly

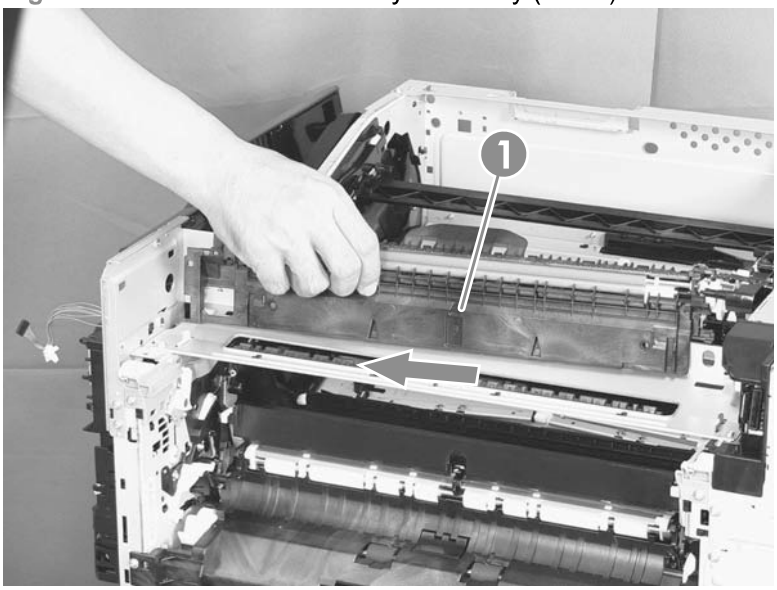
1. Remove two screws (callout 1), remove the cover (callout 2), and then remove two screws (callout 3).

Figure 2-67 Remove the delivery assembly (1 of 5)



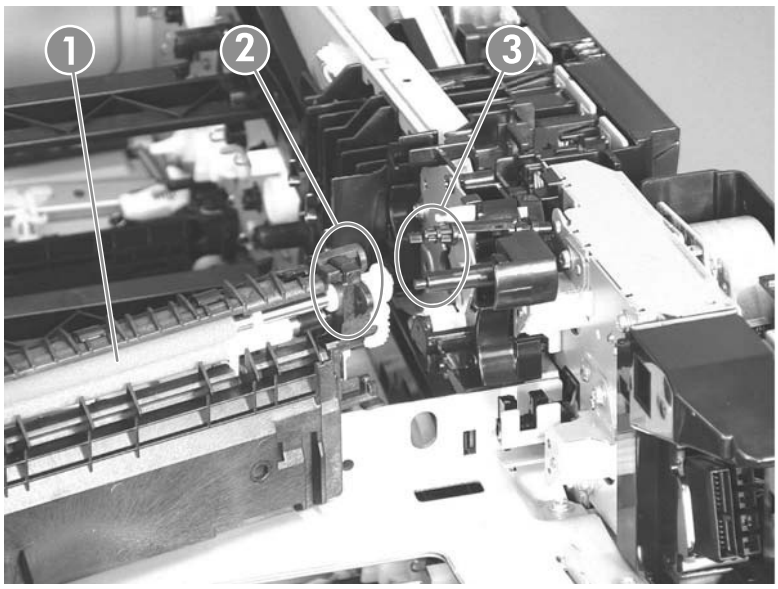
2. Pull the left side of the unit away from the engine, and then slide the delivery unit (callout 1) in the direction that the arrow indicates to remove it.

Figure 2-68 Remove the delivery assembly (2 of 5)

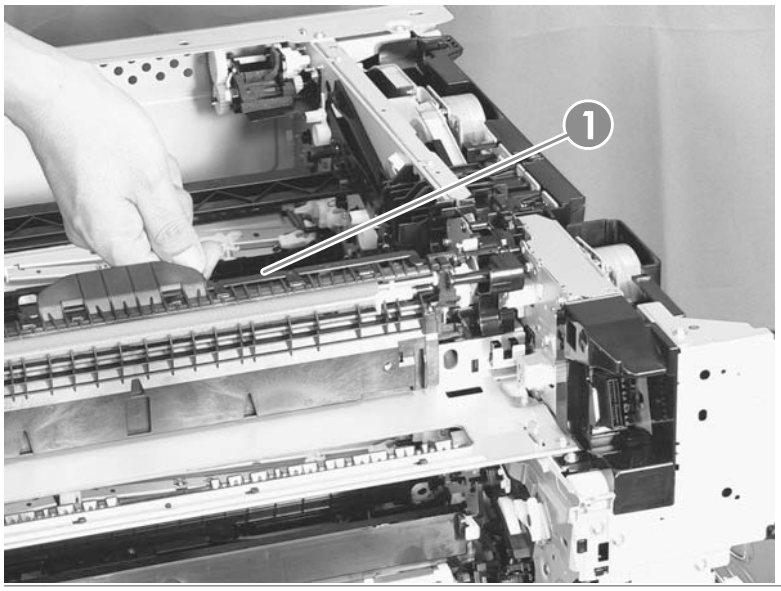


Reinstallation tip When reassembling the delivery unit (callout 1) note the following:

Be sure to fit the shafts (callout 3) on the product to the two holes (callout 2) on the delivery unit.



After reinstalling the delivery unit, verify that the sensor flag (callout 1) moves smoothly.



Duplex drive assembly (duplex models)

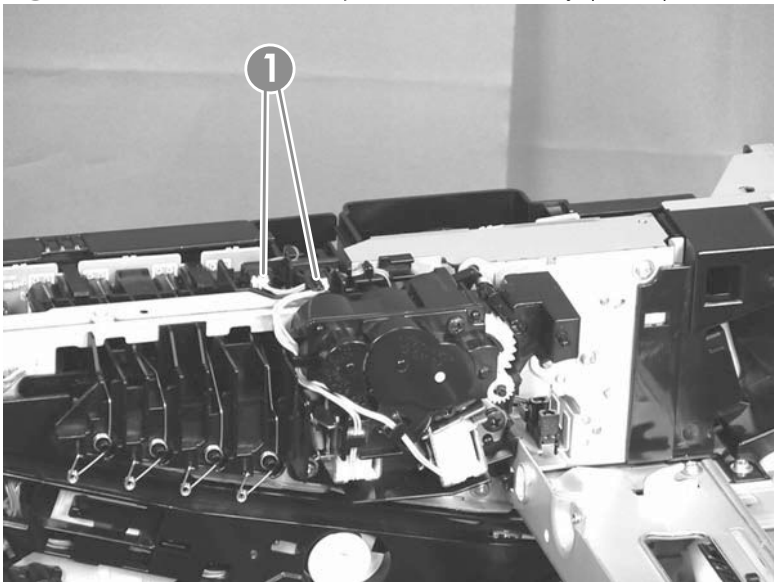
Before proceeding, remove the following components:

- Right-rear cover. See Right-rear cover on page 95.
- Left cover. See Left cover on page 92.
- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Top cover. See Top cover on page 96.
- Intermediate transfer belt (ITB). See Intermediate transfer belt (ITB) on page 87.
- Fuser. See Fuser on page 79.
- Delivery assembly. See Delivery assembly on page 124.

Remove the duplex-drive assembly

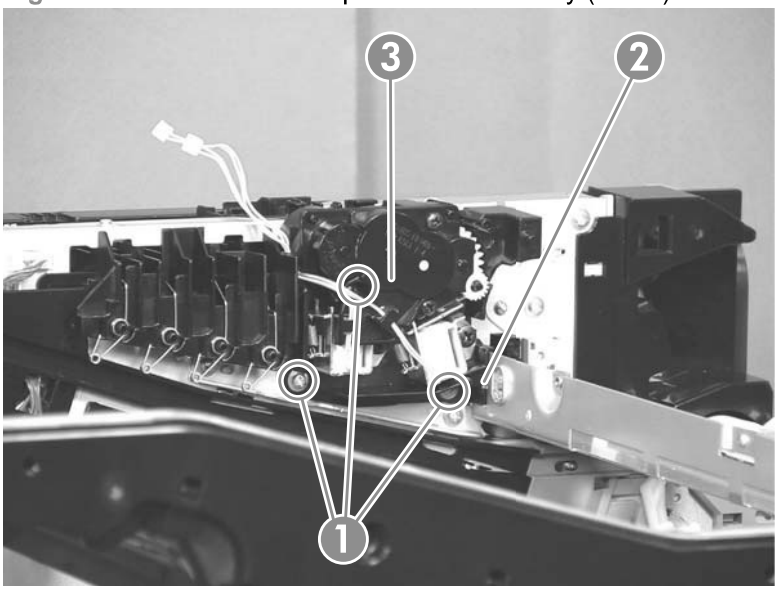
1. Disconnect two connectors (callout 1).

Figure 2-69 Remove the duplex-drive assembly (1 of 2)



2. Remove three screws (callout 1), release one tab (callout 2), and then remove the duplex drive assembly (callout 3).

Figure 2-70 Remove the duplex-drive assembly (2 of 2)



Delivery drive assembly (simplex models)

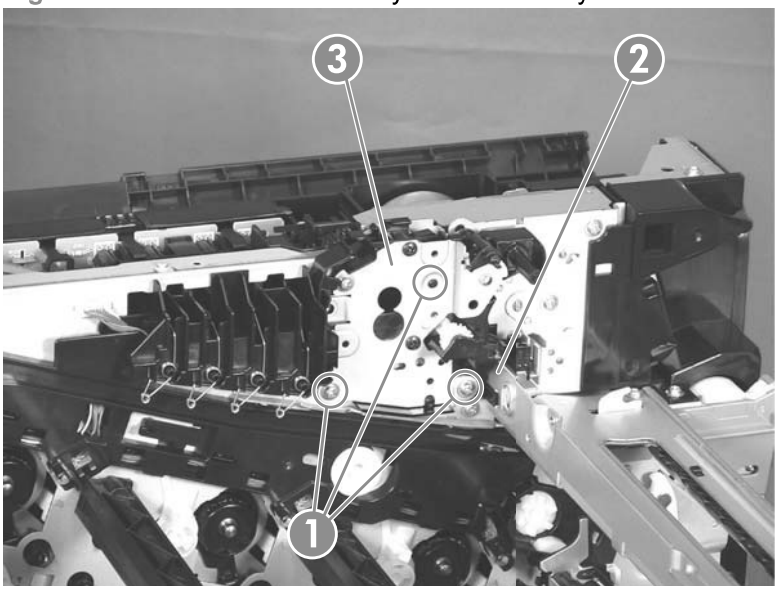
Before proceeding, remove the following components:

- Right-rear cover. See Right-rear cover on page 95.
- Left cover. See Left cover on page 92.
- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Top cover. See Top cover on page 96.
- Intermediate transfer belt (ITB). See Intermediate transfer belt (ITB) on page 87.
- Fuser. See Fuser on page 79.
- Delivery assembly. See Delivery assembly on page 124.

Remove the delivery drive assembly

☐ Remove three screws (callout 1), release one tab (callout 2), and then remove the delivery drive assembly (callout 3).

Figure 2-71 Remove the delivery drive assembly



Residual-toner-feed assembly

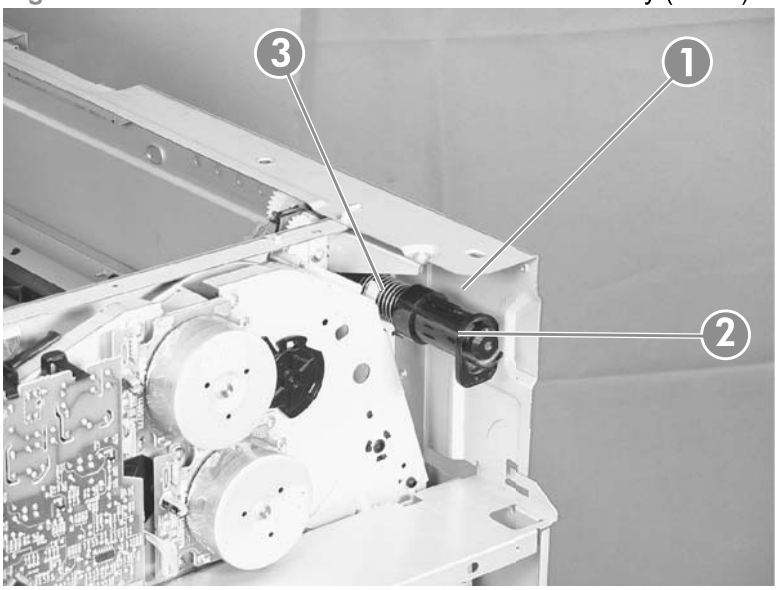
Before proceeding, remove the following components:

- Left cover. See Left cover on page 92.
- Toner collection unit access door. See Toner collection unit access door on page 93.
- Intermediate transfer belt (ITB). See Intermediate transfer belt (ITB) on page 87.
- Top cover. See Top cover on page 96.
- Toner cover. See the first step of Residual toner full sensor on page 120.

Remove the residual-toner-feed assembly

1. Release one tab (callout 1) by pulling the tab up. If necessary, use a small, flat-blade screwdriver to pull the tab up. Remove the shutter (callout 2), and then pull the spring (callout 3) off the assembly.

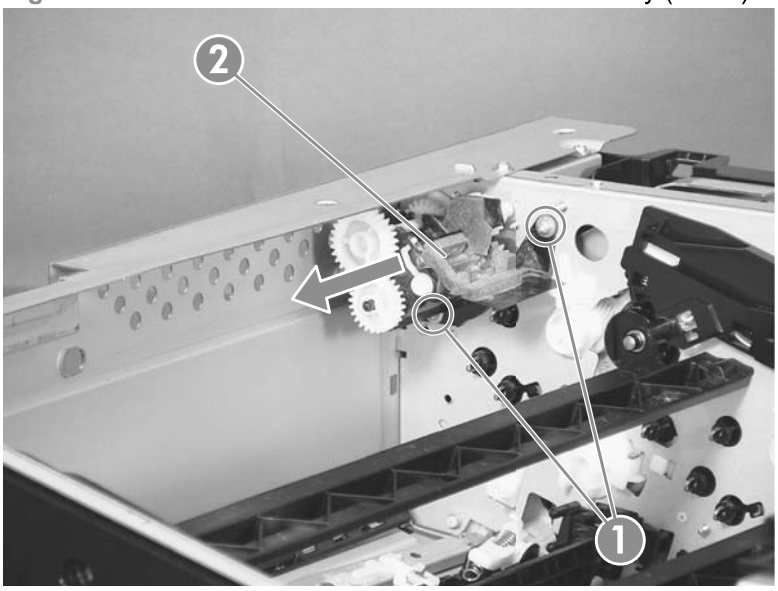
Figure 2-72 Remove the residual-toner-feed assembly (1 of 2)



2. Remove two screws (callout 1), and then remove the residual-toner-feed assembly (callout 2).

NOTE: When removing the residual-toner-feed assembly (callout 2), ensure that the assembly does not separate from the toner auger. This can spill toner in the product. To reduce the risk of such an incident, pull the assembly in the direction indicated by the arrow.

Figure 2-73 Remove the residual-toner-feed assembly (2 of 2)



ITB motor

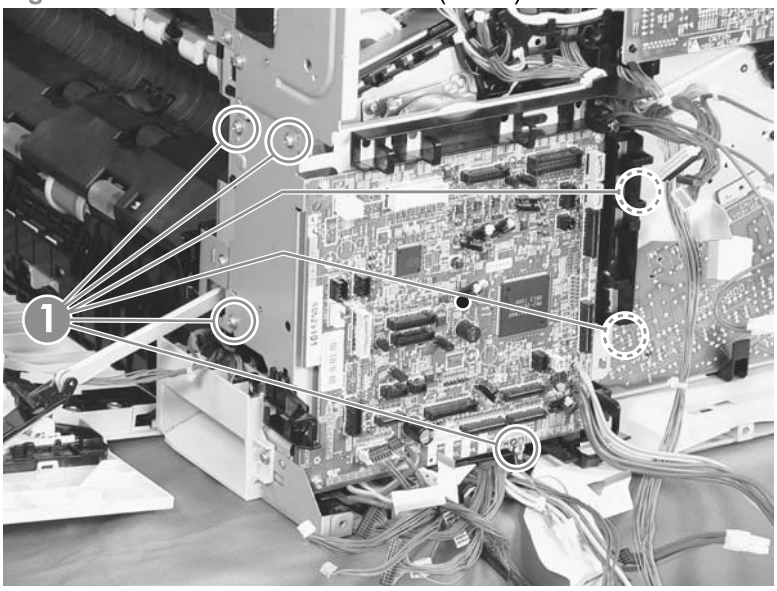
Before proceeding, remove the following components:

- Rear cover. See Rear cover on page 93.
- Right-rear cover. See Right-rear cover on page 95.
- Toner-collection unit. See Toner-collection unit on page 72.
- Toner collection unit access door. See Toner collection unit access door on page 93.

Remove the ITB motor

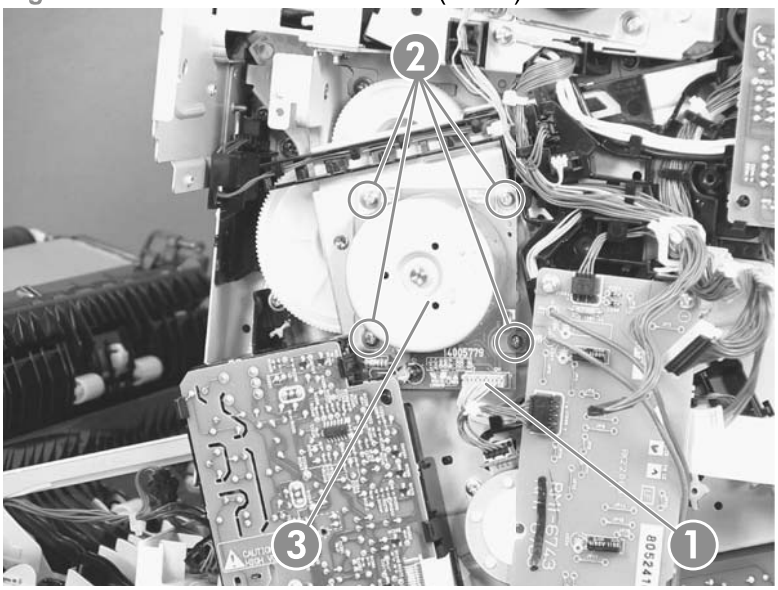
1. Remove the DC controller and the DC controller support by releasing the cables from the guides, and then removing six screws (callout 1).

Figure 2-74 Remove the ITB motor (1 of 2)



2. Disconnect one connector (callout 1), remove four screws (callout 2), and then remove the motor (callout 3).

Figure 2-75 Remove the ITB motor (2 of 2)



Drum motor

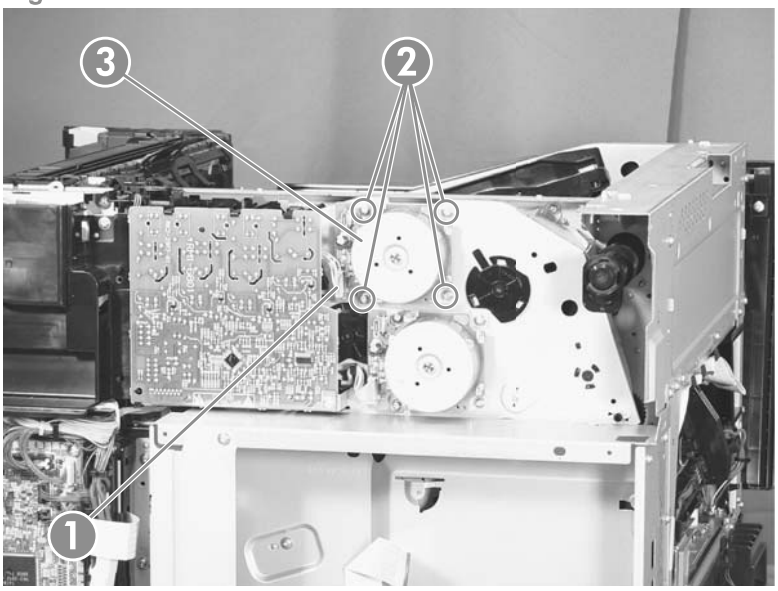
Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Right-rear cover. See Right-rear cover on page 95.
- Left cover. See Left cover on page 92.
- Rear cover. See Rear cover on page 93.
- Top cover. See Top cover on page 96.
- Toner collection unit. See Toner-collection unit on page 72.
- Toner collection unit access door. See Toner collection unit access door on page 93.
- Toner cover. See the first step of Residual toner full sensor on page 120.

Remove the drum motor

☐ Disconnect one connector (callout 1), remove four screws (callout 2), and then remove the motor (callout 3).

Figure 2-76 Remove the drum motor



Developing motor

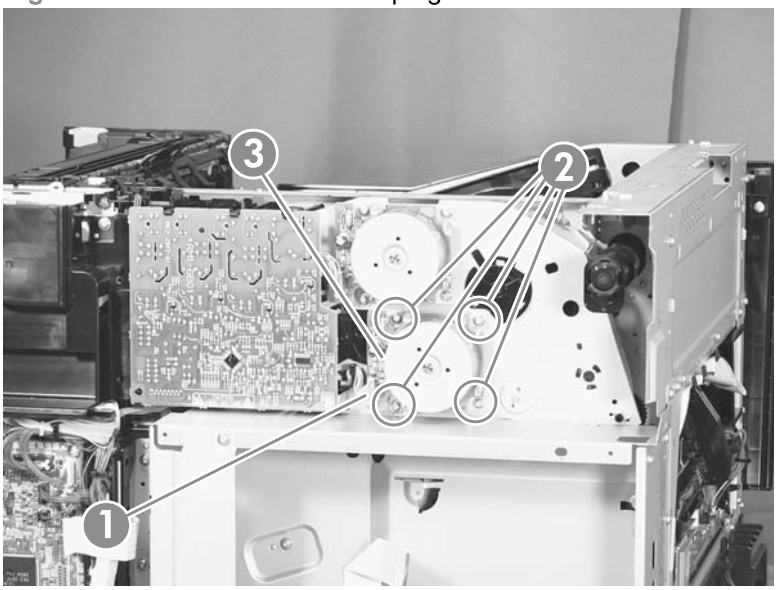
Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Rear cover. See Rear cover on page 93.
- Right-rear cover. See Right-rear cover on page 95.
- Left cover. See Left cover on page 92.
- Top cover. See Top cover on page 96.
- Toner collection unit. See Toner-collection unit on page 72.
- Toner collection unit access door. See Toner collection unit access door on page 93.
- Toner cover. See the first step of Residual toner full sensor on page 120.

Remove the developing motor

☐ Disconnect one connector (callout 1), remove four screws (callout 2), and then remove the motor (callout 3).

Figure 2-77 Remove the developing motor



Fuser motor

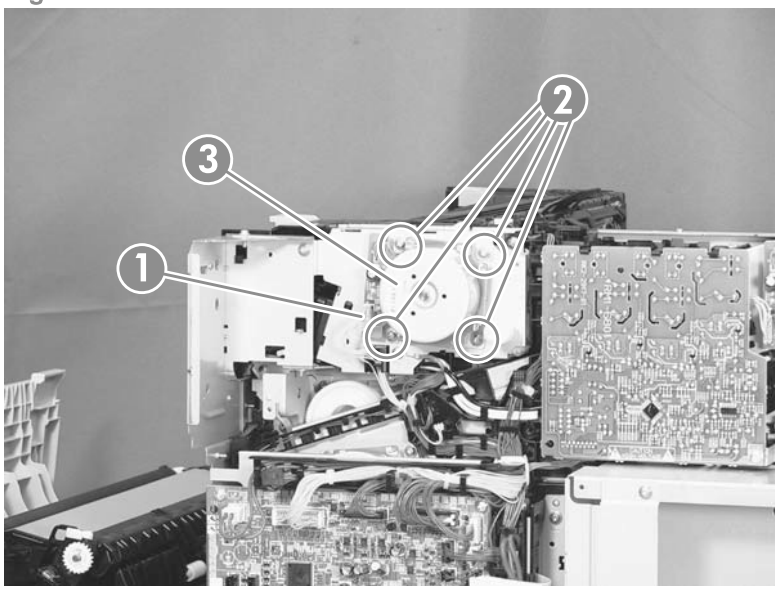
Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Right-rear cover. See Right-rear cover on page 95.
- Left cover. See Left cover on page 92.
- Rear cover. See Rear cover on page 93.
- Top cover. See Top cover on page 96.
- Toner collection unit. See Toner-collection unit on page 72.
- Toner collection unit access door. See Toner collection unit access door on page 93.
- Toner cover. See the first step of Residual toner full sensor on page 120.

Remove the fuser motor

Disconnect one connector (callout 1), remove four screws (callout 2), and then remove the motor (callout 3).

Figure 2-78 Remove the fuser motor



Developing-disengagement motor

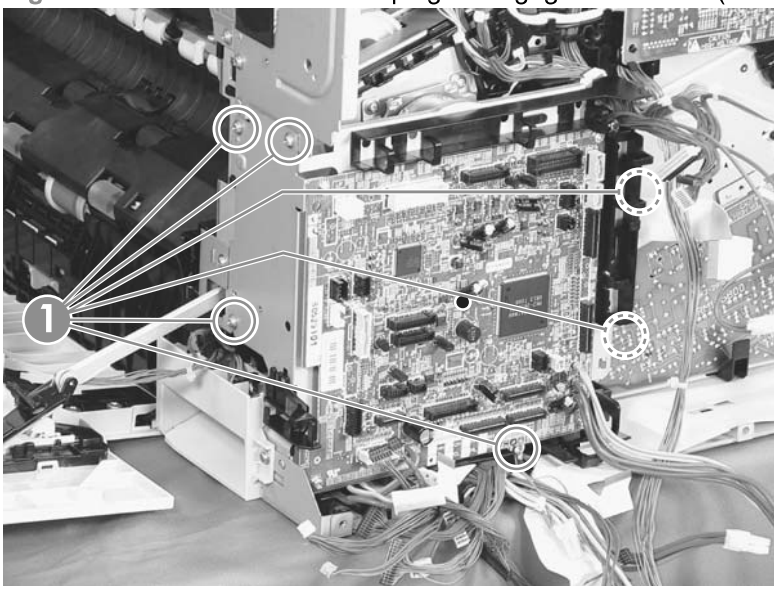
Before proceeding, remove the following components:

- Right-rear cover. See Right-rear cover on page 95.
- Rear cover. See Rear cover on page 93.
- DC controller PCA. See DC controller PCA on page 146.
- Driver PCA. See Driver PCA on page 157.

Remove the developing-disengagement motor

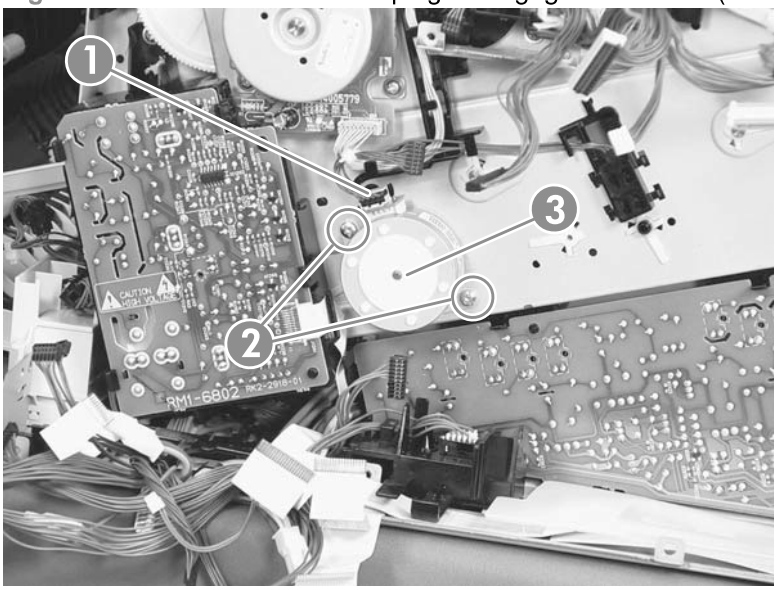
1. Remove the DC controller and the DC controller support by releasing the cables from the guides, and then removing six screws (callout 1).

Figure 2-79 Remove the developing-disengagement motor (1 of 2)



2. Disconnect one connector (callout 1), remove two screws (callout 2), and then remove the motor (callout 3).

Figure 2-80 Remove the developing-disengagement motor (2 of 2)



Power-supply fan

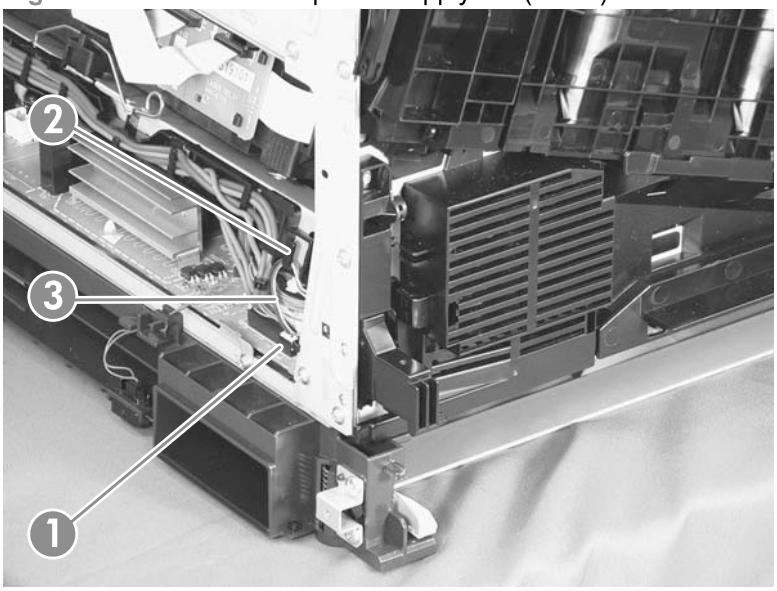
Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Front-door assembly (steps 1 and 2 only). See Front-door assembly on page 98.
- Left cover. See Left cover on page 92.

Remove the power-supply fan

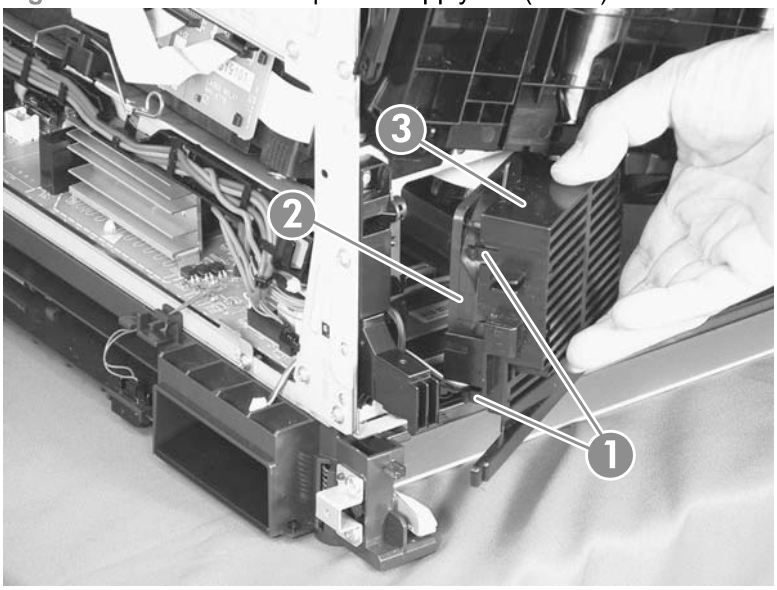
1. Disconnect one connector (callout 1), and then release the cables (callout 3) from the guide (callout 2).

Figure 2-81 Remove the power-supply fan (1 of 3)



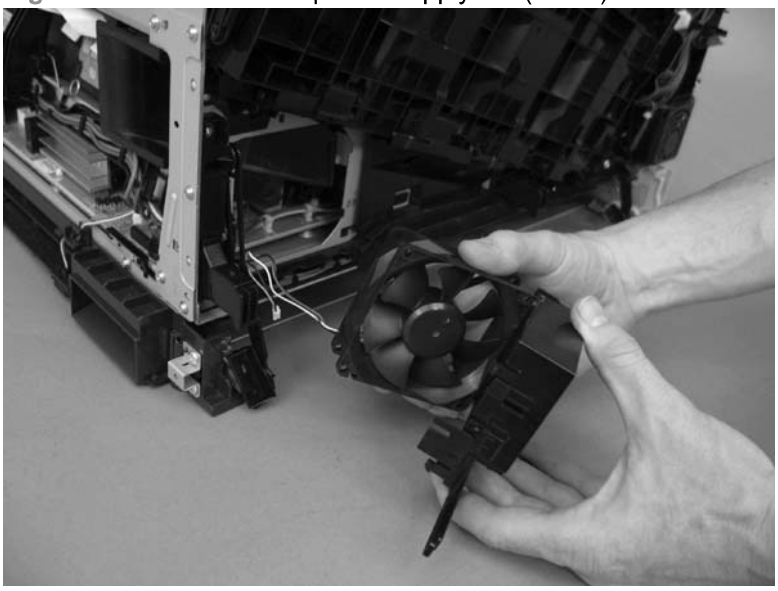
2. Release two tabs (callout 1), and then remove the fan (callout 2) and the fan holder (callout 3) together.

Figure 2-82 Remove the power-supply fan (2 of 3)

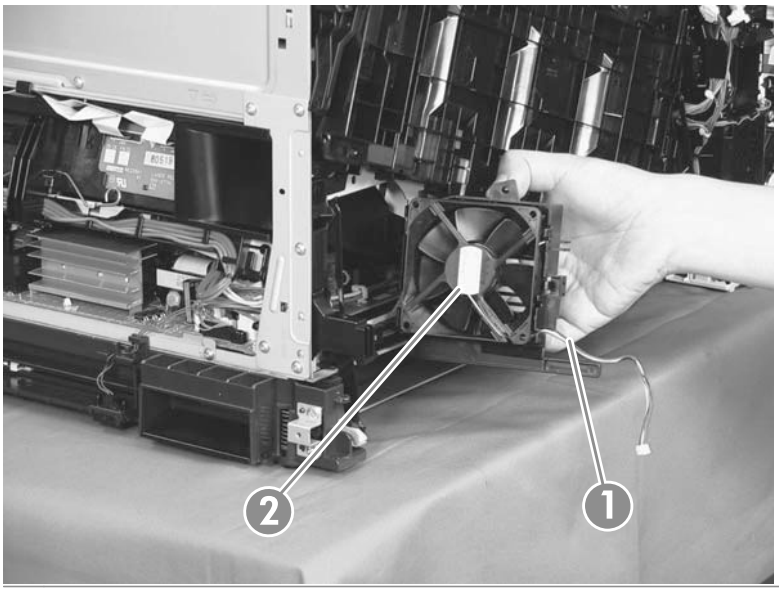


3. Pull on the sides of the fan holder to remove the fan from the holder.

Figure 2-83 Remove the power-supply fan (3 of 3)



Reinstallation tip When reinstalling the fan, verify that the fan cables (callout 1) are positioned as shown and that the label (callout 2) on the fan is facing toward the inside of the product.



Fuser fan

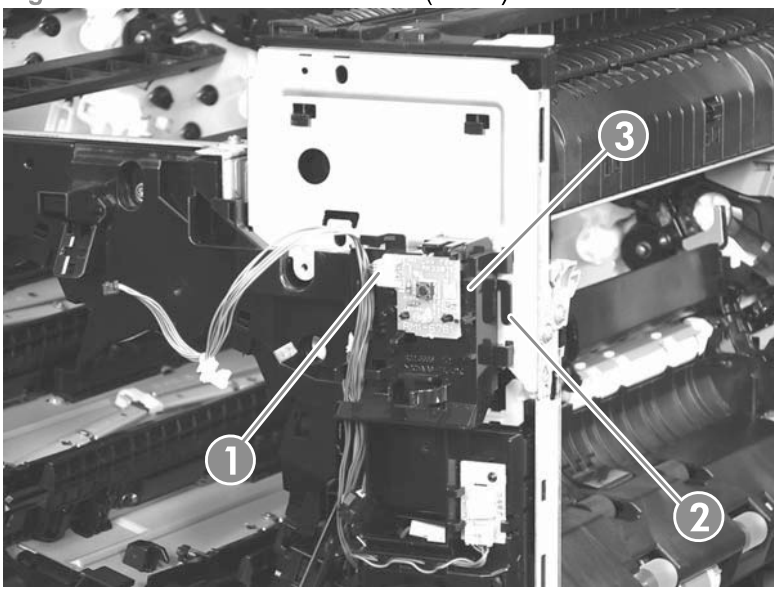
Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.

Remove the fuser fan

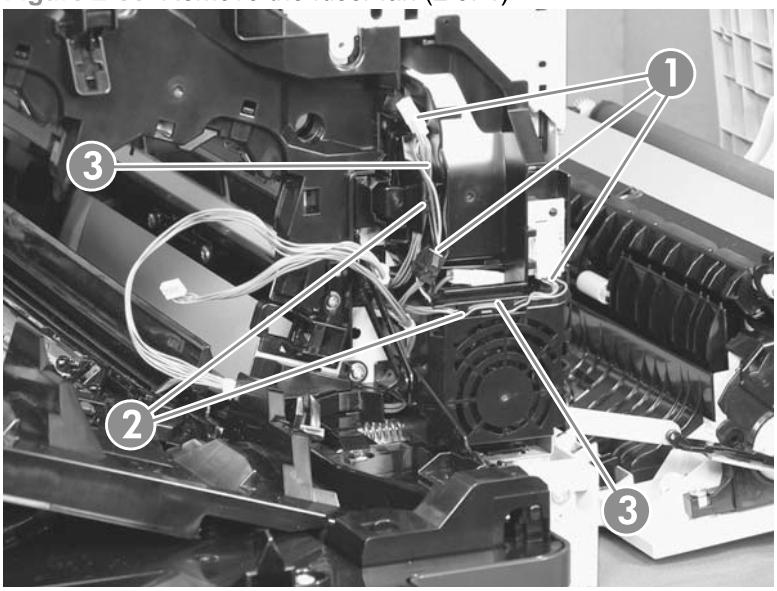
1. Disconnect one connector (callout 1), release one tab (callout 2), and then slide the guide (callout 3) down to remove it.

Figure 2-84 Remove the fuser fan (1 of 4)



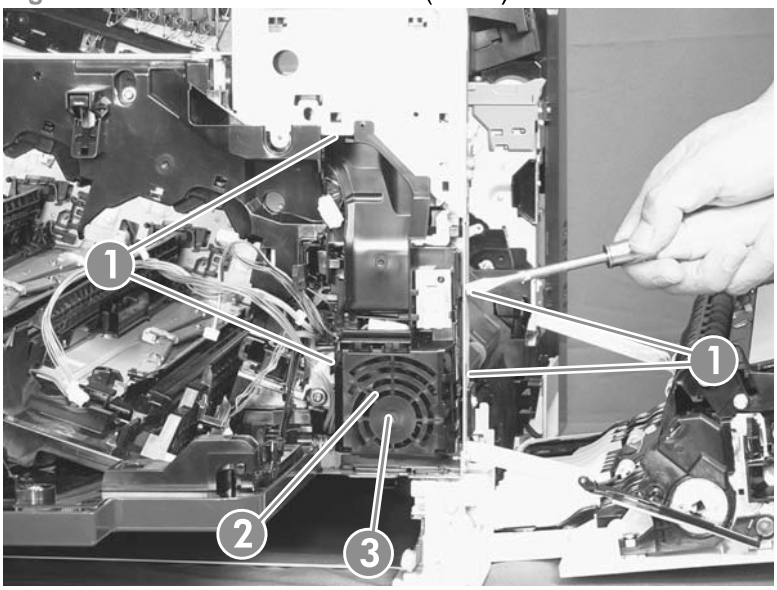
2. Disconnect three connectors (callout 1), and then release the cables (callout 3) from the cable guides (callout 2).

Figure 2-85 Remove the fuser fan (2 of 4)



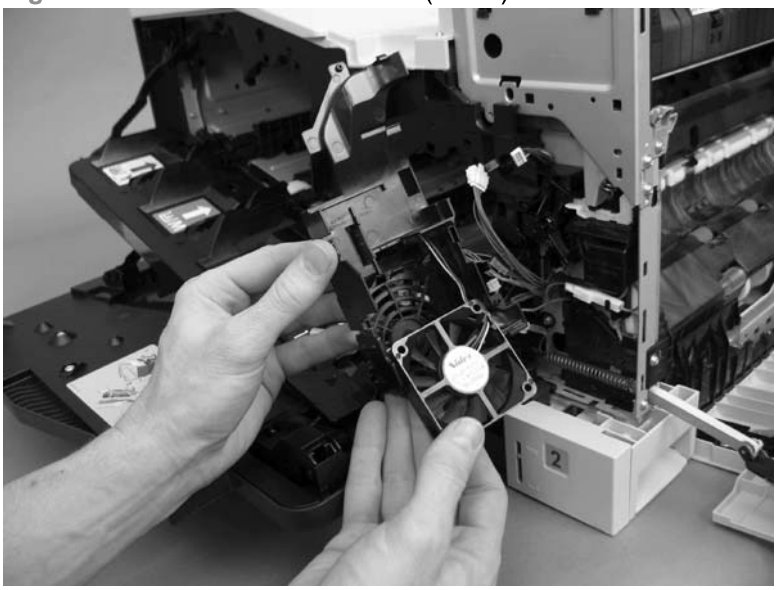
3. Release four tabs (callout 1), and then remove the fan (callout 2) and the fan holder (callout 3) together.

Figure 2-86 Remove the fuser fan (3 of 4)



4. Turn the fan holder over, and then pull the fan out of the holder.

Figure 2-87 Remove the fuser fan (4 of 4)



Reinstallation tip Note the wiring path and label orientation for reinstallation.

Formatter PCA

CAUTION: ESD sensitive component.

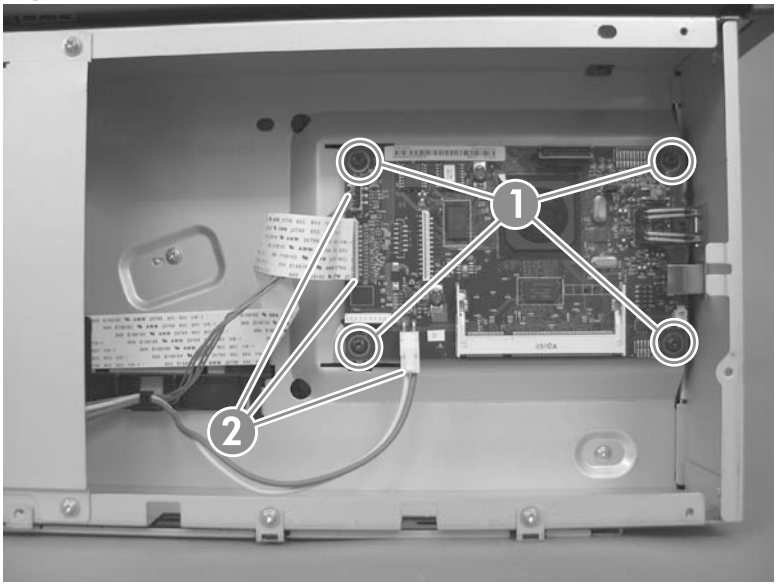
CAUTION: Do not replace the laser scanner and the formatter PCA at the same time. The settings for the laser scanner are stored in the formatter RAM. When you install a new laser scanner, it reads the settings from the formatter.

CAUTION: Do not replace the DC controller PCA and the formatter PCA at the same time. The settings for the DC Controller PCA are stored in the formatter RAM. When you install a new DC Controller PCA, it reads the settings from the formatter.

NOTE: If possible, print a configuration page before replacing the formatter. You will need to transfer the serial number and the page count information to the new formatter.

1. Remove the rear cover (see Rear cover on page 93).
2. Remove four screws (callout 1) and three connectors (callout 2).

Figure 2-88 Remove the formatter



3. Firmly pull the formatter from the product. Place the formatter on a clean, flat, grounded surface.

Formatter resets

After replacing the formatter, you must update the firmware. You must also disable networking for non-network models and reset the page counts and serial number.

Configure the formatter for non-network models

This product uses the same formatter for network and non-network models. For non-network models, you must disable networking during run-time to create a base model.

1. Make sure the product is in the Ready state.
2. Use hpnpf or hexprint.exe to send the `disableNetwork.pjl` file to the product.

3. Wait for 30 seconds to make sure the data has been written to NVRAM and all changes have occurred.
4. Turn the product off and then on. The product ID will change to the base model.

Reset the serial number of the formatter

1. Make sure the product is in the Ready state.
2. Update the file `setSerialNumber.pjl` file to set the correct serial number on the formatter.

   For example: `@PJL DEFAULT SERIALNUMBER=ABC123`
3. Use hpnpf or hexprint.exe to send the `setSerialNumber.pjl` file to the product.
4. Print a configuration page to verify the change.

Reset the page counts on the formatter

1. Make sure the product is in the Ready state.
2. Update the file `pml_pagecount.pjl` file to set the correct mono and color page counts on the formatter.

   NOTE: These values are hexadecimal. The following examples show setting the mono page count to 15 and the color page count to 10.

   ```
   @PJL COMMENT Mono Page Count

   @PJL DMINFO ASCIIHEX = "040005010401020608020000F"

   @PJL COMMENT Color Page Count

   @PJL DMINFO ASCIIHEX = "040005010401020608020000A"
   ```
3. Use hpnpf or hexprint.exe to send the `pml_pagecount.pjl` file to the product.
4. Print a configuration page to verify the change.

DC controller PCA

△ **CAUTION:** Do not replace the DC controller PCA and the formatter PCA at the same time. The settings for the DC Controller PCA are stored in the formatter RAM. When you install a new DC Controller PCA, it reads the settings from the formatter.

Before proceeding, remove the following components:

- Rear cover. See Rear cover on page 93.
- Right-rear cover. See Right-rear cover on page 95.

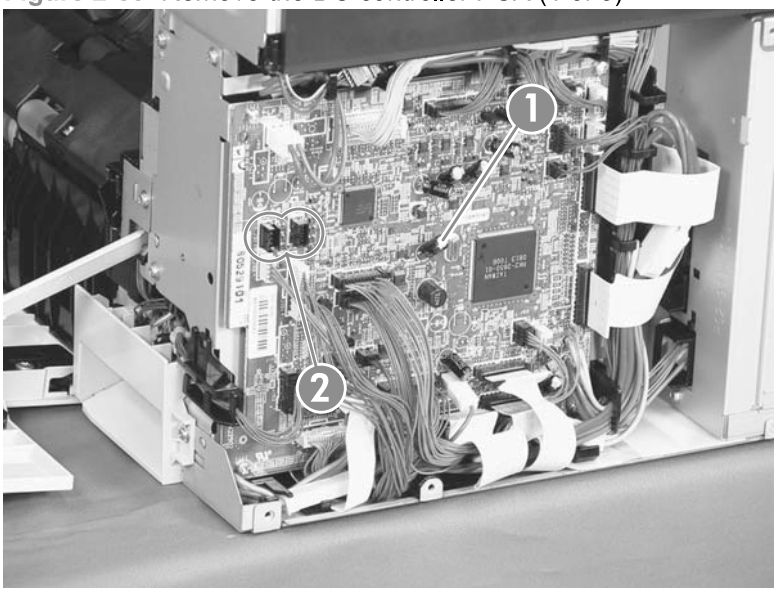
Remove the DC controller PCA

△ **CAUTION:** ESD-sensitive part.

1. Disconnect 22 connectors and six flat cables on the DC controller PCA (callout 1).

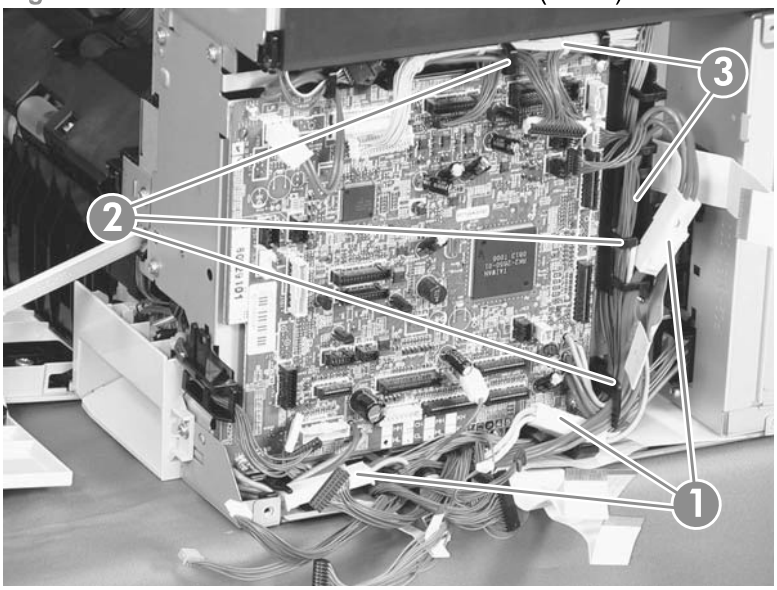
Reinstallation tip Two connectors (callout 2) should be empty when the DC controller is reinstalled.

Figure 2-89 Remove the DC controller PCA (1 of 3)



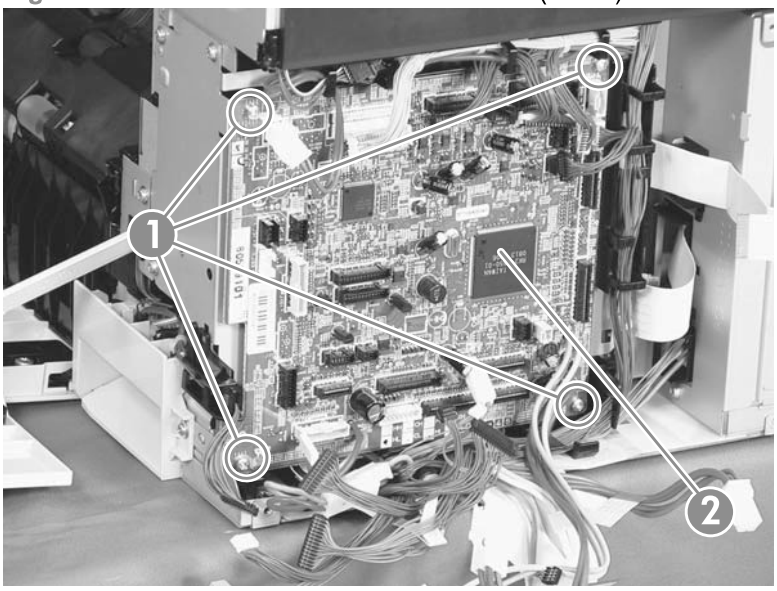
2. Disconnect three intermediate connectors (callout 1), and then release the cables (callout 3) from the cable guides (callout 2) on the top and right sides of the DC controller PCA.

Figure 2-90 Remove the DC controller PCA (2 of 3)



3. Remove four screws (callout 1), and then remove the DC controller PCA (callout 2).

Figure 2-91 Remove the DC controller PCA (3 of 3)



Low-voltage power supply

Before proceeding, remove the following components:

- Left cover. See Left cover on page 92.

Remove the low-voltage power supply

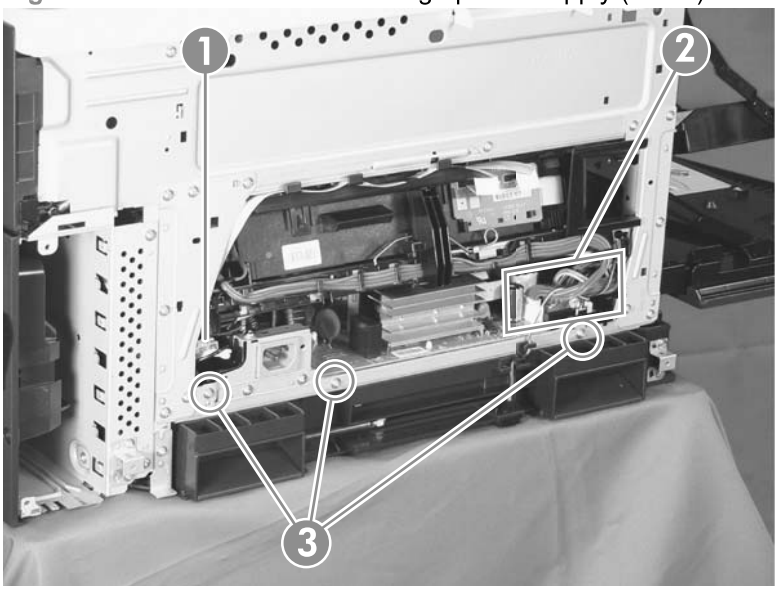
△ **CAUTION:** ESD-sensitive part.

CAUTION: Unplug the power cord from the product before proceeding.

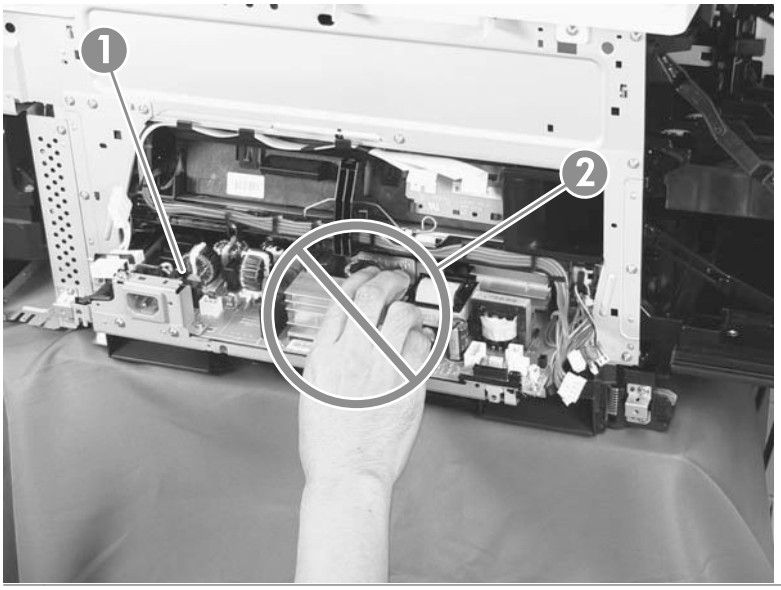
1. Remove Tray 2 and open the front door.

2. Disconnect one connector (callout 1), disconnect seven connectors (callout 2), and then remove three screws (callout 3) that have a triangular icon next to them.

Figure 2-92 Remove the low-voltage power supply (1 of 3)



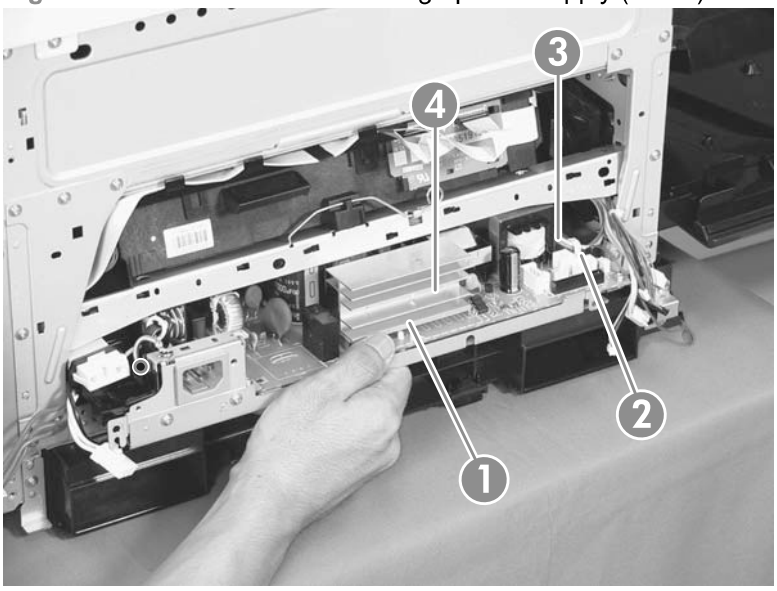
⚠ **WARNING!** When disassembling the low-voltage power supply unit (callout 1), do not touch the electric element (callout 2) as shown. Be sure to hold the bottom side of the low-voltage power supply unit.



3. Pull the low-voltage power supply unit (callout 1) forward, and then release the cables (callout 3) from the front cable clamp (callout 2).

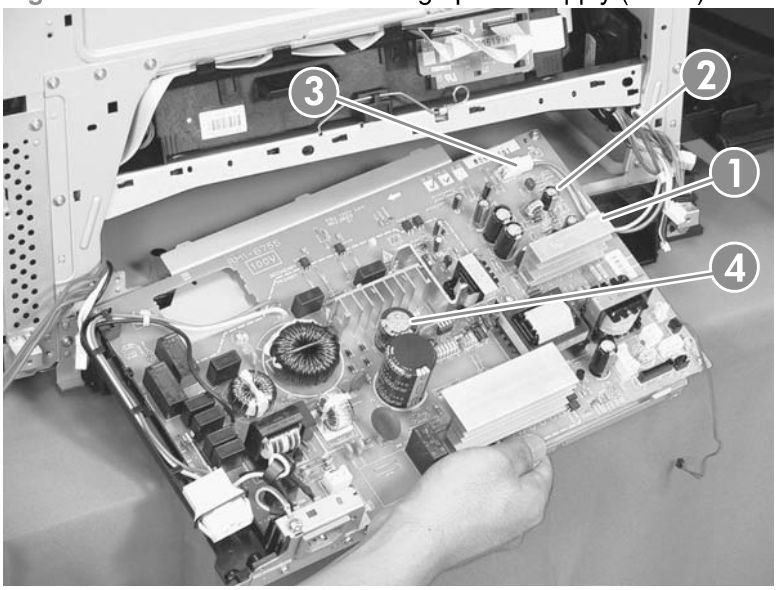
⚠ **WARNING!** Do not use the power supply electic element (callout 1) as a handle to pull out the power supply.

Figure 2-93 Remove the low-voltage power supply (2 of 3)

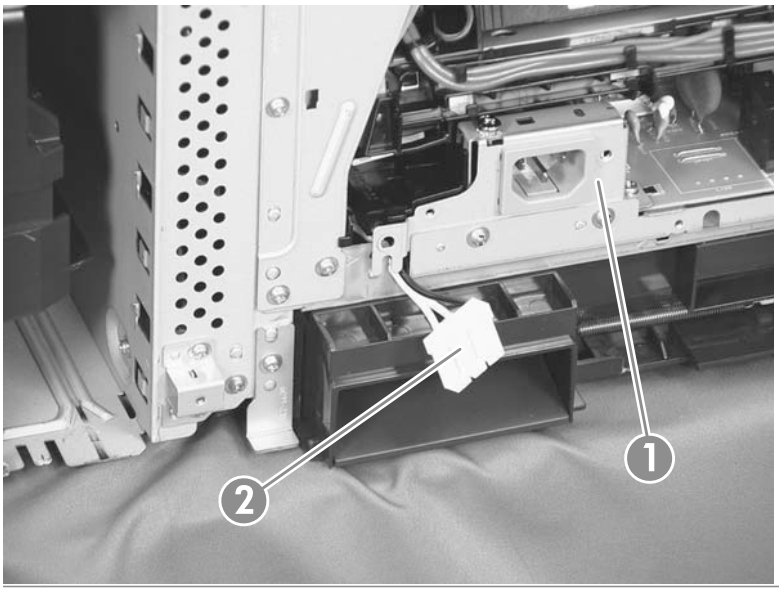


4. Release the cables (callout 2) from the rear cable clamp (callout 1), disconnect one rear connector (callout 3), and then remove the low-voltage power supply unit (callout 4).

Figure 2-94 Remove the low-voltage power supply (3 of 3)



Reinstallation tip When reassembling the low-voltage power supply unit (callout 1), be careful not to catch the AC cables (callout 2) in the low-voltage power supply unit.



Imaging (developing) high-voltage power supply

Before proceeding, remove the following components:

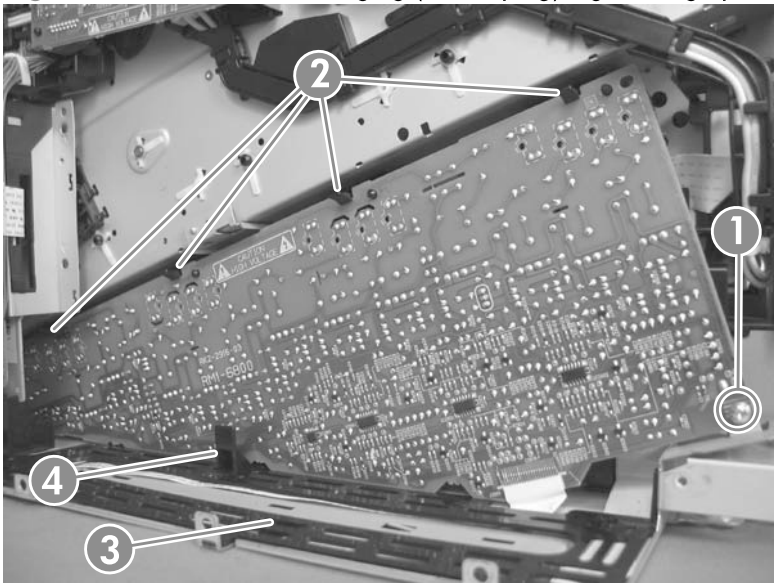
- Rear cover. See Rear cover on page 93.
- Right-rear cover. See Right-rear cover on page 95.
- Formatter case. See Formatter case on page 123.

Remove the imaging (developing) high-voltage power supply

△ **CAUTION:** ESD-sensitive part.

☐ Remove one screw (callout 1), release four tabs (callout 2), remove the cable routing plate (callout 3), and then remove the imaging (developing) high-voltage power supply PCA.

Figure 2-95 Remove the imaging (developing) high-voltage power supply



Reinstallation tip Reinsert the power supply by angling the smaller left end behind the DC controller and driver PCA. Ensure that the power supply sits behind the black tab (callout 4). Carefully press the power supply to engage all four tabs.

First transfer high-voltage power supply

Before proceeding, remove the following components:

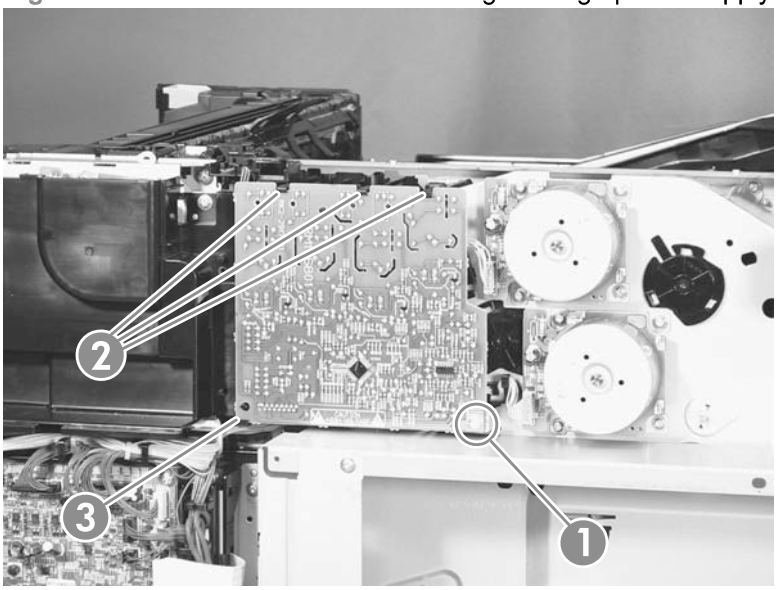
- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.
- Right-rear cover. See Right-rear cover on page 95.
- Left cover. See Left cover on page 92.
- Rear cover. See Rear cover on page 93.
- Top cover. See Top cover on page 96.
- Toner collection unit. See Toner-collection unit on page 72.
- Toner collection unit access door. See Toner collection unit access door on page 93.
- Toner cover. See the first step of Residual toner full sensor on page 120.

Remove the first transfer high-voltage power supply

△ **CAUTION:** ESD-sensitive part.

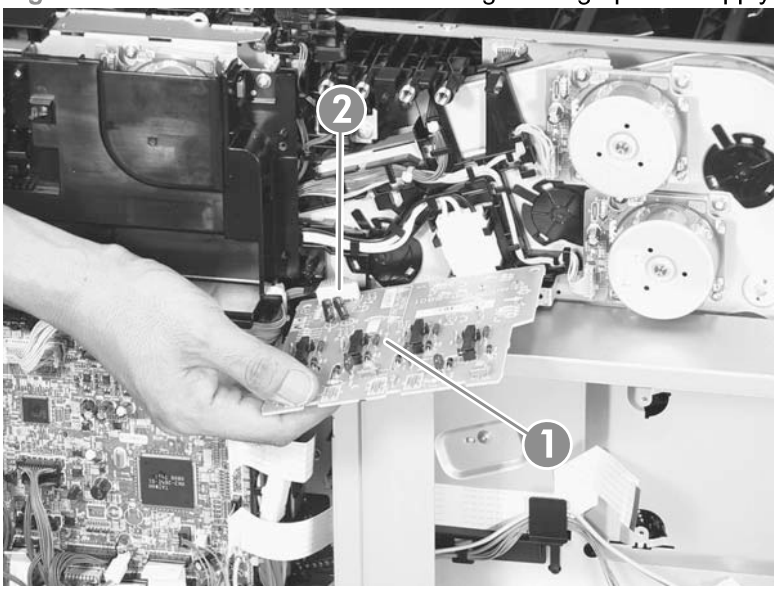
1. Remove one screw (callout 1), release three tabs (callout 2), and then slide the power supply off the alignment post (callout 3).

Figure 2-96 Remove the first transfer high-voltage power supply (1 of 2)



2. Disconnect one connector (callout 2), and then remove the first transfer high-voltage power supply PCA (callout 1).

Figure 2-97 Remove the first transfer high-voltage power supply (2 of 2)



Second transfer high-voltage power supply

Before proceeding, remove the following components:

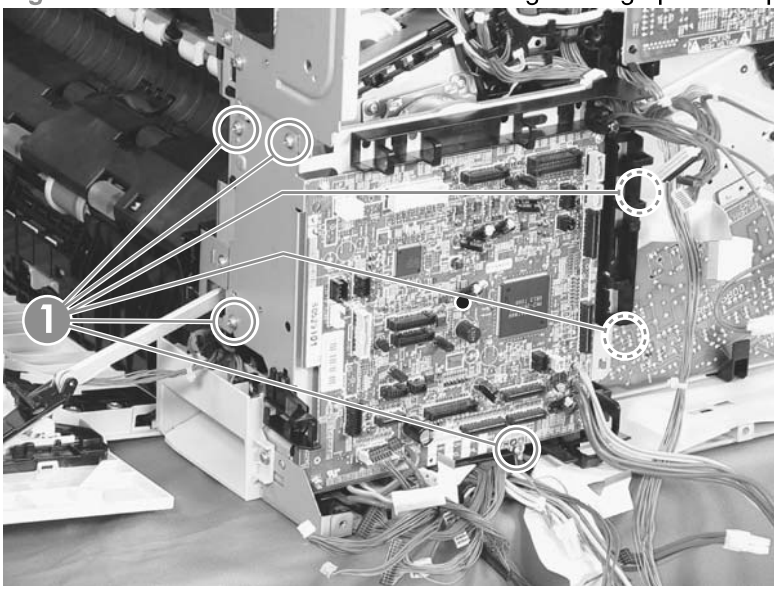
- Rear cover. See Rear cover on page 93.
- Right-rear cover. See Right-rear cover on page 95.

Remove the second transfer high-voltage power supply

△ **CAUTION:** ESD-sensitive part.

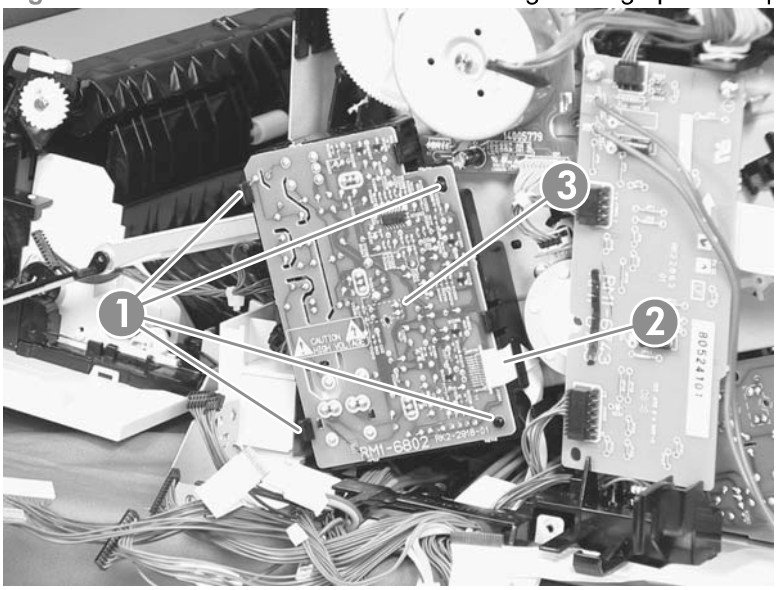
1. Remove the DC controller and the DC controller support by releasing the cables from the guides, and then removing six screws (callout 1).

Figure 2-98 Remove the second transfer high-voltage power supply (1 of 2)



2. Release four tabs (callout 1), and then unroute the cable (callout 2) as you remove the second transfer high-voltage power supply (callout 3).

Figure 2-99 Remove the second transfer high-voltage power supply (2 of 2)



Driver PCA

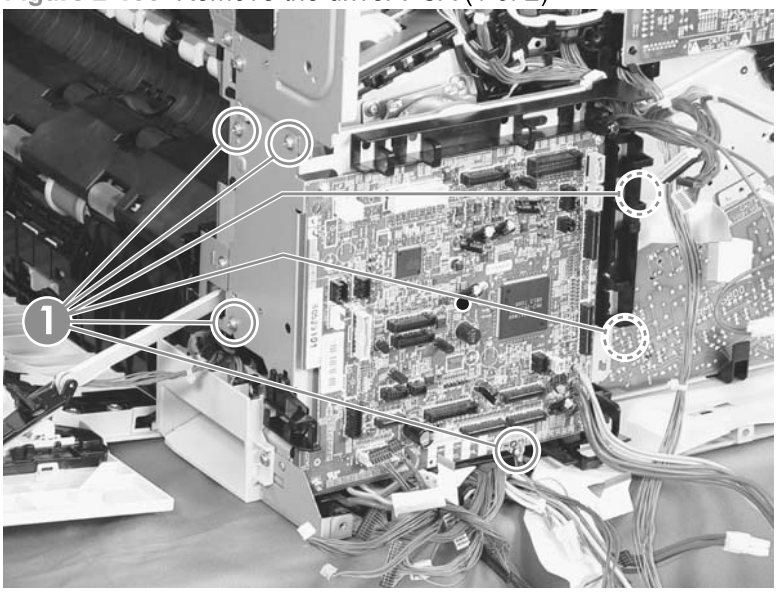
- Rear cover. See Rear cover on page 93.
- Right-rear cover. See Right-rear cover on page 95.
- DC controller. See DC controller PCA on page 146.

Remove the driver PCA

△ **CAUTION:** ESD-sensitive part.

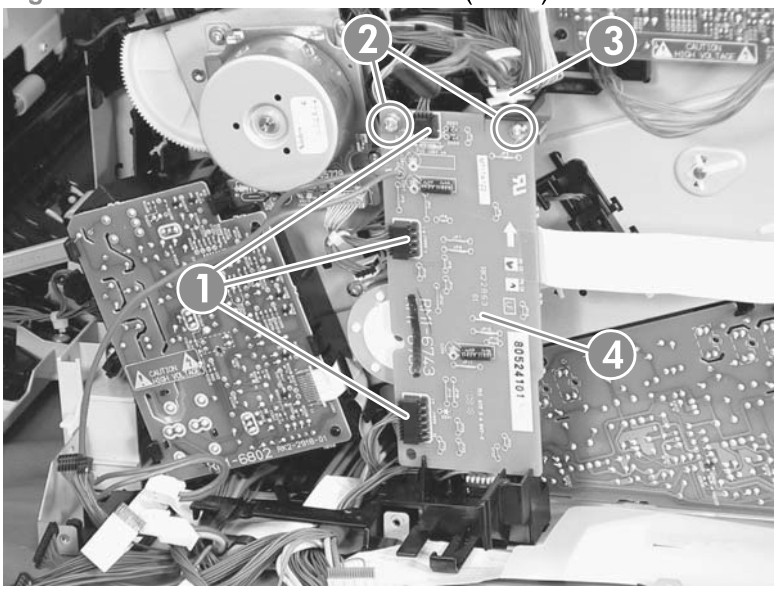
1. Remove the DC controller and the DC controller support by releasing the cables from the guides, and then removing six screws (callout 1).

Figure 2-100 Remove the driver PCA (1 of 2)



2. Disconnect three connectors (callout 1), remove two screws (callout 2), and then unroute the cable (callout 3) as you remove the driver PCA (callout 4).

Figure 2-101 Remove the driver PCA (2 of 2)



Power switch PCA

Before proceeding, remove the following components:

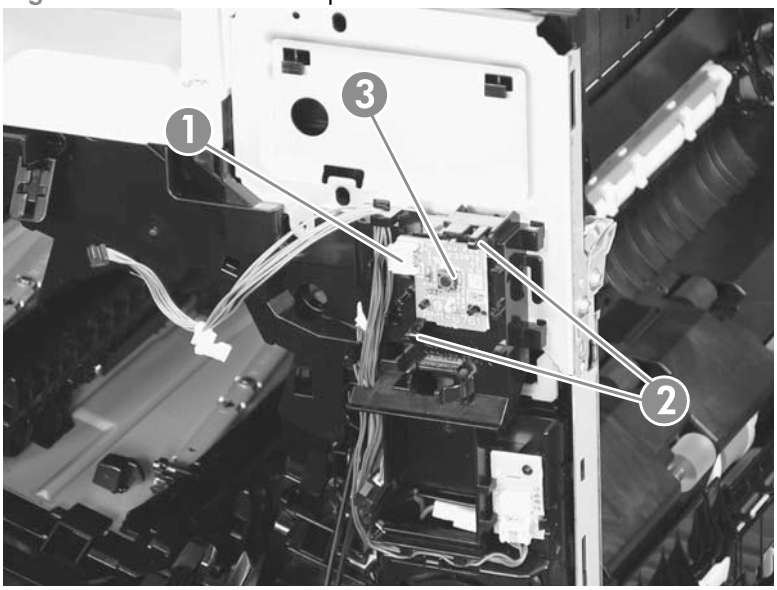
- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.

Remove the power switch PCA

△ **CAUTION:** ESD-sensitive part.

1. Open the front door and the right door.
2. Disconnect one connector (callout 1), release two tabs (callout 2), and then remove the PCA (callout 3).

Figure 2-102 Remove the power switch PCA



Environmental sensor

Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See Right-front cover and control-panel assembly on page 90.

Remove the environmental sensor

1. Open the front door and the right door.
2. Disconnect one connector (callout 1), release one tab (callout 2), and then remove the environmental sensor (callout 3).

Figure 2-103 Remove the environmental sensor

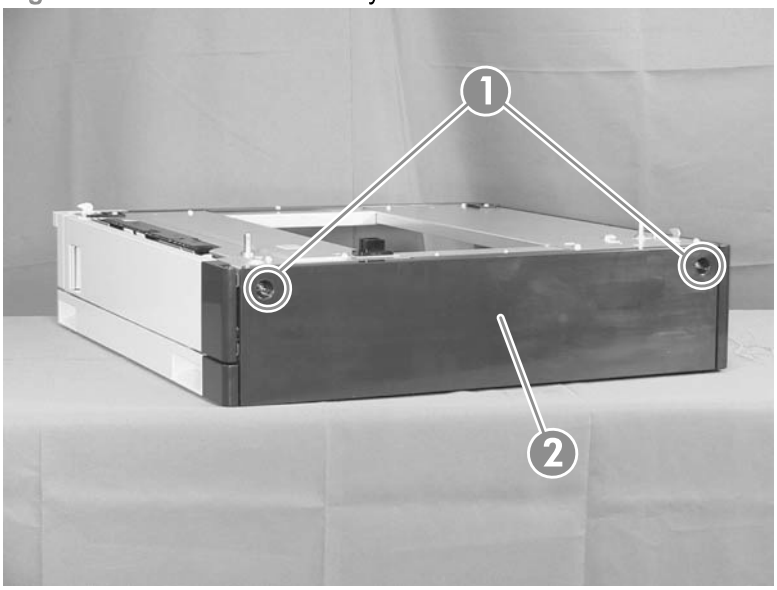


Optional paper feeder assembly (Tray 3)

Tray 3 rear cover

☐ Remove two screws (callout 1), and then remove the rear cover (callout 2).

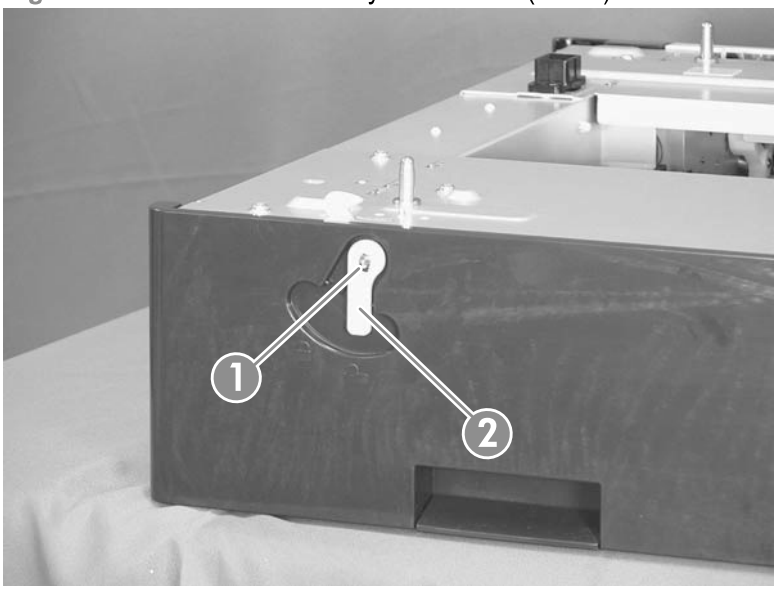
Figure 2-104 Remove the Tray 3 rear cover



Tray 3 left cover

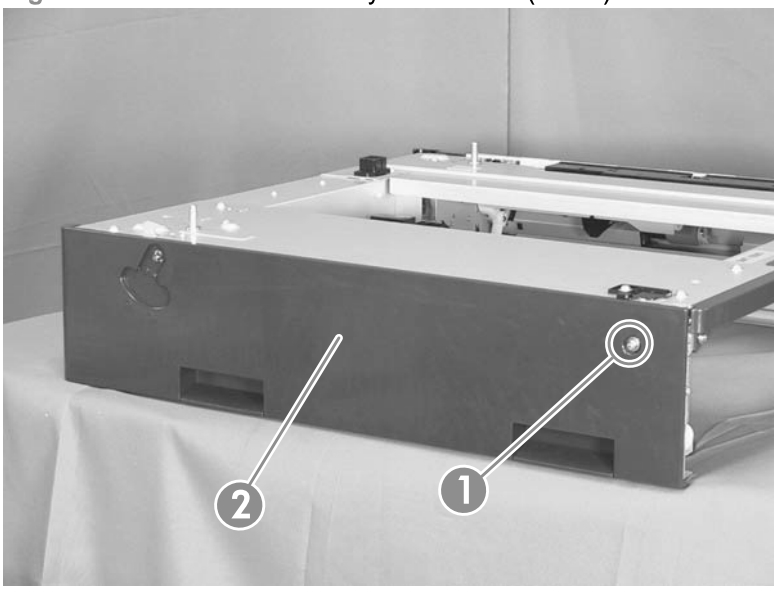
1. Take the tray out of the feeder, release one tab (callout 1), and then remove the lever (callout 2).

Figure 2-105 Remove the Tray 3 left cover (1 of 2)

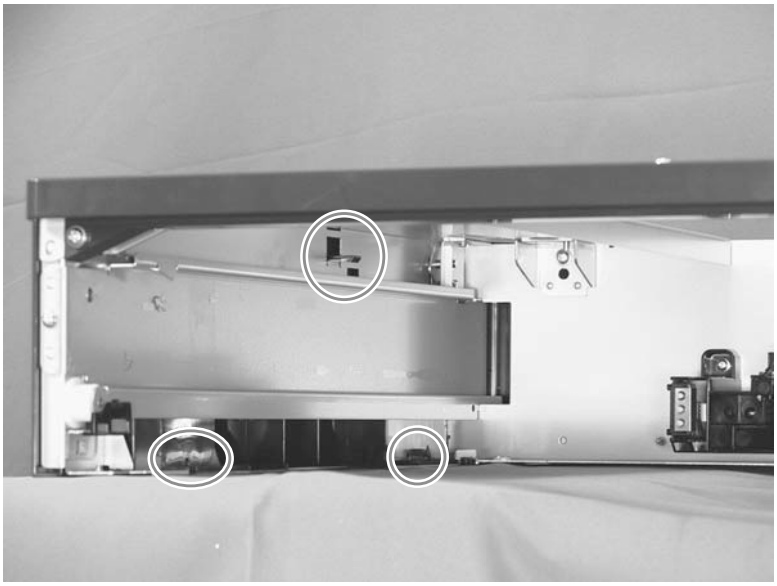


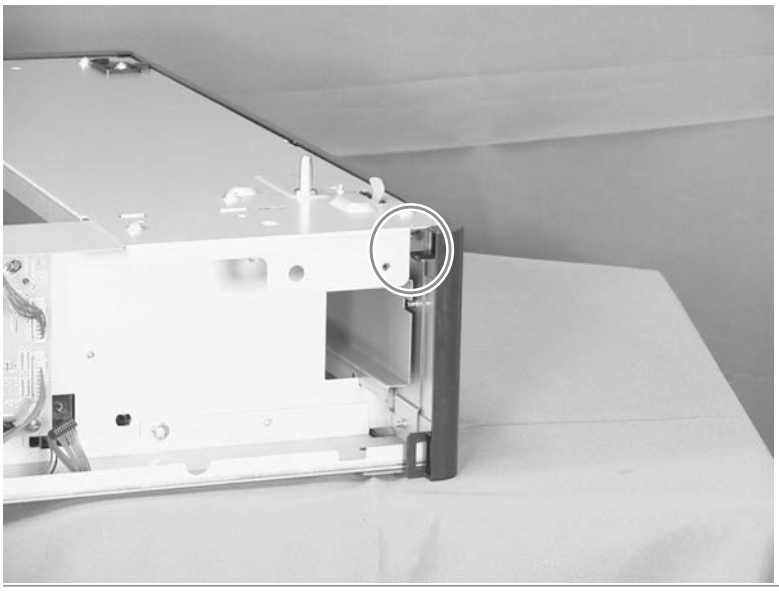
2. Remove one screw (callout 1), release four tabs (see the tip that follows this step) from the inside, and then remove the left cover (callout 2).

Figure 2-106 Remove the Tray 3 left cover (2 of 2)



TIP: The following figures show the tabs inside the cover.



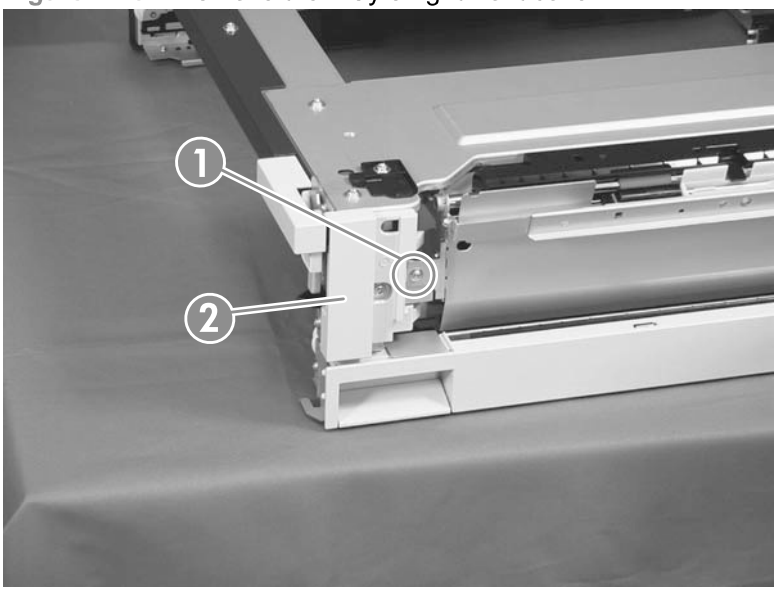


Tray 3 right-front cover

1. Take the tray out of the feeder, and then open the right door.

2. Remove one screw (callout 1), and then remove the right-front cover (callout 2).

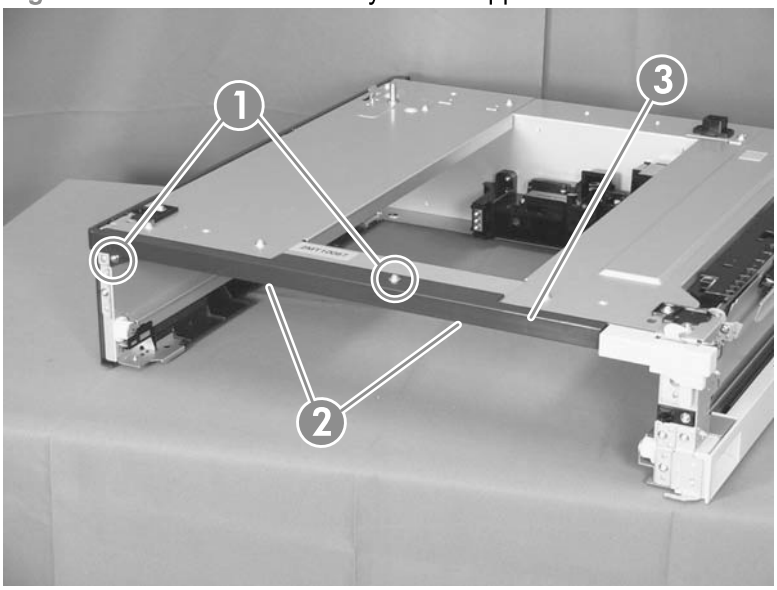
Figure 2-107 Remove the Tray 3 right-front cover



Tray 3 front-upper cover

1. Remove the tray from the feeder, and then remove the right-front cover (see Tray 3 right-front cover on page 163).
2. Remove two screws (callout 1), release two tabs (callout 2), and then remove the front upper cover unit (callout 3).

Figure 2-108 Remove the Tray 3 front-upper cover



Tray 3 right door

1. Lift the product off the feeder, and then open the tray right door.

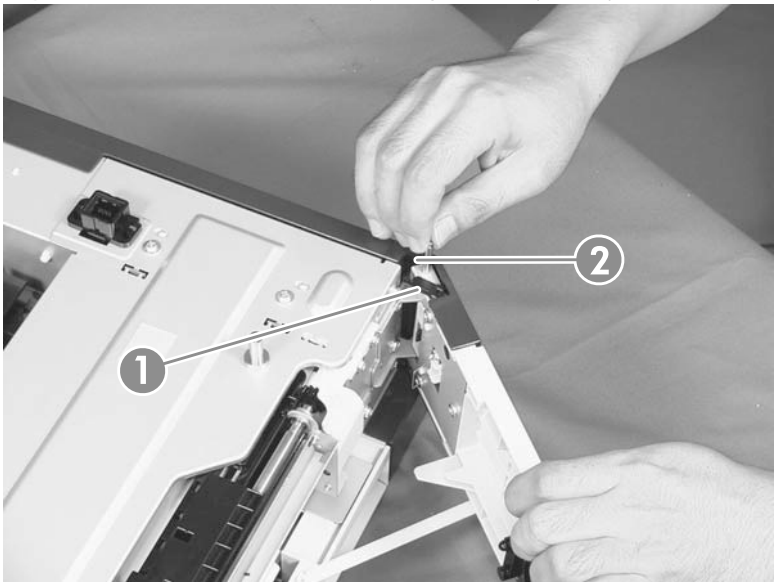
2. Release the link arm (callout 1).

Figure 2-109 Remove the Tray 3 right door (1 of 3)



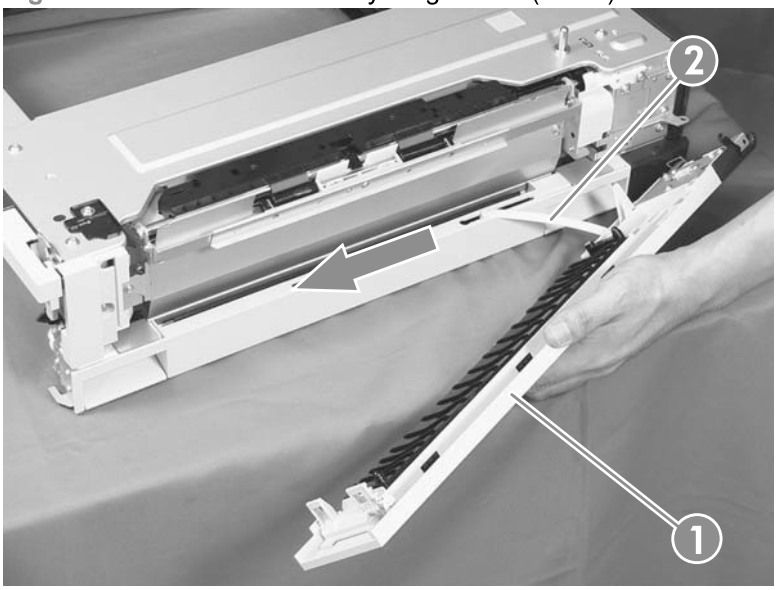
3. Release the stopper (callout 1), and then release the shaft (callout 2).

Figure 2-110 Remove the Tray 3 right door (2 of 3)



4. Slide the right door (callout 1) and the arm (callout 2) in the direction that the arrow indicates to remove them together, and then remove the arm from the right door unit.

Figure 2-111 Remove the Tray 3 right door (3 of 3)

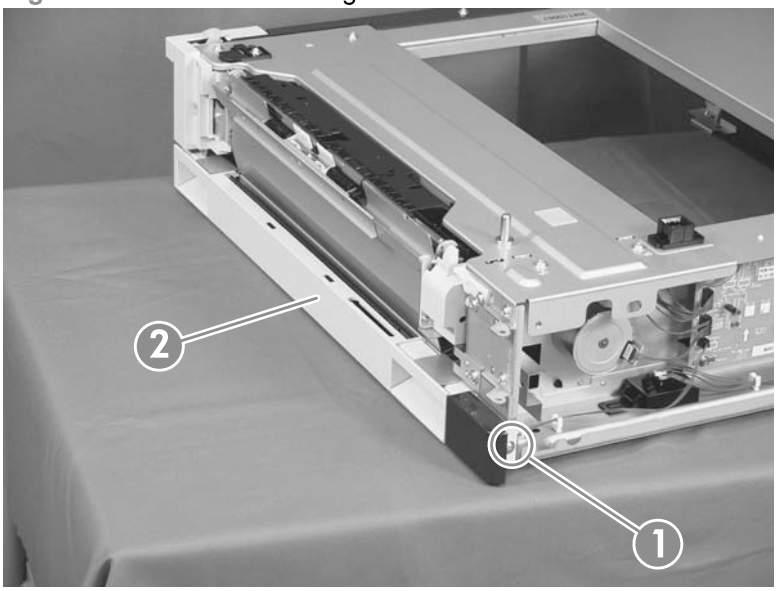


Tray 3 right-lower cover

1. Remove the tray from the feeder, and then remove the right door (see Tray 3 right door on page 164).

2. Remove one screw (callout 1), and then slide the cover (callout 2) to the right to clear an alignment pin at the left side of the cover.

Figure 2-112 Remove the right-lower cover



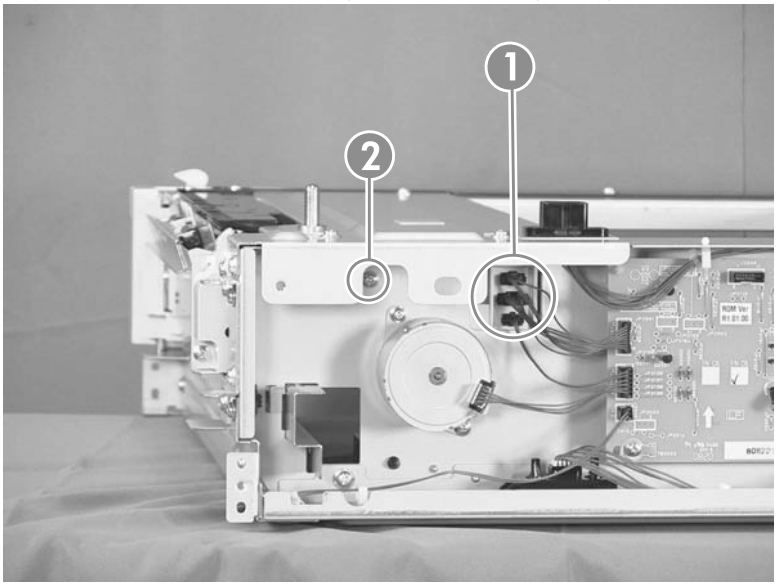
Tray 3 pickup assembly

Before proceeding, remove the following components:

- Rear cover. See Tray 3 rear cover on page 161.
- Right-front cover. See Tray 3 right-front cover on page 163.
- Right-lower cover. See Tray 3 right-lower cover on page 166.

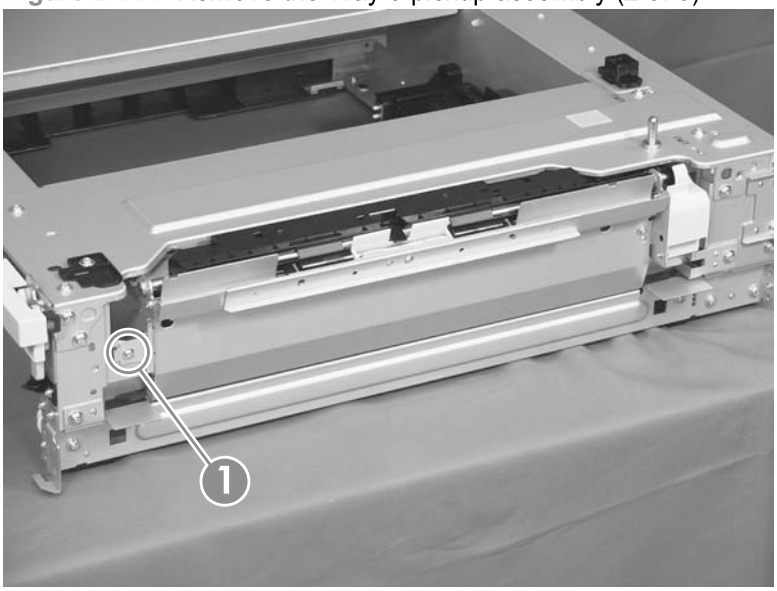
1. Disconnect three connectors (callout 1), and then remove one screw (callout 2).

Figure 2-113 Remove the right lower cover (1 of 3)



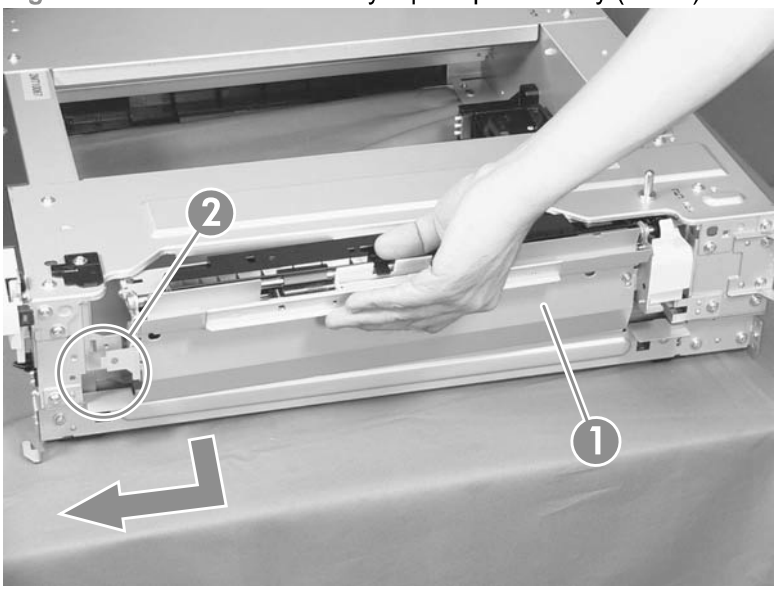
2. Remove one screw (callout 1).

Figure 2-114 Remove the Tray 3 pickup assembly (2 of 3)

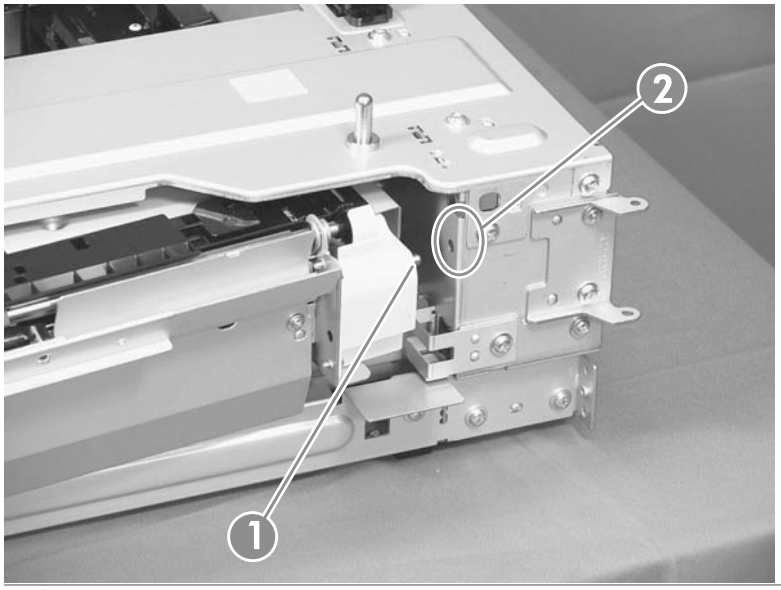


3. Lift the Tray 3 pickup assembly (callout 1) slightly to clear a tab (callout 2), and then slide it in the direction that the arrow indicates to remove it.

Figure 2-115 Remove the Tray 3 pickup assembly (3 of 3)



Reinstallation tip When reassembling the Tray 3 pickup assembly, be sure to fit the shaft (callout 1) on the assembly to the hole (callout 2) in the feeder.

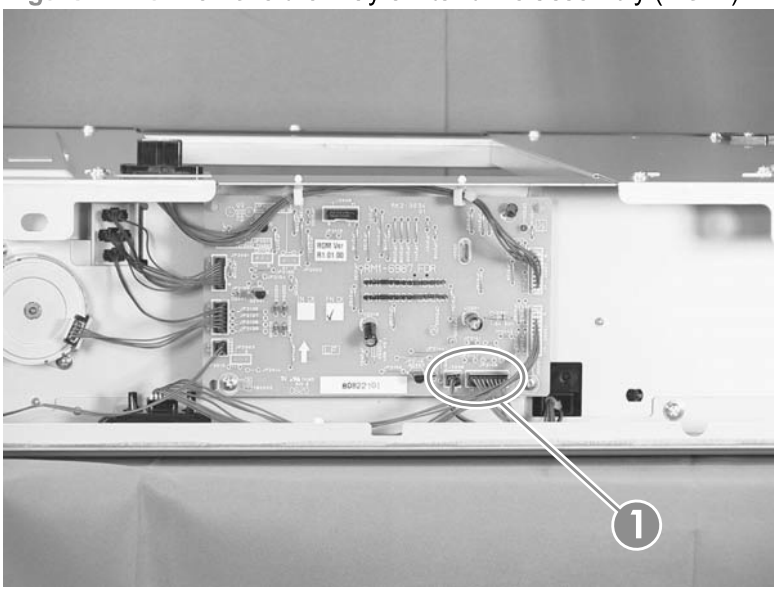


Tray 3 lifter drive assembly

1. Remove the tray from the feeder, and then remove the rear cover (see Tray 3 rear cover on page 161).

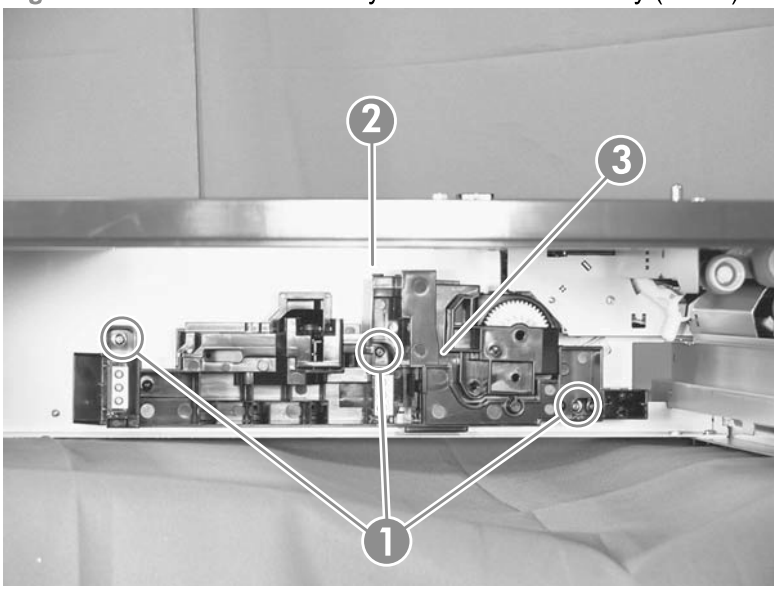
2. Disconnect two connectors (callout 1).

Figure 2-116 Remove the Tray 3 lifter drive assembly (1 of 2)



3. From the front, inside the tray cavity, remove three screws (callout 1), release one tab (callout 2), and then remove the Tray 3 lifter drive assembly (callout 3).

Figure 2-117 Remove the Tray 3 lifter drive assembly (2 of 2)

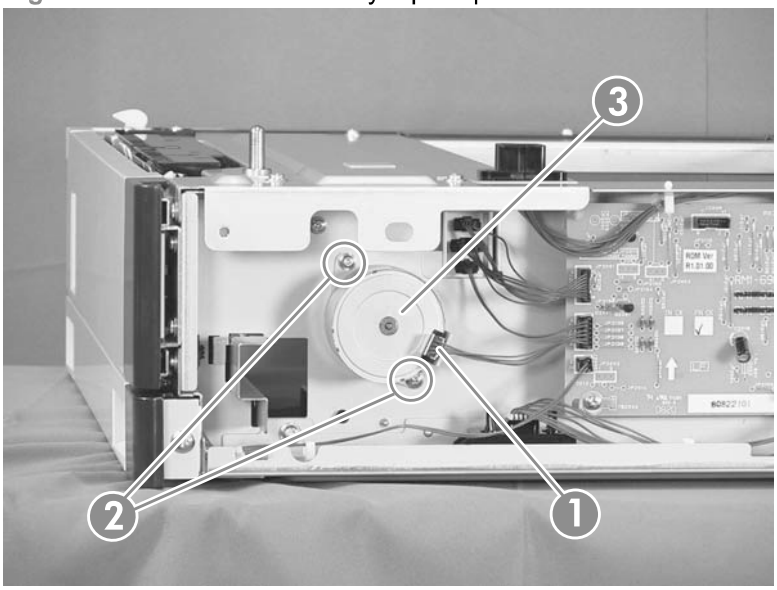


Tray 3 pickup motor

1. Remove the tray from the feeder, and then remove the rear cover (see Tray 3 rear cover on page 161).

2. Disconnect one connector (callout 1), remove two screws (callout 2), and then remove the Tray 3 pickup motor (callout 3).

Figure 2-118 Remove the Tray 3 pickup motor

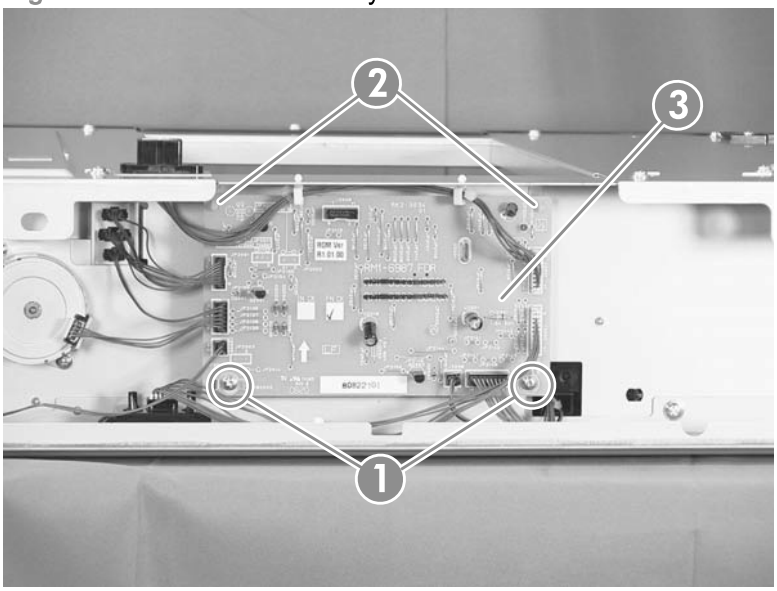


Tray 3 driver PCA

1. Remove the tray from the feeder, and then remove the rear cover (see Tray 3 rear cover on page 161).

2. Disconnect seven connectors, remove two screws (callout 1), release two tabs (callout 2), and then remove the Tray 3 driver PCA (callout 3).

Figure 2-119 Remove the Tray 3 driver PCA



3 Solve problems

To use the information in this chapter, you should have a basic understanding of the HP LaserJet printing process. Explanations of each mechanical assembly, the printer systems, and the basic theory of operation are contained in Theory of operation on page 1. Do not perform any of these troubleshooting processes unless you understand the function of each product component.

- Solve problems checklist
- Menu map
- Troubleshooting process
- Tools for troubleshooting
- Clear jams
- Solve image-quality problems
- Clean the product
- Solve performance problems
- Solve connectivity problems
- Service mode functions
- Product updates

Solve problems checklist

If you are experiencing problems with the product, use the following checklist to identify the cause of the problem:

- Is the product connected to power?
- Is the product on?
- Is the product in the **Ready** state?
- Are all necessary cables connected?
- Are any lights flashing or do any messages appear on the control panel?
- Are genuine HP supplies installed?
- Was a recently replaced print cartridge installed correctly?

For additional information about installation and setup, see the product getting started guide.

If you cannot find solutions to problems in this guide, go to www.hp.com/support/ljcp5220series.

Menu map

Print a menu map

1. Press OK to open the menus.
2. Use the arrow buttons to navigate to the **Reports** submenu, and then press OK.
3. Use the arrow buttons to navigate to the **Menu structure** submenu, and then press OK to print the menu structure.
4. After the report prints, press X to exit the menus.

Troubleshooting process

When the product malfunctions or encounters an unexpected situation, the product control panel alerts you to the situation. This chapter contains information to help diagnose and solve problems.

- Use the pretroubleshooting checklist to evaluate the source of the problem and to reduce the number of steps that are required to fix the problem.
- 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.

Pretroubleshooting checklist

The following table includes basic questions to ask the customer to quickly help define the problem.

General topic	Questions
Environment	• Is the product installed on a solid, level surface (+/- 1°)? • Is the power-supply voltage within ± 10 volts of the specified power source? • Is the power-supply plug inserted in the product and the outlet? • Is the operating environment within the specified parameters? • Is the product exposed to ammonia gas, such as that produced by diazo copiers or office cleaning materials? **NOTE:** Diazo copiers produce ammonia gas as part of the coping processes. Ammonia gas (from cleaning supplies or a diazo copier) can have an adverse affect on some product components (for example, the print-cartridge OPC). • Is the product exposed to direct sunlight?
Media	• Does the customer use only supported media? • Is the media in good condition (no curls, folds, or distortion)? • Is the media stored correctly and within environmental limits?
Input trays	• Is the amount of media in the tray within specifications? • Is the media correctly placed in the tray? • Are the paper guides aligned with the stack? • Is the cassette correctly installed in the product?
Print cartridges	• Is each print cartridge installed correctly?
Transfer unit and fuser	• Are the transfer unit and fuser installed correctly?
Doors	• Are the doors closed?

General topic	Questions
Condensation	• Does condensation occur following a temperature change (particularly in winter following cold storage)? If so, wipe affected parts dry or leave the product on for 10 to 20 minutes. • Was a print cartridge opened soon after being moved from a cold to a warm room? If so, allow the print cartridge to sit at room temperature for 1 to 2 hours.
Miscellaneous	• Check for and remove any non-HP components (for example, print cartridges or memory modules) from the product. • Check to see whether the hardware or software configuration has changed or the problem is not associated with any specific software. • Remove the product from the network and ensure that the failure is associated with the product before beginning troubleshooting. • For any print-quality issues, calibrate the product. See Calibrate the product on page 210

Power-on checks

When you turn on the product, if it does not make any sound or if the control-panel display is blank, check the following items:

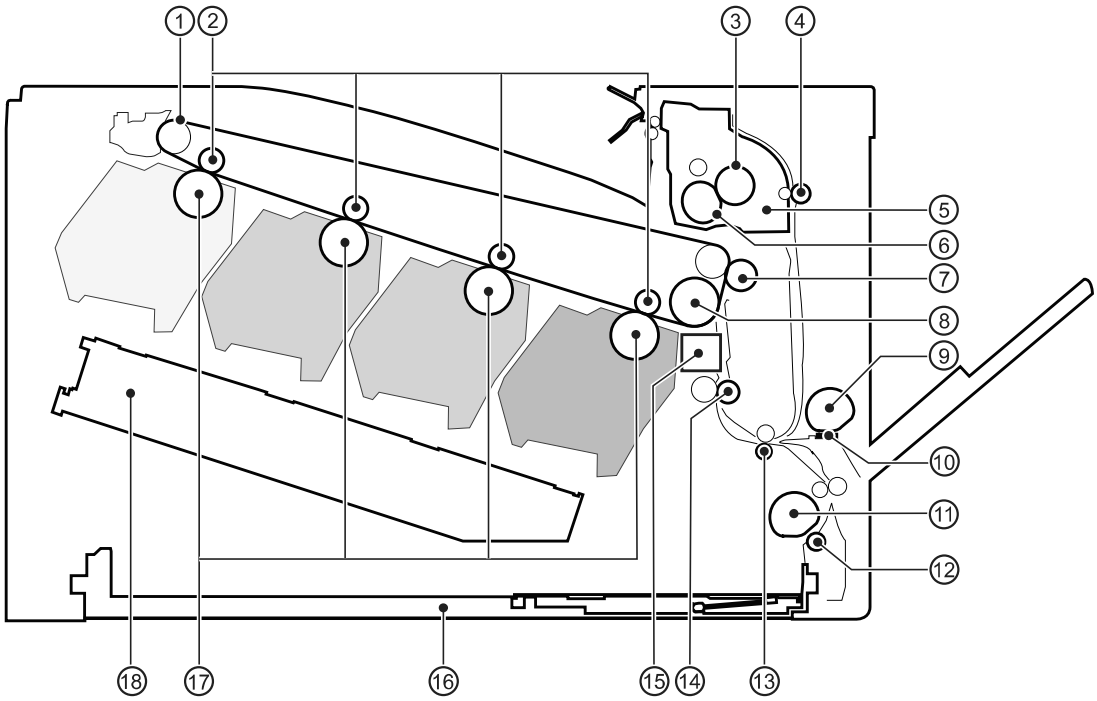
- Verify that the product is plugged directly into an active electrical outlet that has the correct voltage. Do not plug the product into a surge protector or power strip.
- Verify that the power button is illuminated.
- Verify that the formatter is seated correctly.
- Remove any HP Jetdirect or other devices, and then try to turn the product on again.
- Ensure that the control-panel display is connected.
- Check the two fuses on the power supply.
- If necessary, replace the power supply.
- If necessary, replace the DC controller.

Tools for troubleshooting

Diagrams

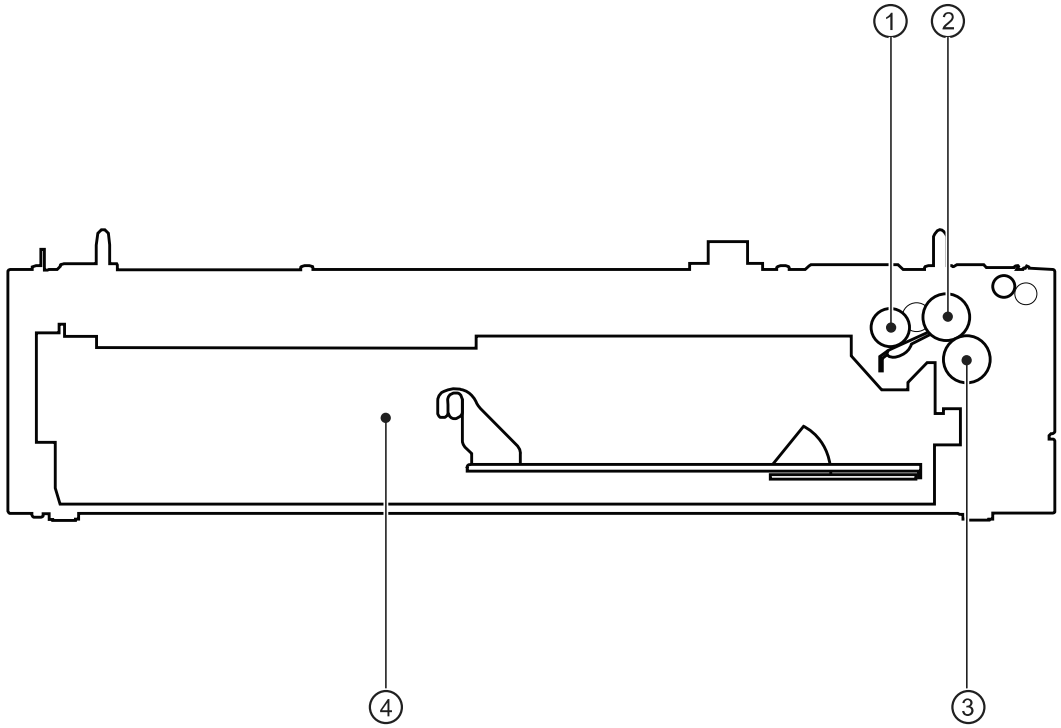
Block diagrams

Figure 3-1 Product cross section



Item	Description	Item	Description
1	ITB	10	MP tray separation pad
2	Primary transfer roller	11	Cassette (Tray 2) pickup roller
3	Pressure roller	12	Cassette separation roller
4	Duplex feed roller	13	Feed roller
5	Fuser	14	Registration roller
6	Fuser sleeve	15	Registration and density sensor
7	Secondary transfer roller	16	Cassette (Tray 2)
8	ITB drive roller	17	Photosensitive drum
9	MP tray (Tray 1) pickup roller	18	Laser scanner unit

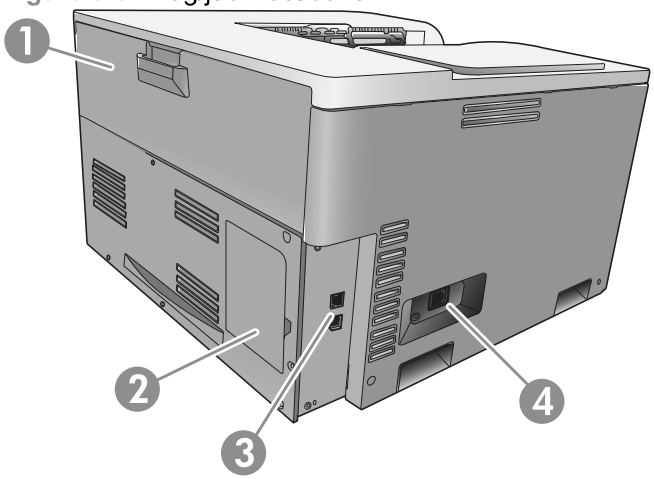
Figure 3-2 Optional paper feeder (Tray 3) cross section



1	Pickup roller
2	Feed roller
3	Separation roller
4	Cassette

Plug/jack locations

Figure 3-3 Plug/jack locations



1	Rear door (for toner collection unit access)
2	DIMM door (for adding memory—one additional DIMM slot is available)
3	Hi-Speed USB 2.0 port and network port (network models only)
4	Power connection

Location of connectors

DC controller connections

Figure 3-4 DC controller connections

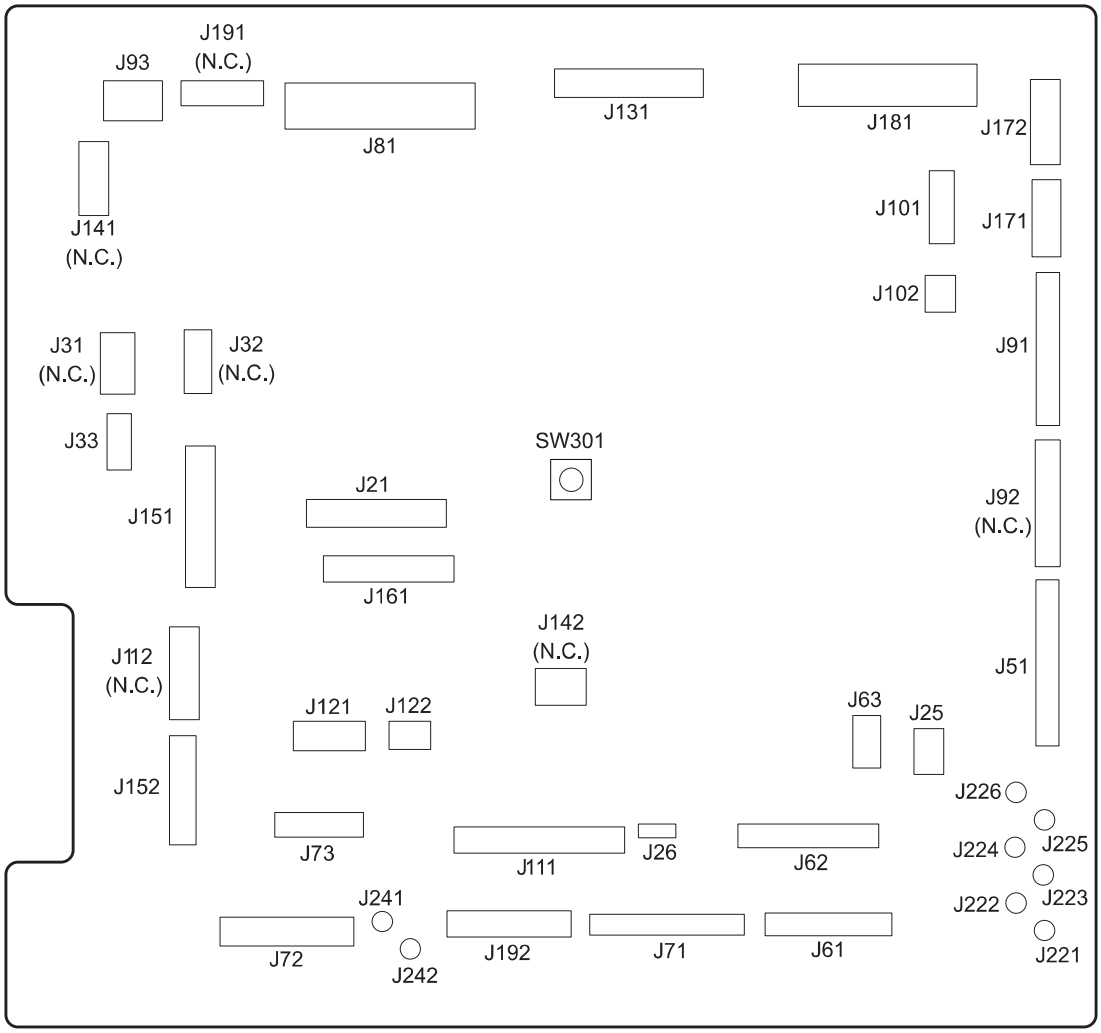


Table 3-1 DC controller connections

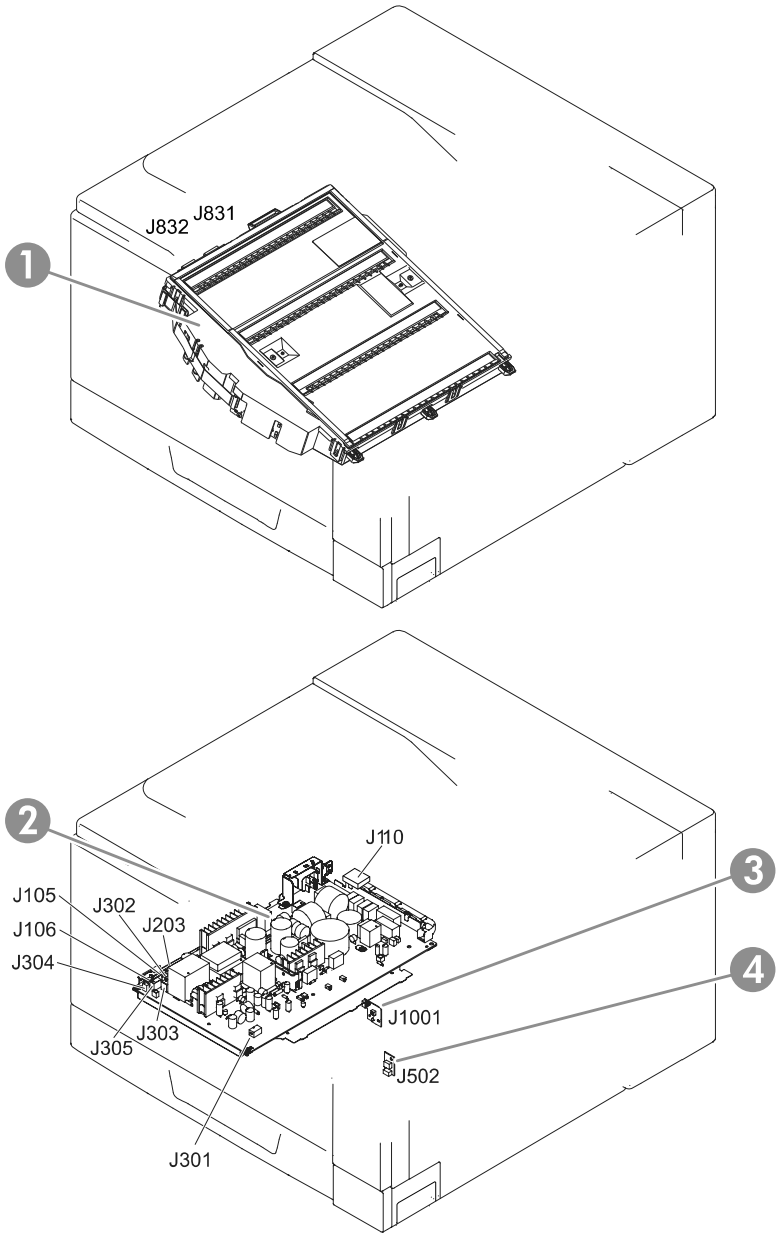
Item	Description	Item	Description	Item	Description
J21	DC controller power	J73	Secondary transfer	J131	Fuser
J25	Low-voltage power supply	J81	ITB motor Fuser motor Drum motor Developing motor	J151	Cassette paper size Cassette paper presence Cassette lifter motor

Table 3-1 **DC controller connections (continued)**

Item	Description	Item	Description	Item	Description
J33	Environment sensor	J91	Duplex reverse solenoid Cassette pickup solenoid Pickup motor Developing disengagement motor	J152	MP tray paper presence MP tray pickup solenoid
J51	Formatter	J93	Driver PCA	J161	Cartridge toner level sensors
J61	Laser scanner	J101	Cartridge memory tag (yellow, magenta, cyan)	J171	Cartridge pre-exposure LEDs
J62	Laser scanner	J102	Cartridge memory tag (black)	J172	Cartridge pre-exposure LEDs
J63	Laser scanner motor	J111	Registration and density sensor	J181	Cartridge drum home-position sensors Right door switch Primary transfer disengagement solenoid Fuser pressure release Output bin full sensor Toner collection unit full sensor ITB waste toner full sensor
J71	Developing high-voltage PCA	J121	Front door switch Fuser fan	J192	Paper feeder
J72	Cartridge primary transfer	J122	Top of page sensor		

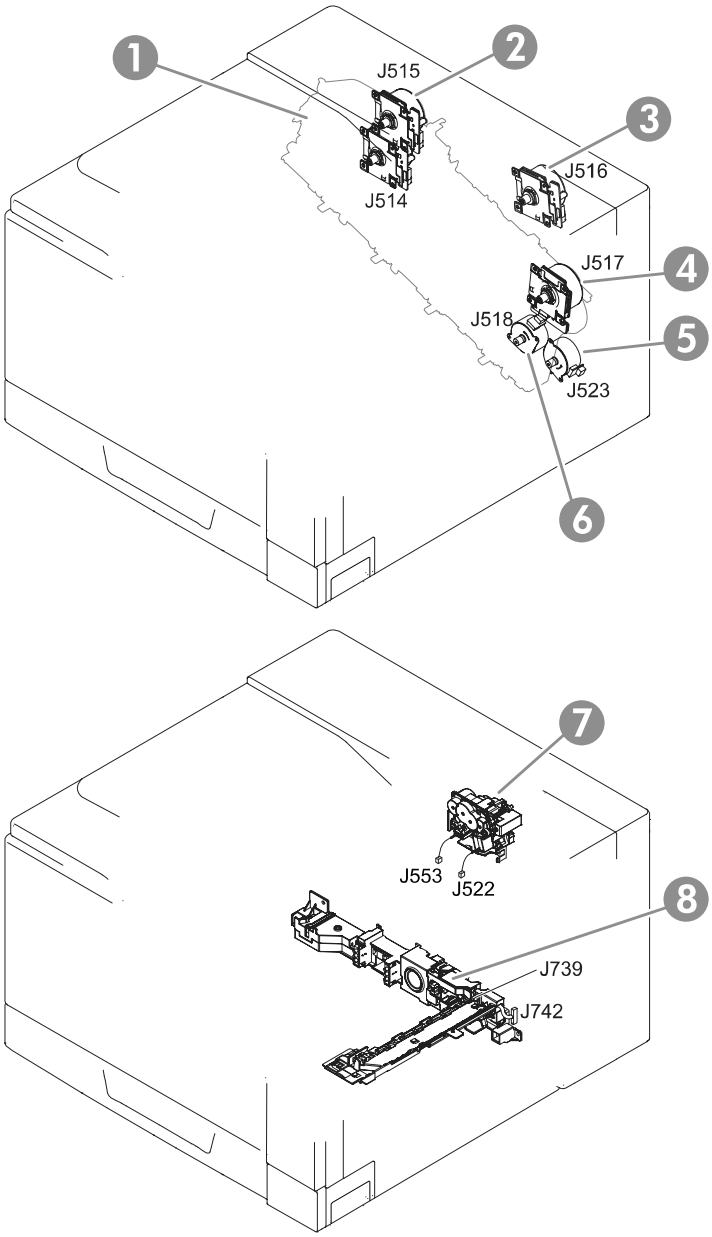
Product connections

Figure 3-5 Product connections (1 of 6)



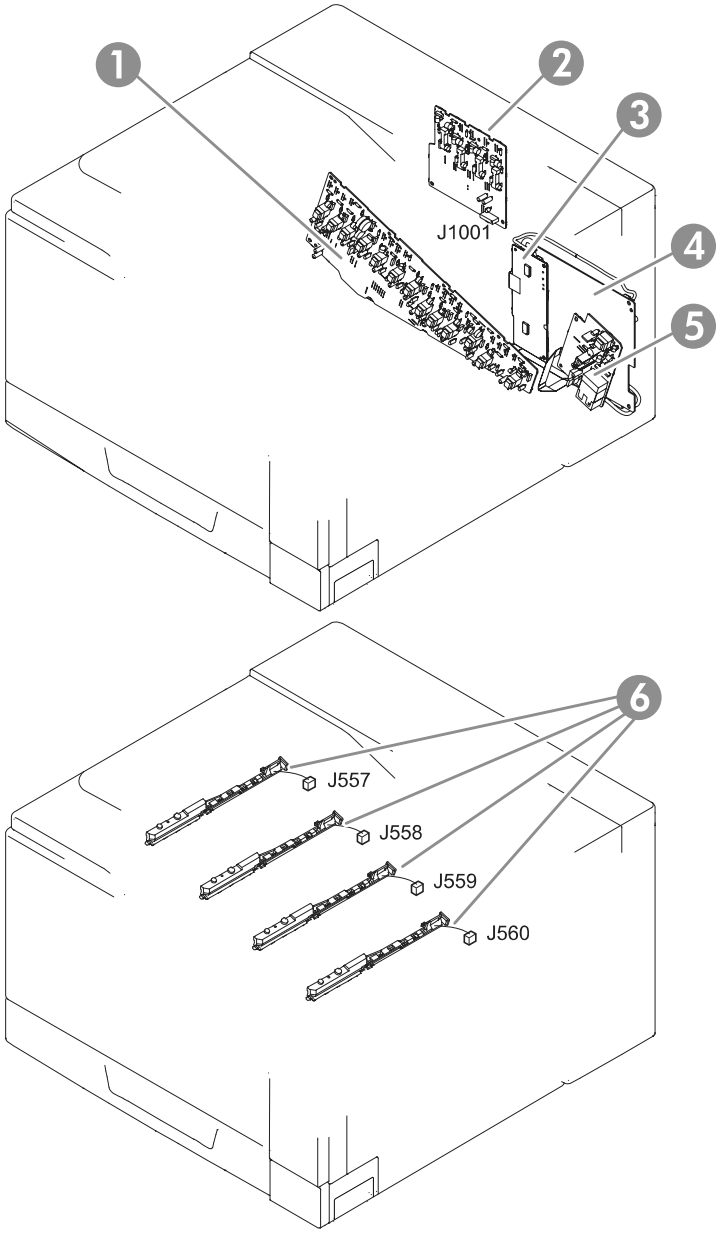
Item	Description
1	Laser scanner unit
2	Low-voltage power supply
3	Power switch PCA
4	Environment sensor

Figure 3-6 Product connections (2 of 6)



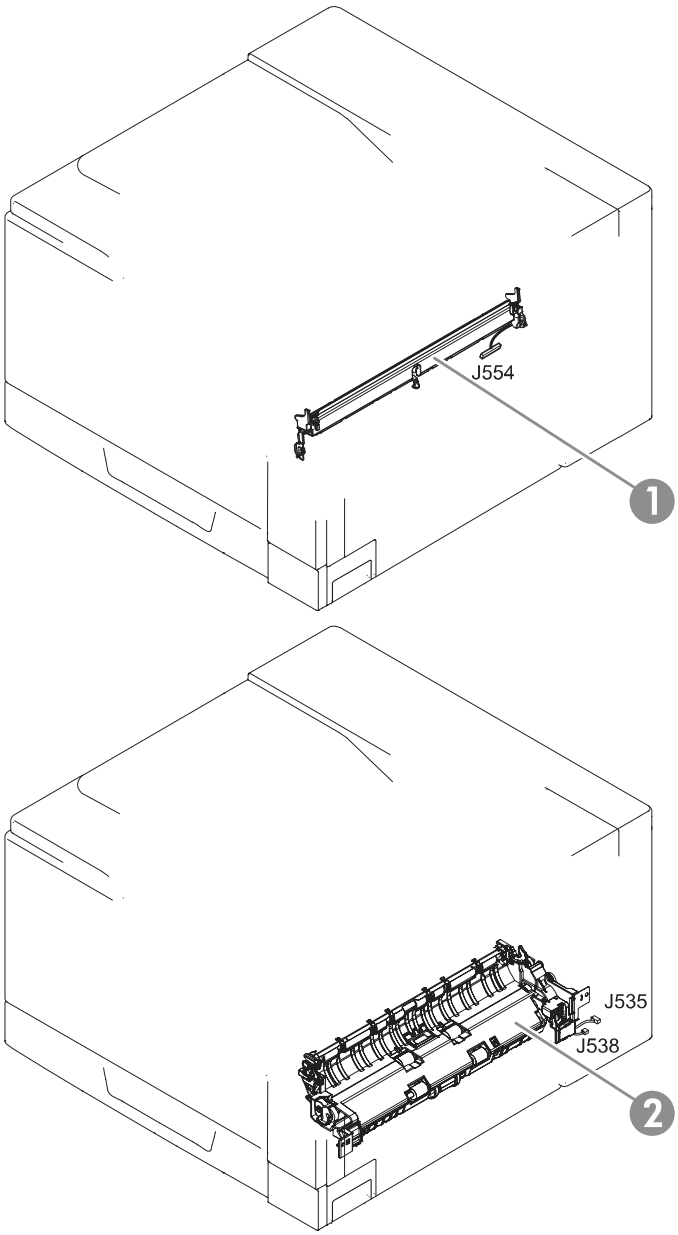
Item	Description
1	Developing motor
2	Drum motor
3	Fuser motor
4	ITB motor
5	Pickup motor
6	Developing disengagement motor
7	Drive unit
8	Lifter drive unit

Figure 3-7 Product connections (3 of 6)



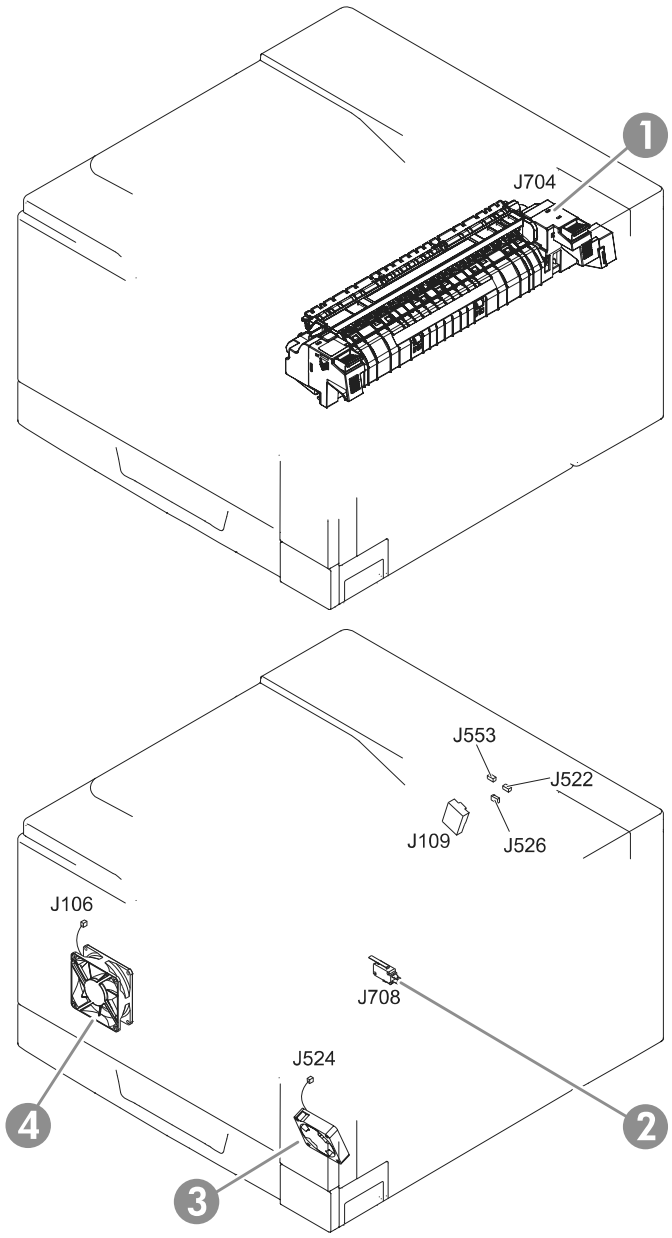
Item	Description
1	High-voltage power supply imaging (developing) PCA
2	High-voltage power supply 1st transfer PCA
3	Driver PCA
4	DC controller PCA
5	High-voltage power supply 2nd transfer PCA
6	ITB waste-toner detection PCAs

Figure 3-8 Product connections (4 of 6)



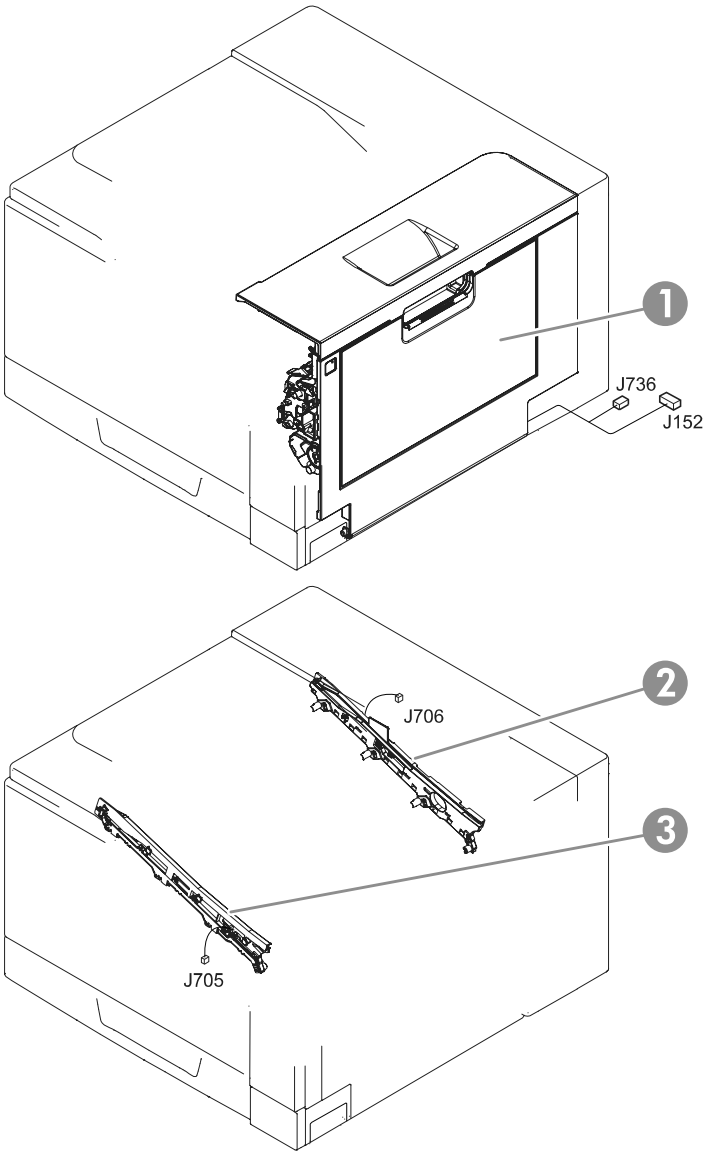
Item	Description
1	Registration sensor assembly
2	Cassette pickup drive unit

Figure 3-9 Product connections (5 of 6)



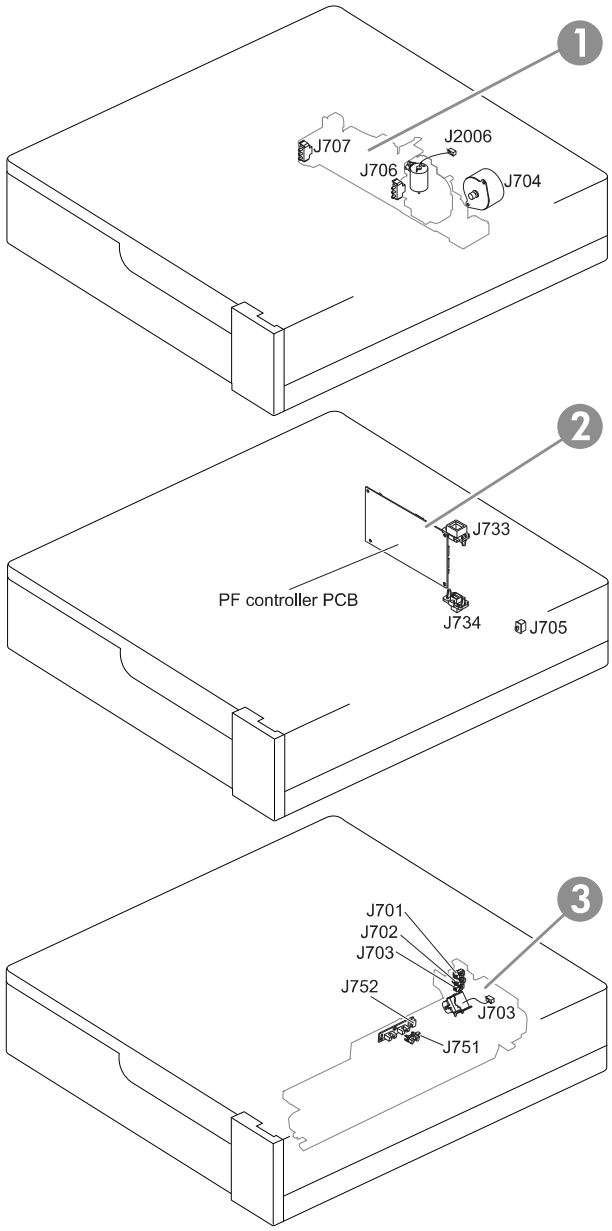
Item	Description
1	Fuser
2	24V interlock switch
3	Fuser fan
4	Power supply fan

Figure 3-10 Product connections (6 of 6)



Item	Description
1	Right door assembly
2	ITB rear guide
3	ITB front guide

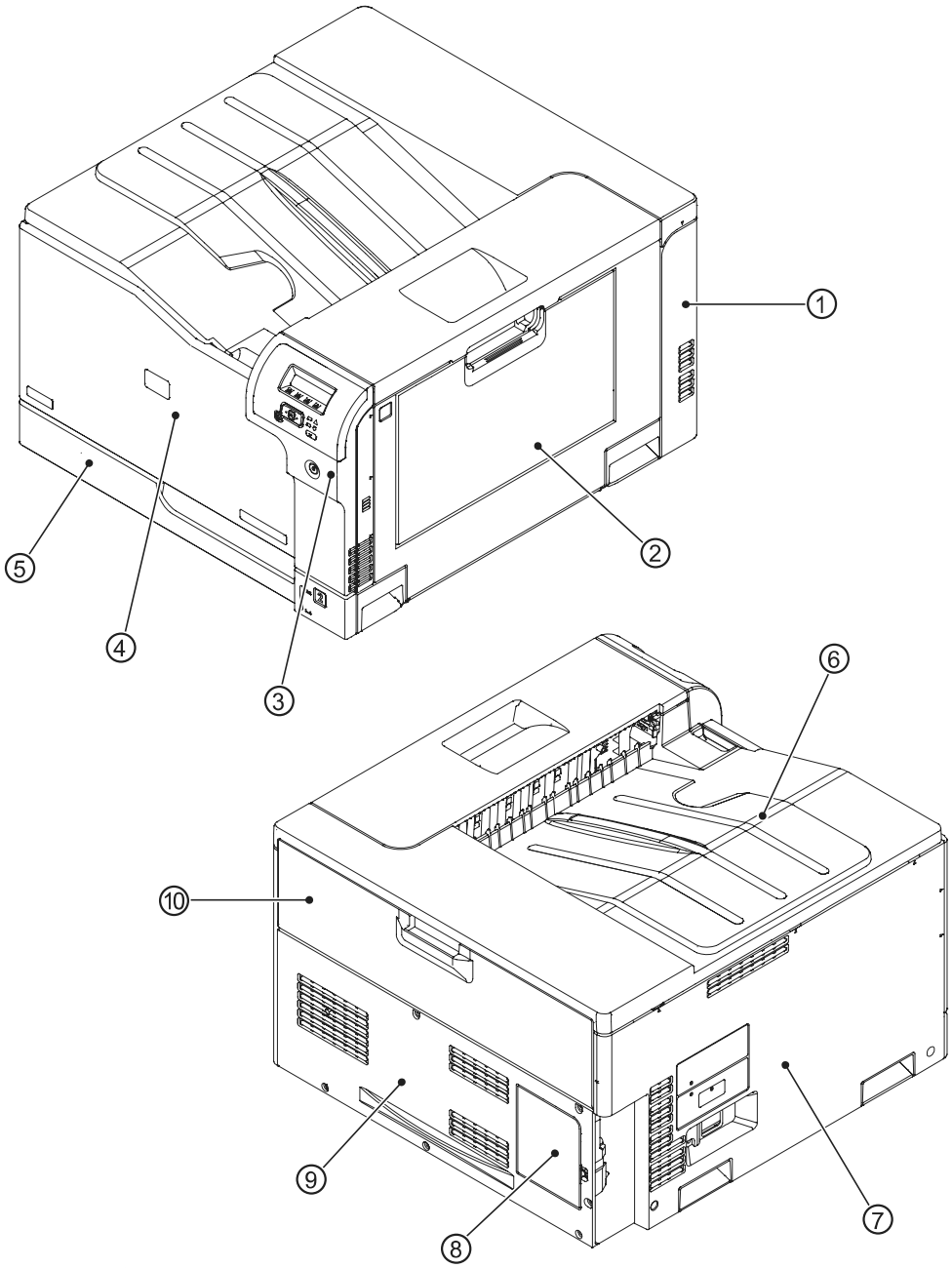
Figure 3-11 Paper feeder connections



Item	Description
1	Paper feeder lifter-drive assembly
2	Paper feeder PCA
3	Paper feeder paper-pickup assembly

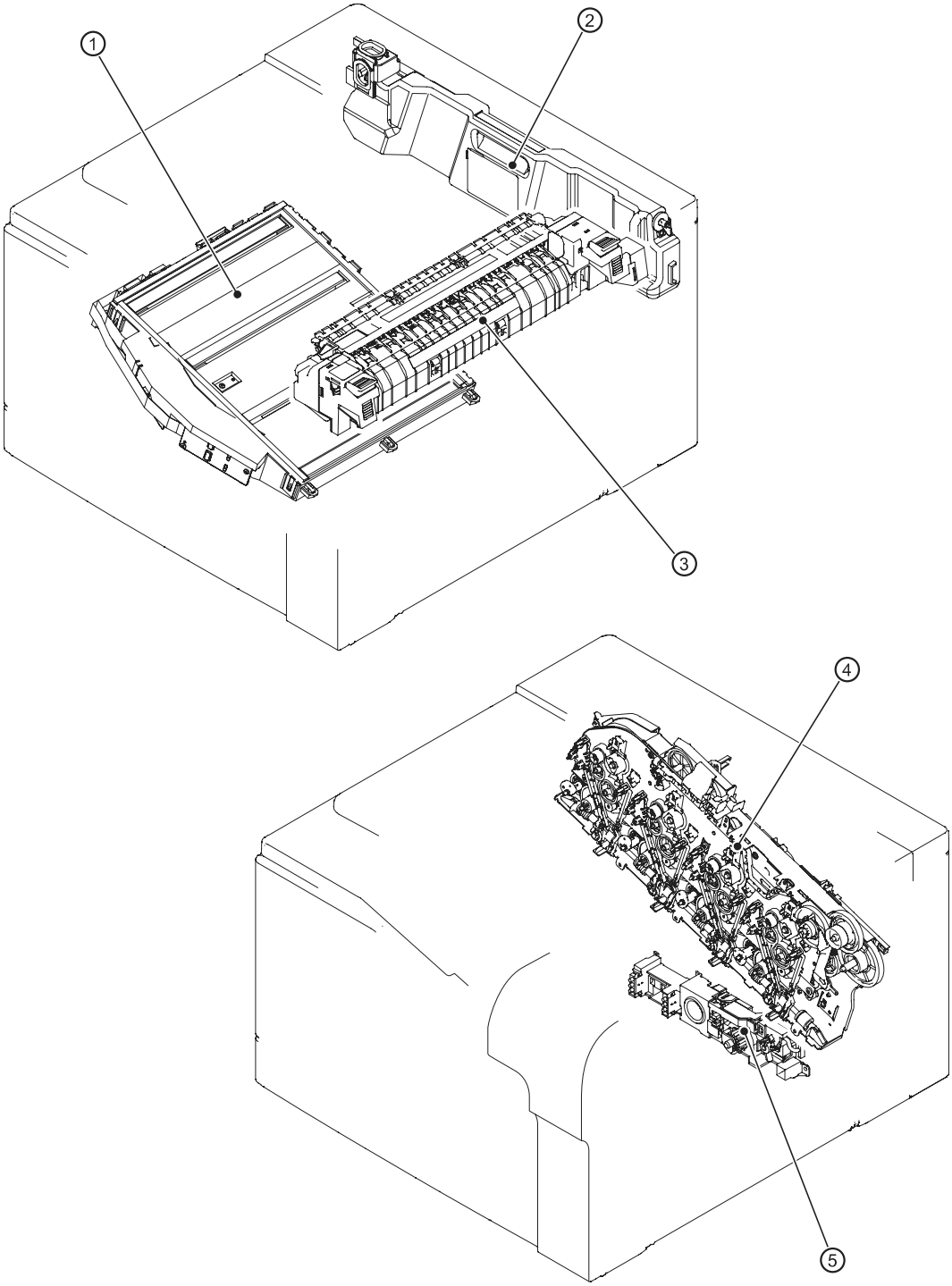
Locations of major components

Figure 3-12 External component locations



Item	Description	Item	Description
1	Right-rear cover	6	Top cover
2	Right-door assembly	7	Left cover
3	Right-front cover	8	DIMM cover
4	Front-door assembly	9	Rear cover
5	Cassette (Tray 2)	10	Toner collection unit access-door

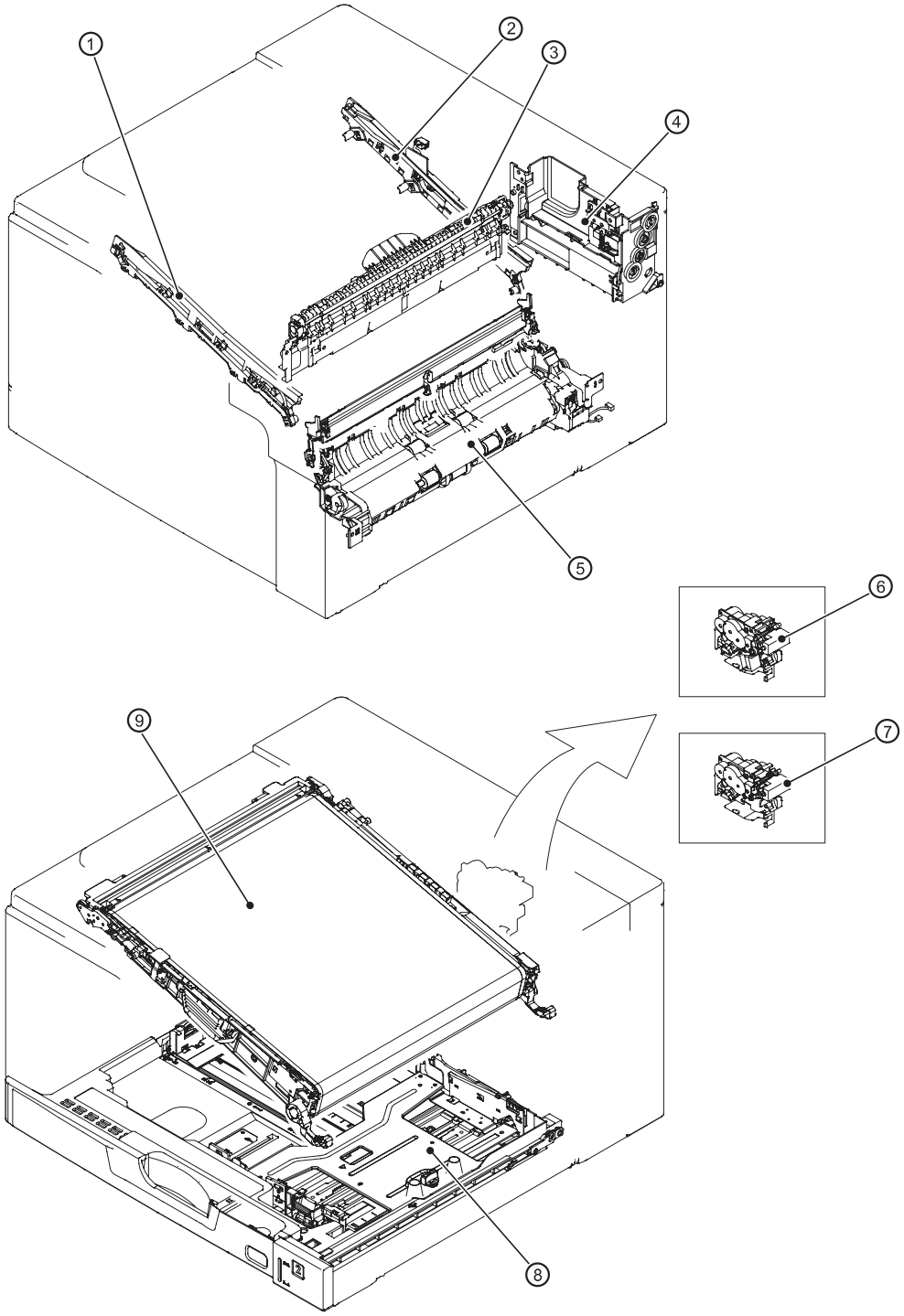
Figure 3-13 Major component locations (1 of 3)



Item	Description
1	Laser scanner unit
2	Toner collection unit
3	Fuser

Item	Description
4	Main drive unit
5	Lifter drive unit

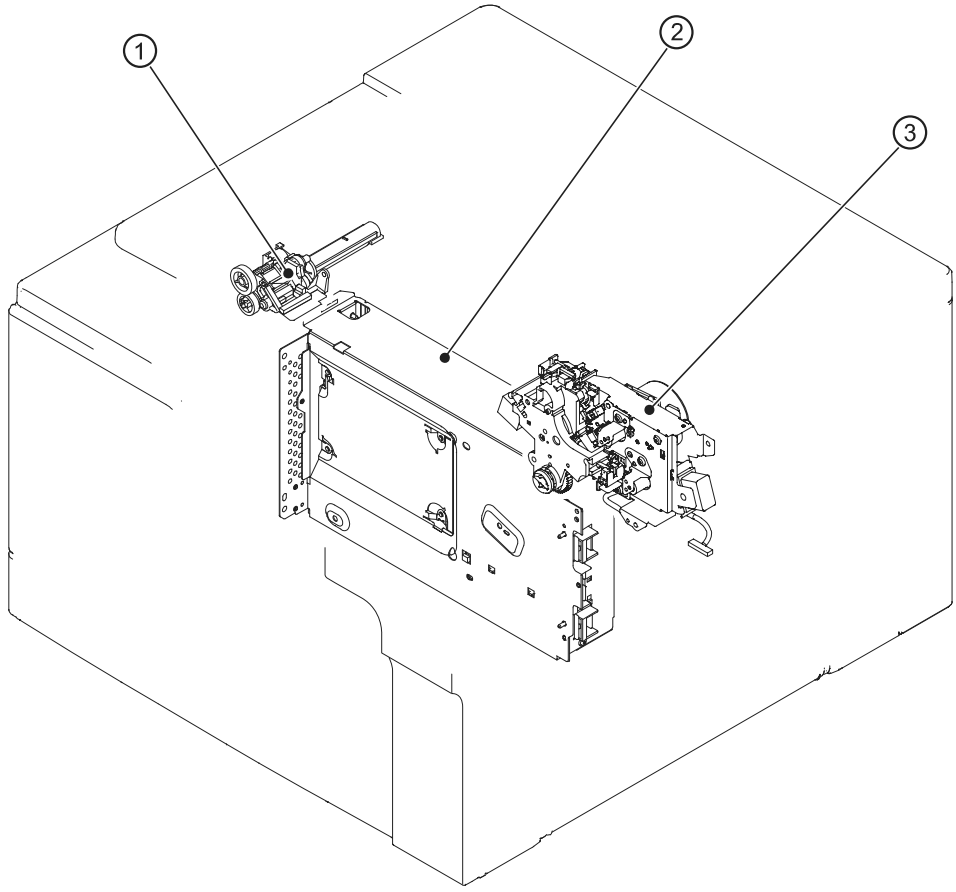
Figure 3-14 Major component locations (2 of 3)



Item	Description	Item	Description
1	ITB front guide unit	6	Duplex drive unit (duplex models only)
2	ITB rear guide unit	7	Delivery drive unit (simplex models only)
3	Delivery unit	8	Cassette (Tray 2)

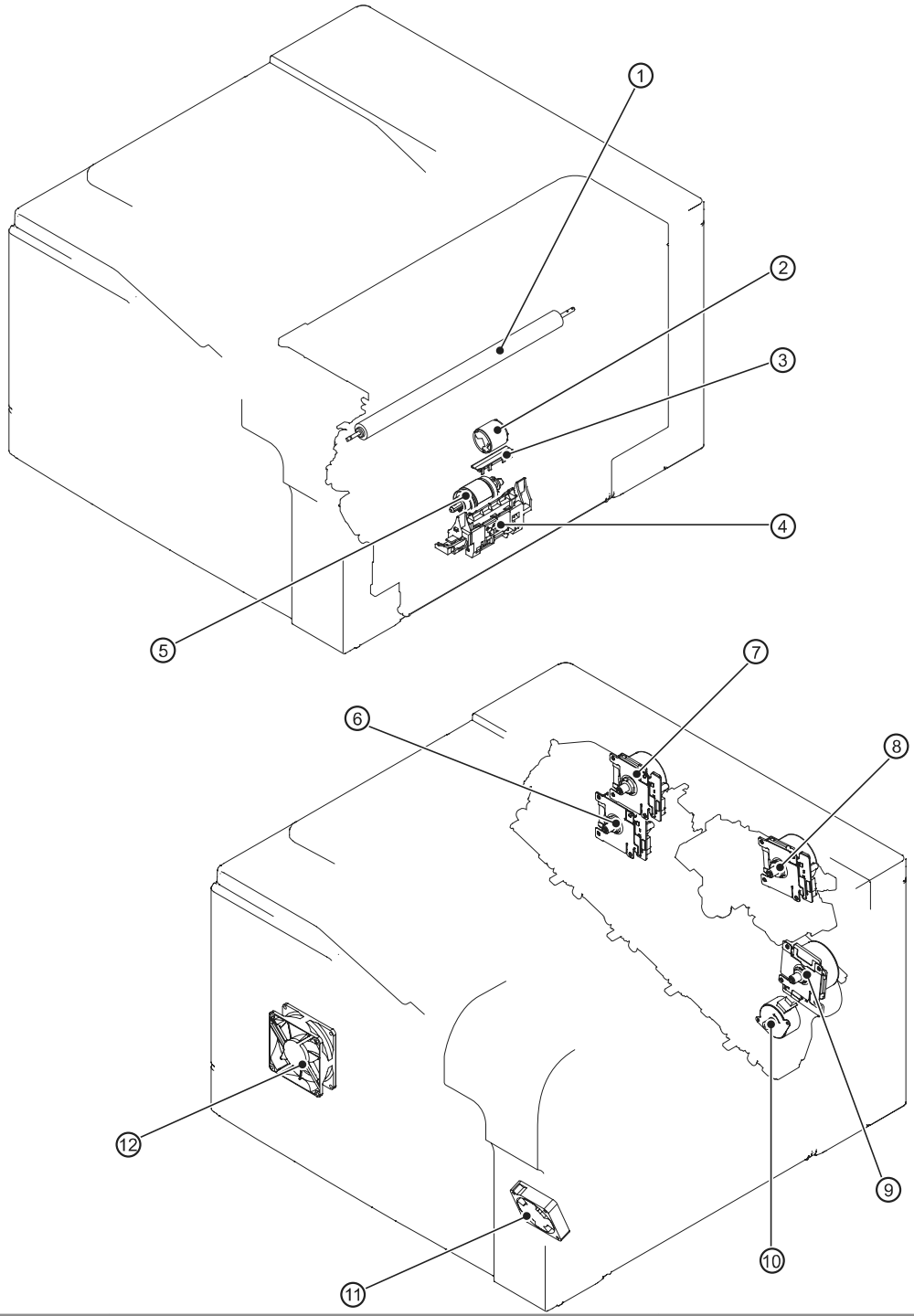
Item	Description	Item	Description
4	Toner collection unit full sensor	9	ITB unit
5	Cassette pickup drive unit		

Figure 3-15 Major component locations (3 of 3)



Item	Description
1	Waste toner carrier unit
2	Formatter
3	Fuser drive unit

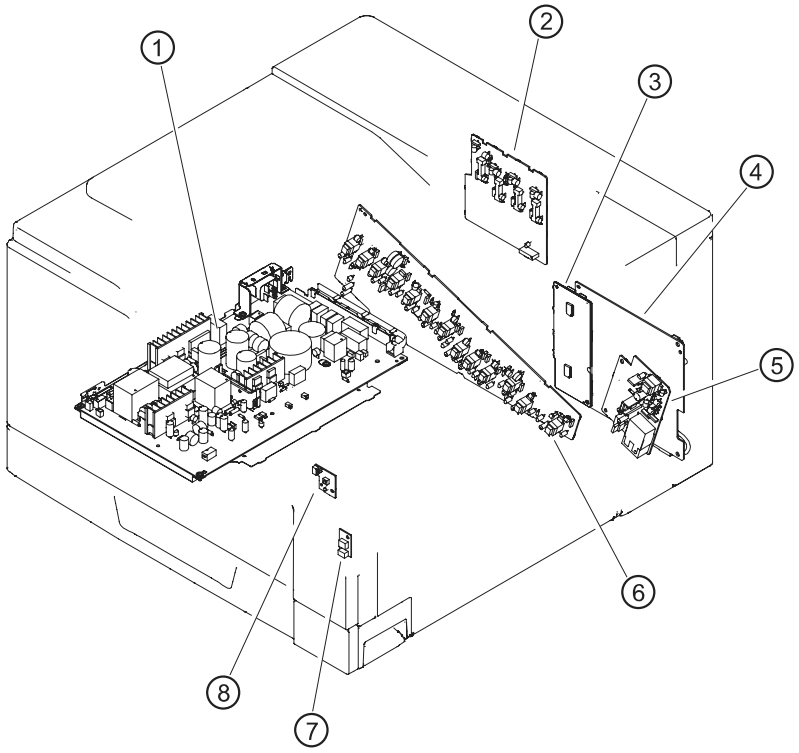
Figure 3-16 Motors, fans, and rollers component locations



Item	Description	Item	Description
1	Secondary transfer roller unit	7	Drum motor
2	MP tray (Tray 1) pickup roller	8	Fuser motor
3	MP tray (Tray 1) separation pad	9	ITB motor
4	Cassette (Tray 2) separation roller unit	10	Developing disengagement motor

Item	Description	Item	Description
5	Cassette (Tray 2) pickup roller unit	11	Fuser fan
6	Developing motor	12	Power supply fan

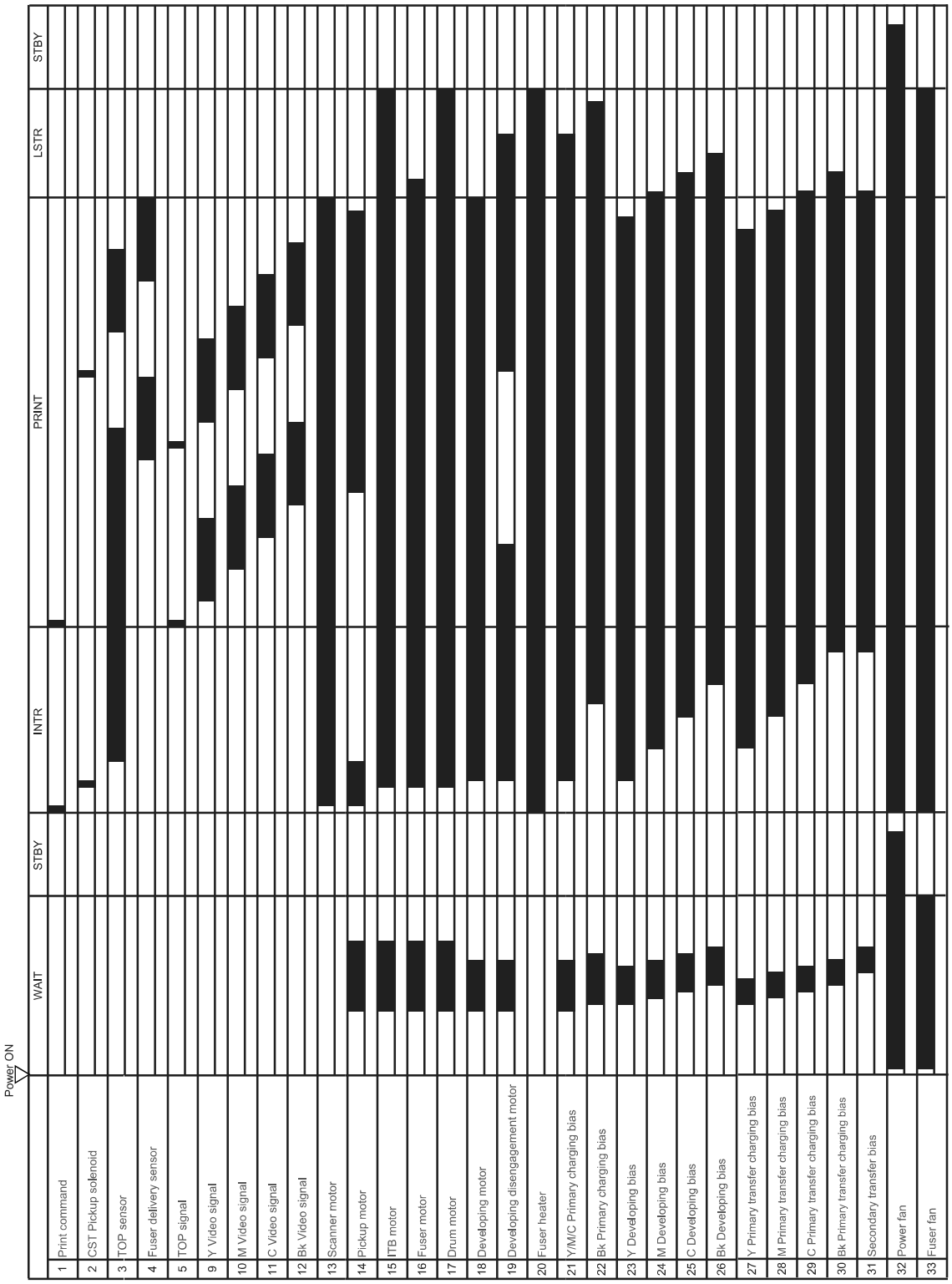
Figure 3-17 PCA component locations



Item	Description	Item	Description
1	Low-voltage power-supply PCA	5	High-voltage power supply 2nd transfer PCA
2	High-voltage power supply 1st transfer PCA	6	High-voltage power supply imaging (development) PCA
3	Driver PCA	7	Environment sensor PCA
4	DC controller PCA	8	Power switch PCA

General timing charts

Figure 3-18 General timing chart



General circuit diagram

Figure 3-19 General circuit diagram (1 of 2)

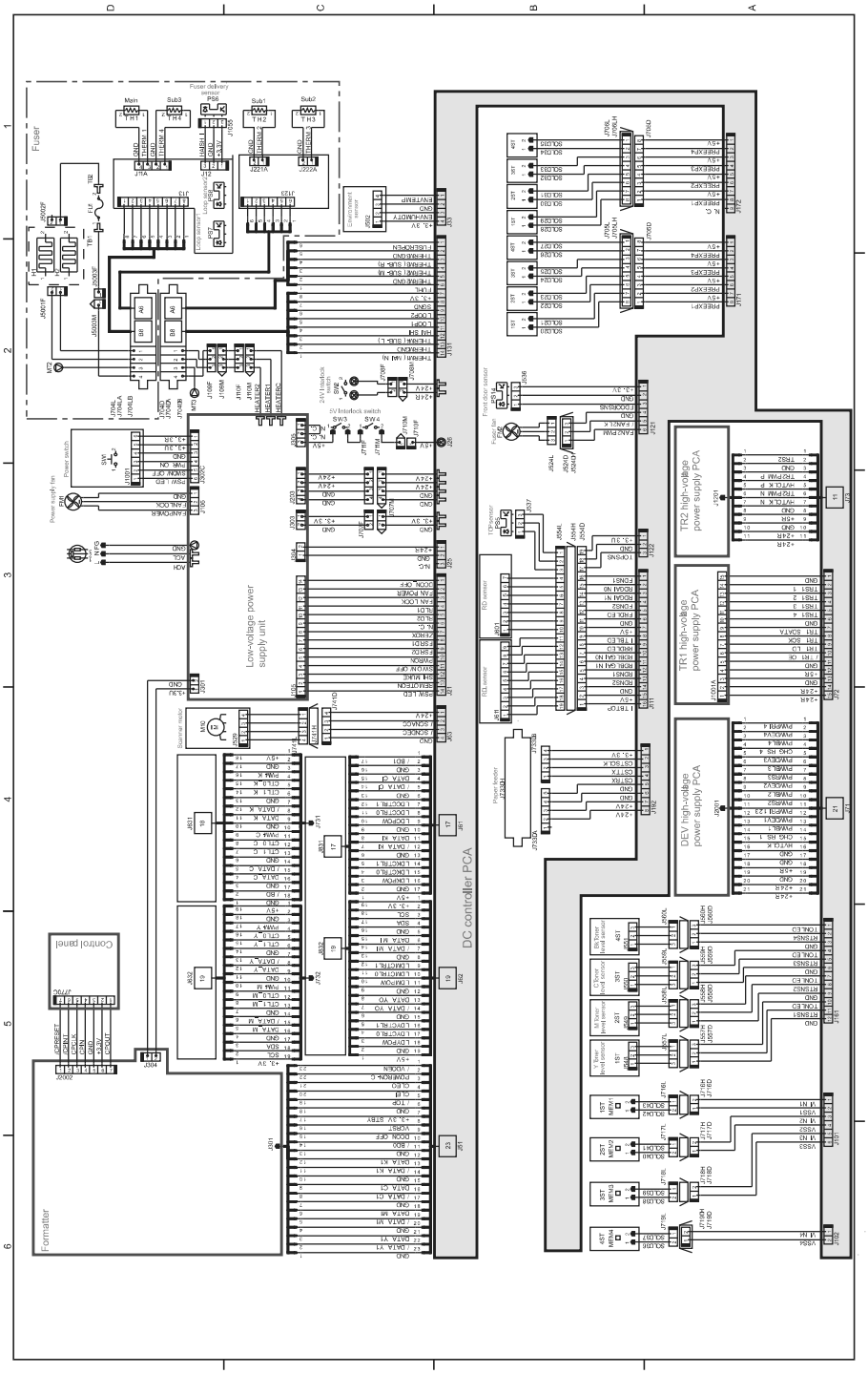


Figure 3-20 General circuit diagram (2 of 2)

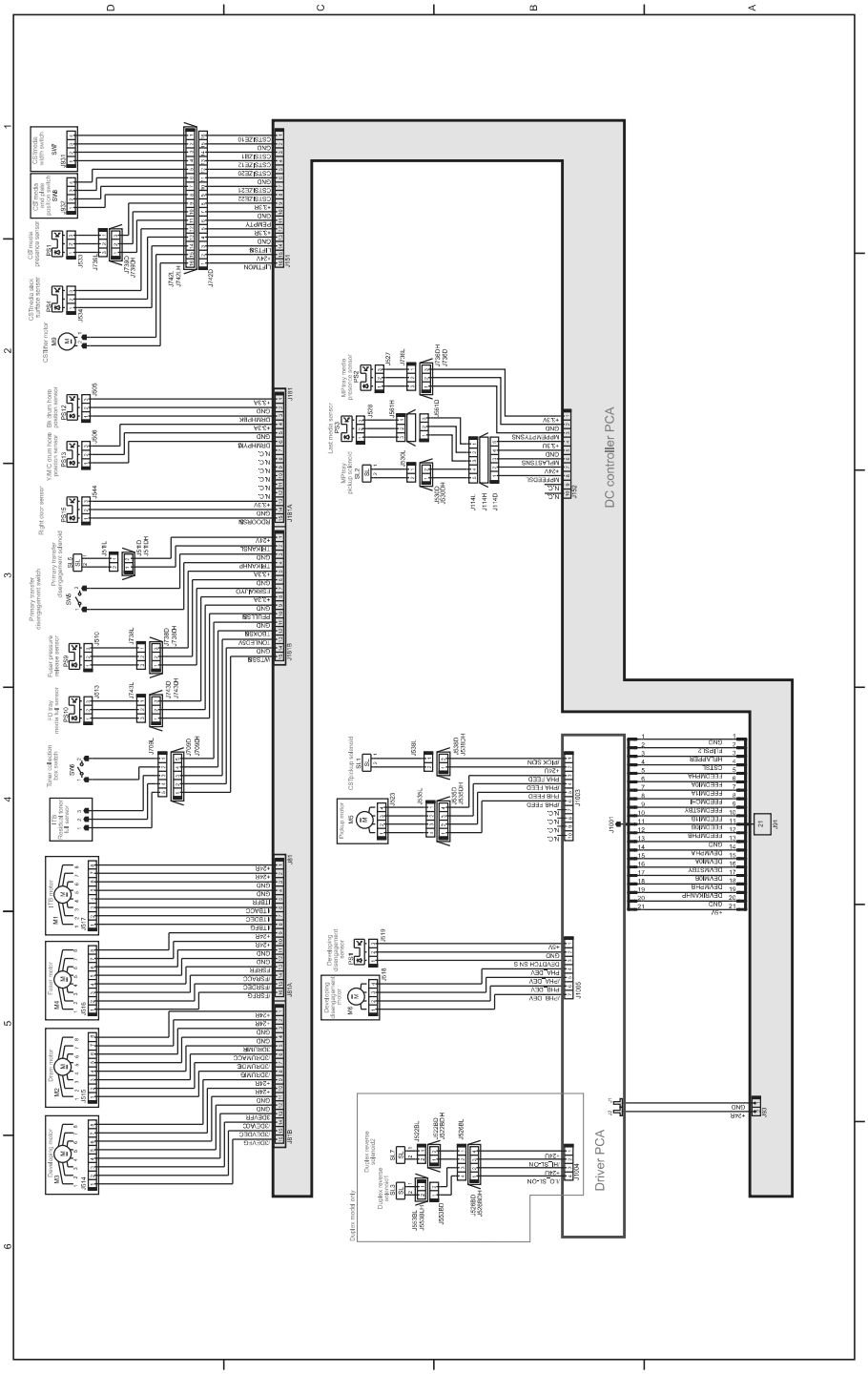
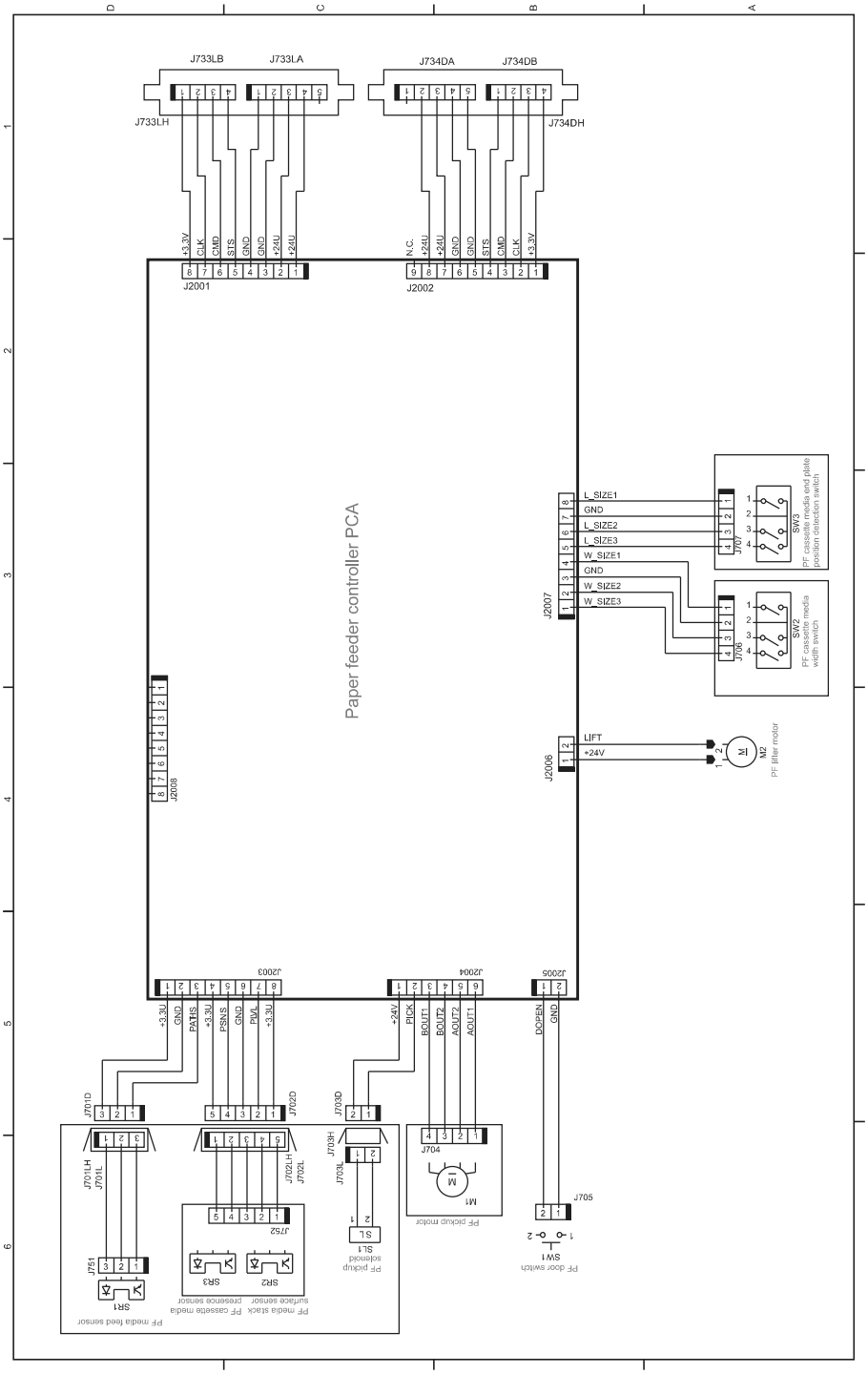


Figure 3-21 Paper feeder general circuit diagram



HP ToolboxFX

NOTE: This information is provided for reference. The HP Toolbox FX software is not installed with the product by default.

Open HP ToolboxFX

Open HP ToolboxFX in one of these ways:

- In the Windows system tray, double-click the HP ToolboxFX icon ( ).
- On the Windows **Start** menu, click **Programs** (or **All Programs** in Windows XP and Vista), click **HP**, click **HP Color LaserJet CP5220 Series**, and then click **HP ToolboxFX**.

HP ToolboxFX contains the following folders:

- **Status** (see Status on page 201)
- **Alerts** (see Alerts on page 202)
- **Product information** (see Product information on page 202)
- **Help** (see Help on page 203)
- **System Settings** (see System Settings on page 204)
- **Print Settings** (see Print Settings on page 207)
- **Network Settings** (network models only) (see Network Settings on page 207)

Status

The **Status** folder contains links to the following main pages:

- **Device status**. This page indicates product conditions such as a jam or an empty tray. After you correct a problem, click **Refresh status** to update the product status.
- **Supplies status**. View details such as the approximate percent of toner remaining in the print cartridge and the approximate number of pages that have been printed with the current print cartridge. This page also has links for ordering supplies and for finding recycling information.
- **Device configuration**. View a detailed description of the current product configuration, including the amount of memory installed and whether optional trays are installed.
- **Network summary**. View a detailed description of the current network configuration, including the IP address and network status.
- **Reports**. Print the configuration page and other information pages, such as the supplies status page. See Reports menu on page 211.
- **Color usage job log**. View color usage information for recently printed documents.
- **Event log**. View a history of product events. The most recent event is listed first.

Event log

The event log is a table that contains codes corresponding to error messages that have appeared on the product control-panel display, a brief description of each error, and the number of pages that printed when each error occurred. For more information about error messages, see Interpret control-panel and status-alert messages on page 218.

Alerts

The **Alerts** folder contains links to the following main pages:

- **Set up Status Alerts**. Set up the product to send you pop-up alerts for certain events, such as low levels of cartridge life.
- **Set up E-mail Alerts**. Set up the product to send you e-mail alerts for certain events, such as low levels of cartridge life.

Set up Status Alerts

Use this to set up the product so that it sends alerts to your computer when jams, low levels of cartridge life in HP print cartridges, a non-HP print cartridge in use, empty input trays, and specific error messages occur.

Select to receive a pop-up, a system tray icon, a desktop alert, or any combination of these. The pop-up and desktop alerts only appear when the product is printing from the computer on which you set up the alerts. Desktop alerts are only visible momentarily, and disappear automatically.

Change the **Cartridge low threshold** setting, which sets the toner level that causes a low toner alert, on the **System setup** page.

NOTE: You must click **Apply** before your changes take effect.

Set up E-mail Alerts

Use this to configure up to two e-mail addresses to receive alerts when certain events occur. You can specify different events for each e-mail address. Use the information for the e-mail server that will send out the e-mail alert messages for the product.

NOTE: You can only configure e-mail alerts to be sent from a server that does not require user authentication. If your e-mail server requires you to log in with a username and password, you cannot enable e-mail alerts.

NOTE: You must click **Apply** before your changes take effect.

Product information

The **Product information** folder contains links to the following page:

- **Demonstration Pages**. Print pages that show the color print quality potential and overall print characteristics of the product.

Set password

Use HP ToolboxFX or the embedded Web server to set a system password.

1. In the embedded Web server, click the **System** tab.

   In HP ToolboxFX, click the **Device Settings** tab.

2. Click **Product Security**.
3. In the **Password** box, type the password that you want to set, and then in the **Confirm password** box, type the same password again to confirm your choice.
4. Click **Apply** to save the password.

NOTE: If a password has already been set, you are prompted for it. Type the password, and then click **Apply**.

Help

The **Help** folder contains links to the following main pages:

- **Troubleshooting**. View troubleshooting help topics, print troubleshooting pages, clean the product, and open Microsoft Office Basic Colors.
- **Paper and Print Media**. Print information about how to obtain optimal results from your product using various types of paper and print media.
- **Color Printing Tools**. Open Microsoft Office Basic Colors or the full palette of color with associated RGB values. Use the HP Basic Color Match to adjust spot colors in your printed output.
- **Animated Demonstrations**. View animations that demonstrate how to perform common tasks on your product, such as how to get the best print quality, how to remove paper jams, and how to replace a print cartridge.
- **User Guide**. View information about the product usage, warranty, specifications, and support. The User Guide is available in both HTML and PDF format.

System Settings

The **System Settings** folder contains links to the following main pages:

- **Device Information**. View information such as the product description and a contact person.
- **Paper Setup**. Configure trays or change the product paper-handling settings, such as default paper size and default paper type.
- **Print Quality**. Change the print-quality settings.
- **Print Density**. Change the print-density settings, such as contrast, highlights, midtones, and shadows.
- **Paper Types**. Change the mode settings for each media type, such as letterhead, prepunched, or glossy paper.
- **Extended Print Modes**. Change the product fuser mode settings to enhance print quality.
- **System Setup**. Change the system settings, such as jam recovery and auto-continue. Change the low cartridge setting, which sets the toner level that causes a low toner alert.
- **Save/Restore Settings**. Save the current settings for the product to a file on your computer. Use this file to load the same settings onto another product or to restore these settings to this product at a later time.
- **Product Security**. Set a password to protect the product settings. Once a password is set, users will be prompted to enter the password before being allowed to change product settings. Setting the password on this page also sets the embedded Web server password.

Device Information

This page stores data about the product for future reference. The information that you type in the fields on this page appears on the configuration page. You can type any character in each of these fields.

NOTE: You must click **Apply** before your changes take effect.

Paper Setup

Use these options to configure your default settings. These are the same options that are available on the control-panel menus on the control panel. For more information, see Control-panel menus on page 211.

The following options are available for handling print jobs when the product is out of media:

- Select **Wait for paper to be loaded**.
- Select **Wait forever** from the **Paper out action** drop-down list to wait indefinitely.
- Select **Cancel** from the **Paper out action** drop-down list to cancel the print job.
- Select **Override** from the **Paper out action** drop-down list to send the print job to another paper tray.

The **Paper out time** field specifies how long the product waits before acting on your selections. You can specify from 0 to 3600 seconds.

NOTE: You must click **Apply** before your changes take effect.

Print Quality

Use these options to improve the appearance of your print jobs. These are the same options that are available on the control panel menus. For more information, see Control-panel menus on page 211.

Color Calibration

- **Power On Calibration**. Specify whether the product should calibrate when you turn it on.
- **Calibration Timing**. Specify how frequently the product should calibrate.
- **Calibrate Now**. Set the product to calibrate immediately.

NOTE: You must click **Apply** before your changes take effect.

Print Density

Use these settings to make fine adjustments in the amount of each color of toner that is used for your printed documents.

- **Contrasts**. Contrast is the range of difference between light (highlight) and dark (shadow) colors. To increase the overall range between light and dark colors, increase the **Contrasts** setting.
- **Highlights**. Highlights are colors that are nearly white. To darken highlight colors, increase the **Highlights** setting. This adjustment does not affect midtone or shadow colors.
- **Midtones**. Midtones are colors that are halfway between white and solid density. To darken midtone colors, increase the **Midtones** setting. This adjustment does not affect highlight or shadow colors.
- **Shadows**. Shadows are colors that are nearly solid density. To darken shadow colors, increase the **Shadows** setting. This adjustment does not affect highlight or midtone colors.

Paper Types

Use these options to configure print modes that correspond to the various media types. To reset all modes to factory default settings, select **Restore modes**.

NOTE: You must click **Apply** before your changes take effect.

Extended Print Modes

Use these options to configure the product extended fuser modes to enhance print quality.

System Setup

Use these system settings to configure miscellaneous print settings. These settings are not available on the control panel.

NOTE: You must click **Apply** before your changes take effect.

Save/Restore Settings

Save the current settings for the product to a file on your computer. Use this file to load the same settings onto another product or to restore these settings to this product at a later time.

Product Security

Set a password to protect the product settings. After a password is set, users will be prompted to enter the password before they can access any of the HP ToolboxFX pages that read or write data from the product. Setting the password on this page also sets the embedded Web server password.

Print Settings

The **Print Settings** folder contains links to the following main pages:

- **Printing**. Change the default product print settings, such as number of copies and paper orientation.
- **PCL5**. Change the PCL settings.
- **PostScript**. Change the PS settings.

Printing

Use these options to configure the settings for all print functions. These are the same options that are available on the control panel. For more information, see Control-panel menus on page 211.

NOTE: You must click **Apply** before your changes take effect.

PCL5

Use these options to configure the settings when you are using the PCL print personality.

NOTE: You must click **Apply** before your changes take effect.

PostScript

Use this option when you are using the PostScript print personality. When the **Print PostScript error** option is turned on, the PostScript error page automatically prints when PostScript errors occur.

NOTE: You must click **Apply** before your changes take effect.

Network Settings

The network administrator can use this tab to control the network-related settings for the product when it is connected to an IP-based network.

Shop for Supplies

This button, at the top of each page, links to a Web site where you can order replacement supplies. You must have Internet access to use this feature.

Other Links

This section contains links that connect you to the Internet. You must have Internet access in order to use any of these links. If you use a dial-up connection and did not connect when you first opened

HP ToolboxFX, you must connect before you can visit these Web sites. Connecting might require that you close HP ToolboxFX and reopen it.

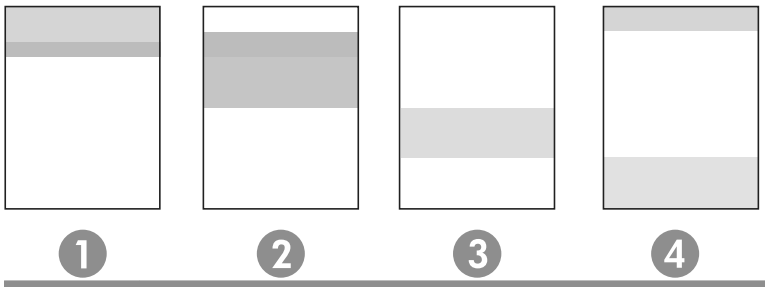
- **Support and Troubleshooting**. Connects to the support site for the product where you can search for help with a specific problem.
- **Product Registration**. Connects to the HP product registration Web site.

Internal print quality test pages

Use HP ToolboxFX to troubleshoot print-quality problems

NOTE: Before proceeding, print a Supplies status page to see the approximate number of pages remaining for each print cartridge. See Reports menu on page 211.

From the HP ToolboxFX software you can print a page that helps identify whether a specific print cartridge is causing the problem, or if the problem is with the product itself. The print-quality troubleshooting page prints five bands of color, which are divided into four overlapping sections. By examining each section, you can isolate the problem to a particular cartridge.



Section	Print-cartridge
1	Yellow
2	Cyan
3	Black
4	Magenta

This page helps identify four general issues:

- **Streaks in only one color**: This is most likely a cartridge issue. Remove the cartridge and look for debris on it. If no debris is found and the defect continues after the cartridge is reinstalled, replace the cartridge.
- **Streaks in all colors (in same location)**: Clean the printer. See Solve image-quality problems on page 240.
- **Repeating defect in multiple colors**:

  Repeating dot in multiple colors: If the dot repeats at roughly 76 or 79 mm, run a cleaning page to clean the fuser, and run several white pages of paper to clean the roller. If defect does not repeat at 76 or 79 mm, replace the cartridge of the color of the dot.

Repeating band in multiple colors: See Solve image-quality problems on page 240.

- **Single dot or Single band in one color**: Print three or four additional troubleshooting pages. If the band or dot is only in one color on most of the pages, replace the cartridge of that color. If the band or dot moves to a different color, contact HP Support.

Print the print-quality troubleshooting page

1. Open HP ToolboxFX. See Open HP ToolboxFX on page 200.
2. Click the **Help** folder, and then click the **Troubleshooting** page.
3. Click the **Print** button, and then follow the directions on the printed pages.

Configuration page

Print the configuration page

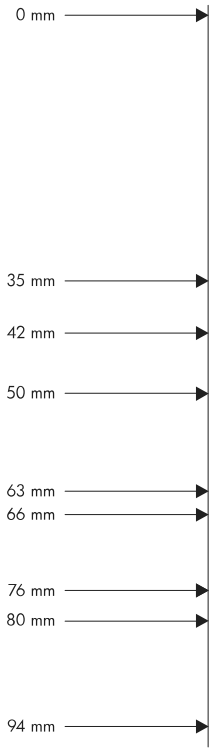
1. Press the OK button to open the menus.
2. Use the arrow buttons to select the **Reports** menu, and then press the OK button.
3. Use the arrow buttons to navigate to the **Configuration Report**, and then press the OK button to print the report.
4. Press the cancel button to exit the menus.

Print quality troubleshooting tools

Repetitive image-defect ruler

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.

NOTE: When printing this defect ruler, verify that any scaling options in the printer driver are disabled.



Distance between defects	Product components that cause the defect
35 mm	Print cartridge (primary charging roller)
42 mm	Print cartridge (developer roller)
50 mm	Print engine (primary transfer roller)
60 mm	Print engine (secondary transfer roller)
76 mm	Fuser (fuser film)
79 mm	Fuser (pressure roller)
94 mm	Print cartridge (OPC)

Calibrate the product

If you experience any print-quality problems, calibrate the product.

Calibrate the product using HP ToolboxFX

1. Open HP ToolboxFX. See Open HP ToolboxFX on page 200.
2. Click the **Device Settings** folder, and then click the **Print Quality** page.
3. In the area for Color Calibration, select the **Calibrate Now** check box.
4. Click **Apply** to calibrate the product immediately.

Calibrate the product from the control panel

1. On the control panel, press the OK button.
2. Use the arrow buttons to select the **System Setup** menu, and then press the OK button.
3. Use the arrow buttons to select the **Print Quality** menu, and then press the OK button.
4. Use the arrow buttons to select the **Color Calibration** menu, and then press the OK button.
5. Use the arrow buttons to select the **Calibrate Now** option, and then press the OK button to calibrate the product.

Control-panel menus

Use the menus

1. Press the OK button to open the menus.
2. Press the left arrow ◄ or right arrow ► button to navigate through the listings.
3. Press the OK button to select the appropriate option. An asterisk (*) appears next to the active selection.
4. Press the back arrow ⮌ to scroll back through the submenus.
5. Press the cancel button ✖ to exit the menu without saving any changes.

Reports menu

Use the **Reports** menu to print reports that provide information about the product.

Menu item	Description
Demo Page	Prints a color page that demonstrates print quality.
Menu Structure	Prints a map of the control-panel-menu layout.
Configuration Report	Prints a list of the product settings. Includes network information when the product is connected to a network.
Supplies Status	Prints the status for each print cartridge, including the following information: • Approximate pages remaining • Approximate percentage of cartridge life remaining for each color • Part number • Approximate number of pages printed
Network Summary	Prints a list of all product network settings (network models only).
Usage Page	Prints a page that lists PCL pages, PCL 6 pages, HP postscript level 3 emulation pages, pages that were jammed or mispicked in the product, monochrome (black and white) or color pages; and reports the page count.
PCL Font List	Prints a list of all the PCL fonts that are installed.
PS Font List	Prints a list of all the PostScript (PS) fonts that are installed.
PCL 6 Font List	Prints a list of all the PCL6 fonts that are installed.

Menu item	Description
Color Usage Log	Prints a report that shows the user name, application name, and color usage information on a job-by-job basis.
Service Page	Prints the service report.
Diagnostics Page	Prints the calibration and color diagnostics pages.

System Setup menu

Use this menu to establish basic product settings. The **System Setup** menu has several sub-menus. Each is described in the following table.

Menu item	Sub-menu item	Sub-menu item	Description
Language			Select the language for the control-panel display messages and the product reports.
Paper Setup	**Default Paper Size**	**Letter** **A4** **Legal** **A3** **11x17**	Select the size for printing internal reports or any print job that does not specify a size.
	Default Paper Type	A list of available media types appears.	Select the media type for printing internal reports or any print job that does not specify a type.
	Tray 1	**Paper Size** **Paper Type**	Select the default size and type for Tray 1 from the list of available sizes and types.
	Tray 2	**Paper Size** **Paper Type**	Select the default size and type for Tray 2 from the list of available sizes and types.
	Tray 3	**Paper Size** **Paper Type**	If optional Tray 3 is installed, select the default size and type for Tray 3 from the list of available sizes and types.
	Paper Out Action	**Wait Forever** **Override** **Cancel**	Select how the product should react when a print job requires a size or type that is not available or when a specified tray is empty. Select the **Wait Forever** option to make the product wait until you load the correct media, and then press the OK button. This is the default setting. Select the **Override** option to print on a different size or type after a specified delay. Select the **Cancel** option to automatically cancel the print job after a specified delay. If you select either the **Override** or **Cancel** option, the control panel prompts you to specify the number of seconds to delay. Use the arrow buttons to increase or decrease the time.

Menu item	Sub-menu item	Sub-menu item	Description
Print Quality	**Allow Color Printing**	**Yes** **No**	Select the **Yes** option to allow the job to print in monochrome (black and white) or color depending on the job. This is the default setting. Select the **No** option to disable color printing. All jobs will print in monochrome (black and white). Some internal pages will still print in color.
	Color Calibration	**Calibrate Now** **Power-On Calibration**	**Calibrate Now**: Makes the product perform a calibration immediately. If a job is processing, the product calibrates after the job is complete. If an error message is displayed, you must clear the error first. **Power-On Calibration**: Select how soon the product should calibrate after you turn it on. The default setting is the **15 minutes** option.
	Adjust Alignment	**Print Test Page** **Adjust Tray <X>**	**Print Test Page**: Print a test page that tests product print alignment. **Adjust Tray <X>**: Adjust the alignment of the specified tray.
PowerSave Time	**Sleep Delay**	**Off** **1 minute** **15 minutes** **30 minutes** **1 hour** **2 hours**	Sets how long the product remains idle before it enters PowerSave mode. The product automatically exits PowerSave mode when you send a print job or press a control-panel button. The default setting is the **15 minutes** option.
	Auto-Off Delay	**Never** **1 hour** **2 hours** **4 hours** **8 hours** **24 hours**	Select one of the time-period options to set the amount of inactive time the product will wait before shutting off as a way to conserve energy. Select the **Never** option to prevent the product from shutting off after a given amount of time. This is the default setting.

Menu item	Sub-menu item	Sub-menu item	Description
At Very Low	**Black Cartridge**	**Stop** **Prompt** **Continue**	**Stop**: If the product determines that the black cartridge has reached the estimated end of life, it stops printing. The supply may still be able to produce acceptable print quality. To continue printing, either replace the supply or reconfigure the product settings. **Prompt**: If the product determines that the black cartridge has reached the estimated end of life, select this setting to be prompted at the control panel to continue printing. The supply does not need to be replaced unless the print quality is no longer acceptable. Once an HP supply has reached estimated end of life, HP's premium Protection Warranty on that supply has ended. This is the default setting. **Continue**: If the product determines that the black cartridge has reached the estimated end of life, select this setting to continue printing until there is a decrease in print quality.
At Very Low	**Color Cartridge**	**Stop** **Prompt** **Continue** **Print Black**	**Stop**: If the product determines that a cartridge has reached the estimated end of life, it stops printing. The supply may still be able to produce acceptable print quality. To continue printing, either replace the supply or reconfigure the product settings. **Prompt**: If the product determines that a color print cartridge has reached the estimated end of life, select this setting to be prompted at the control panel to continue printing. The supply does not need to be replaced unless the print quality is no longer acceptable. Once an HP supply has reached estimated end of life, HP's premium Protection Warranty on that supply has ended. This is the default setting. **Continue**: If the product determines that a color print cartridge has reached the estimated end of life, select this setting to continue printing until there is a decrease in print quality. **Print Black**: If the product determines that a color print cartridge has reached the estimated end of life, select this setting to continue printing using black only.

Menu item	Sub-menu item	Sub-menu item	Description
User-Defined Low	**Black** **Cyan** **Magenta** **Yellow**	(1-100)	The user-defined percentage threshold determines when the product begins reporting that the cartridge life is low. The message appears on the control-panel display.
Courier Font	**Regular** **Dark**		Select a version of the Courier font. The **Dark** option is an internal Courier font available on HP LaserJet Series **III** printers and older.

Service menu

Use this menu to restore default settings, clean the product, and activate special modes that affect print output.

Menu item	Sub-menu item	Description
Cleaning Page		Use this option to clean the product if you see toner specks or other marks on the printed output. The cleaning process removes dust and excess toner from the paper path. When you select this item, the product prompts you to load plain paper in Tray 1 and then press the OK button to start the cleaning process. Wait until the process is complete. Discard the page that prints.
Cleaning Mode		Use this option to clean the bottom side of the scanner glass.
USB Speed	**High** **Full**	Sets the USB speed to **High** or **Full**. For the product to actually operate at high speed, it must have high speed enabled and be connected to an EHCI host controller that is also operating at high speed. This menu item also does not reflect the current operating speed of the product. The default setting is **High**.
Less Paper Curl	**Off** **On**	If printed pages are consistently curled, use this option to set the product to a mode that reduces curl. The default setting is **Off**.
Archive Print	**Off** **On**	If you are printing pages that will be stored for a long time, use this option to set the product to a mode that reduces toner smearing and dusting. The default setting is **Off**.
Restore Defaults	**Yes** **No**	Sets all customized settings to the factory default values.

Network Configuration menu

Use this menu to establish network configuration settings.

NOTE: This menu appears on network models only.

Menu item	Sub-menu item	Description
TCP/IP Configuration	**Automatic** **Manual**	Select the **Automatic** option to automatically configure all the TCP/IP settings. Select the **Manual** option to manually configure the IP address, subnet mask, and default gateway. The default setting is **Automatic.**
Auto Crossover	**On** **Off**	This item is used when you are connecting the product directly to a personal computer using an Ethernet cable (you might have to set this to **On** or **Off** depending on the computer being used). The default setting is the **On** option.
Network Services	**IPv4** **IPv6**	This item is used by the network administrator to limit the network services available on this product. **On** **Off** The default setting for all items is **On.**
Show IP address	**No** **Yes**	**No**: The product IP address will not appear on the control-panel display. **Yes**: The product IP address will appear on the control-panel display, alternating between supplies information and the product IP address. The IP address will not be displayed if an error condition exits. The default setting is **No.**
Link Speed	**Automatic** (default) **10T Full** **10T Half** **100TX Full** **100TX Half**	Sets the link speed manually if needed. After setting the link speed, the product automatically restarts.
Restore Defaults		Press the OK button to restore the network configuration settings to the default values.

Interpret control-panel and status-alert messages

The control-panel messages indicate the current product status or situations that might require action.

Status-alert messages appear on the computer screen (in addition to control-panel messages) when the product has certain problems. If a status-alert message is available, a ✓ appears in the **Status alert** column in the following table.

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 cancel 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 message	Status alert	Description	Recommended action
10.10.XX Supply error	✓	• 10.1000 = black supply memory is missing • 10.1001 = cyan supply memory is missing • 10.1002 = magenta supply memory is missing • 10.1003 = yellow supply memory is missing	Check the e-label. If it is broken or damaged, replace the cartridge. Verify that the cartridge is installed in the correct location. Remove and reinstall the cartridge and then power-cycle the product. If the error is with a color cartridge, try swapping it with a different color cartridge in the tray. If the same message appears, then there is an engine problem. If a different 10.10.XX message appears, replace the cartridge.
10.9531 Error **Turn off then on**	✓	The toner collection unit is full or missing.	Replace the toner collection unit.
10.XXXX Supply error	✓	The supply memory for one of the print cartridges cannot be read or is missing. • 10.0000 = black supply memory error • 10.0001 = cyan supply memory error • 10.0002 = magenta supply memory error • 10.0003 = yellow supply memory error	Reinstall the print cartridge. Turn the product off and then on. If the problem is not solved, replace the cartridge.

Control-panel message	Status alert	Description	Recommended action
50.1 Fuser Error **Turn off then on**	✓	Abnormally low fuser temperature.	1. Remove the fuser and check for any residual media in the fuser. Remove any residual media. 2. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or fuser. 3. Reconnect the connector (J131A) on the DC controller PCA and the connectors (J109, J110) on the power line between the low-voltage power supply unit and fuser. 4. Replace the fuser.
50.2 Fuser Error **Turn off then on**	✓	Fuser warm-up failure.	1. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or the fuser. 2. Reconnect the connector (J131A) on the DC controller PCA and the connectors (J109, J110) on the power line between the low-voltage power supply unit and fuser. 3. Replace the fuser.
50.3 Fuser Error **Turn off then on**	✓	Abnormally high fuser temperature.	1. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or fuser. 2. Reconnect the connector (J131A) on the DC controller PCA. 3. Replace the fuser.

Control-panel message	Status alert	Description	Recommended action
50.4 Fuser Error **Turn off then on**	✓	Fuser drive circuit is defective.	1. Check the power source at the product location. NOTE: If the product does not meet the power requirement of 43 to 57Hz frequency, the fuser temperature control does not work correctly and this causes malfunction. 2. Reconnect the connector (J21) on the DC controller PCA. 3. Replace the low-voltage power supply unit.
50.7 Fuser Error **Turn off then on**	✓	The fuser is defective (pressure release mechanism abnormality).	1. Reconnect the connector (J181) on the DC controller PCA. 2. Run the sensor test in the sensor monitor mode to verify that the fuser pressure release sensor is functioning correctly. If it is not, replace the fuser pressure release sensor unit. 3. Check the fuser pressure release sensor flag. If it is damaged, replace the fuser. 4. Run the fuser pressure release drive test in the actuator drive mode to verify that the fuser motor is functioning correctly. If it is not, replace the fuser motor. 5. Replace the fuser.
50.8 Fuser Error **Turn off then on**	✓	Abnormally low subthermistor fuser temperature error.	1. Remove the fuser and remove any residual media in the fuser. 2. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or fuser. 3. Reconnect the connector (J131A) on the DC controller PCA and the connectors (J109, J110) on the power line between the low-voltage power supply unit and fuser. 4. Replace the fuser.

Control-panel message	Status alert	Description	Recommended action
50.9 Fuser Error **Turn off then on**	✓	Abnormally high subthermistor fuser temperature error.	1. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or fuser. 2. Reconnect the connector (J131A) on the DC controller PCA. 3. Replace the fuser.
51.XX Error **Turn off then on**	✓	The product has experienced an internal error with a laser scanner. • 51.20 = black • 51.21 = cyan • 51.22 = magenta • 51.23 = yellow	1. Turn the product off and then on. 2. Verify that the connectors J61 and J62 on the DC controller PCA are correctly seated. Also verify that the connectors on the laser scanner are correctly seated. 3. If the problem remains, replace the laser scanner.
54.XX Error **Turn off then on**	✓	The product has experienced an error with one of the print cartridge sensors. • 54.15 = yellow • 54.16 = magenta • 54.17 = cyan • 54.18 = black	1. Open the door to the cartridge tray and slide out the cartridge tray. 2. Inspect the white mechanism on the relevant cartridge. It is located on the right side of the cartridge. 3. Push the mechanism in and out slowly. A black flag will raise up as you push it. If it does not move smoothly, push repeatedly to try to clear any potential obstruction. 4. Push in the cartridge tray and close the door.
55.X Error **Turn off then on**	✓	55.0601 = DC controller NVRAM data error 55.0602 = DC controller NVRAM access error 55.1 = DC controller memory error 55.3 = Engine communication error 55.4 = Engine timeout error	1. Turn the product off and on. If the problem remains, replace the DC controller PCA.

Control-panel message	Status alert	Description	Recommended action
56.X Error **Turn off then on**	✓	Tray <X> not correctly installed.	Reinstall the tray.
57.01 Error **Turn off then on**	✓	Power supply fan (FM1) is defective.	1. Reconnect the connector (J21) on the DC controller PCA and the connector (J106) on the low-voltage power supply unit. 2. Measure the voltage between the connector J21-2 and J25-2 on the DC controller PCA right after the product is turned on. If the voltage changes from 0 V to approximately 24 V, replace the power supply fan.
57.02 Error **Turn off then on**	✓	The fuser fan (FM2) is defective.	1. Reconnect the connector (J121X) on the DC controller PCA and the intermediate connector (J524). 2. Measure the voltage between the connector J121X-6 and J121X-4 on the DC controller PCA right after the product is turned on. If the voltage changes from 0 V to approximately 24 V, replace the fixing fan.
58.04 Error **Turn off then on**	✓	Low-voltage power supply malfunction.	1. Turn the product off and then on. 2. Verify that connectors J21 and J25 on the DC controller PCA are correctly seated. Also verify that all connectors on the low-voltage power supply are correctly seated. 3. If the problem remains, replace the low-voltage power supply.

Control-panel message	Status alert	Description	Recommended action
59.C0 Error **Turn off then on**	✓	Developer motor rotation error.	1. Reconnect the connector (J518) on the developing disengagement motor, the connector (J1005) on the driver PCA and the connector (J91) on the DC controller PCA. 2. Run the sensor test in the sensor monitor mode to verify that the developing disengagement sensor is functioning correctly. If it is not, replace the developing disengagement sensor unit. 3. Run the developing unit engagement and disengagement drive test in the actuator drive mode to verify that the disengagement mechanism is functioning correctly. If it is not functioning correctly, replace the developing disengagement motor.
59.F0 Error **Turn off then on**	✓	Transfer alienation failure.	1. Check if the ITB unit is installed. 2. Reconnect the connector (J181) on the DC controller PCA. 3. Run the switch test in the sensor monitor mode to verify that the primary transfer roller disengagement switch is functioning correctly. If it is not functioning correctly, replace the primary transfer roller disengagement switch unit. 4. Run the primary transfer roller engagement and disengagement drive test in the actuator drive mode to verify that the primary transfer roller disengagement mechanism is functioning correctly. If it is not functioning correctly, replace the fuser drive unit.

Control-panel message	Status alert	Description	Recommended action
59.X Error **Turn off then on**	✓	The product has experienced a problem with one of the motors. • 59.3 Fuser motor startup error • 59.4 Fuser motor rotation error	1. Reconnect the connector (J516) on the fuser motor and the connector (J81) on the DC controller PCA. 2. Run the fuser motor drive test in the actuator drive mode to verify that the fuser motor is functioning correctly. If it is not, replace the fuser motor unit.
59.X Error **Turn off then on**	✓	Image drum motor startup or rotation error-black. • 59.50 Image drum motor startup error-black • 59.60 Image drum motor rotation error-black	1. Reconnect the connector (J517) on the ITB motor and the connector (J81) on the DC controller PCA. 2. Run the drum motor drive test in the actuator drive mode to verify that the ITB motor is functioning correctly. If it is not, replace the ITB motor unit.
59.X Error **Turn off then on**	✓	Image drum motor startup or rotation error-cyan, magenta, or yellow. • 59.51 Image drum motor startup error-cyan • 59.52 Image drum motor startup error-magenta • 59.53 Image drum motor startup error-yellow • 59.61 Image drum motor rotation error-cyan • 59.62 Image drum motor rotation error-magenta • 59.63 Image drum motor rotation error-yellow	1. Reconnect the connector (J515) on the drum motor and the connector (J81) on the DC controller PCA. 2. Run the drum motor drive test in the actuator drive mode to verify that the drum motor is functioning correctly. If it is not, replace the drum motor unit.
59.X Error **Turn off then on**	✓	Black developer motor startup or rotation error. • 59.70 Black developer motor startup error • 59.80 Black developer motor rotation error	1. Reconnect the connector (J517) on the ITB motor and the connector (J81) on the DC controller PCA. 2. Run the ITB motor drive test in the actuator drive mode to verify that the ITB motor is functioning correctly. If it is not, replace the ITB motor unit.

Control-panel message	Status alert	Description	Recommended action
59.X Error **Turn off then on**	✓	Developing motor abnormal rotation or start-up. • 59.70 Black developer motor startup error • 59.71 Cyan developer motor startup error • 59.72 Magenta developer motor startup error • 59.73 Yellow developer motor startup error • 59.80 Black developer motor rotation error • 59.81 Cyan developer motor rotation error • 59.82 Magenta developer motor rotation error • 59.83 Yellow developer motor rotation error	1. Reconnect the connector (J514) on the developing motor and the connector (J81) on the DC controller PCA. 2. Run the developing motor drive test in the actuator drive mode to verify that the developing motor is functioning correctly. If it is not functioning correctly, replace the developing motor unit.
59.X Error **Turn off then on**	✓	ITB motor start error or rotation error. • 59.9 ITB motor start error • 59.A0 ITB motor rotation error	1. Reconnect the connector (J517) on the ITB motor and the connector (J81) on the DC controller PCA. 2. Run the ITB motor drive test in the actuator drive mode to verify that the ITB motor is functioning correctly. If it is not functioning correctly, replace the ITB motor unit.
<Color> in wrong position	✓	A print cartridge is installed in the incorrect slot.	Be sure that each print cartridge is in the correct slot. From front to back, the print cartridges are installed in this order: black, cyan, magenta, yellow.
<Supply> Very Low	✓	The **System Setup** menu item **At Very Low** is set to **Continue.**	You can continue printing until you notice a decrease in print quality. Actual cartridge life remaining may vary. Once an HP supply has reached “very low”, HP’s premium Protection Warranty on that supply has ended.
Device error **Press [OK]**	✓	An internal error occurred.	Press the OK button to resume the job.

Control-panel message	Status alert	Description	Recommended action
Front door open	✓	**CLOSE FRONT DOOR** message appears although the door is closed.	1. Reconnect the connector (J708) of the 24V interlock switch and the connector (J121X) on the DC controller PCA. 2. Check the sensor flag of the front door. If it is damaged, replace the front door sensor unit. Close the door.
Genuine HP supply installed		A genuine HP supply was installed. This message will appear briefly after the supply is installed and then be replaced by the message **Ready**.	No action necessary.
Incorrect supplies	✓	More than one print cartridge is installed in the incorrect slot.	Be sure that each print cartridge is in the correct slot. From front to back, the print cartridges are installed in this order: black, cyan, magenta, yellow.
Install <Color> cartridge	✓	The cartridge is either not installed or not correctly installed in the product.	Install the print cartridge.
Invalid driver **Press [OK]**	✓	You are using an incorrect printer driver.	Select the correct printer driver.
Jam in <location>	✓	The product has detected a jam.	Clear the jam from the location indicated. The job should continue to print. If it does not, try reprinting the job.
Jam in tray <X> **Clear jam and then press [OK]**	✓	The product has detected a jam.	Clear the jam from the location indicated, and then press the OK button.
Load paper	✓	All trays are empty.	Load print media.
Load tray # <TYPE> <SIZE>	✓	A tray is configured for the media type and size that the print job is requesting, but that tray is empty.	Load the correct media into the tray, or press the OK button to use media in a different tray.
Load tray 1 plain <SIZE> **Cleaning Mode** [OK] to start	✓	The product is ready to process the cleaning operation.	Load Tray 1 with plain paper in the size indicated, and then press the OK button.
Load tray 1 <TYPE> <SIZE>	✓	No trays are configured for the media type and size that the print job is requesting.	Load the correct media into Tray 1, or press the OK button to use media in a different tray.
Lower right door open	✓	The door on the right side of the paper feeder is open.	Close the door.

Control-panel message	Status alert	Description	Recommended action
Manual duplex **Load tray X press [OK]**		The first side of a manual duplex job has printed, and the page needs to be loaded to process the second side.	Load the page in the indicated tray with the side to be printed face up, and the top of the page away from you, and then press the OK button.
Manual feed <TYPE> <SIZE> **Press [OK] for available media**	✓	The product is set for manual feed mode.	Press the OK button to clear the message *or* load the correct media into Tray 1.
Memory is low **Press [OK]** **Try again later or turn off & on**	✓	The product memory is almost full.	Press the OK button to cancel the job. Break the job into smaller jobs that contain fewer pages.
Misprint **Press [OK]**	✓	Print media has been delayed as it moves through the product.	Press the OK button to clear the message.
Non HP supply in use		A non-HP supply is installed.	This message is temporary and will disappear after several seconds. If you believe you purchased an HP supply, go to www.hp.com/go/anticounterfeit. Service or repairs that are required as a result of using non-HP supplies are not covered under HP warranty.
Print failure **Press [OK]** alternates with **If error repeats turn off then on**	✓	The product cannot process the page.	Press the OK button to continue printing the job, but output might be affected. If the error persists, turn the power off and then on. Resend the print job.
Rear door open	✓	The product rear door is open.	Close the door.
Remove shipping locks from <color> cartridge	✓	A print cartridge shipping lock is installed.	Be sure that the print cartridge shipping lock has been removed.
Remove shipping locks from all cartridges	✓	A print cartridge shipping lock is installed on one or more print cartridges.	Be sure that each print cartridge shipping lock has been removed.
Remove shipping material from rear door	✓	The two shipping locks have not been removed from the rear roller.	Open the rear door and remove the shipping locks.
Replace <color> cartridge	✓	The product can be configured to stop when the supply level is very low. The supply might still be able to produce acceptable print quality.	Replace the cartridge if print quality is no longer acceptable.

Control-panel message	Status alert	Description	Recommended action
Replace supplies	✓	More than one supply item is low.	Check the supply-level gauges on the control panel, or, if possible, print a supplies status page to determine which cartridges are low.
Right door open	✓	**CLOSE RIGHT DOOR** message appears although the door is closed.	1. Reconnect the connector (J708) of the 24V interlock switch and the connector (J121X) on the DC controller PCA. 2. Check the sensor flag of the right door. If it is damaged, replace the right door sensor unit. Close the door.
Unexpected size in tray # **Load <size> press [OK]**	✓	**SIZE MISMATCH** message appears although the media is loaded on the configured pickup source with correct size.	1. Run the switch test in the sensor monitor mode to verify that the corresponding media width switch and media end width switch are functioning correctly. 2. Reconnect the corresponding connector of the switch: ◦ Printer cassette: Intermediate connector (J742) and the connector (J151) on the DC controller PCA. ◦ PF cassette: Connector (J2007) on the PF controller PCA.
Used <color> Cartridge in use	✓	A used print cartridge was detected and accepted.	No action necessary.
Used <color> installed **To accept press [OK]**	✓	The product has detected a used print cartridge that was installed.	Press the OK button to continue.
Used cartridges installed **To accept press [OK]**	✓	The product has detected multiple used print cartridges that were installed.	Press the OK button to continue.
Used supplies in use	✓	Used print cartridges are installed.	No action necessary.
Used supply installed **To accept press [OK]**	✓	A used print cartridge is installed.	Press the OK button to continue.

Event-log messages

Print an event log

Print the event log

The event log is located on the configuration page (labeled Status Log) and lists the last five events.

1. Press the OK button to open the menus.
2. Use the arrow buttons to select the **Reports** menu, and then press the OK button.
3. Use the arrow buttons to navigate to the **Configuration Report** option, and then press the OK button to print the report.
4. Press the cancel button to exit the menus.

Event-log messages

NOTE: Unless otherwise noted, the event log messages in the following table do not have a corresponding control-panel message.

Table 3-2 Event log only messages

Event log message	Description
54.01	Environmental sensor error
54.06	Color density sensor error
54.14	Color plane registration sensor error
54.11	Black density out of range
54.1101	Cyan density out of range
54.1102	Magenta density out of range
54.1103	Yellow density out of range
54.1200	Black density measurement abnormality
54.1201	Cyan density measurement abnormality
54.1202	Magenta density measurement abnormality
54.1203	Yellow density measurement abnormality
54.21	Beam detect errors
54.25	Top-of-page sensor abnormality

Clear jams

Common causes of jams

Common causes of jams

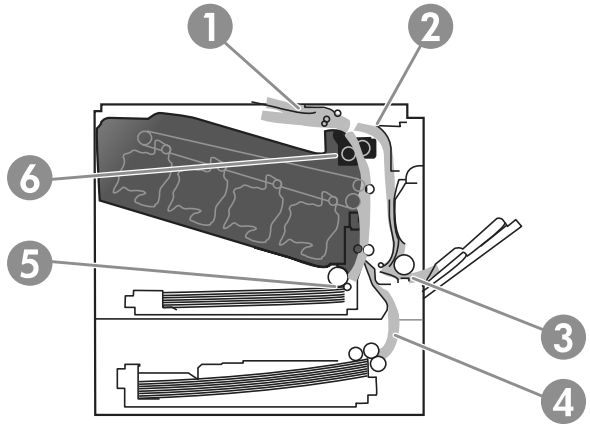
Cause	Solution
The paper length and width guides are not adjusted correctly.	Adjust the guides so they are against the paper stack.
The media does not meet specifications.	Use only media that meets HP specifications.
You are using media that has already passed through a printer or copier.	Do not use media that has been previously printed on or copied.
An input tray is loaded incorrectly.	Remove any excess media from the input tray. Make sure that the stack is below the maximum stack height mark in the tray.
The media is skewed.	The input-tray guides are not adjusted correctly. Adjust them so they hold the stack firmly in place without bending it.
The media is binding or sticking together.	Remove the media, flex it, rotate it 180 degrees, or flip it over. Reload the media into the input tray. NOTE: Do not fan paper. Fanning can create static electricity, which can cause paper to stick together.
The media is removed before it settles into the output bin.	Wait until the page completely settles in the output bin before removing it.
The paper is too heavy.	Do not use paper that exceeds the supported weights for the input tray. Do not use paper that exceeds the supported weight for automatic duplex printing.
The media is in poor condition.	Replace the media.
The internal rollers from the tray are not picking up the media.	Remove the top sheet of media. If the media is too heavy, it might not be picked from the tray.
The media has rough or jagged edges.	Replace the media.
The media is perforated or embossed.	Perforated or embossed media does not separate easily. Load sheets one at a time.
Paper was not stored correctly.	Replace the paper in the trays. Paper should be stored in the original packaging in a controlled environment.

Jam locations

Use this illustration to identify locations of jams. In addition, instructions appear on the control panel to direct you to the location of jammed paper and how to clear it.

NOTE: Internal areas of the product that might need to be opened to clear jams have green handles or green labels.

Figure 3-22 Jam locations



1	Output-bin area
2	Duplexing area
3	Tray 1 area
4	Optional 500-sheet paper and heavy media tray (Tray 3)
5	Tray 2 pickup area
6	Fuser area

Change Jam Recovery setting

When the Jam Recovery feature is turned on, the product reprints any pages that are damaged during a jam.

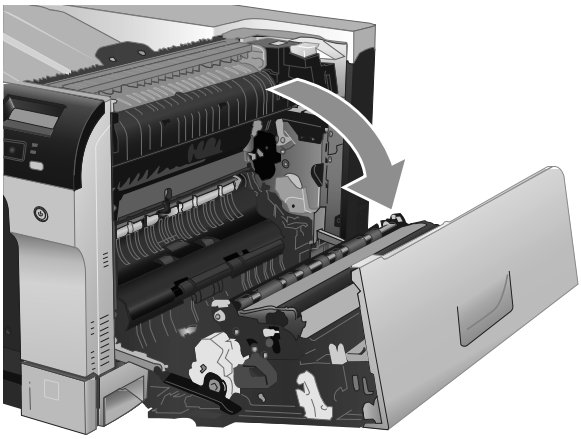
Use the embedded Web server to turn on the Jam Recovery feature.

1. Open the EWS.
2. Click the **System** tab, and then click the **System Setup** page.
3. In the **Jam Recovery** drop-down list, select the **On** option.

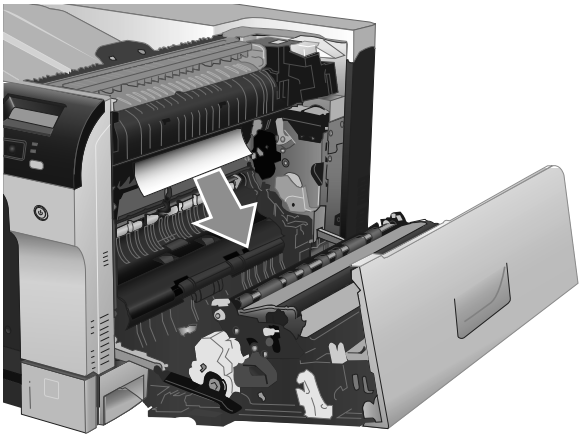
Clear jams in the right door

△ **CAUTION:** The fuser can be hot while the product is in use. Wait for the fuser to cool before handling it.

1. Open the right door.

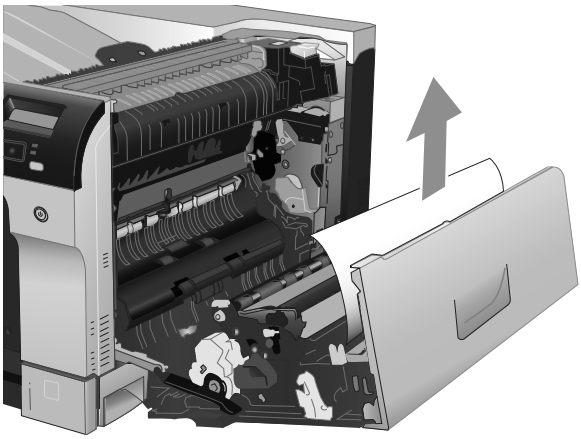


2. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.

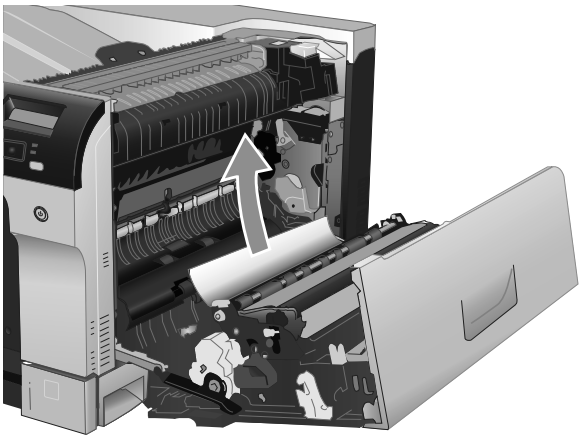


△ **CAUTION:** Do not touch the rollers. Contaminates can affect print quality.

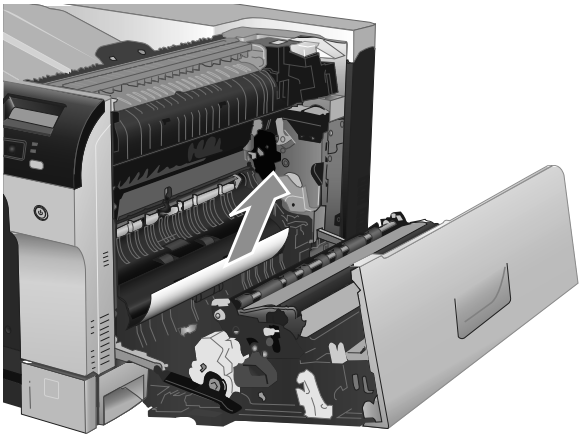
3. If paper is jammed inside the right door, gently pull the paper to remove it.



4. If jammed paper is present in the duplex path, gently pull the paper straight out to remove it.



5. Gently pull the paper out of the Tray 2 or Tray 3 pickup areas.

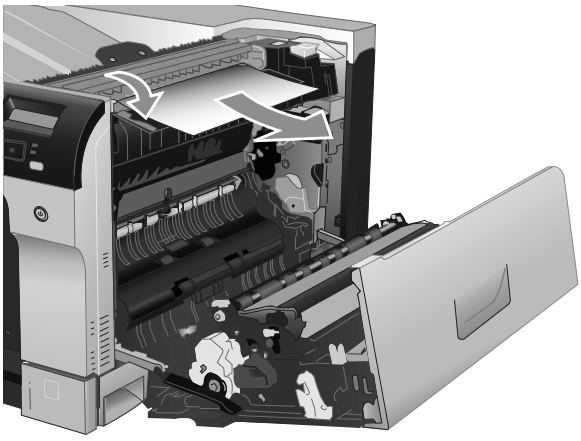


6. Paper could be jammed inside the fuser where it would not be visible. Open the fuser to check for jammed paper inside.

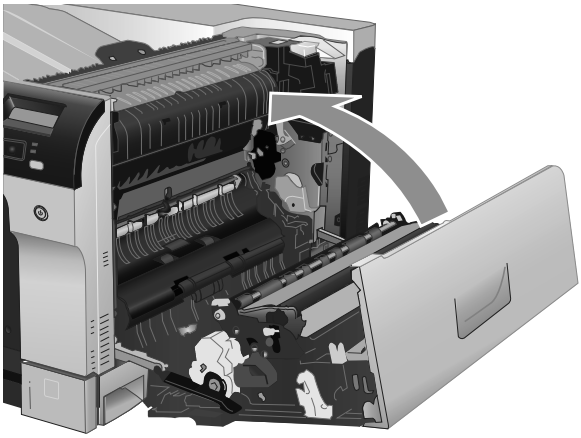
△ **CAUTION:** The fuser can be hot while the product is in use. Wait for the fuser to cool before handling it.

Lift the green tab on the left side of the fuser to open the fuser jam-access door. If paper is jammed inside the fuser, gently pull it straight out to remove it. If the paper tears, remove all paper fragments.

△ **CAUTION:** Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers until they have cooled.

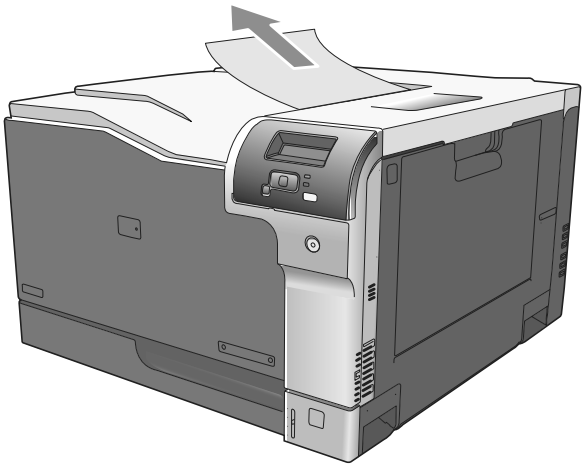


7. Close the right door.

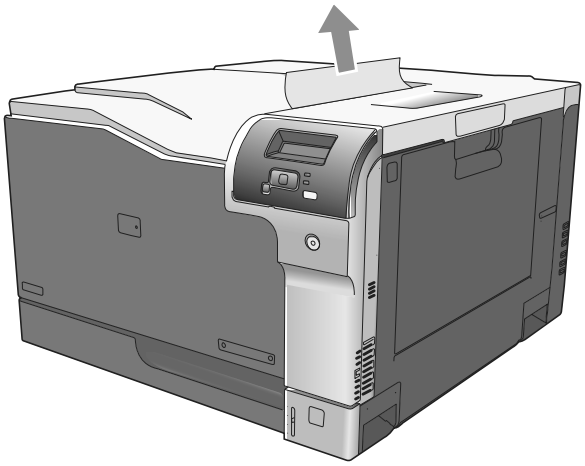


Clear jams in the output bin area

1. If paper is visible from the output bin, grasp the leading edge and remove it.

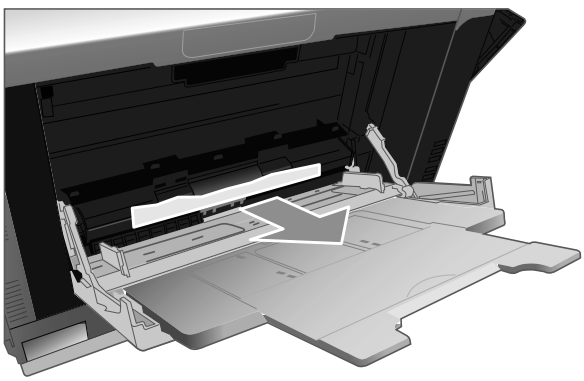


2. If jammed paper is visible in the duplex output area, gently pull it to remove it.

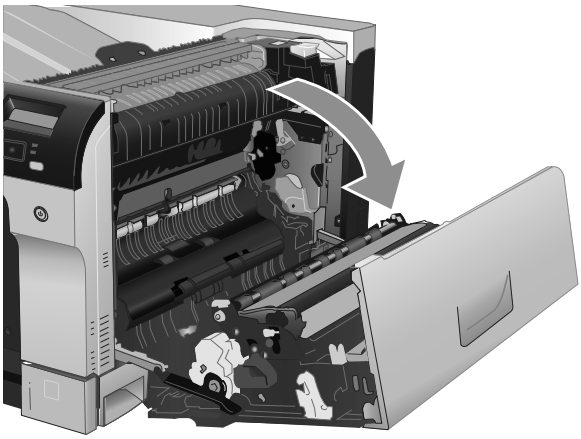


Clear jams in Tray 1

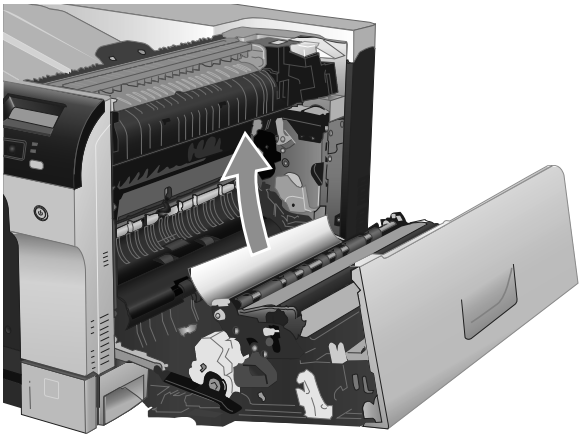
1. If jammed paper is visible in Tray 1, clear the jam by gently pulling the paper straight out. Press the OK button to clear the message.



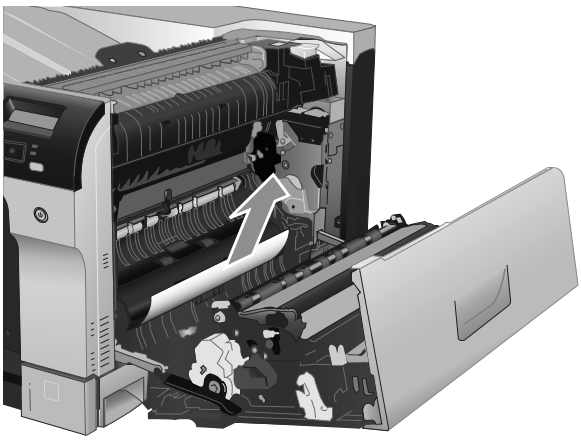
2. If you cannot remove the paper, or if no jammed paper is visible in Tray 1, close Tray 1 and open the right door.



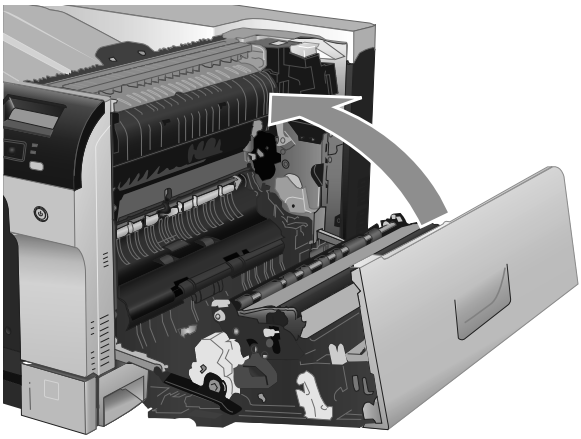
3. If paper is visible inside the right door, gently pull the trailing edge to remove it.



4. Gently pull the paper out of the pick up area.



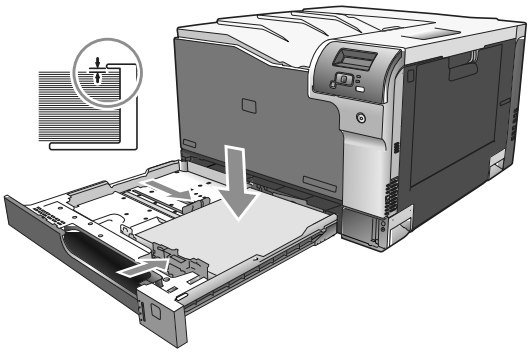
5. Close the right door.



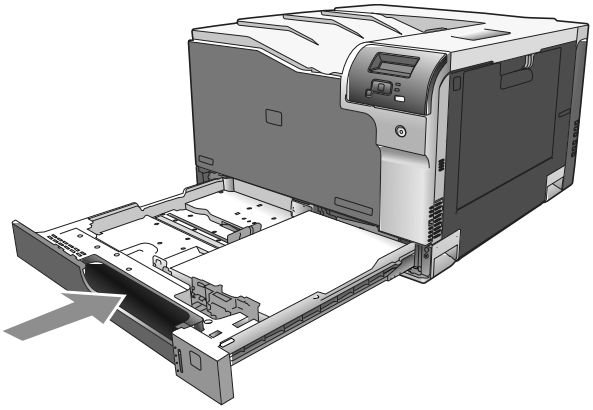
Clear jams in Tray 2

△ **CAUTION:** Opening a tray when paper is jammed can cause the paper to tear and leave pieces of paper in the tray, which might cause another jam. Be sure to clear jams before opening the tray.

1. Open Tray 2 and make sure that the paper is stacked correctly. Remove any jammed or damaged sheets of paper.

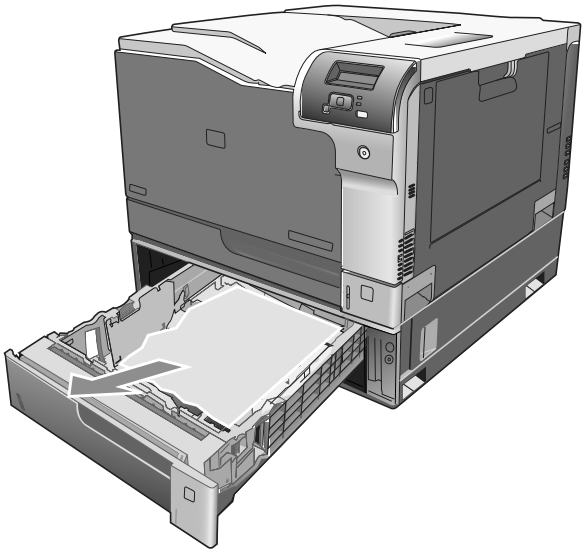


2. Close the tray.

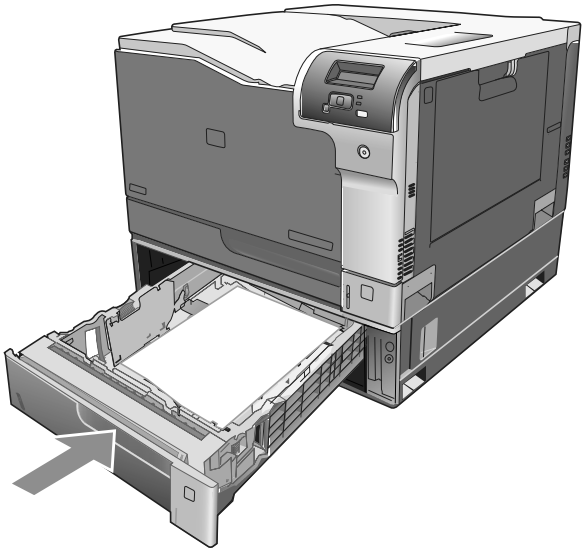


Clear jams in the optional 500-sheet paper and heavy media tray (Tray 3)

1. Open Tray 3 and make sure that the paper is stacked correctly. Remove any damaged or jammed sheets of paper.

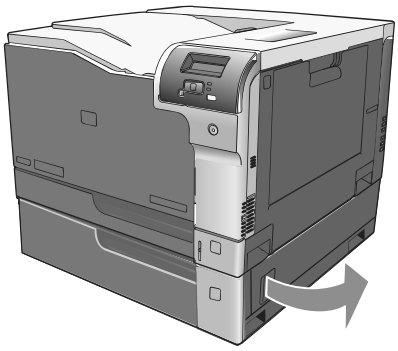


2. Close Tray 3.

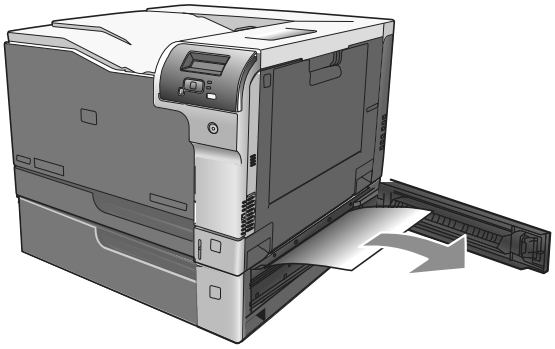


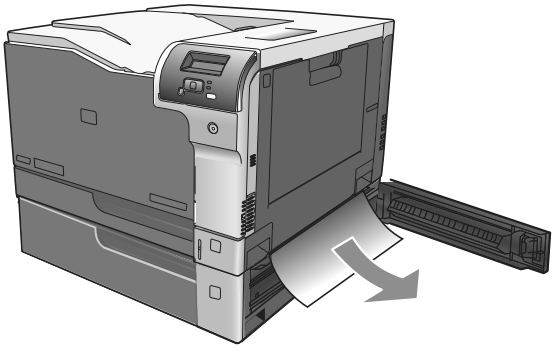
Clear jams in the lower right door (Tray 3)

1. Open the lower right door.

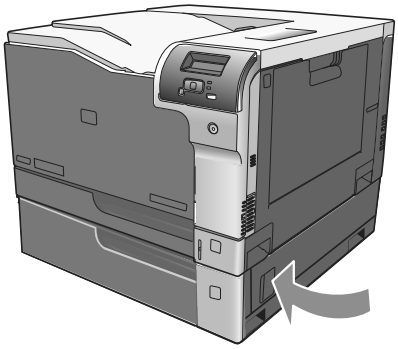


2. If paper is visible, gently pull the jammed paper up or down to remove it.





3. Close the lower right door.

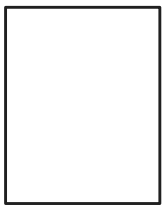
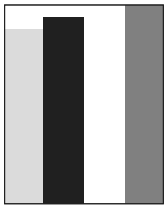


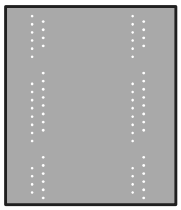
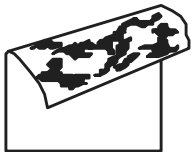
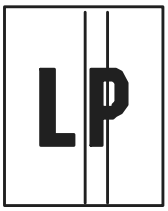
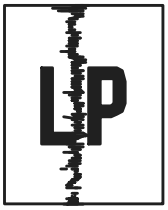
Solve image-quality problems

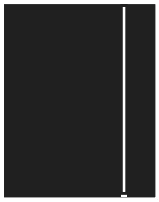
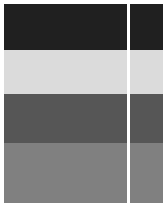
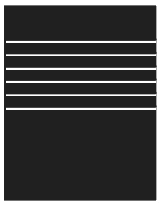
Occasionally, you might encounter problems with print quality. The information in the following sections helps you identify and resolve these issues.

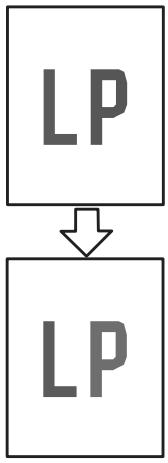
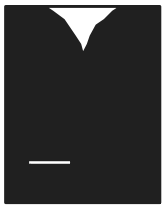
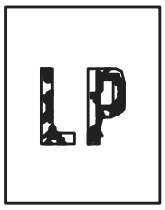
Image defects table

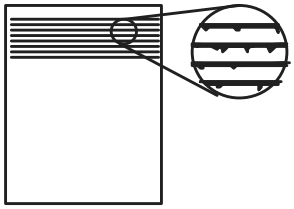
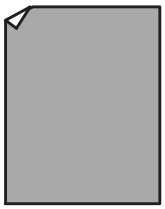
The following examples depict letter-size paper that has passed through the product short-edge first. These examples illustrate problems that would affect all the pages that you print, whether you print in color or in black only. The topics that follow list the typical cause and solution for each of these examples.

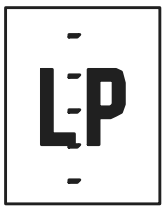
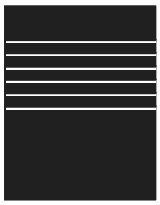
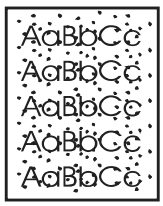
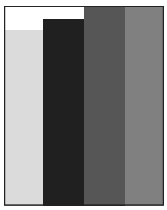
Problem	Sample	Cause	Solution
Print is light or faded on entire page.		Poor contacts exist on the ITB unit and the product grounding unit.	Clean the grounding contacts. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
		Poor secondary transfer contacts exist on the secondary transfer roller and the ITB.	Clean the contacts. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
Print is light or faded in a particular color.		Poor primary transfer bias contacts on the ITB unit and product.	Clean the contacts of the color that produces the light print. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
		Poor primary charging bias contacts with the print cartridge and product.	
		Poor developing bias contacts with the print cartridge and product.	
Image is too dark.		The RD sensor is defective.	Replace the RD sensor. See Registration sensor assembly on page 112.
Page is blank.		The high-voltage power-supply lower is defective (no developing bias output).	Replace the high-voltage power-supply lower. See Imaging (developing) high-voltage power supply on page 152.
One color is missing.		The print cartridge for the missing color has not released the charge-roller alienation mechanism.	Remove and reinstall the print cartridge to release the alienation mechanism.

Problem	Sample	Cause	Solution
The page is all black or a solid color.		Poor contact exists in the primary charging bias or developing bias contacts between the print cartridge and the product.	Clean each contact of the color that produces the all black or solid color. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts. Replace the affected print cartridge.
White spots appear in an image		The primary transfer roller is deformed or has deteriorated.	Replace the ITB. See Intermediate transfer belt (ITB) on page 87.
		The secondary transfer roller is deformed or has deteriorated.	Replace the secondary-transfer-roller. See Secondary transfer roller on page 86.
The back of the page is dirty.		The secondary transfer roller is dirty.	Replace the secondary transfer roller. See Secondary transfer roller on page 86.
		The fuser inlet guide or separation guide is dirty.	Clean the dirty parts. If the dirt does not come off, replace the guide.
		The pressure roller is dirty.	Run the cleaning page several times. If the dirt does not come off, send a fuser cleaning kit. If the issue persists, replace the fuser. See Fuser on page 79.
Vertical streaks or bands appear on the page.		Scratches are present on the circumference of the photosensitive drum.	Replace the print cartridge of the color that matches the defect.
		Scratches are present on the circumference of the fuser roller.	Replace the fuser. See Fuser on page 79.
		Scratches are present on the circumference of the ITB.	Replace the ITB. See Intermediate transfer belt (ITB) on page 87.
		The ITB drive roller is deformed or has deteriorated.	
		The ITB cleaning mechanism is malfunctioning.	

Problem	Sample	Cause	Solution
Vertical white lines appear in a particular color.		The laser beam window is dirty.	Use the **Cleaning Mode** option in the **Service** menu to process the cleaning page. If this does not solve the problem, use the **Cleaning mode 2** option in the **Secondary service** menu to move the print cartridges to the engaged position so that you can access the glass strip on the bottom of the laser scanner for cleaning.
		Scratches are present on the circumference of the developing cylinder or photosensitive drum. White scratch down the page could mean the scanner glass needs to be cleaned.	Remove the affected print cartridge and re-install. The PGCs will clean the glass. If the problem persists, replace the affected print cartridge.
		The laser scanner-unit mirror is dirty.	Replace the laser scanner assembly. See Laser scanner assembly on page 105.
Vertical white lines appear in all colors.		Horizontal scratches on the fuser roller.	Replace the fuser. See Fuser on page 79.
		Scratches are present on the circumference of the ITB. White scratch down the page could mean the scanner glass needs to be cleaned.	Remove the affected print cartridge and re-install. The PGCs will clean the glass. Replace the ITB. See Intermediate transfer belt (ITB) on page 87.
Horizontal lines appear on the page.		Repetitive horizontal lines appear.	Use the repetitive defects ruler to identify the dirty roller. Clean the roller. If the roller cannot be cleaned, replace the fuser. See Fuser on page 79.
		Horizontal scratches are present on the photosensitive drum.	Replace the print cartridge of the color that matches the defect.
		Horizontal scratches are present on the fuser roller.	Replace the fuser. See Fuser on page 79.
A horizontal white line appears on the page.		Repetitive horizontal white lines appear.	Use the repetitive defects ruler to identify the dirty roller. Clean the roller. If the roller cannot be cleaned, replace the roller.
		Horizontal scratches are present on the photosensitive drum.	Replace the print cartridge of the color that matches the defect.
		Scratches are present on the circumference of the ITB.	Replace the ITB. See Intermediate transfer belt (ITB) on page 87.

Problem	Sample	Cause	Solution
Image in a particular color does not print in the correct color.		Poor contact exists in the primary charging bias or developing bias contacts between the print cartridge and the product.	Clean each contact of the color that produces the missing color. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
		The print cartridge (primary charging roller, developing roller, or photosensitive drum) is defective.	Replace the print cartridge of the color that matches the defect.
		The high-voltage power-supply lower is defective (no primary charging bias or developing bias output).	Replace the high-voltage power-supply lower. See Imaging (developing) high-voltage power supply on page 152.
		The laser scanner unit is defective.	Replace the laser scanner assembly. See Laser scanner assembly on page 105.
Dropouts appear.		The secondary transfer roller is deformed or has deteriorated.	Replace the secondary-transfer-roller. See Secondary transfer roller on page 86.
		The primary charging roller, developing roller, or photosensitive drum is deformed or has deteriorated.	Replace the print cartridge of the color that matches the defect.
		The fuser roller is deformed or has deteriorated.	Replace the fuser.
		The high-voltage power-supply T PCA is defective (no transfer bias output).	Replace the high-voltage power-supply upper. See First transfer high-voltage power supply on page 153.
The toner is not fully fused to the paper.		The fuser roller or pressure roller is scarred or deformed.	Replace the fuser. See Fuser on page 79.
		The thermistor is defective.	Replace the fuser. See Fuser on page 79.
		The fuser heater is defective.	

Problem	Sample	Cause	Solution
Some color is misregistered.		The product is incorrectly calibrated.	Calibrate the product.
		The ITB unit is defective.	If the ITB does not rotate smoothly or a cleaning malfunction occurs (ITB is dirty), replace the ITB. See Intermediate transfer belt (ITB) on page 87.
		The drive gear of the ITB motor is worn or chipped.	Check each drive gear between the ITB drive roller and the ITB motor. If the gear is worn or chipped, replace the drive unit.
		The RD sensor is defective.	Open and close the front door several times to clean the RD sensor. If the problem persists, replace the RD sensor. See Registration sensor assembly on page 112.
		The laser scanner unit is defective.	Replace the laser scanner assembly. See Laser scanner assembly on page 105.
		The print cartridge is defective.	Replace the print cartridge of the affected color.
Toner smears appear on the media.		The product has residual media.	Remove the residual media.
		The fuser inlet guide is dirty.	Clean the fuser inlet guide.
The printed page contains misformed characters.		The product is experiencing page skew.	See the “Text or graphics are skewed on the printed page” row in this table.
		The laser scanner unit is defective.	Replace the laser scanner assembly. See Laser scanner assembly on page 105.
Text or graphics are skewed on the printed page.		The registration shutter spring is unhooked.	Check the spring and place it in the correct position.
		The registration shutter spring is deformed.	Replace the registration sensor assembly. See Registration sensor assembly on page 112.
The printed page contains wrinkles or creases.		The roller or media feed guide is dirty.	Clean any dirty components.
		A feed roller is deformed or has deteriorated.	Replace any deformed or deteriorated rollers.
		The paper feed guide is damaged.	Replace the paper-feed-guide unit.

Problem	Sample	Cause	Solution
The front of the page is dirty.		The photosensitive drum is dirty.	Replace the print cartridge.
		The fuser roller or pressure roller is dirty.	Execute a **Pressure roller clean mode.** If the dirt does not come off, replace the fuser. See Fuser on page 79. **NOTE:** Cleaning the fuser with HP tough paper provides better results than with plain paper. You might need to execute the cleaning process several times to remove all contaminates on the fuser.
Repetitive horizontal lines			See repetitive image defect ruler. Clean the indicated roller. If the contaminate does not come off, replace appropriate roller or assembly.
Pages have flecks of toner			Execute a cleaning page to clean the contaminate off the fuser. The cleaning page may need to be run several time to clean the fuser. Do not replace the fuser. **NOTE:** Cleaning the fuser with HP tough paper provides better results than with plain paper. You might need to execute the cleaning process several times to remove all contaminates on the fuser.
Pages have one or more skewed color planes (can appear on the right or left side of the page)			Remove, and then reinstall the print cartridge associated with the defect.

Clean the product

During the printing process, paper, toner, and dust particles can accumulate inside the product. Over time, this buildup can cause print-quality problems such as toner specks or smearing. This product has a cleaning mode that can correct and prevent these problems.

Clean the product using HP ToolboxFX

1. Open HP ToolboxFX. See Open HP ToolboxFX on page 200.
2. Click the **System Settings** folder, and then click the **Service** page.
3. In the area for **Cleaning Mode**, click the **Start** button to begin the cleaning process.

   The product processes a single page, and then returns to the **Ready** state when the cleaning process is complete.

Clean the product using the control panel

1. Press the OK button to open the menus.
2. Press the arrow buttons to highlight the **Service** menu, and then press the OK button.
3. Press the arrow buttons to highlight the **Cleaning Mode** menu, and then press the OK button.
4. Follow the control-panel instructions to complete the process.

Clean the product using the embedded Web server

1. Open the embedded Web server.
2. Click the **System** tab.
3. Click the **Service** menu.
4. Click the **Start** button.
5. Follow the product control-panel instructions to complete the process.

Solve performance problems

Problem	Cause	Solution
Pages print but are totally blank.	The sealing tape might still be in the print cartridges.	Verify that the sealing tape has been completely removed from the print cartridges.
	The document might contain blank pages.	Check the document that you are printing to see if content appears on all of the pages.
	The product might be malfunctioning.	To check the product, print a configuration page.
Pages print very slowly.	Heavier media types can slow the print job.	Print on a different type of media.
	Complex pages can print slowly.	Proper fusing may require a slower print speed to ensure the best print quality.
	Paper type not set correctly.	Select the type to match the paper.
Pages did not print.	The product might not be pulling media correctly.	Make sure paper is loaded in the tray correctly. If the problem persists, you might need to replace the pickup rollers and the separation pad.
	The media is jamming in the product.	Clear the jam. See Clear jams on page 230. If jams continue, try using a new ream of paper.
	The USB cable might be defective or incorrectly connected.	• Disconnect the USB cable at both ends and reconnect it. • Try printing a job that has printed in the past. • Try using a different USB cable.
	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 direct-connect 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 meters (6 feet). Replace the cable if necessary.
- Verify that the cable is working correctly by connecting it to another product. Replace the cable if necessary.

Solve network problems

Check the following items to verify that the product is communicating with the network. Before beginning, print a configuration page.

Problem	Solution
Poor physical connection	Verify that the product is attached to the correct network port using a cable of the correct length. Verify that cable connections are secure. 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. If the problem continues, try a different cable or port on the hub.
The computer is unable to communicate with the product.	Use the command prompt to ping the product from your computer. For example: `ping 192.168.45.39` Verify that the ping displays round-trip times, which indicates that it is working. 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.
Incorrect link and duplex settings	Hewlett-Packard recommends leaving this setting in automatic mode (the default setting). See the product user guide for more information.
Incorrect IP address for the product on the computer	Use the correct IP address. If the IP address is correct, delete the product and then it add again.
New software programs have caused compatibility problems.	Verify that any new software programs are correctly installed and that they use the correct printer driver.
Your computer or workstation is set up incorrectly.	Check the network drivers, printer drivers, and the network redirection. Verify that the operating system is configured correctly.
The protocol is disabled, or other network settings are incorrect.	Print a configuration page to check the status of the protocol. Enable it if necessary. Use the control panel to reconfigure the network settings if necessary.

Service mode functions

Secondary service menu

Use the secondary service menu to print service-related reports and to run special tests. Customers do not have access to this menu.

Open the secondary service menu

1. Ensure the product is in the **Ready** state.
2. Press the OK button to open the menus.
3. Simultaneously press Left arrow ◄ and the OK button to open the secondary service menu.
4. Press the Left arrow ◄ and the Right arrow ► to navigate through the menu.

Secondary service menu structure

Table 3-3 **2ndary Service menu**

Menu item	Sub-menu item	Description
Service Reports	**Cont. Self-Test**	Print a continuous configuration page.
	Error report	Print an error report.
Location	A list of available locations appears	This item sets certain product parameters that are dependent on the location, such as the default paper size and the symbol set. Scroll to the desired location, and select **Yes** to set the location. The product automatically restarts after you change the location.
Display test		Use this test to verify that the LEDs and characters on the control-panel display function correctly. At the beginning of the test, each of the LEDs illuminates one-at-time. Press OK to continue to the next LED. After the LED test is complete, the character test begins by testing the pixels on each line. Then, each of the 255 characters displays in groups of 16. Press OK to continue to the next group of 16 characters. You can cancel the test at any time by pressing ✖.
Button test		Use this test to verify that the control-panel buttons function correctly. The display prompts you to press each button.
Show FW Version		This item shows the current date code of the firmware.
Color Cal.	**Adjust color**	Use this item to adjust density settings for contrast, highlights, midtones, and shadows. Adjust each color individually.
	Timing	Use this item to specify how frequently the product automatically performs a color calibration. The default setting is 48 hours. You can turn automatic calibration off.
Cleaning mode 2		Use this item to move the print cartridges to the engaged position so that you can access the glass strip on the laser scanner for cleaning.
New Reg. Roller		Use this item to reset the registration roller page count to zero after you have installed a new paper pickup assembly (cassette pickup drive assembly).

Product resets

Restore the factory-set defaults

1. Press the OK button to open the menus.
2. Use the Left arrow ◄ or the Right arrow ► button to select **Service**, and then press OK.
3. Use the Left arrow ◄ or the Right arrow ► button to select **Restore defaults**, and then press the OK button.

   The product automatically restarts.

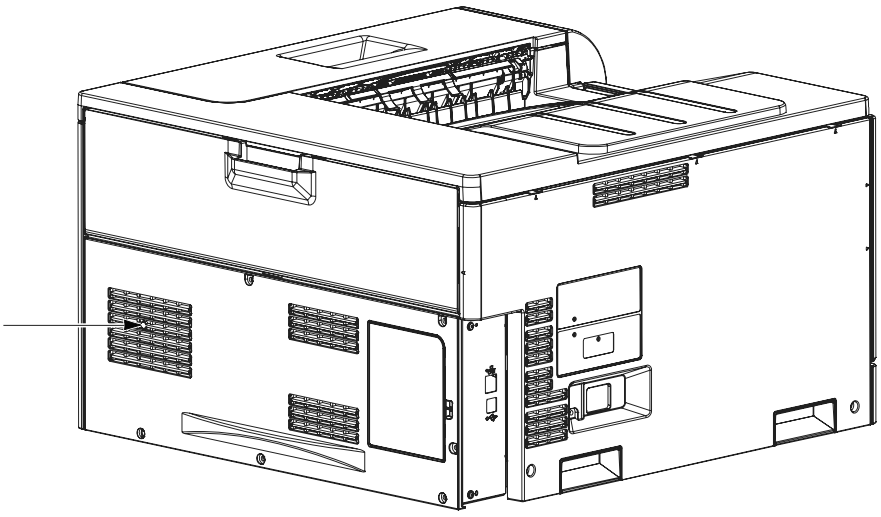
Engine test page

1. Turn the product on.
2. Use a fine-point tool, (for example a precision-slotted screwdriver with a 1 mm (0.04 in) blade width) to press the engine test button.

   NOTE: Access the engine test button through a hole in the rear cover.

3. An engine test page (lines in each of the print cartridge colors) prints.

Figure 3-23 Engine test button location



Cold reset

The traditional cold reset function found in other HP LaserJet products is not supported for this product. The equivalent function is the **Restore Defaults** option in the HP ToolboxFX software or the **Service** menu.

A cold reset unlocks menus that have been previously locked and resets all control-panel menu items to the factory defaults. It does *not* reset the serial number and the page counts.

NOTE: Before restoring defaults, print a menu structure report and a configuration page. Use the information on these pages to reset customer-specific settings.

△ **CAUTION:** All HP Jetdirect settings are also reset. Be sure to print a configuration page before restoring defaults. Make note of the IP address that is listed on the Jetdirect configuration page. You might need to restore the IP address after performing a cold reset.

NVRAM initialization

△ **CAUTION:** All network settings are also reset. Be sure to print a configuration page before performing an NVRAM initialization. Make note of the IP address that is listed on the configuration page. You need to restore the IP address after performing an NVRAM initialization.

Performing an NVRAM initialization resets the following settings and information:

- All menu settings are reset to factory default values.
- All localization settings, including language and country/region, are reset.

After performing an NVRAM initialization, reconfigure any computers that print to this product so that the computers can recognize the product.

Perform an NVRAM initialization

1. Turn the product off.
2. Simultaneously press the Right arrow ► button and the X button. Keep these buttons depressed as you turn the product on.
3. When **Permanent storage init.** appears on the display, release both buttons.
4. When the product has finished the NVRAM initialization, it returns to the **Ready** state.

Super NVRAM initialization

A super NVRAM initialization clears all the data stored in the protected NVRAM settings, including the language for the product.

△ **CAUTION:** All network settings are also reset. Be sure to print a configuration page before performing an NVRAM initialization. Make note of the IP address that is listed on the configuration page. You need to restore the IP address after performing an NVRAM initialization.

Perform a super NVRAM initialization

1. Turn the product off.
2. Simultaneously press the Left arrow ◄ button and the X button. Keep these buttons depressed as you turn the product on.
3. When **Permanent storage init.** appears on the display, release both buttons.
4. When the product has finished the super NVRAM initialization, it prompts you to set the language for the product. The product then restarts.

Product updates

To upgrade the product firmware, download the firmware update file from www.hp.com/go/ljcp5220series_software and save the file to your network or personal computer. Refer to the product install notes for instructions on how to install the firmware update file on the product.

4 Parts and diagrams

- Order parts by authorized service providers
- How to use the parts lists and diagrams
- Assembly locations
- External covers, panels, and doors
- Right door assembly
- Internal components (1 of 6)
- Internal components (2 of 6)
- Internal components (3 of 6)
- Internal components (4 of 6)
- Internal components (5 of 6)
- Internal components (6 of 6)
- Cassette
- Paper pickup assembly
- Paper delivery assembly
- Printed circuit assemblies
- Paper feeder external components
- Paper feeder internal components
- Paper feeder PCA
- Alphabetical parts list
- Numerical parts list

Order parts by authorized service providers

Order parts, accessories, and supplies

Table 4-1 Order parts, accessories, and supplies

Order supplies and paper	www.hp.com/go/suresupply
Order genuine HP parts or accessories	www.hp.com/buy/parts
Order through service or support providers	Contact an HP-authorized service or support provider.
Order using HP software	For information about using the HP software to order parts, accessories, and supplies, see the product user guide.

Related documentation and software

Table 4-2 Related documentation and software

Item	Description	Part number
HP Color LaserJet CP5220 Series Printer User Guide	Product user guide	CE710-90921
HP Color LaserJet CP5220 Series Printer Service Manual	English service manual (this manual)	CE710-90910

Supplies part numbers

Table 4-3 **Supplies part numbers**

Item	Description	Part number
HP LaserJet print cartridges with HP ColorSphere toner	Black print cartridge	CE740A (new) CE740-67901 (service)
	Cyan print cartridge	CE741A (new) CE741-67901 (service)
	Yellow print cartridge	CE742A (new) CE742-67901 (service)
	Magenta print cartridge	CE743A (new) CE743-67901 (service)

Customer self repair parts

Each kit includes parts and installation instructions. The CSR level indicates the expected difficulty the customer will experience when replacing this part:

- A = Easy
- B = Difficult
- C = Very difficult

Item	Part number	CSR level
110V Fuser kit	CE710-69001	A
220V Fuser kit	CE710-69002	A
ITB kit • ITB assembly • Secondary transfer roller assembly	CE710-69003	A
Secondary transfer roller (T2) kit	CE710-69004	A
Toner collection unit kit	CE710-69005	A
Tray 1 paper pickup roller kit • Paper pickup roller • Separation pad	CE710-69006	A

Item	Part number	CSR level
Tray 2 paper pickup roller kit • Paper pickup roller assembly • Separation roller assembly	CE710-69007	A
Tray 3 paper pickup roller kit • Paper pickup roller assembly • Feed roller assembly	CE710-69008	A

Accessories part numbers

Table 4-4 Accessories part numbers

Item	Description	Part number
144-pin DDR2 memory DIMM (dual inline memory module)	64 MB	CB421AX
	128 MB	CB422AX
	256 MB	CB423AX
Optional 500-sheet tray and feeder unit	Optional tray to increase paper capacity.	CE860A (new) CE530-69001 (service)
USB cable	2-meter A-to-B cable	C6518A
Power cord	AC power cord	8121-0868

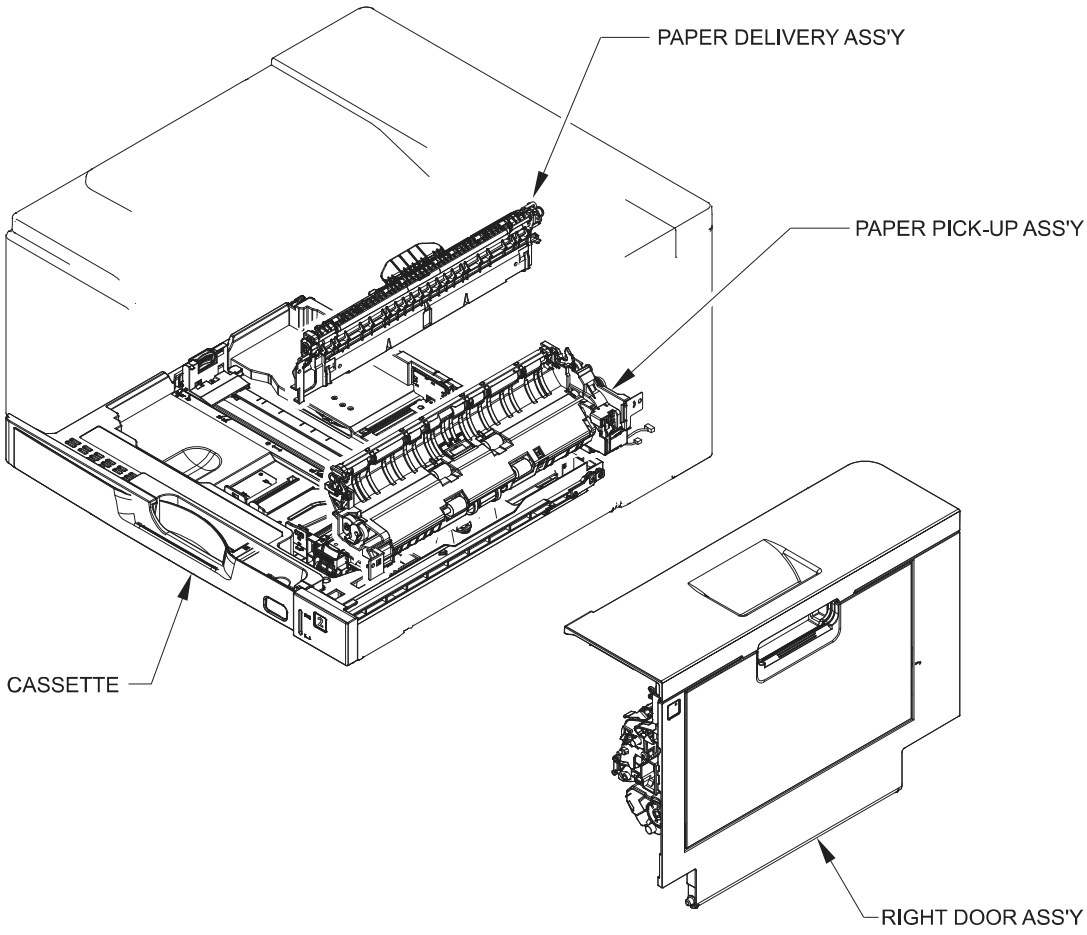
How to use the parts lists and diagrams

The figures in this chapter show the major subassemblies in the product and their component parts. A parts list table follows each exploded view assembly diagram. Each table lists the item number, the associated part number, and the description of each part. If a part is not listed in the table, then it is not a field replacement unit (FRU).

△ **CAUTION:** Be sure to order the correct part. When looking for part numbers for electrical components, pay careful attention to the voltage that is listed in the description column. Doing so will ensure that the part number selected is for the correct all-in-one model.

NOTE: In this manual, the abbreviation “PCA” stands for “printed circuit-board assembly.” Components described as a PCA might consist of a single circuit board or a circuit board plus other parts, such as cables and sensors.

Assembly locations



External covers, panels, and doors

Figure 4-1 External covers, panels, and doors

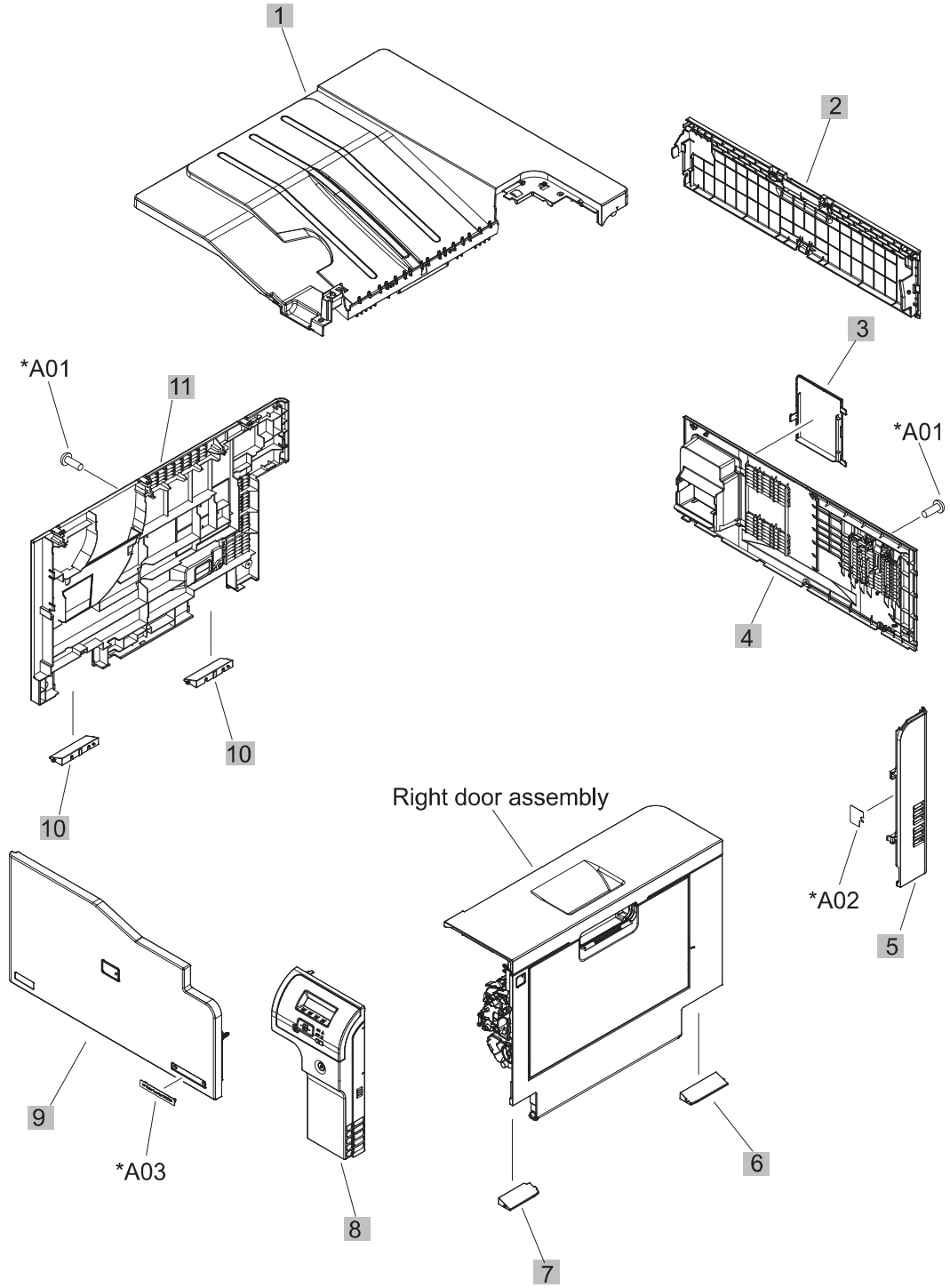


Table 4-5 **External covers, panels, and doors**

Ref	Description	Part number	Qty
1	Cover, top	RM1-7149-000CN	1
2	Door, toner collection unit access	RC2-7034-000CN	1
3	Cover, DIMM	RC2-9033-000CN	1
4	Cover, rear	RM1-7146-000CN	1
5	Cover, right rear	RM1-7142-000CN	1
6	Cover, handle, lower-right, rear	RC2-6626-000CN	1
7	Cover, handle, lower-right, front	RC2-6627-000CN	1
8	Cover, right front assembly	RM1-7145-000CN	1
9	Cover, front assembly	RM1-7133-000CN	1
10	Cover, handle, lower-left	RC2-6625-000CN	1
11	Cover, left assembly	RM1-7143-000CN	1

Right door assembly

Figure 4-2 Right door assembly

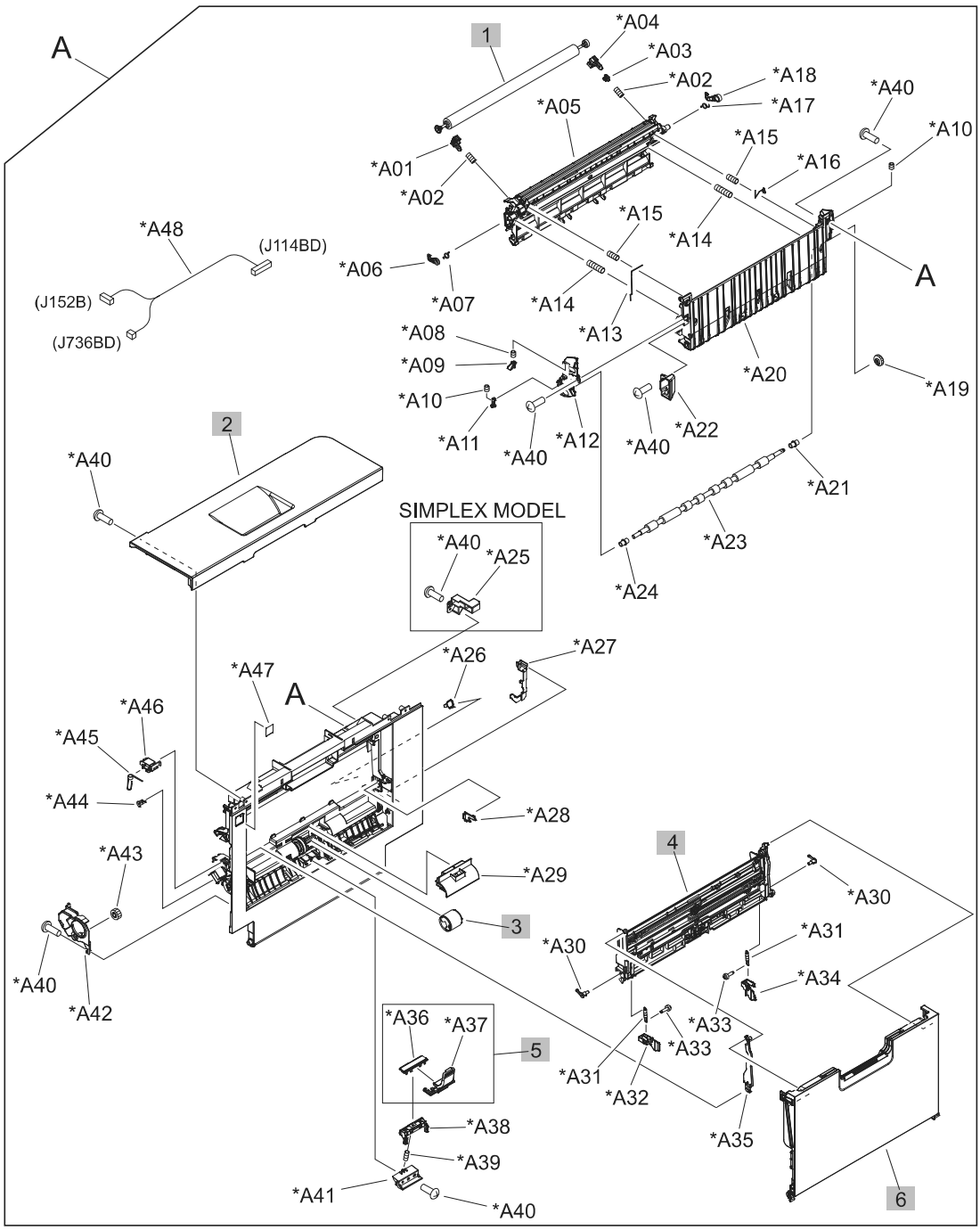


Table 4-6 **Right door assembly**

Ref	Description	Part number	Qty
A	Right door assembly, duplex model	RM1-6104-000CN	1
A	Right door assembly, simplex model	RM1-6139-000CN	1
1	Roller, secondary transfer, T2 (included in the service kit)	CE710-69004	1
2	Door, right upper	RC2-7091-000CN	1
3	Roller, paper pickup, Tray 1 (included in the service kit)	CE710-69006	1
4	Lifter plate assembly, Tray 1	RM1-6043-000CN	1
5	Separation pad, Tray 1 (included in the service kit)	CE710-69006	1
6	Tray 1 (MP tray) assembly	RM1-6045-000CN	1

Internal components (1 of 6)

Figure 4-3 Internal components (1 of 6)

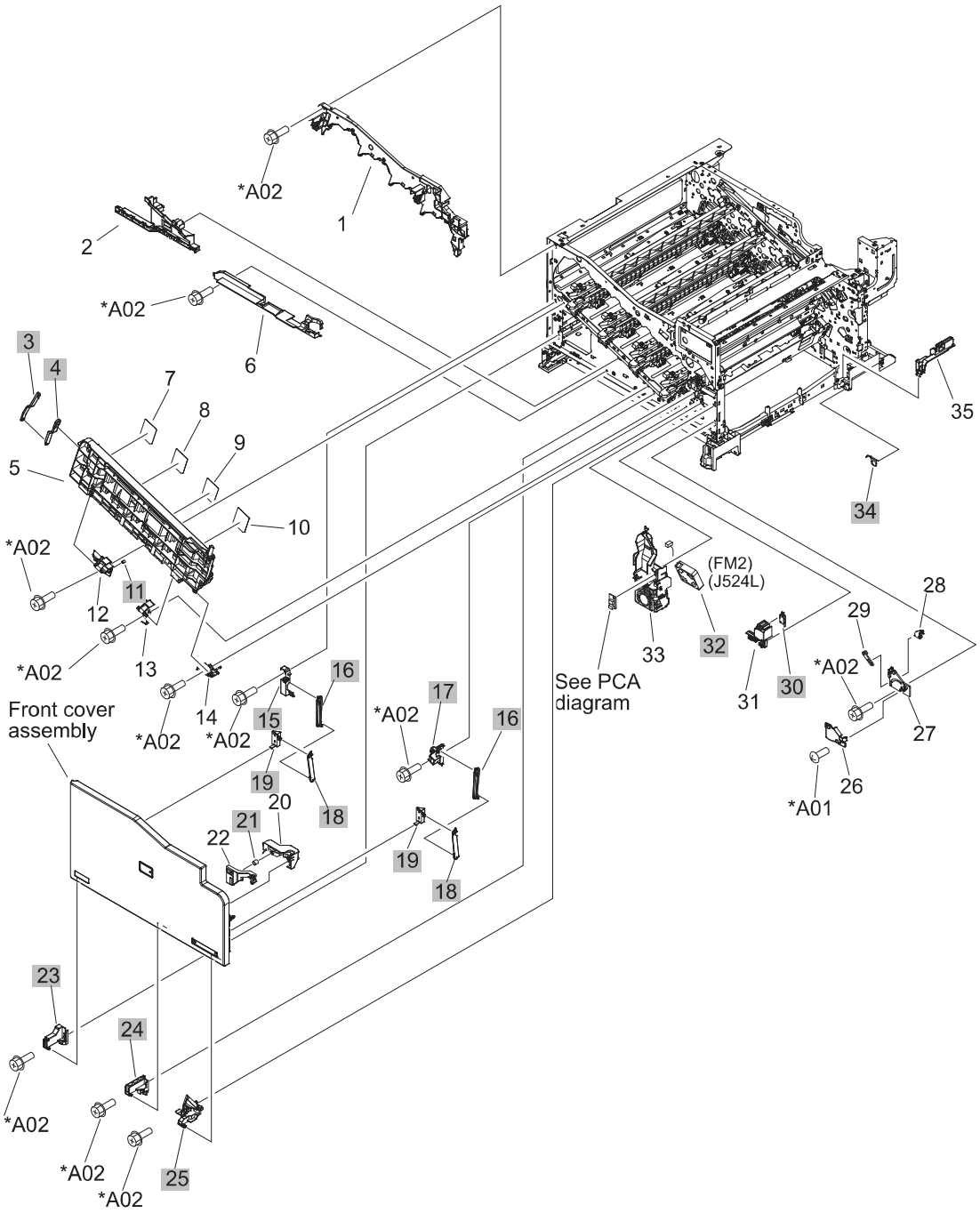


Table 4-7 **Internal components (1 of 6)**

Ref	Description	Part number	Qty
3	Stopper, inner door, 1	RC2-6719-000CN	1
4	Stopper, inner door, 2	RC2-6736-000CN	1
11	Spring, grounding	RC2-7209-000CN	1
15	Mount, cover arm, front	RC2-6735-000CN	1
16	Arm, front cover, 1	RC2-6732-000CN	2
17	Mount, inner door toggle	RC2-6717-000CN	1
18	Arm, front cover, 2	RC2-6733-000CN	2
19	Mount, stopper arm	RC2-6745-000CN	2
21	Spring, compression	RU6-2721-000CN	1
23	Hinge, front cover, left	RC2-6713-000CN	1
24	Hinge, front cover, center	RC2-6738-000CN	1
25	Hinge, front cover, right	RC2-6715-000CN	1
30	Microswitch	WC4-5251-000CN	1
32	Fan, fuser	RK2-2728-000CN	1
34	Spring, leaf, grounding	RC2-7092-000CN	1

Internal components (2 of 6)

Figure 4-4 Internal components (2 of 6)

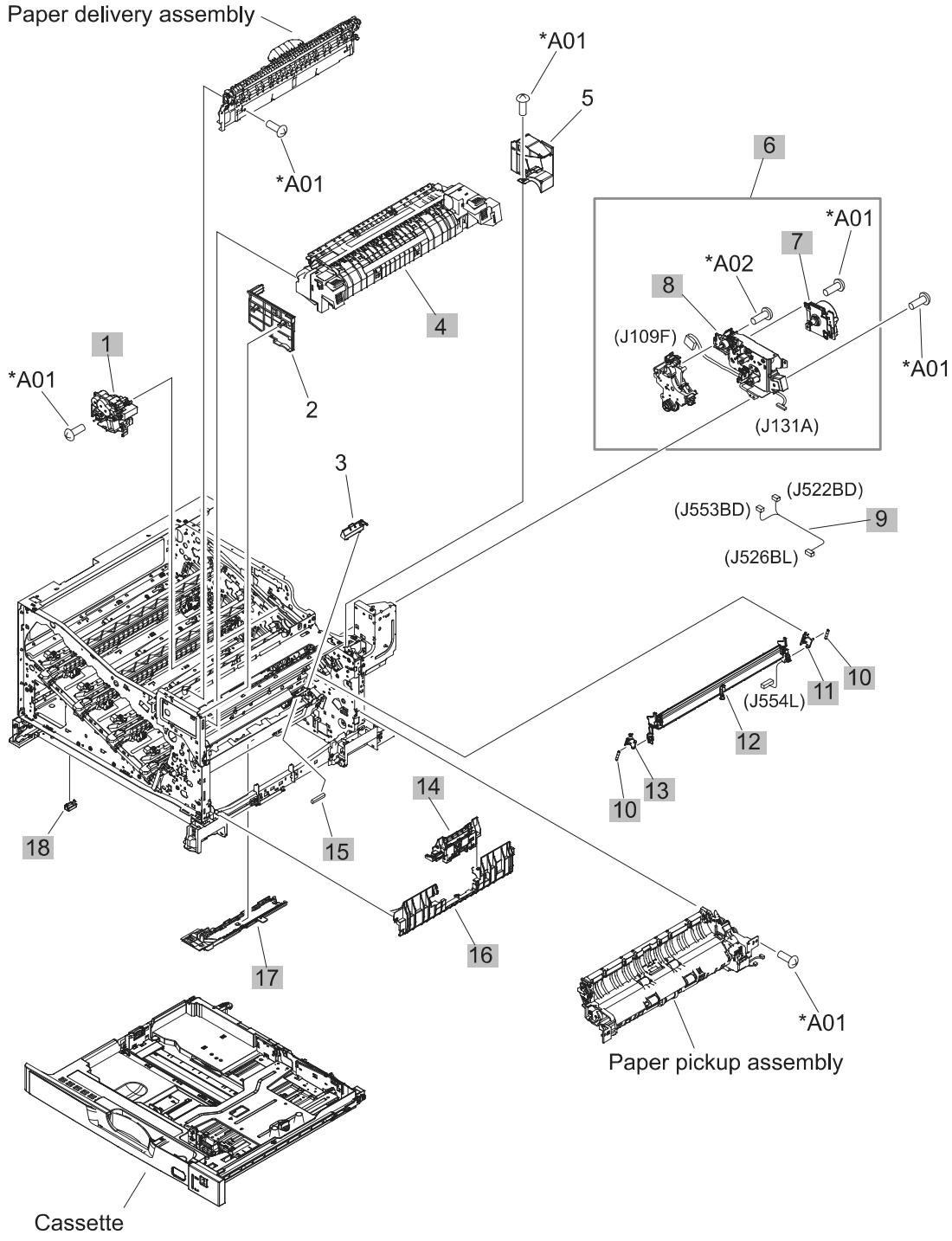


Table 4-8 **Internal components (2 of 6)**

Ref	Description	Part number	Qty
1	Drive assembly, duplex reverse (duplex model only)	RM1-6167-000CN	1
1	Drive assembly, simplex model	RM1-6121-000CN	1
4	Fuser assembly, 110V (included in service kit)	CE710-69001	1
4	Fuser assembly, 220V (included in service kit)	CD710-69002	1
6	Fuser drive assembly	RM1-6076-000CN	1
7	Fuser motor assembly	RM1-6075-000CN	1
8	Gear assembly, fuser	RM1-7914-000CN	1
9	Cable, SV joint, low-voltage power supply	RM1-6868-000CN	1
10	Spring, tension, registration sensor	RU6-2710-000CN	2
11	Support, frame, rear	RC2-7197-000CN	1
12	Registration sensor assembly	RM1-6002-000CN	1
13	Support, frame, front	RC2-7196-000CN	1
14	Separation roller assembly (included in service kit)	CE710-69007	1
15	Connector, snap tight, black	VS1-7207-019CN	1
16	Guide, paper feed	RC2-7297-000CN	1
17	Sensor, cassette last paper presence	RM1-6164-000CN	1
18	Cover, connector, lower	RC2-6642-000CN	1

Internal components (3 of 6)

Figure 4-5 Internal components (3 of 6)

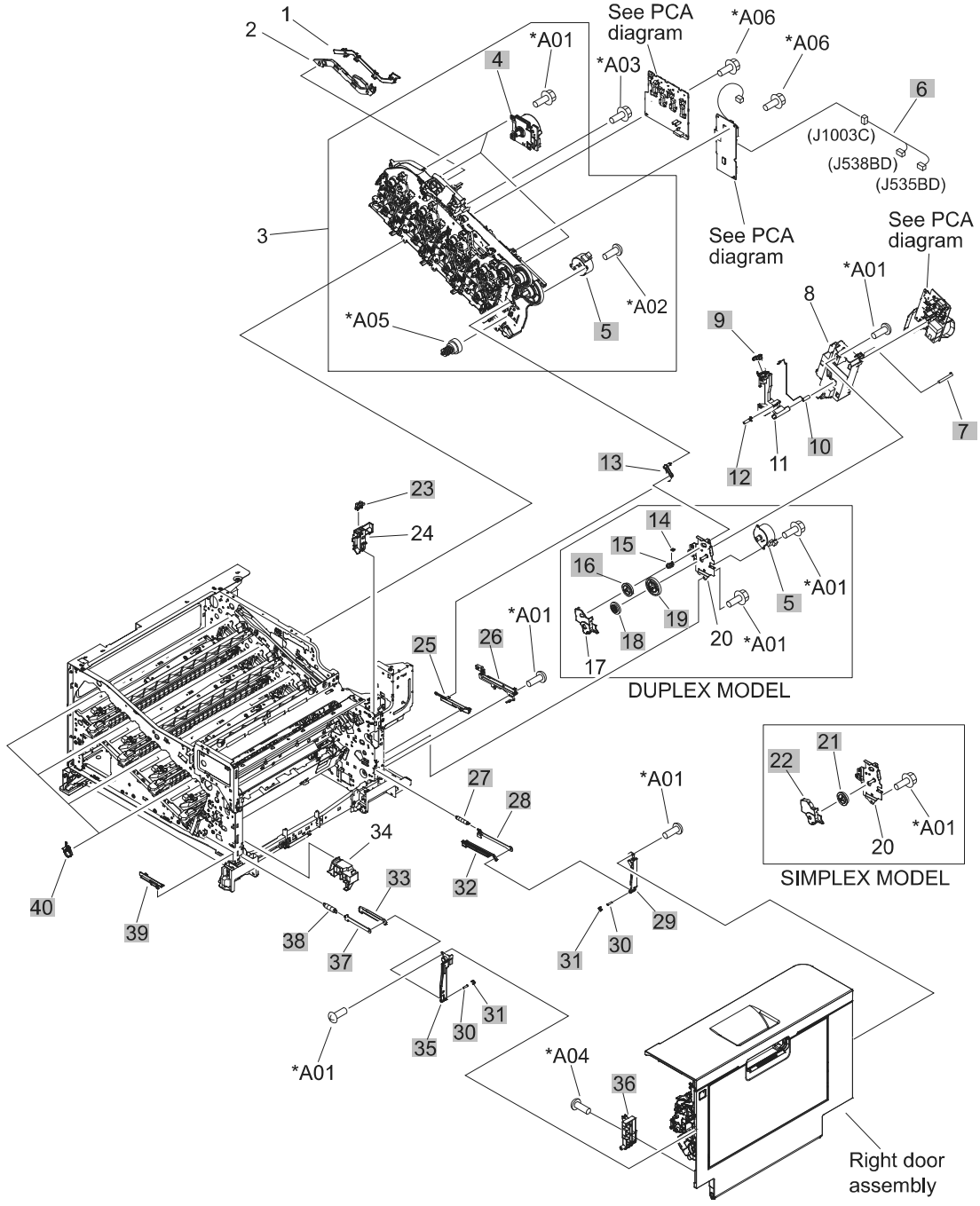


Table 4-9 **Internal components (3 of 6)**

Ref	Description	Part number	Qty
4	Motor, main drive assembly	RM1-6089-000CN	3
5	Motor, drive, simplex model	RK2-0997-000CN	1
5	Motor, duplex drive (duplex model only)	RK2-0997-000CN	2
6	Cable, feed joint, environment sensor	RM1-6847-000CN	1
7	Spring, grounding, second-transfer high-voltage PCA	RU6-2772-000CN	1
9	Cap, T2 contact, second-transfer high-voltage PCA	RC2-6691-000CN	1
10	Spring, contact, second-transfer high-voltage PCA	RU6-2771-000CN	1
12	Spring, grounding, second-transfer high-voltage PCA	RC2-6700-000CN	1
13	Link, ITB coupling release	RC2-6823-000CN	1
14	Spring, tension, duplex model	RU6-2671-000CN	1
15	Hook, duplexing spring (duplex model only)	RC2-6932-000CN	1
16	Gear, 25T, duplex model	RU6-0771-000CN	1
18	Gear, 25T, duplex model	RU6-0772-000CN	1
19	Gear, 74T, duplex model	RU6-0773-000CN	1
21	Gear, 18T/29T, simplex model	RU6-0775-000CN	1
22	Cover, gear, simplex model	RC3-0688-000CN	1
23	Sensor, right door	WG8-5696-000CN	1
25	Arm, ITB coupling release	RC2-6824-000CN	1
26	Rail, door link, rear lower	RC2-6635-000CN	1
27	Spring, tension, rear	RU6-2744-000CN	1
28	Plate, right door link, rear	RC2-7273-000CN	1
29	Plate, right door link, fixed, rear	RL1-2282-000CN	1
30	Shaft, right door link	RU5-4979-000CN	2
31	Lock, door link, right	RC2-7234-000CN	2
32	Link, right door, 2 rear	RC2-7236-000CN	1
33	Link, right door, 2 front	RC2-7233-000CN	1
35	Plate, right door link, fixed, front	RL1-2281-000CN	1
36	Hinge, right door, front	RC2-7094-000CN	1
37	Plate, right door link, front	RC2-7272-000CN	1
38	Spring, tension, front	RU6-2727-000CN	1
39	Rail, door link, front lower	RC2-6634-000CN	1
40	Support, developing coupling	RC2-6811-000CN	4

Internal components (4 of 6)

Figure 4-6 Internal components (4 of 6)

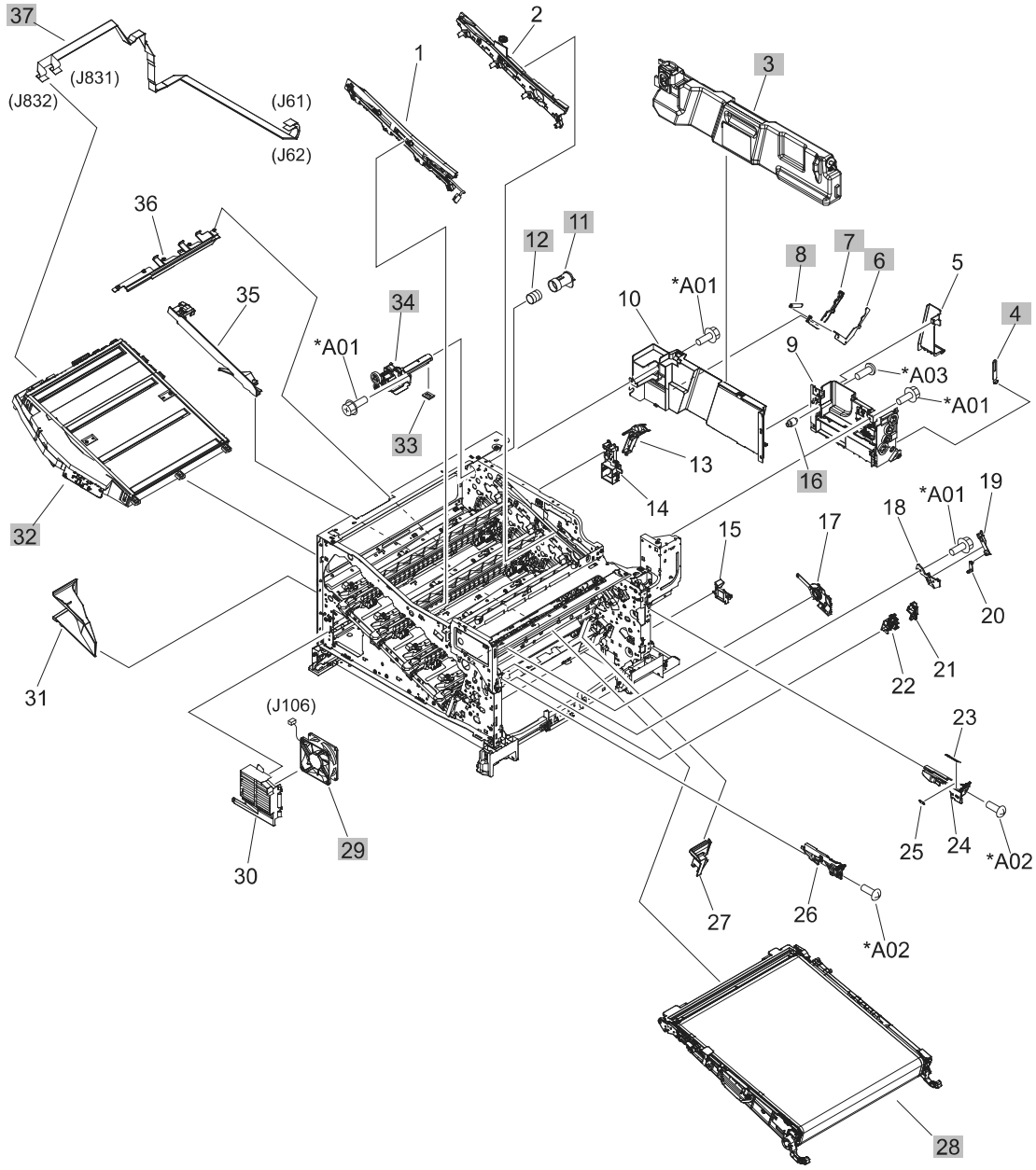


Table 4-10 **Internal components (4 of 6)**

Ref	Description	Part number	Qty
3	Toner collection unit (included in the service kit)	CE710-69005	1
4	Arm, waste toner, left	RC2-7035-000CN	1
6	Plate, arm reinforcement	RC2-9649-000CN	1
7	Arm, waste toner, right	RC2-7036-000CN	1
8	Spring, tension	RU6-2831-000CN	1
11	Shutter, exhaust	RC2-7010-000CN	1
12	Spring, compression	RU6-2683-000CN	1
16	Gear, link worm	RU6-0795-000CN	1
28	ITB assembly (included in the service kit)	CE710-69003	1
29	Fan, power supply	RK2-2276-000CN	1
32	Laser scanner assembly	RM1-6122-000CN	1
33	Seal, toner supporter guide 1	RC2-7018-000CN	1
34	Toner feed assembly	RM1-6040-000CN	1
37	Cable assembly, flat-flexible	RM1-6804-000CN	1

Internal components (5 of 6)

Figure 4-7 Internal components (5 of 6)

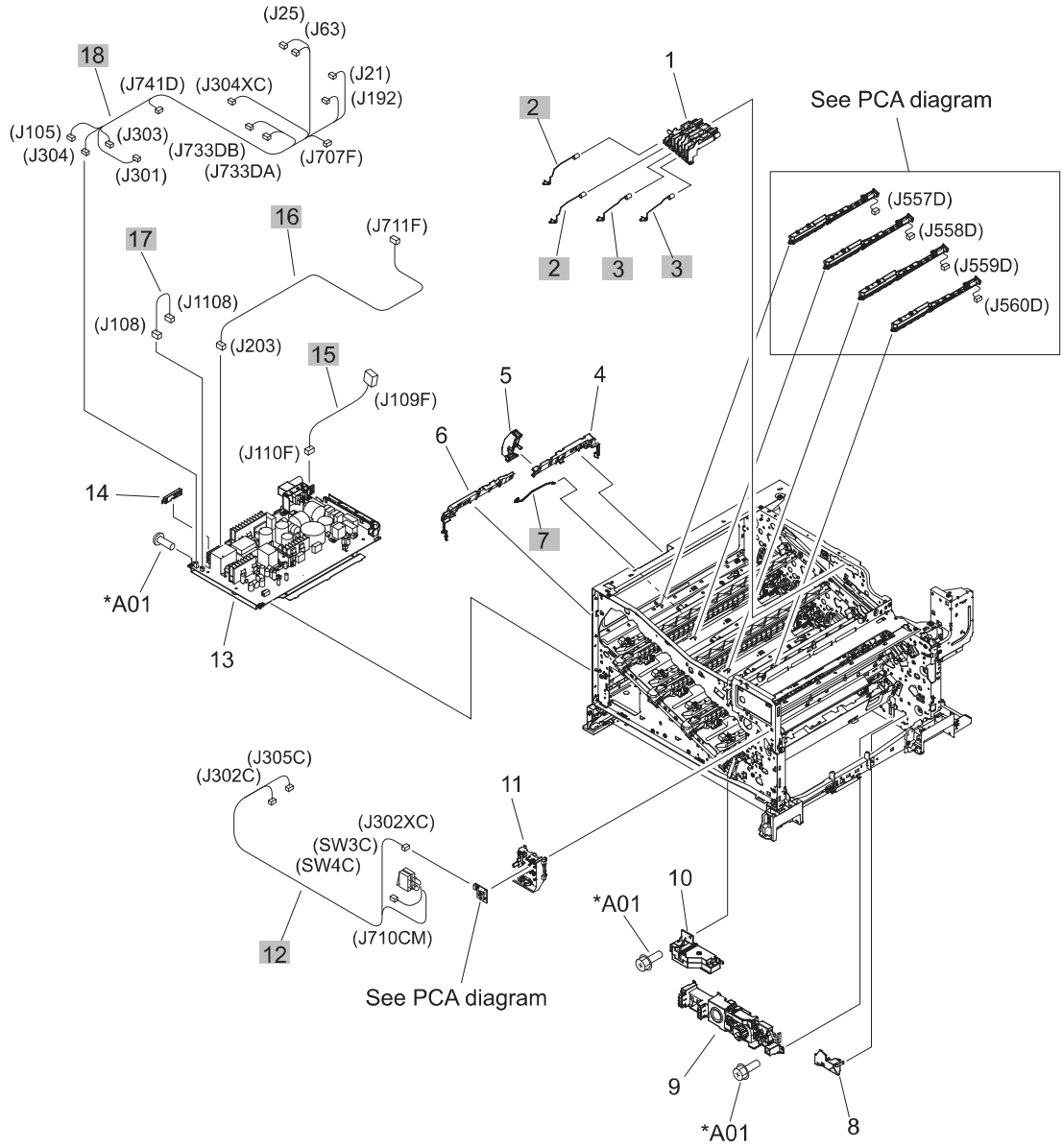


Table 4-11 **Internal components (5 of 6)**

Ref	Description	Part number	Qty
2	Spring, contact	RU6-2767-000CN	2
3	Spring, contact	RU6-2768-000CN	2
7	Spring, rod	RC2-6611-000CN	1
12	Cable, switch	RM1-6831-000CN	1
15	Cable, low-voltage AC joint	RM1-6811-000CN	1
16	Cable, low voltage power supply	RM1-6807-000CN	1
17	Cable, low-voltage power supply, test	RM1-6813-000CN	1
18	Cable, left, high-voltage power supply to low-voltage power supply	RM1-6835-000CN	1

Internal components (6 of 6)

Figure 4-8 Internal components (6 of 6)

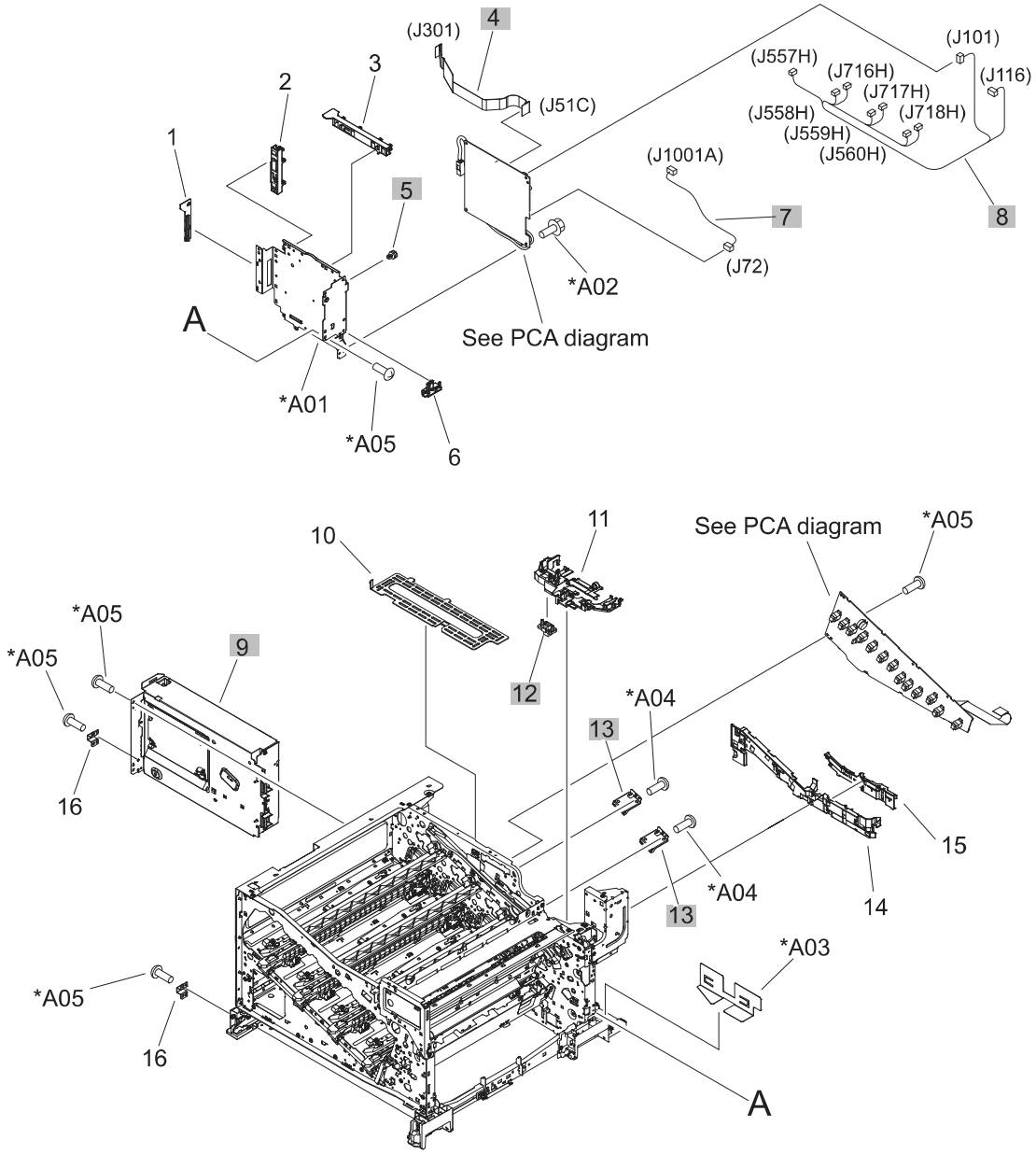


Table 4-12 **Internal components (6 of 6)**

Ref	Description	Part number	Qty
4	Cable, flat flexible, 3	RK2-2969-000CN	1
5	Spacer, DC controller PCA	VT2-5176-004CN	5
7	Cable, primary transfer	RM1-6822-000CN	1
8	Cable, rear	RM1-6863-000CN	1
9	Formatter case	RM1-6066-000CN	1
12	Connector, 8-pin, paper-pickup	VS1-7514-008CN	1
13	Plate, box pillar	RC2-6673-000CN	2

Cassette

Figure 4-9 Cassette

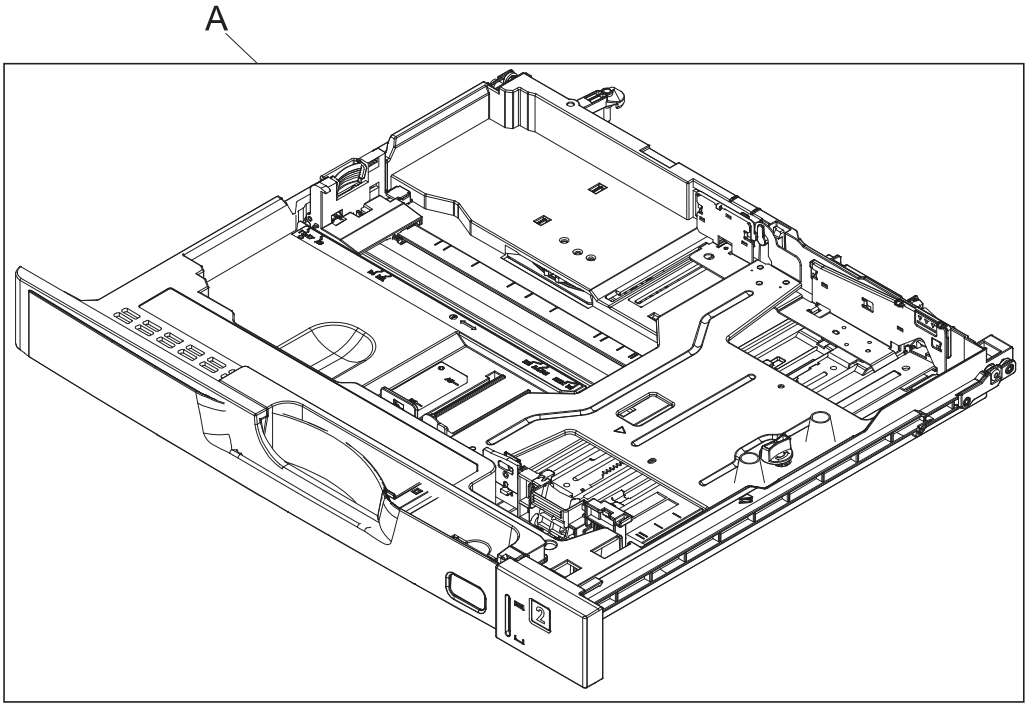


Table 4-13 **Cassette**

Ref	Description	Part number	Qty
A	Cassette	RM1-7138-000CN	1

Paper pickup assembly

Figure 4-10 Paper pickup assembly

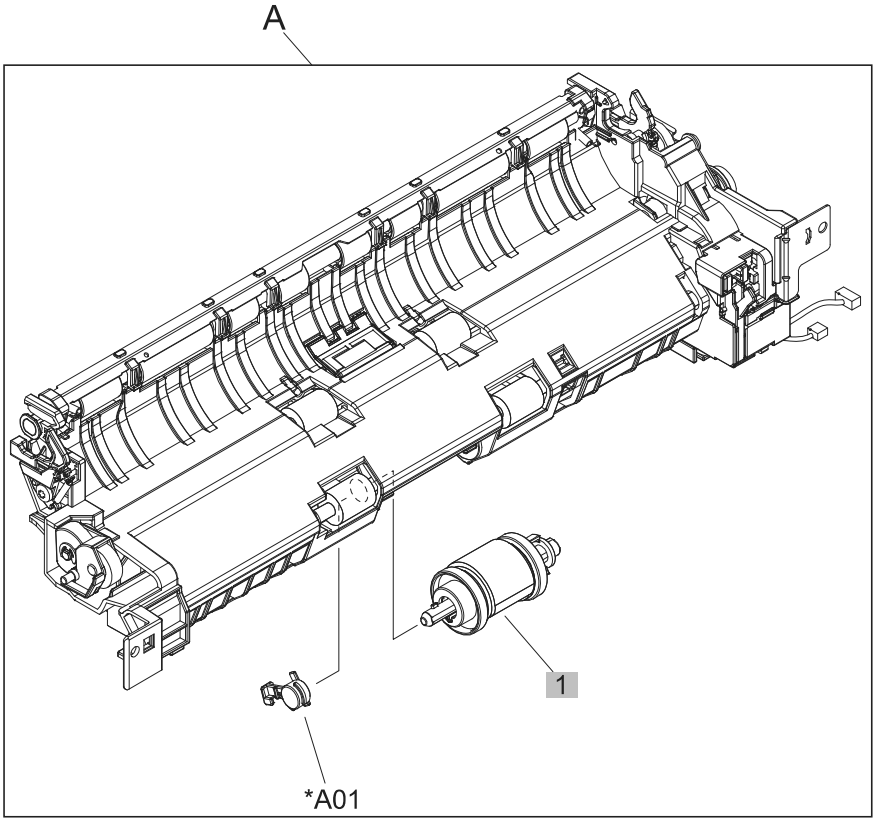


Table 4-14 **Paper pickup assembly**

Ref	Description	Part number	Qty
A	Paper pickup assembly (simplex model)	RM1-6106-000CN	1
A	Paper pickup assembly (duplex model)	RM1-6105-000CN	1
1	Paper pickup roller assembly (included in service kit)	CE710-69007	1

Paper delivery assembly

Figure 4-11 Paper delivery assembly

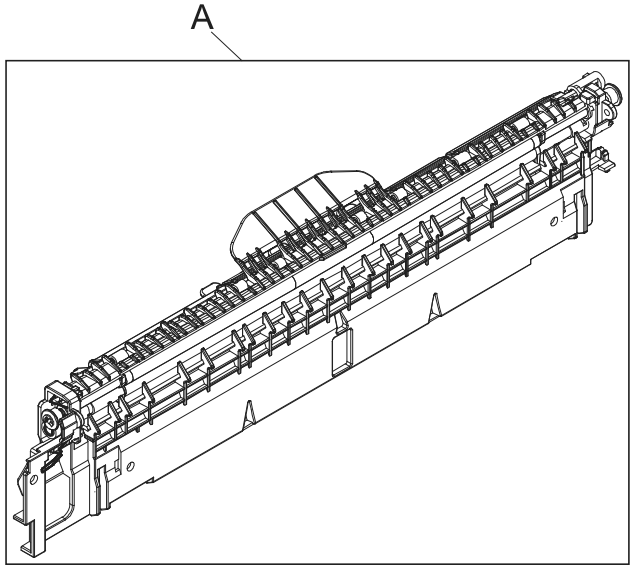


Table 4-15 **Paper delivery assembly**

Ref	Description	Part number	Qty
A	Paper delivery assembly	RM1-6165-000CN	1

Printed circuit assemblies

Figure 4-12 PCAs

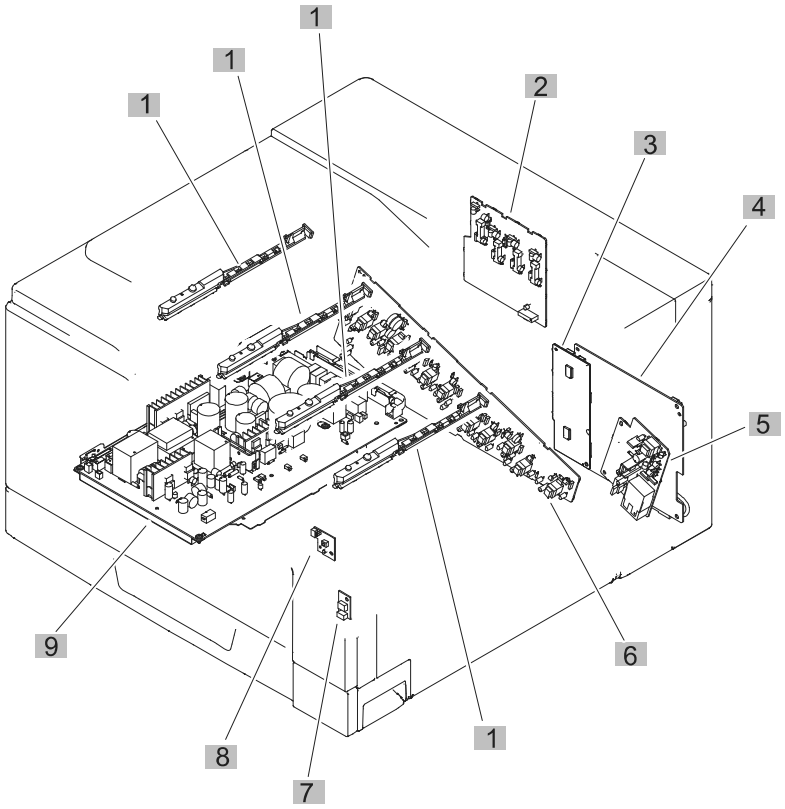


Table 4-16 **PCAs**

Ref	Description	Part number	Qty
1	Waste toner detection PCA	RM1-6779-000CN	4
2	Primary transfer high-voltage PCA	RM1-6801-000CN	1
3	Driver PCA (duplex model)	RM1-6743-000CN	1
3	Driver PCA (simplex model)	RM1-6783-000CN	1
4	DC Controller PCA (duplex model)	RM1-6639-000CN	1
4	DC Controller PCA (simplex model)	RM1-6796-000CN	1
5	Secondary transfer high-voltage PCA	RM1-6802-000CN	1
6	Imaging high-voltage PCA	RM1-6800-000CN	1
7	Environment sensor PCA	RK2-2884-000CN	1
8	Power switch PCA	RM1-6761-000CN	1
9	Low-voltage power supply PCA (110V)	RM1-6755-000CN	1
9	Low-voltage power supply PCA (220V)	RM1-6756-000CN	1
	Formatter PCA (not illustrated)	CE490-67901	1

Paper feeder external components

Figure 4-13 Paper feeder external components

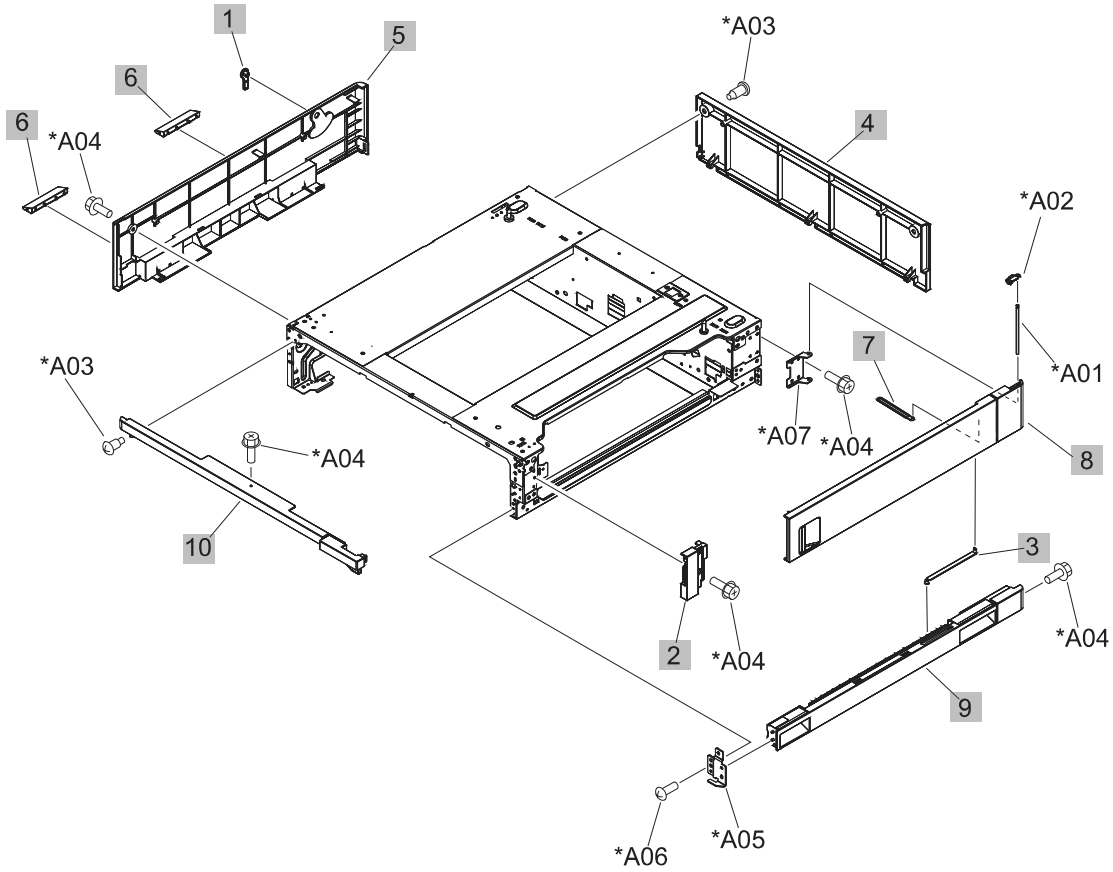


Table 4-17 **Paper feeder external components**

Ref	Description	Part number	Qty
1	Handle, lock, rear (paper feeder)	RC2-9303-000CN	1
2	Cover, right front (paper feeder)	RC2-9320-000CN	1
3	Link, right door, lower (paper feeder)	RC2-9327-000CN	1
4	Cover, rear (paper feeder)	RC2-9330-000CN	1
5	Cover, left (paper feeder)	RC2-9331-000CN	1
6	Cover, handle, lower (paper feeder)	RC2-9332-000CN	2
7	Link, right door, upper (paper feeder)	RC2-9335-000CN	1
8	Right door assembly (paper feeder)	RM1-6946-000CN	1
9	Cover, right lower assembly (paper feeder)	RM1-6948-000CN	1
10	Cover, upper front assembly (paper feeder)	RM1-6949-000CN	1

Paper feeder internal components

Figure 4-14 Paper feeder internal components

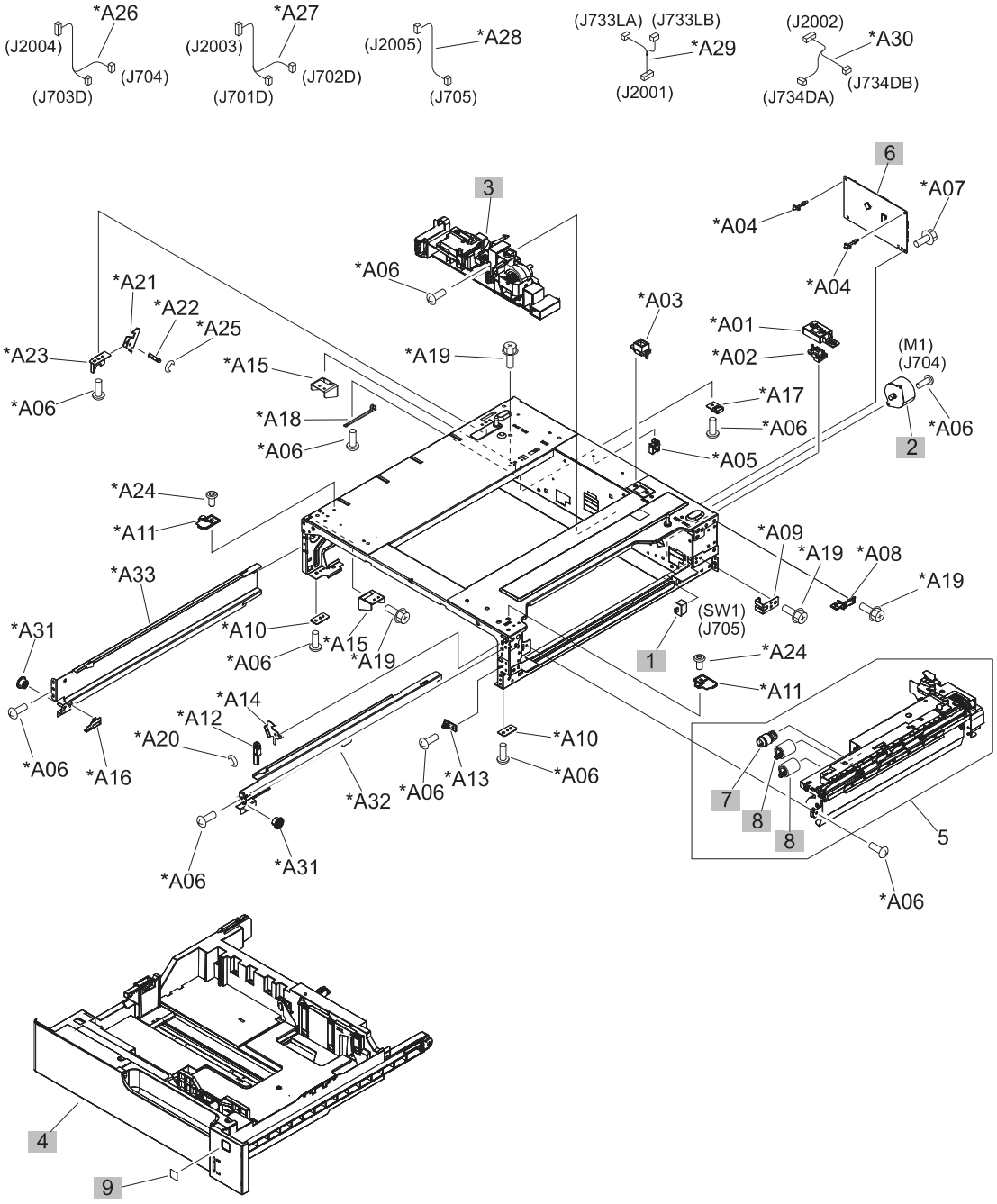


Table 4-18 **Paper feeder internal components**

Ref	Description	Part number	Qty
1	Switch, bottom (paper feeder)	WC2-5512-000CN	1
2	Motor, pickup (paper feeder)	RK2-1331-000CN	1
3	Lifter drive assembly (paper feeder)	RM1-3819-000CN	1
4	Cassette (paper feeder)	RM1-6942-000CN	1
5	Paper pickup assembly (paper feeder)	RM1-6944-000CN	1
6	Paper feeder driver PCA	RM1-6987-000CN	1
7	Roller, pickup, paper feeder (included in service kit)	CE710-69008	1
8	Roller, feed, paper feeder (included in service kit)	CE710-69008	2
9	Label, cassette number	RC2-9363-000CN	1

Paper feeder PCA

Figure 4-15 Paper feeder PCA

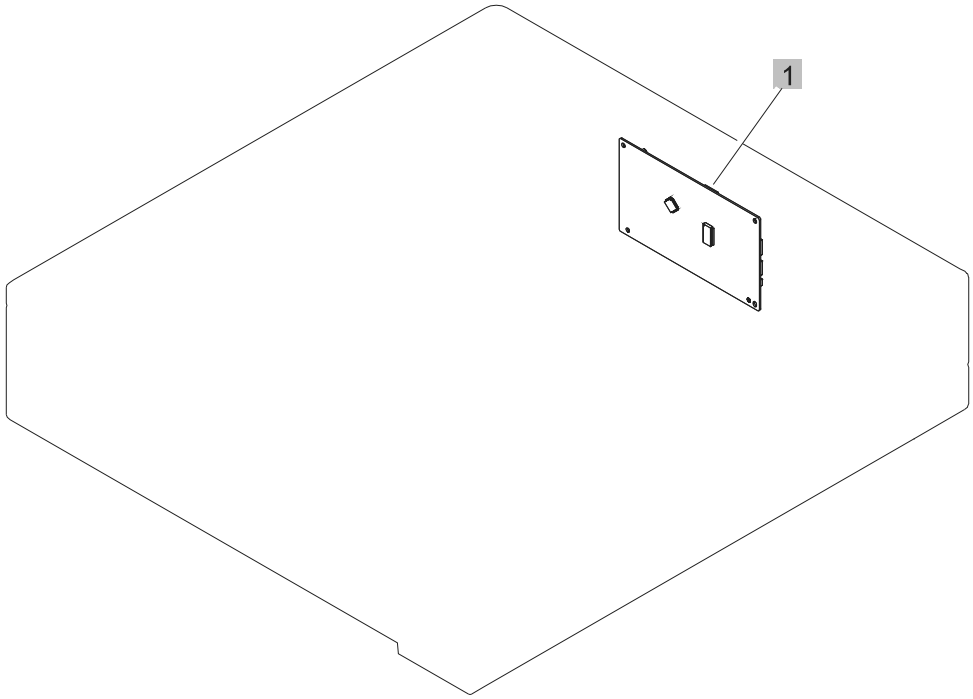


Table 4-19 **Paper feeder PCA**

Ref	Description	Part number	Qty
1	Paper feeder driver PCA	RM1-6987-000CN	1

Alphabetical parts list

Table 4-20 Alphabetical parts list

Description	Part number	Table and page
Arm, front cover, 1	RC2-6732-000CN	Internal components (1 of 6) on page 265
Arm, front cover, 2	RC2-6733-000CN	Internal components (1 of 6) on page 265
Arm, ITB coupling release	RC2-6824-000CN	Internal components (3 of 6) on page 269
Arm, waste toner, left	RC2-7035-000CN	Internal components (4 of 6) on page 271
Arm, waste toner, right	RC2-7036-000CN	Internal components (4 of 6) on page 271
Cable assembly, flat-flexible	RM1-6804-000CN	Internal components (4 of 6) on page 271
Cable, feed joint, environment sensor	RM1-6847-000CN	Internal components (3 of 6) on page 269
Cable, flat flexible, 3	RK2-2969-000CN	Internal components (6 of 6) on page 275
Cable, left, high-voltage power supply to low-voltage power supply	RM1-6835-000CN	Internal components (5 of 6) on page 273
Cable, low voltage power supply	RM1-6807-000CN	Internal components (5 of 6) on page 273
Cable, low-voltage AC joint	RM1-6811-000CN	Internal components (5 of 6) on page 273
Cable, low-voltage power supply, test	RM1-6813-000CN	Internal components (5 of 6) on page 273
Cable, primary transfer	RM1-6822-000CN	Internal components (6 of 6) on page 275
Cable, rear	RM1-6863-000CN	Internal components (6 of 6) on page 275
Cable, SV joint, low-voltage power supply	RM1-6868-000CN	Internal components (2 of 6) on page 267
Cable, switch	RM1-6831-000CN	Internal components (5 of 6) on page 273
Cap, T2 contact, second-transfer high-voltage PCA	RC2-6691-000CN	Internal components (3 of 6) on page 269
Cassette	RM1-7138-000CN	Cassette on page 277
Cassette (paper feeder)	RM1-6942-000CN	Paper feeder internal components on page 287
Connector, 8-pin, paper-pickup	VS1-7514-008CN	Internal components (6 of 6) on page 275
Connector, snap tight, black	VS1-7207-019CN	Internal components (2 of 6) on page 267

Table 4-20 **Alphabetical parts list (continued)**

Description	Part number	Table and page
Cover, connector, lower	RC2-6642-000CN	Internal components (2 of 6) on page 267
Cover, DIMM	RC2-9033-000CN	External covers, panels, and doors on page 261
Cover, front assembly	RM1-7133-000CN	External covers, panels, and doors on page 261
Cover, gear, simplex model	RC3-0688-000CN	Internal components (3 of 6) on page 269
Cover, handle, lower (paper feeder)	RC2-9332-000CN	Paper feeder external components on page 285
Cover, handle, lower-left	RC2-6625-000CN	External covers, panels, and doors on page 261
Cover, handle, lower-right, front	RC2-6627-000CN	External covers, panels, and doors on page 261
Cover, handle, lower-right, rear	RC2-6626-000CN	External covers, panels, and doors on page 261
Cover, left (paper feeder)	RC2-9331-000CN	Paper feeder external components on page 285
Cover, left assembly	RM1-7143-000CN	External covers, panels, and doors on page 261
Cover, rear	RM1-7146-000CN	External covers, panels, and doors on page 261
Cover, rear (paper feeder)	RC2-9330-000CN	Paper feeder external components on page 285
Cover, right front (paper feeder)	RC2-9320-000CN	Paper feeder external components on page 285
Cover, right front assembly	RM1-7145-000CN	External covers, panels, and doors on page 261
Cover, right lower assembly (paper feeder)	RM1-6948-000CN	Paper feeder external components on page 285
Cover, right rear	RM1-7142-000CN	External covers, panels, and doors on page 261
Cover, top	RM1-7149-000CN	External covers, panels, and doors on page 261
Cover, upper front assembly (paper feeder)	RM1-6949-000CN	Paper feeder external components on page 285
DC Controller PCA (duplex model)	RM1-6639-000CN	PCAs on page 283
DC Controller PCA (simplex model)	RM1-6796-000CN	PCAs on page 283
Door, right upper	RC2-7091-000CN	Right door assembly on page 263
Door, toner collection unit access	RC2-7034-000CN	External covers, panels, and doors on page 261
Drive assembly, duplex reverse (duplex model only)	RM1-6167-000CN	Internal components (2 of 6) on page 267

Table 4-20 **Alphabetical parts list (continued)**

Description	Part number	Table and page
Drive assembly, simplex model	RM1-6121-000CN	Internal components (2 of 6) on page 267
Driver PCA (duplex model)	RM1-6743-000CN	PCAs on page 283
Driver PCA (simplex model)	RM1-6783-000CN	PCAs on page 283
Environment sensor PCA	RK2-2884-000CN	PCAs on page 283
Fan, fuser	RK2-2728-000CN	Internal components (1 of 6) on page 265
Fan, power supply	RK2-2276-000CN	Internal components (4 of 6) on page 271
Formatter case	RM1-6066-000CN	Internal components (6 of 6) on page 275
Formatter PCA (not illustrated)	CE490-67901	PCAs on page 283
Fuser assembly, 110V (included in service kit)	CE710-69001	Internal components (2 of 6) on page 267
Fuser assembly, 220V (included in service kit)	CD710-69002	Internal components (2 of 6) on page 267
Fuser drive assembly	RM1-6076-000CN	Internal components (2 of 6) on page 267
Fuser motor assembly	RM1-6075-000CN	Internal components (2 of 6) on page 267
Gear assembly, fuser	RM1-7914-000CN	Internal components (2 of 6) on page 267
Gear, 18T/29T, simplex model	RU6-0775-000CN	Internal components (3 of 6) on page 269
Gear, 25T, duplex model	RU6-0771-000CN	Internal components (3 of 6) on page 269
Gear, 25T, duplex model	RU6-0772-000CN	Internal components (3 of 6) on page 269
Gear, 74T, duplex model	RU6-0773-000CN	Internal components (3 of 6) on page 269
Gear, link worm	RU6-0795-000CN	Internal components (4 of 6) on page 271
Guide, paper feed	RC2-7297-000CN	Internal components (2 of 6) on page 267
Handle, lock, rear (paper feeder)	RC2-9303-000CN	Paper feeder external components on page 285
Hinge, front cover, center	RC2-6738-000CN	Internal components (1 of 6) on page 265
Hinge, front cover, left	RC2-6713-000CN	Internal components (1 of 6) on page 265
Hinge, front cover, right	RC2-6715-000CN	Internal components (1 of 6) on page 265

Table 4-20 **Alphabetical parts list (continued)**

Description	Part number	Table and page
Hinge, right door, front	RC2-7094-000CN	Internal components (3 of 6) on page 269
Hook, duplexing spring (duplex model only)	RC2-6932-000CN	Internal components (3 of 6) on page 269
Imaging high-voltage PCA	RM1-6800-000CN	PCAs on page 283
ITB assembly (included in the service kit)	CE710-69003	Internal components (4 of 6) on page 271
Label, cassette number	RC2-9363-000CN	Paper feeder internal components on page 287
Laser scanner assembly	RM1-6122-000CN	Internal components (4 of 6) on page 271
Lifter drive assembly (paper feeder)	RM1-3819-000CN	Paper feeder internal components on page 287
Lifter plate assembly, Tray 1	RM1-6043-000CN	Right door assembly on page 263
Link, ITB coupling release	RC2-6823-000CN	Internal components (3 of 6) on page 269
Link, right door, 2 front	RC2-7233-000CN	Internal components (3 of 6) on page 269
Link, right door, 2 rear	RC2-7236-000CN	Internal components (3 of 6) on page 269
Link, right door, lower (paper feeder)	RC2-9327-000CN	Paper feeder external components on page 285
Link, right door, upper (paper feeder)	RC2-9335-000CN	Paper feeder external components on page 285
Lock, door link, right	RC2-7234-000CN	Internal components (3 of 6) on page 269
Low-voltage power supply PCA (110V)	RM1-6755-000CN	PCAs on page 283
Low-voltage power supply PCA (220V)	RM1-6756-000CN	PCAs on page 283
Microswitch	WC4-5251-000CN	Internal components (1 of 6) on page 265
Motor, drive, simplex model	RK2-0997-000CN	Internal components (3 of 6) on page 269
Motor, duplex drive (duplex model only)	RK2-0997-000CN	Internal components (3 of 6) on page 269
Motor, main drive assembly	RM1-6089-000CN	Internal components (3 of 6) on page 269
Motor, pickup (paper feeder)	RK2-1331-000CN	Paper feeder internal components on page 287
Mount, cover arm, front	RC2-6735-000CN	Internal components (1 of 6) on page 265
Mount, inner door toggle	RC2-6717-000CN	Internal components (1 of 6) on page 265

Table 4-20 **Alphabetical parts list (continued)**

Description	Part number	Table and page
Mount, stopper arm	RC2-6745-000CN	Internal components (1 of 6) on page 265
Paper delivery assembly	RM1-6165-000CN	Paper delivery assembly on page 281
Paper feeder driver PCA	RM1-6987-000CN	Paper feeder internal components on page 287
Paper feeder driver PCA	RM1-6987-000CN	Paper feeder PCA on page 289
Paper pickup assembly (duplex model)	RM1-6105-000CN	Paper pickup assembly on page 279
Paper pickup assembly (paper feeder)	RM1-6944-000CN	Paper feeder internal components on page 287
Paper pickup assembly (simplex model)	RM1-6106-000CN	Paper pickup assembly on page 279
Paper pickup roller assembly (included in service kit)	CE710-69007	Paper pickup assembly on page 279
Plate, arm reinforcement	RC2-9649-000CN	Internal components (4 of 6) on page 271
Plate, box pillar	RC2-6673-000CN	Internal components (6 of 6) on page 275
Plate, right door link, fixed, front	RL1-2281-000CN	Internal components (3 of 6) on page 269
Plate, right door link, fixed, rear	RL1-2282-000CN	Internal components (3 of 6) on page 269
Plate, right door link, front	RC2-7272-000CN	Internal components (3 of 6) on page 269
Plate, right door link, rear	RC2-7273-000CN	Internal components (3 of 6) on page 269
Power switch PCA	RM1-6761-000CN	PCAs on page 283
Primary transfer high-voltage PCA	RM1-6801-000CN	PCAs on page 283
Rail, door link, front lower	RC2-6634-000CN	Internal components (3 of 6) on page 269
Rail, door link, rear lower	RC2-6635-000CN	Internal components (3 of 6) on page 269
Registration sensor assembly	RM1-6002-000CN	Internal components (2 of 6) on page 267
Right door assembly (paper feeder)	RM1-6946-000CN	Paper feeder external components on page 285
Right door assembly, duplex model	RM1-6104-000CN	Right door assembly on page 263
Right door assembly, simplex model	RM1-6139-000CN	Right door assembly on page 263
Roller, feed, paper feeder (included in service kit)	CE710-69008	Paper feeder internal components on page 287

Table 4-20 **Alphabetical parts list (continued)**

Description	Part number	Table and page
Roller, paper pickup, Tray 1 (included in the service kit)	CE710-69006	Right door assembly on page 263
Roller, pickup, paper feeder (included in service kit)	CE710-69008	Paper feeder internal components on page 287
Roller, secondary transfer, T2 (included in the service kit)	CE710-69004	Right door assembly on page 263
Seal, toner supporter guide 1	RC2-7018-000CN	Internal components (4 of 6) on page 271
Secondary transfer high-voltage PCA	RM1-6802-000CN	PCAs on page 283
Sensor, cassette last paper presence	RM1-6164-000CN	Internal components (2 of 6) on page 267
Sensor, right door	WG8-5696-000CN	Internal components (3 of 6) on page 269
Separation pad, Tray 1 (included in the service kit)	CE710-69006	Right door assembly on page 263
Separation roller assembly (included in service kit)	CE710-69007	Internal components (2 of 6) on page 267
Shaft, right door link	RU5-4979-000CN	Internal components (3 of 6) on page 269
Shutter, exhaust	RC2-7010-000CN	Internal components (4 of 6) on page 271
Spacer, DC controller PCA	VT2-5176-004CN	Internal components (6 of 6) on page 275
Spring, compression	RU6-2721-000CN	Internal components (1 of 6) on page 265
Spring, compression	RU6-2683-000CN	Internal components (4 of 6) on page 271
Spring, contact	RU6-2767-000CN	Internal components (5 of 6) on page 273
Spring, contact	RU6-2768-000CN	Internal components (5 of 6) on page 273
Spring, contact, second-transfer high-voltage PCA	RU6-2771-000CN	Internal components (3 of 6) on page 269
Spring, grounding	RC2-7209-000CN	Internal components (1 of 6) on page 265
Spring, grounding, second-transfer high-voltage PCA	RU6-2772-000CN	Internal components (3 of 6) on page 269
Spring, grounding, second-transfer high-voltage PCA	RC2-6700-000CN	Internal components (3 of 6) on page 269
Spring, leaf, grounding	RC2-7092-000CN	Internal components (1 of 6) on page 265
Spring, rod	RC2-6611-000CN	Internal components (5 of 6) on page 273

Table 4-20 **Alphabetical parts list (continued)**

Description	Part number	Table and page
Spring, tension	RU6-2831-000CN	Internal components (4 of 6) on page 271
Spring, tension, duplex model	RU6-2671-000CN	Internal components (3 of 6) on page 269
Spring, tension, front	RU6-2727-000CN	Internal components (3 of 6) on page 269
Spring, tension, rear	RU6-2744-000CN	Internal components (3 of 6) on page 269
Spring, tension, registration sensor	RU6-2710-000CN	Internal components (2 of 6) on page 267
Stopper, inner door, 1	RC2-6719-000CN	Internal components (1 of 6) on page 265
Stopper, inner door, 2	RC2-6736-000CN	Internal components (1 of 6) on page 265
Support, developing coupling	RC2-6811-000CN	Internal components (3 of 6) on page 269
Support, frame, front	RC2-7196-000CN	Internal components (2 of 6) on page 267
Support, frame, rear	RC2-7197-000CN	Internal components (2 of 6) on page 267
Switch, bottom (paper feeder)	WC2-5512-000CN	Paper feeder internal components on page 287
Toner collection unit (included in the service kit)	CE710-69005	Internal components (4 of 6) on page 271
Toner feed assembly	RM1-6040-000CN	Internal components (4 of 6) on page 271
Tray 1 (MP tray) assembly	RM1-6045-000CN	Right door assembly on page 263
Waste toner detection PCA	RM1-6779-000CN	PCAs on page 283

Numerical parts list

Table 4-21 **Numerical parts list**

Part number	Description	Table and page
CD710-69002	Fuser assembly, 220V (included in service kit)	Internal components (2 of 6) on page 267
CE490-67901	Formatter PCA (not illustrated)	PCAs on page 283
CE710-69001	Fuser assembly, 110V (included in service kit)	Internal components (2 of 6) on page 267
CE710-69003	ITB assembly (included in the service kit)	Internal components (4 of 6) on page 271
CE710-69004	Roller, secondary transfer, T2 (included in the service kit)	Right door assembly on page 263
CE710-69005	Toner collection unit (included in the service kit)	Internal components (4 of 6) on page 271
CE710-69006	Roller, paper pickup, Tray 1 (included in the service kit)	Right door assembly on page 263
CE710-69006	Separation pad, Tray 1 (included in the service kit)	Right door assembly on page 263
CE710-69007	Separation roller assembly (included in service kit)	Internal components (2 of 6) on page 267
CE710-69007	Paper pickup roller assembly (included in service kit)	Paper pickup assembly on page 279
CE710-69008	Roller, pickup, paper feeder (included in service kit)	Paper feeder internal components on page 287
CE710-69008	Roller, feed, paper feeder (included in service kit)	Paper feeder internal components on page 287
RC2-6611-000CN	Spring, rod	Internal components (5 of 6) on page 273
RC2-6625-000CN	Cover, handle, lower-left	External covers, panels, and doors on page 261
RC2-6626-000CN	Cover, handle, lower-right, rear	External covers, panels, and doors on page 261
RC2-6627-000CN	Cover, handle, lower-right, front	External covers, panels, and doors on page 261
RC2-6634-000CN	Rail, door link, front lower	Internal components (3 of 6) on page 269
RC2-6635-000CN	Rail, door link, rear lower	Internal components (3 of 6) on page 269
RC2-6642-000CN	Cover, connector, lower	Internal components (2 of 6) on page 267
RC2-6673-000CN	Plate, box pillar	Internal components (6 of 6) on page 275
RC2-6691-000CN	Cap, T2 contact, second-transfer high-voltage PCA	Internal components (3 of 6) on page 269

Table 4-21 **Numerical parts list (continued)**

Part number	Description	Table and page
RC2-6700-000CN	Spring, grounding, second-transfer high-voltage PCA	Internal components (3 of 6) on page 269
RC2-6713-000CN	Hinge, front cover, left	Internal components (1 of 6) on page 265
RC2-6715-000CN	Hinge, front cover, right	Internal components (1 of 6) on page 265
RC2-6717-000CN	Mount, inner door toggle	Internal components (1 of 6) on page 265
RC2-6719-000CN	Stopper, inner door, 1	Internal components (1 of 6) on page 265
RC2-6732-000CN	Arm, front cover, 1	Internal components (1 of 6) on page 265
RC2-6733-000CN	Arm, front cover, 2	Internal components (1 of 6) on page 265
RC2-6735-000CN	Mount, cover arm, front	Internal components (1 of 6) on page 265
RC2-6736-000CN	Stopper, inner door, 2	Internal components (1 of 6) on page 265
RC2-6738-000CN	Hinge, front cover, center	Internal components (1 of 6) on page 265
RC2-6745-000CN	Mount, stopper arm	Internal components (1 of 6) on page 265
RC2-6811-000CN	Support, developing coupling	Internal components (3 of 6) on page 269
RC2-6823-000CN	Link, ITB coupling release	Internal components (3 of 6) on page 269
RC2-6824-000CN	Arm, ITB coupling release	Internal components (3 of 6) on page 269
RC2-6932-000CN	Hook, duplexing spring (duplex model only)	Internal components (3 of 6) on page 269
RC2-7010-000CN	Shutter, exhaust	Internal components (4 of 6) on page 271
RC2-7018-000CN	Seal, toner supporter guide 1	Internal components (4 of 6) on page 271
RC2-7034-000CN	Door, toner collection unit access	External covers, panels, and doors on page 261
RC2-7035-000CN	Arm, waste toner, left	Internal components (4 of 6) on page 271
RC2-7036-000CN	Arm, waste toner, right	Internal components (4 of 6) on page 271
RC2-7091-000CN	Door, right upper	Right door assembly on page 263
RC2-7092-000CN	Spring, leaf, grounding	Internal components (1 of 6) on page 265

Table 4-21 **Numerical parts list (continued)**

Part number	Description	Table and page
RC2-7094-000CN	Hinge, right door, front	Internal components (3 of 6) on page 269
RC2-7196-000CN	Support, frame, front	Internal components (2 of 6) on page 267
RC2-7197-000CN	Support, frame, rear	Internal components (2 of 6) on page 267
RC2-7209-000CN	Spring, grounding	Internal components (1 of 6) on page 265
RC2-7233-000CN	Link, right door, 2 front	Internal components (3 of 6) on page 269
RC2-7234-000CN	Lock, door link, right	Internal components (3 of 6) on page 269
RC2-7236-000CN	Link, right door, 2 rear	Internal components (3 of 6) on page 269
RC2-7272-000CN	Plate, right door link, front	Internal components (3 of 6) on page 269
RC2-7273-000CN	Plate, right door link, rear	Internal components (3 of 6) on page 269
RC2-7297-000CN	Guide, paper feed	Internal components (2 of 6) on page 267
RC2-9033-000CN	Cover, DIMM	External covers, panels, and doors on page 261
RC2-9303-000CN	Handle, lock, rear (paper feeder)	Paper feeder external components on page 285
RC2-9320-000CN	Cover, right front (paper feeder)	Paper feeder external components on page 285
RC2-9327-000CN	Link, right door, lower (paper feeder)	Paper feeder external components on page 285
RC2-9330-000CN	Cover, rear (paper feeder)	Paper feeder external components on page 285
RC2-9331-000CN	Cover, left (paper feeder)	Paper feeder external components on page 285
RC2-9332-000CN	Cover, handle, lower (paper feeder)	Paper feeder external components on page 285
RC2-9335-000CN	Link, right door, upper (paper feeder)	Paper feeder external components on page 285
RC2-9363-000CN	Label, cassette number	Paper feeder internal components on page 287
RC2-9649-000CN	Plate, arm reinforcement	Internal components (4 of 6) on page 271
RC3-0688-000CN	Cover, gear, simplex model	Internal components (3 of 6) on page 269
RK2-0997-000CN	Motor, drive, simplex model	Internal components (3 of 6) on page 269

Table 4-21 **Numerical parts list (continued)**

Part number	Description	Table and page
RK2-0997-000CN	Motor, duplex drive (duplex model only)	Internal components (3 of 6) on page 269
RK2-1331-000CN	Motor, pickup (paper feeder)	Paper feeder internal components on page 287
RK2-2276-000CN	Fan, power supply	Internal components (4 of 6) on page 271
RK2-2728-000CN	Fan, fuser	Internal components (1 of 6) on page 265
RK2-2884-000CN	Environment sensor PCA	PCAs on page 283
RK2-2969-000CN	Cable, flat flexible, 3	Internal components (6 of 6) on page 275
RL1-2281-000CN	Plate, right door link, fixed, front	Internal components (3 of 6) on page 269
RL1-2282-000CN	Plate, right door link, fixed, rear	Internal components (3 of 6) on page 269
RM1-3819-000CN	Lifter drive assembly (paper feeder)	Paper feeder internal components on page 287
RM1-6002-000CN	Registration sensor assembly	Internal components (2 of 6) on page 267
RM1-6040-000CN	Toner feed assembly	Internal components (4 of 6) on page 271
RM1-6043-000CN	Lifter plate assembly, Tray 1	Right door assembly on page 263
RM1-6045-000CN	Tray 1 (MP tray) assembly	Right door assembly on page 263
RM1-6066-000CN	Formatter case	Internal components (6 of 6) on page 275
RM1-6075-000CN	Fuser motor assembly	Internal components (2 of 6) on page 267
RM1-6076-000CN	Fuser drive assembly	Internal components (2 of 6) on page 267
RM1-6089-000CN	Motor, main drive assembly	Internal components (3 of 6) on page 269
RM1-6104-000CN	Right door assembly, duplex model	Right door assembly on page 263
RM1-6105-000CN	Paper pickup assembly (duplex model)	Paper pickup assembly on page 279
RM1-6106-000CN	Paper pickup assembly (simplex model)	Paper pickup assembly on page 279
RM1-6121-000CN	Drive assembly, simplex model	Internal components (2 of 6) on page 267
RM1-6122-000CN	Laser scanner assembly	Internal components (4 of 6) on page 271

Table 4-21 **Numerical parts list (continued)**

Part number	Description	Table and page
RM1-6139-000CN	Right door assembly, simplex model	Right door assembly on page 263
RM1-6164-000CN	Sensor, cassette last paper presence	Internal components (2 of 6) on page 267
RM1-6165-000CN	Paper delivery assembly	Paper delivery assembly on page 281
RM1-6167-000CN	Drive assembly, duplex reverse (duplex model only)	Internal components (2 of 6) on page 267
RM1-6639-000CN	DC Controller PCA (duplex model)	PCAs on page 283
RM1-6743-000CN	Driver PCA (duplex model)	PCAs on page 283
RM1-6755-000CN	Low-voltage power supply PCA (110V)	PCAs on page 283
RM1-6756-000CN	Low-voltage power supply PCA (220V)	PCAs on page 283
RM1-6761-000CN	Power switch PCA	PCAs on page 283
RM1-6779-000CN	Waste toner detection PCA	PCAs on page 283
RM1-6783-000CN	Driver PCA (simplex model)	PCAs on page 283
RM1-6796-000CN	DC Controller PCA (simplex model)	PCAs on page 283
RM1-6800-000CN	Imaging high-voltage PCA	PCAs on page 283
RM1-6801-000CN	Primary transfer high-voltage PCA	PCAs on page 283
RM1-6802-000CN	Secondary transfer high-voltage PCA	PCAs on page 283
RM1-6804-000CN	Cable assembly, flat-flexible	Internal components (4 of 6) on page 271
RM1-6807-000CN	Cable, low voltage power supply	Internal components (5 of 6) on page 273
RM1-6811-000CN	Cable, low-voltage AC joint	Internal components (5 of 6) on page 273
RM1-6813-000CN	Cable, low-voltage power supply, test	Internal components (5 of 6) on page 273
RM1-6822-000CN	Cable, primary transfer	Internal components (6 of 6) on page 275
RM1-6831-000CN	Cable, switch	Internal components (5 of 6) on page 273
RM1-6835-000CN	Cable, left, high-voltage power supply to low-voltage power supply	Internal components (5 of 6) on page 273
RM1-6847-000CN	Cable, feed joint, environment sensor	Internal components (3 of 6) on page 269
RM1-6863-000CN	Cable, rear	Internal components (6 of 6) on page 275
RM1-6868-000CN	Cable, SV joint, low-voltage power supply	Internal components (2 of 6) on page 267
RM1-6942-000CN	Cassette (paper feeder)	Paper feeder internal components on page 287

Table 4-21 **Numerical parts list (continued)**

Part number	Description	Table and page
RM1-6944-000CN	Paper pickup assembly (paper feeder)	Paper feeder internal components on page 287
RM1-6946-000CN	Right door assembly (paper feeder)	Paper feeder external components on page 285
RM1-6948-000CN	Cover, right lower assembly (paper feeder)	Paper feeder external components on page 285
RM1-6949-000CN	Cover, upper front assembly (paper feeder)	Paper feeder external components on page 285
RM1-6987-000CN	Paper feeder driver PCA	Paper feeder internal components on page 287
RM1-6987-000CN	Paper feeder driver PCA	Paper feeder PCA on page 289
RM1-7133-000CN	Cover, front assembly	External covers, panels, and doors on page 261
RM1-7138-000CN	Cassette	Cassette on page 277
RM1-7142-000CN	Cover, right rear	External covers, panels, and doors on page 261
RM1-7143-000CN	Cover, left assembly	External covers, panels, and doors on page 261
RM1-7145-000CN	Cover, right front assembly	External covers, panels, and doors on page 261
RM1-7146-000CN	Cover, rear	External covers, panels, and doors on page 261
RM1-7149-000CN	Cover, top	External covers, panels, and doors on page 261
RM1-7914-000CN	Gear assembly, fuser	Internal components (2 of 6) on page 267
RU5-4979-000CN	Shaft, right door link	Internal components (3 of 6) on page 269
RU6-0771-000CN	Gear, 25T, duplex model	Internal components (3 of 6) on page 269
RU6-0772-000CN	Gear, 25T, duplex model	Internal components (3 of 6) on page 269
RU6-0773-000CN	Gear, 74T, duplex model	Internal components (3 of 6) on page 269
RU6-0775-000CN	Gear, 18T/29T, simplex model	Internal components (3 of 6) on page 269
RU6-0795-000CN	Gear, link worm	Internal components (4 of 6) on page 271
RU6-2671-000CN	Spring, tension, duplex model	Internal components (3 of 6) on page 269
RU6-2683-000CN	Spring, compression	Internal components (4 of 6) on page 271

Table 4-21 **Numerical parts list (continued)**

Part number	Description	Table and page
RU6-2710-000CN	Spring, tension, registration sensor	Internal components (2 of 6) on page 267
RU6-2721-000CN	Spring, compression	Internal components (1 of 6) on page 265
RU6-2727-000CN	Spring, tension, front	Internal components (3 of 6) on page 269
RU6-2744-000CN	Spring, tension, rear	Internal components (3 of 6) on page 269
RU6-2767-000CN	Spring, contact	Internal components (5 of 6) on page 273
RU6-2768-000CN	Spring, contact	Internal components (5 of 6) on page 273
RU6-2771-000CN	Spring, contact, second-transfer high-voltage PCA	Internal components (3 of 6) on page 269
RU6-2772-000CN	Spring, grounding, second-transfer high-voltage PCA	Internal components (3 of 6) on page 269
RU6-2831-000CN	Spring, tension	Internal components (4 of 6) on page 271
VS1-7207-019CN	Connector, snap tight, black	Internal components (2 of 6) on page 267
VS1-7514-008CN	Connector, 8-pin, paper-pickup	Internal components (6 of 6) on page 275
VT2-5176-004CN	Spacer, DC controller PCA	Internal components (6 of 6) on page 275
WC2-5512-000CN	Switch, bottom (paper feeder)	Paper feeder internal components on page 287
WC4-5251-000CN	Microswitch	Internal components (1 of 6) on page 265
WG8-5696-000CN	Sensor, right door	Internal components (3 of 6) on page 269

A Service and support

- Hewlett-Packard limited warranty statement
- HP's Premium Protection Warranty: LaserJet print cartridge limited warranty statement
- HP Color LaserJet Fuser Kit Limited Warranty Statement
- End User License Agreement
- Customer self-repair warranty service
- Customer support

Hewlett-Packard limited warranty statement

HP PRODUCT	DURATION OF LIMITED WARRANTY
HP Color LaserJet CP5220 Series printers	One-year limited warranty

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Rev. 11/06

Customer self-repair warranty service

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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, free during your warranty period, for your country/region Have the product name, serial number, date of purchase, and problem description ready.	Country/region phone numbers are on the flyer that was in the box with your product or at www.hp.com/support/.
Get 24-hour Internet support	www.hp.com/support/ljcp5220series
Get support for products used with a Macintosh computer	www.hp.com/go/macosx
Download software utilities, drivers, and electronic information	www.hp.com/go/ljcp5220series_software
Order additional HP service or maintenance agreements	www.hp.com/go/carepack

B Product specifications

- Physical specifications
- Performance specifications
- Electrical specifications
- Acoustic specifications
- Environmental specifications
- Skew specifications

Physical specifications

Table B-1 Physical specifications

Product	Height	Depth	Width	Weight
HP Color LaserJet CP5220 Series Printer	338 mm (13.3 in)	588 mm (23.1 in)	545 mm (21.5 in)	Without print cartridges: 31.5 kg (69.5 lb) With print cartridges: 38.9 kg (85.7 lb)

Performance specifications

Print speed	• Prints up to 20 pages per minute (ppm) on letter-size paper and A4-size paper
Resolution	• 600 dots per inch (dpi) with Image Resolution Enhancement technology 3600 for optimum overall imaging • 1200 x 600 dpi for detailed line work and small text

Electrical specifications

⚠ **WARNING!** Power requirements are based on the country/region where the product is sold. Do not convert operating voltages. This can damage the product and void the product warranty.

Table B-2 Power requirements

Specification	110-volt models	220-volt models
Power requirements	100 to 127 volts (± 10%) 50/60 Hz (± 2 Hz)	220 to 240 volts (± 10%) 50/60 Hz (± 2 Hz)
Rated current	5.0 Amps	2.5 Amps

Table B-3 Power consumption (average, in watts)[126]

Product model	Printing	Ready	Sleep	Off
HP Color LaserJet CP5220 Series	440 W	30 W	4.3 W	0.48 W

1 Values subject to change. See www.hp.com/support/ljcp5220series for current information.

2 Power numbers are the highest values measured using all standard voltages.

3 Default time from Ready mode to Sleep = 15 minutes.

6 Speed is 20 ppm Letter size.

Acoustic specifications

Table B-4 HP Color LaserJet CP5220 Series[13]

Sound power level	Declared per ISO 9296
Printing	L_{WAd}= 6.3 Bels (A) [63 dB(A)]

Table B-4 **HP Color LaserJet CP5220 Series[13] (continued)**

Sound power level	**Declared per ISO 9296**
Ready	L_{WAd}= 5.3 Bels (A) [53 dB(A)]
Sound pressure level - printing	**Declared per ISO 9296**
Bystander position	L_{pAm}=49 dB (A)
Operator position	L_{pAm}=54 dB (A)

1 Values are based on preliminary data. See www.hp.com/support/ljcp5220series for current information.

3 Configuration tested: HP Color LaserJet CP5220 Series printing on A4-size paper in simplex mode

Environmental specifications

Table B-5 **Operating-environment specifications**

Environment	**Recommended**	**Allowed**
Temperature	15° to 27°C (59° to 80.6°F)	10° to 30°C (50° to 86°F)
Humidity	20% to 60% relative humidity (RH)	10% to 80% RH
Altitude	Not applicable	0 to 3048 m (0 to 10,000 ft)

NOTE: These values are based on preliminary data. See www.hp.com/support/ljcp5220series for current information.

Skew specifications

Table B-6 Media registration and image placement accuracy

	Cut sheet simplex and automatic duplex[1]	Envelopes and postcards
Skew - vertical	≤ 1.5 mm / 260 mm	≤ 3.3 mm / 220 mm
First line / leading edge position	5.0 mm ± 2.0 mm	10.0 mm ± 3.0 mm
Left margin accuracy	5.0 mm ± 2.0 mm	10 mm ± 2.5 mm
Parallelism	≤ 0.75%	N/A
Image or text stretching - vertical	≤ 1.0 %	N/A
Image or text stretching - horizontal	≤ 1.0 %	N/A
Duplex registration - vertical, horizontal	≤ 2.0 mm	N/A

[1] Xerox 4024 (#20) should be used for measurement.

C Regulatory information

- FCC regulations
- Declaration of conformity
- Safety statements

FCC regulations

This equipment has been tested and found to comply with the limits for a Class B 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. If this equipment is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between equipment and receiver.
- Connect equipment to an outlet on a circuit different from that to which the receiver is located.
- Consult your dealer or an experienced radio/TV technician.

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 B limits of Part 15 of FCC rules.

Declaration of conformity

according to ISO/IEC 17050-1 and EN 17050-1; BOISB-0805-00-rel.1.0

Manufacturer's Name:	Hewlett-Packard Company
Manufacturer's Address:	11311 Chinden Boulevard, Boise, Idaho 83714-1021, USA

declares, that the product

Product Name:	HP Color LaserJet CP5220 Series
Regulatory Model:[2)]	BOISB-0805-00
Product Options:	Including: CE860A — Optional 500-Sheet Input Tray All
Toner Cartridges:	CE740A, CE741A, CE742A, CE743A

conforms to the following Product Specifications:

SAFETY:	IEC 60950-1:2001 / EN60950-1: 2001 +A11 IEC 60825-1:1993 +A1 +A2 / EN 60825-1:1994 +A1 +A2 (Class 1 Laser/LED Product) GB4943-2001
EMC:	CISPR22:2005 / EN55022:2006 - Class B[1)] EN 61000-3-2:2006 EN 61000-3-3:1995 +A1 EN 55024:1998 +A1 +A2 FCC Title 47 CFR, Part 15 Class B / ICES-003, Issue 4 GB9254-1998, GB17625.1-2003

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 2004/108/EEC and the Low Voltage Directive 2006/95/EC, and carries the CE-Marking CE 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).

Boise, Idaho 83713, USA

January 2009

For Regulatory Topics Only:

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), http://www.hp.com/go/certificates
USA Contact	Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, ID 83707-0015, USA, (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 B requirements.

« Conforme à la classe B des normes canadiennes de compatibilité électromagnétiques. « CEM ». »

VCCI statement (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

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 (Korea)

B급 기기 (가정용 방송통신기기)	이 기기는 가정용(B급)으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Laser statement for Finland

Luokan 1 laserlaite

Klass 1 Laser Apparat

HP Color LaserJet Professional CP5220 Series, laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käytössä kirjoittimen suojakotelointi estää lasersäteen pääsyn laitteen ulkopuolelle. Laitteen turvallisuusluokka on määritetty standardin EN 60825-1 (1994) 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 Color LaserJet Professional CP5220 Series - 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 alttiina näkymättömällelasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.

VARNING !

Om laserprinterns skyddshölje öppnas då apparaten är i funktion, utsättas användaren för osynlig laserstrålning. Betrakta ej strålen. Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista: Aallonpituus 775-795 nm Teho 5 m W Luokan 3B laser.

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	X	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

3685

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。

Index

Symbols/Numerics
2ndary service menu 249
500-sheet paper and heavy media tray
  specifications, physical 313
<Color> in wrong position error message 225

A
accessories
  ordering 254
acoustic specifications 314
after-service checklist 68
alerts
  viewing with HP ToolboxFX 200
Alerts tab, HP ToolboxFX 200
alerts, setting up 200
altitude specifications 315
archive setting 216
automatic crossover, setting 217

B
bands, troubleshooting 241
blank pages, troubleshooting 240, 247

C
cabinet/stand
  specifications, physical 313
cables
  USB, troubleshooting 247
calibrating color 206, 175, 214, 249
calibration
  process 40
Canadian DOC regulations 320
cartridge
  developing unit engagement and disengagement 35
  life detection 35
  memory tag 35
  ordering 255
  part number 255
  presence detection 35
  toner level detection 35
cartridges
  error messages 227
  low or out, settings 215
  removing 68
  replace message 227
  status, viewing with HP ToolboxFX 200
  supplies status page 211
  warranty 307
cassette
  pickup drive assembly, removing 108
characters, troubleshooting 244
checklists
  after-service 68
  preservice 68
  pretroubleshooting 174
circuit diagram 197
cleaning 246, 249
cold reset 250
color
  calibrating 206, 175, 214, 249
  restricting 214
  troubleshooting 243
color usage log 212
configuration page 177, 211
contrast
  print density 206
control panel
  assembly, removing 90
  blank, troubleshooting 176
  button test 249
  display test 249
  language 213
  menu map, printing 211
  menus 205
  messages, troubleshooting 201
  Network Configuration menu 217
  Reports menu 201
  Service menu 216
  System Setup menu 213
covers
  control-panel assembly, removing 90
  front-door assembly, removing 90
  identification and location 89
  left, removing 89
  rear, removing 90
  right-door assembly, removing 89
  right-front, removing 90
  right-rear, removing 89
  top, removing 89
creases, troubleshooting 244
crooked pages
  troubleshooting 244
curl, paper
  settings 216
customer support
  online 312

D
dark image, troubleshooting 240
DC controller
  PCA, removing 137
DC controller, operation 8
declaration of conformity 319

default settings, restoring
cold reset 250
NVRAM initialization 251
defaults
restoring 250
delivery assembly
removing 124
delivery unit
delivery drive assembly (simplex models), removing 129
demo page 177, 211
density settings 206
developing stage 30
device error message 225
diagrams 253
DIMM
memory, removing 74
DIMMs
installing 74
verifying installation 78
doors. *See* covers
driver PCA
removing 137
drivers
usage page 211
drum cleaning stage 33
duplex
paper path 56
duplexer
specifications, physical 313
duplexing unit
duplex drive assembly (duplex models), removing 127

E

E-mail alerts tab, HP ToolboxFX 202
e-mail alerts, setting up 200
electrical specifications 314
electrostatic discharge (ESD) 66
energy specifications 314
engine speed
paper type 52
engine test page 250
engine, cleaning 246
engine-control system 7
environment specifications 315
error messages
event log, listed numerically 229
error messages, control panel 201
ESD (electrostatic discharge) 66
Event log 201
event log
messages, listed numerically 229
print 229
extended print modes
HP ToolboxFX settings 206

F

factory defaults, restoring
cold reset 250
NVRAM initialization 251
faded print 240
fan error message 222
fans
fuser, removing 142
power-supply fan and fan duct, removing 139
Finnish laser safety statement 320
firmware
about upgrades 252
firmware version 249
fonts
DIMMs, installing 74
lists, printing 211
formatter
PCA, removing 144
fuser
errors 219
jams 232
motor, removing 136
operation 52
part number 255
fusing stage 32

H

Help tab, HP ToolboxFX 200
high-voltage power supply
removing, first transfer 153
removing, imaging (developing) 152
removing, second transfer 155
HP Customer Care 312
HP Jetdirect print server
NVRAM initialization 251
HP ToolboxFX
about 200
Alerts tab 200
density settings 206
E-mail alerts tab 202
Help tab 200
Network Settings tab 200
opening 200
Print Quality Troubleshooting page 208
Print Settings tab 200
Product information tab 200
Status tab 200
System Settings tab 200
System Setup tab 206
humidity specifications 315

I

image placement accuracy 316
image quality
archive setting 216
calibration process 40
HP ToolboxFX settings 206
print, troubleshooting 208
image quality issues
examples and solutions 240
initialization
NVRAM 251
install supplies message 226
intermediate transfer belt (ITB) 87
invalid driver error message 226
ITB
part number 255
ITB cleaning stage 33
ITB unit
operation 37

J

jam recovery 231
jams
common causes of 230
detection theory 57
fuser 232
locations 230
lower right door 239
output bin 235
right door 232
tracking number of 211
Tray 1 235

Tray 2 237
Tray 3 238, 239
jams <location>
error messages 226
jams tray #
error messages 226
Japanese VCCI statement 320
Jetdirect print server
NVRAM initialization 251

K
Korean EMC statement 320

L
language, control panel 213
laser beam exposure stage 29
laser safety statements 320
laser scanner
assembly, removing 105
laser/scanner
operations 23
left cover, removing 89
license, software 309
lifter-drive assembly
removing 115
light print, troubleshooting 240
lines, troubleshooting 241
loading media
error messages 226
location
setting 249
log of events
messages, listed
numerically 229
loose toner, troubleshooting 243
low-voltage power supply
removing 148
lower right door
jams 239

M
Macintosh
support 312
media
curl settings 216
default settings 205, 213
HP ToolboxFX settings 200
media jams. *See* jams
media registration accuracy 316
memory
enabling 77
error messages 227
installing 74
NVRAM initialization 251
ordering 257
part numbers 257
print cartridge 35
verifying installation 78
memory DIMM, removing 74
menus, control panel
map, printing 211
Network Configuration 217
Reports 201
Service 216
System Setup 213
using 205
messages
event log, listed
numerically 229
messages, control panel 201
misprint error message 227
missing color,
troubleshooting 240
motors
developing motor,
removing 135
developing-disengagement,
removing 137
drum motor, removing 134
fuser, removing 136
ITB, removing 132
paper path 45

N
network
configuration page 211
password, setting 202
settings 217
settings report 211
Network Configuration menu 217
network port
locating 179
Network Settings tab,
HP ToolboxFX 200
noise specifications 314
NVRAM initialization 251

O
online support 312
operating environment
specifications 315
operations
engine-control system 7
laser/scanner 23
print cartridge memory 35
ordering
500-sheet tray 257
memory 257
print cartridge 255
product documents 254
supplies and accessories 254
output bin
jams 235
output quality
archive setting 216
HP ToolboxFX settings 206
print, troubleshooting 208

P
page count 211
page too complex error
message 227
pages
blank 247
not printing 247
printing slowly 247
skewed 244
paper
curl settings 216
default settings 205, 213
HP ToolboxFX settings 206
wrinkled 244
paper jams. *See* jams
paper movement
operation 43
paper path
operation 49
part number
500-sheet tray 257
memory 257
print cartridge 255
parts 253
parts lists and diagrams
cassette 276
covers, panels, and doors 260
internal components 264,
266, 268, 270, 272, 274
paper delivery assembly 280
paper feeder external
components 284

paper feeder internal components 286
paper pickup assembly 278
printed circuit assemblies 282
right door components 262
using 258
password, network 202
PCL font list 211
PCL settings, HP ToolboxFX 207
physical specifications 313, 314
pickup rollers
part numbers 255
pliers, required 67
post-service tests 68
PostScript settings, HP ToolboxFX 207
power connection, locating 179
power specifications 314
power switch PCA
removing 159
power-on
troubleshooting 176
pre-exposure stage 28
preservice checklist 68
pretroubleshooting checklist 174
primary charging stage 28
primary transfer stage 31
print cartridge
developing unit engagement and disengagement 35
life detection 35
memory tag 35
ordering 255
part number 255
presence detection 35
toner level detection 35
print cartridges
error messages 227
low or out, settings 215
removing 68
replace message 227
status, viewing with HP ToolboxFX 200
supplies status page 211
warranty 307
print density settings 206
print failure error message 227
print modes, extended
HP ToolboxFX settings 206
print quality
archive setting 216
HP ToolboxFX settings 206
test 68
troubleshooting 208
troubleshooting page 208
Print Settings tab, HP ToolboxFX 200
printing
troubleshooting 247
problem-solving
event-log messages, numerical list 229
Product information tab, HP ToolboxFX 200
product registration 207
PS font list 211

Q

quality
archive setting 216
HP ToolboxFX settings 206
print, troubleshooting 208

R

rear door, locating 179
registration, product 207
remote firmware upgrades
about 252
removing parts
cassette-pickup drive assembly 108
cautions for 65
checklists 68
control-panel assembly 90
DC controller PCA 137
delivery assembly 124
delivery drive assembly (simplex models) 129
developing motor 135
developing-disengagement motor 137
driver PCA 137
drum motor 134
duplex drive assembly (duplex models) 127
environmental sensor 160
formatter PCA 144
front-door assembly 90
fuser 79
fuser fan 142
fuser motor 136
high-voltage power supply, first transfer 153
high-voltage power supply, second transfer 155
imaging (developing) high-voltage power supply 152
intermediate transfer belt 87
ITB motor 132
laser scanner assembly 105
left cover 89
lifter-drive assembly 115
low-voltage power supply 148
memory DIMM 74
pickup roller (tray 1) 80
pickup roller (tray 2) 84
power switch PCA 159
power-supply fan and fan duct 139
print cartridges 68
rear cover 90
registration sensor assembly 112
residual toner full sensor 120
residual-toner-feed assembly 130
right-door assembly 89
right-front cover 90
right-rear cover 89
secondary transfer roller 86
separation pad (Tray 1) 81
separation roller (tray 2) 82
toner-collection unit 72
tools, required 67
top cover 89
replace supplies message 227
replacing
parts 65
reports
error 249
service 249
Reports menu 201
resets
cold 250
NVRAM initialization 251
Super NVRAM initialization 251
restore defaults
product settings 216

restoring
factory defaults 250
restoring default settings
cold reset 250
NVRAM initialization 251
right door
jams 232
roller
pickup roller (Tray 1), removing 80
pickup roller (Tray 2), removing 84
rollers
separation roller (Tray 2), removing 82

S

safety statements 320
screwdrivers, required 67
screws
replacing 65
secondary service menu 249
secondary transfer roller
part number 255
secondary transfer roller, removing 86
secondary transfer stage 31
sensors
environmental, removing 160
paper path 44
registration sensor assembly, removing 112
residual toner full sensor, removing 120
separation stage 32
service
tools, required 67
Service menu
secondary 249
service page 212
settings
HP ToolboxFX 200
network report 211
restoring defaults 216
System Setup menu 213
shipping lock error message 227
size specifications, product 314
sizes, media
default, setting 213
skew prevention 51
skewed pages
troubleshooting 244
Sleep mode
power specifications 314
smeared toner, troubleshooting 244
software
HP ToolboxFX 200
software license agreement 309
solenoids
paper path 45
solve problems 171
solving
direct-connect problems 248
network problems 248
space requirements 313
specifications
acoustic 314
electrical 314
environment 315
physical 313, 314
stapler/stacker
specifications, physical 313
static precautions 66
status
alerts, HP ToolboxFX 200
supplies, printing report 211
viewing with HP ToolboxFX 200
status page 177
Status tab, HP Toolbox FX 200
storage cabinet
specifications, physical 313
storing
product 315
streaks, troubleshooting 241
Super NVRAM initialization 251
supplies
error messages 227
low or out, settings 215
ordering 207, 254
replace message 227
shipping lock error message 227
status, viewing with HP ToolboxFX 200
wrong position error message 225
supplies status page 211
support
online 207, 312
System Settings tab, HP ToolboxFX 200
System Setup menu 213
System Setup tab, HP ToolboxFX 206

T

TCP/IP
settings 217
technical support
online 312
temperature specifications 315
test page
engine 250
tests
post-service 68
print-quality 68
text, troubleshooting 244
toner
loose, troubleshooting 243
smeared, troubleshooting 244
toner cartridges. *See* print cartridges
toner collection unit
part number 255
removing 72
tools, required 67
transfer stage 31
transfer unit
operation 37
Tray 1
jams 235
settings 213
Tray 2
jams 237
settings 213
Tray 3
jams 238, 239
trays
load error messages 226
settings 205, 213
specifications, physical 313
troubleshooting
about 174
blank pages 247
calibration 175
checklist 172, 174

cold reset 250
configuration page 177
control panel messages 201
demo page 177
direct-connect problems 248
event log 177
jams 230
lines, printed pages 241
network problems 248
NVRAM initialization 251
pages not printing 247
pages printing slowly 247
power-on 176
print quality 208
reports and tools 177
skewed pages 244
status page 177
text 244
toner smear 244
USB cables 247
wrinkles 244
types, media
HP ToolboxFX settings 206

U
upgrade firmware
about 252
usage page 211
USB port
locating 179
speed settings 216
troubleshooting 247

V
vertical lines,
troubleshooting 241
voltage specifications 314

W
warranty
customer self repair 311
license 309
print cartridges 307
product 306
Web sites
customer support 312
Macintosh customer
support 312
white spots, troubleshooting 241
wiring diagram 197
wrinkles, troubleshooting 244

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