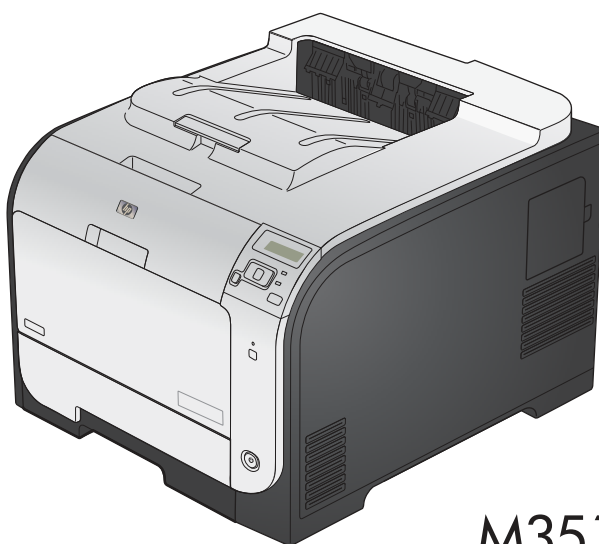




LASERJET PRO 300 COLOR LASERJET PRO 400 COLOR

Service Manual



M351
M451



HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color M451 Printers

Service Manual

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Conventions used in this guide

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

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

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


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

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1 Removal and replacement

- [Removal and replacement strategy](#)
- [Service approach](#)
- [Removal and replacement procedures](#)

Removal and replacement strategy

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

Replacing FRUs is generally the reverse of removal procedures. 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.

Introduction

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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
- Precision, slotted screwdriver with a 1 mm (0.04 in) blade width

 **NOTE:** This fine-point tool is required to release the front-door pins. The width of the blade must be 2 mm (0.08 in) or less to be able to push the door pins out of the mounting holes.

- Small, slotted screwdriver
- Needle-nose pliers
- ESD mat (if one is available)
- Penlight (optional)


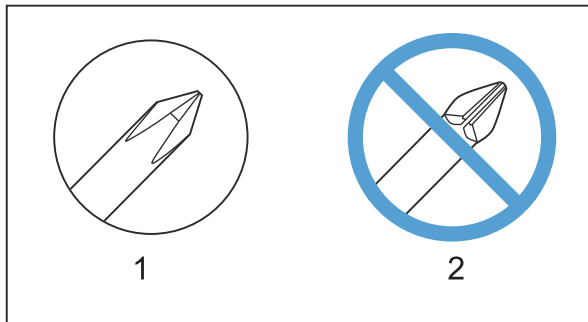
 **CAUTION:** Always use a Phillips screwdriver (callout 1). Do not use a pozidrive screwdriver (callout 2) or any motorized screwdriver. These can damage screws or screw threads.

Figure 1-1 Phillips and pozidrive screwdriver comparison


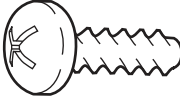

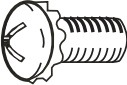




Types of screws

⚠ WARNING! Make sure that components are replaced with the correct screw type. Using the incorrect screw (for example, substituting a long screw for the correct shorter screw) can cause damage to the product or interfere with product operation. Do not intermix screws that are removed from one component with the screws that are removed from another component.

📝 NOTE: The screw illustrations in the following table are for reference only. Screws might vary in size and appearance from those shown in this table.

Table 1-1 Common fasteners

Example	Description	Size	Part Number
	Screw, with washer	M3X8	XA9-1420-000CN
		M4X6	XB2-7400-605CN
		M4X12	XA9-1422-000CN
	Screw, tapping, truss head	M4X10	XB4-7401-005CN
		M4X15	XB4-7401-609CN
	Screw, TP	M3X4	XB6-7300-405CN
		M3X6	XB6-7300-605CN
	Screw, D	M3X6	XA9-1670-000CN
		M3X8	XA9-1671-000CN
	Screw, machine	M3X4	XB6-7300-409CN
	Screw, machine, flat head	M3X4	XA9-0679-000CN
	Screw, machine, flanged pan head	M3X6	XB6-7300-805CN

6 mm 8 mm 10 mm 12 mm M 3 M 4


Service approach

Before performing service

- Remove all media from the product.
- Turn off the power using the power button.
- Unplug the power cable and interface cable or cables.
- Place the product on an ESD mat (if available). If an ESD workstation or mat is not available, ground yourself by touching the sheet-metal chassis *before* touching an ESD-sensitive part.
- Remove the toner cartridges.
- Remove the Tray 2 cassette.

After performing service

- Connect the interface cables, and then plug in the power cable.
- Reinstall the toner cartridges.
- Reinstall the Tray 2 cassette.

Post-service test

After service has been completed, 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 input tray contains clean, unmarked paper.
3. Attach the power cord and interface cable, 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. Use the control-panel menus to calibrate the product.
7. Print a diagnostic page, and then verify that the print quality is as expected.
8. Send a print job from the host computer, and then verify that the output meets expectations.
9. If necessary, restore any customer-specified settings.
10. Clean the outside of the product with a damp cloth.

Parts removal order

Figure 1-2 Parts removal order (1 of 2)

Component	Remove	Remove	Remove	Remove	Remove	Remove	Remove	Remove
Pickup roller	Tray 2							
Separation roller	Tray 2							
Pickup roller and separation pad (Tray 1)	Tray 2							
Print-cartridge drawer								
DIMM cover								
Right cover	DIMM cover							
Rear-upper cover (duplex product)								
Rear-door stopper and link caps (simplex product)								
Rear door (simplex product)								
Rear door (duplex product)								
Rear cover and feed guide (simplex product)	Rear-door stopper	Rear door	Right cover					
Rear-lower cover and Rear door links (duplex product)	Right cover	Rear-upper cover	Rear door					
Rear door rib assembly (duplex product)	Right cover	Rear-upper cover	Rear door	Rear-lower cover				
Link guide								
Upper-cover assembly	Rear-upper cover							
Left cover	Right cover	Rear cover	Rear-lower cover	Upper-cover assembly				
Right-front cover and power button	Right cover	Rear-upper cover	Upper-cover assembly	Control-panel assembly	Right panel			
Paper-feed guide assembly								
Control-panel assembly	Right cover	Rear-upper cover	Upper-cover assembly					
Right panel	Right cover	Rear-upper cover	Upper-cover assembly	Control-panel assembly				
Front-door assembly	Print-cartridge drawer	Right cover	Upper-cover assembly	Left cover	Rear door (simplex product)	Rear cover (simplex products)	Rear-upper cover (duplex product)	Rear door (duplex product)
Intermediate transfer belt (ITB)								Rear-lower cover (duplex products)
Drum motor (M1) and developer motor (M2)	Right cover							Control-panel assembly
Intermediate PCA	Right cover	Upper-cover assembly	Right panel					Right panel
Formatter PCA	Right cover							
DC controller PCA	Right cover	Upper-cover assembly	Right panel					
Fuser-motor assembly (simplex products)	Right cover	Formatter PCA	Rear-upper cover	Rear door	Rear cover	Upper-cover assembly	Control-panel assembly	Right panel
High-voltage power-supply PCA (simplex products)	Right cover	Upper-cover assembly	Left cover	Rear-lower cover (duplex products)	Rear door (simplex products)	Rear cover (simplex products)		
Color management sensor assembly (simplex products)	Print-cartridge drawer	Right cover	Upper-cover assembly	Left cover	Rear-lower cover	Rear door (simplex product)	Rear cover (simplex products)	High-voltage power-supply PCA

Figure 1-3 Parts removal order (2 of 2)

Fan	Right cover							
Duplex-reverse drive assembly (simplex products)	Right cover	Rear-upper cover	Rear door (simplex product)	Rear door (duplex product)	Rear cover (simplex products)	Rear-lower cover (duplex products)	Upper-cover assembly	Control-panel assembly
Fuser (simplex products)	Right cover	Rear-upper cover (duplex product)	Rear door (simplex product)	Rear-lower cover (simplex products)	Upper-cover assembly	Left cover	Rear cover	Rear-lower cover (duplex products)
Paper-delivery assembly (simplex products)	Right cover	Rear-upper cover (duplex product)	Rear door (simplex product)	Rear cover (simplex products)	Rear cover (simplex products)	Upper-cover assembly	Left cover	Rear-lower cover (duplex products)

Removal and replacement procedures

Tray 2 cassette

Pull the tray straight out of the product to remove it.

Figure 1-4 Remove the Tray 2 cassette




Rollers and pads

Replace the transfer roller


The transfer roller is a component of the paper-feed assembly and not available as an individual part. To remove and replace the transfer roller, install a replacement paper-feed assembly. See [Paper-feed guide assembly on page 48](#).


Replace the pickup roller

The roller must be rotated into the service position to remove it.

 **CAUTION:** Avoid touching the spongy roller surface unless you are going to replace the roller. Skin oils on the roller can cause paper-pickup problems.

1. Turn the product on, and wait for it to reach the **Ready** state. Perform the following steps to rotate the roller to the service position.

 **NOTE:** If you have removed **Tray 2** to service the product, reinstall the tray before turning the product on.

 **TIP:** The following steps rotate the engine paper-pickup roller *and* the **Tray 1** paper-pickup roller into the service position.

- a. Open the **2ndry Service** menu by pressing the **Left Arrow** ◀ button and the **Cancel** button simultaneously.

- b. Use the arrow buttons to select **Pick roller**, and then press the **OK** button.

Press the **OK** button again to confirm that you want the roller to rotate.

- c. Listen for the roller to rotate. When the roller is done rotating, unplug the power cord, and then place the power button in the off position.

CAUTION: It is important to place the power button in the off position *after* unplugging the power cord so that the product power does not come on immediately when the power cord is plugged in again.

- d. Remove **Tray 2**.

- e. Perform the remaining steps in this procedure to remove the roller. After replacing the roller, plug the power cord into the product, and then use the power button to turn the product on.

2. Carefully raise the front of the product.

⚠ WARNING! Do not place the product face-up resting on the rear cover and rear door. Excess toner might enter the laser/scanner assembly and contaminate the mirrors, causing print-quality problems. The laser/scanner is not a FRU. If the laser/scanner mirrors are contaminated, the entire product must be replaced.

⚠ CAUTION: Do not lift the product by grasping the front door and **Tray 2** cavity.

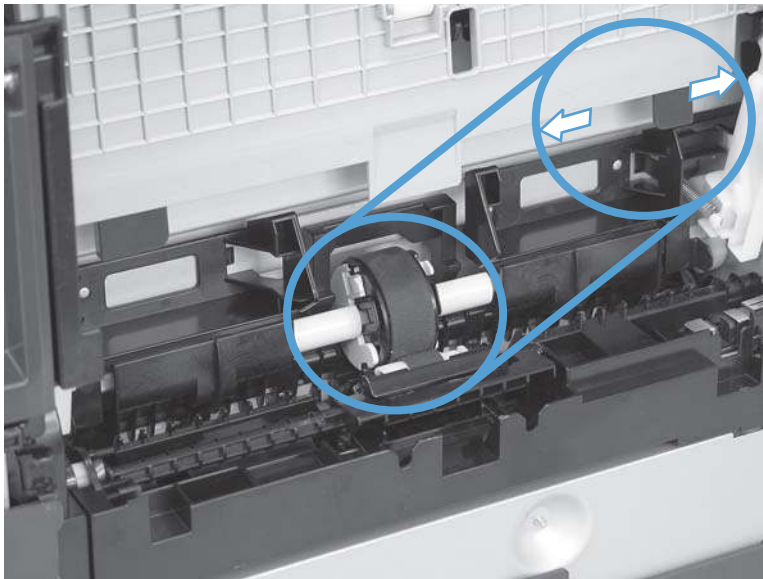
📝 NOTE: The roller is located inside the tray cavity.

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



3. Release the two white plastic locking tabs and remove the pickup roller.

Figure 1-6 Remove the pickup roller (2 of 2)



Repalce the separation roller

CAUTION: Avoid touching the spongy roller surface unless you are going to replace the roller. Skin oils on the roller can cause paper-pickup problems.

1. Remove **Tray 2** (if installed), and then carefully raise the front of the product.

WARNING! Do not place the product face-up resting on the rear cover and rear door. Excess toner might enter the laser/scanner assembly and contaminate the mirrors, causing print-quality problems. The laser/scanner is not a FRU. If the laser/scanner mirrors are contaminated, the entire product must be replaced.

CAUTION: Do not lift the product by grasping the front door and **Tray 2** cavity.

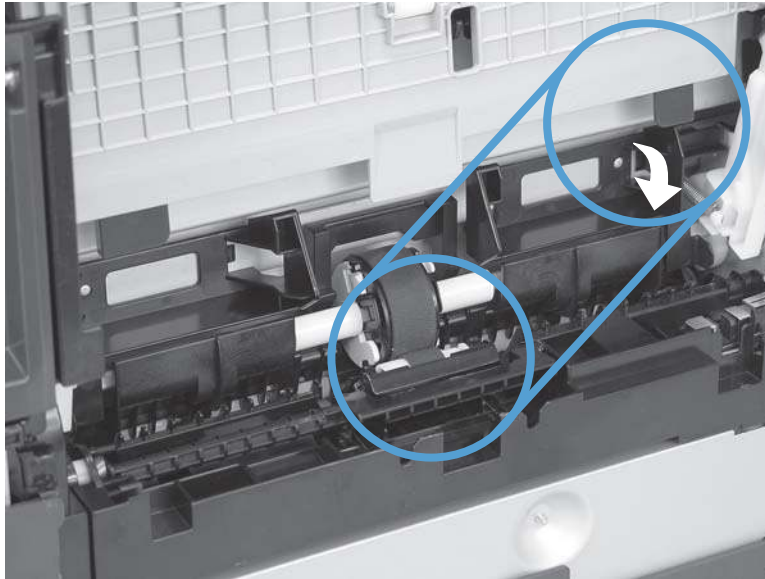
NOTE: The roller is located inside the tray cavity.

Figure 1-7 Remove the separation roller (1 of 3)



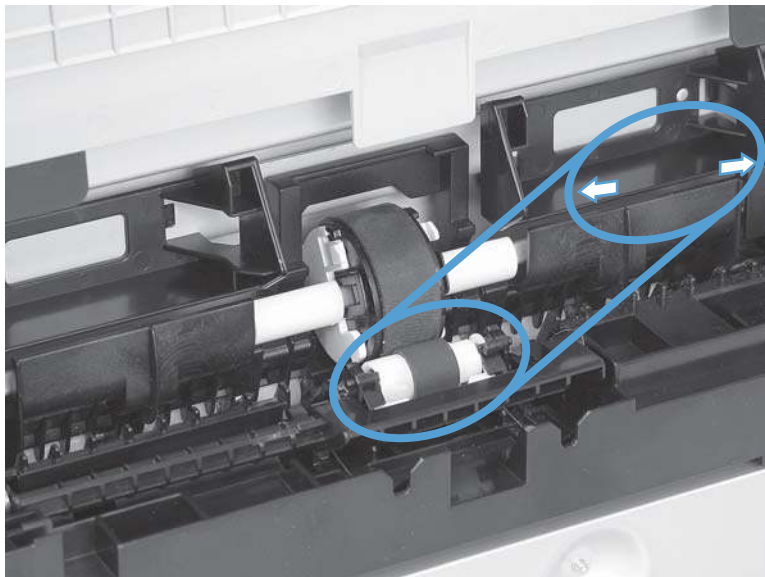
2. Release the two roller-cover locking pins, and then remove the cover.

Figure 1-8 Remove the separation roller (2 of 3)



3. Release the roller holder to release the roller-locking pins. Remove the separation roller.

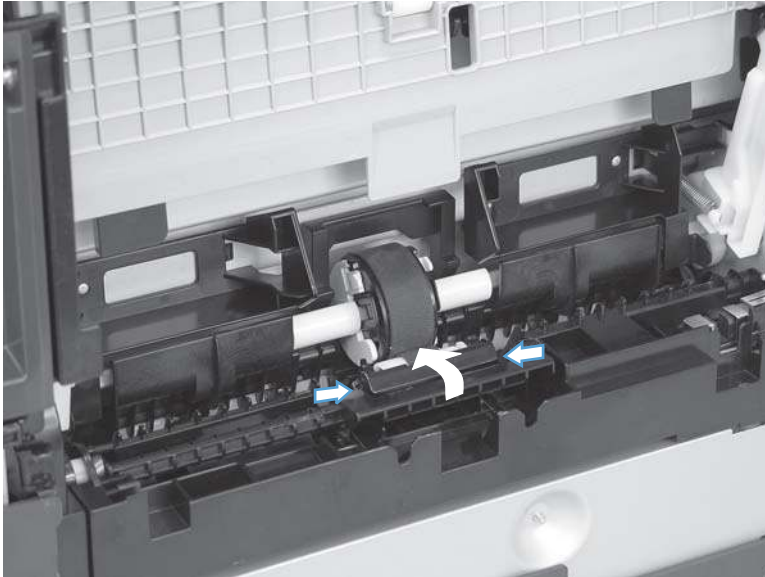
Figure 1-9 Remove the separation roller (3 of 3)



Reinstall the separation roller


1. Install the replacement separation roller.
2. Reinstall the separation roller cover on the locking pins, and then rotate it toward the roller until you hear it snap into place.


Figure 1-10 Reinstall the separation roller




Replace the pickup roller and separation pad (Tray 1)


The roller must be rotated into the service position to remove it.

 **CAUTION:** Avoid touching the spongy roller surface unless you are going to replace the roller. Skin oils on the roller can cause paper pickup problems.

 **NOTE:** Always replace the separation pad when replacing the paper-pickup roller.

1. Turn the product on, and wait for it to reach the **Ready** state. Perform the following steps to rotate the roller to the service position.

 **NOTE:** If you have removed **Tray 2** to service the product, reinstall the tray before turning the product on.

 **TIP:** The following steps rotate the engine paper-pickup roller *and* the **Tray 1** paper-pickup roller into the service position.

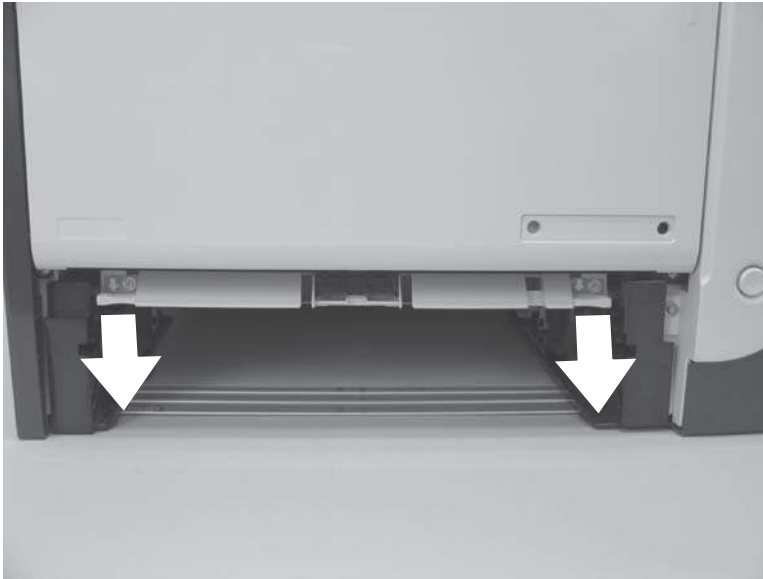
- a. Open the **2ndry Service** menu by pressing the **Left Arrow** ◀ button and the **Cancel** button simultaneously.
- b. Use the arrow buttons to select **Pick roller**, and then press the **OK** button.
Press the **OK** button again to confirm that you want the roller to rotate.
- c. Listen for the roller to rotate. When the roller is done rotating, unplug the power cord, and then place the power button in the off position.

CAUTION: It is important to place the power button in the off position *after* unplugging the power cord so that the product power does not come on immediately when the power cord is plugged in again.

- d. Remove **Tray 2**.
- e. Perform the remaining steps in this procedure to remove the roller. After replacing the roller, plug the power cord into the product, and then use the power button to turn the product on.

2. Lower the Tray 1 paper-pickup assembly by pushing down on the edges of the assembly.

Figure 1-11 Remove the Tray 1 paper-pickup roller (1 of 3)



3. Carefully raise the front of the product.

⚠ WARNING! Do not place the product face-up resting on the rear cover and rear door. Excess toner might enter the laser/scanner assembly and contaminate the mirrors, causing print-quality problems. The laser/scanner is not a FRU. If the laser/scanner mirrors are contaminated, the entire product must be replaced.

Figure 1-12 Remove the Tray 1 paper-pickup roller (2 of 3)



4. Release two tabs, and then rotate the roller away from the product to remove it.

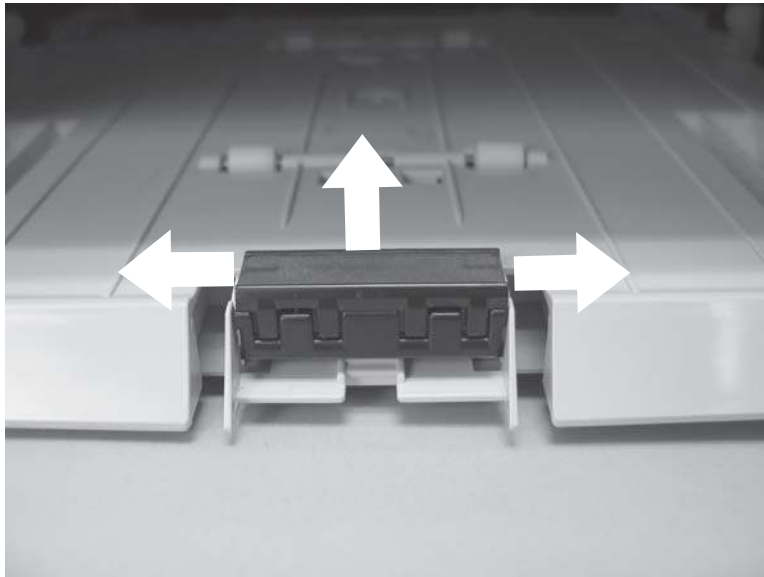
Figure 1-13 Remove the Tray 1 paper-pickup roller (3 of 3)



5. Release the retainer tabs, and then remove the separation pad from the base.

CAUTION: The Tray 1 separation-pad spring is not captive. Do not lose the spring when the separation pad is removed.

Figure 1-14 Remove the Tray 1 separation pad



Main assemblies

Print-cartridge drawer

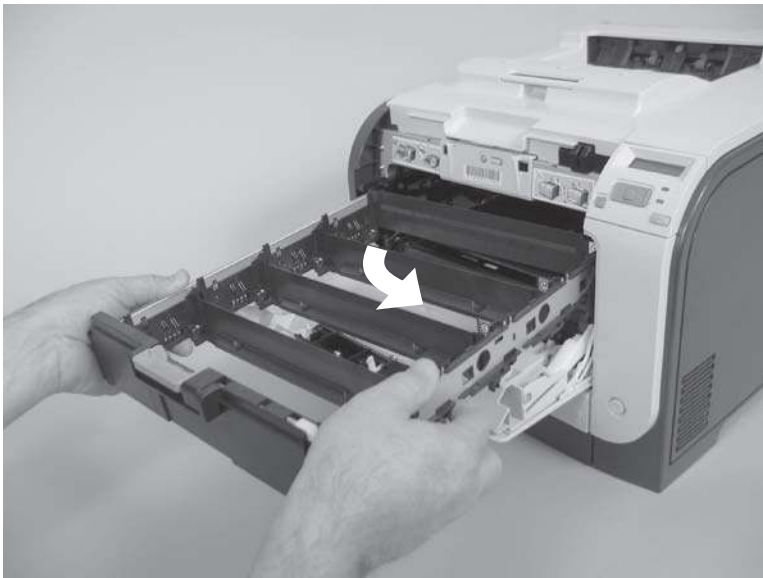
1. Open the front door.
2. Partially pull out the print-cartridge drawer, and then use a small, flat-blade screwdriver to release one tab (callout 1) on the left side of the product.

Figure 1-15 Remove the print-cartridge drawer (1 of 3)



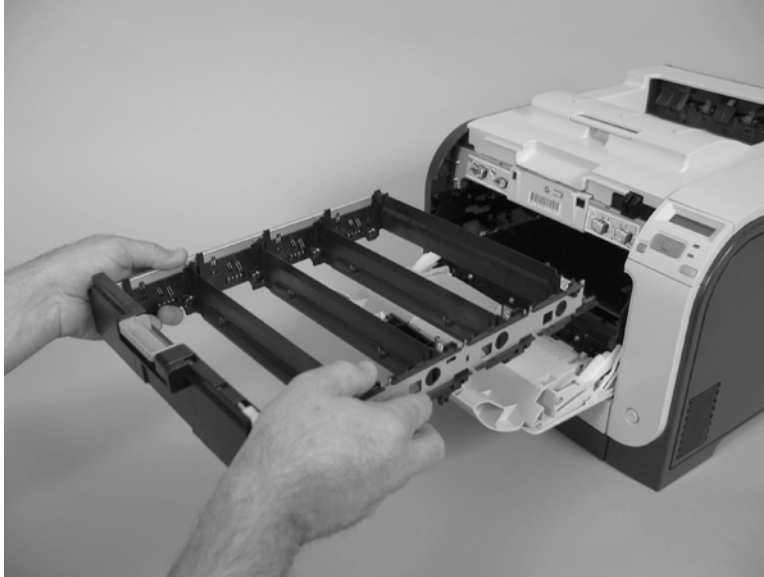
3. Carefully rotate the print-cartridge drawer toward the right side of the product to release it.

Figure 1-16 Remove the print-cartridge drawer (2 of 3)



4. Pull the print-cartridge drawer out of the product to remove it.

Figure 1-17 Remove the print-cartridge drawer (3 of 3)



DIMM cover

1. Open the DIMM cover.
2. Lift the cover up to release it, and then remove the cover.

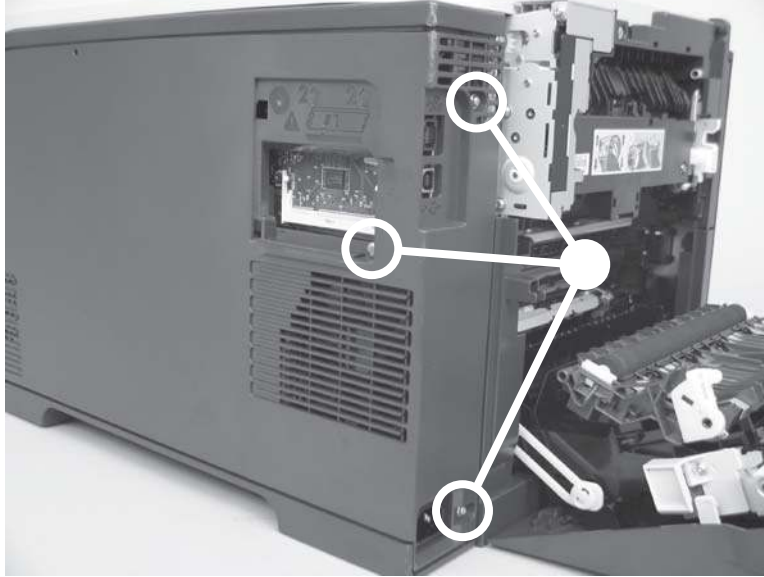
Figure 1-18 Remove the DIMM cover



Right cover

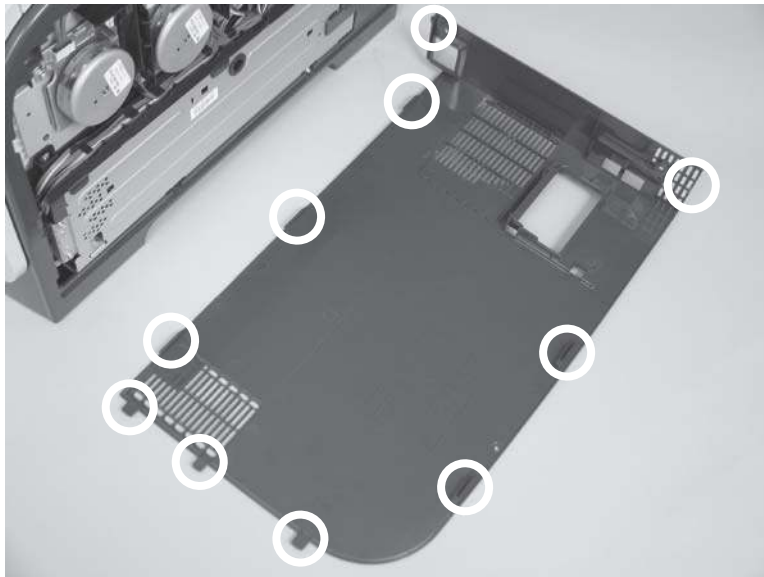
1. Remove the DIMM cover. See [DIMM cover on page 20](#).
2. Open the rear cover, and then remove three screws (callout 1).

Figure 1-19 Remove the right cover (1 of 5)



3. Before you proceed, take note of the mounting tab locations on the back of the cover.

Figure 1-20 Remove the right cover (2 of 5)



4. Slide the right cover toward the back of the product.

Figure 1-21 Remove the right cover (3 of 5)



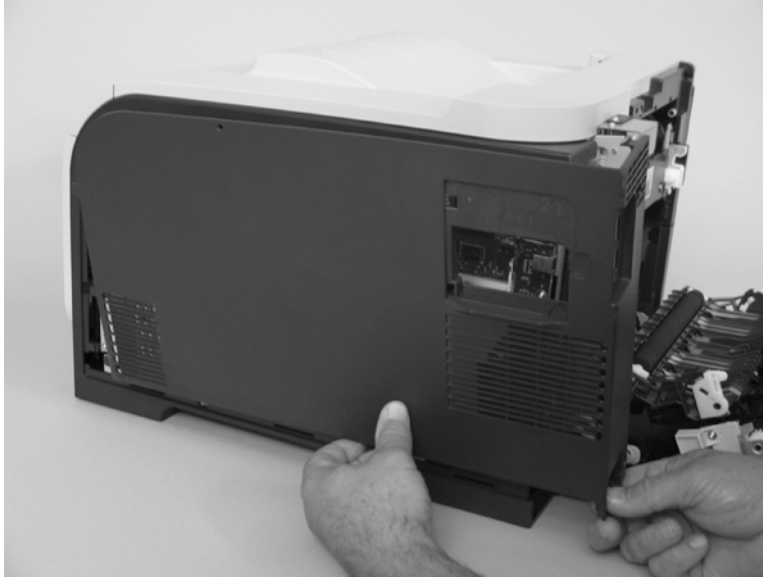
5. Release one tab (callout 1).

Figure 1-22 Remove the right cover (4 of 5)




6. Remove the right cover.

Figure 1-23 Remove the right cover (5 of 5)

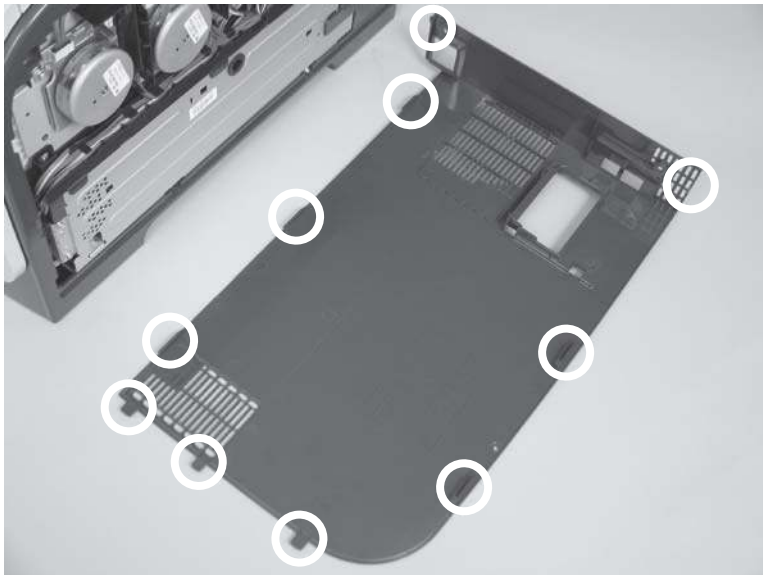


Reinstall the right cover

 **NOTE:** Do not reinstall the DIMM cover before reinstalling the right cover. The cover will interfere with the product chassis and prevent the correct installation of the right cover.

- Before you reinstall the right cover, take note of the mounting tab locations on the back of the cover.

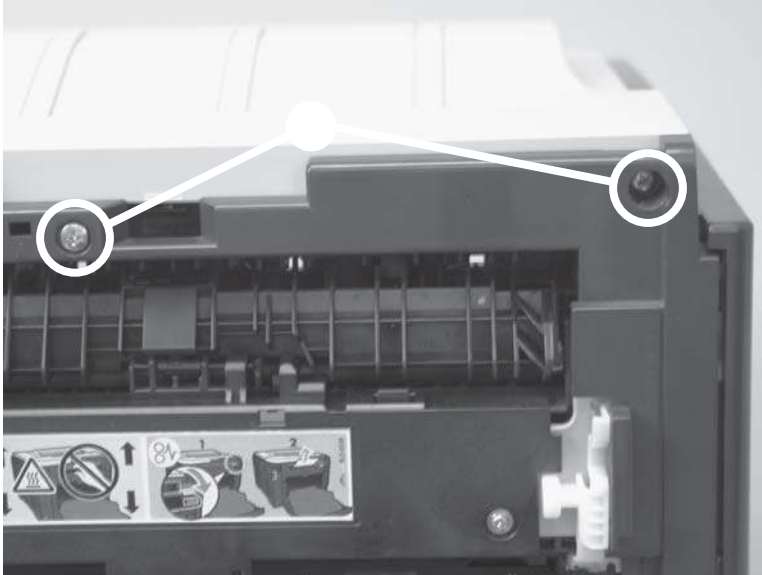
Figure 1-24 Reinstall the right cover



Rear-upper cover (duplex product)

1. Open the rear cover.
2. Remove two screws (callout 1).

Figure 1-25 Remove the rear-upper cover (1 of 2)



3. Slightly separate the cover from the product, and rotate the cover down and then away from the product to remove it.

Figure 1-26 Remove the rear-upper cover (2 of 2)



Rear-door stopper and link caps (simplex product)

1. Open the rear door.
2. Use a pair of needle-nose pliers to release two tabs, and then remove the link cap.


 **TIP:** It might be easier to remove the link caps if you remove the feed assembly. See [Paper-feed guide assembly on page 48](#).

Figure 1-27 Remove the rear-door stopper and link caps (simplex product) (1 of 2)



3. Use a small, flat-blade screwdriver to carefully remove the remaining link cap, and then remove the rear-door stopper.

Figure 1-28 Remove the rear-door stopper and link cap (simplex product) (2 of 2)



Rear door (simplex product)

1. Open the rear door.
2. Use a pair of needle-nose pliers to release two tabs, and then remove the link cap.


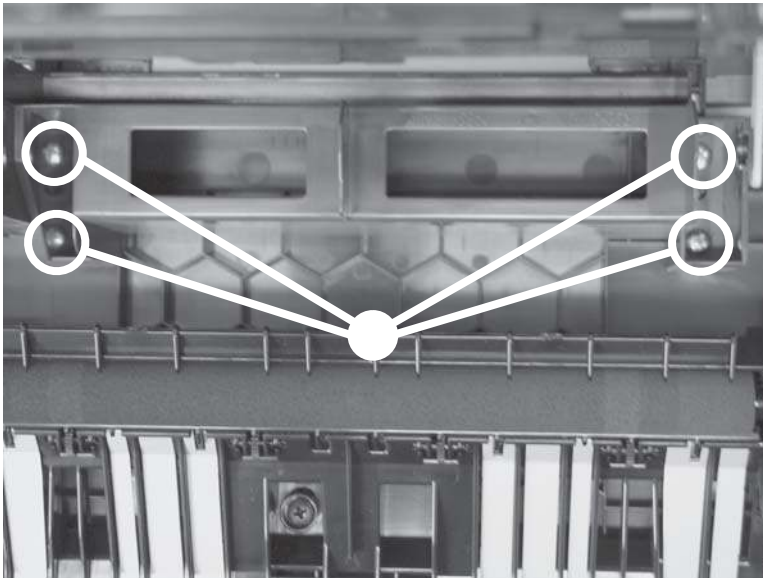
 **TIP:** It might be easier to remove the link cap if you remove the feed assembly. See [Paper-feed guide assembly on page 48](#).

Figure 1-29 Remove the rear door (simplex product) (1 of 4)



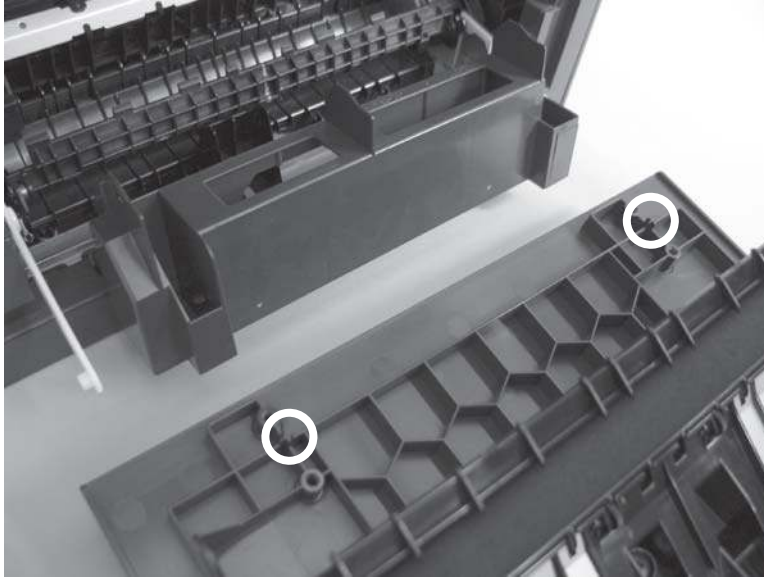
3. Remove four screws (callout 1).

Figure 1-30 Remove the rear door (simplex product) (2 of 4)



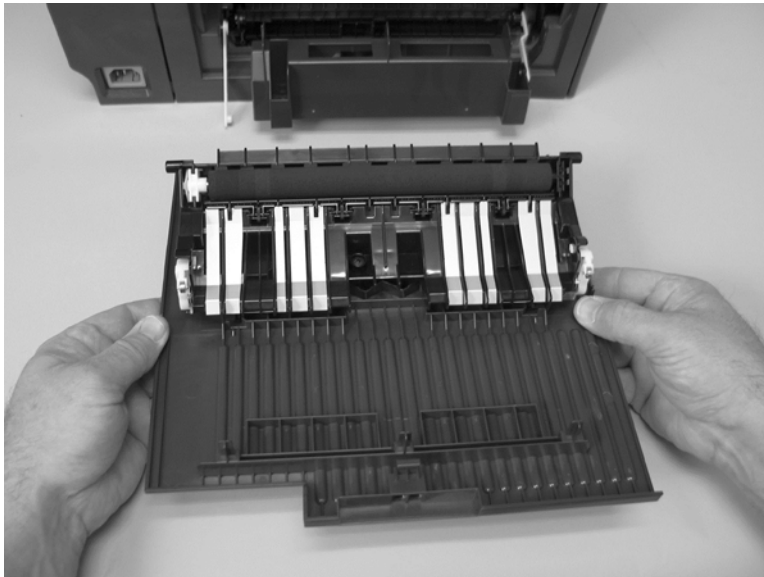
4. Before you remove the rear door, take note of the alignment pins on the door.

Figure 1-31 Remove the rear door (simplex product) (3 of 4)



5. Remove the rear door.

Figure 1-32 Remove the rear door (simplex product) (4 of 4)



Rear door (duplex product)

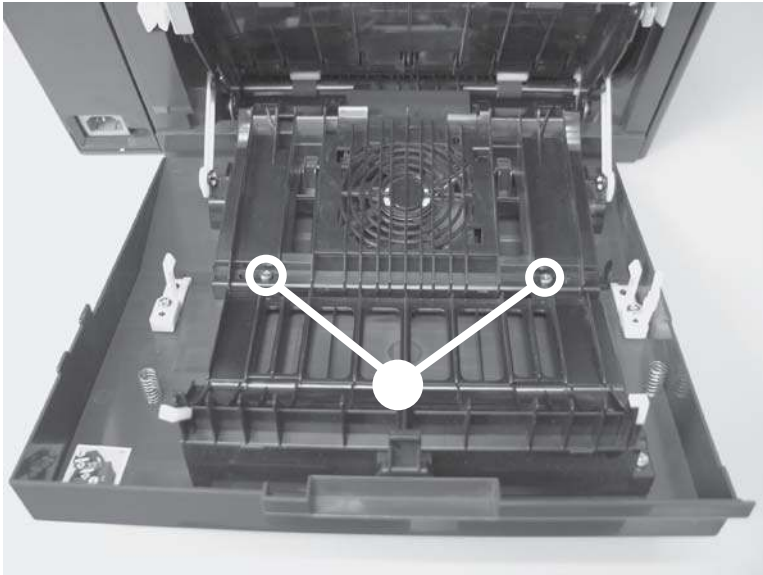
1. Open the rear door.
2. Use the green handle to close the duplex-feed assembly.

Figure 1-33 Remove the rear door (duplex product) (1 of 4)



3. Remove two screws (callout 1).

Figure 1-34 Remove the rear door (duplex product) (2 of 4)

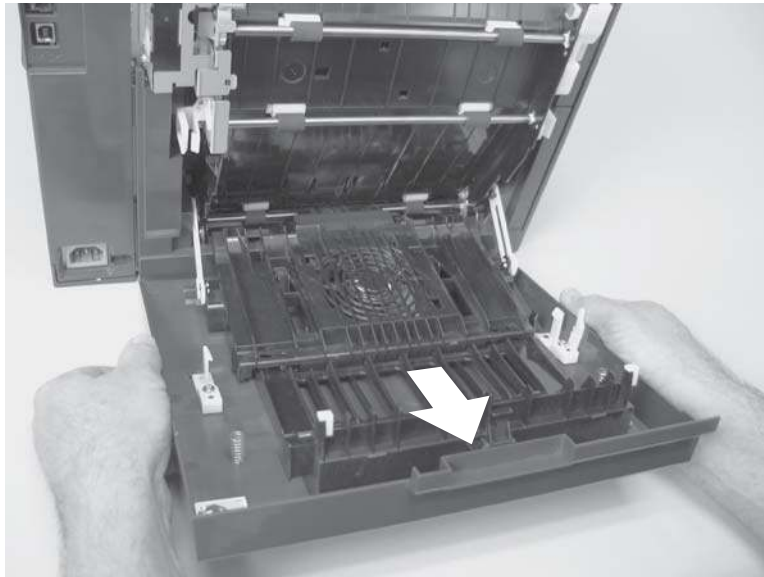


4. Before you remove the rear door, take note of the mounting tabs on the door.

Figure 1-35 Remove the rear door (duplex product) (3 of 4)

5. Slide the door away from the product to release two tabs, and then remove the door.

Figure 1-36 Remove the rear door (duplex product) (4 of 4)



Rear cover and feed guide (simplex product)

Before proceeding, remove the following components:

- Rear-door stopper. See [Rear-door stopper and link caps \(simplex product\) on page 25](#).
- Rear door. See [Rear door \(simplex product\) on page 26](#).
- Right cover. See [Right cover on page 21](#).

Remove the rear cover and feed guide (simplex product)

1. Carefully release the link guide from the pivot pin on the feed guide.

Figure 1-37 Remove the rear cover and feed guide (simplex product) (1 of 6)

2. Remove three screws (callout 1).

Figure 1-38 Remove the rear cover and feed guide (simplex product) (2 of 6)


3. Release two tabs (callout 1).

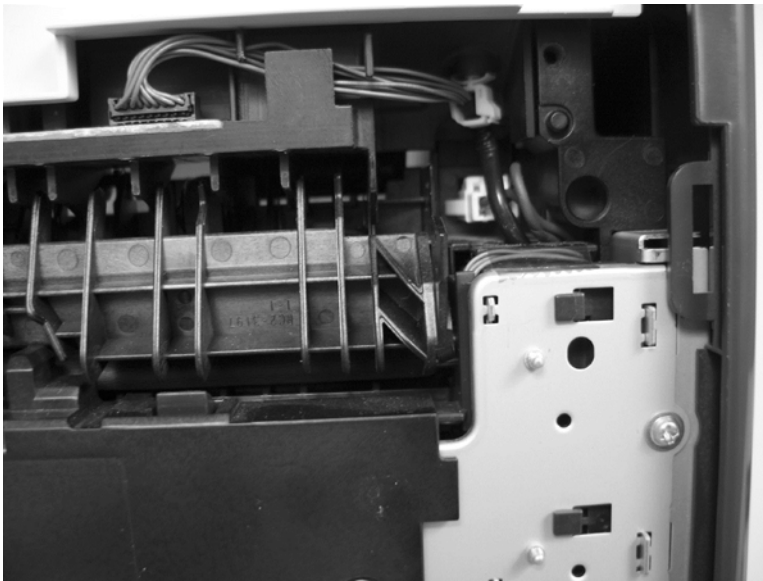
Figure 1-39 Remove the rear cover and feed guide (simplex product) (3 of 6)

4. Carefully lift the cover up, and then rotate it away from the product to remove it.

Figure 1-40 Remove the rear cover and feed guide (simplex product) (4 of 6)



 **Reinstallation tip** Make sure that the wire harnesses at the top of the chassis near the left-side cover are correctly retained so that they are not pinched when the rear cover is reinstalled.



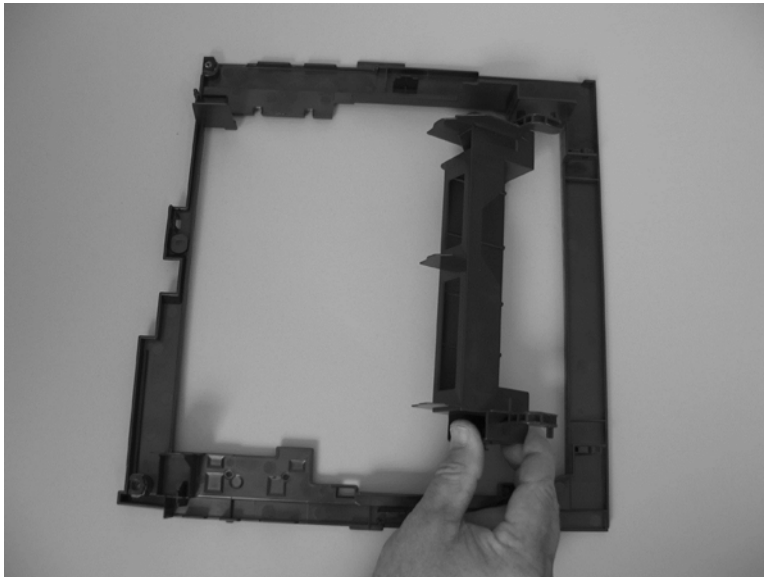
5. Carefully release a feed-guide hinge pin from the rear cover to release the feed guide.

Figure 1-41 Remove the rear cover and feed guide (simplex product) (5 of 6)



6. Remove the feed guide.

Figure 1-42 Remove the rear cover and feed guide (simplex product) (6 of 6)



Rear-lower cover and rear-door links (duplex product)

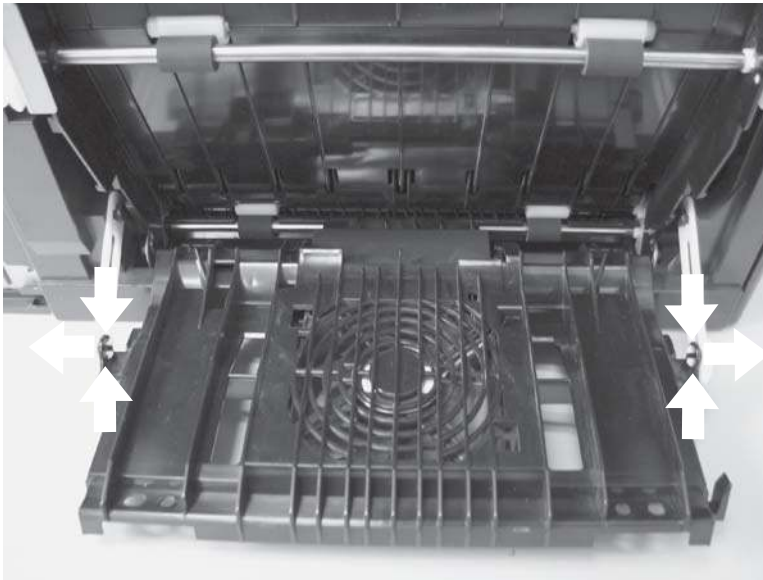
Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Rear-upper cover. See [Rear-upper cover \(duplex product\) on page 24](#).
- Rear door. See [Rear door \(duplex product\) on page 28](#).

Remove the rear-lower cover and rear-door links (duplex product)

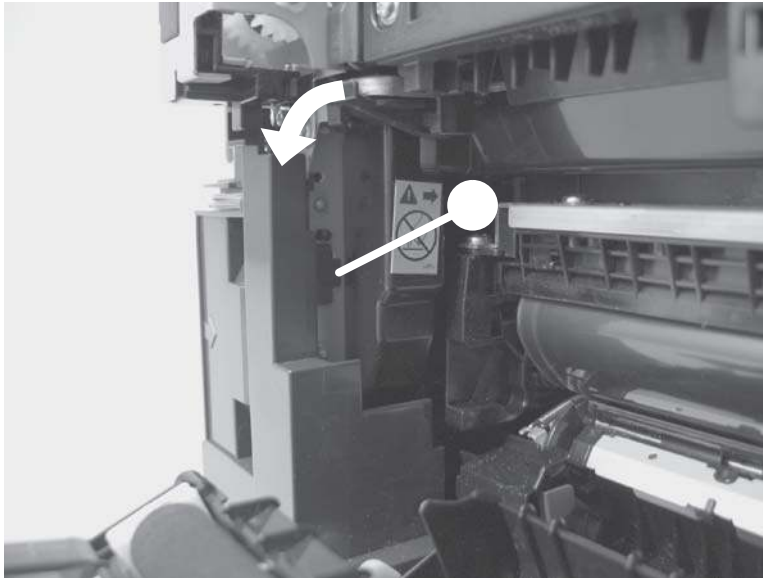
1. Use a pair of needle-nose pliers to release two tabs, and then remove the rear-door link cap. Repeat this step for the remaining rear-door link cap.

Figure 1-43 Remove the rear-lower cover and rear-door links (duplex product) (1 of 6)



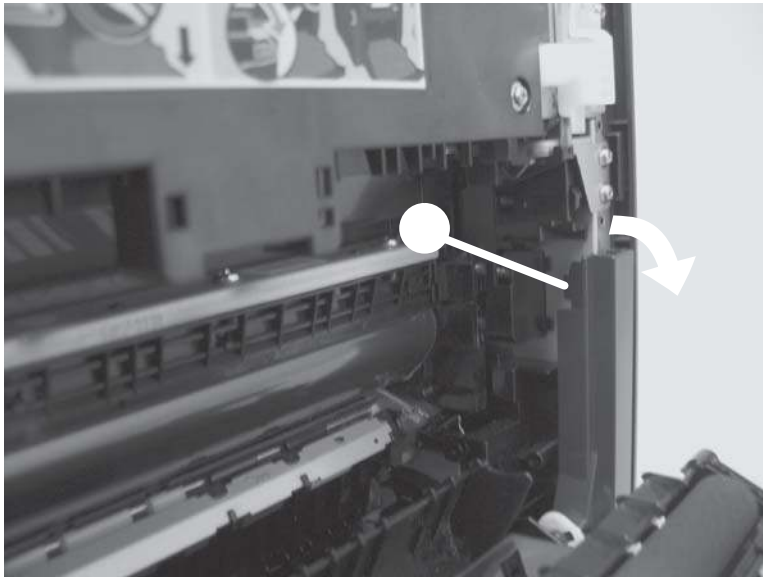
2. Open the duplex-feed assembly, release one tab (callout 1), and then slightly separate the cover from the product.

Figure 1-44 Remove the rear-lower cover and rear-door links (duplex product) (2 of 6)



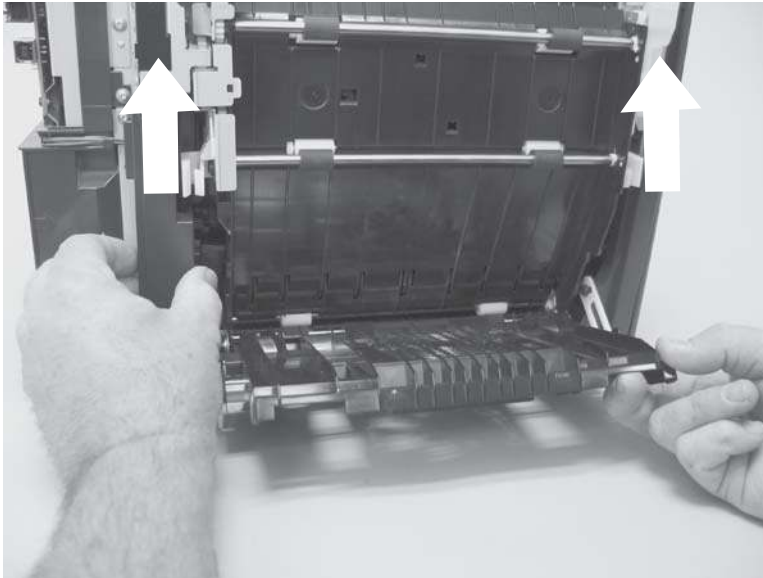
3. Release one tab (callout 1) and slightly separate the cover from the product.

Figure 1-45 Remove the rear-lower cover and rear-door links (duplex product) (3 of 6)



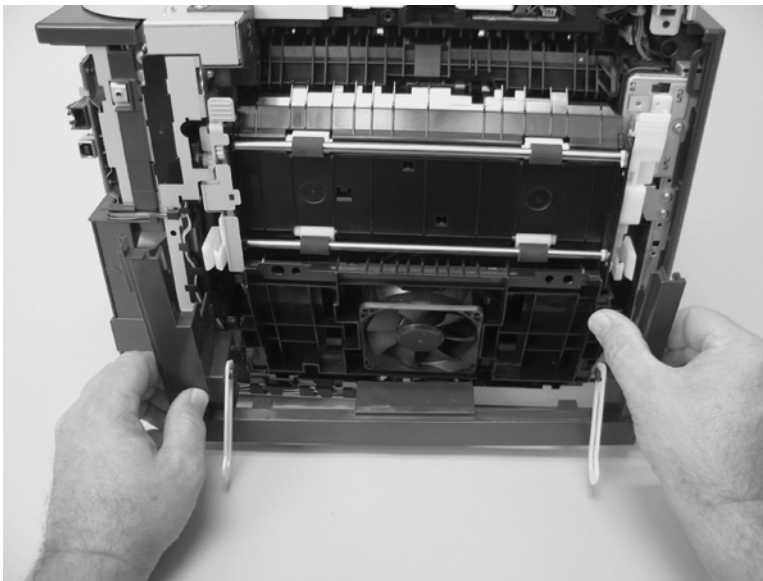
4. Close the duplex assembly, lift up on one side of the cover, and then lift up the other side of the cover to release it.

Figure 1-46 Remove the rear-lower cover and link-guides (duplex product) (4 of 6)



5. Slightly lift up the rear-door rib assembly, and then carefully slide the cover away from the product to remove it.

Figure 1-47 Remove the rear-lower cover and link-guides (duplex product) (5 of 6)



6. Rotate the rear-door link until the slot in the link aligns with the tap on the link-hinge pin, and then remove the rear-door link. Repeat this step for the remaining rear-door link.


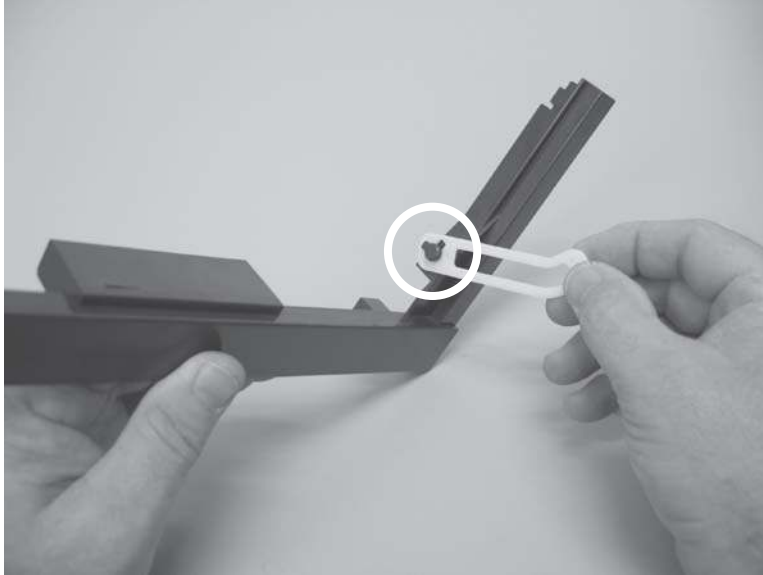
 **NOTE:** If you are installing a replacement rear-lower cover, remove the rear-door links from the discarded cover, and then install them on the replacement cover.

Figure 1-48 Remove the rear-lower cover and rear-door links (duplex product) (6 of 6)



Rear-door rib assembly (duplex product)

Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Rear-upper cover. See [Rear-upper cover \(duplex product\) on page 24](#).
- Rear door. See [Rear door \(duplex product\) on page 28](#).
- Rear-lower cover. See [Rear-lower cover and rear-door links \(duplex product\) on page 34](#).

Remove the rear-door rib assembly (duplex product)



NOTE: The duplex fan (FM2) is a component of the rear-door rib assembly.

1. Disconnect one connector (callout 1).



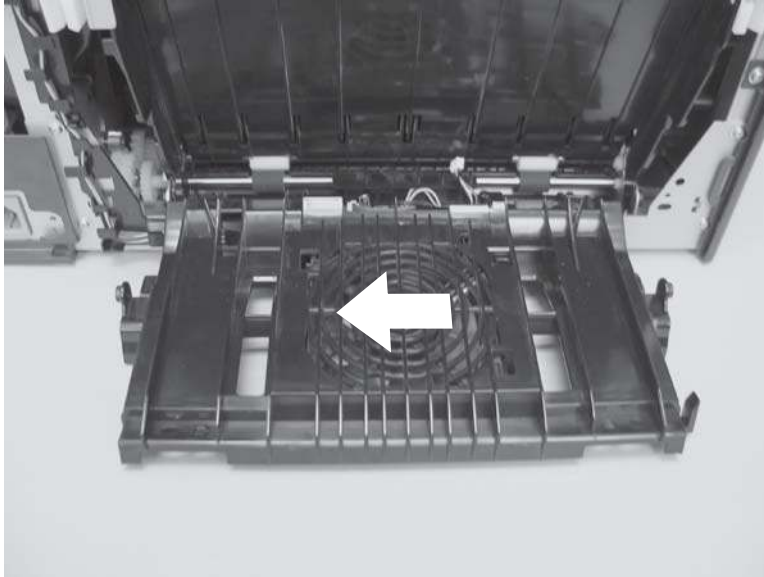
TIP: The PCA can be dislodged when disconnecting the connector. To secure the PCA, carefully push it towards the inside of the product to clear the mounting tabs near the rib assembly. Slide the PCA towards the rib assembly to position the edge of the PCA under the mounting tabs.

Figure 1-49 Remove the rear-door rib assembly (duplex product) (1 of 3)



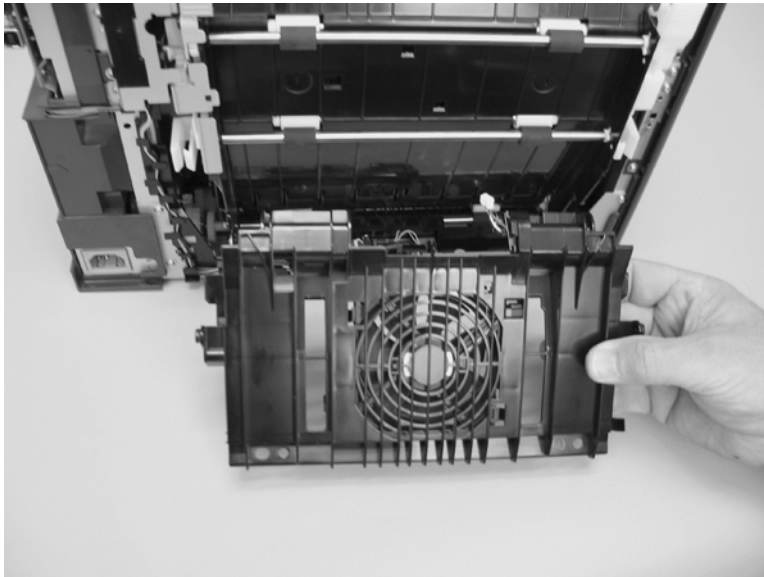
2. Slide the assembly toward the power cord side of the product to release the hinge pin.

Figure 1-50 Remove the rear-door rib assembly (duplex product) (2 of 3)



3. Remove the assembly.

Figure 1-51 Remove the rear-door rib assembly (duplex product) (3 of 3)



Link guide

The link guide rarely fails and is not a FRU.

The link is attached to the paper guide (callout 1) and the rear door (simplex products; callout 2) or duplexing feed guide assembly (duplex products; callout 3).

If the link-guide attachment at the rear door or duplexing feed guide assembly fails, replace the appropriate component.

The interior paper guide is not replaceable. If the link guide to paper guide attachment fails, you must replace the entire product.

Figure 1-52 Replace the link guide (simplex products)

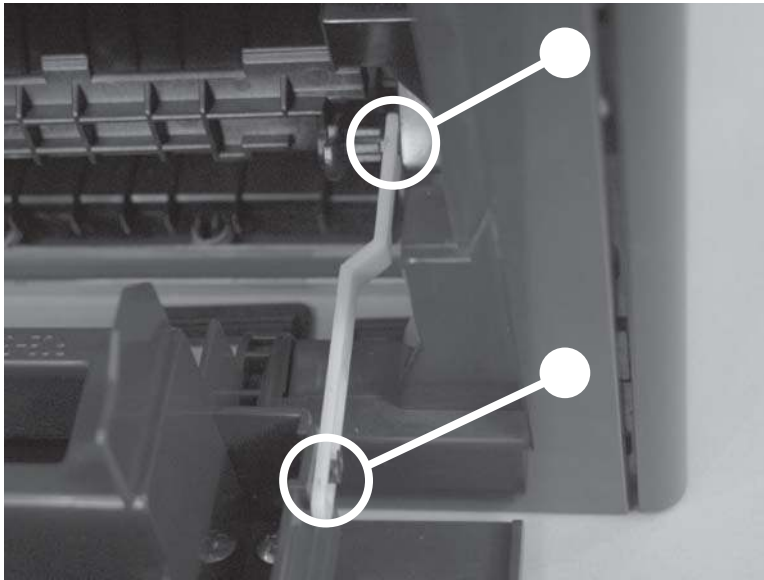
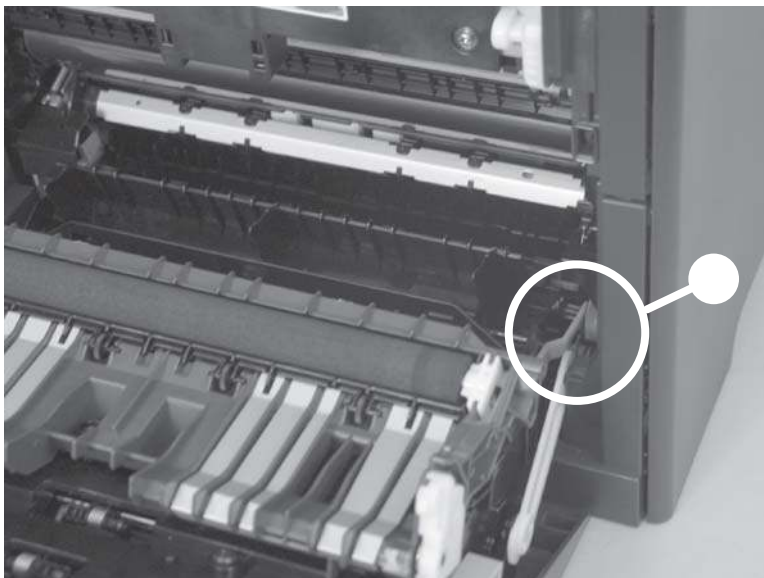


Figure 1-53 Replace the link guide (duplex products)



Upper-cover assembly

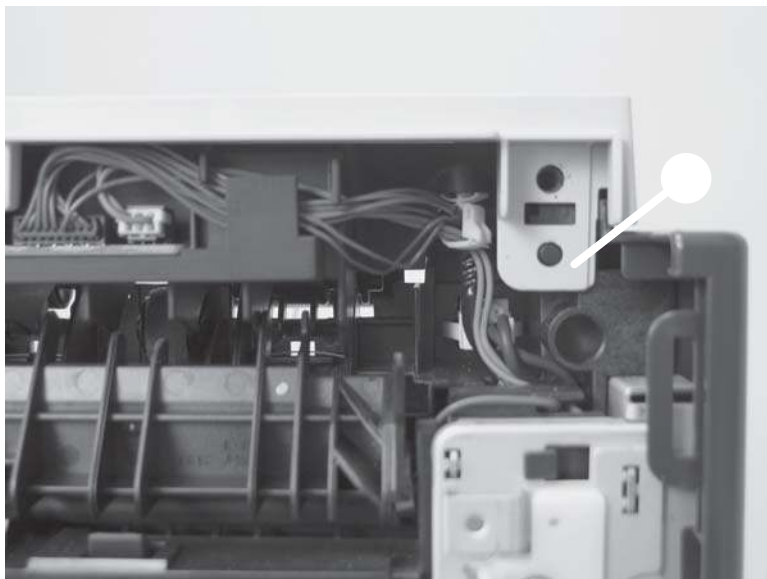
1. Remove the Rear-upper cover. See [Rear-upper cover \(duplex product\) on page 24](#).
2. Remove one screw (callout 1).

Figure 1-54 Remove the upper-cover assembly (1 of 4)



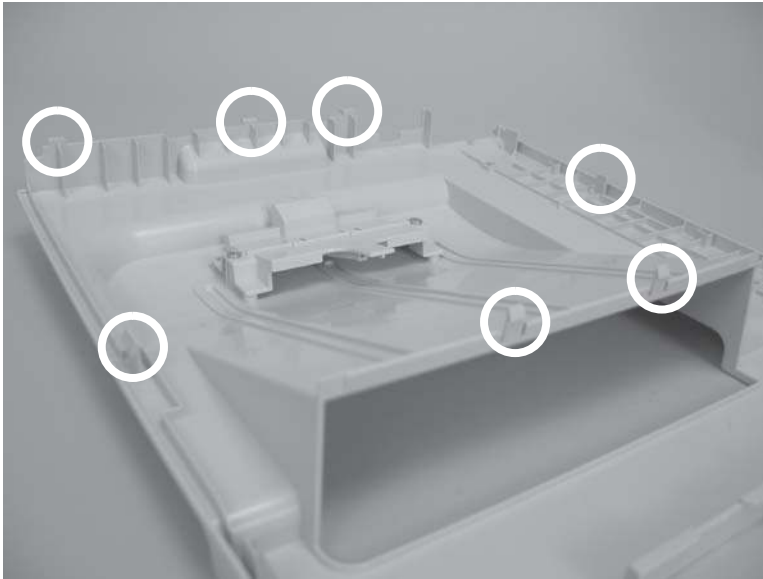
3. Release one tab (callout 1).

Figure 1-55 Remove the upper-cover assembly (2 of 4)



4. Before you proceed, take note of location of the top cover tabs.

Figure 1-56 Remove the upper-cover assembly (3 of 4)



5. Carefully rotate the back side of the top cover up and off of the product to release the tabs, and then remove the cover.

 **NOTE:** When you reinstall the upper cover, ensure that all the mounting tabs are correctly seated. See [Reinstall the upper cover on page 43](#).

Figure 1-57 Remove the upper-cover assembly (4 of 4)



Reinstall the upper cover

- When you reinstall the upper cover, ensure that the two tabs in the paper delivery area are fully seated into the chassis.

Figure 1-58 Upper-cover tabs correctly seated

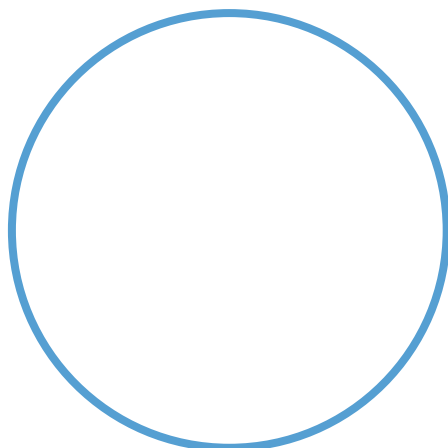
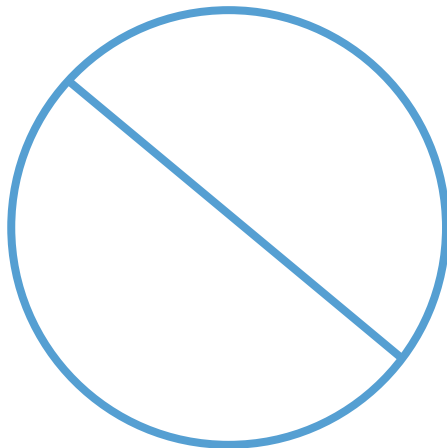


Figure 1-59 Upper-cover tabs *not* correctly seated



Left cover

Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Rear cover (simplex products). See [Rear cover and feed guide \(simplex product\) on page 30](#).
- Rear-lower cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).

Remove the left cover

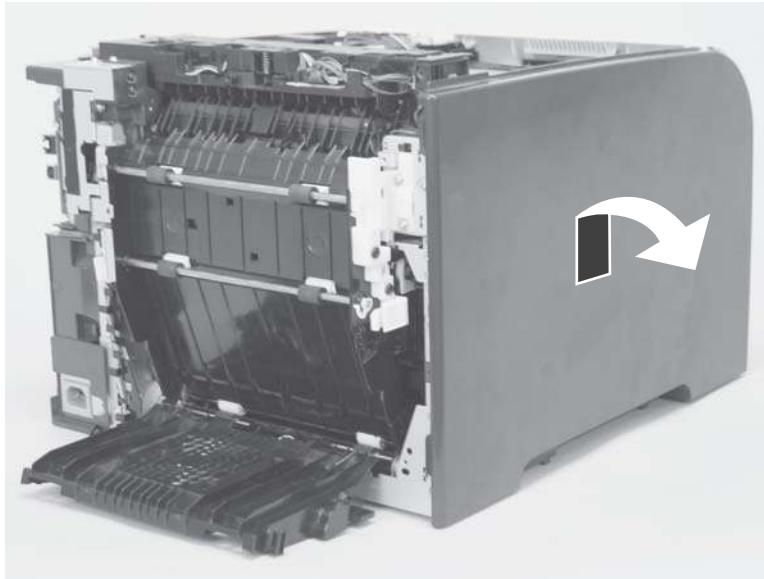
1. Remove one screw (callout 1).

Figure 1-60 Remove the left cover (1 of 3)



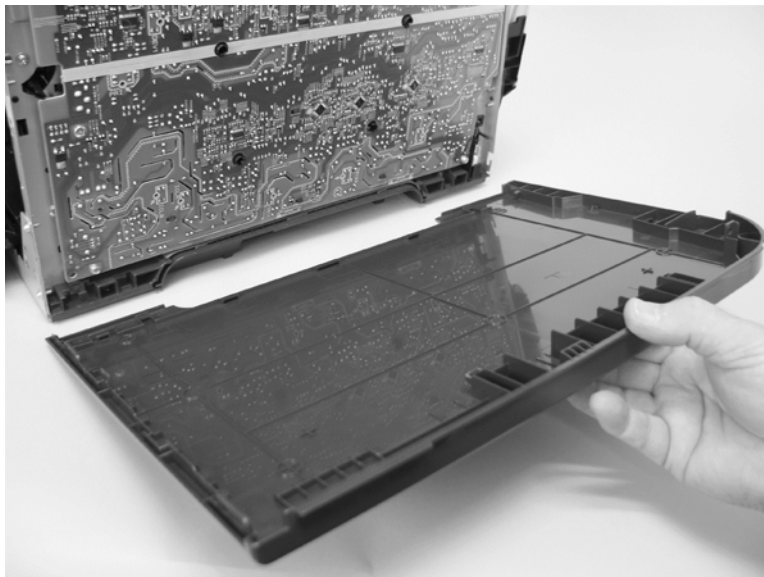
2. Slightly lift up on the cover, and then rotate the top of the cover away from the product.

Figure 1-61 Remove the left cover (2 of 3)



3. Remove the cover.

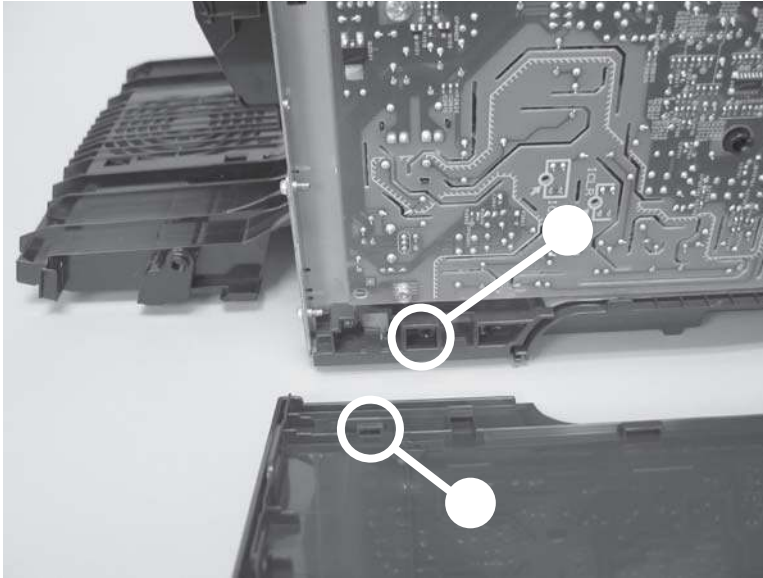
Figure 1-62 Remove the left cover (3 of 3)



Reinstall the left cover

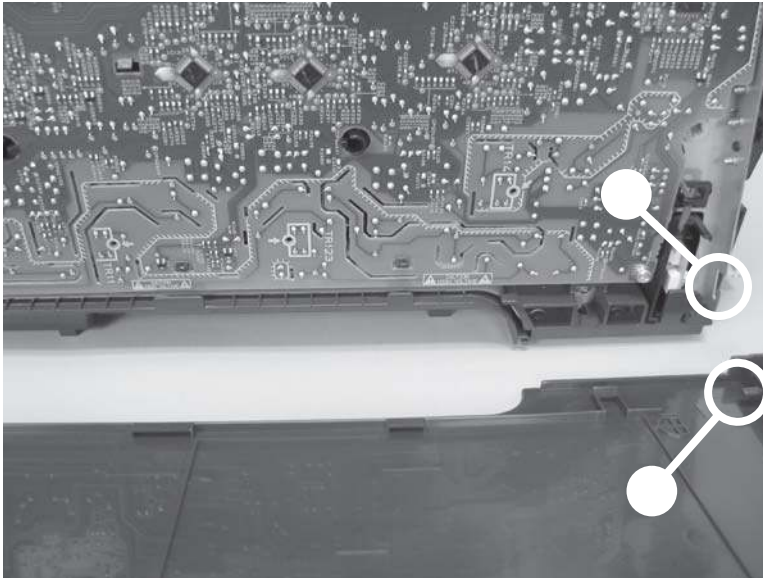
1. When you reinstall the left cover, ensure that the slot in the cover (callout 1) aligns with the tab (callout 2) on the product.

Figure 1-63 Reinstall the left cover (1 of 2)



2. When you reinstall the left cover, ensure that the pin on the cover (callout 1) aligns with the slot (callout 2) in the product.

Figure 1-64 Reinstall the left cover (2 of 2)



Right-front cover and power button

Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Rear-upper cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).
- Control-panel assembly. See [Control-panel assembly on page 50](#).
- Right panel. See [Right panel on page 52](#).

Remove the right-front cover and power button


1. Lift up on one tab (callout 1) and then slide the right-front cover toward the top edge of the right panel to separate the cover from the panel.

Figure 1-65 Remove the right-front cover and power button (1 of 2)

2. Release two tabs (callout 1), and then remove the power button.

Figure 1-66 Remove the right-front cover and power button (2 of 2)

Paper-feed guide assembly

 **NOTE:** A simplex model is shown below. Duplex and simplex models use the same paper-feed guide assembly, and the removal and replacement processes are identical.

1. Remove one screw (callout 1).


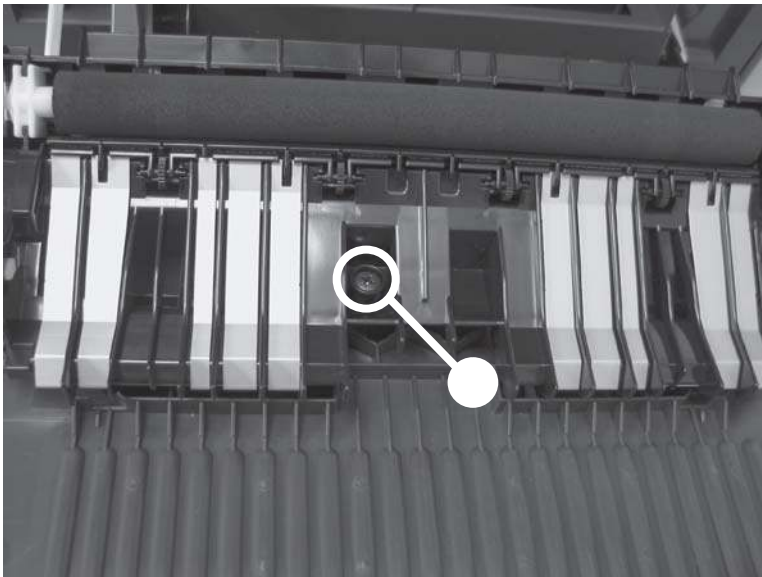
 **CAUTION:** The bushing on this screw is not captive. Do not lose the bushing when the screw is removed.

Figure 1-67 Remove the feed assembly (1 of 2)



2. Remove the feed assembly.

CAUTION: Do not touch the black sponge portion of the roller. Skin oils on the roller can cause print-quality problems.

Reinstallation tip When the feed assembly is correctly reinstalled, the assembly can move in relation to the door. It should not be secured firmly to the door.

Figure 1-68 Remove the feed assembly (2 of 2)



Control-panel assembly

Before proceeding, remove the following components:

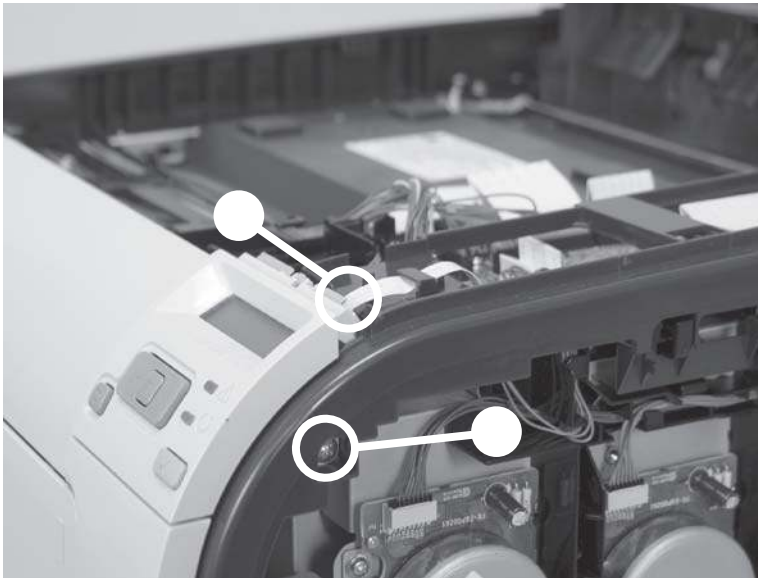
- Right cover. See [Right cover on page 21](#).
- Rear-upper cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).

Remove the control-panel assembly

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

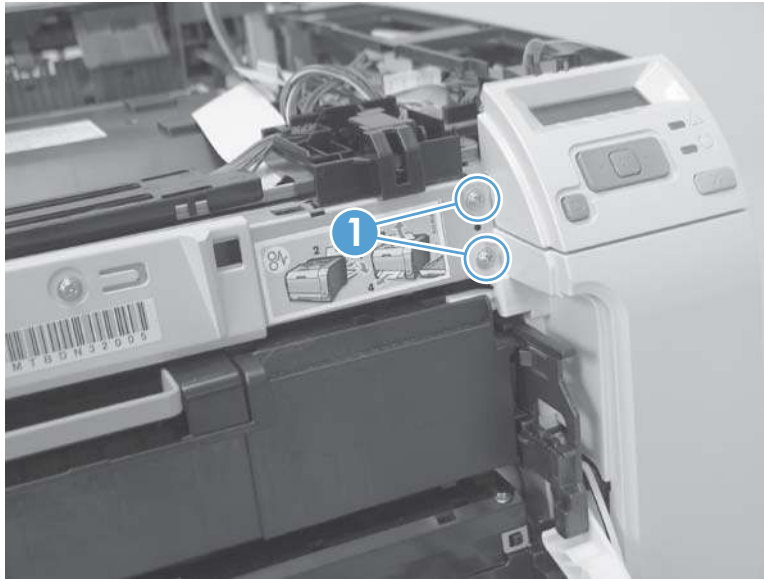
1. Disconnect one FFC (callout 1), and then remove one screw (callout 2).

Figure 1-69 Remove the control-panel assembly (1 of 3)



2. Open the front door, and then remove two screws (callout 1).

Figure 1-70 Remove the control-panel assembly (2 of 3)



3. Remove the control-panel assembly.

Figure 1-71 Remove the control-panel assembly (3 of 3)



Right panel

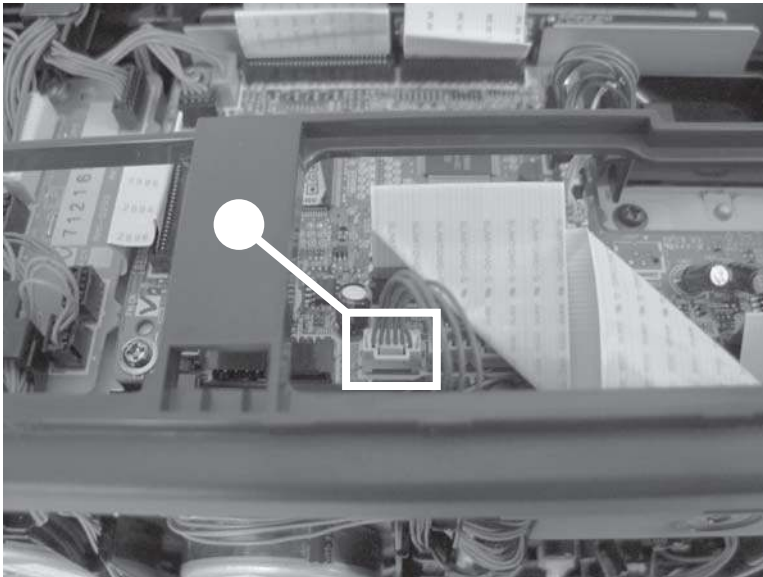
Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Rear-upper cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).
- Control-panel assembly. See [Control-panel assembly on page 50](#).

Remove the right panel

1. Disconnect one connector (callout 1; J206) on the DC controller.

Figure 1-72 Remove the right panel (1 of 8)



2. Remove three screws (callout 1).

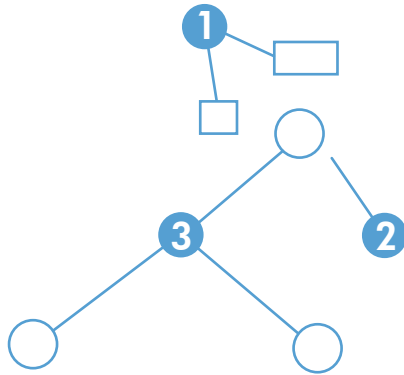
Figure 1-73 Remove the right panel (2 of 8)

3. Remove three screws (callout 1).

Figure 1-74 Remove the right panel (3 of 8)

4. Disconnect two connectors (callout 1), release the fan wire harness from the guide (callout 2), and then remove three screws (callout 3).

Figure 1-75 Remove the right panel (4 of 8)



5. Place the power button in the on position (callout 1).


 **TIP:** When you reinstall the panel, ensure that you place the power button in the off position so that the product does not immediately turn on when the power cord is plugged into the wall receptacle.

Figure 1-76 Remove the right panel (5 of 8)

6. Carefully rotate the back edge of the panel away from the product.

Figure 1-77 Remove the right panel (6 of 8)

7. Carefully push the panel slightly toward the front of the product to release it.

Figure 1-78 Remove the right panel (7 of 8)

8. Remove the right panel.


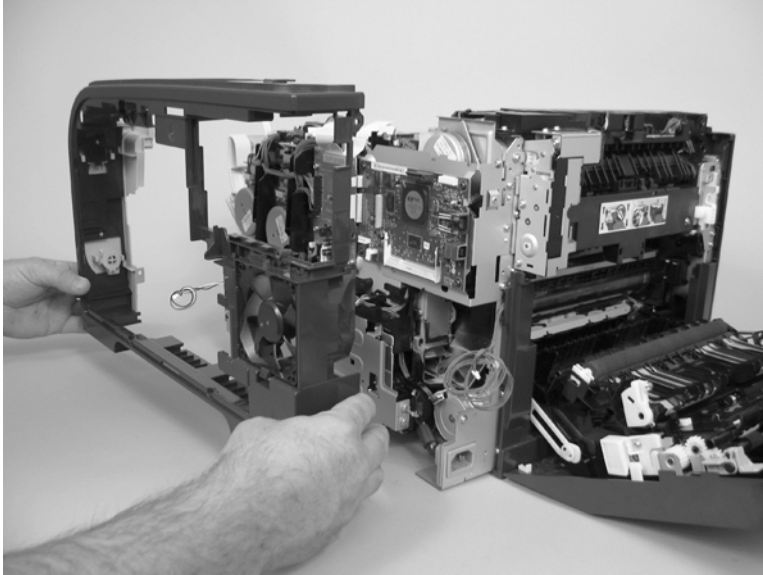
 **NOTE:** If you are replacing the right panel, you must remove the fan and the right-front cover (the cover includes the power button) from the right panel. See [Fan on page 88](#) and [Right-front cover and power button on page 47](#).

Figure 1-79 Remove the right panel (8 of 8)



Front-door assembly

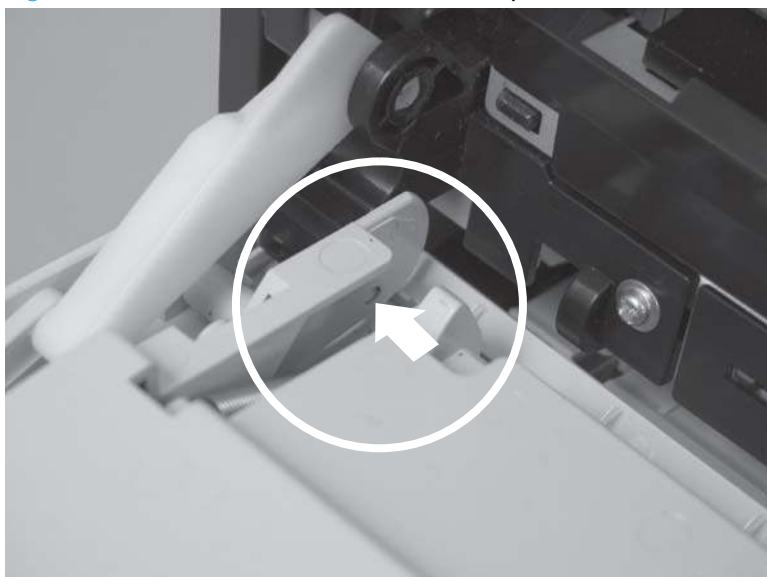
Before proceeding, remove the following components:

- Print-cartridge drawer. See [Print-cartridge drawer on page 18](#)
- Right cover. See [Right cover on page 21](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).
- Left cover. See [Left cover on page 44](#).
- Rear door (simplex products). See [Rear door \(simplex product\) on page 26](#).
- Rear cover (simplex products). See [Rear cover and feed guide \(simplex product\) on page 30](#).
- Rear-upper cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Rear door (duplex products). See [Rear door \(duplex product\) on page 28](#).
- Rear-lower cover (duplex products). See [Rear-lower cover and rear-door links \(duplex product\) on page 34](#).
- Control-panel. See [Control-panel assembly on page 50](#)
- Right panel. See [Right panel on page 52](#).

Remove the front-door assembly

1. Find the front-door pin on the left-side door link.

Figure 1-80 Remove the front-door assembly (1 of 10)



2. Use a precision point screwdriver to push the left-side door pin out of the link.


 **NOTE:** A precision-point screwdriver is required to release the front door pins. The width of the blade must be 2 mm (0.08 in) or less to be able to push the door pins out of the mounting holes.

Figure 1-81 Remove the front-door assembly (2 of 10)



3. Use a precision-point screwdriver to push the right-side door pin out of the link.


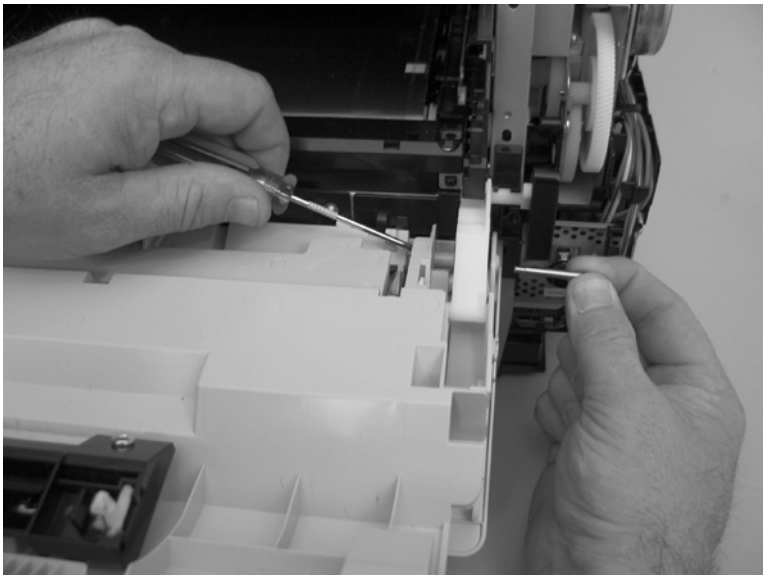
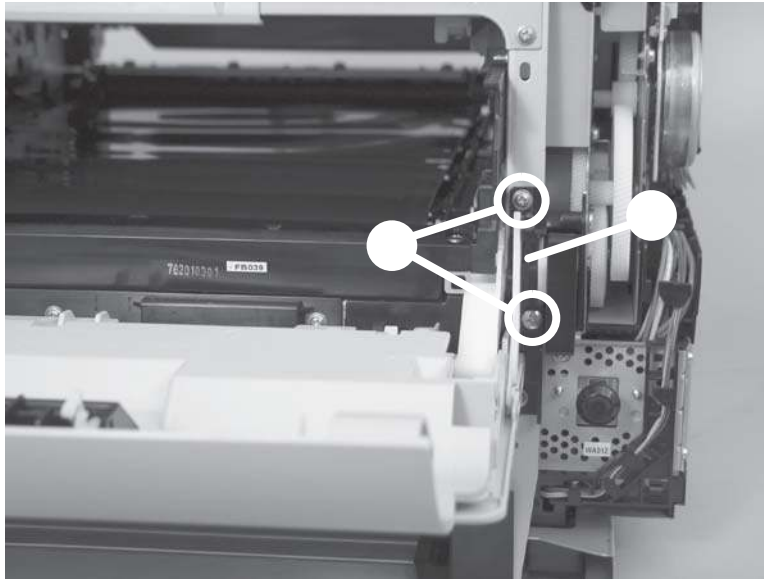
 **NOTE:** A precision-point screwdriver is required to release the front door pins. The width of the blade must be 2 mm (0.08 in) or less to be able to push the door pins out of the mounting holes.

Figure 1-82 Remove the front-door assembly (3 of 10)



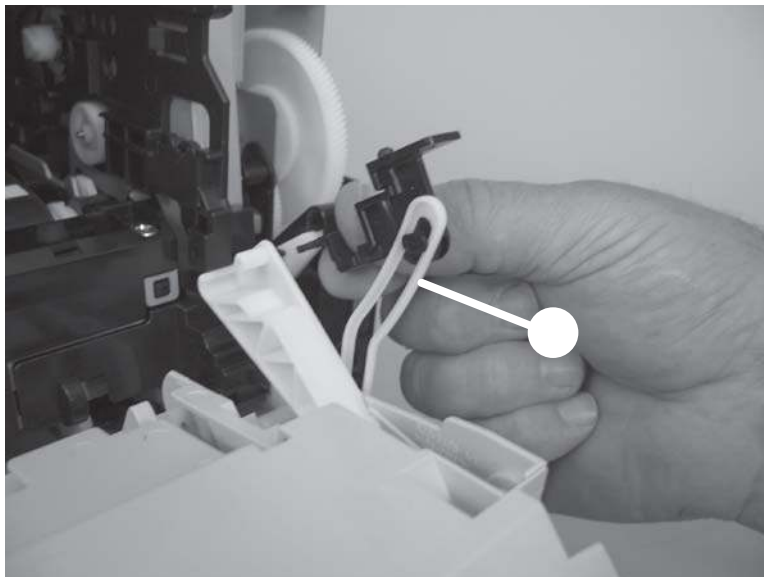
4. Remove two screws (callout 1) and separate the door bushing (callout 2) from the chassis.

Figure 1-83 Remove the front-door assembly (4 of 10)



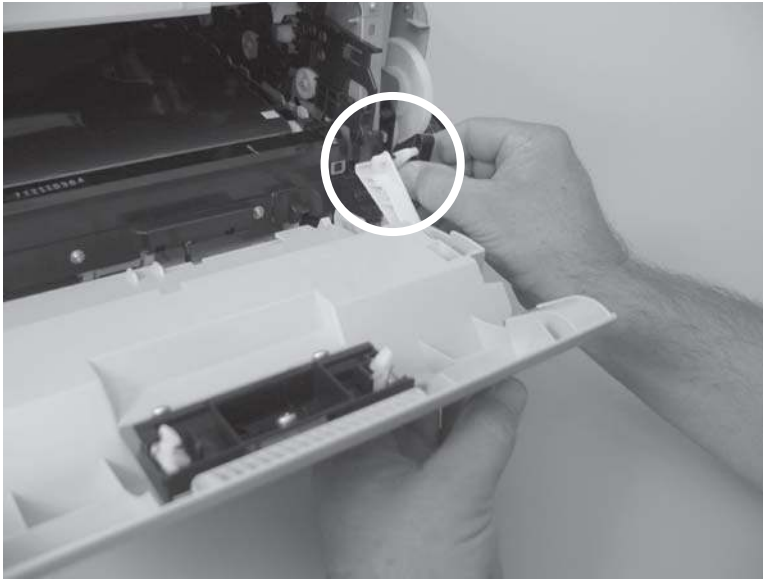
5. Release the bushing from the door-retainer link (callout 1).

Figure 1-84 Remove the front-door assembly (5 of 10)



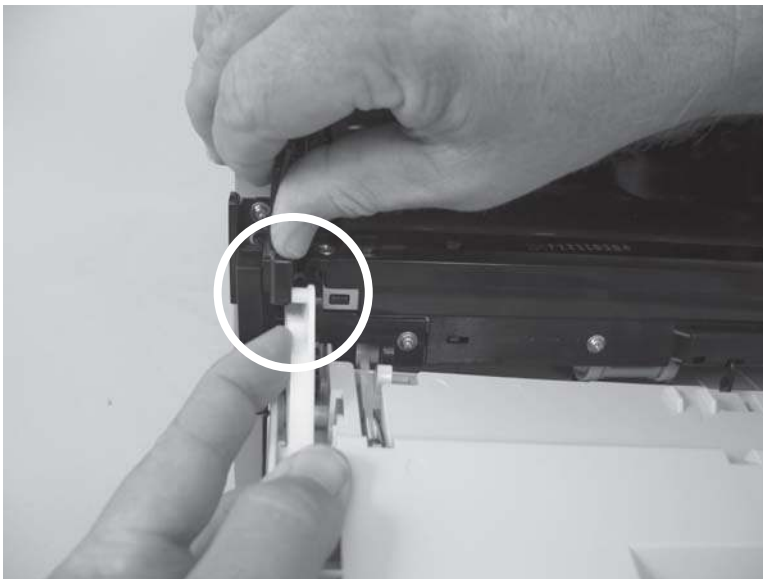
6. Support the door assembly, and carefully release the pin on the right-side link.

Figure 1-85 Remove the front-door assembly (6 of 10)



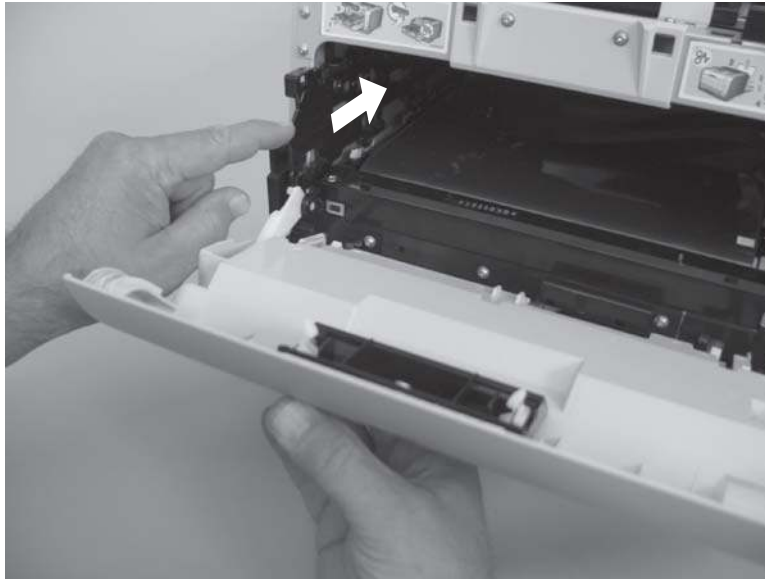
7. Support the door assembly, and carefully release the upper pin on the left-side link.

Figure 1-86 Remove the front-door assembly (7 of 10)



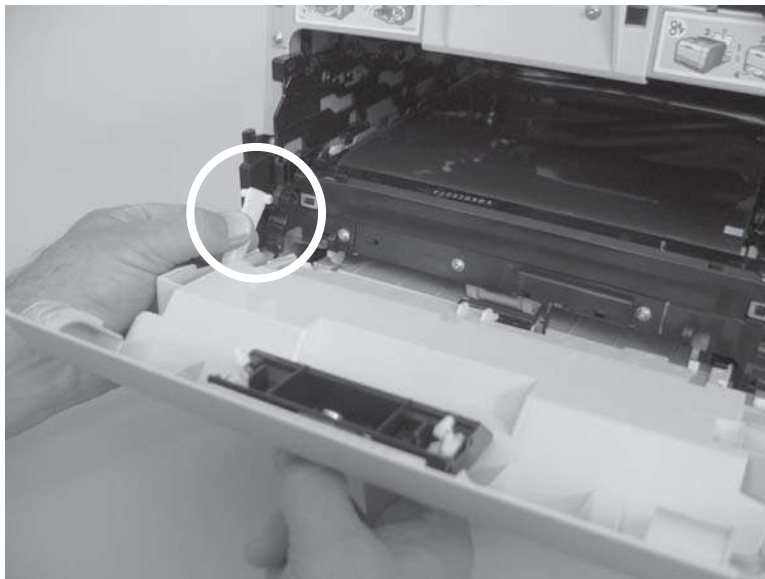
8. Push the black-plastic arm into the product.

Figure 1-87 Remove the front-door assembly (8 of 10)



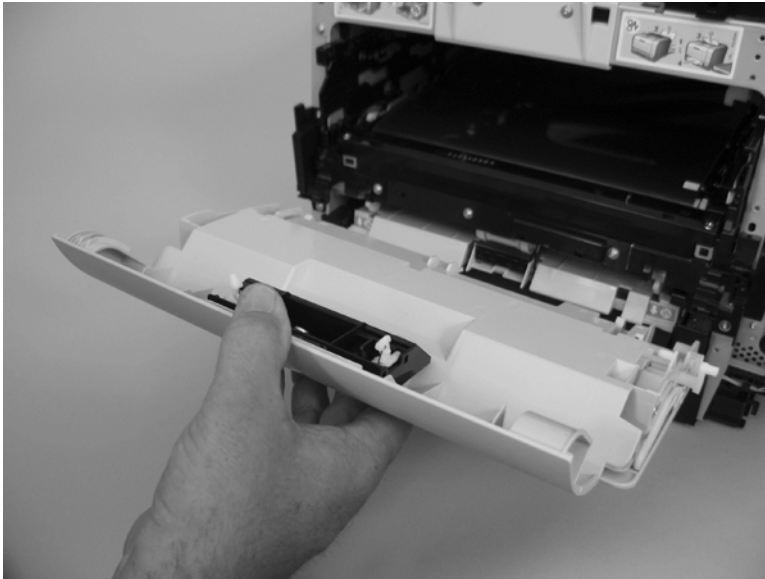
9. Support the door assembly, and carefully release the lower pin on the left-side link.

Figure 1-88 Remove the front-door assembly (9 of 10)



10. Remove the front-door assembly.

Figure 1-89 Remove the front-door assembly (10 of 10)

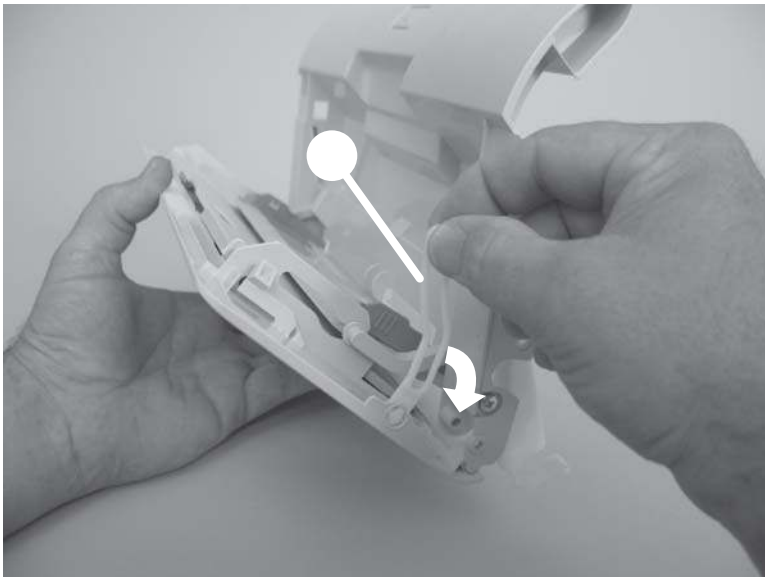


Reinstall the front-door assembly

Use this procedure if you are installing a *replacement* front-door assembly.

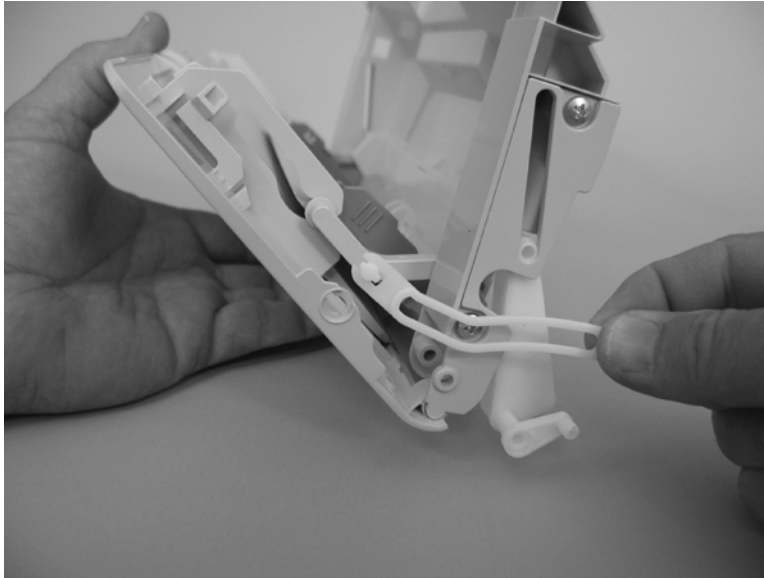
1. Open Tray 1, and then rotate the retainer arm until the tabs on the arm-hinge pin align with the slots in the mounting hole on Tray 1.

Figure 1-90 Reinstall the front-door assembly (1 of 2)



2. Remove the retainer arm from the door assembly, and then install it on the replacement-door assembly.

Figure 1-91 Reinstall the front-door assembly (2 of 2)



Intermediate transfer belt (ITB)

1. Remove the print-cartridge drawer. See [Print-cartridge drawer on page 18](#).
2. Open the front door, and then remove two screws (callout 1).

Figure 1-92 Remove the ITB (1 of 6)



3. Carefully rotate the color misregistration sensor away from the ITB.

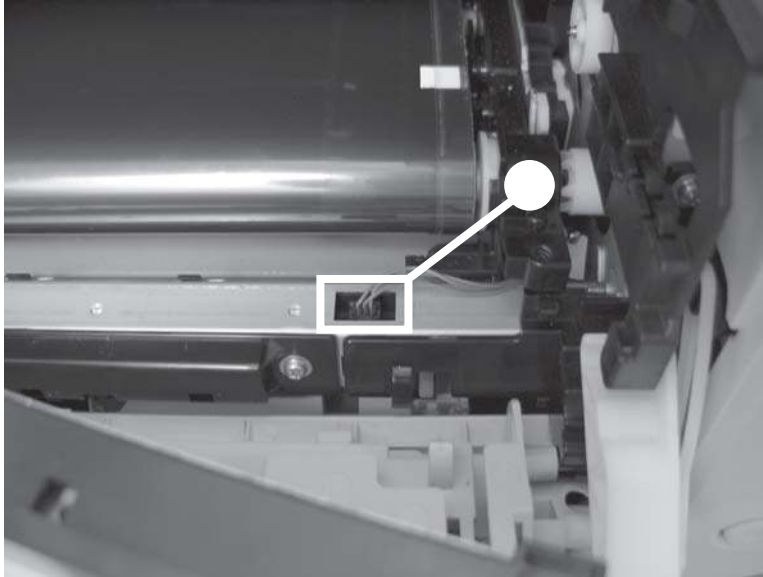
CAUTION: The sensor is still attached to the left side of the product and cannot be completely removed.

Figure 1-93 Remove the ITB (2 of 6)



4. Disconnect one connector (callout 1).

Figure 1-94 Remove the ITB (3 of 6)



5. Carefully lift up on the front of the ITB to release it.

CAUTION: Avoid touching the black plastic transfer belt. Skin oils on the belt might cause print-quality problems. Lift the ITB as shown below by using the hard-plastic edges of the ITB.

Figure 1-95 Remove the ITB (4 of 6)

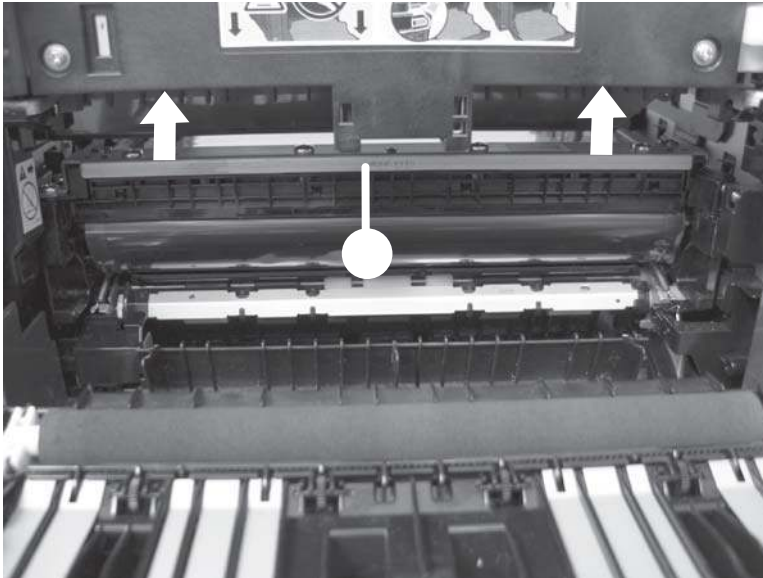


6. To release the ITB, you might have to pen the rear door, and carefully lift up on the sheet-metal portion (callout 1).

CAUTION: Avoid touching the black plastic transfer belt. Skin oils on the belt might cause print-quality problems.

NOTE: You might need to reach in through the front door and support the front portion of the ITB to keep it from falling back into place as you perform this step.

Figure 1-96 Remove the ITB (5 of 6)



7. Carefully pull the ITB straight out of the product to remove it.

CAUTION: Avoid touching the black plastic transfer belt. Skin oils on the belt might cause print-quality problems. Handle the ITB as shown below.

Figure 1-97 Remove the ITB (6 of 6)



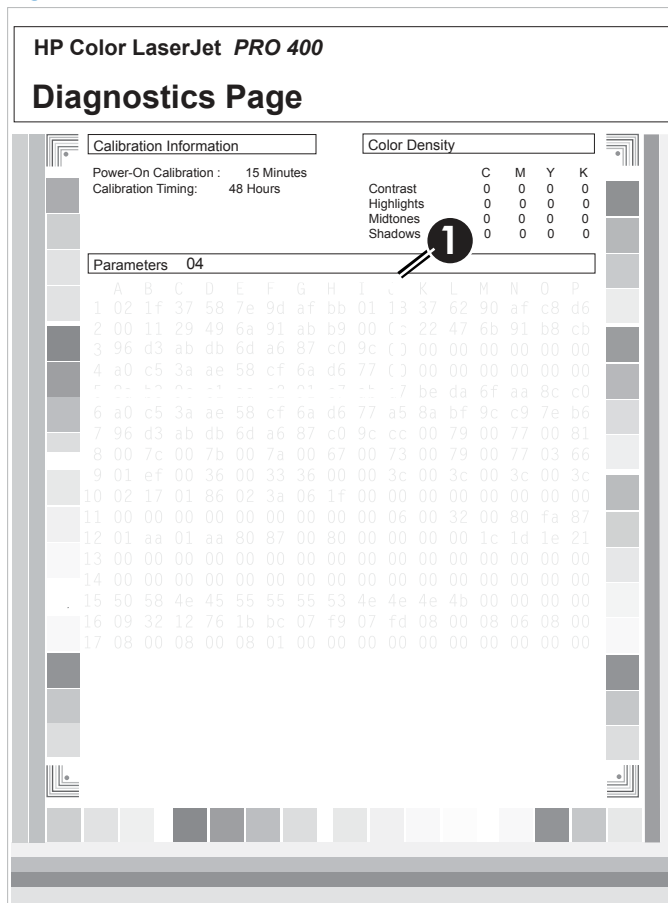
Reinstall the ITB

Use this procedure to verify that the ITB is correctly reinstalled.

1. Use the control panel to print a **Diagnostics page**. See the complete version of the English service manual.
2. Verify that rows **one** through **four**, columns **A** through **I** (callout 1) contain hexadecimal numbers.

If these rows and columns are all zero, ensure that the calibration sensor was correctly reinstalled. The sensor must be correctly positioned and fit securely against the chassis before the mounting screws are installed. See [Figure 1-93 Remove the ITB \(2 of 6\) on page 64](#) and [Figure 1-92 Remove the ITB \(1 of 6\) on page 64](#).

Figure 1-98 Reinstall the ITB



Drum motor (M1) and developer motor (M2)

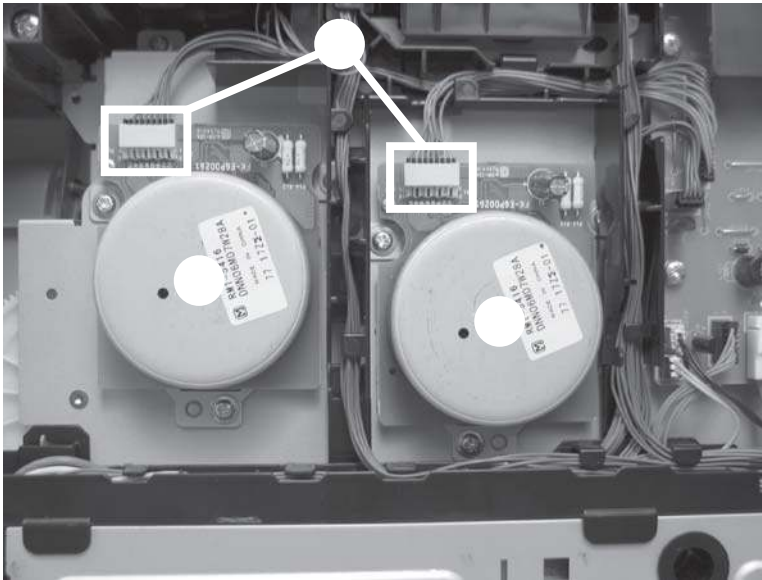
This procedure can be used to remove motor M1 or motor M2 separately.

CAUTION: HP does not recommend that you remove or replace both motors at the same time.

1. Remove the right cover. See [Right cover on page 21](#).
2. Disconnect one connector (callout 1) for motor M1 or motor M2.

NOTE: The drum motor (callout 2) is motor M1. The developer motor (callout 3) is motor M2.

Figure 1-99 Remove motor M1 or motor M2 (1 of 5)



3. Release the wire harnesses from the retainer (callout 1).


 **TIP:** Additional connectors might need to be disconnected to release the wire harnesses from the retainer.

Figure 1-100 Remove motor M1 and motor M2 (2 of 5)

4. Release one tab (callout 1).

Figure 1-101 Remove motor M1 and motor M2 (3 of 5)

5. Rotate the top of the retainer away from the chassis, and then lift it up to remove it.

Figure 1-102 Remove motor M1 and motor M2 (4 of 5)

6. Remove three screws (callout 1) to remove motor M1, or remove three screws (callout 2) to remove motor M2.

Figure 1-103 Remove motor M1 and motor M2 (5 of 5)

Reinstall the drum motor (M1) and developer motor (M2)

When the motor wire harness retainer is reinstalled, the two tabs at the bottom of the retainer must be positioned behind the retainer on the low-voltage power supply. The tab at the side of motor wire harness retainer must be positioned behind the PCA next to motor M2.

Figure 1-104 Reinstall the motor M1 and motor M2 wire-harness retainer

Intermediate PCA

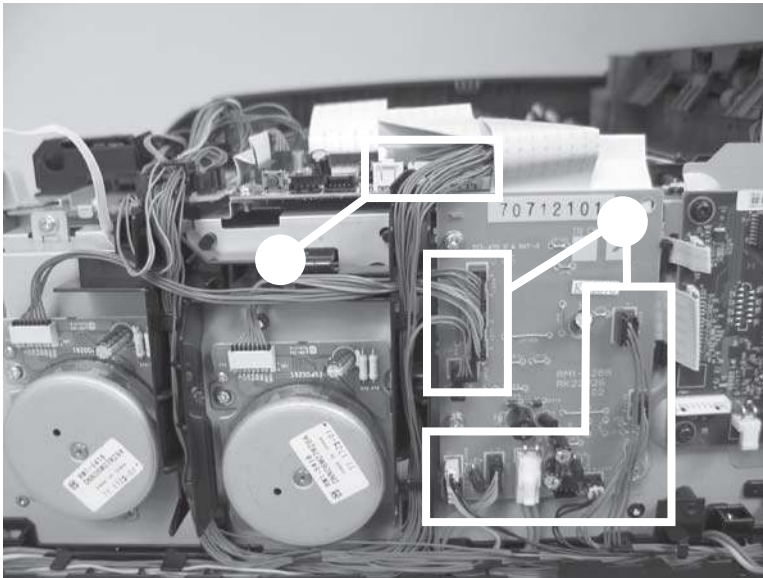
Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Upper cover. See [Upper-cover assembly on page 41](#).
- Right panel. See [Right panel on page 52](#).

Remove the intermediate PCA

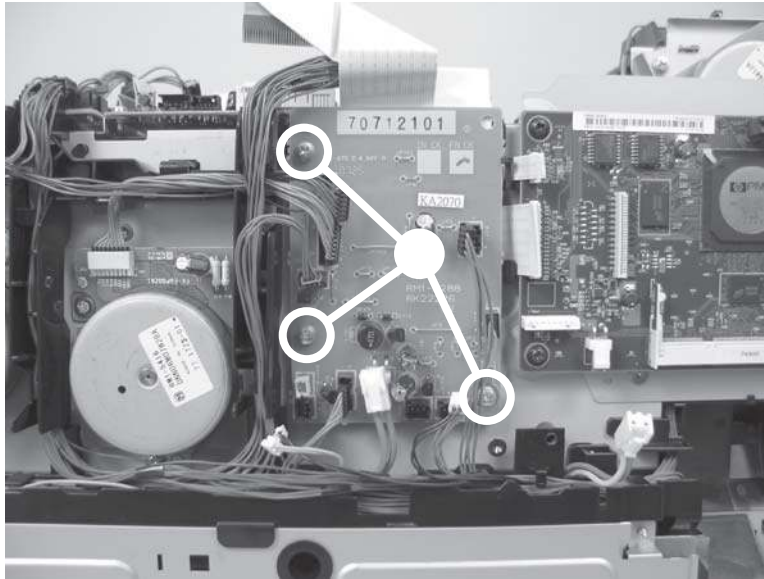
1. Disconnect all the connectors (callout 1) on the PCA and one FFC (callout 2).

Figure 1-105 Remove the Intermediate PCA (1 of 2)




2. Remove three screws (callout 1), and then remove the intermediate PCA.

Figure 1-106 Remove the Intermediate PCA (2 of 2)




Formatter PCA

Special considerations

 **WARNING!** Do not install a *replacement* formatter PCA and DC controller PCA at the same time.


The formatter PCA and the DC controller PCA store important product configuration information (NVRAM data) that is lost if both PCAs are replaced at the same time. When the product power is turned on, the DC controller restores the NVRAM data on the replacement formatter.

Replacing both the formatter and the DC controller at the same time will result in severe print-quality problems.

 **NOTE:** The base model does not have a fax card installed.

Replacing the formatter PCA before the DC controller PCA

Use the following procedure if you need to install a replacement formatter PCA *and* a replacement DC controller.


 **NOTE:** If you are only installing a replacement formatter PCA, go to [Remove the formatter PCA on page 74](#).


1. Install a replacement formatter PCA.
2. Turn the product on, and wait for the print-cartridge volume indicators to appear on the control-panel display.

 **NOTE:** This allows important product information to be written to the replacement formatter PCA.

3. Turn the product off.
4. Install a replacement DC controller. See [DC controller PCA on page 76](#).
5. Turn the product on.

Remove the formatter PCA

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

 Some parts are sensitive to electrostatic discharge (ESD). Always perform service work at an ESD-protected workstation or mat. If an ESD workstation or mat is not available, ground yourself by touching the sheet-metal chassis *before* touching an ESD-sensitive part.

1. Remove the right cover. See [Right cover on page 21](#).

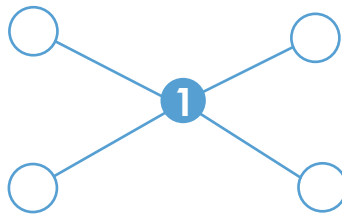
2. Disconnect all the connectors.

Figure 1-107 Remove the formatter PCA (1 of 2)




3. Remove four screws (callout 1), and then remove the formatter PCA.

Figure 1-108 Remove the formatter PCA (2 of 2)



DC controller PCA

Special considerations


 **WARNING!** Do not install a *replacement* formatter PCA and a *replacement* DC controller PCA at the same time.

The formatter PCA and the DC controller PCA store important product configuration information (NVRAM data) that is lost if both PCAs are replaced at the same time. When the product power is turned on, the formatter restores the NVRAM data to a replacement DC controller.

Replacing both the DC controller and the formatter at the same time will result in severe print-quality problems.

Replacing the DC controller PCA before the formatter PCA

Use the following procedure if you need to install a replacement DC controller *and* a replacement formatter PCA.

 **NOTE:** If you are only installing a replacement DC controller PCA, go to [Remove the DC controller PCA on page 76](#).

1. Install a replacement DC controller PCA.
2. Turn the product on, and wait for the print-cartridge volume indicators to appear on the control-panel display.

 **NOTE:** This allows important product information to be written to the replacement DC controller PCA.

3. Turn the product off.
4. Install a replacement formatter PCA. See [Formatter PCA on page 74](#).
5. Turn the product on.

Remove the DC controller PCA

Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Upper cover. See [Upper-cover assembly on page 41](#).
- Right panel. See [Right panel on page 52](#).

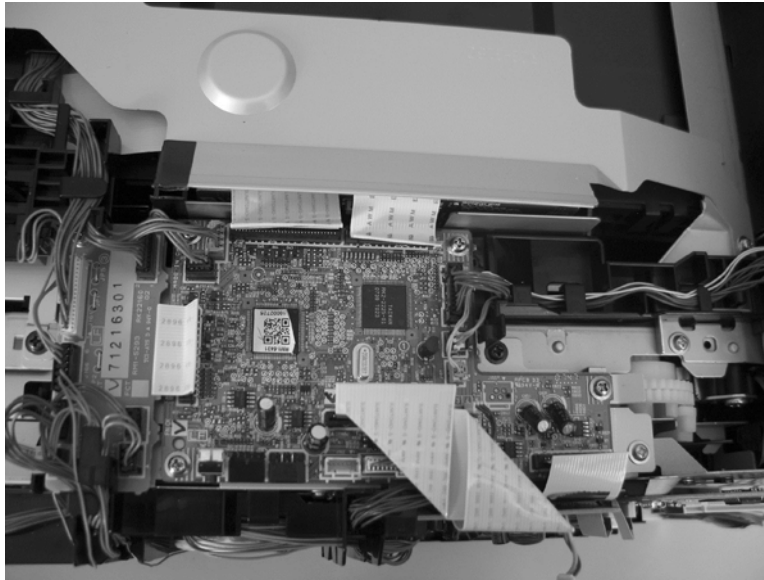
CAUTION: Do not bend or fold the flat flexible cables (FFCs) during removal or installation. Also, do not straighten prefolds in the FFCs. You *must* ensure that all FFCs are fully seated in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.



Some parts are sensitive to electrostatic discharge (ESD). Always perform service work at an ESD-protected workstation or mat. If an ESD workstation or mat is not available, ground yourself by touching the sheet-metal chassis *before* touching an ESD-sensitive part.

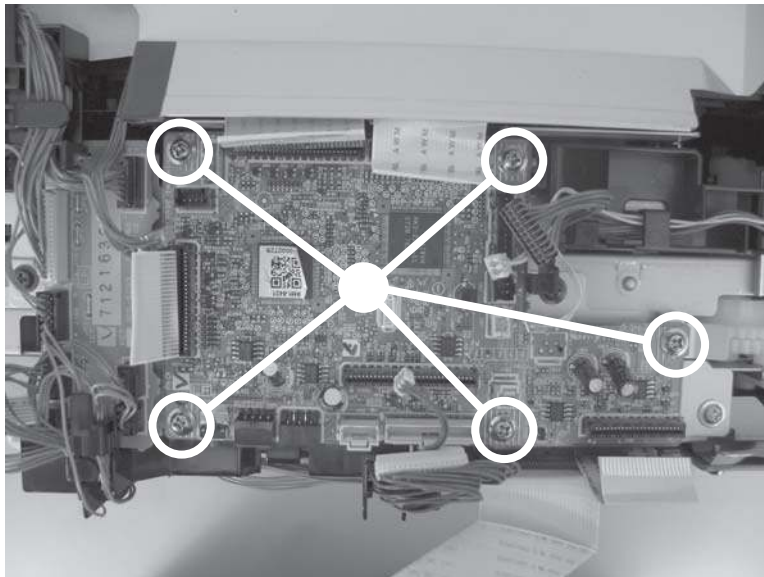
1. Disconnect all the connectors.

Figure 1-109 Remove the DC controller PCA (1 of 2)



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

Figure 1-110 Remove the DC controller PCA (2 of 2)



Fuser motor assembly

Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Formatter PCA. See [Formatter PCA on page 74](#).
- Rear-upper cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Rear door (simplex products). See [Rear door \(simplex product\) on page 26](#).
- Rear cover (simplex products). See [Rear cover and feed guide \(simplex product\) on page 30](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).
- Control-panel assembly. See [Control-panel assembly on page 50](#).
- Right panel. See [Right panel on page 52](#).

Remove the fuser motor assembly

1. Remove four flat-head screws (callout 1), three screws (callout 2), and then remove the sheet-metal plate.


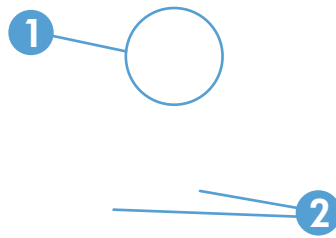
 **CAUTION:** The four flat-head screws must be installed in the correct position to avoid damage to the formatter. Standard screws can contact the formatter when it is installed and can cause a formatter short circuit.

Figure 1-111 Remove the fuser motor assembly (1 of 4)

2. Disconnect one connector (callout 1) and remove the wire from the retainer (callout 2).

Figure 1-112 Remove the fuser motor assembly (2 of 4)



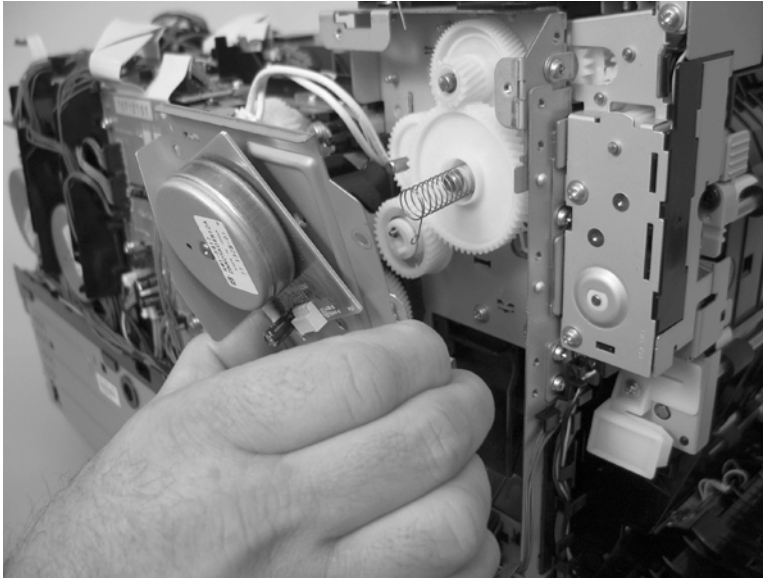
3. Remove three screws (callout 1), and then remove the fuser motor assembly.

Figure 1-113 Remove the fuser motor assembly (3 of 4)

4. Be careful, the spring and the gears behind the fuser motor assembly are not captive.

CAUTION: Do not lose the spring or gears when you remove the fuser motor assembly.

Figure 1-114 Remove the fuser motor assembly (4 of 4)



Reinstall the fuser motor assembly

Make sure that the fuser motor assembly spring (callout 1) and gear pin (callout 2) are correctly positioned in the hole and slot provided in the assembly mounting bracket. The assembly mounting bracket fits flat against the product chassis when the fuser motor assembly is correctly installed.

Figure 1-115 Reinstall the fuser motor assembly

High-voltage power-supply PCA

Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).
- Left cover. See [Left cover on page 44](#).
- Rear-lower cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Rear door (simplex products). See [Rear door \(simplex product\) on page 26](#).
- Rear cover (simplex products). See [Rear cover and feed guide \(simplex product\) on page 30](#).

Remove the high-voltage power-supply PCA

1. Remove two screws (callout 1), and then remove the sheet-metal plate (callout 2).

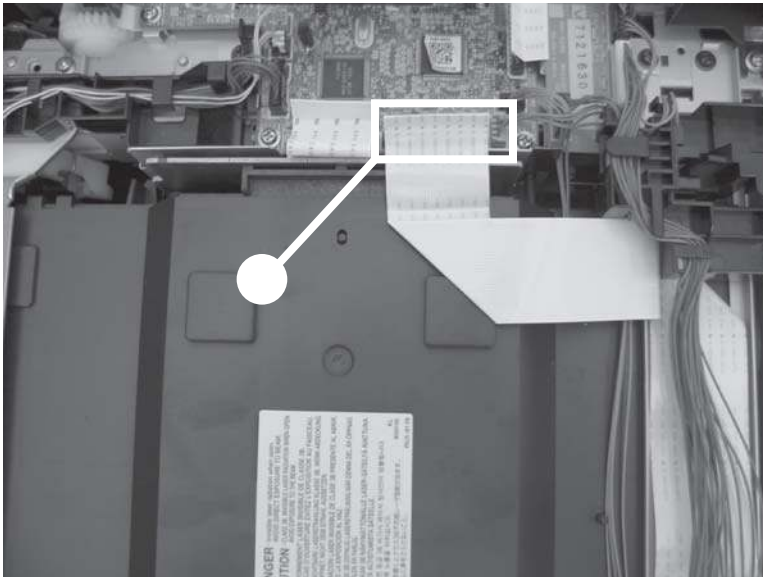
Figure 1-116 Remove the high-voltage power-supply PCA (1 of 5)

2. Release six tabs (callout 1), and then remove the black-plastic cover.

Figure 1-117 Remove the high-voltage power-supply PCA (2 of 5)

3. Disconnect one FFC (callout 1) on the DC controller.

Figure 1-118 Remove the high-voltage power-supply PCA (3 of 5)



4. Disconnect one connector (callout 1), and then remove six screws (callout 2).

Figure 1-119 Remove the high-voltage power-supply PCA (4 of 5)

5. Release ten tabs (callout 1), and then remove the high-voltage power-supply PCA.

Figure 1-120 Remove the high-voltage power-supply PCA (5 of 5)

Color-misregistration sensor assembly PCA

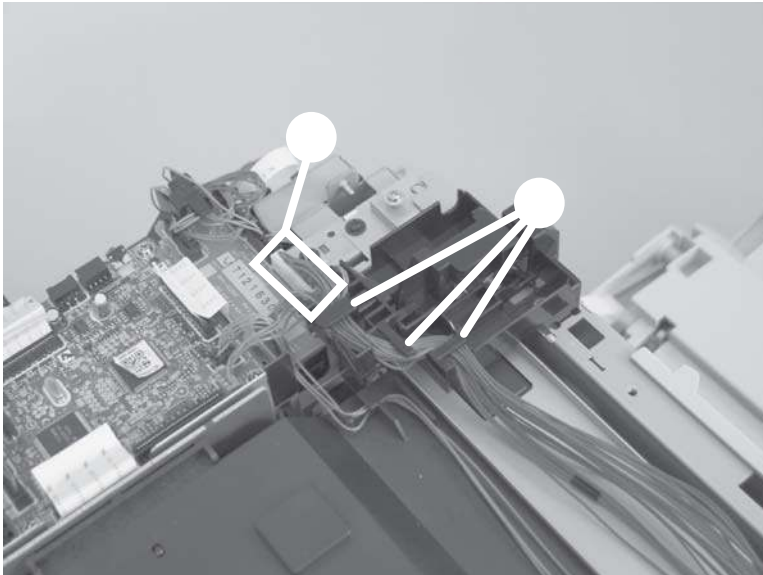
Before proceeding, remove the following components:

- Print-cartridge drawer. See [Print-cartridge drawer on page 18](#).
- Right cover. See [Right cover on page 21](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).
- Left cover. See [Left cover on page 44](#).
- Rear-lower cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Rear door (simplex products). See [Rear door \(simplex product\) on page 26](#).
- Rear cover (simplex products). See [Rear cover and feed guide \(simplex product\) on page 30](#).
- High-voltage power-supply PCA. See [High-voltage power-supply PCA on page 81](#).

Remove the color-misregistration sensor assembly PCA

1. Remove the following components:
2. Disconnect one connector (callout 1), and then release the wire harness from the guide (callout 2).

Figure 1-121 Remove the color-misregistration sensor assembly PCA (1 of 4)



3. Release the wire harness from the guide (callout 1).


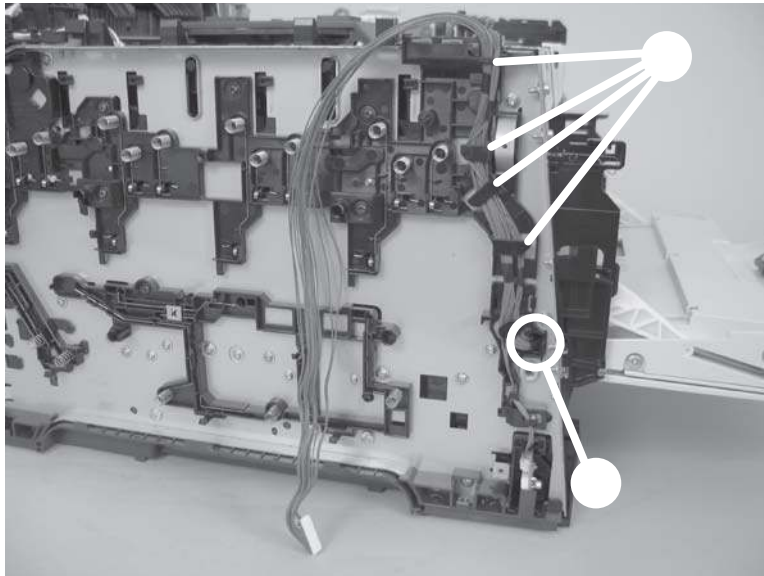
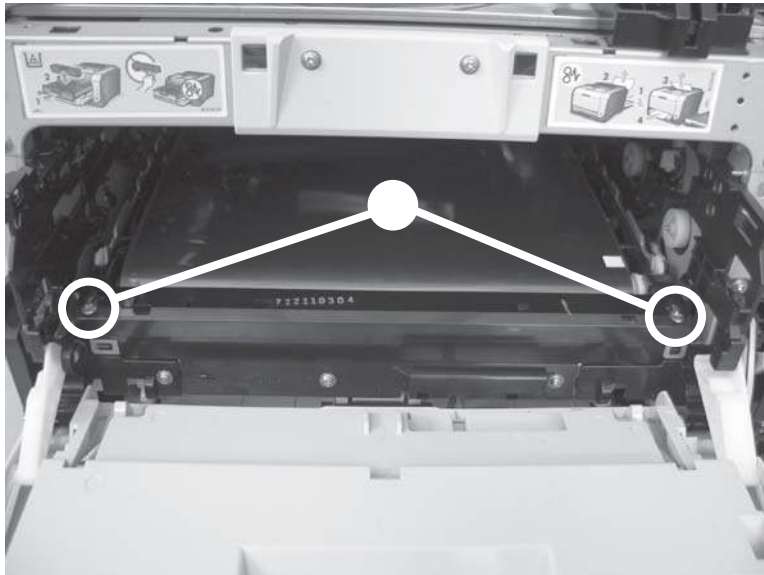
 **NOTE:** When you remove the sensor assembly later in this procedure, pass the connector and wire harness through the hole in the chassis (callout 2).

Figure 1-122 Remove the color-misregistration sensor assembly PCA (2 of 4)



4. Remove two screws (callout 1).

Figure 1-123 Remove the color-misregistration sensor assembly PCA (3 of 4)




5. Carefully separate the sensor assembly (callout 1) from the product, pass the wire harness through the hole in the chassis, and then remove the assembly.

 **NOTE:** See callout 1 in [Figure 1-122 Remove the color-misregistration sensor assembly PCA \(2 of 4\)](#) on page 85.

Figure 1-124 Remove the color-misregistration sensor assembly PCA (4 of 4)



Reinstall the color-misregistration sensor assembly

 **TIP:** You might have to attempt this reinstall procedure several times before you successfully pass the connector through the hole in the chassis.

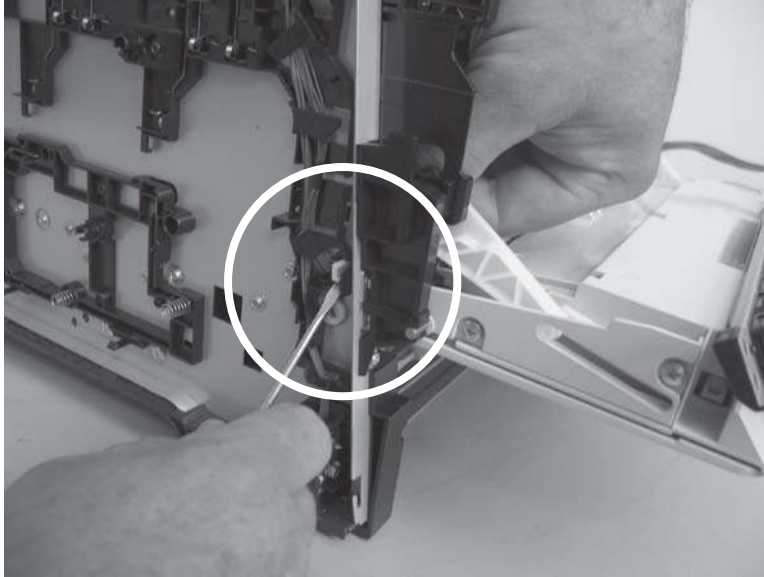
1. Push the sensor assembly wire-harness connector into the hole in the chassis from the ITB side of the product.

Figure 1-125 Reinstall the color-misregistration sensor assembly PCA (1 of 2)



2. Use a small flat blade screwdriver to guide the connector through the hole.

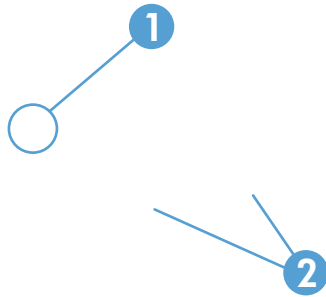
Figure 1-126 Reinstall the color-misregistration sensor assembly PCA (2 of 2)



Fan

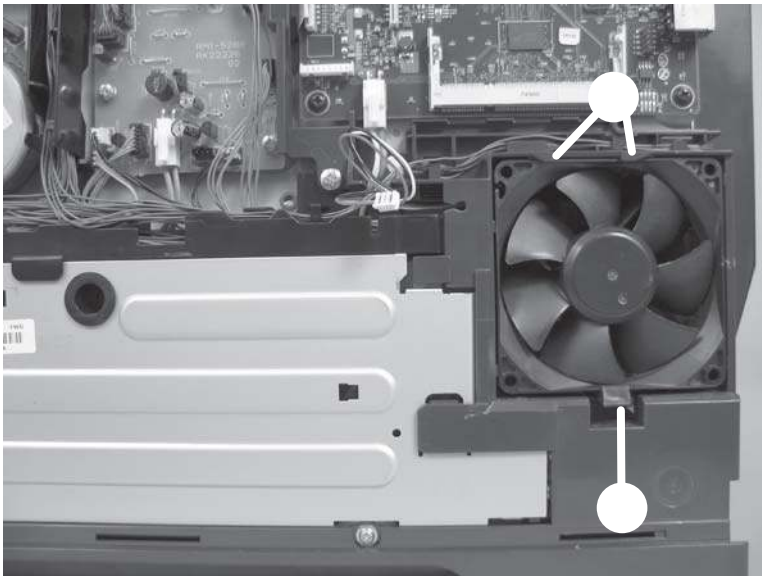
1. Remove the right cover. See [Right cover on page 21](#).
2. Disconnect one connector (callout 1) and then release the wire harness from the retainer (callout 2).

Figure 1-127 Remove the fan (1 of 2)



3. Release one tab (callout 1), push down on the fan to release it from the mounting points (callout 2), and then remove the fan.

Figure 1-128 Remove the fan (2 of 2)



Duplex reverse-drive assembly

Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Rear-upper cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Rear door (simplex products). See [Rear door \(simplex product\) on page 26](#).
- Rear door (duplex products). See [Rear door \(duplex product\) on page 28](#).
- Rear cover (simplex products). See [Rear cover and feed guide \(simplex product\) on page 30](#).
- Rear-lower cover (duplex products). See [Rear-lower cover and rear-door links \(duplex product\) on page 34](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).
- Control-panel assembly. See [Control-panel assembly on page 50](#).
- Right panel. See [Right panel on page 52](#).

Remove the duplex reverse-drive assembly

1. Disconnect two connectors (callout 1), and then pass the connectors under the rear-door rib assembly.

Figure 1-129 Remove the duplex reverse-drive assembly (1 of 4)



2. Release the wire harnesses from the retainer (callout 1).

Figure 1-130 Remove the duplex reverse-drive assembly (2 of 4)

3. Remove three screws (callout 1).

Figure 1-131 Remove the duplex reverse-drive assembly (3 of 4)

4. Remove the duplex reverse-drive assembly.

Figure 1-132 Remove the duplex reverse-drive assembly (4 of 4)



Fuser

Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Rear-upper cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Rear door (simplex products). See [Rear door \(simplex product\) on page 26](#).
- Rear door (duplex products). See [Rear door \(duplex product\) on page 28](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).
- Left cover. See [Left cover on page 44](#).
- Rear cover (simplex products). See [Rear cover and feed guide \(simplex product\) on page 30](#).
- Rear-lower cover (duplex products). See [Rear-lower cover and rear-door links \(duplex product\) on page 34](#).

Remove the fuser

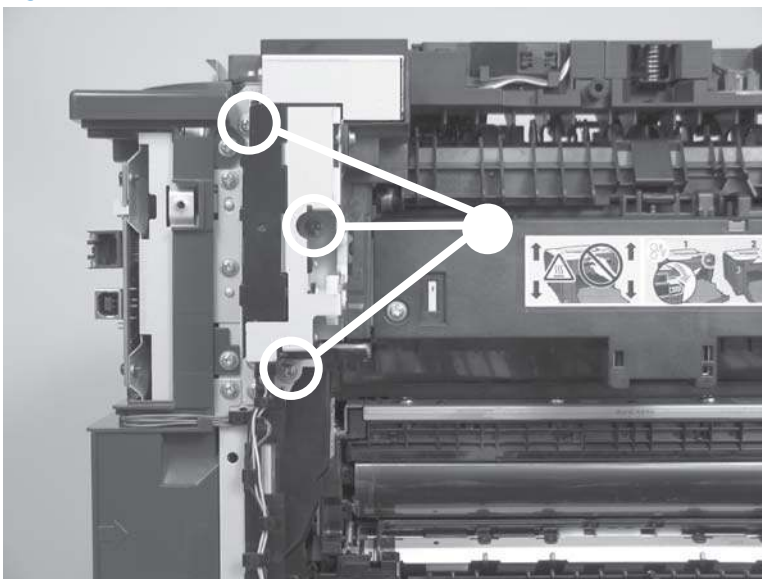
WARNING! The fuser might be hot. After turning off the product power, allow the fuser to cool for at least five minutes before removing it.

NOTE: The fuser can be removed without removing the upper-cover assembly. However, it might be easier to access some of the connectors with this component removed.

1. **Duplex models only:** Remove three screws (callout 1) and separate the duplex reverse-drive assembly from the product.

CAUTION: The duplex reverse-drive assembly is still attached to the product. Carefully set the assembly out of the way.

Figure 1-133 Remove the fuser (1 of 8)



2. Disconnect two connectors (callout 1), and then release the wire harnesses from the guide (callout 2).


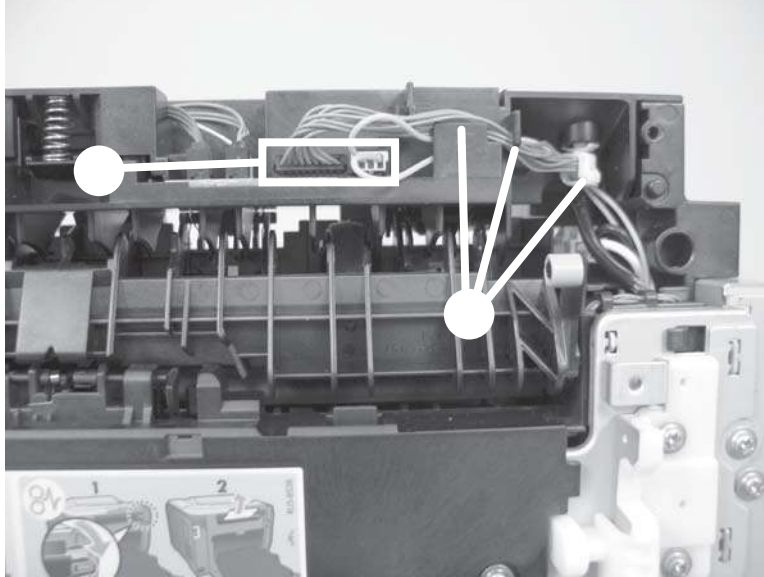
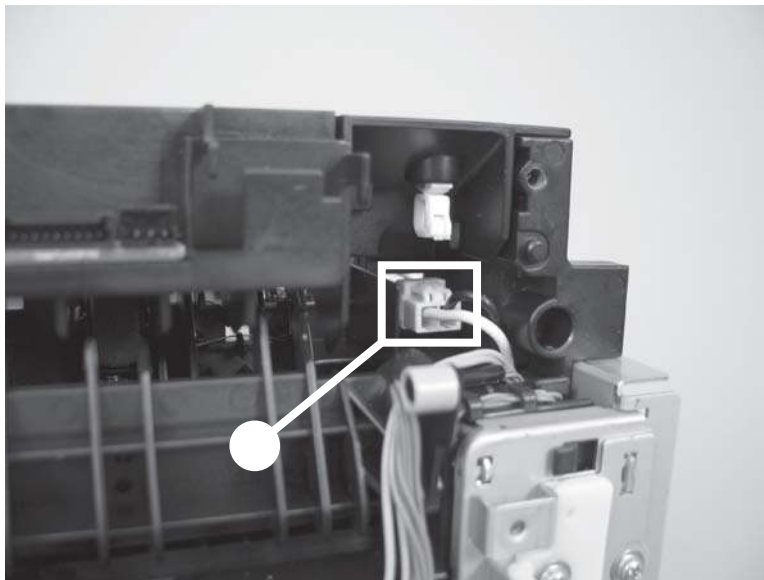
 **Reinstallation tip** When the upper cover is reinstalled, make sure that these wire harnesses (near the connectors) are correctly routed under the cover.

Figure 1-134 Remove the fuser (2 of 8)



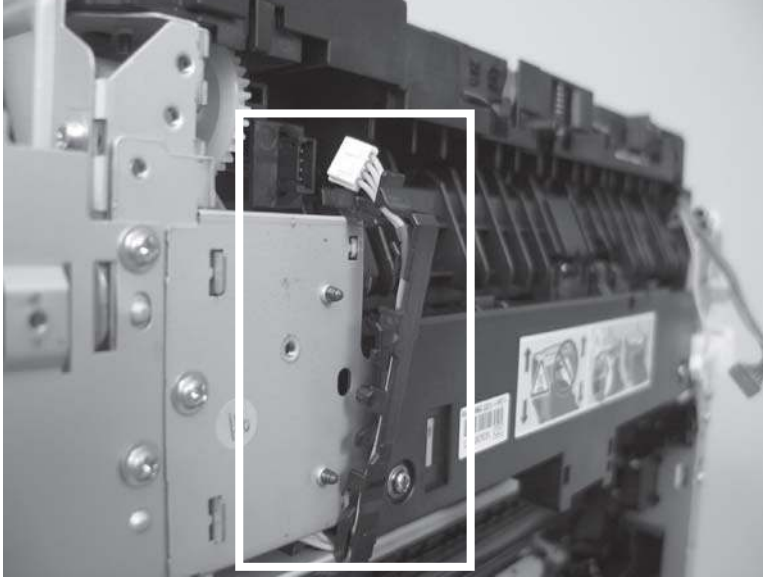
3. Disconnect one connector (callout 1).

Figure 1-135 Remove the fuser (3 of 8)



4. *Before you proceed*, look at [Figure 1-136 Remove the fuser \(4 of 8\) on page 94](#). In the following step, the connector and guide will be separated from the fuser. You **must not** use too much force and damage the lower portion of the guide. If the guide is damaged, the fuser must be replaced.

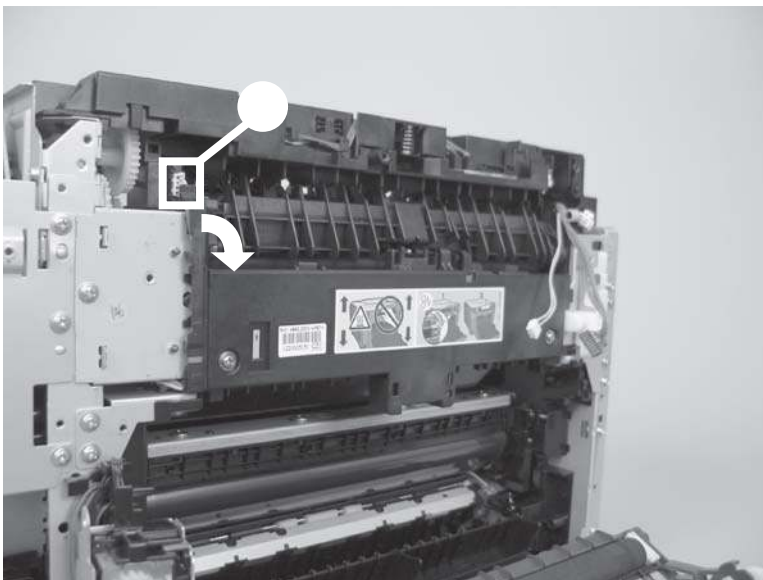
Figure 1-136 Remove the fuser (4 of 8)



5. Carefully disconnect one connector and rotate the connector and the top portion of the guide away from the fuser (callout 1).

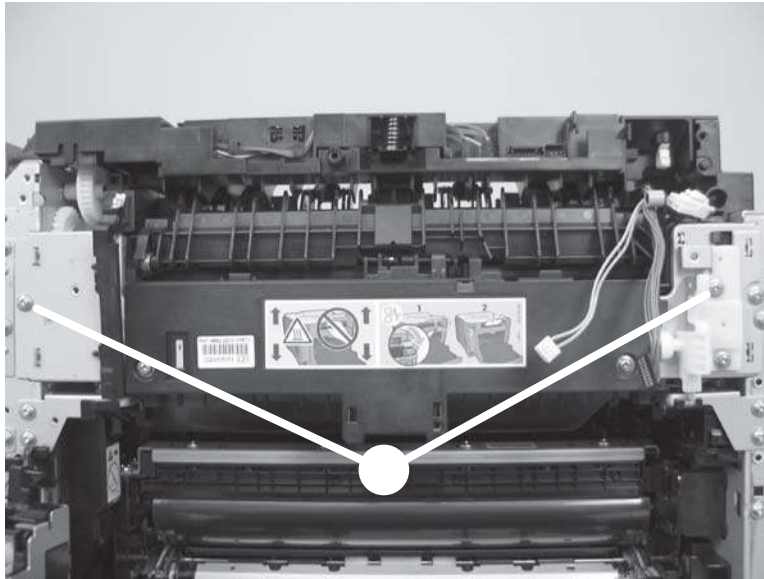
△ WARNING! Do not separate the connector and guide more than is shown in [Figure 1-136 Remove the fuser \(4 of 8\) on page 94](#). If the guide is damaged, you must replace the fuser.

Figure 1-137 Remove the fuser (5 of 8)



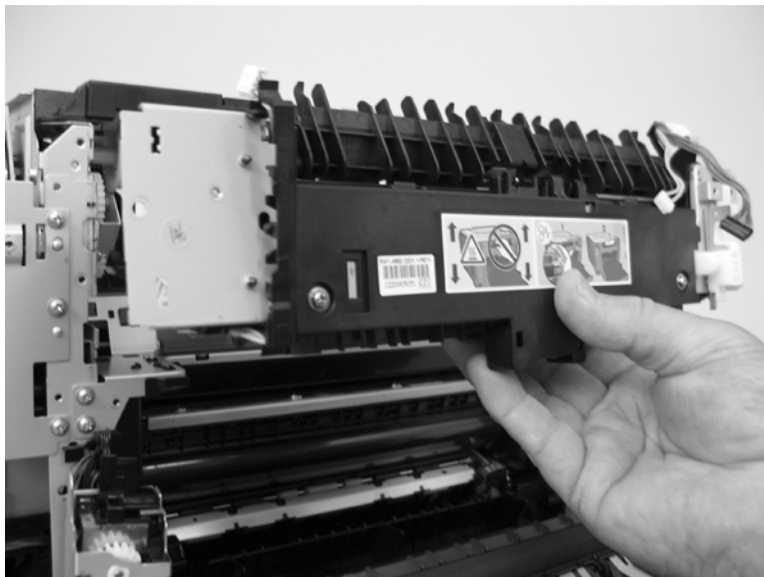
6. Remove two screws (callout 6).

Figure 1-138 Remove the fuser (6 of 8)



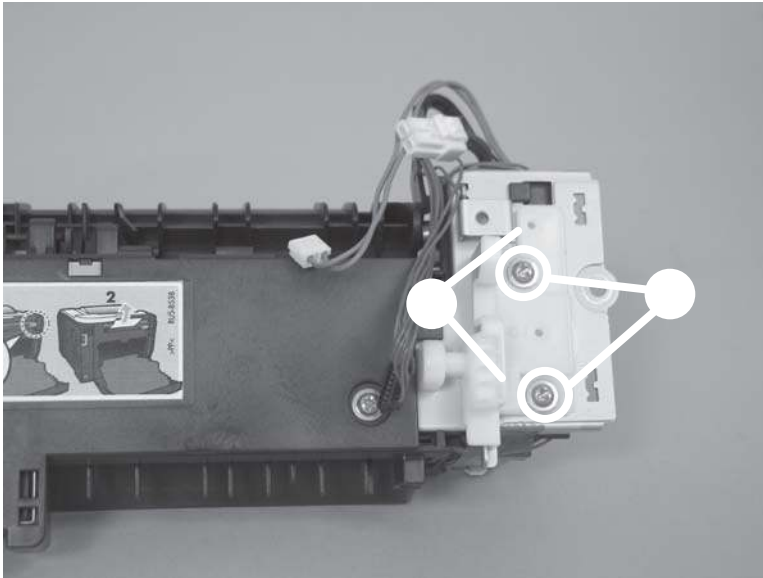
7. Remove the fuser.

Figure 1-139 Remove the fuser (7 of 8)



8. **Duplex models only:** Remove two screws (callout 1) and remove the duplex-gear assembly (callout 2). Install the assembly on the replacement fuser.

Figure 1-140 Remove the fuser (8 of 8)

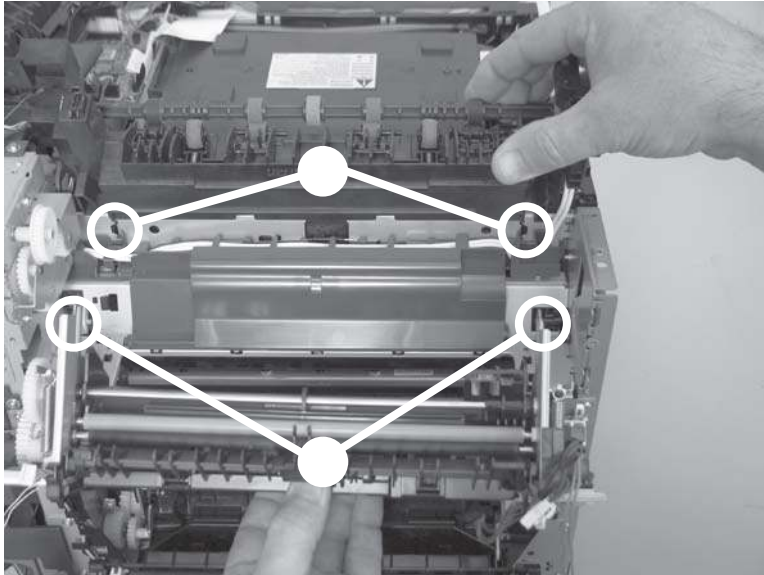


Reinstall the fuser

To reinstall you must insert the tabs (callout 1) on the fuser frame into the slots on the product chassis (callout 2).

⚠ WARNING! The fuser frame must be flush against the product chassis before you install the two fuser mounting screws. **Do not** use the screws to pull the fuser frame against the chassis.

Figure 1-141 Reinstall the fuser



Paper-delivery assembly

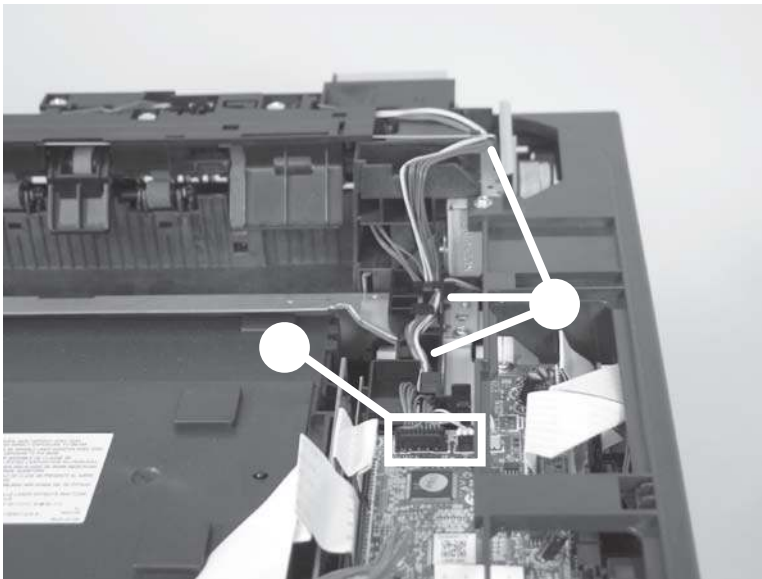
Before proceeding, remove the following components:

- Right cover. See [Right cover on page 21](#).
- Rear-upper cover (duplex products). See [Rear-upper cover \(duplex product\) on page 24](#).
- Rear door (simplex products). See [Rear door \(simplex product\) on page 26](#).
- Rear door (duplex products). See [Rear door \(duplex product\) on page 28](#).
- Rear cover (simplex products). See [Rear cover and feed guide \(simplex product\) on page 30](#).
- Upper-cover assembly. See [Upper-cover assembly on page 41](#).
- Left cover. See [Left cover on page 44](#).
- Rear-lower cover (duplex products). See [Rear-lower cover and rear-door links \(duplex product\) on page 34](#).

Remove the paper-delivery assembly

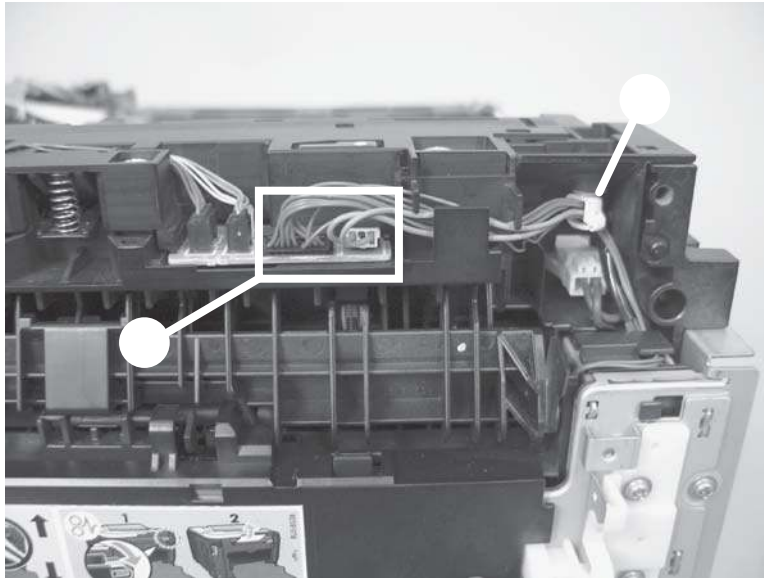
1. Disconnect two connectors (callout 1), and then release the wire harnesses from the retainer (callout 2).

Figure 1-142 Remove the paper-delivery assembly (1 of 4)



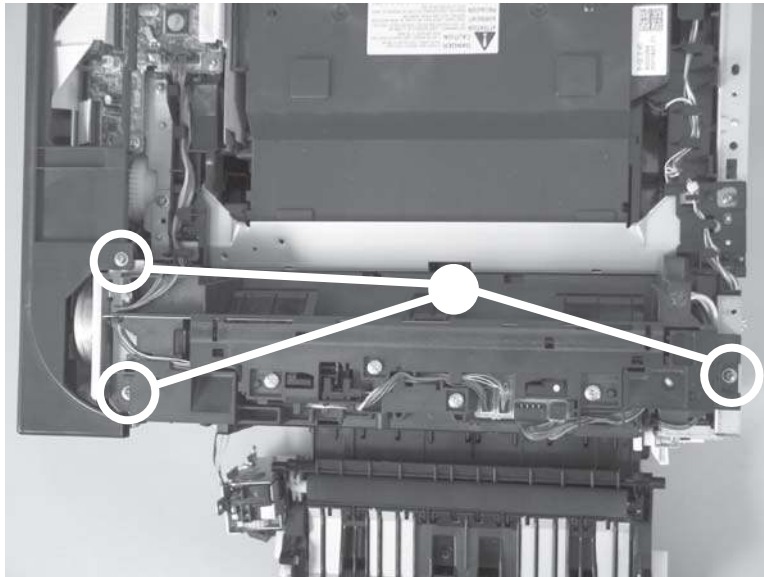
2. Disconnect two connectors (callout 1), and then release the wire harnesses from the wire clip (callout 2).

Figure 1-143 Remove the paper-delivery assembly (2 of 4)



3. Remove three screws (callout 1).

Figure 1-144 Remove the paper-delivery assembly (3 of 4)



4. Remove the paper-delivery assembly.

Figure 1-145 Remove the paper-delivery assembly (4 of 4)



2 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 *LASERJET PRO 300/400 COLOR Theory of Operation*. 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 paper-handling problems](#)
- [Solve image-quality problems](#)
- [Clean the product](#)
- [Solve performance problems](#)
- [Solve product 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 toner cartridge installed correctly, and was the pull tab on the cartridge removed?

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/LJColorM351 or www.hp.com/support/LJColorM451.

Menu map

Print a menu map

1. Press the **OK** button.
2. Use the arrow buttons to navigate to the **Reports** menu, and then press the **OK** button to select it.
3. Use the arrow buttons to navigate to the **Menu Structure** item, and then press the **OK** button to print the menu map.
4. Press the **Cancel** button 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	<ul style="list-style-type: none">• 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? <p>NOTE: Diazo copiers produce ammonia gas as part of the copying 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).</p> <ul style="list-style-type: none">• Is the product exposed to direct sunlight?
Media	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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?

General topic	Questions
Toner cartridges	<ul style="list-style-type: none"> • Is each toner cartridge installed correctly?
Transfer unit and fuser	<ul style="list-style-type: none"> • Are the transfer unit and fuser installed correctly?
Doors	<ul style="list-style-type: none"> • Is the front door closed?
Condensation	<ul style="list-style-type: none"> • 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 toner cartridge opened soon after being moved from a cold to a warm room? If so, allow the toner cartridge to sit at room temperature for 1 to 2 hours.
Miscellaneous	<ul style="list-style-type: none"> • Check for and remove any non-HP components (for example, toner 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 123

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 in the on position.
- 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

Engine diagnostics

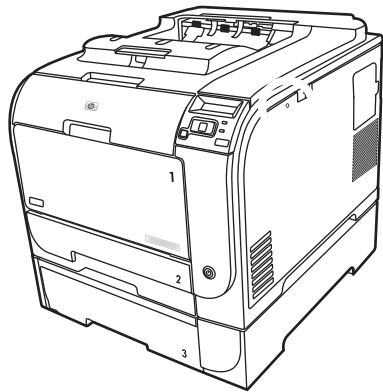
Engine test button

- 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 right-side cover.

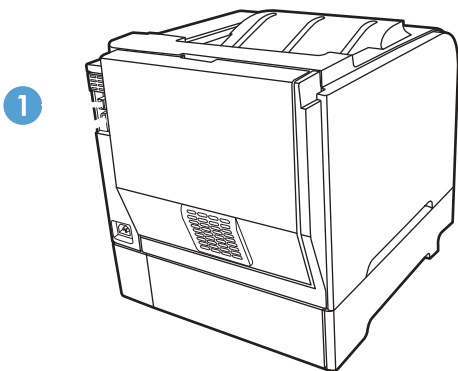
- 3. An engine test page (horizontal lines in each of the toner cartridge colors) prints.

Figure 2-1 Engine test button location



Diagrams

Plug/jack locations



1	Network port (HP LaserJet Pro 300 color M351a, HP LaserJet Pro 300 color M351dw, and HP LaserJet Pro 300 color M351dn models only)
2	Hi-Speed USB 2.0 port

Location of connectors

DC controller PCA

Figure 2-2 DC controller connectors

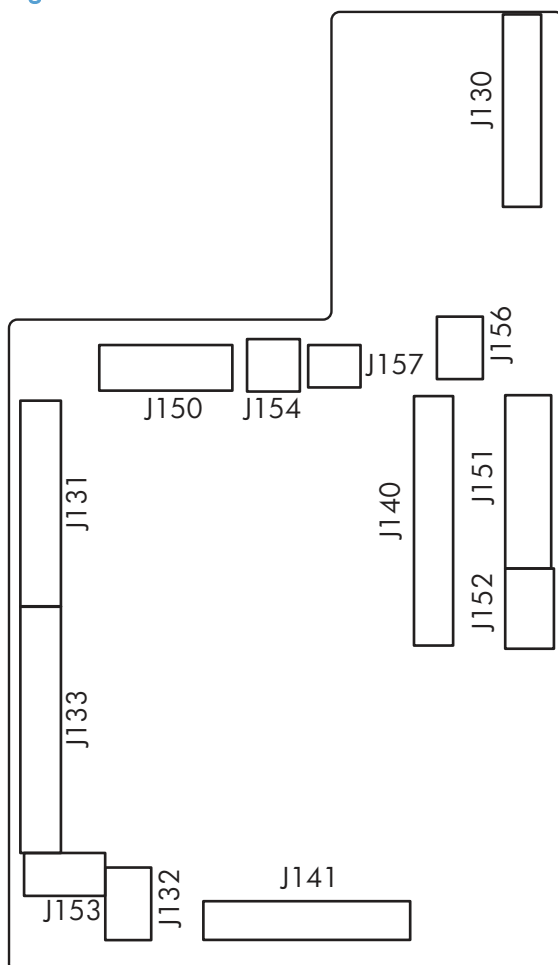


Table 2-1 DC controller connectors

Item	Description
J130	Formatter
J131	Laser-driver PCA
J132	Scanner motor (M7)
J133	High-voltage power supply
J140	Motor-driver PCA
J141	Relay PCA
J150	Fuser
J151	Low-voltage and fuser power supply
J152	Duplex driver PCA (duplex models only)

Table 2-1 DC controller connectors (continued)

Item	Description
J153	Environmental sensor
J154	Developing disengagement solenoid
J156	Sub-power supply PCA
157	Fuser relay PCA

Location of major components

Major components

Figure 2-3 Major components

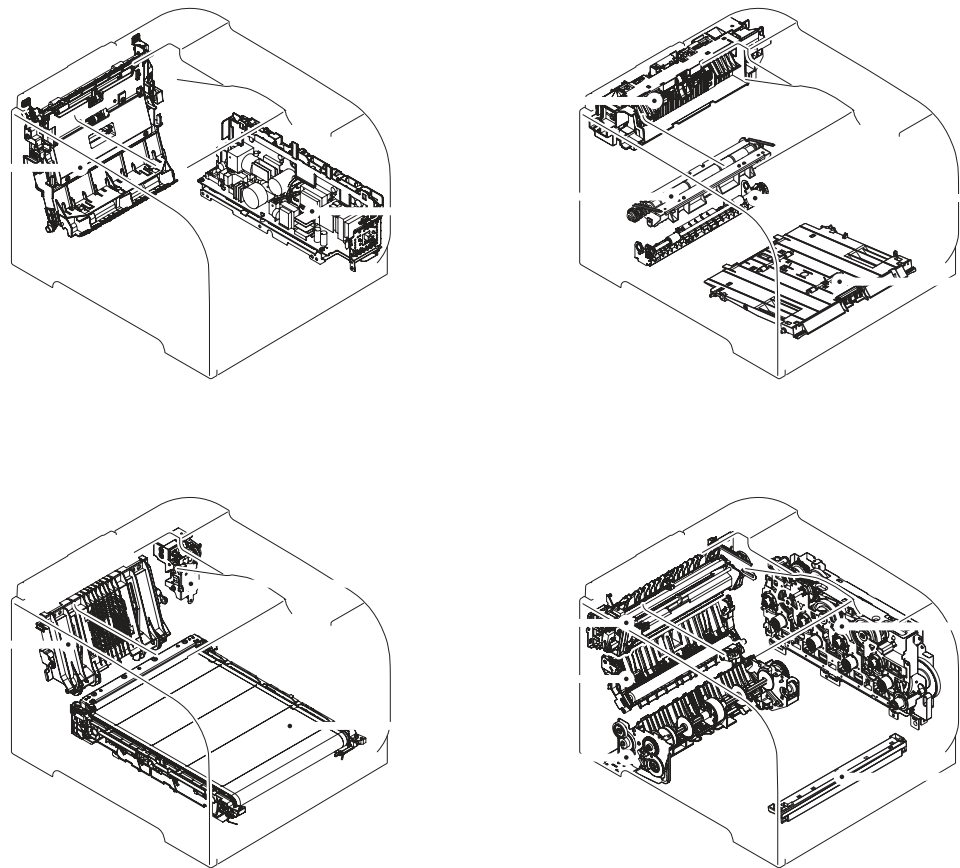


Table 2-2 Major components

Item	Description	Item	Description
1	Dulpex feed assembly (duplex models only)	8	Fuser
2	Rear-door rib assembly (duplex models only)	9	Paper-feed guide assembly (includes the transfer roller)
3	Power supply (low-voltage and fuser)	10	Cassette pickup assembly

Table 2-2 Major components (continued)

Item	Description	Item	Description
4	Duplex reverse-drive assembly (duplex models only)	11	Duplex repick assembly (duplex models only)
5	ITB	12	MP tray pickup assembly
6	Paper-delivery assembly	13	Drive assembly
7	Registration assembly	14	Color misregistration sensor

Solenoids, clutches, and sensors

Figure 2-4 Solenoid, clutches, and sensors

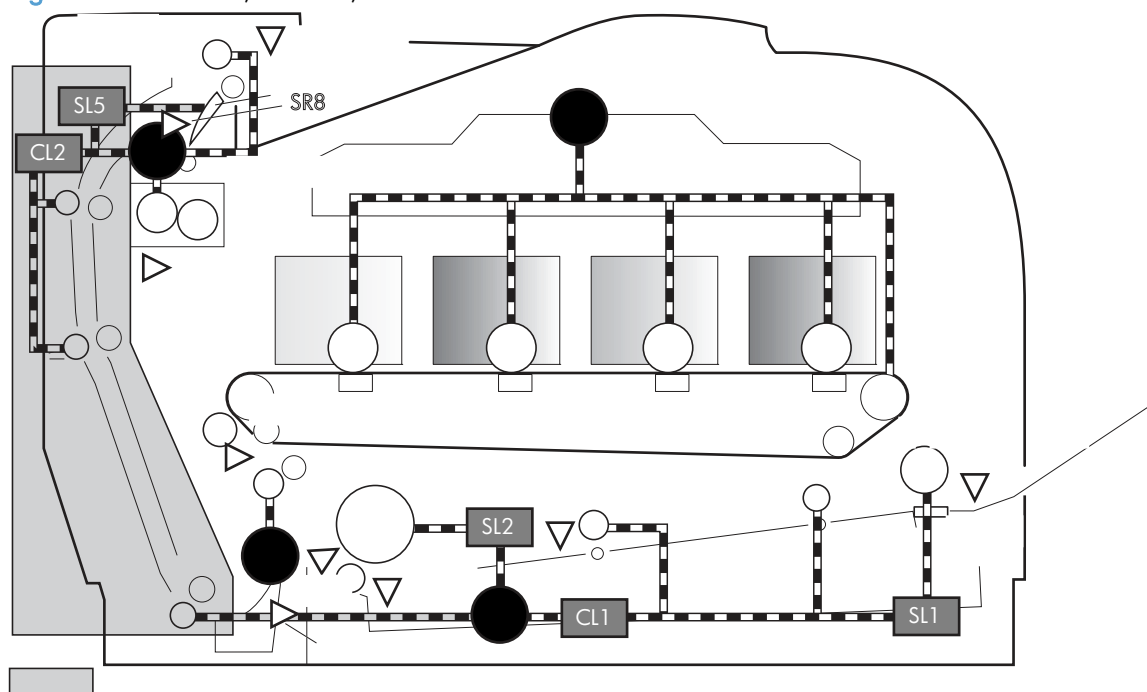


Table 2-3 Solenoid, clutches, and sensors

Item	Description	Item	Description
SR1	Paper feeder pre-registration sensor	SR14	MP tray media presence sensor
SR3	Paper feeder media presence sensor (in the optional paper feeder; not shown)	SR15	Face-down bin media full sensor (output bin)
SR4	Registration sensor	SL1	MP tray pickup solenoid
SR7	MP tray preregistration sensor	SL2	Cassette pickup solenoid
SR8	Fuser delivery sensor	SL5	Duplex reverse solenoid (duplex models only)
SR10	Loop sensor	SL6	Paper feeder pickup solenoid (in the optional paper feeder; not shown)

Table 2-3 Solenoid, clutches, and sensors (continued)

Item	Description	Item	Description
SR12	Pre-registration sensor	CL1	MP tray feed clutch
SR13	Cassette media presence sensor	CL2	Duplex feed clutch (duplex models only)

Rollers

Figure 2-5 Rollers

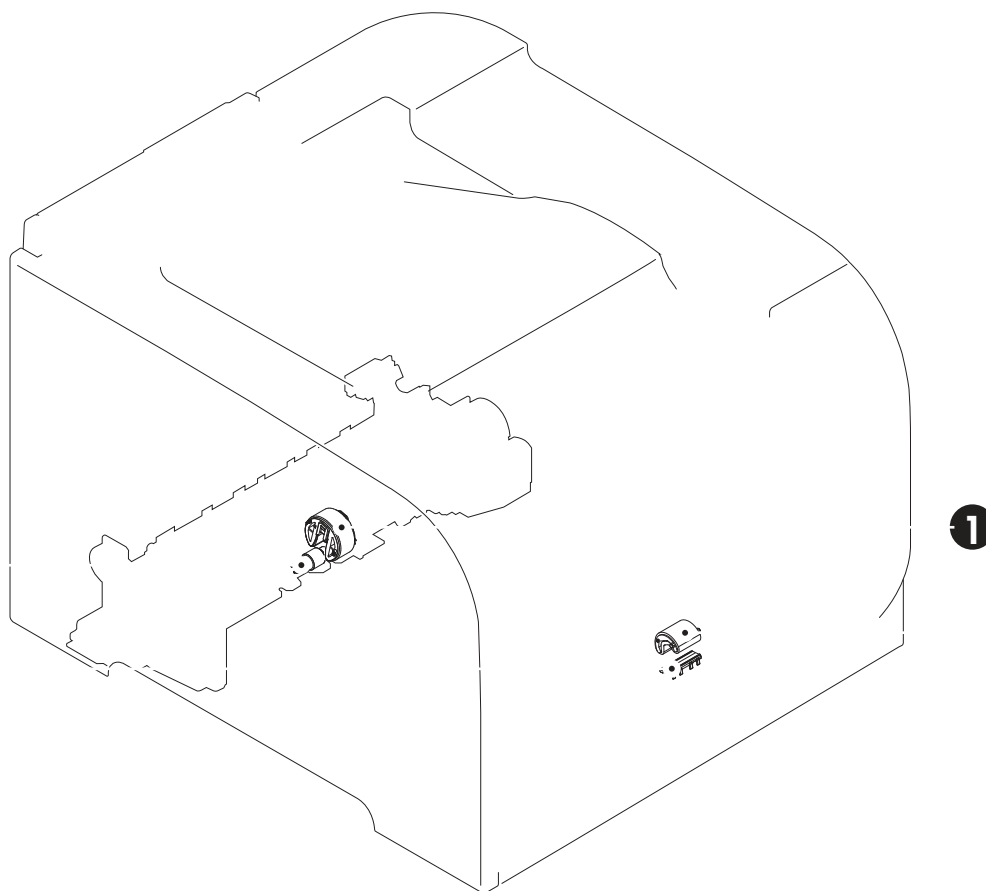
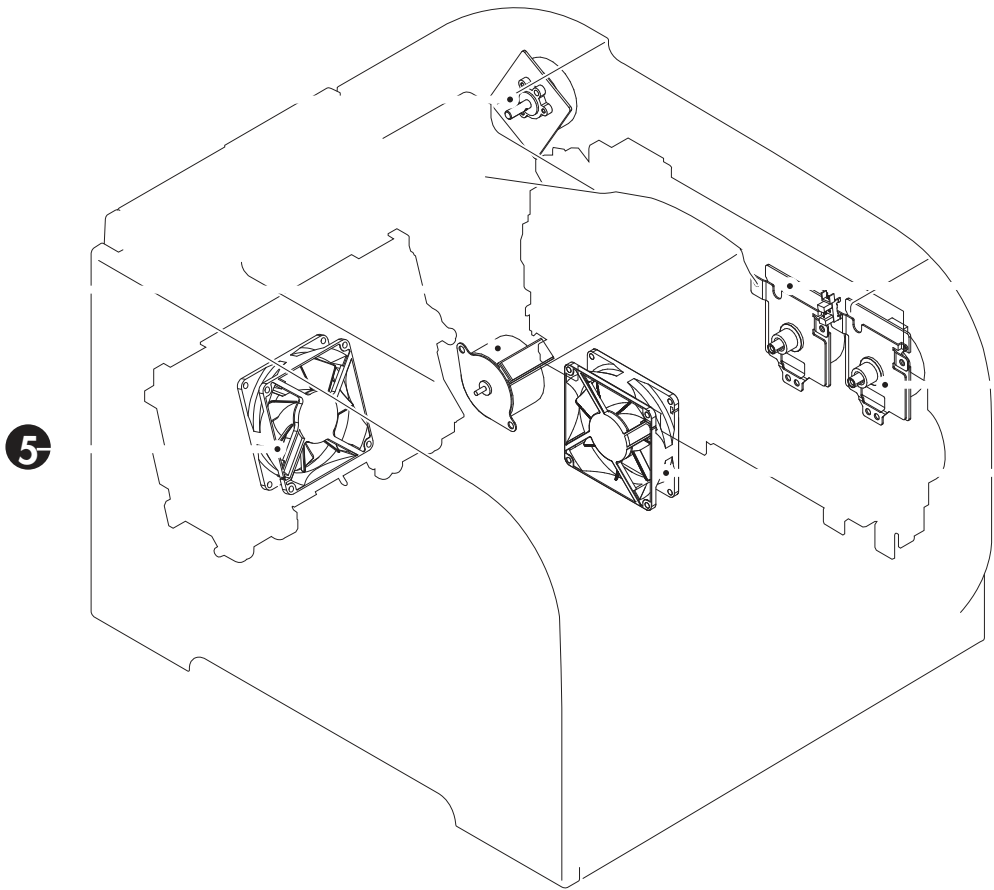



Table 2-4 Rollers

Item	Description	Item	Description
1	Cassette pickup roller	3	MP tray separation pad
2	MP tray pickup roller	4	Cassette separation roller

Figure 2-6 Motors and fans



 **NOTE:** The registration motor (M3) is not shown in this illustration.

Item	Description	Item	Description
1	Fuser motor (M4)	4	Fan 1
2	Drum motor (M1)	5	Fan 2 (duplex models only)
3	Developing motor (M2)	6	Pickup motor (M5)

PCAs

Figure 2-7 PCAs

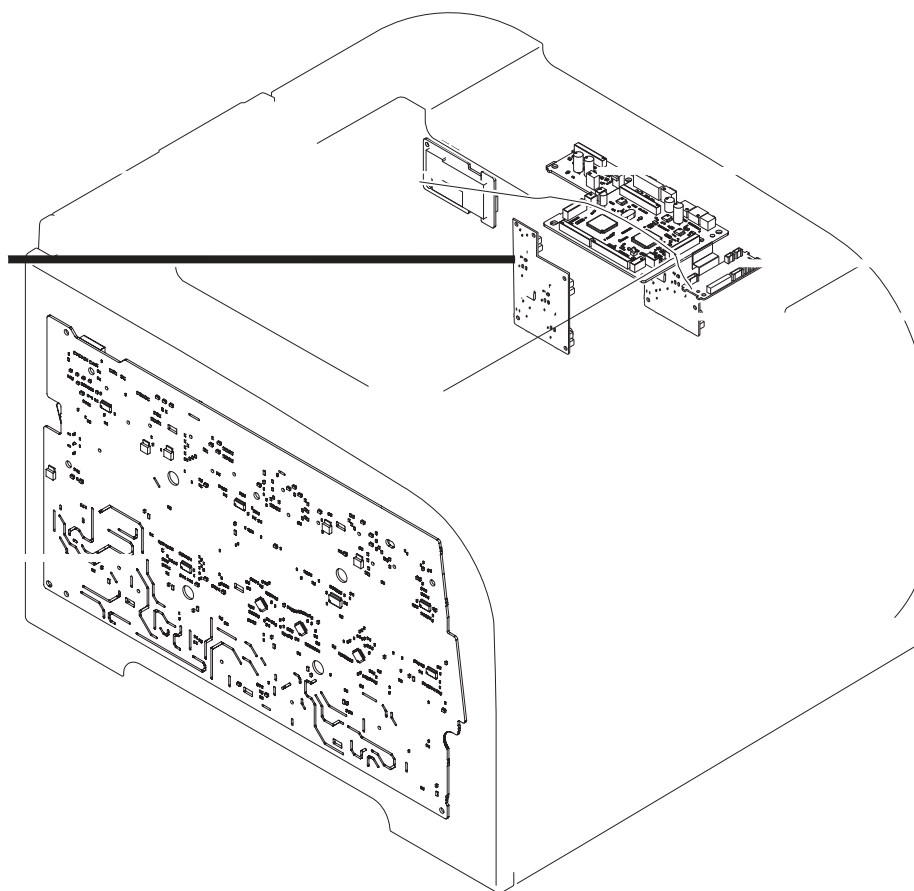


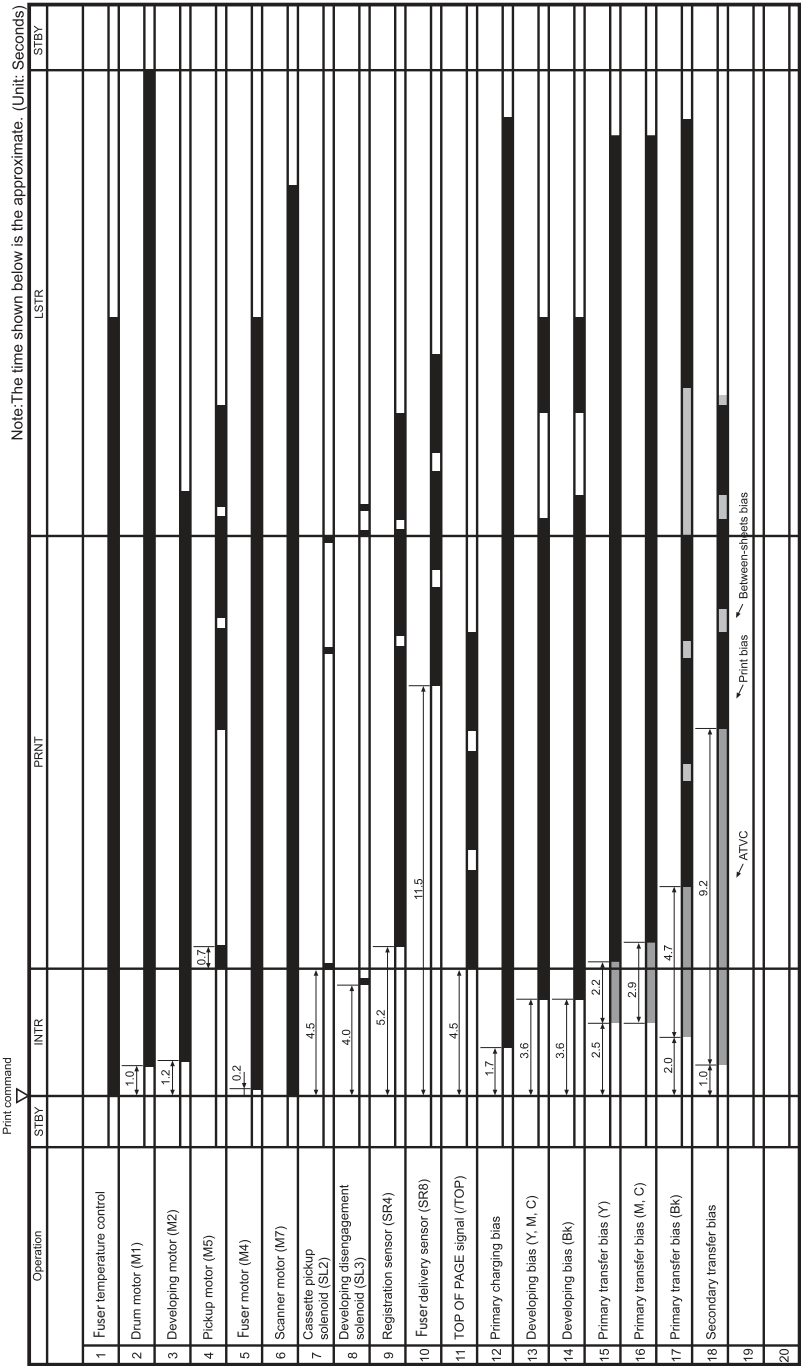
Table 2-5 PCAs

Item	Description	Item	Description
1	DC controller PCA	4	High-voltage power supply PCA
2	Connector PCA (relay PCA)	5	Formatter
3	Driver PCA	6	Sub-power PCA

General timing charts

Approximate timing in seconds.

Figure 2-8 Timing diagram



General circuit diagram

Figure 2-9 Circuit diagram

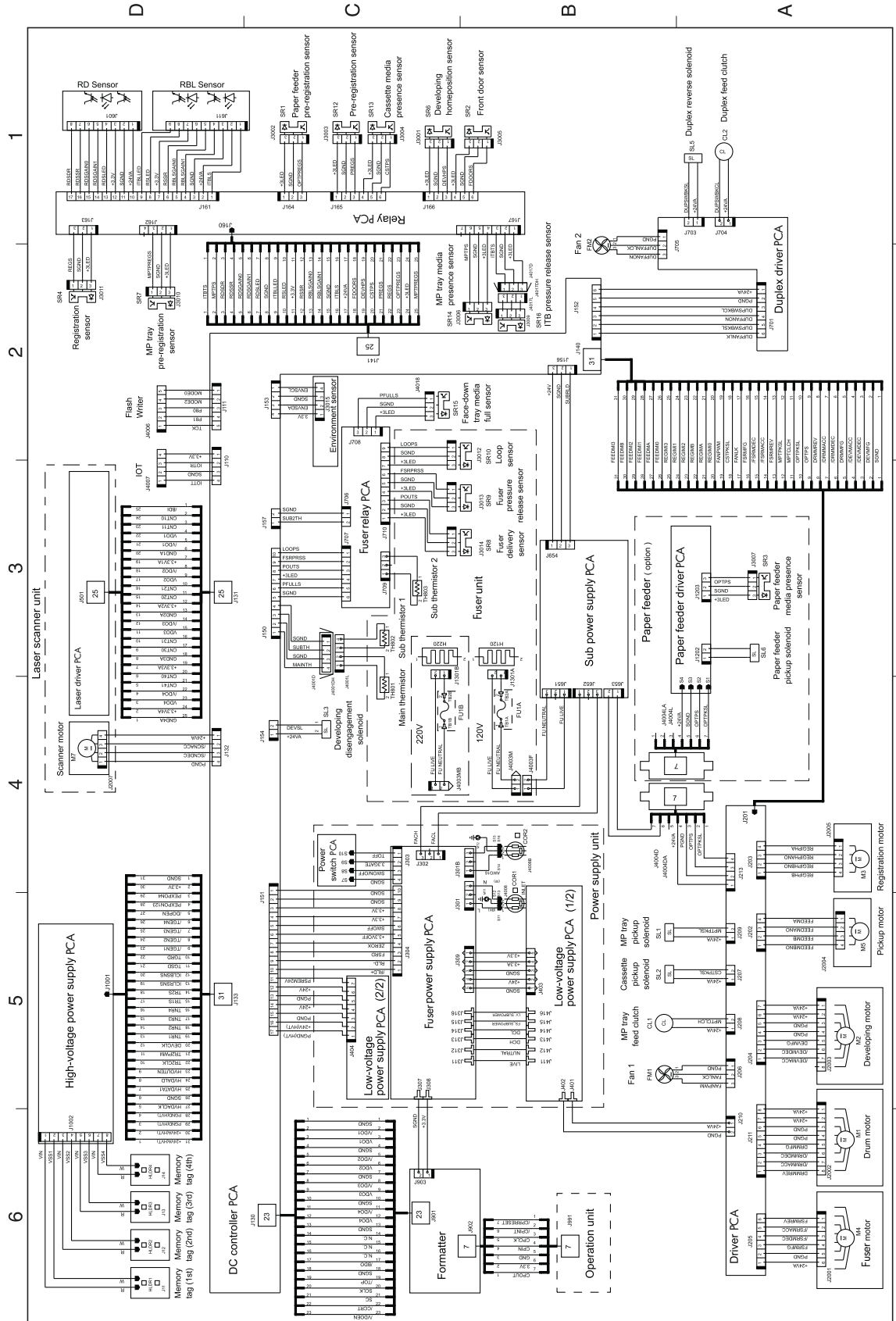
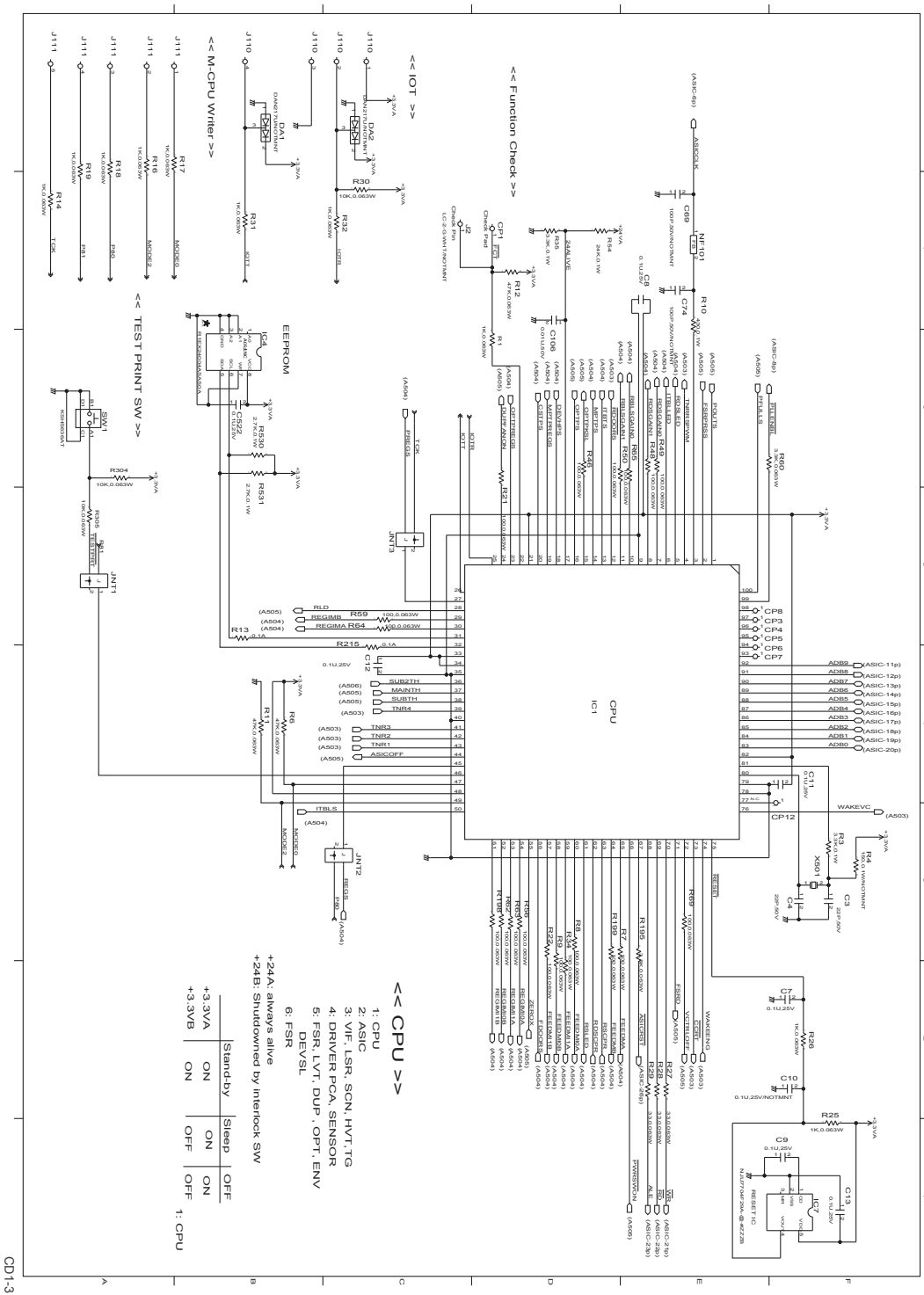


Figure 2-10 CPU diagram



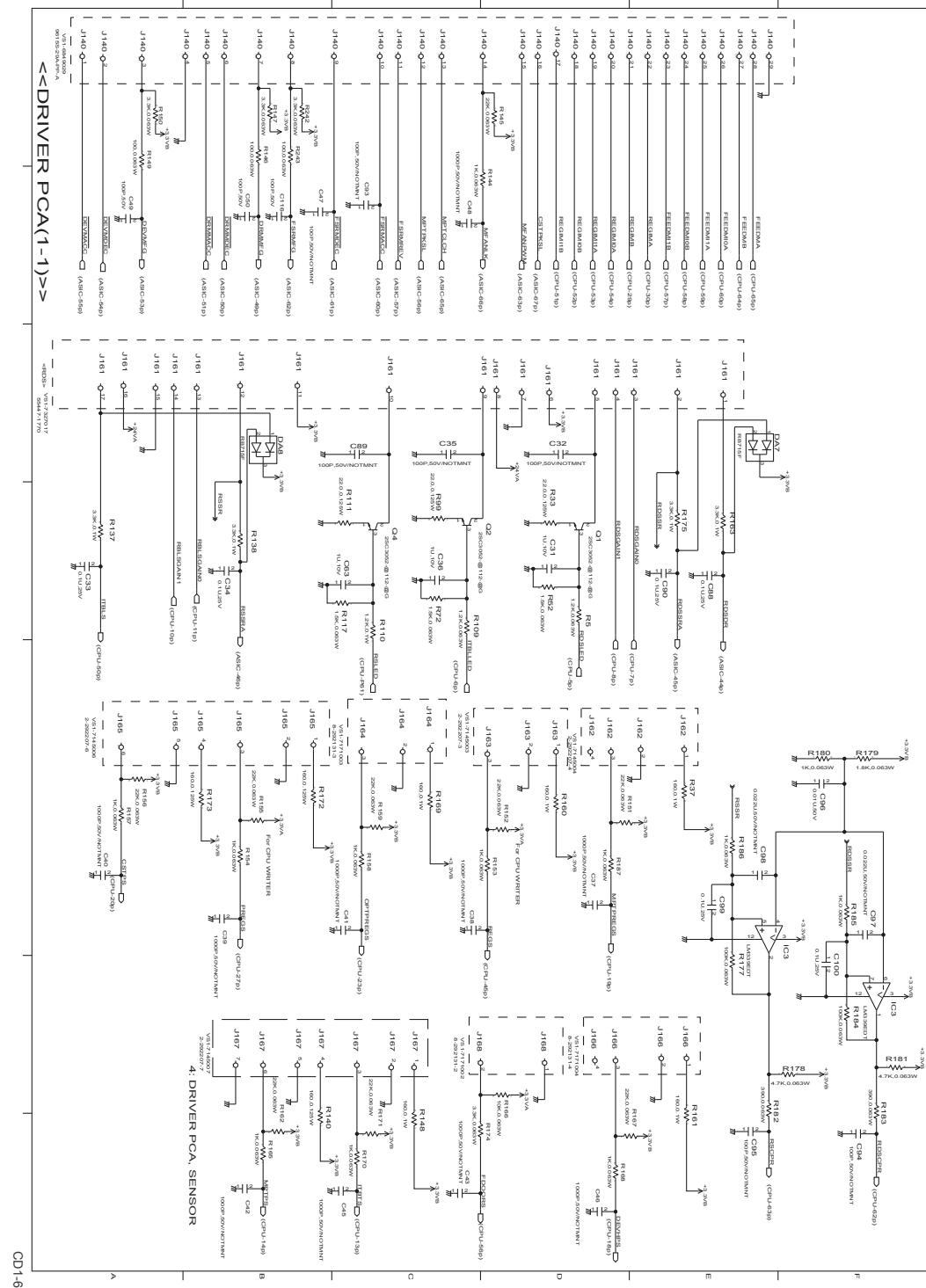
18 Chapter 2 Solve problems

ENWW



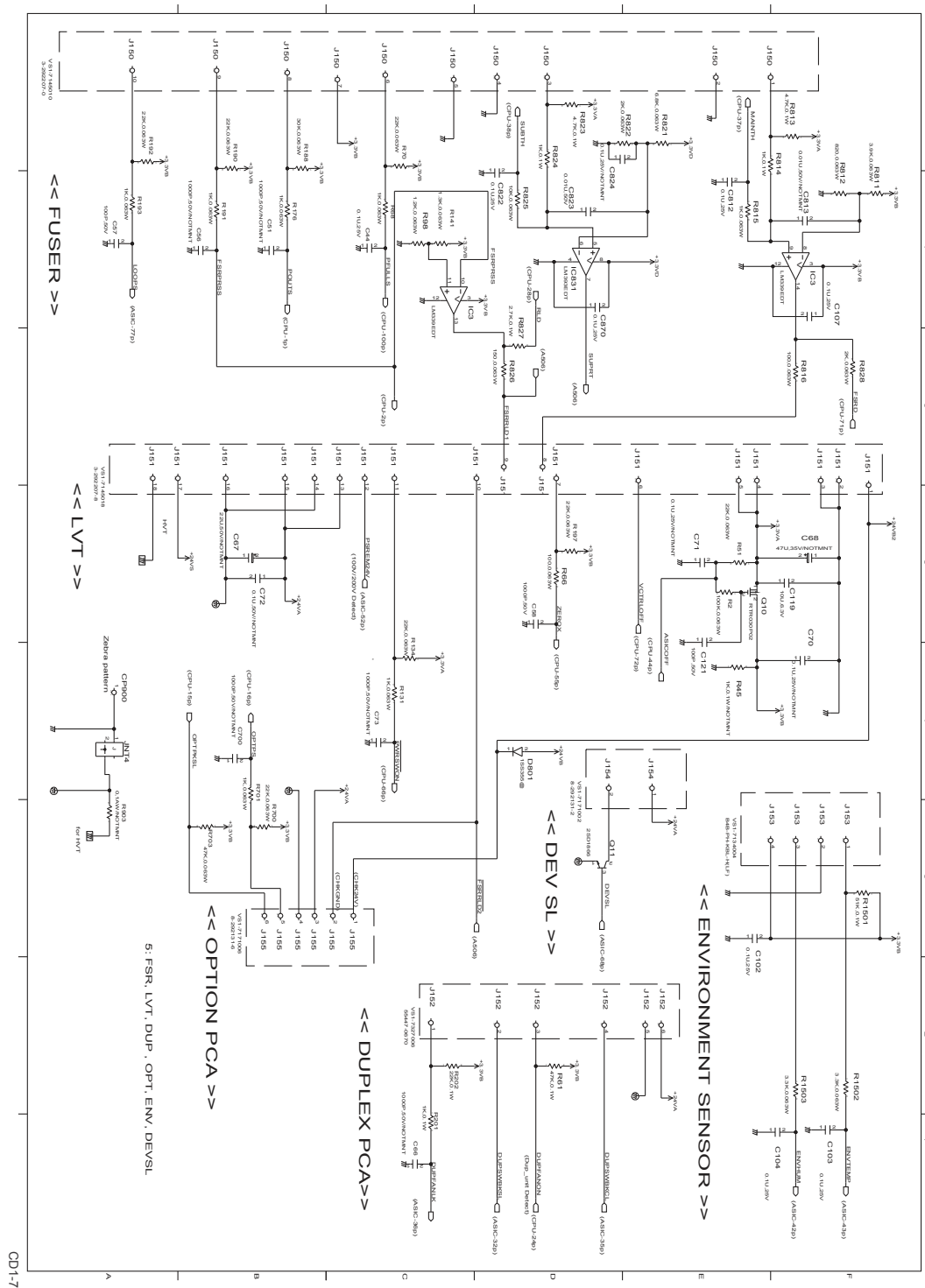
Driver PCA diagram

Figure 2-13 Driver PCA diagram



Duplexer PCA diagram

Figure 2-14 Duplexer PCA diagram



ENWW

Tools for troubleshooting 121



Internal print quality test pages

Print quality troubleshooting page

The print quality page helps solve problems with print quality.

Print a print quality page

1. Press the **OK** button to open the menus.
2. Use the arrow buttons to navigate to the **Reports** menu, and then press the **OK** button.
3. Use the arrow buttons to navigate to the **Print Quality Page** item, and then press the **OK** button.
4. Press the **Cancel** button to exit the menus.

Print quality assessment page

The print quality assessment page (diagnostics page) prints the calibration and color diagnostics pages.

Print a diagnostics page

1. Press the **OK** button to open the menus.
2. Use the arrow buttons to navigate to the **Reports** item, and then press the **OK** button.
3. Use the arrow buttons to navigate to the **Diagnostics Page** item, and then press the **OK** button.
4. Press the **Cancel** button to exit the menus.

Print the configuration page

The configuration page lists the current settings and properties of the product. You can use this page to check for color-plane registration and cartridge half tones. Print a configuration page from the product or from one of the Toolbox software programs.

Print a configuration page

1. Press the **OK** button to open the menus.
2. Use the arrow buttons to navigate to the **Reports** menu, and then press the **OK** button.
3. Use the arrow buttons to navigate to the **Config Report** item, and then press the **OK** button.
4. Press the **Cancel** button to exit the menus.

Print-quality troubleshooting tools

Repetitive image defects

If the product output has a consistent, repetitive defect, use the table in this section to determine which part needs to be replaced based on the measured distance between the repetitions of the defect.

Repetitive defects caused by the ITB normally appear on every other page, because the ITB is longer than a page. However, the period of the repetitive defect can vary depending on the type of media, and a repetitive defect can occur more than once on the same page.



NOTE: The following table replaces the graphical repetitive defect ruler. You can make your own ruler by using these measurements.

Table 2-6 Repetitive image defects

Distance between identical defects	Component
About 22.0 mm (0.86 in)	Developer roller (one rotation)
About 38.0 mm (1.49 in)	Primary charging roller
About 44.0 mm (1.73 in)	Registration roller
About 58.0 mm (2.28 in)	Secondary transfer roller or Fuser sleeve
About 63.0 mm (2.48 in)	Pressure roller
About 75.0 mm (2.95 in)	Photosensitive drum
About 78.0 mm (3.07 in)	ITB (ITB drive roller or secondary transfer opposed roller)

Calibrate the product

Calibration is a product function that optimizes print quality. If you experience any print-quality problems, calibrate the product.

1. Open HP ToolboxFX.
This is now called “HP Device Toolbox?”
2. Click the **System** tab, and then click the **Print Quality** link.
3. In the area for Color Calibration, select the **Calibrate Now** check box.
4. Click **Apply** to calibrate the product immediately.

Control panel menus

Reports menu

Menu item	Description
Menu Structure	Prints a map of the control panel-menu layout. The active settings for each menu are listed.
Config Report	Prints a list of all 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: <ul style="list-style-type: none">• Estimated percentage of cartridge life remaining• Approximate pages remaining• Part numbers for HP print cartridges• Number of pages printed• Information about ordering new HP print cartridges and recycling used HP print cartridges
Network Summary	Prints a list of all product network settings
Usage Page	Prints a page that lists PCL pages, PCL 6 pages, PS 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
PCL6 Font List	Prints a list of all the PCL6 fonts that are installed
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
Print Quality Page	Prints a page that helps solve problems with print quality

Quick Forms menu

Menu item	Sub-menu item	Description
Notebook Paper	Narrow Rule	Prints pages that have preprinted lines
	Wide Rule	
	Child Rule	
Graph Paper	1/8 inch	Prints pages that have preprinted graph lines
	5 mm	

Menu item	Sub-menu item	Description
Checklist	1-Column	Prints pages that have preprinted lines with check boxes
	2-Column	
Music Paper	Portrait	Prints pages that have preprinted lines for writing music
	Landscape	

System Setup menu

In the following table, items that have asterisks (*) indicate the factory default setting.

Menu item	Sub-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	Def. Paper Size	Letter		Select the size for printing internal reports or any print job that does not specify a size.
		A4		
		Legal		
	Def. Paper Type	A list of available paper types appears.		Select the paper type for printing internal reports or any print job that does not specify a type.
	Tray 1	Paper Type		Select the default size and type for Tray 1 from the list of available sizes and types.
		Paper Size		
	Tray 2	Paper Type		Select the default size and type for Tray 2 from the list of available sizes and types.
		Paper Size		
	Paper Out Action	Wait Forever*		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.
		Cancel		
		Override		
				Select the Wait Forever option to make the product wait until you load the correct paper and 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 options, 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	Sub-menu item	Description
Print Quality	Calibrate Color	After Power On		After Power On: Select how soon the product should calibrate after you turn it on. The default setting is 15 Minutes .
		Calibrate Now		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 displays, you must clear the error first.
	Adjust Alignment	Print Test Page		Use this menu to shift the margin alignment to center the image on the page from top to bottom and from left to right. Before adjusting these values, print a test page. It provides alignment guides in the X and Y directions so you can determine which adjustments are necessary.
		Adjust Tray <X>	X1 Shift	Use the X1 Shift setting to center the image from side to side on a single-sided page or for the second side of a two-sided page.
			X2 Shift	
			Y Shift	Use the X2 Shift setting to center the image from side to side on the first side of a two-sided page.
				Use the Y Shift setting to center the image from top to bottom on the page.
Energy Settings	Sleep Delay	15 Minutes*		Sets how long the product remains idle before it enters Sleep mode. The product automatically exits Sleep mode when you send a print job or press a control panel button.
		30 Minutes		
		1 Hour		NOTE: The default Sleep Delay time is 15 minutes.
		2 Hours		
		Off		
		1 Minute		
	Auto Power Down	Power Down Delay	30 Minutes*	Select the length of time after which the product automatically turns off.
			1 Hour	
			2 Hours	NOTE: The default Power Down Delay time is 30 minutes.
			4 Hours	
			8 Hours	
			24 Hours	
			Never	
		Wake Events	USB Job	Select whether the product wakes when it receives each of these types of jobs or actions.
			LAN Job	
			Wireless Job	The default for each option is Yes .
			Button Press	

Menu item	Sub-menu item	Sub-menu item	Sub-menu item	Description
Display Contrast	Medium*			Select the level of contrast for the display.
	Darker			
	Darkest			
	Lightest			
	Lighter			
Supply Settings	Black Cartridge	Very Low Setting	Prompt*	<p>Set how the product behaves when the black print cartridge reaches the very low threshold.</p> <ul style="list-style-type: none"> • Prompt: The product stops printing and prompts you to replace the print cartridge. You can acknowledge the prompt and continue printing. A customer configurable option on this product is "Prompt to Remind Me in 100 pages, 200 pages, 300 pages, or never." This option is provided as a customer convenience and is not an indication these pages will have acceptable print quality. • Continue: The product alerts you that the print cartridge is very low, but it continues printing. • Stop: The product stops printing until you replace the print cartridge.
			Continue	
			Stop	
		Low Threshold	Enter percentage	<p>Use the arrow buttons to increase or decrease the percentage of estimated life remaining at which the product alerts you that the print cartridge is low.</p> <p>For the black cartridge that ships with the product, the default is 24%. For the standard replacement black print cartridge, the default is 13%. For the high-capacity replacement black print cartridge, the default is 7%.</p> <p>The default values are intended to provide approximately two weeks of use before the cartridge reaches the very low state.</p>

Menu item	Sub-menu item	Sub-menu item	Sub-menu item	Description
	Color Cartridges	Very Low Setting	Stop Prompt* Continue Print Black	<p>Set how the product behaves when the one of the color print cartridges reaches the very low threshold.</p> <ul style="list-style-type: none"> • Prompt: The product stops printing and prompts you to replace the print cartridge. You can acknowledge the prompt and continue printing. A customer configurable option on this product is "Prompt to Remind Me in 100 pages, 200 pages, 300 pages, or never." This option is provided as a customer convenience and is not an indication these pages will have acceptable print quality. • Continue: The product alerts you that the print cartridge is very low, but it continues printing. • Print Black: The product has been customer configured to print using only the black print cartridge when the level of a color supply is very low. The color supply might still be able to produce acceptable print quality. To print in color, either replace the color supply or reconfigure the product. <p>When you choose to replace the very low print cartridge, color printing resumes automatically.</p> <ul style="list-style-type: none"> • Stop: The product stops printing until you replace the print cartridge.
		Low Threshold	Cyan Magenta Yellow	<p>Enter percentage</p> <p>Use the arrow buttons to increase or decrease the percentage of estimated life remaining at which the product alerts you that the print cartridge is low.</p> <p>For the color print cartridges that ship with the product, the default is 16%. For the replacement color print cartridges, the default is 7%.</p> <p>The default values are intended to provide approximately two weeks of use before the cartridge reaches the very low state.</p>

Menu item	Sub-menu item	Sub-menu item	Sub-menu item	Description
	Store Usage Data	On Supply*		The product automatically stores print-cartridge usage data in its internal memory. It can also store this data on memory chips in the print cartridges. Select the Not on Supply option to store the data only in the product memory.
		Not on Supply		<p>The information stored on the print cartridge memory chip helps HP design future products to meet our customers' printing needs. HP collects a sampling of memory chips from print cartridges returned to HP's free return and recycling program. The memory chips from this sampling are read and studied in order to improve future HP products.</p> <p>The data collected from the print cartridge memory chip does not contain information that can be used to identify a customer or user of the print cartridge or their product.</p>
Courier Font	Regular*			Select a version of the Courier font.
	Dark			

Service menu


Use this menu to restore default settings, clean the product, and activate special modes that affect print output. Items that have asterisks (*) indicate the factory default setting.

Menu item	Sub-menu item	Description
Cleaning Page		<p>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.</p> <p>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.</p> <p>NOTE: For models that do not have an automatic duplexer, the product prints the first side and then prompts you to remove the page from the output bin and reload it in Tray 1, keeping the same orientation.</p>
USB Speed	High*	
	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.
Less Paper Curl	On	
	Off*	If printed pages are consistently curled, use this option to set the product to a mode that reduces curl.

Menu item	Sub-menu item	Description
Archive Print	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.
	Off*	
Firmware Date		Displays the current firmware datecode.
Restore Defaults		Sets all customized menu settings to the factory default values.
HP Smart Install	On*	Enable or disable the HP Smart Install tool.
	Off	Disable the tool if you want to connect to a network by using an Ethernet cable.

Network Setup menu

Use this menu to establish network configuration settings. Items that have asterisks (*) indicate the factory default setting.

Menu item	Sub-menu item	Description
Wireless Menu (wireless products only) NOTE: You can also access this menu by pressing the Wireless  button on the front of the product.	Direct WiFi	Provides the product's Direct Wifi name, so you can access it from other wireless devices that support the Wi-Fi Direct protocol.
	WPS Setup	If your wireless router supports this feature, use this method to set up the product on a wireless network. This is the simplest method.
	Network Test	Tests the wireless network and prints a report with the results.
	Wireless Off/On	Enable or disable the wireless network feature.
TCP IP Config	Automatic*	Select the Automatic option to automatically configure all the TCP/IP settings.
	Manual	Select the Manual option to manually configure the IP address, subnet mask, and default gateway.
Auto Crossover	On*	Enables or disables the use of a standard 10/100 network cable when the product is directly connected to a computer.
	Off	
Network Services	IPv4	Enable or disable the IPv4 and IPv6 protocols. By default, each protocol is enabled.
	IPv6	
Show IP Address	No	No: The product IP address will not appear on the control panel display.
	Yes*	Yes: The product IP address will appear on the control panel display.

Menu item	Sub-menu item	Description
Link Speed	Automatic*	Sets the link speed manually if needed.
	10T Full	After setting the link speed, the product automatically restarts.
	10T Half	
	100TX Full	
	100TX Half	
HTTPS Enforced	No*	Sets the product so it communicates only with Web sites that use hypertext transfer protocol secure (HTTPS).
	Yes	
Restore Defaults		Restores the network configuration settings to the default values.

Interpret control panel messages

Control panel message types

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

Alert and warning messages appear temporarily and might require you to acknowledge the message by pressing the **OK** button to resume or by pressing the **Cancel** **X** button to cancel the job. With certain warnings, the job might not complete or the print quality might be affected. If the alert or warning message is related to printing and the auto-continue feature is on, the product will attempt to resume the printing job after the warning has appeared for 10 seconds without acknowledgement.

Critical error messages can indicate some kind of failure. Turning off and then turning on the power might fix the problem. If a critical error persists, the product might require service.

Control panel messages

10.XXXX Supply error

Description

The memory chip for one of the print cartridges cannot be read or is missing.

- 10.0000 = black memory chip error
- 10.0001 = cyan memory chip error
- 10.0002 = magenta memory chip error
- 10.0003 = yellow memory chip error
- 10.1000 = black memory chip is missing
- 10.1001 = cyan memory chip is missing
- 10.1002 = magenta memory chip is missing
- 10.1003 = yellow memory chip is missing

Recommended action

Reinstall the print cartridge.

Turn the product off and then on.

If the problem is not solved, replace the print cartridge.

49 Error Turn off then on

Description

The product experienced an internal error.

Recommended action

Turn the product off, wait at least 30 seconds, and then turn the product on and wait for it to initialize.

If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product power on.

If the message persists, contact HP support.

50.X Fuser error Turn off then on**Description**

The product has experienced an error with the fuser.

Recommended action

Turn the product power off, wait at least 30 seconds, and then turn the product power on and wait for it to initialize.

Turn off the product, wait at least 25 minutes, and then turn on the product.

If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product power on.

If the message persists, contact HP support.

51.XX Error Turn off then on**Description**

The product has experienced an internal hardware error.

Recommended action

Turn the product power off, wait at least 30 seconds, and then turn the product power on and wait for it to initialize.

If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product on.

If the message persists, contact HP support.

54.XX Error Turn off then on**Description**

The product has experienced an error with one of the internal sensors.

Recommended action

Turn the product power off, wait at least 30 seconds, and then turn the product power on and wait for it to initialize.

If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product power on.

If the message persists, contact HP support.

55.X Error Turn off then on

Description

The product has experienced an internal error.

Recommended action

Turn the product power off, wait at least 30 seconds, and then turn the product power on and wait for it to initialize.

If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product power on.

If the message persists, contact HP support.

57 Fan error Turn off then on

Description

The product has experienced a problem with its internal fan.

Recommended action

Turn the product power off, wait at least 30 seconds, and then turn the product power on and wait for it to initialize.

If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product power on.

If the message persists, contact HP support.

59.X Error Turn off then on

Description

The product has experienced a problem with one of the motors.

Recommended action

Turn the product power off, wait at least 30 seconds, and then turn the product power on and wait for it to initialize.

If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product power on.

If the message persists, contact HP support.

79 Error Turn off then on

Description

The product has experienced an internal firmware error.

Recommended action

Turn the product power off, wait at least 30 seconds, and then turn the product power on and wait for it to initialize.

If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product power on.

If the message persists, contact HP support.

79 Service error Turn off then on**Description**

An incompatible DIMM is installed.

Recommended action

1. Turn the product power off.
2. Install a DIMM that the product supports.
3. Turn the product on.

If the message persists, contact HP support.

Black cartridge low**Description**

The print cartridge is nearing the end of its useful life.

Recommended action

Printing can continue, but consider having a replacement supply on hand.

Black in wrong position**Description**

The print cartridge is installed in the incorrect slot.

Recommended action

Make sure that each print cartridge is installed in the correct slot. From front to back, the print cartridges are installed in this order: black, cyan, magenta, and yellow.

Black very low**Description**

The print cartridge is at the end of its useful life. A customer configurable option on this product is "Prompt to Remind Me in 100 pages, 200 pages, 300 pages, or never." This option is provided as a customer convenience and is not an indication these pages will have acceptable print quality.

Recommended action

To ensure optimal print quality, HP recommends replacing the print cartridge at this point. You can continue printing until you notice a decrease in print quality. Actual cartridge life may vary.

Once an HP supply has reached very low, HP's premium Protection Warranty on that supply has ended. All print defects or cartridge failures incurred when an HP supply is used in continue at very low mode will not be considered to be defects in materials or workmanship in the supply under the HP Print Cartridge Warranty Statement.

Cleaning . . .

Description

The product periodically performs a cleaning procedure to maintain the best print quality.

Recommended action

Wait for the cleaning process to finish.

Cyan cartridge low

Description

The print cartridge is nearing the end of its useful life.

Recommended action

Printing can continue, but consider having a replacement supply on hand.

Cyan in wrong position

Description

The print cartridge is installed in the incorrect slot.

Recommended action

Make sure that each print cartridge is installed in the correct slot. From front to back, the print cartridges are installed in this order: black, cyan, magenta, and yellow.

Cyan very low

Description

The print cartridge is at the end of its useful life. A customer configurable option on this product is "Prompt to Remind Me in 100 pages, 200 pages, 300 pages, or never." This option is provided as a customer convenience and is not an indication these pages will have acceptable print quality.

Recommended action

To ensure optimal print quality, HP recommends replacing the print cartridge at this point. You can continue printing until you notice a decrease in print quality. Actual cartridge life may vary.

Once an HP supply has reached very low, HP's premium Protection Warranty on that supply has ended. All print defects or cartridge failures incurred when an HP supply is used in continue at very low

mode will not be considered to be defects in materials or workmanship in the supply under the HP Print Cartridge Warranty Statement.

Device error Press [OK]

Description

An internal error occurred.

Recommended action

Press the **OK** button to resume the job.

Front door open

Description

The product front door is open.

Recommended action

Close the door.

Genuine HP supply installed

Description

A genuine HP supply was installed.

Recommended action

No action necessary.

Incompatible <color>

Description

You have installed a print cartridge that is intended for use in a different HP product model. The product might not function correctly with this print cartridge installed.

Recommended action

Install the correct print cartridge for this product.

Incorrect supplies

Description

More than one print cartridge is installed in the incorrect slot.

Recommended action

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

Description

The print cartridge is either not installed or not correctly installed in the product.

Recommended action

Install the print cartridge.

Invalid driver Press [OK]

Description

You are using an incorrect printer driver.

Recommended action

Select the correct printer driver.

Jam in <location>

Description

The product has detected a jam.

Recommended action

Clear the jam from the location indicated. The job should continue to print. If it does not, try reprinting the job.

If the message persists, contact HP support.

Jam in tray # Clear jam and then Press [OK]

Description

The product has detected a jam.

Recommended action

Clear the jam from the location indicated, and then press **OK**.

If the message persists, contact HP support.

Load tray # <TYPE> <SIZE>

Description

A tray is configured for the paper type and size that the print job is requesting, but that tray is empty.

Recommended action

Load the correct paper into the tray, or press the **OK** button to use paper in a different tray.

Load tray 1 plain <SIZE> Cleaning Mode [OK] to start

Description

The product is ready to process the cleaning operation.

Recommended action

Load Tray 1 with plain paper in the size indicated, and then press the **OK** button.

Load tray <X> Press [OK] for available media

Description

The tray is empty.

Recommended action

Load paper into the tray to continue printing. Press the **OK** button to select a different tray.

Load tray 1 <TYPE> <SIZE>

Description

No trays are configured for the paper type and size that the print job is requesting.

Recommended action

Load the correct paper into Tray 1, or press **OK** to use paper in a different tray.

Magenta cartridge low

Description

The print cartridge is nearing the end of its useful life.

Recommended action

Printing can continue, but consider having a replacement supply on hand.

Magenta in wrong position

Description

The print cartridge is installed in the incorrect slot.

Recommended action

Make sure that each print cartridge is installed in the correct slot. From front to back, the print cartridges are installed in this order: black, cyan, magenta, and yellow.

Magenta very low

Description

The print cartridge is at the end of its useful life. A customer configurable option on this product is "Prompt to Remind Me in 100 pages, 200 pages, 300 pages, or never." This option is provided as a customer convenience and is not an indication these pages will have acceptable print quality.

Recommended action

To ensure optimal print quality, HP recommends replacing the print cartridge at this point. You can continue printing until you notice a decrease in print quality. Actual cartridge life may vary.

Once an HP supply has reached very low, HP's premium Protection Warranty on that supply has ended. All print defects or cartridge failures incurred when an HP supply is used in continue at very low mode will not be considered to be defects in materials or workmanship in the supply under the HP Print Cartridge Warranty Statement.

Manual duplex Load tray <X> Press [OK]

Description

The first side of a manual duplex job has printed, and the page needs to be loaded to process the second side.

Recommended action

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

Description

The product is set for manual feed mode.

Recommended action

Press the **OK** button to clear the message or load the correct paper into Tray 1.

Memory is low Press [OK]

Description

The product memory is almost full.

Recommended action

Press the **OK** button to finish the job, or press the Cancel **X** button to cancel the job.

Break the job into smaller jobs that contain fewer pages.

Misprint Press [OK]

Description

Paper has been delayed as it moves through the product.

Recommended action

Press the **OK** button to clear the message.

To avoid this problem, try the following solutions:

1. Adjust the paper guides in the tray. Make sure the front paper guide is pushing the paper against the back edge of the tray.
2. Use paper that meets HP specifications. Store paper unopened in its original packaging.
3. Use the product in an area that meets the environmental specifications for this product.

Print failure, press OK. If error repeats, turn off then on.

Description

The product cannot process the page.

Recommended action

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

Description

The product rear door is open.

Recommended action

Close the door.

Remove shipping lock from <color> cartridge

Description

A print cartridge shipping lock is installed.

Recommended action

Pull the orange tab to remove the shipping lock from the cartridge.

Remove shipping locks from cartridges

Description

A print cartridge shipping lock is installed on one or more print cartridges.

Recommended action

Pull the orange tab to remove the shipping lock from the cartridge.

Replace <color>**Description**

The print cartridge is at the end of its useful life, and the product is customer-configured to stop printing when it reaches the very low state.

Recommended action

To ensure optimal print quality, HP recommends replacing the print cartridge at this point. You can continue printing until you notice a decrease in print quality. Actual cartridge life may vary. Once an HP supply has reached very low, HP's premium Protection Warranty on that supply has ended. All print defects or cartridge failures incurred when an HP supply is used in continue at very low mode will not be considered to be defects in materials or workmanship in the supply under the HP Print Cartridge Warranty Statement.

Supplies low**Description**

More than one supply item is low.

Recommended action

Check the supply level gauges on the control panel, or print a supplies status page to determine which print cartridges are low.

Printing will continue until a Very Low message displays. Consider having replacement supplies on hand.

Unexpected size in tray # Load <size> Press [OK]**Description**

The product has detected paper in the tray that does not match the configuration for the tray.

Recommended action

Load the correct paper into the tray, or configure the tray for the size that you have loaded.

Unsupported <color> Press [OK] to continue**Description**

The product has detected a print cartridge that was not made by HP.

Recommended action

Press the **OK** button to continue printing.

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 unsupported supplies is not covered under HP warranty.

Used <color> in use

Description

You are using a print cartridge that reached the default low threshold while it was installed in a product.

Recommended action

Printing can continue, but consider having a replacement supply on hand.

Used <color> installed Press [OK] to continue

Description

You have installed a print cartridge that reached the default low threshold while it was installed in another product.

Recommended action

Press the OK button to continue.

Used supplies in use

Description

You are using more than one print cartridge that reached the default low threshold while it was installed in a product.

Recommended action

Printing can continue, but consider having replacement supplies on hand.

Yellow cartridge low

Description

The print cartridge is nearing the end of its useful life.

Recommended action

Printing can continue, but consider having a replacement supply on hand.

Yellow in wrong position

Description

The print cartridge is installed in the incorrect slot.

Recommended action

Make sure that each print cartridge is installed in the correct slot. From front to back, the print cartridges are installed in this order: black, cyan, magenta, and yellow.

Yellow very low

Description

The print cartridge is at the end of its useful life. A customer configurable option on this product is "Prompt to Remind Me in 100 pages, 200 pages, 300 pages, or never." This option is provided as a customer convenience and is not an indication these pages will have acceptable print quality.

Recommended action

To ensure optimal print quality, HP recommends replacing the print cartridge at this point. You can continue printing until you notice a decrease in print quality. Actual cartridge life may vary.

Once an HP supply has reached very low, HP's premium Protection Warranty on that supply has ended. All print defects or cartridge failures incurred when an HP supply is used in continue at very low mode will not be considered to be defects in materials or workmanship in the supply under the HP Print Cartridge Warranty Statement.

Event log messages

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

Table 2-7 Event-log messages

Error log code	Description
10.0000	Black e-label error
10.0001	Cyan e-label error
10.0002	Magenta e-label error
10.0003	Yellow e-label error
10.1000	Black e-label missing
10.1001	Cyan e-label missing
10.1002	Magenta e-label missing
10.1003	Yellow e-label missing
10.3000	Non-HP black
10.3001	Non-HP cyan
10.3002	Non-HP magenta
10.3003	Non-HP yellow
13.0000	Paper jam, Tray 1 area
13.0001	Paper jam, Tray 2 area
13.0003	Paper jam, registration drum area
13.0004	Paper jam, drum fuser area
13.0005	Paper jam, fuser output area
20.0000	Memory out
21.0000	Video under run
50.1000	Low temperature fuser error
50.2000	Slow fuser error
50.3000	High temperature fuser error
50.4000	Fuser heater wire failure
50.5000	Fuser low temperature subtherm failure
50.6000	Fuser high temperature subtherm failure
52.0000	Scanner error, black laser failure
52.0100	Scanner error, cyan laser failure
52.0200	Scanner error, magenta laser failure
52.0300	Scanner error, yellow laser failure

Table 2-7 Event-log messages (continued)

Error log code	Description
54.0600	Density sensor error
54.1000	Color plane registration sensor error
54.2800	Sensor density contaminated
54.2801	Sensor color plane registration contaminated
55.0000	Engine comm fatal error
55.0001	Engine comm critical error
55.1000	DC controller memory error
59.0000	ITB rotation failure
59.0001	ITB ramp up failure
101.0000	Color-plane registration error
102.0000	DMAX calibration error
103.0000	DHALF calibration error

Clear jams

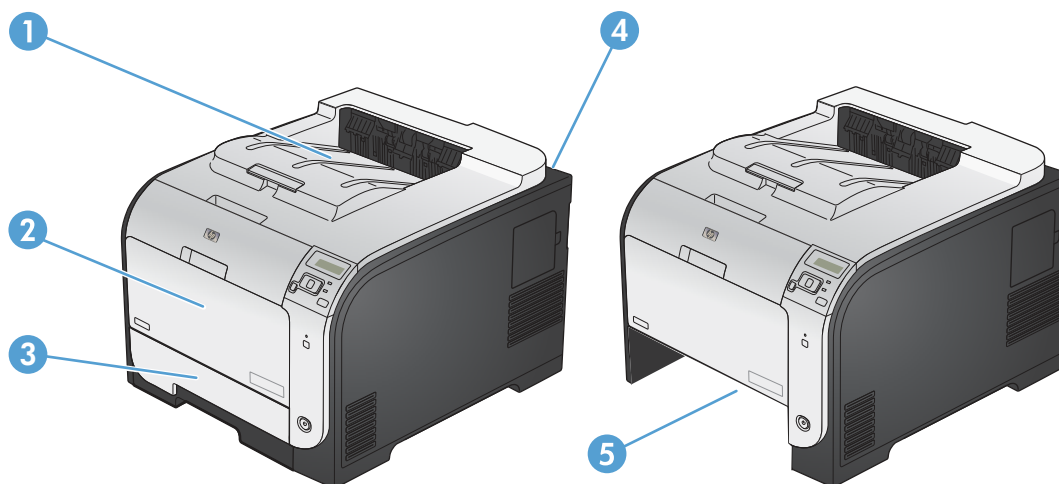
Common causes of jams

To reduce the number of paper jams, try these solutions.

1. Use only paper that meets HP specifications for this product.
2. Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.
3. Use paper that has not previously been printed or copied on.
4. Make sure the tray is not overfilled. If it is, remove the entire stack of paper from the tray, straighten the stack, and then return some of the paper to the tray.
5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides so they are touching the paper stack without bending it.
6. Make sure that the tray is fully inserted in the product.
7. If you are printing on heavy, embossed, or perforated paper, use the manual feed feature and feed sheets one at a time.

Jam locations

Use this illustration to find the locations of jams.

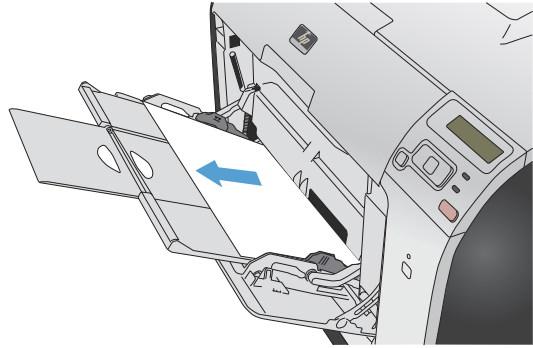


- | | |
|---|------------------------|
| 1 | Output bin |
| 2 | Tray 1 |
| 3 | Tray 2 |
| 4 | Fuser |
| 5 | Tray 2 jam-access area |

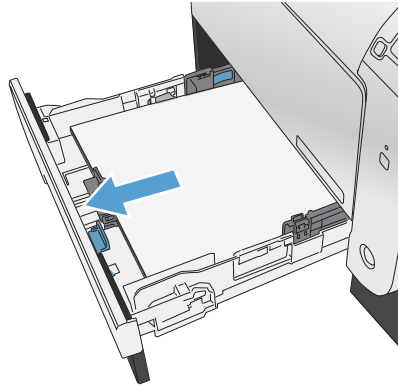
Clear jams in Tray 1

1. Pull the jammed sheet from Tray 1.

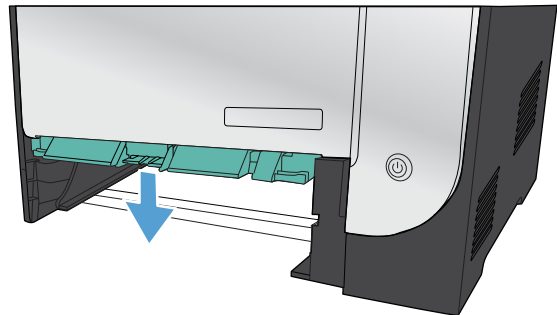
NOTE: If the sheet tears, make sure that all of the fragments are removed before you resume printing.



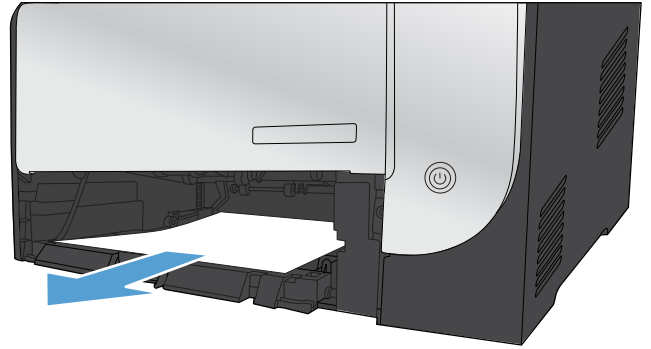
2. Pull out Tray 2 and place it on a flat surface.



3. Lower the jam-access tray.

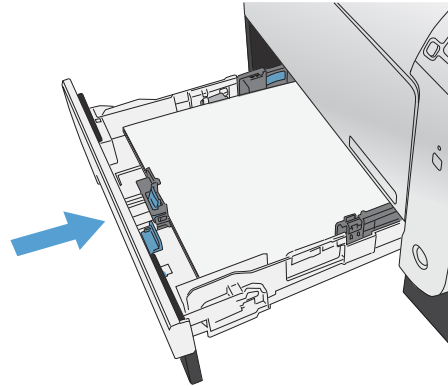


4. Remove the jammed sheet by pulling it straight out.



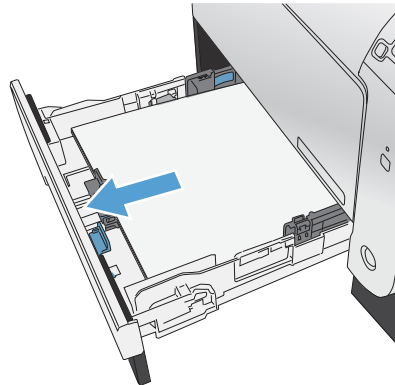
5. Push the jam-access tray up to close it, and then replace Tray 2.

NOTE: To close the tray, push in the middle or with even pressure on both sides. Avoid pushing on one side only.

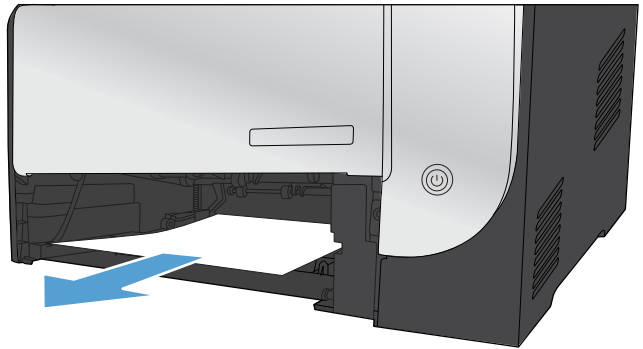


Clear jams in Tray 2

1. Open Tray 2.

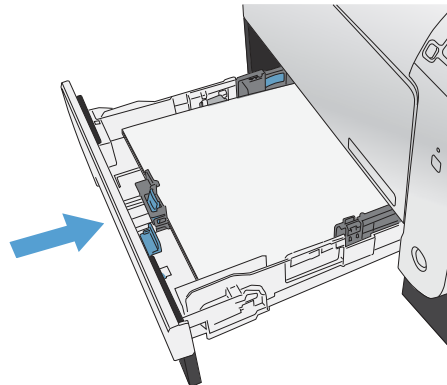


2. Remove the jammed sheet by pulling it straight out.



3. Close Tray 2.

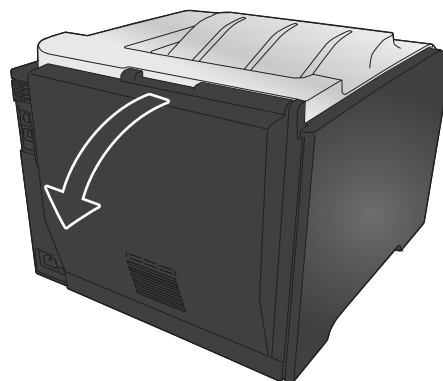
NOTE: To close the tray, push in the middle or with even pressure on both sides. Avoid pushing on one side only.



Clear jams in the fuser area

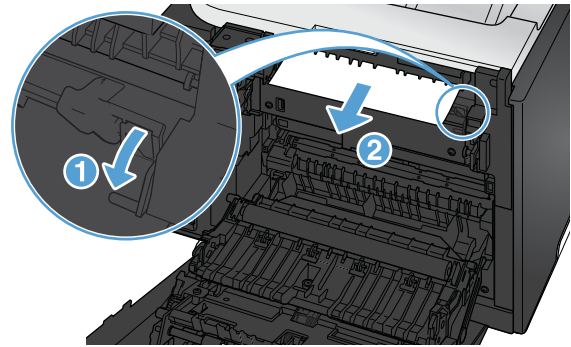
1. Open the rear door.

CAUTION: The fuser, located in the back of the product, is hot. Wait for the fuser to cool before continuing.

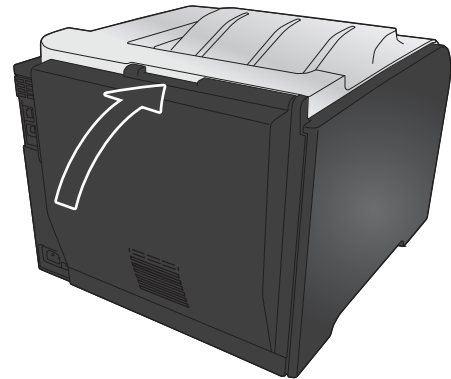


2. If necessary, push the guide (callout 1) and remove any visible paper (callout 2) from the bottom of the delivery area.

NOTE: If the sheet tears, make sure that all fragments are removed before you resume printing. Do not use sharp objects to remove fragments.



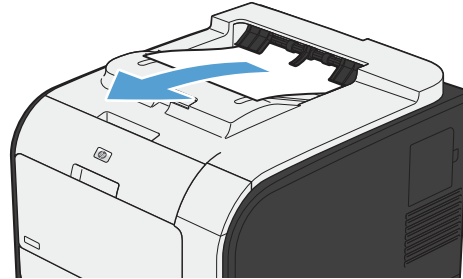
3. Close the rear door.



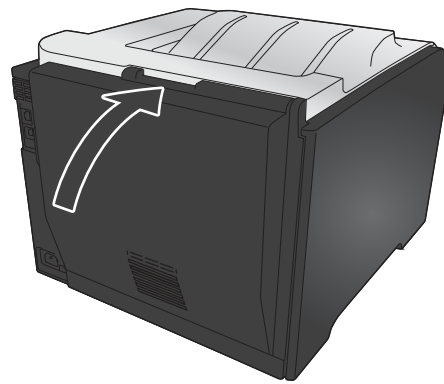
Clear jams in the output bin

1. Look for jammed paper in the output bin area.
2. Remove any visible media.

NOTE: If the sheet tears, make sure that all fragments are removed before resuming printing.



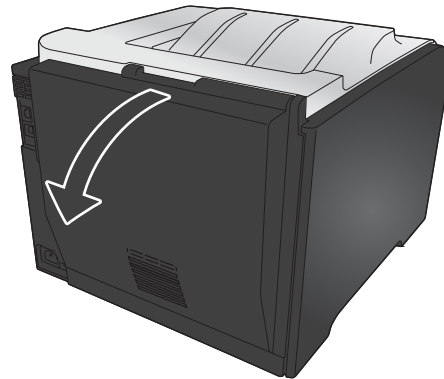
3. Open and then close the rear door to clear the message.



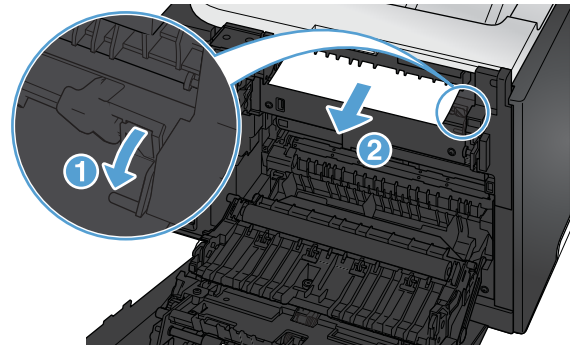
Clear jams in the duplexer (duplexing models only)

1. Open the rear door.

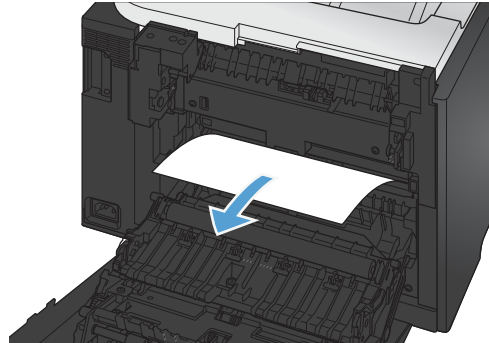
CAUTION: The fuser, located in the back of the product, is hot. Wait for the fuser to cool before continuing.



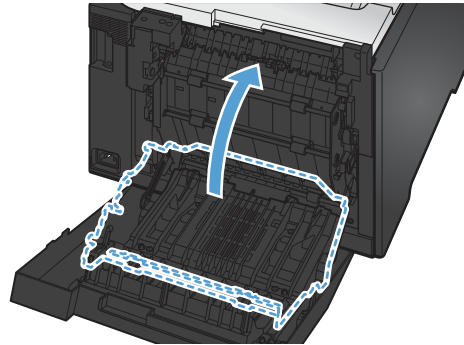
2. If necessary, pull the guide (callout 1) and remove any visible paper (callout 2) from the bottom of the delivery area.



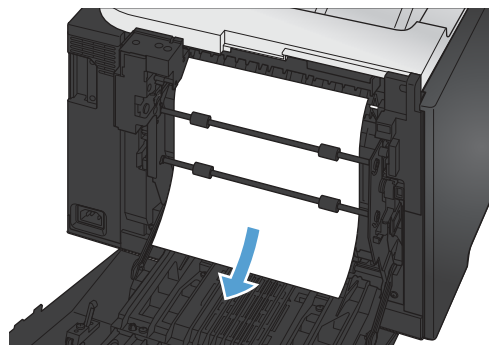
3. If necessary, remove any visible paper from bottom side of the duplexing unit.



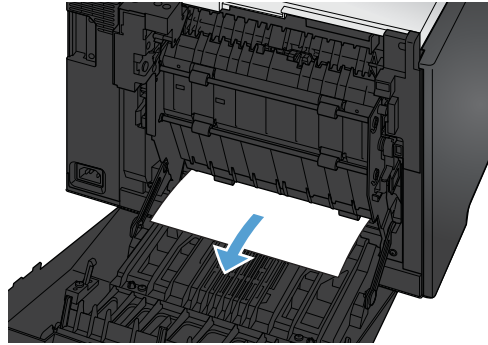
4. If you can not see any jammed paper, lift the duplexing unit using the tab on the side of the duplexing unit.



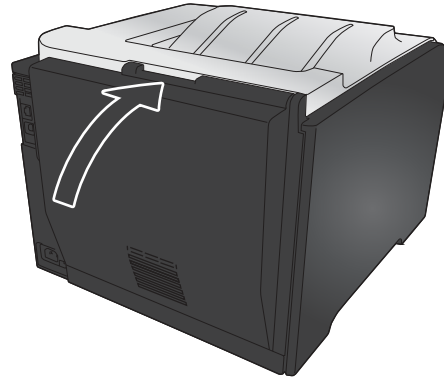
5. If you can see the trailing edge of the paper, remove the paper from the product.



6. If you can see the leading edge of the paper, remove it from the product.



7. Close the rear door.



Solve paper-handling problems

The product picks up multiple sheets of paper

If the product picks up multiple sheets of paper from the tray, try these solutions.

1. Remove the stack of paper from the tray and flex it, rotate it 180 degrees, and flip it over. *Do not fan the paper.* Return the stack of paper to the tray.
2. Use only paper that meets HP specifications for this product.
3. Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.
4. Make sure the tray is not overfilled. If it is, remove the entire stack of paper from the tray, straighten the stack, and then return some of the paper to the tray.
5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Align the guides with the paper-size markings in the bottom of the tray.

The product does not pick up paper

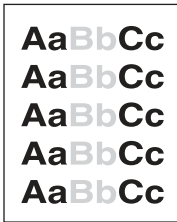
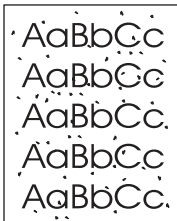

If the product does not pick up paper from the tray, try these solutions.

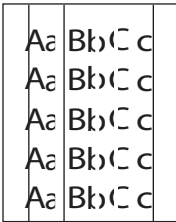


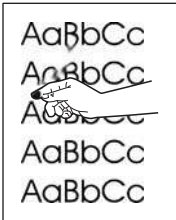
1. Open the product and remove any jammed sheets of paper.
2. Load the tray with the correct size of paper for your job.
3. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Align the guides with the paper-size markings in the bottom of the tray.
4. Check the product control panel to see if the product is waiting for you to acknowledge a prompt to feed the paper manually. Load paper, and continue.

Solve image-quality problems

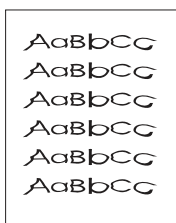
Print quality examples

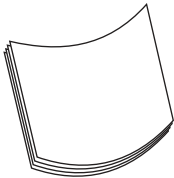
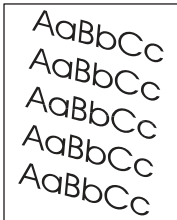
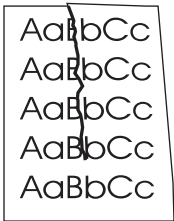
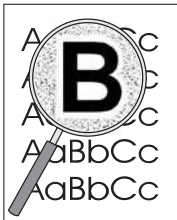
The following examples depict Letter-size paper that has passed through the product short-edge first. These examples illustrate problems that would affect all the pages that you print, whether you print in color or in black only. The topics that follow list the typical cause and solution for each of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


Problem	Cause	Solution
	The media might not meet HP specifications.	Use media that meets HP specifications.
	One or more toner cartridges might be defective.	Print the Supplies status page to check the remaining life. See the complete version of the English service manual.
		Replace any low toner cartridges.
	The product is set to override the Replace <Color> Cartridge message and to continue printing.	Replace any low toner cartridges.
	The print density settings might have been changed.	Set the print density setting to 0 .
	The product might need to be calibrated.	Run a calibration. See Calibrate the product on page 123 .
	The media might not meet HP specifications.	Use only media that meets HP specifications. See the complete version of the English service manual.
	The paper path might need cleaning.	Clean the paper path. See the complete version of the English service manual.
	One or more of the cartridges might be leaking.	Try to verify the color of the toner specks and check the cartridge for leaks.
	The cartridge waste tank might be overfilled.	Check for error code 10.98.XX in the event log. The XX portion of the code identifies the cartridge (00 is black, 01 is cyan, 02 is magenta, 03 is yellow). If the error was logged, replace the appropriate cartridge.
	A single sheet of print media might be defective.	Try reprinting the job.
	The moisture content of the paper is uneven or the paper has moist spots on its surface.	Try different paper, such as high-quality paper that is intended for color laser printers.
	The media is flawed. The media manufacturing processes can cause some areas to reject toner.	Try different paper, such as high-quality paper that is intended for color laser printers.

Problem	Cause	Solution
Vertical streaks or bands appear on the page. 	One or more toner cartridges might be defective.	Print the Supplies status page to check the remaining life. See the complete version of the English service manual. Use HP ToolboxFX. Replace any low toner cartridges.
	The product is set to override the Replace <Color> Cartridge message and to continue printing.	Replace any low toner cartridges.
The amount of background toner shading becomes unacceptable. 	Extreme dry (low humidity) conditions can increase the amount of background shading.	Check the device environment.
	The extended print mode setting is incorrect.	Try the print job again using the Transfer extended print mode, Dry paper setting.
	One or more toner cartridges might be defective.	Replace any low toner cartridges.
	The product is set to override the Replace <Color> Cartridge message and to continue printing.	Replace any low toner cartridges.
	Smooth media shows more background than plain media	Think about using rougher media.
Toner smears appear on the media. 	The media might not meet HP specifications.	Use only media that meets HP specifications. See the complete version of the English service manual.
	If toner smears appear on the leading edge of the paper, the media guides are dirty, or debris has accumulated in the print path.	Clean the media guides. Clean the paper path. See the complete version of the English service manual.
The toner smears easily when touched. 	The device is not set to print on the type of media on which you want to print.	In the printer driver, select the Paper tab and set Type is to match the type of media on which you are printing. Print speed might be slower if you are using heavy paper.
	The media might not meet HP specifications.	Use only media that meets HP specifications. See the complete version of the English service manual.
	The paper path might need cleaning.	Clean the paper path. See the complete version of the English service manual.

Problem	Cause	Solution
Marks repeatedly appear at even intervals on the printed side of the page.	The device is not set to print on the type of media on which you want to print.	In the printer driver, select the Paper tab and set Type is to match the type of paper on which you are printing. Print speed might be slower if you are using heavy paper.
	Internal parts might have toner on them.	The problem typically corrects itself after a few more pages.
	The paper path might need cleaning.	Clean the paper path. See the complete version of the English service manual.
	The fuser might be damaged or dirty.	To determine if the fuser has a problem, open HP ToolboxFX, and print the print-quality diagnostics page. Clean the paper path. See the complete version of the English service manual.
	A toner cartridge might have a problem.	To determine which cartridge has a problem, open HP ToolboxFX, and print the print-quality diagnostics page.
Marks repeatedly appear at even intervals on the unprinted side of the page.	Internal parts might have toner on them.	The problem typically corrects itself after a few more pages.
	The paper path might need cleaning.	Clean the paper path. See the complete version of the English service manual.
	The fuser might be damaged or dirty.	To determine if the fuser has a problem, open HP ToolboxFX and print the print-quality diagnostics page. Clean the paper path. See the complete version of the English service manual.
The printed page contains misformed characters.	The media might not meet HP specifications.	Use a different paper, such as high-quality paper that is intended for color laser printers.
	If characters are incorrectly formed so that they produce a wavy effect, the laser scanner might need service.	Verify that the problem also occurs on the configuration page.




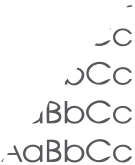
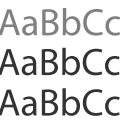


Problem	Cause	Solution
<p>The printed page is curled or wavy.</p> 	The device is not set to print on the type of media on which you want to print.	In the printer driver, select the Paper tab and set Type is to match the type of paper on which you are printing. Print speed might be slower if you are using heavy paper.
	The Service menu item Less Paper Curl is set to Off .	Use the control-panel menus to change the setting. See the complete version of the English service manual.
	The media might not meet HP specifications.	Use a different paper, such as high-quality paper that is intended for color laser printers.
	Both high temperature and humidity can cause paper curl.	Check the device environment.
<p>Text or graphics are skewed on the printed page.</p> 	The media might be loaded incorrectly.	Ensure that the paper or other print media is loaded correctly and that the media guides are not too tight or too loose against the stack. See the complete version of the English service manual.
	The media might not meet HP specifications.	Use a different paper, such as high-quality paper that is intended for color laser printers.
<p>The printed page contains wrinkles or creases.</p> 	The media might be loaded incorrectly.	Verify that the media is loaded correctly and that the media guides are not too tight or too loose against the stack. See the complete version of the English service manual. Turn over the stack of paper in the input tray, or try rotating the paper 180° in the input tray.
	The media might not meet HP specifications.	Use a different paper, such as high-quality paper that is intended for color laser printers.
<p>Toner appears around the printed characters.</p> 	The media might be loaded incorrectly.	Turn over the stack of paper in the tray.
	If large amounts of toner have scattered around the characters, the paper might have high resistivity.	Use a different paper, such as high-quality paper that is intended for color laser printers.

Problem	Cause	Solution
<p>An image that appears at the top of the page (in solid black) repeats farther down the page (in a gray field).</p> 	Software settings might affect image printing.	<p>In your software program, change the tone (darkness) of the field in which the repeated image appears.</p> <p>In your software program, rotate the whole page 180° to print the lighter image first.</p>
	The order of images printed might affect printing.	Change the order in which the images are printed. For example, have the lighter image at the top of the page, and the darker image farther down the page.
	A power surge might have affected the device.	If the defect occurs later in a print job, turn the device off for 10 minutes, and then turn on the device to restart the print job.
		Use non-glossy media to help reduce the severity of the defect

Color image defects

This section describes issues that can occur when you print in color.


Problem	Cause	Solution
<p>Only black is printing when the document should be printing in color.</p> 	Color mode is not selected in your program or printer driver.	Select color mode instead of grayscale mode.
	The correct printer driver might not be selected in the program.	Select the correct printer driver.
	The device might not be correctly configured.	Print a configuration page (see the complete version of the English service manual.) to check whether color appears on the configuration page.
	The color supply is out and the Color Supply Out menu setting is set to Continue Black .	Replace the color supply.


Problem	Cause	Solution
<p>One or more colors are not printing, or are inaccurate.</p> 	Sealing tape might be on the toner cartridges.	Verify that the sealing tape has been completely removed from the toner cartridges.
	The media might not meet HP specifications.	Use a different paper, such as high-quality paper that is intended for color laser printers.
	The device might be operating in excessively humid conditions.	Verify that the device environment is within humidity specifications.
	One or more toner cartridges might be defective.	Replace any low toner cartridges.
	The product is set to override the Replace <Color> Cartridge message and to continue printing.	Replace any low toner cartridges.
	One or more of the cartridges might not have been engaged properly by the print engine.	Remove and reinstall the cartridges.
<p>A color is printing inconsistently after you load a new toner cartridge.</p> 	Another toner cartridge might be defective.	Remove the toner cartridge for the color that is printing inconsistently and reinstall it.
	The product is set to override the Replace <Color> Cartridge message and to continue printing.	Replace any low toner cartridges.
<p>The colors on the printed page do not match the colors as they appear on the screen.</p> 	The colors on your computer monitor might differ from the device output.	See the product user guide.
	If extremely light colors or extremely dark colors on-screen are not printing, your software program might interpret extremely light colors as white or extremely dark colors as black.	If possible, avoid using extremely light or extremely dark colors.
	The media might not meet HP specifications.	Use a different paper, such as high-quality paper that is intended for color laser printers.
<p>The finish on the printed color page is inconsistent.</p> 	The media might be too rough.	Use a smooth paper or print media, such as a high-quality paper that is made for color laser printers. Generally, smoother media produces better the results.

Clean the product

Clean the pickup and separation rollers

1. Turn off the product, unplug the power cord from the product, and then remove the rollers.
2. Dab a lint-free cloth in isopropyl alcohol, and then scrub the roller.

 **WARNING!** Alcohol is flammable. Keep the alcohol and cloth away from an open flame. Before you close the product and plug in the power cord, allow the alcohol to dry completely.


 **NOTE:** In certain areas of California (USA), air pollution control regulations restrict the use of liquid isopropyl alcohol (IPA) as a cleaning agent. In those areas of California, please disregard the previous recommendations and use a dry, lint free cloth, moistened with water, to clean the pickup roller.

3. Use a dry, lint free cloth, to wipe the rollers and remove loose dirt.

Clean the paper path

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.

1. At the control panel, press the **OK** button to open the menus.
2. Open the following menus:
 - **Service**
 - **Cleaning Page**
3. 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.

 **NOTE:** For models that do not have an automatic duplexer, the product prints the first side and then prompts you to remove the page from the output bin and reload it in Tray 1, keeping the same orientation.

Solve performance problems

Factors affecting print performance

Problem	Cause	Solution
Pages print but, are totally blank.	The sealing tape might still be in the toner cartridges.	Verify that the sealing tape has been completely removed from the toner 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. NOTE: The product print speed is effected by various factors (for example, media size or page complexity).	Heavier media types can slow the print job.	Print on a different type of media.
	Complex pages can print slowly.	Proper fusing might 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.	Ensure 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 device.	Clear the jam.
	The USB cable might be defective or incorrectly connected.	<ul style="list-style-type: none">• 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.

Print speeds

Print speed is the number of pages that print in one minute. Print speed depends on different engine-process speeds or operational pauses between printed pages during normal product operation. Factors that determine the print speed of the product include the following:

- Page formatting time

The product must pause for each page to be formatted before it prints. Complex pages take more time to format, resulting in reduced print speed. However, most jobs print at full engine speed (21 ppm on Letter-size media or 20 ppm on A4-size media).

- Color mode

Monochrome printing (black only) provides the maximum print speed. Full color print jobs cause a reduction in print speed.

- Media size

Legal-size media reduces print speed because it is longer than the standard Letter- or A4-size media. A reduce print speed is used when printing on narrow media to prevent the edges of the fuser from overheating.

- Media mode

Some media types require a reduced print speed to achieve maximum print quality on that media. For example, glossy, heavy, and specialty media (for example, envelopes or photos) require a reduced print speed. To maximize the print speed for special media types, ensure that you select the correct media type in the print driver.

- Product temperature

To prevent product damage, print speed is reduced if the product reaches a specific internal temperature (thermal slow down). The starting temperature of the product, ambient environment temperature, and the print job size effect the number of pages that can be printed before the product reduces the print speed. Thermal slow down reduces print speed by printing four pages and then pausing for an amount of time before printing continues.

- Other print speed reduction factors

Other factors (especially during large print jobs) that can cause reduced print speeds include:

- ITB cleaning and lubrication; occurs every 50 to 80 pages and takes about 60 seconds.
- CPR control sequence; occurs every 450 pages and takes about 90 seconds.
- Density control sequence; occurs every 150 pages and takes about 120 seconds.

The product does not print or it prints slowly

The product does not print

If the product does not print at all, try the following solutions.

1. Make sure the product is turned on and that the control panel indicates it is ready.
 - If the control panel does not indicate the product is ready, turn the product off and then on again.
 - If the control panel indicates the product is ready, try sending the job again.
2. If the control panel indicates the product has an error, resolve the error and then try sending the job again.
3. Make sure the cables are all connected correctly. If the product is connected to a network, check the following items:
 - Check the light next to the network connection on the product. If the network is active, the light is green.
 - Make sure that you are using a network cable and not a phone cord to connect to the network.
 - Make sure the network router, hub, or switch is turned on and that it is working correctly.
4. Install the HP software from the CD that came with the product. Using generic printer drivers can cause delays clearing jobs from the print queue.
5. From the list of printers on your computer, right-click the name of this product, click **Properties**, and open the **Ports** tab.
 - If you are using a network cable to connect to the network, make sure the printer name listed on the **Ports** tab matches the product name on the product configuration page.
 - If you are using a USB cable and are connecting to a wireless network, make sure the box is checked next to **Virtual printer port for USB**.
6. If you are using a personal firewall system on the computer, it might be blocking communication with the product. Try temporarily disabling the firewall to see if it is the source of the problem.
7. If your computer or the product is connected to a wireless network, low signal quality or interference might be delaying print jobs.

The product prints slowly

If the product prints, but it seems slow, try the following solutions.

1. Make sure the computer meets the minimum specifications for this product. For a list of specifications, go to this Web site: www.hp.com/support/LJColorM351 or www.hp.com/support/LJColorM451.
2. When you configure the product to print on some paper types, such as heavy paper, the product prints more slowly so it can correctly fuse the toner to the paper. If the paper type setting is not correct for the type of paper you are using, change the setting to the correct paper type.
3. If your computer or the product is connected to a wireless network, low signal quality or interference might be delaying print jobs.

Solve product 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 5 m (16.4 ft). Try using a shorter cable.
- Verify that the cable is working correctly by connecting it to another product. Replace the cable if necessary.

Solve network problems

Check the following items to verify that the product is communicating with the network. Before beginning, print a configuration page from the product control panel and locate the product IP address that is listed on this page.

- [Poor physical connection](#)
- [The computer is using the incorrect IP address for the product](#)
- [The computer is unable to communicate with the product](#)
- [The product is using incorrect link and duplex settings for the network](#)
- [New software programs might be causing compatibility problems](#)
- [The computer or workstation might be set up incorrectly](#)
- [The product is disabled, or other network settings are incorrect](#)

Poor physical connection

1. Verify that the product is attached to the correct network port using a cable of the correct length.
2. Verify that cable connections are secure.
3. Look at the network port connection on the back of the product, and verify that the amber activity light and the green link-status light are lit.
4. If the problem continues, try a different cable or port on the hub.

The computer is using the incorrect IP address for the product

1. Open the printer properties and click the **Ports** tab. Verify that the current IP address for the product is selected. The product IP address is listed on the product configuration page.
2. If you installed the product using the HP standard TCP/IP port, select the box labeled **Always print to this printer, even if its IP address changes**.

3. If you installed the product using a Microsoft standard TCP/IP port, use the hostname instead of the IP address.
4. If the IP address is correct, delete the product and then add it again.

The computer is unable to communicate with the product

1. Test network communication by pinging the network.
 - a. Open a command-line prompt on your computer. For Windows, click **Start**, click **Run**, and then type `cmd`.
 - b. Type `ping` followed by the IP address for your product.
 - c. If the window displays round-trip times, the network is working.
2. If the ping command failed, verify that the network hubs are on, and then verify that the network settings, the product, and the computer are all configured for the same network.

The product is using incorrect link and duplex settings for the network

Hewlett-Packard recommends leaving this setting in automatic mode (the default setting). If you change these settings, you must also change them for your network.

New software programs might be causing compatibility problems

Verify that any new software programs are correctly installed and that they use the correct printer driver.

The computer or workstation might be set up incorrectly

1. Check the network drivers, printer drivers, and the network redirection.
2. Verify that the operating system is configured correctly.

The product is disabled, or other network settings are incorrect

1. Review the configuration page to check the status of the network protocol. Enable it if necessary.
2. Reconfigure the network settings if necessary.

Solve wireless network problems

- [Wireless connectivity checklist](#)
- [The control panel displays the message: The wireless feature on this product has been turned off](#)
- [The product does not print after the wireless configuration completes](#)
- [The product does not print, and the computer has a third-party firewall installed](#)
- [The wireless connection does not work after moving the wireless router or product](#)
- [Cannot connect more computers to the wireless product](#)
- [The wireless product loses communication when connected to a VPN](#)
- [The network does not appear in the wireless networks list](#)
- [The wireless network is not functioning](#)

Wireless connectivity checklist

- The product and the wireless router are turned on and have power. Also make sure the wireless radio in the product is turned on.
- The service set identifier (SSID) is correct. Print a configuration page to determine the SSID. If you are not sure the SSID is correct, run the wireless setup again.
- With secured networks, make sure the security information is correct. If the security information is incorrect, run the wireless setup again.
- If the wireless network is working correctly, try accessing other computers on the wireless network. If the network has Internet access, try connecting to the Internet over a wireless connection.
- The encryption method (AES or TKIP) is the same for the product as it is for the wireless access point (on networks using WPA security).
- The product is within the range of the wireless network. For most networks, the product must be within 30 m (100 ft) of the wireless access point (wireless router).
- Obstacles do not block the wireless signal. Remove any large metal objects between the access point and the product. Make sure poles, walls, or support columns containing metal or concrete do not separate the product and wireless access point.
- The product is located away from electronic devices that might interfere with the wireless signal. Many devices can interfere with the wireless signal including motors, cordless phones, security system cameras, other wireless networks, and some Bluetooth devices.
- The printer driver is installed on the computer.
- You have selected the correct printer port.
- The computer and product connect to the same wireless network.

The control panel displays the message: The wireless feature on this product has been turned off

- ▲ Press the wireless button on the product to open the Wireless menu, and then turn the wireless radio on.

The product does not print after the wireless configuration completes

1. Make sure the product is turned on and in the ready state.
2. Make sure you are connecting to the correct wireless network.
3. Make sure that the wireless network is working correctly.
 - a. Open the **Network configuration** menu, and then open the **Wireless Menu** item.
 - b. Select the **Network Test** item to test the wireless network. The product prints a report with the results.
4. Make sure that the correct port or product is selected.
 - a. From the list of printers on your computer, right-click the name of this product, click **Properties**, and then open the **Ports** tab.
 - b. Make sure the box is checked next to **Virtual printer port for USB**.
5. Make sure that your computer is working correctly. If necessary, restart your computer.

The product does not print, and the computer has a third-party firewall installed

1. Update the firewall with the most recent update available from the manufacturer.
2. If programs request firewall access when you install the product or try to print, make sure you allow the programs to run.
3. Temporarily turn off the firewall, and then install the wireless product on the computer. Enable the firewall when you have completed the wireless installation.

The wireless connection does not work after moving the wireless router or product

Make sure that the router or product connects to the same network that your computer connects to.

1. Open the **Reports** menu, and select the **Configuration Report** item to print the report.
2. Compare the service set identifier (SSID) on the configuration report to the SSID in the printer configuration for your computer.
3. If the SSIDs are not the same, the devices are not connecting to the same network. Reconfigure the wireless setup for your product.

Cannot connect more computers to the wireless product

1. Make sure that the other computers are within the wireless range and that no obstacles block the signal. For most networks, the wireless range is within 30 m (100 ft) of the wireless access point.
2. Make sure the product is turned on and in the ready state.
3. Turn off any third-party firewalls on your computer.
4. Make sure that the wireless network is working correctly.
 - a. On the product control panel, open the **Network configuration** menu, and then open the **Wireless Menu** item.
 - b. Select the **Network Test** item to test the wireless network. The product prints a report with the results.
5. Make sure that the correct port or product is selected.
 - a. From the list of printers on your computer, right-click the name of this product, click **Properties**, and then open the **Ports** tab.
 - b. Click the **Configure Port** button to verify that the IP address matches the IP address listed on the Run Network Test report.
6. Make sure that your computer is working correctly. If necessary, restart your computer.

The wireless product loses communication when connected to a VPN

- Typically, you cannot connect to a VPN and other networks at the same time.

The network does not appear in the wireless networks list

- Make sure the wireless router is turned on and has power.
- The network might be hidden. However, you can still connect to a hidden network.

The wireless network is not functioning

1. To verify if the network has lost communication, try connecting other devices to the network.
2. Test network communication by pinging the network.
 - a. Open a command-line prompt on your computer. For Windows, click **Start**, click **Run**, and then type `cmd`.
 - b. Type `ping` followed by the service set identifier (SSID) for your network.
 - c. If the window displays round-trip times, the network is working.
3. Make sure that the router or product connects to the same network that your computer connects to.
 - a. Open the **Reports** menu, and select the **Configuration Report** item to print the report.
 - b. Compare the service set identifier (SSID) on the configuration report to the SSID in the printer configuration for your computer.
 - c. If the SSIDs are not the same, the devices are not connecting to the same network. Reconfigure the wireless setup for your product.

Service mode functions

Service menu

Use this menu to restore default settings, clean the product, and activate special modes that affect print output. Items that have asterisks (*) indicate the factory default setting.

Menu item	Sub-menu item	Description
Cleaning Page		<p>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.</p> <p>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.</p> <p>NOTE: For models that do not have an automatic duplexer, the product prints the first side and then prompts you to remove the page from the output bin and reload it in Tray 1, keeping the same orientation.</p>
USB Speed	High* 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.
Less Paper Curl	On Off*	If printed pages are consistently curled, use this option to set the product to a mode that reduces curl.
Archive Print	On Off*	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.
Firmware Date		Displays the current firmware datecode.
Restore Defaults		Sets all customized menu settings to the factory default values.
HP Smart Install	On* Off	<p>Enable or disable the HP Smart Install tool.</p> <p>Disable the tool if you want to connect to a network by using an Ethernet cable.</p>

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. Make sure that 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 2-8 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	<p>This item sets certain product parameters that are dependent on the location, such as the default paper size and the symbol set.</p> <p>Scroll to the desired location, and select Yes to set the location. The product automatically restarts after you change the location.</p>
Display test		<p>Use this test to verify that the LEDs and characters on the control-panel display function correctly.</p> <p>At the beginning of the test, each of the LEDs illuminates one-at-time. Press OK to continue to the next LED.</p> <p>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 X.</p>
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.
Enter MAC Addr.		Use this item to specify the MAC address for the product. The MAC address is in hexadecimal code. Use the Right arrow ▶ button to scroll through the possible values for each character. When a digit is correct, press OK to move to the next digit.


Product resets

Restore 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 the **OK** button.
3. Use the **Left arrow** ◀ or the **Right arrow** ▶ button to select **Restore defaults**, and then press the **OK** button.

The product automatically restarts.

NVRAM initialization

 **CAUTION:** All HP Jetdirect 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 Jetdirect 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 **Cancel** 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.

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 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.

Product updates

Software and firmware updates and installation instructions for this product are available at www.hp.com/support/LJColorM351 or www.hp.com/support/LJColorM451. Click **Support & Drivers**, click the operating system, and then select the download for the product.

3 Parts and diagrams

- [Order parts by authorized service providers](#)
- [How to use the parts lists and diagrams](#)
- [Covers](#)
- [Internal assemblies](#)
- [Input device\(s\)](#)
- [Alphabetical parts list](#)
- [Numerical parts list](#)

Order parts by authorized service providers

Orderable parts

Table 3-1 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.

Whole unit replacement

Table 3-2 Pro 300 Color M351a

Part number	Description
CE955-69056	Prod-Exchange 220V M351nw WUR EMEA
CE955-69001	Prod-Exchange 220V M351nw WUR AP
CE955-67057	Prod-New 220V M351nw WUR CN

Table 3-3 Pro 400 Color MFP M451dn

Part number	Description
CE957-69056	Prod-Exchange 220V M451dn WUR EMEA
CE957-69001	Prod-Exchange 220V M451dn WUR AP
CE957-69055	Prod-Exchange 110V M451dn WUR WW
CE957-67057	Prod-New 220V M451dn WUR CN

Table 3-4 Pro 400 ColorMFP M451nw

Part number	Description
CE956-69056	Prod-Exchange 220V M451 nw WUR EMEA
CE956-69001	Prod-Exchange 220V M451nw WUR AP
CE956-69055	Prod-Exchange 110V M451nw WUR WW
CE956-67057	Prod-New 220V M451nw WUR CN

Table 3-5 Pro 400 ColorMFP M451dw

Part number	Description
CE958-69056	Prod-Exchange 220V M451dw WUR EMEA

Table 3-5 Pro 400 ColorMFP M451dw (continued)

Part number	Description
CE958-69001	Prod-Exchange 220V M451dw WUR AP
CE958-69055	Prod-Exchange 110V M451dw WUR WW
CE958-67057	Prod-New 220V M451dw WUR CN

Related documentation and software

Table 3-6 Related documentation and software

Item	Description	Part number
<i>HP LaserJet Pro 300 Color HP LaserJet Pro 400 Color User Guide</i>	Product user guide.	CE955-90907
<i>HP LaserJet Pro 300 Color HP LaserJet Pro 400 Color Service Manual</i>	English service manual (this manual)	CE955-90964

Supplies and accessories

Item	Part number	Cartridge number	Description
Print cartridges	CE410-67901	305A	Standard-capacity black print cartridge with HP ColorSphere toner
	CE410-67902	305X	High-capacity black print cartridge with HP ColorSphere toner
	CE411-67901	305A	Cyan print cartridge with HP ColorSphere toner
	CE412-67901	305A	Yellow print cartridge with HP ColorSphere toner
	CE413-67901	305A	Magenta print cartridge with HP ColorSphere toner
Memory	CB423A		256 MB memory DIMM
Paper-handling accessories	CF106A		250-sheet paper feeder (optional Tray 3)
USB cable	8121-0868		2-meter A-to-B cable



NOTE: For information about the yield for the cartridges, see www.hp.com/go/pageyield. Actual yield depends on specific use.

Service parts





NOTE: The parts in the following table are not shown in the assembly illustrations in this chapter.

Item	Description	Part number
Regulatory label	Blank label	5969-9497

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 part number, and a description of each part. If a part is not listed in the table, 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 listed in the description column. Doing so ensures that the part number selected is correct for the product.

 **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.

Covers

Figure 3-1 Covers, panels, and doors

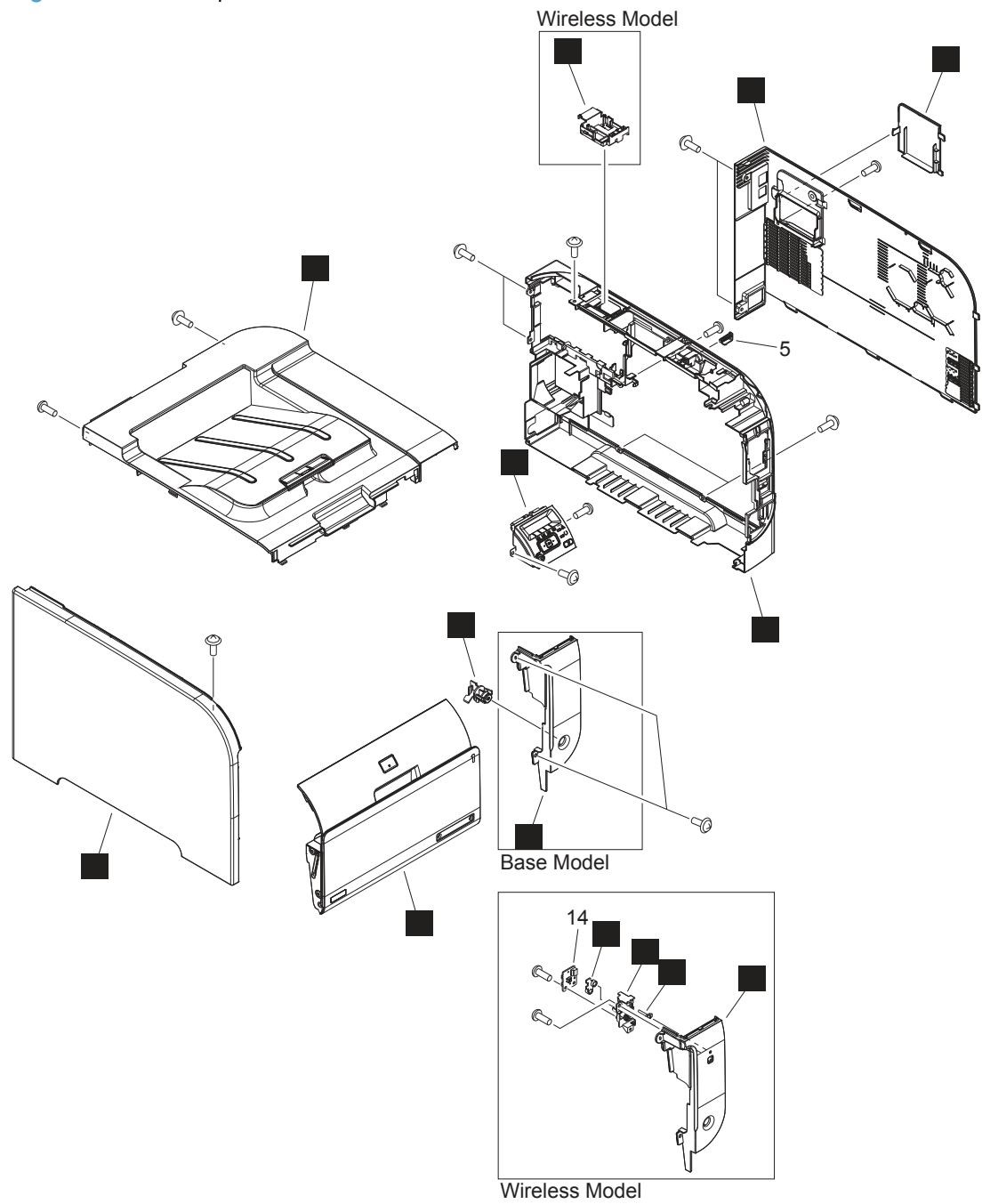


Table 3-7 Covers^{1,2}

Ref	Description	Part number	Qty
1	Cover, left	RC3-1667-000	1
2	Cover, top assembly	RM1-8044-000	1
3	Cover, DIMM	RC3-1671-000	1
4	Panel, right	RC3-1689-000	1
6	Cover, right	RC3-1694-000	1
7	Control-panel assembly	RM1-8040-000	1
8	Cover, right-front (wireless models)	RM2-0191-000	1
9	Cover, right-front (base model)	RC3-1692-000	1
10	Door, front assembly	RM1-8604-000	1
11	Pipe, light (wireless models)	RC3-0766-000	1
12	Guide, button (wireless models)	RC3-1025-000	1
13	Base, button (wireless models)	RC3-1684-000	1
15	Holder, wireless module (wireless models)	RC3-1683-000	1

¹ For simplex products, the rear cover and the rear door are shown in [Figure 3-7 Internal assemblies \(simplex models\) on page 194](#).

² For duplex products, the upper-rear cover, lower-rear cover, and the rear door are shown in [Figure 3-8 Internal assemblies \(duplex models\) on page 196](#).

Internal assemblies

Internal assemblies (1 of 5)

Figure 3-2 Internal assemblies (1 of 7)

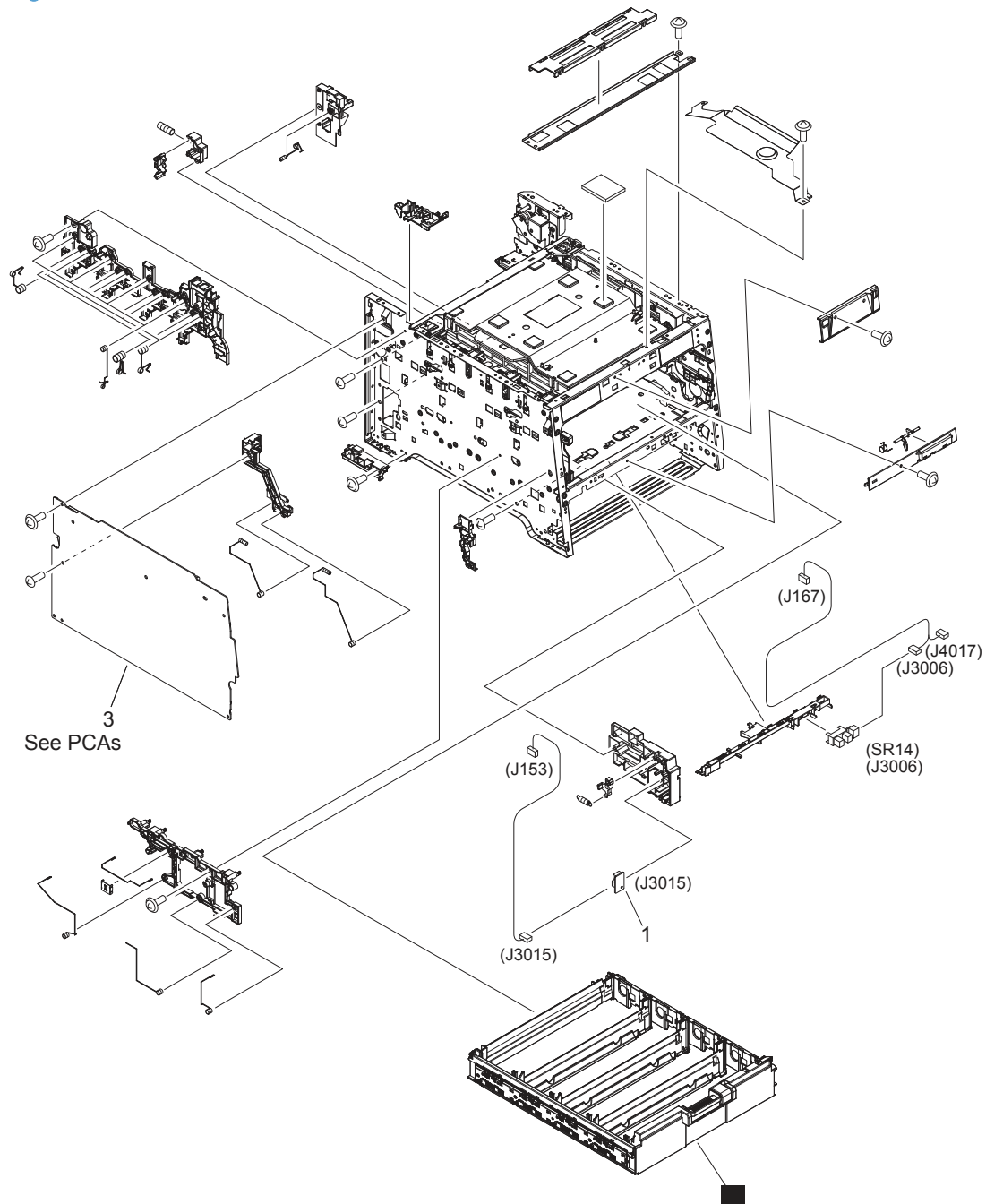


Table 3-8 Internal assemblies (1 of 7)

Ref	Description	Part number	Qty
1	Cartridge-tray assembly	RM1-8041-000	1

Internal assemblies (2 of 5)

Figure 3-3 Internal assemblies (2 of 7)

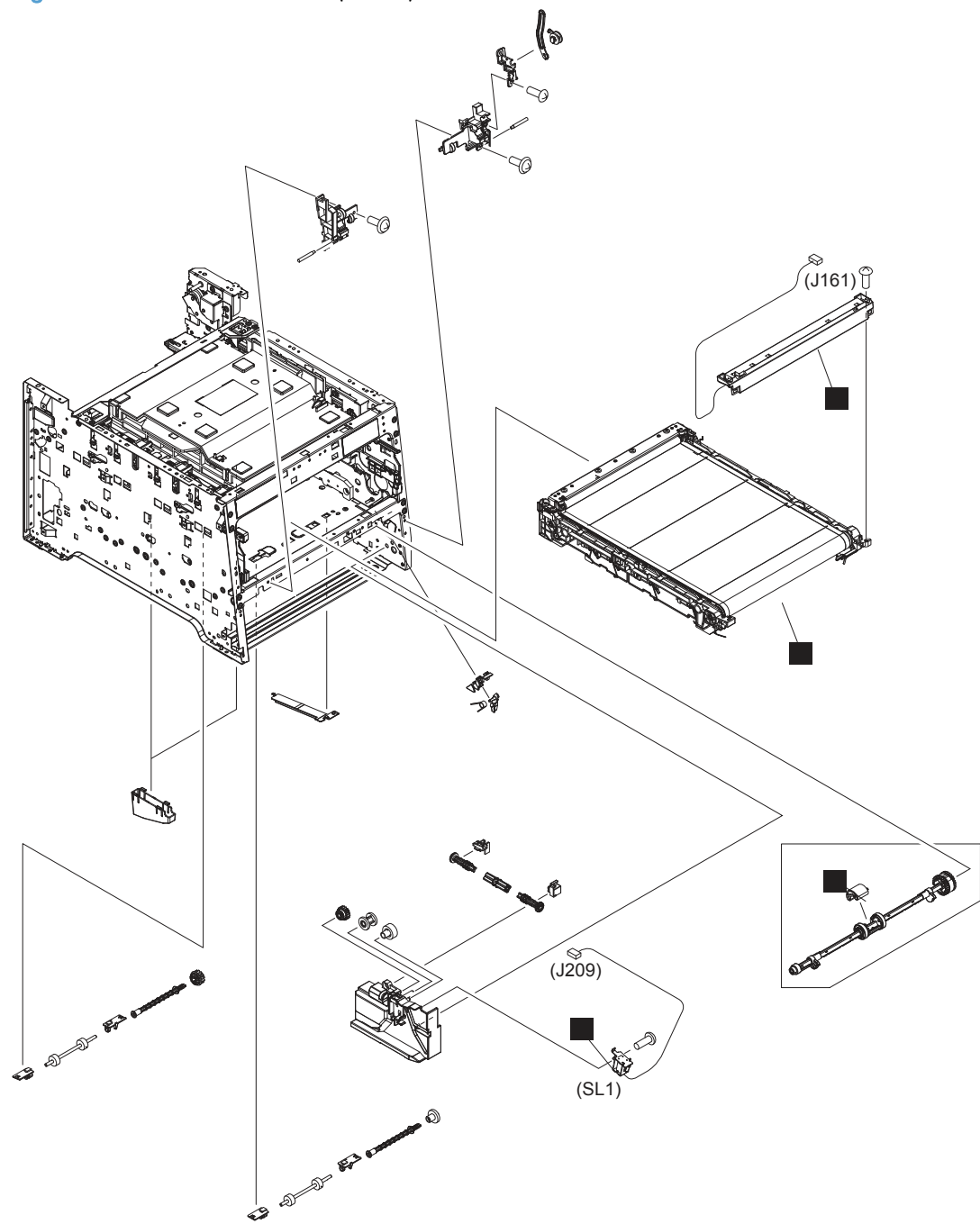


Table 3-9 Internal assemblies (2 of 7)

Ref	Description	Part number	Qty
1	Solenoid, Tray 1 (SL1; MP tray)	RM1-5420-000	1
2	Color misregistration sensor assembly	RM1-8029-000	1
3	Intermediate transfer belt (ITB)	RM1-4852-000	1
4	Roller, paper-pickup Tray 1	RL1-1802-000	1

Internal components (3 of 5)

Figure 3-4 Internal assemblies (3 of 7)

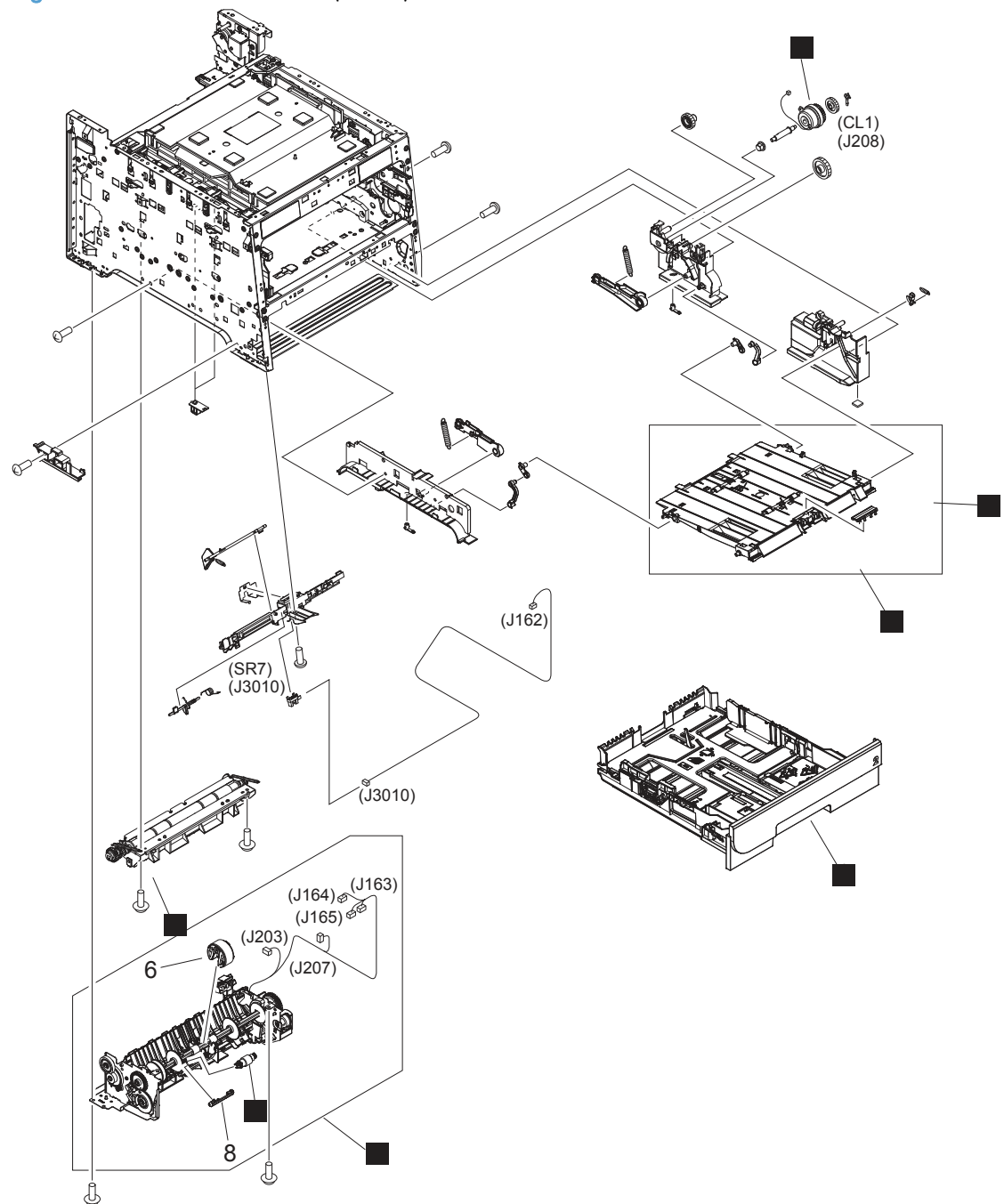


Table 3-10 Internal assemblies (3 of 7)

Ref	Description	Part number	Qty
1	Cassette, Tray 2	RM1-8056-000	1
2	Clutch assembly Tray 1 (MP tray)	RM1-8318-000	1
3	Pad, separation Tray 1	RL1-1785-000	1
4	Registration assembly	RM1-4841-000	1
5	Pickup roller assembly	RM1-8047-000	1
7	Separation roller assembly	RM1-4840-000	1
9	Tray 1 assembly (MP tray)	RM1-8610-000	1

Internal assemblies (4 of 5)

Figure 3-5 Internal assemblies (4 of 7)

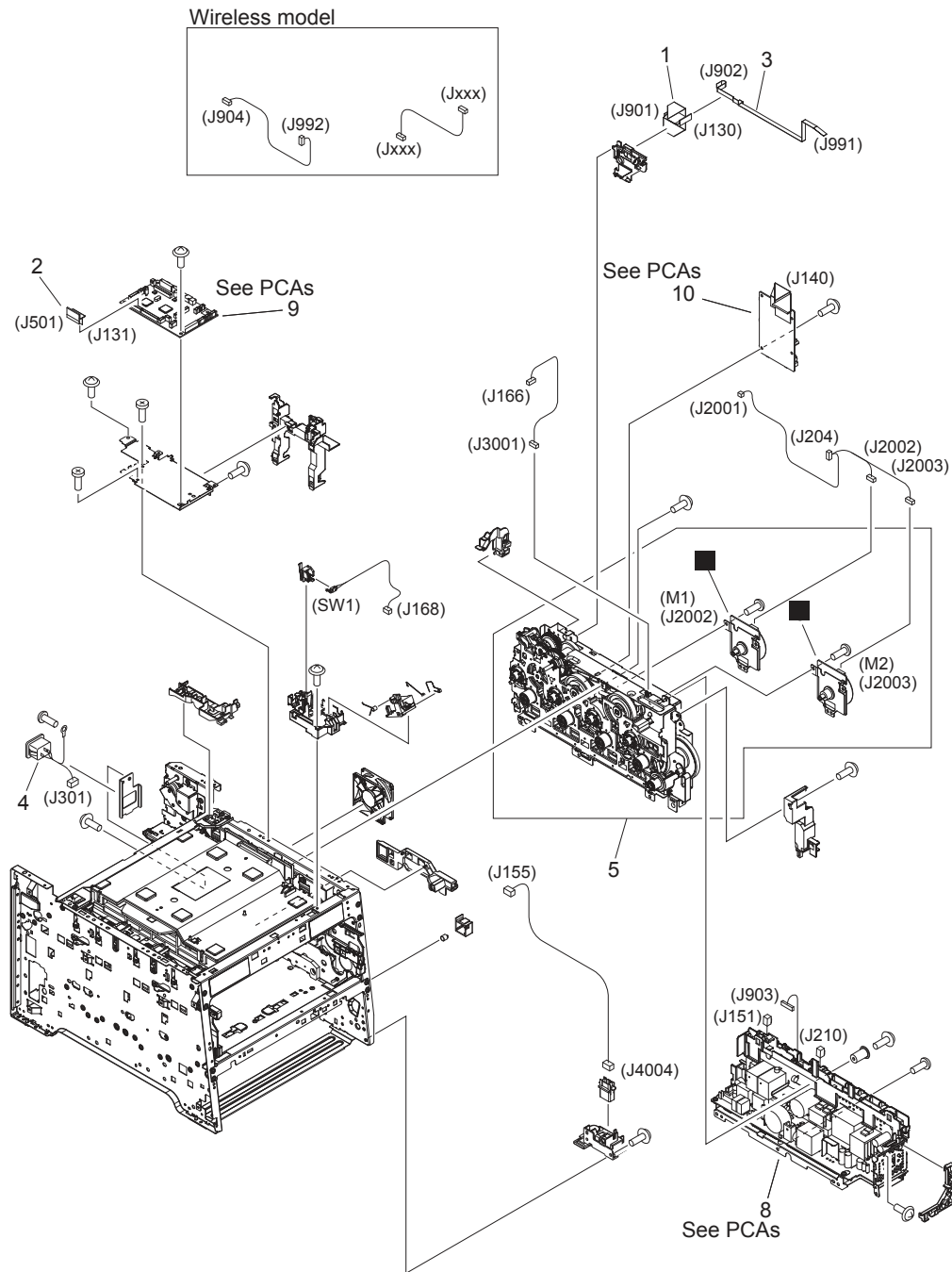


Table 3-11 Internal assemblies (4 of 7)

Ref	Description	Part number	Qty
6	Motor, developerDC (M1)	RL1-3053-000	1
7	Motor, drum DC (M2)	RL1-1800-000	1
8	Fan	RK2-3847-000	1

Internal assemblies (5 of 5)

Figure 3-6 Internal assemblies (5 of 7)

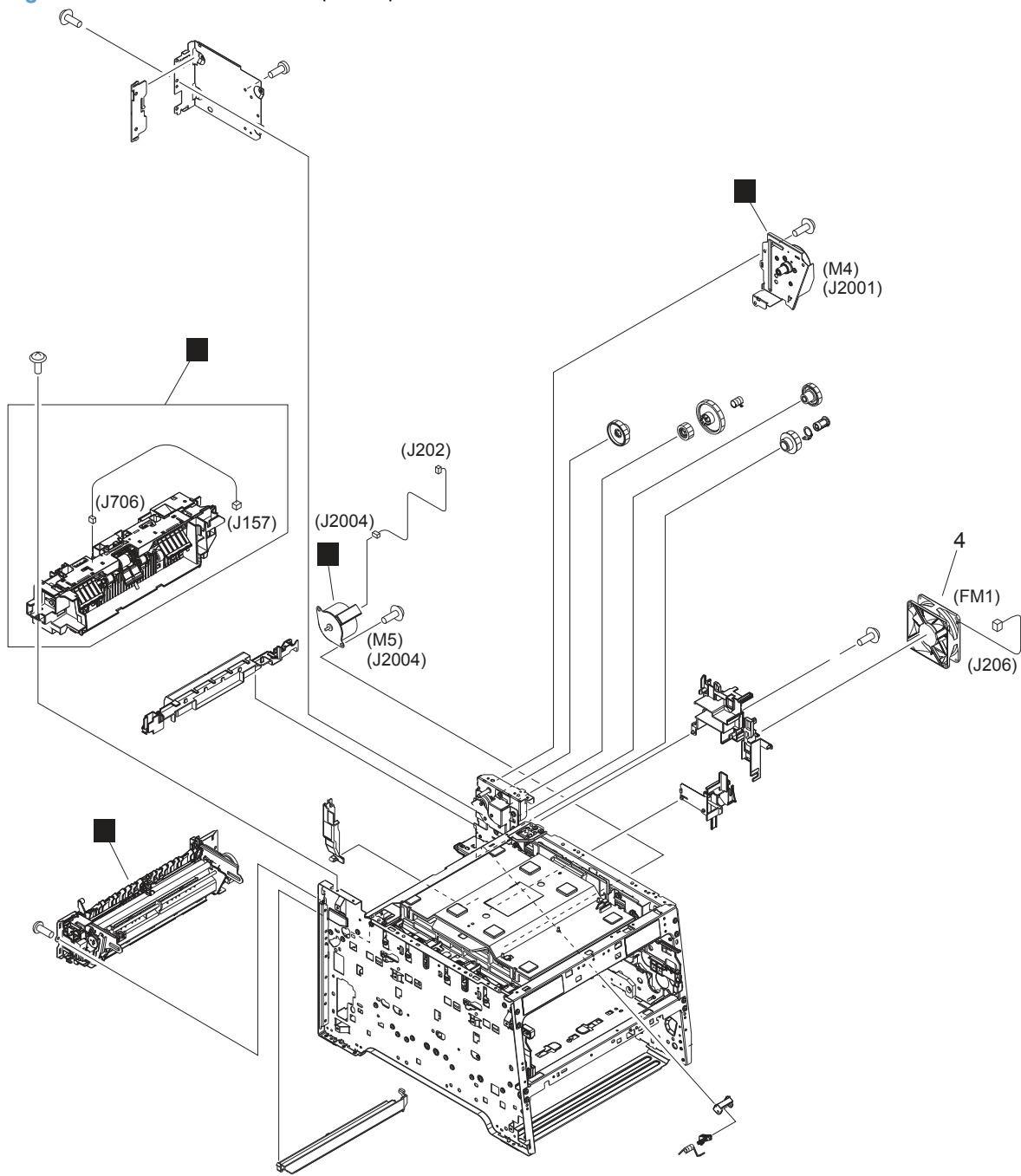


Table 3-12 Internal assemblies (5 of 7)

Ref	Description	Part number	Qty
1	Motor, feed assembly (M5)	RM1-5419-000	1
2	Fuser assembly (110v)	RM1-8054-000	1
2	Fuser assembly (220v)	RM1-8606-000	1
3	Motor, fuser assembly (M4)	RM1-8609-000	1
6	Paper delivery assembly	RM1-8049-000	1

Internal assemblies (simplex models)

Figure 3-7 Internal assemblies (simplex models)

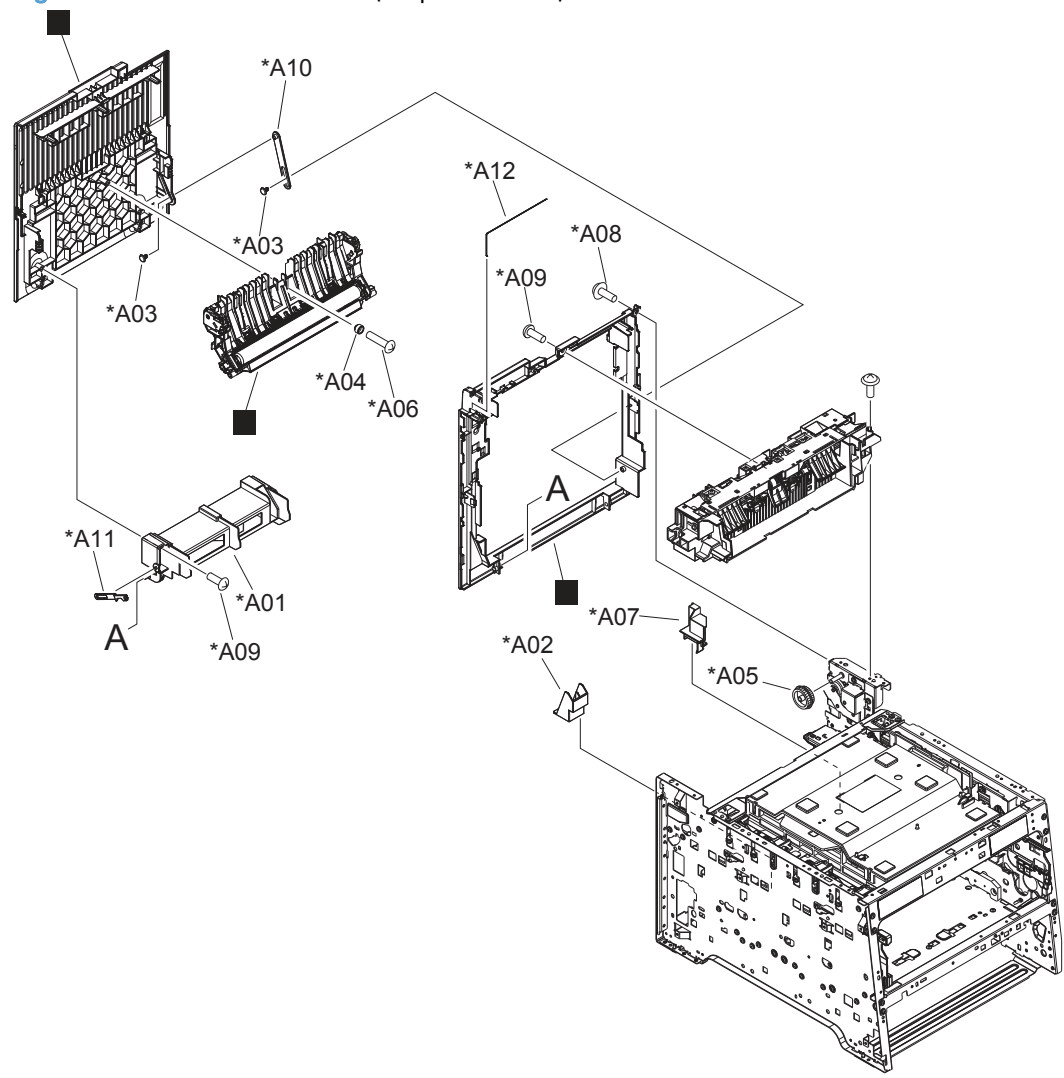


Table 3-13 Internal assemblies (simplex models)

Ref	Description	Part number	Qty
1	Paper feed guide assembly (simplex; includes transfer roller)	RM1-8043-000	1
2	Door, rear (simplex)	RC3-1665-000	1
3	Cover, rear (simplex)	RC3-1666-000	1

Internal assemblies (duplex models)

Figure 3-8 Internal assemblies (duplex models)

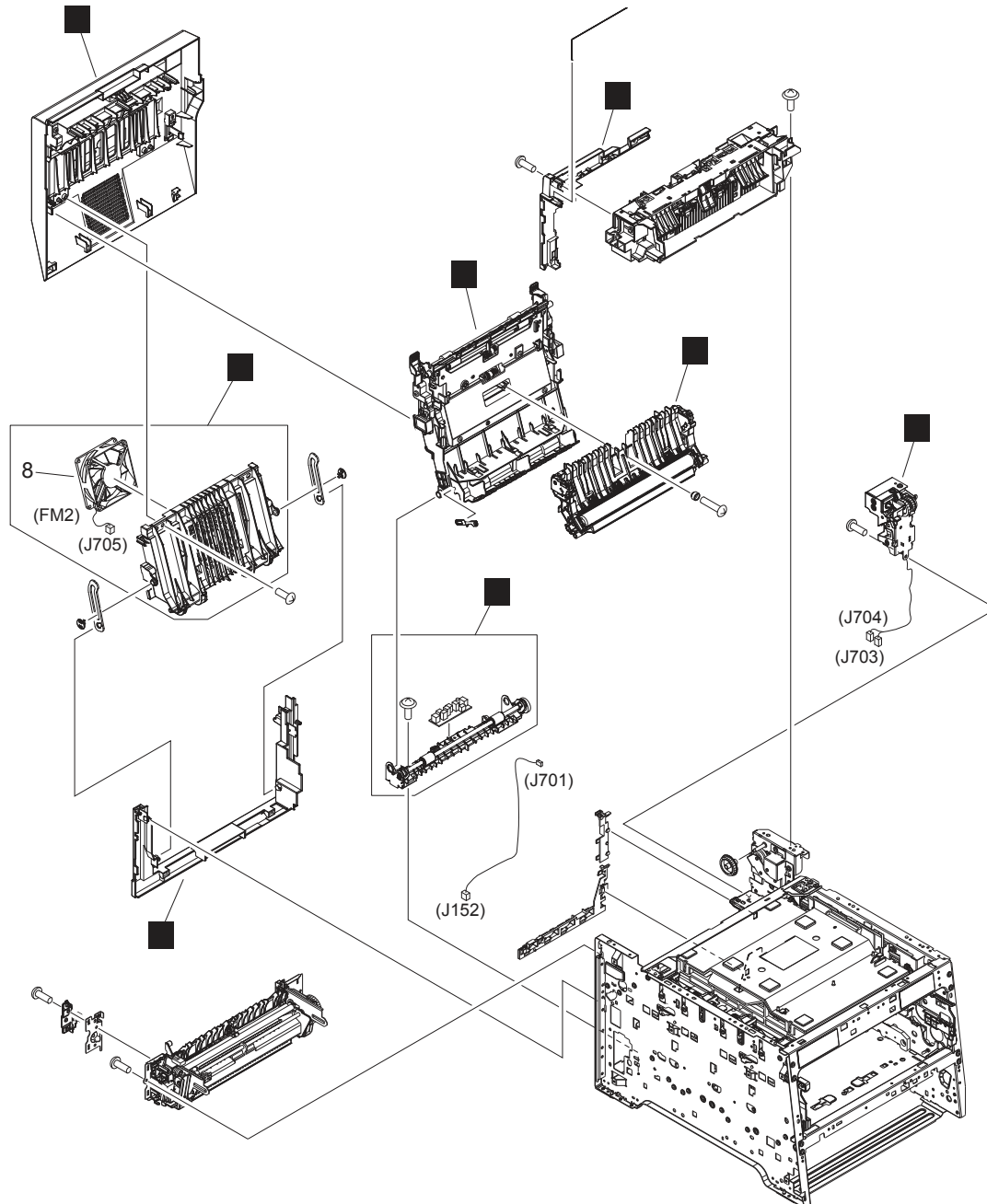


Table 3-14 Internal assemblies (duplex models)

Ref	Description	Part number	Qty
1	Cover, upper-rear (duplex)	RC3-1701-000	1
2	Cover, lower-rear (duplex)	RC3-1700-000	1
3	Door, rear (duplex)	RM1-8052-000	1
4	Reverse drive assembly (duplex)	RM1-4880-000	1
5	Feed guide, duplex assembly (duplex; includes transfer roller) ¹	RM1-4879-000	1
6	Paper feed guide assembly (duplex; includes transfer roller)	RM1-8043-000	1
7	Rib assembly, rear-door (duplex)	RM1-8053-000	1
9	Paper re-pickup guide assembly (duplex)	RM1-8051-000	1

¹ For a broken link-guide: you must replace either the duplexing-feed guide assembly, or the entire product (the interior paper guide is not replaceable).

PCAs

Figure 3-9 PCAs

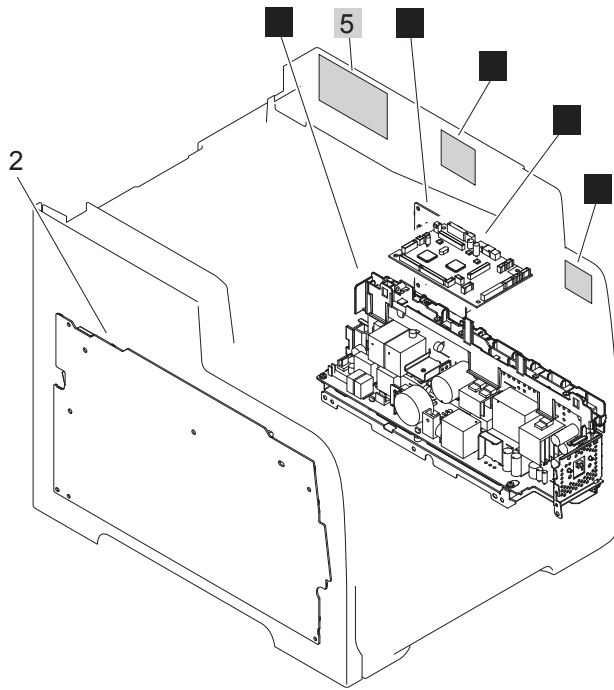


Table 3-15 PCAs

Ref	Description	Part number	Qty
1	Driver PCA	RM1-8032-000	1
2	High-voltage power supply	RM1-8031-000	1
3	DC controller	RM1-8039-000	1
4	Low-voltage power supply (110v-127v)	RM1-8035-000	1
4	Low-voltage power supply (220v-240v)	RM1-8037-000	1
5	Wireless controller PCA (wireless models)	RM1-7038-000	1
Not shown	Formatter PCA	CE794-60001	1

Input device(s)

250-sheet paper feeder (optional Tray 3)

Figure 3-10 250-sheet paper feeder (optional Tray 3)

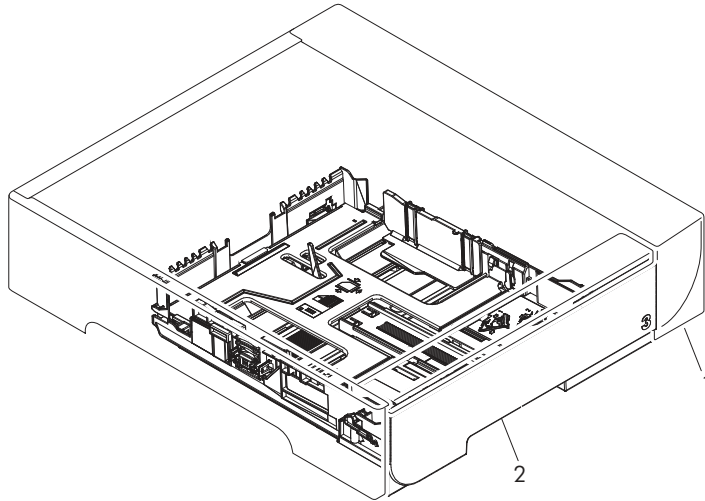


Table 3-16 250-sheet paper feeder (optional Tray 3)

Ref	Description	Part number	Qty
1	250-sheet paper feeder (optional Tray 3; includes cassette)	RM1-8063-000	1
2	Cassette (optional Tray 3)	RM1-8544-000CN	1

Alphabetical parts list

Table 3-17 Alphabetical parts list

Description	Part number	Table and page
250-sheet paper feeder (optional Tray 3; includes cassette)	RM1-8063-000	250-sheet paper feeder (optional Tray 3) on page 201
Base, button (wireless models)	RC3-1684-000	Covers^{1,2} on page 183
Cartridge-tray assembly	RM1-8041-000	Internal assemblies (1 of 7) on page 185
Cassette (optional Tray 3)	RM1-8544-000CN	250-sheet paper feeder (optional Tray 3) on page 201
Cassette, Tray 2	RM1-8056-000	Internal assemblies (3 of 7) on page 189
Clutch assembly Tray 1 (MP tray)	RM1-8318-000	Internal assemblies (3 of 7) on page 189
Color misregistration sensor assembly	RM1-8029-000	Internal assemblies (2 of 7) on page 187
Control-panel assembly	RM1-8040-000	Covers^{1,2} on page 183
Cover, DIMM	RC3-1671-000	Covers^{1,2} on page 183
Cover, left	RC3-1667-000	Covers^{1,2} on page 183
Cover, lower-rear (duplex)	RC3-1700-000	Internal assemblies (duplex models) on page 197
Cover, rear (simplex)	RC3-1666-000	Internal assemblies (simplex models) on page 195
Cover, right	RC3-1694-000	Covers^{1,2} on page 183
Cover, right-front (base model)	RC3-1692-000	Covers^{1,2} on page 183
Cover, right-front (wireless models)	RM2-0191-000	Covers^{1,2} on page 183
Cover, top assembly	RM1-8044-000	Covers^{1,2} on page 183
Cover, upper-rear (duplex)	RC3-1701-000	Internal assemblies (duplex models) on page 197
DC controller	RM1-8039-000	PCAs on page 199
Door, front assembly	RM1-8604-000	Covers^{1,2} on page 183
Door, rear (duplex)	RM1-8052-000	Internal assemblies (duplex models) on page 197
Door, rear (simplex)	RC3-1665-000	Internal assemblies (simplex models) on page 195
Driver PCA	RM1-8032-000	PCAs on page 199
Fan	RK2-3847-000	Internal assemblies (4 of 7) on page 191

Table 3-17 Alphabetical parts list (continued)

Description	Part number	Table and page
Feed guide, duplex assembly (duplex; includes transfer roller) ¹	RM1-4879-000	Internal assemblies (duplex models) on page 197
Formatter PCA	CE794-60001	PCAs on page 199
Fuser assembly (110v)	RM1-8054-000	Internal assemblies (5 of 7) on page 193
Fuser assembly (220v)	RM1-8606-000	Internal assemblies (5 of 7) on page 193
Guide, button (wireless models)	RC3-1025-000	Covers^{1,2} on page 183
High-voltage power supply	RM1-8031-000	PCAs on page 199
Holder, wireless module (wireless models)	RC3-1683-000	Covers^{1,2} on page 183
Intermediate transfer belt (ITB)	RM1-4852-000	Internal assemblies (2 of 7) on page 187
Low-voltage power supply (110v-127v)	RM1-8035-000	PCAs on page 199
Low-voltage power supply (220v-240v)	RM1-8037-000	PCAs on page 199
Motor, developerDC (M1)	RL1-3053-000	Internal assemblies (4 of 7) on page 191
Motor, drum DC (M2)	RL1-1800-000	Internal assemblies (4 of 7) on page 191
Motor, feed assembly (M5)	RM1-5419-000	Internal assemblies (5 of 7) on page 193
Motor, fuser assembly (M4)	RM1-8609-000	Internal assemblies (5 of 7) on page 193
Pad, separation Tray 1	RL1-1785-000	Internal assemblies (3 of 7) on page 189
Panel, right	RC3-1689-000	Covers^{1,2} on page 183
Paper delivery assembly	RM1-8049-000	Internal assemblies (5 of 7) on page 193
Paper feed guide assembly (duplex; includes transfer roller)	RM1-8043-000	Internal assemblies (duplex models) on page 197
Paper feed guide assembly (simplex; includes transfer roller)	RM1-8043-000	Internal assemblies (simplex models) on page 195
Paper re-pickup guide assembly (duplex)	RM1-8051-000	Internal assemblies (duplex models) on page 197
Pickup roller assembly	RM1-8047-000	Internal assemblies (3 of 7) on page 189
Pipe, light (wireless models)	RC3-0766-000	Covers^{1,2} on page 183
Registration assembly	RM1-4841-000	Internal assemblies (3 of 7) on page 189

Table 3-17 Alphabetical parts list (continued)

Description	Part number	Table and page
Reverse drive assembly (duplex)	RM1-4880-000	Internal assemblies (duplex models) on page 197
Rib assembly, rear-door (duplex)	RM1-8053-000	Internal assemblies (duplex models) on page 197
Roller, paper-pickup Tray 1	RL1-1802-000	Internal assemblies (2 of 7) on page 187
Separation roller assembly	RM1-4840-000	Internal assemblies (3 of 7) on page 189
Solenoid, Tray 1 (SL1; MP tray)	RM1-5420-000	Internal assemblies (2 of 7) on page 187
Tray 1 assembly (MP tray)	RM1-8610-000	Internal assemblies (3 of 7) on page 189
Wireless controller PCA (wireless models)	RM1-7038-000	PCAs on page 199

Numerical parts list

Table 3-18 Numerical parts list

Part number	Description	Table and page
CE794-60001	Formatter PCA	PCAs on page 199
RC3-0766-000	Pipe, light (wireless models)	Covers^{1,2} on page 183
RC3-1025-000	Guide, button (wireless models)	Covers^{1,2} on page 183
RC3-1665-000	Door, rear (simplex)	Internal assemblies (simplex models) on page 195
RC3-1666-000	Cover, rear (simplex)	Internal assemblies (simplex models) on page 195
RC3-1667-000	Cover, left	Covers^{1,2} on page 183
RC3-1671-000	Cover, DIMM	Covers^{1,2} on page 183
RC3-1683-000	Holder, wireless module (wireless models)	Covers^{1,2} on page 183
RC3-1684-000	Base, button (wireless models)	Covers^{1,2} on page 183
RC3-1689-000	Panel, right	Covers^{1,2} on page 183
RC3-1692-000	Cover, right-front (base model)	Covers^{1,2} on page 183
RC3-1694-000	Cover, right	Covers^{1,2} on page 183
RC3-1700-000	Cover, lower-rear (duplex)	Internal assemblies (duplex models) on page 197
RC3-1701-000	Cover, upper-rear (duplex)	Internal assemblies (duplex models) on page 197
RK2-3847-000	Fan	Internal assemblies (4 of 7) on page 191
RL1-1785-000	Pad, separation Tray 1	Internal assemblies (3 of 7) on page 189
RL1-1800-000	Motor, drum DC (M2)	Internal assemblies (4 of 7) on page 191
RL1-1802-000	Roller, paper-pickup Tray 1	Internal assemblies (2 of 7) on page 187
RL1-3053-000	Motor, developerDC (M1)	Internal assemblies (4 of 7) on page 191
RM1-4840-000	Separation roller assembly	Internal assemblies (3 of 7) on page 189
RM1-4841-000	Registration assembly	Internal assemblies (3 of 7) on page 189
RM1-4852-000	Intermediate transfer belt (ITB)	Internal assemblies (2 of 7) on page 187

Table 3-18 Numerical parts list (continued)

Part number	Description	Table and page
RM1-4879-000	Feed guide, duplex assembly (duplex; includes transfer roller) ¹	Internal assemblies (duplex models) on page 197
RM1-4880-000	Reverse drive assembly (duplex)	Internal assemblies (duplex models) on page 197
RM1-5419-000	Motor, feed assembly (M5)	Internal assemblies (5 of 7) on page 193
RM1-5420-000	Solenoid, Tray 1 (SL1; MP tray)	Internal assemblies (2 of 7) on page 187
RM1-7038-000	Wireless controller PCA (wireless models)	PCAs on page 199
RM1-8029-000	Color misregistration sensor assembly	Internal assemblies (2 of 7) on page 187
RM1-8031-000	High-voltage power supply	PCAs on page 199
RM1-8032-000	Driver PCA	PCAs on page 199
RM1-8035-000	Low-voltage power supply (110v-127v)	PCAs on page 199
RM1-8037-000	Low-voltage power supply (220v-240v)	PCAs on page 199
RM1-8039-000	DC controller	PCAs on page 199
RM1-8040-000	Control-panel assembly	Covers^{1,2} on page 183
RM1-8041-000	Cartridge-tray assembly	Internal assemblies (1 of 7) on page 185
RM1-8043-000	Paper feed guide assembly (simplex; includes transfer roller)	Internal assemblies (simplex models) on page 195
RM1-8043-000	Paper feed guide assembly (duplex; includes transfer roller)	Internal assemblies (duplex models) on page 197
RM1-8044-000	Cover, top assembly	Covers^{1,2} on page 183
RM1-8047-000	Pickup roller assembly	Internal assemblies (3 of 7) on page 189
RM1-8049-000	Paper delivery assembly	Internal assemblies (5 of 7) on page 193
RM1-8051-000	Paper re-pickup guide assembly (duplex)	Internal assemblies (duplex models) on page 197
RM1-8052-000	Door, rear (duplex)	Internal assemblies (duplex models) on page 197
RM1-8053-000	Rib assembly, rear-door (duplex)	Internal assemblies (duplex models) on page 197
RM1-8054-000	Fuser assembly (110v)	Internal assemblies (5 of 7) on page 193
RM1-8056-000	Cassette, Tray 2	Internal assemblies (3 of 7) on page 189

Table 3-18 Numerical parts list (continued)

Part number	Description	Table and page
RM1-8063-000	250-sheet paper feeder (optional Tray 3; includes cassette)	250-sheet paper feeder (optional Tray 3) on page 201
RM1-8318-000	Clutch assembly Tray 1 (MP tray)	Internal assemblies (3 of 7) on page 189
RM1-8544-000CN	Cassette (optional Tray 3)	250-sheet paper feeder (optional Tray 3) on page 201
RM1-8604-000	Door, front assembly	Covers^{1,2} on page 183
RM1-8606-000	Fuser assembly (220v)	Internal assemblies (5 of 7) on page 193
RM1-8609-000	Motor, fuser assembly (M4)	Internal assemblies (5 of 7) on page 193
RM1-8610-000	Tray 1 assembly (MP tray)	Internal assemblies (3 of 7) on page 189
RM2-0191-000	Cover, right-front (wireless models)	Covers^{1,2} on page 183

A Service and support

- [Hewlett-Packard limited warranty statement](#)
- [HP's Premium Protection Warranty: LaserJet print cartridge limited warranty statement](#)
- [Data stored on the print cartridge](#)
- [End User License Agreement](#)
- [OpenSSL](#)
- [Customer support](#)
- [Repack the product](#)

Hewlett-Packard limited warranty statement

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HP LaserJet 300 color M351a and HP LaserJet 400 color M451nw, M451dn, and M451dw	One-year product exchange

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Data stored on the print cartridge

The HP print cartridges used with this product contain a memory chip that assists in the operation of the product.

In addition, this memory chip collects a limited set of information about the usage of the product, which might include the following: the date when the print cartridge was first installed, the date when the print cartridge was last used, the number of pages printed using the print cartridge, the page coverage, the printing modes used, any printing errors that might have occurred, and the product model. This information helps HP design future products to meet our customers' printing needs.

The data collected from the print cartridge memory chip does not contain information that can be used to identify a customer or user of the print cartridge or their product. However, a customer can choose not to store usage data on the memory chip through the control panel.

HP collects a sampling of the memory chips from print cartridges returned to HP's free return and recycling program (HP Planet Partners: www.hp.com/recycle). The memory chips from this sampling are read and studied in order to improve future HP products. HP partners who assist in recycling this print cartridge might have access to this data, as well.

Any third party possessing the print cartridge might have access to the anonymous information on the memory chip.

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Rev. 04/09

OpenSSL

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This product includes cryptographic software written by Eric Young (eyay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Customer support


Get telephone support for your country/region	Country/region phone numbers are on the flyer that was in the box with your product or at www.hp.com/support/ .
Have the product name, serial number, date of purchase, and problem description ready.	
Get 24-hour Internet support	www.hp.com/support/LJColorM351 or www.hp.com/support/LJColorM451
Get support for products used with a Macintosh computer	www.hp.com/go/macosex
Download software utilities, drivers, and electronic information	www.hp.com/go/LJColorM351_software or www.hp.com/go/LJColorM451_software
Order additional HP service or maintenance agreements	www.hp.com/go/carepack
Register your product	www.register.hp.com

Repack the product

If HP Customer Care determines that your product needs to be returned to HP for repair, follow these steps to repack the product before shipping it.

 **CAUTION:** Shipping damage as a result of inadequate packing is the customer's responsibility.

1. Remove and retain the print cartridges.

 **CAUTION:** It is *extremely important* to remove the print cartridges before shipping the product. A print cartridge that remains in the product during shipping can leak and cover the product engine and other parts with toner.

To prevent damage to the print cartridges, avoid touching the rollers on them, and store the print cartridges so that they are not exposed to light.

2. Remove and retain the power cable, interface cable, and any optional accessories.
3. If possible, include print samples and 50 to 100 sheets of paper that did not print correctly.
4. In the U.S., call HP Customer Care to request new packing material. In other areas, use the original packing material, if possible.

B Product specifications

- [Physical specifications](#)
- [Power consumption, electrical specifications, and acoustic emissions](#)
- [Environmental specifications](#)


Physical specifications

Table B-1 Physical specifications

Product	Height	Depth	Width	Weight
Non-duplexing model	322 mm (12.7 inches)	454 mm (17.9 inches)	405 mm (15.9 inches)	22.70 kg (50.0 lb)
Duplexing model	322 mm (12.7 inches)	484 mm (19.1 inches)	405 mm (15.9 inches)	23.9 kg (52.7 lb)

Power consumption, electrical specifications, and acoustic emissions

See www.hp.com/support/LJColorM351 or www.hp.com/support/LJColorM451 for current information.

 **CAUTION:** Power requirements are based on the country/region where the product is sold. Do not convert operating voltages. This will damage the product and void the product warranty.

Environmental specifications

Table B-2 Operating-environment specifications

Environment	Recommended	Allowed
Temperature	17° to 25°C (62.6° to 77°F)	15° to 30°C (59° to 86°F)
Humidity	30% to 70% relative humidity (RH)	10% to 80% RH
Altitude	Not applicable	0 to 3048 m (0 to 10,000 ft)

C Regulatory information

- [FCC regulations](#)
- [Environmental product stewardship program](#)
- [Declaration of conformity](#)
- [Declaration of conformity \(wireless models\)](#)
- [Certificate of volatility](#)
- [Safety statements](#)
- [Additional statements for wireless products](#)

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.

Environmental product stewardship program

Protecting the environment

Hewlett-Packard Company is committed to providing quality products in an environmentally sound manner. This product has been designed with several attributes to minimize impacts on our environment.

Ozone production

This product generates no appreciable ozone gas (O₃).

Power consumption

Power usage drops significantly while in Ready or Sleep mode, which saves natural resources and saves money without affecting the high performance of this product. Hewlett-Packard printing and imaging equipment marked with the ENERGY STAR® logo is qualified to the U.S. Environmental Protection Agency's ENERGY STAR specifications for imaging equipment. The following mark will appear on ENERGY STAR qualified imaging products:



Additional ENERGY STAR qualified imaging product model information is listed at:

www.hp.com/go/energystar

Toner consumption

EconoMode uses less toner, which might extend the life of the print cartridge. HP does not recommend the full-time use of EconoMode. If EconoMode is used full-time, the toner supply might outlast the mechanical parts in the print cartridge. If print quality begins to degrade and is no longer acceptable, consider replacing the print cartridge.

Paper use

This product's manual/automatic duplex feature (two-sided printing) and N-up printing (multiple pages printed on one page) capability can reduce paper usage and the resulting demands on natural resources.

Plastics

Plastic parts over 25 grams are marked according to international standards that enhance the ability to identify plastics for recycling purposes at the end of the product's life.

HP LaserJet print supplies

It's easy to return and recycle your HP LaserJet print cartridges after use—free of charge—with HP Planet Partners. Multilingual program information and instructions are included in every new HP LaserJet print cartridge and supplies package. You help reduce the toll on the environment further when you return multiple cartridges together rather than separately.

HP is committed to providing inventive, high-quality products and services that are environmentally sound, from product design and manufacturing to distribution, customer use and recycling. When you participate in the HP Planet Partners program, we ensure your HP LaserJet print cartridges are recycled properly, processing them to recover plastics and metals for new products and diverting millions of tons of waste from landfills. Since this cartridge is being recycled and used in new materials, it will not be returned to you. Thank you for being environmentally responsible!



NOTE: Use the return label to return original HP LaserJet print cartridges only. Please do not use this label for HP inkjet cartridges, non-HP cartridges, refilled or remanufactured cartridges or warranty returns. For information about recycling your HP inkjet cartridges please go to <http://www.hp.com/recycle>.

Return and recycling instructions

United States and Puerto Rico

The enclosed label in the HP LaserJet toner cartridge box is for the return and recycling of one or more HP LaserJet print cartridges after use. Please follow the applicable instructions below.

Multiple returns (more than one cartridge)

1. Package each HP LaserJet print cartridge in its original box and bag.
2. Tape the boxes together using strapping or packaging tape. The package can weigh up to 31 kg (70 lb).
3. Use a single pre-paid shipping label.

OR

1. Use your own suitable box, or request a free bulk collection box from www.hp.com/recycle or 1-800-340-2445 (holds up to 31 kg (70 lb) of HP LaserJet print cartridges).
2. Use a single pre-paid shipping label.

Single returns

1. Package the HP LaserJet print cartridge in its original bag and box.
2. Place the shipping label on the front of the box.

Shipping

For US and Puerto Rico HP LaserJet print cartridge recycling returns, use the pre-paid, pre-addressed shipping label contained in the box. To use the UPS label, give the package to the UPS driver during

your next delivery or pick-up, or take it to an authorized UPS drop-off center. (Requested UPS Ground pickup will be charged normal pick-up rates) For the location of your local UPS drop-off center, call 1-800-PICKUPS or visit www.ups.com.

If you are returning the package with the FedEx label, give the package to either the U.S. Postal Service carrier or FedEx driver during your next pick-up or delivery. (Requested FedEx Ground pickup will be charged normal pick-up rates). Or, you can drop off your packaged print cartridge(s) at any U.S. Post Office or any FedEx shipping center or store. For the location of your nearest U.S. Post Office, please call 1-800-ASK-USPS or visit www.usps.com. For the location of your nearest FedEx shipping center/store, please call 1-800-GOFEDEX or visit www.fedex.com.

For more information, or to order additional labels or boxes for bulk returns, visit www.hp.com/recycle or call 1-800-340-2445. Information subject to change without notice.

Residents of Alaska and Hawaii

Do not use the UPS label. Call 1-800-340-2445 for information and instructions. The U.S. Postal Service provides no-cost cartridge return transportation services under an arrangement with HP for Alaska and Hawaii.

Non-U.S. returns

To participate in HP Planet Partners return and recycling program, just follow the simple directions in the recycling guide (found inside the packaging of your new product supply item) or visit www.hp.com/recycle. Select your country/region for information on how to return your HP LaserJet printing supplies.

Paper

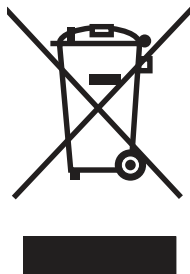
This product is capable of using recycled papers when the paper meets the guidelines outlined in the *HP LaserJet Printer Family Print Media Guide*. This product is suitable for the use of recycled paper according to EN12281:2002.

Material restrictions

This HP product does not contain added mercury.

This HP product does not contain a battery.

Disposal of waste equipment by users in private households in the European Union



This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Chemical substances

HP is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at: www.hp.com/go/reach.

Material Safety Data Sheet (MSDS)

Material Safety Data Sheets (MSDS) for supplies containing chemical substances (for example, toner) can be obtained by accessing the HP Web site at www.hp.com/go/msds or www.hp.com/hpinfo/community/environment/productinfo/safety.

For more information

To obtain information about these environmental topics:

- Product environmental profile sheet for this and many related HP products
- HP's commitment to the environment
- HP's environmental management system
- HP's end-of-life product return and recycling program
- Material Safety Data Sheets

Visit www.hp.com/go/environment or www.hp.com/hpinfo/globalcitizenship/environment.

Declaration of conformity

Declaration of Conformity

according to ISO/IEC 17050-1 and EN 17050-1

Manufacturer's Name: Hewlett-Packard Company DoC#: BOISB-1002-00-rel.1.0

Manufacturer's Address: 11311 Chinden Boulevard
Boise, Idaho 83714-1021, USA

declares, that the product

Product Name: HP LaserJet Pro 300 color M351a
HP LaserJet Pro 400 color M451dn

Regulatory Model:²⁾ BOISB-1002-00

Product Options: ALL

Print Cartridges: CE410A, CE410X, CE411A, CE412A, CE413A


conforms to the following Product Specifications:

SAFETY: IEC 60950-1:2005 / EN60950-1: 2006 +A11
IEC 60825-1:2007 / EN 60825-1:2007 (Class 1 Laser/LED Product)
IEC 62311:2007 / EN62311:2008
GB4943-2001

EMC: CISPR22:2005 +A1/ EN55022:2006 +A1 - Class B¹⁾
EN 61000-3-2:2006
EN 61000-3-3:2008
EN 55024:1998 +A1 +A2
FCC Title 47 CFR, Part 15 Class B¹⁾ / ICES-003, Issue 4
GB9254-2008, GB17625.1-2003

ENERGY USE: Regulation (EC) No. 1275/2008
ENERGY STAR® Qualified Imaging Equipment Typical Electricity Consumption (TEC) Test Procedure

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC, the EuP Directive 2005/32/EC and carries the CE-Marking  accordingly.

This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two Conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

1. The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.
2. For regulatory purposes, these products are assigned a Regulatory model number. This number should not be confused with the product name or the product number(s).

Boise, Idaho USA

October 2011

For Regulatory Topics only, contact:

European Contact	Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Straße 140, D-71034, Böblingen (FAX: +49-7031-14-3143) www.hp.eu/certificates
USA Contact	Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, Idaho 83707-0015 (Phone: 208-396-6000)

Declaration of conformity (wireless models)

Declaration of Conformity

according to ISO/IEC 17050-1 and EN 17050-1

Manufacturer's Name: Hewlett-Packard Company DoC#: BOISB-1002-01-rel.1.0

Manufacturer's Address: 11311 Chinden Boulevard
Boise, Idaho 83714-1021, USA

declares, that the product

Product Name: HP LaserJet Pro 400 color M451nw
HP LaserJet Pro 400 color M451dw

Regulatory Model:²⁾ BOISB-1002-01

Product Options: ALL

Radio Module³⁾ SDGOB-0892

Print Cartridges: CE410A, CE410X, CE411A, CE412A, CE413A

conforms to the following Product Specifications:

SAFETY: IEC 60950-1:2005 / EN60950-1: 2006 +A11
IEC 60825-1:2007 / EN 60825-1:2007 (Class 1 Laser/LED Product)
IEC 62311:2007 / EN62311:2008
GB4943-2001

EMC: CISPR22:2005 +A1/ EN55022:2006 +A1 - Class B¹⁾
EN 61000-3-2:2006
EN 61000-3-3:2008
EN 55024:1998 +A1 +A2
FCC Title 47 CFR, Part 15 Class B¹⁾ / ICES-003, Issue 4
GB9254-2008, GB17625.1-2003

Radio³⁾ EN 301 489-1 v1.8.1 (2008-04) / EN 301 489-17 v2.1.1 (2009-05)
EN 300 328 v1.7.1 (2006-10)
FCC Title 47 CFR, Part 15 Subpart C (Section 15.247) / IC: RSS-210

ENERGY USE: Regulation (EC) No. 1275/2008
ENERGY STAR® Qualified Imaging Equipment Typical Electricity Consumption (TEC) Test Procedure

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 2004/108/EEC and the Low Voltage Directive 2006/95/EC, the EuP Directive 2005/32/EC, and carries the CE-Marking  accordingly.

This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two Conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

1. The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.
2. For regulatory purposes, these products are assigned a Regulatory model number. This number should not be confused with the product name or the product number(s).
3. This product uses a radio module device which Regulatory Model number is SDGOB-0892 as needed to meet technical regulatory requirements for the countries/regions this product will be sold.

Boise, Idaho USA

October 2011

For Regulatory Topics only, contact:

European Contact	Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Straße 140, D-71034, Böblingen (FAX: +49-7031-14-3143) www.hp.eu/certificates
USA Contact	Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, Idaho 83707-0015 (Phone: 208-396-6000)

Certificate of volatility

This is a statement regarding the volatility of customer data stored in memory. It also outlines how to securely erase data from the product.

Types of memory

Volatile memory

The product utilizes 128 MB of volatile memory (SDRAM) used for temporary storage during the process of jobs, and for applications running on the operating system. When the printer is powered off, the memory is erased.

Non-volatile memory

The product utilizes 1.1 GB of non-volatile memory (EEPROM, Flash) containing the boot code and factory product configuration data required for the device to function. No customer print data is stored in non-volatile memory. There are no steps to clear this data.

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 instructions

Make sure your power source is adequate for the product voltage rating. The voltage rating is on the product label. The product uses either 100-127 Vac or 220-240 Vac and 50/60 Hz.

Connect the power cord between the product and a grounded AC outlet.

△ **CAUTION:** To prevent damage to the product, use only the power cord that is provided with the product.

Power cord statement (Japan)

製品には、同梱された電源コードをお使い下さい。
同梱された電源コードは、他の製品では使用出来ません。

EMC statement (Korea)

B급 기기 (가정용 방송통신기기)	이 기기는 가정용(B급)으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.
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Laser statement for Finland

Luokan 1 laserlaite

Klass 1 Laser Apparat

HP LaserJet 300 color M351a, HP LaserJet 400 color M451nw, M451dn, M451dw, laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalisessa käytössä kirjoittimen suojakotelointi estää lasersäteiden pääsyn laitteen ulkopuolelle. Laitteen turvallisuusluokka on määritetty standardin EN 60825-1 (2007) mukaisesti.

VAROITUS !

Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

VARNING !

Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

HUOLTO

HP LaserJet 300 color M351a, HP LaserJet 400 color M451nw, M451dn, M451dw - 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 näkymättömälle lasersäteilylle 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.

GS statement (Germany)

Das Gerät ist nicht für die Benutzung im unmittelbaren Gesichtsfeld am Bildschirmarbeitsplatz vorgesehen. Um störende Reflexionen am Bildschirmarbeitsplatz zu vermeiden, darf dieses Produkt nicht im unmittelbaren Gesichtsfeld platziert werden.

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。

Restriction on Hazardous Substances statement (Turkey)

Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

Restriction on Hazardous Substances statement (Ukraine)

Обладнання відповідає вимогам Технічного регламенту щодо обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні, затвердженого постановою Кабінету Міністрів України від 3 грудня 2008 № 1057

Additional statements for wireless products


FCC compliance statement—United States

Exposure to radio frequency radiation

CAUTION: The radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such a manner that the potential for human contact during normal operation is minimized.

In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 in)) during normal operation.

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

 **CAUTION:** Based on Section 15.21 of the FCC rules, changes of modifications to the operation of this product without the express approval by Hewlett-Packard Company may invalidate its authorized use.

Australia statement

This device incorporates a radio-transmitting (wireless) device. For protection against radio transmission exposure, it is recommended that this device be operated no less than 20 cm from the head, neck, or body.

Brazil ANATEL statement

Este equipamento opera em caráter secundário, isto é, não tem direito à proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário.

Canadian statements

For Indoor Use. This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications. The internal wireless radio complies with RSS 210 of Industry Canada.

Pour l'usage d'intérieur. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada. Le composant RF interne est conforme à la norme CNR-210 d'Industrie Canada.

European Union regulatory notice

The telecommunications functionality of this product may be used in the following EU and EFTA countries/regions:

Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and United Kingdom.

Notice for use in France

For 2.4 GHz Wireless LAN operation of this product certain restrictions apply: This equipment may be used indoor for the entire 2400-2483.5 MHz frequency band (channels 1-13). For outdoor use, only 2400-2454 MHz frequency band (channels 1-9) may be used. For the latest requirements, see www.arcep.fr.

L'utilisation de cet équipement (2.4 GHz Wireless LAN) est soumise à certaines restrictions : Cet équipement peut être utilisé à l'intérieur d'un bâtiment en utilisant toutes les fréquences de 2400-2483.5 MHz (Chaîne 1-13). Pour une utilisation en environnement extérieur, vous devez utiliser les fréquences comprises entre 2400-2454 MHz (Chaîne 1-9). Pour les dernières restrictions, voir, www.arcep.fr.

Notice for use in Russia

Существуют определенные ограничения по использованию беспроводных сетей (стандарта 802.11 b/g) с рабочей частотой 2,4 ГГц: Данное оборудование может использоваться внутри помещений с использованием диапазона частот 2400-2483,5 МГц (каналы 1-13). При использовании внутри помещений максимальная эффективная изотропно-излучаемая мощность (ЭИИМ) должна составлять не более 100мВт.

Korean statement

당해 무선설비는 운용 중 전파혼선 가능성이 있음

Taiwan statement

低功率電波輻射性電機管理辦法

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。
前項合法通信，指依電信法規定作業之無線電通信。
低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Vietnam Telecom wired/wireless marking for ICTQC Type approved products



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