



# HP COLOR LASERJET CP5220

SERIES PRINTER

## Repair Manual





# HP Color LaserJet CP5220 Series Printer Repair Manual

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Public Edition 2, 02/2024

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# Safety and support guidelines when using the printer

Learn how to use your printer safely and review the information required when contacting HP support for printer assistance.

## Safety precautions

Follow these safety protocols when handling or repairing the printer.

**Product safety classification:** This is a Safety Class I product, which means it has a protective earth terminal. This terminal must be connected to earth ground.

### Important:

Before operation or repair, check the product and review this manual for safety warnings and instructions. Safety warnings for specific procedures are located at appropriate places in the manual.

**WARNING:** Hazardous voltages exist within the product.

**NOTE:** HP recommends that only qualified personnel trained in working with high voltage power equipment should service this unit.

Follow these precautions always:

**NOTE:** If you do not want to disassemble and repair the printer yourself, contact your local HP Service Representative for service, see [Contact HP Support](#) section.

## Warnings and Cautions

To ensure the proper use of the printer and to prevent the printer from being damaged, follow the warning and caution symbols marked in this guide. See [Conventions used in this guide](#).

## Electrical precautions

### Power cord instructions

- Make sure your power source is adequate for the product voltage rating. The voltage rating is on the product label.

Typically, the product uses either 110-127 Vac or 220-240 Vac and 50/60 Hz. Depending on a product, the voltage usage might change (100-127 Vac, for example). It is recommended to refer your product manual for the specified voltage.

- 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.

Do not damage, cut, or repair the power cord. A damaged power cord can cause fire or electric shock. Replace a damaged power cord with an HP-approved power cord.

- Unplug the power cord when disassembling or assembling the printer.

The printer utilizes a power switch (button) that is turned "ON" or "OFF". Be aware that electricity may flow on the primary side of the printer even when the printer is "OFF".

- Power off the printer and unplug the power cord and fax cord (if available) from the electrical outlet in any of the following cases:
  - When removing product enclosure or covers from the printer or when accessing internal parts of a printer.
  - If there is smoke or an unusual smell coming from the printer.
  - A piece of metal or a liquid (not part of cleaning and maintenance routines) touches internal parts of the printer.
  - During an electrical storm (with thunder and/or lightning).
  - During an electrical power failure.

## Electrostatic Discharge (ESD) precautions

Electrostatic discharge (ESD) can damage electronic components inside your printer.

Use these guidelines to protect sensitive parts against damage from electrostatic discharge.

- Touch a metal object that is not painted and is grounded.
- Leave electronic parts such as a memory chip in the bag it was shipped in until you are ready to perform the installation.
- ESD wrist straps can also be used to help release excess electrostatic charge.

**CAUTION:** 

- Some parts are sensitive to electrostatic discharge (ESD). Look for the ESD reminder when removing printer parts.

Always perform service work at an ESD-protected workstation or mat. If an ESD workstation or mat is not available, touch the sheet-metal chassis to provide a static ground before touching an ESD-sensitive assembly.

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

## Handling toner

HP recommends that you wear gloves when handling toner cartridges and toner system components.

Do not expose toner or toner cartridge to fire or any heat source.

Keep imaging unit and/or toner cartridge away from children. The toner powder contained in the imaging unit and toner cartridge may be harmful, and if swallowed, you should contact a doctor.

## Lifting equipment

Follow the recommendations for lifting or moving your printer.

The printed inbox guides and support documentation available on [support.hp.com](https://support.hp.com) for your printer model will provide the lifting requirements to avoid injury and to safely move the printer.

**NOTE:** Do not attempt to lift heavy equipment without assistance.

## Safety measures during disassembling or reassembling

### Important:

Before disassembling or reassembling a printer, be sure to unplug its power cord from the electrical outlet.

**NOTE:** Assembly is the reverse of disassembly unless otherwise specified.

- During disassembly, reassembly, or transportation of a printer, remove the toner cartridge as necessary.
- Only fuses with the required rated current, voltage, and specified type (normal blow, time delay, etc.) should be used.

Do not use repaired fuses or short-circuited fuse holders. Doing so, could cause a shock or fire hazard.

- Capacitors inside this product may hold a hazardous charge even if the product has been disconnected from its power source.



- Do not disable safety functions (Interlocks or safety circuits). Safety will not be assured leading to a safety hazard and potential injury.
- Note the length, diameters, and locations of screws as you remove them. When reassembling the printer, be sure to use them in their original locations.
- As a best practice safety rule, do not run the printer with any parts removed.

## Ingestion hazards

This product may contain a button cell or coin battery that is not intended to be replaced.

- A swallowed button cell or coin battery can cause internal chemical burns in as little as two (2) hours.

Death or serious injury can occur if ingested.

- Keep new and used batteries out of reach of children. Used batteries may cause severe injury or death.

Seek immediate medical attention if a battery is suspected to be swallowed or inserted inside any part of the body. Call a local poison control center for treatment information.

- Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do not dispose of batteries in household trash or incinerate.

## Laser radiation hazards

The printer is certified as a Class 1 laser product.

**WARNING:** Using controls, adjusting or performing procedures other than those specified in the user guide could result in exposure to hazardous radiation. Do not disassemble the laser/scanner unit as the laser beam can injure your eyes. An invisible laser beam is emitted within the laser/scanner unit.

## Mechanical hazards

The printer has moving parts that could cause injury. To avoid personal injury, take the following precautions when working close to the printer.

- Keep your clothes and body away from the printer's moving parts.
  - Avoid wearing dangling jewelry or other hanging objects around the printer as it might be caught by moving parts and lead to injury.
  - Keep long hair tied up and away from the paper feed mechanism.
  - Ensure the sleeves or gloves do not get caught in the printer's moving parts.

- Avoid standing close to the fans as it could cause injury and could also affect print quality (by obstructing the air flow).
- Do not touch gears or moving rolls during printing.
- Do not operate the printer when having enclosure covers removed or interlock switches bypassed.
- The product may have internal sharp edges.

Make sure the wiring does not come into contact with sharp edges, burrs, or other pointed parts. Current can leak, leading to a risk of electrical shock or fire hazard.

- During and after repair, check internal electrical wiring for squeezing, sheaths and any damage.
  - Make sure that all screws, components, wiring, connectors and so forth that were removed, have been reinstalled in the original location.
  - Do not allow any metal parts such as clips, staples and screws to fall into the printer. This could potentially short internal circuits and cause an electrical shock hazard.
  - Do not allow liquids (except those used in HP cleaning kits) to touch the internal parts of the printer. Doing so may cause fire, electric shock, or other serious hazards.

## Thermal hazards

### Caution: Inspection before repair for fuser:

The area around the fuser unit may be hot. Wait for a few minutes until the fuser assembly cools down.

## Contact HP Support

HP offers phone support to assist you for printer issues. Make sure to read the following information before contacting HP Support.

### Before contacting HP Support

Before contacting support, consider checking the resources available on HP Customer Support.

1. Go to HP Customer Support (<https://support.hp.com>) to locate your product support page.
2. Review the documents for troubleshooting before contacting HP.

### Information required when contacting HP Support

If you call an HP support representative for assistance, ensure you have the following information for HP support to answer your questions quickly:

- **Product model:** Note the printer model, product number, and serial number you are using. The product number and the serial number are typically found on the label at the back of the product.
- **Error code:** If there is an error code or message displaying on the printer control panel, note the error and message.
- **Computer (operating system):** Provide the name of the computer/computer operating system you are using.
- Any **special equipment or software** you are using (for example, spoolers, networks, switch-boxes, modems or special software drivers).
  - The type of interface used on your product (USB or network).
  - The software and driver name and firmware version number that you are currently using.
- **Printer service information:** You can obtain the printer service information from the Embedded Web Server (EWS). If you need to send this information by email, download it as a file from your browser, and send the file.
 

**NOTE:** Depending on your printer firmware version, the menu items in the EWS might vary.

  1. Open a Web browser on your computer, and then enter the IP address of your printer to access the Embedded Web Server.
  2. Click [Support](#) > [Service support](#) > [Service information](#) > [Display](#).

## Phone support

HP phone support is available on the HP support website. For assistance, go to one of the following websites:

- <https://support.hp.com/contact>  
or
- <https://support.hp.com/contact/help/printer>  
or
- <https://www.hp.com/us-en/contact-hp/contact.html>

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# 1 Removal and replacement

- [Introduction](#)
- [Removal and replacement strategy](#)
- [Electrostatic discharge](#)
- [Required tools](#)
- [Service approach](#)
- [Removal and replacement procedures](#)

## Introduction

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

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

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

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

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

## Removal and replacement strategy

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

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

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

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

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

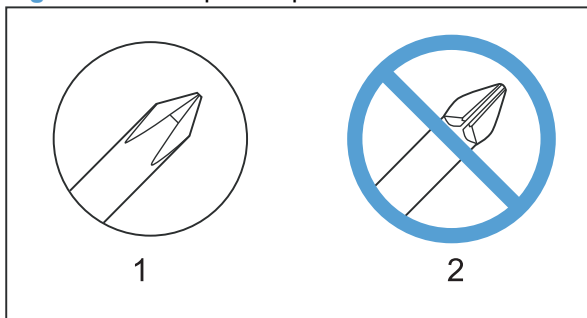
💡 **TIP:** For clarity, some photos in this chapter show components removed that would not be removed to service the product. If necessary, remove the components listed at the beginning of a procedure before proceeding to service the product.

## Required tools

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

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

**Figure 2-1** Phillips and pozidrive screwdriver comparison



---

# Safety Precautions

Ensure proper safety protocols are followed when handling or repairing the printer.

Follow these precautions at all times:

- Use the power supply voltage specified on the label. Avoid overloading the printer's electrical outlet with multiple devices.
- If you do not feel comfortable performing the needed repairs yourself please contact your local HP Service Representative for service, see HP Support Center.
- Use only the electrical cord supplied by HP with the printer. Do not damage, cut, or repair the power cord. A damaged power cord can cause fire or electric shock. Replace a damaged power cord with an HP-approved power cord.
- Do not allow metal or liquids (except those used in HP Cleaning Kits) to touch the internal parts of the printer. Doing so may cause fire, electric shock, or other serious hazards.
- Power off the printer and unplug the power cord from the power outlet in any of the following cases:
  - o When placing your hands inside the printer
  - o If there is smoke or an unusual smell coming from the printer
  - o If the printer is making an unusual noise not heard during normal operation
  - o A piece of metal or a liquid (not part of cleaning and maintenance routines) touches internal parts of the printer
  - o During an electrical storm (thunder and lightning)
  - o During a power failure

## Warnings and cautions

The following are used in this manual to ensure the proper use of the printer and to prevent the printer from being damaged and the user from being injured.

**WARNING:** Failure to follow the guidelines marked with this symbol could result in serious personal injury or death.

**CAUTION:** Failure to follow the guidelines marked with this symbol could result in minor personal injury or damage to the product.

## Toner handling

HP recommends that you wear gloves when handling toner or system components.

## Mechanical hazard

The printer has moving parts that could cause injury. To avoid personal injury, take the following precautions when working close to the printer.

- Keep your clothing and all parts of your body away from the printer's moving parts.
- Avoid wearing necklaces, bracelets and other hanging objects.
- If your hair is long, try to secure it so that it will not fall into the printer.
- Take care that sleeves or gloves do not get caught in the printer's moving parts.
- Avoid standing close to the fans, which could cause injury and could also affect print quality (by obstructing the air flow).
- Do not touch gears or moving rolls during printing.
- Do not operate the printer with covers bypassed.

# Electrostatic Discharge (ESD) precautions

Electrostatic discharge (ESD) can damage electronic components inside your printer.

Learn how to protect sensitive parts against damage from electrostatic discharge.

- Touch a metal object that is not painted and is grounded.
- Leave electronic parts such as a memory chip in the bag it was shipped in until you are ready to perform the installation.
- ESD wrist straps can also be used to help release excess electrostatic charge.

**CAUTION:** Some parts are sensitive to electrostatic discharge (ESD). Look for the ESD reminder when removing printer parts. Always perform service work at an ESD-protected workstation or mat. If an ESD workstation or mat is not available, touch the sheet-metal chassis to provide a static ground before touching an ESD-sensitive assembly.

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

## Lifting equipment

Do not attempt to lift heavy equipment without assistance. Follow the lifting recommendations for your printer. Printed inbox guides and support documentation available on [support.hp.com](http://support.hp.com) for your printer model will help indicate proper lifting requirements to avoid injury and to safely move the printer.

## Contact HP Support

HP Support is available to you by telephone. What to do before you call:

- Review the troubleshooting suggestions in this document.
- If you call your support representative, please have the following information available to help us answer your questions more quickly:
  - o The product you are using (the product number and the serial number, found on the label at the back of the product).
  - o If there is an error code on the front panel, note it down. See Front-panel error messages.
  - o The computer you are using.
  - o Any special equipment or software you are using (for example, spoolers, networks, switch-boxes, modems or special software drivers).
  - o The type of interface used on your product (USB or network).
  - o The software and driver name and version number that you are currently using.
  - o The Printer Service information, which you can get from the Embedded Web Server. In a Web browser, enter the IP address of your printer to access the Embedded Web Server. Then click Support > Service support > Service information > Display. If you need to send the information by email, you can download it as a file from your browser, and later send the file.

## Telephone number

Your HP Support telephone number is available on the Web.

See [http://welcome.hp.com/country/us/en/wwcontact\\_us.html](http://welcome.hp.com/country/us/en/wwcontact_us.html).



# Service approach

## Before performing service

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

## After performing service

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

## Post-service test

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

### Print-quality test


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

# Removal and replacement procedures

## Customer self repair (CSR) components


### Print cartridges

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

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

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

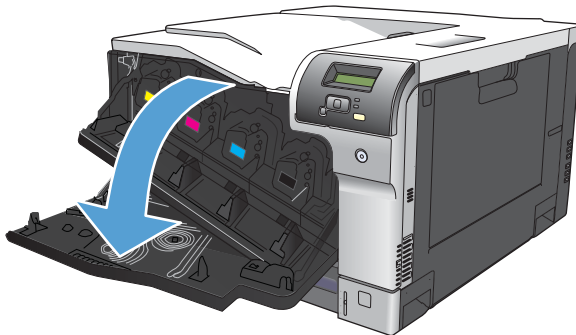
You can replace a print cartridge when the print quality is no longer acceptable. The control-panel message also indicates the color of the cartridge that has reached the end of its estimated useful life (for cartridges that are not used). Replacement instructions are provided on the label on the print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

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

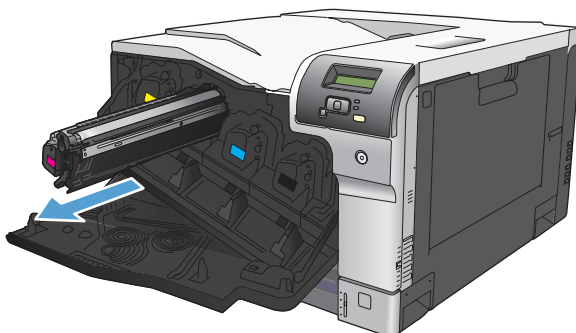
 **NOTE:** Information about recycling used print cartridges is on the print-cartridge box.

### Replace print cartridges

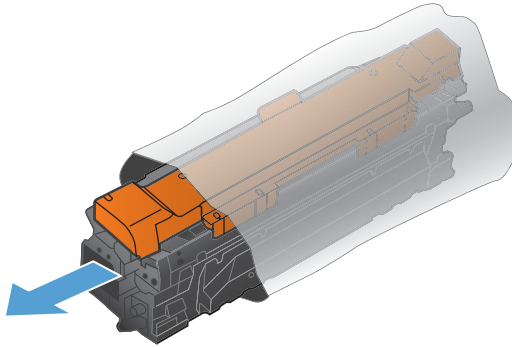
1. Open the front door. Make sure that the door is completely open.




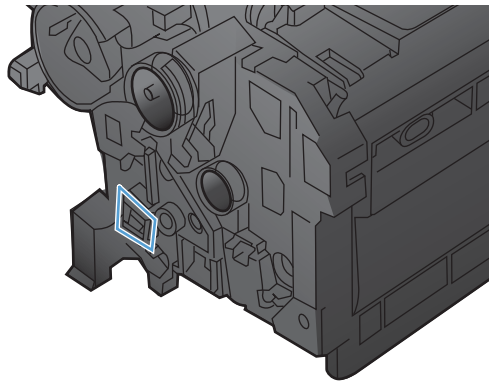
2. Grasp the handle of the used print cartridge and pull out to remove.



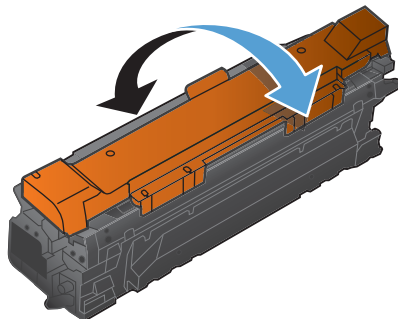
3. Store the used print cartridge in a protective bag. Information about recycling used print cartridges is on the print-cartridge box.
4. Remove the new print cartridge from its protective bag.



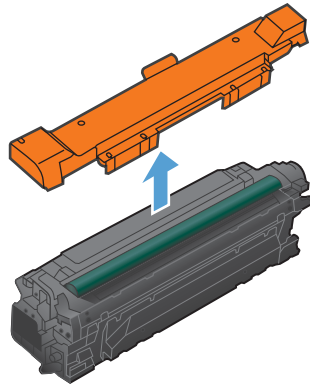
 **NOTE:** Be careful not to damage the memory tag on the print cartridge.



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



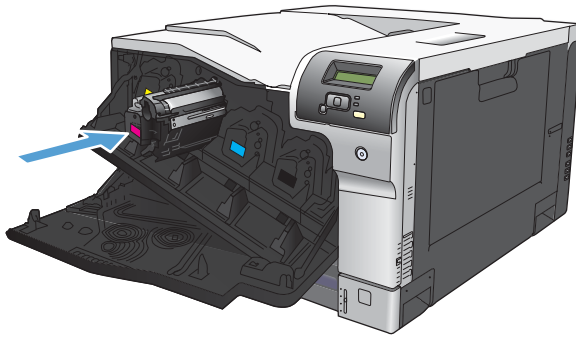
6. Remove the orange protective cover from the print cartridge. Place the protective cover on the used print cartridge to protect it during shipping.



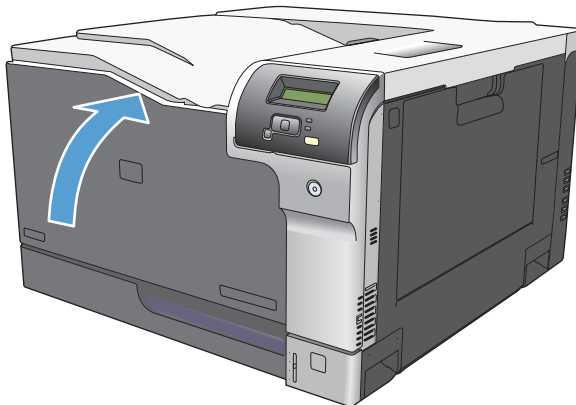
△ **CAUTION:** Avoid prolonged exposure to light.

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


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



8. Close the front door.

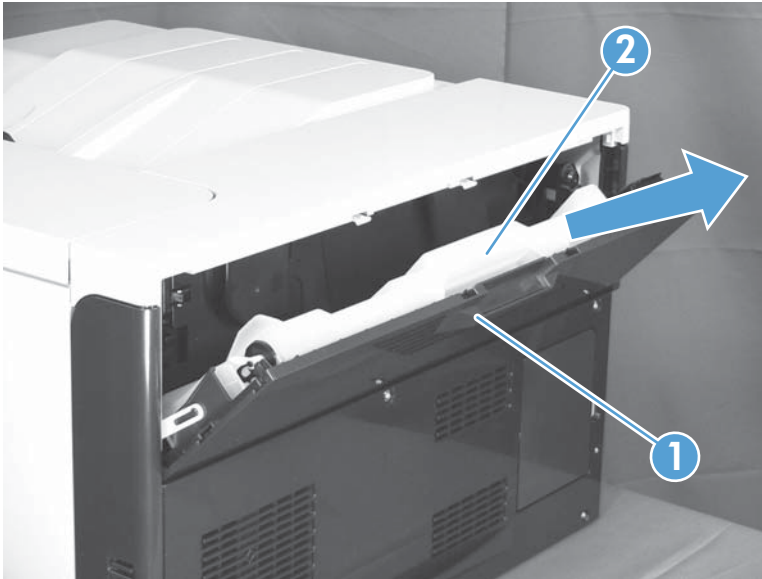



## Toner-collection unit

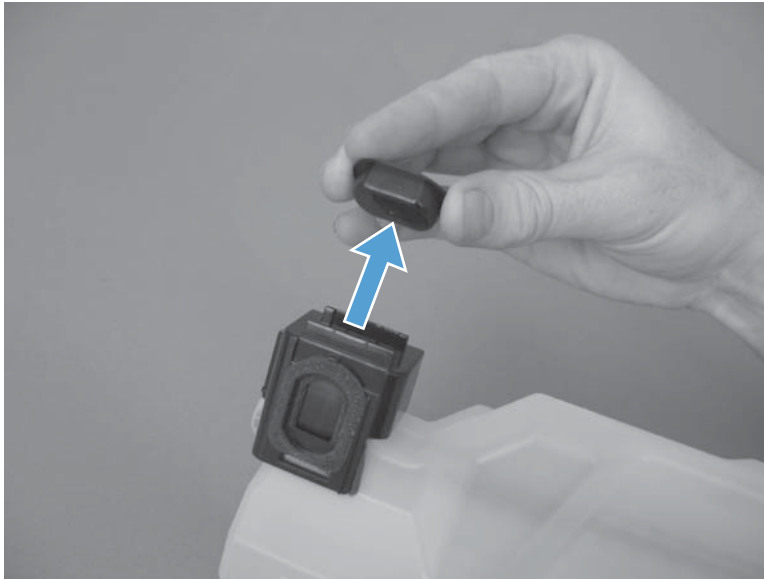
 **NOTE:** The toner-collection unit is designed for a single use. Do not try to empty the toner-collection unit and reuse it. Doing so could cause damage to the product. For recycling information, see the product user guide.

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

**Figure 2-2** Remove the toner-collection unit



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



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



## Memory DIMM

### Product memory


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

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

 **NOTE:** To order DIMMs, see [Order parts by authorized service providers on page 254](#).

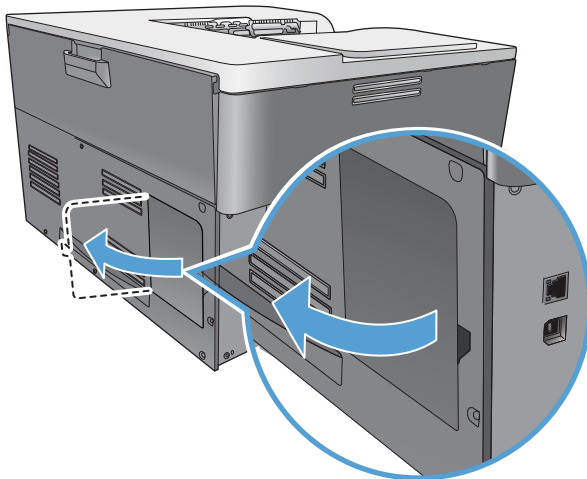
You might want to increase product memory if you often print complex graphics or HP postscript level 3 emulation documents, or if you use many downloaded fonts. Additional memory also enables multiple collated copies to print at the maximum speed.

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

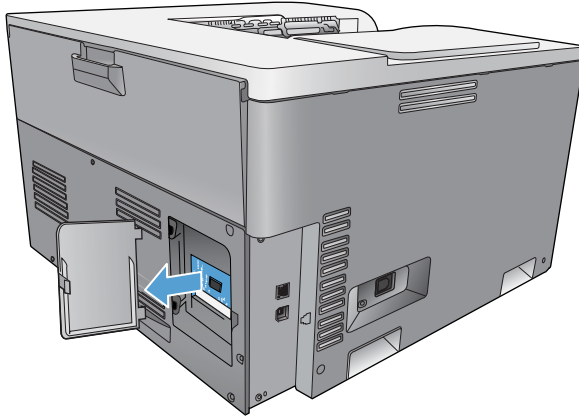
 **CAUTION:** Static electricity can damage electronic parts. When installing DIMMs, either wear an antistatic wrist strap, or frequently touch the surface of the DIMM antistatic package and then touch bare metal on the product.

### Install memory and font DIMMs

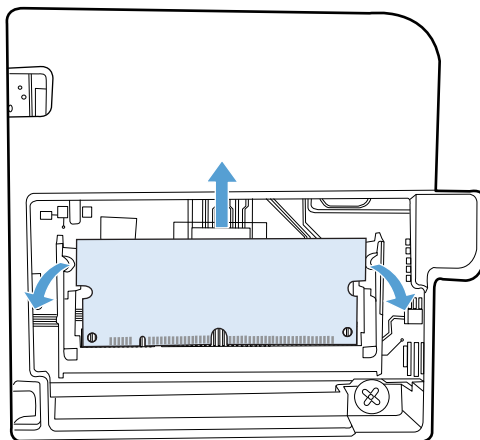
1. Turn the product off, and then disconnect all power and interface cables.
2. On the back of the product, open the DIMM access door.



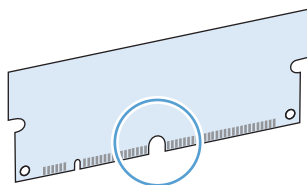
3. Remove the DIMM access door.



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

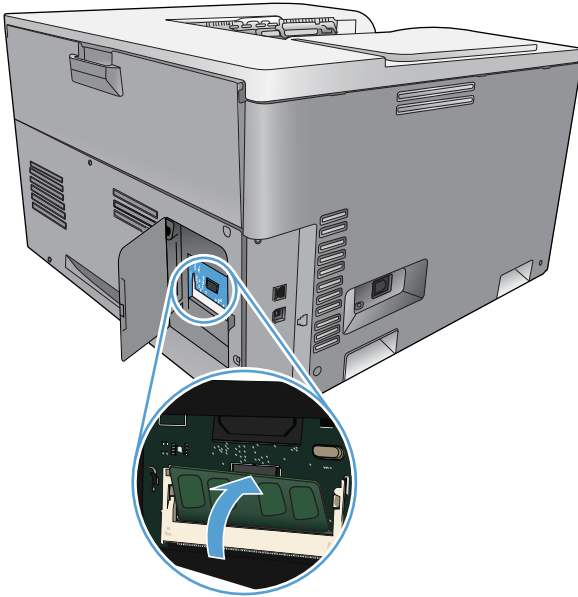


5. Remove the new DIMM from the antistatic package, and then locate the alignment notch on the bottom edge of the DIMM.

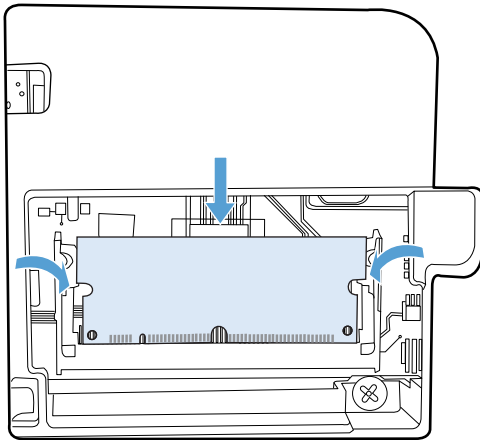





6. Holding the DIMM by the edges, align the notch on the DIMM with the bar in the DIMM slot at an angle.

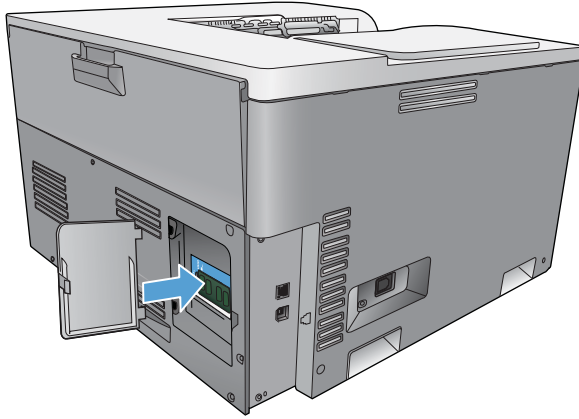


7. Push down on the DIMM until both latches engage the DIMM. When the installation is correct, the metal contacts are not visible.

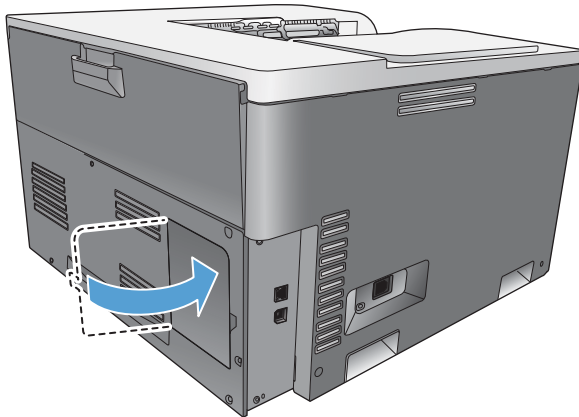


 **NOTE:** If you have difficulty inserting the DIMM, make sure that the notch on the bottom of the DIMM is aligned with the bar in the slot. If the DIMM still does not go in, make sure that you are using the correct DIMM type.

8. Reinsert the DIMM access door.



9. Close the DIMM access door.



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

## Enable memory

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

### Enable memory for Windows

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

### Check DIMM installation

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

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

**-or-**

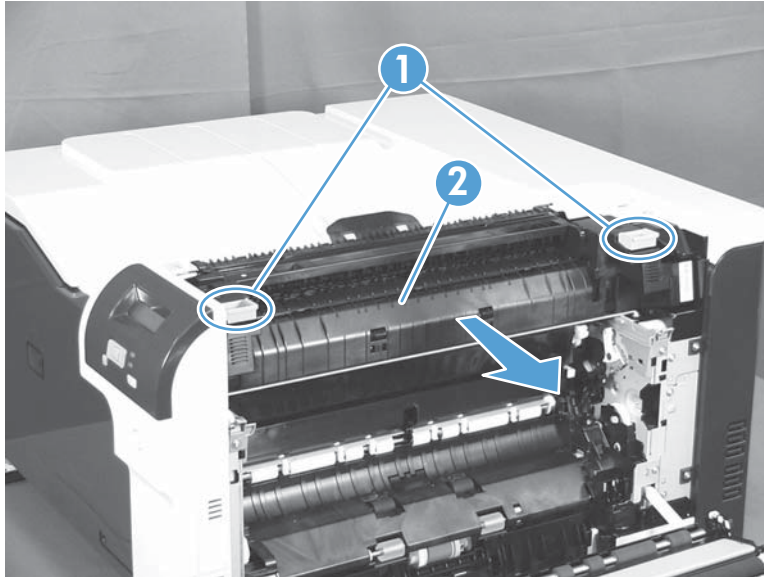
The DIMM may be defective. Try a new DIMM.

## Fuser

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

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

**Figure 2-3** Remove the fuser



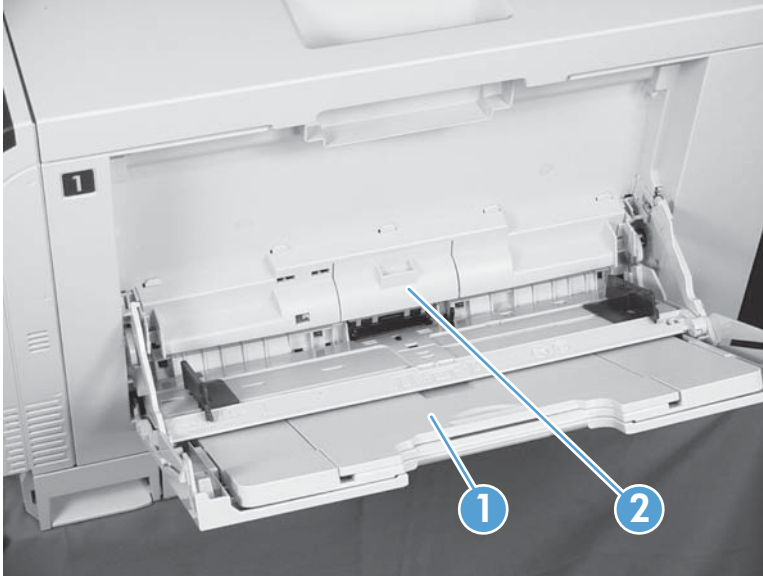
3. Pull the fuser (callout 2) straight out of the product to remove it.

## Pickup roller (Tray 1)

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

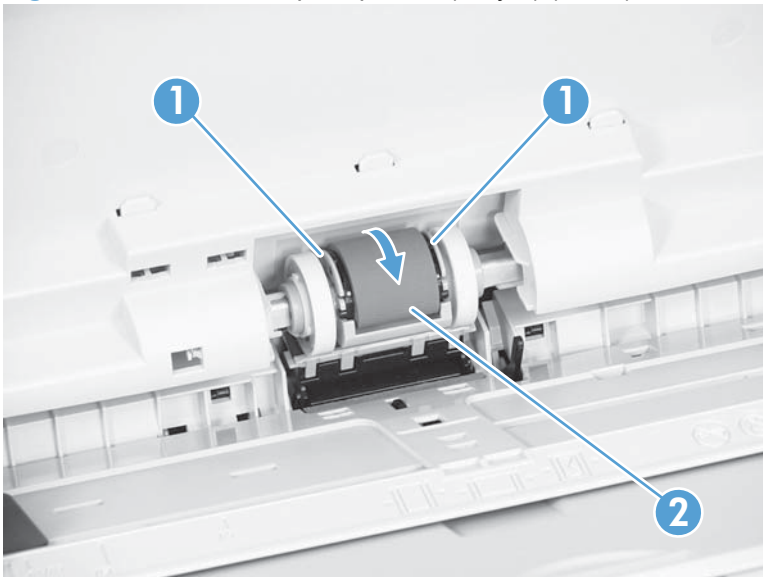
1. Open Tray 1 (callout 1), and then remove the pickup roller cover (callout 2).

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



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

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

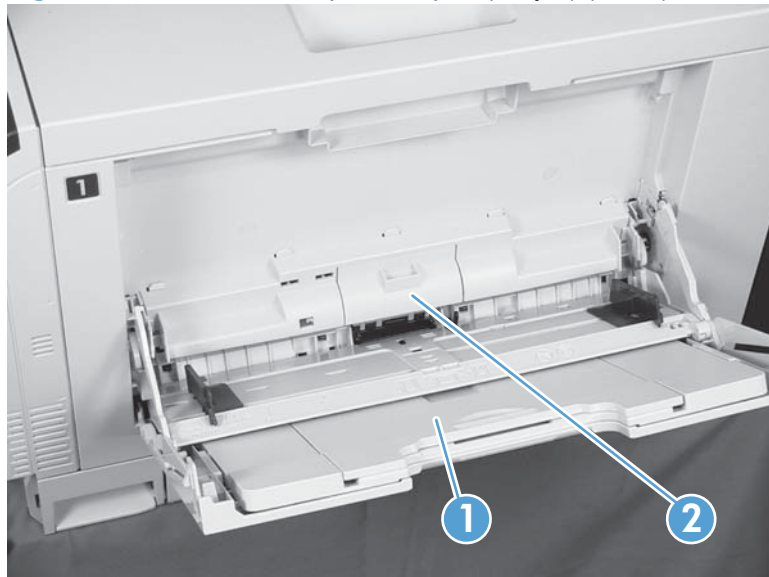


## Separation pad (Tray 1)

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

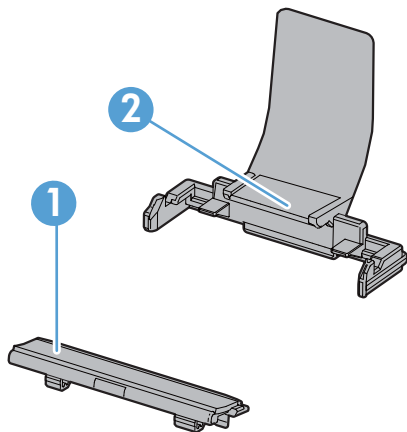
1. Open Tray 1 (callout 1), and then remove the pickup roller cover (callout 2).

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



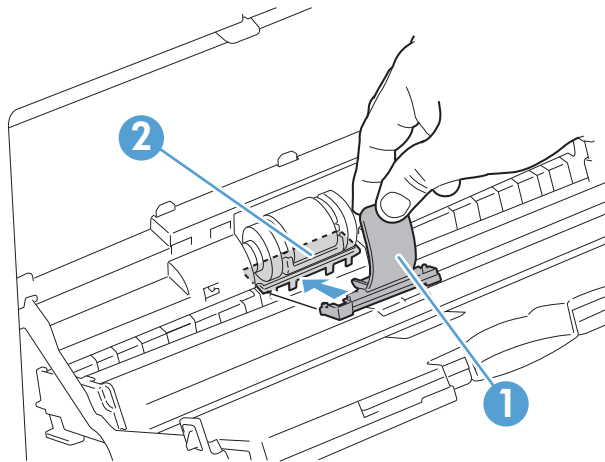
2. Take out the tool (callout 2) supplied with a new separation pad (callout 1).

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



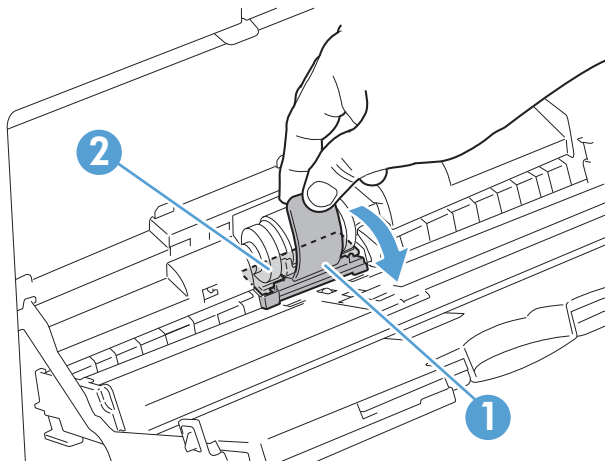
3. Insert the tool (callout 1) under the separation pad (callout 2).


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




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

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




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

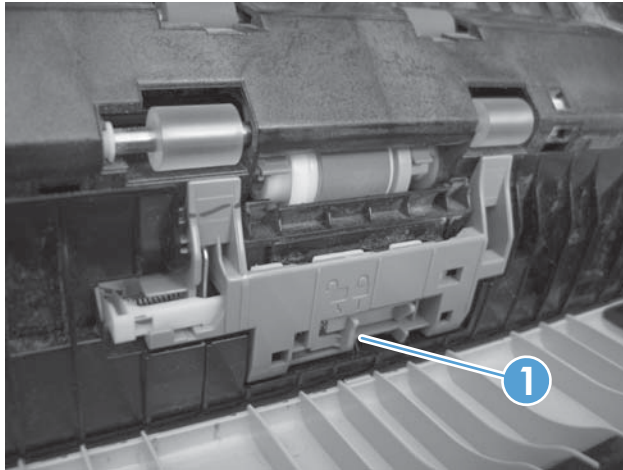
## Separation roller assembly (Tray 2)

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

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

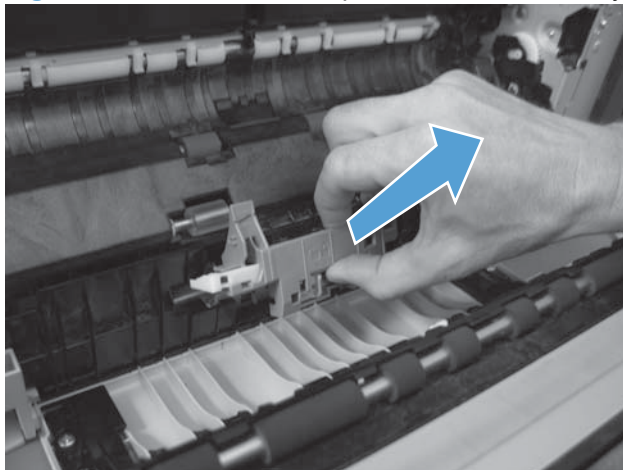
3. On the separation roller assembly, slide the lever (callout 1) toward the unlocked icon  until it clicks into the unlocked position.

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



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

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



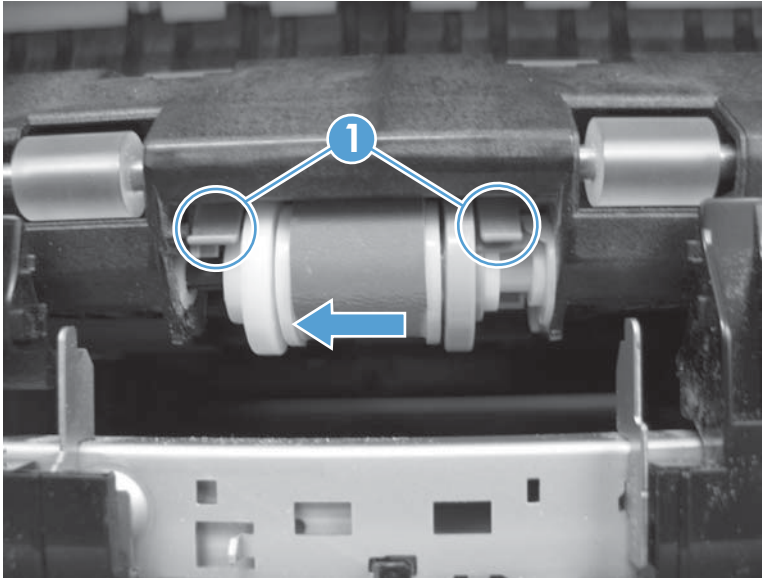


## Pickup roller (Tray 2)

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

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

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



5. Remove the pickup roller.

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

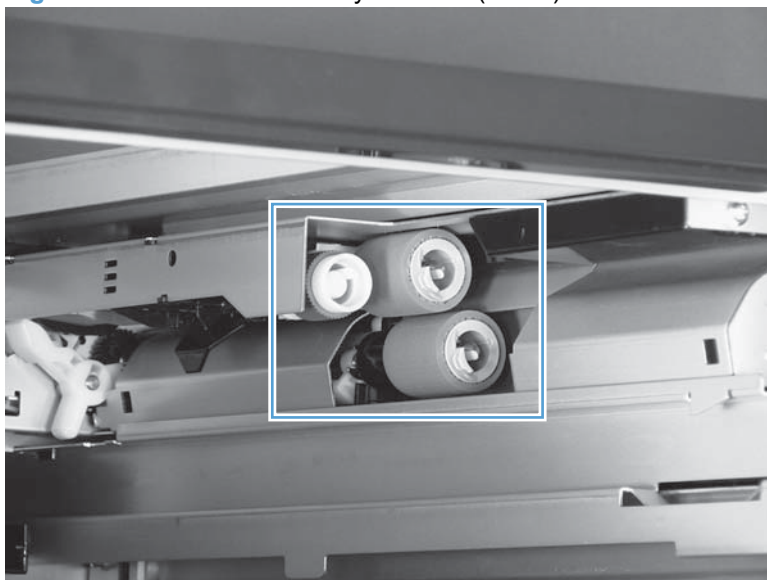
## Pickup roller, separation roller, and feed roller (Tray 3)

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

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

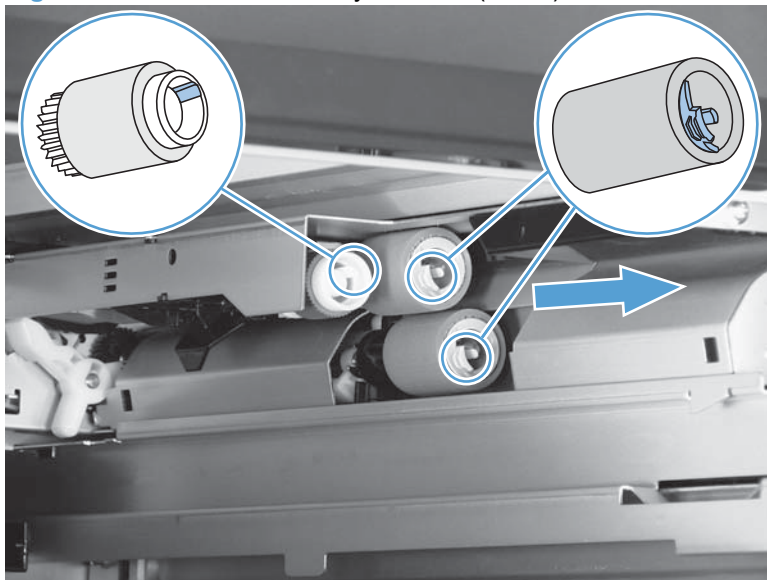
1. Remove Tray 3 from the product, and then locate the Tray 3 rollers on the righthand side of the tray cavity.

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



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

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



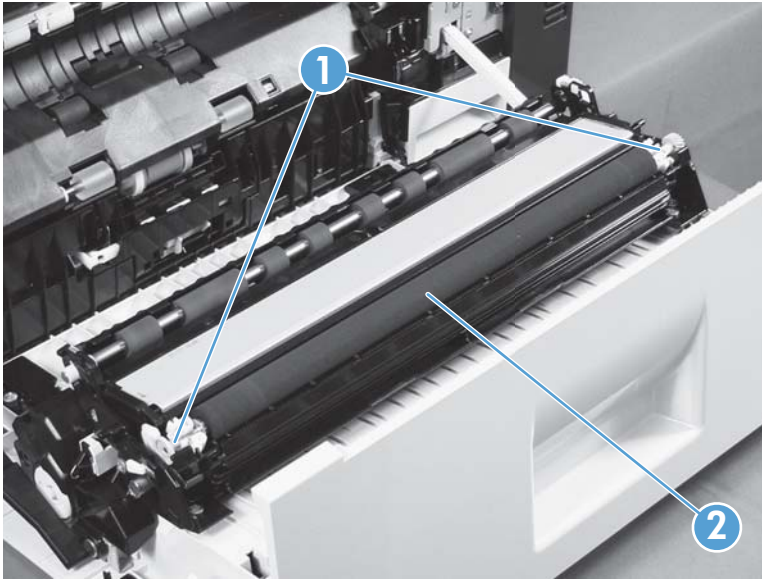
💡 **Reinstallation tip** When you reinstall the rollers, make sure that the rollers snap into place.

## Secondary transfer roller

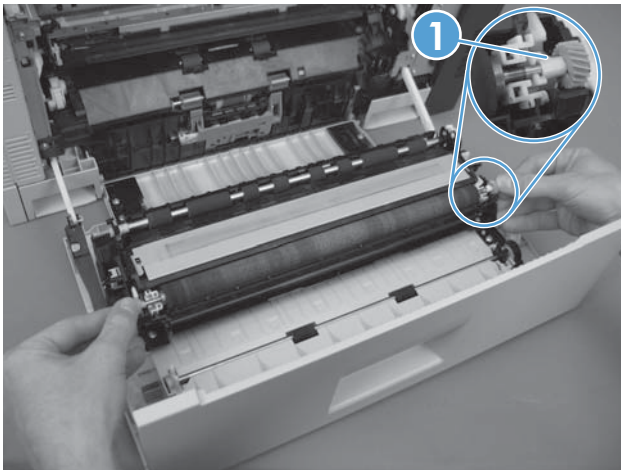
△ **CAUTION:** Do not touch the spongy roller surface unless you are replacing the roller. Skin oils on the roller can cause image quality problems.

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

**Figure 2-15** Remove the transfer roller



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

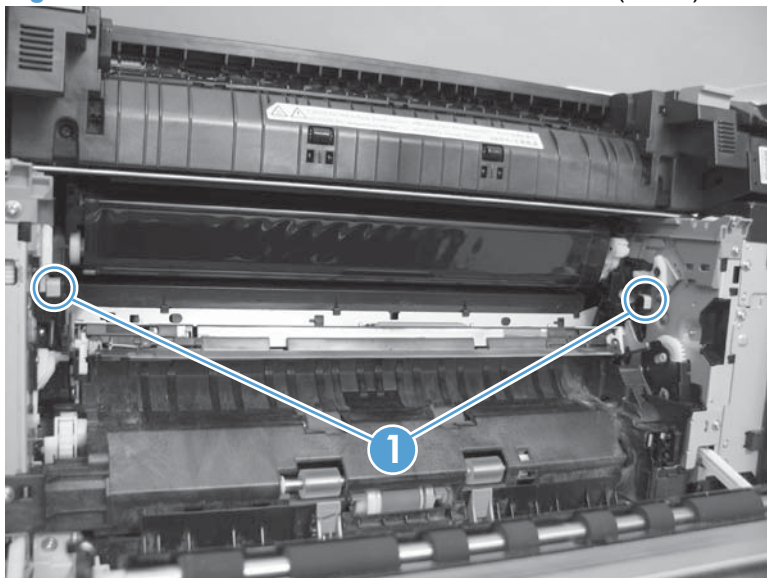


## Intermediate transfer belt (ITB)

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

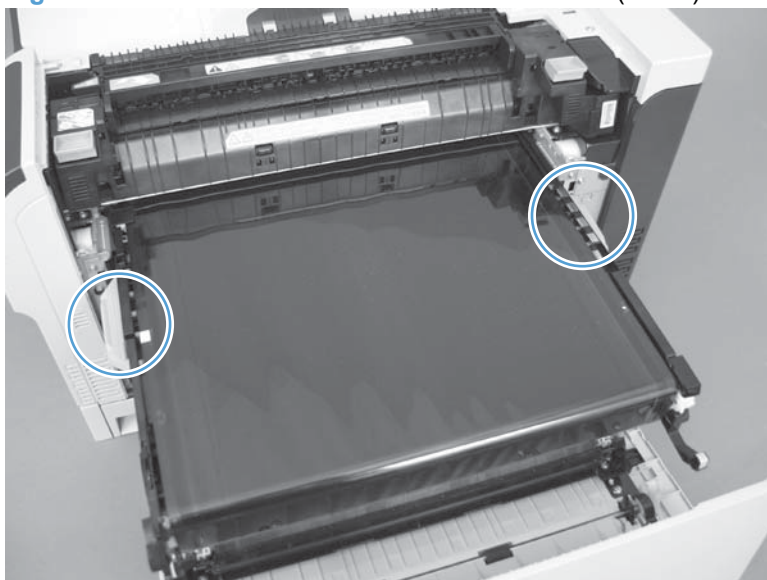
1. Open the right-door assembly.
2. Use both hands to grasp the blue levers (callout 1), apply slight downward pressure, and pull the ITB toward you at a downward angle.

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



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

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



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

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

---

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



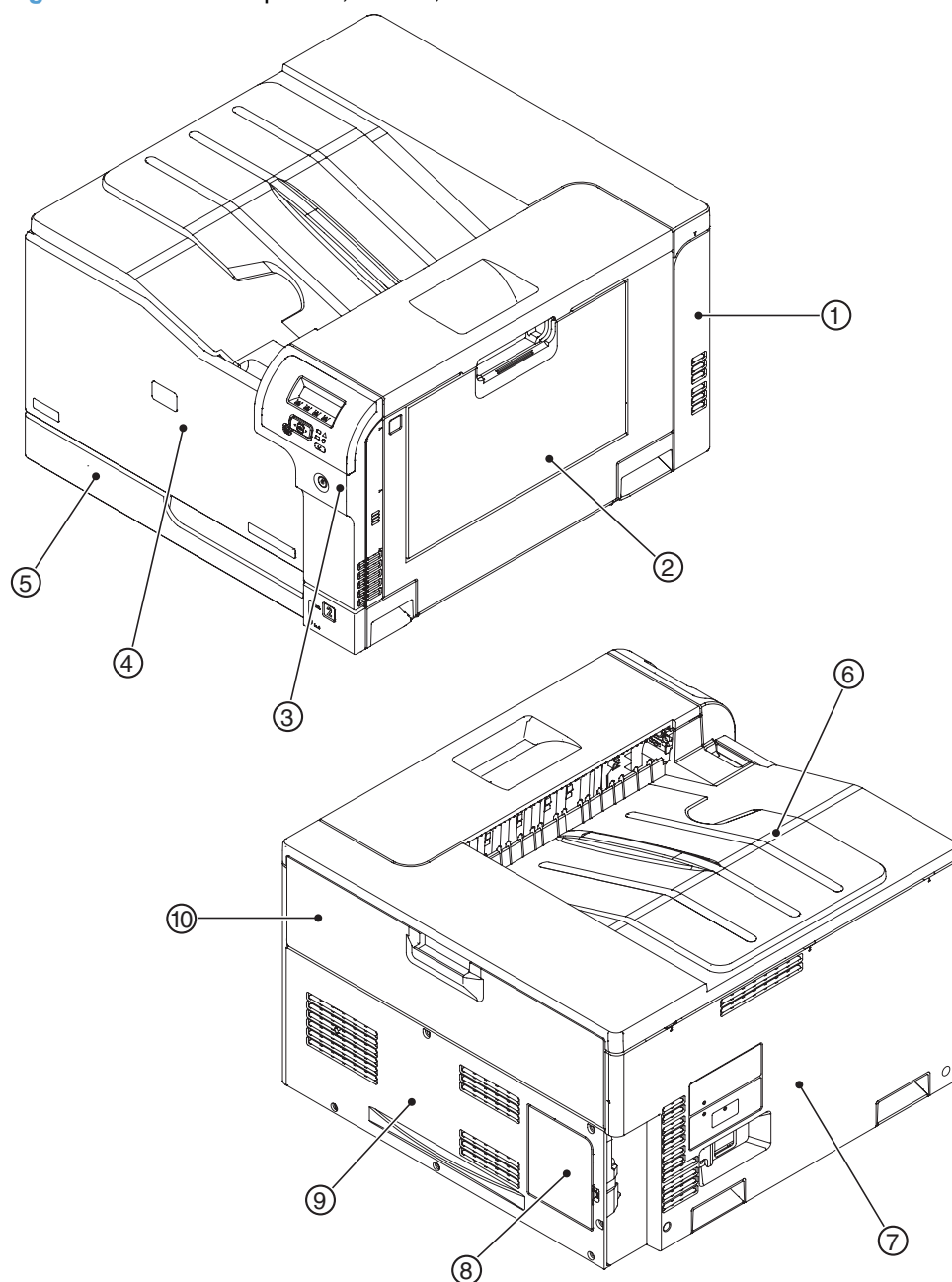
💡 **Reinstallation tip** If you are installing a replacement ITB, make sure that you remove all of the packing tape and the protective cover sheet.

---

## External panels, covers, and doors

### Identification and location

**Figure 2-19** External panels, covers, and doors



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

Item	Description	Item	Description
1	Rear-right cover (see <a href="#">Right-rear cover on page 95</a> )	6	Top cover (see <a href="#">Top cover on page 96</a> )
2	Right-door assembly (see <a href="#">Right-door assembly on page 102</a> )	7	Left cover (see <a href="#">Left cover on page 92</a> )



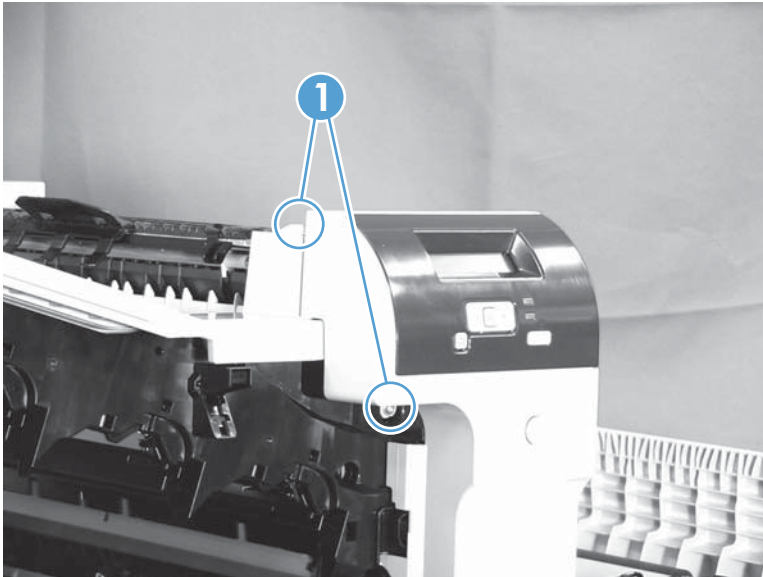
**Table 2-1** External panels, covers, and doors (continued)

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

## Right-front cover and control-panel assembly

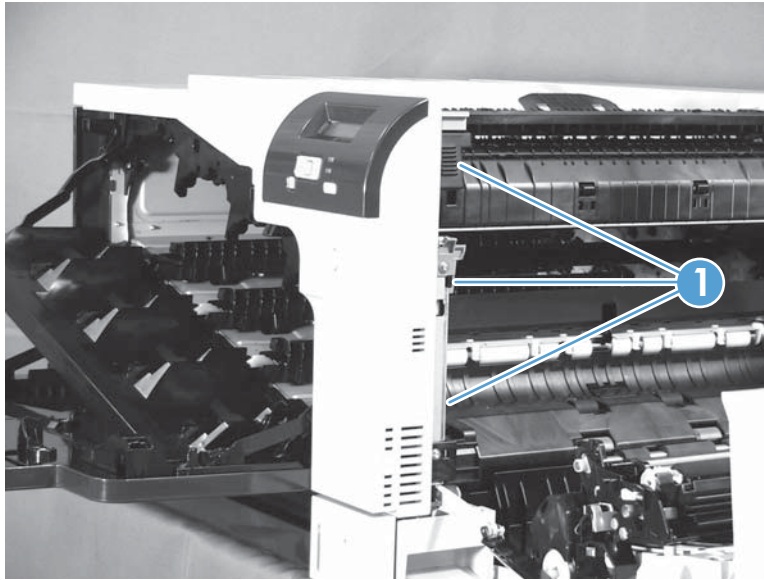
1. Open the front door and the right door.
2. Remove two screws (callout 1).

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



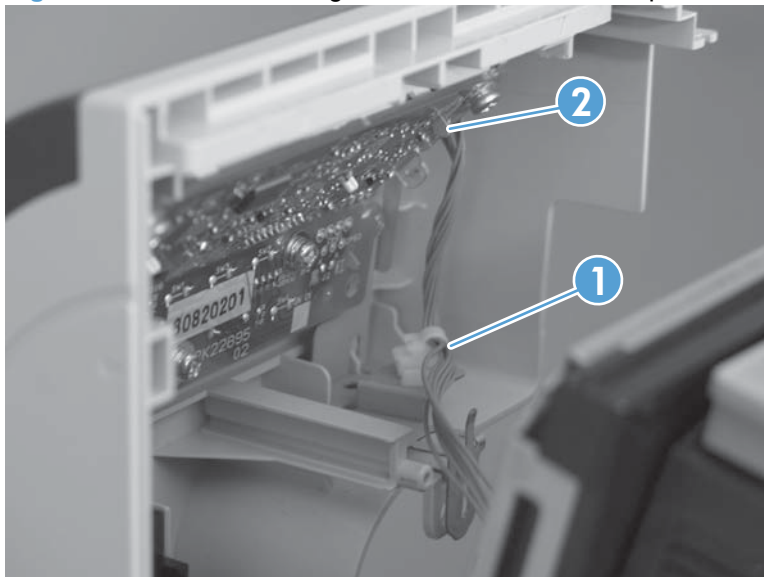
3. Release 3 tabs (callout 1) on the right side of the assembly.

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



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

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

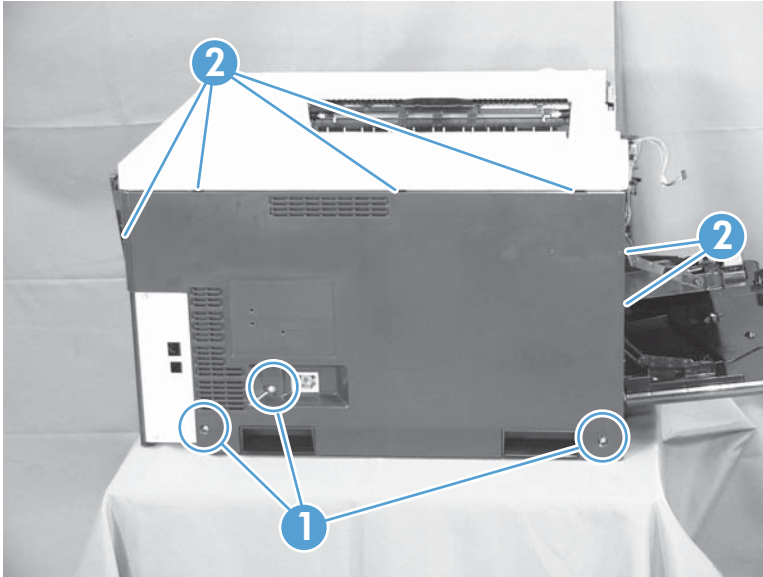






## Left cover

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

**Figure 2-23** Remove the left cover



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

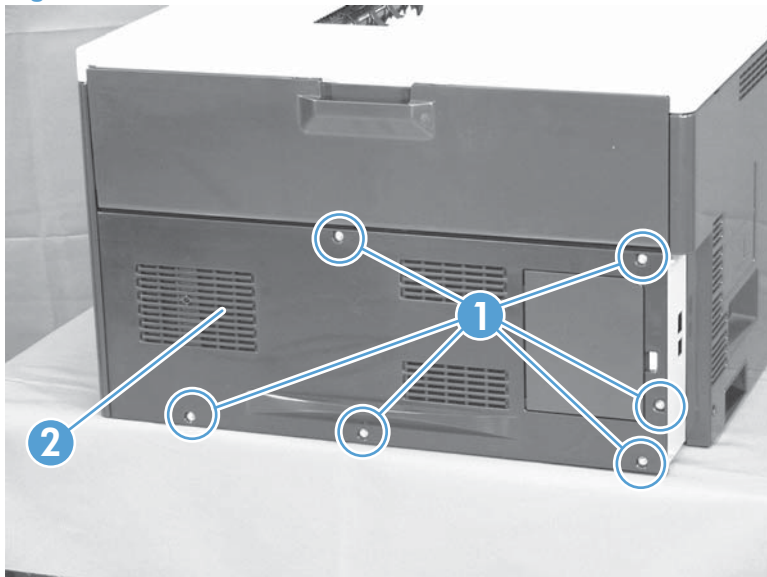
 **Reinstallation tip** If the front door will not close after the left cover has been reinstalled, verify that the two tabs on the right side of the cover have been aligned correctly with the product chassis.

## Rear cover

### Remove the rear cover

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

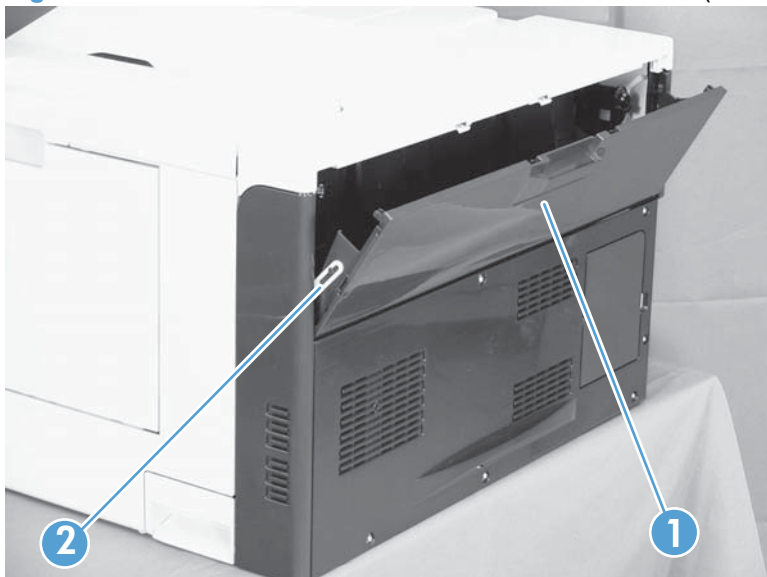
**Figure 2-24** Remove the rear cover



### Toner collection unit access door

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

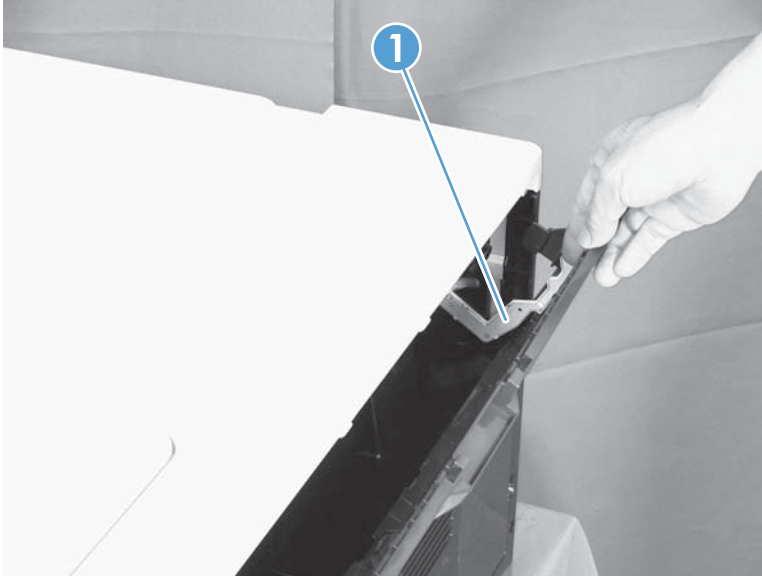
**Figure 2-25** Remove the toner collection unit access door (1 of 3)



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

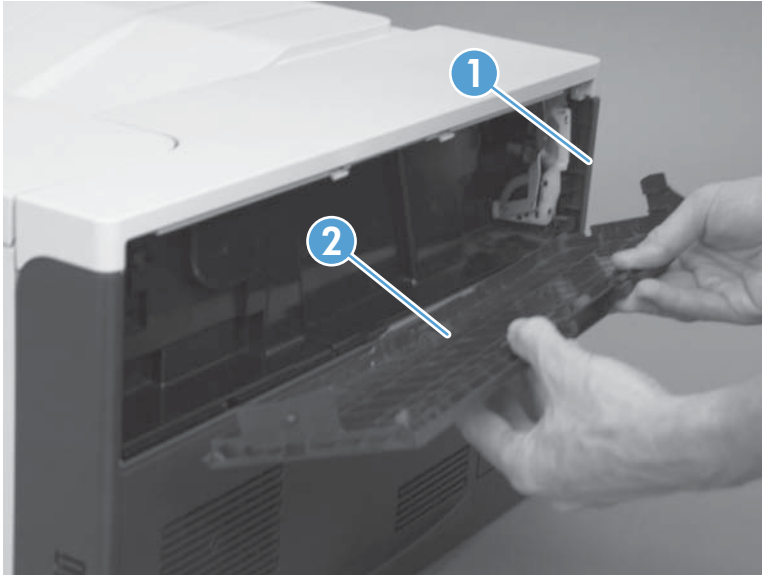
△ **CAUTION:** Do not disconnect the right-hand link arm when the door is completely open. Doing so can disconnect the link arm spring.

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



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

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

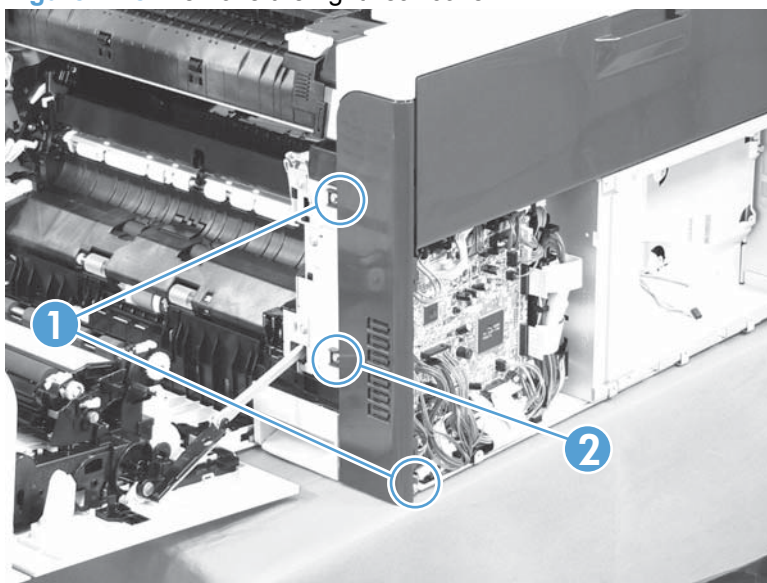


## Right-rear cover

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

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

**Figure 2-28** Remove the right-rear cover



## Top cover

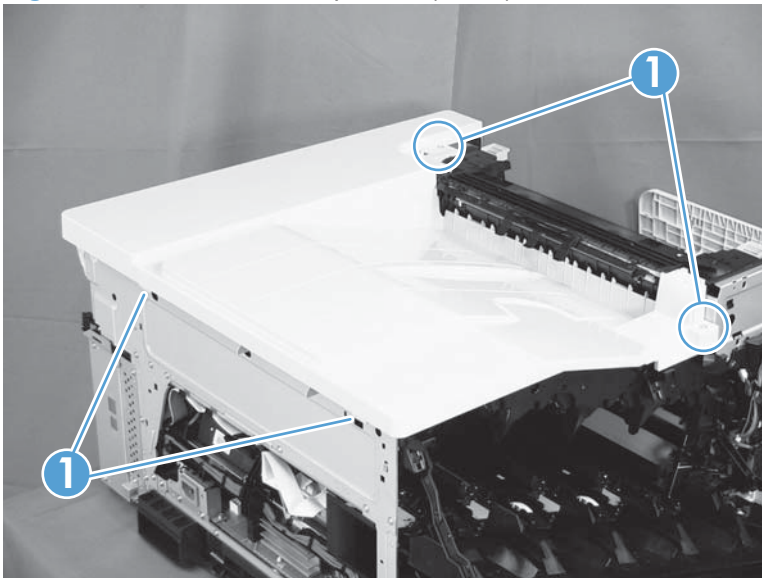
Before proceeding, remove the following components:

- Left cover. See [Left cover on page 92](#).
- Right-front cover and control-panel assembly. See [Right-front cover and control-panel assembly on page 90](#).
- Right-rear cover. See [Right-rear cover on page 95](#).

### Remove the top cover

1. Remove four screws (callout 1).

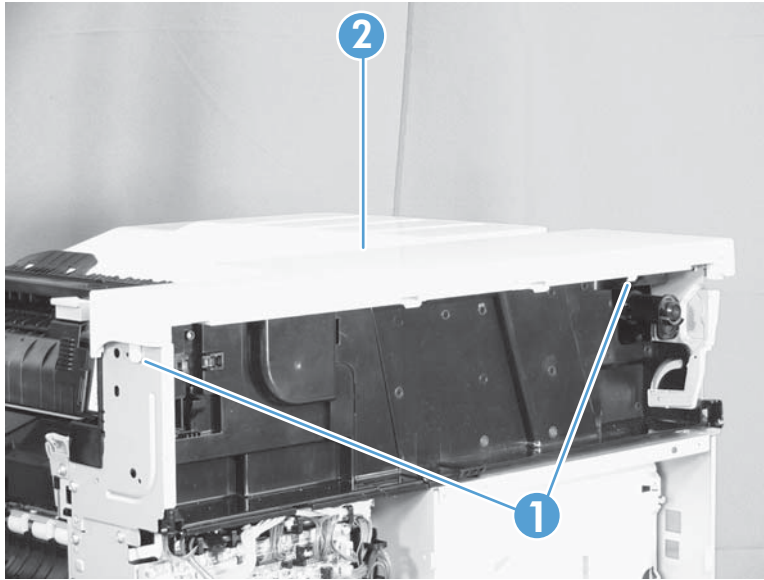
**Figure 2-29** Remove the top cover (1 of 2)



2. Open the toner-collection door.

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

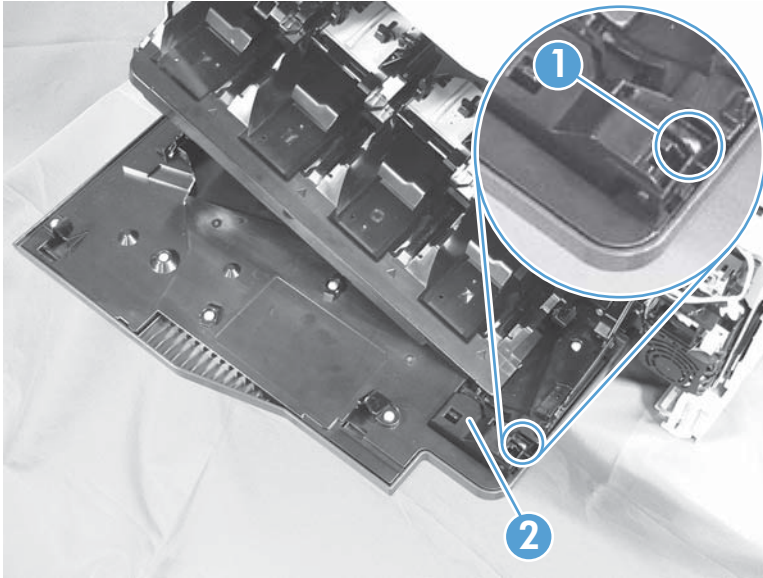
**Figure 2-30** Remove the top cover (2 of 2)



## Front-door assembly

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

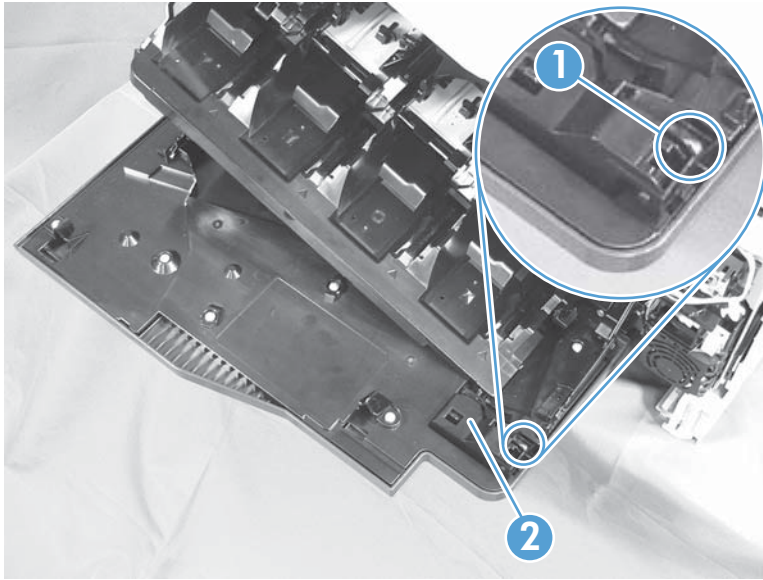
**Figure 2-31** Remove the front-door assembly (1 of 5)





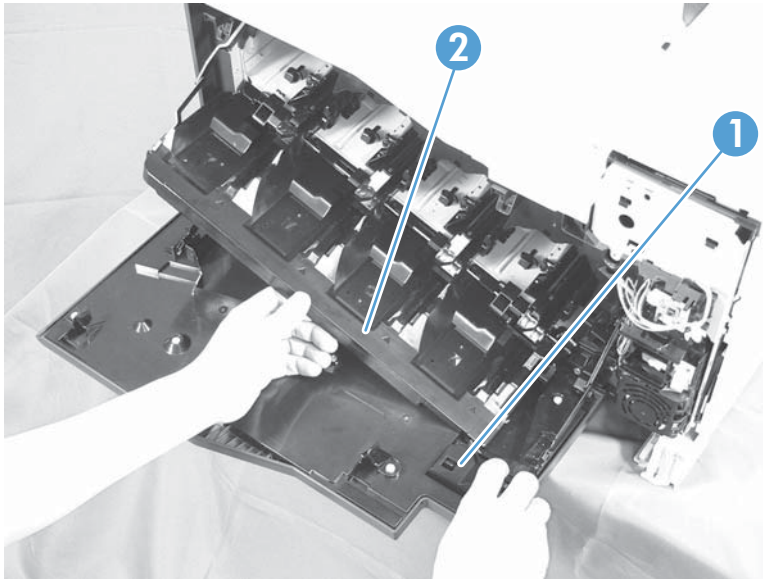
4. Remove the inner cover rail mount (callout 1).

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



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

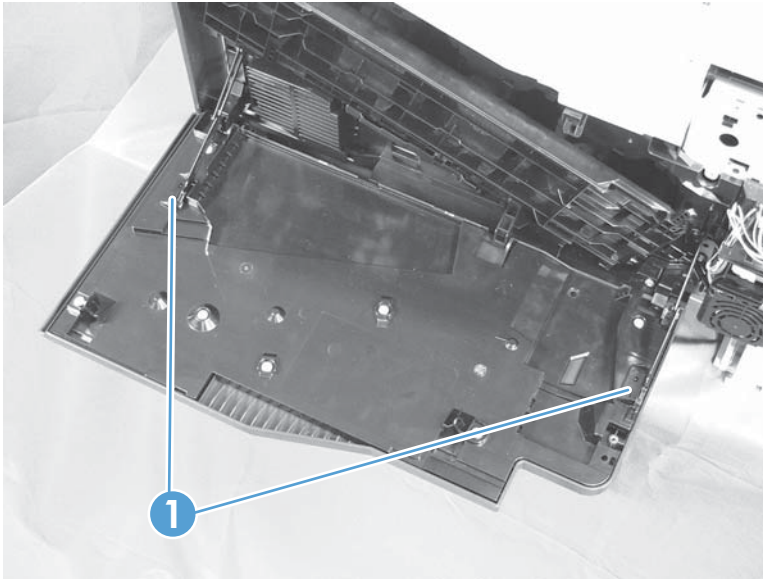
**Figure 2-33** Remove the front-door assembly (3 of 5)




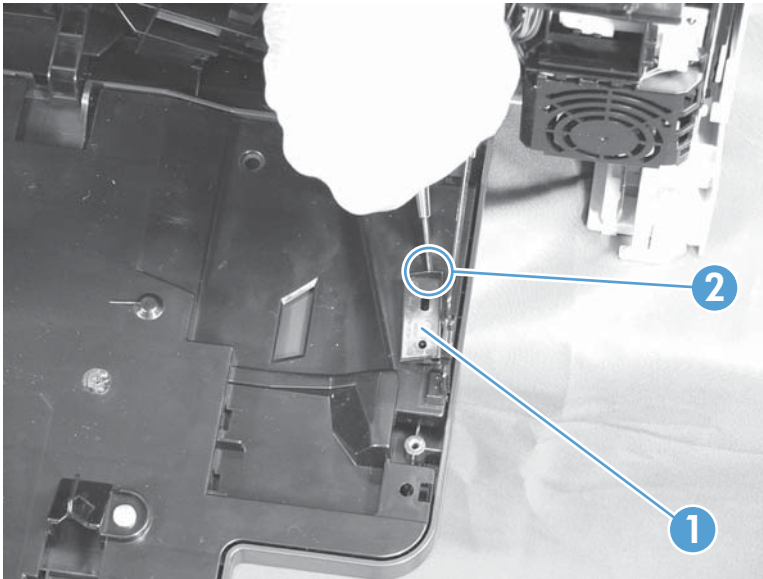


5. Release two tabs on each stopper (callout 1) with a small flat-blade screwdriver.

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

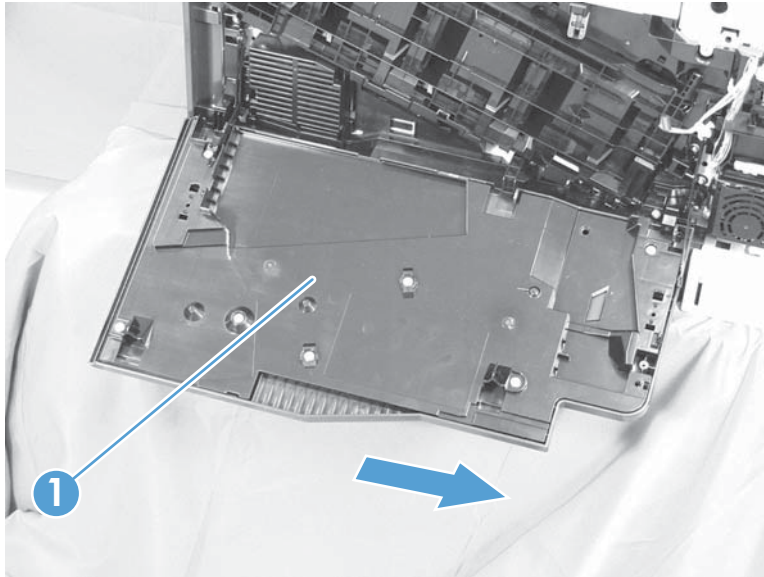


 **NOTE:** Each tab is at the end of the stopper that is closest to the product. See the figure below.



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

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

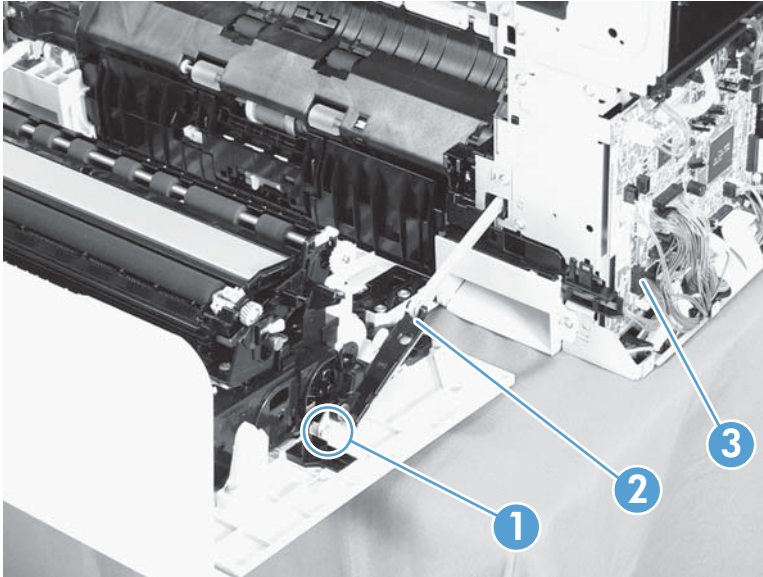


## Right-door assembly

Remove the following components:

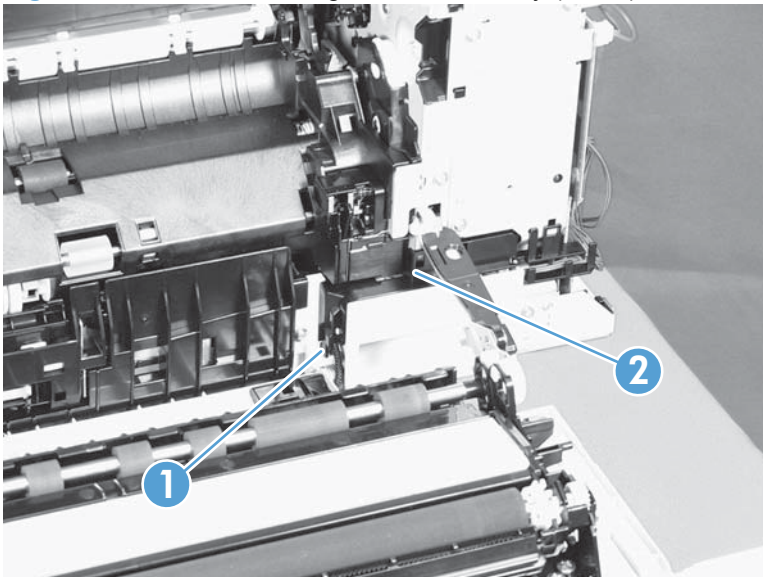
- Rear cover (see [Rear cover on page 93](#))
  - Right rear cover (see [Right-rear cover on page 95](#))
1. Open the right-door assembly
  2. Remove one screw (callout 1), release the link arm (callout 2), and then disconnect one connector (callout 3). You must remove two zip ties to disconnect the connector.

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



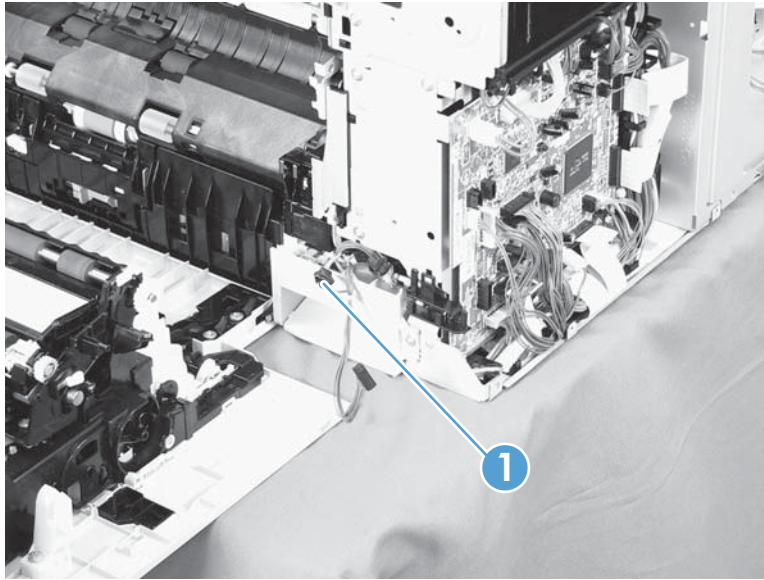
3. Carefully release one tab (callout 1), and then remove the cable cover (callout 2).

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



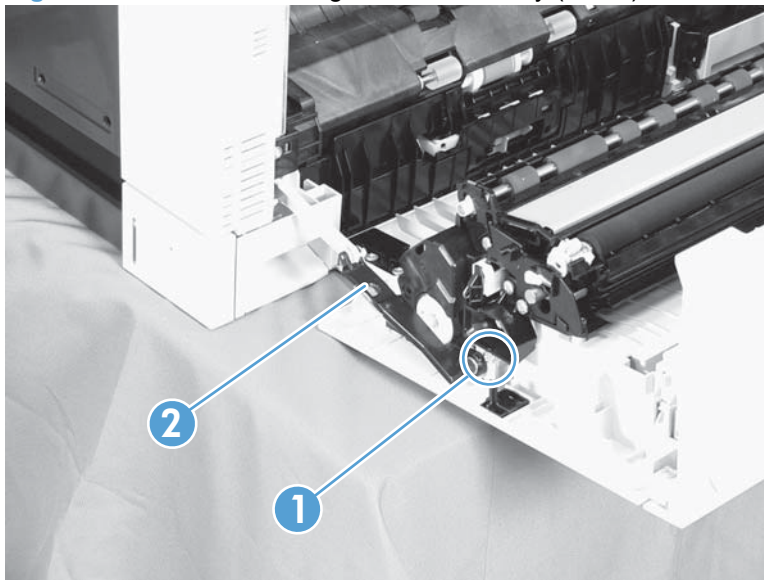
4. Remove one connector (callout 1)

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



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

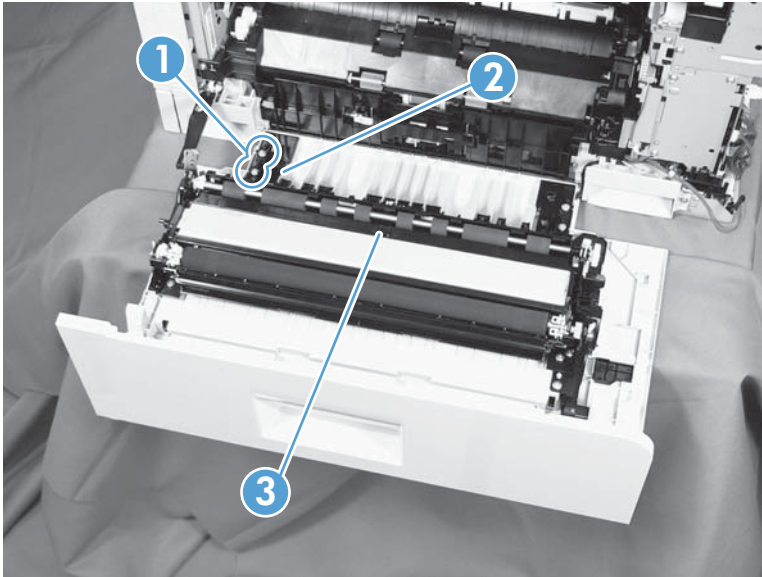
**Figure 2-39** Remove the right-door assembly (4 of 5)






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

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



## Internal assemblies

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

## Laser scanner assembly

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

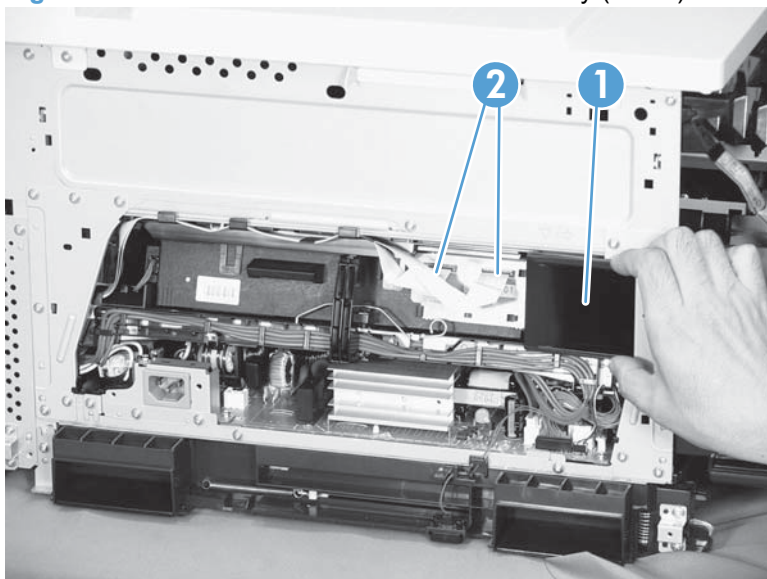
**Before proceeding, remove the following components:**

- Tray 2
- Left cover. See [Left cover on page 92](#).

### Remove the laser scanner assembly

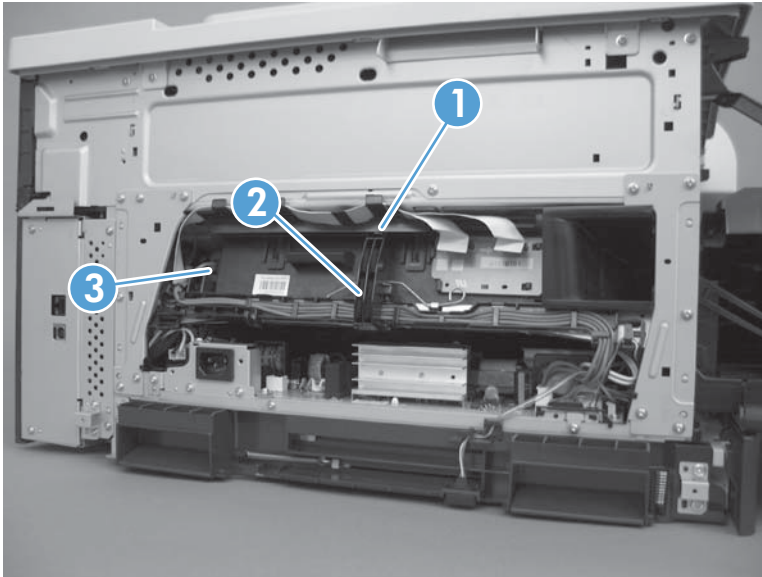
1. Open the front door.
2. On the left side of the product, pinch and remove the fan duct (callout 1), and then disconnect the two flat cables (callout 2).

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



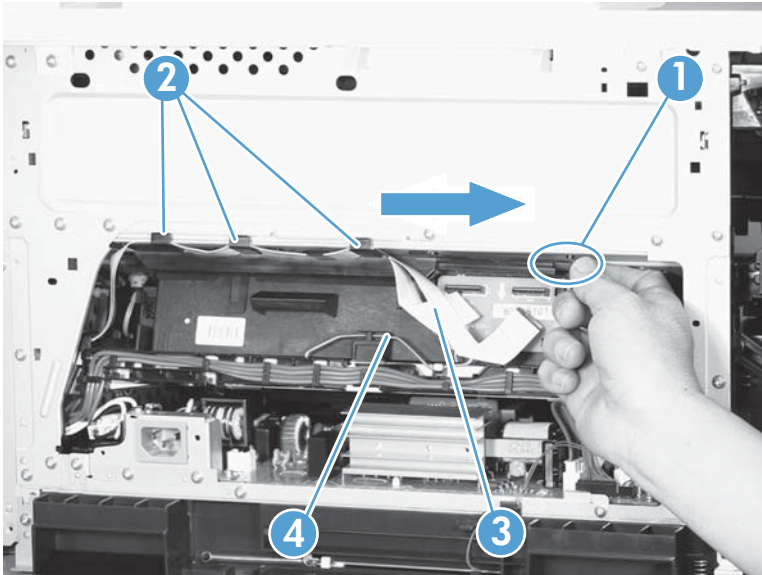
3. Release one tab (callout 1), remove the stopper (callout 2), and then disconnect one connector (callout 3).

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



4. Release one tab (callout 1), and then slide the cable guide (callout 2) in the direction that the arrow indicates.
5. Remove the cable guide (callout 2) and the flat cables (callout 3) together, and then remove one spring (callout 4).

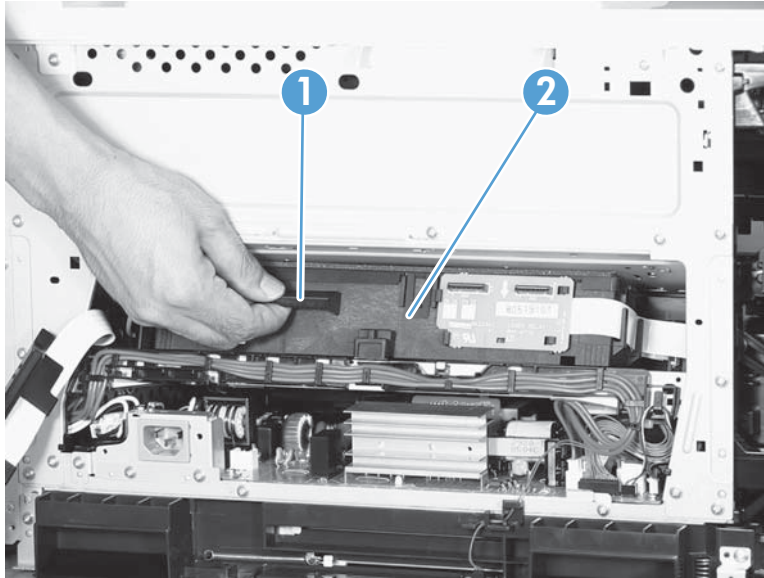
**Figure 2-43** Remove the laser scanner assembly (3 of 4)



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

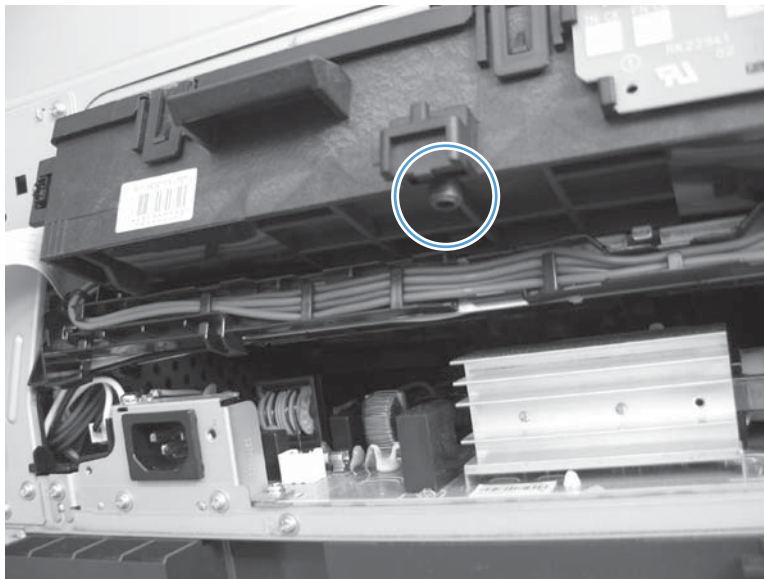
△ **CAUTION:** Do not touch the protective glass strip on top of the assembly.

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



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

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





## Cassette pickup drive assembly

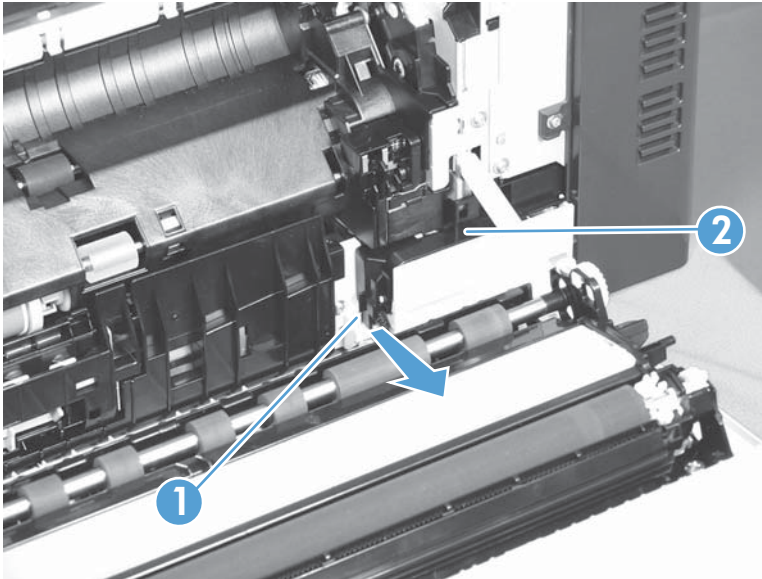
Before proceeding, remove the following components:

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

### Remove the cassette pickup drive assembly

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

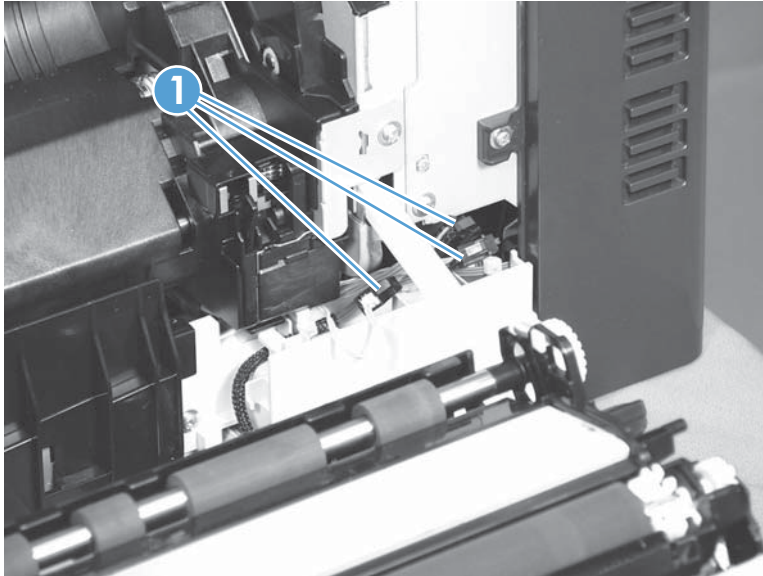
**Figure 2-45** Remove the cassette pickup drive assembly (1 of 3)



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

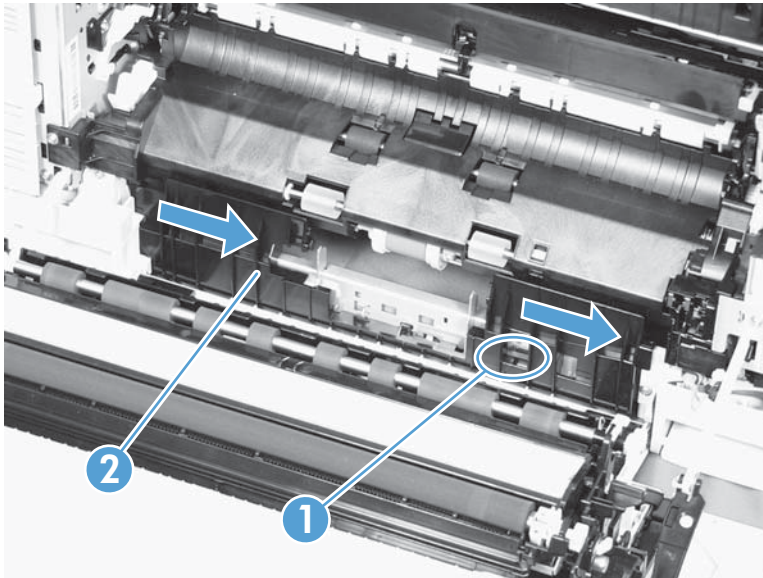
 **NOTE:** The connectors might be hidden behind the assembly.

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



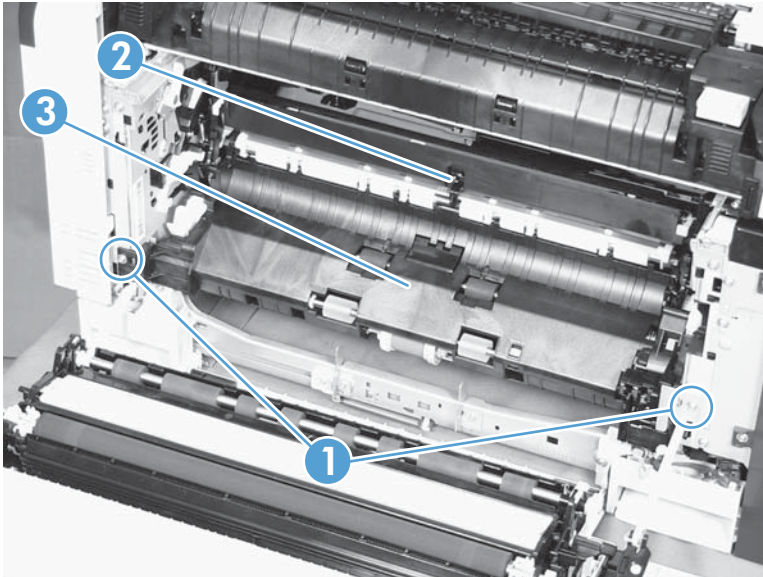
3. Pull out one tab (callout 1), and then slide the guide (callout 2) to the right to remove it.

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




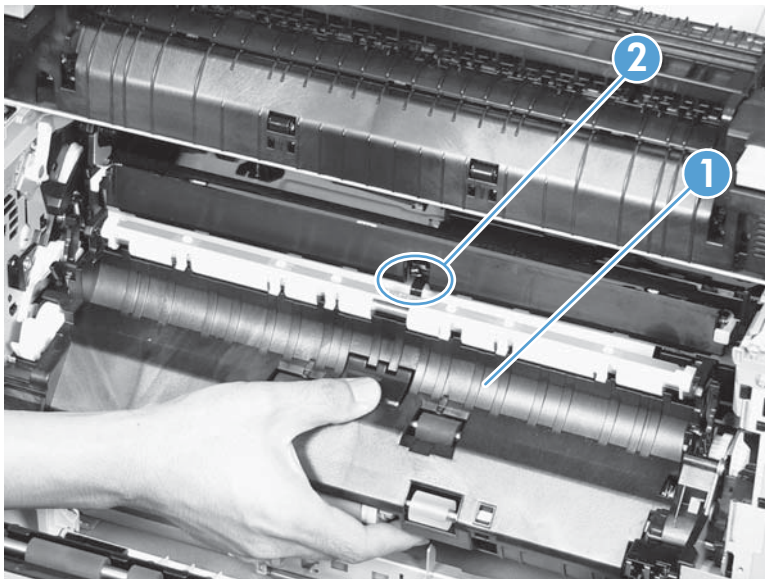
4. Remove two screws (callout 1), move the registration sensor lever (callout 2) to the up position, and then pull the cassette pickup drive assembly (callout 3) toward you to remove it.

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

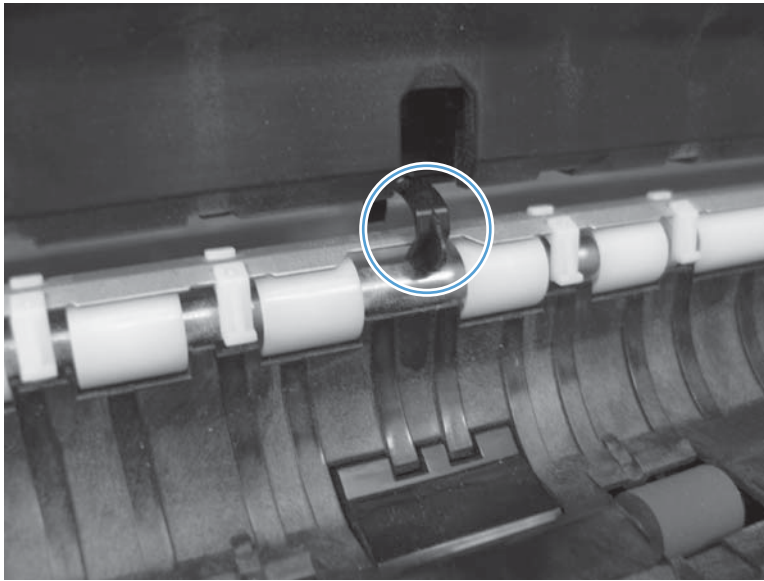


5. After replacing the cassette pickup drive assembly, use the **Secondary service menu** menu to reset the registration roller page count to zero. The registration roller is part of the cassette pickup drive assembly.

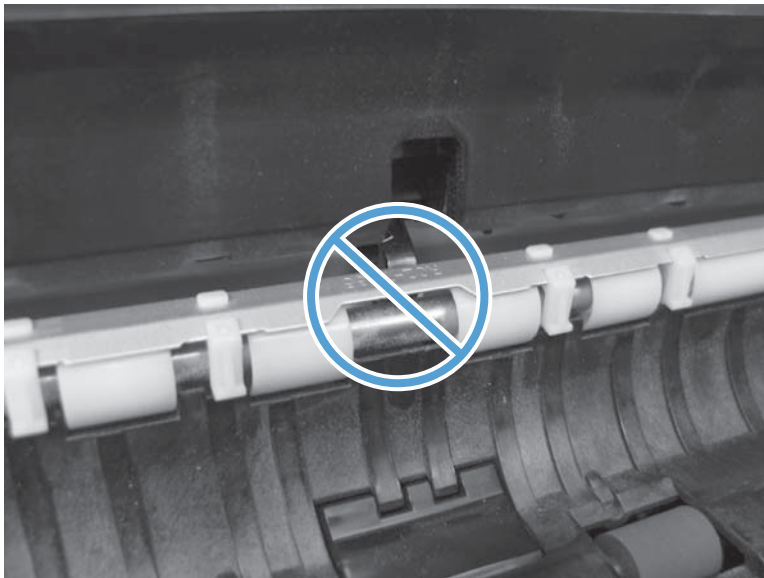
 **Reinstallation tip** When reassembling the cassette pickup drive unit (callout 1), the sensor flag (callout 2) is in the way. Be sure to hold up the sensor flag when reassembling. Verify that the sensor flag moves properly after reassembling the cassette pickup drive unit.



The figure below shows the assembly reinstalled correctly.



The figure below shows the assembly reinstalled *incorrectly*.





## Registration sensor assembly

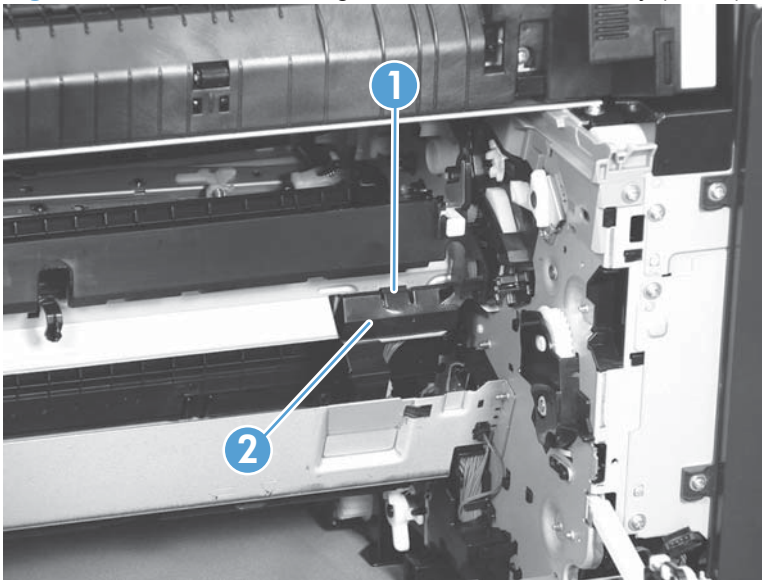
Before proceeding, remove the following components:

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

### Remove the registration sensor assembly

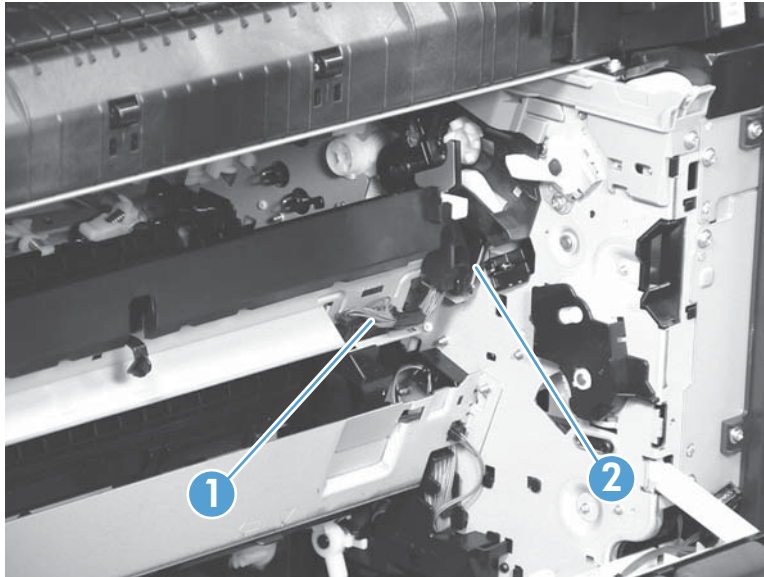
1. Push the tab (callout 1) down, and then pull the top of the cover to remove the cover (callout 2). You might need a small flat-blade screwdriver to press down the tab.

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



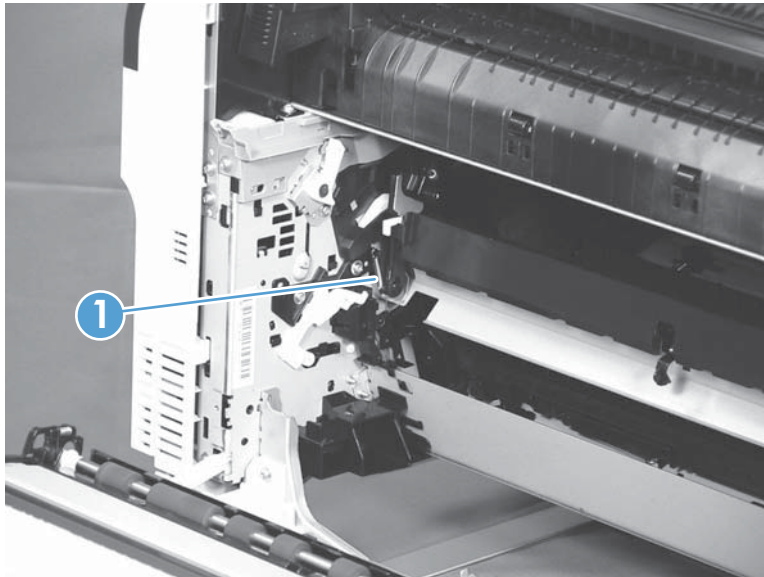
2. Disconnect one connector (callout 1), and then detach the bottom part of the spring (callout 2). If necessary, use a pick or needle-nose pliers to detach the spring.

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



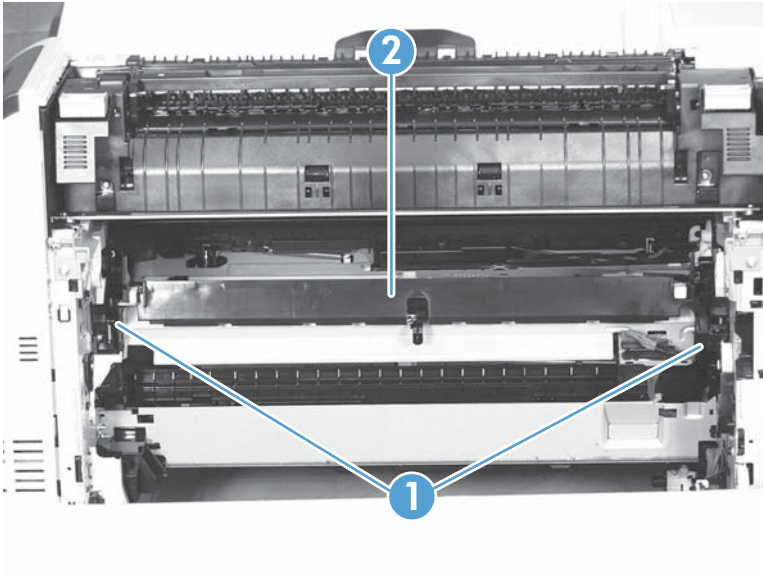
3. Detach the bottom of one spring (callout 1).

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



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

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



## Lifter-drive assembly

Before proceeding, remove the following components:

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

### Remove the lifter-drive assembly

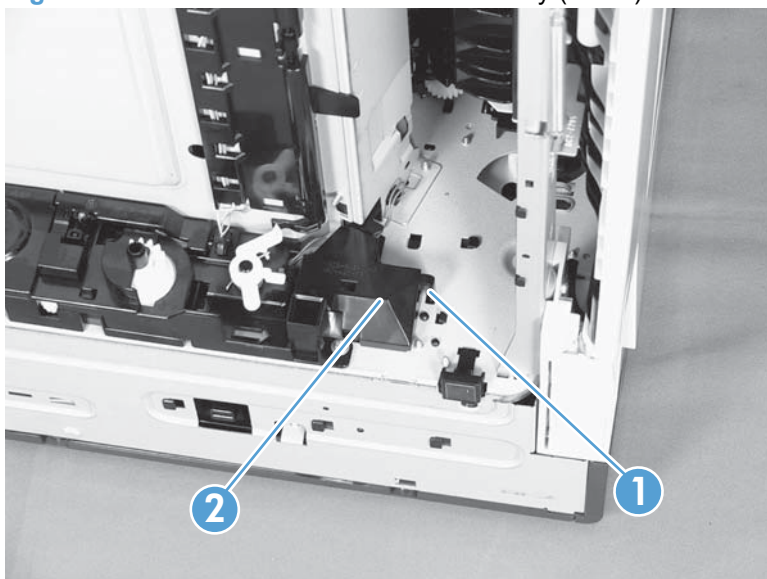
1. Verify that the right door is closed, and then turn the product so that the front side faces up.

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



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

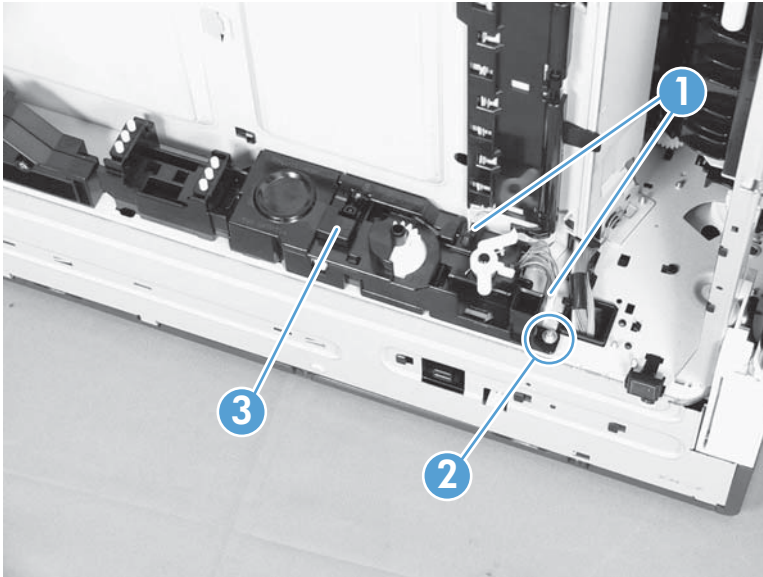
**Figure 2-54** Remove the lifter-drive assembly (2 of 3)




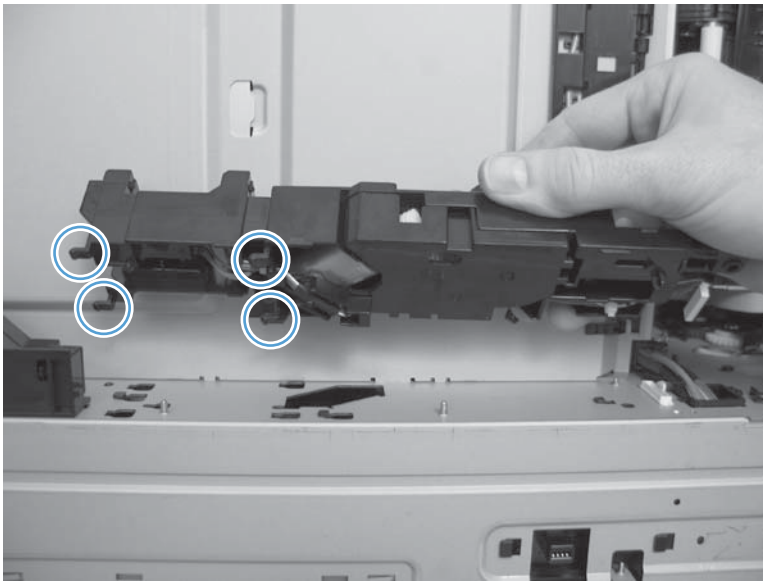


3. Disconnect two connectors (callout 1), remove one screw (callout 2), and then remove the lifter drive unit (callout 3).

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



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

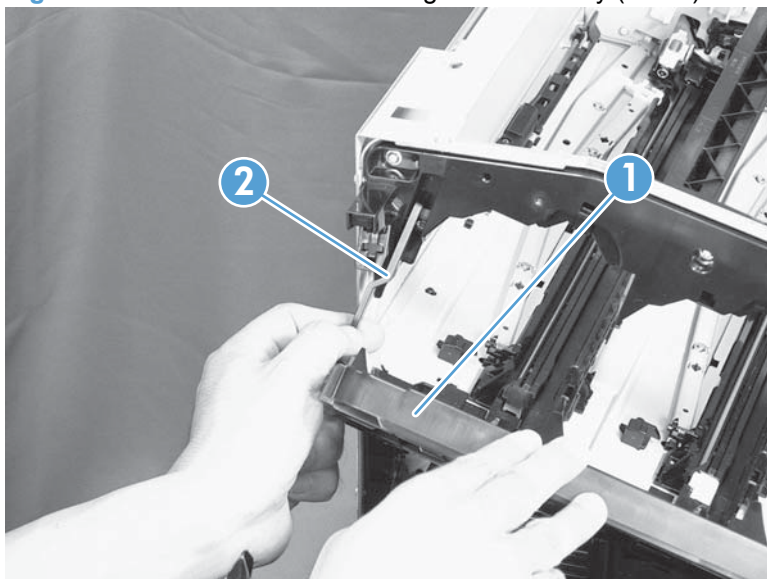


## ITB front guide assembly

Before proceeding, remove the following components:

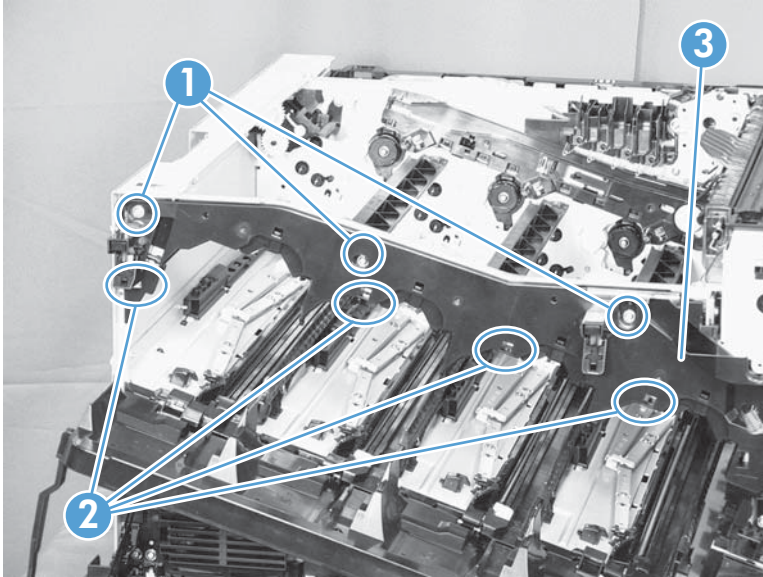
- ITB. See [Intermediate transfer belt \(ITB\) on page 87](#).
  - Right-front cover and control-panel assembly. See [Right-front cover and control-panel assembly on page 90](#).
  - Left cover. See [Left cover on page 92](#).
  - Top cover. See [Top cover on page 96](#).
1. Open the front door (callout 1) halfway, and then push up the upper part of the link arm (callout 2) to detach it from the product chassis.

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



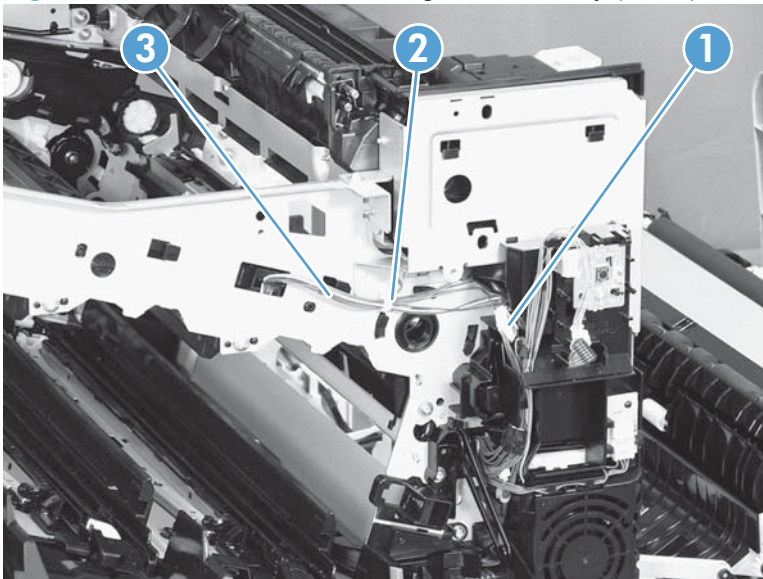
2. Remove three screws (callout 1), release four tabs (callout 2), and then remove the cartridge upper guide unit (callout 3).

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



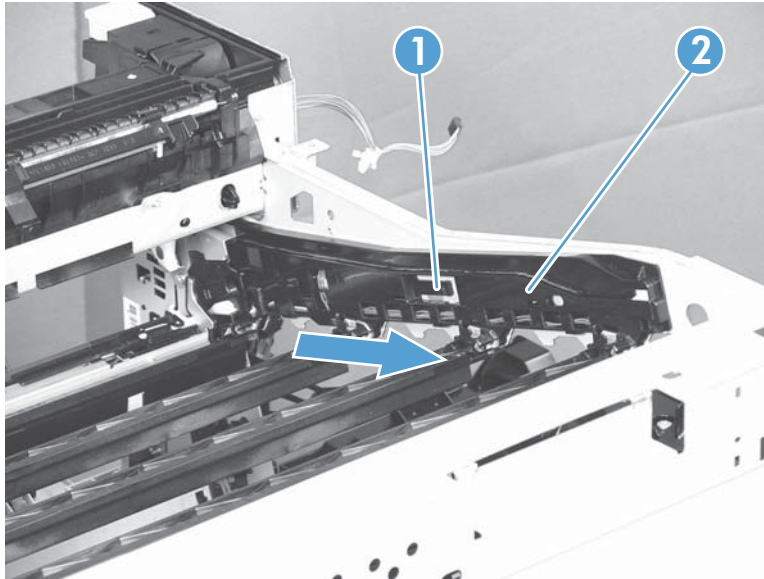
3. Disconnect one connector (callout 1), and then release the cables (callout 3) from the cable clamp (callout 2).

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



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

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



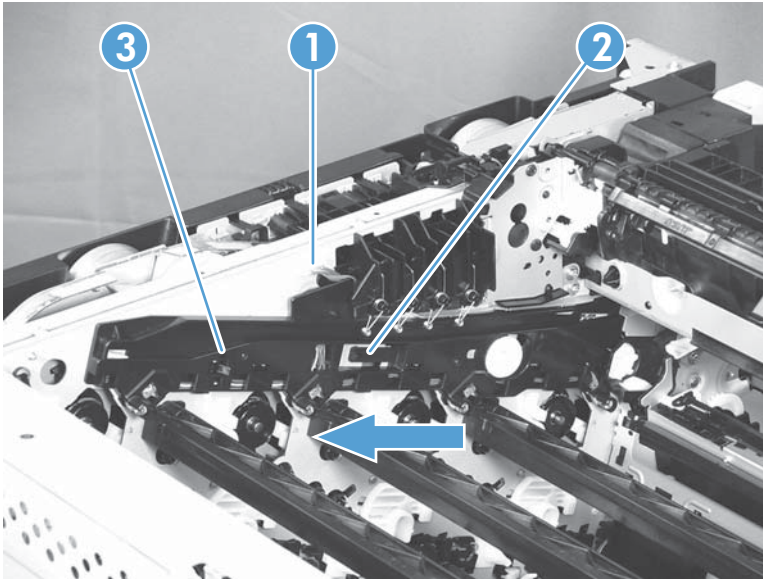
### ITB rear guide assembly

Before proceeding, remove the following components:

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

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

**Figure 2-60** Remove the ITB rear guide assembly



## Residual toner full sensor

**Before proceeding, remove the following components:**

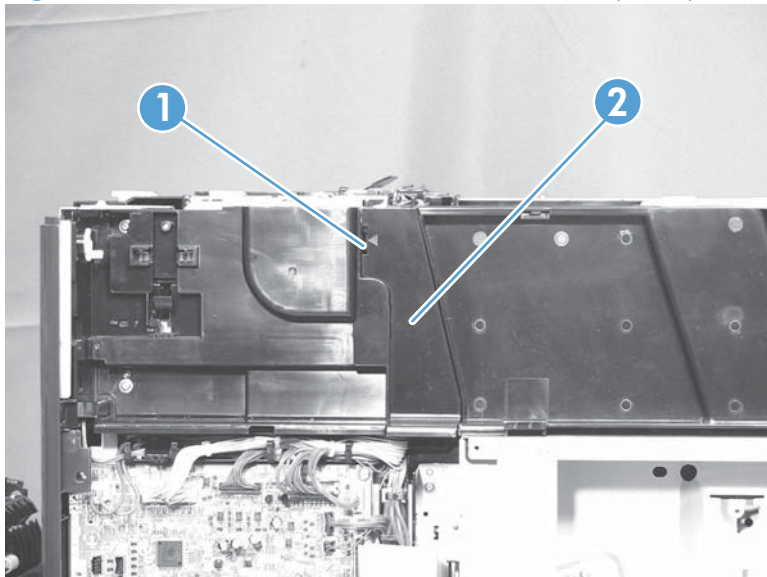
- Right-front cover and control-panel assembly. See [Right-front cover and control-panel assembly on page 90](#).
- Rear cover. See [Rear cover on page 93](#).
- Right-rear cover. See [Right-rear cover on page 95](#).
- Left cover. See [Left cover on page 92](#).
- Top cover. See [Top cover on page 96](#).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



## Remove the residual toner full sensor

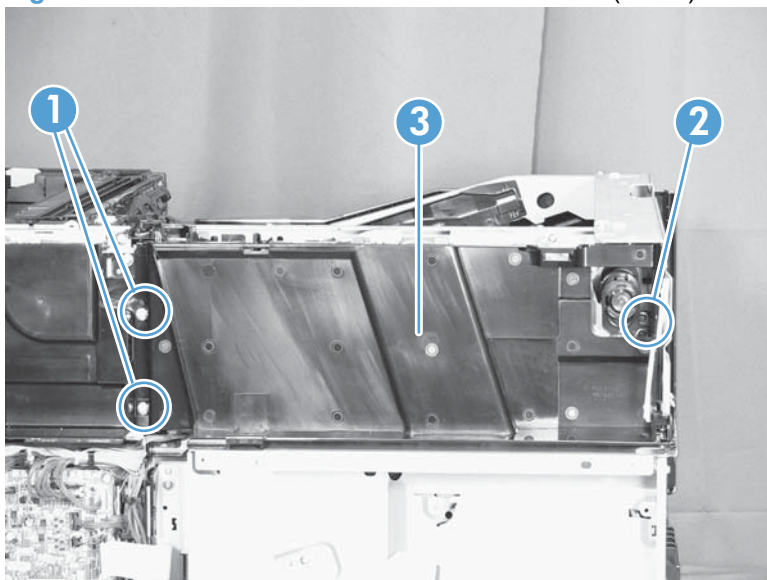
1. Release one tab (callout 1), and then remove the cover (callout 2).

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



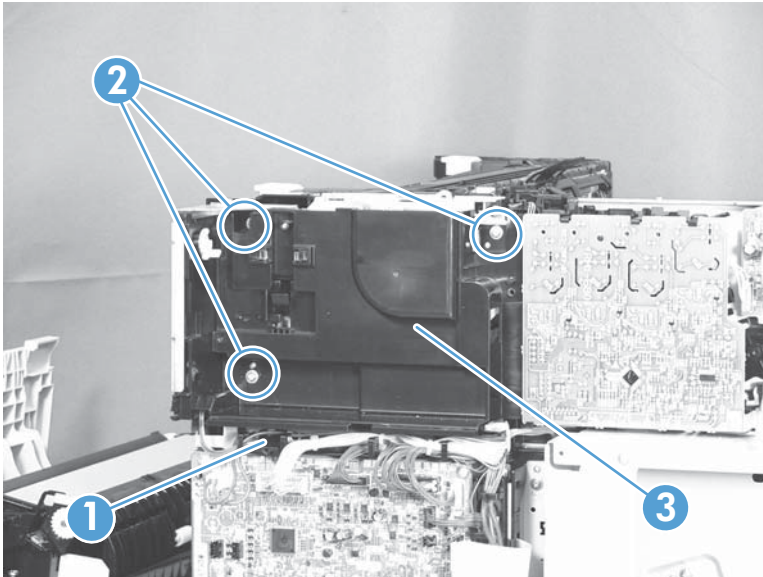
2. Remove two M4-screws (callout 1) and one M3-screw (callout 2). Then remove the toner cover (callout 3).

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



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

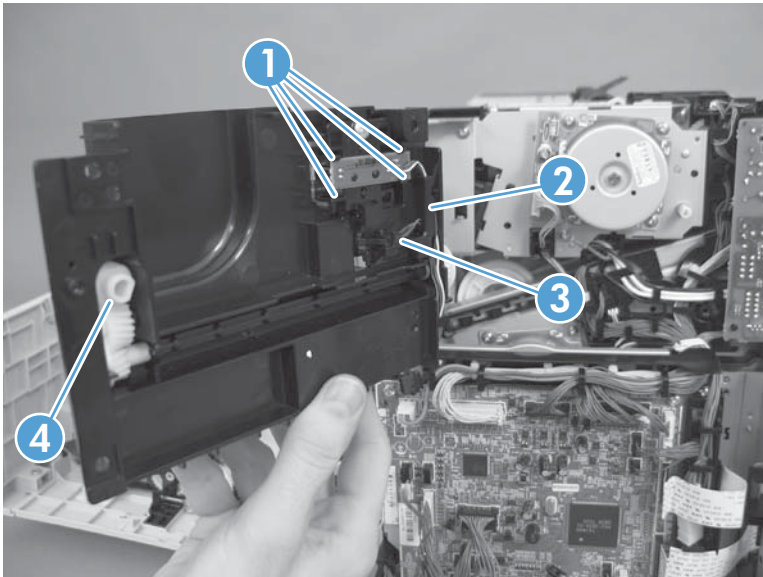
**Figure 2-63** Remove the residual toner full sensor (3 of 4)



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

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


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



## Formatter case

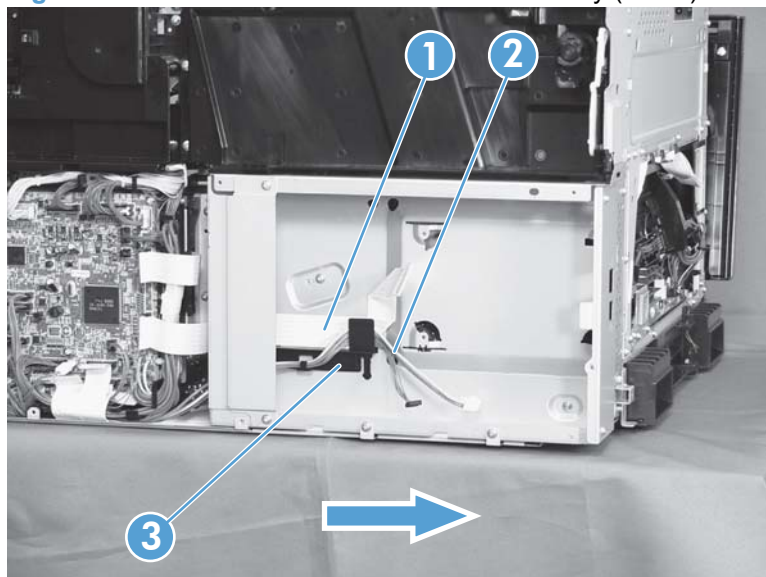
Before proceeding, remove the following components:

- Left cover. See [Left cover on page 92](#).
- Rear cover. See [Rear cover on page 93](#).

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

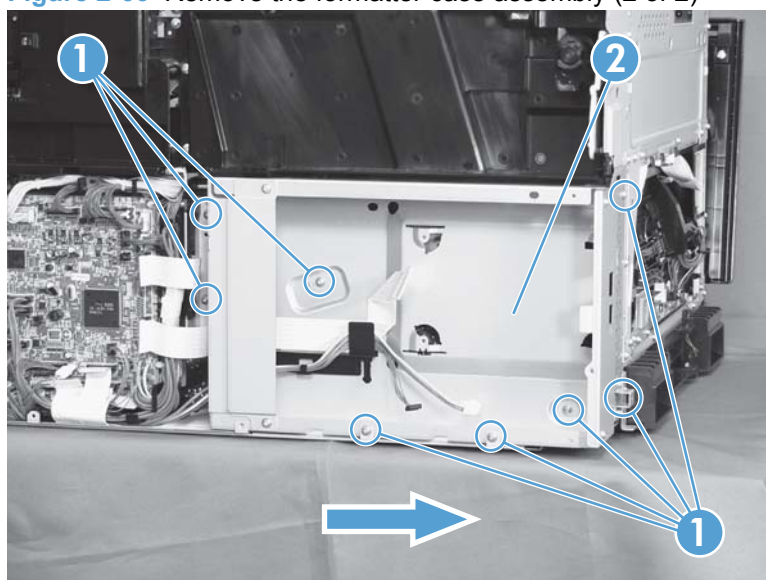
1. Release the flat cable (callout 1) and the cables (callout 2) from the cable guide (callout 3).

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



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

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





## Delivery assembly

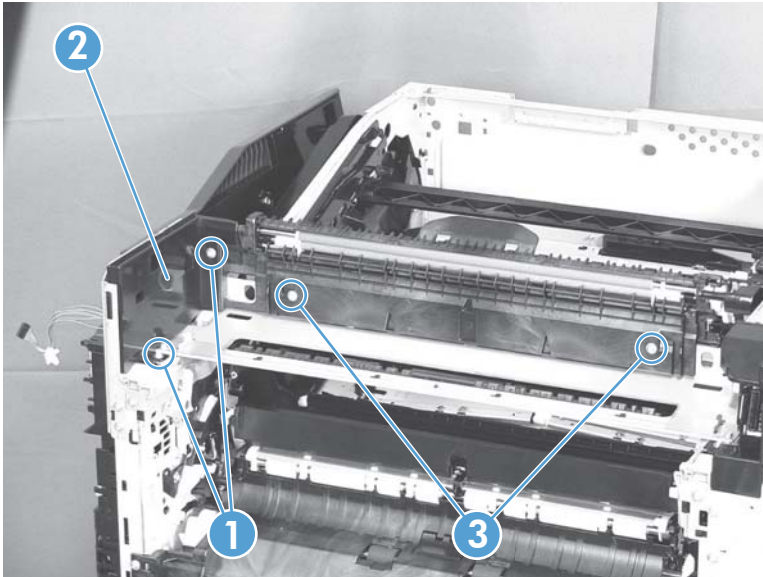
Before proceeding, remove the following components:

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

### Remove the delivery assembly

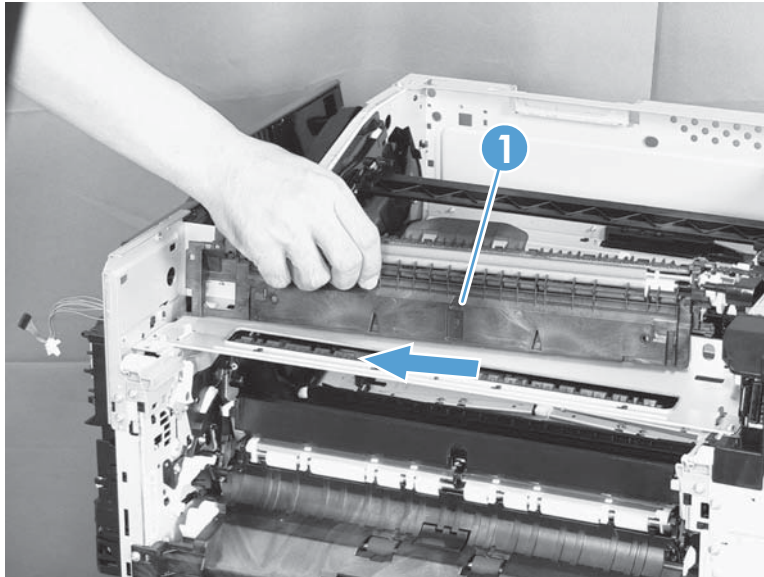
1. Remove two screws (callout 1), remove the cover (callout 2), and then remove two screws (callout 3).

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



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

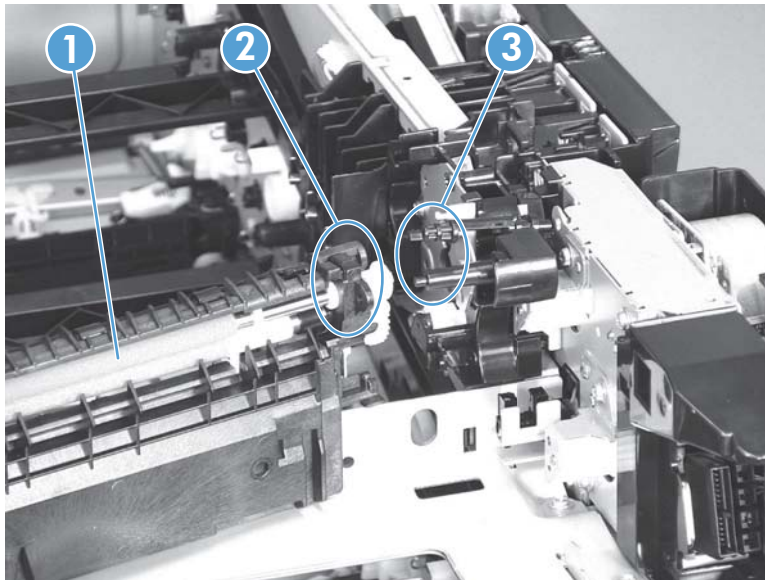
**Figure 2-68** Remove the delivery assembly (2 of 5)



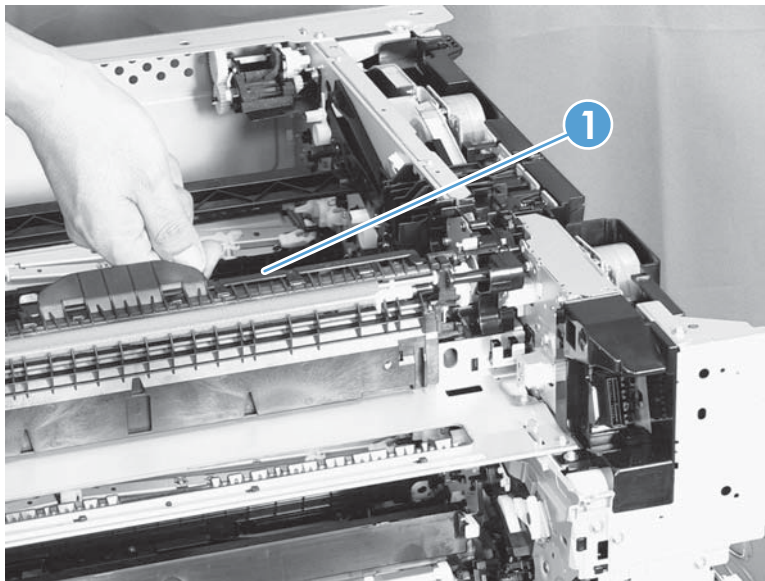


**Reinstallation tip** When reassembling the delivery unit (callout 1) note the following:

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



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



## Duplex drive assembly (duplex models)

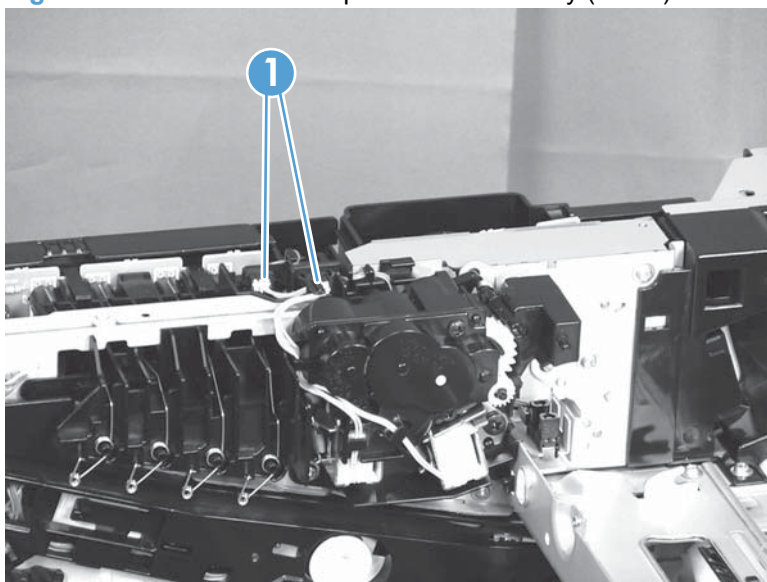
Before proceeding, remove the following components:

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

### Remove the duplex-drive assembly

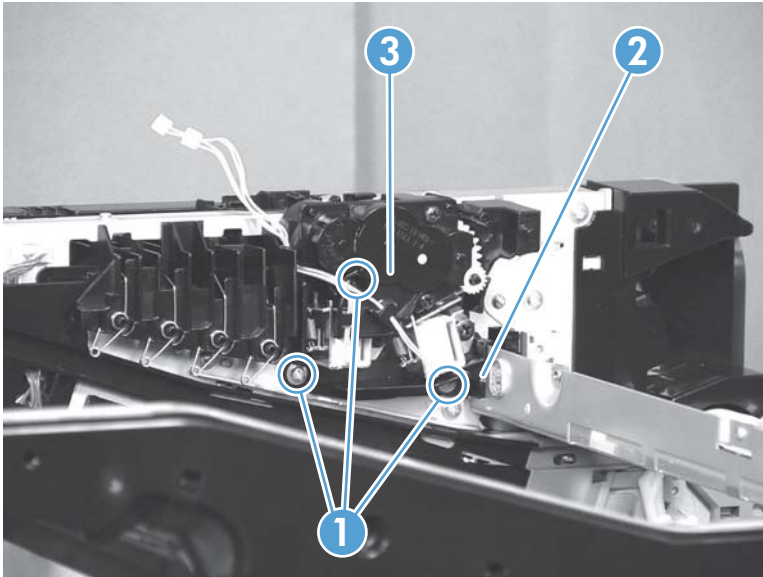
1. Disconnect two connectors (callout 1).

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



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

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



## Delivery drive assembly (simplex models)

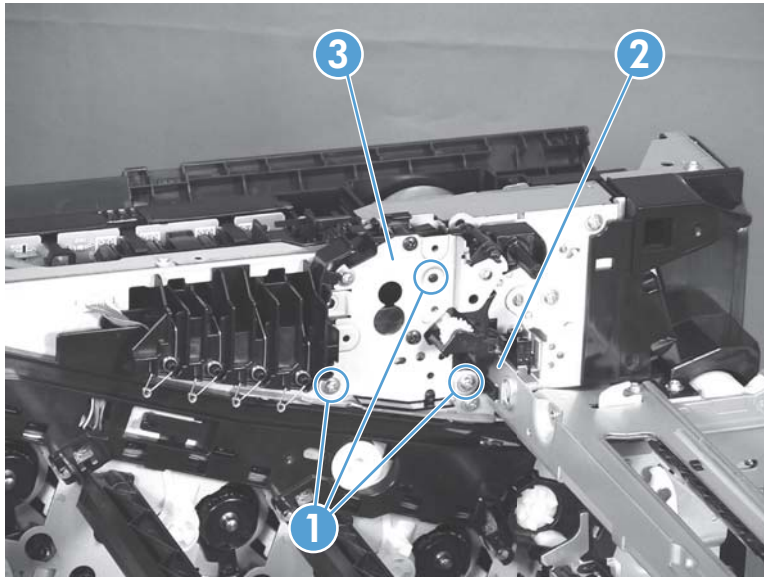
Before proceeding, remove the following components:

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

### Remove the delivery drive assembly

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

**Figure 2-71** Remove the delivery drive assembly





## Residual-toner-feed assembly

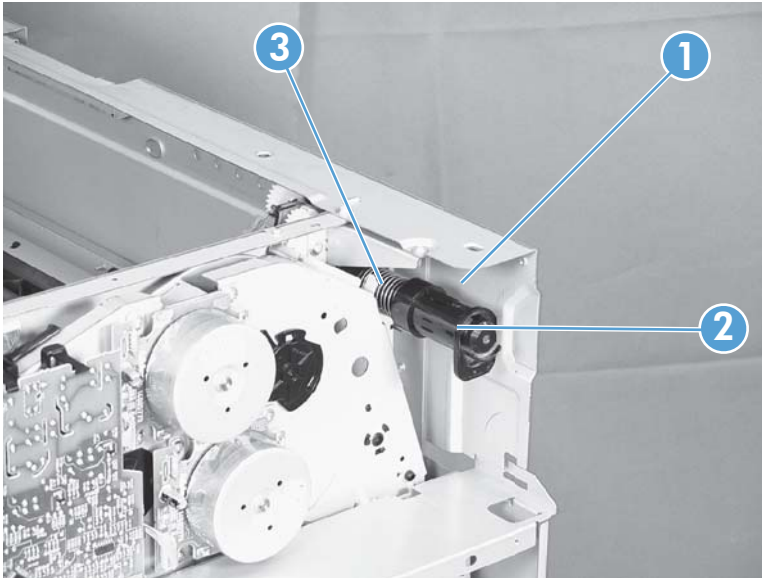
Before proceeding, remove the following components:

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


### Remove the residual-toner-feed assembly

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

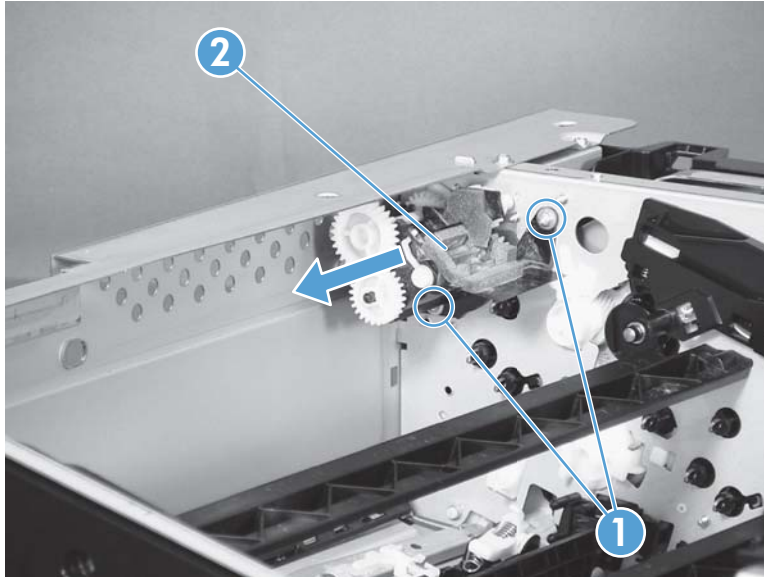
**Figure 2-72** Remove the residual-toner-feed assembly (1 of 2)



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

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

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





## ITB motor

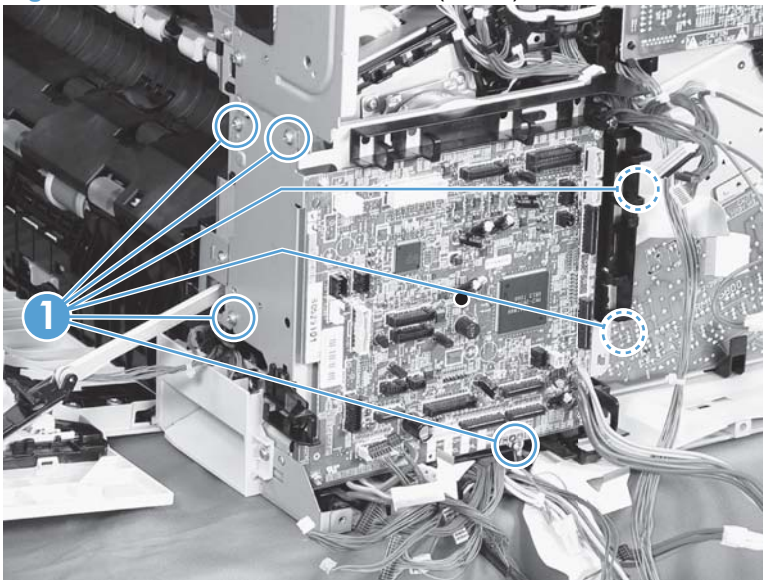
Before proceeding, remove the following components:

- Rear cover. See [Rear cover on page 93](#).
- Right-rear cover. See [Right-rear cover on page 95](#).
- Toner-collection unit. See [Toner-collection unit on page 72](#).
- Toner collection unit access door. See [Toner collection unit access door on page 93](#).

### Remove the ITB motor

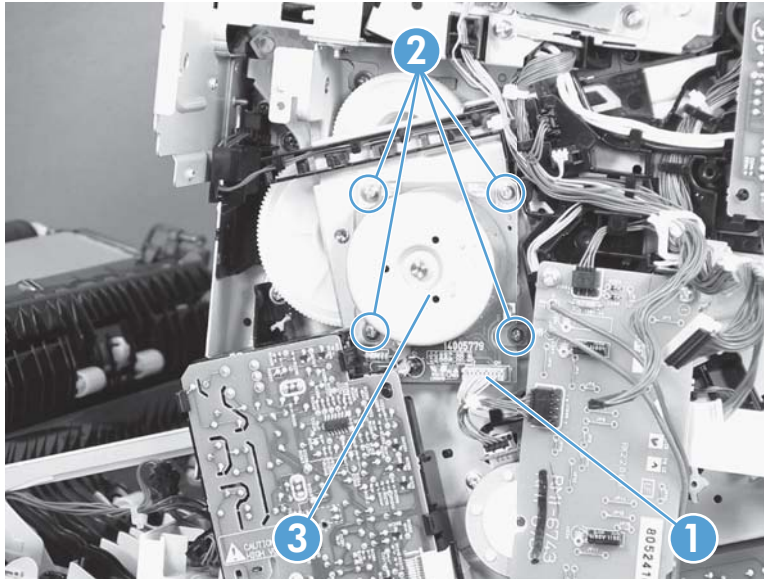
1. Remove the DC controller and the DC controller support by releasing the cables from the guides, and then removing six screws (callout 1).

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



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

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



## Drum motor

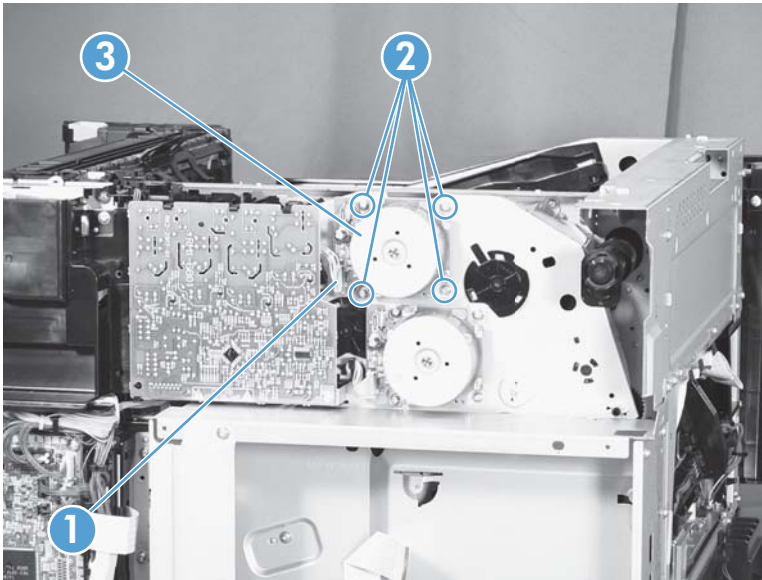
Before proceeding, remove the following components:

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

### Remove the drum motor

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

**Figure 2-76** Remove the drum motor



## Developing motor

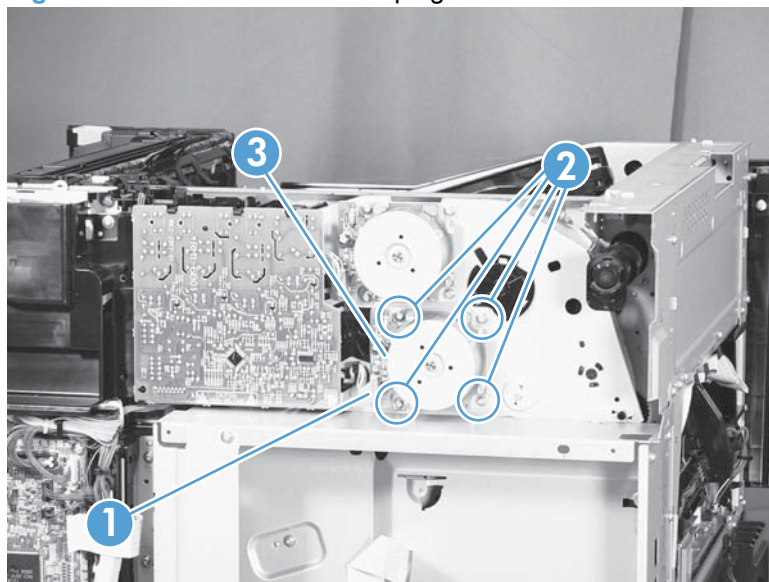
Before proceeding, remove the following components:

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

### Remove the developing motor

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

**Figure 2-77** Remove the developing motor



## Fuser motor

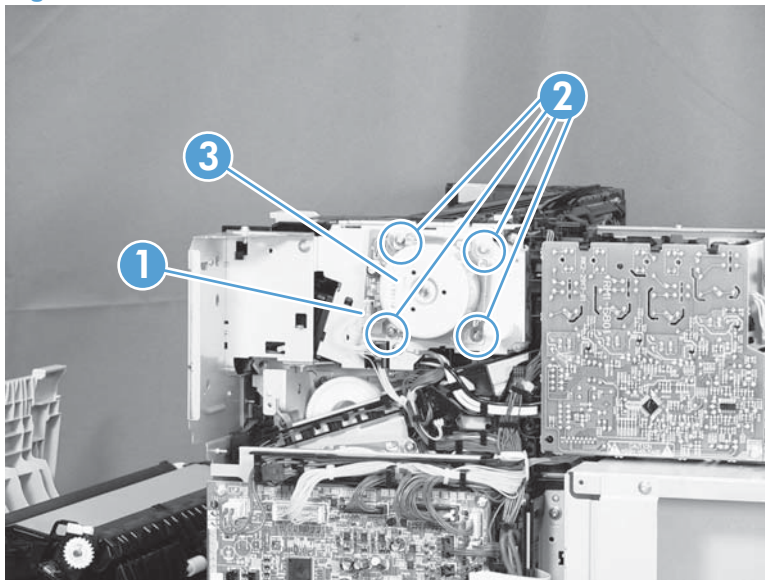
Before proceeding, remove the following components:

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

### Remove the fuser motor

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

**Figure 2-78** Remove the fuser motor



## Developing-disengagement motor

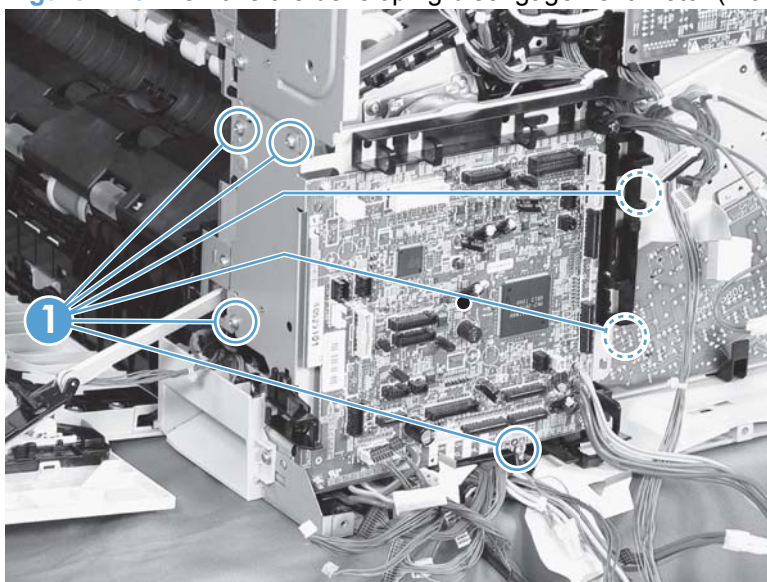
Before proceeding, remove the following components:

- Right-rear cover. See [Right-rear cover on page 95](#).
- Rear cover. See [Rear cover on page 93](#).
- DC controller PCA. See [DC controller PCA on page 146](#).
- Driver PCA. See [Driver PCA on page 157](#).

### Remove the developing-disengagement motor

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

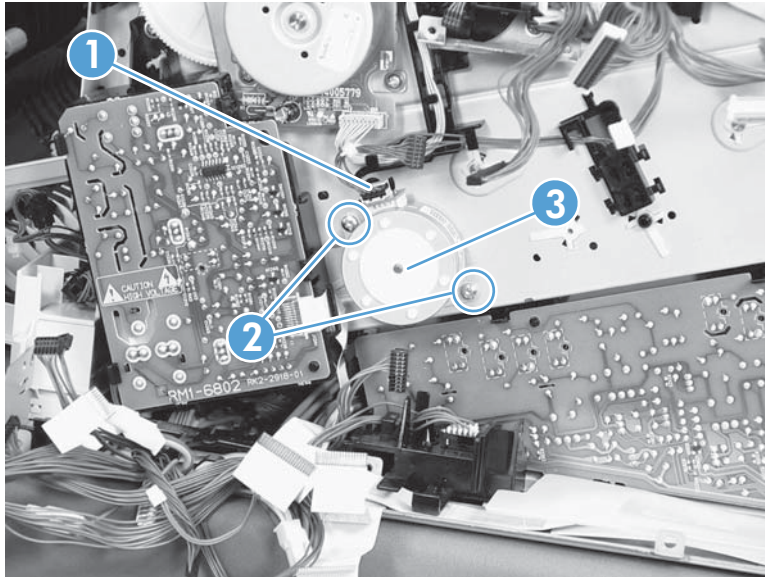
**Figure 2-79** Remove the developing-disengagement motor (1 of 2)





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

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



## Power-supply fan

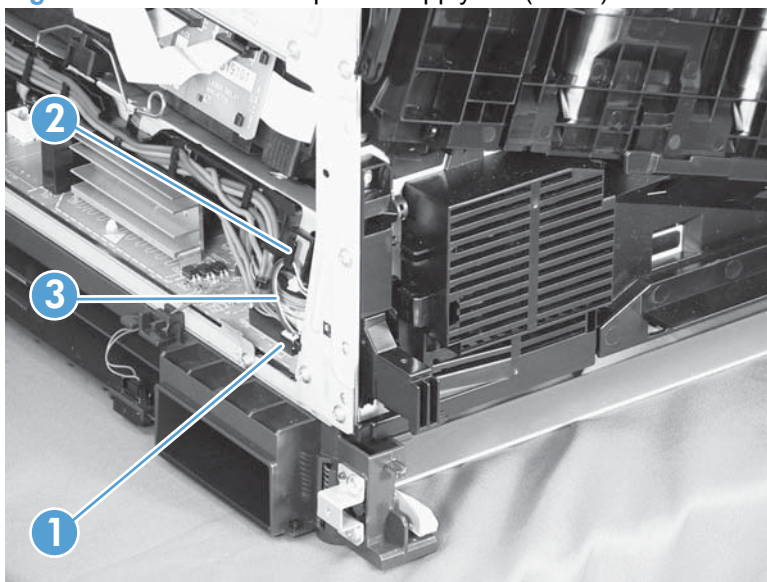
Before proceeding, remove the following components:

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

### Remove the power-supply fan

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

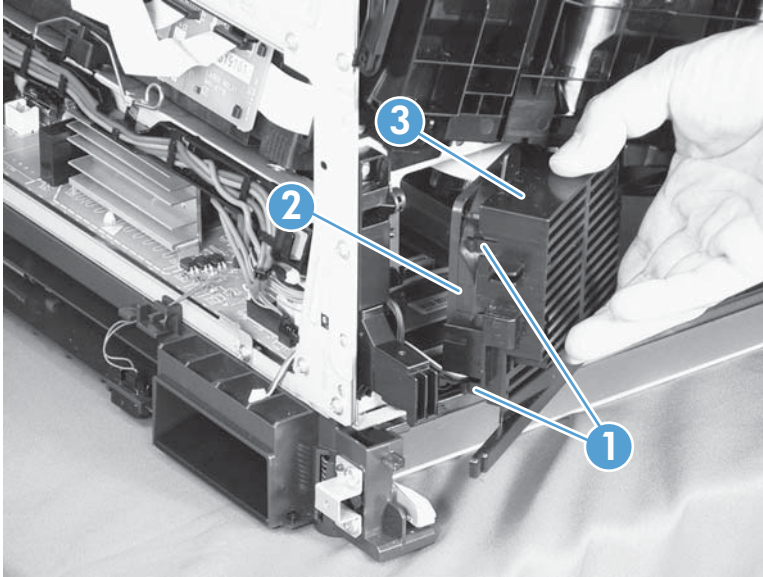
**Figure 2-81** Remove the power-supply fan (1 of 3)





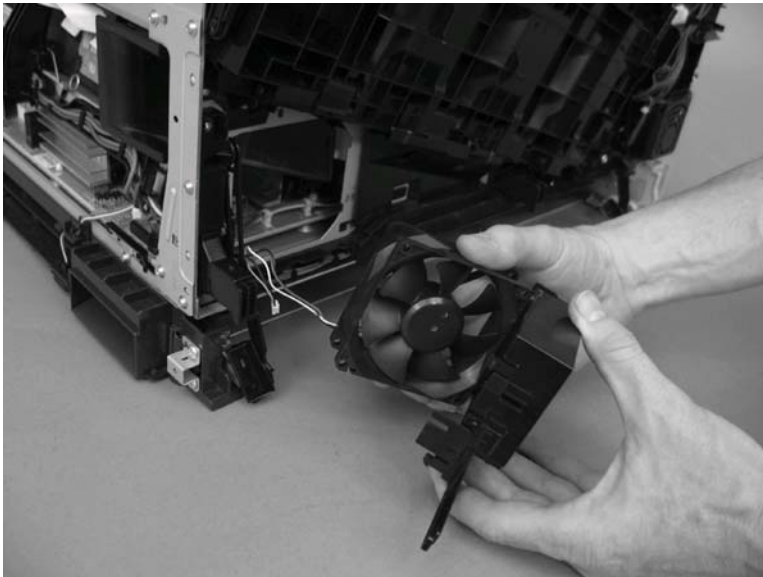
2. Release two tabs (callout 1), and then remove the fan (callout 2) and the fan holder (callout 3) together.


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

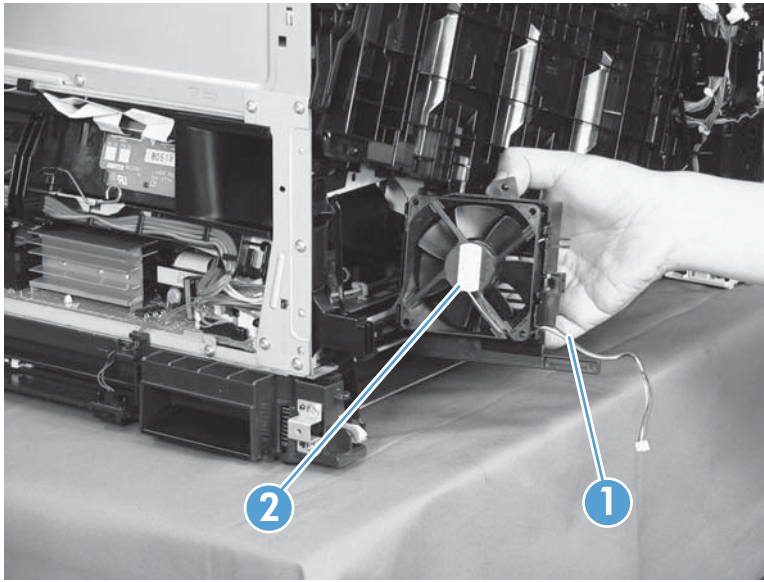


3. Pull on the sides of the fan holder to remove the fan from the holder.

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



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



## Fuser fan

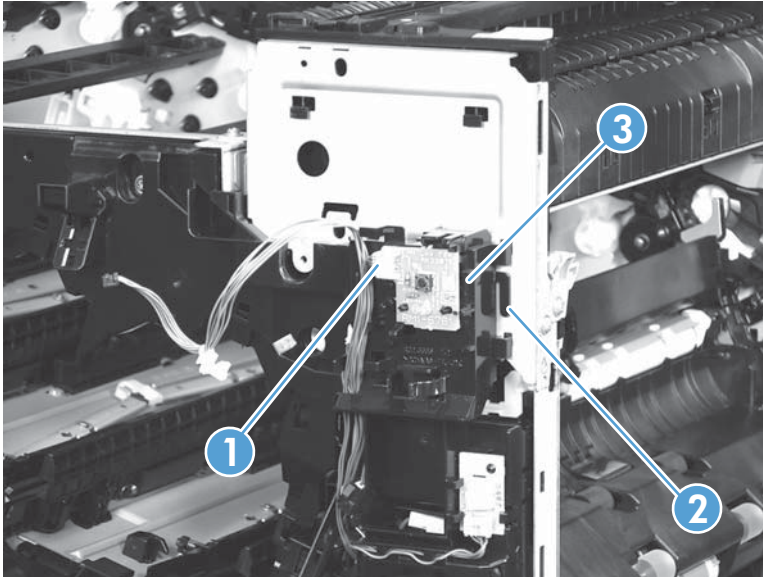
Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See [Right-front cover and control-panel assembly on page 90](#).

### Remove the fuser fan

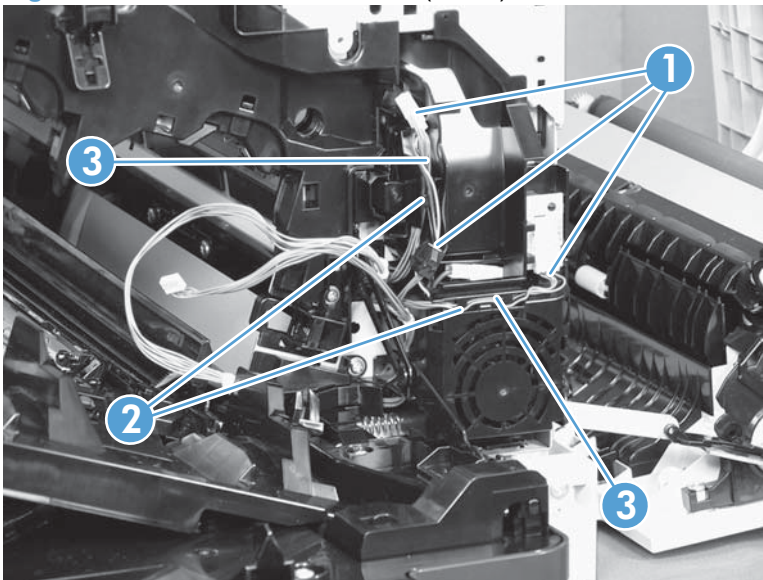
1. Disconnect one connector (callout 1), release one tab (callout 2), and then slide the guide (callout 3) down to remove it.

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



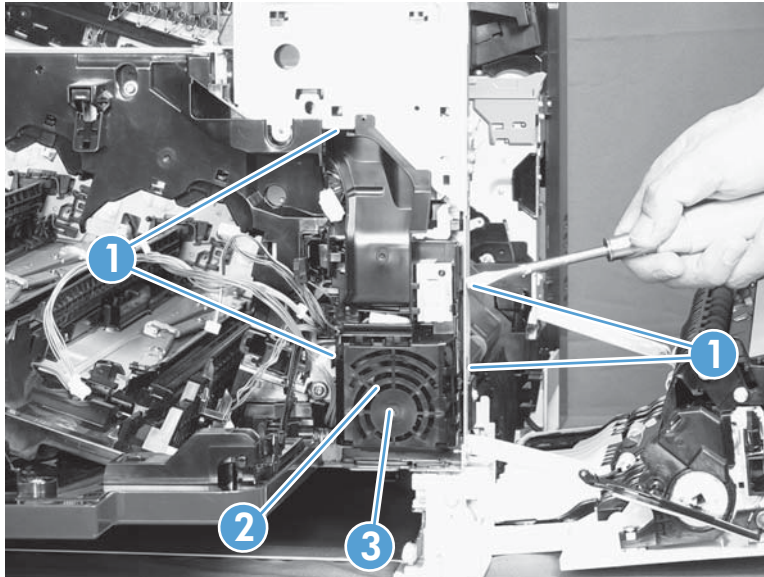
2. Disconnect three connectors (callout 1), and then release the cables (callout 3) from the cable guides (callout 2).

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



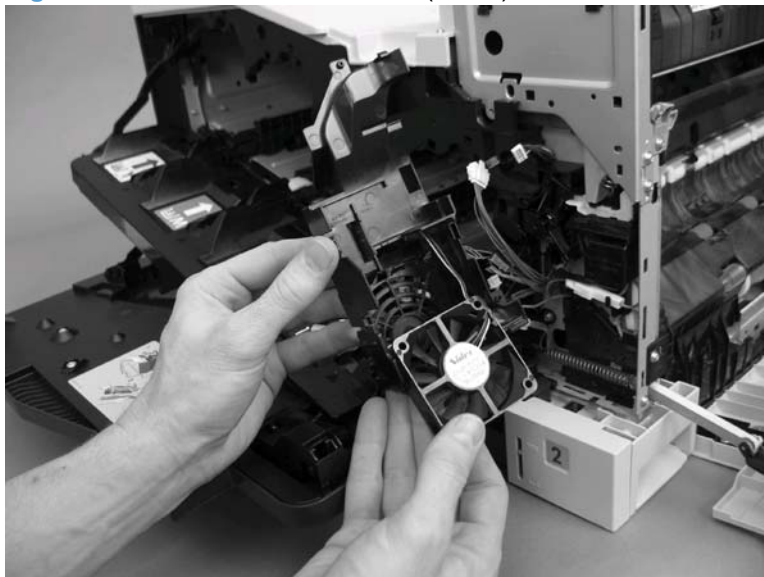
3. Release four tabs (callout 1), and then remove the fan (callout 2) and the fan holder (callout 3) together.

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



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

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



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




## Formatter PCA

△ **CAUTION:**  ESD sensitive component.

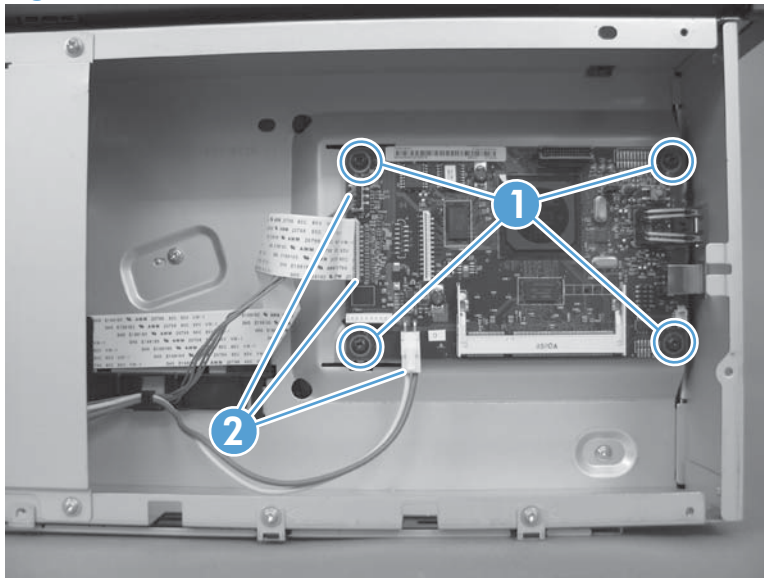
**CAUTION:** Do not replace the laser scanner and the formatter PCA at the same time. The settings for the laser scanner are stored in the formatter RAM. When you install a new laser scanner, it reads the settings from the formatter.

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

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

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

**Figure 2-88** Remove the formatter



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

### Formatter resets

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

### Configure the formatter for non-network models

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

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

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


#### Reset the serial number of the formatter

1. Make sure the product is in the Ready state.
2. Update the file `setSerialNumber.pjl` file to set the correct serial number on the formatter.  
For example: `@PJL DEFAULT SERIALNUMBER=ABC123`
3. Use `hpnpf` or `hexprint.exe` to send the `setSerialNumber.pjl` file to the product.
4. Print a configuration page to verify the change.

#### Reset the page counts on the formatter

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

---

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

```
@PJL COMMENT Mono Page Count
```

```
@PJL DMINFO ASCIIHEX = "04000501040102060802000F"
```

```
@PJL COMMENT Color Page Count
```

```
@PJL DMINFO ASCIIHEX = "04000501040102060802000A"
```

---

3. Use `hpnpf` or `hexprint.exe` to send the `pml_pagecount.pjl` file to the product.
4. Print a configuration page to verify the change.

## DC controller PCA

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


Before proceeding, remove the following components:

- Rear cover. See [Rear cover on page 93](#).
- Right-rear cover. See [Right-rear cover on page 95](#).

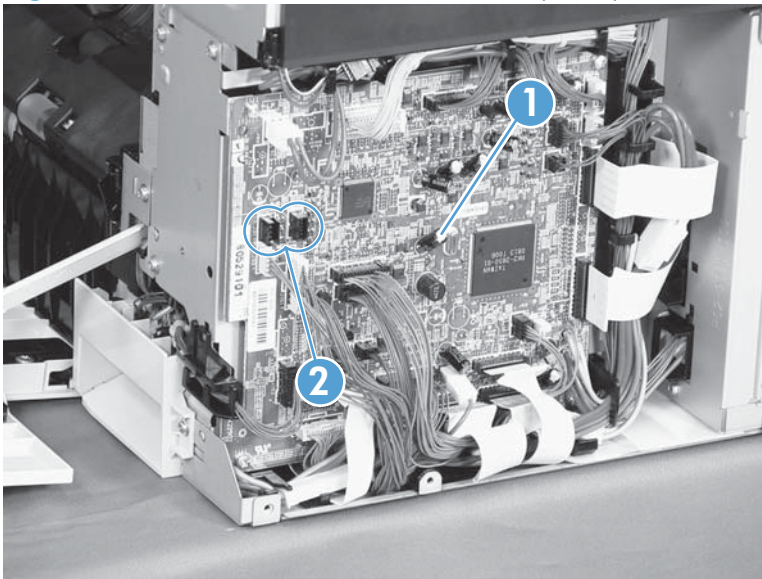
### Remove the DC controller PCA

- △ **CAUTION:**  ESD-sensitive part.

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

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

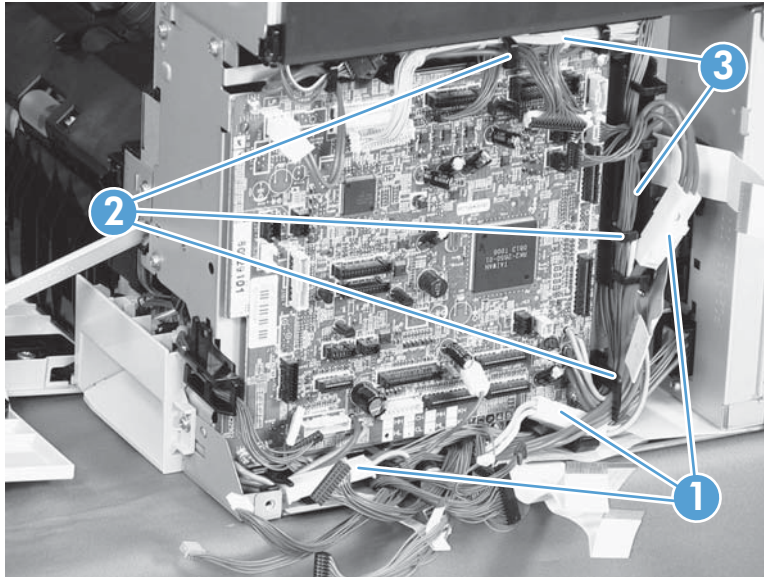
**Figure 2-89** Remove the DC controller PCA (1 of 3)





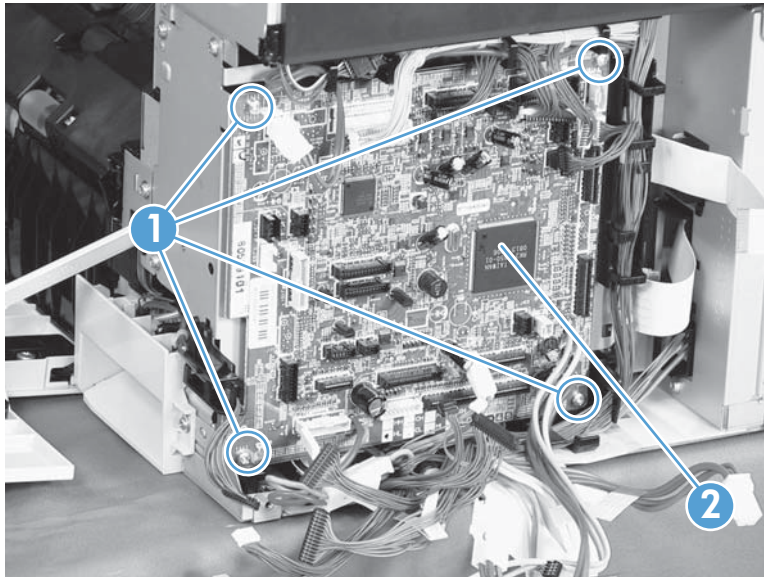
2. Disconnect three intermediate connectors (callout 1), and then release the cables (callout 3) from the cable guides (callout 2) on the top and right sides of the DC controller PCA.

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



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

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



## Low-voltage power supply

Before proceeding, remove the following components:

- Left cover. See [Left cover on page 92](#).

### Remove the low-voltage power supply

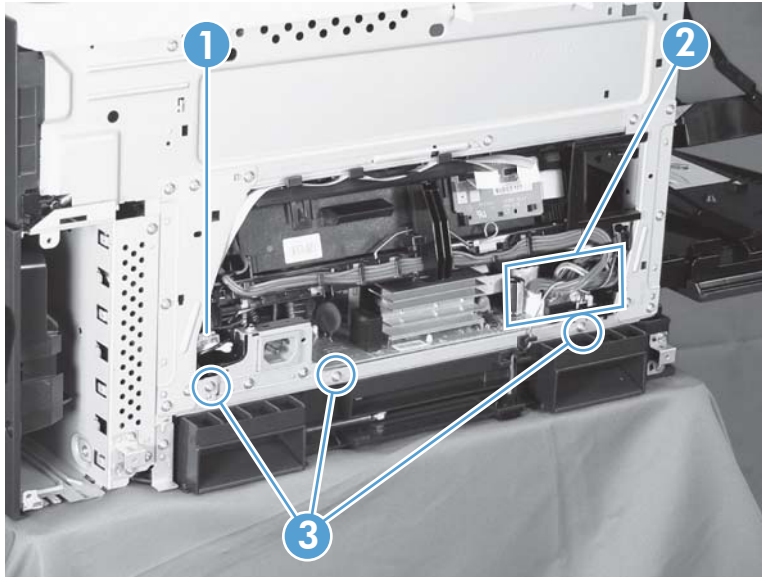
△ **CAUTION:**  ESD-sensitive part.

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

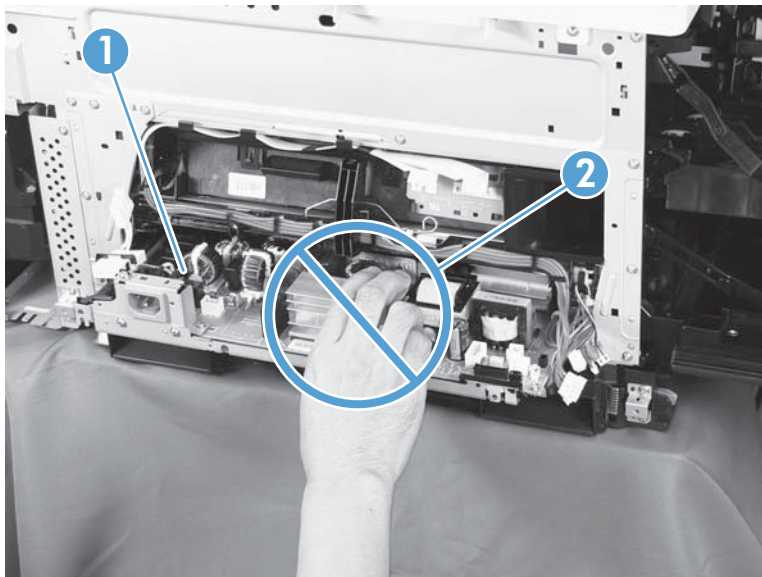
1. Remove Tray 2 and open the front door.

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

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



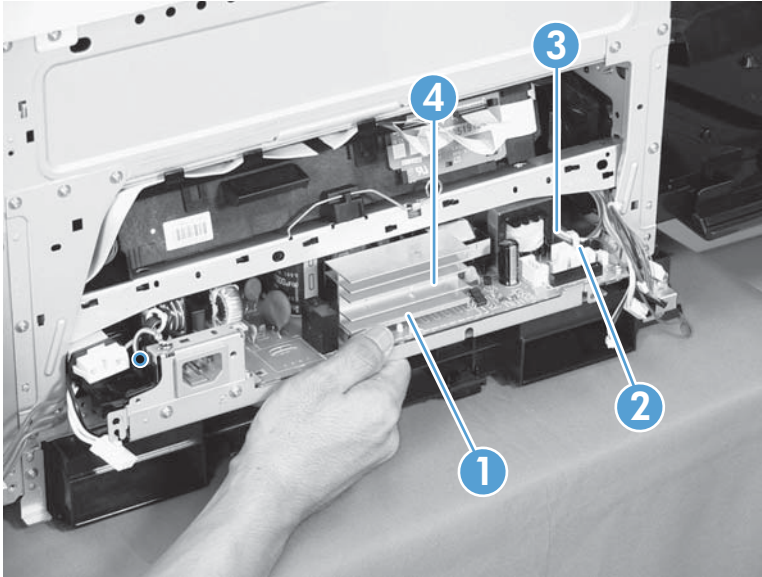
**⚠ WARNING!** When disassembling the low-voltage power supply unit (callout 1), do not touch the electric element (callout 2) as shown. Be sure to hold the bottom side of the low-voltage power supply unit.



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

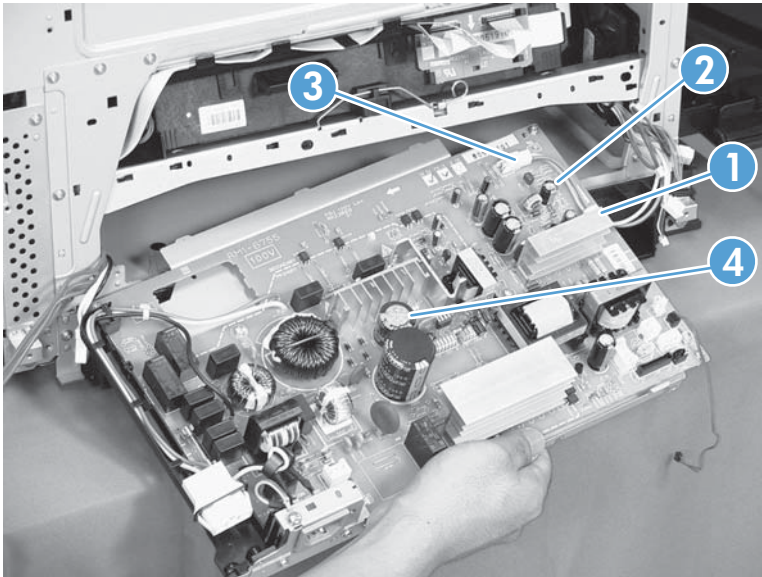
⚠ **WARNING!** Do not use the power supply electric element (callout 1) as a handle to pull out the power supply.

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




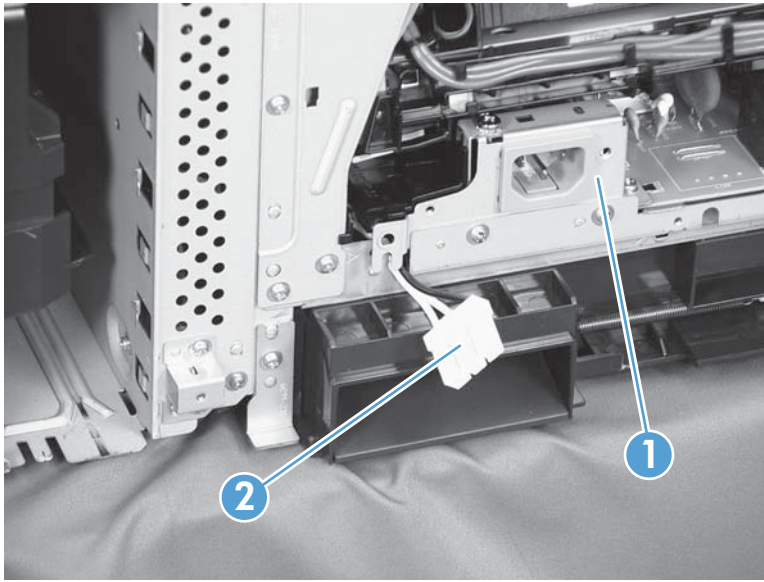
4. Release the cables (callout 2) from the rear cable clamp (callout 1), disconnect one rear connector (callout 3), and then remove the low-voltage power supply unit (callout 4).

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





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



## Imaging (developing) high-voltage power supply

Before proceeding, remove the following components:

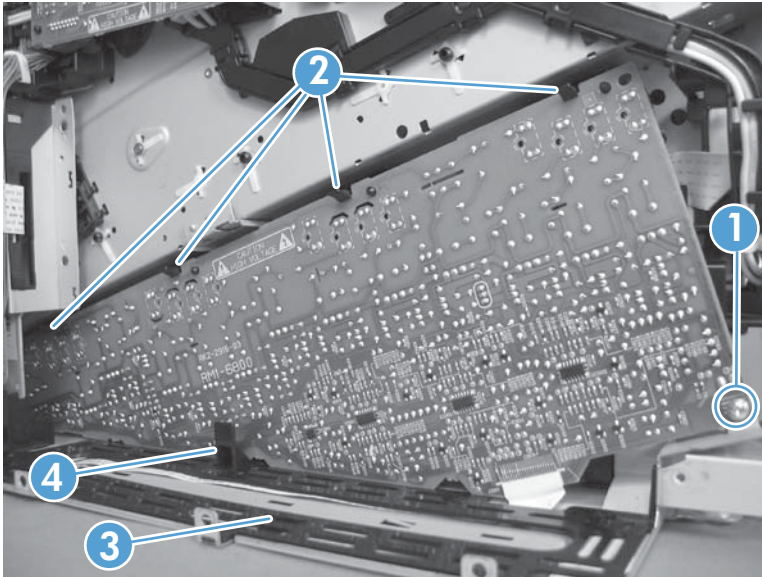
- Rear cover. See [Rear cover on page 93](#).
- Right-rear cover. See [Right-rear cover on page 95](#).
- Formatter case. See [Formatter case on page 123](#).

### Remove the imaging (developing) high-voltage power supply

△ **CAUTION:**  ESD-sensitive part.

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

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



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

## First transfer high-voltage power supply

Before proceeding, remove the following components:

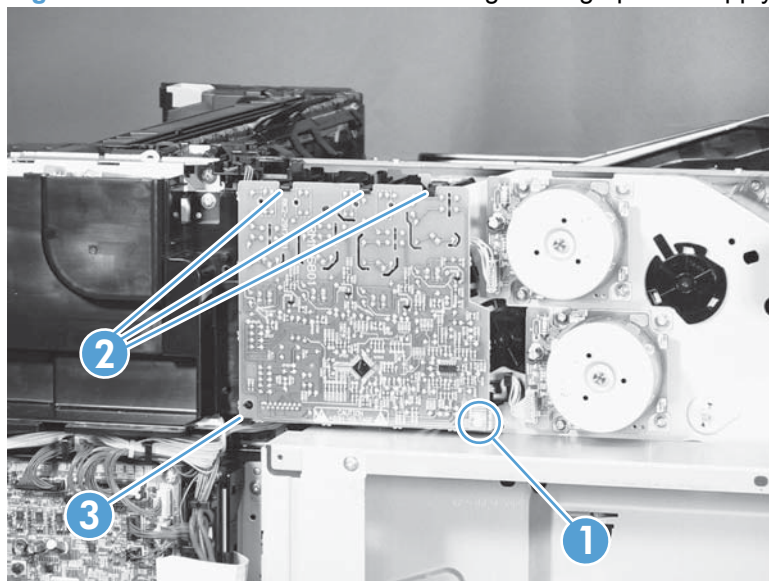
- Right-front cover and control-panel assembly. See [Right-front cover and control-panel assembly on page 90](#).
- Right-rear cover. See [Right-rear cover on page 95](#).
- Left cover. See [Left cover on page 92](#).
- Rear cover. See [Rear cover on page 93](#).
- Top cover. See [Top cover on page 96](#).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

### Remove the first transfer high-voltage power supply

△ **CAUTION:**  ESD-sensitive part.

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

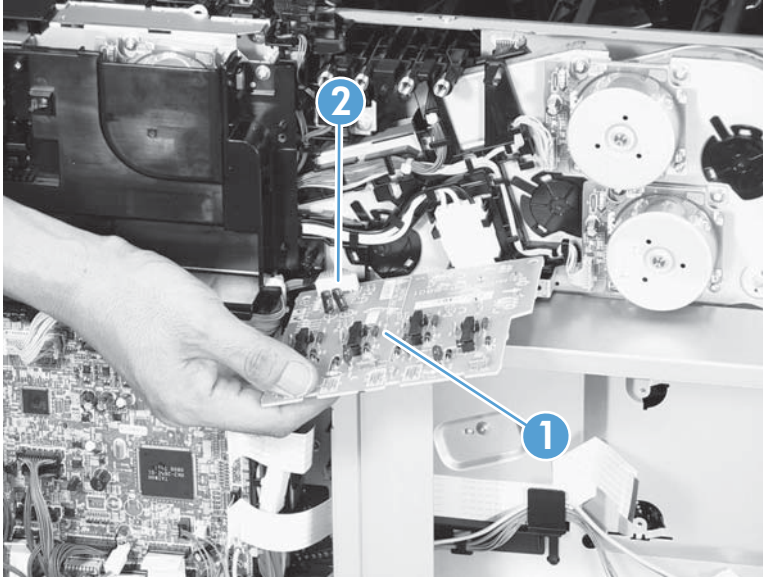
**Figure 2-96** Remove the first transfer high-voltage power supply (1 of 2)





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

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



## Second transfer high-voltage power supply

Before proceeding, remove the following components:

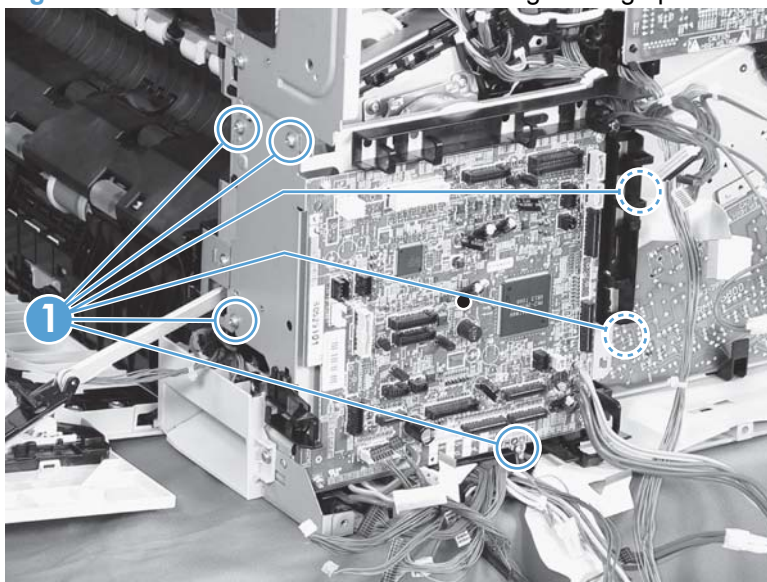
- Rear cover. See [Rear cover on page 93](#).
- Right-rear cover. See [Right-rear cover on page 95](#).

### Remove the second transfer high-voltage power supply

△ **CAUTION:**  ESD-sensitive part.

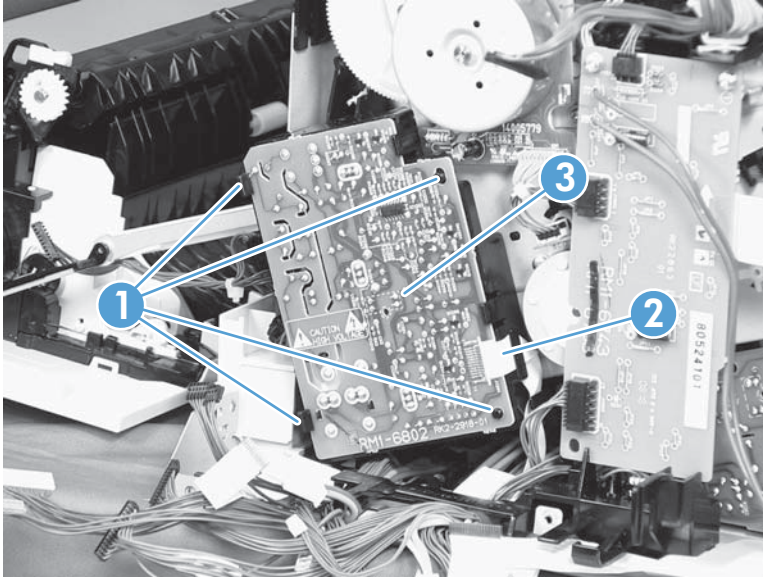
1. Remove the DC controller and the DC controller support by releasing the cables from the guides, and then removing six screws (callout 1).

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



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

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



## Driver PCA

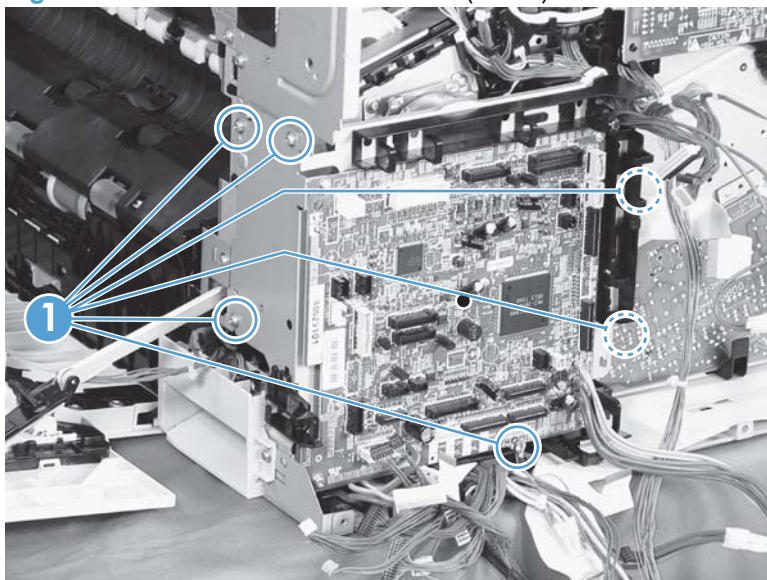
- Rear cover. See [Rear cover on page 93](#).
- Right-rear cover. See [Right-rear cover on page 95](#).
- DC controller. See [DC controller PCA on page 146](#).

## Remove the driver PCA

△ **CAUTION:**  ESD-sensitive part.

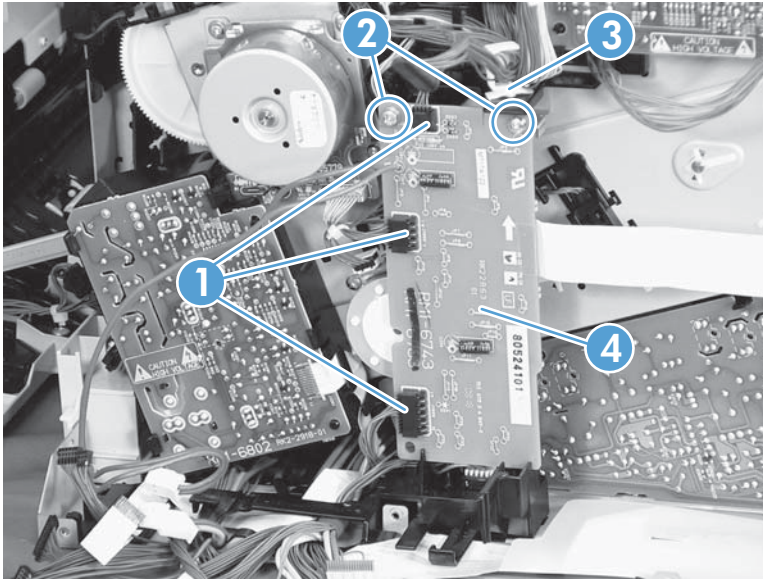
1. Remove the DC controller and the DC controller support by releasing the cables from the guides, and then removing six screws (callout 1).

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



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

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



## Power switch PCA

Before proceeding, remove the following components:

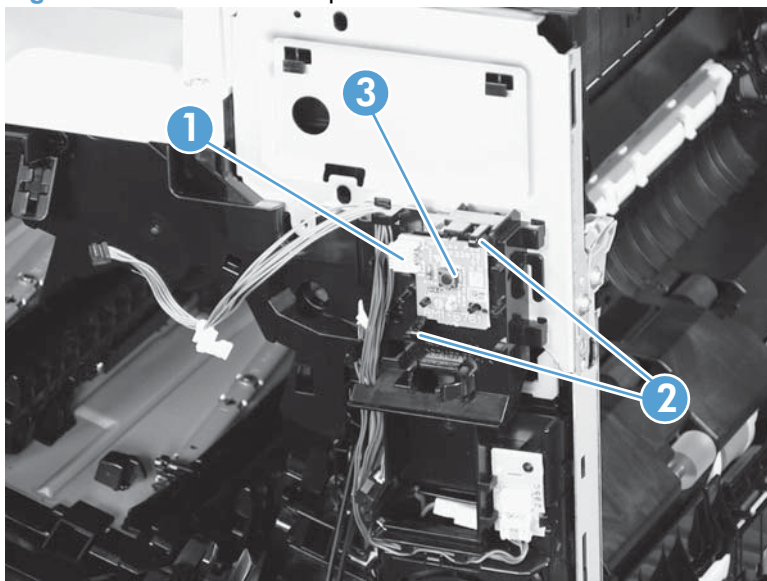
- Right-front cover and control-panel assembly. See [Right-front cover and control-panel assembly on page 90](#).

### Remove the power switch PCA

△ **CAUTION:**  ESD-sensitive part.

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

**Figure 2-102** Remove the power switch PCA





## Environmental sensor

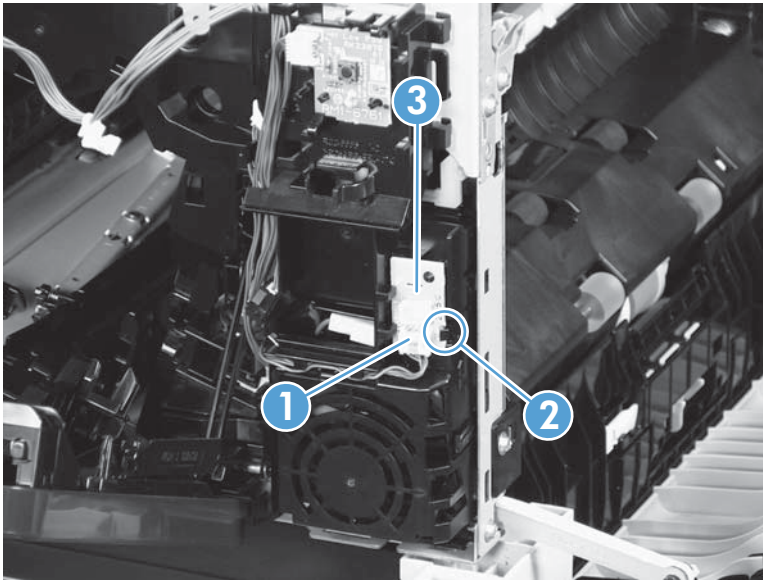
Before proceeding, remove the following components:

- Right-front cover and control-panel assembly. See [Right-front cover and control-panel assembly on page 90](#).

### Remove the environmental sensor

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

**Figure 2-103** Remove the environmental sensor



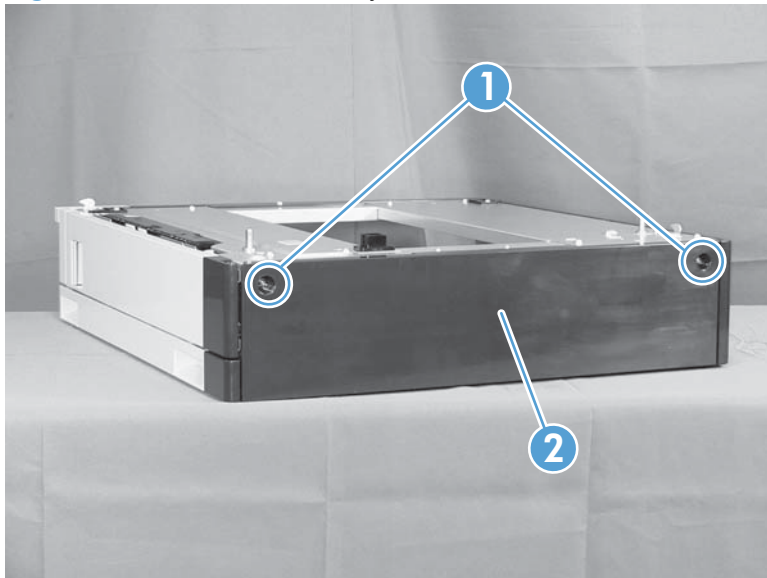


## Optional paper feeder assembly (Tray 3)

### Tray 3 rear cover

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

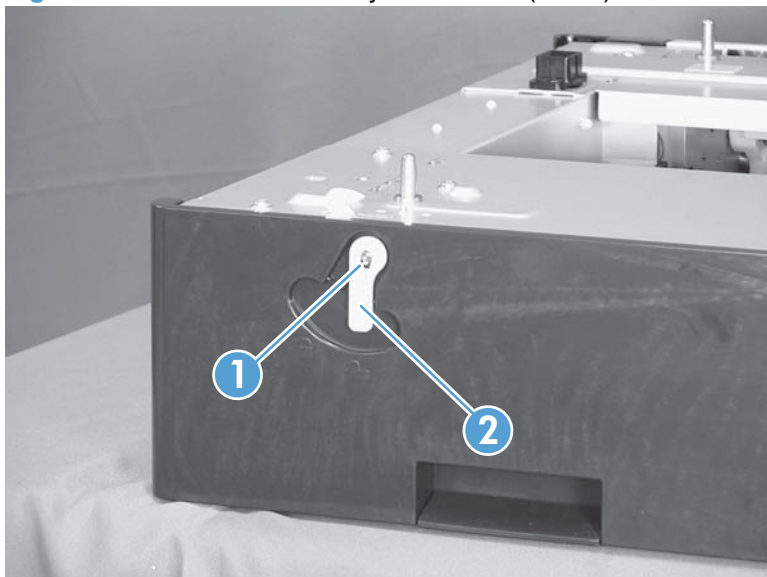
**Figure 2-104** Remove the Tray 3 rear cover



### Tray 3 left cover

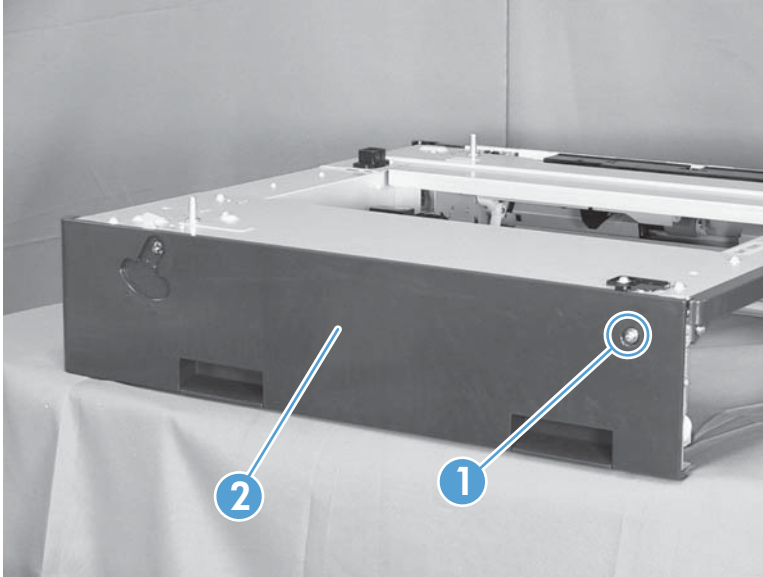
1. Take the tray out of the feeder, release one tab (callout 1), and then remove the lever (callout 2).


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

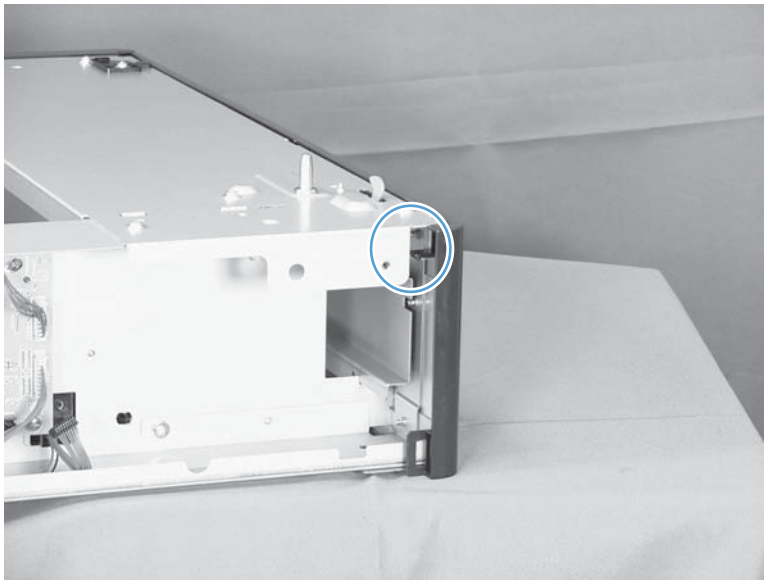
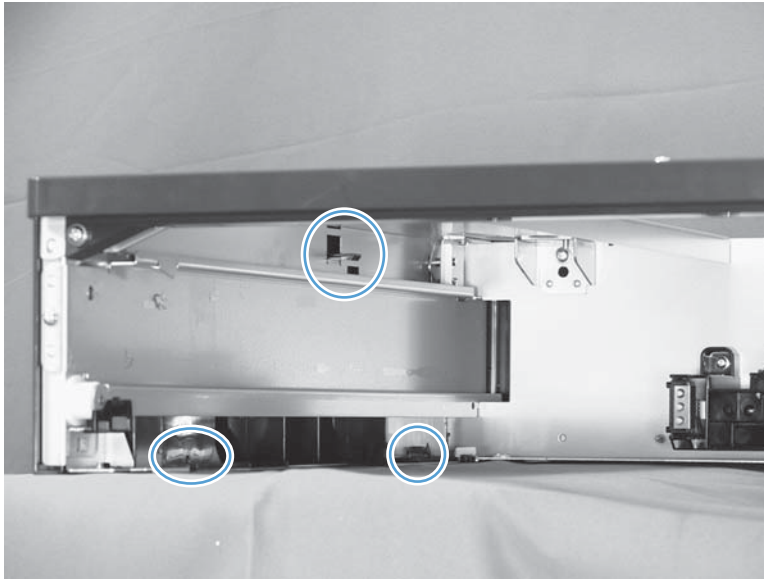


2. Remove one screw (callout 1), release four tabs (see the tip that follows this step) from the inside, and then remove the left cover (callout 2).

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



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

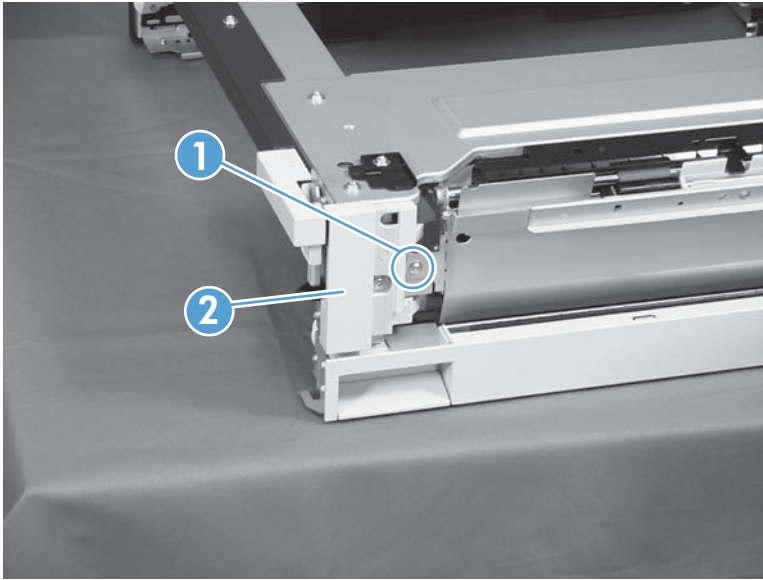


### Tray 3 right-front cover

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

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

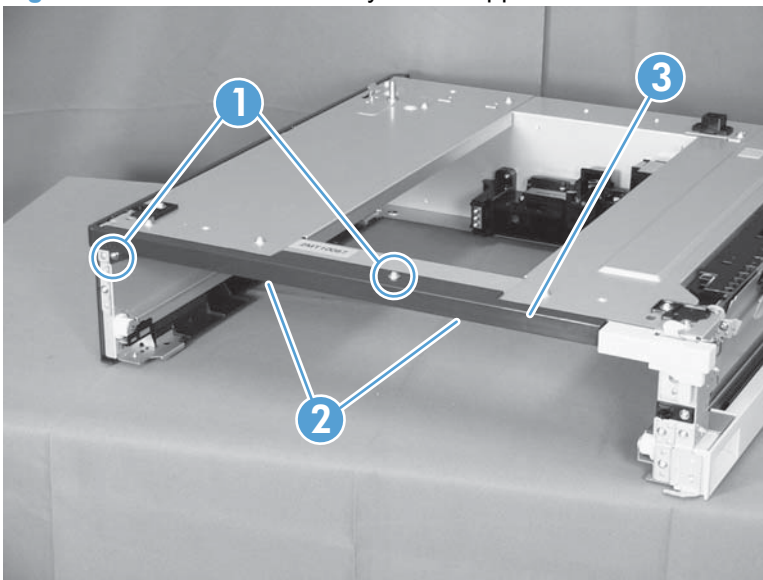
**Figure 2-107** Remove the Tray 3 right-front cover



### Tray 3 front-upper cover

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

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

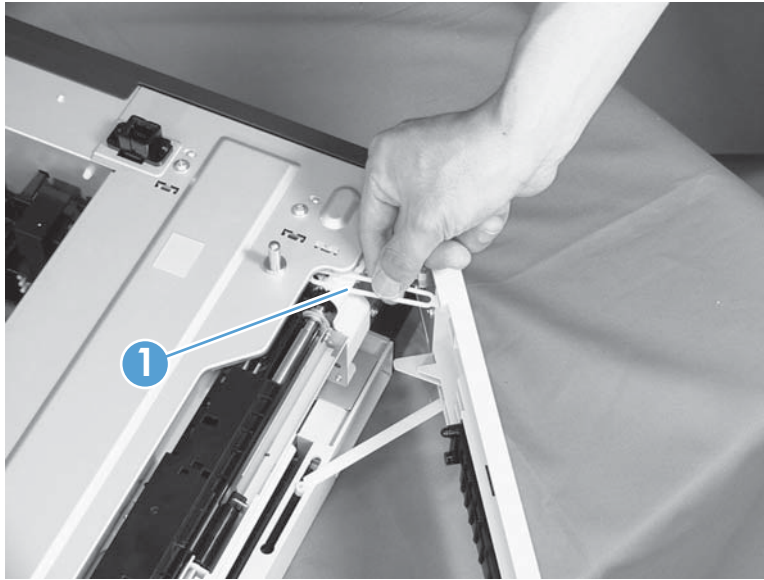


### Tray 3 right door

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

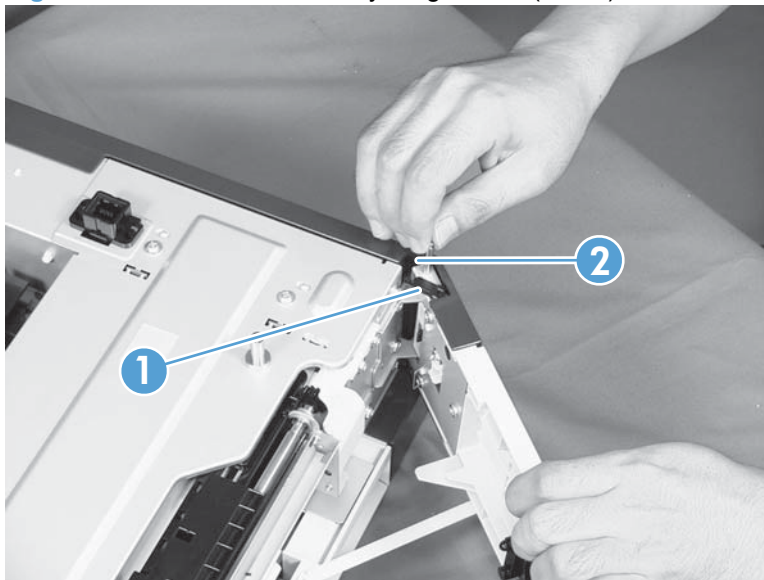
2. Release the link arm (callout 1).

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



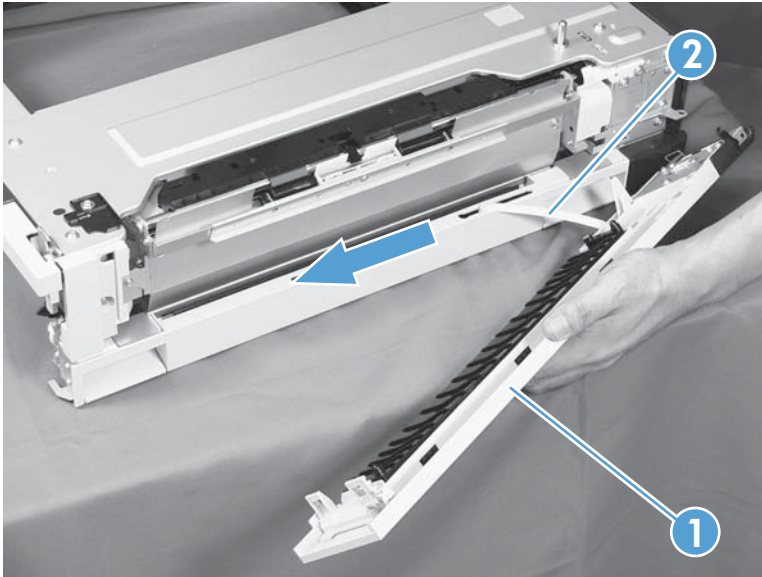
3. Release the stopper (callout 1), and then release the shaft (callout 2).

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



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

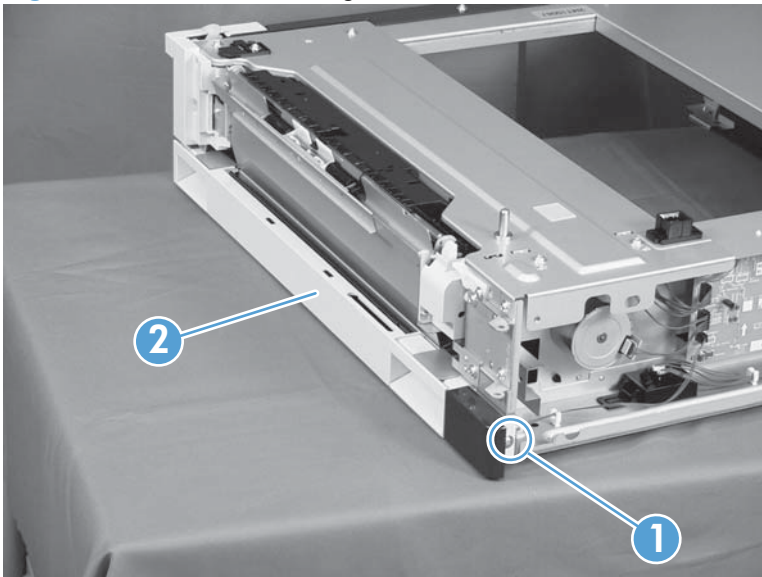
**Figure 2-111** Remove the Tray 3 right door (3 of 3)



### Tray 3 right-lower cover

1. Remove the tray from the feeder, and then remove the right door (see [Tray 3 right door on page 164](#)).
2. Remove one screw (callout 1), and then slide the cover (callout 2) to the right to clear an alignment pin at the left side of the cover.

**Figure 2-112** Remove the right-lower cover



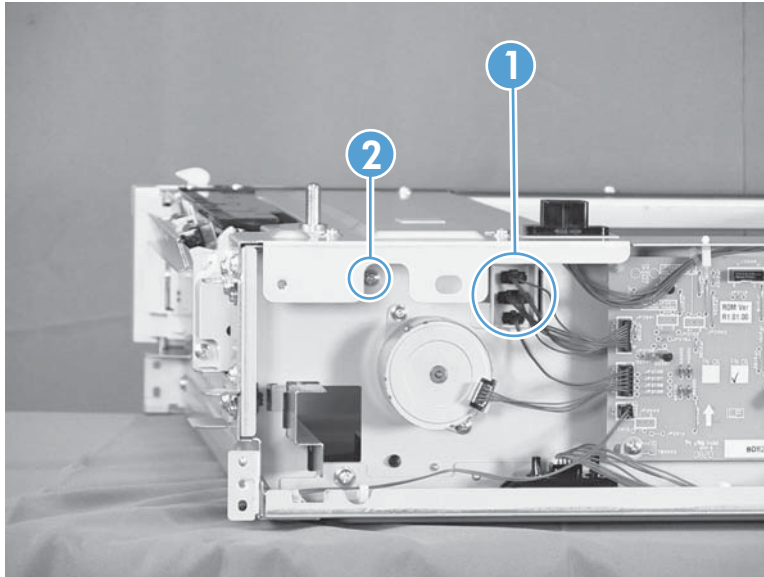


## Tray 3 pickup assembly

Before proceeding, remove the following components:

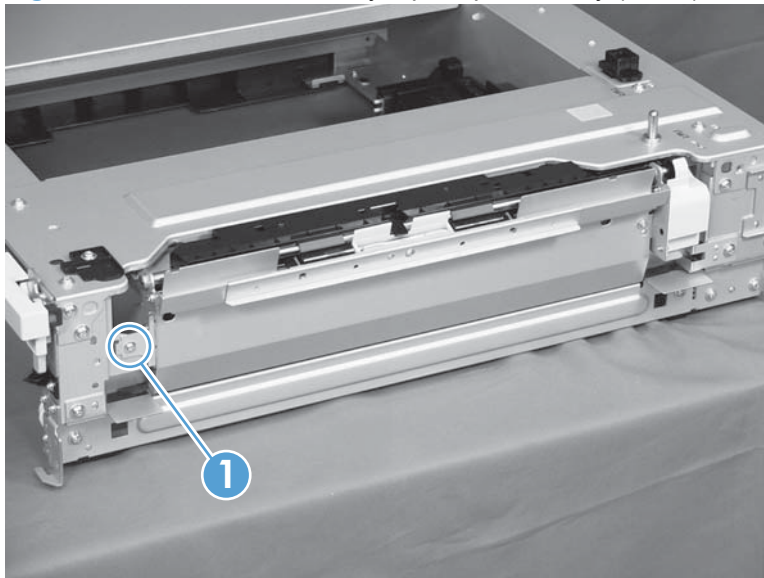
- Rear cover. See [Tray 3 rear cover on page 161](#).
  - Right-front cover. See [Tray 3 right-front cover on page 163](#).
  - Right-lower cover. See [Tray 3 right-lower cover on page 166](#).
1. Disconnect three connectors (callout 1), and then remove one screw (callout 2).

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



2. Remove one screw (callout 1).

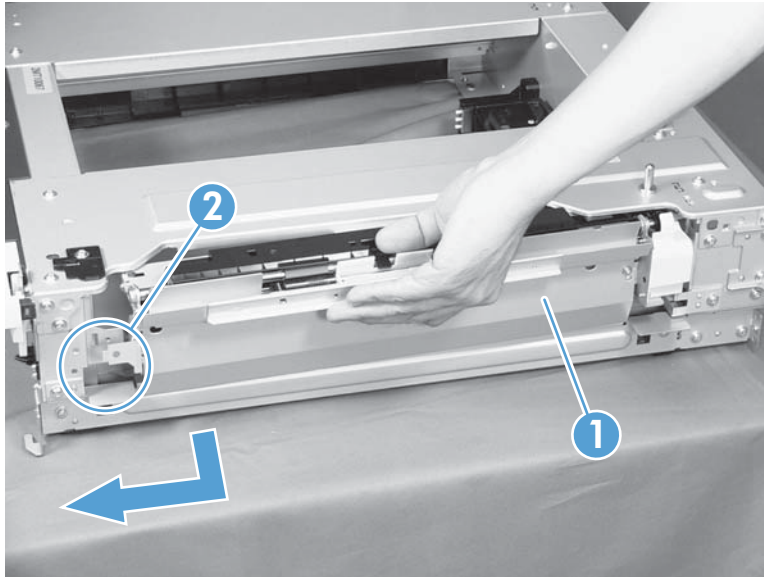
**Figure 2-114** Remove the Tray 3 pickup assembly (2 of 3)




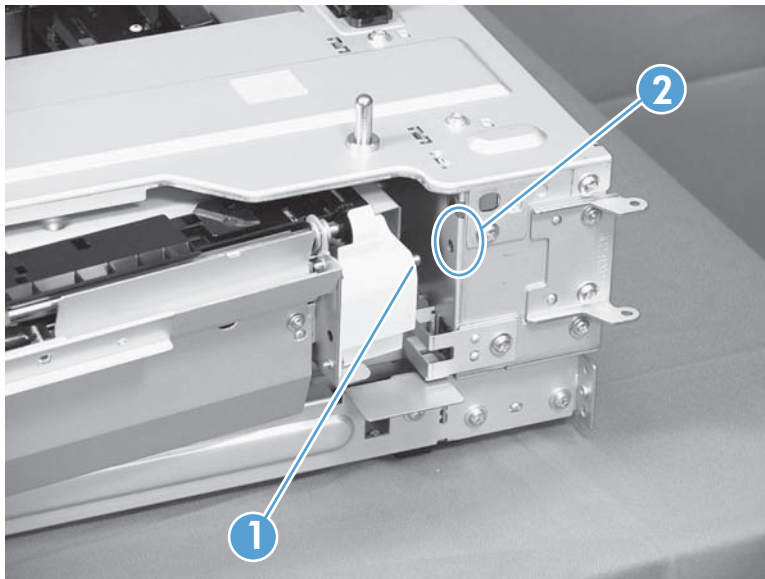


3. Lift the Tray 3 pickup assembly (callout 1) slightly to clear a tab (callout 2), and then slide it in the direction that the arrow indicates to remove it.

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



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

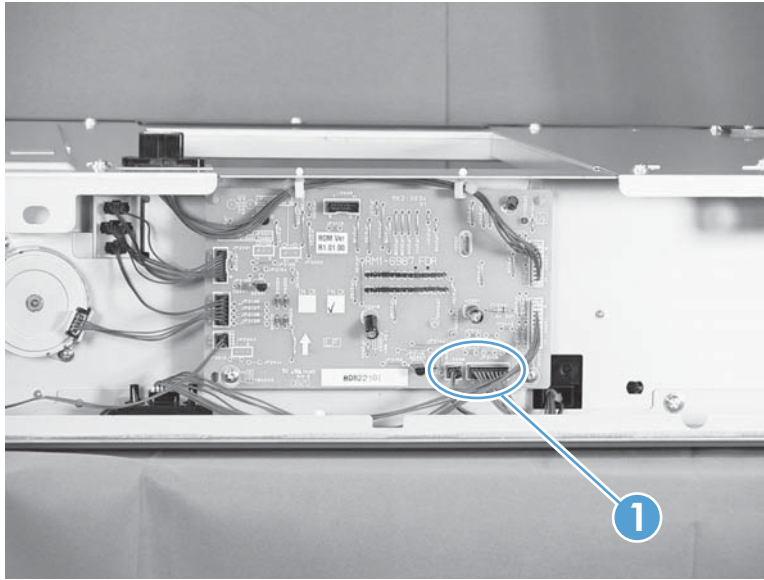


### Tray 3 lifter drive assembly

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

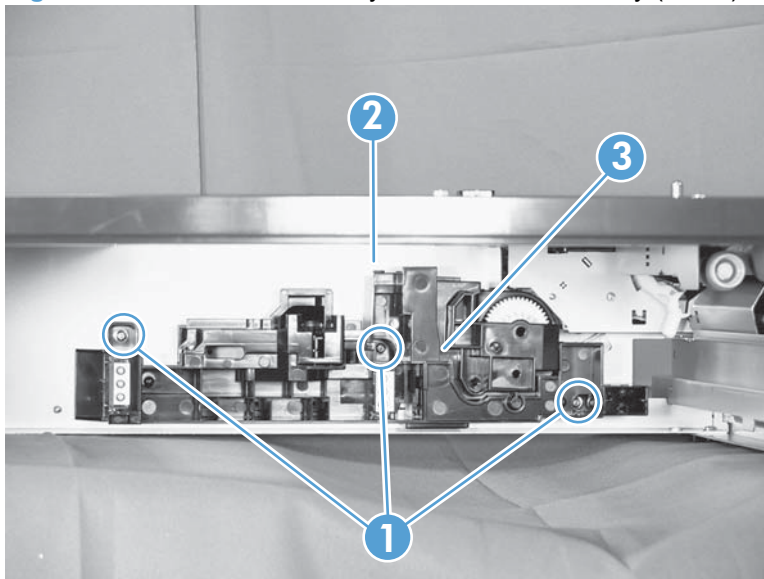
2. Disconnect two connectors (callout 1).

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



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

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

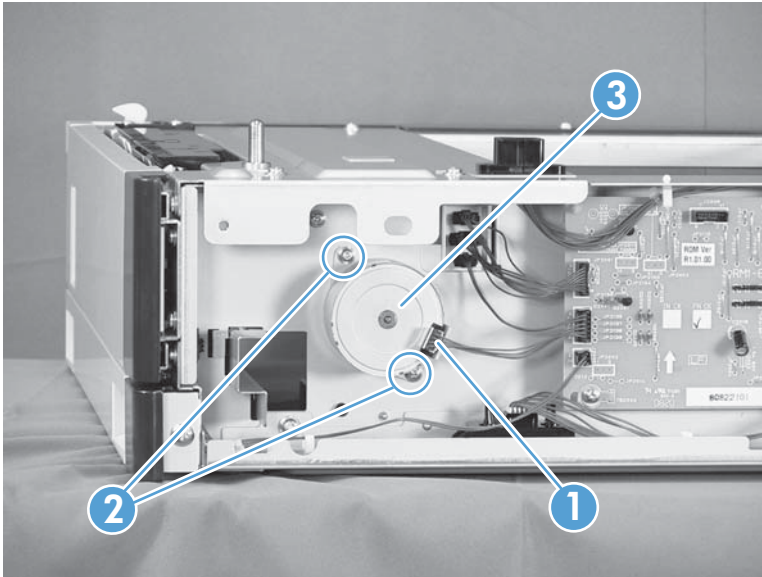


### Tray 3 pickup motor

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

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

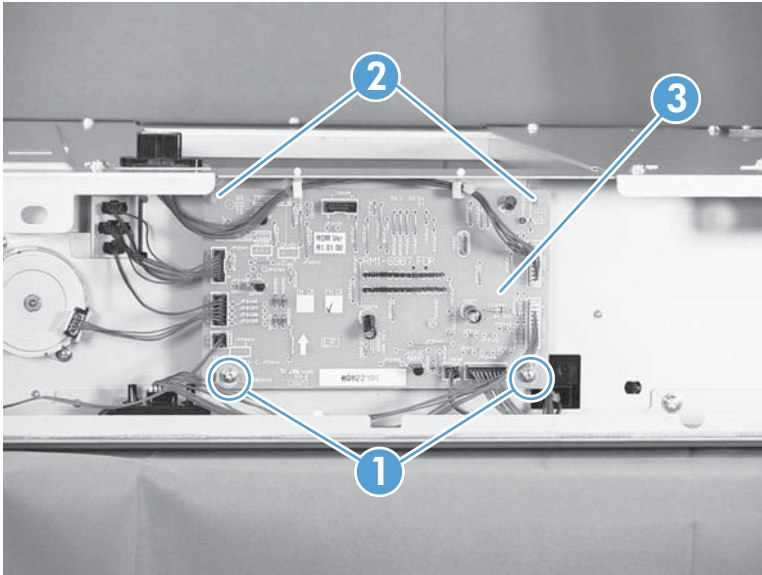
**Figure 2-118** Remove the Tray 3 pickup motor



### Tray 3 driver PCA

1. Remove the tray from the feeder, and then remove the rear cover (see [Tray 3 rear cover on page 161](#)).
2. Disconnect seven connectors, remove two screws (callout 1), release two tabs (callout 2), and then remove the Tray 3 driver PCA (callout 3).

**Figure 2-119** Remove the Tray 3 driver PCA



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## 3 Solve problems

To use the information in this chapter, you should have a basic understanding of the HP LaserJet printing process. Do not perform any of these troubleshooting processes unless you understand the function of each product component.

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

## Solve problems checklist

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

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

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

If you cannot find solutions to problems in this guide, go to [www.hp.com/support/ljcp5220series](http://www.hp.com/support/ljcp5220series).

# Menu map

## Print a menu map

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



# Troubleshooting process

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

- Use the pretroubleshooting checklist to evaluate the source of the problem and to reduce the number of steps that are required to fix the problem.
- Use the troubleshooting flowchart to pinpoint the root cause of hardware malfunctions. The flowchart guides you to the section of this chapter that contains steps for correcting the malfunction.

Before beginning any troubleshooting procedure, check the following issues:

- Are supply items within their rated life?
- Does the configuration page reveal any configuration errors?



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

## Pretroubleshooting checklist

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

General topic	Questions
Environment	<ul style="list-style-type: none"><li>• Is the product installed on a solid, level surface (+/- 1°)?</li><li>• Is the power-supply voltage within <math>\pm 10</math> volts of the specified power source?</li><li>• Is the power-supply plug inserted in the product and the outlet?</li><li>• Is the operating environment within the specified parameters?</li><li>• Is the product exposed to ammonia gas, such as that produced by diazo copiers or office cleaning materials?</li></ul> <p><b>NOTE:</b> 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"><li>• Is the product exposed to direct sunlight?</li></ul>
Media	<ul style="list-style-type: none"><li>• Does the customer use only supported media?</li><li>• Is the media in good condition (no curls, folds, or distortion)?</li><li>• Is the media stored correctly and within environmental limits?</li></ul>
Input trays	<ul style="list-style-type: none"><li>• Is the amount of media in the tray within specifications?</li><li>• Is the media correctly placed in the tray?</li><li>• Are the paper guides aligned with the stack?</li><li>• Is the cassette correctly installed in the product?</li></ul>
Print cartridges	<ul style="list-style-type: none"><li>• Is each print cartridge installed correctly?</li></ul>
Transfer unit and fuser	<ul style="list-style-type: none"><li>• Are the transfer unit and fuser installed correctly?</li></ul>
Doors	<ul style="list-style-type: none"><li>• Are the doors closed?</li></ul>

General topic	Questions
Condensation	<ul style="list-style-type: none"> <li>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.</li> <li>Was a print cartridge opened soon after being moved from a cold to a warm room? If so, allow the print cartridge to sit at room temperature for 1 to 2 hours.</li> </ul>
Miscellaneous	<ul style="list-style-type: none"> <li>Check for and remove any non-HP components (for example, print cartridges or memory modules) from the product.</li> <li>Check to see whether the hardware or software configuration has changed or the problem is not associated with any specific software.</li> <li>Remove the product from the network and ensure that the failure is associated with the product before beginning troubleshooting.</li> <li>For any print-quality issues, calibrate the product. See <a href="#">Calibrate the product on page 210</a></li> </ul>

## Power-on checks

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

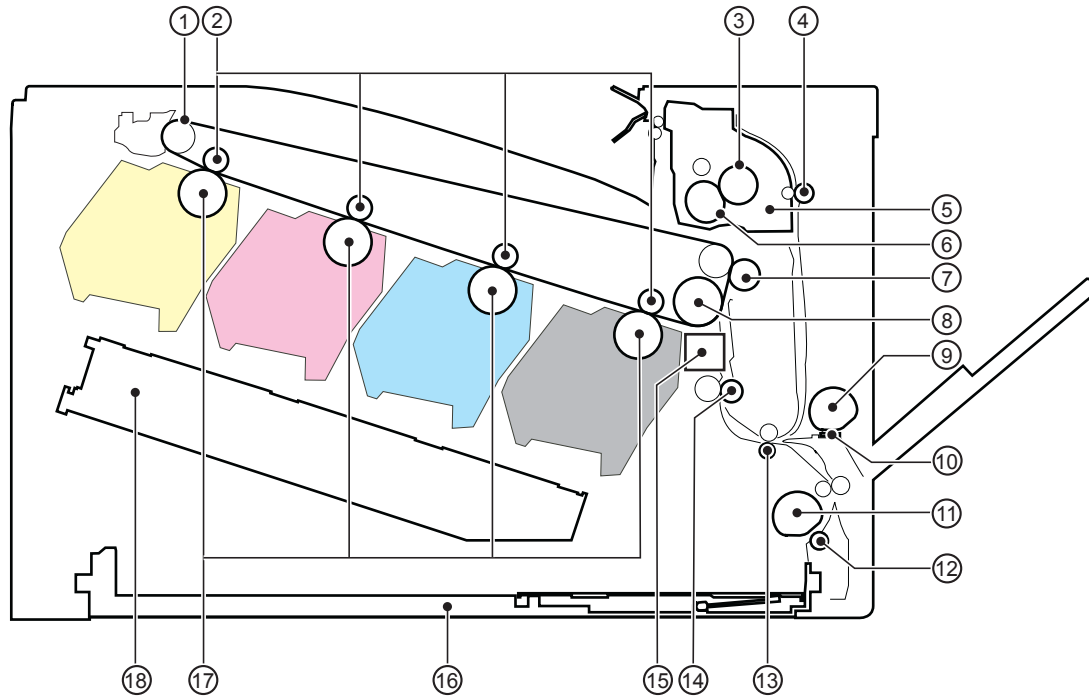
- Verify that the product is plugged directly into an active electrical outlet that has the correct voltage. Do not plug the product into a surge protector or power strip.
- Verify that the power button is illuminated.
- Verify that the formatter is seated correctly.
- Remove any HP Jetdirect or other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

# Tools for troubleshooting

## Diagrams

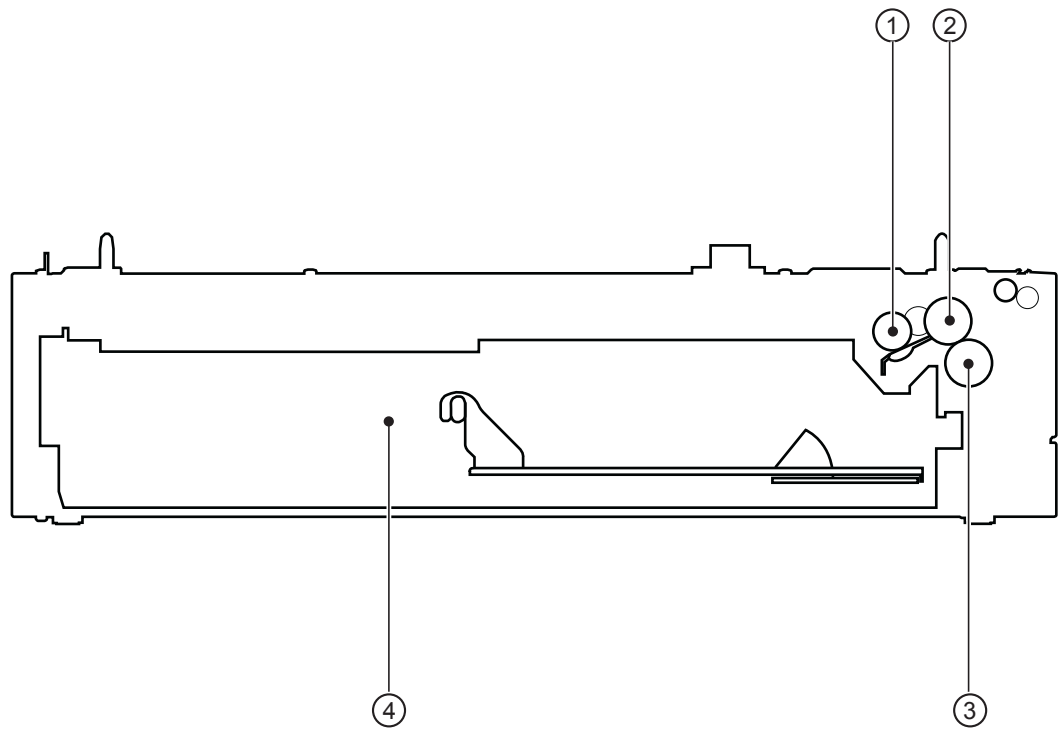
### Block diagrams

**Figure 3-1** Product cross section



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

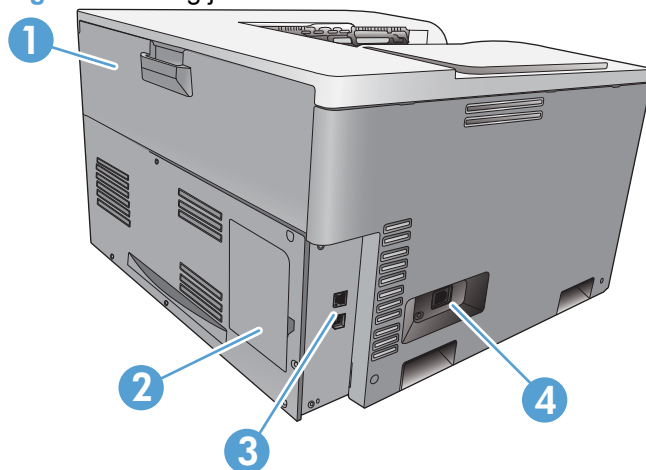
Figure 3-2 Optional paper feeder (Tray 3) cross section



1	Pickup roller
2	Feed roller
3	Separation roller
4	Cassette

## Plug/jack locations

Figure 3-3 Plug/jack locations



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



Location of connectors

DC controller connections

Figure 3-4 DC controller connections

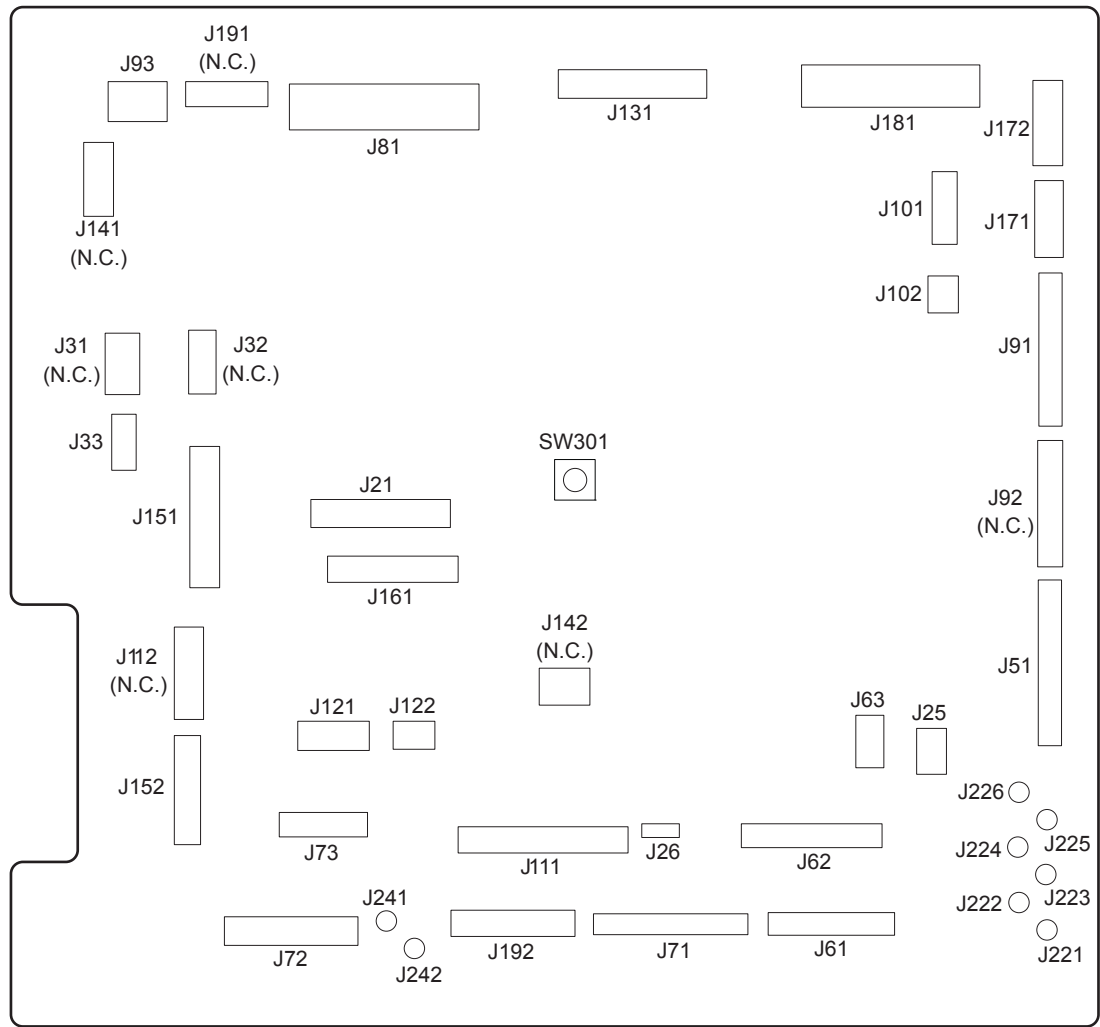


Table 3-1 DC controller connections

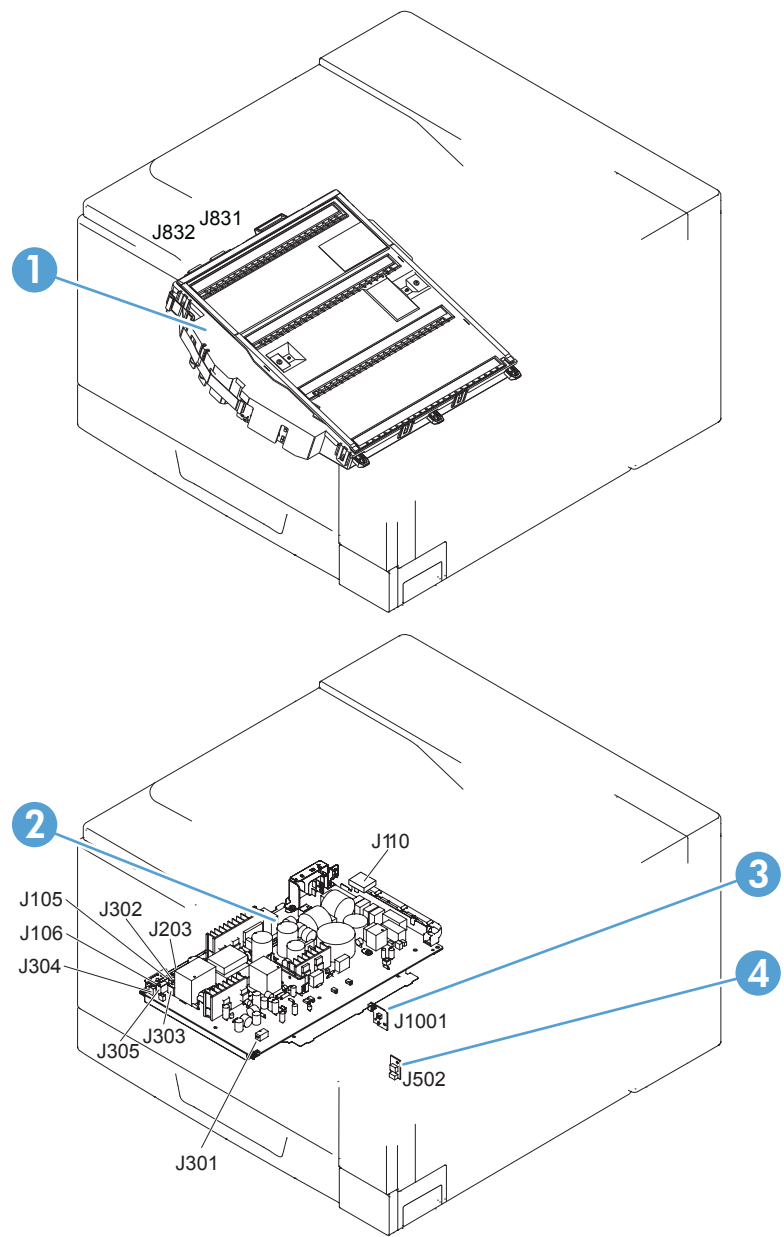
Item	Description	Item	Description	Item	Description
J21	DC controller power	J73	Secondary transfer	J131	Fuser
J25	Low-voltage power supply	J81	ITB motor	J151	Cassette paper size
			Fuser motor		Cassette paper presence
			Drum motor		Cassette lifter motor
			Developing motor		

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

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

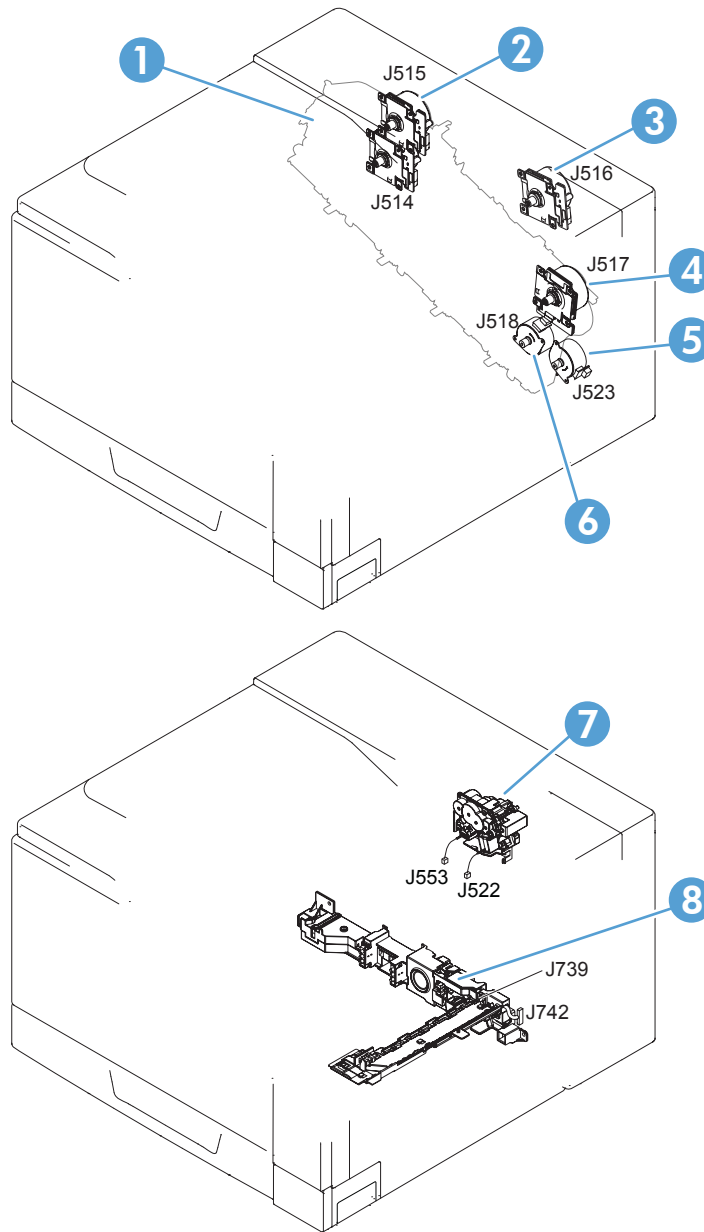
Product connections

Figure 3-5 Product connections (1 of 6)



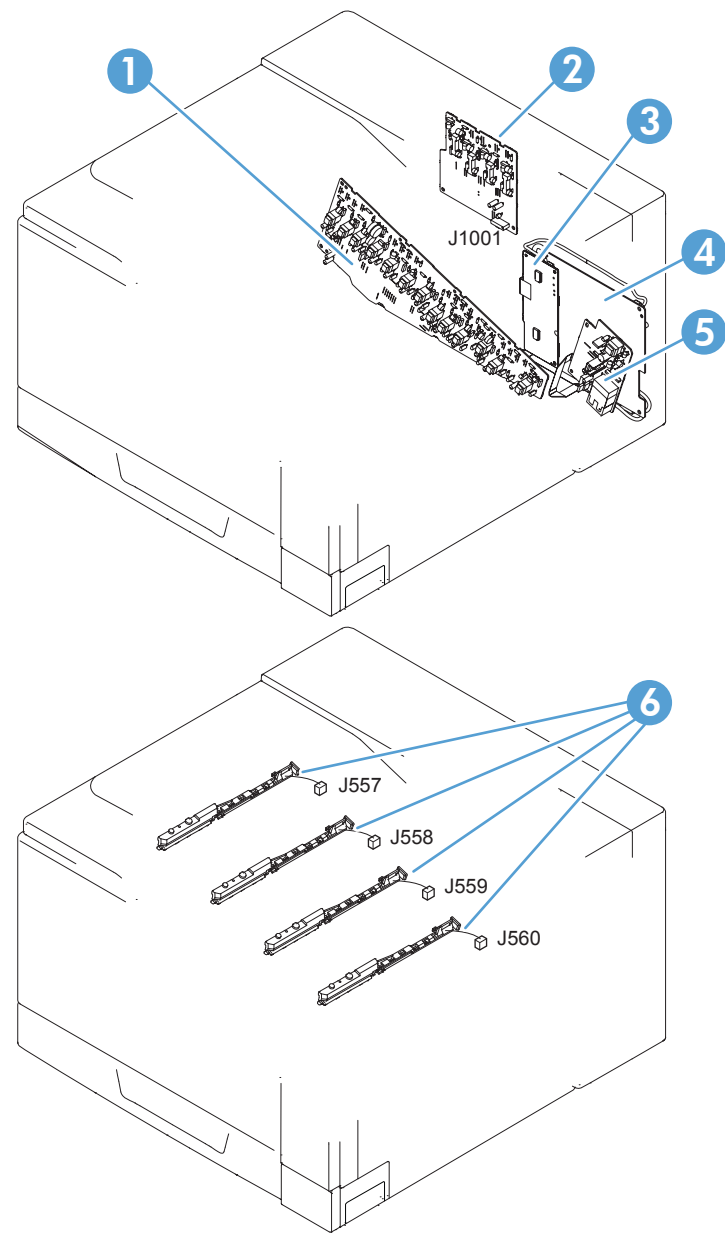
Item	Description
1	Laser scanner unit
2	Low-voltage power supply
3	Power switch PCA
4	Environment sensor

**Figure 3-6** Product connections (2 of 6)



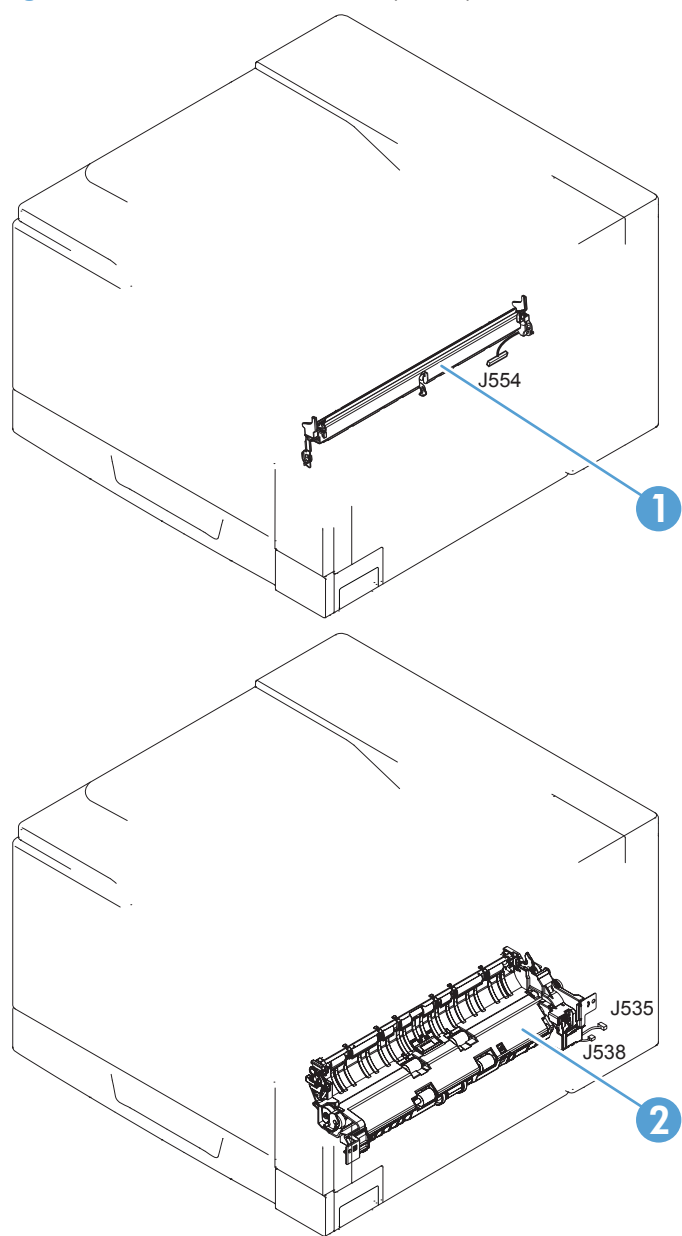
Item	Description
1	Developing motor
2	Drum motor
3	Fuser motor
4	ITB motor
5	Pickup motor
6	Developing disengagement motor
7	Drive unit
8	Lifter drive unit

Figure 3-7 Product connections (3 of 6)



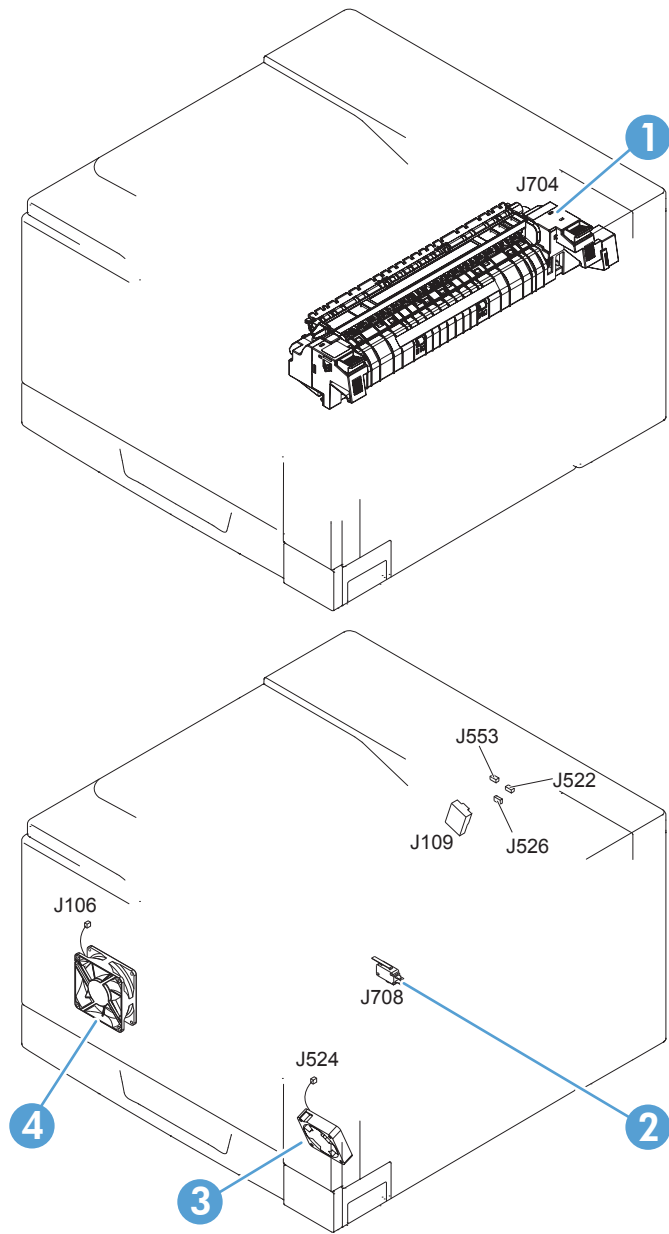
Item	Description
1	High-voltage power supply imaging (developing) PCA
2	High-voltage power supply 1st transfer PCA
3	Driver PCA
4	DC controller PCA
5	High-voltage power supply 2nd transfer PCA
6	ITB waste-toner detection PCAs

Figure 3-8 Product connections (4 of 6)



Item	Description
1	Registration sensor assembly
2	Cassette pickup drive unit

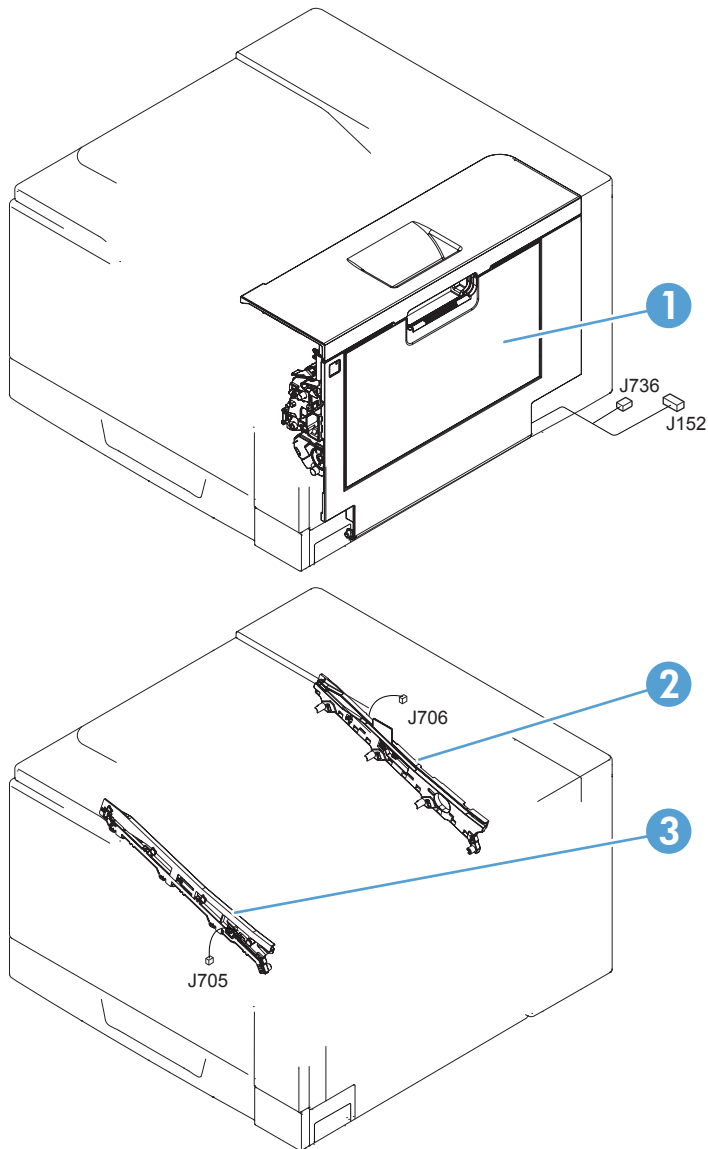
Figure 3-9 Product connections (5 of 6)



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

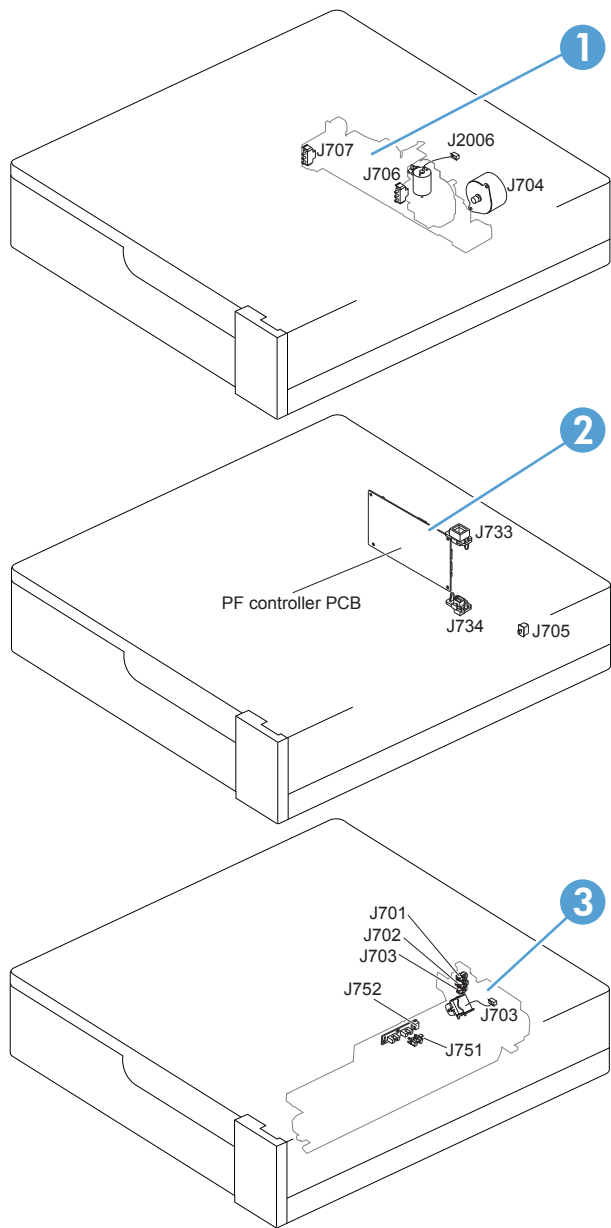


**Figure 3-10** Product connections (6 of 6)



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

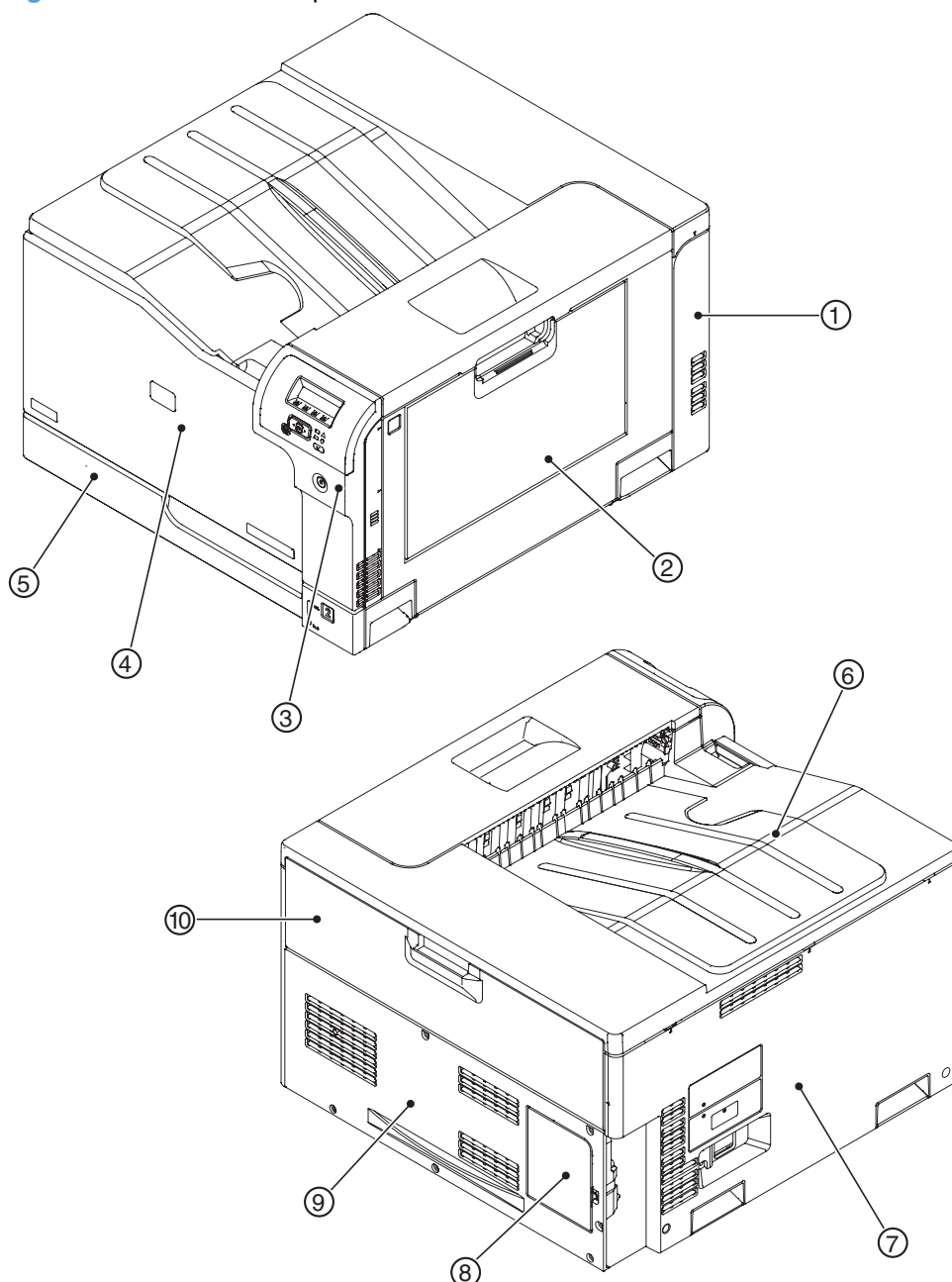
Figure 3-11 Paper feeder connections



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

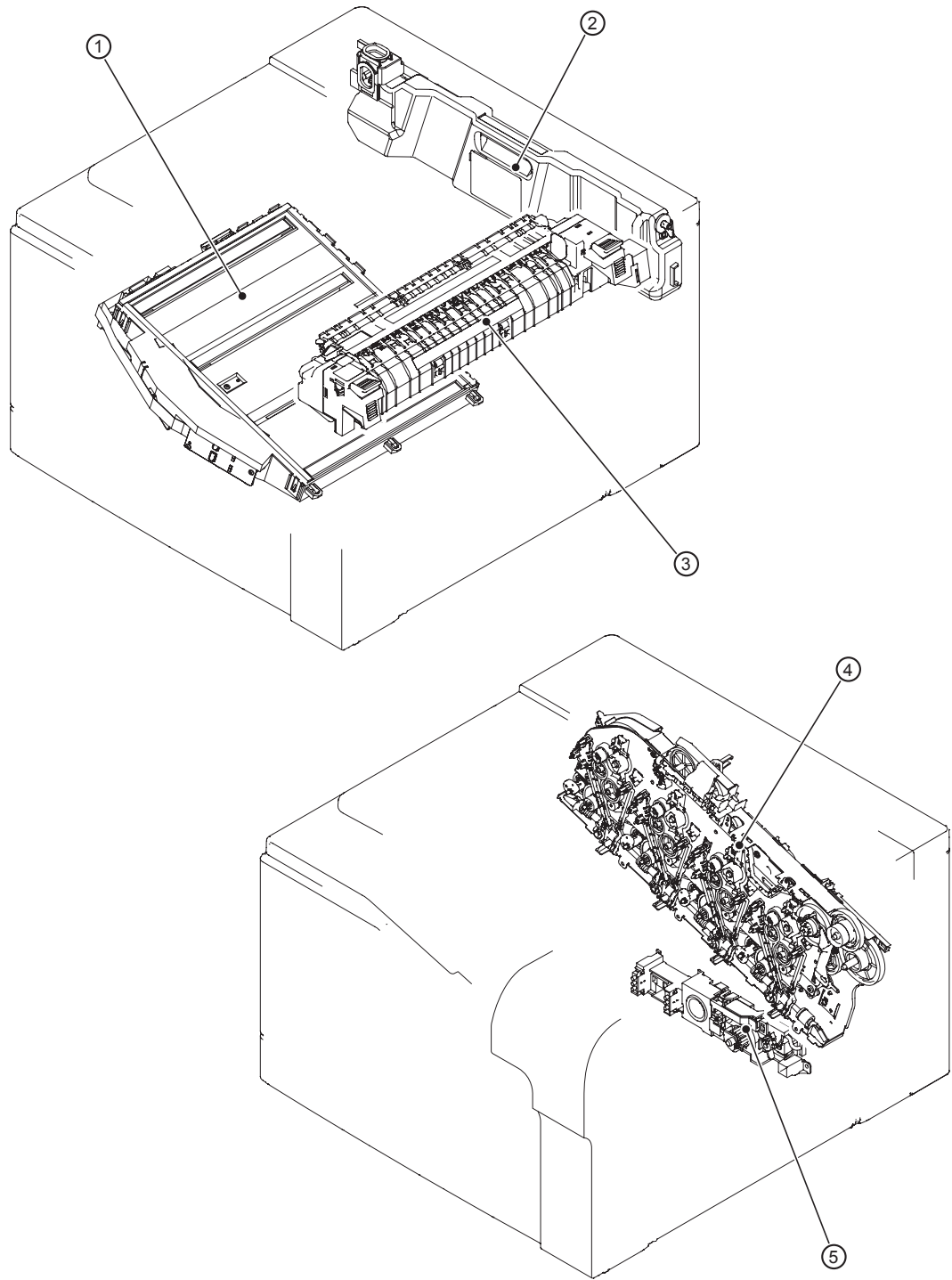
## Locations of major components

**Figure 3-12** External component locations



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

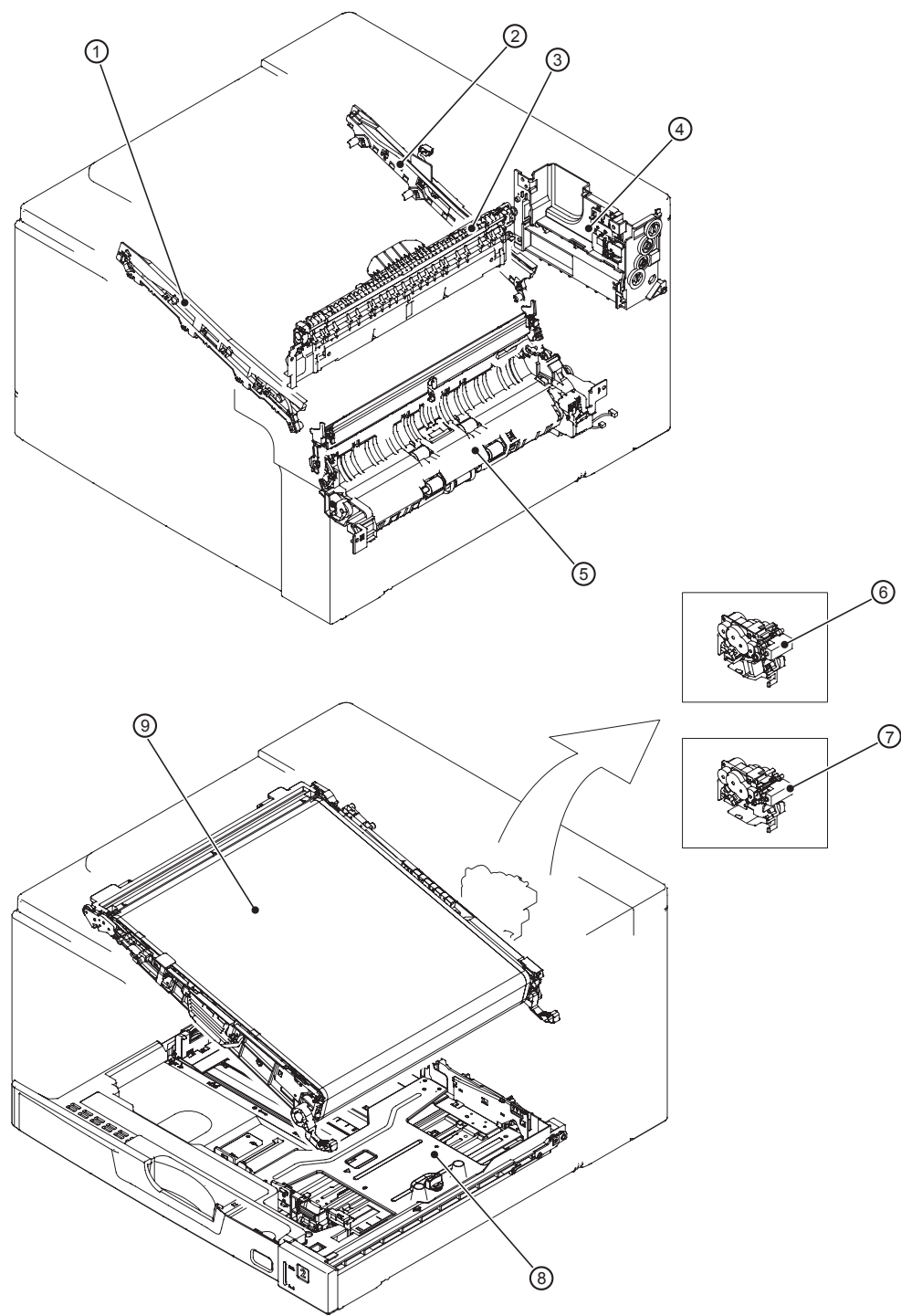
Figure 3-13 Major component locations (1 of 3)



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

Item	Description
4	Main drive unit
5	Lifter drive unit

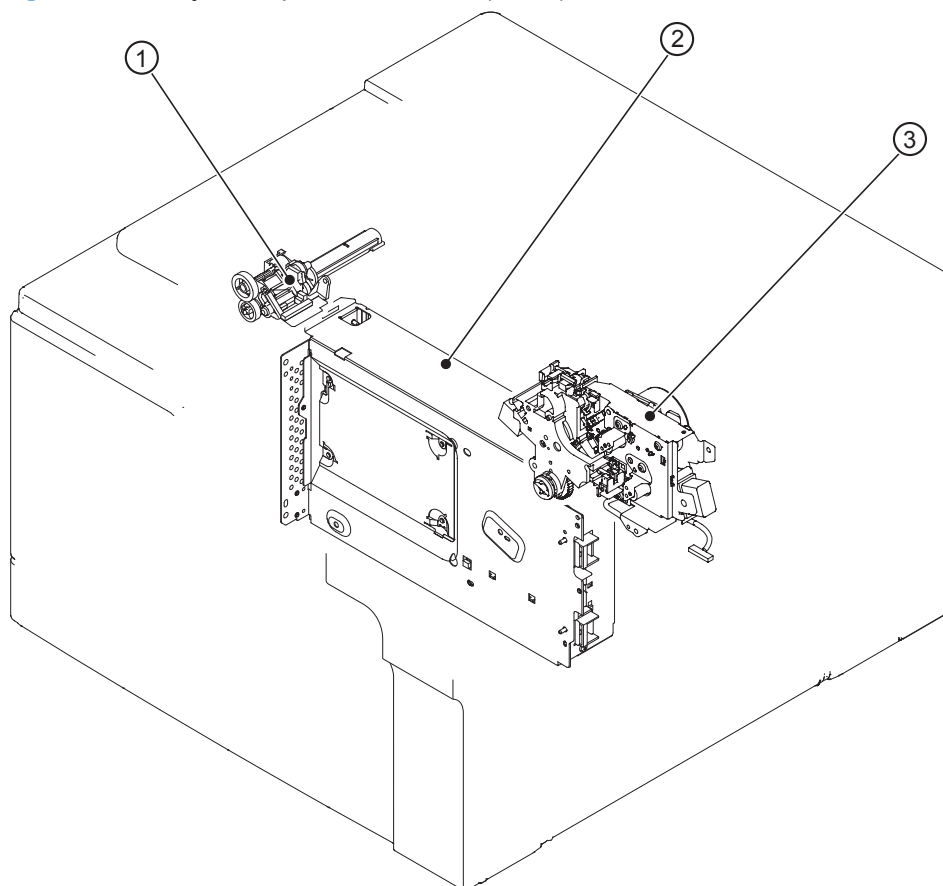
Figure 3-14 Major component locations (2 of 3)



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

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

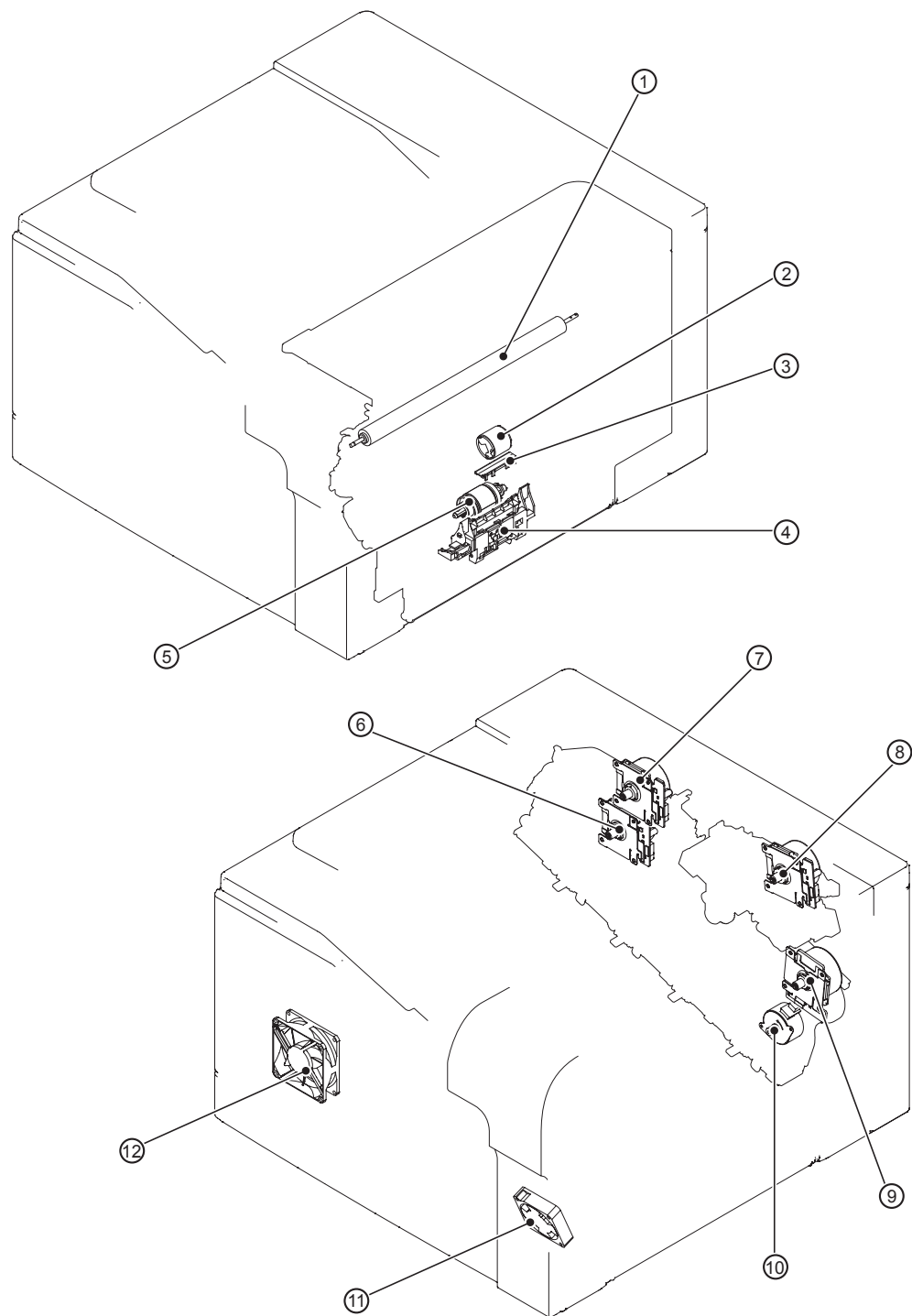
**Figure 3-15** Major component locations (3 of 3)



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



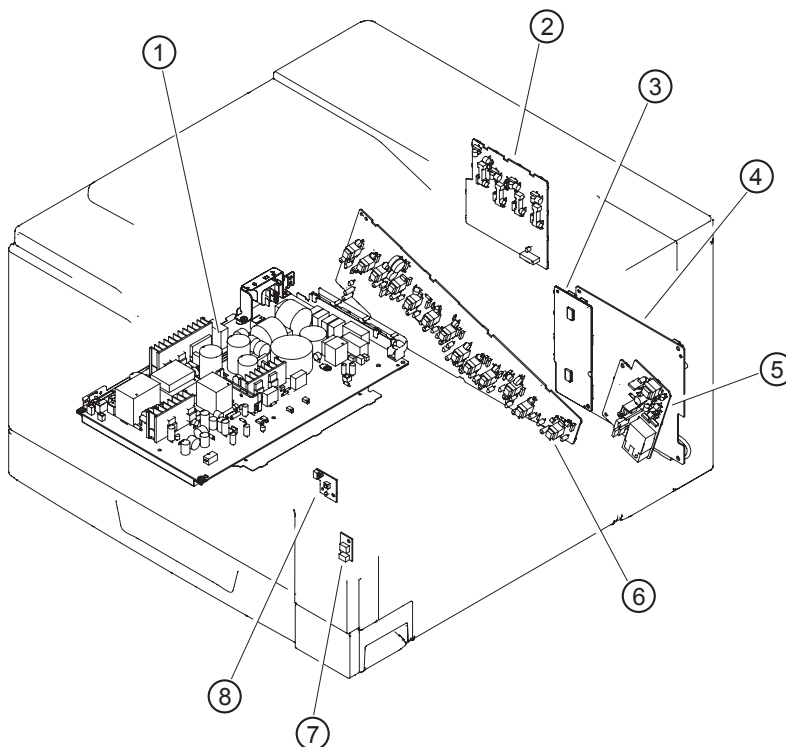
Figure 3-16 Motors, fans, and rollers component locations



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

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

**Figure 3-17** PCA component locations



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

## HP ToolboxFX




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

---

### Open HP ToolboxFX

Open HP ToolboxFX in one of these ways:

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

HP ToolboxFX contains the following folders:

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

## Status

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

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

## Event log

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

## Alerts

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

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

### Set up Status Alerts

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

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

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



---

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

---

### Set up E-mail Alerts

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



---

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

---

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

---

## Product information

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

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

### Set password

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

1. In the embedded Web server, click the **System** tab.  
In HP ToolboxFX, click the **Device Settings** tab.
2. Click **Product Security**.
3. In the **Password** box, type the password that you want to set, and then in the **Confirm password** box, type the same password again to confirm your choice.
4. Click **Apply** to save the password.



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

---

## Help

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

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

## System Settings

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

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

## Device Information

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



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



## Paper Setup

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

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

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

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



---

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

---

## Print Quality

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

## Color Calibration

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

---

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

---

## Print Density

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

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

## Paper Types

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

---

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

---

## Extended Print Modes

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

## System Setup

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

---

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

---

## Save/Restore Settings

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

## Product Security

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

## Print Settings

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

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

## Printing

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



---

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

---

## PCL5

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



---

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

---

## PostScript

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



---

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

---

## Network Settings

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

## Shop for Supplies

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

## Other Links

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

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

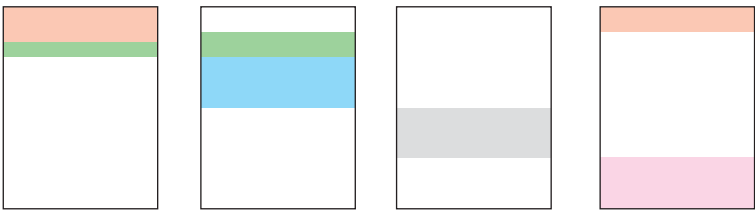
- **Support and Troubleshooting.** Connects to the support site for the product where you can search for help with a specific problem.
- **Product Registration.** Connects to the HP product registration Web site.

## Internal print quality test pages

### Use HP ToolboxFX to troubleshoot print-quality problems

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

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



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

This page helps identify four general issues:

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

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

*Repeating band in multiple colors:* See [Solve image-quality problems on page 240](#).


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

### Print the print-quality troubleshooting page

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

### Configuration page

#### Print the configuration page

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

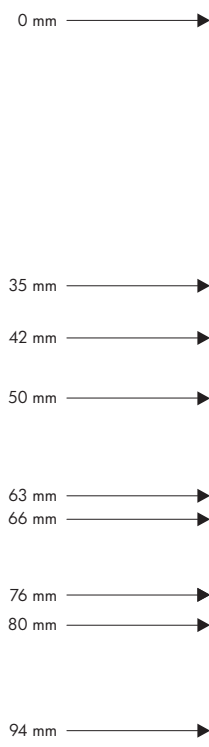
## Print quality troubleshooting tools

### Repetitive image-defect ruler

Use a ruler to measure occurrences of repetitive image defects to help solve image quality problems. Place the ruler next to the first occurrence of the defect on the page. Find the distance between identical defects and use the figure below to identify the component that is causing the defect.



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



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

## Calibrate the product

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

### Calibrate the product using HP ToolboxFX

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

## Calibrate the product from the control panel

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

## Control-panel menus

### Use the menus

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

## Reports menu

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

Menu item	Description
<b>Demo Page</b>	Prints a color page that demonstrates print quality.
<b>Menu Structure</b>	Prints a map of the control-panel-menu layout.
<b>Configuration Report</b>	Prints a list of the product settings. Includes network information when the product is connected to a network.
<b>Supplies Status</b>	Prints the status for each print cartridge, including the following information: <ul style="list-style-type: none"><li>• Approximate pages remaining</li><li>• Approximate percentage of cartridge life remaining for each color</li><li>• Part number</li><li>• Approximate number of pages printed</li></ul>
<b>Network Summary</b>	Prints a list of all product network settings (network models only).
<b>Usage Page</b>	Prints a page that lists PCL pages, PCL 6 pages, HP postscript level 3 emulation pages, pages that were jammed or mispicked in the product, monochrome (black and white) or color pages; and reports the page count.
<b>PCL Font List</b>	Prints a list of all the PCL fonts that are installed.
<b>PS Font List</b>	Prints a list of all the PostScript (PS) fonts that are installed.
<b>PCL 6 Font List</b>	Prints a list of all the PCL6 fonts that are installed.



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

## System Setup menu

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

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

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

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

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

## Service menu

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

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

## Network Configuration menu

Use this menu to establish network configuration settings.




**NOTE:** This menu appears on network models only.

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

## Interpret control-panel and status-alert messages

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

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

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

For some messages, restarting the product might fix the problem. If a critical error persists, the product might require service.

Control-panel message	Status alert	Description	Recommended action
10.10.XX Supply error	✓	<ul style="list-style-type: none"><li>• 10.1000 = black supply memory is missing</li><li>• 10.1001 = cyan supply memory is missing</li><li>• 10.1002 = magenta supply memory is missing</li><li>• 10.1003 = yellow supply memory is missing</li></ul>	<p>Check the e-label. If it is broken or damaged, replace the cartridge.</p> <p>Verify that the cartridge is installed in the correct location.</p> <p>Remove and reinstall the cartridge and then power-cycle the product.</p> <p>If the error is with a color cartridge, try swapping it with a different color cartridge in the tray. If the same message appears, then there is an engine problem. If a different 10.10.XX message appears, replace the cartridge.</p>
10.9531 Error Turn off then on	✓	The toner collection unit is full or missing.	Replace the toner collection unit.
10.XXXX Supply error	✓	<p>The supply memory for one of the print cartridges cannot be read or is missing.</p> <ul style="list-style-type: none"><li>• 10.0000 = black supply memory error</li><li>• 10.0001 = cyan supply memory error</li><li>• 10.0002 = magenta supply memory error</li><li>• 10.0003 = yellow supply memory error</li></ul>	<p>Reinstall the print cartridge.</p> <p>Turn the product off and then on.</p> <p>If the problem is not solved, replace the cartridge.</p>



Control-panel message	Status alert	Description	Recommended action
<b>50.1 Fuser Error</b> Turn off then on	✓	Abnormally low fuser temperature.	<ol style="list-style-type: none"> <li>1. Remove the fuser and check for any residual media in the fuser. Remove any residual media.</li> <li>2. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or fuser.</li> <li>3. Reconnect the connector (J131A) on the DC controller PCA and the connectors (J109, J110) on the power line between the low-voltage power supply unit and fuser.</li> <li>4. Replace the fuser.</li> </ol>
<b>50.2 Fuser Error</b> Turn off then on	✓	Fuser warm-up failure.	<ol style="list-style-type: none"> <li>1. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or the fuser.</li> <li>2. Reconnect the connector (J131A) on the DC controller PCA and the connectors (J109, J110) on the power line between the low-voltage power supply unit and fuser.</li> <li>3. Replace the fuser.</li> </ol>
<b>50.3 Fuser Error</b> Turn off then on	✓	Abnormally high fuser temperature.	<ol style="list-style-type: none"> <li>1. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or fuser.</li> <li>2. Reconnect the connector (J131A) on the DC controller PCA.</li> <li>3. Replace the fuser.</li> </ol>

Control-panel message	Status alert	Description	Recommended action
<b>50.4 Fuser Error</b>  Turn off then on	✓	Fuser drive circuit is defective.	<ol style="list-style-type: none"> <li>1. Check the power source at the product location.</li> </ol> <p><b>NOTE:</b> If the product does not meet the power requirement of 43 to 57Hz frequency, the fuser temperature control does not work correctly and this causes malfunction.</p> <ol style="list-style-type: none"> <li>2. Reconnect the connector (J21) on the DC controller PCA.</li> <li>3. Replace the low-voltage power supply unit.</li> </ol>
<b>50.7 Fuser Error</b>  Turn off then on	✓	The fuser is defective (pressure release mechanism abnormality).	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J181) on the DC controller PCA.</li> <li>2. Run the sensor test in the sensor monitor mode to verify that the fuser pressure release sensor is functioning correctly. If it is not, replace the fuser pressure release sensor unit.</li> <li>3. Check the fuser pressure release sensor flag. If it is damaged, replace the fuser.</li> <li>4. Run the fuser pressure release drive test in the actuator drive mode to verify that the fuser motor is functioning correctly. If it is not, replace the fuser motor.</li> <li>5. Replace the fuser.</li> </ol>
<b>50.8 Fuser Error</b>  Turn off then on	✓	Abnormally low subthermistor fuser temperature error.	<ol style="list-style-type: none"> <li>1. Remove the fuser and remove any residual media in the fuser.</li> <li>2. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or fuser.</li> <li>3. Reconnect the connector (J131A) on the DC controller PCA and the connectors (J109, J110) on the power line between the low-voltage power supply unit and fuser.</li> <li>4. Replace the fuser.</li> </ol>

Control-panel message	Status alert	Description	Recommended action
<b>50.9 Fuser Error</b>  Turn off then on	✓	Abnormally high subthermistor fuser temperature error.	<ol style="list-style-type: none"> <li>1. Reinstall the fuser. Check the connector (J704) between the fuser and the product. If it is damaged, replace the fuser drive unit or fuser.</li> <li>2. Reconnect the connector (J131A) on the DC controller PCA.</li> <li>3. Replace the fuser.</li> </ol>
<b>51.XX Error</b>  Turn off then on	✓	The product has experienced an internal error with a laser scanner. <ul style="list-style-type: none"> <li>• 51.20 = black</li> <li>• 51.21 = cyan</li> <li>• 51.22 = magenta</li> <li>• 51.23 = yellow</li> </ul>	<ol style="list-style-type: none"> <li>1. Turn the product off and then on.</li> <li>2. Verify that the connectors J61 and J62 on the DC controller PCA are correctly seated. Also verify that the connectors on the laser scanner are correctly seated.</li> <li>3. If the problem remains, replace the laser scanner.</li> </ol>
<b>54.XX Error</b>  Turn off then on	✓	The product has experienced an error with one of the print cartridge sensors. <ul style="list-style-type: none"> <li>• 54.15 = yellow</li> <li>• 54.16 = magenta</li> <li>• 54.17 = cyan</li> <li>• 54.18 = black</li> </ul>	<ol style="list-style-type: none"> <li>1. Open the door to the cartridge tray and slide out the cartridge tray.</li> <li>2. Inspect the white mechanism on the relevant cartridge. It is located on the right side of the cartridge.</li> <li>3. Push the mechanism in and out slowly. A black flag will raise up as you push it. If it does not move smoothly, push repeatedly to try to clear any potential obstruction.</li> <li>4. Push in the cartridge tray and close the door.</li> </ol>
<b>55.X Error</b>  Turn off then on	✓	55.0601 = DC controller NVRAM data error  55.0602 = DC controller NVRAM access error  55.1 = DC controller memory error  55.3 = Engine communication error  55.4 = Engine timeout error	<ol style="list-style-type: none"> <li>1. Turn the product off and on. If the problem remains, replace the DC controller PCA.</li> </ol>

Control-panel message	Status alert	Description	Recommended action
56.X Error Turn off then on	✓	Tray <X> not correctly installed.	Reinstall the tray.
57.01 Error Turn off then on	✓	Power supply fan (FM1) is defective.	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J21) on the DC controller PCA and the connector (J106) on the low-voltage power supply unit.</li> <li>2. Measure the voltage between the connector J21-2 and J25-2 on the DC controller PCA right after the product is turned on. If the voltage changes from 0 V to approximately 24 V, replace the power supply fan.</li> </ol>
57.02 Error Turn off then on	✓	The fuser fan (FM2) is defective.	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J121X) on the DC controller PCA and the intermediate connector (J524).</li> <li>2. Measure the voltage between the connector J121X-6 and J121X-4 on the DC controller PCA right after the product is turned on. If the voltage changes from 0 V to approximately 24 V, replace the fixing fan.</li> </ol>
58.04 Error Turn off then on	✓	Low-voltage power supply malfunction.	<ol style="list-style-type: none"> <li>1. Turn the product off and then on.</li> <li>2. Verify that connectors J21 and J25 on the DC controller PCA are correctly seated. Also verify that all connectors on the low-voltage power supply are correctly seated.</li> <li>3. If the problem remains, replace the low-voltage power supply.</li> </ol>

Control-panel message	Status alert	Description	Recommended action
<b>59.C0 Error</b>  Turn off then on	✓	Developer motor rotation error.	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J518) on the developing disengagement motor, the connector (J1005) on the driver PCA and the connector (J91) on the DC controller PCA.</li> <li>2. Run the sensor test in the sensor monitor mode to verify that the developing disengagement sensor is functioning correctly. If it is not, replace the developing disengagement sensor unit.</li> <li>3. Run the developing unit engagement and disengagement drive test in the actuator drive mode to verify that the disengagement mechanism is functioning correctly. If it is not functioning correctly, replace the developing disengagement motor.</li> </ol>
<b>59.F0 Error</b>  Turn off then on	✓	Transfer alienation failure.	<ol style="list-style-type: none"> <li>1. Check if the ITB unit is installed.</li> <li>2. Reconnect the connector (J181) on the DC controller PCA.</li> <li>3. Run the switch test in the sensor monitor mode to verify that the primary transfer roller disengagement switch is functioning correctly. If it is not functioning correctly, replace the primary transfer roller disengagement switch unit.</li> <li>4. Run the primary transfer roller engagement and disengagement drive test in the actuator drive mode to verify that the primary transfer roller disengagement mechanism is functioning correctly. If it is not functioning correctly, replace the fuser drive unit.</li> </ol>

Control-panel message	Status alert	Description	Recommended action
<b>59.X Error</b>  <b>Turn off then on</b>	✓	<p>The product has experienced a problem with one of the motors.</p> <ul style="list-style-type: none"> <li>59.3 Fuser motor startup error</li> <li>59.4 Fuser motor rotation error</li> </ul>	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J516) on the fuser motor and the connector (J81) on the DC controller PCA.</li> <li>2. Run the fuser motor drive test in the actuator drive mode to verify that the fuser motor is functioning correctly. If it is not, replace the fuser motor unit.</li> </ol>
<b>59.X Error</b>  <b>Turn off then on</b>	✓	<p>Image drum motor startup or rotation error-black.</p> <ul style="list-style-type: none"> <li>59.50 Image drum motor startup error-black</li> <li>59.60 Image drum motor rotation error-black</li> </ul>	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J517) on the ITB motor and the connector (J81) on the DC controller PCA.</li> <li>2. Run the drum motor drive test in the actuator drive mode to verify that the ITB motor is functioning correctly. If it is not, replace the ITB motor unit.</li> </ol>
<b>59.X Error</b>  <b>Turn off then on</b>	✓	<p>Image drum motor startup or rotation error-cyan, magenta, or yellow.</p> <ul style="list-style-type: none"> <li>59.51 Image drum motor startup error-cyan</li> <li>59.52 Image drum motor startup error-magenta</li> <li>59.53 Image drum motor startup error-yellow</li> <li>59.61 Image drum motor rotation error-cyan</li> <li>59.62 Image drum motor rotation error-magenta</li> <li>59.63 Image drum motor rotation error-yellow</li> </ul>	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J515) on the drum motor and the connector (J81) on the DC controller PCA.</li> <li>2. Run the drum motor drive test in the actuator drive mode to verify that the drum motor is functioning correctly. If it is not, replace the drum motor unit.</li> </ol>
<b>59.X Error</b>  <b>Turn off then on</b>	✓	<p>Black developer motor startup or rotation error.</p> <ul style="list-style-type: none"> <li>59.70 Black developer motor startup error</li> <li>59.80 Black developer motor rotation error</li> </ul>	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J517) on the ITB motor and the connector (J81) on the DC controller PCA.</li> <li>2. Run the ITB motor drive test in the actuator drive mode to verify that the ITB motor is functioning correctly. If it is not, replace the ITB motor unit.</li> </ol>

Control-panel message	Status alert	Description	Recommended action
<b>59.X Error</b> Turn off then on	✓	Developing motor abnormal rotation or start-up. <ul style="list-style-type: none"> <li>59.70 Black developer motor startup error</li> <li>59.71 Cyan developer motor startup error</li> <li>59.72 Magenta developer motor startup error</li> <li>59.73 Yellow developer motor startup error</li> <li>59.80 Black developer motor rotation error</li> <li>59.81 Cyan developer motor rotation error</li> <li>59.82 Magenta developer motor rotation error</li> <li>59.83 Yellow developer motor rotation error</li> </ul>	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J514) on the developing motor and the connector (J81) on the DC controller PCA.</li> <li>2. Run the developing motor drive test in the actuator drive mode to verify that the developing motor is functioning correctly. If it is not functioning correctly, replace the developing motor unit.</li> </ol>
<b>59.X Error</b> Turn off then on	✓	ITB motor start error or rotation error. <ul style="list-style-type: none"> <li>59.9 ITB motor start error</li> <li>59.A0 ITB motor rotation error</li> </ul>	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J517) on the ITB motor and the connector (J81) on the DC controller PCA.</li> <li>2. Run the ITB motor drive test in the actuator drive mode to verify that the ITB motor is functioning correctly. If it is not functioning correctly, replace the ITB motor unit.</li> </ol>
<Color> in wrong position	✓	A print cartridge is installed in the incorrect slot.	Be sure that each print cartridge is in the correct slot. From front to back, the print cartridges are installed in this order: black, cyan, magenta, yellow.
<Supply> Very Low	✓	The <b>System Setup</b> menu item <b>At Very Low</b> is set to <b>Continue</b> .	<p>You can continue printing until you notice a decrease in print quality. Actual cartridge life remaining may vary.</p> <p>Once an HP supply has reached "very low", HP's premium Protection Warranty on that supply has ended.</p>
<b>Device error</b> Press [OK]	✓	An internal error occurred.	Press the <b>OK</b> button to resume the job.



Control-panel message	Status alert	Description	Recommended action
Front door open	✓	<b>CLOSE FRONT DOOR</b> message appears although the door is closed.	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J708) of the 24V interlock switch and the connector (J121X) on the DC controller PCA.</li> <li>2. Check the sensor flag of the front door. If it is damaged, replace the front door sensor unit.</li> </ol> <p>Close the door.</p>
Genuine HP supply installed		A genuine HP supply was installed. This message will appear briefly after the supply is installed and then be replaced by the message <b>Ready</b> .	No action necessary.
Incorrect supplies	✓	More than one print cartridge is installed in the incorrect slot.	Be sure that each print cartridge is in the correct slot. From front to back, the print cartridges are installed in this order: black, cyan, magenta, yellow.
Install <Color> cartridge	✓	The cartridge is either not installed or not correctly installed in the product.	Install the print cartridge.
Invalid driver Press [OK]	✓	You are using an incorrect printer driver.	Select the correct printer driver.
Jam in <location>	✓	The product has detected a jam.	Clear the jam from the location indicated. The job should continue to print. If it does not, try reprinting the job.
Jam in tray <X> Clear jam and then press [OK]	✓	The product has detected a jam.	Clear the jam from the location indicated, and then press the <b>OK</b> button.
Load paper	✓	All trays are empty.	Load print media.
Load tray # <TYPE> <SIZE>	✓	A tray is configured for the media type and size that the print job is requesting, but that tray is empty.	Load the correct media into the tray, or press the <b>OK</b> button to use media in a different tray.
Load tray 1 plain <SIZE> Cleaning Mode [OK] to start	✓	The product is ready to process the cleaning operation.	Load Tray 1 with plain paper in the size indicated, and then press the <b>OK</b> button.
Load tray 1 <TYPE> <SIZE>	✓	No trays are configured for the media type and size that the print job is requesting.	Load the correct media into Tray 1, or press the <b>OK</b> button to use media in a different tray.
Lower right door open	✓	The door on the right side of the paper feeder is open.	Close the door.

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


Control-panel message	Status alert	Description	Recommended action
Replace supplies	✓	More than one supply item is low.	Check the supply-level gauges on the control panel, or, if possible, print a supplies status page to determine which cartridges are low.
Right door open	✓	<b>CLOSE RIGHT DOOR</b> message appears although the door is closed.	<ol style="list-style-type: none"> <li>1. Reconnect the connector (J708) of the 24V interlock switch and the connector (J121X) on the DC controller PCA.</li> <li>2. Check the sensor flag of the right door. If it is damaged, replace the right door sensor unit.</li> </ol> <p>Close the door.</p>
Unexpected size in tray # Load <size> press [OK]	✓	<b>SIZE MISMATCH</b> message appears although the media is loaded on the configured pickup source with correct size.	<ol style="list-style-type: none"> <li>1. Run the switch test in the sensor monitor mode to verify that the corresponding media width switch and media end width switch are functioning correctly.</li> <li>2. Reconnect the corresponding connector of the switch: <ul style="list-style-type: none"> <li>◦ Printer cassette: Intermediate connector (J742) and the connector (J151) on the DC controller PCA.</li> <li>◦ PF cassette: Connector (J2007) on the PF controller PCA.</li> </ul> </li> </ol>
Used <color> Cartridge in use	✓	A used print cartridge was detected and accepted.	No action necessary.
Used <color> installed To accept press [OK]	✓	The product has detected a used print cartridge that was installed.	Press the <b>OK</b> button to continue.
Used cartridges installed To accept press [OK]	✓	The product has detected multiple used print cartridges that were installed.	Press the <b>OK</b> button to continue.
Used supplies in use	✓	Used print cartridges are installed.	No action necessary.
Used supply installed To accept press [OK]	✓	A used print cartridge is installed.	Press the <b>OK</b> button to continue.

## Event-log messages


### Print an event log

#### Print the event log

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

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

### Event-log messages

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

**Table 3-2 Event log only messages**

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

# Clear jams


## Common causes of jams

### Common causes of jams

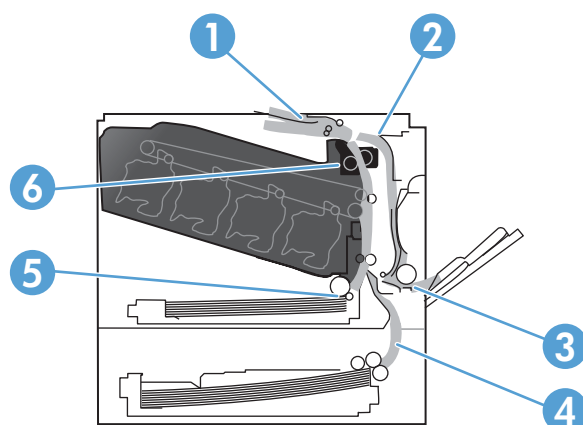
Cause	Solution
The paper length and width guides are not adjusted correctly.	Adjust the guides so they are against the paper stack.
The media does not meet specifications.	Use only media that meets HP specifications.
You are using media that has already passed through a printer or copier.	Do not use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

## Jam locations

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

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

**Figure 3-22** Jam locations



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

## Change Jam Recovery setting

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

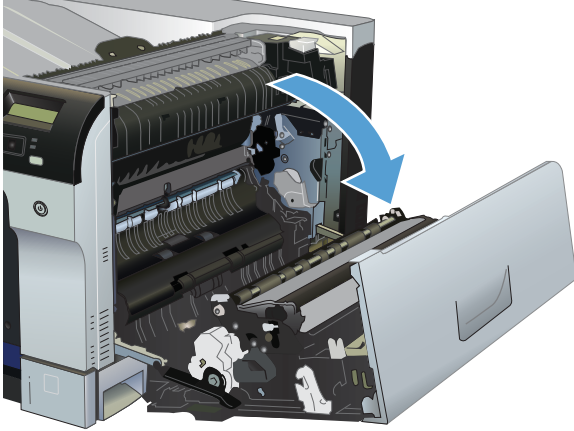
Use the embedded Web server to turn on the Jam Recovery feature.

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

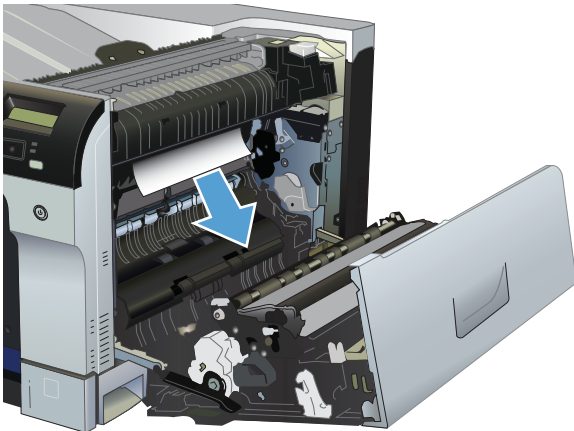
## Clear jams in the right door

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

1. Open the right door.

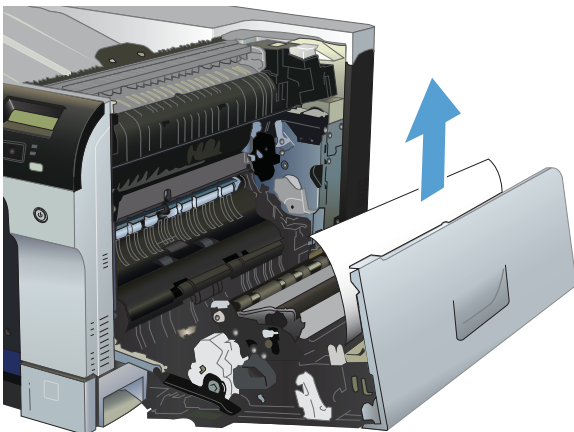


2. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.

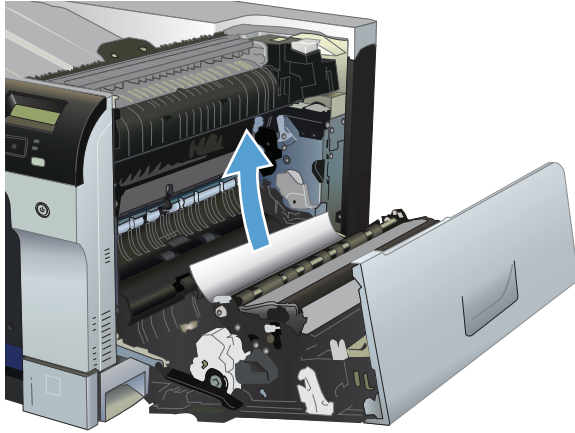


△ **CAUTION:** Do not touch the rollers. Contaminates can affect print quality.

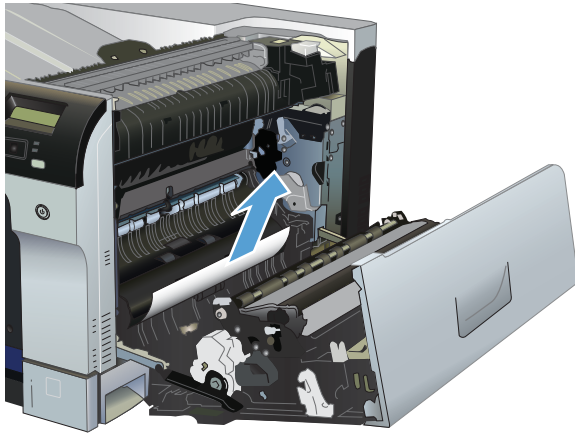
3. If paper is jammed inside the right door, gently pull the paper to remove it.



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



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



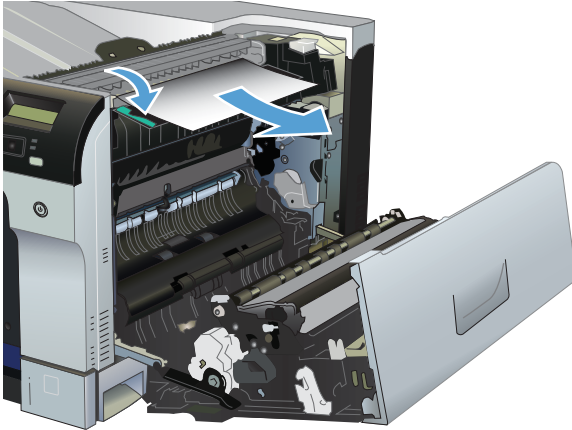


6. Paper could be jammed inside the fuser where it would not be visible. Open the fuser to check for jammed paper inside.

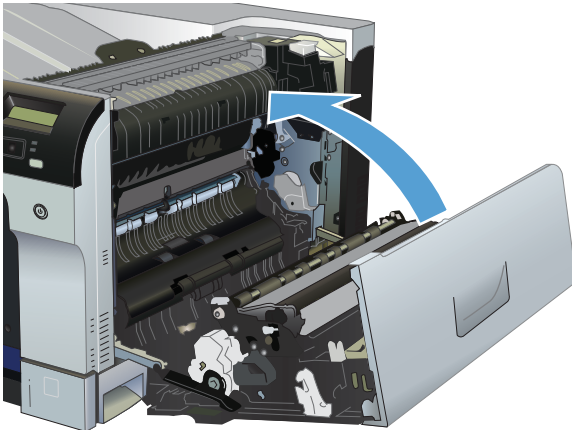
△ **CAUTION:** The fuser can be hot while the product is in use. Wait for the fuser to cool before handling it.

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

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

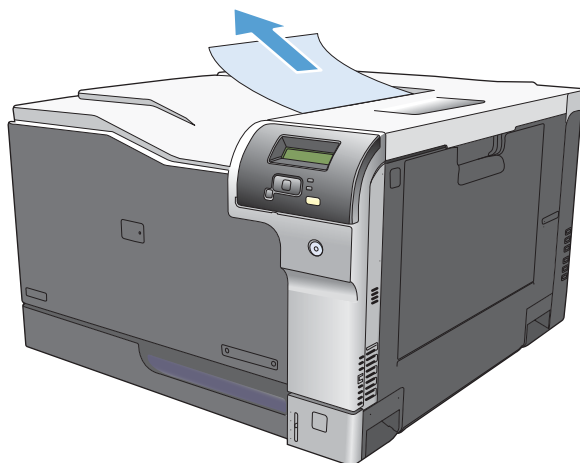


7. Close the right door.

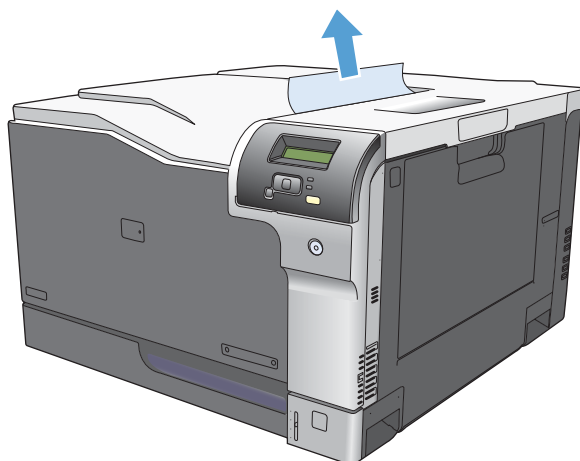


## Clear jams in the output bin area

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

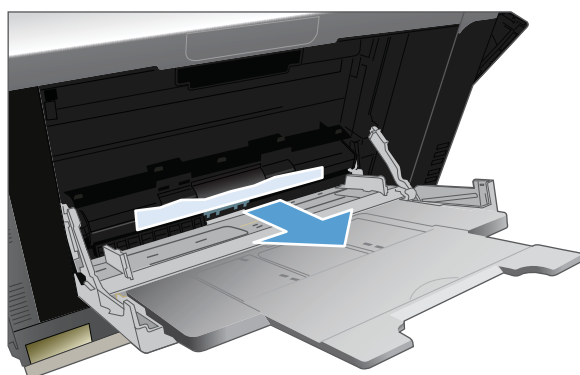


2. If jammed paper is visible in the duplex output area, gently pull it to remove it.

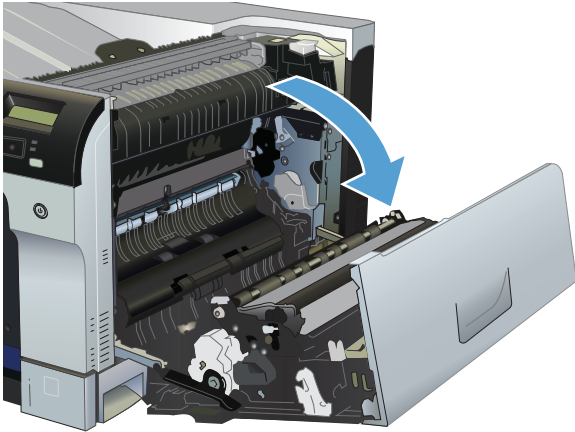


## Clear jams in Tray 1

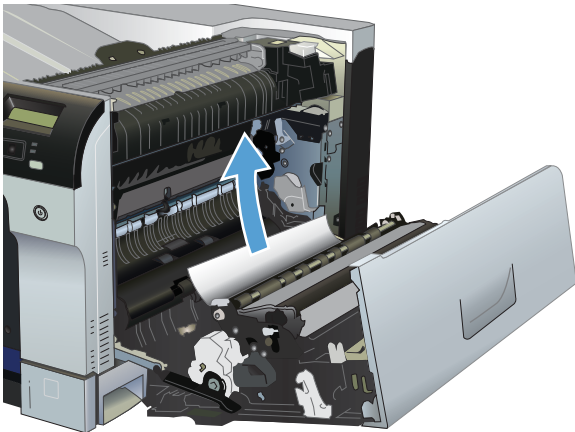
1. If jammed paper is visible in Tray 1, clear the jam by gently pulling the paper straight out. Press the **OK** button to clear the message.



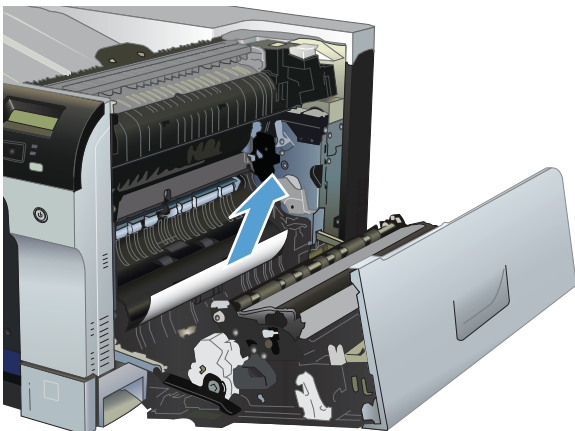
2. If you cannot remove the paper, or if no jammed paper is visible in Tray 1, close Tray 1 and open the right door.



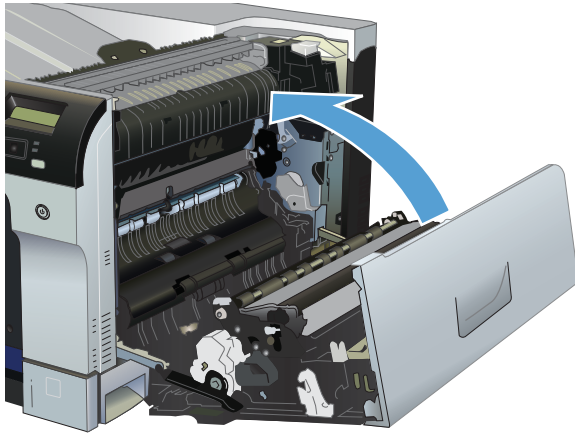
3. If paper is visible inside the right door, gently pull the trailing edge to remove it.



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



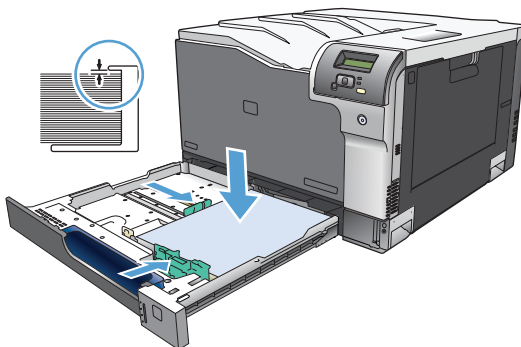
5. Close the right door.



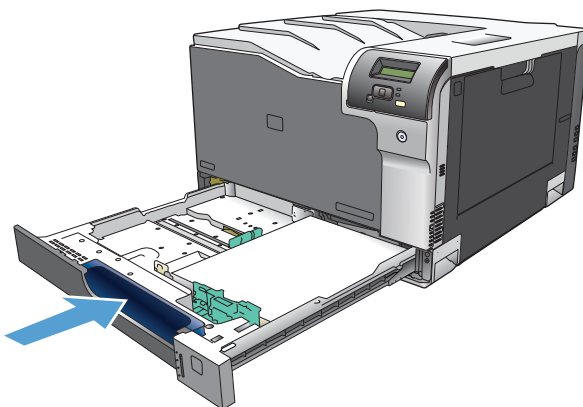
## Clear jams in Tray 2

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

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

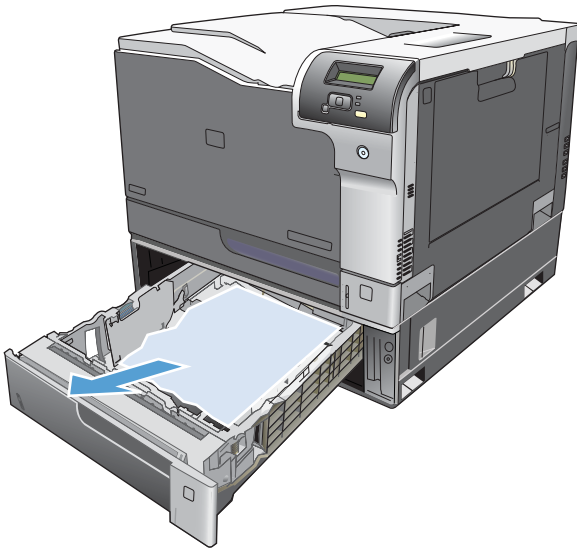


2. Close the tray.

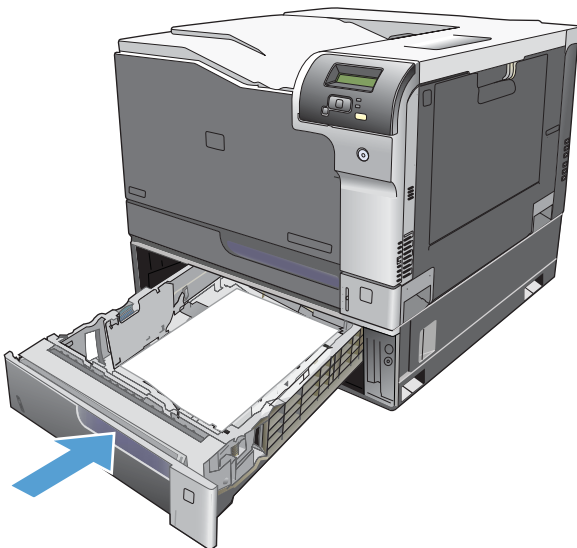


## Clear jams in the optional 500-sheet paper and heavy media tray (Tray 3)

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

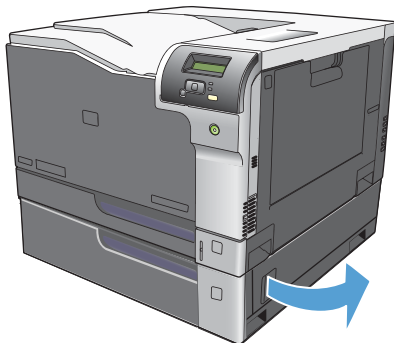


2. Close Tray 3.

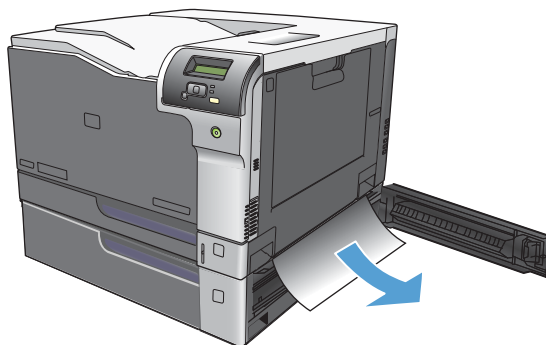
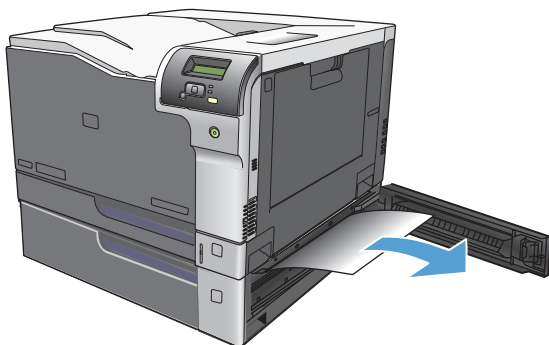


## Clear jams in the lower right door (Tray 3)

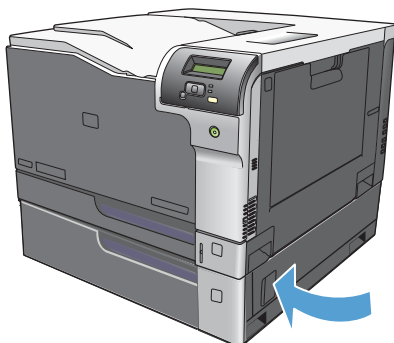
1. Open the lower right door.



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



3. Close the lower right door.









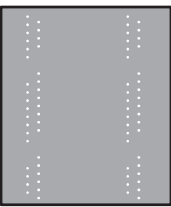
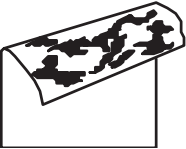
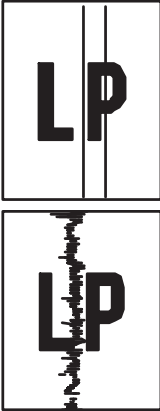
# Solve image-quality problems

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

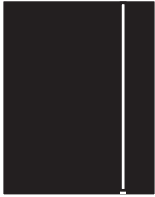



## Image defects table

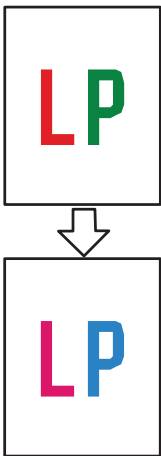


The following examples depict letter-size paper that has passed through the product short-edge first. These examples illustrate problems that would affect all the pages that you print, whether you print in color or in black only. The topics that follow list the typical cause and solution for each of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


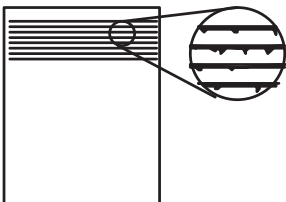


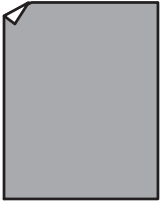
Problem	Sample	Cause	Solution
Print is light or faded on entire page.		Poor contacts exist on the ITB unit and the product grounding unit.	Clean the grounding contacts. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
		Poor secondary transfer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



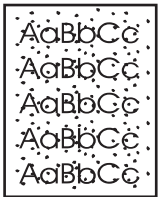
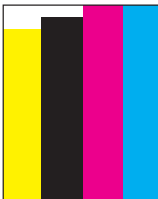
Problem	Sample	Cause	Solution
The page is all black or a solid color.		Poor contact exists in the primary charging bias or developing bias contacts between the print cartridge and the product.	Clean each contact of the color that produces the all black or solid color. If the problem remains after cleaning,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



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

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

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

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

## Clean the product

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

### Clean the product using HP ToolboxFX

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

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

### Clean the product using the control panel

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

### Clean the product using the embedded Web server

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

## Solve performance problems

Problem	Cause	Solution
Pages print but are totally blank.	The sealing tape might still be in the print cartridges.	Verify that the sealing tape has been completely removed from the print cartridges.
	The document might contain blank pages.	Check the document that you are printing to see if content appears on all of the pages.
	The product might be malfunctioning.	To check the product, print a configuration page.
Pages print very slowly.	Heavier media types can slow the print job.	Print on a different type of media.
	Complex pages can print slowly.	Proper fusing may require a slower print speed to ensure the best print quality.
	Paper type not set correctly.	Select the type to match the paper.
Pages did not print.	The product might not be pulling media correctly.	Make sure paper is loaded in the tray correctly.  If the problem persists, you might need to replace the pickup rollers and the separation pad.
	The media is jamming in the product.	Clear the jam. See <a href="#">Clear jams on page 230</a> .  If jams continue, try using a new ream of paper.
	The USB cable might be defective or incorrectly connected.	<ul style="list-style-type: none"> <li>• Disconnect the USB cable at both ends and reconnect it.</li> <li>• Try printing a job that has printed in the past.</li> <li>• Try using a different USB cable.</li> </ul>
	Other devices are running on your computer.	The product might not share a USB port. If you have an external hard drive or network switchbox that is connected to the same port as the product, the other device might be interfering. To connect and use the product, you must disconnect the other device or you must use two USB ports on the computer.

# Solve connectivity problems

## Solve direct-connect problems

If you have connected the product directly to a computer, check the cable.

- Verify that the cable is connected to the computer and to the product.
- Verify that the cable is not longer than 2 meters (6 feet). Replace the cable if necessary.
- Verify that the cable is working correctly by connecting it to another product. Replace the cable if necessary.

## Solve network problems

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

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

# Service mode functions

## Secondary service menu


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

### Open the secondary service menu

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

### Secondary service menu structure

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

Menu item	Sub-menu item	Description
<b>Service Reports</b>	<b>Cont. Self-Test</b>	Print a continuous configuration page.
	<b>Error report</b>	Print an error report.
<b>Location</b>	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 <b>Yes</b> to set the location. The product automatically restarts after you change the location.</p>
<b>Display test</b>		<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 <b>OK</b> 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 <b>OK</b> to continue to the next group of 16 characters. You can cancel the test at any time by pressing .</p>
<b>Button test</b>		Use this test to verify that the control-panel buttons function correctly. The display prompts you to press each button.
<b>Show FW Version</b>		This item shows the current date code of the firmware.
<b>Color Cal.</b>	<b>Adjust color</b>	Use this item to adjust density settings for contrast, highlights, midtones, and shadows. Adjust each color individually.
	<b>Timing</b>	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.
<b>Cleaning mode 2</b>		Use this item to move the print cartridges to the engaged position so that you can access the glass strip on the laser scanner for cleaning.
<b>New Reg. Roller</b>		Use this item to reset the registration roller page count to zero after you have installed a new paper pickup assembly (cassette pickup drive assembly).



## Product resets

### Restore the factory-set defaults


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

The product automatically restarts.

### Engine test page

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

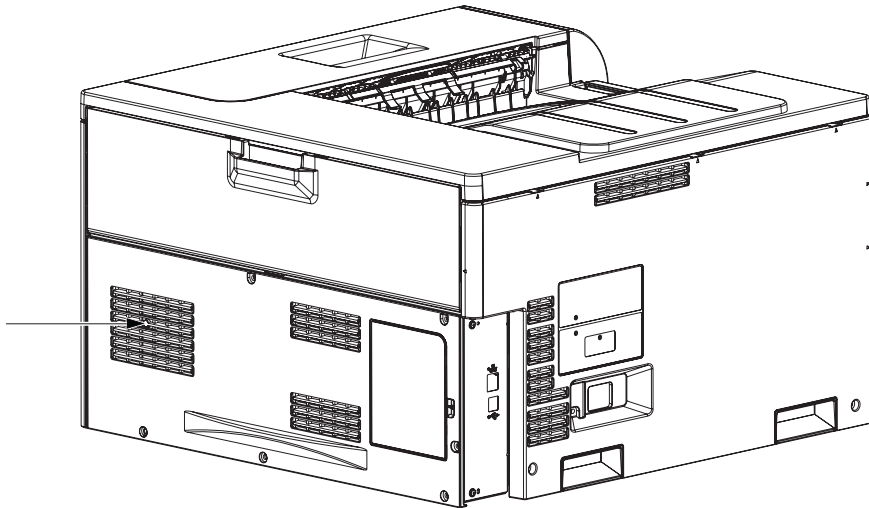
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 **NOTE:** Access the engine test button through a hole in the rear cover.

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

**Figure 3-23** Engine test button location




### Cold reset

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

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

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

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

## NVRAM initialization

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

Performing an NVRAM initialization resets the following settings and information:

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

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

### Perform an NVRAM initialization

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

## Super NVRAM initialization

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

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

### Perform a super NVRAM initialization

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

## Product updates

To upgrade the product firmware, download the firmware update file from [www.hp.com/go/ljcp5220series\\_software](http://www.hp.com/go/ljcp5220series_software) and save the file to your network or personal computer. Refer to the product install notes for instructions on how to install the firmware update file on the product.

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## 4 Parts and diagrams

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

# Order parts by authorized service providers

## Order parts, accessories, and supplies

Table 4-1 Order parts, accessories, and supplies

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

## Related documentation and software

Table 4-2 Related documentation and software

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

## Supplies part numbers

**Table 4-3 Supplies part numbers**

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

## Customer self repair parts

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

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

Item	Part number	CSR level
110V Fuser kit	CE710-69001	A
220V Fuser kit	CE710-69002	A
ITB kit		A
• ITB assembly	CE710-69003	
• Secondary transfer roller assembly	Alternate: CC522-69004	
Secondary transfer roller (T2) kit	CE710-69004	A
Toner collection unit kit	CE710-69005	A
Tray 1 paper pickup roller kit	CE710-69006	A
• Paper pickup roller		
• Separation pad		

Item	Part number	CSR level
Tray 2 paper pickup roller kit	CE710-69007	A
<ul style="list-style-type: none"> <li>Paper pickup roller assembly</li> <li>Separation roller assembly</li> </ul>		
Tray 3 paper pickup roller kit	CE710-69008	A
<ul style="list-style-type: none"> <li>Paper pickup roller assembly</li> <li>Feed roller assembly</li> </ul>		

## Accessories part numbers

**Table 4-4 Accessories part numbers**

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



## How to use the parts lists and diagrams

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

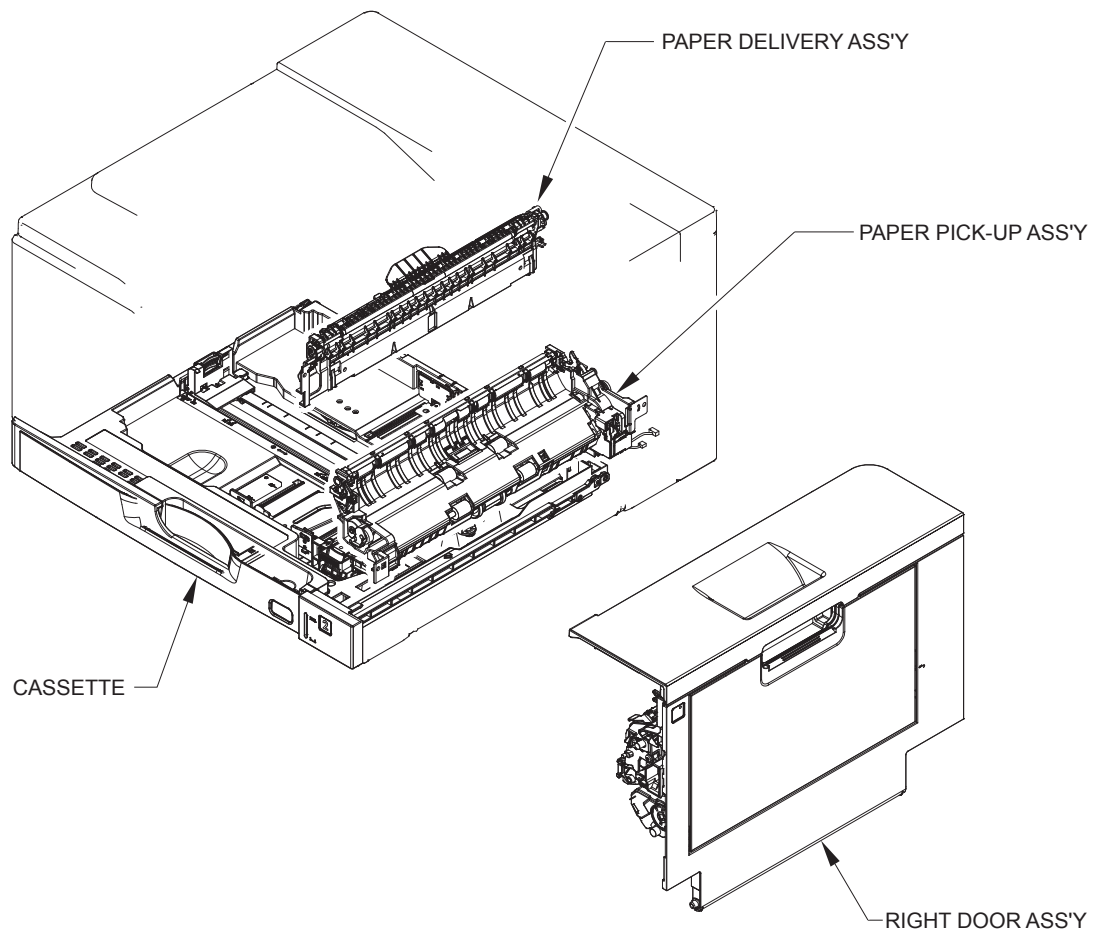
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△ **CAUTION:** Be sure to order the correct part. When looking for part numbers for electrical components, pay careful attention to the voltage that is listed in the description column. Doing so will ensure that the part number selected is for the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

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

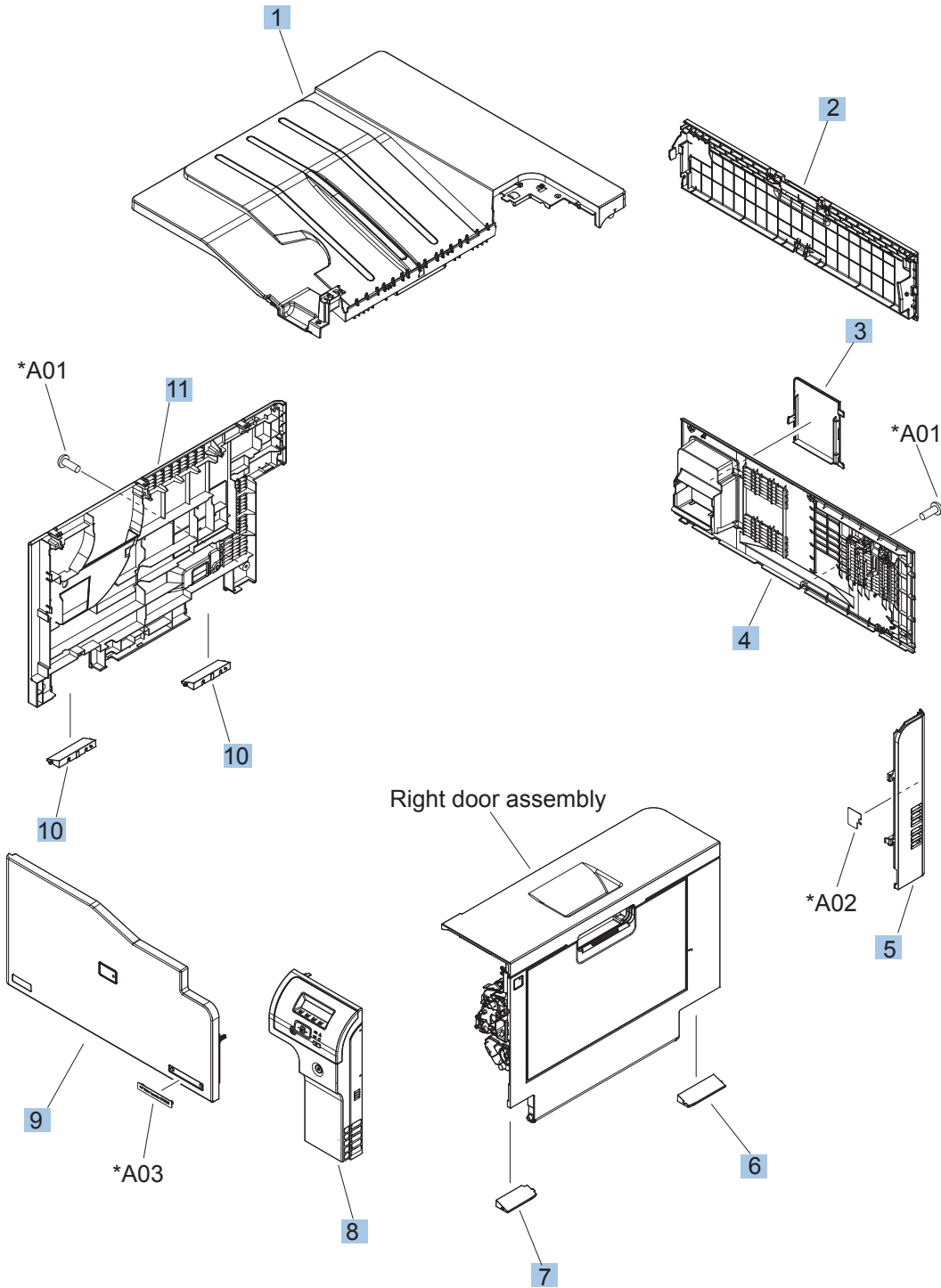
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## Assembly locations



# External covers, panels, and doors

Figure 4-1 External covers, panels, and doors

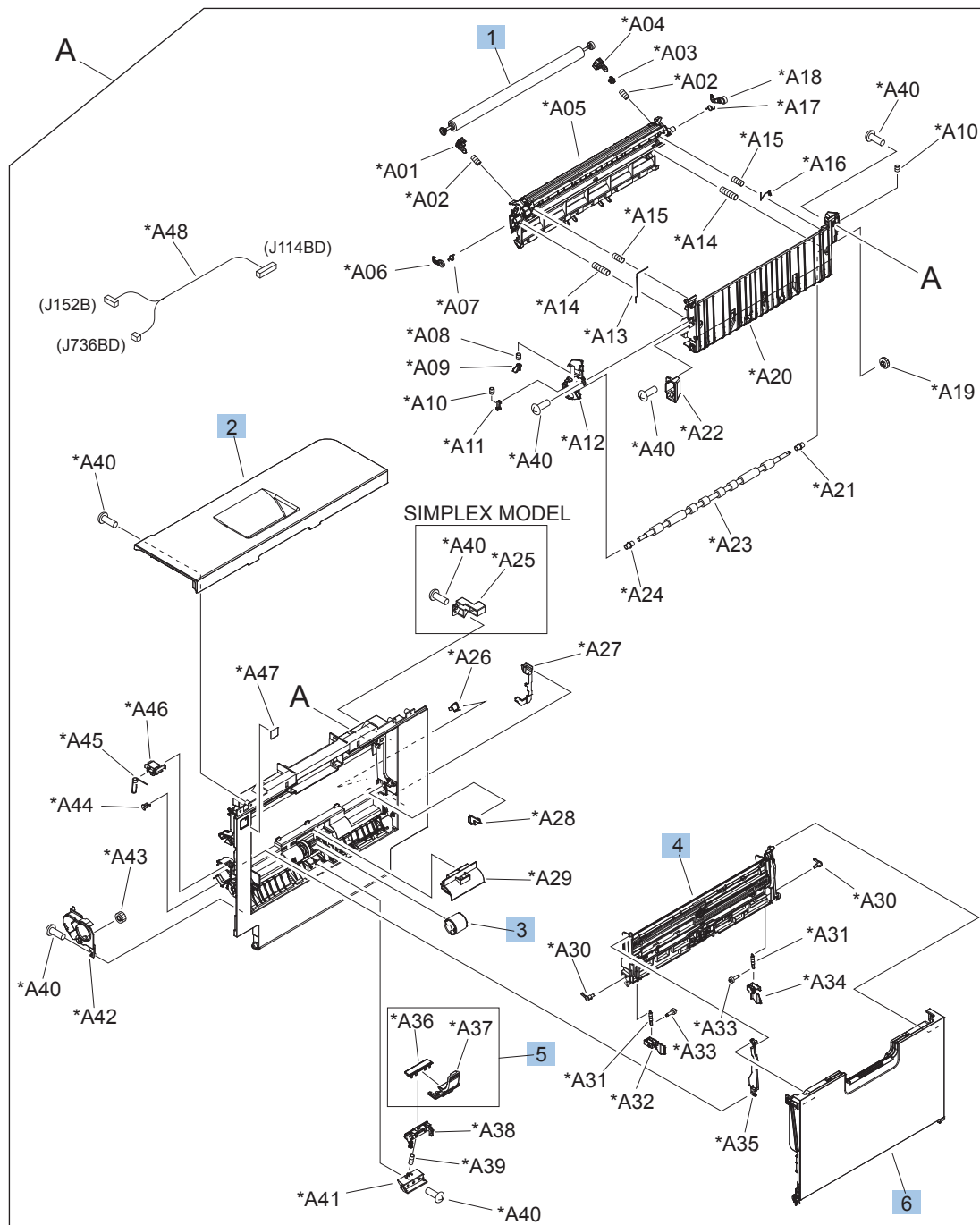


**Table 4-5 External covers, panels, and doors**

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

# Right door assembly

Figure 4-2 Right door assembly

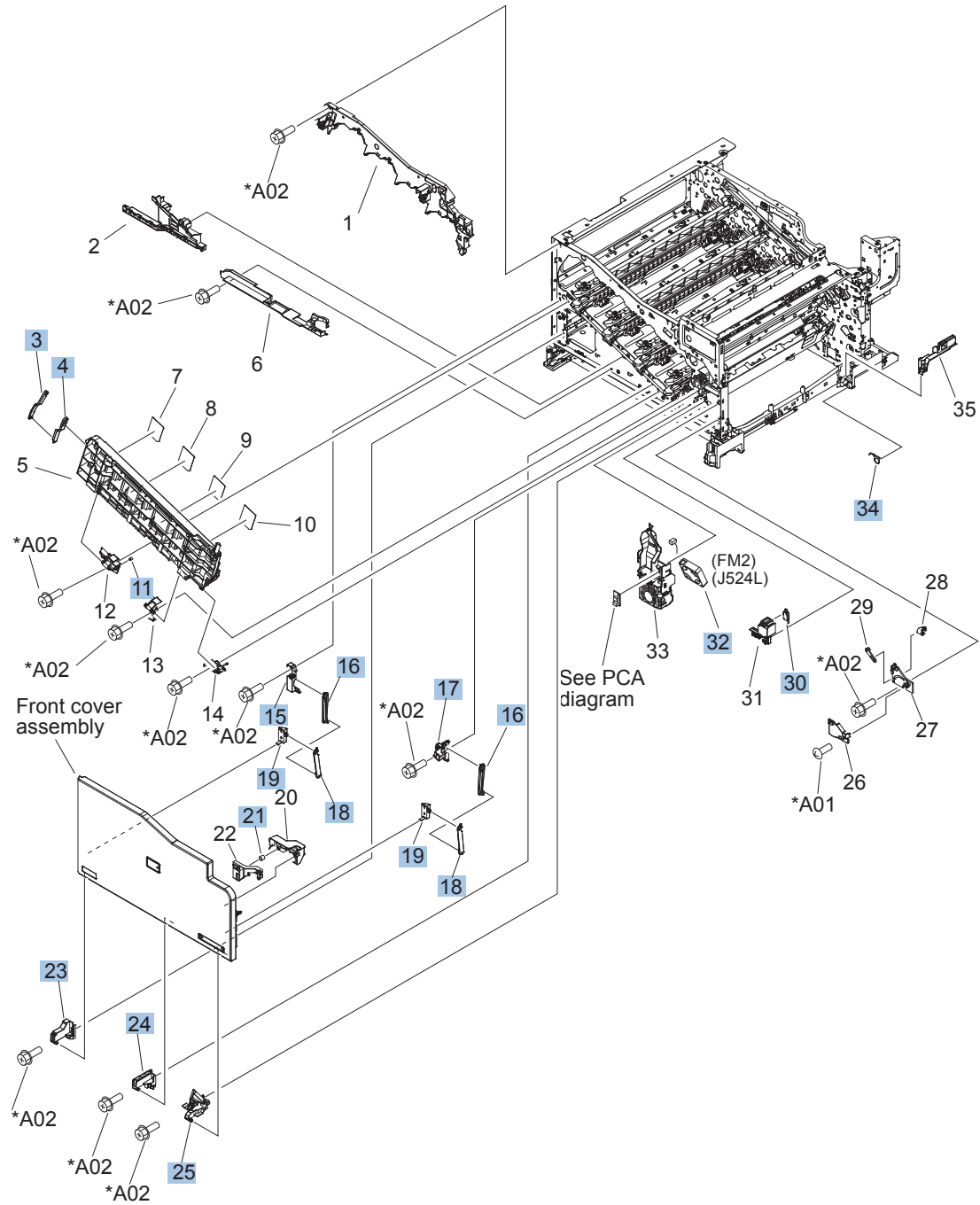


**Table 4-6 Right door assembly**

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

# Internal components (1 of 6)

Figure 4-3 Internal components (1 of 6)



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

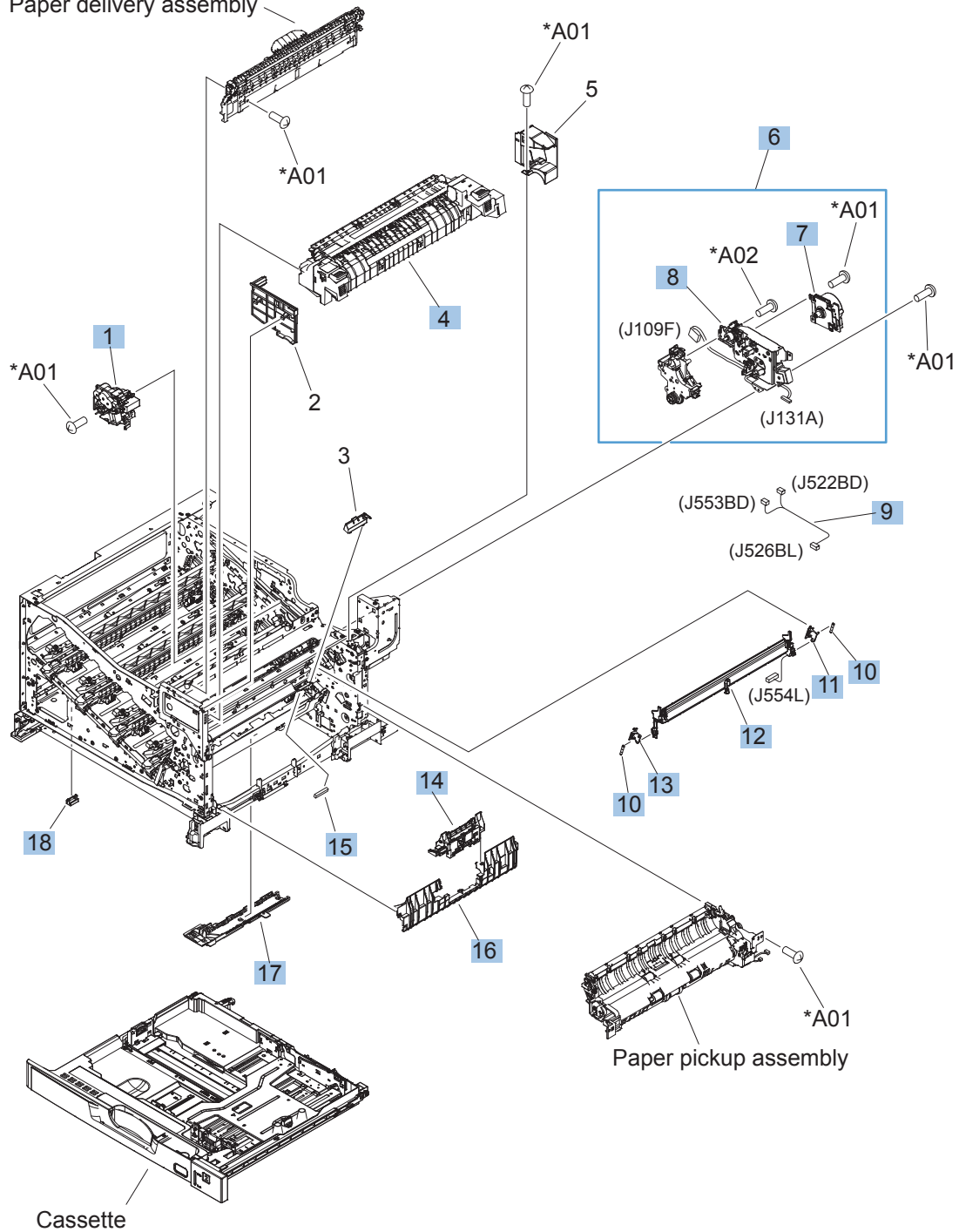
Ref	Description	Part number	Qty
3	Stopper, inner door, 1	RC2-6719-000CN	1
4	Stopper, inner door, 2	RC2-6736-000CN	1
11	Spring, grounding	RC2-7209-000CN	1
15	Mount, cover arm, front	RC2-6735-000CN	1
16	Arm, front cover, 1	RC2-6732-000CN	2
17	Mount, inner door toggle	RC2-6717-000CN	1
18	Arm, front cover,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



## 266 Chapter 4 Parts and diagrams

ENWW

Exploded view diagram of the Paper Delivery Assembly (J131A) showing various components and their assembly points. The diagram includes labels for the Paper delivery assembly, Paper pickup assembly, and Cassette. Components are numbered 1 through 18, and some are marked with \*A01. A detailed inset shows the internal components of the Paper pickup assembly, including parts 6, 7, 8, and 9, and sub-assemblies (J109F) and (J131A).

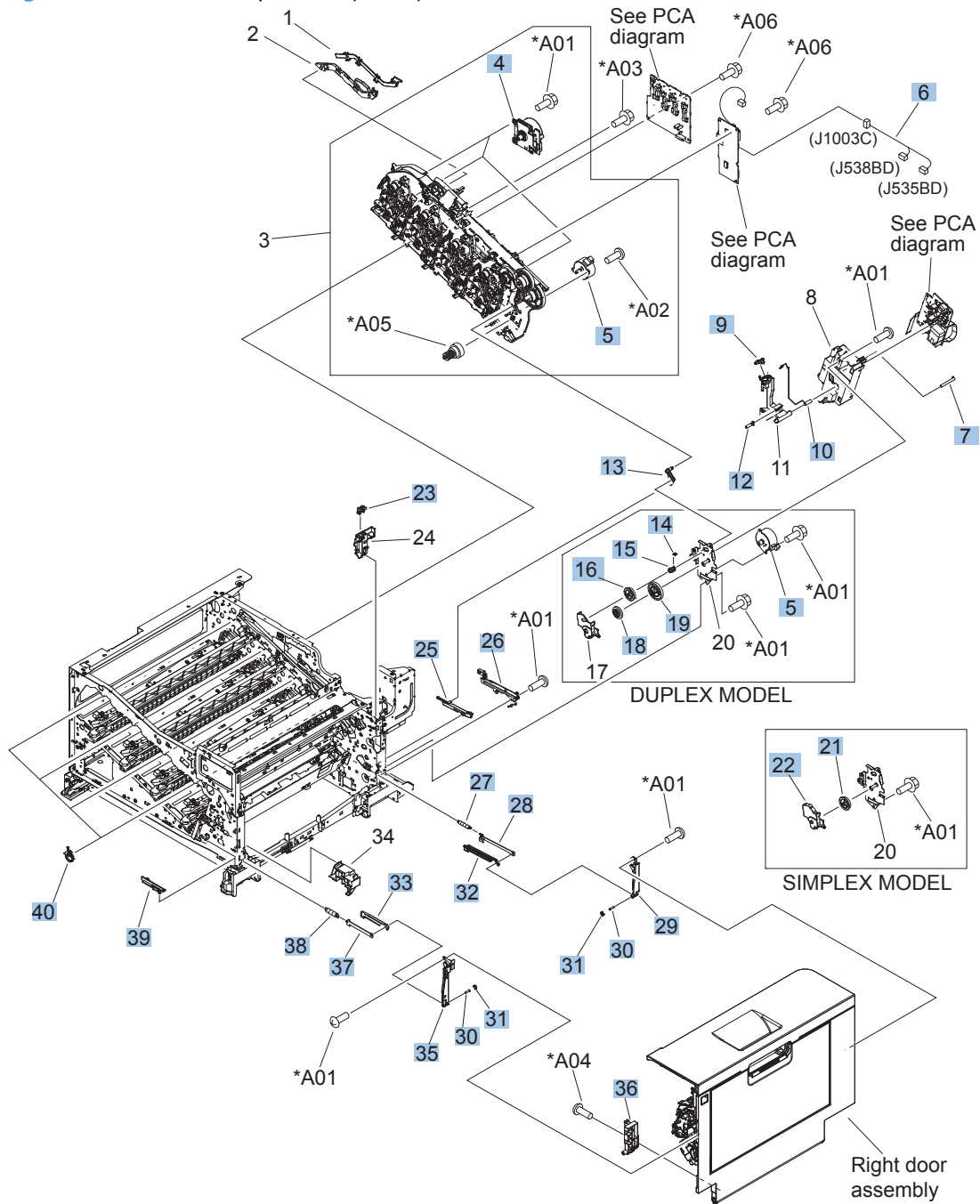


**Table 4-8 Internal components (2 of 6)**

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

## Internal components (3 of 6)

Figure 4-5 Internal components (3 of 6)

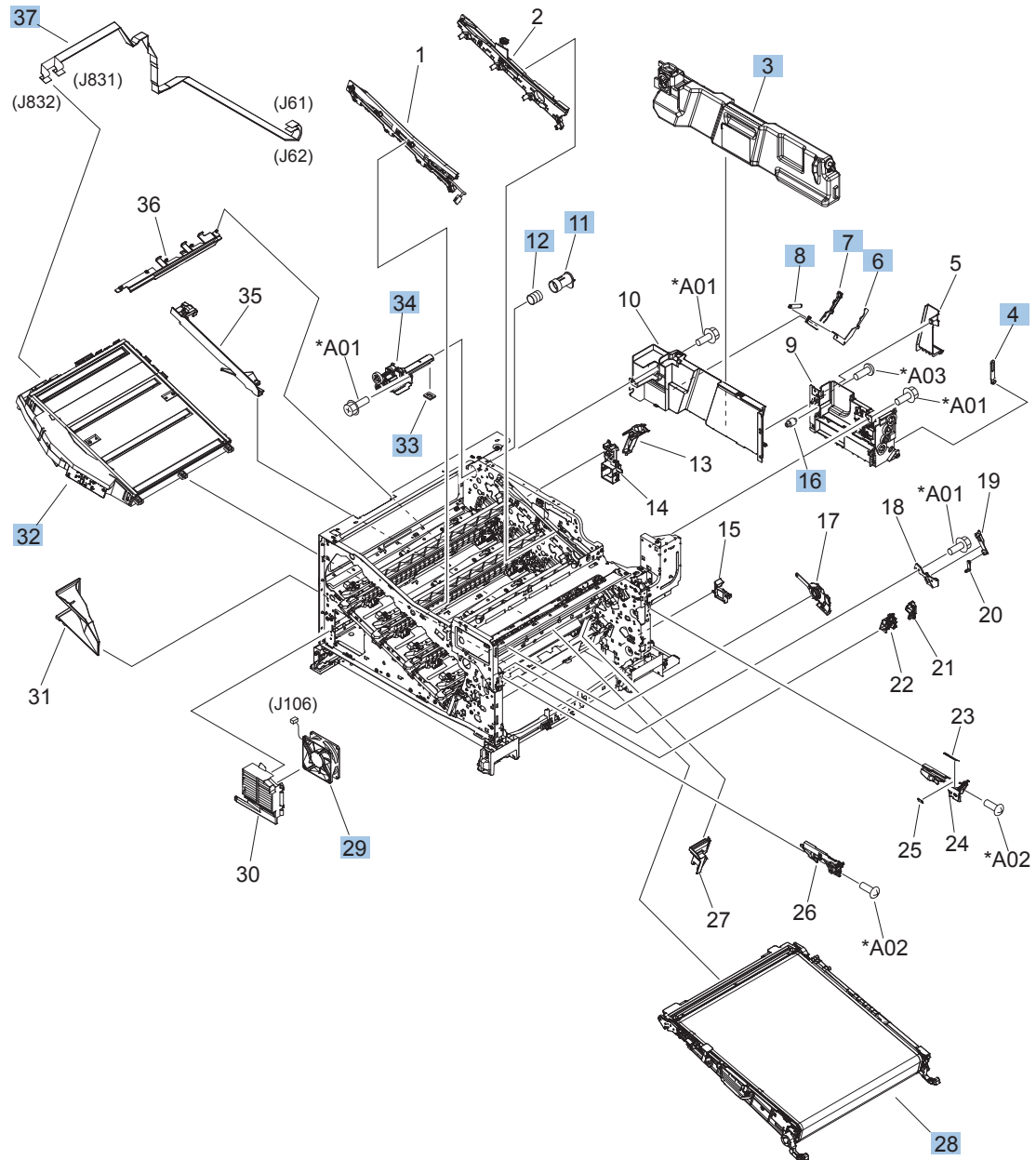


**Table 4-9 Internal components (3 of 6)**

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

## Internal components (4 of 6)

Figure 4-6 Internal components (4 of 6)

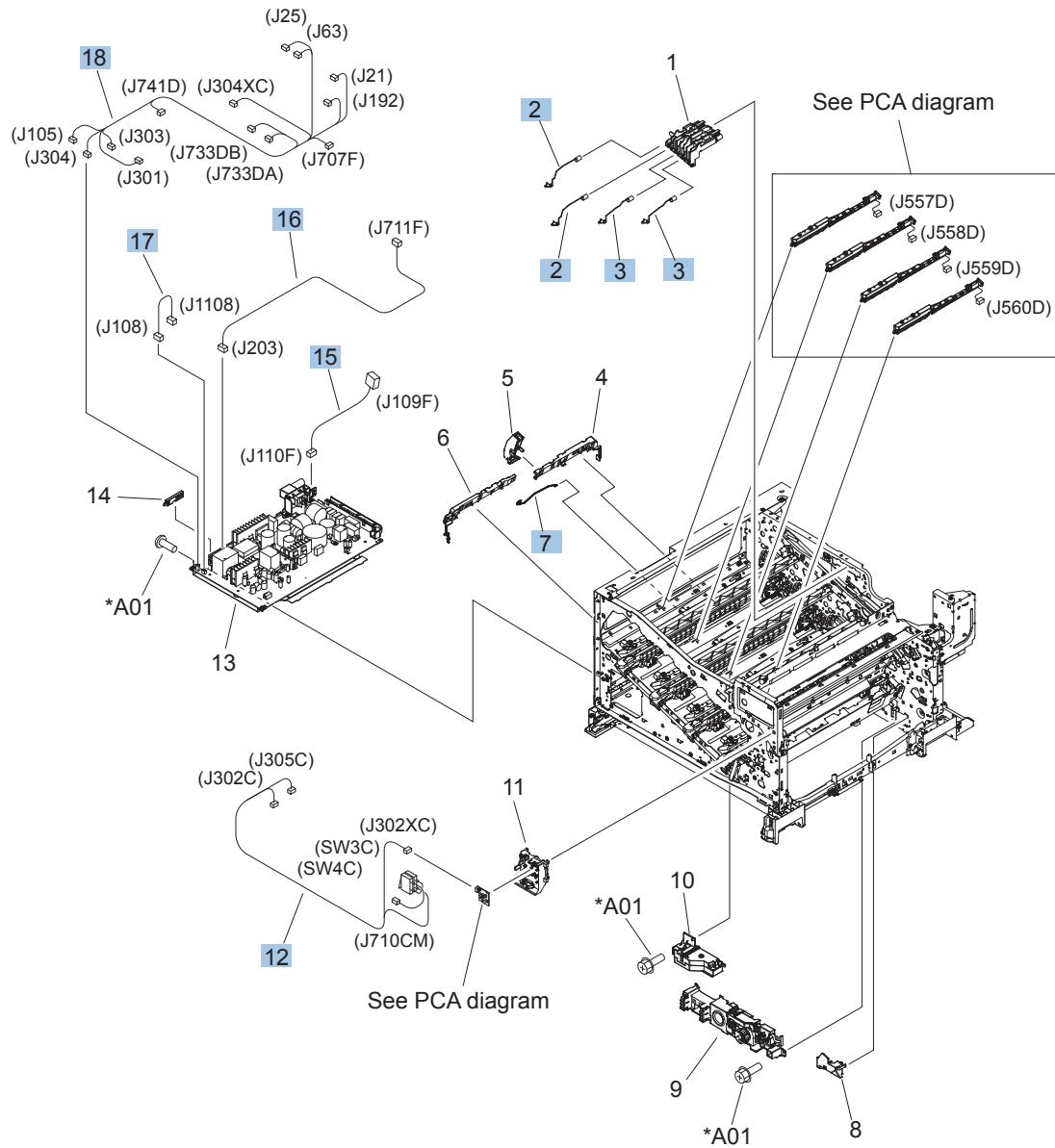


**Table 4-10 Internal components (4 of 6)**

Ref	Description	Part number	Qty
3	Toner collection unit (included in the service kit)	CE710-69005	1
4	Arm, waste toner, left	RC2-7035-000CN	1
6	Plate, arm reinforcement	RC2-9649-000CN	1
7	Arm, waste toner, right	RC2-7036-000CN	1
8	Spring, tension	RU6-2831-000CN	1
11	Shutter, exhaust	RC2-7010-000CN	1
12	Spring, compression	RU6-2683-000CN	1
16	Gear, link worm	RU6-0795-000CN	1
28	ITB assembly (included in the service kit)	CE710-69003	1
28	Alternative ITB Assembly	CC522-69004	1
29	Fan, power supply	RK2-2276-000CN	1
32	Laser scanner assembly	RM1-6122-000CN	1
33	Seal, toner supporter guide 1	RC2-7018-000CN	1
34	Toner feed assembly	RM1-6040-000CN	1
37	Cable assembly, flat-flexible	RM1-6804-000CN	1

## Internal components (5 of 6)

Figure 4-7 Internal components (5 of 6)



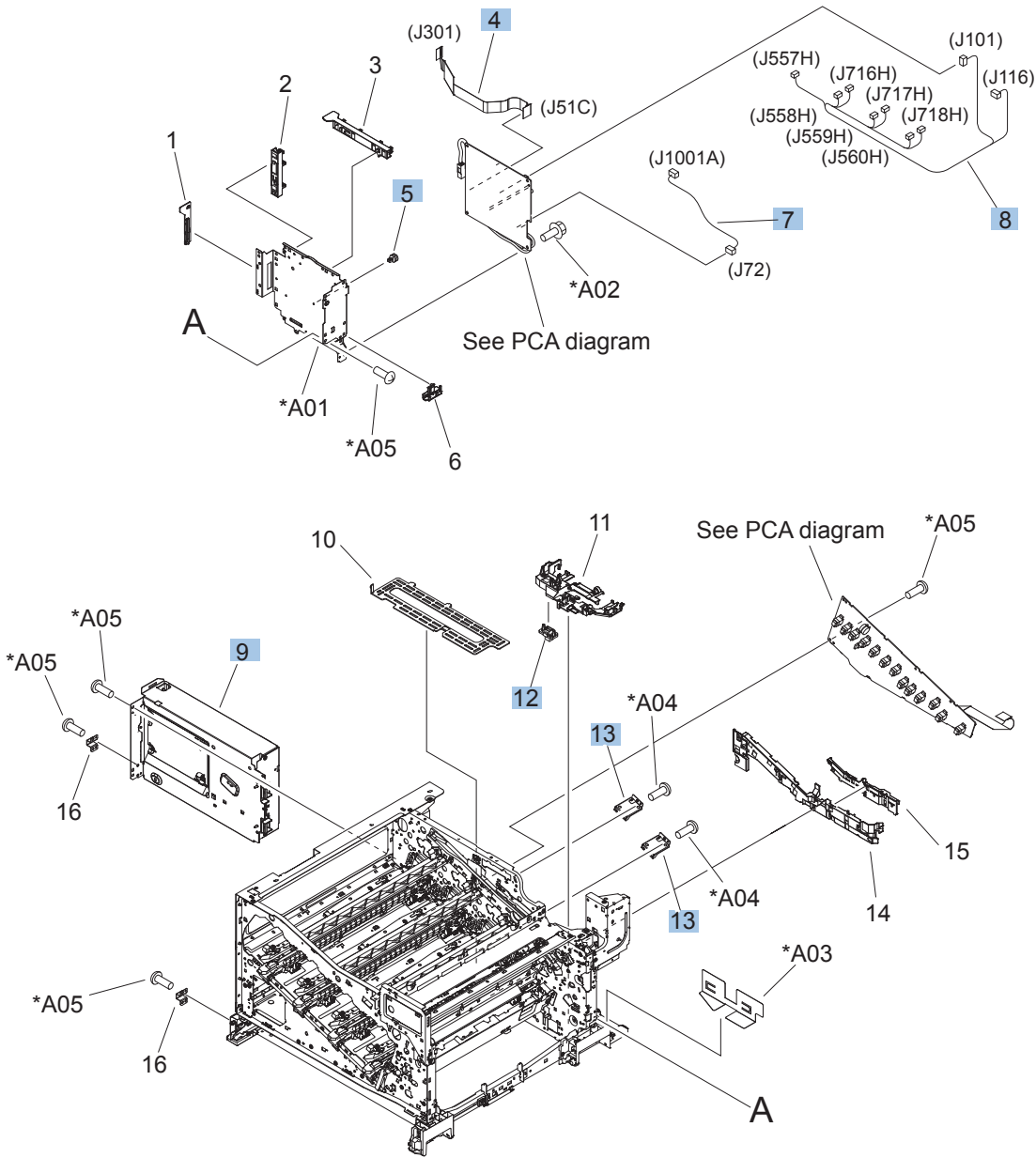
**Table 4-11 Internal components (5 of 6)**

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



# Internal components (6 of 6)

Figure 4-8 Internal components (6 of 6)

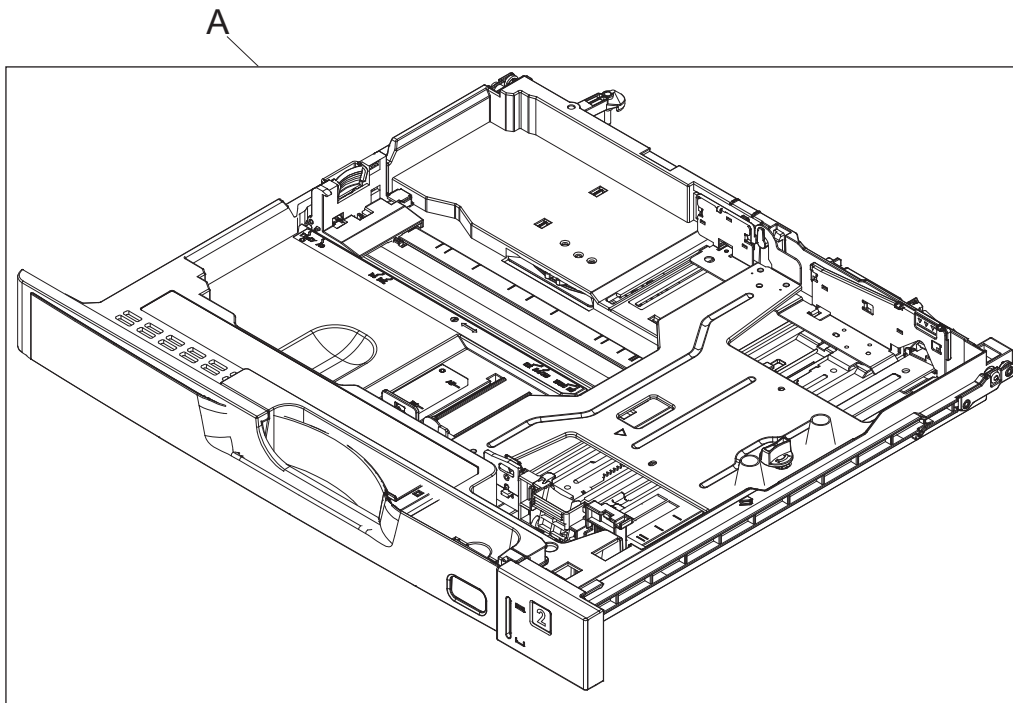


**Table 4-12 Internal components (6 of 6)**

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

# Cassette

Figure 4-9 Cassette

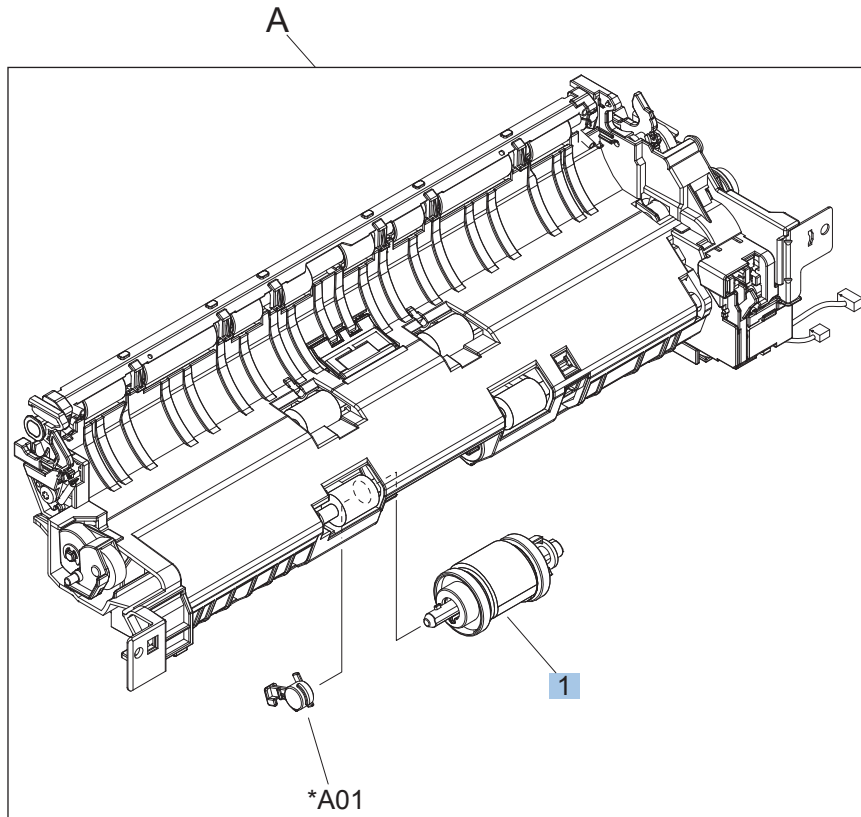


**Table 4-13** **Cassette**

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

## Paper pickup assembly

Figure 4-10 Paper pickup assembly

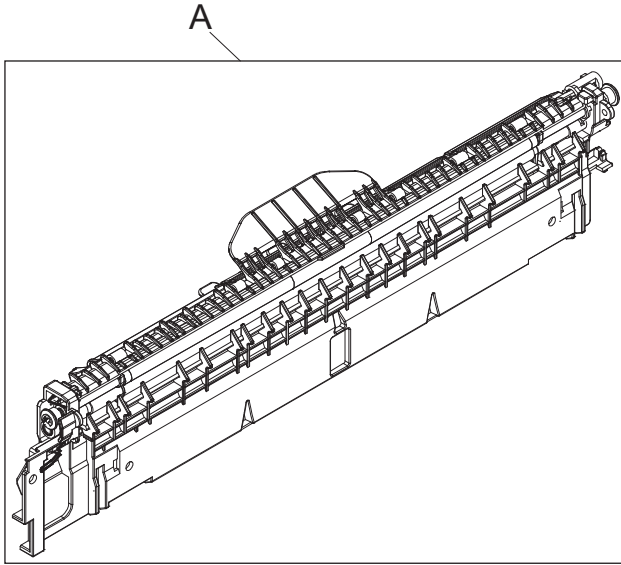


**Table 4-14 Paper pickup assembly**

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

## Paper delivery assembly

Figure 4-11 Paper delivery assembly



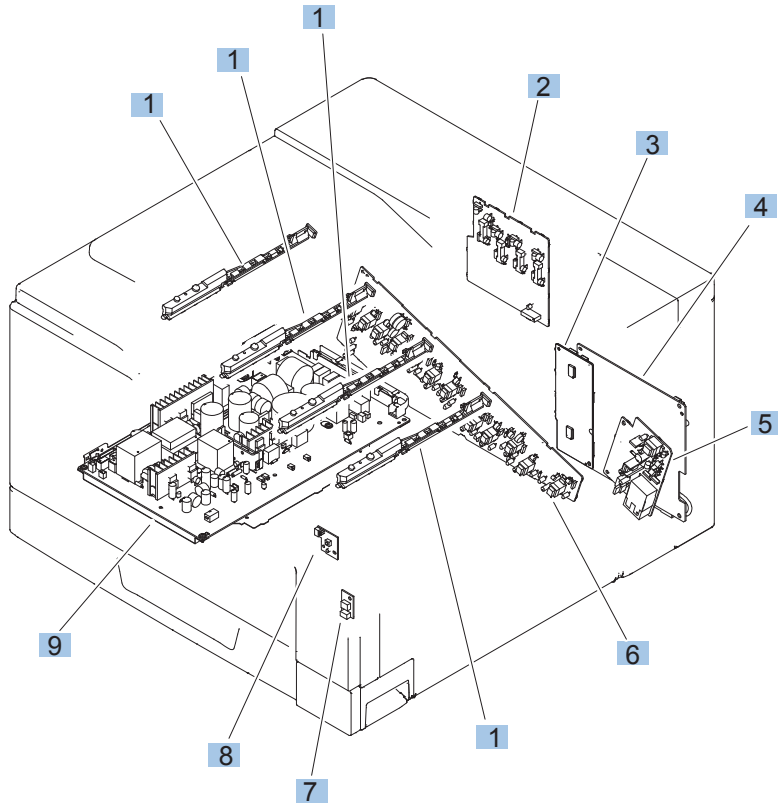
**Table 4-15 Paper delivery assembly**

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



# Printed circuit assemblies

Figure 4-12 PCAs

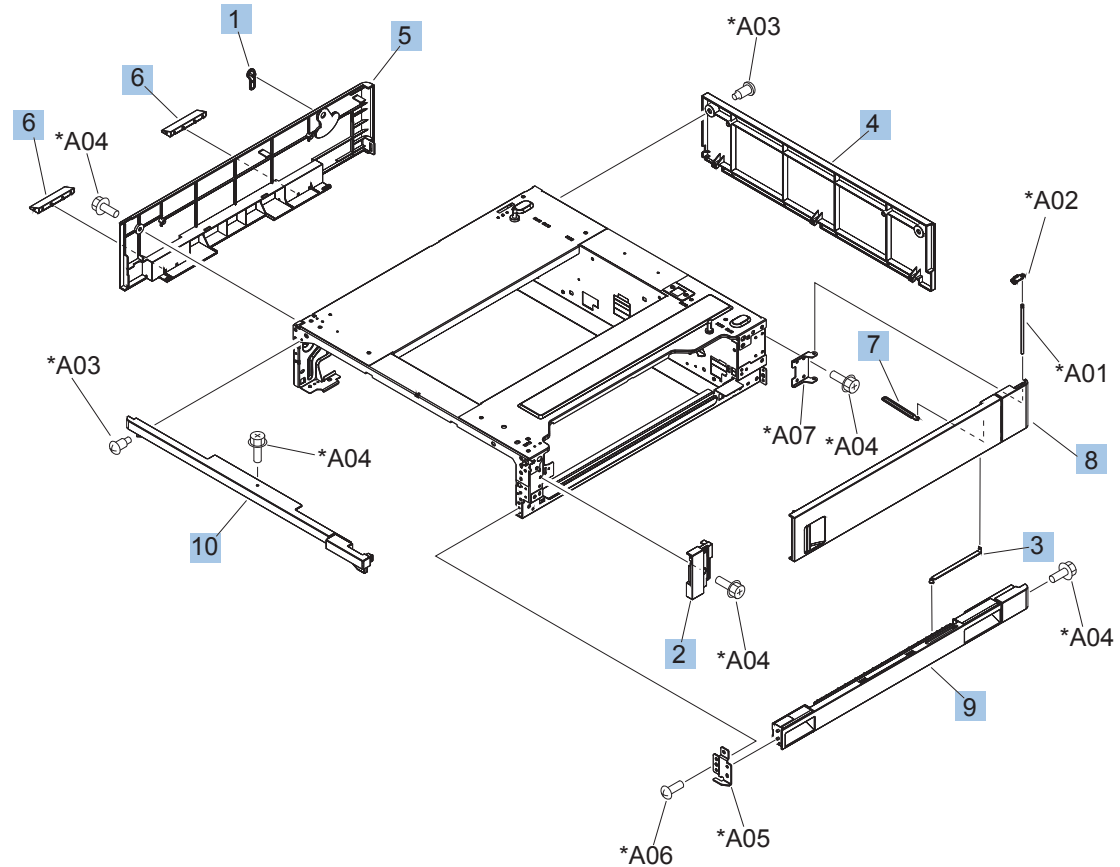


**Table 4-16 PCAs**

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

## Paper feeder external components

Figure 4-13 Paper feeder external components

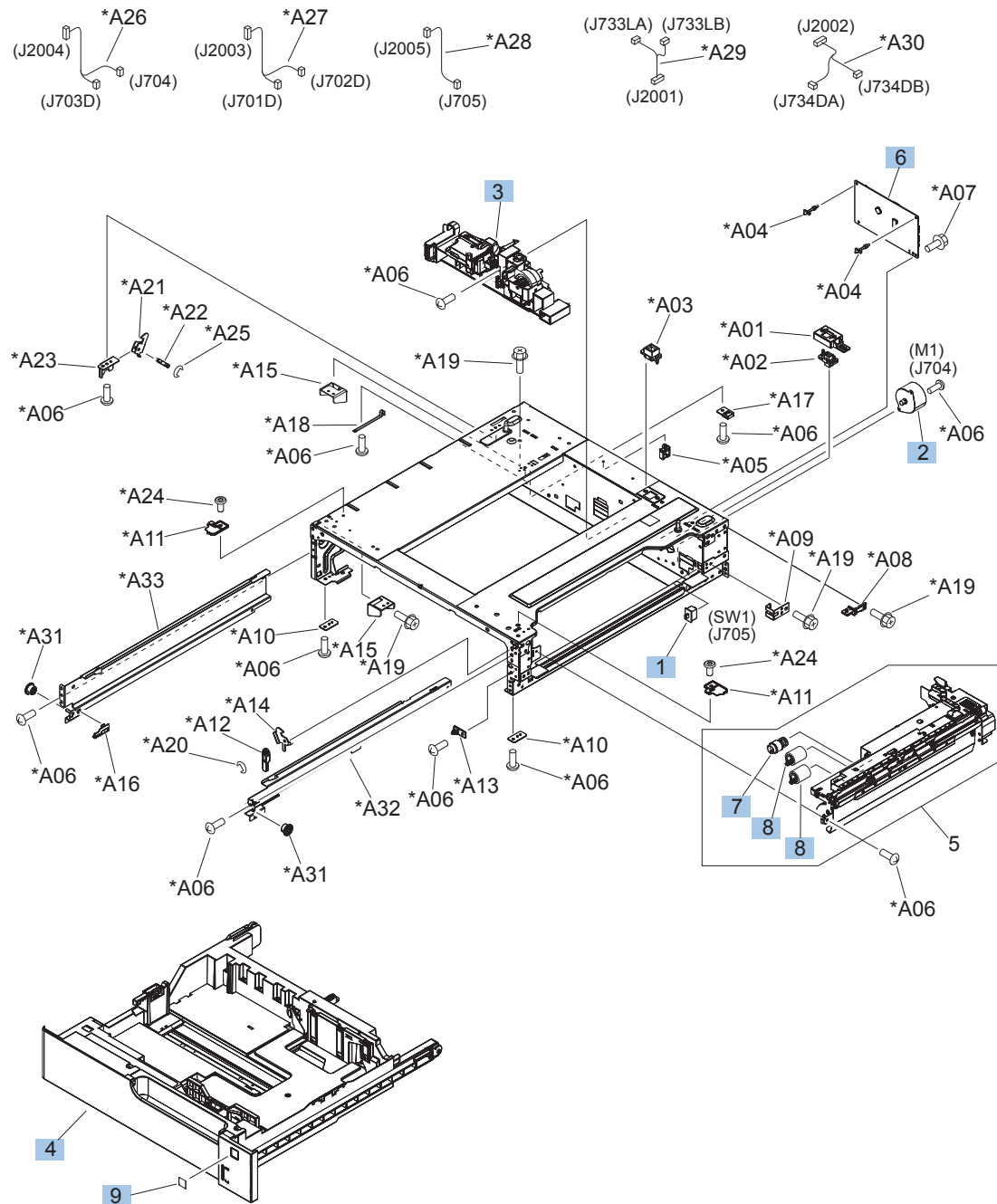


**Table 4-17 Paper feeder external components**

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

## Paper feeder internal components

**Figure 4-14** Paper feeder internal components

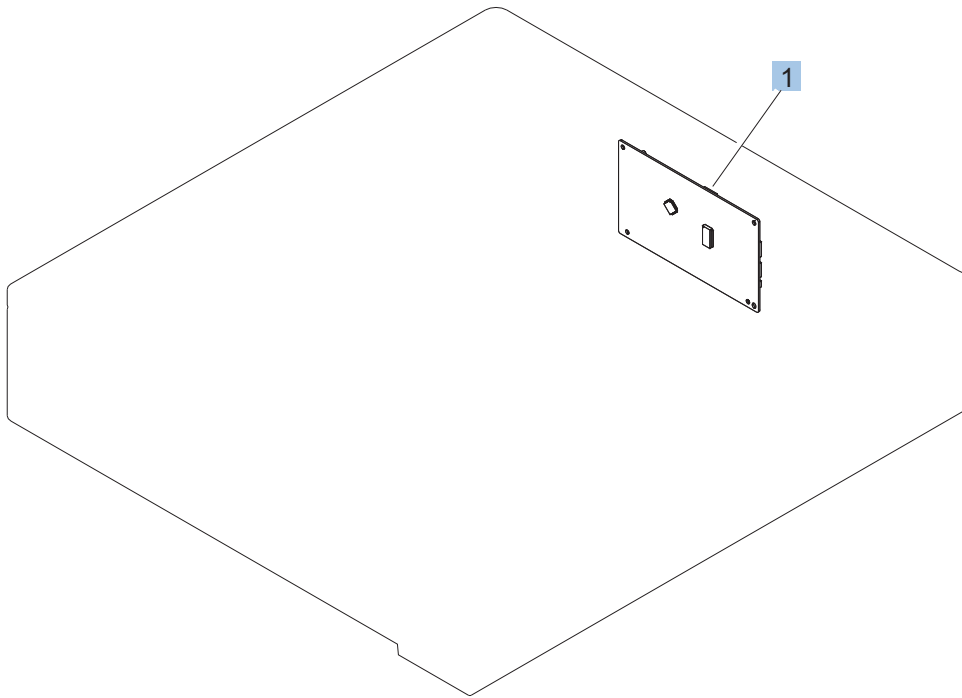


**Table 4-18 Paper feeder internal components**

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

## Paper feeder PCA

Figure 4-15 Paper feeder PCA



**Table 4-19 Paper feeder PCA**

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



# Alphabetical parts list

**Table 4-20 Alphabetical parts list**

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

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

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

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

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

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

Description	Part number	Table and page
Hinge, right door, front	RC2-7094-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Hook, duplexing spring (duplex model only)	RC2-6932-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Imaging high-voltage PCA	RM1-6800-000CN	<a href="#">PCAs on page 283</a>
ITB assembly (included in the service kit)	CE710-69003 Alternate: CC522-69004	<a href="#">Internal components (4 of 6) on page 271</a>
Label, cassette number	RC2-9363-000CN	<a href="#">Paper feeder internal components on page 287</a>
Laser scanner assembly	RM1-6122-000CN	<a href="#">Internal components (4 of 6) on page 271</a>
Lifter drive assembly (paper feeder)	RM1-3819-000CN	<a href="#">Paper feeder internal components on page 287</a>
Lifter plate assembly, Tray 1	RM1-6043-000CN	<a href="#">Right door assembly on page 263</a>
Link, ITB coupling release	RC2-6823-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Link, right door, 2 front	RC2-7233-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Link, right door, 2 rear	RC2-7236-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Link, right door, lower (paper feeder)	RC2-9327-000CN	<a href="#">Paper feeder external components on page 285</a>
Link, right door, upper (paper feeder)	RC2-9335-000CN	<a href="#">Paper feeder external components on page 285</a>
Lock, door link, right	RC2-7234-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Low-voltage power supply PCA (110V)	RM1-6755-000CN	<a href="#">PCAs on page 283</a>
Low-voltage power supply PCA (220V)	RM1-6756-000CN	<a href="#">PCAs on page 283</a>
Microswitch	WC4-5251-000CN	<a href="#">Internal components (1 of 6) on page 265</a>
Motor, drive, simplex model	RK2-0997-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Motor, duplex drive (duplex model only)	RK2-0997-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Motor, main drive assembly	RM1-6089-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Motor, pickup (paper feeder)	RK2-1331-000CN	<a href="#">Paper feeder internal components on page 287</a>
Mount, cover arm, front	RC2-6735-000CN	<a href="#">Internal components (1 of 6) on page 265</a>
Mount, inner door toggle	RC2-6717-000CN	<a href="#">Internal components (1 of 6) on page 265</a>

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

Description	Part number	Table and page
Mount, stopper arm	RC2-6745-000CN	<a href="#">Internal components (1 of 6) on page 265</a>
Paper delivery assembly	RM1-6165-000CN	<a href="#">Paper delivery assembly on page 281</a>
Paper feeder driver PCA	RM1-6987-000CN	<a href="#">Paper feeder internal components on page 287</a>
Paper feeder driver PCA	RM1-6987-000CN	<a href="#">Paper feeder PCA on page 289</a>
Paper pickup assembly (duplex model)	RM1-6105-000CN	<a href="#">Paper pickup assembly on page 279</a>
Paper pickup assembly (paper feeder)	RM1-6944-000CN	<a href="#">Paper feeder internal components on page 287</a>
Paper pickup assembly (simplex model)	RM1-6106-000CN	<a href="#">Paper pickup assembly on page 279</a>
Paper pickup roller assembly (included in service kit)	CE710-69007	<a href="#">Paper pickup assembly on page 279</a>
Plate, arm reinforcement	RC2-9649-000CN	<a href="#">Internal components (4 of 6) on page 271</a>
Plate, box pillar	RC2-6673-000CN	<a href="#">Internal components (6 of 6) on page 275</a>
Plate, right door link, fixed, front	RL1-2281-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Plate, right door link, fixed, rear	RL1-2282-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Plate, right door link, front	RC2-7272-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Plate, right door link, rear	RC2-7273-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Power switch PCA	RM1-6761-000CN	<a href="#">PCAs on page 283</a>
Primary transfer high-voltage PCA	RM1-6801-000CN	<a href="#">PCAs on page 283</a>
Rail, door link, front lower	RC2-6634-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Rail, door link, rear lower	RC2-6635-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Registration sensor assembly	RM1-6002-000CN	<a href="#">Internal components (2 of 6) on page 267</a>
Right door assembly (paper feeder)	RM1-6946-000CN	<a href="#">Paper feeder external components on page 285</a>
Right door assembly, duplex model	RM1-6104-000CN	<a href="#">Right door assembly on page 263</a>
Right door assembly, simplex model	RM1-6139-000CN	<a href="#">Right door assembly on page 263</a>
Roller, feed, paper feeder (included in service kit)	CE710-69008	<a href="#">Paper feeder internal components on page 287</a>

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

Description	Part number	Table and page
Roller, paper pickup, Tray 1 (included in the service kit)	CE710-69006	<a href="#">Right door assembly on page 263</a>
Roller, pickup, paper feeder (included in service kit)	CE710-69008	<a href="#">Paper feeder internal components on page 287</a>
Roller, secondary transfer, T2 (included in the service kit)	CE710-69004	<a href="#">Right door assembly on page 263</a>
Seal, toner supporter guide 1	RC2-7018-000CN	<a href="#">Internal components (4 of 6) on page 271</a>
Secondary transfer high-voltage PCA	RM1-6802-000CN	<a href="#">PCAs on page 283</a>
Sensor, cassette last paper presence	RM1-6164-000CN	<a href="#">Internal components (2 of 6) on page 267</a>
Sensor, right door	WG8-5696-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Separation pad, Tray 1 (included in the service kit)	CE710-69006	<a href="#">Right door assembly on page 263</a>
Separation roller assembly (included in service kit)	CE710-69007	<a href="#">Internal components (2 of 6) on page 267</a>
Shaft, right door link	RU5-4979-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Shutter, exhaust	RC2-7010-000CN	<a href="#">Internal components (4 of 6) on page 271</a>
Spacer, DC controller PCA	VT2-5176-004CN	<a href="#">Internal components (6 of 6) on page 275</a>
Spring, compression	RU6-2721-000CN	<a href="#">Internal components (1 of 6) on page 265</a>
Spring, compression	RU6-2683-000CN	<a href="#">Internal components (4 of 6) on page 271</a>
Spring, contact	RU6-2767-000CN	<a href="#">Internal components (5 of 6) on page 273</a>
Spring, contact	RU6-2768-000CN	<a href="#">Internal components (5 of 6) on page 273</a>
Spring, contact, second-transfer high-voltage PCA	RU6-2771-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Spring, grounding	RC2-7209-000CN	<a href="#">Internal components (1 of 6) on page 265</a>
Spring, grounding, second-transfer high-voltage PCA	RU6-2772-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Spring, grounding, second-transfer high-voltage PCA	RC2-6700-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Spring, leaf, grounding	RC2-7092-000CN	<a href="#">Internal components (1 of 6) on page 265</a>
Spring, rod	RC2-6611-000CN	<a href="#">Internal components (5 of 6) on page 273</a>

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

Description	Part number	Table and page
Spring, tension	RU6-2831-000CN	<a href="#">Internal components (4 of 6) on page 271</a>
Spring, tension, duplex model	RU6-2671-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Spring, tension, front	RU6-2727-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Spring, tension, rear	RU6-2744-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Spring, tension, registration sensor	RU6-2710-000CN	<a href="#">Internal components (2 of 6) on page 267</a>
Stopper, inner door, 1	RC2-6719-000CN	<a href="#">Internal components (1 of 6) on page 265</a>
Stopper, inner door, 2	RC2-6736-000CN	<a href="#">Internal components (1 of 6) on page 265</a>
Support, developing coupling	RC2-6811-000CN	<a href="#">Internal components (3 of 6) on page 269</a>
Support, frame, front	RC2-7196-000CN	<a href="#">Internal components (2 of 6) on page 267</a>
Support, frame, rear	RC2-7197-000CN	<a href="#">Internal components (2 of 6) on page 267</a>
Switch, bottom (paper feeder)	WC2-5512-000CN	<a href="#">Paper feeder internal components on page 287</a>
Toner collection unit (included in the service kit)	CE710-69005	<a href="#">Internal components (4 of 6) on page 271</a>
Toner feed assembly	RM1-6040-000CN	<a href="#">Internal components (4 of 6) on page 271</a>
Tray 1 (MP tray) assembly	RM1-6045-000CN	<a href="#">Right door assembly on page 263</a>
Waste toner detection PCA	RM1-6779-000CN	<a href="#">PCAs on page 283</a>

# Numerical parts list

**Table 4-21 Numerical parts list**

Part number	Description	Table and page
CD710-69002	Fuser assembly, 220V (included in service kit)	<a href="#">Internal components (2 of 6) on page 267</a>
CE490-67901	Formatter PCA (not illustrated)	<a href="#">PCAs on page 283</a>
CE710-69001	Fuser assembly, 110V (included in service kit)	<a href="#">Internal components (2 of 6) on page 267</a>
CE710-69003 Alternate: CC522-69004	ITB assembly (included in the service kit)	<a href="#">Internal components (4 of 6) on page 271</a>
CE710-69004	Roller, secondary transfer, T2 (included in the service kit)	<a href="#">Right door assembly on page 263</a>
CE710-69005	Toner collection unit (included in the service kit)	<a href="#">Internal components (4 of 6) on page 271</a>
CE710-69006	Roller, paper pickup, Tray 1 (included in the service kit)	<a href="#">Right door assembly on page 263</a>
CE710-69006	Separation pad, Tray 1 (included in the service kit)	<a href="#">Right door assembly on page 263</a>
CE710-69007	Separation roller assembly (included in service kit)	<a href="#">Internal components (2 of 6) on page 267</a>
CE710-69007	Paper pickup roller assembly (included in service kit)	<a href="#">Paper pickup assembly on page 279</a>
CE710-69008	Roller, pickup, paper feeder (included in service kit)	<a href="#">Paper feeder internal components on page 287</a>
CE710-69008	Roller, feed, paper feeder (included in service kit)	<a href="#">Paper feeder internal components on page 287</a>
RC2-6611-000CN	Spring, rod	<a href="#">Internal components (5 of 6) on page 273</a>
RC2-6625-000CN	Cover, handle, lower-left	<a href="#">External covers, panels, and doors on page 261</a>
RC2-6626-000CN	Cover, handle, lower-right, rear	<a href="#">External covers, panels, and doors on page 261</a>
RC2-6627-000CN	Cover, handle, lower-right, front	<a href="#">External covers, panels, and doors on page 261</a>
RC2-6634-000CN	Rail, door link, front lower	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-6635-000CN	Rail, door link, rear lower	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-6642-000CN	Cover, connector, lower	<a href="#">Internal components (2 of 6) on page 267</a>
RC2-6673-000CN	Plate, box pillar	<a href="#">Internal components (6 of 6) on page 275</a>
RC2-6691-000CN	Cap, T2 contact, second-transfer high-voltage PCA	<a href="#">Internal components (3 of 6) on page 269</a>



**Table 4-21 Numerical parts list (continued)**

Part number	Description	Table and page
RC2-6700-000CN	Spring, grounding, second-transfer high-voltage PCA	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-6713-000CN	Hinge, front cover, left	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6715-000CN	Hinge, front cover, right	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6717-000CN	Mount, inner door toggle	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6719-000CN	Stopper, inner door, 1	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6732-000CN	Arm, front cover, 1	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6733-000CN	Arm, front cover, 2	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6735-000CN	Mount, cover arm, front	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6736-000CN	Stopper, inner door, 2	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6738-000CN	Hinge, front cover, center	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6745-000CN	Mount, stopper arm	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-6811-000CN	Support, developing coupling	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-6823-000CN	Link, ITB coupling release	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-6824-000CN	Arm, ITB coupling release	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-6932-000CN	Hook, duplexing spring (duplex model only)	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-7010-000CN	Shutter, exhaust	<a href="#">Internal components (4 of 6) on page 271</a>
RC2-7018-000CN	Seal, toner supporter guide 1	<a href="#">Internal components (4 of 6) on page 271</a>
RC2-7034-000CN	Door, toner collection unit access	<a href="#">External covers, panels, and doors on page 261</a>
RC2-7035-000CN	Arm, waste toner, left	<a href="#">Internal components (4 of 6) on page 271</a>
RC2-7036-000CN	Arm, waste toner, right	<a href="#">Internal components (4 of 6) on page 271</a>
RC2-7091-000CN	Door, right upper	<a href="#">Right door assembly on page 263</a>
RC2-7092-000CN	Spring, leaf, grounding	<a href="#">Internal components (1 of 6) on page 265</a>

**Table 4-21 Numerical parts list (continued)**

Part number	Description	Table and page
RC2-7094-000CN	Hinge, right door, front	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-7196-000CN	Support, frame, front	<a href="#">Internal components (2 of 6) on page 267</a>
RC2-7197-000CN	Support, frame, rear	<a href="#">Internal components (2 of 6) on page 267</a>
RC2-7209-000CN	Spring, grounding	<a href="#">Internal components (1 of 6) on page 265</a>
RC2-7233-000CN	Link, right door, 2 front	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-7234-000CN	Lock, door link, right	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-7236-000CN	Link, right door, 2 rear	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-7272-000CN	Plate, right door link, front	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-7273-000CN	Plate, right door link, rear	<a href="#">Internal components (3 of 6) on page 269</a>
RC2-7297-000CN	Guide, paper feed	<a href="#">Internal components (2 of 6) on page 267</a>
RC2-9033-000CN	Cover, DIMM	<a href="#">External covers, panels, and doors on page 261</a>
RC2-9303-000CN	Handle, lock, rear (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RC2-9320-000CN	Cover, right front (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RC2-9327-000CN	Link, right door, lower (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RC2-9330-000CN	Cover, rear (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RC2-9331-000CN	Cover, left (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RC2-9332-000CN	Cover, handle, lower (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RC2-9335-000CN	Link, right door, upper (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RC2-9363-000CN	Label, cassette number	<a href="#">Paper feeder internal components on page 287</a>
RC2-9649-000CN	Plate, arm reinforcement	<a href="#">Internal components (4 of 6) on page 271</a>
RC3-0688-000CN	Cover, gear, simplex model	<a href="#">Internal components (3 of 6) on page 269</a>
RK2-0997-000CN	Motor, drive, simplex model	<a href="#">Internal components (3 of 6) on page 269</a>

**Table 4-21 Numerical parts list (continued)**

Part number	Description	Table and page
RK2-0997-000CN	Motor, duplex drive (duplex model only)	<a href="#">Internal components (3 of 6) on page 269</a>
RK2-1331-000CN	Motor, pickup (paper feeder)	<a href="#">Paper feeder internal components on page 287</a>
RK2-2276-000CN	Fan, power supply	<a href="#">Internal components (4 of 6) on page 271</a>
RK2-2728-000CN	Fan, fuser	<a href="#">Internal components (1 of 6) on page 265</a>
RK2-2884-000CN	Environment sensor PCA	<a href="#">PCAs on page 283</a>
RK2-2969-000CN	Cable, flat flexible, 3	<a href="#">Internal components (6 of 6) on page 275</a>
RL1-2281-000CN	Plate, right door link, fixed, front	<a href="#">Internal components (3 of 6) on page 269</a>
RL1-2282-000CN	Plate, right door link, fixed, rear	<a href="#">Internal components (3 of 6) on page 269</a>
RM1-3819-000CN	Lifter drive assembly (paper feeder)	<a href="#">Paper feeder internal components on page 287</a>
RM1-6002-000CN	Registration sensor assembly	<a href="#">Internal components (2 of 6) on page 267</a>
RM1-6040-000CN	Toner feed assembly	<a href="#">Internal components (4 of 6) on page 271</a>
RM1-6043-000CN	Lifter plate assembly, Tray 1	<a href="#">Right door assembly on page 263</a>
RM1-6045-000CN	Tray 1 (MP tray) assembly	<a href="#">Right door assembly on page 263</a>
RM1-6066-000CN	Formatter case	<a href="#">Internal components (6 of 6) on page 275</a>
RM1-6075-000CN	Fuser motor assembly	<a href="#">Internal components (2 of 6) on page 267</a>
RM1-6076-000CN	Fuser drive assembly	<a href="#">Internal components (2 of 6) on page 267</a>
RM1-6089-000CN	Motor, main drive assembly	<a href="#">Internal components (3 of 6) on page 269</a>
RM1-6104-000CN	Right door assembly, duplex model	<a href="#">Right door assembly on page 263</a>
RM1-6105-000CN	Paper pickup assembly (duplex model)	<a href="#">Paper pickup assembly on page 279</a>
RM1-6106-000CN	Paper pickup assembly (simplex model)	<a href="#">Paper pickup assembly on page 279</a>
RM1-6121-000CN	Drive assembly, simplex model	<a href="#">Internal components (2 of 6) on page 267</a>
RM1-6122-000CN	Laser scanner assembly	<a href="#">Internal components (4 of 6) on page 271</a>

**Table 4-21 Numerical parts list (continued)**

Part number	Description	Table and page
RM1-6139-000CN	Right door assembly, simplex model	<a href="#">Right door assembly on page 263</a>
RM1-6164-000CN	Sensor, cassette last paper presence	<a href="#">Internal components (2 of 6) on page 267</a>
RM1-6165-000CN	Paper delivery assembly	<a href="#">Paper delivery assembly on page 281</a>
RM1-6167-000CN	Drive assembly, duplex reverse (duplex model only)	<a href="#">Internal components (2 of 6) on page 267</a>
RM1-6639-000CN	DC Controller PCA (duplex model)	<a href="#">PCAs on page 283</a>
RM1-6743-000CN	Driver PCA (duplex model)	<a href="#">PCAs on page 283</a>
RM1-6755-000CN	Low-voltage power supply PCA (110V)	<a href="#">PCAs on page 283</a>
RM1-6756-000CN	Low-voltage power supply PCA (220V)	<a href="#">PCAs on page 283</a>
RM1-6761-000CN	Power switch PCA	<a href="#">PCAs on page 283</a>
RM1-6779-000CN	Waste toner detection PCA	<a href="#">PCAs on page 283</a>
RM1-6783-000CN	Driver PCA (simplex model)	<a href="#">PCAs on page 283</a>
RM1-6796-000CN	DC Controller PCA (simplex model)	<a href="#">PCAs on page 283</a>
RM1-6800-000CN	Imaging high-voltage PCA	<a href="#">PCAs on page 283</a>
RM1-6801-000CN	Primary transfer high-voltage PCA	<a href="#">PCAs on page 283</a>
RM1-6802-000CN	Secondary transfer high-voltage PCA	<a href="#">PCAs on page 283</a>
RM1-6804-000CN	Cable assembly, flat-flexible	<a href="#">Internal components (4 of 6) on page 271</a>
RM1-6807-000CN	Cable, low voltage power supply	<a href="#">Internal components (5 of 6) on page 273</a>
RM1-6811-000CN	Cable, low-voltage AC joint	<a href="#">Internal components (5 of 6) on page 273</a>
RM1-6813-000CN	Cable, low-voltage power supply, test	<a href="#">Internal components (5 of 6) on page 273</a>
RM1-6822-000CN	Cable, primary transfer	<a href="#">Internal components (6 of 6) on page 275</a>
RM1-6831-000CN	Cable, switch	<a href="#">Internal components (5 of 6) on page 273</a>
RM1-6835-000CN	Cable, left, high-voltage power supply to low-voltage power supply	<a href="#">Internal components (5 of 6) on page 273</a>
RM1-6847-000CN	Cable, feed joint, environment sensor	<a href="#">Internal components (3 of 6) on page 269</a>
RM1-6863-000CN	Cable, rear	<a href="#">Internal components (6 of 6) on page 275</a>
RM1-6868-000CN	Cable, SV joint, low-voltage power supply	<a href="#">Internal components (2 of 6) on page 267</a>
RM1-6942-000CN	Cassette (paper feeder)	<a href="#">Paper feeder internal components on page 287</a>

**Table 4-21 Numerical parts list (continued)**

Part number	Description	Table and page
RM1-6944-000CN	Paper pickup assembly (paper feeder)	<a href="#">Paper feeder internal components on page 287</a>
RM1-6946-000CN	Right door assembly (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RM1-6948-000CN	Cover, right lower assembly (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RM1-6949-000CN	Cover, upper front assembly (paper feeder)	<a href="#">Paper feeder external components on page 285</a>
RM1-6987-000CN	Paper feeder driver PCA	<a href="#">Paper feeder internal components on page 287</a>
RM1-6987-000CN	Paper feeder driver PCA	<a href="#">Paper feeder PCA on page 289</a>
RM1-7133-000CN	Cover, front assembly	<a href="#">External covers, panels, and doors on page 261</a>
RM1-7138-000CN	Cassette	<a href="#">Cassette on page 277</a>
RM1-7142-000CN	Cover, right rear	<a href="#">External covers, panels, and doors on page 261</a>
RM1-7143-000CN	Cover, left assembly	<a href="#">External covers, panels, and doors on page 261</a>
RM1-7145-000CN	Cover, right front assembly	<a href="#">External covers, panels, and doors on page 261</a>
RM1-7146-000CN	Cover, rear	<a href="#">External covers, panels, and doors on page 261</a>
RM1-7149-000CN	Cover, top	<a href="#">External covers, panels, and doors on page 261</a>
RM1-7914-000CN	Gear assembly, fuser	<a href="#">Internal components (2 of 6) on page 267</a>
RU5-4979-000CN	Shaft, right door link	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-0771-000CN	Gear, 25T, duplex model	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-0772-000CN	Gear, 25T, duplex model	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-0773-000CN	Gear, 74T, duplex model	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-0775-000CN	Gear, 18T/29T, simplex model	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-0795-000CN	Gear, link worm	<a href="#">Internal components (4 of 6) on page 271</a>
RU6-2671-000CN	Spring, tension, duplex model	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-2683-000CN	Spring, compression	<a href="#">Internal components (4 of 6) on page 271</a>

**Table 4-21 Numerical parts list (continued)**

Part number	Description	Table and page
RU6-2710-000CN	Spring, tension, registration sensor	<a href="#">Internal components (2 of 6) on page 267</a>
RU6-2721-000CN	Spring, compression	<a href="#">Internal components (1 of 6) on page 265</a>
RU6-2727-000CN	Spring, tension, front	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-2744-000CN	Spring, tension, rear	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-2767-000CN	Spring, contact	<a href="#">Internal components (5 of 6) on page 273</a>
RU6-2768-000CN	Spring, contact	<a href="#">Internal components (5 of 6) on page 273</a>
RU6-2771-000CN	Spring, contact, second-transfer high-voltage PCA	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-2772-000CN	Spring, grounding, second-transfer high-voltage PCA	<a href="#">Internal components (3 of 6) on page 269</a>
RU6-2831-000CN	Spring, tension	<a href="#">Internal components (4 of 6) on page 271</a>
VS1-7207-019CN	Connector, snap tight, black	<a href="#">Internal components (2 of 6) on page 267</a>
VS1-7514-008CN	Connector, 8-pin, paper-pickup	<a href="#">Internal components (6 of 6) on page 275</a>
VT2-5176-004CN	Spacer, DC controller PCA	<a href="#">Internal components (6 of 6) on page 275</a>
WC2-5512-000CN	Switch, bottom (paper feeder)	<a href="#">Paper feeder internal components on page 287</a>
WC4-5251-000CN	Microswitch	<a href="#">Internal components (1 of 6) on page 265</a>
WG8-5696-000CN	Sensor, right door	<a href="#">Internal components (3 of 6) on page 269</a>



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# A Service and support

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- [End User License Agreement](#)
- [Customer self-repair warranty service](#)
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# Hewlett-Packard limited warranty statement

HP PRODUCT	DURATION OF LIMITED WARRANTY
HP Color LaserJet CP5220 Series printers	One-year limited warranty

HP warrants to you, the end-user customer, that HP hardware and accessories will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or equivalent in performance to new.

HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software which does not execute its programming instructions due to such defects.

HP does not warrant that the operation of HP products will be uninterrupted or error free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.

HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE. Some countries/regions, states or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from country/region to country/region, state to state, or province to province.

HP's limited warranty is valid in any country/region or locality where HP has a support presence for this product and where HP has marketed this product. The level of warranty service you receive may vary according to local standards. HP will not alter form, fit or function of the product to make it operate in a country/region for which it was never intended to function for legal or regulatory reasons.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some countries/regions, states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

## HP's Premium Protection Warranty: LaserJet print cartridge limited warranty statement

This HP product is warranted to be free from defects in materials and workmanship.

This warranty does not apply to products that (a) have been refilled, refurbished, remanufactured or tampered with in any way, (b) experience problems resulting from misuse, improper storage, or operation outside of the published environmental specifications for the printer product or (c) exhibit wear from ordinary use.

To obtain warranty service, please return the product to place of purchase (with a written description of the problem and print samples) or contact HP customer support. At HP's option, HP will either replace products that prove to be defective or refund your purchase price.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTY IS EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE.

TO THE EXTENT ALLOWED BY LOCAL LAW, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

# HP Color LaserJet Fuser Kit Limited Warranty Statement

This HP product is warranted to be free from defects in materials and workmanship until the printer provides a low-life indicator on the control panel.

This warranty does not apply to products that (a) have been refurbished, remanufactured or tampered with in any way, (b) experience problems resulting from misuse, improper storage, or operation outside of the published environmental specifications for the printer product or (c) exhibit wear from ordinary use.

To obtain warranty service, please return the product to place of purchase (with a written description of the problem) or contact HP customer support. At HP's option, HP will either replace products that prove to be defective or refund your purchase price.

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Rev. 11/06

## Customer self-repair warranty service

HP products are designed with many Customer Self Repair (CSR) parts to minimize repair time and allow for greater flexibility in performing defective parts replacement. If during the diagnosis period, HP identifies that the repair can be accomplished by the use of a CSR part, HP will ship that part directly to you for replacement. There are two categories of CSR parts: 1) Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service. 2) Parts for which customer self repair is optional. These parts are also designed for Customer Self Repair. If, however, you require that HP replace them for you, this may be done at no additional charge under the type of warranty service designated for your product.

Based on availability and where geography permits, CSR parts will be shipped for next business day delivery. Same-day or four-hour delivery may be offered at an additional charge where geography permits. If assistance is required, you can call the HP Technical Support Center and a technician will help you over the phone. HP specifies in the materials shipped with a replacement CSR part whether a defective part must be returned to HP. In cases where it is required to return the defective part to HP, you must ship the defective part back to HP within a defined period of time, normally five (5) business days. The defective part must be returned with the associated documentation in the provided shipping material. Failure to return the defective part may result in HP billing you for the replacement. With a customer self repair, HP will pay all shipping and part return costs and determine the courier/carrier to be used.

## Customer support

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Get telephone support, free during your warranty period, 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/](http://www.hp.com/support/).

Have the product name, serial number, date of purchase, and problem description ready.

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Get 24-hour Internet support

[www.hp.com/support/ljcp5220series](http://www.hp.com/support/ljcp5220series)

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Get support for products used with a Macintosh computer

[www.hp.com/go/macosex](http://www.hp.com/go/macosex)

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Download software utilities, drivers, and electronic information

[www.hp.com/go/ljcp5220series\\_software](http://www.hp.com/go/ljcp5220series_software)

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Order additional HP service or maintenance agreements

[www.hp.com/go/carepack](http://www.hp.com/go/carepack)

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## B Product specifications

- [Physical specifications](#)
- [Performance specifications](#)
- [Electrical specifications](#)
- [Acoustic specifications](#)
- [Environmental specifications](#)
- [Skew specifications](#)



## Physical specifications

**Table B-1 Physical specifications**

Product	Height	Depth	Width	Weight
HP Color LaserJet CP5220 Series Printer	338 mm (13.3 in)	588 mm (23.1 in)	545 mm (21.5 in)	Without print cartridges: 31.5 kg (69.5 lb)  With print cartridges: 38.9 kg (85.7 lb)

## Performance specifications

<b>Print speed</b>	<ul style="list-style-type: none"><li>Prints up to 20 pages per minute (ppm) on letter-size paper and A4-size paper</li></ul>
<b>Resolution</b>	<ul style="list-style-type: none"><li>600 dots per inch (dpi) with Image Resolution Enhancement technology 3600 for optimum overall imaging</li><li>1200 x 600 dpi for detailed line work and small text</li></ul>

## Electrical specifications

**⚠ WARNING!** Power requirements are based on the country/region where the product is sold. Do not convert operating voltages. This can damage the product and void the product warranty.

**Table B-2 Power requirements**

Specification	110-volt models	220-volt models
Power requirements	100 to 127 volts (± 10%) 50/60 Hz (± 2 Hz)	220 to 240 volts (± 10%) 50/60 Hz (± 2 Hz)
Rated current	5.0 Amps	2.5 Amps

**Table B-3 Power consumption (average, in watts)<sup>126</sup>**

Product model	Printing	Ready	Sleep	Off
HP Color LaserJet CP5220 Series	440 W	30 W	4.3 W	0.48 W

<sup>1</sup> Values subject to change. See [www.hp.com/support/ljcp5220series](http://www.hp.com/support/ljcp5220series) for current information.

<sup>2</sup> Power numbers are the highest values measured using all standard voltages.

<sup>3</sup> Default time from Ready mode to Sleep = 15 minutes.

<sup>6</sup> Speed is 20 ppm Letter size.

## Acoustic specifications

**Table B-4 HP Color LaserJet CP5220 Series<sup>13</sup>**

Sound power level	Declared per ISO 9296
Printing	$L_{WAd}$ = 6.3 Bels (A) [63 dB(A)]

**Table B-4 HP Color LaserJet CP5220 Series<sup>13</sup> (continued)**

Sound power level	Declared per ISO 9296
Ready	$L_{WA_d} = 5.3$ Bels (A) [53 dB(A)]
Sound pressure level - printing	Declared per ISO 9296
Bystander position	$L_{pA_m} = 49$ dB (A)
Operator position	$L_{pA_m} = 54$ dB (A)

<sup>1</sup> Values are based on preliminary data. See [www.hp.com/support/ljcp5220series](http://www.hp.com/support/ljcp5220series) for current information.

<sup>3</sup> Configuration tested: HP Color LaserJet CP5220 Series printing on A4-size paper in simplex mode

## Environmental specifications

**Table B-5 Operating-environment specifications**

Environment	Recommended	Allowed
Temperature	15° to 27°C (59° to 80.6°F)	10° to 30°C (50° to 86°F)
Humidity	20% to 60% relative humidity (RH)	10% to 80% RH
Altitude	Not applicable	0 to 3048 m (0 to 10,000 ft)



**NOTE:** These values are based on preliminary data. See [www.hp.com/support/ljcp5220series](http://www.hp.com/support/ljcp5220series) for current information.

## Skew specifications

**Table B-6 Media registration and image placement accuracy**

	Cut sheet simplex and automatic duplex <sup>1</sup>	Envelopes and postcards
Skew - vertical	≤ 1.5 mm / 260 mm	≤ 3.3 mm / 220 mm
First line / leading edge position	5.0 mm ± 2.0 mm	10.0 mm ± 3.0 mm
Left margin accuracy	5.0 mm ± 2.0 mm	10 mm ± 2.5 mm
Parallelism	≤ 0.75%	N/A
Image or text stretching - vertical	≤ 1.0 %	N/A
Image or text stretching - horizontal	≤ 1.0 %	N/A
Duplex registration - vertical, horizontal	≤ 2.0 mm	N/A

<sup>1</sup> Xerox 4024 (#20) should be used for measurement.

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## C Regulatory information

- [FCC regulations](#)
- [Declaration of conformity](#)
- [Safety statements](#)

## FCC regulations

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If this equipment is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between equipment and receiver.
- Connect equipment to an outlet on a circuit different from that to which the receiver is located.
- Consult your dealer or an experienced radio/TV technician.

 **NOTE:** Any changes or modifications to the printer that are not expressly approved by HP could void the user's authority to operate this equipment.

Use of a shielded interface cable is required to comply with the Class B limits of Part 15 of FCC rules.

# Declaration of conformity

according to ISO/IEC 17050-1 and EN 17050-1; BOISB-0805-00-rel.1.0

**Manufacturer's Name:** Hewlett-Packard Company  
**Manufacturer's Address:** 11311 Chinden Boulevard,  
Boise, Idaho 83714-1021, USA

**declares, that the product**

**Product Name:** HP Color LaserJet CP5220 Series  
**Regulatory Model:<sup>2)</sup>** BOISB-0805-00


**Product Options:** Including: CE860A — Optional 500-Sheet Input Tray  
**Toner Cartridges:** All  
CE740A, CE741A, CE742A, CE743A

**conforms to the following Product Specifications:**

**SAFETY:** IEC 60950-1:2001 / EN60950-1: 2001 +A11  
IEC 60825-1:1993 +A1 +A2 / EN 60825-1:1994 +A1 +A2 (Class 1 Laser/LED Product)  
GB4943-2001

**EMC:** CISPR22:2005 / EN55022:2006 - Class B<sup>1)</sup>  
EN 61000-3-2:2006  
EN 61000-3-3:1995 +A1  
EN 55024:1998 +A1 +A2  
FCC Title 47 CFR, Part 15 Class B / ICES-003, Issue 4  
GB9254-1998, GB17625.1-2003

## Supplementary Information:

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

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

1) The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.

2) For regulatory purposes, these products are assigned a Regulatory model number. This number should not be confused with the product name or the product number(s).

Boise, Idaho 83713, USA

**January 2009**

## For Regulatory Topics Only:

**European Contact** Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Strasse 140, D-71034 Böblingen, Germany, (FAX: +49-7031-14-3143), <http://www.hp.com/go/certificates>

**USA Contact** Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, ID 83707-0015, USA, (Phone: 208-396-6000)

# Safety statements

## Laser safety

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration has implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States. The device is certified as a “Class 1” laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside the device is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

**⚠ WARNING!** Using controls, making adjustments, or performing procedures other than those specified in this user guide may result in exposure to hazardous radiation.

## Canadian DOC regulations

Complies with Canadian EMC Class B requirements.

« Conforme à la classe B des normes canadiennes de compatibilité électromagnétiques. « CEM ». »

## VCCI statement (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としています。この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。  
取扱説明書に従って正しい取り扱いをして下さい。

## Power cord statement (Japan)

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

## EMC statement (Korea)

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## Laser statement for Finland

### Luokan 1 laserlaite

Klass 1 Laser Apparat

HP Color LaserJet Professional CP5220 Series, laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalisissa käytössä kirjoittimen suojakotelointi estää lasersäteiden pääsyn laitteen ulkopuolelle. Laitteen turvallisuusluokka on määritetty standardin EN 60825-1 (1994) mukaisesti.

## VAROITUS !

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

## VARNING !

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

## HUOLTO

HP Color LaserJet Professional CP5220 Series - kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota väriainekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoistyneitä työkaluja.

## 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.

## 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。





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