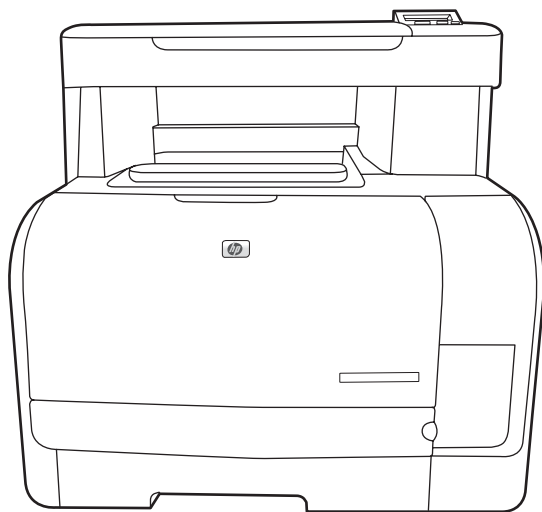


HP Color LaserJet CM1312 MFP Series Service Manual



HP Color LaserJet CM1312 MFP Series

Service Manual



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1 Product basics

- [Quick access to product information](#)
- [Product comparison](#)
- [Product features](#)
- [Product walkaround](#)
- [Supported operating systems](#)
- [Supported product software](#)
- [System requirements](#)
- [Connectivity](#)

Quick access to product information

Use the following Web site to find information about the product.

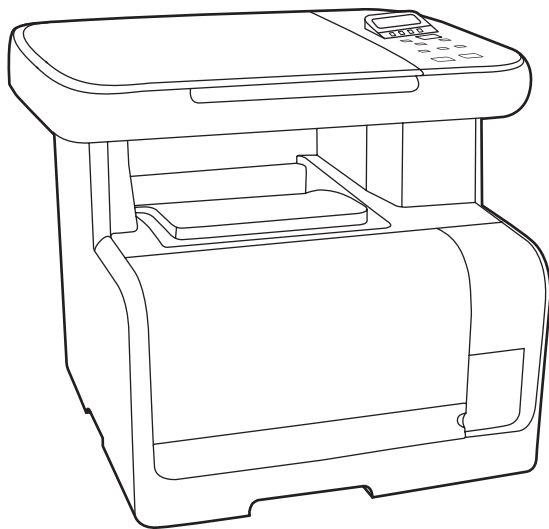
- www.hp.com/support/CM1312series

Table 1-1 Product guides

Guide	Description
<i>HP Color LaserJet CM1312 MFP Series Getting Started Guide</i>	Provides step-by-step instructions for installing and setting up the product.
<i>HP Color LaserJet CM1312 MFP Series User Guide</i>	Provides detailed information for using the product and problem-solving. Available on the product CD or in the Windows Program Group if the software is installed on a computer.
HP ToolboxFX	To check the product status and settings, and to view problem-solving information and online documentation, use the HP ToolboxFX. You must have performed a complete software installation in order to use the HP ToolboxFX. See the user guide for more information about software installation.
Online Help	Provides information about options that are available in the printer drivers. To view a Help file, open the online Help through the printer driver.

Product comparison

The product is available in the following configurations.



Base models

- Prints color print jobs at speeds up to 8 pages per minute (ppm) and monochrome print jobs at speeds up to 12 ppm.
- PCL 6 printer driver.
- Input tray (Tray 1) holds up to 150 sheets of print media or up to 10 envelopes.
- Hi-Speed USB 2.0 port.
- 128-MB random-access memory (RAM).
- Flatbed scanner.



Fax/memory-card models

Base model features, plus:

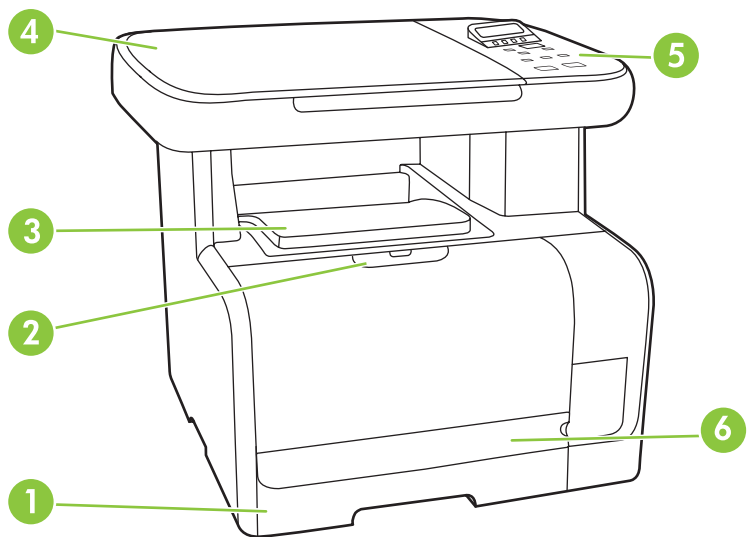
- 10/100 Base-T network port.
- V.34 fax and 8-megabyte (MB) flash fax-storage memory.
- Two RJ-11 fax phone line ports.
- 50-page automatic document feeder (ADF).
- 160-MB random-access memory (RAM).
- Four memory card slots.
- Color graphics display.

Product features

Performance	<ul style="list-style-type: none"> Prints up to 8 ppm (color) or 12 ppm (monochrome).
Print quality	<ul style="list-style-type: none"> 1,200 dots per inch (dpi) with Image REt 2400 text and graphics. Adjustable settings to optimize print quality. The HP UltraPrecise print cartridge has a finer toner formulation that provides sharper text and graphics.
Fax (fax/memory-card models only)	<ul style="list-style-type: none"> Full-functionality fax capabilities with a V.34 fax; includes a phone book, fax/tel, and delayed-fax features.
Copy	<ul style="list-style-type: none"> Includes ADF (fax/memory-card models only) that allows faster, more efficient copy jobs with multiple-page documents.
Scan	<ul style="list-style-type: none"> The product provides 1,200 pixels per inch (ppi), 24-bit full-color scanning from letter/A4-size scanner glass. The product provides 300 ppi, 24-bit full-color scanning from the ADF (fax/memory-card models only). Includes an ADF (fax/memory-card models only) that allows faster, more efficient scan jobs with multiple-page documents.
Memory card slots (fax/memory-card models only)	<ul style="list-style-type: none"> Supports a variety of memory cards.
Networking (network models only)	<ul style="list-style-type: none"> TCP/IP <ul style="list-style-type: none"> IPv4 IPv6
Printer driver features	<ul style="list-style-type: none"> Fast printing performance, built-in Intellifont and TrueType scaling technologies, and advanced imaging capabilities are benefits of the PCL 6 printer language.
Interface connections	<ul style="list-style-type: none"> Hi-Speed USB 2.0 port. 10/100 Base-T ethernet (RJ-45) network port (network models only). RJ-11 fax/phone cable ports (fax/memory-card models only).
Economical printing	<ul style="list-style-type: none"> N-up printing (printing more than one page on a sheet).
Supplies	<ul style="list-style-type: none"> A supplies status page that displays the amount of life remaining in the print cartridge. No-shake cartridge design. Authentication for HP print cartridges. Enabled supplies-ordering capability.
Accessibility	<ul style="list-style-type: none"> Online user guide that is compatible with text screen-readers. Print cartridges can be installed and removed by using one hand. All doors and covers can be opened by using one hand.

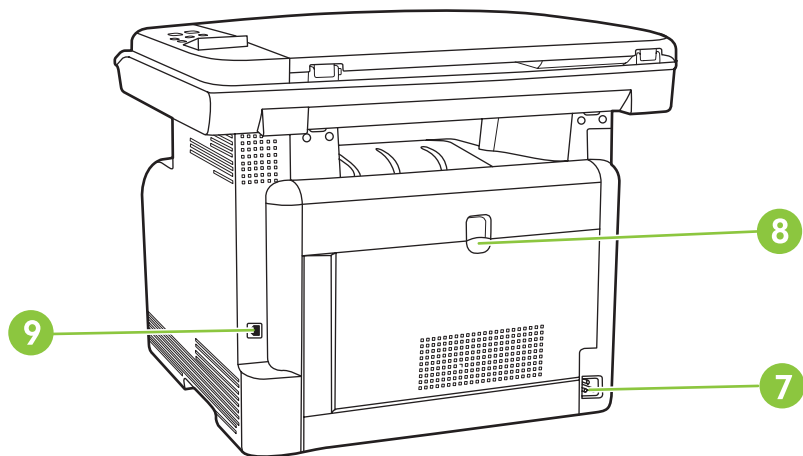
Product walkaround

Base model front view



1	Tray 1
2	Print-cartridge door latch
3	Top (face-down) output bin
4	Flatbed scanner
5	Control panel
6	Front door for jam access

Base model back view



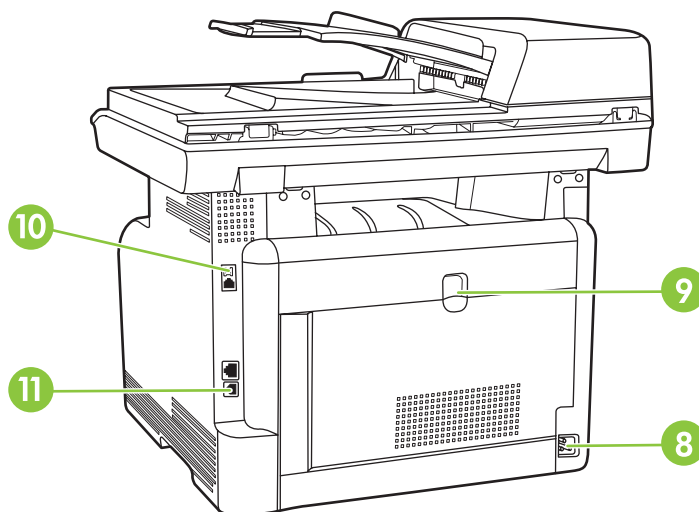
7	Power connector
8	Rear door for jam access
9	Hi-Speed USB 2.0 port

Fax/memory-card model front view



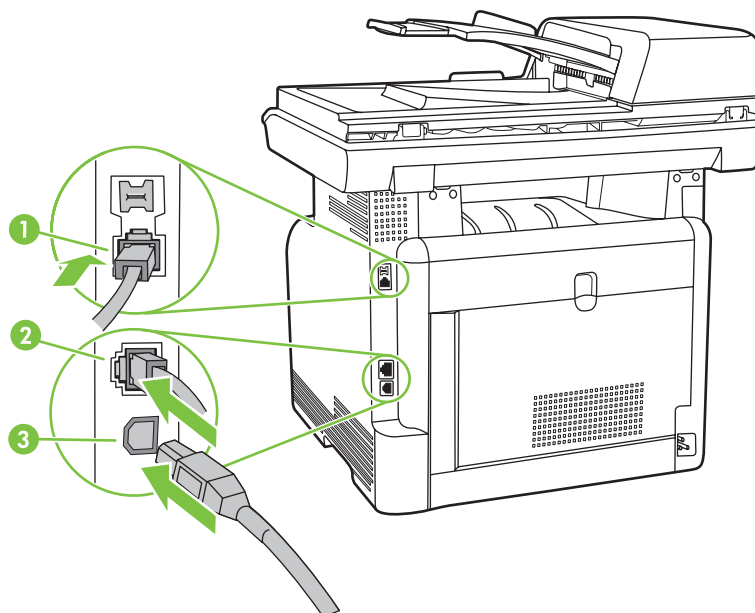
1	Tray 1
2	Print-cartridge door latch
3	Top (face-down) output bin
4	Control panel
5	Automatic document feeder (ADF) input tray
6	Automatic document feeder (ADF) output bin
7	Memory card slots

Fax/memory-card model back view



8	Power connector
9	Rear door for jam access
10	Fax ports
11	Hi-Speed USB 2.0 port and network port.

Interface ports



1	Fax ports (fax/memory-card models only)
2	Network port (network models only)
3	Hi-Speed USB 2.0 port

Supported operating systems

Supported operating systems for Windows

The product supports the following Windows operating systems:

Full software installation

- Windows XP (32-bit)
- Windows Vista (32-bit and 64-bit)

Print and scan driver

- Windows XP (64 bit)
- Windows 2000
- Windows 2003 Server (32-bit and 64-bit)



NOTE: The PCL 5 UPD and HP postscript level 3 emulation drivers are available only on the HP support website: www.hp.com/support/CM1312series.

Supported operating systems for Macintosh

The device supports the following Macintosh operating systems:

- Mac OS X v10.3, v10.4, and later



NOTE: For Mac OS X v10.4 and later, PPC and Intel Core Processor Macs are supported.

Supported product software

Software included with the product

Software for Windows

HP Web Jetadmin

HP Web Jetadmin is a browser-based management tool for HP Jetdirect-connected printers within your intranet, and it should be installed only on the network administrator's computer.

To download a current version of HP Web Jetadmin and for the latest list of supported host systems, visit www.hp.com/go/webjetadmin.

When installed on a host server, a Windows client can gain access to HP Web Jetadmin by using a supported Web browser (such as Microsoft® Internet Explorer 4.x or Netscape Navigator 4.x or later) by navigating to the HP Web Jetadmin host.

Embedded Web server

The device is equipped with an embedded Web server, which provides access to information about device and network activities. This information appears in a Web browser, such as Microsoft Internet Explorer, Netscape Navigator, Apple Safari, or Firefox.

The embedded Web server resides on the device. It is not loaded on a network server.

The embedded Web server provides an interface to the device that anyone who has a network-connected computer and a standard Web browser can use. No special software is installed or configured, but you must have a supported Web browser on your computer. To gain access to the embedded Web server, type the IP address for the device in the address line of the browser. (To find the IP address, print a configuration page. For more information about printing a configuration page, see [Information pages on page 44](#).)

For a complete explanation of the features and functionality of the embedded Web server, see [Embedded Web server on page 56](#).

HP ToolboxFX

HP ToolboxFX software is a program that you can use for the following tasks:

- Check the product status
- Check the supplies status and use HP SureSupply to shop online for supplies
- Set up alerts
- View product usage reports
- View product documentation
- Gain access to troubleshooting and maintenance tools
- Use HP Proactive Support to routinely scan your printing system and to prevent potential problems. HP Proactive Support can update software, firmware, and HP printer drivers.

You can view HP ToolboxFX software when the product is directly connected to your computer or when it is connected to a network.

Supported operating systems	<ul style="list-style-type: none">• Microsoft Windows XP, Service Pack 2 (Home and Professional editions)• Microsoft Windows Vista™
Supported browsers	<ul style="list-style-type: none">• Microsoft Internet Explorer 6.0 or 7.0

To download HP ToolboxFX software, go to www.hp.com/go/easyprintercare. This Web site also provides updated information about supported browsers and a list of HP products that support HP ToolboxFX software.

For more information about using HP ToolboxFX software, see [View the HP ToolboxFX on page 46](#).

Software for Macintosh

Embedded Web server

The product is equipped with an embedded Web server, which provides access to information about product and network activities. This information appears in a Web browser, such as Netscape Navigator, Apple Safari, or Firefox.

The embedded Web server resides on the product. It is available on network and direct-connected devices.

The embedded Web server provides an interface to the product that anyone who has a standard Web browser can use. No special software is installed or configured, but you must have a supported Web browser on your computer. To gain access to the embedded Web server, click **Maintain Device** in HP Director.


For a complete explanation of the features and functionality of the embedded Web server, see [Embedded Web server on page 56](#).

Supported printer drivers

Supported printer drivers for Windows

- PCL 5 UPD
- PCL 6
- HP postscript level 3 UPD

The printer drivers include online Help that has instructions for common printing tasks and also describes the buttons, checkboxes, and drop-down lists that are in the printer driver.

 **NOTE:** The versions of PCL 5 and HP postscript level 3 emulation that are used in this product are identical to the PCL 5 and HP postscript level 3 emulation that are used in the HP Universal Print Driver (UPD) for Windows. It installs and operates in the same manner as previous versions of PCL 5 and HP postscript level 3 emulation, and it does not require any special configuration.

For more information about the UPD, see www.hp.com/go/upd.

HP Universal Print Driver (UPD)

The HP Universal Print Driver (UPD) for Windows is a single driver that gives you instant access to virtually any HP LaserJet product, from any location, without downloading separate drivers. It is built on proven HP print driver technology and has been tested thoroughly and used with many software programs. It is a powerful solution that performs consistently over time.

The HP UPD communicates directly with each HP product, gathers configuration information, and then customizes the user interface to show the product's unique, available features. It automatically enables features that are available for the product, such as two-sided printing and stapling, so you do not need to enable them manually.

For more information, go to www.hp.com/go/upd.

UPD installation modes

Traditional mode	<ul style="list-style-type: none">• Use this mode if you are installing the driver from a CD for a single computer.• When installed with this mode, UPD operates like traditional printer drivers.• If you use this mode, you must install UPD separately for each computer.
Dynamic mode	<ul style="list-style-type: none">• Use this mode if you are installing the driver for a mobile computer, so you can discover and print to HP products in any location.• Use this mode if you are installing UPD for a workgroup.• To use this mode, download UPD from the Internet. See www.hp.com/go/upd.

Supported printer drivers for Macintosh

The HP installer provides PostScript® Printer Description (PPD) files, Printer Dialog Extensions (PDEs), and the HP Printer Utility for use with Macintosh computers.

The PPDs, in combination with the Apple PostScript printer drivers, provide access to device features. Use the Apple PostScript printer driver that comes with the computer.

Software for other operating systems

OS	Software
UNIX	For HP-UX and Solaris networks, go to www.hp.com/support/net_printing to download the HP Jetdirect printer installer for UNIX.
Linux	For information, go to www.hp.com/go/linuxprinting .

System requirements

The product has the following minimum software and hardware requirements.

Windows XP

- Pentium II processor (Pentium III or higher recommended)
- 128 MB RAM
- 250 MB available hard disk space
- SVGA 800 x 600 monitor with 16-bit color
- Internet Explorer 6.0 or higher (full installation)
- USB port
- CD-ROM drive

Windows Vista

- 1 GHz processor
- 512 MB RAM
- 250 MB available hard disk space
- SVGA 800 x 600 monitor with 16-bit color
- Internet Explorer 6.0 or higher (full installation)
- USB port
- CD-ROM drive

Windows 2000 and Windows Server 2003

- Pentium II processor or greater
- 64 MB RAM
- 50 MB available hard disk space
- SVGA 800 x 600 monitor with 16-bit color (print driver, scan driver only)
- USB port
- CD-ROM drive

Mac OS X v10.3 and later

- PowerPC G3, G4, or G5 processor, or Intel Core processor
- 80 MB RAM
- 30 MB available hard disk space
- USB port
- CD-ROM drive
- Safari or Firefox browser

Connectivity

Supported network protocols (network models only)

The product supports the TCP/IP network protocol. It is the most widely used and accepted networking protocol. Many networking services utilize this protocol. This product also supports IPv4 and IPv6. The following tables list the networking services/protocols that are supported on the product.

Table 1-2 Printing

Service name	Description
port9100 (Direct Mode)	Printing service
Line printer daemon (LPD)	Printing service

Table 1-3 Network product discovery

Service name	Description
SLP (Service Location Protocol)	Device Discovery Protocol, used to help find and configure network devices. Used primarily by Microsoft-based software programs.
mDNS (multicast Domain Name Service - also known as "Rendezvous" or "Bonjour")	Device Discovery Protocol, used to help find and configure network devices. Used primarily by Apple Macintosh-based software programs.
ws-discover	Used by Microsoft-based software programs
LLMNR	Used when DNS services are not available

Table 1-4 Messaging and management

Service name	Description
HTTP (hypertext transfer protocol)	Allows Web browsers to communicate with embedded Web server.
EWS (embedded Web server)	Allows a user to manage the product through a Web browser.
SNMP (simple network management protocol)	Used by network programs for product management. SNMP V1 and standard MIB-II (Management Information Base) objects are supported.

Table 1-5 IP addressing

Service name	Description
DHCP (dynamic host configuration protocol), IPv4, and IPv6	For Automatic IP address assignment. DHCP server provides the product with an IP address. Generally requires no user intervention for product to obtain IP address from a DHCP server.

Table 1-5 IP addressing (continued)

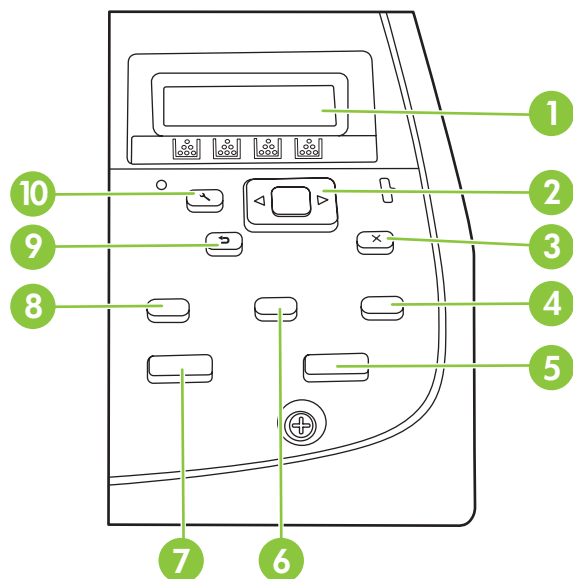
Service name	Description
BOOTP (bootstrap protocol)	For Automatic IP address assignment. BOOTP server provides the product with an IP address. Requires administrator to input the product MAC hardware address on BOOTP server in order for product to obtain an IP address from that server.
Auto IP	For Automatic IP address assignment. If neither a DHCP server nor a BOOTP server is present, this service allows the product to generate a unique IP address.




2 Control panel

- [Control-panel walkaround](#)
- [Control-panel menus](#)

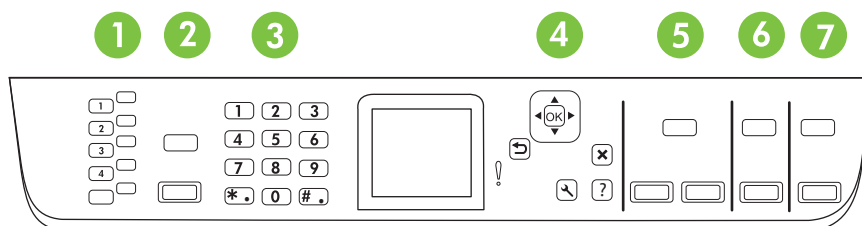
Control-panel walkaround




Base models control panel



1	Liquid Crystal Display
2	OK button and navigation arrows
3	Cancel button  : cancel the current selection
4	Copy Features button: access the Copy menu.
5	Copy Black button: perform a copy operation in black and white.
6	Lighter/Darker button: change the lightness or darkness of the scanned image.
7	Copy Color button: perform a copy operation in color.
8	# Copies button: specify the number of copies.
9	Back button  : go back to the previous menu
10	Setup button  : access the Setup menu.

Fax/memory-card models control panel






1	Speed dials. 4 speed dial buttons and one shift button to support up to 8 speed dials.
2	Fax Menu button. Access the fax menu. Start Fax button. Initiate a fax from the control panel.
3	Alphanumeric buttons. Use the alphanumeric buttons to type data into the product control-panel display and dial telephone numbers for faxing.
4	OK button and navigation arrows. Use these buttons to select and confirm menu choices. Cancel button  . Use this button to cancel the current menu selection. Setup button  . Access the main Setup menu. Back button  . Go back to the previous menu.
5	Copy Menu button. Access the Copy menu. Start Copy Black button. Perform a black and white copy operation. Start Copy Color button. Perform a color copy operation.
6	Scan Menu button. Access the scan menu. Start Scan button. Perform a scan operation.
7	Photo Menu button. Access the photo menu. Start Photo button. Print the selected photos from the memory card.

Control-panel menus

Use the control-panel menus

To gain access to the control-panel menus, use the following steps.

- 1. Press **Setup** .
-  **NOTE:** To access the function-specific menus (fax/memory-card models only) press **Fax Menu**, **Copy Menu**, **Scan Menu**, or **Photo Menu**.
- 2. Use the arrow buttons to navigate the listings.
 - Press **OK** to select the appropriate option.
 - Press **Cancel**  to cancel an action or return to the Ready state.

Control-panel Setup menu

These sub menus are available from the control-panel main Setup menu:

- Use the **Copy setup** menu to configure basic copy default settings such as contrast, collation, or the number of copies printed.
- Use the **Reports** menu to print reports that provide information about the product.
- Use the **Fax setup** menu to configure the outgoing and incoming fax options and the basic settings for all faxes.
- Use the **Photo setup** menu to configure the basic settings for printing photos from a memory card.
- Use the **System setup** menu to establish basic product settings such as language, print quality, or volume levels.
- Use the **Service** menu to restore default settings, clean the product, and activate special modes that affect print output.
- Use the **Network configuration** menu to configure network settings such as TCP/IP configuration.


 **NOTE:** To print a detailed list of the entire control-panel menu and its structure, print a menu map. See [Information pages on page 44](#).

Table 2-1 Copy setup menu

Menu item	Sub-menu item	Description
Default Optimize	Auto Select	Sets the default copy quality.
	Mixed	
	Printed Picture	
	Photograph	
	Text	
Def. light/dark		Sets the default contrast option.
Default Collation	On	Sets the default collation option.
	Off	

Table 2-1 Copy setup menu (continued)

Menu item	Sub-menu item	Description
Def. # of copies	(Range: 1-99)	Sets the default number of copies.
Default Reduce/Enlarge	Original=100%	Sets the default percentage to reduce or enlarge a copied document.
	Legal to Letter=78%	
	Legal to A4=83%	
	A4 to Letter=94%	
	Letter to A4=97%	
	Full Page=91%	
	Fit to page	
	2 pages per sheet	
Default Copy Draft	4 pages per sheet	Sets the default draft mode option.
	Custom: 25 to 400%	
Default Multi-page	On	Sets the default multi-page flatbed copy option.
	Off	
Advanced	Color Copy	Enables or disables the color copy button.
	Lightness	The default light/dark setting for copies.
	Contrast	The default contrast setting for copies.
	Sharpen	The default sharpen setting for copies.
	Background Removal	The default background removal setting for copies.
	Color Balance	The default color balance setting for copies. Values can be set for each of the following settings: <ul style="list-style-type: none"> • Red • Green • Blue
Grayness		The default grayness setting for copies.
Restore defaults		Sets all customized copy settings to the factory default values.

Table 2-2 Reports menu

Menu Item	Description
Demo page	Prints a page that demonstrates print quality.
Menu Structure	Prints a control-panel menu layout map. The active settings for each menu are listed.
Configuration report	Prints a list of all the product settings. Includes network information when the product is connected to the network.

Table 2-2 Reports menu (continued)

Menu Item	Description
Supplies status page	Prints the print-cartridge status. Includes the following information: <ul style="list-style-type: none"> • Approximate pages remaining • Serial number • Number of pages printed
Network report	Displays status for: <ul style="list-style-type: none"> • Network hardware configuration • Enabled features • TCP/IP and SNMP information • Network statistics
Usage page	Displays the number of pages printed, faxed, copied, and scanned by the product.
PCL font list	Prints a list of all installed PCL 5 fonts.
PS font list	Prints a list of all installed PS fonts.
PCL6 font list	Prints a list of all installed PCL 6 fonts.
Color usage log	Prints out information about the color toner usage.
Service page	Prints out diagnostic information about paper type settings, copy quality settings, and other status settings.
Diagnostics page	Prints two pages with calibration and color patches for print-quality troubleshooting.

Table 2-3 Photo setup menu

Menu Item	Sub-menu item	Description
Def. image size	(List of 18 photo image sizes, ranging from Thumbnail to Full page .)	The default image size for photos
Def. light/dark		The default light/dark setting for photos.
Def. # of copies		The default number of copies setting for photos. Possible values range from 1 to 99.
Def. output color	Color Black & white	Specify the default output for photos (color or black & white)
Restore defaults		Restore the factory default settings for photo setup

Table 2-4 Fax setup menu (fax models only)

Menu Item	Sub-menu item	Sub-menu item	Description
Basic setup	Time/Date	(Settings for time format, current time, date format, and current date.)	Sets the time and date setting for the product.
	Fax Header	Your fax number Company name	Sets the identifying information that is sent to the receiving product.
	Answer mode	Automatic TAM Fax/Tel Manual	<p>Sets the type of answer mode. The following options are available:</p> <ul style="list-style-type: none"> • Automatic: The product automatically answers an incoming call on the configured number of rings. • TAM: A telephone answering machine (TAM) is attached to the Aux phone port of the product. The product will not pick up any incoming call, but only listen for fax tones after the answering machine has picked up the call. • Fax/Tel: The product must automatically pick up the call and determine if the call is a voice or fax call. If the call is a fax call, the product handles the call as usual. If the call is a voice call, an audible synthesized ring is generated to alert the user of an incoming voice call. • Manual : The user must press the Start Fax button or use an extension phone to make the product answer the incoming call.
	Rings to answer	(Range of 1-9)	Sets the number of rings that must occur before the fax modem answers.
	Distinctive Ring	All Rings Single Double Triple Double and Triple	<p>Allows a user to have two or three phone numbers on a single line, each with a different ring pattern (on a phone system with distinctive-ring service).</p> <ul style="list-style-type: none"> • All Rings: The product answers any calls that come through the telephone line. • Single: The product answers any calls that produce a single-ring pattern. • Double: The product answers any calls that produce a double-ring pattern. • Triple: The product answers any calls that produce a triple-ring pattern. • Double and Triple: The product answers any calls that produce a double-ring or triple-ring pattern.
	Dial Prefix	On Off	Specifies a prefix number that must be dialed when sending faxes from the product.

Table 2-4 Fax setup menu (fax models only) (continued)

Menu Item	Sub-menu item	Sub-menu item	Description
Advanced setup	Def. Resolution	Standard	Sets the resolution for sent documents. Higher resolution images have more dots per inch (dpi), so they show more detail. Lower resolution images have fewer dots per inch and show less detail, but the file size is smaller. The following list shows the numerical values for each setting.
		Fine	
		Superfine	
		Photo	
			<ul style="list-style-type: none"> • Standard: 203 x 98 dpi • Fine: 203 x 196 dpi • Superfine: 300 x 300 dpi • Photo: 300 x 300 dpi with half-toning
	Def. light/dark		Sets the darkness of outgoing faxes.
	Fit to page	On	Shrinks faxes that are larger than Letter-size or A4-size so that they can fit onto a Letter-size or A4-size page. If this feature is set to Off , faxes larger than Letter or A4 will print on multiple pages.
		Off	
	Default glass size	Letter	Sets the default paper size for documents being scanned from the flatbed scanner.
		A4	
	Dialing Mode	Tone	Sets whether the product should use tone or pulse dialing.
		Pulse	
	Redial if busy	On	Sets whether or not the product should attempt to redial if the line is busy.
		Off	
	Redial if no answer	On	Sets whether the product should attempt to dial if the recipient fax number does not answer.
		Off	
	Redial Comm. Error	On	Sets whether the product should attempt to redial the recipient fax number if a communication error occurs.
		Off	

Table 2-4 Fax setup menu (fax models only) (continued)

Menu Item	Sub-menu item	Sub-menu item	Description
Advanced setup	Detect dial tone	On	Sets whether the product should check for a dial tone before sending a fax.
		Off	
	Billing codes	On	Enables the use of billing codes when set to On . A prompt will appear that asks you to enter the billing code for an outgoing fax.
		Off	
	Extension Phone	On	When this feature is enabled, the user can press the 1-2-3 buttons on the extension phone to cause the product to answer an incoming fax call.
		Off	
	Stamp faxes	On	Sets product to add the date, time, sender's phone number, and page number to each page of the faxes that this product receives.
		Off	
	Private receive	On	Setting Private receive to On requires the user to have set a password in product security. After the password is set, the following options are set:
		Off	
			<ul style="list-style-type: none"> • Private receive is turned on. • All old faxes are deleted from memory. • Fax forwarding set to Off and is not allowed to be changed. • All incoming faxes are stored in memory.
	Confirm fax number	On	Verify that a fax number is valid by entering it a second time.
		Off	
	Allow Fax Reprint	On	Sets whether all received faxes stored in available memory can be reprinted.
		Off	
	Fax/Tel Ring Time	20	Sets when the product should stop sounding the Fax/Tel audible ring to notify the user of an incoming voice call.
		30	
		40	
		70	
	Fax Speed	Fast(V.34)	Increases or decreases the allowed fax communication speed.
		Medium(V.17)	
		Slow(V.29)	

Table 2-5 System setup menu

Menu Item	Sub-menu item	Sub-menu item	Description
Language	(List of available control-panel display languages.)		Sets the language in which the control panel displays messages and product reports.

Table 2-5 System setup menu (continued)

Menu Item	Sub-menu item	Sub-menu item	Description
Paper setup	Default paper size	Letter	Sets the size for printing internal reports or any print job that does not specify a size.
		A4	
		Legal	
	Default paper type	Lists available media types.	Sets the type for printing internal reports or any print job that does not specify a type.
	Tray 1	Paper type Paper size	Sets the default size and type for Tray 1.
	Paper out action	Wait forever	Determines how the product reacts when a print job requires a media size or type that is unavailable or when a specified tray is empty.
		Cancel	
		Override	
			<ul style="list-style-type: none"> Select Wait forever to make the product wait until the correct media is loaded. Select Override to print on a different size paper after a specified delay. Select Cancel to automatically cancel the print job after a specified delay. If either Override or Cancel is chosen, the control panel prompts for the number of seconds to delay. Use the arrow keys to either decrease the time or increase the time up to 3600 seconds.
Print quality	Calibrate Color	Calibrate Now	Perform a Color Pane Registration (CPR) and density calibration. Select Calibrate Now to perform an immediate calibration. Select After Power On to specify the minutes/ hours the product should wait after power on to perform an automatic calibration (the default is 15 minutes).
		After Power On	
	Cartridge low threshold	(Range of 1-20)	Sets the percentage at which the control panel generates a low-toner message.
	Replace supplies	Stop at Out Override out	Sets how the product reacts when it detects that the print cartridge is out.
	Color supply out	Stop printing	Sets how the product should react when it detects that a color cartridge is empty. Select Stop printing to stop all printing until the cartridge is replaced, or select Continue black to continue printing in black monochrome mode.
		Continue black	
Adjust Alignment (photo card models only)	Print Test Page		Print out a tray-specific sheet of instructions and a test page with a border that can be used to estimate the adjustment needed to center the printed image on the page.
	Adjust Tray 1		<p>After printing the test page, use the options in the Adjust Tray 1 menu to calibrate the tray. The following settings can be adjusted for Tray 1:</p> <ul style="list-style-type: none"> X1 Shift Y Shift

Table 2-5 System setup menu (continued)

Menu Item	Sub-menu item	Sub-menu item	Description
Volume Settings (photo card models only)	Alarm volume	Soft	Sets the volume levels for the product.
	Ring volume	Medium	
	Key-press volume	Loud	
	Phone line volume	Off	
Time/Date	(Settings for time format, current time, date format, and current date.)		Sets the time and date setting for the product.
Product security	On		Sets the product-security feature. When the setting is set to On, you must set a personal identification number (PIN).
	Off		
Courier font	Regular		Sets Courier font values.
	Dark		

Table 2-6 Service menu

Table 2-5 Service menu

Menu item	Sub-menu item	Sub-menu item	Description
Fax Service	Clear saved faxes		Clear all faxes in memory. These include any received faxes (including non-printed, non-sent PC upload, and non-forwarded faxes), unsent faxes (including delayed faxes), and any printed faxes that are still in memory. Deleted faxes cannot be recovered. For each deleted item, the fax activity log is updated.
	Run Fax Test		Perform a fax test to verify that the phone cord is plugged in the correct outlet and that there is a signal on the phone line. A fax test report is printed indicating the results.
	Print T.30 trace	Now	Prints or schedules a report that is used to troubleshoot fax transmission issues.
		Never	
		If error	
		At end of call	
Error correction	On	The error correction mode allows the sending device to re-transmit data if it detects an error signal. The default setting is on.	
	Off		
	Fax Service Log		The fax service log prints out the last 40 entries in the fax log.
Cleaning mode			Cleans the product when specks or other marks appear

Table 2-6 Service menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
			on printed output. The cleaning process removes dust and excess toner from the paper path.
			When selected, the product prompts you to load plain Letter or A4 paper in tray 1. Press OK to begin the cleaning process. Wait until the process completes. Discard the page that prints.
PowerSave Time	Off		Specify the amount of idle time before the product enters sleep mode.
	1 minute		
	15 minutes		
	30 minutes		
	1 hour		
	2 hours		
	4 hours		
USB Speed	High		Sets the USB speed.
	Full		
Less Paper Curl	On		When printed pages are consistently curled, this option sets the product to a mode that reduces curl.
	Off		
			The default setting is Off .
Archive Print	On		When printing pages that will be stored for a long time, this option sets the product to a mode that reduces toner smearing and dusting.
	Off		
			The default setting is Off .
Restore defaults			Sets all customized settings to the factory default values.

Table 2-7 Network configuration menu

Menu item	Sub-menu item	Description
TCP/IP configuration	Automatic	Automatic automatically configures all the TCP/IP settings via DHCP, BootP or AutoIP.
	Manual	<p>Manual requires you to manually configure the IP address, subnet mask, and default gateway.</p> <p>The control panel prompts you to specify values for each address section. Use the arrow buttons to increase or decrease the value. Press OK to accept the value and move the cursor to the next field.</p>

Table 2-7 Network configuration menu (continued)

Menu item	Sub-menu item	Description
		As each address is completed, the product prompts for address confirmation before moving to the next one. After all three addresses are set, the product automatically restarts.
Memory Card (memory card products only)	On	Enables or disables the use of the memory card slots.
	Off	
Auto crossover	On	Enable or disable the use of a standard 10/100 network cable when the product is directly connected to a computer.
	Off	
Network services	IPv4	Sets whether the product will use either IPv4 or IPv6 protocol.
	IPv6	
Show IP address	Yes	Sets whether the product displays the IP address on the control panel.
	No	
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		Resets all network configurations to their factory defaults.

Function-specific menus (fax/memory-card models only)

The product features function-specific menus for faxing, copying, scanning, and managing photos on a memory card. To access these menus, press the **Fax Menu**, **Copy Menu**, **Scan Menu**, or **Photo Menu** buttons respectively.

These are the features supported by the function-specific menus.

- Use the **Fax** menu to perform basic fax functions such as sending a fax or editing the phone book, reprinting faxes that were previously printed, or printing faxes that are stored in memory.
- Use the **Copy** menu to access basic copy functions and customize the copy output.
- Use the **Scan** menu to scan to a memory card.
- Use the **Photo** menu to display a list of photo options for a valid inserted memory card.

Table 2-8 Fax Menu (appears only if a memory card is in one of the memory-card slots)

Menu item	Sub-menu item		Description
Send	Send a fax		Send a fax. On screen prompts guide the process.
	Redial		Redial the last fax number and resend.
	Send fax later		Allows a fax to be sent at a later time and date.
	Fax Job status		Displays pending fax jobs, and allows you to cancel pending fax jobs.
	Fax Resolution	Standard Fine Superfine Photo	Temporarily change the resolution of outgoing faxes. The resolution resets to default after 2 minutes of idle fax scan time.
Receive	Print faxes		Prints stored faxes when the private-receive feature is on. This menu item appears only when the private-receive feature is turned on.
	Block junk faxes	Add number Delete number Delete All Entries Junk Fax list	Modifies the junk fax list. The junk fax list can contain up to 30 numbers. When the product receives a call from one of the junk fax numbers, it deletes the incoming fax. It also logs the junk fax in the activity log along with job-accounting information.
	Reprint faxes		Prints the received faxes stored in available memory.
	Forward fax	On Off	Sets product to send all received faxes to another fax machine.
	Polling receive		Allows the product to call another fax machine that has polling send enabled.

Table 2-8 Fax Menu (appears only if a memory card is in one of the memory-card slots) (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Phone Book	Select an entry		Select an individual or group dial entry for faxing.
	Individual Setup		Edits the fax phone book speed dials and group-dial entries. The product supports up to 120 phone book entries, which can be either individual or group entries.
	Group setup		
	Delete entry		Delete a specific phone book entry.
	Delete All Entries		Delete all entries in the phone book
	Phone Book report		Print a list of all the individual and group dial entries in the phone book.

Table 2-8 Fax Menu (appears only if a memory card is in one of the memory-card slots) (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Fax Reports	Fax Confirmation	Never	Sets whether or not the product prints a confirmation report after a successful sending or receiving job.
		Every fax	
		Send fax only	
		Receive fax	
	Include first page	On	Sets whether or not the product includes a thumbnail image of the first page of the fax on the report.
		Off	
	Fax Error Report	Every error	Sets whether or not the product prints a report after a failed sending or receiving job.
		Send Error	
		Receive Error	
		Never	
	Last Call Report		Prints a detailed report of the last fax operation, either sent or received.
	Fax Activity log	Print log now	Print log now: Prints a list of the faxes that have been sent from or received by this product.
		Auto Log Print	
			Auto Log Print: Select On to automatically print a report after every fax job. Select Off to turn off the automatic print feature.
	Phone Book report		Prints a list of the speed dials that have been set up for this product.
	Junk Fax list		Prints a list of phone numbers that are blocked from sending faxes to this product.
	Billing report		Prints a list of billing codes that have been used for outgoing faxes. This report shows how many sent faxes were billed to each code. This menu item appears only when the billing codes feature is turned on.
	All fax reports		Prints all fax-related reports.

Table 2-9 Photo Menu

Menu item	Sub-menu item	Sub-menu item	Description
View			View photos on the memory card. Use the arrow buttons to navigate through the photos.

Table 2-9 Photo Menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Easy Print	Individual photo		Print photos quickly from the memory card by selecting the numbers of the photos you want to print.
	All photos (#-#)		
	A range of photos		
	Custom		
Thumbnail	Fast		Print thumbnails of photos from the memory card (30 per page).
	Best		
Options	Proof Sheet	Print proof sheet	Print a proof sheet or scan a proof sheet. The proof sheet is a page of thumbnails (20 per page) generated from a valid memory card. A marked proof sheet can then be scanned and the selected images are printed at full size.
		Scan proof sheet	
	Current Settings	Select image size	Adjust the default photo settings for image size, paper size, paper type, number of copies, and output color (color or black & white).
		Select paper size	
		Select paper type	
		Number of copies	
		Output Color	
	Rotate Photo		Rotate a photo stored on a memory card.
	Slideshow		View a slideshow of the photos on a memory card.

Table 2-10 Copy Menu

Menu item	Sub-menu item	Sub-menu item	Description
Copies	(1-99)		Specify the number of copies
Size	Original=100%		Specify the size of the copy.
	Legal to Letter=78%		
	Legal to A4=83%		
	A4 to Letter=94%		
	Letter to A4=97%		
	Full Page=91%		
	Fit to page		
	2 pages per sheet		
	4 pages per sheet		
	Custom: 25 to 400%		

Table 2-10 Copy Menu (continued)

Menu item	Sub-menu item		Description
Light/Dark			Specify the contrast of the copy.
Options	Optimize		Select settings to optimize the copy print quality.
	Copy Paper		Specify the paper type for the copies.
	Multi-Page Copy		Copy multiple pages.
	Copy Collation		Specify the copy collation
	Copy Draft		Specify the print quality for copies.
	Image Adjustment	Lightness	Adjust the settings for image quality in a copy.
		Contrast	
		Sharpen	
		Background	
		Color Balance	
		Grayness	

3 Paper and print media

- [Supported paper and print media](#)
- [Supported paper types and tray capacity](#)
- [Load paper and print media](#)
- [Configure tray](#)

Supported paper and print media

This product supports a number of paper sizes, and it adapts to various media.


 **NOTE:** To obtain best print results, select the appropriate paper size and type in the print driver before printing.

Table 3-1 Supported paper and print media sizes

Size	Dimensions	Tray 1
Letter	216 x 279 mm (8.5 x 11 inches)	✓
Legal	216 x 356 mm (8.5 x 14 inches)	✓
A4	210 x 297 mm (8.27 x 11.69 inches)	✓
Executive	184 x 267 mm (7.24 x 10.51 inches)	✓
A3	297 x 420 mm (11.69 x 16.54 inches)	
A5	148 x 210 mm (5.83 x 8.27 inches)	✓
A6	105 x 148 mm (4.13 x 5.83 inches)	✓
B5 (JIS)	182 x 257 mm (7.17 x 10.12 inches)	✓
16k	197 x 273 mm (7.75 x 10.75 inches)	✓
16k	195 x 270 mm (7.7 x 10.6 inches)	✓
16k	184 x 260 mm (7.25 x 10.25 inches)	✓
8.5 x 13	216 x 330 mm (8.5 x 13 inches)	✓
4 x 6 ¹	107 x 152 mm (4 x 6 inches)	✓
5 x 8 ¹	127 x 203 mm (5 x 8 inches)	✓
10 x 15 cm ¹	100 x 150 mm (3.9 x 5.9 inches)	✓
Custom	Minimum—76 x 127 mm (3 x 5 inches); Maximum—216 x 356 mm (8.5 x 14 inches)	✓

¹ These sizes are supported as custom sizes.

Table 3-2 Supported envelopes and postcards

Size	Dimensions	Tray 1
Envelope #10	105 x 241 mm (4.13 x 9.49 inches)	✓
Envelope DL	110 x 220 mm (4.33 x 8.66 inches)	✓
Envelope C5	162 x 229 mm (6.93 x 9.84 inches)	✓
Envelope B5	176 x 250 mm (6.7 x 9.8 inches)	✓
Envelope Monarch	98 x 191 mm (3.9 x 7.5 inches)	✓
Postcard	100 x 148 mm (3.94 x 5.83 inches)	✓
Double postcard	148 x 200 mm (5.83 x 7.87 inches)	✓

Supported paper types and tray capacity

Media type	Dimensions ¹	Weight	Capacity ²	Paper orientation
Paper, including the following types: <ul style="list-style-type: none"> • Plain • Letterhead • Color • Preprinted • Prepunched • Recycled 	Minimum: 76 x 127 mm (3 x 5 inches) Maximum: 216 x 356 mm (8.5 x 14 inches)	60 to 90 g/m ² (16 to 24 lb)	Up to 150 sheets of 75 g/m ² (20 lb bond)	Side to be printed on face-up, with the top edge at the back of the tray
Thick paper	Same as for paper	Up to 200 g/m ² (53 lb)	Up to 15 mm (0.6 inches) stack height	Side to be printed on face-up, with the top edge at the back of the tray
Cover paper	Same as for paper	Up to 200 g/m ² (53 lb)	Up to 15 mm (.59 inch) stack height	Side to be printed on face-up, with the top edge at the back of the tray
Glossy paper Photo paper	Same as for paper	Up to 220 g/m ² (59 lb)	Up to 15 mm (.59 inch) stack height	Side to be printed on face-up, with the top edge at the back of the tray
Transparencies	A4 or Letter	Thickness: 0.12 to 0.13 mm (4.7 to 5.1 mils)	Up to 50 sheets	Side to be printed on face-up, with the top edge at the back of the tray
Labels ³	A4 or Letter	Thickness: up to 0.23 mm (9 mils)	Up to 50 sheets	Side to be printed on face-up, with the top edge at the back of the tray
Envelopes	<ul style="list-style-type: none"> • COM 10 • Monarch • DL • C5 • B5 	Up to 90 g/m ² (24 lb)	Up to 10 envelopes	Side to be printed on face-up, with the stamp-end at the back of the tray
Postcards or index cards	100 x 148 mm (3.9 x 5.8 inches)		Up to 50 sheets	Side to be printed on face-up, with the top edge at the back of the tray

¹ The product supports a wide range of standard and custom sizes of print media. Check the printer driver for supported sizes.

² Capacity can vary depending on media weight and thickness, and environmental conditions.

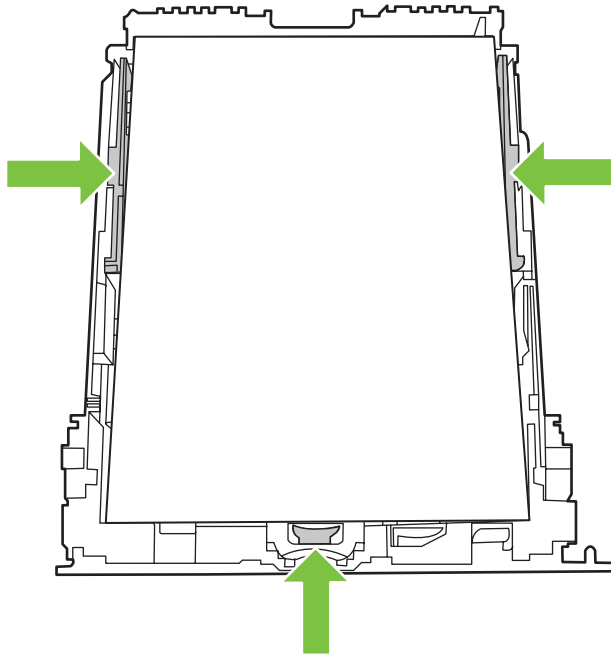
³ Smoothness: 100 to 250 (Sheffield)


Load paper and print media

Load Tray 1

Tray 1 holds up to 150 pages of 75 g/m² (20 lb) paper, or fewer pages of heavier media (15 mm (0.6 in)). Load media with the top forward and the side to be printed on facing down.


Media guides ensure that the media feeds correctly into the product and that the print is not skewed. Tray 1 has side and rear media guides. When loading media, adjust the media guides to match the length and width of the media that you are using.



 **NOTE:** When you add new media, make sure that you remove all of the media from the input tray and straighten the stack of new media. Do not fan the media. This reduces jams by preventing multiple sheets of media from feeding through the product at one time.

Load originals for copying, scanning, or faxing

Automatic document feeder (ADF) (fax/memory-card models only)

 **NOTE:** The ADF capacity is up to 50 sheets of 80 g/m² or 20 lb media.

△ **CAUTION:** To prevent damage to the product, do not use an original that contains correction tape, correction fluid, paper clips, or staples. Also, do not load photographs, small originals, or fragile originals into the ADF. Use the flatbed glass to scan these items.

1. Insert the top-end of the stack of originals into the ADF input tray, with the media stack face-up and the first page to be copied on top of the stack.

If the media is longer than letter- or A4-sized paper, pull out the ADF input tray extension to support the media.

2. Slide the stack with printed side up into the ADF until it does not move any farther.




Document loaded appears on the control-panel display.

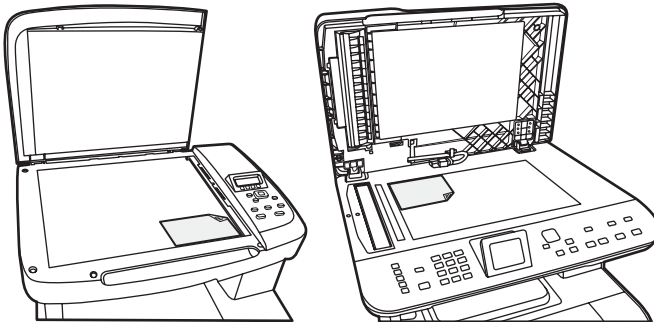
3. Adjust the media guides until they are snug against the media without restricting movement.



Flatbed scanner

 **NOTE:** The maximum media size for flatbed scanning is letter/A4. For media larger than letter, use the ADF.

1. Make sure that the automatic document feeder (ADF) contains no media.
2. Lift the flatbed scanner cover.
3. Place the original document face-down on the flatbed scanner with the upper-left corner of the document at the corner indicated by the icon on the scanner.




4. Gently close the lid.

Configure tray

When using Tray 1 for a specific size of paper, you can set the default size for the tray in HP ToolboxFX or from the control panel. In HP ToolboxFX, select **Paper handling**, and then select the size for the tray.

To set the default paper size or type from the control panel, complete the following steps.


1. On the product control panel, press **Setup** .
2. Use the arrow buttons to select **System setup**, and then press **OK**.
3. Use the arrow keys to select **Paper setup**, and then press **OK**.
4. Use the arrow keys to select the tray to be configured, and then press **OK**.
5. Use the arrow keys to select either **Paper type** or **Paper size**, and then press **OK**.
6. Use the arrow keys to select a default type or size for the tray, and then press **OK**.






4 Manage and maintain the product



- [Information pages](#)
- [HP ToolboxFX](#)
- [Embedded Web server](#)
- [Use HP Web Jetadmin software](#)
- [Security features](#)
- [Manage supplies](#)

Information pages

Information pages reside within the product memory. These pages help diagnose and solve problems with the product.

 **NOTE:** If the product language was not correctly set during installation, you can set the language manually so the information pages print in one of the supported languages. Change the language by using the **System setup** menu on the control panel or the embedded Web server. See [Control panel on page 17](#).

Page description	How to print the page
Configuration page Shows the current settings and product properties.	<ol style="list-style-type: none">1. On the product control panel, press Setup .2. Use the arrow buttons to select Reports, and then press OK.3. Use the arrow buttons to select Configuration report, and then press OK. <p>A second page also prints (fax models only). On that page, the Fax Settings section provides details about the product fax settings.</p>
Supplies status page Shows the remaining life of the HP print cartridge, the approximate pages remaining, the number of pages printed, and other supplies information.	<ol style="list-style-type: none">1. On the product control panel, press Setup .2. Use the arrow buttons to select Reports, and then press OK.3. Use the arrow buttons to select Supplies Status, and then press OK.
PCL, PCL 6, or PS font list Shows which fonts are currently installed in the device.	<ol style="list-style-type: none">1. On the product control panel, press Setup .2. Use the arrow buttons to select Reports, and then press OK.3. Use the arrow buttons to select PCL font list, PS font list, or PCL6 font list, and then press OK.
Demo page Contains examples of text and graphics.	<ol style="list-style-type: none">1. On the product control panel, press Setup .2. Use the arrow buttons to select Reports, and then press OK.3. Use the arrow buttons to select Demo page, and then press OK.
Event log	You can print the event log from HP ToolboxFX, the embedded Web server, or HP Web Jetadmin. See HP ToolboxFX on page 46 , Embedded Web server on page 56 , or the Web Jetadmin Help.
Usage page Shows the number of one-sided (simplex) or two-sided (duplexed) pages, and the average percentage of coverage.	<ol style="list-style-type: none">1. On the product control panel, press Setup .2. Use the arrow buttons to select Reports, and then press OK.3. Use the arrow buttons to select Usage page, and then press OK.


Page description	How to print the page
Menu structure Shows the control-panel menus.	<ol style="list-style-type: none"> 1. On the product control panel, press Setup . 2. Use the arrow buttons to select Reports, and then press OK. 3. Use the arrow buttons to select Menu Structure, and then press OK.
Network report Shows the product network settings.	<ol style="list-style-type: none"> 1. On the product control panel, press Setup . 2. Use the arrow buttons to select Reports, and then press OK. 3. Use the arrow buttons to select Network report, and then press OK.
Fax reports (fax models only)	For information about fax logs and reports, see Fax logs and reports on page 246 .

HP ToolboxFX

HP ToolboxFX is a program that you can use to complete the following tasks:

- Check the product status.
- Configure the product settings.
- Configure pop-up-alert messages.
- View troubleshooting information.
- View online documentation.


You can view HP ToolboxFX when the product is directly connected to your computer or is connected to the network. You must perform a recommended software installation to use HP ToolboxFX.

 **NOTE:** HP ToolboxFX is not supported for Windows Server 2003 or Macintosh operating systems. To use HP ToolboxFX, you must have TCP/IP protocol installed on your computer.

You do not have to have Internet access to open and use HP ToolboxFX.

View the 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 CM1312 MFP Series**, and then click **HP ToolboxFX**.

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 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.
- **Print info pages.** Print the Configuration page and other information pages, such as the Supplies status page. See [Information pages on page 44](#).
- **Color usage job log.** View color usage information for the product.
- **Event log.** View a history of product errors. The most recent error is listed first.

Event log

The event log is a four-column table where the product events are logged for your reference. The log contains codes that correspond to the error messages that appear on the product control-panel display. The number in the Page Count column specifies the total number of pages that the product had printed when the error occurred. The event log also contains a brief description of the error. For more information about error messages, see [Control-panel messages on page 209](#).

Alerts

The HP ToolboxFX **Alerts** tab 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 toner levels.
- **Set up E-mail Alerts**. Set up the product to send you e-mail alert messages for certain events, such as low toner levels.

Set up status alerts

Use HP ToolboxFX to set up the product so that it issues pop-up alerts to your computer when certain events occur. Events that trigger alerts include jams, low levels of toner in HP print cartridges, non-HP print cartridge in use, empty input trays, and specific error messages.

Select the pop-up format, the tray icon format, or both for the alerts. The pop-up alerts only appear when the product is printing from the computer on which you set up the alerts.

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



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

Set up e-mail alerts

Use this to configure up to two e-mail addresses to receive alert messages 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.

Fax

Use the HP ToolboxFX **Fax** tab to perform fax tasks from your computer. The **Fax** tab contains links to the following main pages:

- **Fax Receive.** Set the fax receive mode.
- **Fax Phone Book.** Add, edit, or delete entries in the product phone book.
- **Fax Send Log.** View all of the recent faxes that have been sent from the product.
- **Fax Receive Log.** View all of the recent faxes that have been received by the product.
- **Junk Faxes.** Add, delete, or view fax numbers that are blocked.
- **Fax Data Properties.** Manage the space used to store faxes on your computer. These settings apply only if you have chosen to send or receive faxes remotely from your computer.

Fax Receive

The following options are available when receiving a fax:

- Print the fax. You can also select an option to have a message appear on your computer to notifying you when the fax was printed.
- Forward the fax to another fax machine.

For more information about fax tasks, see the user guide.




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

Fax phone book

Use the HP ToolboxFX fax phone book to add and remove individuals or groups on your speed-dial list, import phone books from a variety of sources, and update and maintain the contact list.

- To add an individual contact to the speed-dial list, select the row of the speed dial number that you want to specify. Type the contact name in the **Contact name** window. Type the fax number in the **Fax number** window. Click **Add**.
- To add a group of contacts to the speed-dial list, select the row of the speed-dial number that you want to specify. Click **Add Group**. Double-click a contact name from the list on the left to move it to the group list on the right, or select a name on the left and then click the appropriate arrow to move it to the group list on the right. You can also use those two methods to move names from right to left. When you have created a group, type a name in the **Group name** window, and then click **OK**.
- To edit an existing individual speed-dial entry, click anywhere on the row containing the contact name to select it, and then click **Update**. Type changes in the appropriate windows, and then click **OK**.
- To edit an existing group-speed-dial entry, click anywhere on the row containing the group name to select it, and then click **Update Group**. Make any required changes, and then click **OK**.
- To delete an entry from the speed-dial list, select the item, and then click **Delete**.
- To move speed dial entries, select the entry and then click **Move**, or select **Move** and then specify the entry in the dialog box. Either select **Next empty row** or specify the number of the row where you want to move the entry.

 **NOTE:** If you specify a row that is occupied, the new entry will overwrite the existing entry.

- To import contacts from a phone book that exists in Lotus Notes, Outlook, or Outlook Express, click **Import/Export Phone Book**. Select the **Import** option, and then click **Next**. Select the appropriate software program, navigate to the appropriate file, and then click **Finish**. To export contacts from a phone book, click **Import/Export Phone Book**. Select the **Export** option, and then click **Next**. Enter the file name or browse to the file to which you want to export contacts, and then click **Finish**. You can also select individual entries from the phone book instead of importing the entire phone book.
- To delete all entries, click **Delete All**, and then click **Yes**.

In addition to numerical digits, the following are valid characters for fax numbers:

- (
-)
- +
- -
- *
- #
- R
- W
- .
- ,
- <space>

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

For more information about faxes, see the user guide.

Fax send log

The HP ToolboxFX fax send log lists all recently sent faxes and information about them, including the date and time sent, job number, fax number, page count, and the results.

Click any column heading in the fax send log to re-sort the information in that column in ascending or descending order.

The **Results** column provides the fax status. If the fax attempt was unsuccessful, this column provides a description of why the fax was not sent.

For more information about faxes, see the user guide.

Fax receive log

The HP ToolboxFX fax receive log provides a list of all recently received faxes and information about them including the date and time received, job number, fax number, page count, results, and an abbreviated fax image.

The fax receive log can be used to block future faxes. Check the **Block Fax** box next to a received fax listed on the log.

When a computer that is connected to the product receives a fax, the fax contains a **View** link. Clicking this link opens a new page that provides information about the fax.

Click on any column heading in the fax receive log to re-sort the information in that column in ascending or descending order.

The **Results** column provides the fax status. If the fax attempt was unsuccessful, this column provides a description of why the fax was not received.



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

For more information about faxes, see the user guide.

Junk Faxes

Junk Faxes provides a list of all numbers that are blocked. Add, modify, or delete blocked fax numbers on this tab.

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 animated demonstrations for common troubleshooting procedures.
- **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 HP ToolboxFX **System Settings** tab contains links to the following main pages:

- **Device Information.** View information about the product, such as the product description and a contact person.
- **Paper Handling.** Change the product paper-handling settings, such as default paper size and default paper type.
- **Print Quality.** Change the product 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.
- **System Setup.** Change the system settings, such as jam recovery and auto-continue. Change the **Cartridge low threshold** setting, which sets the toner level that causes a Low toner pop-up alert.
- **Service.** Gain access to various procedures required to maintain the product.
- **Device Polling.** Change the product polling settings, which determine how often HP ToolboxFX collects data from the product.
- **Save/Restore Settings.** Save the current settings for the product to a file on the computer. Use this file to load the same settings onto another product or to restore these settings to this product at a later time.
- **Password.** Set, change, or clear the product security password (see [Turn on password protection from the control panel on page 57](#)).

Device Information

The Device Information page stores data about your 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 Handling

Use these options to configure your default settings. For more information, see [Use the control-panel menus on page 20](#).

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

- Select **Wait for paper to be loaded**.
- 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. For more information, see [Control panel on page 17](#).

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.
- **Calibration Mode.** Specify the type of calibration the product should use.
 - **Normal**
 - **Full (slower)**

Full calibration improves the color accuracy of photos printed on 100 x 150 mm (4 x 6 in) HP Color Laser Photo Paper.
- **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.

System setup

Use the HP ToolboxFX system settings options to configure global settings for copy, fax, scan, and print, such as jam recovery and auto-continue.

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

Service

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. The HP ToolboxFX provides an easy method for cleaning the paper path. For more information, see [Clean the product on page 64](#).

Device polling

You can turn off HP ToolboxFX device polling to reduce network traffic, but doing so also disables some HP ToolboxFX features: pop-up alerts, fax log updates, the ability to receive faxes to this computer, and scanning using the **Scan To** button.

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

Print Settings

The HP ToolboxFX **Print Settings** tab contains links to the following main pages:

- **Printing.** Change the default product print settings, such as number of copies and paper orientation.
- **PCL5.** View and change the PCL5 settings.
- **PostScript.** View and change the PS settings.
- **Photo.** Change the photo settings and enable/disable the photo card slots (photo card models only).

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 [Use the control-panel menus on page 20](#).

 **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.

Embedded Web server

This product is equipped with an embedded Web server (EWS), which provides access to information about product and network activities. A Web server provides an environment in which web programs may run, much in the same way that an operating system, such as Windows, provides an environment for programs to run on a computer. The output from these programs can then be displayed by a Web browser, such as Microsoft Internet Explorer, Safari, or Netscape Navigator.

An “embedded” Web server resides on a hardware device (such as an HP LaserJet product) or in firmware, rather than as software that is loaded on a network server.


The advantage of an EWS is that it provides an interface to the product that anyone with a network-connected product and computer can use. There is no special software to install or configure, but you must have a supported Web browser on the computer. To gain access to the EWS, type the IP address for the product in the address line of the browser. (To find the IP address, print a configuration page. For more information about printing a configuration page, see [Information pages on page 44.](#))

 **NOTE:** For Macintosh operating systems, you can use the EWS over a USB connection after installing the Macintosh software included with the product.

Features

The EWS allows you to view product and network status and manage printing functions from a computer. With the EWS, you can complete the following tasks:

- View product status information
- Determine the remaining life on all supplies and order new ones
- View and change part of the product configuration
- View and print some internal pages
- Select the language in which to display the EWS pages and control panel messages
- View and change network configuration
- Set, change, or clear the product security password (see [Turn on password protection from the control panel on page 57](#)).
- Enable/disable the photo card slot on the product from the print tab

 **NOTE:** Changing network settings in the EWS might disable some of product software or features.

Use HP Web Jetadmin software

HP Web Jetadmin is a Web-based software solution for remotely installing, monitoring, and troubleshooting network-connected peripherals. The intuitive browser interface simplifies cross-platform management of a wide range of devices, including HP and non-HP devices. Management is proactive, allowing network administrators the ability to resolve issues before users are affected. Download this free, enhanced-management software at www.hp.com/go/webjetadmin_software.

To obtain plug-ins to HP Web Jetadmin, click **plug-ins**, and then click the **download** link that is next to the name of the plug-in that you want. The HP Web Jetadmin software can automatically notify you when new plug-ins are available. On the **Product Update** page, follow the directions to automatically connect to the HP Web site.

If installed on a host server, HP Web Jetadmin is available to any client through a supported Web browser, such as Microsoft Internet Explorer 6.0 for Windows or Netscape Navigator 7.1 for Linux. Browse to the HP Web Jetadmin host.



NOTE: Browsers must be Java-enabled. Browsing from an Apple PC is not supported.

Security features

The product includes a password feature that restricts access to setup features while allowing basic functions to continue. The password can be set from the EWS or the control panel.

Private receive can be used to store faxes on the product until you are at the product to print them.


Turn on password protection using the embedded Web server

Use the EWS to set the password.

1. Open the EWS, and then click the **System** tab.
2. Click **Password**.
3. In the **Password** box, type the password 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.


Turn on password protection from the control panel

To set up the product security password, complete the following steps:

1. On the control panel, press **Setup** .
2. Use the arrow buttons to select **System setup**, and then press **OK**.
3. Use the arrow buttons to select **Product security**, and then press **OK**.
4. Use the arrow buttons to select **On**, and then press **OK**.
5. Use the alphanumeric buttons to enter the product password, and then press **OK**.
6. To confirm the product password, use the alphanumeric buttons to re-enter the password, and then press **OK**.

Turn on private receive feature

The password-protection feature must be turned on before the private-receive feature can be activated.


1. On the control panel, press **Setup** .
2. Use the arrow buttons to select **Fax setup**, and then press **OK**.
3. Use the arrow buttons to select **Advanced setup**, and then press **OK**.
4. Use the arrow buttons to select **Private receive**, and then press **OK**.
5. Use the arrow buttons to select **On**, and then press **OK**.
6. Use the alphanumeric buttons to enter the product security password, and then press **OK**.
7. To confirm the product security password, use the alphanumeric buttons to re-enter the product security password, and then press **OK**.

Manage supplies

Check and order supplies

You can check the supplies status by using the product control panel, printing a supplies status page, or viewing HP ToolboxFX. Hewlett-Packard recommends that you place an order for a replacement print cartridge when Low message for a print cartridge first appears. Use a new, authentic HP print cartridge to obtain the following types of supplies information:

- Amount of cartridge life remaining
- Approximate number of pages remaining
- Number of pages printed
- Other supplies information

 **NOTE:** If the product is connected to the network, you can set HP ToolboxFX to notify you by e-mail when a print cartridge is low. If the product is directly connected to a computer, you can set HP ToolboxFX to notify you when supplies are low.

Check supplies status by using the control panel

Do one of the following:

- Check the product control panel, which indicates when a print cartridge is low or empty. The control panel also indicates when a non-HP print cartridge is first installed.
- Print a supplies status page, and then check the supplies levels on the page.

If the supplies levels are low, you can order supplies through a local HP dealer, by telephone, or online. See [Order parts, accessories, and supplies on page 260](#) for part numbers. Go to www.hp.com/go/ljsupplies to order online.

Check supplies status by using HP ToolboxFX

You can configure HP ToolboxFX to notify you when the supplies are low. Choose to receive alerts by e-mail or as a pop-up message or taskbar icon.

Store supplies

Follow these guidelines for storing print cartridges:

- Do not remove the print cartridge from its package until you are ready to use it.
- △ **CAUTION:** To prevent damage, do not expose the print cartridge to light for more than a few minutes.
- See [Environmental specifications on page 301](#) for operating and storage temperature ranges.
- Store the supply in a horizontal position.
- Store the supply in a dark, dry location away from heat and magnetic sources.

HP policy on non-HP supplies

Hewlett-Packard Company cannot recommend the use of non-HP supplies, either new or remanufactured. Because they are not HP products, HP cannot influence their design or control their quality. Service or repairs required as a result of using a non-HP supply will *not* be covered under the warranty.

HP fraud hotline

Call the HP fraud hotline if the product or HP ToolboxFX indicates that the print cartridge is not an HP print cartridge and you think that it is genuine. HP will help determine if the product is genuine and take steps to resolve the problem.

The print cartridge might not be a genuine HP one if you notice the following issues:

- You are experiencing a large number of problems with the print cartridge.
- The print cartridge does not look like it usually does (for example, the pull tab or the box is different).

In the United States, call toll-free: 1-877-219-3183.

Outside the United States, you can call collect. Dial the operator and ask to place a collect call to this telephone number: 1-770-263-4745. If you do not speak English, a representative at the HP fraud hotline who speaks your language will assist you. Or, if someone who speaks your language is not available, a language line interpreter will connect approximately one minute after the beginning of the call. The language line interpreter is a service that will translate between you and the representative for the HP fraud hotline.

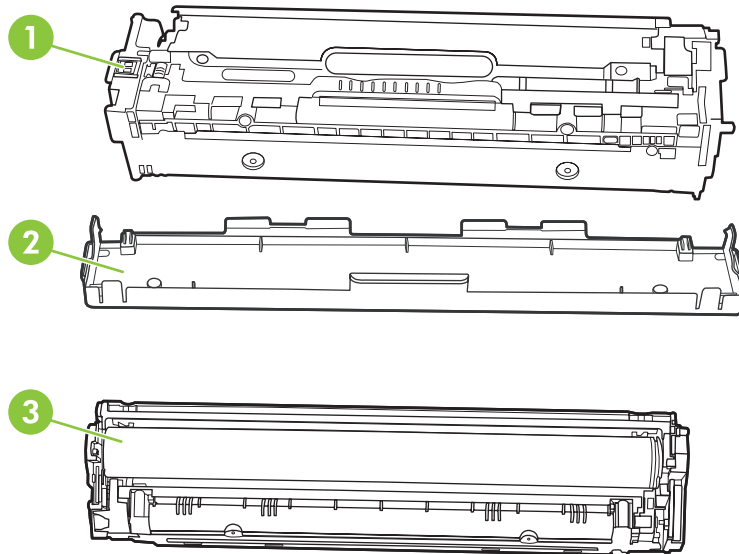
Recycle supplies

To install a new HP print cartridge, follow the instructions that are included in the box that contains the new supply, or see the getting started guide.

To recycle supplies, place the used supply in the box in which the new supply arrived. Use the enclosed return label to send the used supply to HP for recycling. For complete information, see the recycling guide that is included with each new HP supply item.

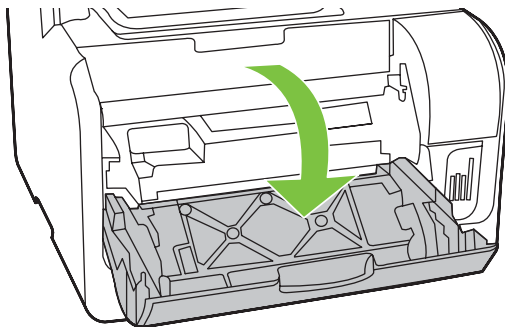
Replace supplies

Print cartridge

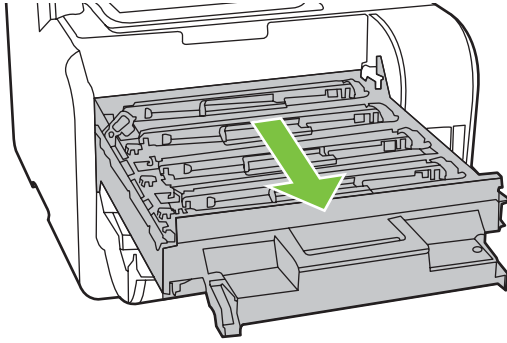


1	Cartridge E-label
2	Plastic shield
3	Imaging Drum. Do not touch the imaging drum on the bottom of the print cartridge. Fingerprints on the imaging drum can cause print-quality problems.

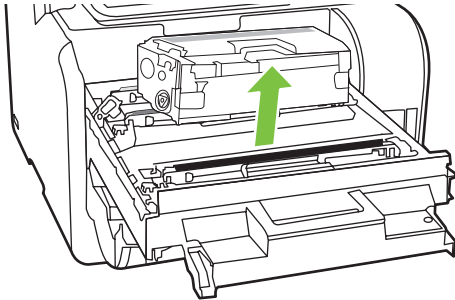
1. Open the front door.



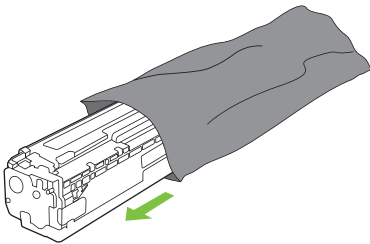
2. Pull out the print-cartridge drawer.



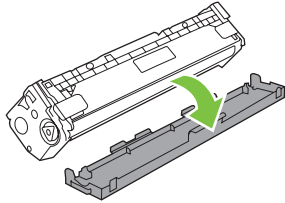
3. Grasp the handle on the old print cartridge and then pull the cartridge straight up to remove it.



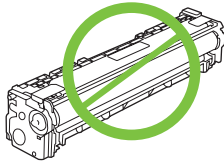
4. Remove the new print cartridge from the packaging.



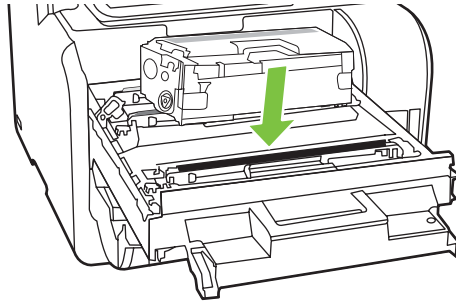
5. Remove the orange, plastic shield from the bottom of the new print cartridge.



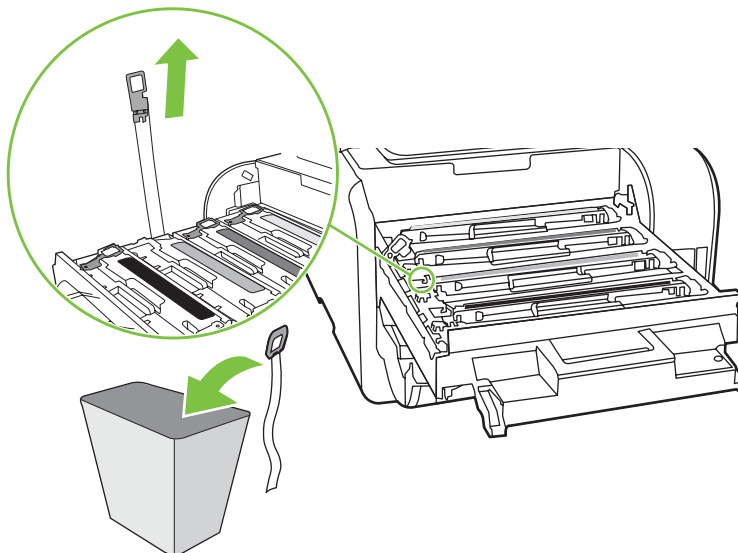
△ **CAUTION:** Do not touch the imaging drum on the bottom of the print cartridge. Fingerprints on the imaging drum can cause print-quality problems.



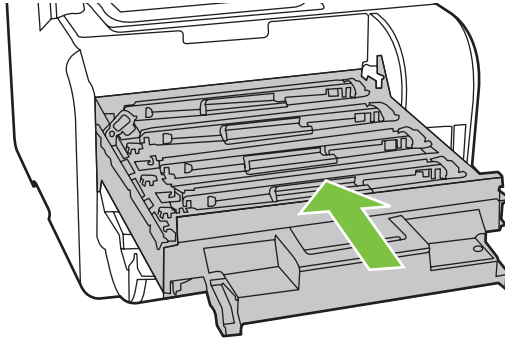
6. Insert the new print cartridge into the product.



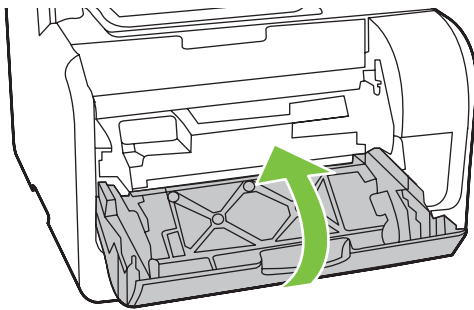
7. Pull the tab on the left side of the print cartridge straight up to completely remove the sealing tape. Discard the sealing tape.



8. Close the print-cartridge drawer.



9. Close the front door.



10. Place the old print cartridge in the box for the new print cartridge. Follow the recycling instructions that are included in the box.

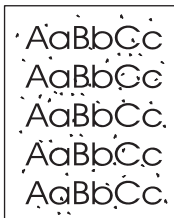
△ **CAUTION:** If toner gets on any clothing, wipe it off with a dry cloth and wash the clothing in cold water. *Hot water sets toner into the fabric.*

Clean the product

Clean the paper path

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

Specks



Smearing



Clean the paper path from HP ToolboxFX


Use HP ToolboxFX to clean the paper path. This is the recommended cleaning method. If you do not have access to HP ToolboxFX, use the method in [Clean the paper path from the product control panel on page 65](#).

1. Make sure that the product is turned on and in the Ready state, and that media is loaded in Tray 1.
2. Open HP ToolboxFX, click the product, and then click the **System Settings** tab.
3. Click the **Service** tab, and then click **Start**.

A page feeds through the product slowly. Discard the page when the process is completed.

Clean the paper path from the product control panel

If you do not have access to HP ToolboxFX, print and use a cleaning page from the product control panel.

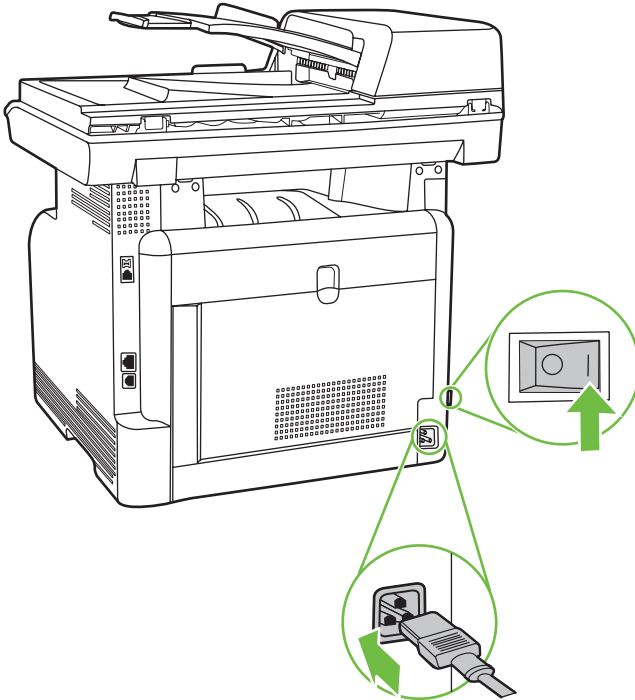
1. On the product control panel, press **Setup** .
2. Use the arrow buttons to find the **Service** menu, and then press **OK**.
3. Use the arrow buttons to find **Cleaning mode**, and then press **OK**.
4. Load plain letter or A4 paper when you are prompted.
5. Press **OK** again to confirm and begin the cleaning process.

A page feeds through the product slowly. Discard the page when the process is completed.

Clean the automatic document feeder (ADF) pickup roller assembly

If the ADF has trouble feeding documents, clean the ADF pickup roller assembly.

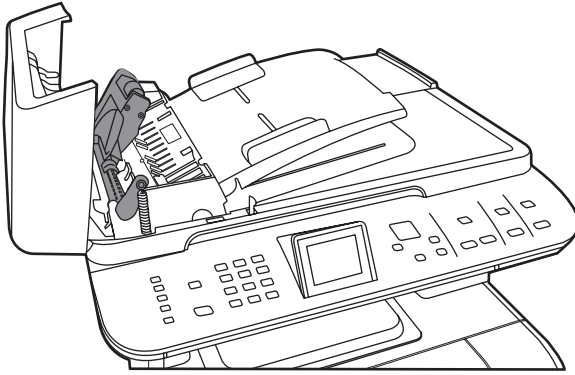
1. Turn off the product and unplug the power cord.



2. Open the ADF cover.




3. Rotate the assembly upward. Wipe it clean and rotate the rollers until the assembly is clean.

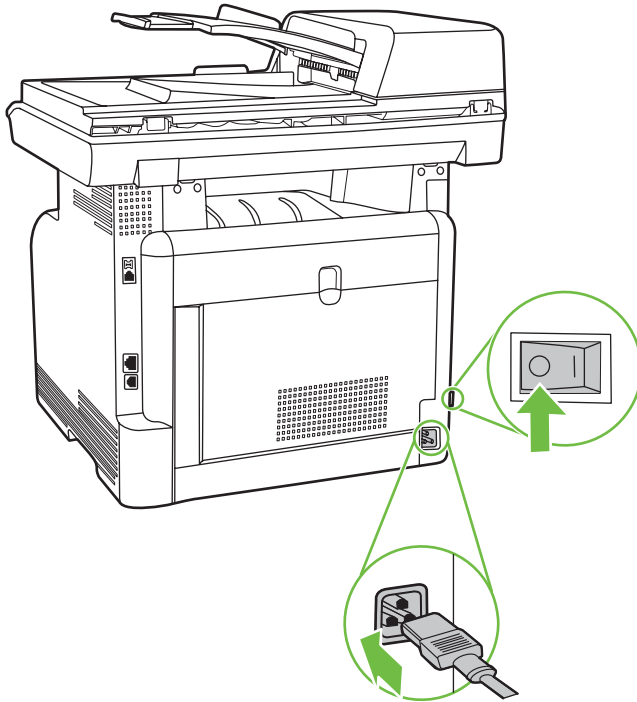


4. Lower the green lever assembly and close the ADF cover.



 **NOTE:** If you are experiencing jams in the ADF, contact HP. See www.hp.com/support/CM1312series or the support flyer that came in the product box.

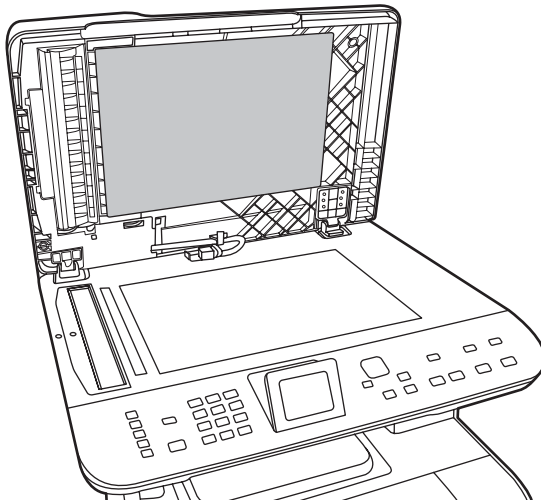
5. Plug in the product, and then turn on the product.



Clean the lid backing

Minor debris can accumulate on the white document lid backing that is located underneath the product lid.

1. Turn off the product, unplug the power cord, and raise the lid.
2. Clean the white document lid backing by using a soft cloth or sponge that has been moistened with a mild soap and warm water. Wash the backing gently to loosen debris; do not scrub the backing.




3. Also, clean the scanner strip next to the ADF scanner glass.
4. Dry the backing by using a chamois or soft cloth.

△ **CAUTION:** Do not use paper-based wipes because they might scratch the backing.

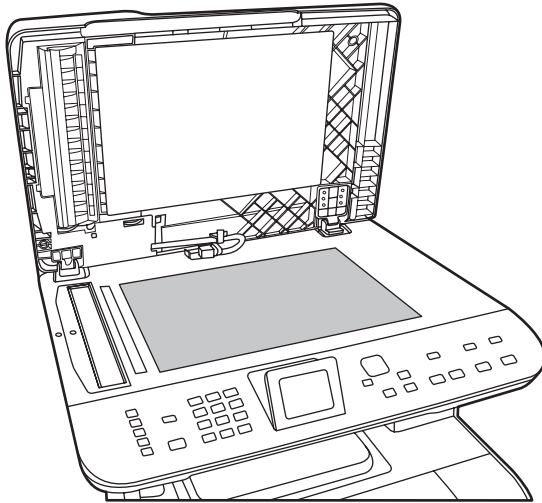
5. If this does not clean the backing well enough, repeat the previous steps and use isopropyl alcohol to dampen the cloth or sponge, and then wipe the backing thoroughly with a damp cloth to remove any residual alcohol.

Clean the scanner glass

Dirty glass, from fingerprints, smudges, hair, and so on, slows down performance and affects the accuracy of special features such as fit-to-page and copy.

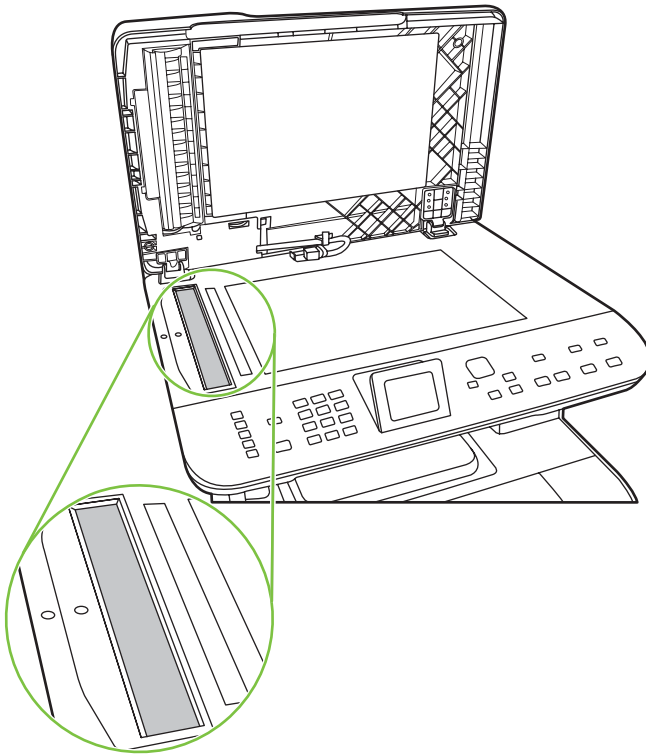
 **NOTE:** If streaks or other defects appear only on copies produced using the automatic document feeder (ADF), clean the scanner strip (step 3). It is not necessary to clean the scanner glass.

1. Turn off the product, unplug the power cord from the electrical socket, and raise the lid.
2. Clean the glass by using a soft, lint-free cloth or sponge that has been moistened with nonabrasive glass cleaner.



△ **CAUTION:** Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the product; these can damage the product. Do not place liquids directly on the glass. They might seep under it and damage the product.

3. Clean the scanner strip (ADF models only) by using a soft, lint-free cloth or sponge that has been moistened with nonabrasive glass cleaner..




4. To prevent spotting, dry the glass by using a chamois or cellulose sponge.

Clean the exterior

Use a soft, damp, lint-free cloth to wipe dust, smudges, and stains off of the exterior of the product.

Firmware updates


Firmware updates and installation instructions for this product are available at www.hp.com/support/CM1312series. Click **Downloads and drivers**, click the operating system, and then select the firmware download for the product.

 **NOTE:** Interrupting the firmware download can cause the product to cease operating. If you experience a firmware update error, see [Recover from a corrupted firmware download on page 70](#).

Recover from a corrupted firmware download

This process does not require a service call. It can be performed by the customer.

If the product power is interrupted during either the **Erasing** or **Programming** phases of the firmware download, the product will be unusable until the steps below are performed. If power interruption occurs, the message **ready 2 Download** appears on the control panel.

 **NOTE:** The product must be attached to the computer via USB, regardless of the current connection method.

NOTE: The instructions below are for the Microsoft Windows operating system.

If the product power is interrupted during the **Erasing** or **Programming** phase, the message **ready 2 Download** appears, and the Ready and Attention LEDs remain unlit after the product is powered back on. On the computer, the update tool will not indicate that a failure occurred during the update. The update tool will show that the download completed and might even have a yellow smiley face at the end of the progress bar. This is due to the lack of two-way communication between the computer and the product once the download begins.

1. Close the firmware update tool on the computer if it is still active on the screen, and then turn off the product.
2. If the product is on a network, connect a USB cable (2 meters or less) from the product to an open port on the computer. HP recommends that this be a direct connection instead of through a hub.
3. Turn on the product, and then wait for the message **ready 2 Download** to appear.
4. On the computer, cancel any alerts about a new device being connected.
5. On the computer, open the Printers and Faxes control panel.
6. Right-click the printer driver for the product model that is being updated, and then click **Properties**.
7. In the Properties dialog box, click the **Ports** tab.
8. Note the name of the port that the product is currently connected to for use later when reconnecting at the end of this process.
9. Click the check box next to **USB001**. If USB001 is already connected to another USB device, click **USBXXX** where "XXX" is the highest-numbered USB device that has a description of "Virtual printer port for USB". Using the scroll bars on the right side of the window might be necessary, depending on the number of devices installed.
10. Click **OK** to accept the change and apply the settings.
11. Restart the firmware update tool on the computer, and then select the same product that was just created.
12. Start the firmware download.
13. Verify that the control panel display shows **Erasing** and then **Programming**, indicating that the update process has begun. Do not interrupt the firmware update process.
14. The product should momentarily show the message **Complete**. Turn the product off and then back on. The product will not automatically reboot.
15. When the product reboots, on the computer, cancel any alerts about a new device being connected.
16. Print a configuration page to verify that the update occurred.
17. Return to the Printers and Faxes dialog box, right-click the printer driver for the product model that is being updated, and then click **Properties**.
18. In the Properties dialog box, click the **Ports** tab.
19. Click the check box next to the previous port to which the product was connected before the update began.

20. Click **OK** to accept the change and apply the settings.
21. If the product was previously connected via USB, the process is complete. If the product was network-connected, disconnect the USB cable, and then reconnect the product to the network cable.



NOTE: In rare instances, the print driver software might need to be uninstalled and reinstalled.

5 Theory of operation

This chapter presents an overview of the major components of the product, and includes a detailed discussion of the image-formation system.

- [Basic operation](#)
- [Engine control system](#)
- [Laser/scanner system](#)
- [Image-formation system](#)
- [Pickup-and-feed system](#)
- [Scanner system \(base models\)](#)
- [Scanner and ADF functions and operation \(fax/memory-card models\)](#)
- [Memory card system \(fax/memory-card models only\)](#)
- [Fax functions and operation \(fax/memory-card models only\)](#)

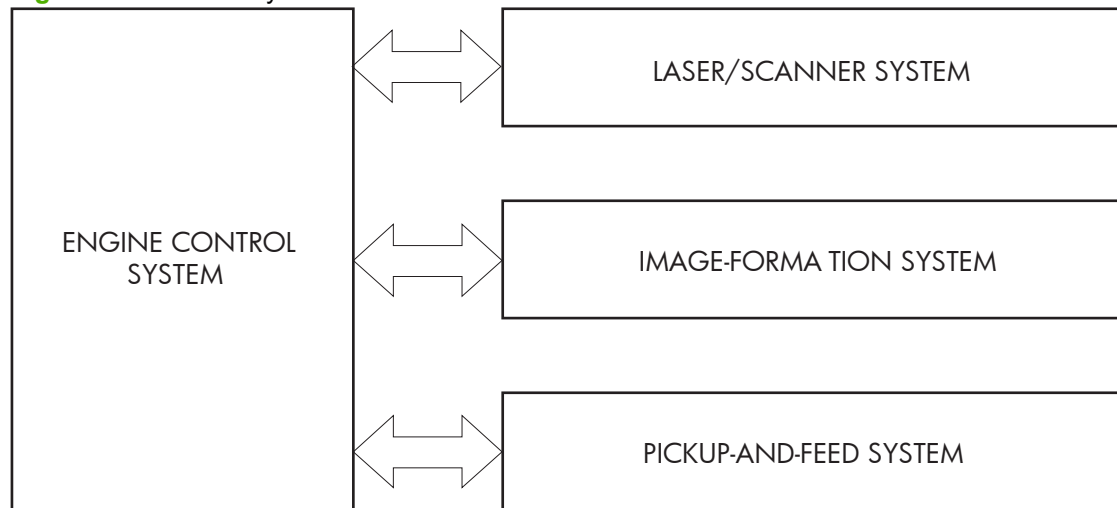
Basic operation

Major product systems

The product includes the following systems:

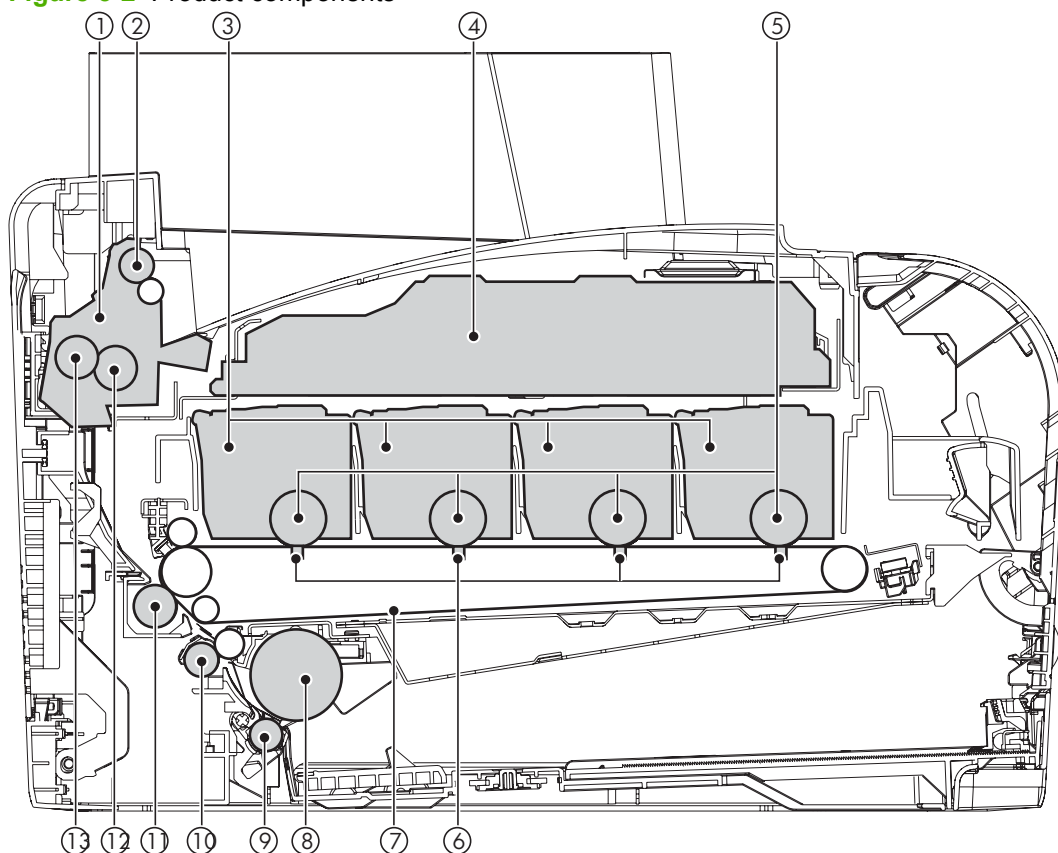
- Engine control system
- Laser/scanner system
- Image-formation system
- Pickup-and-feed system

Figure 5-1 Product systems



Product components

Figure 5-2 Product components



Item	Description	Item	Description
1	Fuser unit	8	Pickup roller
2	Delivery roller	9	Separation roller
3	Print cartridge	10	Registration roller
4	Laser/scanner unit	11	Secondary transfer roller
5	Photosensitive drum	12	Fusing film
6	Primary transfer pad	13	Pressure roller
7	Intermediate transfer belt (ITB)		

Sequence of operation

Table 5-1 Sequence of operation

Period	Duration	Purpose	Remarks
WAIT	From the time the power is turned on or the door is closed until the drum-phase adjustment is complete	Clears the potential from the drum surface, adjusts the drum phase, and cleans the ETB	Detects the toner level, cartridge presence, and environment; completes any required calibration (color

Table 5-1 Sequence of operation (continued)

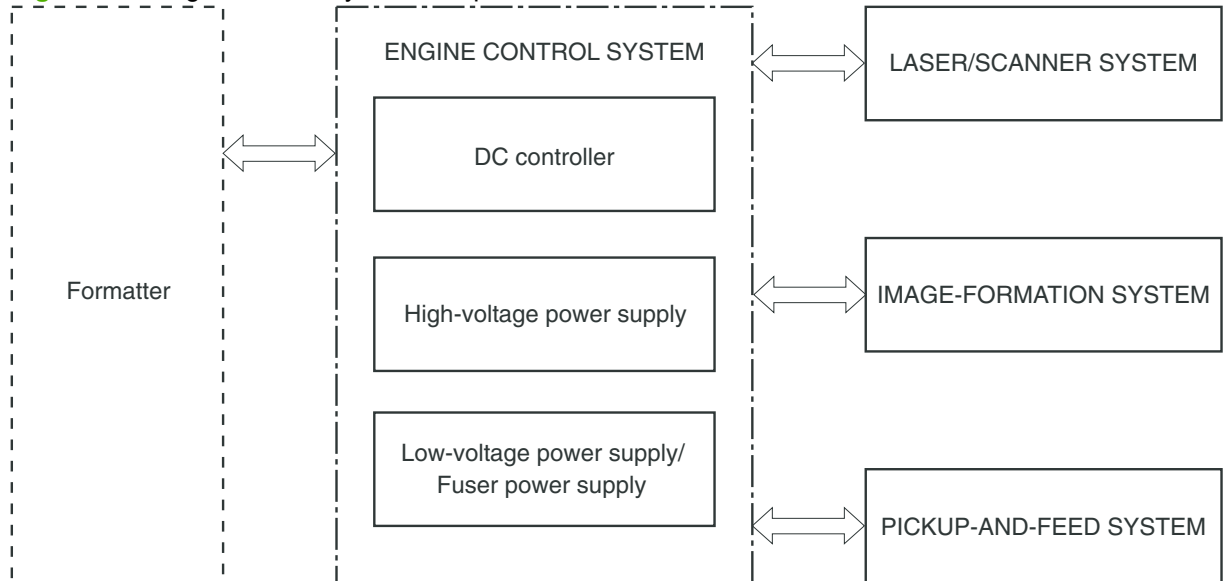
Period	Duration	Purpose	Remarks
			registration control and image stability)
STBY (Standby period)	From end of the WAIT or LSTR period until either the print command is received from the formatter or the power is turned off	Maintains the product in readiness for a print command	The product enters sleep mode when the formatter sends a sleep command, and performs color registration and the image stability control when the formatter sends those commands
INTR (Initial rotation)	From the time the print command is received until the media is picked up	Prepares the photosensitive drum for printing	
PRINT	From the end of INTR period until the fuser paper sensor detects the trailing edge of paper	Forms the images on the photosensitive drum and transfers the toner image to the print media	Performs image stabilization at a specified print interval or at specified times
LSTR (Last rotation)	From the end of the PRINT period until the delivery motor stops rotating	Moves the printed sheet out of the product	The product enters the INTR period as soon as the formatter sends another print command

Engine control system

The engine control system coordinates all product functions and drives the other three systems.

The engine control system contains the DC controller, high-voltage power supply PCA, and low-voltage power supply/fuser power supply unit.

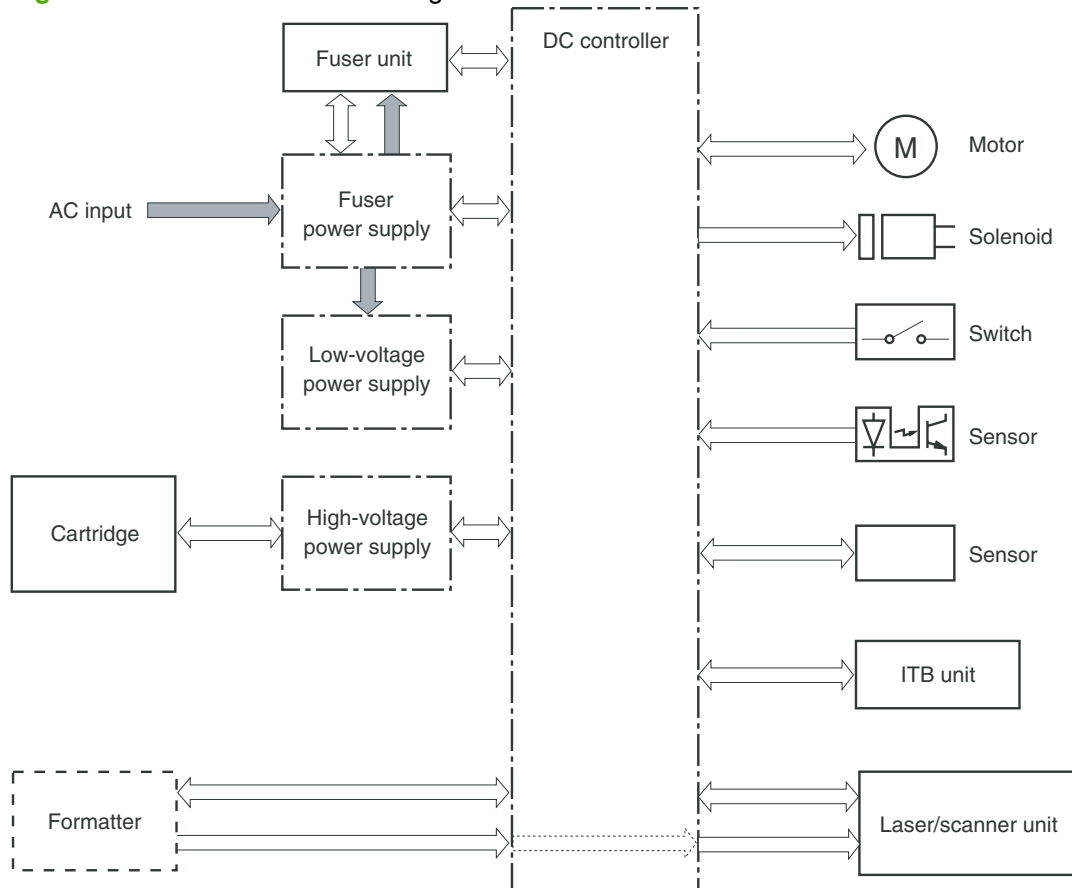
Figure 5-3 Engine control system components



DC controller

The DC controller controls the product operational sequence.

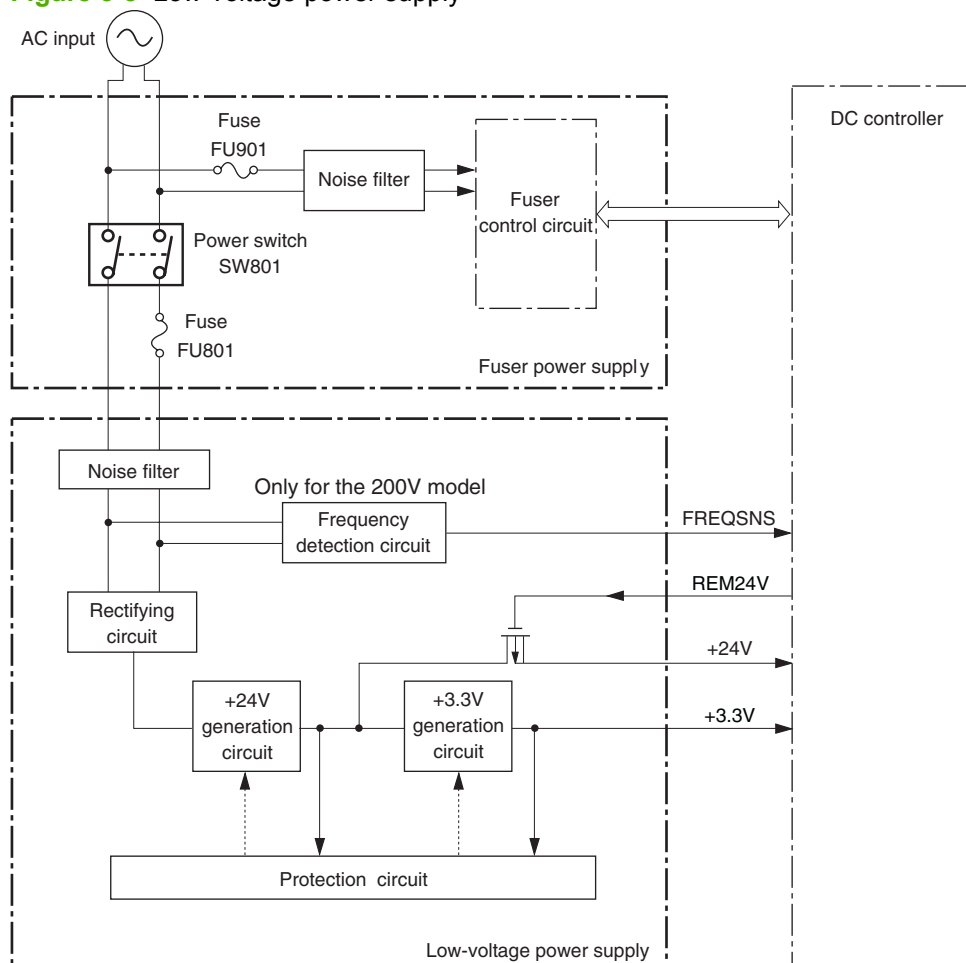
Figure 5-4 DC controller circuit diagram



Low-voltage power supply

The low-voltage power supply and the fuser power supply convert AC power from the power receptacle into DC power to cover the DC loads.

Figure 5-5 Low-voltage power supply



Fuser failure detection

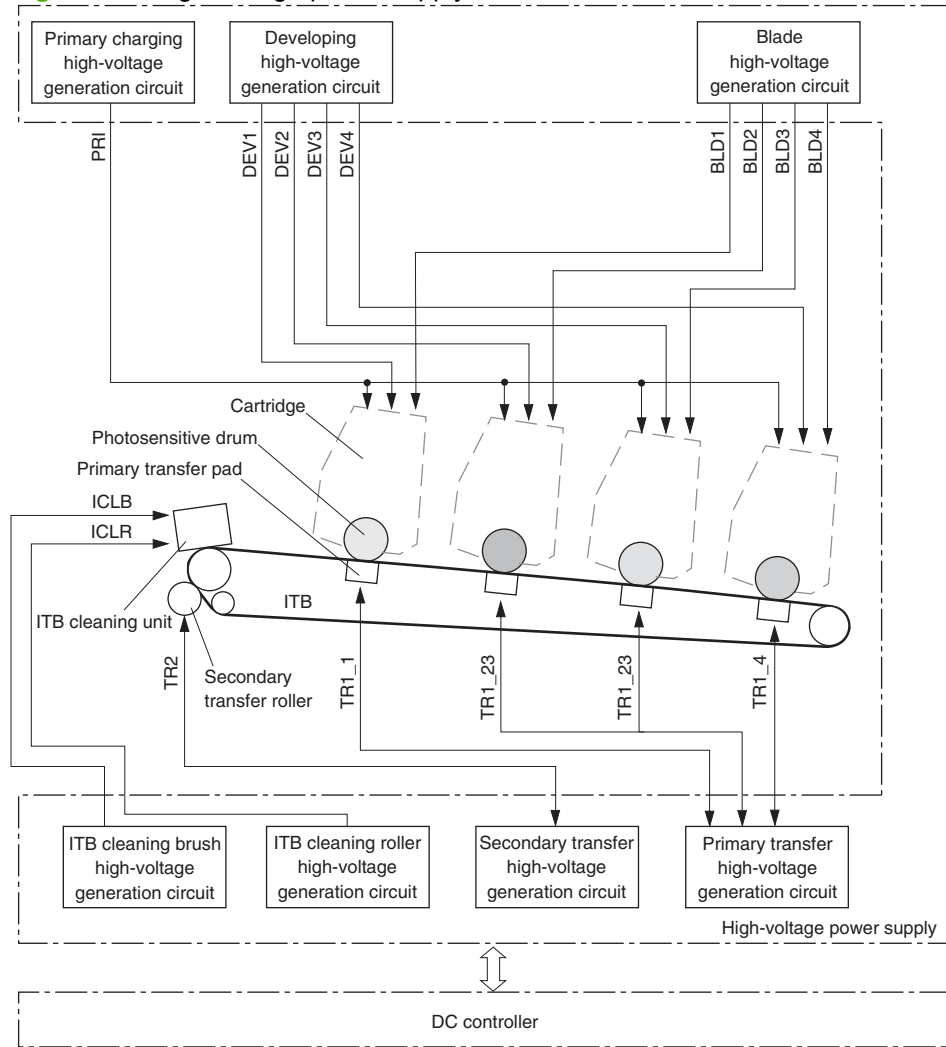
The DC controller determines a fuser unit failure, sets the FUSER HEATER DRIVE (FSRD+, FSRD-) signals to inactive, releases the relay to interrupt the fuser heater power supply, and notifies the formatter of a fuser unit failure when it encounters the following conditions.

- Start-up failure
- Abnormally low temperature
- Abnormally high temperature
- Fuser heater drive circuit failure

High-voltage power supply

The DC controller controls the high-voltage power supply to generate high-voltage biases. The high-voltage power supply generates the high-voltage biases that are applied to the primary charging roller, developing roller, primary transfer pad, secondary transfer roller, and ITB cleaning unit.

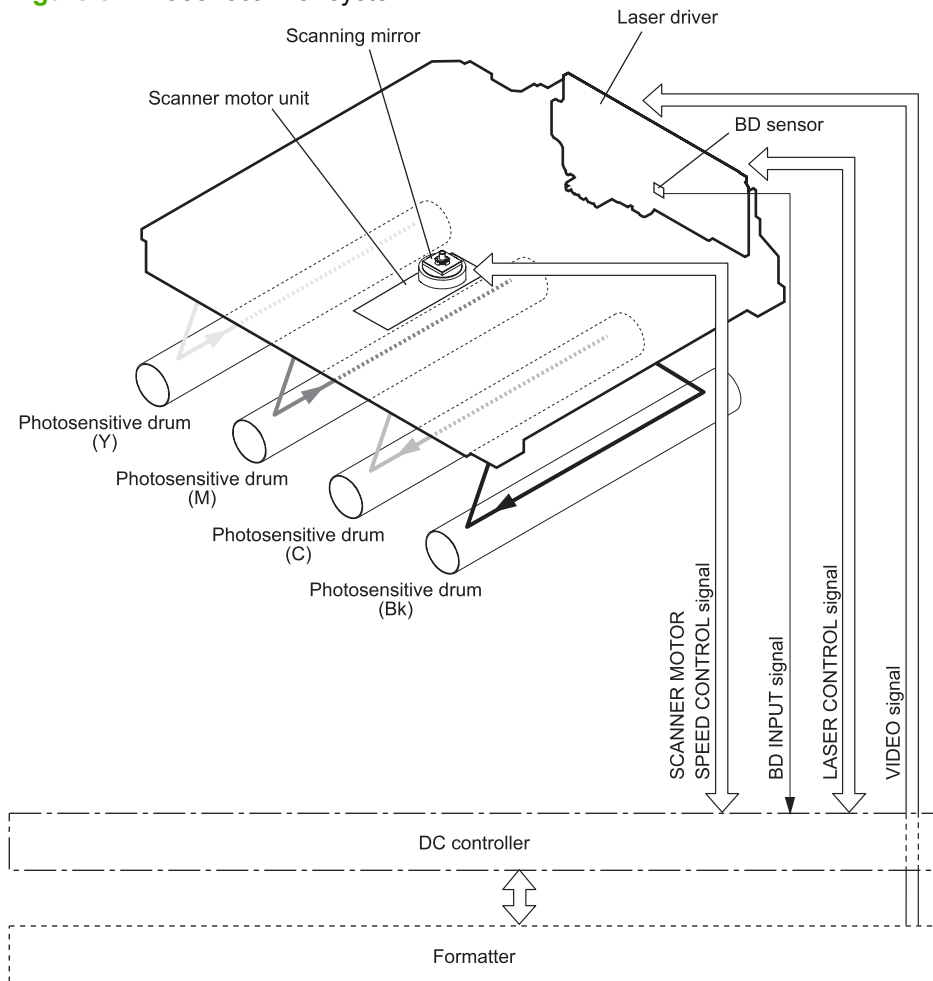
Figure 5-6 High-voltage power supply



Laser/scanner system

The formatter sends video signals to the DC controller, which controls the laser/scanner. When the laser/scanner system receives those signals, it converts them to latent images on the photosensitive drum.

Figure 5-7 Laser/scanner system



Laser failure detection

The optical unit failure detection sensor manages the laser/scanner unit failure-detection functions. The DC controller identifies the laser/scanner unit failure and notifies the formatter if the laser/scanner unit encounters the following conditions:

- Scanner motor failure
- BD failure

Image-formation system

The image-formation system forms a toner image on media. The product includes four print cartridges that contain the toner that is used to create the image on the media. Toner is applied in the following order, using only the colors necessary for a specific image: yellow (Y), magenta (M), cyan (C), and black (Bk).

Figure 5-8 Image-formation system

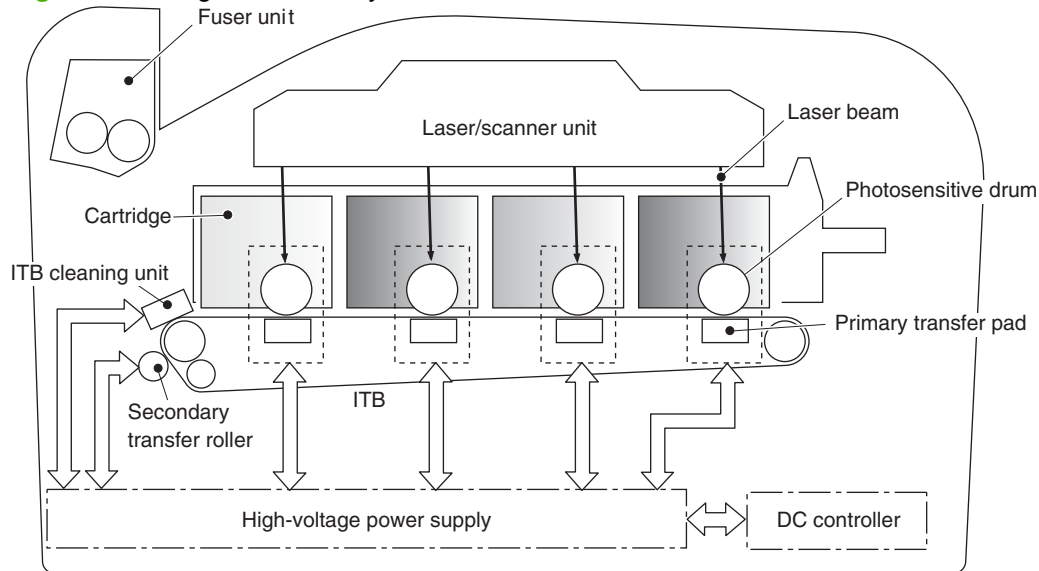


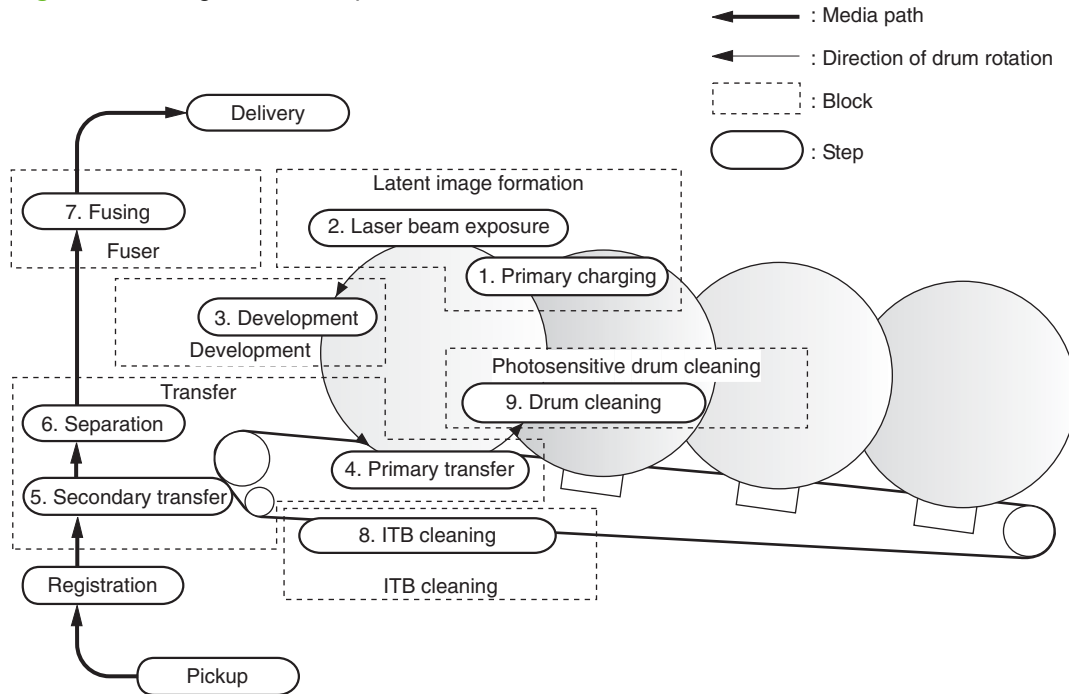
Image-formation process

Laser printing requires the interaction of several different technologies including electronics, optics, and electrographics to provide a printed page. Each process functions independently and must be coordinated with the other processes. Image formation consists of the following processes:

- Latent-image formation
- Development
- Transfer
- Fuser
- ITB cleaning
- Drum cleaning

These processes are divided into nine steps, which are shown in [Figure 5-9 Image-formation process on page 83](#) and described in the following sections.

Figure 5-9 Image-formation process



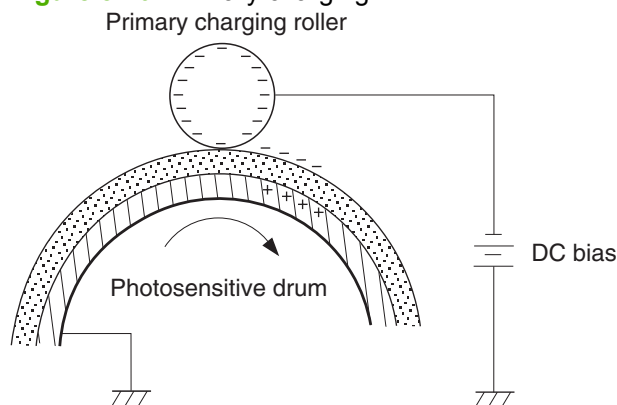
Latent-image formation stage

During the three steps that comprise this stage, a latent image is formed by applying a negative charge to the photosensitive drum. You cannot see this image on the drum.

Step 1: primary charging

A high-voltage DC bias is applied to the primary charging roller, which is made of conductive rubber and is in contact with the drum surface. As the roller moves across the drum, it applies the negative charge to that surface.

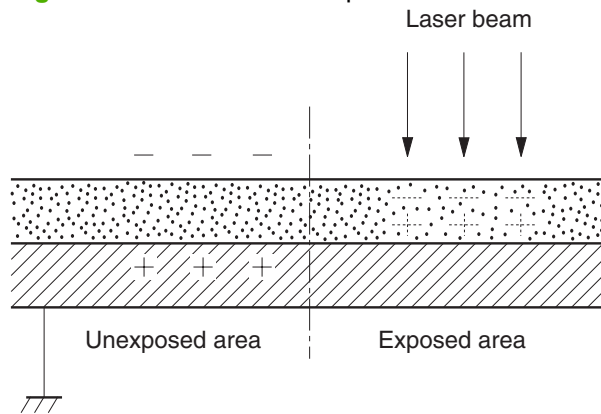
Figure 5-10 Primary charging



Step 2: laser-beam exposure

The laser beam scans the photosensitive drum to neutralize the negative charge on portions of the drum surface. An electrostatic latent image is formed where the negative charge was neutralized.

Figure 5-11 Laser-beam exposure



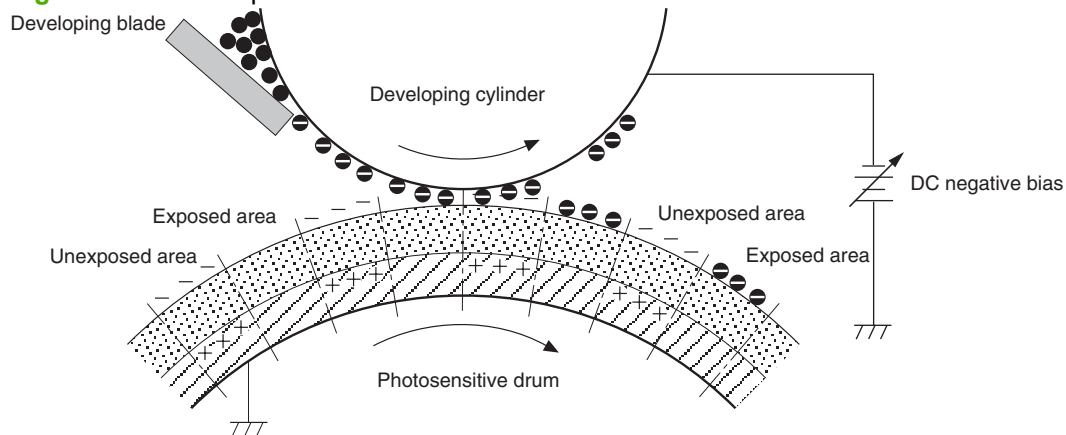
Developing stage

The developing cylinder comes in contact with the photosensitive drum and deposits toner on the electrostatic latent image.

Step 3: development

Toner acquires a negative charge as a result of the friction from the developing cylinder rotating against the developing blade. When the negatively charged toner comes in contact with the drum, it adheres to the electrostatic latent image. When the toner is on the drum, the image becomes visible.

Figure 5-12 Development

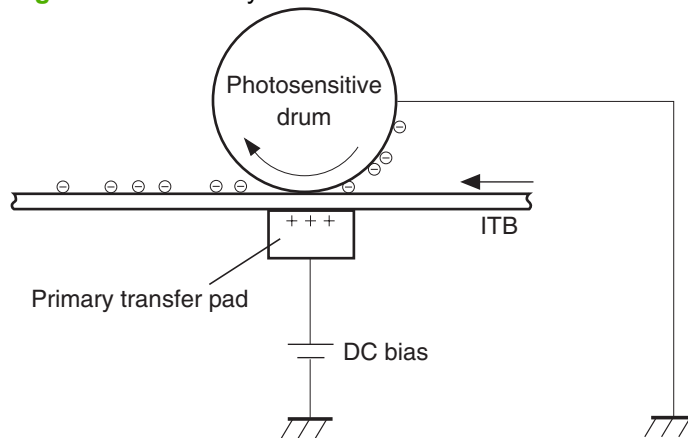


Transfer stage

Step 4: primary transfer

The toner image on the photosensitive drum is transferred to the ITB. The DC positive bias is applied to the primary transfer pad. The negatively charged toner transfers to the ITB from the drum surface.

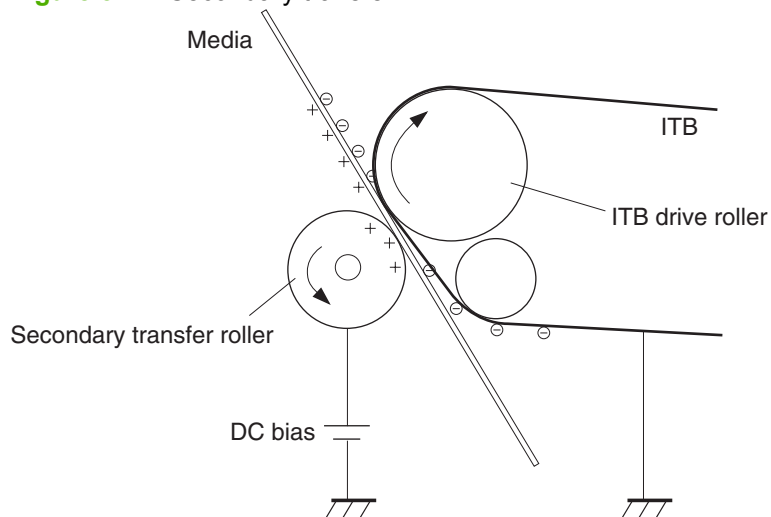
Figure 5-13 Primary transfer



Step 5: secondary transfer

The toner image on the ITB is transferred to the print media. The DC positive bias is applied to the secondary transfer roller. As the media passes between the secondary transfer roller and the ITB, the toner image is transferred to the media.

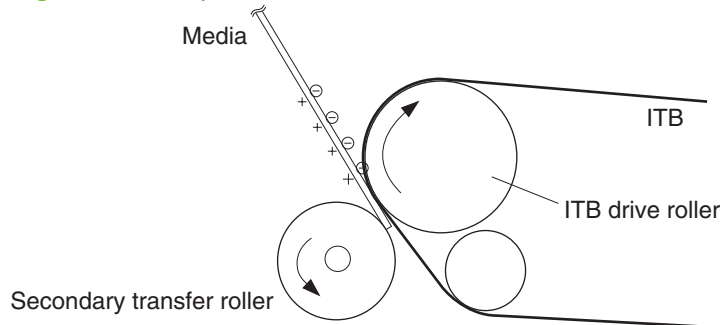
Figure 5-14 Secondary transfer



Step 6: separation from the drum

The elasticity of the print media and the curvature of the ITB drive roller cause the media to separate from the ITB.

Figure 5-15 Separation from the drum



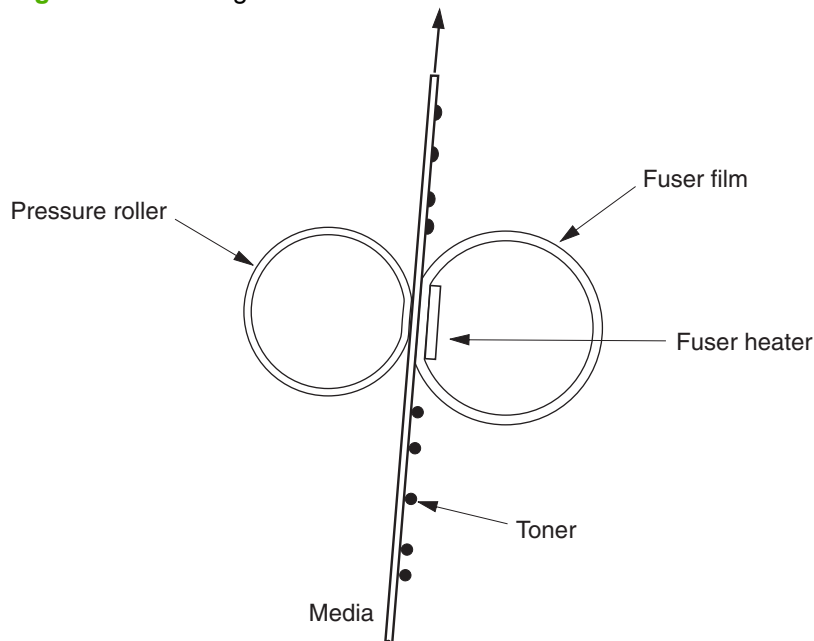
Fusing stage

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

Step 7: fusing

The product uses an on-demand fusing method to fuse the toner image onto the media. The toner image is permanently affixed to the print media by the heat and pressure.

Figure 5-16 Fusing

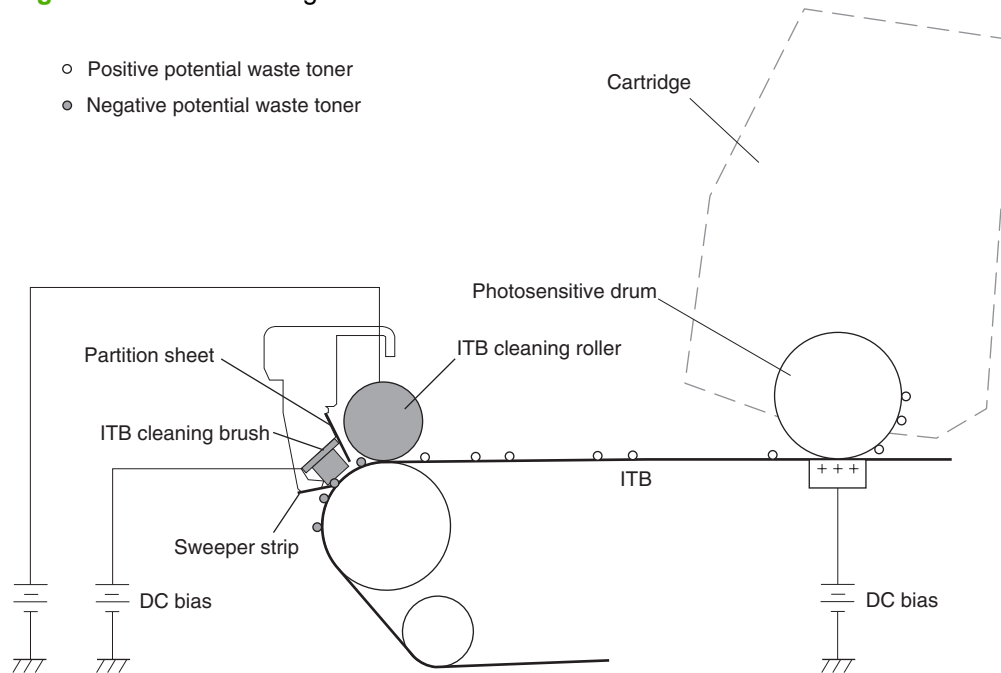


ITB cleaning stage

Step 8: ITB cleaning

The ITB cleaning roller and the cleaning brush are applied with DC positive bias to charge the residual toner positive. Because the primary transfer pad is also applied with DC positive bias, the positively charged residual toner is reverse-transferred to the photosensitive drum from the ITB surface.

Figure 5-17 ITB cleaning



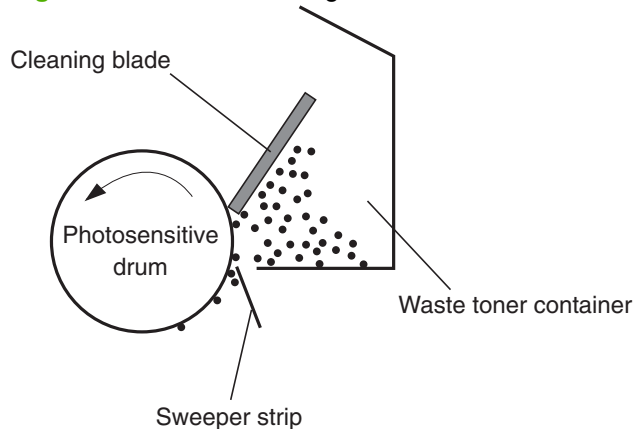
Drum cleaning stage

Not all of the toner is removed from the photosensitive drum during the transfer stage. During the cleaning stage, the residual, or waste, toner is cleared from the drum surface to prepare the surface for the next latent-image formation.

Step 9: drum cleaning

The cleaning blade scrapes the residual toner off the surface of the photosensitive drum and deposits it in the waste-toner container. The drum is now clear, and is ready for the next image-formation process.

Figure 5-18 Drum cleaning



Developing roller engagement/disengagement control

The developing roller engagement/disengagement control engages the required developing roller with the photosensitive drum according to the print mode—full-color mode or monochrome mode.

The necessary developing roller is engaged with the photosensitive drum only when required, preventing a deterioration of the drums and making maximum use of the life. The engagement/disengagement of the developing roller is controlled by the DC controller rotating the main motor and changing the direction of the developing disengagement cam. The DC controller controls the developing roller state, whether engaged or disengaged, by counting the main motor rotation after it detects the signal from the developing homeposition sensor.

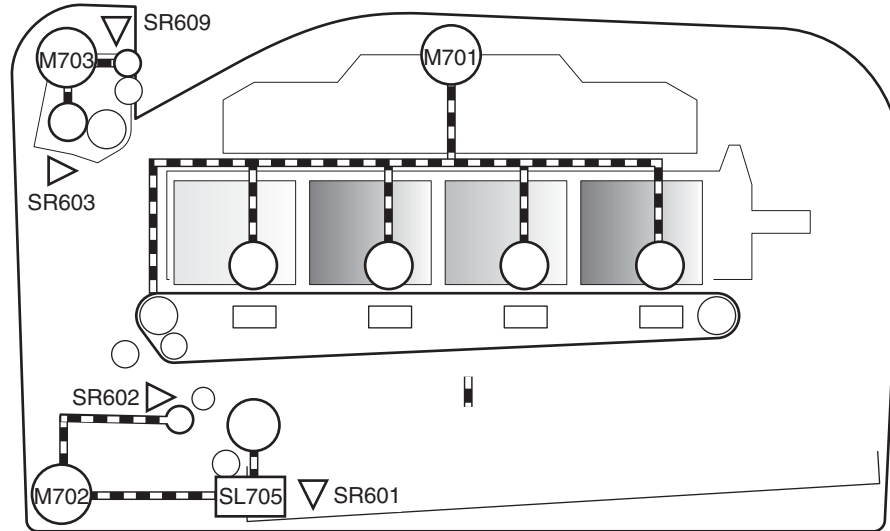
All four color developing rollers disengage from the photosensitive drums when the product is turned on and when a print operation is completed. The color developing rollers engage with the photosensitive drums when the full-color mode is designated. Only the black developing roller engages with the photosensitive drum when the monochrome mode is designated.

The DC controller determines an abnormality of the developing roller engagement/disengagement function and notifies the formatter when it does not sense the signal from the developing home-position sensor for a specified period during the developing roller engagement/disengagement operation.

Pickup-and-feed system

The pickup-and-feed system picks up and feeds the print media. It consists of several types of feed rollers.

Figure 5-19 Pickup-and-feed system



Number	Description	Number	Description
M701	Main motor	SR601	Cassette media-presence sensor
M702	Pickup motor	SR602	Top-of-page sensor
M703	Fuser motor	SR603	Loop sensor
SL705	Cassette pickup solenoid	SR609	Fuser delivery sensor

Jam detection

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

- Cassette media-presence sensor
- Top-of-page sensor
- Loop sensor
- Fuser delivery sensor

The product detects the following jams:

- Pickup delay jam
- Pickup stationary jam
- Delivery delay jam
- Delivery stationary jam
- Fuser wrapping jam
- Residual media jam

Pad transfer

The product uses a pad transfer method for the primary transfer operation. The pad transfer method stabilizes an image compared to the conventional separation roller method. The wider nip width between the transfer pad and the photosensitive drum improves the transfer performance.

Multiple-feed prevention

The product uses a separation roller to prevent multiple sheets of media from entering the product. The paper separation roller follows the rotational direction of the pickup roller because it does not have its own driving force.

- **Normal-feed:** The separation roller is driven by the pickup roller through a sheet of print media. That is, the separation roller rotates in the media feed direction.
- **Multiple-feed:** The low friction force between the sheets weakens the rotational force from the pickup roller. The separation roller is limited in its rotational force and it does not rotate with such a weak driving force from the pickup roller. Since the separation roller does not rotate, the multiple sheets do not feed into the product.

Scanner system (base models)

The flatbed image scanner captures an electronic image of the document on the glass. The scanner does this by illuminating the document with LEDs (red, green, and blue) and capturing the image in the image sensor to create an electronic format of the document. The flatbed scanner consists of three main elements

- **CIS scanner.** The CIS (contact image sensor) scanner captures an image using the product's optical path. Red, green, and blue LEDs sequentially illuminate a small strip of the document (often called a raster line), and the optical system captures each color in a single row of CCD sensors that cover the entire page width. Because only one color is captured for each line per exposure, the three colors are recombined electronically to create the full color image. For monochromatic scans or copies, all three LEDs are illuminated to create a white light for the scan so the raster line can be captured in one exposure.
- **Mechanical carriage drive.** The carriage drive moves the CIS scan head along the document length to create the image. In this product, a small DC motor with an optical encoder creates this motion. The speed of the carriage drive is proportional to the scan resolution (300 ppi is much faster than 1200 ppi) and also proportional to the type of scan (color scans are three-times slower than monochromatic scans). A 1200 ppi color scan moves so slowly that the product may appear to not be working, whereas a monochromatic copy scan moves at 50 times that speed and will be a little noisy.
- **Image processing system (formatter).** The formatter processes the scanner data into either a copy or a scan to the computer. For copies, the image data is sent directly to the product without being transmitted to the computer. Depending on user selections for the copy settings, the formatter enhances the scanner data significantly before sending it to the product. Image data is captured at 300 ppi for copies and is user selectable for scans to the computer. Each pixel is represented by 8 bits for each of the three colors (256 levels for each color), for a total of 24 bits per pixel (24-bit color).

Scanner power-on sequence of events

When the product is turned on, it performs the following tests:

- **Motor test.** The product moves the motor left and right to confirm operation. It reports a scanner error 12 if no motion is detected in the motor encoder system.
- **Wall find.** The scan carriage moves slowly to the right while watching an encoder on the carriage motor to determine when the carriage has found the right side wall or stop. This enables the product to identify the document origin (position of the original). It reports a scanner error 13 if this process fails.
- **LED check.** The product moves the carriage to the white calibration label under the right side of the flatbed image scanner, and it verifies that the minimum and maximum response is acceptable. It reports a scanner error 14 if the response is unacceptable.
- **Home find.** The scan carriage uses the optical scanner to find physical reference features that relate to the document origin at the right side of the image glass. This process ensures accurate location of the first document pixels so that the user documents will have an accurate placement of the image on scans and copies. It reports a scanner error 6 message if the reference features are not found.
- **Calibration.** This test, also known as scanner color calibration, enables the product to identify the black and white on every pixel in the CCD. Calibration occurs in two major processes: a broad (analog) adjustment of all pixels to bring them into the target output range, and a pixel-by-pixel

adjustment (digital) to fine tune the actual black and white response. The calibration process occurs under the right side of flatbed image scanner where there is a special white calibration label.

Calibration is the most important step in creating a high quality image. Calibration problems can include color inaccuracies, brightness inaccuracies, and vertical streaks through the image. The calibration process identifies any bad pixels and enables the image formatter to recreate the lost information from adjacent pixels. Extreme cases of this problem can appear as large vertical streaks or image smears. The user has no control over the calibration process itself or this pixel-replacement process.

Copy or scan-to-computer sequence of events

To create an accurate rendition of a document, the scanner must be calibrated for the requested operation. If the user selects a scan at 600 ppi color, the flatbed image scanner calibrates for that specific operational mode. Subsequently, the flatbed image scanner automatically re-calibrates for the next requested operation. Calibration does not occur for every new copy request.

Normal sequence of operation for a flatbed copy or scan includes:

1. LEDs illuminate.
2. Carriage motion begins moving the CIS scanner toward the left.
3. Image capture continues for the entire page or length requested in a scan-to-computer operation.
4. Carriage returns to the home position on the right.

Scanner and ADF functions and operation (fax/memory-card models)

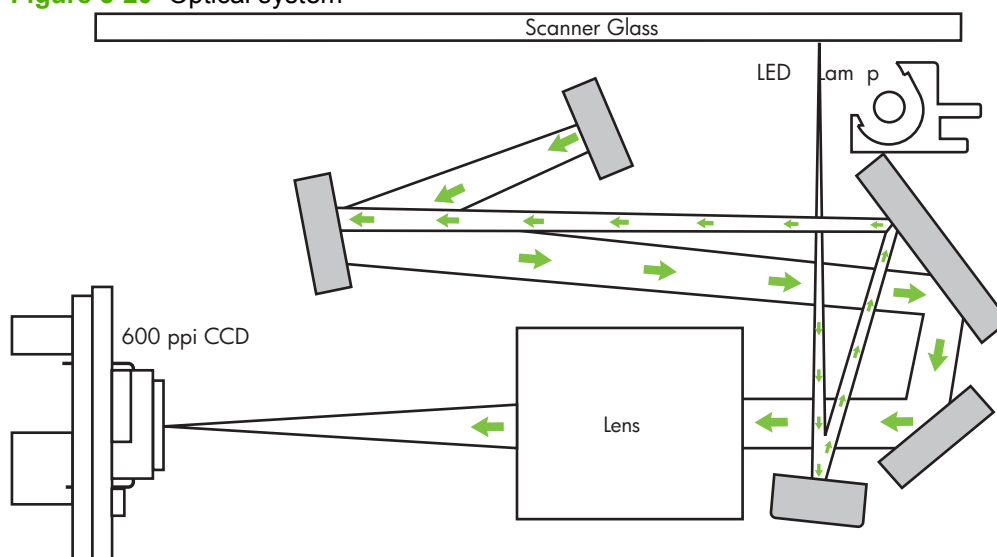
The following sections describe how the document scanner and the automatic document feeder (ADF) function.

Scanner functions

The scanner uses a light source, a color-separation method, and a charge-coupled device (CCD) array to collect optical information about the document and transform that into an image file. The scanner consists of these elements:

- A lamp (LED)
- Five mirrors and a lens
- A CCD

Figure 5-20 Optical system



The scanner lamp illuminates a small strip of the document (called the *raster line*). The mirrors direct the light through the lens to the CCD. The CCD senses and records the light, creating an analog representation of the raster line. If the ADF is being used, the document then advances in the ADF to the next raster line. If the flatbed is being used, the scanner module advances to the next raster line. This advancing and collection process continues to the end of the sheet.

The image data is collected in the motor controller board, where it is processed and sent to the formatter. The formatter then handles the image data, outputting it as a copy, sending it through the fax card as a fax, or directing it to the computer as scanner output.

The image data collected is 600 pixels per inch (ppi). Each pixel has 8 bits for each of the three colors (256 gray scale levels for each color), or a total of 24 bits per pixel (24-bit color).

Scanner operation

At power-on and periodically at other times, the scanner assembly moves systematically to locate its home position. It then calibrates to a white strip located under the glass at the right end of the scan tub.

If the product detects a document in the ADF when a copy or scan is initiated (from the software or the control panel), the scan module moves to the left side of the scan tub and stops. The image is acquired as the paper is fed through the ADF past the scanner module.

If no document is detected in the ADF, the scan module acquires the image from the flatbed glass while slowly moving within the scan tub.

ADF operation

Standby (paper-loading) mode: In standby mode, the pickup roller is up and the stack-stop is down, preventing the user from inserting the original document too far. When a document is inserted correctly, the paper-present sensor detects its presence.

The standard operation of the ADF consists of the pick, feed, and lift steps.

Pick: When it receives a copy or scan command, the ADF motor engages the gear train to lower the pickup-roller assembly and raise the stack-stop. The first roller, called the pre-pick roller, moves the top few sheets forward into the ADF. The next roller is the pickup roller. This roller contacts the ADF separation pad, which separates multiple pages into single sheets.

Feed: The single sheet continues through the path. Along the way, the form sensor, which is a set distance from the ADF glass, detects the sheet. This alerts the scanner to start when the page reaches the glass. The scanner acquires the image, one raster line at a time, until it detects the end of the page. The page is then ejected. The pick and feed steps are repeated as long as paper is detected in the ADF input tray.

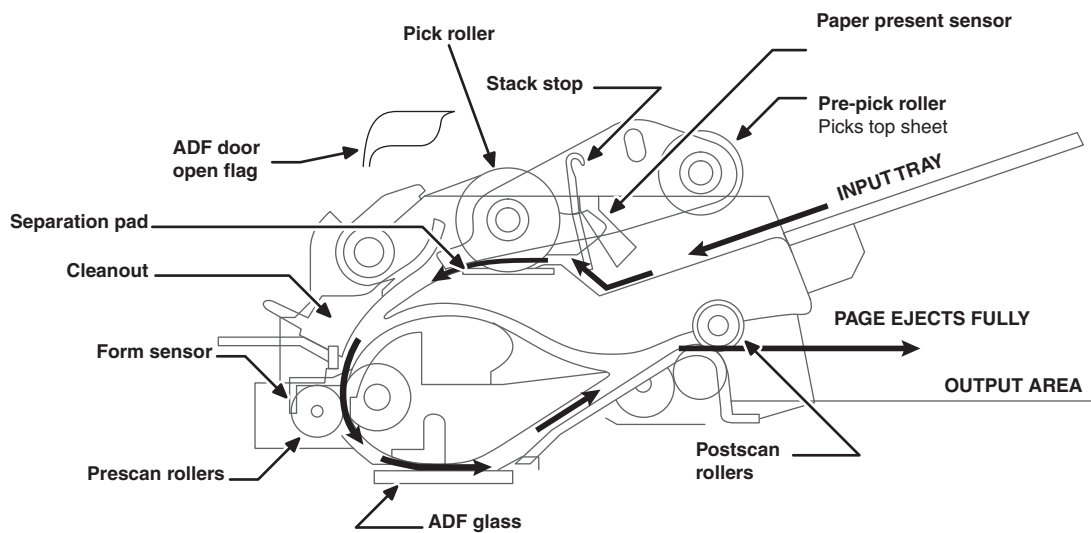
Lift: When no more paper is detected in the ADF input tray and the form sensor detects the trailing edge of the last page, the last sheet is ejected and the motor turns in a sequence that lifts the pick-roller assembly to standby (paper-loading) mode again.

The ADF will not function when the ADF cover is open. The paper path is incomplete if the ADF cover is lifted from the glass.

ADF paper path and ADF sensors

The following diagram shows the ADF paper path.

Figure 5-21 ADF paper path



The paper-present sensor determines if paper is in the ADF. The form sensor detects the top and bottom edges of the document. One other sensor detects an open ADF door.

ADF jam detection

The ADF has two sensors that detect paper. The paper-present sensor detects the presence of media in the ADF input tray. The form sensor detects media moving through the ADF. If a jam is detected, the ADF immediately stops the paper feeding and a jam message appears on the control-panel display.

A jam can be detected under any of the following conditions:

- **Document-feeder jam.** When documents are detected in the ADF input tray, and a command to copy, scan or fax is received, the scan module travels to the left side of the scan assembly and stops beneath the ADF scanner glass. The ADF then attempts three times, or for about ten seconds, to advance the paper to the form sensor. If the paper does not advance, the scan module travels back to the home position on the right side of the scanner assembly. The message **Document feeder mispick. Reload.** appears on the control-panel display.
- **Long-document jam.** If the paper has advanced to trigger the form sensor, but the trailing edge is not detected within the time allowed for a 381-mm (15-inch) document (the maximum allowable page length for the ADF), the scanner returns to the home position on the right side of the scanner assembly. The message **Doc feeder jam. Clear, Reload.** appears on the control-panel display.
- **Stall jam.** When a page that is less than 381 mm (15 inches) long has advanced to the form sensor but has not left it within the expected time, the paper has probably stalled or jammed. The scanner returns to the home position on the right side of the scanner assembly. The message **Doc feeder jam. Clear, Reload.** appears on the control-panel display.
- **Other.** If the paper stops in the ADF and the scan module remains under the ADF scanner glass, an internal firmware error has probably occurred. This is usually remedied by cycling the power.

Memory card system (fax/memory-card models only)

The memory card reader consists of slots where the following memory cards can be inserted:

- CompactFlash
- Memory Stick
- Memory Stick PRO
- Secure Digital
- MultiMediaCard
- xD

Only one card can be installed at a time.

The green memory card LED will blink when the product is reading the installed memory card. The files present on the memory card can be accessed from a computer by using the mounted drive for a directly connected host, or by using the product IP address from a networked computer.

Any .jpg files on the card can be printed directly from the product control panel. Pages also can be scanned and saved to the memory card directly from the control panel.

Fax functions and operation (fax/memory-card models only)

The following sections describe the product fax capabilities.

Computer and network security features

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

The following product features prevent virus transmission:

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

PSTN operation

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

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

On most phone systems, the TIP and RING wires appear on pins 3 and 4 of the RJ-11 modular jack (the one on the fax card). These two wires do not have to be polarized because all the equipment works with either TIP or RING on pin 3 and the other wire on pin 4. This means that cables of either polarity can interconnect and will still work.


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

Receive faxes when you hear fax tones

In general, incoming faxes to the product are automatically received. However, if other devices are connected to the same phone line, the product might not be set to answer automatically.


If the product is connected to a phone line that receives both fax and phone calls, and you hear fax tones when you answer the extension phone, receive the fax in one of two ways:

- If you are near the product, press **Start Fax** on the control panel.
- Press 1-2-3 in sequence on the extension phone keypad, listen for fax transmission sounds, and then hang up.


 **NOTE:** In order for the 1-2-3 sequence to work, the extension phone setting must be set to **On** in the **Fax setup** menu.


Distinctive ring function

Distinctive ring is a service that a telephone company provides. The distinctive ring service allows three phone numbers to be assigned to one phone line. Each phone number has a distinctive ring. The first phone number has a single ring, the second phone number has a double ring, and the third phone number has a triple ring.

 **NOTE:** The product has not been tested with all of the distinctive-ring services that telephone companies provide in all countries/regions. HP does not guarantee that the distinctive-ring function will operate correctly in all countries/regions. Contact the local phone service provider for assistance.

Set up the distinctive ring function

1. Press **Setup** .
2. Use the arrow buttons to select **Fax setup**, and then press **OK**.
3. Use the arrow buttons to select **Basic setup**, and then press **OK**.
4. Use the arrow buttons to select **Distinctive Ring**, and then press **OK**.
5. Use the arrow buttons to select one of the following options:

 **NOTE:** The control-panel display might show some of these options as abbreviations.

- **All Rings** (default setting)
- **Single**
- **Double**
- **Triple**
- **Double and Triple**

Press **OK** to save the setting.

Fax by using Voice over IP services

Voice over IP (VoIP) services provide normal telephone service, including long distance service through a broadband Internet connection. These services use packets to break up the voice signal on a telephone line and transmit it digitally to the receiver, where the packets are reassembled. The VoIP services are often not compatible with fax machines. The VoIP provider must state the service supports fax over IP services.

Because the installation process varies, the VoIP service provider will have to assist in installing the product fax component.

Although a fax might work on a VoIP network, it can fail when the following events occur:

- Internet traffic becomes heavy and packets are lost.
- Latency (the time it takes for a packet to travel from its point of origin to its point of destination) becomes excessive.

If you experience problems using the fax feature on a VoIP network, ensure that all of the product cables and settings are correct. Configuring the **Fax Speed** setting to **Medium(V.17)** or **Slow(V.29)** can also improve your ability to send a fax over a VoIP network.

If you continue to have problems faxing, contact your VoIP provider.

The fax subsystem

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

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

Fax card in the fax subsystem

Two versions of the fax card are used in the product. One is used in the North American, South American, and Asian countries/regions. The other is used primarily in European countries/regions.

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

The only difference between the two versions is that each version is compliant with the 2/4-wire phone jack system from the respective country/region.

Safety isolation

The most important function of the fax card is the safety isolation between the high-voltage, transient-prone environment of the telephone network (TNV [telephone network voltage]) and the low-voltage analog and digital circuitry of the formatter (SELV [secondary extra-low voltage]). This safety isolation provides both customer safety and product reliability in the telecom environment.

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

Safety-protection circuitry

In addition to the safety barrier, the fax card protects against over-voltage and over-current events.

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

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

A voltage suppressor (a crowbar-type SIDACTOR) provides differential protection. This product becomes low impedance at approximately 300 V differential, and crowbars to a low voltage. A series thermal switch works in conjunction with the crowbar for continuous telephone line events, such as crossed power lines.

All communications cross the isolation barrier magnetically. The breakdown voltage rating of barrier-critical components is greater than 5 kV.

Data path

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

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

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

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

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

Hook state

Another magnetically coupled signal is the control signal that disconnects the downstream telephone devices (such as a phone or answering machine). A control signal originating on the DSP can change the relay state, causing the auxiliary jack (downstream jack) to be disconnected from the telephone circuit.

The product takes control of calls that it recognizes as fax calls. If the product does not directly pick up the call, it monitors incoming calls for the fax tone or for the user to direct it to receive a fax. This idle mode is also called eavesdropping. This mode is active when the product is on-hook but current exists in the downstream phone line because another device is off-hook. During eavesdropping, the receive circuit is enabled but has a different gain from the current that is generated during normal fax transmissions.

The product does not take control of the line unless it detects a fax tone or the user causes it to connect manually. This feature allows the user to make voice calls from a phone that is connected to the product without being cut off if a fax is not being received.

Downstream device detection

The line voltage monitoring module of the silicon DAA can detect the line state as well as the downstream device. It tells DSP via DIB that an active device (telephone, modem, or answering machine) is connected to the auxiliary port on the product (the right side of the RJ-11 jack). The DSP uses the signal to ensure that the product does not go off-hook (and disconnect a downstream call) until it has been authorized to do so (by a manual fax start or the detection of the appropriate tones).

Hook switch control

In the silicon DAA the CODEC controls the hook switch directly. The CODEC is activated when it receives commands from the DSP. When the circuit is drawing DC current from the central office it is considered off-hook. When no DC current flows the state is considered on-hook.

Ring detect

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

Line current control

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

Billing- (metering-) tone filters

Switzerland and Germany provide high-frequency AC signals on the phone line in order to bill customers.

A filter in a special fax cable (for certain countries/regions), can filter these signals. Because these billing signals are not used in the U.S., these filters are not present in the U.S. fax cable.

To obtain a special fax cable, contact your local telephone service provider.

Fax page storage in flash memory

Fax pages are the electronic images of the document page. They can be created in any of three ways: scanned to be sent to another fax machine, generated to be sent by the computer, or received from a fax machine to be printed.

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

These pages are stored in flash memory, which is the nonvolatile memory that can be repeatedly read from, written to, and erased. The product has 8 MB of flash memory, of which 7.5 MB is available for fax storage. The remaining 0.5 MB is used for the file system and reclamation. Adding RAM does not affect the fax page storage because the product does not use RAM for storing fax pages.

Stored fax pages

The user can reprint stored fax receive pages in case of errors. For a fax send, the product will resend the fax in case of errors. The product will resend stored fax pages after a busy signal, communication error, no answer, or power failure. Other fax devices store fax pages in either normal RAM or short-term RAM. Normal RAM immediately loses its data when power is lost, while short-term RAM loses its data about 60 minutes after power failure. Flash memory maintains its data for years without any applied power.

Advantages of flash memory storage

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

The product also has scan-ahead functionality that makes use of flash memory. Scan-ahead automatically scans pages into flash memory before a fax job is sent. This allows the sender to pick up

the original document immediately after it is scanned, eliminating the need to wait until the fax is transmission is complete.

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

6 Removal and replacement

- [Removal and replacement strategy](#)
- [Service approach](#)
- [Print cartridges](#)
- [Control-panel overlay \(base model\)](#)
- [Control panel \(base model\)](#)
- [Control-panel bezel \(fax/memory-card models\)](#)
- [Control panel \(fax/memory-card models\)](#)
- [Paper-feed assemblies](#)
- [External panels, covers, and doors](#)
- [Internal assemblies](#)

Removal and replacement strategy

This chapter discusses 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 problem solving at 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 locate. When replacing wire harnesses, always use the provided wire loops, lance points, or wire-harness guides.

General cautions during removal and replacement

- ⚠ **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, as well as damage to the product. The power must be on for certain functional checks during problem solving. However, the power cord should be disconnected 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* make sure that all FFCs are fully seated in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.

- 📝 **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.

Electrostatic discharge



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

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

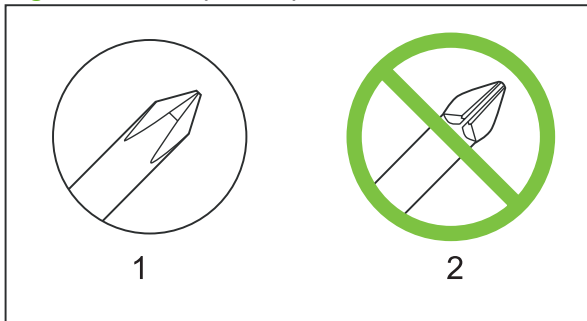
Required tools

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

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

CAUTION: Do *not* pull directly on the wires to disconnect them. *Always* pull on the plastic body of a connector to avoid damaging the connector wires.

Figure 6-1 Phillips and pozidrive screwdriver comparison



Types of screws

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

For a complete list of screw types and part numbers, see [Parts and diagrams on page 259](#).

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(s).
- Place the product on an ESD mat (if one is available). If an ESD workstation or mat is not available, ground yourself by touching the sheet-metal chassis *before* touching an ESD-sensitive part.
- Remove the print cartridges. See [Print cartridges on page 111](#).
- Remove the Tray 1 cassette.

After performing service

- Plug in the power cable.
- Reinstall the print cartridges.
- Reinstall the Tray 1 cassette.

Post-service tests

After service has been completed, perform the following tests to verify that the repair or replacement was successful.

Test 1 (print-quality test)

1. Verify that you have completed the necessary reassembly steps.
2. Ensure that the input tray contains clean, unmarked paper.
3. Attach the power cord and interface cable, and then turn on the product.
4. Verify that the expected start-up 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.

Test 2 (copy-quality test)

1. Verify that you have completed the necessary reassembly steps.
2. Ensure that the input tray contains clean, unmarked paper.
3. Attach the power cord, and then turn on the product.
4. Verify that the expected start-up sounds occur.
5. Print a configuration page, and then verify that the expected printing sounds occur.
6. Place the configuration page in the ADF if present, or on the flatbed glass.
7. Print a copy job, and then verify the results.
8. Clean the outside of the product with a damp cloth.

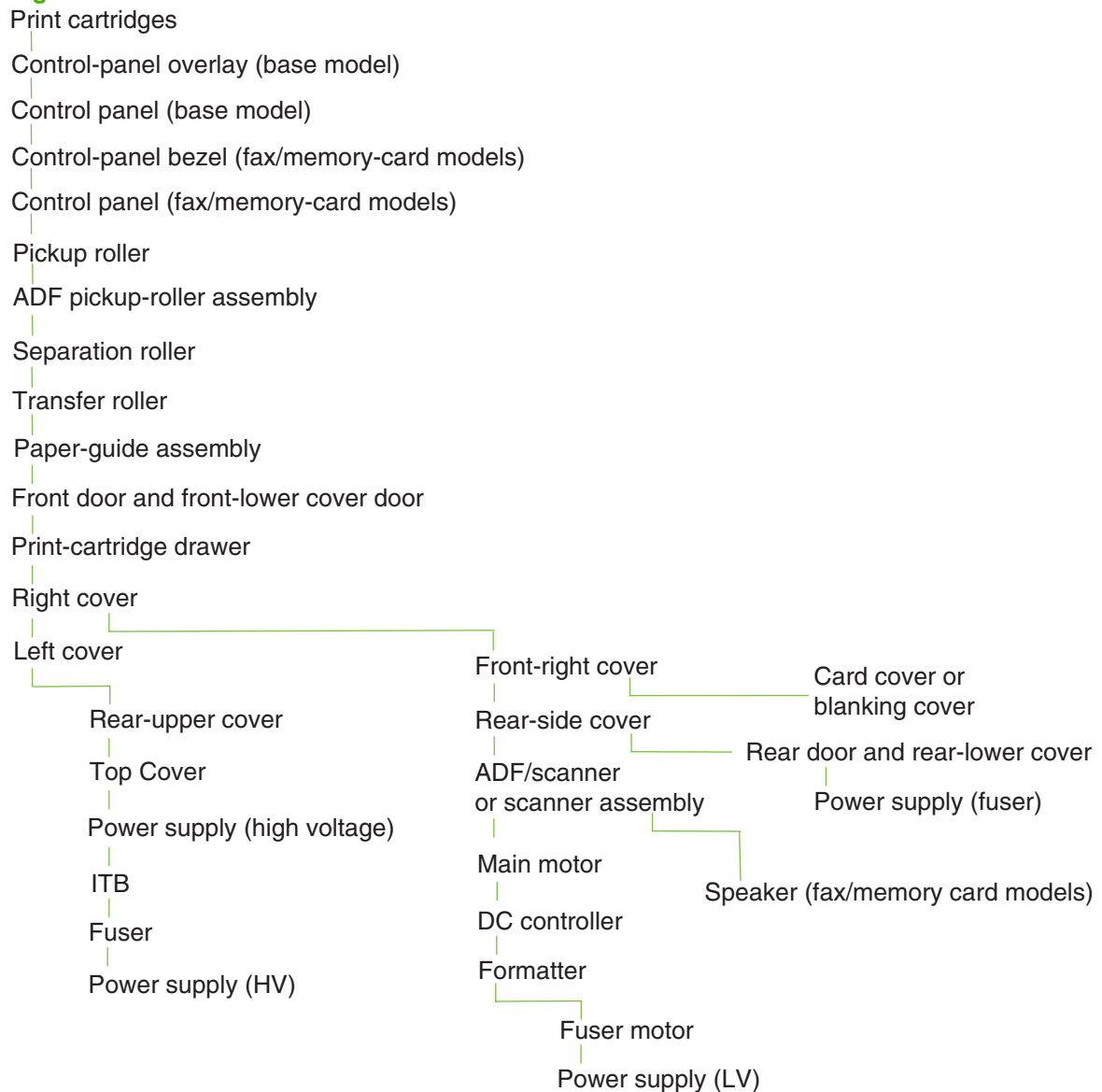
Test 3 (fax-quality test)

1. Place the configuration page in the ADF.
2. Type a valid fax number and send the fax job.
3. Verify that the send quality and receive quality meet expectations.

Parts removal order

Use the following diagram to determine which parts must be removed before removing other parts.

Figure 6-2 Parts-removal tree



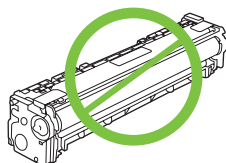
Print cartridges

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

1. Open the front door and pull out the print-cartridge drawer.
2. Grasp the handle on the print cartridge and then pull the cartridge straight up to remove it. Repeat this step for the remaining print cartridges.

- △ **CAUTION:** Do not touch the imaging drum on the bottom of the print cartridge. Finger prints on the imaging drum can cause print-quality problems.

Do not allow the image drum to contact any surface when the cartridges are set down. Protect the image drum at all times. Dust and debris can stick to the drum and cause print-quality problems.





-  **NOTE:** Do not place the print cartridges where they will be exposed to light for an extended time. Cover the print cartridges if necessary to protect them.

Figure 6-3 Remove the print cartridge



3. Close the print-cartridge and front doors.

Control-panel overlay (base model)

 **TIP:** It is not necessary to remove the original overlay to install a replacement overlay. However, installing more than three replacement overlays over the original might interfere with the operation of the control panel buttons.

1. Carefully peel the control-panel overlay off of the control panel.
2. Handle the overlay by the edges to avoid touching the adhesive back. To reinstall the overlay, place it on the control panel, and then firmly push down on the overlay to adhere it to the product.

Figure 6-4 Remove the control-panel overlay (base model)



Control panel (base model)



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

1. Remove the control-panel overlay. See [Control-panel overlay \(base model\) on page 112](#).
2. Remove one screw (callout 1).

Figure 6-5 Remove the control-panel (1 of 3; base model)



3. Lift up on the front of the control panel, and then slide it towards the front of the product to release it.

Figure 6-6 Remove the control-panel (2 of 3; base model)



4. Disconnect one FFC (callout 2) and then remove the control panel.

Figure 6-7 Remove the control-panel (3 of 3; base model)



Control-panel bezel (fax/memory-card models)

Carefully pry up on one end of the control-panel bezel to release it. Continue to pry up on the bezel to remove it.

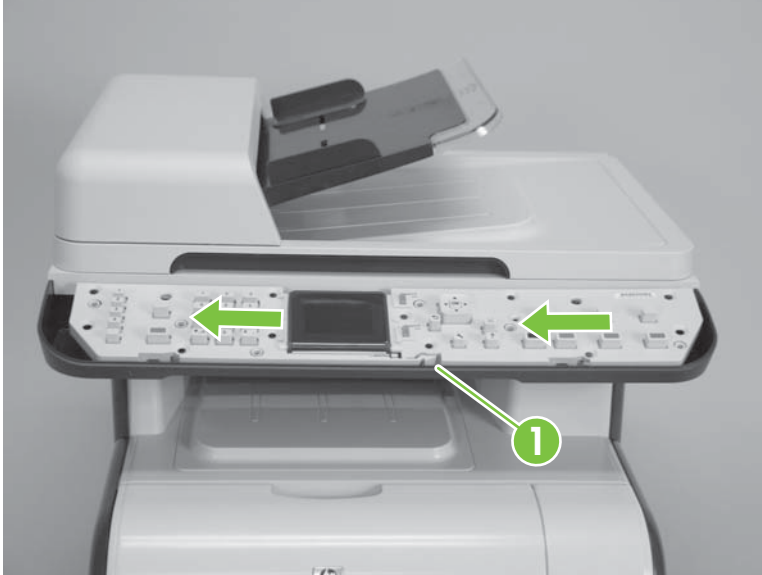
Figure 6-8 Remove the control-panel bezel (fax/memory-card models)



Control panel (fax/memory-card models)

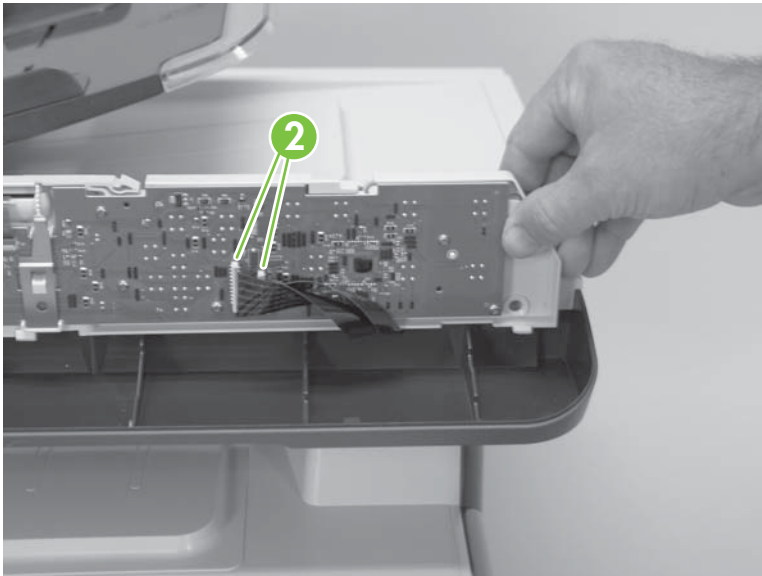
1. Remove the control-panel bezel. See [Control-panel bezel \(fax/memory-card models\) on page 115](#).
2. Release one tab (callout 1) and then slide the control panel toward the left side of the product to release it.

Figure 6-9 Remove the control-panel (1 of 2; fax/memory-card models)



3. Rotate the control panel up and off of the product, and then disconnect two FFCs (callout 2).

Figure 6-10 Remove the control-panel (2 of 2; fax/memory-card models)

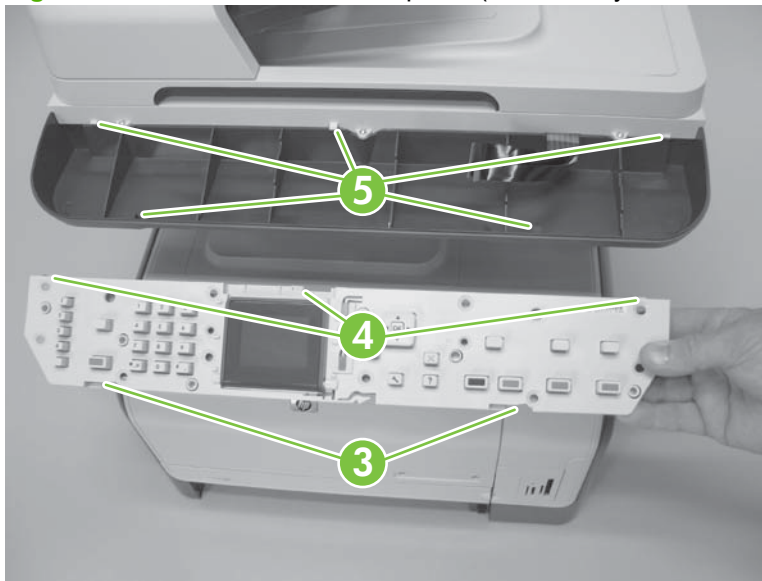


Reinstall the control panel (fax/memory-card models)

1. Connect the FFCs and verify that they are fully seated.

2. When you reinstall the control panel, make sure the two lower tabs on the control panel (callout 3), and the three upper tabs on the control panel (callout 4) are positioned under the tabs on the scanner chassis (callout 5).





Figure 6-11 Reinstall the control-panel (fax/memory-card models)



Paper-feed assemblies


Pickup roller (product base)

You might have to rotate the pickup roller to gain access to the roller locking tabs.

1. Rotate the roller to the correct position for removal.
 - a. Press the **Setup**  button.
 - b. Press both the left arrow button  and the **Cancel** button  at the same time.
 - c. Press the **Setup**  to return to the main menus.
 - d. Use the arrow buttons to highlight **2ndary Service**, and then press **OK**.
 - e. Use the arrow buttons to highlight **Pick roller**, and then press **OK**.
 - f. Press **OK** again to confirm that you want the pick roller to rotate.
 - g. Turn the product power off, and then remove the power cord and the interface cable.

2. Remove the 150-sheet input tray, and then carefully place the product front-side up.

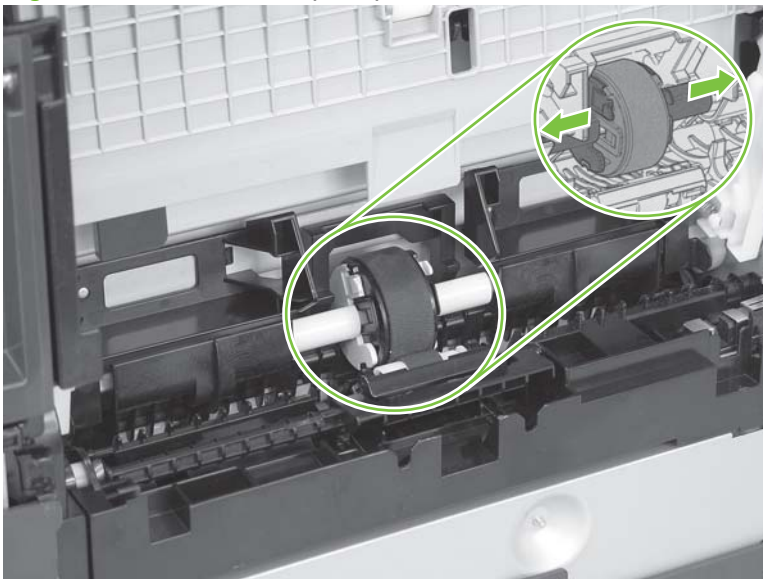
△ **CAUTION:** The ADF and scanner cover are not captive and can open suddenly if the product is placed front-side up. Always support the ADF and scanner cover before placing the product front-side up.

 **NOTE:** Debris can scratch or damage the back of the product. Before you place the product front-side up, remove any debris from the work surface. If possible, set the product on a clean, dry cloth to prevent scratching and damage.

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

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

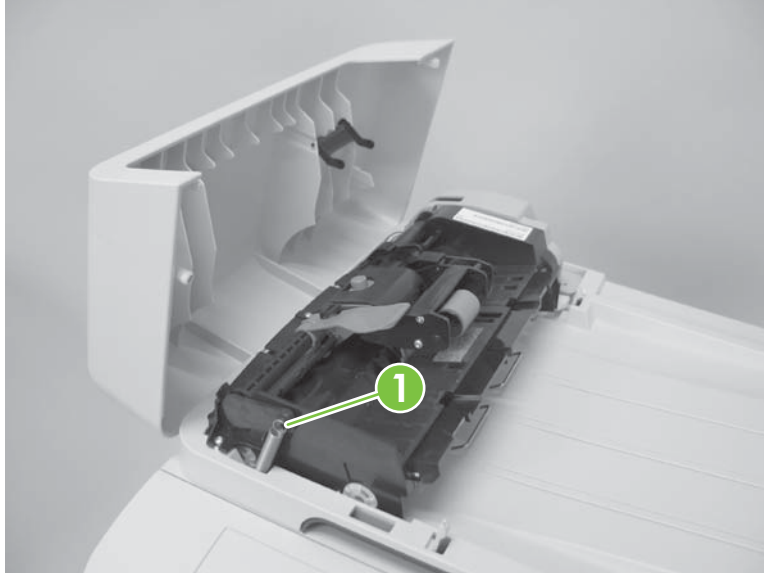
Figure 6-12 Remove the pickup roller



ADF pickup roller assembly

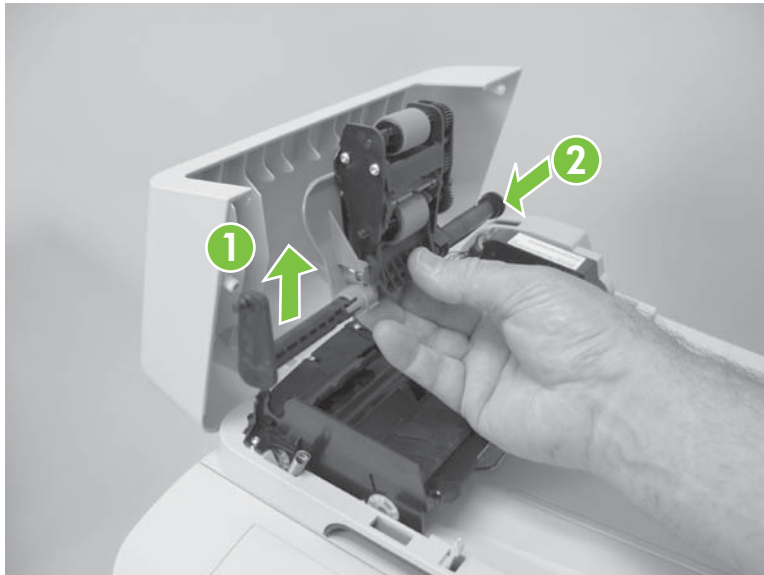
1. Open the ADF cover.
2. Disconnect one spring (callout 1).

Figure 6-13 Remove the ADF pickup roller assembly (1 of 2)



3. Lift up on the end of the assembly, and then slide it toward the control panel to remove it.

Figure 6-14 Remove the ADF pickup roller assembly (2 of 2)



Separation roller (product base)

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

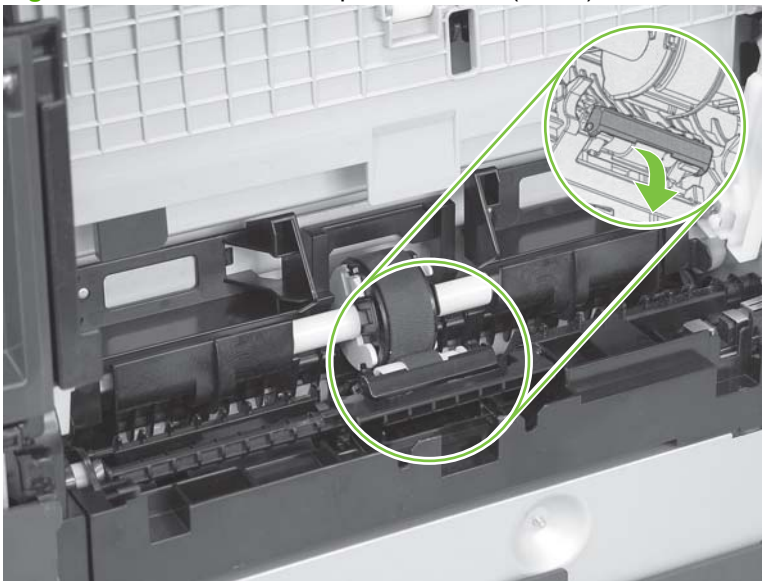
1. Remove paper tray (if installed), and then carefully place the product front-side up.

△ **CAUTION:** The ADF and scanner cover are not captive and can open suddenly if the product is placed front-side up. Always support the ADF and scanner cover before placing the product front-side up.

📝 **NOTE:** Debris can scratch or damage the back of the product. Before you place the product front-side up, remove any debris from the work surface. If possible, set the product on a clean, dry cloth to prevent scratching and damage.

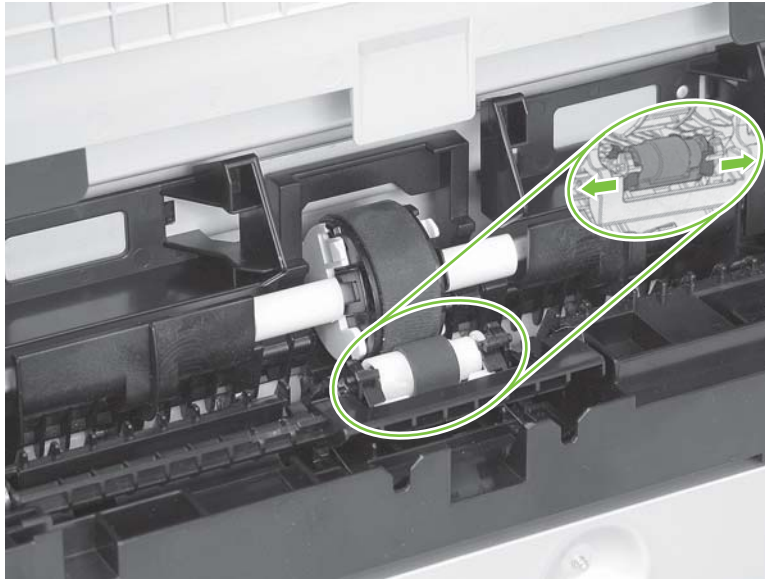
2. Release the two roller-cover locking pins and then remove the cover.

Figure 6-15 Remove the separation roller (1 of 2)



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

Figure 6-16 Remove the separation roller (2 of 2)



Transfer roller

1. Open the rear door.
2. Release the retainer clip and then rotate it until the pin on the clip aligns with the slot in the mounting bracket.

Figure 6-17 Remove the transfer roller (1 of 3)



3. Remove the clip. Repeat these steps for the remaining retainer clip.


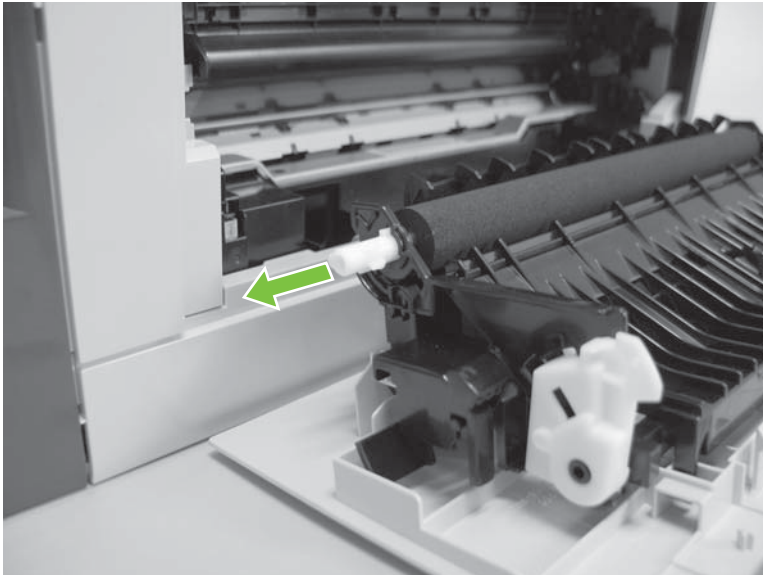
 **TIP:** One of the clips is made from a black conductive plastic. Make sure that the clips are reinstalled on the side of the transfer roller that they are removed from.

Figure 6-18 Remove the transfer roller (2 of 3)



4. Slide the roller to one side to disengage the roller shaft from the mounting bracket, and then remove the transfer roller.

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

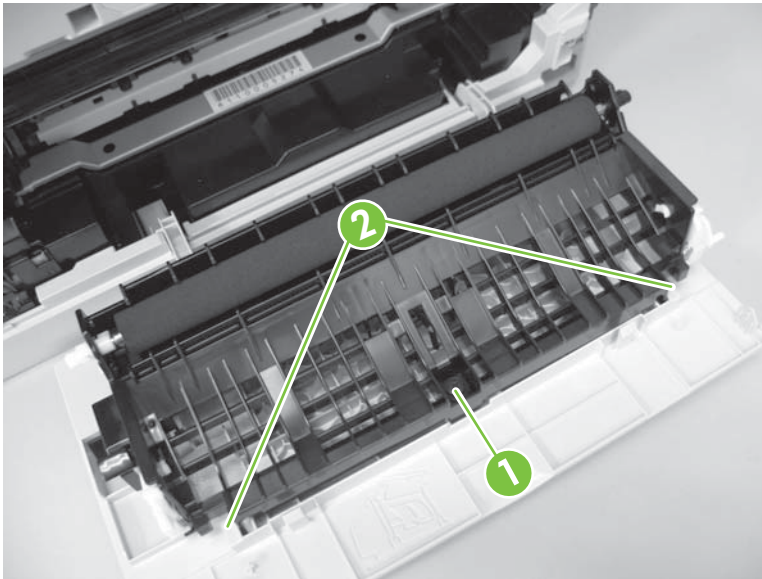
Figure 6-19 Remove the transfer roller (3 of 3)



Paper-guide assembly

1. Release one captive screw (callout 1) and release two tabs (callout 2).

Figure 6-20 Remove the paper-guide assembly (1 of 2)



2. Remove the paper-guide assembly

Figure 6-21 Remove the paper-guide assembly (2 of 2)



External panels, covers, and doors

Front door and front-lower cover

1. Open the front door and pull out the print-cartridge drawer.

Figure 6-22 Remove the front door and front-lower cover (1 of 13)



2. Use a small flatblade screw driver to release one tab (callout 1) on the cartridge-drawer stop.


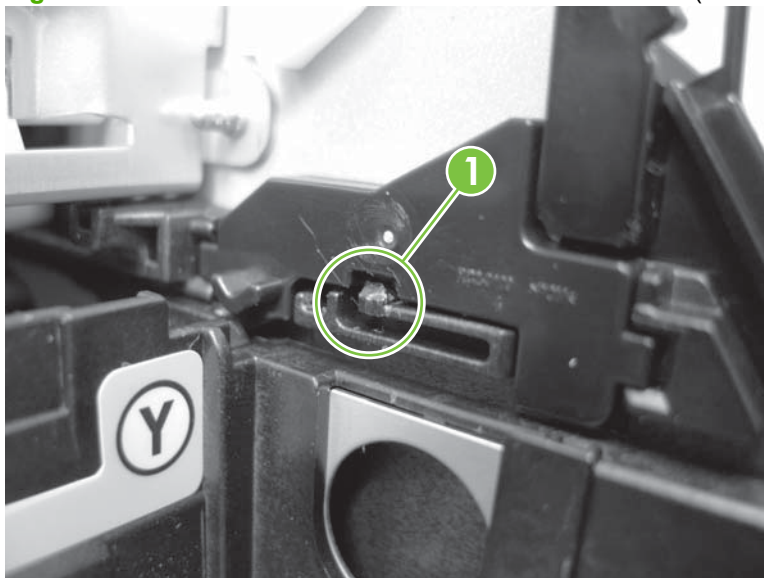
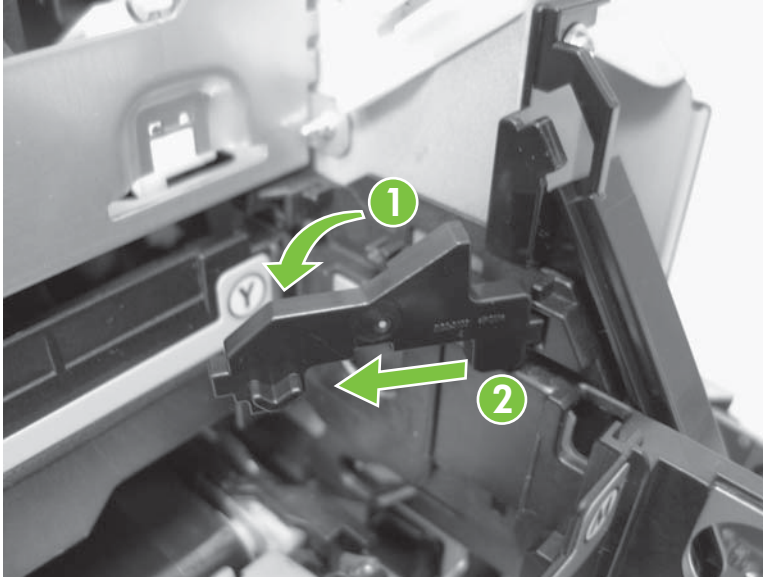
 **TIP:** This clip slightly extends under the edge of the top cover. In the next step, you must push in on the edge of the top cover to allow the clip to rotate away from the chassis

Figure 6-23 Remove the front door and front-lower cover (2 of 13)



3. Push in on the edge of the top cover, and then rotate the end of the drawer stop toward the center of the print-cartridge drawer.

Figure 6-24 Remove the front door and front-lower cover (3 of 13)



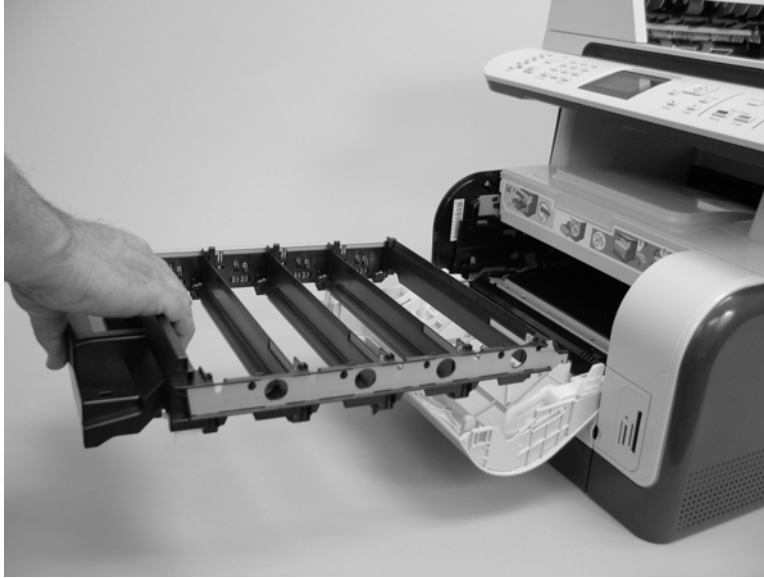
4. Remove the drawer stop. Repeat the previous steps to remove the remaining drawer stop.

Figure 6-25 Remove the front door and front-lower cover (4 of 13)



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

Figure 6-26 Remove the front door and front-lower cover (5 of 13)

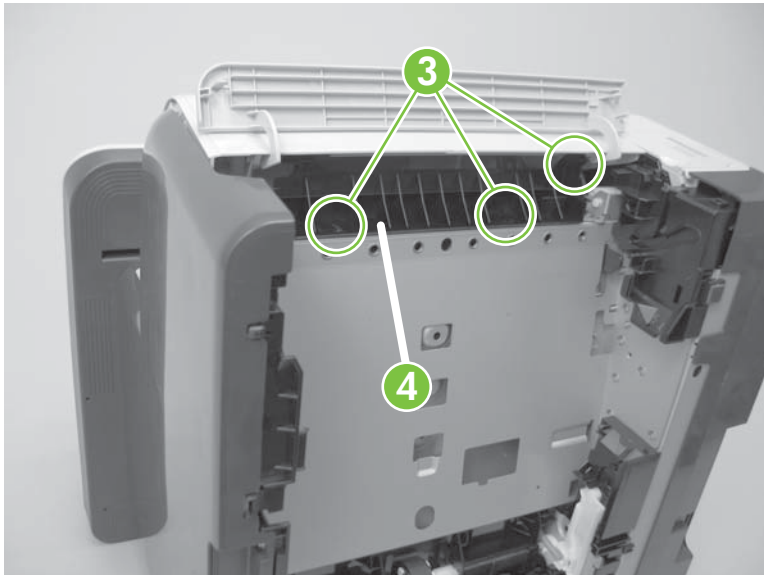


6. Remove the paper tray (if installed), and then carefully place the product front-side up

△ **CAUTION:** The ADF and scanner cover are not captive and can open suddenly if the product is placed front-side up. Always support the ADF and scanner cover before placing the product front-side up.

7. Release three tabs (callout 3) and then push the guide (callout 4) into the product (away from the tray 1 cavity).

Figure 6-27 Remove the front door and front-lower cover (6 of 13)



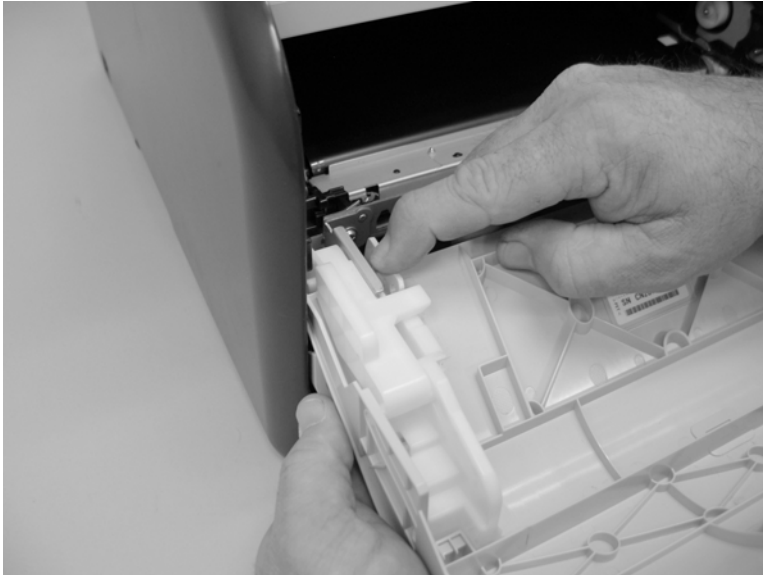
8. Remove the guide through the front-door opening.

Figure 6-28 Remove the front door and front-lower cover (7 of 13)



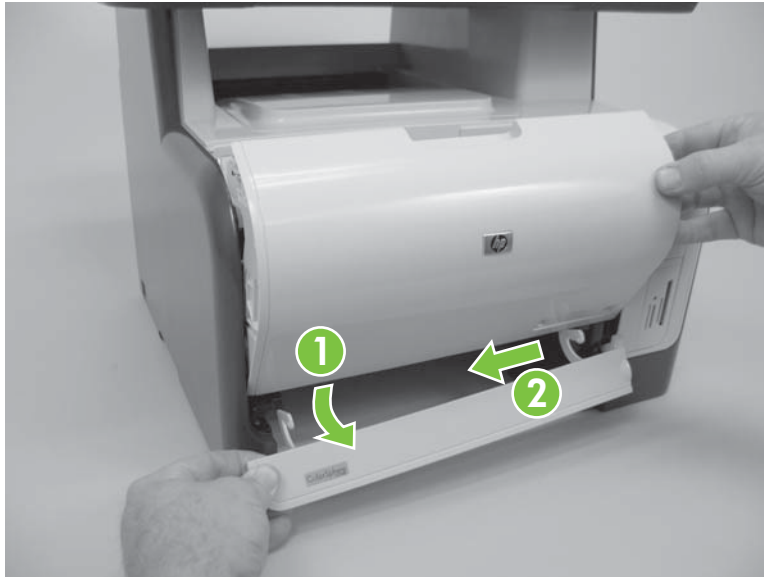
9. Carefully push the left-side front-lower door hinge in toward the center of the door to release it from the hinge pin.

Figure 6-29 Remove the front door and front-lower cover (8 of 13)



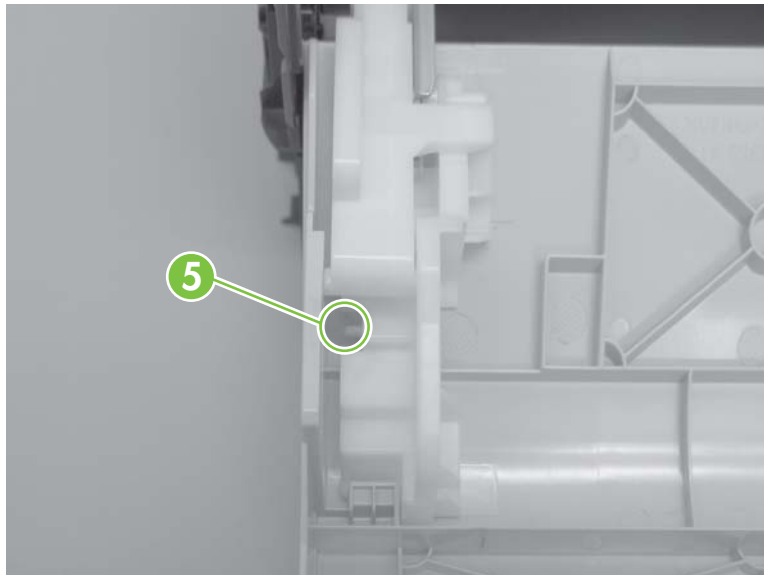
10. Lower the left side of the door and then slide it to the left to release the right-side hinge. Remove the front-lower door.

Figure 6-30 Remove the front door and front-lower cover (9 of 13)



11. Use a small flatblade screwdriver to release one tab (callout 5) on the left-side front-door cam.

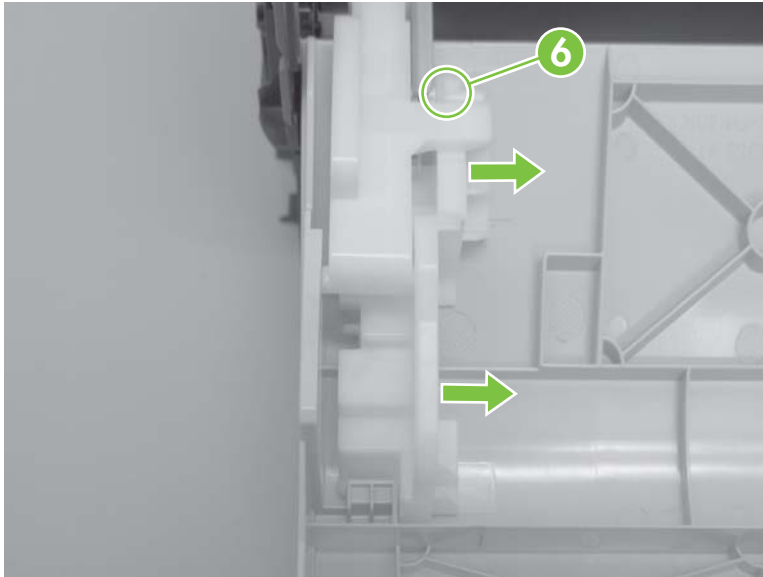
Figure 6-31 Remove the front door and front-lower cover (10 of 13)



12. Slide the cam toward the center of the door to remove it. Repeat these steps for the right-side front-door cam.

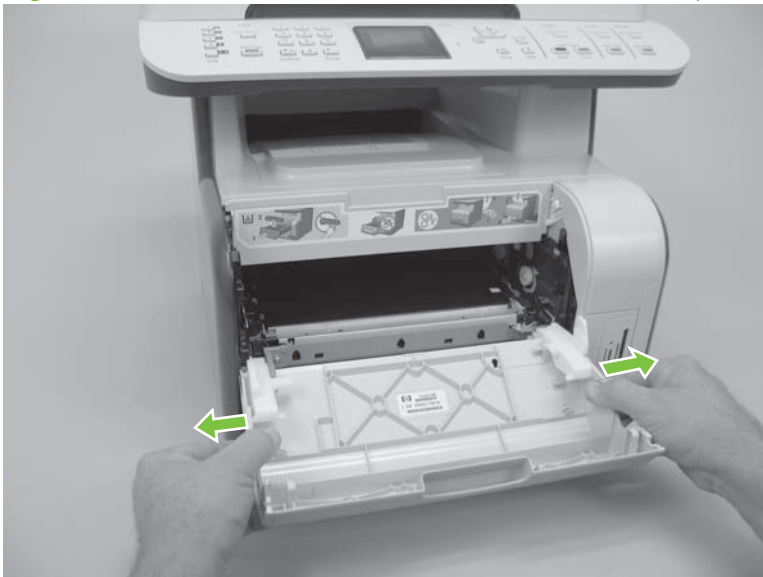
△ **CAUTION:** The hinge pin (callout 6) on the cam can be easily broken. You must apply even pressure on the cam to remove it without any twist motion that will break the hinge pin off of the cam.

Figure 6-32 Remove the front door and front-lower cover (11 of 13)



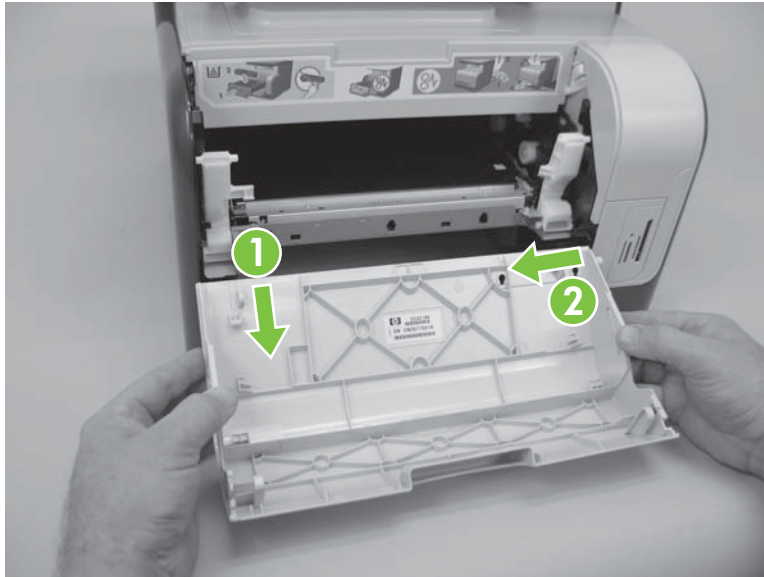
13. Carefully flex the edges of the door to release the right- and left-side door retainer arms.

Figure 6-33 Remove the front door and front-lower cover (12 of 13)



14. Lower the left side of the door, and then slide it to the left to release the right-side door hinge pin. Remove the door.

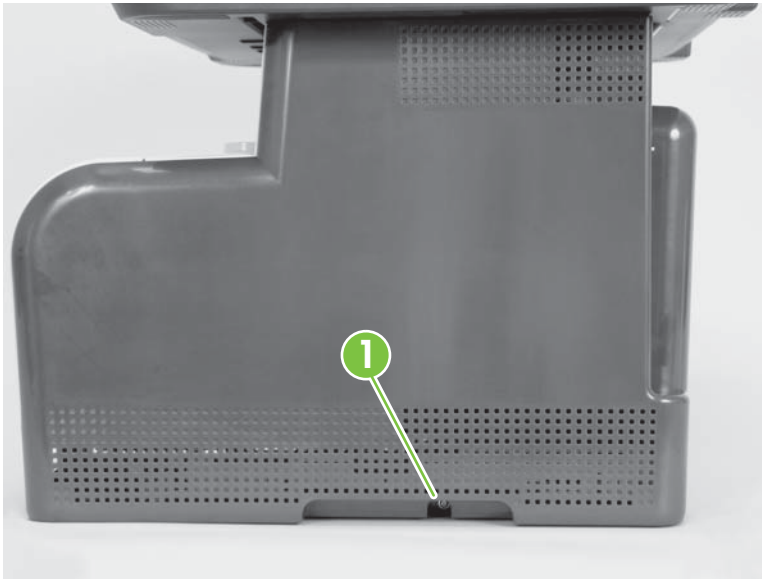
Figure 6-34 Remove the front door and front-lower cover (13 of 13)



Right cover

1. Remove one screw (callout 1).

Figure 6-35 Remove the right cover (1 of 5)



2. Carefully pull the front of the right cover away from the product to release one tab.

Figure 6-36 Remove the right cover (2 of 5)



3. Use a small flatblade screwdriver to release one tab (callout 2).

Figure 6-37 Remove the right cover (3 of 5)



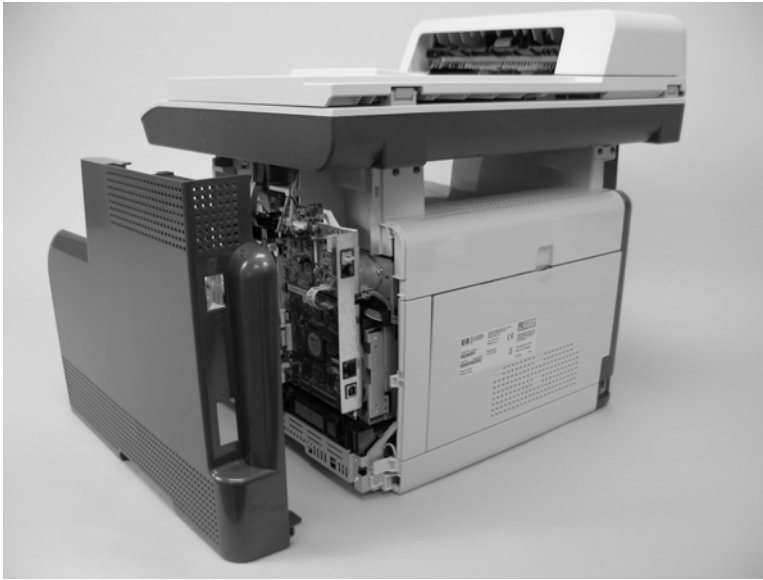
4. Use a small flatblade screwdriver to release two tabs (callout 3).

Figure 6-38 Remove the right cover (4 of 5)



5. Separate the cover away from the product to remove it.

Figure 6-39 Remove the right cover (5 of 5)



Left cover

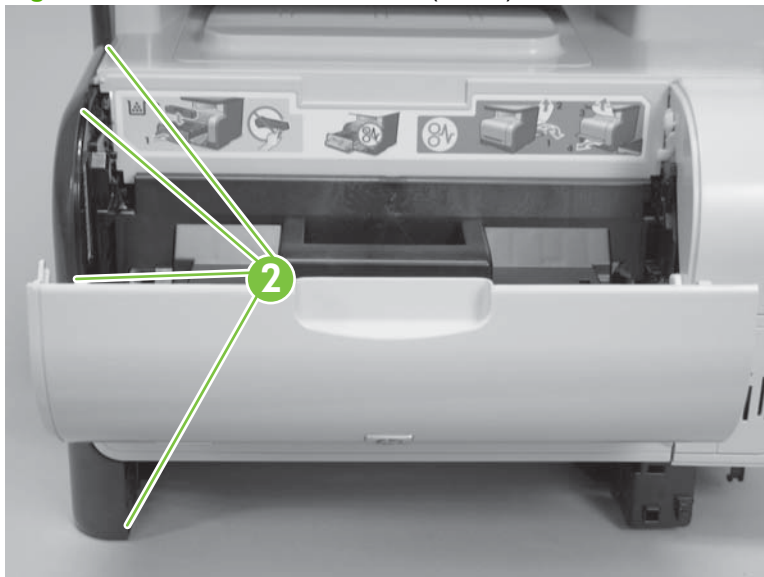
1. Remove one screw (callout 1).

Figure 6-40 Remove the left cover (1 of 4)



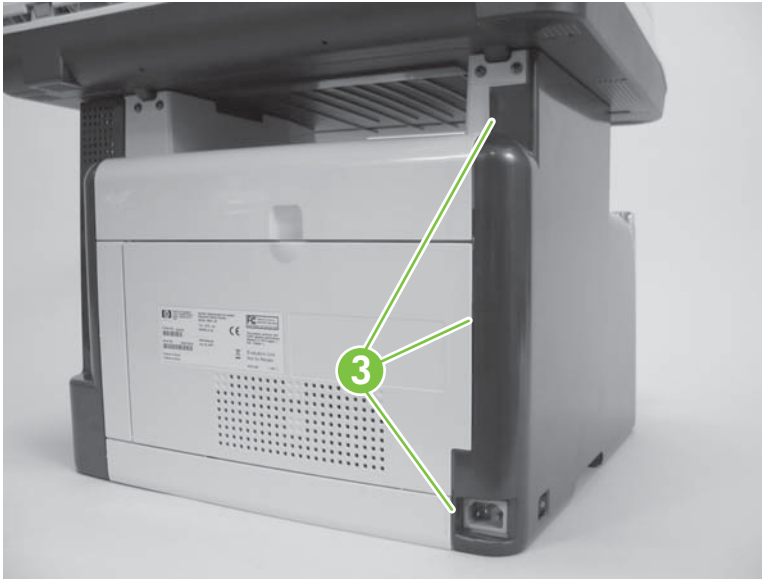
2. Open the front door, and then use a small flatblade screwdriver to release four tabs (callout 2).

Figure 6-41 Remove the left cover (2 of 4)



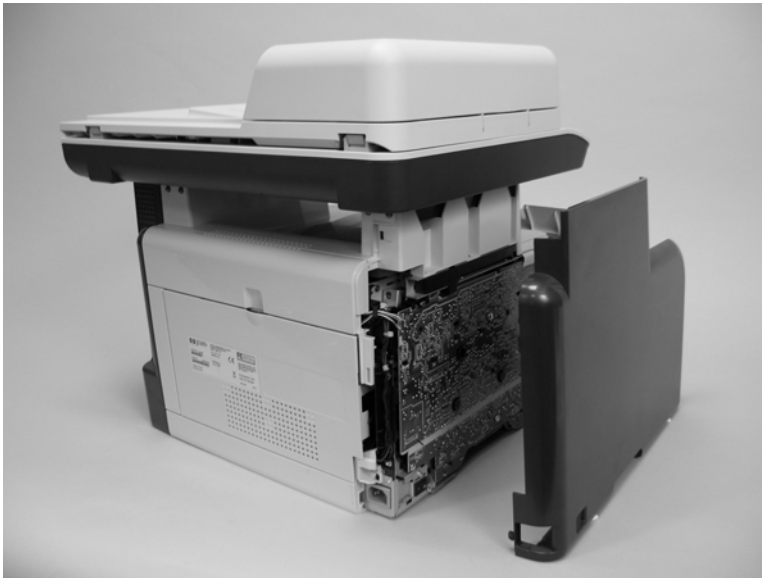
3. Use a small flatblade screwdriver to release three tabs (callout 3) at the back of the product.

Figure 6-42 Remove the left cover (3 of 4)




4. Separate the cover away from the product to remove it.

Figure 6-43 Remove the left cover (4 of 4)

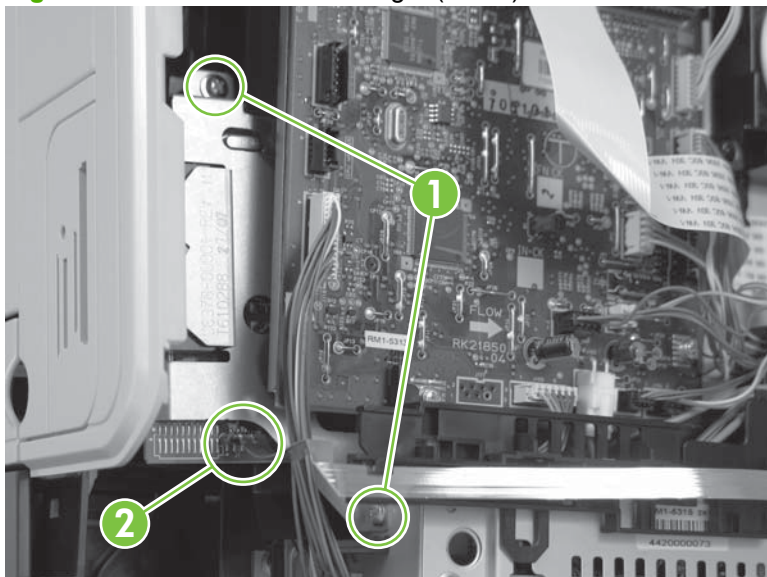


Front-right cover

 **NOTE:** The fax/memory-card models have a memory-card reader PCA installed on this cover.

1. Remove the right cover. See [Right cover on page 132](#).
2. Fax/memory-card models only: Remove two screws (callout 1), and then disconnect one FFC (callout 2)

Figure 6-44 Remove the front-right (1 of 3)



3. Use a small flatblade screwdriver to release two tabs (callout 3).

Figure 6-45 Remove the front-right cover (2 of 3)



4. Remove the front-right cover.


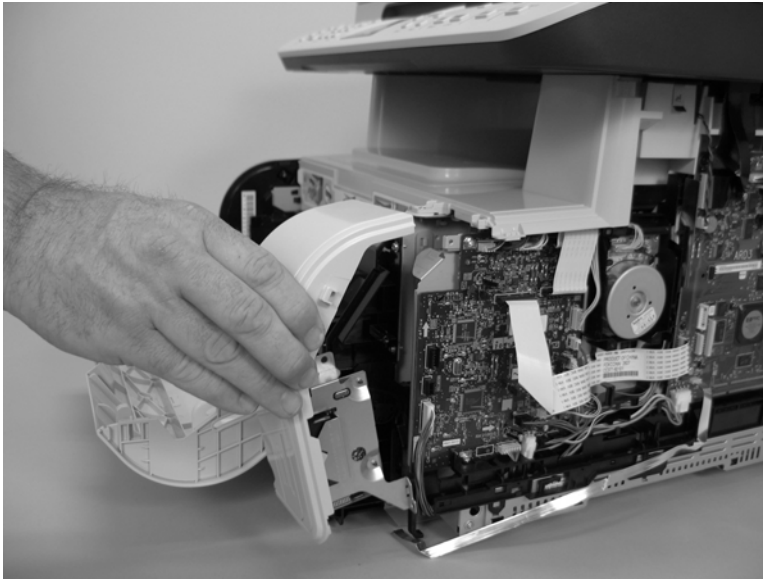
 **NOTE:** The base model will not have the memory-card reader PCA installed as shown below.

Figure 6-46 Remove the front-right cover (3 of 3)



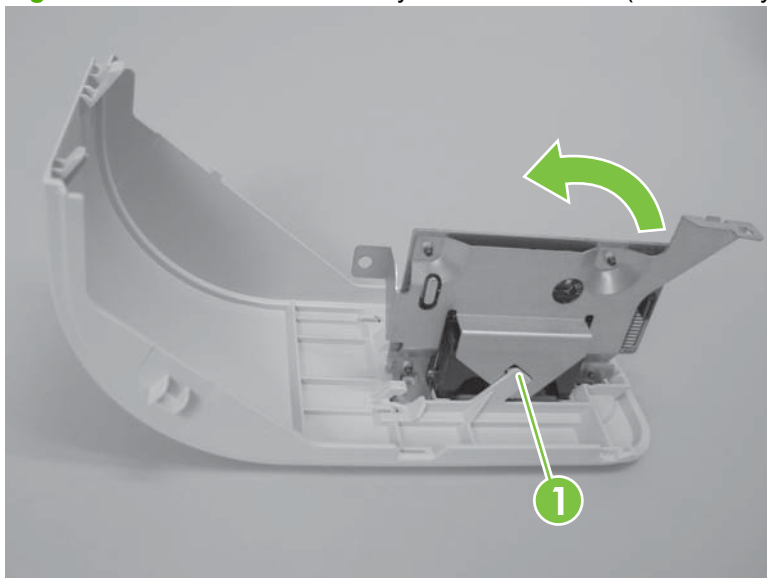
Reinstall the front-right cover

Fax/memory-card models only: If you are installing a replacement front-right cover, remove the memory-card reader from the discarded cover, and then install it on the replacement cover. See [Memory-card reader PCA \(fax/memory-card models only\) on page 139](#).

Memory-card reader PCA (fax/memory-card models only)

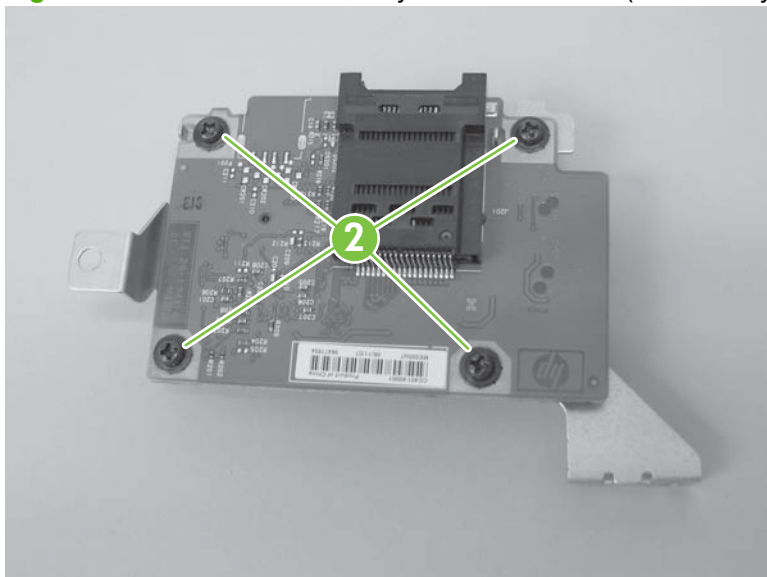
1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Front-right cover. See [Front-right cover on page 137](#).
2. Release one tab (callout 1), and then rotate the memory-card reader PCA assembly away from the front-right cover.

Figure 6-47 Remove the memory-card reader PCA (fax/memory-card models only) (1 of 2)



3. Remove four screws (callout 2), and then separate the memory-card reader PCA from the bracket to remove it.

Figure 6-48 Remove the memory-card reader PCA (fax/memory-card models only) (2 of 2)



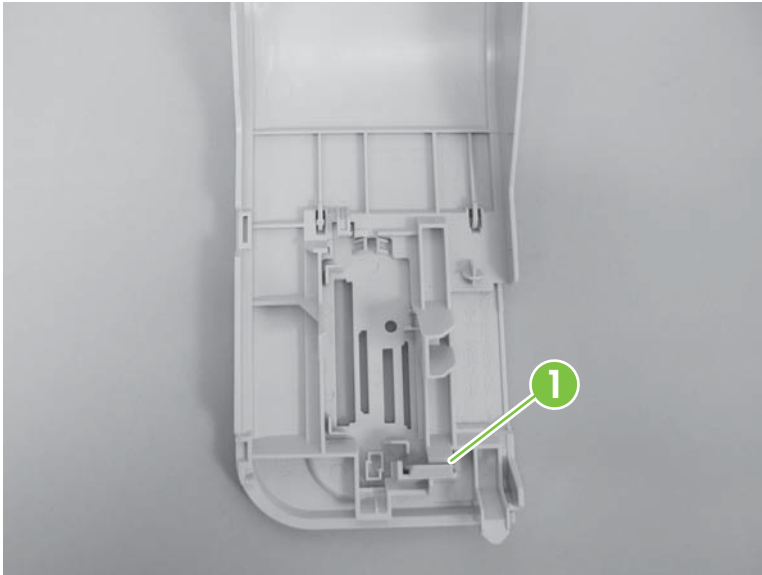
Card cover or blanking cover

△ **CAUTION:** Do not lose the clear-plastic light conductor when handling the cover.

📝 **NOTE:** The base model has a blank cover installed on the right-front cover. The fax/memory-card models have a card cover installed on the right-front cover.

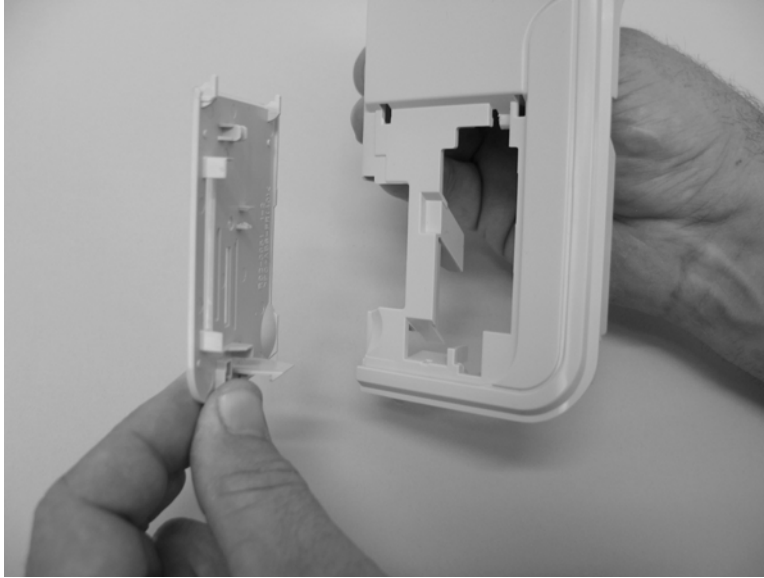
1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Front-right cover. See [Front-right cover on page 137](#).
 - Memory-card reader PCA (fax/memory-card models only). See [Memory-card reader PCA \(fax/memory-card models only\) on page 139](#).
2. Release one tab (callout 1).

Figure 6-49 Remove the card cover or blanking cover (1 of 2)



3. Remove the card or blanking cover.

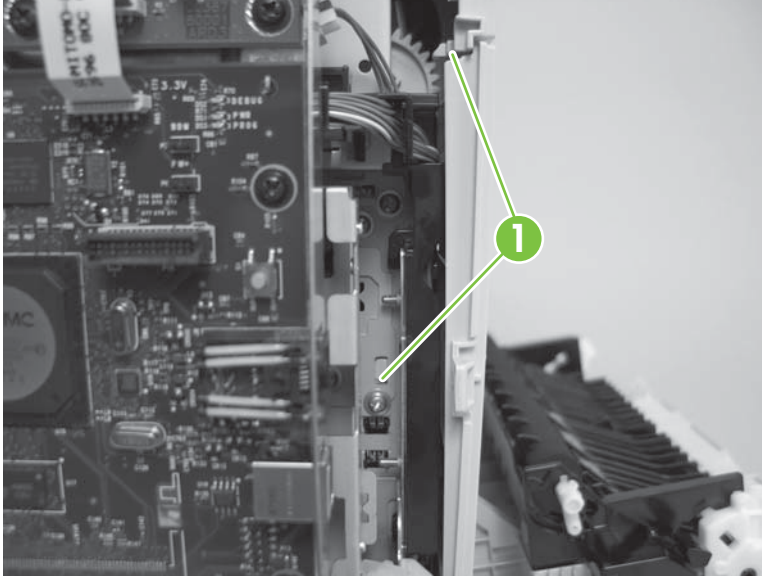
Figure 6-50 Remove the card cover or blanking cover (2 of 2)



Rear-side cover

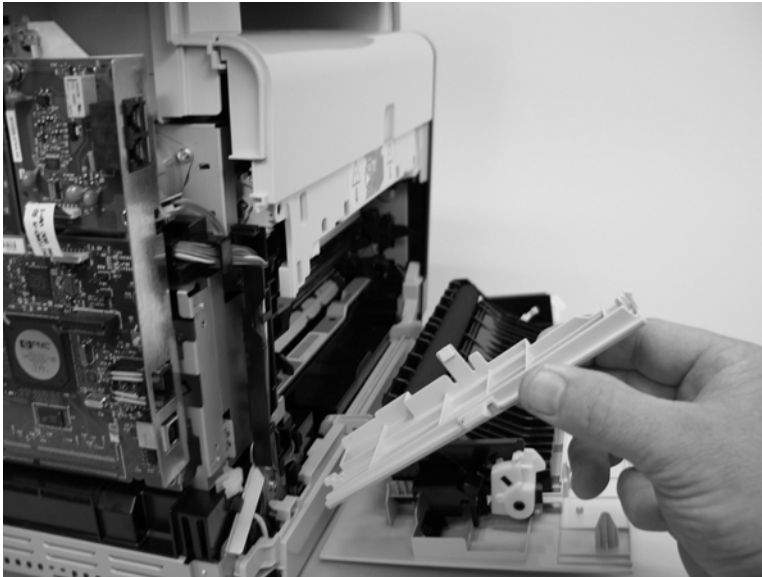
1. Remove the right cover. See [Right cover on page 132](#).
2. Open the rear door.
3. Use a small flatblade screwdriver to release two tabs (callout 1).

Figure 6-51 Remove the rear-side cover (1 of 2)



4. Remove the rear-side cover.

Figure 6-52 Remove the rear-side cover (2 of 2)



Rear-upper cover

1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Left cover. See [Left cover on page 135](#).
 - Rear-side cover. See [Rear-side cover on page 142](#).
2. Open the rear door.
3. Use a small flatblade screwdriver to release two tabs (callout 1).


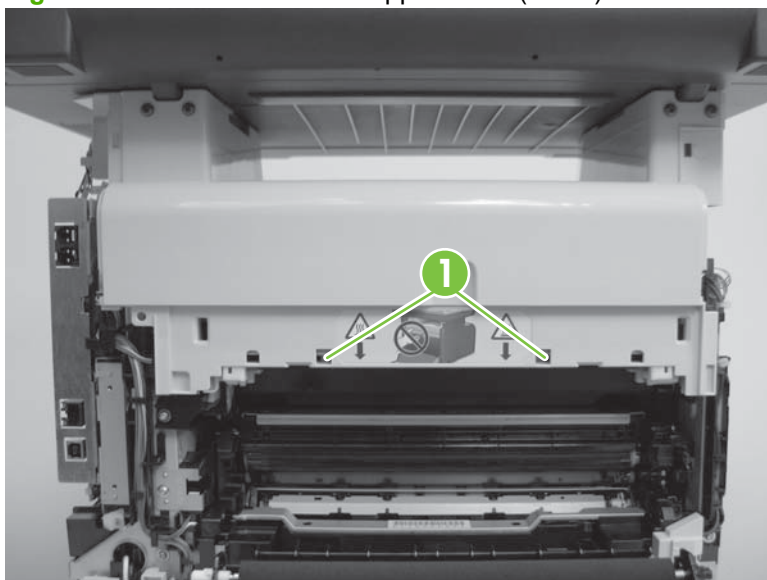
 **TIP:** Push down to release these tabs.

Figure 6-53 Remove the rear-upper cover (1 of 2)



4. Rotate the bottom of the rear-upper cover away from the product to remove it.

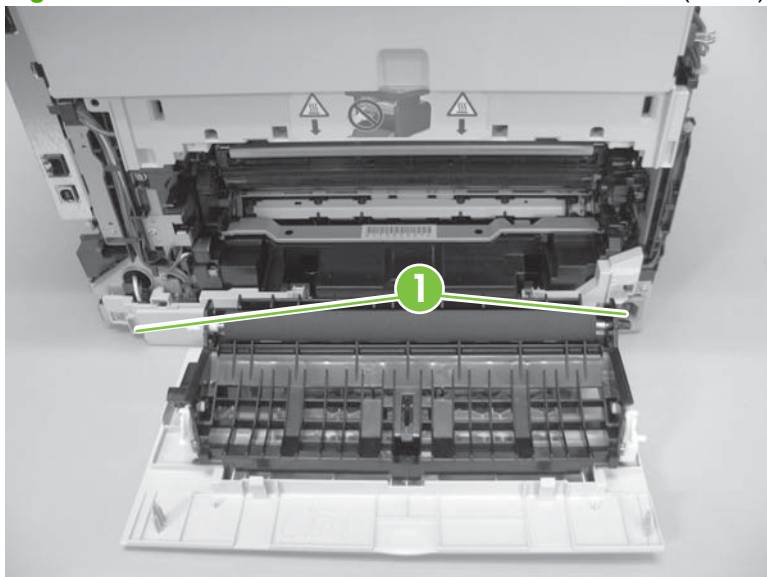
Figure 6-54 Remove the rear-upper cover (2 of 2)



Rear door and rear-lower cover

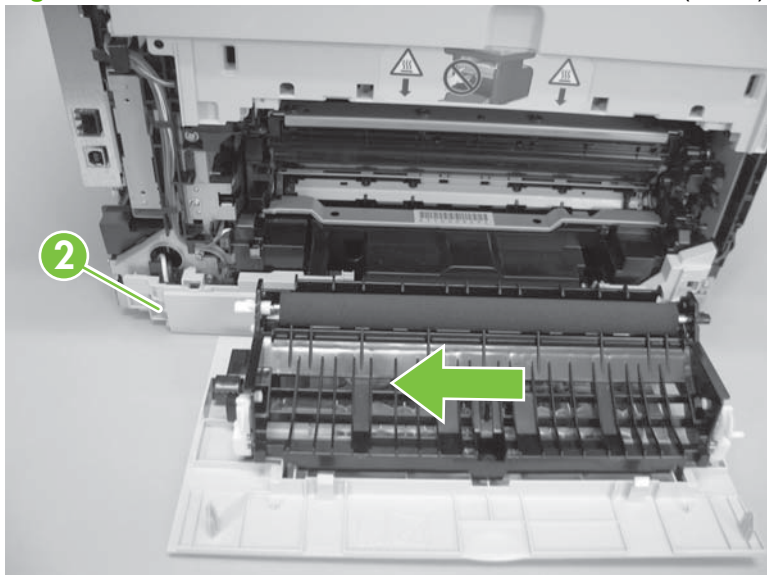
1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Left cover. See [Left cover on page 135](#).
 - Rear-side cover. See [Rear-side cover on page 142](#).
2. Remove two screws (callout 1)

Figure 6-55 Remove the rear door and rear-lower cover (1 of 4)



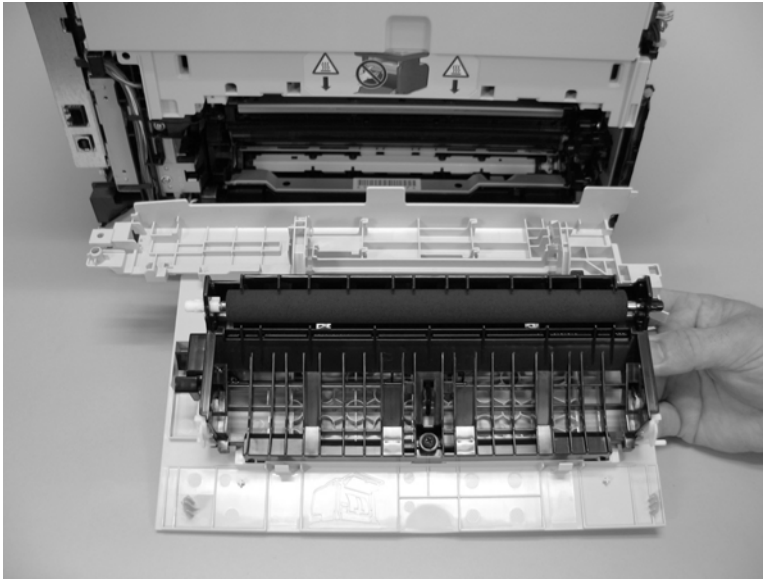
3. Release one pin (callout 2) and then slide the rear door and rear-lower cover towards the side of the product with the interface connectors.

Figure 6-56 Remove the rear door and rear-lower cover (2 of 4)



4. Remove the rear door and rear-lower cover.

Figure 6-57 Remove the rear door and rear-lower cover (3 of 4)

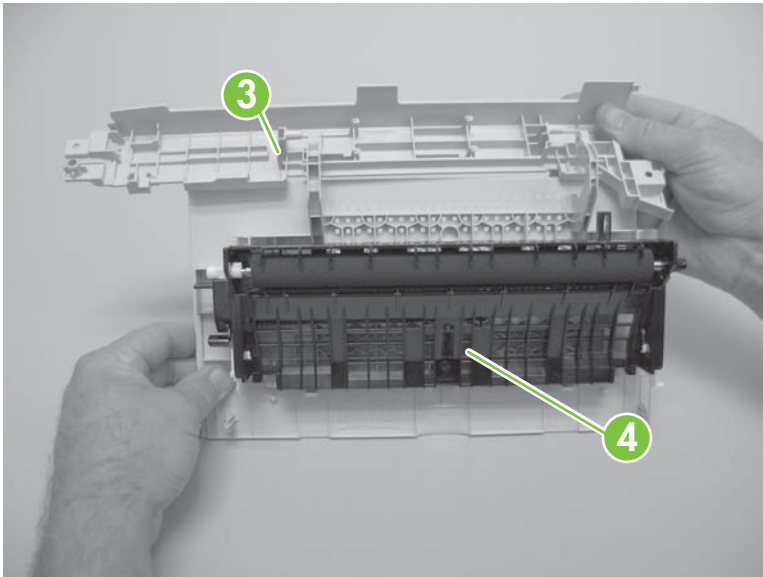


5. Carefully pry the rear-door hinge arms off of the hinge pins on the rear-lower cover to separate the rear cover (callout 3) from the rear door (callout 4).



NOTE: If you are installing a replacement rear-lower door, remove the paper-guide assembly from the discarded door, and then install it on the replacement door. See [Paper-guide assembly on page 124](#).

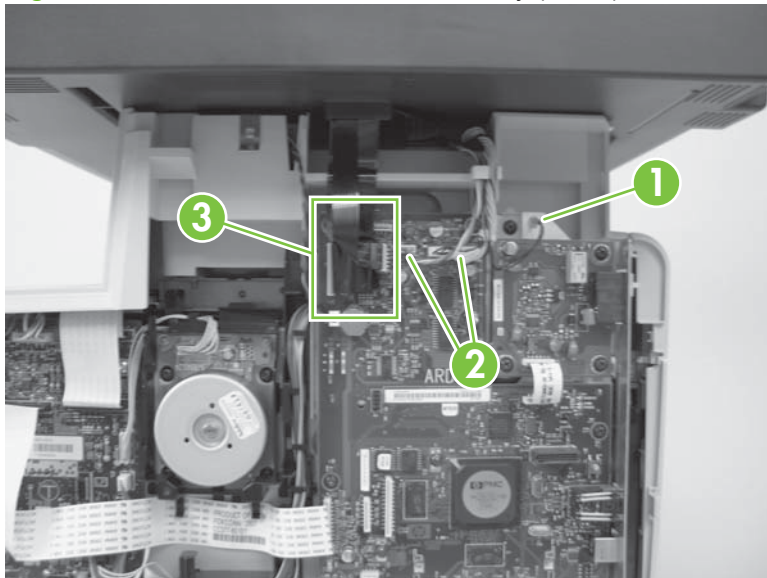
Figure 6-58 Remove the rear door and rear-lower cover (4 of 4)



Scanner assembly

1. Remove the right cover. See [Right cover on page 132](#).
2. Disconnect one ground-wire lug (callout 1), two wire-harness connectors (callout 2; J4 and P1), and three FFCs (callout 3; J1, J2, and J3).

Figure 6-59 Remove the scanner assembly (1 of 4)



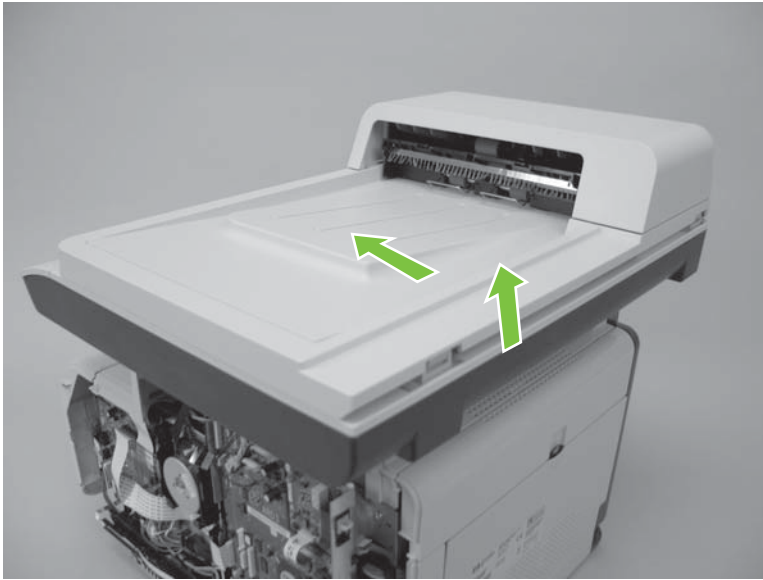
3. Remove four screws (callout 4).

Figure 6-60 Remove the scanner assembly (2 of 4)



4. Slightly lift up the back of the scanner, and then slide it toward the front of the product.

Figure 6-61 Remove the scanner assembly (3 of 4)




5. Lift the scanner straight up and off of the product.

Figure 6-62 Remove the scanner assembly (4 of 4)

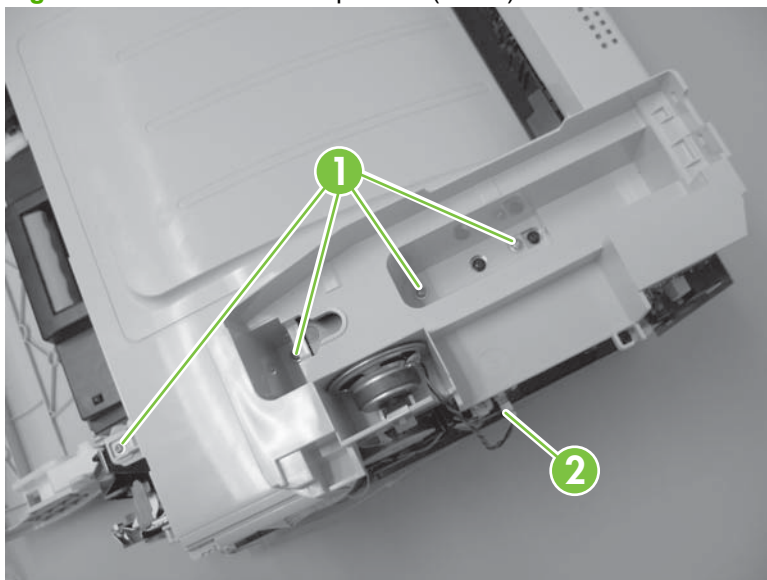


Top cover

 **NOTE:** If you are installing a replacement top cover, make sure that you remove the speaker from the discarded cover and install it on the replacement cover. See [Speaker \(fax/memory-card models only\) on page 155](#).

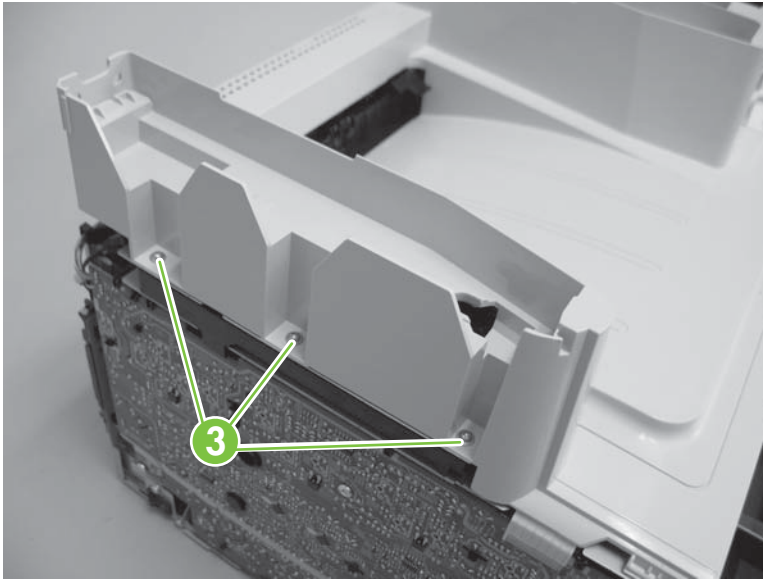
1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Left cover. See [Left cover on page 135](#).
 - Front-right cover. See [Front-right cover on page 137](#).
 - Rear-side cover. See [Rear-side cover on page 142](#).
 - Rear-upper cover. See [Rear-upper cover on page 143](#).
 - Scanner assembly. See [Scanner assembly on page 147](#).
2. Remove four screws (callout 1) and then disconnect one wire-harness connector (callout 2, P2).

Figure 6-63 Remove the top cover (1 of 3)



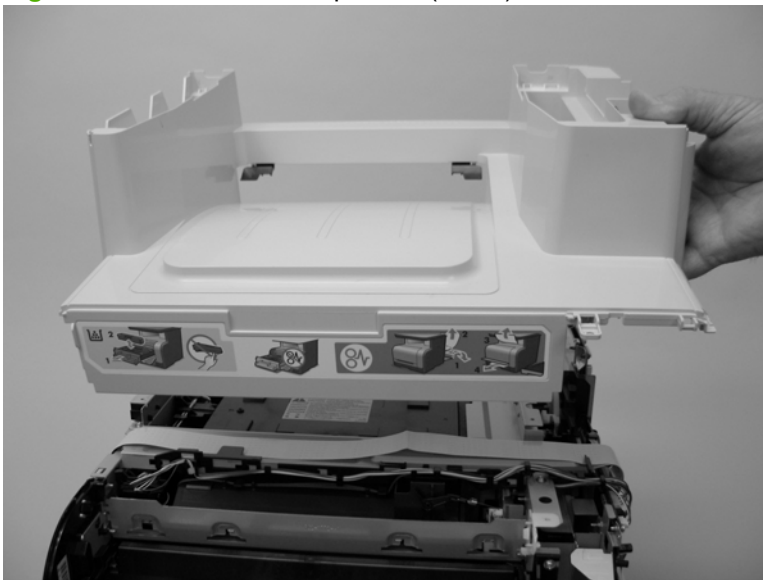
3. Remove three screws (callout 3) at the top-left side of the product.

Figure 6-64 Remove the top cover (2 of 3)



4. Remove the top cover.

Figure 6-65 Remove the top cover (3 of 3)



Internal assemblies

Print-cartridge drawer

1. Open the front door and out the print-cartridge drawer.

Figure 6-66 Remove the print-cartridge drawer (1 of 5)



2. Use a small flatblade screw driver to release one tab (callout 1) on the cartridge-drawer stop.


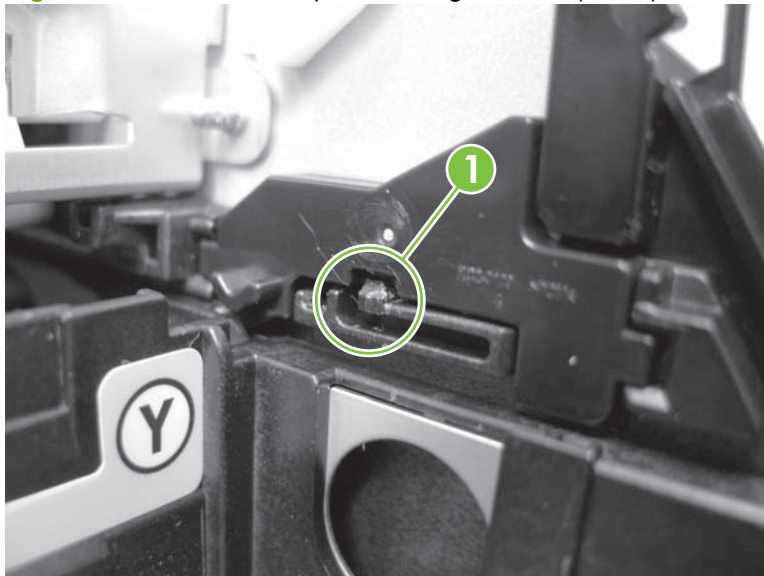
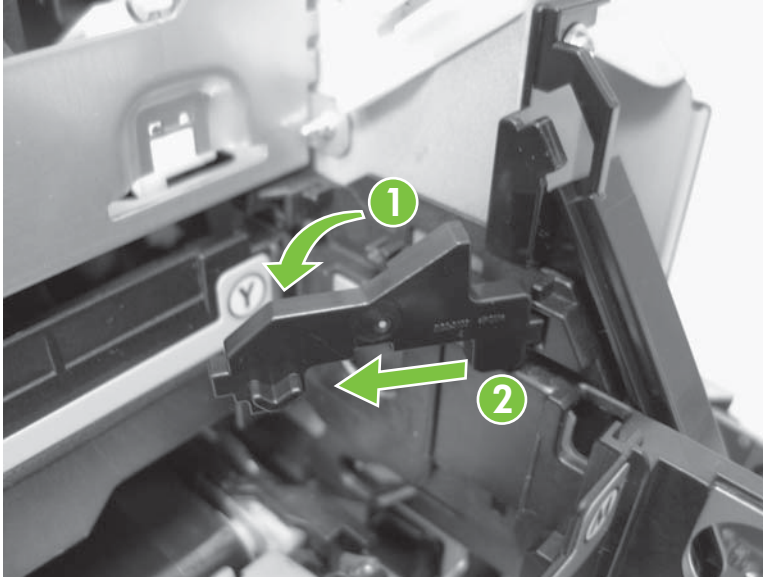
 **TIP:** This clip slightly extends under the edge of the top cover (arrow). In the next step, you must push in on the edge of the top cover to allow the clip to rotate away from the chassis

Figure 6-67 Remove the print-cartridge drawer (2 of 5)



3. Push in on the edge of the top cover, and then rotate the end of the drawer stop toward the center of the print-cartridge drawer.

Figure 6-68 Remove the print-cartridge drawer (3 of 5)



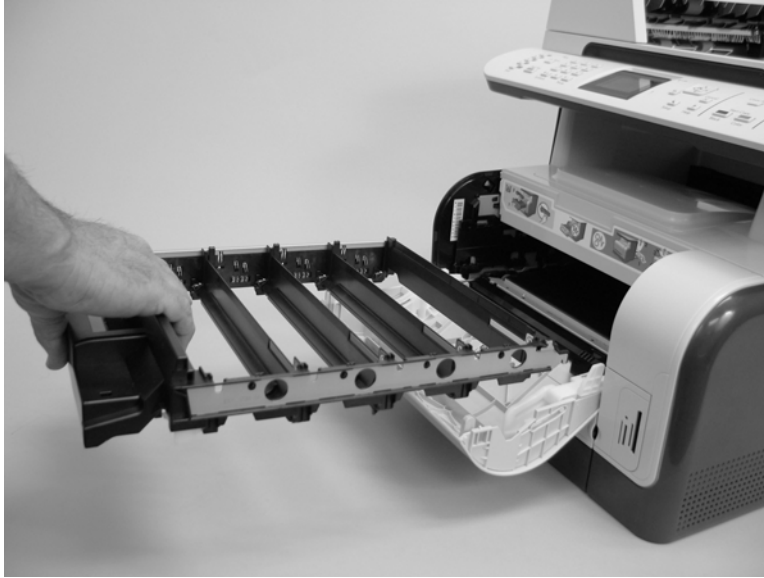
4. Remove the drawer stop. Repeat the previous steps to remove the remaining drawer stop.

Figure 6-69 Remove the print-cartridge drawer (4 of 5)



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

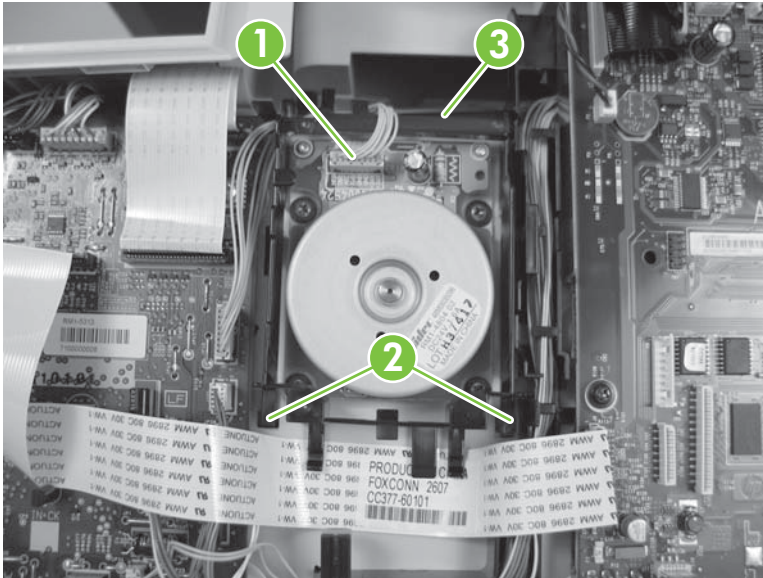
Figure 6-70 Remove the print-cartridge drawer (5 of 5)



Main motor

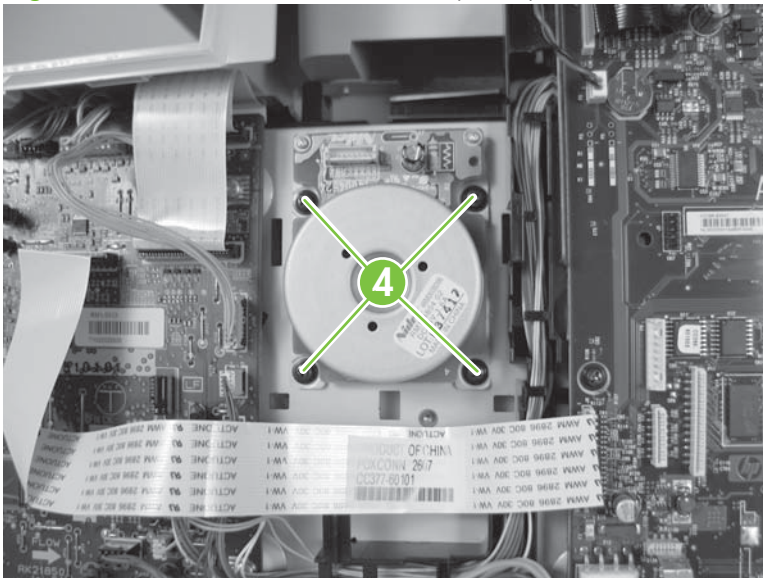
1. Remove the right cover. See [Right cover on page 132](#).
2. Disconnect one wire-harness connector (callout 1), and then release two tabs (callout 2) to release the black-plastic retainer (callout 3). Slide the retainer down and separate it from the chassis.

Figure 6-71 Remove the main motor (1 of 2)



3. Remove four screws (callout 4) and then remove the main motor.

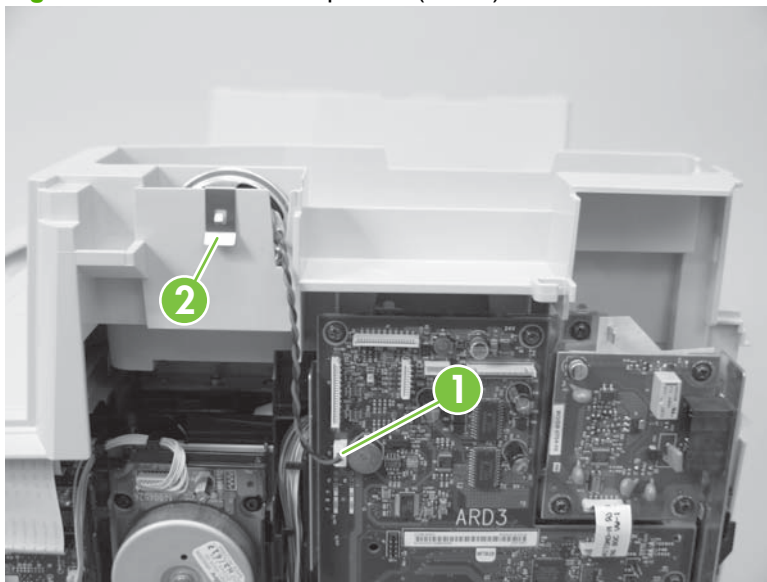
Figure 6-72 Remove the main motor (2 of 2)



Speaker (fax/memory-card models only)

1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Scanner assembly. See [Scanner assembly on page 147](#).
2. Disconnect one wire-harness connector (callout 1; P2), and then remove one clip (callout 2).

Figure 6-73 Remove the speaker (1 of 2)



3. Remove the speaker from the product.

△ **CAUTION:** Do not handle the speaker by grasping the wire harness. The solder connections can be easily broken.

When handling the speaker, do not push on the speaker cone to prevent damaging it.

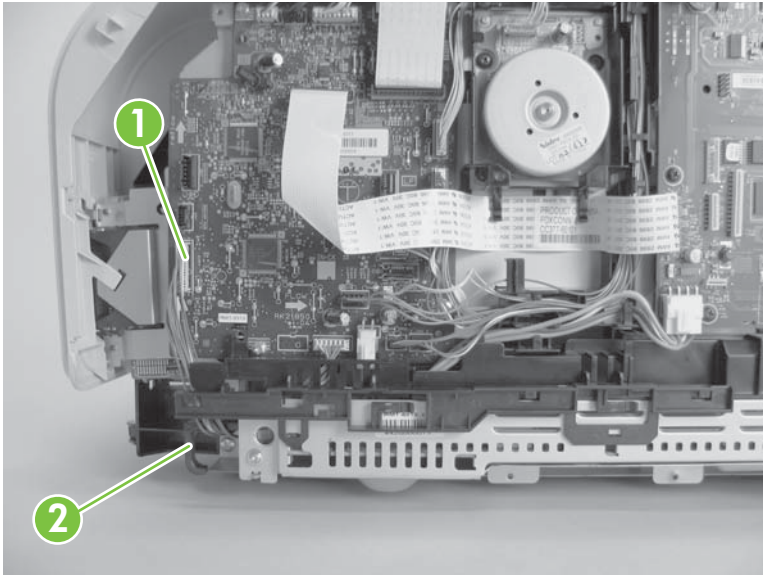
Figure 6-74 Remove the speaker (2 of 2)



Intermediate transfer belt (ITB)

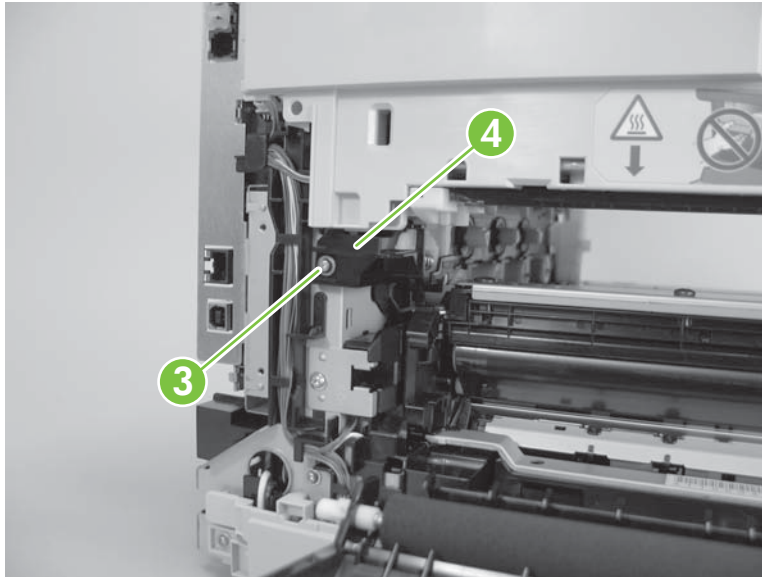
1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Left cover. See [Left cover on page 135](#).
 - Rear-side cover. See [Rear-side cover on page 142](#).
 - Print-cartridge drawer. See [Print-cartridge drawer on page 151](#).
2. Disconnect one wire-harness connector (callout 1), and then release the wire harness from the retainer (callout 2).

Figure 6-75 Remove the ITB (1 of 5)



3. Open the rear door, and then remove one screw (callout 3), and then remove the print-cartridge door stop (callout 4).

Figure 6-76 Remove the ITB (2 of 5)



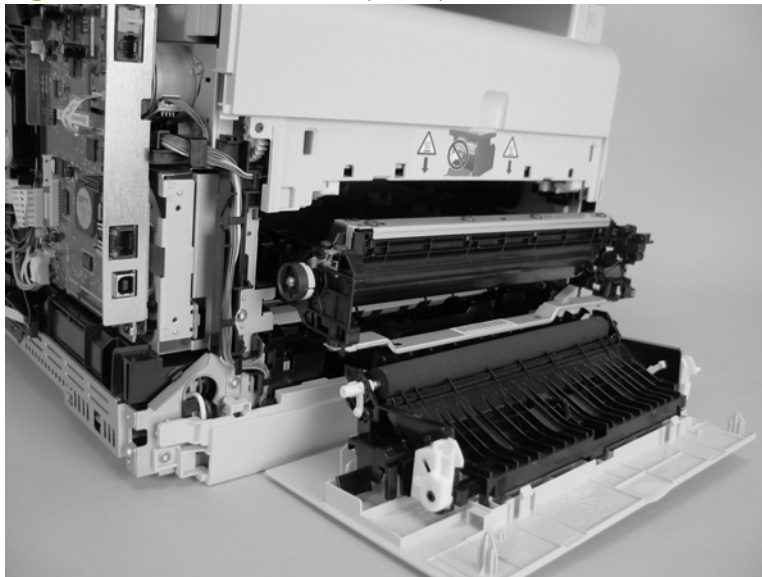
4. Carefully lift up on the black plastic portion of the ITB, and then pull it *partially* out of the product (the ITB wire harness will prevent the ITB from being fully removed).

⚠ **WARNING!** Only *partially* pull the ITB out of the product to avoid damage to the secondary-transfer (T2) roller.

See [Figure 6-79 Remove the ITB \(5 of 5\) on page 158](#) to see how to correctly handle the ITB to prevent damaging it. Do not lift the ITB by grasping the sheet-metal bracket.

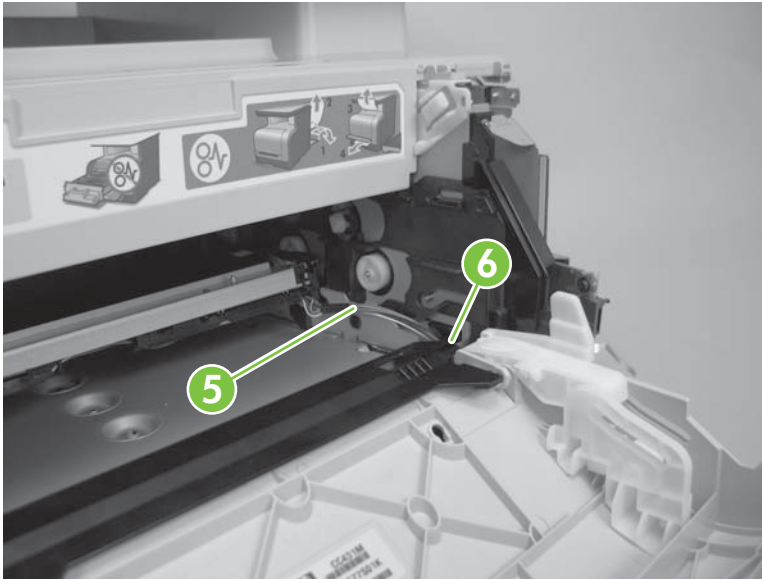
⚠ **CAUTION:** Avoid touching the black plastic transfer belt. Skin oils on the belt might cause print-quality problems.

Figure 6-77 Remove the ITB (3 of 5)



5. Feed the ITB wire harness (callout 5) through an opening in the chassis (callout 6).

Figure 6-78 Remove the ITB (4 of 5)

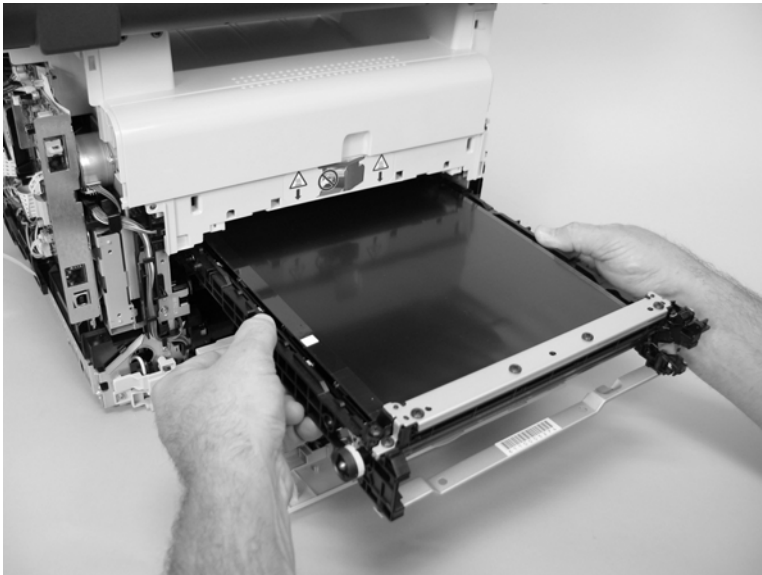


6. Carefully pull the ITB straight out of the product.

⚠ **WARNING!** Handle the ITB by its hard plastic sides to avoid damage to the sheet metal frame. The lower sheet-metal portion of the ITB frame can be easily bent. See callout 1 in [Figure 6-80 Reinstall the ITB \(1 of 2\) on page 159](#).

⚠ **CAUTION:** Make sure that the ITB wire harness does not get damaged as the ITB is removed from the chassis.

Figure 6-79 Remove the ITB (5 of 5)



Reinstall the ITB

Use the following guidelines when you install the ITB.

- **⚠ WARNING!** The lower sheet-metal portion of the ITB frame (callout 1) can be easily bent. Avoid handling the ITB by this part of the sheet-metal frame.

Figure 6-80 Reinstall the ITB (1 of 2)



- When handling the ITB, always use the hard plastic portions of the assembly.
- △ **CAUTION:** Avoid touching the black-plastic transfer belt or roller. Skin oils on the belt or roller might cause print-quality problems.
- Do not let the transfer belt contact hard or sharp objects.
- △ **CAUTION:** Scratches, punctures, or other damage to the belt will cause print-quality problems.
- Make sure that the wire harness is not twisted or pinched after it is passed through the opening in the chassis, and that the ITB sits flat in the product.
- 📝 **NOTE:** When the print-cartridge drawer is installed, it should easily slide in and out of the product and not contact any part of the ITB assembly.

- Tape the wire harness to the sheet-metal frame so that it will not catch on internal components as the ITB is installed.

With the ITB partially installed, feed the wire harness through the opening in the chassis. See [Figure 6-78 Remove the ITB \(4 of 5\) on page 158](#). Finish installing the ITB.

⚠ **WARNING!** Do not place the tape so that it makes contact or adheres to the transfer belt. Tape or tape residue on the transfer belt will cause print-quality problems.

📝 **NOTE:** Make sure that you remove all of the tape and tape residue after installing the ITB.

Figure 6-81 Reinstall the ITB (2 of 2)



DC controller PCA

Special considerations

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

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

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

Replacing the DC controller PCA before the formatter PCA

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

📝 **NOTE:** If you are only installing a replacement DC controller PCA, proceed to [Remove the DC controller PCA on page 161](#).

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

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

3. Turn the product power off.
4. Install a replacement formatter PCA. See [Formatter and fax card PCAs on page 165](#).
5. Turn the product power on.

Remove the DC controller PCA

⚠ **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* make sure that all FFCs are fully seated in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.



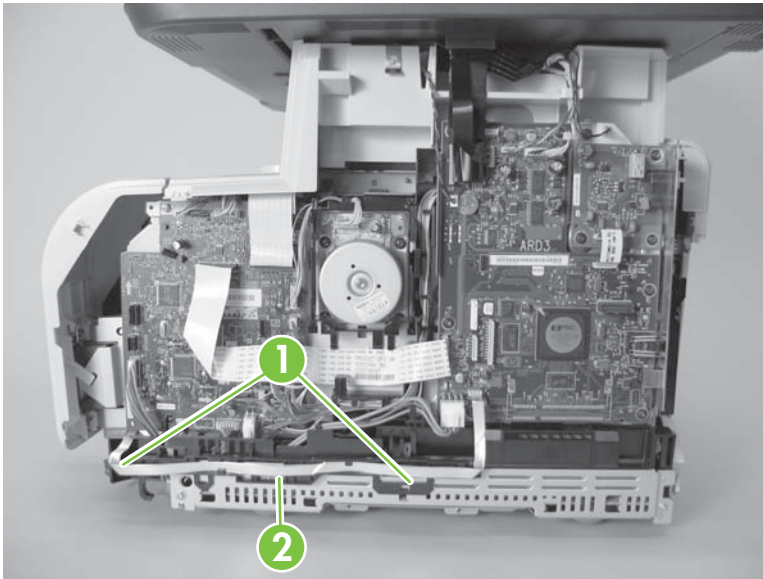
Some parts are sensitive to electrostatic discharge (ESD). Look for the ESD reminder when removing product parts. Always perform service work at an ESD-protected workstation or mat. If an ESD workstation or mat is not available, ground yourself by touching the sheet-metal chassis *before* touching an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

1. Remove the right cover. See [Right cover on page 132](#).

2. Remove one FFC (callout 1) from the guide (callout 2).

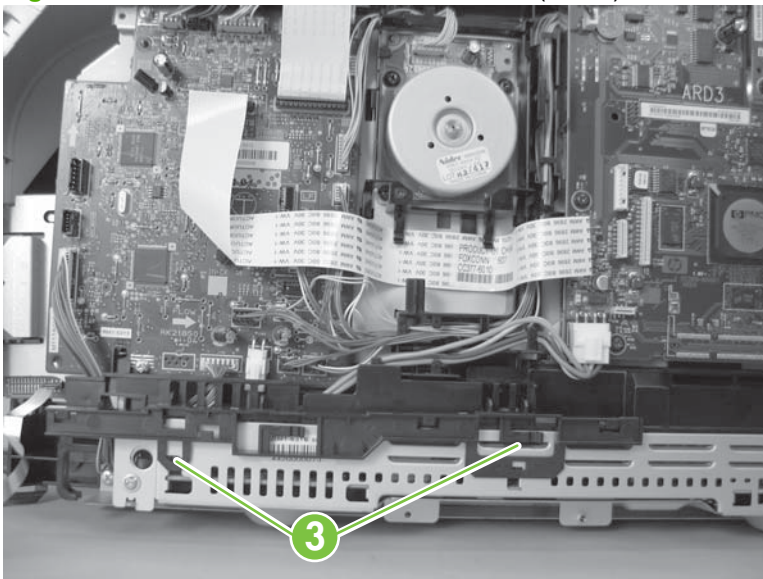
 **TIP:** It might be easier to remove the FFC from the guide, if you disconnect one end.

Figure 6-82 Remove the DC controller PCA (1 of 6)



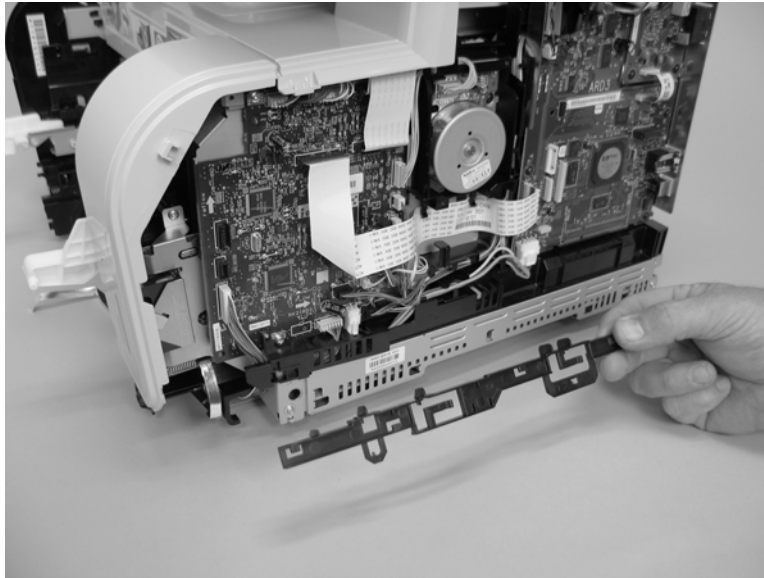
3. Release two tabs (callout 3) on the guide.

Figure 6-83 Remove the DC controller PCA (2 of 6)



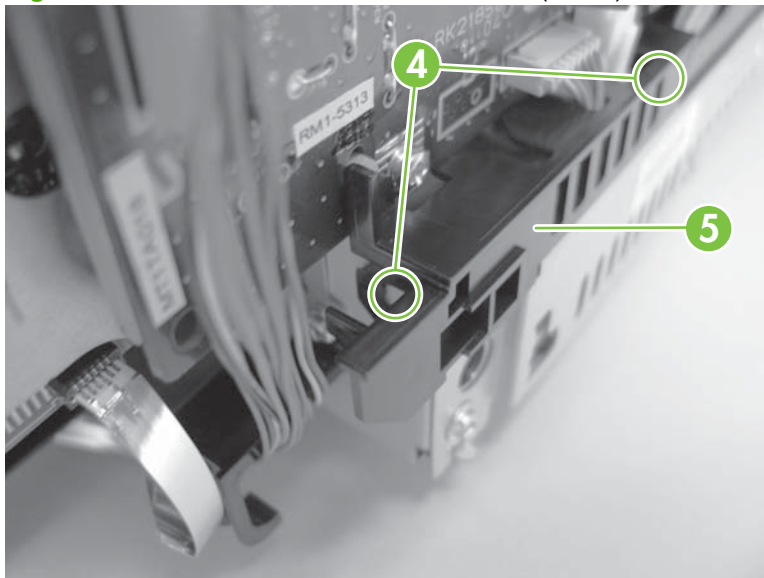
4. Remove the guide.

Figure 6-84 Remove the DC controller PCA (3 of 6)



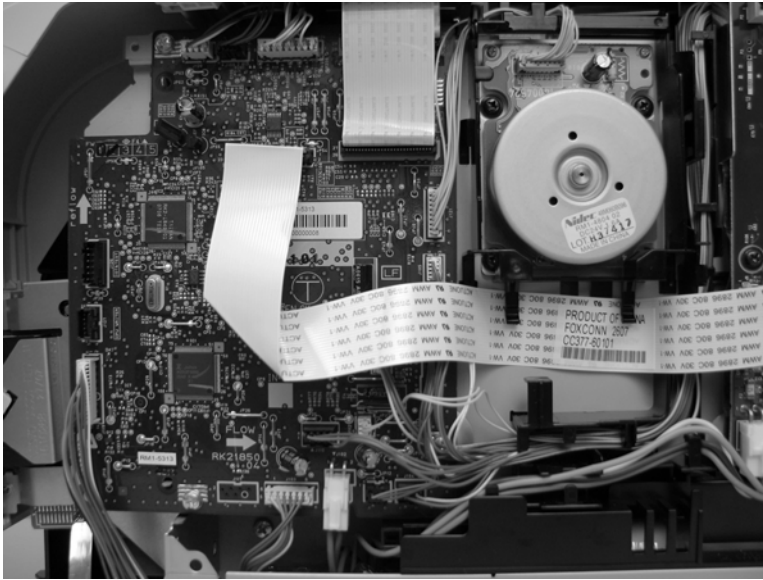
5. Release two tabs (callout 4) and then remove the protective cover (callout 5).

Figure 6-85 Remove the DC controller PCA (4 of 6)



6. Disconnect all of the FFCs and wire-harness connectors from the DC controller PCA.

Figure 6-86 Remove the DC controller PCA (5 of 6)



7. Remove four screws (callout 6) and then remove the DC controller PCA.


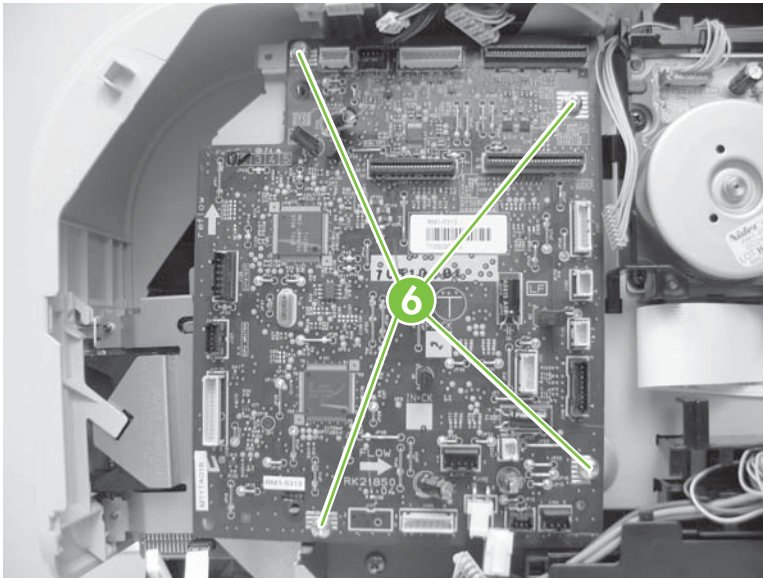
 **NOTE:** These four screws are ground screws. Make sure that the correct screws are used to reinstall the DC controller PCA.

Figure 6-87 Remove the DC controller PCA (6 of 6)



Formatter and fax card PCAs

Special considerations

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

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

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

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

Replacing the formatter PCA before the DC controller PCA

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

📝 **NOTE:** If you are only installing a replacement formatter PCA, proceed to [Remove the formatter PCA on page 165](#).

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

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

3. Turn the product power off.
4. Install a replacement DC controller. See [DC controller PCA on page 161](#).
5. Turn the product power on.

Remove the formatter PCA

⚠ **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* make sure that all FFCs are fully seated in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.



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

1. Remove the right cover. See [Right cover on page 132](#).

2. Disconnect all of the FFCs and wire-harness connectors from the formatter PCA and fax card (callout 1; fax/memory-card models).

Figure 6-88 Remove the formatter and fax card PCAs (1 of 4; base model)

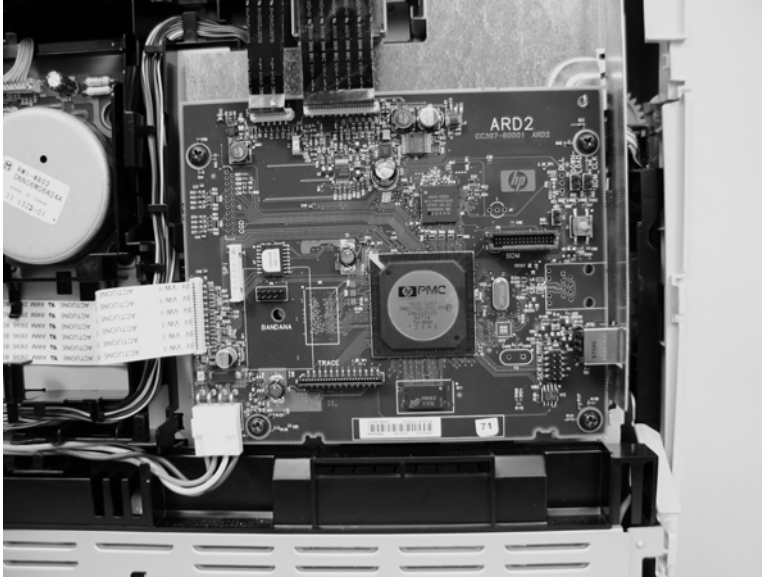
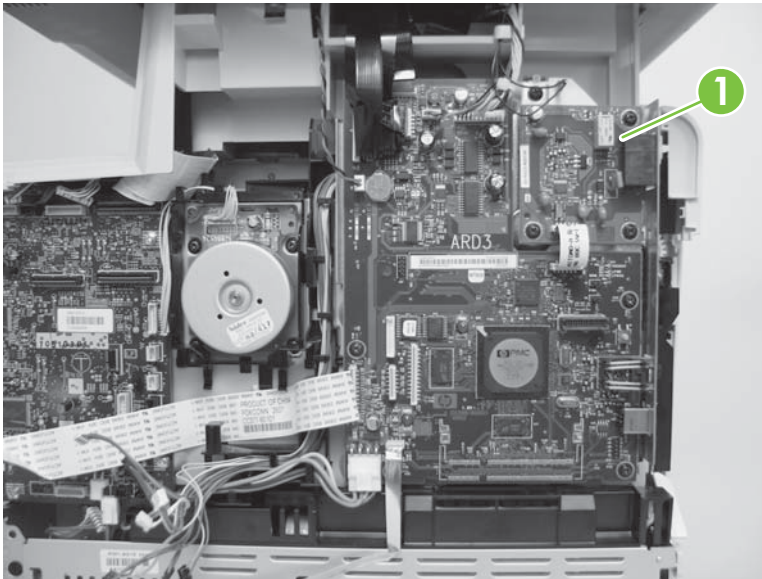
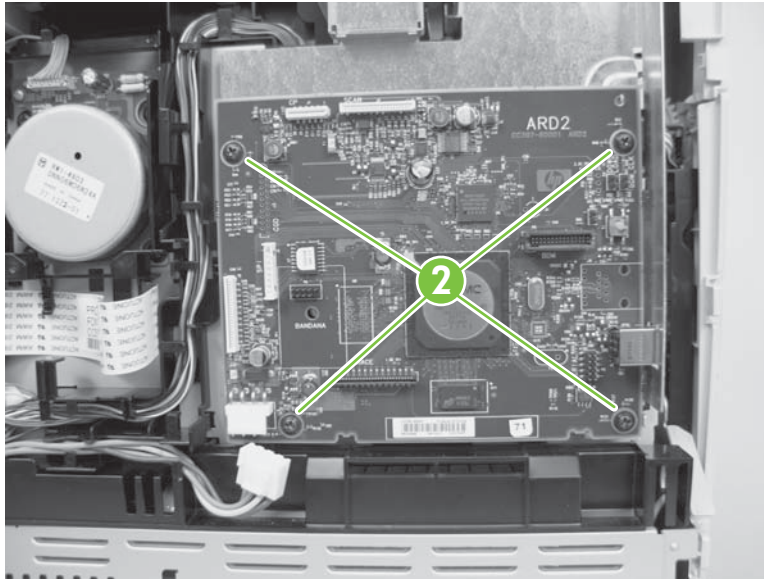


Figure 6-89 Remove the formatter and fax card PCAs (2 of 4; fax/memory-card models)



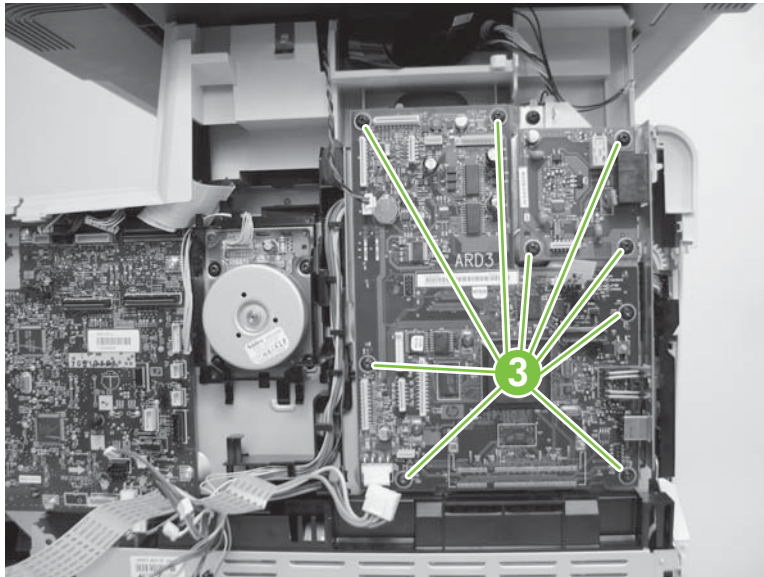
3. For the base model, remove four screws (callout 2) and then remove the formatter.

Figure 6-90 Remove the formatter and fax card PCAs (3 of 4; base model)



4. For the fax/memory-card models, remove nine screws (callout 3) and then remove the formatter and fax card PCAs.

Figure 6-91 Remove the formatter and fax card PCAs (4 of 4; fax/memory-card models)

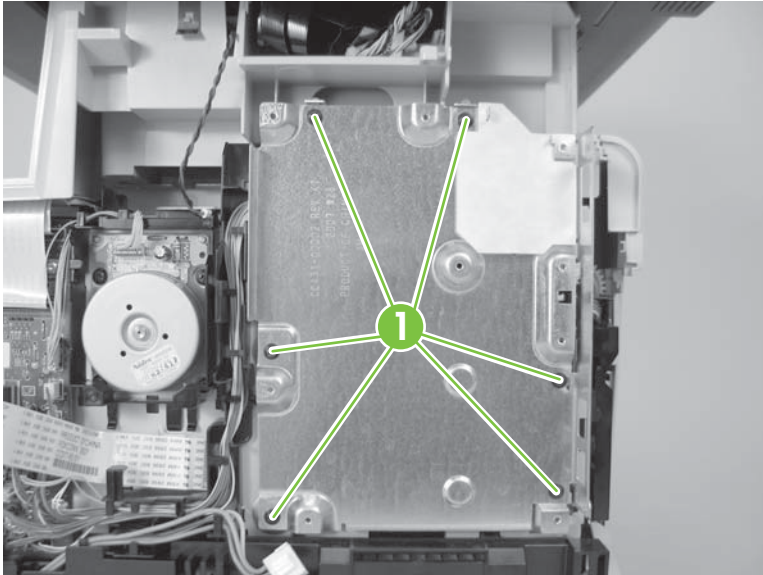


Fuser motor

1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Formatter and fax card PCAs. See [Formatter and fax card PCAs on page 165](#).
2. Remove six screws (callout 1) and the sheet-metal plate.

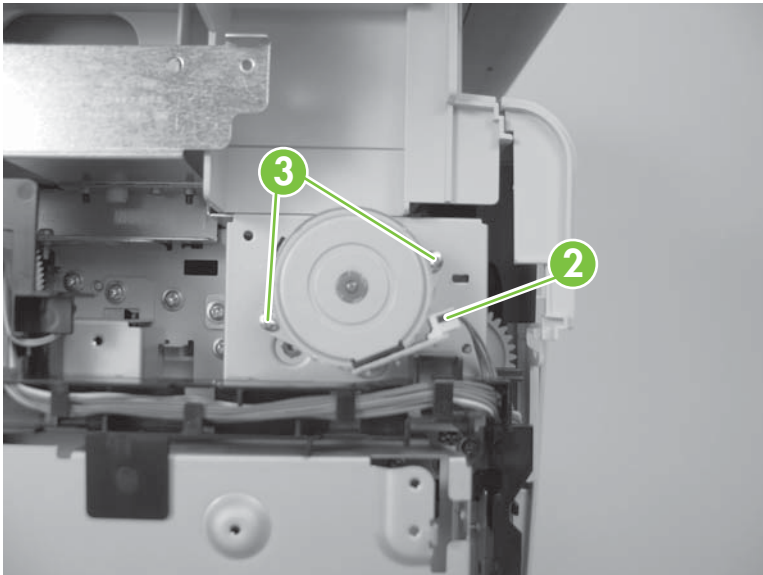
 **NOTE:** Base model: Remove four screws.

Figure 6-92 Remove the fuser motor (1 of 2)



3. Disconnect one wire-harness connector (callout 2) and then remove two screws (callout 3). Remove the fuser motor.

Figure 6-93 Remove the fuser motor (2 of 2)



Power supply (high-voltage)

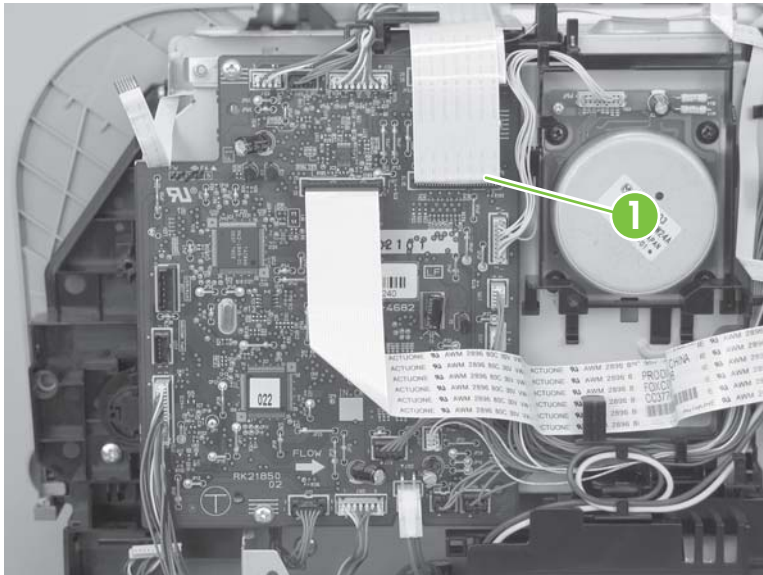
- △ **CAUTION:** Do not bend or fold the flat flexible cables (FFCs) during removal or installation. Also, do not straighten pre-folds in the FFCs. You *must* make sure that all FFCs are fully seated in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.



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

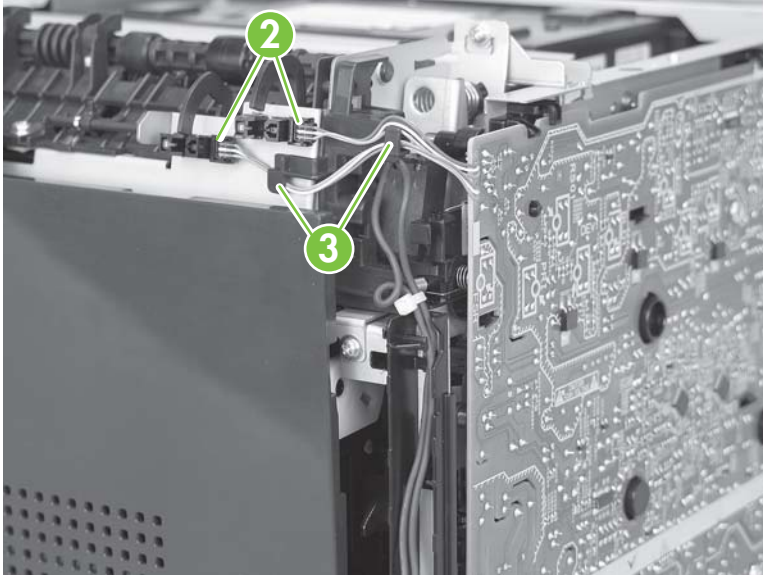
1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Left cover. See [Left cover on page 135](#).
 - Front-right cover. See [Front-right cover on page 137](#).
 - Rear-side cover. See [Rear-side cover on page 142](#).
 - Rear-upper cover. See [Rear-upper cover on page 143](#).
 - Scanner assembly. See [Scanner assembly on page 147](#).
 - Top cover. See [Top cover on page 149](#).
2. Disconnect one FFC (callout 1; J107).

Figure 6-94 Remove the power supply (high-voltage; 1 of 7)



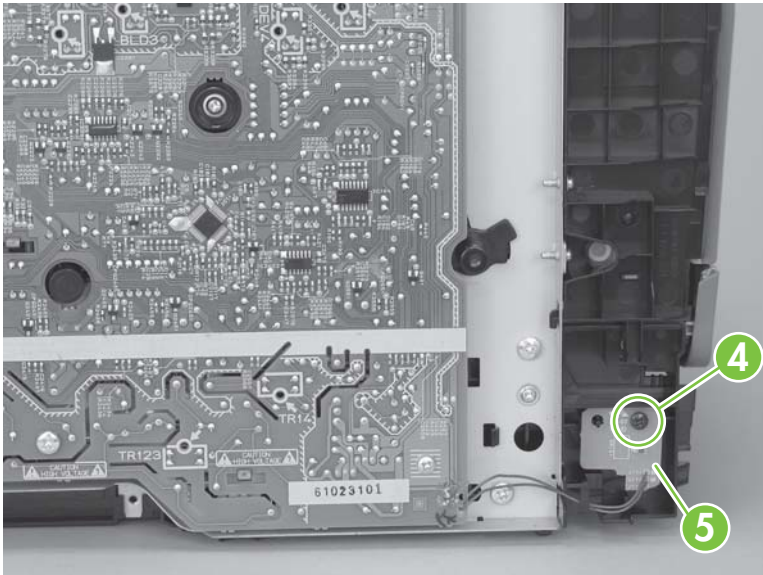
3. Disconnect two wire-harness connectors (callout 2) and release the wire harness from the retainer (callout 3).

Figure 6-95 Remove the power supply (high-voltage; 2 of 7)



4. Remove one screw (callout 4) and then release the sub-PCA from the chassis (callout 5).

Figure 6-96 Remove the power supply (high-voltage; 3 of 7)



5. Remove four screws (callout 6).


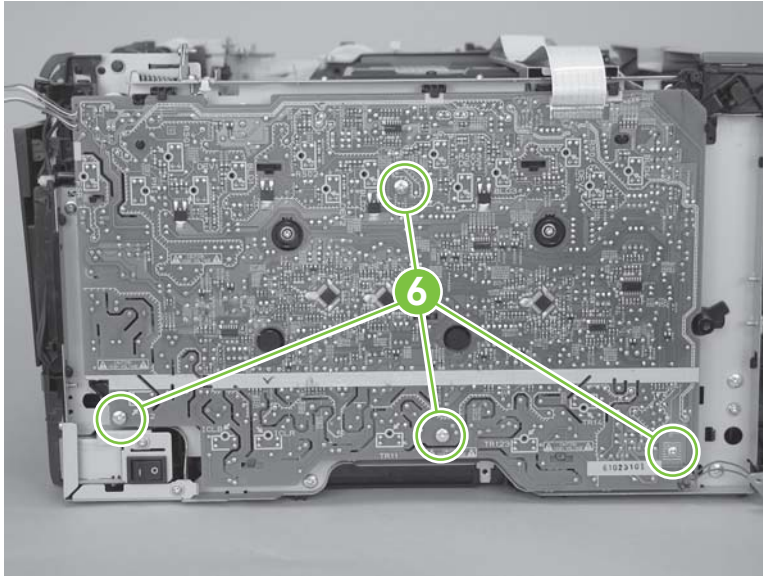
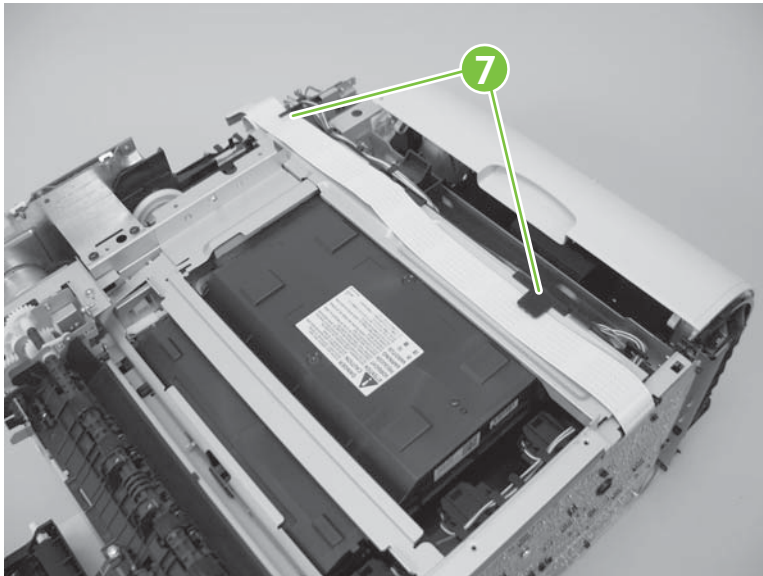
 **NOTE:** The screw at the lower back of the power supply is a ground screw. Make sure that this screw is placed in the correct position when the power supply is reinstalled.

Figure 6-97 Remove the power supply (high-voltage; 4 of 7)



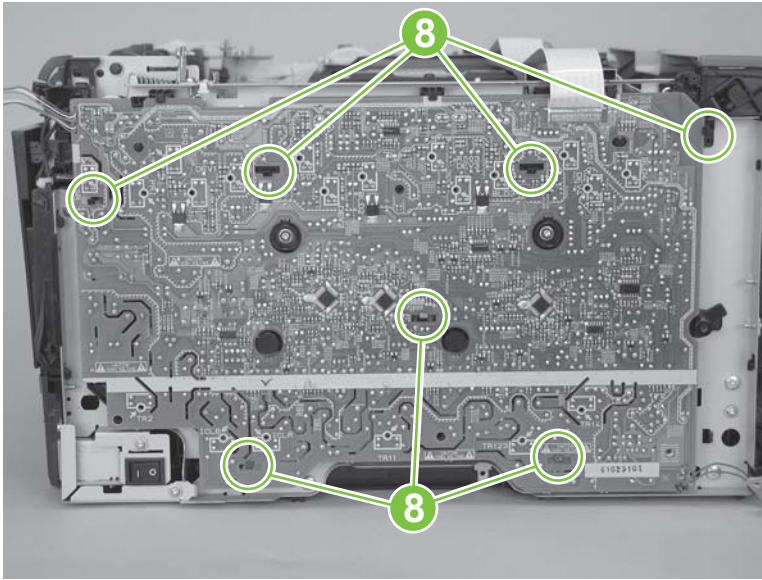
6. Release the FFC from the retainers (callout 7).

Figure 6-98 Remove the power supply (high-voltage; 5 of 7)



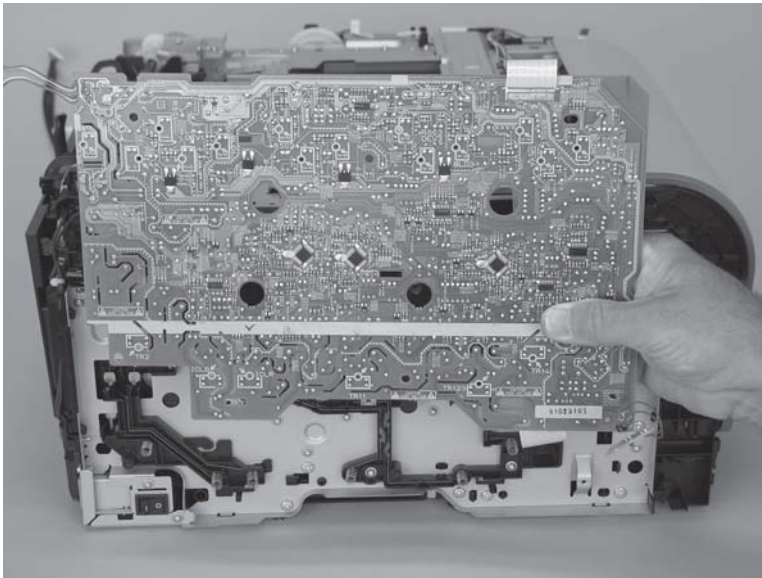
7. Release seven tabs (callout 8).

Figure 6-99 Remove the power supply (high-voltage; 6 of 7)



8. Remove the power supply.

Figure 6-100 Remove the power supply (high-voltage; 7 of 7)



Power supply (low voltage)

- △ **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* make sure that all FFCs are fully seated in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.



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

1. Remove the following components:

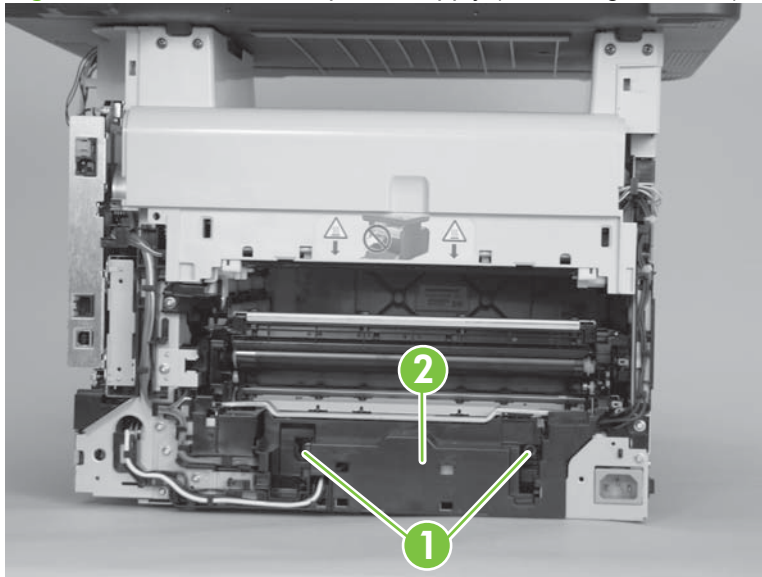
- Right cover. See [Right cover on page 132](#).
- Left cover. See [Left cover on page 135](#).
- Rear-side cover. See [Rear-side cover on page 142](#).
- Rear door and rear-lower cover. See [Rear door and rear-lower cover on page 145](#).
- Formatter PCA. See [Formatter and fax card PCAs on page 165](#).



NOTE: For the fax/memory-card models, only remove the formatter PCA.

2. Remove two screws (callout 1) and the power-supply cover (callout 2).

Figure 6-101 Remove the power supply (low voltage; 1 of 12)



3. Disconnect one wire-harness connector (callout 3) and release the wire harness from the retainer (callout 4).


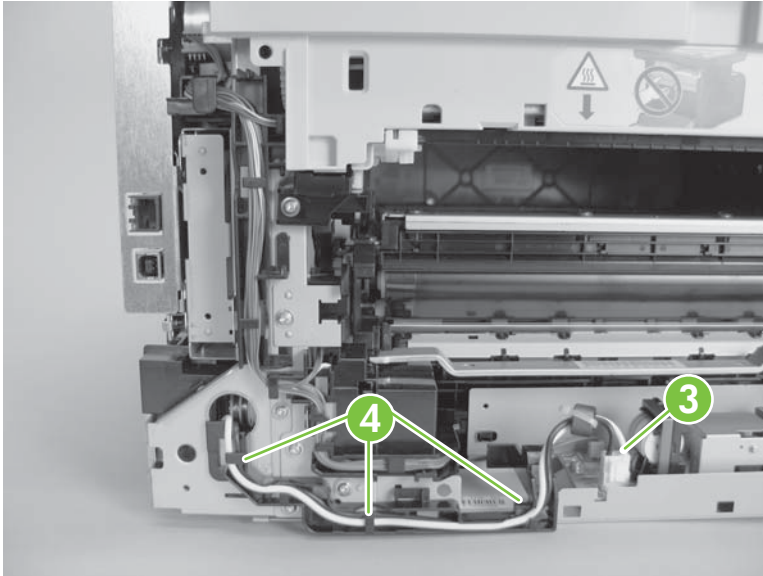
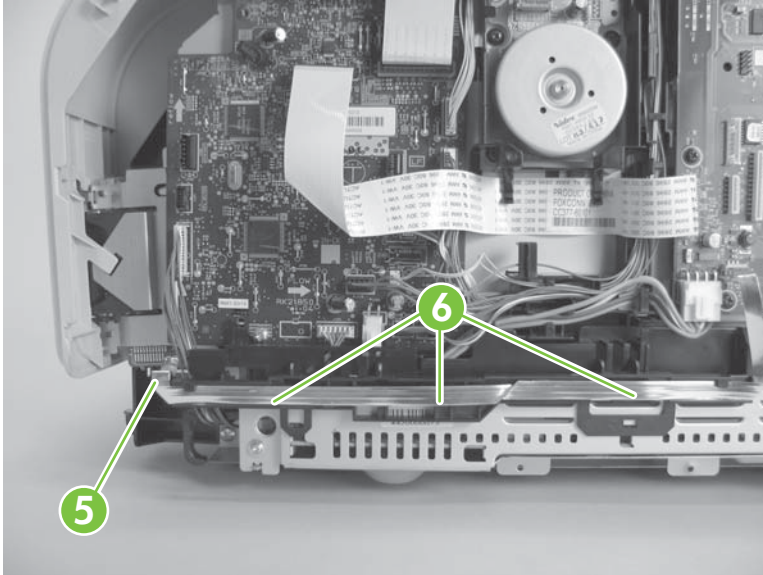
 **TIP:** it might be easier to release one tab and then remove the retainer from the product chassis.

Figure 6-102 Remove the power supply (low voltage; 2 of 12)



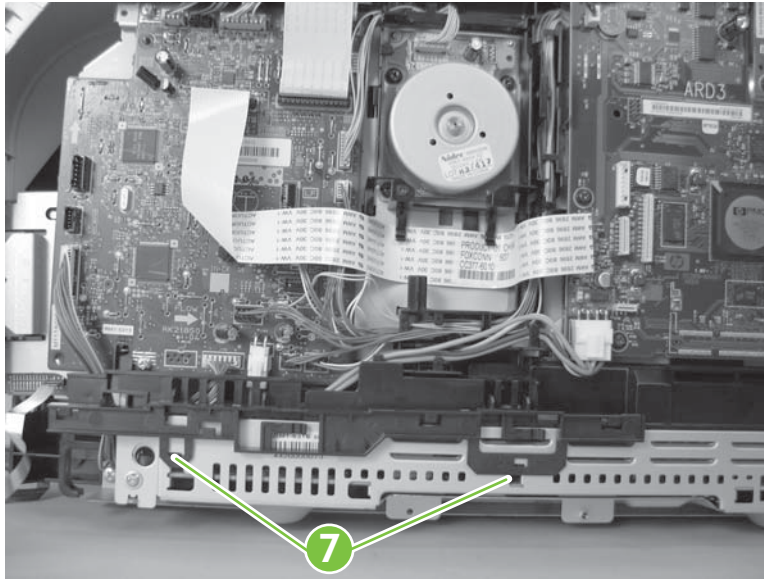
4. Fax/memory-card models only: Disconnect one FFC (callout 5) and remove it from the retainer (callout 6).

Figure 6-103 Remove the power supply (low voltage; 3 of 12)



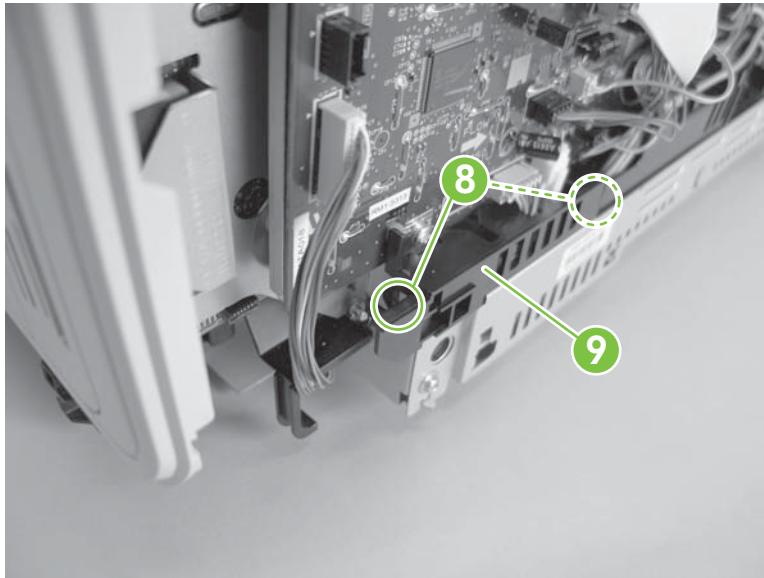
5. Fax/memory-card models only: Release two tabs (callout 7) and remove the retainer.

Figure 6-104 Remove the power supply (low voltage; 4 of 12)



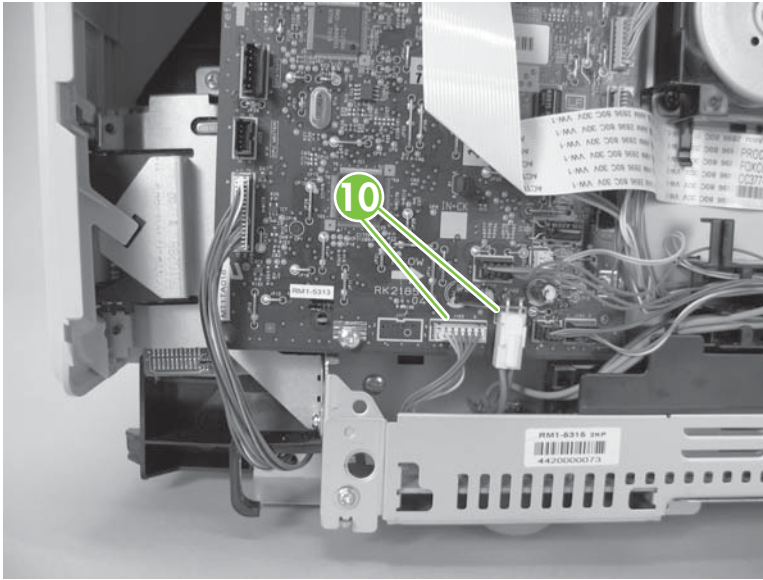
6. Release two tabs (callout 8) and then remove the protective cover (callout 9).

Figure 6-105 Remove the power supply (low voltage; 5 of 12)



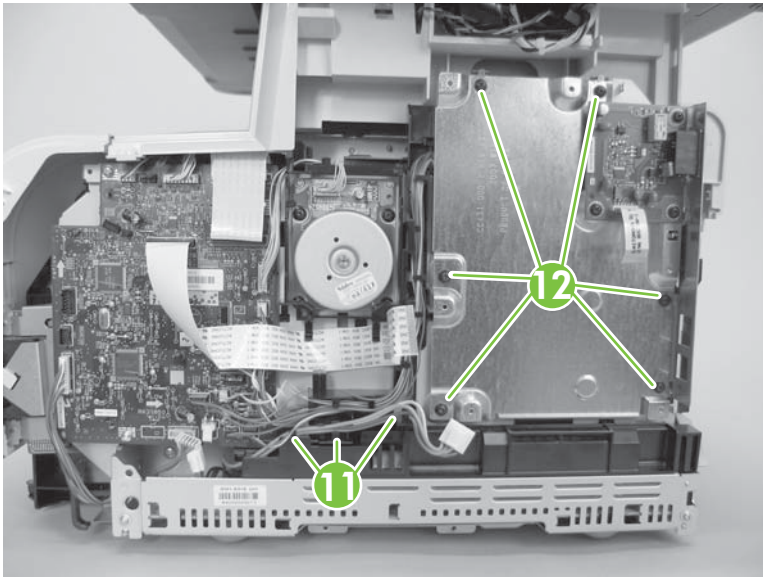
7. Disconnect two wire-harness connectors (callout 10; J102 and J103).

Figure 6-106 Remove the power supply (low voltage; 6 of 12)



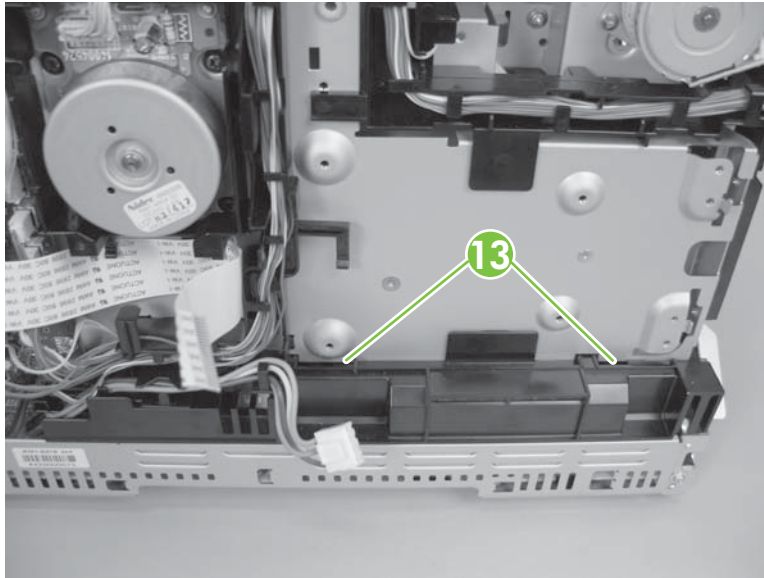
8. Release the wire harness (callout 11) from the retainer, and then remove six screws (callout 12); four screws for the base model) and remove the sheet-metal plate.

Figure 6-107 Remove the power supply (low voltage; 7 of 12)



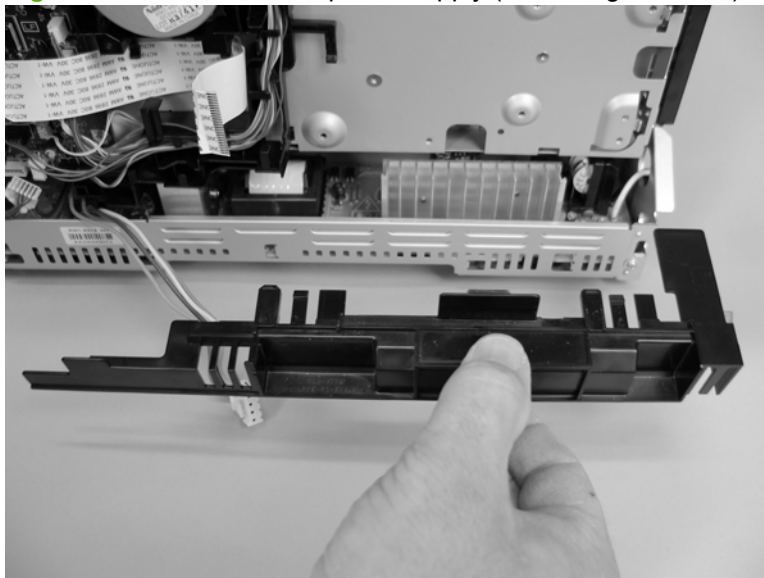
9. Release two tabs (callout 13).

Figure 6-108 Remove the power supply (low voltage; 8 of 12)



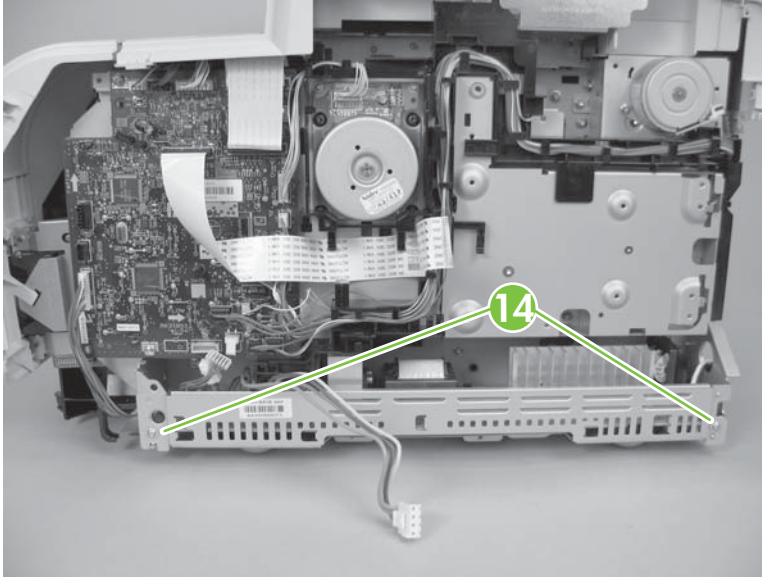
10. Carefully remove the retainer.

Figure 6-109 Remove the power supply (low voltage; 9 of 12)



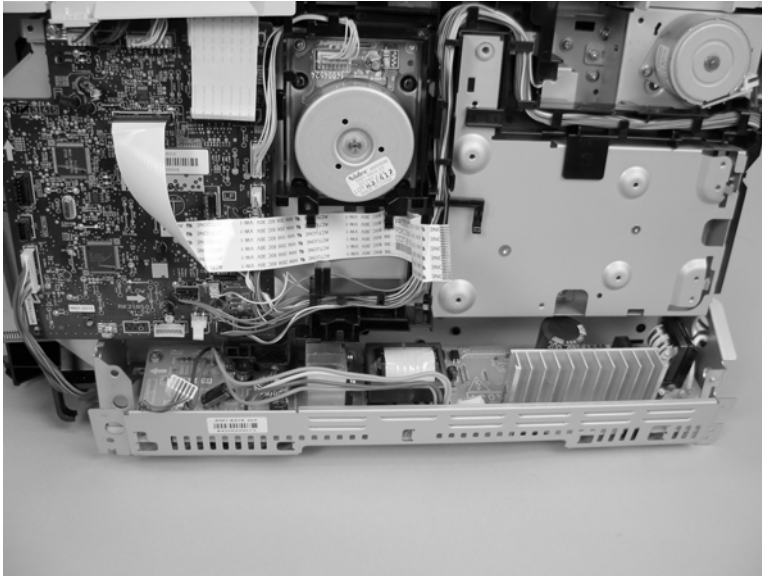
11. Remove two screws (callout 14).

Figure 6-110 Remove the power supply (low voltage; 10 of 12)




12. Pull the power supply away from the chassis (it will not come completely out).

Figure 6-111 Remove the power supply (low voltage; 11 of 12)



13. Rotate the end of the power supply near the control-panel module out and away from the product until it clears the chassis, and then slide the power supply toward the control-panel module to remove it.

 **NOTE:** As you remove the power supply, feed the wire harness at the rear of the product through the opening in the chassis.


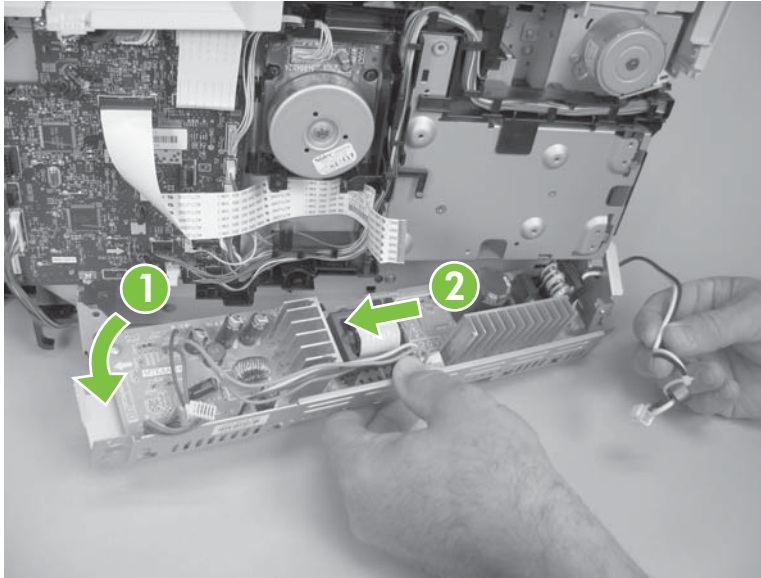
 **TIP:** Make sure that the tab on the right end of the power-supply chassis fits into the slot on the product chassis when the power supply is reinstalled.

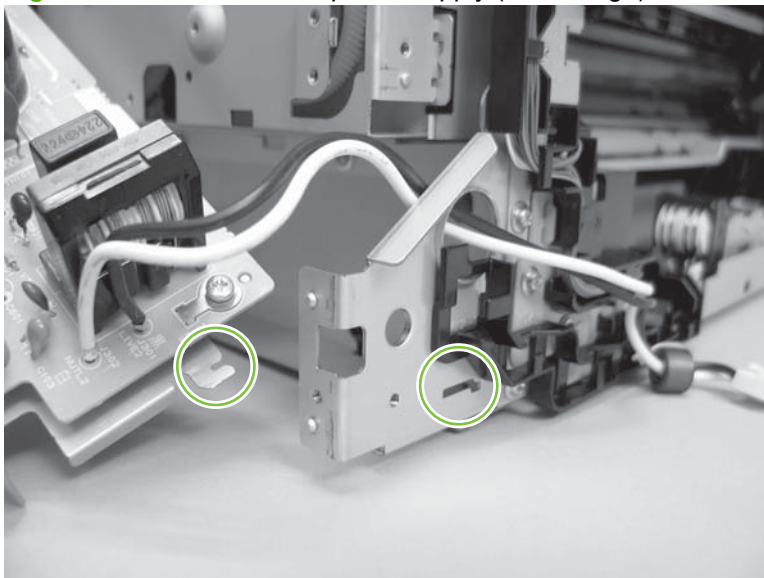
Figure 6-112 Remove the power supply (low voltage; 12 of 12)



Reinstall the power supply (low voltage)

When you reinstall the power supply, make sure that the hook on the power supply tray is engaged with the slot at the back side of the product chassis.

Figure 6-113 Reinstall the power supply (low voltage)



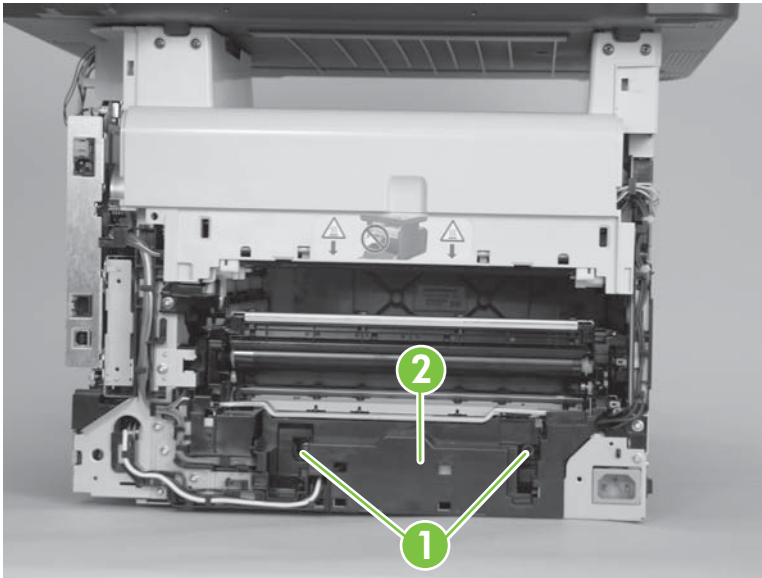
Power supply (fuser)



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

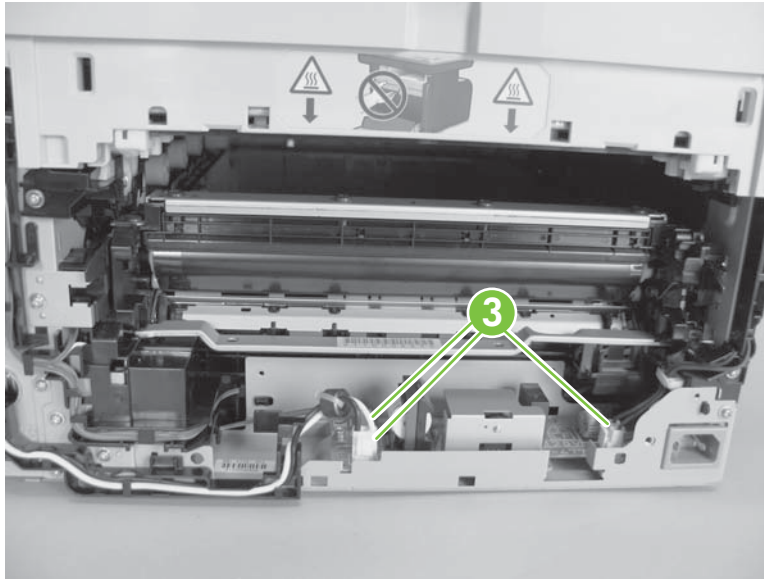
1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Left cover. See [Left cover on page 135](#).
 - Rear-side cover. See [Rear-side cover on page 142](#).
 - Rear door and rear-lower cover. See [Rear door and rear-lower cover on page 145](#).
2. Remove two screws (callout 1) and the power-supply cover (callout 2).

Figure 6-114 Remove the power supply (fuser; 1 of 5)



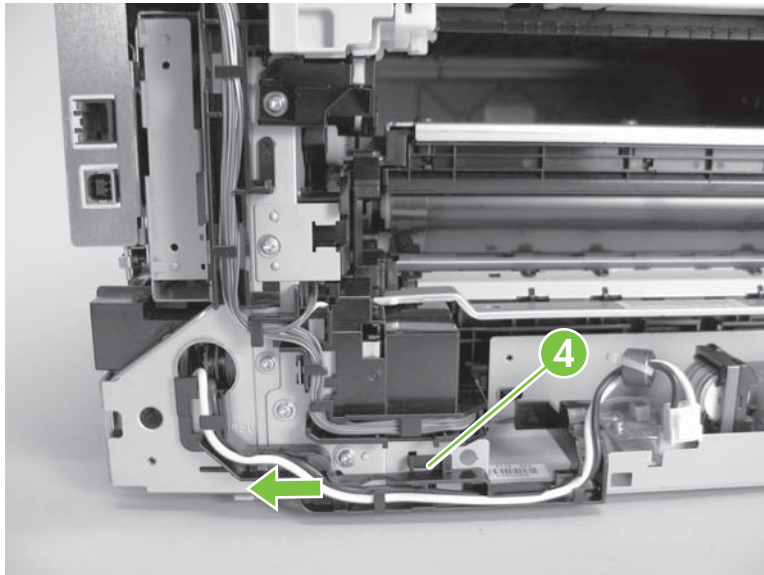
3. Disconnect three wire-harness connectors (callout 3).

Figure 6-115 Remove the power supply (fuser; 2 of 5)



4. Release one tab (callout 4), slide the retainer toward the interface connectors to release it, and then separate the retainer from the chassis.

Figure 6-116 Remove the power supply (fuser; 3 of 5)



5. Remove four screws (callout 5).


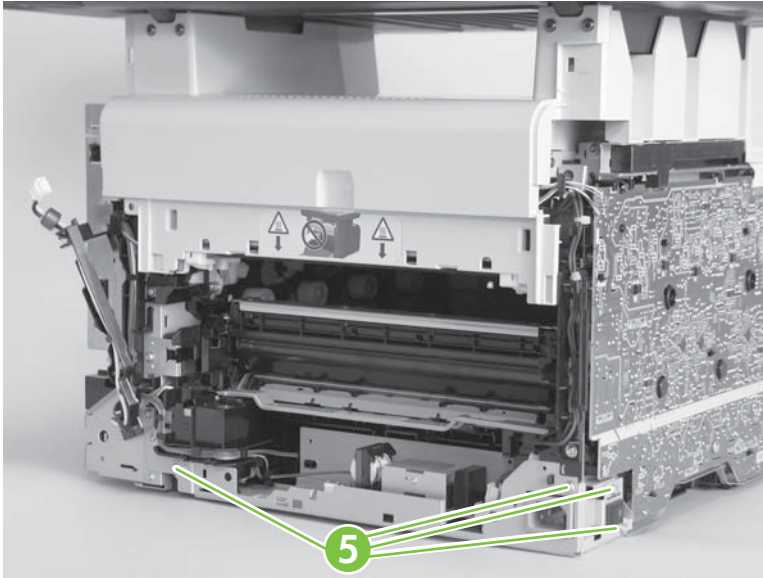
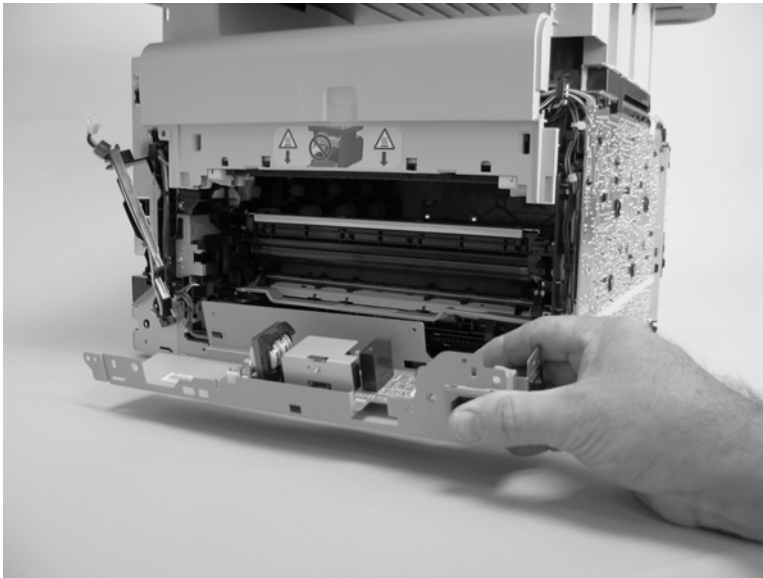
 **NOTE:** The two screws near the power switch are ground screws. Make sure that these screws are placed in the correct positions when the power supply is reinstalled.

Figure 6-117 Remove the power supply (fuser; 4 of 5)



6. Remove the power supply.

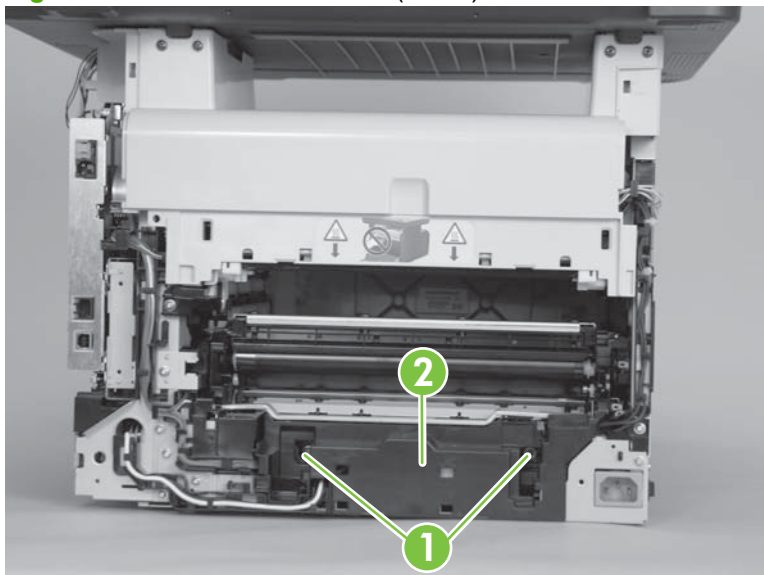
Figure 6-118 Remove the power supply (fuser; 5 of 5)



Fuser

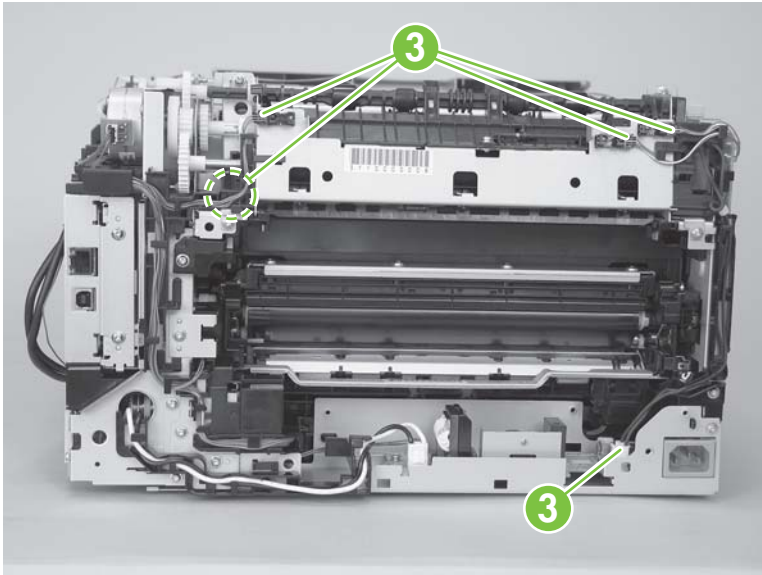
1. Remove the following components:
 - Right cover. See [Right cover on page 132](#).
 - Left cover. See [Left cover on page 135](#).
 - Front-right cover. See [Front-right cover on page 137](#).
 - Rear-side cover. See [Rear-side cover on page 142](#).
 - Rear-upper cover. See [Rear-upper cover on page 143](#).
 - Rear door and rear-lower cover. See [Rear door and rear-lower cover on page 145](#).
 - Scanner assembly. See [Scanner assembly on page 147](#).
 - Top cover. See [Top cover on page 149](#).
2. Remove two screws (callout 1) and the power-supply cover (callout 2).

Figure 6-119 Remove the fuser (1 of 4)



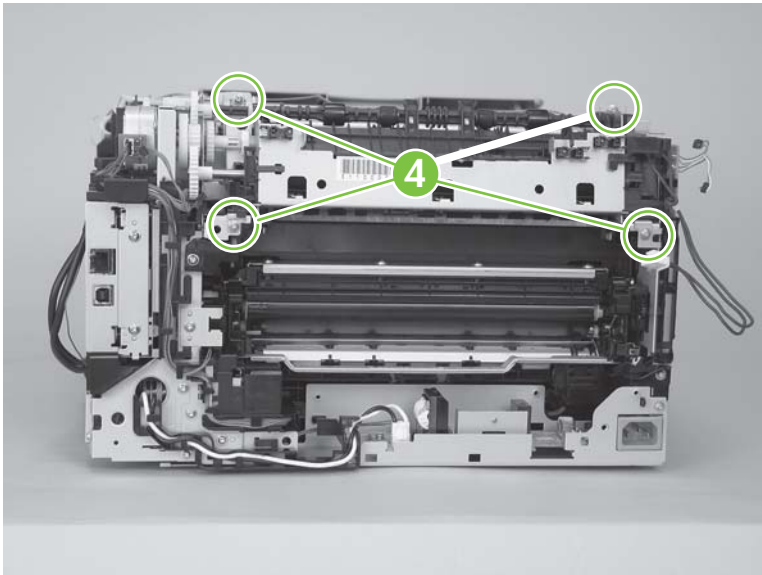
3. Disconnect five wire-harness connectors (callout 3). Remove the wire harness from the guides and one retainer.

Figure 6-120 Remove the fuser (2 of 4)



4. Remove four screws (callout 4).

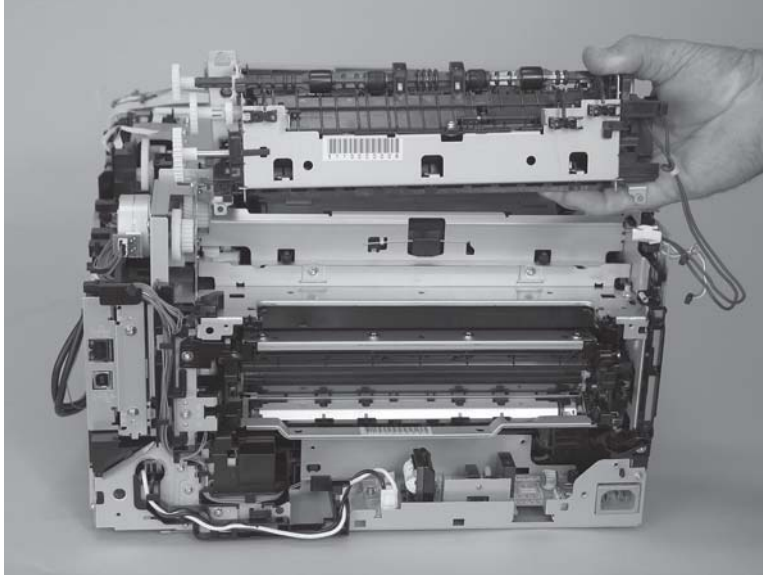
Figure 6-121 Remove the fuser (3 of 4)



5. Remove the fuser.

- △ **CAUTION:** Handle the fuser carefully. The sensors that are mounted to the output side of the fuser can be easily dislodged. When the fuser is reinstalled, make sure that the sensors are present, and correctly fastened to the fuser assembly.

Figure 6-122 Remove the fuser (4 of 4)





7 Problem solve

To use the information in this chapter, you should have a basic understanding of the HP LaserJet printing process. Explanations of each mechanical assembly, the printer systems, and the basic theory of operation are contained in [Theory of operation on page 73](#). Do not perform any of these troubleshooting processes unless you understand the function of each product component.

- [Menu map](#)
- [Troubleshooting process](#)
- [Troubleshooting tools](#)
- [Control-panel messages](#)
- [Event-log messages](#)
- [Paper-handling problems](#)
- [Solve image quality problems](#)
- [Solve performance problems](#)
- [Solve connectivity problems](#)
- [Service mode functions](#)
- [Solve fax problems \(fax/memory-card models only\)](#)
- [Memory card problems \(fax/memory-card models only\)](#)

Menu map

Print a menu map to find sub-menus and troubleshooting tools in the product menus.

1. Press **Setup**  to open the menus.
2. Use the arrow buttons to select **Reports**, and then press **OK**.
3. Use the arrow buttons to select **Menu Structure**, and then press **OK** to print the report.
4. Press **Cancel**  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 pre-troubleshooting 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.

Pre-troubleshooting checklist

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

General topic	Questions
Environment	<ul style="list-style-type: none">● Is the product installed on a solid, level surface (+/- 1°)?● Is the power-supply voltage within ± 10 volts of the specified power source?● Is the power-supply plug inserted in the product and the outlet?● Is the operating environment within the specified parameters? See Environmental specifications on page 301.● Is the product exposed to direct sunlight?
Media	<ul style="list-style-type: none">● Does the customer use only supported media?● Is the media in good condition (no curls, folds, or distortion)?● Is the media stored correctly and within environmental limits?
Input trays	<ul style="list-style-type: none">● Is the amount of media in the tray within specifications?● Is the media correctly placed in the tray?● Are the paper guides aligned with the stack?● Is the input tray correctly installed in the product?
Print cartridges	<ul style="list-style-type: none">● Is each HP Genuine print cartridge installed correctly?● 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.
Covers	<ul style="list-style-type: none">● Is the front cover closed?

General topic	Questions
Condensation	<ul style="list-style-type: none"> Does condensation occur following a temperature change (particularly in winter following cold storage)? If so, wipe affected parts dry or leave the product on for 10 to 20 minutes.
Miscellaneous	<ul style="list-style-type: none"> Check for and remove any non-HP components (print cartridges, memory modules, and EIO cards) from the product. Remove the product from the network and ensure that the failure is associated with the product before beginning troubleshooting. For any print-quality issues, calibrate the product.

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 on/off switch is in the ON position.

Troubleshooting tools


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

LED diagnostics

Network LEDs (network models only)

The onboard network solution has two network port LEDs. When the product is connected to a properly working network through a network cable, the yellow LED indicates network activity, and the green LED indicates the link status. A blinking yellow LED indicates network traffic. If the green LED is off, a link has failed.

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

1. Press **Setup** .
2. Use the arrow buttons to highlight **Network config.**, and then press **OK**.
3. Use the arrow buttons to highlight **Link Speed**, and then press **OK**.
4. Select the appropriate link speed, and then press **OK**.

Control panel LEDs

The state of the Ready light and Attention light on the product signal the product status. The following table outlines the possible control-panel light states.

Product state	Ready light state	Attention light state
Initializing	Blinking	Blinking
Ready	On	Off
Receiving data/processing job or cancelling job	Blinking	Off
Error message	Off	Blinking
Fatal error (49 or 79 error) ¹	On	On

¹ The product will power off and then power on after one of these errors occurs.

Memory card LED (fax/memory-card models only)

When a memory card is inserted into the correct memory-card slot, this LED turns on. If the LED is not lighting, try the following actions:





- Make sure that the memory card is in the correct slot.
- Make sure that the memory card is not defective.
- Verify that the flat flexible cable connection from the formatter to the memory-card reader assembly is firmly connected.
- If the card is not defective and the card is in the correct slot, the circuit board might have been inadvertently damaged by an electrostatic discharge from someone inserting a memory card. If this

is the case, replace the memory-card reader assembly. If the error still occurs, replace the formatter.





Control-panel diagnostics

The product includes diagnostic tests for the control panel.

Test the control-panel display

1. Press **Setup** .
2. Press both the left arrow button  and the **Cancel** button  at the same time.
3. Press **Setup**  to return to the main menus.
4. Use the arrow buttons to highlight **2ndary Service**, and then press **OK**.
5. Use the arrow buttons to highlight **Display test**, and then press **OK**.

Test the control-panel buttons

1. Press **Setup** .
2. Press both the left arrow button  and the **Cancel** button  at the same time.
3. Press **Setup**  to return to the main menus.
4. Use the arrow buttons to highlight **2ndary Service**, and then press **OK**.
5. Use the arrow buttons to highlight **Button Test**, and then press **OK**.

Diagrams

Block diagrams

Scanner and automatic document feeder (ADF) assemblies

Figure 7-1 Scanner assembly (base models)

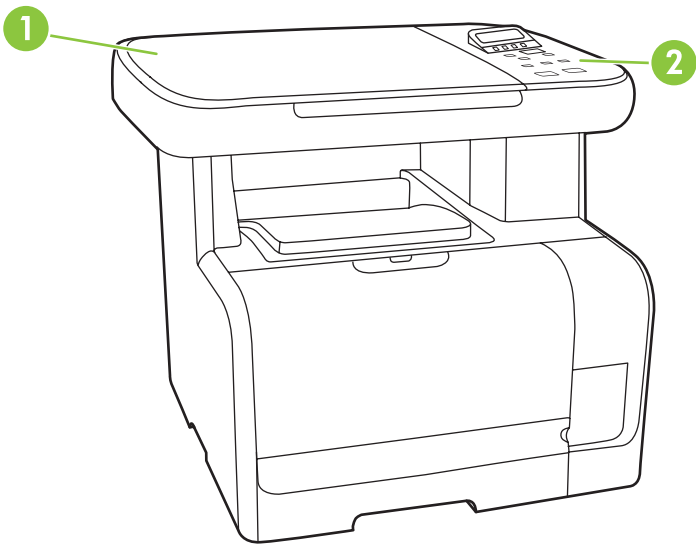


Table 7-1 Scanner assembly (base models)

Item	Description
1	Scanner
2	Control panel

Figure 7-2 Scanner and ADF assemblies (fax/memory-card models)

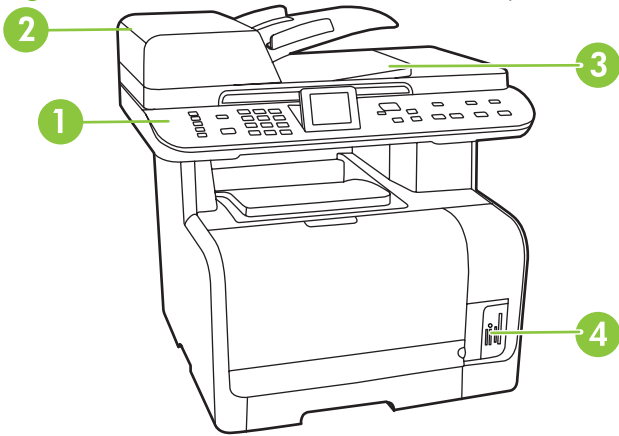


Table 7-2 Scanner and ADF assemblies (fax/memory-card models)

Item	Description
1	Control panel
2	ADF

Table 7-2 Scanner and ADF assemblies (fax/memory-card models) (continued)

Item	Description
3	Scanner
4	Memory-card reader

Major components

Figure 7-3 Major components

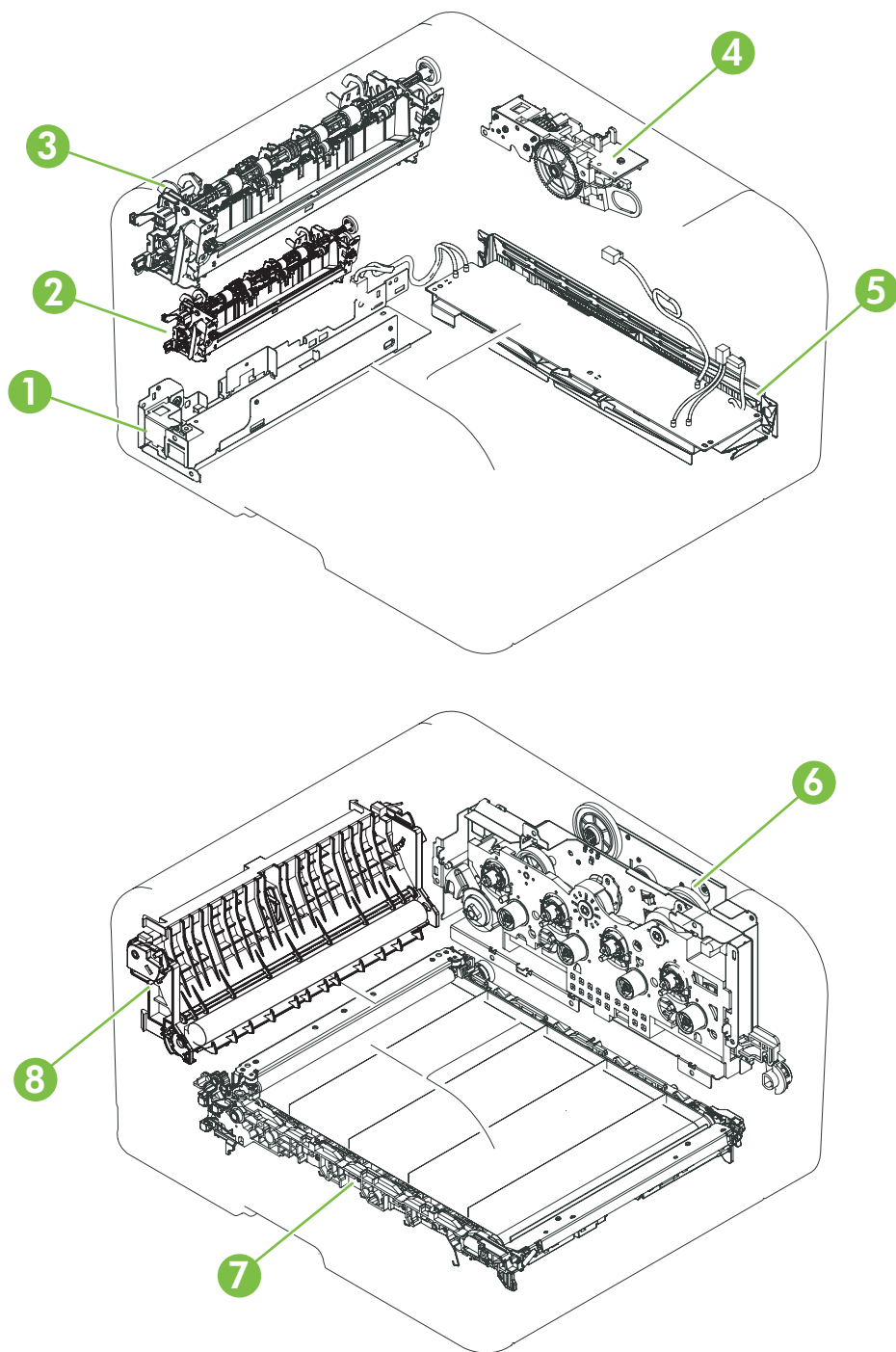


Table 7-3 Major components

Item	Description
1	Fuser power supply
2	Fuser drive assembly

Table 7-3 Major components (continued)

Item	Description
3	Fuser assembly
4	Sub-drive assembly (not a replaceable part)
5	Low-voltage power supply
6	Main drive assembly (not a replaceable part)
7	ITB assembly
8	Transfer/paper guide assembly

Solenoid, sensors, and motors

Figure 7-4 Solenoid, sensors, and motors

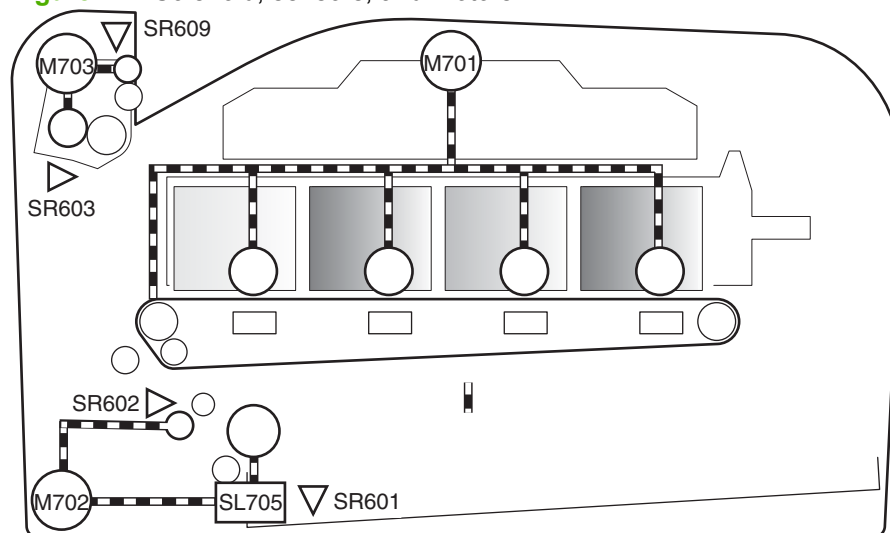


Table 7-4 Solenoid, sensors, and motors

Item	Description
M701	Main motor
M702	Pickup motor
M703	Fuser motor
SL705	Pickup solenoid; cassette
SR601	Cassette media present sensor; pickup assembly
SR602	Top-of-page sensor; pickup assembly
SR603	Loop sensor; pickup assembly
SR609	Fuser delivery sensor

Rollers

Figure 7-5 Rollers

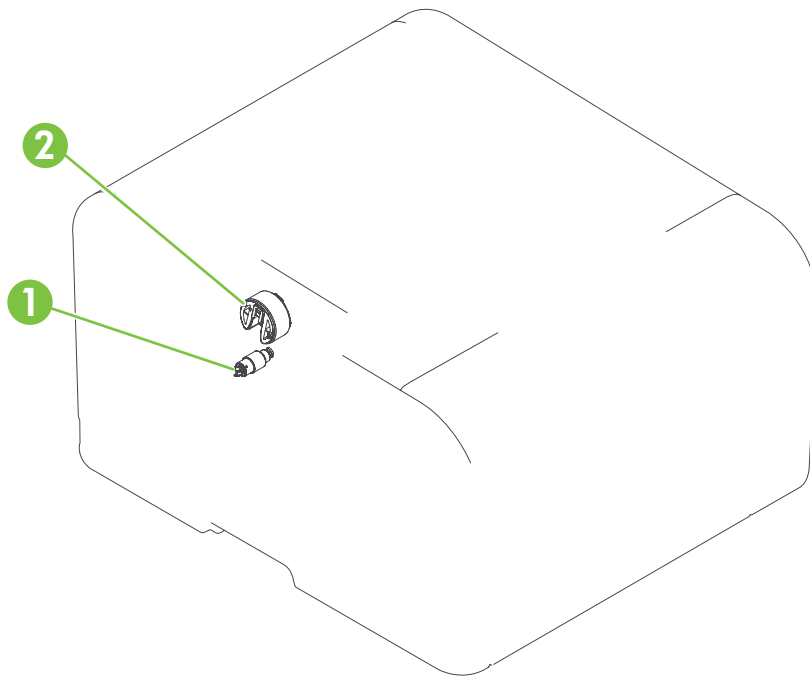


Table 7-5 Rollers

Item	Description
1	Separation roller
2	Pickup roller

PCAs

Figure 7-6 PCAs

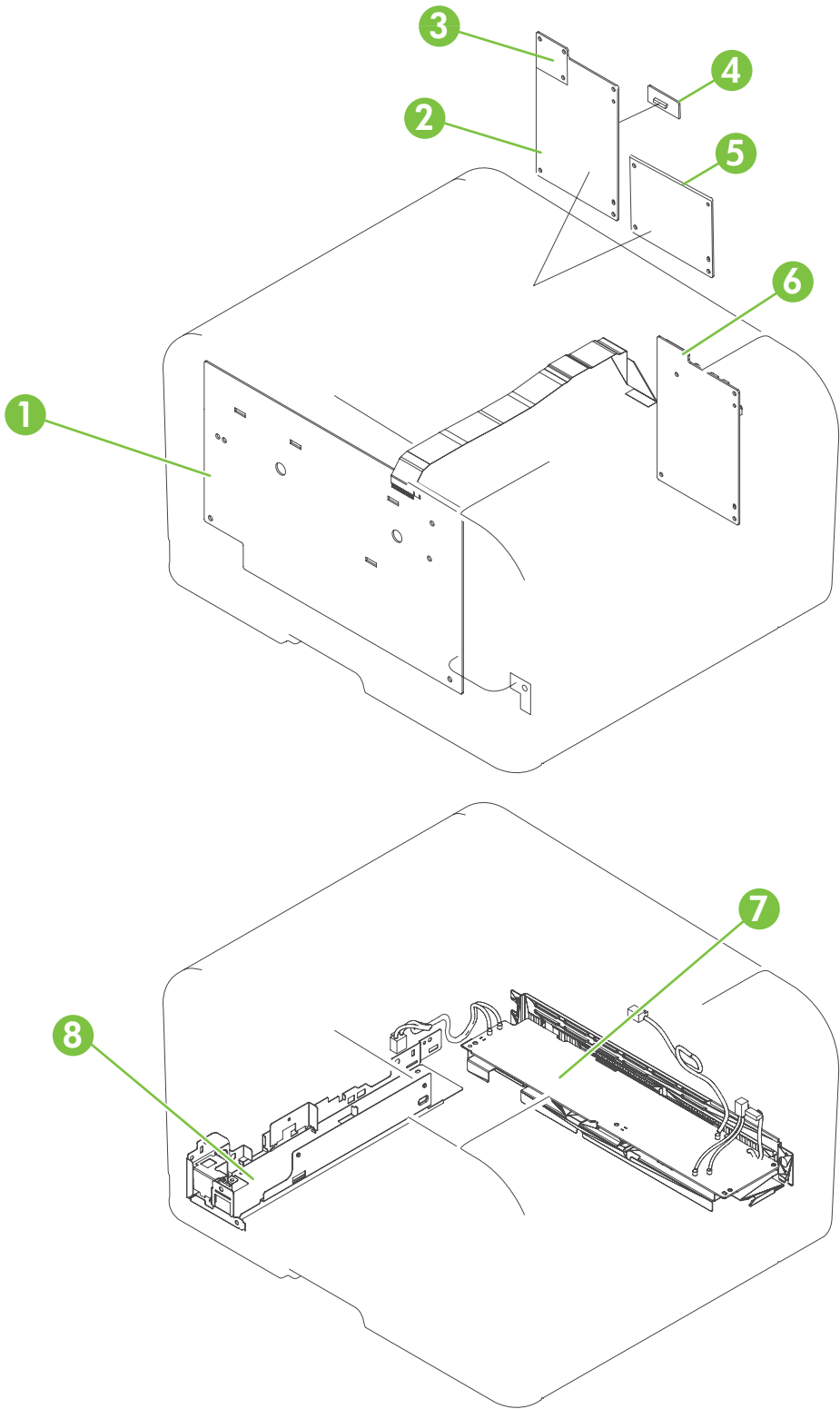


Table 7-6 PCAs

Item	Description
1	High-voltage power supply PCA

Table 7-6 PCAs (continued)

Item	Description
2	Formatter PCA (fax/memory-card models)
3	Fax card (DAA) (fax/memory-card models only)
4	Bandana (Asian markets only)
5	Formatter PCA (base models)
6	DC controller PCA
7	Low-voltage power supply PCA
8	Fuser power supply PCA

Interface ports

Figure 7-7 Interface ports

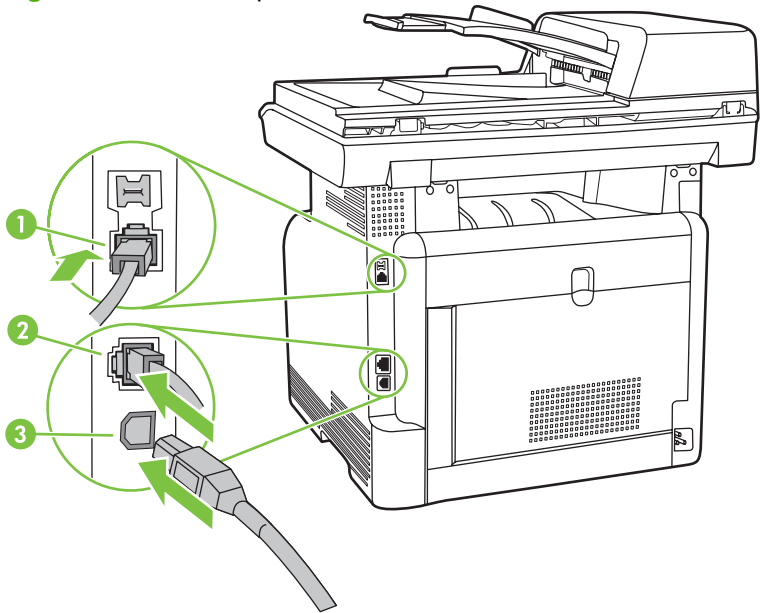


Table 7-7 Interface ports

1	Fax ports (fax/memory-card models only)
2	Network port (network models only)
3	Hi-Speed USB 2.0 port

DC controller PCA

Figure 7-8 DC controller connectors

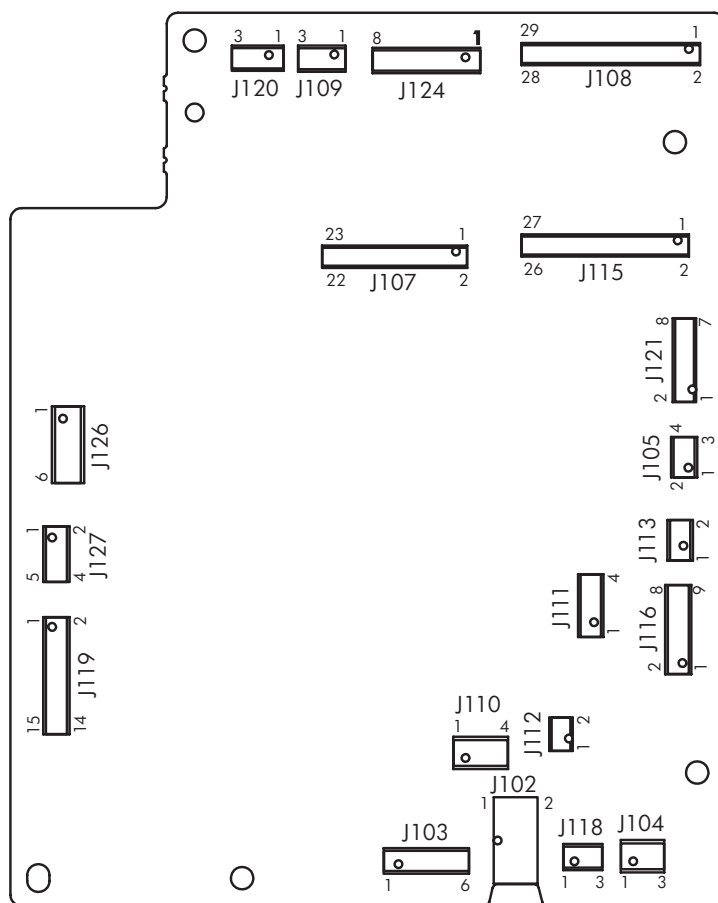


Table 7-8 DC controller connectors

Item	Description
J102	Low-voltage power supply (+24 V)
J103	Low-voltage power supply (+3.3 V)
J104	Thermistor (TH802)
J105	Fuser power supply
J107	Formatter
J108	Laser driver PCA
J109	Scanner motor (M704)
J110	Fuser motor (M703)
J111	Pickup assembly motor (M702)
J112	Developing disengagement solenoid (SL706)
J113	Cassette pickup solenoid (SL705)
P115	High-voltage power supply

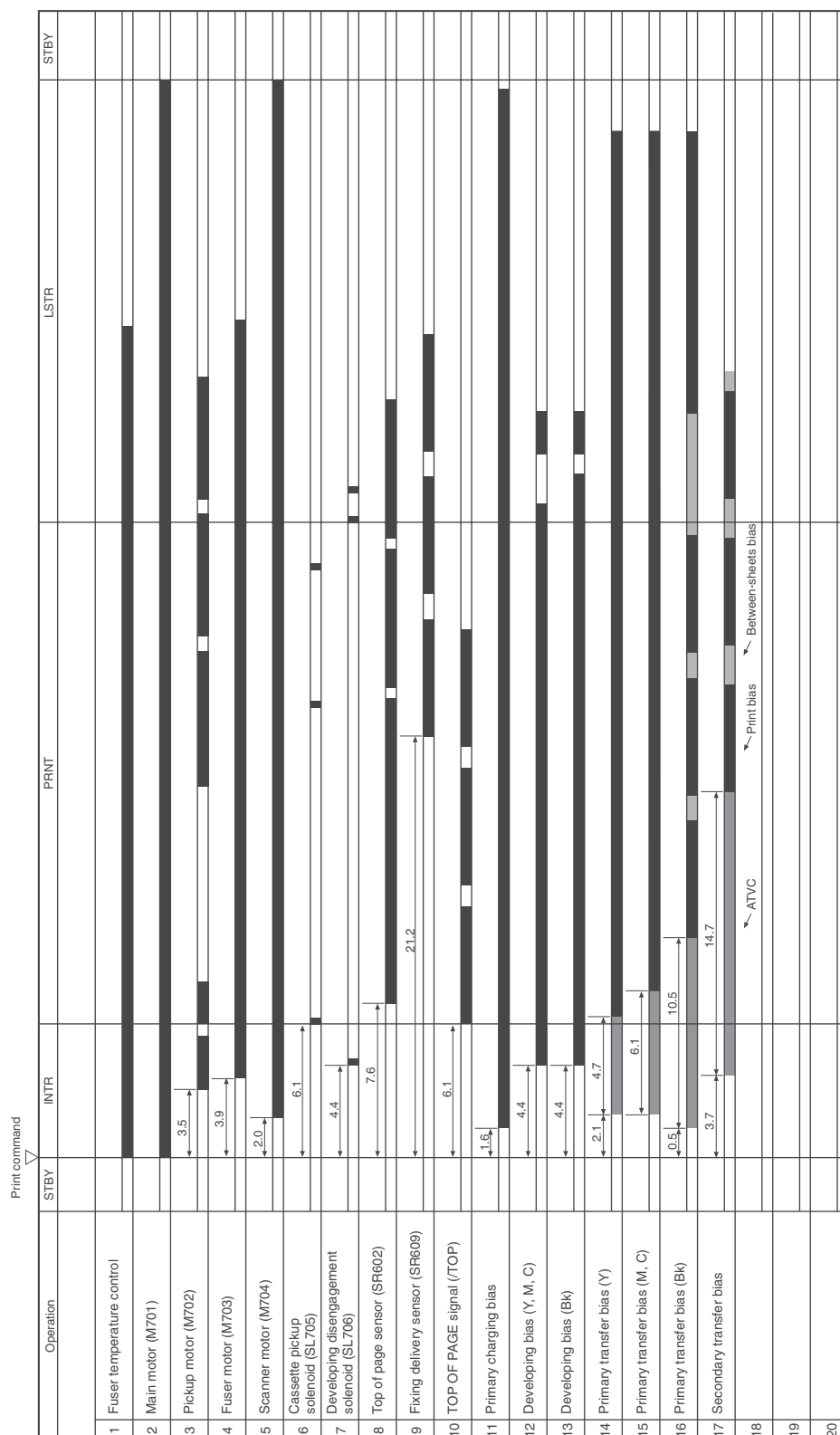
Table 7-8 DC controller connectors (continued)

Item	Description
P116	Pickup assembly <ul style="list-style-type: none">• Loop sensor (SR603)• Top-of-page sensor (SR602)• Cassette media present sensor (SR601)
J118	Media width sensor (SR607)
J119	ITB assembly density sensors
J120	Developing home position sensor (SR606)
J121	Main motor (M701)
J124	Memory tags (e-labels)
J126	Imaging output terminal (IOT)
J127	Flash

Timing diagram

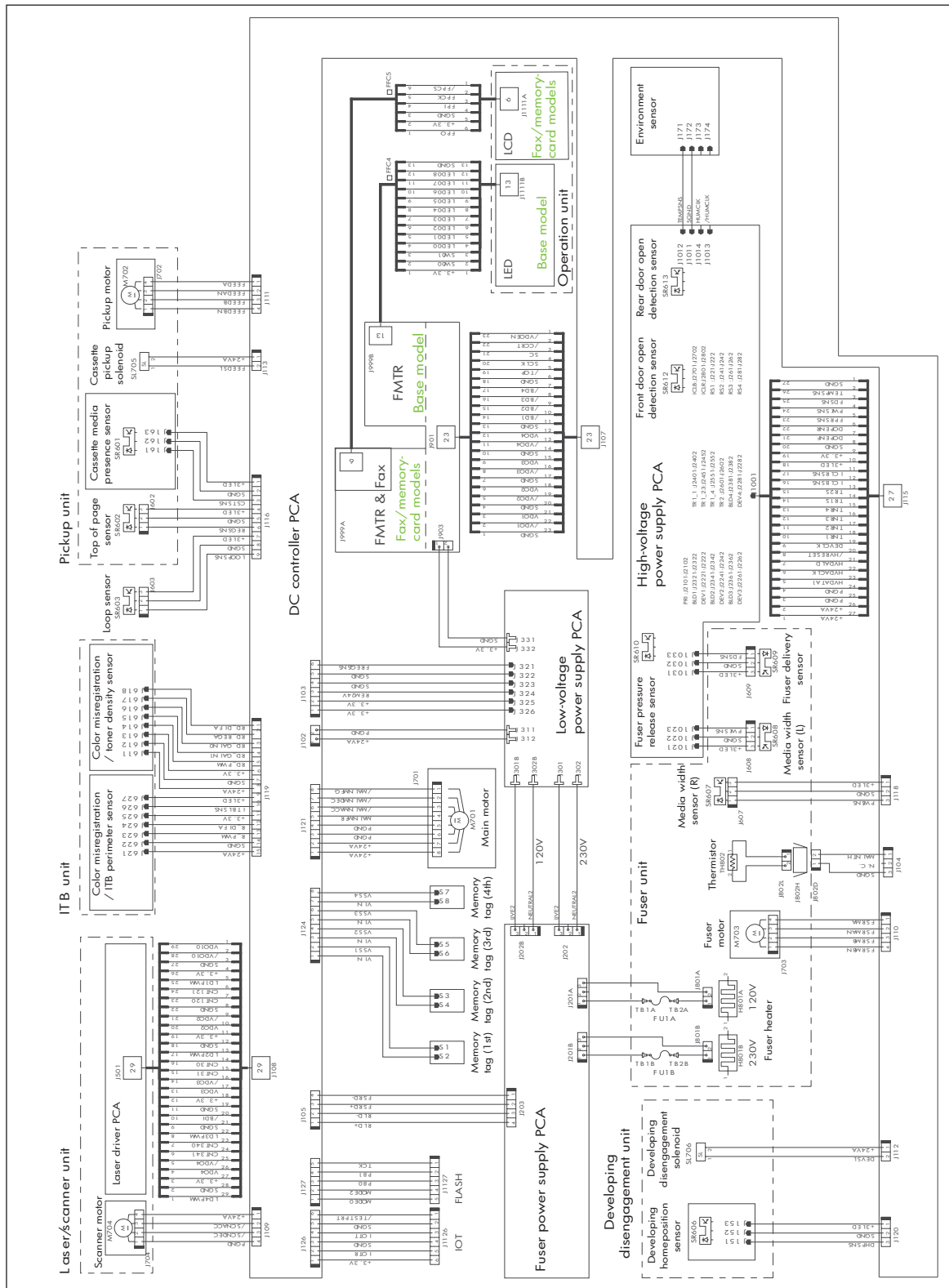
Approximate timing in seconds.

Figure 7-9 Timing diagram



Circuit diagram

Figure 7-10 Circuit diagram



Print-quality troubleshooting tools

Repetitive image defects

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


 **NOTE:** The following table replaces the graphical repetitive defect ruler. You can make your own ruler by using these measurements. For the most accurate results, use a metric ruler.


Table 7-9 Repetitive image defects

Distance between identical defects	Component	Notes
22.3 mm (0.87 in)	Developer roller (one rotation)	Appears in a single color plane.
26.7 mm (1.05 in)	Charger roller	Appears in a single color plane.
28.5 mm (1.12 in)	Developer RS roller (one rotation)	Inside developer and the removes and supplies toner to the developer sleeve.
44.0 mm (1.73 in)	Registration roller	
56.5 mm (2.22 in)	Fuser film (one rotation)	Appears in all color planes.
56.8 mm (2.23 in)	Fuser pressure roller (one rotation)	Appears in all color planes.
57.0 mm (2.24 in)	Transfer roller	Appears in all color planes.
69.0 mm (2.71 in)	Cartridge-to-cartridge spacing	Distance between each color OPC.
75.8 mm (2.98 in)	OPC drum (one rotation)	Appears in a single color plane and might be either a dark or white spot.
633.6 mm (24.94 in)	ITB	Because the ITB is longer than a page, you might have to look at multiple pages to determine if repetitive defect is present.

Calibrate the product

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

Calibrate the product from the control panel

1. Press **Setup** .
2. Use the arrow buttons to highlight **System setup**, and then press **OK**.
3. Use the arrow buttons to highlight **Print quality**, and then press **OK**.
4. Use the arrow buttons to highlight **Calibrate Color**, and then press **OK**.
5. Use the arrow buttons to highlight **Calibrate Now**, and then press **OK**.

Calibrate the product from HP ToolboxFX

1. Open HP ToolboxFX.
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.

Internal print quality test pages


This section describes the pages and reports that help you diagnose and solve product problems.

Cleaning page

To clean the paper path, process a cleaning page. See [Clean the paper path on page 64](#)


Service page

The service page lists information about paper type settings, copy quality settings, and other status settings.

1. Press **Setup** .
2. Use the arrow buttons to highlight **Reports**, and then press **OK**.
3. Use the arrow buttons to highlight **Service page**, and then press **OK**.

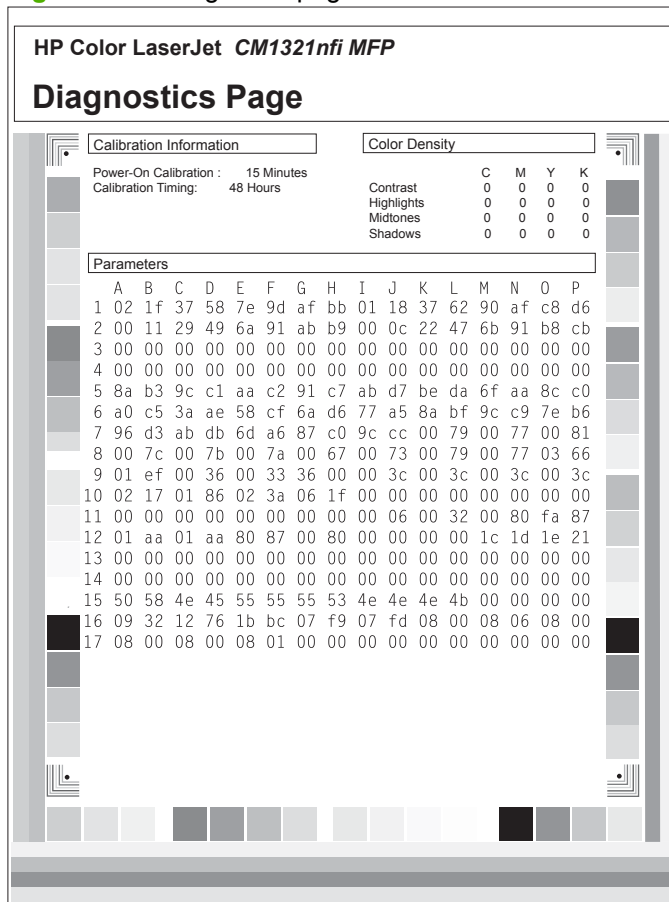
Diagnostics pages

The diagnostics page shows the current color settings and properties of the product. You can use this page to check for color plane registration and color density information.

1. Press **Setup** .
2. Use the arrow buttons to highlight **Reports**, and then press **OK**.
3. Use the arrow buttons to highlight **Diagnostics page**, and then press **OK**.

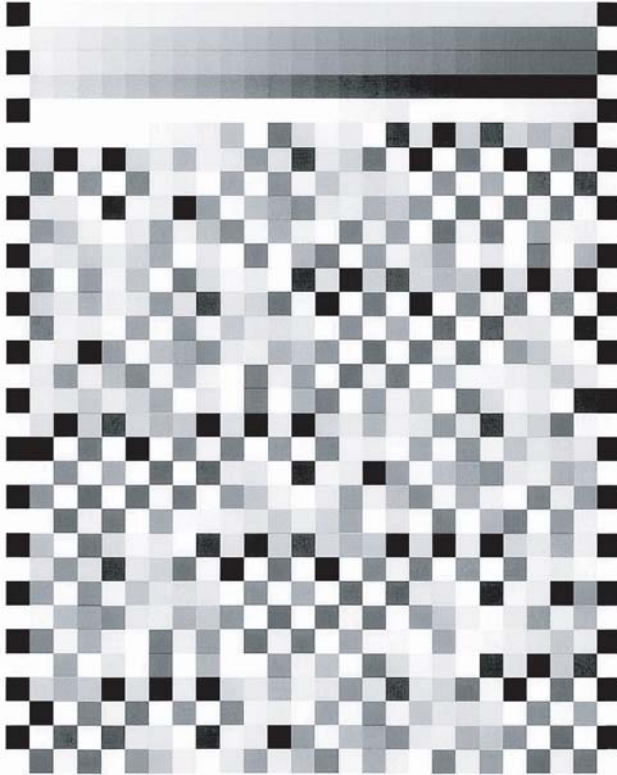
On the first page, verify that all four print cartridge colors appear on the page. Also, verify that the 90-degree angles in the corners are single toner colors and that the color plane registration is correct.

Figure 7-11 Diagnostic page 1



On the second page, verify that there are four print-cartridge color sweep bars near the top of the page. From right to left, there should be even steps of toner gradation from light to 100%. The other squares on the page are for use only during manufacturing.

Figure 7-12 Diagnostic page 2



HP ToolboxFX software

The HP ToolboxFX is a program that you can use for the following tasks:

- Checking the device status
- Checking the supplies status
- Setting up alerts
- Viewing device documentation
- Gaining access to troubleshooting and maintenance tools

For more information, see [View the HP ToolboxFX on page 46](#).

Control-panel messages

Table 7-10 Control-panel messages

Control panel message	Description	Recommended action
10.000X Supply Memory Error	A specific print cartridge has an e-label error. "X" indicates the cartridge: 0=black, 1=cyan, 2=magenta, 3=yellow.	Remove and reinstall the print cartridge. Turn off and then turn on the product. If the problem is not solved, replace the cartridge.
10.100X Supply Memory Error	A specific print cartridge has a faulty or missing e-label. "X" indicates the cartridge: 0=black, 1=cyan, 2=magenta, 3=yellow.	Check the e-label. If it is broken or damaged, replace the cartridge. Verify that the cartridge is installed in the correct location. Reinstall the print cartridge. Turn off and then turn on the product. If the error is with a color cartridge, try swapping it with a different color cartridge in the tray. If the same message appears, then there is an engine problem. If a different 10.100X message appears, replace the cartridge. If the error persists, verify that the connectors in DC controller connectors J108 and J124 are firmly seated. If the problem is not solved, replace the print-cartridge drawer. If the error persists, replace the DC controller.
49 Error, Turn off then on	The product has experienced an embedded firmware error. Under most conditions, the product will power cycle automatically.	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize. If the error persists, perform an NVRAM initialization. If the error persists, update the firmware. If the error persists, replace the formatter.
50.x Fuser Error	The product has experienced an internal hardware error.	<ol style="list-style-type: none"> 1. Turn off the power by using the power switch, and then wait at least 30 seconds. 2. Turn on the power and wait for the product to initialize. If the error persists, verify that the connectors in DC controller connectors J104 and J110 are seated firmly. If the error persists, replace the fuser. If the error persists, replace the fuser power supply.

Table 7-10 Control-panel messages (continued)

Control panel message	Description	Recommended action
52 Scanner Error	The product has experienced an internal hardware error.	<p>Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize.</p> <p>If the error persists, replace the DC controller.</p> <p>If the error persists, replace the product.</p>
79 Error Turn off then on	The product has experienced an internal firmware error. Under most conditions, the product will power cycle automatically.	<p>Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize.</p> <p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, update the firmware.</p> <p>If the error persists, replace the formatter.</p>
ADF door is open (fax/memory-card models only)	The ADF lid is open or a sensor is malfunctioning.	<p>Make sure that the ADF lid is closed.</p> <p>Remove the ADF and reinstall it.</p> <p>If the message persists, turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize.</p> <p>If the error persists, replace the ADF assembly.</p>
Comm. error (fax/memory-card models only)	A fax communication error occurred between the product and the sender or receiver.	<p>Allow the product to retry sending the fax.</p> <p>If the error persists, perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p> <p>See Solve fax problems (fax/memory-card models only) on page 246.</p>
Comm. error [Receiver CSID] (fax/memory-card models only)	A fax communication error occurred between the product and the receiver.	<p>Allow the product to retry sending the fax. Unplug the product telephone cord from the wall, plug in a telephone, and try making a call. Plug the product phone cord into a jack for another phone line.</p> <p>Try a different phone cord.</p> <p>If the error persists, perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p>
Comm. error [Sender CSID] (fax/memory-card models only)	A fax communication error occurred between the product and the sender.	<p>Allow the product to retry sending the fax. Unplug the product telephone cord from the wall, plug in a telephone, and try making a call. Plug the product phone cord into a jack for another phone line.</p> <p>Try a different phone cord.</p> <p>Try sending to a different receiver.</p>

Table 7-10 Control-panel messages (continued)

Control panel message	Description	Recommended action
		<p>If the error persists, perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p> <p>If the error persists, replace the fax card (data access arrangement (DAA)).</p>
Device error, press OK	Generic engine error.	<p>This is a warning message only. Job output might be affected.</p> <p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, update the firmware.</p> <p>If the error persists, replace the product.</p>
Device is busy. Try again later	The product is currently in use.	Wait for the product to finish the current job.
Doc feeder jam (fax/memory-card models only)	The ADF has not been cleared since previous jam.	<p>Clear the jam.</p> <p>If jams continue, replace the ADF.</p>
Doc feeder jam Clear, Reload (fax/memory-card models only)	A piece of media is jammed in the ADF tray.	<p>Open the document release door, clear the jam, close the document release door, and reload the paper into the ADF tray.</p> <p>If the error persists, replace the ADF pickup roller assembly.</p>
Document feeder mispick. Reload (fax/memory-card models only)	Media in the ADF tray was not picked up.	<p>Remove the media from the ADF tray, and then reload it.</p> <p>Clean the ADF pickup roller. See Clean the automatic document feeder (ADF) pickup roller assembly on page 66.</p> <p>If the error persists, replace the ADF pickup roller assembly.</p> <p>If the error persists, replace the ADF.</p>
Door open	The print-cartridge door is open.	<p>Close the print-cartridge door.</p> <p>If the error persists, replace the print-cartridge drawer.</p> <p>If the error persists, replace the DC controller.</p>
Engine Comm. Error	The product has experienced an engine communication timeout error.	<p>Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize.</p> <p>If a surge protector is being used, remove it. Plug the product directly into the wall socket. Use the power switch to turn the product on.</p> <p>If the error persists, verify that the connector in DC controller connector J107 is firmly seated.</p>
Engine error, press OK	The product experienced a print engine error.	This is a warning message only. Job output might be affected.

Table 7-10 Control-panel messages (continued)

Control panel message	Description	Recommended action
		If the error persists, replace the DC controller. If the error still persists, replace the product.
Fax delayed – Send memory full (fax/memory-card models only)	Fax memory is full.	Cancel the fax by pressing OK or Cancel  . Resend the fax. You might need to send the fax in multiple sections if the error occurs again.
Fax is busy Canceled send (fax/memory-card models only)	The fax line to which you were sending a fax was busy. The product has canceled sending the fax.	Check that you are dialing the correct fax number. Check that the Redial if busy option is enabled. Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).
Fax is busy Redial pending (fax/memory-card models only)	The fax line to which you were sending a fax was busy. The product automatically redials the busy number. See the user guide.	Check that you are dialing the correct fax number. Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).
Fax memory full Canceling recv. (fax/memory-card models only)	During the fax transmission, the product ran out of memory. Only the pages that fit into memory will be printed.	Print all of the faxes, and then have the sender resend the fax. Have the sender divide the fax job into multiple jobs before resending. Cancel all fax jobs or, in the Service menu Fax Service submenu, clear the faxes from memory. If the error persists, perform an NVRAM initialization. If the error persists, update the firmware. If the error persists, replace the formatter.
Fax memory full Canceling send (fax/memory-card models only)	During the fax job, the memory filled. All pages of the fax have to be in memory for a fax job to work correctly. Only the pages that fit into memory were sent.	Print all received faxes or wait until all pending faxes are sent. Cancel all fax jobs or, in the Service menu Fax Service submenu, clear the faxes from memory. If the error persists, perform an NVRAM initialization. If the error persists, update the firmware. If the error persists, replace the formatter.
Fax recv. error	An error occurred while trying to receive a fax.	Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248). Send the fax to a device known to be working correctly. Receive a fax from a device known to be working correctly.

Table 7-10 Control-panel messages (continued)

Control panel message	Description	Recommended action
		<p>See Solve fax problems (fax/memory-card models only) on page 246.</p> <p>If the error persists, replace the fax card (data access arrangement (DAA)).</p>
Fax Send error (fax/memory-card models only)	An error occurred while trying to send a fax.	<p>Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p> <p>Send the fax to a device known to be working correctly.</p> <p>Receive a fax from a device known to be working correctly.</p> <p>See Solve fax problems (fax/memory-card models only) on page 246.</p> <p>If the error persists, replace the fax card (data access arrangement (DAA)).</p>
Fax storage is full. Unable to answer call (fax/memory-card models only)	Memory is full	Print out the private receive faxes or delayed faxes. Clear the product memory.
Fit to Page on flatbed only	The copy reduce/enlarge feature (called "Fit to Page") applies only to copies made from the flatbed scanner.	Use the flatbed or select another reduction/enlargement setting.
Install [color] cartridge	One of the color cartridges is not installed with the door closed.	<p>Install or reinstall the indicated color cartridge.</p> <p>If the error persists, replace the print-cartridge drawer.</p>
Invalid driver Press OK	You are using the incorrect printer driver.	Select the printer driver that is appropriate for the product.
Invalid entry	Invalid data or response.	Correct the entry.
Jam in (area), Open door and clear jam	There is a paper jam in the print paper path or output bin.	<p>Clear the jam from the area indicated on the product control panel, and then follow the control panel instructions. See Clear jams on page 221.</p> <p>Remove any debris from the paper path.</p> <p>Clean the paper sensors.</p> <p>Verify the pickup roller, separation roller, and fuser are working correctly. If necessary, replace the rollers.</p> <p>If the error persists, verify that the connector in DC controller connector J116 is firmly seated.</p>
Jam in Tray 1, Clear jam and then press OK	The product has detected a jam in tray 1.	<p>Clear the jam from tray 1, and then follow the control panel instructions. See Clear jams on page 221.</p> <p>Verify the pickup roller and separation roller are working correctly. If necessary, replace the rollers.</p>

Table 7-10 Control-panel messages (continued)

Control panel message	Description	Recommended action
		<p>If the error persists during print jobs, verify that the connector in DC controller connector J113 is firmly seated.</p> <p>If the error persists during copy jobs, verify that the connector in DC controller connector J111 is firmly seated.</p> <p>If the error persists, replace the product.</p>
Load paper	Out of paper in all available trays.	<p>If paper is already loaded in the tray, test the paper sensors.</p> <p>Verify that all DC controller connectors are firmly connected.</p>
Load Tray 1 <TYPE> <SIZE>, Press OK to use available media	The product is processing a job, but no trays match.	<p>Load paper in the correct orientation.</p> <p>Press OK to use existing tray settings.</p>
Load Tray 1, <PLAIN> <SIZE> / Cleaning mode, OK to start	Cleaning mode paper prompt.	Load a clean sheet of paper in the correct orientation, then press OK to begin the cleaning procedures.
Manual Duplex Load Tray 1, Press OK	Manual duplex mode.	Load paper in the correct orientation.
Manual feed <SIZE> <TYPE>, Press OK to use available media	Print Manual Feed mode.	Load paper into Tray 1.
Memory is low Try again later	The product does not have enough memory to start a new job.	<p>Turn the product off and then on to clear the memory.</p> <p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, update the firmware.</p>
Memory is low. Press OK	The product memory has been almost completely filled.	<p>Press Cancel  to clear the error.</p> <p>Break the job into smaller jobs that contain fewer pages.</p> <p>Turn the product off and then on to clear the memory.</p>
Memory low Only 1 copy made. Press OK to continue.	The product does not have enough memory to complete the collated copy job.	<p>Break the job into smaller jobs that contain fewer pages.</p> <p>Turn the product off and then on to clear the memory.</p>
Misprint, Press OK	Feed delay misprint.	<p>Verify that paper is loaded in the input tray.</p> <p>Reload the paper.</p> <p>See Clear jams on page 221.</p>
No Dial Tone (fax/memory-card models only)	The product could not detect a dial tone.	<p>Check for a dial tone on the phone line by pressing Start Fax.</p> <p>Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p>

Table 7-10 Control-panel messages (continued)

Control panel message	Description	Recommended action
		If the error persists, replace the fax card (data access arrangement (DAA)).
No document sent (fax/memory-card models only)	The product did not scan any pages, or it did not receive any pages from the computer to transmit a fax.	<p>Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p> <p>Check the fax log for errors.</p> <p>Print a T.30 trace report, and then check it for errors.</p> <p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, replace the fax card (data access arrangement (DAA)).</p>
No fax answer Redial pending (fax/memory-card models only)	The receiving fax line did not answer. The product attempts to redial after a few minutes.	<p>Allow the product to retry sending the fax.</p> <p>Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p> <p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, update the firmware.</p>
No fax answer. Canceled send (fax/memory-card models only)	Attempts to redial a fax number failed, or the "Redial-no answer" option was turned off.	<p>Check that the redial option is enabled.</p> <p>Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p> <p>Check the fax log for errors.</p> <p>Print a T.30 trace report, and then check it for errors.</p> <p>If the error persists, update the firmware.</p> <p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, use the Service menu Restore defaults function to reset the product.</p> <p>If the error persists, replace the fax card (data access arrangement (DAA)).</p>
No fax detected (fax/memory-card models only)	The product answered the incoming call but did not detect that a fax machine was calling.	<p>Allow the product to retry receiving the fax.</p> <p>Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p> <p>Check the fax log for errors.</p> <p>Print a T.30 trace report, and then check it for errors.</p> <p>If the error persists, update the firmware.</p>

Table 7-10 Control-panel messages (continued)

Control panel message	Description	Recommended action
		<p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, use the Service menu Restore defaults function to reset the product.</p> <p>If the error persists, replace the fax card (data access arrangement (DAA)).</p>
Non-HP supply Installed	A new supply has been installed that is not made by HP. This message is appears for several seconds, and then the product returns to the Ready state.	<p>Install a genuine HP print cartridge.</p> <p>If the error persists, verify that all DC controller connectors are firmly connected.</p> <p>If the error persists, replace the print-cartridge drawer.</p>
Order [color] cartridge.	A color print cartridge is low.	Order the indicated color print cartridge.
Print failure, press OK. If error repeats, turn off then on.	The product could not print the current page because of its complexity.	<p>Press OK to clear the message.</p> <p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, use the Service menu Restore defaults function to reset the product.</p> <p>If the error persists, update the firmware.</p> <p>If the error persists, replace the formatter.</p>
Scanner error X, Turn off then on	The product has experienced an error in the scanner sub-assembly area.	<p>Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize.</p> <p>If the error persists, verify that all formatter connectors are firmly connected.</p> <p>If the error persists, update the firmware.</p> <p>If the error persists, replace the scanner assembly.</p>
Scanner reserved for PC scan	A computer is using the product to create a scan.	Wait until the computer scan has finished, or cancel the scan from the computer software, or press Cancel  .
Scanning error Cannot connect	The product cannot transmit scan information to a computer.	<p>Verify that the connection cable is not loose or damaged. Replace the cable if necessary, and try the scan again.</p> <p>If the error persists, replace the formatter.</p>
Settings cleared	The product has cleared job settings.	Re-enter any appropriate job settings.
Used [color] installed, to accept press OK	A used color printer cartridge has been installed or moved.	Press OK to return to the Ready state.

Event-log messages

The following product events do not produce a message that appears on the control panel. Instead, they are recorded in the event log. To print the event log, open the secondary service menu, select **Service Reports**, and then select **Error Report**.

Table 7-11 Event-log messages

Event code	Description
13.0000	Paper jam
20.0000	Memory out
21.0000	Page misfeed or mispick
41.2000	Beam detect malfunction
41.3000	Unexpected size
50.1000	Low fuser temperature error
50.2000	Slow fuser error
50.3000	High fuser temperature error
50.4000	Fuser drive circuit error
50.7000	Fuser open error
50.8000	Low subthermistor fuser error
50.9000	High subthermistor fuser error
51.2000	Black scanner laser error (inline devices only)
51.2100	Cyan scanner laser error (inline devices only)
51.2200	Magenta scanner laser error (inline devices only)
51.2300	Yellow scanner laser error (inline devices only)
54.0600	Density sensor error
54.1200	Black density measurement abnormality
54.1201	Cyan density measurement abnormality
54.1202	Magenta density measurement abnormality
54.1203	Yellow density measurement abnormality
54.1400	Color plane registration sensor error (inline devices only)
54.1599	Black CPR pattern can't be read
54.1501	Cyan CPR pattern can't be read
54.1502	Magenta CPR pattern can't be read
54.1503	Yellow CPR pattern can't be read
54.1500	Yellow toner level sensor error
54.1600	Magenta toner level sensor error
54.1700	Cyan toner level sensor error

Table 7-11 Event-log messages (continued)

Event code	Description
54.1800	Black toner level sensor error
54.1900	Bad top-of-page (TOP) sensor
54.2100	Beam detect (BD) error
55.0000	Engine internal communication error
55.0601	DC controller NVRAM data error
55.0602	DC controller NVRAM access error
55.1000	DC controller memory error
57.0100	Fan motor error
57.0600	Fan motor error
59.0160	ITB or main motor rotation error (59.A0)
59.0192	Developer motor rotation error (59.C0)
59.0240	Transfer alienation failure (59.F0)
59.3000	Fuser motor startup error
59.4000	Fuser motor error
59.5000	Image drum motor startup error—black
59.5300	Image drum motor startup error—yellow
59.6000	Image drum motor rotation error- black
59.6300	Image drum motor rotation error- yellow
59.7000	Black developer motor startup error
59.7300	Yellow developer motor startup error
59.8000	Black developer motor rotation error
59.8300	Yellow developer motor rotation error
59.9000	ITB motor start error

Paper-handling problems

Jams

Recover jams

When the jam recovery feature is turned on, the product reprints any pages that are damaged during a jam. To turn on jam recovery, you must use the embedded Web server (EWS) or HP ToolboxFX.

Use the EWS to set jam recovery (network models only)

1. At a networked computer, open the EWS.
2. Click the **System** tab.
3. Click **System Setup**.
4. In the **Jam Recovery** drop-down list, select **On**.
5. Click **Apply**.

Use HP ToolboxFX to set jam recovery

1. Open HP ToolboxFX.
2. Click the **Device Settings** folder, and then click **System Setup**.
3. Next to **Jam Recovery**, select **On** from the drop-down list.

Common causes of jams

Common causes of jams¹

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. See Supported paper and print media on page 36 .
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. See Load paper and print media on page 38 .
The media is skewed.	The input-tray guides are not adjusted correctly. Adjust them so they hold the stack firmly in place without bending it.
The media is binding or sticking together.	Remove the media, flex it, rotate it 180 degrees, or flip it over. Reload the media into the input tray. NOTE: Do not fan paper. Fanning can create static electricity, which can cause paper to stick together.
The media is removed before it settles into the output bin.	Wait until the page completely settles in the output bin before removing it.
The 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 heavier than 163 g/m ² (43 lb), 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.

¹ If the product continues to jam, contact HP Customer Support or your authorized HP service provider.

Clear jams

Where to look for jams

Jams can occur in these locations:

- In input areas
- In output areas
- Inside the product paper path
- In the automatic document feeder (ADF models only)

Find and remove the jam by using the instructions on the following pages. If the location of the jam is not obvious, first look inside the product.

Loose toner might remain in the product after a jam. This problem typically resolves itself after a few sheets have been printed.

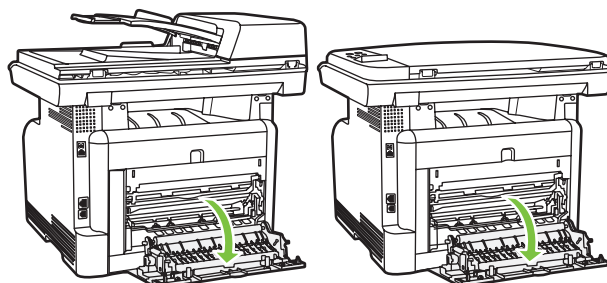
Clear jams from the input-tray areas

△ **CAUTION:** Do not use sharp objects, such as tweezers or needle-nose pliers, to remove jams. Damage caused by sharp objects will not be covered by the warranty.

When removing jammed media, pull the jammed media straight away from the product. Pulling jammed media out of the product at an angle can damage the product.

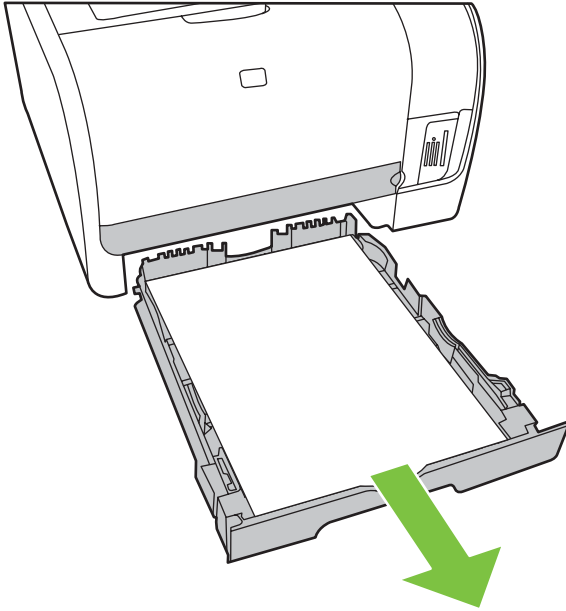
📄 **NOTE:** Depending on where the jam is located, some of the following steps might not be necessary.

1. Open the rear output door.

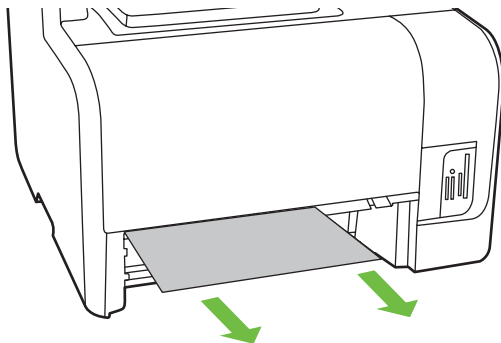


2. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the product.

3. Remove Tray 1, and lift the jam access door to gain better access to any jammed media.



4. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the product.



5. Reinsert Tray 1 and close the jam access door.
6. Close the rear output door.

Clear jams from the output-bin

- △ **CAUTION:** Do not use sharp objects, such as tweezers or needle-nose pliers, to remove jams. Damage caused by sharp objects will not be covered by the warranty.

With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the product.



Clear jams from the ADF (fax/memory-card models only)

Occasionally, media becomes jammed during a fax, copy, or scan job.

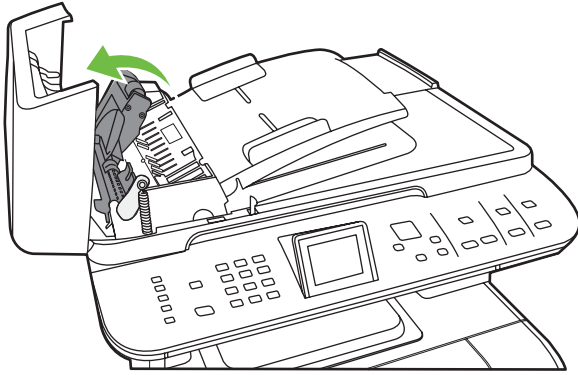
You are notified of a media jam by the **Doc feeder jam Clear, Reload** message that appears on the product control-panel display.

- The ADF input tray is loaded incorrectly or is too full, or the input tray media guides are set incorrectly. See [Load paper and print media on page 38](#) for more information.
- The media does not meet HP specifications, such as those for size or type. See [Supported paper and print media on page 36](#) for more information.

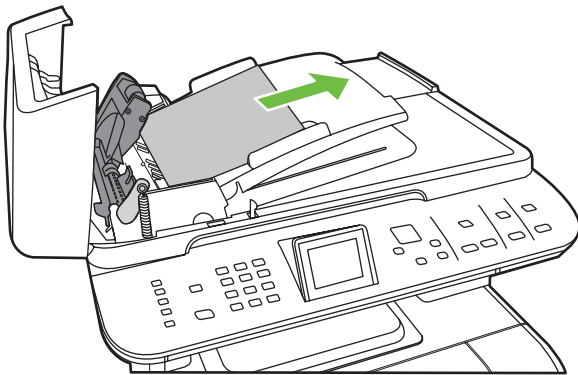
1. Open the ADF cover.



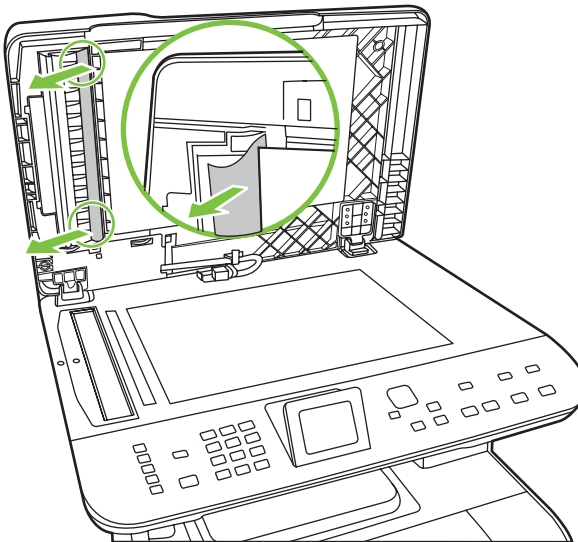
2. Lifting the green lever, rotate the pick mechanism until it stays open.



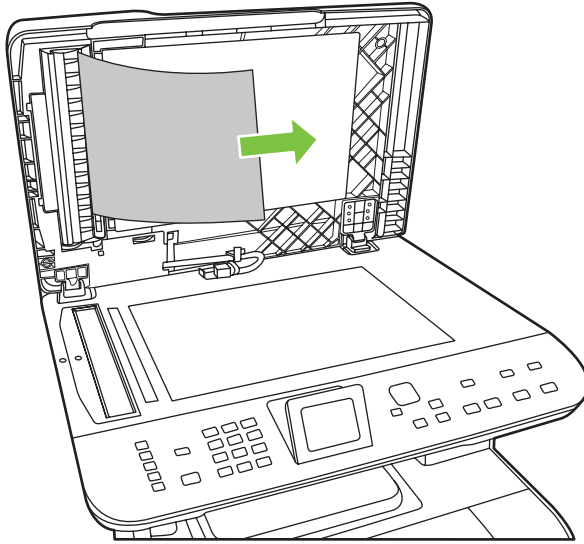
3. Gently try to remove the page without tearing it. If you feel resistance, go to the next step.



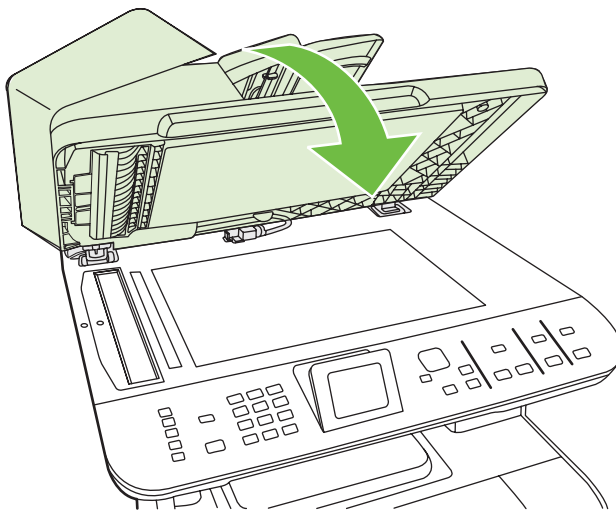
4. Open the flatbed scanner lid and gently loosen the media by using both hands.



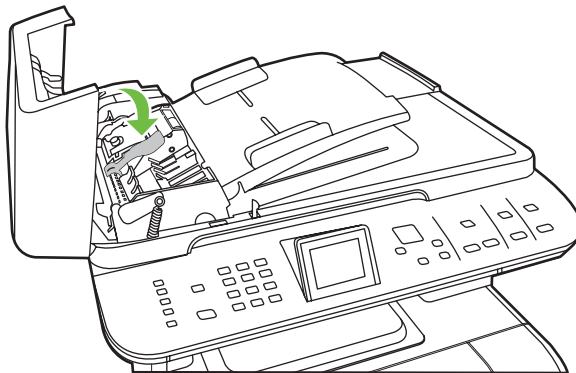
5. When the media is free, gently pull it out in the direction shown.



6. Close the lid to the flatbed scanner.




7. Lower the green lever.



8. Close the ADF lid.

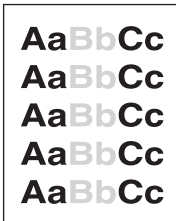


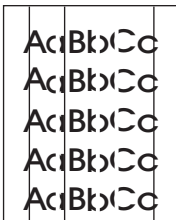



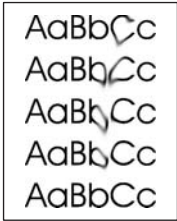
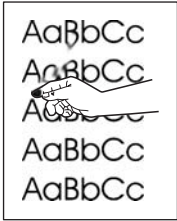

 **NOTE:** If jams persist, replace the ADF pickup roller assembly. See [ADF pickup roller assembly on page 119](#).

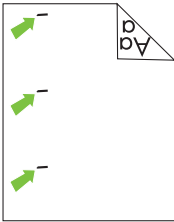
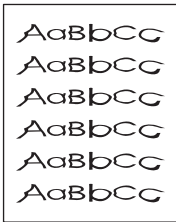
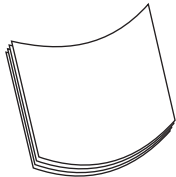
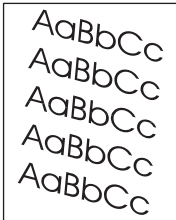
Solve image quality problems

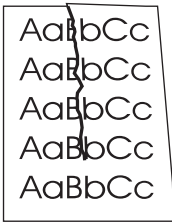
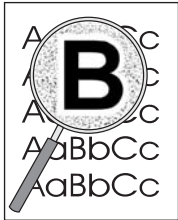

General image quality problems

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

Problem	Cause	Solution
Print is light or faded. 	The media might not meet HP specifications. One or more print cartridges might be defective.	Use media that meets HP specifications. Print the supplies status page to check the remaining life. See Information pages on page 44 . Replace any empty or used (refilled) print cartridges. See Print cartridge on page 61 .
	The product is set to override the Replace [color] cartridge message and to continue printing.	Replace any empty or used (refilled) print cartridges. See Print cartridge on page 61 .
Toner specks appear. 	The media might not meet HP specifications. The paper path might need cleaning.	Use media that meets HP specifications. Clean the paper path. See Clean the paper path on page 64 .
Dropouts appear. 	A single sheet of print media might be defective. The moisture content of the paper is uneven or the paper has moist spots on its surface. The paper lot is flawed. The manufacturing processes can cause some areas to reject toner.	Try reprinting the job. Try different paper, such as high-quality paper that is intended for color laser printers. Try different paper, such as high-quality paper that is intended for color laser printers.
Vertical streaks or bands appear on the page. 	One or more print cartridges might be defective. The product is set to override the Replace [color] cartridge message and to continue printing.	Print the supplies status page to check the remaining life. See Information pages on page 44 . Replace any empty or used (refilled) print cartridges. See Print cartridge on page 61 . Replace any empty or used (refilled) print cartridges. See Print cartridge on page 61 .





Problem	Cause	Solution
<p>The amount of background toner shading becomes unacceptable.</p> 	Very dry (low humidity) conditions can increase the amount of background shading.	Check the product environment.
	The extended print mode setting is incorrect.	Try the print job again using the Transfer extended print mode, Dry paper setting. See the user guide.
	One or more print cartridges might be defective.	Replace any empty or used (refilled) print cartridges. See Print cartridge on page 61 .
	The product is set to override the Replace [color] cartridge message and to continue printing.	Replace any empty or used (refilled) print cartridges. See Print cartridge on page 61 .
<p>Toner smears appear on the media.</p> 	The media might not meet HP specifications.	Use media that meets HP specifications.
	If toner smears appear on the leading edge of the paper, the media guides are dirty, or debris has accumulated in the print path.	Clean the media guides. Clean the paper path. See Clean the paper path on page 64 .
<p>The toner smears easily when touched.</p> 	The product is not set to print on the type of media on which you want to print.	In the printer driver, select the Paper tab and set Type is to match the type of media on which you are printing. Print speed might be slower if you are using heavy paper.
	The media might not meet HP specifications.	Use media that meets HP specifications.
	The paper path might need cleaning.	Clean the paper path. See Clean the paper path on page 64 .
<p>Marks repeatedly appear at even intervals on the printed side of the page.</p> 	The product is not set to print on the type of media on which you want to print.	In the printer driver, select the Paper tab and set Type is to match the type of paper on which you are printing. Print speed might be slower if you are using heavy paper.
	Internal parts might have toner on them.	The problem typically corrects itself after a few more pages.
	The paper path might need cleaning.	Clean the paper path. See Clean the paper path on page 64 .
	The fuser might be damaged or dirty.	To determine if the fuser has a problem, print the diagnostics page. Clean the paper path. See Clean the paper path on page 64 . Use the image defect ruler to determine where the defect is occurring. See Repetitive image defects on page 205 .
	A print cartridge may have a problem.	To determine which cartridge has a problem, print the diagnostics page.


Problem	Cause	Solution
<p>Marks repeatedly appear at even intervals on the unprinted side of the page.</p> 	<p>Internal parts might have toner on them.</p> <p>The paper path might need cleaning.</p> <p>The fuser might be damaged or dirty.</p>	<p>The problem typically corrects itself after a few more pages.</p> <p>Clean the paper path. See Clean the paper path on page 64.</p> <p>To determine if the fuser has a problem, print the diagnostics page.</p> <p>Clean the paper path. See Clean the paper path on page 64.</p>
<p>The printed page contains misformed characters.</p> 	<p>The media might not meet HP specifications.</p> <p>If characters are incorrectly formed so that they produce a wavy effect, the laser scanner might need service.</p>	<p>Use a different paper, such as high-quality paper that is intended for color laser printers.</p> <p>Verify that the problem also occurs on the configuration page. If so, replace the product.</p>
<p>The printed page is curled or wavy.</p> 	<p>The product is not set to print on the type of media on which you want to print.</p> <p>The Service menu item Less Paper Curl is set to Off.</p> <p>The media might not meet HP specifications.</p> <p>Both high temperature and humidity can cause paper curl.</p>	<p>In the printer driver, select the Paper tab and set Type is to match the type of paper on which you are printing. Print speed might be slower if you are using heavy paper.</p> <p>Change the setting to On.</p> <p>Use a different paper, such as high-quality paper that is intended for color laser printers.</p> <p>Check the product environment.</p>
<p>Text or graphics are skewed on the printed page.</p> 	<p>The media might be loaded incorrectly.</p> <p>The media might not meet HP specifications.</p>	<p>Make sure that the paper or other print media is loaded correctly and that the media guides are not too tight or too loose against the stack. See Load paper and print media on page 38.</p> <p>Use a different paper, such as high-quality paper that is intended for color laser printers.</p>

Problem	Cause	Solution
<p>The printed page contains wrinkles or creases.</p> 	<p>The media might be loaded incorrectly.</p>	<p>Verify that the media is loaded correctly and that the media guides are not too tight or too loose against the stack. See Load paper and print media on page 38.</p> <p>Turn over the stack of paper in the input tray, or try rotating the paper 180° in the input tray.</p>
	<p>The media might not meet HP specifications.</p>	<p>Use a different paper, such as high-quality paper that is intended for color laser printers.</p>
<p>Toner appears around the printed characters.</p> 	<p>The media might be loaded incorrectly.</p> <p>If large amounts of toner have scattered around the characters, the paper might have high resistivity.</p>	<p>Turn over the stack of paper in the tray.</p> <p>Use a different paper, such as high-quality paper that is intended for color laser printers.</p>
<p>An image that appears at the top of the page (in solid black) repeats farther down the page (in a gray field).</p> 	<p>Software settings might affect image printing.</p>	<p>In your software program, change the tone (darkness) of the field in which the repeated image appears.</p> <p>In your software program, rotate the whole page 180° to print the lighter image first.</p> <p>In the printer driver, verify that the correct media type is selected.</p>
	<p>The order of images printed might affect printing.</p>	<p>Change the order in which the images are printed. For example, have the lighter image at the top of the page, and the darker image farther down the page.</p>
	<p>A power surge might have affected the product.</p>	<p>If the defect occurs later in a print job, turn the product off for 10 minutes, and then turn on the product to restart the print job.</p>

Solve issues with color documents

This section describes issues that can occur with color print jobs.

Problem	Cause	Solution
Only black is printing when the document should be printing in color.	Color mode is not selected in your program or printer driver.	Select color mode instead of grayscale mode.
	The correct printer driver might not be selected in the program.	Select the correct printer driver.
	One of the color print cartridges might be empty. If the product is configured to continue printing after a color cartridge has reached the end of its capacity, it will print in black and white.	Replace any empty color print cartridges. See Print cartridge on page 61 .
One or more colors are not printing, or are inaccurate.	Sealing tape might be on the print cartridges.	Verify that the sealing tape has been completely removed from the print cartridges.
	The media might not meet HP specifications.	Use a different paper, such as high-quality paper that is intended for color laser printers.
	The product might be operating in excessively humid conditions.	Verify that the product environment is within humidity specifications.
	One or more print cartridges might be defective.	Replace any empty or used (refilled) print cartridges. See Print cartridge on page 61 .
	The product is set to override the Replace [color] cartridge message and to continue printing.	Replace any empty or used (refilled) print cartridges. See Print cartridge on page 61 .
A color is printing inconsistently after you load a new print cartridge.	Another print cartridge might be defective.	Remove the print cartridge for the color that is printing inconsistently and reinstall it.
	The product is set to override the Replace [color] cartridge message and to continue printing.	Replace any empty color print cartridges. See Print cartridge on page 61 .
The colors on the printed page do not match the colors as they appear on the screen.	The colors on a computer monitor might differ from the product output.	See the user guide.
	If extremely light colors or extremely dark colors on screen are not printing, the software program might interpret extremely light colors as white or extremely dark colors as black.	If possible, avoid using extremely light or extremely dark colors.
	The media might not meet HP specifications.	Use a different paper, such as high-quality paper that is intended for color laser printers.
The finish on the printed color page is inconsistent.	The media might be too rough.	Use a smooth paper or print media, such as a high-quality paper that is made for

Problem	Cause	Solution
		color laser printers. Generally, smoother media produces better the results.

Copy problems

Prevent copy problems

The following are a few simple steps you can take to improve copy quality:

- Copy from the flatbed scanner. This will produce a higher quality copy than copying from the automatic document feeder (ADF).
- Use quality originals.
- Load the media correctly. If the media is loaded incorrectly, it might skew, causing unclear images and problems with the OCR program. See [Load paper and print media on page 38](#) for instructions.
- Adjust the control panel settings for the type of original if the automatic settings do not produce the desired result.


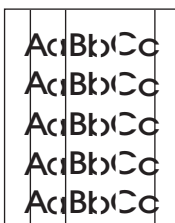
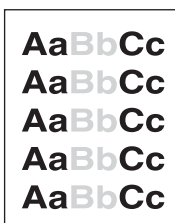
 **NOTE:** Verify that the media meets HP specifications. If the media meets HP specifications, recurring feed problems indicate the pickup roller or separation roller is worn and need to be replaced. See [Paper-feed assemblies on page 118](#).

Image problems

Problem	Cause	Solution
Copy edges are cropped when copying from the glass.	The original is edge-to-edge or has smaller margins than those supported by this product.	Position the original 6.35 mm (1/4 inch) away from the registration corner on the glass.
Copy edges are cropped when copying from the ADF.	The original is too long, edge-to-edge, or has smaller margins than those supported by this product.	On the control panel, press Copy setup . Use the arrow buttons to select Reduce/Enlarge and press OK . Use the arrow buttons to select Full Page=91% and press OK . Try copying again.

Problem	Cause	Solution
Images are missing or faded.	The print-cartridge might be low.	Replace any low print cartridge and then calibrate the product. See Print cartridge on page 61 .
	The original might be of poor quality.	If your original is too light or damaged, the copy might not be able to compensate, even if you adjust the contrast. If possible, find an original document in better condition. Use the control-panel to change the contrast setting.
	The original might have a colored background.	Colored backgrounds might cause images in the foreground to blend into the background, or the background might appear in a different shade. If possible, use an original document without a colored background.
	The original is larger than the scannable area	Use supported media sizes.
Vertical white or faded stripes appear on the copy.	The media might not meet HP specifications.	Use media that meets HP specifications. See Paper and print media on page 35 .
	One or more of the print cartridges may be low.	Replace any low print cartridge. See Print cartridge on page 61 . If the error persists, contact HP support.
Unwanted lines appear on copy jobs only.	The flatbed scanner or the ADF glass might be dirty.	Clean the flatbed scanner or the ADF glass. See Clean the product on page 64 .
	An image exists on the back of the original, or defects exist on the scanner cover.	On the flatbed scanner, place three sheets of clean paper on top of the original, close the flatbed scanner cover, then re-scan the original.
Black dots or streaks appear on copy jobs only.	Ink, glue, correction fluid, or an unwanted substance might be on the automatic document feeder (ADF) or flatbed scanner.	Clean the product. See Clean the product on page 64 .
Copies are too light or dark.	The printer driver or product software settings may be incorrect.	Verify that the quality settings are correct. See the product software Help for more information about changing the settings.
	The product may not be calibrated.	Calibrate the product.



Problem	Cause	Solution
Text is unclear.	The printer driver or product software settings may be incorrect.	Verify that the quality settings are correct. See the product software Help for more information about changing the settings.
	The original is of poor quality.	Try copying another document. If the copy is free of defects, obtain a better-quality original.
	The product may not be calibrated.	Calibrate the product.

Media-handling problems

Problem	Cause	Solution
Poor print quality or toner adhesion	The paper is too moist, too rough, too heavy or too smooth, or it is embossed or from a faulty paper lot.	Try another kind of paper, between 100 and 250 Sheffield, 4 to 6% moisture content.
Dropouts, jamming, or curl	The paper has been stored incorrectly.	Store paper flat in its moisture-proof wrapping.
	The paper has variability from one side to the other.	Turn the paper over.
Excessive curl	The paper is too moist, has the wrong grain direction, or is of short-grain construction	Use long-grain paper.
	The paper varies from side-to-side.	Turn the paper over.
Jamming, damage to paper	The paper has cutouts or perforations.	Use paper that is free of cutouts or perforations.
Problems with feeding	The paper has ragged edges.	Use high-quality paper that is made for laser printers.
	The paper varies from side-to-side.	Turn the paper over.
	The paper is too moist, too rough, too heavy or too smooth, has the wrong grain direction, or is of short-grain construction or it is embossed or from a faulty paper lot.	Try another kind of paper, between 100 and 250 Sheffield, 4 to 6% moisture content. Use long-grain paper.
Print is skewed (crooked).	The media guides might be incorrectly adjusted.	Remove all media from the input tray, straighten the stack, and then load the media in the input tray again. Adjust the media guides to the width and length of the media that you are using and try printing again.
More than one sheet feeds at one time.	The media tray might be overloaded.	Remove some of the media from the tray. See Load paper and print media on page 38 .
	The media might be wrinkled, folded, or damaged.	Verify that the media is not wrinkled, folded, or damaged. Try printing on media from a new or different package.

Problem	Cause	Solution
The product does not pull media from the media input tray.	The product might be in manual feed mode.	<ul style="list-style-type: none"> If Manual appears on the product control-panel display, press OK to print the job. Verify that the product is not in manual feed mode and print your job again.
	The pickup roller might be dirty or damaged.	Replace the pickup roller assembly. See Pickup roller (product base) on page 118 .

Performance problems

Problem	Cause	Solution
No copy came out.	The input tray might be empty.	Load media in the product. See Load paper and print media on page 38 for more information.
	The original might have been loaded incorrectly.	<p>In the automatic document feeder (ADF), load the original with the narrow side forward and the side to be scanned facing up.</p> <p>Place the original document face-down on the flatbed scanner with the upper-left corner of the document at the corner indicated by the icon on the scanner.</p>
Copies are blank.	The sealing tape might not have been removed from the print cartridge.	Remove the print cartridge from the product, pull out the sealing tape, and reinstall the print cartridge.
	The original might have been loaded incorrectly.	<p>In the ADF, load the original with the narrow side leading into the ADF and the side to be scanned facing up.</p> <p>On the flatbed scanner, make sure that the original document is placed face-down with the upper-left corner of the document at the lower-right corner of the glass.</p>
	The media might not meet HP specifications.	Use media that meets HP specifications. See Paper and print media on page 35 .
The wrong original was copied.	The ADF might be loaded.	Make sure that the ADF is empty.
Copies are reduced in size.	The product settings might be set to reduce the scanned image.	On the control panel, select Reduce/Enlarge from the Copy Menu and verify that it is set to Original=100% .

Scan problems

Solve scanned-image problems

Problem	Cause	Solution
The scanned image is of poor quality.	The original might be a second-generation photo or picture.	<ul style="list-style-type: none">• To eliminate the patterns, try reducing the size of the image after scanning.• Print the scanned image to see if the quality is better.• Verify that the resolution settings are correct for the type of scan job that you are performing. See the user guide.• For best results, use the flatbed scanner for scanning rather than the automatic document feeder (ADF).
	The image that appears on the screen might not be an accurate representation of the quality of the scan.	<ul style="list-style-type: none">• Try adjusting your computer monitor settings to use more colors (or levels of gray). Typically, you make this adjustment by opening Display in Windows Control Panel.• Try adjusting the resolution settings in the scanner software. See the user guide.
	The original might have been loaded incorrectly.	Use the media guides when you load the originals into the ADF. See Load paper and print media on page 38 .
	The scanner glass might be dirty.	Clean the scanner glass. See Clean the scanner glass on page 69 .
	The graphics settings might not be suitable for the type of scan job that you are performing.	Try changing the graphics settings. See the user guide.

Problem	Cause	Solution
Part of the image did not scan.	The original might have been loaded incorrectly.	Load the original on the flatbed glass or use the media guides when you load the originals into the ADF. See Load originals for copying, scanning, or faxing on page 39 .
	A colored background might be causing images in the foreground to blend into the background.	Try adjusting the settings before you scan the original or enhancing the image after you scan the original.
	The original is longer than 381 mm (15 inches).	The maximum scannable length is 381 mm (15 inches) when you use the automatic document feeder (ADF) input tray. If the page exceeds the maximum length, the scanner stops. (Copies can be longer.) CAUTION: Do not try to pull the original from the ADF; you might damage the scanner or the original. See Clear jams from the ADF (fax/memory-card models only) on page 223 .
	The original is too small.	The minimum size that the flatbed scanner supports is 25 x 25 mm (1 x 1 inch). The minimum size that the ADF supports is 127 x 127 mm (5 x 5 inches). The original might be jammed. See Clear jams from the ADF (fax/memory-card models only) on page 223 .
	The media size is incorrect.	In Scan settings, make sure that the input media size is large enough for the document that you are scanning. .
The scan takes too long	The resolution is set too high.	Change the resolution settings to the correct settings for your job. See the user guide.
	The software is set to scan in color.	The system default is color, which takes longer to scan even when scanning a monochrome original. If you acquire an image through TWAIN or WIA, you can change the settings so that the original scans in grayscale or black-and-white. See the product software Help for information.
	A print job or copy job was sent before you tried to scan.	If someone sent a print job or copy job before you tried to scan, the scan will start if the scanner is not busy. However, because the product and scanner share memory, the scan might be slower.
	The scanning computer may not have enough available resources.	Close unused applications on the computer. If the scan is still too slow, try rebooting the scanning computer.
	Antivirus, antispyware, or firewall software on the scanning computer may slow scanning.	Consult your antivirus, antispyware, or firewall software documentation.

Scan-quality problems

Prevent scan-quality problems

The following are a few simple steps you can take to improve copy and scan quality.

- Use the flatbed scanner, rather than the automatic document feeder (ADF) input tray, to scan.
- Use high-quality originals.
- Load the media correctly. If the media is loaded incorrectly, it might skew, which causes unclear images. See [Load paper and print media on page 38](#) for instructions.
- Adjust the software program settings according to how you plan to use the scanned page. See the software program help for more information.
- If the product frequently feeds more than one page at a time, the separation roller might need to be replaced. See [Separation roller \(product base\) on page 120](#).

Solve scan-quality problems

Problem	Cause	Solution
Blank pages	The original might have been loaded upside down.	In the automatic document feeder (ADF), put the top end of the stack of originals into the ADF input tray, with the media stack face-up and the first page to be scanned on top of the stack.
		Place the original document face-down on the flatbed scanner with the upper-left corner of the document at the corner indicated by the icon on the scanner.
Too light or dark	The resolution and color levels may be set incorrectly.	Verify that you have the correct resolution and color settings. See the user guide.
Unwanted lines	The ADF scanner window might be dirty.	Clean the ADF scanner window. See Clean the scanner glass on page 69 (step 3).
Black dots or streaks	Ink, glue, correction fluid, or an unwanted substance might be on the glass.	Clean the flatbed scanner surface. See Clean the scanner glass on page 69 .
	The power to the product might have fluctuated.	Rescan the job.
Unclear text	The resolution levels might be set incorrectly.	Verify that the correct resolution settings are correct. See the user guide.
	The media is not laying flat on the glass.	Close the scanner lid tightly. NOTE: On base models, the depth of scan might not allow a good scan of originals that will not sit flat, such as a hardcover book.

Problem	Cause	Solution
Communication errors on the computer	One or more of the product cables is loose.	Check the product cables and make sure they are plugged in securely.
	The product is not on.	Turn the product on.
	If the product is connected through a network, the IP address might have changed.	Verify that the product IP address is correct.
	Antivirus, antispyware, or firewall software may be interfering with communication.	Consult the antivirus, antispyware, or firewall software documentation.
	The product is in an error state.	Check the product control panel and clear any errors by following the onscreen instructions.
	The product is busy with another task.	Wait for the product to finish.
	The wrong scanner driver is selected for the product.	Verify that the scanner driver is correct.
The scan job does not complete.	The resolution may be too high for the available memory on the computer.	Try scanning at a lower resolution.

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. If the error persists, update the firmware. If the error persists, perform an NVRAM initialization.
		Complex pages can print slowly. Proper fusing may require a slower print speed to ensure the best print quality.
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, replace the pickup and separation rollers. See Paper-feed assemblies on page 118 .
	The media is jamming in the device.	Clear the jam. See Clear jams on page 221 .
If the error persists, try the following solutions:		
<ul style="list-style-type: none"> • Verify that the product will print through the USB or network connection. • Print a configuration page in order to verify that the product will print internal pages. • Perform an NVRAM initialization. • Update the firmware. • Replace the formatter. 		

Solve connectivity problems

Solve direct-connection problems

If the product is experiencing connection issues while directly connected to a computer, complete the following steps:

1. Make sure that USB cable is no longer than 2 meters (6 feet).
2. Make sure that both ends of the USB cable are connected.
3. Make sure that the cable is a USB 2.0 Hi-Speed-certified cable.
4. If the error persists, replace the USB cable with a known good USB 2.0 Hi-Speed-certified cable.
5. At the product control panel, in the **Service** menu, verify that the **USB Speed** setting is set to **Full**.
6. If the error persists, update the USB drivers on the computer.

Solve network problems (network models only)

Check the following items to verify that the product is communicating with the network. Before you begin this troubleshooting procedure, print a network report. See [Information pages on page 44](#).

1. Are any physical connection problems evident between the workstation or file server and the product?

Verify that the network cabling, connections, and router configurations are correct. Verify that the network cable lengths meet network specifications.

2. Are the network cables connected correctly?

Make sure that the product is attached to the network through the appropriate port and cable. Check each cable connection to make sure that it is secure and in the right place. If the problem continues, try a different cable or connect to different ports on the hub or transceiver. The amber activity light and the green link status light next to the port connection on the back of the product should be lit.

3. Can you "ping" the product? (Windows)



NOTE: Mac, Unix, and Linux users can use a terminal window to "ping" the product.

- a. Click **Start**, click **Run**, type `cmd`, and click **OK** to open an MS-DOS command prompt.
- b. Type `ping` followed by the product IP address. For example, type: `ping 192.168.45.39`

If the ping command is successful, a list of replies from the product appears in the window.
- c. If you can ping the product, print a configuration page to verify that the IP address configuration for the product is correct on the computer. If it is correct, uninstall the product software, and then reinstall it.

-or-

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. Also, verify that no firewall or spyware filters are on.

4. Have any software programs been added to the network?

Make sure new programs are compatible and that they are installed correctly and use the correct printer drivers.

5. Can other users print?

The problem might be workstation-specific. Check the workstation network drivers, printer drivers, and redirection.

6. If other users can print, are they using the same network operating system?

Check your system for the correct network operating system setup.

7. Is the protocol enabled on the product?

Check the network protocol status on the network report. You can also use the embedded Web server, HP ToolboxFX, or Macintosh Configure Device to check the status of other protocols.

Service mode functions

Service menu


Use the control-panel **Service** menu to troubleshoot product problems.

Service menu settings

The **Service** menu is used to calibrate, restore factory default settings, and clean the print paper path.

The following **Service** menu items are available:





- **Fax Service**—used to test, diagnose, and maintain the fax functionality.
- **Cleaning mode**—used to remove dust and toner from the print paper path
- **PowerSave Time**—used to configure the amount of idle time before the engine enters sleep mode
- **USB Speed**—used to set the USB speed
- **Less Paper Curl**—used to decrease the fuser temperature, which can reduce paper curl
- **Archive Print**—used to decrease the likelihood of toner smearing on a print job
- **Restore defaults**—used to reset all customer-accessible menu settings back to the factory default settings (except language) via the control panel or software

 **NOTE:** This menu item does not reset factory-settable settings, including formatter number, page counts, factory paper settings, language, and so on.

Secondary service menu


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

Open the secondary service menu

1. Make sure the product is in the Ready state.
2. Press **Setup**  to enter the main menus.
3. Simultaneously press the left arrow button  and **Cancel** .
4. Press **Setup**  to return to the main menus.
5. Use the arrow buttons to highlight **2ndary Service**, and then press **OK**.
6. Use the arrow keys to navigate through the menu.

Secondary service menu structure


Table 7-12 Secondary service menu

Menu item	Sub-menu item	Description
Service Reports	Cont. Self-Test	This item prints a continuous configuration page.
	Extended Keymap (fax/memory-card models only)	This item prints an extended key map for the alphanumeric keypad on the control panel.
	Error report	This item prints an error report.
Scan Calibration	Calibrate	This item calibrates the product.
	Corrected	
	Tables	
	Test	
Location	A list of available locations appears	This item sets certain product parameters that are dependent on the location, such as the default paper size and the symbol set.
		Scroll to the appropriate location and select Yes to set the location. The product automatically restarts after you change the location.
Display test		This test verifies that the LEDs and characters on the control-panel display function correctly.
		At the beginning of the test, each of the LEDs is turned on one-at-time. Press OK to continue to the next LED.
		After the LED test is complete, the character test begins by testing the pixels on each line. Then, each of the 255 characters is displayed in groups of 16. Press OK to continue to the next group of 16 characters.
		You can cancel the test at any time by pressing Cancel  .
Button test		This test verifies that the control-panel buttons function correctly. The display prompts you to press each button.
Show FW Version		This item shows the current date code of the firmware.
Ethernet reset (network models only)		This item resets the ethernet driver. This should be used when the network is not accessible. This is a low-level, internal reset and does not affect network settings.
Memory Cards (fax/memory-card models only)	Enable	This item enables or disables the product memory-card functions.
	Disable	
Color Cal.	Adjust color	This item adjusts density settings for contrast, highlights, midtones, and shadows. Adjust each color individually.
	Timing	This item specifies how frequently the product should automatically perform a color calibration. The default setting is 48 hours. You can turn automatic calibration off.
Clean Belt		This item runs additional belt-cleaning cycles.
Pick roller		This item puts the pickup roller in position for replacement.


Product resets

The product resets—**Restore defaults** and the NVRAM initialization—perform the same function. If possible, use the **Restore defaults** function in the **Service** menu. If that menu is not accessible, use the NVRAM sequence.

Restore the factory-set defaults

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

△ **CAUTION:** All onboard network 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 restoring the defaults.

1. Press **Setup**  to open the menus.
2. Use the arrow buttons to select **Service**, and then press **OK**.
3. Use the arrow buttons to select **Restore defaults**, and then press **OK**.

The product automatically restarts.



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.

△ **CAUTION:** All onboard network 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 an NVRAM initialization.


After performing an NVRAM initialization, reconfigure any computers that print to this product. Uninstall and then reinstall the product software on the computers.

1. Turn the product off.
2. Simultaneously press the right arrow button  and the **Cancel** button . Hold these buttons as you turn the product on.
3. When **Permanent storage init.** appears on the display, release both buttons.

When the product has finished the NVRAM initialization, it returns to the Ready state.

Solve fax problems (fax/memory-card models only)

Fax logs and reports

 **NOTE:** Not all fax products are compatible with DSL or ISDN services. HP does not guarantee that the product will be compatible with all DSL/ISDN service lines or providers. If you are having problems using the product with these services, contact the service provider for more information or for assistance.

Print all fax reports


Use this procedure to print all of the following reports at one time:

- Fax activity log
 - Phone book report
 - Configuration report
 - Usage page
 - Junk-fax list
 - Billing report (if the option is turned on)
1. On the control panel, press **Fax Menu**.
 2. Use the arrow buttons to select **Reports**, and then press **OK**.
 3. Use the arrow buttons to select **All fax reports**, and then press **OK**. The product exits the menu settings and prints the reports.

Print individual fax reports

Use the control panel to print the following fax logs and reports:

- **Fax activity log:** Provides a chronological history of the last 40 faxes that were received, sent, or deleted, and any errors that occurred.
 - **Phone book report:** Lists the fax numbers that are assigned to the phone book entries, including speed dials and group-dial entries.
 - **Block-fax list:** Lists the fax numbers that are blocked from sending faxes to the product.
 - **Last call report:** Provides information about the last fax sent from or received at the product.
1. On the control panel, press **Fax Menu**.
 2. Use the arrow buttons to select **Reports**, and then press **OK**.
 3. Use the arrow buttons to select the report to be printed, and then press **OK**. The product exits the menu settings and prints the report.

 **NOTE:** If you selected **Fax Activity log** and pressed **OK**, press **OK** again to select **Print log now**. The product exits the menu settings and prints the log.

Set the fax activity log to print automatically

You can decide whether or not you want the fax log to print automatically after every 40 entries. The factory-set default is **On**. Use the following steps to set the fax activity log to print automatically:

1. On the control panel, press **Fax Menu**.
2. Use the arrow buttons to select **Reports**, and then press **OK**.
3. Use the arrow buttons to select **Fax Activity log**, and then press **OK**.
4. Use the arrow buttons to select **Auto Log Print**, and then press **OK**.
5. Use the arrow buttons to select **On**, and then press **OK** to confirm the selection.

Set the fax error report

A fax error report is a brief report that indicates the product experienced a fax job error. It can be set to print after the following events:

- on Every error (the factory-set default)
- on Send error
- on Receive error
- Never



NOTE: If you select **Never**, you will have no indication that a fax failed to be transmitted unless you print a fax activity log.

1. On the control panel, press **Fax Menu**.
2. Use the arrow buttons to select **Reports**, and then press **OK**.
3. Use the arrow buttons to select **Fax Error Report**, and then press **OK**.
4. Use the arrow buttons to select the option for when you want the fax error reports to be printed.
5. Press **OK** to save the selection.

Set the fax confirmation report

A confirmation report is a brief report that indicates the product successfully sent or received a fax job. It can be set to print after the following events:

- on Every fax
- on Send fax only
- on Receive fax only
- Never (the factory-set default)

1. On the control panel, press **Fax Menu**.
2. Use the arrow buttons to select **Reports**, and then press **OK**.
3. Use the arrow buttons to select **Fax Confirmation**, and then press **OK**.

4. Use the arrow buttons to select the option for when you want the fax error reports to be printed.
5. Press **OK** to save the selection.

Include the first page of each fax on the fax confirmation, fax error, and last call reports


If this option is turned on and the page image still exists in the product memory, the fax configuration, fax error, and last call reports include a thumbnail (50% reduction) of the first page of the most recent fax that was sent or received. The factory-set default for this option is **On**.

1. On the control panel, press **Fax Menu**.
2. Use the arrow buttons to select **Reports**, and then press **OK**.
3. Use the arrow buttons to select **Include first page**, and then press **OK**.
4. Use the arrow buttons to select **On**, and then press **OK** to confirm the selection.

Perform a fax test

The fax test checks for an working phone line and verifies that the phone cord is plugged into the correct port.

To perform a fax test:

1. On the control panel, press **Setup** .
2. Use the arrow buttons to select **Service**, and then press **OK**.
3. Use the arrow buttons to select **Fax Service**, and then press **OK**.
4. Use the arrow buttons to select **Run Fax Test**, and then press **OK**.

When the fax test completes, a report is printed from the product. The report contains one of three possible results:


- **Pass:** the report contains all of the current fax settings for review.
- **Fail - the cord is in the wrong port:** the report contains suggestions for how to resolve the issue.
- **Fail - the phone line is not active:** the report contains suggestions for how to resolve the issue.

Change error correction and fax speed

Set the fax-error-correction mode

Usually, the product monitors the signals on the telephone line while it is sending or receiving a fax. If the product detects an error during the transmission and the error-correction setting is **On**, the product can request that the portion of the fax be resent. The factory-set default for error correction is **On**.

You should turn off error correction only if you are having trouble sending or receiving a fax, and you are willing to accept the errors in the transmission. Turning off the setting might be useful when you are trying to send a fax internationally or receive one, or if you are using a satellite telephone connection.

1. On the control panel, press **Setup** .
2. Use the arrow buttons to select **Service**, and then press **OK**.

3. Use the arrow buttons to select **Fax Service**, and then press **OK**.
4. Use the arrow buttons to select **Error correction**, and then press **OK**.
5. Use the arrow buttons to select **On** or **Off**, and then press **OK** to save the selection.


Change the fax speed


The fax-speed setting is the modem protocol that the product uses to send faxes. It is the worldwide standard for full-duplex modems that send and receive data across telephone lines at up to 33,600 bits per second (bps). The factory-set default for the fax-speed setting is **High (V.34)**.

You should change the setting only if you are having trouble sending a fax to or receiving a fax from a particular device. Decreasing the fax speed might be useful when you are trying to send a fax overseas, or receive one from overseas, or if you are using a satellite telephone connection.

1. On the control panel, press **Fax Menu**.
2. Use the arrow buttons to select **Advanced setup**, and then press **OK**.
3. Use the arrow buttons to select **Fax Speed**, and then press **OK**.
4. Use the arrow buttons to select a speed setting, and then press **OK**.

Problems sending faxes

Problem	Cause	Solution
The document stops feeding in the middle of faxing.	The maximum length of a page that you can load is 381 mm (15 inches). Faxing of a longer page stops at 381 mm (15 inches).	<p>Print the document on shorter media.</p> <p>If no jam exists and less than one minute has elapsed, wait a moment before pressing Cancel . If a jam exists, remove the jam. Then, resend the job.</p> <p>Verify that the document feeder (ADF) is working correctly. If it is not, replace the ADF.</p> <p>Clear the fax memory.</p> <p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, update the firmware.</p> <p>If the error persists, replace the formatter.</p>
	If the item is too small, it can jam inside the automatic document feeder (ADF).	<p>Use the flatbed scanner. The minimum page size for the ADF is 127 x 127 mm (5 x 5 inches).</p> <p>If a jam exists, remove the jam. Then, resend the job.</p>

Problem	Cause	Solution
Faxes stop during sending.	The receiving fax machine might be malfunctioning.	Try sending to another fax machine.
	The telephone line might not be working.	<p>Turn up the volume on the product, and then press Start Fax on the control panel. If you hear a dial tone, the telephone line is working.</p> <p>Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).</p> <p>Check the fax log for errors.</p> <p>Check the T.30 trace report for errors.</p> <p>Clear the fax memory.</p> <p>If the error persists, perform an NVRAM initialization.</p> <p>If the error persists, update the firmware.</p>
	A communication error might be interrupting the fax job.	Change the redial-on-communication-error setting to On .
The product is receiving faxes but is not sending them.	If the product is on a digital system, the system might be generating a dial tone that the product cannot detect.	<p>Disable the detect-dial-tone setting.</p> <p>If the error persists, contact the system service provider.</p>
	A poor telephone connection might exist.	Try again later.
	The receiving fax machine might be malfunctioning.	Try sending to another fax machine.
	The telephone line might not be working.	<p>Do one of the following:</p> <ul style="list-style-type: none"> • Turn up the volume on the product and press Start Fax on the control panel. If a dial tone exists, the telephone line is working. • Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).
Outgoing fax calls continue to be dialed.	The product automatically redials a fax number if the redial options are set to On .	To stop the product from redialing a fax, press Cancel  . Or change the redial setting.

Problem	Cause	Solution
Sent faxes are not arriving at the receiving fax machine.	The receiving fax machine might be off or might have an error condition, such as being out of paper.	Call the recipient to verify that the fax machine is on and ready to receive faxes.
	The originals might be incorrectly loaded.	Verify that the original documents are correctly loaded into the ADF input tray or flatbed scanner.
	A fax might be in memory because it is waiting to redial a busy number, other jobs that are ahead of it are waiting to be sent, or the fax is set up for a delayed send.	If a fax job is in memory for any of these reasons, an entry for the job appears in the fax log. Print the fax activity log and check the Status column for jobs that show a Pending designation.
Sent faxes include a block of gray shading at the end of each page.	The glass-fax size might be set incorrectly.	Verify that the setting is correct.
Sent faxes have data missing from the end of each page.	The glass-fax size might be set incorrectly.	Verify that the setting is correct.
The control panel shows a low-memory error.	The fax might be too large, or the resolution might be too high.	Try one of the following: <ul style="list-style-type: none"> • Divide a large fax into smaller sections, and then fax them individually. • Clear stored faxes to make more memory available for outgoing faxes. • Configure the outgoing fax as a delayed fax, and then verify that it will send completely. • Make sure that the product is using the lowest resolution setting (Standard).

Problems receiving faxes

Use the table in this section to solve problems that might occur when receiving faxes.



NOTE: Use the fax cord that came with the product in order to ensure that the product functions correctly.

Problem	Cause	Solution
The product cannot receive faxes from an extension telephone.	The extension-telephone setting might be disabled.	Change the extension-telephone setting.
	The fax cord might not be securely connected.	Verify that the fax cord is securely connected between the telephone jack and the product (or another device that is connected to the product). Wait until you hear fax tones, then press 1-2-3 in sequence, wait for three seconds and hang up.
	The product dialing mode might be incorrectly set, or the extension phone might be incorrectly set.	Verify that the product dialing mode is set to Tone . Verify that the extension phone is set up for tone dialing as well.

Problem	Cause	Solution
The product is not answering incoming fax calls.	The answer mode might be set to Manual .	If the answer mode is set to Manual , the product does not answer calls. Start the fax-receiving process manually.
	The rings-to-answer setting might not be set correctly.	Check the rings-to-answer setting to verify that it is set properly.
	The answer-ring pattern feature might be turned on, but you do not have the service, or you do have the service and the feature is not set correctly.	Check the answer-ring pattern feature to verify that it is set properly.
	The fax cord might not be correctly connected, or the fax cord is not working.	Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248).
	The product might not be able to detect incoming fax tones because the answering machine is playing a voice message.	Re-record the answering machine message, leaving at least two seconds of silence at the beginning of the message.
	Too many devices might be connected to the telephone line.	Do not attach more than three devices to the line. Remove the last device that was connected and determine whether the product works. If not, continue removing devices one at a time and retry after removing each one.
	The telephone line might not be working.	Do one of the following: <ul style="list-style-type: none"> ● Increase the volume on the product, and then press Start Fax on the control panel. If a dial tone exists, the telephone line is working. ● Perform a fax test to verify that the phone line works and is plugged into the correct port (see Perform a fax test on page 248). ● Replace the phone cord. ● Perform an NVRAM initialization.

Problem	Cause	Solution
The product is not answering incoming fax calls.	A voice-messaging service might be interfering with the product as it attempts to answer calls.	<p>Do one of the following:</p> <ul style="list-style-type: none"> • Disable the messaging service. • Get a telephone line that is dedicated to fax calls. • Set the product answer mode to Manual. In manual mode, you must start the fax-receive process yourself. • Leave the product set to automatic mode and lower the rings-to-answer setting for the product to a number less than the rings-to-answer setting for the voice mail. The product will answer all incoming calls.
	The product might be out of paper and the memory is full.	Refill the media input tray. Press OK . The product prints all of the faxes it has saved in memory and then resumes answering fax calls.
Faxes are not printing.	The media input tray is empty.	Load media. Any faxes that are received while the input tray is empty are stored in memory and will print after the tray has been refilled.
	The product has encountered an error.	Check the control panel for an error message, and then see Control-panel messages on page 209 .
	The sending fax number is on the junk faxes list.	Check the junk faxes list and remove the number.
	The Private Receive feature is turned on.	Turn off the Private Receive feature or access the saved faxes using the preset PIN.
Faxes are printing on two pages instead of one.	The autoreduction setting might not be set correctly.	Turn on the autoreduction setting.
	The incoming faxes might have been sent on larger media.	Adjust the fit-to-page setting to allow larger pages to be printed on one page. For more information, see the user guide.
Received faxes are too light, are blank, or have poor print quality.	The product ran out of toner while printing a fax.	The product stores the most recently printed faxes. (The amount of memory that is available determines the actual number of faxes stored for reprinting.) As soon as possible, replace the print cartridge, and then reprint the fax.
	The fax that was sent was too light.	Contact the sender and have the sender resend the fax after altering the contrast settings.

Performance problems

Problem	Cause	Solution
Faxes are transmitting or being received very slowly.	The fax might be very complex, such as one with many graphics.	Complex faxes take longer to be sent or received. Breaking longer faxes into multiple jobs and decreasing the resolution can increase the transmission speed.
	The receiving fax machine might have a slow modem speed.	The product sends the fax only at the fastest modem speed that the receiving fax machine can accept.
	The resolution at which the fax was sent or is being received might be very high.	To receive the fax, call and ask the sender to lower the resolution and resend the fax. To send the fax, lower the resolution and resend the fax.
	The telephone line might be experiencing line noise.	Hang up and resend the fax. Have the telephone company check the telephone line. If the fax is being sent via a digital phone line, contact the service provider.
	The fax is being sent via an international call.	Allow more time to transmit fax jobs internationally.
	The original document has a colored background.	Reprint the original document with a white background, and then resend the fax.
The fax activity logs or fax call reports are printing at inappropriate times.	The fax activity log or fax call reports settings are not correct.	Print a configuration page and check when the reports print.
The product sounds are too loud or too soft.	The volume setting might not be adjusted correctly.	Adjust the product volume setting.

Memory card problems (fax/memory-card models only)

This section helps you identify and resolve memory card-related problems.

Missing or wrong files

Use the table in this section to solve problems with memory-card files.

Problem	Cause	Solution
The product cannot detect files on the memory card.	The memory card might be missing or inserted incorrectly.	Verify that the memory card is inserted correctly.
	The files might not be in the correct format.	To print from the product control panel, the files must be in the sRGB JPEG format. To print other formats, you must use a software program on your computer.
	You might have inserted more than one memory card.	Only one card slot can be occupied for the product to detect JPEG files. Verify that only one card is inserted.
	There might be a hardware problem.	If a memory card is inserted in the correct slot and the memory card LED is not lit, verify that all formatter connectors are firmly connected. If the error persists, replace the memory-card reader assembly. If the error persists, replace the formatter.

Index page not printing

Use the table in this section to solve problems with index-page printing.

Problem	Cause	Solution
The index page will not print.	The memory card might have been removed before the product could print the page.	Reinsert the card and reprint the index page. If the error persists, try printing from another memory card.
	You might have inserted more than one memory card.	Only one card slot can be occupied for the product to detect JPEG files. Verify that only one card is inserted.
	One or more print cartridges might be low.	Replace any low print cartridges. See Print cartridge on page 61 .
	The files on the memory card might not be in the sRGB JPEG format.	Verify that the files on the memory card are in the sRGB JPEG format.
	If the error persists, perform an NVRAM initialization. If the error persists, update the firmware.	

Proof sheet not printing

Use the table in this section to solve problems with proof-sheet printing.

Problem	Cause	Solution
The proof sheet will not print.	The memory card might have been removed before the product could print the page.	Reinsert the card and reprint the proof sheet.
	You might have inserted more than one memory card.	Only one card slot can be occupied for the product to detect JPEG files. Verify that only one card is inserted.
	One or more print cartridges might be low.	Replace any low print cartridges. See Print cartridge on page 61 .

Proof sheet not scanning

Use the table in this section to solve problems with proof-sheet scanning.

Problem	Cause	Solution
The proof sheet will not scan correctly.	The flatbed scanner glass might be dirty.	Clean the flatbed scanner glass. See Clean the product on page 64 .
	The automatic document feeder (ADF) might be loaded.	Remove any media from the ADF.
	The scanner might not be able to read the photo selections. This feature has been optimized and tested for use with Genuine HP Toner Supplies (variations in color shading can impact the performance of this feature).	Use a software program to print the photo from your computer.
		Print photos directly from the memory card by using the control panel.
		Verify that you have colored the bubbles darkly enough for the scanner to read.
	The proof sheet might be loaded incorrectly.	Install HP supplies in the product and reprint the proof sheet.
		On the flatbed scanner, place the original document face-down with the upper-left corner of the document at the corner indicated by the icon on the scanner. Make sure that the proof sheet is not crooked.
		The product will not scan a proof sheet from the ADF.
	The proof sheet might have been skewed when it was printed.	Reprint the proof sheet with correctly loaded paper. Verify that the proof sheet is not skewed when it exits the product.
	The scanner might be experiencing problems.	See Scan problems on page 236 .

Issues with photo printing

Use the table in this section to solve problems with photo printing.

Problem	Cause	Solution
The wrong photo printed.	An incorrect memory card might be inserted.	Verify that the correct memory card is inserted.
	You might have selected the wrong number from the memory card.	If you cannot remember the number of the photo that you wish to print, print an index page to verify the file number. See the user guide.
The photo did not print.	The media input tray might be empty.	Load media into the input tray.
	The memory card might have been removed before the product could print the photo.	Reinsert the card and reprint the photo.
	The proof sheet is skewed.	Verify that the paper guides are positioned correctly against the paper in the input tray. Reprint the proof sheet. Verify that the images on the proof sheet are aligned properly, and then reselect the images you want to print.
	The memory card might be defective.	Try printing from another memory card.
	The proof sheet is not aligned properly on the scanner.	Realign the proof sheet face-down on the flatbed scanner, with the upper-left corner of the document located in the lower-right corner of the glass.
The photo quality is unacceptable.	The original photo quality might be poor, or it might have a low resolution.	Use a software program to enhance photo quality, and then print the photo from your computer.
	The default settings on the printer might not produce the desired quality.	Use a software program to print the photo at the desired settings.
The photo is the wrong size.	The appropriate job size might not be available from the product control panel.	Use a software program to resize the photo at the desired settings, and then print the photo from your computer.
	You might have selected an incorrect job size.	Verify that the correct setting is selected at the product control panel.
Cannot edit, save, or delete images on the memory card.	The product cannot read the memory card.	Verify that the memory card is properly inserted and that the card is one that is supported.
		Verify that the memory card is not write-protected. NOTE: You cannot edit memory-card files from the product control panel. Use a software program to edit, delete, or save images.
Scanner did not read proof sheet.	The product is using non-HP supplies. This feature has been optimized and tested for use with Genuine HP Toner Supplies (variations in color shading can impact the performance of this feature).	Use a software program to print the photo from your computer.
		Print photos directly from the memory card by using the control panel.

Problem	Cause	Solution
		<p>Verify that you have colored the bubbles darkly enough for the scanner to read.</p> <p>Install HP supplies in the product and reprint the proof sheet.</p>
	The proof sheet is skewed.	<p>Verify that the paper guides are positioned correctly against the paper in the input tray. Reprint the proof sheet.</p> <p>Verify that the images on the proof sheet are aligned properly, and then reselect the images you want to print.</p>

8 Parts and diagrams



NOTE: In this chapter, part numbers are only listed for available replaceable parts.

- [Order parts, accessories, and supplies](#)
- [Supplies part numbers](#)
- [Whole unit replacement](#)
- [How to use the parts lists and diagrams](#)
- [Scanner assembly](#)
- [Product base assembly locations](#)
- [Covers](#)
- [Internal assemblies](#)
- [Alphabetical parts list](#)
- [Numerical parts list](#)

Order parts, accessories, and supplies

You can obtain the following items directly from HP:

- **Replacement parts:** To order replacement parts in the U.S., go to www.hp.com/go/hpparts. Outside the United States, order parts by contacting your local authorized HP service center.
- **Supplies and accessories:** To order supplies in the U.S., go to www.hp.com/go/ljsupplies. To order supplies worldwide, go to www.hp.com/ghp/buyonline.html. To order accessories, go to www.hp.com/support/CM1312series.

Supplies part numbers

Table 8-1 Supplies

Part	Part number	Type/size
Print cartridges	CB540A	Black print cartridge
	CB541A	Cyan print cartridge
	CB542A	Yellow print cartridge
	CB543A	Magenta print cartridge



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

Table 8-2 Cable and interface accessories

Part	Part number	Type/size
USB cables	C6518A	USB 2.0 printer cable (2-meter [6.5-foot] standard)
	C6520A	USB 2.0 printer cable (3-meter [9.8-foot] standard)
Fax cord	8121-0811	Two-wire phone cord adapter

Table 8-3 User-replaceable parts

Part	Part number	Type/size
Pickup roller assembly	5851-2559	Replace when the product ADF is picking up multiple sheets or no sheets. Trying different paper did not resolve the problem.
Automatic document feeder (ADF)	CC431-60131	Replace when the ADF is damaged or not working correctly.

Whole unit replacement

If a lower-level replacement part is not available, use the tables in this section to find the engine replacement part number for a specific product bundle and localized configuration.

Table 8-4 Whole unit replacement, product bundle CC430A (base models)

Country/region	Replacement part number
Brazil	CC430-69001
Mexico	CC430-69002
Taiwan	CC430-69003
Singapore, Malaysia, Brunei, Vietnam, Australia, New Zealand	CC430-69004
Argentina, Chile, Peru	CC430-69005
Germany, France, Netherlands, Italy, Spain, Great Britain, Switzerland, Belgium, Portugal, South Africa, Middle East	CC430-69006
Norway, Sweden, Finland, Denmark	CC430-69007
Czech Republic, Slovakia, Poland, Hungary, Russia, Turkey, Croatia, Romania, Slovenia, Greece, Israel	CC430-69008
Korea, China, Thailand, Hong Kong SAR	CC430-69009

Table 8-5 Whole unit replacement, product bundle CC431 (fax/memory-card models)

Country/region	Replacement part number
Brazil	CC431-69001
Taiwan, Canada, United States, Mexico	CC431-69002
Argentina, Chile, Peru	CC431-69003
Singapore, Malaysia	CC431-69004
All other unlisted 220V Asian-Pacific countries/regions	CC431-69005
All European Union countries/regions	CC431-69006

How to use the parts lists and diagrams

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

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

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

Scanner assembly

Figure 8-1 Scanner assembly (base models)

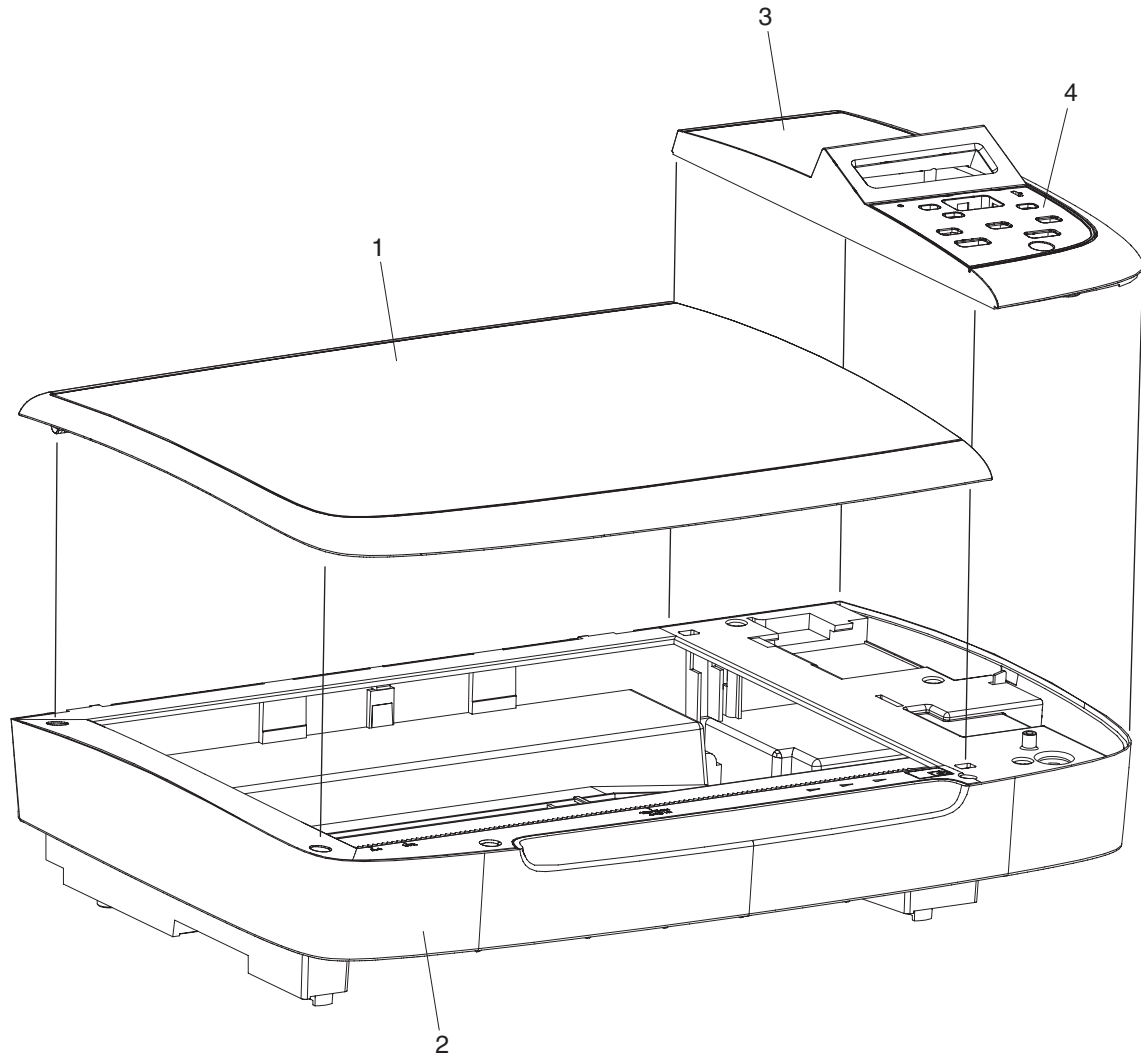


Table 8-6 Scanner assembly (base models)

Ref	Description	Part number	Qty
1	Scanner lid	CC430-60109	1
2	Scanner base	CC430-60110	1
3	Control-panel assembly (Western)	CC430-60101	1
3	Control-panel assembly (Asian)	CC430-60102	1
4	Control-panel overlay, English	CC430-00002	1
4	Control-panel overlay, Spanish	CC430-00003	1
4	Control-panel overlay, Portuguese	CC430-00004	1
4	Control-panel overlay, German	CC430-00005	1
4	Control-panel overlay, French	CC430-00006	1
4	Control-panel overlay, Dutch	CC430-00007	1
4	Control-panel overlay, Italian	CC430-00008	1
4	Control-panel overlay, Swedish	CC430-00009	1
4	Control-panel overlay, Norwegian	CC430-00010	1
4	Control-panel overlay, Finnish	CC430-00011	1
4	Control-panel overlay, Danish	CC430-00012	1
4	Control-panel overlay, Russian	CC430-00013	1
4	Control-panel overlay, Czech	CC430-00014	1
4	Control-panel overlay, Hungarian	CC430-00015	1
4	Control-panel overlay, Polish	CC430-00016	1
4	Control-panel overlay, Slovak	CC430-00017	1
4	Control-panel overlay, Turkish	CC430-00018	1
4	Control-panel overlay, Greek	CC430-00019	1
4	Control-panel overlay, Hebrew	CC430-00020	1
4	Control-panel overlay, Arabic	CC430-00021	1
4	Control-panel overlay, Chinese, traditional	CC430-00022	1
4	Control-panel overlay, Korean	CC430-00023	1
4	Control-panel overlay, Chinese, simplified	CC430-00024	1
4	Control-panel overlay, Thai	CC430-00025	1
4	Control-panel overlay, Vietnamese	CC430-00026	1

Figure 8-2 Scanner assembly (fax/memory-card models)

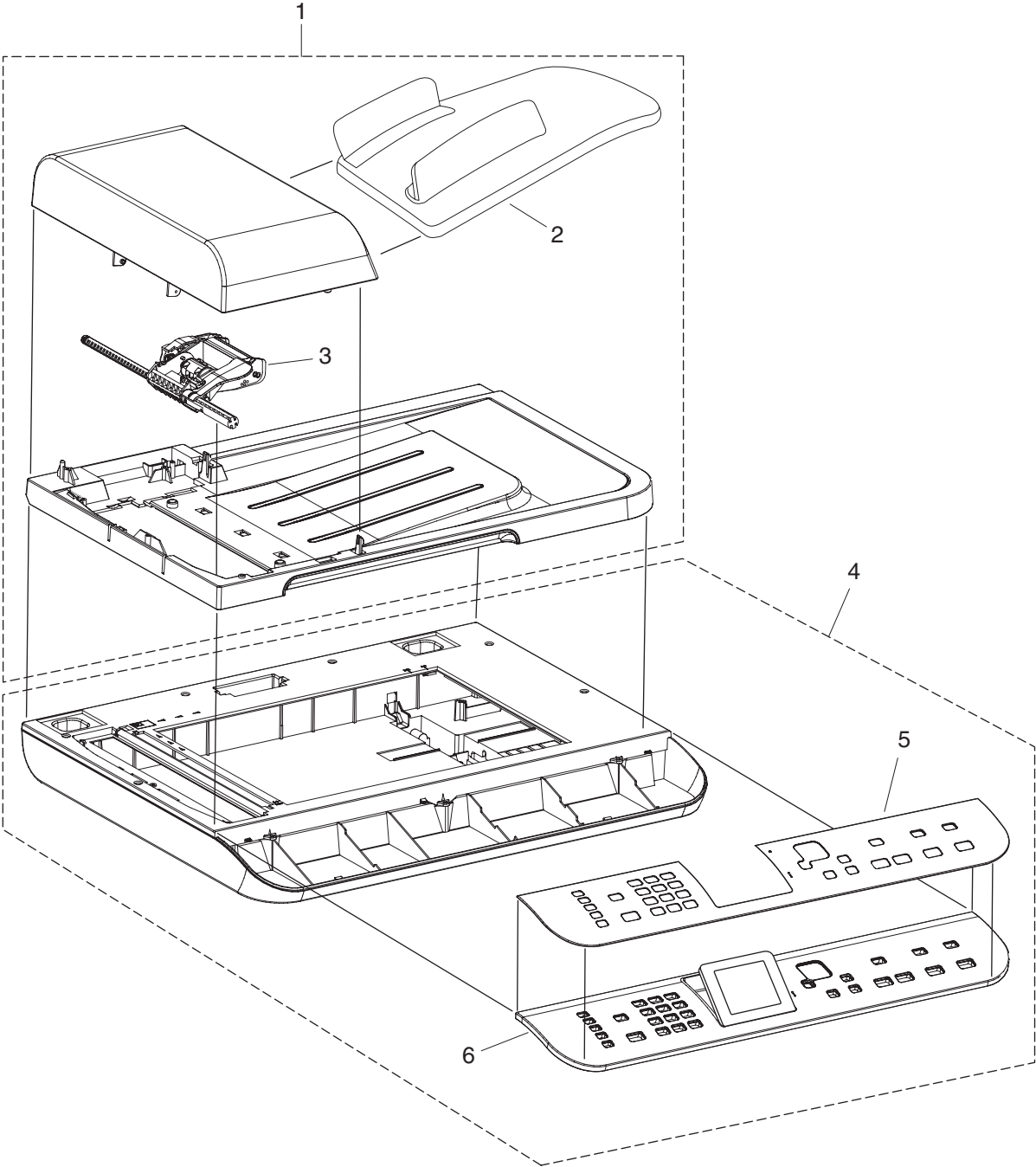


Table 8-7 Scanner assembly (fax/memory-card models)

Ref	Description	Part number	Qty
1	Automatic document feeder (ADF) assembly	CC431-60131	1
2	ADF input tray	CC431-60119	1
3	ADF pickup roller assembly	5851-2559	1
4	Scanner assembly	CC431-60113	1
5	Control-panel bezel, English	CC431-00002	1
5	Control-panel bezel, Spanish	CC431-00003	1
5	Control-panel bezel, Portuguese	CC431-00004	1
5	Control-panel bezel, German	CC431-00005	1
5	Control-panel bezel, French	CC431-00006	1
5	Control-panel bezel, Dutch	CC431-00007	1
5	Control-panel bezel, Italian	CC431-00008	1
5	Control-panel bezel, Swedish	CC431-00009	1
5	Control-panel bezel, Norwegian	CC431-00010	1
5	Control-panel bezel, Finnish	CC431-00011	1
5	Control-panel bezel, Danish	CC431-00012	1
5	Control-panel bezel, Russian	CC431-00013	1
5	Control-panel bezel, Czech	CC431-00014	1
5	Control-panel bezel, Hungarian	CC431-00015	1
5	Control-panel bezel, Polish	CC431-00016	1
5	Control-panel bezel, Slovak	CC431-00017	1
5	Control-panel bezel, Turkish	CC431-00018	1
5	Control-panel bezel, Greek	CC431-00019	1
5	Control-panel bezel, Hebrew	CC431-00020	1
5	Control-panel bezel, Arabic	CC431-00021	1
5	Control-panel bezel, Chinese, traditional	CC431-00022	1
5	Control-panel bezel, Korean	CC431-00023	1
5	Control-panel bezel, Chinese, simplified	CC431-00024	1
5	Control-panel bezel, Thai	CC431-00025	1
5	Control-panel bezel, Vietnamese	CC431-00026	1
6	Control-panel assembly	CC431-60101	1

Product base assembly locations

Figure 8-3 Assembly locations

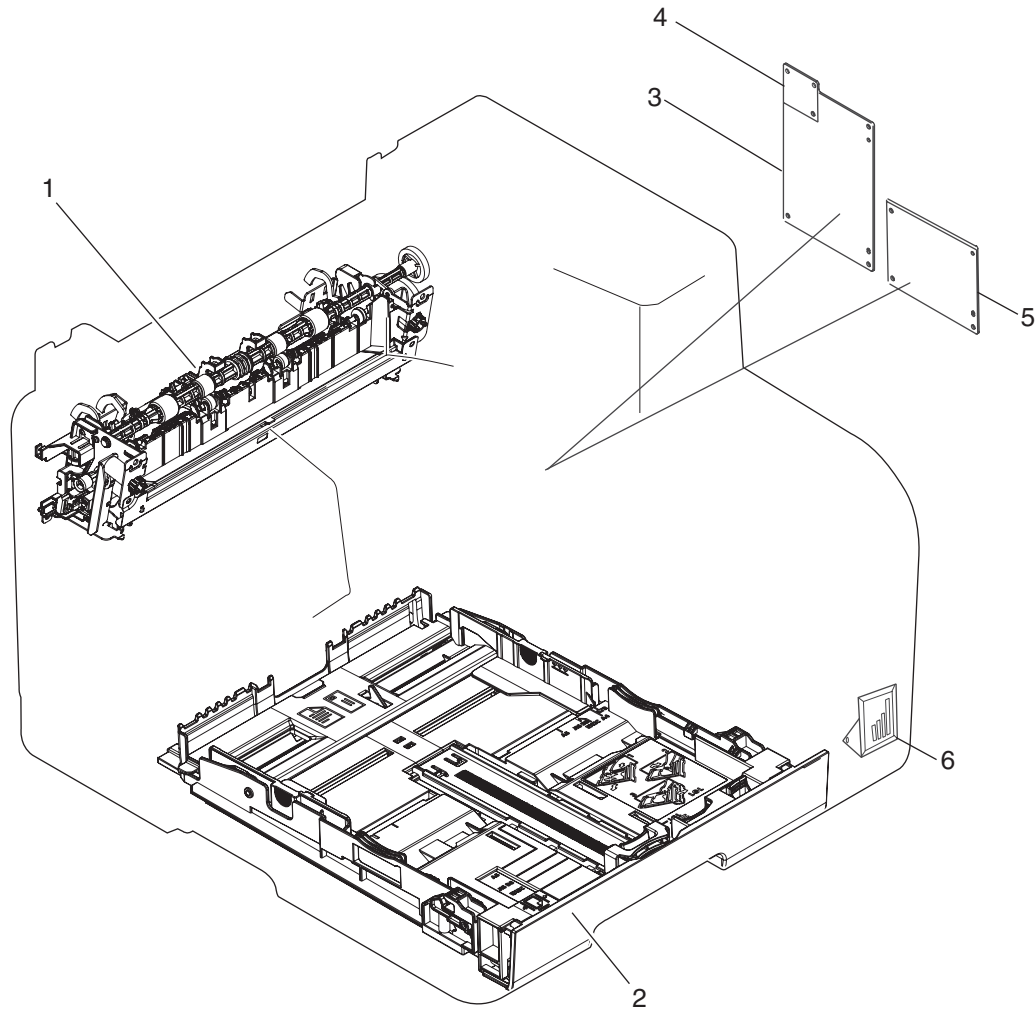


Table 8-8 Assembly locations

Ref	Description	Part number	Qty
1	Fuser assembly (110-127 V)	RM1-4430-000CN	1
1	Fuser assembly (120-240 V)	RM1-4431-000CN	1
2	Paper input cassette	RM1-4922-000CN	1
3	Formatter, fax/memory-card models	CC398-60001	1
4	DAA (fax card), Americas/Asia (fax/memory-card models only)	CC367-60001	1
4	DAA (fax card), Europe (fax/memory-card models only)	CC514-60002	1
5	Formatter, base models	CC397-60001	1
6	Memory-card assembly (fax/memory-card models only)	CC401-60001	1
	Bandana [not shown (Asia only)]	CC371-60001	1
	Formatter bracket, fax/memory-card models (not shown)	CC431-00002	1
	Formatter grounding plate, fax/memory-card models (not shown)	CC431-00006	1
	Formatter bracket, base models (not shown)	CC430-00027	1
	DAA flat flexible cable (not shown)	5851-3054	1
	Memory card cable guide	CC431-40047	1

Covers

Figure 8-4 External panels and covers

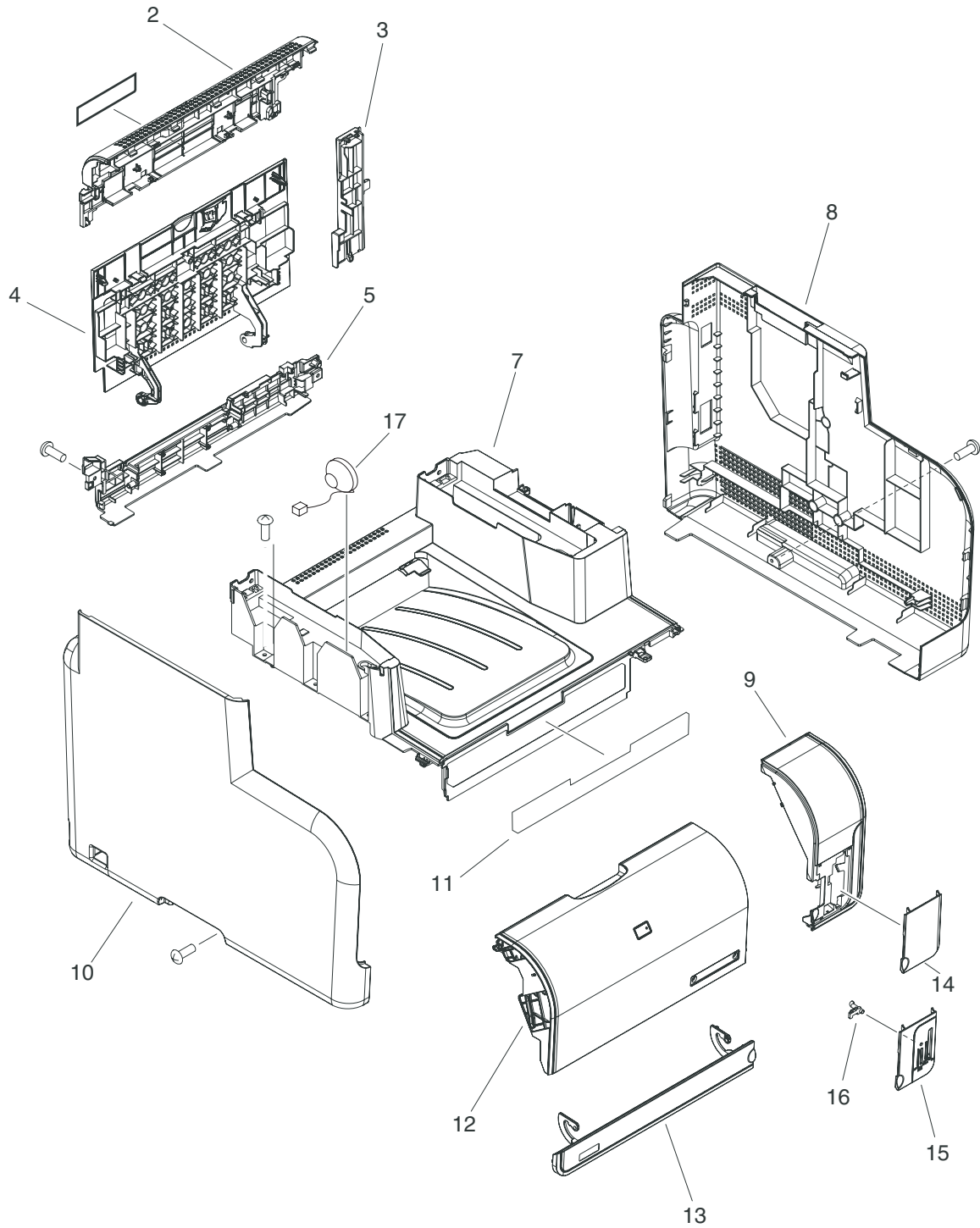


Table 8-9 External panels and covers

Ref	Description	Part number	Qty
2	Rear upper cover	RC2-3942-000CN	1
3	Rear center cover	RC2-3959-000CN	1
4	Rear door	RC2-3956-000CN	1
5	Rear lower cover	RC2-3958-000CN	1
7	Upper cover assembly	RM1-4921-000CN	1
8	Right cover	RC2-3943-000CN	1
9	Front right cover	RC2-3945-000CN	1
10	Left cover	RC2-3944-000CN	1
12	Front door	RC2-3955-000CN	1
13	Front lower cover	RL1-1832-000CN	1
14	Blanking cover	RC2-3957-000CN	1
15	Card cover	RC2-3951-000CN	1
	Memory card bezel (not shown)	CC431-40057	1
16	Light guide	RC2-3098-000CN	1
17	Speaker	Q3948-60113	1

Internal assemblies

Figure 8-5 Internal components (1 of 4)

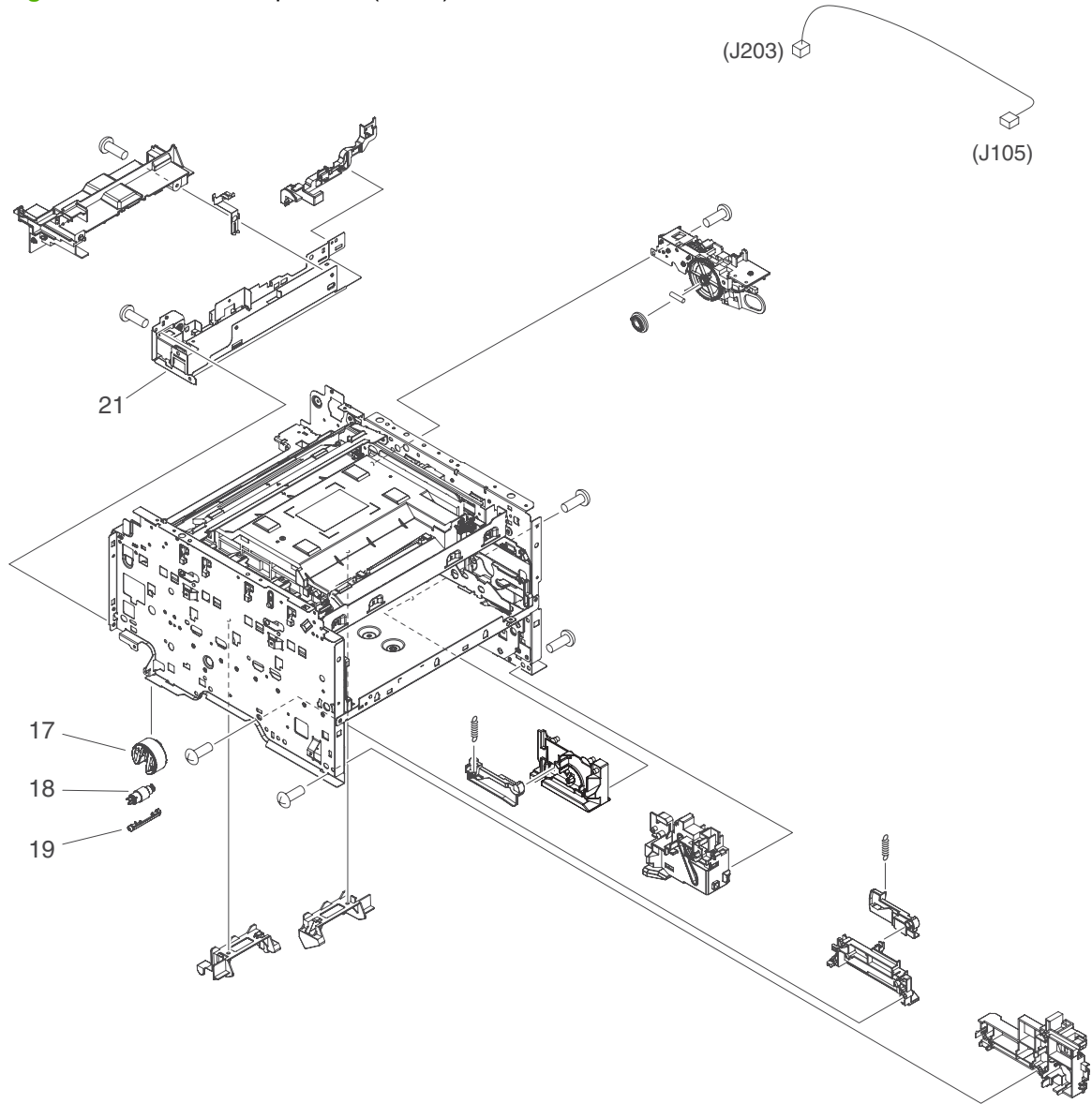


Table 8-10 Internal components (1 of 4)

Ref	Description	Part number	Qty
17	Pickup roller assembly	RM1-4426-000CN	1
18	Separation roller assembly	RM1-4425-000CN	1
19	Holder cover	RC2-2014-000CN	1
21	Fusing power supply assembly (110-127V)	RM1-4776-000CN	1
21	Fusing power supply assembly (220-240V)	RM1-4777-000CN	1

[illegible]

Table 8-11 Internal components (2 of 4)

Ref	Description	Part number	Qty
8	Screw, RS, M3x8	XA9-1449-000CN	4
9	Screw, M3x8	XA9-1671-000CN	29
11	Low-voltage power supply assembly (110-127V)	RM1-5315-000CN	1
11	Low-voltage power supply assembly (220-240V)	RM1-5316-000CN	1
12	DC controller PCA assembly	RM1-5313-000CN	1
13	Flat cable	RK2-1955-000CN	1

Figure 8-7 Internal components (3 of 4)

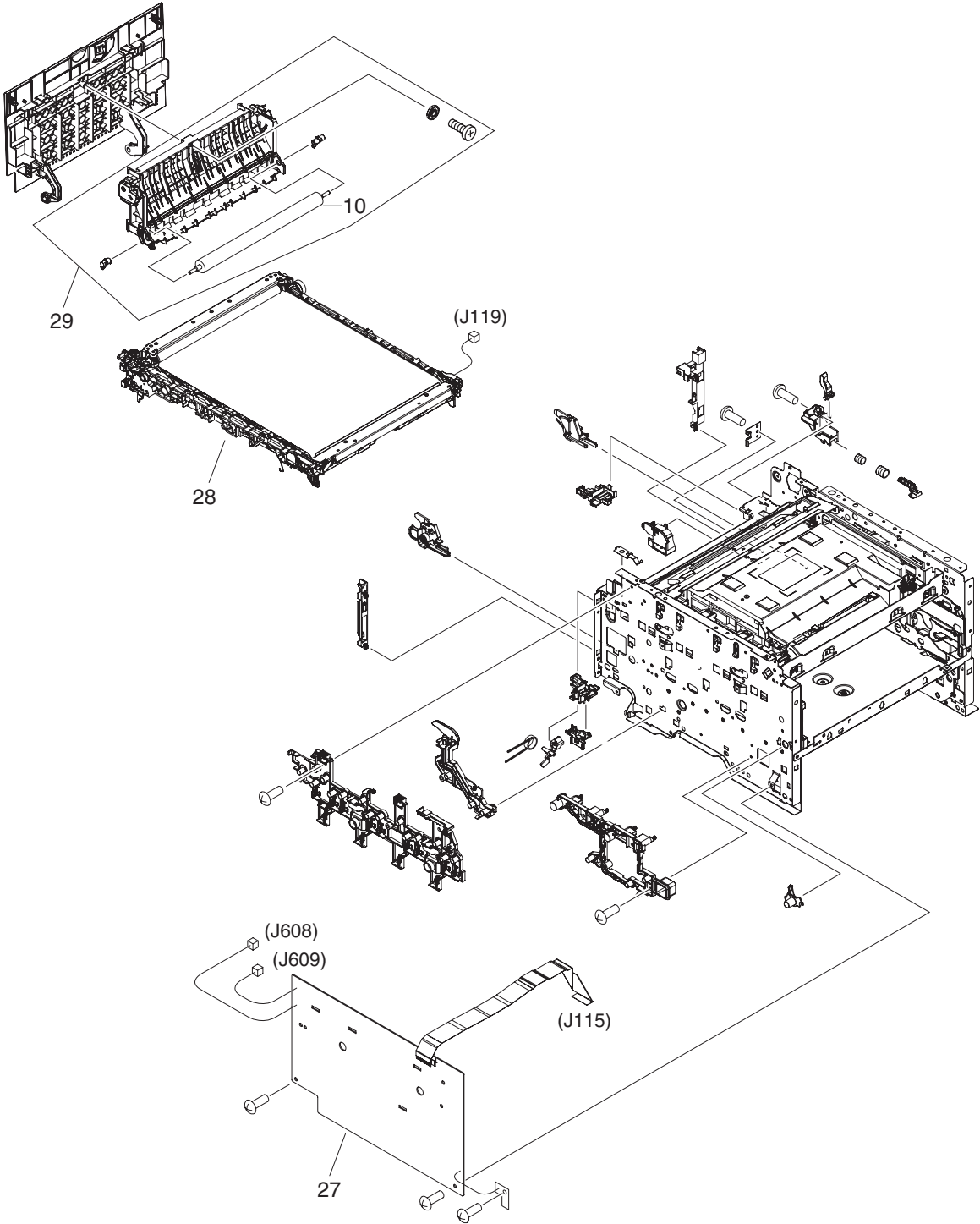


Table 8-12 Internal components (3 of 4)

Ref	Description	Part number	Qty
10	Second transfer roller assembly	RM1-4445-000CN	1
27	High-voltage power supply PCA assembly	RM1-4689-000CN	1
28	Intermediate transfer belt assembly	RM1-4436-000CN	1
29	Transfer/paper guide assembly	CC430-67902	1

This exploded view diagram illustrates the assembly of a mechanical unit. The main components and their associated parts are as follows:

- Top Assembly:** Includes a motor or actuator labeled (M703) and (J703), a drive shaft, and a gear mechanism.
- Central Frame:** The main structural body of the unit, featuring various mounting points and internal components.
- Bottom Assembly:** A base or support structure labeled 19, which houses internal components and provides a foundation for the main frame.
- Accessories and Fasteners:** Numerous small parts are shown, including screws, bolts, and brackets, with callouts such as (J802), (J110), (J104), (J118), (J607), and (J703) indicating specific components.
- Internal Components:** Various internal parts are labeled with numbers 1, 2, and 3, likely representing different models or configurations of the assembly.

Table 8-13 Internal components (4 of 4)

Ref	Description	Part number	Qty
1	Cartridge tray clamp, right	RC2-3109-000CN	1
2	Cartridge tray clamp, left	RC2-3108-000CN	1
19	Cartridge tray assembly	RM1-4428-000CN	1

Alphabetical parts list

Table 8-14 Alphabetical parts list

Description	Part number	Table and page
ADF input tray	CC431-60119	Scanner assembly (fax/memory-card models) on page 267
ADF pickup roller assembly	5851-2559	Scanner assembly (fax/memory-card models) on page 267
Automatic document feeder (ADF) assembly	CC431-60131	Scanner assembly (fax/memory-card models) on page 267
Bandana [not shown (Asia only)]	CC371-60001	Assembly locations on page 269
Blanking cover	RC2-3957-000CN	External panels and covers on page 271
Card cover	RC2-3951-000CN	External panels and covers on page 271
Cartridge tray assembly	RM1-4428-000CN	Internal components (4 of 4) on page 279
Cartridge tray clamp, left	RC2-3108-000CN	Internal components (4 of 4) on page 279
Cartridge tray clamp, right	RC2-3109-000CN	Internal components (4 of 4) on page 279
Control-panel assembly	CC431-60101	Scanner assembly (fax/memory-card models) on page 267
Control-panel assembly (Asian)	CC430-60102	Scanner assembly (base models) on page 265
Control-panel assembly (Western)	CC430-60101	Scanner assembly (base models) on page 265
Control-panel bezel, Arabic	CC431-00021	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Chinese, simplified	CC431-00024	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Chinese, traditional	CC431-00022	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Czech	CC431-00014	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Danish	CC431-00012	Scanner assembly (fax/memory-card models) on page 267

Table 8-14 Alphabetical parts list (continued)

Description	Part number	Table and page
Control-panel bezel, Dutch	CC431-00007	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, English	CC431-00002	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Finnish	CC431-00011	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, French	CC431-00006	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, German	CC431-00005	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Greek	CC431-00019	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Hebrew	CC431-0020	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Hungarian	CC431-00015	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Italian	CC431-00008	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Korean	CC431-00023	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Norwegian	CC431-00010	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Polish	CC431-00016	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Portuguese	CC431-00004	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Russian	CC431-00013	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Slovak	CC431-00017	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Spanish	CC431-00003	Scanner assembly (fax/memory-card models) on page 267

Table 8-14 Alphabetical parts list (continued)

Description	Part number	Table and page
Control-panel bezel, Swedish	CC431-00009	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Thai	CC431-00025	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Turkish	CC431-00018	Scanner assembly (fax/memory-card models) on page 267
Control-panel bezel, Vietnamese	CC431-00026	Scanner assembly (fax/memory-card models) on page 267
Control-panel overlay, Arabic	CC430-00021	Scanner assembly (base models) on page 265
Control-panel overlay, Chinese, simplified	CC430-00024	Scanner assembly (base models) on page 265
Control-panel overlay, Chinese, traditional	CC430-00022	Scanner assembly (base models) on page 265
Control-panel overlay, Czech	CC430-00014	Scanner assembly (base models) on page 265
Control-panel overlay, Danish	CC430-00012	Scanner assembly (base models) on page 265
Control-panel overlay, Dutch	CC430-00007	Scanner assembly (base models) on page 265
Control-panel overlay, English	CC430-00002	Scanner assembly (base models) on page 265
Control-panel overlay, Finnish	CC430-00011	Scanner assembly (base models) on page 265
Control-panel overlay, French	CC430-00006	Scanner assembly (base models) on page 265
Control-panel overlay, German	CC430-00005	Scanner assembly (base models) on page 265
Control-panel overlay, Greek	CC430-00019	Scanner assembly (base models) on page 265
Control-panel overlay, Hebrew	CC430-00020	Scanner assembly (base models) on page 265
Control-panel overlay, Hungarian	CC430-00015	Scanner assembly (base models) on page 265
Control-panel overlay, Italian	CC430-00008	Scanner assembly (base models) on page 265
Control-panel overlay, Korean	CC430-00023	Scanner assembly (base models) on page 265
Control-panel overlay, Norwegian	CC430-00010	Scanner assembly (base models) on page 265
Control-panel overlay, Polish	CC430-00016	Scanner assembly (base models) on page 265

Table 8-14 Alphabetical parts list (continued)

Description	Part number	Table and page
Control-panel overlay, Portuguese	CC430-00004	Scanner assembly (base models) on page 265
Control-panel overlay, Russian	CC430-00013	Scanner assembly (base models) on page 265
Control-panel overlay, Slovak	CC430-00017	Scanner assembly (base models) on page 265
Control-panel overlay, Spanish	CC430-00003	Scanner assembly (base models) on page 265
Control-panel overlay, Swedish	CC430-00009	Scanner assembly (base models) on page 265
Control-panel overlay, Thai	CC430-00025	Scanner assembly (base models) on page 265
Control-panel overlay, Turkish	CC430-00018	Scanner assembly (base models) on page 265
Control-panel overlay, Vietnamese	CC430-00026	Scanner assembly (base models) on page 265
DAA (fax card), Americas/Asia (fax/memory-card models only)	CC367-60001	Assembly locations on page 269
DAA (fax card), Europe (fax/memory-card models only)	CC514-60002	Assembly locations on page 269
DAA flat flexible cable (not shown)	5851-3054	Assembly locations on page 269
DC controller PCA assembly	RM1-5313-000CN	Internal components (2 of 4) on page 275
Flat cable	RK2-1955-000CN	Internal components (2 of 4) on page 275
Formatter bracket, base models (not shown)	CC430-00027	Assembly locations on page 269
Formatter bracket, fax/memory-card models (not shown)	CC431-00002	Assembly locations on page 269
Formatter grounding plate, fax/memory-card models (not shown)	CC431-00006	Assembly locations on page 269
Formatter, base models	CC397-60001	Assembly locations on page 269
Formatter, fax/memory-card models	CC398-60001	Assembly locations on page 269
Front door	RC2-3955-000CN	External panels and covers on page 271
Front lower cover	RL1-1832-000CN	External panels and covers on page 271
Front right cover	RC2-3945-000CN	External panels and covers on page 271
Fuser assembly (110-127 V)	RM1-4430-000CN	Assembly locations on page 269

Table 8-14 Alphabetical parts list (continued)

Description	Part number	Table and page
Fuser assembly (120-240 V)	RM1-4431-000CN	Assembly locations on page 269
Fusing power supply assembly (110-127V)	RM1-4776-000CN	Internal components (1 of 4) on page 273
Fusing power supply assembly (220-240V)	RM1-4777-000CN	Internal components (1 of 4) on page 273
High-voltage power supply PCA assembly	RM1-4689-000CN	Internal components (3 of 4) on page 277
Holder cover	RC2-2014-000CN	Internal components (1 of 4) on page 273
Intermediate transfer belt assembly	RM1-4436-000CN	Internal components (3 of 4) on page 277
Left cover	RC2-3944-000CN	External panels and covers on page 271
Light guide	RC2-3098-000CN	External panels and covers on page 271
Low-voltage power supply assembly (110-127V)	RM1-5315-000CN	Internal components (2 of 4) on page 275
Low-voltage power supply assembly (220-240V)	RM1-5316-000CN	Internal components (2 of 4) on page 275
Memory card bezel (not shown)	CC431-40057	External panels and covers on page 271
Memory card cable guide	CC431-40047	Assembly locations on page 269
Memory-card assembly (fax/memory-card models only)	CC401-60001	Assembly locations on page 269
Paper input cassette	RM1-4922-000CN	Assembly locations on page 269
Pickup roller assembly	RM1-4426-000CN	Internal components (1 of 4) on page 273
Rear center cover	RC2-3959-000CN	External panels and covers on page 271
Rear door	RC2-3956-000CN	External panels and covers on page 271
Rear lower cover	RC2-3958-000CN	External panels and covers on page 271
Rear upper cover	RC2-3942-000CN	External panels and covers on page 271
Right cover	RC2-3943-000CN	External panels and covers on page 271
Scanner assembly	CC431-60113	Scanner assembly (fax/memory-card models) on page 267
Scanner base	CC430-60110	Scanner assembly (base models) on page 265

Table 8-14 Alphabetical parts list (continued)

Description	Part number	Table and page
Scanner lid	CC430-60109	Scanner assembly (base models) on page 265
Screw, M3x8	XA9-1671-000CN	Internal components (2 of 4) on page 275
Screw, RS, M3x8	XA9-1449-000CN	Internal components (2 of 4) on page 275
Second transfer roller assembly	RM1-4445-000CN	Internal components (3 of 4) on page 277
Separation roller assembly	RM1-4425-000CN	Internal components (1 of 4) on page 273
Speaker	Q3948-60113	External panels and covers on page 271
Transfer/paper guide assembly	CC430-67902	Internal components (3 of 4) on page 277
Upper cover assembly	RM1-4921-000CN	External panels and covers on page 271

Numerical parts list

Table 8-15 Numerical parts list

Part number	Description	Table and page
5851-2559	ADF pickup roller assembly	Scanner assembly (fax/memory-card models) on page 267
5851-3054	DAA flat flexible cable (not shown)	Assembly locations on page 269
CC367-60001	DAA (fax card), Americas/Asia (fax/memory-card models only)	Assembly locations on page 269
CC371-60001	Bandana [not shown (Asia only)]	Assembly locations on page 269
CC397-60001	Formatter, base models	Assembly locations on page 269
CC398-60001	Formatter, fax/memory-card models	Assembly locations on page 269
CC401-60001	Memory-card assembly (fax/memory-card models only)	Assembly locations on page 269
CC430-00002	Control-panel overlay, English	Scanner assembly (base models) on page 265
CC430-00003	Control-panel overlay, Spanish	Scanner assembly (base models) on page 265
CC430-00004	Control-panel overlay, Portuguese	Scanner assembly (base models) on page 265
CC430-00005	Control-panel overlay, German	Scanner assembly (base models) on page 265
CC430-00006	Control-panel overlay, French	Scanner assembly (base models) on page 265
CC430-00007	Control-panel overlay, Dutch	Scanner assembly (base models) on page 265
CC430-00008	Control-panel overlay, Italian	Scanner assembly (base models) on page 265
CC430-00009	Control-panel overlay, Swedish	Scanner assembly (base models) on page 265
CC430-00010	Control-panel overlay, Norwegian	Scanner assembly (base models) on page 265
CC430-00011	Control-panel overlay, Finnish	Scanner assembly (base models) on page 265
CC430-00012	Control-panel overlay, Danish	Scanner assembly (base models) on page 265
CC430-00013	Control-panel overlay, Russian	Scanner assembly (base models) on page 265
CC430-00014	Control-panel overlay, Czech	Scanner assembly (base models) on page 265

Table 8-15 Numerical parts list (continued)

Part number	Description	Table and page
CC430-00015	Control-panel overlay, Hungarian	Scanner assembly (base models) on page 265
CC430-00016	Control-panel overlay, Polish	Scanner assembly (base models) on page 265
CC430-00017	Control-panel overlay, Slovak	Scanner assembly (base models) on page 265
CC430-00018	Control-panel overlay, Turkish	Scanner assembly (base models) on page 265
CC430-00019	Control-panel overlay, Greek	Scanner assembly (base models) on page 265
CC430-00021	Control-panel overlay, Arabic	Scanner assembly (base models) on page 265
CC430-00022	Control-panel overlay, Chinese, traditional	Scanner assembly (base models) on page 265
CC430-00023	Control-panel overlay, Korean	Scanner assembly (base models) on page 265
CC430-00024	Control-panel overlay, Chinese, simplified	Scanner assembly (base models) on page 265
CC430-00025	Control-panel overlay, Thai	Scanner assembly (base models) on page 265
CC430-00026	Control-panel overlay, Vietnamese	Scanner assembly (base models) on page 265
CC430-00027	Formatter bracket, base models (not shown)	Assembly locations on page 269
CC430-0020	Control-panel overlay, Hebrew	Scanner assembly (base models) on page 265
CC430-60101	Control-panel assembly (Western)	Scanner assembly (base models) on page 265
CC430-60102	Control-panel assembly (Asian)	Scanner assembly (base models) on page 265
CC430-60109	Scanner lid	Scanner assembly (base models) on page 265
CC430-60110	Scanner base	Scanner assembly (base models) on page 265
CC430-67902	Transfer/paper guide assembly	Internal components (3 of 4) on page 277
CC431-00002	Control-panel bezel, English	Scanner assembly (fax/memory-card models) on page 267
CC431-00002	Formatter bracket, fax/memory-card models (not shown)	Assembly locations on page 269
CC431-00003	Control-panel bezel, Spanish	Scanner assembly (fax/memory-card models) on page 267

Table 8-15 Numerical parts list (continued)

Part number	Description	Table and page
CC431-00004	Control-panel bezel, Portuguese	Scanner assembly (fax/memory-card models) on page 267
CC431-00005	Control-panel bezel, German	Scanner assembly (fax/memory-card models) on page 267
CC431-00006	Control-panel bezel, French	Scanner assembly (fax/memory-card models) on page 267
CC431-00006	Formatter grounding plate, fax/memory-card models (not shown)	Assembly locations on page 269
CC431-00007	Control-panel bezel, Dutch	Scanner assembly (fax/memory-card models) on page 267
CC431-00008	Control-panel bezel, Italian	Scanner assembly (fax/memory-card models) on page 267
CC431-00009	Control-panel bezel, Swedish	Scanner assembly (fax/memory-card models) on page 267
CC431-00010	Control-panel bezel, Norwegian	Scanner assembly (fax/memory-card models) on page 267
CC431-00011	Control-panel bezel, Finnish	Scanner assembly (fax/memory-card models) on page 267
CC431-00012	Control-panel bezel, Danish	Scanner assembly (fax/memory-card models) on page 267
CC431-00013	Control-panel bezel, Russian	Scanner assembly (fax/memory-card models) on page 267
CC431-00014	Control-panel bezel, Czech	Scanner assembly (fax/memory-card models) on page 267
CC431-00015	Control-panel bezel, Hungarian	Scanner assembly (fax/memory-card models) on page 267
CC431-00016	Control-panel bezel, Polish	Scanner assembly (fax/memory-card models) on page 267
CC431-00017	Control-panel bezel, Slovak	Scanner assembly (fax/memory-card models) on page 267
CC431-00018	Control-panel bezel, Turkish	Scanner assembly (fax/memory-card models) on page 267

Table 8-15 Numerical parts list (continued)

Part number	Description	Table and page
CC431-00019	Control-panel bezel, Greek	Scanner assembly (fax/memory-card models) on page 267
CC431-00021	Control-panel bezel, Arabic	Scanner assembly (fax/memory-card models) on page 267
CC431-00022	Control-panel bezel, Chinese, traditional	Scanner assembly (fax/memory-card models) on page 267
CC431-00023	Control-panel bezel, Korean	Scanner assembly (fax/memory-card models) on page 267
CC431-00024	Control-panel bezel, Chinese, simplified	Scanner assembly (fax/memory-card models) on page 267
CC431-00025	Control-panel bezel, Thai	Scanner assembly (fax/memory-card models) on page 267
CC431-00026	Control-panel bezel, Vietnamese	Scanner assembly (fax/memory-card models) on page 267
CC431-0020	Control-panel bezel, Hebrew	Scanner assembly (fax/memory-card models) on page 267
CC431-40047	Memory card cable guide	Assembly locations on page 269
CC431-40057	Memory card bezel (not shown)	External panels and covers on page 271
CC431-60101	Control-panel assembly	Scanner assembly (fax/memory-card models) on page 267
CC431-60113	Scanner assembly	Scanner assembly (fax/memory-card models) on page 267
CC431-60119	ADF input tray	Scanner assembly (fax/memory-card models) on page 267
CC431-60131	Automatic document feeder (ADF) assembly	Scanner assembly (fax/memory-card models) on page 267
CC514-60002	DAA (fax card), Europe (fax/memory-card models only)	Assembly locations on page 269
Q3948-60113	Speaker	External panels and covers on page 271
RC2-2014-000CN	Holder cover	Internal components (1 of 4) on page 273
RC2-3098-000CN	Light guide	External panels and covers on page 271

Table 8-15 Numerical parts list (continued)

Part number	Description	Table and page
RC2-3108-000CN	Cartridge tray clamp, left	Internal components (4 of 4) on page 279
RC2-3109-000CN	Cartridge tray clamp, right	Internal components (4 of 4) on page 279
RC2-3942-000CN	Rear upper cover	External panels and covers on page 271
RC2-3943-000CN	Right cover	External panels and covers on page 271
RC2-3944-000CN	Left cover	External panels and covers on page 271
RC2-3945-000CN	Front right cover	External panels and covers on page 271
RC2-3951-000CN	Card cover	External panels and covers on page 271
RC2-3955-000CN	Front door	External panels and covers on page 271
RC2-3956-000CN	Rear door	External panels and covers on page 271
RC2-3957-000CN	Blanking cover	External panels and covers on page 271
RC2-3958-000CN	Rear lower cover	External panels and covers on page 271
RC2-3959-000CN	Rear center cover	External panels and covers on page 271
RK2-1955-000CN	Flat cable	Internal components (2 of 4) on page 275
RL1-1832-000CN	Front lower cover	External panels and covers on page 271
RM1-4425-000CN	Separation roller assembly	Internal components (1 of 4) on page 273
RM1-4426-000CN	Pickup roller assembly	Internal components (1 of 4) on page 273
RM1-4428-000CN	Cartridge tray assembly	Internal components (4 of 4) on page 279
RM1-4430-000CN	Fuser assembly (110-127 V)	Assembly locations on page 269
RM1-4431-000CN	Fuser assembly (120-240 V)	Assembly locations on page 269
RM1-4436-000CN	Intermediate transfer belt assembly	Internal components (3 of 4) on page 277
RM1-4445-000CN	Second transfer roller assembly	Internal components (3 of 4) on page 277
RM1-4689-000CN	High-voltage power supply PCA assembly	Internal components (3 of 4) on page 277

Table 8-15 Numerical parts list (continued)

Part number	Description	Table and page
RM1-4776-000CN	Fusing power supply assembly (110-127V)	Internal components (1 of 4) on page 273
RM1-4777-000CN	Fusing power supply assembly (220-240V)	Internal components (1 of 4) on page 273
RM1-4921-000CN	Upper cover assembly	External panels and covers on page 271
RM1-4922-000CN	Paper input cassette	Assembly locations on page 269
RM1-5313-000CN	DC controller PCA assembly	Internal components (2 of 4) on page 275
RM1-5315-000CN	Low-voltage power supply assembly (110-127V)	Internal components (2 of 4) on page 275
RM1-5316-000CN	Low-voltage power supply assembly (220-240V)	Internal components (2 of 4) on page 275
XA9-1449-000CN	Screw, RS, M3x8	Internal components (2 of 4) on page 275
XA9-1671-000CN	Screw, M3x8	Internal components (2 of 4) on page 275

A Service and support

Hewlett-Packard limited warranty statement

HP PRODUCT

HP Color LaserJet CM1312 and CM1312nfi

DURATION OF LIMITED WARRANTY

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.

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.

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 device 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.

Customer support

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/.

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

Get 24-hour Internet support

www.hp.com/support/CM1312series

Get support for products used with a Macintosh computer

www.hp.com/go/macosex

Download software utilities, drivers, and electronic information

www.hp.com/go/LJCM1312_software

Order supplies and paper

www.hp.com/go/suresupply

Order genuine HP parts or accessories

www.hp.com/buy/parts

Order additional HP service or maintenance agreements

www.hp.com/go/carepack

Repack the product

If HP Support determines that the product needs to be returned to HP for repair, follow the steps below to repack the product before shipping it.


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

1. Remove and retain the print cartridges.

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

To prevent damage to the print cartridges, avoid touching the roller on them, and store the print cartridges in the original packing material or so that they are not exposed to light.

2. Clear the product password, if one has been set. See [Security features on page 57](#).

 **NOTE:** If the password is not cleared, support technicians most likely will have to perform an NVRAM initialization in order to work on the product. The NVRAM initialization restores the products to the factory-set default settings, thereby erasing any custom settings you may have set on the product.

3. (This step applies to fax/memory-card models only.)

Use the HP ToolboxFX software to save the fax phone book and speed dials to a computer.

-or-

Print a phone book report to record the numbers in your fax phone book, and then write down the speed-dial information.

4. Remove and retain the power cable, interface cable, and optional accessories.
5. If possible, include print samples and 50 to 100 sheets of paper or other print media that did not print correctly.
6. In the U.S., call HP Support to request new packing material. In other areas, use the original packing material, if possible. Hewlett-Packard recommends insuring the equipment for shipment.

B Specifications

This section contains the following information about the product:

- [Physical specifications](#)
- [Electrical specifications](#)
- [Power consumption](#)
- [Environmental specifications](#)
- [Acoustic emissions](#)
- [Skew specifications](#)

Physical specifications

Table B-1 Physical specifications

Product	Height	Depth	Width	Weight
HP Color LaserJet CM1312	405 mm (16.0 inches)	455 mm (17.9 inches)	437 mm (17.2 inches)	21.1 kg (46.6 lb)
HP Color LaserJet CM1312nfi	467 mm (18.4 inches)	490 mm (19.3 inches)	497 mm (19.6 inches)	24.6 kg (54.2 lb)

Electrical specifications

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

Table B-2 Electrical specifications

Item	110-volt models	230-volt models
Power requirements	110 to 127 VAC (+/- 10%) 50/60 Hz (+/- 3 Hz)	220 to 240 VAC (+/- 10%) 50/60 Hz (+/- 3 Hz)
Rated current	4.5 A	2.5 A

Power consumption

Table B-3 Power consumption (average, in watts)¹

Product model	Printing ²	Copying ²	Ready/Sleep ³	Off
HP Color LaserJet CM1312	300 W	310 W	7 W	0 W
HP Color LaserJet CM1312nfi	300 W	310 W	8 W	0 W

¹ Values are based on preliminary data. See www.hp.com/support/CM1312series for current information.

² Power reported is highest values measured using all standard voltages.

³ Instant on fuser technology.

⁴ Recovery time from Ready/Sleep to start of printing < 5 seconds.

⁵ Maximum heat dissipation for all models in Ready mode = 50 BTU/hour

Environmental specifications

Table B-4 Environmental specifications¹

	Recommended	Operating	Storage
Temperature	15° to 32.5° C (59° to 90.5° F)	15° to 32.5° C (59° to 90.5° F)	–20° to 40° C (–4° to 104° F)
Relative humidity	20 to 70%	10 to 80%	95% or less

¹ Values are subject to change.

Acoustic emissions

Table B-5 Acoustic emissions

Sound Power Level	Declared per ISO 9296 ¹
Printing (12 ppm)	$L_{WAd} = 6.1$ Bels (A) [61 dB (A)]
Ready	Inaudible
Sound Pressure Level - Bystander Position	Declared per ISO 9296 ¹
Printing (12 ppm)	$L_{pAm} = 47$ dB(A)
Ready	Inaudible

¹ Values are based on preliminary data. See www.hp.com/support/CM1312series for current information.

² Configuration tested: HP Color LaserJet CM1312 printing simplex using A4 paper at 12 ppm.

Skew specifications

Table B-6 Media registration and image placement accuracy

	Cut sheet simplex ¹	Envelopes and postcards
Skew - vertical	≤ 1.5 mm / 260 mm	≤ 3.0 mm / 220 mm
First line / leading edge position	5.0 mm \pm 2.0 mm	15.0 mm \pm 3.5
Left margin accuracy	5.0 mm \pm 2.0 mm	10 mm \pm 2.5 mm
Parallelism	≤ 1.5 mm	N/A
Image or text stretching - vertical	≤ 1.0 %	N/A
Image or text stretching - horizontal	≤ 1.0 %	N/A

¹ Xerox 4024 (#20) should be used for measurement.

C Regulatory information


This section contains the following regulatory information:

- [FCC regulations](#)
- [Additional statements for telecom \(fax\) products](#)
- [Declarations of conformity](#)
- [Certificate of volatility](#)
- [Country/region specific 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.

Additional statements for telecom (fax) products

EU statement for telecom operation

This product is intended to be connected to the analog Public Switched Telecommunication Networks (PSTN) of European Economic Area (EEA) countries/regions. It meets requirements of EU R&TTE Directive 1999/5/EC (Annex II) and carries appropriate CE conformity marking. For more details, see Declaration of Conformity issued by the manufacturer in another section of this manual. However, due to differences between individual national PSTNs, the product may not guarantee unconditional assurance of successful operation on every PSTN termination point. Network compatibility depends on the correct setting being selected by the customer in preparation of its connection to the PSTN. Please follow the instructions provided in the user manual. If you experience network compatibility issues, please contact your equipment supplier or Hewlett-Packard help desk in the country/region of operation. Connecting to a PSTN termination point may be the subject of additional requirements set out by the local PSTN operator.

New Zealand telecom statements

The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

This equipment may not provide for the effective hand-over of a call to another device connected to the same line.

This equipment shall not be set up to make automatic calls to the Telecom "111" Emergency Service.

This product has not been tested to ensure compatibility with the FaxAbility distinctive ring service for New Zealand.

Telephone Consumer Protection Act (United States)

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided cannot be a 900 number or any other number for which charges exceed local or long-distance transmission charges.)

IC CS-03 requirements

Notice: The Industry Canada label identifies certified equipment. This certification means the equipment meets certain telecommunications network protective, operational, and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirement document(s). The Department does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible for the equipment to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution can be particularly important in rural areas.

△ **CAUTION:** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate. The Ringer Equivalence Number (REN) of this device is 0.7.

Notice: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Number of all the devices does not exceed five (5.0). The standard connecting arrangement code (telephone jack type) for equipment with direct connections to the telephone network is CA11A.

Declarations of conformity

HP Color LaserJet CM1312

Declaration of Conformity

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

Manufacturer's Name: Hewlett-Packard Company DoC#: BOISB-0603-01-rel.1.0
Manufacturer's Address: 11311 Chinden Boulevard,
Boise, Idaho 83714-1021, USA

declares, that the product


Product Name: HP Color LaserJet CM1312 mfp
Regulatory Model Number²⁾ BOISB-0603-01
Product Options: ALL
Print Cartridges: CB540A, CB541A, CB542A, CB543A

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 B¹⁾
EN 61000-3-2:2000 +A2
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/EC 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, this product is assigned a Regulatory model number. This number should not be confused with the product name or the product number(s).

Boise, Idaho , USA

December 2007

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, Idaho 83707-0015, , (Phone: 208-396-6000)

HP Color LaserJet CM1312nfi

Declaration of Conformity

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

Manufacturer's Name: Hewlett-Packard Company DoC#: BOISB-0603-02-rel.1.0
Manufacturer's Address: 11311 Chinden Boulevard,
Boise, Idaho 83714-1021, USA

declares, that the product

Product Name: HP Color LaserJet CM1312nfi mfp
Accessories⁴⁾ BOISB-0704-00 (US-Fax Module LIU)
BOISB-0704-01 (EURO-Fax Module LIU)
Regulatory Model Number²⁾ BOISB-0603-02

Declaration of Conformity

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

Product Options: ALL

Print Cartridges: CB540A, CB541A, CB542A, CB543A

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 B¹⁾
EN 61000-3-2:2000 +A2
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

TELECOM: ES 203 021; FCC Title 47 CFR, Part 68³⁾

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC, the R&TTE Directive 1999/5/EC (Annex II), 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, this product is assigned a Regulatory model number. This number should not be confused with the product name or the product number(s).

3) Telecom approvals and standards appropriate for the target countries/regions have been applied to this product, in addition to those listed above.

4.) This product uses an analog fax accessory module which Regulatory Model numbers are: BOISB-0704-00 (US-LIU) or BOISB-0704-01 (EURO LIU), as needed to meet technical regulatory requirements for the countries/regions this product will be sold.

Boise, Idaho , USA

December 2007

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, , (Phone: 208-396-6000)

Certificate of volatility

This is a statement of volatility regarding customer stored data in the memory devices of the HP Color LaserJet CM1312 MFP Series printer.

The product uses volatile memory to store customer data during the printing process. When the product power is off, the data is erased. The product also uses non-volatile memory to store customer set product configuration information. This non-volatile memory can be erased and restored to factory default values by using the **Restore defaults** option of the **Service** menu. See [Restore the factory-set defaults on page 245](#).

Country/region specific 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 ». »

EMI statement (Korea)

B급 기기 (가정용 정보통신기기)

이 기기는 가정용으로 전자파적합등록을 한 기기로서
주거지역에서는 물론 모든지역에서 사용할 수 있습니다.

Laser statement for Finland

Luokan 1 laserlaite

Klass 1 Laser Apparat

HP Color LaserJet CM1312, HP Color LaserJet CM1312nfi, 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 CM1312, HP Color LaserJet CM1312nfi - 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 erikoistykäluja.

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, utsätts 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	X	0	0
复印机组件	X	0	0	0	0	0
控制面板	0	0	0	0	0	0
塑料外壳	0	0	0	0	0	0
格式化板组件	X	0	0	0	0	0
碳粉盒	X	0	0	0	0	0

3048

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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