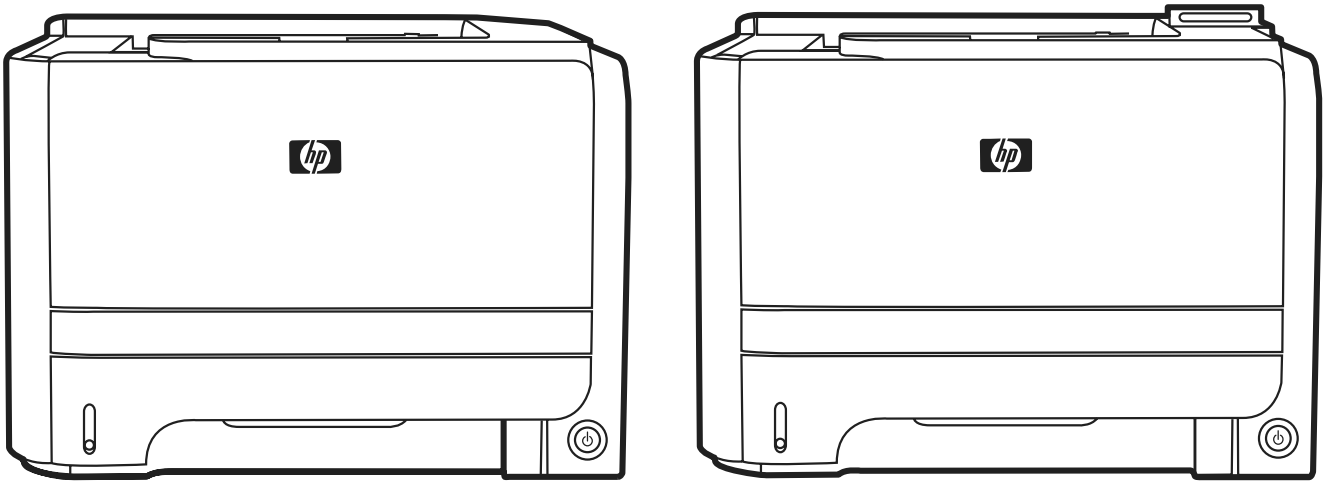
HP LaserJet P2050 and P2030 Series Printers

Service Manual



HP LaserJet P2030 Series and HP LaserJet P2050 Series Printers

Service Manual

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1 Product basics

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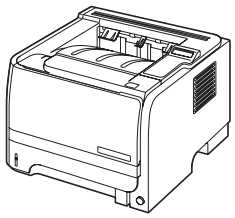
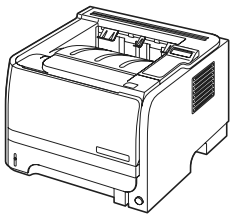
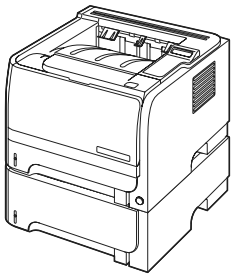
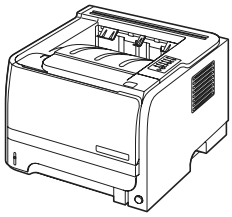
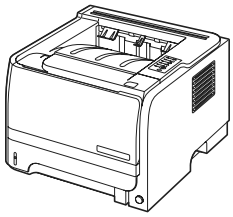
- Product features
- Product walkaround
- Supported product software
- System minimum requirements
- Connectivity

Product comparison

HP LaserJet P2050 Series Printers

HP LaserJet P2055d printer CE457A	HP LaserJet P2055dn printer CE459A	HP LaserJet P2055x printer CE460A
		
• Prints up to 35 pages per minute (ppm) on Letter size paper and 33 ppm on A4 size paper • Contains 64 megabytes (MB) of random access memory (RAM) and is expandable to 320 MB. • HP print cartridge, rated for up to 2,300 pages • Tray 1 holds up to 50 sheets • Tray 2 holds up to 250 sheets • 125-sheet face-down output bin • Straight-through output path • 2-line control-panel display • Hi-speed USB 2.0 port • One open dual inline memory module (DIMM) slot	Has the same features as the HP LaserJet P2035d model printer, plus the following: • Gigabit networking port • HP Jetdirect print server/networking solution • Contains 128 MB RAM and is expandable to 384 MB.	Has the same features as the HP LaserJet P2035dn model printer, plus the following: • 500-sheet input tray (Tray 3)

HP LaserJet P2030 Series Printers

HP LaserJet P2035 printer CE461A	HP LaserJet P2035n printer CE462A
	
• Prints up to 30 pages per minute (ppm) on Letter-size paper and 30 ppm on A4-size paper • Contains 16 megabytes (MB) of random access memory (RAM). • HP print cartridge, rated for up to 2,300 pages • Tray 1 holds up to 50 sheets • Tray 2 holds up to 250 sheets • 125-sheet face-down output bin • Straight-through output path • Hi-speed USB 2.0 port • Parallel port	Has the same features as the HP LaserJet P2035 model, with the following differences: • 10/100 networking port • No parallel port

Product features

HP LaserJet P2050 Series Printers

Feature	Description
Performance	• 600 MHz processor
User interface	• 2-line display • HP ToolboxFX (a Web-based status and problem-solving tool) • Windows® and Macintosh printer drivers • Embedded Web server to access support and order supplies (for network-connected models only)
Printer drivers	• HP PCL 6 (included on CD) • HP PCL 5c Universal Print Driver for Windows (HP UPD PCL 5c) (available for download from the Web) • HP postscript emulation Universal Print Driver for Windows (HP UPD PS) (available for download from the Web) • XML Paper Specification (XPS) Driver (available for download from the Web)
Resolution	• FastRes 1200—produces 1200-dots-per-inch (dpi) print quality for fast, high-quality printing of business text and graphics • ProRes 1200—produces 1200-dpi printing for the best quality in line art and graphic images • 600 dpi—provides the fastest printing
Fonts	• 45 internal scalable fonts available for PCL and 35 for HP postscript emulation • 80 device-matching screen fonts in TrueType format available with the software solution
Accessories	• 500-sheet input tray • HP Jetdirect external print server
Connectivity	• Hi-Speed USB 2.0 connection • Gigabit networking connection (HP LaserJet P2055dn and HP LaserJet P2055x only)
Supplies	• The supplies status page contains information about toner level, page count, and estimated pages remaining. • The product checks for an authentic HP print cartridge at installation. • Integration with HP Sure Supply Web site for replacement-cartridge reordering
Supported operating systems	• Microsoft® Windows® 2000, Windows® Server 2003, Windows® XP, and Windows Vista™ • Macintosh OS X V10.3, V10.4, and V10.5 • Novell NetWare (TCP/IP only) (HP LaserJet P2055dn and HP LaserJet P2055x only)
Accessibility	• The online user guide is compatible with text screen-readers. • The print cartridge can be installed and removed by using one hand. • All doors can be opened by using one hand. • Media can be loaded in Tray 1 by using one hand.

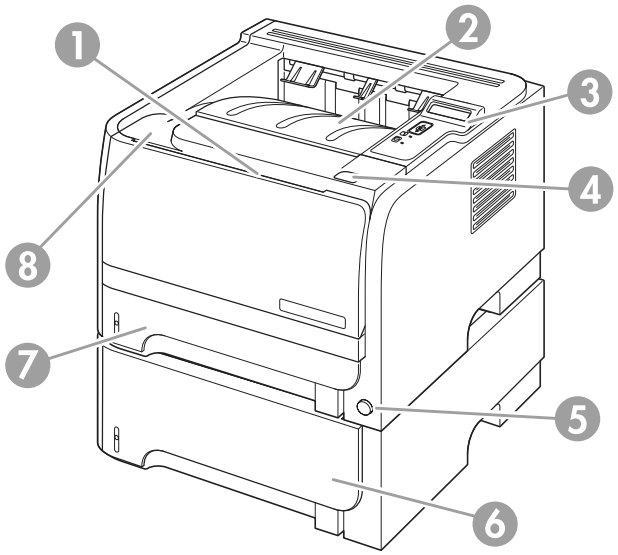
HP LaserJet P2030 Series Printers

Feature	Description
Performance	• 266 MHz processor
User interface	• 2-button, 6 LED control panel • Windows® and Macintosh printer drivers • Embedded Web server to access support and order supplies (for network-connected models only)
Printer drivers	• Host-based printer drivers for Windows and Macintosh, included on the product CD • HP UPD PCL 5c printer driver (available for download from the Web) • XML Paper Specification (XPS) printer driver (available for download from the Web)
Resolution	• FastRes 1200—produces 1200-dots-per-inch (dpi) print quality for fast, high-quality printing of business text and graphics • 600 dpi—provides the fastest printing
Fonts	• 45 internal scalable fonts • 80 device-matching screen fonts in TrueType format available with the software solution
Connectivity	• Hi-Speed USB 2.0 connection • Parallel connection (HP LaserJet P2035 printer only) • 10/100 networking port (HP LaserJet P2035n printer only)
Supplies	• The supplies status page contains information about toner level, page count, and estimated pages remaining. • The product checks for an authentic HP print cartridge at installation. • Integration with HP Sure Supply Web site for replacement-cartridge reordering
Accessories	• HP Jetdirect external print server
Supported operating systems	• Microsoft® Windows® 2000, Windows® Server 2003, Windows® XP, and Windows Vista™ • Macintosh OS X V10.3, V10.4, and V10.5
Accessibility	• The online user guide is compatible with text screen-readers. • The print cartridge can be installed and removed by using one hand. • All doors can be opened by using one hand. • Media can be loaded in Tray 1 by using one hand.

Product walkaround

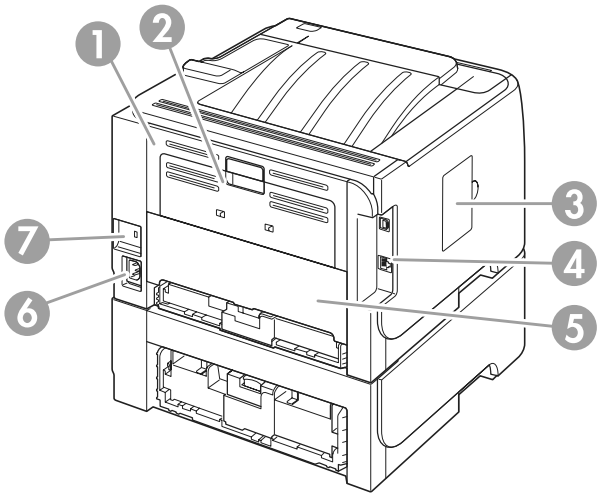
HP LaserJet P2050 Series Printers

Front view



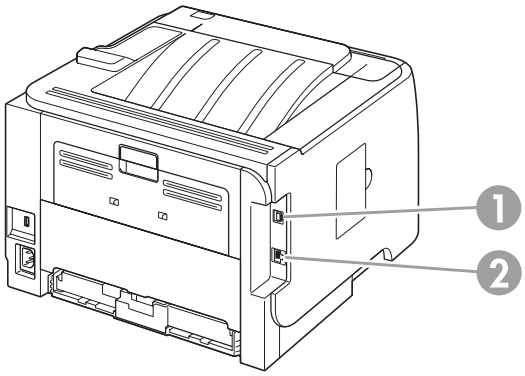
1	Tray 1 (pull to open)
2	Top output bin
3	Control panel
4	Print-cartridge-door release button
5	On/off switch
6	Optional Tray 3 (included with the HP LaserJet P2055x printer)
7	Tray 2
8	Print-cartridge door

Rear view



1	Jam-release door (pull the green handle to open)
2	Straight-through paper path (pull to open)
3	DIMM cover (provides access to the DIMM slot)
4	Interface ports
5	Rear duplex jam-release door
6	Power connection
7	Slot for a cable-type security lock

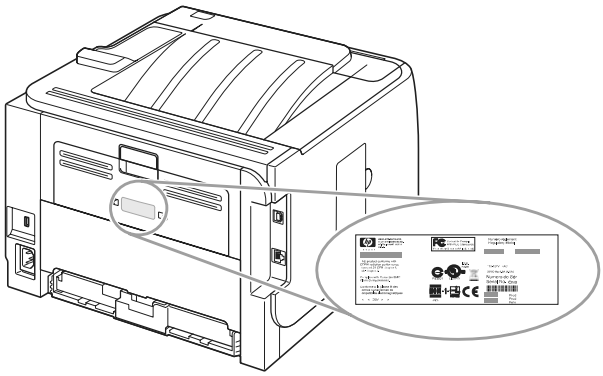
Interface ports



1	Hi-Speed USB 2.0 connection, for connecting directly to a computer
2	Gigabit networking connection (10/100/1000 networking port)

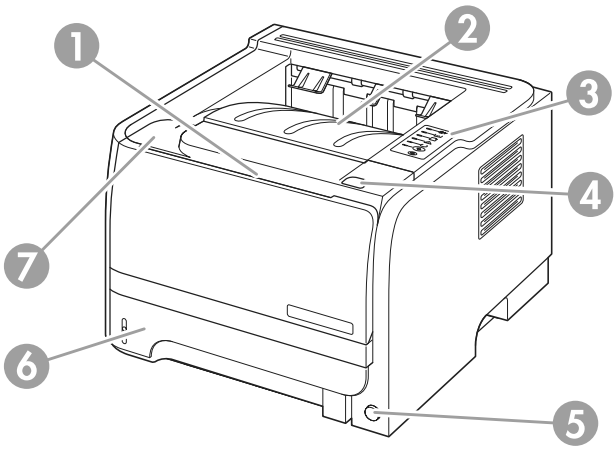
Model and serial number label

The label that contains the model and serial numbers is on the outside of the rear output door (straight-through paper path).



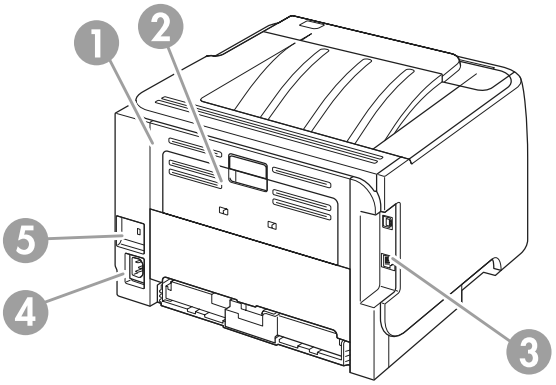
HP LaserJet P2030 Series Printers

Front view



1	Tray 1 (pull to open)
2	Top output bin
3	Control panel
4	Print-cartridge-door release button
5	On/off switch
6	Tray 2
7	Print-cartridge door

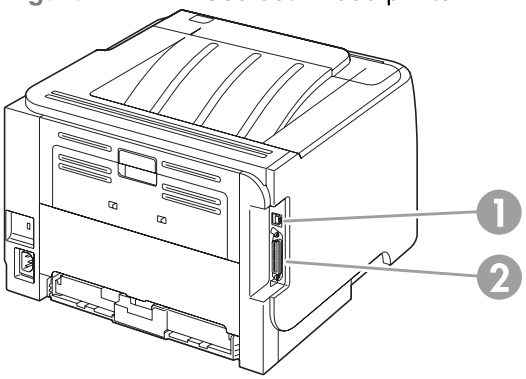
Rear view



1	Jam-release door (pull the green handle to open)
2	Straight-through paper path (pull to open)
3	Interface ports
4	Power connection
5	Slot for a cable-type security lock

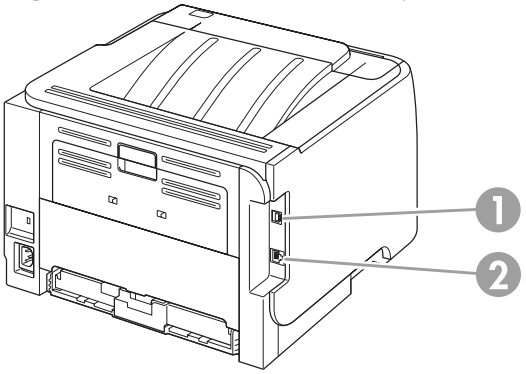
Interface ports

Figure 1-1 HP LaserJet P2035 printer



1	Hi-Speed USB 2.0 port
2	Parallel port

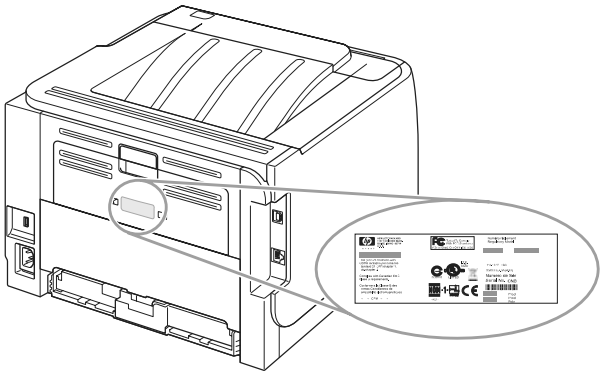
Figure 1-2 HP LaserJet P2035n printer



1	Hi-Speed USB 2.0 port
2	10/100 network port

Model and serial-number label location

The label that contains the model and serial numbers is on the rear of the product.



Supported product software

Software included with the product

There are several options for completing a recommended install. Easy Install will complete the installation with default settings. Advanced Install allows you to select custom settings and choose the components that are installed.

Software installation types for Windows

You can choose from the following types of software installations:

- **Recommended Installation** . This method installs the full set of drivers and software, including status, alerting, and troubleshooting tools. This method is recommended for computers in a direct-connect or a home/small network environment.
- **Express Installation**. This method installs the minimum set of drivers and software. This method is recommended for servers or computers in a network environment.

Macintosh software

- HP Printer Utility

Supported printer drivers for Windows (HP LaserJet P2050 Series Printers)

- HP PCL 6 (on the product CD)
- HP PCL 5c Universal Print Driver (HP UPD PCL 5c) (available for download from the Web)
- HP postscript emulation Universal Print Driver (HP UPD PS) (available for download from the Web)
- XPS (XML Paper Specification) driver (available for download from the Web)

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

Supported printer drivers for Windows (HP LaserJet P2030 Series Printers)

The product features a host-based printer driver.

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.

Supported printer drivers for Macintosh (HP LaserJet P2050 Series Printers only)

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.

Supported printer drivers for Macintosh (HP LaserJet P2030 Series Printers only)

The HP installer provides a printer driver and the HP Printer Utility for use with Macintosh computers.

Other software provided

Software for Windows

HP ToolboxFX (HP LaserJet P2050 Series Printers only)

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

- Checking the product status
- Checking the supplies status and ordering supplies online
- Setting up alerts
- Setting up e-mail notification for certain product and supplies events
- Viewing and changing product settings
- Viewing product documentation
- Gaining access to troubleshooting and maintenance tools

You can view HP ToolboxFX when the product is directly connected to your computer or is connected to a network. HP ToolboxFX is installed as part of the basic installation (recommended).

Status Alerts software (HP LaserJet P2030 Series Printers only)

The Status Alerts software provides information about the current status of the product.

The software also provides pop-up alerts when certain events occur, such as an empty tray or a problem with the product. The alert includes information about solving the problem.

Software for networks

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 system administrator's computer.

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

When installed on a host server, any 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 (HP LaserJet P2055dn, HP LaserJet P2055x, and HP LaserJet P2035n printers only).

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 Print the information pages on page 48.)

For a complete explanation of the features and functionality of the embedded Web server, see Embedded Web server (HP LaserJet P2055dn, HP LaserJet P2055x, and HP LaserJet P2035n only) on page 57.

Software for other operating systems

OS	Software
UNIX	To download the HP UNIX modelscripts, follow these steps. 1. Go to www.hp.com, and click **Software & Driver Download.** 2. Type the name of the product in the product name box. 3. In the list of operating systems, click **UNIX.** 4. Download the appropriate file or files.
Linux	For information, go to www.hp.com/go/linuxprinting.
Citrix	Use the printer driver provided with the product.

System minimum requirements

Windows requirements

- 512 MB of RAM
- 350 MB of disk space

Macintosh requirements

- 256 MB of RAM
- 150 MB of disk space

Connectivity

Supported networks (HP LaserJet P2050 Series Printers)

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

Table 1-1 Printing

Service name	Description
port9100 (Direct Mode)	The default TCP/IP printing port on the HP Jetdirect print server, accessed by software such as HP Standard Port
Line printer daemon (LPD)	LPD provides line printer spooling services for TCP/IP systems. Use LPD services on the HP Jetdirect print server.
WS Print	Use the Microsoft Web Services for Devices (WSD) Print services supported on the HP Jetdirect print server.

Table 1-2 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.
multicast Domain Name Service (mDNS—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 Discovery	Allows Microsoft WS discovery protocols on the print server.
LLMNR (TCP/IP v6)	Indicates whether link local multicast name resolution (LLMNR) requests are responded to over IPv6.
NetBIOS over TCP/IP	Provides communication among applications on separate computers within a local area network. Because the programming interface runs through TCP/IP (NBT), each computer in the network has both a NetBIOS name and an IP address relevant to a host name (even though the two names might not be the same).
DNS Client	DNS domain name that the HP Jetdirect print server resides in (for example, support.hp.com).

Table 1-3 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 V3 and standard MIB-II (Management Information Base) objects are supported.

Table 1-3 **Messaging and management (continued)**

Service name	Description
Web Jetadmin (WJA)	Management program that provides controlled access to HP Jetdirect and product features.
EPC	HP Easy Printer Care Software 2.0 (EPC 2.0) provides HP Web Jetadmin-type functions for small and micro businesses with up to 15 HP LaserJet products. EPC 2.0 delivers effortless laser product upkeep and protection for your printing investment, in addition to simple, consolidated supplies replenishment.

Table 1-4 **IP addressing**

Service name	Description
DHCP (dynamic host configuration protocol)	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.
BOOTP (bootstrap protocol)	For Automatic IP address assignment. BOOTP server provides the product with an IP address. Requires the administrator to type the product MAC hardware address on the BOOTP server in order for the 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.
Manual IP	Manually configure the IP address on the print server by using the product control panel or the embedded Web server.
Telnet	Set configuration parameters by using the default IP address to create a Telnet connection from your system to the HP Jetdirect print server. When configured, the print server saves the configuration when turned off and then turned on.
RARP	You can configure the print server to use RARP on UNIX and Linux systems. Use RARP to answer the print server's RARP request and supply the print server with the IP address. The RARP method allows you to only configure the IP address.
ARP/PING	You can configure an HP Jetdirect print server with an IP address using the `arp` command from a supported system. The workstation from which the configuration is made must be located on the same network segment as the HP Jetdirect print server.

Supported network (HP LaserJet P2030 Series Printers)

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

Table 1-5 Printing

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

Table 1-6 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.
multicast Domain Name Service (mDNS—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.

Table 1-7 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, V2, and standard MIB-II (Management Information Base) objects are supported.

Table 1-8 IP addressing

Service name	Description
DHCP (dynamic host configuration protocol)	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.
BOOTP (bootstrap protocol)	For Automatic IP address assignment. BOOTP server provides the product with an IP address. Requires the administrator to type the product MAC hardware address on the BOOTP server in order for the 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.

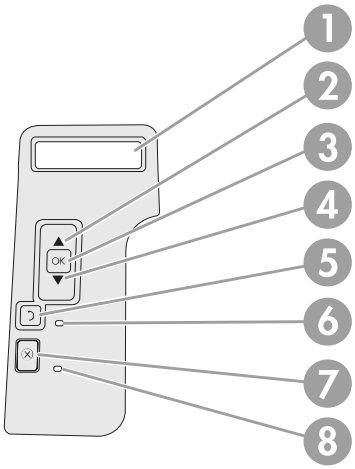
2 Control panel

- Control panel (HP LaserJet P2050 Series Printers only)
- Control panel (HP LaserJet P2030 Series Printers only)

Control panel (HP LaserJet P2050 Series Printers only)

Control-panel layout

Use the control panel to obtain product and job status information and to configure the product.



Number	Button or light	Function
1	Control-panel display	Shows status information, menus, help information, and error messages.
2	▲ Up arrow	Navigates to the next submenu or the next value in a menu selection list, moves the cursor forward a single position, or increases the value of numeric items
3	OK button	• Saves the selected value for an item • Performs the action that is highlighted on the control-panel display • Clears an error condition when the condition is clearable
4	▼ Down arrow	Navigates to the next item in the list, or decreases the value of numeric items
5	⮌ Back button	Backs up one level in the menu tree or backs up one numeric entry
6	Ready light	• **On**: The product is online and ready to accept data to print. • **Off**: The product cannot accept data because it is offline (paused) or has experienced an error. • **Blinking**: The product is processing a job.
7	⊗ Cancel button	Cancels the current print job
8	Error light	• **Off**: The product is functioning without error. • **Blinking**: Action is required. See the control-panel display.

Use the control-panel menus

To gain access to the control-panel menus, complete the steps below.

Use the menus

1. Press OK.
2. Press the down arrow ▼ or the up arrow ▲ to navigate the listings.
3. Press OK to select the appropriate option.
4. Press the back button ⮌ to return to the previous level.

NOTE: Asterisks that appear on the control panel note that the menu item is selected.

The following are the main menus.

Main menus (Setup menu)	**Reports** **System setup** **Service** **Network config.** (HP LaserJet P2055dn and HP LaserJet P2055x only)

Reports menu

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

Menu item	Description
Demo page	Prints a page that demonstrates print quality.
Menu structure	Prints a map of the control-panel-menu layout. Lists the active settings for each menu.
Config report	Prints a list of all the product settings. Includes network information when the product is connected to a network.
Supplies status	Prints the status for the print cartridge, including the following information: • Estimated pages remaining • Part number • Number of pages printed
Network report	Prints a list of all product network settings
PCL font list	Prints a list of all the PCL 5c fonts that are installed
PCL 6 font list	Prints a list of all the PCL 6 fonts that are installed
PS font list	Prints a list of all the PostScript (PS) fonts that are installed
Service page	Prints the service report
Usage page	Prints a page that lists PCL 5c pages, PCL 6 pages, PS pages, pages that were jammed or mispicked in the product; and reports the page count

System setup menu

Use this menu to establish basic product settings. The **System setup** menu has several sub-menus.

Menu item	Sub-menu item	Sub-menu item	Description
Language			Select the language for the control-panel display messages and the product reports.
Quiet mode		**On** **Off**	Enable or disable quiet mode. When quiet mode is turned on, the product prints at a slower speed. This setting is used for heavy media. The default setting is **Off**.
Paper setup	**Def. paper size**	A list of available sizes appears.	Select the size for printing internal reports or any print job that does not specify a size.
	Def. paper type	A list of available media types appears.	Select the media type for printing internal reports or any print job that does not specify a type.
	Tray n NOTE: n = 1, 2, or 3	**Paper type** **Paper size**	Select the default size and type for the tray from the list of available sizes and types.
	Paper out action	**Wait forever** **Override** **Cancel**	Select how the product should react when a print job requires a size or type that is not available or when a specified tray is empty. Select **Wait forever** to make the product wait until you load the correct media and press OK. This is the default setting. Select **Override** to print on a different size or type after a specified delay. Select **Cancel** to automatically cancel the print job after a specified delay. If you select either **Override** or **Cancel**, the control panel prompts you to specify the number of seconds to delay. Press the up arrow ▲ to increase the time, up to 3600 seconds. Press the down arrow ▼ to decrease the time.
Print quality	**Cartridge low**	**(1-20)**	The percentage threshold determines when the product begins reporting low toner.
Print density	**(1–5)**		Select the amount of toner to apply to thicken edges and lines. The default setting is **3**.

Menu item	Sub-menu item	Sub-menu item	Description
Display contrast	**Medium**		Adjust the contrast of the LCD.
	Darker		
	Darkest		
	Lightest		
	Lighter		
Courier font	**Regular**		Select a version of the Courier font.
	Dark		The default is **Regular**.

Service menu

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

Menu item	Description
Cleaning mode	Use this option to clean the product if you see toner specks or other marks on the printed output. The cleaning process removes dust and excess toner from the paper path. When you select this item, the product prompts you to load plain paper in Tray 1 and then press OK to begin the cleaning process. Wait until the process is complete. Discard the page that prints.
USB speed	Sets the USB speed to **High** or **Full**. For the product to actually operate at high speed, it must have high speed enabled and be connected to an EHCI host controller that is also operating at high speed. This menu item also does not reflect the current operating speed of the product. The default setting is **High**.
Less paper curl	If printed pages are consistently curled, use this option to set the product to a mode that reduces curl. The default setting is **Off**.
Archive print	If you are printing pages to be stored for a long time, use this option to set the product to a mode that reduces toner smearing and dusting. The default setting is **Off**.
Restore defaults	Sets all customized settings to the factory default values.

Network config. menu (HP LaserJet P2055dn and HP LaserJet P2055x only)

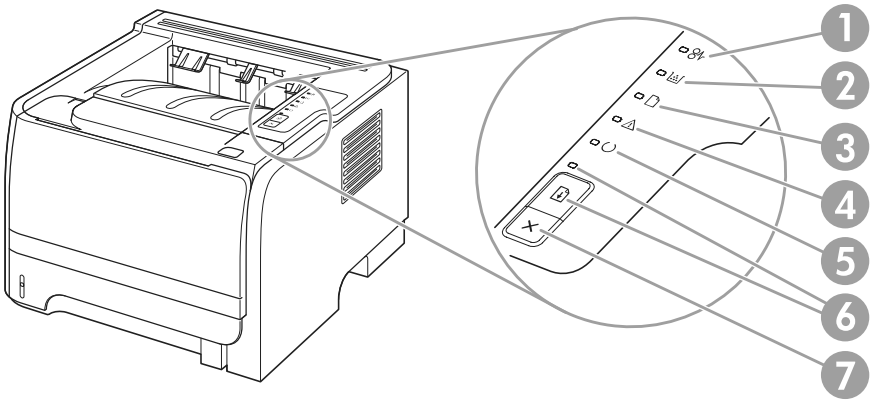
Use this menu to establish network configuration settings.

Menu item	Description
CFG TCP/IP	Access the TCP/IP menu and set TCP/IP protocol parameters. **BOOTP=YES*** Enable IPv4 configuration by a BOOTP Server. **DHCP=YES*** Enable IPv4 configuration by a DHCP Server. (This item only displays on the control panel when **BOOTP=NO***. If **DHCP=YES*** and the print server has a DHCP lease, you can configure the following DHCP settings: • **RELEASE**: Select whether to release (**YES**) or save (**NO**) the current lease. • **RENEW**: Select whether to renew (**YES** or **NO**) the lease. **AUTO IP=YES*** Automatically assign a link-local IPv4 address in the form 169.254.x.x. To manually set an IP, specify **BOOTP=NO***, **DHCP=NO*** and **AUTO IP=NO***, and then set the following TCP/IPv4 parameters from the control panel: Each byte of the IPv4 address (IP) Subnet Mask (SM) Syslog Server (LG) Default Gateway (GW) Idle Timeout period (default is 270 seconds, 0 disables the timeout) **CFG DNS 1**: IPv4 address of a primary DNS server (one byte at a time). **CFG DNS 2**: IPv4 address of a secondary DNS server (one byte at a time). **IPV6 = YES***: Enable IPv6 operation. Select NO to disable IPv6 operation. **POLICY=RTR_AV/RTR_UN/ALWAYS**: Set one of the following IPv6 addressing policies: • **RTR_AV**: (default) Stateful auto-configuration method is determined by a router. The router specifies whether the print server obtains its address, configuration information, or both from a DHCPv6 server. • **RTR_UN**: Try to obtain stateful configuration from a DHCPv6 server (when a router is not available). • **ALWAYS**: Always try to obtain stateful configuration from a DHCPv6 server (whether or not a router is available). **MANUAL= KEEP/DISABLE**: Set the behavior of a manually configured IPv6 address detected on the print server. • **KEEP** (default): Maintain the address in an active state. • **DISABLE**: Maintain the address, but in an inactive state. Print an HP Jetdirect configuration page to verify your settings. (The print server can overwrite selected parameters with values that ensure proper operation.)

Menu item	Description
WEB	Embedded Web server accepts communications using HTTPS (Secure HTTP) only, or both HTTP and HTTPS. • **HTTPS**: Accept only HTTPS (print server appears as a secure site). • **HTTP/HTTPS**: Accept either HTTP or HTTPS.
SECURITY	Reset current security settings to factory defaults. • **KEEP** (default): Retain current security settings. • **RESET**: Reset security settings to factory defaults.
FIREWALL	Disable Firewall. • **KEEP** (default): Retain Firewall operation as configured. • **DISABLE**: Disable Firewall operation.
PRINT	Print a configuration page for the selected item. **SECURITY**: Print the current security settings.
CFG LINK	Manually configure the HP Jetdirect print server's network link. Set the link speed and communication mode. These must match the network. The available settings depend on the print server model. CAUTION: Changing the link setting can cause the loss of network communication with the print server. • **AUTO** (default): Use auto negotiation to set the highest link speed and communication mode allowed. If auto negotiation fails, either 100TX HALF or 10TX HALF is set depending on the detected link speed of the hub/switch port. (A 1000T half-duplex selection is not supported.) • **10T HALF**: 10 Mbps, half-duplex operation. • **10T FULL**: 10 Mbps, Full-duplex operation. • **100TX HALF**: 100 Mbps, half-duplex operation. • **100TX FULL**: 100 Mbps, full-duplex operation. • **100TX AUTO**: Limits auto-negotiation to a maximum link speed of 100 Mbps. • **1000TX FULL**: 1000 Mbps, full-duplex operation.

Control panel (HP LaserJet P2030 Series Printers only)

The printer control panel is comprised of six lights and two buttons. The lights produce patterns that identify the printer status.



1	**Jam light**: Indicates a jam in the printer
2	**Toner light**: When the print cartridge is low, the Toner light illuminates. When the print cartridge is out of the printer, the Toner light blinks.
3	**Paper out light**: Indicates the printer is out of paper
4	**Attention light**: Indicates the print cartridge door is open or other errors exist
5	**Ready light**: Indicates the printer is ready to print
6	Go **button and light**
7	Cancel **button**: To cancel the print job currently printing, press the Cancel button.

NOTE: See Status-light patterns (HP LaserJet P2030 Series Printers only) on page 209 for a description of the light patterns.

3 Paper and print media

- Supported paper and print media
- Load paper and print media
- Configure trays
- Use paper output options

Supported paper and print media

Paper for the HP LaserJet P2050 Series Printers

Supported paper and print media sizes

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

NOTE: To obtain best results, select the correct paper size and type in the printer driver before printing.

Table 3-1 Supported paper and print media sizes

Size and dimensions	Tray 1	Tray 2	Optional 500-sheet Tray 3	Duplexer
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)	✓	✓	✓	✓
A5 148 x 210 mm (5.83 x 8.27 inches)	✓	✓	✓	
A6 105 x 148 mm (4.1 x 5.8 inches)	✓	✓	✓	
B5 (JIS) 182 x 257 mm (7.17 x 10.12 inches)	✓	✓	✓	
Executive 184 x 267 mm (7.24 x 10.51 inches)	✓	✓	✓	
Postcard (JIS) 100 x 148 mm (3.9 x 5.8 inches)	✓			
Double Postcard (JIS) 148 x 200 mm (5.8 x 7.9 inches)	✓			
16K 184 x 260 mm (7.2 x 10.2 inches)	✓			
16K 195 x 270 mm (7.7 x 10.6 inches)	✓			
16K 197 x 273 mm (7.8 x 10.8 inches)	✓			
8.5 x 13 216 x 330 mm (8.5 x 13 inches)	✓	✓	✓	✓

Table 3-1 **Supported paper and print media sizes (continued)**

Size and dimensions	Tray 1	Tray 2	Optional 500-sheet Tray 3	Duplexer
Envelope Commercial #10 105 x 241 mm (4.13 x 9.49 inches)	✓			
Envelope B5 ISO 176 x 250 mm (6.7 x 9.8 inches)	✓			
Envelope C5 ISO 162 x 229 mm (6.93 x 9.84 inches)	✓			
Envelope DL ISO 110 x 220 mm (4.33 x 8.66 inches)	✓			
Envelope Monarch 98 x 191 mm (3.9 x 7.5 inches)	✓			
Custom 76 x 127 mm to 216 x 356 mm (3.0 x 5.0 inches to 8.5 x 14 inches)	✓			

Supported paper and print media types

For a complete list of specific HP-brand paper that this product supports, go to www.hp.com/go/ljp2050series_software.

Paper type (control panel)	Paper type (printer driver)	Tray 1	Tray 2	Optional 500-sheet Tray 3	Duplexer
PLAIN 75–95 G	**Plain**	✓	✓	✓	✓
LIGHT 60-74 G	**Light 60-74g**	✓	✓	✓	✓
MID-WEIGHT	**Mid-weight**	✓	✓	✓	✓
HEAVY 111–130 G	**Heavy 111–130g**	✓	✓	✓	
EXTRA HEAVY 131–175 G	**Extra heavy 131–175g**	✓			
TRANSPARENCY	**Monochrome Laser Transparency**	✓	✓	✓	
LABELS	**Labels**	✓			
LETTERHEAD	**Letterhead**	✓	✓	✓	✓
PREPRINTED	**Preprinted**	✓	✓	✓	✓
PREPUNCHED	**Prepunched**	✓	✓	✓	✓
COLOR	**Colored**	✓	✓	✓	✓
ROUGH	**Rough**	✓	✓	✓	
BOND	**Bond**	✓	✓	✓	✓

Paper type (control panel)	Paper type (printer driver)	Tray 1	Tray 2	Optional 500-sheet Tray 3	Duplexer
RECYCLED	**Recycled**	✓	✓	✓	✓
ENVELOPE	**Envelope**	✓			

Tray and bin capacity

Tray or bin	Paper type	Specifications	Quantity
Tray 1	Paper	Range: 60 g/m^2 (16 lb) bond to 200 g/m^2 (54 lb) bond	Maximum stack height: 5 mm (0.3 inch) Equivalent to 50 sheets of 75 g/m^2 (20 lb) bond
	Envelopes	Less than 60 g/m^2 (16 lb) bond to 90 g/m^2 (24 lb) bond	Up to 5 envelopes
	Labels	Maximum 0.23 mm (0.009 inch) thick	Maximum stack height: 5 mm (0.3 inch)
	Transparencies	Minimum 0.13 mm (0.005 inch) thick	Maximum stack height: 5 mm (0.3 inch)
Tray 2	Paper	Range: 60 g/m^2 (16 lb) bond to 135 g/m^2 (36 lb) bond	Equivalent to 250 sheets of 75 g/m^2 (20 lb) bond Maximum stack height for A6 paper: 15 mm (0.59 inch)
	Transparencies	Minimum 0.13 mm (0.005 inch) thick	Maximum stack height: 26 mm (1.0 inch)
Optional 500-sheet Tray 3	Paper	Range: 60 g/m^2 (16 lb) bond to 135 g/m^2 (36 lb) bond	Equivalent to 500 sheets of 75 g/m^2 (20 lb) bond Maximum stack height for A6 paper: 40 mm (1.6 inches)
	Transparencies	Minimum 0.13 mm (0.005 inch) thick	Maximum stack height: 54 mm (2.1 inches)
Standard top bin	Paper		Up to 125 sheets of 75 g/m^2 (20 lb) bond

Paper for the HP LaserJet P2030 Series Printers

Supported paper and print media sizes

This product supports several paper sizes, and it adapts to various media.

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

Table 3-2 **Supported paper and print media sizes**

Size and dimensions	Tray 1	Tray 2
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)	✓	✓
A5 148 x 210 mm (5.83 x 8.27 inches)	✓	✓
A6 105 x 148 mm (4.1 x 5.8 inches)	✓	✓
B5 (JIS) 182 x 257 mm (7.17 x 10.12 inches)	✓	✓
Executive 184 x 267 mm (7.24 x 10.51 inches)	✓	✓
Postcard (JIS) 100 x 148 mm (3.9 x 5.8 inches)	✓	
Double Postcard (JIS) 148 x 200 mm (5.8 x 7.9 inches)	✓	
16K 184 x 260 mm (7.2 x 10.2 inches)	✓	
16K 195 x 270 mm (7.7 x 10.6 inches)	✓	
16K 197 x 273 mm (7.8 x 10.8 inches)	✓	
8.5 x 13 216 x 330 mm (8.5 x 13 inches)	✓	✓
Envelope Commercial #10 105 x 241 mm (4.13 x 9.49 inches)	✓	
Envelope B5 ISO 176 x 250 mm (6.7 x 9.8 inches)	✓	
Envelope C5 ISO 162 x 229 mm (6.93 x 9.84 inches)	✓	
Envelope DL ISO	✓	

Table 3-2 **Supported paper and print media sizes (continued)**

Size and dimensions	Tray 1	Tray 2
110 x 220 mm (4.33 x 8.66 inches)		
Envelope Monarch	✓	
98 x 191 mm (3.9 x 7.5 inches)		
Custom	✓	
76 x 127 mm to 216 x 356 mm		
(3.0 x 5.0 inches to 8.5 x 14 inches)		

Supported paper and print media types

For a complete list of specific HP-brand paper that this product supports, go to www.hp.com/support/ljp2030series.

Paper type (printer driver)	Tray 1	Tray 2
Plain Paper	✓	✓
Light 60–74 g/m^2	✓	✓
Midweight (96–110 g/m^2)	✓	✓
Heavy (111–130 g/m^2)	✓	✓
Extra Heavy (131–175 g/m^2)	✓	
Transparency	✓	✓
Labels	✓	
Letterhead	✓	✓
Preprinted	✓	✓
Prepunched	✓	✓
Color	✓	✓
Rough	✓	✓
Bond	✓	✓
Recycled	✓	✓
Envelope	✓	
HP Multipurpose Paper	✓	✓
HP Office Paper	✓	✓
HP LaserJet Paper	✓	✓
HP Premium Choice Paper	✓	✓

Tray and bin capacity

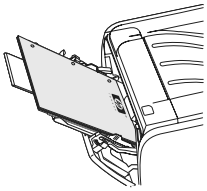
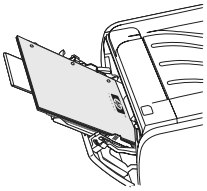
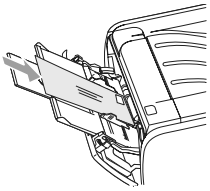
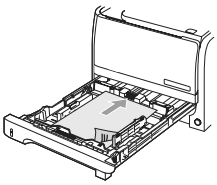
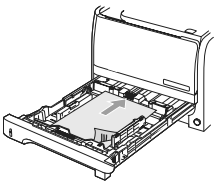
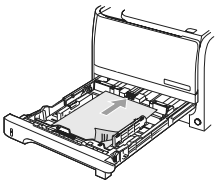
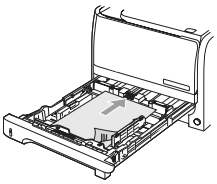
Tray or bin	Paper type	Specifications	Quantity
Tray 1	Paper	Range: 60 g/m^2 (16 lb) bond to 200 g/m^2 (54 lb) bond	Maximum stack height: 5 mm (0.3 inch) Equivalent to 50 sheets of 75 g/m^2 (20 lb) bond
	Envelopes	Less than 60 g/m^2 (16 lb) bond to 90 g/m^2 (24 lb) bond	Up to 5 envelopes
	Labels	Maximum 0.23 mm (0.009 inch) thick	Maximum stack height: 5 mm (0.3 inch)
	Transparencies	Minimum 0.13 mm (0.005 inch) thick	Maximum stack height: 5 mm (0.3 inch)
Tray 2	Paper	Range: 60 g/m^2 (16 lb) bond to 135 g/m^2 (36 lb) bond	Equivalent to 250 sheets of 75 g/m^2 (20 lb) bond Maximum stack height for A6 paper: 15 mm (0.59 inch)
	Transparencies	Minimum 0.13 mm (0.005 inch) thick	Maximum stack height: 26 mm (1.0 inch)
Standard top bin	Paper		Up to 125 sheets of 75 g/m^2 (20 lb) bond

Load paper and print media

Load trays

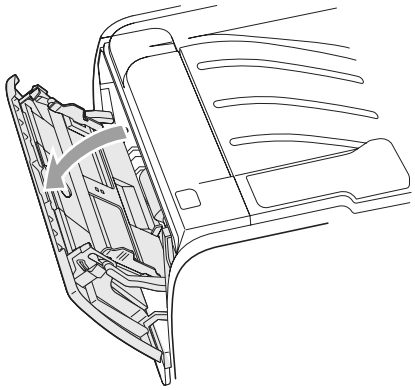
Paper orientation for loading trays

If you are using paper that requires a specific orientation, load it according to the information in the following table.

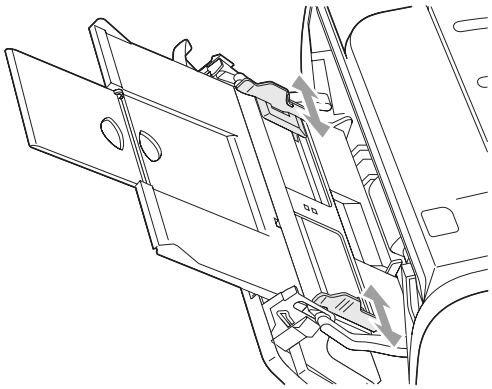
Tray	Single-sided printing	Duplex printing (HP LaserJet P2050 Series Printers only)	Envelope printing
Tray 1	Face-up Top edge leading into the product 	Face-up Top edge leading into the product 	Front of envelope face-up Short edge with postage leading into the product 
Tray 2	Face-down Top edge at the front of the tray 	Face-down Top edge at the front of the tray 	Use only Tray 1 for printing envelopes.
Optional Tray 3 (HP LaserJet P2050 Series Printers only)	Face-down Top edge at the front of the tray 	Face-down Top edge at the front of the tray 	Use only Tray 1 for printing envelopes.

Tray 1

Tray 1 is accessed from the front of the product. The product prints from Tray 1 before trying to print from other trays.

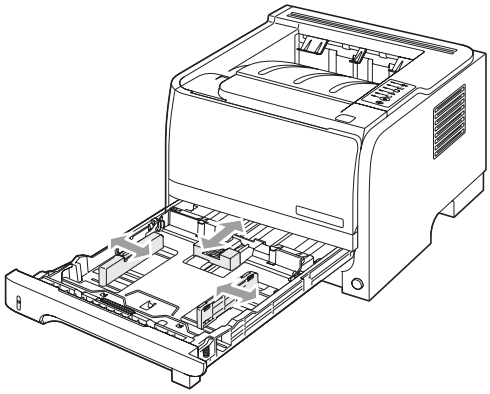


Media guides ensure that the media is correctly fed into the product and that the print is not skewed (crooked on the media). When loading media, adjust the media guides to match the width of the media that you are using.



Tray 2

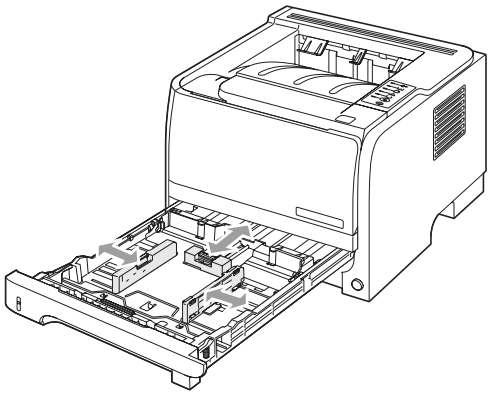
Media guides ensure that the media feeds correctly into the product and that the print is not skewed. Tray 2 has side and rear media guides. When loading media, adjust the media guides to match the length and width of the media that you are using.



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. This reduces jams by preventing multiple sheets of media from feeding through the product at one time.

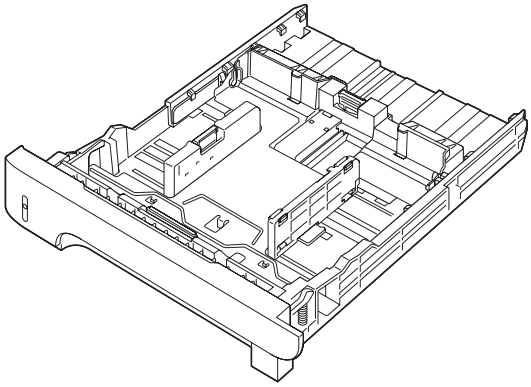
Load A6-size paper

When loading A6-size paper, adjust the length by sliding forward only the center panel of the rear media guide.



Optional Tray 3 (HP LaserJet P2050 Series Printers only)

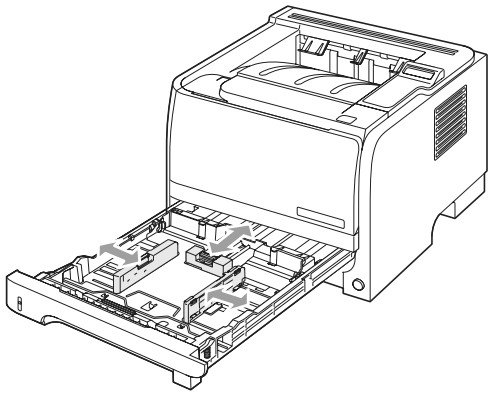
Media guides ensure that the media feeds correctly into the product and that the print is not skewed. Tray 2 has side and rear media guides. When loading media, adjust the media guides to match the length and width of the media that you are using.



NOTE: When you add new media, make sure that you remove all the media from the input tray and straighten the stack of new media. This reduces jams by preventing multiple sheets of media from feeding through the product at one time.

Load A6-size paper

When loading A6-size paper, adjust the length by sliding forward only the center panel of the rear media guide.



Manual feed

You can use manual feed when printing mixed media. For example, you can use manual feed to print an envelope, and then a letter, and then an envelope, and so on. Load envelopes in Tray 1 and load letterhead in Tray 2.

To print using manual feed, open the product Properties or Printer Setup, and then select **Manual Feed (tray 1)** from the **Source Tray** drop-down list. After you have enabled manual feed, press the OK button to print.

Configure trays

Configure trays (HP LaserJet P2050 Series Printers only)

1. Press OK.
2. Press the down arrow ▼ to select **System setup**, and then press OK.
3. Press the down arrow ▼ to select **Paper setup**, and then press OK.
4. Press the down arrow ▼ to select the desired tray, and then press OK.
5. Press the down arrow ▼ to select **Paper type** or **Paper size**, and then press OK.
6. Press the down arrow ▼ to select the size or type.
7. Press OK to save the settings.

Configure trays (HP LaserJet P2030 Series Printers only)

Use either the printer driver or the embedded Web server to configure the trays for a particular paper type and size.

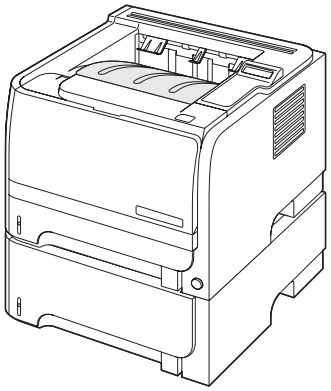
Printer driver	Click the **Paper/Quality** tab and select the type and size in the **Paper Options** area.
Embedded Web server (HP LaserJet P2035n only)	Click the **Settings** tab, and then click the **Paper Handling** option from the left-side pane.

Use paper output options

The product has two output locations: the top (standard) output bin and the straight-through paper path (rear output).

Print to the top (standard) output bin

The top output bin collects paper face-down, in the correct order. The top output bin should be used for most print jobs, including transparencies. To use the top output bin, be sure that the rear output (straight-through paper path) is closed. To avoid jams, do not open or close the rear output while the product is printing.



Print to the straight-through paper path (rear output)

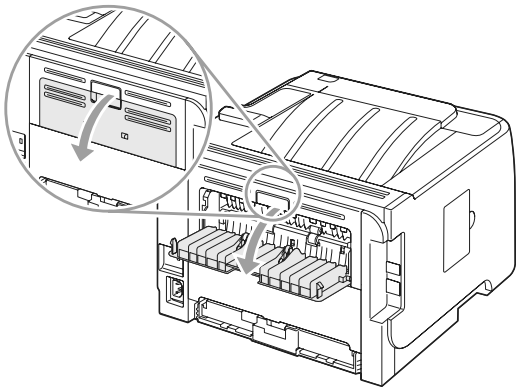
The product always uses the straight-through paper path if it is open. Paper exits face-up, with the last page on top (reverse order).

Printing from Tray 1 to the rear output provides the straightest path. Opening the straight-through paper path might improve performance with the following paper types:

- Envelopes
- Labels
- Small custom-size paper
- Postcards
- Paper heavier than 120 g/m^2 (32 lb)

To open the straight-through paper path, grasp the handle at the top of the rear door, and pull the door down.

NOTE: Be sure to open the straight-through paper path, not the jam-release door.



4 Manage and maintain

- Print the information pages
- Use the HP ToolboxFX software (HP LaserJet P2050 Series Printers only)
- Manage a network product
- Manage supplies
- Replace supplies and parts
- Install memory (HP LaserJet P2050 Series Printers only)
- Clean the product

Print the information pages

Print the information pages (HP LaserJet P2050 Series Printers only)

From the product control panel, you can print information pages that give details about the product and its current configuration using the **Reports** menu.

Name of report	Description
Demo page	Prints a page that demonstrates print quality.
Menu structure	Prints the control-panel menu map that shows the layout and current settings for the control-panel menu items.
Config report	Prints the current product configuration.
Supplies status	Prints a supplies status page that shows the supplies levels for the product, an approximate number of pages remaining, cartridge-usage information, the serial number, a page count, and ordering information, when available.
Network Report	Prints a list of all product network settings.
Usage Page	Prints a page that shows a count of all paper sizes that have passed through the product, lists whether they were one-sided or two-sided, and shows a page count.
PCL Font List	Prints a PCL font list that shows all the PCL 5c fonts that are currently available to the product.
PS font list	Prints a PS font list that shows all the PS fonts that are currently available to the product.
PCL 6 Font List	Prints a list of installed PCL6 fonts.
Service Page	Prints the service report.

Print the information pages

1. Press OK.
2. Press the down arrow ▼ to select **Reports**, and then press OK.
3. Press the down arrow ▼ to select the required report, and then press OK to print.

Print the information pages (HP LaserJet P2030 Series Printers only)

You can print the following information pages.

Demo page

The Demo page contains examples of text and graphics. To print a Demo page, do one of the following:

- Press the Go button when the product Ready light is on and no other jobs are printing.
- Select it from the **Print Information Pages** drop-down list on the **Services** tab in **Printer Preferences**.

Configuration page

The configuration page lists the current settings and properties of the product. It also contains a status log report. To print a configuration page, do one of the following:

- Press and hold the Go button for 5 seconds when the product Ready light is on and no other jobs are printing.
- Select it from the **Print Information Pages** drop-down list on the **Services** tab in **Printer Preferences**.

Supplies Status page

You can print the Supplies Status page by selecting it from the **Print Information Pages** drop-down list on the **Services** tab in **Printer Preferences**. The Supplies Status page provides the following information:

- The estimated number of pages remaining on the print cartridge
- The number of pages and print jobs that have been processed
- Ordering and recycling information

Use the HP ToolboxFX software (HP LaserJet P2050 Series Printers only)

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

- Check the product status.
- Configure the product settings.
- View troubleshooting information.
- View online documentation.

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

View HP ToolboxFX

Open HP ToolboxFX in one of these ways:

- In the Windows notification area or on your desktop, double-click the HP ToolboxFX icon.
- On the Windows **Start** menu, click **Programs** (or **All Programs** in Windows XP), click **HP**, click **HP LaserJet P2050 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 estimated 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.
- **Event log**. View a history of product errors. The most recent error is listed first.

Event log

The Event log is a table that contains codes corresponding to error messages that have appeared on the product control-panel display, a brief description of each error, and the number of pages that printed when each error occurred. For more information about error messages, see Interpret control-panel messages (HP LaserJet P2050 Series Printers only) on page 219.

Alerts

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

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

Set up Status Alerts

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

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

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

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

Set up E-mail Alerts

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

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

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

Help

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

- **Troubleshooting**. View troubleshooting help topics, print troubleshooting pages, and clean the product.
- **Paper and Print Media**. Print information about how to obtain optimal results from your product using various types of paper and print media.
- **How do I?** Link to the user-guide index.
- **User Guide**. View information about the product usage, warranty, specifications, and support. The User Guide is available in both HTML and PDF format.

Device Settings

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

- **Device Information**. View information such as the product description and a contact person.
- **Paper Handling**. Configure trays or change the product paper-handling settings, such as default paper size and default paper type.
- **Printing**. Change the default product print settings, such as number of copies and paper orientation.
- **PCL 6**. Change the PCL settings.
- **PCL 5c**. Change the PCL settings.
- **PostScript**. Change the PS settings.
- **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 alert.
- **Troubleshooting**. Gain access to various procedures required to maintain the product.
- **Password**. Set a password to protect the device settings. Once a password is set, users will be prompted to enter the password before being allowed to change device settings. This password is the same as the embedded Web server password.

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. These are the same options that are available on the control-panel menus on the control panel. For more information, see Control panel on page 21.

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 time** 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.

Printing

Use these options to configure the settings for all print functions. These are the same options that are available on the control panel. For more information, see Control panel on page 21.

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

PCL6

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.

PCL5c

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.

Print quality

Use the HP ToolboxFX print-quality options to improve the appearance of print jobs. These are the same options that are available on the product control panel. For more information, see Control panel (HP LaserJet P2050 Series Printers only) on page 22.

The four options provided for controlling print quality are resolution, REt (Resolution Enhancement technology), print density, and EconoMode.

- **Resolution**. Select 600 resolution for average print jobs and FastRes 1200 for higher-quality print jobs. Select ProRes 1200 for the highest-quality print job, but a longer printing time.
- **REt**. You can turn on REt, which HP provides for improved print quality.

- **Print density**. For increased print density, select a higher number. For decreased print density, select a lower number.
- **EconoMode**. Turn EconoMode on when you are printing average print jobs. EconoMode is a feature that allows the product to use less toner per page. Selecting this option might extend the life of the toner supply and might reduce cost per page. However, it reduces print quality. The printed image is lighter, but it is adequate for printing drafts or proofs. HP does not recommend full-time use of EconoMode. If EconoMode is used full-time, it is possible that the toner supply can outlast the mechanical parts in the print cartridge. If print quality begins to degrade under these circumstances, install a new print cartridge, even if there is toner supply remaining in the cartridge.

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

Paper Types

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

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

System Setup

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

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

Troubleshooting

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 paper path (HP LaserJet P2050 Series Printers only) on page 70.

Network Settings

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

Shop for Supplies

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

Other Links

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

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

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

Manage a network product

Embedded Web server (HP LaserJet P2055dn, HP LaserJet P2055x, and HP LaserJet P2035n only)

The embedded Web server allows you to view product and network status and to manage printing functions from your computer. Use the embedded Web server for the following tasks:

- View product status information
- Determine the remaining life on all supplies and order new ones
- View and change the size and type of paper loaded in each tray
- View and change the product default configuration settings
- View and change network configuration

You do not need to install any software on the computer. Use one of these supported Web browsers:

- Internet Explorer 6.0 (and later)
- Netscape Navigator 7.0 (and later)
- Firefox 1.0 (and later)
- Mozilla 1.6 (and later)
- Opera 7.0 (and later)
- Safari 1.2 (and later)
- Konqueror 3.2 (and later)

The embedded Web server works when the product is connected to a TCP/IP-based network. The embedded Web server does not support IPX-based connections or direct USB connections.

NOTE: You do not have to have Internet access to open and use the embedded Web server. However, if you click a link on any of the pages, you must have Internet access in order to go to the site associated with the link.

Open the embedded Web server

To open the embedded Web server, type the IP address or hostname of the product in the address field of a supported Web browser.

TIP: After you open the URL, bookmark it so that you can return to it quickly in the future.

The embedded Web server has three tabs that contain settings and information about the product: the **Status** tab, the **Settings** tab, and the **Networking** tab.

Status tab

This tab provides information about product and supplies status, product and network configuration, and supplies reordering.

Settings tab

This tab allows you to configure the product from your computer. If this product is networked, consult with the network administrator before changing settings on this tab.

Networking tab

This tab allows the network administrator to control network-related settings for the product when it is connected to an IP-based network.

Links

Links are located in the upper-right part of the Status pages. You must have Internet access in order to use any of these links. If you use a dial-up connection and did not connect when you first opened the embedded Web server, you must connect before you can visit these Web sites. Connecting might require that you close the embedded Web server and reopen it.

- **Order Supplies**. Click this link to connect to the Sure Supply Web site and order genuine HP supplies from HP or a reseller of your choice.
- **Product Support**. Click this link to connect to the support site for the product. You can search for help regarding general topics.

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 system 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 computer is not supported.

Use security features

The product supports security standards and recommended protocols that help you keep the product secure, protect critical information on your network, and simplify the way you monitor and maintain the product.

For in-depth information about HP's secure imaging and printing solutions, visit www.hp.com/go/secureprinting. The site provides links to white papers and FAQ documents about security features.

Secure the embedded Web server

You can configure the embedded Web server so that access to some tabs requires a password.

Manage supplies

Using, storing, and monitoring the print cartridge can help ensure high-quality output.

Supplies life

For information regarding specific product yield, see www.hp.com/go/learnaboutsupplies.com.

To order supplies, see Parts and diagrams on page 253.

Manage the print cartridge

Print-cartridge storage

Do not remove the print cartridge from its package until you are ready to use it.

△ **CAUTION:** To prevent damage to the print cartridge, do not expose it to light for more than a few minutes.

Use genuine HP print cartridges

When you use a genuine new HP print cartridge, you can obtain the following supplies information:

- Percentage of supplies remaining
- Estimated number of pages remaining
- Number of pages printed

HP policy on non-HP print cartridges

Hewlett-Packard Company cannot recommend the use of non-HP print cartridges, either new or remanufactured.

NOTE: Any damage caused by a non-HP print cartridge is not covered under the HP warranty and service agreements.

To install a new HP print cartridge, see Change the print cartridge on page 62. To recycle the used cartridge, follow the instructions included with the new cartridge.

Print-cartridge authentication

The device automatically authenticates the print cartridge when it is inserted into the device. During authentication, the device notifies you whether a cartridge is a genuine HP print cartridge.

If the device control-panel message states that this is not a genuine HP print cartridge and you believe you purchased an HP print cartridge, see HP fraud hotline and Web site on page 59.

HP fraud hotline and Web site

Call the HP fraud hotline (1-877-219-3183, toll-free in North America) or go to www.hp.com/go/anticounterfeit when you install an HP print cartridge and the control-panel message says the cartridge is non-HP. HP will help determine if the cartridge is genuine and take steps to resolve the problem.

Your print cartridge might not be a genuine HP print cartridge if you notice the following:

- You are experiencing a high number of problems with the print cartridge.
- The cartridge does not look like it usually does (for example, the orange pull tab is missing, or the packaging differs from HP packaging).

Replace supplies and parts

Supply replacement guidelines

Keep the following guidelines in mind when setting up the product.

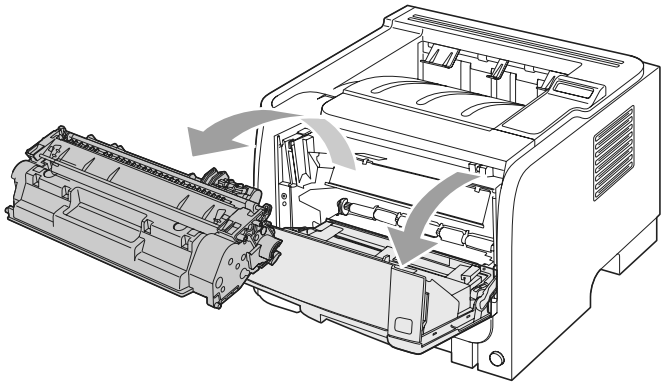
- Sufficient space is required above and in the front of the product for removing supplies.
- The product should be located on a flat, sturdy surface.

NOTE: Hewlett-Packard recommends the use of HP supplies in this product. Use of non-HP supplies can cause problems requiring service that is not covered by the HP warranty or service agreements.

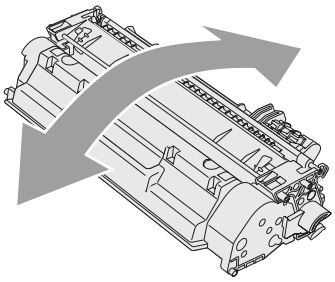
Redistribute toner

When toner is low, faded or light areas appear on the printed page. You might be able to temporarily improve print quality by redistributing the toner.

1. Push the button to open the print-cartridge door, and then remove the print cartridge.

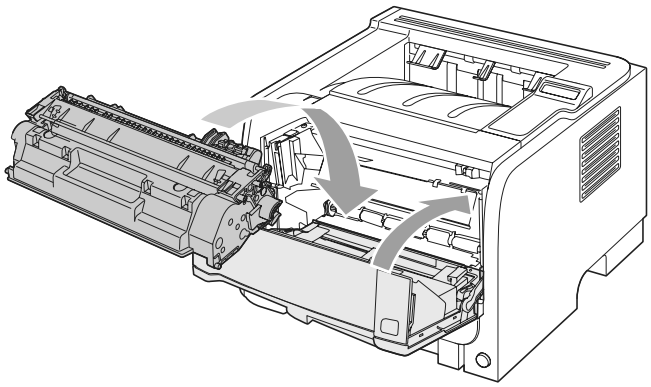


2. To redistribute the toner, gently rock the print cartridge from front to back.



△ **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.*

3. Reinsert the print cartridge into the product, and then close the print-cartridge door.

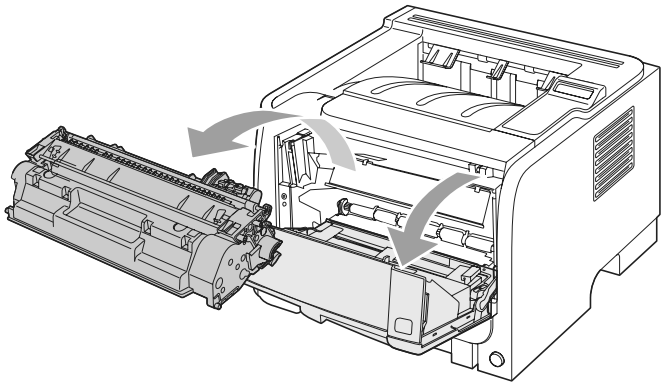


If the print is still light, install a new print cartridge.

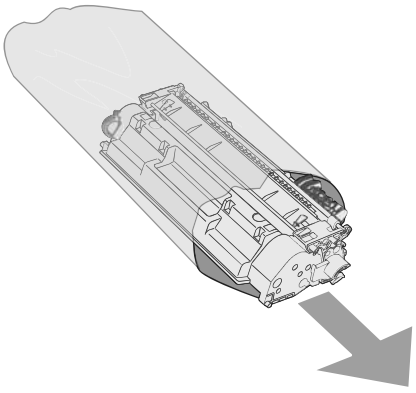
Change the print cartridge

When a print cartridge approaches the end of useful life, you are prompted to order a replacement. You can continue printing with the current cartridge until redistributing the toner no longer yields acceptable print quality.

1. Push the button to open the print-cartridge door, and then remove the print cartridge.

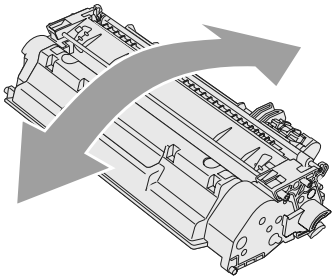


2. Remove the new print cartridge from the bag. Place the used print cartridge in the bag for recycling.

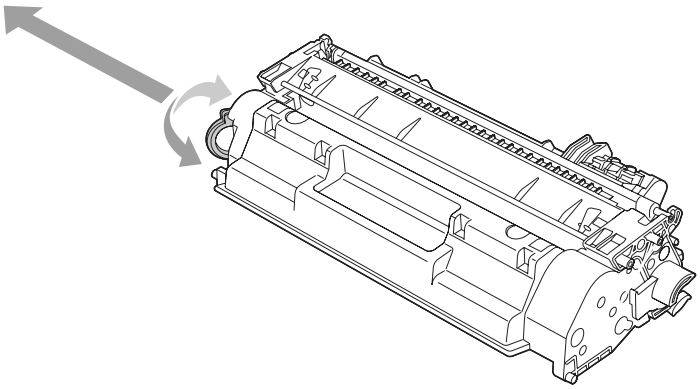


3. Grasp both sides of the print cartridge and distribute the toner by gently rocking the print cartridge.

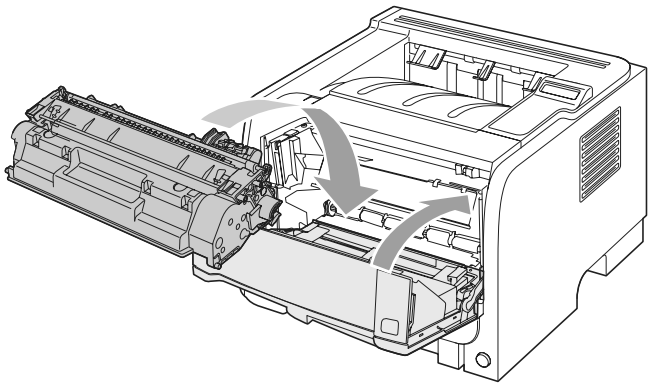
△ **CAUTION:** Do not touch the shutter or the surface of the roller.



4. Bend the tab on the left side of the cartridge until the tab breaks loose. Pull the tab until all the tape is removed from the cartridge. Place the tab and tape in the print-cartridge box to return for recycling.



5. Align the print cartridge with the tracks inside the product, insert the print cartridge until it is firmly seated, and then close the print-cartridge door.



6. Installation is complete. Place the used print cartridge in the box in which the new cartridge arrived. See the enclosed recycling guide for recycling instructions.

For additional help, go to www.hp.com/support/ljp2050series or www.hp.com/support/ljp2030series .

Install memory (HP LaserJet P2050 Series Printers only)

NOTE: Single inline memory modules (SIMMs) used in previous HP LaserJet products are not compatible with the product.

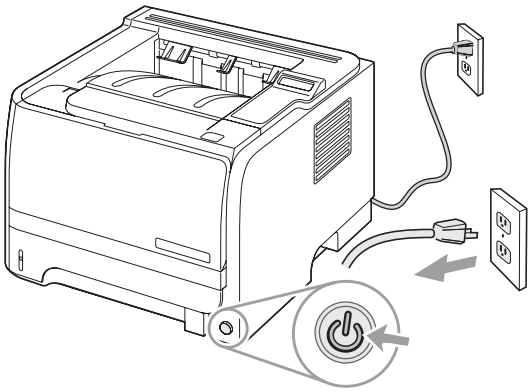
Install product memory

This product has one DIMM slot.

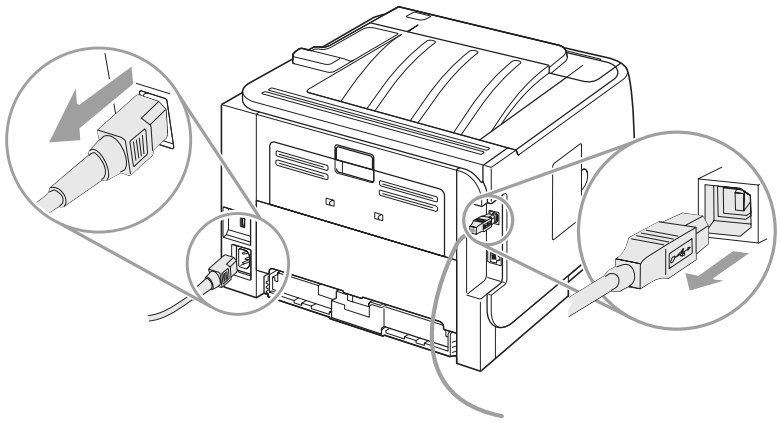
CAUTION: Static electricity can damage DIMMs. When handling DIMMs, either wear an antistatic wrist strap or frequently touch the surface of the DIMM antistatic package, then touch bare metal on the product.

If you have not already done so, print a configuration page to find out how much memory is installed in the product before adding more memory. See Print the information pages on page 48.

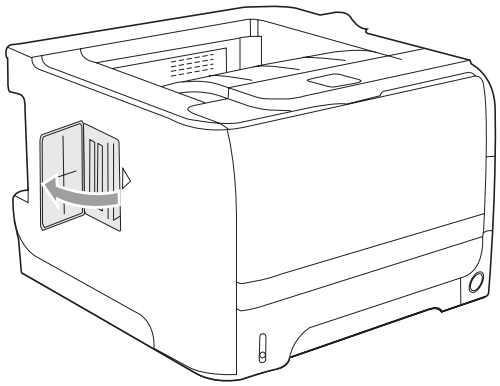
1. After the configuration page has printed, turn the product off and disconnect the power cord.



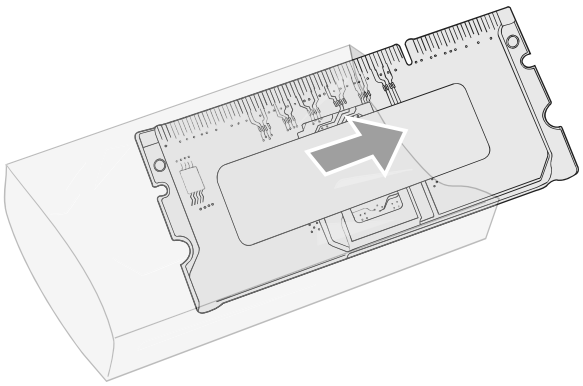
2. Disconnect all interface cables.



3. Open the DIMM-access door on the left side of the product.

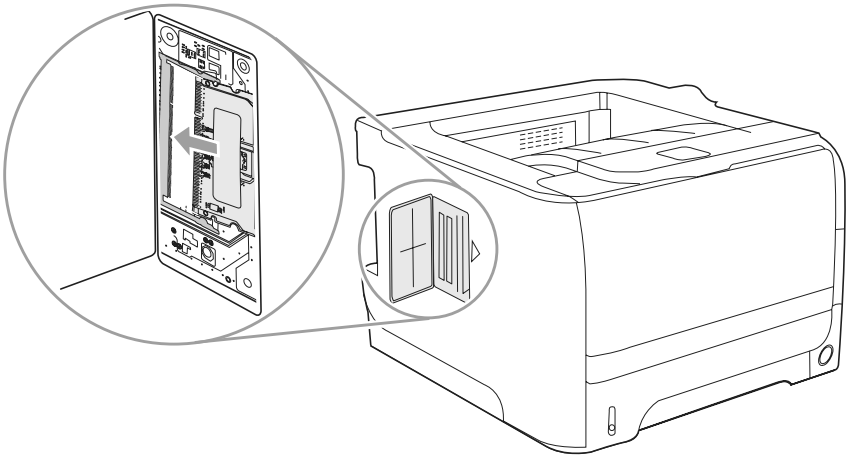


4. Remove the DIMM from the antistatic package.



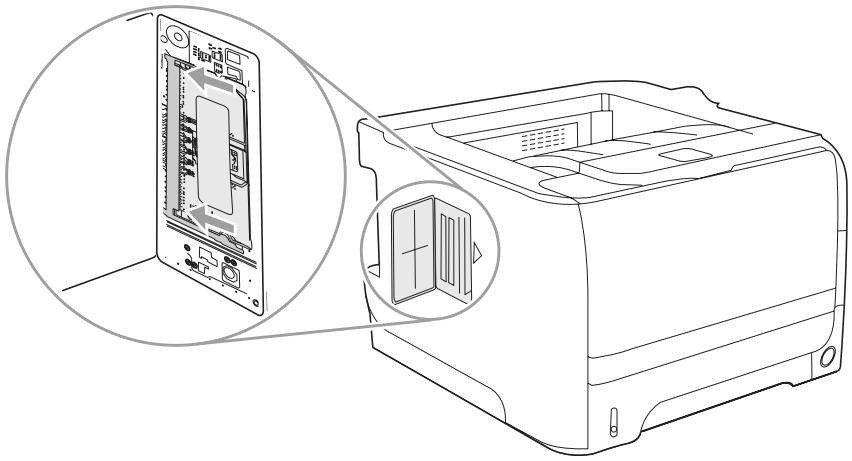
△ **CAUTION:** To reduce the possibility of damage caused by static electricity, always wear an electrostatic discharge (ESD) wrist strap or touch the surface of the antistatic package before handling DIMMs.

5. Hold the DIMM by the edges, and align the notches on the DIMM with the DIMM slot. (Check that the locks on each side of the DIMM slot are open.)

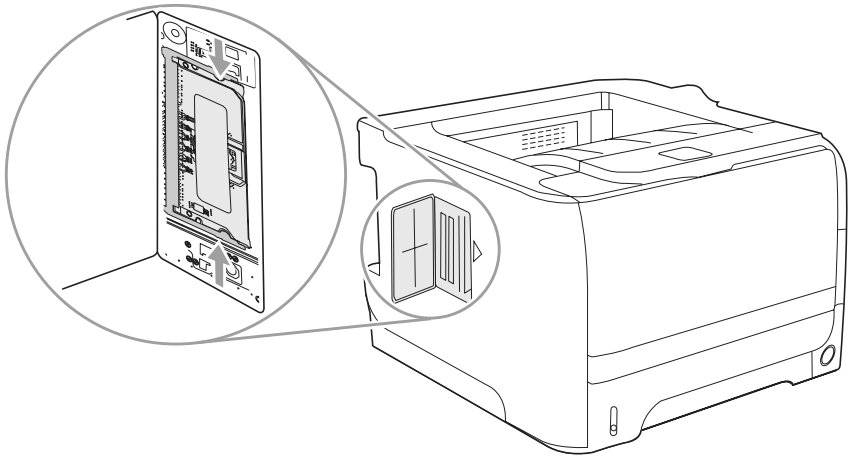


6. Hold the DIMM at a 45-degree angle, and then push the upper contacts of the DIMM firmly into the slot. Make sure that the locks on each side of the DIMM snap into place.

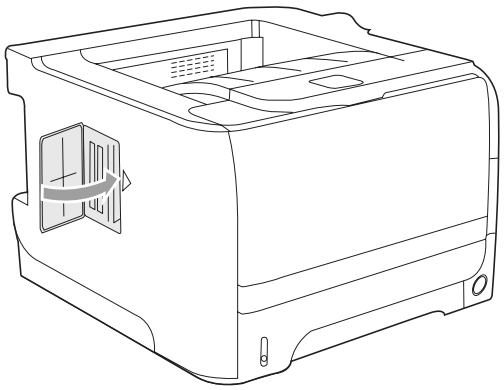
△ **CAUTION:** Pressing the DIMM straight down can damage the contact pins.



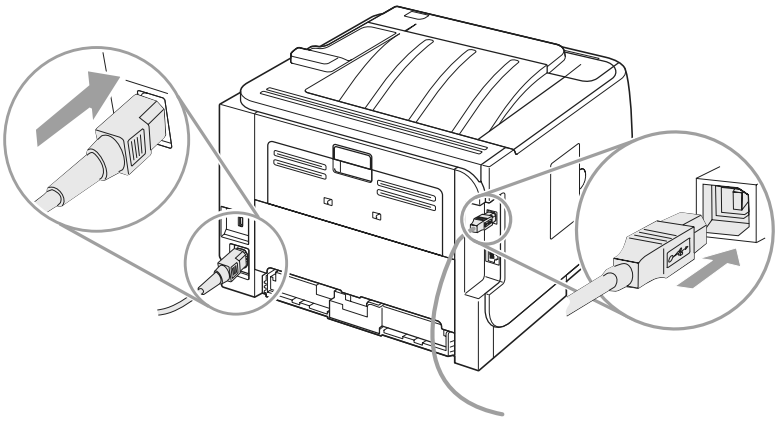
NOTE: To remove a DIMM, first release the locks.



7. Close the access door, and press firmly until it snaps into place.



8. Reconnect the interface cable or cables and the power cord.



9. Turn the product on.

Check DIMM installation

After installing the DIMM, make sure that the installation was successful.

1. Turn the product on. Check that the Ready light is illuminated after the product has gone through the startup sequence. If an error message appears, a DIMM might have been incorrectly installed. See Interpret control-panel messages (HP LaserJet P2050 Series Printers only) on page 219.
2. Print a configuration page (see Print the information pages on page 48).
3. Check the memory section on the configuration page and compare it to the configuration page that was printed before the memory installation. If the amount of memory has not increased, the DIMM might not be installed correctly, or the DIMM might be defective. Repeat the installation procedure. If necessary, install a different DIMM.

NOTE: If you installed a product language (personality), check the "Installed Personalities and Options" section on the configuration page. This area should list the new product language.

Save resources (permanent resources)

Utilities or jobs that you download to the product sometimes include resources (for example, fonts, macros, or patterns). Resources that are internally marked as permanent remain in the product memory until you turn the product off.

Use the following guidelines if you use the page description language (PDL) ability to mark resources as permanent. For technical details, see an appropriate PDL reference for PCL or PS.

- Mark resources as permanent only when it is absolutely necessary that they remain in memory while the product is turned on.
- Send permanent resources to the product only at the beginning of a print job and not while the product is printing.

NOTE: Overusing permanent resources or downloading them while the product is printing might affect product performance or the ability to print complex pages.

Enable memory for Windows

1. **Windows XP and Windows Server 2003 (using the default Start menu view)**: Click **Start**, click **Settings**, and then click **Printers and Faxes**.

   -or-

   Windows 2000, Windows XP, and Windows Server 2003 (using the Classic Start menu view): Click **Start**, click **Settings**, and then click **Printers**.

   -or-

   Windows Vista: Click **Start**, click **Control Panel**, and then in the category for **Hardware and Sound** click **Printer**.

2. Right-click the driver icon, and then select **Properties**.
3. Click the **Device Settings** tab.
4. Expand the area for **Installable Options**.
5. Next to **Printer Memory**, select the total amount of memory that is installed.
6. Click **OK**.

Clean the product

Clean the outside of the printer with a clean, damp cloth when necessary.

△ **CAUTION:** Do not use ammonia-based cleaners on or around the printer.

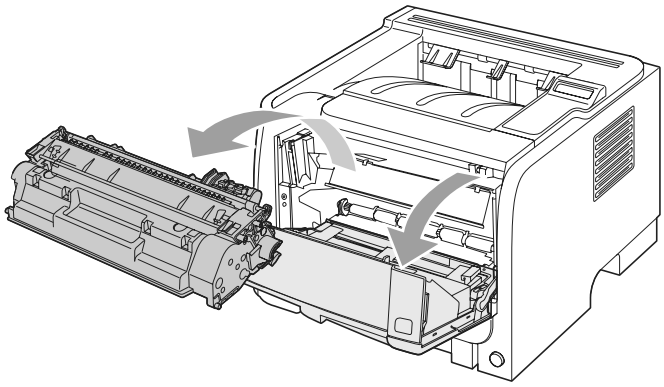
During the printing process, paper, toner, and dust particles can accumulate inside the printer. Over time, this buildup can cause print quality problems, such as toner specks or smearing, and paper jams. To correct and prevent these types of problems, you can clean the print cartridge area and the printer media path.

Clean the print-cartridge area

You do not need to clean the print-cartridge area often. However, cleaning this area can improve the quality of your printed sheets.

⚠ **WARNING!** To avoid injury, turn the product off, disconnect the power cord, and wait for the product to cool before cleaning it.

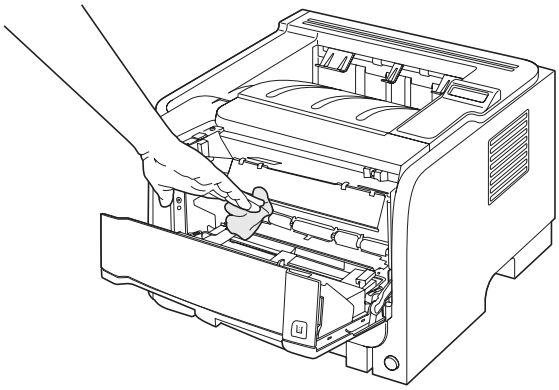
1. Open the print-cartridge door, and then remove the print cartridge.



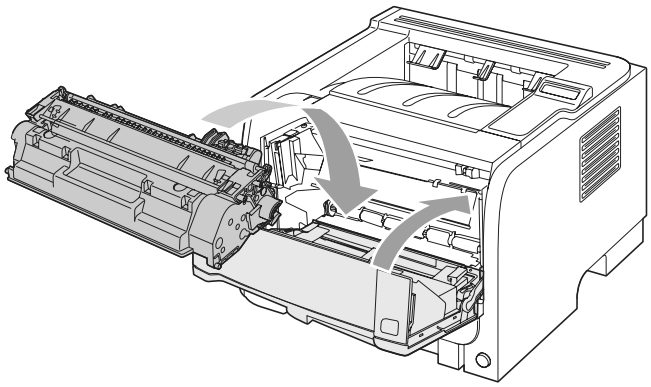
△ **CAUTION:** Do not touch the black sponge-transfer roller inside the product. Doing so can damage the product.

CAUTION: To prevent damage, do not expose the print cartridge to light. Cover it with a piece of paper.

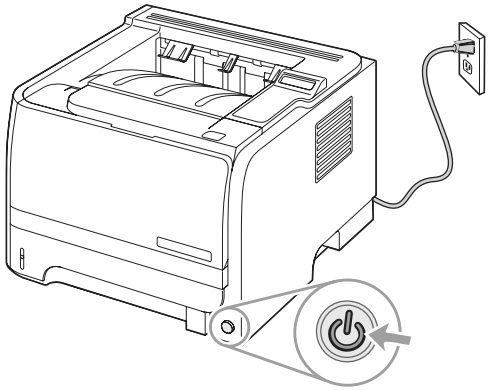
2. With a dry, lint-free cloth, wipe any residue from the media-path area and the print-cartridge cavity.



3. Replace the print cartridge, and close the print-cartridge door.



4. Reconnect the power cord, and turn the product on.



Clean the paper path (HP LaserJet P2050 Series Printers only)

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

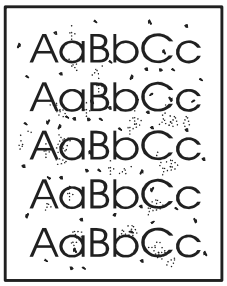
1. Open HP ToolboxFX. See View HP ToolboxFX on page 50.
2. Click the **Device Settings** folder, and then click the **Troubleshooting** page.
3. In the area for **Cleaning Mode**, click **Start** to begin the cleaning process.

   The product processes a single page, and then returns to the **Ready** state when the cleaning process is complete. When possible, use transparencies for this process.

NOTE: You can also access the **Cleaning mode** from the **Service** menu on the control panel. See Service menu on page 27.

Clean the paper path (HP LaserJet P2030 Series Printers only)

If you are experiencing toner specks or dots on the printouts, clean the product media path. This process uses a transparency to remove dust and toner from the media path. Do not use bond or rough paper.



NOTE: For best results use a sheet of transparency. If you do not have any transparencies, you can use copier grade media (70 to 90 g/m^2 (18 to 24 lb)) with a smooth surface.

1. Make sure that the product is idle and the Ready light is on.
2. Load the transparency in Tray 1.
3. Print a cleaning page.

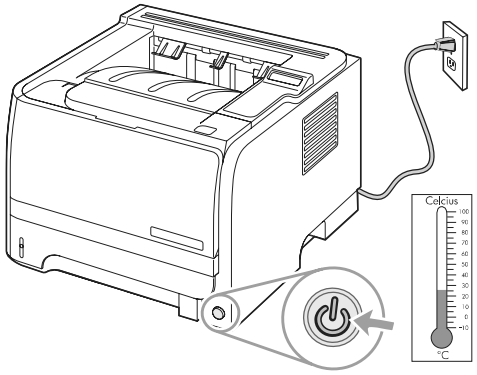
Windows	**1.**	Open the printer-driver **Properties** screen, and then click the **Device Settings** tab.
	2.	In the **Cleaning Page** area, click **Start**.
Macintosh	**1.**	Open the HP Printer Utility.
	2.	Select the **Cleaning Page** option, and click the **OK** button.

NOTE: The cleaning process takes about 2 minutes. The cleaning page stops periodically during the cleaning process. Do not turn the product off until the cleaning process has finished. You might need to repeat the cleaning process several times to thoroughly clean the product.

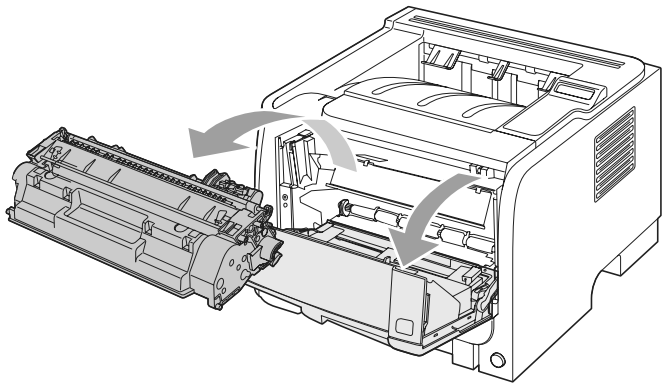
Clean the Tray 1 pickup roller

If the product is having trouble picking up paper from Tray 1, follow these instructions.

1. Turn the product off, disconnect the power cord, and wait for the product to cool.



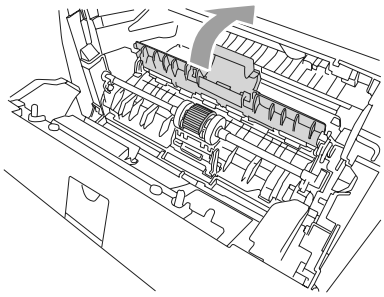
2. Push the button to open the print-cartridge door, and then remove the print cartridge.



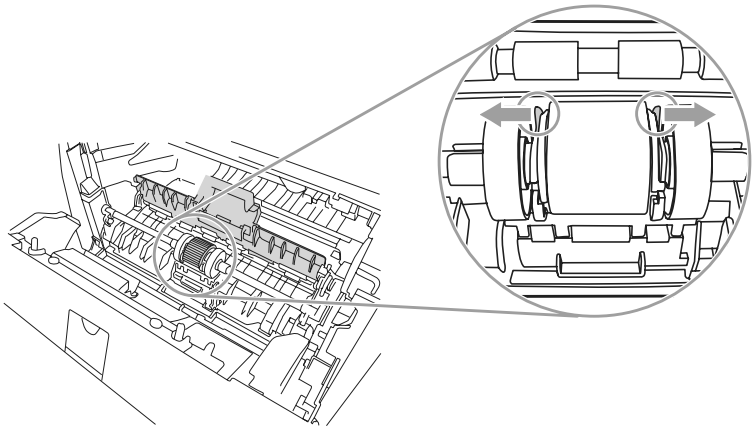
△ **CAUTION:** Do not touch the black sponge-transfer roller inside the product. Doing so can damage the product.

CAUTION: To prevent damage, do not expose the print cartridge to light. Cover it with a piece of paper.

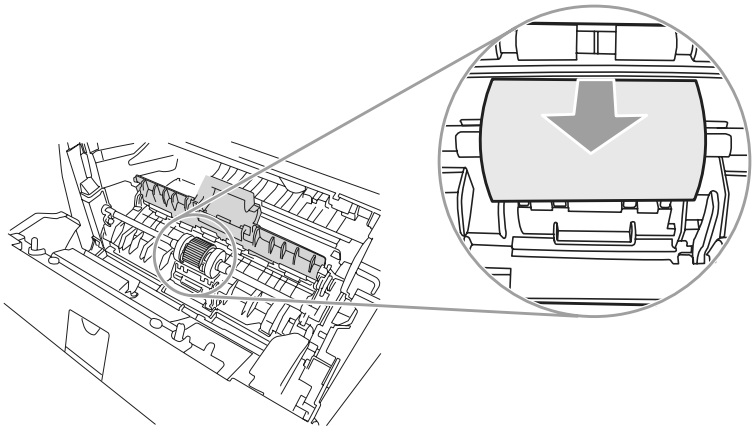
3. Lift the pickup roller cover.



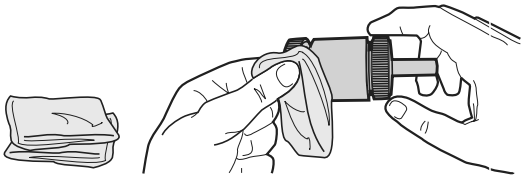
4. Press the two black retaining tabs outward until the pickup roller is released from its seat.



5. Remove the pickup roller from the product.

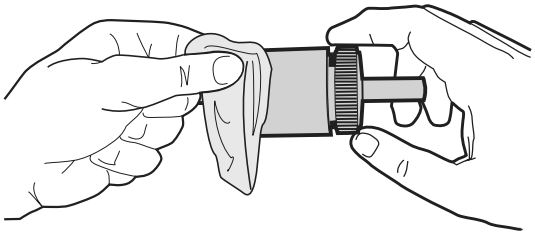


6. Dab a lint-free cloth in water, and scrub the roller.

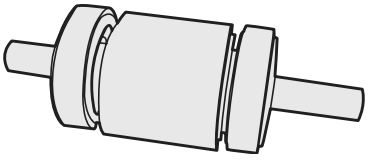


NOTE: Do not touch the surface of the roller with bare fingers.

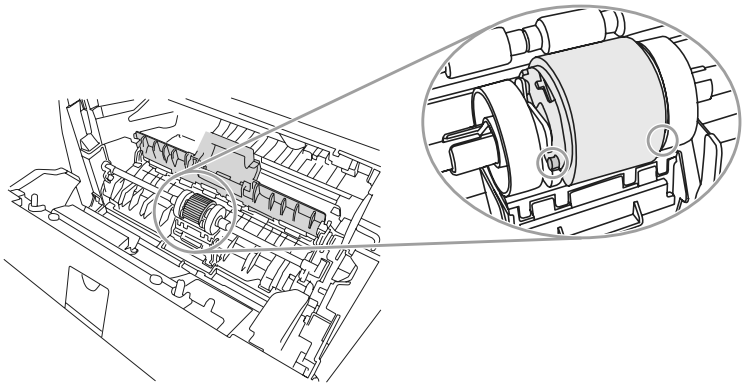
7. Using a dry, lint-free cloth, wipe the pickup roller to remove loosened dirt.



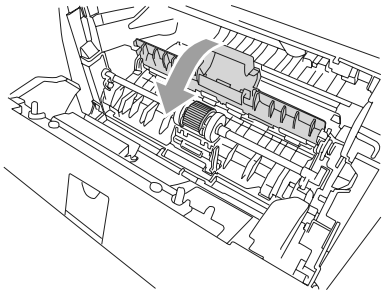
8. Allow the pickup roller to dry completely.



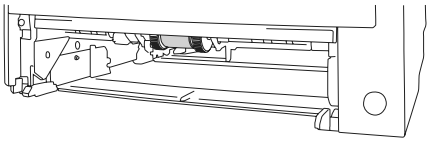
9. Line up the black retaining tabs in the product with the grooves in the pickup roller, and then press the pickup roller into the pickup roller seat until the retaining tabs click.



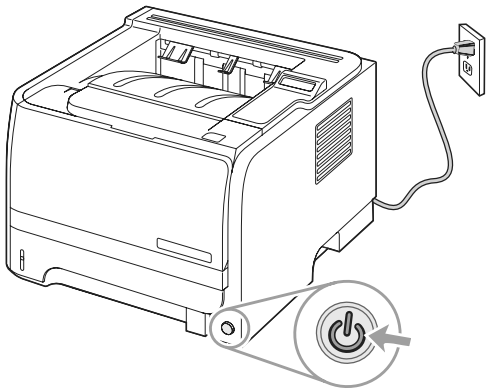
10. Close the pickup roller cover.



11. Reinstall the print cartridge, and close the print-cartridge door.



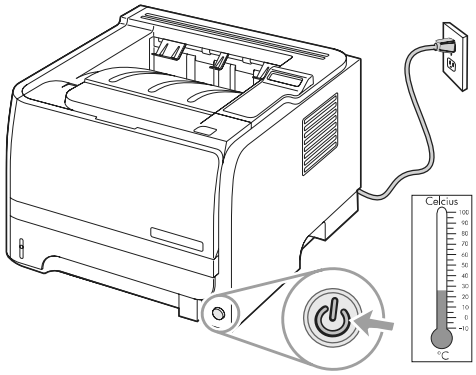
12. Reconnect the power cord, and turn the product on.



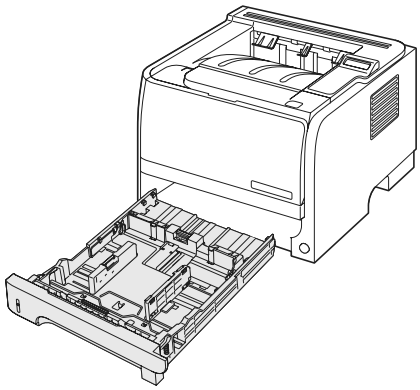
Clean the Tray 2 pickup roller

If the product is having trouble picking up paper from Tray 2, follow these instructions.

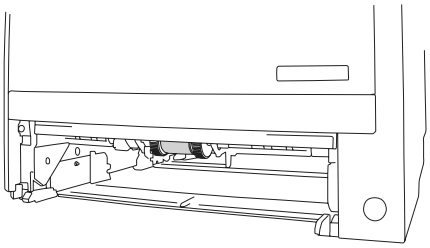
1. Turn the product off, disconnect the power cord and wait for the product to cool.



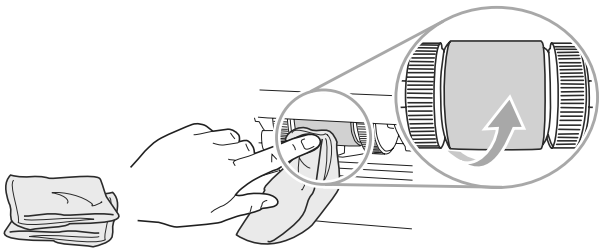
2. Remove Tray 2.



3. Inside the empty tray slot, locate the pickup roller on the top side, near the front of the product.

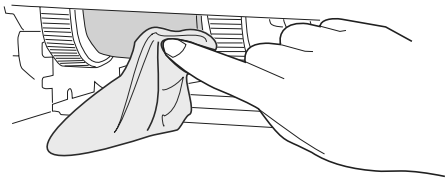


4. Dab a lint-free cloth in water, and then scrub the roller as you rotate it toward the back of the product.

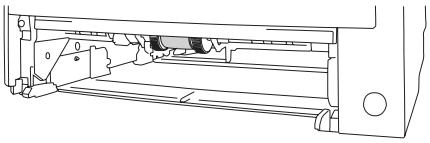


NOTE: Do not touch the surface of the roller with bare fingers.

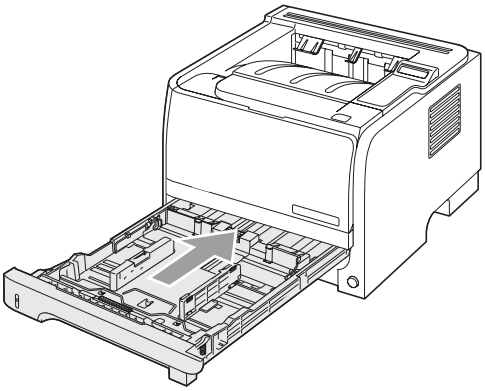
5. Using a dry, lint-free cloth, wipe the pickup roller to remove loosened dirt.



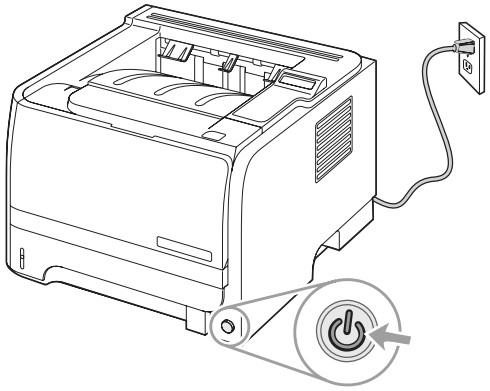
6. Allow the pickup roller to dry completely.



7. Replace Tray 2.



8. Reconnect the power cord, and turn the product on.



5 Theory of operation

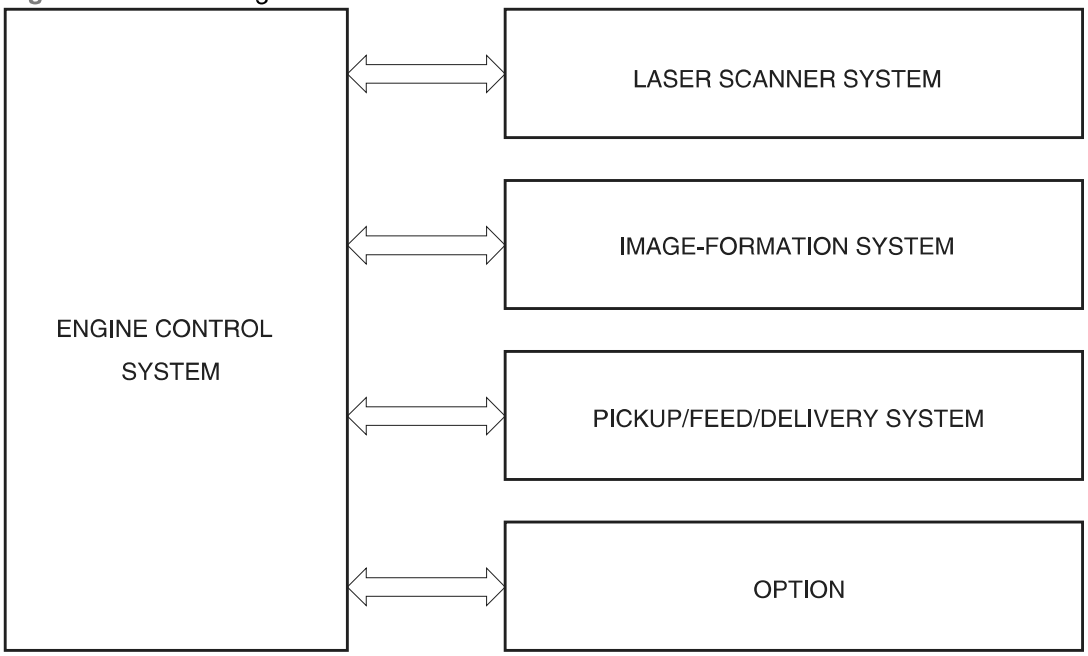
- Introduction
- Internal components
- Timing
- Engine control system
- Laser/scanner system
- Image-formation system
- Pickup/feed/delivery system

Introduction

This chapter presents an overview of the relationships between major components in the product, and includes a detailed discussion of the image-formation system. The following systems are discussed:

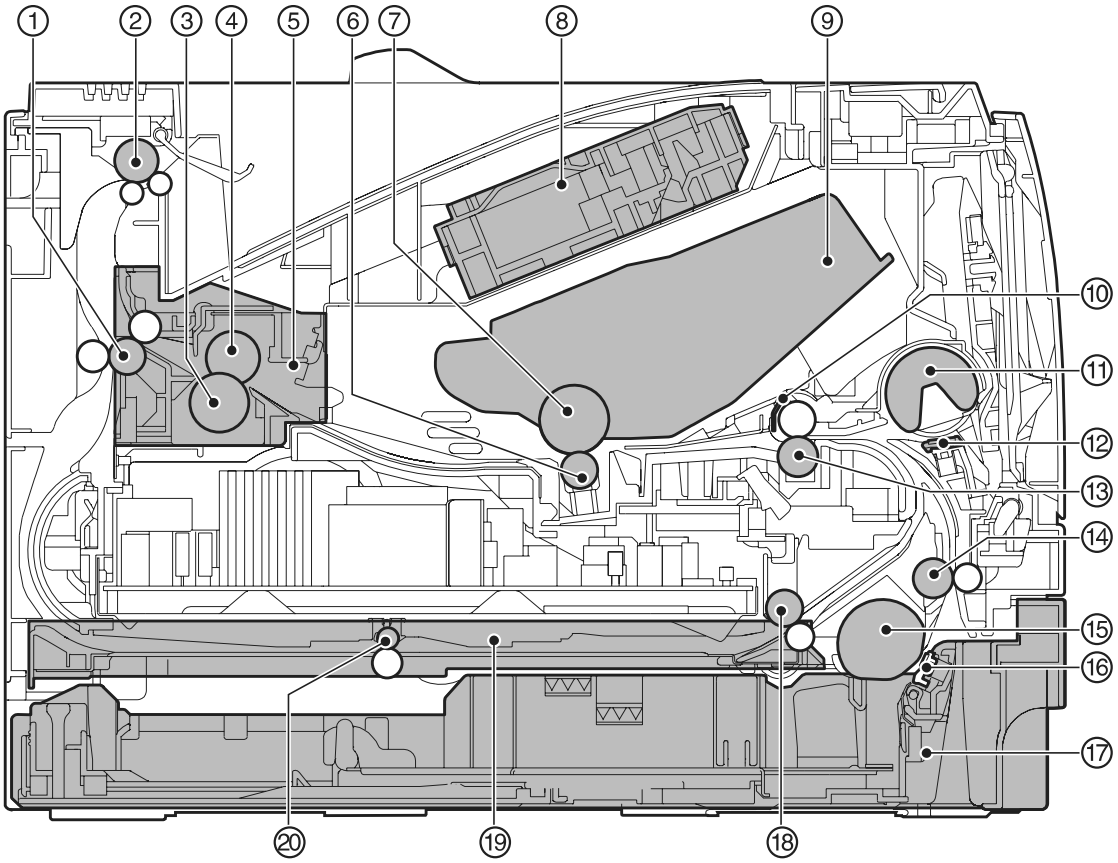
- Engine control system
- Laser/scanner system
- Image-formation system
- Pickup/feed/delivery system
- Option

Figure 5-1 Block diagram



Internal components

Figure 5-2 Cross-section of product



1	Fuser delivery roller
2	Face-down delivery roller
3	Pressure roller
4	Fuser film
5	Fuser
6	Transfer roller
7	Photosensitive drum
8	Laser scanner
9	Print cartridge
10	Registration shutter
11	Tray 1 pickup roller
12	Tray separation pad
13	Registration roller
14	Feed roller
15	Tray 2 pickup roller

16	Tray 2 separation pad
17	Tray 2
18	Duplex re-pickup roller (HP LaserJet P2050 Series Printers only)
19	Duplex feed unit (HP LaserJet P2050 Series Printers only)
20	Duplex feed roller (HP LaserJet P2050 Series Printers only)

Timing

Sequence of operation

The microprocessor on the DC controller controls the product operation sequences.

Table 5-1 Sequence of operation

Name	Timing	Purpose
WAIT	From power-on or the door is closed until the end of the main motor initial drive.	Detects presence of a print cartridge.
STBY (standby)	From the end of the WAIT or LSTR period until either a print command is sent from the formatter or the power is turned off.	Prepares the product to receive print commands
INTR (initial rotation)	From the time the print command is received from the formatter until the fuser reached its targeted temperature.	Starts each high-voltage biases, the laser scanner, and fuser in preparation for printing.
PRINT	From the end of the INTR period until the last media completes the fusing operation.	Forms the image on the photosensitive drum and transfers the toner image to the media.
LSTR (last rotation)	From the end of the PRINT period (when high-voltage is turned off) until the main motor stops rotating.	Delivers the last page of a print job. After LSTR, the product either returns to STBY or, if another print command was sent from the formatter, enters INTR.

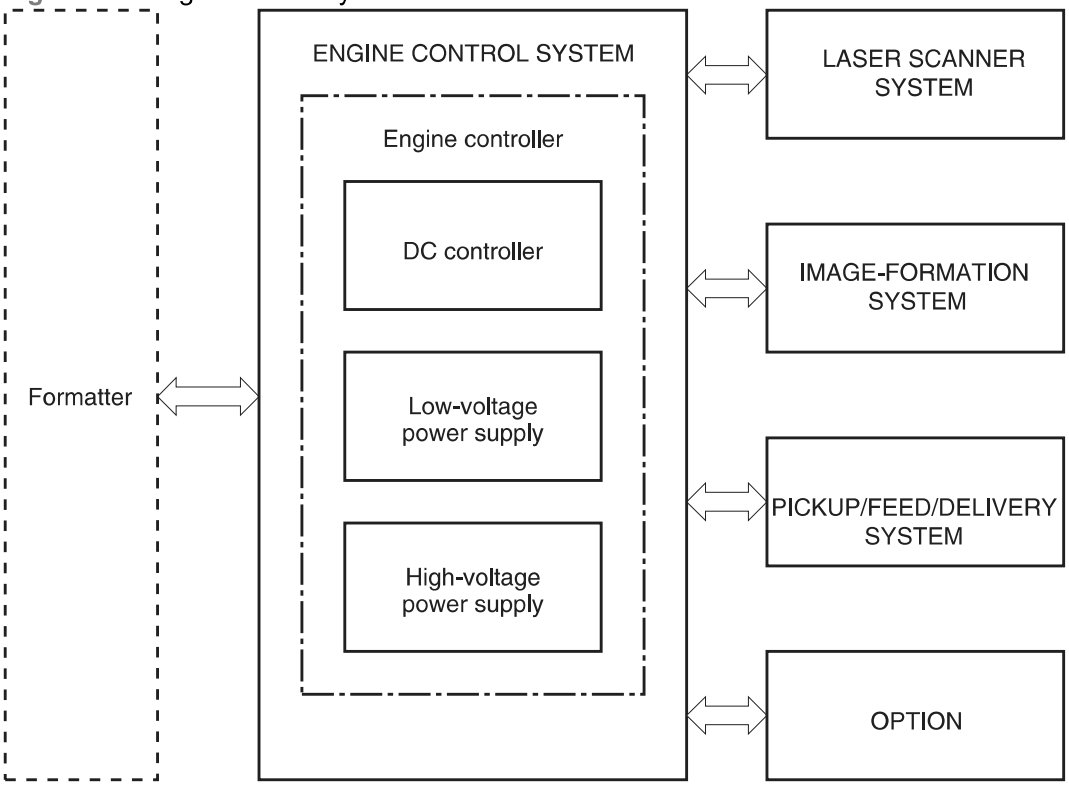
Engine control system

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

The engine control system contains the following components:

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

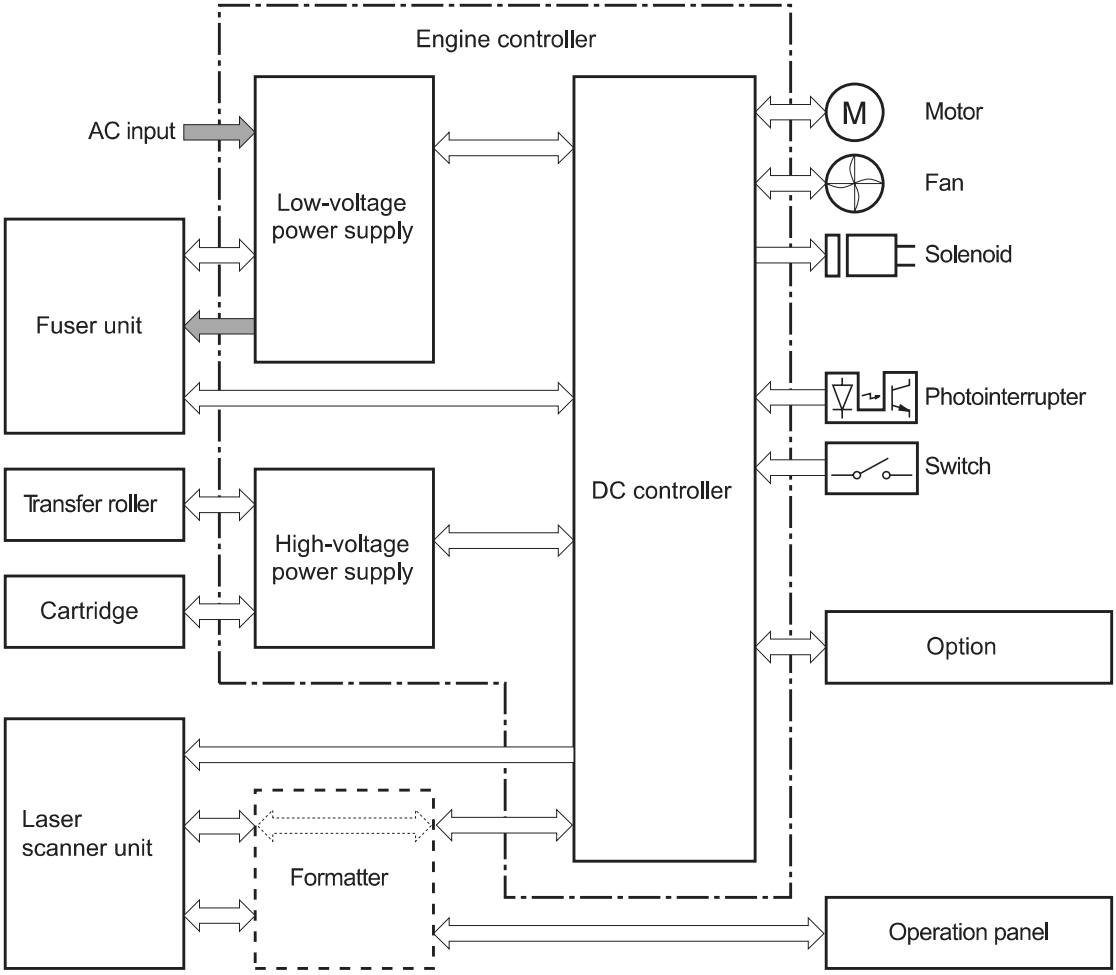
Figure 5-3 Engine control system



DC controller

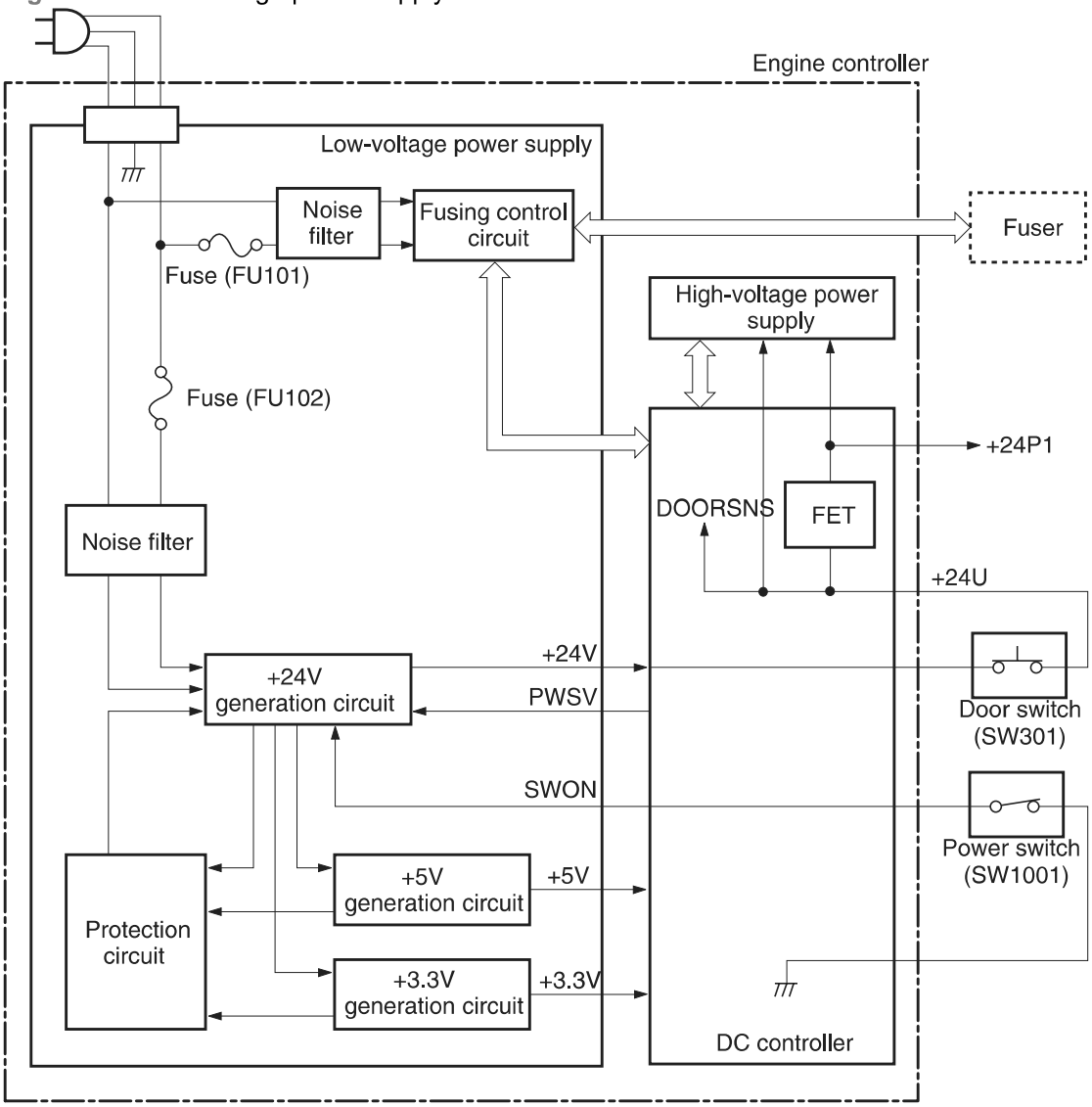
The DC controller controls the operational sequence of the product.

Figure 5-4 DC controller



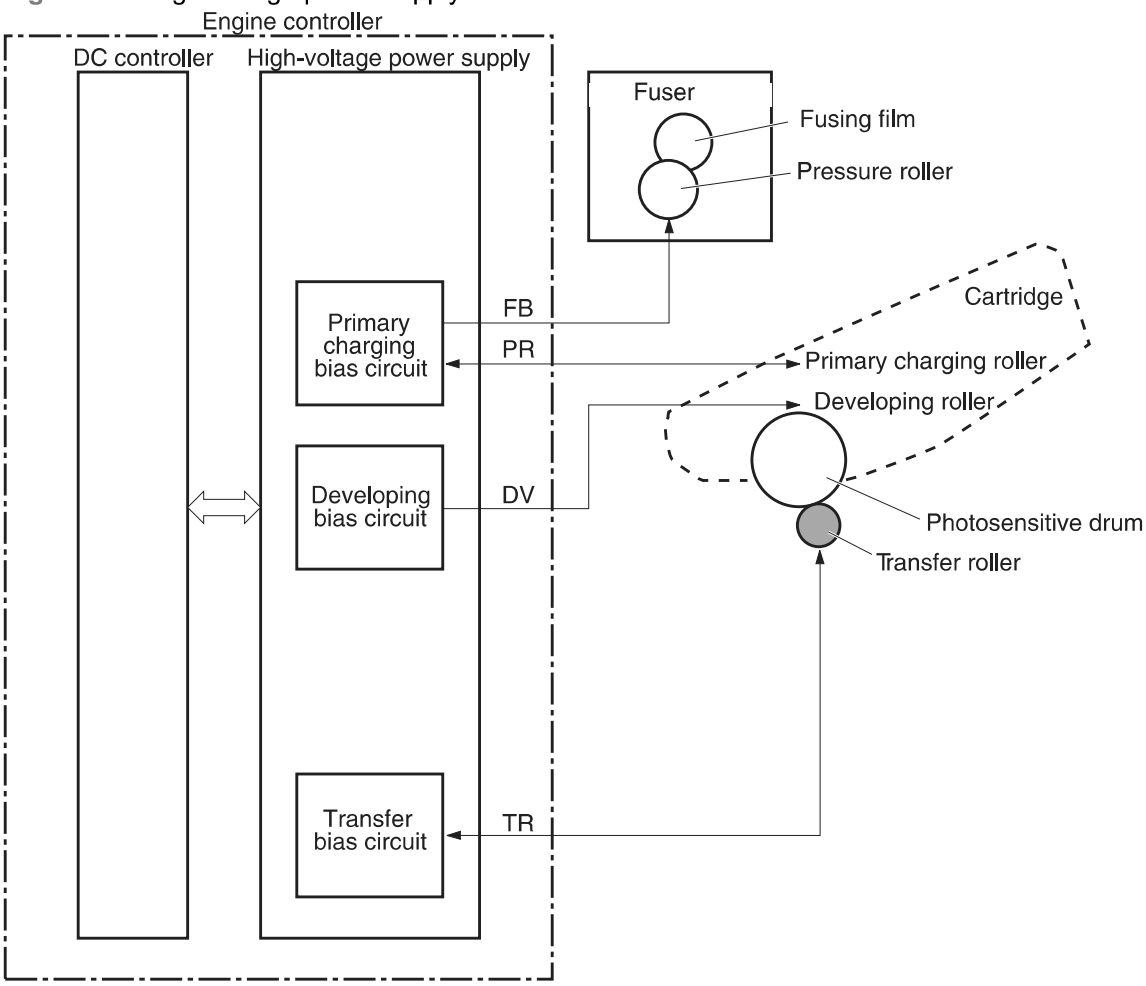
Low-voltage power supply

Figure 5-5 Low-voltage power supply



High-voltage power supply

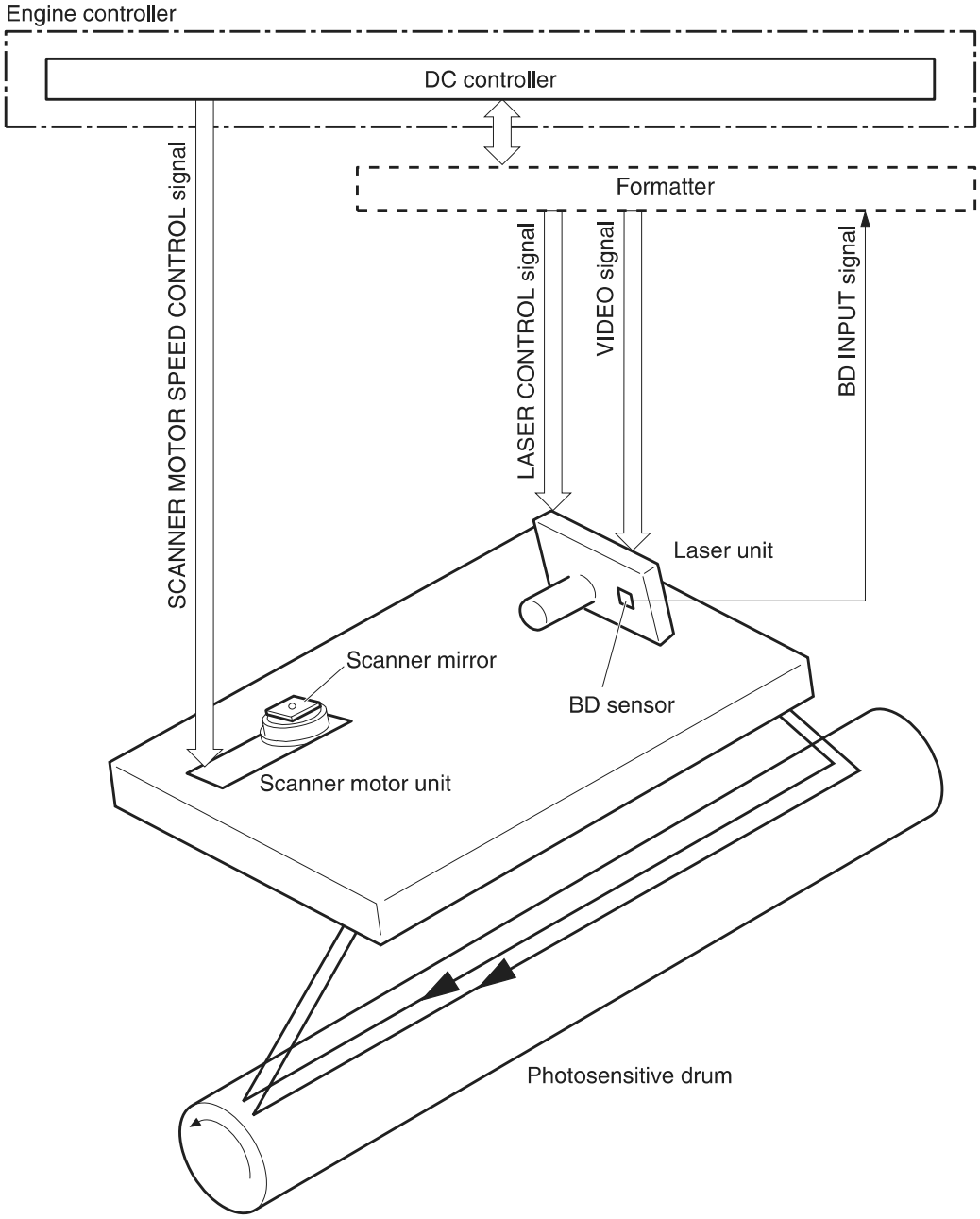
Figure 5-6 High-voltage power supply



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

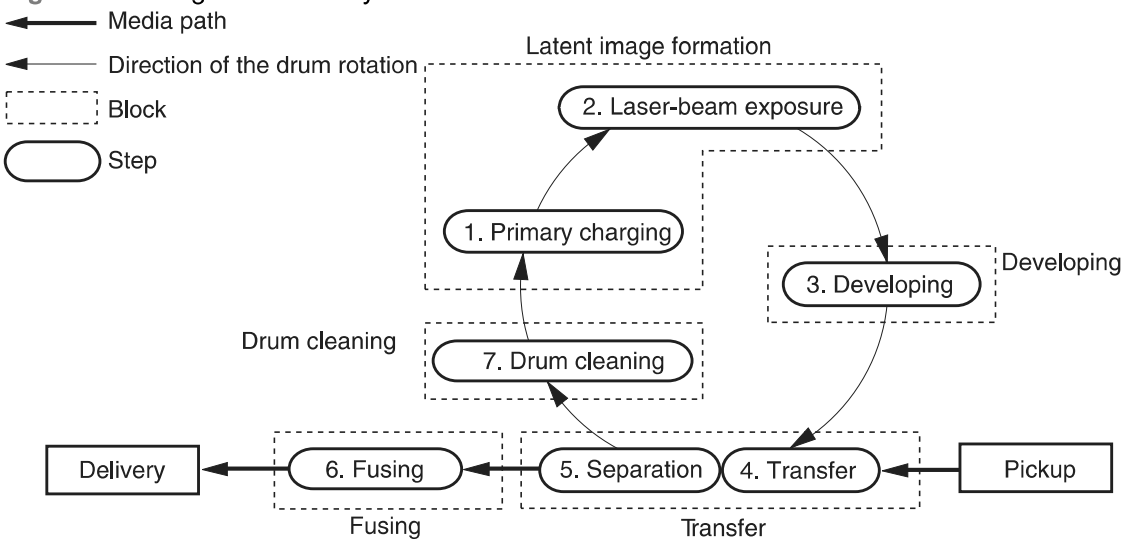
Image-formation system

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

- electrostatic latent-image formation
- developing
- transfer
- fusing
- drum cleaning

The five processes contain seven steps.

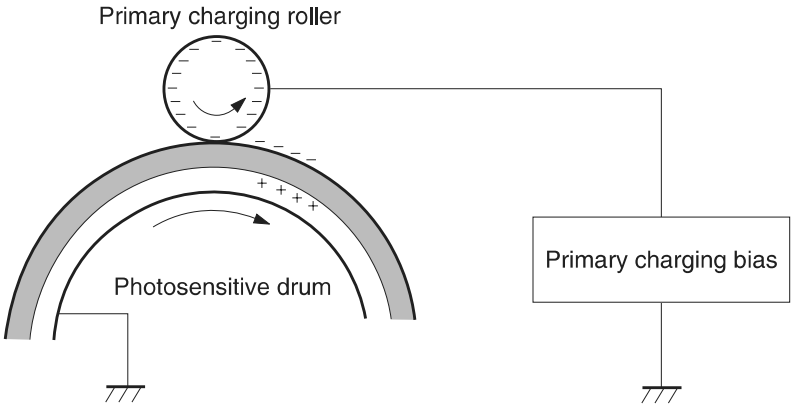
Figure 5-8 Image-formation system



Step 1: Primary charging

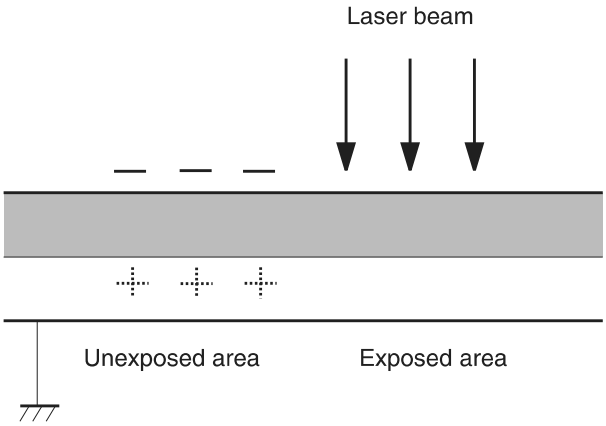
DC and AC biases are applied to the primary charging roller, which transfers a uniform negative potential to the photosensitive drum.

Figure 5-9 Primary charging



Step 2: Laser beam exposure

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

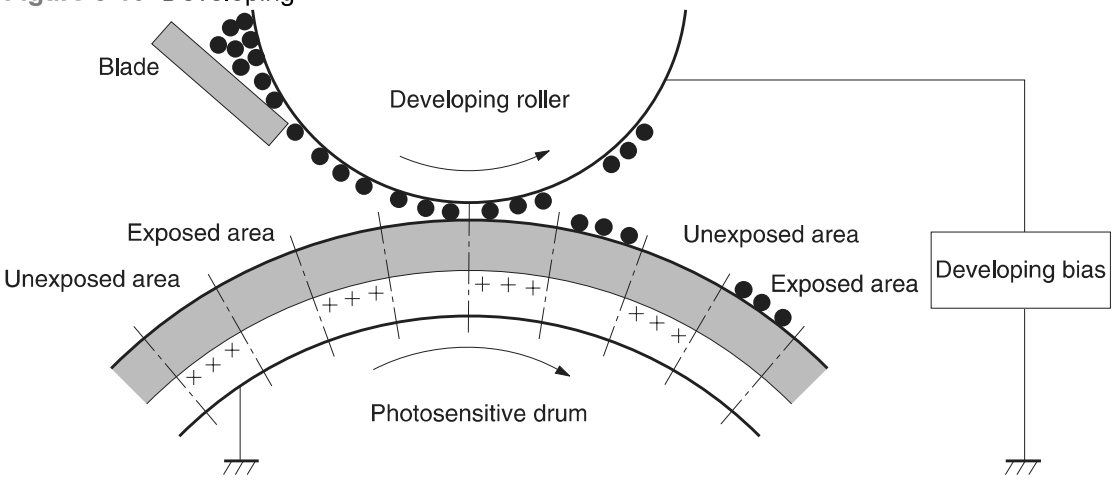


Step 3: Developing

The developing cylinder comes in contact with the photosensitive drum to deposit toner onto the electrostatic latent image.

NOTE: The charges on the exposed area of the drum are shown as positive in Figure 5-10 Developing on page 91. The charges are actually negative, but they are more positive than the charges on the developing cylinder.

Figure 5-10 Developing

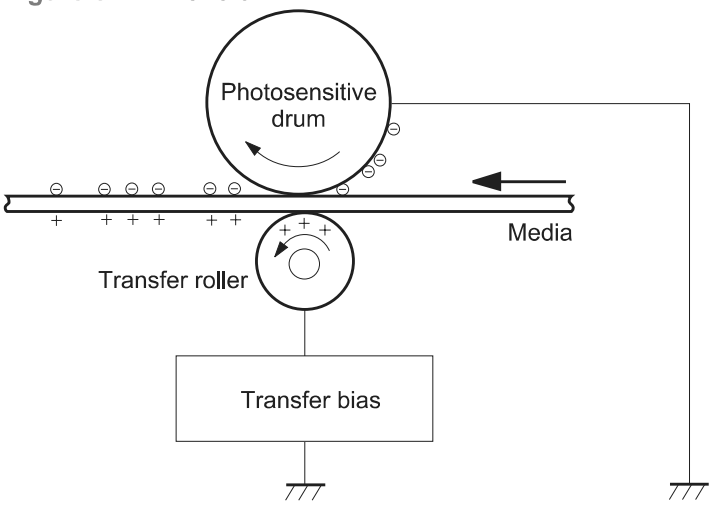


Toner acquires a negative charge through friction from the developing cylinder and the blade. When the negatively charged toner comes in contact with the drum, the toner adheres to the electrostatic latent image. The image on the drum becomes visible because of the toner.

Step 4: Transfer

The transfer charging roller, to which a dc positive bias is applied, imparts a positive charge on the print media. When the print media comes in contact with the photosensitive drum, the toner is transferred to the print media.

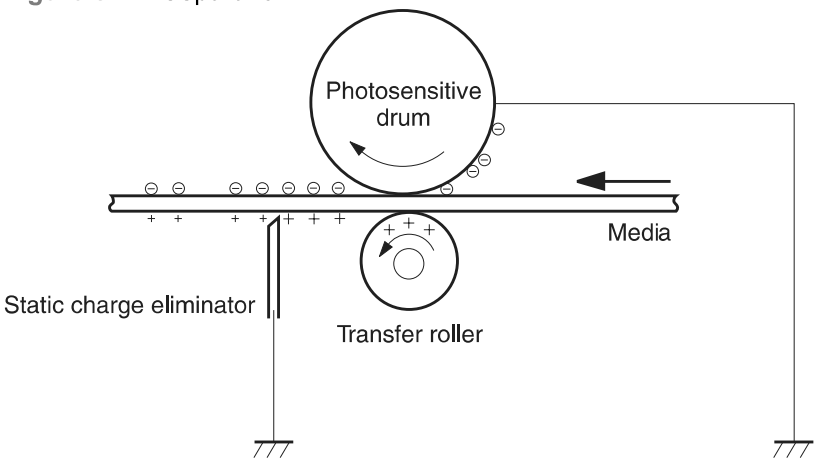
Figure 5-11 Transfer



Step 5: Separation

The elasticity of the print media causes its separation from the photosensitive drum. A static charge eliminator aids separation by weakening any electrostatic adhesion.

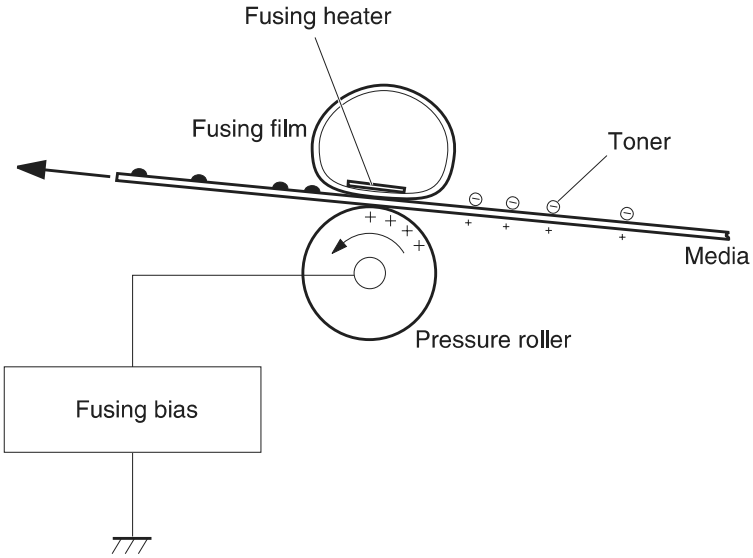
Figure 5-12 Separation



Step 6: Fusing

The dc negative bias applied to the fusing film strengthens the holding force of the toner on the print media and prevents the toner from scattering.

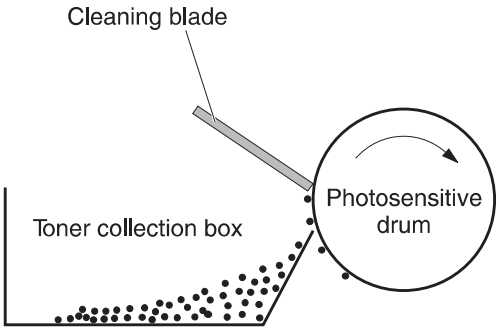
Figure 5-13 Fusing



Step 7: Drum cleaning

The cleaning blade scrapes the residual toner off the photosensitive drum and deposits it into the waste toner case.

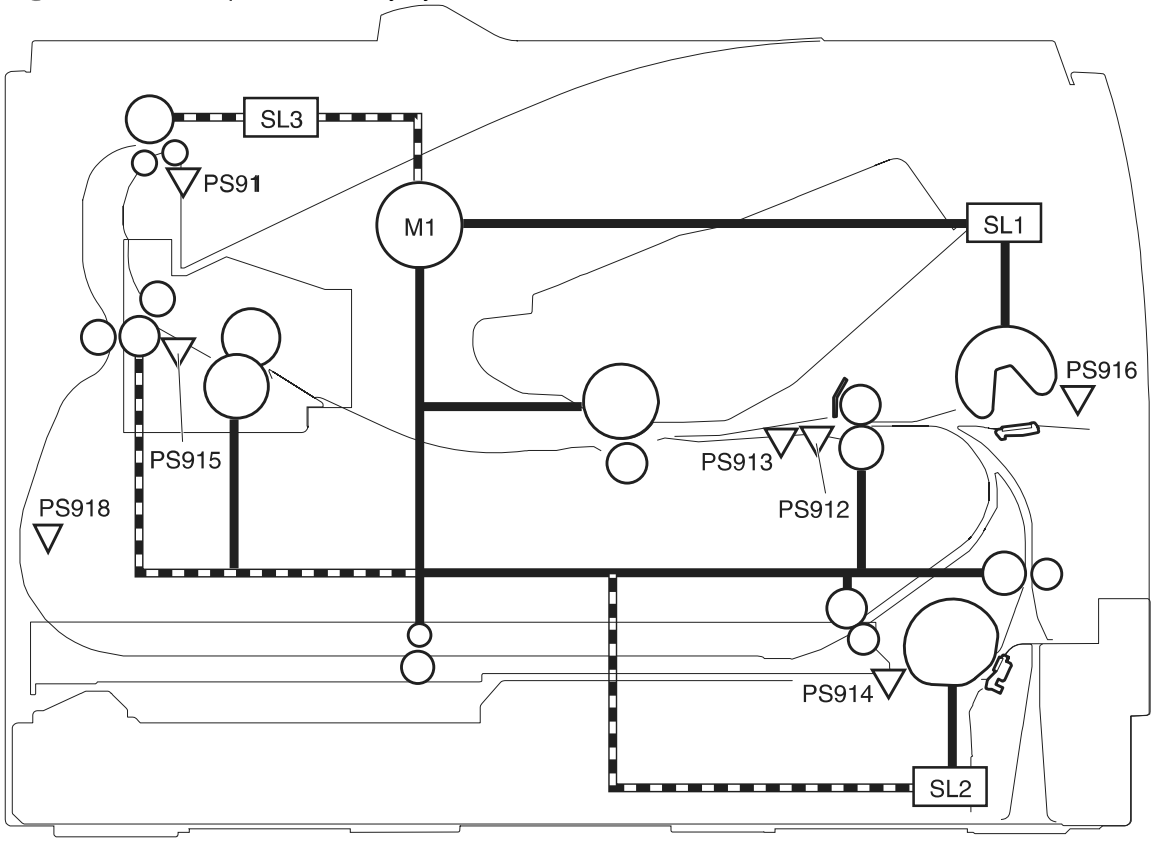
Figure 5-14 Drum cleaning



Pickup/feed/delivery system

The pickup/feed/delivery system consists of several types of feed rollers and sensors. The DC controller uses two motors and two solenoids to drive the rollers. Three media-detection sensors detect media as it passes through the product. If media does not reach or pass each sensor within a specified period, the DC controller determines that a jam has occurred and alerts the formatter.

Figure 5-15 Pickup/feed/delivery system



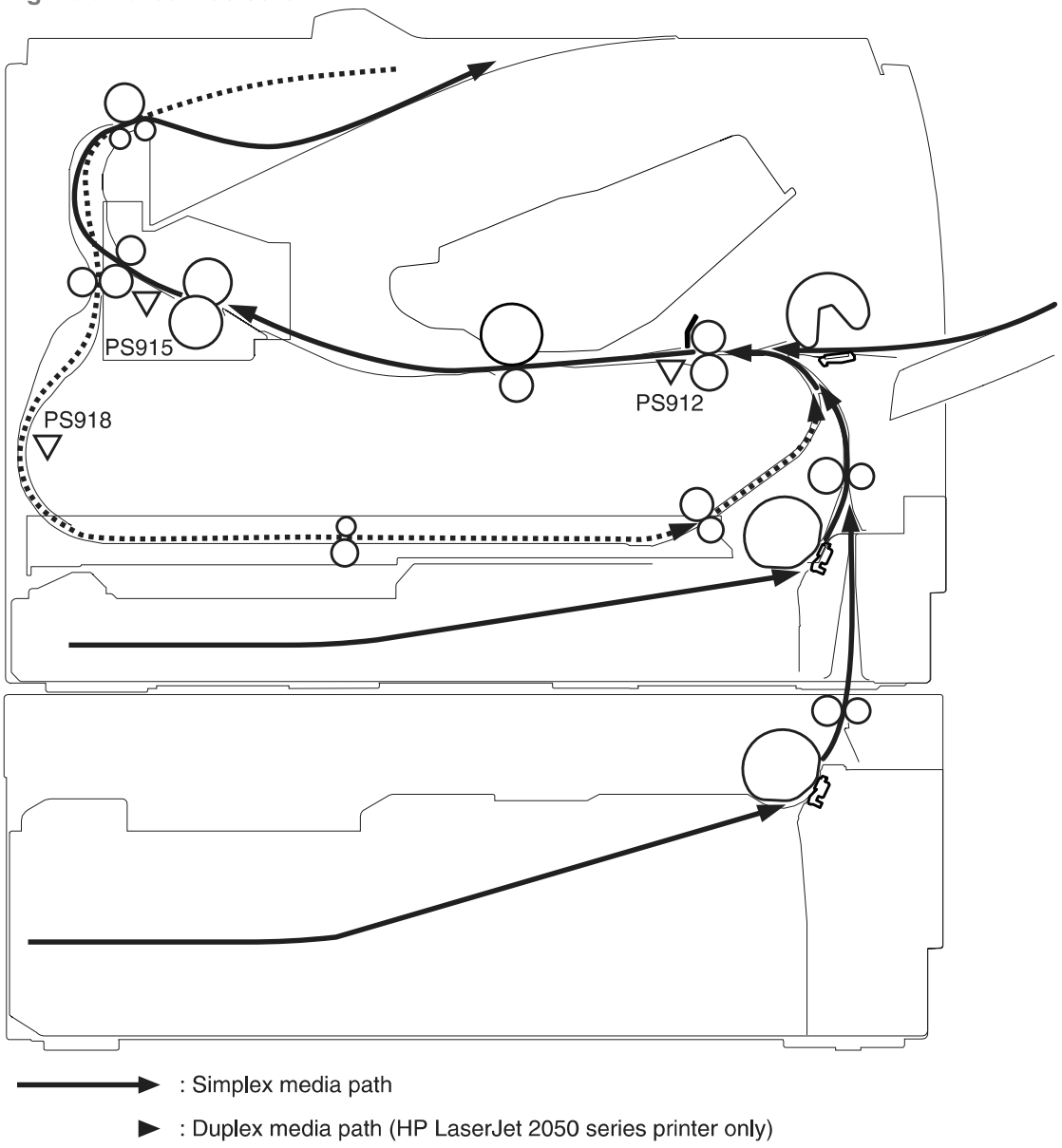
M1	Main motor
SL1	Tray 1 pickup solenoid
SL2	Tray 2 pickup solenoid
SL3	Duplex solenoid (HP LaserJet P2050 Series Printers only)
PS911	Tray 3 media sensor (HP LaserJet P2050 Series Printers only)
PS912	Top-of-page sensor
PS913	Width-detection sensor
PS914	Tray 2 media sensor
PS915	Fuser delivery sensor
PS916	Tray 1 media presence sensor
PS918	Duplex sensor (HP LaserJet P2050 Series Printers only)

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:

- Top sensor (SR912)
- Fuser delivery sensor (SR915)
- Duplex reverse sensor (SR918)

Figure 5-16 Jam detection



6 Removal and replacement

- Introduction
- Removal and replacement strategy
- Electrostatic discharge
- Required tools
- Before performing service
- After performing service
- Post-service test
- Print cartridge
- Tray 2 cassette
- Rollers and pads
- External panels, covers, and doors
- Internal assemblies

Introduction

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

NOTE: Your product might not appear exactly as the one shown in the photos in this chapter. For example, the color of the external panels and covers might be different than your product. However, the procedures in this chapter are valid for both the HP LaserJet P2035 and the HP LaserJet P2055.

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

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

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

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

Removal and replacement strategy

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

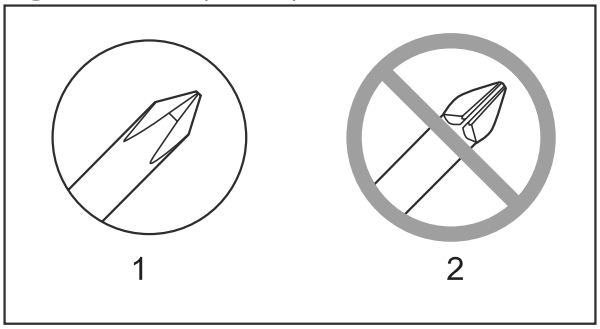
Required tools

- #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) or ESD strap
- 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: Avoid pulling directly on wires to disconnect wire-harness connectors. Pull on the plastic body of a connector to avoid damaging the connector wires.

Figure 6-1 Phillips and pozidrive screwdriver comparison



Before performing service

- Remove all media from the product.
- Turn off the power using the power switch.
- Unplug the power cable and interface cable or cables.
- Place the product on an ESD mat (if one is available) or use an ESD strap. If an ESD workstation, mat, or strap is not available, ground yourself by touching the sheet-metal chassis *before* touching an ESD-sensitive part.
- Remove the print cartridge. See Print cartridge on page 102.
- Remove the Tray 2 cassette.

After performing service

- Plug in the power cable.
- Reinstall the print cartridge.
- Reinstall the Tray 2 cassette.

Post-service test

When service is complete, use these tests to make sure that the repair or replacement was successful.

Print-quality test

1. Verify that you have completed the necessary reassembly steps.
2. Make sure that the input tray contains clean, unmarked paper.
3. Attach the power cord and interface cable, and then turn on the product.
4. Verify that the expected startup sounds occur.
5. Print a configuration page, and then verify that the expected printing sounds occur.
6. 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. For HP LaserJet P2050 Series Printers, print a duplex page.
8. If necessary, restore any customer-specified settings.
9. Clean the outside of the product with a damp cloth.

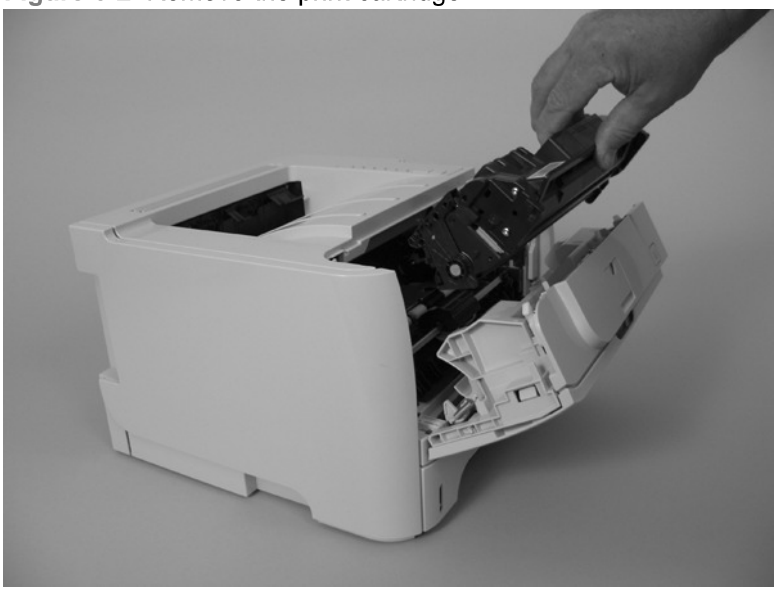
Print cartridge

△ **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*.

1. Open the print-cartridge door.
2. Grasp the handle on the print cartridge, and then pull the cartridge up and out of the product.

△ **CAUTION:** When the print cartridge is removed, do not expose it to direct or strong light. Protect the print cartridge by placing a sheet of paper over it.

Figure 6-2 Remove the print cartridge

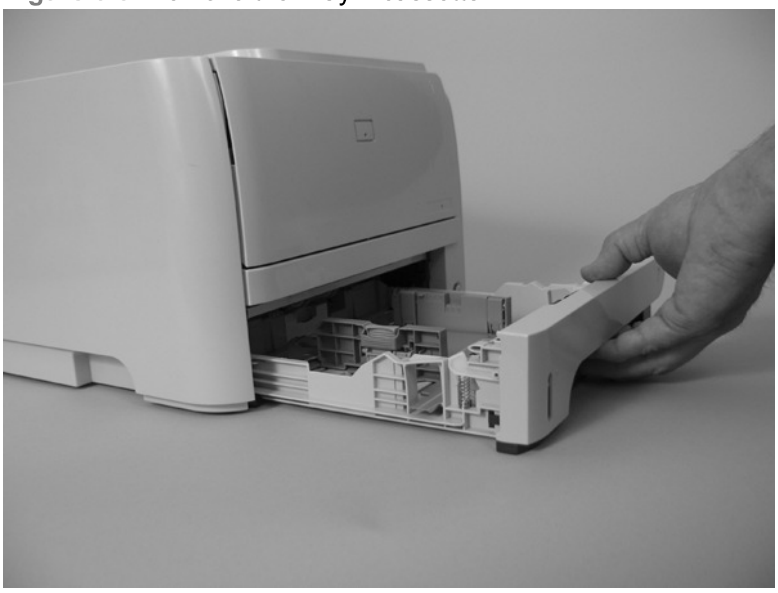


3. Close the print-cartridge door.

Tray 2 cassette

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

Figure 6-3 Remove the Tray 2 cassette



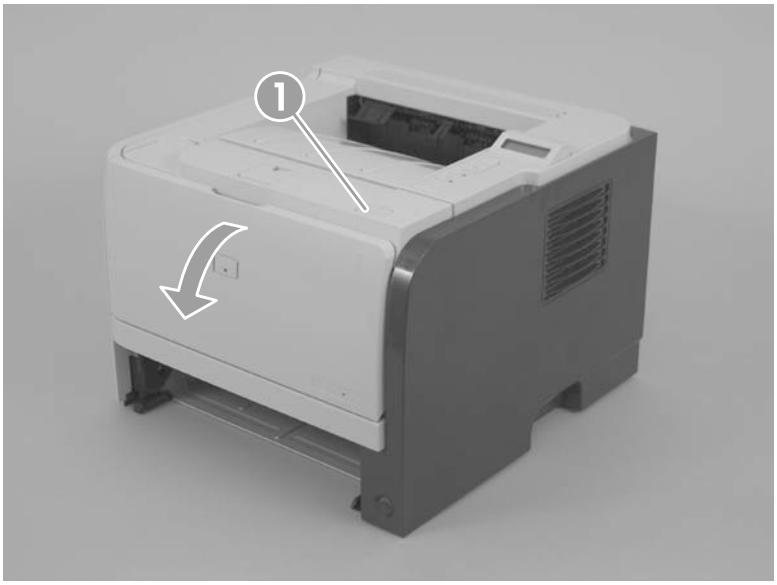
Rollers and pads

Pickup roller; Tray 1

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

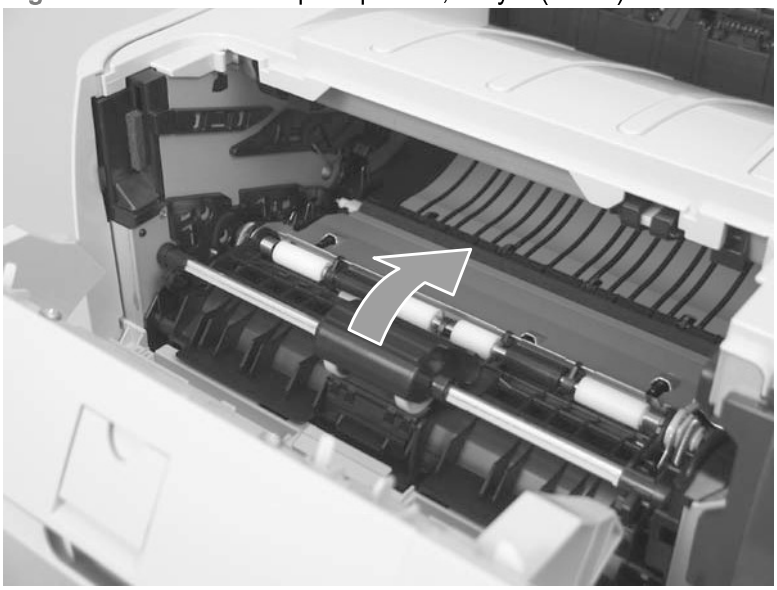
1. Press the print-cartridge door button (callout 1), and then open the print-cartridge door.

Figure 6-4 Remove the pickup roller; Tray 1 (1 of 5)



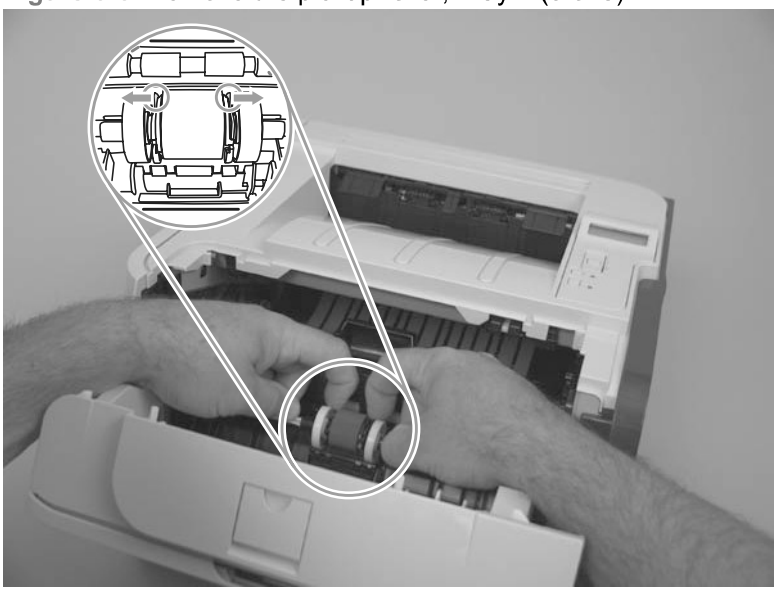
2. Rotate the roller cover up and away from the roller assembly.

Figure 6-5 Remove the pickup roller; Tray 1 (2 of 5)



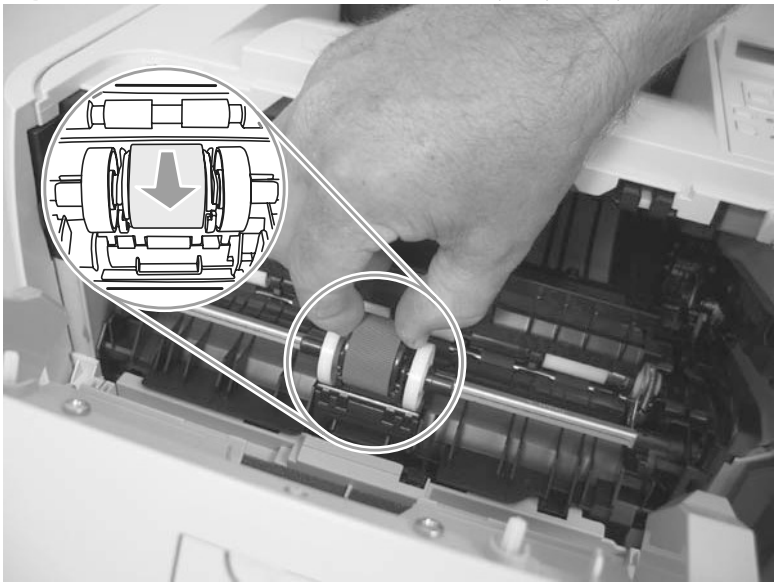
3. Release two tabs.

Figure 6-6 Remove the pickup roller; Tray 1 (3 of 5)



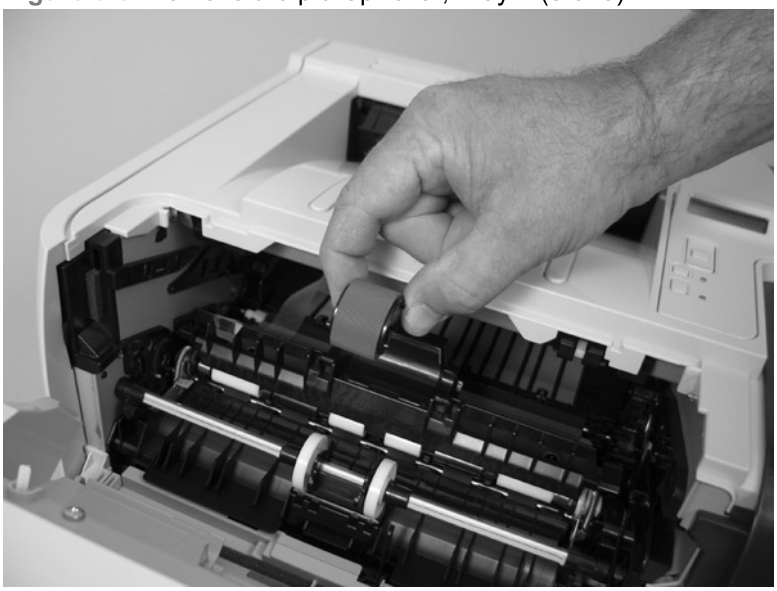
4. Rotate the pickup roller away from the product.

Figure 6-7 Remove the pickup roller; Tray 1 (4 of 5)



5. Remove the pickup roller.

Figure 6-8 Remove the pickup roller; Tray 1 (5 of 5)



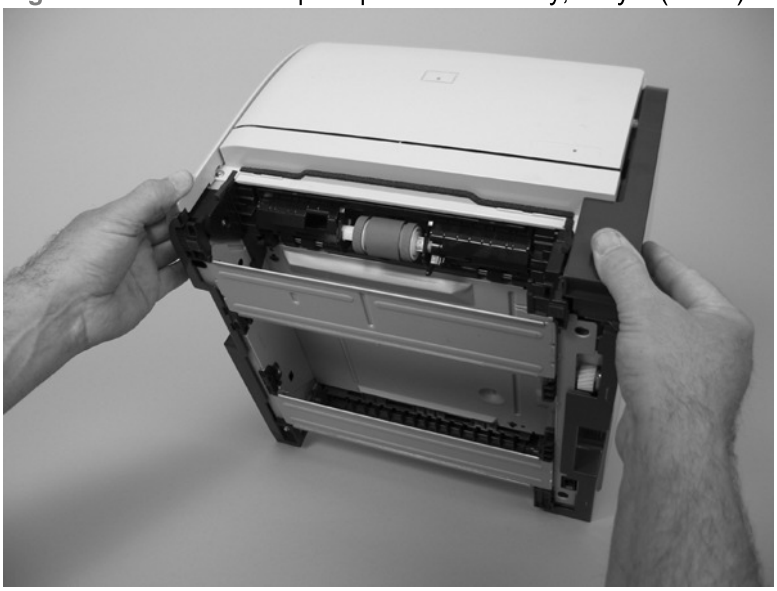
Pickup roller assembly; Tray 2

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

1. If the Tray 2 cassette has not yet been removed to service the product, remove the cassette. See Tray 2 cassette on page 103.
2. Carefully place the product front-side up.

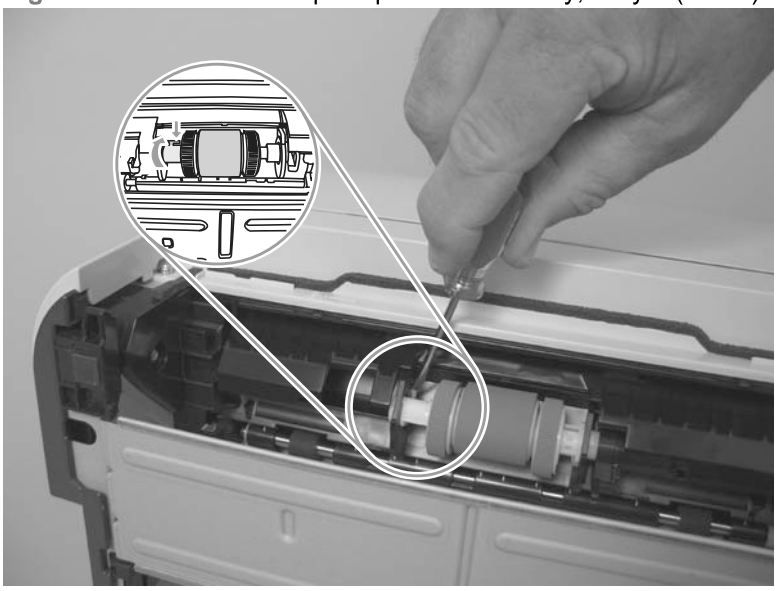
NOTE: Debris can scratch or damage the back of the product. Before you place the product front-side up, remove any debris from the work surface. If possible, set the product on a clean, dry cloth to prevent scratching and damage.

Figure 6-9 Remove the pickup roller assembly; Tray 2 (1 of 5)



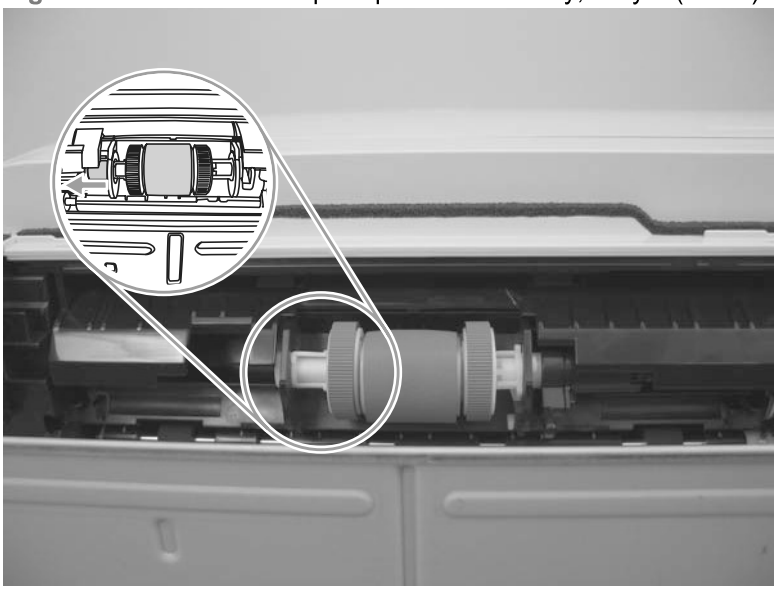
3. Use a small flat blade screwdriver to release one tab (callout 1), and then rotate the locking collar toward the inside of the product.

Figure 6-10 Remove the pickup roller assembly; Tray 2 (2 of 5)



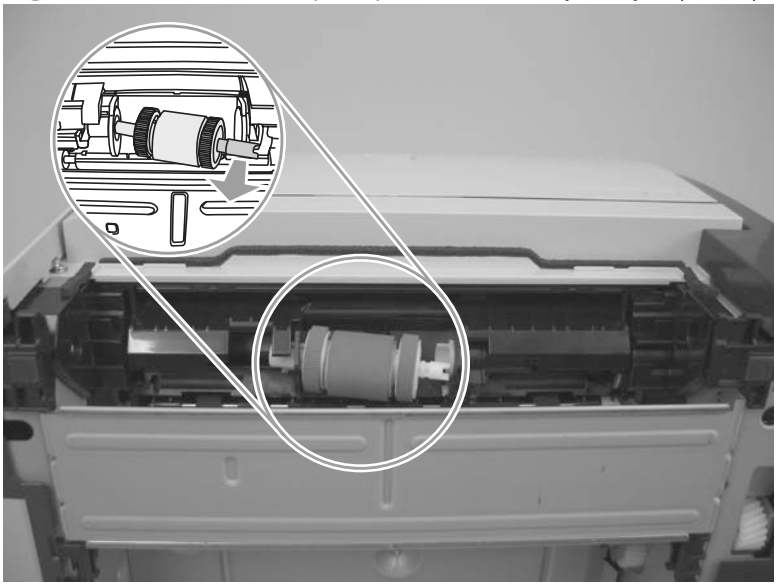
4. Slide the collar away from the rollers.

Figure 6-11 Remove the pickup roller assembly; Tray 2 (3 of 5)



5. Rotate the drive end of the roller assembly out and away from the product.

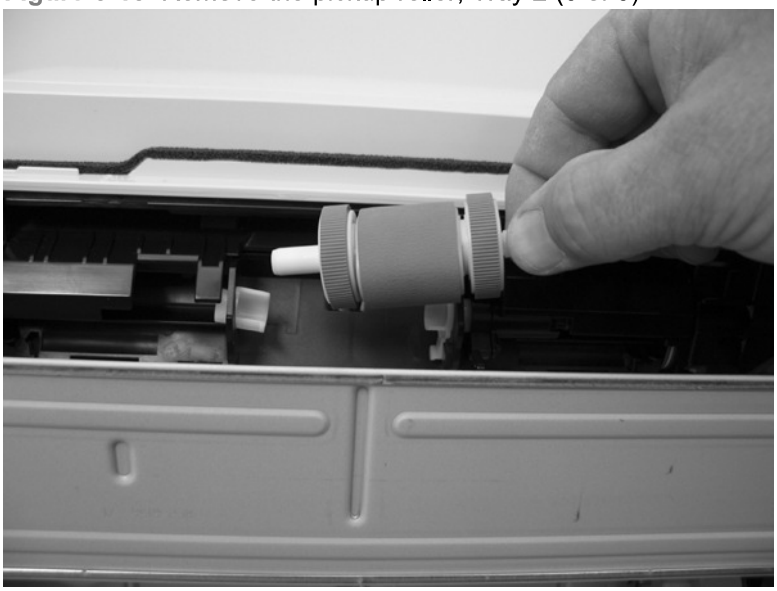
Figure 6-12 Remove the pickup roller assembly; Tray 2 (4 of 5)



6. Remove the pickup roller.

△ **CAUTION:** The two rollers on the end of the assembly are not captive and can slip off of the roller shaft. Do not lose the rollers when you remove the assembly.

Figure 6-13 Remove the pickup roller; Tray 2 (5 of 5)

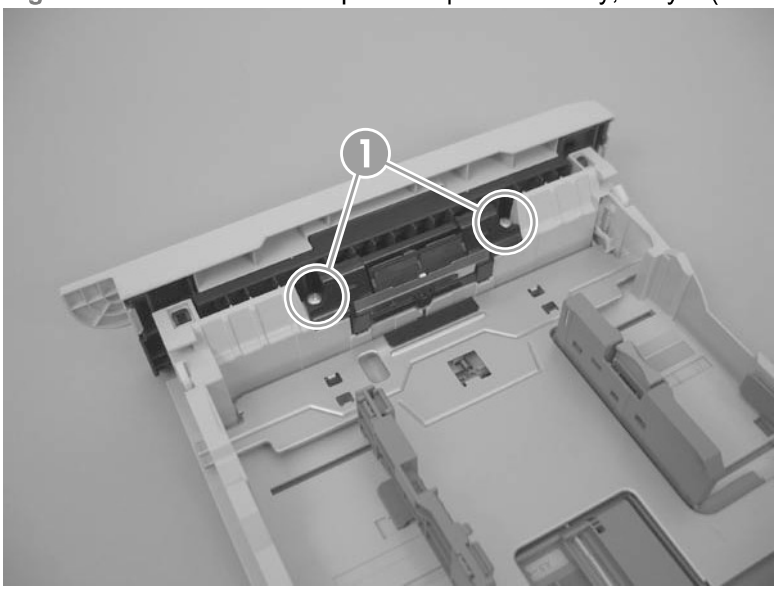


Separation-pad assembly; Tray 2

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

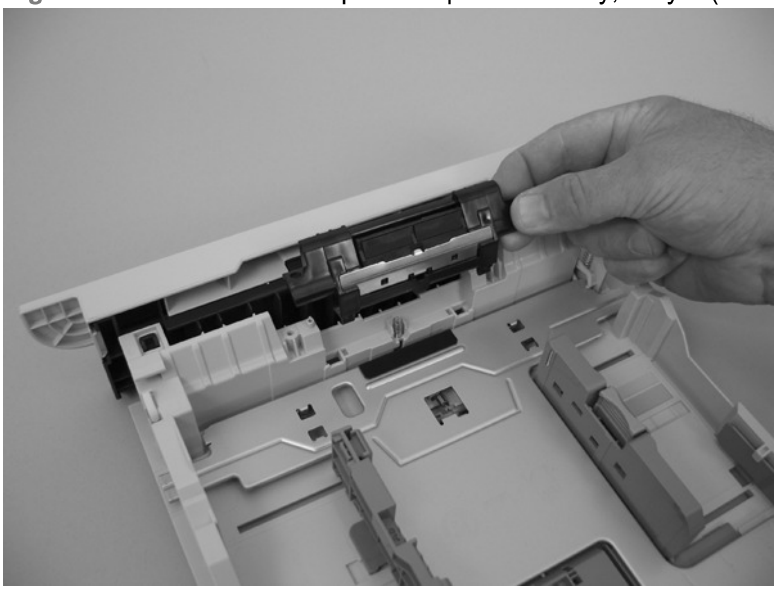
1. If the Tray 2 cassette has not yet been removed to service the product, remove the cassette. See Tray 2 cassette on page 103.
2. Remove two screws (callout 1)

Figure 6-14 Remove the separation-pad assembly; Tray 2 (1 of 2)



3. Remove the separation-pad assembly.

Figure 6-15 Remove the separation-pad assembly; Tray 2 (2 of 2)



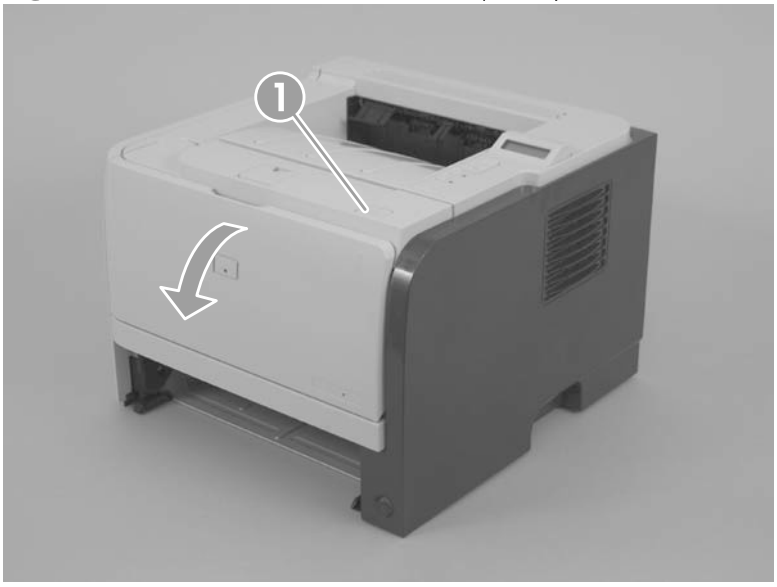
Transfer roller

△ **CAUTION:** Do not touch the sponge surface of the roller unless you are replacing the roller. Skin oils on the roller can cause print-quality problems.

Always wear latex gloves when handling a transfer roller for reinstallation or replacement.

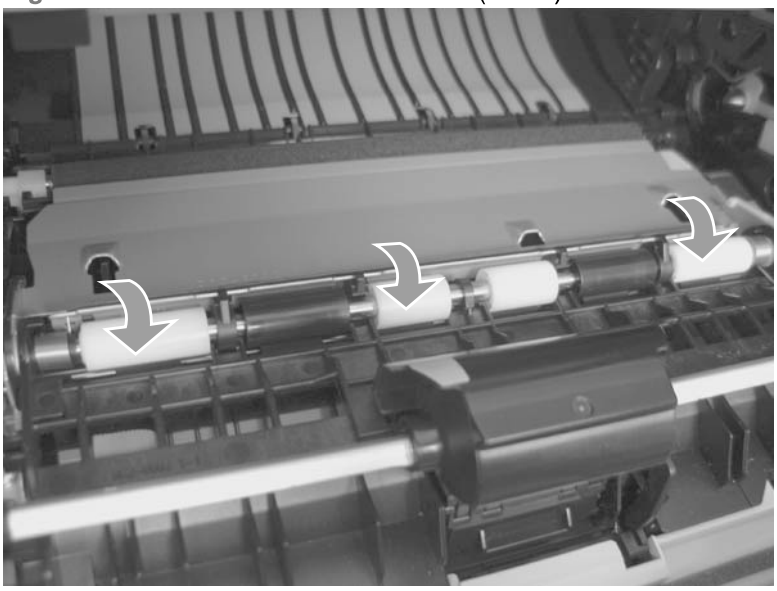
1. Press the print-cartridge door button (callout 1), and then open the print-cartridge door.

Figure 6-16 Remove the transfer roller (1 of 5)



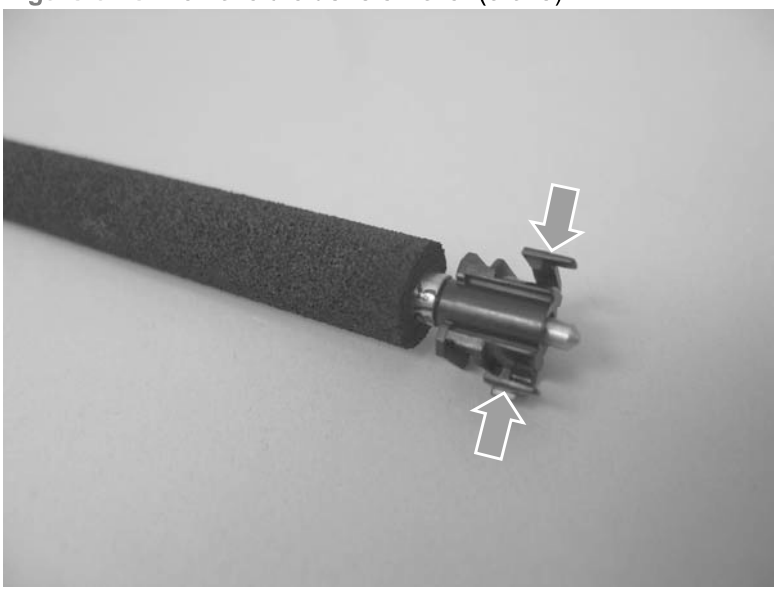
2. Use your finger to raise the sheet-metal flap, and then rotate it toward the Tray 1 pickup roller cover.

Figure 6-17 Remove the transfer roller (2 of 5)



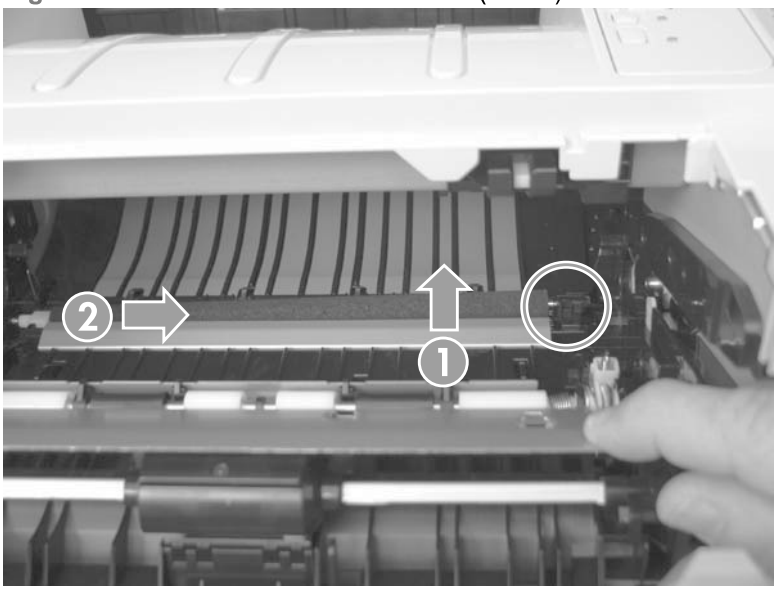
3. Before you proceed, note the location of the two tabs on the transfer-roller right-side locking clip.

Figure 6-18 Remove the transfer roller (3 of 5)



4. Release two tabs on the right-side locking clip, lift the roller up, and then slide it toward the right side of the product to release the left end of the shaft.

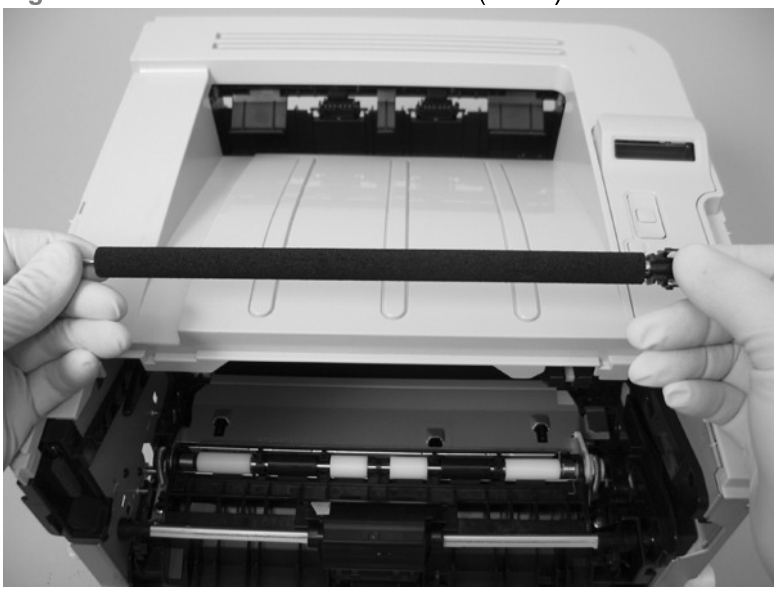
Figure 6-19 Remove the transfer roller (4 of 5)



5. Remove the transfer roller.

△ **CAUTION:** The black locking clip on the right side of the transfer-roller shaft is not captive. Do not lose the locking clip when you remove the transfer roller.

Figure 6-20 Remove the transfer roller (5 of 5)



External panels, covers, and doors

NOTE: Your product might not appear exactly as the one shown in the photos in this chapter. For example, the color of the external panels and covers might be different than your product. However, the procedures in this chapter are valid for both the HP LaserJet P2035 and the HP LaserJet P2055.

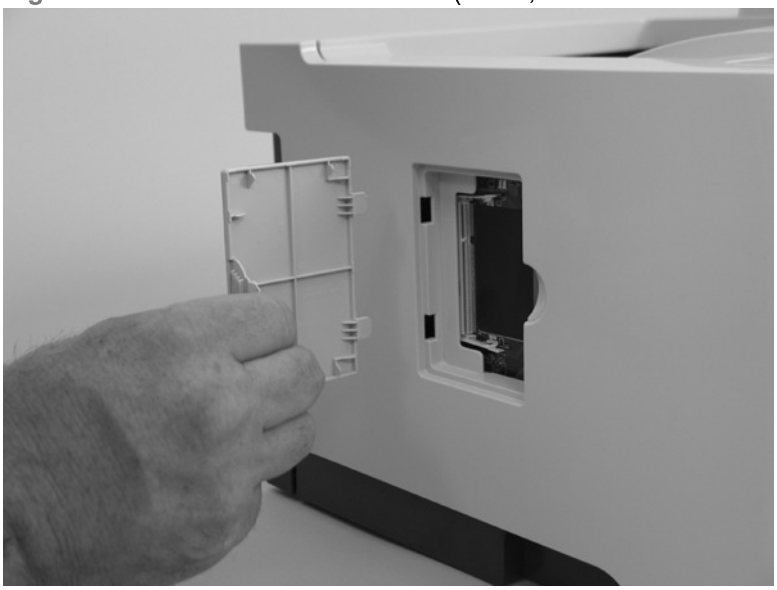
DIMM door (HP LaserJet P2050 Series only)

1. Open the DIMM door.

Figure 6-21 Remove the DIMM door (1 of 2; HP LaserJet P2050 Series only)

2. Pull the DIMM door away from the product to remove it.

Figure 6-22 Remove the DIMM door (2 of 2; HP LaserJet P2050 Series only)

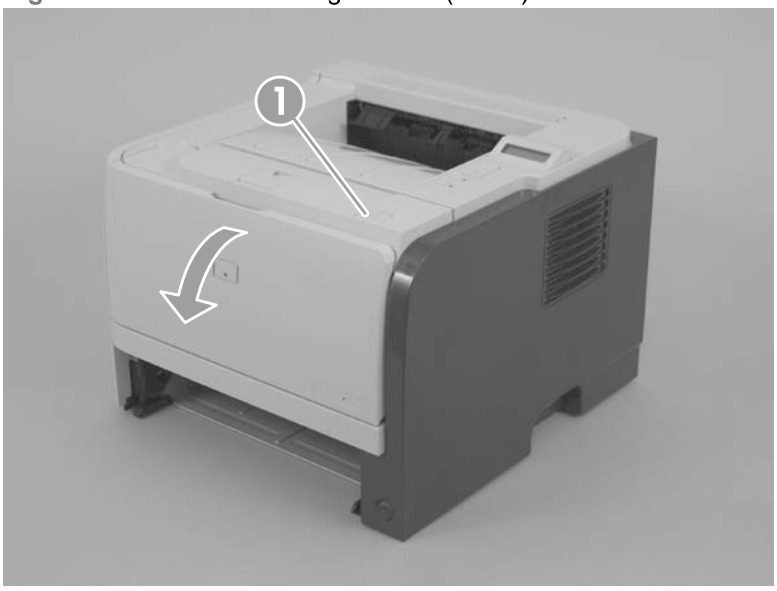


Right cover

△ **CAUTION:** The power switch can be dislodged when the right cover is removed. Be careful when you remove the cover. If the switch is dislodged, see Reinstall the right cover on page 117.

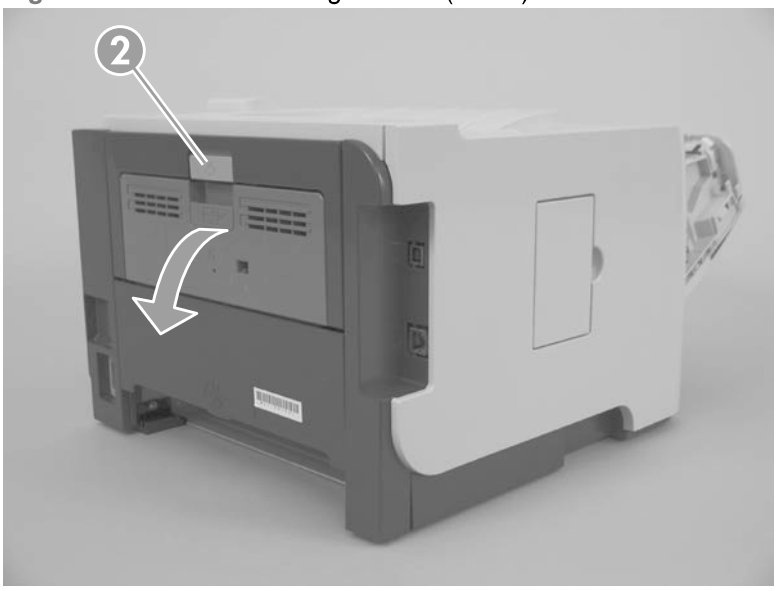
1. Press the print-cartridge door button (callout 1), and then open the print-cartridge door.

Figure 6-23 Remove the right cover (1 of 5)



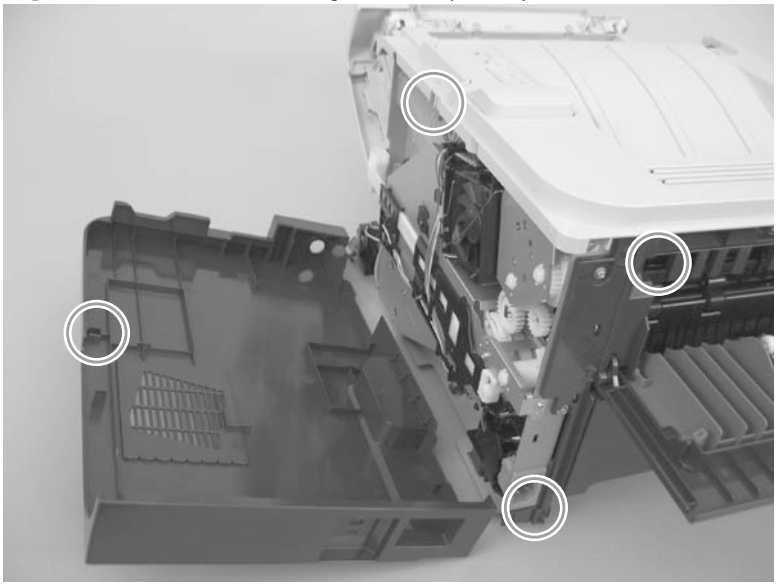
2. Lift the rear door latch (callout 2), and then open the rear door.

Figure 6-24 Remove the right cover (2 of 5)



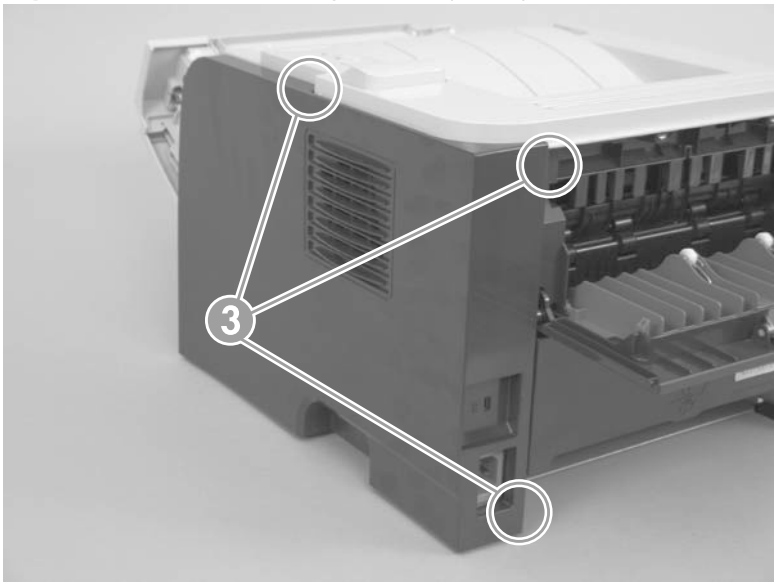
3. Before you proceed, note of the locations of the mounting tabs on the right cover.

Figure 6-25 Remove the right cover (3 of 5)



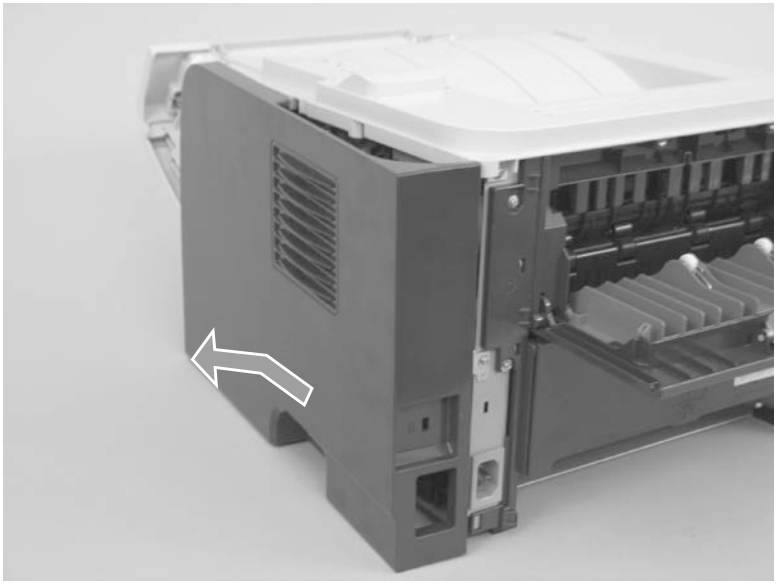
4. Release three tabs (callout 3).

Figure 6-26 Remove the right cover (4 of 5)



5. Carefully slide the cover toward the front of the product, and then remove it.

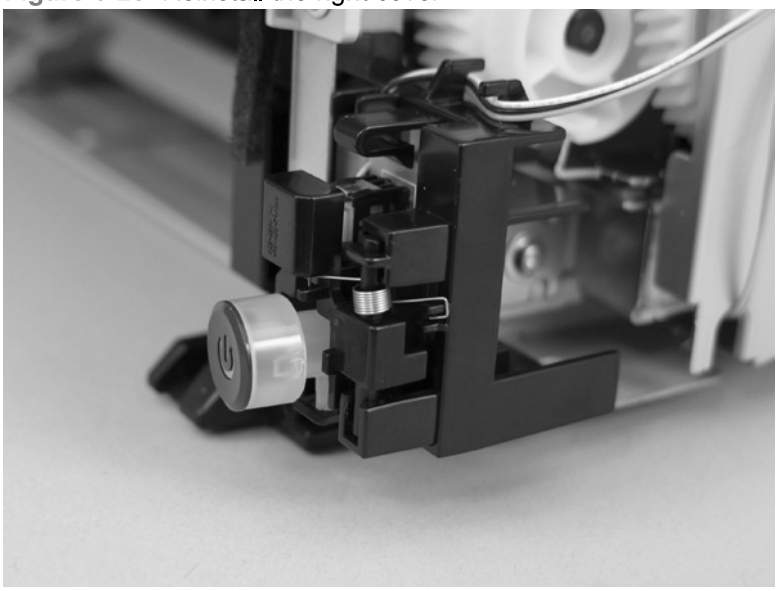
Figure 6-27 Remove the right cover (5 of 5)



Reinstall the right cover

If the power switch is dislodged when the cover is removed, replace it before installing the right cover.

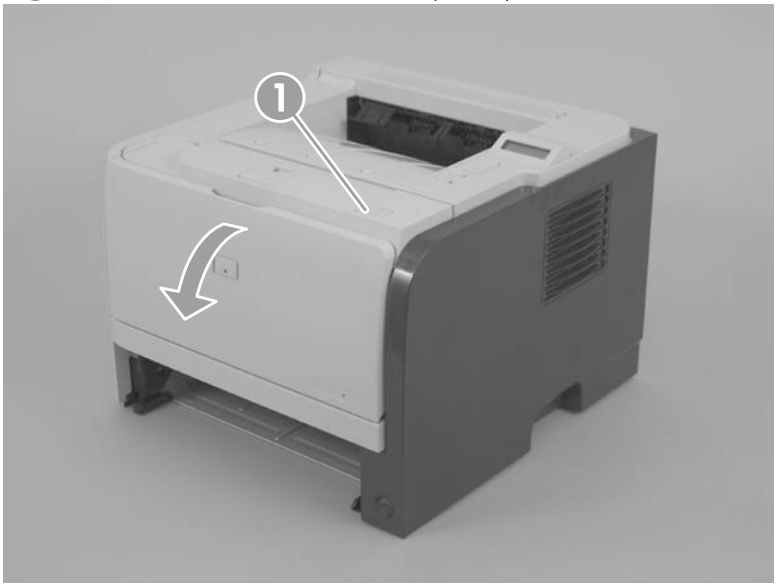
Figure 6-28 Reinstall the right cover



Left cover

1. Press the print-cartridge door button (callout 1), and then open the print-cartridge door.

Figure 6-29 Remove the left cover (1 of 4)

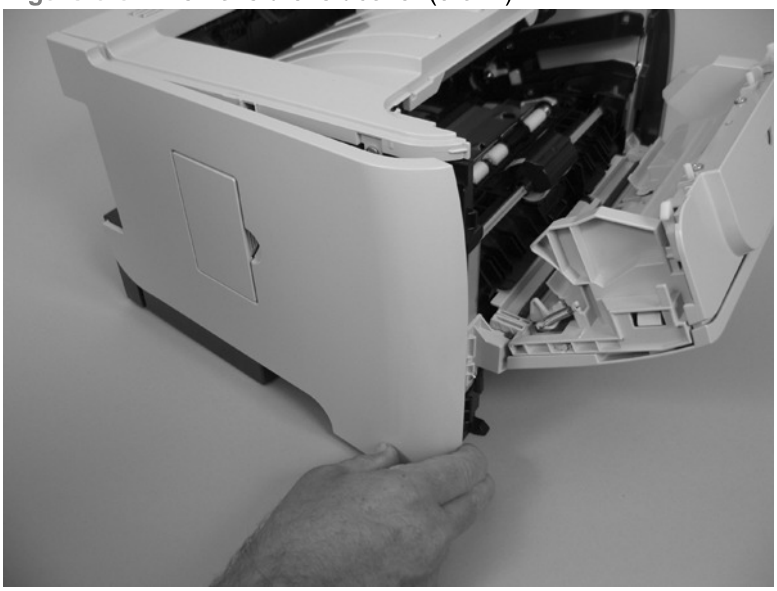


2. Grasp the top front of the cover, and then gently separate the cover from the product.

Figure 6-30 Remove the left cover (2 of 4)

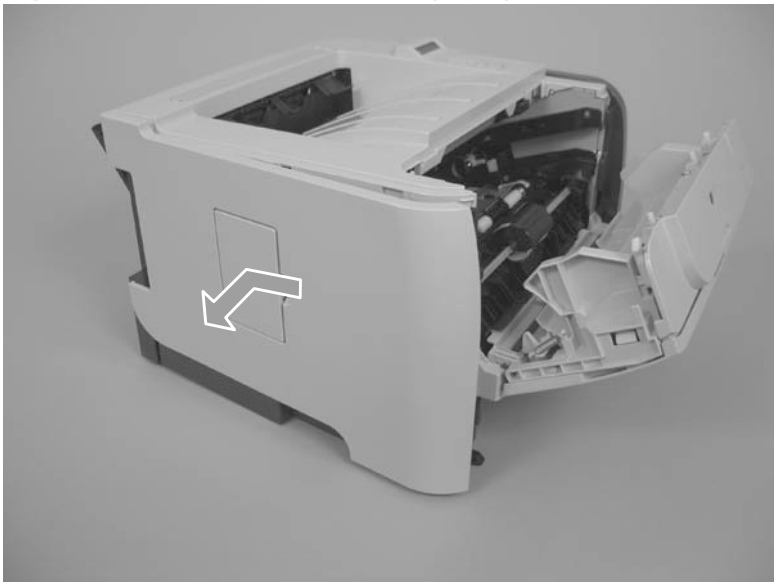
3. Grasp the bottom front of the cover, and then gently separate the cover from the product.

Figure 6-31 Remove the left cover (3 of 4)



4. Carefully slide the cover toward the front of the product, and then remove it.

Figure 6-32 Remove the left cover (4 of 4)



Rear cover, rear door, and duplex-paper-feed assembly

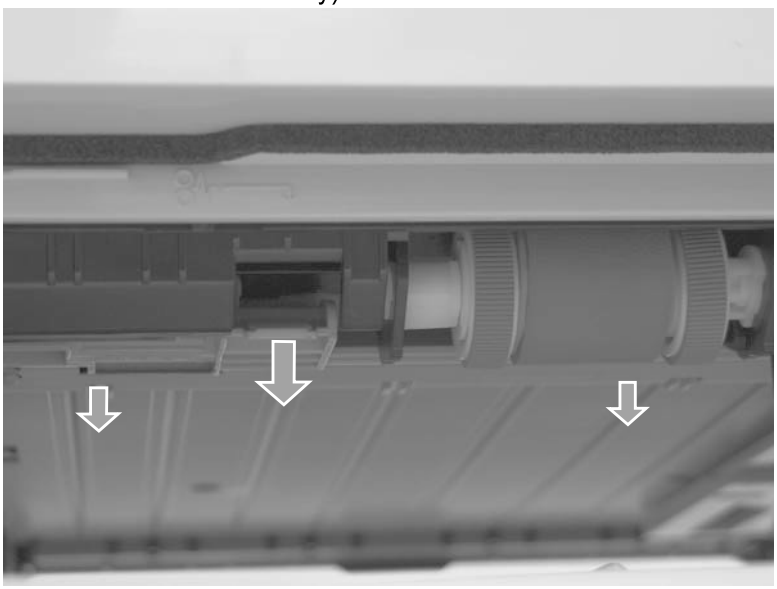
NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

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

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
2. **HP LaserJet P2050 Series** only: Pull down on the green duplex-paper-feed-assembly release tab, and then lower the assembly.

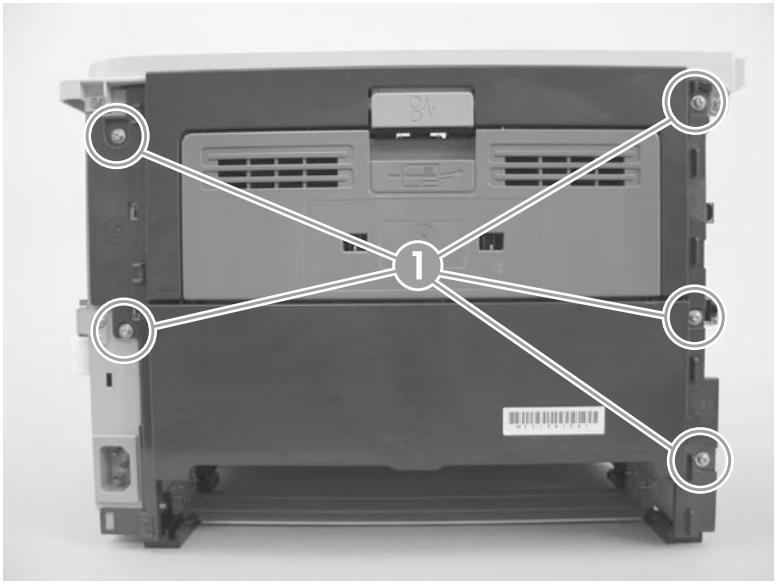
   NOTE: To locate the assembly release tab, look up into the Tray 2 cavity (where the cassette would be installed).

Figure 6-33 Remove the rear cover, rear door, and duplex-paper-feed assembly (1 of 6; HP LaserJet P2050 Series only)



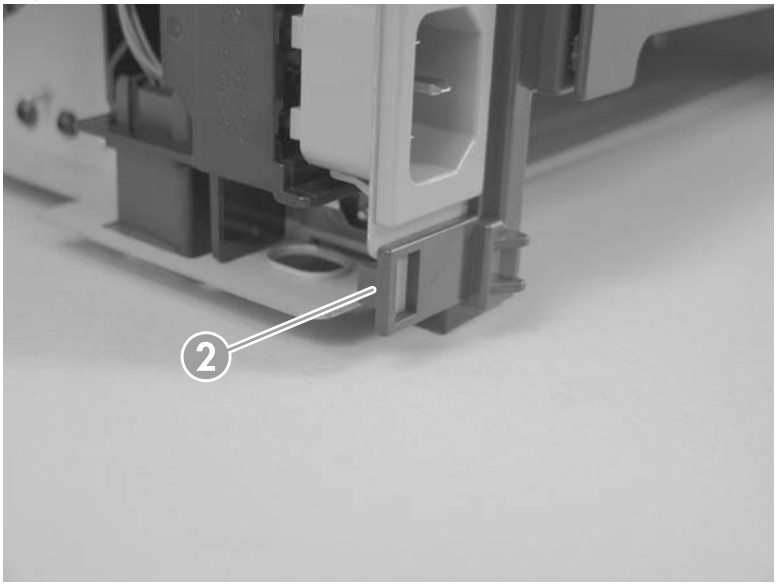
3. Remove five screws (callout 1).

Figure 6-34 Remove the rear cover, rear door, and duplex-paper-feed assembly (2 of 6)



4. Release one tab (callout 2).

Figure 6-35 Remove the rear cover, rear door, and duplex-paper-feed assembly (3 of 6)



5. Carefully separate the rear cover and rear door from the product, and then remove them.

NOTE: For the HP LaserJet P2050 Series, the duplex-paper-feed assembly is removed with the cover and door

Reinstallation tip When you reinstall the rear cover assembly, open the rear door to make sure that the rear cover fits even against the product chassis before you install the mounting screws.

Figure 6-36 Remove the rear cover, rear door, and duplex-paper-feed assembly (4 of 6; HP LaserJet P2030 Series)

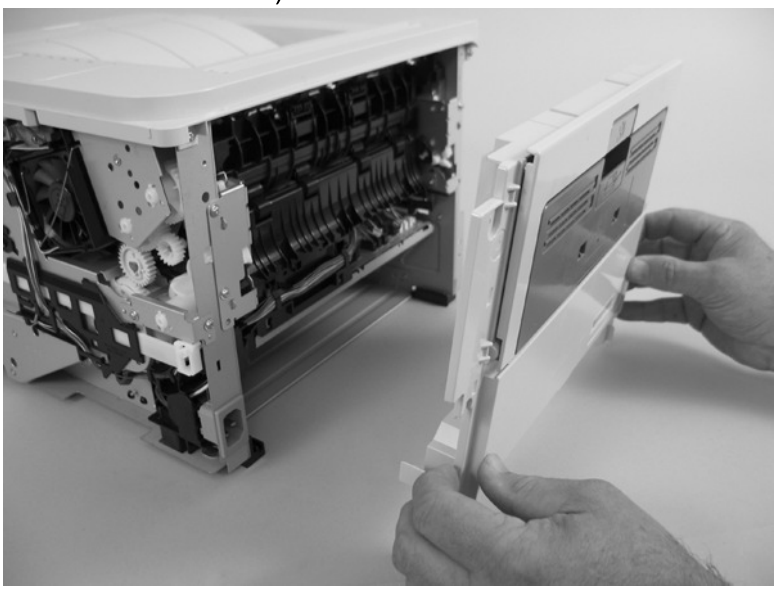
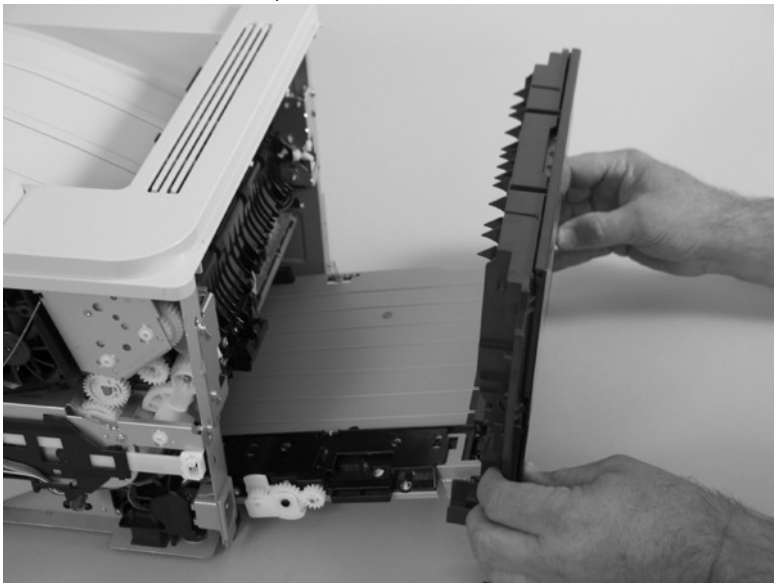
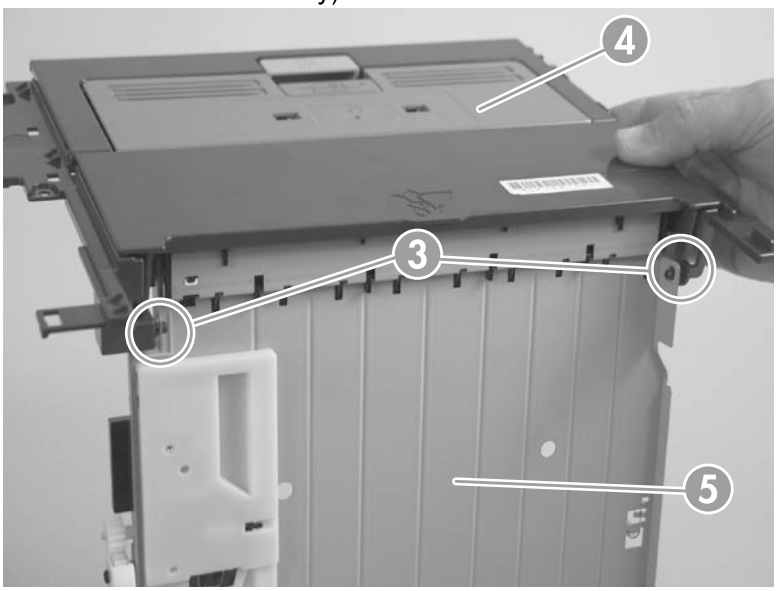


Figure 6-37 Remove the rear cover, rear door, and duplex-paper-feed assembly (5 of 6; HP LaserJet P2050 Series)



6. **HP LaserJet P2050 Series** only: Carefully release two hinge pins (callout 3), and then separate the rear cover and rear door (callout 4) from the duplex-paper-feed assembly (callout 5).

Figure 6-38 Remove the rear cover, rear door, and duplex-paper-feed assembly (6 of 6; HP LaserJet P2050 Series only)



Top-cover assembly

NOTE: The top-cover assembly includes the control panel assembly.

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

2. Remove one screw (callout 1), and then disconnect one connector (callout 2).

Figure 6-39 Remove the top-cover assembly (1 of 4; HP LaserJet P2030 Series only)

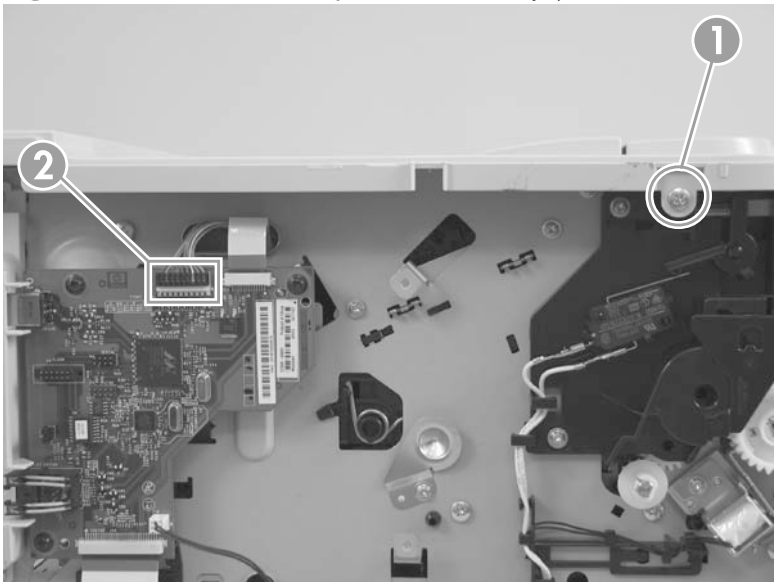
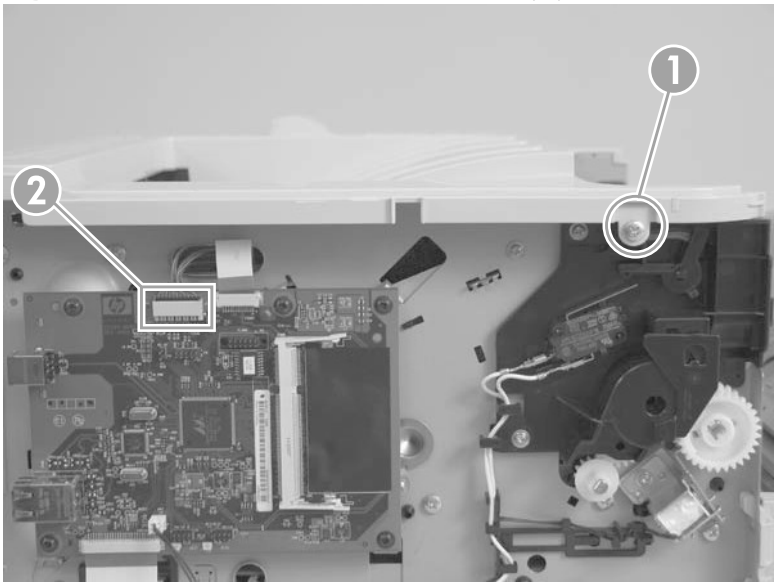
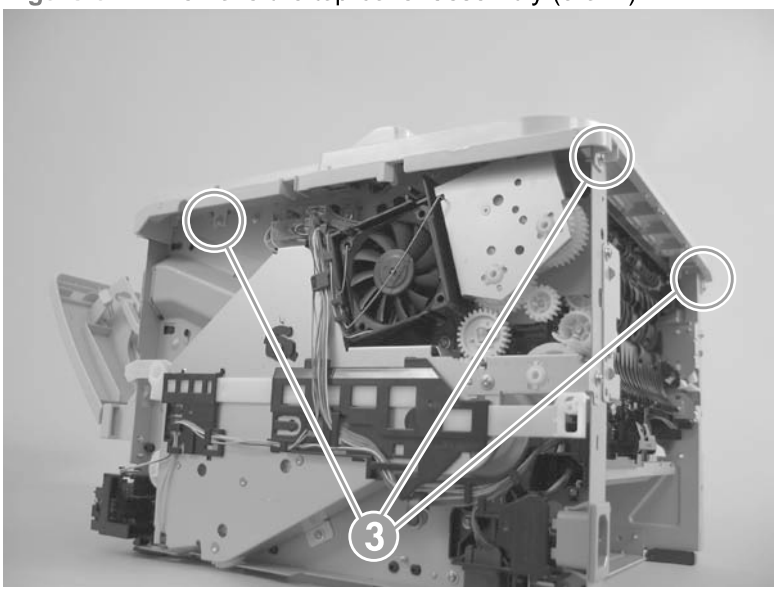


Figure 6-40 Remove the top-cover assembly (2 of 4; HP LaserJet P2050 Series only)



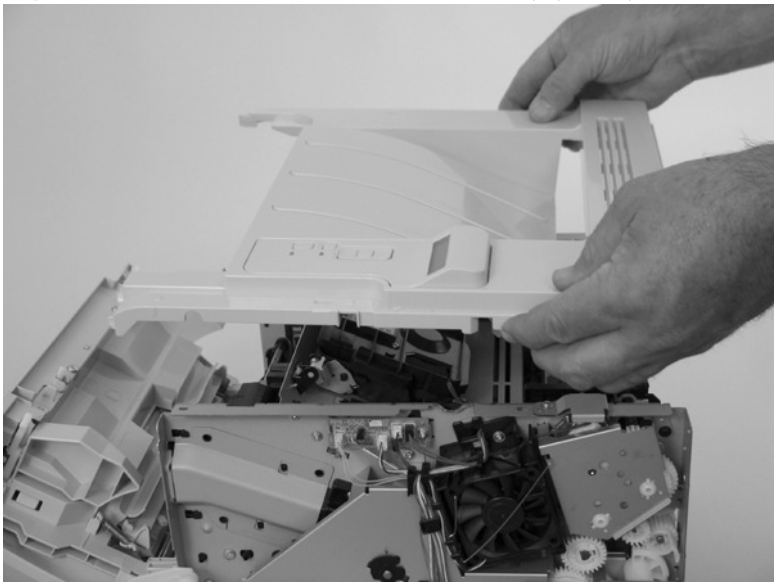
3. Remove three screws (callout 3).

Figure 6-41 Remove the top-cover assembly (3 of 4)



4. Lift the top-cover assembly off of the product to remove it.

Figure 6-42 Remove the top-cover assembly (4 of 4)



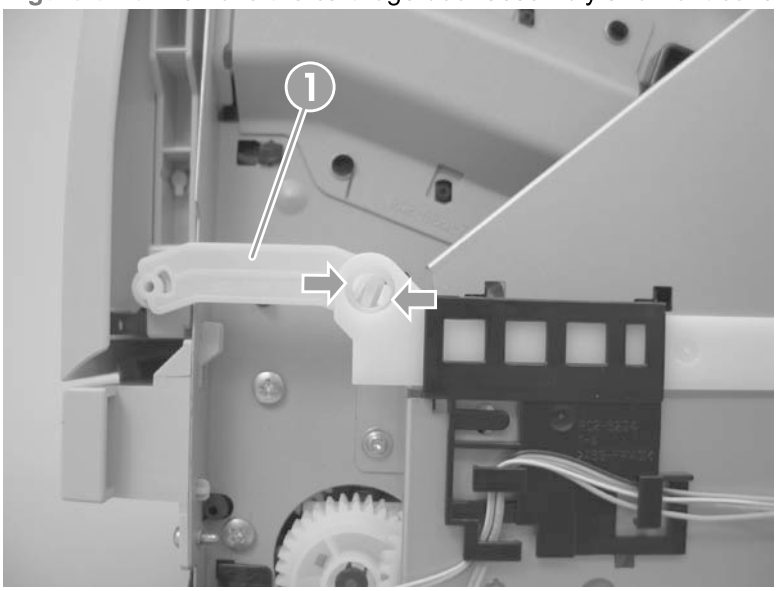
Cartridge-door assembly and front cover

NOTE: The cartridge door assembly includes the cartridge door, Tray 1, and the front cover.

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
2. Release two tabs, and then disengage the cartridge-door assembly link arm (callout 1).

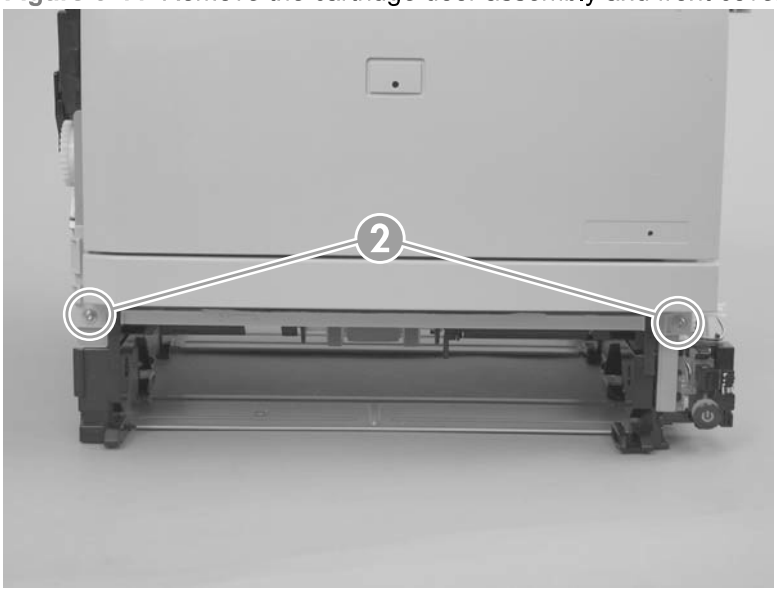
TIP: The link arm releases the fuser-pressure lever when the cartridge door is opened.

Figure 6-43 Remove the cartridge door assembly and front cover (1 of 4)



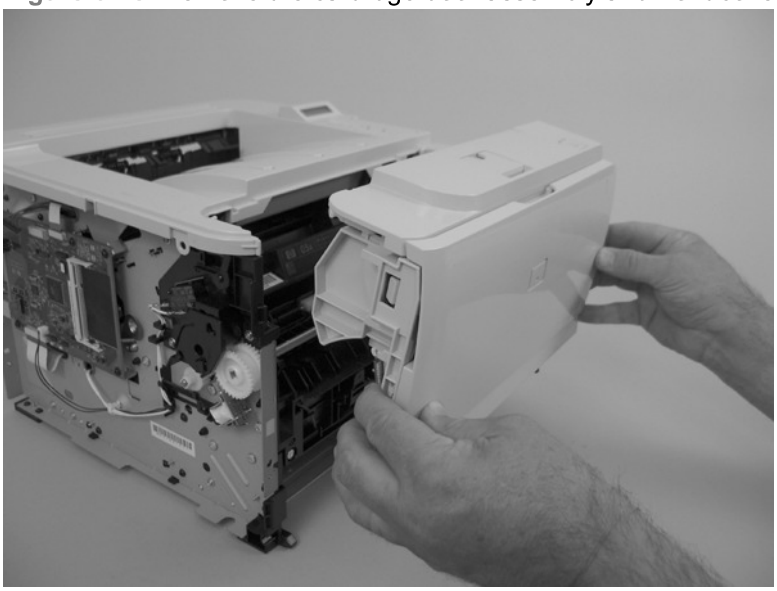
3. Remove two screws (callout 2).

Figure 6-44 Remove the cartridge door assembly and front cover (2 of 4)



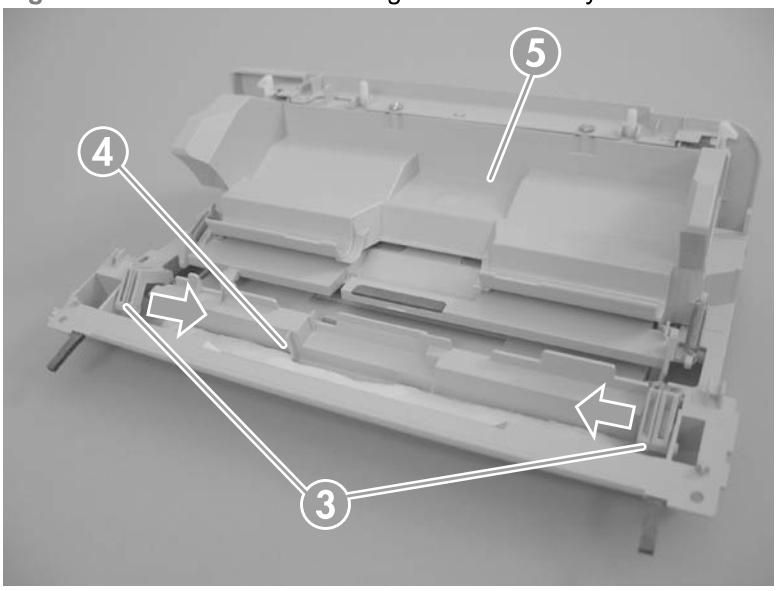
4. Carefully remove the cartridge-door assembly.

Figure 6-45 Remove the cartridge door assembly and front cover (3 of 4)



5. Disengage two hinge pins (callout 3), and then carefully separate the front cover (callout 4) from the cartridge door assembly (callout 5).

Figure 6-46 Remove the cartridge door assembly and front cover (4 of 4)

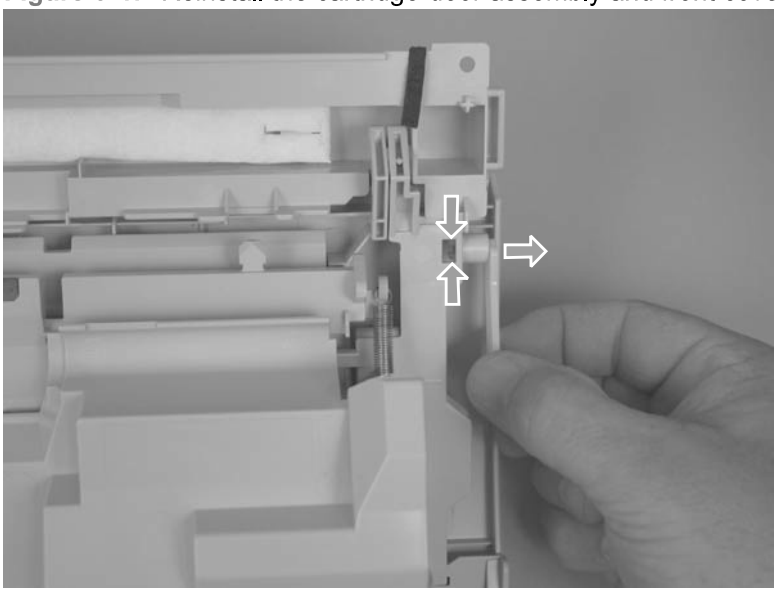


Reinstall the cartridge-door assembly and front cover

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

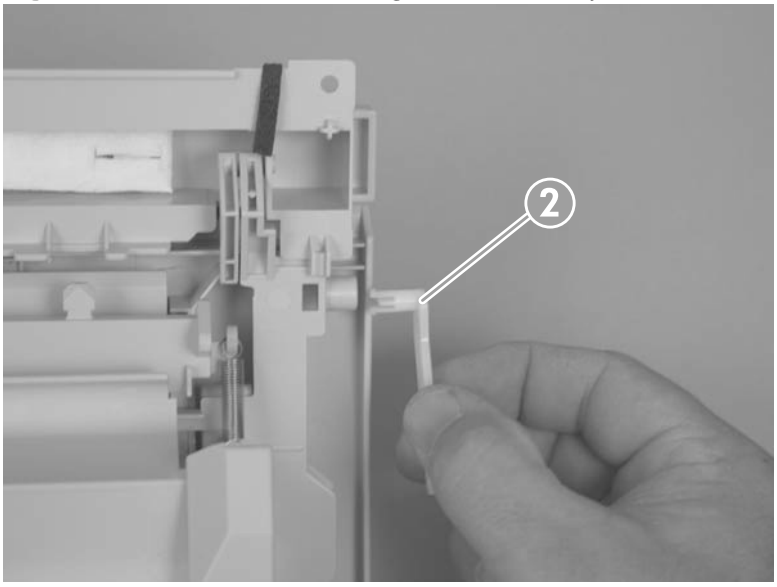
1. Release two tabs (callout 1).

Figure 6-47 Reinstall the cartridge-door assembly and front cover (1 of 2)



2. Remove the cartridge-door link (callout 2), and then install it on the replacement assembly.

Figure 6-48 Reinstall the cartridge-door assembly and front cover (2 of 2)



Internal assemblies

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

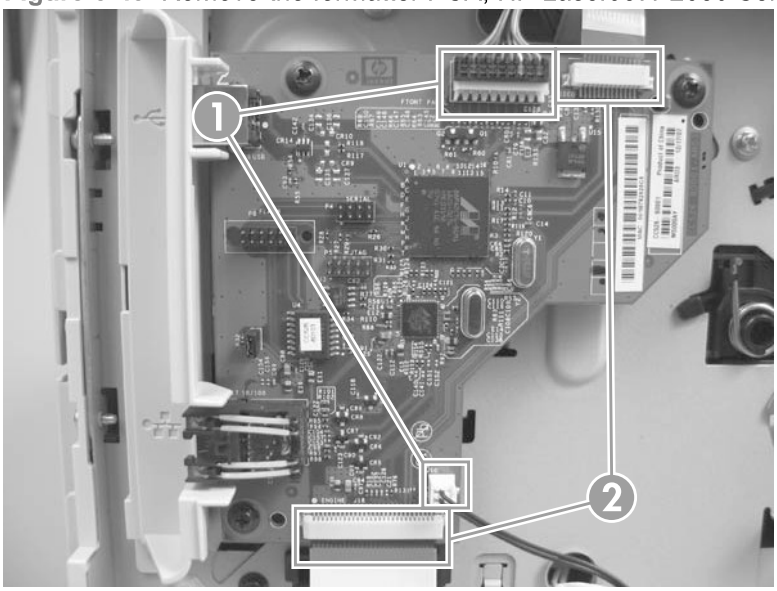
Formatter PCA; HP LaserJet P2030 Series

⚠ **WARNING!** ESD sensitive component.

1. Remove the left cover. See Left cover on page 118.
2. Disconnect two connectors (callout 1) and two FFCs (callout 2).

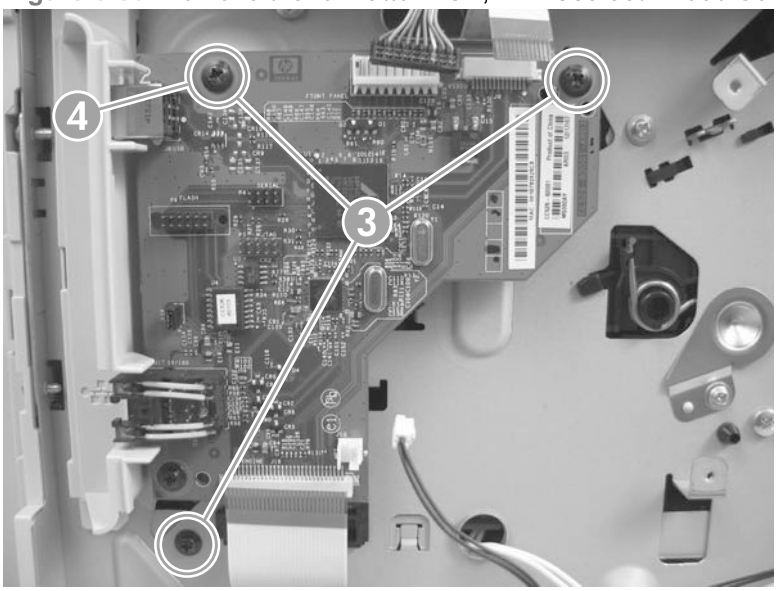
△ **CAUTION:** Do not bend or fold the flat flexible cables (FFCs) during removal or installation. Also, do not straighten pre-folds in the FFCs. You *must* make sure that all FFCs are fully seated in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.

Figure 6-49 Remove the formatter PCA; HP LaserJet P2030 Series (1 of 2)



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

Figure 6-50 Remove the formatter PCA; HP LaserJet P2030 Series (2 of 2)



Reinstallation tip To correctly position the PCA during reinstallation, install the top screw first (callout 4).

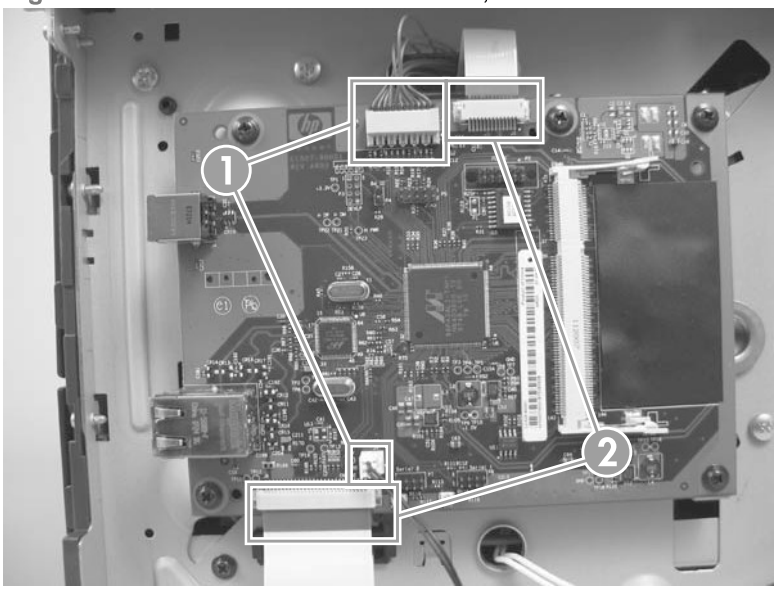
Formatter PCA; HP LaserJet P2050 Series

WARNING! ESD sensitive component.

1. Remove the left cover. See Left cover on page 118.
2. Disconnect two connectors (callout 1) and two FFCs (callout 2).

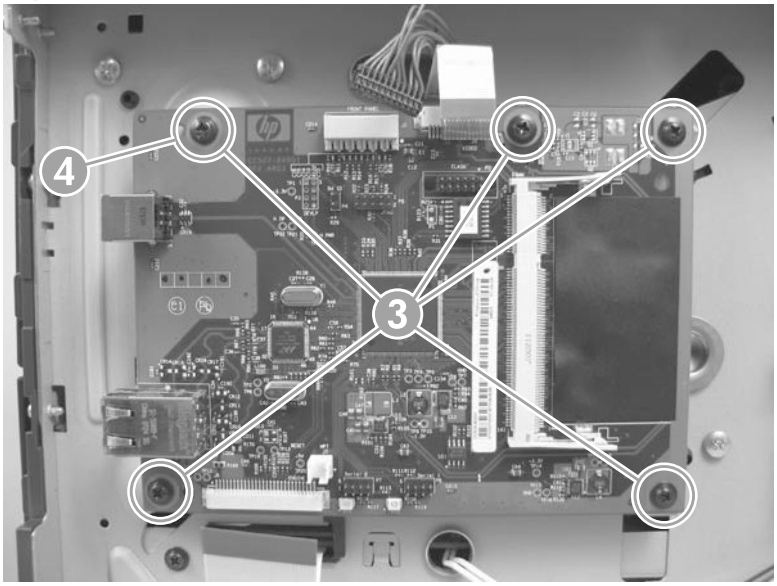
CAUTION: Do not bend or fold the flat flexible cables (FFCs) during removal or installation. Also, do not straighten pre-folds in the FFCs. You *must* make sure that all FFCs are fully seated in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.

Figure 6-51 Remove the formatter PCA; HP LaserJet P2050 Series (1 of 2)



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

Figure 6-52 Remove the formatter PCA; HP LaserJet P2050 Series (2 of 2)

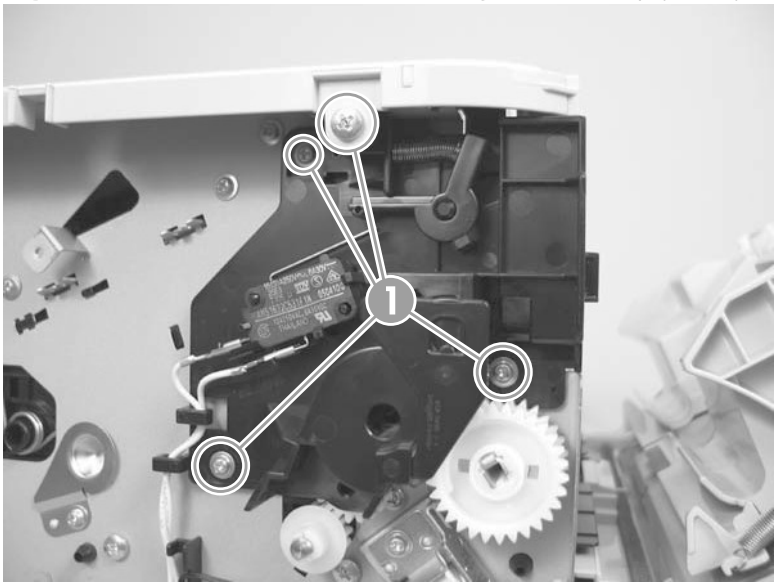


Reinstallation tip To correctly position the PCA during reinstallation, install the top screw first (callout 4).

Paper-pickup-gear assembly

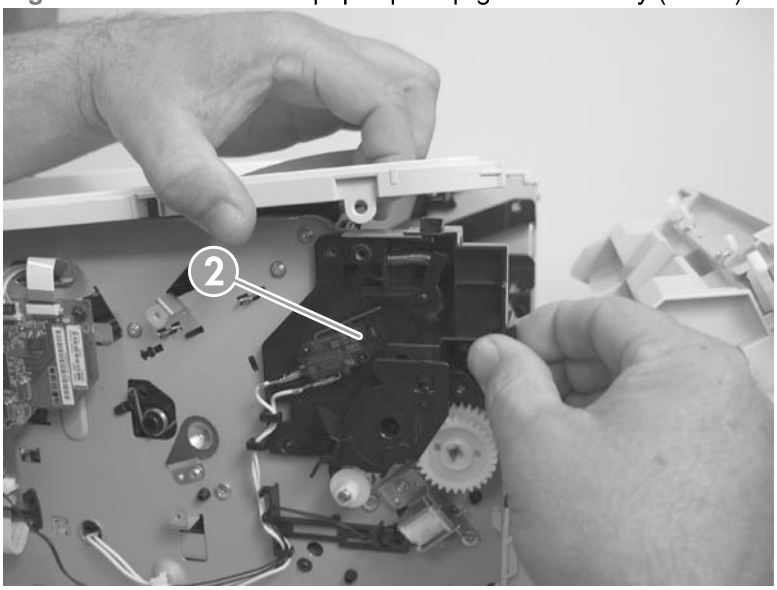
1. Remove the left cover. See Left cover on page 118.
2. Remove four screws (callout 1).

Figure 6-53 Remove the paper-pickup-gear assembly (1 of 3)



3. Slightly separate the top-cover assembly from the chassis, and then remove the black-plastic bracket (callout 2).

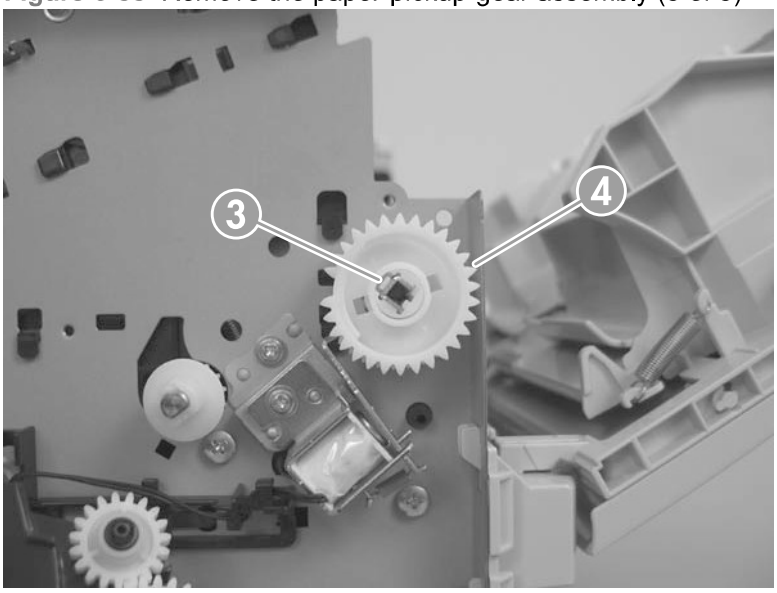
Figure 6-54 Remove the paper-pickup-gear assembly (2 of 3)



4. Release one tab (callout 3), and then remove the paper-pickup-gear assembly (callout 4).

△ **CAUTION:** Be careful when you remove this assembly. The outer gear and spring can easily become separated from the inner gear. If the gears become separated, make sure that you do not lose the spring. See Reinstall the paper-pickup-gear assembly on page 135.

Figure 6-55 Remove the paper-pickup-gear assembly (3 of 3)



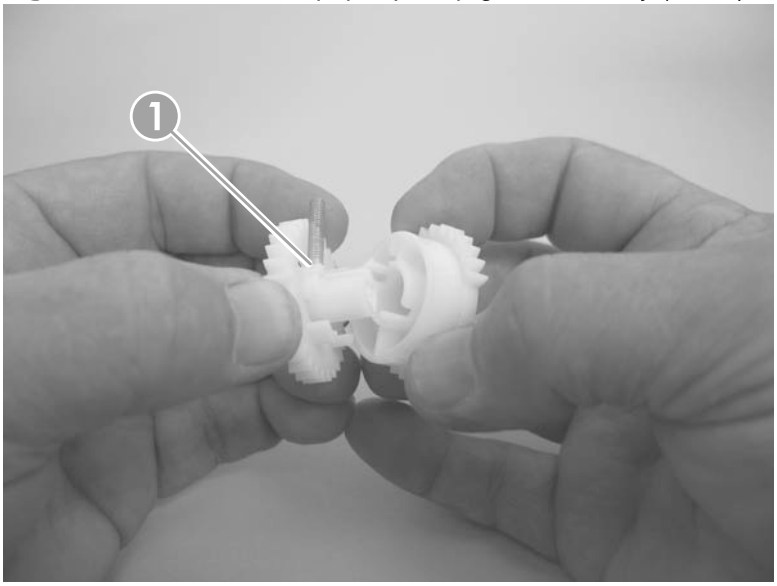
Reinstall the paper-pickup-gear assembly

Use the following procedure to reassemble the outer gear, inner gear, and spring if they become separated.

1. Make sure the spring (callout 1) is positioned on the pedestal portion of the outer gear.

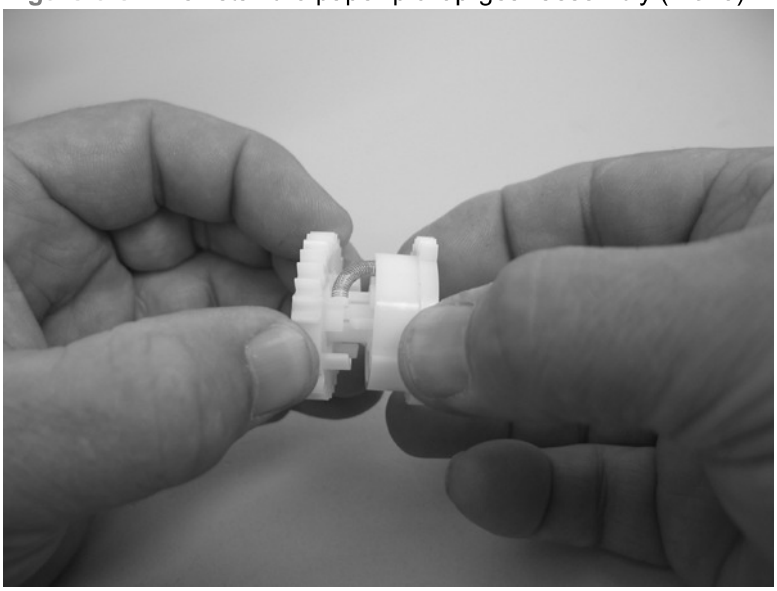
NOTE: When the outer and inner gears are assembled, the spring rests inside a cavity (callout 2) in the inner gear.

Figure 6-56 Reinstall the paper-pickup-gear assembly (1 of 3)



2. Slip the loose end of the spring into the cavity in the inner gear.

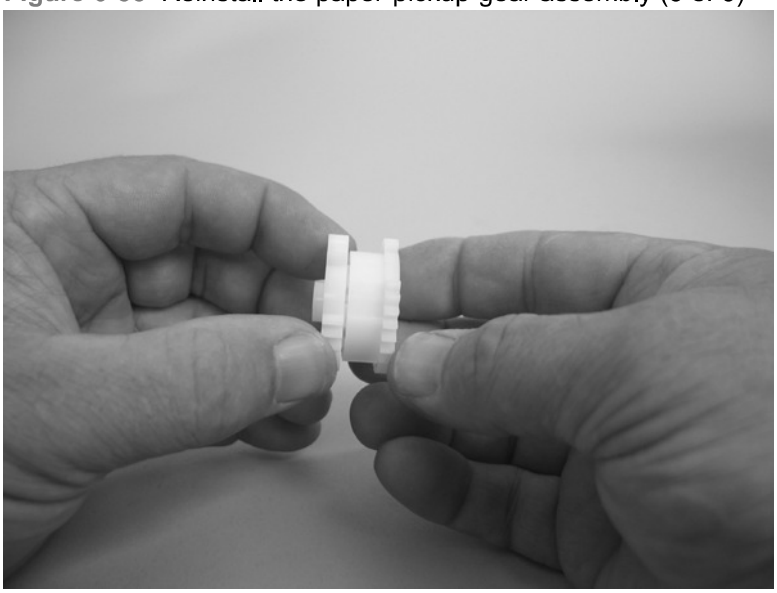
Figure 6-57 Reinstall the paper-pickup-gear assembly (2 of 3)



3. Press the two gears together until the gears snap together.

TIP: To test the assembly, hold the inner gear and rotate the outer gear away from you until it stops (slightly less than one-third of a full rotation). Release the outer gear. The spring should return the outer gear to its starting position.

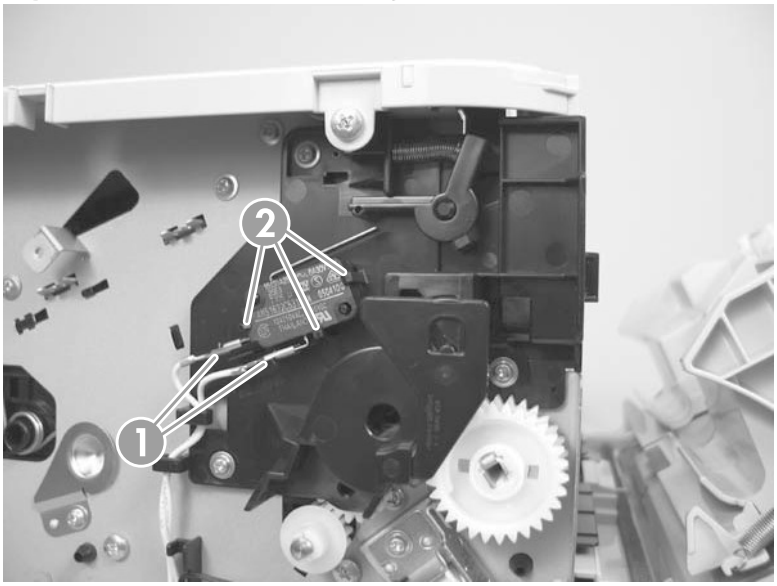
Figure 6-58 Reinstall the paper-pickup-gear assembly (3 of 3)



Cartridge-door switch

1. Remove the left cover. See Left cover on page 118.
2. Disconnect one connector (callout 1), release three tabs (callout 2), and then remove the switch.

Figure 6-59 Remove the cartridge-door switch



Tray 1 pickup solenoid

1. Remove the left cover. See Left cover on page 118.
2. Disconnect one connector (callout 1), and then release the wire harness from the retainers (callout 2).

Figure 6-60 Remove the Tray 1 pickup solenoid (1 of 2; HP LaserJet P2030 Series)

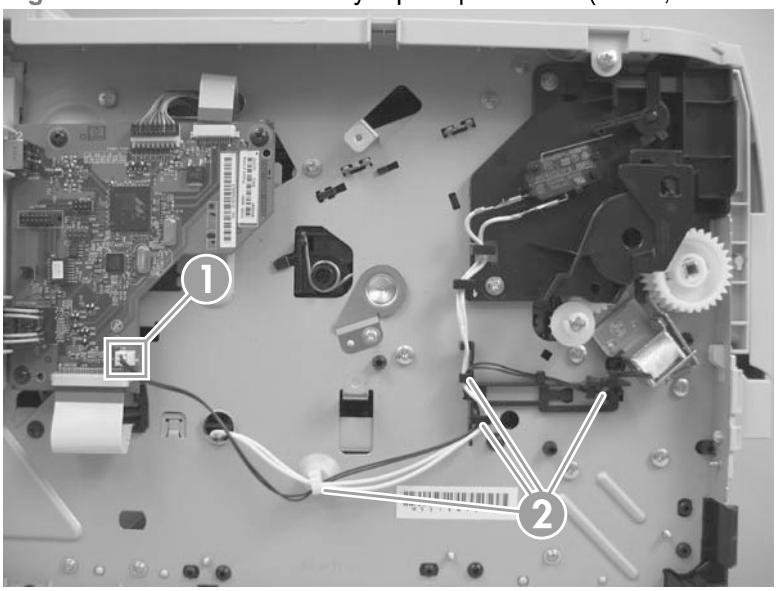
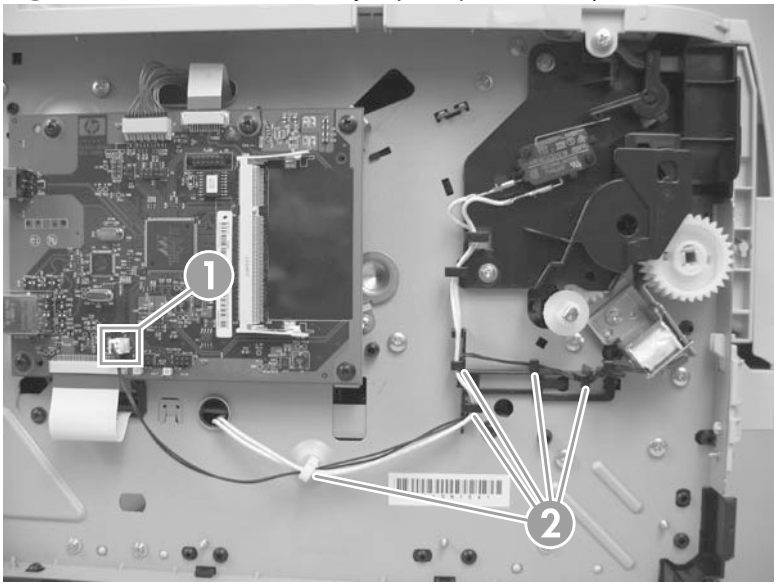
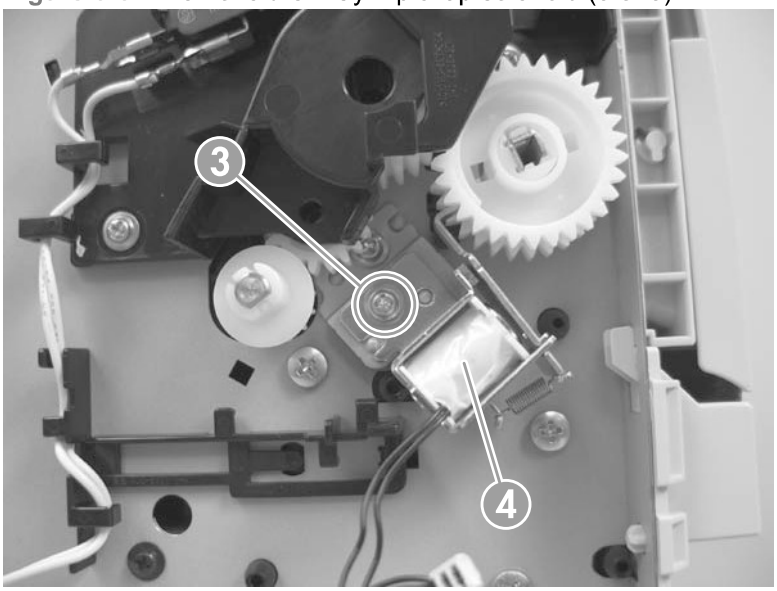


Figure 6-61 Remove the Tray 1 pickup solenoid (2 of 3; HP LaserJet P2050 Series)



3. Remove one screw (callout 3), and then remove the Tray 1 pickup solenoid.

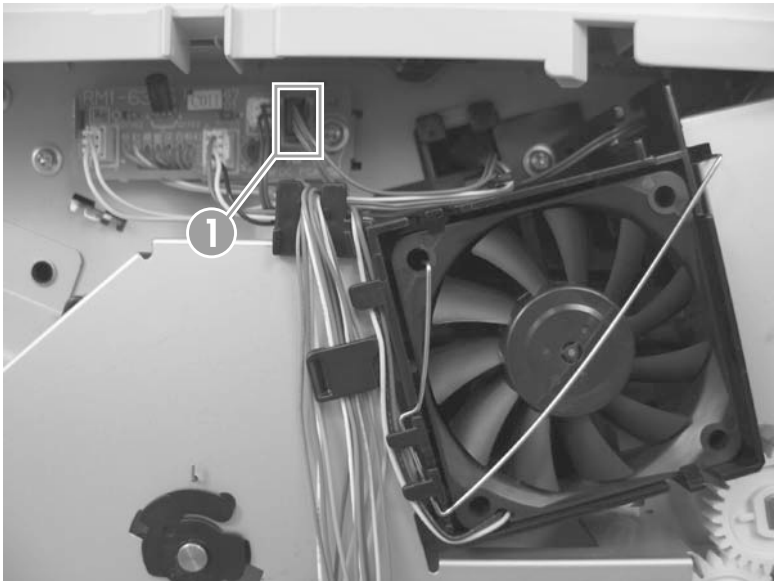
Figure 6-62 Remove the Tray 1 pickup solenoid (3 of 3)



Fan

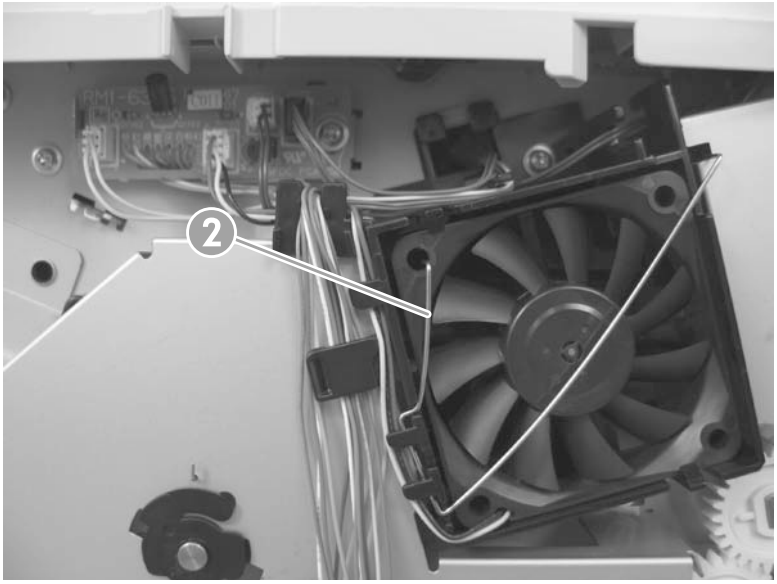
1. Remove the right cover. See Right cover on page 115.
2. Disconnect one connector (callout 1), and then release the wire harness from the guide along the fan duct.

Figure 6-63 Remove the fan (1 of 3)



3. Remove the fan static spring (callout 2).

Figure 6-64 Remove the fan (2 of 3)



4. Release two tabs (callout 3), and then remove the fan.

Reinstallation tip When the fan is reinstalled, the air must flow into the product. Arrows embossed on the fan frame indicate air flow direction.

Figure 6-65 Remove the fan (3 of 3)

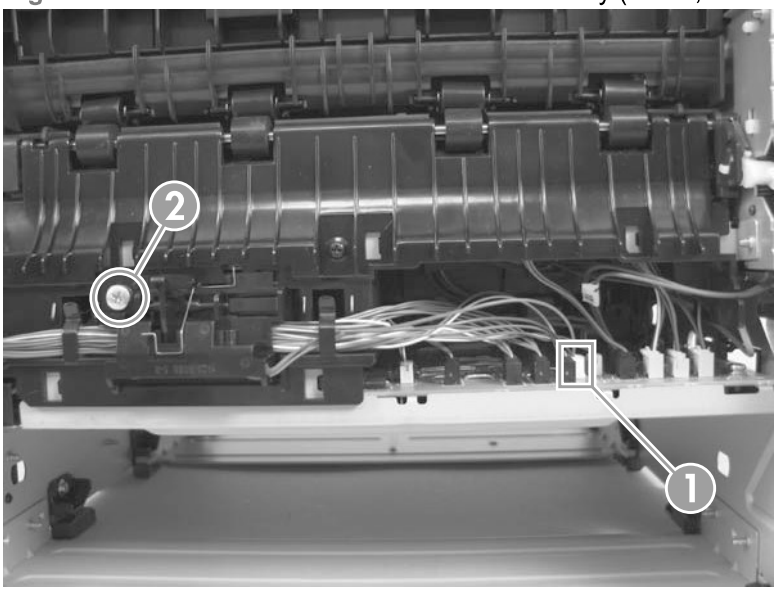
Reverse-sensor assembly; HP LaserJet P2050 Series

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

   NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

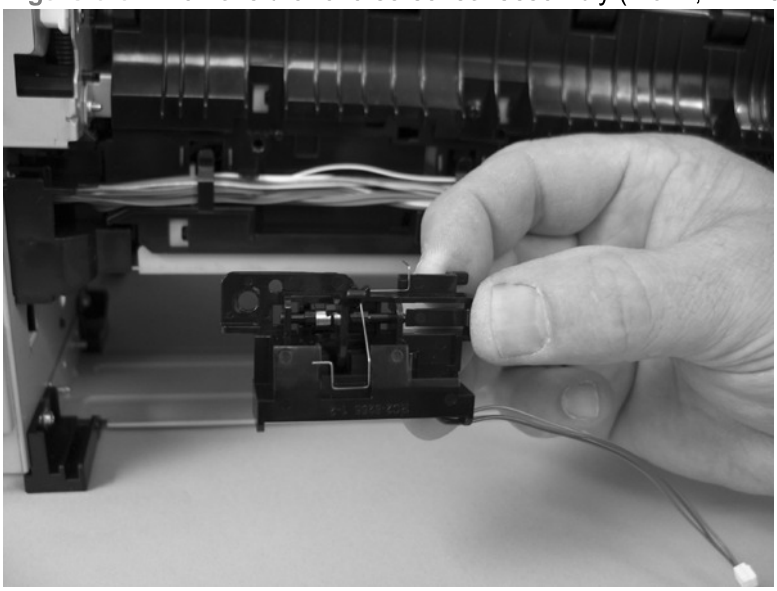
2. Disconnect one connector (callout 1), release the wire harness from the guide, and then remove one screw (callout 2).

Figure 6-66 Remove the reverse-sensor assembly (1 of 2; HP LaserJet P2050 Series)



3. Remove the reverse-sensor assembly.

Figure 6-67 Remove the reverse-sensor assembly (2 of 2; HP LaserJet P2050 Series)



Power-switch assembly

1. Remove the following components:

   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

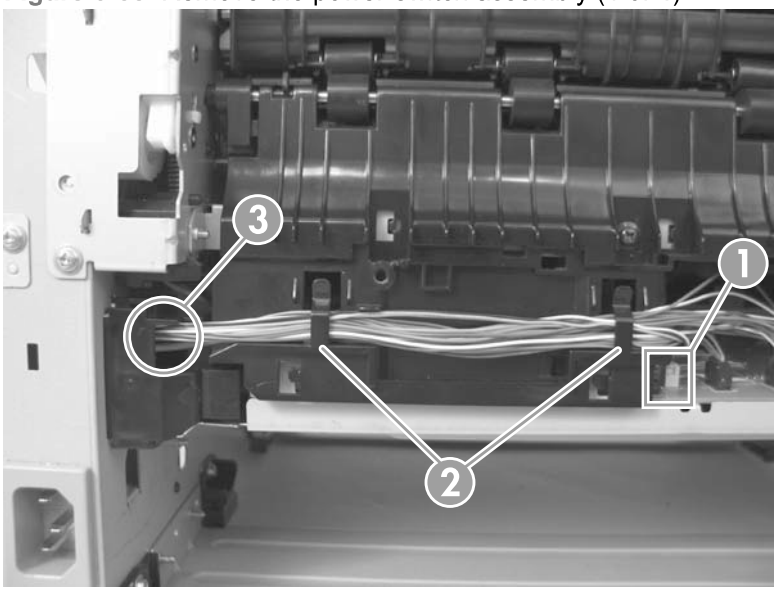
   NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Reverse-sensor assembly. See Reverse-sensor assembly; HP LaserJet P2050 Series on page 142.

   NOTE: Only the HP LaserJet P2050 Series products have a reverse-sensor assembly installed.

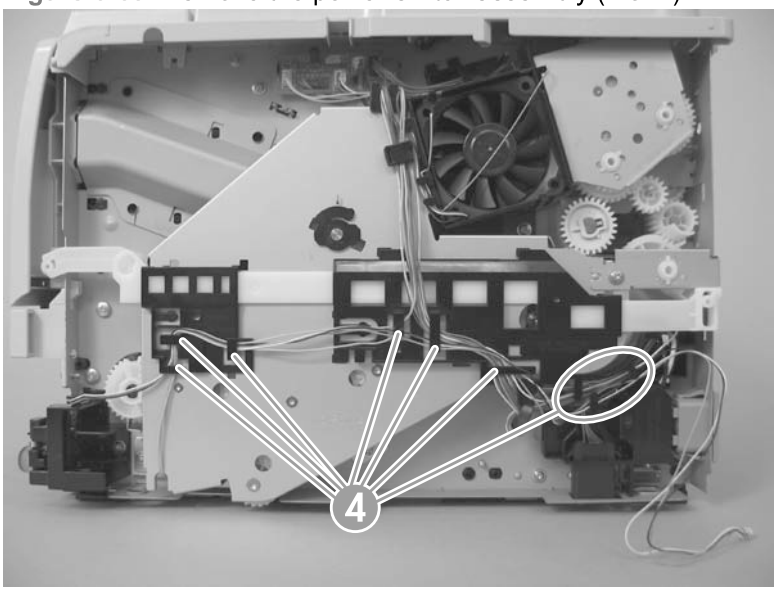
2. Disconnect one connector (callout 1), release the wire harness from the guide (callout 2), and then pass the wire harness through the hole in the chassis (callout 3).

Figure 6-68 Remove the power-switch assembly (1 of 4)



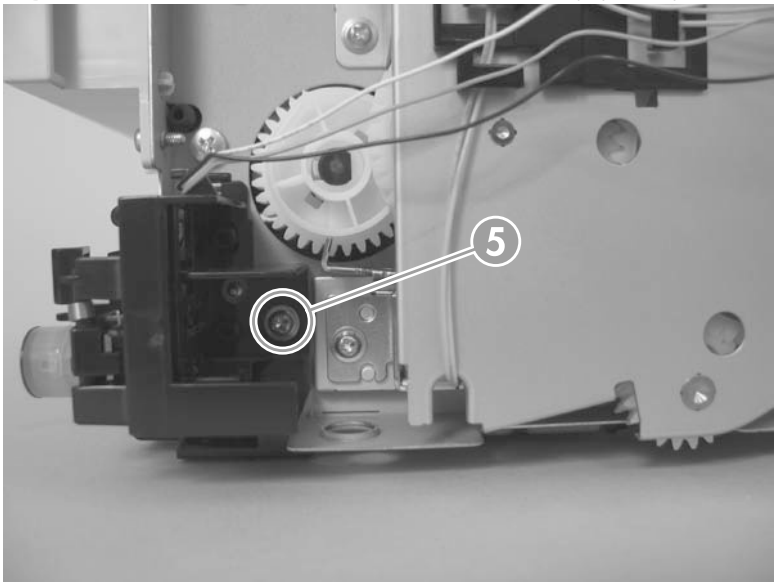
3. Release the wire harness from the guides (callout 4).

Figure 6-69 Remove the power-switch assembly (2 of 4)



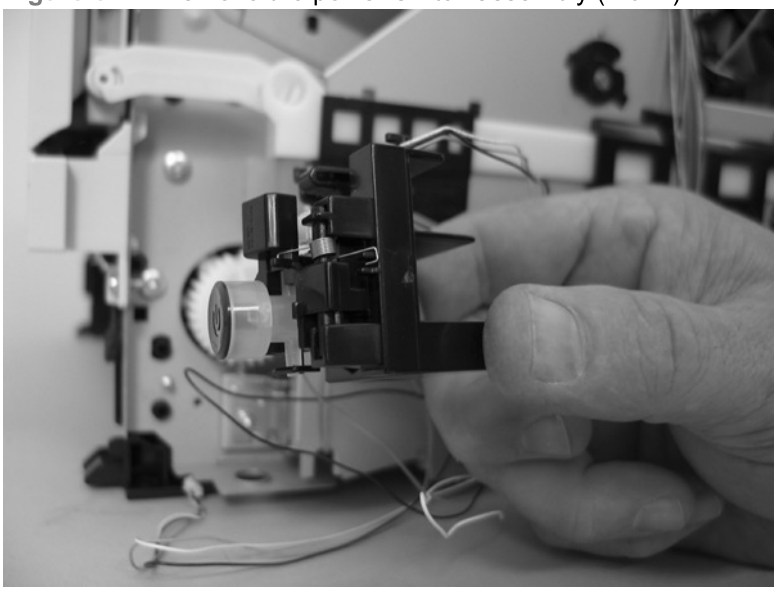
4. Remove one screw (callout 5).

Figure 6-70 Remove the power-switch assembly (3 of 4)



5. Remove the power-switch assembly.

Figure 6-71 Remove the power-switch assembly (4 of 4)



Connecting PCA

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

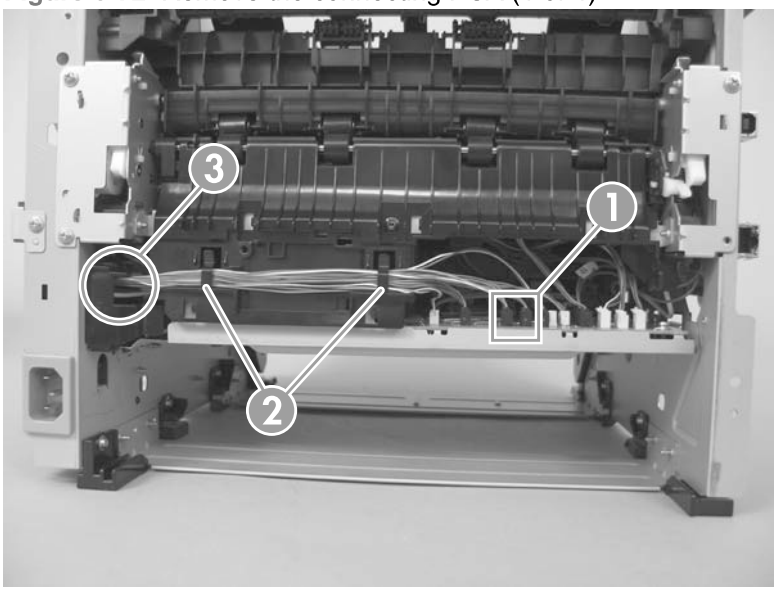
     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Reverse-sensor assembly. See Reverse-sensor assembly; HP LaserJet P2050 Series on page 142.

     NOTE: Only the HP LaserJet P2050 Series products have a reverse-sensor assembly installed.

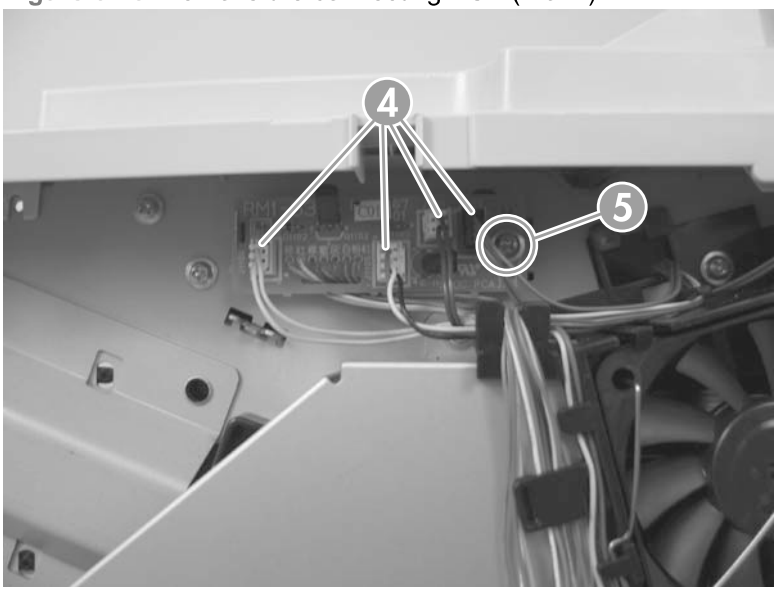
2. Disconnect one connector (callout 1), release the wire harness from the guide (callout 2), and then pass the wire harness through the hole in the chassis (callout 3).

Figure 6-72 Remove the connecting PCA (1 of 4)



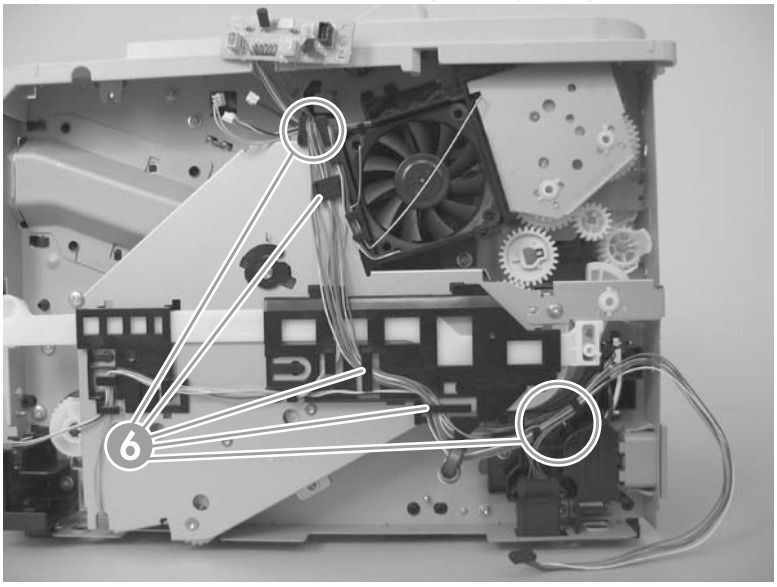
3. Disconnect four connectors (callout 4), and then remove one screw (callout 5).

Figure 6-73 Remove the connecting PCA (2 of 4)



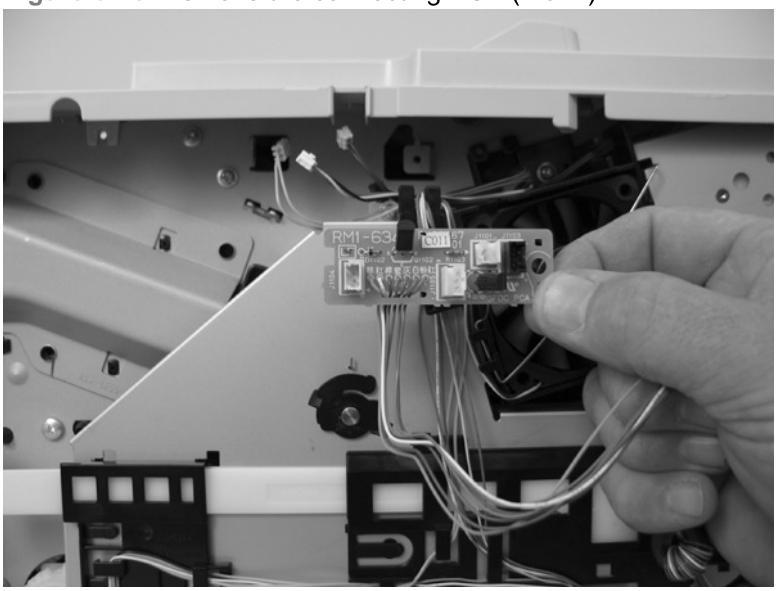
4. Release the wire harnesses from the guides and retainers (callout 6).

Figure 6-74 Remove the connecting PCA (3 of 4)



5. Remove the connecting PCA.

Figure 6-75 Remove the connecting PCA (4 of 4)



Inlet-cable assembly

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

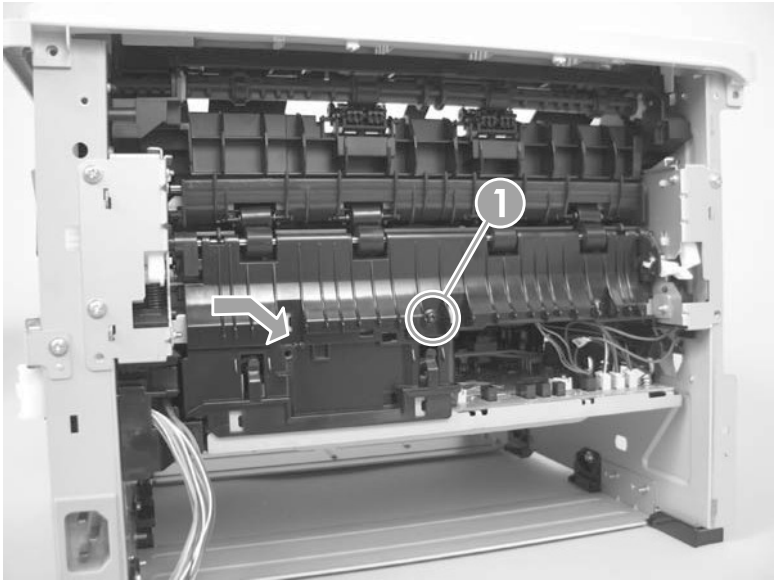
     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Reverse-sensor assembly. See Reverse-sensor assembly; HP LaserJet P2050 Series on page 142.

     NOTE: Only the HP LaserJet P2050 Series products have a reverse-sensor assembly installed.

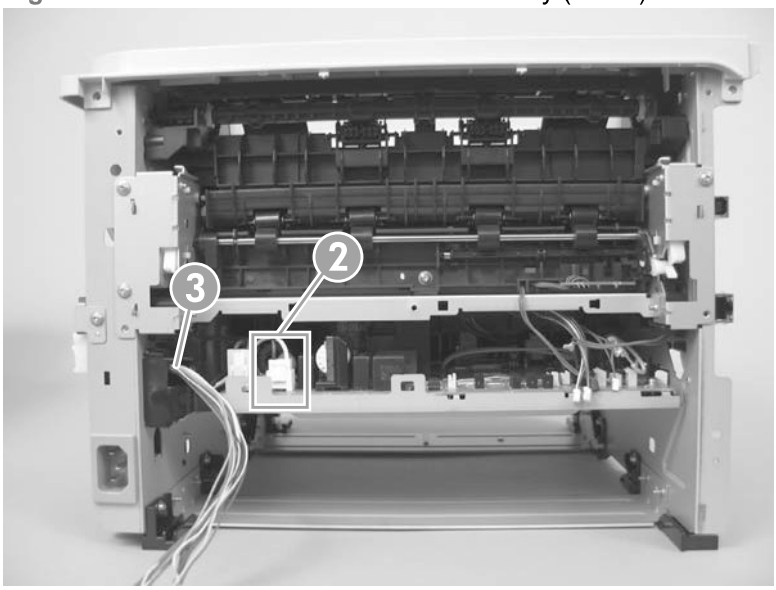
2. Remove one screw (callout 1), and then slide the media-feed guide toward the formatter side of the product to remove it.

Figure 6-76 Remove the inlet-cable assembly (1 of 3)



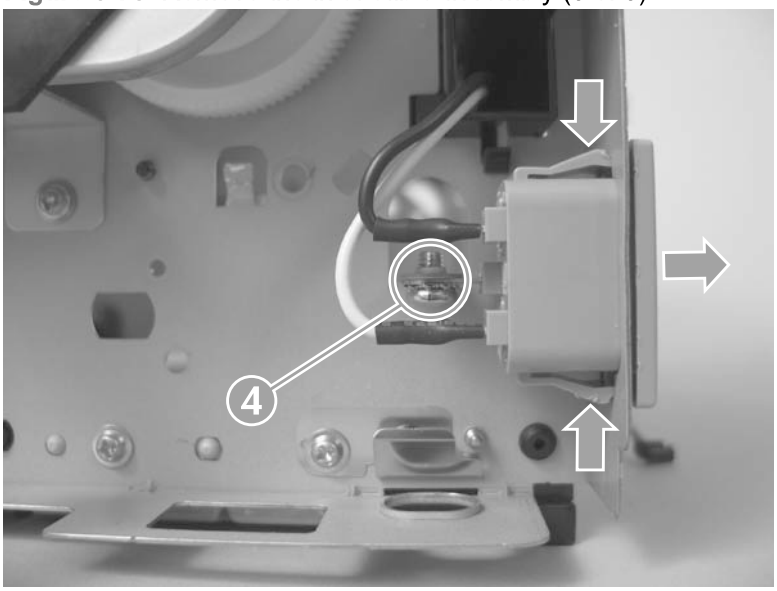
3. Disconnect one connector (callout 2), and then pass the wire harness through the hole in the chassis (callout 3).

Figure 6-77 Remove the inlet-cable assembly (2 of 3)



4. Remove one screw (callout 4), squeeze two tabs, and then push the inlet cable assembly out of the chassis.

Figure 6-78 Remove the inlet-cable assembly (3 of 3)



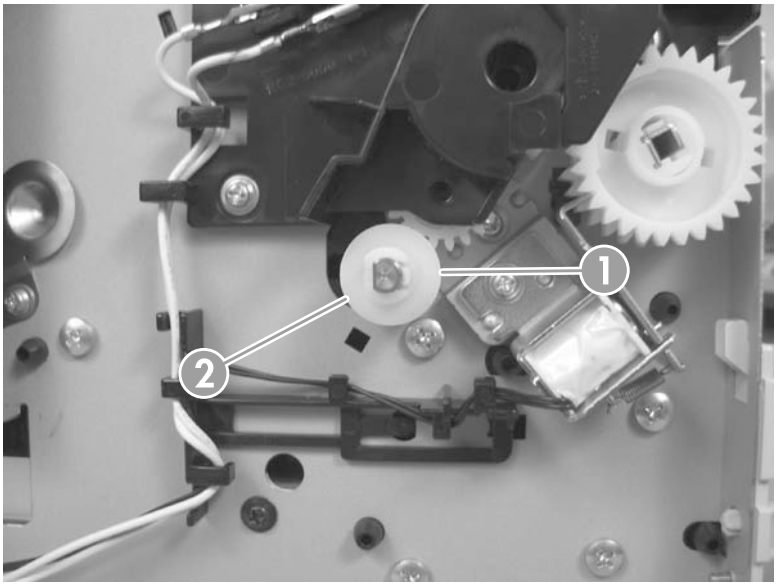
Registration assembly

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Top cover assembly. See Top-cover assembly on page 124.
2. Release one tab (callout 1), and then remove one gear (callout 2).

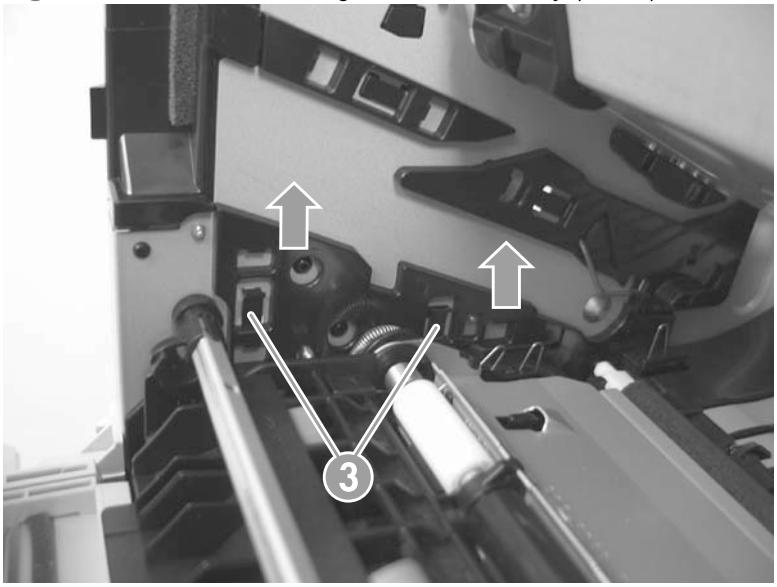
Figure 6-79 Remove the registration assembly (1 of 7)



3. Release two tabs (callout 3), and then lift up on the guide to release it.

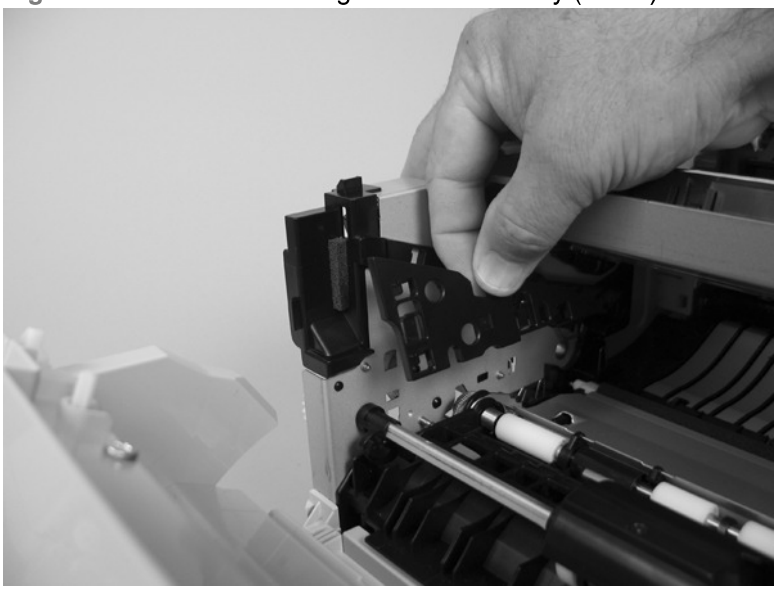
NOTE: The guide is inside the product on the formatter side.

Figure 6-80 Remove the registration assembly (2 of 7)



4. Remove the guide.

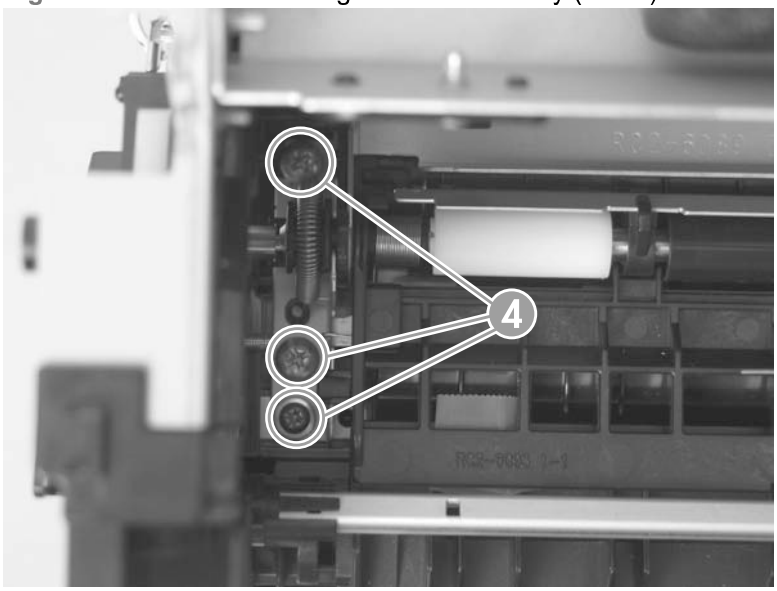
Figure 6-81 Remove the registration assembly (3 of 7)



5. Remove three screws (callout 4) near the guide removed in the previous step.

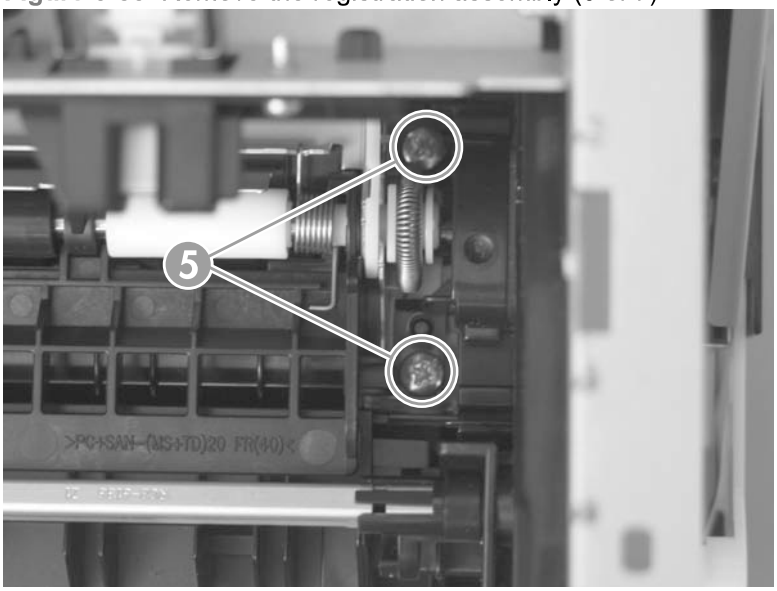
NOTE: The front-most screw is different than the other two screws. Make sure this screw is replaced in the mounting hole it is removed from when you reinstall the assembly.

Figure 6-82 Remove the registration assembly (4 of 7)



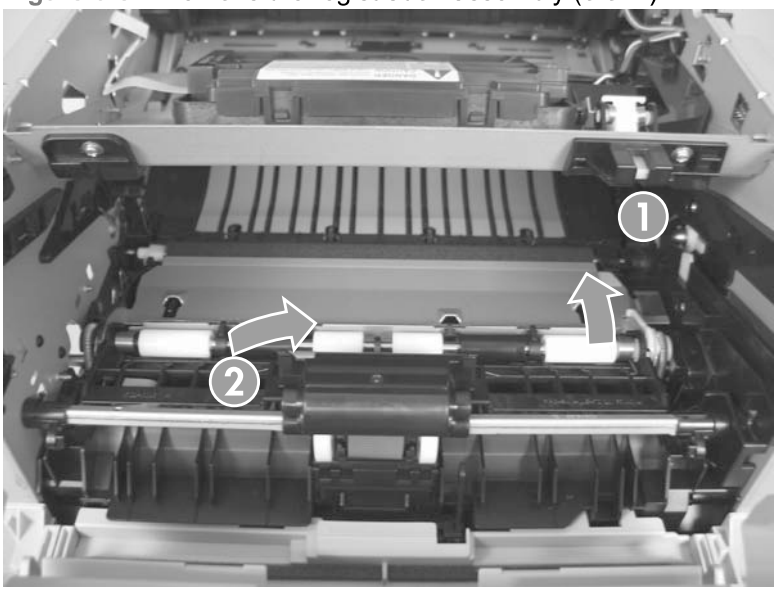
6. Remove two screws (callout 5) at the other end of the assembly.

Figure 6-83 Remove the registration assembly (5 of 7)



7. Slightly raise the right end of the assembly, and then slide it to the right and lift it up to release it.

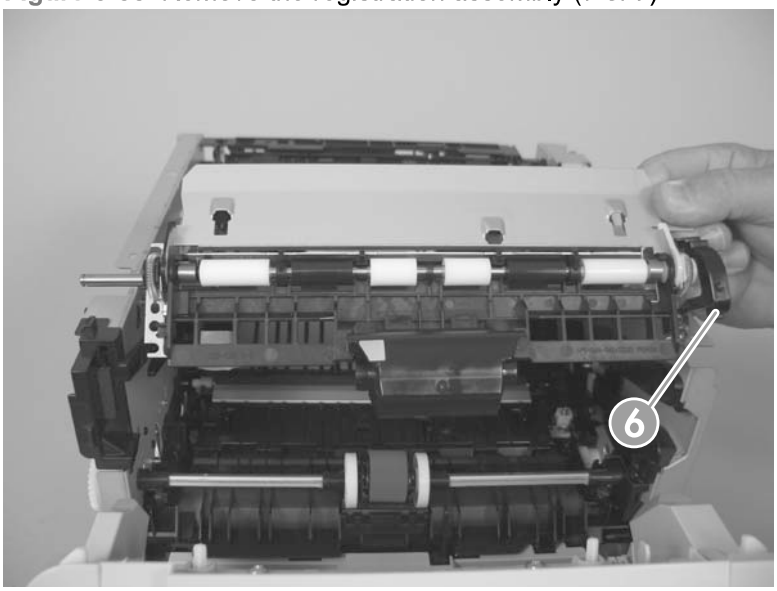
Figure 6-84 Remove the registration assembly (6 of 7)



8. Remove the assembly.

NOTE: The retainer (callout 6) at the right side of the assembly is not captive. Do not lose the retainer when the assembly is removed.

Figure 6-85 Remove the registration assembly (7 of 7)



Laser/scanner assembly

⚠ **WARNING!** ESD sensitive component.

△ **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.

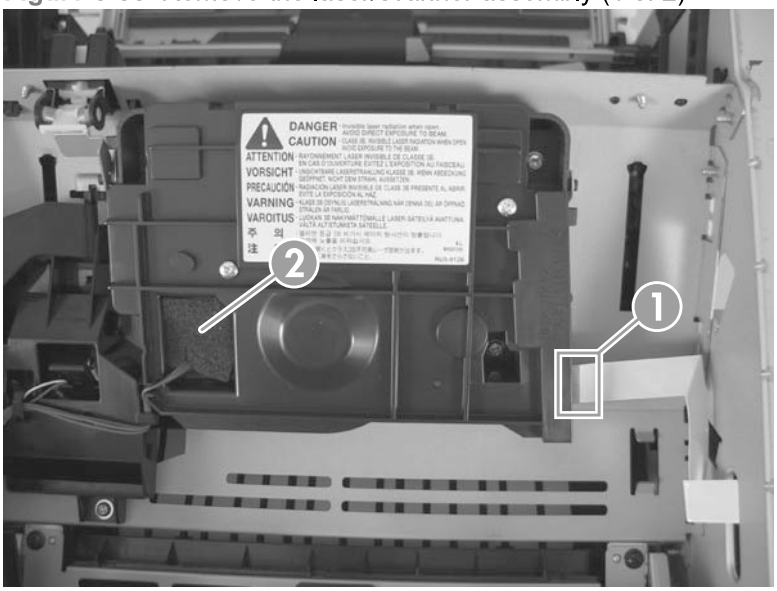
1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

2. Disconnect one FFC (callout 1), and then remove the antistatic foam pad (callout 2).

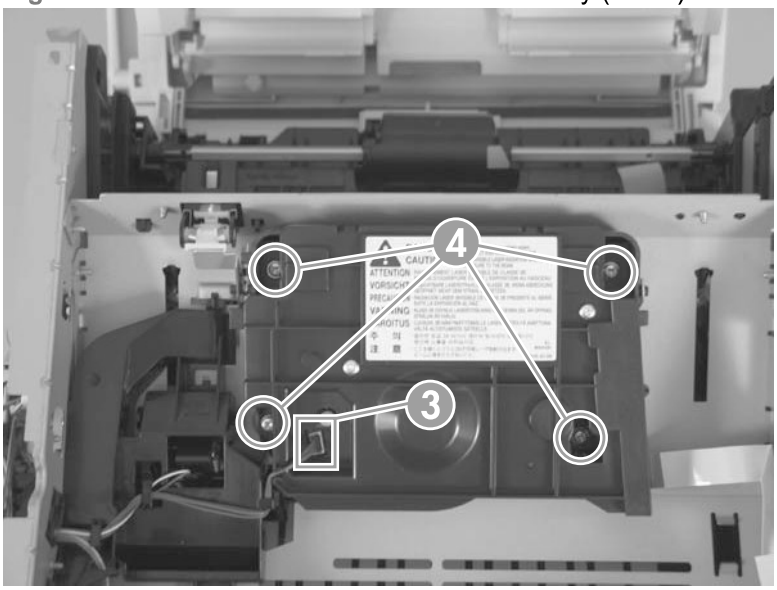
△ **CAUTION:** Do not bend or fold the flat flexible cables (FFCs) during removal or installation. Also, do not straighten pre-folds in the FFCs. You *must* make sure that all FFCs are fully seated in their connectors. Failure to fully seat an FFC into a connector can cause a short circuit in a PCA.

Figure 6-86 Remove the laser/scanner assembly (1 of 2)



3. Disconnect one connector (callout 3), remove four screws (callout 4), and then remove the laser/scanner assembly.

Figure 6-87 Remove the laser/scanner assembly (2 of 2)



Fuser

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

NOTE: The cartridge-door assembly should be in the closed position when the fuser is removed to make sure that the fuser-drive gear is correctly aligned for reinstallation.

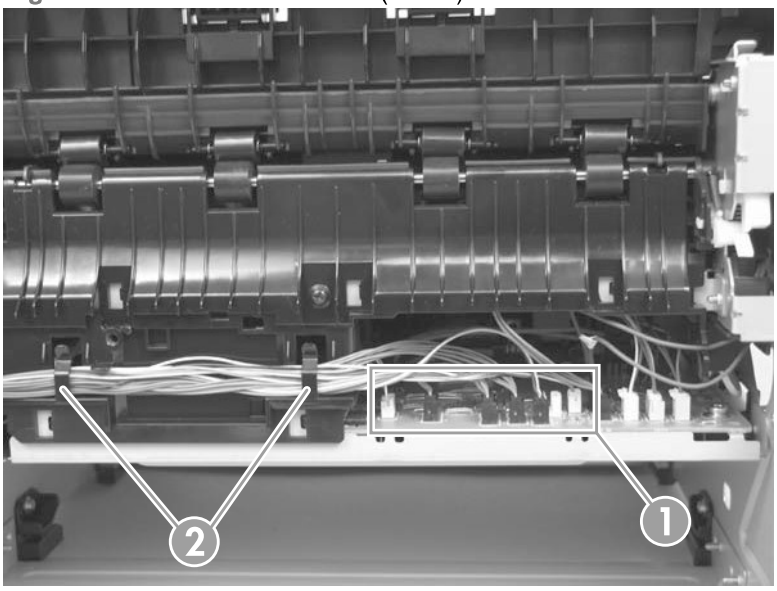
1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Reverse-sensor assembly. See Reverse-sensor assembly; HP LaserJet P2050 Series on page 142.

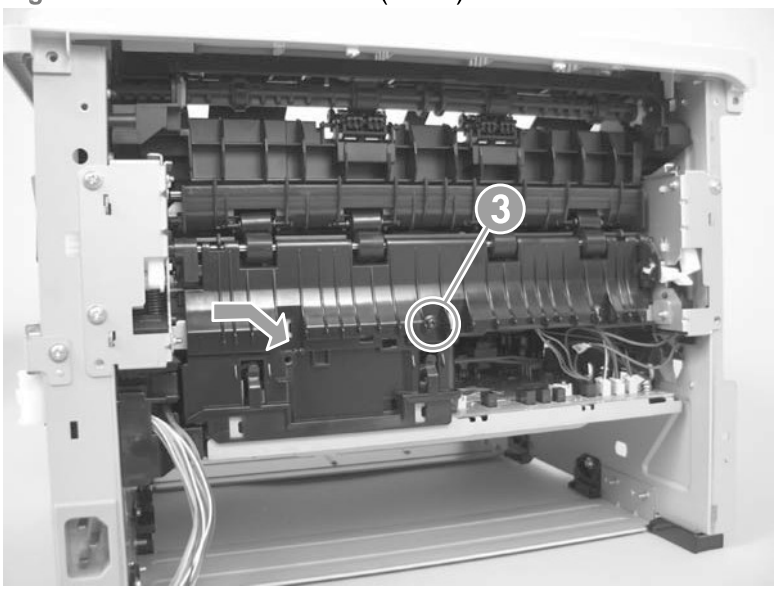
     NOTE: Only the HP LaserJet P2050 Series products have a reverse-feed sensor installed.
2. Disconnect six connectors (callout 1), and then release the wire harnesses from the guide (callout 2).

Figure 6-88 Remove the fuser (1 of 7)



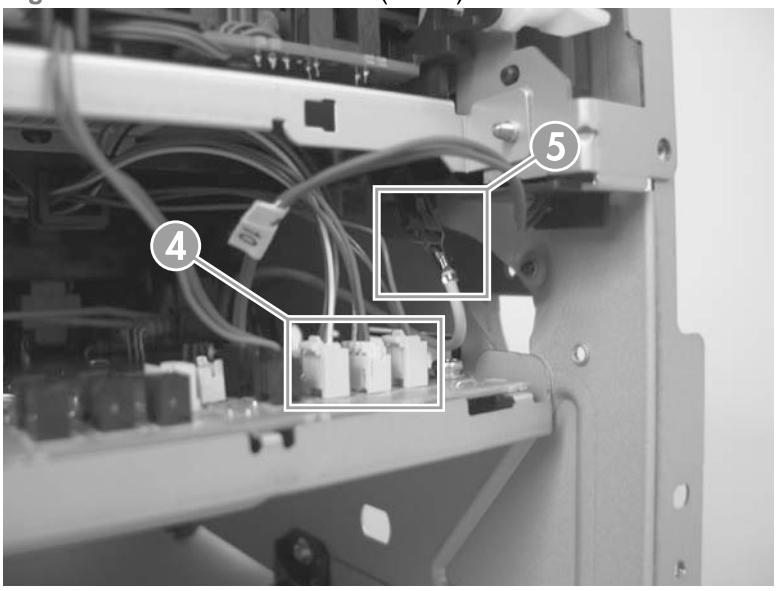
3. Remove one screw (callout 3), and then slide the media-feed guide toward the formatter side of the product to remove it.

Figure 6-89 Remove the fuser (2 of 7)



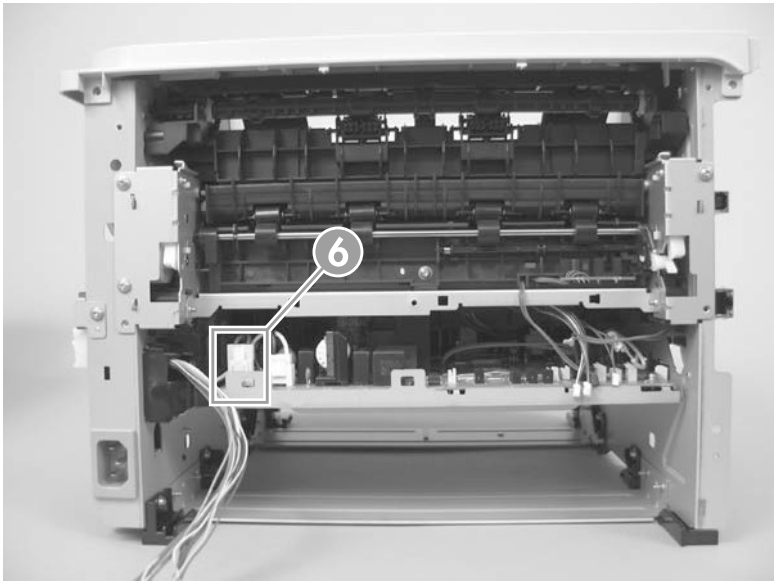
4. Disconnect three connectors (callout 4) and one ground connector (callout 5).

Figure 6-90 Remove the fuser (3 of 7)



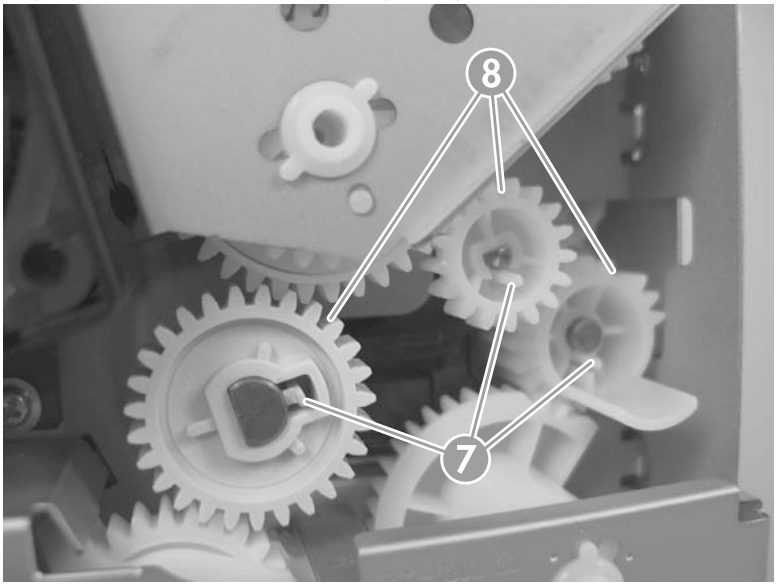
5. Disconnect one connector (callout 6).

Figure 6-91 Remove the fuser (4 of 7)



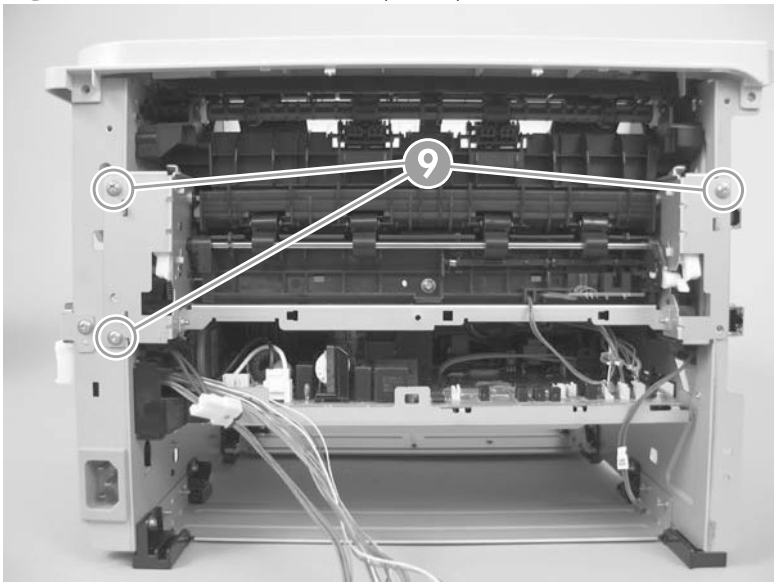
6. Release three tabs (callout 7), and then remove three gears (callout 8).

Figure 6-92 Remove the fuser (5 of 7)



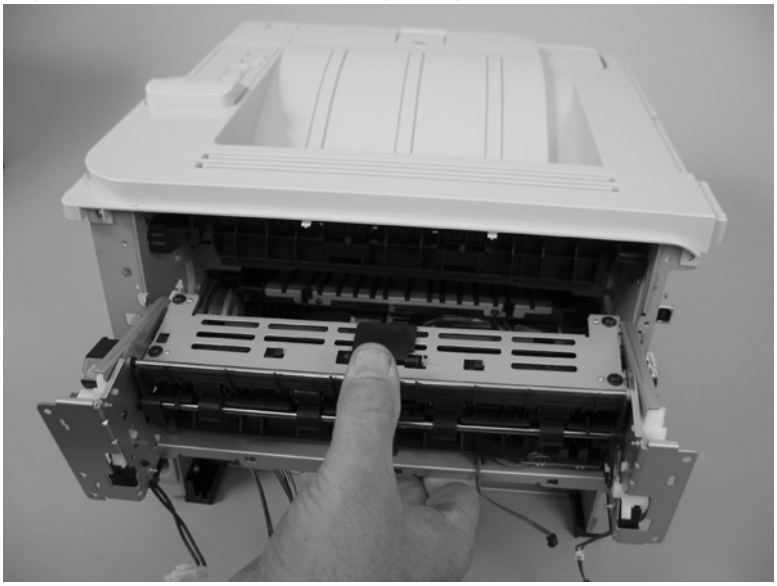
7. Remove three screws (callout 9).

Figure 6-93 Remove the fuser (6 of 7)



8. Carefully remove the fuser.

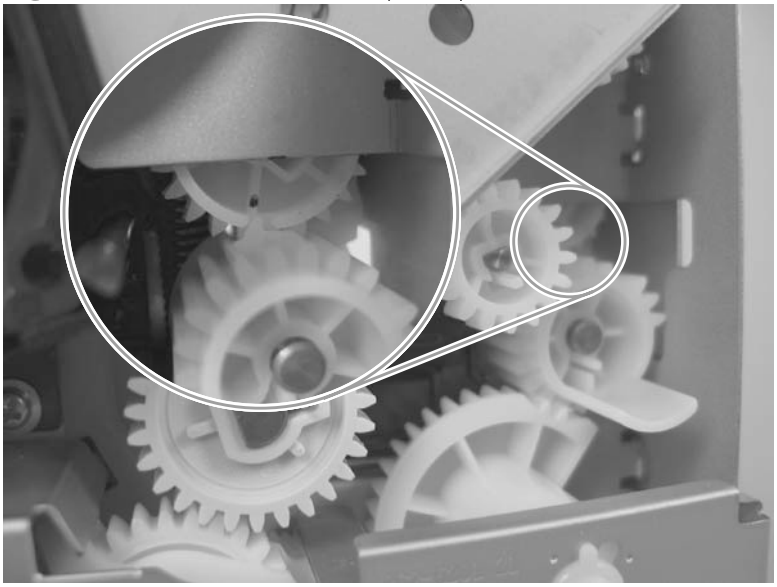
Figure 6-94 Remove the fuser (7 of 7)



Reinstall the fuser

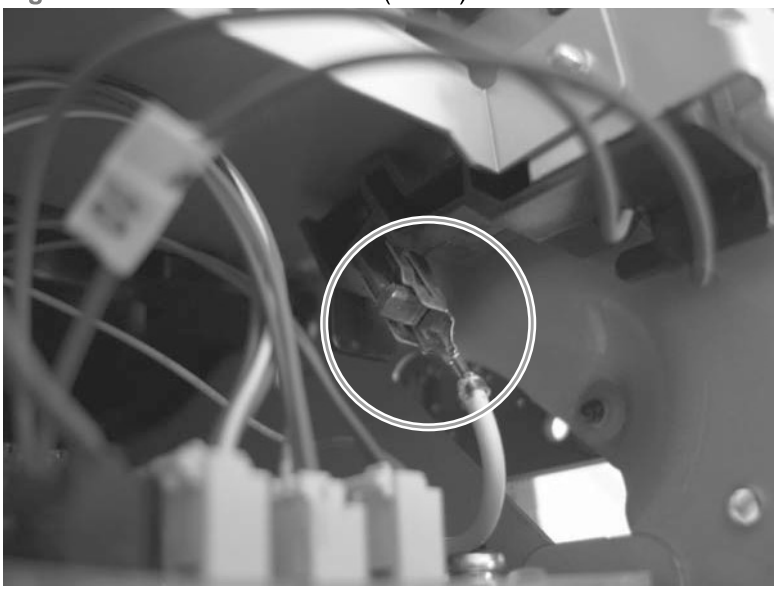
1. The drive gears must be correctly aligned when the fuser is reinstalled or replaced. The gears are keyed and can only be installed when they are correctly aligned.

Figure 6-95 Reinstall the fuser (1 of 2)



2. Make sure that the ground connector is correctly fastened and fully seated on the connector lug.

Figure 6-96 Reinstall the fuser (2 of 2)



Engine controller unit (ECU)

⚠ **WARNING!** ESD sensitive component.

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

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

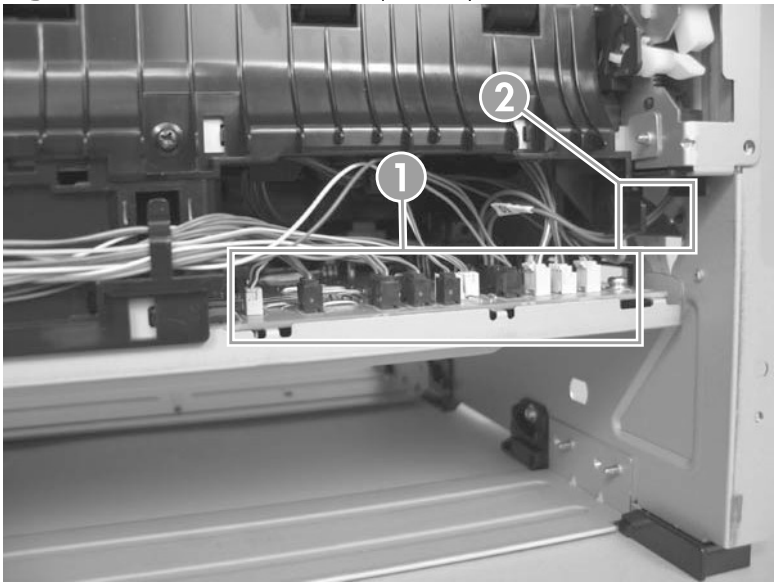
     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Reverse-sensor assembly. See Reverse-sensor assembly; HP LaserJet P2050 Series on page 142.

     NOTE: Only the HP LaserJet P2050 Series products have a reverse-feed sensor installed.

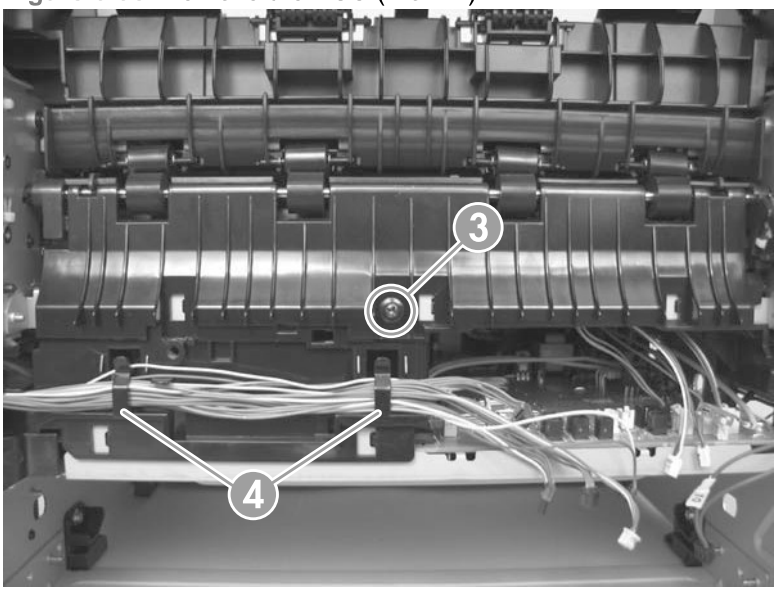
2. Disconnect eleven connectors (callout 1) and one ground connector (callout 2).

Figure 6-97 Remove the ECU (1 of 14)



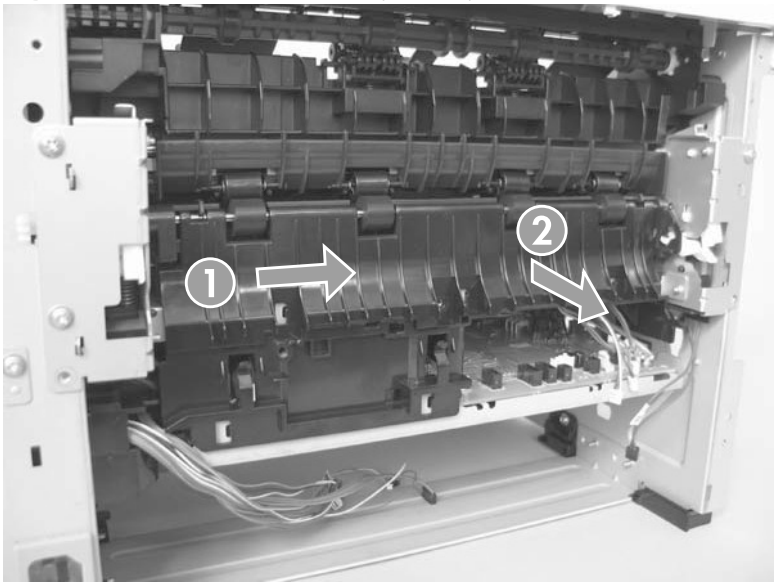
3. Remove one screw (callout 3) and release the wire harnesses from the retainers (callout 4).

Figure 6-98 Remove the ECU (2 of 14)



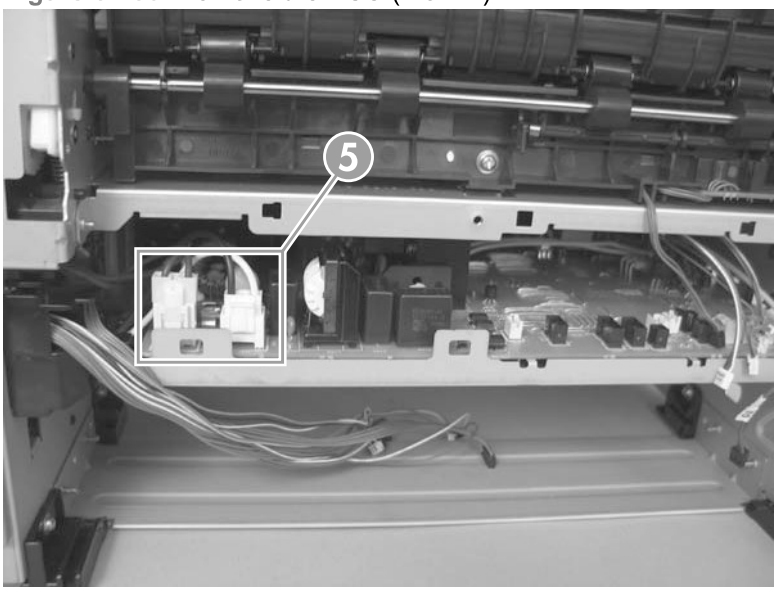
4. Slide the media-feed guide toward the formatter side of the product to remove it.

Figure 6-99 Remove the ECU (3 of 14)



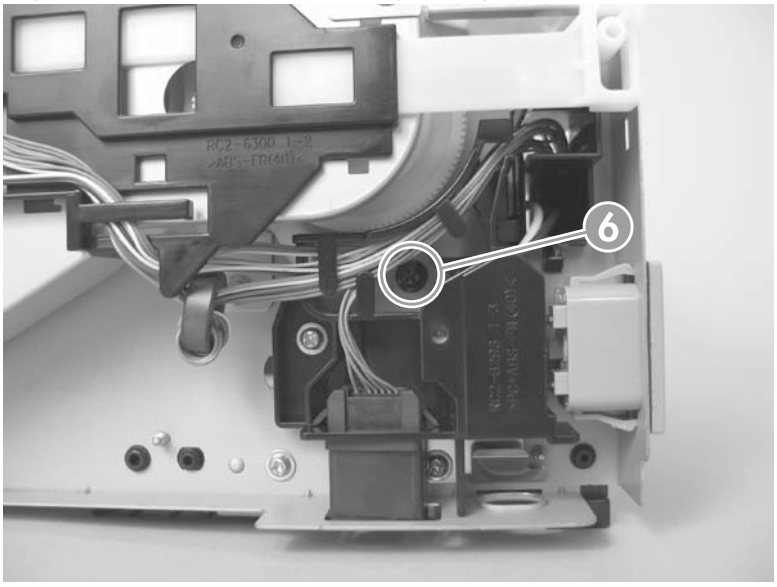
5. Disconnect two connectors (callout 5).

Figure 6-100 Remove the ECU (4 of 14)



6. Remove one screw (callout 6).

Figure 6-101 Remove the ECU (5 of 14)

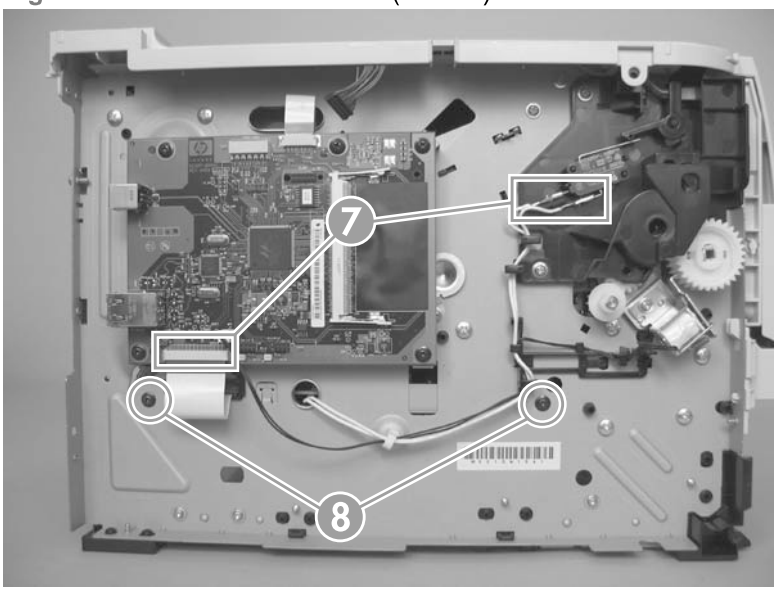


7. Disconnect one FFC (callout 7) and two connectors (callout 7), and then remove two screws (callout 8).

△ **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.

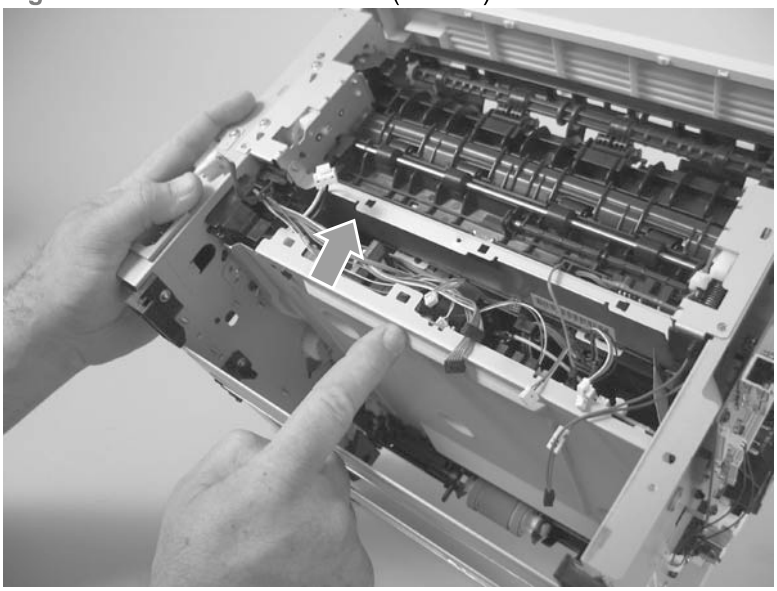
NOTE: Place a mark on one of the cartridge-door interlock switch wires before you disconnect them, so that you can reconnect the connectors to the same switch lugs.

Figure 6-102 Remove the ECU (6 of 14)



8. Slightly raise the power-inlet side of the ECU.

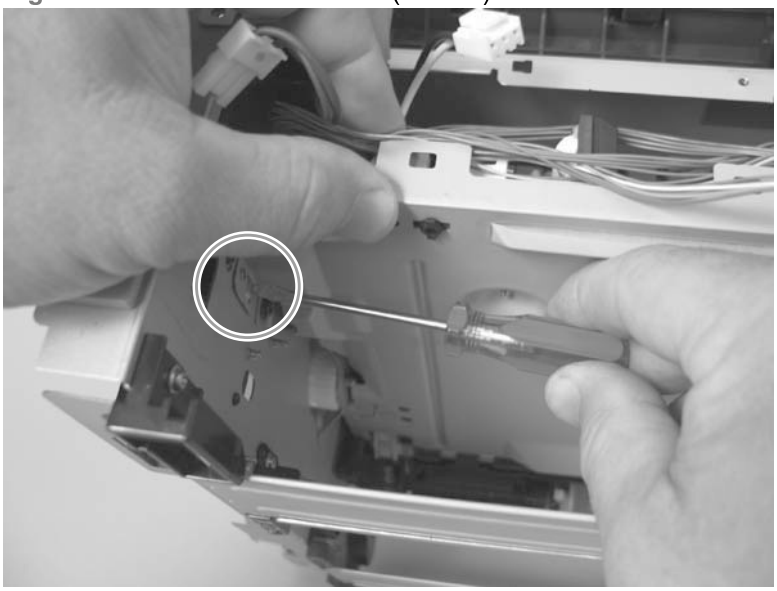
Figure 6-103 Remove the ECU (7 of 14)



9. Use a small flat blade screwdriver to release the sheet-metal tab in the product chassis.

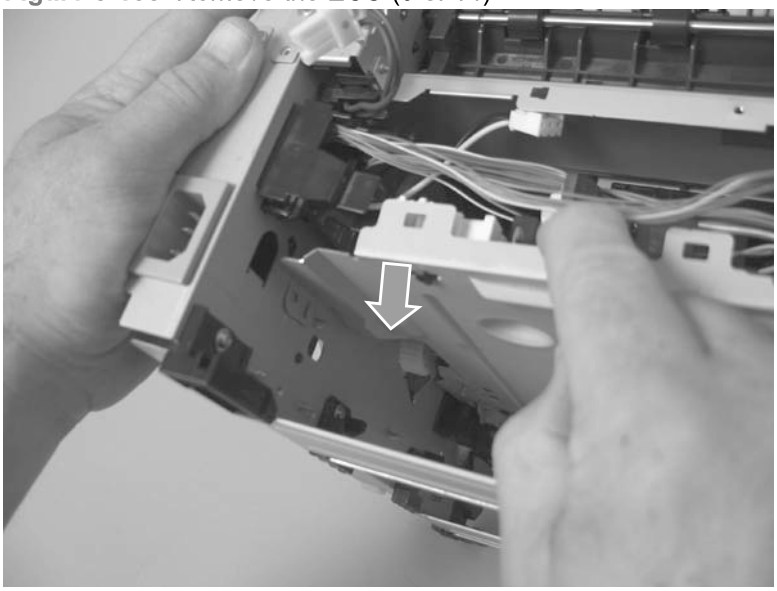
△ **CAUTION:** Carefully push the tab toward the outside of the product to release it. Do not bend the tab so much that it will not engage the ECU mounting bracket when the ECU is reinstalled.

Figure 6-104 Remove the ECU (8 of 14)



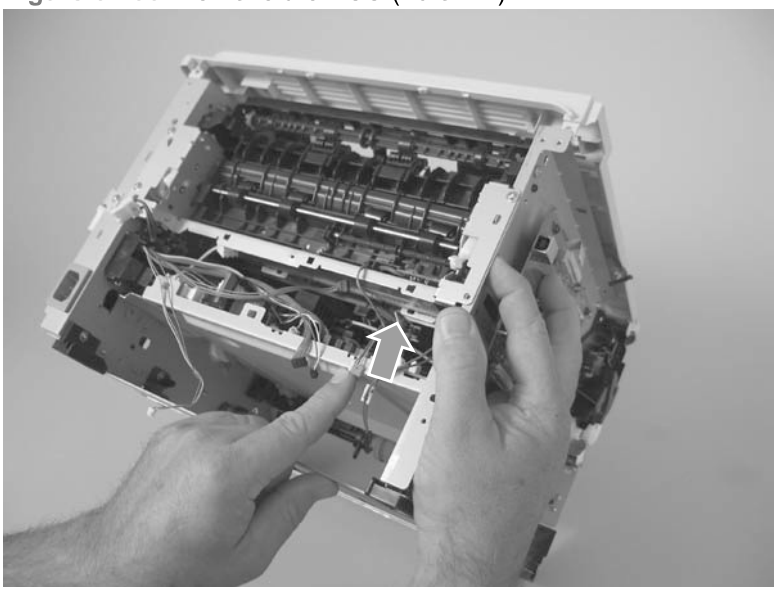
10. Pull the ECU down until the mounting bracket is below the sheet-metal tab.

Figure 6-105 Remove the ECU (9 of 14)



11. Slightly raise the formatter side of the ECU.

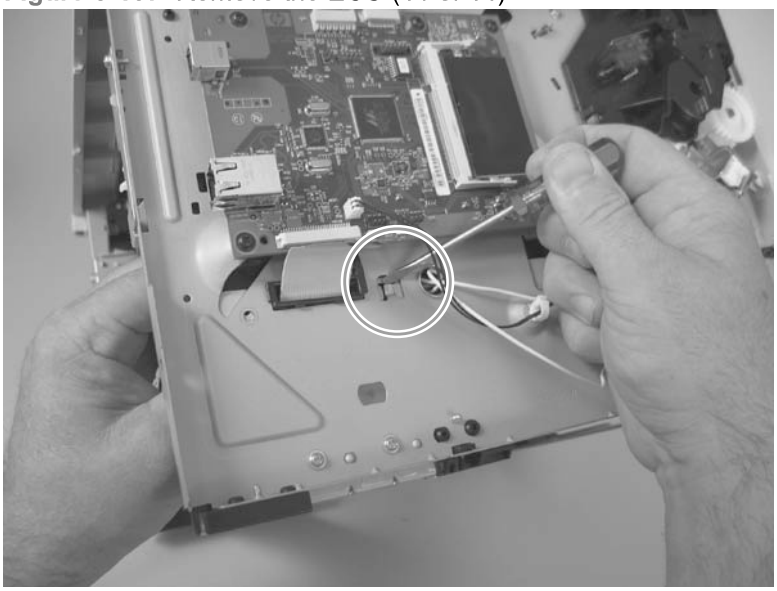
Figure 6-106 Remove the ECU (10 of 14)



12. Use a small flat blade screwdriver to release the sheet-metal tab in the product chassis.

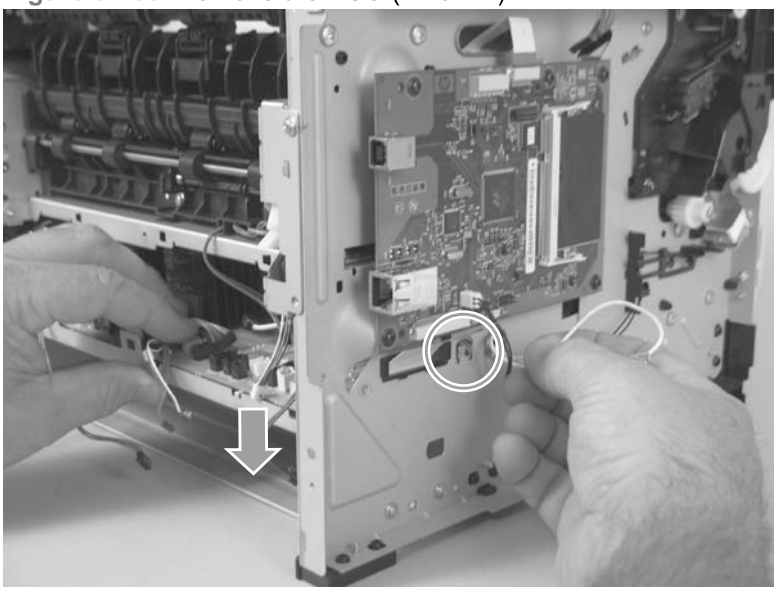
△ **CAUTION:** Carefully pull the tab toward the outside of the product to release it. Do not bend the tab so much that it will not engage the ECU mounting bracket when the ECU is reinstalled.

Figure 6-107 Remove the ECU (11 of 14)



13. Pull the ECU down until the mounting bracket is below the sheet-metal tab.

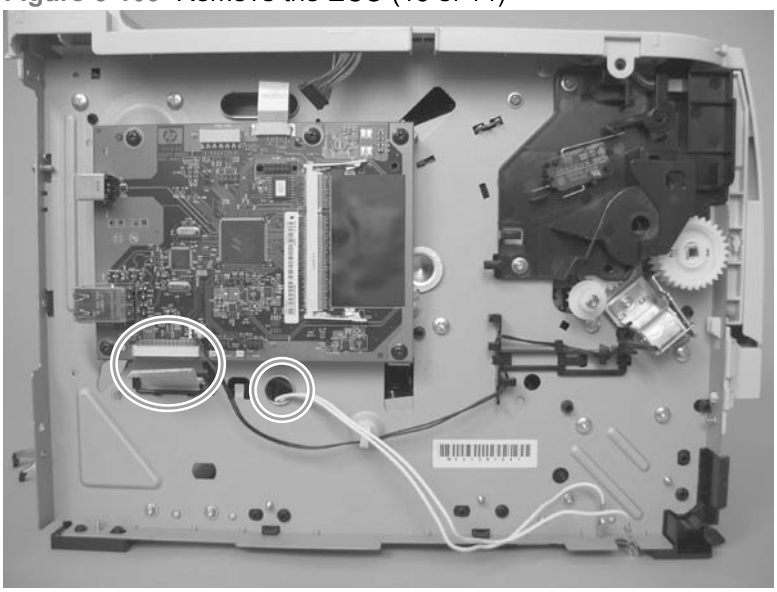
Figure 6-108 Remove the ECU (12 of 14)



14. When the ECU is removed, you must carefully pass the FFC and wire harness through the holes in the chassis.

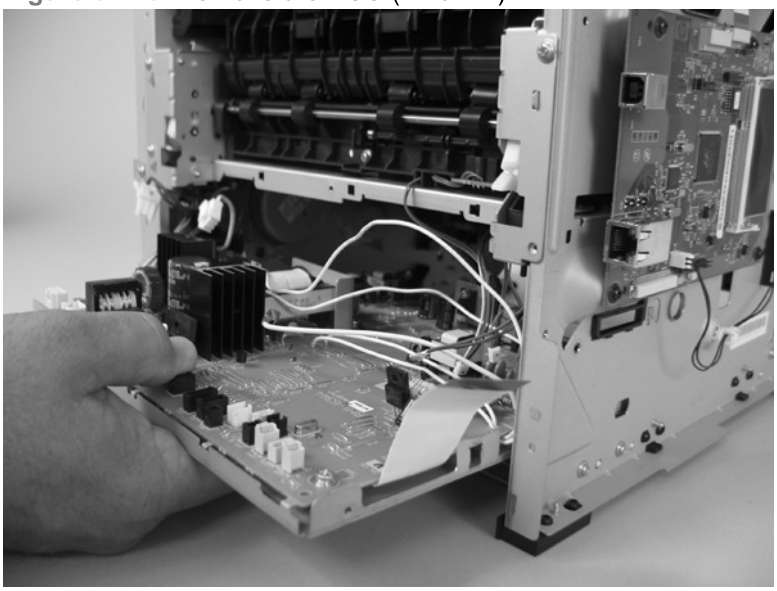
△ **CAUTION:** Do not bend or fold the flat flexible cables (FFCs) during removal or installation. Also, do not straighten pre-folds in the FFCs.

Figure 6-109 Remove the ECU (13 of 14)



15. Carefully slide the ECU out of the product.

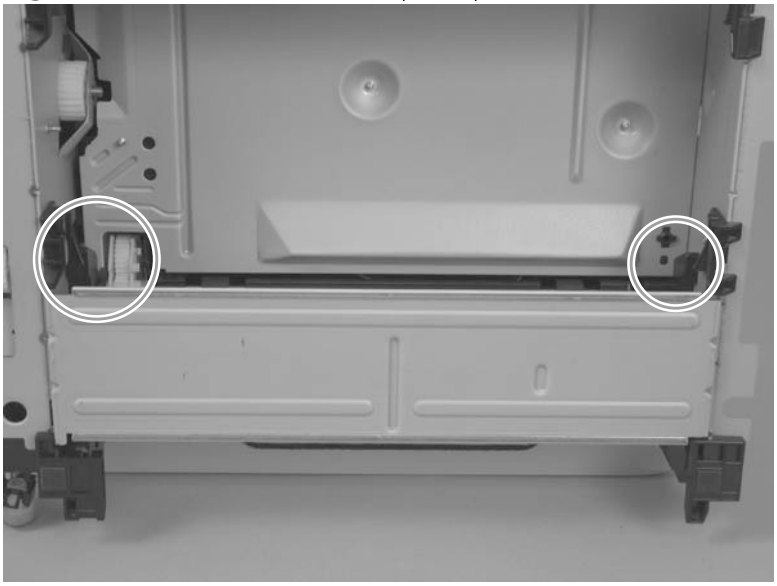
Figure 6-110 Remove the ECU (14 of 14)



Reinstall the ECU

1. When you reinstall the ECU, look into the Tray 2 cavity, and make sure that the corners of the ECU mounting bracket are engaged with the product chassis.

Figure 6-111 Reinstall the fuser (1 of 2)



2. Make sure that the ground connector is correctly fastened and fully seated on the connector lug.

Figure 6-112 Reinstall the fuser (2 of 2)

Paper-feed-guide assembly

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

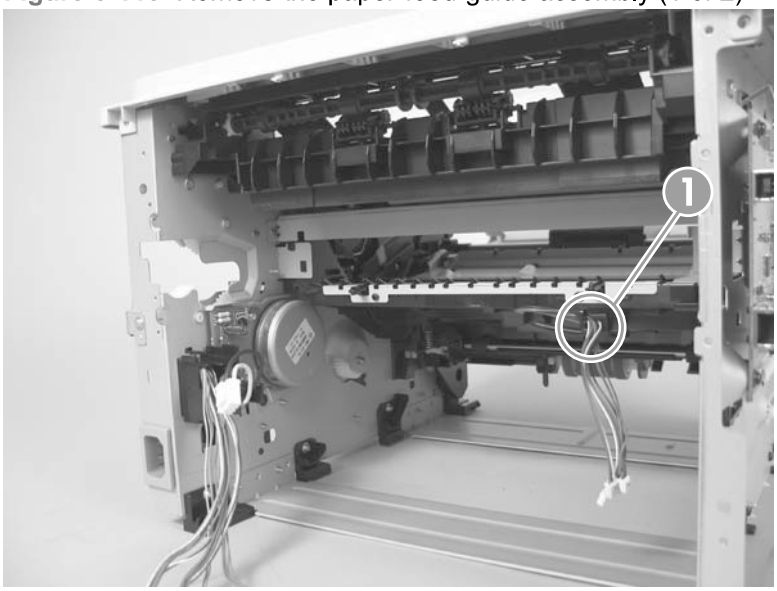
     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Reverse-sensor assembly. See Reverse-sensor assembly; HP LaserJet P2050 Series on page 142.

     NOTE: Only the HP LaserJet P2050 Series products have a reverse-feed sensor installed.

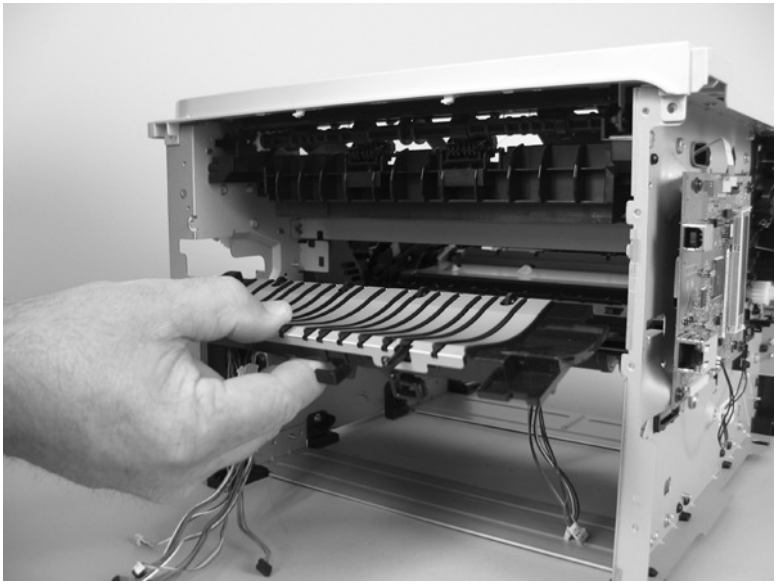
   - ECU. See Engine controller unit (ECU) on page 163.
2. Release all of the wire harnesses from the retainer (callout 1).

Figure 6-113 Remove the paper-feed-guide assembly (1 of 2)



3. Remove the paper-feed-guide assembly.

Figure 6-114 Remove the paper-feed-guide assembly (2 of 2)



Main motor

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

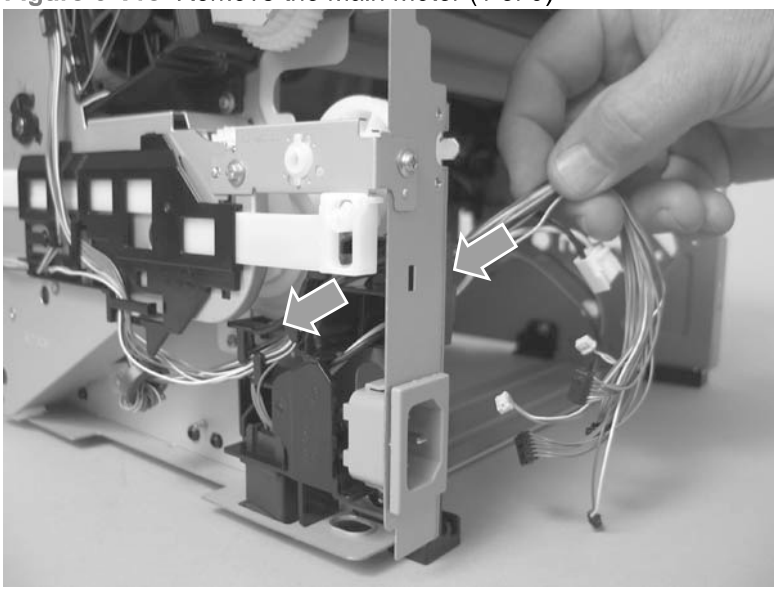
     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Reverse-sensor assembly. See Reverse-sensor assembly; HP LaserJet P2050 Series on page 142.

     NOTE: Only the HP LaserJet P2050 Series products have a reverse-feed sensor installed.

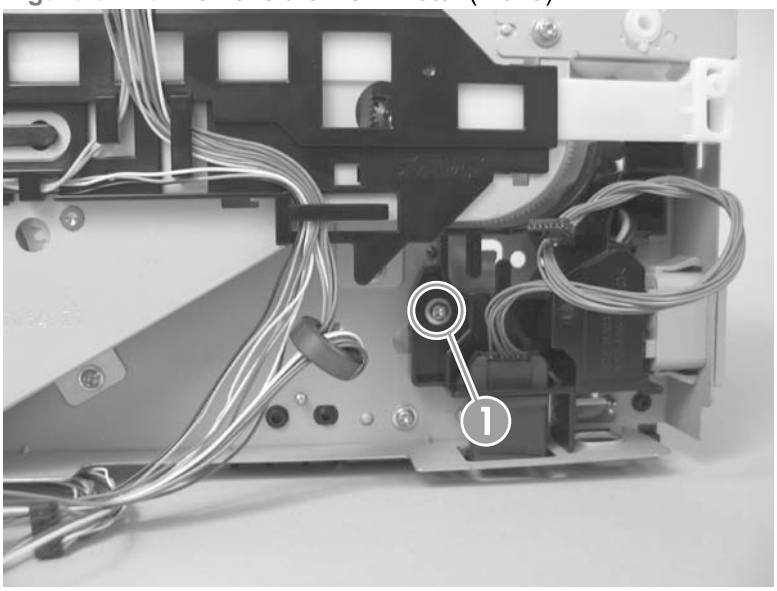
   - Fuser. See Fuser on page 158.
   - ECU. See Engine controller unit (ECU) on page 163.
   - Paper-feed-guide assembly. See Paper-feed-guide assembly on page 172.
2. Pass the wire harness through the opening in the chassis.

Figure 6-115 Remove the main motor (1 of 5)



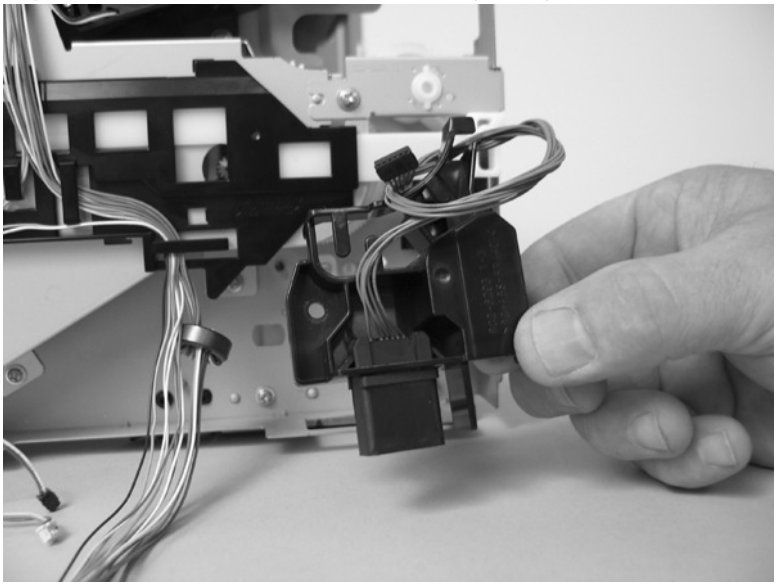
3. Release the wire harnesses from the guide, and then remove one screw (callout 1).

Figure 6-116 Remove the main motor (2 of 5)



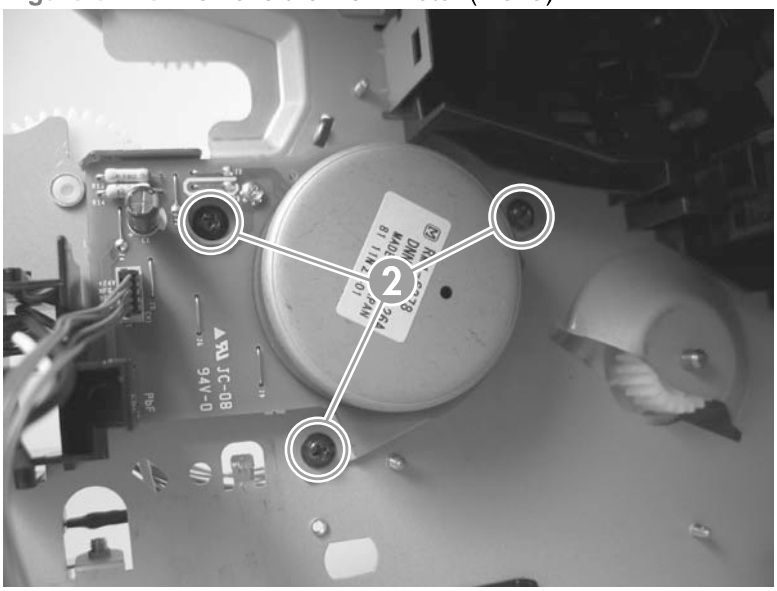
4. Remove the guide.

Figure 6-117 Remove the main motor (3 of 5)



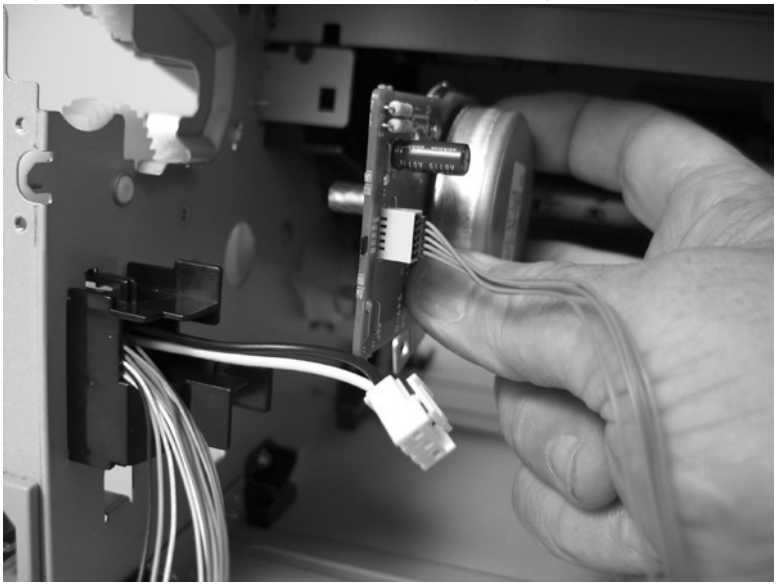
5. Remove three screws (callout 2).

Figure 6-118 Remove the main motor (4 of 5)



6. Remove the main motor.

Figure 6-119 Remove the main motor (5 of 5)



Face-down-drive or duplexing-paper-feed assembly

The HP LaserJet P2030 Series products have a face-down-drive assembly installed.

The HP LaserJet P2050 Series products have a duplexing-paper-feed assembly installed.

These components appear identical from the outside, but they have different internal gears and functions. The same procedure is used to remove either component.

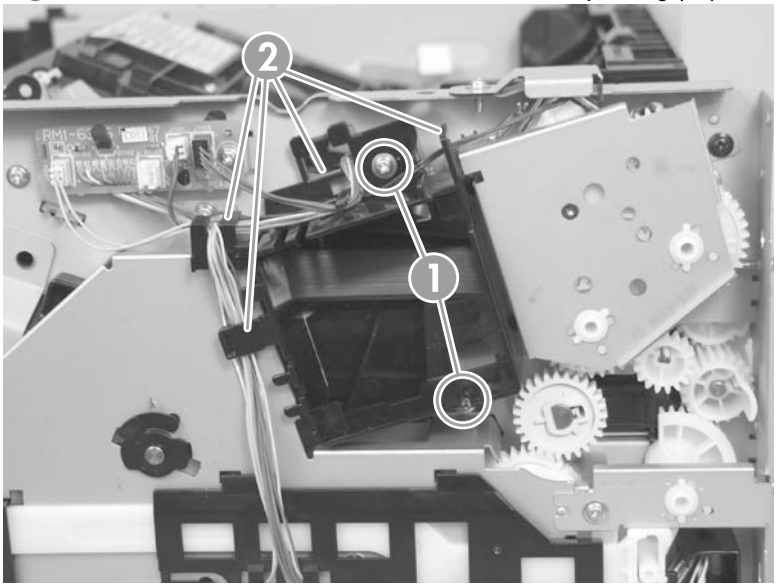
1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Top cover assembly. See Top-cover assembly on page 124.
   - Fan. See Fan on page 140.
2. Remove two screws (callout 1), and then release the wire harnesses from the guide (callout 2).

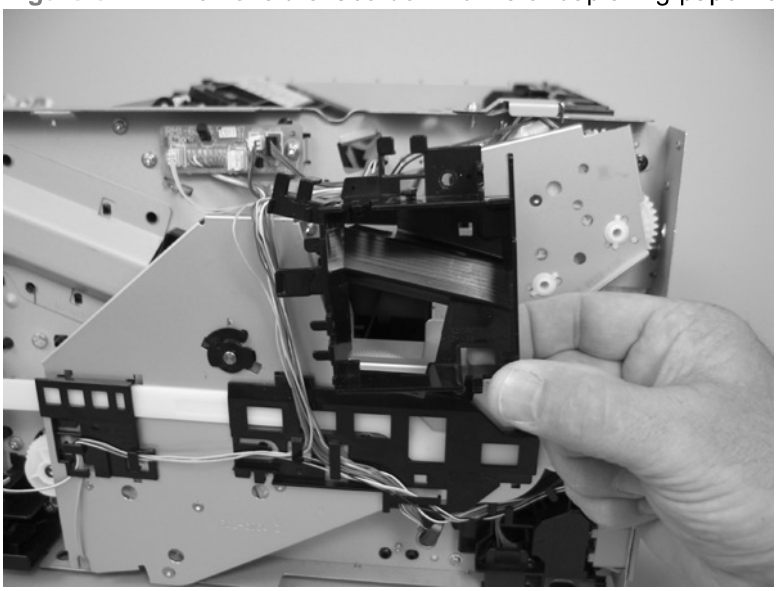
NOTE: You might have to disconnect some of the connectors on the sub PCA to gain enough slack in the wire harnesses to release them from the guide.

Figure 6-120 Remove the face-down-drive or duplexing-paper-feed assembly (1 of 4)



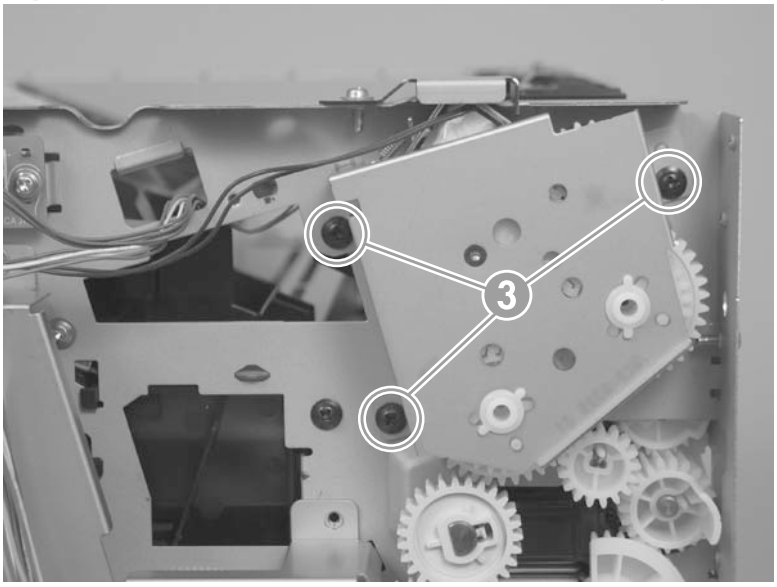
3. Remove the fan duct.

Figure 6-121 Remove the face-down-drive or duplexing-paper-feed assembly (2 of 4)



4. Remove three screws (callout 3).

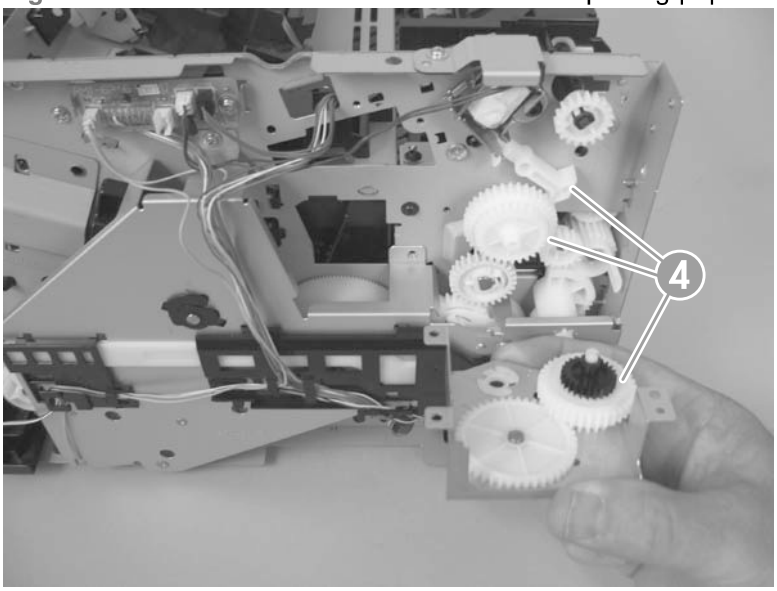
Figure 6-122 Remove the face-down-drive or duplexing-paper-feed assembly (3 of 4)



5. Remove the face-down-drive or duplexing-paper-feed assembly.

△ **CAUTION:** Some of the gears and the solenoid arm are not captive (callout 4). Do not lose the gears or arm when you remove the assembly.

Figure 6-123 Remove the face-down-drive or duplexing-paper-feed assembly (4 of 4)



Duplex solenoid; HP LaserJet P2050 Series

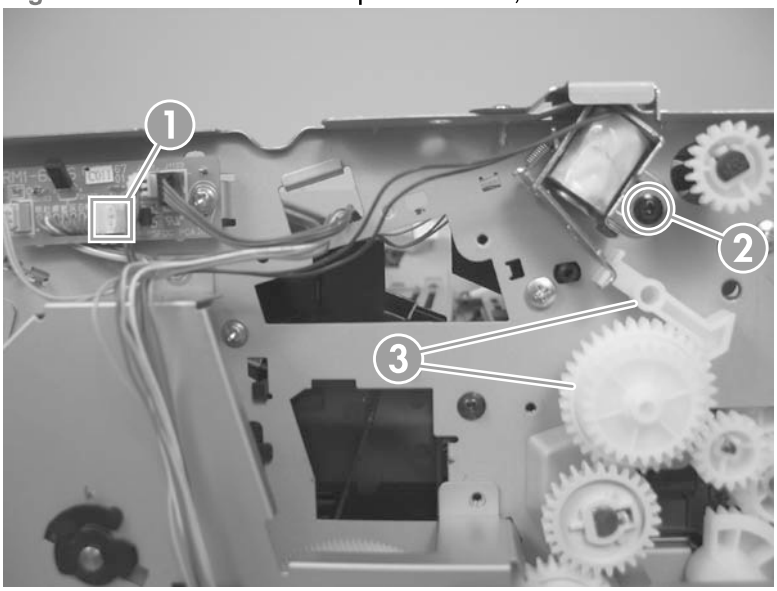
1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Top cover assembly. See Top-cover assembly on page 124.
   - Fan. See Fan on page 140.
   - Duplexing-paper-feed assembly. See Face-down-drive or duplexing-paper-feed assembly on page 177.
2. Disconnect one connector (callout 1), and then remove one screw (callout 2).

CAUTION: The gear and the solenoid arm that are exposed when the duplexing-paper-feed assembly is removed are not captive (callout 3). Do not lose the gear or arm when you remove the solenoid.

Figure 6-124 Remove the duplex solenoid; HP LaserJet P2050 Series



Paper-retaining-delivery assembly

1. Remove the following components:
   - Right cover. See Right cover on page 115.
   - Left cover. See Left cover on page 118.
   - Rear cover, rear door, and duplex-paper-feed assembly. See Rear cover, rear door, and duplex-paper-feed assembly on page 120.

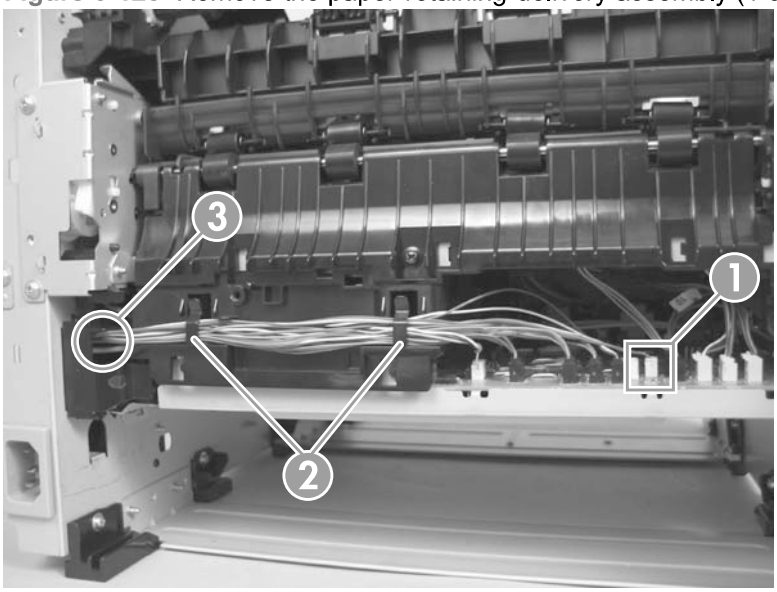
     NOTE: Only the HP LaserJet P2050 Series products have a duplex-paper-feed assembly installed.

   - Top cover assembly. See Top-cover assembly on page 124.
   - Reverse-sensor assembly. See Reverse-sensor assembly; HP LaserJet P2050 Series on page 142.

     NOTE: Only the HP LaserJet P2050 Series products have a reverse-sensor assembly installed.

   - Face-down-drive or duplexing-paper-feed assembly. See Face-down-drive or duplexing-paper-feed assembly on page 177.
2. Disconnect one connector (callout 1), release the wire harness from the retainers (callout 2), and then pass the wire harness though the hole in the chassis (callout 3).

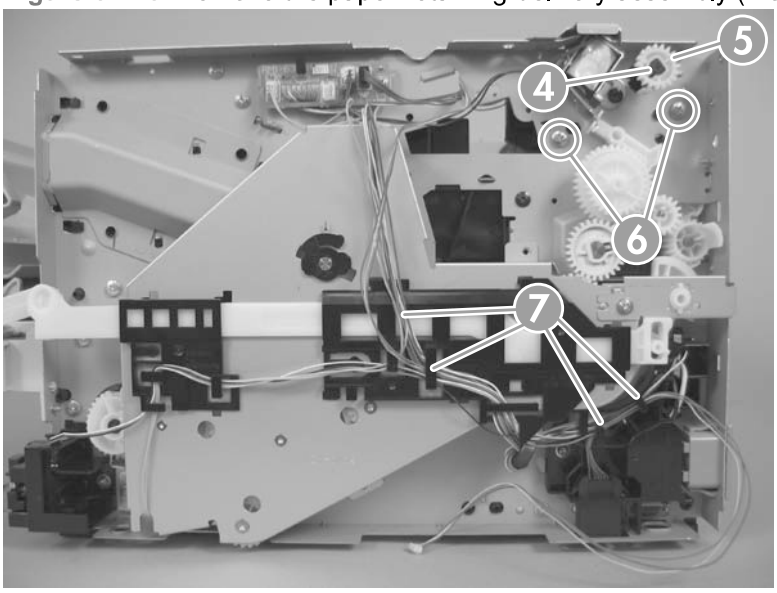
Figure 6-125 Remove the paper-retaining-delivery assembly (1 of 6)



3. Release one tab (callout 4), and then remove one gear (callout 5).

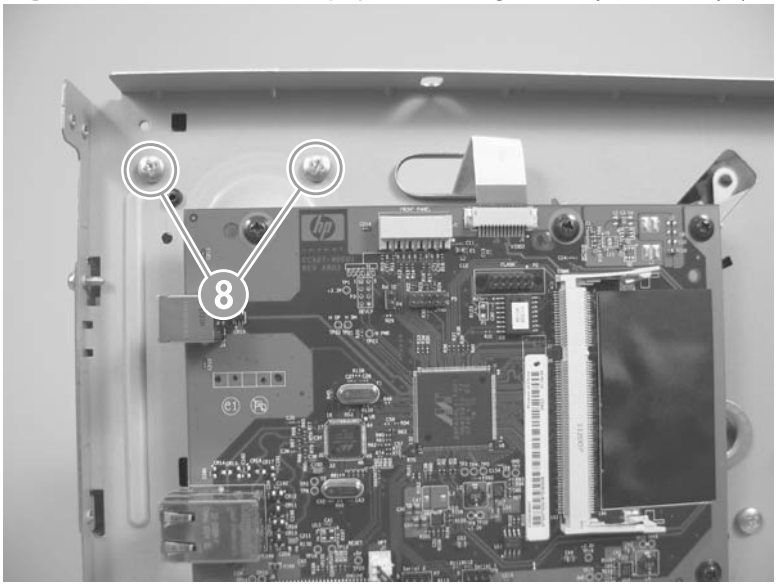
   Remove two screws (callout 6), and then release the wire harness from the guides (callout 7).

Figure 6-126 Remove the paper-retaining-delivery assembly (2 of 6)



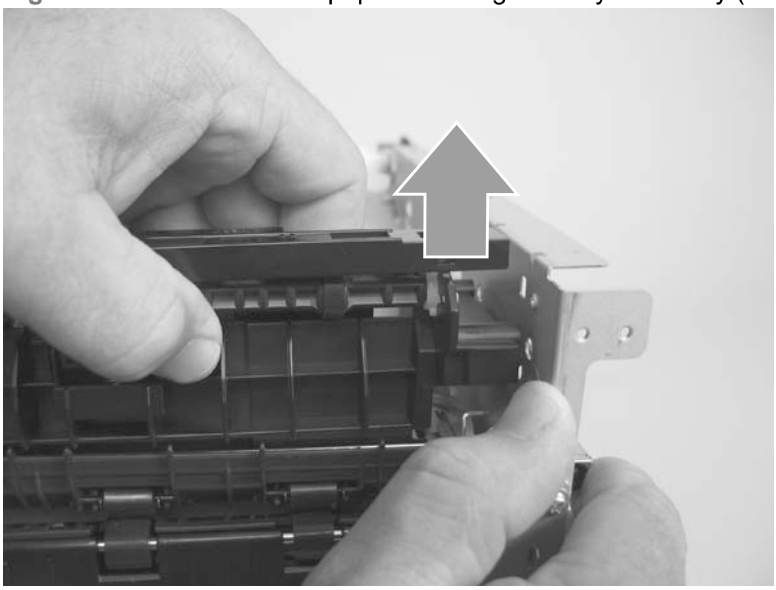
4. Remove two screws (callout 8).

Figure 6-127 Remove the paper-retaining-delivery assembly (3 of 6)



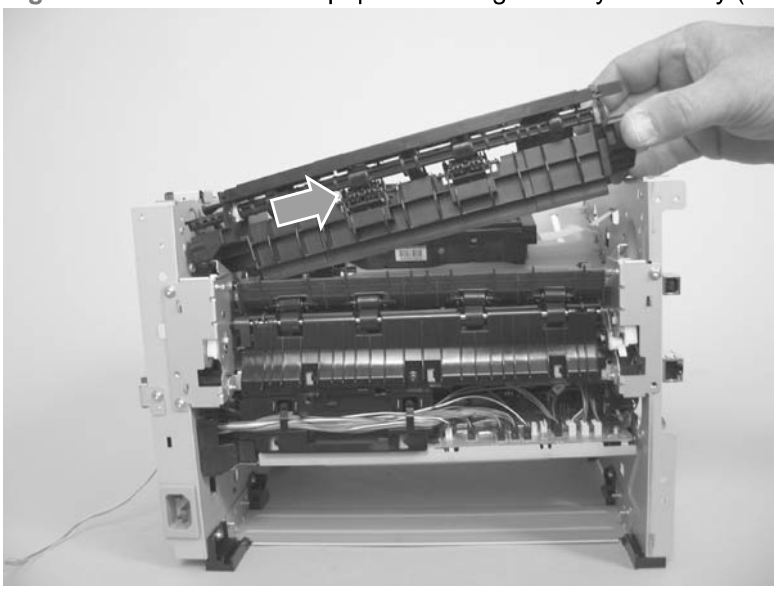
5. Carefully separate the assembly from the chassis, and then raise the end of the assembly to release it.

Figure 6-128 Remove the paper-retaining-delivery assembly (4 of 6)



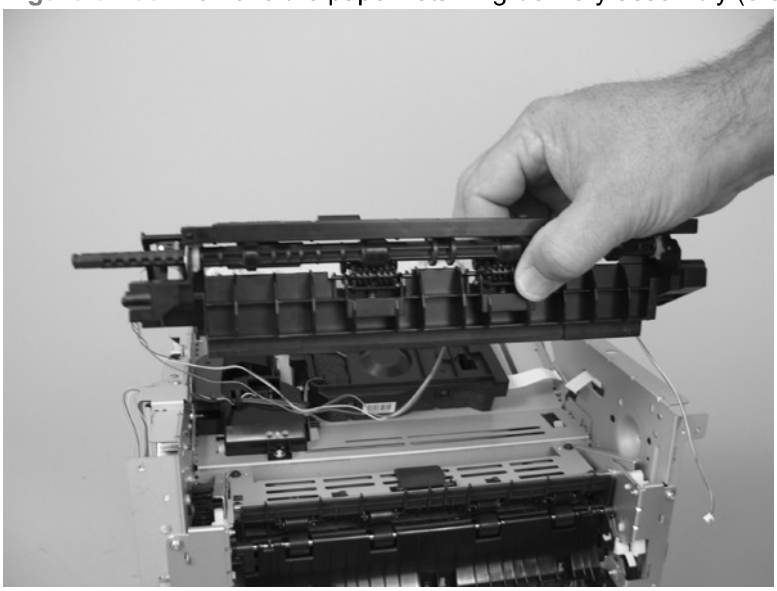
6. Slide the assembly toward the formatter side of the product to release it.

Figure 6-129 Remove the paper-retaining-delivery assembly (5 of 6)



7. Remove the paper-retaining-delivery assembly

Figure 6-130 Remove the paper-retaining-delivery assembly (6 of 6)



7 Solve problems

To use the information in this chapter, you should have a basic understanding of the HP LaserJet printing process. Explanations of each mechanical assembly, the product systems, and the basic theory of operation are contained in Theory of operation on page 79. Do not perform any of these troubleshooting processes unless you understand the function of each product component.

NOTE: Unless otherwise noted, all illustrations depicting the HP LaserJet P2050 Series Printers are also valid for the HP LaserJet P2030 Series Printers.

- Solve general problems
- Menu map (HP LaserJet P2050 Series Printers only)
- Troubleshooting process
- Tools for troubleshooting
- Problem-solve diagrams
- Status-light patterns (HP LaserJet P2030 Series Printers only)
- Status-alert messages (HP LaserJet P2030 Series Printers only)
- Interpret control-panel messages (HP LaserJet P2050 Series Printers only)
- Event-log messages
- Paper-handling problems
- Solve image-quality problems
- Solve print-quality problems
- Solve performance problems
- Solve connectivity problems
- Service mode functions

Solve general problems

If the product is not responding correctly, complete the steps in the following checklist, in order. If the product does not pass a step, follow the corresponding troubleshooting suggestions. If a step resolves the problem, you can stop without performing the other steps on the checklist.

Troubleshooting checklist

1. Make sure the product Ready light is on. If no lights are on, complete these steps:
   a. Check the power-cable connections.
   b. Check that the power switch is on.
   c. Make sure that the line voltage is correct for the product power configuration. (See the label that is on the back of the product for voltage requirements.) If you are using a power strip and its voltage is not within specifications, plug the product directly into the wall. If it is already plugged into the wall, try a different outlet.
   d. Verify that connectors J2 and J7 on the formatter PCA are seated. See Figure 7-3 Components on the left side of the product on page 196.
   e. Perform an engine test. If the test is successful, replace the control panel and then the formatter PCA. See Top-cover assembly on page 124, Formatter PCA; HP LaserJet P2030 Series on page 130, or Formatter PCA; HP LaserJet P2050 Series on page 132.
2. Check the cables.
   a. Check the cable connection between the product and the computer or network port. Make sure that the connection is secure.
   b. Make sure that the cable itself is not faulty by using a different cable, if possible.
   c. Check the network connection. See Solve network problems on page 249.
3. Check to see if any messages appear on the control-panel display. If any error messages appear, see Interpret control-panel messages (HP LaserJet P2050 Series Printers only) on page 219.
4. Check to see if any control-panel lights are lit. See Status-light patterns (HP LaserJet P2030 Series Printers only) on page 209.
5. Make sure that the print media that you are using meets specifications.
6. Print a configuration page. See Print the information pages on page 48.
   a. If the pages do not print, check that at least one tray contains print media.
   b. If the page jams in the product, see Clear jams on page 230.
7. If the configuration page prints, check the following items.
   ☐ If the page prints correctly, then the product hardware is working. The problem is with the computer that you are using, with the printer driver, or with the program.
8. Select one of the following options:

   Windows: Click **Start**, click **Settings**, and then click **Printers**, or **Printers and Faxes**. Double-click the name of the product.

-or-

Mac OS X: Open **Print Center** or **Printer Setup Utility**, and double-click the line for the product.

9. Verify that you have installed the printer driver for this product. Check the program to make sure that you are using the printer driver for this product.

10. Print a short document from a different program that has worked in the past. If this solution works, then the problem is with the program that you are using. If this solution does not work (the document does not print), complete these steps:

    a. Try printing the job from another computer that has the product software installed.

    b. If you connected the product to the network, connect the product directly to a computer with a USB cable. Redirect the product to the correct port, or reinstall the software, selecting the new connection type that you are using.

Factors that affect product performance

Several factors affect the time it takes to print a job:

- Maximum product speed, measured in pages per minute (ppm)
- The use of special paper (such as transparencies, heavy paper, and custom-size paper)
- Product processing and download time
- The complexity and size of graphics
- The speed of the computer you are using
- The USB connection
- The product I/O configuration
- The amount of memory installed in the product
- The network operating system and configuration (if applicable)

NOTE: Although additional memory can improve how the product handles complex graphics and improve download times, it will not increase maximum product speed (ppm).

Basic problem solving

Table 7-1 Basic problem solving

Problem	Cause	Solution
When the product is connected to a correctly grounded power source, the LEDs on the control panel do not illuminate and the main motor does not rotate. The product does not turn on.	No power to the product.	1. Verify that the power switch is turned on. 2. Verify that the power cable is correctly plugged into the outlet and the product. 3. Verify that the power outlet has the correct voltage.
	The power inlet/switch cable assembly is defective.	Replace the power inlet/switch cable assembly. See Inlet-cable assembly on page 150.
	The ECU is defective.	Replace the ECU. See Engine controller unit (ECU) on page 163.
When turned on, the LEDs on the control panel light up, but the main motor does not rotate. The product turns on, but the motor does not rotate.	The print-cartridge door is open.	Close the print-cartridge door.
	Media is jammed in the paper path.	Clear all media from the paper path, and make sure that all sensors are working correctly.
	The cable is not connected correctly.	Reconnect the motor cable.
	The motor is not mounted correctly in the product chassis.	Verify that the motor is connected correctly and that it rotates freely.
	A gear is damaged or jammed.	Replace the gear assembly. See Paper-pickup-gear assembly on page 134.
	The ECU is defective.	Replace the ECU. See Engine controller unit (ECU) on page 163.
	The main motor is defective.	Replace the motor. See Main motor on page 174.
The product turns on and the motor rotates, but none of the control-panel lights turn on, and pressing the control-panel buttons has no effect. The product is unresponsive.	The control-panel cable is not connected correctly.	Reconnect the control panel cable.
	The control panel is defective.	Replace the control panel. See Top-cover assembly on page 124.
	The formatter is defective.	Replace the formatter. See Formatter PCA; HP LaserJet P2030 Series on page 130 or Formatter PCA; HP LaserJet P2050 Series on page 132.
The product is on, but the control-panel lights indicate that the product is not in the "ready" state. The product is not "ready."	The product has an internal error that was detected during the Power-On Self-Test sequence.	Consult the list of control-panel light patterns to identify and correct the error.

Table 7-1 Basic problem solving (continued)

Problem	Cause	Solution
The product turns on, the motor rotates, and the control panel indicates the "ready" state, but the product does not print. The product does not print.	A component is defective.	**Perform an engine test to verify print-engine components.** 1. Print an engine test page. See Engine test page on page 251. 2. If the engine test page does not print, check all the connectors on the ECU, and reconnect any cables that are connected incorrectly. 3. If, after checking the connectors, the error persists, replace the ECU. See Engine controller unit (ECU) on page 163.
	The formatter is defective.	Press the Go button to print a Demo page. If the Demo page does not print, replace the formatter. See Formatter PCA; HP LaserJet P2030 Series on page 130 or Formatter PCA; HP LaserJet P2050 Series on page 132.
The product prints the engine test and the Demo page, but does not print jobs sent from a computer. The product does not print from a computer.	The cable is not connected correctly.	Reconnect the cable.
	An incorrect driver is selected.	Select the correct printer driver.
	The printer driver is not installed correctly.	Remove and then reinstall the product software. Make sure that you use the correct procedure and port setting.
	Other devices are connected to the product (for example, through a switch or hub) that are interfering with the computer-product communications.	Disconnect the other devices, switches, or hubs.
	There is a computer-port communications problem.	Reset the computer port settings (see the computer user guide for more information).
	The formatter is defective.	Replace the formatter. See Formatter PCA; HP LaserJet P2030 Series on page 130 or Formatter PCA; HP LaserJet P2050 Series on page 132.

Menu map (HP LaserJet P2050 Series Printers only)

Print a menu map

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

Troubleshooting process

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

- Use the 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 appropriate section of this chapter that provides steps for correcting the malfunction.

Before beginning any troubleshooting procedure, check the following conditions:

- 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 or problems.

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

General topic	Questions
Covers	• Is the front cover closed?
Condensation	• Does condensation occur following a temperature change (particularly in winter following cold storage)? If so, wipe affected area dry or leave the product on for 10 to 20 minutes. • Was a print cartridge installed soon after being moved from a cold to a warm room? If so, allow the print cartridge to sit at room temperature for 1 to 2 hours.
Miscellaneous	• Check for and remove any non-HP components (print cartridges, memory modules, and EIO cards) from the product. • Remove the product from the network and make sure that the failure is associated with the product before beginning troubleshooting. • For any print-quality issues, calibrate the product.

Tools for troubleshooting

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

Continuous self-test (HP LaserJet P2050 Series only)

The continuous self-test puts the device into a continuous printing mode without having to send jobs to it.

1. Confirm that the product is in a Ready state. Press OK to enter the main menu.
2. Simultaneously press and hold the down arrow ▼ and Cancel button ⊗.
3. Press OK to re-enter the main menu.
4. Navigate to the secondary service menu.
5. Select **Service Reports** and then **Cont. Self-Test**.

To terminate the continuous self-test, press the Cancel button ⊗.

Half self-test functional check

The half self-test check determines which printing process is malfunctioning.

1. Print a Configuration page.
2. Press the print-cartridge-door button after the paper advances halfway through the product (about five seconds after the motor begins rotating). The leading edge of the paper should have advanced past the print cartridge.
3. Remove the print cartridge.
4. Open the print cartridge drum shield to view the drum surface. If a dark and distinct toner image is present on the drum surface, assume that the first two functions of the electrophotographic process are functioning (image formation and development). Troubleshoot the failure as a transfer or fusing problem.

If there is no image on the photosensitive drum, perform these checks:

1. Make sure you removed the entire length of the sealing tape from the print cartridge before you installed the cartridge.
2. Perform a drum rotation functional check to make sure that the drum is rotating.
3. Perform a high-voltage contacts check.

Drum rotation functional check

The photosensitive drum, located in the print cartridge, must rotate for the print process to work. The photosensitive drum receives its drive from the main drive assembly.

NOTE: This test is especially important if refilled print cartridges have been used.

1. Open the print-cartridge door.
2. Remove the print cartridge.

3. Mark the drive gear on the cartridge with a felt-tipped marker. Note the position of the mark.
4. Replace the print cartridge and close the print-cartridge door. The startup sequence should rotate the drum enough to move the mark.
5. Open the print-cartridge door and inspect the gear that was marked in step 3. Verify that the mark moved.

If the mark did not move, inspect the main drive assembly to make sure that it is meshing with the print cartridge gears. If the drive gears appear functional and the drum does not move, replace the print cartridge. See Print cartridge on page 102.

Heating element check

Paper passes between the heating element and a soft pressure roller to fuse toner to the paper.

1. Unplug the product for at least ten minutes.
2. Verify that the thermistor connector is seated into both the product chassis and the ECU.
3. Remove the heating element connector from the ECU. To measure the continuity of the heating element, measure the resistance between the two pins at the end of the cable.

   NOTE: Normal resistance is 25 ohms +/- 10 ohms for the 110 V product and 80 ohms +/- 20 ohms for the 220 V product.

   If no resistance is measured, replace the fuser. See Fuser on page 158.
4. Remove the thermistor connector, and then measure the resistance between J206 pins one and two and between J206 pins three and four.

   NOTE: Normal resistance between both pairs of pins is 370K ohms +/- 50K ohms at 20° C (68° F).
5. If no resistance is measured, replace the fuser. See Fuser on page 158,

High-voltage contacts check

The high-voltage contacts in the product must have a good connection with the contacts on the print cartridge to provide the necessary voltages for the electrophotographic processes.

Checking the print cartridge contacts

When the product is turned on, high voltage is placed on the developer roller of the print cartridge. If the antenna does not detect this voltage, the product displays an **Install Black Cartridge** message. Remove the print cartridge and visually inspect the three connection points on the ends of the print cartridge: primary charging contact (callout 1), developer roller contact (callout 2), and antenna contact (callout 3).

If one is dirty or corroded, clean the connection with isopropyl alcohol. If one is damaged, replace the print cartridge. See Print cartridge on page 102.

Figure 7-1 High-voltage contact points (on the print cartridge)

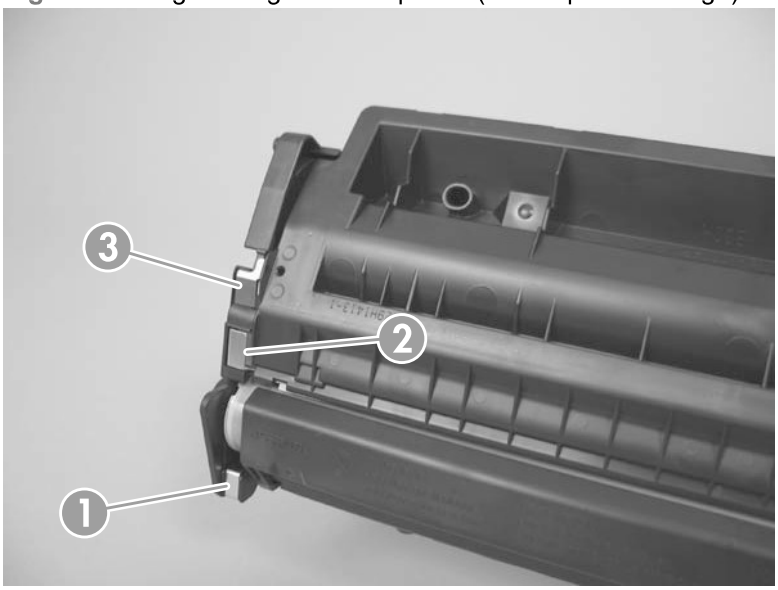
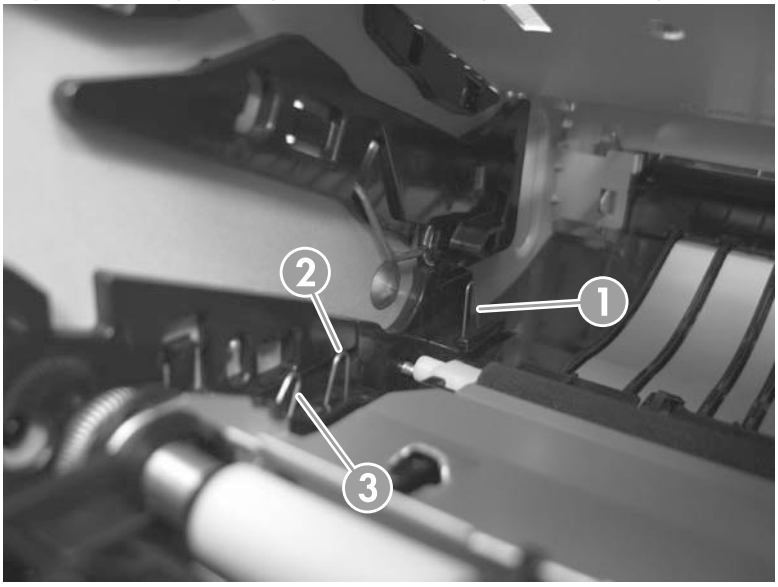


Figure 7-2 High-voltage contact points (on the product)



△ **CAUTION:** After removing the print cartridge, handle it only on the ends.

Component locations

NOTE: Control-panel messages appear on HP LaserJet P2050 Series Printers only.

Figure 7-3 Components on the left side of the product

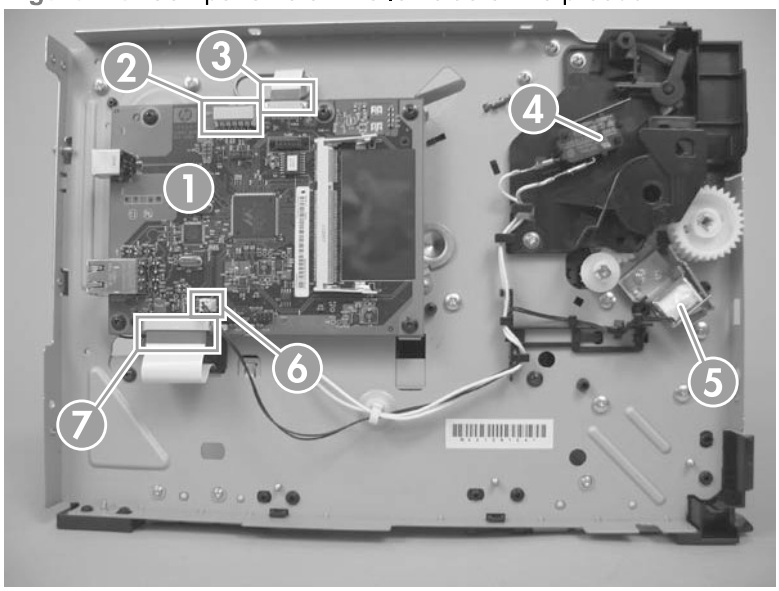


Table 7-2 **Left-side components**

Reference	Component	Description	If disconnected or blocked
1	Formatter		
2	J2	Connector to control panel	Blank display
3	J1	FFC to laser drive PCA	
4	SW301	Cartridge door switch	Control-panel message: **Door open** appears.
5	SL1	Tray 1 pickup solenoid (J4)	Control-panel message: **Jam in Tray 1** appears.
6	J3	Connector to Tray 1 pickup solenoid	
7	J7	FFC to engine controller	

Figure 7-4 Components on the right side of the product

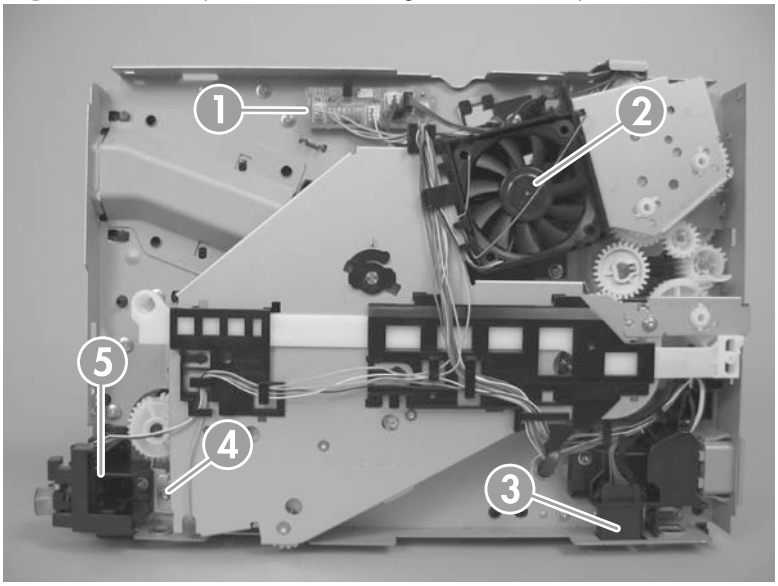


Table 7-3 **Right-side components**

Reference	Component	Description	If disconnected or blocked
1	Connector PCA	See Figure 7-5 Components on the connector PCA on page 198 for more information.	
2	FM1	Main fan	Control-panel message: **57 Fan error** appears. Fan rotates about 30 seconds after being turned on.
3	Paper feeder connector	Connector to optional Tray 3	
4	SL2	Tray 2 solenoid (J1104)	Control-panel message: **Jam in Tray 2** appears.
5	SW1001	Power switch	

Figure 7-5 Components on the connector PCA

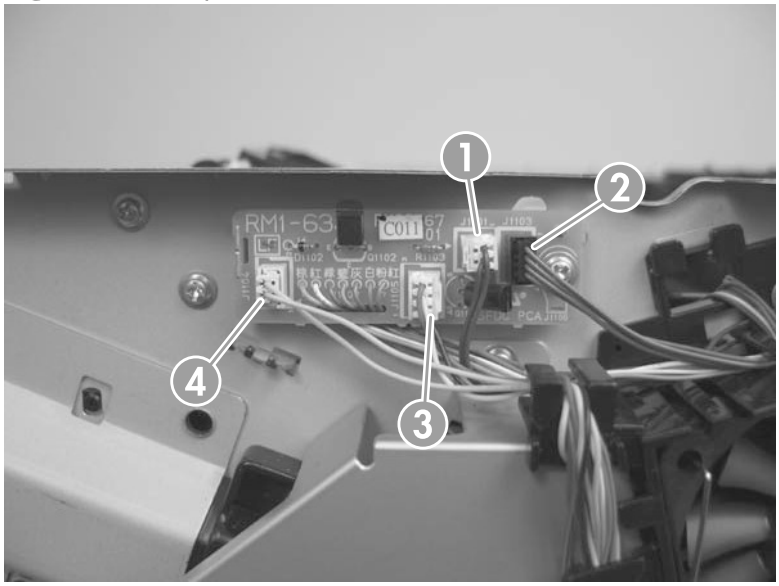


Table 7-4 **Connector PCA components**

Reference	Component	Description
1	J1101	Duplex reverse solenoid (SL3)
2	J1103	Connector to scanner motor
3	J1105	Connector to main cooling fan
4	J1104	Connector to Tray 2 solenoid (SL2)

Figure 7-6 Components on the rear side of the product

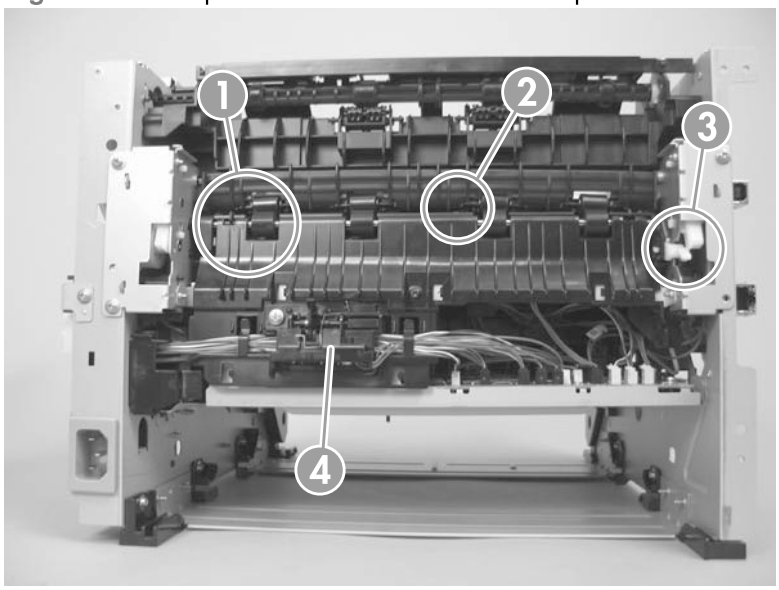


Table 7-5 **Rear-side components**

Reference	Component	Description	If disconnected or blocked
1	PS918	Duplex reverse sensor flag (J208) (HP LaserJet P2050 Series Printers only)	Control-panel message: **Jam in output bin** appears.
2	PS915	Photosensor flag for fuser (J206)	Control-panel message: **Jam in output bin** appears.
3	White lever	When the rear door is closed, this lever positions the photosensor flag for the fuser (PS915) to detect paper exiting the fuser.	
4	Reverse sensor assembly	Detects paper during the duplexing process (HP LaserJet P2050 Series Printers only)	

Figure 7-7 Components in the print cartridge cavity

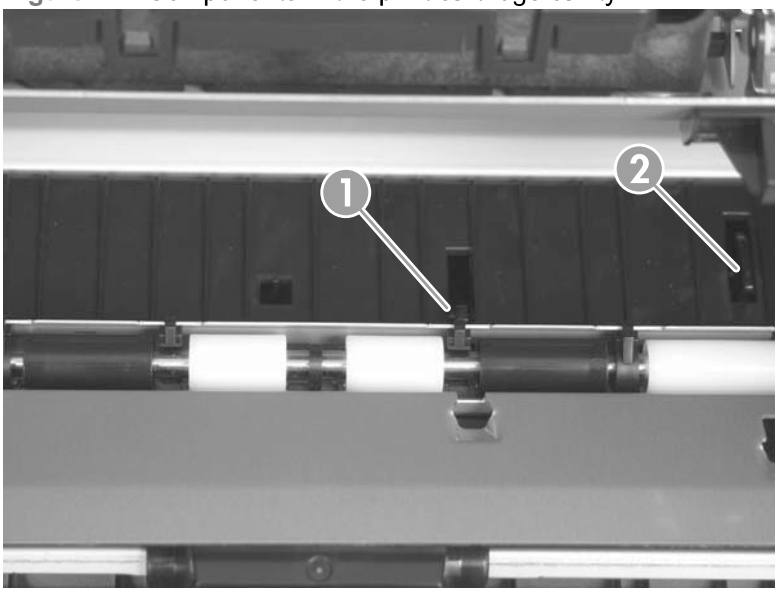


Table 7-6 **Print cartridge components**

Reference	Component	Description	If disconnected or blocked
1	PS912	Top of page photosensor flag (J203)	Control-panel message: **Jam in cartridge area** appears.
2	PS913	Paper-width photosensor flag (J203)	Control-panel message: **Jam in cartridge area** appears.

Figure 7-8 Components on the top of the product

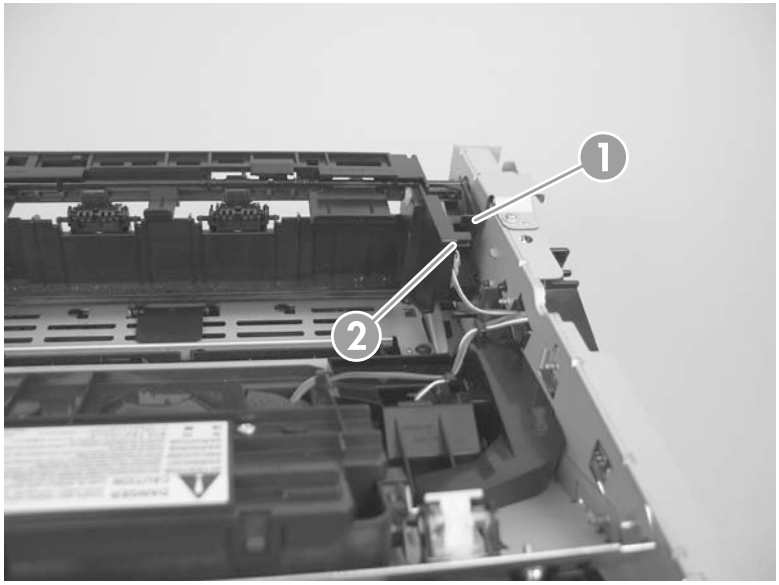


Table 7-7 **Top components**

Reference	Component	Description	If disconnected or blocked
1	PS911	Output bin media full sensor	Control-panel message: **Output bin full** appears.
2	Flag	Rotates to block sensor as the output bin fills	

Figure 7-9 Components on Tray 1 and Tray 2

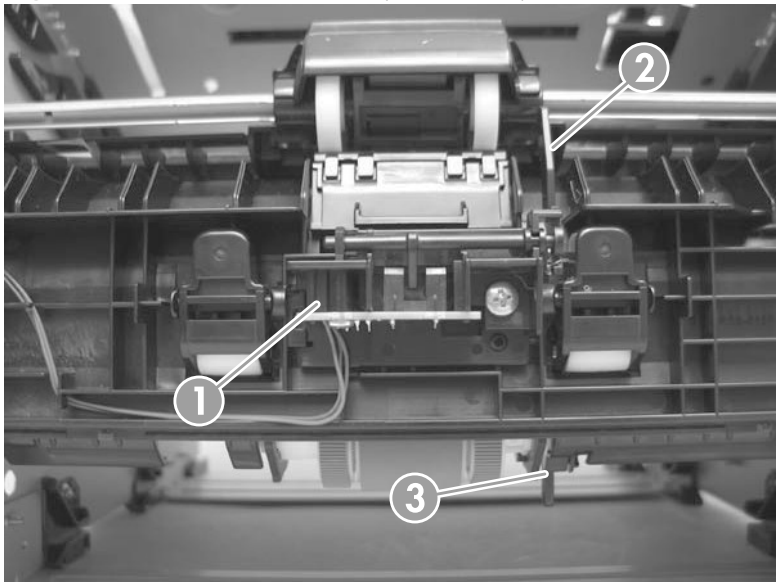


Table 7-8 Tray 1 and Tray 2 components

Reference	Component	Description
1	Flag	Photosensor flag for Tray 1 paper present sensor (PS916)
2	Flag	Photosensor flag for Tray 2 paper present sensor (PS914)
3	PS916	Photosensor (J205)

Problem-solve diagrams

- Repetitive image defect ruler
- Engine controller PCA
- Major components
- PCAs
- General timing chart
- Circuit diagram

Repetitive image defect ruler

Defects on product rollers can cause image defects to appear at regular intervals on the page, corresponding to the circumference of the roller that is causing the defect. Measure the distance between defects that recur on a page. Use the following table or the repetitive-defect ruler to determine which roller is causing the defect. To resolve the problem, try cleaning the roller first. If the roller remains dirty after cleaning or if it is damaged, replace the part that is indicated in Table 7-9 Repetitive defects on page 202.

△ **CAUTION:** Do not use solvents or oils to clean rollers. Instead, rub the roller with lint-free paper. If dirt is difficult to remove, rub the roller with lint-free paper that has been dampened with water.

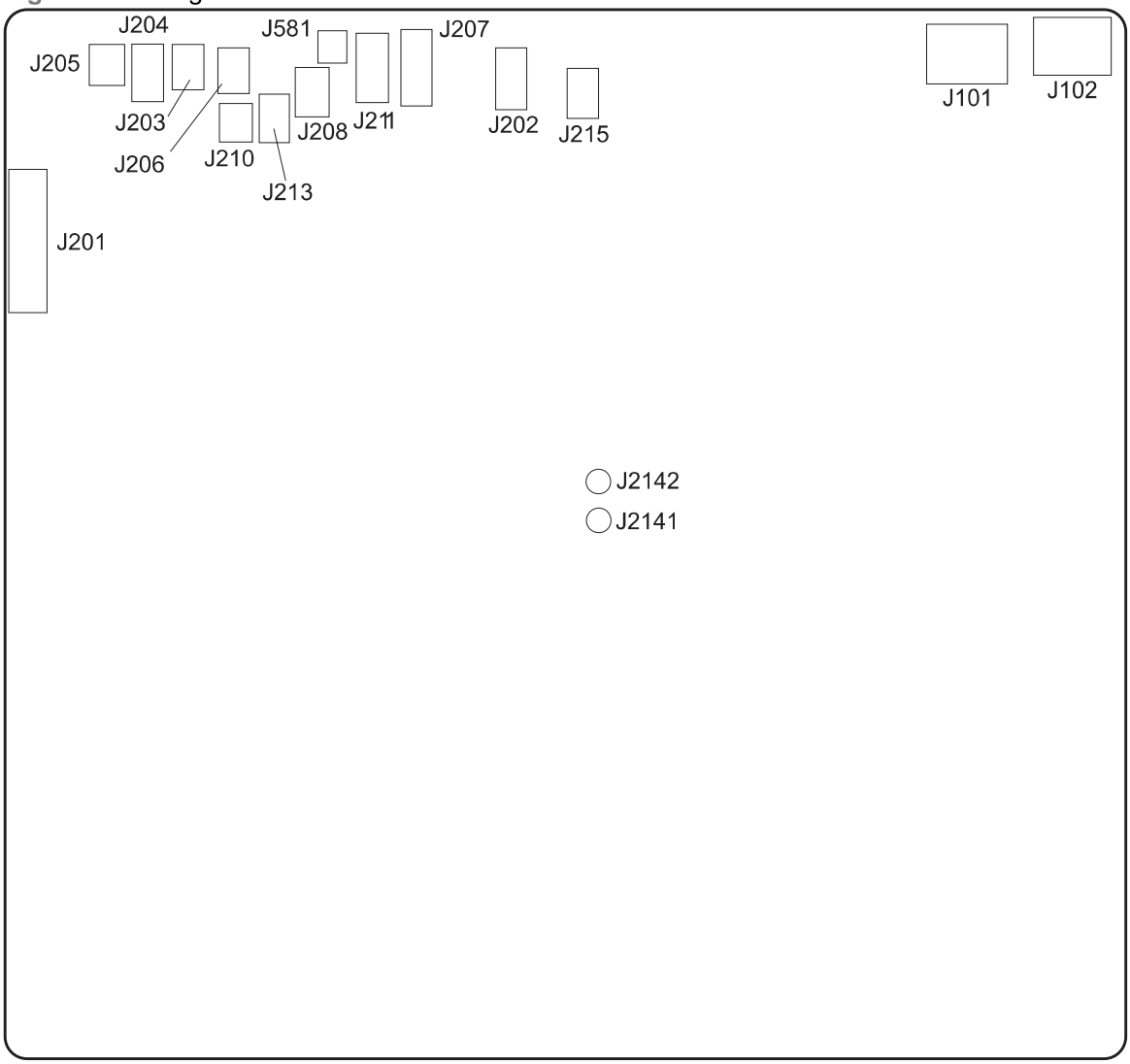
NOTE: The following table replaces the graphical repetitive defect ruler. You can make your own ruler by using these measurements. For the most accurate results, use a metric ruler.

Table 7-9 Repetitive defects

Component	Distance between defects
Primary charging roller	38 mm (1.5 in)
Transfer roller	39 mm (1.54 in)
Developer roller	42 mm (1.65 in)
Registration roller	43 mm (1.69 in)
Fuser film	57 mm (2.24 in)
Pressure roller	63 mm (2.48 in)
Photosensitive drum	75 mm (2.95 in)

Engine controller PCA

Figure 7-10 Engine controller connectors



NOTE: Control-panel messages appear on HP LaserJet P2050 Series Printers only.

Table 7-10 Engine controller connectors

Item	Description	When disconnected
J101	AC voltage to engine controller	No AC voltage to engine controller
J102	AC voltage to fuser	No AC voltage to fuser
J201	Formatter PCA	
J202	Main motor (M1)	Control-panel message: **Initializing...** appears[1]
J203	Top of page (PS912)	Control-panel message: **Jam in cartridge area** appears[1]
	Media width sensors (PS913)	Control-panel message: **Open door and clear jam** appears[1]

Table 7-10 **Engine controller connectors (continued)**

Item	Description	When disconnected
J204	Tray 2 paper present sensor (PS914)	**Control-panel message:Load paper** appears[1]
J205	Tray 1 paper present sensor (PS916)	No message appears unless you request paper from Tray 1.
J206	Fusing assembly exit sensor (PS915)	Product attempts to pull paper. Control-panel message: **Jam in cartridge area** or **Open door and clear jam** appear[1]
J207	Connecting PCA	Control-panel message: **Initializing...** appears[1]
J208	Duplex reverse sensor (PS918) (HP LaserJet P2050 Series Printers only)	Print simplex, but not duplex.
J210	Thermistor (TH1)	Control-panel message: **Initializing...** appears[1]
J211	Optional paper feeder accessory (PS911)	
J213	Media tray full sensor (PS911)	Control-panel message: **Output bin full** appears[1]
J215	Power switch LED (LED1001)	The product stays on. You cannot turn it off.
J581	Toner memory reader	A page prints and then the control-panel message: **10.X Supply memory error** appears[1]
J2141	Voltage in top cover switch (+24 V)	No voltage to top cover switch
J2142	Voltage out top cover switch (+24 V)	No voltage from top cover switch

[1] Control-panel messages appear on HP LaserJet P2050 Series Printers only.

Major components

Figure 7-11 Major components

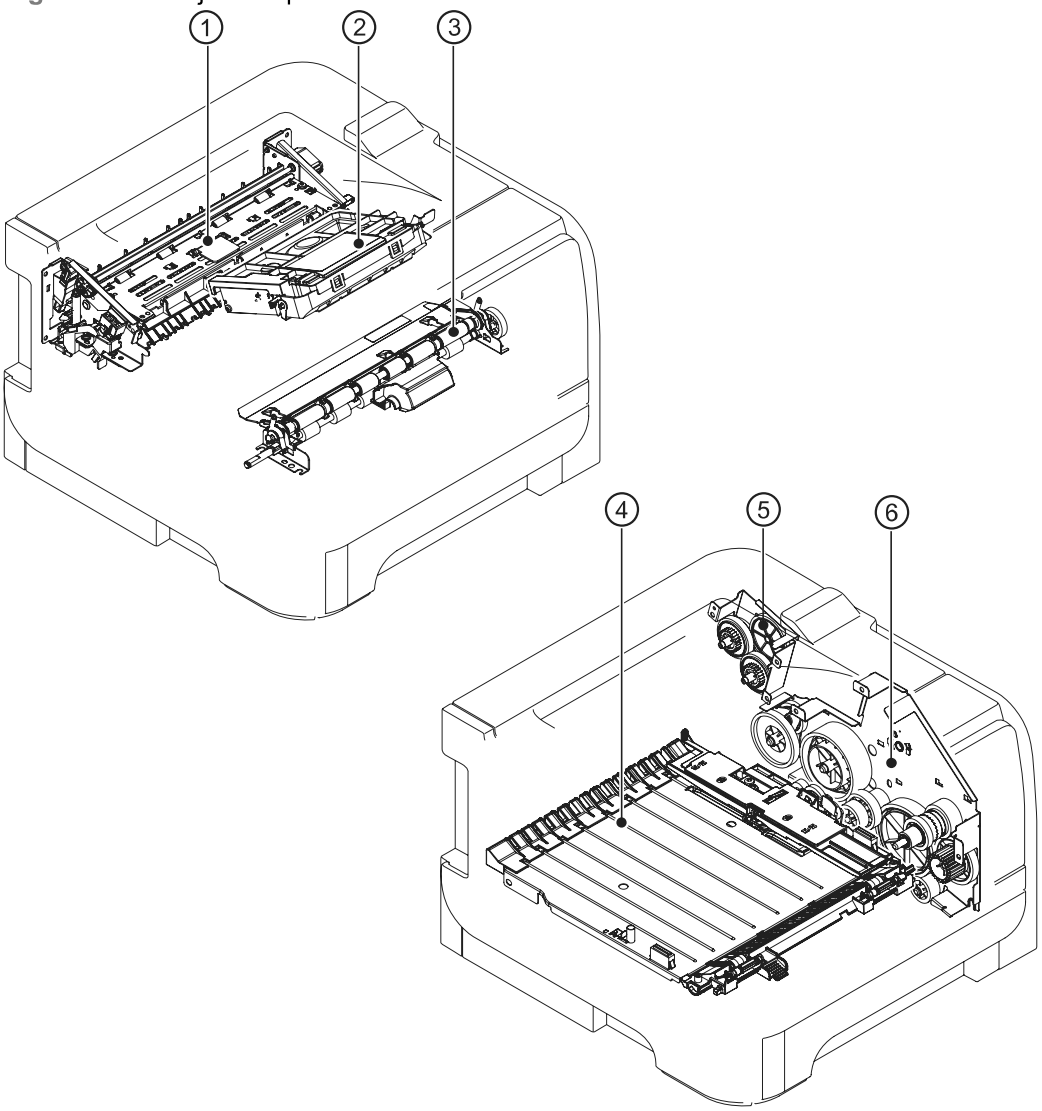


Table 7-11 **Major components**

Item	Description
1	Fuser
2	Laser/scanner assembly
3	Registration assembly
4	Duplex feed unit (HP LaserJet P2050 Series Printers only)
5	Duplex-drive-unit assembly (HP LaserJet P2050 Series Printers only) Face-down-drive assembly (HP LaserJet P2030 Series Printers only)
6	Main drive unit

PCAs

Figure 7-12 PCAs

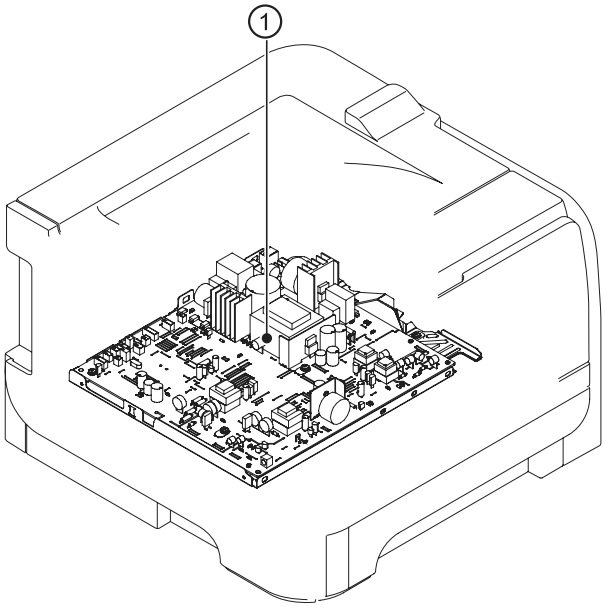
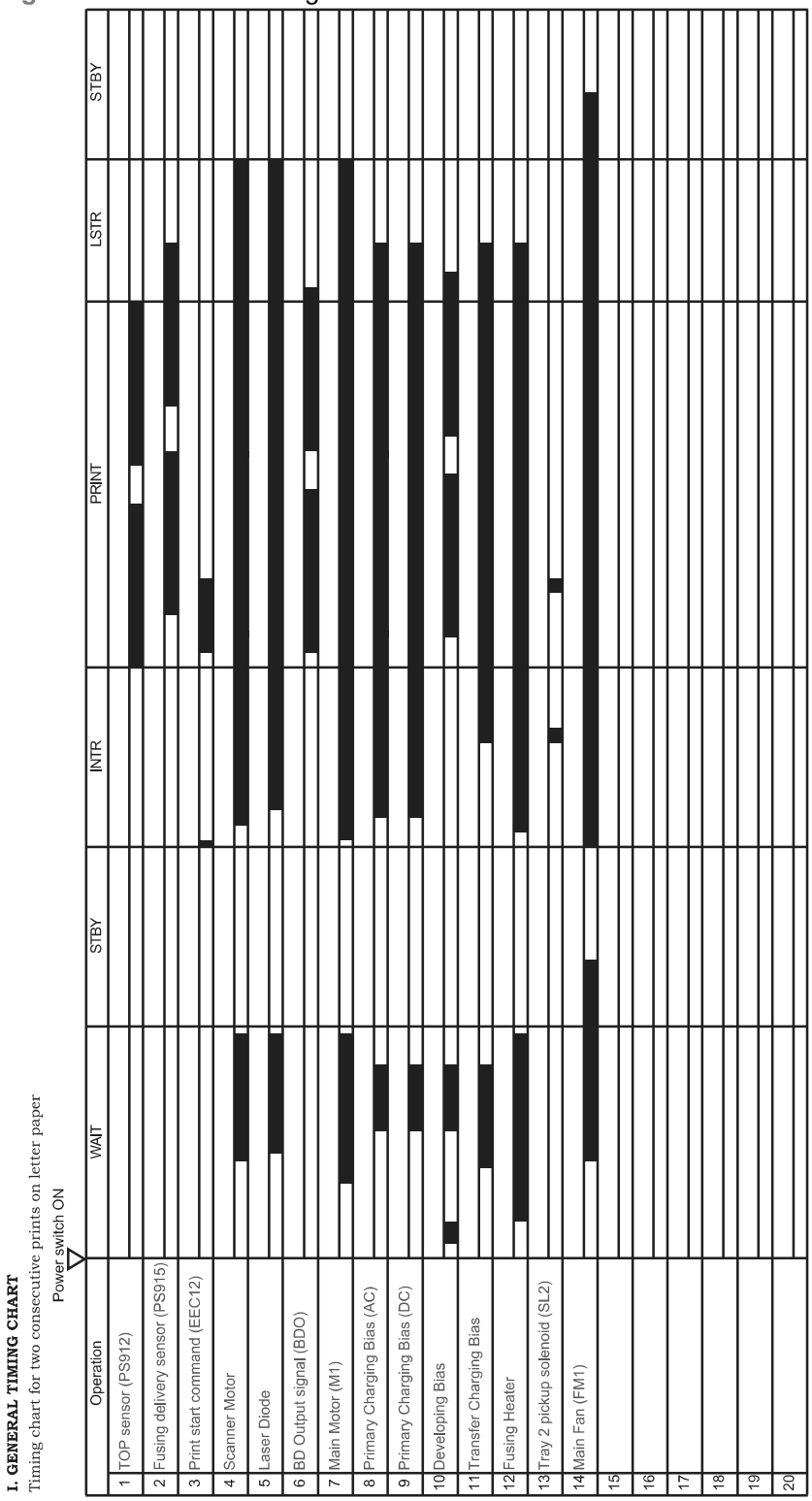


Table 7-12 **PCAs**

Item	Description
1	Engine controller unit

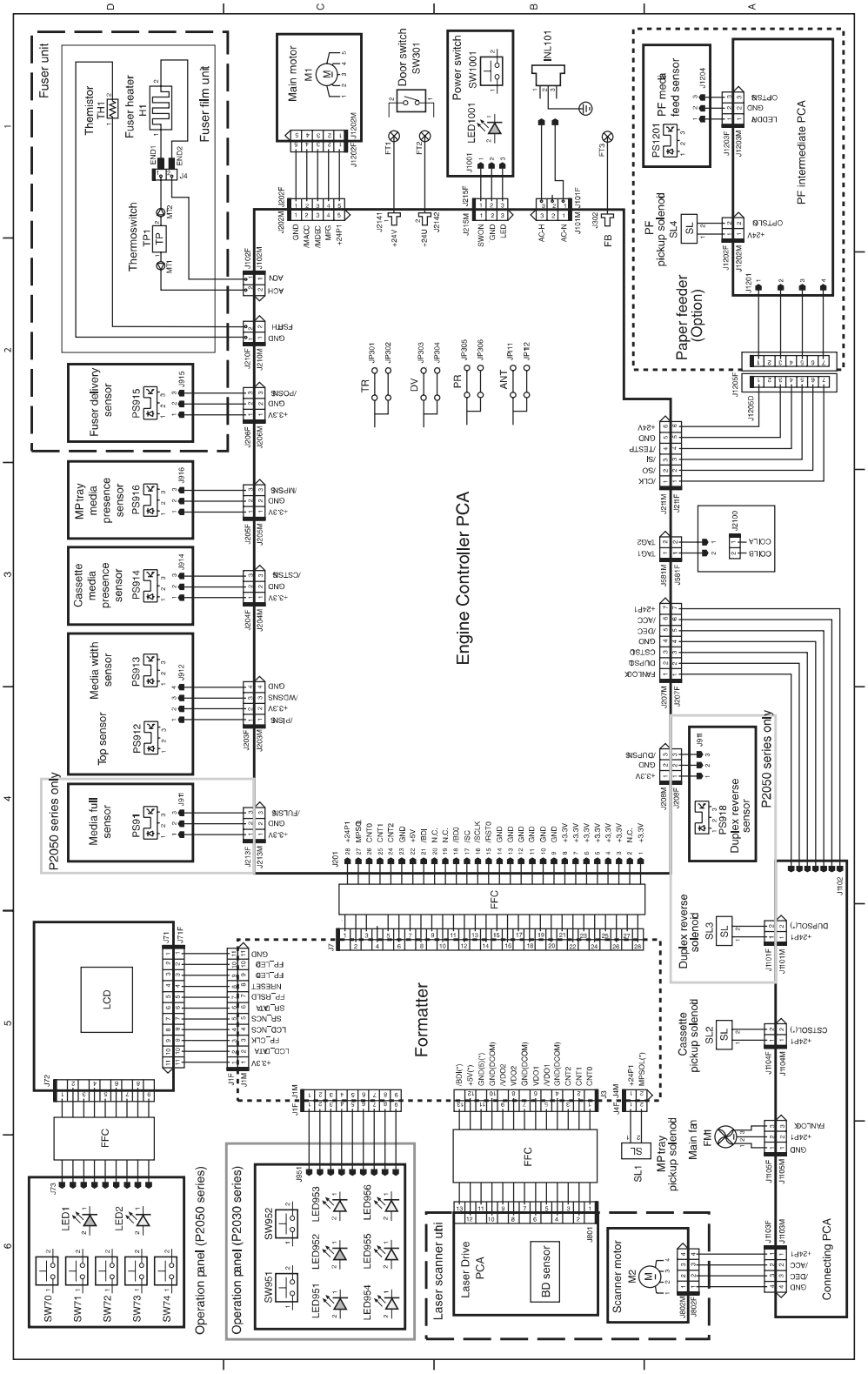
General timing chart

Figure 7-13 General timing chart



Circuit diagram

Figure 7-14 Circuit diagram



Status-light patterns (HP LaserJet P2030 Series Printers only)

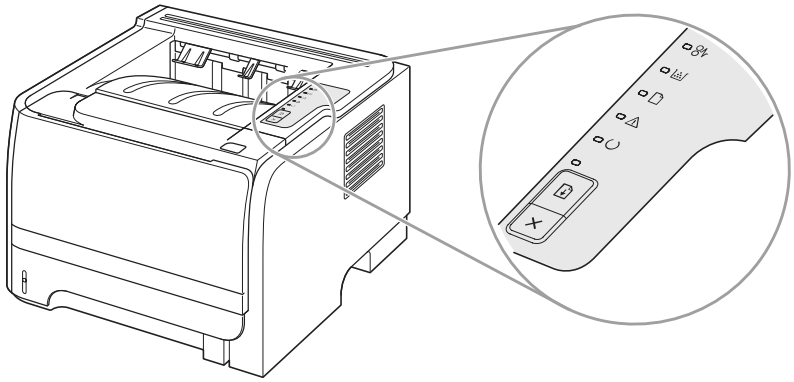


Table 7-13 Status-light legend

	Symbol for "light off"
	Symbol for "light on"
	Symbol for "light blinking"

Table 7-14 Control-panel light messages

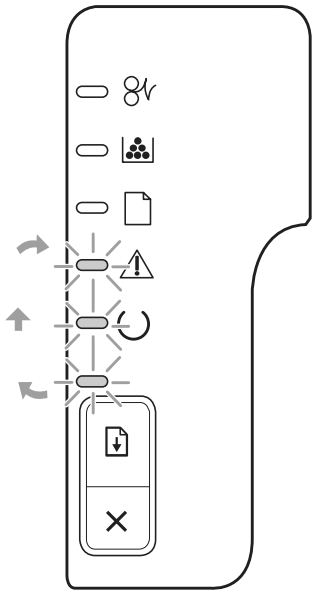
Light status	State of the product	Action
	**Initialization/Startup** While in the Startup state, the Go, Ready, and Attention lights cycle (at the rate of 500 ms) one after another. **Reconfiguration Initialization** During the product start up, you can request special initialization sequences that reconfigure the product. When one of the sequences is requested, such as cold reset, the lights cycle as in the Initialization/Startup state. **Job Cancel** After the cancellation process has been completed, the product returns to the Ready state.	During the Initialization, Reconfiguration, and Job Cancel processes, pressing buttons has no effect.

Table 7-14 **Control-panel light messages (continued)**

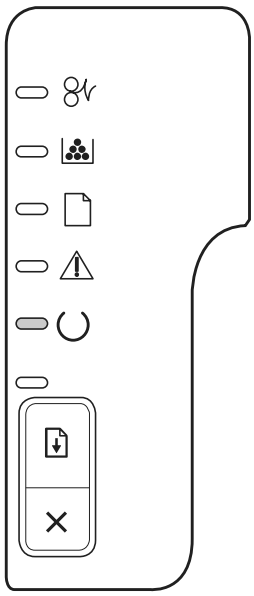
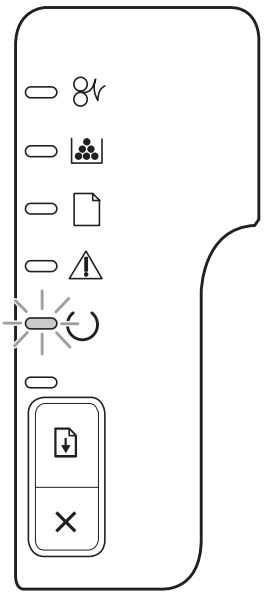
Light status	State of the product	Action
	Ready The product is ready with no job activity.	To print a Configuration page, press and hold the Go button for 5 seconds while the device Ready light is on and no other jobs are printing.
	**Processing Data** The product is processing or receiving data.	To cancel the current job, press the Cancel button.

Table 7-14 **Control-panel light messages (continued)**

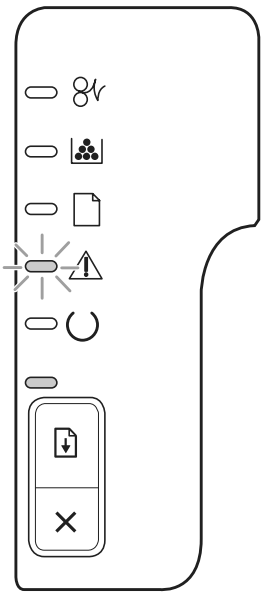
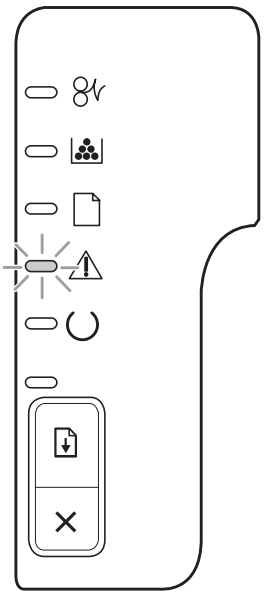
Light status	State of the product	Action
	**Manual Feed** or **Continuable Error** This state can be reached in the following circumstances: • Manual feed • General continuable error • Memory configuration error • Personality/Job related error	To recover from the error and print whatever data is possible, press the Go button. If the recovery is successful, the product goes to the Processing Data state and completes the job. If the recovery is unsuccessful, the product returns to the Continuable Error state.
	**Attention** The print-cartridge door is open.	Close the print-cartridge door.

Table 7-14 **Control-panel light messages (continued)**

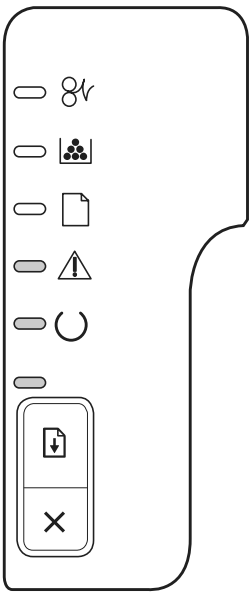
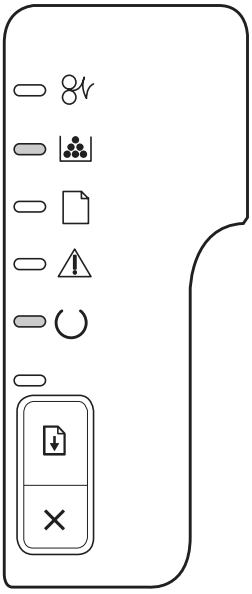
Light status	State of the product	Action
	**Fatal Error**	• Turn off the product, wait 10 seconds, and turn on the product. • If you are unable to resolve the problem, contact HP. See Customer support on page 287.
	**Toner Low** The Go, Ready, and Attention lights act independently of the Toner Low state.	Order a new print cartridge.

Table 7-14 **Control-panel light messages (continued)**

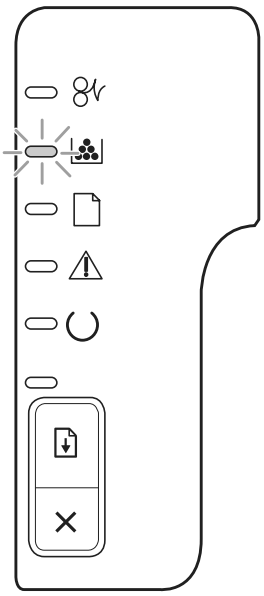
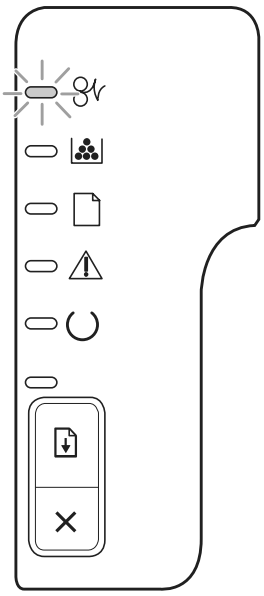
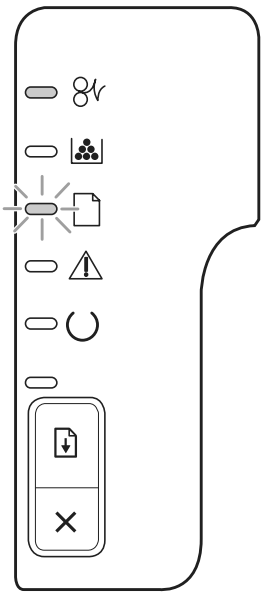
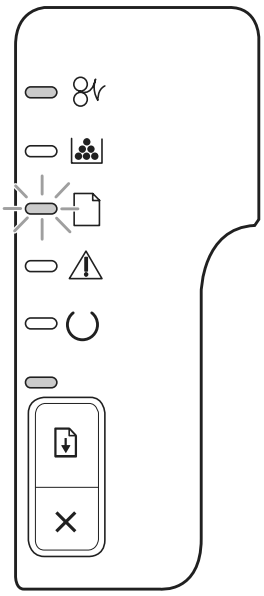
Light status	State of the product	Action
	**Toner Missing** The print cartridge has been removed from the product.	Reinsert the print cartridge in the product.
	**Jam**	Clear the jam. See Clear jams on page 230.

Table 7-14 **Control-panel light messages (continued)**

Light status	State of the product	Action
	**Paper Out**	Load paper or other media.
	**Paper Mount** The loaded paper or other media is not supported.	Load acceptable paper or other media. See Supported paper and print media on page 32. Press the Go button to override the condition.

Status-alert messages (HP LaserJet P2030 Series Printers only)

Status-alert messages appear on the computer screen when the product has certain problems. Use the information in the following table to solve these problems.

Alert message	Description	Recommended action
10.X Supply memory error	The product has experienced a print cartridge error. The two cartridge memory contacts on the right-rear side of the print cartridge contact the reader contacts on the product.	1. Make sure that a genuine HP print cartridge is installed. 2. When installing the print cartridge, make sure that the memory contacts on the print cartridge and reader contacts on the product make a solid connection. 3. Verify that connector J581 on the engine controller PCA is seated. 4. Replace the print cartridge. See Print cartridge on page 102.
13.XX Jam in <location> (<location> indicates the area where the jam has occurred)	The product has detected a jam.	Clear the jam from the area indicated in the message. The job should continue to print. If it does not, try reprinting the job. See Jams on page 229.
50.X Fuser error	The product has experienced an error with the fuser.	1. Turn the product power off and then on. 2. If you have replaced the fuser, make sure that the correct voltage version is installed (110 V or 220 V). 3. Make sure the following connectors are seated: ◦ J102 on the engine controller PCA (AC voltage) ◦ J210 on the engine controller PCA (TH1) 4. Replace the fuser. See Fuser on page 158.
52.0 Scanner Error	An internal error has occurred.	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 you are using a surge protector, remove it. Plug the product directly into the wall socket. Use the power switch to turn the product on.

Alert message	Description	Recommended action
Door Open	Opening the front door opens the front door switch (SW301) and disables the +24 V to the high-voltage contacts on the print cartridges.	1. Remove the left cover, and then open and close the front door. Determine if SW301 closes when the door closes. 2. Make sure that the two connectors from the engine control PCA to the switch are securely installed on the switch contacts. 3. Replace the front door switch (SW301). if the message persists. See Cartridge-door switch on page 137.
Engine communication error	The product experienced an internal communication error.	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 you are using a surge protector, remove it. Plug the product directly into the wall socket. Use the power switch to turn the product on.
Install black cartridge	The product checks for the presence of a print cartridge at start up and anytime the top cover is closed. At start up or when the top cover is closed, a high voltage bias is placed on the print cartridge's developer roller. This message appears if the print cartridge's antenna is unable to detect the high voltage bias.	1. Make sure that the sealing tape on the print cartridge has been removed. 2. Verify that the print cartridge is correctly installed. 3. Inspect the high voltage contact on the print cartridge and in the print cartridge cavity to make sure that they are not damaged. 4. If the messages persists, install another HP print cartridge. 5. Make sure that the engine controller PCA is correctly installed.
Jam in cartridge area	Photosensors PS913 (media width sensor), PS912 (top of page sensor), and PS915 (fusing assembly exit sensor) detect paper in the cartridge area of the product. See Figure 7-7 Components in the print cartridge cavity on page 199 and Figure 7-6 Components on the rear side of the product on page 198. If paper arrives at these sensors too early, leaves the sensors too late, or is present at the sensor when not expected, an error message is displayed.	1. Make sure that the paper meets specifications. See Supported paper and print media on page 32. See Common causes of jams on page 229. 2. Open the top cover, and remove the print cartridge. Remove any paper or paper fragments present. 3. Lift the registration flap. Make sure sensors PS913 and PS912 move freely. See Figure 7-7 Components in the print cartridge cavity on page 199. 4. Open the straight-through output door and verify that PS915 moves freely. See Figure 7-6 Components on the rear side of the product on page 198. 5. Make sure that the connector at J203 and J206 on the engine controller PCA are seated.

Alert message	Description	Recommended action
Jam in output bin	This error occurs if the duplex reverse photosensor (PS918) or fusing exit sensor (PS915) detect unexpected paper.	1. Make sure that the paper meets specifications. See Specifications on page 291. 2. Open the rear duplex jam-release door and clear any visible paper. Verify that the duplex-release sensor flag moves freely. You might need a pen light to observe the flags. 3. Open the face-up output door, and verify that the exit sensor flag in the fusing assembly moves freely. You might need a pen light to observe the flag. 4. Verify that the following connectors are seated on the engine controller PCA: ◦ J208 duplex reverse ◦ J206 fusing exit
Jam in Tray 1	The Tray 1 pickup solenoid (SL1) controls the feeding of paper from Tray 1. When the solenoid is engaged, the Tray 1 pickup roller makes one rotation and advances paper into the paper path. See Figure 7-3 Components on the left side of the product on page 196).	1. Inspect the Tray 1 pick roller. Verify that the roller is installed correctly and in good condition. 2. Print from Tray 1. Determine if the Tray 1 roller rotates. Listen to determine if the solenoid (SL1) is engaged. 3. Remove the left cover. Determine if the solenoid (SL1) is correctly installed. Make sure that the connectors on the solenoid and at J4 on the formatter PCA are seated. 4. If the error persists, replace the Tray 1 pickup solenoid (SL1). See Tray 1 pickup solenoid on page 138.
Jam in Tray 2	Solenoid (SL2) controls the feeding of paper from Tray 1. When the solenoid is engaged, the Tray 1 pick roller makes one rotation and advances paper into the paper path. See Figure 7-3 Components on the left side of the product on page 196).	1. Inspect the Tray 2 pick roller. Verify that the roller is installed correctly and in good condition. 2. Remove Tray 2. Lift the Tray 2 paper present sensor flag while printing from Tray 2. Determine if the Tray 2 roller rotates. Listen to determine if the solenoid (SL2) is engaged. 3. Remove the left cover. Determine if the solenoid (SL2) is correctly installed. Make sure that the connectors on the solenoid and at J1104 on the connector PCA are seated. 4. If the error persists, replace the solenoid (SL2).

Alert message	Description	Recommended action
Load paper	The product did not detect paper in Tray 1 or Tray 2. PS916 detects paper in Tray 1. PS914 detects paper in Tray 2. See Figure 7-7 Components in the print cartridge cavity on page 199.	1. Verify that paper is loaded in the input tray. 2. Make sure that the photosensor flags are not hindered. 3. Make sure that connectors J205 (for Tray 1) and J204 (for Tray 2) on the engine controller PCA are seated.
Manual feed	The product is set for manual feed mode.	Load the correct paper into the tray, and then press the OK button to clear the message.
No paper pickup	The print engine has failed to pick up a piece of paper.	Reload the paper in the input tray and press the OK button to continue the job.
Non-HP supply installed	A new, non-HP supply has been installed. This message appears until an HP supply is installed or you press the OK button.	If you believe you purchased an HP supply, go to www.hp.com/go/anticounterfeit. Service or repairs that are required as a result of using non-HP supplies are not covered under HP warranty. To continue printing, press the OK button.
Not Connected	The product software cannot communicate with the product.	1. Make sure the product is turned on. 2. Make sure the USB cable is connected securely to the product and the computer.
Order black cartridge	The identified print cartridge is nearing the end of its useful life.	Order a new print cartridge. You can continue printing with the current print cartridge until redistributing the toner no longer yields acceptable print quality.
Page too complex	The product cannot process the page.	Press the OK button to continue printing the job, but output might be affected.
Printing	The product is printing a document.	Wait for printing to finish.

Interpret control-panel messages (HP LaserJet P2050 Series Printers only)

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

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

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

Control-panel messages

Control-panel message	Event code	Description	Recommended action
10.X Supply memory error		The product has experienced a print cartridge error. The two cartridge memory contacts on the right-rear side of the print cartridge contact the reader contacts on the product.	1. Make sure that a genuine HP print cartridge is installed. 2. When installing the print cartridge, make sure that the memory contacts on the print cartridge and reader contacts on the product make a solid connection. 3. Verify that connector J581 on the engine controller PCA is seated. 4. Replace the print cartridge. See Print cartridge on page 102.
13.XX Jam in <location>	13.0000	The product has detected a jam.	Clear the jam from the location indicated. The job should continue to print. If it does not, try reprinting the job.
21.X Print failure **Press [OK]** **If error repeats turn off then on**	21.0000	The product cannot process the page.	Press OK to continue printing the job, but output might be affected. If the error persists, turn the power off and then on. Resend the print job.
41.2 Engine error Press [OK]		The product experienced an internal error.	Turn the product power off, wait at least 30 seconds, and then turn the product power on and wait for it to initialize. If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product power on.
41.3 Unexpected size in tray x **Load <SIZE>**	41.3000	The product has detected print media in the tray that does not	Load the correct media into the tray, or configure the tray for the

Control-panel message	Event code	Description	Recommended action
Press [OK]		match the configuration for the tray.	size that you have loaded. See Load trays on page 38.
41.X.Error		A temporary printing error has occurred.	1. Make sure that the paper meets specifications. See Supported paper and print media on page 32. If pages stick together, the paper sensors might detect a sheet of paper longer than expected. 2. Verify that the paper size settings in the control panel, printer driver, and software program match. 3. Verify that the correct paper size is loaded in the product.
49 Error **Turn off then on**		The product experienced an internal error.	Turn the product off, wait at least 30 seconds, and then turn the product on and wait for it to initialize. If you are using a surge protector, remove it. Plug the product directly into the wall socket. Turn the product power on.
50.X Fuser error **Turn off then on**	50.0000 50.1000 50.3000 50.4000 50.7000 50.8000 50.9000	The product has experienced an error with the fuser.	1. Turn the product power off and then on. 2. If you have replaced the fuser, make sure that the correct voltage version is installed (110 V or 220 V). 3. Make sure that the following connectors are seated: ◦ J102 on the engine controller PCA (AC voltage) ◦ J210 on the engine controller PCA (TH1) 4. Replace the fuser. See Fuser on page 158.

Control-panel message	Event code	Description	Recommended action
51.XX Error **Turn off then on**	51.0000	The product has experienced a laser/scanner assembly error.	1. Turn the product power off, wait at least 30 seconds, and then turn the product power on and wait for it to initialize. 2. Make sure that the following connectors are seated: ◦ J1103. See Figure 7-5 Components on the connector PCA on page 198. ◦ J1. See Figure 7-3 Components on the left side of the product on page 196. ◦ All connectors on the laser/scanner assembly 3. If all connectors are seated and the error persists, replace the laser/scanner assembly. See Laser/scanner assembly on page 156.
57 Fan error **Turn off then on**	57.0000	The cooling fan (FM1) rotates for approximately 35 seconds at initial start up and during a print job. The fan rotates about 30 seconds after a print job concludes.	1. Turn the product on. Listen to determine if the fan is operating. The fan is located on the upper right-side of the product. See Figure 7-4 Components on the right side of the product on page 197. 2. Make sure that the fan connector is security connected to J1105 on the connector PCA. See Figure 7-5 Components on the connector PCA on page 198. 3. Replace the fan. See Fan on page 140.
59.X Error		A malfunction has been detected with the product's main motor. During normal operation, the main motor should rotate for about six seconds after the product is turned on.	1. Turn the product off and then on. 2. Make sure that connector J202 on the engine controller PCA is seated. 3. If the error persists, replace the main motor. See Main motor on page 174.

Control-panel message	Event code	Description	Recommended action
79 Service error **Turn off then on**	79.0000 79.0001	An incompatible DIMM is installed.	1. Turn the product power off. 2. Install a DIMM that the product supports. See Parts and diagrams on page 253 for a list of supported DIMMs. See Install memory (HP LaserJet P2050 Series Printers only) on page 64 for DIMM installation instructions. 3. Turn the product on.
Device error **Press [OK]**		An internal error occurred.	Press OK to resume the job.
Door open		Opening the cartridge door opens the cartridge door switch (SW301) and disables the +24 V to the high-voltage contacts on the print cartridges.	1. Remove the left cover, and then open and close the cartridge door. Determine if SW301 closes when the door closes. 2. Make sure that the two connectors from the engine control PCA to the switch are securely installed on the switch contacts. 3. Replace SW301 if the message persists.
Genuine HP supply installed		A genuine HP supply was installed. This message appears briefly after the supply is installed and then is replaced by the message **Ready**.	No action necessary.
Install black cartridge		The product checks for the presence of a print cartridge at start up and anytime the top cover is closed. At start up or when the top cover is closed, a high-voltage bias is placed on the print cartridge's developer roller. This message appears if the print cartridge's antenna is unable to detect the high-voltage bias.	1. Make sure that the sealing tape on the print cartridge has been removed. 2. Verify that the print cartridge is correctly installed. 3. Inspect the high-voltage contact on the print cartridge and in the print-cartridge cavity to make sure that they are not damaged. 4. If the messages persists, install another HP print cartridge. 5. Make sure that the engine controller PCA is correctly installed.

Control-panel message	Event code	Description	Recommended action
Jam in cartridge area		Photosensors PS913 (media width sensor), PS912 (top of page sensor) and PS915 (fusing assembly exit sensor) detect paper in the cartridge area of the product. See Figure 7-7 Components in the print cartridge cavity on page 199 and Figure 7-6 Components on the rear side of the product on page 198. If paper arrives at these sensors too early, leaves the sensors too late, or is present at the sensor when not expected, an error message is displayed.	1. Make sure that the paper meets specifications. See Specifications on page 291. See Common causes of jams on page 229. 2. Open the top cover and remove the print cartridge. Remove any paper or paper fragments present. 3. Lift the registration flap. Make sure sensors PS913 and PS912 move freely. See Figure 7-7 Components in the print cartridge cavity on page 199. 4. Open the straight-through output door and verify that PS915 moves freely. See Figure 7-6 Components on the rear side of the product on page 198. 5. Make sure that the connector at J203 and J206 on the engine controller PCA are seated.
Jam in output bin		This error occurs if the duplex reverse photosensor (PS918) or fusing exit sensor (PS915) detect unexpected paper.	1. Make sure that the paper meets specifications. See Supported paper and print media on page 32. 2. Open the rear duplex jam-release door and clear any visible paper. Verify the duplex-release sensor flag moves freely. You might need a pen light to observe the flags. 3. Open the face-up output door and the verify the exit sensor flag in the fusing assembly moves freely. You might need a pen light to observe the flag. 4. Verify that the following connectors are seated on the engine controller PCA: ◦ J208 duplex reverse ◦ J206 fusing exit

Control-panel message	Event code	Description	Recommended action
Jam in Tray 1		Solenoid (SL1) controls the feeding of paper from Tray 1. When the solenoid is engaged, the Tray 1 pick roller makes one rotation and advances paper into the paper path. See Figure 7-3 Components on the left side of the product on page 196).	1. Inspect the Tray 1 pick roller. Verify the roller is installed correctly and in good condition. 2. Print from Tray 1. Determine if the Tray 1 roller rotates. Listen to determine if the solenoid (SL1) is engaged. 3. Remove the left cover. Determine if solenoid (SL1) is correctly installed. Make sure that the connectors on the solenoid and at J4 of the formatter PCA are seated. 4. If the error persists, replace the solenoid (SL1).
Jam in Tray 2		Solenoid (SL2) controls the feeding of paper from Tray 1. When the solenoid is engaged, the Tray 1 pick roller makes one rotation and advances paper into the paper path. See Figure 7-3 Components on the left side of the product on page 196.	1. Inspect the Tray 2 pick roller. Verify the roller is installed correctly and in good condition. 2. Remove Tray 2. Lift the Tray 2 paper present sensor flag while printing from Tray 2. Determine if the Tray 2 roller rotates. Listen to determine if the solenoid (SL2) is engaged. 3. Remove the right cover. Determine if solenoid (SL2) is correctly installed. Make sure that the connectors on the solenoid and at J1104 of the connector PCA are seated. 4. If the error persists, replace the product. See Whole unit replacement on page 256.
Load paper		The product did not detect paper in Tray 1 or Tray 2. PS916 detects paper in Tray 1. PS914 detects paper in Tray 2. See Figure 7-7 Components in the print cartridge cavity on page 199.	1. Make sure that paper is loaded in the tray. 2. Make sure that the photosensor flags are not hindered. 3. Make sure that connectors J205 (for Tray 1) and J204 (for Tray 2) on the engine controller PCA are seated.
Load tray # <TYPE> <SIZE> **Press [OK] for available media**		A tray is configured for the media type and size that the print job is requesting, but that tray is empty.	Load the correct media into the tray, or press OK to use media in a different tray.
Load tray 1 plain <SIZE> **Cleaning mode [OK] to start**		The product is ready to process the cleaning operation.	Load Tray 1 with plain paper in the size indicated, and then press OK.

Control-panel message	Event code	Description	Recommended action
Load tray 1 <TYPE> <SIZE> **Press [OK] for available media**		No trays are configured for the media type and size that the print job is requesting.	Load the correct media into tray 1, or press OK to use media in a different tray.
Manual duplex **Load tray x** Press [OK]		The first side of a manual duplex job has printed, and the page needs to be loaded to process the second side.	Load the page in the indicated tray with the side to be printed face up, and the top of the page away from you and then press OK.
Manual feed <TYPE> <SIZE> **Press [OK] for available media**		The product is set for manual feed mode.	Press OK to clear the message *or* load the correct media into tray 1.
Memory is low **Press [OK]**		The product memory is almost full.	Press OK to finish the job, or press the Cancel button ⊗ to cancel the job. For information about increasing the product memory, see Install memory (HP LaserJet P2050 Series Printers only) on page 64.
Misprint **Press [OK]**		Print media has been delayed as it moves through the product.	Press OK to clear the message.
Non-HP supply installed		A non-HP supply is installed.	If you believe you purchased an HP supply, go to www.hp.com/go/anticounterfeit. Service or repairs that are required as a result of using non-HP supplies are not covered under HP warranty.
Order black cartridge Ready		The print cartridge is nearing the end of its useful life.	Order a new print cartridge. You can continue printing with the current print cartridge until redistributing the toner no longer yields acceptable print quality. See Parts and diagrams on page 253 for more information.
Output bin full **Remove all paper from bin**		As the output bin accumulates paper, the output bin delivery flap rises until a flag blocks the photosensor (PS911). When the photosensor is blocked, this message appears.	1. Rotate the output bin delivery flap up and down. The flap must move freely. If the top cover has been replaced, make sure that it has been installed correctly. 2. Make sure that the connector at J213 on the engine controller PCA are seated. Remove all paper from the bin.
Rear door open		The product rear door is open.	Close the door.
Remove shipping lock from black cartridge		A print cartridge shipping lock is installed.	Be sure that the print cartridge shipping lock has been removed.

Control-panel message	Event code	Description	Recommended action
Used cartridge in use		A refilled print cartridge was detected and accepted.	No action necessary.
Used cartridge installed **To accept press [OK]**		A refilled print cartridge is installed.	Press OK to continue.

Event-log messages

Print the event log (HP LaserJet P2050 Series Printers only)

1. Open the secondary service menu. See Open the secondary service menu on page 250.
2. Use the arrow buttons to select **Service Reports**, and then press OK.
3. Use the arrow buttons to select **Error Report**, and then press OK.

NOTE: You can use HP ToolboxFX to view the event log from a computer. See Event log on page 51.

Print an event log (HP LaserJet P2030 Series Printers only)

The configuration page displays the last five events. To print a configuration page, see Print the information pages (HP LaserJet P2030 Series Printers only) on page 48.

Event log messages

The following table contains all event log codes for this product.

Table 7-15 Event-log messages

Event code	Description
10.0000	Black label error
10.1000	Black e-label missing
10.3000	Non-HP black
10.3100	Non-HP cloned black
10.3200	Unauthorized black supply
13.0000	Paper jam
20.0000	Memory out
21.0000	Page misfeed or mispick
41.2000	Beam detect malfunction
41.3000	Unexpected size
49	Firmware asserts
50.0000	Fuser error
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 sub-thermistor fuser error
50.9000	High sub-thermistor fuser error

Table 7-15 **Event-log messages (continued)**

Event code	Description
51.0000	Beam detect or laser error
52.0000	Scanner error
55.0000	Engine internal communication error
55.3000	Engine formatter/communication error
55.4000	Engine communication timeout error
57.0000	Fan motor error
79.0000	79 service, firmware exception
79.0001	79 service, firmware ASIC fault
84.0000	JDI FW assert

Paper-handling problems

Jams

Common causes of jams

Many jams are caused by using paper that does not meet HP specifications. For complete paper specifications for all HP LaserJet products, see the *HP LaserJet Printer Family Print Media Guide*. This guide is available at www.hp.com/support/ljpaperguide.

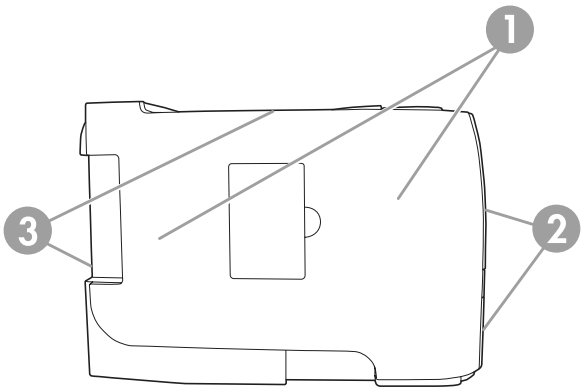
The product is jammed.[1]

Cause	Solution
The paper does not meet specifications.	Use only paper that meets HP specifications. See Supported paper and print media on page 32.
A component is installed incorrectly.	Verify that the print cartridge is correctly installed.
You are using paper that has already passed through a product or copier.	Do not use paper that has been previously printed on or copied.
A tray is loaded incorrectly.	Remove any excess paper from the tray. Make sure that the stack is below the maximum stack height mark in the tray. See Load trays on page 38.
The paper is skewed.	The tray guides are not adjusted correctly. Adjust them so they hold the stack firmly in place without bending it.
The paper is binding or sticking together.	Remove the paper, flex it, rotate it 180°, or flip it over. Reload the paper into the tray. **NOTE:** Do not fan paper. Fanning can create static electricity, which can cause paper to stick together.
The paper is removed before it settles into the output bin.	Reset the product. Wait until the page completely settles in the output bin before removing it.
During two-sided printing, you removed the paper before the second side of the document was printed.	Reset the product and print the document again. Wait until the page completely settles in the output bin before removing it.
The paper is in poor condition.	Replace the paper.
The internal rollers from the tray are not picking up the paper.	Remove the top sheet of paper. If the paper is too heavy, it might not be picked from the tray.
The paper has rough or jagged edges.	Replace the paper.
The paper is perforated or embossed.	Perforated or embossed paper does not separate easily. Feed single sheets from Tray 1.
Product supply items have reached the end of their useful life.	Check the product control panel for messages prompting you to replace supplies, or print a supplies status page to verify the remaining life of the supplies. See Print the information pages on page 48.
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.

Jam locations

Jams can occur at the following locations in the product.



1	Internal areas
2	Input trays
3	Output bins

Clear jams

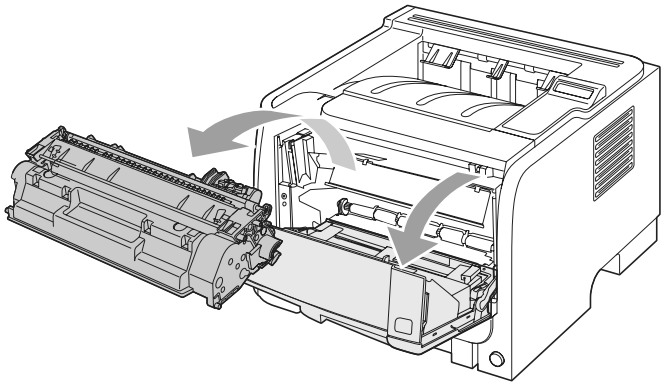
When clearing jams, be careful not to tear jammed paper. If a small piece of paper remains in the product, it could cause additional jams.

△ **CAUTION:** Before clearing jams, turn the product off and disconnect the power cord.

Internal areas

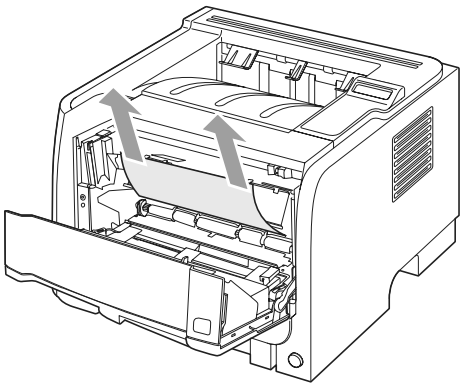
Print-cartridge area and paper path

1. Push the button to open the print-cartridge door, and then remove the print cartridge.

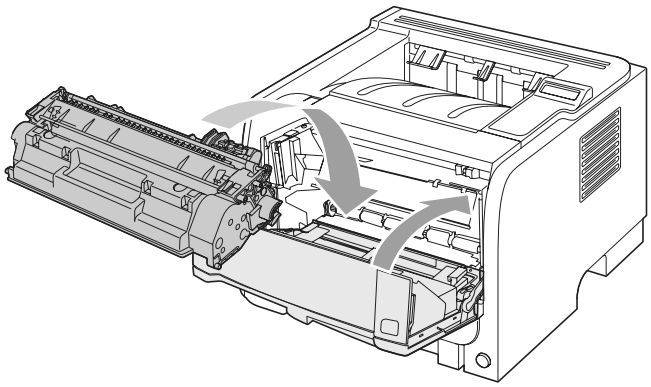


△ **CAUTION:** To prevent damage, do not expose the print cartridge to light. Cover it with a piece of paper.

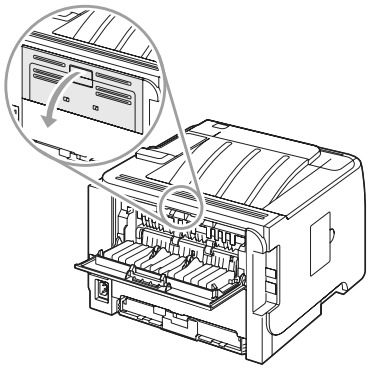
2. If jammed paper is visible, grasp it with both hands and slowly pull it out of the product.



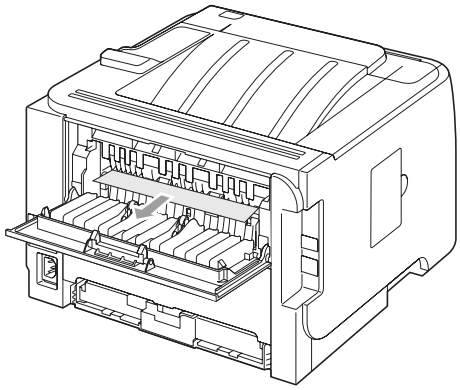
3. Replace the print-cartridge, and close the print-cartridge door.



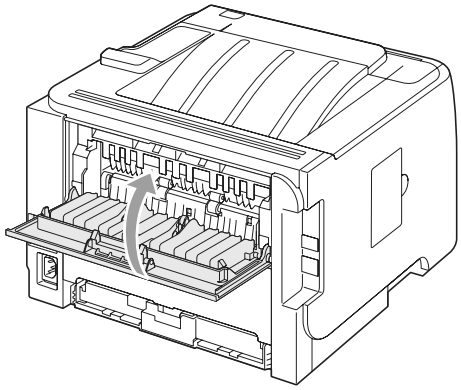
4. If no paper was jammed inside the print-cartridge door, open the jam-release door at the back of the product.



5. If jammed paper is visible, grasp it with both hands and slowly pull it out of the product.

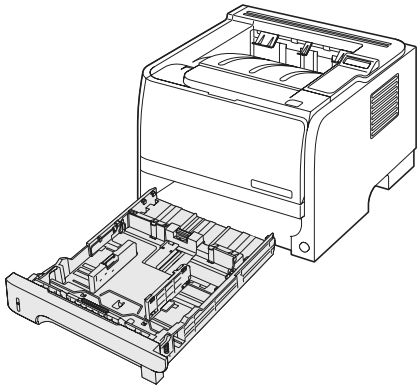


6. Close the jam-release door.

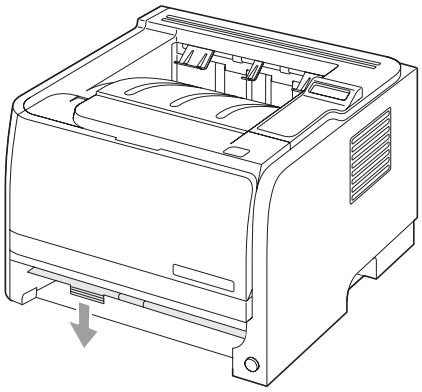


Duplex paper path (HP LaserJet P2050 Series Printers only)

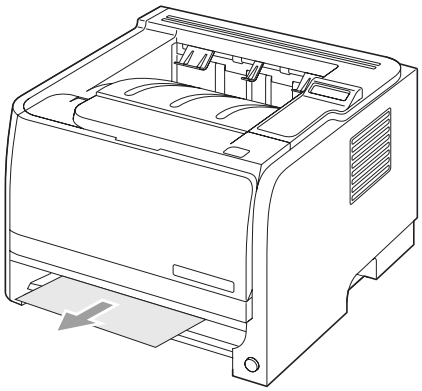
1. At the front of the product, remove Tray 2.



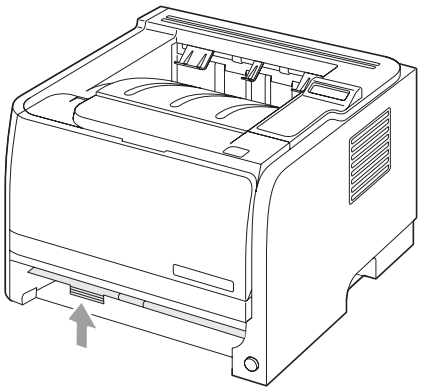
2. Push down on the green lever to release the duplex paper-path door on the front of the product.



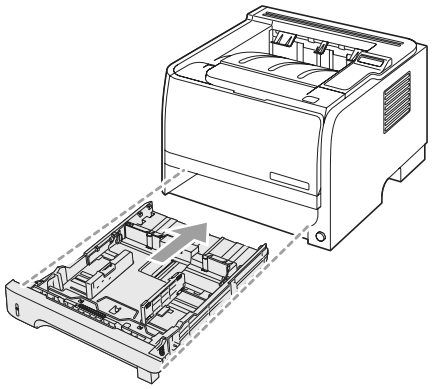
3. Check for jammed paper at the front of the product. With both hands, grasp the jammed paper and slowly pull it out of the product.



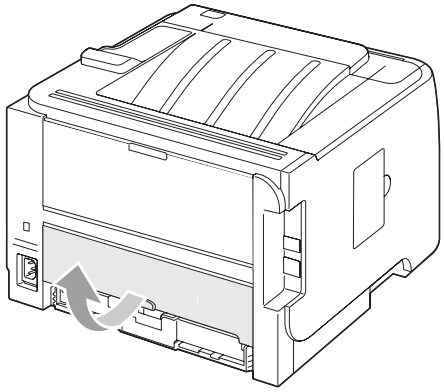
4. Push up on the duplex paper-path door to close it.



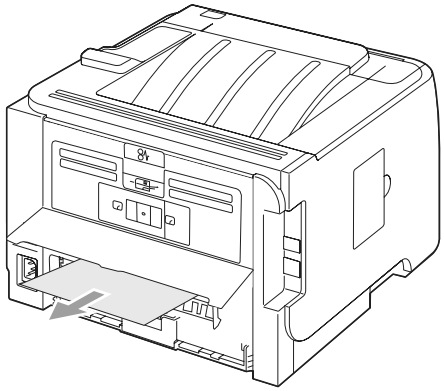
5. Replace Tray 2.



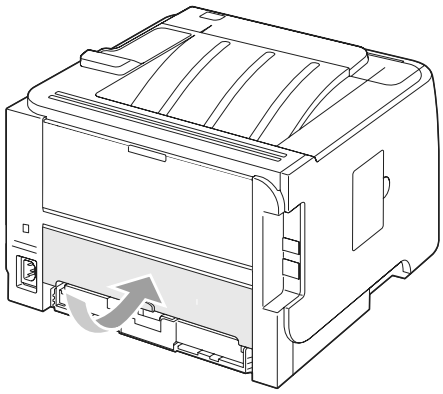
6. Open the duplex jam-release door on the back of the product.



7. Check for jammed paper at the back of the product. With both hands, grasp the jammed paper and slowly pull it out of the product.



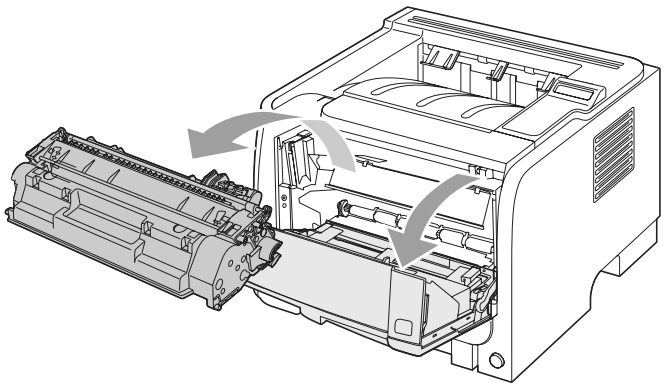
8. Close the jam-release door.



Input trays

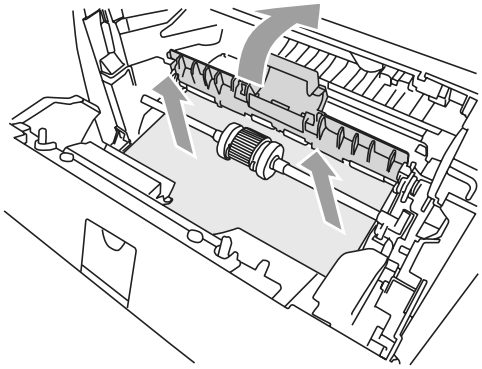
Tray 1

1. Push the button to open the print-cartridge door, and then remove the print cartridge.

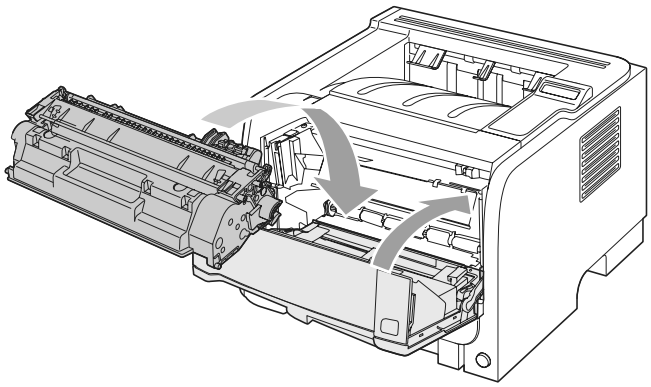


△ **CAUTION:** To prevent damage, do not expose the print cartridge to light. Cover it with a piece of paper.

2. Lift the Tray 1 roller cover, grasp the jammed paper, and slowly pull it out of the product.

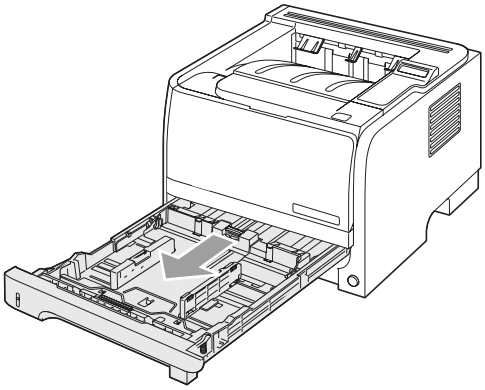


3. Replace the print-cartridge, and close the print-cartridge door.

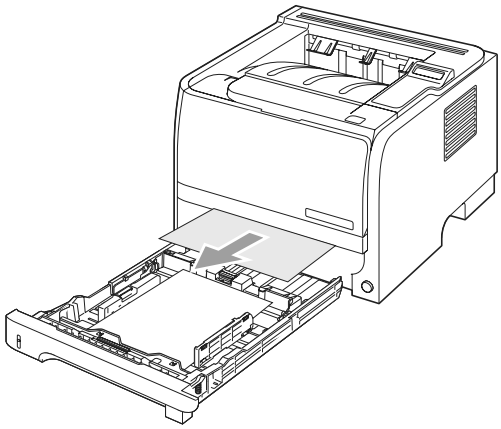


Tray 2

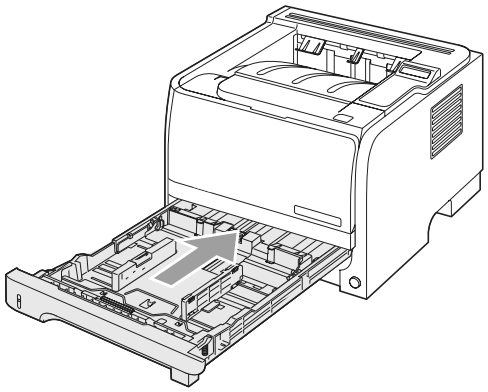
1. Open the tray.



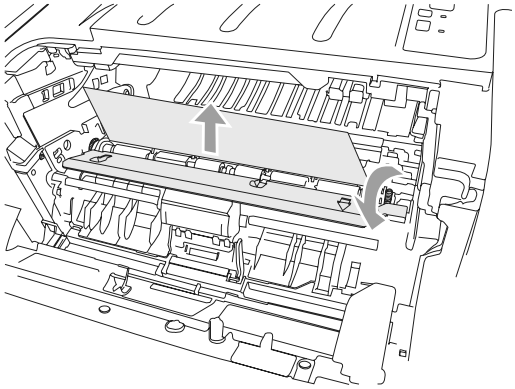
2. With both hands, grasp the jammed paper and slowly pull it out of the product.



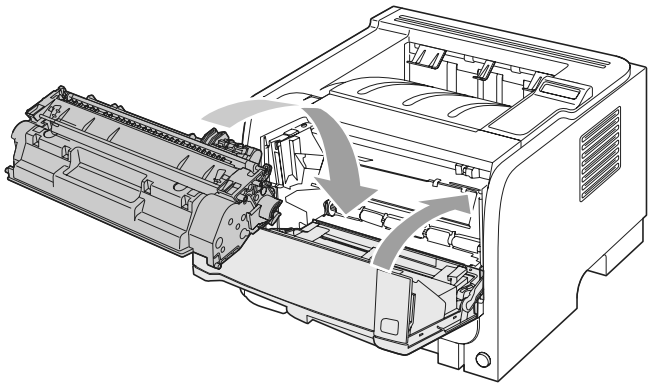
3. Close the tray.



4. If no jammed paper is visible in the tray area, open the print-cartridge door, remove the print cartridge, and pull down the upper media guide. With both hands, grasp the jammed paper and slowly pull it out of the product.

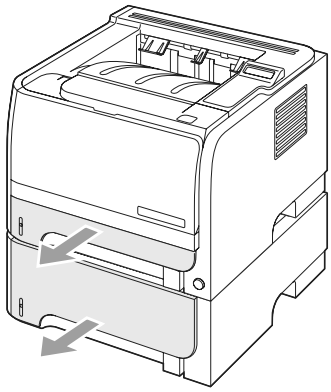


5. Replace the print-cartridge, and close the print-cartridge door.

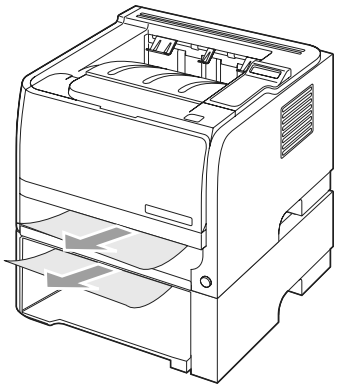


Tray 3 (HP LaserJet P2050 Series Printers only)

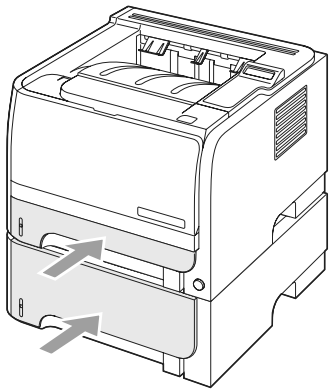
1. Remove Tray 2 and Tray 3.



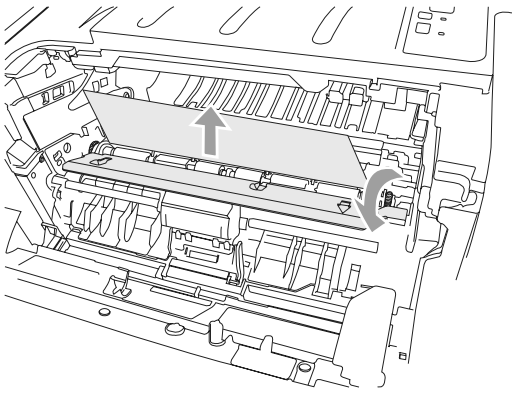
2. With both hands, grasp the jammed paper and slowly pull it out of the product.



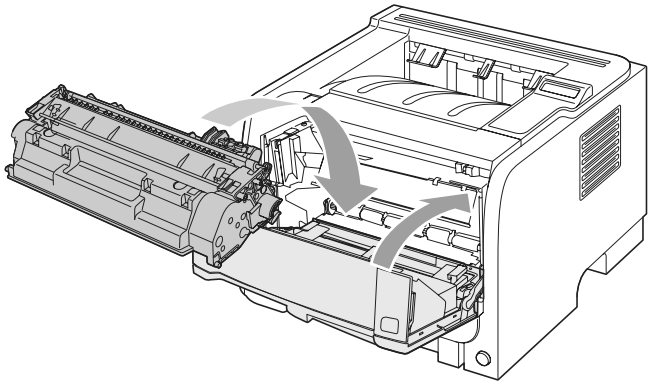
3. Replace the trays.



4. If no jammed paper is visible in the tray area, open the print-cartridge door, remove the print cartridge, and pull down the upper media guide. With both hands, grasp the jammed paper and slowly pull it out of the product.



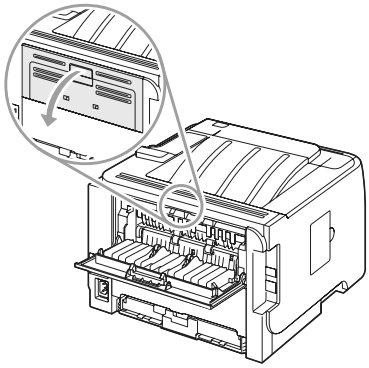
5. Replace the print-cartridge, and close the print-cartridge door.



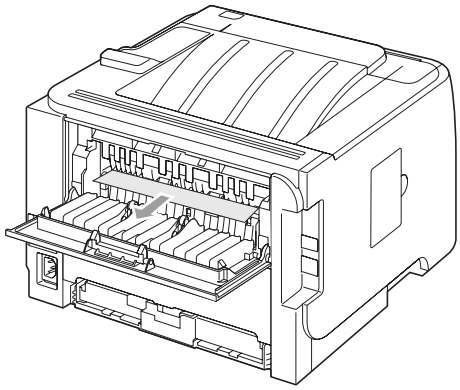
Output bins

△ **CAUTION:** To avoid damaging the product, do not attempt to clear a jam in the top output bin by pulling the paper straight out.

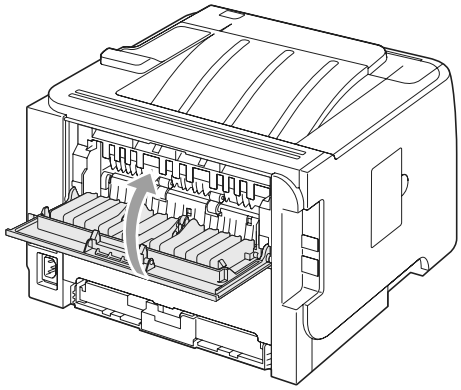
1. At the back of the product, open the jam-release door.



2. With both hands, grasp the jammed paper and slowly pull it out of the product.



3. Close the jam-release door.



Solve image-quality problems

Printed page is different from what appeared onscreen

Table 7-16 Printed page is different from what appeared onscreen

Problem	Cause	Solution
Garbled, incorrect, or incomplete text	The wrong printer driver might have been selected when the software was installed.	Make sure that the appropriate printer driver is selected.
	If a specific file prints garbled text, there might be a problem with that specific file.	Try printing from another file.
	If a specific program prints garbled text, there might be a problem with that program.	Try printing from another software program.
	The USB cable might be loose or defective.	• Disconnect the cable and reconnect it at both ends. • Try a print job that you know works. • If possible, attach the cable and product to another computer, and try printing a job that you know works. • Try using a new USB 2.0 cable that is 3 m (10 ft) or less in length. • Turn off the product and the computer. Remove the USB cable, and inspect both ends of the cable for damage. Reconnect the cable, making sure that the connections are tight. Make sure that the product is directly connected to the computer. Remove any switchboxes, tape backup drives, security keys, or any other devices that are attached between the USB port on the computer and the product. These devices can sometimes interfere with communication between the computer and the product. Restart the product and the computer.

Table 7-16 **Printed page is different from what appeared onscreen (continued)**

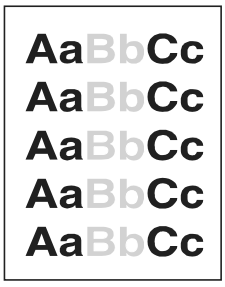
Problem	Cause	Solution
Missing graphics or text, or blank pages	The file may contain blank pages.	Make sure that your file does not contain blank pages.
	The sealing tape might still be in the print cartridge.	Remove the print cartridge, and pull the tab on the end of the cartridge until the entire length of the tape is removed. Reinstall the print cartridge. To check the product, print a Demo page.
	The graphic settings in the product Properties might not be correct for the type of job that you are printing.	Try a different graphic setting in the product Properties.
	The product may require cleaning.	Clean the product, particularly the contacts between the print cartridge and the power supply.
Page format is different from another HP LaserJet product	If you used an older or different HP LaserJet printer driver (product software) to create the document, or if the product Properties settings in the software are different, the page format might change when you try to print using your new printer driver or settings.	• Create documents and print them using the same printer driver (product software) and product Properties settings regardless of which HP LaserJet product you use to print them. • Change the resolution, paper size, font settings, and other settings.
Graphics quality	The graphics settings might be unsuitable for your print job. Check the graphic settings, such as resolution, in the product Properties and adjust them as necessary.	Check the graphic settings, such as resolution, in the product Properties and adjust them as necessary. NOTE: You might lose some resolution when converting from one graphics format to another.

Image defect examples

This section provides information about identifying and correcting print defects.

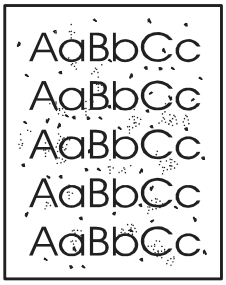
NOTE: If these steps do not correct the problem, contact an HP-authorized dealer or service representative.

Light print or faded



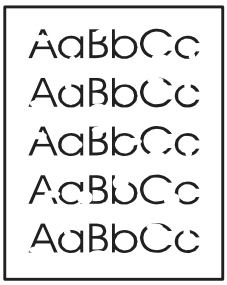
- The print cartridge is nearing end of life.
- Redistribute the toner to extend the life.
- The media might not meet Hewlett-Packard's media specifications (for example, the media is too moist or too rough).
- If the whole page is light, the print density adjustment is too light or EconoMode might be turned on. Adjust the print density, and disable EconoMode in the printer Properties.

Toner specks



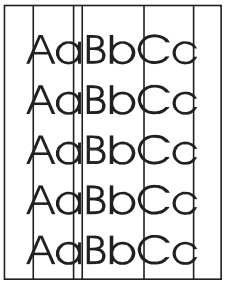
- The media might not meet Hewlett-Packard's media specifications (for example, the media is too moist or too rough).
- The printer might need to be cleaned.
- The print cartridge might be defective.

Dropouts



- A single sheet of media might be defective. Try reprinting the job.
- The media moisture content is uneven or the media has moist spots on its surface. Try printing with new media.
- The media lot is bad. The manufacturing processes can cause some areas to reject toner. Try a different type or brand of media.
- The print cartridge might be defective.

Vertical lines

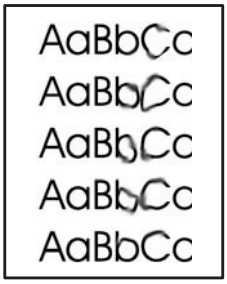


The photosensitive drum inside the print cartridge has probably been scratched. Install a new HP print cartridge.

Gray background

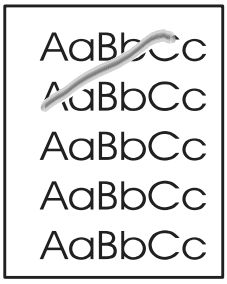
- Change the media to a lighter basis weight.
- Check the printer's environment. Very dry (low humidity) conditions can increase the amount of background shading.
- The density setting might be too high. Adjust the density setting.
- Install a new HP print cartridge.

Toner smear



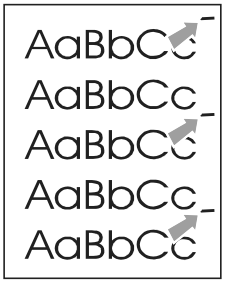
- If toner smears appear on the leading edge of the media, the media guides might be dirty. Wipe the media guides with a dry, lint-free cloth.
- Check the media type and quality.
- The fuser temperature might be too low. In your printer driver, make sure the appropriate media type is selected.
- Try installing a new HP print cartridge.

Loose toner



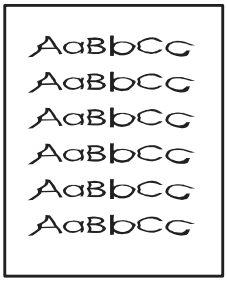
- The fuser temperature might be too low. In your printer driver, make sure the appropriate media type is selected.
- Clean the inside of the printer.
- Check the media type and quality.
- In your printer driver, make sure the appropriate media type is selected.
- Plug the printer directly into an AC outlet instead of into a power strip.

Vertical repetitive defects



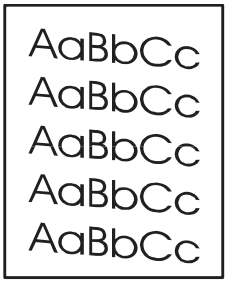
- The print cartridge might be damaged. If a repetitive mark occurs at the same spot on the page, install a new HP print cartridge.
- The internal parts might have toner on them. If the defects occur on the back of the page, the problem will probably correct itself after a few more printed pages.
- In your printer driver, make sure the appropriate media type is selected.

Misformed characters



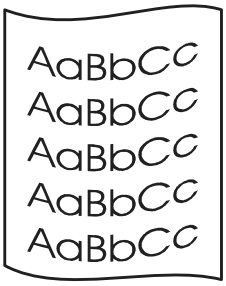
- If characters are improperly formed, producing hollow images, the media stock might be too slick. Try a different media.
- If characters are improperly formed, producing a wavy effect, the printer might need service. Print a configuration page. If the characters are improperly formed, contact an HP-authorized dealer or service representative.

Page skew



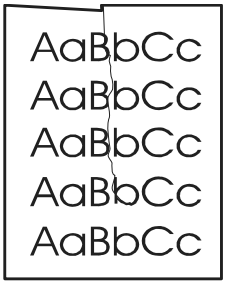
- Make sure that the media is loaded correctly and the media guides are not too tight or too loose against the media stack.
- The input bin might be too full.
- Check the media type and quality.

Curl or wave



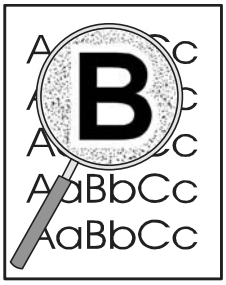
- Check the media type and quality. Both high temperature and high humidity cause media to curl.
- The media might have been in the input tray too long. Turn over the stack of media in the tray. Also, try rotating the media 180° in the input tray.
- Open the straight-through output door and try printing straight through.
- The fuser temperature might be too high. In your printer driver, make sure the appropriate media type is selected. If the problem persists, select a media type that uses a lower fuser temperature, such as transparencies or light media.

Wrinkles or creases



- Make sure that media is loaded properly.
- Check the media type and quality.
- Open the straight-through output door and try printing straight through.
- Turn over the stack of media in the tray. Also, try rotating the media 180° in the input tray.
- For envelopes, this can be caused by air pockets inside the envelope. Remove the envelope, flatten the envelope, and try printing again.

Toner scatter outline



- If large amounts of toner have scattered around the characters, the media might be resisting the toner. (A small amount of toner scatter is normal for laser printing.) Try a different media type.
- Turn over the stack of media in the tray.
- Use media that is designed for laser printers.

Solve print-quality problems

You can prevent most print-quality problems by following these guidelines.

- Configure the trays for the correct paper-type setting. See Configure trays (HP LaserJet P2050 Series Printers only) on page 43.
- Use paper that meets HP specifications. See Supported paper and print media on page 32.
- Clean the product as necessary. See Clean the paper path (HP LaserJet P2050 Series Printers only) on page 70.

Print-quality problems associated with paper

Some print-quality problems arise from using paper that does not meet HP specifications.

- The surface of the paper is too smooth.
- The moisture content of the paper is uneven, too high, or too low. Use paper from a different source or from an unopened ream.
- Some areas of the paper reject toner. Use paper from a different source or from an unopened ream.
- The letterhead you are using is printed on rough paper. Use a smoother, xerographic paper. If this solves your problem, ask the supplier of your letterhead to use paper that meets HP specifications.
- The paper is excessively rough. Use a smoother, xerographic paper.
- The paper is too heavy for the paper-type setting that you selected, so the toner is not fusing to the paper.

For complete paper specifications for all HP LaserJet products, see the *HP LaserJet Printer Family Print Media Guide*. This guide is available at www.hp.com/support/ljpaperguide.

Print-quality problems associated with the environment

If the product is operating in excessively humid or dry conditions, verify that the printing environment is within specifications. See Operating environment on page 293.

Print-quality problems associated with jams

Make sure that all sheets are cleared from the paper path.

- If the product recently jammed, print two to three pages to clean the paper path.
- If the sheets do not pass through the fuser and cause image defects on subsequent documents, print two to three pages to clean the paper path. If the problem persists, print and process a cleaning page. See Clean the paper path (HP LaserJet P2050 Series Printers only) on page 70.

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 paper types can slow the print job.	Print on a different type of paper.
	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 paper correctly.	Make sure paper is loaded in the tray correctly.
	The paper is jamming in the product.	Clear the jam. See Jams on page 229.
	The USB cable might be defective or incorrectly connected.	• Disconnect the USB cable at both ends and reconnect it. • Try printing a job that has printed in the past. • Try using a different USB cable.
	Other devices are running on your computer.	The product might not share a USB port. If you have an external hard drive or network switchbox that is connected to the same port as the product, the other device might be interfering. To connect and use the product, you must disconnect the other device or you must use two USB ports on the computer.

Solve connectivity problems

Solve direct-connect problems

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

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

Solve network problems

Check the following items to verify that the product is communicating with the network. Before beginning, print a configuration page. See Print the information pages on page 48.

1. Are there any physical connection problems between the workstation or file server and the product?

   Verify that the network cables, connections, and router configurations are correct. Verify that the network cable lengths meet network specifications.

2. Are the network cables connected properly?

   Make sure that the product is attached to the network using 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 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. Are the product link speed and duplex settings set correctly?

   Hewlett-Packard recommends leaving this setting in automatic mode (the default setting).

4. Can you "ping" the product?

   Use the command prompt to ping the product from the computer. For example:

   ```
   ping 192.168.45.39
   ```

   Make sure that the ping displays round-trip times.

   If you are able to ping the product, verify that the IP address configuration for the product is correct on the computer. If it is correct, delete and then add the product again.

   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.

5. Have any software programs been added to the network?

   Make sure they are compatible and that they are installed correctly with the correct printer drivers.

6. Are other users able to print?

   The problem might be workstation-specific. Check the workstation network drivers, printer drivers, and redirection (capture in Novell NetWare).

7. If other users are able to print, are they using the same network operating system?

Check your system for proper network operating system setup.

8. Is your protocol enabled?

   Check the status of your protocol on the Configuration page. You can also use the embedded Web server to check the status of other protocols. See Embedded Web server (HP LaserJet P2055dn, HP LaserJet P2055x, and HP LaserJet P2035n only) on page 57.

9. Does the product appear in HP Web Jetadmin or other management program?

   - Verify network settings on the Network configuration page.
   - Confirm the network settings for the product using the product control panel (for products with control panels).

Service mode functions

Secondary service menu (HP LaserJet P2050 Series Printers only)

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

Open the secondary service menu

1. Make sure that the product is in the **Ready** state. Press OK to enter the main menu.
2. Simultaneously press and hold the down arrow ▼ and Cancel button ⊗.
3. Press OK to re-enter the main menu.
4. Navigate to the secondary service menu.

Secondary service menu structure

Table 7-17 Secondary Service menu

Menu item	Sub-menu item	Description
Service Reports	**Cont. Self-Test**	Print a continuous configuration page.
	Error report	Print an error report.
Location	A list of available locations appears	This item sets certain product parameters that are dependent on the location, such as the default paper size and the symbol set. Scroll to the desired location and select **Yes** to set the location. The product automatically restarts after you change the location.
Display test		Use this test to verify that the LEDs and characters on the control-panel display function correctly. At the beginning of the test, each of the LEDs 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 X.
Button test		Use this test to verify that the control-panel buttons function correctly. The display prompts you to press each button.

Table 7-17 **Secondary Service menu (continued)**

Menu item	Sub-menu item	Description
Show FW Version		This item shows the current date code of the firmware.
Ethernet reset		This item resets the ethernet hardware and causes it to reacquire an IP address.

Engine resets

Engine test page

Simplex engine test page

1. Open and close the print-cartridge door three times within 2 seconds.
2. The engine-test page prints with a test pattern on one side of the paper.

Duplex engine test page (HP LaserJet P2050 Series Printers only)

1. Open and close the print-cartridge door five times within 2 seconds.
2. The engine-test page prints with a test pattern on both sides of the paper.

Restore defaults

- For HP LaserJet P2050 Series Printers, restore defaults from the service menu. See Service menu on page 27.
- For HP LaserJet P2030 Series Printers, restore defaults by pressing and holding the Go button and Cancel button for 10 seconds while turning on the product.

NVRAM initialization (HP LaserJet P2050 Series Printers only)

△ **CAUTION:** Only perform the following procedure if absolutely necessary. Performing an NVRAM initialization resets some parameters that cannot be restored later.

NVRAM initialization does the following:

- Resets all customer-accessible menu settings via the control panel and software back to the factory default settings
- Resets the language to the value set at the factory or through the generic product prompts
- Resets the default media size to cold reset media size
- Resets the symbol set to PC-8

Use the following procedure to perform an NVRAM initialization.

1. Turn the product off.
2. Simultaneously press and hold the up arrow ▲ and Cancel button ⊗.
3. Turn on the product.
4. When the message **Permanent storage init** displays, release the buttons. When the NVRAM initialization is completed, the product goes to a **Ready** state.

8 Parts and diagrams

- Order parts, accessories, and supplies
- Part numbers
- Screws
- How to use the parts lists and diagrams
- External covers, panels, and doors
- Internal components
- 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/ljp2050series or www.hp.com/support/ljp2030series .

Part numbers

The following list of accessories was current at the time of printing. Ordering information and availability of the accessories might change during the life of the product.

Paper-handling accessories

Item	Description	Part number
Optional 500-sheet tray and feeder unit	Optional tray to increase paper capacity.	CE464A

Print cartridges

Item	Description	Part number
HP LaserJet print cartridge	Standard-capacity cartridge	CE505A
	High-capacity cartridge	CE505X

Memory

Item	Description	Part number
44 x 32-pin DDR2 memory DIMM (dual inline memory module) Boosts the ability of the product to handle large or complex print jobs.	32 MB	CB420A
	64 MB	CB421A
	128 MB	CB422A
	256 MB	CB423A

Cables and interfaces

Item	Description	Part number
HP Jetdirect external print server accessories	HP Jetdirect en1700	J7942G
	HP Jetdirect en3700	J7942G
	HP Jetdirect ew2400 USB wireless print server	J7951G
	HP Jetdirect 175x	J6035G
	HP USB network print adapter	Q6275A (worldwide)
	HP wireless printing upgrade kit	Q6236A (North America) Q6259A (Europe, Middle East, Africa, and Asia-Pacific countries/regions)
USB cable	2-meter A to B cable	C6518A

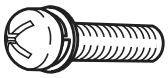
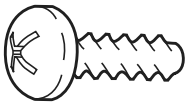
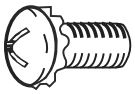
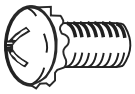
Whole unit replacement

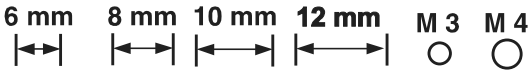
Product	Model	Voltage	Description	Part number
HP LaserJet P2035	CE461A	110 V	Exchange engine with formatter	CE461-69001
HP LaserJet P2035	CE461A	220 V	Exchange engine with formatter	CE461-69002
HP LaserJet P2035n	CE462A	110 V	Exchange engine with formatter	CE462-69001
HP LaserJet P2035n	CE462A	220 V	Exchange engine with formatter	CE462-69002
HP LaserJet P2055d	CE457A	110 V	Exchange engine with formatter	CE457-69001
HP LaserJet P2055d	CE457A	220 V	Exchange engine with formatter	CE457-69002
HP LaserJet P2055dn	CE459A	110 V	Exchange engine with formatter	CE459-69001
HP LaserJet P2055dn	CE459A	220 V	Exchange engine with formatter	CE459-69002

Screws

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

Table 8-1 Common fasteners

Example	Description	Size	Part Number
	Screw, with washer	M3X8	XA9-1420-000CN
	Screw, tapping, truss head	M4X10	XB4-7401-005CN
	Screw, tap	M3X6	XA9-1503-000CN
	Screw, D	M3X8	XA9-1671-000CN
	Screw, tooth washer	M4X6	XB2–7400-606CN



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.

External covers, panels, and doors

HP LaserJet P2035

Figure 8-1 External covers, panels, and doors; HP LaserJet P2035

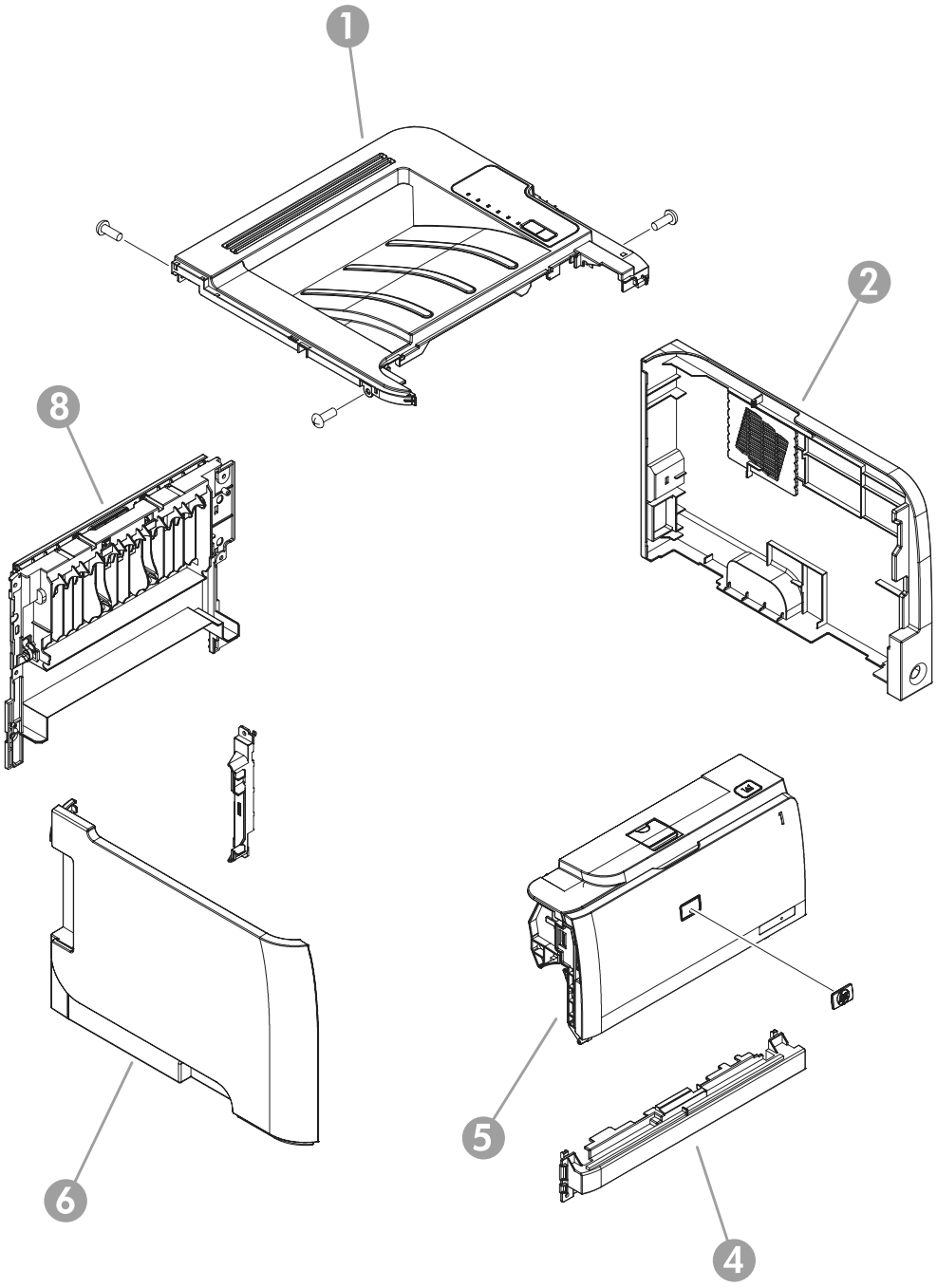


Table 8-2 **External covers, panels, and doors; HP LaserJet P2035**

Ref	Description	Part number	Qty
1	Top-cover assembly (HP LaserJet P2035)	RM1-6435-000CN	1
2	Cover, right (HP LaserJet P2035)	RC2-8280-000CN	1
4	Cover, front (HP LaserJet P2035 and HP LaserJet P2055)	RL1-2124-000CN	1
5	Cartridge-door assembly (HP LaserJet P2035)	RM1-6434-000CN	1
6	Cover, left assembly (HP LaserJet P2035)	RM1-6437-000CN	1
8	Cover, rear assembly (HP LaserJet P2035)	RM1-6440-000CN	1

HP LaserJet P2055

Figure 8-2 External covers, panels, and doors; HP LaserJet P2055

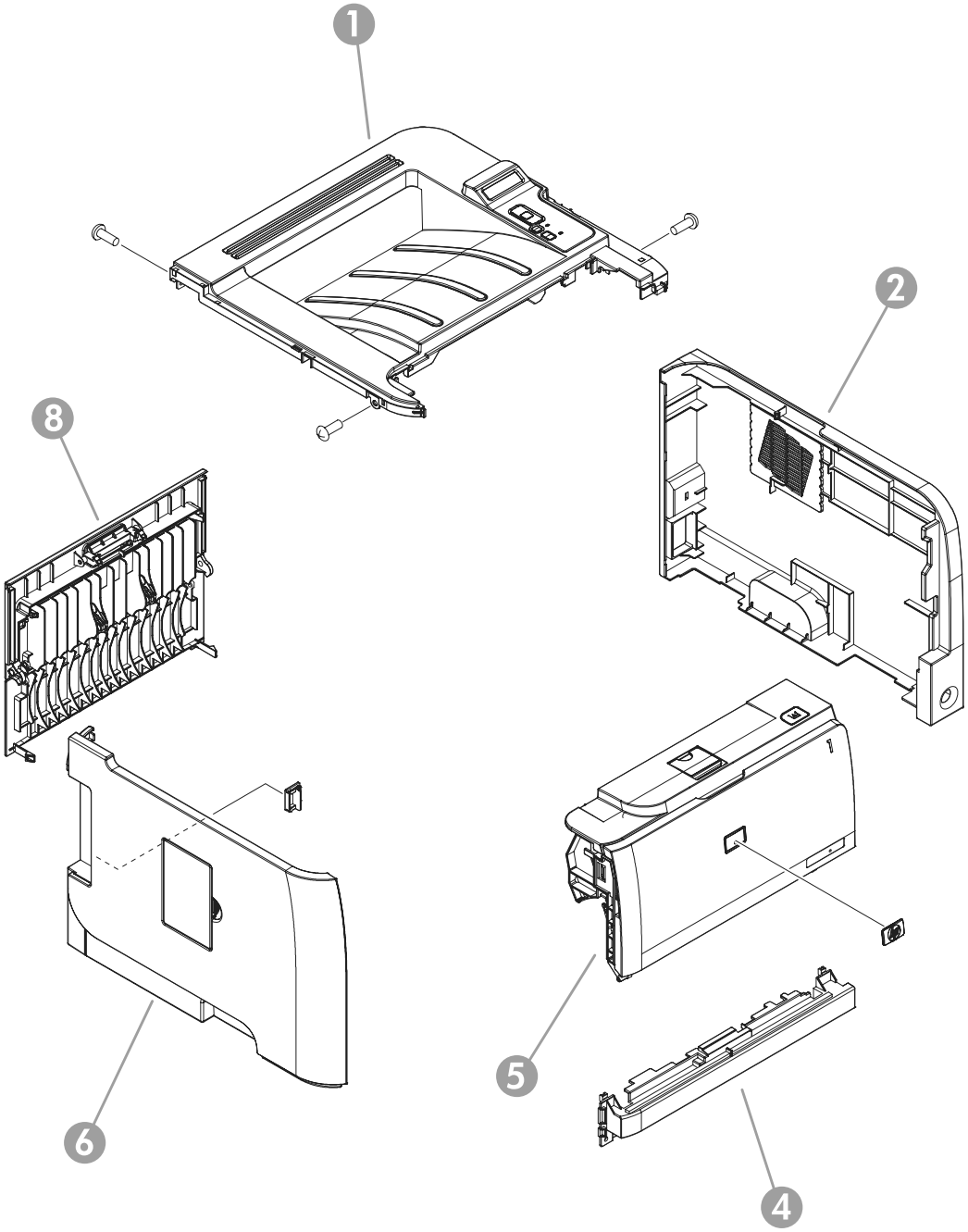


Table 8-3 **External covers, panels, and doors; HP LaserJet P2055**

Ref	Description	Part number	Qty
1	Top-cover assembly (HP LaserJet P2055)	RM1-6429-000CN	1
2	Cover, right (HP LaserJet P2055)	RC2-6254-000CN	1
4	Cover, front (HP LaserJet P2035 and HP LaserJet P2055)	RL1-2124-000CN	1
5	Cartridge-door assembly (HP LaserJet P2055)	RM1-6425-000CN	1
6	Cover, left assembly (HP LaserJet P2055)	RM1-6428-000CN	1
8	Cover, rear assembly (HP LaserJet P2055)	RM1-6444-000CN	1

Internal components

Internal components 1 of 5

Figure 8-3 Internal components 1 of 5
HPLJ 2050 Series only

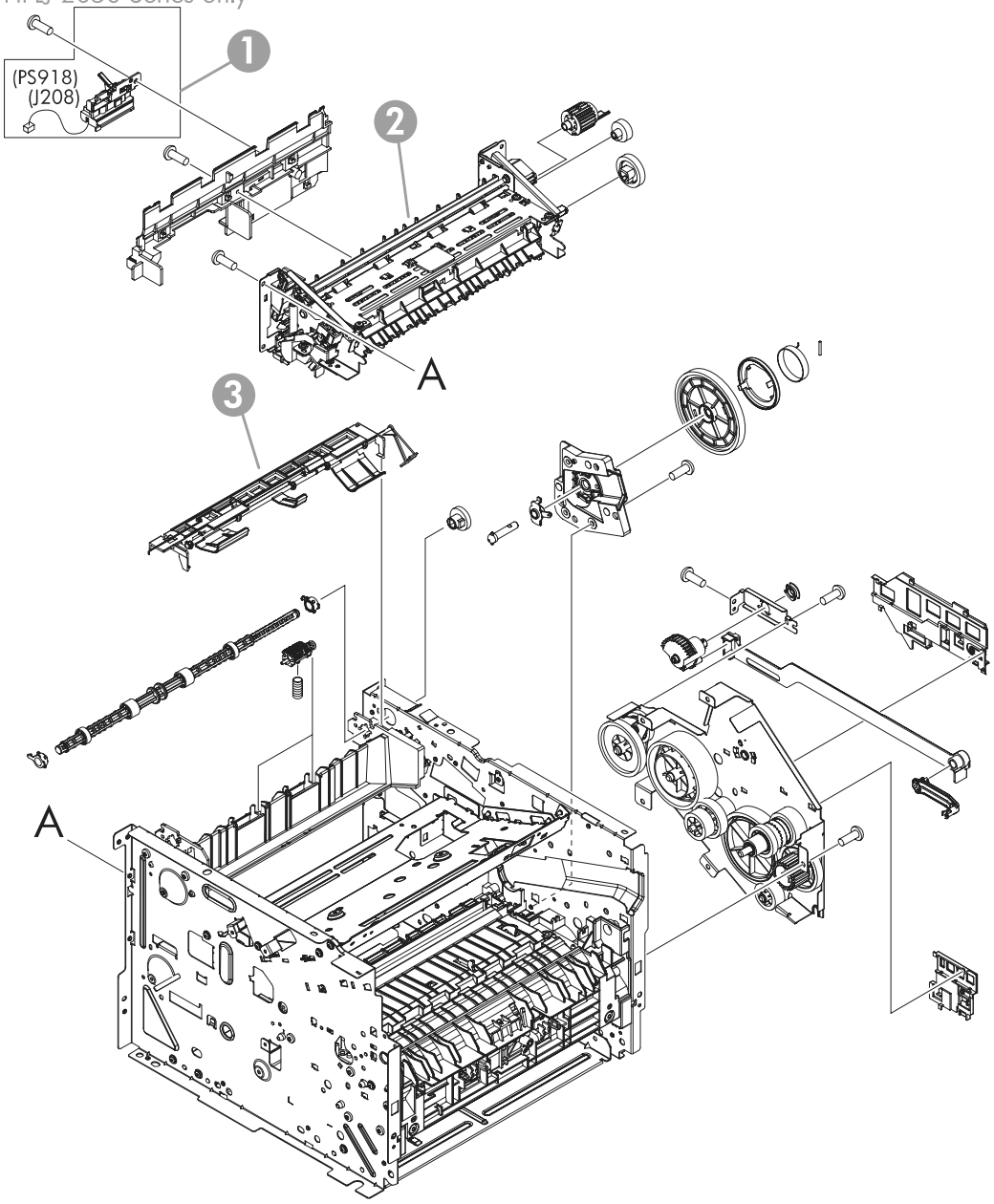


Table 8-4 **Internal components (1 of 5)**

Ref	Description	Part number	Qty
1	Reverse-sensor assembly (HP LaserJet P2055)	RM1-6445-000CN	1
2	Fuser assembly (110 V to 127 V)	RM1-6405-000CN	1
2	Fuser assembly (220 V to 240 V)	RM1-6406-000CN	1
3	Paper-retaining-delivery assembly	RM1-6401-000CN	1

Internal components 2 of 5

Figure 8-4 Internal components 2 of 5

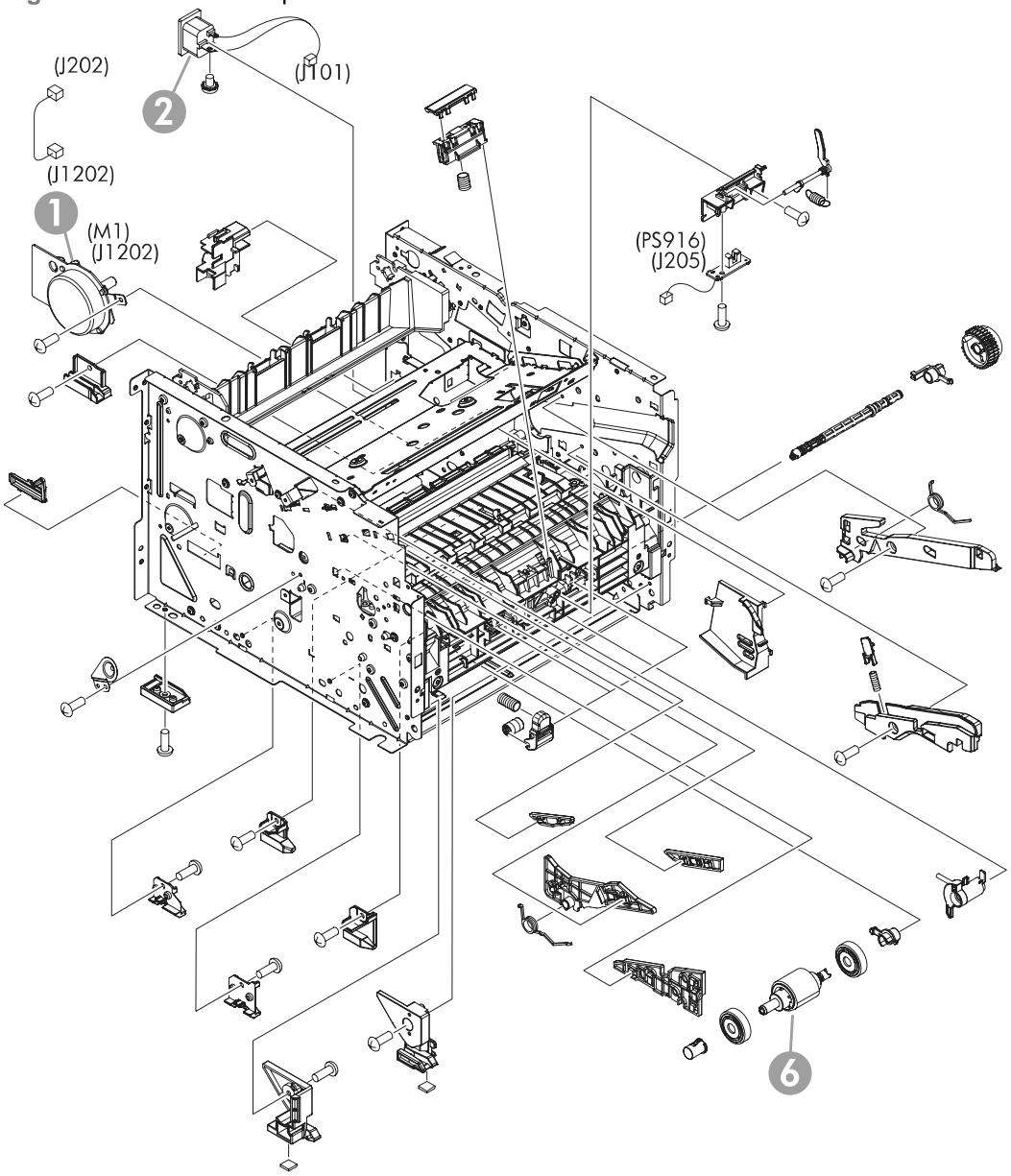


Table 8-5 **Internal components (2 of 5)**

Ref	Description	Part number	Qty
1	Main-motor	RM1-6378-000CN	1
2	Inlet-cable assembly	RM1-6375-000CN	1
6	Paper-pickup roller assembly	RM1-6414-000CN	1

Internal components 3 of 5

Figure 8-5 Internal components 3 of 5

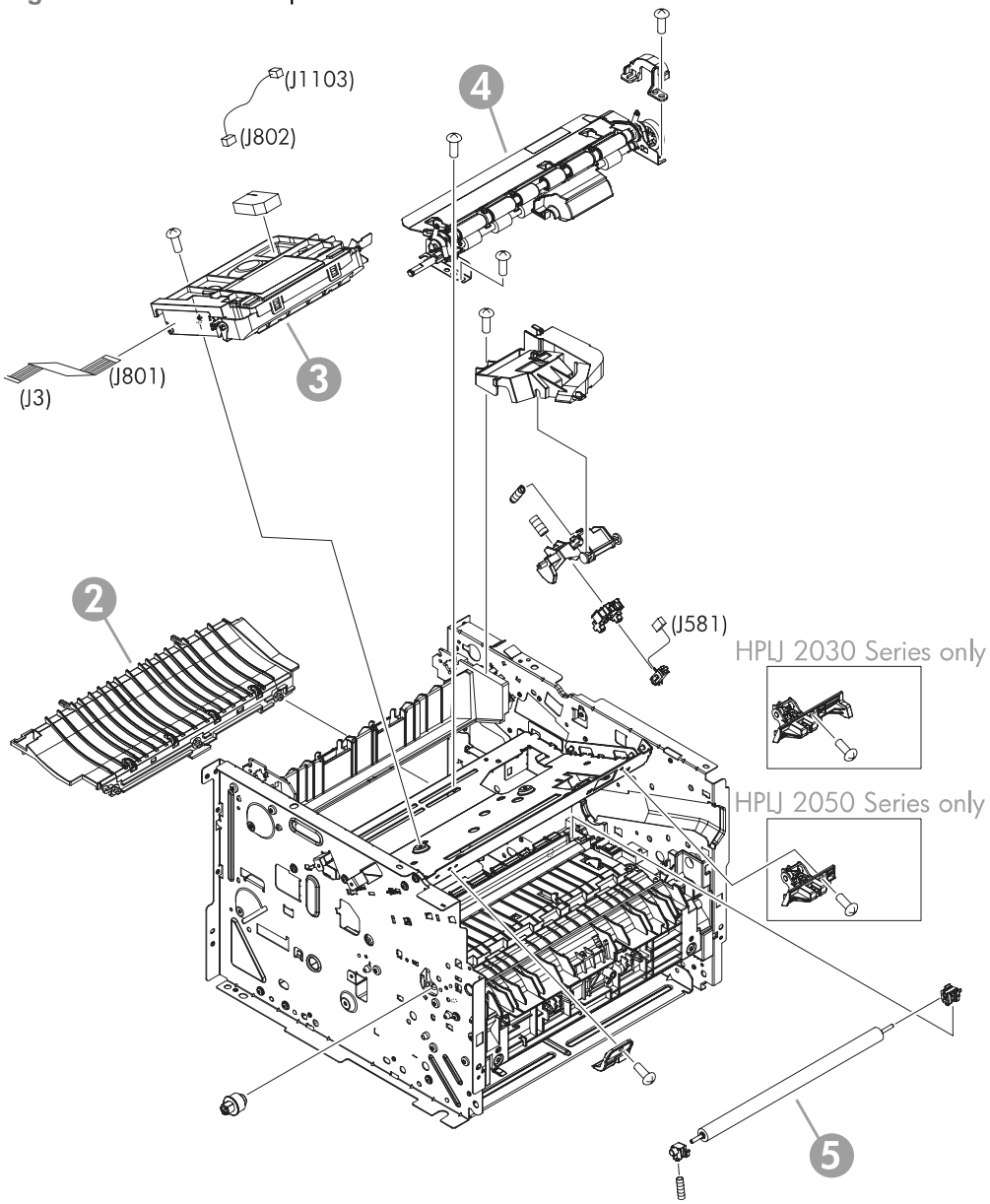


Table 8-6 **Internal components (3 of 5)**

Ref	Description	Part number	Qty
2	Paper-feed-guide assembly	RM1-6402-000CN	1
3	Laser/scanner assembly	RM1-6424-000CN	1
4	Registration assembly	RM1-6419-000CN	1
5	Transfer-roller assembly	RM1-6450-000CN	1

Internal components 4 of 5

Figure 8-6 Internal components 4 of 5

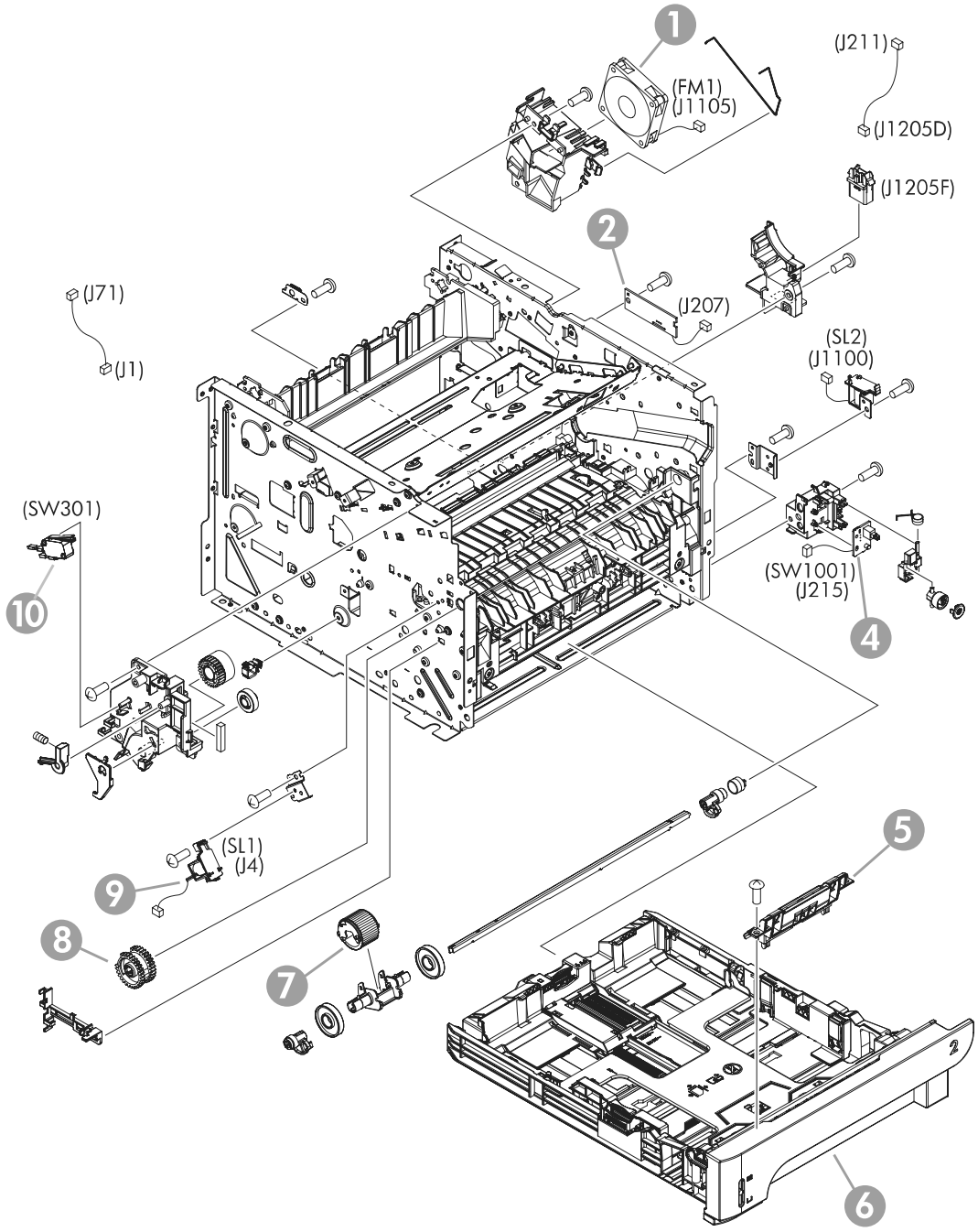


Table 8-7 **Internal components (4 of 5)**

Ref	Description	Part number	Qty
1	Fan	RK2-2727-000CN	1
2	Connecting PCA	RM1-6346-000CN	1
4	Power-switch PCA	RM1-6348-000CN	1
5	Separation-pad assembly (Tray 2)	RM1-6397-000CN	1
6	Cassette assembly (Tray 2; HP LaserJet P2035)	RM1-6446-000CN	1
6	Cassette assembly (Tray 2; HP LaserJet P2055)	RM1-6394-000CN	1
7	Roller, multipurpose pickup (Tray 1)	RM1-6394-000CN	1
8	Paper-pickup-gear assembly	RM1-4275-000CN	1
9	Solenoid (SL1; Tray 1)	RK2-2731-000CN	1
10	Switch, push (SW301; cartridge-door interlock)	WC4-5171-000CN	1

Internal components 5 of 5

Figure 8-7 Internal components 5 of 5

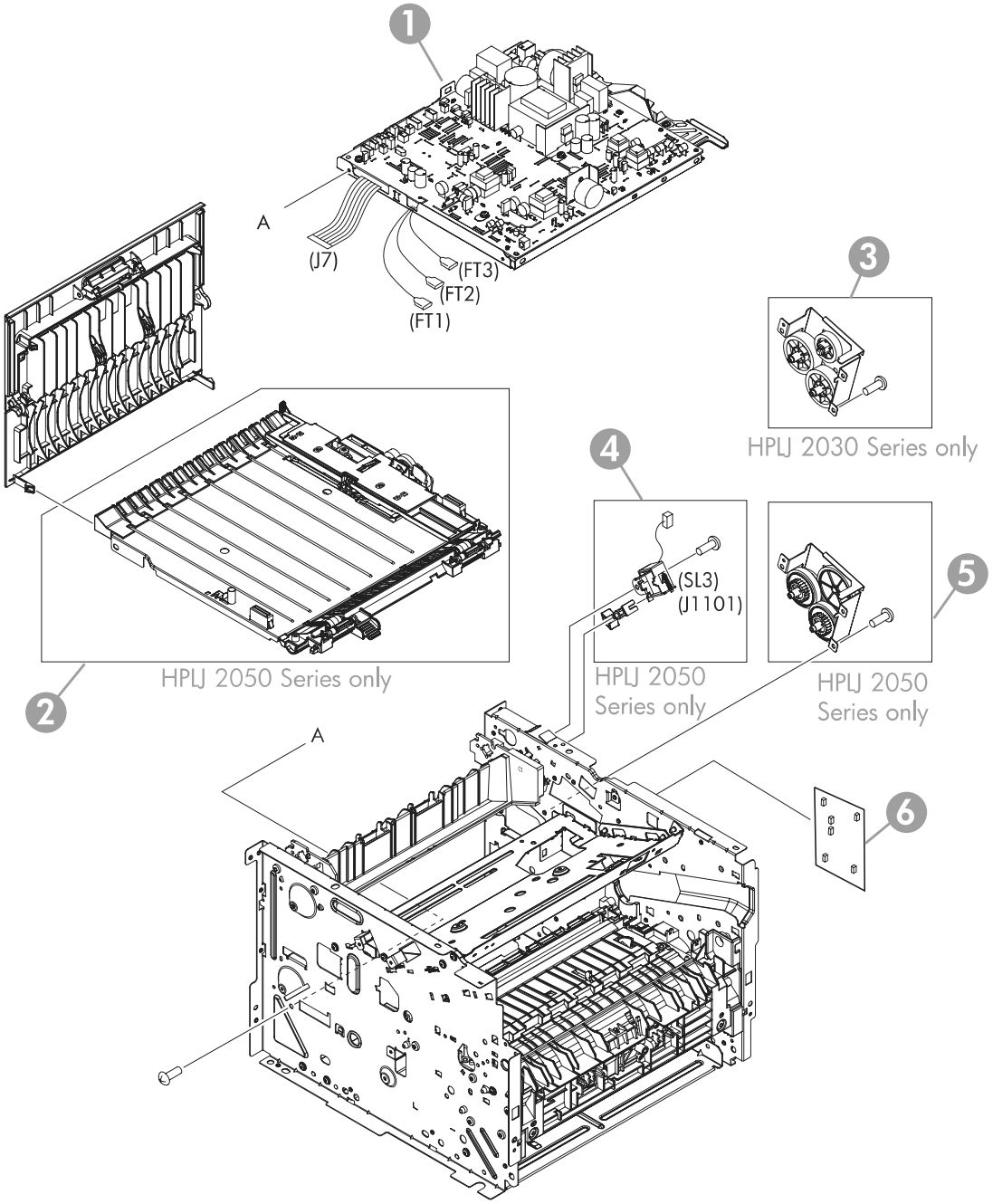


Table 8-8 **Internal components (5 of 5)**

Ref	Description	Part number	Qty
1	Engine-controller unit (ECU; 110 V to 127 V)	RM1-6392-000CN	1
1	Engine-controller unit (ECU; 220 V to 240 V)	RM1-6393-000CN	1
2	Duplexing-paper-feed assembly (HP LaserJet P2055)	RM1-6346-000CN	1
3	Face-down-drive assembly (HP LaserJet P2035)	RM1-6447-000CN	1
4	Solenoid (SL3; HP LaserJet P2055)	RK2-27337-000CN	1
5	Reverse-drive assembly (HP LaserJet P2055)	RM1-6423-000CN	1
6	Formatter (HP LaserJet P2035)	CC525-60001	1
6	Formatter (HP LaserJet P2035n)	CC526-60001	1
6	Formatter (HP LaserJet P2055d)	CC527-60001	1
6	Formatter (HP LaserJet P2055dn and HP LaserJet P2055x)	CC528-60001	1

Alphabetical parts list

Table 8-9 Alphabetical parts list

Description	Part number	Table and page
Cartridge-door assembly (HP LaserJet P2055)	RM1-6425-000CN	External covers, panels, and doors; HP LaserJet P2055 on page 263
Cartridge-door assembly (HP LaserJet P2035)	RM1-6434-000CN	External covers, panels, and doors; HP LaserJet P2035 on page 261
Cassette assembly (Tray 2; HP LaserJet P2055)	RM1-6394-000CN	Internal components (4 of 5) on page 271
Cassette assembly (Tray 2; HP LaserJet P2035)	RM1-6446-000CN	Internal components (4 of 5) on page 271
Connecting PCA	RM1-6346-000CN	Internal components (4 of 5) on page 271
Cover, front (HP LaserJet P2035 and HP LaserJet P2055)	RL1-2124-000CN	External covers, panels, and doors; HP LaserJet P2035 on page 261
Cover, front (HP LaserJet P2035 and HP LaserJet P2055)	RL1-2124-000CN	External covers, panels, and doors; HP LaserJet P2055 on page 263
Cover, left assembly (HP LaserJet P2055)	RM1-6428-000CN	External covers, panels, and doors; HP LaserJet P2055 on page 263
Cover, left assembly (HP LaserJet P2035)	RM1-6437-000CN	External covers, panels, and doors; HP LaserJet P2035 on page 261
Cover, rear assembly (HP LaserJet P2055)	RM1-6444-000CN	External covers, panels, and doors; HP LaserJet P2055 on page 263
Cover, rear assembly (HP LaserJet P2035)	RM1-6440-000CN	External covers, panels, and doors; HP LaserJet P2035 on page 261
Cover, right (HP LaserJet P2055)	RC2-6254-000CN	External covers, panels, and doors; HP LaserJet P2055 on page 263
Cover, right (HP LaserJet P2035)	RC2-8280-000CN	External covers, panels, and doors; HP LaserJet P2035 on page 261
Duplexing-paper-feed assembly (HP LaserJet P2055)	RM1-6346-000CN	Internal components (5 of 5) on page 273
Engine-controller unit (ECU; 110 V to 127 V)	RM1-6392-000CN	Internal components (5 of 5) on page 273
Engine-controller unit (ECU; 220 V to 240 V)	RM1-6393-000CN	Internal components (5 of 5) on page 273
Face-down-drive assembly (HP LaserJet P2035)	RM1-6447-000CN	Internal components (5 of 5) on page 273

Table 8-9 **Alphabetical parts list (continued)**

Description	Part number	Table and page
Fan	RK2-2727-000CN	Internal components (4 of 5) on page 271
Formatter (HP LaserJet P2055d)	CC527-60001	Internal components (5 of 5) on page 273
Formatter (HP LaserJet P2055dn and HP LaserJet P2055x)	CC528-60001	Internal components (5 of 5) on page 273
Formatter (HP LaserJet P2035)	CC525-60001	Internal components (5 of 5) on page 273
Formatter (HP LaserJet P2035n)	CC526-60001	Internal components (5 of 5) on page 273
Fuser assembly (110 V to 127 V)	RM1-6405-000CN	Internal components (1 of 5) on page 265
Fuser assembly (220 V to 240 V)	RM1-6406-000CN	Internal components (1 of 5) on page 265
Inlet-cable assembly	RM1-6375-000CN	Internal components (2 of 5) on page 267
Laser/scanner assembly	RM1-6424-000CN	Internal components (3 of 5) on page 269
Main-motor	RM1-6378-000CN	Internal components (2 of 5) on page 267
Paper-feed-guide assembly	RM1-6402-000CN	Internal components (3 of 5) on page 269
Paper-pickup roller assembly	RM1-6414-000CN	Internal components (2 of 5) on page 267
Paper-pickup-gear assembly	RM1-4275-000CN	Internal components (4 of 5) on page 271
Paper-retaining-delivery assembly	RM1-6401-000CN	Internal components (1 of 5) on page 265
Power-switch PCA	RM1-6348-000CN	Internal components (4 of 5) on page 271
Registration assembly	RM1-6419-000CN	Internal components (3 of 5) on page 269
Reverse-drive assembly (HP LaserJet P2055)	RM1-6423-000CN	Internal components (5 of 5) on page 273
Reverse-sensor assembly (HP LaserJet P2055)	RM1-6445-000CN	Internal components (1 of 5) on page 265
Roller, multipurpose pickup (Tray 1)	RM1-6394-000CN	Internal components (4 of 5) on page 271
Separation-pad assembly (Tray 2)	RM1-6397-000CN	Internal components (4 of 5) on page 271
Solenoid (SL1; Tray 1)	RK2-2731-000CN	Internal components (4 of 5) on page 271
Solenoid (SL3; HP LaserJet P2055)	RK2-27337-000CN	Internal components (5 of 5) on page 273

Table 8-9 **Alphabetical parts list (continued)**

Description	Part number	Table and page
Switch, push (SW301; cartridge-door interlock)	WC4-5171-000CN	Internal components (4 of 5) on page 271
Top-cover assembly (HP LaserJet P2055)	RM1-6429-000CN	External covers, panels, and doors; HP LaserJet P2055 on page 263
Top-cover assembly (HP LaserJet P2035)	RM1-6435-000CN	External covers, panels, and doors; HP LaserJet P2035 on page 261
Transfer-roller assembly	RM1-6450-000CN	Internal components (3 of 5) on page 269

Numerical parts list

Table 8-10 Numerical parts list

Part number	Description	Table and page
CC525-60001	Formatter (HP LaserJet P2035)	Internal components (5 of 5) on page 273
CC526-60001	Formatter (HP LaserJet P2035n)	Internal components (5 of 5) on page 273
CC527-60001	Formatter (HP LaserJet P2055d)	Internal components (5 of 5) on page 273
CC528-60001	Formatter (HP LaserJet P2055dn and HP LaserJet P2055x)	Internal components (5 of 5) on page 273
RC2-6254-000CN	Cover, right (HP LaserJet P2055)	External covers, panels, and doors; HP LaserJet P2055 on page 263
RC2-8280-000CN	Cover, right (HP LaserJet P2035)	External covers, panels, and doors; HP LaserJet P2035 on page 261
RK2-2727-000CN	Fan	Internal components (4 of 5) on page 271
RK2-2731-000CN	Solenoid (SL1; Tray 1)	Internal components (4 of 5) on page 271
RK2-27337-000CN	Solenoid (SL3; HP LaserJet P2055)	Internal components (5 of 5) on page 273
RL1-2124-000CN	Cover, front (HP LaserJet P2035 and HP LaserJet P2055)	External covers, panels, and doors; HP LaserJet P2035 on page 261
RL1-2124-000CN	Cover, front (HP LaserJet P2035 and HP LaserJet P2055)	External covers, panels, and doors; HP LaserJet P2055 on page 263
RM1-4275-000CN	Paper-pickup-gear assembly	Internal components (4 of 5) on page 271
RM1-6346-000CN	Connecting PCA	Internal components (4 of 5) on page 271
RM1-6346-000CN	Duplexing-paper-feed assembly (HP LaserJet P2055)	Internal components (5 of 5) on page 273
RM1-6348-000CN	Power-switch PCA	Internal components (4 of 5) on page 271
RM1-6375-000CN	Inlet-cable assembly	Internal components (2 of 5) on page 267
RM1-6378-000CN	Main-motor	Internal components (2 of 5) on page 267
RM1-6392-000CN	Engine-controller unit (ECU; 110 V to 127 V)	Internal components (5 of 5) on page 273
RM1-6393-000CN	Engine-controller unit (ECU; 220 V to 240 V)	Internal components (5 of 5) on page 273

Table 8-10 **Numerical parts list (continued)**

Part number	Description	Table and page
RM1-6394-000CN	Cassette assembly (Tray 2; HP LaserJet P2055)	Internal components (4 of 5) on page 271
RM1-6394-000CN	Roller, multipurpose pickup (Tray 1)	Internal components (4 of 5) on page 271
RM1-6397-000CN	Separation-pad assembly (Tray 2)	Internal components (4 of 5) on page 271
RM1-6401-000CN	Paper-retaining-delivery assembly	Internal components (1 of 5) on page 265
RM1-6402-000CN	Paper-feed-guide assembly	Internal components (3 of 5) on page 269
RM1-6405-000CN	Fuser assembly (110 V to 127 V)	Internal components (1 of 5) on page 265
RM1-6406-000CN	Fuser assembly (220 V to 240 V)	Internal components (1 of 5) on page 265
RM1-6414-000CN	Paper-pickup roller assembly	Internal components (2 of 5) on page 267
RM1-6419-000CN	Registration assembly	Internal components (3 of 5) on page 269
RM1-6423-000CN	Reverse-drive assembly (HP LaserJet P2055)	Internal components (5 of 5) on page 273
RM1-6424-000CN	Laser/scanner assembly	Internal components (3 of 5) on page 269
RM1-6425-000CN	Cartridge-door assembly (HP LaserJet P2055)	External covers, panels, and doors; HP LaserJet P2055 on page 263
RM1-6428-000CN	Cover, left assembly (HP LaserJet P2055)	External covers, panels, and doors; HP LaserJet P2055 on page 263
RM1-6429-000CN	Top-cover assembly (HP LaserJet P2055)	External covers, panels, and doors; HP LaserJet P2055 on page 263
RM1-6434-000CN	Cartridge-door assembly (HP LaserJet P2035)	External covers, panels, and doors; HP LaserJet P2035 on page 261
RM1-6435-000CN	Top-cover assembly (HP LaserJet P2035)	External covers, panels, and doors; HP LaserJet P2035 on page 261
RM1-6437-000CN	Cover, left assembly (HP LaserJet P2035)	External covers, panels, and doors; HP LaserJet P2035 on page 261
RM1-6440-000CN	Cover, rear assembly (HP LaserJet P2035)	External covers, panels, and doors; HP LaserJet P2035 on page 261
RM1-6444-000CN	Cover, rear assembly (HP LaserJet P2055)	External covers, panels, and doors; HP LaserJet P2055 on page 263

Table 8-10 Numerical parts list (continued)

Part number	Description	Table and page
RM1-6445-000CN	Reverse-sensor assembly (HP LaserJet P2055)	Internal components (1 of 5) on page 265
RM1-6446-000CN	Cassette assembly (Tray 2; HP LaserJet P2035)	Internal components (4 of 5) on page 271
RM1-6447-000CN	Face-down-drive assembly (HP LaserJet P2035)	Internal components (5 of 5) on page 273
RM1-6450-000CN	Transfer-roller assembly	Internal components (3 of 5) on page 269
WC4-5171-000CN	Switch, push (SW301; cartridge-door interlock)	Internal components (4 of 5) on page 271

A Service and support

- Hewlett-Packard limited warranty statement
- Print cartridge limited warranty statement
- End User License Agreement
- Customer self-repair warranty service
- Customer support
- HP maintenance agreements

Hewlett-Packard limited warranty statement

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Rev. 11/06

Customer self-repair warranty service

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

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

Customer support

Get telephone support, free during your warranty period, for your country/region Have the product name, serial number, date of purchase, and problem description ready.	Country/region phone numbers are on the flyer that was in the box with your product or at www.hp.com/support/.
Get 24-hour Internet support	www.hp.com/support/ljp2050series or www.hp.com/support/ljp2030series
Get support for products used with a Macintosh computer	www.hp.com/go/macosx
Download software utilities, drivers, and electronic information	www.hp.com/go/ljp2050series_software or www.hp.com/go/ljp2030series_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

HP maintenance agreements

HP has several types of maintenance agreements that meet a wide range of support needs. Maintenance agreements are not part of the standard warranty. Support services might vary by area. Check with your local HP dealer to determine the services available to you.

On-site service agreements

To provide you with the level of support best suited to your needs, HP has on-site service agreements with a selection of response times.

Next-day on-site service

This agreement provides support by the next working day following a service request. Extended coverage hours and extended travel beyond HP's designated service zones are available on most on-site agreements (for additional charges).

Weekly (volume) on-site service

This agreement provides scheduled weekly on-site visits for organizations with many HP products. This agreement is designated for sites using 25 or more workstation products, including devices, plotters, computers, and disk drives.

Repack the product

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

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

1. Remove and retain any DIMMs cards that you have purchased and installed in the device. Do not remove the DIMM that came with the device.

   △ **CAUTION:** Static electricity can damage DIMMs. When handling DIMMs, either wear an antistatic wrist strap, or frequently touch the surface of the DIMM antistatic package and then touch bare metal on the device. To remove the DIMMs, see Install memory (HP LaserJet P2050 Series Printers only) on page 64.

2. Remove and retain the print cartridge.

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

   To prevent damage to the print cartridge, avoid touching the roller on it, and store the print cartridge in its original packing material or so that it is not exposed to light.

3. Remove and retain the power cable, interface cable, and optional accessories.

4. If possible, include print samples and 50 to 100 sheets of paper or other print media that did not print correctly.

5. In the U.S., call HP Customer Care to request new packing material. In other areas, use the original packing material, if possible. Hewlett-Packard recommends insuring the equipment for shipment.

Extended warranty

HP Support provides coverage for the HP hardware product and all HP-supplied internal components. The hardware maintenance covers a 1- to 3-year period from date of the HP product purchase. The customer must purchase HP Support within the stated factory warranty. For more information, contact the HP Customer Care Service and Support group.

B Specifications

- Physical specifications
- Electrical specifications
- Acoustic emissions
- Operating environment

Physical specifications

Table B-1 Product dimensions and weights

Product model	Height	Depth	Width	Weight
HP LaserJet P2050 Series d model	268 mm (10.6 in)	368 mm (14.5 in)	360 mm (14.2 in)	10.6 kg (23.4 lb)
HP LaserJet P2050 Series dn model	268 mm (10.6 in)	368 mm (14.5 in)	360 mm (14.2 in)	10.6 kg (23.4 lb)
HP LaserJet P2050 Series x model	405 mm (15.9 in)	368 mm (14.5 in)	360 mm (14.2 in)	14.7 kg (32.4 lb)
Optional 500-sheet feeder	140 mm (5.5 in)	368 mm (14.5 in)	360 mm (14.2 in)	4.1 kg (9.0 lb)

Table B-2 Product dimensions with all doors and trays fully opened

Product model	Height	Depth	Width
HP LaserJet P2050 Series d model	268 mm (10.6 in)	455 mm (17.9 in)	360 mm (14.2 in)
HP LaserJet P2050 Series dn model	268 mm (10.6 in)	455 mm (17.9 in)	360 mm (14.2 in)
HP LaserJet P2050 Series x model	405 mm (15.9 in)	455 mm (17.9 in)	360 mm (14.2 in)

Table B-3 Product dimensions and weights

Product model	Height	Depth	Width	Weight
HP LaserJet P2030 Series Printers	256 mm (10.1 in)	368 mm (14.5 in)	360 mm (14.2 in)	9.9 kg (21.8 lb)

Table B-4 Product dimensions with all doors and trays fully opened

Product model	Height	Depth	Width
HP LaserJet P2030 Series Printers	256 mm (10.1 in)	455 mm (17.9 in)	360 mm (14.2 in)

Electrical specifications

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

Table B-5 Electrical specifications

Item	110-volt models	220-volt models
Power requirements	100 to 127 V (+/-10%)	220 to 240 V (+/-10%)
	50 to 60 Hz (+/-2 Hz)	50 to 60 Hz (+/-2 Hz)
Minimum recommended circuit capacity	6.0 A	3.0 A

Table B-6 Power consumption (average, in watts) [1,4]

Product Model	Printing[2,3]	Ready/Sleep[2]	Off[2]
HP LaserJet P2050 Series Printers	570	8	0.4
HP LaserJet P2030 Series Printers	550	7	0.4

1 Values are based on preliminary data. Go to www.hp.com/support/ljp2050series or www.hp.com/support/ljp2030series for current information.

2 The power reported is the highest values measured for all product models using all standard voltages.

3 Ready and Sleep mode power consumption is the same with Instant On Fusing technology.

4 Maximum heat dissipation for all models in Ready mode = 28 BTU/Hour.

Acoustic emissions

Table B-7 HP LaserJet P2050 Series Printers[1,2]

Sound power level	Declared per ISO 9296
Printing	L_{WAd} = 6.8 Bels (A) [68 dB (A)]
Ready	L_{WAd} = Inaudible
Sound pressure level - bystander position	**Declared per ISO 9296**
Printing	L_{pAm} = 55 dB (A)
Ready	L_{pAm} = Inaudible

1 Values are based on preliminary data. Go to www.hp.com/support/ljp2050series for current information.

2 Configuration tested: HP LaserJet P2055dn printing simplex on A4 paper.

Table B-8 HP LaserJet P2030 Series Printers[1,2]

Sound power level	Declared per ISO 9296
Printing	L_{WAd} = 6.8 Bels (A) [68 dB (A)]
Ready	L_{WAd} = Inaudible
Sound pressure level - bystander position	**Declared per ISO 9296**
Printing	L_{pAm} = 54 dB (A)
Ready	L_{pAm} = Inaudible

1 Values are based on preliminary data. Go to www.hp.com/support/ljp2030series for current information.

2 Configuration tested: HP LaserJet P2035 printer printing on A4 paper.

Operating environment

Table B-9 Necessary conditions

Environmental condition	Printing	Storage/standby
Temperature (product and print cartridge)	7.5° to 32.5°C (45.5° to 90.5°F)	0° to 35°C (32° to 95°F)
Relative humidity	10% to 80%	10% to 90%

C Regulatory information

- FCC regulations
- Declaration of conformity
- Safety statements

FCC regulations

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

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

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

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

Declaration of conformity

Declaration of conformity

Declaration of Conformity
according to ISO/IEC 17050-1 and EN 17050-1, DoC#: BOISB-0801-00-rel.1.0

Manufacturer's Name:	Hewlett-Packard Company
Manufacturer's Address:	11311 Chinden Boulevard, Boise, Idaho 83714-1021, USA
declares, that the product	
Product Name:	HP LaserJet P2050 Series
Regulatory Model Number[2]:	BOISB-0801-00
Product Options:	Including CE464A — Optional 500-sheet input tray ALL
	Print Cartridges: CE505A, CE505X

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 / EN 55022:2006 - Class B[1] 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 CE accordingly.

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

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

2) For regulatory purposes, this product is assigned a Regulatory model number. This number should not be confused with the marketing name or the product number(s).

Boise, Idaho , USA

October 22, 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, (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)

Safety statements

Laser safety

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration has implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States. The device is certified as a “Class 1” laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside the device is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

⚠ **WARNING!** Using controls, making adjustments, or performing procedures other than those specified in this user guide may result in exposure to hazardous radiation.

Canadian DOC regulations

Complies with Canadian EMC Class B requirements.

« Conforme à la classe B des normes canadiennes de compatibilité électromagnétiques. « CEM ». »

VCCI statement (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Power cord statement (Japan)

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

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 LaserJet P2055d, P2055dn, P2055x , laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käytössä kirjoittimen suojakotelointi estää lasersäteen pääsyn laitteen ulkopuolelle. Laitteen turvallisuusluokka on määritetty standardin EN 60825-1 (1994) mukaisesti.

VAROITUS !

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

VARNING !

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

HUOLTO

HP LaserJet P2055d, P2055dn, P2055x - kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota väriainekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoistyökaluja.

VARO !

Mikäli kirjoittimen suojakotelo avataan, olet alttiina näkymättömällelasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.

VARNING !

Om laserprinterns skyddshölje öppnas då apparaten är i funktion, utsättas användaren för osynlig laserstrålning. Betrakta ej strålen. Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista: Aallonpituus 775-795 nm Teho 5 m W Luokan 3B laser.

Substances Table (China)

有毒有害物质表

根据中国电子信息产品污染控制管理办法的要求而出台

部件名称	有毒有害物质和元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
打印引擎	X	0	X	0	0	0
控制面板	0	0	0	0	0	0
塑料外壳	0	0	0	0	0	0
格式化板组件	X	0	0	0	0	0
碳粉盒	X	0	0	0	0	0

3685

0：表示在此部件所用的所有同类材料中，所含的此有毒或有害物质均低于 SJ/T11363-2006 的限制要求。
X：表示在此部件所用的所有同类材料中，至少一种所含的此有毒或有害物质高于 SJ/T11363-2006 的限制要求。

注：引用的“环保使用期限”是根据在正常温度和湿度条件下操作使用产品而确定的。

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