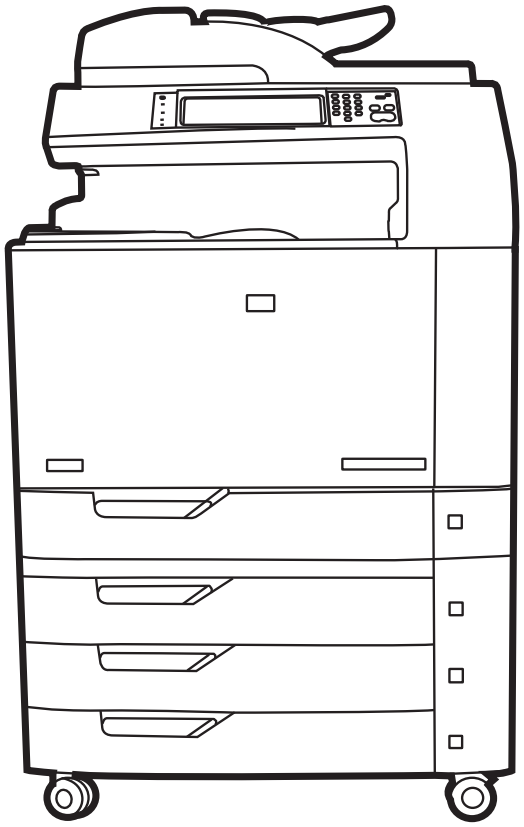
HP Color LaserJet CM6049f MFP

Service Manual



HP Color LaserJet CM6049f MFP
Service Manual



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1 Product basics

- Product introduction
- Product features
- Product walkaround
- Supported operating systems

Product introduction

Figure 1-1 HP Color LaserJet CM6049f MFP (CE799A)



The HP Color LaserJet CM6049f MFP comes standard with the following items:

- 100-sheet multipurpose input tray (Tray 1)
- 40 ppm
- Four 500-sheet input trays
- Automatic document feeder (ADF) that holds up to 50 pages
- HP Jetdirect embedded print server for connecting to a 10/100Base-TX network
- 512 megabytes (MB) of random access memory (RAM)
- Duplexer
- Hard drive
- Analog fax

Product features

Table 1-1 Features

Speed and throughput	• Print up to 40 ppm on letter-size paper. • Less than 11 seconds to print the first page • Recommended maximum monthly print volume of 15,000 pages • An 835 megahertz (MHz) microprocessor • Duplex at speed
Resolution	• 600 dots per inch (dpi) with Image Resolution Enhancement technology 4800 for optimum overall imaging • 1200 x 600 dpi for detailed line work and small text
Memory	• 512 MB of random-access memory (RAM), expandable to 1 gigabyte (GB) by using 200-pin small outline dual inline memory modules (SODIMM) that support 128, 256, or 512 MB of RAM. • Memory Enhancement technology (MEt) automatically compresses data to use RAM more efficiently.
User interface	• HP Easy Select Control Panel
Drivers	HP provides the following drivers for downloading: • HP Universal Print Driver (UPD): Postscript, PCL 6, PCL 5 • Mac Driver • Linux • SAP • UNIX Model Script
Languages and fonts	• HP Printer Control Language (PCL) 6 • HP Universal Printer Driver (UPD) PCL 5 • HP Universal Printer Driver postscript (PS) • Printer Management Language • 80 scalable TrueType PS typefaces
Print cartridges/image drums (4 of each)	• Two-part toner/imaging system • Black print cartridges print up to 19,500 pages at 5% coverage • Color print cartridges print up to 21,000 pages at 5% coverage • Image drums print up to 35,000 pages at 5% coverage • Authentic HP print cartridge detection • Automatic toner strip remover

Table 1-1 Features (continued)

Paper-handling	• **Input** ◦ **Tray 1 (multipurpose tray):** A multipurpose tray for paper, transparencies, labels, envelopes and other paper types. See Supported paper types on page 66 for a list of paper types. The tray holds up to 100 sheets of paper, 50 transparencies, or 10 envelopes. See Supported paper and print media sizes on page 63. ◦ **Tray 2, 3, 4, and 5:** 500-sheet trays. These trays automatically detect common paper sizes and allow printing on custom-size paper. Tray 2 supports up to 279 x 432 mm (11 x 17 inches) and A3 paper sizes, and Trays 3,4, and 5 support sizes up to 305 x 457 mm (12 x 18 inches), and SRA3. See Supported paper and print media sizes on page 63 for a list of supported paper sizes. For a list of supported paper types, see Supported paper types on page 66. ◦ **Automatic document feeder (ADF):** Holds up to 50 sheets of paper. ◦ **ADF duplex scanning:** The ADF has an automatic duplexer for scanning two-sided documents. ◦ **Duplex printing:** Provides automatic two-sided printing (printing on both sides of the paper). The paper size range for automatic duplex printing is 175 mm to 320 mm (6.9 to 12.6 inches) x 210 mm to 457 mm (8.3 to 18 inches). The media weight range is 60–220 g/m² (16-58 lb). • **Output** ◦ **Standard output bin:** The standard output bin is located underneath the scanner on the top of the product. This bin can hold up to 500 sheets of paper. The product provides a sensor that indicates when the bin is full. ◦ **Optional 3-bin stapler/stacker:** Provides job separation in multiple output bins, convenient stapling (up to 50-sheet jobs), job offset capability, and additional output capacity. The stacker has three bins: a 100-sheet bin, a 500-sheet bin, and a 1000-sheet bin. ◦ **Optional booklet maker finisher:** Provides convenient stapling (up to 50-sheet jobs), saddle-stitching (up to 15-sheet booklets), single-sheet v-folding, job separation and offset capability, as well as additional output capacity. The booklet maker finisher has three bins: two 1000-sheet bins and one bin that can hold up to 25 saddle-stitched booklets. ◦ **ADF output bin:** The ADF output bin is underneath the ADF input tray. The bin holds up to 50 sheets of paper, and the product automatically stops when this bin is full.
Supported operating systems	• Windows 2000® • Windows XP® • Windows Server 2003® • Windows Server 2008® • Windows Vista™ • Macintosh OS
Connectivity	• Local area network (LAN) connector (RJ-45) for the embedded HP Jetdirect print server • One enhanced input/output (EIO) slot • USB 2.0 connection • Optional analog fax card

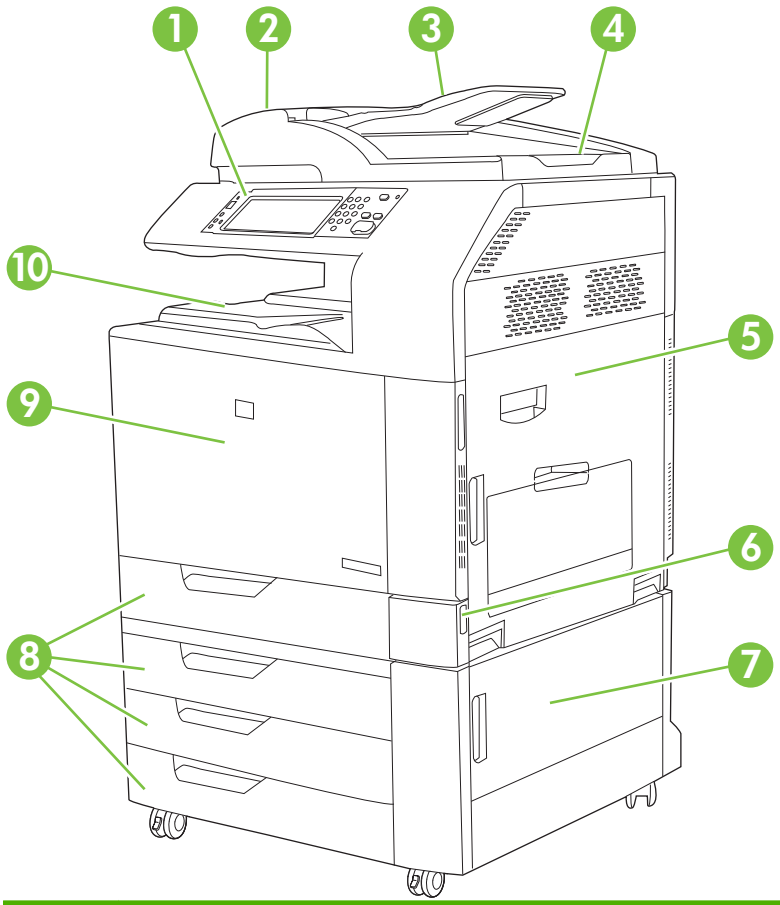
Table 1-1 Features (continued)

Environmental features	• Sleep setting saves energy. • High content of recyclable components and materials.
Security features	• Secure Disk Erase • Security lock (optional) • Job retention • User PIN authentication for stored jobs • DSS authentication • IPv6 security
Copying and sending	• Modes for text, graphics, and mixed text and graphics formats • Job-interrupt feature • Multiple pages per sheet • Control panel animations (for example, jam recovery) • Scan and send to e-mail ◦ Local address book for e-mail and fax ◦ LDAP addressing • Send to folder • Automatic duplex (two-sided) scanning

Product walkaround

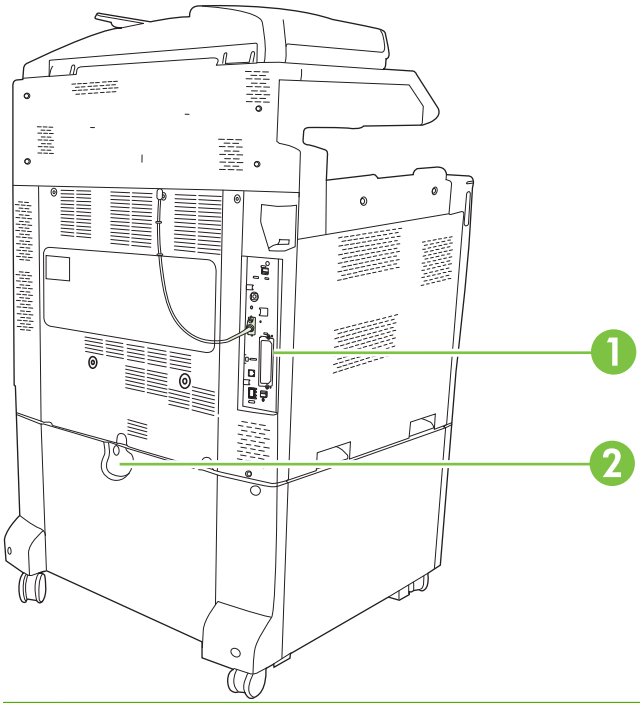
Front view

HP Color LaserJet CM6049f MFP



1	Control panel
2	Automatic Document Feeder (ADF) top cover
3	ADF input tray for copy/scan/fax originals
4	ADF output bin
5	Right-door (provides access to the transfer unit, transfer roller, and fuser unit)
6	On/Off switch
7	Lower right door
8	Trays 2, 3, 4 and 5
9	Front cover (provides access to print cartridges and image drums)
10	Output bin

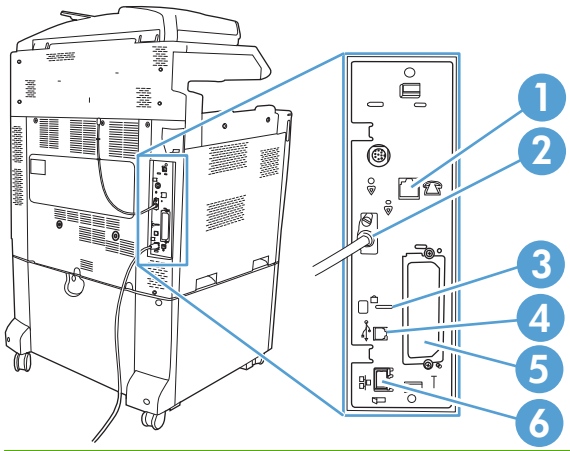
Back view



1	Interface ports and formatter
2	Lock lever for additional input bins

Interface ports

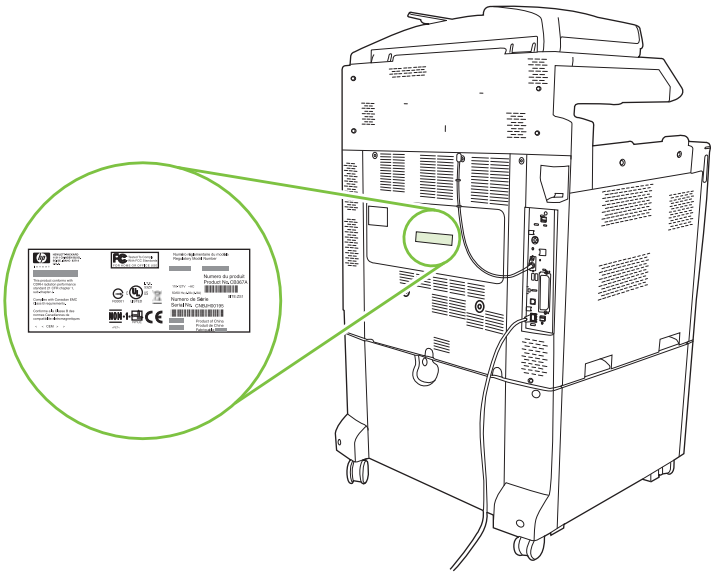
The product has five ports for connecting to a computer or a network. The ports are at the left, rear corner of the product.



1	Fax connection (when installed)
2	Scanner cable
3	Access port for Kensington lock
4	USB 2.0 port
5	EIO expansion slot
6	Network port

Serial number and model number location

The model number and serial number are listed on identification labels located on the rear of the printer. The serial number contains information about the country/region of origin, the printer version, production code, and the production number of the printer.



Model name	Model number
HP Color LaserJet CM6049f MFP	CE799A

Supported operating systems

The product supports the following operating systems:

- Windows XP (32-bit and 64-bit)
- Windows Server 2003 (32-bit and 64-bit)
- Windows Server 2008 (32-bit and 64-bit)
- Windows 2000
- Windows Vista (32-bit and 64-bit)
- Mac OS X V10.3, V10.4, V10.5 and later

NOTE: For Mac OS X V10.4 and later, PPC and Intel Core Processor Macs are supported.

2 Control panel

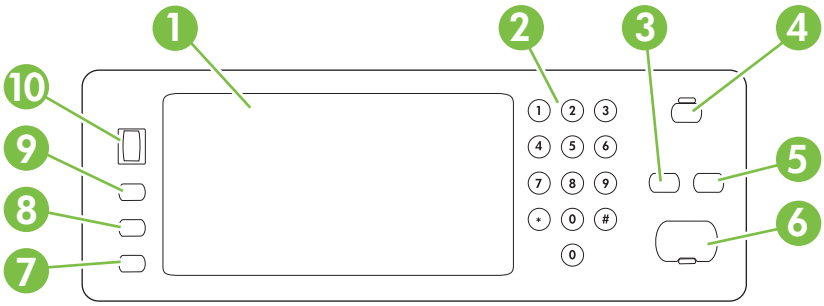
- Use the control panel
- Navigate the Administration menu
- Information menu
- Default Job Options menu
- Time/Scheduling menu
- Management menu
- Initial Setup menu
- Device Behavior menu
- Print Quality menu
- Troubleshooting menu
- Resets menu
- Service menu

Use the control panel

The control panel has a VGA touchscreen that provides access to all device functions. Use the buttons and numeric keypad to control jobs and the device status. The LEDs indicate overall device status.

Control-panel layout

The control panel includes a touchscreen graphical display, job-control buttons, a numeric keypad, and three light-emitting diode (LED) status lights.

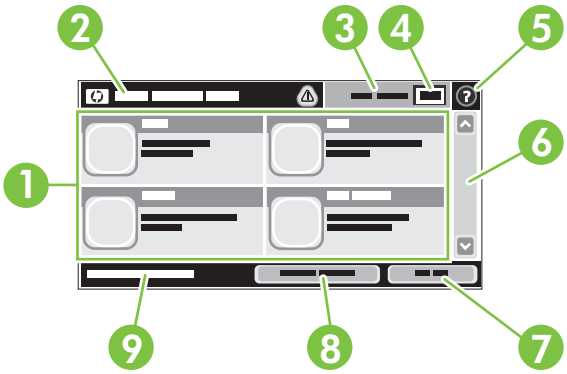


1	Touchscreen graphical display	Use the touchscreen to open and set up all device functions.
2	Numeric keypad	Allows you to type numeric values for number of copies required and other numeric values.
3	Reset button	Resets the job settings to factory or user-defined default values.
4	Sleep button	If the device is inactive for a long period of time, it automatically enters a sleep mode. To place the device into sleep mode or to reactivate the device, press the Sleep button.
5	Stop button	Stops the active job and opens the Job Status screen.
6	Start button	Begins a copy job, starts digital sending, or continues a job that has been interrupted.
7	**Attention** light	The Attention light indicates that the device has a condition that requires intervention. Examples include an empty paper tray or an error message on the touchscreen.
8	**Ready** light	The Ready light indicates that the device is ready to begin processing any job.
9	**Data** light	The Data light indicates that the device is receiving data.
10	Contrast-adjustment dial	Turn the dial to adjust the contrast of the touchscreen display for your viewing angle.

Home screen

The home screen provides access to the device features, and it indicates the current status of the device.

NOTE: Depending on how the device has been configured, the features that appear on the home screen can vary.



1	Features	Depending on how the system administrator has configured the device, the features that appear in this area can include any of the following items: • Copy • Fax • E-mail • Secondary E-mail • Job Status • Network Folder • Job Storage • Workflow • Supplies Status • Administration
2	Device status line	The status line provides information about the overall device status. Various buttons appear in this area, depending on the current status. For a description of each button that can appear in the status line, see Buttons on the touchscreen on page 14.
3	Copy type	Shows whether copies are color.
4	Copy count	The copy count box indicates the number of copies that the device is set to make.
5	Help button	Touch the Help button to open the embedded help system.
6	Scroll bar	Touch the up or down arrows on the scroll bar to see the complete list of available features.
7	Sign Out	Touch Sign Out to sign out of the device if you have signed in for access to restricted features. After you sign out, the device restores all options to the default settings.
8	Network Address	Touch Network Address to find information about the network connection.
9	Date and time	The current date and time appear here. The system administrator can select the format that the device uses to show the date and time, for example 12-hour format or 24-hour format.

Buttons on the touchscreen

The status line on the touchscreen provides information about the status of the device. Various buttons can appear in this area. The following table describes each button.

	**Home button**. Touch the home button to go to the Home screen from any other screen.
	**Start button**. Touch the Start button to begin the action for the feature that you are using. **NOTE:** The name of this button changes for each feature. For example, in the Copy feature, the button is named Start Copy.
	**Stop button**. If the device is processing a print or fax job, the Stop button appears instead of the Start button. Touch the Stop button to halt the current job. The device prompts you to cancel the job or to resume it.
	**Error button**. The error button appears whenever the device has an error that requires attention before it can continue. Touch the error button to see a message that describes the error. The message also has instructions for solving the problem.
	**Warning button**. The warning button appears when the device has a problem but can continue functioning. Touch the warning button to see a message that describes the problem. The message also has instructions for solving the problem.
	**Help button**. Touch the help button to open the built-in online Help system. For more information, see Control-panel help system on page 14.

Control-panel help system

The device has a built-in Help system that explains how to use each screen. To open the Help system, touch the Help button in the upper-right corner of the screen.

For some screens, the Help opens to a global menu where you can search for specific topics. You can browse through the menu structure by touching the buttons in the menu.

For screens that contain settings for individual jobs, the Help opens to a topic that explains the options for that screen.

If the device alerts you of an error or warning, touch the error or warning button to open a message that describes the problem. The message also contains instructions to help solve the problem.

Navigate the Administration menu

From the Home screen, touch Administration to open the menu structure. You might need to scroll to the bottom of the Home screen to see this feature.

The Administration menu has several sub-menus, which are listed on the left side of the screen. Touch the name of a menu to expand the structure. A plus sign (+) next to a menu name means that it contains sub-menus. Continue opening the structure until you reach the option that you want to configure. To return to the previous level, touch Back.

To exit the Administration menu, touch the Home button in the upper-left corner of the screen.

The device has built-in Help that explains each of the features that are available through the menus. Help is available for many menus on the right-hand side of the touchscreen. Or, to open the global Help system, touch the Help button in the upper-right corner of the screen.

The tables in the sections that follow indicate the overall structure of each menu under the Administration menu.

Information menu

Administration > Information

Use this menu to print information pages and reports that are stored internally on the device.

Table 2-1 Information menu

Menu item	Sub-menu item	Sub-menu item	Values	Description
Configuration/Status Pages	Administration Menu Map		Print	Shows the basic structure of the Administration menu and current administration settings.
	Configuration/status Pages		Print	A set of configuration pages that show the current device settings.
	Supplies Status Page		Print	Shows the status of supplies such as cartridges, maintenance kits, and staples.
	Usage Page		Print	Shows information about the number of pages that have been printed on each paper type and size.
	Color Usage Job Log		Print	A directory page that contains job-by-job color usage information. Page content includes the user name, application name, and number of black-only pages and color pages.
	File Directory		Print	A directory page that contains information for any mass-storage devices, such as flash drives, memory cards, or hard disks, that are installed in this device.
Fax Reports	Fax Activity Log		Print	Contains a list of the faxes that have been sent from or received by this device.
	Fax Call Report	Fax Call Report	Print	A detailed report of the last fax operation, either sent or received.
		Thumbnail on Report	Yes No (default)	Choose whether or not to include a thumbnail of the first page of the fax on the call report.
		When to Print Report	Never auto print Print after any fax job Print after fax send jobs Print after any fax error (default) Print after send errors only Print after receive errors only	
	Billing Codes Report		Print	A list of billing codes that have been used for outgoing faxes. This report shows how many sent faxes were billed to each code.
	Blocked Fax List		Print	A list of phone numbers that are blocked from sending faxes to this device.
	Speed Dial List		Print	Shows the speed dials that have been set up for this device.

Table 2-1 Information menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
Sample Pages/Fonts	Demonstration Page		Print	Printout of a page highlighting the print capabilities of the product.
	RGB Samples		Print	Printout of color samples for different RGB values. The samples act as a guide for color matching.
	CMYK Samples		Print	Printout of color samples for different CMYK values. The samples act as a guide for color matching.
	PCL Font List		Print	A list of printer control language (PCL) fonts that are currently available on the device.
	PS Font List		Print	A list of PostScript (PS) fonts that are currently available on the device.

Default Job Options menu

Administration > Default Job Options

Use this menu to define the default job options for each function. These are used if the user does not specify other options when creating the job.

Default Options for Originals

Administration > Default Job Options > Default Options For Originals

Table 2-2 Default Options for Originals menu

Menu item	Values	Description
Paper Size	Select a paper size from the list.	Select the paper size that is most often used for copy or scan originals.
Number of Sides	1	Select whether copy or scan originals are most often single-sided or double-sided.
	2	
Orientation	Portrait	Select the orientation that is most often used for copy or scan originals. Select Portrait if the short edge is at the top or select Landscape if the long edge is at the top.
	Landscape	
Optimize Text/Picture	Manually Adjust	Optimize the output for a particular type of original: text, pictures, or a mixture of both. If you select Manually Adjust, specify the mix of text and pictures that is used most often.
	Text	
	Printed Picture	
	Photograph	

Image adjustment

Administration > Default Job Options > Image Adjustment

Table 2-3 Image Adjustment menu

Menu item	Values	Description
Darkness	Select a value.	Select the level of density (darkness) for the output.
Background Cleanup	Adjust the value within the range.	Increase the Background Removal setting to remove faint images from the background or to remove a light background color.
Sharpness	Adjust the value within the range.	Adjust the Sharpness setting to clarify or soften the image.

Default Copy Options

Administration > Default Job Options > Default Copy Options

Table 2-4 Default Copy Options menu

Menu item	Sub-menu item	Values	Description
Number of Copies		Type the number of copies. The factory default setting is 1.	Set the default number of copies for a copy job.
Number of Sides		1 2	Set the default number of sides for copies.
Color/Black		Auto detect Color Black (default)	Choose whether the default copy mode is color or black.
Staple/Collate	Staple	None (default) One left angled Two left Two top One right angled Two right	Set up options for stapling and collating sets of copies. If **Collate** is selected, the device prints a complete copy before starting on the next copy. Otherwise, the device prints the first page of all copies before printing the second page, and so on. The staple and collate feature may not be present in your product. These features depend on the optional output accessory installed.
	Collate	Off On (default)	
Output Bin		<Binname>	Select the default output bin for copies. This option is available only if an optional output accessory is installed.
Edge-To-Edge		Normal (recommended) (default) Edge-To-Edge Output	If the original document is printed close to the edges, use the Edge-To-Edge feature to avoid shadows along the edges. Combine this feature with the Reduce/Enlarge feature to ensure that the entire page appears on the copies.
Auto Include Margins		Off (default) On	This feature automatically reduces the image size during scanning so the margins are included.

Default Fax Options

Administration > Default Job Options > Default Fax Options

Table 2-5 Fax Send menu

Menu item	Sub-menu item	Values	Description
Resolution		Standard (100x200dpi) (default) Fine (200x200dpi) Superfine (300x300dpi)	Set the resolution for sent documents. Higher resolution images have more dots per inch (dpi), so they show more detail. Lower resolution images have fewer dots per inch and show less detail, but the file size is smaller.
Fax Header		Prepend (default) Overlay	Select the position of the fax header on the page. Select Prepend to print the fax header above the fax content and move the fax content down on the page. Select Overlay to print the fax header over the top of the fax contents without moving the contents down. Using this option could prevent a single-page fax from flowing onto another page.

Table 2-6 Fax Receive menu

Menu item	Sub-menu item	Values	Description
Fax Forwarding	Fax Forwarding	Off (default) Custom	To forward received faxes to another fax device, select Fax Forwarding and Custom. Then type the number of the other fax device into the Fax Forwarding Number field. When you select this menu item for the first time, you are prompted to set up a PIN. Type that PIN every time you use this menu. This is the same PIN that is used to access the Fax Printing menu.
	Create PIN		
Stamp Received Faxes	Enabled Disabled (default)		Add the date, time, senders phone number, and page number to each page of the faxes that this device receives.
Fit to Page	Enabled (default) Disabled		Shrink faxes that are larger than Letter-size or A4-size so that they can fit onto a Letter-size or A4-size page. If it this feature set to Disabled, faxes larger than Letter or A4 will flow across multiple pages.
Fax Paper Tray	Select from the list of trays. The default setting is Automatic.		Select the tray that holds the size and type of paper that you want to use for incoming faxes.
Output Bin	<Binname>		Select the default output bin, if applicable, to use for faxes.

Default E-mail Options

Administration > Default Job Options > Default E-mail Options

Menu item	Values	Description
Document File Type	PDF (default) JPEG TIFF M-TIFF	Select the file format for the e-mail.
Output Quality	High (large file) Medium (default) Low (small file)	Selecting higher quality for output increases the size of the output file.
Resolution	300 DPI 200 DPI 150 DPI (default) 75 DPI	Select the resolution. Use a lower setting to create smaller files.
Color/Black	Color scan (default) Black/white scan	Specify whether the e-mail will be in black or in color.
TIFF Version	TIFF 6.0 (default) TIFF (Post 6.0)	Specify the TIFF version to use when saving scanned files.

Default Send to Folder Options

Administration > Default Job Options > Default Send To Folder Options

Menu item	Values	Description
Color/Black	Color scan	Specify whether the file will be in black or in color.
	Black/white scan (default)	
Document File Type	PDF (default)	Select the file format for the file.
	M-TIFF	
	TIFF	
	JPEG	
TIFF version	TIFF 6.0 (default)	Specify the TIFF version to use when saving scanned files.
	TIFF (post 6.0)	
Output Quality	High (large file)	Selecting higher quality for output increases the size of the output file.
	Medium (default)	
	Low (small file)	
Resolution	75 DPI	Select the resolution. Use a lower setting to create smaller files.
	150 DPI (default)	
	200 DPI	
	300 DPI	
	400 DPI	
	600 DPI	

Default Print Options

Administration > Default Job Options > Default Print Options

Table 2-7 Default Print Options menu

Menu item	Sub-menu item	Values	Description
Copies Per Job		Type a value.	Set the default number of copies for print jobs.
Default Paper Size		(List of supported sizes)	Select a paper size.
Default Custom Paper Size	Unit of measure	Millimeters Inches	Configure the default paper size that is used when the user selects Custom as the paper size for a print job.
	X Dimension		Configure the width measurement for the Default Custom Paper Size.
	Y Dimension		Configure the height measurement for the Default Custom Paper Size.
Output Bin		<binname>	Select the default output bin for print jobs. If optional trays are installed, output bin options vary.
Print Sides		1-sided 2-sided	Select whether print jobs are single-sided or double-sided by default.

Time/Scheduling menu

Administration > Time/Scheduling

Use this menu to set options for setting the time and for setting the device to enter and exit sleep mode.

NOTE: Values shown with "(default)" are the factory-default values. Some menu items have no default.

Table 2-8 Time/Scheduling menu

Menu item	Sub-menu item	Sub-menu item	Values	Description
Date/Time	Date Format		YYYY/MMM/DD (default) MMM/DD/YYYY DD/MMM/YYYY	Use this feature to set the current date and time, and to set the date format and time format that are used to time-stamp outgoing faxes.
	Date	Month Day Year		
	Time Format		12 hour (AM/PM) (default) 24 hour	
	Time	Hour Minute AM PM		
Sleep Delay			1 Minute 20 minutes 30 minutes (default) 45 minutes 1 hour (60 minutes) 90 minutes 2 hours 4 hours	Use this feature to select the time interval that the device should remain inactive before entering Sleep Mode.
Wake Time	Monday Tuesday Wednesday Thursday Friday Saturday Sunday		Off (default) Custom	Select Custom to set a wake time for each day of the week. The device exits sleep mode according to this schedule. Using a sleep schedule helps conserve energy and prepares the device for use so that users do not have to wait for it to warm up.

Table 2-8 Time/Scheduling menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
Sleep Time	Monday Tuesday Wednesday Thursday Friday Saturday Sunday		Off (default) Custom	Use this feature to set a sleep time for each day of the week for periods when the device will not likely be in use (for example, at a certain time each evening). Setting a sleep time makes the device automatically go into a low-power mode. Select a day and then select Custom to set up a custom sleep time schedule.
FAX Printing		Create PIN		If you have concerns about the security of private faxes, use this feature to store faxes rather than having them automatically print by creating a printing schedule. When you select this menu item for the first time, you are prompted to set up a PIN. Type that PIN every time you use this menu.

Management menu

Administration > Management

Use this menu to set up global device-management options.

NOTE: Values shown with "(default)" are the factory-default values. Some menu items have no default.

Table 2-9 Management menu

Menu item	Sub-menu item	Values	Description
Network Address Button	Display Hide (default)		Use this feature to display the Network Address button on the Home screen.
Stored Job Management	Quick Copy Job Storage Limit	Select the maximum number of jobs to store	Use this menu to view and manage any jobs that are stored on the device.
	Quick Copy Job Held Timeout	Off (default) 1 Hour 4 Hours 1 Day 1 Week	
Sleep mode		Disable Use Sleep Delay (default)	Use this feature to customize the sleep mode settings for this device. Select Use Sleep Delay to set the device to enter sleep mode after the delay that is specified in the Time/ Scheduling menu.
Manage Supplies	Replace Supplies	Stop at low Stop at out (default) Override at out 1 Override at out 2	This menu sets the product behavior for when a print cartridge, fuser kit, or transfer kit is low. Choose Stop at low to stop printing when a supply reaches a low condition. Choose Stop at out to allow the product to continue printing until a color print cartridge is empty. Choose Override at out 1 to allow the product to continue printing when the cartridges are empty or when the other supplies are worn out. The product stops printing when the toner collection units are full. Using this option could reduce print quality. Choose Override at out 2 to allow the product to keep printing when the cartridges are empty; when other supplies are worn out; and when the waste toner collection units are full. Using this option can damage the device.
	Supply Low/Order Threshold	Select a value in the range. The default is 5%.	Use this menu to carry out administrative supply management tasks such as changing the threshold when supplies should be ordered.
	Color Supply Out	Stop (default) Auto-continue black	This menu sets the product behavior when a color supply is empty. When Auto-continue black is selected, the product will continue printing using black toner only.

Table 2-9 Management menu (continued)

Menu item	Sub-menu item	Values	Description
Restrict Color Use	Color printing access	Enable Color (default) Color If Allowed Disable Color	This item allows the administrator to disable or restrict color printing. To use the Color If Allowed setting, set up user permissions and/or application permissions in the embedded Web server or Web Jetadmin.
	Color copying access	Enable Color (default) Disable Color	This item allows the administrator to disable or restrict color copying.
Color/Black Mix		Automatic (default) Mostly color pages Mostly black pages	This item controls how the engine switches from color mode to monochrome mode for maximum performance and print cartridge life. Choose Automatic to reset the product to the factory default setting. Choose Mostly color pages if nearly all of your print jobs are color with high page coverage. Choose Mostly black pages if you print mostly monochrome jobs or a combination of color and monochrome jobs.

Initial Setup menu

Administration > Initial Setup

NOTE: Values shown with "(default)" are the factory-default values. Some menu items have no default.

Networking and I/O

Administration > Initial Setup > Networking and I/O

Table 2-10 Networking and I/O

Menu item	Sub-menu item	Values	Description
I/O Timeout		Select a value in the range. The factory default setting is 15 seconds.	I/O timeout refers to the elapsed time before a print job fails. If the stream of data that the device receives for a print job gets interrupted, this setting indicates how long the device will wait before it reports that the job has failed.
Embedded Jetdirect	See Table 2-11 Jetdirect menus on page 29 for the list of options.		

Table 2-11 Jetdirect menus

Menu item	Sub-menu item	Sub-menu item	Values and Description
TCP/IP	Enable		Off: Disable the TCP/IP protocol. On (default): Enable the TCP/IP protocol.
	Host Name		An alphanumeric string, up to 32 characters, used to identify the device. This name is listed on the HP Jetdirect configuration page. The default host name is NPIxxxxxx, where xxxxxx is the last six digits of the LAN hardware (MAC) address.
	IPV4 Settings	Config Method	Specifies the method that TCP/IPv4 parameters will be configured on the HP Jetdirect print server. Bootp: Use BootP (Bootstrap Protocol) for automatic configuration from a BootP server. DHCP: Use DHCP (Dynamic Host Configuration Protocol) for automatic configuration from a DHCPv4 server. If selected and a DHCP lease exists, DHCP Release and DHCP Renew menus are available to set DHCP lease options. Auto IP: Use automatic link-local IPv4 addressing. An address in the form 169.254.x.x is assigned automatically. Manual: Use the Manual Settings menu to configure TCP/IPv4 parameters.

Table 2-11 Jetdirect menus (continued)

Menu item	Sub-menu item	Sub-menu item	Values and Description
		Default IP	Specify the IP address to default to when the print server is unable to obtain an IP address from the network during a forced TCP/IP reconfiguration (for example, when manually configured to use BootP or DHCP). Auto IP: A link-local IP address 169.254.x.x is set. Legacy: The address 192.0.0.192 is set, consistent with older HP Jetdirect devices.
		DHCP Release	This menu appears if Config Method was set to DHCP and a DHCP lease for the print server exists. No (default): The current DHCP lease is saved. Yes: The current DHCP lease and the leased IP address are released.
		DHCP Renew	This menu appears if Config Method was set to DHCP and a DHCP lease for the print server exists. No (default): The print server does not request to renew the DHCP lease. Yes: The print server requests to renew the current DHCP lease.
		Primary DNS	Specify the IP address (n.n.n.n) of a Primary DNS Server.
		Secondary DNS	Specify the IP address (n.n.n.n) of a Secondary Domain Name System (DNS) Server.
	IPV6 Settings	Enable	Use this item to enable or disable IPv6 operation on the print server. Off: IPv6 is disabled. On (default): IPv6 is enabled.
		Address	Manual Settings: Use this item to manually set IPv6 addresses on the print server. Enable: Select this item and choose On to enable manual configuration, or Off to disable manual configuration. Address: Use this item to type a 32 hexadecimal digit IPv6 node address that uses the colon hexadecimal syntax.
		DHCPV6 Policy	Router Specified: The stateful auto-configuration method to be used by the print server is determined by a router. The router specifies whether the print server obtains its address, its configuration information, or both from a DHCPv6 server. Router Unavailable: If a router is not available, the print server should attempt to obtain its stateful configuration from a DHCPv6 server. Always: Whether or not a router is available, the print server always attempts to obtain its stateful configuration from a DHCPv6 server.

Table 2-11 Jetdirect menus (continued)

Menu item	Sub-menu item	Sub-menu item	Values and Description
		Primary DNS	Use this item to specify an IPv6 address for a primary DNS server that the print server should use.
		Secondary DNS	Use this item to specify an IPv6 address for a secondary DNS server that the print server should use.
	Proxy Server		Specifies the proxy server to be used by embedded applications in the device. A proxy server is typically used by network clients for Internet access. It caches Web pages, and provides a degree of Internet security, for those clients. To specify a proxy server, enter its IPv4 address or fully-qualified domain name. The name can be up to 255 octets. For some networks, you may need to contact your Independent Service Provider (ISP) for the proxy server address.
	Proxy Port		Type the port number used by the proxy server for client support. The port number identifies the port reserved for proxy activity on your network, and can be a value from 0 to 65535.
IPX/SPX	Enable		Off: Disable the IPX/SPX protocol. On (default): Enable the IPX/SPX protocol.
	Frame Type		Selects the frame-type setting for your network. Auto: Automatically sets and limits the frame type to the first one detected. EN_8023, EN_II, EN_8022, and EN_SNAP: Frame-type selections for Ethernet networks.
AppleTalk	Enable		Off: Disable the AppleTalk protocol. On (default): Enable the AppleTalk protocol.
DLC/LLC	Enable		Off: Disable the DLC/LLC protocol. On (default): Enable the DLC/LLC protocol.

Table 2-11 Jetdirect menus (continued)

Menu item	Sub-menu item	Sub-menu item	Values and Description
Security	Print Sec Page		Yes (default): Prints a page that contains the current security settings on the HP Jetdirect print server. No: A security settings page is not printed.
	Secure Web		For configuration management, specify whether the embedded Web server will accept communications using HTTPS (Secure HTTP) only, or both HTTP and HTTPS. HTTPS Required (default): For secure, encrypted communications, only HTTPS access is accepted. The print server will appear as a secure site. HTTP/HTTPS optional: Access using either HTTP or HTTPS is permitted.
	IPSEC		Specify the Firewall status on the print server. Keep: Firewall status remains the same as currently configured. Disable: Firewall operation on the print server is disabled.
	Reset Security		Specify whether the current security settings on the print server will be saved or reset to factory defaults. No: The current security settings are maintained. Yes: Security settings are reset to factory defaults.
Diagnostics	Embedded Tests		This menu provides tests to help diagnose network hardware or TCP/IP network connection problems. Embedded tests help to identify whether a network fault is internal or external to the device. Use an embedded test to check hardware and communication paths on the print server. After you select and enable a test and set the execution time, you must select Execute to initiate the test. Depending on the execution time, a selected test runs continuously until either the device is turned off, or an error occurs and a diagnostic page is printed.
		LAN HW Test	**CAUTION:** Running this embedded test will erase your TCP/IP configuration. This test performs an internal loopback test. An internal loopback test will send and receive packets only on the internal network hardware. There are no external transmissions on your network. Select Yes to choose this test, or No to not choose it.
		HTTP Test	This test checks operation of HTTP by retrieving predefined pages from the device, and tests the embedded Web server. Select Yes to choose this test, or No to not choose it.

Table 2-11 Jetdirect menus (continued)

Menu item	Sub-menu item	Sub-menu item	Values and Description
		SNMP Test	This test checks operation of SNMP communications by accessing predefined SNMP objects on the device. Select Yes to choose this test, or No to not choose it.
		Data Path Test	This test helps to identify data path and corruption problems on an HP postscript level 3 emulation device. It sends a predefined PS file to the device, However, the test is paperless; the file will not print. Select Yes to choose this test, or No to not choose it.
		Select All Tests	Use this item to select all available embedded tests. Select Yes to choose all tests. Select No to select individual tests.
		Execution Time [H]	Use this item to specify the length of time (in hours) that an embedded test will be run. You can select a value from 1 to 60 hours. If you select zero (0), the test runs indefinitely until an error occurs or device is turned off. Data gathered from the HTTP, SNMP, and Data Path tests is printed after the tests have completed.
		Execute	No: Do not initiate the selected tests. Yes: Initiate the selected tests.
	Ping Test		This test is used to check network communications. This test sends link-level packets to a remote network host, then waits for an appropriate response. To run a ping test, set the following items:
		Dest Type	Specify whether the target device is an IPv4 or IPv6 node.
		Dest IPv4	Type the IPv4 address.
		Dest IPv6	Type the IPv6 address.
		Packet Size	Specify the size of each packet, in bytes, to be sent to the remote host. The minimum is 64 (default) and the maximum is 2048.
		Timeout	Specify the length of time, in seconds, to wait for a response from the remote host. The default is 1 and the maximum is 100.
		Count	Specify the number of ping test packets to send for this test. Select a value from 1 to 100. To configure the test to run continuously, select 0.
		Print Results	If the ping test was not set for continuous operation, you can choose to print the test results. Select Yes to print results. If you select No (default), results are not printed.
		Execute	Specify whether to initiate the ping test. Select Yes to initiate the test, or No to not run the test.

Table 2-11 Jetdirect menus (continued)

Menu item	Sub-menu item	Sub-menu item	Values and Description
	Ping Results		Use this item to view the ping test status and results using the control panel display. You can select the following items:
		Packets Sent	Shows the number of packets (0 - 65535) sent to the remote host since the most recent test was initiated or completed.
		Packets Received	Shows the number of packets (0 - 65535) received from the remote host since the most recent test was initiated or completed.
		Percent Lost	Shows the percent of ping test packets that were sent with no response from the remote host since the most recent test was initiated or completed.
		RTT Min	Shows the minimum detected roundtrip- time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		RTT Max	Shows the maximum detected roundtrip- time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		RTT Average	Shows the average round-trip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		Ping In Progress	Shows whether a ping test is in progress. Yes indicates a test in progress, and No indicates that a test completed or was not run.
		Refresh	When viewing the ping test results, this item updates the ping test data with current results. Select Yes to update the data, or No to maintain the existing data. However, a refresh automatically occurs when the menu times out or you manually return to the main menu.

Table 2-11 Jetdirect menus (continued)

Menu item	Sub-menu item	Sub-menu item	Values and Description
Link Speed			The link speed and communication mode of the print server must match the network. The available settings depend on the device and installed print server. Select one of the following link configuration settings: **CAUTION:** If you change the link setting, network communications with the print server and network device might be lost. Auto (default): The print server uses auto-negotiation to configure itself with 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.
Print Protocols			Use this item to print a page that lists the configuration of the following protocols: IPX/SPX, Novell NetWare, AppleTalk, DLC/LLC.

Fax Setup

Administration > Initial Setup > Fax Setup

Table 2-12 Fax Setup menu

Menu item	Sub-menu item	Sub-menu item	Values	Description
Required Settings	Country/Region		(Countries/regions listed)	Configure the settings that are legally required for outgoing faxes.
	Date/Time	Date Format		
		Date		
		Time Format		
		Time		
	Fax Header Information	Phone Number		
		Company Name		
PC Fax Send			Disabled Enabled (default)	Use this feature to enable or disable PC Fax Send. PC Fax Send enables users to send faxes through the device from their computers if they have the Send Fax driver installed on their PC.

Table 2-12 Fax Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
Fax Send Settings	Fax Dial Volume		Off Low (default) High	Use this feature to set the volume of the tones that you hear while the device dials the fax number.
	Error Correction Mode		Enabled (default) Disabled	When Error Correction Mode is enabled and an error occurs during fax transmission, the device sends or receives the error portion again.
	JBIG Compression		Enabled (default) Disabled	JBIG compression reduces fax-transmission time, which can result in lower phone charges. However, using JBIG compression sometimes causes compatibility problems with older fax machines. If this occurs, turn off JBIG compression.
	Maximum Baud Rate		Select a value from the list. The default is 33.6K.	Use this feature to set the maximum baud rate for receiving faxes. This can be used as a diagnostic tool for troubleshooting fax problems.
	TCF T.30 Delay Timer		Default (default) Custom	This setting should be left at the default value and only changed when directed by an HP technical support agent. Adjustment procedures associated with this setting are beyond the scope of this guide.
	TCF Extend		Default (default) Custom	This setting should be left at the default value and only changed when directed by an HP technical support agent. Adjustment procedures associated with this setting are beyond the scope of this guide.
	Dialing Mode		Tone (default) Pulse	Select whether the device should use tone or pulse dialing.
	Redial On Busy		The range is between 0 and 9. The factory default is 3 times.	Type the number of times the device should attempt to redial if the line is busy.
	Redial On No Answer		Never (default) Once Twice	Use this feature to specify the number of times the device should attempt to dial if the recipient fax number does not answer. **NOTE:** Twice is available in locations other than the United States and Canada.

Table 2-12 Fax Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
	Redial Interval		The range is between 1 and 5 minutes. The factory default is 5 minutes.	Use this feature to specify the number of minutes between dialing attempts if the recipient number is busy or not answering.
	Detect Dial Tone		Enabled Disabled (default)	Use this feature to specify whether the device should check for a dial tone before sending a fax.
	Dialing Prefix		Off (default) Custom	Use this feature to specify a prefix number that must be dialed when sending faxes from the device.
	Billing Codes		Off (default) Custom	When billing codes are enabled, a prompt appears that asks the user to enter the billing code for an outgoing fax. The range is between 1 and 16 digits. The default is 1 digit.
Fax Receive Settings	Rings To Answer		The range varies by location. The factory default is 2 rings.	Use this feature to specify the number of rings that must occur before the fax modem answers.
	Ring Interval		Default (default) Custom	This setting is used to adjust for some PBX ring signals. Change this setting only when directed by an HP technical support agent.
	Ring Frequency		Default (default) Custom	This setting should be left at the default value and only changed when directed by an HP technical support agent. Adjustment procedures associated with this setting are beyond the scope of this guide.
	Ringer Volume		Off Low (default) High	Set the volume for the fax ring-tone.
	Blocked Fax Numbers	Add Blocked Numbers	Type the fax number to add.	Use this feature to add or delete numbers from the blocked fax list. The blocked fax list can contain up to 30 numbers. When the device receives a call from one of the blocked fax numbers, it deletes the incoming fax. It also logs the blocked fax in the activity log along with job-accounting information.
		Remove Blocked Numbers	Select a fax number to remove.	
		Clear All Blocked Numbers	No (default) Yes	

E-mail Setup

Administration > Initial Setup > E-mail Setup

Use this menu to enable the e-mail feature and to configure basic e-mail settings.

NOTE: To configure advanced e-mail settings, use the embedded Web server. For more information, see Embedded Web server on page 92.

Table 2-13 E-mail Setup menu

Menu item	Values	Description
Address Validation	On (default) Off	This option enables the device to check e-mail syntax when you type an e-mail address. Valid e-mail addresses require the "@" sign and a ".".
Find Send Gateways		Search the network for SMTP gateways that the device can use to send e-mail.
SMTP Gateway	Enter a value.	Specify the IP address of the SMTP gateway that is used to send e-mail from the device.
Test Send Gateway		Test the configured SMTP gateway to see if it is functional.

Send Setup menu

Administration > Initial Setup > Send Setup

Table 2-14 Send Setup menu

Menu item	Values	Description
Fax Number Confirmation	Disable (default) Enable	When fax number confirmation is enabled, you are prompted to enter the fax number twice to verify that it has been typed correctly.

Device Behavior menu

Administration > Device Behavior

Table 2-15 Device Behavior menu

Menu item	Sub-menu item	Sub-menu item	Values	Description
Language			Select the language from the list.	Select a different language for control-panel messages. When you select a new language, the keyboard layout might also change.
Key Press Sound			On (default) Off	Use this feature to specify whether you hear a sound when you touch the screen or press buttons on the control panel.
Inactivity Timeout			Type a value between 10 and 300 seconds. The factory default is 60 seconds.	Specify the amount of time that elapses between any activity on the control panel and the device resetting to the default settings.
Warning/Error Behavior	Clearable Warnings		On Job (default)	Set the amount of time that a clearable warning appears on the control panel.
	Continuable Events		Auto continue (10 seconds) (default) Touch OK to continue	Configure the device behavior when the device encounters certain errors.
	Jam Recovery		Auto (default) Off On	Configure how the device handles pages that are lost during a jam.

Table 2-15 Device Behavior menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
Tray Behavior	Use Requested Tray		Exclusively (default) First	Control how the device handles jobs that have specified a specific input tray.
	Manually Feed Prompt		Always (default) Unless Loaded	Specify how a prompt should appear when the type or size for a job does not match the specified tray and the device pulls from the multipurpose tray instead.
	PS Defer Media		Enabled (default) Disabled	Select either the PostScript (PS) or HP paper-handling model.
	Use Another Tray		Enabled (default) Disabled	Turn on or off the control-panel prompt to select another tray when the specified tray is empty.
	Size/Type Prompt		Display (default) Do not display	Control whether the tray configuration message appears whenever a tray is opened or closed.
	Duplex Blank Pages		Auto (default) Yes	Control how the device handles two-sided jobs (duplexing).
	Image Rotation		Left to Right Right to Left Alternate	Image rotation allows users to put paper in the input tray using the same orientation regardless of whether there is a finisher installed. **NOTE:** The image rotation set in this menu will be applied any time a job does not request stapling or when the requested stapling could not be applied because of unsupported media or when the stapler is unavailable. Select Left to Right to rotate the image as if it were going to be bound on the left. This setting is appropriate for print jobs where reading from left to right is the cultural norm. This is the default setting. Select Right to Left to rotate the image as if it were going to be bound on the right. This setting is usually appropriate for print jobs where reading from right to left is the cultural norm. Select Alternate to use a different loading orientation that might work better with preprinted forms that are used on legacy products.

Table 2-15 Device Behavior menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
Multifunc Finisher or MBM-3 Bin Stapler	Operation Mode		Mailbox Stacker Function Separator	This menu appears when the HP 3-bin Stapler/Stacker Accessory or the HP Booklet Maker/Finisher Accessory is attached. Allows you to set the default operation mode. **Mailbox** assigns a user or group of users to each output bin. **Stacker** treats all of the output bins as a single large bin. When one bin gets full, jobs are automatically routed to the next bin. **Function Separator** specifies a default bin for specific types of jobs such as faxes or copies (stapler/stacker only).
	Staples		None One Left Angled One Right Angled Two Left Two Right Two Top	Sets the default staple selection for documents sent to the device when no staple value is specified.
	Staples Out		Stop Continue	Sets the default behavior when a job specifies stapling and the stapler is out of staples. **Stop** stops printing if the stapler runs out of staples. **Continue** allows a job to continue printing even when the device is out of staples.
	Offset		Off On	Turns the job offset feature on or off. When job offset is on, each copy of a job is shifted to one side in the output bin in order to keep each copy separate from the others.
	A4/Letter Staple		Normal Alternate 1 Alternate 2	Controls the speed of the print engine to prevent paper jams by using the stapler buffer. **NOTE:** The stapler buffer may or may not be used depending on the selected media type or on the sensed media type, if Autosense Mode is enabled. If the **Normal** setting is enabled, the engine speed will be normal by using the stapler buffer whenever possible. If the **Alternate 1** setting is enabled, and the engine is in Autosense Mode, the engine slows down to prevent jams. If the product is NOT in Autosense Mode, the engine performs at normal speed, using the stapler buffer whenever possible. If the **Alternate 2** setting is enabled, the engine always slows down to prevent jams, never using the stapler buffer.

Table 2-15 Device Behavior menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
	Fold LTR-R & A4 - R		–4.0 mm	Adjusts the fold line for Letter and A4 size paper (booklet maker only).
			–3.5 mm	
			–3.0 mm	
			–2.5 mm	
			–2.0 mm	
			–1.5 mm	
			–1.0 mm	
			–0.5 mm	
			0.0 mm	
			0.5 mm	
			1.0 mm	
			1.5 mm	
			2.0 mm	
			2.5 mm	
			3.0 mm	
			3.5 mm	
			4.0 mm	

Table 2-15 Device Behavior menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
	Fold Legal & JISB4		–4.0 mm	Adjusts the fold line for Legal and JIS B4 size paper (booklet maker only).
			–3.5 mm	
			–3.0 mm	
			–2.5 mm	
			–2.0 mm	
			–1.5 mm	
			–1.0 mm	
			–0.5 mm	
			0.0 mm	
			0.5 mm	
			1.0 mm	
			1.5 mm	
			2.0 mm	
			2.5 mm	
			3.0 mm	
			3.5 mm	
			4.0 mm	

Table 2-15 Device Behavior menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
	Fold 11X17 & A3		–4.0 mm –3.5 mm –3.0 mm –2.5 mm –2.0 mm –1.5 mm –1.0 mm –0.5 mm 0.0 mm 0.5 mm 1.0 mm 1.5 mm 2.0 mm 2.5 mm 3.0 mm 3.5 mm 4.0 mm	Adjusts the fold line for Legal and 11x17 and A3 size paper (booklet maker only).
General Copy Behavior				
	Scan Ahead		Enabled (default) Disabled	Turn on no-wait scanning. With Scan Ahead enabled, the pages in the original document are scanned to disk and held until the device becomes available.
	Auto Print Interrupt		Enabled Disabled (default)	When this feature is enabled, copy jobs can interrupt print jobs that are set to print multiple copies. The copy job is inserted into the print queue at the end of one copy of the print job. After the copy job is complete, the device continues printing the remaining copies of the print job.
	Copy Interrupt		Enabled Disabled (default)	When this feature is enabled, a copy job that is currently printing can be interrupted when a new copy job is started. You are prompted to confirm that you want to interrupt the current job.
	Alternative Letterhead Mode		Off (default) On	This option allows loading of letterhead or preprinted paper the same way for all copy jobs, whether copying to one side of the paper or to both sides of the paper.

Table 2-15 Device Behavior menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
General Printing Behavior	Override A4/Letter		No Yes (default)	When this feature is enabled, the job prints on letter-size paper when an A4 job is sent but no A4-size paper is loaded in the device (or prints on A4 paper when a letter-size job is sent but no letter-size paper is loaded). This option also overrides A3 with ledger-size paper and ledger with A3-size paper.
	Manual Feed		Enabled Disabled (default)	When this feature is enabled, the user can select manual feed from the control panel as the paper source for a job.
	Courier Font		Regular (default) Dark	Select which version of the Courier font you want to use.
	Wide A4		Enabled Disabled (default)	Change the printable area of A4-size paper. If you enable this option, eighty 10-pitch characters can be printed on a single line of A4 paper.
	Print PS Errors		Enabled Disabled (default)	Select whether a PostScript (PS) error page is printed when the device encounters a PS error.
	Print PDF Errors		Enabled Disabled (default)	Select whether a PDF error page is printed when the device encounters a PDF error.
	Personality		Auto (default) PCL PDF PS	Select the printer language that the device should use. *Normally, you should not change the language.* If you change the setting to a specific language, the device does not automatically switch from one language to another unless specific software commands are sent to the device.

Table 2-15 Device Behavior menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
	PCL	Form Length	Type a value between 5 and 128 lines. The factory default is 60 lines.	PCL is a set of printer commands that Hewlett-Packard developed to provide access to printer features.
		Orientation	Portrait (default) Landscape	Select the orientation that is most often used for print jobs. Select Portrait if the short edge is at the top or Landscape if the long edge is at the top.
		Font Source	Select the source from the list.	Select the font source for the user-soft default font.
		Font Number	Type the font number. The range is between 0 and 999. The factory default is 0.	Specify the font number for the user soft default font by using the source that is specified in the Font Source menu item. The device assigns a number to each font and lists it on the PCL font list (available from the Administration menu).
		Font Pitch	Type a value between 0.44 and 99.99. The factory default is 10.00.	If Font Source and Font Number indicate a contour font, use this feature to select a default pitch (for a fixed-spaced font).
		Symbol Set	PC-8 (default) (50 additional symbol sets from which to choose)	Select any one of several available symbol sets from the control panel. A symbol set is a unique grouping of all the characters in a font.
		Append CR to LF	No (default) Yes	Configure whether a carriage return (CR) is appended to each line feed (LF) encountered in backwards-compatible PCL jobs (pure text, no job control).
		Suppress Blank Pages	No (default) Yes	This option is for users who are generating their own PCL, which could include extra form feeds that cause blank pages to be printed. When Yes is selected, form feeds are ignored if the page is blank.
		Media Source Mapping	Standard (default) Classic	Select and maintain input trays by number when you are not using the device driver, or when the software program has no option for tray selection.

Print Quality menu

Administration > Print Quality

Table 2-16 Print Quality menu

Menu item	Sub-menu item	Values	Description
Adjust Color	Highlights	Cyan Density. Magenta Density. Yellow Density. Black Density **+5** to **–5**. Default is **0**.	Adjust the darkness or lightness of highlights on a printed page. Lower values represent lighter highlights on a printed page, and higher values represent darker highlights on a printed page.
	Midtones	Cyan Density. Magenta Density. Yellow Density. Black Density **+5** to **–5**. Default is **0**.	Adjust the darkness or lightness of midtones on a printed page. Lower values represent lighter midtones on a printed page, and higher values represent darker midtones on a printed page.
	Shadows	Cyan Density. Magenta Density. Yellow Density. Black Density **+5** to **–5**. Default is **0**.	Adjust the darkness or lightness of shadows on a printed page. Lower values represent lighter shadows on a printed page, and higher values represent darker shadows on a printed page.
	Restore Color Values		Sets all the density values back to the factory default settings.
Set Registration	Test Page	Print	Shift the margin alignment to center the image on the page from top to bottom and from left to right. You can also align the image on the front with the image printed on the back. Print a test page for setting the registration.
	Source	All trays Tray <X>: <contents> (choose a tray)	Select the source input tray for printing the Set Registration page.
	Adjust Tray <X>	Shift from -20 to 20 along the X or Y axes. 0 is the default. X1 Shift X2 Shift Y Shift	Perform the alignment procedure for each tray. When it creates an image, the device *scans* across the page from side to side as the sheet *feeds* from top to bottom into the device. The scan direction is referred to as X. X1 is the scan direction for the first side of a 2-sided page. X2 is the scan direction for the second side of a 2-sided page. The feed direction is referred to as Y.
Print Modes	<Paper Type>		Configure which mode is associated with which paper type.

Table 2-16 Print Quality menu (continued)

Menu item	Sub-menu item	Values	Description
Auto Sense Mode	Tray 1 sensing	Full Sensing (default for Tray 1) Expanded Sensing (default for Trays 2-5) Transparency Only	When Full Sensing is selected, the product recognizes light, plain, heavy, glossy, and tough paper and overhead transparencies. When Expanded Sensing is selected, the device recognizes normal paper, overhead transparencies, glossy paper, and tough paper. When Transparency Only is selected, the device recognizes only overhead transparency and non-overhead transparency types.
	Tray 2-5 Sensing	Expanded Sensing Transparency Only (default)	When Expanded Sensing is selected, the device recognizes normal paper, overhead transparencies, glossy paper, and tough paper. When Transparency Only is selected, the device recognizes only overhead transparency and non-overhead transparency types.
Optimize	Paper Curl	Normal Reduced	To help reduce paper curl, set this option to Reduced. This decreases full speed to 10 PPM (instead of 40 ppm) and 3/4 speed to 7.5 ppm (instead of 30 ppm).
	Pre-rotation	Off (default) On	Turn this feature On if horizontal streaks appear on pages. Using this feature increases the warm-up time for the device.
	Fuser Temp	Normal (default) Alternate 1 Alternate 2 Alternate 3	If you are seeing a faint image of the page repeated at the bottom of the page or on the following page, you should first make sure the Paper Type and Print Mode settings are correct for the type of paper you are using. If you continue to see ghost images on your print jobs, set the Fuser Temp feature to one of the Alternate settings . Try the Alternate 1 setting first and see if it solves the problem. If you continue to see the problem, try Alternate 2 and then Alternate 3. With the Alternate 2 and Alternate 3 settings you may see an extra delay between jobs.
	Tray 1	Normal (default) Alternate	If you are seeing marks on the back side of the paper when printing from Tray 1, set the mode to Alternate. This increases the frequency of the cleaning cycle.
	Gloss Mode	Normal (default) High	Chosen when stable high gloss is required. Set this feature to High for glossy print jobs, such as photos, if you notice the gloss finish decreasing after the first page is printed. This setting reduces the performance for all paper types.

Table 2-16 Print Quality menu (continued)

Menu item	Sub-menu item	Values	Description
	Light Media	Auto (default) On	Prevents the fuser from wrapping with light paper. Set this feature to On if you are frequently seeing Fuser Delay Jam or Fuser Wrap Jam messages, especially when printing on lightweight paper or on jobs with heavy toner coverage.
	Environment	Normal (default) Low Temp	Optimizes performance in extreme low temperature environments. Set this feature to Low Temp if the product is operating in a low-temperature environment and you are having problems with print quality such as blisters in the printed image.
	Line Voltage	Normal (default) 100V	Optimizes performance in low-voltage conditions. Set this feature to 100V if the product is operating in a low-voltage environment and you are having problems with print quality such as blisters in the printed image.
	Cleaning frequency	Normal (default) Alternate	Set this feature to Alternate if you are seeing defects in the printed output that repeat at 38 mm (1.5 inch) intervals. This feature increases the frequency at which the C roller is cleaned. Setting this feature to Alternate might also reduce printing speed and increase the frequency of consumable replacement.
	D-Blade bias	Normal (default) Alternate	Set this feature to Alternate if you are seeing short white vertical lines in the printed output. The Alternate setting might also cause dark spots in the printed output, so be sure to test this setting on a few print jobs.
	Waste Bin	Normal (default) Alternate	Try setting this feature to Alternate if you are seeing lengthwise toner streaks in your printed output, especially in jobs with low toner coverage.
	Discharge Brush	Off (default) On	Enable this feature in low temperature and low humidity environments if you are seeing specks of toner scattered on double-sided jobs using light-weight paper and longer than ten pages.
	Background	Off (default) On	Turn this feature On if pages are printing with a shaded background. Using this feature might reduce gloss levels.
	Heavy Mode	30 PPM (default) 24 PPM	The default setting is 30 PPM. Select the 24 PPM option to reduce the speed and improve fusing on heavy paper.
	Tracking Control	Off (default) On	Improves color stability by adjusting the bias voltage. This setting should remain On.
	Restore Optimize		Select this setting to return all the settings in the Optimize menu to the factory default settings.
Resolution	Image REt 4800 1200X600dpi		Select Image REt 4800 to produces fast, high-quality printing that is appropriate for most print jobs Select 1200X600dpi to produce the highest-quality printing available, but it may slow print speed. This setting may be useful for jobs that contain very thin lines or fine graphics.
Color REt		Enabled (default) Disabled	Enable or disable Resolution Enhancement technology (REt), which produces print output with smooth angles, curves, and edges.

Table 2-16 Print Quality menu (continued)

Menu item	Sub-menu item	Values	Description
Calibration/Cleaning			
	Process Cleaning Page	Process	Use this feature to create and process a cleaning page for cleaning excess toner off the pressure roller in the fuser. The process takes up to 2.5 minutes.
	Quick Calibration	Calibrate	Performs partial product calibrations.
	Full Calibration	Calibrate	Performs all product calibrations.
	Delay Calibration At Wake/Power On	No Yes (default)	This menu controls the timing of the calibration when the printer wakes up or is turned on. • Select No to have the printer calibrate immediately when it wakes up or is turned on. The device will not print any jobs until it finishes calibrating. • Select Yes to enable a device that is asleep to accept print jobs before it calibrates. The device only accepts new jobs for a short time. It may start calibrating before it has printed all the jobs it has received. **NOTE:** For the best results, allow the device to calibrate before printing. Print jobs performed before calibration may not be of the highest quality.

Troubleshooting menu

Administration > Troubleshooting

NOTE: Many of the menu items under the Troubleshooting menu are for advanced troubleshooting purposes.

Table 2-17 Troubleshooting menu

Menu item	Sub-menu item	Sub-menu item	Values	Description
Event Log			Print	This shows the event codes and their corresponding engine cycles on the control-panel display.
Calibrate Scanner			Calibrate	Use this feature to compensate for offsets in the scanner imaging system (carriage head) for ADF and flatbed scans. You might need to calibrate the scanner if it is not capturing the correct sections of scanned documents.
PQ Troubleshooting			Print	Print various diagnostic pages that help solve print-quality problems.
Fax T.30 Trace	Print T.30 Report			Print or configure the fax T.30 trace report. T.30 is the standard that specifies handshaking, protocols, and error correction between fax machines.
	When to Print Report		Never auto print (default) Print after any fax job Print after fax send jobs Print after any fax error Print after send errors only Print after receive errors only	
Fax Transmit Signal Loss			A value between 0 and 30. The default is 0.	Set loss levels to compensate for phone-line signal loss. Do not modify this setting unless requested to do so by an HP service representative because it could cause the fax to stop functioning.
Fax V.34			Normal (default) Off	Disable V.34 mode if several fax failures have occurred or if phone line conditions require it.
Fax Speaker Mode			Normal (default) Diagnostic	A technician can use this feature technician to evaluate and diagnose fax issues by listening to the sounds of fax modulations.
Diagnostic Page			Print	Print a diagnostic page that includes color swatches and the EP parameters table.

Table 2-17 Troubleshooting menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
Disable Cartridge Check				Use this item to enter a mode where a cartridge (or color pair of cartridge and drum) can be removed to determine which particular color is the source of a problem. In this mode, all consumable-related errors are ignored.
Paper Path Sensors				Initiate a test of the paper-path sensors.
Paper Path Test	Test Page		Print	Generate a test page for testing the paper-handling features. Define the path for the test in order to test specific paper paths.
	Source		All trays Tray 1 Tray 2 (Additional trays are shown, if applicable.)	Specify whether the test page is printed from all trays or from a specific tray.
	Destination		All bins	Select the output option for the test page. Send the test page to all output bins or only to a specific bin.
	Duplex		Off (default) On	Select whether the duplexer should be included in the test.
	Copies		Range: 1-500, Default is 1.	Select how many pages should be sent from the specified source as part of the test.

Table 2-17 Troubleshooting menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
Finishing Paper Path Test	Staples	Finishing Options	Choose from a list of available options.	Test the paper-handling features on the finisher. Select the option that you want to test.
		Destination Bin		
		Media Size	Letter A4	Select the paper size for the test.
		Media Type	Select from a list of types.	Select the paper type for the test.
		Copies	Range: 2-30, Default=2	Select the number of copies to include in the test.
		Duplex	Off On	Select whether to use the duplexer in the test.
		Test Page	Print	Print a test page to use for the test.
	Stack	Destination Bin	Select from a list of bins.	Select the options that you want to use to test the stacker.
		Media Size	Letter Legal A4 Executive (JIS) 8.5 x 13	
		Media Type	Select from a list of bins.	Select the type of media to use for the Finishing Paper Path Test.
		Copies	1 10 50 100 500	Select the number of copies to include in the Finishing Paper Path Test.
		Duplex	Off On	Select whether to use the duplexer in the Finishing Paper Path Test.
		Test Page	Print	Print a test page to use for the test.

Table 2-17 Troubleshooting menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
	Booklet Maker	Media Size	Letter Legal A4 Executive (JIS) 8.5 x 13	Select the options that you want to use to test the booklet maker.
		Media Type	Select from a list of bins.	Select the type of media to use for the Finishing Paper Path Test.
		Copies	1 10 50 100 500	Select the number of copies to include in the Finishing Paper Path Test.
		Duplex	Off On	Select whether to use the duplexer in the Finishing Paper Path Test.
		Test Page	Print	Print a test page to use for the test.
Manual Sensor Test				This item performs tests to determine whether the paper-path sensors are operating correctly.

Table 2-17 Troubleshooting menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
Component Test			Transfer Motors Belt Only Image Drum Motors Black Laser Scanner Cyan Laser Scanner Magenta Laser Scanner Yellow Laser Scanner Fuser Motor Fuser Pressure Release Motor Black Alienation Motor Cyan Alienation Motor Magenta Alienation Motor Yellow Alienation Motor ITB Contact/ Alienation Tray 2 Pickup Motor Tray 2 Pickup Solenoid Tray 3 Pickup Motor Tray 3 Pickup Solenoid Tray 4 Pickup Motor Tray 4 Pickup Solenoid Tray 5 Pickup Motor Tray 5 Pickup Solenoid Duplexer Reverse Motor Duplexer Feed Motor Duplexer ReFeed Motor Paper Transport Motor	Exercise individual parts independently to isolate noise, leaking, or other issues. To start the test, select one of the components. The test runs the number of times specified in the Repeat option. You might be prompted to remove parts from the device during the test. Press the Stop button to abort the test.

Table 2-17 Troubleshooting menu (continued)

Menu item	Sub-menu item	Sub-menu item	Values	Description
	Repeat		Once (Default) Continuous	Determines the number of times the test runs.
Print/Stop Test			Continuous value from 0 to 60,000 milliseconds. Default: 0	Isolate faults by stopping the device during the print cycle and observing where in the process the image degrades. To run the test, specify a stop time. The next job that is sent to the device stops at the specified time in the process.
Color Band Test	Test Page		Print	Prints a page that helps identify arcing in the high-voltage power supplies.
	Copies		Continuous value from 1 to 30. Default: 1	Specify the number of copies to print for the Color Band test
Scanner Tests	Lower Lamp Sensors ADF Input Motor ADF Input Reverse Flatbed Motor ADF Read Motor ADF Read Motor Reverse ADF Duplex Solenoid ADF LED Indicator			A service technician can use this menu item to diagnose potential problems with the device scanner.
Control Panel	LEDs			Verify that the components of the control panel are functioning correctly.
	Display			
	Buttons			
	Touchscreen			
Finisher Tests	Manual Sensor Test			
	Component Test			

Resets menu

Administration > Resets

Table 2-18 Resets menu

Menu item	Values	Description
Clear Local Address Book	Clear	Use this feature to clear all addresses from the address books that are stored on the device.
Clear Fax Activity Log	Yes	Use this feature to clear all events from the Fax Activity Log.
	No (default)	
Restore Factory Telecom Setting	Restore	Use this option to restore the following settings to their factory default settings: Transmit Signal Loss, V34, Maximum Baud Rate, Speaker Mode.
Restore Factory Settings	Restore	Use this feature to restore all device settings to their factory defaults.
Reset Supplies	New Document Feeder Kit (Yes/No)	Notify the device that a new document-feeder kit has been installed.

Service menu

Administration > Service

The Service menu is locked and requires a PIN for access. This menu is intended for use by authorized service personnel.

3 Paper and print media

- Understand paper and print media use
- Supported paper and print media sizes
- Supported paper types
- Special paper or print media guidelines
- Load paper and print media
- Configure trays
- Choose an output location

Understand paper and print media use

This product supports a variety of paper and other print media in accordance with the guidelines in this user guide. Paper or print media that does not meet these guidelines might cause the following problems:

- Poor print quality
- Increased jams
- Premature wear on the product, requiring repair

For best results, use only HP-brand paper and print media designed for laserjets or multiuse. Do not use paper or print media made for inkjet printers. Hewlett-Packard Company cannot recommend the use of other brands of media because HP cannot control their quality.

It is possible for paper to meet all of the guidelines in this user guide and still not produce satisfactory results. This might be the result of improper handling, unacceptable temperature and/or humidity levels, or other variables over which Hewlett-Packard has no control.

△ **CAUTION:** Using paper or print media that does not meet Hewlett-Packard's specifications might cause problems for the product, requiring repair. This repair is not covered by the Hewlett-Packard warranty or service agreements.

Supported paper and print media sizes

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

Table 3-1 Supported paper and print media sizes

Size	Dimensions	Tray 1	Tray 2	Trays 3, 4, 5
Letter	216 x 279 mm (8.5 x 11 in)	✓	✓[1]	✓[1]
Letter Rotated	279 x 216 mm (11 x 8.5 in)	✓	✓[1]	✓[1]
Legal	216 x 356 mm (8.5 x 14 in)	✓	✓[1]	✓[1]
A4	210 x 297 mm (8.27 x 11.69 in)	✓	✓[1]	✓[1]
A4 Rotated	297 x 210 mm (11.69 x 8.27 in)	✓	✓[1]	✓[1]
Executive	184 x 267 mm (7.24 x 10.51 in)	✓	✓[1]	✓[1]
Statement	139.7 x 215.9 mm (5.5 x 8.5 in)	✓		
8.5 x 13	216 x 330 mm (8.5 x 13 in)	✓	✓	✓
A3	297 x 420 mm (11.69 x 16.54 in)	✓	✓[1]	✓[1]
A5	148 x 210 mm (5.83 x 8.27 in)	✓	✓[1]	✓[1]
A6	105 x 148 mm (4.13 x 5.83 in)	✓		
11 x 17	279 x 432 mm (11 x 17 in)	✓	✓[1]	✓[1]
12 x 18	305 x 457 mm (12 x 18 in)	✓		✓
B4 (JIS)	257 x 364 mm (10.12 x 14.33 in)	✓	✓[1]	✓[1]
RA3	305 x 430 mm (12 x 16.93 in)	✓		✓
SRA3	320 x 450 mm (12.6 x 17.7 in)	✓		✓
B5 (JIS)	182 x 257 mm (7.17 x 10.12 in)	✓	✓[1]	✓[1]
8k	270 x 390 mm (10.63 x 15.35 in)	✓	✓	✓
16k	195 x 270 mm (7.68 x 10.63 in)	✓	✓	✓
Custom	98.55 x 139.70 mm to 320 x 457.2 mm (3.9 x 5.5 to 12.6 x 18 in)[3]	✓		
Custom	148 x 210 mm to 297 x 432 mm (5.8 x 8.2 to 11.7 x 17 in)[2]		✓	
Custom	148 x 210 mm to 320 x 457.2 mm (5.8 x 8.2 to 12.6 x 18 in)			✓

[1] Tray automatically detects paper size.

[2] Standard sizes within the custom range for Tray 2 are: 8.5 x 13, RA4, SRA4, 8K (270 x 390), 16K (195 x 270)

[3] Standard sizes within the custom range for Trays 3, 4, and 5 are: 8.5 x 13, RA4, SRA4, 8K (270 x 390), 16K (195 x 270), RA3, SRA3 , and 12 x 18

Table 3-2 Supported envelopes and postcards

Size	Dimensions	Tray 1	Trays 2, 3, 4, 5
Envelope #9	98 x 225 mm (3.88 x 8.88 in)	✓	

Table 3-2 Supported envelopes and postcards (continued)

Size	Dimensions	Tray 1	Trays 2, 3, 4, 5
Envelope #10	105 x 241 mm (4.13 x 9.49 in)	✓	
Envelope DL	110 x 220 mm (4.33 x 8.66 in)	✓	
Envelope C5	162 x 229 mm (6.93 x 9.84 in)	✓	
Envelope B5	176 x 250 mm (6.7 x 9.8 in)	✓	
Envelope C6	162 x 114 mm (6.4 x 4.5 in)	✓	
Envelope Monarch	98 x 191 mm (3.9 x 7.5 in)	✓	
Double Post Card	148 x 200 mm (5.83 x 7.87 in)	✓	
US Index Cards	102 x 152 mm (4 x 6 in) and 127 x 203 mm (5 x 8 in)	✓	

[1] Weights greater than 160 g/m^2 may not perform well, but will not harm the product.

The following paper sizes are supported with the optional HP 3-bin Stapler/Stacker and HP Booklet Maker/Finisher accessories.

Table 3-3 Supported paper and print media sizes for the optional HP 3-bin Stapler/Stacker and HP Booklet Maker/ Finisher accessories

Size	Dimensions	Stacking[2]	Angled staple (left-angled)	Angled staple (right-angled)	Two staples (top or side)	Folding	Saddle stitch
Letter	216 x 279 mm (8.5 x 11 in)	✓	✓	✓	✓		
Letter Rotated	279 x 216 mm (11 x 8.5 in)	✓	✓	✓		✓[1]	✓[1]
Legal	216 x 356 mm (8.5 x 14 in)	✓	✓	✓		✓[1]	✓[1]
A4	210 x 297 mm (8.27 x 11.69 in)	✓	✓	✓	✓		
A4 Rotated	297 x 210 mm (11.69 x 8.27 in)	✓	✓	✓		✓[1]	✓[1]
Executive	184 x 267 mm (7.24 x 10.51 in)	✓					
8.5 x 13	216 x 330 mm (8.5 x 13 in)	✓					
A3	297 x 420 mm (11.69 x 16.54 in)	✓	✓	✓	✓	✓[1]	✓[1]
A5	148 x 210 mm (5.83 x 8.27 in)	✓					
A6	105 x 148 mm (4.13 x 5.83 in)	✓					
Statement	140 x 216 mm (5.5 x 8.5 in)	✓					
11 x 17 (Ledger)	279 x 432 mm (11 x 17 in)	✓	✓	✓	✓	✓[1]	✓[1]

Table 3-3 Supported paper and print media sizes for the optional HP 3-bin Stapler/Stacker and HP Booklet Maker/ Finisher accessories (continued)

Size	Dimensions	Stacking[2]	Angled staple (left-angled)	Angled staple (right-angled)	Two staples (top or side)	Folding	Saddle stitch
12 x 18	305 x 457 mm (12 x 18 in)	✓					
B4 (JIS)	257 x 364 mm (10.12 x 14.33 in)	✓	✓	✓	✓	✓[1]	✓[1]
RA3	305 x 430 mm (12 x 16.93 in)	✓					
SRA3	320 x 450 mm (12.6 x 17.7 in)	✓					
B5 (JIS)	257 x 182 mm (10.12 x 7.17 in)	✓					
B6 (JIS)	128 x 182 mm (5.04 x 7.2 in)	✓					
8K	270 x 390 mm (10.63 x 15.35 in)	✓					
16K	195 x 270 mm (7.68 x 10.63 in)	✓					
Envelope 9#	98.4 x 225.4 mm (3.88 x 8.88 in)	✓					
Envelope 10#	104.77 x 241.3 mm (4.12 x 9.5 in)	✓					
Envelope DL	110 x 220 mm (4.33 x 8.66 in)	✓					
Envelope C5	162 x 229 mm (6.38 x 9.02 in)	✓					
Envelope B5	176 x 250 mm (6.93 x 9.84 in)	✓					
Envelope C6	114 x 162 mm (4.49 x 6.38 in)	✓					
Envelope Monarch	98.42 x 190.5 mm (3.88 x 7.5 in)	✓					
Double Post Card	148 x 200 mm (5.83 x 7.87 in)	✓					
4 x 6 Index Card	102 x 152 mm (4 x 6 in)	✓					
5 x 8 Index Card	127 x 203 mm (5 x 8 in)	✓					
Custom Size	98.55 x 139.70 mm to 320 x 457.2 mm (3.9 x 5.5 to 12.6 x 18 in)						

[1] Booklet maker only

[2] Stacking uses bins 1, 2, and 3 in the stapler/stacker, or bins 1 and 2 in the booklet maker.

Supported paper types

Table 3-4 Tray 1 paper information

Type	Specifications	Quantity	Driver settings	Paper orientation
Paper and cardstock, standard sizes	Range: 60 g/m^2 (16 lb) bond to 220 g/m^2 (58 lb) bond	Maximum stack height: 10 mm (0.6 in) Equivalent to 100 sheets of 75 g/m^2 (20 lb) bond.	Plain or unspecified	Load preprinted or prepunched paper facing down, with the top edge leading into the tray, or toward the back of the product
Envelopes	Less than 60 g/m^2 (16 lb) bond to 90 g/m^2 (24 lb) bond	Up to 10 envelopes	Envelope	Short edge leading, flap toward the front of the product, facing up
Labels	Maximum 0.23 mm (0.009 in) thick	Maximum stack height: 10 mm (0.6 in)	Labels	Side to be printed on facing down
Transparencies	Minimum 0.13 mm (0.005 in) thick	Maximum stack height: 10 mm (0.6 in)	Transparencies	Side to be printed on facing down
Heavy	0.13 mm (0.005 in) thick	Maximum stack height: 10 mm (0.6 in)	Light glossy, glossy, or heavy glossy	Side to be printed on facing down
Glossy	Range: 75 g/m^2 (20 lb) bond to 220 g/m^2 (58 lb) bond	Maximum stack height: 10 mm (0.6 in)	Light glossy, glossy, or heavy glossy	Side to be printed on facing down
Photo media	60 g/m^2 (16 lb) bond to 220 g/m^2 (58 lb) bond	Maximum stack height: 10 mm (0.6 in)		Side to be printed on facing down
Cut sheet paper	60 g/m^2 (16 lb) bond to 220 g/m^2 (58 lb) bond	Maximum stack height: 10 mm (0.6 in)		Side to be printed on facing down
Tough paper	60 g/m^2 (16 lb) bond to 220 g/m^2 (58 lb) bond	Maximum stack height: 10 mm (0.6 in)		Side to be printed on facing down

Table 3-5 Trays 2, 3, 4, and 5 paper information

Type	Specifications	Quantity	Settings	Paper orientation
Paper and cardstock, standard sizes	Range: 60 g/m^2 (16 lb) bond to 220 g/m^2 (58 lb) bond	500 sheets of 75 g/m^2 (20 lb) bond.	Plain or unspecified	Load preprinted or prepunched paper facing up, with the top toward the back of the tray or toward the right-hand side of the tray.
Labels	Maximum 0.13 mm (0.005 in) thick	Maximum stack height: 54 mm (2.1 in)	Labels	Side to be printed on facing up
Transparencies	Minimum 0.13 mm (0.005 in) thick	Maximum stack height: 54 mm (2.1 in)	Transparencies	Side to be printed on facing up
Heavy	0.13 mm (0.005 in) thick	Maximum stack height: 54 mm (2.1 in)	Light glossy, glossy, or heavy glossy	Side to be printed on facing up
Glossy	75 g/m^2 (20 lb) bond to 220 g/m^2 (58 lb) bond	Maximum stack height: 54 mm (2.1 in)	Light glossy, glossy, or heavy glossy	Side to be printed on facing up

Table 3-5 Trays 2, 3, 4, and 5 paper information (continued)

Type	Specifications	Quantity	Settings	Paper orientation
Photo media	60 g/m^2 (16 lb) bond to 220 g/m^2 (58 lb) bond	Maximum stack height: 54 mm (2.1 in)	Light glossy, glossy, or heavy glossy	Side to be printed on facing up
Cut sheet paper	60 g/m^2 (16 lb) bond to 220 g/m^2 (58 lb) bond	Maximum stack height: 54 mm (2.1 in)	Plain or unspecified	Side to be printed on facing up
Tough paper	60 g/m^2 (16 lb) bond to 220 g/m^2 (58 lb) bond	Maximum stack height: 54 mm (2.1 in)	HP Tough Paper	Side to be printed on facing up

Trays 2, 3, 4, and 5 capacity: 54 mm (2.126 in) height or 500 sheets of paper, whichever is less. Supported media types include: Cut sheet paper, labels, OHT, glossy paper, glossy film, photo media, and tough paper. Basis Weight: 60-220 g/m^2 (16-58 lb).

Duplex printing: Provides automatic two-sided printing (printing on both sides of the paper). The paper size range for automatic duplex printing is 175 to 320 mm (7.2 to 12.6 in) x 210 to 457 mm (8.3 to 18 in). The media weight range is 60 to 220 g/m^2 (16 to 58 lb)

NOTE: HP Color Laser Presentation Paper, Glossy (Q2546A) is not supported with this product. Using this type of paper can cause a fuser jam that might require the replacement of the fuser. Two recommended alternatives are HP Color LaserJet Presentation Paper, Soft Gloss (Q6541A) and HP Color LaserJet Brochure Paper, Glossy (Q6611A, Q6610A).

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

Special paper or print media guidelines

This product supports printing on special media. Use the following guidelines to obtain satisfactory results. When using special paper or print media, be sure to set the type and size in your print driver to obtain the best print results.

△ **CAUTION:** HP LaserJet printers use fusers to bond dry toner particles to the paper in very precise dots. HP laser paper is designed to withstand this extreme heat. Using inkjet paper not designed for this technology could damage your printer.

Media type	Do	Do not
Envelopes	• Store envelopes flat. • Use envelopes where the seam extends all the way to the corner of the envelope. • Use peel-off adhesive strips that are approved for use in laser printers.	• Do not use envelopes that are wrinkled, nicked, stuck together, or otherwise damaged. • Do not use envelopes that have clasps, snaps, windows, or coated linings. • Do not use self-stick adhesives or other synthetic materials.
Labels	• Use only labels that have no exposed backing between them. • Use Labels that lie flat. • Use only full sheets of labels.	• Do not use labels that have wrinkles or bubbles, or are damaged. • Do not print partial sheets of labels.
Transparencies	• Use only transparencies that are approved for use in laser printers. • Place transparencies on a flat surface after removing them from the product.	• Do not use transparent print media not approved for laser printers.
Letterhead or preprinted forms	• Use only letterhead or forms approved for use in laser printers.	• Do not use raised or metallic letterhead.
Heavy paper	• Use only heavy paper that is approved for use in laser printers and meets the weight specifications for this product.	• Do not use paper that is heavier than the recommended media specification for this product unless it is HP paper that has been approved for use in this product.
Glossy or coated paper	• Use only glossy or coated paper that is approved for use in laser printers.	• Do not use glossy or coated paper designed for use in inkjet products.

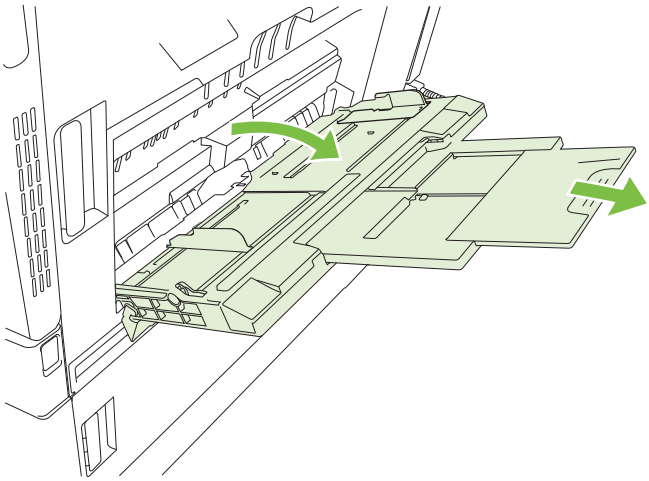
Load paper and print media

You can load different media in the trays and then request media by type or size by using the control panel.

Load Tray 1

△ **CAUTION:** To avoid jams, never add or remove paper from Tray 1 during printing.

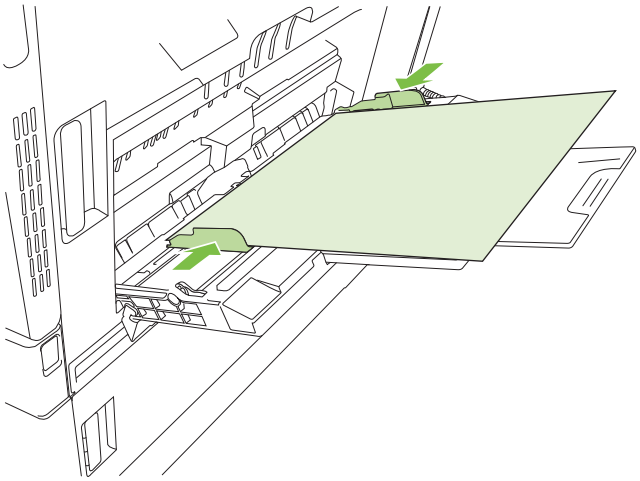
1. Open Tray 1.



2. Set the side guides to the correct width, and pull out the tray extensions to support paper.
3. Load paper in the tray with the side to be printed on face down and the top of the paper or non-postage end facing the back of the printer.

NOTE: For Letter Rotated and A4 Rotated sizes, place the side to be printed on face down, with the bottom of the page facing into the printer.

4. Make sure the stack fits under the tabs on the guides and does not exceed the load-level indicators.
5. Adjust the side guides so that they lightly touch the paper stack but do not bend it.



Print envelopes

If your software does not automatically format an envelope, specify **Landscape** for page orientation in your software program or printer driver. Use the following guidelines to set margins for return and destination addresses on Commercial #10 or DL envelopes:

Address type	Left margin	Top margin
Return	15 mm (0.6 in)	15 mm (0.6 in)
Destination	102 mm (4 in)	51 mm (2 in)

For envelopes of other sizes, adjust the margin settings accordingly.

Load trays 2, 3, 4, or 5

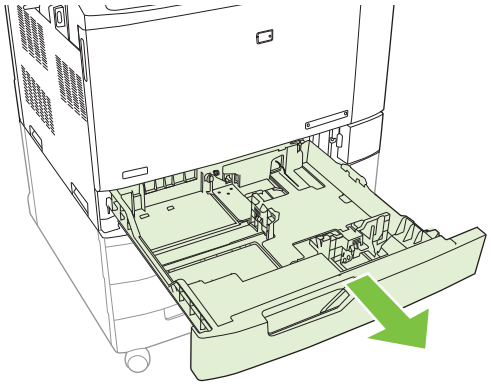
Trays 2, 3, 4, and 5 each hold up to 500 sheets of standard paper or a 54 mm (2.13-inch) stack of labels or other thick paper.

Load standard-sized media into trays 2, 3, 4, or 5

The product automatically detects the following standard sizes of media in these 500-sheet trays: Letter, Letter rotated, Legal, Executive, 11x17, A3, A4, A4 rotated, A5, B4 (JIS), and B5 (JIS).

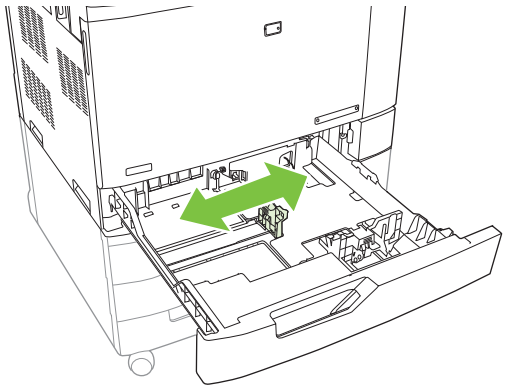
△ **CAUTION:** Do not print envelopes or unsupported sizes of paper from the 500-trays. Print on these types of paper only from Tray 1.

1. Slide the tray from the product.

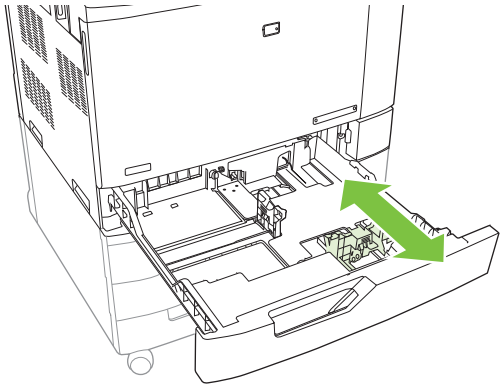


NOTE: Do not open the input tray while it is in use. Doing so can cause jams in the product.

2. Adjust the paper width guide by squeezing the adjustment latch and sliding the guide to the size of the paper being used.

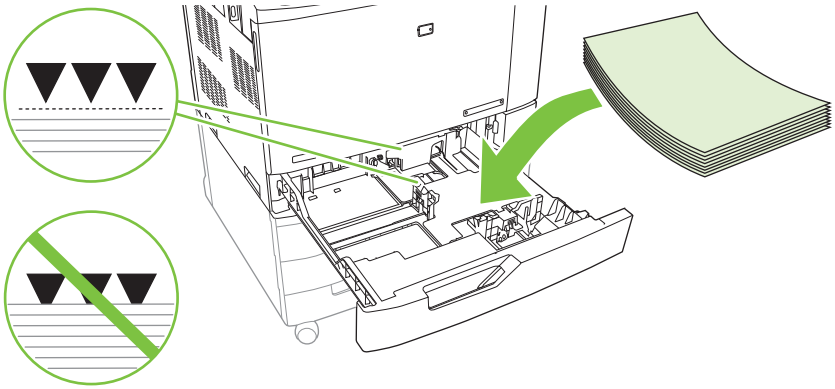


3. Adjust the paper length guide by squeezing the adjustment latch and sliding the guide to the size of the paper being used.



4. Load paper into the tray face up. Check the paper to verify the guides lightly touch the stack, but do not bend it.

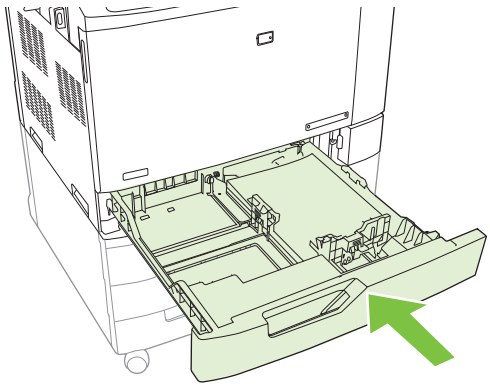
NOTE: To prevent jams, do not overfill the input tray. Be sure the top of the stack is below the tray full indicator.



NOTE: For best performance, fill the tray completely without splitting the ream of paper. Splitting the ream can cause a multifeed problem. The capacity of the paper tray can vary. For example, if you are using 75 g/m^2 (20 lb) paper, the tray holds a full ream of 500 sheets. If the media is heavier, the tray will not hold a full ream. Do not overfill the tray.

NOTE: If the tray is not adjusted correctly, an error message might appear or the media might jam.

5. Slide the tray into the product. The control panel shows the tray's paper type and size. If the configuration is not correct, touch Modify on the control panel and select the correct configuration. If the configuration is correct, touch OK.



Load undetectable standard-sized media into Tray 2, 3, 4, and 5

The following undetectable standard-sized media is supported in the 500-sheet trays:

- Executive (JIS) (8.5 x 13)
- 12 x 18 (Trays 3, 4, or 5 only)
- B4 (ISO)
- RA3 (Trays 3, 4, or 5 only)

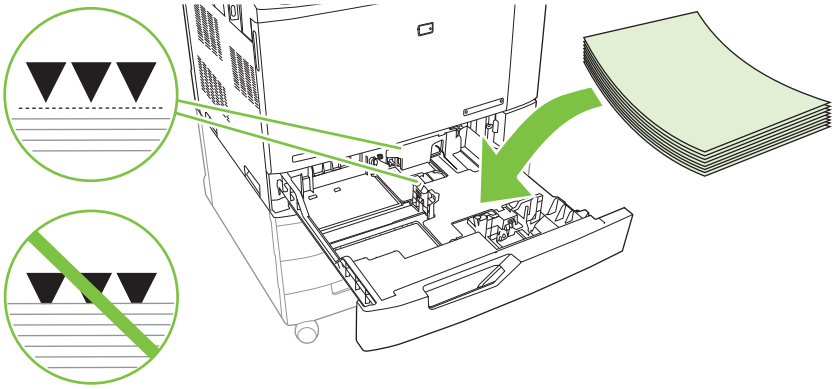
- SRA3 (Trays 3, 4, or 5 only)
- B5 (ISO)

△ **CAUTION:** Do not print envelopes or unsupported sizes of paper from the 500-sheet trays. Print on these types of paper only from Tray 1. Do not overfill the input tray or open it while it is in use. Doing so can cause paper jams.

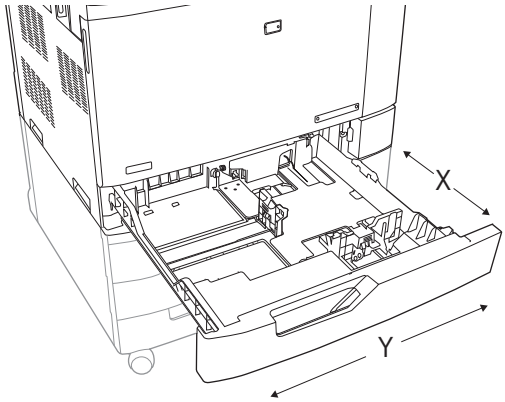
Load custom-size media into tray 2, 3, 4, or 5

To use custom media, change the size setting on the control panel to Custom and set the unit of measure, X dimension, and Y dimension. See Configure a tray to match print job settings on page 79 for more information.

1. Slide open the tray from the product.
2. Load the print media as described in steps 2 through 4 of the “Load detectable (standard-size) media into Tray 2, 3, 4, or 5” section. Then proceed to step 3 in this procedure.



3. Slide the tray into the product. The control panel shows the tray type and size configuration. To specify specific custom dimensions, or if the type is not correct, touch Modify when the control panel prompts to change the size or type.

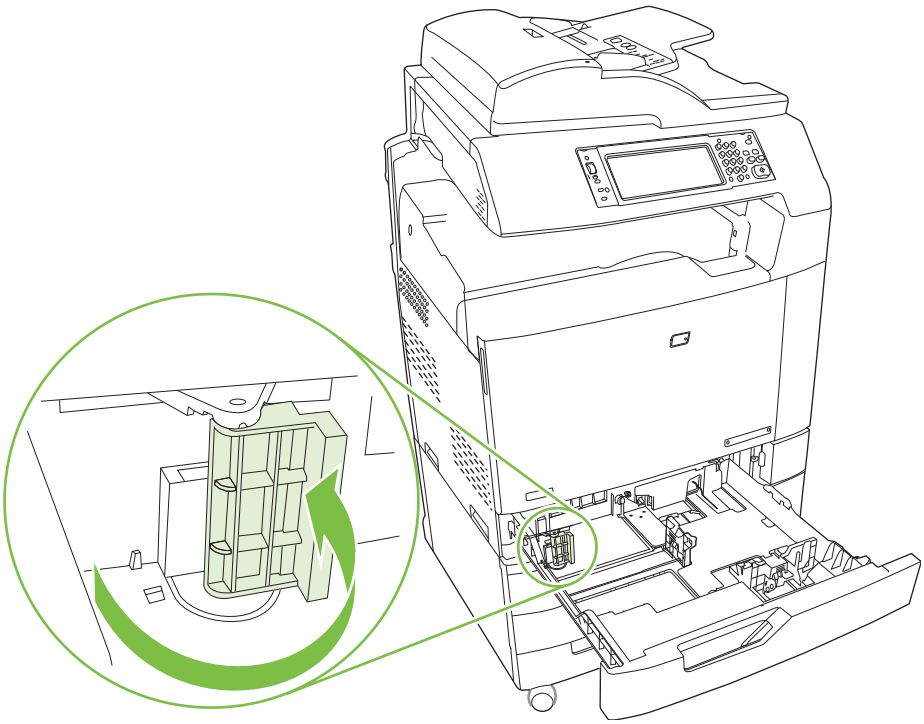


4. Select Custom, and then select the Unit of measure, X dimension and Y dimension for the custom paper size.
5. Select the paper type and then touch Save.
6. If the configuration is correct, touch Save.

Load large size paper into Tray 3, 4, or 5

Use the following instructions if you are loading 11x17, RA3, SRA3, or 12 x 18-sized paper into Tray 3, 4, or 5.

1. Slide open Tray 3, 4, or 5.
2. Adjust the paper width guide by squeezing the adjustment latch and sliding the guide to the size of the paper being used.
3. Load the paper into the tray.
4. Move the paper stop lever to the correct position for the paper being used.



- For SRA3-sized paper, rotate the lever all the way to the left.
- For A3- or 11x17-sized paper, rotate the lever down into the center position.
- For RA3- or 12x18-sized paper, rotate the lever all the way to the right.

5. Slide the tray into the product. The control panel shows the tray's media type and size. If the configuration is not correct, touch Modify and configure the tray to the correct type and size. If the configuration is correct, touch OK.

Load letterhead, pre-printed, or pre-punched paper

To correctly print or copy on letterhead, pre-printed, or pre-punched paper, you need to make sure you load the paper correctly into the tray. You might also need to adjust the Image Rotation setting on the product control panel. The Image Rotation setting is used to adjust for languages that read from left to right (the default) or from right to left.

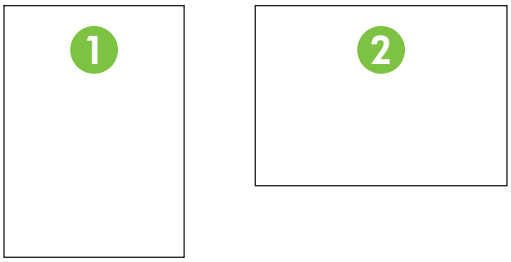
Change the Image Rotation setting

1. At the control panel home screen, scroll down and touch Administration.
2. Scroll down and touch Device Behavior.
3. Scroll down and touch Tray Behavior.
4. Scroll down and touch Image Rotation.
5. Touch the correct Image Rotation option. The default setting is Left to right.
6. Touch OK.

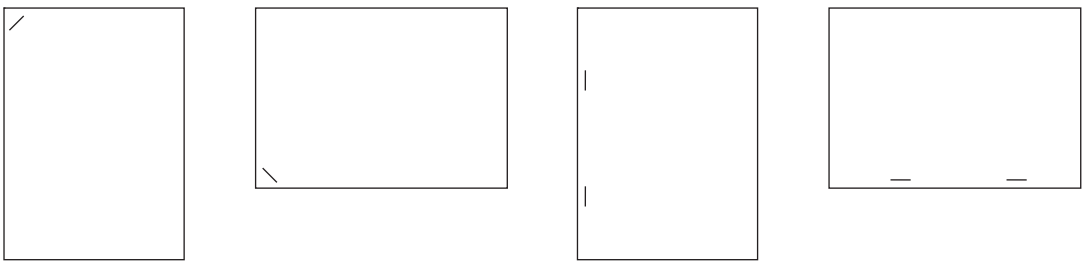
Choose the correct orientation for loading letterhead, pre-printed, or pre-punched paper

The tables below should be used as a guide for loading letterhead, pre-printed, or pre-punched paper. The first table shows the tray-loading orientation when Image Rotation is set to Left to right, which indicates that the language reads left to right. The second table shows the tray-loading orientation when Image Rotation is set to Right to left, which indicates that the language reads right to left. The tables also contain the following information:

- The paper type: letterhead, pre-printed or pre-punched.
- The paper tray: Tray 1 or Trays 2 through 5.
- Image orientation: Portrait (1) or Landscape (2).



- One-sided or two-sided (duplex) printing.
- Stapling: The optional stapler/stacker or booklet maker output accessory must be attached in order to staple print or copy jobs. The staple location can be one left, one angled staple located in upper left corner; or two left, two staples located on left long edge.



- The arrow in the paper graphic indicates the direction the paper will feed into the printer. The paper graphic indicates the direction the paper should be placed in the paper tray. The default is to load the paper so that the long edge feeds first. This results in the most efficient printing and copying.

Table 3-6 Load letterhead, pre-printed, or pre-punched paper — Image Rotation = Left to right

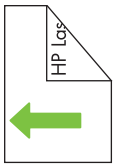
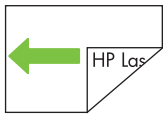
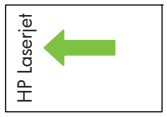
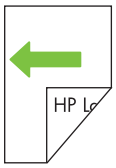
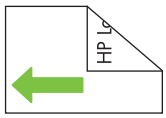
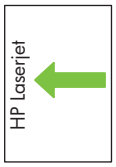
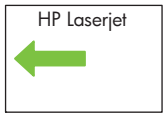
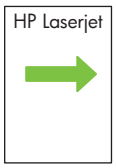
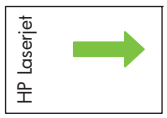
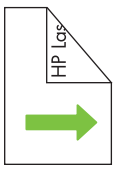
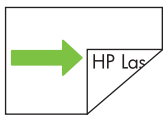
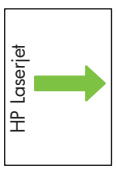
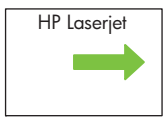
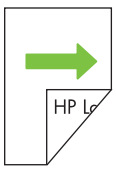
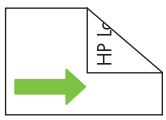
Paper type and tray	Image orientation	Duplex mode	Staple location options	How to load for long-edge feed	How to load for short-edge feed
Letterhead or Pre-printed – Tray 1	Portrait	1- sided	One left, two left		
Letterhead or Pre-printed – Tray 1	Portrait	2-sided	One left, two left		
Letterhead or Pre-printed – Tray 1	Landscape	1-sided	One left, two left		
Letterhead or Pre-printed – Tray 1	Landscape	2-sided	One left, two left		
Letterhead or Pre-printed – Trays 2-5	Portrait	1-sided	One left, two left		
Letterhead or Pre-printed – Trays 2-5	Portrait	2-sided	One left, two left		
Letterhead or Pre-printed – Trays 2-5	Landscape	1-sided	One left, two left		
Letterhead or Pre-printed – Trays 2-5	Landscape	2-sided	One left, two left		

Table 3-6 Load letterhead, pre-printed, or pre-punched paper — Image Rotation = Left to right (continued)

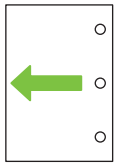
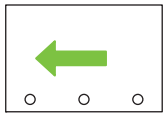
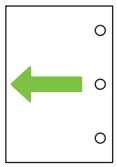
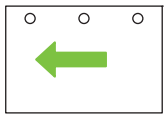
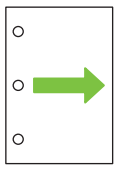
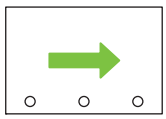
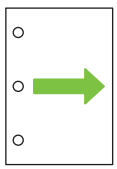
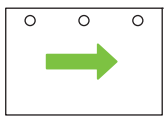
Paper type and tray	Image orientation	Duplex mode	Staple location options	How to load for long-edge feed	How to load for short-edge feed
Pre-punched – Tray 1	Portrait	1-sided or 2-sided	One left, two left		
Pre-punched – Tray 1	Landscape	1-sided or 2-sided	One left, two left		
Pre-punched – Trays 2-5	Portrait	1-sided or 2-sided	One left, two left		
Pre-punched – Trays 2-5	Landscape	1-sided or 2-sided	One left, two left		

Table 3-7 Load letterhead, pre-printed, or pre-punched paper — Image Rotation = Right to left

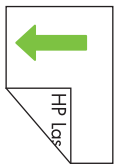
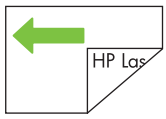
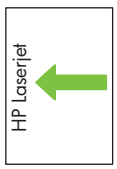
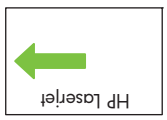
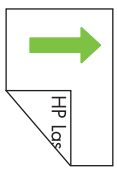
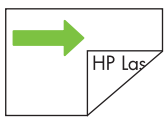
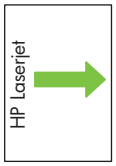
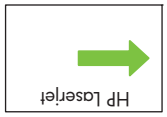
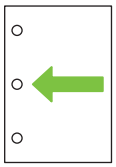
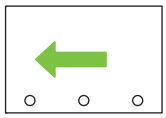
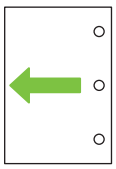
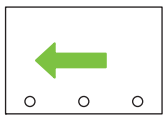
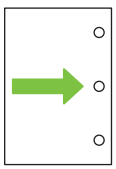
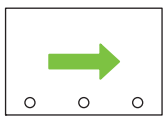
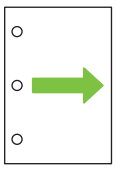
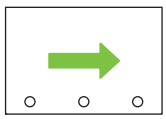
Paper type and tray	Image orientation	Duplex mode	Staple location options	How to load for long-edge feed	How to load for short-edge feed
Letterhead or Pre-printed – Tray 1	Portrait	1-sided	One right, two right		
Letterhead or Pre-printed – Tray 1	Landscape	2-sided	One right, two right		
Letterhead or Pre-printed – Trays 2-5	Portrait	2-sided	One right, two right		

Table 3-7 Load letterhead, pre-printed, or pre-punched paper — Image Rotation = Right to left (continued)

Paper type and tray	Image orientation	Duplex mode	Staple location options	How to load for long-edge feed	How to load for short-edge feed
Letterhead or Pre-printed – Trays 2-5	Landscape	1-sided	One right, two right		
Pre-punched – Tray 1	Portrait	1-sided or 2-sided	One right, two right		
Pre-punched – Tray 1	Landscape	1-sided or 2-sided	One right, two right		
Pre-punched – Trays 2-5	Portrait	1-sided or 2-sided	One right, two right		
Pre-punched – Trays 2-5	Landscape	1-sided or 2-sided	One right, two right		

NOTE: For more information regarding this subject, see the Job Aids at www.hp.com/support/cljcm6049mfp/manuals.

Configure trays

The product automatically prompts you to configure a tray for type and size in the following situations:

- When you load paper into the tray
- When you specify a particular tray or media type for a print job through the printer driver or a software program and the tray is not configured to match the print-job's settings

The following message appears on the control panel:**Tray <x> [type] [size] To change size or type, touch "Modify". To accept, touch "OK"**.

NOTE: The prompt does not appear if you are printing from Tray 1 and Tray 1 is configured for **Any Custom** and **Any Type**.

NOTE: If you have used other HP LaserJet product models, you might be accustomed to configuring Tray 1 to **First** mode or **Cassette** mode. On the HP Color LaserJet CM6049f MFP, setting Tray 1 size to **Any Custom** is equivalent to **First** mode. Setting size for Tray 1 to a setting other than **Any Custom** is equivalent to **Cassette** mode.

Configure a tray when loading paper

1. Load paper in the tray. Close the tray if you are using Tray 2, 3, 4, or 5.
2. The tray configuration message appears.
3. Touch OK to accept the detected size and type, or touch Modify to choose a different paper size or type.
4. Select the correct size and type and then touch OK.

NOTE: The product automatically detects most paper sizes in Trays 2, 3, 4, and 5.

Configure a tray to match print job settings

1. In the software program, specify the source tray, the paper size, and the paper type.
2. Send the job to the product.

   If the tray needs to be configured, the **Load Tray x <Type> <Size>** message appears.
3. Load the tray with the specified type and size of paper, and then close the tray.

   To specify a custom size, Modify.
4. When the **Tray <x> Size=<Size>** message appears, touch OK to confirm the size.
5. When the **Tray<x> Type=<Type>** message appears, touch OK to confirm the type and continue with the job.

Automatic media type sensing (auto sense mode)

The automatic media type sensor functions only when that tray is configured to Any Type or Plain type. Configuring a tray to any other type, such as Bond or Glossy, deactivates the media sensor in that tray.

The HP Color LaserJet CM6049f MFP can automatically classify many paper types into one of the following categories:

- Plain
- Transparency
- Glossy
- Extra-heavy glossy
- Glossy film
- Heavy

For more control, a specific type must be selected in the job or configured in a tray.

Auto sense settings

Full sensing (default for Tray 1)

- The product recognizes light, plain, heavy, glossy, and tough paper and overhead transparencies.
- Each time the product begins a print job, it stops the first page to sense the type.
- This is the slowest mode.

Expanded sensing (default for Trays 2, 3, 4, and 5)

- Each time the product begins a print job, it stops the first page to sense the type.
- The product assumes that the second and all subsequent pages are of the same media type as the first page.
- This is the second-fastest mode, and is useful for using stacks of the same media type.

Transparency only

- The product does not stop any pages for sensing but distinguishes between transparencies (Transparency mode) and paper (Normal mode).
- This is the fastest mode and is useful for high-volume printing in Normal mode.

For more information about setting these options, see Print Quality menu on page 48

Select the paper by source, type, or size

In the Microsoft Windows operating system, three settings affect how the printer driver tries to pull media when you send a print job. *Source*, *Type*, and *Size* settings appear in the **Page Setup**, **Print**, or **Print Properties** dialog boxes in most software programs. Unless you change these settings, the product automatically selects a tray using the default settings.

Source

To print by *Source* select a specific tray for the product to pull from. If you select a tray that is configured for a type or size that does not match your print job, the product prompts you to load the tray with the type or size of print media for your print job before printing it. When you load the tray, the product begins printing.

Type and Size

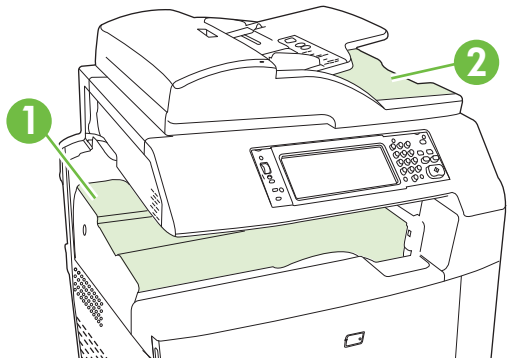
Printing by *Type* or *Size* means that you want the product to pull from the tray that is loaded with the correct type and size of media. Selecting media by type rather than source is similar to locking out trays and helps protect special media from accidental use. For example, if a tray is configured for letterhead and you select plain paper, the product will not pull the letterhead from that tray. Instead, it will pull from a tray that has plain paper loaded and is configured for plain paper on the product control panel. Selecting media by Type and Size results in significantly better print quality for heavy paper, glossy paper, and transparencies. Using the wrong setting might result in unsatisfactory print quality. Always print by Type for special print media, such as labels or transparencies. Print by Size for envelopes, if possible.

- To print by Type or Size, select the Type or Size from the **Page Setup** dialog box, the **Print** dialog box, or the **Print Properties** dialog box, depending on the software program.
- If you often print on a certain type or size of media, configure a tray for that type or size. Then, when you select that type or size as you print a job, the product automatically pulls media from the tray that is configured for that type or size.

Choose an output location

Standard output bins

The product has an ADF output bin and the standard output bin for printed pages.



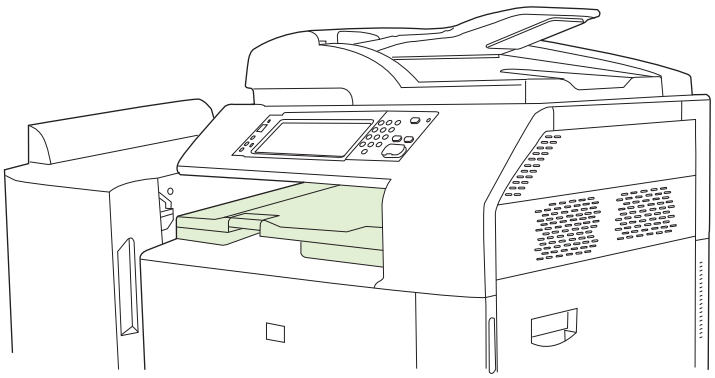
1	Standard output bin
2	ADF output bin (for copy originals)

When you scan or copy documents by using the ADF, the originals are automatically delivered to the ADF output bin. Copies made from the scanner glass are delivered to the standard output bin or the output bin(s) on the stapler/stacker or the 3-bin mailbox.

When you send print jobs to the product from a computer, the output is to the standard output bin or the output bin(s) on the stapler/stacker or the 3-bin mailbox.

Optional output accessories

An optional 3 bin stapler/stacker or booklet-maker finisher accessory can be installed with the product. When an accessory is installed, an output accessory bridge is also added on top of the product in order to route the print jobs to the accessory output bins.



3-bin stapler/stacker features

Table 3-8 3-bin stapler/stacker features

Job offset	Each copy of a job is shifted to one side in the output bin in order to keep each copy separate from the others. (Supported paper sizes: A3, A4, A4 rotated, A5, B4, B5, Ledger, Legal, Letter, Letter rotated, Statement.)

Table 3-8 3-bin stapler/stacker features (continued)

Three operation modes	Mailbox Mode assigns each bin to a user or group of users. Stacker Mode uses all three output bins for all print jobs — when one bin is full, jobs are routed to the next bin. Function Separator Mode sends copies to bin 1, faxes to bin 2, and print jobs to bin 3.
Stapler	Built-in stapler staples jobs up to 50 sheets in size or 30 stapled jobs. Pages can be stapled in one position at the front, in one position at the back, or at two positions at the side or top.
Large-capacity output bins	The stacker has three bins: a 100-sheet bin, a 500-sheet bin, and a 1000-sheet bin.

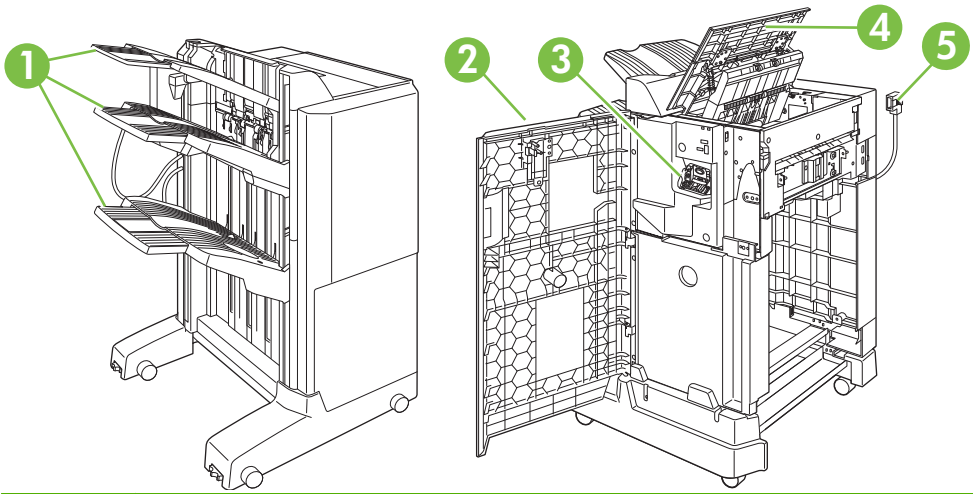
Booklet maker finisher features

Table 3-9 Booklet-maker finisher features

Booklet-making	The booklet-making feature staples and folds print jobs of 2 to 15 pages into a booklet.
Folding	Single-sheet print jobs can be automatically folded in the center.
Job offset	Each copy of a job is shifted to one side in the output bin in order to keep each copy separate from the others. (Supported paper sizes: A3, A4, A4 rotated, A5, B4, B5, Ledger, Legal, Letter, Letter rotated, Statement.)
Two operation modes	Mailbox Mode assigns each bin to a user or group of users, and Stacker Mode uses both output bins for all print jobs — when the top bin is full, jobs are routed to the next bin.
Stapler	Built-in stapler staples jobs up to 50 sheets in size or 30 stapled jobs. Pages can be stapled in one position at the front, in one position at the back, or at two positions at the side or top.
Large-capacity output bins	The stacker has three bins: two 1000-sheet bins and one bin that can hold up to 25 saddle-stitched booklets.

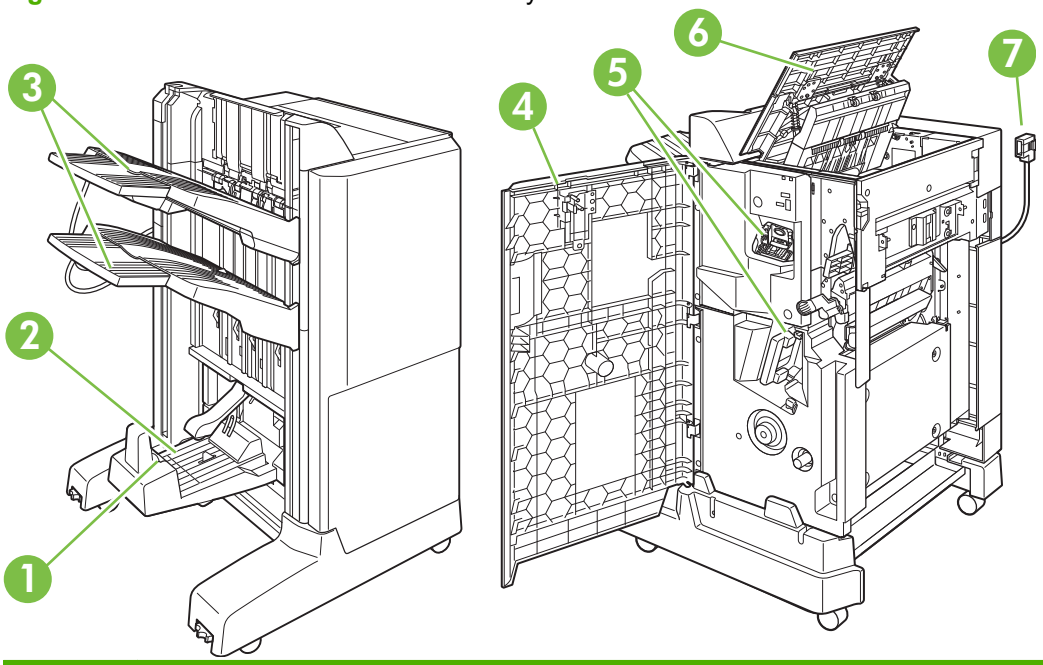
Accessory walkaround

Figure 3-1 3-bin stapler/stacker accessory



1	Output bins
2	Front door
3	Stapler unit
4	Top cover
5	Connection cable

Figure 3-2 Booklet-maker finisher accessory



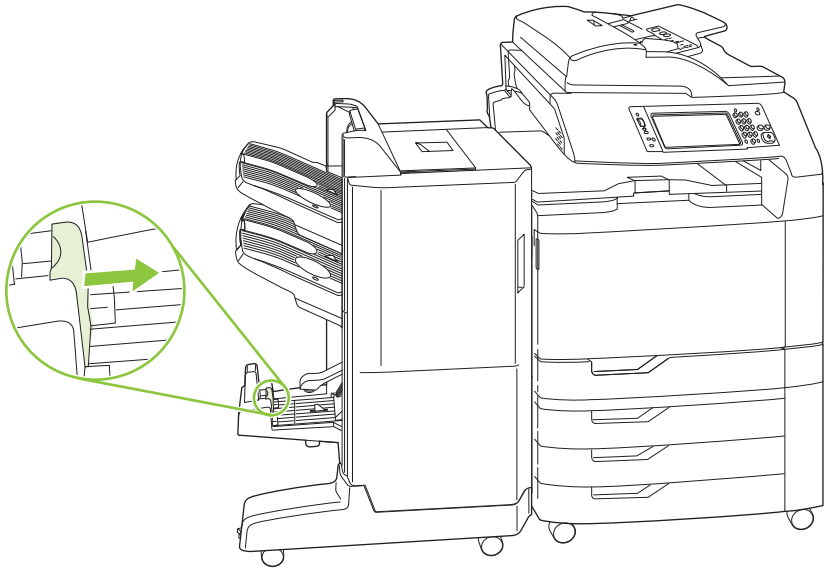
1	Booklet bin guide
2	Booklet output bin
3	Stacking output bins
4	Front door
5	Stapler units
6	Top cover
7	Connection cable

Use the booklet-making feature

You can create booklets from the print driver or by copying an original document.

Before creating a booklet, set the booklet bin guide for the size of paper being used:

- Closed: 11x17, Legal, A3, or B4
- Open: Letter Rotated, A4 Rotated



Create a booklet from the print driver

1. On the **File** menu of your software program, click **Print**.
2. Select HP Color LaserJet CM6049f MFP.
3. Click **Properties**, and then click **Booklet Printing**.
4. Set the **Paper source**, **Paper sizes**, **Paper type**, **Orientation**, **Booklet Layout**, **Print document on**, and**Staple** settings, and then click **OK**.
5. Click **OK** to print.

Create a booklet from a copy

Documents can be copied from the automatic document feeder (ADF) or by placing the document on the scanner glass.

1. From the control panel, touch Copy.
2. Scroll to and touch Booklet Format.
3. Touch Booklet on.
4. For Original Sides touch 1-sided or 2-sided.
5. Touch OK and then touch Start.

Configure the accessory operation mode

Select the operating mode at the control panel

You can set the operating mode for the stapler/stacker or the booklet maker at the product control panel.

1. At the control panel, touch Administration, and then touch Device behavior.
2. Touch MBM-3 bin stapler or Multifunction finisher.
3. Touch Operation mode, and then select the operation mode that you want to use.
   - When Mailbox Mode is used, each bin is assigned to a user or group of users. Every time a user sends a print job, the job is routed to the assigned bin.
   - When Stacker Mode is used and the optional 3-bin stapler/stacker is installed, the three bins act as a single bigger bin. When one bin gets full, jobs are automatically routed to the next bin. When Stacker Mode is used and the booklet maker finisher is installed, the two upper bins act as a single bin, and the third bin is reserved for booklets.
   - When Function Separator (3-bin stapler/stacker only) mode is used, each bin is assigned to a specific kind of job. Usually this designation is bin 1 for copies, bin 2 for fax, and bin 3 for printing. These values can be modified in the Default Job Options menus for copy, fax, and print.

NOTE: Use the product embedded Web server to assign output bins to users or groups of users. For more information see Embedded Web server on page 92.

Select the operating mode in the printer driver

1. Click the **Start** button, point to **Settings**, and then click **Printers** (for Windows 2000) or **Printers and Faxes** (for Windows XP).

   From your Vista computer click **Start**, click **Control Panel**, and then in the category for **Hardware and Sound** click **Printer**.
2. Right-click the HP product icon, and then click **Properties** or **Printing Preferences**.
3. Click the **Device Settings** tab.
4. Perform one of the following actions:

   For automatic configuration: under **Installable Options**, click **Update Now** in the **Automatic Configuration** list.

   -or-

   For manual configuration: under **Installable Options**, select the appropriate operation mode in the **Accessory Output Bin** list.
5. Click **Apply** to save the settings.

Select the operating mode in the printer driver (Mac OS X)

1. In the **Apple** menu, click **System Preferences**.
2. In the **System Preferences** box, click **Print and Fax**.
3. Click **Set Up Printers**. A **Printer List** displays.

4. Select the HP product, and then click **Show Info** on the **Printers** menu.
5. Select the **Installable Options** panel.
6. In the **Accessory Output Bins** list, select correct accessory.
7. In the **Mailbox Mode** list, select the appropriate operational mode, and then click **Apply Changes**.

4 Manage and maintain the product

- Information pages
- Embedded Web server
- Use HP Web Jetadmin software
- Security features
- Manage supplies
- Replace supplies
- Clean the product
- ADF maintenance kit
- Calibrate the scanner
- Upgrade the firmware
- Set the real-time clock

Information pages

Information pages provide details about the device and its current configuration. The following table provides the instructions for printing the information pages.

Page description	How to print the page from the product control panel
Menu map Shows the control-panel menus and available settings.	1. From the Home screen, touch Administration. 2. Touch Information. 3. Touch Configuration/status Pages. 4. Touch Administration Menu Map. 5. Touch Print. The content of the menu map varies, depending on the options currently installed in the device. For a complete list of control panel menus and possible values, see Use the control panel on page 12.
Configuration page Shows device settings and installed accessories.	1. From the Home screen, touch Administration. 2. Touch Information. 3. Touch Configuration/Status Pages. 4. Touch Configuration Page. 5. Touch Print. **NOTE:** If the device contains an HP Jetdirect print server or an optional hard disk drive, additional configuration pages print that provide information about those devices.
Supplies status page Shows print-cartridge toner levels.	1. From the Home screen, touch Administration. 2. Touch Information. 3. Touch Configuration/status Pages. 4. Touch Supplies Status Page. 5. Touch Print. **NOTE:** If you are using non-HP supplies, the supplies status page might not show the remaining life for those supplies.
Usage page Shows a page count for each size of paper printed, the number of one-sided (simplexed) or two-sided (duplexed) pages, and the average percentage of coverage.	1. From the Home screen, touch Administration. 2. Touch Information. 3. Touch Configuration/status Pages. 4. Touch Usage Page. 5. Touch Print.

Page description	How to print the page from the product control panel
Color usage job log	1. From the Home screen, touch Administration 2. Touch Information 3. Touch Configuration/status Pages 4. Touch Color Usage Job Log 5. Touch Print
File directory Contains information for any mass storage devices, such as flash drives, memory cards, or hard disks, that are installed in the device.	1. From the Home screen, touch Administration. 2. Touch Information. 3. Touch Configuration/status Pages. 4. Touch File Directory. 5. Touch Print.
Fax reports Five reports show fax activity, fax calls, billing codes, blocked fax numbers, and speed-dial numbers. **NOTE:** Fax reports are available only on device models that have fax capabilities.	1. From the Home screen, touch Administration. 2. Touch Information. 3. Touch Fax Reports. 4. Touch one of the following buttons to print the corresponding report: ◦ Fax Activity Log ◦ Fax Call Report ◦ Billing Codes Report ◦ Blocked Fax List ◦ Speed Dial List 5. Touch Print. For more information, see the fax guide that came with the device.
Font lists Shows which fonts are currently installed in the device.	1. From the Home screen, touch Administration. 2. Touch Information. 3. Touch Sample Pages/Fonts. 4. Touch one of the following buttons to print the corresponding report: ◦ Demonstration Page ◦ RGB Samples ◦ CMYK Samples ◦ PCL Font List ◦ PS Font List 5. Touch Print. **NOTE:** The font lists also show which fonts reside on a hard disk accessory or DIMM.

Embedded Web server

Use the embedded Web server to view product and network status and to manage printing functions from your computer instead of from the product control panel. The following are examples of what you can do using the embedded Web server:

- Determine the remaining life for all supplies.
- View and change tray configurations.
- View and change the product control-panel menu configuration.
- View and print internal pages.
- Receive notification of product and supplies events.
- View and change network configuration.

To use the embedded Web server, you must have Microsoft Internet Explorer 5.01 or later or Netscape 6.2 or later for Windows, Mac OS, and Linux (Netscape only). Netscape Navigator 4.7 is required for HP-UX 10 and HP-UX 11. The embedded Web server works when the product is connected to an IP-based network. The embedded Web server does not support IPX-based product connections. You do not have to have Internet access to open and use the embedded Web server.

When the product is connected to the network, the embedded Web server is automatically available.

NOTE: For complete information about using the embedded Web server, see the *Embedded Web Server User Guide*.

Open the embedded Web server by using a network connection

1. In a supported Web browser on your computer, type the device IP address or host name in the address/URL field. To find the IP address or host name, print a configuration page. See Information pages on page 90.

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

2. The embedded Web server has four tabs that contain settings and information about the device: the **Information** tab, the **Settings** tab, the **Networking** tab, and the **Digital Sending** tab. Click the tab that you want to view.

   See Embedded Web server sections on page 93 for more information about each tab.

Embedded Web server sections

Tab or section	Options
Information tab Provides device, status, and configuration information	• **Device Status**: Shows the device status and shows the life remaining of HP supplies, with 0% indicating that a supply is empty. The page also shows the type and size of print paper set for each tray. To change the default settings, click **Change Settings**. • **Configuration Page**: Shows the information found on the configuration page. • **Supplies Status**: Shows the life remaining of HP supplies, with 0 percent indicating that a supply is empty. This page also provides supplies part numbers. To order new supplies, contact your dealer. • **Event log**: Shows a list of all device events and errors. • **Usage page**: Shows a summary of the number of pages the device has printed, grouped by size and type. • **Device Information**: Shows the device network name, address, and model information. To change these entries, click **Device Information** on the **Settings** tab. • **Control Panel**: Shows messages from the device control panel, such as **Ready** or **Sleep mode on**. • **Print**: Allows you to send print jobs to the device.

Tab or section	Options
Settings tab Provides the ability to configure the device from your computer	• **Configure Device**: Allows you to configure device settings. This page contains the traditional menus found on devices using a control-panel display. • **E-mail Server**: Network only. Used in conjunction with the **Alerts** page to set up incoming and outgoing e-mail, as well as to set e-mail alerts. • **Alerts**: Network only. Allows you to set up to receive e-mail alerts for various device and supplies events. • **AutoSend**: Allows you to configure the device to send automated e-mails regarding device configuration and supplies to specific e-mail addresses. • **Security**: Allows you to set a password that must be entered to gain access to the **Settings** and **Networking** tabs. Enable and disable certain features of the embedded Web server. • **Authentication Manager**: Allows you to determine which device functions will require a user to provide log-in information in order to use those functions. • **LDAP Authentication**: Allows you to configure a Lightweight Directory Access Protocol (LDAP) server to limit device access to certain users. The LDAP server will require a user to provide log-in information in order to gain access to the device. • **Edit Other Links**: Allows you to add or customize a link to another Web site. This link is displayed in the **Other Links** area on all embedded Web server pages. • **Device Information**: Allows you to name the device and assign an asset number to it. Enter the name and e-mail address for the primary contact who will receive information about the device. • **Language**: Allows you to determine the language in which to display the embedded Web server information. • **Date & Time**: Allows time synchronization with a network time server. • **Wake Time**: Allows you to set or edit a wake time for the device. **NOTE:** The **Settings** tab can be password-protected. If this device is on a network, always consult with the system administrator before changing settings on this tab.

Tab or section	Options
Digital Sending tab	Use the pages on the **Digital Sending** tab to configure the digital-sending features. **NOTE:** If the product is configured to use the optional HP Digital Sending Software, the options on these tabs are not available. Instead, all digital-sending configuration is performed by using the HP Digital Sending Software. • **General**. Set up contact information for the system administrator. • **Send to E-mail**. Configure the e-mail settings for digital sending. You can specify the SMTP server, the default "From" address, and the default subject. You can also set the maximum file size that is allowed for attachments. • **E-mail Address Book**. The E-mail Address Book page enables you to add e-mail addresses into the product one at a time, and to edit e-mail addresses that have already been saved in the product. You can also use the Import/Export tab to load a large list of frequently-used e-mail addresses on to the product all at once, rather than adding them one at a time. • **Import/Export**. Use this tab to import or export .CSV files containing e-mail addresses, fax numbers, or user records, so that they can be accessed on this product. You can also export e-mail, fax, or user records from the device into a file on your computer. You can then use this file as a data backup, or you can use it to import the records onto another HP device. • **Log**. View the digital-sending activity log for the product. The log contains digital-sending job information, including any errors that occur. • **Preferences**. Configure digital-sending defaults such as the default page-size and the default settings-reset delay. You can also configure these settings by using the product control-panel menus.
Fax tab	The **Fax** tab contains options to configure and use the fax capabilities of the product. For additional information about fax functions, see the Fax User Guide. • Use the **Fax Settings** screen to configure the send-to-fax features for the product. • The **Fax Address Book** page enables you to add fax numbers into the product one at a time, and to edit fax numbers that have already been saved in the product. You can also use the Import/Export feature on the **Digital Sending** tab to load a large list of frequently-used fax numbers on to the device all at once, rather than adding them one at a time. • Use the **Fax Speed Dials** screen to add, edit, or delete fax speed dial entries to and from the product. You can use fax speed dials to store frequently used fax numbers or lists of up to 100 fax numbers. Up to 100 speed dial entries can be configured.
Networking tab Provides the ability to change network settings from your computer	Network administrators can use this tab to control network-related settings for the device when it is connected to an IP-based network. This tab does not appear if the device is directly connected to a computer, or if the device is connected to a network using anything other than an HP Jetdirect print server. **NOTE:** The **Networking** tab can be password-protected.

Use HP Web Jetadmin software

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

NOTE: HP Web Jetadmin 10.0 or later is required for full support of this product.

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

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

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

Security features

Secure the embedded Web server

Assign a password for access to the embedded Web server so that unauthorized users cannot change the product settings.

1. Open the embedded Web server. See Embedded Web server on page 92.
2. Click the **Settings** tab.
3. On the left side of the window, click **Security**.
4. Type the password next to **New Password**, and type it again next to **Verify Password**.
5. Click **Apply**. Make note of the password and store it in a safe place.

Secure Disk Erase

To protect deleted data from unauthorized access on the product hard drive, use the Secure Disk Erase feature. This feature can securely erase print and copy jobs from the hard drive.

Secure Disk Erase offers the following levels of disk security:

- **Non-Secure Fast Erase**. This is a simple file-table erase function. Access to the file is removed, but actual data is retained on the disk until it is overwritten by subsequent data-storage operations. This is the fastest mode. Non-Secure Fast Erase is the default erase mode.
- **Secure Fast Erase**. Access to the file is removed, and the data is overwritten with a fixed identical character pattern. This is slower than Non-Secure Fast Erase, but all data is overwritten. Secure Fast Erase meets the U.S. Department of Defense 5220-22.M requirements for the clearing of disk media.
- **Secure Sanitizing Erase**. This level is similar to the Secure Fast Erase mode. In addition, data is repetitively overwritten by using an algorithm that prevents any residual data persistence. This mode will impact performance. Secure Sanitizing Erase meets the U.S. Department of Defense 5220-22.M requirements for the sanitization of disk media.

Data affected

Data affected (covered) by the Secure Disk Erase feature includes temporary files that are created during the print and copying process, stored jobs, proof and hold jobs, disk-based fonts, disk-based macros (forms), stored fax files, address books, and HP and third-party applications.

NOTE: Stored jobs will be securely overwritten only when they have been deleted through the **Retrieve Job** menu on the product after the appropriate erase mode has been set.

This feature will not impact data that is stored on flash-based product non-volatile RAM (NVRAM) that is used to store default settings, page counts, and similar data. This feature does not affect data that is stored on a system RAM disk (if one is used). This feature does not impact data that is stored on the flash-based system boot RAM.

Changing the Secure Disk Erase mode does not overwrite previous data on the disk, nor does it immediately perform a full-disk sanitization. Changing the Secure Disk Erase mode changes how the product cleans up temporary data for jobs after the erase mode has been changed.

Gain access to Secure Disk Erase

Use HP Web Jetadmin to gain access to and set the Secure Disk Erase feature.

Additional Information

For additional information about the HP Secure Disk Erase feature, go to www.hp.com/go/webjetadmin/.

DSS authentication

Optional Digital Sending Software (DSS) for the product is available for purchase separately. The software provides an advanced sending program that contains an authentication process. This process requires users to type a user identification and a password before they can use any of the DSS features that require authentication.

Lock the control-panel menus

To prevent someone from changing the product configuration, you can lock the control-panel menus. This prevents unauthorized users from changing the configuration settings such as the SMTP server. The following procedure describes how to restrict access to the control-panel menus by using the HP Web Jetadmin software. (See Use HP Web Jetadmin software on page 96.)

1. Open the HP Web Jetadmin program.
2. Open the **DEVICE MANAGEMENT** folder in the drop-down list in the **Navigation** panel. Navigate to the **DEVICE LISTS** folder.
3. Select the product.
4. In the **Device Tools** drop-down list, select **Configure**.
5. Select **Security** from the **Configuration Categories** list.
6. Type a **Device Password**.
7. In the **Control Panel Access** section, select **Maximum Lock**. This prevents unauthorized users from gaining access to configuration settings.

Manage supplies

Use genuine HP print cartridges for the best printing results.

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.

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 print cartridges on page 101. To recycle the used cartridge, follow the instructions included with the new cartridge. For more information about recycling, see Return and recycling instructions on page 1139.

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

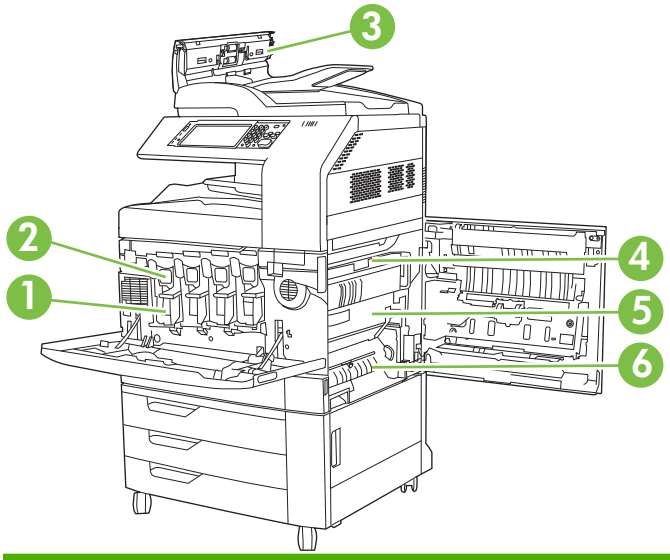
When you use genuine HP supplies, the product automatically notifies you when supplies are nearly depleted. The notification to order supplies allows ample time to order new supplies before they need to be replaced.

Locate supplies

Supplies are identified by their labeling and their blue plastic handles.

The following figure illustrates the location of each supply item.

Figure 4-1 Supply item locations



1	Image drums
2	Print cartridges
3	Document feeder kit
4	Fuser
5	Transfer unit
6	Transfer roller

Supply replacement guidelines

To facilitate the replacement of supplies, keep the following guidelines in mind when setting up the product.

- Allow sufficient space in the front and on the right side of the product for removing supplies.
- The product should be located on a flat, sturdy surface.

△ **CAUTION:** Hewlett-Packard recommends the use of genuine HP products in this product. Use of non-HP products may cause problems requiring service that is not covered by the Hewlett-Packard extended warranty or service agreements.

Approximate replacement intervals for supplies

The following table lists the estimated replacement intervals for supplies and the control panel messages that prompt when to replace each item. Usage conditions and print patterns may cause results to vary.

Item	Printer message	Page count	Approximate time period
Print cartridges	**Replace <color> Cartridge**	17,000 pages[1] for color 20,000 pages for black	4 months for color 5 months for black
Image drums	**Replace <color> Drum**	35,000 pages[1]	
Image transfer kit	**Replace Transfer Kit**	150,000 pages[2]	37 months
Image fuser kit	**Replace Fuser Kit**	100,000 pages	25 months
Roller kit	**Replace Roller Kit**	100,000 pages	25 months
Stapler cartridge	**Replace Stapler Cartridge**	5000 staples	
Booklet maker staple cartridges	**Replace Staple Cartridges 2 and 3**	2,000 booklets	
Document feeder kit	**Replace Document Feeder Kit**	60,000 pages	50 months

[1] Approximate average A4-/letter-size page count based on 2-page jobs printed from Tray 2, with 5% coverage of individual colors.

[2] Approximate life is based on 4,000 pages per month.

Change print cartridges

When a print cartridge approaches the end of its useful life, the control panel displays a message recommending that you order a replacement. The product can continue to print using the current print cartridge until the control panel displays a message instructing you to replace the cartridge.

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

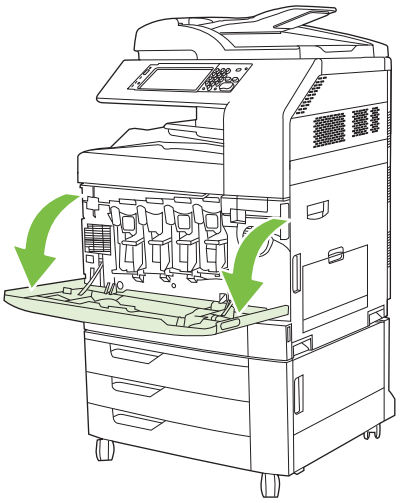
Replace a print cartridge when the control panel displays a **Replace <color> Cartridge** message. The control panel display will also indicate the color that should be replaced (if a genuine HP cartridge is currently installed). Replacement instructions are included in the print-cartridge box.

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

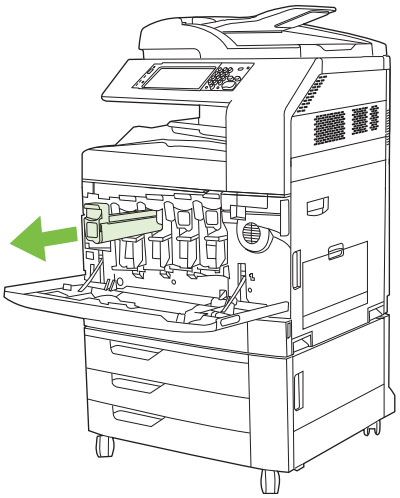
NOTE: Information about recycling used print cartridges is on the print-cartridge box.

Replace print cartridges

1. Grasp the grips on the sides of the front door and pull down to open.

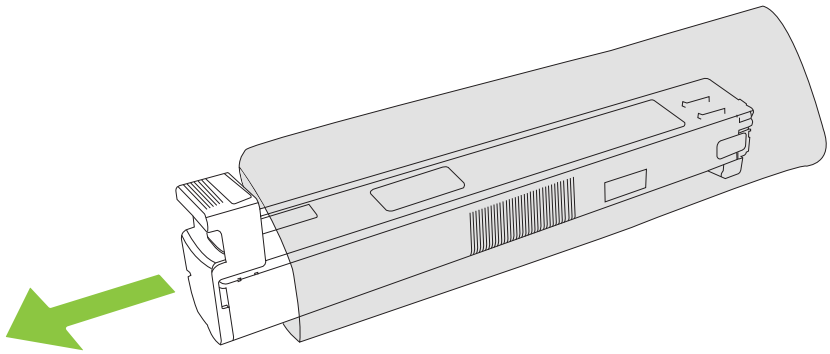


2. Grasp the handle of the used print cartridge and pull out to remove.



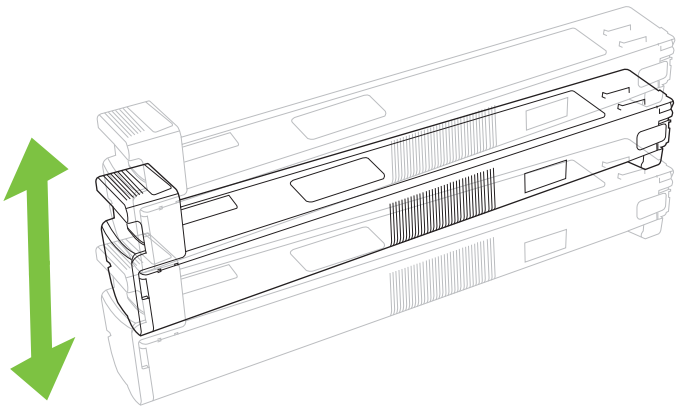
3. Store the used print cartridge in a protective bag. Information about recycling used print cartridges is on the print-cartridge box.
4. Remove additional print cartridges in the same manner.

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

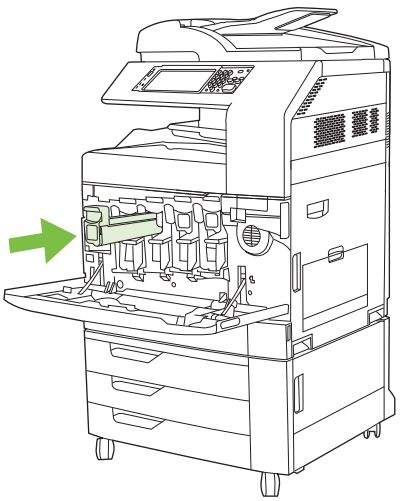


NOTE: Store the protective bag in a secure place for future use.

6. Hold both sides of the cartridge and shake up and down 5-6 times.

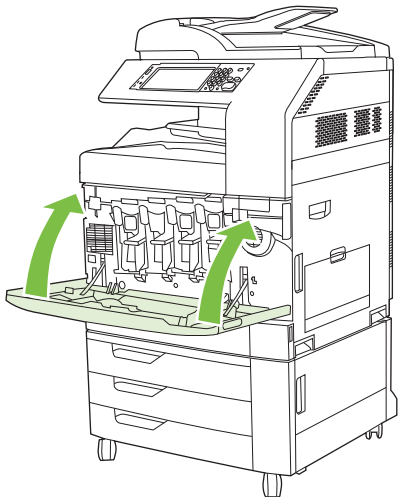


7. Align the print cartridge with its slot and insert the print cartridge until it clicks into place.



8. Insert additional print cartridges in the same manner.

9. Grasp the grips on the sides of the front door and lift up to close.



To recycle the used print cartridge, follow the instructions included with the new print cartridge.

Change image drums

When an image drum approaches the end of its useful life, the control panel displays a message recommending that you order a replacement. The product can continue to print using the current image drum until the control panel displays a message instructing you to replace the image drum.

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

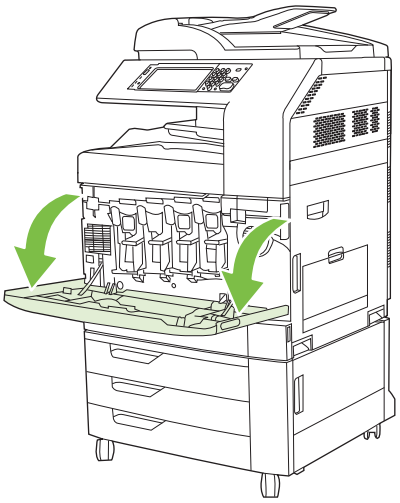
Replace an image drum when the control panel displays **Replace <color> Drum** message. The control-panel display also indicates the color that should be replaced (if a genuine HP cartridge is currently installed). Replacement instructions are included in the image drum box.

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

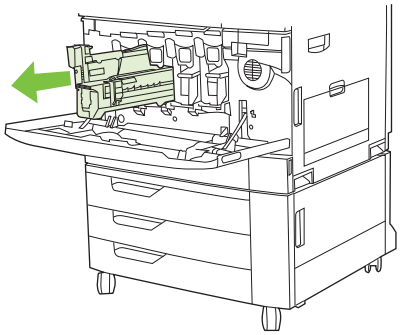
NOTE: Information about recycling used image drums is on the image drum box.

Replace image drums

1. Grasp the grips on the sides of the front door and pull down to open.



2. With one hand, lift and slowly pull the used image drum out of the product, while supporting the image drum with your other hand.

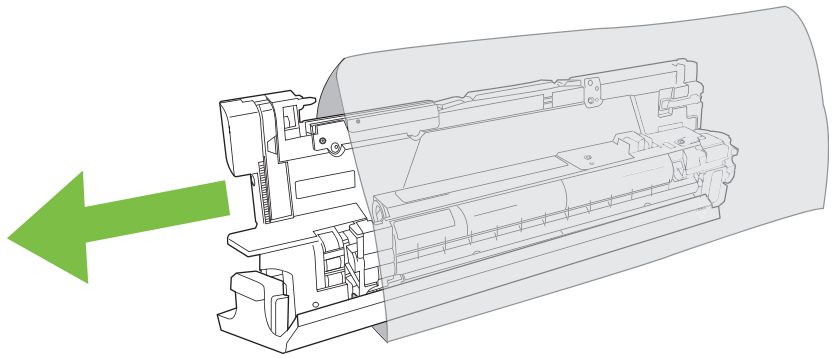


△ **CAUTION:** If reusing the same image drum, do not touch the green cylinder on the bottom of the drum because it can damage the drum.

3. Store the used image drum in a protective bag. Information about recycling used image drums is on the image drum box.

4. Remove additional image drums in the same manner.

5. Remove the new image drum from its protective bag.

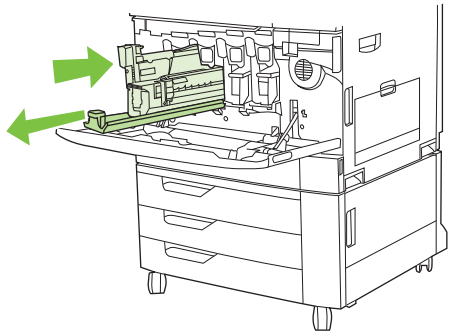


NOTE: Store protective bag in a secure place for future use.

NOTE: Do not shake the image drum.

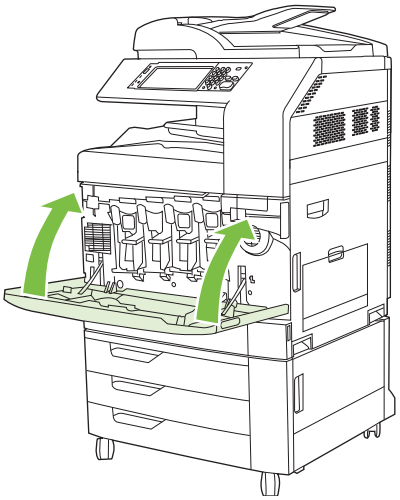
△ **CAUTION:** Do not touch the green cylinder on the bottom of the image drum because it can damage the drum.

6. Align the image drum with the correct slot and insert the image drum until it clicks into place. The gray protective cover on the bottom of the drum automatically slides off as the image drum is inserted. You can discard this cover.



7. Insert additional image drums in the same manner.

8. Grasp the grips on the sides of the front door and lift up to close.



To recycle the used image drum, follow the instructions included with the new image drum.

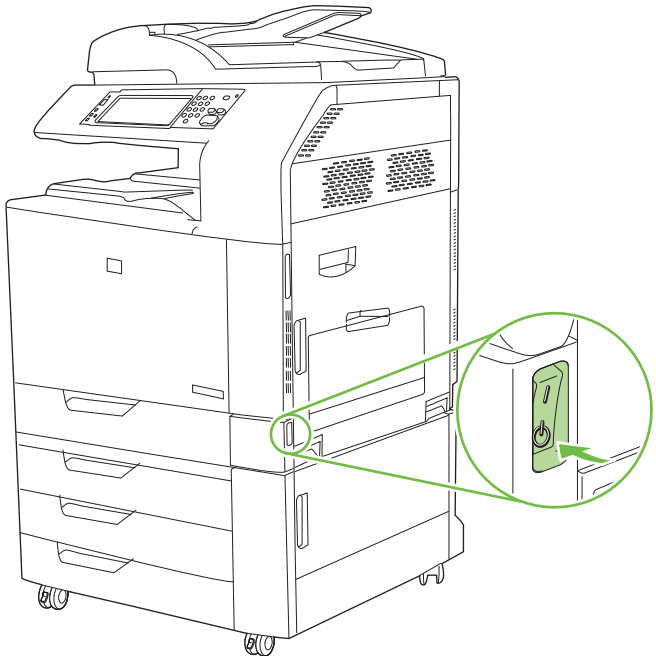
Install memory

You can install more memory for the product.

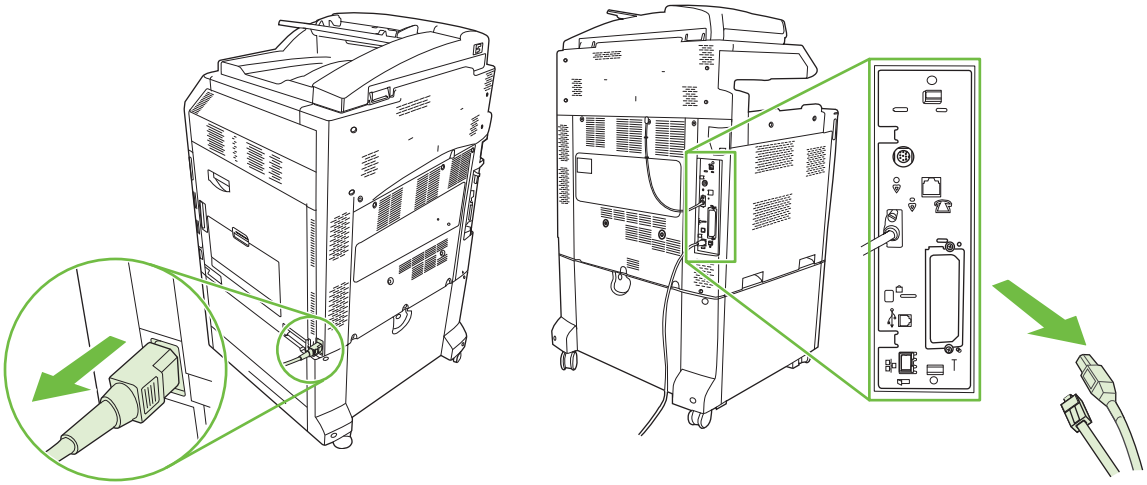
△ **CAUTION:** Static electricity can damage DIMMs. When handling DIMMs, either wear an antistatic wrist strap, or frequently touch the surface of the DIMM antistatic package and then touch bare metal on the product.

Install DDR memory DIMMs

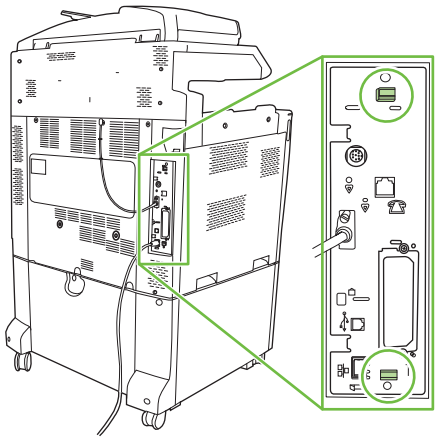
1. Turn the product off.



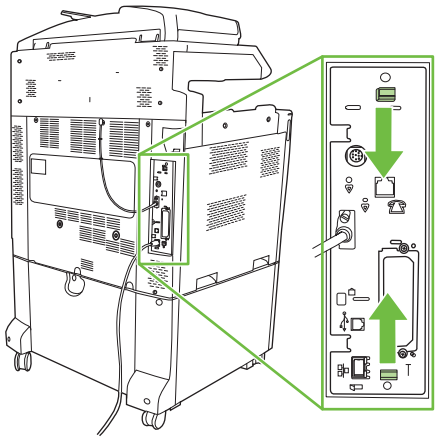
2. Disconnect all power and interface cables.



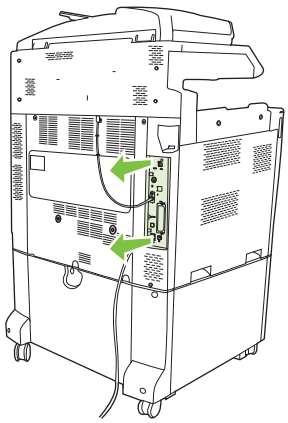
3. Locate the black formatter pressure release tabs on the formatter board in the rear of the product.



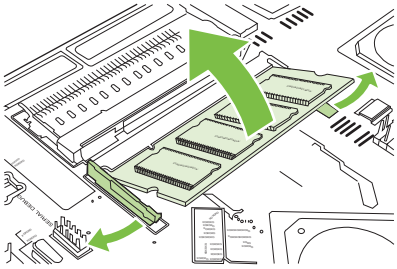
4. Gently press the black tabs toward each other.



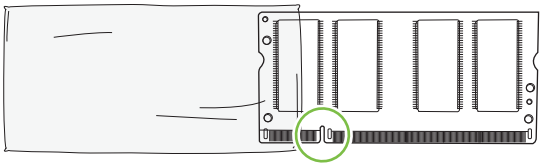
5. Gently pull on the black tabs to pull the formatter board from the product. Place the formatter board on a clean, flat, grounded surface.



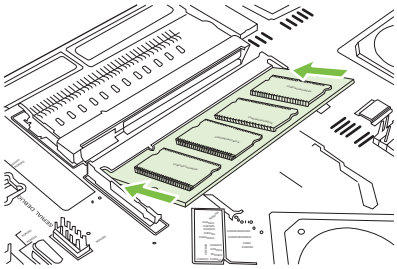
6. To replace a DIMM that is currently installed, spread the latches apart on each side of the DIMM slot, lift the DIMM up at an angle, and pull it out.



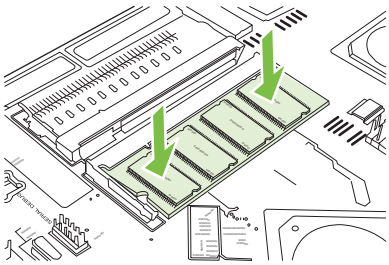
7. Remove the new DIMM from the antistatic package. Locate the alignment notch on the bottom edge of the DIMM.



8. Holding the DIMM by the edges, align the notch on the DIMM with the bar in the DIMM slot at an angle and firmly press the DIMM into the slot until it is fully seated. When installed correctly, the metal contacts are not visible.



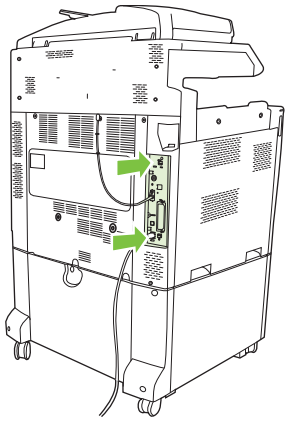
9. Push down on the DIMM until both latches engage the DIMM.



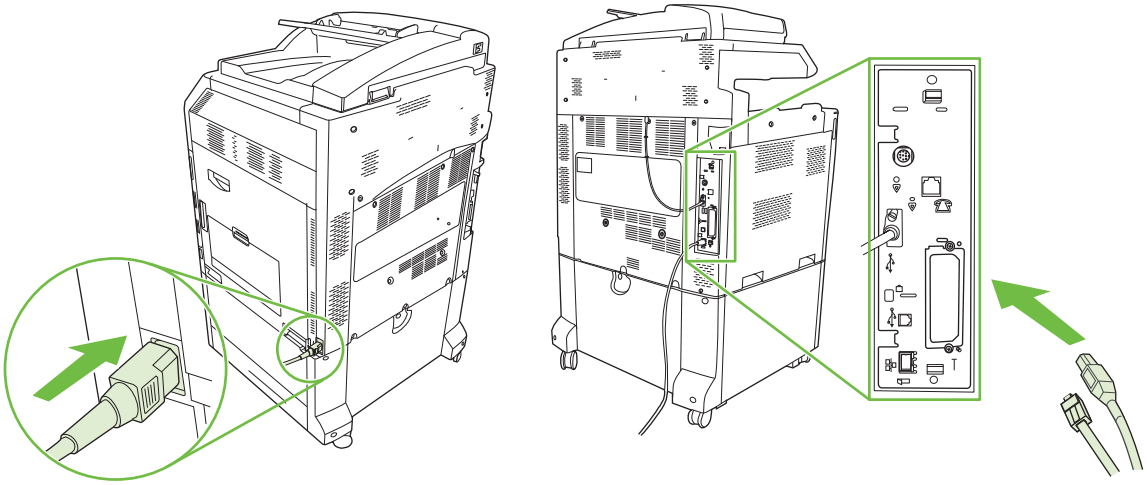
NOTE: If you have difficulty inserting the DIMM, make sure the notch on the bottom of the DIMM is aligned with the bar in the slot. If the DIMM still does not go in, make sure you are using the correct type of DIMM.

10. Align the formatter board in the tracks at the bottom of the slot, and then slide the board back into the product.

△ **CAUTION:** To prevent damage to the formatter board, ensure the formatter board is aligned in the tracks.



11. Reconnect the power cable and interface cables, and turn the product on.



12. To enable the new memory, go to Enable memory on page 110.

Enable memory

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

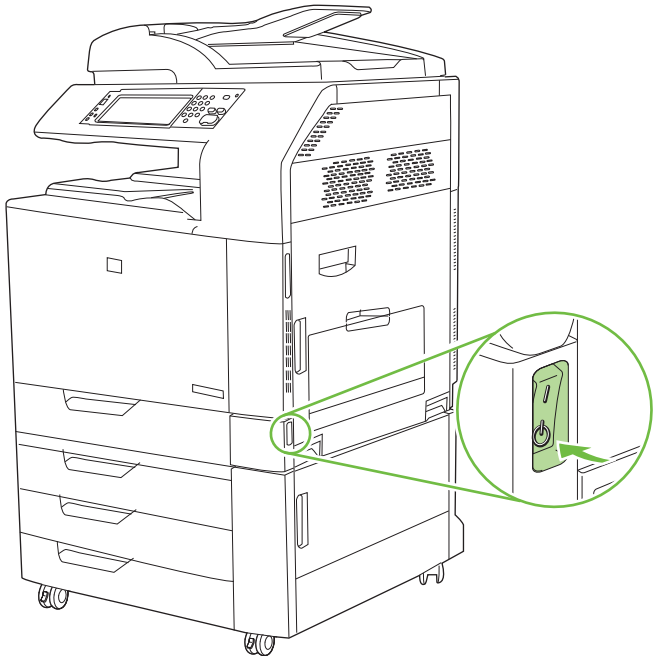
Enable memory for Windows 2000 and XP

1. On the **Start** menu, point to **Settings**, and click **Printers** or **Printers and Faxes**.
2. Right-click the product and select **Properties**.
3. On the **Device Settings** tab, click **Printer Memory** (in the **Installable Options** section).
4. Select the total amount of memory that is now installed.
5. Click **OK**.

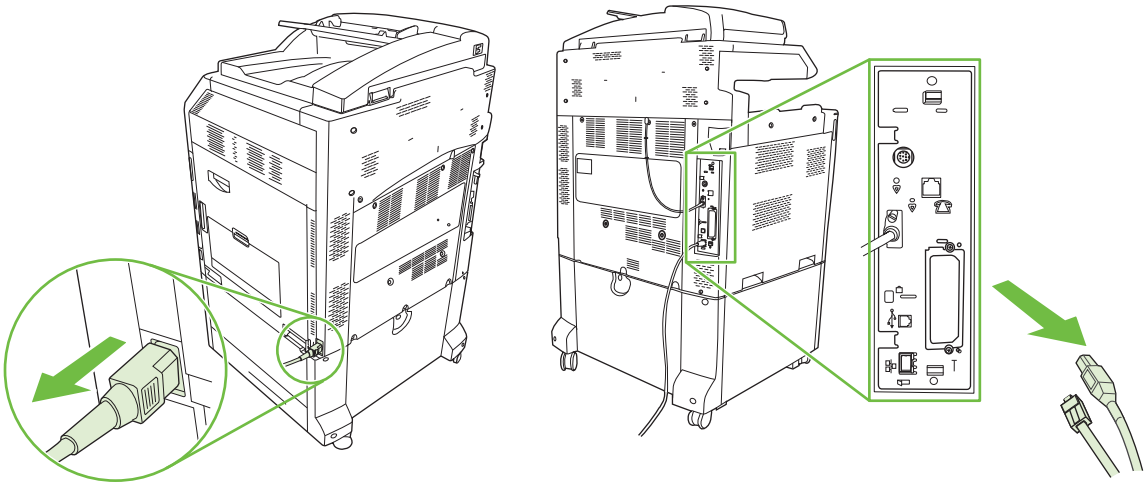
Install an HP Jetdirect or EIO print server card or EIO hard disk

The HP Color LaserJet CM6049f MFP is equipped with an embedded print server port. If desired, you can install an additional I/O card in the available EIO slot.

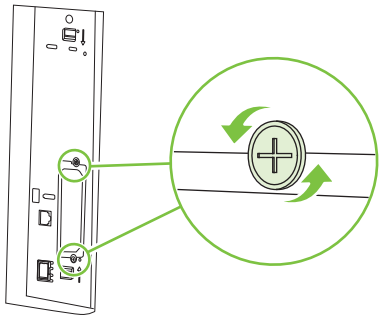
1. Turn the product off.



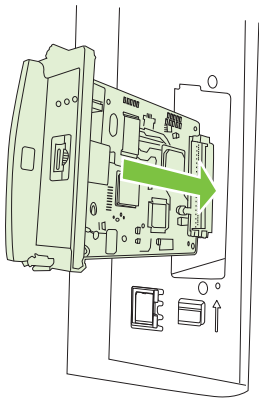
2. Disconnect all power and interface cables.



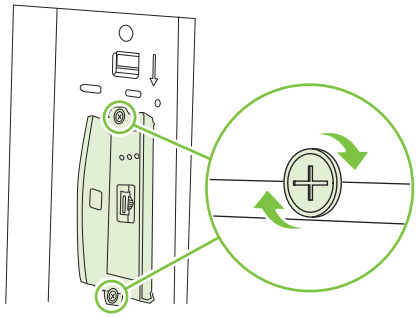
3. Locate an open EIO slot. Loosen and remove the two retaining screws holding the cover for the EIO slot, and then remove the cover. You will not need these screws and the cover again. They can be discarded.



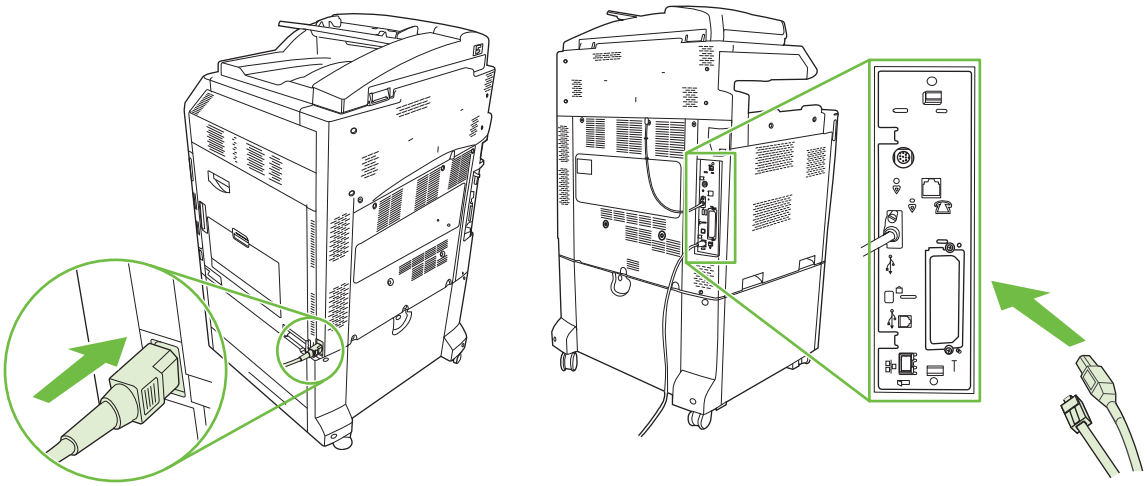
4. Firmly insert the HP Jetdirect print server card into the EIO slot.



5. Insert and tighten the retaining screws that came with the print server card.



6. Reconnect the power cable and remaining interface cables, and turn the product on.



7. Print a configuration page. In addition to a product configuration page and a Supplies Status page, an HP Jetdirect configuration page that contains network configuration and status information should also print.

   If it does not print, turn the power to the device off and uninstall and reinstall the print server card to ensure that it is completely seated in the slot.

8. Perform one of these steps:

   - Choose the correct port. See the computer or operating system documentation for instructions.
   - Reinstall the software, choosing the network installation this time.

Replace the staple cartridge

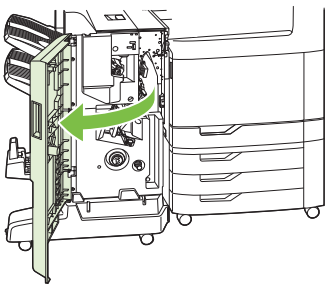
If the optional HP 3-bin Stapler/Stacker Accessory or HP Booklet Maker/Finisher Accessory runs out of staples while it is stapling a print job, the product automatically stops, if set to stop when out. If the product is set to continue when out, the product will continue to print without stapling.

NOTE: Only replace the staple cartridge unit when the stapler/stacker or booklet maker has run out of staples. Removing the staple cartridge at other times can cause an error to occur.

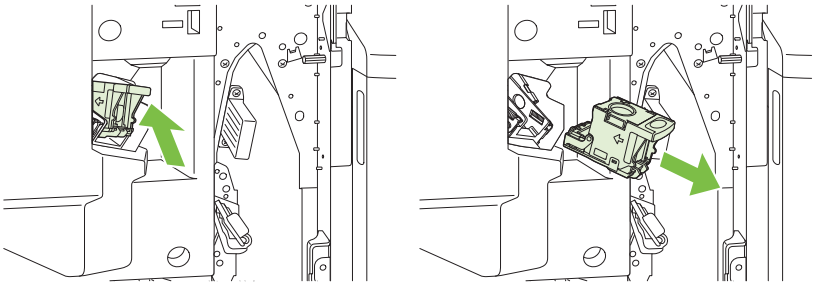
NOTE: When the stapler/stacker or booklet maker runs out of staples, the stapler unit will return to its default position automatically.

Replace the staple cartridge

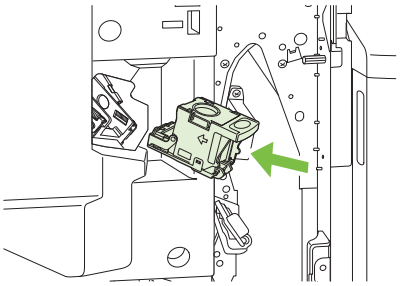
1. Open the front door of the booklet maker or stapler/stacker.



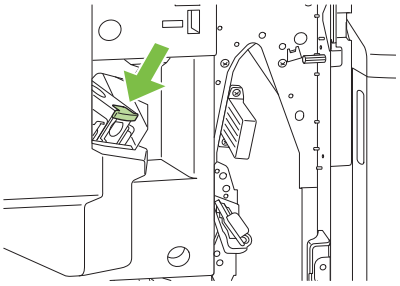
2. Push up to on the staple cartridge to remove it from the booklet maker or stapler/stacker.



3. Insert the replacement staple cartridge unit into the stapler unit.



4. Push the staple cartridge unit into the stapler unit until it clicks into position.

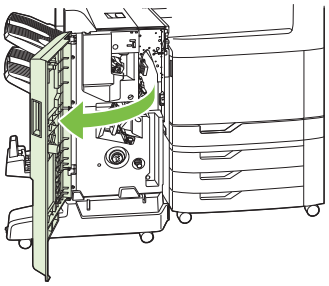


5. Close the front door.

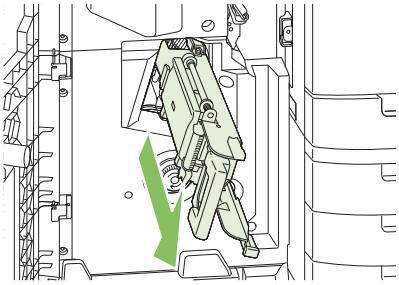


Replace saddle stitch staple cartridges in the booklet maker

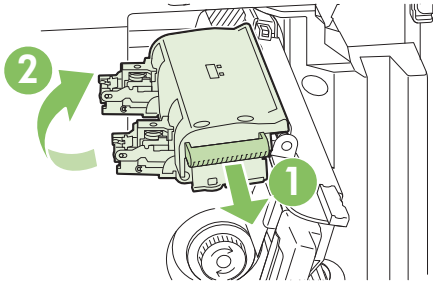
1. Open the front door of the booklet maker.



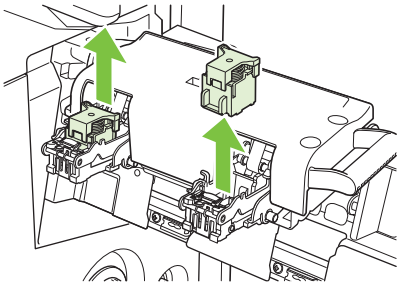
2. Grasp the blue handle and pull the staple carriage out of the booklet maker.



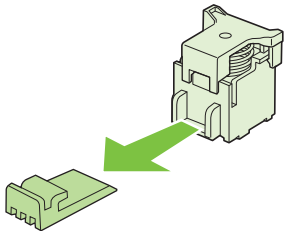
3. Grasp the small blue handle on the staple cartridge unit and pull it toward you, then swing the staple cartridge unit into an upright position.



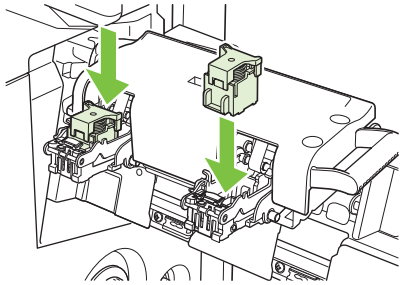
4. Grasp the edges of each staple cartridge and pull up firmly to remove the staple cartridges from the staple cartridge unit.



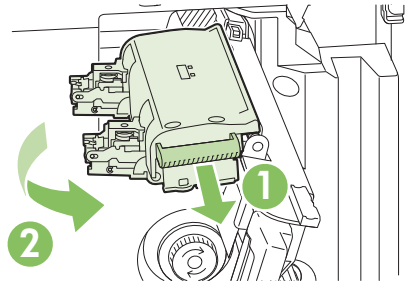
5. Unpack the new cartridges and remove the plastic packing lock from each one.



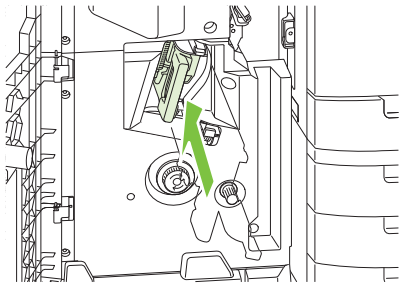
6. Hold the new cartridges so that the arrows on the cartridges align with the arrows on the staple cartridge unit and insert them into the unit.



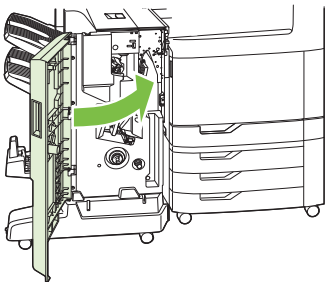
7. Pull the handle of the staple cartridge unit toward you and rotate it downward to its original position. Lock it into position by pushing in the handle.



8. Push the staple carriage back into the booklet maker finisher.



9. Close the front door of the booklet maker.



Clean the product

To maintain print quality, clean the product thoroughly every time you replace the print cartridge and whenever print-quality problems occur.

⚠ **WARNING!** Avoid touching the fusing area when cleaning the product. It can be hot.

△ **CAUTION:** To avoid permanent damage to the print cartridge, do not use ammonia-based cleaners on or around the product except as directed.

Clean the outside of the product

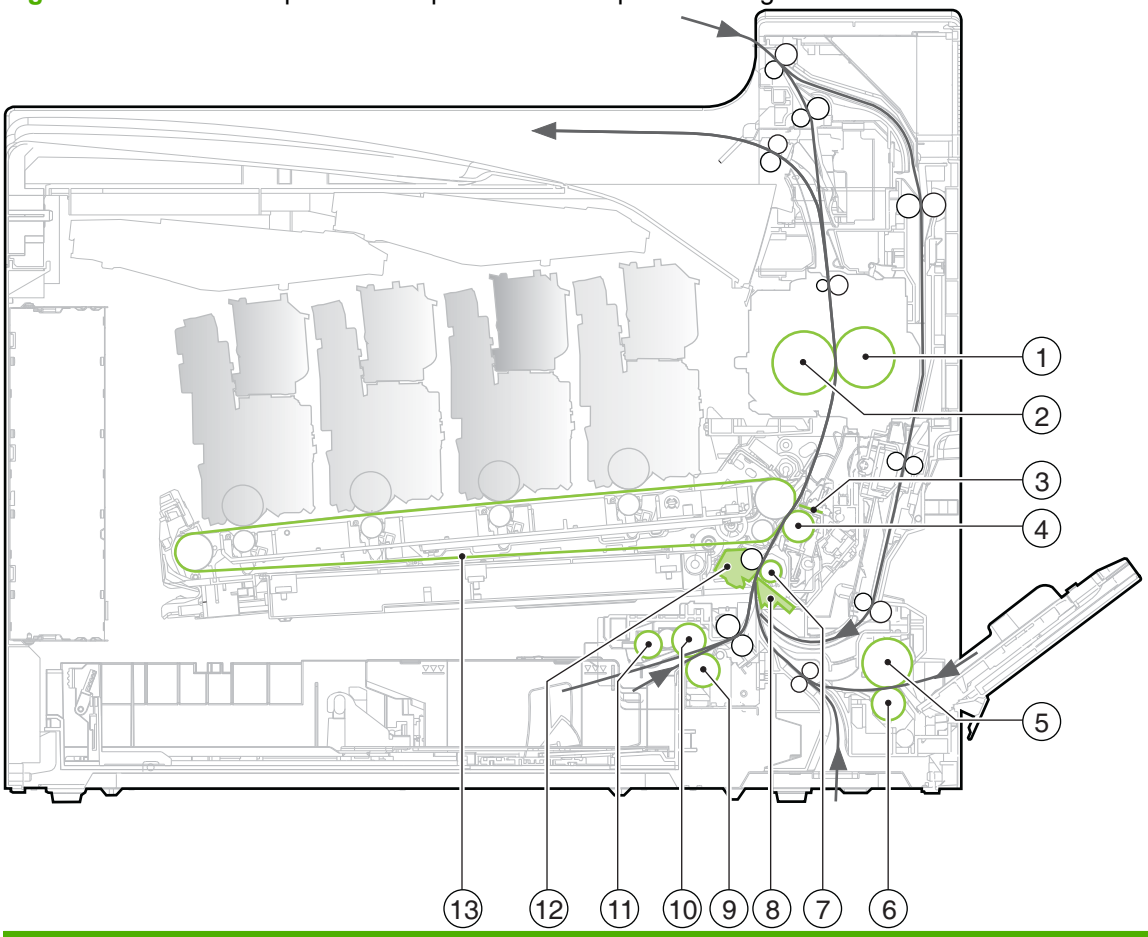
- Clean the outside of the product if it is visibly marked.
- Use a soft, lint-free cloth dampened with water, or water and a mild detergent.

Clean the product interior

Component	Cleaning method
Guide for media path	Wipe with a lint-free cloth. If dirt cannot be removed, dampen the lint-free cloth with alcohol.
Pickup roller, separation roller, feed roller, MP tray pickup roller, MP tray separation roller, registration roller	Wipe with a lint-free cloth. If dirt cannot be removed, dampen the lint-free cloth with alcohol.
Static charge eliminator	Clean with the brush that is attached to the upper left of the right cover inside.

NOTE: When the secondary transfer roller unit is opened, do not touch the ITB or media sensor unit in the ITB unit, while cleaning the component.

Figure 4-2 Location of product components that require cleaning

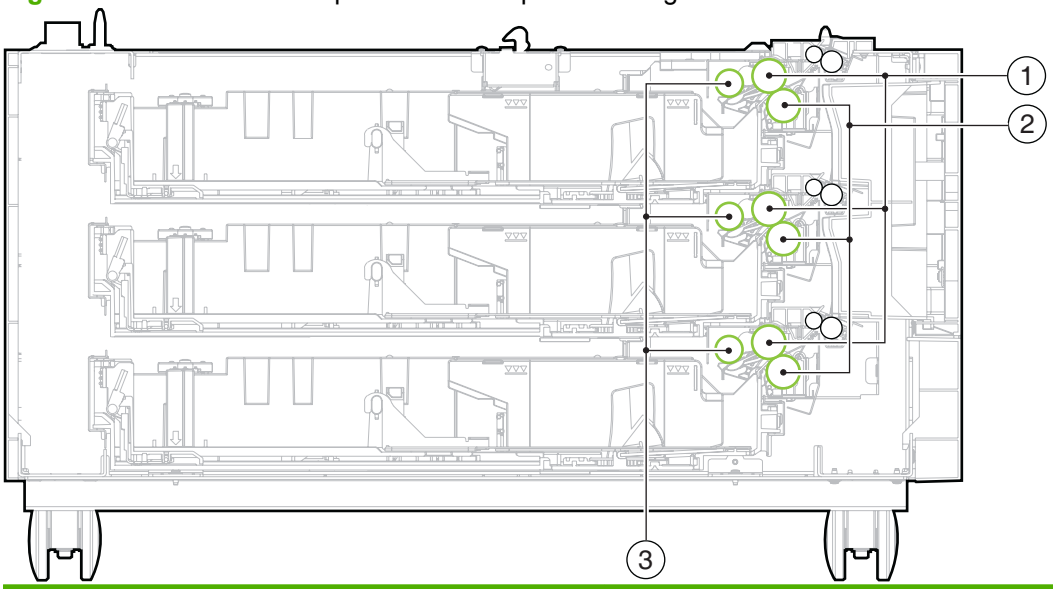


1	Pressure roller
2	Fuser roller
3	Static charge eliminator
4	Secondary transfer roller
5	MP tray pickup roller
6	MP tray separation roller
7	Front registration roller
8	Correction plate
9	Separation roller
10	Feed roller
11	Pickup roller
12	Media sensor roller
13	ITB

Clean the 3X500 sheet input tray

Component	Cleaning method
Guide for the paper path	Wipe with a lint-free cloth. If dirt cannot be removed, dampen the lint-free cloth with alcohol.
Cassette pickup roller, cassette separation roller, and cassette feed roller	Wipe with a lint-free cloth. If dirt cannot be removed, dampen the lint-free cloth with alcohol.

Figure 4-3 Location of components that require cleaning

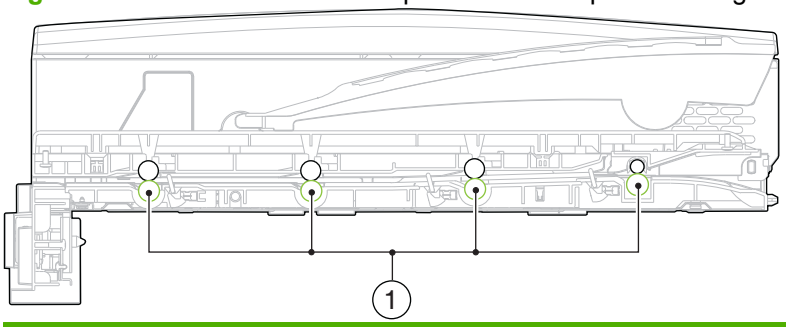


1	Cassette feed roller
2	Cassette separation roller
3	Cassette pickup roller

Clean the IPTU

Component	Cleaning method
Guide for the paper path	Wipe with a lint-free cloth. If dirt cannot be removed, dampen the lint-free cloth with alcohol.
IPTU feed roller	Wipe with a lint-free cloth. If dirt cannot be removed, dampen the lint-free cloth with alcohol.

Figure 4-4 Location of IPTU components that require cleaning



1	IPTU feed roller

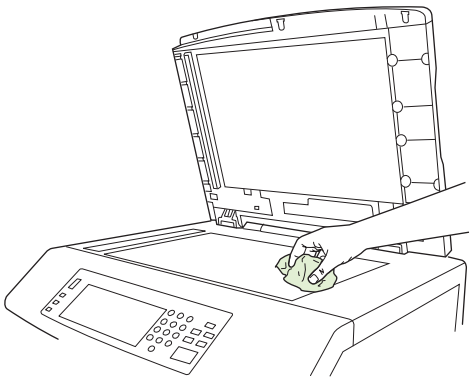
Clean the touchscreen

Clean the touchscreen whenever it is necessary to remove fingerprints or dust. Wipe the touchscreen gently with a clean, water-dampened, lint-free cloth.

△ **CAUTION:** Use water only. Solvents or cleaners can damage the touchscreen. Do not pour or spray water directly onto the touchscreen.

Clean the scanner glass

- Clean the scanner glass only if dirt is visible, or if you are experiencing a decrease in copy quality, such as streaking.
- Clean the scanner glass by wiping it gently with a clean, slightly damp, lint-free cloth. Use an ammonia-based surface cleaner only when a water-dampened cloth does not clean the scanner glass.



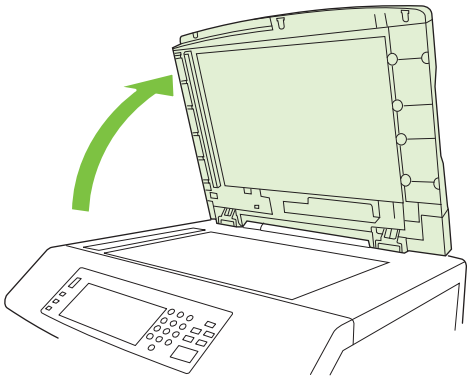
△ **CAUTION:** Do not pour or spray liquids directly onto the scanner glass. Do not press hard on the glass surface. (You could break the glass).

Cleaning the ADF delivery system

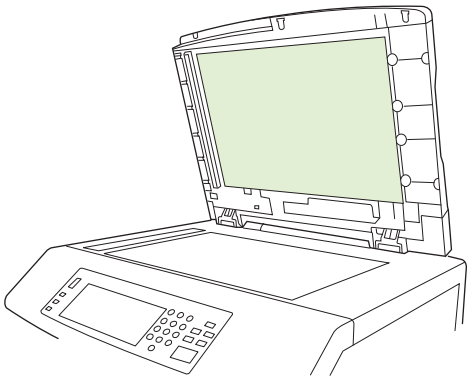
Clean the ADF only if it is visibly marked or dirty, or if you are experiencing a decrease in copy quality (such as streaking).

Clean the ADF delivery system

1. Open the scanner lid.

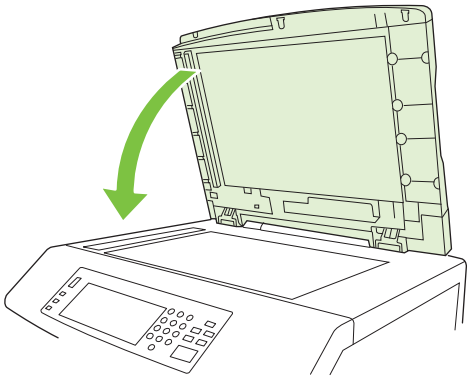


2. Locate the white, vinyl ADF backing.



3. Clean the ADF backing by wiping them with a clean, damp, lint-free cloth. Use an ammonia-based surface cleaner only when a water-dampened cloth does not clean the ADF components.
4. Clean the scanner glass by wiping it gently with a clean, slightly damp, lint-free cloth. Use an ammonia-based surface cleaner only when a water-dampened cloth does not clean the scanner glass.

5. Close the scanner lid.

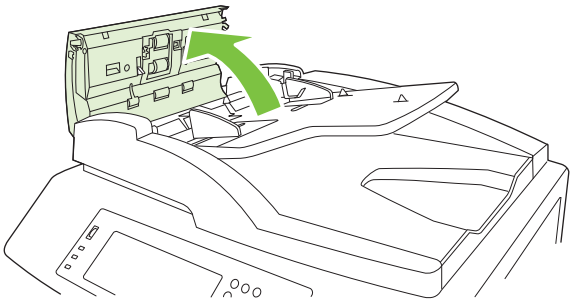


Clean the ADF rollers

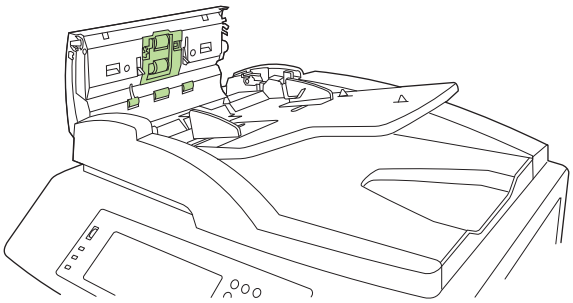
You should clean the rollers in the ADF if you are experiencing misfeeds or if your originals show marks as they exit the ADF.

△ **CAUTION:** Clean the rollers only if you experience misfeeds or marks on the originals, and you notice dust on the rollers. Cleaning the rollers frequently could introduce dust into the device.

1. Pull the release lever to open the ADF cover.



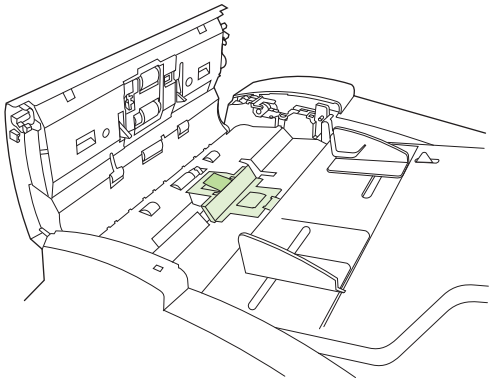
2. Locate the rollers.



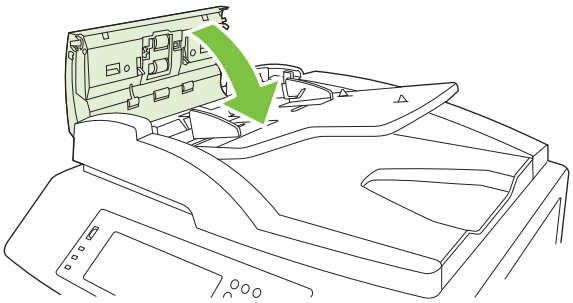
3. Wipe the rollers with a clean, water-dampened, lint-free cloth.

△ **CAUTION:** Do not pour water directly onto the rollers. Doing so might damage the device.

4. Locate the separation pad.



5. Wipe the pad with a clean, water-dampened, lint-free cloth.
6. Close the ADF cover.



ADF maintenance kit

After feeding 60,000 pages through the ADF, a **Replace Document Feeder Kit** message appears on the control-panel display. This message appears approximately one month before the kit needs to be replaced. Order a new kit when this message appears.

The ADF maintenance kit includes the following items:

- One pick-up roller assembly
- One separation pad
- An instruction sheet

Follow the instructions that come with the kit to install it.

After replacing the kit, reset the ADF maintenance-kit count.

Reset the ADF maintenance-kit count

1. On the control panel, scroll to and touch Administration.
2. Touch Resets.
3. Touch Reset Supplies.
4. Touch ADF Maintenance Kit.
5. Touch Yes.
6. Touch Save.

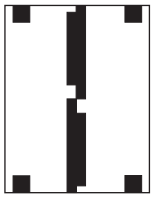
Calibrate the scanner

Calibrate the scanner to compensate for offsets in the scanner imaging system (carriage head) for ADF and flatbed scans. Because of mechanical tolerances, the scanner's carriage head might not read the position of the image accurately. During the calibration procedure, scanner offset values are calculated and stored. The offset values are then used when producing scans so that the correct portion of the document is captured.

Scanner calibration should be carried out only if you notice offset problems with the scanned images. The scanner is calibrated before it leaves the factory. It needs to be calibrated again only rarely.

Before calibrating the scanner, print the calibration target.

1. Place letter- or A4-size paper in tray 1, and adjust the side guides.
2. On the control-panel Home screen, scroll to and touch Administration.
3. Touch Troubleshooting.
4. Touch Calibrate Scanner.
5. Touch Calibrate to print the first pass of the calibration target.
6. Place the first pass of the calibration target face-down in tray 1 so that the arrows are facing into the product.
7. Touch Start to print the second pass. The final calibration target *must* look like the following figure.



△ **CAUTION:** If the calibration target does not look like the figure shown here, the calibration process will fail and the quality of scans will be degraded. *The black areas must extend completely to the short edges of the page. If they do not, use a black marker to extend the black areas to the edge of the page.* Ensure that the paper is loaded properly.

8. Place the calibration target face-up into the ADF, and adjust the side guides.
9. After the calibration target has passed through the ADF once, reposition it face down in the ADF and touch Start.
10. Place the calibration target face-down on the scanner glass, touch Start, and scan the page. After this pass, the calibration is complete.

Upgrade the firmware

The product has remote firmware update (RFU) capability. Use the information in this section to upgrade the product firmware.

Determine the current firmware version

1. From the control panel Home screen, scroll to and touch Administration.
2. Touch Information.
3. Touch Configuration/status Pages.
4. Touch Configuration Page.
5. Touch Print.

The firmware datecode is listed on the Configuration page in the section called **Device Information**. The firmware datecode has this format: YYYYMMDD XX.XXX.X. The first string of numbers is the date, where YYYY represents the year, MM represents the month, and DD represents the date. For example, a firmware datecode of that begins with `20061125` represents November 25, 2006.

Download new firmware from the HP Web site

To find the most recent firmware upgrade for the product, go to www.hp.com/go/cljcm6049mfp_firmware. This page provides instructions for downloading the new firmware version.

Transfer the new firmware to the product

NOTE: The product can receive an .RFU file update when it is in a "ready" state.

The elapsed time for an update depends on the I/O transfer time, as well as the time that it takes for the product to re-initialize. The I/O transfer time depends on a number of things, including the speed of the host computer that is sending the update. If the remote firmware update process is interrupted before the firmware is downloaded (while **Receiving Upgrade** appears on the control-panel display), the firmware file must be sent again. If power is lost during the flash DIMM update (while the **Performing Upgrade** message appears on the control-panel display), the update is interrupted and the message **Resend Upgrade** appears (in English only) on the control-panel display. In this case, you must send the upgrade by using the parallel port. Finally, any jobs that are ahead of the RFU job in the queue are completed before the update is processed.

Use FTP to upload the firmware through a browser

NOTE: The firmware update involves a change in the format of nonvolatile random-access memory (NVRAM). Any menu settings that are changed from the default settings might return to default settings and must be changed again if you want settings that are different from the defaults.

1. Print a configuration page and note the TCP/IP address shown on the EIO Jetdirect page.
2. Open a browser window.
3. In the address line of the browser, type `ftp://<ADDRESS>`, where <ADDRESS> is the address of the product. For example, if the TCP/IP address is 192.168.0.90, type `ftp://192.168.0.90`.

4. Locate the downloaded .RFU file for the product.

5. Drag and drop the .RFU file onto the **PORT1** icon in the browser window.

NOTE: The product turns off and then on automatically to activate the update. When the update process is complete, a **Ready** message displays on the product control panel.

Use FTP to upgrade the firmware on a network connection

NOTE: The firmware update involves a change in the format of nonvolatile random-access memory (NVRAM). Any menu settings that are changed from the default settings might return to default settings and must be changed again if you want settings that are different from the defaults.

1. Take note of the IP address on the HP Jetdirect page. The HP Jetdirect page is the second page that prints when you print the configuration page.

   NOTE: Before upgrading the firmware, make sure that the product is not in Sleep mode. Also make sure that any error messages are cleared from the control-panel display.

2. Open an MS-DOS command prompt on your computer.

3. Type: `ftp TCP/IP ADDRESS>`. For example, if the TCP/IP address is 192.168.0.90, type `ftp 192.168.0.90`.

4. Go to the folder where the firmware file is stored.

5. Press Enter on the keyboard.

6. When prompted for the user name, press Enter.

7. When prompted for the password, press Enter.

8. Type `bin` at the command prompt.

9. Press Enter. The message **200 Types set to I, Using binary mode to transfer files** appears in the command window.

10. Type `put` and then the file name (for example, if the file name is CM6049fmfp.efn, type `put CM6049fmfp.efn`).

11. The download process begins and the firmware is updated on the product. This can take approximately five minutes. Let the process finish without further interaction with the product or computer.

    NOTE: The product automatically turns off and then on again after processing the upgrade.

12. At the command prompt, type: `bye` to exit the ftp command.

13. At the command prompt, type: `exit` to return to the Windows interface.

Use HP Web Jetadmin to upgrade the firmware

This procedure requires that you install HP Web Jetadmin Version 7.0 or later on your computer. Complete the following steps to update a single device through HP Web Jetadmin after downloading the .RFU file from the HP Web site.

NOTE: HP Web Jetadmin 10.0 or later is required for full support of this product.

1. Start HP Web Jetadmin.
2. Open the **Device Management** folder in the drop-down list in the **Navigation** panel. Navigate to the **Device Lists** folder.
3. Expand the **Device Lists** folder and select **All Devices**. Locate the product in the list of devices, and then click to select it.

   If you need to upgrade the firmware for multiple HP Color LaserJet CM6049f MFP products, select all of them by pressing the Ctrl key as you click the name of each product.
4. Locate the drop-down box for **Device Tools** in the upper-right corner of the window. Select **Update Printer Firmware** from the action list.
5. If the name of the .RFU file is not listed in the **All Available Images** box, click **Browse** in the **Upload New Firmware Image** dialog box and navigate to the location of the .RFU file that you downloaded from the Web at the start of this procedure. If the filename is listed, select it.
6. Click **Upload** to move the .RFU file from your hard drive to the HP Web Jetadmin server. After the upload is complete, the browser window refreshes.
7. Select the .RFU file from the **Printer Firmware Update** drop-down menu.
8. Click **Update Firmware**. HP Web Jetadmin sends the selected .RFU file to the product. The control panel shows messages that indicate the progress of the upgrade. At the end of the upgrade process, the control panel shows the **Ready** message.

Use MS-DOS commands to upgrade the firmware

To update the firmware by using a network connection, follow these instructions.

1. From a command prompt or in an MS-DOS window, type the following: `copy /B FILENAME> \\COMPUTERNAME>\SHARENAME>`, where <FILENAME> is the name of the .RFU file (including the path), <COMPUTERNAME> is the name of the computer from which the product is being shared, and <SHARENAME> is the product share name. For example: `C:\>copy /b C:\9200fW.RFU \\YOUR_SERVER\YOUR_COMPUTER`.

   NOTE: If the file name or path includes a space, you must enclose the file name or path in quotation marks. For example, type: `C:\>copy /b "C:\MY DOCUMENTS\3500FW.RFU" \\YOUR_SERVER\YOUR_COMPUTER`.
2. Press Enter on the keyboard. The control panel shows a message that indicates the progress of the firmware upgrade. At the end of the upgrade process, the control panel shows the **Ready** message . The message **One File Copied** appears on the computer screen.

Use the HP Jetdirect firmware

The HP Jetdirect network interface in the product has firmware that can be upgraded separately from the product firmware. This procedure requires that you install HP Web Jetadmin Version 7.0 or later on

your computer. See Use HP Web Jetadmin software on page 96. Complete the following steps to update the HP Jetdirect firmware by using HP Web Jetadmin.

1. Open the HP Web Jetadmin program.
2. Open the **Device Management** folder in the drop-down list in the **Navigation** panel. Navigate to the **Device Lists** folder.
3. Select the device that you want to update.
4. In the **Device Tools** drop-down list, select **Jetdirect Firmware Update**.
5. Under **Jetdirect firmware version** the HP Jetdirect model number and current firmware version are listed. Make a note of these.
6. Go to www.hp.com/go/wja_firmware.
7. Scroll down to the list of HP Jetdirect model numbers and find the model number you wrote down.
8. Look at the current firmware version for the model, and see if it is later than the version you wrote down. If it is, right-click on the firmware link, and follow the instructions on the Web page to download the new firmware file. The file must be saved into the <drive>:\PROGRAM FILES \HP WEB JETADMIN\DOC\PLUGINS\HPWJA\FIRMWARE\JETDIRECT folder on the computer that is running the HP Web Jetadmin software.
9. In HP Web Jetadmin, return to the main device list and select the digital sender again.
10. In the **Device Tools** drop-down list, select **Jetdirect Firmware Update** again.
11. On the HP Jetdirect firmware page, the new firmware version is listed under **Jetdirect Firmware Available on HP Web Jetadmin**. Click the **Update Firmware Now** button to update the Jetdirect firmware.

Set the real-time clock

Use the real-time clock feature to set the date and time settings. The date and time information is attached to stored print, fax, and digital-send jobs, so you can identify the most recent versions of stored print jobs.

Set the date format

1. On the control panel, scroll to and touch Administration.
2. Touch Time/Scheduling.
3. Touch Date/Time.
4. Touch Date Format.
5. Touch the desired format.
6. Touch Save.

Set the date

1. On the control panel, scroll to and touch Administration.
2. Touch Time/Scheduling.
3. Touch Date/Time.
4. Touch Date.
5. Touch the appropriate options to set the correct month, date of the month, and the year.
6. Touch Save.

Set the time format

1. On the control panel, scroll to and touch Administration.
2. Touch Time/Scheduling.
3. Touch Date/Time.
4. Touch Time Format.
5. Touch the appropriate format.
6. Touch Save.

Set the time

1. On the control panel, scroll to and touch Administration.
2. Touch Time/Scheduling.
3. Touch Date/Time.
4. Touch Time.

5. Touch the appropriate options to set the correct hour, minute, and AM/PM setting.
6. Touch Save.

5 Theory of operation

- Basic operation
- Formatter system
- Engine-control system
- Laser/scanner system
- Image-formation system
- Pickup, feed, and delivery system
- Jam detection
- Optional input trays
- Scanner component
- ADF

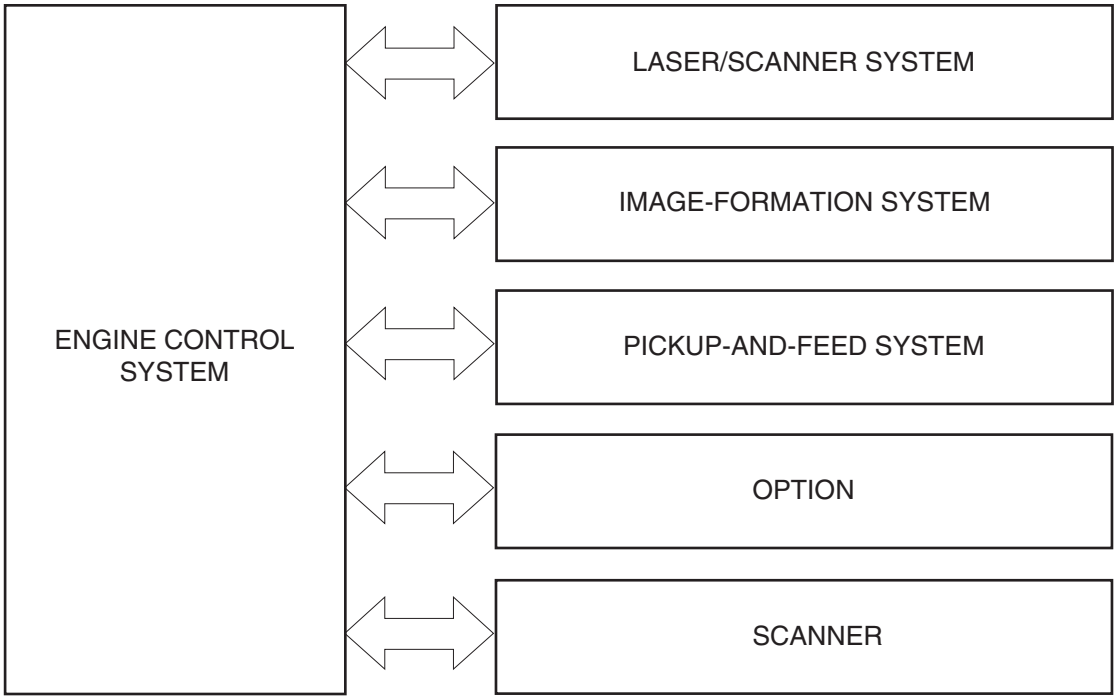
Basic operation

All high-level processes are routed through the formatter, which stores font information, processes the print image, and communicates with the host computer.

Basic product operation can be divided into the following systems:

- The engine-control system, which includes the power supply and the DC controller PCA
- The laser/scanner system, which forms the latent image on the photosensitive drum
- The image-formation system, which transfers a toner image onto the paper
- The paper pickup and feed system, which uses a system of rollers and belts to transport the paper through the product.
- Scanner and ADF functions and operations

Figure 5-1 Relationship between the main product systems



Sequence of operation

The DC controller PCA controls the operating sequence, as described in the following table. For detailed information about the timing of the processes, see General timing chart on page 635.

Table 5-1 Sequence of operation

Period	Duration	Description
Waiting	From the time the power is turned on or when the product exits Sleep mode until the product is ready for printing	• Pressurizes the fuser pressure roller • Detects the print cartridges and imaging drums • Detects the home position for the intermediate-transfer belt (ITB) and the developing unit • Cleans waste toner from the ITB
Standby	From the end of the waiting sequence or the last rotation until the formatter receives a print command or until the product is turned off	• The product is in the ready state • The product enters Sleep mode after the specified length of time • The product calibrates if it is time for an automatic calibration.
Initial rotation	From the time the formatter receives a print command until the paper enters the paper path.	• Activates the high-voltage power supply • Prepares each laser/scanner unit • Warms the fuser to the appropriate temperature
Printing	From the time the first sheet of paper enters the paper path until the last sheet has passed through the fuser	• Forms the image on the photosensitive drums • Transfers the toner to the paper • Fuses the toner image onto the paper • Performs calibration after a specified number of pages
Last rotation	From the time the last sheet of paper exits the fuser until the motors stop rotating	• Moves the last printed sheet into the output bin • Stops each laser/scanner unit • Discharges the bias from the high-voltage power supply

Formatter system

The formatter is responsible for the following procedures:

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

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

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

Sleep mode

This feature conserves power after the product has been idle for an adjustable period of time. When the product is in Sleep mode, the control-panel backlight is turned off, but the product retains all settings, downloaded fonts, and macros. The default setting is for Sleep mode to be enabled, and the product enters the Sleep mode after a 60-minute idle time. Sleep mode can also be turned off from the **Reset** menu on the control panel.

The product exits Sleep mode and enters the warm-up cycle when any of the following events occurs:

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

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

Resolution Enhancement technology (REt)

The formatter contains circuitry for Resolution Enhancement technology (REt), which modifies the standard video dot data on its way to the DC controller PCA to produce “smoothed” line edges. The REt can be turned on or off from the control panel or from some software programs. The default setting is medium.

NOTE: The REt settings that are sent from software programs or printer drivers override the control-panel settings.

Input/output

The product receives print data primarily from the embedded HP Jetdirect print server. The product also has a USB 2.0 port for connecting directly to a computer.

CPU

The formatter incorporates a 533 MHz RISC processor.

Memory

The formatter system contains the product memory, which is divided into several components. This section describes each memory component.

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

Hard disk

The product comes standard with a 50 GB hard disk. The hard disk can permanently store fonts and forms. It can also be used for making multiple original prints and for job-storage features.

Random-access memory

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

DIMM slot

The DIMM slot can be used to add memory or fonts.

Nonvolatile memory

The product uses nonvolatile memory (NVRAM) to store I/O and print-environment-configuration information. The contents of NVRAM are retained when the product is turned off or disconnected.

PJL overview

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

- Two-way communication with the host computer through a network connection or a USB connection. The product can inform the host about such things as the control-panel settings, and the control-panel settings can be changed from the host.
- Dynamic I/O switching. The product uses this switching to be configured with a host on each I/O. The product can receive data from more than one I/O simultaneously, until the I/O buffer is full. This can occur even when the product is offline.

- Context-sensitive switching. The product can automatically recognize the personality (PS or PCL) of each job and configure itself to serve that personality.
- Isolation of print environment settings from one print job to the next. For example, if a print job is sent to the product in landscape mode, the subsequent print jobs print in landscape only if they are formatted for landscape printing.

PML

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

Control panel

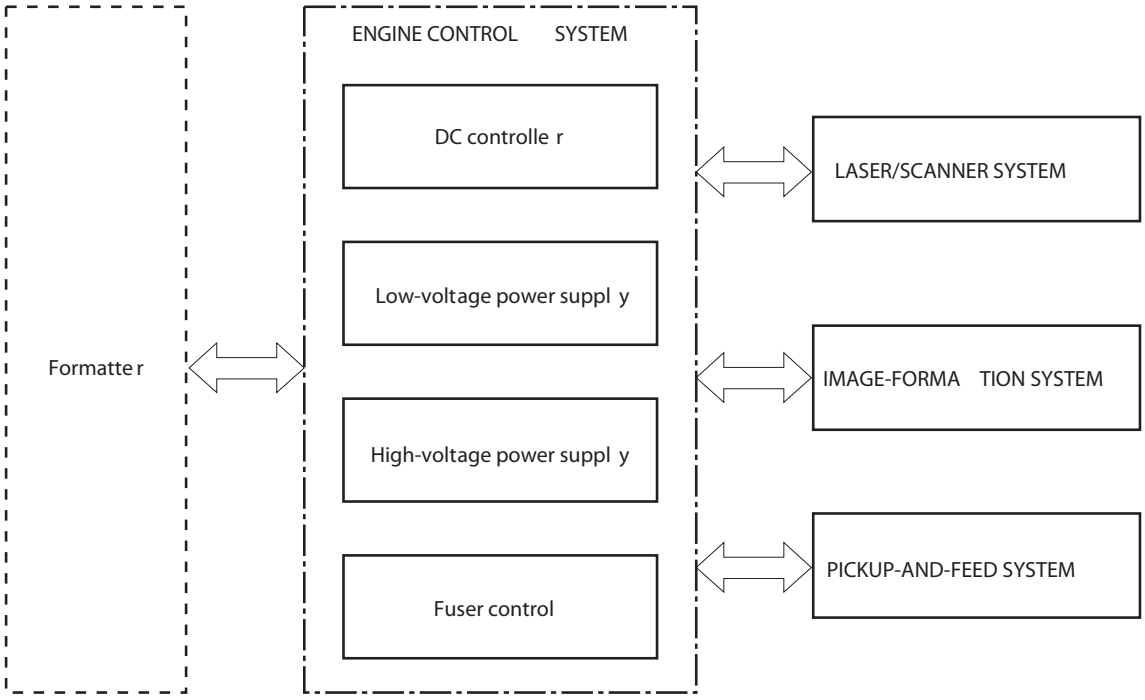
The formatter sends and receives product status and command data to and from a control-panel PCA.

Engine-control system

The engine-control system receives commands from the formatter and interacts with the other main systems to coordinate all product functions. It consists of the following components:

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

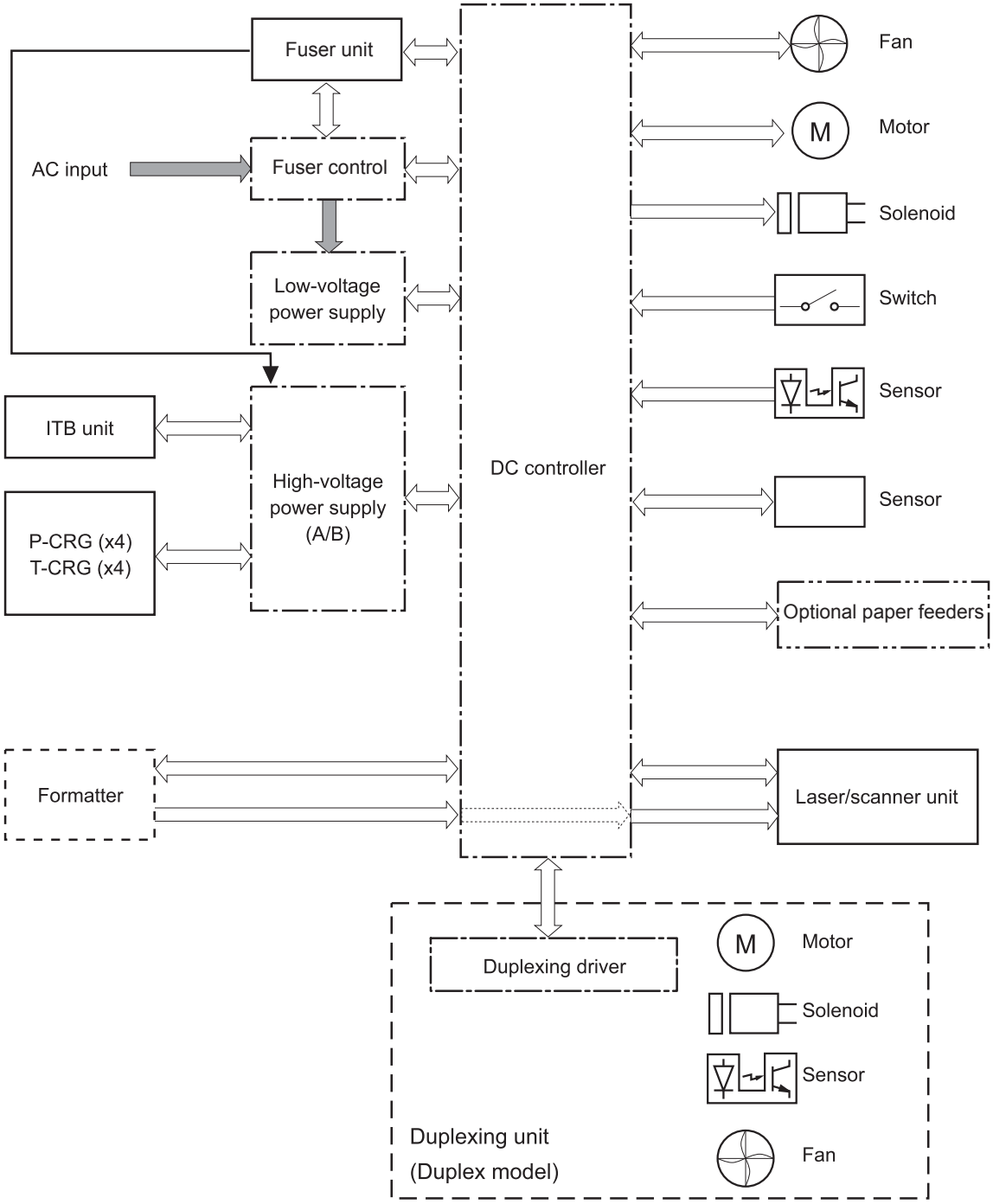
Figure 5-2 Engine-control system



DC controller

The DC controller provides operational commands to each of the product components, and it interacts with the other engine-control systems and product systems to control the product operational sequence.

Figure 5-3 DC controller block diagram



Solenoids

See Solenoids on page 621.

Table 5-2 Solenoids

Component abbreviation	Component name
SL1	Cassette pickup solenoid
SL2	Multipurpose-tray pickup solenoid
SL4	Toner-feed solenoid (yellow)
SL5	Toner-feed solenoid (magenta)
SL6	Toner-feed solenoid (cyan)
SL7	Toner-feed solenoid (black)
SL301	Duplexing-flapper solenoid (duplex models only)

Switches

See Switches on page 623.

Table 5-3 Switches

Component abbreviation	Component name
SW1	Door-open detection switch
SW4	Cassette end-plate-position detection switch
SW5	Cassette side-plate-position detection switch
SW11	Main switch
	Test print switch

Sensors

See Sensors on page 613.

Table 5-4 Sensors

Component abbreviation	Component name
CN1	Environment sensor
CS	Color sensor (duplex models only)
MS	Media sensor
	Color misregistration/image density sensor
	ITB sensor-mark detection sensor
SR0	Vertical synchronous-position sensor
SR1	Cassette media-presence sensor
SR2	Cassette media-stack surface sensor
SR4	Cassette media-level sensor
SR5	Cassette media-feed sensor
SR6	Multipurpose-tray (MP tray) media-presence sensor
SR7	MP tray media-feed sensor
SR8	MP tray last-media sensor
SR10	ITB home-position sensor
SR11	Right door-open-detection sensor
SR13	Loop sensor
SR15	Fuser-delivery media-feed sensor
SR16	Output-bin media-full sensor
SR17	Drum home-position sensor (yellow)
SR18	Drum home-position sensor (megenta)
SR19	Drum home-position sensor (cyan)
SR20	Drum home-position sensor (black)
SR21	Developing home-position sensor (yellow and magenta)
SR22	Developing home-position sensor (cyan and black)
SR23	Toner-feed-motor rotational-count sensor (yellow, magenta, and cyan)
SR24	Toner-feed-motor rotational-count sensor (black)
SR26	Fuser home-position sensor
SR31	ITB waste-toner-full sensor
SR32	Front door-open-detection sensor
SR33	Secondary-transfer-unit cover-open-detection sensor
SR34	Fuser cover-open-detection sensor

Table 5-4 Sensors (continued)

Component abbreviation	Component name
SR301	Color-sensor-disengagement sensor (duplex models only)
SR302	Duplexing media re-pickup sensor (duplex models only)
SR303	Duplexing media-feed sensor (duplex models only)
SR304	Duplexing media-reverse sensor (duplex models only)
SCN-TH1	Laser/scanner temperature sensor 1
SCN-TH2	Laser/scanner temperature sensor 2
	Print-cartridge presence sensor (yellow)
	Print-cartridge presence sensor (magenta)
	Print-cartridge presence sensor (cyan)
	Print-cartridge presence sensor (black)
	Imaging-drum waste-toner-full sensor (yellow)
	Imaging-drum waste-toner-full sensor (magenta)
	Imaging-drum waste-toner-full sensor (cyan)
	Imaging-drum waste-toner-full sensor (black)
	Imaging-drum toner-level sensor (yellow)
	Imaging-drum toner-level sensor (magenta)
	Imaging-drum toner-level sensor (cyan)
	Imaging-drum toner-level sensor (black)

Motors and fans

The product has 17 motors that drive the components in the paper-feed and image-formation systems. See Motors on page 618. It also has nine fans that cool the interior of the product. See Fans on page 612.

The DC controller can sense failure for all the fans and several of the motors. When this occurs, the DC controller notifies the formatter so it can halt the printing process and provide an alert on the control-panel display.

Table 5-5 Motors

Abbreviation	Name	Purpose	Type	Failure detection
M5	Pickup motor	Drives the cassette pickup roller, the cassette feed roller, and the MP tray pickup roller	Stepping motor	No
M6	Registration motor	Drives the registration roller	Stepping motor	No
M7	Cassette lifter motor	Drives the cassette-lifter mechanism	DC motor	No

Table 5-5 Motors (continued)

Abbreviation	Name	Purpose	Type	Failure detection
M9	Primary-transfer-roller disengagement motor	Engages or disengages the primary transfer roller	Stepping motor	No
M10	ITB motor	Drives the ITB and the secondary transfer roller	DC motor	Yes
M11	Fuser motor	Drives the fuser roller, the delivery roller, and the fuser pressure roller	DC motor	Yes
M12	Drum motor (Y)	Drives the photosensitive drum and the primary charging roller in the yellow imaging drum	DC motor	Yes
M13	Drum motor (M)	Drives the photosensitive drum and the primary charging roller in the magenta imaging drum	DC motor	Yes
M14	Drum motor (C)	Drives the photosensitive drum and the primary charging roller in the cyan imaging drum	DC motor	Yes
M15	Drum motor (K)	Drives the photosensitive drum and the primary charging roller in the black imaging drum	DC motor	Yes
M16	Toner-feed motor (K)	Drives the black toner feed screws and waste-toner feed screws	Stepping motor	No
M17	Toner-feed motor (C, M, Y)	Drives the yellow, magenta, and cyan toner feed screws and waste-toner feed screws	Stepping motor	No
M18	Developing disengagement motor (C, K)	Engages and disengages the developing rollers in the cyan- and black-imaging drums	Stepping motor	No
M19	Developing disengagement motor (Y, M)	Engages and disengages the developing rollers in the yellow- and magenta-imaging drums	Stepping motor	No
M301 Duplex models only	Duplexing feed motor	Drives the duplexing paper-feed roller	Stepping motor	No

Table 5-5 Motors (continued)

Abbreviation	Name	Purpose	Type	Failure detection
M302 Duplex models only	Duplexing reverse motor	Drives the duplexing paper-reverse roller	Stepping motor	No
M303 Duplex models only	Duplexing re-pickup motor	Drives the duplexing paper re-pickup roller and engages or disengages the color sensor	Stepping motor	No

Table 5-6 Fans

Abbreviation	Name	Cooling area	Type	Speed
FM1	Laser/scanner cooling fan	Laser/scanner area and formatter	Intake	Full/half
FM2	Fuser cooling fan	Fuser	Intake	Full/half
FM3	Cartridge-area cooling fan	Print-cartridge and imaging-drum area	Exhaust	Full
FM4	VOC fan	Fuser	Exhaust	Full/half
FM5	Low-voltage power-supply cooling fan	Low-voltage power-supply unit	Exhaust	Full/half
FM6	Cartridge front-area cooling fan	Print-cartridge and imaging-drum area	Intake	Full/half
FM7	Delivery unit cooling fan	Delivery unit	Intake	Full
FM301 Duplex models only	Duplexing unit cooling fan 1	Duplexing driver PCA	Intake	Full
FM302 Duplex models only	Duplexing unit cooling fan 2	Output bin area	Exhaust	Full/half

Fuser control

The fuser-control circuit controls the fuser temperature. The heaters provide the high temperatures that melt the toner to bond it to the paper. The thermistors and thermopiles monitor the temperature inside the fuser. The thermoswitches control the current to the heaters. If the thermistors and thermopiles

detect abnormally high temperatures, the thermoswitches interrupt the power to the heaters to prevent overheating.

Figure 5-4 Fuser components

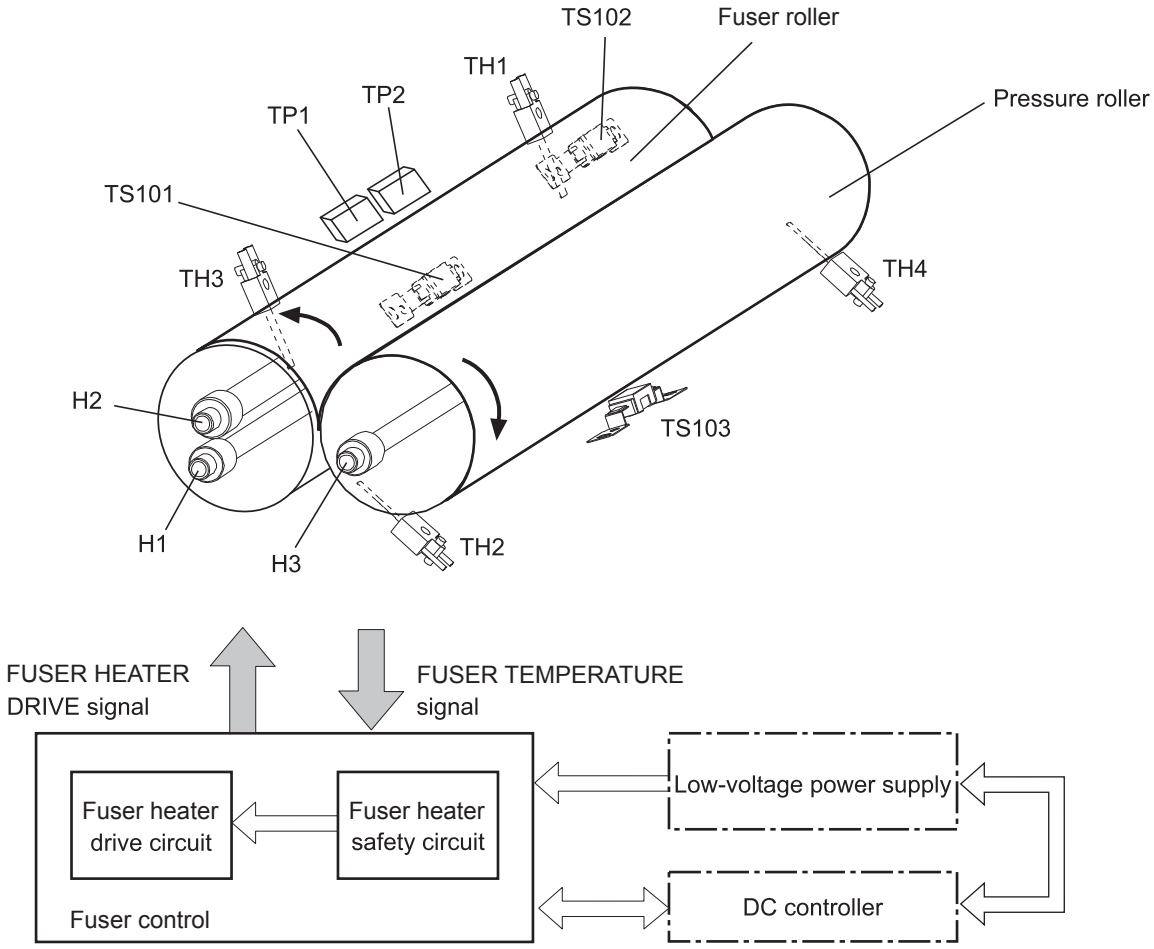


Table 5-7 Fuser components

Type of component	Abbreviation	Name	Function
Heaters	H1	Fuser-roller main heater	Heats the center area of the fuser roller
	H2	Fuser-roller sub heater	Heats both ends of the fuser roller
	H3	Pressure-roller heater	Heats the pressure roller
Thermistors (Contact type)	TH1 TH3	Fuser-roller end thermistor	Each thermistor detects the temperature on one end of the fuser roller.
	TH2 TH4	Pressure-roller end thermistor	Each thermistor detects the temperature on one end of the pressure roller.
Thermopiles (Non-contact type)	TP1	Main thermopile	Detects the temperature at the center of the fuser roller
	TP2	Sub thermopile	Detects the temperature at the center of the pressure roller

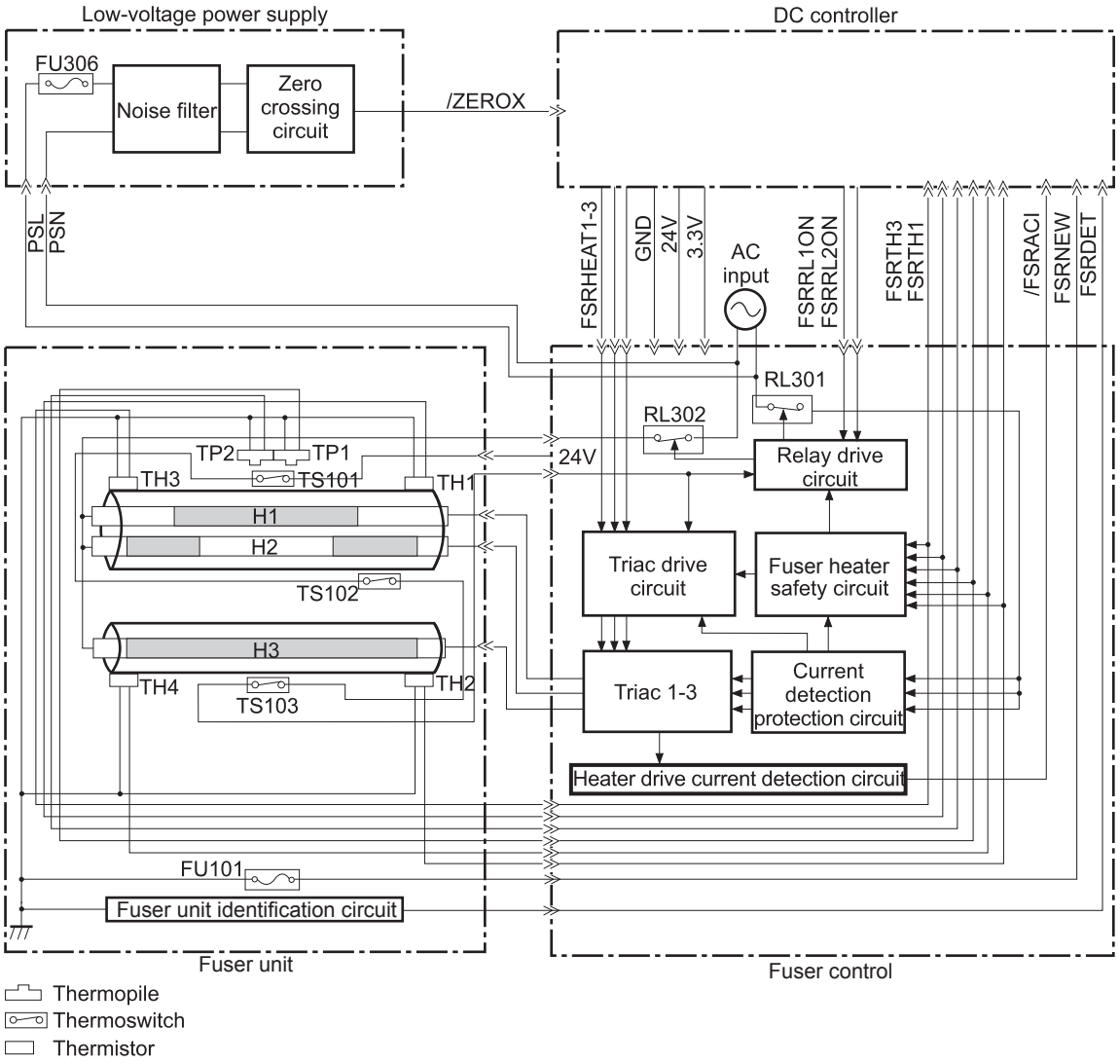
Table 5-7 Fuser components (continued)

Type of component	Abbreviation	Name	Function
Thermoswitches (Non-contact type)	TS101	Fuser-roller main thermoswitch	Controls the fuser-roller main heater
	TS102	Fuser-roller sub thermoswitch	Controls the fuser-roller sub heater
	TS103	Pressure-roller thermoswitch	Controls the pressure-roller heater

Fuser temperature-control circuit

The temperatures of the two rollers in the fuser fluctuate according to the stage of the printing process. The DC controller sends commands to the fuser-control circuit to adjust the temperatures accordingly.

Figure 5-5 Fuser temperature-control circuit



Fuser over-temperature protection

To protect the fuser from excessive temperatures, the product has four layers of protective functions. If one function fails, the subsequent functions should detect the problem.

- **DC controller**: When a thermistor or thermopile detects a temperature above a certain threshold, the DC controller interrupts power to the appropriate heater. Following are the thresholds for each component:
  - TH1: 223° C (433° F) or higher
  - TH2: 195° C (383° F) or higher
  - TH3: 223° C (433° F) or higher
  - TH4: 195° C (383° F) or higher
  - TP1: 240° C (464° F) or higher
  - TP2: 240° C (464° F) or higher
- **Fuser-heater safety circuit**: If the DC controller fails to interrupt the power to the heaters at the prescribed temperatures, the fuser-heater safety circuit deactivates the triac-drive circuit and releases the relay, which causes the heaters to stop at slightly higher temperature thresholds.
  - TH1: 230° C (446° F) or higher
  - TH2: 200° C (392° F) or higher
  - TH3: 230° C (446° F) or higher
  - TH4: 200° C (392° F) or higher
  - TP1: 250° C (482° F) or higher
  - TP2: 250° C (482° F) or higher
- **Current-detection protection circuit**: If current flowing in each triac exceeds a specific value, the current-detection protection circuit deactivates the triac-drive circuit and releases the relay, which interrupts the power supply to the heaters.
- **Thermoswitch**: If the temperature in the heaters is abnormally high, and the temperature the thermoswitches exceeds a pre-specified value, the contact to the thermoswitch is broken. Breaking this contact deactivates the triac-drive circuit and releases the relay, which interrupts the power supply to the heaters. Following are the thresholds for each thermoswitch:
  - TS101: 200° C (392° F) or higher
  - TS102: 200° C (392° F) or higher
  - TS103: 200° C (392° F) or higher

NOTE: When the thermoswitches reach this temperature, the actual temperature on the fuser rollers is approximately 370° C (698° F).

Fuser-failure detection

When the DC controller detects any of the following conditions, it determines that the fuser has failed. It then interrupts power to the fuser heaters and notifies the formatter.

- **Abnormally high temperatures**: Temperatures are too high for any of the following components, at any time:
  - TH1: 223° C (433° F) or higher
  - TH2: 195° C (383° F) or higher
  - TH3: 223° C (433° F) or higher
  - TH4: 195° C (383° F) or higher
  - TP1: 240° C (464° F) or higher
  - TP2: 240° C (464° F) or higher
- **Abnormally low temperatures**: Temperatures are too low at any of the following components after the product has initialized.
  - TH1 or TH3: 120° C (248° F) or lower
  - TP1 or TP2: 140° C (284° F) or lower

  Or, the temperature drops in either of the thermopiles (TP1 and TP2) by 30° C (86° F) or more within a specified length of time.
- **Abnormal temperature rise**: The temperature-detection sensors do not reach a predefined temperature within a specified length of time after the fuser heaters are turned on.
- **Temperature-detection-sensor failure 1**: The converted analog-to-digital value of each temperature detection sensor is abnormal.
- **Temperature-detection-sensor failure 2**: The difference in temperature between pairs of thermistors or thermopiles is greater than a predetermined amount. Following are the temperature differences for each pair:
  - Between TP1 and TP2: 20° C (68° F) or more
  - Between TH1 and TH3 (fuser-roller ends): 30° C (86° F) or more
  - Between TH2 and TH4 (pressure-roller ends): 25° C (70° F) or more
- **Drive-circuit failure**: The power-supply frequency is out of the specified range when the product is initializing or in standby mode. The specified range is between 40 and 70Hz.
- **Fuser discrepancy**: The fuser-ID voltage does not match the power-supply voltage when the product is turned on or when the right door is closed.

Fuser identification

Whenever the product is turned on or when the right door is closed, the DC controller detects whether the fuser is present and whether the fuser is for a 110-volt model or a 220-volt model.

Fuser-life detection

The fuser is rated to print a certain number of pages. When a new fuser is installed, the DC controller receives a signal and directs the formatter to set the fuser count to zero. As pages are printed, the formatter increments the fuser count. When the page count reaches a certain threshold, the formatter sends a message to the control panel to alert the customer to order a new fuser. When the maximum number of pages has printed, the formatter sends a message to the control panel to prompt the customer to replace the fuser.

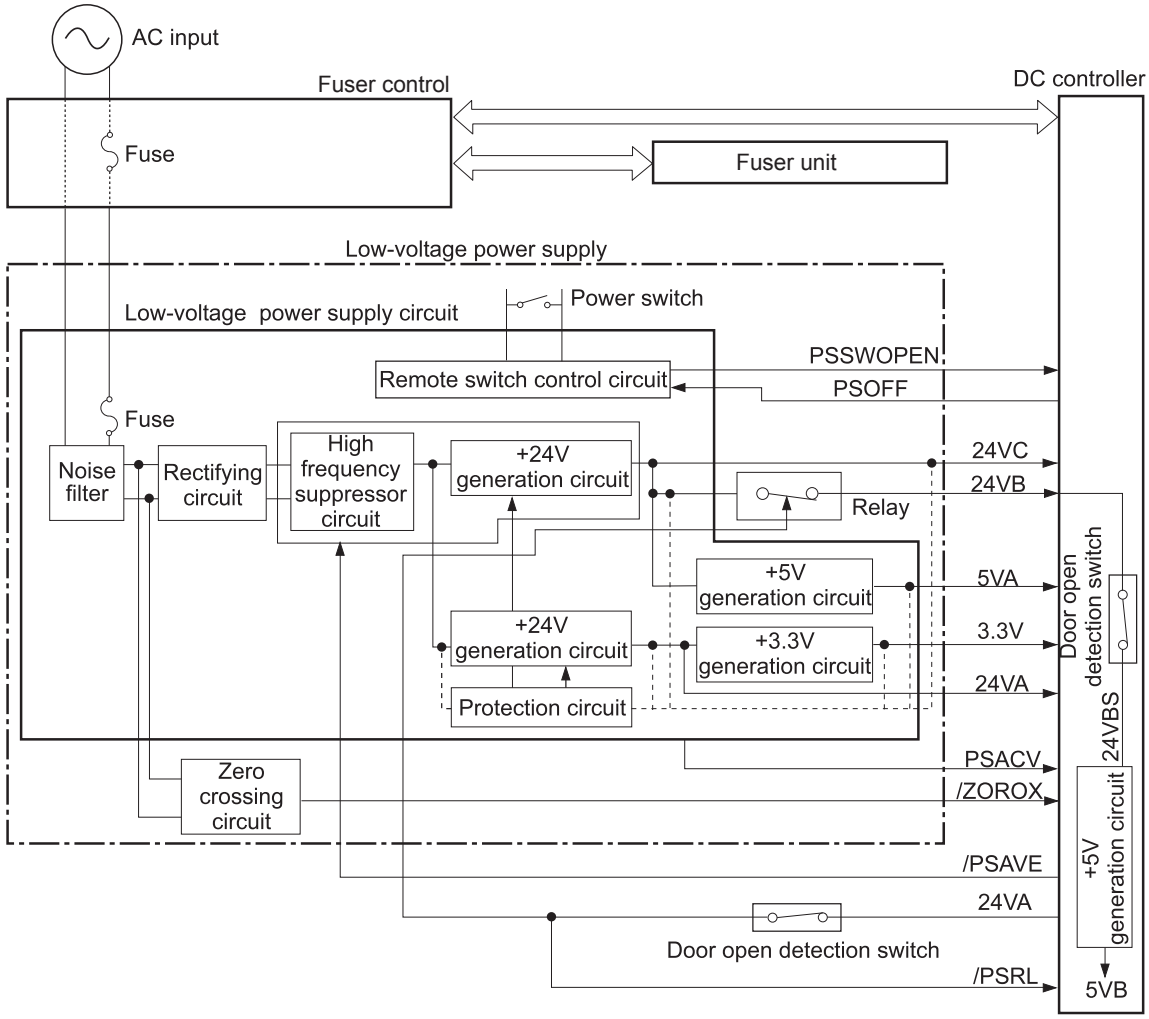
Relay-failure detection

If a fuser relay fails, the DC controller detects the failure and notifies the formatter. The DC controller checks for signals from the relays when the product is turned on or when it comes out of Sleep mode.

Low-voltage power supply

The low-voltage power-supply circuit converts the AC power from the wall receptacle into the DC voltage that the product components use. This is a universal power supply that accepts 110 Volt or 220 Volt input.

Figure 5-6 Low-voltage power-supply circuit



The low-voltage power supply converts the AC power into three DC voltages, which are then subdivided, as described in the following table.

Table 5-8 Converted DC voltages

Main DC voltage	Sub-voltage	Behavior
+24 V	+24VA	Constantly supplied
	+24VB	Interrupted when the front door or right door is opened Stopped during Sleep (powersave) mode
	+24VC	Stopped during Sleep (powersave) mode
+5 V	+5VA	Stopped during Sleep (powersave) mode
	+5VB	Interrupted when the front door or right door is opened Stopped during Sleep (powersave) mode
+3.3 V	none	Constantly supplied

Overcurrent/overvoltage protection

The low-voltage power supply stops supplying the DC voltage to the product components whenever it detects excessive current or abnormal voltage from the power source.

Safety

For personal safety, the low-voltage power supply interrupts power to the fuser, the high-voltage power supply, and the motors whenever the front door or right door is opened.

Voltage detection

The DC controller monitors the input voltage from the power source so it can control the voltage to the fuser. If the input voltage is out of range, the DC controller notifies the formatter that the low-voltage power supply has failed.

Sleep (powersave) mode

Sleep mode conserves energy by stopping the power to several components when the product is idle. If the DC controller detects voltage that is too high when the product is in Sleep mode, it determines that the low-voltage power supply has failed, and it notifies the formatter.

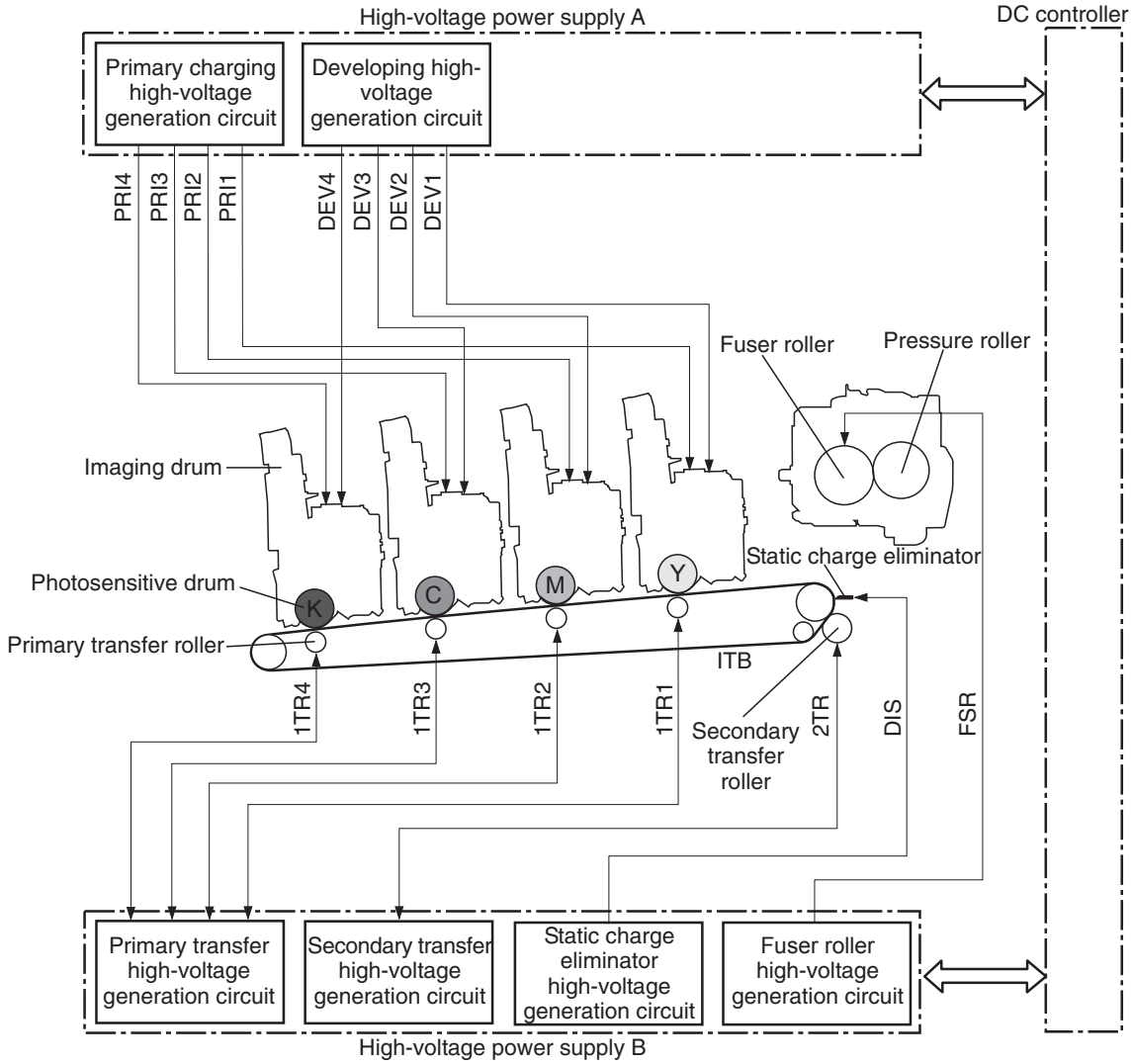
High-voltage power supply

The high-voltage power supply delivers the high-voltage biases to the following components that are used to transfer toner during the image-formation process:

- Primary-charging roller
- Developing roller

- Primary-transfer roller
- Secondary-transfer roller
- Fuser roller
- Static-charge eliminator

Figure 5-7 High-voltage power supply circuits



The high-voltage power supply contains several separate circuits.

Table 5-9 High-voltage power supply circuits

Circuit	Description
Primary-charging-bias generation	DC negative bias is applied to the surface of the photosensitive drum in each imaging drum to prepare it for image formation.
Developing-bias generation	DC negative bias is used to adhere the toner to each photosensitive drum during the image-formation process.
Primary-transfer-bias generation	DC positive bias is used to transfer the latent toner image from each photosensitive drum onto the ITB.

Table 5-9 High-voltage power supply circuits (continued)

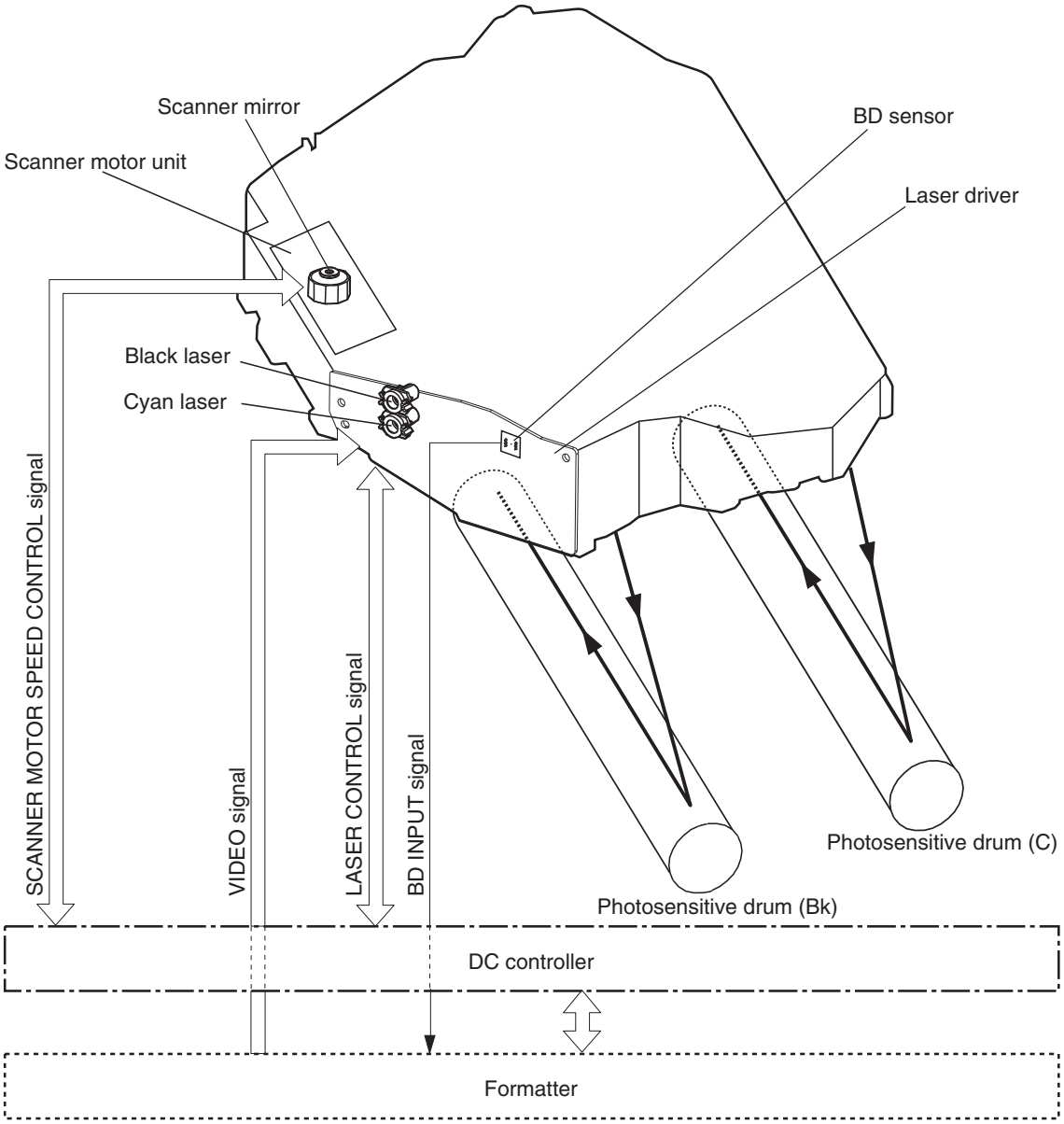
Circuit	Description
Secondary-transfer-bias generation	Two DC biases, one positive and one negative, are used to transfer the toner from the ITB onto the paper.
Static-charge-eliminator-bias generation	DC negative bias is used to reduce the electrical charge on the paper after the secondary-transfer process.
Fuser-roller-bias generation	DC negative bias is applied to the fuser roller to remove any toner that adheres to the roller after fusing.

Laser/scanner system

The laser/scanner system forms the latent electrostatic image on the photosensitive drums inside each of the imaging drums. The product has two laser/scanners: one for yellow and magenta and the other for cyan and black.

The DC controller receives instructions from the formatter regarding the image of the page to be printed. The DC controller signals the lasers to emit light, and the laser beams pass through lenses and onto the scanner mirror, which rotates at a constant speed. The mirror reflects the beam onto the photosensitive drum in the pattern required for the image, exposing the surface of the drum so it can receive toner.

Figure 5-8 Laser/scanner system



The DC controller determines that a laser/scanner has failed when any of the following conditions occurs:

- **Laser failure**: The detected laser intensity does not match a specified value when the product initializes.
- **Beam-detect (BD) failure**: The BD interval is outside of a specified range during printing.
- **Scanner-motor failure**: The scanner motor does not reach a specified rotation speed within a certain time after it begins rotating.

Image-formation system

The image-formation system creates the printed image on the paper. It consists of the laser/scanners, print cartridges, imaging drums, ITB, and fuser.

Figure 5-9 Image-formation system

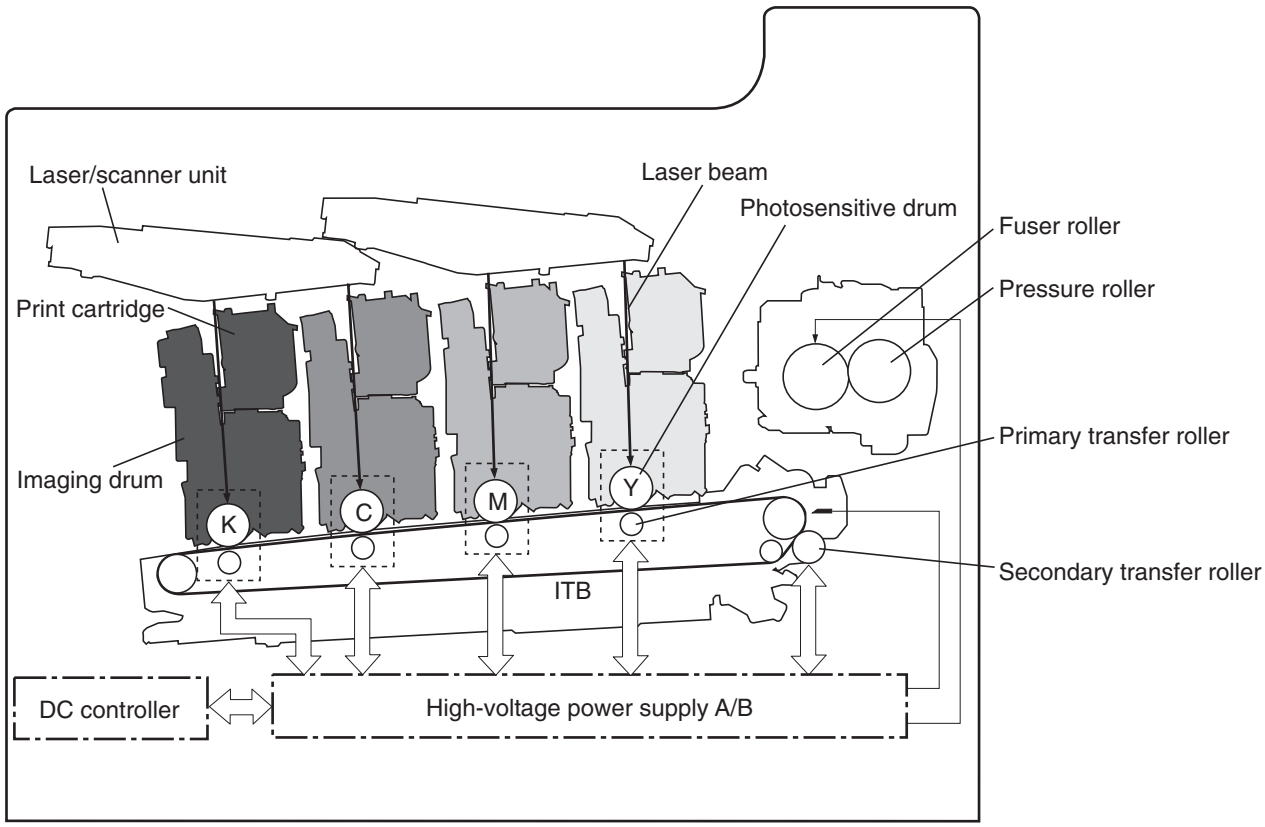
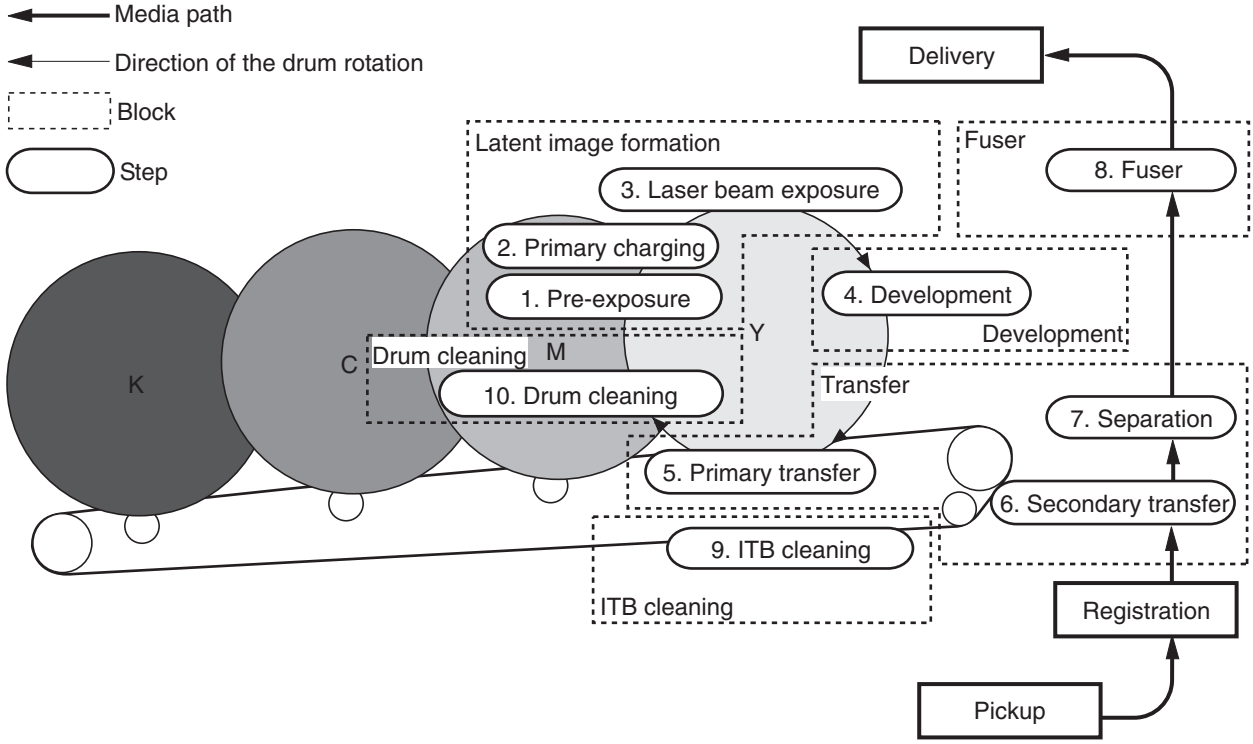


Image-formation process

The image formation system consists of ten steps that are divided into six functional blocks.

Figure 5-10 Image-formation process

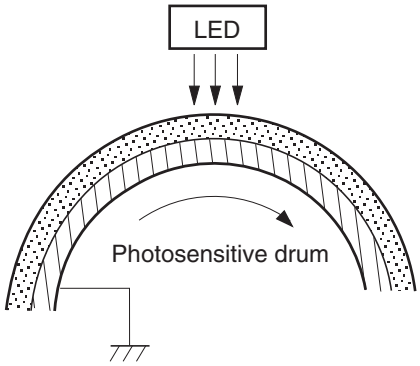


Functional block	Steps	Description
Latent image formation	1. Pre-exposure 2. Primary charging 3. Laser-beam exposure	An invisible latent image is formed on the surface of the photosensitive drums.
Development	4. Development	Toner adheres to the electrostatic latent image on the photosensitive drums.
Transfer	5. Primary transfer 6. Secondary transfer 7. Separation	The toner image is transferred to the ITB and subsequently to the paper.
Fusing	8. Fusing	The toner is fused to the paper to make a permanent image.
ITB cleaning	9. ITB cleaning	Residual toner is removed from the ITB.
Drum cleaning	10. Drum cleaning	Residual toner is removed from the photosensitive drums.

Step 1: Pre-exposure

Light from the pre-exposure LED strikes the surface of the photosensitive drum to remove any residual electrical charges from the drum surface.

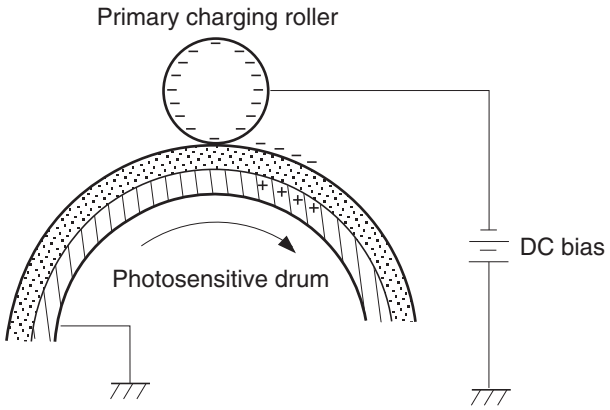
Figure 5-11 Pre-exposure



Step 2: Primary charging

The primary-charging roller contacts the photosensitive drum and charges the drum with negative potential.

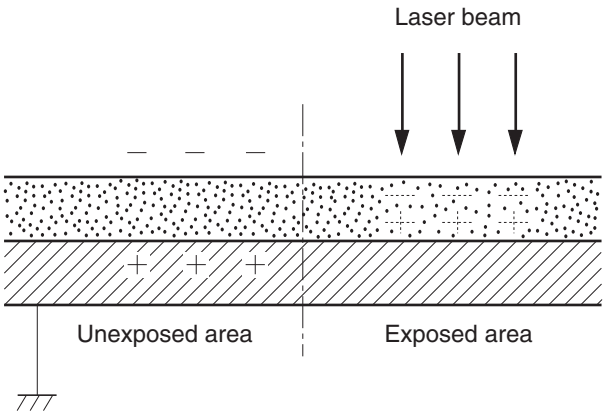
Figure 5-12 Primary charging



Step 3: Laser-beam exposure

The laser beam strikes the surface of the photosensitive drum in the areas where the image will be formed. The negative charge is neutralized in those areas, which are then ready to accept toner.

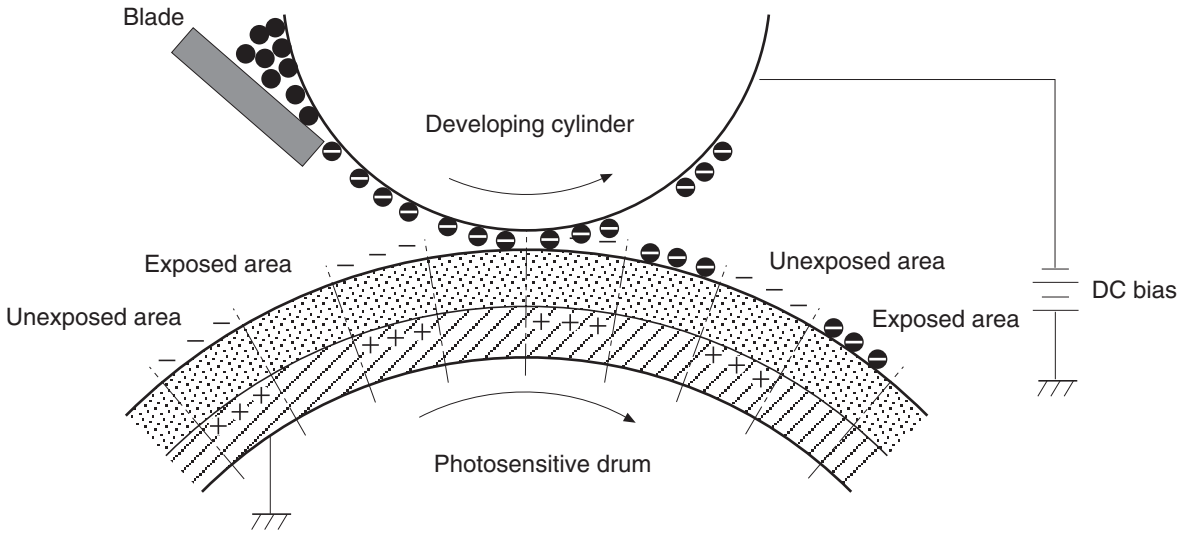
Figure 5-13 Laser-beam exposure



Step 4: Development

Toner inside the print cartridge acquires a negative charge as the developing cylinder contacts the developing blade. Because the negatively charged surface of the photosensitive drums have been neutralized where they have been struck by the laser beam, the toner adheres to those areas on the drums. The latent image becomes visible on the surface of each drum.

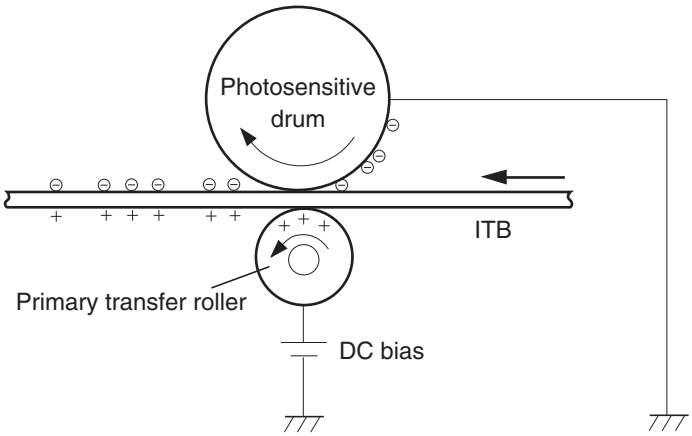
Figure 5-14 Development



Step 5: Primary transfer

The positively charged primary-transfer rollers contact the ITB, giving the ITB a positive charge. The ITB attracts the negatively charged toner from the surface of each photosensitive drum, and the complete toner image is transferred onto the ITB, beginning with yellow, then magenta, cyan, and black.

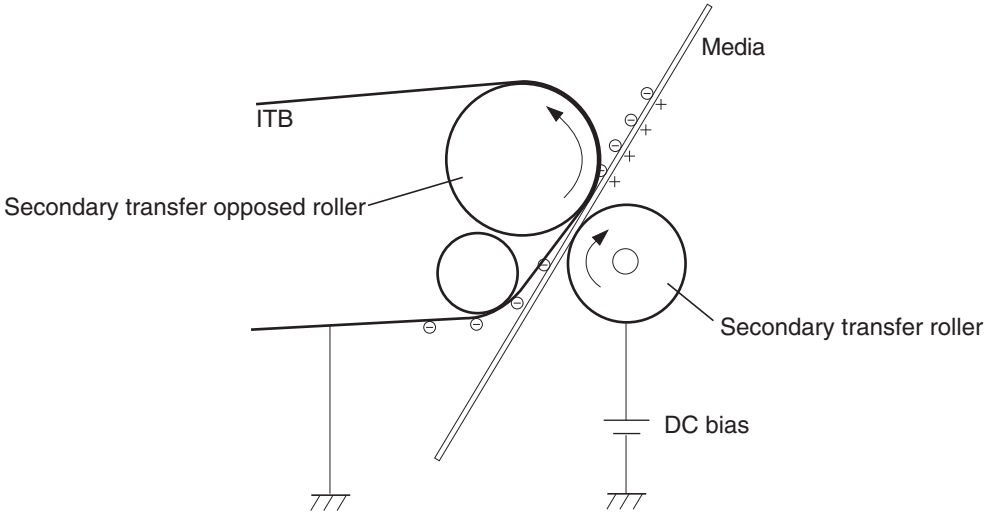
Figure 5-15 Primary transfer



Step 6: Secondary transfer

The paper acquires a positive charge from the secondary transfer roller, and so it attracts the negatively charged toner from the surface of the ITB. The complete toner image is transferred onto the paper.

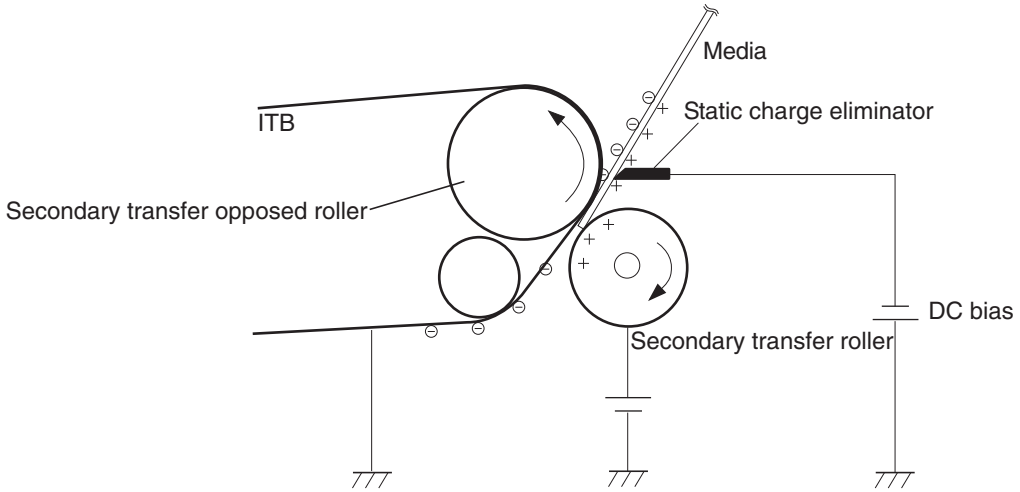
Figure 5-16 Secondary transfer



Step 7: Separation

The stiffness of the paper causes it to separate from the ITB as the ITB bends. The static charge eliminator removes excess charge from the paper to ensure that the toner is fused correctly.

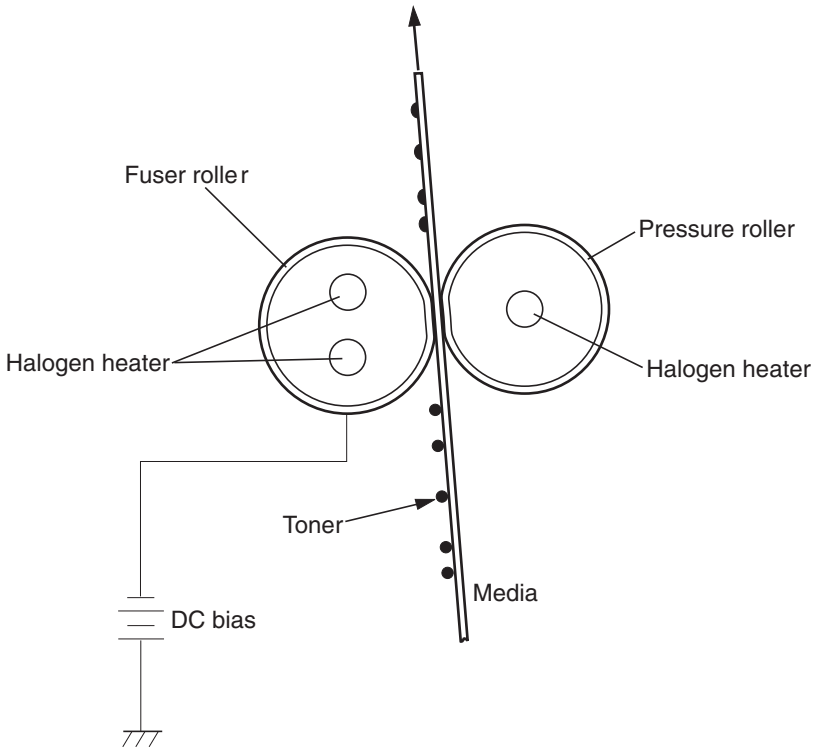
Figure 5-17 Separation



Step 8: Fusing

To create the permanent image, the paper passes through a set of heated, pressurized rollers to melt the toner onto the page. The fuser roller has a negative DC bias to prevent the negatively-charged toner from being attracted to the roller, which would decrease print quality.

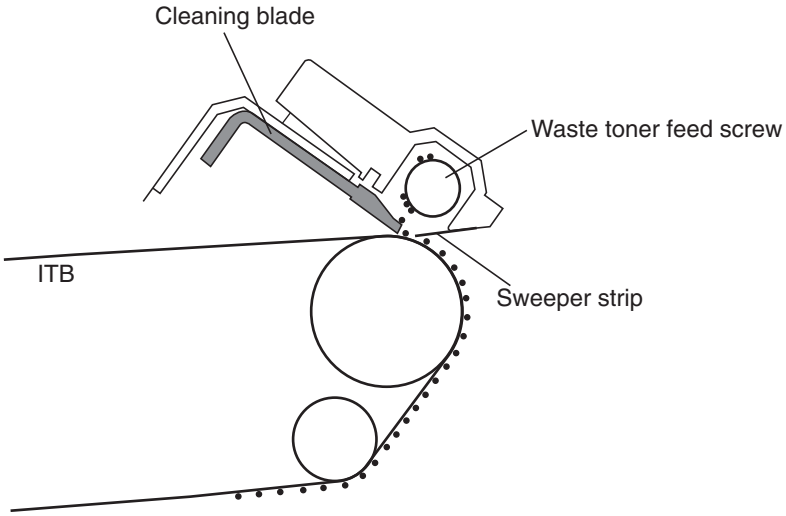
Figure 5-18 Fusing



Step 9: ITB cleaning

After the paper separates from the ITB, the cleaning blade scrapes the residual toner from the surface of the ITB, preparing it for the next image. The waste toner feed screw picks up the residual toner and deposits it in the waste toner container inside the imaging drum.

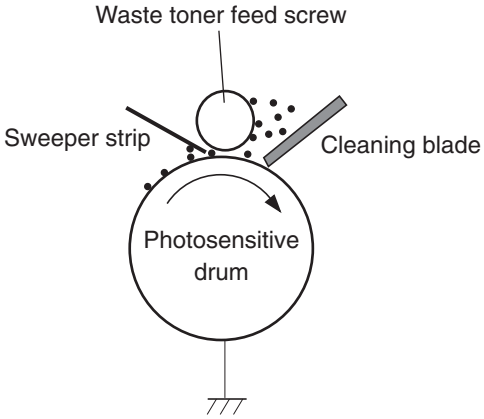
Figure 5-19 ITB cleaning



Step 10: Drum cleaning

Inside the imaging drum, the cleaning blade removes the residual toner from the surface of the photosensitive drum to prepare it for the next image. The waste toner feed screw picks up the residual toner and deposits it in the waste toner container inside the imaging drum.

Figure 5-20 Drum cleaning

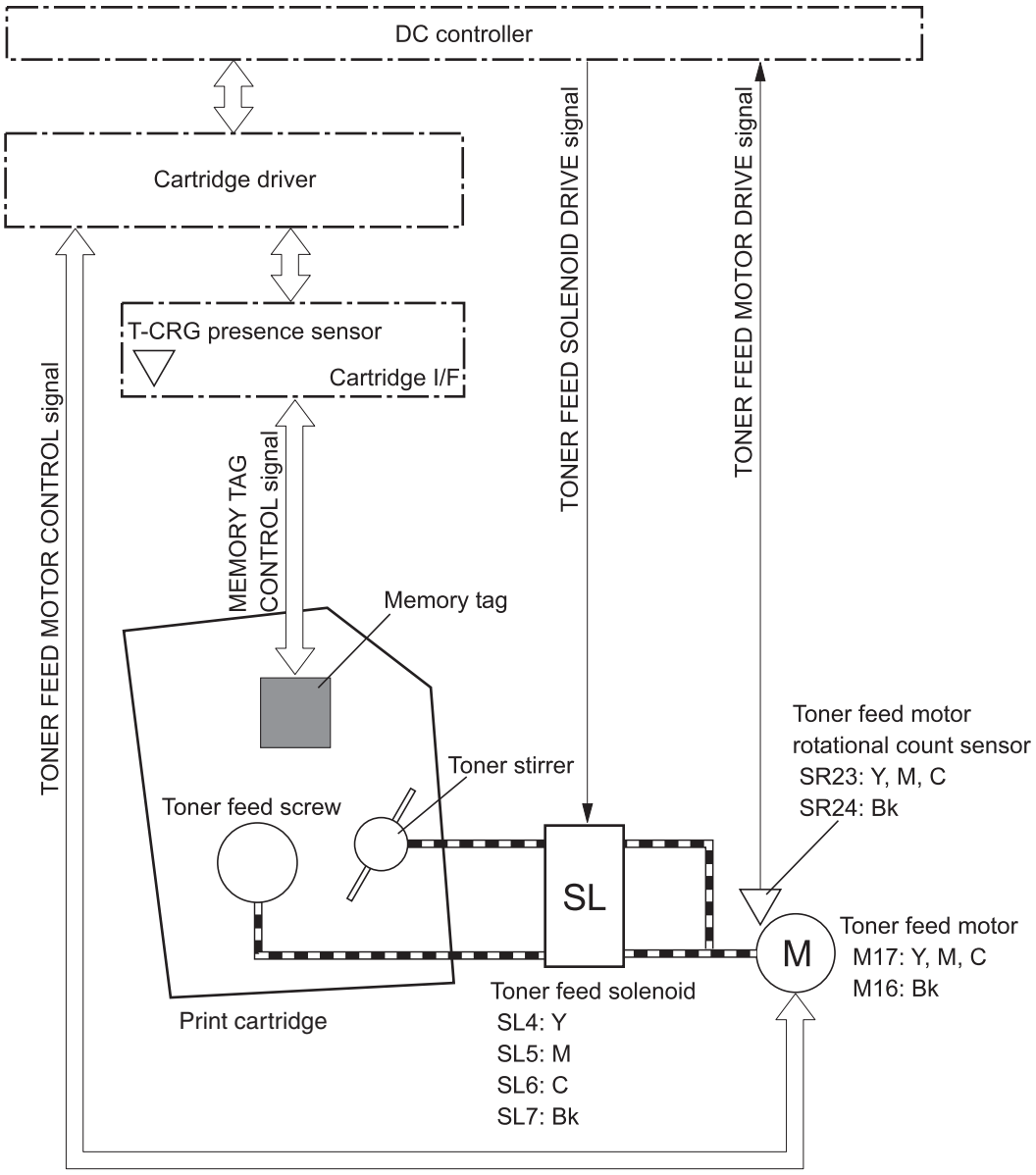


Print cartridge

The product has four print cartridges, one for each color. Each print cartridge contains a reservoir of toner and the following components:

- Toner feed screw
- Toner stirrer
- Memory tag

Figure 5-21 Print-cartridge system



The toner feed screw rotates, picks up the toner particles, and transports them into the imaging drum. The toner stirrer rotates at the same time as the toner feed screw to keep the toner particles from sticking to each other.

The memory tag is a non-volatile memory chip that stores information about the usage for the print cartridge.

The DC controller notifies the formatter of an error if any of the following conditions exist:

- If the memory tag fails to either read to or write from the DC controller
- If any of the print-cartridge presence sensors do not detect the presence of the print cartridge
- If the toner level in any of the print cartridges drops below a certain level
- If the toner feed motor is rotating but the rotational-count sensor does not increment the rotation count after a specified length of time. This condition indicates a failure in the toner-feed motor.

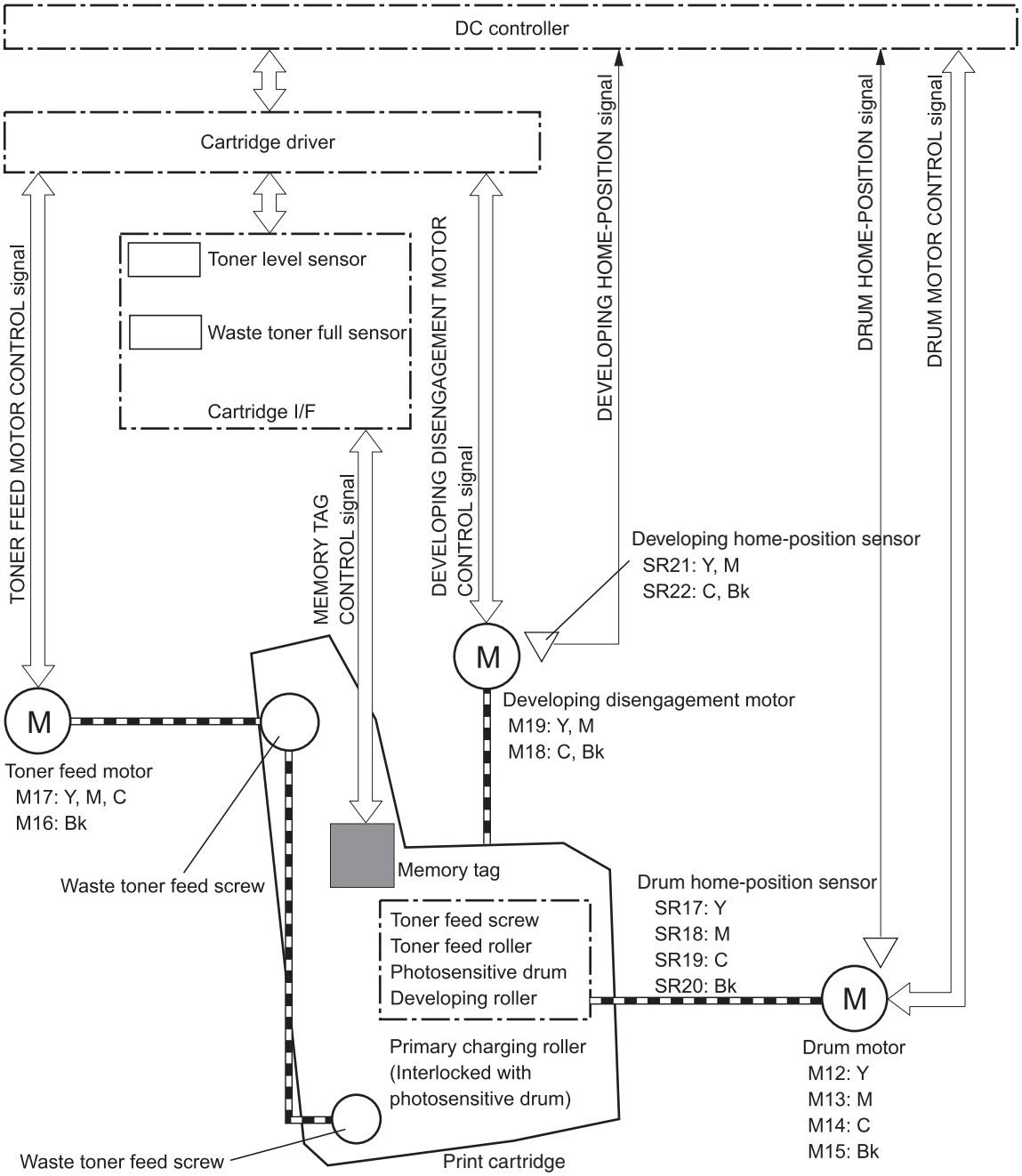
Imaging drum

The product has four imaging drums, one for each color. Each imaging drum contains the following components:

- Photosensitive drum
- Primary charging roller
- Developing roller
- Toner feed roller

- Toner feed screw
- Waste toner feed screw

Figure 5-22 Imaging-drum system



The drum motor causes the photosensitive drum to rotate. That rotation cause the primary charging roller to rotate. The drum motor also drives the toner feed screw, the toner feed roller, and the developing roller to transfer toner from the print cartridge into the imaging drum.

The toner feed motor drives the waste toner feed screw, which removes the waste toner and transports it to the waste toner container.

The memory tag is a non-volatile memory chip that stores information about the usage for the imaging drum.

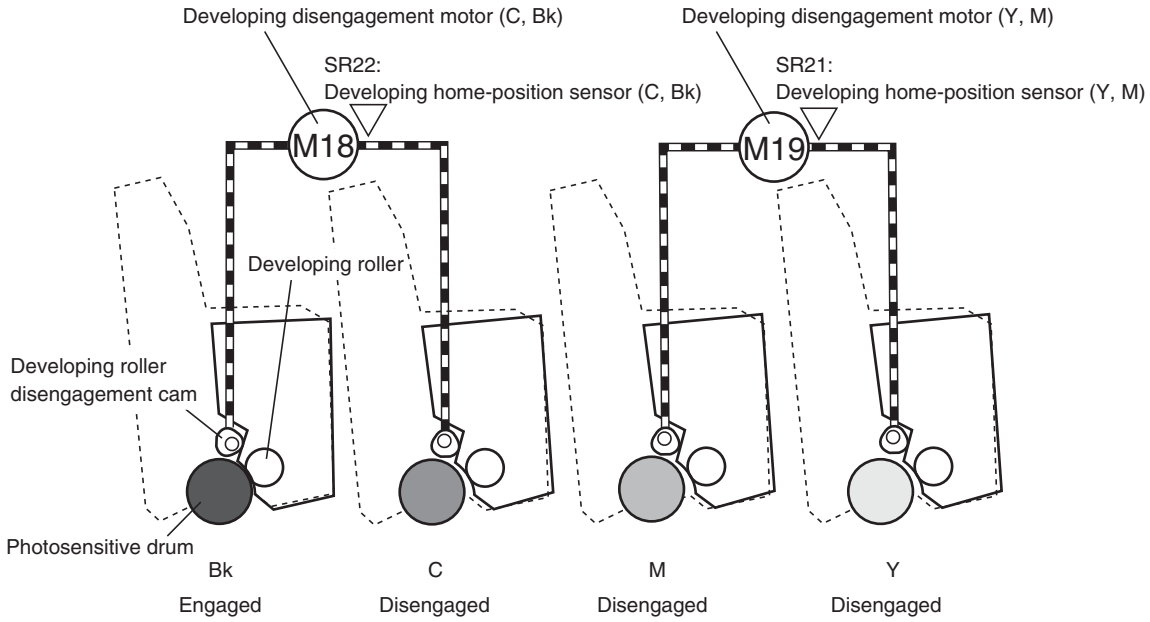
The DC controller notifies the formatter of an error if any of the following conditions exist:

- If the memory tag fails to either read to or write from the DC controller
- If the toner level in any of the waste toner containers reaches a certain level
- If any of the drum-presence sensors do not detect the presence of the imaging drum
- If any of the imaging drums are installed incorrectly.
- If the number of pages printed with the current imaging drum reaches a predetermined level
- If the level of toner in the imaging drum is not at a predetermined level while the print cartridge is feeding toner to the imaging drum. This indicates a toner feed failure.
- If the toner-level sensor detects a level of toner that is outside of a certain range during the print operation. This indicates a toner-level sensor failure.

Developing roller engagement and disengagement

The product can print in full-color mode or in black-only mode. To print in black only, the developing rollers in the cyan, magenta, and yellow imaging drums are disengaged. This maximizes the life of those three imaging drums.

Figure 5-23 Developing roller engagement and disengagement control



The DC controller rotates the developing disengagement motor and changes the direction of the cam according to the instructions from the formatter for each print job.

When the product is turned on and at the end of each print job, all four of the developing rollers disengage from the photosensitive drums. If the next print job is full-color, then each of the developing rollers engage. If the next print job is black only, then only the black developing roller engages.

If the DC controller does not detect any output from the developing home-position sensor, it determines that the developing disengagement motor has failed.

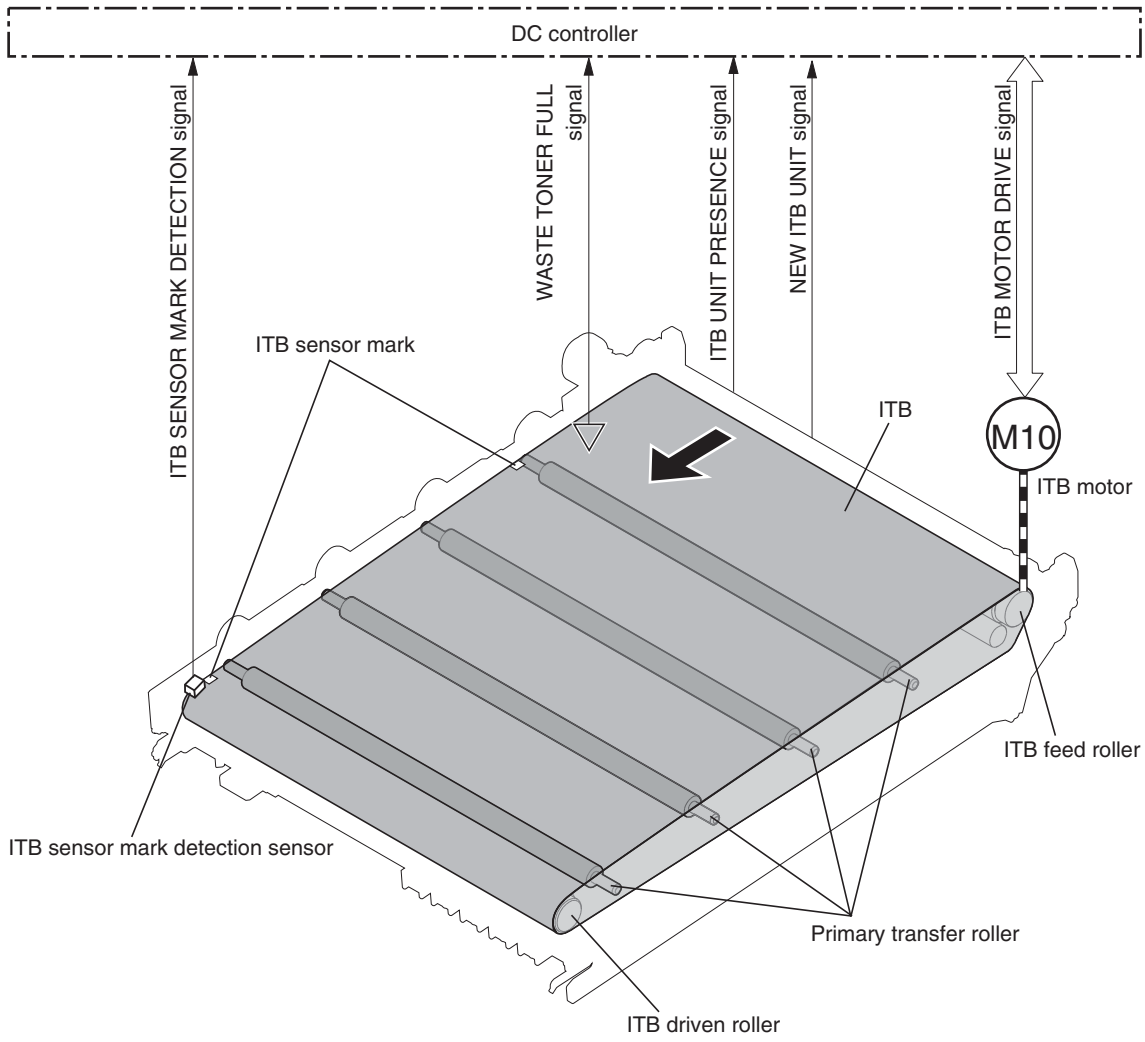
Intermediate transfer belt (ITB) unit

The ITB unit accepts the toner images from the photosensitive drums and transfers the completed image to the paper. The ITB unit has these main components:

- ITB
- ITB feed roller
- ITB-driven roller
- Primary transfer rollers

The ITB motor drives the ITB feed roller, which rotates the ITB. The motion of the ITB causes the primary transfer rollers to rotate.

Figure 5-24 ITB unit



Primary-transfer-roller engagement and disengagement

Depending on the requirements of the print job, the primary transfer rollers engage with the ITB so it can receive toner from the photosensitive drums. There are three states of roller engagement.

Table 5-10 Primary-transfer-roller engagement states

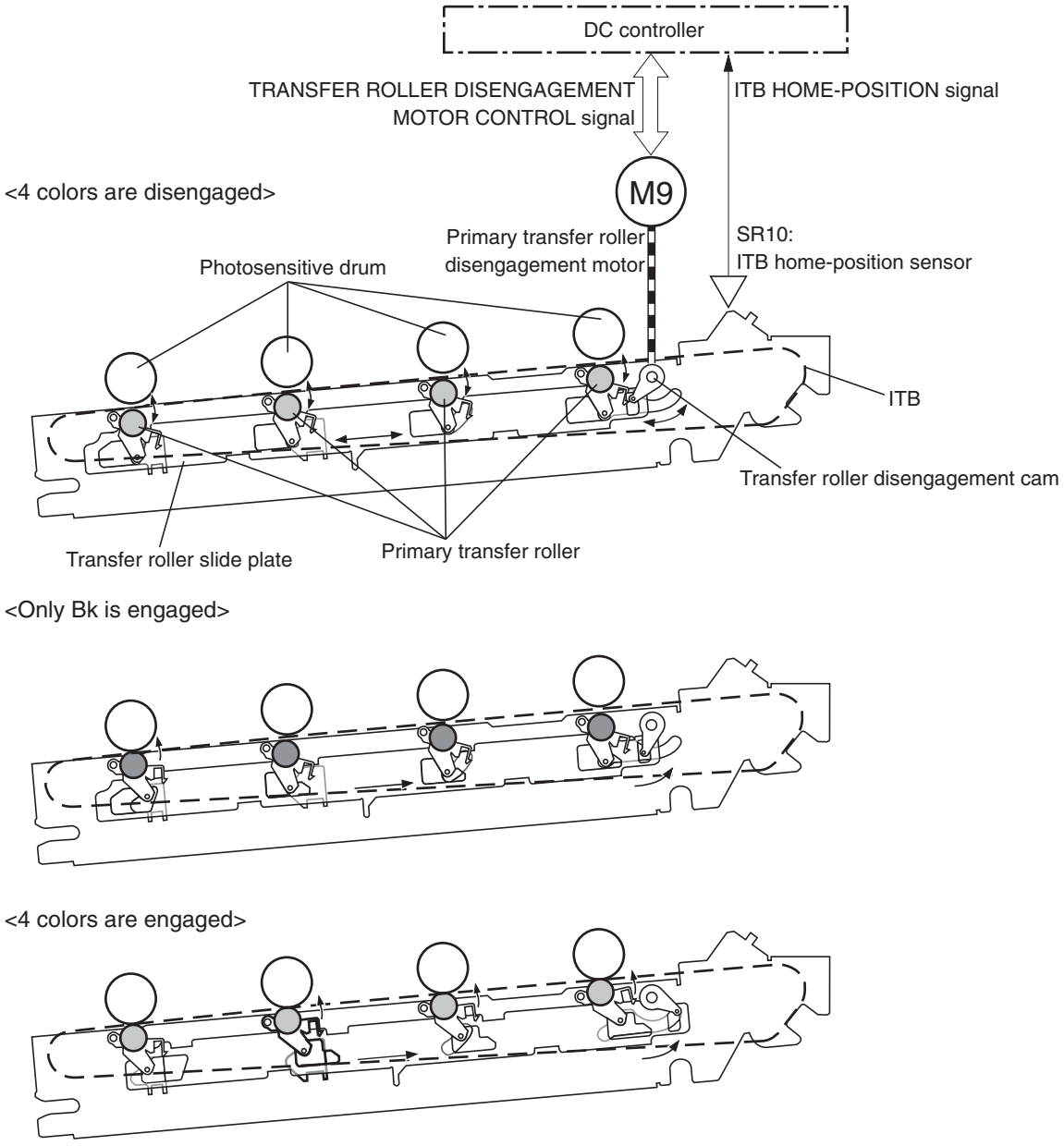
All rollers disengaged	This is the home position for the ITB unit.
Black roller engaged	This is the state for a black-only print job.
All rollers engaged	This is the state for a full-color print job.

The primary-transfer-roller disengagement motor rotates or reverses to place the primary-transfer-roller disengagement cam into one of three positions. The cam causes the transfer roller slide plate to move to the right or left, which causes the primary transfer rollers to move up to engage the ITB with the photosensitive drum or down to disengage it.

If the DC controller does not receive the expected signal from the ITB home-position sensor during the primary-transfer-roller engagement or disengagement operation, but the primary-transfer-roller

disengagement motor is rotating, it determines that the primary-transfer-disengagement mechanism has failed, and it notifies the formatter.

Figure 5-25 Three states of primary-transfer-roller engagement and disengagement



ITB unit detection

The DC controller monitors several signals from the ITB unit to detect status.

Table 5-11 ITB unit detection

ITB unit life detection	When a specified number of pages have been printed since an ITB unit was installed, the DC controller alerts the formatter that the ITB unit is at the end of its life.
ITB unit waste toner full detection	When any of the waste-toner containers collect a specified level of toner, the DC controller alerts the formatter that the imaging drum needs to be replaced.
ITB unit presence detection	

Table 5-11 ITB unit detection (continued)

ITB perimeter detection	To ensure that the toner image is placed correctly on each page, the DC controller uses the ITB sensor marks on the surface of the ITB. It adjusts the paper re-pickup timing based on this position.
ITB sensor-mark detection-sensor-failure detection	If the DC controller cannot detect the ITB sensor marks, it determines that the ITB sensor-mark detection-sensor has failed, and it notifies the formatter.

Secondary-transfer-roller unit

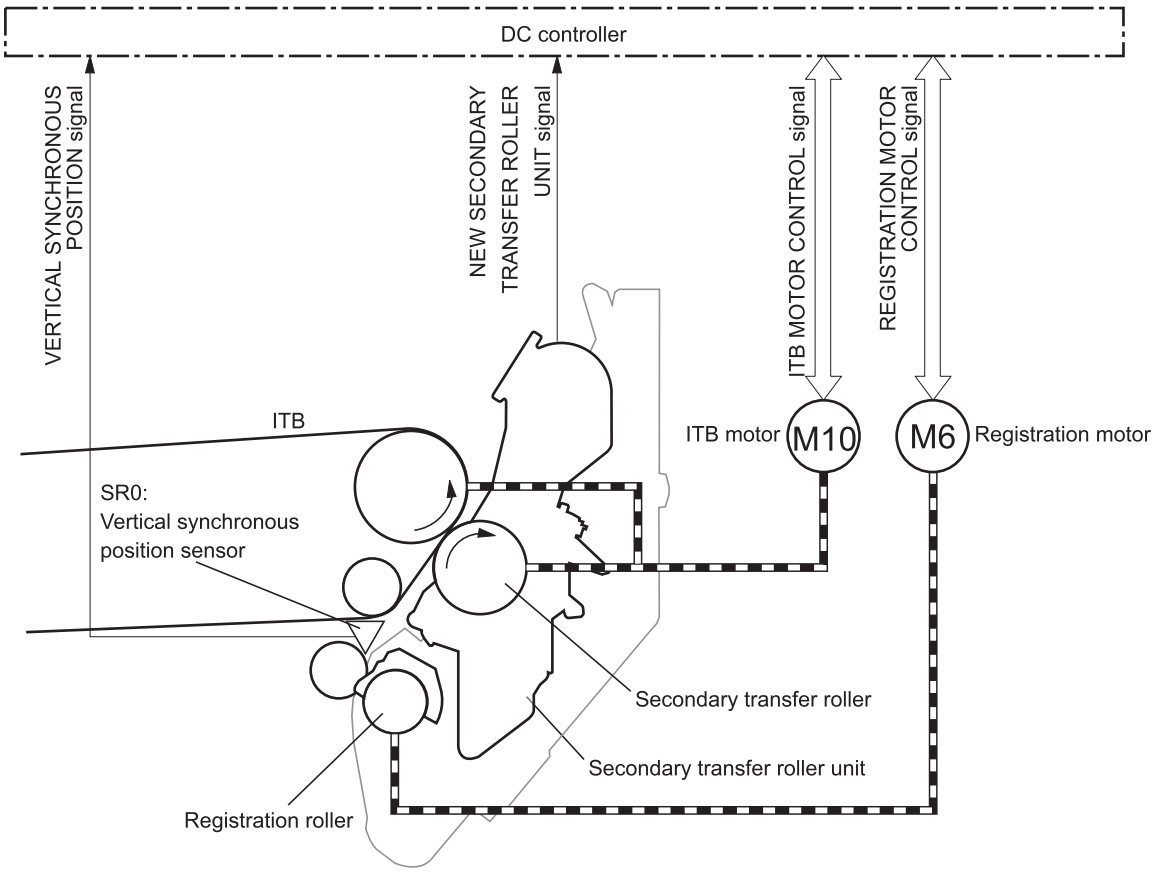
The secondary-transfer-roller unit transfers the toner image from the ITB surface onto the paper. The ITB motor drives the secondary transfer roller, and the registration motor drives the registration roller.

To ensure that the toner image is placed correctly on each page, the DC controller stops the registration motor when the leading edge of the paper passes the vertical synchronous position sensor. It holds the paper in this position until the ITB is in the correct position, according to the ITB perimeter detection, to align the toner image with the paper.

When the product is turned on, when it is coming out of Sleep mode, or after a door has been closed, DC bias is applied to the secondary transfer roller. If no current is detected, the DC controller determines that the secondary-transfer-roller unit is not present, and it notifies the formatter.

The DC controller can detect when a new secondary-transfer-roller unit has been installed. After a specified number of pages have been printed since a new secondary-transfer-roller unit has been installed, the DC controller notifies the formatter that the secondary-transfer-roller unit is reaching the end of its life.

Figure 5-26 Secondary-transfer-roller unit

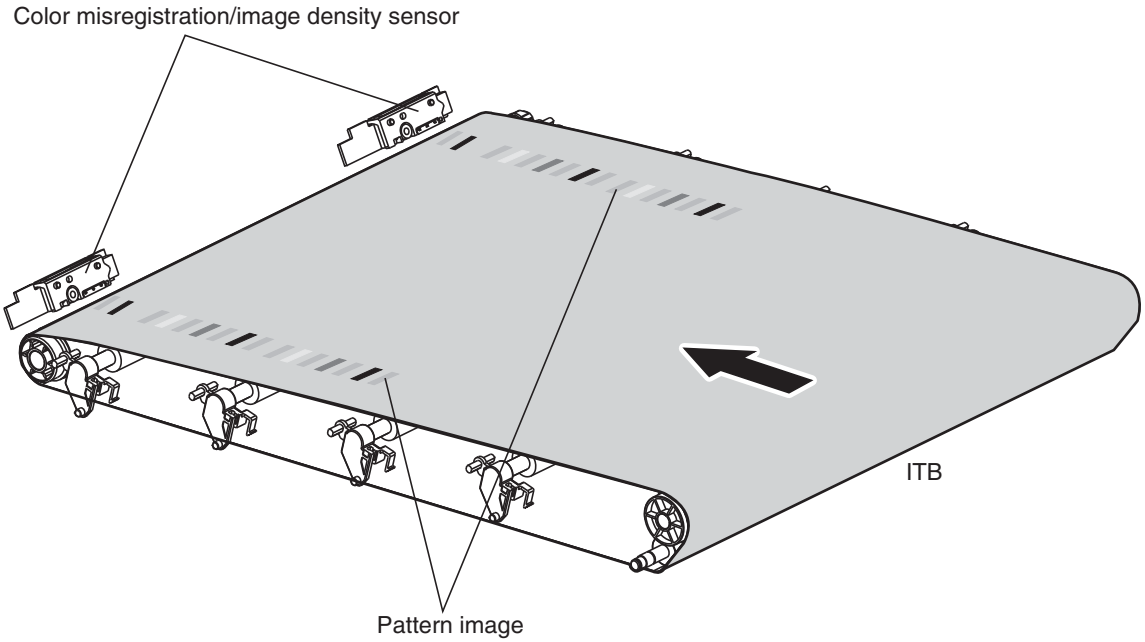


Calibration

The product calibrates itself to maintain excellent print quality. It correct color misregistration and color-density variation.

During calibration, the product places a specific pattern of toner on the surface of the ITB. Sensors at the end of the ITB read the toner pattern to determine if adjustments are necessary.

Figure 5-27 Toner patterns for calibration



Color-misregistration contol

Internal variations in the imaging drums or the laser/scanners can cause the toner images to become misaligned. The color misregistration control corrects the following problems:

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

This calibration occurs at these times:

- The product is turned on, or the front door is closed, after replacing an imaging drum.
- The product is turned on, or the right door is closed, after replacing the ITB.
- A specified number of pages have been printed.
- The temperature in the laser/scanner unit area changes, which is a predictor of color misregistration.
- The user requests a calibration by using the control-panel menus

If data from the color misregistration and image-density sensors is outside a specified range when the product is turned on or when it is beginning the calibration sequence, the DC controller determines that these sensors have failed, and it notifies the formatter.

Image stabilization control

Environmental changes or deterioration of the photosensitive drums and toner can cause variations in the image density. The image stabilization control reduces these fluctuations. There are three kinds of image stabilization controls.

Table 5-12 Image stabilization controls

Environment change control	The DC controller monitors environmental information from internal and external temperature and humidity sensors. It adjusts the high-voltage bias to accommodate environmental changes. This control is performed under the following circumstances: • The product is turned on. • The imaging drum is replaced. • A change in environmental conditions occurs.
Image density control (DMAX)	This control corrects variations in image density that are related to deterioration of the photosensitive drum or the toner. The DC controller adjusts the high-voltage biases to correct the problem under the following conditions: • The thermistor detects a temperature that is too low when the product is turned on. • The product is turned on, or the front door is closed, after replacing an imaging drum. • The product is turned on, or the right door is closed, after replacing the ITB. • A specified number of pages have been printed.
Image halftone control (DHALF)	The formatter performs this control to calibrate the halftone, based on the halftone-density measurements, under the following conditions: • The thermistor detects a temperature that is too low when the product is turned on. • The product is turned on, or the front door is closed, after replacing an imaging drum. • The product is turned on, or the right door is closed, after replacing the ITB. • A specified number of pages have been printed.

Pickup, feed, and delivery system

The pickup, feed, and delivery system uses a series of rollers to move the paper through the product.

The duplexing flapper solenoid (SL301) controls the position of the duplexing flapper to feed the paper into the duplexing unit.

Figure 5-28 Switches and sensors for the pickup, feed, and delivery system

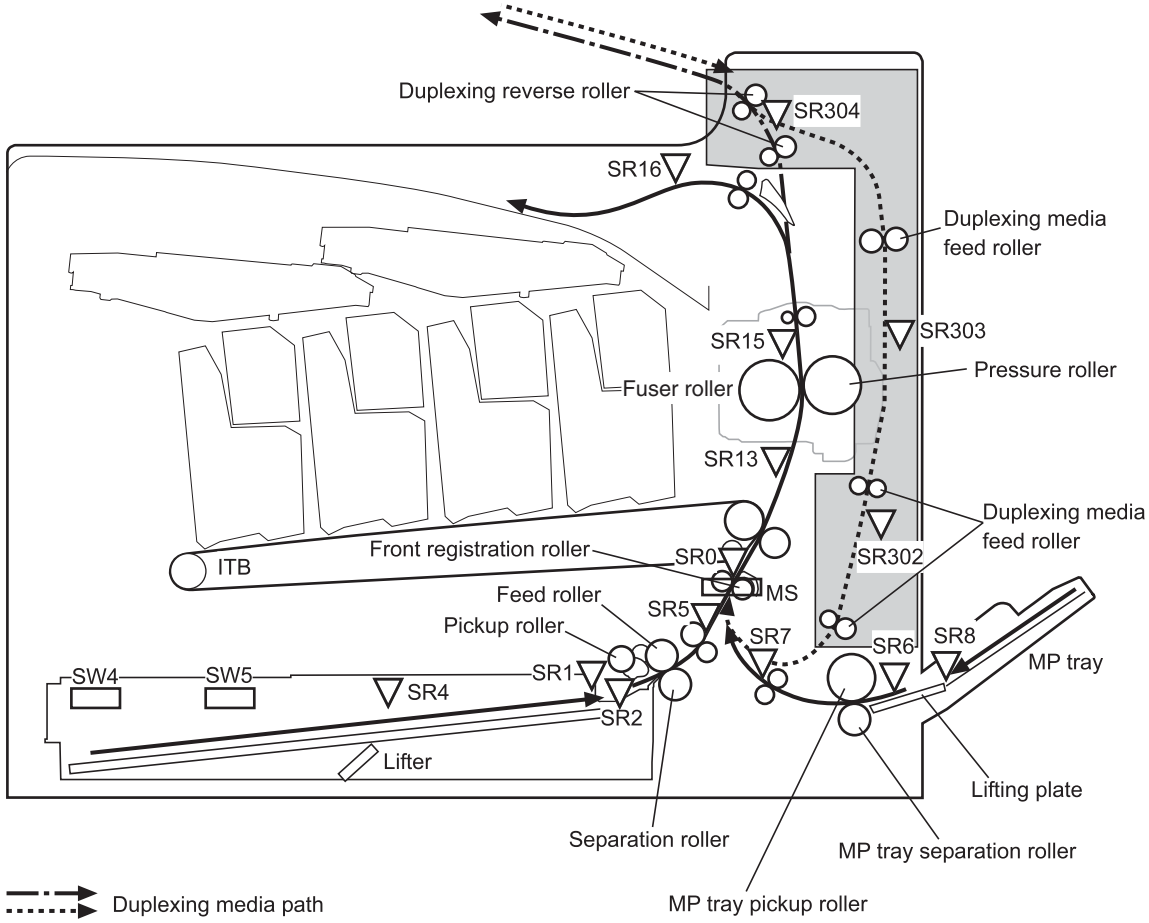


Table 5-13 Switches and sensors for the pickup, feed, and delivery system

Abbreviation	Component
SR0	Vertical synchronous position sensor
SR1	Cassette paper-presence sensor
SR2	Cassette paper-stack surface sensor
SR4	Cassette paper-level sensor
SR5	Cassette paper-feed sensor
SR6	Multipurpose tray paper-presence sensor
SR7	Multipurpose tray paper-feed sensor
SR8	Multipurpose tray last paper sensor
SR13	Loop sensor

Table 5-13 Switches and sensors for the pickup, feed, and delivery system (continued)

Abbreviation	Component
SR15	Fuser delivery paper-feed sensor
SR16	Output-bin full sensor
SR302	Duplexing paper re-pickup sensor
SR303	Duplexing paper-feed sensor
SR304	Duplexing paper-reverse sensor
SW4	Cassette end-plate position switch
SW5	Cassette side-plate position switch
MS	Paper sensor

Figure 5-29 Motors and solenoids for the pickup, feed, and delivery system

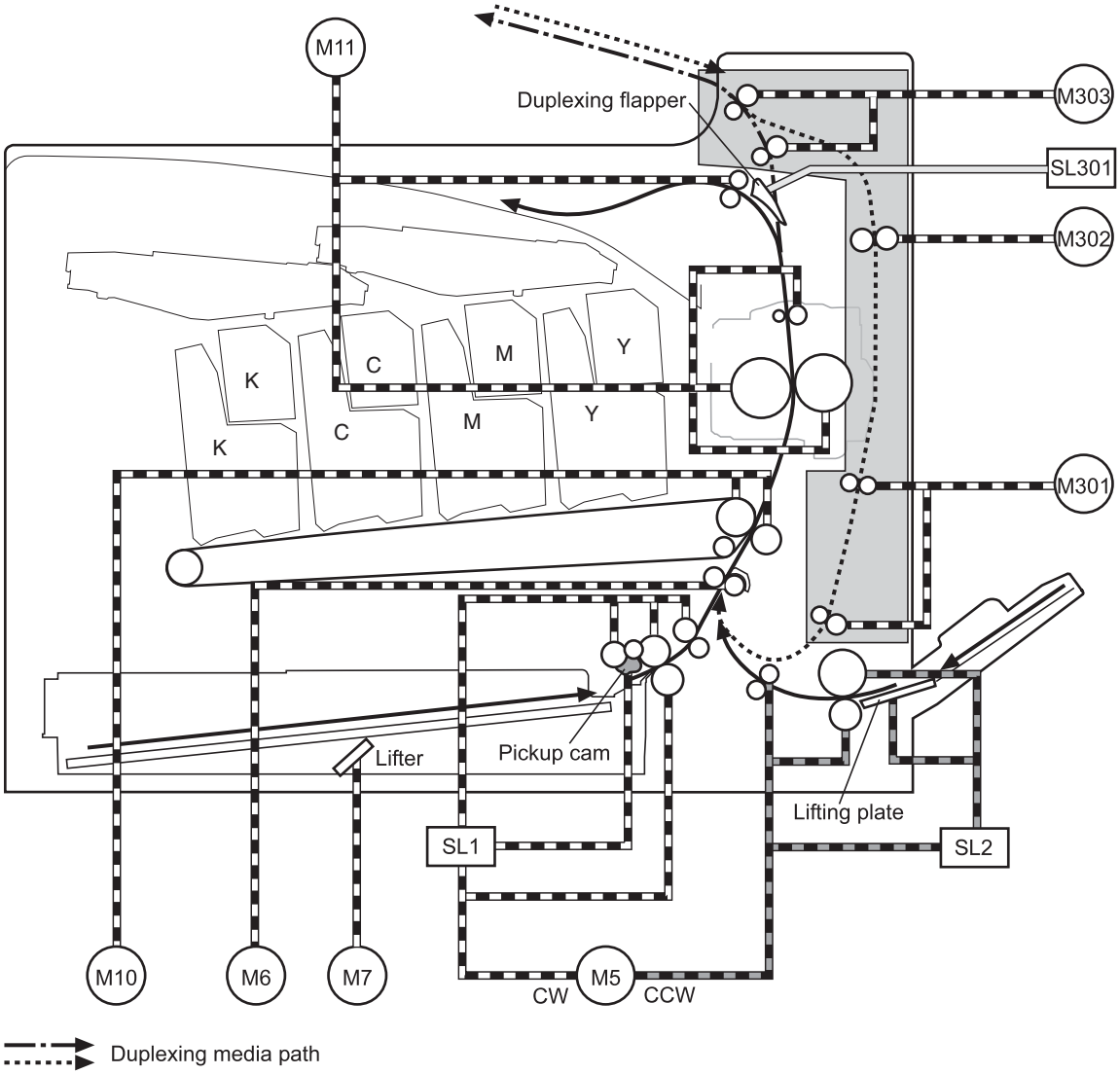


Table 5-14 **Motors and solenoids for the pickup, feed, and delivery system**

Abbreviation	Component
M5	Pickup motor
M6	Registration motor
M7	Cassette lifter motor
M10	ITB motor
M11	Fuser motor
M301	Duplexing re-pickup motor
M302	Duplexing feed motor
M303	Duplexing reverse motor
SL1	Cassette pickup solenoid

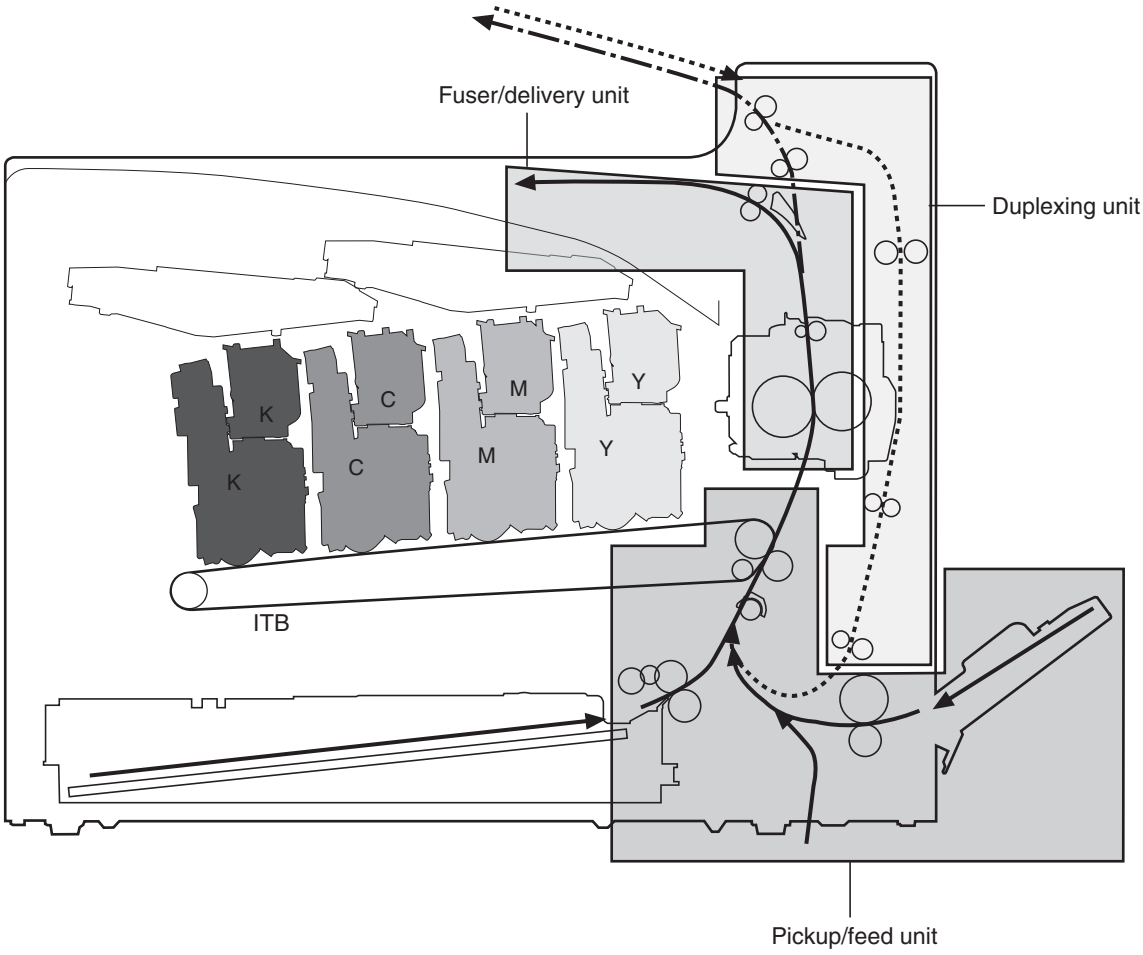
Table 5-14 Motors and solenoids for the pickup, feed, and delivery system (continued)

Abbreviation	Component
SL2	Multipurpose tray pickup solenoid
SL301	Duplexing flapper solenoid

The pickup, feed, and delivery system can be divided into three units:

- Pickup-and-feed unit
- Fuser and delivery unit
- Duplexing unit

Figure 5-30 Three main units of the pickup, feed, and delivery system



Pickup-and-feed unit

The pickup-and-feed unit picks an individual sheet of paper from the multipurpose tray or the cassettes, carries it through the secondary-transfer unit, and feeds it into the fuser.

Table 5-15 Main operations within the pickup-and-feed system

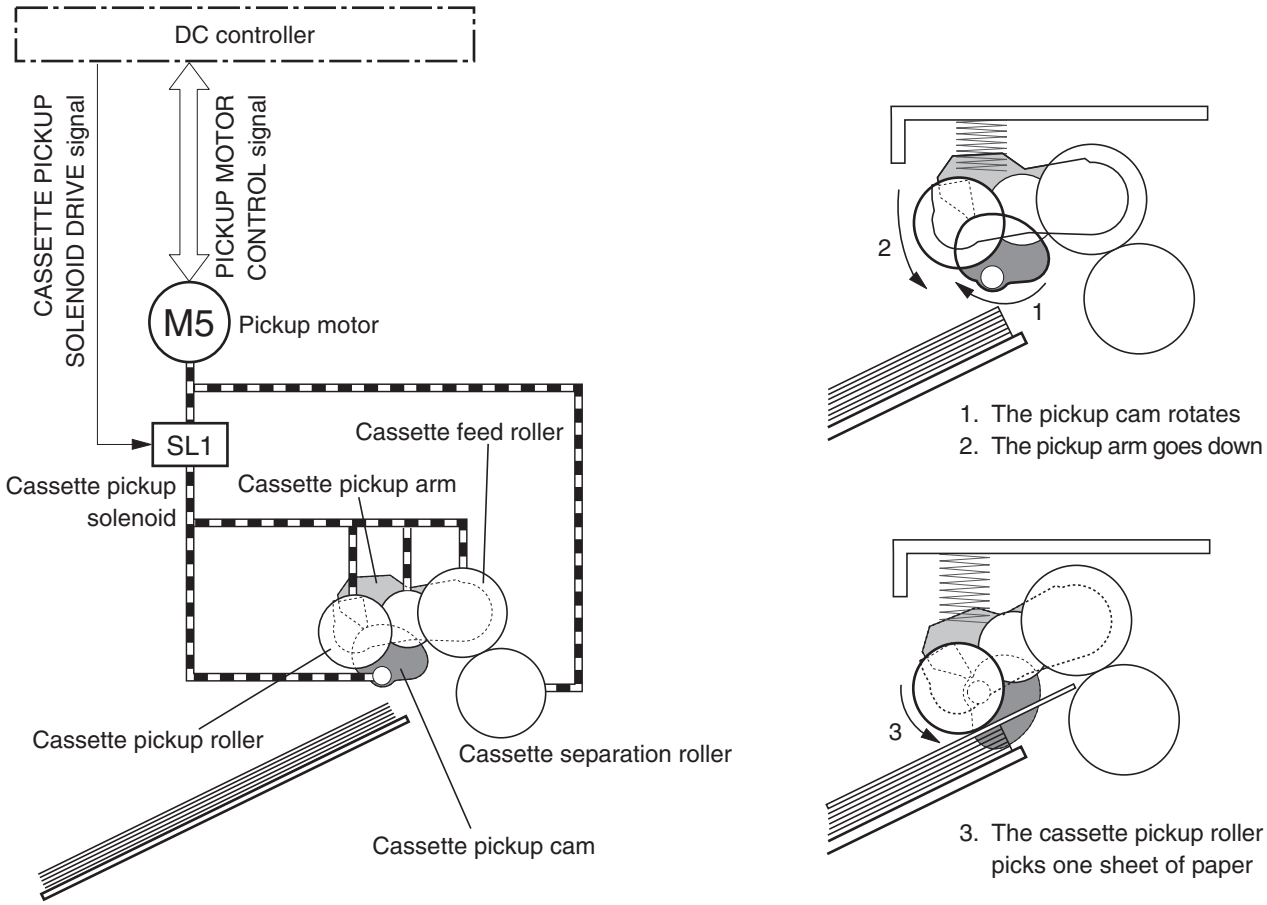
Operation	Steps
Cassette pickup	1. Paper-size and cassette-presence detection 2. Lift operation 3. Paper-level and paper-presence detection 4. Multiple-feed prevention
Multipurpose tray pickup	1. Paper-presence detection 2. Last paper detection
Paper feed	1. Skew-feed prevention 2. Paper detection 3. Feed-speed control

Cassette pickup

The sequence of steps for the cassette tray pickup operation is the following:

1. When the product is turned on or the tray is pushed closed, the lifting mechanism lifts the paper stack so it is ready.
2. After receiving a print command from the formatter, the DC controller rotates the pickup motor, which causes the cassette pickup roller, cassette feed roller, and cassette separation roller to rotate.
3. The DC controller drives the cassette pickup solenoid, which rotates the cassette pickup cam. As the pickup cam rotates, the pickup arm moves down, the cassette pickup roller touches the surface of the paper stack, and it picks up one sheet of paper.

Figure 5-31 Cassette-pickup mechanism



Cassette paper-size and cassette-presence detection

The cassette end-plate detection switch and the cassette side-plate detection switch detect the size of the paper that is loaded in the cassette. Each of these switches contains three sub-switches.

The DC controller compares the paper length that is detected by the vertical-synchronous-position sensor to the detected size and to the size that is specified for the print job. If they do not match, the DC controller notifies the formatter.

The cassette end-plate detection switch also detects whether the cassette is present. If all three of its switches are off, the DC controller determines that the cassette is absent.

Figure 5-32 Cassette paper-size detection switches

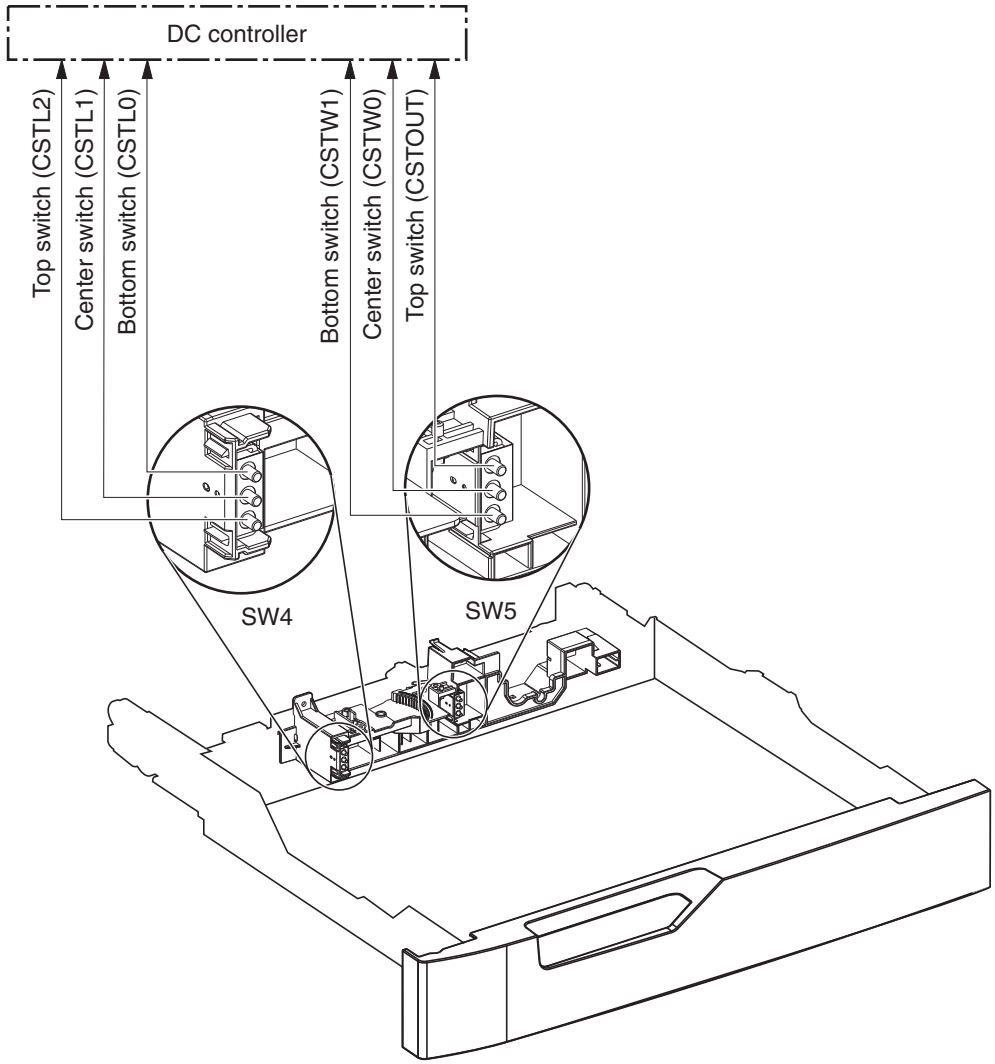


Table 5-16 **Switch states for paper-size detection**

Paper size	Cassette end-plate detection switch (SW4)			Cassette side-plate detection switch (SW5)		
	Top switch	Center switch	Bottom switch	Top switch[1]	Center switch	Bottom switch
A5	On	On	Off	On or off	Off	On
A4	On	On	Off	On or off	Off	Off
Letter	On	On	Off	On or off	On	Off
B5	Off	On	Off	On or off	Off	On
Executive	Off	On	Off	On or off	Off	On
Letter-R	Off	Off	On	On or off	Off	On
A4-R	On	Off	On	On or off	Off	On
Legal	On	Off	Off	On or off	Off	On

Table 5-16 Switch states for paper-size detection (continued)

B4	On	Off	Off	On or off	On	On
A3	On	Off	Off	On or off	Off	Off
Ledger	On	Off	Off	On or off	On	Off
Cassette absence	Off	Off	Off			

[1] The top side-plate detection switch controls the lifter mechanism. When the switch is on, the lifting plate moves up. When it is off, the lifting plate moves down. Its position has no effect on paper-size detection.

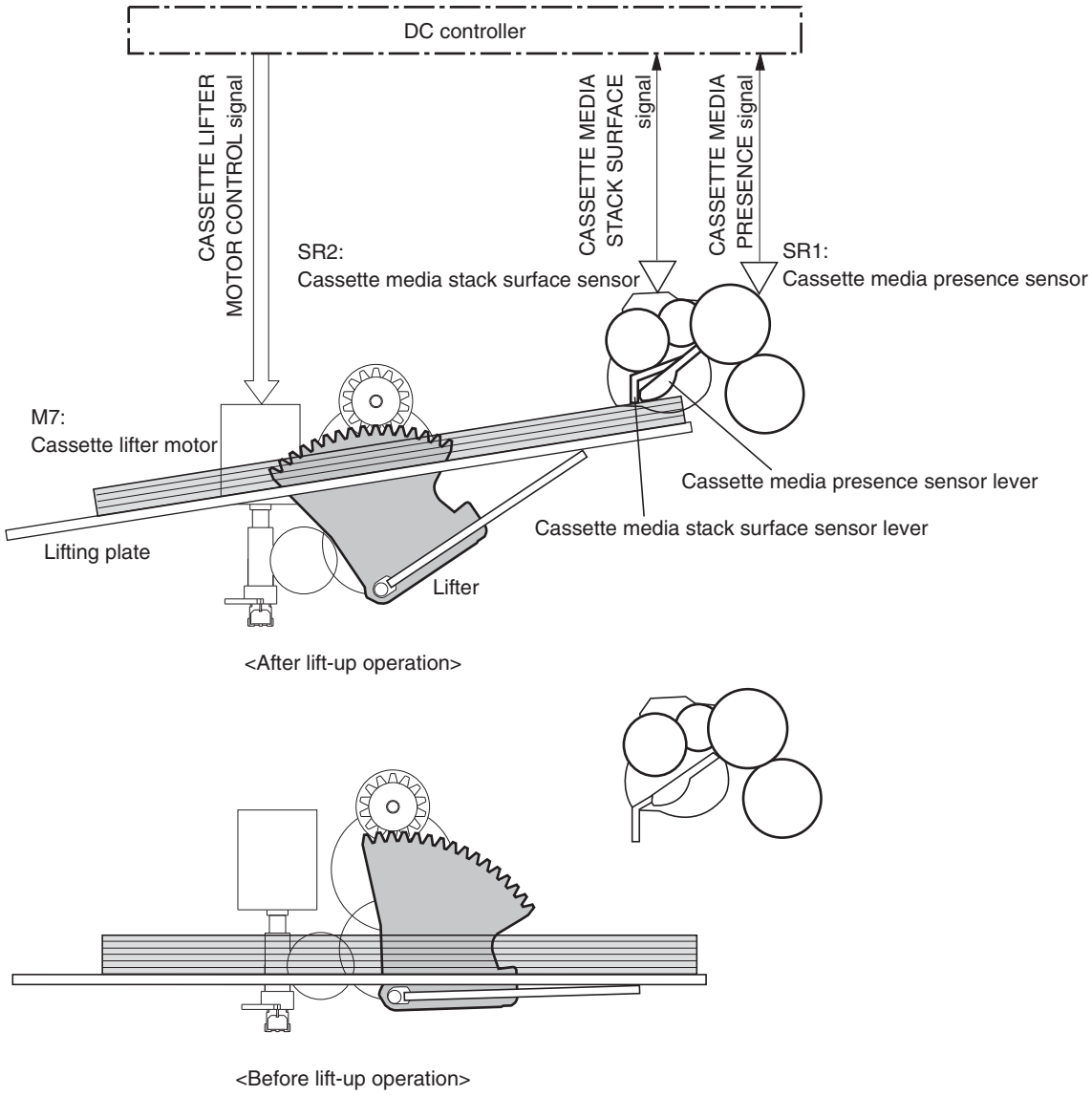
Cassette lift operation

When the product is turned on, when the cassette is inserted, or as the paper level in the cassette decreases, the cassette lift mechanism raises the plate to keep the surface of the stack high enough so the pickup roller can reach it.

1. The DC controller rotates the cassette-lifter motor to raise the lift plate.
2. When the paper-stack surface sensor detects the paper surface, the DC controller stops rotating the cassette-lifter motor. If the sensor no longer detects paper, the DC controller begins rotating the motor again.

If the paper-stack surface sensor does not detect the paper within a specified time after the lifter motor begins rotating, the DC controller notifies the formatter that the lifter motor has failed.

Figure 5-33 Cassette lift mechanism



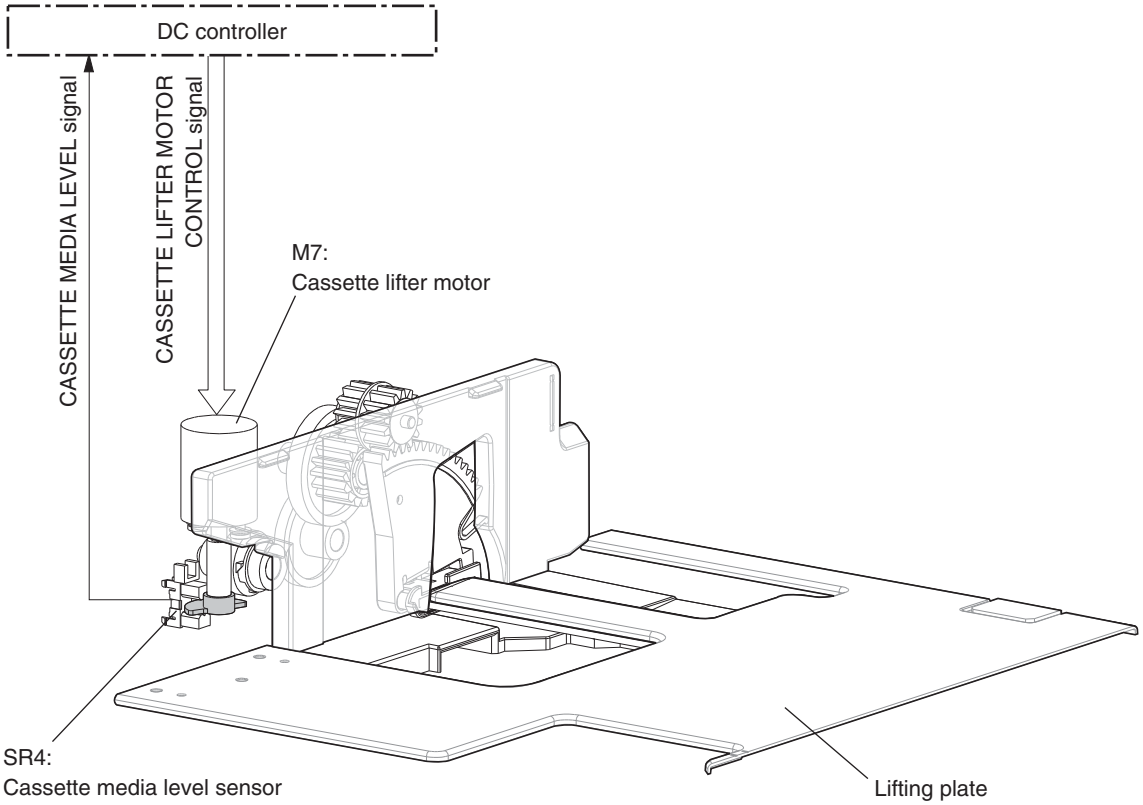
Cassette paper-level and paper-presence detection

The height of the paper-lift plate in the cassette indicates the paper level. The paper-level sensor, which is at the end of the lifter motor, monitors the rotations of the motor and calculates the paper level. It reports the paper level to the DC controller in the following increments:

- No paper
- Less than 10%
- Between 10% and 20%
- Between 20% and 40%
- More than 40%

The cassette media-presence sensor detects whether paper is in the cassette.

Figure 5-34 Paper-level-detection mechanism

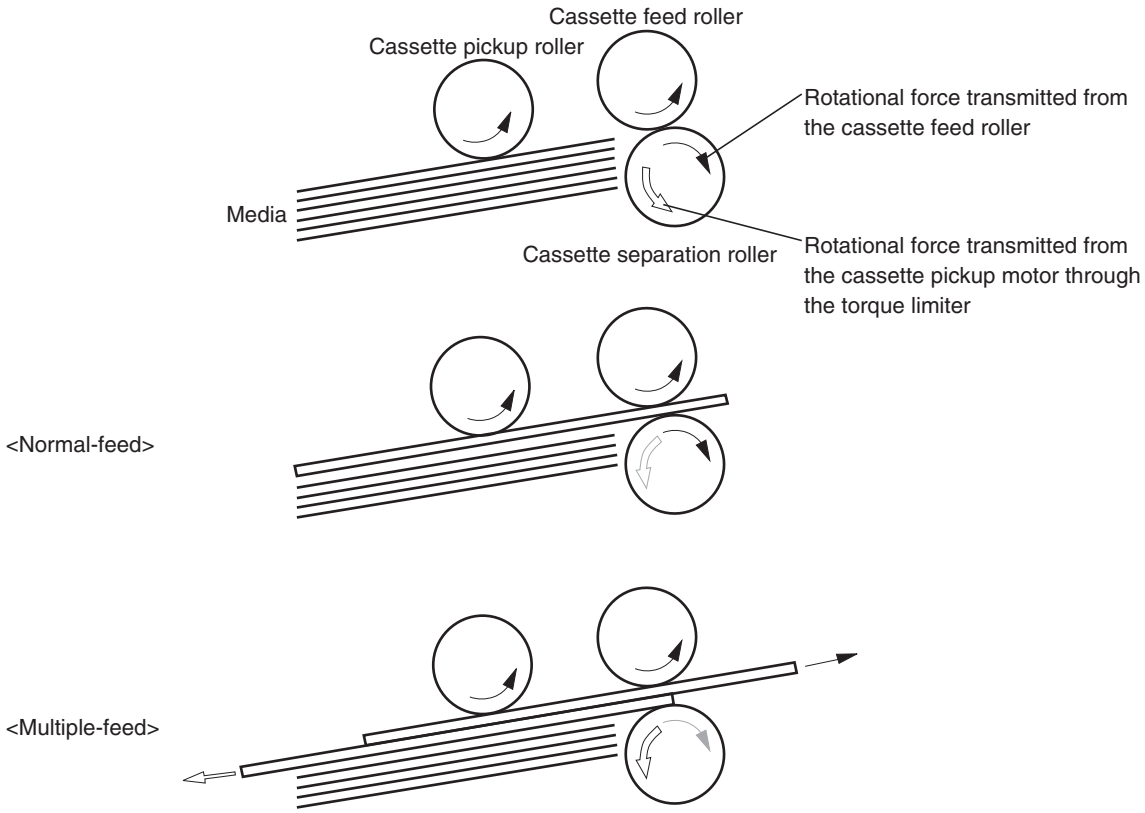


Multifeed prevention

In each of the cassettes and in the multipurpose tray, a separation roller prevents multiple sheets of paper from entering the paper path. The separation roller is driven by the rotation of the feed roller, but

it is equipped with a torque limiter that counteracts this rotation when more than one sheet of paper is between the two rollers.

Figure 5-35 Multifeed prevention



Multipurpose tray pickup

The multipurpose tray paper-presence sensor detects whether paper is in the tray. If no paper is present, the DC controller notifies the formatter. The print operation is not performed until paper is in the tray.

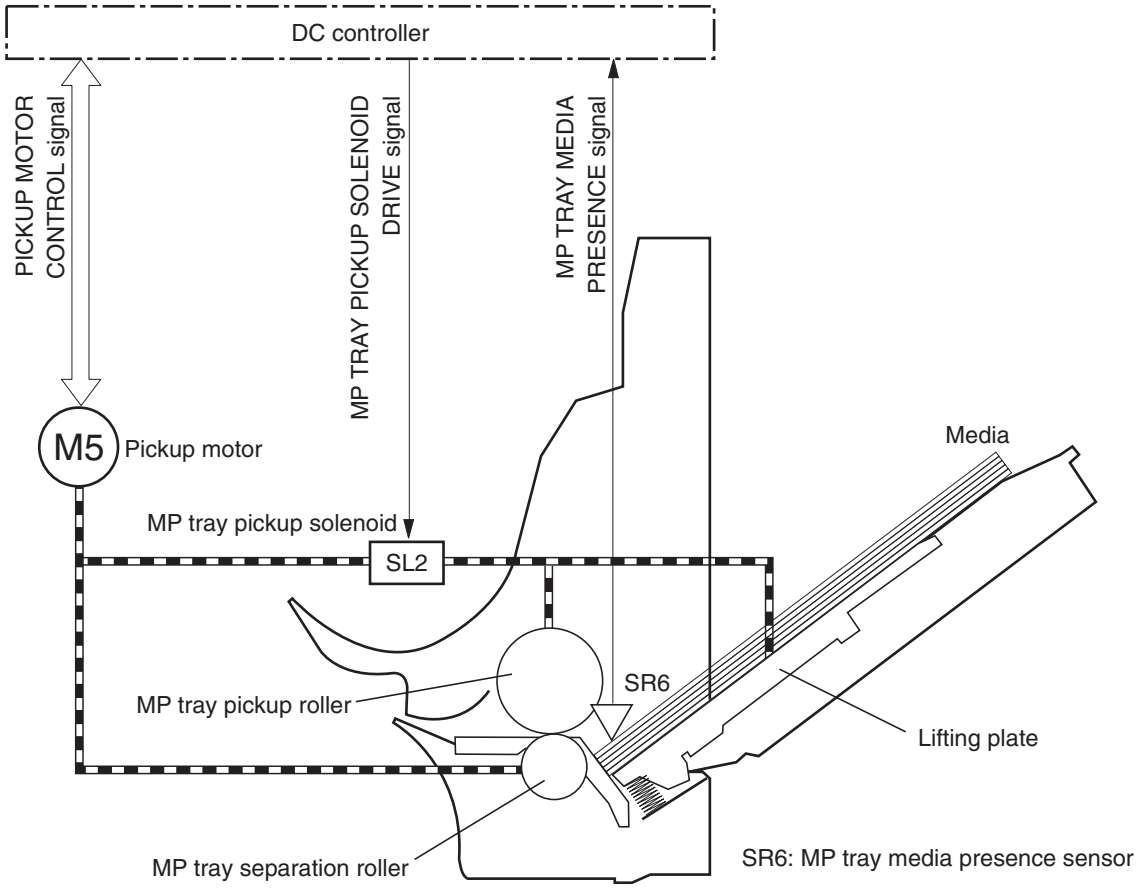
The sequence of steps for the multipurpose tray pickup operation as follows:

1. After receiving a print command from the formatter, the DC controller reverses the pickup motor, which causes the multipurpose tray separation roller to rotate.
2. The DC controller turns on the multipurpose tray pickup solenoid, causing the multipurpose tray pickup roller to rotate.

3. The lifting plate rises to meet the rotating pickup roller, and paper is picked from the stack.

4. The multipurpose tray separation roller isolates a single sheet of paper in case more than one sheet was picked. The single sheet of paper is fed into the product. This mechanism is the same as for the cassette pickup operation.

Figure 5-36 Multipurpose tray pickup mechanism



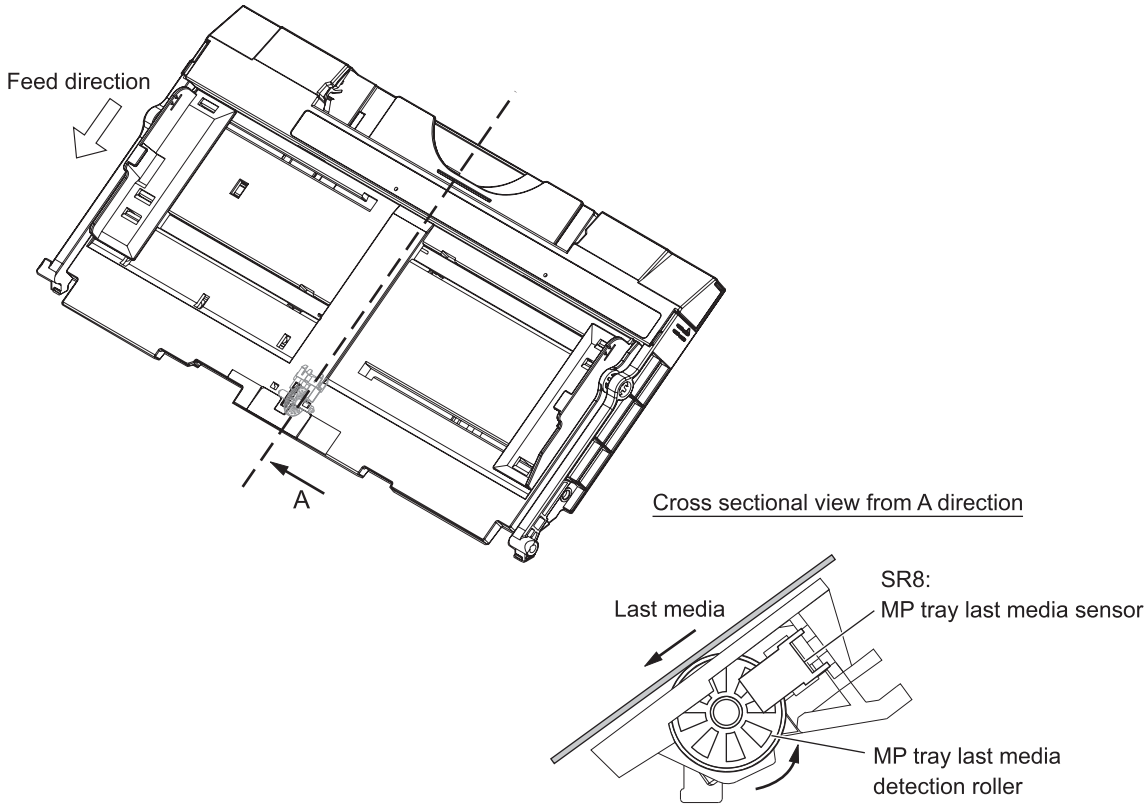
Multipurpose tray last-paper detection

Because the paper path between the multipurpose tray paper-presence sensor and the registration roller is short, the product attempts to form the next image before the DC controller detects that the tray is empty. To prevent the image from being formed on the photosensitive drum and wasting toner, the multipurpose tray last-paper sensor detects the empty tray before the image-formation process begins.

As the last sheet of paper is picked up, the multipurpose tray last-paper detection roller rotates. It does not rotate if two or more sheets are in the tray. The multipurpose tray last-paper sensor detects the

moving roller, and it sends a signal to the DC controller. The DC controller notifies the formatter so it can temporarily disable the image-formation process.

Figure 5-37 Multipurpose tray last-paper detection



Paper feed

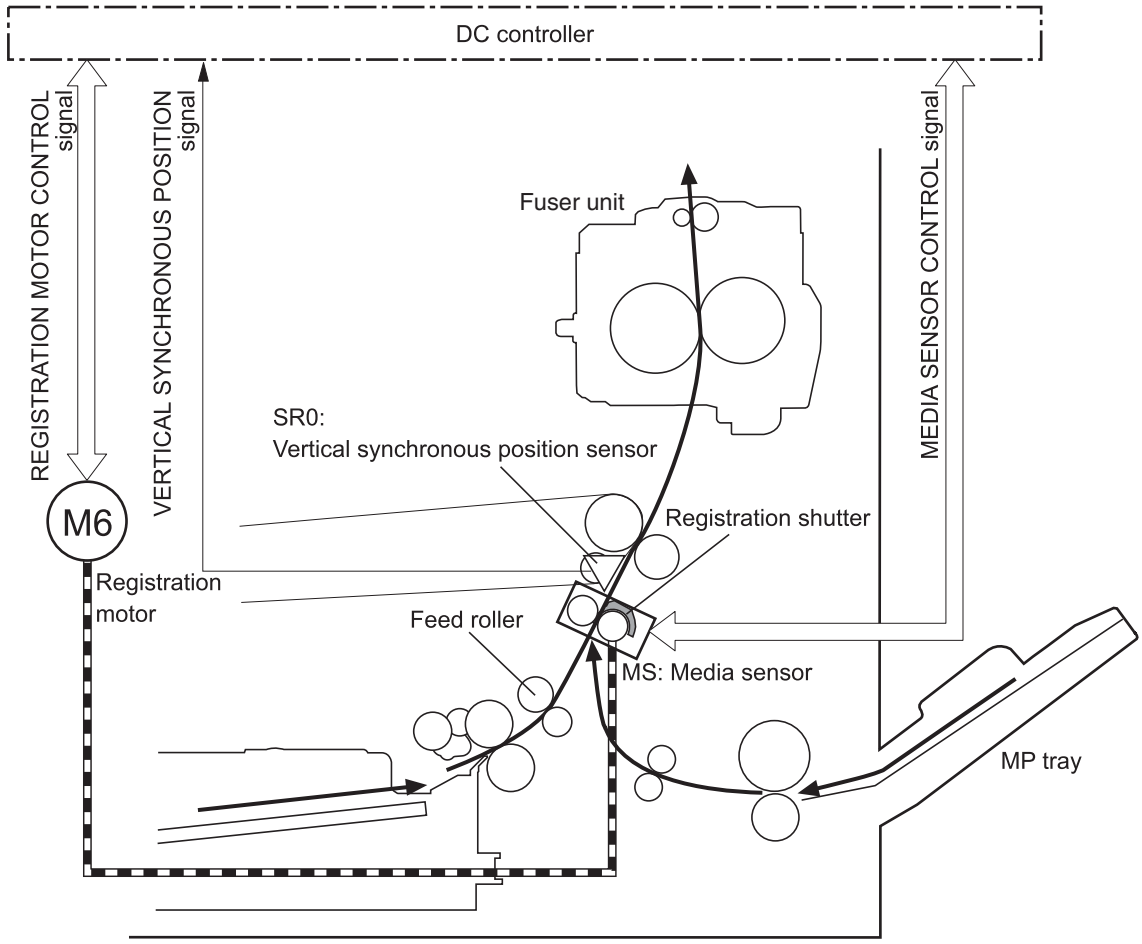
After the pickup operation, the paper is fed through the product and into the fuser.

1. The paper passes through the feed rollers. The registration shutter aligns the paper correctly to prevent skewed printing.
2. When the vertical synchronous position sensor detects the leading edge of the paper, the registration motor stops, and the paper movement pauses while the image on the ITB is timed to align with the leading edge of the paper.

3. While the paper is paused, the media sensor detects the type of paper.

4. When the timing is correct, the registration motor begins rotating again to feed the paper through the secondary transfer unit and into the fuser.

Figure 5-38 Paper-feed mechanism

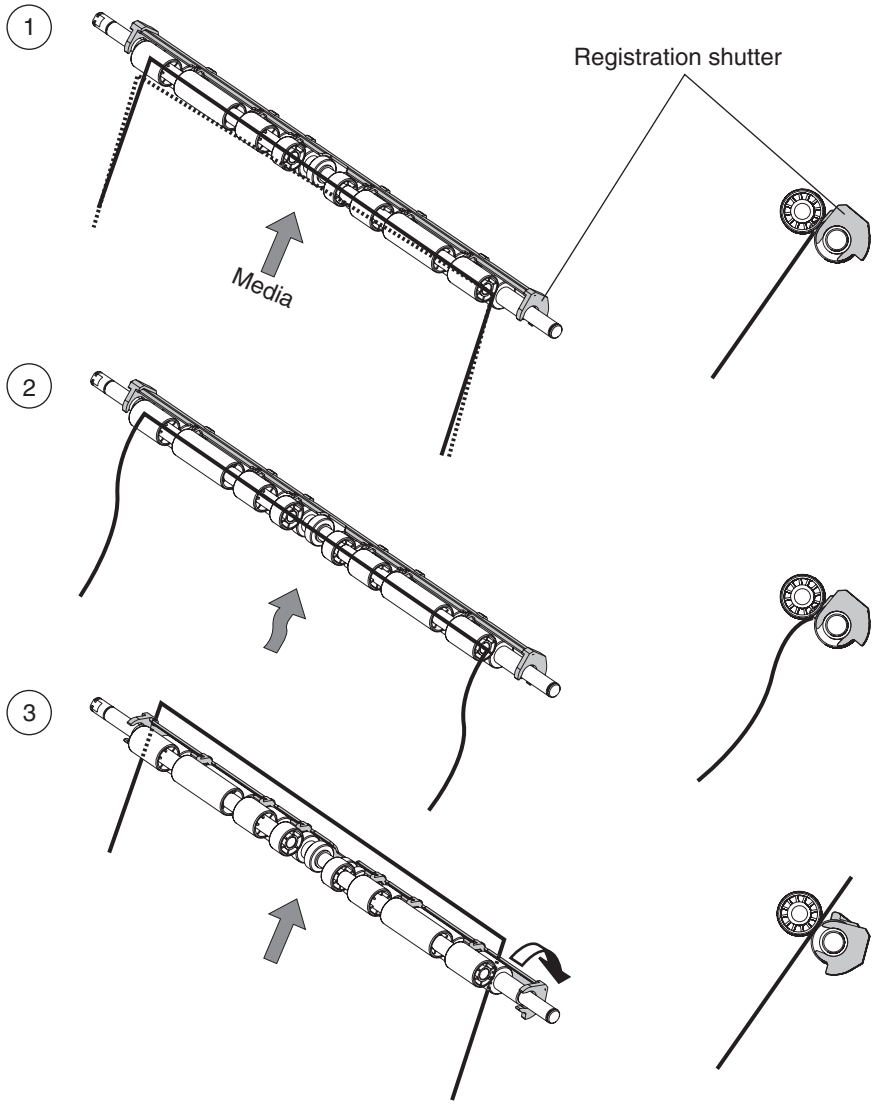


Skew-feed prevention

The product can straighten the paper without slowing the feed operation.

1. As the paper enters the paper path, the leading edge strikes the registration shutter, but the paper does not pass through the shutter, so it is straightened.
2. The feed rollers keep pushing the paper, creating a force on the leading edge against the registration shutter.
3. When the force is great enough, the registration shutter opens and the paper passes through.

Figure 5-39 Skew-feed prevention

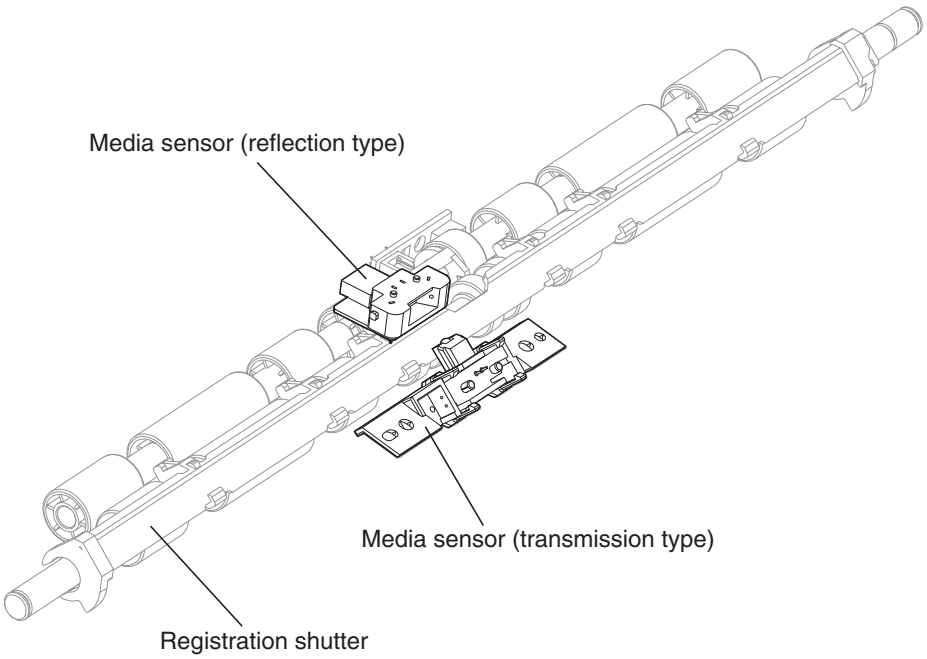


Paper-type detection

The product can detect the type of paper in the paper path, and it adjusts the print mode accordingly. The product uses two types of media sensors:

- **Reflection**: Detects the glossiness of the paper
- **Transmission**: Detects the thickness of the paper

Figure 5-40 Media sensor unit



The DC controller uses the information from the media sensors to determine the paper type, and it notifies the formatter. The DC controller notifies the formatter of a paper-type mismatch if any of the following conditions exist:

- **Simplex printing**:
  - The mode specified for the print job is Transparency, but the media sensor detects another type.
  - The mode specified for the print job is something other than Auto or Transparency, but the media sensor detects a transparency.
- **Duplex printing**: The mode specified for the print job is compatible with duplex printing, but the media sensor detects a transparency.

When the product is turned on or when it comes out of Sleep mode, it tests the media sensor by turning on the LED. If the intensity of the light does not match the specified value, the DC controller determines that the sensor has failed.

Feed-speed control

Depending on the type of paper, the product adjusts the feed speed to obtain the best print quality. For paper types that the media sensor cannot detect, the product adjusts the feed speed according to the print mode specified by the formatter for the print job.

Paper type (Control panel)	Print mode	Recommended paper weight range	Feed speed	Media-sensor detection
BOND	Normal	75–90 g/m^2	Full	Yes
COLORED				
HP MATTE 90g				
INTERMEDIATE 85-95g				
LETTERHEAD				
PLAIN				
PREPRINTED				
PREPUNCHED				
RECYCLED				
HEAVY 111–125g	Heavy 1	91–120 g/m^2	3/4	Yes
HP MATTE 105g				
HP MATTE 120g				
MID-WEIGHT 96-110g				
EXTRA HEAVY 126-175	Heavy 2	121–163 g/m^2	1/2	Yes
HP MATTE 160g				
CARDSTOCK 176-220g	Heavy 3	164–220 g/m^2	1/3	Yes
HP MATTE 200g				
HP MATTE 220g				
LIGHT 60-74g	Light 1	60–74 g/m^2	Full	No
HP GLOSSY 120g	Glossy 1	90–120 g/m^2	3/4	Yes
HP SOFT GLOSS 120g				
HVY GLOSSY 111g-125g				
MID-WTGLOSSY 96g-110g				
HP GLOSSY 160g	Glossy 2	121–150 g/m^2	1/2	Yes
XHVYGLOSSY 126-175g				
CARD GLOSSY 176-220	Glossy 3	151–220 g/m^2	1/3	Yes
HP GLOSSY 220g				
HP TOUGH PAPER	Glossy film	5 mil	1/10	Yes
OPAQUE FILM				
	Envelope	Envelope	Full	No
COLOR TRANSPARENCY	Transparency	5 mil	1/10	Yes
	Label	Label	1/2	No

Fusing and delivery unit

The fusing and delivery unit fuses the toner onto the paper and delivers the printed page into the output bin. It has the following controls to ensure optimum print quality:

- Loop control
- Pressure roller pressurization/depressurization control

A sensor detects when the output bin is full, and the DC controller notifies the formatter.

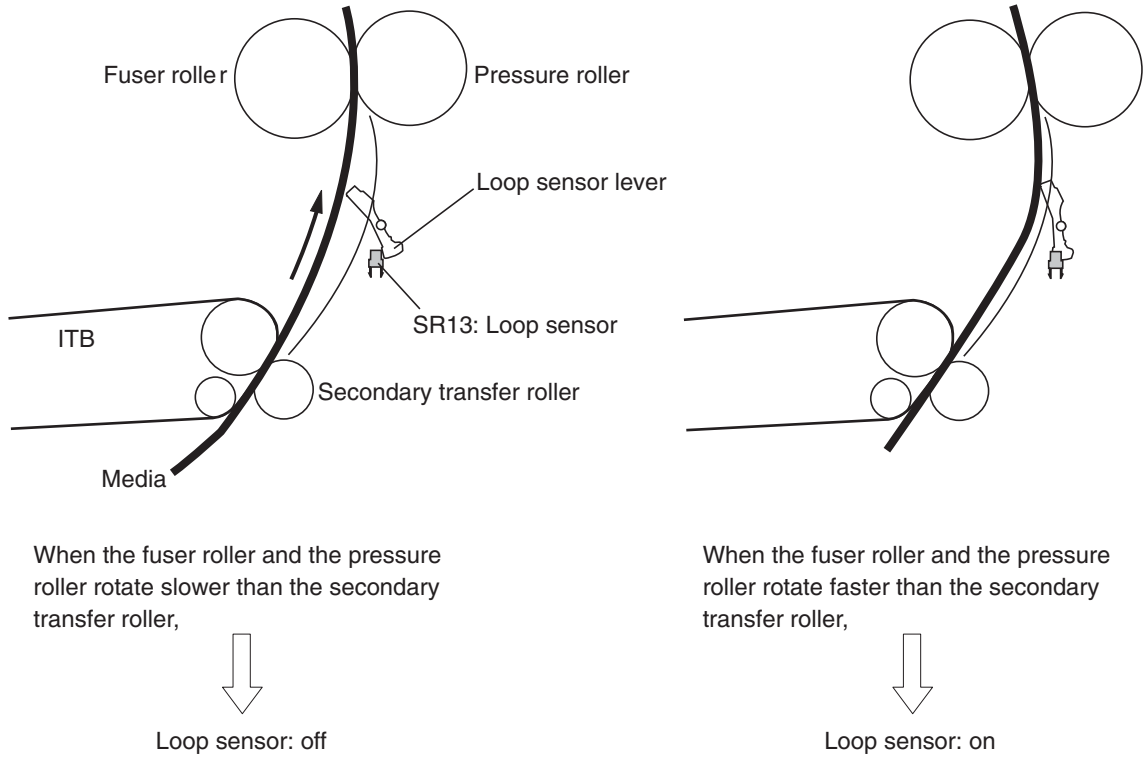
Loop control

The loop control maintains even tension on the paper while it is moving through the fuser to prevent print-quality defects and paper-handling defects.

- If the fuser rollers rotate more slowly than the secondary transfer rollers, the paper warp increases and an image defect or paper crease occurs.
- If the fuser rollers rotate faster than the secondary transfer rollers, the paper warp decreases and the toner image is not transferred to the paper correctly, causing color misregistration.

To prevent these problems, the loop sensor, located between the secondary transfer rollers and the fuser rollers, detects whether the paper is sagging or is too taut. The DC controller adjusts the speed of the fuser motor accordingly.

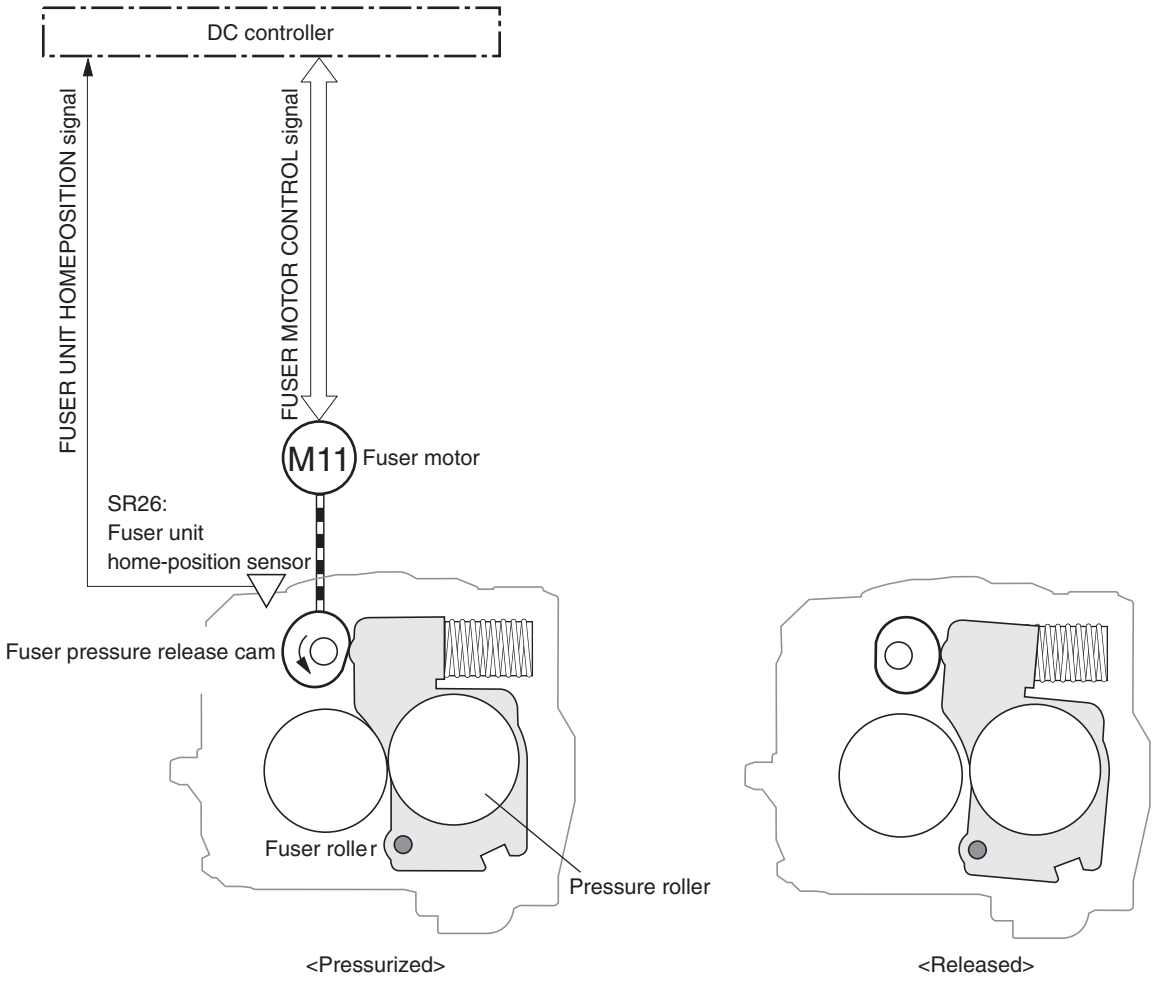
Figure 5-41 Loop-control mechanism



Pressure-roller pressurization control

To prevent excessive wear on the pressure roller and to facilitate jam-clearing procedures, the pressure roller is not pressurized except during printing. The DC controller reverses the fuser motor, which rotates the fuser pressure-release cam.

Figure 5-42 Pressure-roller pressurization control



The pressure roller is depressurized under the following conditions:

- The product is turned off with the on/off switch.
- After a specific time period from entering the standby period
- During powersave mode
- When a paper jam is detected.

NOTE: The fuser remains pressurized if the power is interrupted by removing the power cord or turning off a surge protector, or if the fuser is removed without turning off the product.

Duplexing unit

For supported models, the duplexing unit reverses the paper and feeds it through the paper path to print the second side. It consists of the following components:

- **Duplexing-reverse unit**: Installed on top of the product
- **Duplexing-feed unit**: Inside the product, along the right side

Figure 5-43 Duplexing unit

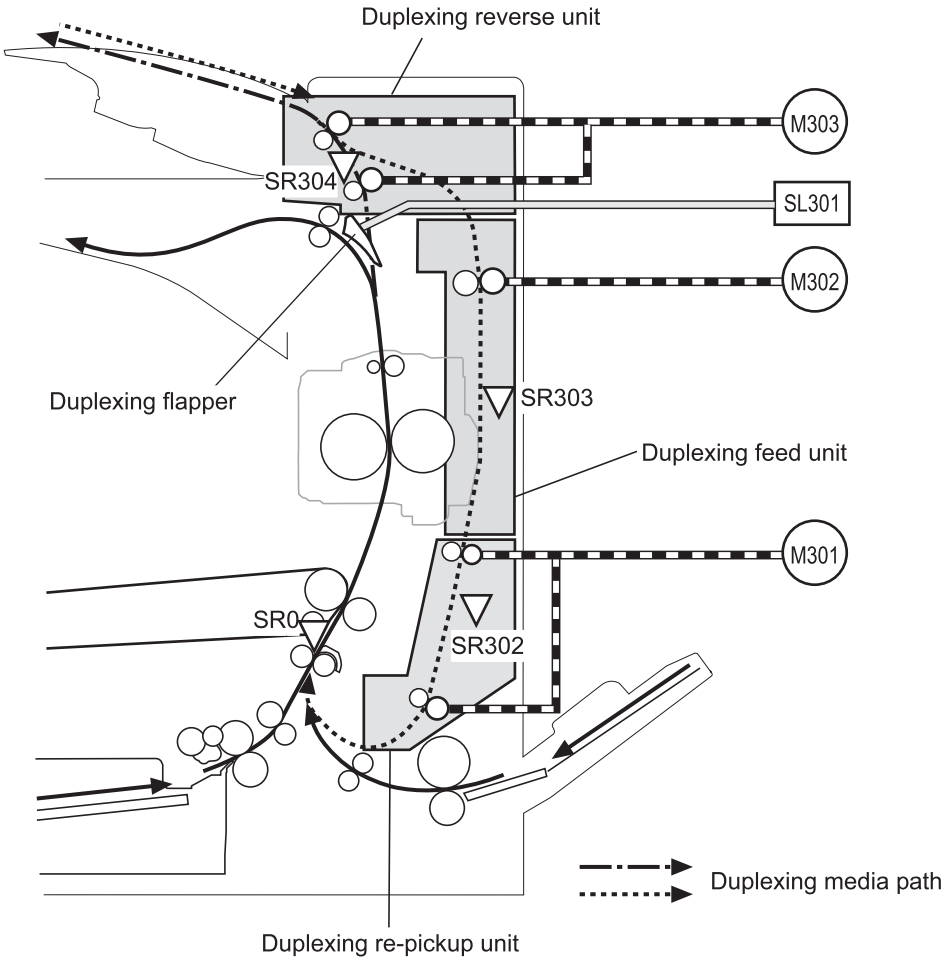


Table 5-17 Duplexing-unit components

Abbreviation	Component
M301	Duplexing re-pickup motor
M302	Duplexing feed motor
M303	Duplexing reverse motor
SL301	Duplexing flapper solenoid
SR302	Duplexing paper re-pickup sensor
SR303	Duplexing paper-feed sensor
SR304	Duplexing paper-reverse sensor

All these components are driven by the duplexing driver, according to signals from the DC controller. If the DC controller cannot communicate with the duplexing driver, it notifies the formatter that the duplexing unit has failed.

Duplexing reverse and feed control

The duplexing reverse procedure pulls the paper into the duplexing unit after it exits the fuser, and the duplexing feed procedure moves the paper through the duplexer so it can enter the product paper path to print the second side of the page.

1. After the first side has printed, the duplexing flapper solenoid is opened, which creates a paper path into the duplexing-reverse unit.
2. After the paper has fully entered the duplexing-reverse unit, the duplexing-reverse motor reverses and directs the paper into the duplexing-feed unit.
3. The duplexing re-pickup motor and duplexing feed motor move the paper into the duplexing re-pickup unit.
4. To align the paper with the toner image on the ITB, the duplexing re-pickup motor stops and the paper pauses until the specified time.
5. The paper re-enters the paper path, and the second side is printed.

Jam detection

The product uses the following sensors to detect the paper as it moves through the paper path and to report to the DC controller if the paper has jammed.

- Vertical synchronous position sensor
- Cassette paper-feed sensor
- Multipurpose tray paper-feed sensor
- Loop sensor
- Fuser delivery paper-feed sensor
- Output-bin full sensor
- Duplexing paper re-pickup sensor
- Duplexing paper-feed sensor
- Duplexing paper-reverse sensor
- Media sensor

The product determines that a jam has occurred if one of these sensors detects paper at an inappropriate time. The DC controller stops the print operation and notifies the formatter.

Table 5-18 Jams that the product detects

Jam	Description
Pickup delay jam 1	**Cassette pickup**: The cassette paper-feed sensor does not detect the leading edge of the paper within a specified period after the cassette pickup solenoid has turned on.
	Multipurpose tray pickup: The multipurpose tray paper-feed sensor does not detect the leading edge of the paper within a specified period after the multipurpose tray solenoid has turned on.
Pickup delay jam 2	The vertical synchronous position sensor does not detect the leading edge of the paper within a specified period after the paper-feed sensor (for either the cassette or the multipurpose tray) detects the leading edge.
Pickup stationary jam	The media sensor does not detect the trailing edge of the paper within a specified period after the registration motor begins rotating to re-feed the paper.
Fuser delivery delay jam	The fuser delivery paper-feed sensor does not detect the leading edge of the paper within a specified period after the registration motor begins rotating to re-feed the paper.
Fuser delivery stationary jam	The fuser delivery paper-feed sensor does not detect the trailing edge of the paper within a specified period after it detects the leading edge.
Wrapping jam	After it has detected the leading edge of the paper, the fuser delivery paper-feed sensor detects the absence of paper, and it has not yet detected the trailing edge.
Delivery delay jam 3	The output bin full sensor does not detect the leading edge of the paper within a specified period after the fuser delivery paper-feed sensor has detected the leading edge.

Table 5-18 Jams that the product detects (continued)

Jam	Description
Residual paper jam	One of the following sensors detects paper presence during the initialization sequence: • Fuser delivery paper-feed sensor • Loop sensor • Duplexing paper-reverse sensor
Door open jam	A door is open while paper is moving through the product.
Duplexing reverse jam 1	The duplexing paper-feed sensor does not detect the leading edge of the paper within a specified period after the paper-reverse operation starts.
Duplexing reverse jam 2	The duplexing paper-reverse sensor does not detect the trailing edge of the paper within a specified period after it detects the leading edge.
Duplexing re-pickup jam 1	The vertical synchronous position sensor does not detect the leading edge of the paper within a specified period after the paper is re-picked up from the duplexing pickup position.
Duplexing re-pickup jam 2	The duplexing paper re-pickup sensor does not detect the leading edge of the paper within a specified period after the paper-reverse operation starts.

After a jam, some sheets of paper might remain inside the product. If the DC controller detects residual paper after a door is closed or after the product is turned on, the product automatically clears itself of those residual sheets.

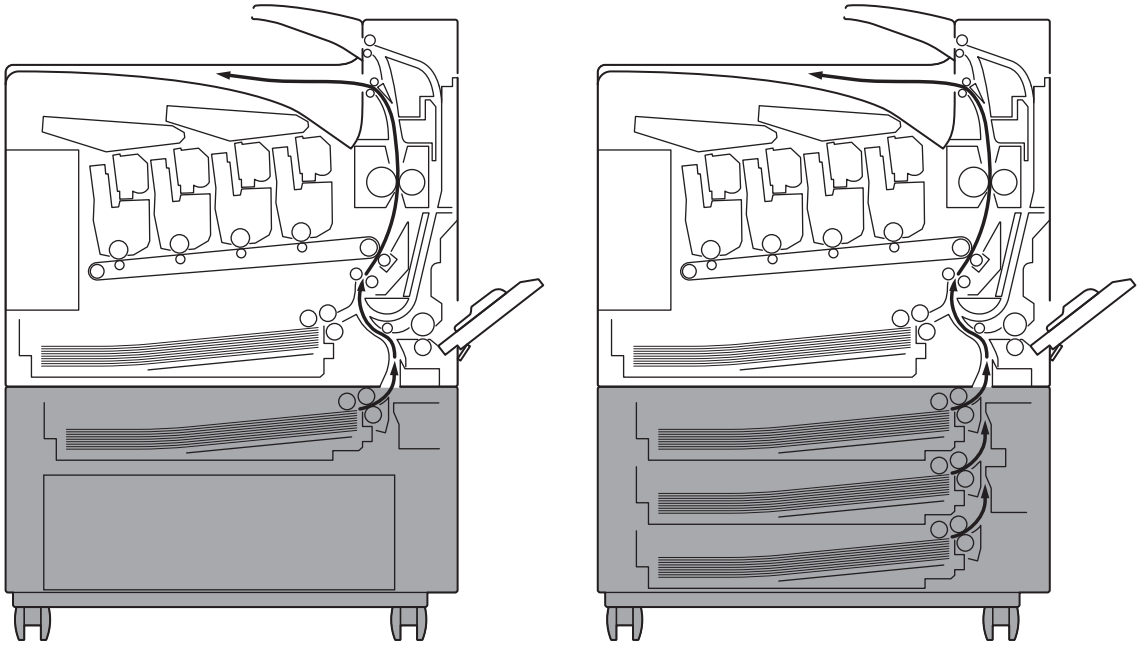
Optional input trays

The product is configured with either the additional 1x500-sheet input tray or 3x500-sheet input tray depending on which bundle was purchased.

- The 1x500-sheet input tray has one tray (Tray 3) and a storage compartment.
- The 3x500-sheet input tray has three trays (Trays 3, 4, and 5).

NOTE: These optional trays are *not* identical to the main cassette (Tray 2).

Figure 5-44 Optional input trays

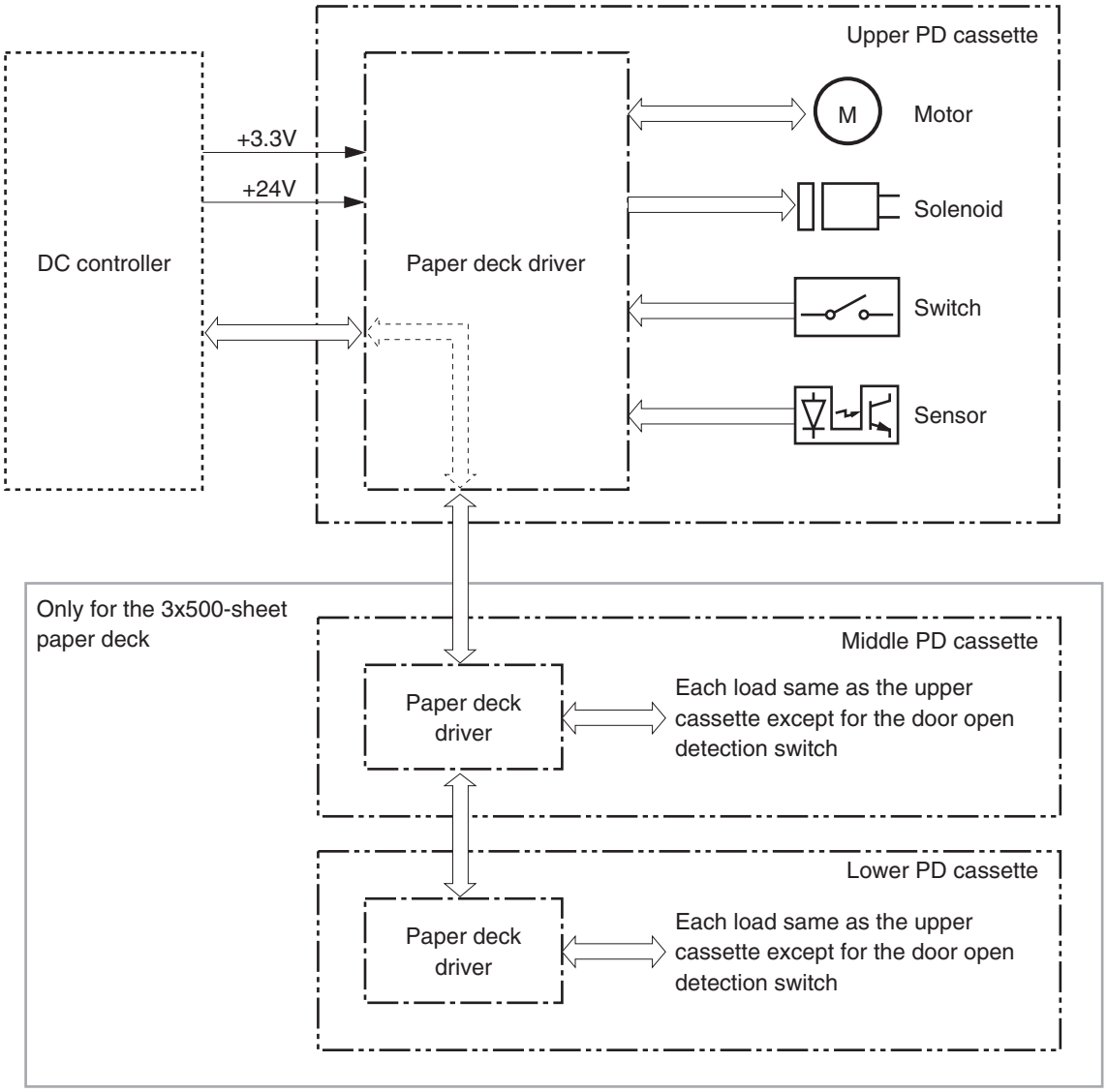


1x500-sheet input tray

3x500-sheet input tray

These additional trays are each controlled by paper-deck drivers, which contain a microcomputer. The paper-deck drivers receive commands from the DC controller. If the DC controller is unable to communicate with a paper-deck driver, it notifies the formatter that the optional input tray is not connected correctly.

Figure 5-45 Signals for the input trays



The input trays contain several motors, solenoids, sensors, and switches, as described in the following table.

Table 5-19 Electrical components for the optional input trays

Component type	Abbreviation	Component name
Motors	M101	Upper paper-feeder cassette pickup motor
	M102	Upper paper-feeder lifter cassette motor
	M111	Middle paper-feeder cassette pickup motor (3x500-sheet input tray only)
	M112	Middle paper-feeder cassette lifter motor (3x500-sheet input tray only)
	M121	Lower paper-feeder cassette pickup motor (3x500-sheet input tray only)
	M122	Lower paper-feeder cassette lifter motor (3x500-sheet input tray only)

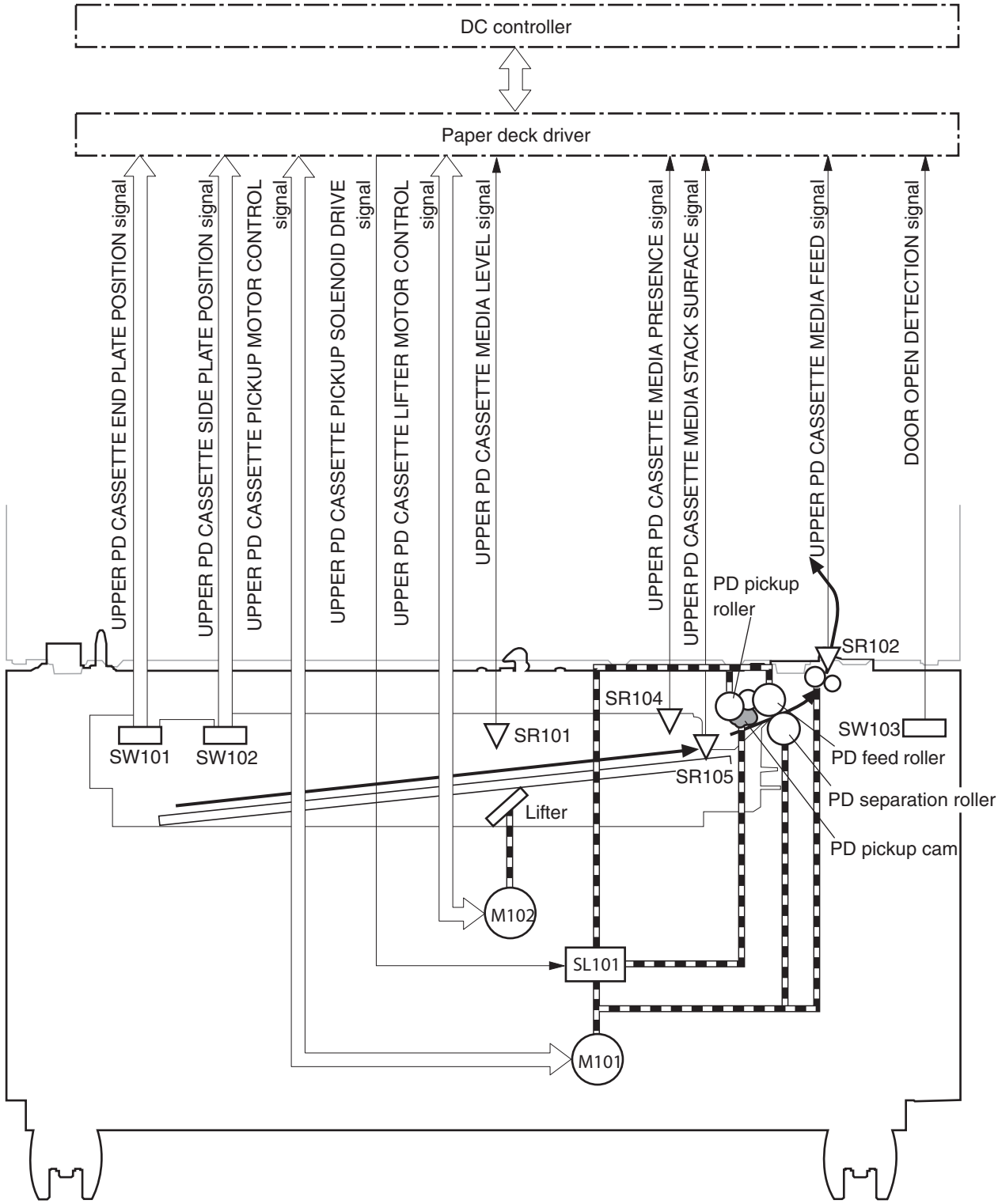
Table 5-19 Electrical components for the optional input trays (continued)

Component type	Abbreviation	Component name
Solenoids	SL101	Upper paper-feeder cassette pickup solenoid
	SL111	Middle paper-feeder cassette pickup solenoid (3x500-sheet input tray only)
	SL121	Lower paper-feeder cassette pickup solenoid (3x500-sheet input tray only)
Sensors	SR101	Upper paper-feeder cassette paper-level sensor
	SR102	Upper paper-feeder cassette paper-feed sensor
	SR104	Upper paper-feeder cassette paper-presence sensor
	SR105	Upper paper-feeder cassette paper-stack surface sensor
	SR111	Middle paper-feeder cassette paper-level sensor (3x500-sheet input tray only)
	SR112	Middle paper-feeder cassette paper-feed sensor (3x500-sheet input tray only)
	SR114	Middle paper-feeder cassette paper-presence sensor (3x500-sheet input tray only)
	SR115	Middle paper-feeder cassette paper-stack surface sensor (3x500-sheet input tray only)
	SR121	Lower paper-feeder cassette paper-level sensor (3x500-sheet input tray only)
	SR122	Lower paper-feeder cassette paper-feed sensor (3x500-sheet input tray only)
	SR124	Lower paper-feeder cassette paper-presence sensor (3x500-sheet input tray only)
	SR125	Lower paper-feeder cassette paper-stack surface sensor (3x500-sheet input tray only)
Switches	SW101	Upper paper-feeder cassette end-plate position switch
	SW102	Upper paper-feeder cassette side-plate position switch
	SW103	Door open detection switch
	SW111	Middle paper-feeder cassette end-plate position switch (3x500-sheet input tray only)
	SW112	Middle paper-feeder cassette side-plate position switch (3x500-sheet input tray only)
	SW121	Lower paper-feeder cassette end-plate position switch (3x500-sheet input tray only)
	SW122	Lower paper-feeder cassette side-plate position switch (3x500-sheet input tray only)

Paper-feeder pickup and feed operation

The pickup and feed operation is the same for each of the trays.

Figure 5-46 Paper-feeder pickup and feed operation



The methods for all the following operations are the same as for the main cassette (Tray 2):

- Paper-size detection and cassette-presence detection
- Lift operation
- Paper-level and paper-presence detection
- Multiple feed prevention
- Jam detection

Scanner component

The bright and dark areas of a scanned document reflect different light values from the light source (CCFL), and the light emits through the lens in the scan head. When the CCD sensors receive the light, photoelectricity is produced according to the light strength. The CCD and CCB/B change the light into electricity, and then the CCD/B transmits the analog electrical signal through the R, G, B channels. The analog signal (R,G,B) is sent to the to the A/D converter, which converts the analog signals to digital signals. The ASIC reads the digital data produced by the A/D converter and then processes the read data in the inner ASIC.

NOTE: The same optical system is used for the glass and ADF scans.

Figure 5-47 Scanner components (1 of 2)

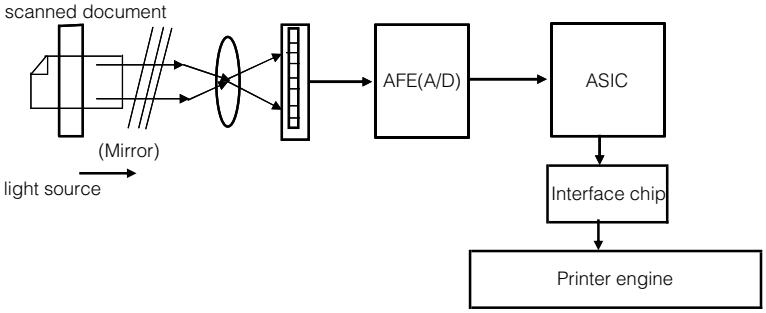


Figure 5-48 Scanner components (2 of 3)

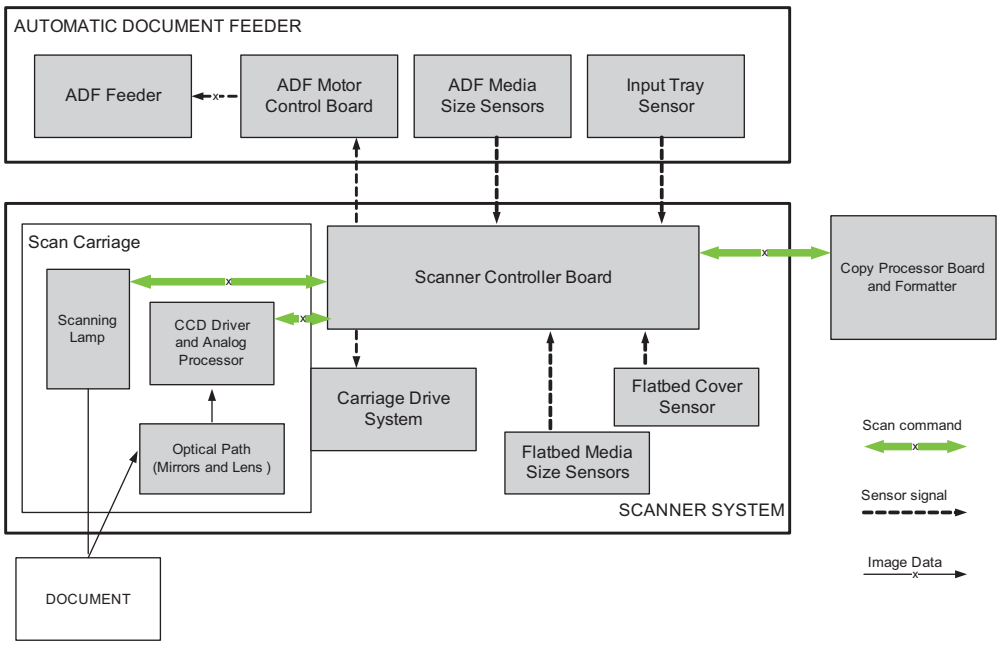
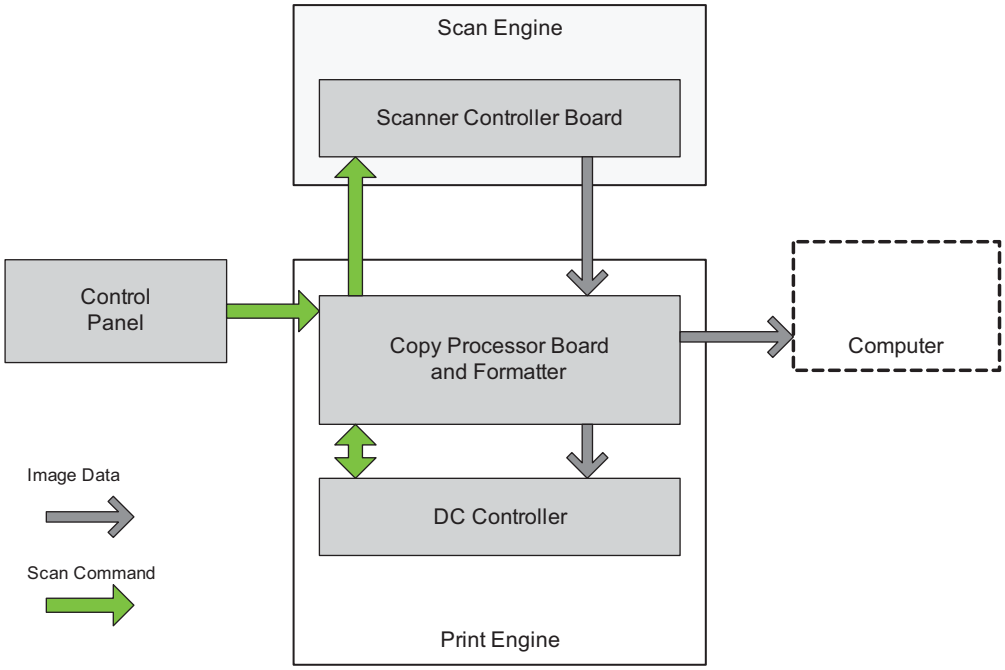


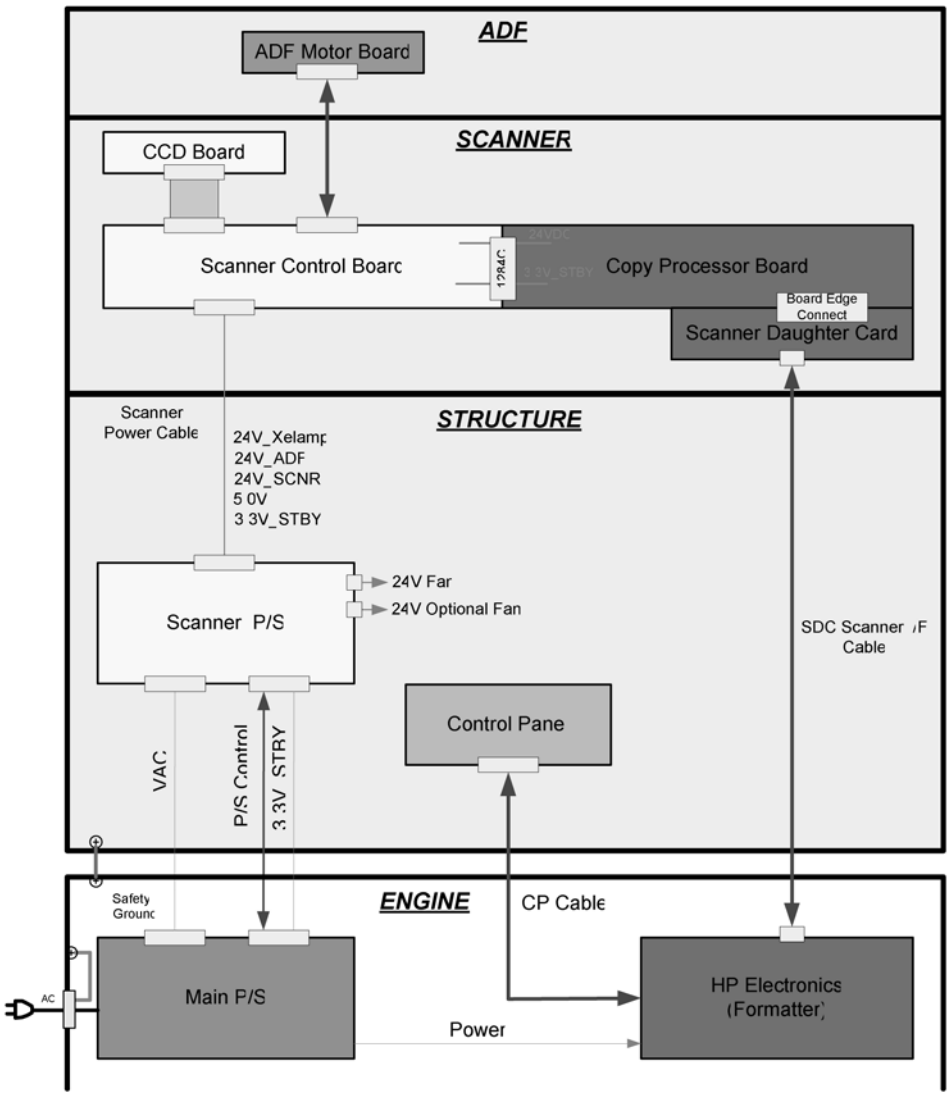
Figure 5-49 Scanner components (3 of 3)



Product boards

The scanner includes two major parts: structure and scanner. The scanner includes the copy-processor board (CPB), scanner-control board (SCB), and PCI-e cable, which are embedded in the structure and scanner bodies. The scanner controls the ADF.

Figure 5-50 Scanner



Scanner system block diagram

The scanner has its own power supply, which can accept the universal ac input range provided by the product power supply. The print engine controls the scanner power supply via a PSON signal. However, the PSON signal does not control the STBY_3.3 V power source from the print engine. STBY_3.3 V provides power for certain sensors during sleep mode.

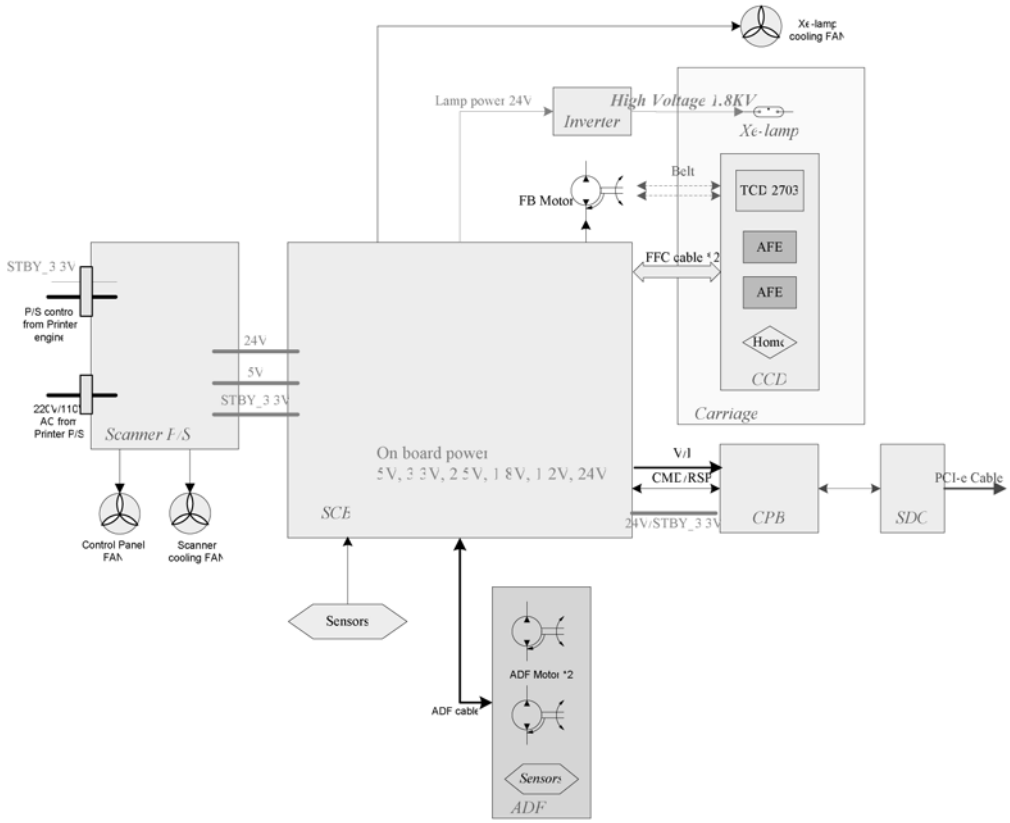
The scanner system has three cooling fans. The control-panel fan and scanner cooling fan are connected to the scanner power supply directly. The lamp fan is connected to the SCB and controlled by the SCB firmware. All three fans have a fan-lock detection mechanism. The lamp fan only operates during ADF scanning, while the other two fans operate when the scanner is on. The light source system

includes one inverter and one Xe-lamp. The inverter is located on the scanner structure. The Xe-lamp is located on the scanner carriage.

△ **CAUTION:** The inverter output voltage is 1.8 KV high voltage. Do not touch both the inverter and carriage when the scanner is on.

Two FFC cables connect the CCD board on the carriage and the SCB. The board-to-board connectors connect the SCB and CPB and CPB and SDC. The black PCI-e cable connects the SDC and print engine (formatter board).

Figure 5-51 Scanner system block diagram



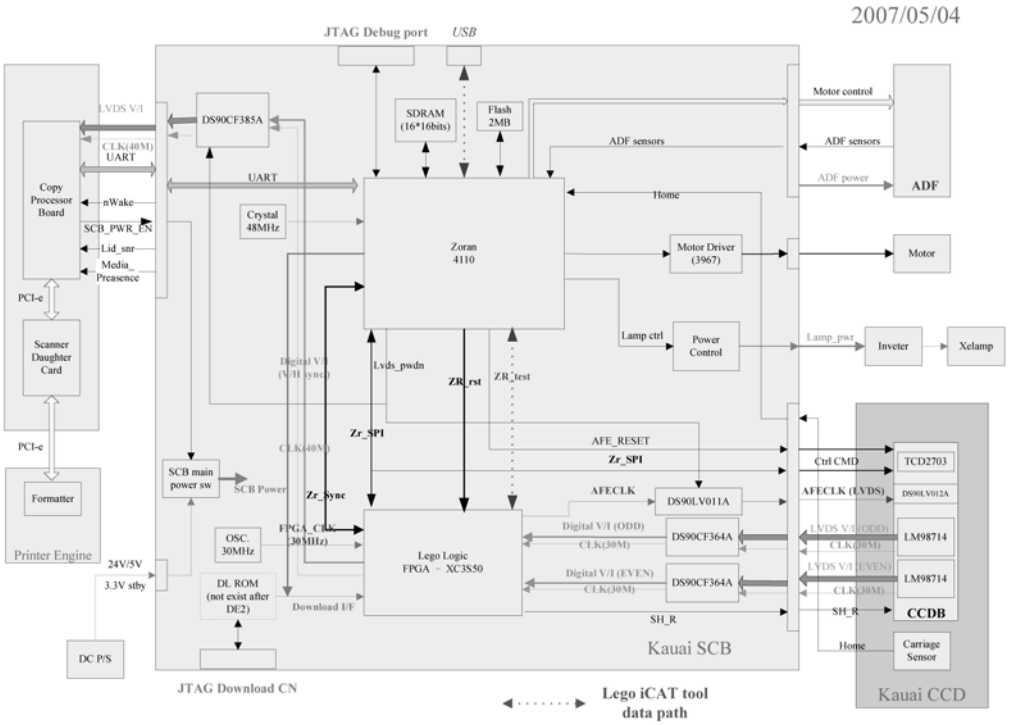
Scanner image-data path

For input signals, ZR ASIC generates the SH signal of each line. This SH transfers to the AFE chip through the FPGA chip. The AFE then sends the SH signal to the CCD. The clock signal of the AFE chip is provided from the FPGA. The AFE sends the CCD clock/control signals to the CCD.

For output signals, the CCD analog video signals can be decoded as digital data by the AFE (ADC). The AFE sends back the image data using LVDS signals. Two LVDS receiver chips deserialize image

data and send it to the FPGA. The FPGA combines even and odd pixel data and converts it to the HP video interface. The LVDS transmitter chip serializes data as the LVDS format and sends it to the CPB.

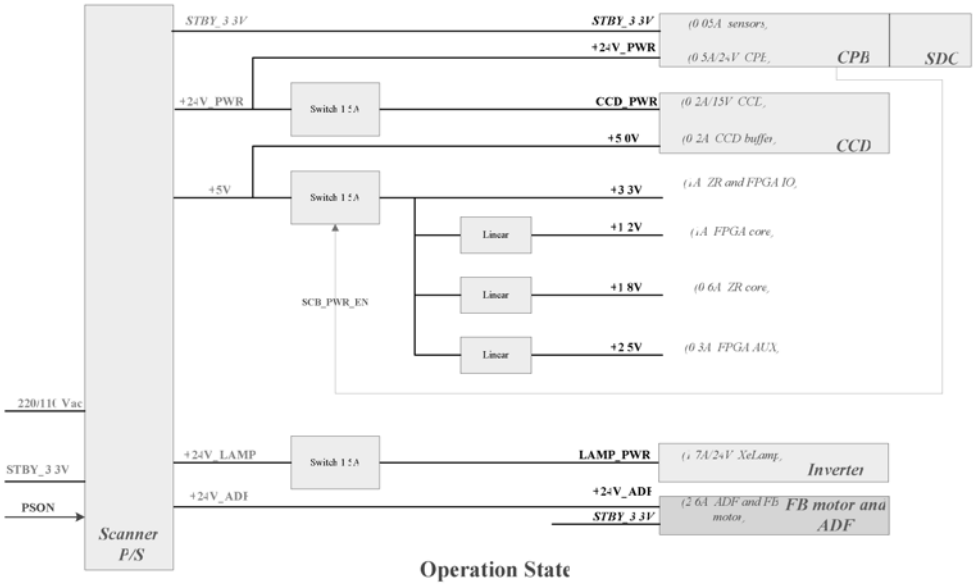
Figure 5-52 Scanner system image-data path



Scanner power topology

The scanner power-supply input range is universal ac (100 to 240 Vac). It is controlled by the PSON signal, which is provided by the print engine. There is one standby power (STBY_3.3 V) provided for sensors during sleep mode. Total power consumption of the scanner power supply is 139.7 W.

Figure 5-53 Scanner power topology



Scanner power states

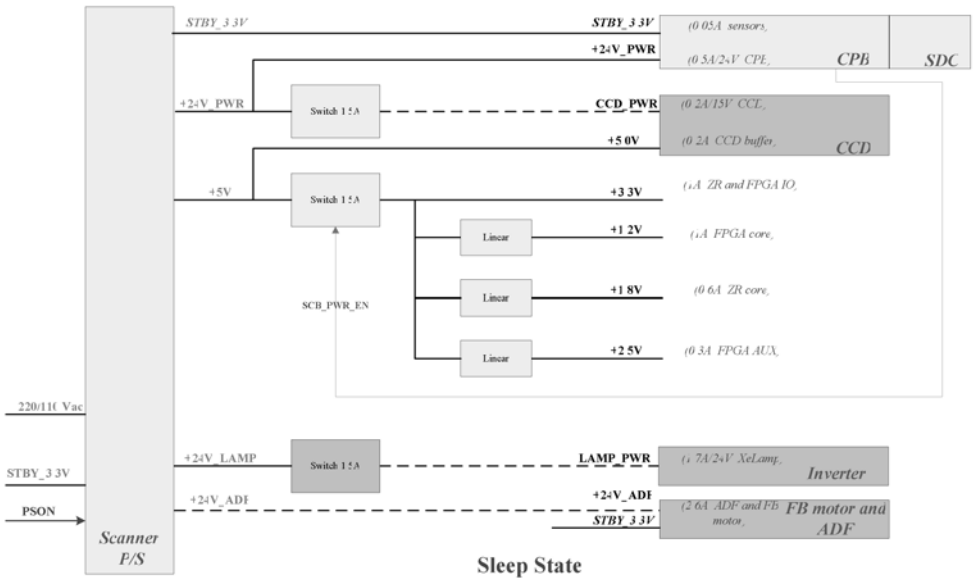
The scanner has three power states:

- Standby: Scanner is ready to scan.
- Sleep: Scanner is in low-power state. Some components are off.
- Deep Sleep: Scanner is in the lowest power state. Most of the components are off, and the power to the processor (U10) of the scanner-controller board is off.

Table 5-20 Scanner power states

Mode	Scanner system	Printer system
RDY	Standby	Standby
Sleep1	Sleep	Reduced power
Sleep2	Deep sleep	Lowest product state

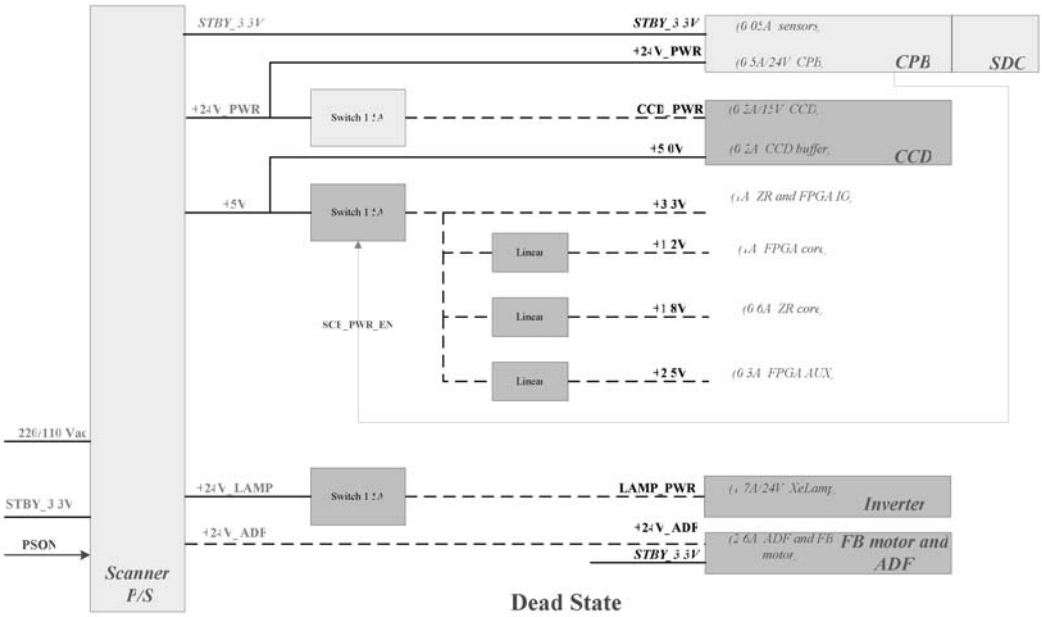
Figure 5-54 Sleep-state power topology



Sleep State

During sleep state, the scanner shuts down most of its peripherals including the CCD, AFE, LVDS, FB/ADF motors, lamp, and inverter. The scanner stops the FPGA oscillator to reduce FPGA (U6) power consumption. Only the CPB sensor signals (cover lid, ADF media presence, and nWake) allow the CPB to send a command to wake up the scanner.

Figure 5-55 Deep-sleep-state power topology



During deep-sleep state, the CPB disables the SCB_PWR_EN signal, which disables the scanner-logic power source. The power to the processor of the SCB is off. 24 V from the scanner power supply is provided to the CPB.

Sensor topology

Each fan has a lock signal that informs the system if a fan-rotation function has failed. The lid sensor triggers the detection of the FB paper-size sensors. The ADF has eight sensors. The CCD board has a home sensor. The status of these sensors is reported to the CPB by the SCB. The lid sensor,

media_presence, and nWake signals are directly connected to the CPB and powered by STBY_3.3 V. STBY_3.3 V is provided continuously when PSON is enabled.

Figure 5-56 Sensor topology

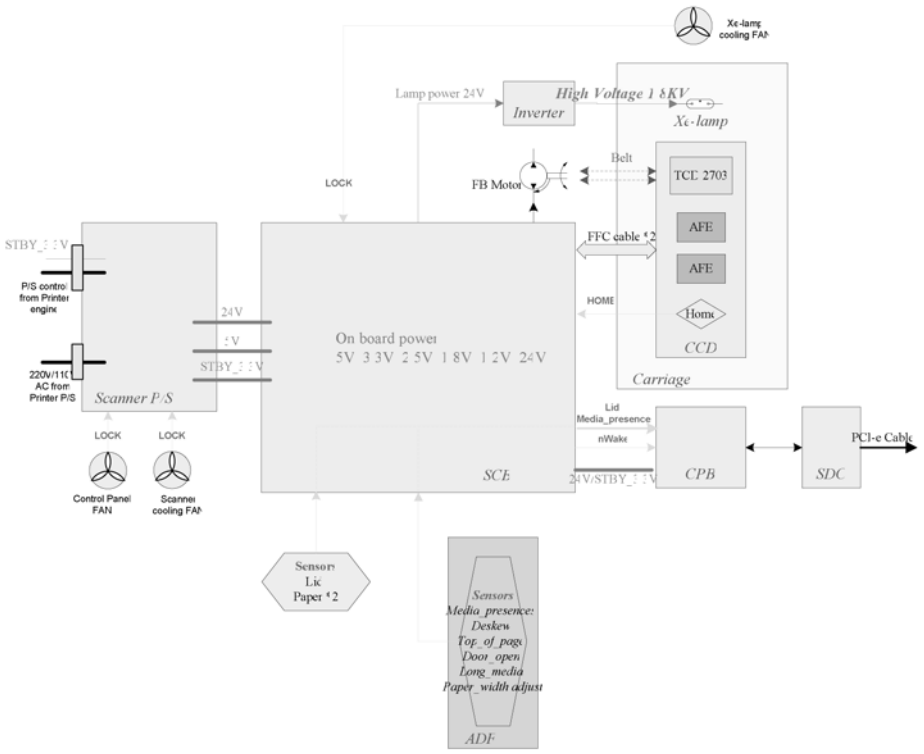


Table 5-21 Sensors

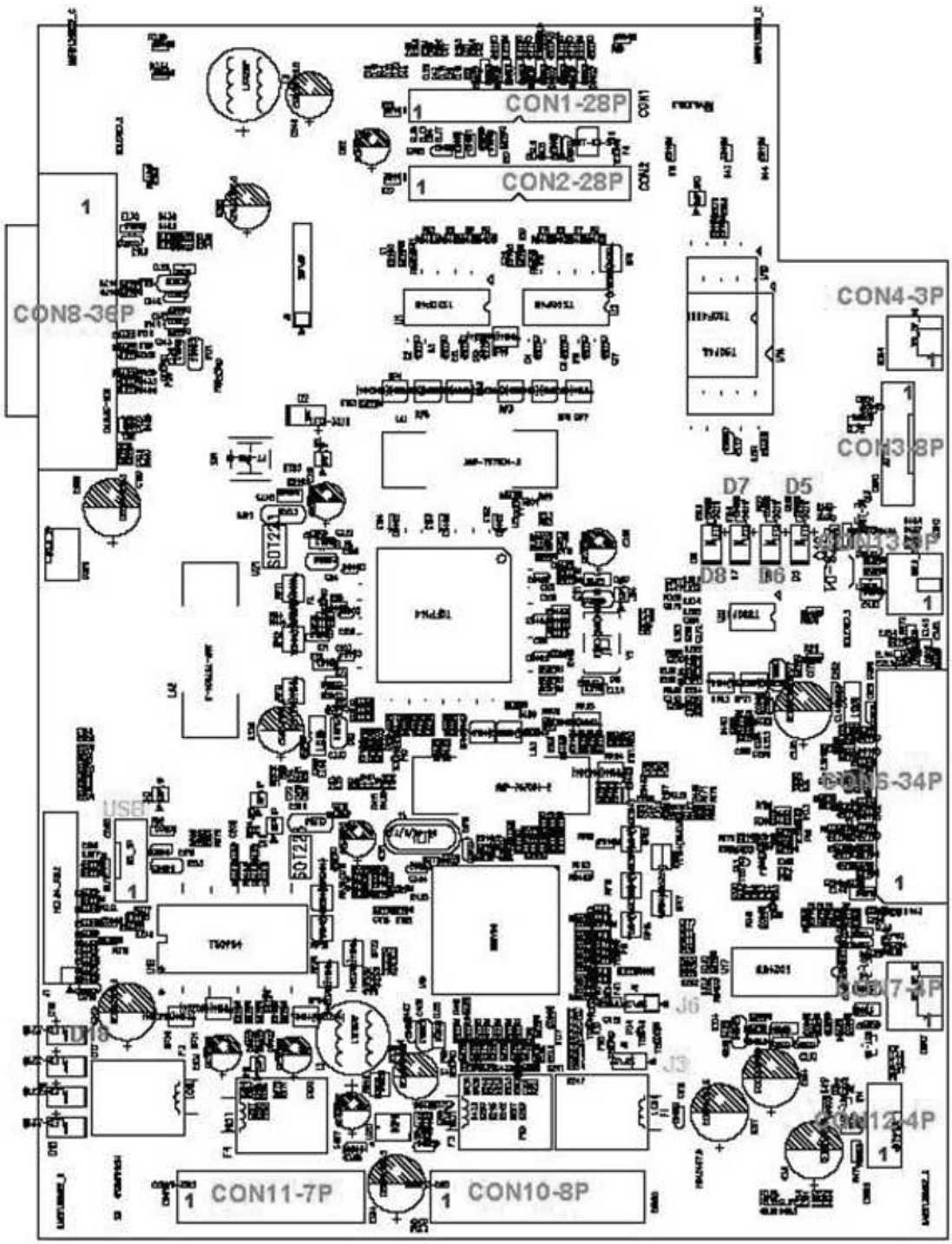
Location	Name	Description
ADF	Media_Presence	Media presence: H Media empty: L
	Deskew	Skew: H No skew: L
	Top_of_Page	Top of page: H Not top of page: L
	EXIT_SENSOR	Not available
	Door_Open (Hatch)	Door close: H Door open: L
	Long_Media	Long media: H Not long media : L
	Paper_Width_Adjust	Wide media: H Not wide media: L
	Pick_Success_Sensor	If the ADF module is attached, this signal will always be H.

Table 5-21 Sensors (continued)

Carriage	Home Sensor	At home: H Not at home: L
SCB	Lid	FB cover open: H FB cover close: L
	Paper (wide)	Wide paper: H Not wide paper: L
	Paper (wide)	Long paper: H Not long paper: L
	nWake	Wake up status: H Idle status: L

Boards I/Os

Figure 5-57 SCB map



The main board of the scanner is the SCB. The connectors are external I/O ports of the SCB. The LEDs (D5-D8, D18) are SCB LED indicators. The jumpers (J3, J5, USB) are reserved for debugging and the manufacturer.

Table 5-22 SCB connectors

Item number	Connector	Pin number	Connects to	Remark
1	CON1	28	CCDB	
2	CON2	28	CCDB	LVDS
3	CON4	3	Lid sensor	
4	CON3	8	Paper sensors	
5	CON13	3	Lamp fan	
6	CON6	34	ADF module	
7	CON7	4	FB motor	
8	CON12	4	Xe-lamp inverter	24V
9	CON10	8	Power supply	ADF and Xe-lamp power (24 V)
10	CON11	7	Power Supply	SCB 24 V, 5 V and STBY_3.3 V
11	CON8	34	CPB	1284C metal connector

The CCD board connects to the SCB using two 28-pin FFC cables. The CCD board and the home sensor are located on the carriage. There are only three connectors on the CCD board.

Figure 5-58 CCD map

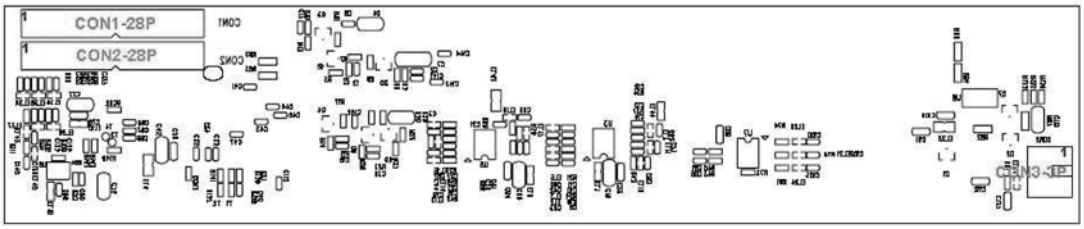


Table 5-23 CCD map

Item number	Connector	Pin number	Connects to	Remark
1	CON1	28	CCDB	
2	CON2	28	CCDB	LVDS
3	CON3	3	Home	

Scanner operation flow

Figure 5-59 Power-on initialization-operation flow (1 of 2)

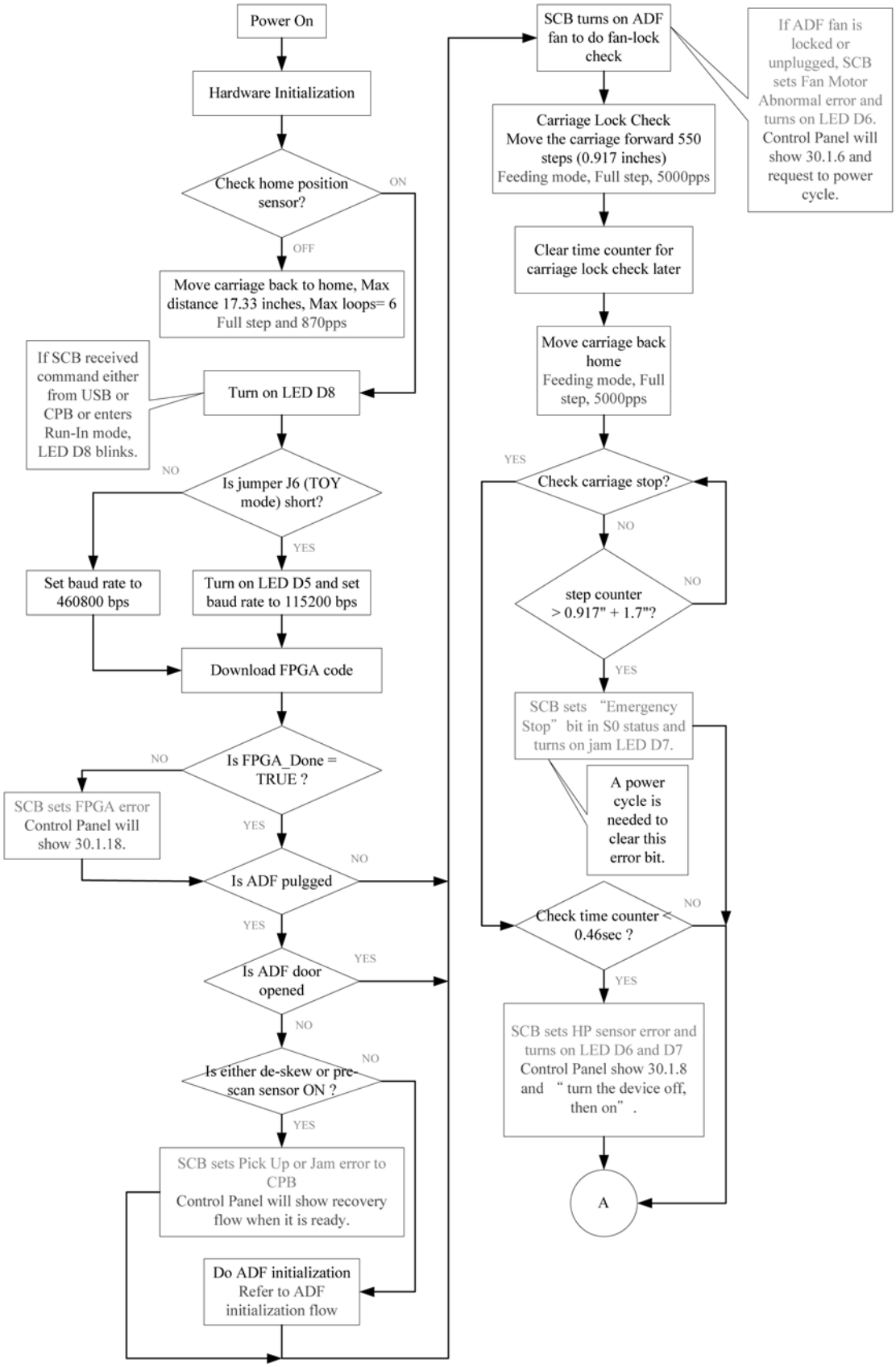


Figure 5-60 Power-on initialization-operation flow (2 of 2)

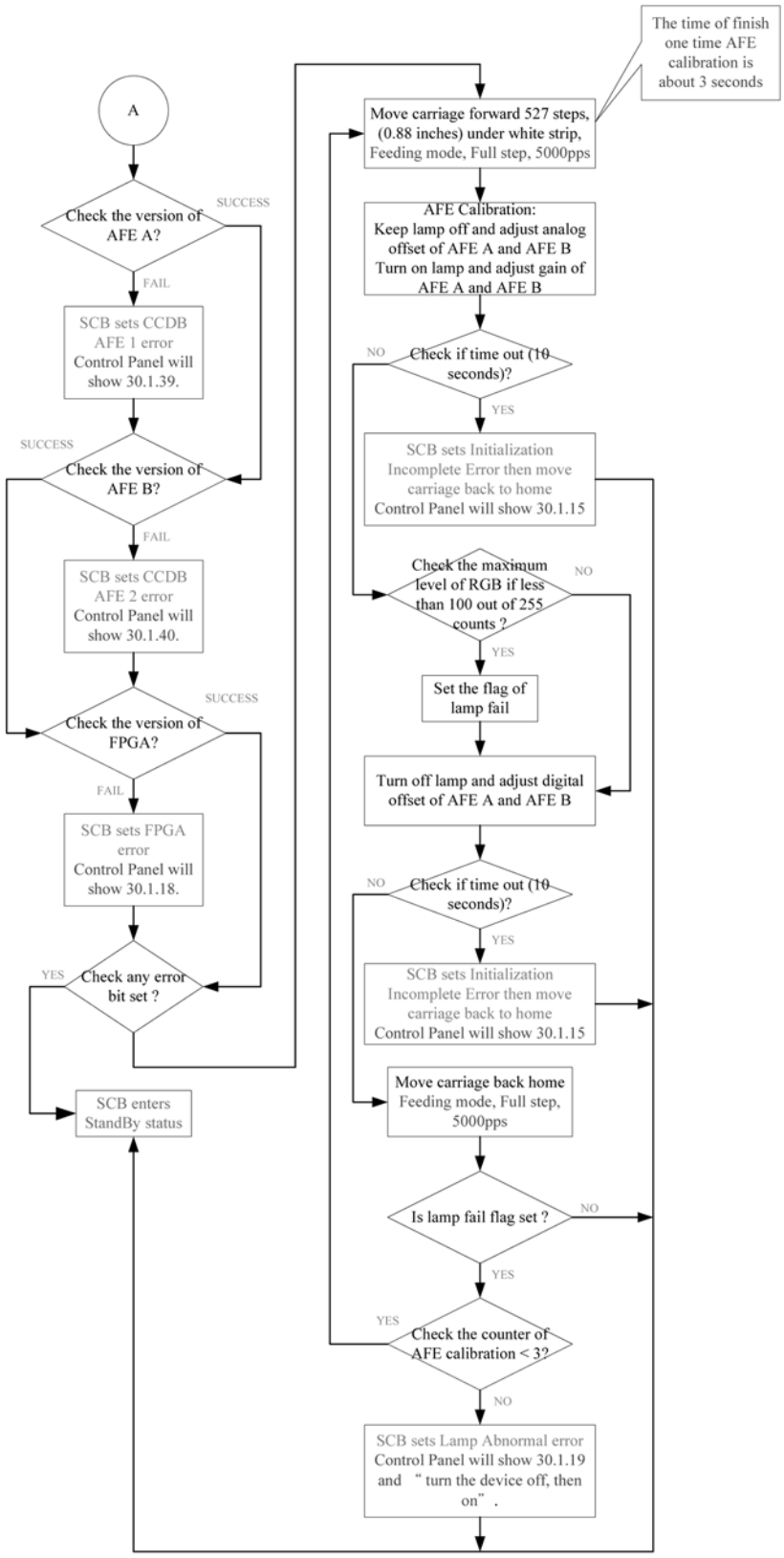


Figure 5-61 FB scan-operation flow

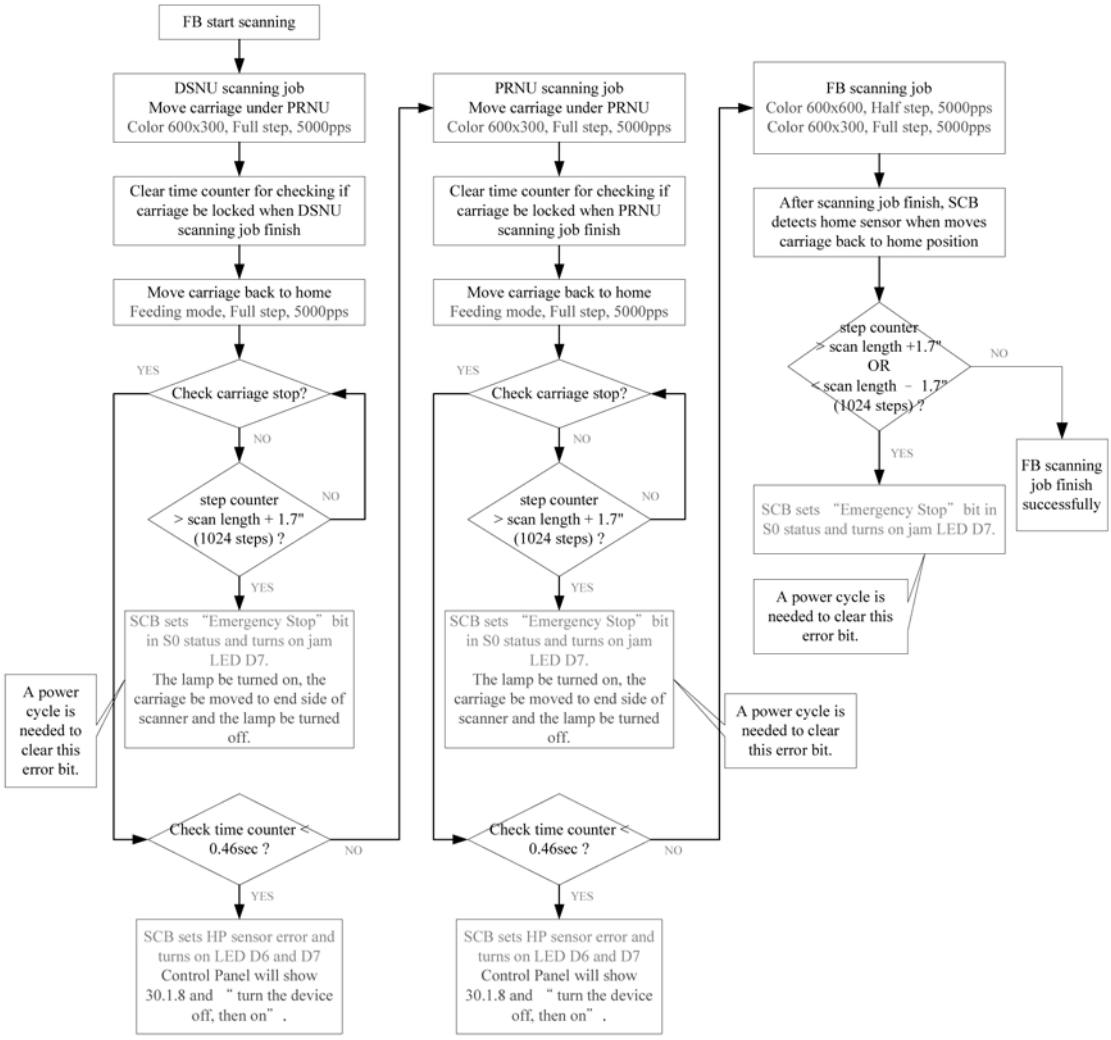
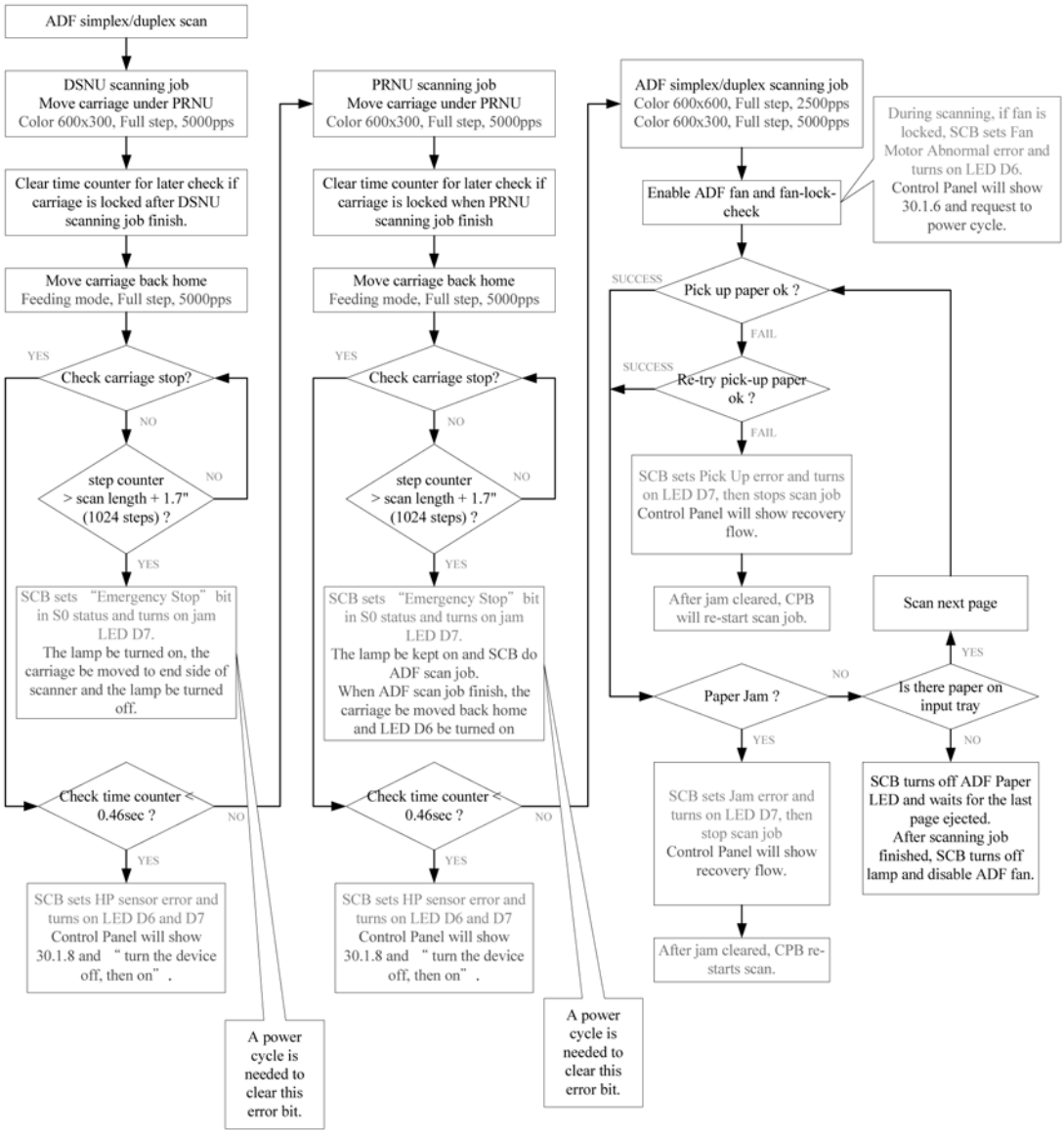


Figure 5-62 ADF scan-operation flow

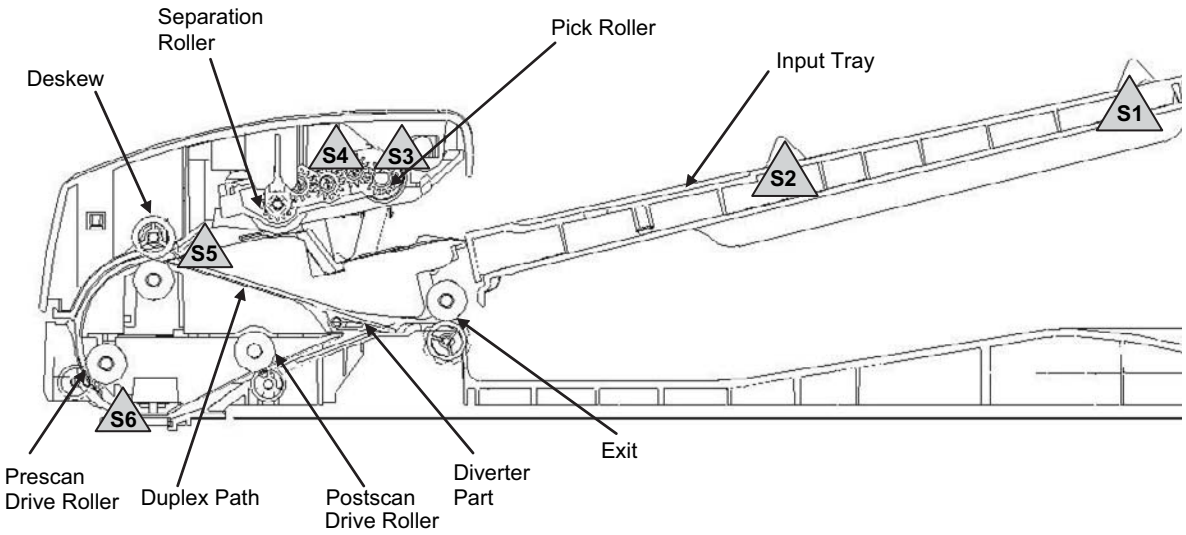


ADF

Input tray

The wide-media sensor (S1) and the long-media sensor (S2) are positioned at the input-tray assembly. These sensors allow firmware to detect how A4 and letter media sizes are positioned (in portrait or landscape mode).

Figure 5-63 ADF operation



ADF simplex-printing operation sequence

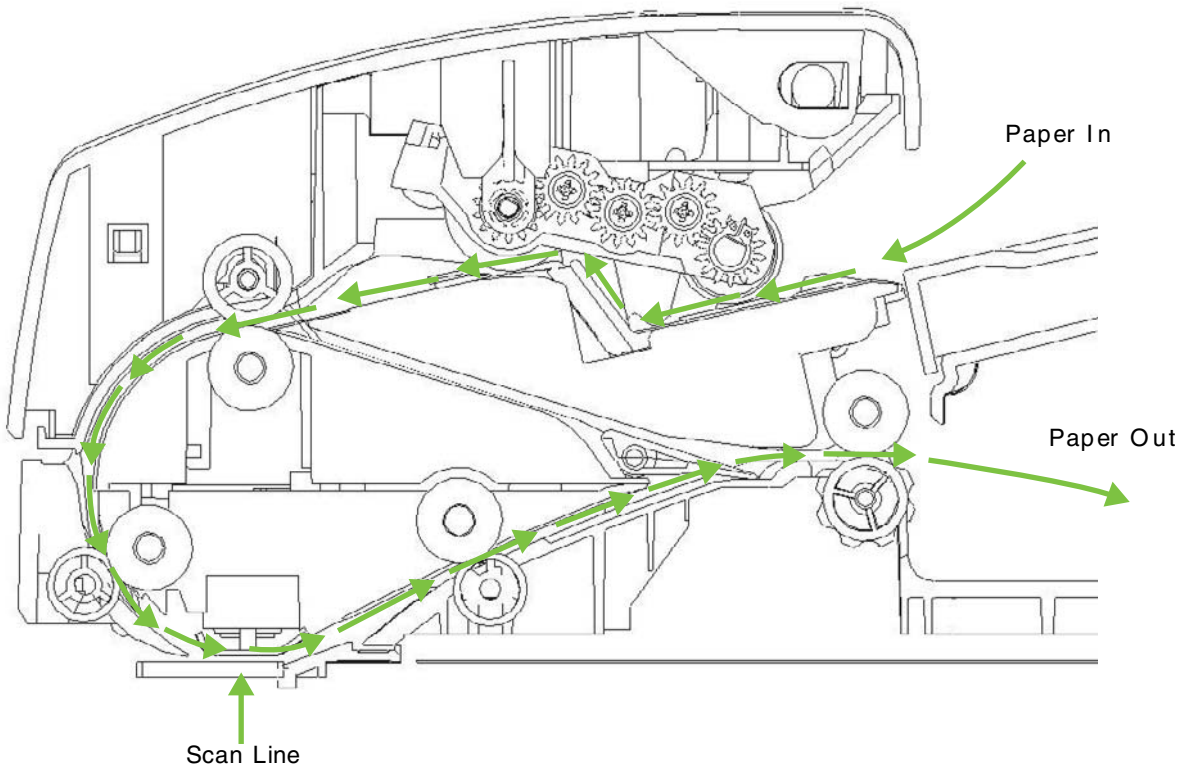
1. The jam-cover sensor (S3) is interrupted when the jam cover is closed, and the media-presence sensor (S4) is interrupted when media is loaded on the input tray. 2. The feed motor rotates clockwise, lowering the pick roller. A cutout on the gears on the side of the lid ensures the proper rotation distance. 3. The pick motor rotates counterclockwise, driving the pick roller to pick media. 4. The deskew sensor (S5) is interrupted when the leading edge of the media is driven past it, and the firmware registers the position of the leading edge of the media. 5. The leading edge of the media is driven into the nip point of the deskew drive roller and deskew pinch rollers. A preset amount of overdrive of media into this nip point is carried to create a buckle of media for pick-skew correction.

6. The pick motor rotates clockwise, rotating the deskew drive roller to pull media into the prescan drive roller. 7. Transmission gears for the pick and separator rollers disengage from the gear train, allowing the pick and separator rollers to free-wheel while media is pulled in by the deskew drive roller. 8. The feed motor rotates counterclockwise, driving the media into the prescan sensor (S6). 9. The firmware registers the position of the leading edge of the media while the prescan sensor (S6) is activated. 10. The feed motor continues rotating counterclockwise, driving the leading edge of the media through the preset distance from the prescan sensor (S6) to the scan zone.

11. When the media arrives, the scanner scans and retrieves data. 12. The prescan sensor (S6) is not interrupted when the trailing edge of the media passes it. 13. The firmware sequence registers the trailing edge of the media position. 14. The feed motor continues rotating counterclockwise, driving the media trailing edge through the preset distance from the prescan sensor (S6) to the scan zone. 15. The scanner finishes scanning and retrieving data. 16. The feed motor continues rotating counterclockwise, driving the trailing edge of the media past the scan zone. 17. The solenoid clamps the exit pinch rollers with

the exit drive rollers before the trailing edge of the media leaves the post-scan drive roller and exit pinch rollers. 18. The feed motor continues rotating counterclockwise, driving the media out of the ADF paper path via the exit pinch roller and exit drive roller.

Figure 5-64 Simplex scanning document path



ADF duplex-printing operation sequence

1. The jam-cover sensor (S3) is interrupted when the jam cover is closed. The media-presence sensor (S4) is interrupted when media is loaded on the input tray. 2. The feed motor rotates clockwise, lowering the pick roller. A cutout on the gears on the side of the lid ensures the proper rotation distance. 3. The pick motor rotates counterclockwise, driving the pick roller to pick media. 4. The deskew sensor (S5) is interrupted when the leading edge of the media is driven past it, and the firmware registers the position of the leading edge of the media. 5. The leading edge of the media is driven into the nip point of the deskew drive roller and deskew pinch rollers. A preset amount of overdrive of media into this nip point is carried to create a buckle of media for pick skew correction.

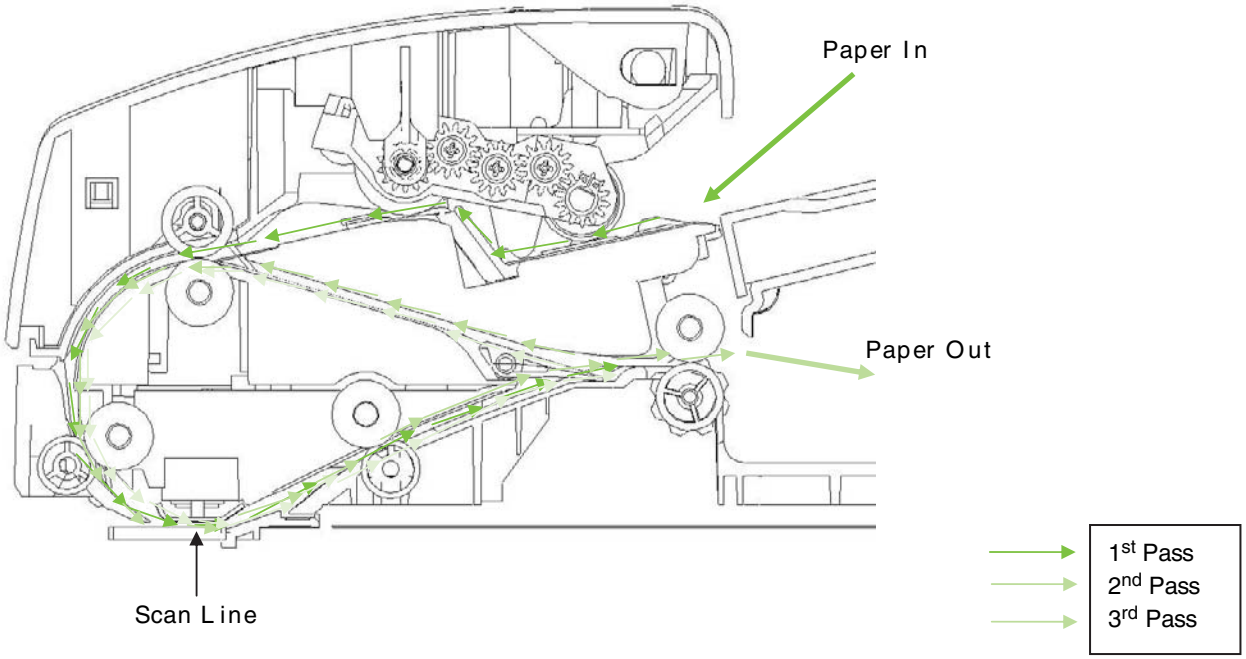
6. The pick motor rotates clockwise, rotating the deskew drive roller to pull media into the prescan drive roller. 7. The pick- and separator-rollers-transmission gears disengage from the gear train, allowing the pick and separator rollers to free-wheel while media is pulled in by the deskew drive roller. 8. The feed motor rotates counterclockwise, driving media into the prescan sensor (S6). 9. The firmware registers the position of the leading edge of the media while S6 is activated. 10. The feed motor continues rotating counterclockwise, driving the leading edge of the media through the preset distance from S6 to the scan zone.

11. When the media arrives, the scanner scans and retrieves data. 12. S6 is not interrupted when the trailing edge of the media passes it. 13. The firmware sequence registers the trailing edge of the media

position. 14. The feed motor continues rotating counterclockwise, driving the media trailing edge through the preset distance from S6 to the scan zone. 15. The scanner finishes scanning and retrieving data.

16. The solenoid activates when the trailing edge of the media passes the scan zone by a predetermined, constant distance from the prescan sensor. This allows the exit pinch rollers to clamp the exit drive roller, driving the remaining media out of the scan zone and past the diverter. 17. The feed motor rotates clockwise, driving the media in a reverse direction. This moves the media into the duplex path, the deskew drive roller, and the deskew pinch rollers. 18. A preset amount of overdrive of media into the nip point is carried out to create a buckle for pick-skew correction. 19. The solenoid activates when the trailing edge of the media passes the scan zone. This allows the exit pinch rollers to clamp the exit drive roller, driving the remaining media out of the scan zone and past the diverter.

Figure 5-65 Duplex scanning document path



Multifeed operation

1. The jam-cover sensor (S3) is interrupted when the jam cover is closed. The media-presence sensor (S4) is interrupted when media is loaded on the input tray. 2. The feed motor rotates clockwise, lowering the pick roller. A cutout on the gears on the side of the lid ensures the proper rotation distance. 3. The pick motor rotates counterclockwise, driving the pick roller to pick media. 4. The deskew sensor (S5) is interrupted when the leading edge of the media is driven past it, and the firmware registers the position of the leading edge of the media. 5. The leading edge of the media is driven into the nip point of the deskew drive roller and deskew pinch rollers. A preset amount of overdrive of media into this nip point is carried to create a buckle of media for pick-skew correction.

6. The pick motor rotates clockwise, rotating the deskew drive roller to pull media into the prescan drive roller. 7. The transmission gears for the pick and separator rollers disengage from the gear train, allowing the pick and separator rollers to free-wheel while media is pulled in by the deskew drive roller. 8. The feed motor rotates counterclockwise, driving the media into the prescan sensor (S6). 9. The firmware

registers the position of the leading edge of the media while S6 is activated. 10. The feed motor continues rotating counterclockwise, driving the leading edge of the media through the preset distance from S6 to the scan zone.

11. When the media arrives, the scanner scans and retrieves data. 12. S6 is not interrupted when the trailing edge of the media passes it. 13. The firmware sequence registers the trailing edge of the media position. 14. The feed motor continues rotating counterclockwise, driving the media trailing edge through the preset distance from S6 to the scan zone. 15. The scanner finishes scanning and retrieving data.

16. The solenoid activates when the trailing edge of the media passes the scan zone by a predetermined, constant distance from the prescan sensor. This allows the exit pinch rollers to clamp the exit drive roller, driving the remaining media out of the scan zone and past the diverter. 17. The feed motor rotates clockwise, driving the media in a reverse direction. This moves the media into the duplex path, the deskew drive roller, and the deskew pinch rollers. 18. A preset amount of overdrive of media into the nip point is carried out to create a buckle for pick skew correction. 19. The solenoid activates when the trailing edge of media passes the scan zone. This allows the exit pinch rollers to clamp the exit drive roller, driving the remaining media out of the scan zone and past the diverter.

20. The continual triggering of the media-presence sensor (S4) allows the firmware to recognize that there are pages on the input tray. 21. The S5 is uninterrupted when the trailing edge of the media passes it. 22. The pick motor rotates counterclockwise, driving the pick roller to pick media.

End of a scan job operation

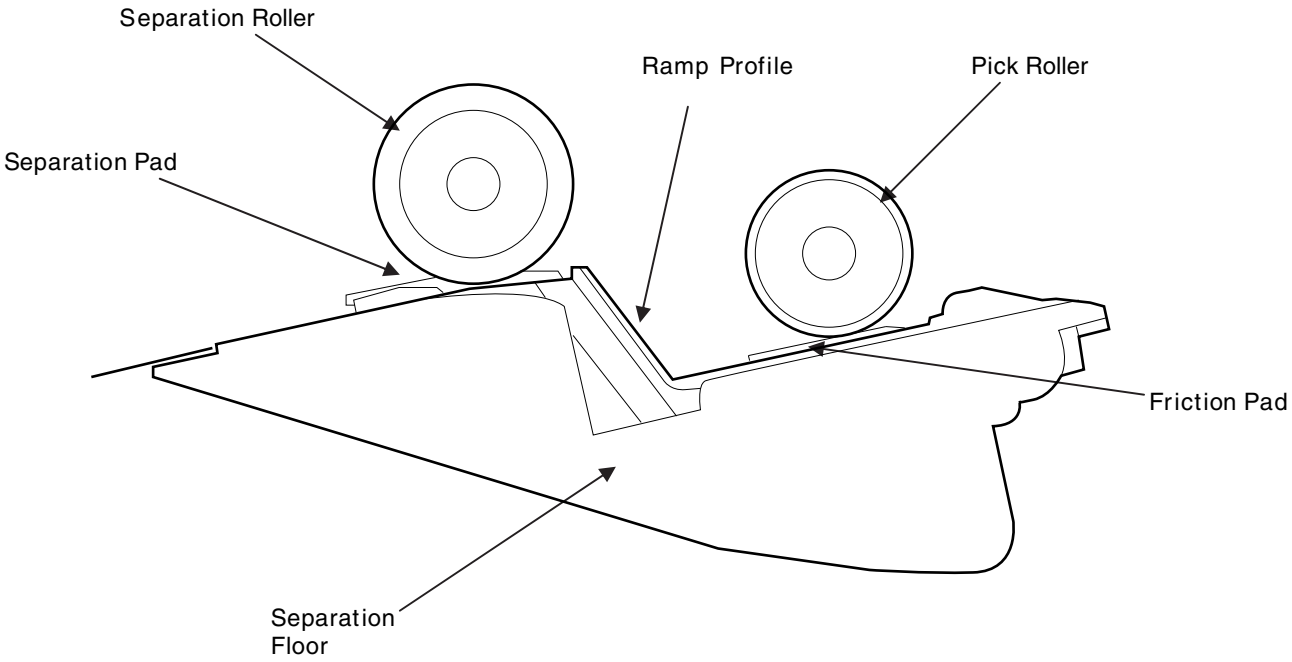
After performing the steps listed in the multifeed operation section, S4 is uninterrupted when no media exists in the input tray. The motor feed rotates clockwise, raising the pick roller. When the pick-roller assembly rises, the media-load stoppers crank down.

Paper pick and separation operation

The top sheet of media is picked by the pick roller, and an angled-ramp profile must function as a barrier to prevent the remaining lower sheets from being picked together with the top sheet. If more than one

sheet of media is picked, the separator roller and separator pad work together to separate the lower sheet of media, allowing only the top sheet into the ADF.

Figure 5-66 ADF paper pick and separation



Deskew

The input tray's operation-width adjustment ensures that the media is stacked neatly at the center of the input tray. It also ensures that the media is located parallel to the direction of travel into the ADF paper path. A deskew function is performed by buckling media, accumulating a media buffer to minimize skew caused by improper loading of media on the input tray. The leading edge of the media is parallel with the deskew drive rollers when entering the ADF paper path.

6 Removal and replacement

- Removal and replacement strategy
- User-replaceable parts
- Service-replaceable parts
- Optional input trays
- Scanner
- ADF

Removal and replacement strategy

Introduction

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

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

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

Never operate or service the printer 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:** 

Some parts are sensitive to electrostatic discharge (ESD). Look for the ESD reminder when removing printer parts. Always perform service work at an ESD-protected workstation or mat. If an ESD workstation or mat is not available, 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 printer.

CAUTION: Do not bend or fold the flat flexible cables (FFCs) during removal or installation.

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.

Required tools

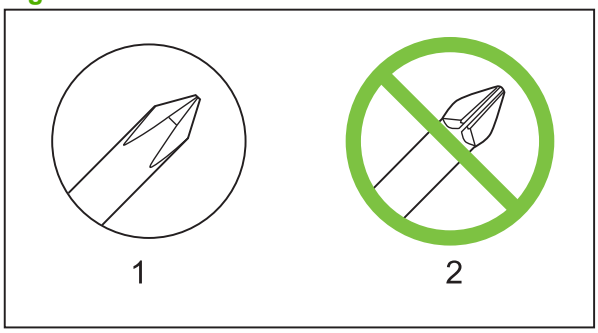
- #2 Phillips screwdriver with a magnetic tip and a 152-mm (6-inch) shaft length

NOTE: For the best fit, use a JIS #2 Phillips screwdriver for the stapler/stacker.

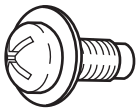
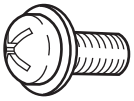
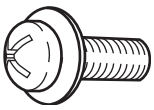
- Small, flat-blade screwdriver
- Needle-nose pliers
- ESD strap (if one is available)
- Penlight

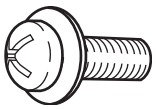
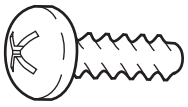
CAUTION: Always use a Phillips screwdriver (callout 1). Do not use a pozidrive screwdriver (callout 2) or any motorized screwdriver. These can damage screws or screw threads.

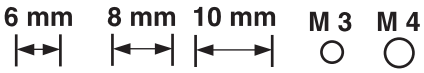
Figure 6-1 Screwdrivers



Types of screws

Illustration	Description	Size	Use
	Screw with washer	M3X8	Used to secure metal components to metal components (for example, a ground wire to the frame)
	Screw, RS	M3X6 M3X10	Used to secure metal to metal
	Screw, tapping	M3X6	
	Screw	M3X8	

	Screw	P3X8	
	Screw, tapping, truss head	M4X10	Used to secure anything to plastic



Service approach

The HP Color LaserJet CM6049f MFP uses a field repair strategy. Defective parts are diagnosed and replaced at the Field Replaceable Unit (FRU) assembly level. Printer repair normally begins by using the printer internal diagnostics and the following two-step process:

1. Isolate the problem to the major system (for example, the network or server, or the printer).
2. Troubleshoot the problem by using the procedures in the troubleshooting chapter.

After you locate a faulty part, the product can usually be repaired at the assembly level by replacing FRUs. Some mechanical assemblies might need to be repaired at the subassembly level. Hewlett-Packard Company does not support replacement of components on the printed circuit assembles.

Before performing service

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

1. Remove all media.
2. Place the product on an ESD mat (if available). If an ESD workstation or mat is not available, ground yourself by touching the sheet-metal chassis *before* touching an ESD-sensitive part.
3. Remove the print cartridges, image drums, and ITB.
4. Remove the trays.

After performing service

1. Reinstall the print cartridges, image drums, and ITB.
2. Reinstall the trays.
3. Return all media to the trays.
4. Plug in the power cable and turn on the printer.

Parts removal order

If multiple components must be removed to gain access to an assembly, the first step of the removal procedure lists all of the components that must be removed to gain access to that assembly. Use these lists to determine which parts must be removed before removing other parts.

Save/Restore

Save/Restore is a product feature that allows critical information located on the formatter and DC controller to be preserved if one of these components is replaced.

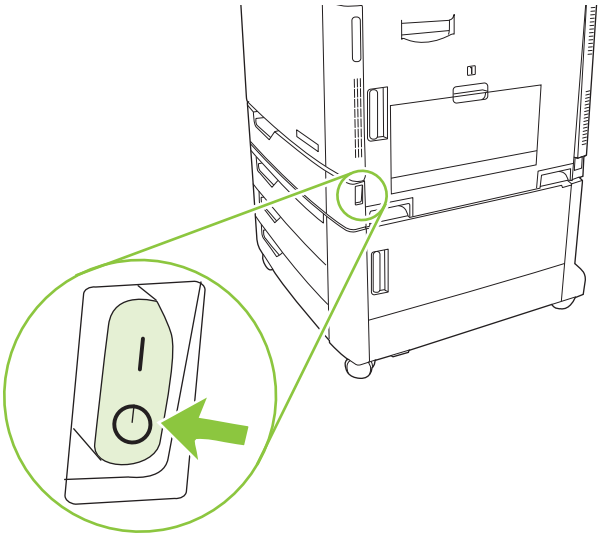
As with all LaserJet MFPs, do not replace the DC controller and the formatter at the same time. Replacing these components at the same time will result in the loss of critical data.

User-replaceable parts

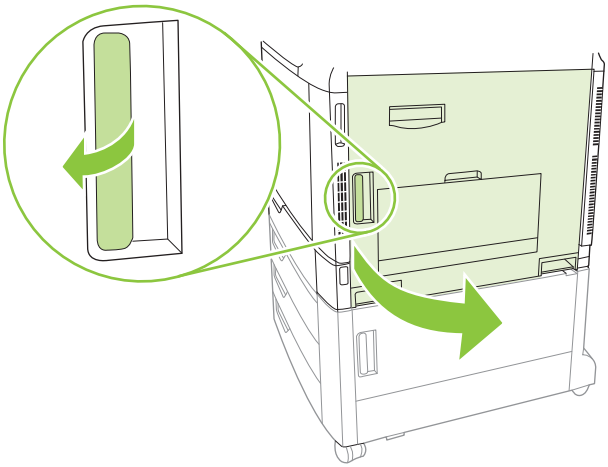
When you use genuine HP supplies, the product automatically notifies you when supplies are nearly depleted. The notification to order supplies allows ample time to order new supplies before they need to be replaced.

Fuser

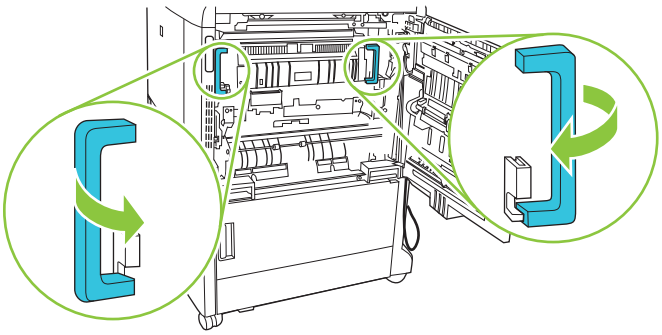
1. Turn the power off.



2. Open the right door.

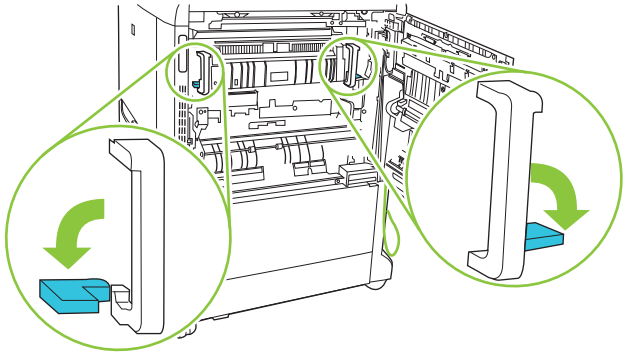


3. Pull the two blue fuser handles forward.

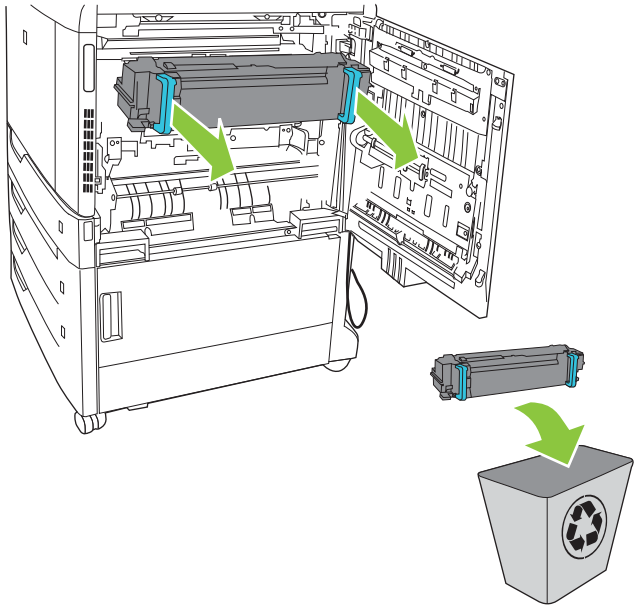


△ **CAUTION:** The fuser can be hot while the product is in use. Wait for the fuser to cool before handling it.

4. Rotate the fuser-release levers down to open them.

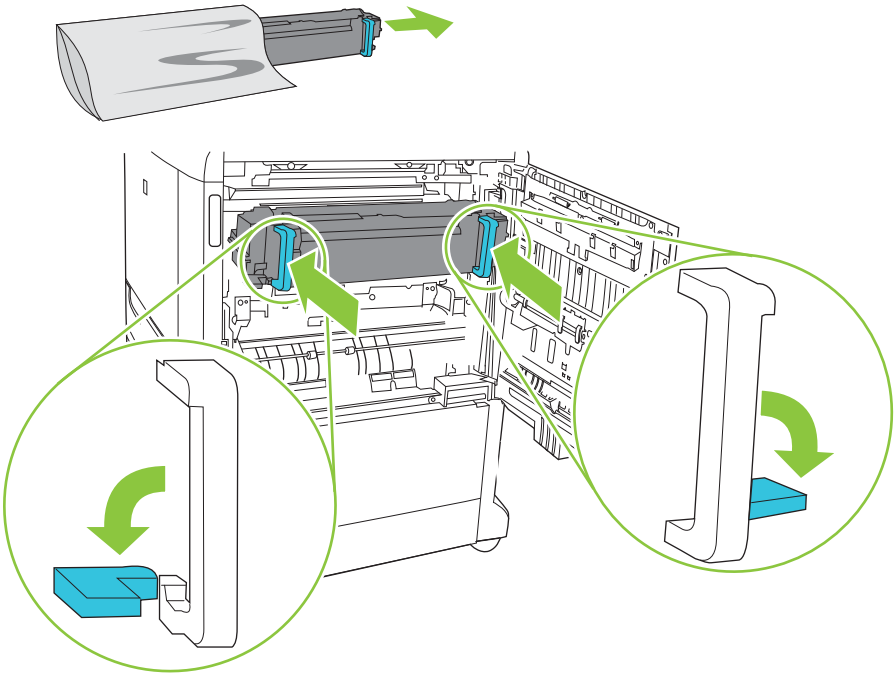


5. Grasp the fuser handles and pull straight out to remove the fuser. Recycle the used fuser following the instructions included with the new fuser.

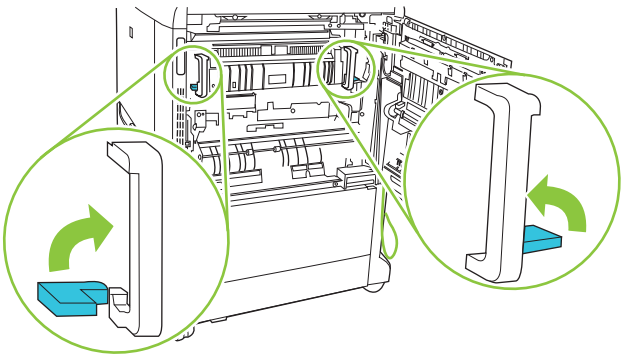


△ **CAUTION:** The fuser weighs 5 kg (11 lbs). Be careful not to drop it.

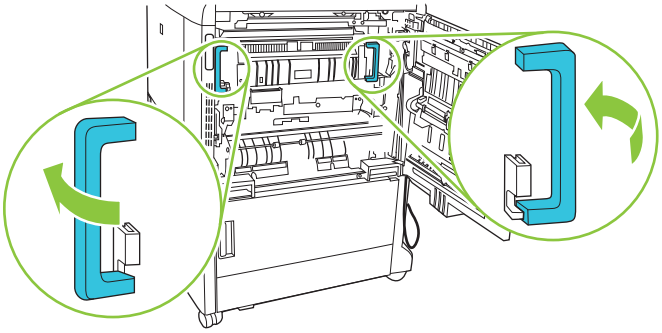
6. Remove the new fuser from its protective bag. Make sure the fuser-release levers are in the down and open position. Align the fuser with the arrows on the product. Push the fuser completely into the printer.



7. Rotate the fuser-release levers up to lock the fuser into place.



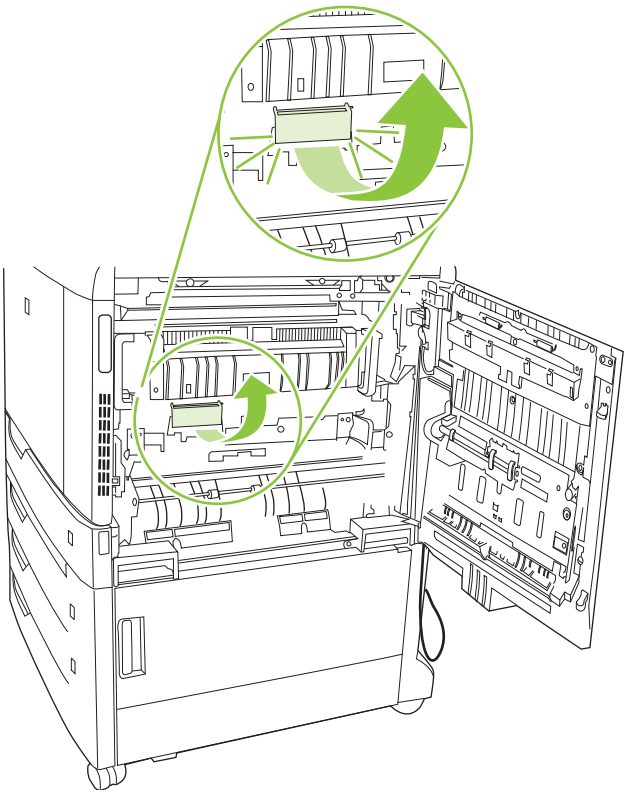
8. Push the fuser handles back to close them.



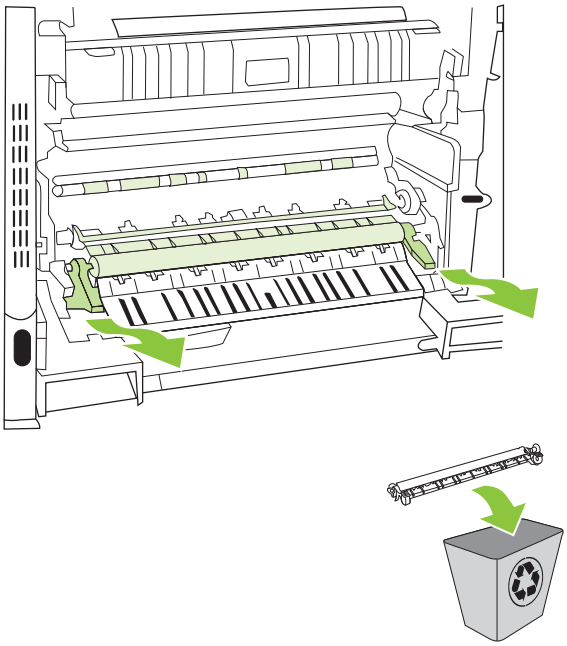
9. Close the right door and turn the power on.

Transfer roller

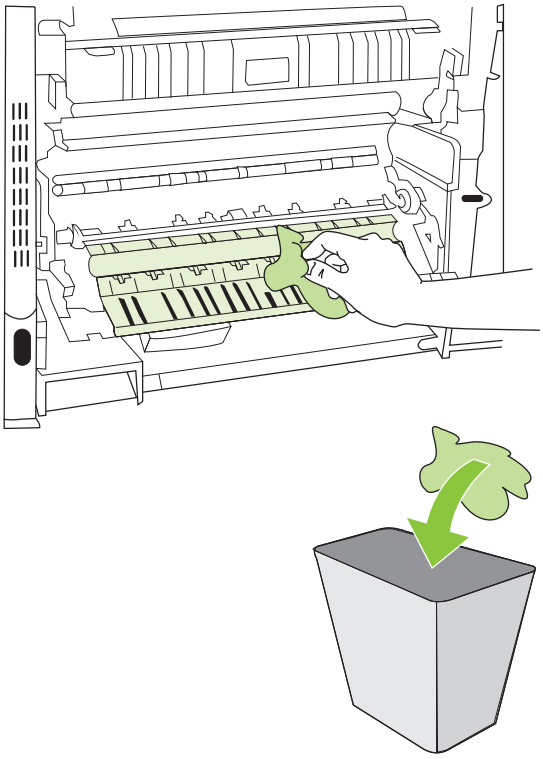
1. Turn the power off, and then open the right door.
2. Lift the green handle on the transfer assembly, and then open the panel.



3. Remove the transfer roller, and then recycle it.



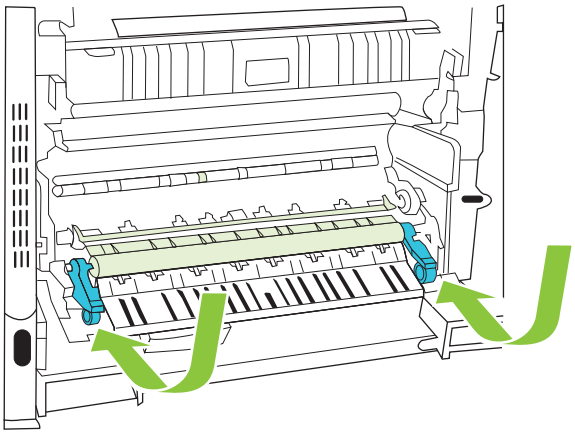
4. Wipe roller area.



5. Remove the new transfer roller from its protective bag.

△ **CAUTION:** Do not touch the sponge part of the new transfer roller or clean the roller. Contaminants or scratching may result in poor print quality.

6. Align the transfer roller with the slots in the product and push until it clicks into place.

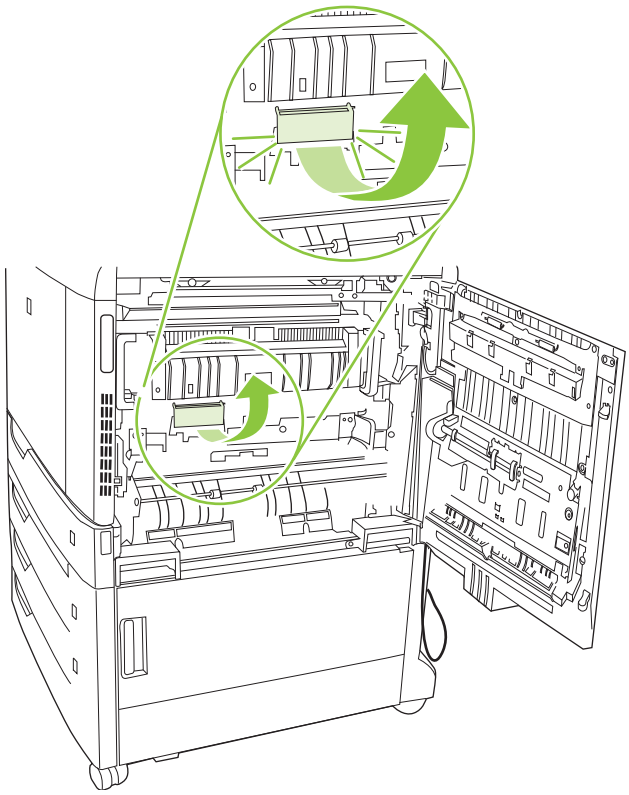


7. Close the transfer assembly.

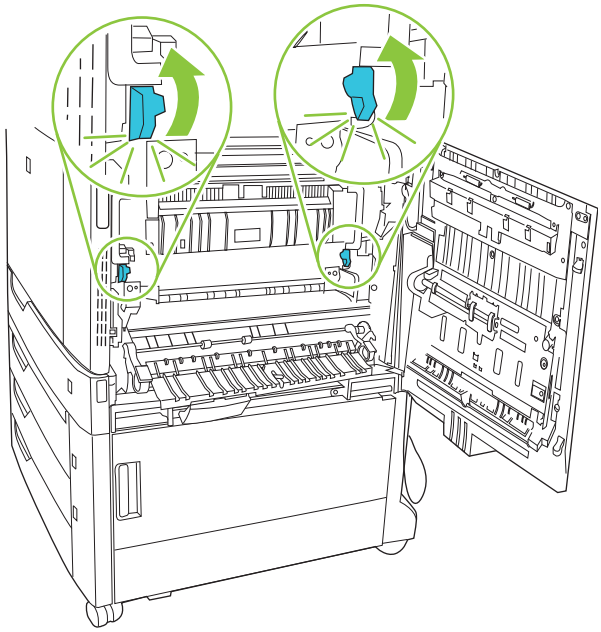
8. Close the right door, and then turn the power on.

Intermediate transfer belt (ITB)

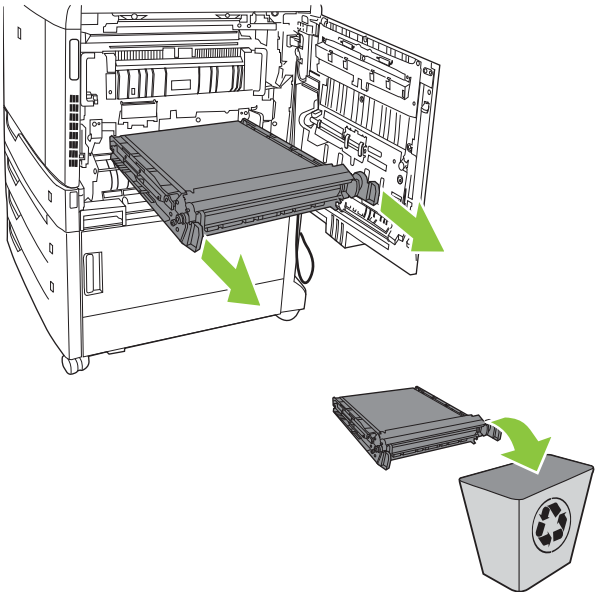
1. Turn the power off and open the right door.
2. Lift the green handle on the transfer assembly, and then open the panel.



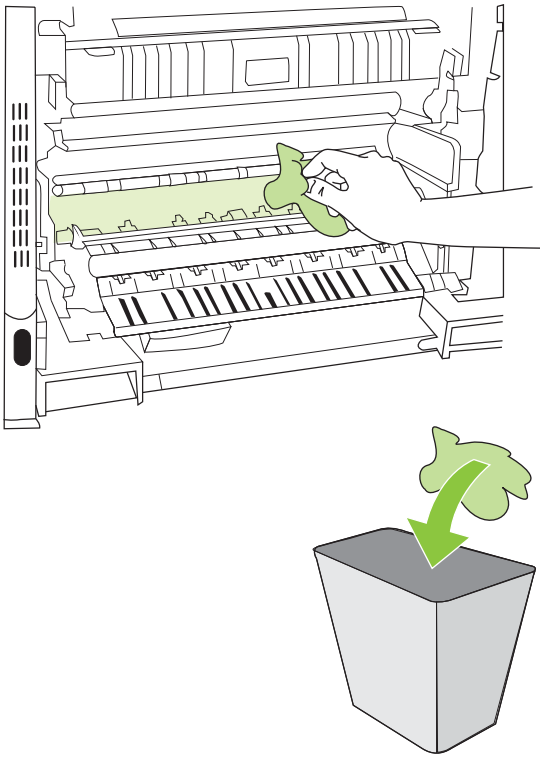
3. Raise the ITB levers.



4. Remove the ITB.



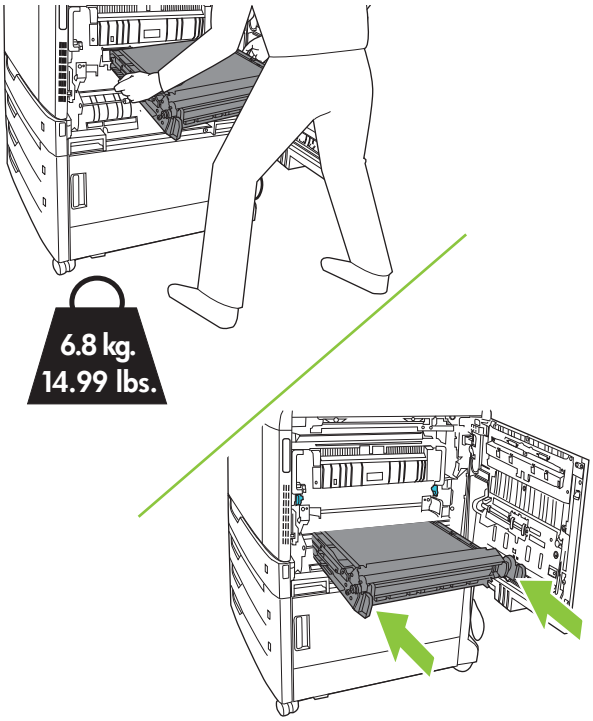
5. Wipe the ITB area.



6. Remove the new ITB from its protective bag.

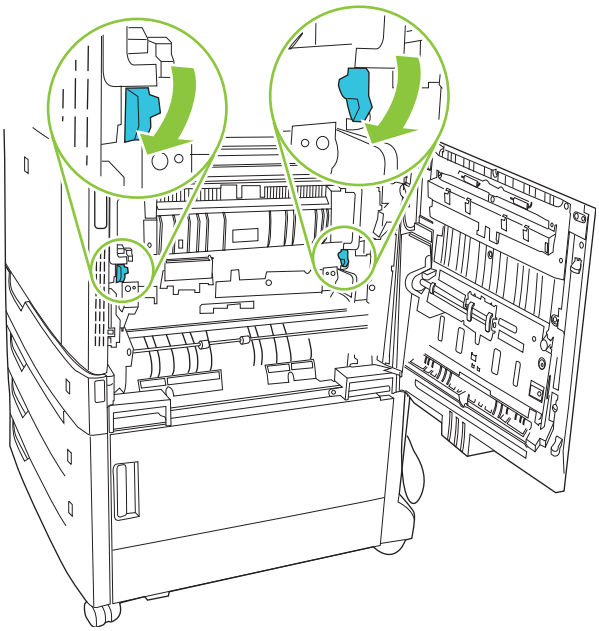
△ **CAUTION:** Contaminants or scratching may result in poor print quality.

7. Install the new ITB.



△ **CAUTION:** Only push on the side handles of the ITB as indicated. Do not push on the center because it could scratch the ITB or leave fingerprints.

8. Lower the ITB levers.

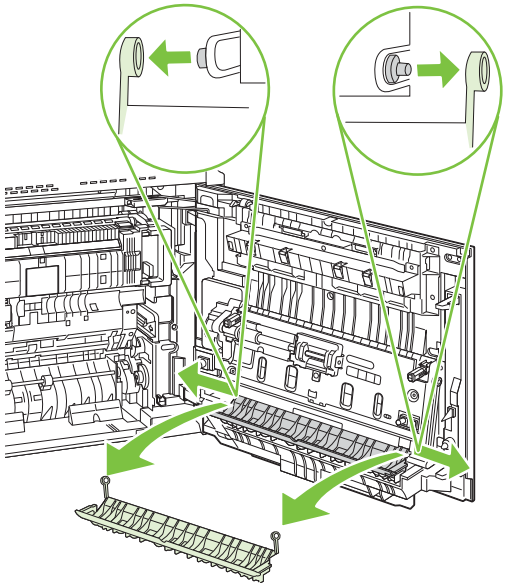


9. Close the transfer assembly.

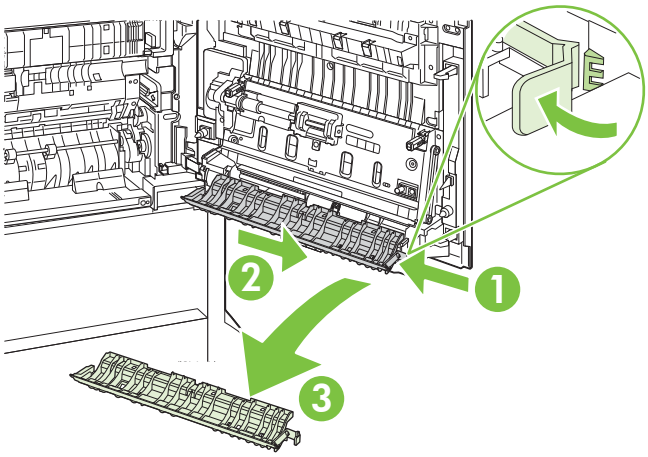
10. Close the right door, and then turn the power on.

Tray 1 pickup and separation rollers

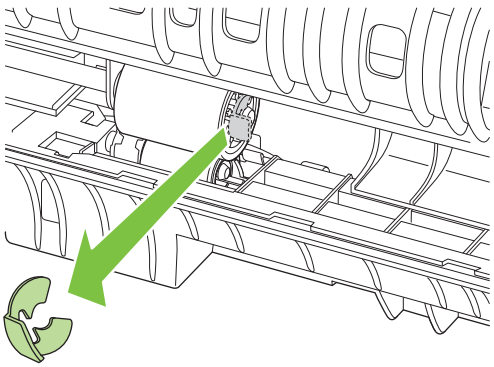
1. Turn the power off, and then open the right door.
2. Remove the paper-feed cover.



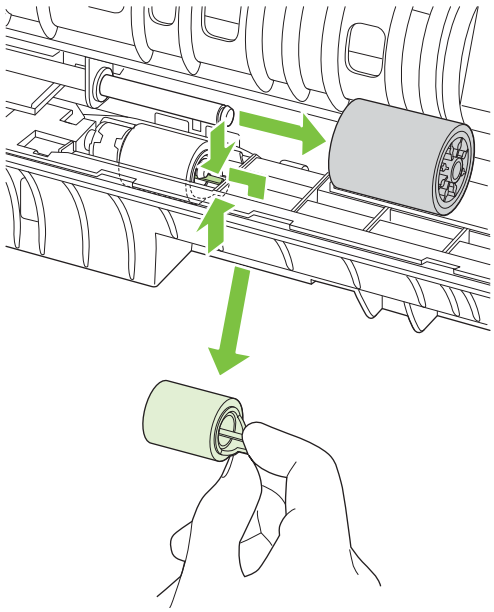
3. Remove the multipurpose upper feed guide.



4. Remove one plastic clip.



5. Remove the upper roller by sliding it to the right. Rotate the lower roller and then grasp the blue plastic tab and pull the roller off the rod.



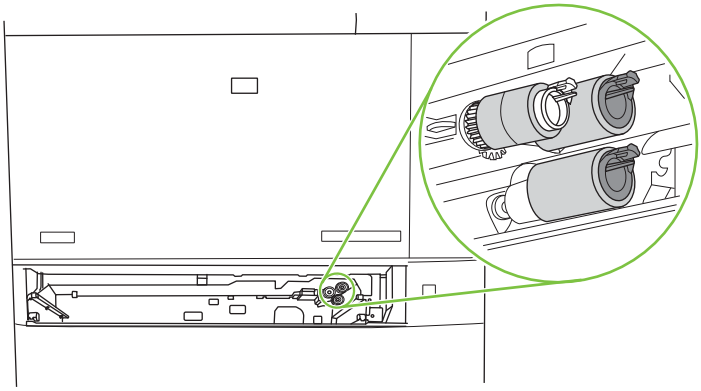
6. Recycle the used rollers, following the instructions included with the new roller.
7. Remove the new rollers from the protective bag and install.

△ **CAUTION:** Do not touch the rubber part of the new roller. Contaminants or scratching may result in poor print quality.

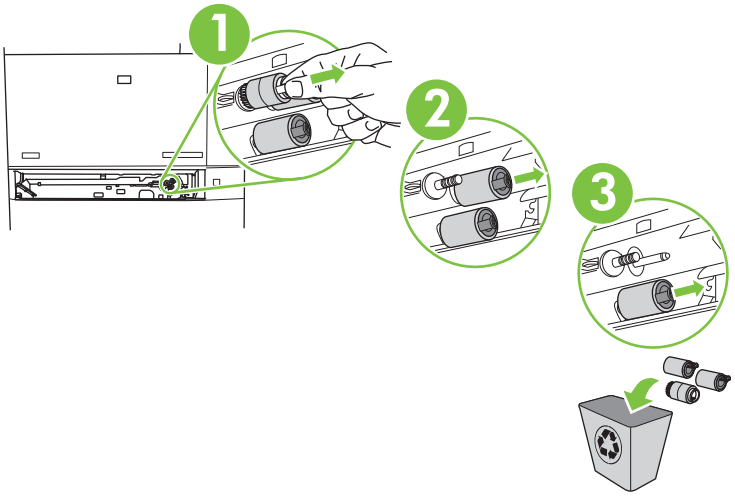
8. Attach the multi-purpose upper feed guide and paper-feed cover, and then close the right door.
9. Turn the power on.

Tray 2, 3, 4, and 5 pickup rollers

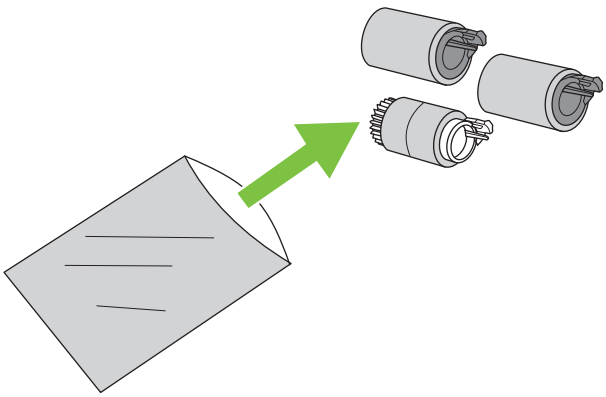
1. Turn the power off, and then remove the paper tray.
2. Locate the rollers.

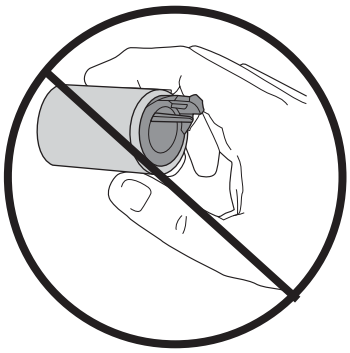


3. Turn the roller, and then grasp the plastic tab and pull the roller off the rod. Repeat the process for the other rollers. Recycle the used rollers.

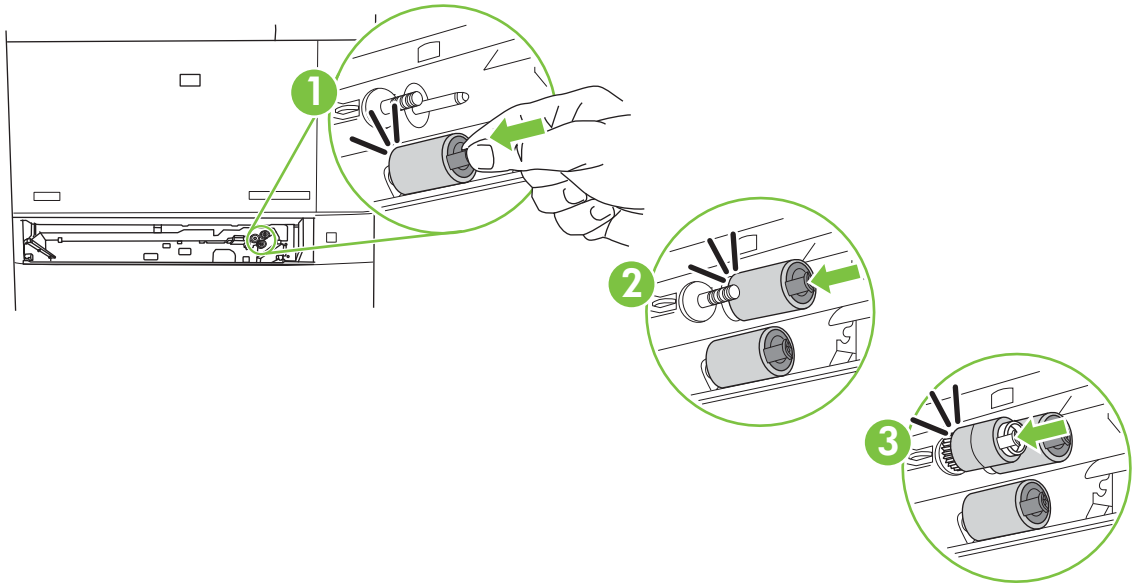


4. Remove each roller from its protective bag. Do not touch the rubber part of the new roller. Contaminants or scratching may result in poor print quality.





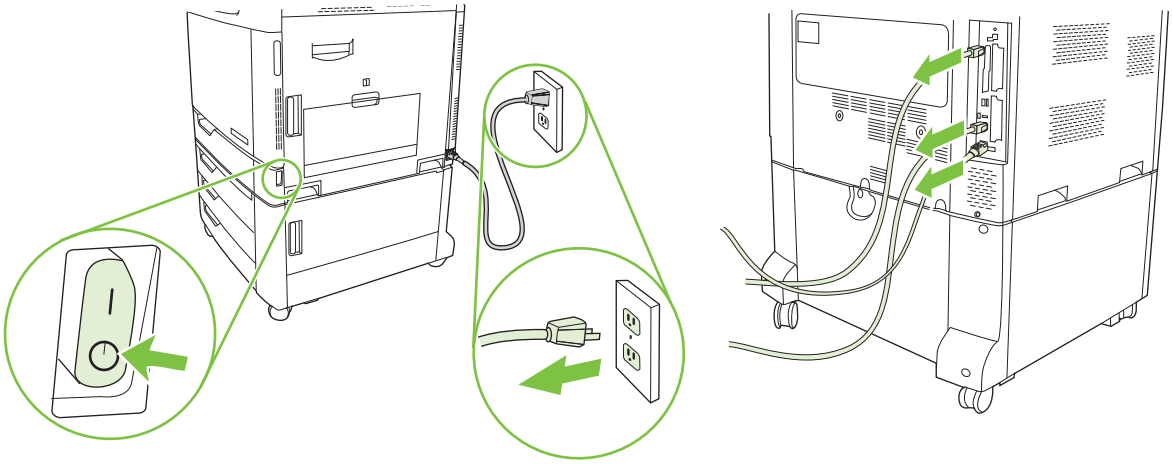
5. Attach the new roller, sliding the new roller onto the rod until it clicks in place. Repeat the process for the other rollers.



6. Reinstall the paper tray, and then turn the power on.

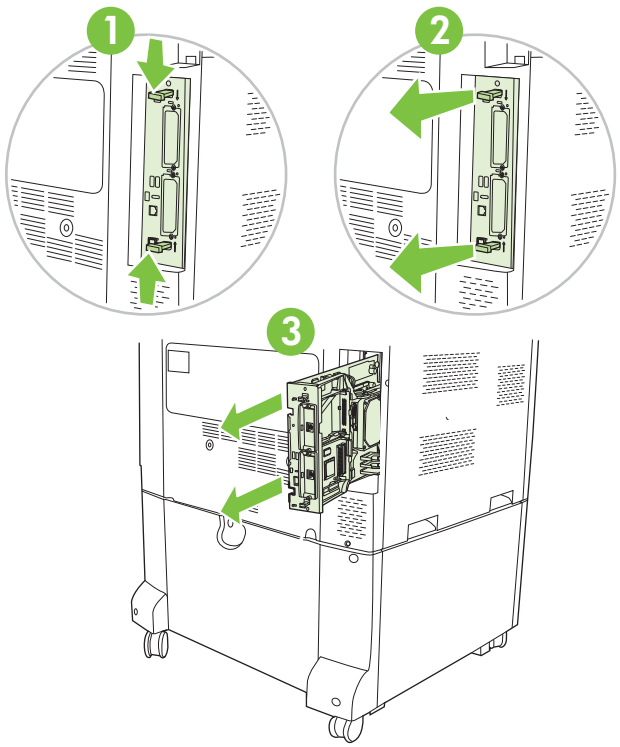
Formatter

1. Turn the product off, and then disconnect all power and interface cables.



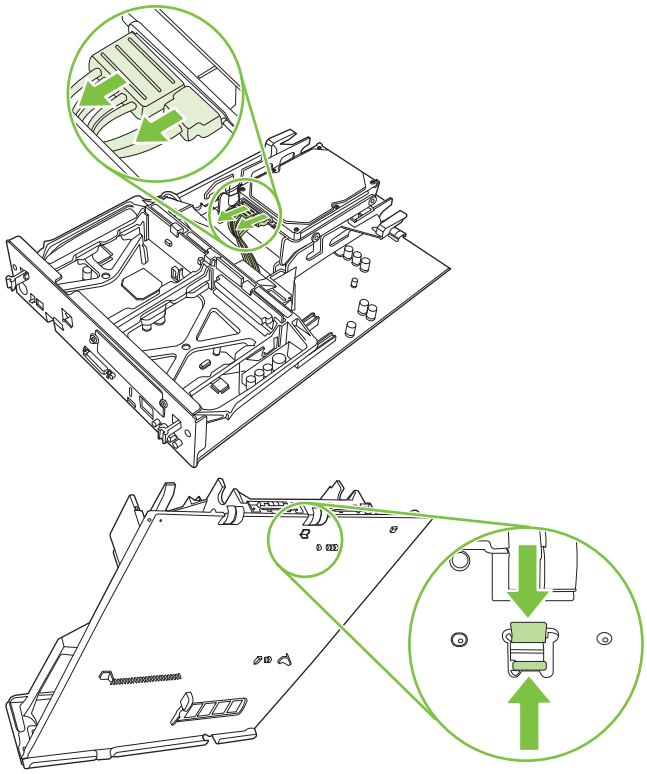
NOTE: Some parts are sensitive to electrostatic discharge (ESD). Look for the ESD reminder when removing printer parts. Always perform service work at an ESD-protected workstation or mat. If an ESD workstation or mat is not available, ground yourself by touching the sheet-metal chassis *before* touching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

2. Locate the black formatter pressure release tabs on the formatter board in the rear of the product, and then gently press the black tabs (callout 1) toward each other. Gently pull on the black tabs (callout 2) to pull the formatter board from the product (callout 3).

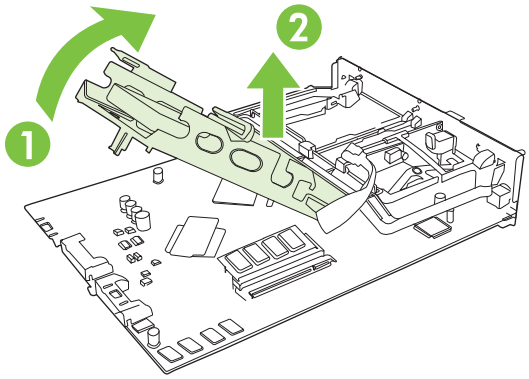


3. Place the formatter board on a clean, flat, grounded surface.
4. Remove the DDR memory DIMM. See Install DDR memory DIMMs on page 107.

5. Disconnect all connectors to the hard-drive, and then release the hard-drive cage.

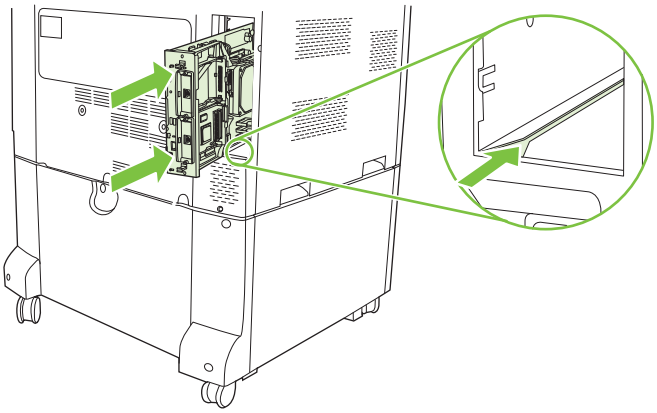


6. Remove the hard-drive cage.



7. Remove the DDR memory DIMM and fax card if present.
8. Recycle the used formatter.
9. Remove the formatter from its protective bag, and then place it on a clean, flat, grounded surface.
10. Install the DDR memory DIMM and hard-drive cage to the new formatter and fax card.

11. Align the formatter board in the tracks at the bottom of the slot, and then slide the board back into the product. Attach all power and interface cables, and then turn the power on.



Tray 2

1. Pull the old tray completely out of the product by pulling and lifting it up slightly. Recycle the used tray following the instructions included with the new tray.
2. Attach the front cover to the tray.
3. Reinsert the tray by aligning the side rollers and pushing it back into the product.

Trays 3, 4, and 5

1. Pull the tray completely out of the product by pulling and lifting it up slightly.
2. Recycle the used tray following the instructions included with the new tray.
3. Reinsert the tray by aligning the side rollers and pushing it back into the product.

Service-replaceable parts

Use the steps below to remove and replace field-replaceable units (FRUs).

Secondary transfer unit

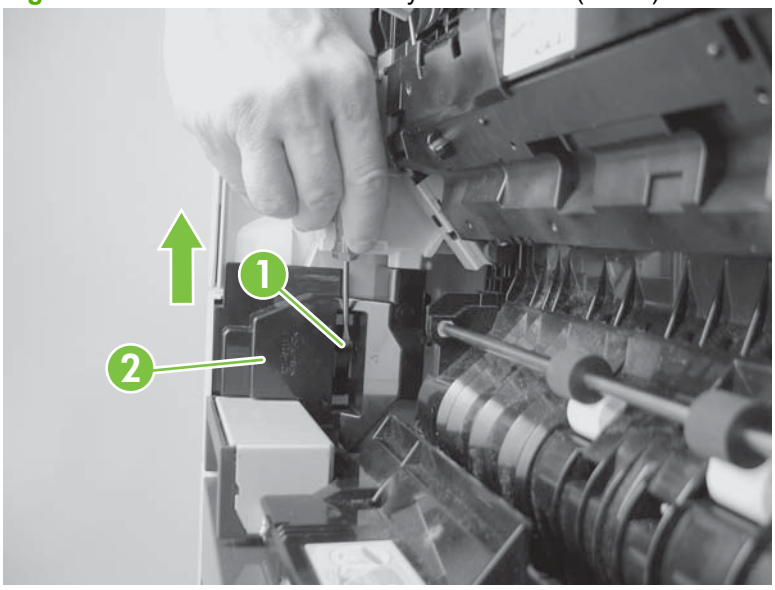
1. Remove the following:
   - Transfer roller. See Transfer roller on page 232.
   - Intermediate transfer belt. See Intermediate transfer belt (ITB) on page 234.
2. With a flatblade screwdriver, release two tabs along the bottom edge, and then remove the right ITB guide.

Figure 6-2 Remove the secondary transfer unit (1 of 9)



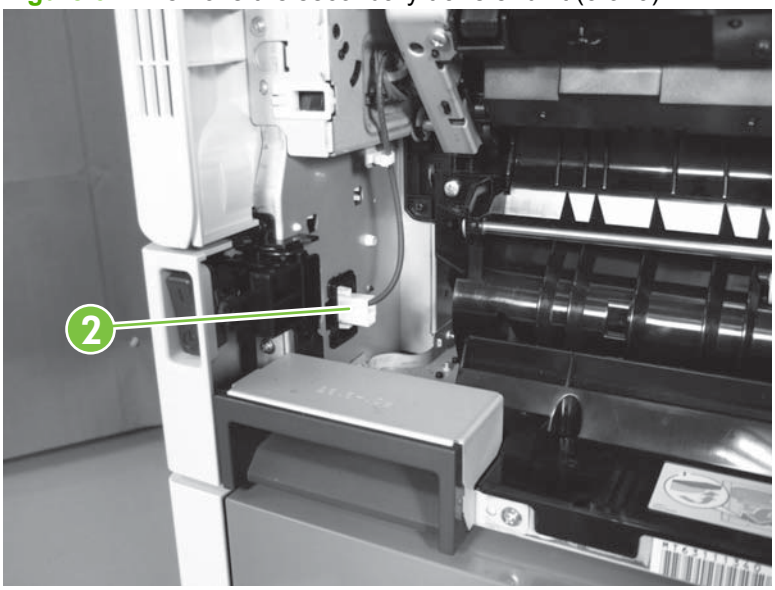
3. Close the secondary transfer unit. On the left side release one tab (callout 1), and then lift the connector cover (callout 2) to remove it.

Figure 6-3 Remove the secondary transfer unit (2 of 9)



4. Disconnect one connector (callout 1). To disconnect, push the front of the connector toward the product, and then pull out.

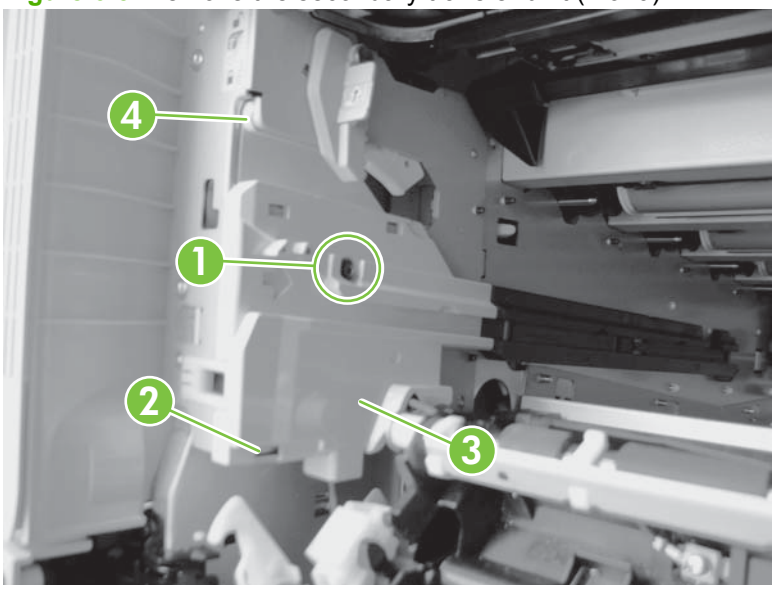
Figure 6-4 Remove the secondary transfer unit (3 of 9)



5. Remove one screw (callout 1), release one tab (callout 2), and then lift the left ITB guide (callout 3) to remove it.

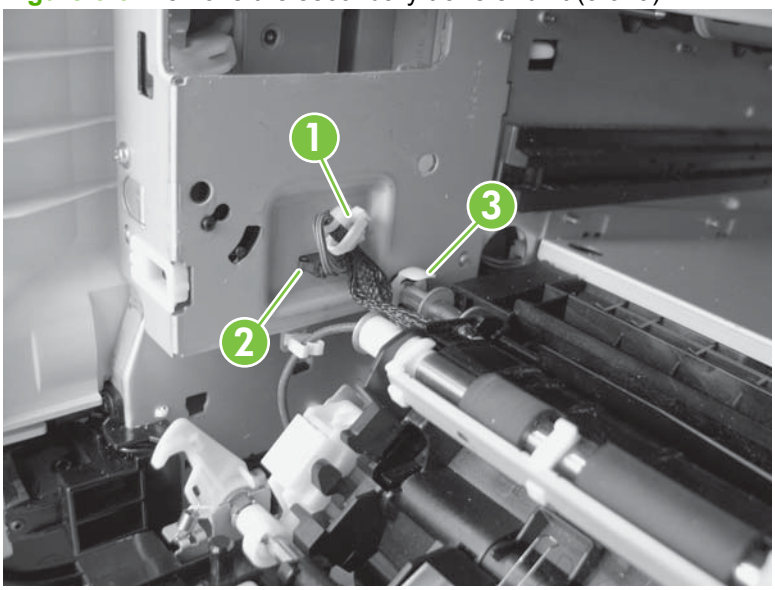
NOTE: When reinstalling the left ITB guide, place the top of the guide behind the sheet metal (callout 4).

Figure 6-5 Remove the secondary transfer unit (4 of 9)



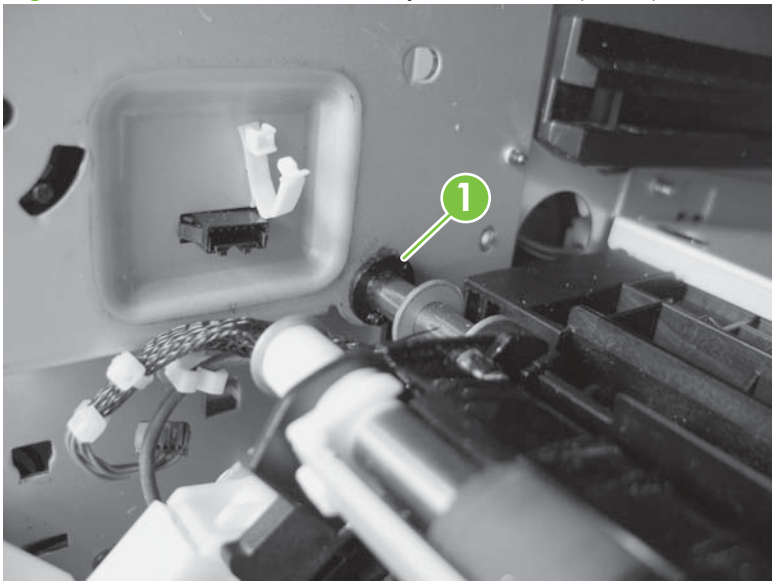
6. Release one wire retainer (callout 1), one connector (callout 2), and one c-clip (callout 3).

Figure 6-6 Remove the secondary transfer unit (5 of 9)



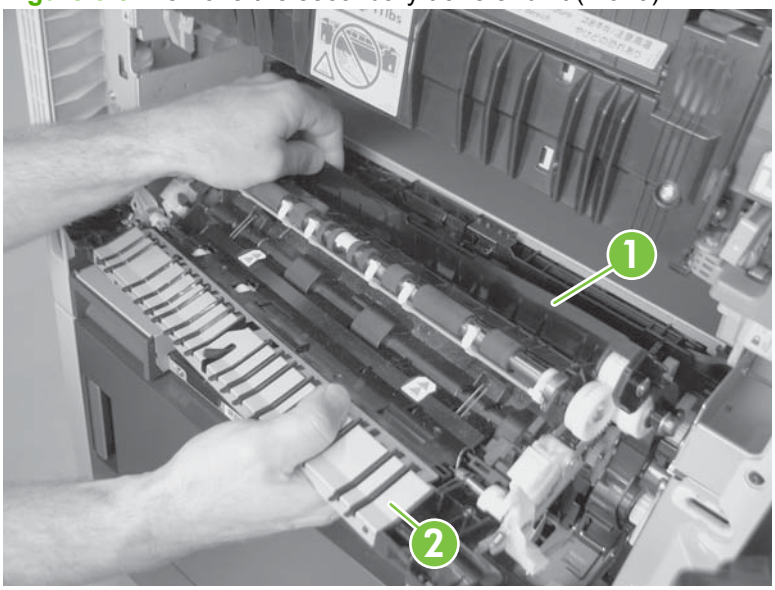
7. Slide the bushing (callout 1) out onto the rod.

Figure 6-7 Remove the secondary transfer unit (6 of 9)



8. While tilting the feed guide (callout 1) backward, grasp the secondary transfer unit (callout 2) and slide it to the left. Release the right guide bar, and then remove the secondary transfer unit.

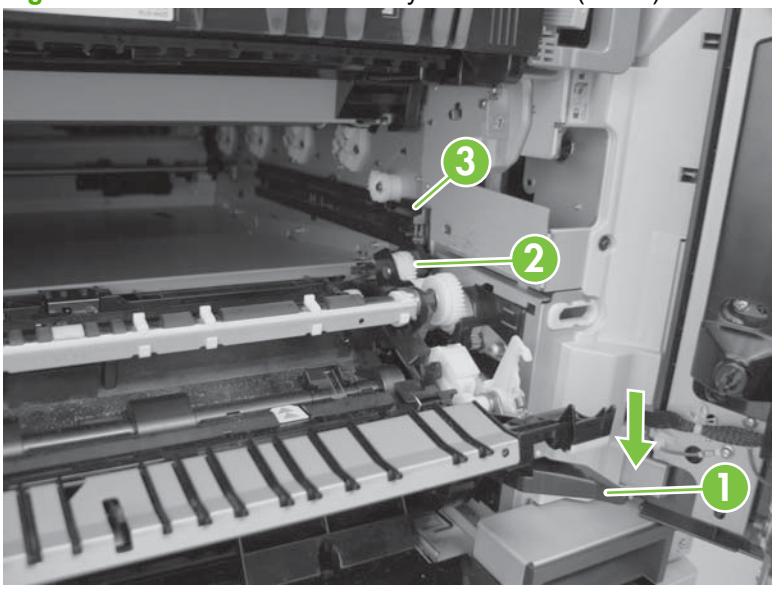
Figure 6-8 Remove the secondary transfer unit (7 of 9)



NOTE: When reassembling the secondary transfer unit, make sure to position it correctly.

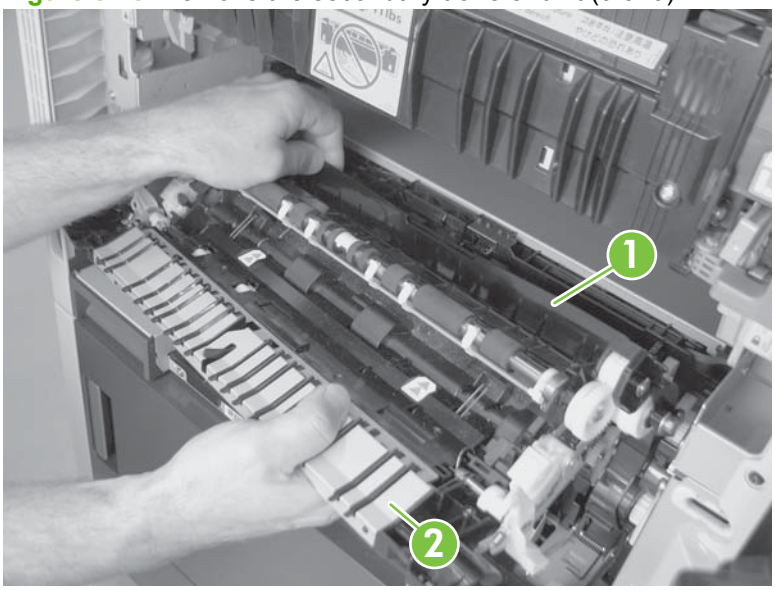
- Push down the secondary transfer unit stopper (callout 1). Place the gear unit (callout 2) under the ITB rail (callout 3).

Figure 6-9 Remove the secondary transfer unit (8 of 9)



- Lift and place the feed guide (callout 1) on the upper part of the secondary transfer unit (callout 2).

Figure 6-10 Remove the secondary transfer unit (9 of 9)

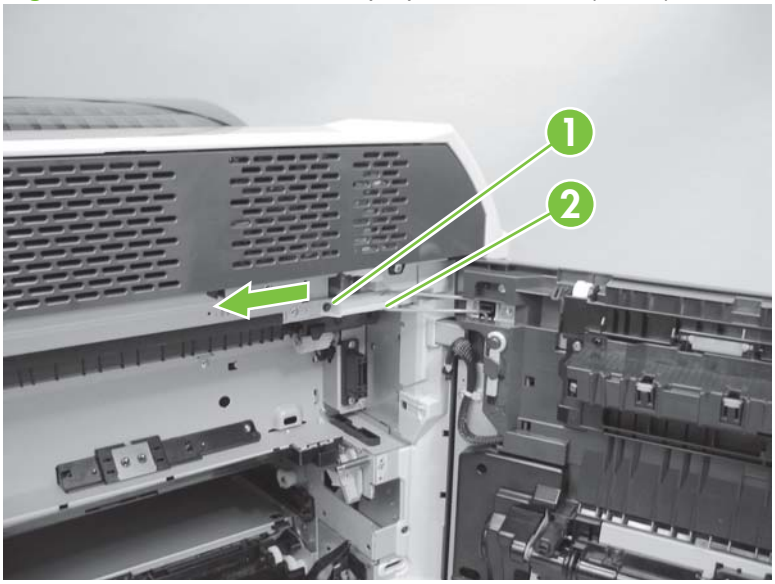


NOTE: Be sure to calibrate the media sensor from the **Service** menu on the control panel after the secondary transfer unit has been replaced.

Multipurpose drive unit

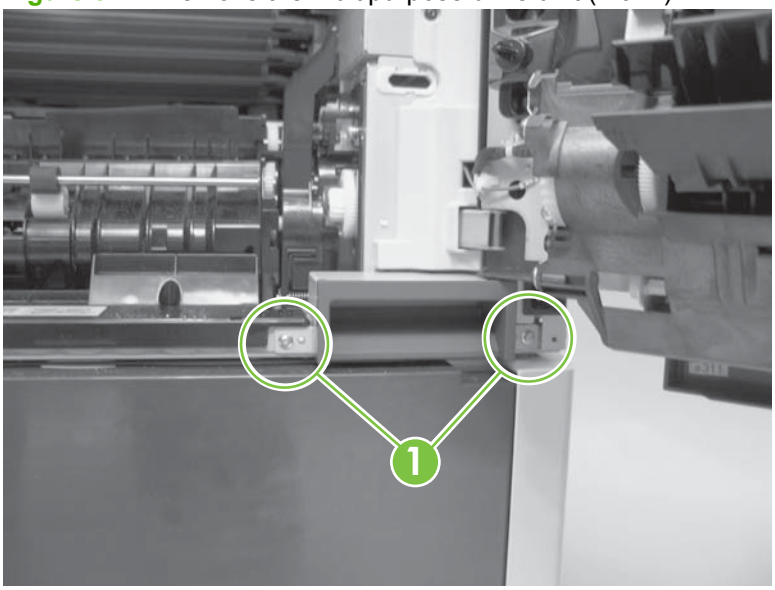
1. Remove the following:
   - Fuser. See Fuser on page 229.
   - Secondary transfer unit. See Secondary transfer unit on page 245.
2. Remove one screw (callout 1) and release the door hinge (callout 2).

Figure 6-11 Remove the multipurpose drive unit (1 of 7)



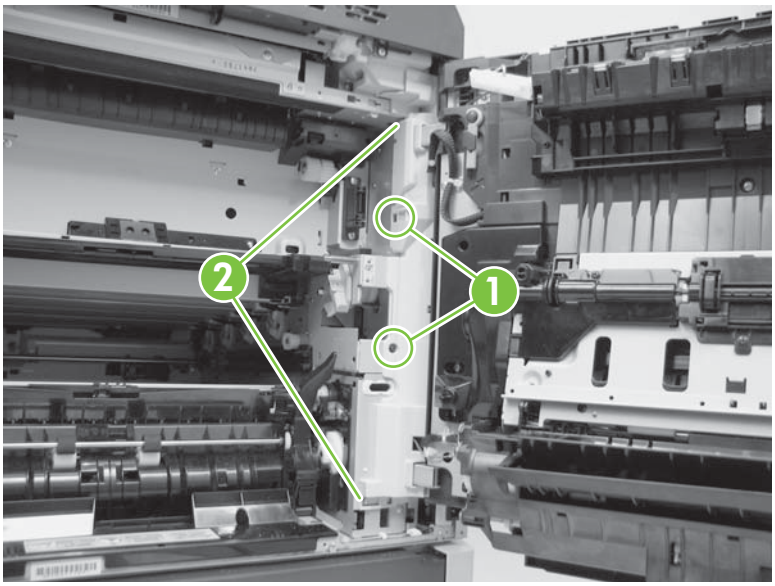
3. Remove two screws (callout 1) and the handle.

Figure 6-12 Remove the multipurpose drive unit (2 of 7)



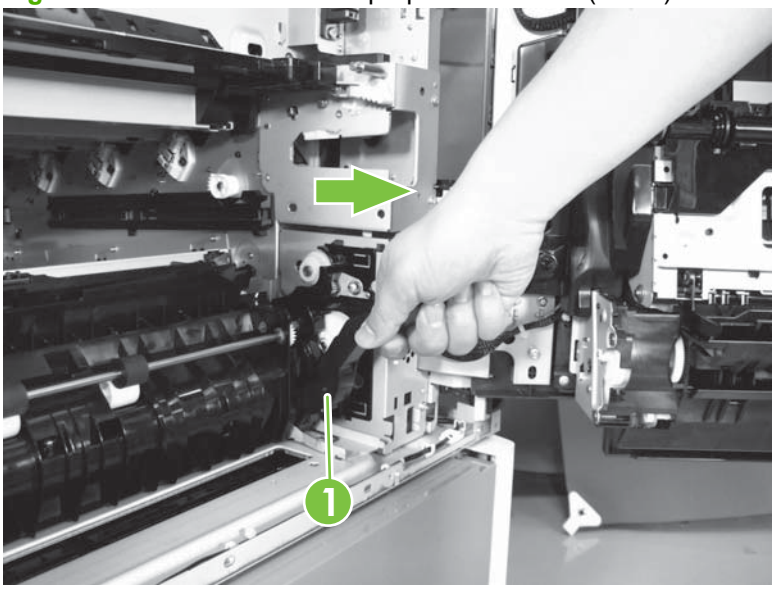
4. Remove two screws (callout 1), release two tabs (callout 2), and then remove the right inner cover.

Figure 6-13 Remove the multipurpose drive unit (3 of 7)



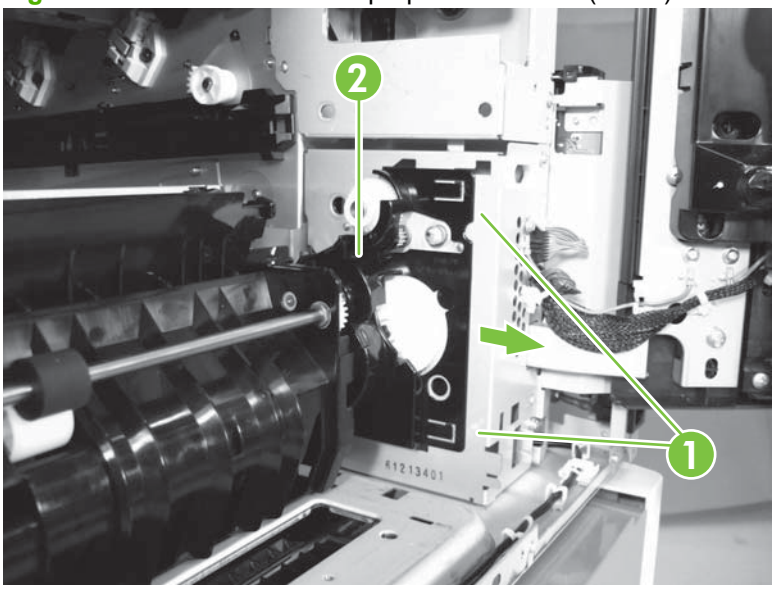
5. Lift the secondary transfer unit stopper (callout 1), and then pull it forward to remove it.

Figure 6-14 Remove the multipurpose drive unit (4 of 7)



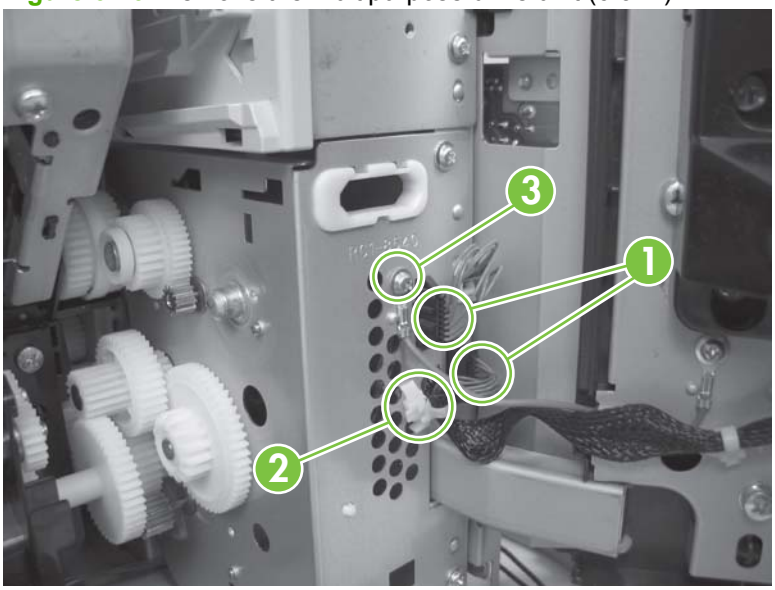
6. Release the two tabs (callout 1), and then slide the gear cover (callout 2) in the direction indicated to remove it.

Figure 6-15 Remove the multipurpose drive unit (5 of 7)



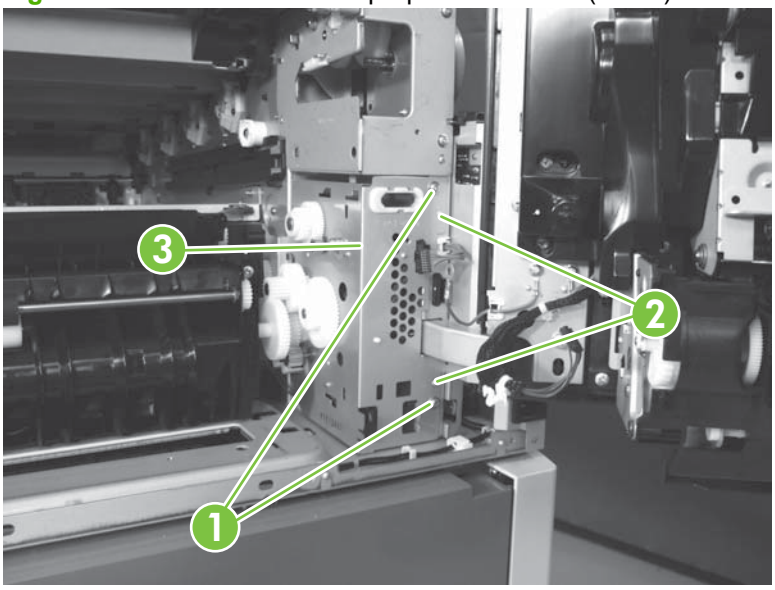
7. Remove two connectors (callout 1), one wire retainer (callout 2), and one ground screw (callout 3).

Figure 6-16 Remove the multipurpose drive unit (6 of 7)



8. Remove two screws (callout 1), two pins (callout 2), and then remove the multipurpose tray drive unit (callout 3).

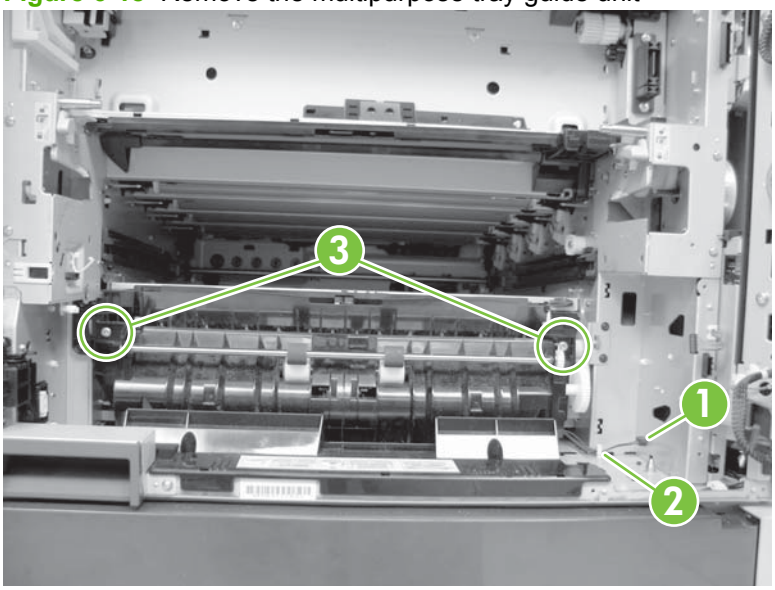
Figure 6-17 Remove the multipurpose drive unit (7 of 7)



Multipurpose-tray guide (Tray 1) unit

1. Remove the following:
   - Secondary transfer unit. See Secondary transfer unit on page 245.
   - Multipurpose drive unit. See Multipurpose drive unit on page 250.
2. Disconnect one connector (callout 1), release one wire retainer (callout 2), remove two screws (callout 3), and then remove the multipurpose-tray guide (Tray 1) unit.

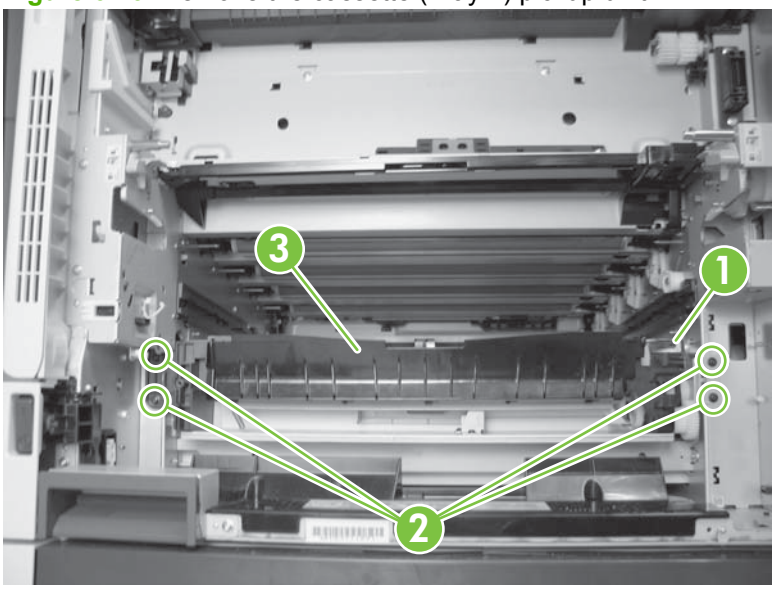
Figure 6-18 Remove the multipurpose tray guide unit



Cassette (Tray 2) pickup unit

1. Remove the following:
   - Secondary transfer unit. See Secondary transfer unit on page 245.
   - Multipurpose drive unit. See Multipurpose drive unit on page 250.
   - Multipurpose-tray guide (Tray 1) unit. See Multipurpose-tray guide (Tray 1) unit on page 254.
2. Disconnect two connectors (callout 1), remove four screws (callout 2), and then remove the Tray 2 pickup unit (callout 3).

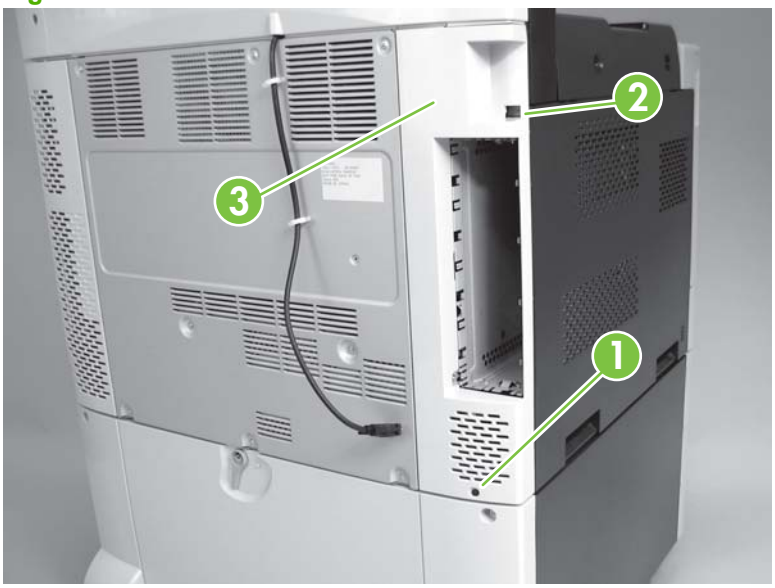
Figure 6-19 Remove the cassette (Tray 2) pickup unit



Rear-left cover

▲ Remove one screw (callout 1), release one tab (callout 2) and remove the rear left cover (callout 3).

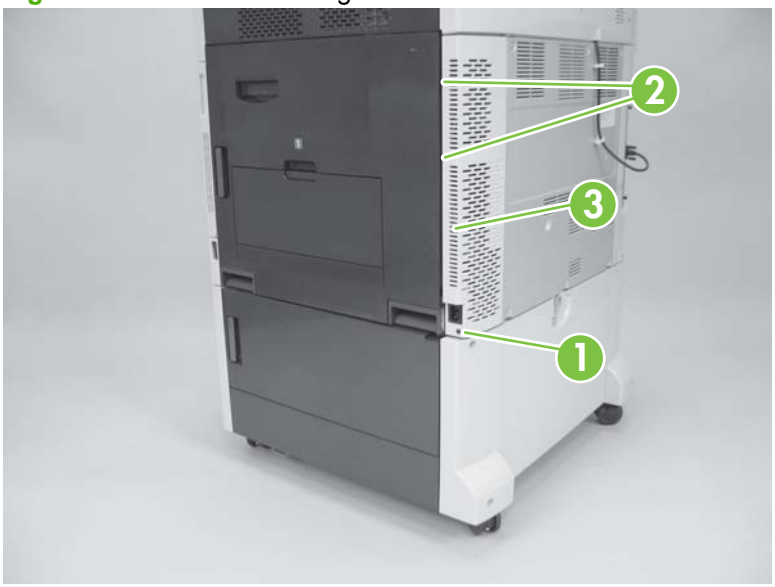
Figure 6-20 Remove rear left cover



Rear-right cover

- Remove one screw (callout 1), release two tabs (callout 2) and then remove the rear right cover (callout 3).

Figure 6-21 Remove rear right cover



Rear cover

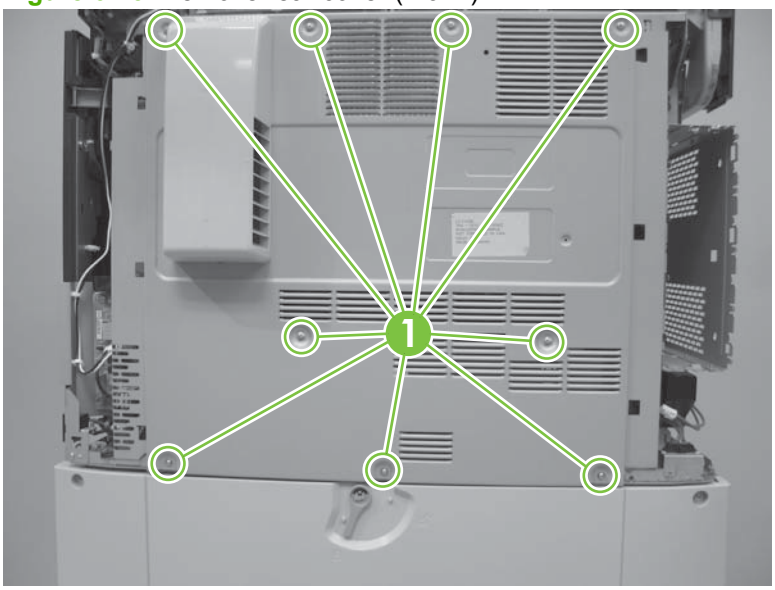
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
2. Remove two screws (callout 1).

Figure 6-22 Remove rear cover (1 of 2)



3. Remove nine screws (callout 1) and then remove the rear cover (callout 2).

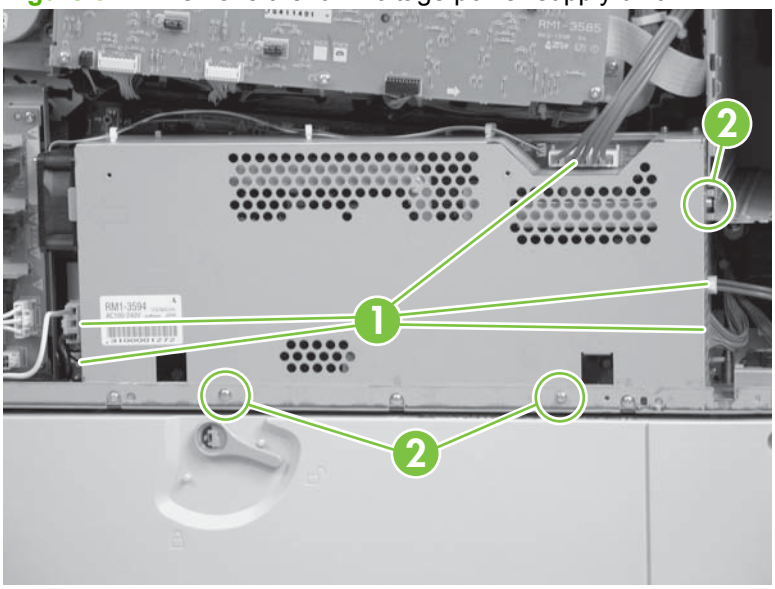
Figure 6-23 Remove rear cover (2 of 2)



Low-voltage power-supply unit

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Disconnect five connectors (callout 1), remove three screws (callout 2), and then remove the low-voltage power supply unit.

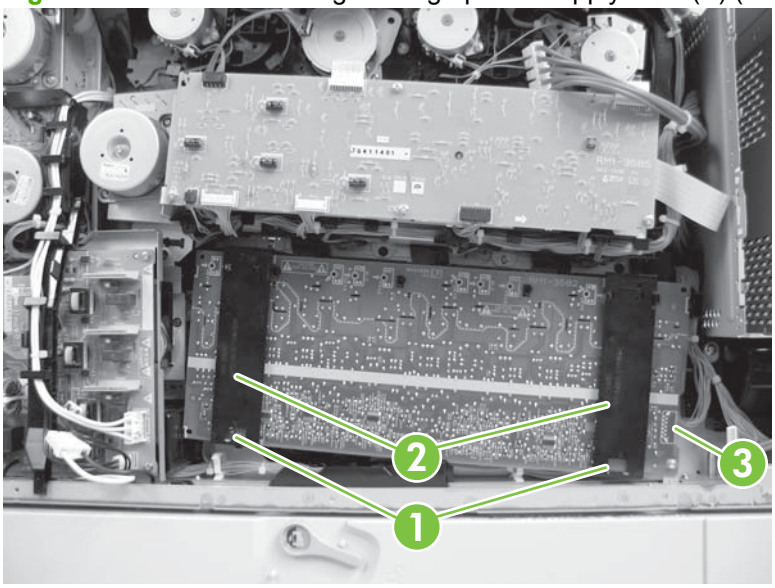
Figure 6-24 Remove the low-voltage power-supply unit



High-voltage power supply PCA (A)

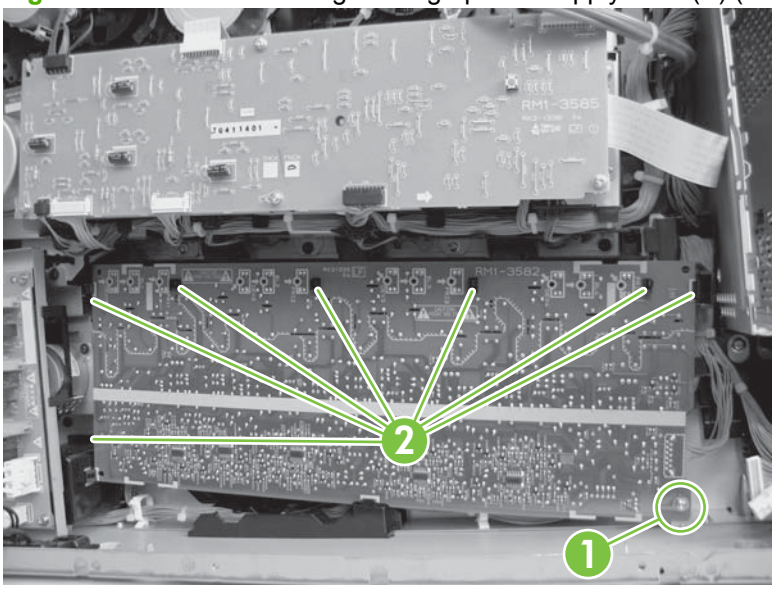
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Low-voltage power-supply unit. See Low-voltage power-supply unit on page 259.
2. Release the two tabs (callout 1), remove the two PCA holders (callout 2), and then remove one connector (callout 3).

Figure 6-25 Remove the high-voltage power supply PCA (A) (1 of 3)



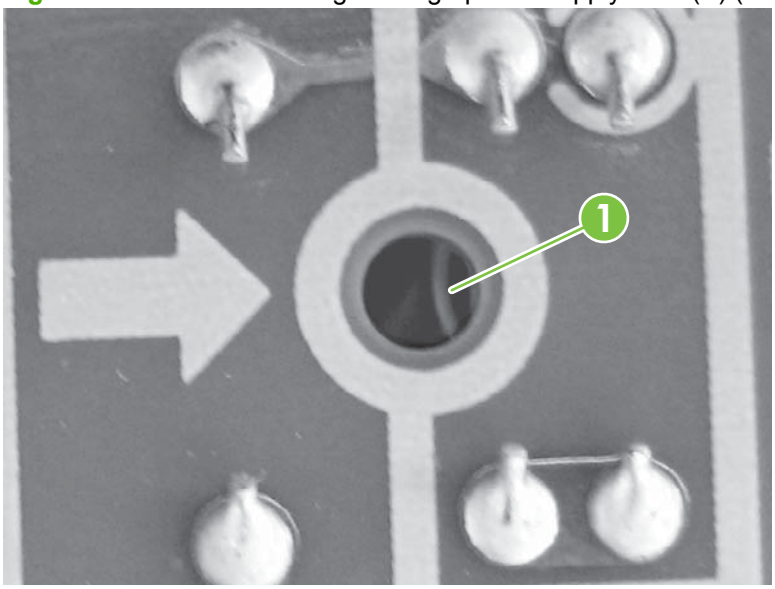
3. Remove one screw (callout 1), release seven tabs (callout 2), and then remove the high-voltage power supply PCA (A).

Figure 6-26 Remove the high-voltage power supply PCA (A) (2 of 3)



NOTE: When reassembling, set the bottom tab of the high-voltage power supply PCA (A) first. Ensure that the contact spring (callout 1) can be seen from the twelve confirmation windows.

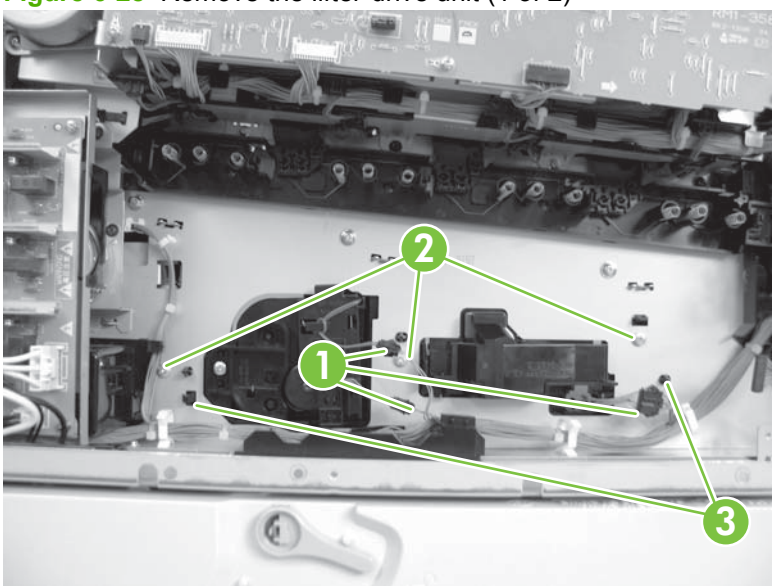
Figure 6-27 Remove the high-voltage power supply PCA (A) (3 of 3)



Lifter-drive unit

1. Remove the following:
   - Tray 2. See Tray 2 on page 244.
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Low-voltage power-supply unit. See Low-voltage power-supply unit on page 259.
   - High-voltage power supply PCA (A). See High-voltage power supply PCA (A) on page 260.
2. Disconnect three connectors (callout 1), remove three screws (callout 2), and then release two tabs (callout 3).

Figure 6-28 Remove the lifter-drive unit (1 of 2)



3. Remove the lifter-drive unit through the front of the product.

Figure 6-29 Remove the lifter-drive unit (2 of 2)



NOTE: When reassembling, ensure that the lifter-drive unit is unlocked (callout 1). If the lifter is locked (callout 2), the lifter will not function correctly.

Figure 6-30 Unlocked position of the lifter-drive unit (correct)

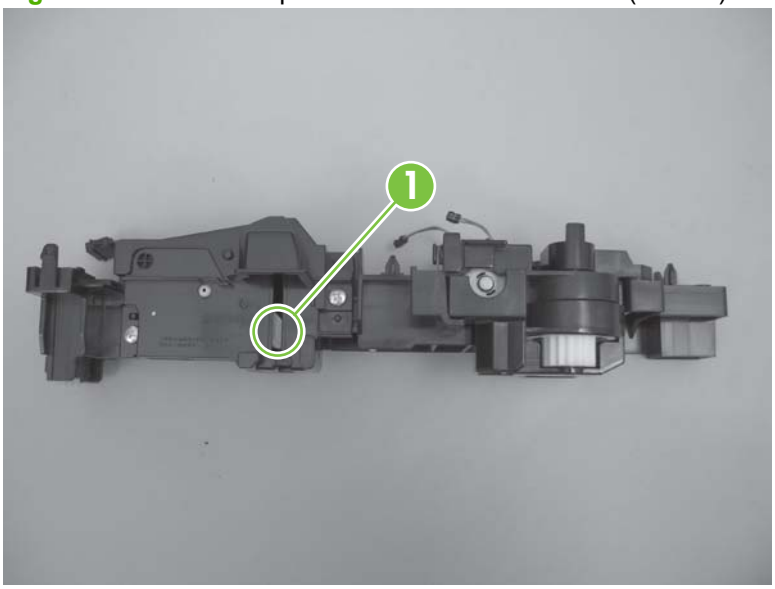
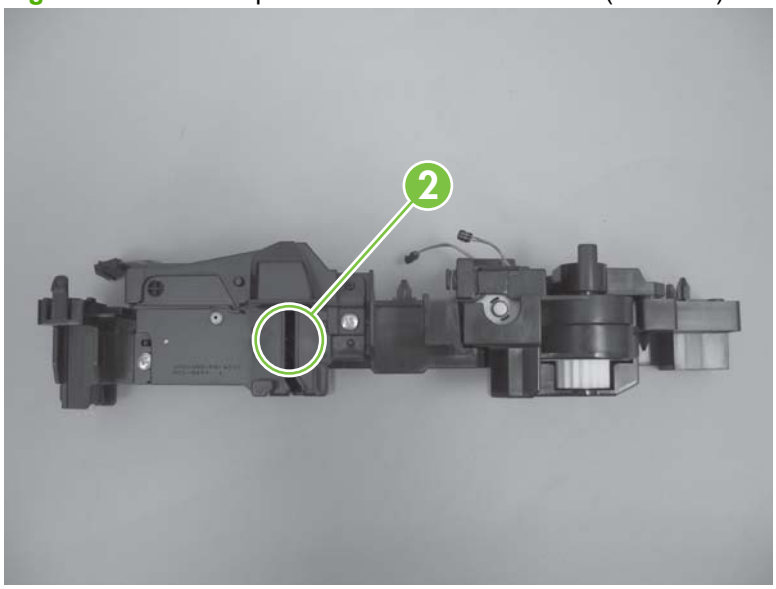


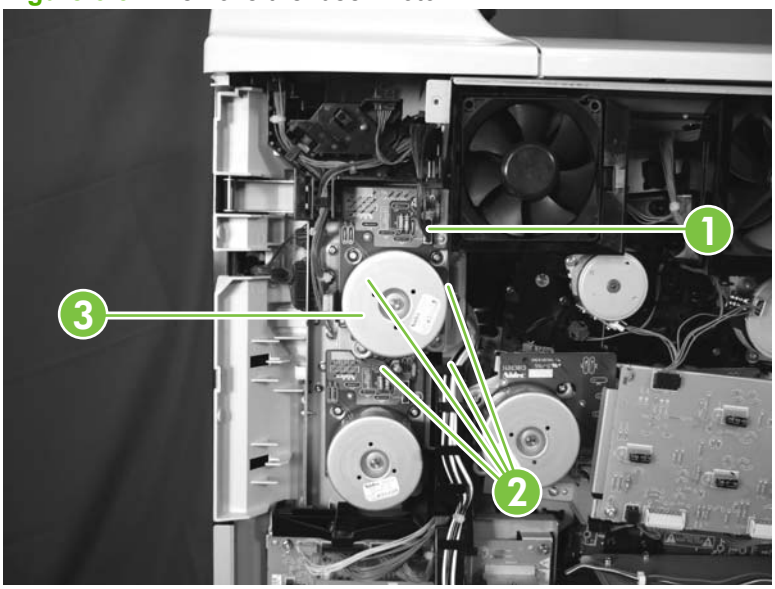
Figure 6-31 Locked position of the lifter-drive unit (incorrect)



Fuser motor

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Disconnect one connector (callout 1).
3. Remove four screws (callout 2), and then remove the fuser motor (callout 3).

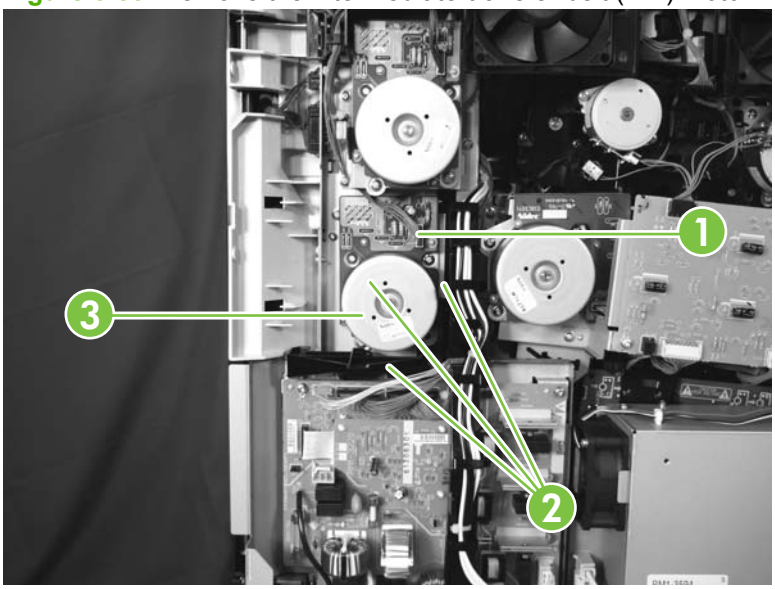
Figure 6-32 Remove the fuser motor



Intermediate-transfer belt (ITB) motor

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Disconnect one connector (callout 1). Remove three screws (callout 2), and then remove the ITB motor (callout 3).

Figure 6-33 Remove the intermediate-transfer belt (ITB) motor



Face-down output bin

▲ Remove two screws (callout 1) and then the face-down output bin (callout 2).

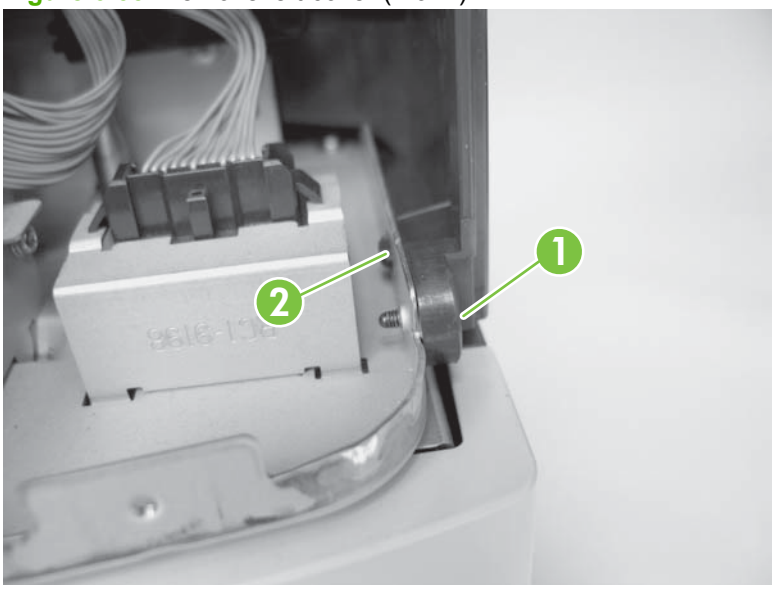
Figure 6-34 Remove face-down output bin



Left cover

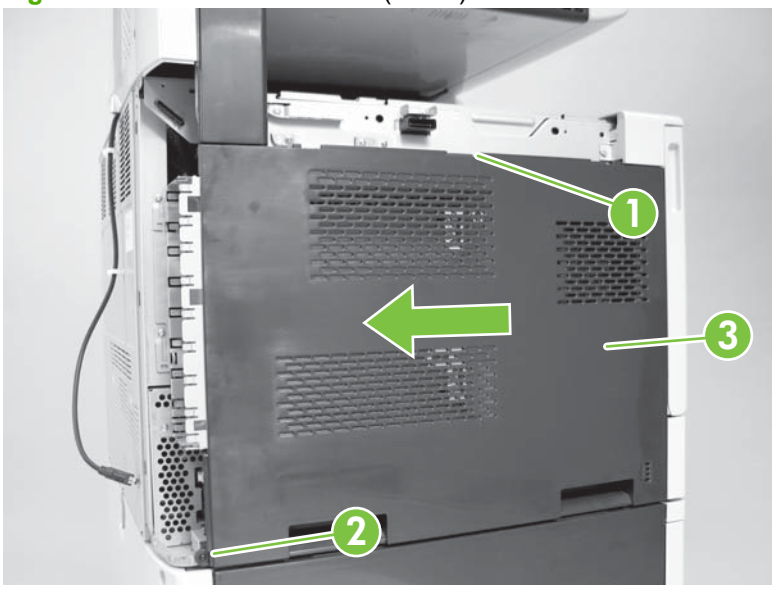
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Face-down output bin. See Face-down output bin on page 267.
2. Remove one screw (callout 1) and then release one pin (callout 2).

Figure 6-35 Remove left cover (1 of 2)



3. Release one tab (callout 1). Flex the bottom corner (callout 2), and then slide the left cover (callout 3) in the direction indicated.

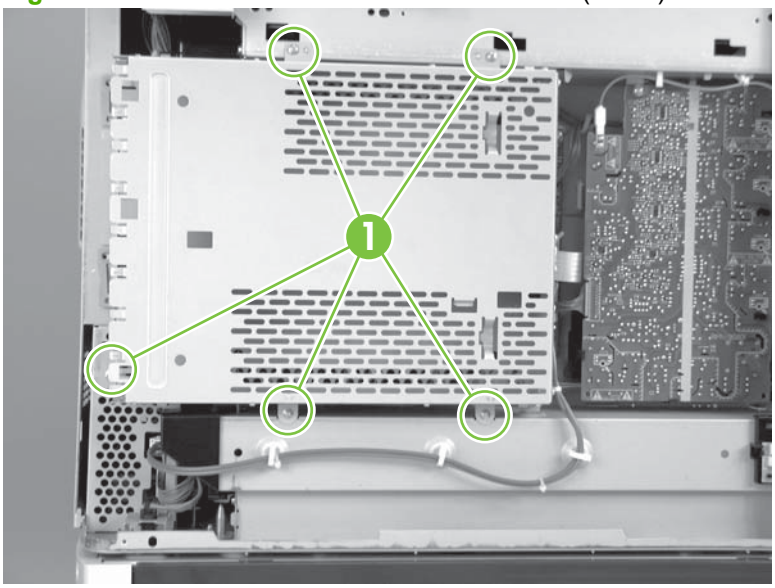
Figure 6-36 Remove left cover (2 of 2)



Laser/scanner fan duct

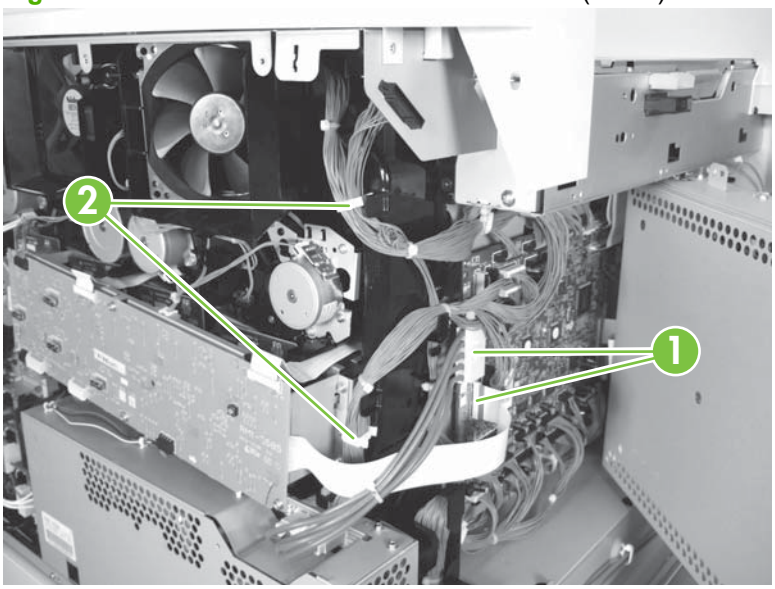
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
2. Remove five screws (callout 1), and then swing the formatter case to the right.

Figure 6-37 Remove the laser/scanner fan duct (1 of 3)



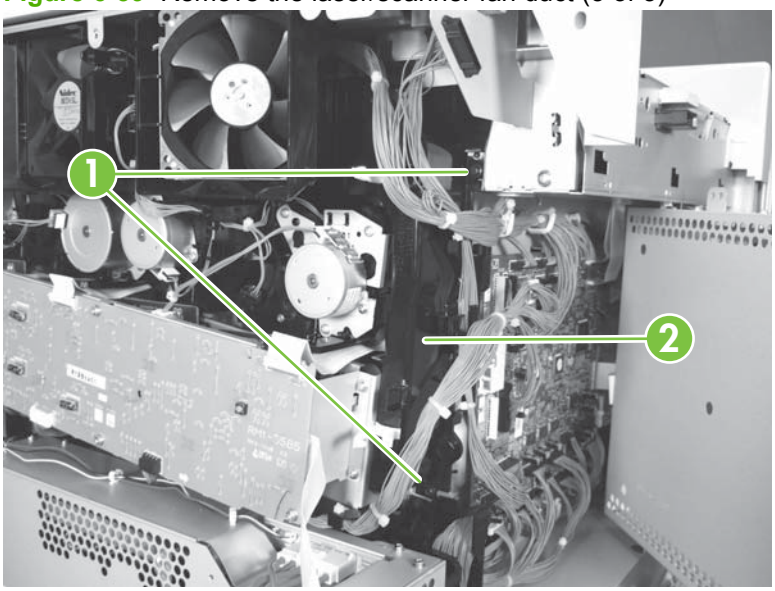
3. Disconnect the two connectors (callout 1), and then release two wire retainers (callout 2).

Figure 6-38 Remove the laser/scanner fan duct (2 of 3)



4. Remove two screws (callout 1), and then remove the laser/scanner fan duct (callout 2).

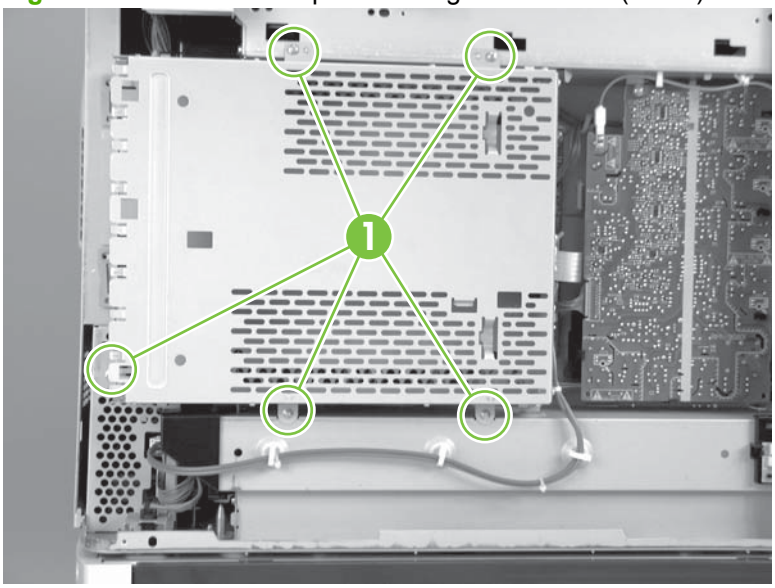
Figure 6-39 Remove the laser/scanner fan duct (3 of 3)



Print-cartridge driver PCA

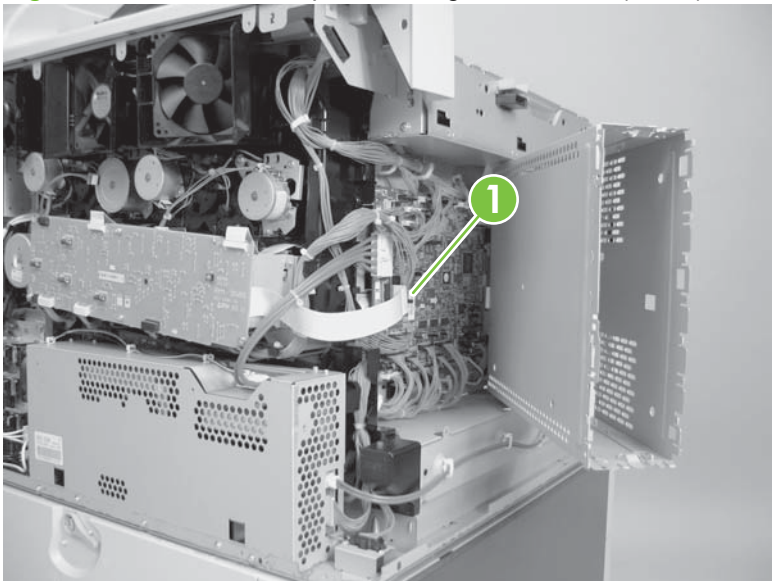
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
2. Remove five screws (callout 1), and then swing the formatter case to the right.

Figure 6-40 Remove the print-cartridge driver PCA (1 of 3)



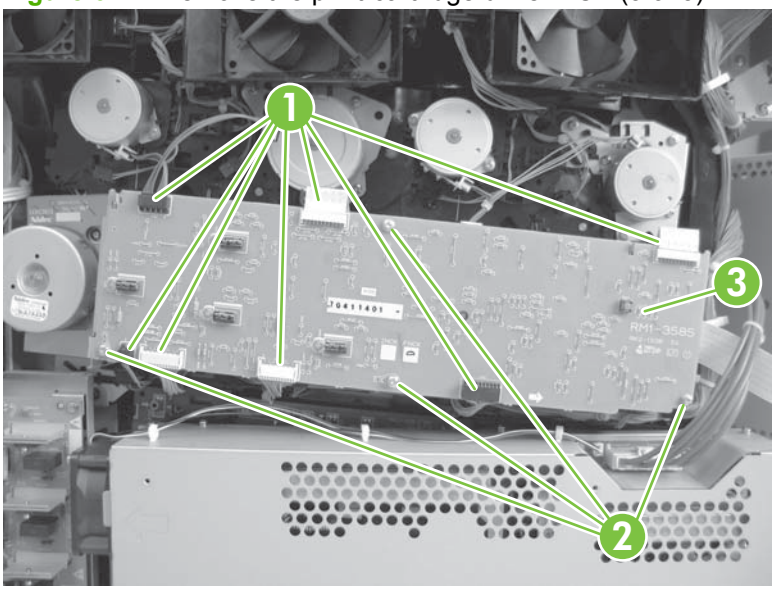
3. Disconnect one connector from the DC controller (callout 1).

Figure 6-41 Remove the print-cartridge driver PCA (2 of 3)



4. Disconnect seven connectors (callout 1), four screws (callout 2), and the print-cartridge driver PCA (callout 3).

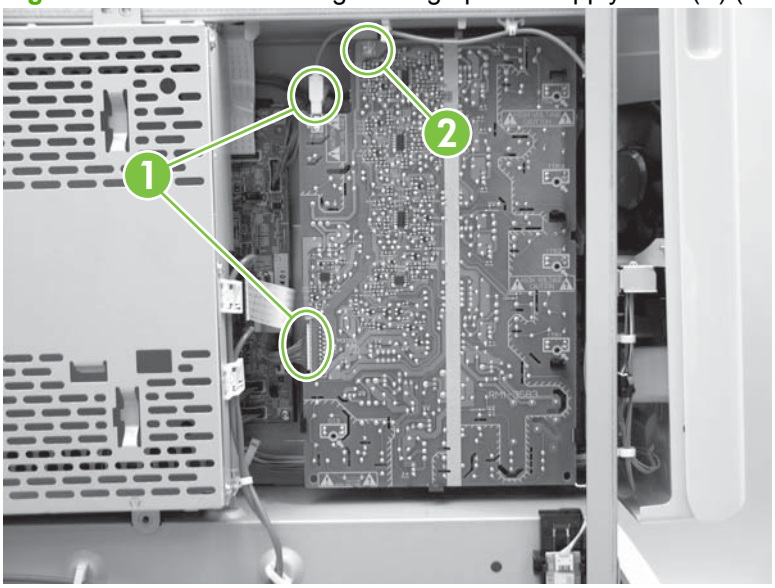
Figure 6-42 Remove the print-cartridge driver PCA (3 of 3)



High-voltage power supply PCA (B)

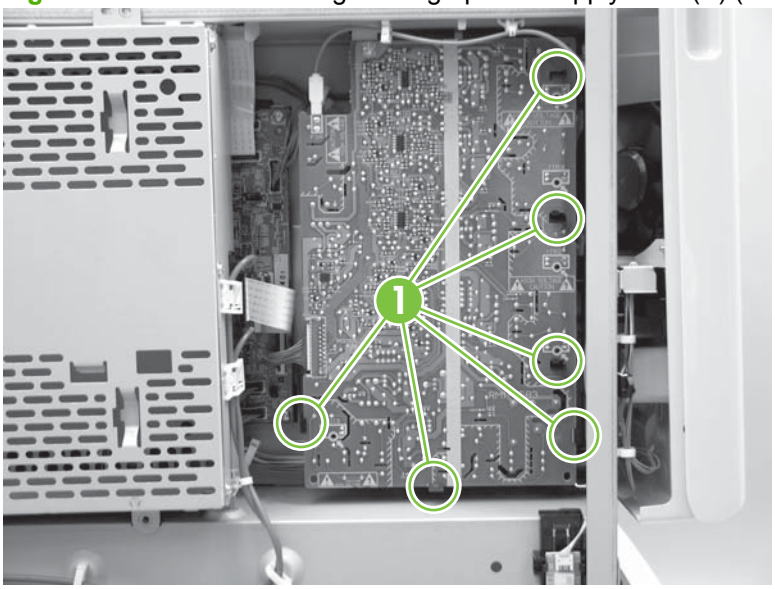
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
2. Disconnect two connectors (callout 1), and then remove one screw (callout 2).

Figure 6-43 Remove the high-voltage power supply PCA (B) (1 of 3)



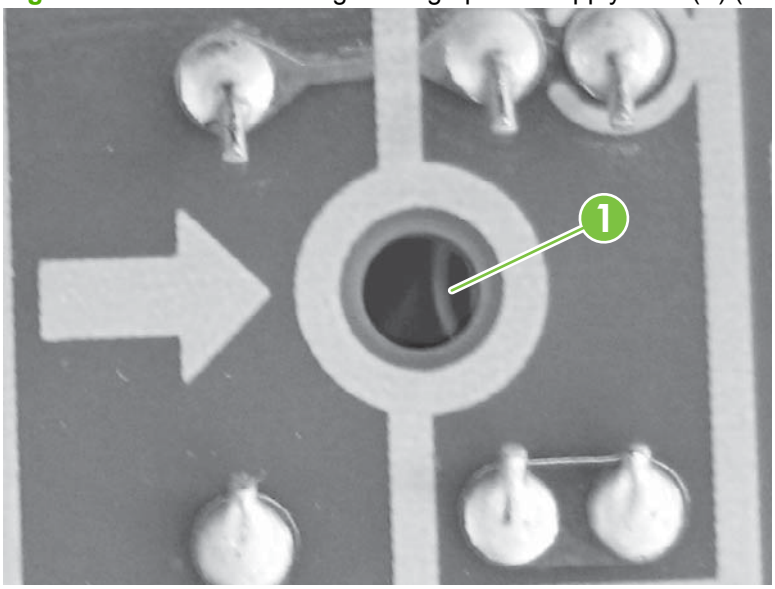
3. Release six tabs (callout 1), and then remove the high-voltage power supply PCA (B).

Figure 6-44 Remove the high-voltage power supply PCA (B) (2 of 3)



NOTE: When reassembling, ensure that the contact springs (callout 1) can be seen from the five confirmation windows. Failure to do so can cause print quality issues.

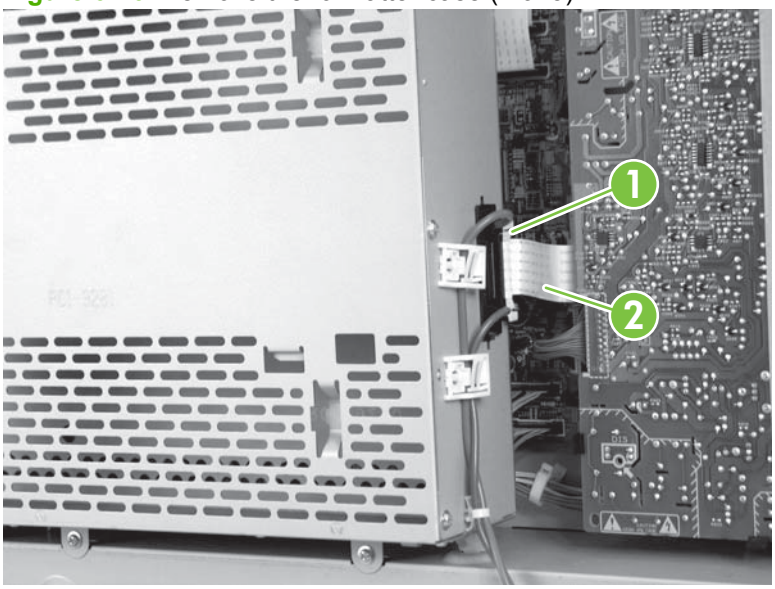
Figure 6-45 Remove the high-voltage power supply PCA (B) (3 of 3)



Formatter case

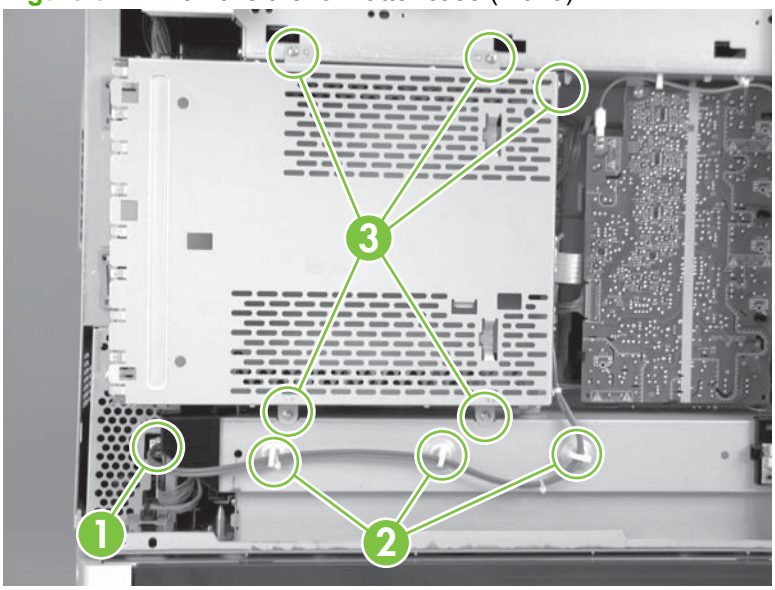
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
2. Remove the wire-harness holder (callout 1), and then disconnect the flat cable (callout 2) from the formatter case.

Figure 6-46 Remove the formatter case (1 of 3)



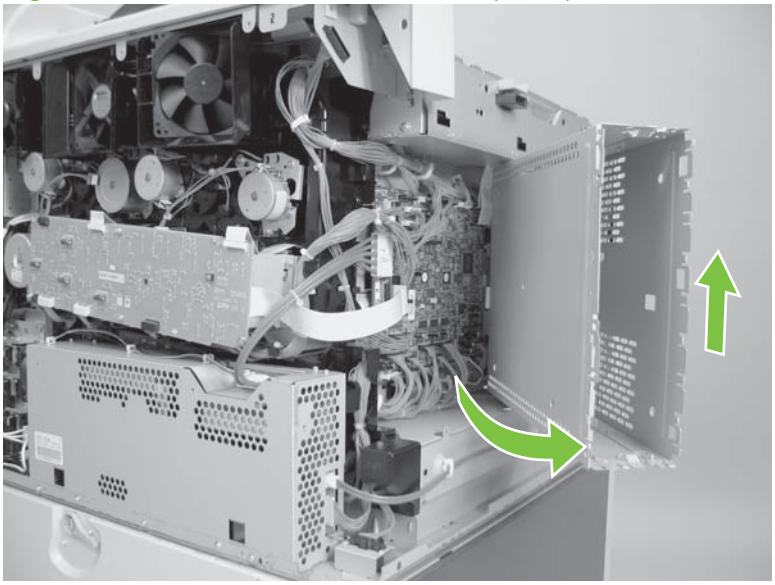
3. Disconnect one connector (callout 1), release three wire retainers (callout 2), and then remove five screws (callout 3).

Figure 6-47 Remove the formatter case (2 of 3)



4. Rotate and lift the formatter case to remove it.

Figure 6-48 Remove the formatter case (3 of 3)



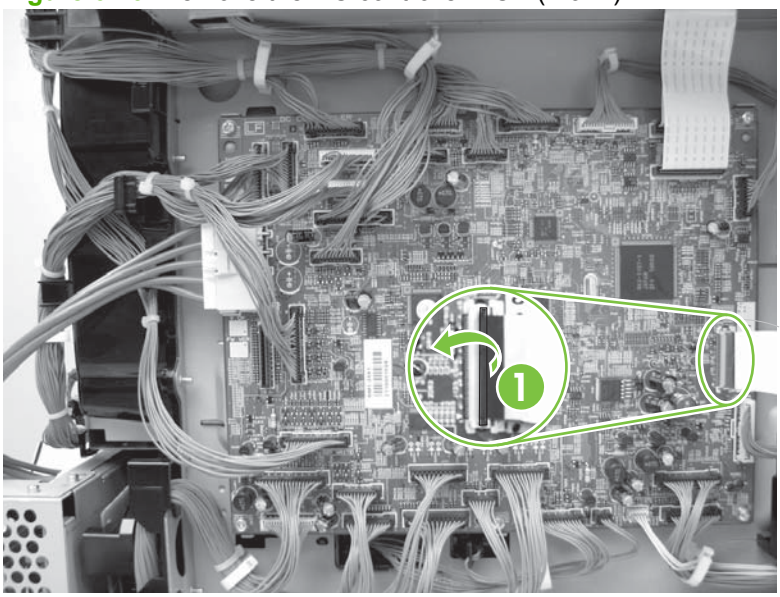
NOTE: When reassembling, insert the C-shaped hinge on the top of the formatter case into the round hole.

DC controller PCA

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
2. Disconnect all the connectors on the DC controller PCA.

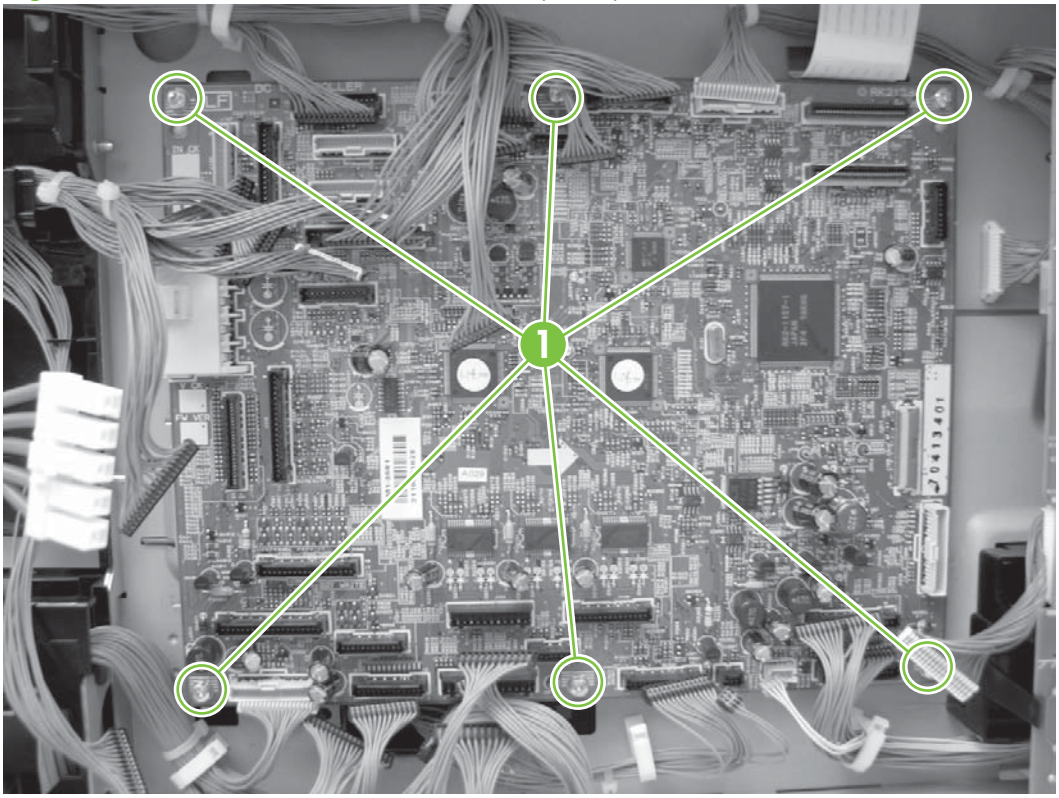
△ **CAUTION:** Use care when removing the flat cable that comes from the formatter case (callout 1). Gently lift the black latch to release the cable.

Figure 6-49 Remove the DC controller PCA (1 of 2)



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

Figure 6-50 Remove the DC controller PCA (2 of 2)



Environmental sensor

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
2. Disconnect one connector (callout 1). Release three tabs (callout 2), and then remove the environmental sensor (callout 3).

Figure 6-51 Remove the environmental sensors

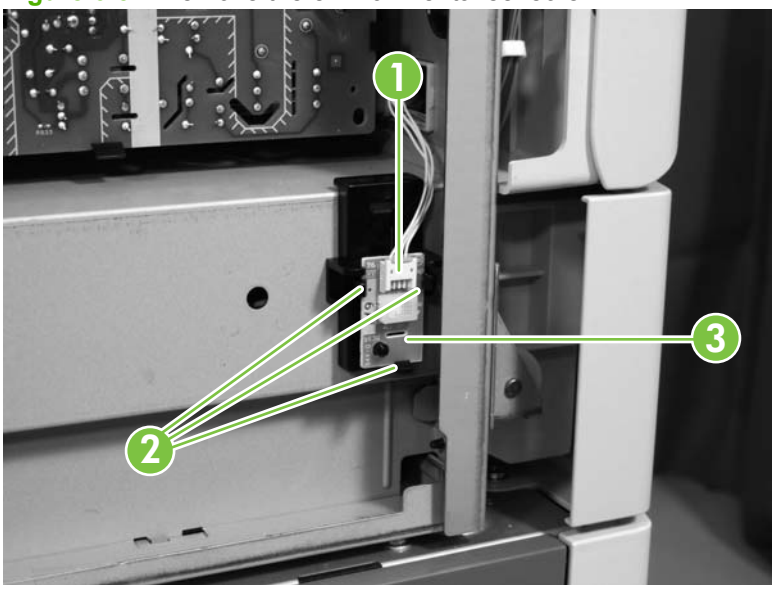
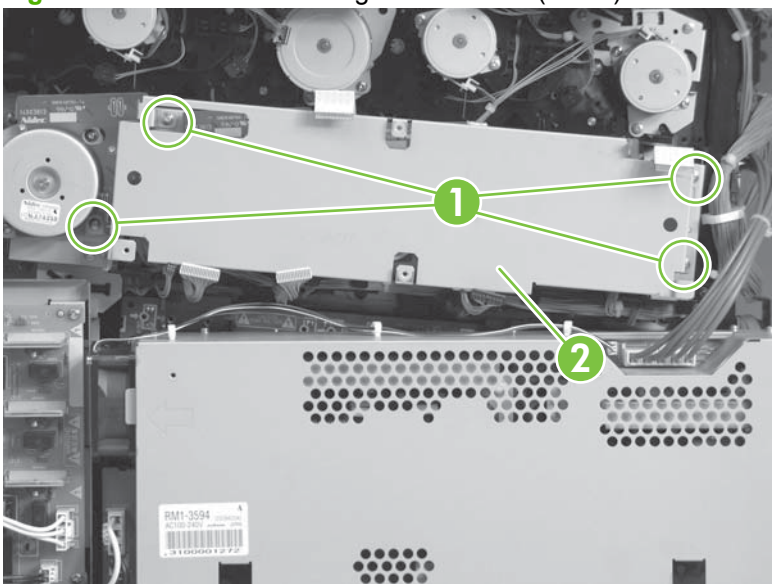


Image-drum motor

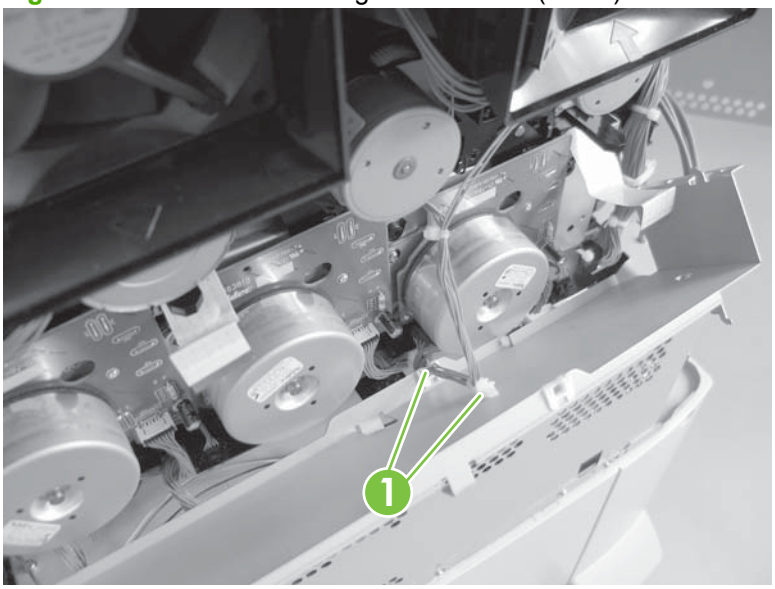
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Remove four screws (callout 1), and then remove the cartridge driver PCA mount (callout 2).

Figure 6-52 Remove the image-drum motor (1 of 3)



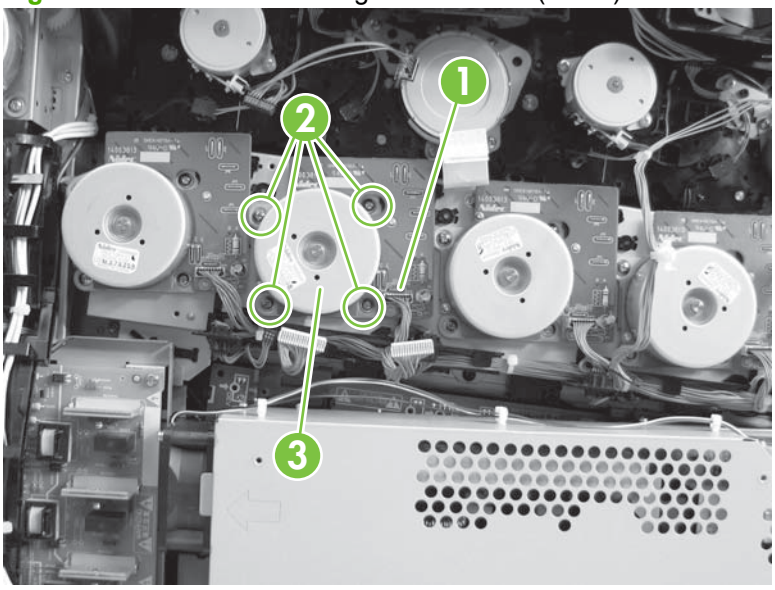
3. Disconnect two wire retainers (callout 1).

Figure 6-53 Remove the image-drum motor (2 of 3)



4. Remove one connector (callout 1) and four screws (callout 2) for the appropriate motor. Remove the image-drum motor (callout 3). Removal of the magenta image drum is shown.

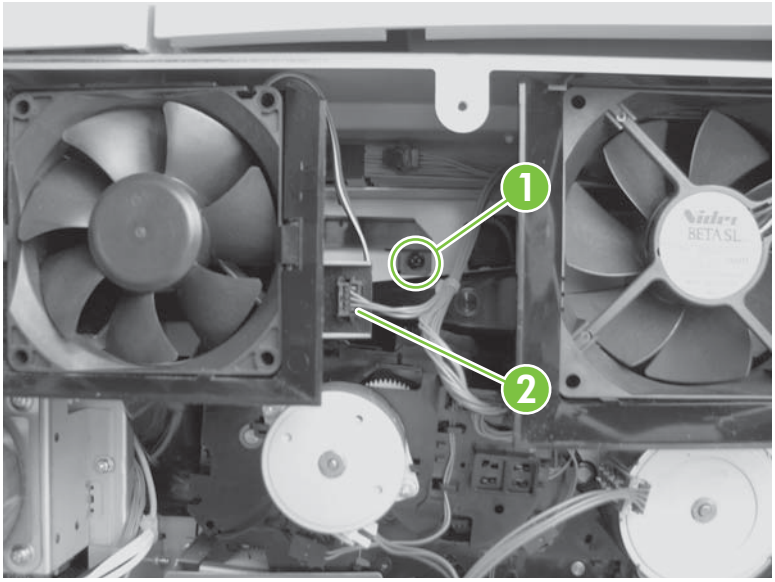
Figure 6-54 Remove the image-drum motor (3 of 3)



Fuser fan

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Remove one screw (callout 1), disconnect one connector (callout 2), and then remove the fuser fan.

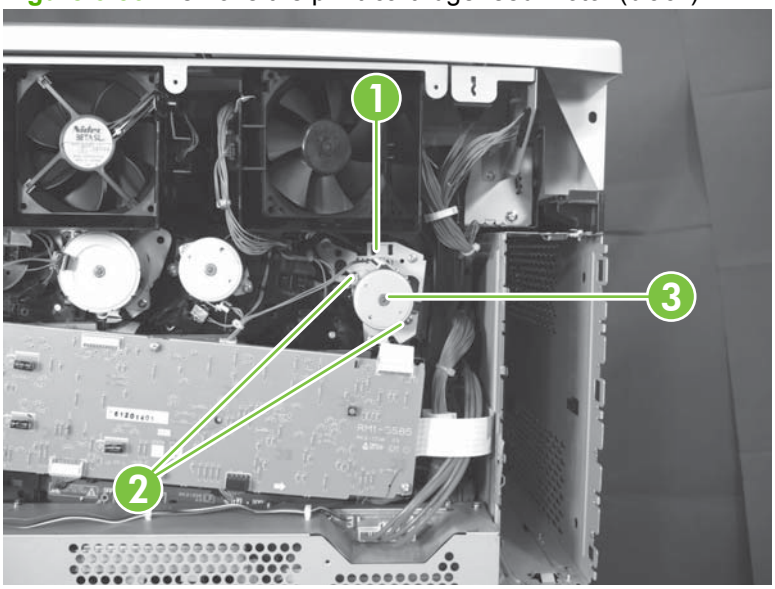
Figure 6-55 Remove the fuser fan



Print-cartridge feed motor (black)

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Disconnect one connector (callout 1). Remove two screws (callout 2), and then remove the print-cartridge feed motor (black) (callout 3).

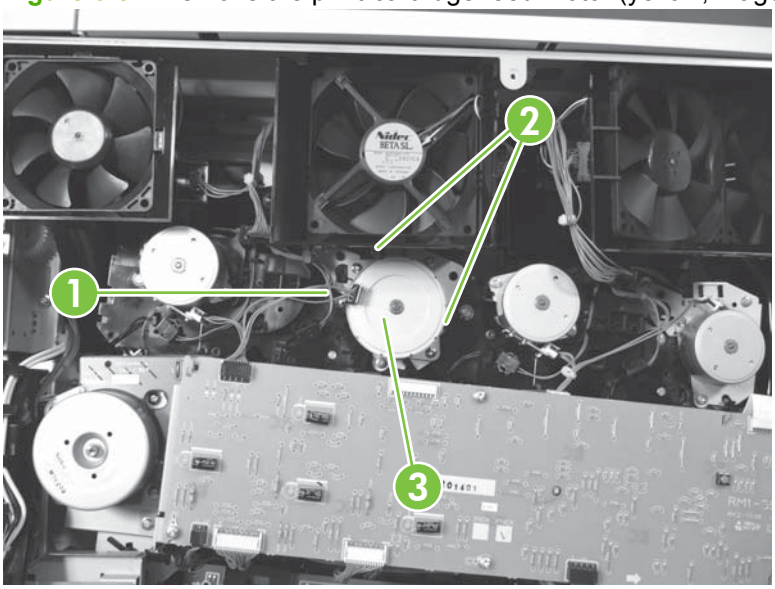
Figure 6-56 Remove the print-cartridge feed motor (black)



Print-cartridge feed motor (yellow, magenta, and cyan)

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Disconnect one connector (callout 1). Remove two screws (callout 2), and then remove the print-cartridge feed motor (yellow, magenta, and cyan) (callout 3).

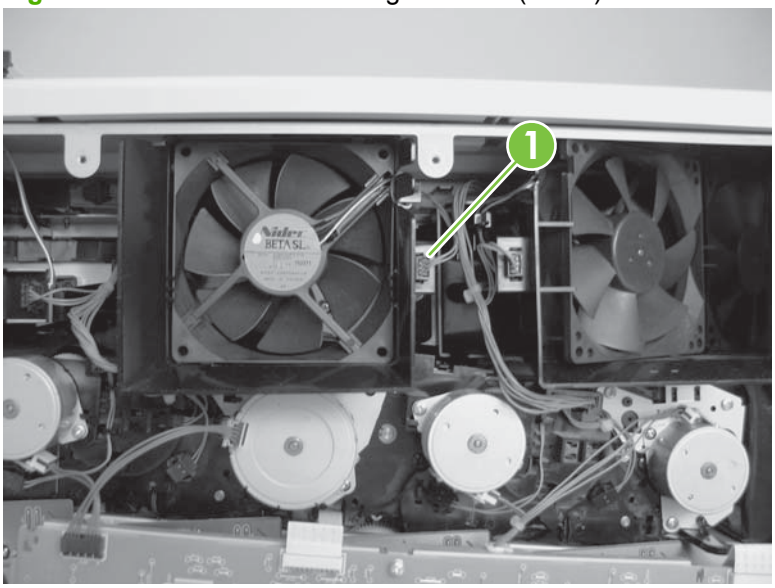
Figure 6-57 Remove the print-cartridge feed motor (yellow, magenta, and cyan)



Cartridge fan unit

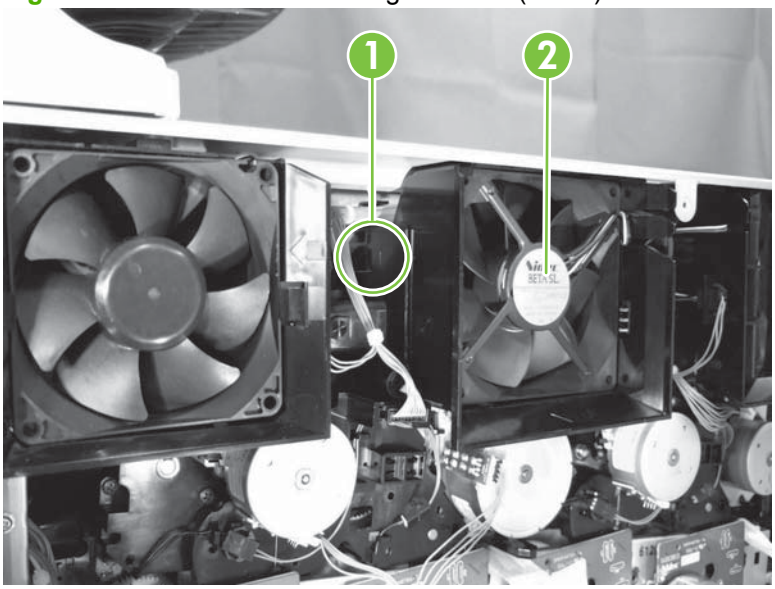
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Disconnect one connector (callout 1).

Figure 6-58 Remove the cartridge fan unit (1 of 2)



3. Release one tab (callout 1), and then remove the cartridge fan unit (callout 2).

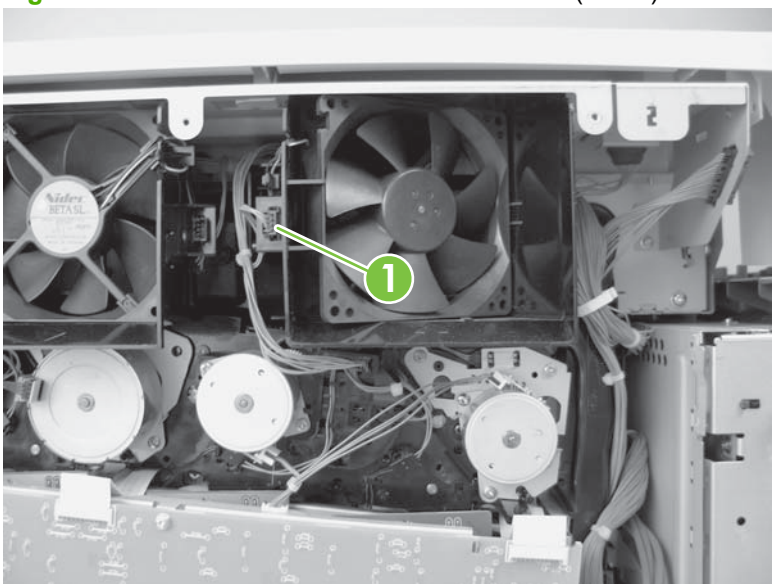
Figure 6-59 Remove the cartridge fan unit (2 of 2)



Laser/scanner fan unit

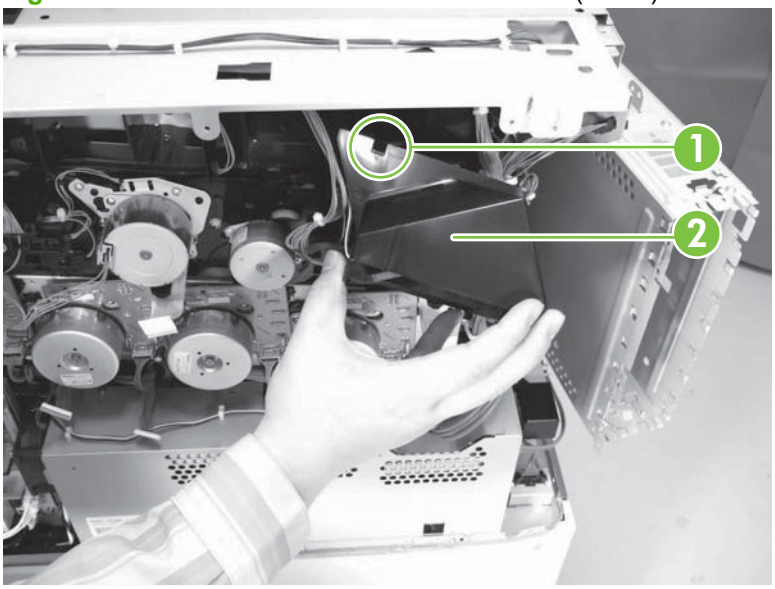
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Disconnect one connector (callout 1).

Figure 6-60 Remove the laser/scanner fan unit (1 of 2)



3. Release one tab (callout 1), and then remove the laser/scanner fan unit (callout 2).

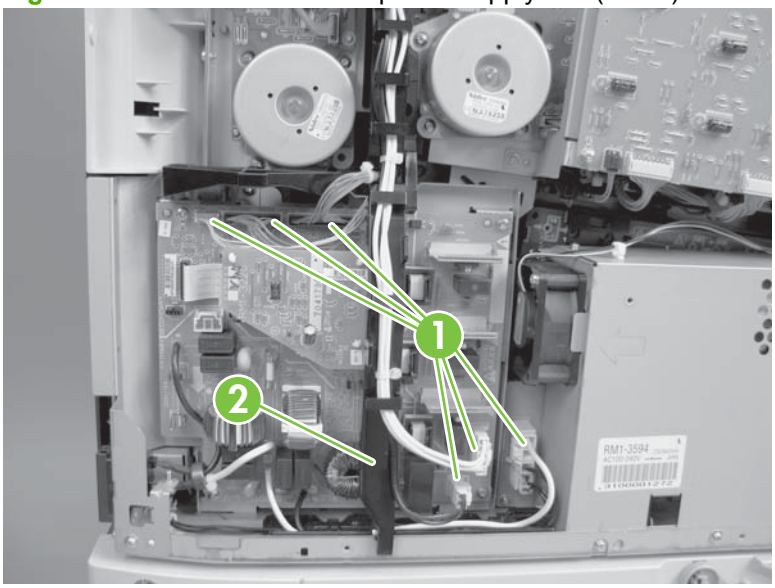
Figure 6-61 Remove the laser/scanner fan unit (2 of 2)



Fuser power-supply unit

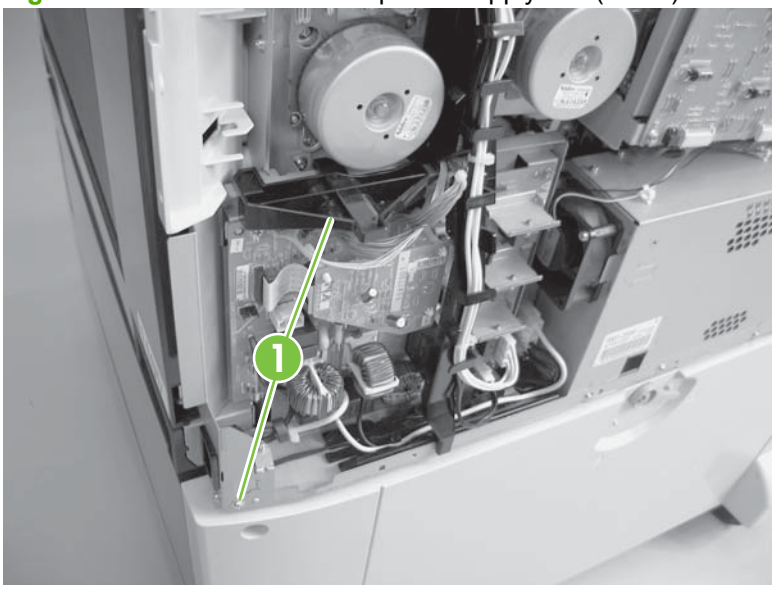
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Disconnect six connectors (callout 1), and then remove one cable guide (callout 2).

Figure 6-62 Remove the fuser power-supply unit (1 of 2)



3. Remove two screws (callout 1), and then remove the fuser power-supply unit.

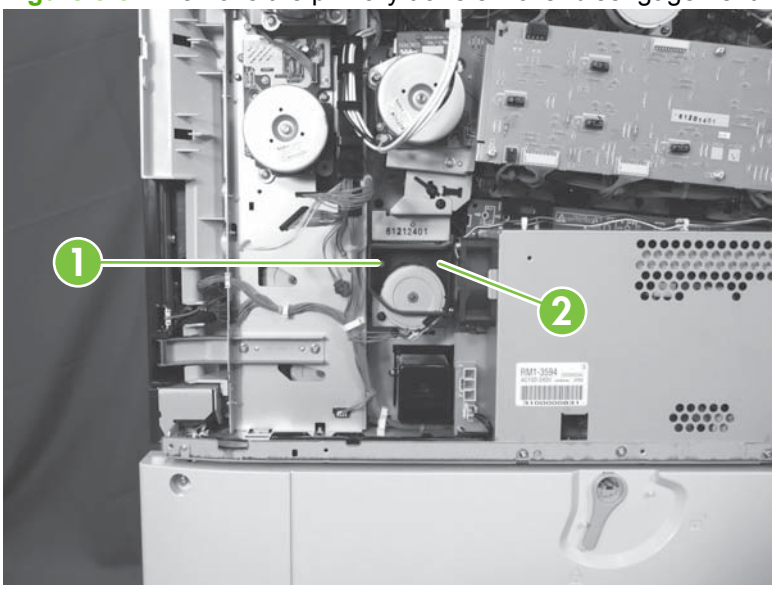
Figure 6-63 Remove the fuser power-supply unit (2 of 2)



Primary transfer-roller disengagement motor

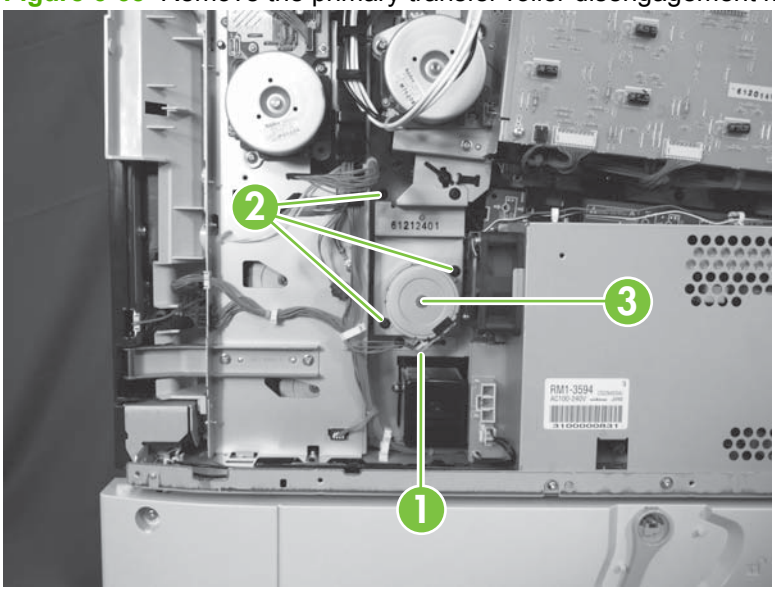
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Fuser power-supply unit. See Fuser power-supply unit on page 287.
2. Remove one screw (callout 1), and then remove the motor cover (callout 2).

Figure 6-64 Remove the primary transfer-roller disengagement motor (1 of 2)



3. Disconnect one connector (callout 1). Remove three screws (callout 2), and then remove the primary-transfer roller disengagement motor (callout 3).

Figure 6-65 Remove the primary transfer-roller disengagement motor (2 of 2)

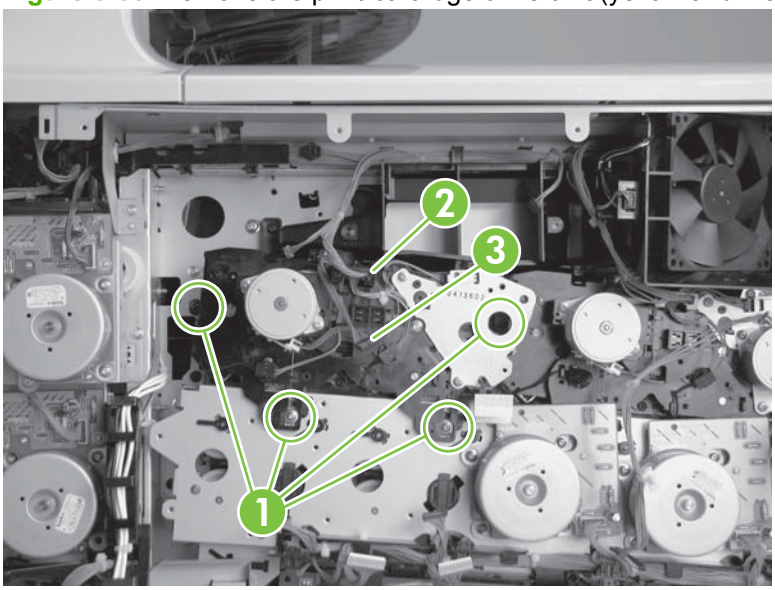


Print-cartridge drive unit (yellow and magenta)

NOTE: Do not remove the print-cartridge drive unit (yellow and magenta) without having the alignment pins required for reinstallation.

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
   - Print-cartridge driver PCA. See Print-cartridge driver PCA on page 271.
   - Image-drum motors (yellow and magenta). See Image-drum motor on page 280.
2. Remove four screws (callout 1), disconnect one connector (callout 2), and then remove the print-cartridge drive unit (yellow and magenta) (callout 3).

Figure 6-66 Remove the print-cartridge drive unit (yellow and magenta)

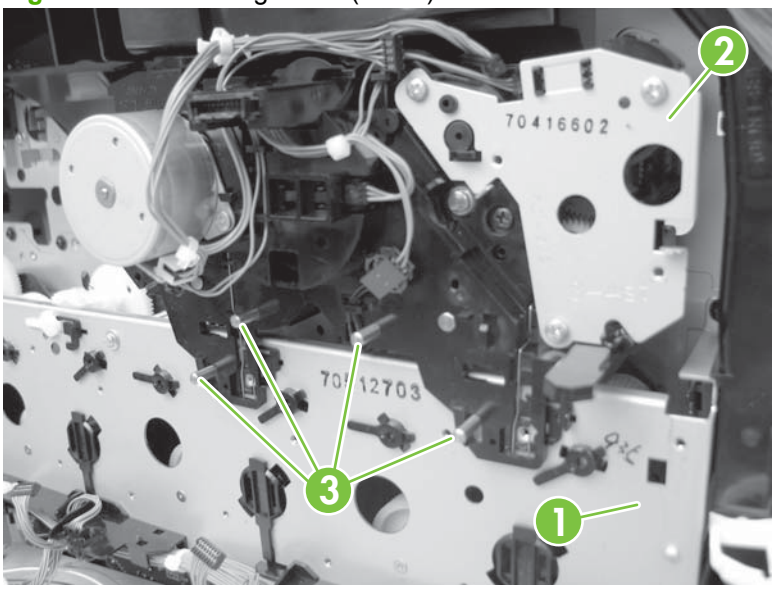


NOTE: Follow the gear alignment procedures when reassembling the print-cartridge drive units and main drive unit.

Gear alignment

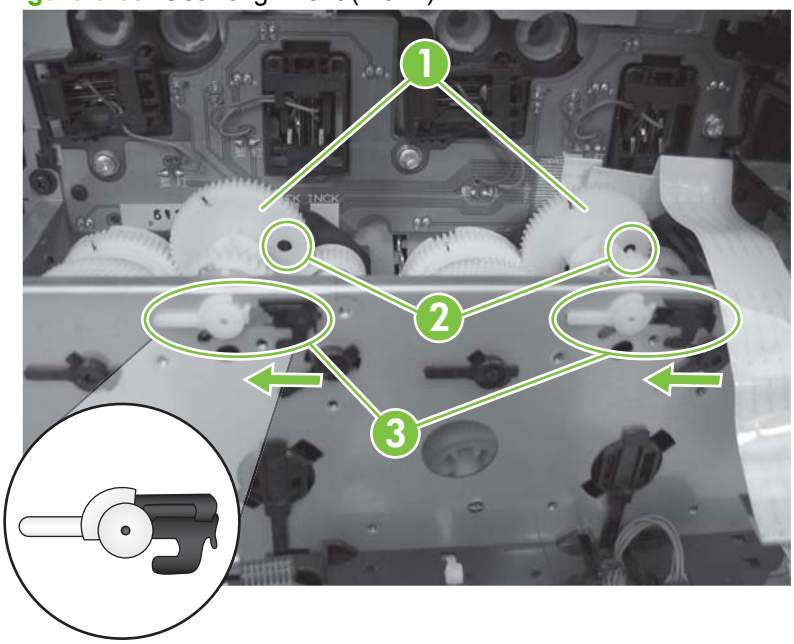
1. This procedure correctly aligns the gears of the main drive unit (callout 1) and the print-cartridge drive unit(s) (callout 2). Use the four pins (callout 3) supplied with the replacement units to align the gears.

Figure 6-67 Gear alignment (1 of 7)



2. Reinstall the main drive unit. Push the black locks (callout 3) to the left while rotating the top gears (callout 1) on the main drive unit until they lock into position. The large holes (callout 2) should point to the right (3 o'clock position).

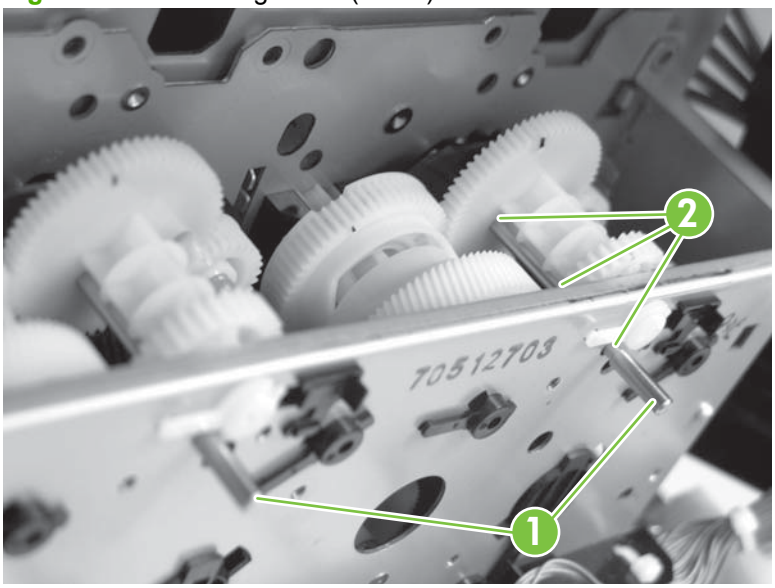
Figure 6-68 Gear alignment (2 of 7)



3. Insert the long alignment pins (callout 1) through the gears (callout 2) in the main drive unit.

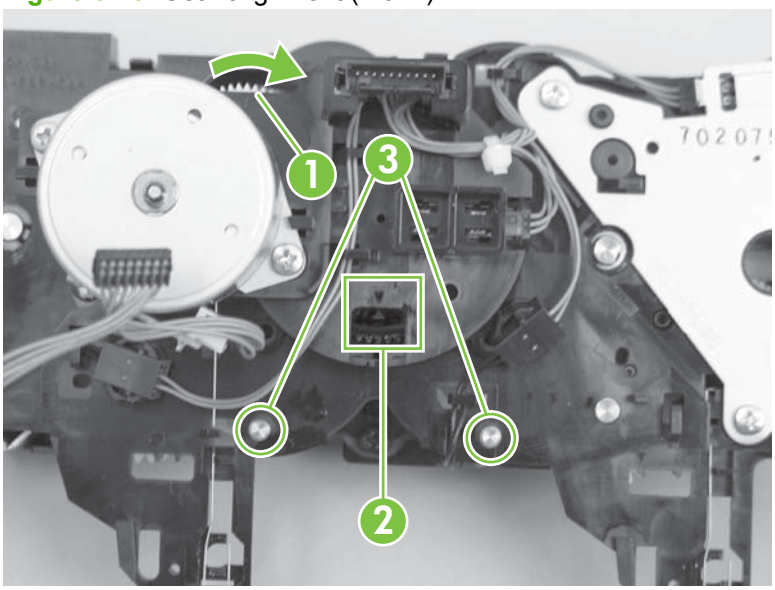
NOTE: This step is not required. Gears can be held in position with the locks.

Figure 6-69 Gear alignment (3 of 7)



4. On the print-cartridge drive unit, rotate the top gear (callout 1) clockwise until the arrows align (callout 2). Insert the two short pins (callout 3).

Figure 6-70 Gear alignment (4 of 7)



5. Install the print-cartridge drive unit (callout 1) over the long pins in the main drive unit. Remove all pins (callout 2), disengage locks, and reinstall screws.

△ **CAUTION:** Ensure that the print-cartridge drive unit is installed correctly. The unit should be flush against the product (callout 1). Incorrect installation (callout 2) will cause the product to function incorrectly.

6. Ensure that the print-cartridge drive unit is installed correctly. The unit should be flush against the product (callout 1). Incorrect installation (callout 2) will cause the product to function incorrectly.

Figure 6-71 Correct position of print-cartridge drive unit (5 of 7)

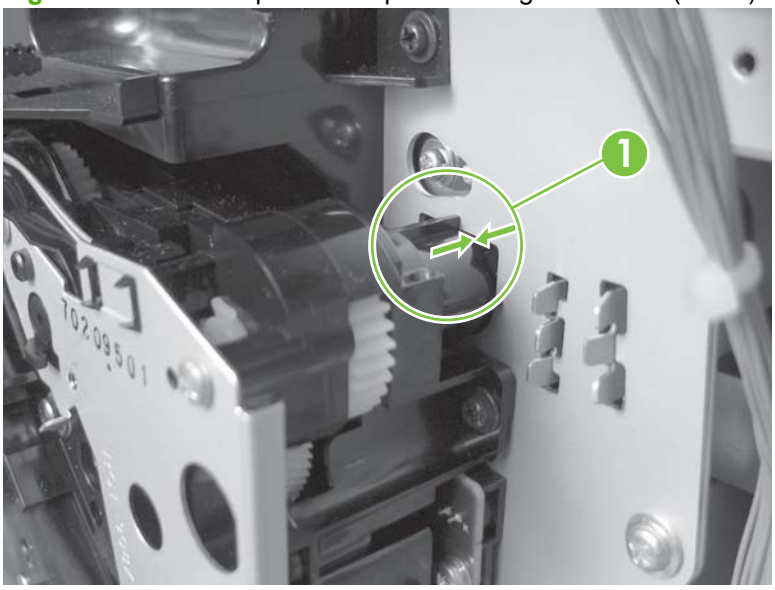
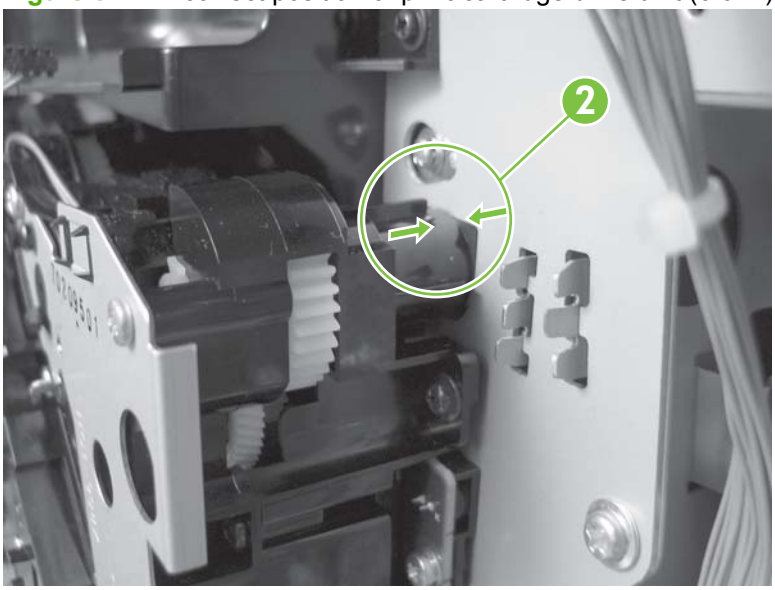
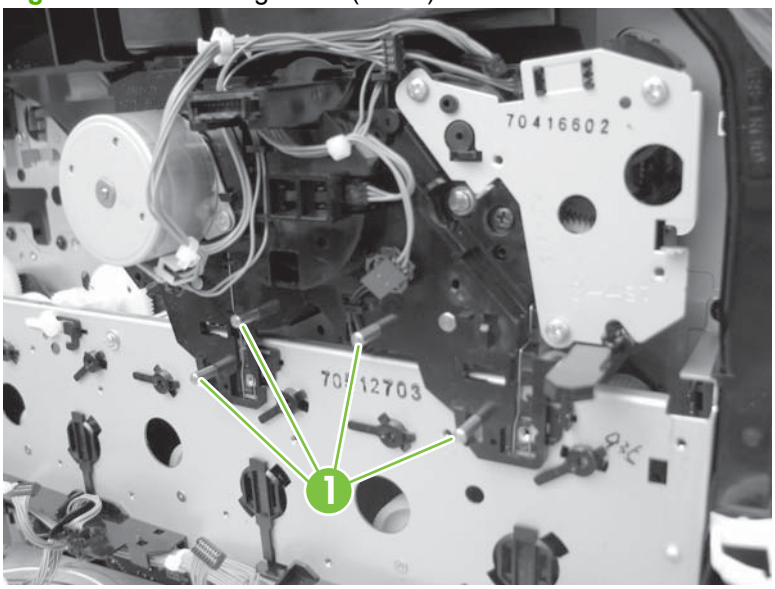


Figure 6-72 Incorrect position of print-cartridge drive unit (6 of 7)



△ **CAUTION:** Be sure to remove all pins (callout 1). Failure to do so can damage the product.

Figure 6-73 Gear alignment (7 of 7)



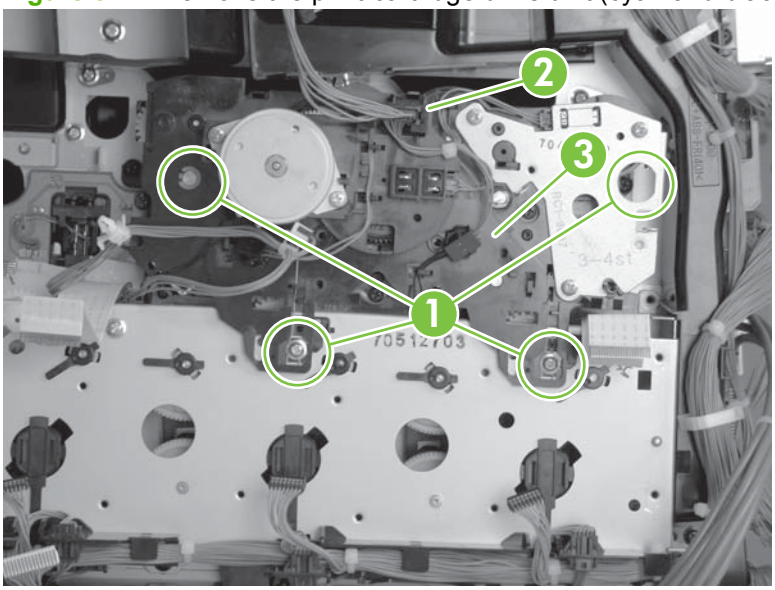
Print-cartridge drive unit (cyan and black)

NOTE: Do not remove the print-cartridge drive unit (cyan and black) without having the alignment pins required for reinstallation.

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
   - Print-cartridge driver PCA. See Print-cartridge driver PCA on page 271.
   - Image-drum motors (cyan and black). See Image-drum motor on page 280.
2. Remove four screws (callout 1), disconnect one connector (callout 2), and then remove the print-cartridge drive unit (cyan and black) (callout 3).

NOTE: Follow the gear alignment procedures for the drive unit when reassembling. See Gear alignment on page 290.

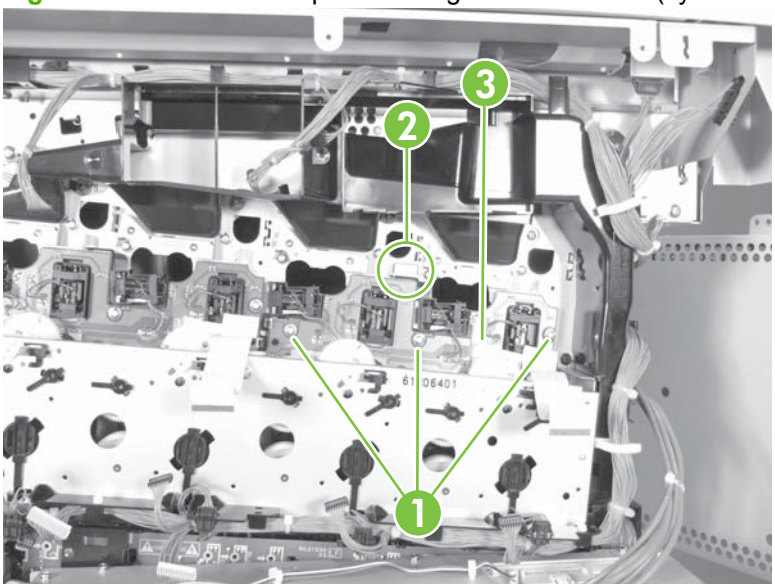
Figure 6-74 Remove the print-cartridge drive unit (cyan and black)



Print-cartridge interface PCA (cyan and black)

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
   - Print-cartridge driver PCA. See Print-cartridge driver PCA on page 271.
   - Image-drum motors (cyan and black). See Image-drum motor on page 280.
   - Print-cartridge drive unit (cyan and black). See Print-cartridge drive unit (cyan and black) on page 294.
2. Remove three screws (callout 1) and release one tab (callout 2), and then remove the print-cartridge interface PCA (cyan and black) (callout 3).

Figure 6-75 Remove the print-cartridge interface PCA (cyan and black)

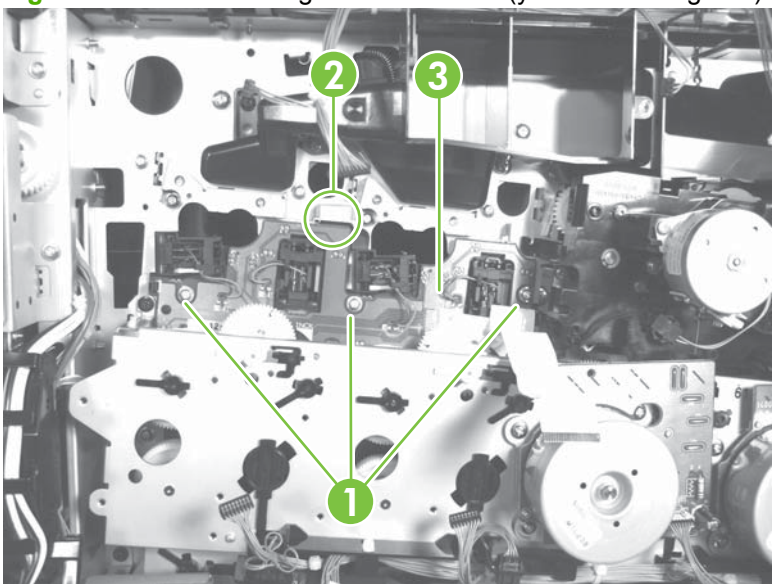


NOTE: When reassembling, some assemblies in this sequence require gear alignment. See Gear alignment on page 290.

Print-cartridge interface PCA (yellow and magenta)

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
   - Print-cartridge driver PCA. See Print-cartridge driver PCA on page 271.
   - Image-drum motors (yellow and magenta). See Image-drum motor on page 280.
   - Print-cartridge drive unit (yellow and magenta). See Print-cartridge drive unit (yellow and magenta) on page 289.
2. Remove three screws (callout 1) and release one tab (callout 2), and then remove the PCA (yellow and magenta) (callout 3).

Figure 6-76 Print-cartridge interface PCA (yellow and magenta)



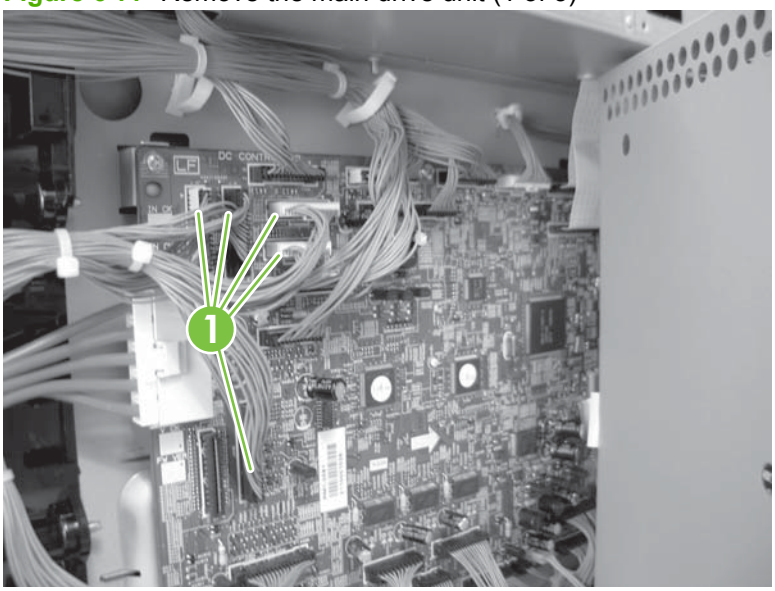
NOTE: When reassembling, some assemblies in this sequence require gear alignment. See Gear alignment on page 290.

Main drive unit

NOTE: Do not remove the main drive unit without having the alignment pins required for reinstallation. See Gear alignment on page 290.

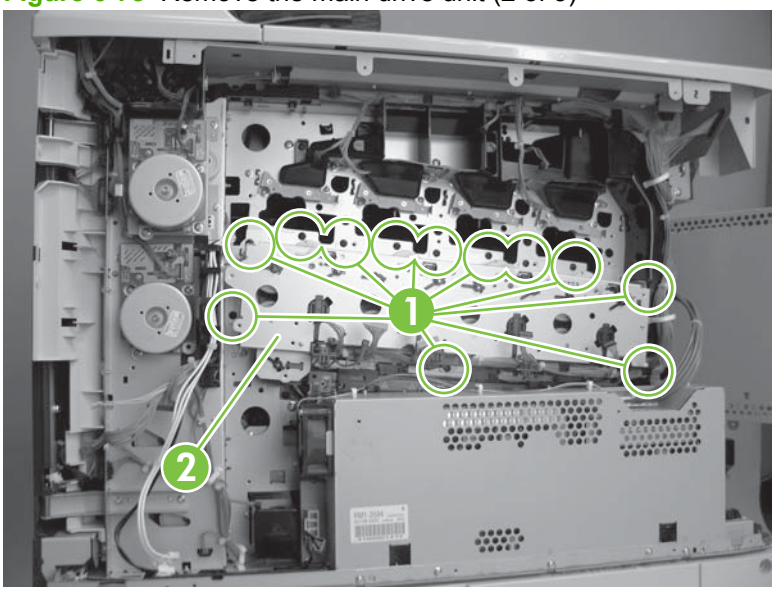
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
   - Print-cartridge driver PCA. See Print-cartridge driver PCA on page 271.
   - Image-drum motors. See Image-drum motor on page 280.
   - Print-cartridge drive unit (cyan and black). See Print-cartridge drive unit (cyan and black) on page 294.
   - Print-cartridge drive unit (yellow and magenta). See Print-cartridge drive unit (yellow and magenta) on page 289.
   - Print-cartridge interface PCA (yellow and magenta). See Print-cartridge interface PCA (cyan and black) on page 295.
   - Print-cartridge interface PCA (cyan and black). See Print-cartridge interface PCA (yellow and magenta) on page 296.
2. Disconnect five connectors (J113, J138, J139, J141, and J142) (callout 1) on the DC Controller PCA, behind the formatter case.

Figure 6-77 Remove the main drive unit (1 of 3)



3. Remove twelve screws (callout 1), and then the main drive unit (callout 2).

Figure 6-78 Remove the main drive unit (2 of 3)



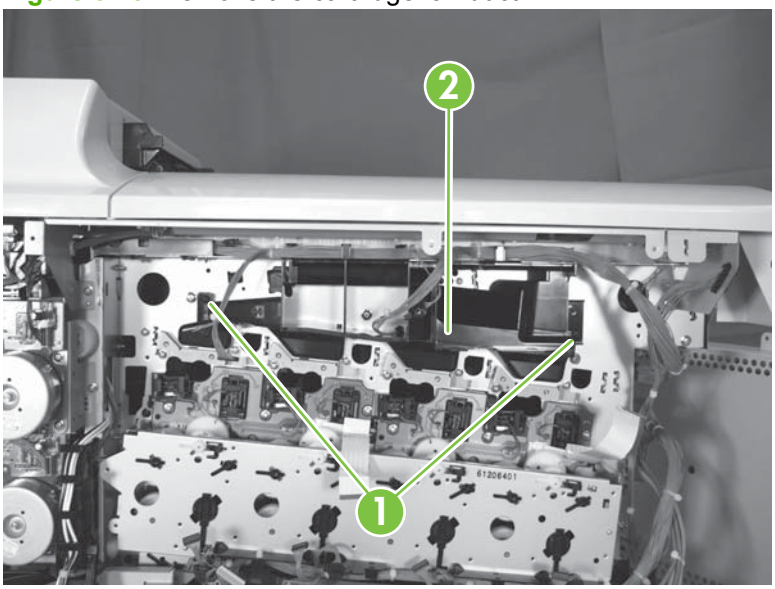
△ **CAUTION:** Do not remove screws that hold the main drive unit together.

NOTE: Follow the gear adjustment procedures when reassembling the main drive unit. See Gear alignment on page 290.

Cartridge fan duct

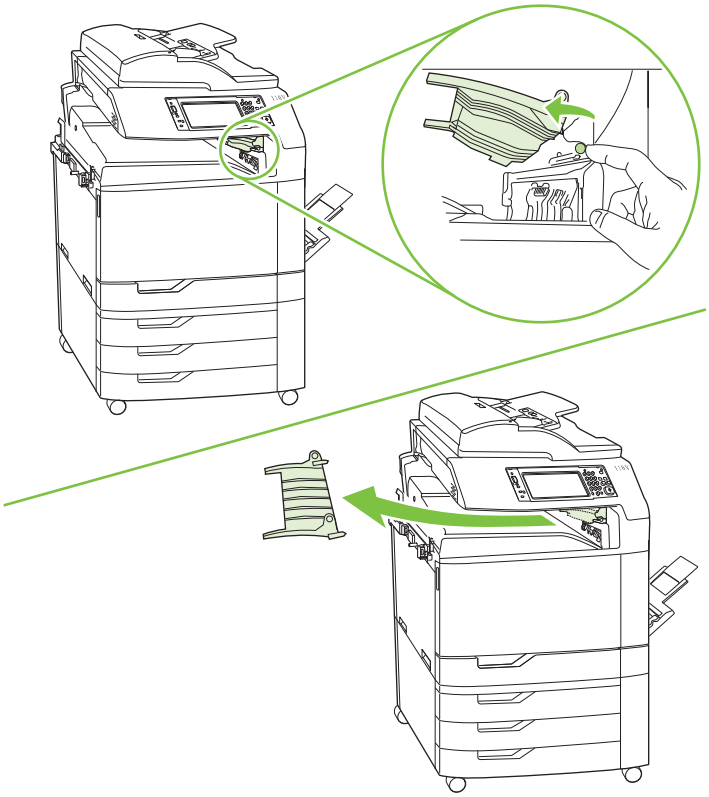
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Face-down output bin. See Face-down output bin on page 267.
   - Left cover. See Left cover on page 268.
   - Print-cartridge driver PCA. See Print-cartridge driver PCA on page 271.
   - Image-drum motors (all). See Image-drum motor on page 280.
   - Print-cartridge drive unit (yellow and magenta). See Print-cartridge drive unit (yellow and magenta) on page 289.
   - Print-cartridge drive unit (cyan and black). See Print-cartridge drive unit (cyan and black) on page 294.
2. Remove two screws (callout 1), and then remove the cartridge fan duct (callout 2).

Figure 6-79 Remove the cartridge fan duct



Duplex switchback tray

▲ Press the release and remove the duplex switchback tray.



Front lower cover

1. Remove the following:
   - Face-down bin. See Face-down output bin on page 267
2. Remove one screw (callout 1) and one tab (callout 2).

Figure 6-80 Remove front lower cover (1 of 2)



3. Slide front lower cover (callout 1) to the left to remove.

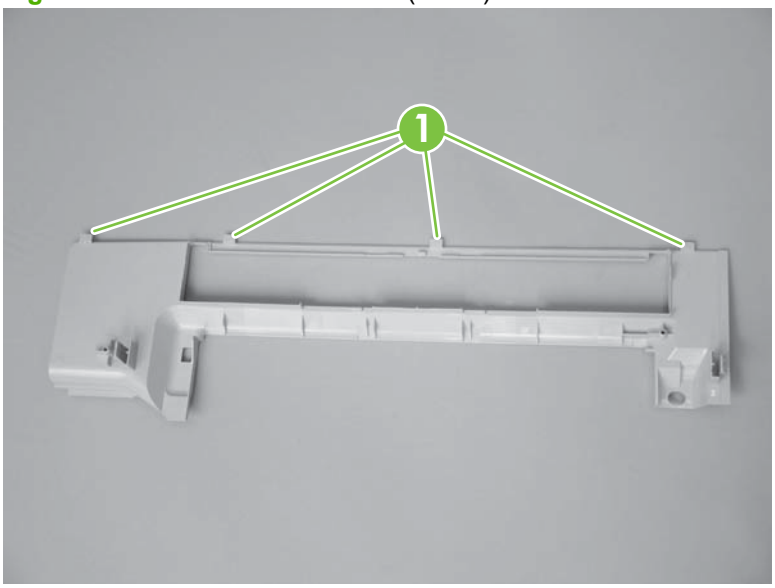
Figure 6-81 Remove front lower cover (2 of 2)



Inner cover

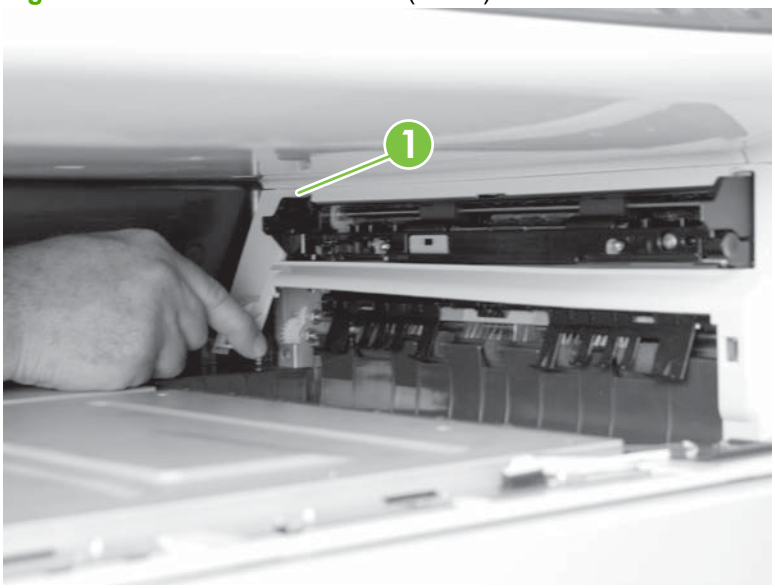
1. Remove the following:
   - Face-down bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
2. The inner cover has four tabs (callout 1) that must be released. Ensure that the tabs are correctly seated when reinstalling.

Figure 6-82 Remove inner cover (1 of 4)



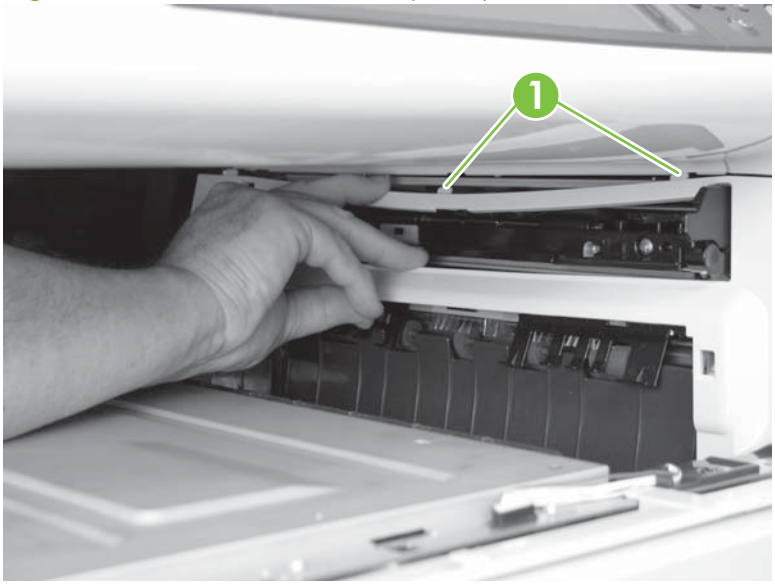
3. Release one tab (callout 1).

Figure 6-83 Remove inner cover (2 of 4)



4. Release two tabs (callout 1).

Figure 6-84 Remove inner cover (3 of 4)



5. Release one tab (callout 1), and them remove the inner cover.

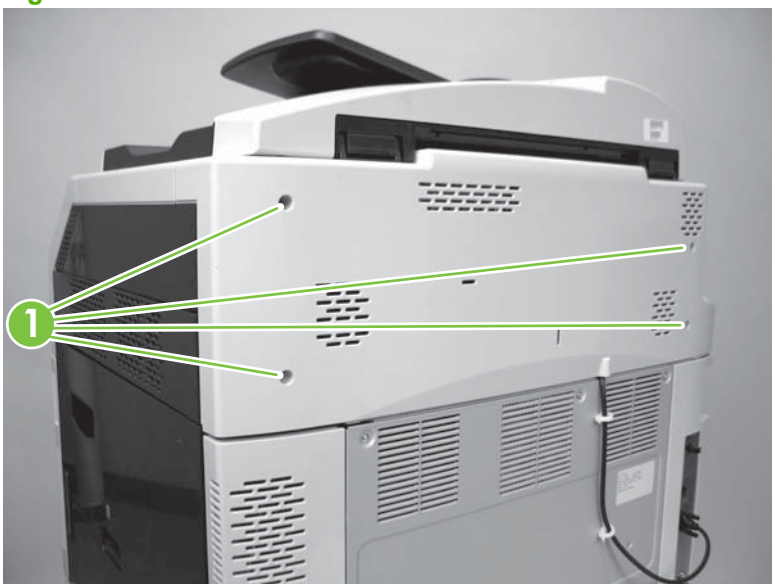
Figure 6-85 Remove inner cover (4 of 4)



Rear scanner cover

- Remove four screws (callout 1) and then the rear cover.

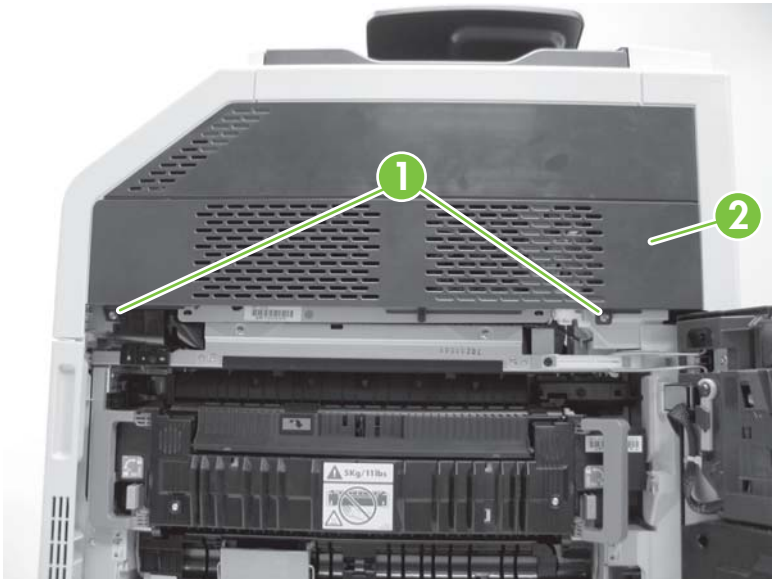
Figure 6-86 Remove rear-scanner cover



Right upper cover

1. Open the right door.
2. Remove two screws (callout 1) and then the right upper cover (callout 2).

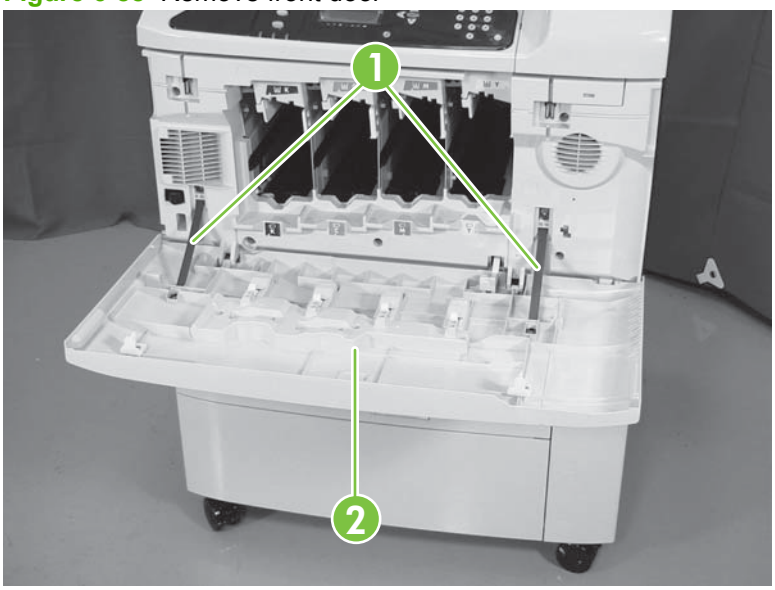
Figure 6-87 Remove right upper cover



Front door

1. Open the front door, and then remove the print cartridges and image drums.
2. Use a small flat-blade screwdriver to release the two arms (callout 1), and then remove the front door (callout 2).

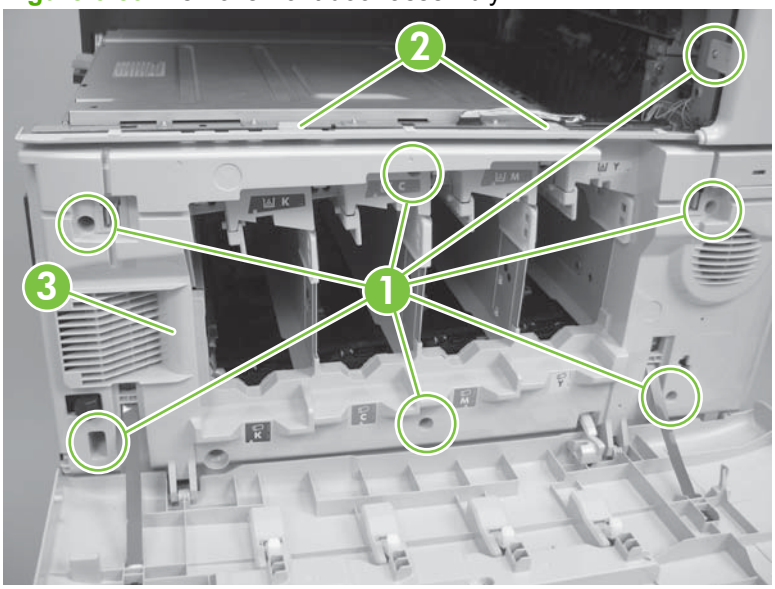
Figure 6-88 Remove front door



Front door assembly

1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
2. Open the front door.
3. Remove seven screws (callout 1), release the two tabs (callout 2), and then remove the front door assembly (callout 3).

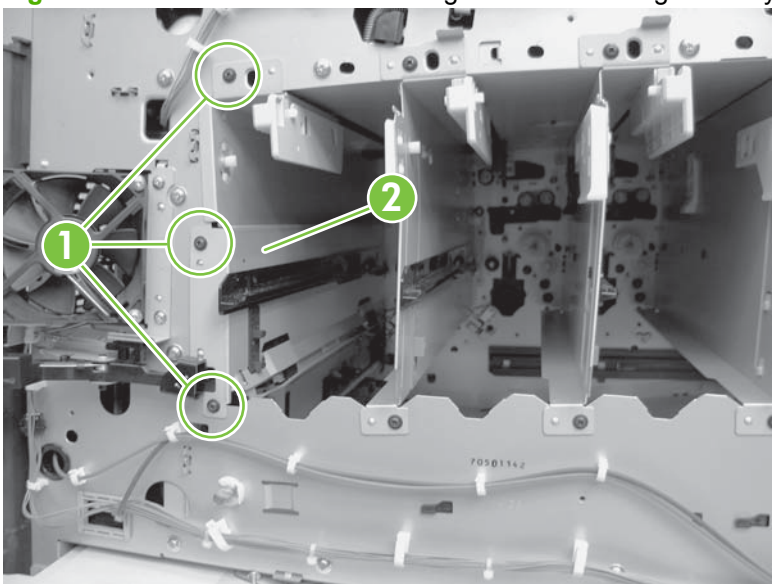
Figure 6-89 Remove front door assembly



Color-misregistration and image-density sensor unit

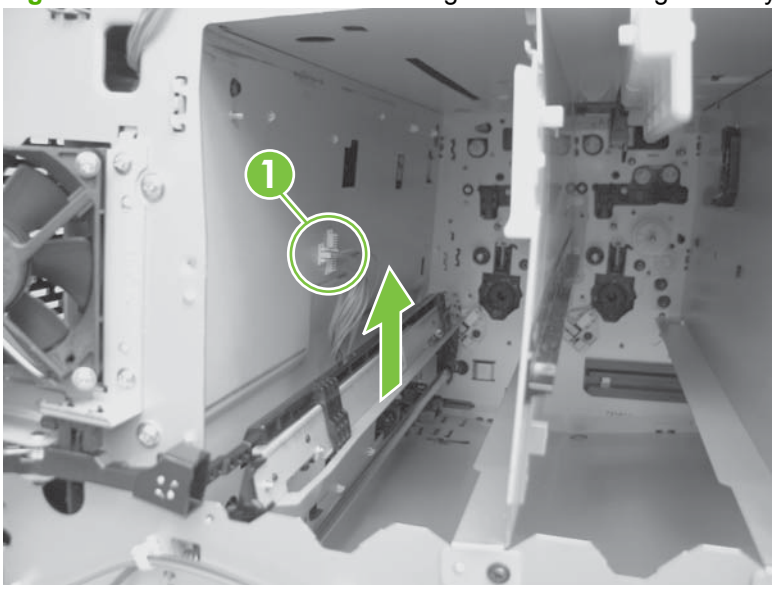
1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front door assembly. See Front door assembly on page 307.
2. Remove three screws (callout 1) and the print-cartridge guide (callout 2).

Figure 6-90 Remove the color-misregistration and image-density sensor unit (1 of 3)



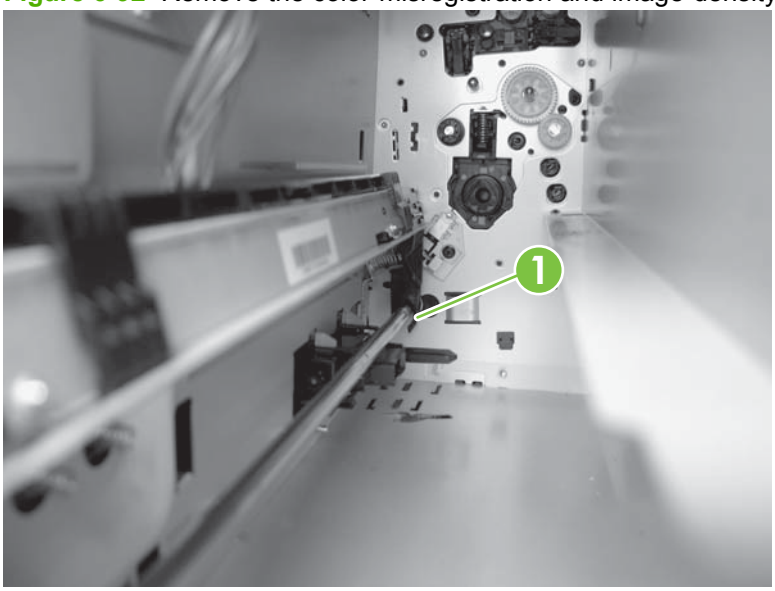
3. Disconnect two connectors (callout 1) and lift the color misregistration/image density sensor unit to remove it.

Figure 6-91 Remove the color-misregistration and image-density sensor unit (2 of 3)



NOTE: When reassembling, snap the sensor on the rod (callout 1) and align the springs.

Figure 6-92 Remove the color-misregistration and image-density sensor unit (3 of 3)



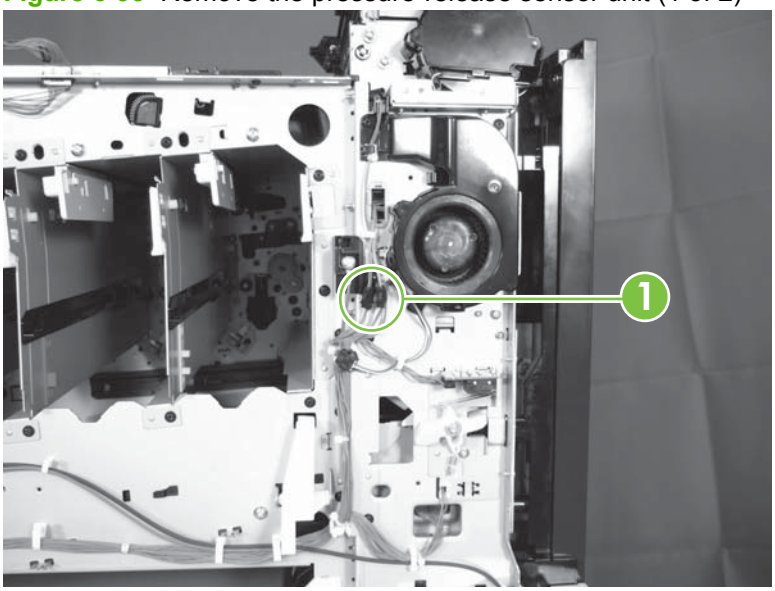
Pressure-release sensor unit

1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.

- Inner cover. See Inner cover on page 302.
- Front door assembly. See Front door assembly on page 307.

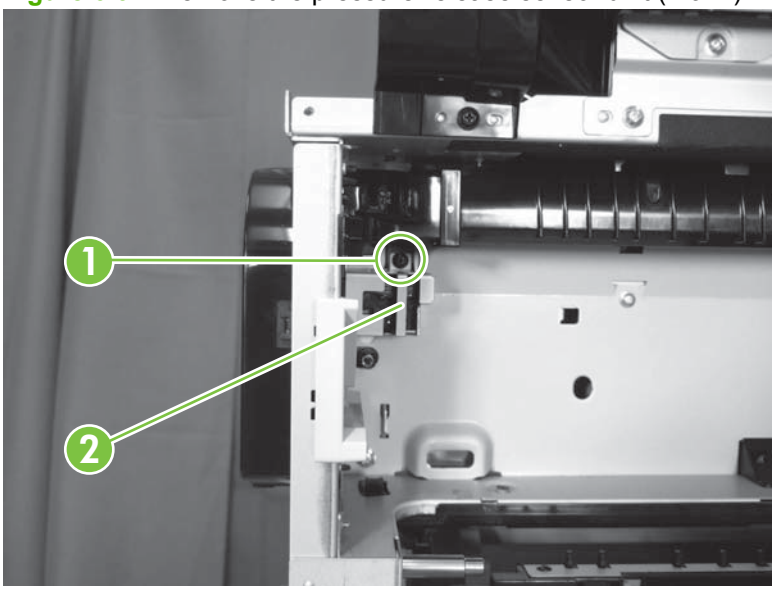
2. From the front of the product, disconnect the two connectors (callout 1).

Figure 6-93 Remove the pressure-release sensor unit (1 of 2)



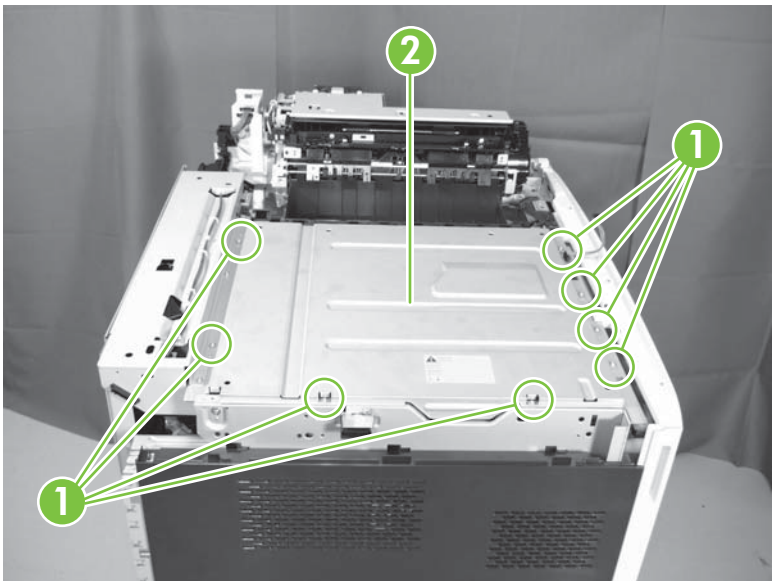
3. From the right side of the product, remove one screw (callout 1), and then the pressure-release sensor unit (callout 2).

Figure 6-94 Remove the pressure-release sensor unit (2 of 2)



Scanner cover

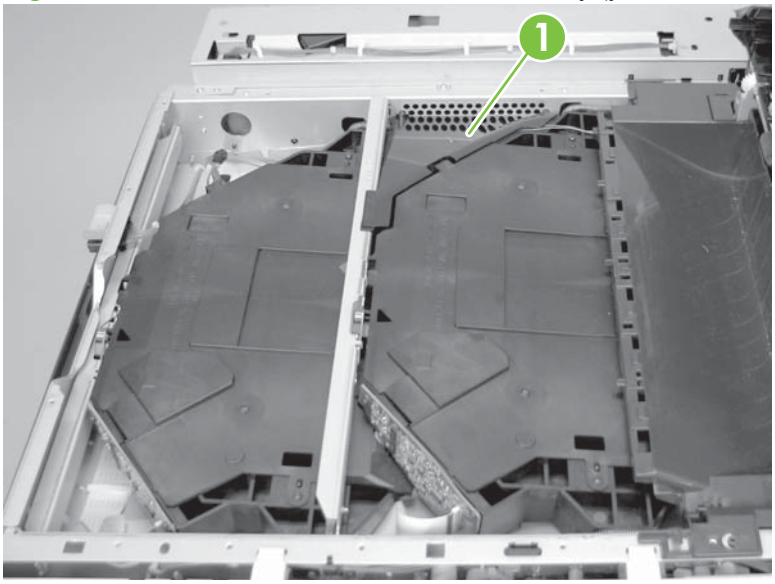
1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front door assembly. See Front door assembly on page 307.
   - Rear scanner cover. See Rear scanner cover on page 304.
   - Right upper cover. See Right upper cover on page 305.
   - Optical scanner. See Optical scanner on page 354.
2. Remove eight screws (callout 1) and then remove the scanner cover (callout 2).



Laser/scanner assembly (yellow and magenta)

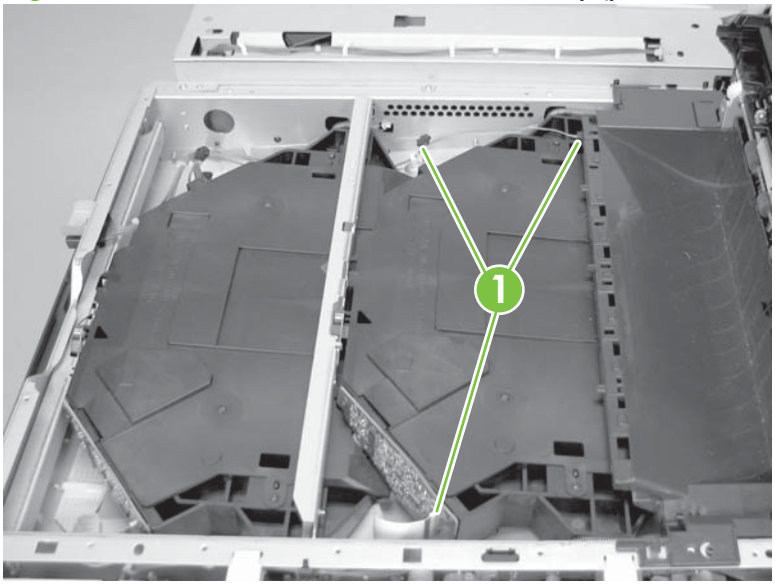
1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Rear scanner cover. See Rear scanner cover on page 304.
   - Right upper cover. See Right upper cover on page 305.
   - Optical scanner. See Optical scanner on page 354.
   - Scanner cover. See Scanner cover on page 311.
2. Remove one cover (callout 1).

Figure 6-95 Remove the laser/scanner assembly (yellow and magenta) (1 of 3)



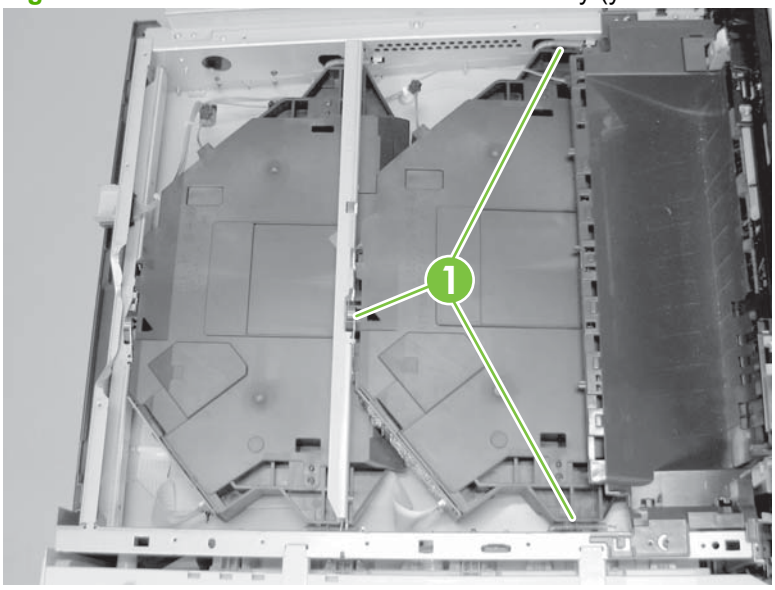
3. Disconnect three connectors (callout 1).

Figure 6-96 Remove the laser/scanner assembly (yellow and magenta) (2 of 3)



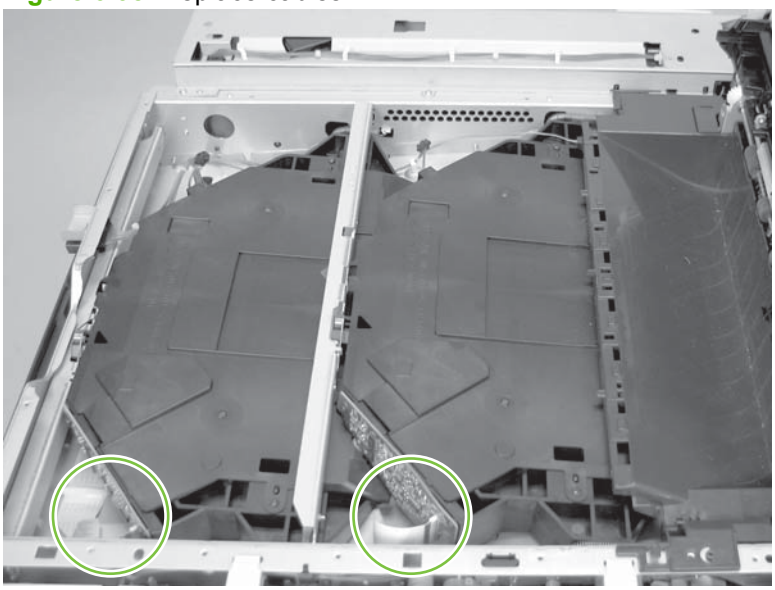
4. Unhook three springs (callout 1). Slide the laser/scanner assembly to the right, and then lift to remove it.

Figure 6-97 Remove the laser/scanner assembly (yellow and magenta) (3 of 3)



△ **CAUTION:** Use care when replacing the cables for the laser/scanner assemblies. The traces on the cable ends can be damaged when reinserted.

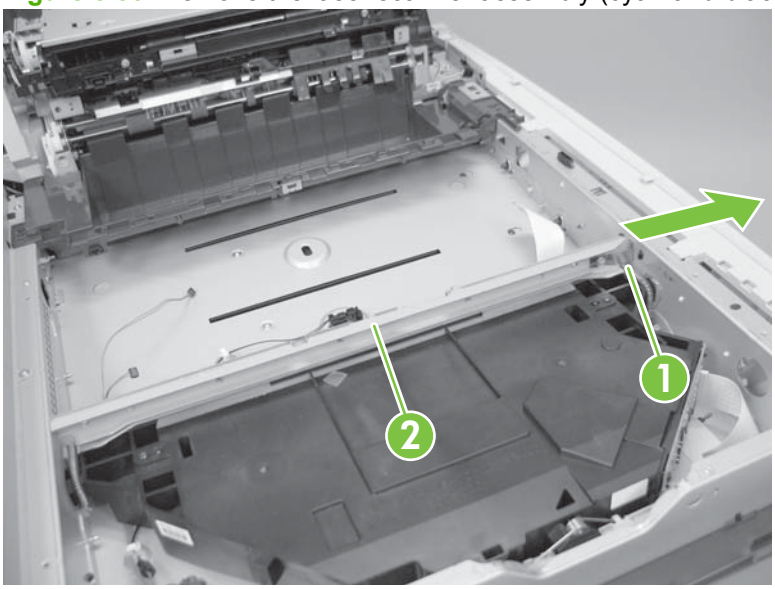
Figure 6-98 Replace cables



Laser/scanner assembly (cyan and black)

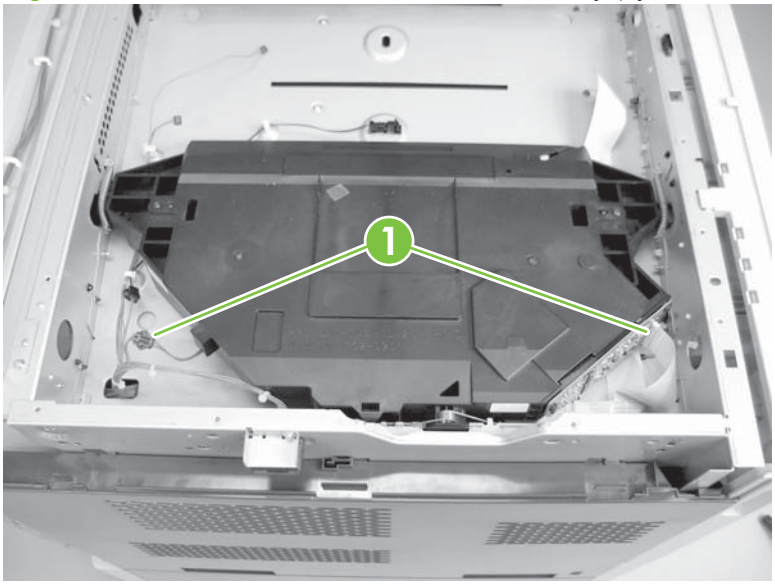
1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Rear scanner cover. See Rear scanner cover on page 304.
   - Right upper cover. See Right upper cover on page 305.
   - Optical scanner. See Optical scanner on page 354.
   - Scanner cover. See Scanner cover on page 311.
2. Push the tab (callout 1), and then slide the rod (callout 2) in the direction indicated to remove it.

Figure 6-99 Remove the laser/scanner assembly (cyan and black) (1 of 3)



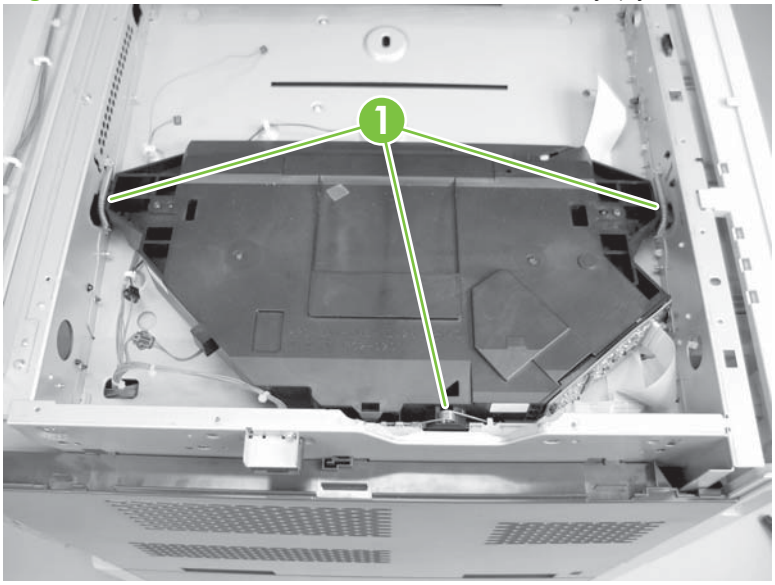
3. Disconnect two connectors (callout 1).

Figure 6-100 Remove the laser/scanner assembly (cyan and black) (2 of 3)



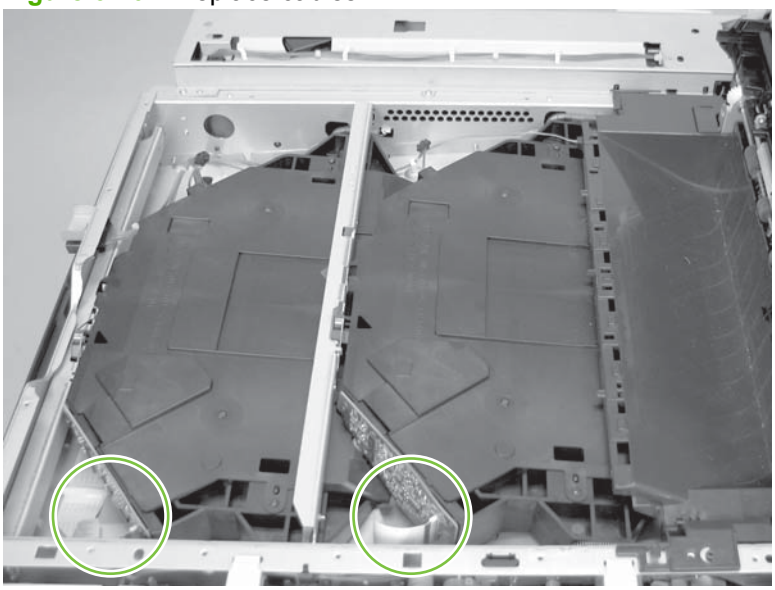
4. Unhook three springs (callout 2), and then remove the laser/scanner assembly (callout 3).

Figure 6-101 Remove the laser/scanner assembly (cyan and black) (3 of 3)



△ **CAUTION:** Use care when replacing the cables for the laser/scanner assemblies. The traces on the cable ends can be damaged when reinserted.

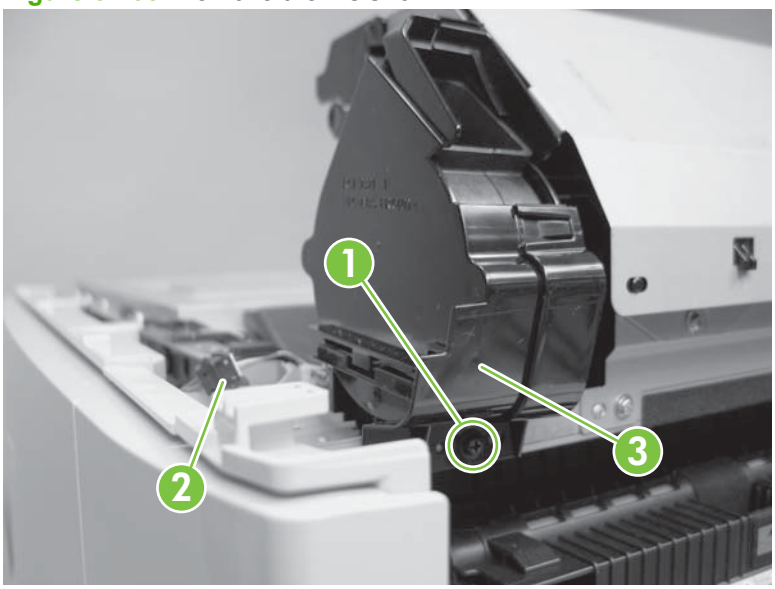
Figure 6-102 Replace cables



VOC fan

1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Rear scanner cover. See Rear scanner cover on page 304.
   - Right upper cover. See Right upper cover on page 305.
   - Optical scanner. See Optical scanner on page 354.
2. Remove one screw (callout 1), disconnect one connector (callout 2), and then remove the VOC fan (callout 3).

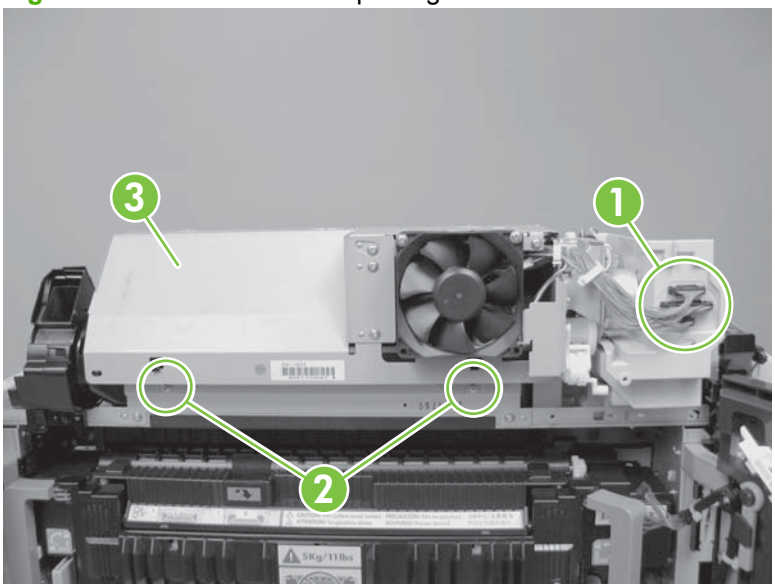
Figure 6-103 Remove the VOC fan



Duplexing reverse unit

1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Rear scanner cover. See Rear scanner cover on page 304.
   - Right upper cover. See Right upper cover on page 305.
   - Optical scanner. See Optical scanner on page 354.
   - VOC fan. See VOC fan on page 318.
2. Disconnect three connectors (callout 1), remove two screws (callout 2), and then the duplexing reverse unit (callout 3).

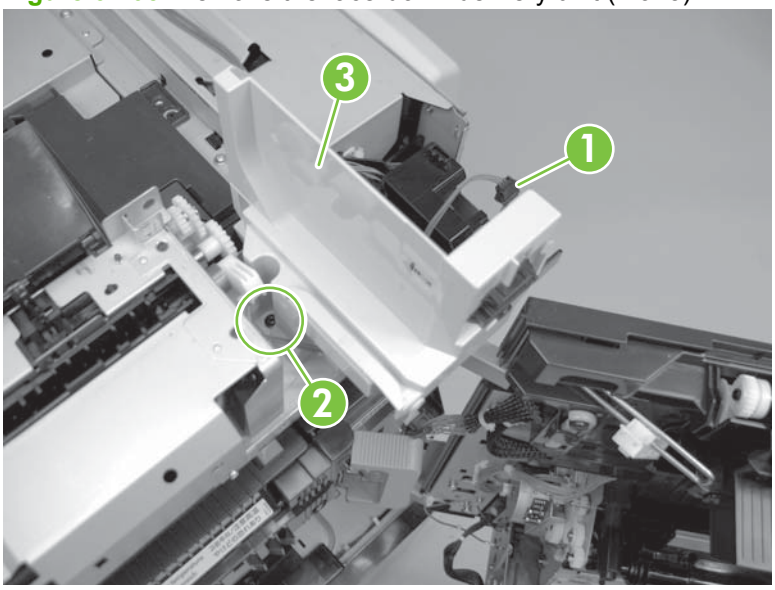
Figure 6-104 Remove the duplexing reverse unit



Face-down delivery unit

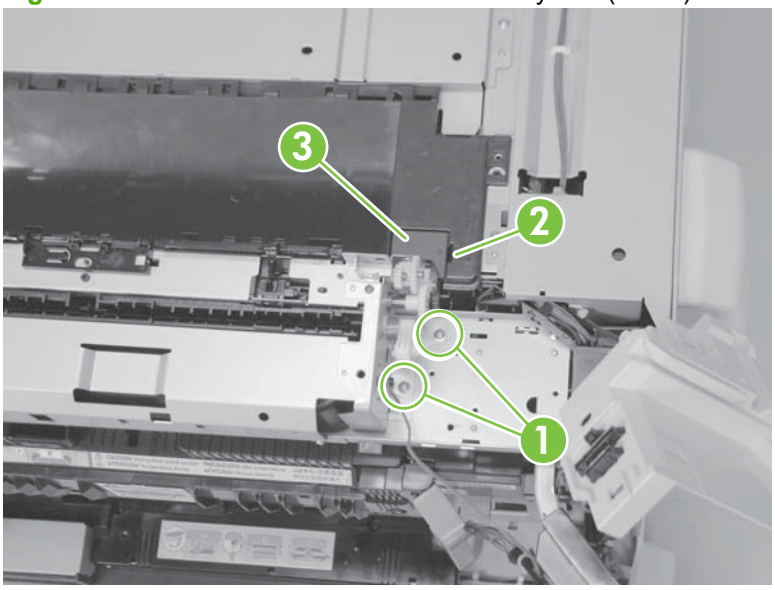
1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Rear scanner cover. See Rear scanner cover on page 304.
   - Right upper cover. See Right upper cover on page 305.
   - Optical scanner. See Optical scanner on page 354.
   - VOC fan. See VOC fan on page 318.
   - Duplexing reverse unit. See Duplexing reverse unit on page 319.
2. Disconnect one connector (callout 1), remove one screw (callout 2), and then move the inner cover (callout 3) to the side.

Figure 6-105 Remove the face-down delivery unit (1 of 3)



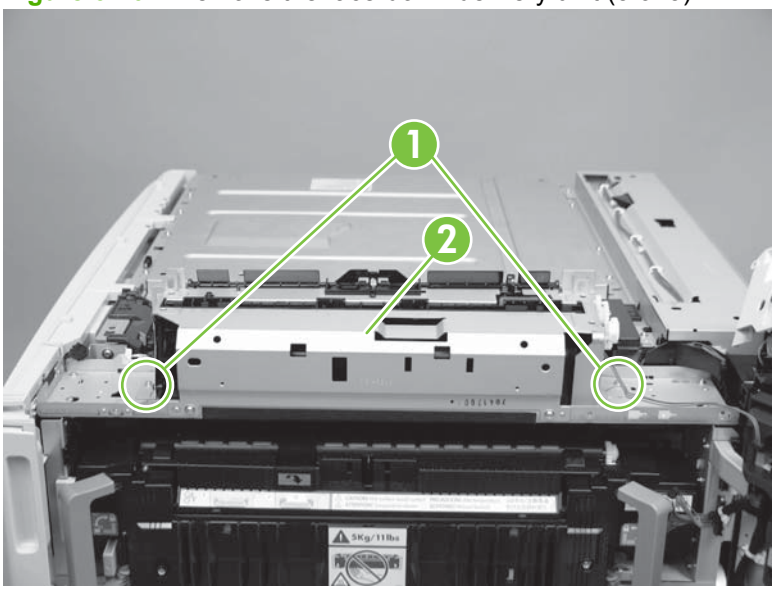
3. Remove two screws (callout 1), release one tab (callout 2), and then remove the gear cover (callout 3).

Figure 6-106 Remove the face-down delivery unit (2 of 3)



4. Remove three screws (callout 1), and then the face-down delivery unit (callout 2).

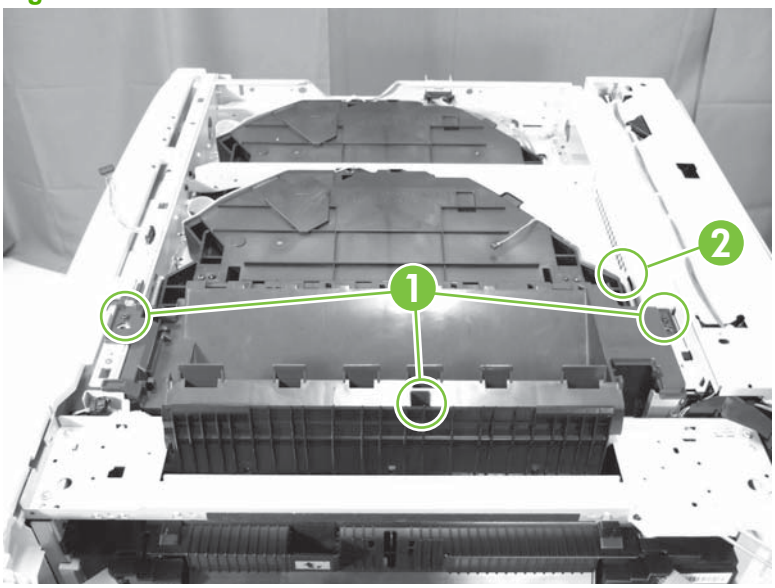
Figure 6-107 Remove the face-down delivery unit (3 of 3)



Face-down cover

1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Rear scanner cover. See Rear scanner cover on page 304.
   - Right upper cover. See Right upper cover on page 305.
   - Optical scanner. See Optical scanner on page 354.
   - VOC fan. See VOC fan on page 318.
   - Duplexing reverse unit. See Duplexing reverse unit on page 319.
   - Face-down delivery unit. See Face-down delivery unit on page 320.
2. Remove three screws (callout 1), disconnect one connector (callout 2), and then remove the face-down cover (callout 3).

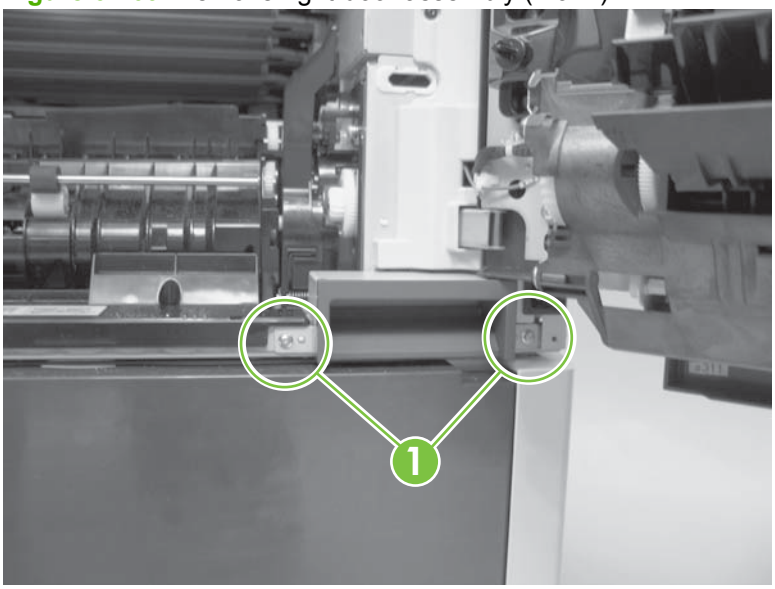
Figure 6-108 Remove face-down cover



Right-door assembly

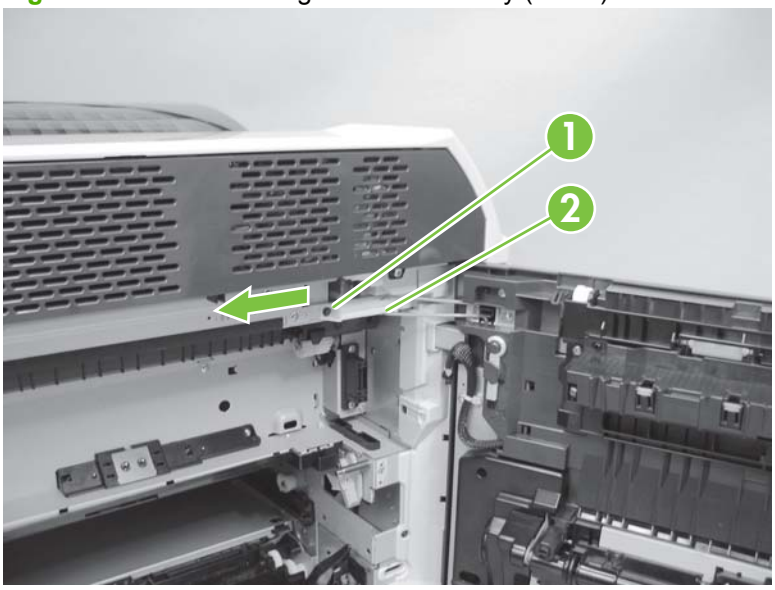
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
2. Open the right door.
3. Remove two screws (callout 1), and then the handle.

Figure 6-109 Remove right-door assembly (1 of 4)



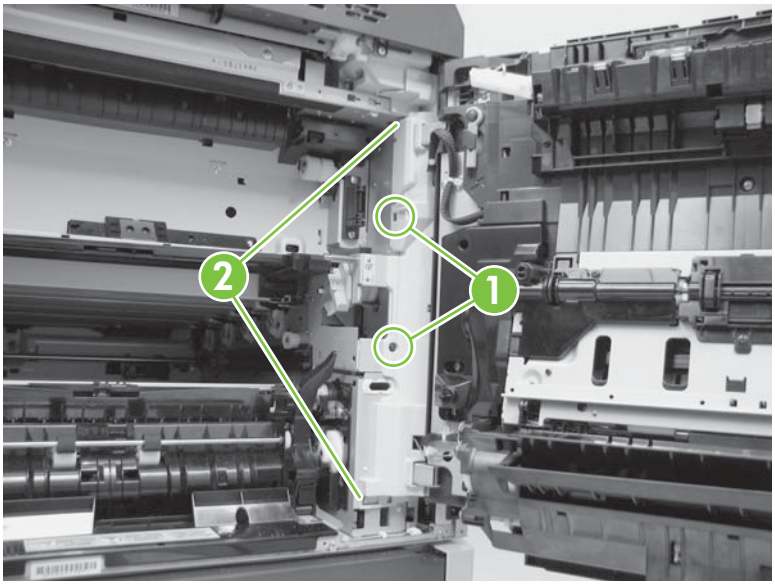
4. Remove one screw (callout 1). Slide the right door arm (callout 2) in the direction indicated to remove it.

Figure 6-110 Remove right-door assembly (2 of 4)



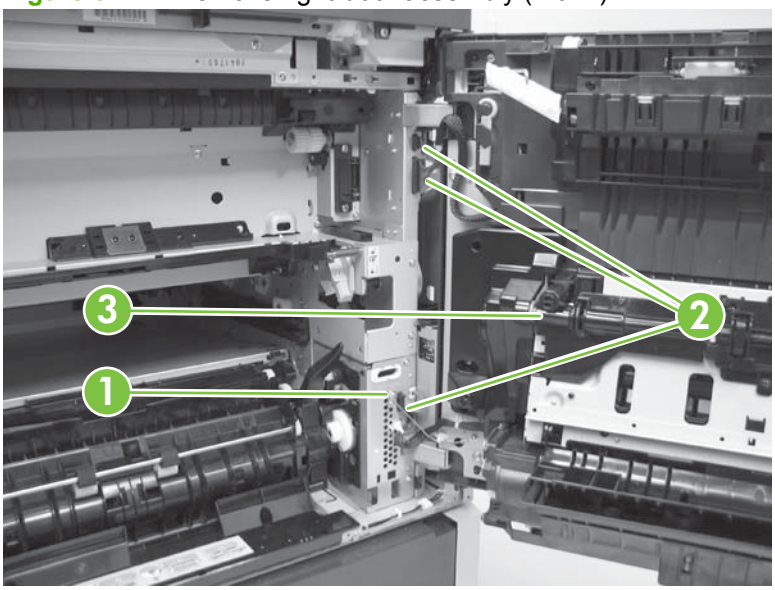
5. Remove two screws (callout 1), release the two tabs (callout 2), and then remove the right inner cover.

Figure 6-111 Remove right-door assembly (3 of 4)



6. Remove one grounding screw (callout 1), disconnect two connectors (callout 2), and then lift the right-door assembly (callout 3) to remove it.

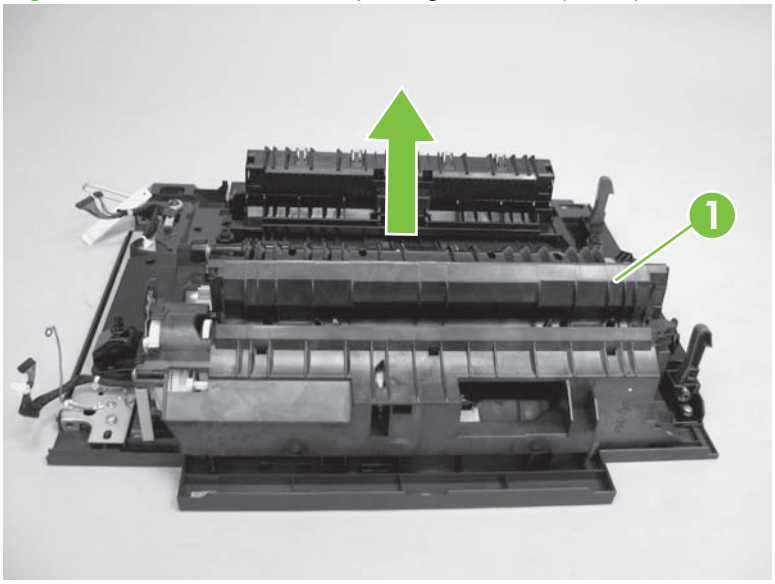
Figure 6-112 Remove right-door assembly (4 of 4)



Duplexing feed unit

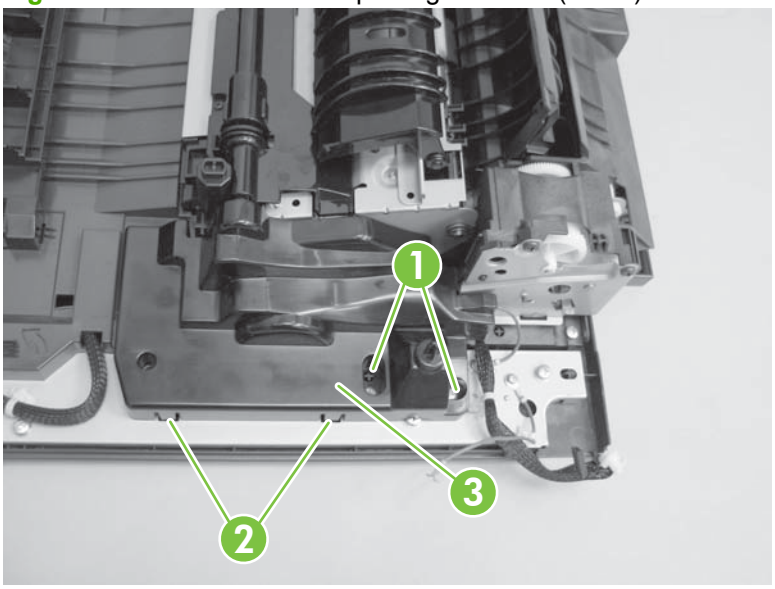
1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Right-door assembly. See Right-door assembly on page 323.
2. Lift the duplexing feed upper guide (callout 1) in the direction indicated to remove.

Figure 6-113 Remove the duplexing feed unit (1 of 3)



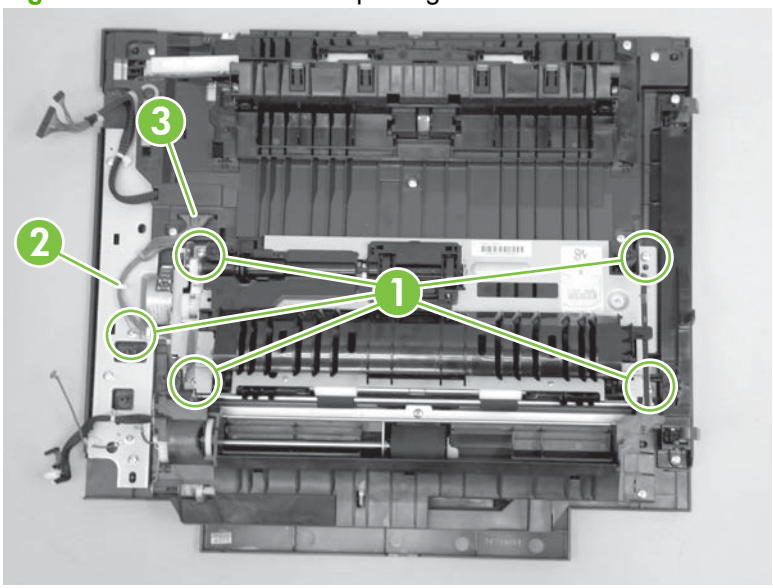
3. Remove two screws (callout 1), release two tabs (callout 2), and then remove the cover (callout 3).

Figure 6-114 Remove the duplexing feed unit (2 of 3)



4. Remove five screws (callout 1), one wire retainer (callout 2), one connector (callout 3), and then remove the duplexing feed unit.

Figure 6-115 Remove the duplexing feed unit

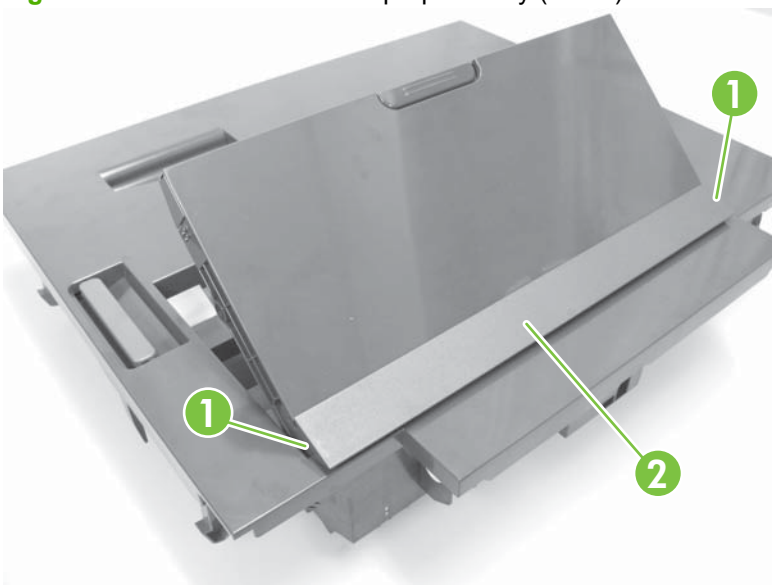


Multipurpose-tray (Tray 1) pickup unit

1. Remove the following:
   - Rear-left cover. See Rear-left cover on page 256.
   - Rear-right cover. See Rear-right cover on page 257.
   - Rear cover. See Rear cover on page 258.
   - Right-door assembly. See Right-door assembly on page 323.
   - Duplexing feed unit. See Duplexing feed unit on page 325.
2. Spread two tabs (callout 1) and remove the MP tray lower cover (callout 2). Close Tray 1.

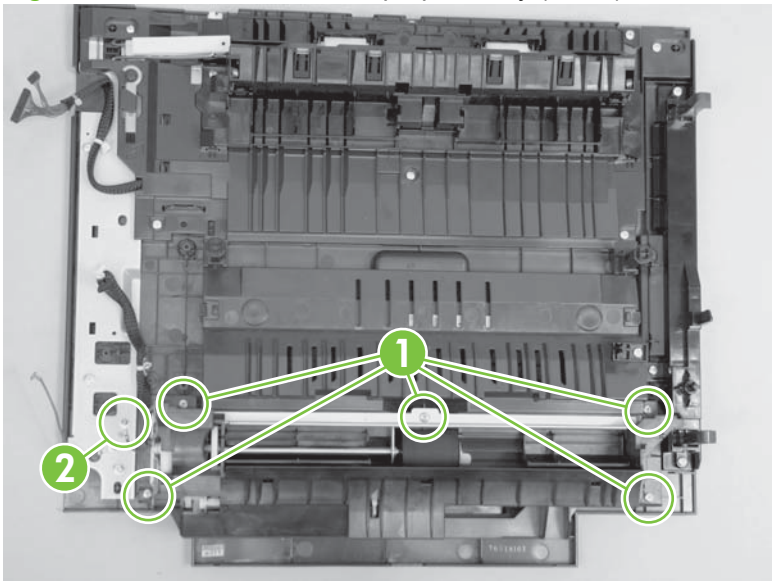
NOTE: Close Tray 1 and push it flat.

Figure 6-116 Remove the multipurpose tray (1 of 5)



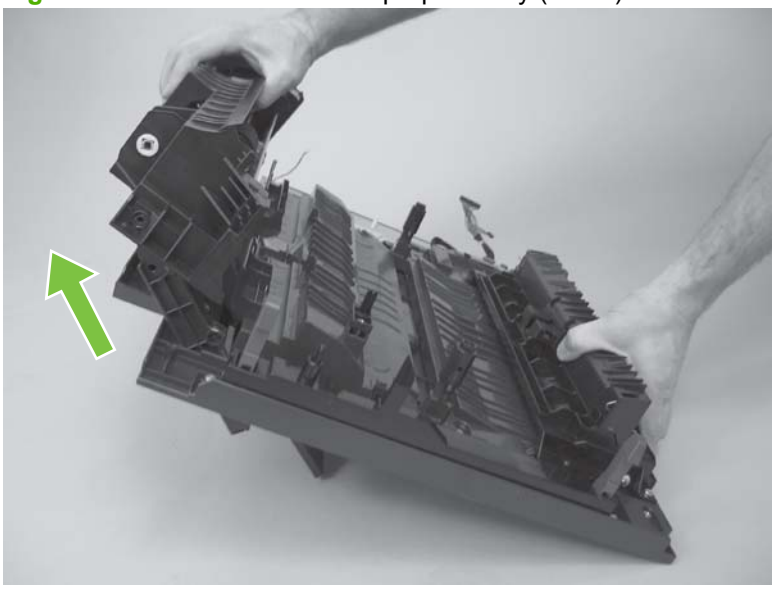
3. Remove five screws (callout 1), and then one grounding screw (callout 2).

Figure 6-117 Remove the multipurpose tray (2 of 5)



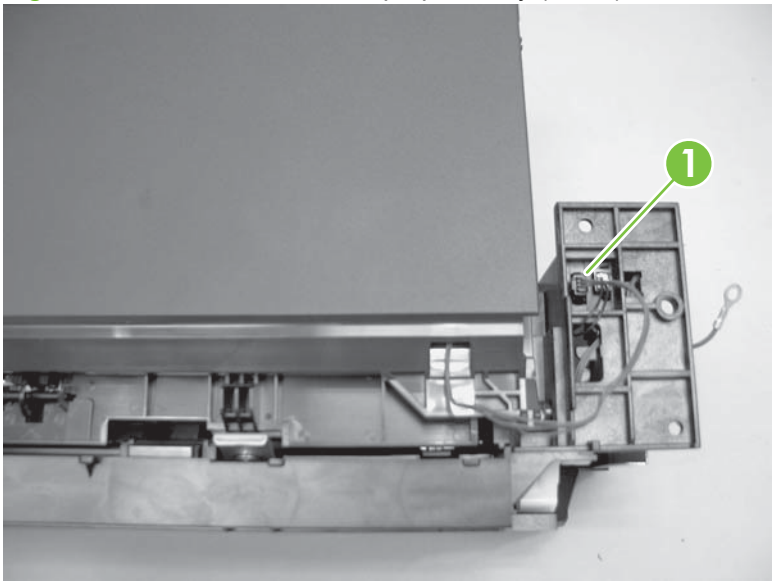
4. Remove the MP tray pickup unit and the MP tray together.

Figure 6-118 Remove the multipurpose tray (3 of 5)



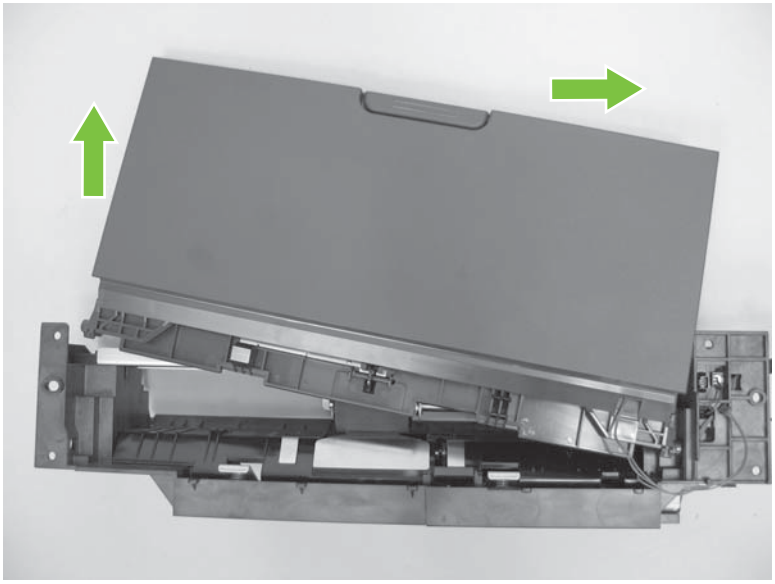
5. Disconnect one connector (callout 1).

Figure 6-119 Remove the multipurpose tray (4 of 5)



6. With the door closed, use a flat blade screw driver to pry the left side out. Pull the tray in the directions indicated to remove.

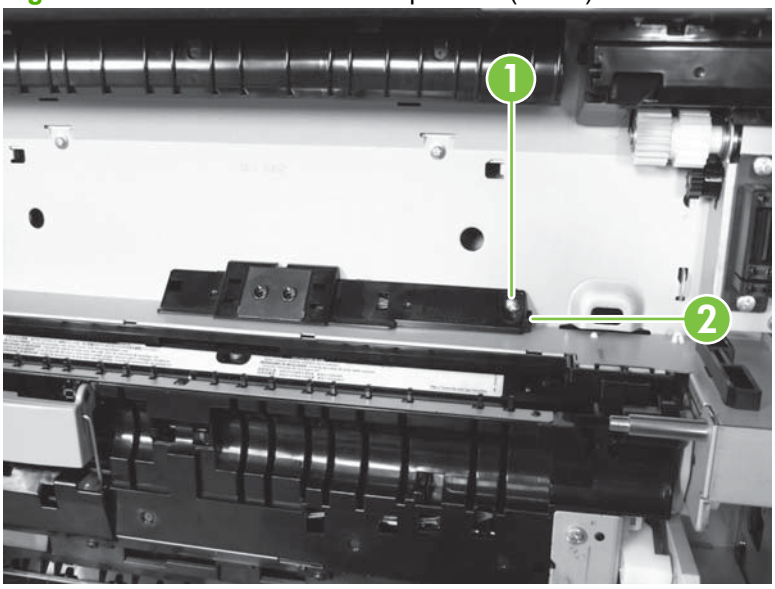
Figure 6-120 Remove the multipurpose tray (5 of 5)



Thermopile unit

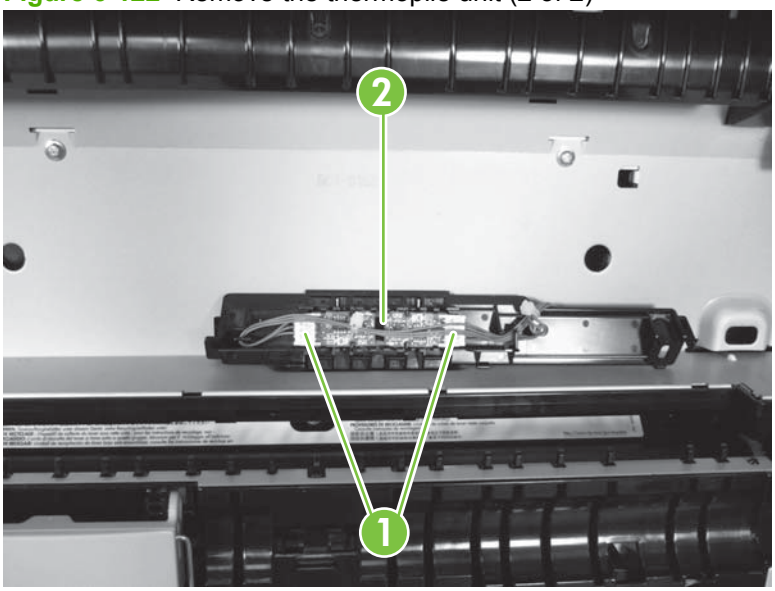
1. Remove the following user replaceable parts:
   - Fuser. See Fuser on page 229.
2. Remove one screw (callout 1), and then release one tab (callout 2).

Figure 6-121 Remove the thermopile unit (1 of 2)



3. Disconnect two connectors (callout 1), and then remove the thermopile unit (callout 2).

Figure 6-122 Remove the thermopile unit (2 of 2)



Front-lower cover

1. Remove the following user replaceable parts:
   - Tray 2. See Tray 2 on page 244.
2. Remove one screw (callout 1), and then remove the front-lower cover (callout 2).

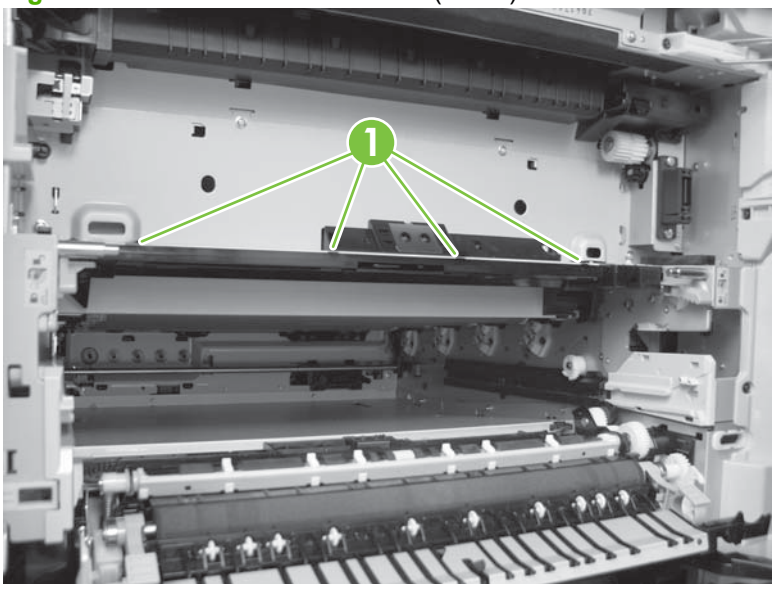
Figure 6-123 Remove front-lower cover



ITB duct

1. Remove the following user replaceable parts:
   - Fuser unit. See Fuser on page 229.
2. Release four tabs (callout 1).

Figure 6-124 Remove the ITB duct (1 of 2)



3. Remove the ITB duct.

Figure 6-125 Remove the ITB duct (2 of 2)



NOTE: Removal sequence 7 is complete. To reassemble, reverse the steps in this procedure and all previous procedures of this sequence.

Optional input trays

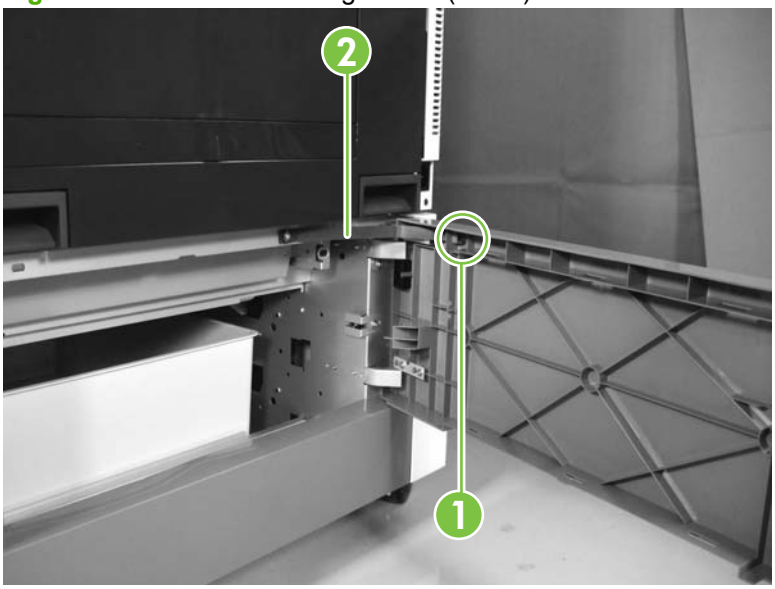
This section provides procedures for removal and replacement of field-replaceable units (FRUs) for optional input trays.

1x500-sheet input tray

Right door

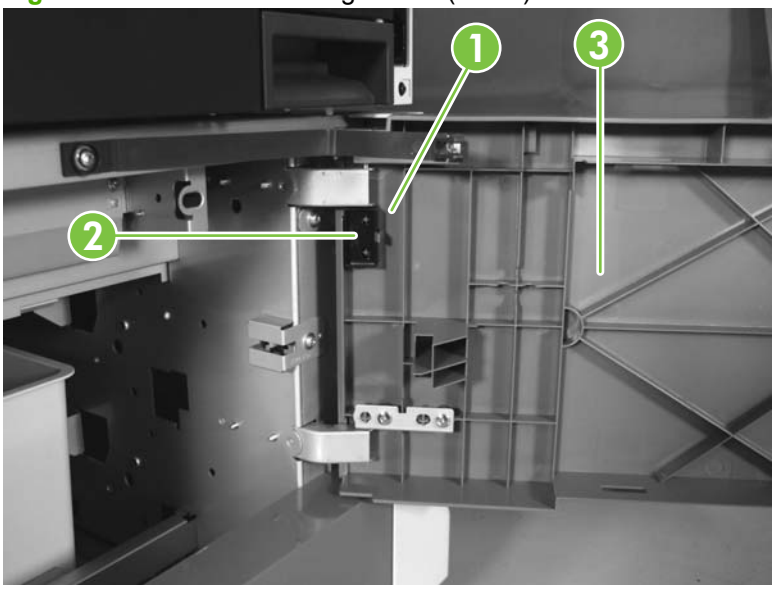
1. Open the right door.
2. Release one tab (callout 1), and then remove the arm (callout 2).

Figure 6-126 Remove the right door (1 of 2)



3. Release one tab (callout 1), and then remove the stopper (callout 2). Lift the right door (callout 3) to remove it.

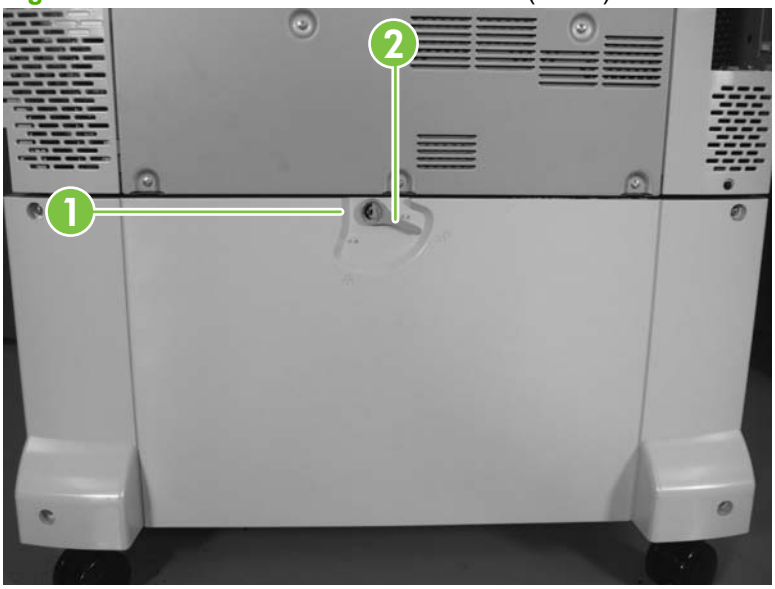
Figure 6-127 Remove the right door (2 of 2)



Lower-rear cover

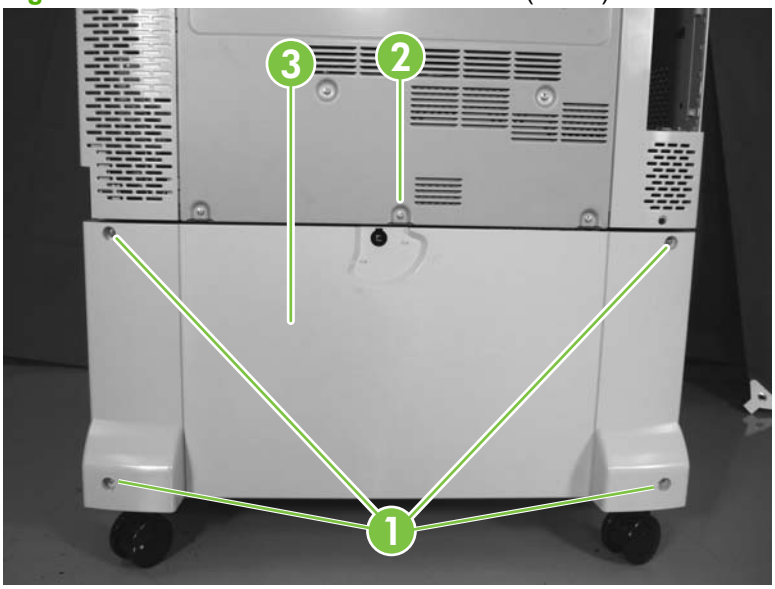
1. Release one tab (callout 1), and then remove the lever (callout 2).

Figure 6-128 Remove the lower-rear cover (1 of 2)



2. Remove four screws (callout 1). Release one tab (callout 2), and then remove the rear cover (callout 3).

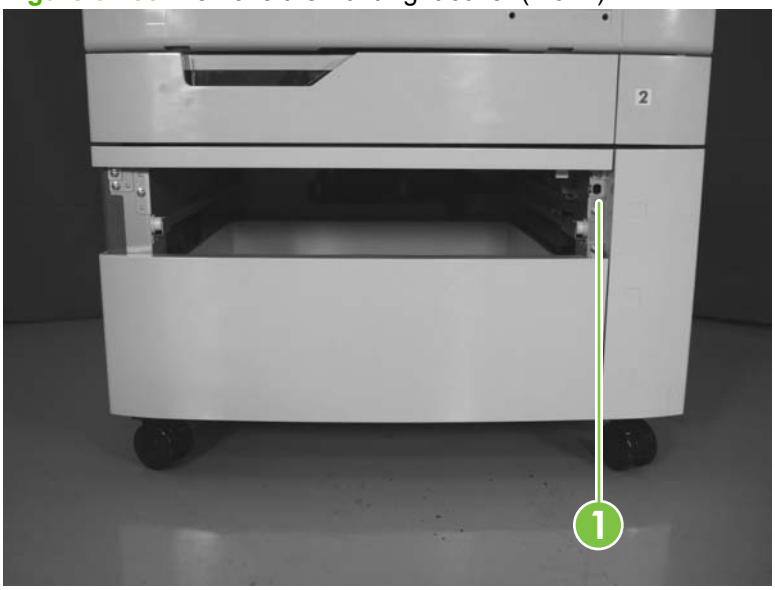
Figure 6-129 Remove the lower rear cover (2 of 2)



Front-right cover

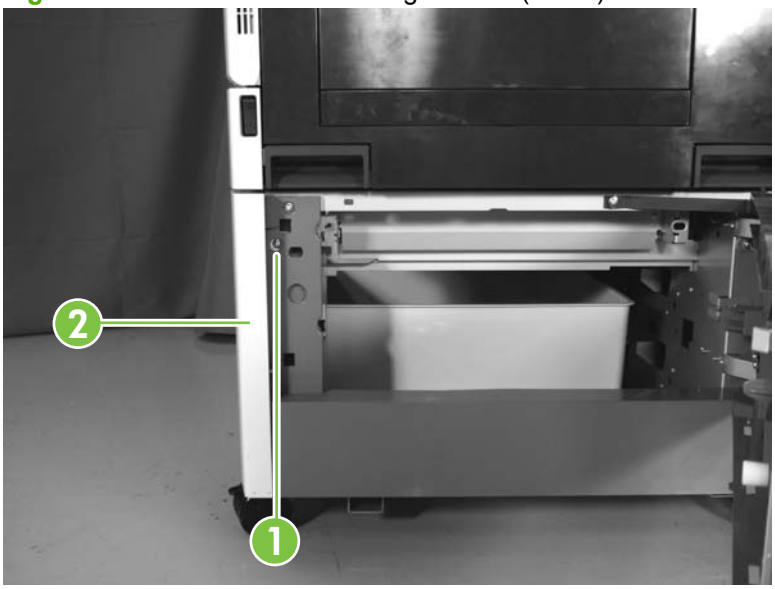
1. Remove the following:
   - Tray 3. See Trays 3, 4, and 5 on page 244.
2. Remove one screw (callout 1).

Figure 6-130 Remove the front-right cover (1 of 2)



3. Open the right door. Remove one screw (callout 1). Lift the front-right cover (callout 2) to remove it.

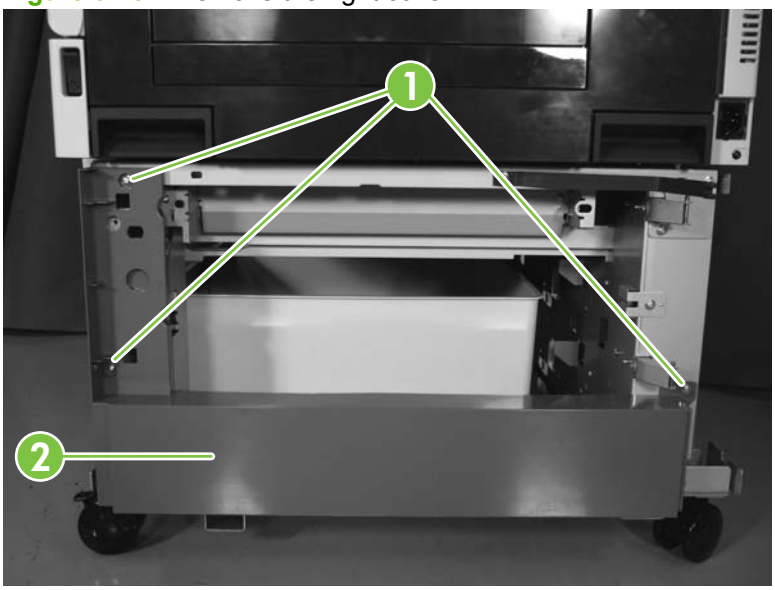
Figure 6-131 Remove the front-right cover (2 of 2)



Right cover

1. Remove the following:
   - Right door. See Right door on page 333.
   - Front-right cover. See Front-right cover on page 336.
   - Rear cover. See Lower-rear cover on page 335.
2. Remove three screws (callout 1) and then remove the right cover (callout 2).

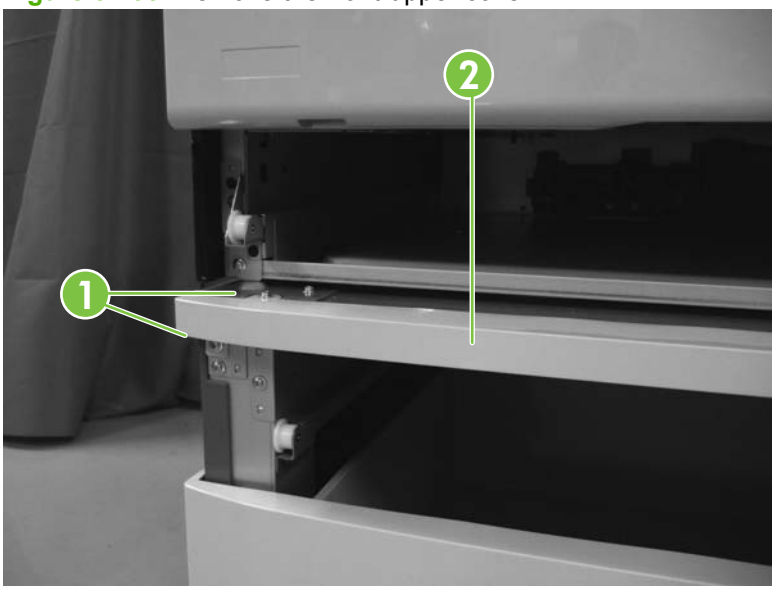
Figure 6-132 Remove the right cover



Front-upper cover

1. Remove the following:
   - Tray 2. See Tray 2 on page 244.
   - Tray 3. See Trays 3, 4, and 5 on page 244.
   - Front-right cover. See Front-right cover on page 336.
2. Remove two screws (callout 1), and then remove the front-upper cover (callout 2).

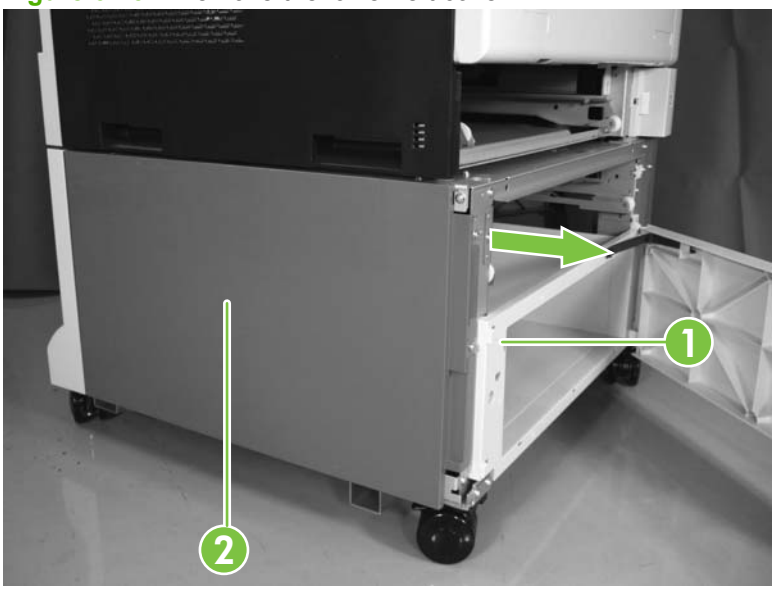
Figure 6-133 Remove the front-upper cover



Lower-left cover

1. Remove the following:
   - Front-upper cover. See Front-upper cover on page 338.
2. Remove one screw (callout 1). Slide the left cover (callout 2) in the direction indicated to remove it.

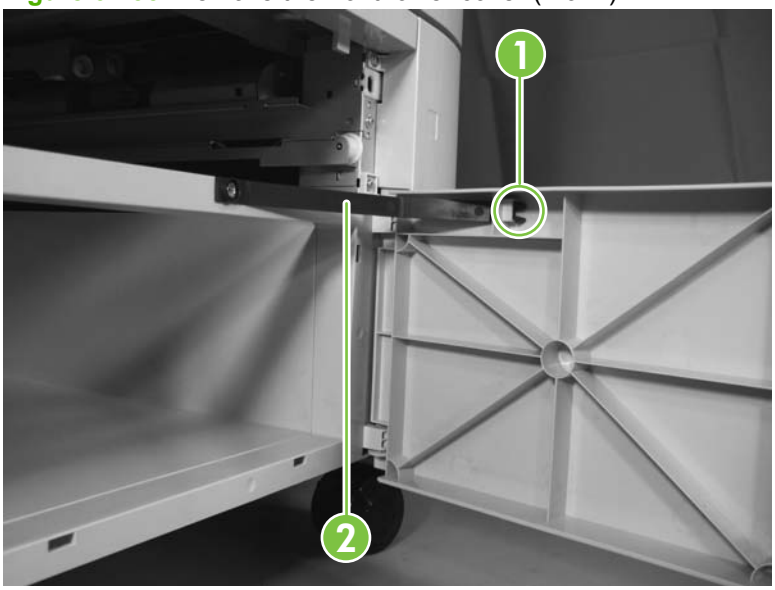
Figure 6-134 Remove the lower-left cover



Front-lower door

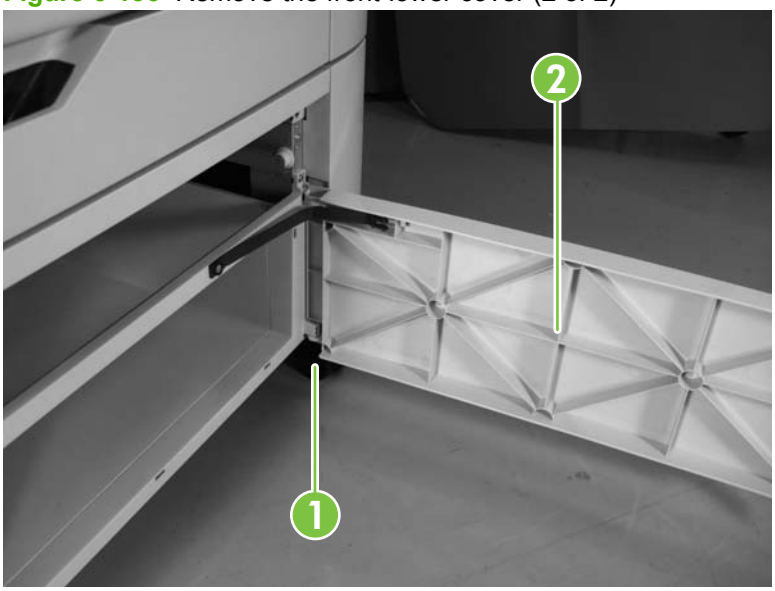
1. Remove the following:
   - Tray 3. See Trays 3, 4, and 5 on page 244.
2. Release one tab (callout 1), and then remove the arm (callout 2).

Figure 6-135 Remove the front-lower cover (1 of 2)



3. Clear the bottom pin (callout 1), and then lift the front-lower door (callout 2) to remove it.

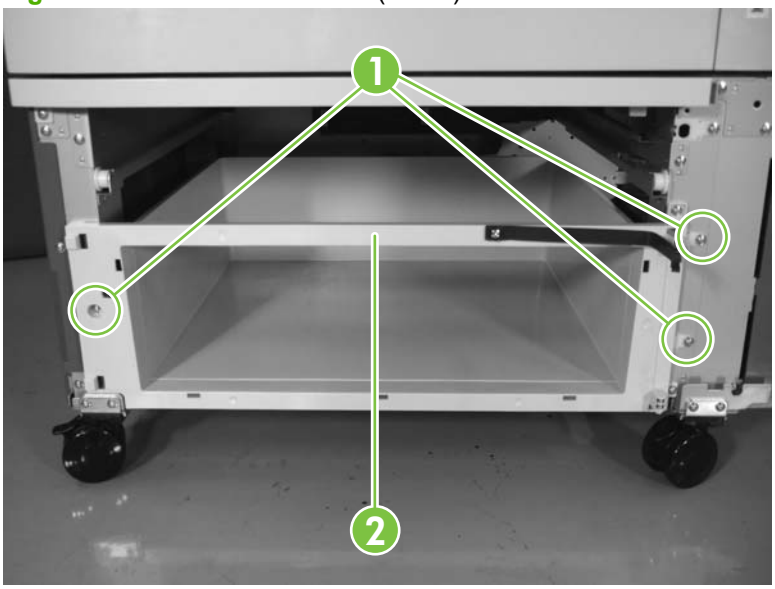
Figure 6-136 Remove the front-lower cover (2 of 2)



Box

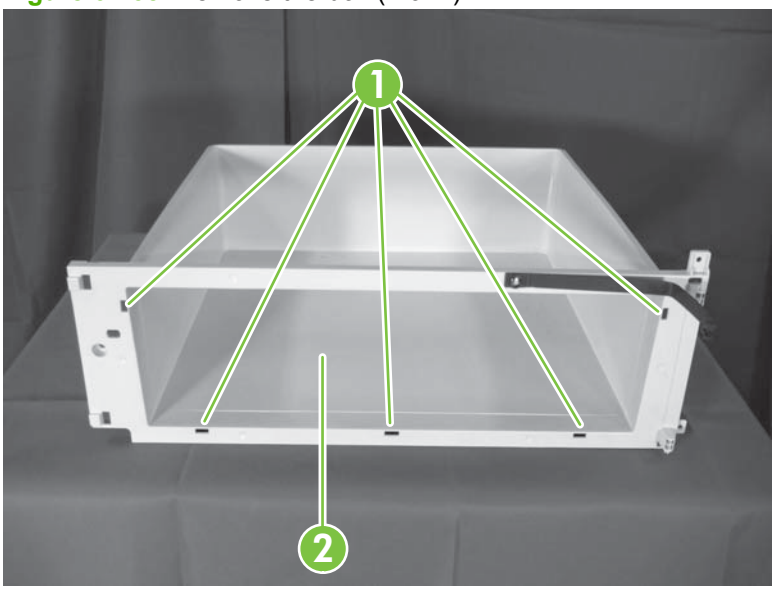
1. Remove the following:
   - Front-lower door. See Front-lower cover on page 331.
   - Front-right cover. See Front-right cover on page 336.
2. Remove three screws (callout 1), and then remove the box with the inner cover (callout 2).

Figure 6-137 Remove the box (1 of 2)



3. Release the five tabs (callout 1), and then remove the box (callout 2).

Figure 6-138 Remove the box (2 of 2)



Pickup unit

The procedure varies depending on whether the input tray is attached to the product.

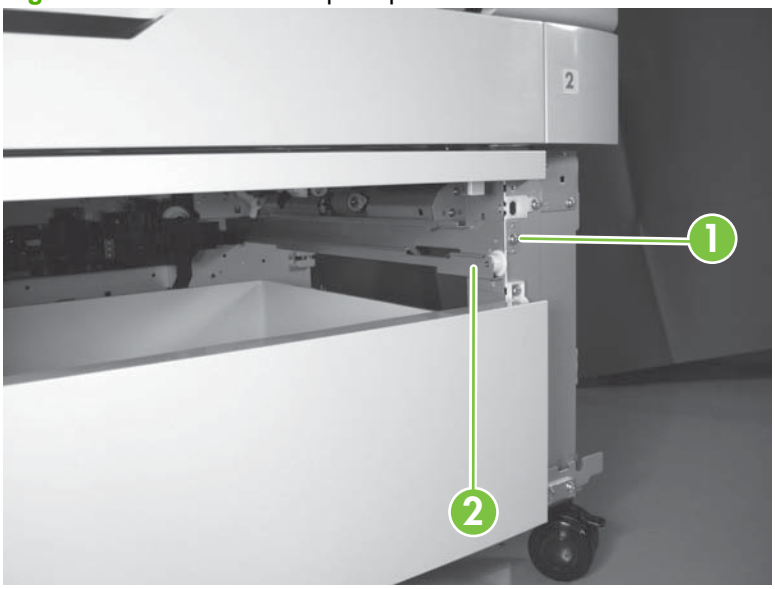
▲ Remove the following:

- Tray 3. See Trays 3, 4, and 5 on page 244.
- Lower-rear cover. See Lower-rear cover on page 335.
- Right cover. See Right cover on page 337.

Input tray is attached

▲ Remove one screw (callout 1), and then remove the cassette guide rail (callout 2).

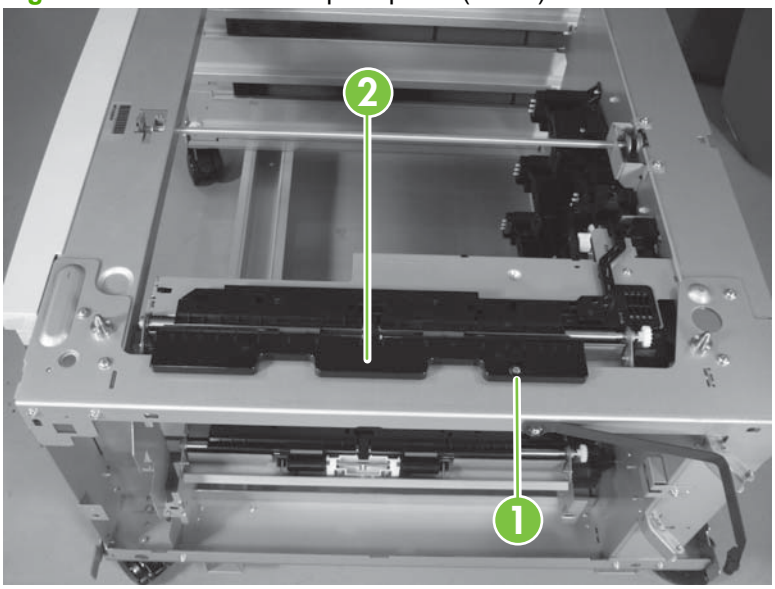
Figure 6-139 Remove the pickup unit



Paper feeder is not attached

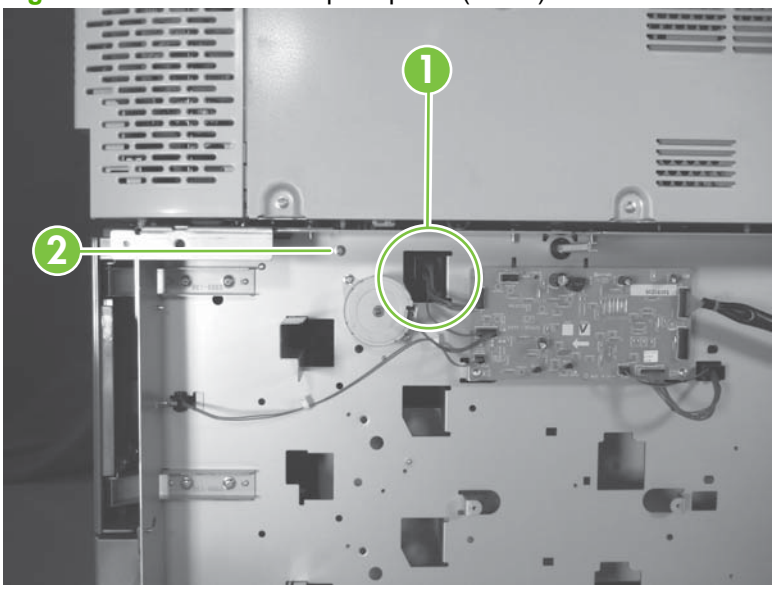
1. Remove one screw (callout 1), and then remove the feed guide (callout 2).

Figure 6-140 Remove the pickup unit (1 of 3)



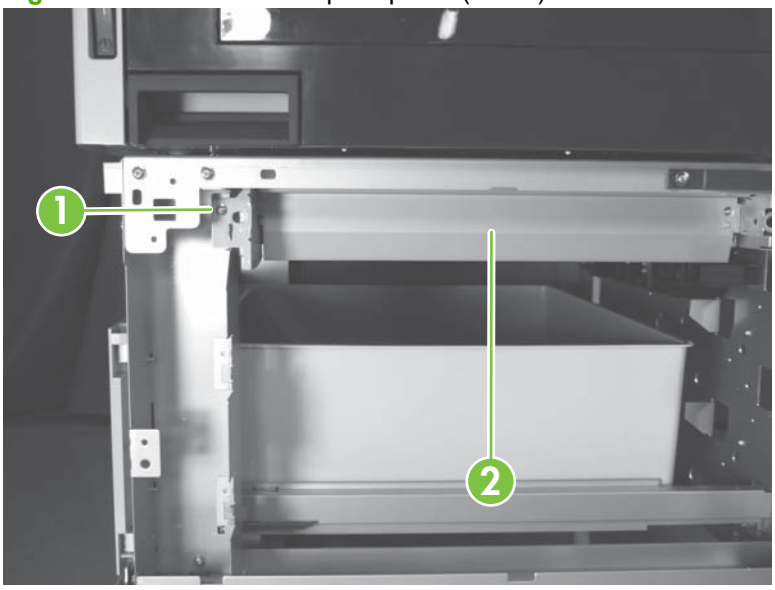
2. Disconnect three connectors (callout 1), and then remove one screw (callout 2).

Figure 6-141 Remove the pickup unit (2 of 3)



3. Remove one screw (callout 1). Grasp the pickup unit (callout 2), pull the left end off the sheet metal tab, and then shift it left to release the right shaft. Pull the pickup unit forward to remove it.

Figure 6-142 Remove the pickup unit (2 of 3)

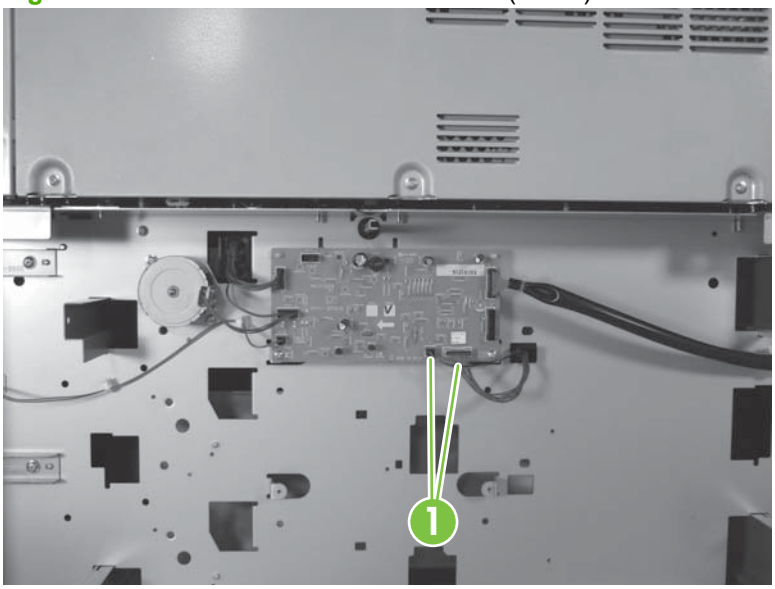


NOTE: If the pickup unit does not come out easily, gently slide a flat screwdriver over the top of the pickup unit to clear any interference with the feed guide.

Auto-close unit

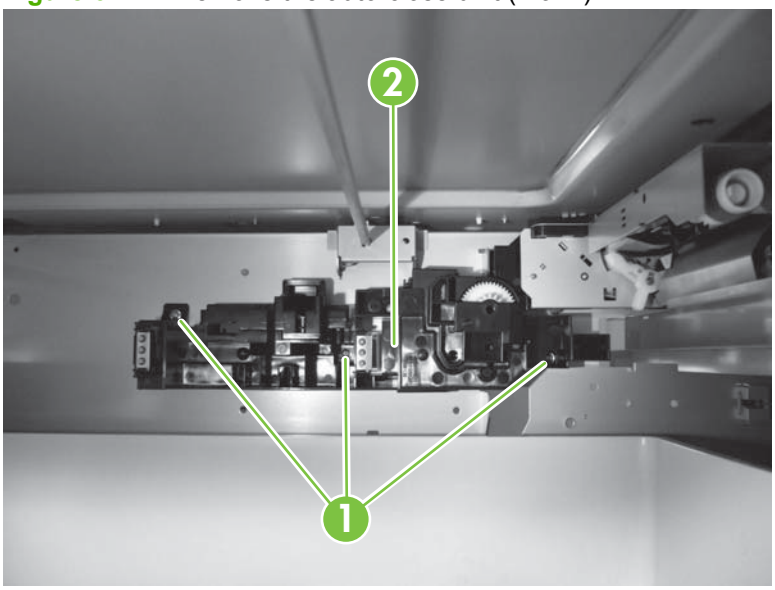
1. Remove the following:
   - Tray 4. See Trays 3, 4, and 5 on page 244.
   - Lower rear cover. See Lower-rear cover on page 335.
2. Disconnect the two connectors (callout 1).

Figure 6-143 Remove the auto-close unit (1 of 2)



3. Remove three screws (callout 1), and then remove the auto-close unit (callout 2).

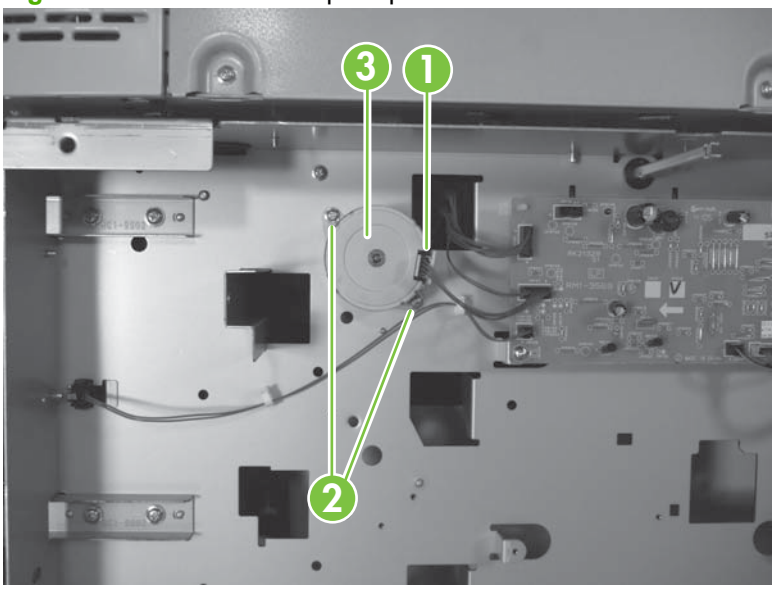
Figure 6-144 Remove the auto-close unit (2 of 2)



Pickup motor

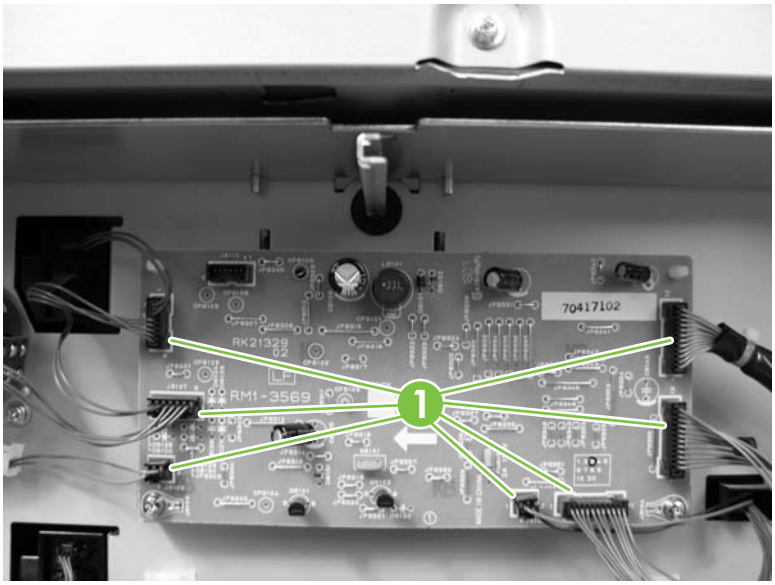
1. Remove the following:
   - Rear cover. See Lower-rear cover on page 335.
2. Disconnect one connector (callout 1).
3. Remove two screws (callout 2), and then remove the pickup motor (callout 3).

Figure 6-145 Remove the pickup motor



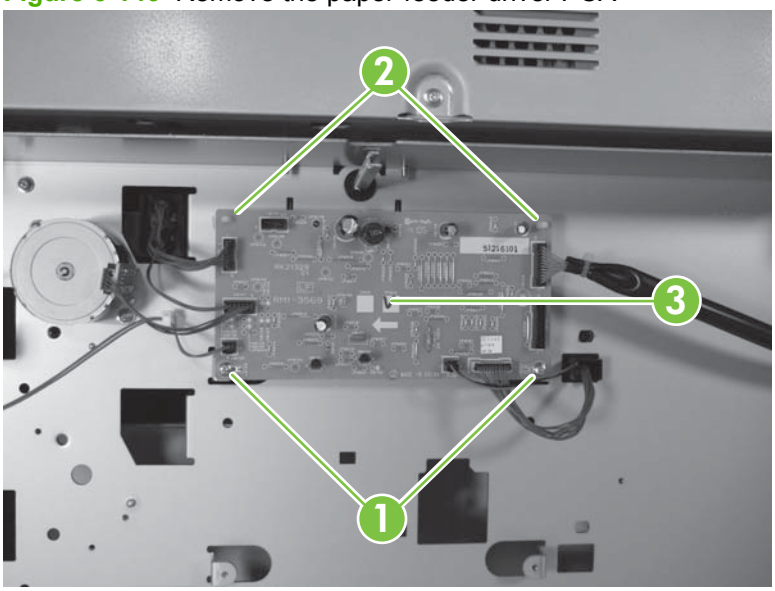
Paper-feeder driver PCA

1. Remove the following:
   - Rear cover. See Lower-rear cover on page 335.
2. Disconnect seven connectors on the paper-feeder driver PCA.



3. Remove two screws (callout 1), release two tabs (callout 2), and then remove the paper-feeder driver PCA (callout 3).

Figure 6-146 Remove the paper-feeder driver PCA



3x500-sheet input tray

Right door

To remove use the same procedure as with the 1 x 500 input tray. See Right door on page 333.

Lower-rear cover

To remove use the same procedure as with the 1x500-sheet input tray. See Lower-rear cover on page 335.

Front-right cover

To remove use the same procedure as with the 1x500-sheet input tray. See Front-right cover on page 336.

Right cover

To remove use the same procedure as with the 1x500-sheet input tray. See Right cover on page 337.

Front-upper cover

To remove use the same procedure as with the 1x500-sheet input tray. See Front-upper cover on page 338.

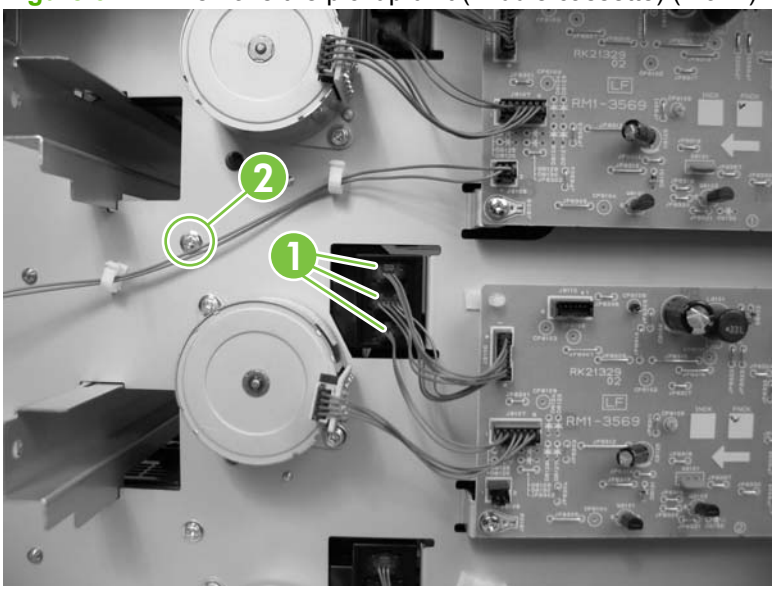
Left cover

To remove use the same procedure as that found with the 1x500-sheet input tray. See Lower-left cover on page 339.

Pickup unit (middle cassette)

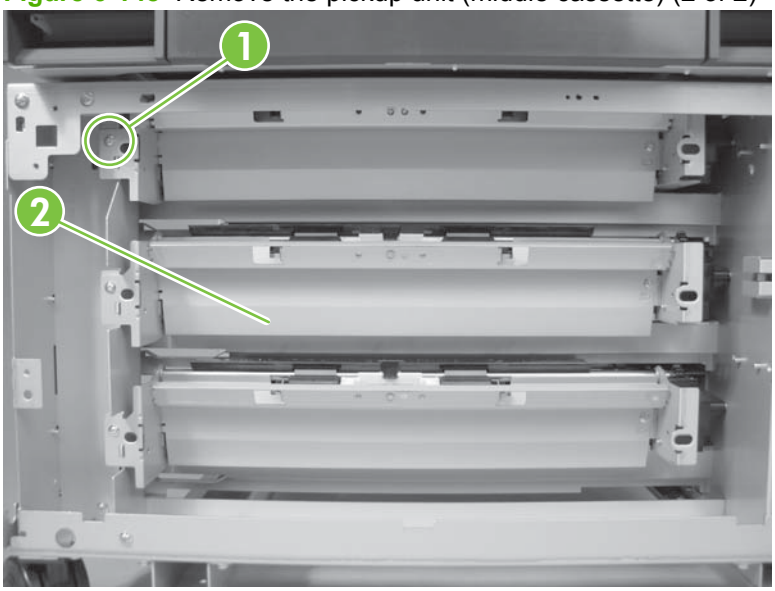
1. Remove the following:
   - Cassette. See Cassette (Tray 2) pickup unit on page 255.
   - Lower-rear cover. See Lower-rear cover on page 335.
   - Right cover. See Right cover on page 337.
2. Disconnect the three connectors (callout 1), and then remove one screw (callout 2).

Figure 6-147 Remove the pickup unit (middle cassette) (1 of 2)



3. Remove one screw (callout 1). Grasp the pickup unit (callout 2), and then shift to the left to release the right shaft. Pull the unit forward to remove it.

Figure 6-148 Remove the pickup unit (middle cassette) (2 of 2)



Pickup unit (lower cassette)

To remove use the same procedure as with the pickup unit (middle cassette). See Pickup unit (middle cassette) on page 349.

Pickup unit (upper cassette)

The procedure varies depending on whether the input tray is attached to the product.

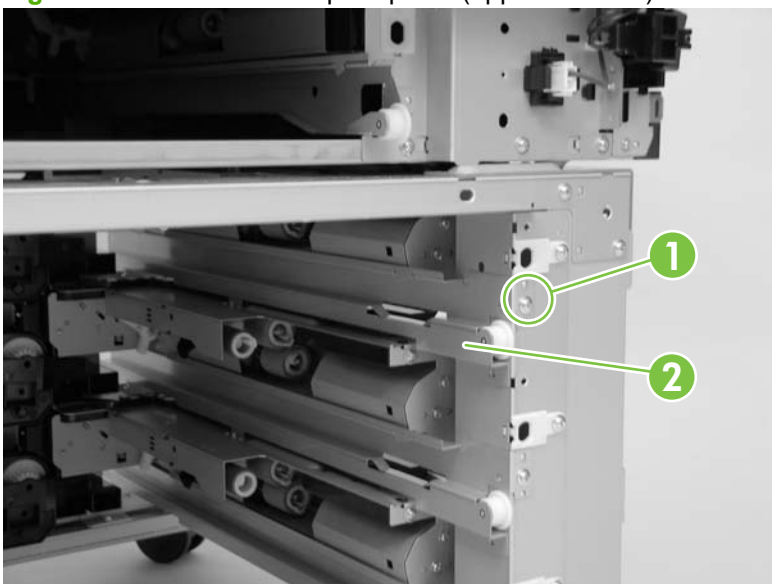
▲ Remove the following:

- Pickup unit (middle cassette). See Pickup unit (middle cassette) on page 349.

Paper feeder is attached

▲ Remove one screw (callout 1), and then remove the cassette guide rail (callout 2).

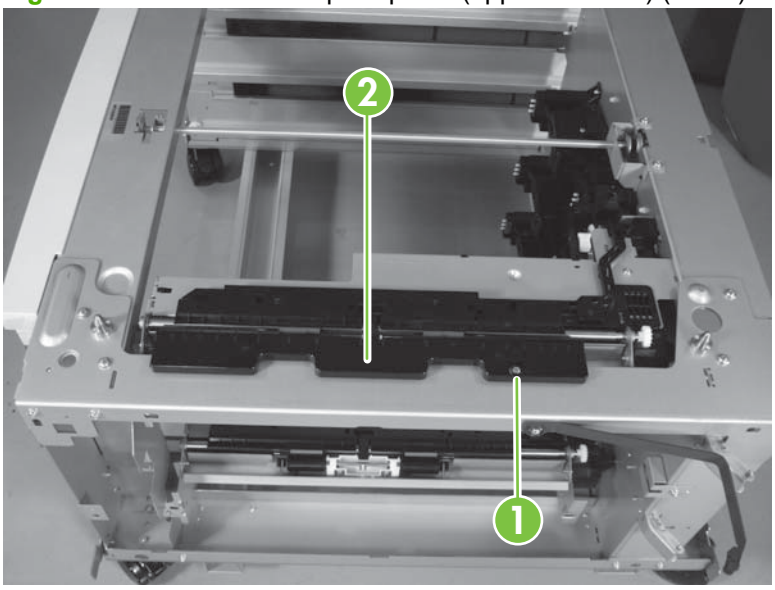
Figure 6-149 Remove the pickup unit (upper cassette)



Paper feeder is not attached

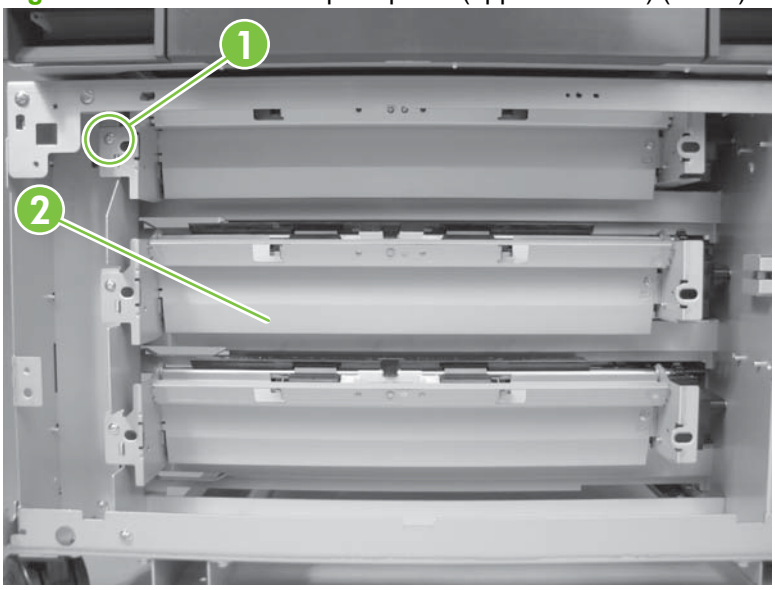
1. Remove one screw (callout 1), and then remove the feed guide (callout 2).

Figure 6-150 Remove the pickup unit (upper cassette) (1 of 3)



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

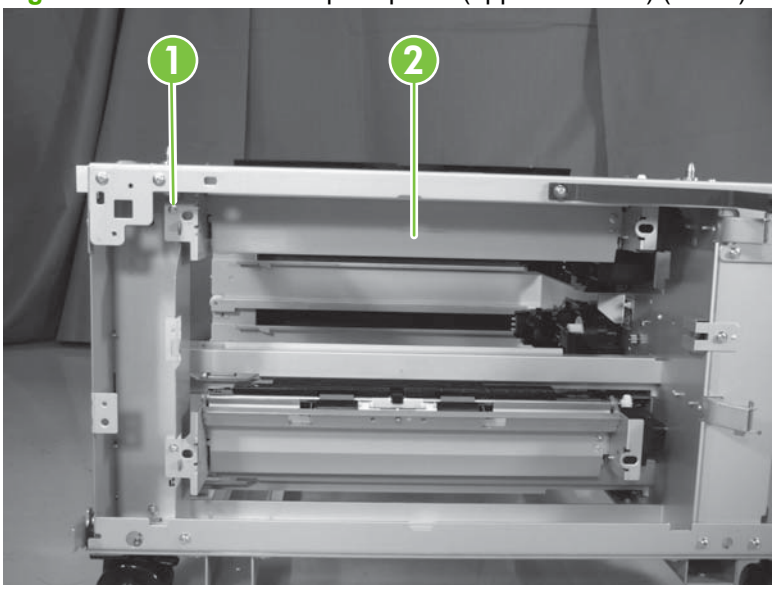
Figure 6-151 Remove the pickup unit (upper cassette) (2 of 3)



3. Remove one screw (callout 1).

4. Grasp the pickup unit (callout 2) and shift to the left to release the right shaft. Pull the unit forward to remove it.

Figure 6-152 Remove the pickup unit (upper cassette) (3 of 3)



Auto-close unit

To remove use the same procedure as with the 1x500-sheet input tray. See Auto-close unit on page 345.

Pickup motor

To remove use the same procedure as with the 1x500-sheet input tray. See Pickup motor on page 346.

Paper-feeder driver PCA

To remove use the same procedure as with the 1x500-sheet input tray. See Paper-feeder driver PCA on page 347.

Scanner

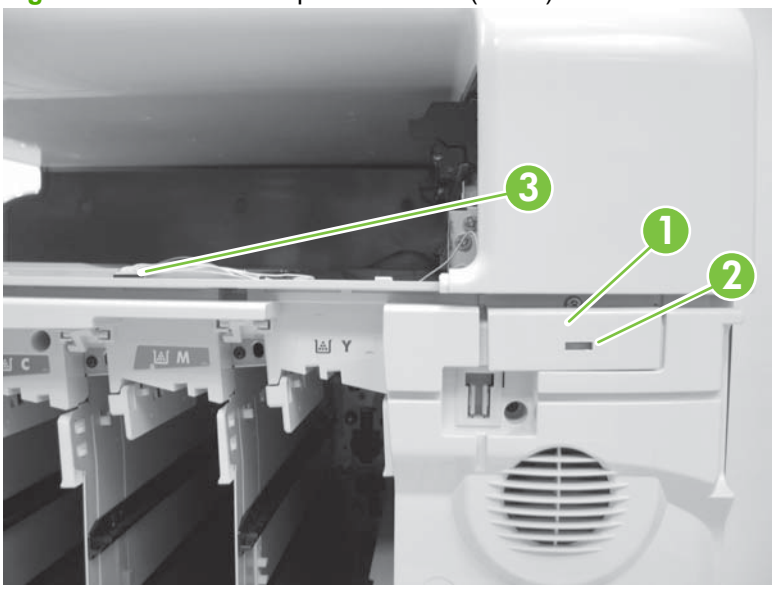
Optical scanner

△ **CAUTION:** This procedure requires two people to lift the optical scanner.

NOTE: To reduce the weight of the optical scanner, remove the ADF. ADF assembly on page 393.

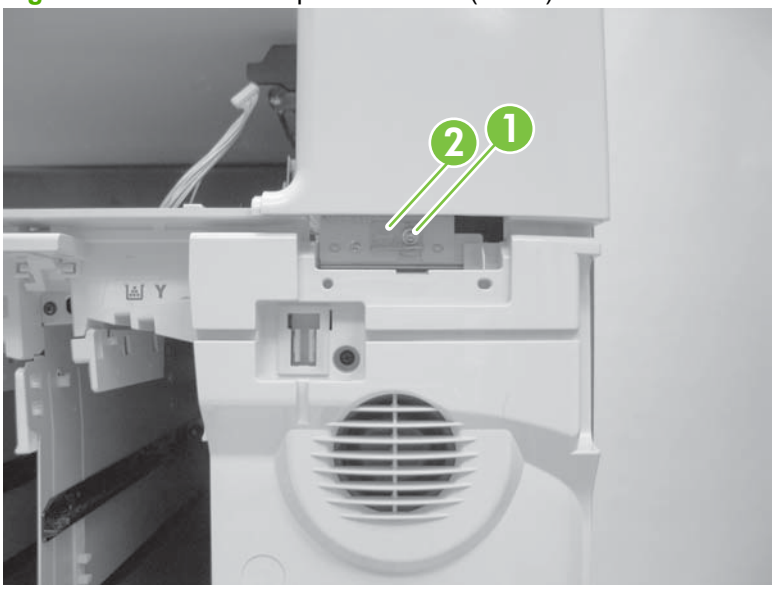
1. Remove the following:
   - Duplex switchback tray. See Duplex switchback tray on page 300.
   - Face-down output bin. See Face-down output bin on page 267.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Rear scanner cover. See Rear scanner cover on page 304.
   - Right upper cover. See Right upper cover on page 305.
2. Lock the wheels and scanner of the product and open the right door.
3. Open the front door and locate the small front internal cover (callout 1). To remove the cover, release the tab (callout 2) upwards. Disconnect one connector (callout 3).

Figure 6-153 Remove optical scanner (1 of 7)



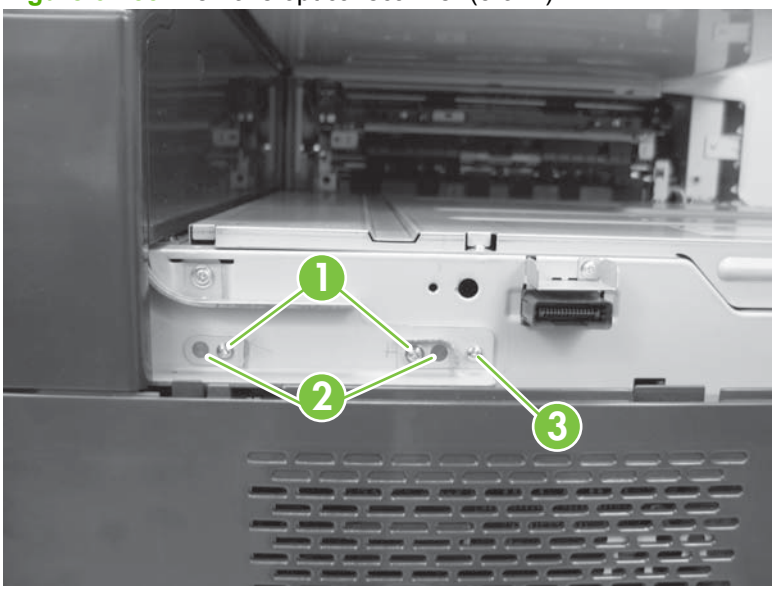
4. From the front of the scanner, remove one screw (callout 1), and then remove one large pin (callout 2).

Figure 6-154 Remove optical scanner (2 of 7)



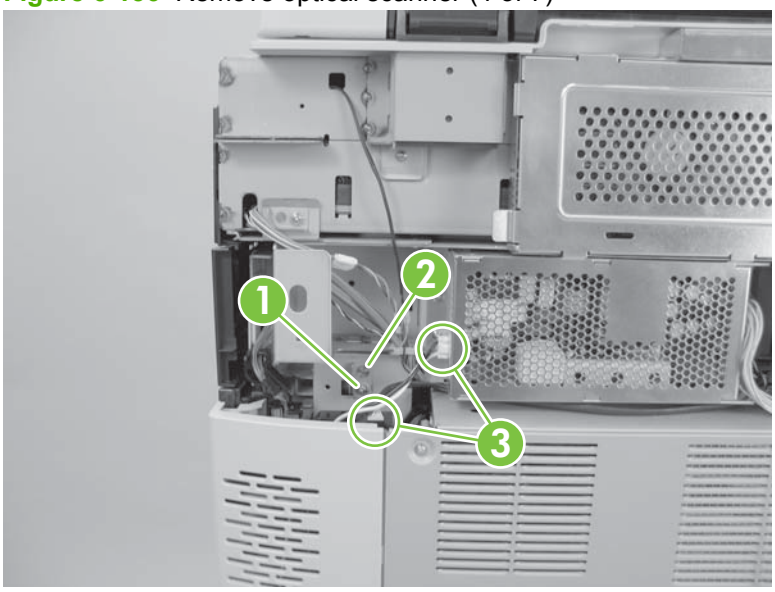
5. From the left side of the scanner, remove two screws (screws are captive and stay with the pins) (callout 1), remove two small pins (callout 2), and then remove one ground screw (callout 3).

Figure 6-155 Remove optical scanner (3 of 7)



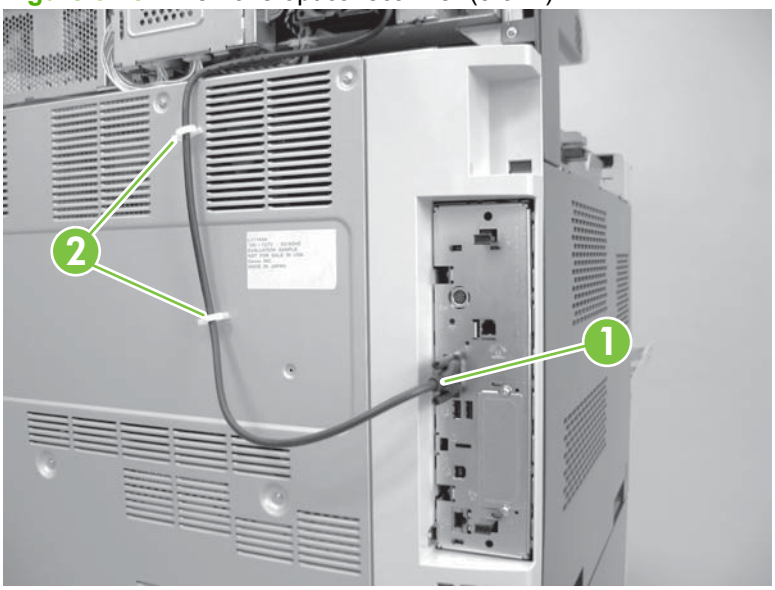
6. From the rear of the scanner, remove one screw (callout 1), remove one large pin (callout 2), and then disconnect two connectors (callout 3).

Figure 6-156 Remove optical scanner (4 of 7)



7. Disconnect one connector (callout 1), and then release the cable from the two retainers (callout 2).

Figure 6-157 Remove optical scanner (5 of 7)



8. Lift the optical scanner off the product.

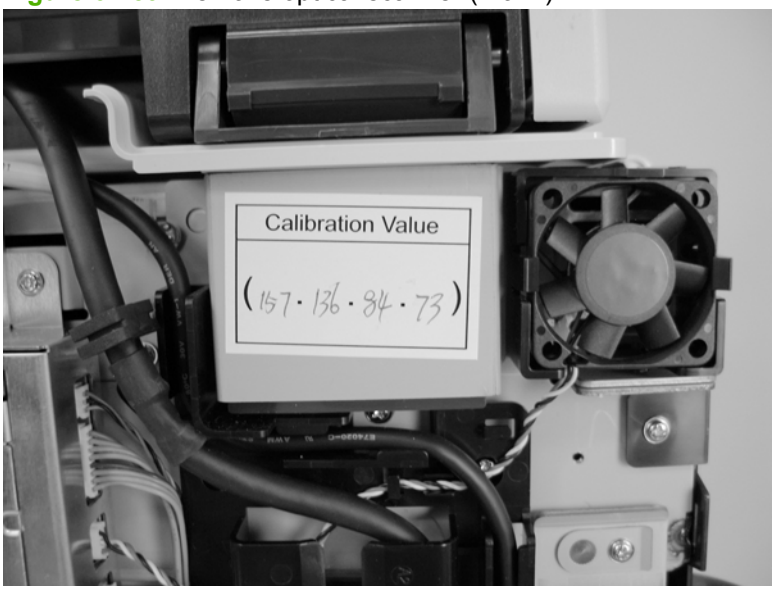
Figure 6-158 Remove optical scanner (6 of 7)



NOTE: When replacing the optical scanner, you may need to add jumpers to the SCB and perform a firmware update. The jumpers are included with the optical scanner. See Configure the SCB when replacing the carriage unit, inverter, SCB, or optical scanner on page 374.

NOTE: When reinstalling, enter the calibration value into the control panel. The calibration value is found on the back of the product as shown. See Calibrate the scanner on page 126.

Figure 6-159 Remove optical scanner (7 of 7)



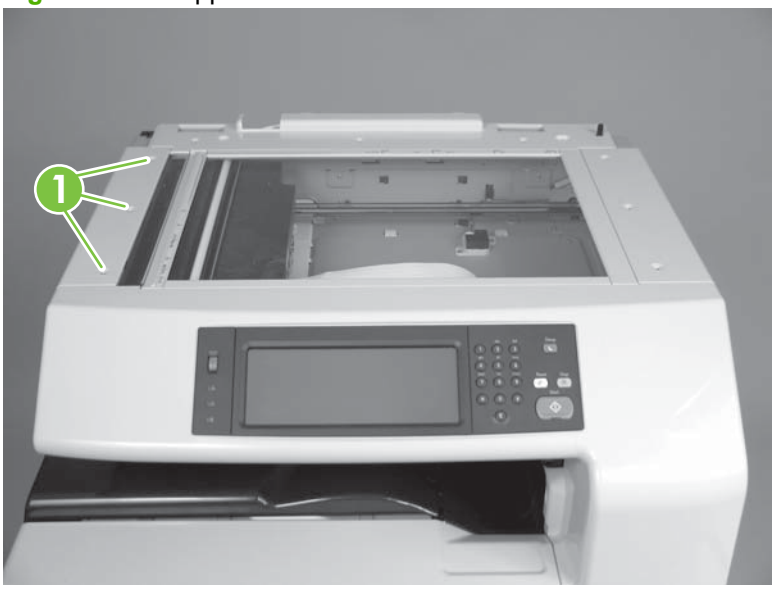
Upper-left scanner cover

1. Using a small flat-head screwdriver, remove three adhesive screw caps (callout 1).



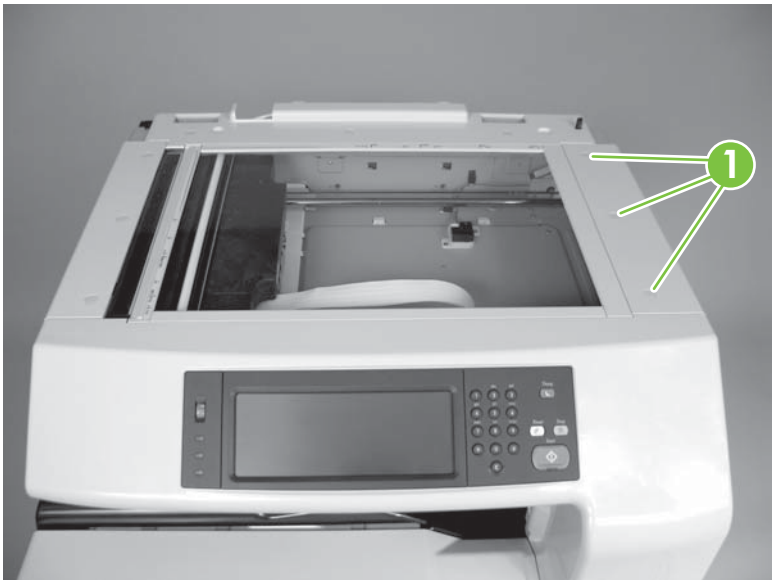
2. Remove three screws (callout 1) and then the upper-left scanner cover (callout 2).

Figure 6-160 Upper-left scanner cover



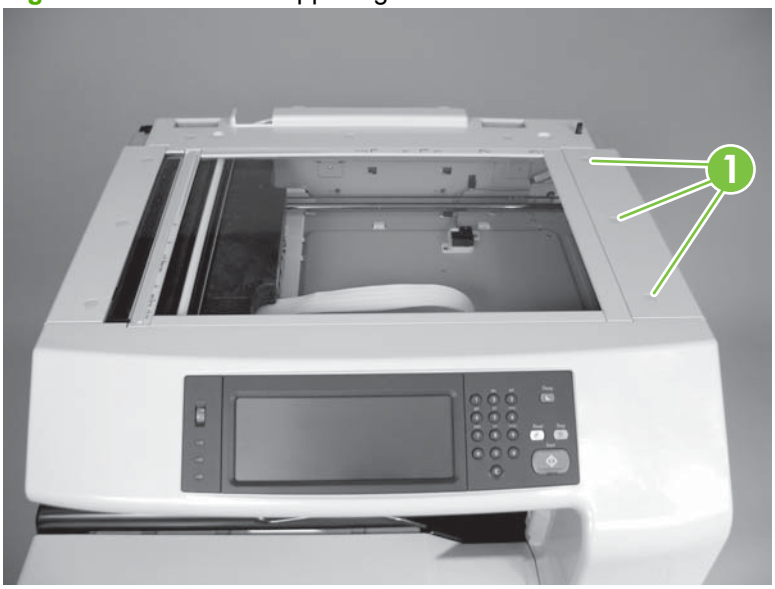
Upper-right scanner cover

1. Using a small flat-head screwdriver, remove three adhesive screw caps (callout 1).



2. Remove three screws (callout 1) and then the upper-right scanner cover (callout 2).

Figure 6-161 Remove upper-right scanner cover



Control panel

1. Open the ADF.

NOTE: It is not necessary to remove the ADF for this procedure.

2. Use a flat blade screw driver to remove the control panel overlays.

Figure 6-162 Remove control panel (1 of 3)

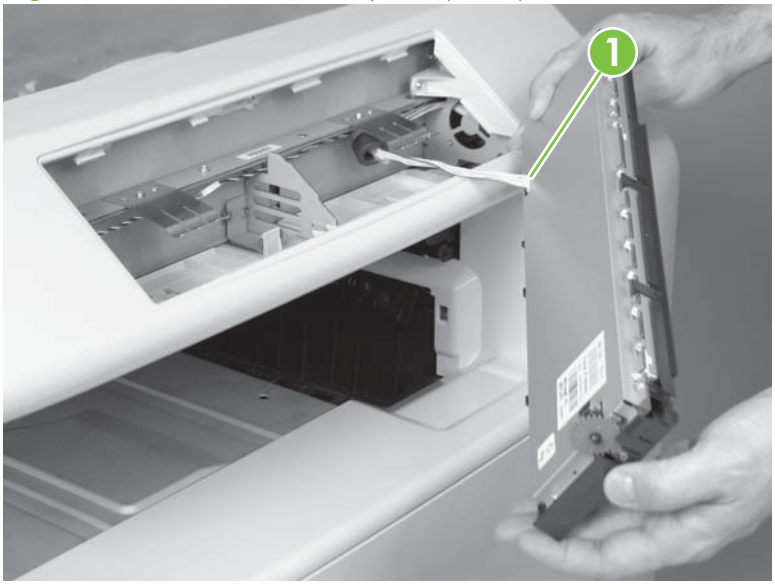


Figure 6-163 Remove control panel (2 of 3)



3. Remove the control panel, and then disconnect one connector (callout 1).

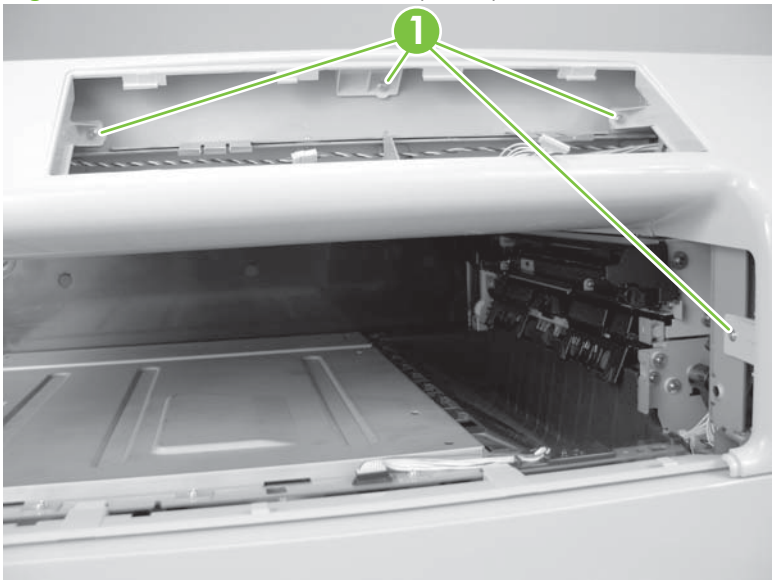
Figure 6-164 Remove control panel (3 of 3)



Front scanner cover

1. Remove the following:
   - Face-down bin. See Face-down output bin on page 267
   - Control panel. See Control panel on page 360
   - Upper-left scanner cover. See Upper-left scanner cover on page 358
   - Upper-right scanner cover. See Upper-right scanner cover on page 359
   - Front lower cover. See Front lower cover on page 301
   - Inner cover. See Inner cover on page 302
2. Remove four screws (callout 1).

Figure 6-165 Remove front cover (1 of 2)



3. Remove the front cover.

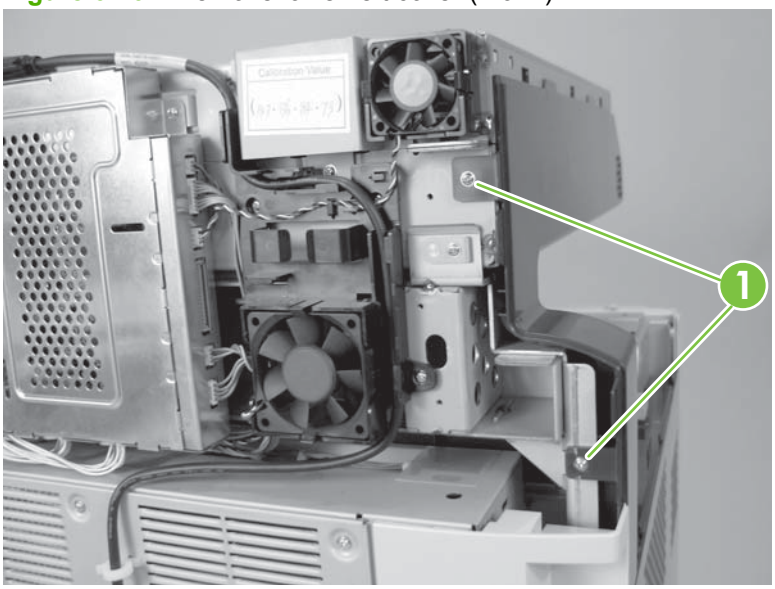
Figure 6-166 Remove front cover (2 of 2)



Lower-left scanner cover

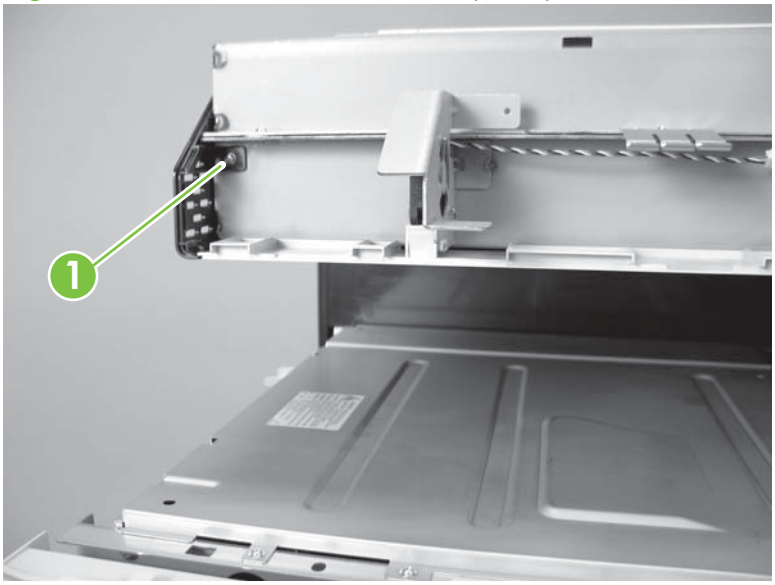
1. Remove the following:
   - Face-down bin. See Face-down cover on page 322.
   - Control panel. See Control panel on page 360.
   - Upper-left scanner cover. See Upper-left scanner cover on page 358.
   - Upper-right cover. See Upper-right scanner cover on page 359.
   - Rear scanner cover. See Rear scanner cover on page 304.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front scanner cover. See Front scanner cover on page 362.
2. Remove two screws (callout 1).

Figure 6-167 Remove lower left cover (1 of 2)



3. Remove one screw (callout 1) and then the lower left cover.

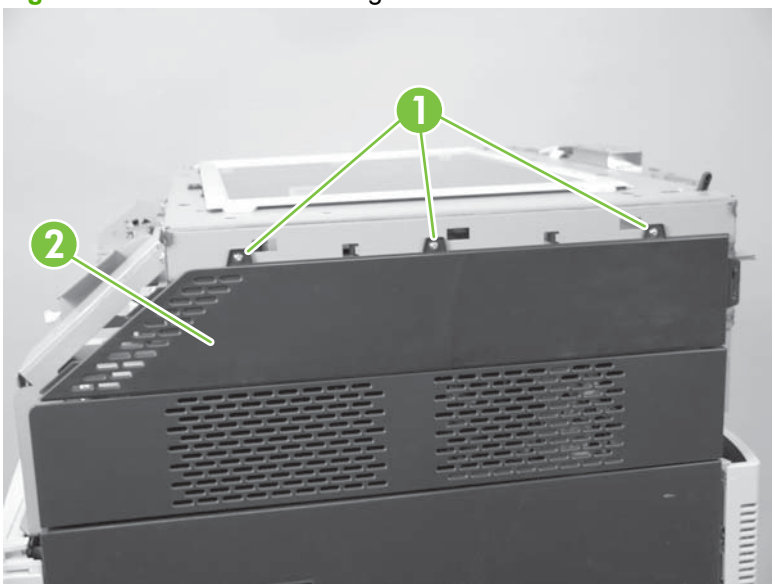
Figure 6-168 Remove lower left cover (2 of 2)



Lower-right scanner cover

1. Remove the following:
   - Face-down bin. See Face-down output bin on page 267.
   - Control panel. See Control panel on page 360.
   - Upper-right scanner cover. See Upper-right scanner cover on page 359.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front scanner cover. See Front scanner cover on page 362.
   - Rear scanner cover. See Rear scanner cover on page 304.
2. Remove three screws (callout 1), and then the lower-right cover (callout 2).

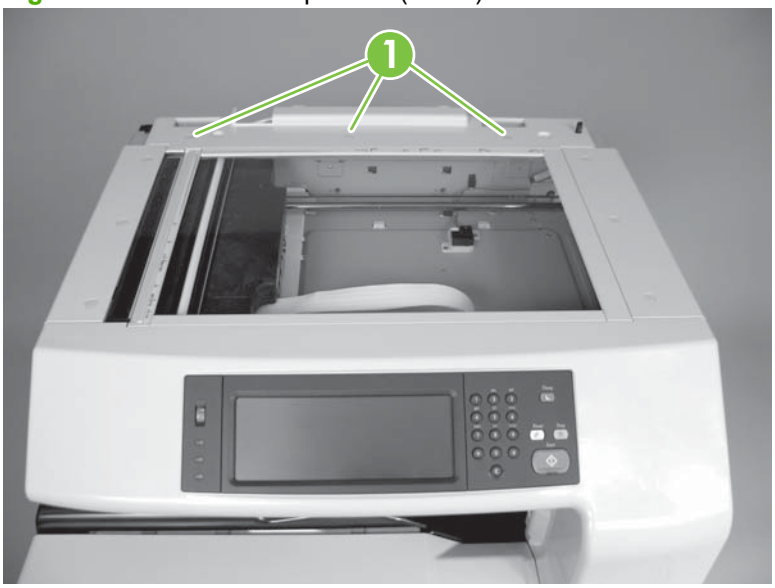
Figure 6-169 Remove lower right cover



Top scanner cover

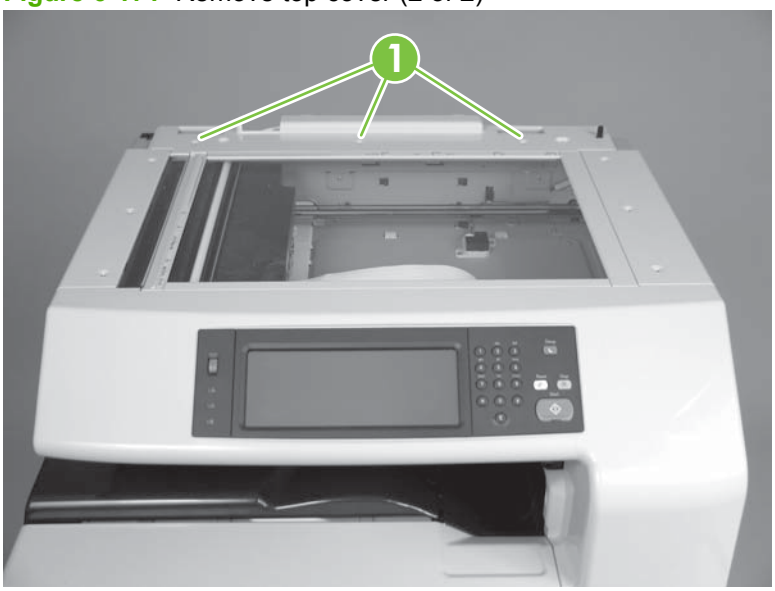
1. Remove the following:
   - ADF. See ADF assembly on page 393.
2. Using a small flat-head screwdriver remove three adhesive screw caps (callout 1).

Figure 6-170 Remove top cover (1 of 2)



3. Remove three screws (callout 1) and then the top cover.

Figure 6-171 Remove top cover (2 of 2)

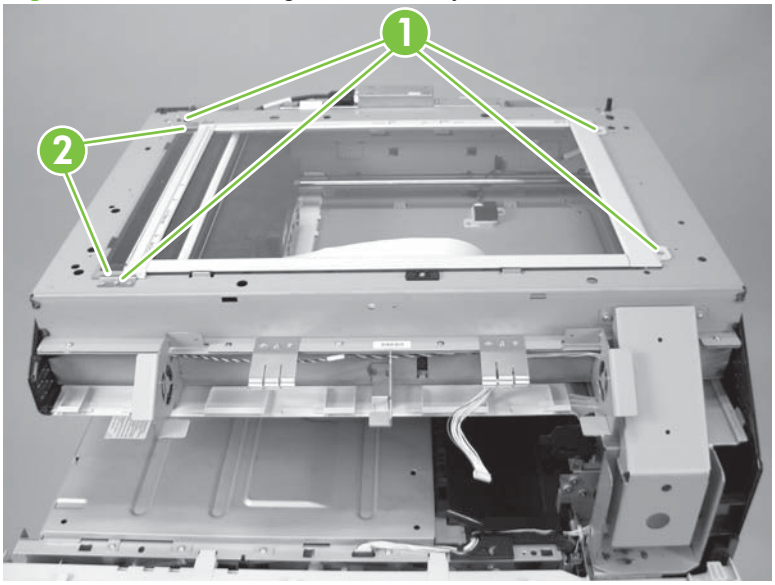


Glass assembly

△ **CAUTION:** Wear gloves to avoid dust and fingerprints on the glass.

1. Remove the following:
   - Face-down output bin. See Face-down output bin on page 267.
   - Control panel. See Control panel on page 360.
   - Upper-left scanner cover. See Upper-left scanner cover on page 358.
   - Upper-right scanner cover. See Upper-right scanner cover on page 359
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front scanner cover. See Front scanner cover on page 362.
   - Top scanner cover. See Top scanner cover on page 367.
2. Remover four screws (callout 1) and two retainers (callout 2).

Figure 6-172 Remove glass assembly



Carriage unit

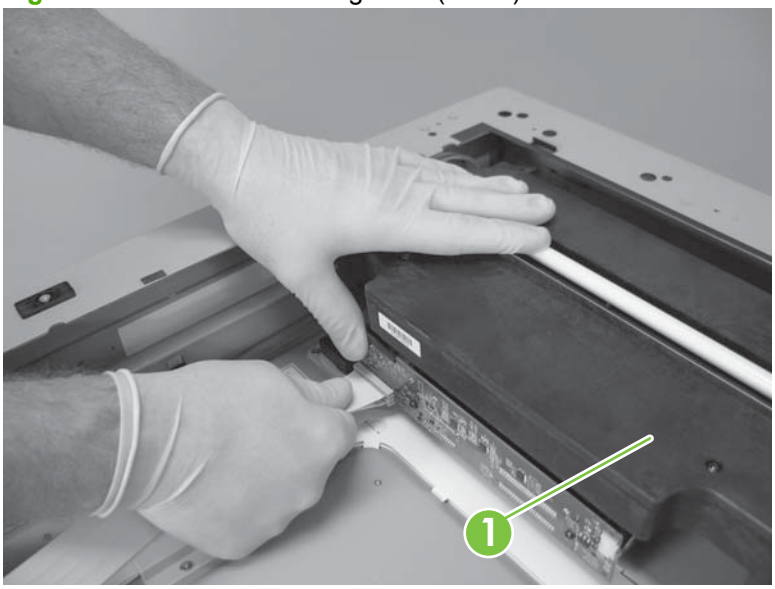
1. Remove the following:
   - Face-down output bin. See Face-down output bin on page 267.
   - Control panel. See Control panel on page 360.
   - Upper-left scanner cover. See Upper-left scanner cover on page 358.
   - Upper-right scanner cover. See Upper-right scanner cover on page 359.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front scanner cover. See Front scanner cover on page 362.
   - Top scanner cover. See Top scanner cover on page 367.
   - Glass assembly. See Glass assembly on page 368.

   NOTE: When replacing the carriage unit, you must also replace the inverter. See Inverter unit on page 380.

   NOTE: When replacing carriage unit, you may need to add jumpers to the SCB and to perform a firmware update. See Configure the SCB when replacing the carriage unit, inverter, SCB, or optical scanner on page 374.

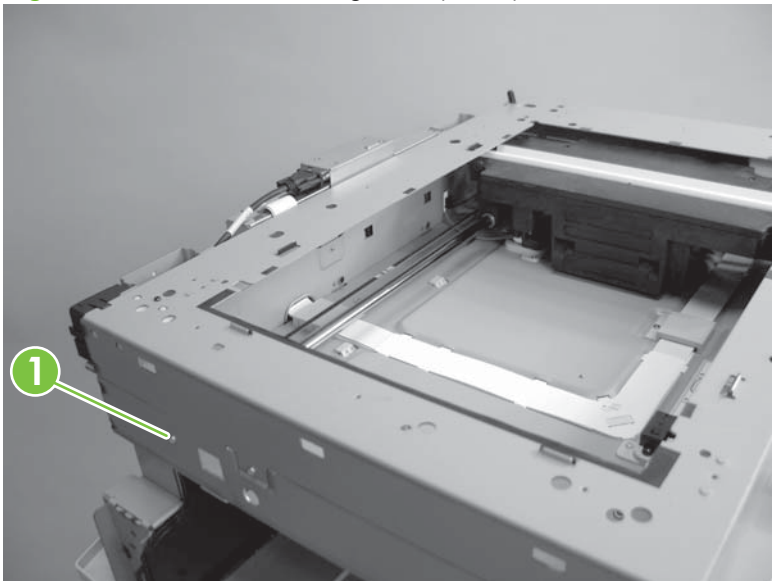
2. Remove two FFC-cables from the carriage unit (callout 1).

Figure 6-173 Remove carriage unit (1 of 8)



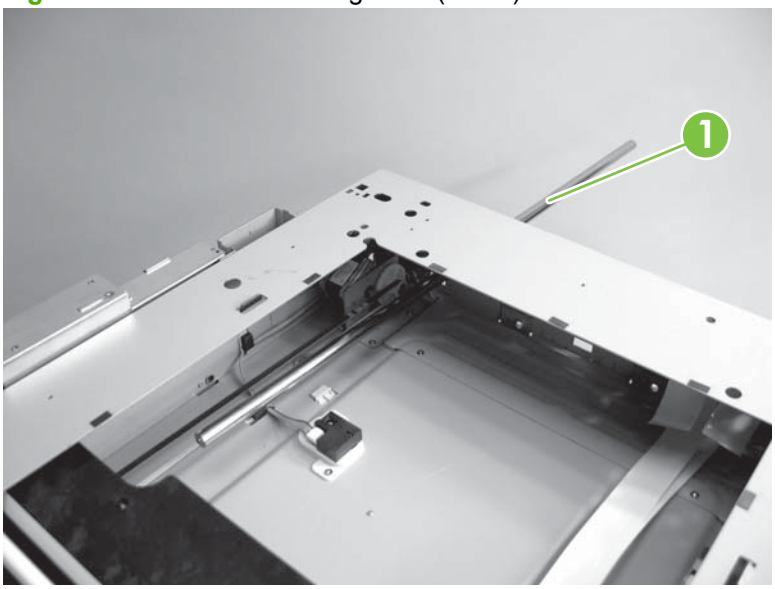
3. Remove one screw (callout 1).

Figure 6-174 Remove carriage unit (2 of 8)



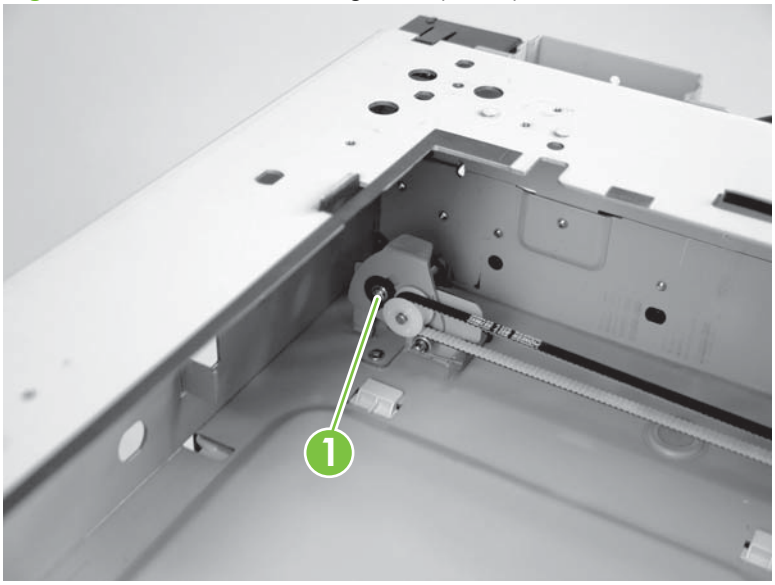
4. Slide the rod (callout 1) half way out.

Figure 6-175 Remove carriage unit (3 of 8)



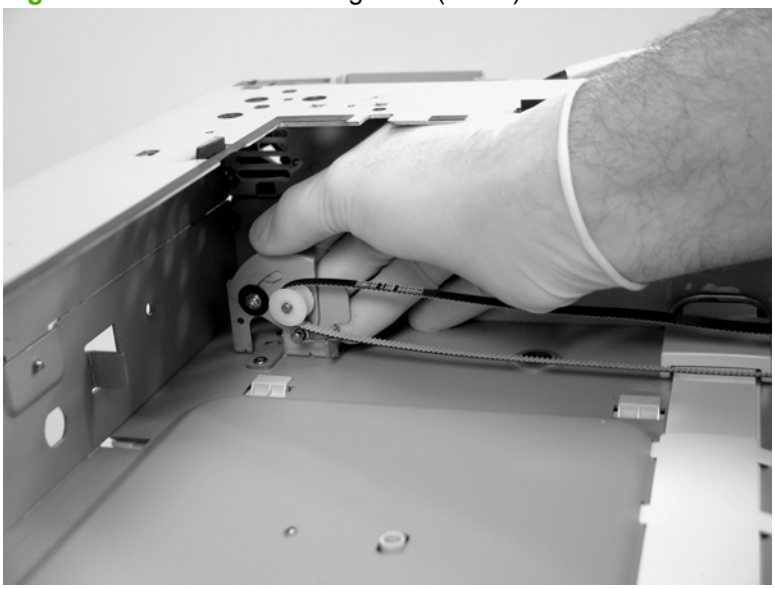
5. Loosen one tension screw (callout 1).

Figure 6-176 Remove carriage unit (4 of 8)



6. Pull the tension spring to loosen the belt (callout 1).

Figure 6-177 Remove carriage unit (5 of 8)



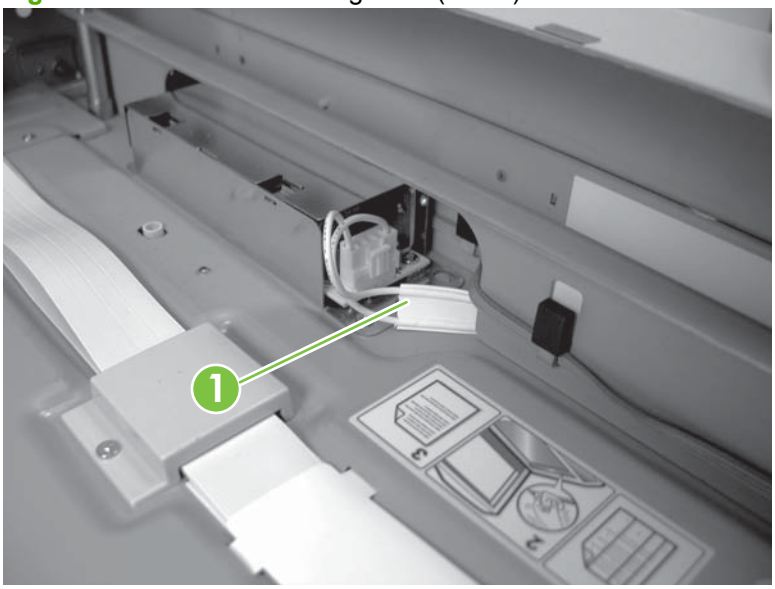
7. Remove the belt from the guide.

Figure 6-178 Remove carriage unit (6 of 8)



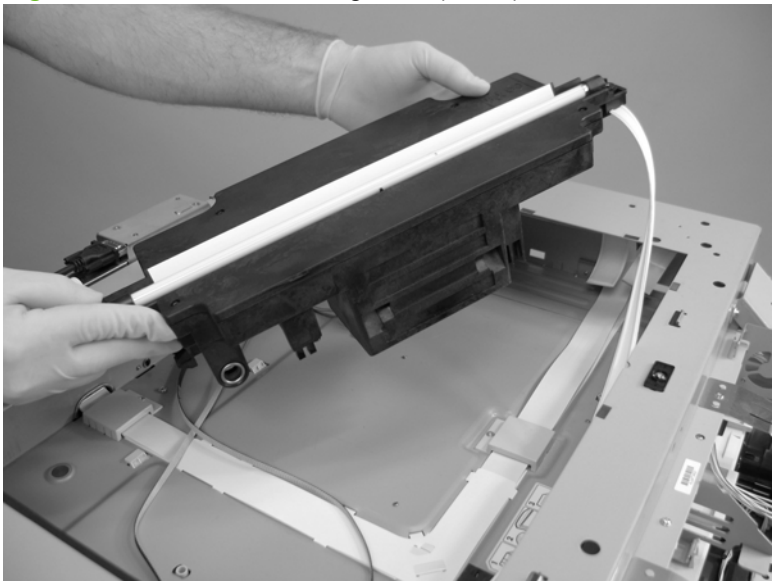
8. Disconnect one connector (callout 1).

Figure 6-179 Remove carriage unit (7 of 8)



9. Remove the carriage unit.

Figure 6-180 Remove carriage unit (8 of 8)

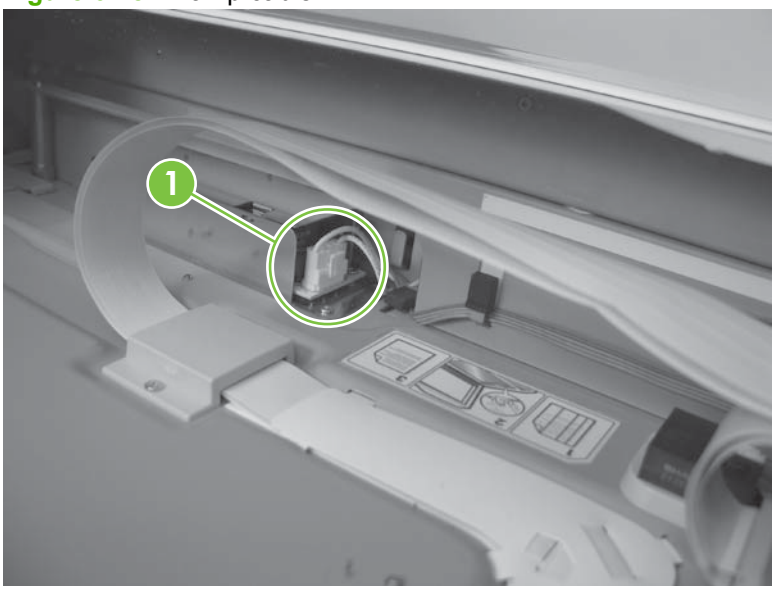


Configure the SCB when replacing the carriage unit, inverter, SCB, or optical scanner

Two manufacturers have supplied the carriage unit and inverter for the scanner. When replacing either FRU, you must replace both FRUs with replacements from the same manufacturer. You can determine the manufacturer by the color the of lamp cable. When replacing the SCB or optical scanner, you must verify that the SCB is configured correctly.

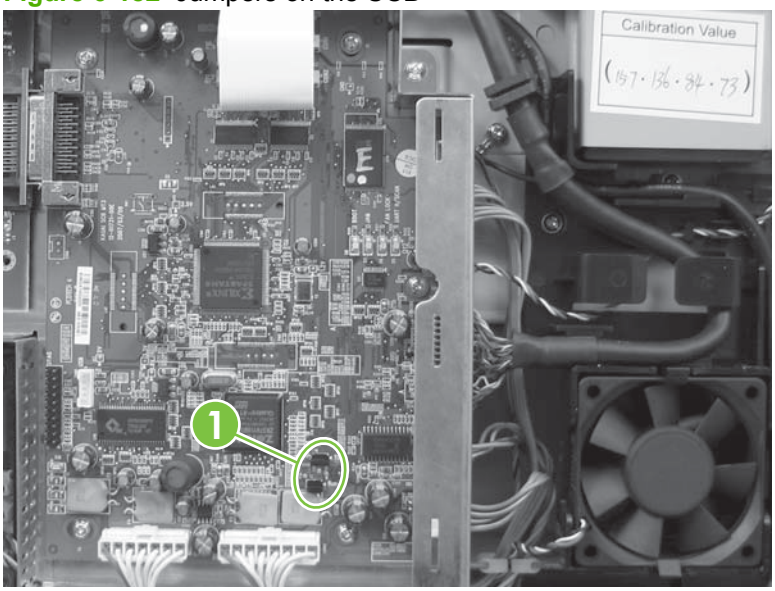
1. Determine the color of the lamp cable (callout 1) on the carriage unit.

Figure 6-181 Lamp cable



2. If the cable is black, make sure there are two jumpers (callout 1) on the SCB. If the replacement cable is white, make sure these jumpers (callout 1) are not on the SCB.

Figure 6-182 Jumpers on the SCB



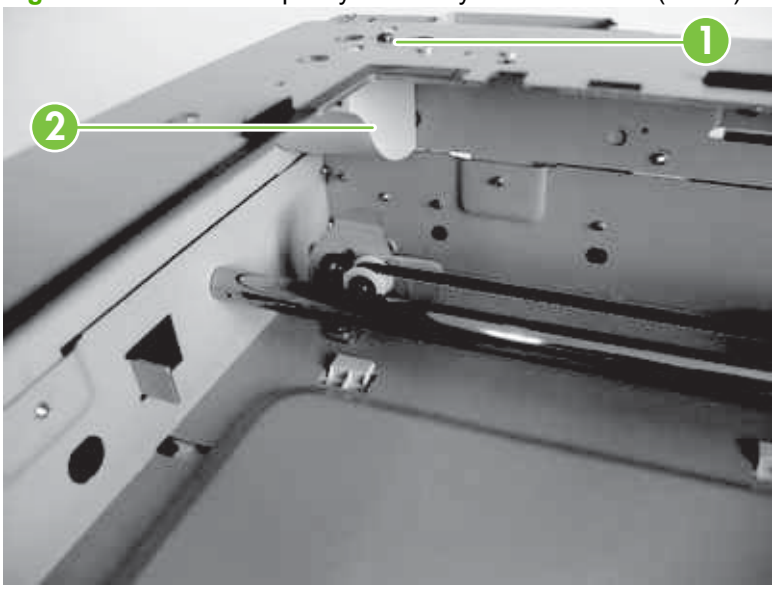
NOTE: If replacing the SCB or optical scanner, make sure the SCB is correctly configured with or without jumpers depending on the color of the lamp cable.

3. Calibrate the product from the control panel.
4. Perform a remote firmware update.

Pulley assembly and motor unit

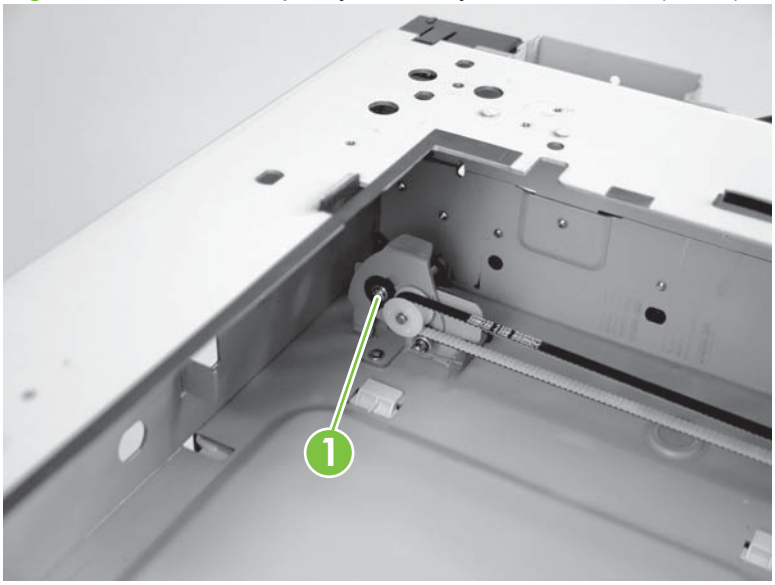
1. Remove the following:
   - Face-down output bin. See Face-down output bin on page 267.
   - Control panel. See Control panel on page 360.
   - Upper-left scanner cover. See Upper-left scanner cover on page 358.
   - Upper-right scanner cover. See Upper-right scanner cover on page 359.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front scanner cover. See Front scanner cover on page 362.
   - Top scanner cover. See Top scanner cover on page 367.
   - Glass assembly. See Glass assembly on page 368.
2. Remove one screw (callout 1) and then the carriage fan duct (callout 2).

Figure 6-183 Remove pulley assembly and motor unit (1 of 5)



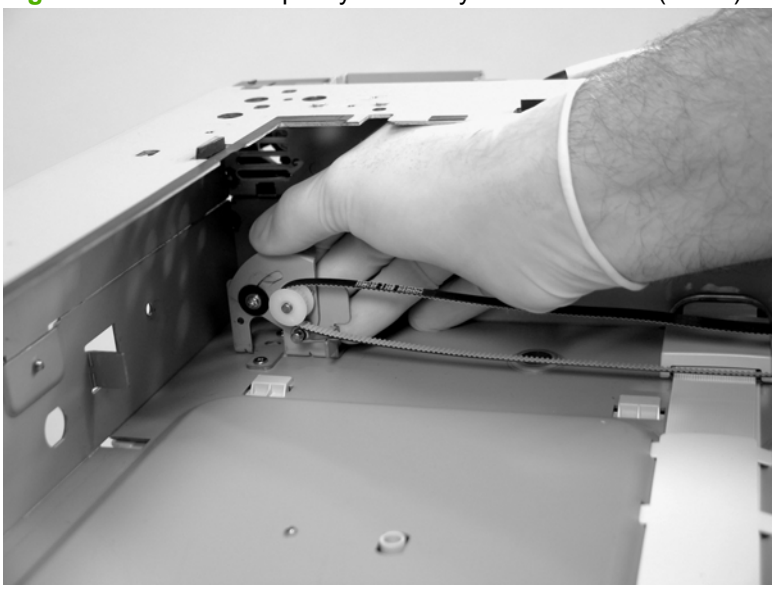
3. Loosen one screw (callout 1) on the pulley.

Figure 6-184 Remove pulley assembly and motor unit (2 of 5)



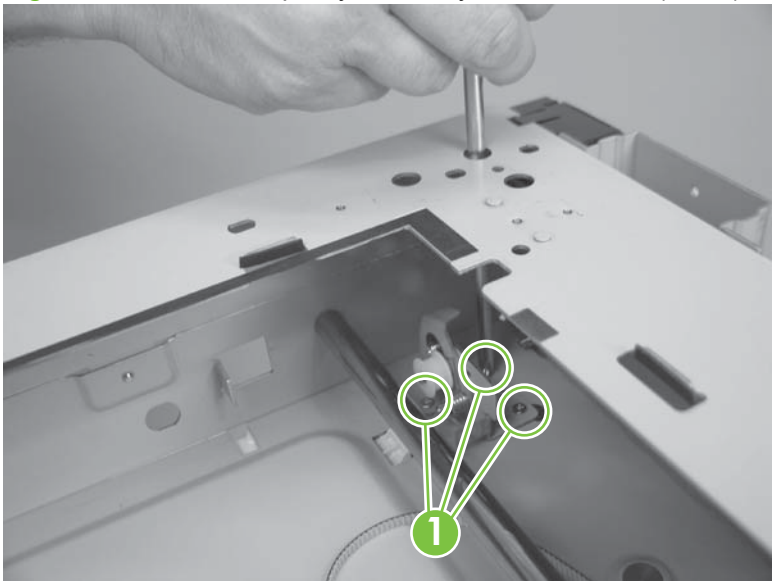
4. Loosen the belt and then remove it.

Figure 6-185 Remove pulley assembly and motor unit (3 of 5)



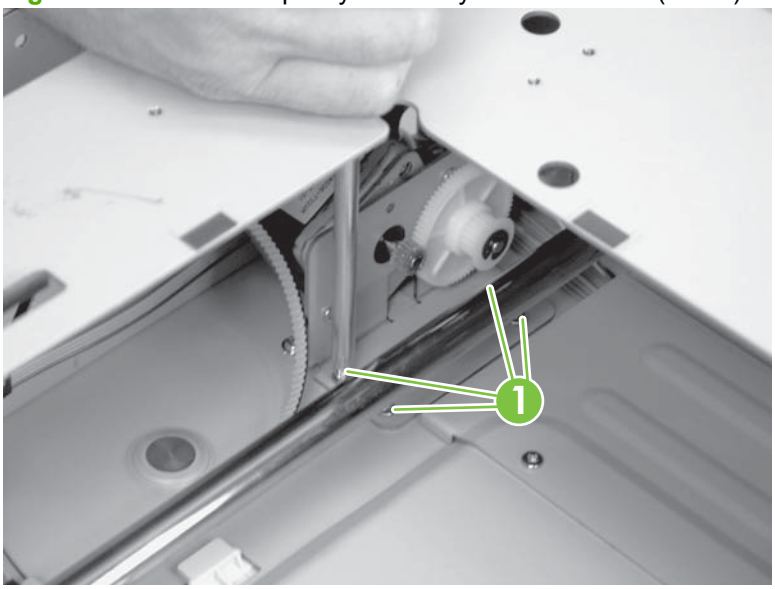
5. Remove three screws (callout 1), and them remove the pulley assembly.

Figure 6-186 Remove pulley assembly and motor unit (4 of 5)



6. Remove four screws (callout 1), and then remove the motor.

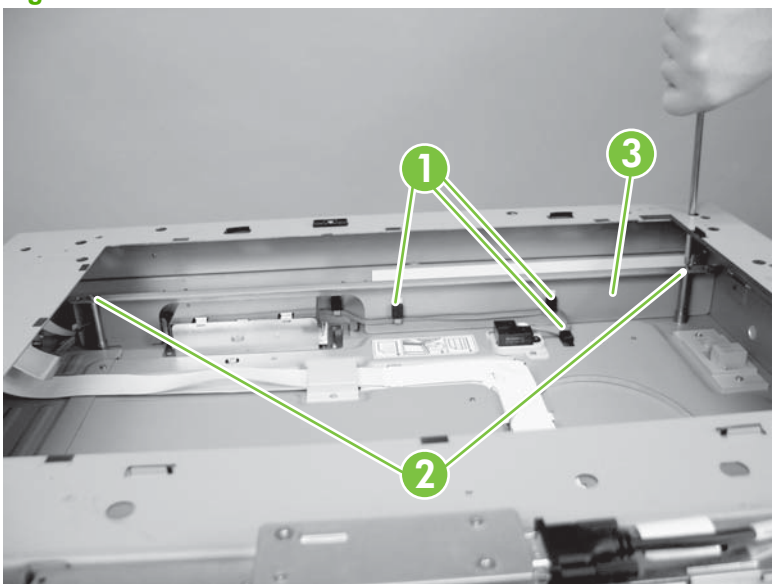
Figure 6-187 Remove pulley assembly and motor unit (5 of 5)



Rail

1. Remove the following:
   - Face-down output bin. See Face-down output bin on page 267.
   - Control panel. See Control panel on page 360.
   - Upper-left scanner cover. See Upper-left scanner cover on page 358.
   - Upper-right scanner cover. See Upper-right scanner cover on page 359.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front scanner cover. See Front scanner cover on page 362.
   - Top scanner cover. See Top scanner cover on page 367.
   - Glass assembly. See Glass assembly on page 368.
   - Carriage unit. See Carriage unit on page 369.
2. Release the three wire retainers (callout 1), remove two screws (callout 2), and then remove the rail (callout 3).

Figure 6-188 Remove rail



Inverter

Inverter unit

△ **CAUTION:** Wear gloves to avoid fingerprints on cage.

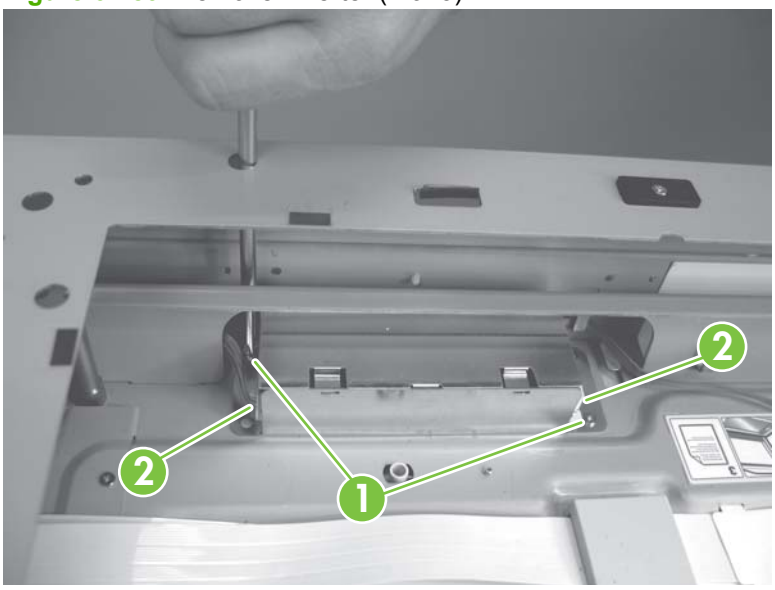
1. Remove the following:
   - Face-down output bin. See Face-down output bin on page 267.
   - Control panel. See Control panel on page 360.
   - Upper-left scanner cover. See Upper-left scanner cover on page 358.
   - Upper-right scanner cover. See Upper-right scanner cover on page 359.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front scanner cover. See Front scanner cover on page 362.
   - Top scanner cover. See Top scanner cover on page 367.
   - Glass assembly. See Glass assembly on page 368.

NOTE: When replacing the inverter, you must also replace the carriage unit. See Carriage unit on page 369.

NOTE: When replacing the inverter, you may need to add jumpers to the SCB and perform a firmware update. See Configure the SCB when replacing the carriage unit, inverter, SCB, or optical scanner on page 374.

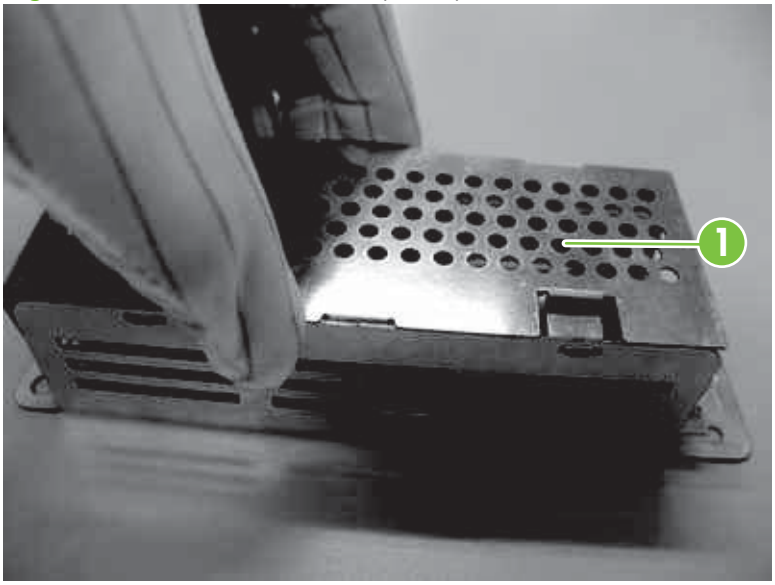
2. Remove two screws (callout 1) and disconnect two connectors (callout 2).

Figure 6-189 Remove inverter (1 of 3)



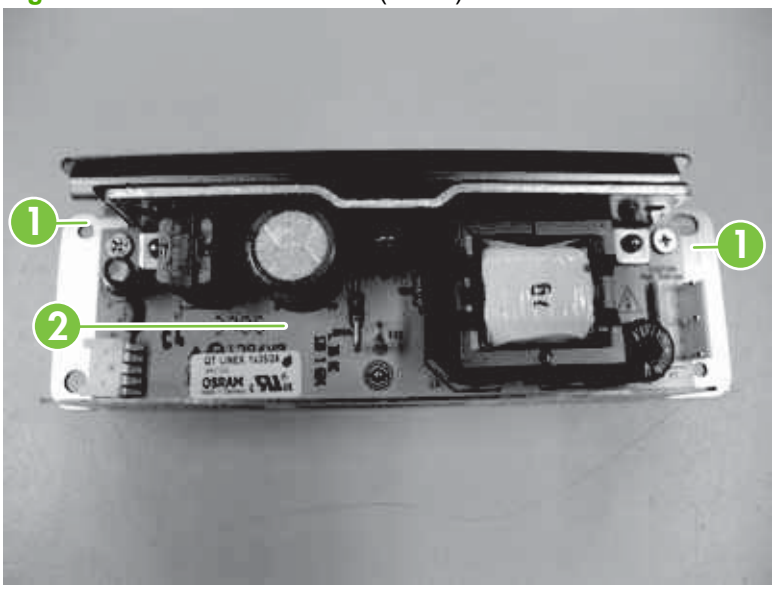
3. Remove the top inverter cage (callout 1).

Figure 6-190 Remove inverter (2 of 3)



4. Remove two screws (callout 1), and then remove the inverter (callout 2).

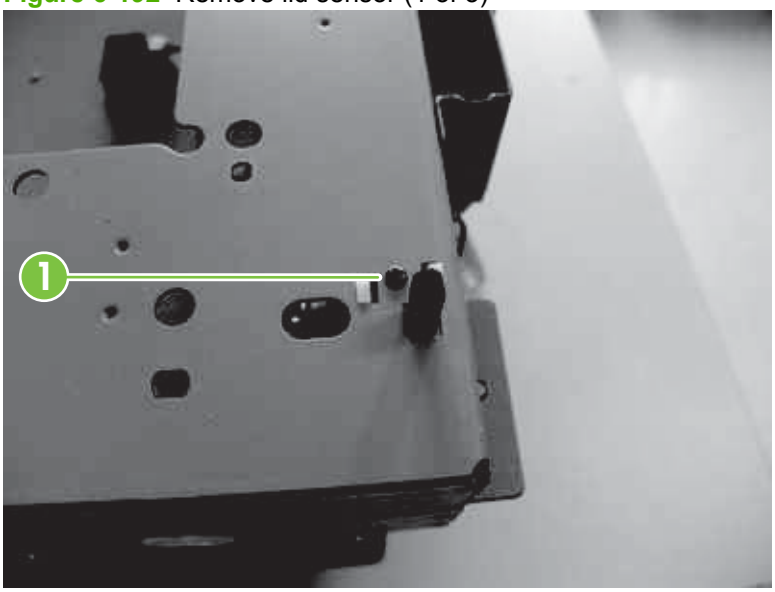
Figure 6-191 Remove inverter (3 of 3)



Lid sensor

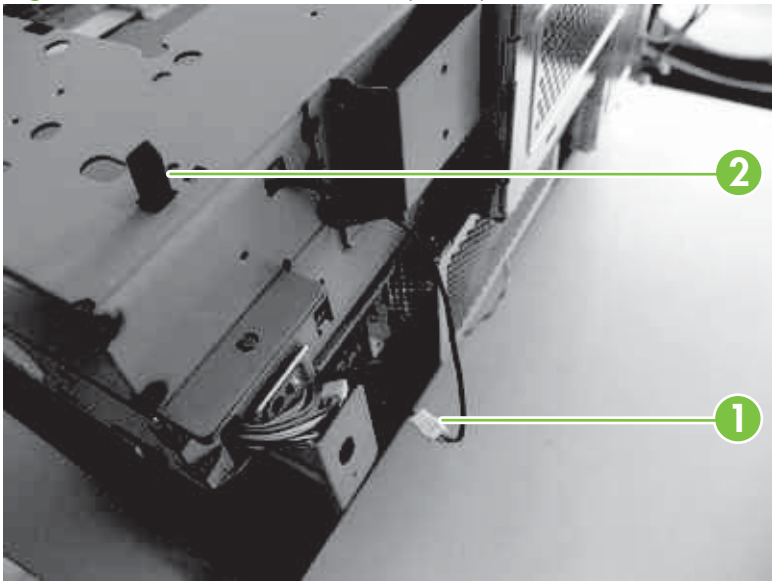
1. Remove the following:
   - Face-down output bin. See Face-down output bin on page 267.
   - Control panel. See Control panel on page 360.
   - Upper-left scanner cover. See Upper-left scanner cover on page 358.
   - Upper-right scanner cover. See Upper-right scanner cover on page 359.
   - Front lower cover. See Front lower cover on page 301.
   - Inner cover. See Inner cover on page 302.
   - Front scanner cover. See Front scanner cover on page 362.
   - Top scanner cover. See Top scanner cover on page 367.
   - Glass assembly. See Glass assembly on page 368.
2. Remove one screw (callout 1).

Figure 6-192 Remove lid sensor (1 of 3)



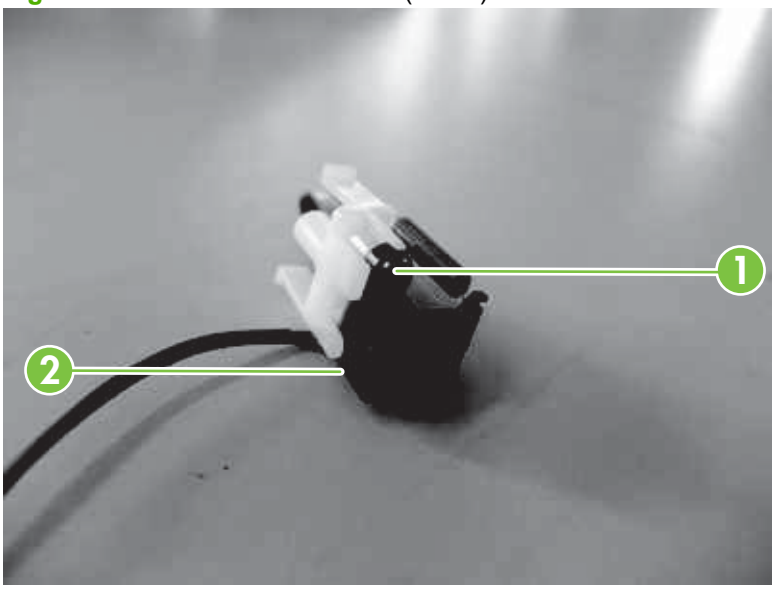
3. Remove one connector (callout 1) and then remove the lid sensor (callout 2).

Figure 6-193 Remove lid sensor (2 of 3)



4. Remove one screw (callout 1), and then remove the lid sensor (callout 2).

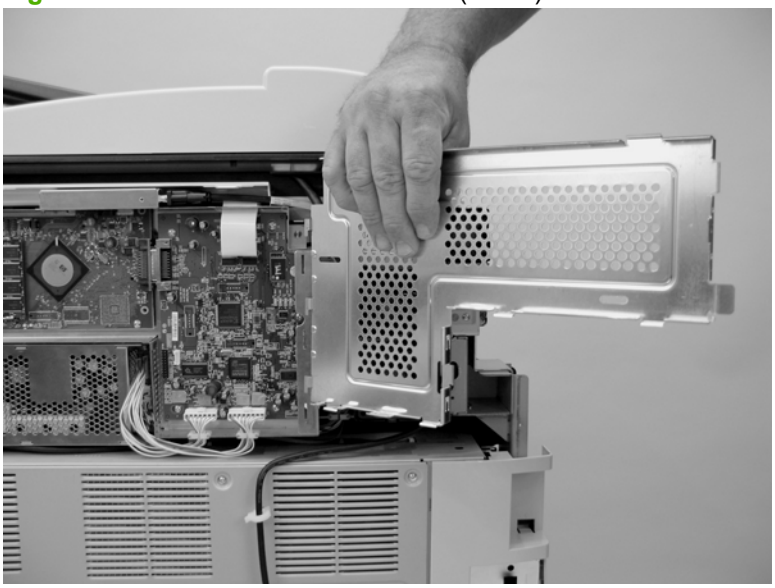
Figure 6-194 Remove lid sensor (3 of 3)



SCB, CPB, and SCUID

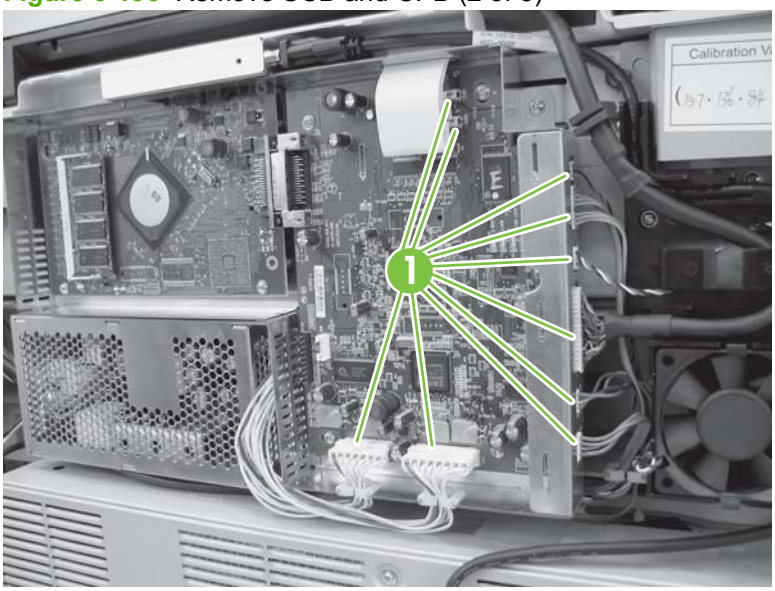
1. Remove the following:
   - Rear scanner cover. See Rear scanner cover on page 304.
2. Remove the cage door.

Figure 6-195 Remove SCB and CPB (1 of 5)



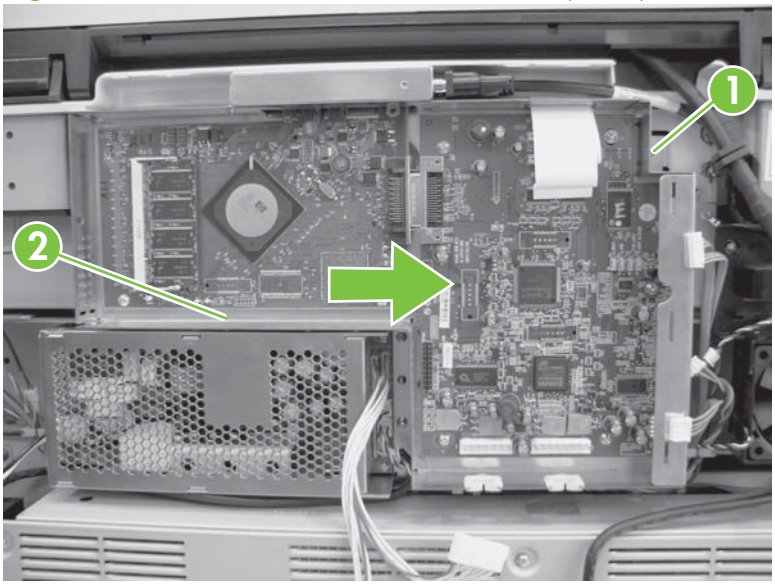
3. Disconnect ten connectors (callout 1).

Figure 6-196 Remove SCB and CPB (2 of 5)



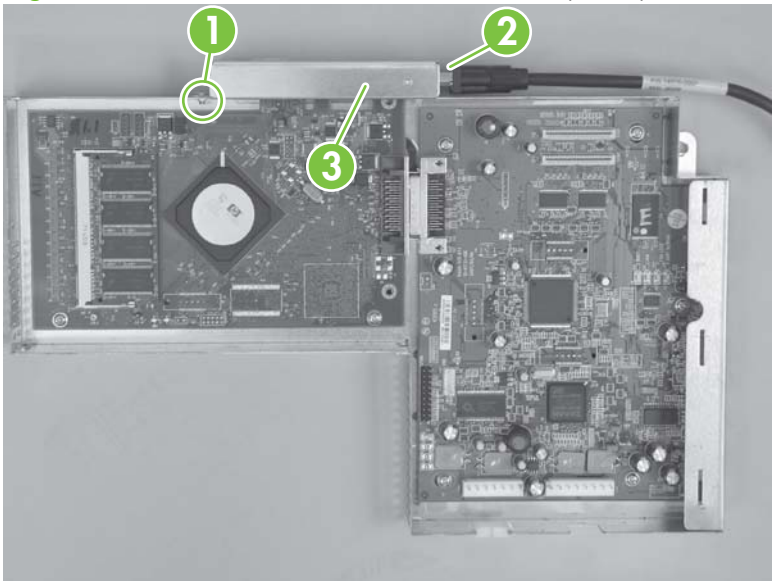
4. Remove one screw (callout 1), and then slide the cage assembly (callout 2) to the right to remove.

Figure 6-197 Remove SCB, CPB, and SCUID (3 of 5)



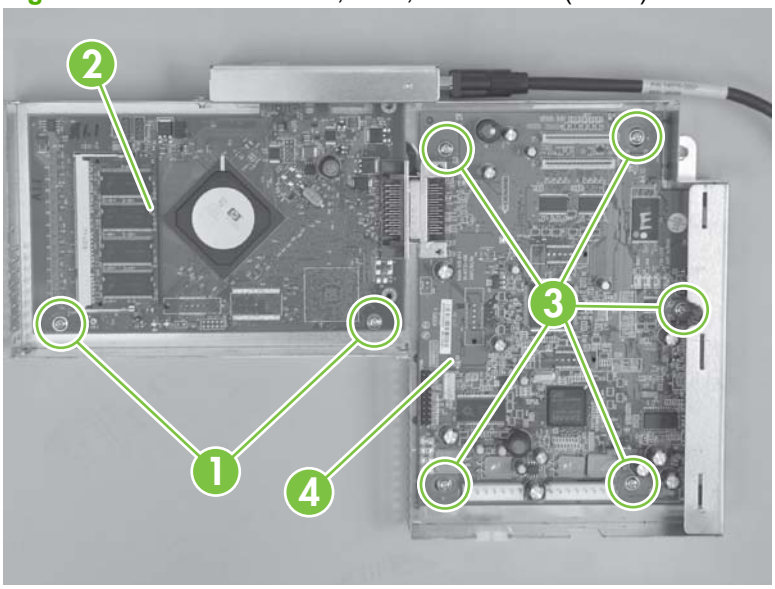
5. Remove one screw (callout 1), disconnect one cable (callout 2), and then remove the SCUID (callout 3).

Figure 6-198 Remove SCB, CPB, and SCUID (4 of 5)



6. Remove two screws (callout 1) and then slide the SCB (callout 2) to the left to remove. Remove five screws (callout 3), and then remove the CPB (callout 4).

Figure 6-199 Remove SCB, CPB, and SCUID (5 of 5)

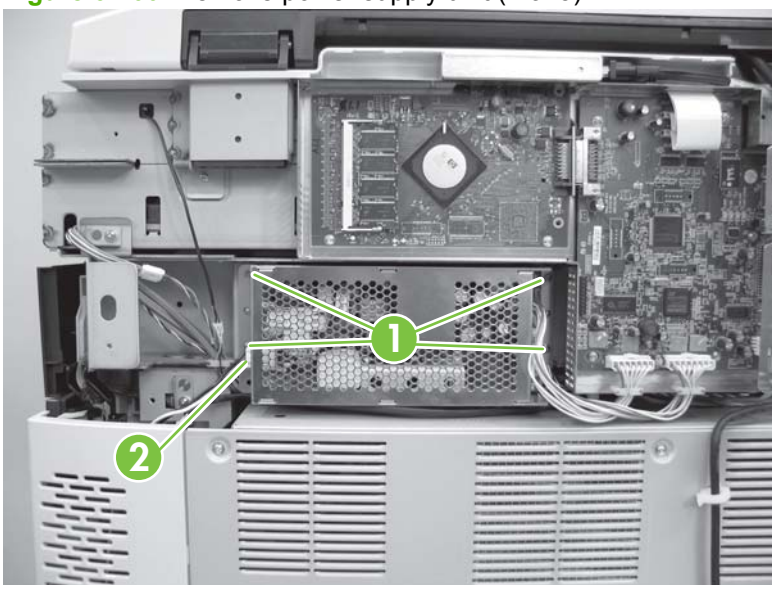


NOTE: When replacing the SCB, you may need to add jumpers to the SCB and perform a firmware update. See Configure the SCB when replacing the carriage unit, inverter, SCB, or optical scanner on page 374.

Power-supply unit

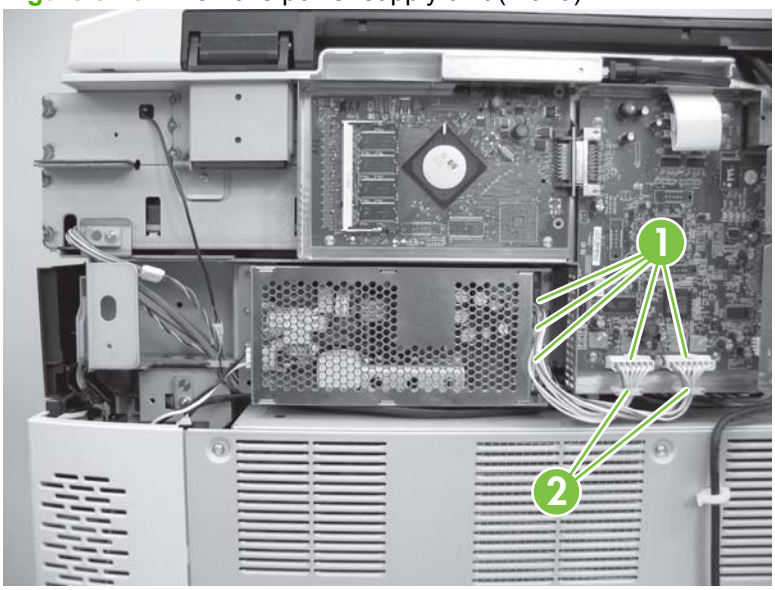
1. Remove the following:
   - Rear scanner cover. See Rear scanner cover on page 304.
2. Open the PCA cage.
3. Remove four screws (callout 1), and then release two wire harnesses (callout 2).

Figure 6-200 Remove power supply unit (1 of 3)



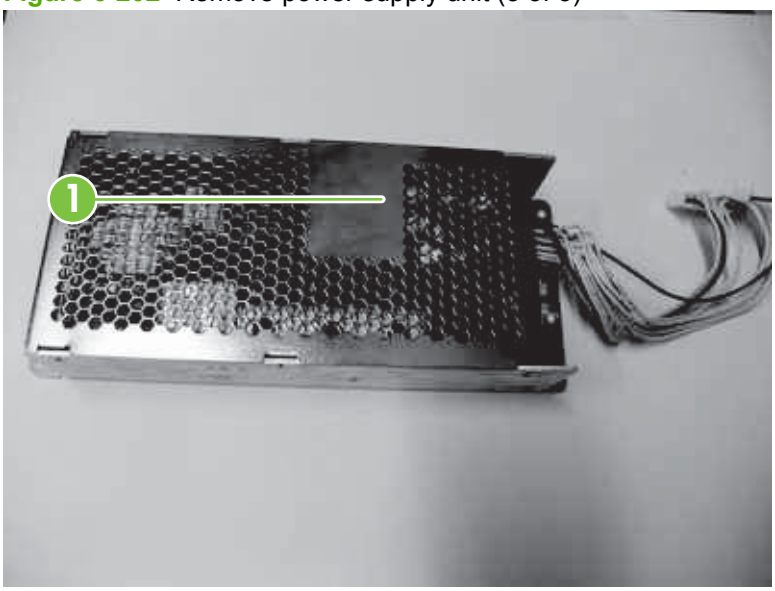
4. Disconnect five connectors (callout 1), and then release two wire harnesses.

Figure 6-201 Remove power supply unit (2 of 3)



5. Remove the power supply unit (callout 1).

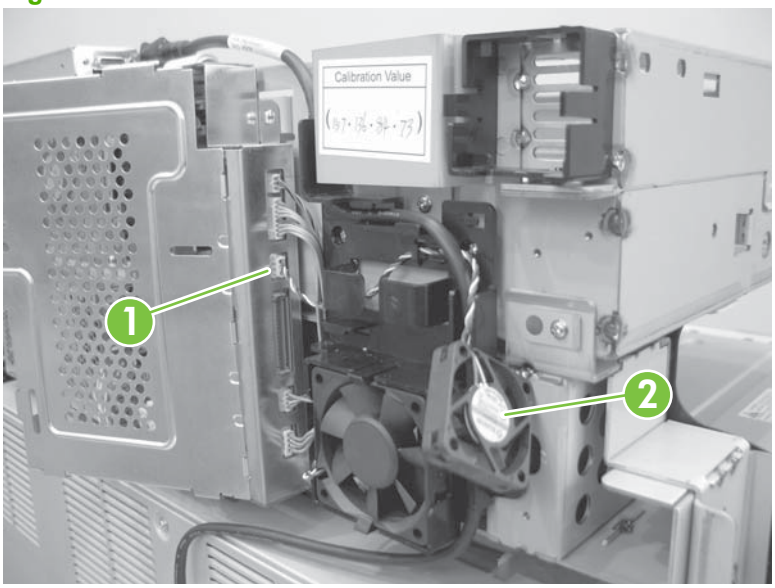
Figure 6-202 Remove power supply unit (3 of 3)



Scanner fan

1. Remove the following:
   - Rear scanner cover. See Rear scanner cover on page 304.
2. Remove one connector (callout 1), and then remove the fan (callout 2).

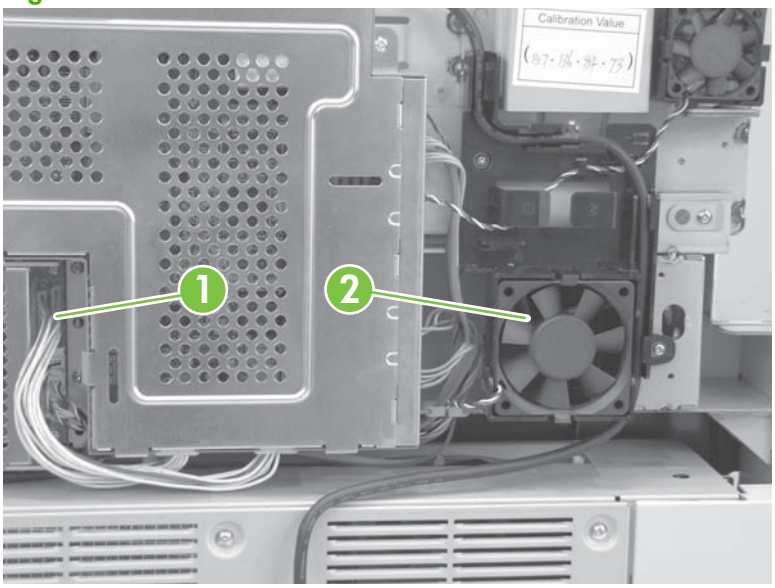
Figure 6-203 Remove scanner fan



SCB fan

1. Remove the following:
   - Rear scanner cover. See Rear scanner cover on page 304.
2. Disconnect one connector (callout 1), and then remove the fan (callout 2).

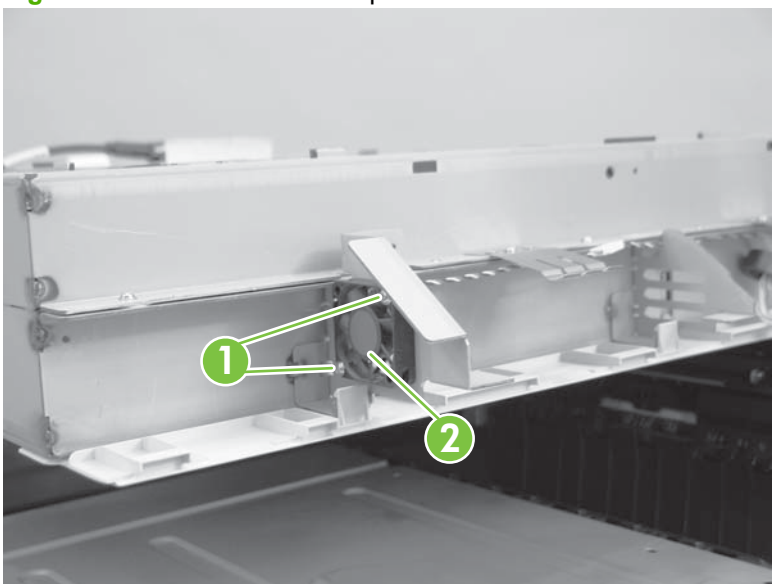
Figure 6-204 Remove the SCB fan



Control panel fan

1. Remove the following:
   - Front scanner cover. See Front scanner cover on page 362.
2. Remove two screws (callout 1), and then remove the fan (callout 2).

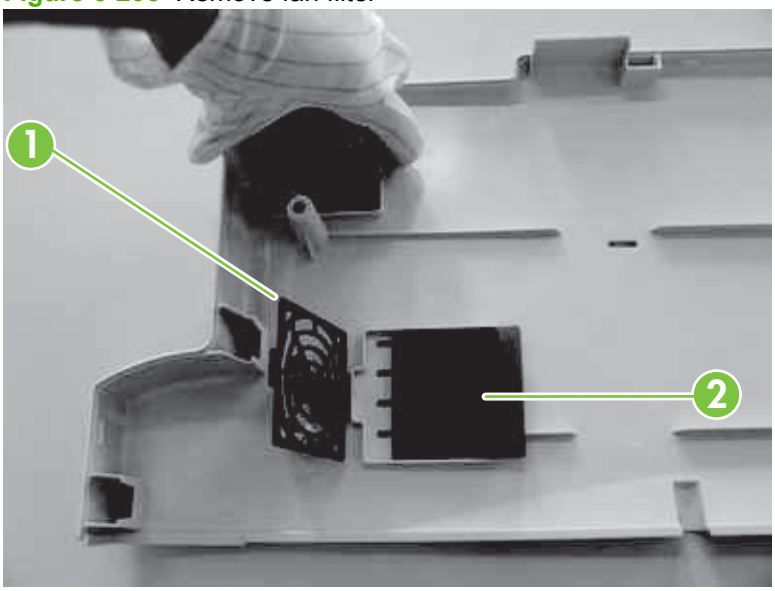
Figure 6-205 Remove control panel fan



Fan filter

1. Remove the following:
   - Rear scanner cover. See Rear scanner cover on page 304.
2. Remove two fan covers (callout 1), and then remove the fan filters (callout 2).

Figure 6-206 Remove fan filter

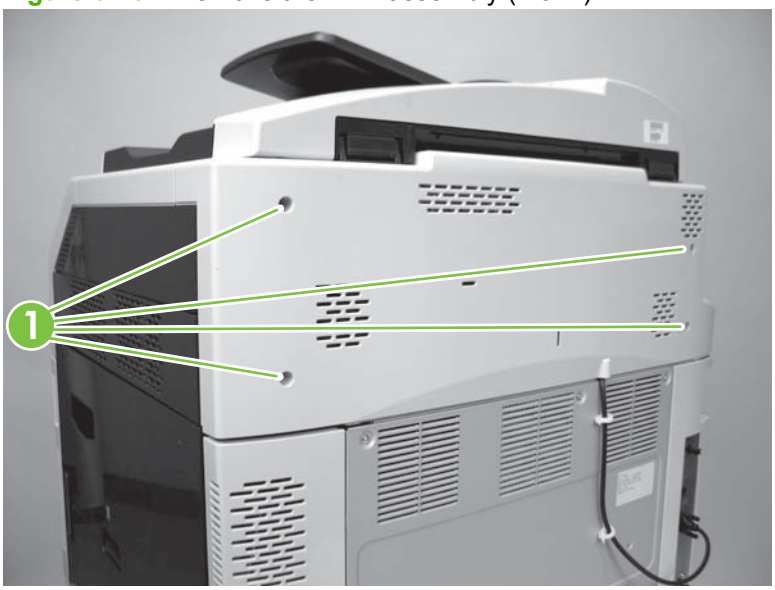


ADF

ADF assembly

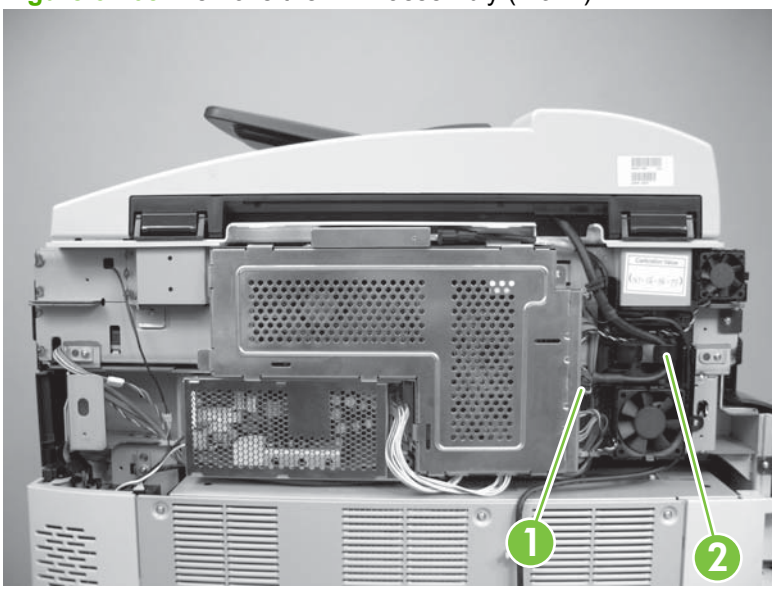
1. Remove four screws (callout 1) and four tabs, and then remove the SCB cover.

Figure 6-207 Remove the ADF assembly (1 of 4)



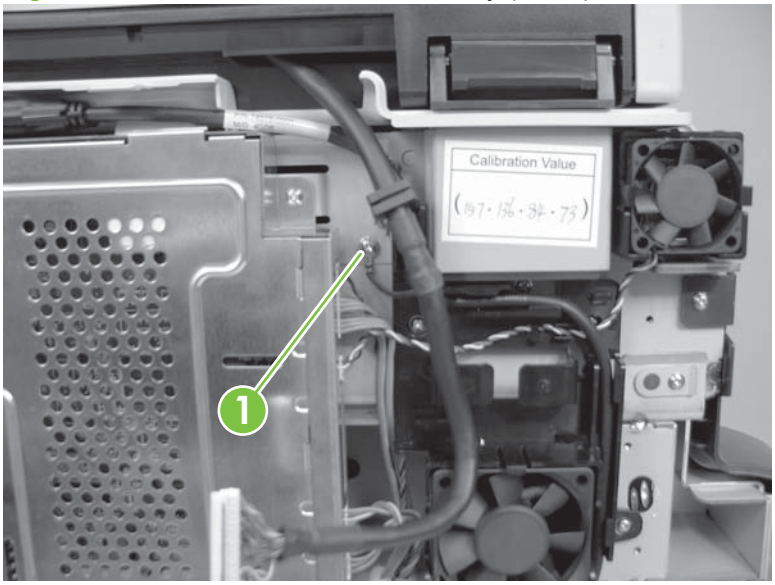
2. Disconnect one connector (callout 1) and release one wire retainer (callout 2).

Figure 6-208 Remove the ADF assembly (2 of 4)



3. Remove one ground screw (callout 1).

Figure 6-209 Remove the ADF assembly (3 of 4)



4. Lift the ADF up and off of the product.

NOTE: Be careful not to catch the ADF wire harness on the sharp edges of the plastic scanner covers.

Figure 6-210 Remove the ADF assembly (4 of 4)



ADF input tray sensors

1. Open the ADF jam cover and raise the ADF input tray into the upright position. Remove two screws (callout 1), and then carefully remove the input tray back plate (callout 2).

TIP: The grounding clip on the rear mounting screw is not captive. Do not lose this clip when the screw is removed.

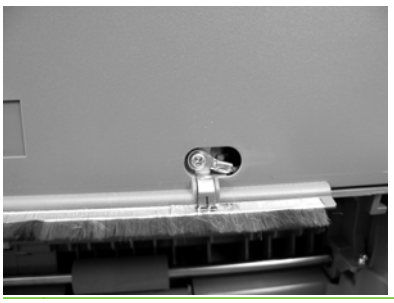
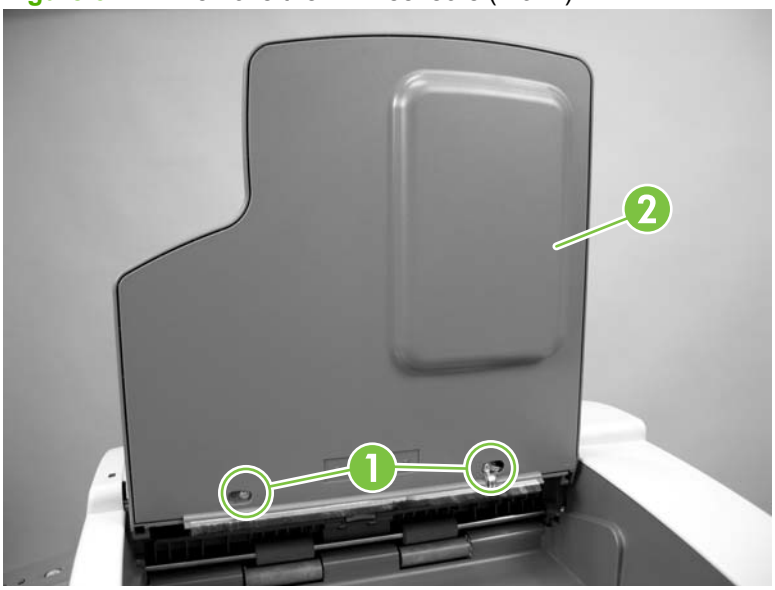
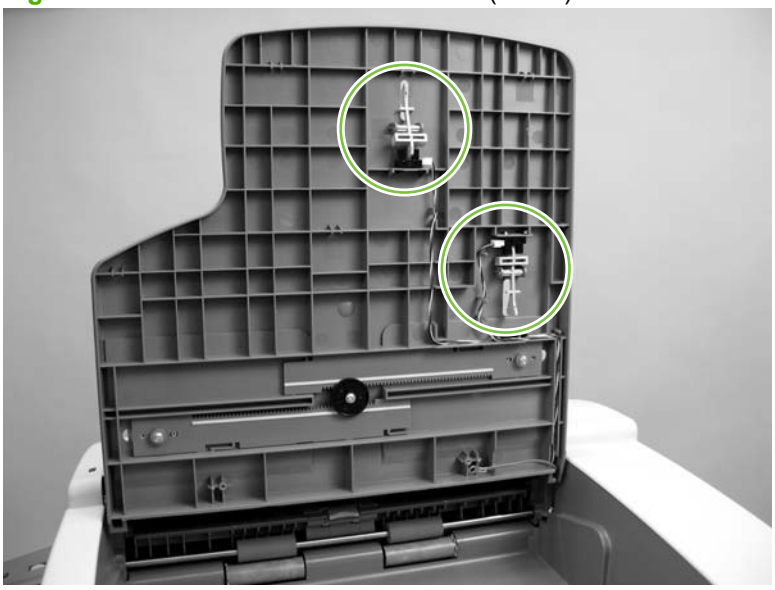


Figure 6-211 Remove the ADF sensors (1 of 2)



2. Disconnect the sensor connector and carefully remove the sensor. Repeat this step for the remaining sensor.

Figure 6-212 Remove the ADF sensors (2 of 2)



Separation floor assembly

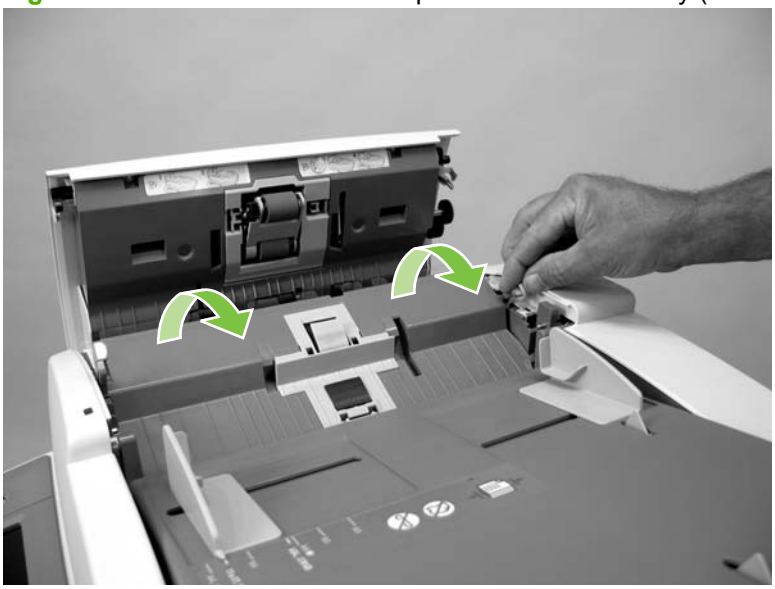
1. Open the ADF jam cover.

Figure 6-213 Remove the ADF separation floor assembly (1 of 4)



2. Rotate the separation floor assembly into the upright position.

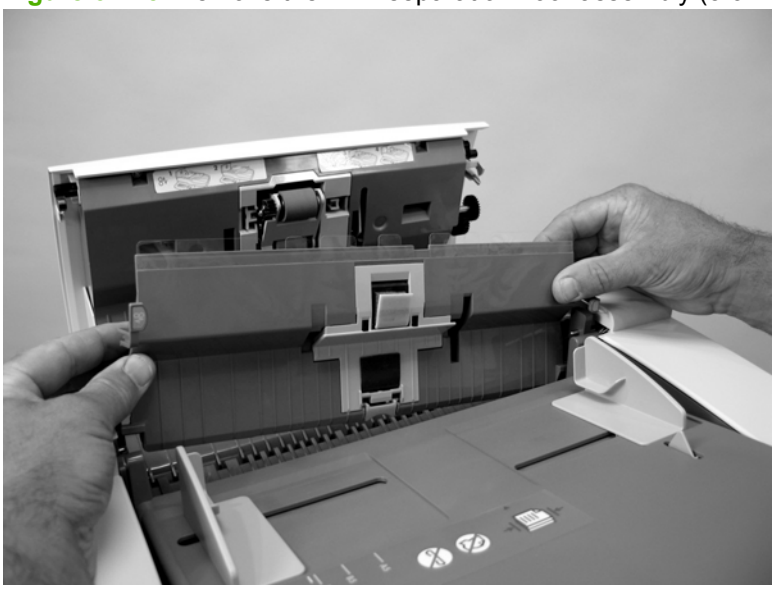
Figure 6-214 Remove the ADF separation floor assembly (2 of 4)



3. Lift up on the end of the separation floor assembly nearest the front of the device to release the keyed hinge pin.

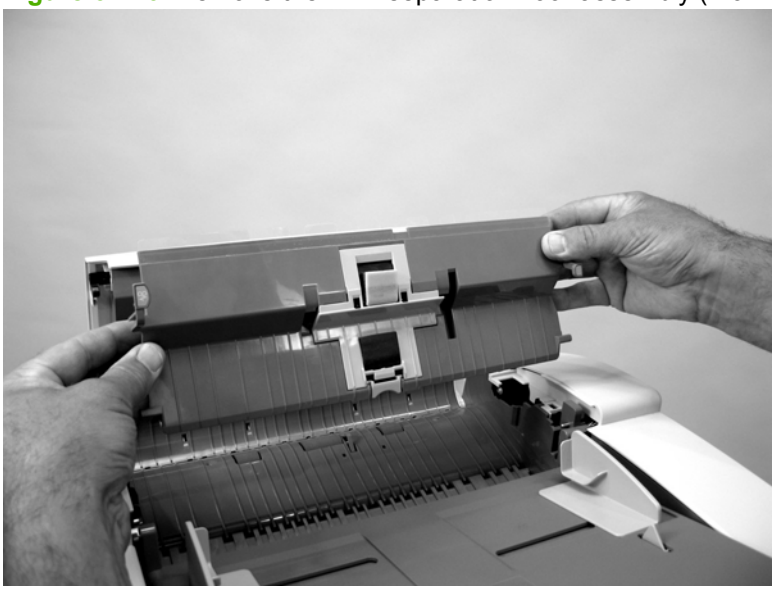
TIP: When you reinstall the separation floor assembly, make sure that the keyed hinge pin is fully seated in the ADF assembly.

Figure 6-215 Remove the ADF separation floor assembly (3 of 4)



4. Slide the separation floor assembly toward the front of the device to release the rear hinge pin and remove the assembly.

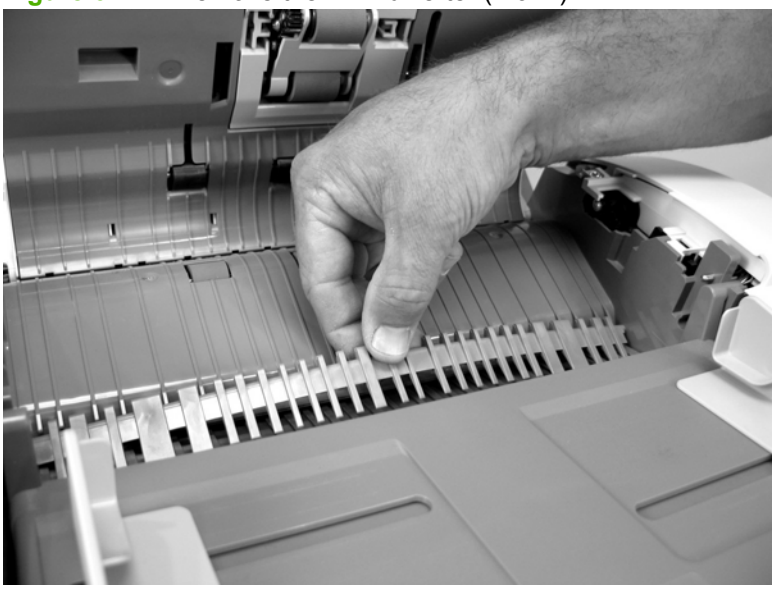
Figure 6-216 Remove the ADF separation floor assembly (4 of 4)



Diverter

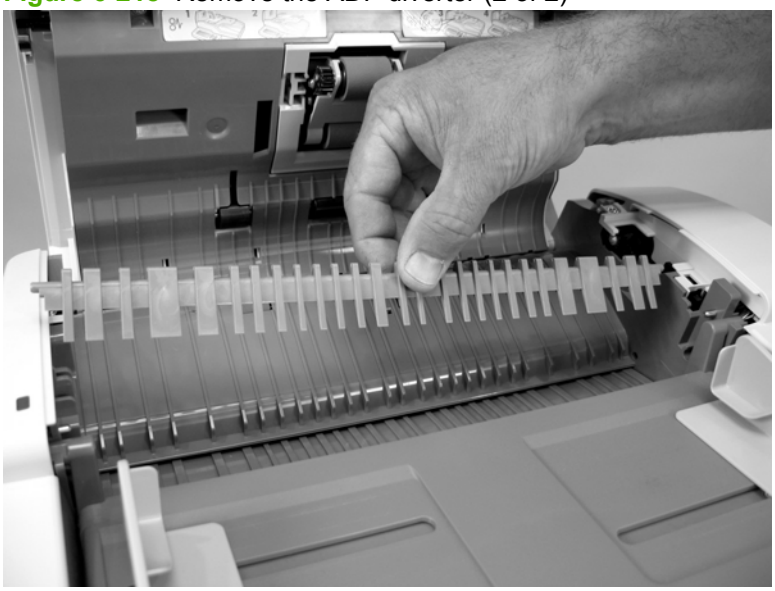
1. Remove the ADF separation floor assembly. See Separation floor assembly on page 397.
2. Grasp the middle of the diverter and gently flex it up and away from the ADF.

Figure 6-217 Remove the ADF diverter (1 of 2)



3. Flex the diverter until you can release the pin nearest the front of the device, and then remove the diverter.

Figure 6-218 Remove the ADF diverter (2 of 2)



Jam cover

1. Open the ADF jam cover.

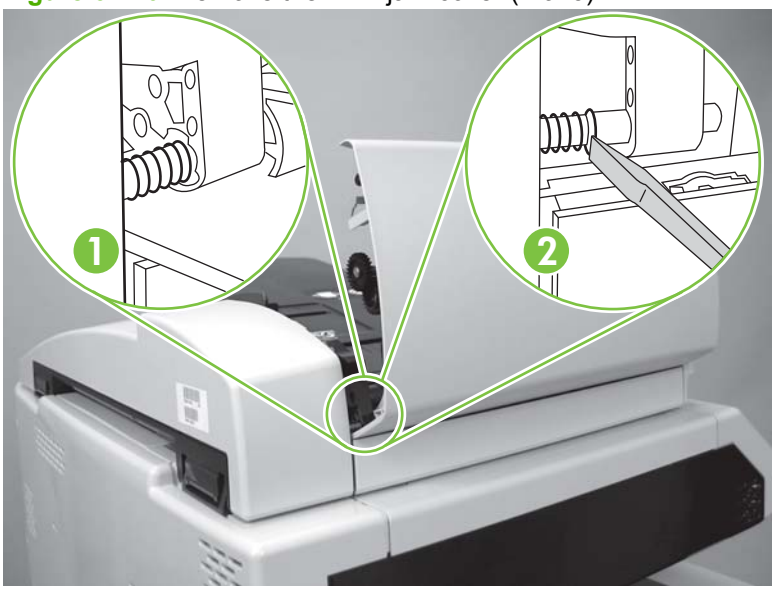
Figure 6-219 Remove the ADF jam cover (1 of 3)



2. Use a small flat-blade screw driver to rotate the retainer clip on the rear jam cover hinge pin until the groove in the shaft is exposed (callout 1). Place the tip of a small flat-blade screwdriver in the groove in the shaft and slide the shaft toward the back of the printer to release the cover (callout 2).

NOTE: Be careful not to damage the spring or dislodge the retainer clip. Slightly closing and opening the jam cover might make the shaft easier to move.

Figure 6-220 Remove the ADF jam cover (2 of 3)



3. Rotate the jam cover up and away from the ADF to remove it.

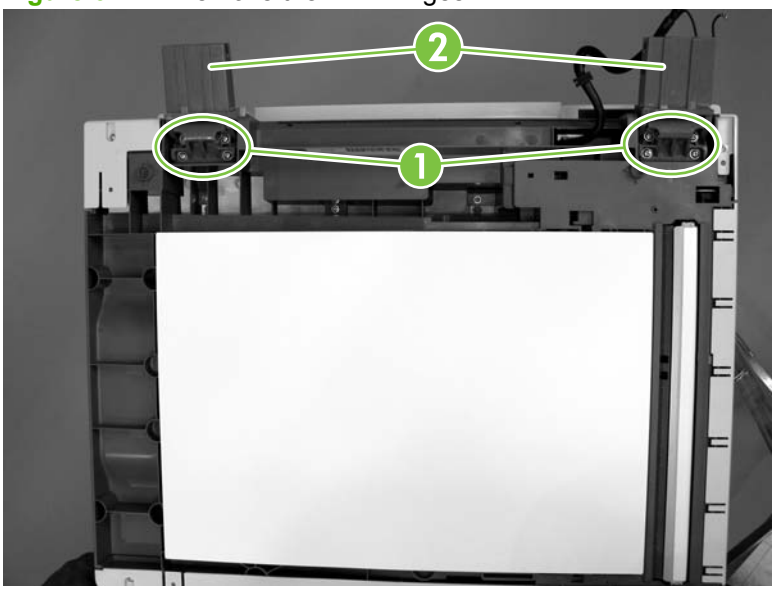
Figure 6-221 Remove the ADF jam cover (3 of 3)



Hinge assemblies

1. Remove the ADF and lay it upside down on a flat surface. See ADF assembly on page 393.
2. Remove eight screws (callout 1) and remove the ADF hinges (callout 2).

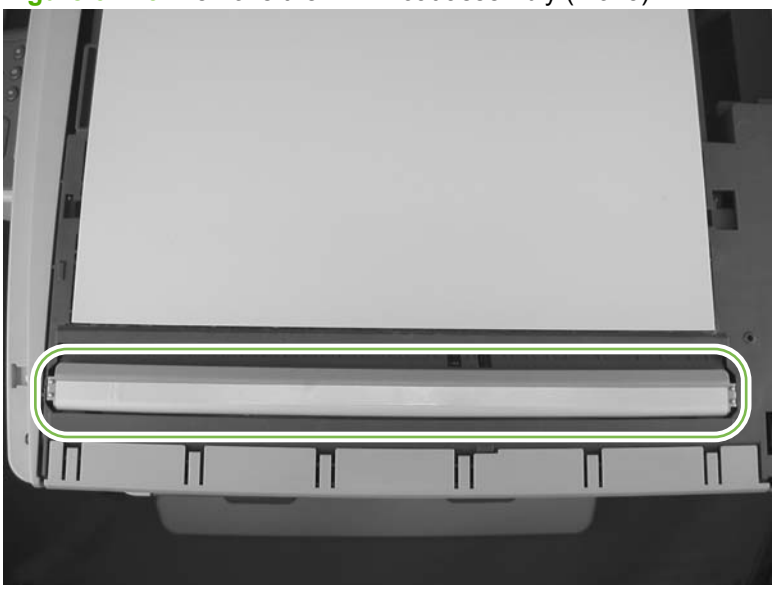
Figure 6-222 Remove the ADF hinges



Float assembly

1. Remove the ADF and lay it upside down on a flat surface. See ADF assembly on page 393.
2. Locate the float assembly.

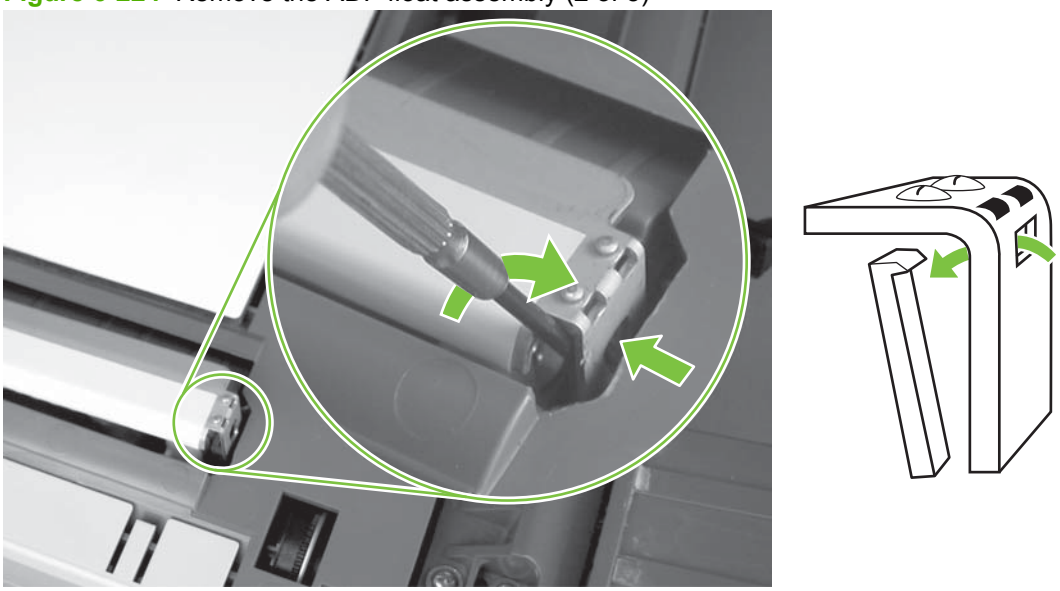
Figure 6-223 Remove the ADF float assembly (1 of 5)



3. Release one tab at the hinge end of the float assembly and carefully rotate the end of the assembly up and away from the ADF.

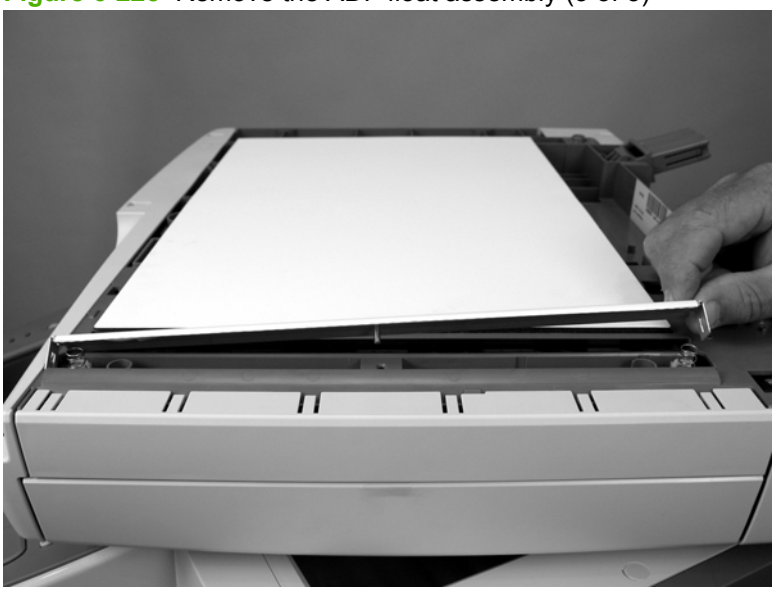
△ **CAUTION:** The springs behind the float assembly are not captive and can easily be lost. Always remove the ADF and place it upside down on a flat surface before you remove the float assembly.

Figure 6-224 Remove the ADF float assembly (2 of 5)



4. Release the tab at the opposite end of the float assembly and remove the assembly.

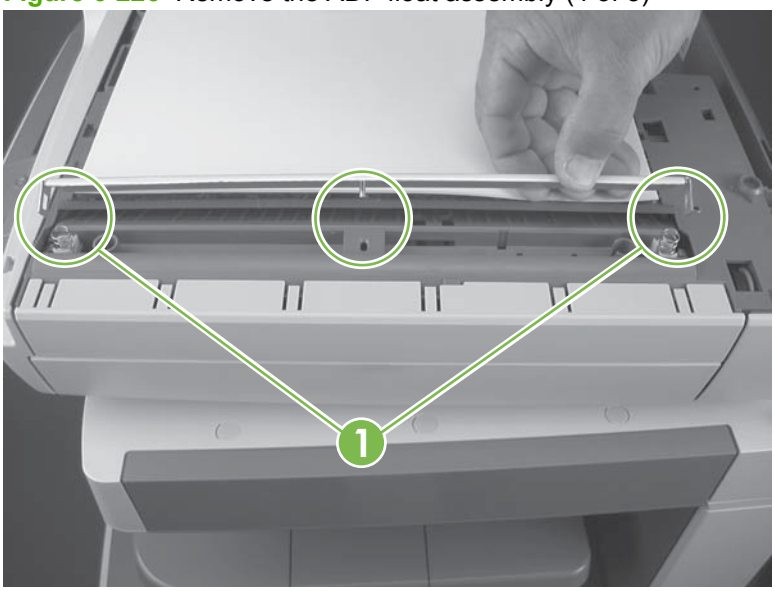
Figure 6-225 Remove the ADF float assembly (3 of 5)



5. Make sure that the springs are correctly seated in the spring holders (callout 1) when you reinstall the float assembly. The springs must be installed in the spring holders that are located closest to the locking tabs.

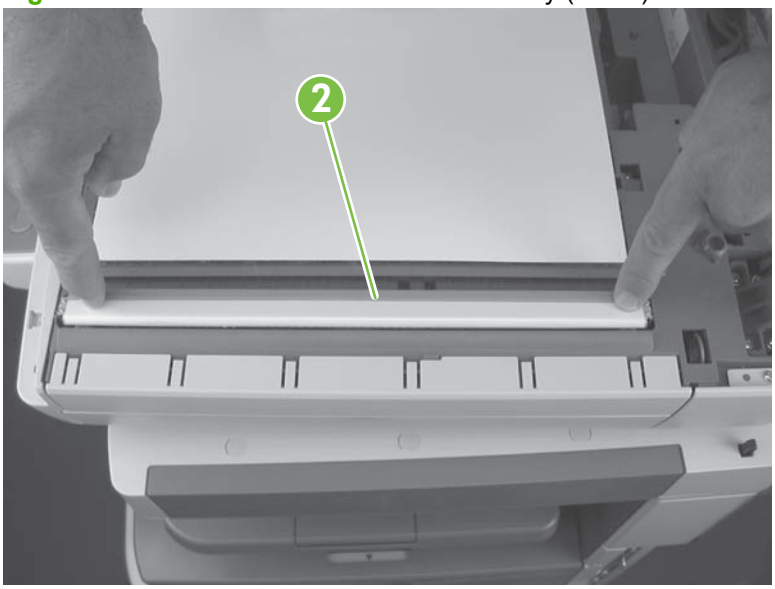
△ **CAUTION:** The pin on the bottom of the float must be placed in the hole in the ADF chassis. Make sure the pin is correctly positioned to prevent the float from being damaged when you press down on the float.

Figure 6-226 Remove the ADF float assembly (4 of 5)



6. Make sure that the metal strip (callout 2) along the edge of the float is next to the white backing when you reinstall the float. Push down on the float until the clips snap over the locking tabs at each end of the float.

Figure 6-227 Remove the ADF float assembly (5 of 5)



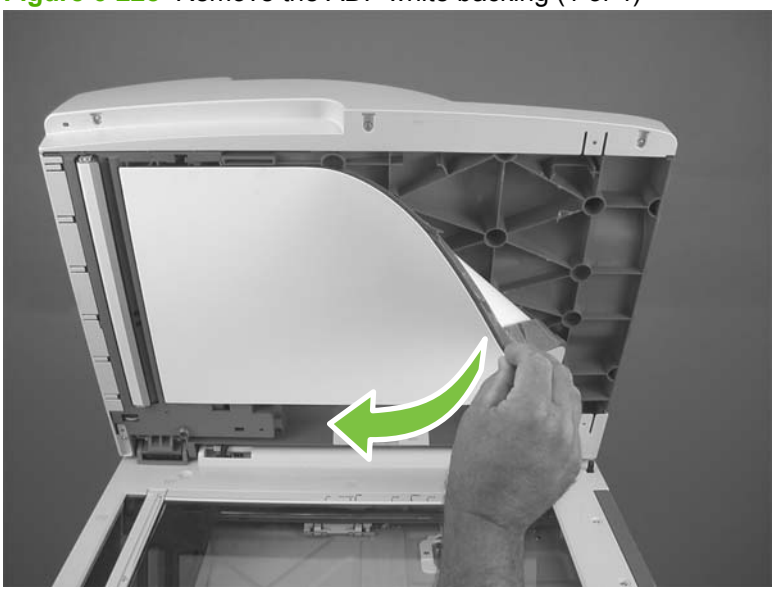
TIP: When the float assembly and springs are correctly reinstalled, the float should freely move up and down when you push on it with your finger.

White backing

1. Open the ADF.
2. Carefully pull the white backing off the ADF.

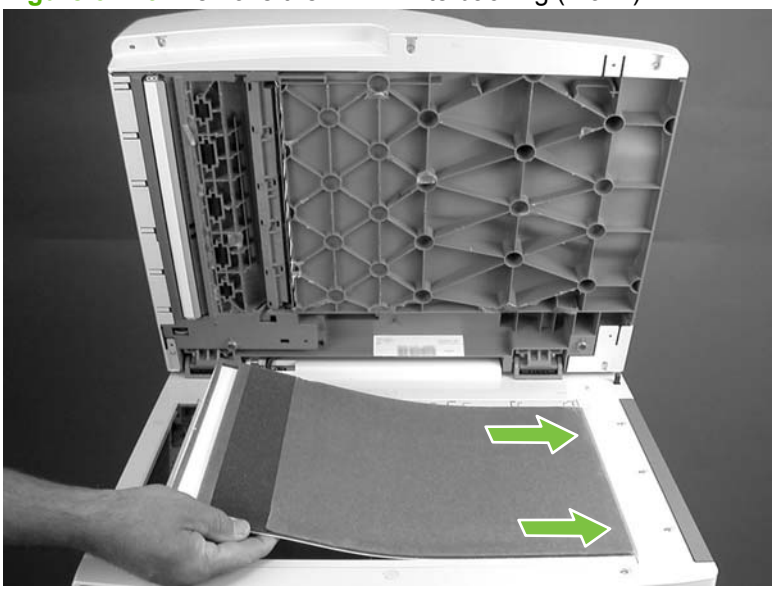
TIP: Make sure that you remove any small pieces of foam or adhesive left on the ADF after the backing is removed.

Figure 6-228 Remove the ADF white backing (1 of 4)



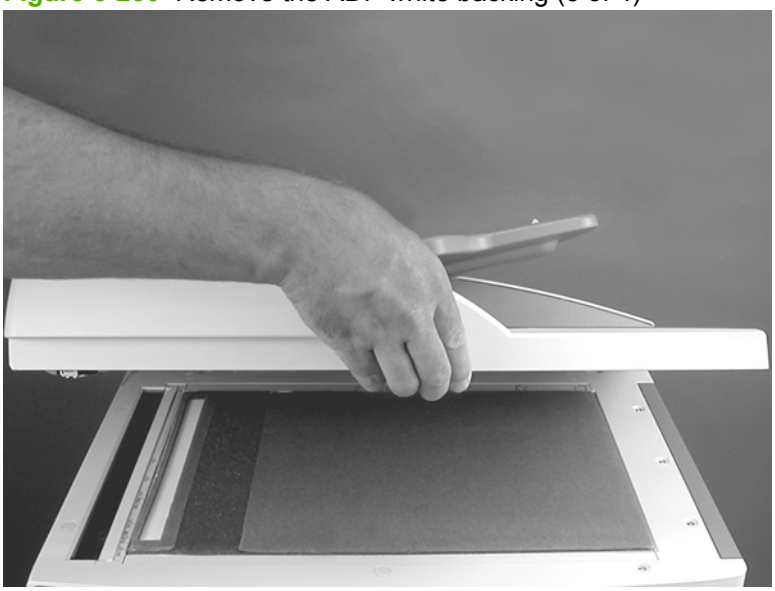
3. Remove the protective paper backing from the adhesive side of the replacement white backing.
4. Place the replacement backing on the scanner glass. Center the replacement backing on the glass.

Figure 6-229 Remove the ADF white backing (2 of 4)



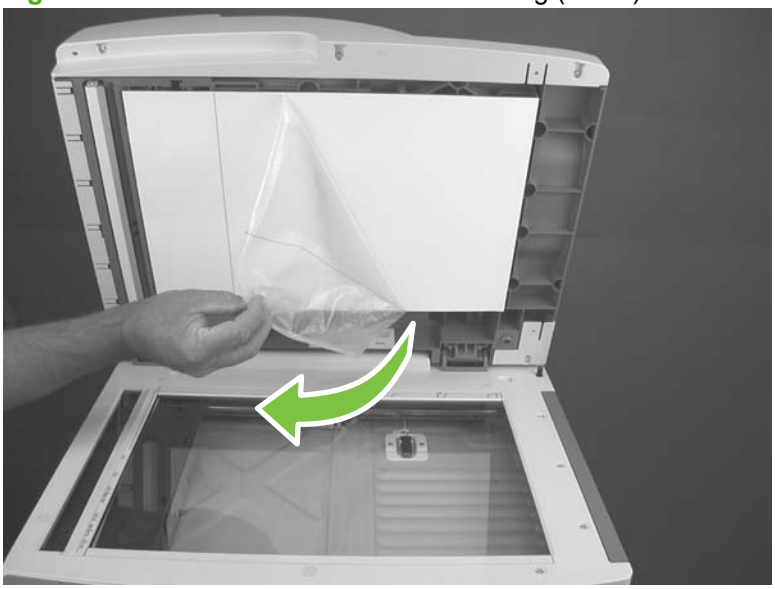
5. Close the ADF. Push down firmly to adhere the replacement backing to the ADF.

Figure 6-230 Remove the ADF white backing (3 of 4)



6. Open the ADF and carefully remove the protective plastic covering from the backing.

Figure 6-231 Remove the ADF white backing (4 of 4)

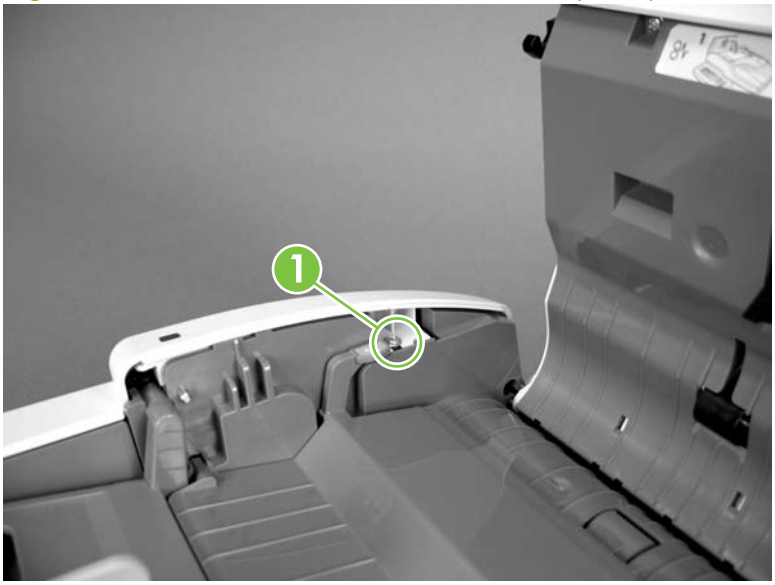


Front end cover (cap)

1. Remove the ADF. See ADF assembly on page 393.
2. Open the ADF jam cover and remove one screw (callout 1).

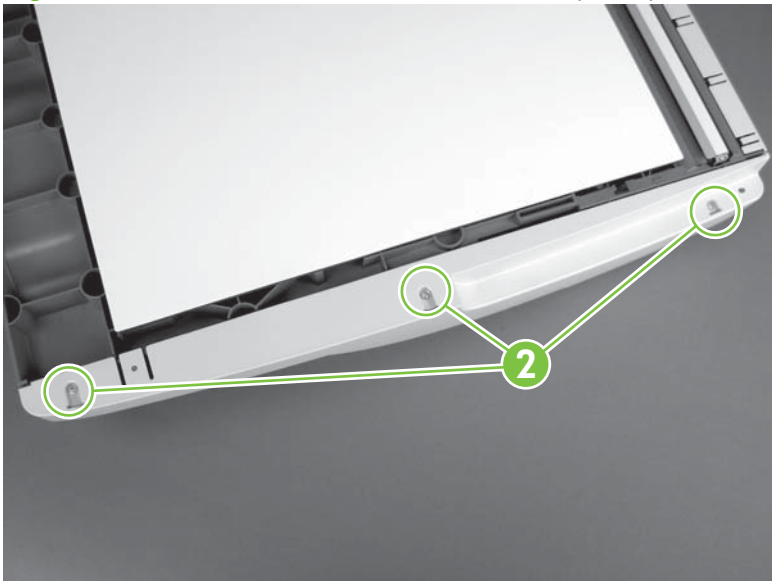
TIP: This screw has a star washer. Make sure that you use the correct screw when you reinstall the front end cover.

Figure 6-232 Remove the ADF front end cover (1 of 4)



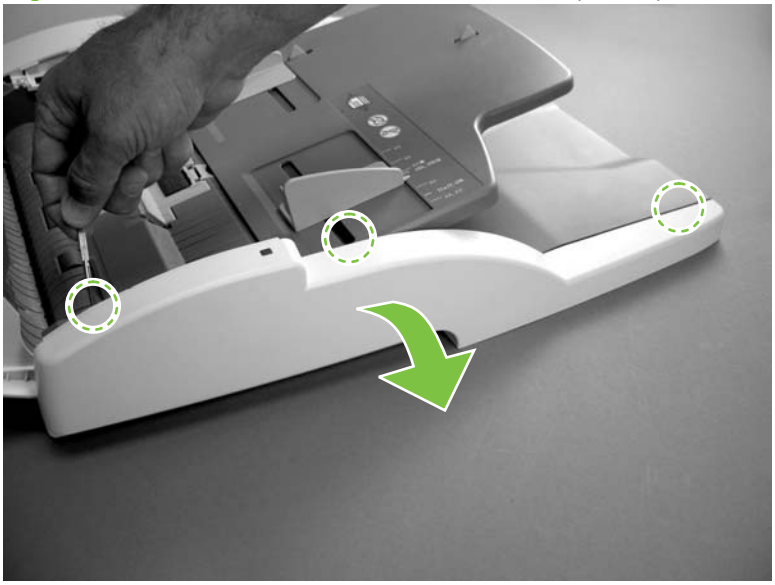
3. Turn the ADF over and remove three screws (callout 2).

Figure 6-233 Remove the ADF front end cover (2 of 4)



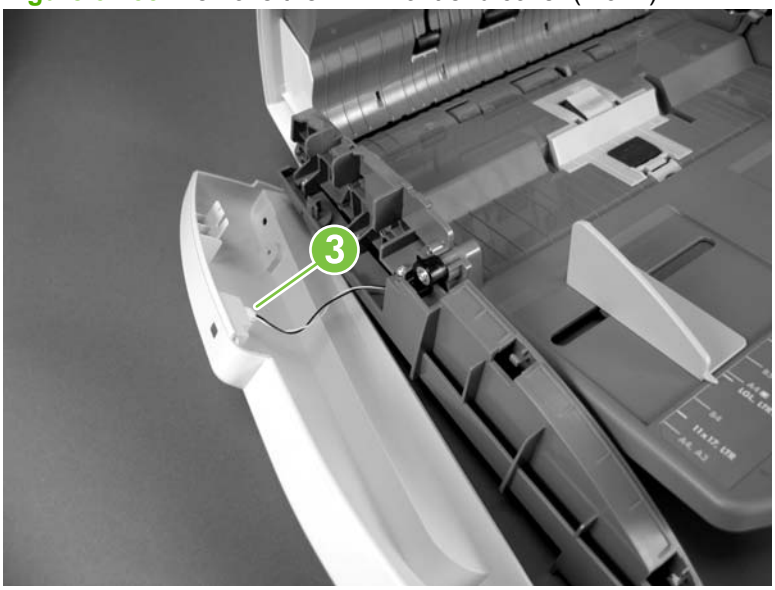
4. Use a small flat-blade screwdriver to carefully release three locking tabs.

Figure 6-234 Remove the ADF front end cover (3 of 4)



5. Carefully rotate the front end cover off and away from the ADF and disconnect one connector (callout 3).

Figure 6-235 Remove the ADF front end cover (4 of 4)

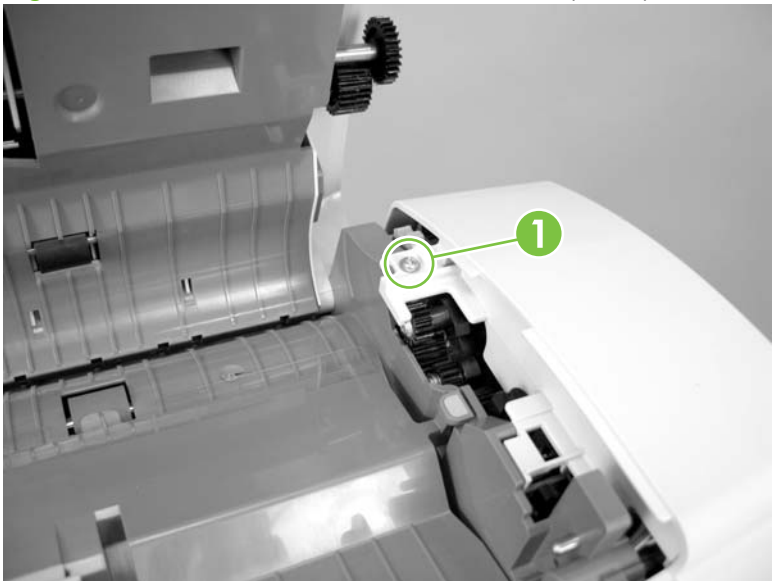


Rear end cover (cap)

1. Remove the ADF. See ADF assembly on page 393.
2. Open the ADF jam cover and remove one screw (callout 1).

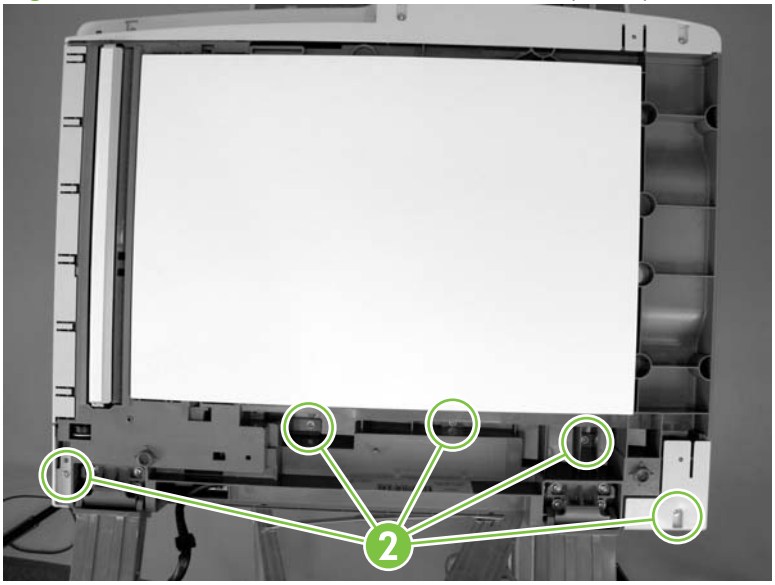
TIP: This screw has a star washer. Make sure that you use the correct screw when you reinstall the rear end cover.

Figure 6-236 Remove the ADF rear end cover (1 of 5)



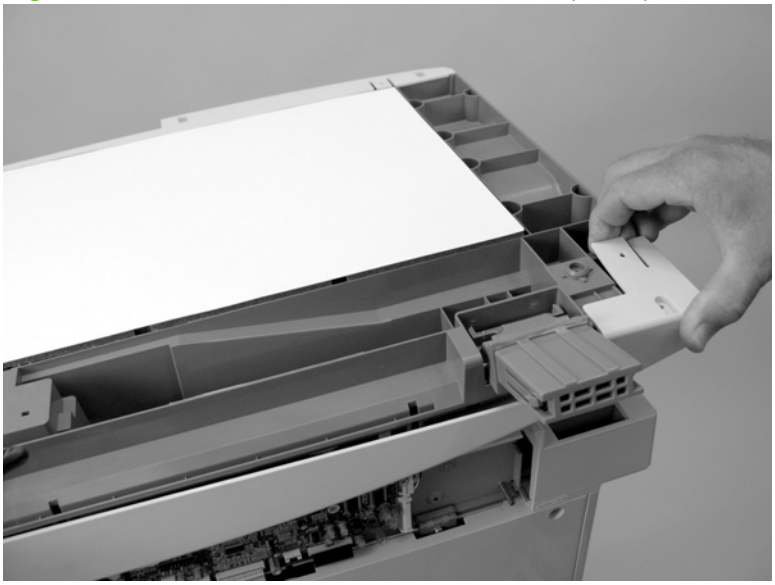
3. Turn the ADF over and remove five screws (callout 2).

Figure 6-237 Remove the ADF rear end cover (2 of 5)



4. Carefully pry the corner of the rear end cover off of the ADF.

Figure 6-238 Remove the ADF rear end cover (3 of 5)



5. Use a small flat-blade screwdriver to carefully pry the opposite corner of the rear end cap off of the ADF.

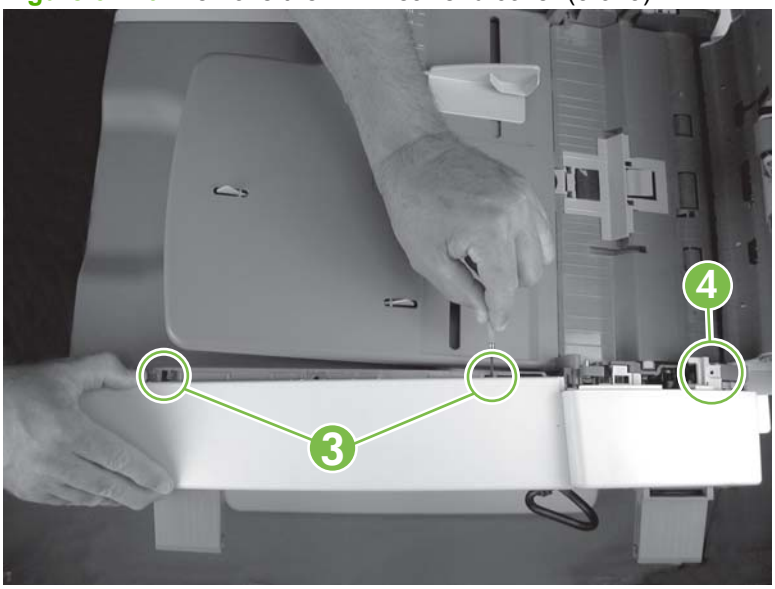
Figure 6-239 Remove the ADF rear end cover (4 of 5)



6. Carefully release two tabs (callout 3) along the top edge of the rear end cover and rotate the cover off and away from the ADF.

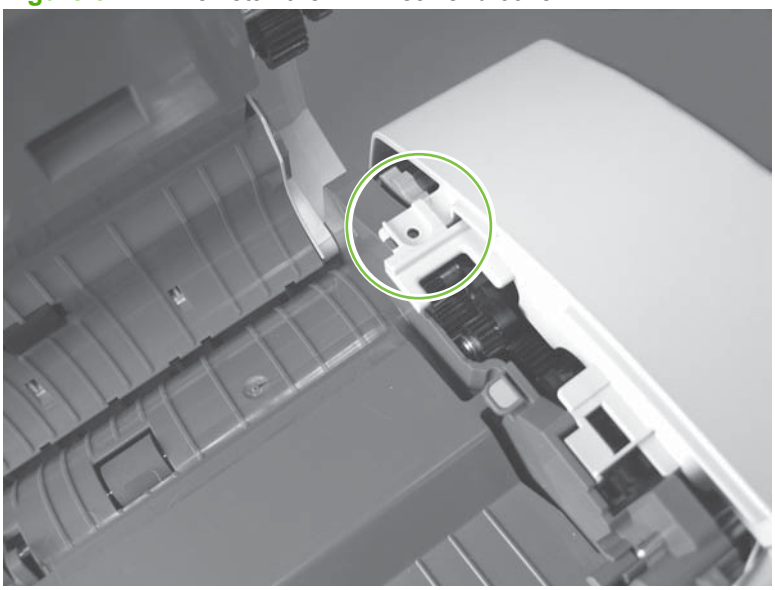
NOTE: Before you remove the cover, look at how the tab on the cover fits underneath the tab on the ADF chassis (callout 4). Make sure that you do not break the tabs when you remove the cover.

Figure 6-240 Remove the ADF rear end cover (5 of 5)



7. When you reinstall the ADF rear end cover, the tab on the cover near the ADF jam access door **must** be positioned under the tab on the ADF chassis.

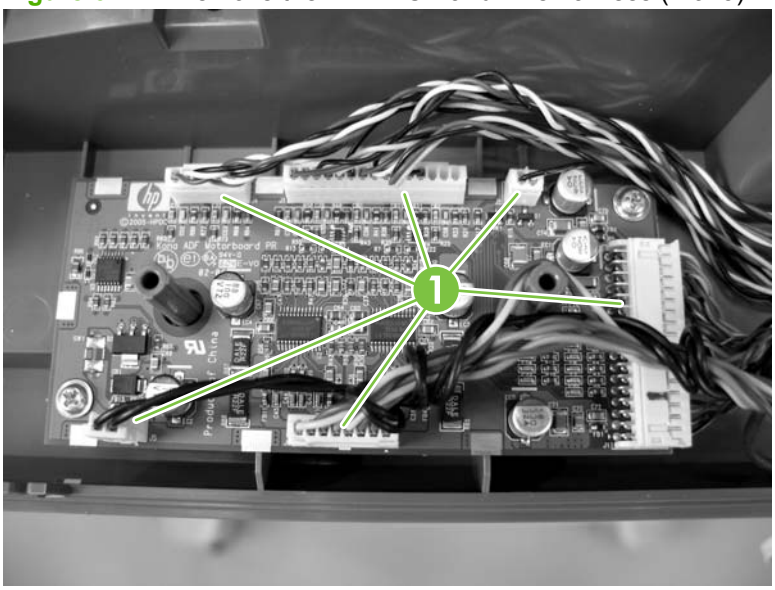
Figure 6-241 Reinstall the ADF rear end cover



ADF PCA and wire harness

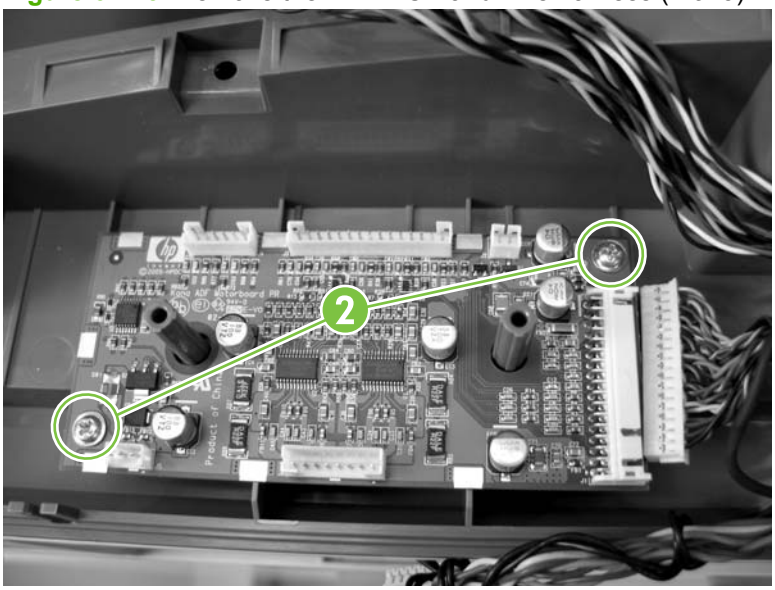
1. Remove the ADF rear end cap. See Rear end cover (cap) on page 410.
2. Disconnect six connectors (callout 1).

Figure 6-242 Remove the ADF PCA and wire harness (1 of 3)



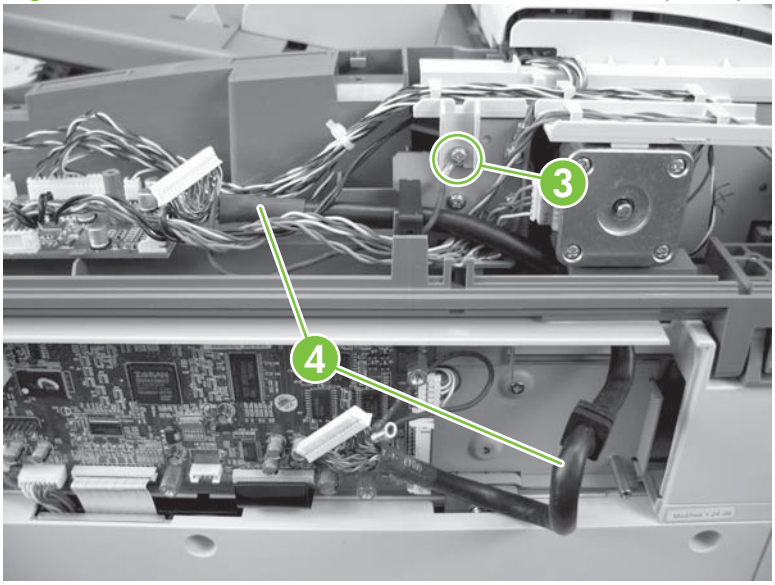
3. Remove two screws (callout 2) and remove the ADF PCA.

Figure 6-243 Remove the ADF PCA and wire harness (2 of 3)



4. Remove one ground screw (callout 3) and remove the ADF PCA wire harness (callout 4).

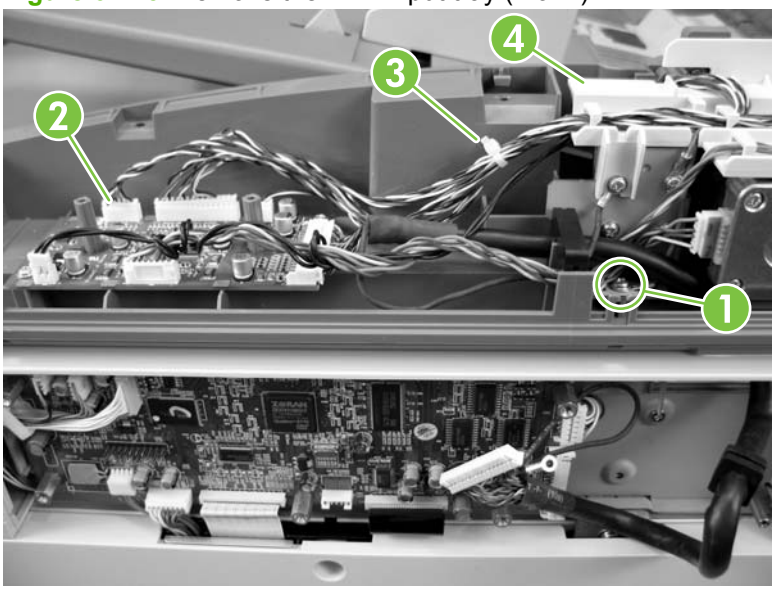
Figure 6-244 Remove the ADF PCA and wire harness (3 of 3)



Input tray

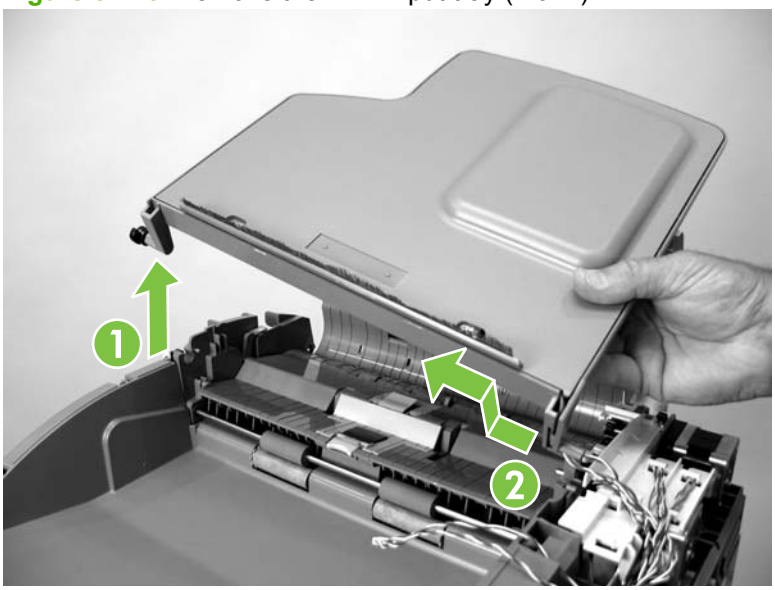
1. Remove the following components or assemblies:
   - ADF front end cap. See Front end cover (cap) on page 408.
   - ADF rear end cap. See Rear end cover (cap) on page 410.
2. Remove one ground screw (callout 1) and disconnect one connector (callout 2).
3. Clip one wire tie (callout 3) and release the ground cable and wire harness from the retainer (callout 4).

Figure 6-245 Remove the ADF input tray (1 of 2)



4. Rotate the input tray into the upright position and release the keyed hinge pin nearest the front of the ADF. Slide the tray toward the front of the ADF until the rear hinge pin clears the mounting hole, and then remove the input tray.

Figure 6-246 Remove the ADF input tray (2 of 2)



7 Solve problems

- Introduction
- Troubleshooting process
- Tools for troubleshooting
- Solve performance problems
- Solve connectivity problems
- Control-panel message types
- Control-panel messages
- Event log messages
- Paper-handling problems
- Solve image quality problems
- Interface troubleshooting
- Engine diagnostics
- Service-mode functions
- Solve scanner problems
- Solve fax problems
- Solve e-mail problems
- Diagrams
- Signals

Introduction

The information in this troubleshooting chapter is presented with the assumption that the reader has a basic understanding of the color laser-printing process. Explanations of each mechanical assembly, printer systems, and the basic theory of operation are provided in chapter 5. Do not perform any of these troubleshooting processes without fully understanding the function of each mechanism.

This chapter contains the following sections:

- **Troubleshooting process** includes a pre-troubleshooting checklist and a troubleshooting flowchart. These tools contain information about common printer errors that can inhibit proper operation or create print-quality problems. These tools also include recommendations for solving the cause of the error.
- **Tools for troubleshooting** helps isolate the cause of product failures. This section includes explanations of the product configuration page and the event log.
- **Solve performance problems** lists types of performance problems, their causes and solutions.
- **Solve connectivity problems** lists types of connectivity problems and possible solutions.
- **Control-panel message types** lists the types of control-panel messages.
- **Control-panel messages** explains each control-panel display message and suggests recommendations for clearing the cause of each message. When the printer message indicates a failure for which the root cause is not obvious, use the printer error troubleshooting section and the troubleshooting tools section in this chapter to solve the problem.
- **Event log messages** lists possible event log messages.
- **Paper handling problems** provides techniques to solve feed problems. Explanations are provided about print media checks, troubleshooting jams, and the differences between jams caused by media and those caused by the product.
- **Solve image-quality problems** suggests methods for solving print-quality problems.
- **Interface troubleshooting** provides techniques for isolating communication problems to the product hardware, printer configuration, network configuration, or software program.
- **Diagnostics** provides instructions about how to gain access to and use the diagnostic tools that are incorporated into the product.
- **Service-mode functions** provides procedures for opening the Service menu and performing service-oriented tasks. These tasks include counts for entering the serial number, service ID, transfer unit maintenance, fuser maintenance, color page, and total page, and clearing the event log.
- **Solve scanner problems** provides solutions to problems with scanning.
- **Solve fax problems** provides a link to additional information for troubleshooting fax problems.
- **Solve e-mail problems** provides solutions to problems with e-mail.
- **Diagrams** provides graphical locations and tables for the product's internal assemblies and sensors.

Troubleshooting process

Determine the problem source

When the product malfunctions or encounters an unexpected situation, the product control panel alerts you to the situation. This section contains a pre-troubleshooting checklist to filter out many possible causes of the problem and a troubleshooting flowchart to help you diagnose the root cause. The remainder of the chapter provides steps for correcting 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? Print a supplies status page.
- Does the configuration page reveal any configuration errors? Print a configuration page. See Configuration pages on page 427.

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

Pre-troubleshooting checklist

The list below describes basic questions to ask the customer to help quickly define the problem(s).

Table 7-1 Pre-troubleshooting checklist

Environment	• Is the product installed on a solid, level surface? • Is the product exposed to particle matter or dust? • Is the product connected to a dedicated 15 amp (min) circuit? • Is the power-supply voltage within ± 10 volts of the specified power source? • Is the power supply plug inserted in the product and directly to the wall outlet (not a power strip)? • Is the operating environment within the specified parameters, as listed in Chapter 1 of this manual? • Is the product exposed to ammonia gas, such as that produced by diazo copiers or office cleaning materials? • Is the product exposed to direct sunlight?
Media	• Does the customer use only supported media? • Is the media in good condition (contains no curls, folds, and so forth)? • Is the media stored correctly and within environmental limits?

Table 7-1 Pre-troubleshooting checklist (continued)

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 paper tray correctly installed in the product?
Print cartridges	• Is each print cartridge correctly installed? • Are original HP print cartridges installed? • Are the cartridges damaged?
ITB and fuser	• Are the ITB and fuser correctly installed? • Is the ITB or fuser damaged?
Covers	• Are the top cover and front cover closed?
Condensation	• Does condensation occur following a temperature change (particularly in winter following cold storage)? If so, wipe the 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 product to sit at room temperature for one to two hours, or overnight if possible.
Miscellaneous	• Check for and remove any non-HP components (print cartridges, memory modules, and EIO cards) from the product. • If hardware or software configuration has not changed, or the problem is not associated with any specific software, contact your dealer for support (see Chapter 1). • Remove the product from the network, and ensure that the failure is associated with the product before beginning troubleshooting. • For any print-quality issues, calibrate the product. See Calibrate the product on page 567.

Troubleshooting checklist

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.

1. Make sure one of the following messages displays on the control panel: **Ready**, **Paused**, or **Sleep mode on**. If no lights are on or the display does not say **Ready**, **Paused**, or **Sleep mode on**, see Power-on checks on page 423. The backlight goes off when in sleep mode. Touch the screen or a button or open a door to wake the product.
2. If the product is in the READY state, check to see if any messages appear on the control-panel display. If any error messages appear, see Control-panel messages on page 436.

3. Check the cabling.

   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.

   d. Check the cable from the formatter to the scanner.

4. Ensure that the print media that you are using meets specifications. See Supported paper and print media sizes on page 63.

5. Print a configuration page. If the product is connected to a network, an HP Jetdirect page also prints. See Configuration pages on page 427.

   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 Jams on page 520.

   c. If the pages don't print, try an engine self test to rule out engine problems and to identify formatter problems. See Engine-test button on page 584.

6. If the configuration page prints, check the following items:

   a. Is the issue print or copy related? If copy related, clean the scanner glass and adjust the copy settings.

   b. If the page prints correctly, the product hardware is working. The problem is with the computer that you are using, with the printer driver, or with the program.

   c. If the page does not print correctly, the problem is with the product hardware.

7. Does the image quality meet the user's requirements? If yes, go to step 8. If no, check the following items:

   a. Print the print-quality-troubleshooting pages.

   b. Solve the print-quality problems, and then go to step 8.

8. At the computer, check to see if the print queue is stopped, paused, or set to print offline.

   Windows: Click **Start**, click **Settings**, and then click **Printers** or **Printers and Faxes**. Double-click **HP Color LaserJet CM6049f MFP**.

   -or-

   Mac OS X: Open **Printer Setup Utility**, and then double-click the line for the **HP Color LaserJet CM6049f MFP**.

9. Verify that you have installed the HP Color LaserJet CM6049f MFP printer driver. Check the program to make sure that you are using the HP Color LaserJet CM6049f MFP printer driver.

10. Print a short document from a different program that has worked in the past. If this solution works, 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.

Troubleshooting flowchart

This flowchart highlights the general processes that you can follow to quickly isolate and solve product hardware problems.

Each row depicts a major troubleshooting step. A “yes” answer to a question allows you to proceed to the next major step. A “no” answer indicates that additional testing is needed. Proceed to the appropriate section in this chapter, and follow the instructions there. After completing the instructions, proceed to the next major step in this troubleshooting flowchart.

Table 7-2 Troubleshooting flowchart

1 **Power on**	Is the product on and does a readable message display?		Follow the power-on troubleshooting checks. See Power-on checks on page 423. After the control-panel display is functional, go to step 2. Ensure the product isn't in sleep mode by touching any button or opening any door.
	Yes ↓	No →	
2 **Control-panel messages**	Does the message **Ready** display on the control panel?		If an error message displays, see Control-panel messages on page 436. After the errors have been corrected, go to step 3.
	Yes ↓	No →	
3 **Event log**	Open the **Troubleshooting** menu and print an event log to see the history of errors with this product. Does the event log print?		If the event log does not print, see Event log messages on page 512. If paper jams inside the product, see Jams on page 520. If error messages display on the control panel when you try to print an event log, see Control-panel messages on page 436. After successfully printing and evaluating the event log, go to step 4.
	Yes ↓	No →	
4 **Information pages**	Open the **Information** menu and print the configuration pages to verify that all of the accessories are installed. Are all of the accessories installed?		If accessories that are installed are not listed on the configuration pages, remove the accessory and reinstall it. For more information about optional output devices, see Output accessories and intermediate paper transfer unit (IPTU) on page 669. After evaluating the configuration pages, go to step 5.
	Yes ↓	No →	
5 **Image quality**	Does the print quality meet the customer's requirements?		Compare the images with the sample defects in the image defect tables. After the print quality is acceptable, go to step 6.
	Yes ↓	No →	

Table 7-2 Troubleshooting flowchart (continued)

6 **Interface**	Can the customer print successfully from the host computer?		Verify that all I/O cables are connected correctly and that a valid IP address is listed on the Jetdirect configuration page. If error messages display on the control panel, see Control-panel messages on page 436 When the customer can print from the host computer, this is the end of the troubleshooting process.
	Yes. This is the end of the troubleshooting process.	No →	

Power subsystem

Power-on checks

The basic product functions should start up as soon as the product is plugged into an electrical outlet and the power switch is pushed to the *on* position. If the product does not start, use the information in this section to isolate and solve the problem.

Power-on troubleshooting overview

Turn on the product power. If the control-panel display remains blank, random patterns display, or asterisks remain on the control-panel display, perform power-on checks to locate the cause of the problem.

During normal operation, the main cooling fan begins to spin briefly after the product power is turned on. Place your hand over the holes in the plastic cover that is connected to the rear cover and opposite of the formatter. If the fan is operating, you will feel air passing out of the product. You can also lean close to the product and hear the fan operating. When this fan is operational, the DC side of the power supply is functioning correctly.

After the fan is operating, the main motor turns on (unless the top cover is open, a jam condition is sensed, or the paper-path sensors are damaged). You should be able to visually and audibly determine if the main motor is turned on.

If the fan and main motor are operating correctly, the next troubleshooting step is to isolate print engine, formatter, and control-panel problems. Perform an engine test (see Engine-test button on page 584). If the formatter is damaged, it might interfere with the engine test. If the page does not print, try removing the formatter and then performing the engine test again. If the engine test is then successful, the problem is almost certainly with the formatter, the control panel, or the cable that connects them.

If the control panel is blank when you turn on the product, check the following items:

1. Make sure that the product is plugged directly into an active electrical outlet (not a power strip) that delivers the correct voltage. If an error 50.05 occurs, the product is configured for a different voltage that it is connected to.
2. Make sure that the power switch is in the *on* position.
3. Make sure that the fan runs briefly, which indicates that the power supply is operational.
4. Make sure that the control-panel display wire harness is connected. See Control panel on page 360.
5. Make sure that the formatter is seated and operating correctly.
6. Remove any HP Jetdirect or other EIO cards, and then try to turn the product on again.

NOTE: If the control-panel display is blank, but the main cooling fan runs briefly after the product power is turned on, try printing an page to determine whether the problem is with the control-panel display, formatter, or other product components. See Engine-test button on page 584.

Tools for troubleshooting

Internal print-quality test pages

Print-quality-troubleshooting pages

Use the built-in print-quality-troubleshooting pages to help diagnose and solve print-quality problems.

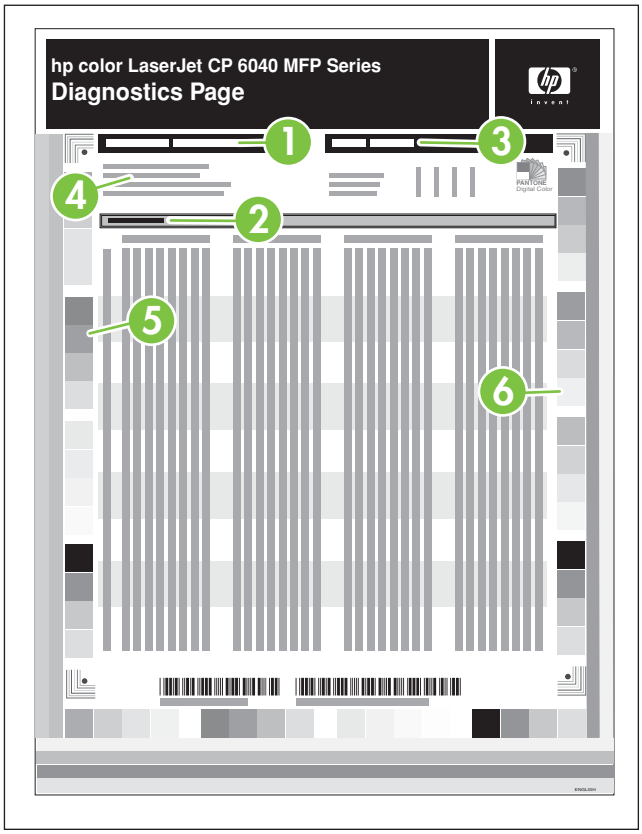
1. Scroll to and touch Administration.
2. Scroll to and touch Troubleshooting.
3. Touch PQ Troubleshooting.
4. Touch Print.

The product returns to the **Ready** state after printing the print-quality-troubleshooting pages. Follow the instructions on the pages that print out.

Diagnostics page

Use the diagnostics page to evaluate problems with color-plane registration, EP parameters, and print quality.

1. Touch Administration.
2. Touch Troubleshooting.
3. Touch Diagnostics Page.



1	Calibration information
2	Parameters
3	Color density
4	Color-plane registration
5	Primary colors
6	Secondary colors

Cleaning page

Use the cleaning page to keep the fuser free of toner and paper particles that can sometimes accumulate and cause specks to appear on the front or back side of print jobs.

HP recommends that you use the cleaning page when there is a print-quality issue.

A **CLEANING** message appears on the product control-panel display while the cleaning is taking place.

To work correctly, the cleaning page must be printed on copier-grade paper (not bond, heavy, or rough paper). Discard the blank page that is printed when the task is complete.

1. Scroll to and touch Administration.
2. Scroll to and touch Print Quality.
3. Touch Calibration/cleaning.

4. Press the up arrow or down arrow.
5. Touch Process cleaning page.

Configuration pages

Depending on the model, up to three pages print when you select **Print Configuration**. In addition to the main configuration page, an embedded Jetdirect configuration page prints as well as a page for the stapler/stacker.

Configuration page

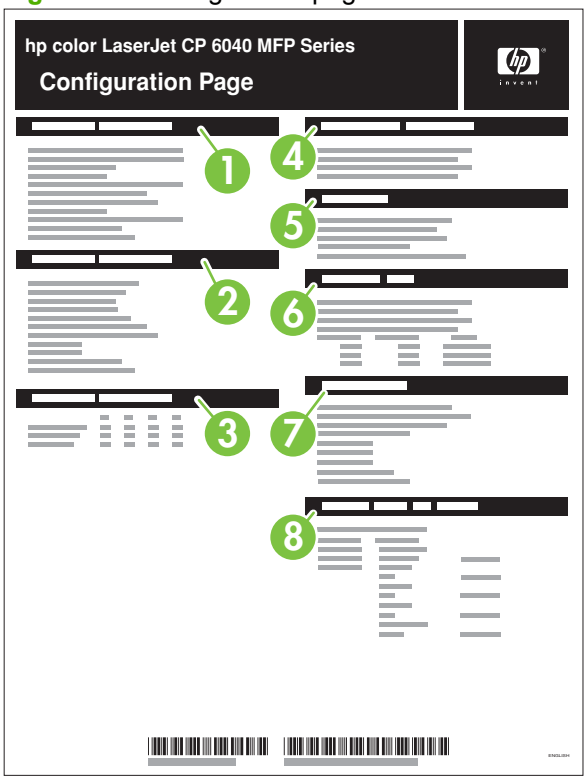
Use the configuration page to view current product settings, to help troubleshoot product problems, or to verify installation of optional accessories, such as memory (DIMMs), paper trays, and printer languages.

1. Touch Administration.
2. Touch Information.
3. Touch Configuration/Status Pages.
4. Touch Configuration Page.
5. Touch Print.

The message **Printing Configuration** displays on the control panel until the product finishes printing the configuration page. The product returns to the **Ready** state after printing the configuration page.

NOTE: If the product is configured with EIO cards (for example, an HP Jetdirect print server) or an optional hard-disk drive, an additional configuration page will print that provides information about those devices.

Figure 7-1 Configuration page



1	Printer information
2	Installed personalities and options
3	Color density
4	Calibration information
5	Memory
6	Event log
7	Security
8	Paper trays and options

HP embedded Jetdirect page

The second configuration page is the HP embedded Jetdirect page, which contains the following information.

Figure 7-2 HP embedded Jetdirect page



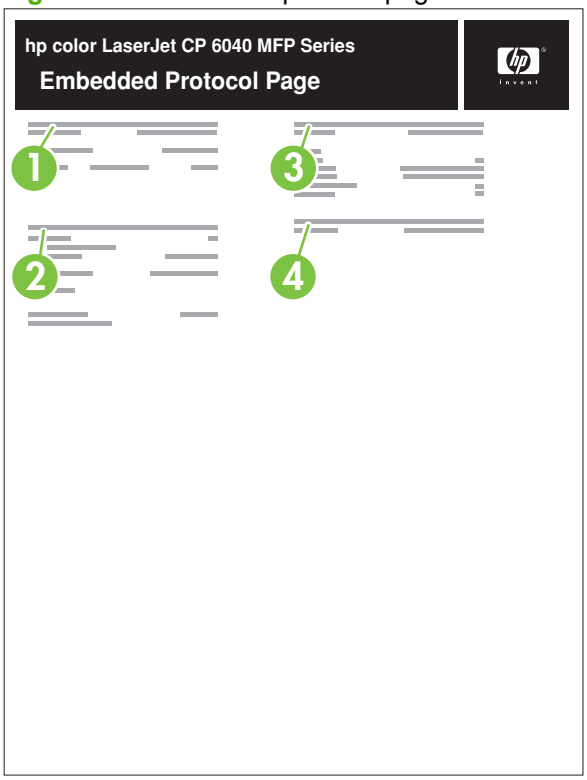
1	**HP Jetdirect Configuration** indicates the product status, model number, hardware firmware version, port select, port configuration, auto negotiation, manufacturing identification, and manufactured date.
2	**Security Settings**
3	**Network Statistics** indicates the total packets received, unicast packets received, bad packets received, framing errors received, total packets transmitted, unsendable packets, transmit collisions, and transmit late collisions.
4	**TCP/IP** includes the IP address.
5	**IPX/SPX**
6	**Novell/NetWare**

Always make sure the status line under the HP Jetdirect configuration lines indicates "I/O Card Ready".

Embedded protocol page

The embedded protocol page contains the following information.

Figure 7-3 Embedded protocol page



1	IPX/SPX
2	Novell/NetWare
3	AppleTalk
4	DLC/LLC

Finding important information on the configuration pages

Certain information, such as the firmware date codes, the IP address, and the e-mail gateways, is especially helpful while servicing the product. This information is on the various configuration pages. Table 7-3 Important information on the configuration pages on page 431 describes where to look for this information.

Table 7-3 Important information on the configuration pages

Type of information	Specific information	Configuration page
Firmware date codes When you use the remote firmware upgrade procedure, all of these firmware components are upgraded.	DC controller	Look on the main configuration page, under “Device Information.”
	Firmware datecode	Look on the main configuration page, under “Device Information.”
	Stapler/stacker firmware datecode	Look on the paper handling configuration page, under “Product Name.”
	Embedded Jetdirect firmware version	Look on the embedded Jetdirect page, under “HP Jetdirect Configuration.”
Accessories and internal storage All optional devices that are installed on the product should be listed on the main configuration page. In addition, separate pages print for the optional paper handling devices and the fax accessory. These pages list more-detailed information for those devices.	Internal disk (4700ph+ model only)	Look on the main configuration page, under “Installed Personalities and Options.” Shows model and capacity.
	Embedded HP Jetdirect	Look on the main configuration page, under “Installed Personalities and Options.” Shows model and ID.
	Total RAM	Look on the main configuration page, under “Memory.”
	Duplex unit	Look on the main configuration page, under “Paper Trays and Options.”
Additional 500-sheet feeders and optional output devices	Additional 500-sheet feeders and optional output devices	Look on the main configuration page, under “Paper Trays and Options.”
Engine cycles and event logs Total page counts and maintenance kit counts are important for ongoing product maintenance. The configuration page lists only the three most recent errors. To see a list of the 50 most recent errors, print an event log from the **Diagnostics** menu.	Engine cycles	Look on the main configuration page, under “Device Information.”
Pages since last maintenance (print engine maintenance count)	Pages since last maintenance (print engine maintenance count)	Look on the main configuration page, under “Device Information.”
Event-log information	Event-log information	Look on the main configuration page, under “Event log.”

Solve performance problems

Problem	Cause	Solution
Pages print but are totally blank.	The sealing tape might still be in the print cartridges.	Verify that the sealing tape has been completely removed from the print cartridges.
	The document might contain blank pages.	Check the document that you are printing to see if content appears on all of the pages.
	The product might be malfunctioning.	To check the product, print a configuration page.
Pages print very slowly.	Heavier media types can slow the print job.	Print on a different type of media.
	Complex pages can print slowly.	Proper fusing may require a slower print speed to ensure the best print quality.
	The **RLT photo fix** options under **HP real life technologies** on the **Paper/ Quality** tab of the print driver can cause slow printing.	Deselect these options to improve print speed.
Pages did not print.	The product might not be pulling media correctly.	Make sure paper is loaded in the tray correctly. If the problem persists, you might need to replace the pickup rollers and the separation pad.
	The media is jamming in the device.	Clear the jam. See Jams on page 520.
	If using USB, 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 USB cable.

- Verify that the cable is connected to the computer and to the product.
- Verify that the cable is not longer than 2 meters (5 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 connectivity problems

If the product is having problems communicating with the network, use the information in this section to resolve the problem.

Solve network printing problems

- Make sure that the network cable is securely seated into the product's RJ45 connector.
- Make sure that the Link LED on the formatter is lit. See Understand lights on the formatter on page 581.
- Make sure that the I/O card is ready. Print a configuration page (see Configuration pages on page 427). If an HP Jetdirect print server is installed, printing a configuration page also prints a second page that shows the network settings and status.

  NOTE: The HP Jetdirect print server supports various network protocols (TCP/IP, IPX/SPX, Novell NetWare, AppleTalk, and DCL/LLC). Make sure that the correct protocols and network parameters are set correctly.

  On the HP Jetdirect configuration page, verify the following items for your protocol:

  - Under HP Jetdirect Configuration, the status is "I/O Card Ready."
  - Protocol status is "Ready."
  - An IP address is listed.
  - The configuration method (Config by:) is listed correctly. See the network administrator if you are not sure which method is correct.
- Try printing the job from another computer.
- To verify that a product works with a computer, use a USB cable to connect it directly to a computer. You will have to reinstall the printing software. Print a document from a program that has printed correctly in the past. If this works, a problem with the network might exist.
- Contact your network administrator for assistance.

Verify communication over the network

If the HP Jetdirect configuration page shows an IP address for the product, use this procedure to verify that you can communicate with the product over the network.

1. **Windows**: Click **Start**, click **Run**, and then type `cmd`. An MS-DOS command prompt opens.

   -or-

   Mac: Click **Applications**, click **Utilities**, and then open the Terminal application. The terminal window opens.

2. Type `ping` followed by the IP address. For example, type `ping XXX.XXX.XXX.XXX` where "XXX.XXX.XXX.XXX" is the IPv4 address that is shown on the HP Jetdirect configuration page. If the product is communicating over the network, the response is a list of replies from the product.

3. Verify that the IP address is not a duplicate address on the network by using the address resolution protocol (arp -a) command. At the prompt, type `arp -a`. Find the IP address in the list and compare its physical address to the hardware address that is listed on the HP Jetdirect configuration page in the section called HP Jetdirect Configuration. If the addresses match, all network communications are valid.

4. If you cannot verify that the product is communicating over the network, contact the network administrator.

Control-panel message types

Four types of control-panel messages can indicate the status of or problems with the product.

Message type	Description
Status messages	Status messages reflect the current state of the product. They inform you of normal product operation and require no interaction to clear them. They change as the state of the product changes. Whenever the product is ready, not busy, and has no pending warning messages, the status message **Ready** appears if the product is online.
Warning messages	Warning messages inform you of data and print errors. These messages typically alternate with the **Ready** or status messages and remain until you press the checkmark button ✓. Some warning messages are clearable. If **Clearable Warnings** is set to **Job**, the next print job clears these messages.
Error messages	Error messages communicate that some action must be performed, such as adding paper or clearing a jam. Some error messages are auto-continuable. If **Auto-Continue** is set on the menus, the product will continue normal operation after an auto-continuable error message appears for 10 seconds. **NOTE:** Pressing any button during the 10-second auto-continuable error message overrides the **Auto-Continue** setting, and a button function takes precedence. For example, pressing the Stop button pauses printing with an option to cancel the print job.
Critical-error messages	Critical error messages inform you of a product failure. Some of these messages can be cleared by turning the product off and then on. These messages are not affected by the **Auto-Continue** setting. If a critical error persists, service is required.

Control-panel messages

Table 7-4 Control-panel messages

Control panel message	Description	Recommended action
<Binname> Full Remove all paper from bin	The specified output bin is full and must be emptied for printing to continue. The error happens only after a job is sent, and it starts out as a warning.	Empty the bin to continue printing.
10.00.YY Supply memory error (image drum)	The product is unable to read the image drum data. The image drum is present but defective. • 10.00.05 Supply memory error (black image drum) • 10.00.06 Supply memory error (cyan image drum) • 10.00.07 Supply memory error (magenta image drum) • 10.00.08 Supply memory error (yellow image drum)	1. Open the front door and remove the image drum, and then reinsert it. 2. Close the front door. If the message reappears, turn the product off and then on. 3. If the error reappears, replace the image drum. See Change image drums on page 104.
10.00.YY Supply memory error (print cartridge)	The product is unable to read the cartridge data. The print cartridge is present but defective. • 10.00.00 Supply memory error (black print cartridge) • 10.00.01 Supply memory error (cyan print cartridge) • 10.00.02 Supply memory error (magenta print cartridge) • 10.00.03 Supply memory error (yellow print cartridge)	1. Open the front door and remove the print cartridge, and then reinsert it. 2. Close the front door. If the message reappears, turn the product off and then on. 3. If the error reappears, replace the print cartridge. See Change print cartridges on page 101.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
10.10.YY Supply memory error (missing e-label)	The product cannot read or write to at least one e-label, or at least one e-label is missing. • 10.10.00 Supply memory error (e-label for the black print cartridge) • 10.10.01 Supply memory error (e-label for the cyan print cartridge) • 10.10.02 Supply memory error (e-label for the magenta print cartridge) • 10.10.03 Supply memory error (e-label for the yellow print cartridge) • 10.10.05 Supply memory error (e-label for the black image drum) • 10.10.06 Supply memory error (e-label for the cyan image drum) • 10.10.07 Supply memory error (e-label for the magenta image drum) • 10.10.08 Supply memory error (e-label for the yellow image drum)	1. Open the front door and remove the print cartridge or image drum, and then reinsert it. 2. Close the front door. If the message reappears, turn the product off and then on. 3. If the error reappears, replace the print cartridge or image drum. See Change image drums on page 104 and Change print cartridges on page 101. 4. Replace the toner assembly.
10.90.XY - Replace <color> Cartridge	A toner replenishment malfunction occurred and the toner concentration in the image drum dropped below 30%. This applies to both HP and non-HP print cartridges. • 10.90.00 - Replace Black Cartridge • 10.90.01 - Replace Cyan Cartridge • 10.90.02 - Replace Magenta Cartridge • 10.90.03 - Replace Yellow Cartridge	See Change print cartridges on page 101. If replacing the print cartridge does not resolve the problem, replace the image drum. See Change image drums on page 104. If replacing the image drum does not resolve the problem, replace the appropriate cartridge interface PCA. See Print-cartridge interface PCA (yellow and magenta) on page 296 or Print-cartridge interface PCA (cyan and black) on page 295.
10.xx.yy Supply Memory Error	The product cannot read or write to at least one print cartridge e-label, or an e-label is missing from a print cartridge.	Reinstall the print cartridge, or install a new HP print cartridge.
11.XX Internal clock error To continue touch OK	The product's real time clock experienced an error.	Whenever the product is turned off and then turned on again, set the time and date at the control panel. See Use the control panel on page 12. If the error persists, you might need to replace the formatter.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.01 Paper feed 1, Paper late jam	• The leading edge of the paper fed from Tray 1 stopped before reaching the registration sensor (C). • The leading edge of the paper fed from Tray 2 stopped before reaching the registration sensor (B). • The leading edge of the paper fed from Tray 3 stopped before reaching the registration sensor (A-1). • The leading edge of the paper fed from Tray 4 stopped before reaching the registration sensor (A-2). • The leading edge of the paper fed from Tray 5 stopped before reaching the registration sensor (A-3). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.02 Paper Stop Jam In Tray 2 at Sensor D	The paper stopped at the registration sensor (D). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.05 Paper Late Jam Between Sensors D and F	The leading edge of the paper stopped between the registration sensor (D) and the fuser-output sensor (F). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.06 Paper Jam In Fuser	The paper stopped at the fuser-output sensor (F). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.10 Paper Late Jam In Duplex Area Sensors F - G	The leading edge of the paper stopped between the output sensor (F) and switchback sensor (G). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.11 Paper Stop Jam In Duplex Area at Sensor G	The paper stopped at the switchback-jam sensor (G). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12 Paper Late Jam In Duplex Area Sensors H - D	The duplex refeed paper stopped between the duplexer-delivery sensor (H) and the registration sensor (D). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.12.11	Finisher stay jam at either PI33 or PI34 when engine powered on. When the engine is powered on, the finisher's upper-feed-path-entry sensor (PI33) or the upper-feed-path-exit sensor (PI34) is activated suggesting that there is paper in the upper paper path of the finisher at sensors PI33 or PI34.	Signal generated from PI33 (upper-feed-path-entry sensor) and PI34 (upper-feed-path-exit sensor) To locate these sensors, see Detect jams in the stacker unit on page 726. 1. Open the top door and remove any media in the paper path (media detected at PI33). 2. Raise the upper paper path (exit) delivery rollers and remove any media in the paper path (media detected at PI34). 3. Check these sensors for obstructions. Verify that the sensor flags are not damaged, move freely, and are correctly aligned with the sensor body and properly mounted. Also check wiring and connectors for damage or loose connections. 4. Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. 5. Verify that the sensor connectors (J708 and J707) are fully seated on the stacker controller PCA. 6. Replace sensor PI33 and PI34. 7. Only if the error persists, replace the stacker controller PCA. See Stacker controller PCA on page 828.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.12	Finisher delay jam at PI33. The engine signals the finisher that paper is about to enter the finisher from the IPTU. The finisher's upper-feed-path-entry sensor (PI33), which detects paper entering the finisher, does not detect the paper within the expected time period triggering the error.	To locate this sensor, see Detect jams in the stacker unit on page 726. Open the IPTU and the finisher top door and check the following items: • If media is found in the IPTU but has not reached the finisher, perform the following steps: ◦ Remove and then reinstall the IPTU. Make sure that the connector is fully seated and that the IPTU is securely fastened. ◦ If the error persists, replace the IPTU. See IPTU on page 736. • If media is jammed at the exit point of the IPTU (prior to entering the finisher), perform the following steps: ◦ Verify that the finisher is securely fastened to the engine. ◦ Make sure that the finisher and IPTU are correctly aligned. Adjust the finisher castors to obtain a uniform gap between the finisher and the engine. The engine-to-finisher gap must be the same at the bottom and the top so that the finisher is parallel to the engine. With the engine-to-finisher gap correct, make sure that the finisher paper path entry point is aligned with the IPTU exit point. ◦ Check the finisher entry-point guides for damage. ◦ Verify that the finisher rollers are turning before the media leaves the IPTU. If the rollers are not turning, test motor M9 by using the finisher component test from the control-panel display. If the motor does not activate during the test, check the connectors for motor M9 (inlet motor). Make sure that connector J705 is fully seated on the stacker controller PCA. If the error persists, replace motor M9 or the saddle-paper-feeder assembly.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		Replace the stacker controller PCA. See Stacker controller PCA on page 828. • If media is found in the finisher but has not reached sensor PI33, perform the following steps: ◦ Check the upper and lower guides and rollers in the paper path for damage. ◦ Make sure that the media-diverter gate (saddle-stitch flapper) is not blocking the paper path. • If media is found in the finisher-covering sensor PI33 (the sensor is not detecting the media), perform the following steps: ◦ Check the sensor for obstructions. Verify that the sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. Make sure that the lower end of the flag is not damaged and is correctly positioned to activate the sensor. ◦ Make sure that the sensor is securely fastened to the chassis. ◦ Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. ◦ Verify that the wiring at the sensor is not damaged and that the intermediate connector J1007 and connector J708 on the stacker controller PCA are fully seated. Replace the sensor if necessary. ◦ Only if the error persists, replace the stacker controller PCA. See Stacker controller PCA on page 828.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.13	Finisher stay jam at PI33. Finisher's upper-feed-path-entry sensor (PI33) is remaining activated longer than expected, suggesting that paper has jammed at the sensor.	Control-panel diagnostics: none To locate this sensor, see Detect jams in the stacker unit on page 726. 1. Remove any media in the upper paper path that might be activating sensor PI33. 2. Verify that the sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. 3. Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. 4. Verify that the wiring at the sensor is not damaged and that the connector J708 on the stacker controller PCA is fully seated.
13.12.14	Finisher delay jam at PI34. Upper-paper-path-entry sensor (PI33) has signaled that paper has passed but upper-paper-path-exit sensor PI34 does not actuate within the expected time, suggesting that the paper has jammed between PI33 and PI34 in the upper paper path.	Control-panel diagnostics: none To locate these sensors, see Detect jams in the stacker unit on page 726. 1. Remove any media jammed in the upper paper path between sensor PI33 and sensor PI34. 2. Check the paper path between sensor PI33 and sensor PI34 for obstructions that may be preventing the media from reaching PI34. 3. Verify that the PI34 sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. 4. Make sure that sensor PI34 is securely fastened to the chassis and wiring is properly connected to sensor. **NOTE:** Sensor PI34 is located on the front frame of the finisher, directly over the primary stapler. 5. Verify that the wiring at the sensor is not damaged and that the connector J707 on the stacker controller PCA is fully seated. 6. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.15	Finisher stay jam at PI34 Finisher's upper-paper-path-exit sensor (PI34) remains activated longer than expected suggesting that paper has jammed at the sensor.	Control-panel diagnostics: M31 (entrance motor), SL32 (buffer-roller solenoid), and SL33 (output-roller solenoid) To locate this sensor, see Detect jams in the stacker unit on page 726. PI34 is located on the front frame of the finisher, above the main stapler unit. 1. Remove any media in the upper paper path that might be activating sensor PI34. 2. Carefully clean the sensor body, by gently blowing clean air across the sensor to remove dust and debris. 3. Verify that the sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. 4. Lift-swing-guide assembly at the paper exit area to output bins and inspect for jammed paper, obstructions, or damage. 5. Run a diagnostic through the engine control panel and turn on M31 (entrance motor) to observe gear rotations on the upper-rear frame of the finisher. Ensure that the first delivery rollers and buffer rollers that pass paper to and from PI34 are rotating. 6. Test SL32 (buffer-roller solenoid) and SL33 (output-roller solenoid) using the control-panel diagnostics. 7. Check wiring from sensor PI34 to stacker-control-board connector J707 for damage. 8. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.16	Finisher jam - door opened during Staple/ Stacking operation While the machine is printing, the upper-door (open/close) sensor (PI31) or front-door (open/close) sensor (PI32) or the front-door (open/close) switch (MSW31) has signaled that one of the doors has been opened, suggesting that there may now be paper found in the upper paper path.	Control-panel diagnostics: PI31 (top-door sensor), PI32 (front-door sensor) Booklet maker only: check PI3 (booklet-door-1 sensor) (booklet-delivery door) 1. Make sure that the doors properly open and close and stay in the fully closed position. If the front door is not closing tightly at the top, it will not activate the door switch. If necessary, adjust the alignment of the front door by opening the door and carefully twisting it. 2. Verify that the sensor-activation arms on the doors are not damaged. 3. Make sure that the front-door sensor PI32 and switch MSW31 and top-door sensor PI31 are not obstructed. 4. Make sure that the arm on front-door switch MSSW31 is not bent or damaged. 5. Make sure that sensor PI32 and switch MSSW31 are securely fastened to the chassis. 6. Test sensor PI31 (upper-door sensor) and sensor PI32 (front-door sensor) by using the finisher component tests from the control-panel display. **NOTE:** For finishers with a booklet maker, also test sensor PI3 (booklet-door-1 sensor).
13.12.17	Engine to finisher timing jam: unexpected arrival of paper to finisher Upper-paper-path-entry sensor (PI33) has detected paper before a signal from the engine has been received, indicating that paper is being delivered from the IPTU to the finisher.	Control-panel diagnostics: none To locate this sensor, see Detect jams in the stacker unit on page 726. 1. Verify that the latest firmware updates are installed for the engine and finisher. 2. Remove any media in the upper paper path that might be activating sensor PI33. If no media is found at PI33, proceed to step 3.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		If media is found at PI33, perform the following steps: ◦ Make sure that the power/ communication cable from the IPTU to the finisher is properly connected. ◦ Make sure that the IPTU is properly connected to the engine and that the mounting screws are tight. ◦ Make sure that the finisher is properly grounded. • Ensure that the finisher is latched and locked to the engine by tightening the thumbscrew inside the front door. • Ensure that the grounding-frame assembly (the bar with the wheel located between the engine and the finisher) is in the “down” position with the wheel touching the floor and that the grounding plate is not damaged. **NOTE:** The grounding-frame assembly is in the “up” position when the finisher is shipped. It must be lowered when the finisher is installed. ◦ If the error persists, replace the IPTU. See IPTU on page 736. 3. Check for media at the finisher entrance point and at sensor PI33. If no media is found at PI33, perform the following steps: ◦ Make sure that the finisher is properly grounded. • Ensure that the finisher is latched and locked to the engine by tightening the thumbscrew inside the front door. • Ensure that the grounding-frame assembly (the bar with the wheel located between the engine and the finisher) is in the down position with the wheel touching the floor and that the grounding plate is not damaged.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		NOTE: The grounding-frame assembly is in the up position when the finisher is shipped. It must be lowered when the finisher is installed. ◦ Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. ◦ Verify that the sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. ◦ Verify that the wiring at the sensor is not damaged and that the connector J708 on the stacker controller PCA is fully seated. 4. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.
13.12.21	Finisher upper-stapler (stapler 1) staple jam. When the staple motor (M41) is rotated forward, the staple home-position sensor (PI5) does not turn back on after the prescribed time has elapsed after it goes off, and the staple home-position sensor (PI50) turns on within the prescribed time after the staple motor (M41) is rotated backwards.	Control-panel diagnostics: none 1. Check the stapler unit for jammed staples. 2. Check the stapler unit for loose staples and paper dust. 3. Inspect the stapler unit for damage. 4. Remove the stapler cartridge and make sure HP-approved staples are being used. 5. Verify that the wiring at the stapler unit and the connector are not damaged. 6. Install new staple cartridge and retest. 7. If the error persists, replace the stapler unit. See Stapler on page 774.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.41	Finisher - Paper detected in booklet making portion of finisher at engine power on. Occurs when paper is detected by one of the sensors on the paper-sensor board (PI18, PI19, PI20), vertical-path-paper sensor (PI17), booklet-delivery sensor (PI11), paper-positioning-plate paper sensor (PI8), or booklet-making paper-entry sensor (PI22) when the machine is powered on.	Control-panel diagnostics: none To locate these sensors, see Detect jams in the booklet maker unit on page 726. 1. Remove media from the booklet-maker paper path. 2. Verify that the sensor flags are not damaged, move freely, and are correctly aligned with the sensor bodies. 3. Carefully clean each sensor body by gently blowing clean air across each sensor to remove dust and debris. 4. Make sure that connectors J6, J9, J10, J13, and J21 are fully seated on the saddle-stitcher controller PCA. 5. Only if the error persists and none of the previous steps correct the problem, replace the saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.42	Finisher delay jam at booklet-making paper-entry sensor (PI22) Occurs when booklet making function is selected and after the engine signals the finisher that it is delivering paper to the finisher. The booklet-making paper-entry sensor (PI22) is not activated within the expected time period after receiving the engine's delivery signal, suggesting that a paper jam has occurred somewhere between the output accessory bridge (IPTU) and sensor PI22.	Control-panel diagnostics: M9 (Inlet Motor), SL5 (Inlet-Switch Solenoid) Signal generated from: PI22 (Booklet-Making Paper-Entry Sensor) To locate this sensor, see Detect jams in the booklet maker unit on page 726. Open the IPTU and the finisher top door and locate the media jam. Check the following items: • If media is found in the IPTU but has not reached the finisher entrance point, perform the following steps: ◦ Remove and then reinstall the IPTU. Make sure that the connector is fully seated and that the IPTU is securely fastened. ◦ If the error persists, replace the IPTU. • If media is jammed at the entrance point of the finisher, perform the following steps: ◦ Verify that the finisher is securely fastened to the engine. ◦ Make sure that the finisher and IPTU are correctly aligned. Adjust the finisher castors to obtain a uniform gap between the finisher and the engine. The engine-to-finisher gap must be the same at the bottom and the top so that the finisher is parallel to the engine. With the engine-to-finisher gap correct, make sure that the finisher paper path entry point is aligned with the IPTU exit point. ◦ Check the finisher entry-point guides for damage. ◦ Verify that the finisher rollers are turning before the media leaves the IPTU. If the rollers are not turning, test motor M9 by using the finisher component test from the control-panel display. If the motor does not activate during the test, check the connectors for motor M9 (inlet motor).

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		Make sure that connector J705 is fully seated on the stacker controller PCA. If the error persists, replace motor M9 or the saddle-paper-feeder assembly for the type finisher you are working on. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828. • If media is found in the finisher but has not reached sensor PI22, perform the following steps: ◦ Check the upper and lower guides and rollers in the paper path for damage. ◦ Make sure that the media-diverter gate (saddle-stitch flapper) is not blocking the paper path. ◦ Test solenoid SL5 (inlet-switch solenoid) by using the finisher component test from the control-panel display. SL5 should be opening and closing the media-diverter gate (saddle stitch flapper). • If media is found in the finisher cover sensor PI22 (the sensor is not detecting the media), perform the following steps: ◦ Check the sensor for obstructions. Verify that the sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. Make sure that the lower end of the flag is not damaged and is correctly positioned to activate the sensor. ◦ Make sure that the sensor is securely fastened to the chassis. ◦ Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. ◦ Verify that the wiring at the sensor is not damaged and that the intermediate connectors between the sensor and connector J21 on the saddle-stitcher controller PCA are fully seated. Replace the sensor if necessary. If PI22 is determined to be the failure point,

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		replace the saddle-paper-feeder assembly, which includes PI22. ◦ Only if the error persists and none of the previous steps correct the problem, replace the saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829.
13.12.43	Finisher stay jam at booklet-making paper-entry sensor (PI22) Occurs when the booklet-making paper-entry sensor (PI22) remains activated longer than expected, suggesting that there is a paper jam at the sensor.	Control-panel diagnostics: none To locate this sensor, see Detect jams in the stacker unit on page 726. 1. Remove any media in the upper paper path that might be activating sensor PI22. 2. Verify that the sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. 3. Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. 4. Verify that the wiring at the sensor is not damaged and that the intermediate connectors between sensor PI22 and connector J21 on saddle-stitcher controller PCA for damage and proper connections. Replace the sensor if necessary.
13.12.44	Finisher delay jam at booklet-making first-paper sensor (PI18) Occurs when the first-paper sensor (PI18) is not activated within the expected time following the activation of the booklet-making paper-entry sensor (PI22), suggesting that there is a paper jam in the area between PI22 and PI18.	Control-panel diagnostics: M1 (Delivery Motor) To locate these sensors, see Detect jams in the booklet maker unit on page 726. Open the IPTU and the finisher top door and locate the media jam. Check the following items: • If media is found at sensor PI18, perform the following steps: ◦ Check the sensor PI18 for damage. Replace the sensor if necessary. ◦ Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. ◦ Verify that the wiring from sensor PI18 to connector J10 on the saddle-stitcher controller PCA is

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		undamaged and the connectors are fully seated. • If media is found at the roller prior to sensor PI18 in the paper path, perform the following steps: ◦ Test motor M1 (delivery motor) by using the finisher component test from the control-panel display. ◦ Remove the finisher rear cover. Activate motor M1 and verify that the drive gears and belts are moving. ◦ If motor M1 does not rotate, verify that connector J5 on the saddle-stitcher controller PCA is fully seated. If the error persists, replace motor M1. If motor M1 still does not rotate, replace the saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829. ◦ If motor M1 does rotate but the gears and belts connected to motor M1 do not move, check for damaged components. Replace damaged components as necessary.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.45	Finisher stay jam at booklet-making first-paper sensor (PI18), flapper-1 paper sensor (PI19) or flapper-2 paper sensor (PI20) Occurs when PI18, PI19 or PI20 remain activated longer than expected, suggesting that there is a paper jam in the flapper 1 and 2 area of the booklet-maker section of the finisher.	Control-panel diagnostics: PI19 (flapper 1), PI20 (flapper 2), M1 (delivery motor), SL1 (flapper-1 solenoid), SL2 (flapper-2 solenoid) To locate these sensors, see Detect jams in the booklet maker unit on page 726. 1. Remove any media in the area around flapper 1 and flapper 2. 2. Check the flappers for damage. 3. Test sensor PI19 and sensor PI20 by using the finisher component test from the control-panel display. ◦ If the sensors are faulty, perform the following steps: • Verify that the sensor flags are not damaged, move freely, and are correctly aligned with the sensor bodies. • Verify that the wiring at the sensors is not damaged and that the connector J10 on the saddle-stitcher controller PCA is fully seated. • If the error persist, replace the paper sensor PCA (which contains PI118, PI119, and PI20). 4. Test flapper 1 and flapper 2 by using the finisher component test from the control-panel display. **NOTE:** To verify the proper movement of the flappers, activate SL1 and SL2 in the finisher component test.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.46	Finisher jam - door was opened during booklet making operation. Occurs while the machine is booklet making and the booklet-delivery-door sensor (PI3) or the booklet-paper-path open/close sensor (PI3) detects that the door or paper path has been opened. Also occurs when the finisher's front-door sensor (PI32) has been opened with paper remaining in the processing tray of the main stapler while the finisher is not operating.	Control-panel diagnostics: PI31 (top-door sensor), PI32 (front-door sensor), PI3 (booklet-door-1 sensor) (booklet delivery door) To locate sensor PI31 and sensor PI32, see Detect jams in the booklet maker unit on page 726. 1. Test sensor PI31, sensor PI32, and sensor PI9 by using the finisher component test from the control-panel display. 2. Make sure that the front door, top door, and booklet-delivery door properly open and close and stay in the fully closed position. If the front door is not closing tightly at the top, it will not activate the door switch. If necessary, adjust the alignment of the front door by opening the door and carefully twisting it into proper alignment. 3. Verify that the sensor-activation arms on the doors are not damaged. 4. Make sure that the sensors and front-door switch MSW31 are not obstructed. 5. Make sure that the arm on switch MSW31 is not bent or damaged. 6. Make sure that sensors PI31, PI32, PI9, and switch MSW31 are securely fastened to the chassis. 7. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.51	Finisher jam: rear booklet stapler (SW5) When the rear-staple motor (M6) is rotated forward, the staple home-position sensor (SW5) does not turn back on after the prescribed time has elapsed after it goes off (0.4 seconds).	Control-panel diagnostics: none 1. Check the rear-booklet stapler unit for jammed staples. 2. Check the rear-booklet stapler unit for loose staples. 3. Inspect the rear-booklet-stitch stapler unit for damage. 4. Verify that HP-approved staples for this stapler are being used. 5. Verify that the wiring at the stapler unit and the connector are not damaged. 6. Replace the staple cartridge. **NOTE:** Replace both the front and rear staple cartridges at the same time so that the staple low sensors will properly detect the level of staples in the cartridges. 7. Only if the error persists and none of the previous steps correct the problem, replace the saddle-stapler assembly. See Saddle-stapler assembly (booklet maker only) on page 790.
13.12.52	Finisher jam: front-booklet stapler (SW7) When the rear-staple motor (M7) is rotated forward, the staple home-position sensor (SW7) does not turn back on after the prescribed time has elapsed after it goes off (0.4 seconds).	Control-panel diagnostics: none 1. Check the front-booklet stapler unit for jammed staples. 2. Check the front-booklet stapler unit for loose staples. 3. Inspect the front-booklet stapler unit for damage. 4. Verify that HP-approved staples for this stapler are being used. 5. Verify that the wiring at the stapler unit and the connector are not damaged. 6. Replace the staple cartridge. See Stapler on page 774. **NOTE:** Replace both the front and rear cartridges at the same time so that the staple low sensors will properly detect the level of staples in the cartridges. 7. Only if the error persists and none of the previous steps correct the problem, replace the saddle-stapler assembly. See Saddle-stapler assembly (booklet maker only) on page 790.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.12.61	Finisher delay jam at the booklet-delivery sensor (PI11) Occurs when the folded booklet exits the folding rollers and does not reach the booklet-delivery sensor (PI11) within the expected time.	Control-panel diagnostics: none 1. Check the folder-roller area for a jam or media wrapped around the rollers. 2. Check sensor PI11 for damage. 3. Make sure that the sensor is not obstructed. 4. Make sure that sensor PI11 is securely fastened to the chassis.
13.12.62	Finisher stay jam at the booklet-delivery sensor (PI11) or the vertical-paper-path sensor (PI17) Occurs when the booklet-delivery sensor (PI11) remains activated longer than expected after sensing the arrival of the new booklet from the folding rollers. Also occurs when the vertical-paper-path sensor (PI17) remains activated longer than expected after the paper has already passed through the folding rollers and is now detected by the booklet-delivery sensor (PI11).	Control-panel diagnostics: M2 (Folding motor) 1. Check the folder-roller area for a jam. 2. Test the folding motor (M2) by using the finisher component test from the control-panel display. ◦ Remove the finisher rear cover before starting the test and make sure that the folding rollers are rotating when motor M2 is on. 3. Check sensor PI11 and PI17 for damage. 4. Make sure that the sensors are not obstructed. 5. Make sure that sensor PI11 and sensor PI17 are securely fastened to the chassis.
13.13 Paper Stop Jam In Duplex Area Sensors G - H	The duplex refeed paper stopped between the switchback sensor (G) and the duplexer-delivery sensor (H). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.1C Fuser Wrap Jam, Paper in Fuser	The paper is wrapping at the fuser.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.20 Paper Eject Jam at Sensors E, F - G	The paper stopped at either the loop sensor (E), the fuser-output sensor (F) or the switchback sensor (G). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.21 Door Open Jam	The paper position is unknown. See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.2B Paper Stop Jam In Output Accessory Bridge	The paper stopped before reaching IPTU sensor 1 (K). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.2C Paper Late Jam in Output Accessory Bridge (1)	The paper stopped between IPTU sensor 1 (K) and IPTU sensor 3 (M). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.2D Paper Late Jam in Output Accessory Bridge (2)	The paper stopped in the path along IPTU sensor 1 (K), IPTU sensor 2 (L), and IPTU sensor 3 (M). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.2E Paper Late Jam Near Fuser at Sensors F - J	The paper stopped between the fuser-output sensor (F) and the output-bin-full sensor (J). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.30 Paper Late Jam, Jam In Cassette	• The leading edge of the paper fed from Tray 1 stopped before reaching the registration sensor (D). • The leading edge of the paper fed from Tray 2 stopped before reaching the registration sensor (D). • The leading edge of the paper fed from Tray 3 stopped before reaching the registration sensor (D). • The leading edge of the paper fed from Tray 4 stopped before reaching the registration sensor (D). • The leading edge of the paper fed from Tray 5 stopped before reaching the registration sensor (D). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.7C Delivery Delay Jam 1	There is a delay in reaching the first IPTU sensor.	Follow the onscreen instructions to locate and remove the paper or obstruction. See Figure 7-4 Paper-path sensors on page 513 to determine the sensor originating the failure.
13.7D Delivery Delay Jam 2	There is a delay in reaching the last IPTU sensor.	Follow the onscreen instructions to locate and remove the paper or obstruction. See Figure 7-4 Paper-path sensors on page 513 to determine the sensor originating the failure.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.7E Delivery Delay Jam 3	There is a delay in reaching the output rollers from the fuser.	Follow the onscreen instructions to locate and remove the paper or obstruction. See Figure 7-4 Paper-path sensors on page 513 to determine the sensor originating the failure.
13.80 Delivery Stay Jam	There is a jam in the IPTU between the first and last sensor.	Follow the onscreen instructions to locate and remove the paper or obstruction. See Figure 7-4 Paper-path sensors on page 513 to determine the sensor originating the failure.
13.80 External Output Device Paper Jam	There is a delivery jam on the IPTU between the first and last sensor.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.90 Non-specific Paper Jam	The leading edge of the paper is at the registration sensor (D). See Figure 7-4 Paper-path sensors on page 513 to determine the location of the sensor originating the failure.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.JJ.NT - Fuser area jam	A jam occurred in the fuser-output sensor area. In order to continue processing a job, clear all paper found.	**CAUTION:** The fuser can be hot while the product is in use. Wait for the fuser to cool before handling it. 1. Open the right door. 2. Remove the paper in the duplex area. 3. Open the fuser access. 4. Remove the paper. Close the fuser access. 5. Remove all the paper found. Close the right door.
13.JJ.NT - Fuser wrap jam	Paper is wrapping at the fuser. In order to continue processing a job, clear all paper found.	Clear the jam in the fuser area. See AREA 2 and 3: Jams in the fuser and transfer area on page 525.
13.JJ.NT - Jam in Tray 1	A page is jammed in the multipurpose tray.	Remove all loose paper from Tray 1. 1. Clear the jam in Tray 1. See AREA 6:Jams in Tray 1 on page 540. 2. Reload paper in Tray 1 and make sure the guides are next to the paper. Do not load paper above the fill tabs. 3. To continue printing, touch OK.
13.JJ.NT - Jam inside lower-right door	A jam occurred in the lower-right door.	1. Open the lower-right door. 2. Remove jammed paper. 3. Close the lower-right door.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
13.JJ.NT - Transfer and fuser jam	A jam occurred in the registration-sensor area.	Clear all paper found. **CAUTION:** The fuser can be hot while the product is in use. Wait for the fuser to cool before handling it. 1. Open the right door. 2. Remove the paper in the duplex area. 3. Open the transfer access panel. 4. Remove the paper. Close the transfer access panel. 5. Open the fuser access. 6. Remove the paper. Close the fuser access. 7. Remove all the paper found. Close the right door.
13.JJ.NT - Transfer area jam	A jam occurred in the registration-sensor area.	In order to continue processing a job, clear all paper found. 1. Open the right door. 2. Remove the paper in the duplex area. 3. Open the transfer access panel. 4. Remove the paper. Close the transfer access panel.
13.JJ.NT – Jam inside right door	A page is jammed.	Check the right door of the printer. 1. Open the right door. 2. Remove any paper in the duplex area. 3. Close the right door.
13.JJ.NT- Jam below control panel	A jam occurred below the control panel.	Check the area below the control panel for any jammed paper. Remove any paper found, then touch OK to continue.
13.XX.YY Jam inside output accessory bridge	There is a paper jam inside the output-accessory bridge (IPTU).	Clear the jam in the IPTU. See AREA 8: Jams in the optional finishing devices on page 548.
20 INSUFFICIENT MEMORY To continue touch OK	The product does not have enough memory to print the page.	Touch OK to print a partial page. Reduce the page complexity or add printer memory.
22 - USB I/O buffer overflow To continue touch OK	The printer's USB buffer overflowed during a busy state.	Touching OK resumes printing but results in a loss of data.
22 EMBEDDED I/O BUFFER OVERFLOW To continue touch OK	Too much data was sent to the embedded HP Jetdirect print server. An incorrect communications protocol might be in use.	Touch OK to print the transferred data. Some data might be lost. Check the host configuration.
30.01.02 Scanner failure	The ADF is jammed or the sensor failed.	Verify that there is no paper in the ADF. Use the scanner test in the Troubleshooting menu to check the sensors.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
30.01.03 Scanner failure	An ADF pickup failure occurred.	This failure can be caused by using damage or glossy media. Try scanning through the ADF with standard 75 g/m^2 (20 lb) paper. You may need to replace the ADF maintenance kit.
30.01.06 Scanner failure	The scanner-lamp fan failed.	1. Determine if the scanner-lamp fan is running during scanner operation. 2. Check the scanner connection to the scanner-control board (SCB). 3. Replace the fan if the error persists and the fan is not operational.
30.01.08 Scanner failure	The scanner is locked, or the home sensor or flat cable failed.	Check the scanner lock. Unlock the scanner, and then turn the product off and then on.
30.01.14 Scanner failure	The SCB firmware failed.	1. Turn the product off and then on. 2. Perform a remote firmware upgrade. See Upgrade the firmware on page 127. 3. Check the SCB. 4. Replace the SCB. See SCB, CPB, and SCUID on page 384.
30.01.15 Scanner failure	The scanner initialization failed.	1. Turn the product off and then on. 2. Check the SCB LEDs for a heartbeat. 3. Replace the SCB. See SCB, CPB, and SCUID on page 384.
30.01.18 Scanner failure	The SCB ASIC failed.	1. Turn the product off and then on. 2. Check the connection on the SCB. 3. Replace the SCB. See SCB, CPB, and SCUID on page 384. 4. Turn the product off and then on.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
30.01.19 Scanner failure	The scanner lamp failed.	1. Turn the product off and then on. 2. Determine if the scanner lamp turns on and off approximately 12 second after the product turns on. 3. If the lamp does not turn on and then off: **a.** View the lamp through the glass to determine if it is broken. Replace the lamp if it is broken. **b.** Re-seat the cables from the lamp to the inverter. **c.** Replace the inverter. See Inverter unit on page 380. 4. If the lamp does turn on and then off: **a.** Reseat the FFC interconnect between the optical carriage and the SCB. **b.** Replace the optical carriage. **c.** Replace the SCB. See SCB, CPB, and SCUID on page 384.
30.01.25 Scanner failure	The copy-process board (CPB) failed.	1. Turn the product off and then on. 2. Check the CPB LED. 3. Verify that the CPB connections are correct. 4. Verify the cable from the scanner to the formatter is not plugged in backwards. 5. Replace the CPB. See SCB, CPB, and SCUID on page 384.
30.01.34 Scanner failure	The scanner initialization failed, and the copy-process board (CPB) cannot communicate with the scanner-control board (SCB).	1. Turn the product off and then on. 2. Check the SCB LEDs. 3. Verify that the SCB connections are correct. 4. Replace the SCB. See SCB, CPB, and SCUID on page 384.
30.01.39 Scanner failure	There was an AFE1 (analog front-end) failure.	1. Turn the product off and then on. 2. Check the flat cables on the SCB. 3. Check the LEDs on the SCB. 4. Replace the SCB. See SCB, CPB, and SCUID on page 384. 5. Replace the scanner. See Optical scanner on page 354.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
30.01.40 Scanner failure	The scanner AFE 2 failed.	1. Turn the product off and then on. 2. Check the flat cables on the SCB. 3. Check the LEDs on the SCB. 4. Replace the SCB. See SCB, CPB, and SCUID on page 384. 5. Replace the scanner. See Optical scanner on page 354.
30.01.41 Scanner failure	There was a CPB error.	1. Check the SCB and CPB LEDs to verify that the scanner has power. 2. Verify that the scanner power cable is connected to the scanner power supply and fuser power supply. 3. Replace the CPB. See SCB, CPB, and SCUID on page 384.
30.01.42 Scanner failure	The scanner cable is disconnected.	1. Connect the scanner cable to the formatter. 2. Turn the product off and then on.
30.01.43 Scanner failure	The CPB memory is full.	1. Connect the CPB memory. 2. Turn the product off and then on. 3. Replace the CPB memory.
30.01.44 Scanner failure	There is an SCB communication error.	1. Turn the product off and then on. 2. Check the SCB/CPB connections. 3. Check the SCB LEDs.
30.01.45 Scanner failure	The CPB memory is full.	1. Turn the product off and then on. 2. Check the SCB/CPB connections. 3. Check the SCB LEDs.
30.01.46 Scanner failure	The CPB enumeration failed.	1. Turn the product off and then on. 2. Check the PCI cable at the scanner and formatter. 3. Check the SCB connections. 4. Replace the CPB. See SCB, CPB, and SCUID on page 384.
40 Embedded I/O Bad Transmission To continue touch OK	A temporary printing error occurred. The connection between the product and the EIO card in the specified slot has been broken.	Touch OK to clear the error message and continue printing. Turn the product off and then on.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
41.3 Load Tray <XX>: [Type] [Size]	The specified tray is loaded with media that is longer or shorter in the feed direction than the size adjusted for the tray. This message also appears if two or more sheets of media stick together in the product or if the tray is not adjusted correctly. If using glossy paper, ensure that it has been acclimated.	Touch OK to use another tray. Reconfigure the size in a tray so that the product will use a tray that is loaded with the correct media size. If the message does not clear automatically from the control-panel display, turn the product off and then on.
41.5 Load Tray <XX>: [Type], [Size] To use another tray, touch OK	The product detected an unexpected paper size. There is a tray type mismatch. The tray is a cassette and there is another tray available for use.	To continue, load the tray with the size and type indicated. Or, if another tray is available, touch OK to use it. This problem affects printing, but some scan functions might still be available.
41.X ERROR To continue touch OK	A temporary printing error occurred.	Touch OK to clear the error. If the error is not cleared, turn the product off and then on.
48.01 Transfer unit error	The ITB top sensor malfunctioned.	Turn the product off and then on. Check the sensor and replace the ITB. See Intermediate transfer belt (ITB) on page 234.
49.XXXXX ERROR To continue turn off then on	A critical firmware error occurred.	Remove third-party products. Turn the product off and then on.
50.1 Fuser error	The fuser experienced a low-temperature error while printing or after it warmed up.	1. Remove any paper jams from the fuser area. See AREA 2 and 3: Jams in the fuser and transfer area on page 525. 2. Reinstall the fuser. Fuser on page 229. Check the connector (J1901) between the fuser and the product. Replace the cable or fuser if the connector is damaged. 3. Reconnect the connectors of the thermopile (J1990), fuser control PCA (J302, J305, J306, J309), and the DC controller PCA (J107). 4. Replace the fuser. See Fuser on page 229. 5. Replace the fuser power supply unit. See Fuser power-supply unit on page 287. 6. Replace the thermopile. See Thermopile unit on page 330.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
50.2 Fuser error	The fuser experienced a warm-up error.	1. Reinstall the fuser. Check the connector (J1901) between the fuser and the product. Replace the cable or fuser if the connector is damaged. 2. Reconnect the connectors of the thermopile (J1990), fuser control PCA (J302, J305, J306, J309), and the DC controller PCA (J107). 3. Replace the fuser. See Fuser on page 229. 4. Replace the fuser power supply unit. See Fuser power-supply unit on page 287. 5. Replace the thermopile. See Thermopile unit on page 330.
50.3 Fuser error	The fuser experienced a high-temperature error.	1. Reinstall the fuser. Check the connector (J1901) between the fuser and the product. Replace the cable or fuser if the connector is damaged. 2. Reconnect the connectors of the thermopile (J1990), fuser control PCA (J302, J305, J306, J309), and the DC controller PCA (J107). 3. Replace the fuser. See Fuser on page 229. 4. Replace the fuser power supply unit. See Fuser power-supply unit on page 287. 5. Replace the thermopile. See Thermopile unit on page 330.
50.4 Fuser error	There was an error with the fuser driver circuit.	1. Reconnect the connectors of the fuser control PCA (J305) and the DC controller PCA (J107). 2. If the product does not meet the power requirement of 40 to 70Hz frequency, the fuser temperature control will not work properly, which will cause a malfunction. 3. Check the low-voltage power supply unit for proper voltage. 4. Replace the fuser power supply unit. See Fuser power-supply unit on page 287.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
50.5 Fuser error	The fuser experienced a type-mismatch error.	1. Ensure that the fuser is the correct voltage. 2. Reinstall the fuser. Check the connector (J1901) between the fuser and the product. Replace the cable or fuser if the connector is damaged. 3. Reconnect the connectors of the fuser control PCA (J303, J305), low-voltage power supply unit (J6), and the DC controller PCA (J102, J207). 4. Replace the fuser. See Fuser on page 229.
50.7 Fuser error	The fuser experienced a pressure-release mechanism error.	1. Reconnect the connectors of the fuser motor (J1720), fuser-unit home-position sensor (J1965), intermediate (J1964), and the DC controller PCA (J105, J121). 2. Test the fuser pressure-release sensor by performing the paper-path test or the manual sensor test in the Troubleshooting menu. See Paper-path sensors test on page 588. 3. Check the sensor flag of the fuser pressure-release sensor. If the sensor flag is damaged, replace the fuser. See Fuser on page 229. 4. Check the inside gear on the product that drives the fuser. 5. Perform the fuser motor and fuser pressure-release motor component tests in the Troubleshooting menu. See Paper-path sensors test on page 588. 6. Replace the fuser motor. See Fuser motor on page 265. 7. Replace the fuser. See Fuser on page 229.
50.8 Fuser error	The fuser experienced a low-temperature error.	1. Remove any paper jams from the fuser area. 2. Reinstall the fuser. Check the connector (J1901) between the fuser and the product. Replace the cable or fuser if the connector is damaged. 3. Reconnect the connectors of the fuser control PCA (J302, J303, J305) and the DC controller PCA (J107). 4. Replace the fuser. See Fuser on page 229. 5. Replace the fuser power supply unit. See Fuser power-supply unit on page 287.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
50.9 Fuser error	The fuser experienced a high-temperature error.	1. Reinstall the fuser. Check the connector (J1901) between the fuser and the product. Replace the cable or fuser if the connector is damaged. 2. Reconnect the connectors of the fuser control PCA (J302, J303, J305) and the DC controller PCA (J107). 3. Replace the fuser. See Fuser on page 229. 4. Replace the fuser power supply unit. See Fuser power-supply unit on page 287.
50.A Fuser Error	There is a low-temperature error.	1. Remove any paper jams from the fuser area. See AREA 2 and 3: Jams in the fuser and transfer area on page 525. 2. Reinstall the fuser. Check the connector (J1901) between the fuser and the product. Replace the cable or fuser if the connector is damaged. 3. Reconnect the connectors of the fuser control PCA (J302, J303, J305) and the DC controller PCA (J107). 4. Replace the fuser. See Fuser on page 229. 5. Replace the fuser power supply unit. See Fuser power-supply unit on page 287.
50.B Fuser Error	There is a high-temperature error.	1. Reinstall the fuser. Check the connector (J1901) between the fuser and the product. Replace the cable or fuser if the connector is damaged. 2. Reconnect the connectors of the fuser control PCA (J302, J303, J305) and the DC controller PCA (J107). 3. Replace the fuser. See Fuser on page 229. 4. Replace the fuser power supply unit. See Fuser power-supply unit on page 287.
51.1Y Error To continue turn off and then on	There is a beam detect error. • 51.10=black • 51.11=cyan • 51.12=magenta • 51.13=yellow	1. Turn the product off and then on. 2. Check the connectors on the laser scanner. 3. Replace the specific laser scanner. See Laser/scanner assembly (cyan and black) on page 315 or Laser/scanner assembly (yellow and magenta) on page 312.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
51.2Y Error To continue turn off and then on	There is a laser error. • 51.20=black • 51.21=cyan • 51.22=magenta • 51.23=yellow	1. Turn the product off and then on. 2. Check the connectors on the laser scanner. 3. Replace the specific laser scanner. See Laser/scanner assembly (cyan and black) on page 315 or Laser/scanner assembly (yellow and magenta) on page 312.
52.00 Error To continue turn off and then on	The scanner experienced a startup error.	1. Perform the laser scanner component tests in the Troubleshooting menu. 2. Depending on the test results, perform one of the following steps: ◦ If the cyan or black component tests showed a startup failure, reconnect the connectors of the cyan/black scanner motor (J1702) and the DC controller PCA (J129). ◦ If the yellow or magenta component tests showed a startup failure, reconnect the connectors of the yellow/magenta scanner motor (J1701) and the DC controller PCA (J129). 3. Replace the cyan/black laser scanner unit or the yellow/magenta laser scanner unit. See Laser/scanner assembly (cyan and black) on page 315 or Laser/scanner assembly (yellow and magenta) on page 312.
52.10 Error To continue turn off and then on	There is a laser scanner startup error.	Check the cyan/black laser scanner unit or the yellow/magenta laser scanner unit.
52.20 Error To continue turn off and then on	The scanner experienced a rotational error.	1. Perform the laser scanner component tests in the Troubleshooting menu. 2. Depending on the test results, perform one of the following steps: ◦ If the cyan or black component tests showed a startup failure, reconnect the connectors of the cyan/black scanner motor (J1702) and the DC controller PCA (J129). ◦ If the yellow or magenta component tests showed a startup failure, reconnect the connectors of the yellow/magenta scanner

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		motor (J1701) and the DC controller PCA (J129). 3. Replace the cyan and black laser-scanner assembly or the yellow and magenta laser-scanner assembly. See Laser/scanner assembly (cyan and black) on page 315 or Laser/scanner assembly (yellow and magenta) on page 312.
53.10.0X Unsupported DIMM	An unsupported DIMM is installed.	Turn the product off, and then replace the DIMM that caused the error. See Install DDR memory DIMMs on page 107.
54.01 Error	The environmental sensor experienced an error.	1. Reconnect the connector of the DC controller PCA (J115). 2. Replace the environmental sensor. See Environmental sensor on page 279.
54.15 Error	The yellow-toner-level sensor experienced an error.	1. Reconnect the connectors of the print-cartridge interface PCA (yellow and magenta). 2. Replace the print-cartridge interface PCA (yellow and magenta). See Print-cartridge interface PCA (yellow and magenta) on page 296.
54.16 Error	The magenta-toner-level sensor experienced an error.	1. Reconnect the connectors of the print-cartridge interface PCA (yellow and magenta). 2. Replace the print-cartridge interface PCA (yellow and magenta). See Print-cartridge interface PCA (yellow and magenta) on page 296.
54.17 Error	The cyan-toner-level sensor experienced an error.	1. Reconnect the connectors of the print-cartridge interface PCA (cyan and black). 2. Replace the print-cartridge interface PCA (cyan and black). See Print-cartridge interface PCA (cyan and black) on page 295.
54.18 Error	The black-toner-level sensor experienced an error.	1. Reconnect the connectors of the print-cartridge interface PCA (cyan and black). 2. Replace the print-cartridge interface PCA (cyan and black). See Print-cartridge interface PCA (cyan and black) on page 295.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
55.00.YY DC Controller Communication Error To continue turn off and then on	The DC controller experienced a communication error.	1. Turn the product off and then on. 2. Perform an engine test. See Engine-test button on page 584. 3. Verify the connectors on the DC controller. 4. Replace the DC controller. See DC controller PCA on page 277.
55.01.YY DC Controller Memory Error To continue turn off and then on	There is an error with the DC controller memory.	1. Turn the product off and then on. 2. Perform an engine test. See Engine-test button on page 584.. 3. Verify the connectors on the DC controller. 4. Replace the DC controller. See DC controller PCA on page 277.
55.02.YY Outgoing Parity Error To continue turn off and then on	There is a DC controller outgoing parity error.	1. Turn the product off and then on. 2. Perform an engine test. See Engine-test button on page 584. 3. Verify the connectors on the DC controller. 4. Replace the DC controller. See DC controller PCA on page 277.
55.03.YY No Engine Response To continue turn off and then on	DC controller no response error.	1. Turn the product off and then on. 2. Perform an engine test. See Engine-test button on page 584. 3. Verify the connectors on the DC controller. 4. Replace the DC controller. See DC controller PCA on page 277.
55.04.YY Communications Timeout To continue turn off and then on	There was a DC controller communications timeout.	1. Turn the product off and then on. 2. Perform an engine test. See Engine-test button on page 584. 3. Verify the connectors on the DC controller. 4. Replace the DC controller. See DC controller PCA on page 277.
55.05 Error To continue turn off and then on	An interruption occurred during a remote firmware update.	1. Turn the product off and then on. 2. Remove any third-party hardware. 3. Attempt the remote firmware update again.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
56.01 - Illegal input To continue turn off and then on	There was an illegal input.	1. Turn the product off and then on. 2. Remove any third-party hardware. 3. Attempt the remote firmware update again.
56.02 - Illegal output To continue turn off and then on	There was an illegal output.	Turn the product off and then on.
57.01 Error To continue turn off and then on	The VOC fan (FM4) experienced an error.	1. Reconnect the connectors of the VOC fan (J1921) and the DC controller PCA (J103). 2. Measure the voltage between connectors J103-4 and J103-6 on the DC controller PCA right after the product is turned on. If the voltage changes from 0V to approximately 24V, replace the VOC fan. See VOC fan on page 318.
57.03 Error To continue turn off and then on	The fuser cooling fan (FM2) experienced an error.	1. Reconnect the connectors of the fuser cooling fan (J1917) and the DC controller PCA (J132). 2. Measure the voltage between connectors J132-7 and J132-9 on the DC controller PCA right after the product is turned on. If the voltage changes from 0V to approximately 24V, replace the cartridge-area cooling fan. See Cartridge fan unit on page 285.
57.04 Error To continue turn off and then on	The cartridge-area cooling fan (FM3) experienced an error.	1. Reconnect the connectors of the cartridge-area cooling fan (J1915) and the DC controller PCA (J132). 2. Measure the voltage between connectors J132-1 and J132-3 on the DC controller PCA right after the product is turned on. If the voltage changes from 0V to approximately 24V, replace the cartridge-area cooling fan. See Cartridge fan unit on page 285.
57.05 Error To continue turn off and then on	The low-voltage power-supply cooling fan (FM5) experienced an error.	1. Reconnect the connectors of the low-voltage power-supply cooling fan (J2), low-voltage power supply (J6), and the DC controller PCA (J102). 2. Measure the voltage between connectors J2-1 and J2-3 on the low-voltage power-supply cooling fan right after the product is turned on. If the voltage changes from 0V to approximately 24V, replace the low-voltage power-supply cooling fan.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
57.06 Error To continue turn off and then on	The cartridge-front-area cooling fan (FM6) experienced an error.	1. Reconnect the connectors of the cartridge-front-area cooling fan (J1934) and the DC controller PCA (J103). 2. Measure the voltage between connectors J103-1 and J103-3 on the DC controller PCA right after the product is turned on. If the voltage changes from 0V to approximately 24V, replace the cartridge-front-area cooling fan.
57.07 Error To continue turn off and then on	The laser/scanner-unit cooling fan (FM1) experienced an error.	1. Reconnect the connectors on the laser/scanner unit cooling fan and the DC controller PCA. 2. Replace the laser/scanner unit cooling fan. See Laser/scanner fan unit on page 286.
57.08 Error To continue turn off and then on	The delivery-unit cooling fan (FM7) experienced an error.	1. Reconnect the connectors of the delivery-unit cooling fan (J1910) and the DC controller PCA (J103). 2. Measure the voltage between connectors J103-7 and J103-9 on the DC controller PCA right after the product is turned on. If the voltage changes from 0V to approximately 24V, replace the delivery-unit cooling fan.
57.09 Error To continue turn off and then on	The scanner fan or control panel fan has failed.	1. Check if the scanner fan or control panel fan is running while the engine is running. You may be able to hear the fans. If not, perform a visual inspection. 2. If the fans are not running, determine if the lights on the CPB are on. If so, the connectors at the fan or at the scanner power supply may be disconnected. 3. If only one fan is not running, try switching the connectors at the power supply. If the failure follows the connection, the power supply may have failed. If the same fan fails regardless of the connection, replace the failed fan.
59.30 Error To continue turn off and then on	The fuser motor experienced a startup error.	1. Perform the fuser motor component test in the **Troubleshooting** menu. 2. Reconnect the connectors of the fuser motor (J1711), intermediate (J1720), and the DC controller PCA (J105). 3. Replace the fuser motor. See Fuser motor on page 265.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
59.40 Error To continue turn off and then on	The fuser motor experienced a rotational error.	1. Perform the fuser motor component test in the **Troubleshooting** menu. 2. Reconnect the connectors of the fuser motor (J1711), intermediate (J1720), and the DC controller PCA (J105). 3. Replace the fuser motor. See Fuser motor on page 265.
59.50 Error To continue turn off and then on	The black-image-drum motor experienced a startup error.	1. Perform the image-drum motors component test in the **Troubleshooting** menu. 2. Reconnect the connectors of the black-image-drum motor (J1715) and the DC controller PCA (J139). 3. Replace the black-image-drum motor. See Image-drum motor on page 280.
59.51 Error To continue turn off and then on	The cyan-image-drum motor experienced a startup error.	1. Perform the image-drum motors component test in the **Troubleshooting** menu. 2. Reconnect the connectors of the cyan-image-drum motor (J1714) and the DC controller PCA (J139). 3. Replace the cyan-image-drum motor. See Image-drum motor on page 280.
59.52 Error To continue turn off and then on	The magenta-image-drum motor experienced a startup error.	1. Perform the image-drum motors component test in the **Troubleshooting** menu. 2. Reconnect the connectors of the magenta-image-drum motor (J1713) and the DC controller PCA (J138). 3. Replace the magenta-image-drum motor. See Image-drum motor on page 280.
59.53 Error To continue turn off and then on	The yellow-image-drum motor experienced a startup error.	1. Perform the image-drum motors component test in the Troubleshooting menu. 2. Reconnect the connectors of the yellow-image-drum motor (J1712) and the DC controller PCA (J138). 3. Replace the yellow-image-drum motor. See Image-drum motor on page 280.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
59.60 Error Black Image Drum Motor rotation error	The black-image-drum motor experienced a rotational error.	1. Perform the image-drum motors component test in the **Troubleshooting** menu. 2. Reconnect the connectors of the black-image-drum motor (J1715) and the DC controller PCA (J139). 3. Replace the black-image-drum motor. See Image-drum motor on page 280.
59.61 Error To continue turn off and then on	The cyan-image-drum motor experienced a rotational error.	1. Perform the image-drum motors component test in the **Troubleshooting** menu. 2. Reconnect the connectors of the cyan-image-drum motor (J1714) and the DC controller PCA (J139). 3. Replace the cyan-image-drum motor. See Image-drum motor on page 280.
59.62 Error To continue turn off and then on	The magenta-image-drum motor experienced a rotational error.	1. Perform the image-drum motors component test in the **Troubleshooting** menu. 2. Reconnect the connectors of the magenta-image-drum motor (J1713) and the DC controller PCA (J138). 3. Replace the magenta-image-drum motor. See Image-drum motor on page 280.
59.63 Error To continue turn off and then on	The yellow-image-drum motor experienced a rotational error.	1. Perform the image-drum motors component test in the **Troubleshooting** menu. 2. Reconnect the connectors of the yellow-image-drum motor (J1712) and the DC controller PCA (J138). 3. Replace the yellow-image-drum motor. See Image-drum motor on page 280.
59.90 Error To continue turn off and then on	The ITB motor rotated abnormally.	Check the ITB motor and ITB unit.
59.A0 Error To continue turn off and then on	The ITB motor rotated abnormally.	Check the ITB motor and ITB unit.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
59.C0 Error To continue turn off and then on	The developer-disengagement motor experienced a rotational error.	1. Perform the alienation motor component tests in the **Troubleshooting** menu. 2. Reconnect the connectors of the yellow/magenta-developing disengagement motor (J1719), cyan/black-developing disengagement motor (J1718), print cartridge PCA (J404, J405, J406, J408), and the DC controller PCA (J141, J142). 3. Check the print-cartridge drive unit if the adjustment pin sticks in. 4. Check the main drive unit if the lever locks. 5. Replace the primary-transfer-roller disengagement motor. See Primary transfer-roller disengagement motor on page 288.
59.F0 Error To continue turn off and then on	The primary-transfer-roller disengagement motor experienced an error.	1. Check the ITB-alienation sensor (m) by performing either the manual sensor test or the paper-path sensors test in the **Troubleshooting** menu. 2. Reconnect the connectors of the ITB home-position sensor (J2010), the cartridge driver PCA (J406, J407), and the DC controller PCA (J142). 3. Perform the ITB contact/alienation component test in the **Troubleshooting** menu. 4. Reconnect the connectors of the primary-transfer-roller disengagement motor (J1709) and the DC controller PCA (J110). 5. Replace the primary-transfer-roller disengagement motor. See Primary transfer-roller disengagement motor on page 288.
59.XY ERROR To continue turn off then on	A temporary printing error occurred.	Turn the product off and then on.
60.02 Tray 2 lifting error	The Tray 2 lifter motor experienced an error.	1. Check the Tray-2 paper-surface sensor in the Manual Sensor Test 2 menu in the **Troubleshooting** menu. 2. Reconnect the connectors of the cassette lifter motor (J1920) and the DC controller PCA (J112). 3. Replace the lifter drive unit. See Lifter-drive unit on page 262.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
60.03 Tray 3 lifting error	The Tray 3 lifter motor experienced an error.	1. Check the Tray-3 paper-surface sensor in the Manual Sensor Test 2 menu in the **Troubleshooting** menu. 2. Reconnect the connectors of the cassette lifter motor (J1920) and the DC controller PCA (J112). 3. Replace the lifter drive unit. See Lifter-drive unit on page 262.
60.04 Tray 4 lifting error	The Tray-4 lifter motor experienced an error.	1. Check the Tray-4 paper-surface sensor in the Manual Sensor Test 2 menu in the **Troubleshooting** menu. 2. Reconnect the connectors of the cassette lifter motor (J1920) and the DC controller PCA (J112). 3. Replace the lifter drive unit. See Lifter-drive unit on page 262.
60.05 Tray 5 lifting error	The Tray 5 lifter motor experienced an error.	1. Check the Tray-5 paper-surface sensor in the Manual Sensor Test 2 submenu in the **Troubleshooting** menu. 2. Reconnect the connectors of the cassette lifter motor (J1920) and the DC controller PCA (J112). 3. Replace the lifter drive unit. See Lifter-drive unit on page 262.
60.<XX> Tray <X> lifting error	The tray number specified by <XX> is in the process of lifting the paper to the top of the tray for proper feeding, and an obstruction prevents the tray from lifting properly.	1. Open the tray indicated. 2. Remove loaded paper, move guides out of the way, and remove any foreign objects. 3. Reload paper in the tray and make sure the guides are next to the paper. Do not load above the fill tabs. 4. Close the tray. Turn the product off and then on.
65.12.99 Output accessory disconnected	An external paper-handling product connection has been interrupted.	Check that all external paper-handling products are seated and connected properly. Reconnect any loose external product cables. If the error reappears, turn the product off and then on.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.00.15	This error occurs when a firmware upgrade is in progress and the 24V DC voltage from the engine to the finisher is interrupted. An unexpected boot-up intent signal is detected causing the error message to be displayed. This error also occurs when too much time (more than 25 minutes) has elapsed during a firmware upgrade. This error also occurs during a 65.12.99 error state, which is caused when the printer is on and the finisher is disconnected, and a different model finisher or the same model finisher with a different version of firmware is connected to the printer.	If the error message occurs during a firmware upgrade, allow the upgrade to continue without interruption. When the upgrade is complete, the printer will power cycle automatically, which may remove the error message. If the system reboots from the firmware upgrade and a message requesting that the upgrade be performed again appears, or if the error originally occurred due to the firmware upgrade taking longer than 25 minutes, perform the following procedure: 1. Turn off the printer and disconnect the finisher. 2. Remove the IPTU and inspect the IPTU connectors for damage. Replace the IPTU if the connectors are damaged. Otherwise, reinstall the IPTU, making sure that the two securing screws are tight. 3. Ensure that the grounding frame assembly (the bar with the wheel located between the printer and the finisher) is in the down position with the wheel touching the floor, and that the grounding plate is not damaged. **NOTE:** The grounding-frame assembly is in the up position when the finisher ships. It must be lowered when the finisher is installed to ensure proper grounding. 4. Reconnect the finisher to the printer. 5. Inspect and reconnect the Jet Link cable (power and communication cable) from the finisher to the printer. 6. Turn the printer on. 7. Perform a firmware upgrade. 8. If the error displays again, replace the Stacker Controller PCA and upgrade the firmware again. If a firmware upgrade was not in process when the error occurred: 1. Turn off the printer and disconnect the finisher. 2. Remove the IPTU and inspect the IPTU connectors for damage. Replace the IPTU if the connectors are damaged. Otherwise, reinstall the IPTU, making sure that the two securing screws are tight. 3. Ensure that the grounding frame assembly (the bar with the wheel located between the printer and the finisher) is in the down position with the wheel touching the floor, and that the grounding plate is not damaged. **NOTE:** The grounding-frame

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.12.01	Finisher to engine communication error The communication between the print engine and the finisher has been interrupted or lost.	Control-panel diagnostics: none 1. Verify that the latest firmware updates are installed for the engine and finisher. 2. Make sure that the finisher is properly grounded. ◦ Ensure that the finisher is latched and locked to the engine by tightening the thumbscrew inside the front door. ◦ Ensure that the grounding-frame assembly (the bar with the wheel located between the engine and the finisher) is in the down position with the wheel touching the floor and that the grounding plate is not damaged. **NOTE:** The grounding-frame assembly is in the up position when the finisher is shipped. It must be lowered when the finisher is installed. 3. Make sure that the communication cable from the engine to the finisher is correctly installed. 4. Verify that connectors J701 and J726 on the stacker controller PCA are fully seated and not damaged. 5. Remove and inspect the electrical connections for damage and then reinstall the IPTU. Make sure that the connector is fully seated and that the IPTU is securely fastened. 6. If the error persists, replace the IPTU. 7. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.
66.12.02	Finisher board communication error Occurs when the finisher's stacker-controller board has had a internal communication problem between the two processors on the board.	Control-panel diagnostics: none 1. Make sure that the finisher is properly grounded. ◦ Ensure that the finisher is latched and locked to the engine by tightening the thumbscrew inside the front door. ◦ Ensure that the grounding-frame assembly (the bar with the wheel located between the engine and the finisher) is in the down position with the wheel touching the floor

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		and that the grounding plate is not damaged. **NOTE:** The grounding-frame assembly is in the up position when the finisher is shipped. It must be lowered when the finisher is installed. 2. Verify that the latest firmware updates are installed for the engine and finisher. 3. If the error persists, replace the stacker controller PCA. See Stacker controller PCA on page 828.
66.12.03	Finisher control board RAM error The checksum for the finisher stacker controller PCA has an error when the power is turned on.	Control-panel diagnostics: none 1. Make sure that the finisher is properly grounded. ◦ Ensure that the finisher is latched and locked to the engine by tightening the thumbscrew inside the front door. ◦ Ensure that the grounding-frame assembly (the bar with the wheel located between the engine and the finisher) is in the down position with the wheel touching the floor and that the grounding plate is not damaged. **NOTE:** The grounding-frame assembly is in the up position when the finisher is shipped. It must be lowered when the finisher is installed. 2. Turn the engine power off and then on to try clearing this error. 3. If the error persists, replace the stacker controller PCA. See Stacker controller PCA on page 828.
66.12.11	Finisher error: swing motor (M36) and the swing-guide home-position sensor (PI35) Occurs when the swing guide does not leave its home position (swing-guide home-position sensor: PI35) after the swing motor (M36) is activated for 3 seconds. Also occurs when the swing guide does not return to its home position (swing-guide home-position sensor: PI35) after the swing motor (M36) is activated for 3 seconds.	Control-panel diagnostics: M36 (Swing Motor) and PI35 (Swing Guide Home Position Sensor) 1. Test the swing motor M36 by using the finisher component test from the control-panel display.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		NOTE: When activated during the component test, the motor should rotate for about five seconds. While the motor is rotating, make sure that the swing guide is moving up or down at the exit area for stapling and stacking. ◦ If the swing guide freely moves up and down, proceed to the next step (testing the swing-guide sensor PI35). ◦ If the swing guide does not freely move up and down, remove the finisher rear cover and use your hand to turn the gear located to the right of motor M36 clockwise. • If the swing guide moves upward, the gears are properly working. Replace motor M36. If after replacing the motor the motor still does not turn on, replace the stacker controller PCA. See Stacker controller PCA on page 828. • If the swing guide does not move, inspect the gears and replace damaged components as necessary. 2. Test the swing-guide sensor PI35 by using the finisher component test from the control-panel display. **NOTE:** Manually lift the swing guide to the highest position, and then look at the control-panel display and verify a change in state for the sensor. ◦ If the sensor state does not change, perform the following steps: • Verify that the connector J707 on the stacker controller PCA is fully seated and not damaged. • Manually activate the sensor PI35 at the sensor body. If the control panel does not indicate a change of state, replace the sensor. • If raising the swing guide does not activate the sensor but it can be manually activated at the sensor body,

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		replace the swing-guide assembly. ◦ If the PI35 sensor state does change, check the drive gears for damage or obstructions. Replace components as necessary.
66.12.12	Finisher error - shutter movement malfunction Normal operation: When the shutter clutch (CL31) and stack-ejection lower-roller clutch (CL32) are on, the shutter moves up (closed) when the stack-ejection motor (M32) turns forward and moves down (open, delivery enabled) when the motor turns backwards. Error occurs when the shutter home-position sensor (PI45) indicates no change when the stack-ejection motor (M32) is activated for 3 seconds, indicating that the shutter is not moving.	Control-panel diagnostics: none 1. Inspect the shutter for damage. If the shutter cannot freely move, replace the shutter assembly. 2. Remove the lower guide (grate-shaped) and check sensor PI45 for damage. Make sure that the sensor is securely fastened to the chassis. 3. Check for proper alignment of the shutter mounted on the back of the grate-shaped lower guide and the lift mechanism on the finisher chassis. 4. Verify that connector J721 on the stacker controller PCA is fully seated and not damaged. 5. Check CL31 during operation, and verify that it is correctly functioning by activating prior to the error. Replace CL31 if necessary. 6. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.
66.12.13	Finisher error - stack trailing-edge motor (M39) In order to improve stacking performance when ejecting copies, a trailing-edge assist guide is used in addition to the stack-ejection roller to support the rear end of the stack during stack ejection. Error occurs when the stacker trailing-edge guide does not leave its home position (PI39) after the stack trailing-edge motor (M39) has been turned on for 3 seconds.	Control-panel diagnostics: M39 process motor (stack trailing-edge assist motor) Test the swing motor M39 by using the finisher component test from the control-panel display. ● If the trailing-edge assist guide does not move, perform the following steps: ◦ Verify that connector J722 on the stacker controller PCA is fully seated and not damaged. Also check the wiring at motor M39 and sensor PI39. ◦ Replace the operation-tray assembly (processing tray). See Positioning plate unit (inner side-plate assembly) (booklet maker only) on page 791. ◦ Only if the error persists and none of the previous steps correct the problem, replace the stacker

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		controller PCA. See Stacker controller PCA on page 828. • If the trailing-edge assist guide does move, perform the following steps: ◦ Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. ◦ Verify that the sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. ◦ Verify that connector J722 on the stacker controller PCA is fully seated and not damaged. Also check the wiring at sensor PI39. ◦ Replace the operation-tray assembly (processing tray). See Positioning plate unit (inner side-plate assembly) (booklet maker only) on page 791. ◦ Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.
66.12.14	Finisher stapling and offsetting front-aligning-plate motor failure In order to neatly align the paper stack for either stapling or offsetting to take place, the front and rear aligning plates move to align each sheet when it enters the processing tray. The error occurs when the aligning plate either does not leave or when it does not return to the aligning-plate front-home-position sensor (PI36) when the front-aligning-plate motor (M33) has been driven for 4 seconds.	Control-panel diagnostics: none 1. Verify that **Offsetting** is turned **On** in the **Device Behavior** menu. 2. Verify that connector J722 on the stacker controller PCA is fully seated and not damaged. Also check the wiring at sensor PI39 and motor M33. 3. Replace the operation-tray assembly (processing tray). See Positioning plate unit (inner side-plate assembly) (booklet maker only) on page 791. 4. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.12.15	Finisher stapling or offsetting rear-aligning-plate motor failure (M34) In order to neatly align the paper stack for either stapling or offsetting to take place, the front and rear aligning plates move to align each sheet when it enters the processing tray. The error occurs when the aligning plate either does not leave or when it does not return to the aligning-plate rear-home-position sensor (PI37) when the rear-aligning-plate motor (M34) has been driven for 4 seconds.	Control-panel diagnostics: none 1. Verify that **Offsetting** is turned **On** in the **Device Behavior** menu. 2. Verify that connector J722 on the stacker controller PCA is fully seated and not damaged. Also check the wiring at sensor PI37 and motor M34. 3. Replace the operation-tray assembly (processing tray). See Positioning plate unit (inner side-plate assembly) (booklet maker only) on page 791. 4. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.
66.12.16	Finisher error - speed-change motor (M40) The speed-change motor M40 and sensor PI49 associated with this error have been removed from the output device prior to introduction to the field. This error message should never be seen in the field.	If error message appears, contact your dealer for support. HP Support: Report error to Technical Marketing.
66.12.21	Finisher upper-stapler motor failure (M41) Error occurs either when the stapler does not leave stapler home position (PI50) after staple motor (M41) is driven for 0.4 seconds or when it does not return to stapler home position after the staple motor has detected a motor-lock condition and the motor is driven backwards for 0.4 seconds, attempting to reach home position. **NOTE:** PI50 and M41 are located on the stapler assembly and can only be replaced by replacing entire stapler assembly. M41 (Staple Motor) drives the insertion and crimping of the staple only (not location of the staple on paper). PI50 senses the home position of the stapler as it is inserting and crimping a staple only (not location of the staple on the paper). The stapler-safety switch (MS34) that assures that stapler motor (M41) is disabled when it senses a finger may be in the stapler.	Control-panel diagnostics: none 1. Check the stapler unit for jammed staples. 2. Check the stapler unit for loose staples and paper dust. 3. Make sure that the stapler unit is fully seated. 4. Verify that connector J717 on the stacker controller PCA is fully seated and not damaged. Check the wiring at the stapler unit and the stapler PCA. 5. Replace the stapler. See Stapler on page 774.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.12.22	Finisher upper stapler-shift motor failure (M35) Error occurs when the stapler does not leave the stapler-shift home-position sensor (PI40) after the stapler-shift motor (M35) has driven for 5 seconds. Also occurs when the stapler fails to return to the stapler-shift home-position sensor (PI40) after the stapler-shift motor (M35) has been driven for 20 seconds.	Control-panel diagnostics: M35-Staple Motor (Stapler-Shift Motor) and PI140-Stapler Home Sensor (Stapler Home Position Sensor) 1. Test the upper stapler-shift motor M35 by using the finisher component test from the control-panel display. ◦ If the stapler unit moves properly, proceed to the next step in this section. ◦ If the stapler unit does not move properly or moves erratically, perform the following steps: • Check the flat-flexible cable (FFC) for damage (dents, folds, and/or tears). Replace the FFC if necessary. • Check the FFC connectors and cable mounting areas. • If the error persists, replace the stapler assembly. See Stapler on page 774. 2. Test the stapler-shift home-position sensor PI40 by using the finisher component test from the control-panel display. ◦ If the sensor does not change state when the stapler unit is moved from the home position, perform the following steps: • Make sure that the sensor is securely fastened to the chassis. • Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. • Verify that connector J1040 on the stacker controller PCA is fully seated and not damaged. Check the wiring at the sensor. • If the error persists, replace the stapler assembly. See Stapler assembly on page 776.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		NOTE: The stapler assembly includes the stapler-shift home position sensor PI40, stapler unit, shift-position-plate assembly, and the flat-flexible cable (FFC).
66.12.23	Finisher upper stapler failure Occurs when stapler-alignment-interference sensor (PI46) is activated, signaling that the stapler unit is not in its proper position for stapling to occur. This is to prevent damage to stapler from occurring when stapler is positioned over one of the three stoppers when the signal to staple has been sent.	Control-panel diagnostics: none 1. If the stapler unit does not move properly or moves erratically, check the flat-flexible cable (FFC) for damage (dents, folds, and/or tears). Replace the FFC if necessary. 2. If the stacker controller PCA was recently replaced, use the steps in this manual to adjust the staple alignment and staple position. See Adjust the staple position on page 859. 3. If the stapler is not positioned over a stopper when this error occurs, perform the following steps. ◦ Make sure that the stapler unit is correctly mounted and securely fastened to the base. ◦ Make sure that the sensor is not obstructed or damaged. Verify that the sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. ◦ If the error persists, replace the stapler subassembly. See Stapler on page 774. **NOTE:** The stapler subassembly includes the stapler unit and base.
66.12.31	Finisher error - 1st-tray lift/lower motor (M37) Occurs when the output-bin 1 does not activate the home-position sensor (PI41) when the output-bin-1-shift motor (M37) is driven for 20 seconds. Also occurs when output-bin 1 does not move when output-bin-1-shift motor (M37) is driven for 4 seconds. Also occurs when the output-bin-1 switch (MSW33) is activated while output-bin 1 is operating. **NOTE:** Output-bin-1 home position is detected using the top sheet of paper on the bin when paper is present and the edge of the bin itself when there is no paper on the bin.	Control-panel diagnostics: M37 tray 1 (output-bin 1 motor) **NOTE:** M37 moves both output bin 1 and the upper output bin that is attached to output bin 1 on the stapler stacker finisher, but only output bin 1 on the booklet maker finisher. 1. Manually release output bin 1, and position it at the mid point of its travel area. Test the output-bin-1-shift motor

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		M37 by using the finisher component test from the control-panel display. ◦ If output bin 1 moves during the test, perform the following steps. • If the paper-surface sensor flag was recently removed or replaced, make sure that it is installed correctly. **NOTE:** The four tabs under the clips must be inserted into the slots behind the roller shaft of the lower stack-ejection roller. See Figure 8-191 Remove the operation-tray assembly (2 of 6) on page 795. • Verify that the paper-surface sensor flag is not damaged, moves freely, and is correctly aligned with the PI41 sensor body. Also verify that when the top edge of the output bin engages the sensor arm that the sensor flag moves into sensor PI41. • Make sure that the sensor is securely fastened to the chassis. • Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. • Verify that intermediate connector J1040 and J721 on the stacker controller PCA are fully seated and not damaged. Check the wiring at the sensor. • If the error persist, replace sensor PI41. • If the error persist, replace the output-bin-1 assembly. See Output-bin 1 on page 799.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		NOTE: The output-bin-1 assembly includes the output-bin-1-shift motor (M37), output-bin-1 switch (MSW33), output-bin-1 area sensors, and the output-bin-1 driver PCA. 2. If output bin 1 does not move during the test, perform the following steps. ◦ Check the output-bin tracks for damage. ◦ Replace the output-bin-1 assembly. See Output-bin 1 on page 799. **NOTE:** The output-bin-1 assembly includes the output-bin-1-shift motor (M37), output-bin-1 switch (MSW33), output-bin-1 area sensors, and the output-bin-1 driver PCA. ◦ Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.
66.12.32	Finisher error: second-tray lift/lower motor (M38) Occurs when the output-bin 2 does not activate the home-position sensor (PI48) when the output-bin-1 shift motor (M38) is driven for 20 seconds. Also occurs when output-bin 2 does not move when output-bin-1–shift motor (M38) is driven for 4 seconds. Also occurs when bin-2 upper limit is detected by PS983, PS982, PS981 on the Tray-2-shift PCA when no paper has been sensed by the output-bin-2 paper sensor (PI43). **NOTE:** output-bin-2 home position is detected using the top sheet of paper on the bin when paper is present and the edge of the bin itself when there is no paper on the bin.	Control-panel diagnostics: M38 (output-bin-2 motor) and PI48 output-bin-2 paper-surface sensor 1. Manually release output-bin 2, and position it at the mid point of its travel area. Test the output-bin-2-shift motor M38 by using the finisher component test from the control-panel display. ◦ If output bin 2 moves during the test, perform the following steps. • Verify that the paper-surface sensor flag is not damaged, moves freely, and is correctly aligned with the PI48 sensor body. Also verify that when the top edge of the output bin engages the sensor arm that the sensor flag moves into sensor PI41. • Make sure that the sensor is securely fastened to the chassis. • Carefully clean by gently blowing clean air across the sensor to remove dust and debris.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		• Verify that intermediate connector J1040 and J721 on the stacker controller PCA are fully seated and not damaged. Check the wiring at the sensor. • If the error persist, replace sensor PI48. • If the error persist, replace the output-bin-2 assembly. See Output-bin 2 on page 801. **NOTE:** The output-bin-2 assembly includes the output-bin-2-shift motor (M38), output-bin-2 area sensors, and the output-bin-2 driver PCA. 2. If output bin 2 does not move during the test, perform the following steps. ◦ Check the output-bin tracks for damage. ◦ Replace the output-bin-2 assembly. See Output-bin 2 on page 801. **NOTE:** The output-bin-2 assembly includes the output-bin-2-shift motor (M38), output-bin-2 area sensors, and the output-bin-2 driver PCA. ◦ Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.
66.12.34 Output accessory failure	An output accessory is not functioning properly.	1. Turn the product off. 2. Verify that all output accessories are securely connected. 3. If the product uses cables, disconnect and reconnect them.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.12.41	Finisher: folding-paper-positioning-plate motor (M4) The paper-positioning-plate motor (M4), located in the booklet making area of the finisher, controls the Up and down positioning of the stacked paper for stitch stapling and for folding. Error occurs when the paper-positioning-plate home-position sensor (PI7) does not turn on when the paper-positioning-plate motor (M4) has been driven for 1500 pulses. Also occurs when the paper-positioning-plate home-position sensor (PI7) does not turn off when the paper-positioning-plate motor (M4) has been driven for 300 pulses.	Control-panel diagnostics: M4-guide plate motor (paper-positioning-plate motor) 1. Test the paper-positioning-plate motor M4 by using the finisher component test from the control-panel display. During the test, observe the movement of the booklet-maker-guide plate, and make sure it is not obstructed or damaged. 2. Remove the booklet-maker output bin to gain access to the paper-position-plate home-position sensor PI7 and delivery door. Remove the plate that holds PI7, and carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. 3. Make sure that the sensor is securely fastened to the plate. 4. Check the wiring at the sensor. 5. If the error persists, replace sensor PI7 and the positioning-plate assembly together. 6. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.
66.12.42	Finisher error: folding-guide motor (M3) The guide motor (M3), located in the booklet-making area of the finisher, controls the position of the guide plate. The guide plate is positioned in front of the folding rollers as the paper stack is being stapled, allowing the bottom edge of the paper to smoothly pass by the folding rollers. When the stacked paper is lowered to the folding position, the guide motor (M3) lowers the guide plate out of the way to allow the paper stack to be pushed into the folding rollers. Error occurs when The guide-home-position sensor (PI13) does not turn on when the guide motor (M3) has been driven for 700 pulses. Also occurs when the guide-home-position sensor (PI13) does not turn off when the guide motor (M3) has been driven for 50 pulses.	Control-panel diagnostics: M3 guide motor 1. Carefully clean the sensor body by gently blowing clean air across the sensor to remove dust and debris. 2. Make sure that the sensor is securely fastened to the plate. 3. Check the wiring at the sensor. 4. Check sensor PI13 for damage. 5. Check the guide, gears, and gear tracks on the front and rear frame for damage. Replace components as necessary. 6. If the error persists, replace the guide motor M3 and the guide-home-position sensor PI13 together.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.12.43	Finisher error: paper-fold motor (M2) M2: paper-fold motor, located in the booklet making area of the finisher, drives the rotation of the folding rollers to create the desired fold in the paper. The error occurs when the number of pulses by the paper-fold-motor clock sensor (PI4) is less than expected standard value. Also occurs when the status of the paper-fold home-position sensor (PI21) does not change when the paper-fold motor (M2) has been driven for 3 seconds.	Control-panel diagnostics: M2 folding motor (paper-fold motor) 1. Check the area around the folding rollers for a jam. 2. Test the paper-fold motor M2 by using the finisher component test from the control-panel display. ◦ If the folding rollers rotate properly, perform the following steps: • Check sensor PI4 and sensor PI21 for damage. • Verify that the sensor flags are not damaged, move freely, and are correctly aligned with the PI48 and PI21 sensor bodies. • Make sure that the sensors are securely fastened to the chassis. • Carefully clean each sensor body with a clean, lint-free cloth, or gently blow clean air across each sensor to remove dust and debris. • Verify that connector J3 on the saddle-stitcher controller PCA is fully seated and not damaged. Check the wiring at the PI4 sensor. • Verify that connector J18 on the saddle-stitcher controller PCA is fully seated and not damaged. Check the wiring at the PI21 sensor. • If the error persists, replace sensor PI4 or PI21. • Only if the error persists and none of the previous steps correct the problem, replace the saddle-stitcher controller PCA. See Saddle-stitcher

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		controller PCA (booklet maker only) on page 829. ◦ If the folding rollers do not rotate properly, perform the following steps: • Check the folding-roller gears and connecting gears between the paper-fold motor M2 and the folding rollers for damage. Replace components as necessary. • Check the folding rollers for wear and damage. Replace components as necessary. • Replace the motor-mount assembly. **NOTE:** The motor-mount assembly includes the paper-fold motor M2 and the paper-fold motor-clock sensor PI4. • Only if the error persists and none of the previous steps correct the problem, replace the saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829.
66.12.44	Finisher - folding-paper-alignment motor (M5) M5 - The alignment motor, located in the booklet making area of the finisher, drives the two alignment plates that adjust the side edges of the stacked paper so that the paper in the stack is perfectly aligned with one another. Error occurs when the aligning-plate home-position sensor (PI5) does not turn on when the aligning-plate motor (M5) has been driven for 500 pulses. Also occurs when the aligning-plate home-position sensor (PI5) does not turn off when the aligning-plate motor (M5) has been driven for 50 pulses.	Control-panel diagnostics: none Observe the alignment plates during a booklet-maker stacking operation. • If the alignment plates move during the operation, perform the following steps: ◦ Check sensor PI5 for damage. ◦ Verify that the sensor flag is not damaged, moves freely, and is correctly aligned with the sensor body. ◦ Make sure that the sensor is securely fastened to the chassis. ◦ Carefully clean the sensor body by gently blowing clean air across the sensors to remove dust and debris. ◦ If the alignment plates or the alignment-plates drive gear has been removed or replaced, make sure that the plates are correctly

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		aligned with each other on the drive gear. • If the alignment plates do not move during the operation, perform the following steps: ◦ Remove motor M5 and check the gears between the motor and alignment plates for damage. Replace components as necessary. ◦ Verify that connector J7 on the saddle-stitcher controller PCA is fully seated and not damaged. Check the wiring at the M5 motor. ◦ Replace the alignment motor M5. ◦ Only if the error persists and none of the previous steps correct the problem, replace the saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829.
66.12.45	Finisher - paper-pushing-plate motor (M8) Error occurs when the paper-pushing-plate home-position sensor (PI14) does not turn on when the paper-pushing-plate motor (M8) has been driven for 0.3 seconds. Also occurs when the paper-pushing-plate home-position sensor (PI14) does not turn off when the paper-pushing-plate motor (M8) has been driven for 80 ms. Also occurs when the paper-pushing-plate leading-edge-position sensor (PI15) does not turn off when the paper-pushing-plate motor (M8) has been driven for 80 ms. Also occurs when the number of pulses detected by the paper-pushing-plate-motor clock sensor (PI1) is less than expected standard value. Also occurs when the paper-pushing-plate leading-edge-position sensor (PI15) does not turn on when the paper-pushing-plate motor (M8) has been driven for 0.3 seconds.	Control-panel diagnostics: none 1. Open the front finishing door, and activate the front-door switch (MSW31) and front-door sensor (PI32) so that the finisher will operate with the front door open. Turn the engine and finisher power off to clear the error, and then turn the power on. **WARNING!** Operating the finisher with the front door open exposes moving parts that can cause serious injury. Be very careful operating the finisher with the front door open. 2. Use the control-panel menus to begin a booklet making operation. Observe the paper-pushing plate motor M8 (located in the lower-right front corner of the

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
		finisher), associated gears, and the paper-pushing plate for proper motion. ◦ If motor M8 does not rotate, replace the motor-mount assembly. **NOTE:** The motor-mount assembly includes the paper-pushing-plate motor M8. ◦ If motor M8 does rotate but the paper-pushing plate does not move or moves erratically, check the drive gears and paper-pushing plate for wear or damage. Replace components as necessary. ◦ If motor M8 does rotate and the paper-pushing plate moves properly, the plate movement sensors might have failed. • Inspect the paper-pushing-plate home-position sensor PI14, pushing-plate leading-edge-position sensor PI15, and paper-pushing-motor clock sensor PI1. Make sure that the sensors are securely fastened to the chassis. Check sensor PI4, sensor PI15, and sensor PI1 for damage. • Verify that connectors J6, J9, and J23 on the saddle-stitcher controller PCA are fully seated and not damaged. Check the wiring at the sensors. • Only if the error persists and none of the previous steps correct the problem, replace the saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.12.46	Finisher - Communication Lost with Stitcher Controller PCA Error occurs when communication between the stacker-controller board and the saddle-stitcher-controller board has been lost or interrupted.	Control-panel diagnostics: none 1. Make sure that the finisher is properly grounded. ◦ Ensure that the finisher is latched and locked to the engine by tightening the thumbscrew inside the front door. ◦ Ensure that the grounding-frame assembly (the bar with the wheel located between the engine and the finisher) is in the down position with the wheel touching the floor and that the grounding plate is not damaged. **NOTE:** The grounding-frame assembly is in the up position when the finisher is shipped. It must be lowered when the finisher is installed. 2. Verify that connector J730 on the stacker controller PCA and the wiring between connector J22 on the saddle-stitcher controller PCA are fully seated and not damaged. 3. Replace the saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829. 4. Only if the error persists and none of the previous steps correct the problem, replace the stacker controller PCA. See Stacker controller PCA on page 828.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.12.47	Finisher error - micro switches - doors There are three switches in the booklet-maker finisher: SW1 (saddle-guide switch also known as the inlet-door switch), SW3 the booklet-ejection-door switch, and MS31 the front-door switch. The stapler/stacker finisher only has one switch, MS31 for the front door of the finisher. All three switches detect if the associated door or guide plate is open or closed. Each of the switches also have a sensor (SW1/PI9, SW3/PI3, and MS31/PI32) that acts as a backup and detects the same information as the switches. The error occurs when all the doors and guides are closed and there is a mismatch in readings between the sensors and the switches. For example, the front finisher door is closed, PI32 senses the door is closed and MS31 senses the door is still open. Associated finisher door and guide switches and sensors are as follows: • Saddle-guide switch SW1 and saddle-guide sensor PI9 • Booklet-ejection-door switch SW3 and booklet-ejection-door sensor PI3 • Front-door switch MS31 and front-door sensor PI32	Control-panel diagnostics: PI32 (front-door-1 sensor), PI3 (booklet door-1 sensor, also known as booklet-delivery-door sensor), PI9 (front-door-2 sensor, also known as the saddle-guide-door sensor or inlet-door sensor), SW3 (booklet-door 2) 1. Using the control-panel diagnostics, try to isolate which door or guide switch and sensor is causing the error. 2. Make sure that the sensors are securely fastened to the chassis. 3. Check the switches and sensors for damage and clean the sensors by gently blowing clean air into the sensor to remove dust and debris. 4. Check the wiring at the switches and sensors. 5. Check the tabs that activate the switches and sensors on the doors and guides for damage. Make sure that the tabs are aligned with the switches and sensors. Replace the doors and guides as necessary. 6. Verify that the following connectors are fully seated and not damaged: ◦ Stacker controller PCA • J719 (MS31) • J707 (PI32) ◦ Saddle-stitcher controller PCA • J4 (SW1) • J10 (PI9) • J4 (SW3) • J11 (PI3) 7. Only if the error persists and none of the previous steps correct the problem, replace the PCA that is associated with the failed switch/sensor (stacker controller PCA or saddle-stitcher controller PCA). See Stacker controller PCA on page 828 or Saddle-stitcher controller PCA (booklet maker only) on page 829.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.12.51	Finisher error- rear-booklet-stapler motor (M6) The booklet-maker stitch staplers do not move to different locations in relation to the paper like the main stapler. The only movement is through the movement of the rotary cam located on the stapler unit itself, during the actual stapling of the booklet. The stitch-home-position switch (SW5) is part of the rear-stitch stapler unit and senses the stapler opening and closing during stapling by the motion of the rotary drive cam. Like SW5, the stitch motor (M6) is also part of the overall-stitch stapler unit and replacement requires the replacement of saddle-stapler assembly. Error occurs when the front booklet-maker-stapler stitching-home-position sensor (SW5) does not turn on when the stitch motor (rear) (M6) has been driven forward for 0.5 seconds. Also occurs when the front booklet-maker-stapler stitching-home-position sensor (SW5) does not turn off when the stitch motor (rear) (M6) has been driven forward for 0.5 seconds.	Control-panel diagnostics: none 1. Check the rear-stitch stapler for jammed staples, and then perform the following steps: ◦ Clear jammed staples, and then check the staple unit for damage. Retest the stapler. ● If the error continues, check the following items: Make sure that HP-approved staples are used. Replace the staple cartridge with one containing HP-approved staples. If the error continues, replace the saddle-stapler assembly. See Saddle-stapler assembly (booklet maker only) on page 790. ● If the error persists, but no damage is found, proceed to the next step. 2. If the error persists and no jammed staples are found, perform the following steps: ◦ Verify that connector J8 on the saddle-stitcher controller PCA is fully seated and not damaged. Check the wiring at the rear-saddle-stitch stapler and the saddle-stapler assembly for damage and proper seating. Also inspect the connector that the saddle-stitch-stapler assembly engages inside finisher, for damage and foreign material in the connector as well as for proper seating with the saddle-stitch-stapler assembly. ◦ Only if the error persists and none of the previous steps correct the problem, replace the saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.12.52	Finisher error - front booklet-stapler motor (M7) The booklet-maker stitch staplers do not move to different locations in relation to the paper like the main stapler. The only movement is through the movement of the rotary cam located on the stapler unit itself, during the actual stapling of the booklet. The stitch-home-position switch (SW7) is part of the front-stitch stapler unit and senses the stapler opening and closing during stapling by the motion of the rotary drive cam. Like SW7, the stitch motor (M7) is also part of the overall-stitch stapler unit and replacement requires the replacement of saddle-stapler assembly. Error occurs when the front booklet-maker stapler-stitching home-position sensor (SW7) does not turn ON when the stitch motor (Front)(M7) has been driven forward for 0.5 seconds. Also occurs when the front booklet-maker stapler-stitching home-position sensor (SW7) does not turn off when the stitch motor (front) (M7) has been driven forward for 0.5 seconds.	Control-panel diagnostics: none 1. Check the front-stitch stapler for jammed staples, and then perform the following steps: ◦ Clear jammed staples, and then check the staple unit for damage. Retest the stapler. ● If the error continues, check the following items: Make sure that HP-approved staples are used. Replace the staple cartridge with one containing HP-approved staples. If the error continues, replace the saddle-stapler assembly. See Saddle-stapler assembly (booklet maker only) on page 790. ● If the error persists, but no damage is found, proceed to the next step. 2. If the error persists and no jammed staples are found, perform the following steps: ◦ Verify that connector J8 on the saddle-stitcher controller PCA is fully seated and not damaged. Check the wiring at the rear-saddle-stitch stapler and the saddle-stapler assembly for damage and proper seating. Also inspect the connector that the saddle-stitch-stapler assembly engages inside finisher, for damage and foreign material in the connector as well as for proper seating with the saddle-stitch-stapler assembly. ◦ Only if the error persists and none of the previous steps correct the problem, replace the saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
66.XY.ZZ Output device failure	An error occurred in an external paper-handling accessory.	1. Turn the product power off. 2. Check that the accessory is properly seated on and connected to the product, without any gaps between the product and the accessory. If the accessory uses cables, disconnect and reconnect them. 3. Verify that there is no packaging material in or around the output device. 4. Turn the product power on.
68.X Storage error settings changed To continue, touch OK.	At least one of the settings saved in the non-volatile storage device is invalid and was reset to its factory default. Printing can continue, but there may be some unexpected behavior because an error occurred in permanent storage. • 68.0: The onboard NVRAM failed. • 68.1: The removable disk (flash or hard) failed.	Touch OK to clear the message.
69.X Error To continue, touch OK.	A duplex error occurred.	Turn the product off and then on. This problem affects printing, but some scan functions might still be available. Touch Hide to remove this message and use other features.
79.XXXX - ERROR To continue turn off and then on	A critical hardware error occurred.	Turn the product off and then on.
8X.YYYY EIO ERROR To continue turn off and then on	The EIO accessory card encountered a critical error, as specified by **YYYY**.	Try the following actions to clear the message: 1. Turn the product off and then on. 2. Turn the product off, reseat the EIO accessory, and then turn the product on. 3. Replace the EIO accessory. See Formatter on page 241.
8X.YYYY EMBEDDED JETDIRECT ERROR	The embedded HP Jetdirect print server encountered a critical error, as specified by **YYYY**.	Turn the product off and then on.
ACTION NOT CURRENTLY AVAILABLE FOR TRAY X TRAY SIZE CANNOT BE ANY SIZE/ANY CUSTOM	A duplexed (2-sided) document was requested from a tray that is set to **Any Size** or **Any Custom**. Duplexing is not allowed from a tray configured to **Any Size** or **Any Custom**.	Select another tray or reconfigure the tray.
Authentication required	Authentication is enabled for this feature or destination. A user name and password are required.	Type the user name and password, or contact the network administrator.
Authentication required to use this feature	A user name and password are required.	Type the user name and password, or contact the network administrator.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Bad duplexer connection To continue turn off then on	The duplex printing accessory is not connected correctly to the product.	1. Reconnect the connectors for the duplexing driver PCA (J4101), intermediate (J1902), and the DC controller PCA (J133). 2. Replace the duplexing reverse unit. See Duplexing reverse unit on page 319.
Bad optional tray connection	The optional tray is not connected properly and must be reconnected before printing can continue.	1. Turn the product off. 2. Remove and then reinstall optional tray or trays. 3. Reinstall the IPTU. See IPTU on page 736. 4. Reconnect the connectors for the IPTU driver PCA (J7001) and the DC controller PCA (J130). 5. Replace the IPTU driver PCA. See IPTU driver PCA on page 754.
Calibrating	The product is calibrating.	No action is necessary.
Cancelling	The product is canceling a job.	No action is necessary.
Card Slot Device Failure - To Clear Touch OK	The specified device failed.	Touch OK to clear.
Card Slot file operation failed To clear touch OK	A PJL file system command was received that attempted to perform an illogical operation, such as downloading a file to a non-existent directory.	Touch OK to clear.
Card Slot is write protected To clear touch OK	The device is protected and no new files can be written to it.	Touch OK to clear message.
Card Slot Not Initialized	The file system device must be initialized before it can be used.	Initialize the device.
Cartridge Error – Replace Black Cartridge	Toner has settled in the black print cartridge and the auger cannot turn.	Replace the black cartridge. After replacing the cartridge, turn the power off and then on to continue
Cartridge Error-Replace color cartridges Reinstall, then turn off and then on	The cyan, magenta, or yellow print cartridges are defective and need to be replaced.	Replace the defective print cartridges and turn the product off and then on.
Checking engine	The product is checking the engine.	No action is necessary.
Checking paper path	The engine is checking the rollers for possible paper jams.	No action is necessary.
Chosen personality not available. To continue touch OK.	A print job requested a product language (personality) that is not available for this product. The job will not print and will be cleared from memory.	Print the job by using a printer driver for a different printer language, or add the requested language to the product (if possible). To see a list of available personalities, print a configuration page. (See Information pages on page 90.)
Cleaning	The cleaning page is being processed.	No action is necessary.
Cleaning disk <X>% complete Do not power off	A storage device is being sanitized or cleaned.	Do not turn off the product. The product's functions are unavailable. The product will automatically restart when finished.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Clearing activity log	The corresponding fax menu item has been triggered.	No action is necessary.
Clearing all blocked numbers	The corresponding fax menu item has been triggered.	No action is necessary.
Clearing event log	The event log is being cleared.	No action is necessary.
Clearing paper path	The printer jammed or was turned on and paper was detected where it should not be. It is attempting to eject these pages automatically.	No action is necessary.
Close front door	The front door is open.	Close the front door.
Close lower-right door	The lower-right door is open.	Close the lower-right door.
Close output accessory bridge	The output accessory bridge is open.	Close the output accessory bridge.
Close right door	A door on the right side of the product is open.	1. Check the right-door-open-detection sensor by the sensor-monitor mode. 2. Check the sensor flag of the right door. Replace the right door unit if the sensor flag is damaged.
Close small front door	The small front door is open.	1. Close the door.
Code CRC error	This message is displayed before the firmware is loaded at startup when an error occurs during a firmware upgrade.	Resend the upgrade.
Color RFU failed	This message is displayed before the firmware is loaded at startup when an error occurs during a firmware upgrade.	Resend the upgrade.
Conditioning image drum	This message is displayed when a new p-crg is inserted, or the printer comes out of power save. The image drum goes through a rotation/charging cycle, approximately 2.5 minutes long. This does not add to the time to get out of power save because it is done in parallel with the other processes.	
Connect output accessory	An accessory device, such as the booklet maker or the stapler/stacker, has not been connected.	To continue with an output accessory, turn the power off, connect the output accessory, reconnect any loose external accessory cables, and then power on. To continue without an output accessory, turn the power off, remove the output accessory bridge, and then power on.
Cooling device	This product recently experienced a period of heavy usage. In order to maintain a supported operating temperature, the product cycles through intervals of printing and pausing.	No action is necessary.
Creating cleaning page	A two-step page is being processed after having been created. This message is also used for products with duplexers that create and process the cleaning page in one step.	No action is necessary.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Data received	The printer is waiting for the command to print the last page. The last page will print in a few moments.	No action is necessary.
Deleting...	The printer is currently deleting a stored job.	No action is necessary.
Disk spinning up	The EIO disk product in slot <X> is spinning up.	No action is necessary.
Document feeder cover open	The document feeder cover is open.	Close the document feeder cover. Follow the instructions in the onscreen dialog box.
Document feeder empty	The user pressed Start and there is no paper in the ADF or scanner.	No action is necessary.
Document feeder pick error Step 1	The document feeder experienced an error while picking media.	Open the document feeder cover.
Document feeder pick error Step 2	The document feeder experienced an error while picking media.	If necessary, roll the green wheel to the left to advance the paper. Remove all paper found. Lift the green tab to open the paper guide. Remove all paper found. Close the paper guide. Close the document feeder cover.
Document feeder pick error Step 3	The document feeder experienced an error while picking media.	Reinsert the original pages into the document feeder. Align the paper guides with the edges of the paper. To continue, press Start. **NOTE:** If this jam occurs frequently, try scanning from the flatbed glass. Some paper types cause jams in the document feeder. If the original document contains both Letter and Legal size pages, select “Mixed Letter/ Legal” as the original size.
Duplexing... do not grab paper	The product is printing a duplex job, and the paper is accessible.	No action is necessary.
E-mail Gateway did not accept the job because the attachment was too large.	The scanned documents have exceeded the size limit of the server.	Send the job again using a lower resolution, smaller file size setting, or fewer pages. Contact the network administrator to enable sending the scanned documents by using multiple e-mails.
E-mail Gateway did not respond. Job failed.	A gateway exceeded the time-out value.	Validate the SMTP IP address.
E-mail Gateway rejected the job because of the addressing information. Job failed.	One or more of the e-mail addresses is incorrect.	Send the job again with the correct addresses.
EIO <X> Disk initializing	The EIO disk product in slot <X> is initializing.	No action is necessary.
EIO <X> disk not functional	The EIO disk in slot <X> is not working correctly.	Turn the product off. Remove the disk from the slot indicated, and replace it with a new disk. Turn the product on.
EIO Device Failure - To Clear Touch OK	The specified device failed.	Touch OK to clear.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
EIO file operation failed To clear touch OK	A PJL file system command attempted to perform an illogical operation, such as downloading a file to a directory that does not exist.	Touch OK to clear.
EIO is write protected To clear touch OK	The device is protected and no new files can be written to it.	Touch OK to clear message.
EIO Not initialized	The file system device must be initialized before it can be used.	Initialize the device.
Error	The directory or file is not readable.	To activate a fax, complete the required fax settings available through Administration.
Error executing Digital Send job. Job failed.	A digital send job failed and cannot be delivered.	Try to send the job again.
External device initializing	An external product is initializing.	No action is necessary.
Fax is disabled ignoring call	The product received a call, but the fax feature was not configured with the required settings (country/region, date/time, company name, fax number, etc.). The fax icon on the control panel is grayed out.	Configure the fax with the required settings from the Administration menu on the control panel.
Flatbed cover open	The flatbed scanner cover is open.	Close the flatbed cover.
Found SMTP gateway	The Found SMTP Gateway menu has been selected.	No action is necessary
Gateways failed	The gateway configuration is incorrect.	See Solve network connectivity problems on page 433.
Gateways OK	The gateway configuration is correct.	No action is necessary.
Genuine HP supplies installed	A new HP cartridge has been installed. This message appears for approximately 6 seconds before the printer returns to the **Ready** state.	No action is necessary.
HP Digital Sending: Delivery Error	A digital send job failed and cannot be delivered.	Try to send the job again.
Incompatible <color><drum/toner> Installed	A drum or toner cartridge not designed for this product is installed. - Check to ensure the drum or toner cartridge used is a valid HP drum or toner cartridge with a valid product number. The following are valid product numbers: • Valid HP drums (name, product number, part number). ◦ C Image Drum, CE305C, CE305-67901 Replacement Drum (Cyan) HP Color LaserJet CM6049f MFP ◦ Y Image Drum, CE306C, CE306-67901 Replacement Drum (Yellow) HP Color LaserJet CM6049f MFP	Install a valid drum or toner cartridge.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
	◦ M Image Drum, CE307C, CE307-67901 Replacement Drum (Magenta) HP Color LaserJet CM6049f MFP ◦ K Image Drum, CE304C, CE304-67901 Replacement Drum (Black) HP Color LaserJet CM6049f MFP • Valid HP toner cartridges (name, product number, part number). ◦ C Toner, CE301C, CE301-67901 Replacement Toner (Cyan) HP Color LaserJet CM6049f MFP ◦ Y Toner, CE302C, CE302-67901 Replacement Toner (yellow) HP Color LaserJet CM6049f MFP ◦ M Toner, CE303C, CE303-67901 Replacement Toner (magenta) HP Color LaserJet CM6049f MFP ◦ K Toner, CE830C, CE830-67901 Replacement Toner (Black) HP Color LaserJet CM6049f MFP • The following product numbers are not supported on this product. ◦ CB384A ◦ CB385A ◦ CB386A ◦ CB387A ◦ CB381A ◦ CB382A ◦ CB383A ◦ CB390A	
Incompatible fuser	The wrong fuser is installed. The product will not print, even though the fuser fits the product.	Install the correct fuser. See Fuser on page 229.
Incompatible roller kit	The wrong roller kit is installed. The product will not print, even though the roller kit fits the product.	Install the correct roller kit.
Incompatible supplies	Two or more incompatible supplies are installed. The product will not print, even though the supplies fit the product.	Install the correct supply.
Inflate Failure Send Full RFU on Port <X>	An error occurred during a firmware upgrade.	Reinstall firmware.
Initializing permanent storage	Product is initializing permanent storage.	No action is necessary.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Initializing scanner	The scanner is initializing.	Wait until the scanner is **Ready** before proceeding to scan.
Install <color> cartridge	The print cartridge has been removed or has been installed incorrectly.	Replace or reinstall the print cartridge correctly to continue printing.
Install <color> drum	An image drum is either not installed or not installed correctly. <Color> can be one or more of the following: black, cyan, magenta, or yellow.	Install the image drum or verify that the installed drum is fully seated. See Change image drums on page 104.
Install fuser	The fuser is either not installed or not installed correctly.	Install the fuser. See Fuser on page 229.
Install roller unit	The roller unit is either not installed or not installed correctly.	Install the roller unit or make sure the installed roller unit is fully seated. 1. Open the right door and the transfer access panel. 2. Install the roller unit. 3. Close the transfer access panel and the right door.
Install supplies	At least two supplies are missing.	Replace the missing supplies or make sure the installed supplies are fully seated.
Install transfer unit	The ITB is either not installed or not installed correctly.	Replace the ITB. See Intermediate transfer belt (ITB) on page 234.
Insufficient memory to load fonts/data <device> To continue touch OK	The product does not have enough memory to load the data (for example, fonts or macros) from the location specified.	Touch **OK** to continue without this information. If the message persists, add memory.
Internal Disk Device Failure - To Clear Touch OK	The specified device failed.	Touch OK to clear the message.
Internal disk file operation failed To clear touch OK	A PJL file system command attempted to perform an illogical operation, such as downloading a file to a non-existent directory.	Touch OK to clear.
Internal Disk Initializing	The internal disk is initializing.	No action is necessary.
Internal disk is write protected To clear touch OK	The product is protected and no new files can be written to it.	Touch OK to clear the message.
Internal disk not found	Internal disk not found.	Turn the product off and then on.
Internal disk not functional	The internal disk is not functional.	Copy and send is disabled. Turn the product off and then on.
Internal disk not initialized	The internal disk is not initialized.	Initialize the disk.
Internal disk spinning up	The internal disk is spinning up its platter. It usually shows for approximately 15 seconds when the printer comes out of power-save mode. Jobs can still print, but jobs that require disk access (i.e., stored jobs) must wait.	No action is necessary.
Jam in document feeder (Step 1)	Media is jammed in the document feeder.	Open the document feeder cover.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Jam in document feeder (Step 2)	Paper is jammed in the document feeder.	If necessary, roll the green wheel to the left to advance the paper. Remove all paper found. Lift the green tab to open the paper guide. Remove all paper found. Close the paper guide. Close the document feeder cover.
Jam in document feeder (Step 3)	Media is jammed in the document feeder.	Reinsert the original pages into the document feeder. Align the paper guides with the edges of the paper. To continue, press Start. **NOTE:** If this jam occurs frequently, try scanning from the flatbed glass. Some paper types cause jams in the document feeder. If the original document contains both letter- and legal-size pages, select Mixed Letter/ Legal as the original size.
Job is being saved to disk	Job is being saved.	No action is necessary.
LED is on To continue, touch OK	This message appears when the LED is component tested.	Touch OK to continue.
Load Tray 1 <type> <size>	The tray is empty or configured for a different size than the size requested.	Follow the instructions in the onscreen dialog box.
Load Tray 1: [Type], [Size] To continue, touch OK	Tray 1 is empty.	Load Tray 1 with the requested paper. Or, if paper is already in Tray 1, touch OK to print. If paper is in another tray, remove the paper and insert it in Tray 1, and then touch OK.
Load Tray <XX> <type> <size> To use another tray, touch OK	A cassette tray is empty, and there is another tray available.	Load the tray with the requested paper or adjust the paper guides. If another tray is available, touch OK to select.
Load Tray <XX>: [type], [size]	A cassette tray is empty, and there is no other tray available.	Load the tray with the requested paper or adjust the paper guides.
Loading program <XX> Do not power off	Programs and fonts are being loaded into the printer's file system.	No action is necessary.
Manually feed <type> <size>	The specified job requires manual feed from Tray 1.	Load the requested media into Tray 1. Touch OK to use paper in another tray.
Manually feed output stack Then touch OK to print second sides	The first side of a manual duplex job printed and the product is waiting for the user to insert the output stack to complete the second side. For the normal **Manually Feed** message, printing continues automatically when the paper is reinserted. With this message, printing stops until the user touches the OK button, which allows time for straightening the output stack.	The even-numbered pages of the two-sided document have printed. Follow the next steps to print the odd-numbered pages. 1. Maintaining the same orientation, remove the document from the output bin. Do not discard blank pages. 2. Flip the document over so it is face up. 3. Load Tray 1 with the face-up document. 4. To continue printing, touch OK.
Manually Feed: [Type], [Size] To continue, touch OK	A job has specified manual feed, and Tray 1 is loaded.	Touch OK to resume printing.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Manually Feed: [Type], [Size] To use another tray, touch OK	The job specified manual feed, the MP-tray is empty, and there is another tray available to use.	Touch OK to switch to another tray and resume printing.
Moving solenoid To exit press STOP	The solenoid and a motor are moving as part of a component test.	No action is necessary.
No job to cancel	This message appears when the Stop button is pressed.	No action is necessary.
Non-HP supply installed	A refilled color or a cloned color/mono cartridge was installed, and the printer previously used all genuine HP supplies. Or, an unauthorized cartridge was installed, and the printer previously used all genuine supplies.	Install a genuine HP cartridge, or touch OK to override the condition.
Non-HP supply in use	This message appears when the override button is pressed (on the non-HP supply installed error).	No action is necessary.
Order <color> Cartridge	The identified print cartridge is nearing the end of its useful life. The product is ready and will continue for the estimated number of pages indicated. Estimated pages remaining is based upon the historical page coverage of this product. Printing will continue until a supply needs to be replaced.	Order a replacement print cartridge.
Order <color> drum	The <color> image drum has reached the low threshold.	Order a replacement image drum. Approximate pages remaining will vary depending on the types of documents printed.
Order Fuser Kit	The fuser is near the end of life. The product is ready and will continue for the estimated number of pages indicated. Printing will continue until a supply needs to be replaced.	Order a replacement fuser kit.
Order roller kit-Less than XXXX pages	The roller kit is low due to rotations.	Order a replacement roller kit.
Order staple cartridge	The staple cartridge needs to be replaced.	Replace the staple cartridge.
Order Supplies	One or more supplies need to be replaced.	Replace the supply.
Order Transfer Kit	The transfer kit is near the end of life. Printing can continue.	Order a replacement transfer kit.
Order transfer kit	The transfer kit is low.	Order a replacement transfer kit.
Order transfer kit Less than XXXX pages	The number of pages remaining for this supply has reached the low threshold. Printing can continue.	Order a replacement transfer kit. Approximate pages remaining will vary depending on the types of documents printed.
Output accessory bridge attached To continue turn power off and then on	The output accessory bridge (IPTU) has been attached while the power is on. To continue, turn the product off and then on.	This problem affects printing, but some scan functions might still be available.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Output accessory bridge disconnected	The output accessory bridge (IPTU) connection has been interrupted.	1. Verify that the output accessory bridge is connected properly. 2. Reattach the output accessory. 3. Reconnect any loose external product cables. 4. To continue without the output accessory bridge, turn the product off, attach the standard output tray, and then turn the product on.
Output accessory bridge failure Turn off, verify connection, then turn on		1. Turn the power off. 2. Verify that the output accessory bridge is connected properly. 3. Turn the power on. To continue without the output accessory bridge, turn the product off, attach the standard output tray, and then turn the product on.
Output paper path open	The paper path between the product and the output device is open and must be closed before printing can continue.	1. If you have a 3-bin mailbox installed, make sure the jam-access door is closed. 2. If you have a stapler/stacker installed, make sure the staple cartridge is snapped into position and that the staple-cartridge door is closed.
Performing Color Band Test	The color-band test is being performed.	No action is necessary.
Performing paper path test Press stop to cancel	The product is performing a paper-path test.	No action is necessary.
Performing upgrade <Device>	The product is performing a product upgrade.	Do not turn the product off or press any buttons. The product will automatically restart when the upgrade is finished.
Please wait	The product is going offline.	No action is necessary.
Printing	The page is being printed.	No action is necessary.
Printing CMYK Samples	The CMYK-samples page is being generated. The product will return to the ready state when the page is complete.	No action is necessary.
Printing Color Usage Log	The color-usage-log page is being generated. The printer will return to the ready state when the page is complete.	No action is necessary.
Printing configuration	The product is generating the internal configuration page.	No action is necessary.
Printing Demo Page	The demo page is being generated. The product will return to the ready state when the page is complete.	No action is necessary.
Printing Diagnostics Page	The diagnostics page is being generated. The product will return to the ready state when the page is complete.	No action is necessary.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Printing event log	The event log page is being generated.	No action is necessary.
Printing file directory	The product is generating the file directory page.	No action is necessary.
Printing font list	The product is generating the font list.	No action is necessary.
Printing menu map	The product is generating the menu map.	No action is necessary.
Printing mopy status	The product is generating the mopy status report.	No action is necessary.
Printing PQ Troubleshooting	The print-quality troubleshooting test is being generated. The product will return to the ready state when the test completes.	No action is necessary.
Printing registration page	The product is generating the registration page.	No action is necessary.
Printing RGB Samples	The print-quality troubleshooting test is being generated. The product will return to the ready state when the test completes.	No action is necessary.
Printing stopped To continue, touch OK	A Print/Stop test is running.	No action is necessary.
Printing supplies status	The product is generating the supplies status page.	No action is necessary.
Printing usage page	The product is generating the usage page.	No action is necessary.
Processing copy <X> of <Y>...	The product is currently processing or printing collated copies.	No action is necessary.
Processing digital send job	The product is processing a digital send job.	No action is necessary.
Processing duplex job	The product is processing a duplex job.	No action is necessary.
Processing from tray <X>	The product is processing a job. The <X> stands for the chosen paper tray.	No action is necessary.
Processing-intermittent mode	The internal temperature of the product is too hot, and the product is processing a job(s).	No action is necessary.
Processing. . .	The product is processing the current job but has not begun to pick up pages yet.	No action is necessary.
RAM Disk Device Failure - To Clear Touch OK	The specified device failed.	Touch OK to clear the message.
RAM Disk file operation failed To clear touch OK	A PJL file system command was received that attempted to perform an illogical operation, such as downloading a file to a non-existent directory.	Touch OK to clear the message.
RAM Disk is write protected To clear touch OK	The device is protected and no new files can be written to it.	Touch OK to clear the message.
RAM disk not initialized	The file system device must be initialized before it can be used.	Initialize the device.
Ready	The product is online and ready to receive data.	No action is necessary.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Reattach output bin	The standard output bin was detached when the product was turned on, or the cable on the stapler/stacker or the 3-bin mailbox is not connected to the product.	Turn the product off. If you are using the stapler/stacker or the booklet maker, verify that the cable is connected to the product. Reattach the output bin, and then turn the product on. Observe the LEDs on the output accessory. If the LEDs are flashing or amber, see LED diagnostics on page 832.
Receiving upgrade	The product is receiving a firmware update.	No action is necessary.
Reinstall Output Device	The output device is not attached.	Make sure the output accessory is installed.
Remove all image drums	The belt is being component tested.	Open the front door and remove all image drums.
Remove All Print Cartridges	The product is executing a component test and the component selected is belt only.	Remove all print cartridges.
Remove at least one image drum	The drum motor is being component tested.	Open the front door and remove at least one image drum. Close the front door. Press Stop to stop the test.
Remove At Least One Print Cartridge	The product is executing a disable-cartridge check or component test and the component selected is the cartridge motor.	Remove one print cartridge.
Remove duplex support	Printing is stopped until the duplex support is removed from the paper tray.	Remove the duplex paper support. This part is needed when an output accessory and IPTU are not used.
Remove or install cartridge/drum pairs	The print cartridge and the image drum must be installed or removed to proceed.	Press the Stop button to stop the test.
Replace <color> Cartridge	The identified print cartridge has reached the end of life. Printing can continue.	Replace the specified print cartridge. Change print cartridges on page 101.
Replace <color> cartridge - To continue, touch "OK"	A print cartridge has reached the low threshold, and the Replace Supplies menu is set to stop at low.	Order a replacement print cartridge. Touch OK to continue printing.
Replace <color> drum	The number of pages remaining for this supply has reached the low threshold.	Replace the image drum. See Change image drums on page 104.
Replace <color> Drum – To Continue, Touch "OK"	The number of pages remaining for this supply has reached the low threshold.	Replace the image drum. See Change image drums on page 104.
Replace DIMM <X> MEM test failure	The listed DIMM is not functioning properly and must be replaced.	Replace the DIMM. See Install DDR memory DIMMs on page 107.
Replace document feeder kit	This warning message appears one month before the end of life when the maintenance interval has been reached.	Follow instructions included with the document feeder kit to install.
Replace fuser kit	The fuser kit has reached the low threshold.	Replace the fuser. See Fuser on page 229.
Replace fuser kit To continue, touch "OK"	The fuser is nearing the end of its useful life. Printing can continue.	Replace the fuser kit. See Fuser on page 229.
Replace roller kit	The roller kit has reached the low threshold.	Replace the roller kit. Transfer roller on page 232.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Replace Supplies - Override in Use	The product is set to continue printing even though a supply has reached the end of life. **CAUTION:** Using the override mode can result in unsatisfactory print quality. HP recommends replacing the supply when this message appears. The HP Supplies Premium Protection Warranty coverage ends when a supply is used in override mode.	No action is necessary.
Replace Supplies - Override in use	The product is set to continue printing even though a print cartridge has reached the end of life.	1. From the control-panel Home screen, touch Supplies Status. 2. Touch the Supplies tab to see which supplies are out. 3. Replace the necessary print cartridge. See Change print cartridges on page 101.
Replace Supplies - Using black	A color supply (or supplies) has reached the out condition and the Color Supply Out menu item is set to Autocontinue black.	No user input is required for printing to continue. Printing continues in black.
Replace transfer kit	The supply has reached the end of life. Printing can continue.	Replace transfer kit. See Intermediate transfer belt (ITB) on page 234.
Replace transfer kit To continue, touch "OK"	The transfer kit is at the end of life. Printing can continue, but print quality might be reduced.	The product is set to stop printing when a supply needs to be ordered. To continue printing, touch OK. Replace the ITB. See Intermediate transfer belt (ITB) on page 234.
Request Accepted Please Wait	This message appears when a request to print an internal page is accepted but cannot print.	Wait for the internal page to print.
Resend external accessory firmware	An external accessory requires a firmware upgrade. Printing can continue, but jams may occur if the job uses the external accessory.	Perform a firmware upgrade. See Upgrade the firmware on page 127.
Resend upgrade	A firmware upgrade did not complete successfully.	Upgrade the firmware again. See Upgrade the firmware on page 127.
Resetting Media Sensor Calibration	This message appears after the user touches Media Sensor Calibration in the Service menu and then touches the Calibrate button.	No action is necessary.
Restoring factory settings	A Restore Factory Settings printer reset is being performed.	No action is necessary.
Restoring…	A Restore Last Saved State, Restore Print Modes, Restore Optimization, or Restore Color Values operation is being performed.	No action is necessary.
Restricted from printing in color	The print job is being forced to print in black either because the printer is set to print only in black or because the user ID and application ID do not have color printing permissions.	No action is necessary.
RFU load error	An error occurred during a firmware upgrade.	Upgrade the firmware again. See Upgrade the firmware on page 127.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
ROM Disk Device Failure - To Clear Touch OK	The specified device failed.	Touch OK to clear.
ROM Disk file operation failed To clear touch OK	A PJL file system command was received that attempted to perform an illogical operation, such as downloading a file to a non-existent directory.	Touch OK to clear the message.
ROM Disk is write protected To clear touch OK	The device is protected and no new files can be written to it.	Touch OK to clear the message.
ROM Disk Not Initialized	The file system device must be initialized before it can be used.	Initialize the device.
Rotating <color> Motor	A component test is in progress; the component selected is the <color> cartridge motor.	Press Stop to stop the test.
Rotating Motor - To exit press STOP	The product is executing a component test and the component selected is a motor.	Press Stop to stop the test.
Sanitizing Disk <X>% Complete Do not power off	The hard disk is being cleaned.	Contact the network administrator.
Scan Failure Press 'Start' to rescan	The scan was unsuccessful and the document needs to be scanned again.	If necessary, reposition the document to scan again, and then press Start.
Scanning...page <X>	The product is scanning a job in the ADF.	No action is necessary.
Scanning...page from glass	The product is scanning from the glass.	No action is necessary.
Searching... please wait	The product is searching.	No action is necessary.
Send complete	The send process is complete.	No action is necessary.
Sending digital send job	The product is sending a digital job.	No action is necessary.
Sending to external destinations		No action is necessary.
Size mismatch in tray XX	The media in the listed tray does not match the size specified for that tray.	Load the correct media.
Sleep mode on	The product is in sleep mode.	No action is necessary.
SMTP Gateways OK	The status of the SMTP gateways is normal.	No action is necessary.
Testing Please wait	The product is temporarily unavailable.	No action is necessary.
To return to ready press STOP	The product is paused, and there are no error messages pending at the display.	No action is necessary.
Too Many Pages In Job To Staple	The maximum number of sheets the stapler can staple is 30.	Manually staple print jobs that have more than 30 pages.
Total images: <X>		No action is necessary.
Transfer access sensor error	This error affects printing, but some scan functions are still available.	Open the right door. Close all access panels. Close the right door. Touch Hide to remove this message and use other features.
Tray <X>: [Type], [Size]	The tray is closed if the Size/Type Prompt menu is set to Display.	No action is necessary.
Tray <XX> empty: [type], [size]	The specified tray is empty and needs to be loaded, but the current job does not need this tray to print.	Load the tray.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
Tray <XX> open	The specified tray is open or not closed completely; the tray is not required to print and is not blocking the paper path of a tray required for printing.	Close the tray.
Type Mismatch In Tray <XX>	The specified tray contains a media type that does not match the configured type.	The specified tray will not be used until this condition is addressed. Printing can continue from other trays.
Unable to connect		To temporarily hide this message in order to fax or send to e-mail, touch Hide.
Unable To Copy	The product was unable to copy the document.	To temporarily hide this message in order to fax or send to e-mail, touch Ignore.
Unable to mopy job	Because of a memory, disk, or configuration problem, a mopy job cannot be mopied. Only one copy will be produced.	
Unable To Send		To temporarily hide this message in order to fax or send to e-mail, touch Ignore.
Unable to send Fax. Please check fax configuration.	The product was unable to send the fax.	Contact the network administrator.
Unauthorized supply in use	The product is using a non-HP supply.	Any printer repair required as a result of using non-HP or unauthorized supplies is not covered under warranty. HP cannot ensure the accuracy or the availability of certain features.
Unsupported data on [FS] DIMM in slot	The data on the DIMM is not supported.	The DIMM may need to be replaced. Turn off the product before removing it. To clear this warning, touch OK.
Unsupported USB accessory detected	The USB accessory is not recognized and cannot be used by this product.	Remove the USB accessory. To clear this message, touch OK.
Upgrade complete To continue, turn off and then on	Upgrade complete.	Turn the product off and then on.
USB Device Failure - To Clear Touch OK	The specified device failed.	Touch OK to clear.
USB file operation failed To clear touch OK	A PJL file system command was received that attempted to perform an illogical operation, such as downloading a file to a non-existent directory.	Touch OK to clear the message.
USB is write protected To clear touch OK	The device is protected and no new files can be written to it.	Touch OK to clear the message.
USB needs too much power	Power requirements for the USB accessory attached to this product are beyond supported limits.	Detach the accessory, and then turn the product off and then on. Try a similar accessory that has its own power supply or requires less power.
USB Not Initialized	The file system device must be initialized before it can be used.	Initialize the device.
USB storage <X> is initializing	The designated USB storage unit is initializing.	No action is necessary.
USB storage <X> is not functional	A parameter in the USB storage is not working correctly.	Turn the product off. Disconnect the USB storage accessory, and replace with a new USB storage accessory.

Table 7-4 Control-panel messages (continued)

Control panel message	Description	Recommended action
USB storage <X> removed	A USB storage accessory has been disconnected since the product was turned on.	To continue using the USB accessory, turn the product off and reconnect it. Turn the product off and then on to clear the message.
Wait for printer to reinitialize	The user changed the RAMDISK settings before the printer automatically reboots.	No action is necessary.
Waiting for tray <XX> to lift	The tray number specified by <XX> is in the process of lifting the paper to the top of the tray for proper feeding.	No action is necessary.
Warming up	The product is coming out of sleep-delay mode. Printing will continue once the product completely warms up.	No action is necessary.
Warming up scanner	The scanner is warming up.	No action is necessary.
Windows login required to use this feature	A Windows login is required.	Enter a Windows login.

Event log messages

Print an event log

Print the event log

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Touch Print Event Log.

Show an event log

View the event log from the control panel

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Touch Show Event Log.

Clear the event log

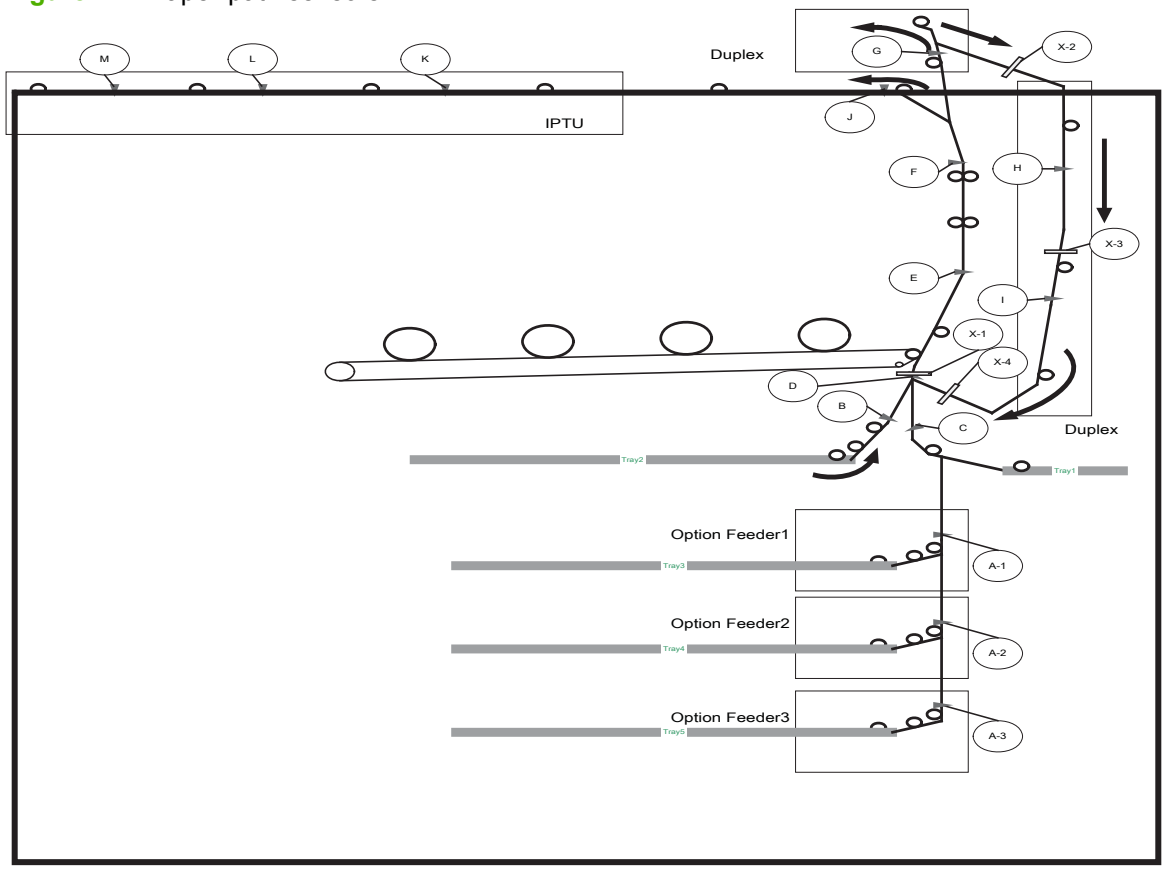
Use the **Service** menu to clear the event log.

Clear the event log

1. Touch Administration.
2. Scroll to and touch Service.
3. Touch Clear Event Log.

Event log message

Figure 7-4 Paper-path sensors



Event log message	Description	Recommended action
13.01.00 Paper feed 1, Paper late jam	• The leading edge of the paper fed from Tray 1 stopped before reaching the registration sensor (C). • The leading edge of the paper fed from Tray 2 stopped before reaching the registration sensor (B). • The leading edge of the paper fed from Tray 3 stopped before reaching the registration sensor (A-1). • The leading edge of the paper fed from Tray 4 stopped before reaching the registration sensor (A-2). • The leading edge of the paper fed from Tray 5 stopped before reaching the registration sensor (A-3).	Follow the onscreen instructions to locate and remove the paper or obstruction.

Event log message	Description	Recommended action
13.02.00 Paper Stop Jam In Tray 2 at Sensor D	The paper stopped at the registration sensor (D).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.05.00 Paper Late Jam Between Sensors D and F	The leading edge of the paper stopped between the registration sensor (D) and the fuser-output sensor (F).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.06.00 Paper Jam In Fuser	The paper stopped at the fuser-output sensor (F).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.10.00 Paper Late Jam In Duplex Area Sensors F - G	The leading edge of the paper stopped between the output sensor (F) and switchback sensor (G).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.11.00 Paper Stop Jam In Duplex Area at Sensor G	The paper stopped at the switchback-jam sensor (G).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.12.00 Paper Late Jam In Duplex Area Sensors H - D	The duplex refeed paper stopped between the duplexer-delivery sensor (H) and the registration sensor (D).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.13.00 Paper Stop Jam In Duplex Area Sensors G - H	The duplex refeed paper stopped between the switchback sensor (G) and the duplexer-delivery sensor (H).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.1C.00 Fuser Wrap Jam, Paper in Fuser	The paper is wrapping at the fuser.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.20.00 Paper Eject Jam at Sensors E, F - G	The paper stopped at either the loop sensor (E), the fuser-output sensor (F) or the switchback sensor (G).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.21.00 Door Open Jam	The paper position is unknown.	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.2B Paper Stop Jam In Output Accessory Bridge	The paper stopped before reaching IPTU sensor 1 (K).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.2C Paper Late Jam in Output Accessory Bridge (1)	The paper stopped between IPTU sensor 1 (K) and IPTU sensor 3 (M).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.2D.00 Paper Late Jam in Output Accessory Bridge (2)	The paper stopped between IPTU sensor 1 (K), IPTU sensor 2 (L), and IPTU sensor 3 (M).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.2E.00 Paper Late Jam Near Fuser at Sensors F - J	The paper stopped between the fuser-output sensor (F) and the output-bin-full sensor (J).	Follow the onscreen instructions to locate and remove the paper or obstruction.

Event log message	Description	Recommended action
13.30.00 Input Delay Jam	• The leading edge of the paper fed from Tray 1 stopped before reaching the registration sensor (D). • The leading edge of the paper fed from Tray 2 stopped before reaching the registration sensor (D). • The leading edge of the paper fed from Tray 3 stopped before reaching the registration sensor (D). • The leading edge of the paper fed from Tray 4 stopped before reaching the registration sensor (D). • The leading edge of the paper fed from Tray 5 stopped before reaching the registration sensor (D).	Follow the onscreen instructions to locate and remove the paper or obstruction.
13.90.00 Non-specific paper jam	The leading edge of the paper is at the registration sensor (D).	Follow the onscreen instructions to locate and remove the paper or obstruction.
30.01.02 Jam in document feeder	The ADF is jammed or the sensor failed.	Verify that there is no paper in the ADF. Use the scanner test in the Troubleshooting menu to check the sensors.
30.01.03 Document feeder pick error	An ADF pickup failure occurred.	Scan using the ADF with standard 75 g/m^2 (20 lb) paper. You may need to replace the ADF maintenance kit.
30.01.06 Scanner lamp fan error	The scanner-lamp fan failed.	1. Determine if the scanner-lamp fan is running during scanner operation. 2. Check the scanner connection to the scanner-control board (SCB). 3. Replace the fan if the error persists and the fan is not operational.
30.01.08 Scanner lock error, unlock scanner	The scanner is locked, or the home sensor or flat cable failed.	Check the scanner lock. Unlock the scanner, and then turn the product off and then on.
30.01.14 Upgrade firmware (RFU), check SCB	The SCB firmware failed.	1. Turn the product off and then on. 2. Perform a remote firmware upgrade. See Upgrade the firmware on page 127. 3. Check the SCB. 4. Replace the SCB. See SCB, CPB, and SCUID on page 384.

Event log message	Description	Recommended action
30.01.15 Scanner error, power off/on, check SCB	The scanner initialization failed.	1. Turn the product off and then on. 2. Check the SCB LEDs for a heartbeat. 3. Replace the SCB. See SCB, CPB, and SCUID on page 384.
30.01.18 Scanner/SCB error, power off/on check SCB	The SCB ASIC failed.	1. Turn the product off and then on. 2. Check the connection on the SCB. 3. Replace the SCB. See SCB, CPB, and SCUID on page 384. 4. Turn the product off and then on.
30.01.19 Scanner lamp error, power off/on	The scanner lamp failed.	1. Turn the product off and then on. 2. Determine if the scanner lamp turns on when the product is turned on. 3. Check the flat cable connections at the SCB. 4. Replace the SCB. See SCB, CPB, and SCUID on page 384. 5. Replace the carriage assembly.
30.01.25 Power off/on, check CPB	The copy-process board (CPB) failed.	1. Turn the product off and then on. 2. Check the CPB LED. 3. Verify that the CPB connections are correct. 4. Verify the cable from the scanner to the formatter is not plugged in backwards.
30.01.34 Scanner error, power off/on, check SCB	The scanner initialization failed, and the copy-process board (CPB) cannot communicate with the scanner-control board (SCB).	1. Turn the product off and then on. 2. Check the SCB LEDs. 3. Verify that the SCB connections are correct. 4. Replace the SCB. See SCB, CPB, and SCUID on page 384.
30.01.39 Power off/on, check optical assembly	There was an AFE1 (analog front-end) failure.	1. Turn the product off and then on. 2. Check the flat cables on the SCB. 3. Check the LEDs on the SCB. 4. Replace the SCB. See SCB, CPB, and SCUID on page 384. 5. Replace the scanner. See Optical scanner on page 354.

Event log message	Description	Recommended action
30.01.40 Power off/on, check optical assembly	The scanner AFE 2 failed.	1. Turn the product off and then on. 2. Check the flat cables on the SCB. 3. Check the LEDs on the SCB. 4. Replace the SCB. See SCB, CPB, and SCUID on page 384. 5. Replace the scanner. See Optical scanner on page 354.
30.01.41 Scanner error, scanner power, cable, CPB	There was a CPB error.	1. Check the SCB and CPB LEDs to verify that the scanner has power. 2. Verify that the scanner power cable is connected to the scanner power supply and fuser power supply. 3. Replace the CPB. See SCB, CPB, and SCUID on page 384.
30.01.42 Scanner cable error	The scanner cable is disconnected.	1. Connect the scanner cable to the formatter. 2. Turn the product off and then on.
30.01.43 CPB memory failure, check scanner memory	The CPB memory is full.	1. Connect the CPB memory. 2. Turn the product off and then on. 3. Replace the CPB memory.
30.01.44 Power off/on, check SCB/CPB connection	There is an SCB communication error.	1. Turn the product off and then on. 2. Check the SCB/CPB connections. 3. Check the SCB LEDs.
30.01.45 Power off/on, check CPB	The CPB memory is full.	1. Turn the product off and then on. 2. Check the SCB/CPB connections. 3. Check the SCB LEDs.
30.01.46 Power off/on, check CPB	The CPB enumeration failed.	1. Turn the product off and then on. 2. Check the PCI cable at the scanner and formatter. 3. Check the SCB connections. 4. Replace the CPB. See SCB, CPB, and SCUID on page 384.
54.06	The DMAX density sensor is out of range.	Follow the onscreen instructions to locate and remove the paper or obstruction.
54.0C.06	The engine reported a neutral calibration error.	Follow the onscreen instructions to locate and remove the paper or obstruction.

Event log message	Description	Recommended action
54.0D.XX	• XX=00: Black density-measurement abnormality • XX=01: Cyan density-measurement abnormality • XX=02: Magenta density-measurement abnormality • XX=03: Yellow density-measurement abnormality	1. Touch Administration. 2. Touch Print Quality. 3. Touch Calibration/Cleaning. 4. Touch Quick Calibration
54.0E.03 Media-sensor second-transfer assembly	The media sensor window is contaminated.	Clean the media sensor window.
54.01	The humidity-environment sensor is abnormal.	Ensure the product is in a supported environment. If the error persists, replace the CN1 environment sensor.
54.0E.01 Media-sensor replace-registration second-transfer assembly	The registration unit is abnormal.	Ensure the product is in a supported environment. If the error persists, replace the second-transfer assembly. See Secondary transfer unit on page 245.
54.0E.02 Replace transfer kit	The ITB unit is abnormal.	Ensure the product is in a supported environment. If the error persists, replace the ITB.
54.0F.XX	• XX=00: Black misregistration is out of range. • XX=01: Cyan misregistration is out of range. • XX=02: Magenta misregistration is out of range. • XX=03: Yellow misregistration is out of range.	1. Touch Administration. 2. Touch Print Quality. 3. Touch Calibration/Cleaning. 4. Touch Full Calibration.
54.14	The misregistration sensor is abnormal and failed a self test.	1. Touch Administration. 2. Touch Print Quality. 3. Touch Calibration/Cleaning. 4. Touch Full Calibration. 5. If the error persists, replace the C.P.R assembly. 6. Replace the ITB. See Intermediate transfer belt (ITB) on page 234.

Event log message	Description	Recommended action
54.19	The ITB sensor-mark detection sensor is abnormal.	1. Touch Administration. 2. Touch Print Quality. 3. Touch Calibration/Cleaning. 4. Touch Full Calibration. 5. If the error persists, replace the C.P.R assembly. 6. Replace the ITB. See Intermediate transfer belt (ITB) on page 234.
54.22	The color sensor is out of range.	
55.06.01	The DC controller NVRAM has an abnormal read/write.	1. Turn the product off and then on. 2. If the error persists, replace the DC Controller. See DC controller PCA on page 277.
55.06.02	The DC controller NVRAM is not accessible.	1. Turn the product off and then on. 2. If the error persists, replace the DC Controller. See DC controller PCA on page 277.

Paper-handling problems

Jams

Common causes of jams

The product is jammed.

Cause	Solution
The paper does not meet specifications.	Use only paper that meets HP specifications.
A component is installed incorrectly.	Verify that the transfer belt and transfer roller are 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.
An input tray is loaded incorrectly.	Remove any excess paper from the input tray. Make sure that the stack is below the maximum-stack-height mark in the tray.
The paper is skewed.	The input-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 input tray.
When printing on lightweight paper or on jobs with heavy toner coverage, paper is wrapping on the fuser causing Fuser Delay Jam or Fuser Wrap Jam messages.	Set the **Light Media** optimize mode on the Print Quality menu to **On**.
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 tray rollers are not picking up the paper.	If the paper is heavier than 220 g/m^2 (58 lb), it might not be picked from the tray. The rollers are worn. Replace the rollers.
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.
Device 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.
Paper was not stored correctly.	Replace the paper in the trays. Paper should be stored in the original packaging in a controlled environment.
Not all product packing material was removed.	Verify that the packing tape, cardboard, and plastic shipping locks have been removed from the product.

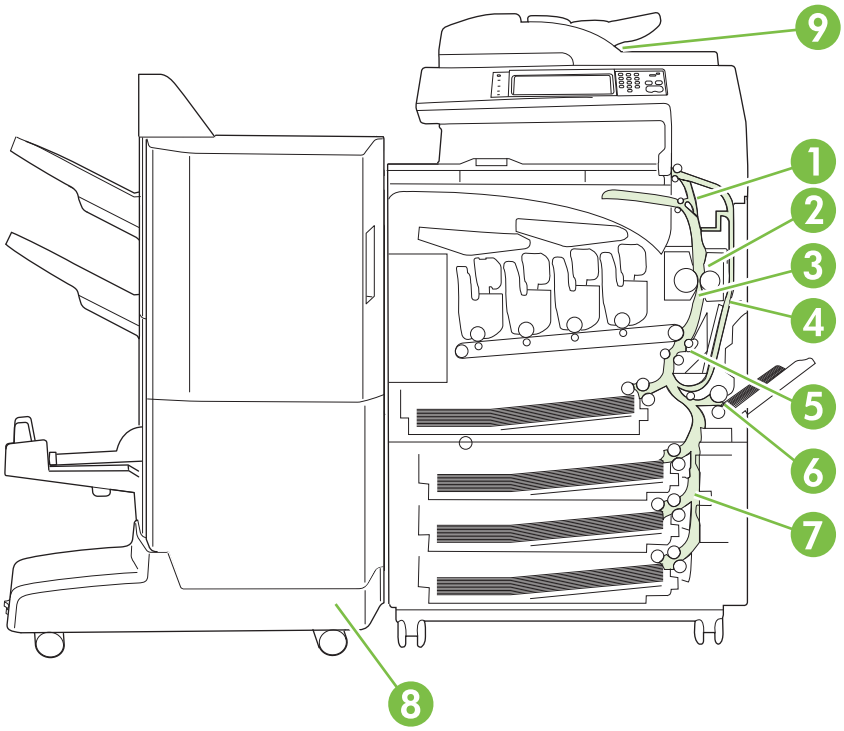
If the product still continues to jam, contact your dealer for support.

Jam locations

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

NOTE: All areas of the product that might need to be opened to clear jams are equipped with green handles.

Figure 7-5 Jam locations



1	AREA 1: Output bin
2	AREA 2: Fuser area
3	AREA 3: Transfer area
4	AREA 4: Duplexing area
5	AREA 5: Tray–2 pickup area
6	AREA 6: Tray 1 area
7	AREA 7: Optional Trays 3, 4, and 5
8	AREA 8: Optional finishing device
9	AREA 9: ADF area

Clear jams

When a jam occurs, a message appears on the control-panel display that describes the location of the jam. The following table lists the messages that can appear and provides links to the procedures for clearing the jam.

⚠ **WARNING!** To avoid electrical shock, remove any necklaces, bracelets, or other metal items before reaching into the inside of the product.

Type of jam	Procedure
13.JJ.NT Jam below control panel	See AREA 1: Jams in the output bin on page 523.
13.JJ.NT Fuser Area Jam **13.JJ.NT Fuser Wrap Jam** **13.JJ.NT Transfer And Fuser Jam**	See AREA 2 and 3: Jams in the fuser and transfer area on page 525.
13.JJ.NT Jam Inside Right Door	See AREA 4: Jams in the duplex area on page 532.
13.JJ.NT Jam In Tray 2 **13.JJ.NT Transfer Area Jam**	See AREA 5: Jams in Tray 2 and the internal paper path on page 536.
13.JJ.NT Jam In Tray 1	See AREA 6:Jams in Tray 1 on page 540.
13.JJ.NT Jam In Tray 3 **13.JJ.NT Jam In Tray 4** **13.JJ.NT Jam In Tray 5** **13.JJ.NT Jam Inside Lower Right Door** **13.JJ.NT Jam In Input Accessory**	See AREA 7: Jams in optional Trays 3, 4, and 5 on page 544
13.JJ.NT Jam In Left Accessory	See AREA 8: Jams in the optional finishing devices on page 548.
Jam in document feeder	See AREA 9: Jams in the ADF on page 553.

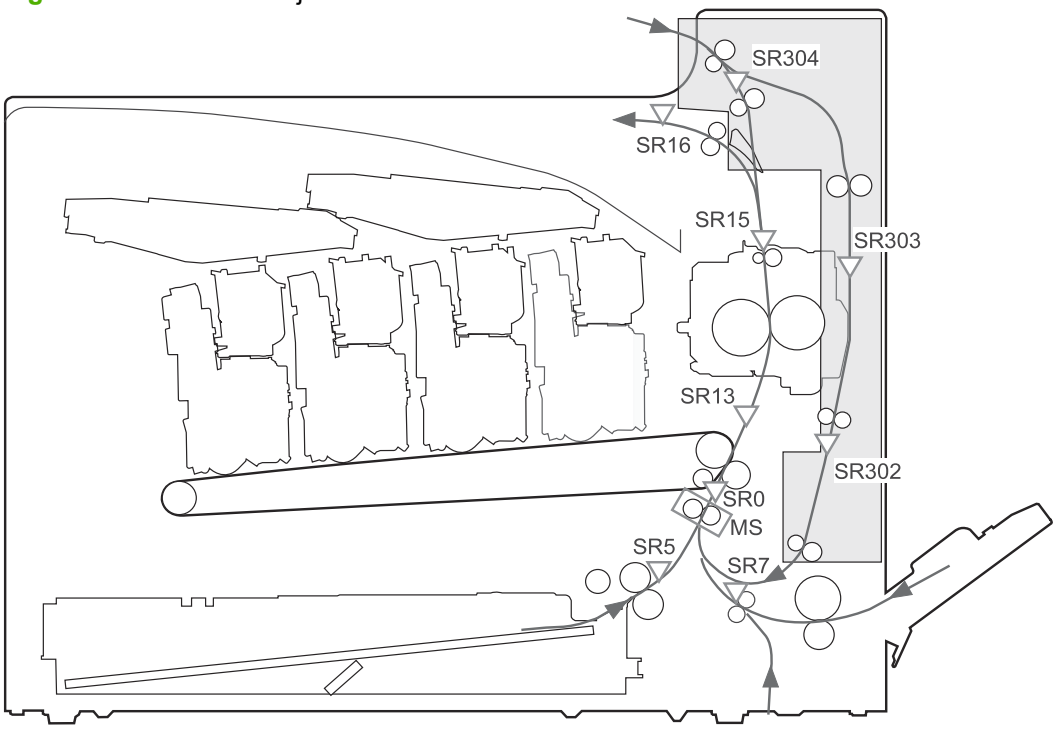
Jam sensors

Jams in areas 1-6 are detected by the paper sensors on the paper path. The product has 9 sensors:

- Vertical-synchronous-position sensor (SR0)
- Cassette media-feed sensor (SR5)
- MP-tray media-feed sensor (SR7)
- Loop sensor (SR13)
- Fixing-delivery media-feed sensor (SR15)
- Face-down tray media-full sensor (SR16)
- Duplexing media-repickup sensor (SR302)

- Duplexing media-feed sensor (SR303)
- Duplexing media-reverse sensor (SR304)

Figure 7-6 Locations of jam sensors



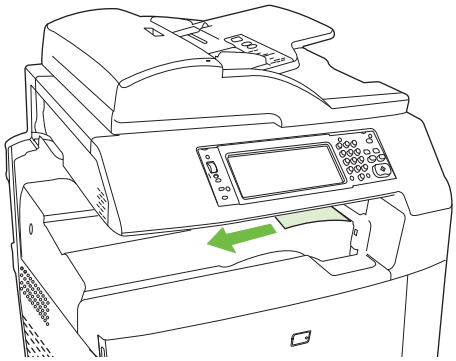
AREA 1: Jams in the output bin

Table 7-5 Causes and solutions for delivery-delay jam

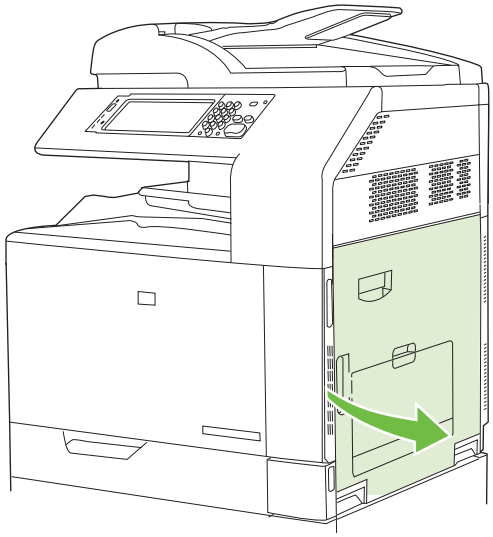
Cause	Solution
The face-down output-bin media-full-sensor lever is damaged.	Replace the face-down delivery unit.
Poor contact of the face-down output-bin media-full-sensor connector	Reconnect the connectors of the face-down output-bin media-full sensor (J2016), intermediate (J1905), and the DC controller PCB (J108).
The face-down output-bin media-full sensor is defective.	Check the face-down output-bin media-full sensor via the sensor-monitor mode. If the sensor is defective, replace the face-down delivery unit.
Poor contact of the fuser-motor connector	Reconnect the connectors of the fuser motor (J1711), intermediate (J1720), and the DC controller PCA (J105).
The fuser motor is defective.	Execute the fuser-motor driving test in the actuator-drive mode. If the motor is defective, replace the fuser motor.

Area 1: Clear jams in the output bin

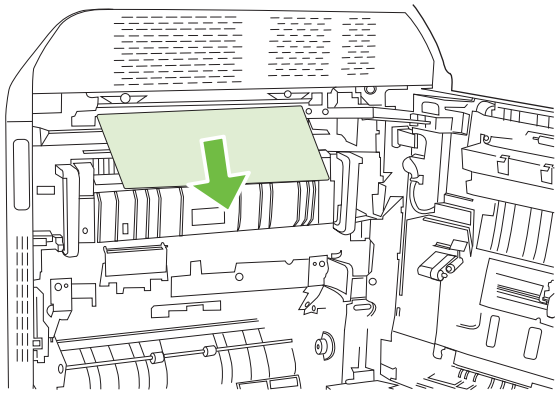
1. If jammed paper is visible in the output bin, gently pull the paper to remove it.



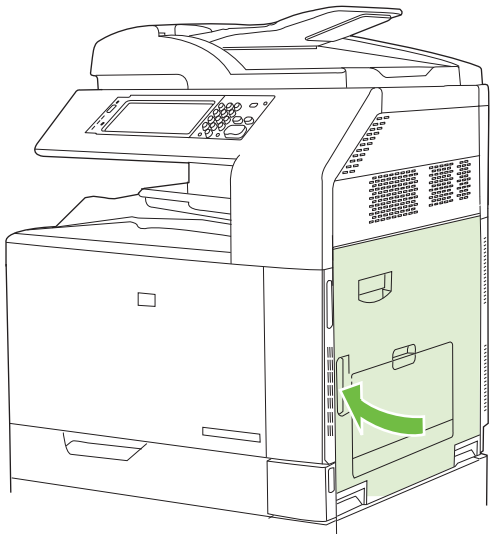
2. Open the right door.



3. If paper has jammed as it enters the output bin, gently pull the paper to remove it.



4. Close the right door.



AREA 2 and 3: Jams in the fuser and transfer area

Table 7-6 Causes and solutions for fuser delivery-delay jams

Cause	Solution
The loop-sensor lever is not set correctly.	Check the loop-sensor lever and place it in the correct position.
The spring of the fuser-delivery media-feed-sensor lever is unhooked.	Check the spring of the fuser and right-door-sensor levers and place it in the correct position.
The fuser-delivery media-feed-sensor lever is damaged.	Replace the fuser or right door.
Poor contact of the fuser-delivery media-feed-sensor connector	Reconnect the connectors of the fuser-delivery media-feed sensor (J1945), intermediate (J1950, J1919). and the DC controller PCA (J108).
The fuser-delivery media-feed sensor is defective.	Check the fuser-delivery media-feed sensor by the sensor-monitor mode. If the sensor is defective, replace the right door.
Poor contact of the fuser-motor connector	Reconnect the connectors of the fuser motor (J1711), intermediate (J1720). and the DC controller PCA (J105).
The fuser motor is defective.	Execute the fuser-motor driving test in the actuator-drive mode. If the motor is defective, replace the fuser motor.

Table 7-7 Causes and solutions for wrapping jams

Cause	Solution
The fuser roller or pressure roller is dirty.	Execute a fuser roller cleaning.
The guide of the fuser delivery unit is dirty.	Clean the guide.
The fuser roller or the pressure roller is worn or deformed.	Replace the fuser.

Table 7-8 Causes and solutions for fuser delivery stationary jams

Cause	Solution
The fuser roller or pressure roller is worn or deformed.	Replace the fuser.
The fuser-delivery roller is deformed.	Replace the fuser.
The gear of the fuser-delivery roller is damaged.	Replace the fuser.
The pressure roller is not within nip-width specifications.	If the pressure roller is not within the specifications, replace the fuser.

Table 7-9 Causes and solutions for residual media jams

Cause	Solution
The spring of the loop-sensor lever is unhooked.	Check the spring and place it in the correct position.
The loop-sensor lever is damaged.	Replace the right door.
Poor contact of the loop-sensor connector	Reconnect the connectors of the loop sensor (J2013), intermediate (J1954, J1955), and the DC controller PCA (J121).
The loop sensor is defective.	Check the loop sensor via the sensor-monitor mode. If the sensor is defective, replace the right door unit.
The spring of the fuser-delivery media-feed-sensor lever is unhooked.	Check the spring of the fuser and right door and place it in the correct position.
The fuser-delivery media-feed-sensor lever is damaged.	Replace the fuser or right door.
Poor contact of the fuser-delivery media-feed-sensor connector	Reconnect the connectors of the fuser-delivery media-feed sensor (J1945), intermediate (J1950, J1919), and the DC controller PCA (J108).
The fuser-delivery media-feed sensor is defective.	Check the fuser-delivery media-feed sensor via the sensor-monitor mode. If the sensor is defective, replace the right door.
The spring of the duplexing media-reverse-sensor lever is unhooked.	Check the spring and place it in the correct position.
The duplexing media-reverse-sensor lever is damaged.	Replace the duplexing reverse unit.
Poor contact of the duplexing media-reverse-sensor connector	Reconnect the connectors of the duplexing media-reverse sensor (J2305) and the duplexing driver PCA (J4103).
The duplexing media-reverse sensor is defective.	Check the duplexing media-reverse sensor via the sensor-monitor mode. If the sensor is defective, replace the duplexing reverse unit.

Table 7-10 Causes and solutions for pickup delay jams 2

Cause	Solution
The registration roller is worn or deformed.	Replace the secondary transfer unit.
The spring of the registration shutter is unhooked.	Check the spring and place it in the correct position.

Table 7-10 Causes and solutions for pickup delay jams 2 (continued)

Cause	Solution
Poor contact of the vertical synchronous position sensor	Reinstall the ITB unit.
The vertical-synchronous-position sensor is defective.	Check the vertical-synchronous-position sensor by the sensor-monitor mode. If the sensor is defective, replace the ITB unit.
Poor contact of the registration-motor-drive connector	Reconnect the connectors of the registration motor (J1706), intermediate (J1924) and the DC controller PCA (J111).
The registration motor is defective.	Execute the registration-motor driving test in the actuator-drive mode. If the motor is defective, replace the multipurpose drive unit.

Table 7-11 Causes and solutions for pickup-stationary jam

Cause	Solution
Multiple-feed of media	Replace any worn or deformed parts (tray separation roller, tray feed roller, MP-tray pickup roller, or MP-tray separation roller). Check the separation roller and MP-tray separation roller to see if they are firmly seated and coupled with the torque limiter. Replace the separation roller and feed roller. Replace the MP-tray pickup roller and MP-tray separation roller.
The secondary-transfer roller is not set correctly.	Place the secondary-transfer roller unit in the correct position.
The secondary-transfer roller is worn or deformed.	Replace the secondary-transfer roller unit.
Poor contact of the ITB motor drive connector	Reconnect the connectors of the ITB motor (J1710) and the DC controller PCA (J105).
The ITB motor is defective.	Execute the ITB-motor driving test in the actuator-drive mode. If the motor is defective, replace the ITB motor.
The ITB does not rotate smoothly.	Replace the ITB unit.

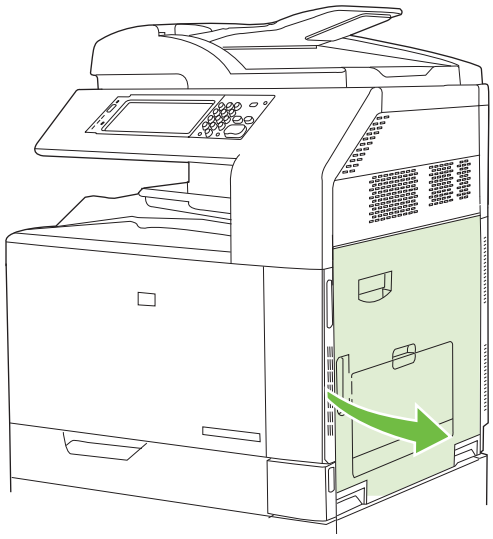
Table 7-12 Causes and solutions for fuser delivery-stationary jam

Cause	Solution
The fuser roller or pressure roller is worn or deformed.	Replace the fuser.
The fuser-delivery roller is deformed.	Replace the fuser.
The gear of the fuser-delivery roller is damaged.	Replace the fuser.
The pressure roller is not within nip-width specifications.	If the pressure roller is not within the specifications, replace the fuser.

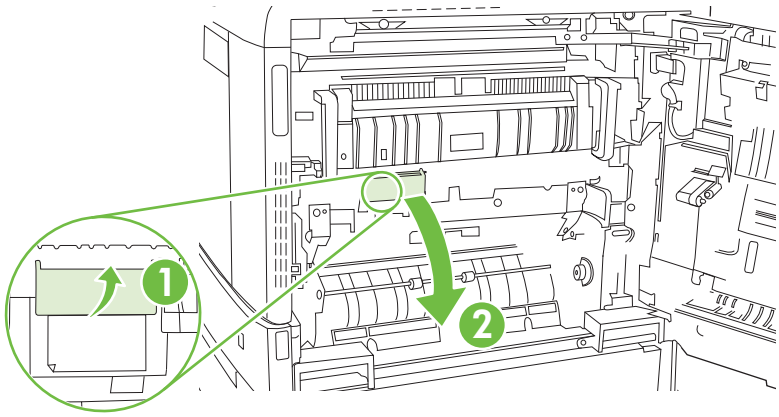
△ **CAUTION:** The fuser can be hot while the product is in use. Wait for the fuser to cool before handling it.

AREA 2 and 3: Clear jams in the fuser and transfer area

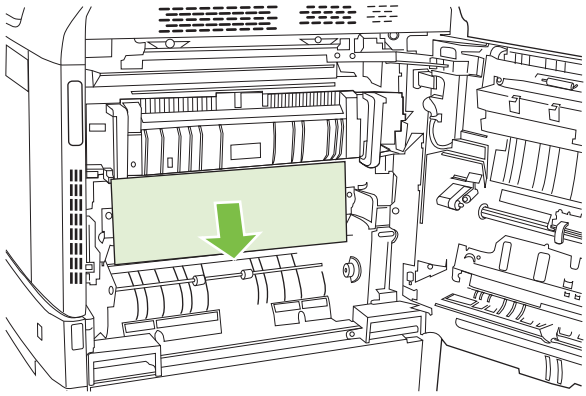
1. Open the right door.



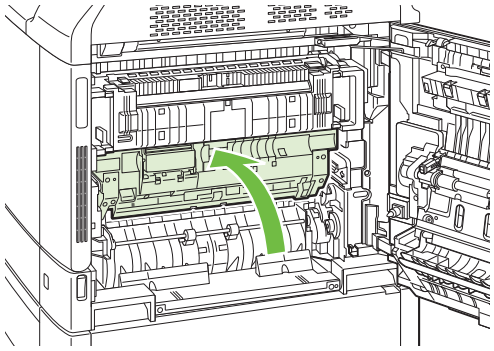
2. Lift the green handle on the transfer-access panel and open the panel.



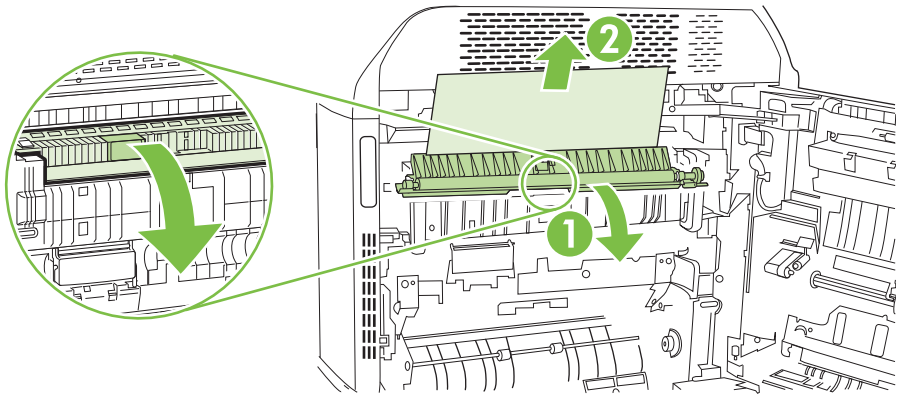
3. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.



4. Close the transfer-access panel.



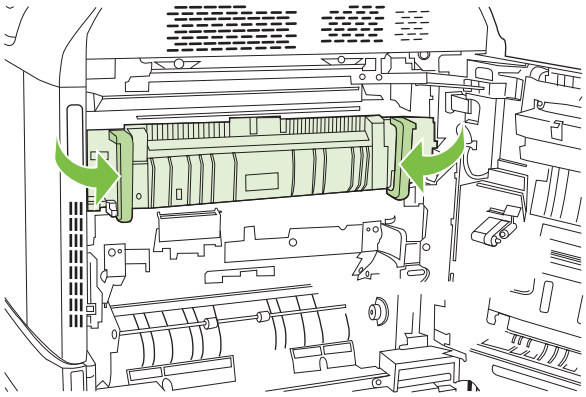
5. Open the fuser jam-access door above the fuser and remove any paper that is visible. Then close the fuser jam-access door.



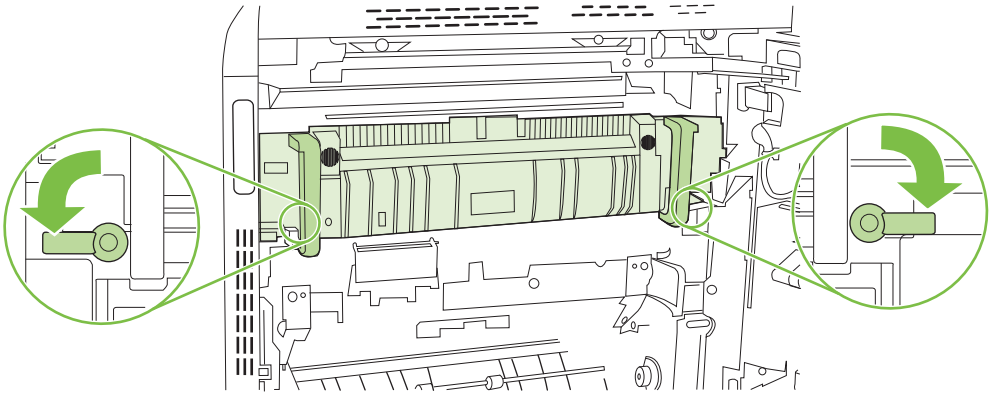
6. Paper could also be jammed inside the fuser where it would not be visible. Remove the fuser to check for jammed paper inside.

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

a. Pull the two blue fuser handles forward.

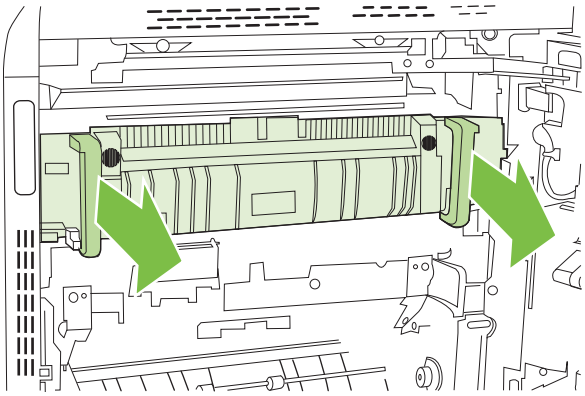


b. Rotate the fuser-release levers down to open them.



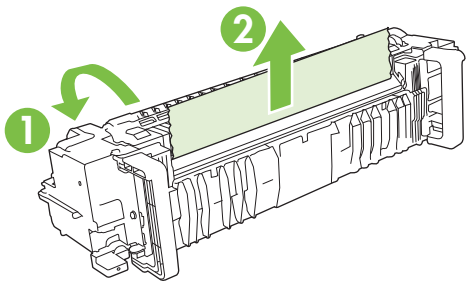
c. Grasp the fuser handles and pull straight out to remove the fuser.

△ **CAUTION:** The fuser weighs 5 kg (11 lbs). Be careful not to drop it.

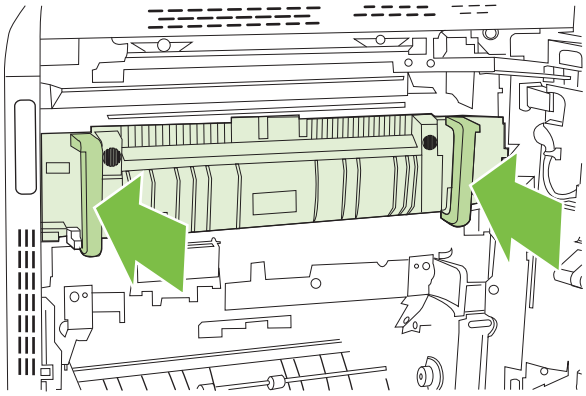


d. Open the two fuser jam-access doors by pushing and rotating the rear door backward, and pulling and rotating the front door forward. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.

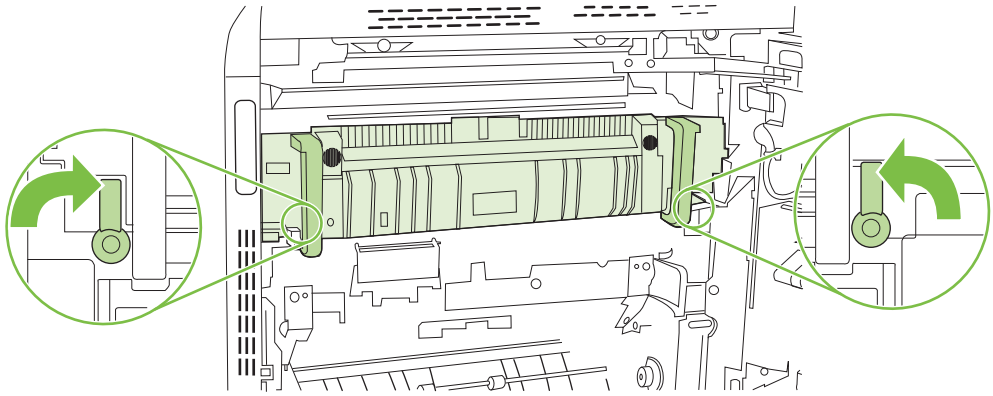
△ **CAUTION:** Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers until they have cooled.



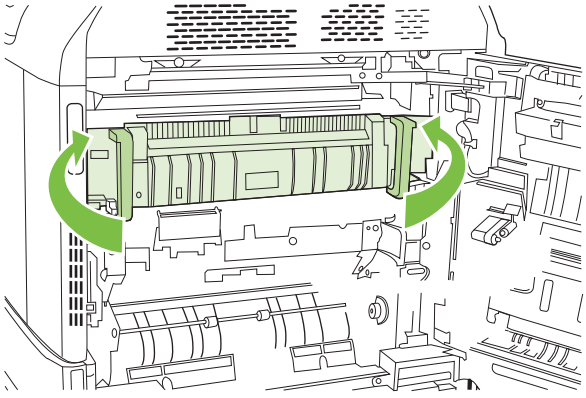
e. Close both fuser jam-access doors and align the fuser with the arrows on the product. Push the fuser completely into the printer.



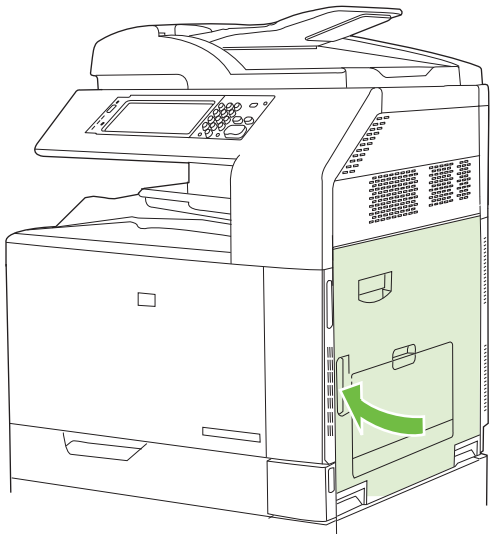
f. Rotate the fuser-release levers up to lock the fuser into place.



g. Push the fuser handles back to close them.



7. Close the right door.



AREA 4: Jams in the duplex area

Table 7-13 Causes and solutions for duplexing reverse jams 1

Cause	Solution
The spring of the duplexing media-feed sensor is unhooked.	Check the spring and place it in the correct position.
The duplexing media-feed sensor lever is damaged.	Replace the right door unit.
Poor contact of the duplexing media-feed sensor connector	Reconnect the connectors of the duplexing media-feed sensor (J1945), intermediate (J1909, J1950), and the DC controller PCA (J4105).
The duplexing media-feed sensor is defective.	Check the duplexing media-feed sensor via the sensor-monitor mode. If the sensor is defective, replace the right door.
Poor contact of the duplexing feed motor connector	Reconnect the connectors of the duplexing feed motor (J1772) and the duplexing driver PCA (J4108).
The duplexing feed motor is defective.	Replace the duplexing reverse unit.

Table 7-14 Causes and solutions for duplexing reverse jams 2

Cause	Solution
Poor contact of the duplexing reverse motor connector	Reconnect the connectors of the duplexing reverse motor (J1773) and the duplexing driver PCA (J4108).
The duplexing reverse motor is defective.	Replace the duplexing reverse unit.

Table 7-15 Causes and solutions for duplexing-repickup jams 1

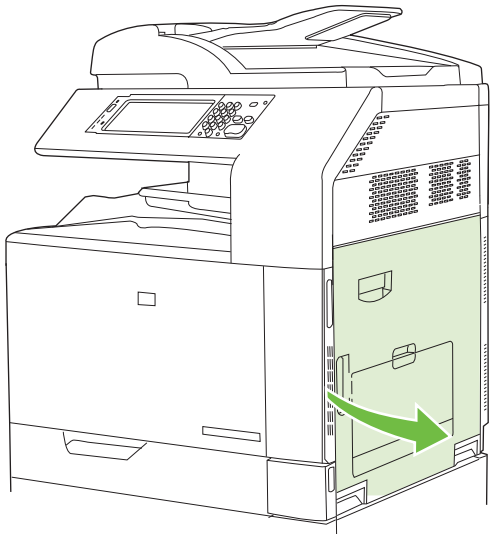
Cause	Solution
The MP-tray upper guide or duplexing media-feed upper guide is not installed properly.	Reinstall the MP-tray upper guide and duplexing media-feed upper guide.
The MP-tray upper guide or duplexing media-feed upper guide is scarred or deformed.	Replace the MP-tray upper guide or duplexing media-feed upper guide.

Table 7-16 Causes and solutions for duplexing-repickup jams 2

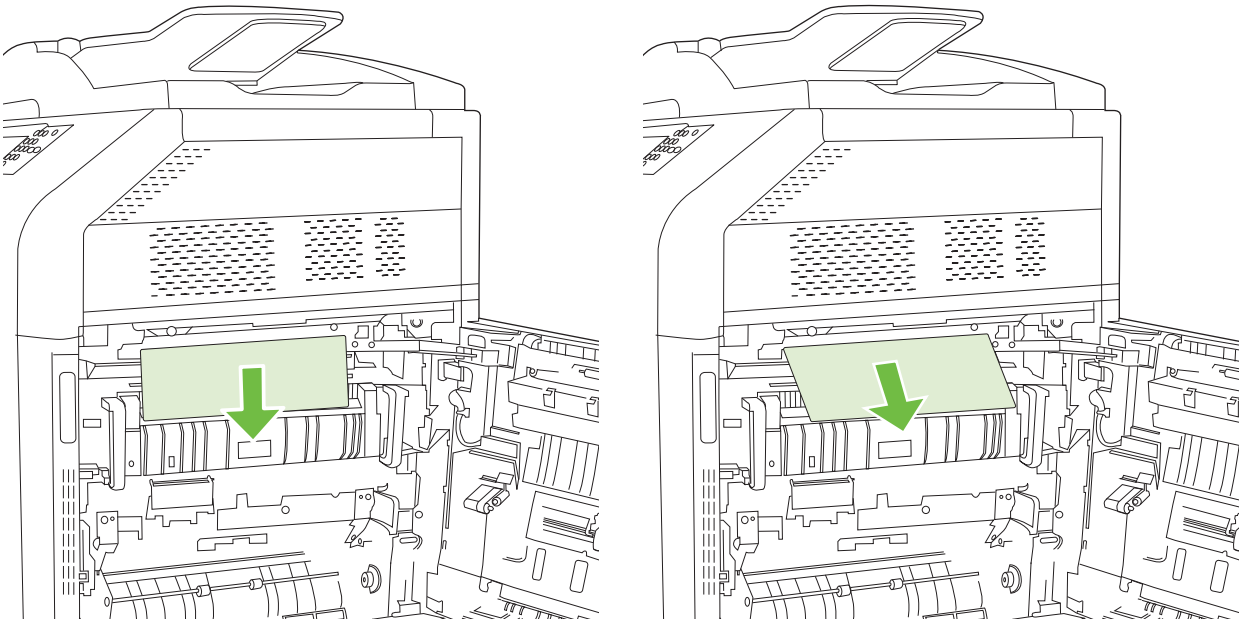
Cause	Solution
The spring of the duplexing media-repickup-sensor lever is unhooked.	Check the spring and place it in the correct position.
The duplexing media-repickup-sensor lever is damaged.	Replace the duplexing feed unit.
Poor contact of the duplexing media-repickup-sensor connector	Reconnect the connectors of the duplexing media-repickup sensor (J1945), intermediate (J1909, J1950), and the DC controller PCA (J4105).
The duplexing media-repickup sensor is defective.	Check the duplexing media-repickup sensor by the sensor-monitor mode. If the sensor is defective, replace the duplexing feed unit.
Poor contact of the duplexing repickup-motor connector	Reconnect the connectors of the duplexing repickup motor (J1771), intermediate (J1908, J1939, J1941), and the duplexing driver PCA (J4104).
The duplexing repickup motor is defective.	Replace the duplexing feed unit.

AREA 4: Clear jams in the duplex area

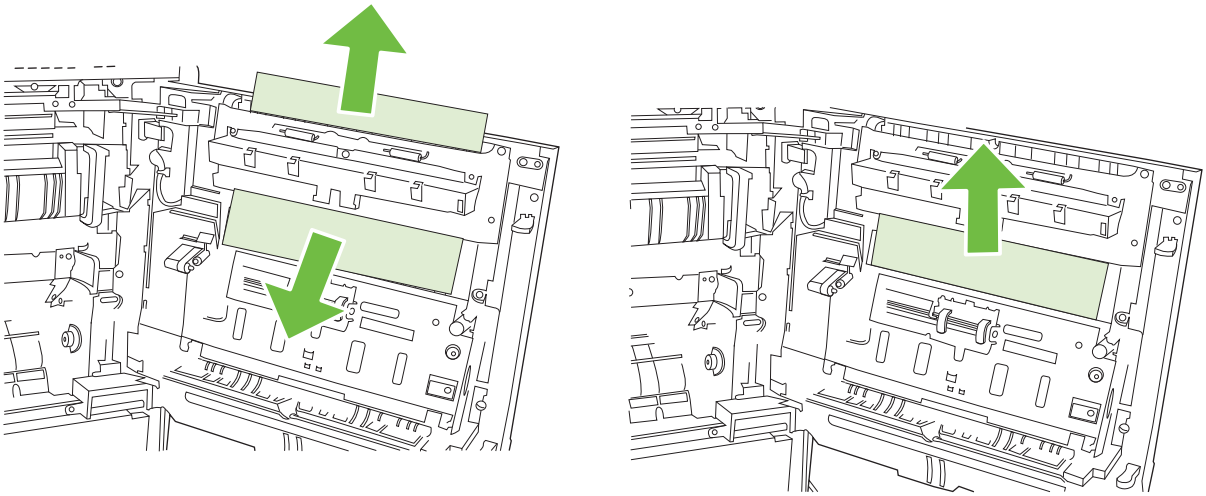
1. Check for jammed paper inside the product. Open the right door.



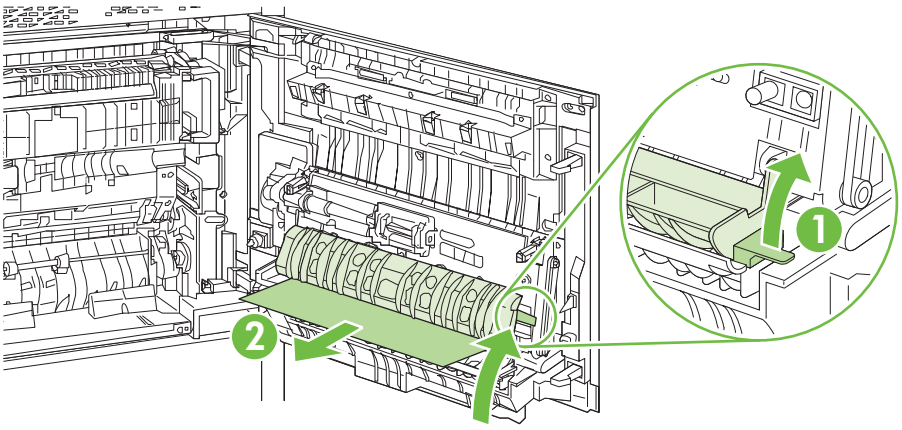
2. If paper is jammed below the duplexing unit, gently pull the paper downward to remove it.



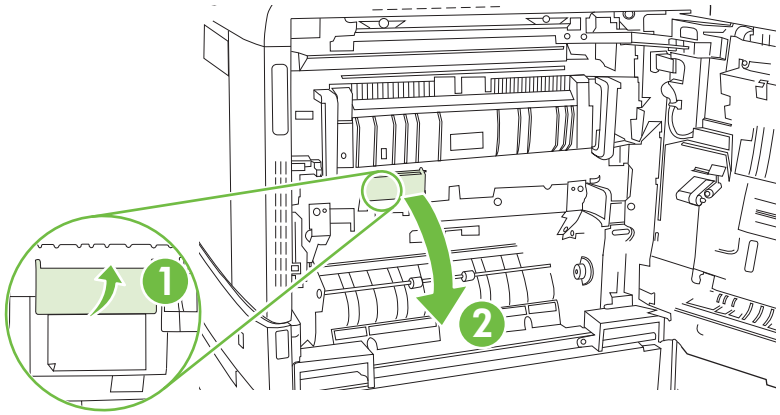
3. If paper is jammed inside the right door, gently pull the paper to remove it.



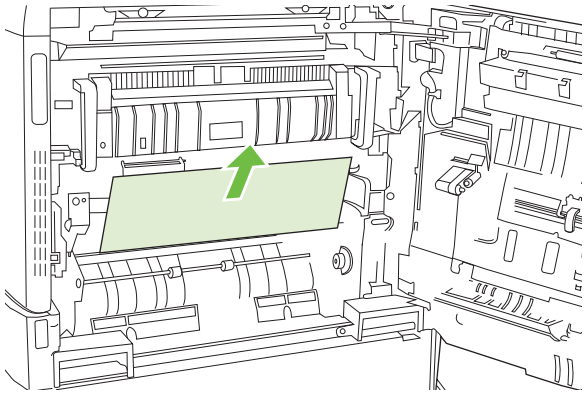
4. Lift the paper-feed cover on the inside of the right door. If jammed paper is present, gently pull the paper straight out to remove it.



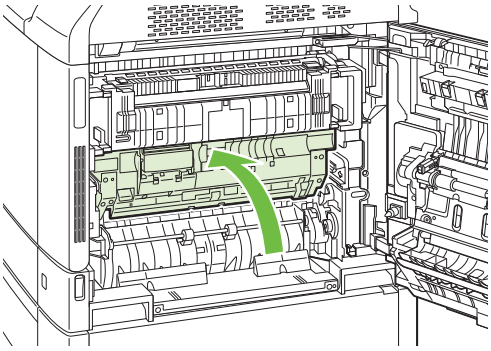
5. Lift the green handle on the transfer assembly and open the panel.



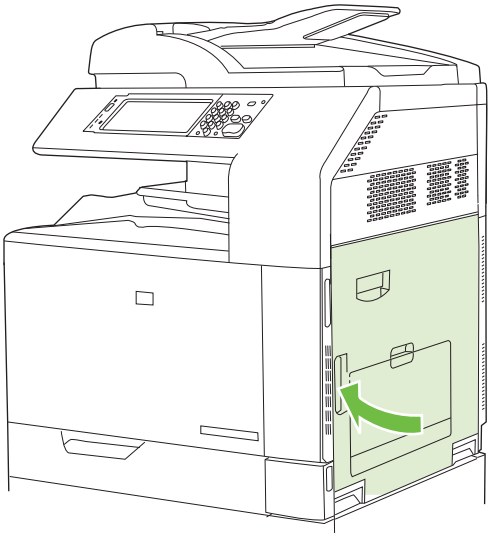
6. Gently pull the paper out of the paper path.



7. Close the transfer-access panel.



8. Close the right door.



AREA 5: Jams in Tray 2 and the internal paper path

Table 7-17 Causes and solutions for pickup-delay jam 1: tray pickup

Cause	Solution
The tray separation roller or tray feed roller is worn or deformed.	Replace the tray separation roller and tray feed roller.
Poor contact of the tray media-feed sensor connector	Reconnect the connectors of the tray media-feed sensor (J2005), intermediate (J1922), and the DC controller PCA (J110).
The tray media-feed sensor is defective.	Check the tray media-feed sensor by the sensor-monitor mode. If the sensor is defective, replace the tray pickup unit.
The arm spring of the tray pickup solenoid is unhooked.	Check the spring and place it in the correct position.
Poor contact of the tray-pickup-solenoid-drive connector	Reconnect the connectors of the tray pickup solenoid (J1923), intermediate (J1922), and the DC controller PCA (J110).
The tray pickup solenoid is defective.	Execute the tray-pickup-solenoid driving test in the actuator-drive mode. If the solenoid is defective, replace the tray pickup unit.

Table 7-17 Causes and solutions for pickup-delay jam 1: tray pickup (continued)

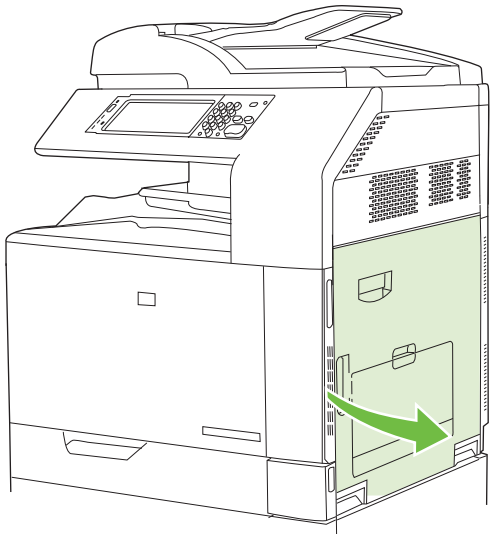
Cause	Solution
Poor contact of the pickup motor drive connector	Reconnect the connectors of the pickup motor (J1705), intermediate (J1924), and the DC controller PCA (J111).
The pickup motor is defective.	Execute the pickup-motor driving test in the actuator-drive mode. If the motor is defective, replace the multipurpose drive unit.

Table 7-18 Causes and solutions for pickup stationary jams

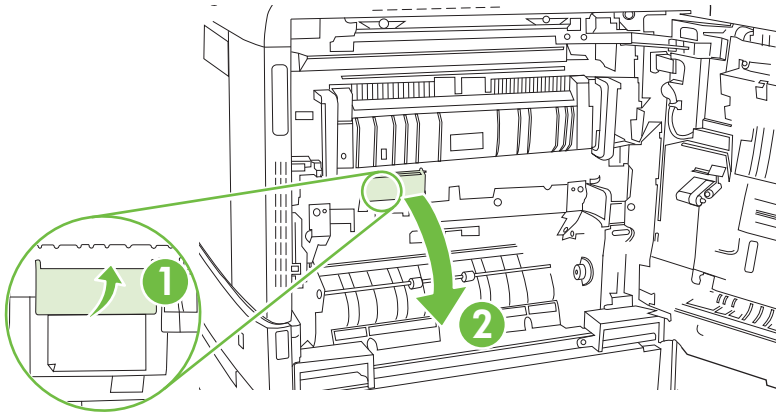
Cause	Solution
Multiple-feed of media	Replace any worn or deformed parts (tray separation roller, tray feed roller, MP-tray pickup roller, or MP-tray separation roller). Check the separation roller and MP-tray separation roller to see if they are firmly seated and coupled with the torque limiter. Replace the separation roller and feed roller. Replace the MP-tray pickup roller and MP-tray separation roller.
The secondary-transfer roller is not set correctly.	Place the secondary-transfer roller unit in the correct position.
The secondary-transfer roller is worn or deformed.	Replace the secondary-transfer roller unit.
Poor contact of the ITB motor drive connector	Reconnect the connectors of the ITB motor (J1710) and the DC controller PCA (J105).
The ITB motor is defective.	Execute the ITB-motor driving test in the actuator-drive mode. If the motor is defective, replace the ITB motor.
The ITB does not rotate smoothly.	Replace the ITB unit.

AREA 5: Clear jams in Tray 2 and the internal paper path

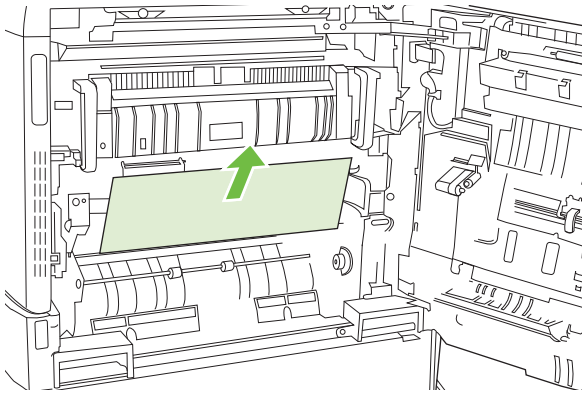
1. Open the right door.



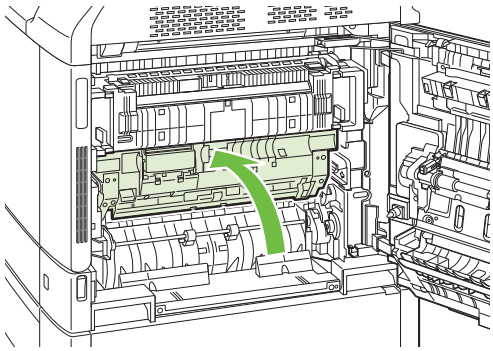
2. Lift the green handle on the transfer-access panel and open the panel.



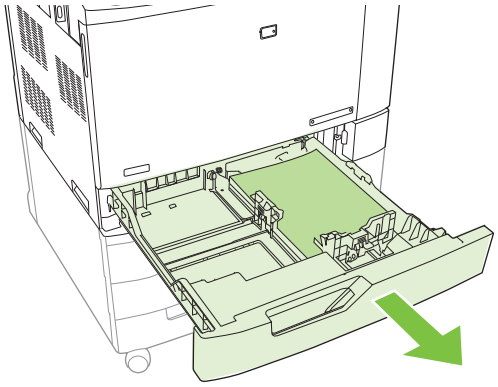
3. Gently pull the paper out of the paper path.



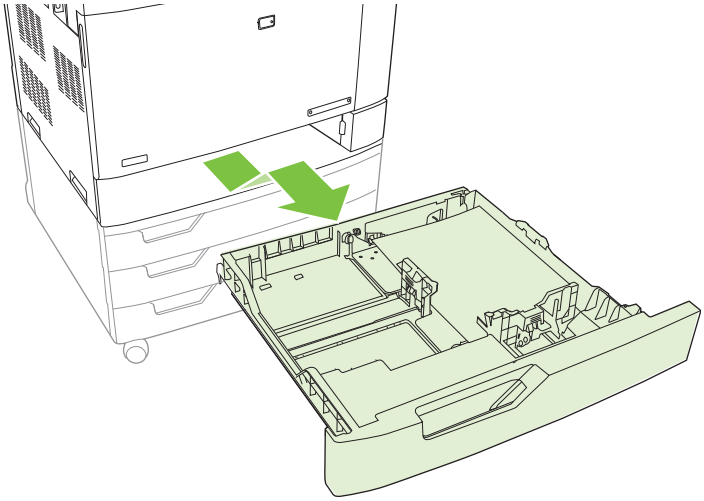
4. Close the transfer-access panel.



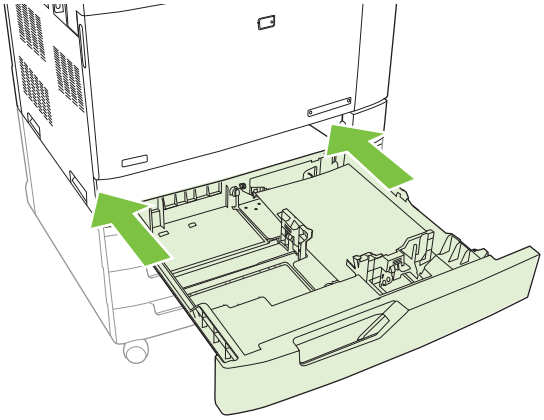
5. Open Tray 2 and make sure that the paper is stacked correctly.



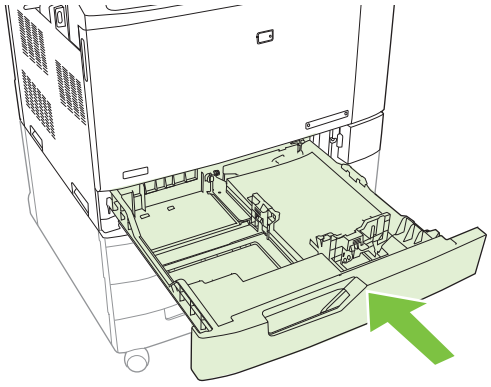
6. Pull the tray completely out of the product by pulling and lifting it up slightly.



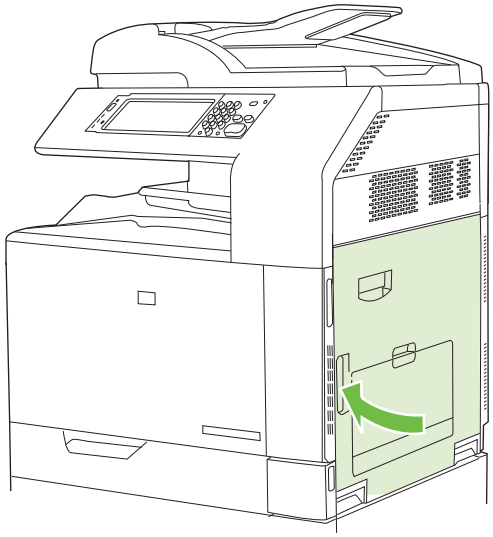
7. Remove any paper from the feeder rollers inside the product.
8. Reinsert Tray 2 by aligning the side rollers and pushing it back into the product.



9. Close the tray.



10. Close the right door.



AREA 6:Jams in Tray 1

Table 7-19 Causes and solutions for pickup-delay jam s1; MP-tray pickup

Cause	Solution
The MP-tray pickup roller or MP-tray separation roller is worn or deformed.	Replace the MP-tray pickup roller and MP-tray separation roller.
Poor contact of the MP-tray media-feed sensor connector	Reconnect the connectors of the MP-tray media-feed sensor (J2007), intermediate (J1935), and the DC controller PCA (J111).
The MP-tray media-feed sensor is defective.	Check the MP-tray media-feed sensor via the sensor-monitor mode. If the sensor is defective, replace the MP-tray guide unit.
The arm spring of the MP-tray pickup solenoid is unhooked.	Check the spring and place it in the correct position.
Poor contact of the MP-tray pickup-solenoid-drive connector	Reconnect the connectors of the MP-tray pickup solenoid (J1925), intermediate (J1926), and the DC controller PCA (J144).
The MP-tray pickup solenoid is defective.	Execute the MP-tray pickup-solenoid driving test in the actuator-drive mode. If the solenoid is defective, replace the MP-tray pickup unit.

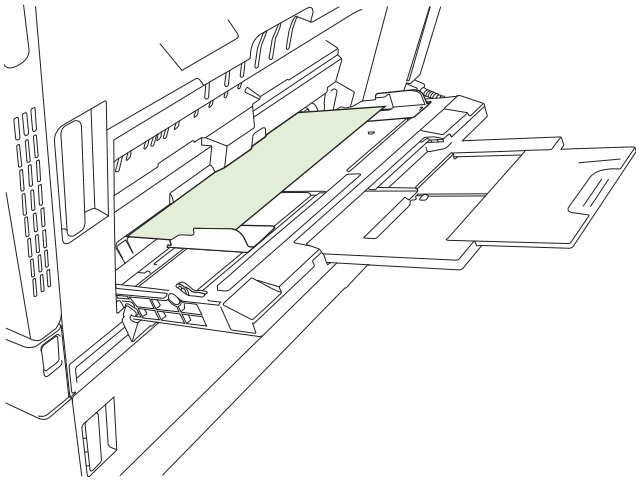
Table 7-19 Causes and solutions for pickup-delay jam s1; MP-tray pickup (continued)

Cause	Solution
Poor contact of the pickup motor drive connector	Reconnect the connectors of the pickup motor (J1705), intermediate (J1924), and the DC controller PCA (J111).
The pickup motor is defective.	Execute the pickup-motor driving test in the actuator-drive mode. If the motor is defective, replace the multipurpose drive unit.

Table 7-20 Causes and solutions for pickup stationary jams

Cause	Solution
Multiple-feed of media	Replace any worn or deformed parts (tray separation roller, tray feed roller, MP-tray pickup roller, or MP-tray separation roller). Check the separation roller and MP-tray separation roller to see if they are firmly seated and coupled with the torque limiter. Replace the separation roller and feed roller. Replace the MP-tray pickup roller and MP-tray separation roller.
The secondary-transfer roller is not set correctly.	Place the secondary-transfer roller unit in the correct position.
The secondary-transfer roller is worn or deformed.	Replace the secondary-transfer roller unit.
Poor contact of the ITB motor-drive connector	Reconnect the connectors of the ITB motor (J1710) and the DC controller PCA (J105).
The ITB motor is defective.	Execute the ITB-motor driving test in the actuator-drive mode. If the motor is defective, replace the ITB motor.
The ITB does not rotate smoothly.	Replace the ITB unit.

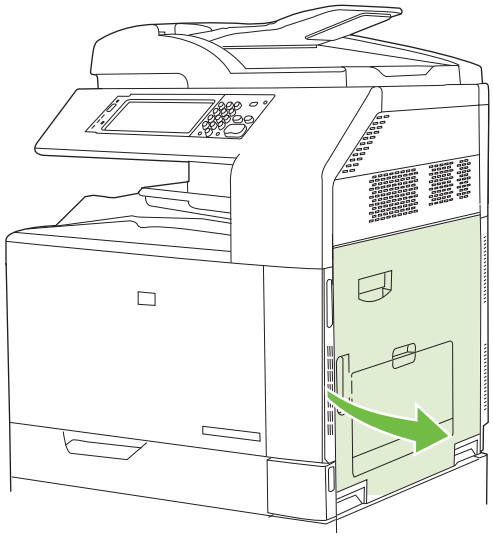
NOTE: Even if jammed paper is visible in Tray 1, clear the jam from the inside of the product by opening the right door.



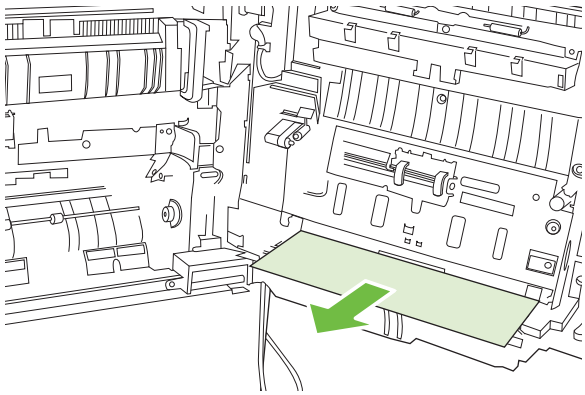
AREA 6: Clear jams in Tray 1

1. Open the right door.

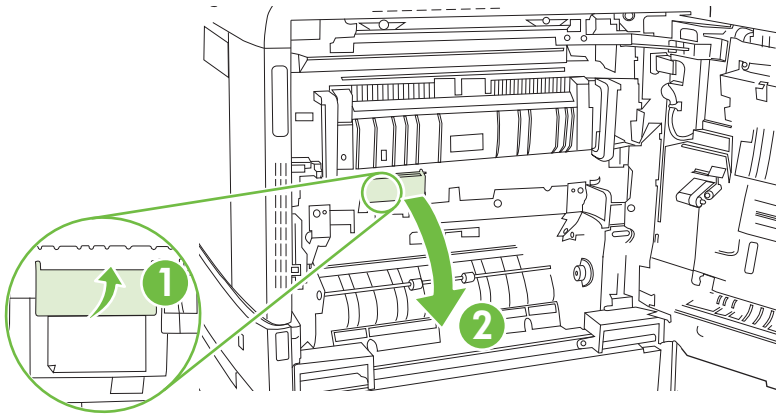
NOTE: When clearing jams of long paper (11 x 17, 12 x 18, and A3), it may be necessary to cut or tear the jammed paper before opening the right door.



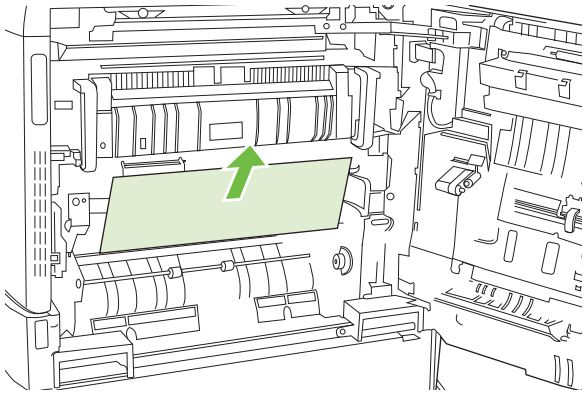
2. If paper is visible inside the right door, gently pull the paper downward to remove it.



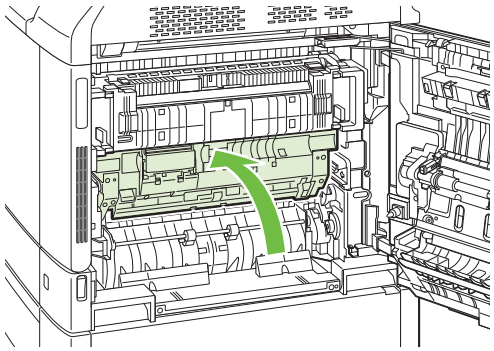
3. If paper has entered the internal paper path, lift the green handle on the transfer-access panel and open the panel.



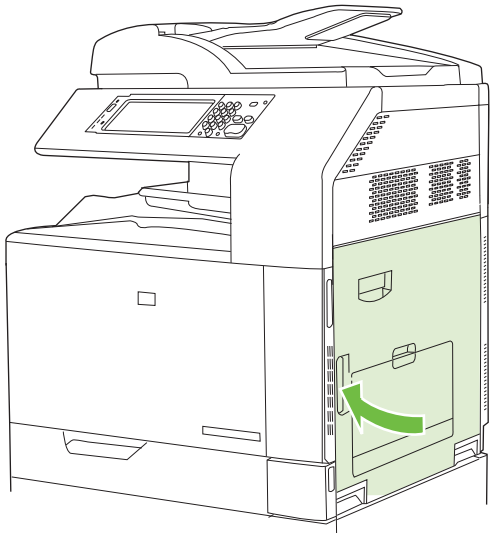
4. Gently pull the paper out of the paper path.



5. Close the transfer-access panel.



6. Close the right door.



AREA 7: Jams in optional Trays 3, 4, and 5

Jams in AREA 7 are detected by paper sensors on the paper path:

- Upper-PD-cassette media-feed sensor (SR102)
- Middle-PD-cassette media-feed sensor (SR112)
- Lower-PD-cassette media-feed sensor (SR122)

Figure 7-7 Paper deck sensors

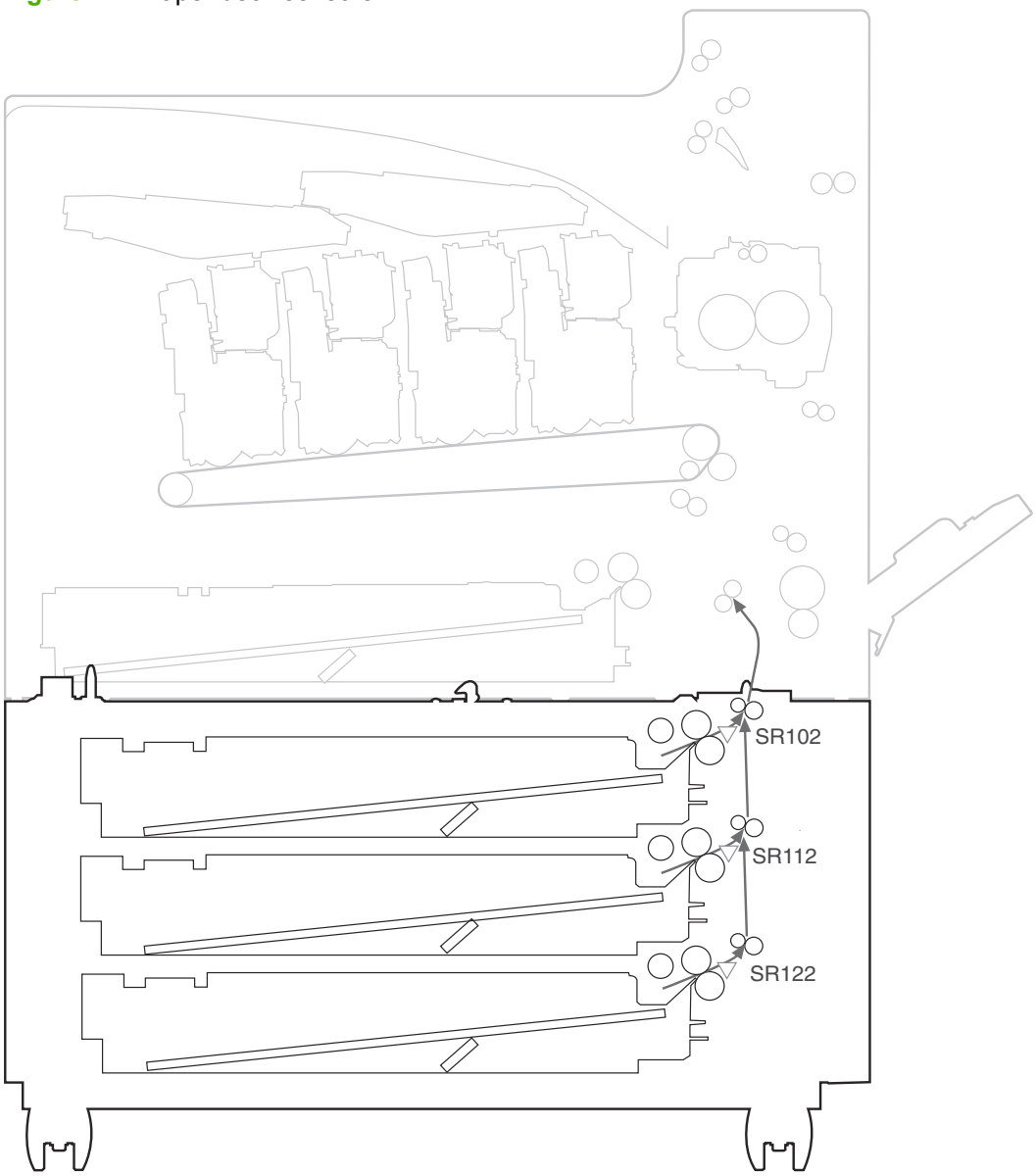


Table 7-21 Causes and solutions for pickup-delay jam

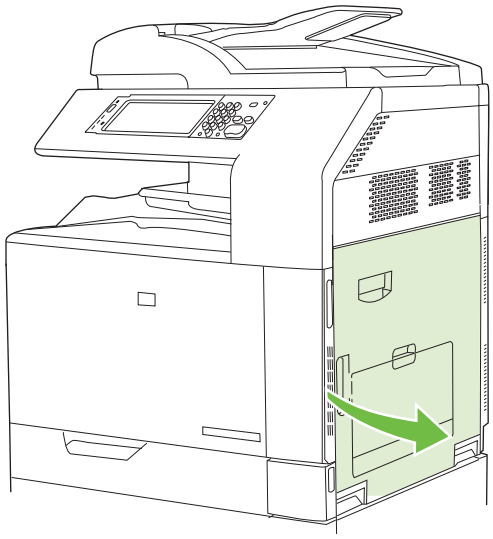
Cause	Solution
The separation roller or feed roller for optional Trays 3, 4, and 5 is worn or deformed.	Replace the separation roller and feed roller for optional Trays 3, 4, and 5.
Poor contact of the Tray-3 media-feed-sensor connector	Reconnect the connectors of the Tray-3 media-feed sensor (J2102), intermediate (J1982) and the Tray-3 paper-deck driver PCA (J8106A).

Table 7-21 Causes and solutions for pickup-delay jam (continued)

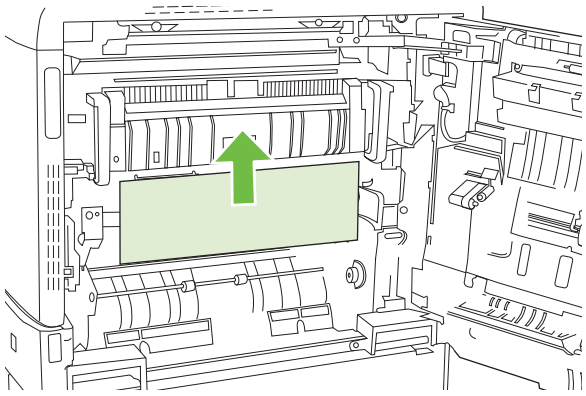
Cause	Solution
The Tray-3 media-feed sensor is defective.	Check the Tray-3 media-feed sensor via the sensor-monitor mode. If the sensor is defective, replace the pickup plate unit.
The spring of the Tray-3 pickup-solenoid arm is unhooked.	Check the spring and place it in the correct position.
Poor contact of the Tray-3 pickup-solenoid-drive connector	Reconnect the connectors of the Tray-3 pickup solenoid (J1983) and the Tray-3 paper-deck driver PCA (J8107A).
The Tray-3 pickup solenoid is defective.	Execute the Tray-3 pickup-solenoid driving test in the actuator-drive mode. If the solenoid is defective, replace the pickup solenoid.
Poor contact of the Tray-3 pickup-motor-drive connector	Reconnect the connectors of the Tray-3 pickup motor (J1751) and the Tray-3 paper-deck driver PCA (J8107A).
The Tray-3 pickup motor is defective.	Execute the Tray-3 pickup-motor driving test in the actuator-drive mode. If the motor is defective, replace the pickup motor.
Poor contact of the Tray-4 media-feed sensor connector	Reconnect the connectors of the Tray-4 media-feed sensor (J2112), intermediate (J1985) and the Tray-4 paper-deck driver PCA (J8106B).
The Tray-4 media-feed sensor is defective.	Check the Tray-4 media-feed sensor via the sensor-monitor mode. If the sensor is defective, replace the pickup plate unit.
The spring of the Tray-4 pickup-solenoid arm is unhooked.	Check the spring and place it in the correct position.
Poor contact of the Tray-4 pickup-solenoid-drive connector	Reconnect the connectors of the Tray-4 pickup solenoid (J1986) and the Tray-4 paper-deck driver PCA (J8107B).
The Tray-4 pickup solenoid is defective.	Execute the Tray-4 pickup-solenoid driving test in the actuator-drive mode. If the solenoid is defective, replace the pickup solenoid.
Poor contact of the Tray-4 pickup-motor-drive connector	Reconnect the connectors of the Tray-4 pickup motor (J1752) and the Tray-4 paper-deck driver PCA (J8107B).
The Tray-4 pickup motor is defective.	Execute the Tray-4 pickup-motor driving test in the actuator-drive mode. If the motor is defective, replace the pickup motor.
Poor contact of the Tray-5 media-feed-sensor connector	Reconnect the connectors of the Tray-5 media-feed sensor (J2122), intermediate (J1988) and the Tray-5 paper-deck driver PCA (J8106C).
The Tray-5 media-feed sensor is defective.	Check the Tray-5 media-feed sensor via the sensor-monitor mode. If the sensor is defective, replace the pickup plate unit.
The spring of the Tray-5 pickup-solenoid arm is unhooked.	Check the spring and place it in the correct position.
Poor contact of the Tray-5 pickup-solenoid-drive connector	Reconnect the connectors of the Tray-5 pickup solenoid (J1989) and the Tray-5 paper-deck driver PCA (J8107C).
The Tray-5 pickup solenoid is defective.	Execute the Tray-5 pickup-solenoid driving test in the actuator-drive mode. If the solenoid is defective, replace the pickup solenoid.
Poor contact of the Tray-5 pickup-motor-drive connector	Reconnect the connectors of the Tray-5 pickup motor (J1753) and the Tray-5 paper-deck driver PCA (J8107C).
The Tray-5 pickup motor is defective.	Execute the Tray-5 pickup-motor driving test in the actuator-drive mode. If the motor is defective, replace the pickup motor.

AREA 7: Clear jams in optional Trays 3, 4, and 5

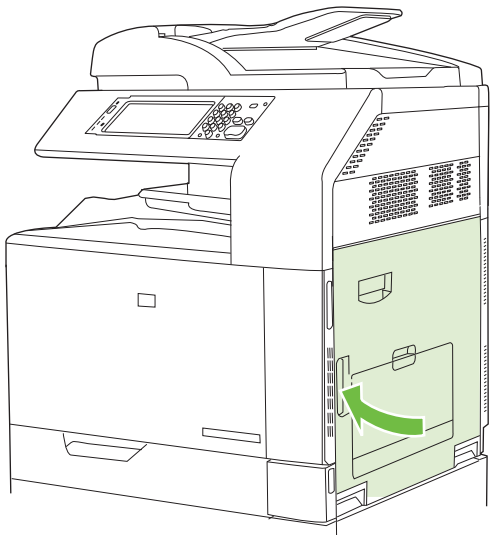
1. Open the right door.



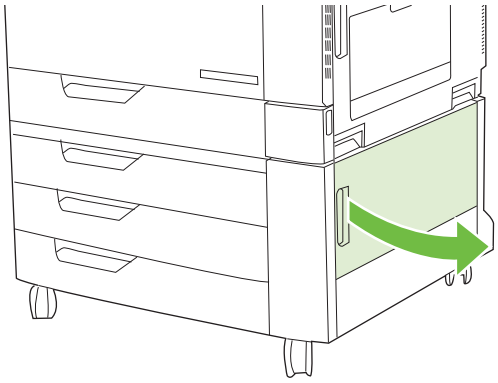
2. If paper is visible in the paper-input area, gently pull the jammed paper up to remove it.



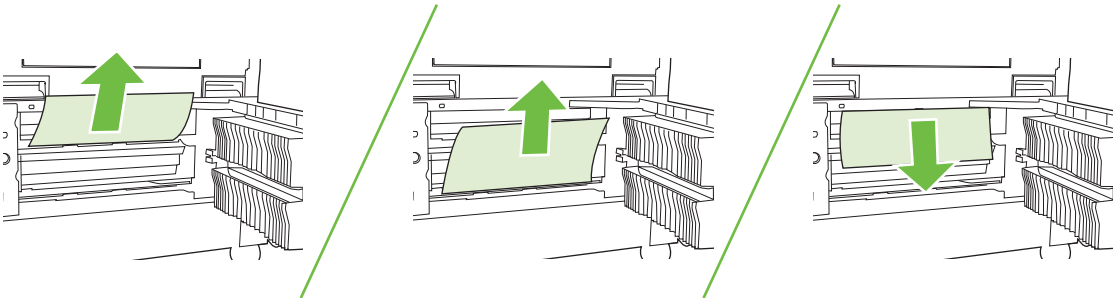
3. Close the right door.



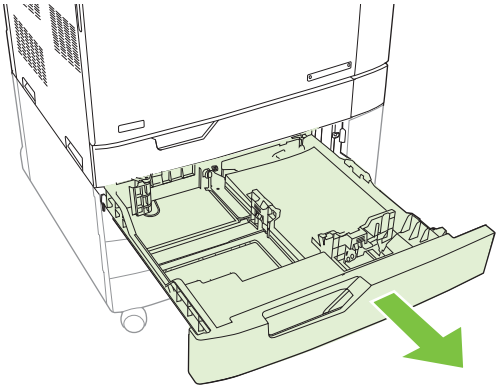
4. Open the lower-right door.



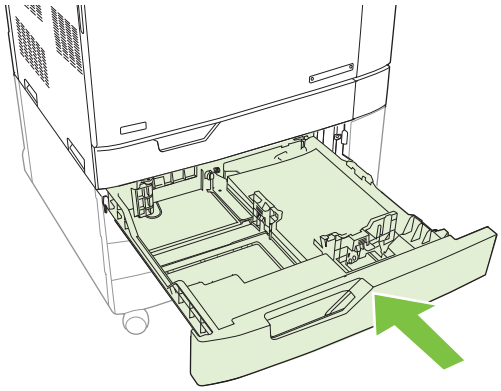
5. Gently pull the jammed paper to remove it.



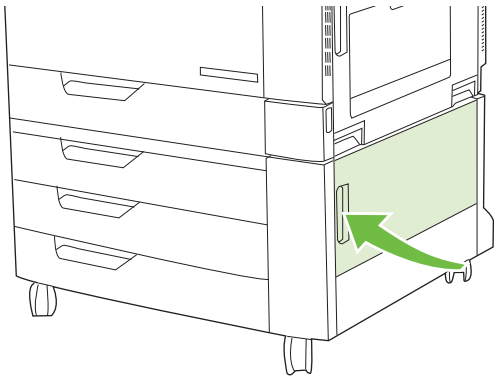
6. Open the tray that is indicated in the control-panel message, and make sure that the paper is stacked correctly.



7. Close the tray.



8. Close the lower-right door.



AREA 8: Jams in the optional finishing devices

Clear jams in the output-accessory bridge

Table 7-22 Causes and solutions for delivery delay jams 1

Cause	Solution
The spring of the IPTU media-feed sensor 1 lever is unhooked.	Check the spring and place it in the correct position.
The IPTU media-feed sensor 1 lever is damaged.	Replace the lower guide unit.
Poor contact of the IPTU media-feed sensor 1 connector	Reconnect the connectors of the IPTU media-feed sensor 1 (J12203) and the IPTU driver PCA (J7006).
The IPTU media-feed sensor 1 is defective.	Check the IPTU media-feed sensor 1 by the sensor-monitor mode. If the sensor is defective, replace the lower guide unit.
Poor contact of the IPTU media-feed motor 1 connector	Reconnect the connectors of the IPTU media-feed motor 1 (J7011) and the IPTU driver PCA (J7003).
The IPTU media-feed motor 1 is defective.	Execute the IPTU media-feed-motor driving test in the actuator-drive mode. If the motor is defective, replace the IPTU media-feed motor 1.

Table 7-23 Causes and solutions for delivery delay jams 2

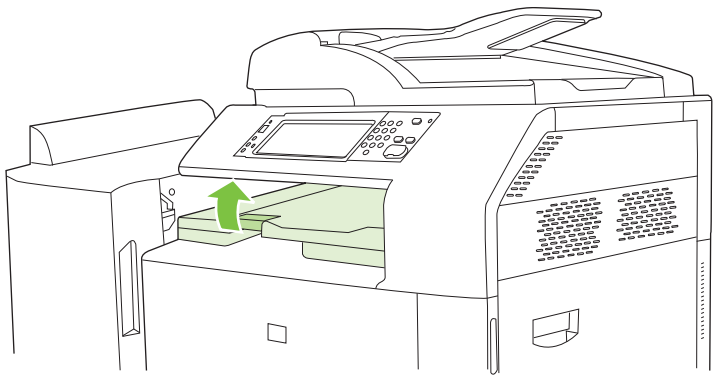
Cause	Solution
The spring of the IPTU media-feed sensor-2 lever is unhooked.	Check the spring and place it in correct position.
The IPTU media-feed sensor-2 lever is damaged.	Replace the lower guide unit.
Poor contact of the IPTU media-feed sensor-2 connector	Reconnect the connectors of the IPTU media-feed sensor 2 (J12202) and the IPTU driver PCA (J7006).
The IPTU media-feed sensor 2 is defective.	Check the IPTU media-feed sensor 2 via the sensor-monitor mode. If the sensor is defective, replace the lower guide unit.
The spring of the IPTU media-feed sensor-3 lever is unhooked.	Check the spring and place it in the correct position.
The IPTU media-feed sensor-3 lever is damaged.	Replace the lower guide unit.
Poor contact of the IPTU media-feed sensor-3 connector	Reconnect the connectors of the IPTU media-feed sensor 3 (J12201) and the IPTU driver PCA (J7006).
The IPTU media-feed sensor 3 is defective.	Check the IPTU media-feed sensor 3 via the sensor-monitor mode. If the sensor is defective, replace the lower guide unit.
Poor contact of the IPTU media-feed motor-2 connector	Reconnect the connectors of the IPTU media-feed motor 2 (J7012) and the IPTU driver PCA (J7007).
The IPTU media-feed motor 2 is defective.	Execute the IPTU media-feed-motor driving test in the actuator-drive mode. If the motor is defective, replace the IPTU media-feed motor 2.

Table 7-24 Causes and solutions for delivery stationary jams

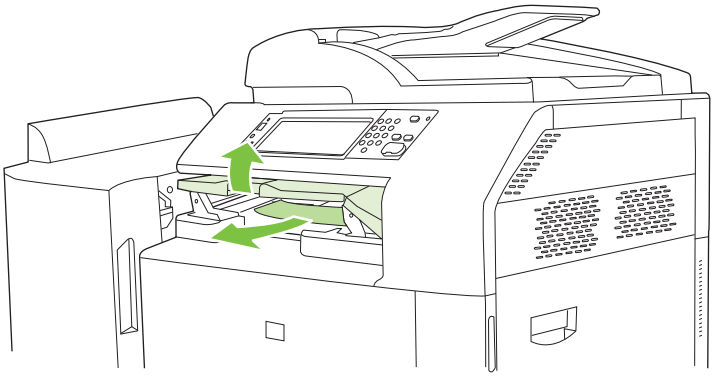
Cause	Solution
The IPTU feed roller is worn or deformed.	Replace the upper guide unit or lower guide unit.
The spring of the IPTU feed subroller is unhooked.	Check the spring and place it in the correct position.

Clear jams in the optional finishing devices

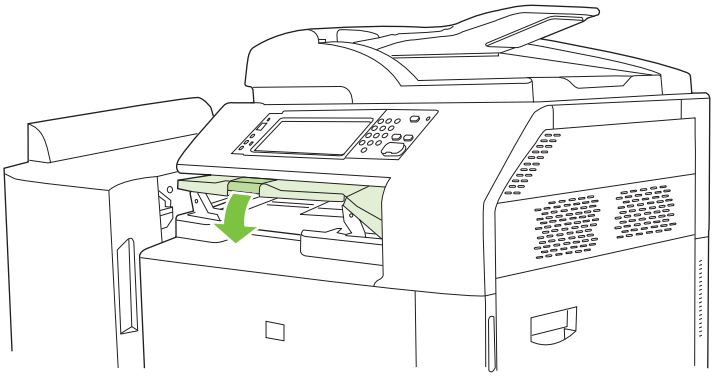
1. Lift the latch on the top cover of the output-accessory bridge and open the top cover.



2. Gently pull the jammed paper to remove it.



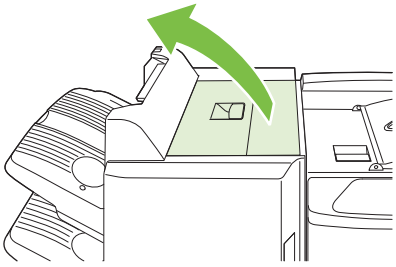
3. Close the top cover of the output-accessory bridge.



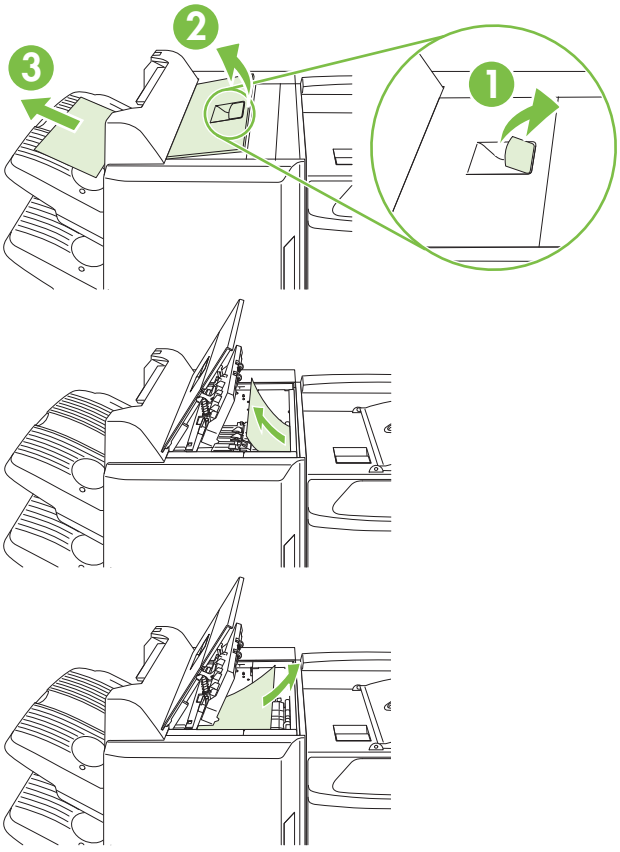
Clear jams in the sorter area

1. Lift the latch on the top cover of the finishing device, and open the top cover.

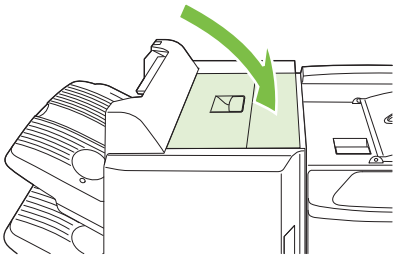
NOTE: Opening the top cover releases pressure on the output-bin rollers.



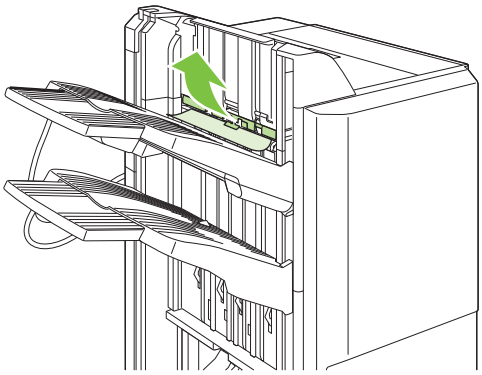
2. Remove jammed paper from the output bin or from the inside of the finishing device.

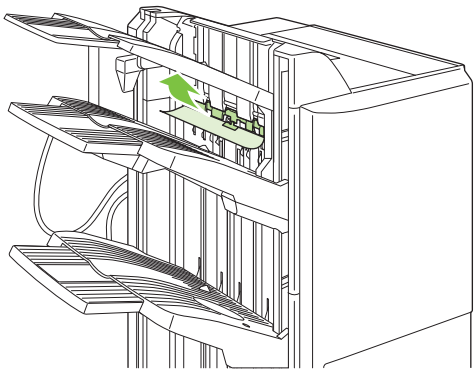


3. Close the top cover of the finishing device.



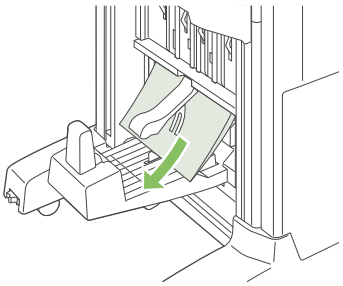
4. Lift the swing-guide panel in the output bin. If you can see any jammed paper, gently pull it out.



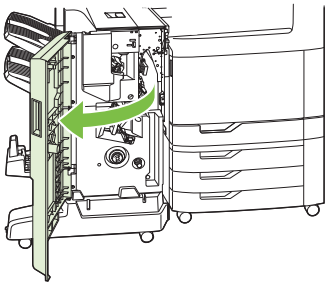


Clear jams in the booklet maker

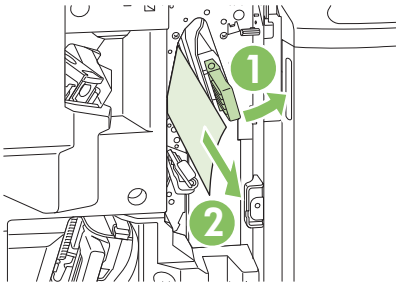
1. If the paper is visible in the booklet output bin, gently pull the paper to remove it.



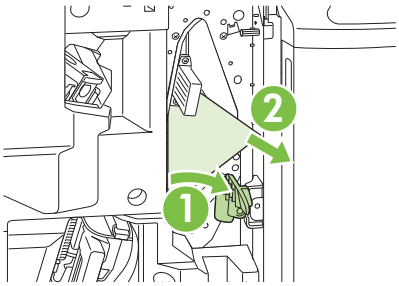
2. Open the front door of the booklet maker.



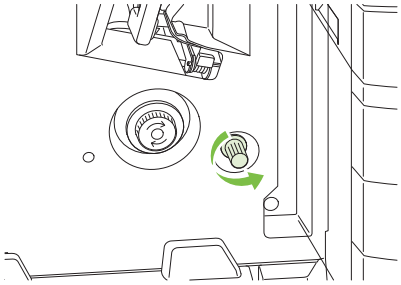
3. Push the upper delivery guide to the right, and remove any jammed paper.



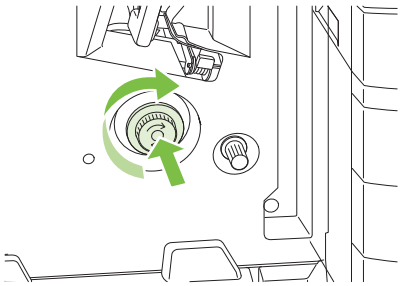
4. Push the lower delivery guide to the right, and remove any jammed paper.



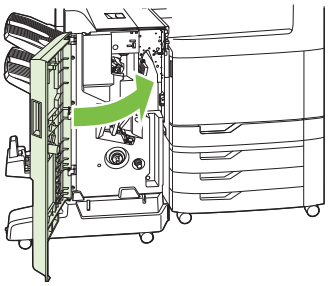
5. The positioning knob is the smaller, green dial on the right. Turn the positioning knob counterclockwise.



6. The jam-release knob is the larger, green dial on the left. Push in the jam-release knob, and then turn it clockwise to move any jammed paper into the output bin.



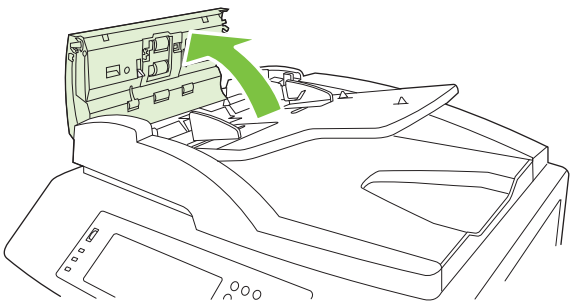
7. Close the front door of the booklet maker.



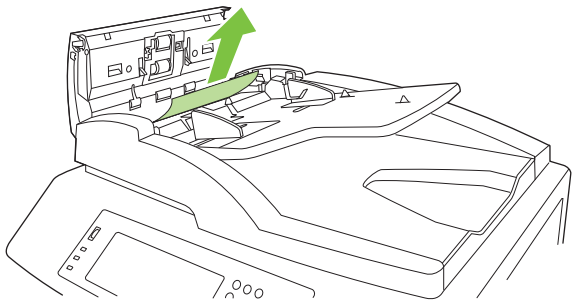
AREA 9: Jams in the ADF

AREA 9: Clear jams in the ADF

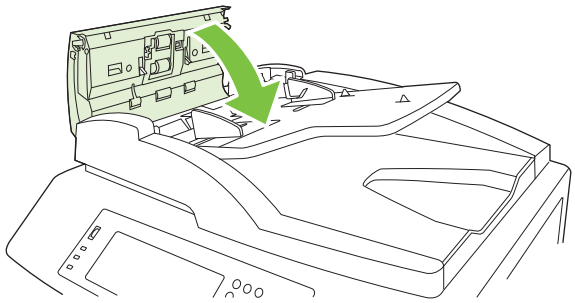
1. Open the ADF cover.



2. Remove any jammed media.



3. Close the ADF cover.

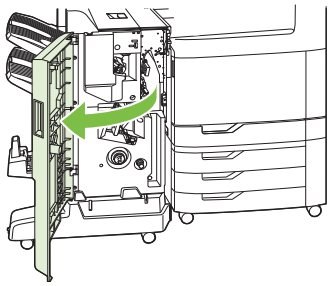


Clear staple jams

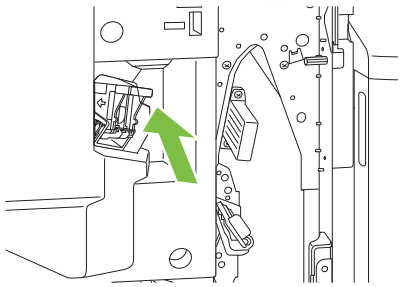
Clear staple jams in the main stapler

The HP 3-bin Stapler/Stacker and the HP Booklet maker/Finisher Accessory each have a main stapler, which is located near the top of the finishing device.

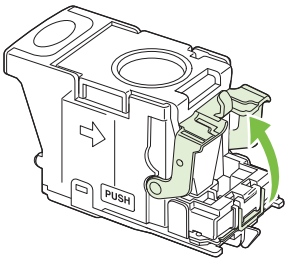
1. Open the front door of the finishing device.



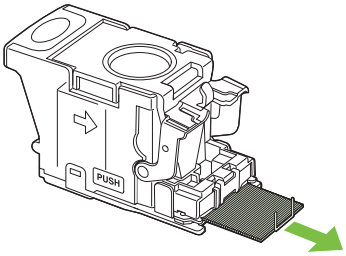
2. To remove the staple cartridge, pull up on the green handle and pull out the staple cartridge.



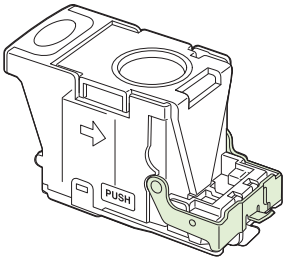
3. Lift up on the small lever at the back of the staple cartridge.



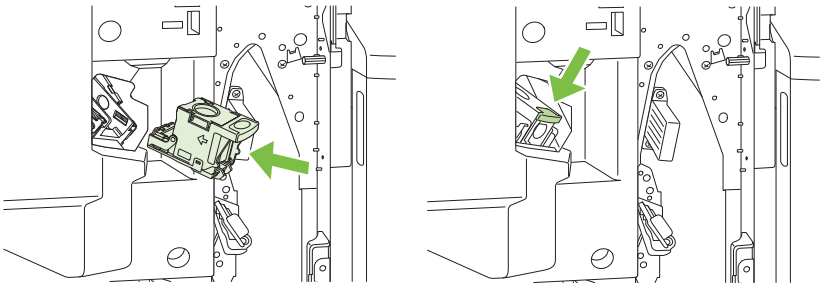
4. Remove the damaged staples that protrude from the staple cartridge. Remove the entire sheet of staples that the damaged staples were attached to.



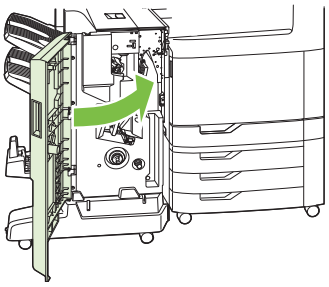
5. Close the lever at the back of the staple cartridge. Be sure that it snaps into place.



6. Reinsert the staple cartridge into the finishing device, and push down on the green handle until it snaps into place.



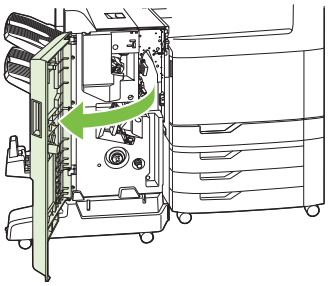
7. Close the front cover of the finishing device.



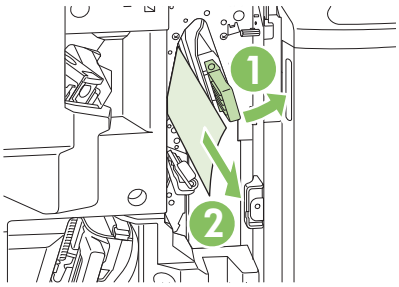
Clear staple jams in the booklet maker

The booklet maker has an additional saddle stitch stapler that is below the main stapler. The saddle stitch stapler has two staple cartridges.

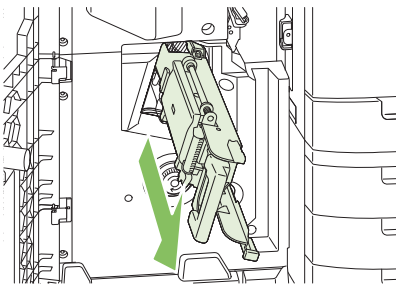
1. Open the front door of the booklet maker.



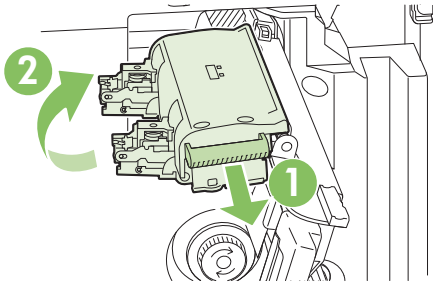
2. Push the upper delivery guide to the right, and remove any jammed paper.



3. Grasp the blue handle for the stapler carriage and pull it straight out.



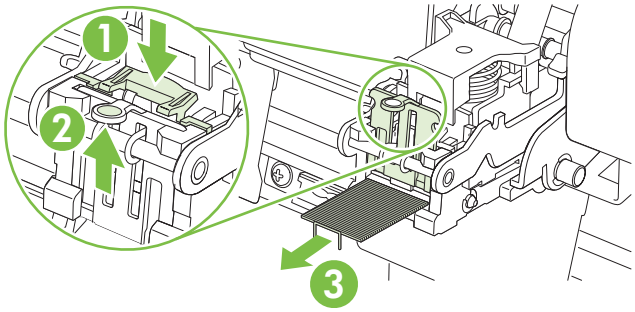
4. Grasp the handle of the blue staple cartridge unit and pull it toward you, then swing the staple cartridge unit into an upright position.



5. Check each staple cartridge for jammed staples.

   a. On each staple cartridge, press down on the green plastic tabs while lifting the jam clearance plate.

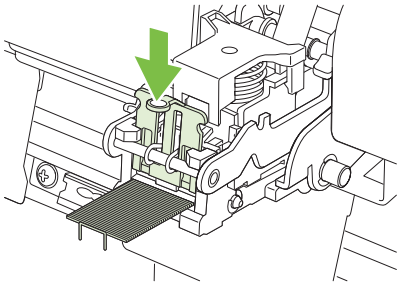
   △ **CAUTION:** Do not place your fingers or hands underneath the staple cartridge during this procedure.



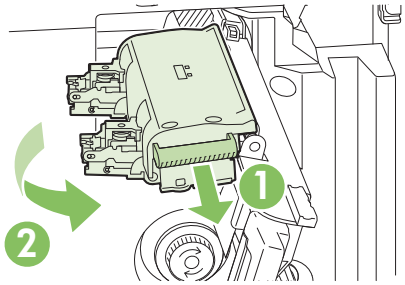
   b. Remove any jammed staples. Remove any damaged staples and the entire sheet of staples that the damaged staples were attached to.

   c. Press down on the jam clearance plate to close it.

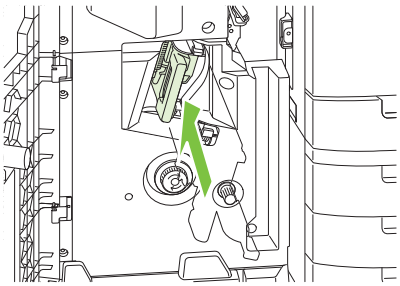
   △ **CAUTION:** Do not place your fingers or hands underneath the staple cartridge during this procedure.



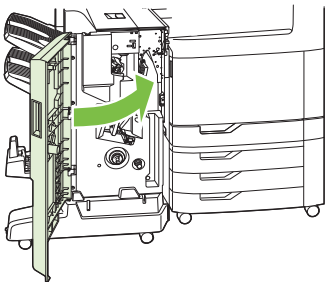
6. Pull the staple cartridge unit forward, and swing it downward to the original position. Push in on the handle to lock it into position.



7. Push the staple carriage back into the booklet maker.



8. Close the front door of the booklet maker.



Jam recovery

This product provides jam recovery, a feature that reprints jammed pages. The following options are available:

- **Auto** — The product attempts to reprint jammed pages when sufficient memory is available.
- **Off** — The product does not attempt to reprint jammed pages. Because no memory is used to store the most recent pages, performance is optimal.

> **NOTE:** When using this option, if the product runs out of paper and the job is being printed on both sides, some pages can be lost.

- **On** — The product always reprints jammed pages. Additional memory is allocated to store the last few pages printed. This might cause overall performance to suffer.

Set the jam recovery feature

1. Touch Administration, and then touch Device Behavior.
2. Touch Warning/Error Behavior, and then touch Jam Recovery.
3. Touch an option, and then touch Save.

Product feeds multiple sheets

Product feeds multiple sheets

Cause	Solution
The input tray is overfilled. Open the tray and verify that the paper stack is below the maximum stack height mark.	Remove excess paper from the input tray.
Print paper is sticking together.	Remove paper, flex it, rotate it 180 degrees or flip it over, and then reload it into the tray. **NOTE:** Do not fan paper. Fanning can cause static electricity, which can cause paper to stick together.
Paper does not meet the specifications for this product.	Use only paper that meets HP paper specifications for this product.
Trays are not properly adjusted.	Make sure that the paper guides match the size of paper being used.

Product pulls from incorrect tray

Product pulls from incorrect tray

Cause	Solution
You are using a driver for a different product.	Use a driver for this product.
The specified tray is empty.	Load paper in the specified tray.
The paper size is not configured correctly for the input tray.	Print a configuration page or use the control panel to determine the paper size for which the tray is configured.
The guides in the tray are not against the paper.	Verify that the guides are touching the paper.

Product feeds incorrect page size

Product feeds incorrect page size

Cause	Solution
The correct size paper is not loaded in the input tray.	Load the correct size paper in the input tray.
The correct size paper is not selected in the software program or printer driver.	Confirm that the settings in the software program and printer driver are appropriate, because the software program settings override the printer driver and control-panel settings, and the printer driver settings override the control-panel settings.
The correct size paper for the tray is not selected in the product control panel.	From the control panel, select the correct size paper for the tray.

Product feeds incorrect page size

Cause	Solution
The paper size is not configured correctly for the input tray.	Print a configuration page or use the control panel to determine the paper size for which the tray is configured.
The guides in the tray are not against the paper.	Verify that the paper guides are touching the paper.

Paper does not feed automatically

Paper does not feed automatically

Cause	Solution
Manual feed is selected in the software program.	Load Tray 1 with paper, or, if the paper is loaded, press the checkmark button ✓.
The correct size paper is not loaded.	Load the correct size paper.
The input tray is empty.	Load paper into the input tray.
Paper from a previous jam has not been completely removed.	Open the product and remove any paper in the paper path.
The paper size is not configured correctly for the input tray.	Print a configuration page or use the control panel to determine the paper size for which the tray is configured.
The guides in the tray are not against the paper.	Verify that the rear and width paper guides are touching the paper.
The manual-feed prompt is set to **ALWAYS**. The product always prompts for manual feed, even if the tray is loaded.	Open the tray, reload the media, and then close the tray. Or, change the manual-feed prompt setting to **UNLESS LOADED**, so that the product prompts for manual feed only when the tray is empty.
The **USE REQUESTED TRAY** setting on the product is set to **EXCLUSIVELY**, and the requested tray is empty. The product will not use another tray.	Load the requested tray. Or, change the setting from **EXCLUSIVELY** to **FIRST** on the **CONFIGURE DEVICE** menu. The product can use other trays if no media is loaded in the specified tray.

Paper does not feed from Tray 2, 3, 4, or 5

Paper does not feed from Tray 2, 3, 4, or 5

Cause	Solution
The correct size paper is not loaded.	Load the correct size paper.
The input tray is empty.	Load paper in the input tray.
The correct paper type for the input tray is not selected in the product control panel.	From the product control panel, select the correct paper type for the input tray.
Paper from a previous jam has not been completely removed.	Open the product and remove any paper in the paper path. Closely inspect the fuser area for jams.

Paper does not feed from Tray 2, 3, 4, or 5

Cause	Solution
None of the optional trays appear as input tray options.	The optional trays only display as available if they are installed. Verify that any optional trays are correctly installed. Verify that the printer driver has been configured to recognize the optional trays.
An optional tray is incorrectly installed.	Print a configuration page to confirm that the optional tray is installed. If not, verify that the tray is correctly attached to the product.
The paper size is not configured correctly for the input tray.	Print a configuration page or use the control panel to determine the paper size for which the tray is configured.
The guides in the tray are not against the paper.	Verify that the guides are touching the paper.

Transparencies or glossy paper will not feed

Transparencies or glossy paper will not feed

Cause	Solution
The correct paper type is not specified in the software or printer driver.	Verify that the correct paper type is selected in the software or printer driver.
The input tray is overfilled.	Remove excess paper from the input tray. Do not load more than 200 sheets of glossy paper or glossy film, or more than 100 transparencies in Tray 2, 3, 4, or 5. Do not exceed the maximum stack height marks for Tray 1.
Paper in another input tray is the same size as the transparencies, and the product is defaulting to the other tray.	Make sure that the input tray containing the transparencies or glossy paper is selected in the software program or printer driver. Use the product control panel to configure the tray to the paper type loaded.
The tray containing the transparencies or glossy paper is not configured correctly for type.	Make sure that the input tray containing the transparencies or glossy paper is selected in the software program or printer driver. Use the product control panel to configure the tray to the paper type loaded.
Transparencies or glossy paper might not meet supported paper specifications.	Use only paper that meets the HP paper specifications for this product.
High-humidity environments may cause glossy paper not to feed, or to feed too many sheets.	Print glossy paper from Tray 2, 3, 4, or 5 for best results. Avoid printing glossy paper in high humidity conditions. When printing glossy paper, removing the paper from the wrapper and letting it rest for a few hours can improve feeding into the product. However, letting paper rest in humid environments may also cause blisters.

△ **CAUTION:** HP Color Laser Presentation Paper, Glossy (Q2546A) is not supported with this product. Using this type of paper can cause a fuser jam that might require the replacement of the fuser. Two recommended alternatives are HP Color LaserJet Presentation Paper, Soft Gloss (Q6541A) and HP Color LaserJet Brochure Paper, Glossy (Q6611A, Q6610A). For a list of supported paper types, see Supported paper types on page 66.

Envelopes jam or will not feed in the product

Envelopes jam or will not feed in the product

Cause	Solution
Envelopes are loaded in an unsupported tray. Only Tray 1 can feed envelopes.	Load envelopes into Tray 1.
Envelopes are curled or damaged.	Try using different envelopes. Store envelopes in a controlled environment.
Envelopes are sealing because the moisture content is too high.	Try using different envelopes. Store envelopes in a controlled environment.
Envelope orientation is incorrect.	Verify that the envelope is loaded correctly.
This product does not support the envelopes being used.	Refer to the *HP LaserJet Printer Family Print Media Guide*.
Tray 1 is configured for a size other than envelopes.	Configure Tray 1 size for envelopes.

Output is curled or wrinkled

Output is curled or wrinkled

Cause	Solution
Paper does not meet the specifications for this product.	Use only paper that meets the HP paper specifications for this product.
Paper is damaged or in poor condition.	Remove paper from the input tray and load paper that is in good condition.
Product speed needs to be reduced.	Set the **PAPER CURL** option in the Print Quality menu to **REDUCED** to decrease full speed to 10 ppm (instead of 40 ppm) and 3/4 speed to 7.5 ppm (instead of 30 ppm).
Product is operating in an excessively humid environment.	Verify that the printing environment is within humidity specifications.
You are printing large, solid-filled areas.	Large, solid-filled areas can cause excessive curl. Try using a different pattern.
Paper used was not stored correctly and might have absorbed moisture.	Remove paper and replace it with paper from a fresh, unopened package.
Paper has poorly cut edges.	Remove paper, flex it, rotate it 180 degrees or turn it over, and then reload it into the input tray. Do not fan paper. If the problem persists, replace the paper.
The specific paper type was not configured for the tray or selected in the software.	Configure the software for the paper (see the software documentation). Configure the tray for the paper, see Load paper and print media on page 69.
The paper has previously been used for a print job.	Do not re-use paper.

Product will not duplex or duplexes incorrectly

Product will not duplex (print 2-sided jobs) or duplexes incorrectly

Cause	Solution
You are trying to duplex on unsupported paper.	Verify that the paper is supported for duplex printing.
The printer driver is not set up for duplex printing.	Set up the printer driver to enable duplex printing.
The first page is printing on the back of preprinted forms or letterhead.	Load preprinted forms and letterhead in Tray 1 with the letterhead or printed side down, with the top of the page toward the back of the product. For Tray 2, 3, 4 and 5, load the paper printed side up with the top of the page toward the back of the product.
The product model does not support automatic 2-sided printing.	The HP Color LaserJet CM6049f MFP does not support automatic 2-sided printing.
The product configuration is not set for duplexing.	In Windows, run the automatic configuration feature: 1. Click the **Start** button, point to **Settings**, and then click **Printers** (for Windows 2000) or **Printers and Faxes** (for Windows XP). 2. Right-click the HP product icon, and then click **Properties** or **Printing Preferences**. 3. Click the **Device Settings** tab. 4. Under **Installable Options**, click **Update Now** in the **Automatic Configuration** list.

Solve image quality problems

This section helps you define print-quality problems and what to do to correct them. Often print-quality problems can be handled easily by making sure that the product is properly maintained, using paper that meets HP specifications, or running a cleaning page.

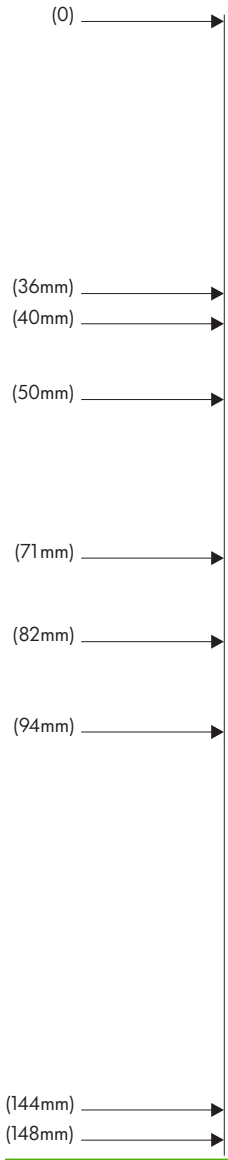
Example print quality problems

Some print quality problems arise from use of inappropriate paper.

- Use paper that meets HP paper specifications.
- The surface of the paper is too rough. Use paper that meets HP paper specifications.
- The printer driver setting or paper tray setting might be incorrect. Be sure that you have configured the paper tray at the product control panel and have also selected the correct driver setting for the paper that you are using.
- The print mode might be set incorrectly, or the paper might not meet recommended specifications.
- The transparencies you are using are not designed for proper toner adhesion. Use only transparencies designed for HP Color LaserJet products.
- The moisture content of the paper is uneven, too high, or too low. Use paper from a different source or from an unopened ream of paper.
- Some areas of the paper reject toner. Use paper from a different source or from an unopened ream of paper.
- The letterhead you are using is printed on rough paper. Use a smoother, xerographic paper. If this solves your problem, consult with the printer of your letterhead to verify that the paper used meets the specifications for this product.
- Several optimize print modes can be used to address print quality issues. See Print Quality menu on page 48.

Repetitive defects ruler

If defects repeat at regular intervals on the page, use this ruler to identify the cause of the defect. Place the top of the ruler at the first defect. The marking that is beside the next occurrence of the defect indicates which component needs to be replaced.



36 mm	Developer roller in an image drum. The print quality defect will be in one of the four image drums (image drum).
40 mm	Charge roller in an image drum. The print quality defect will be spots or dots sometimes caused when feeding labels and will be in one of the four image drums (image drum).
50 mm	Transfer 1 roller in the transfer unit (transfer kit).
71 mm	Transfer 2 roller in the roller kit (transfer kit).
82 mm	Tension in the transfer unit (transfer kit).
94 mm	Image drum. The print quality defect will be in one of the four image drums (image drum).
144 mm	Pressure roller in the fuser (fuser kit).
148 mm	Fusing roller in the fuser (fuser kit).

To identify if the image drum is the problem, insert an image drum from another HP Color LaserJet CM6049f MFP, if one is available, before ordering a new image drum.

If the defect repeats at 94.0 mm (3.75 inch) intervals, try replacing the image drum before replacing the fuser.

Overhead transparency defects

Overhead transparencies might display any of the image quality problems that any other type of paper could display, as well as defects specific to transparencies. In addition, because transparencies are pliable while in the print path, they are subject to being marked by the paper-handling components.

NOTE: Allow transparencies to cool at least 30 seconds before handling them.

- On the printer driver's **Paper** tab, select **Transparency** as the paper type. Also, make sure that the tray is correctly configured for transparencies.
- Check that the transparencies meet the specifications for this product.
- If transparencies are sticking together in the output bin, set **Media Temp** to **Reduced** from the print quality menu. See Use manual print modes on page 571.
- Handle transparencies by the edges. Skin oil on the surface of transparencies can cause spots and smudges.
- Small, random dark areas on the trailing edge of solid fill pages might be caused by transparencies sticking together in the output bin. Try printing the job in smaller batches.
- If the selected colors are undesirable when printed, select different colors in the software program or printer driver.
- If you are using a reflective overhead projector, use a standard overhead projector instead.

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 Environmental specifications on page 1134. Several optimization modes can also help with environmental conditions. See Use manual print modes on page 571.

Print quality problems associated with jams

- Make sure that all paper is cleared from the paper path.
- If the product recently jammed, print two to three pages to clean the product.
- The paper does not pass through the fuser, causing image defects to appear on subsequent documents. Print two to three pages to clean the product.

Optimize and improve image quality

The following procedures can be used to solve most image-quality problems.

Use supported paper

Using unsupported paper or other media in the product can cause a wide variety of image-quality problems.

Calibrate the product

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

1. Scroll to and touch Administration.
2. Scroll to and touch Troubleshooting.
3. Touch Quick Calibration, or touch Full Calibration.
4. Touch Calibrate.

Specify the correct paper type

NOTE: The steps can vary; this procedure is most common.

When you load a different paper type into the product, specify the type of paper you are using.

1. After loading the paper tray, specify the paper type at the control panel by using the control-panel buttons. For more information, see Load trays 2, 3, 4, or 5 on page 70. Use the table below to aid in selecting the best paper type. The same type is then selected in the printer driver at the time of printing.
2. When you send a print job from your computer, on the **File** menu in the software program, click **Print**.
3. Select the product, and then click **Properties** or **Preferences**.
4. Select the **Paper/Quality** tab.
5. In the **Paper Type** drop-down box, select **More...** and then select the paper type that best matches the paper that is loaded in the product.

   If you are using the HP Color LaserJet CM6049f MFP PCL 6 printer driver, select the **General Everyday Printing** shortcut and select **Paper Type**. If you are using the HP Universal Printing PS driver, select the **Paper/Quality** tab and then select **Paper Type**.
6. Select the paper type that best matches the paper that is loaded in the product.

   Use the table below to help select the best type in the driver. The table maps the default settings for specific paper types to the types that are listed in the driver and on the product control panel. For example, if you are using glossy paper that is 125 g/m^2, the type that would be selected in the printer driver is XHVY Glossy 131-175 g/m^2.

Standard paper types and weights	Paper types that can be selected from the printer driver and control panel
• Normal • Heavy 1 • Heavy 2 • Heavy 3 • Glossy 1 • Glossy 2 • Glossy 3 • Gloss Film • OHT	Unspecified
Light 1 60-74 g/m^2	Light 60-74 g/m^2
Normal 75-90 g/m^2	Intermediate 85-95 g/m^2
Heavy 1 91-120 g/m^2	Heavy 111-130 g/m^2
Heavy 2 121-163 g/m^2	Extra Heavy 131-175 g/m^2
Heavy 3 164-220 g/m^2	Cardstock 176-220 g/m^2
Gloss 1 91-120 g/m^2	HVY Glossy 111-130 g/m^2
Gloss 2 121-160 g/m^2	XHVY Glossy 131-175 g/m^2
Gloss 3 161-220 g/m2	Card Glossy 176-220 g/m^2
Gloss Film	HP Tough Paper
OHT	Color Laser Transparency
Label	Labels
Envelope	Envelope
Envelope 2	Heavy Envelope
Designated 1 60-90 g/m^2	Rough
Designated 2 >91 g/m^2	Heavy Rough

Clean the fuser

Run the device cleaning page to keep the fuser free of toner and paper particles that can sometimes accumulate and cause specks to appear on the front or back side of your print jobs.

HP recommends that you use the cleaning page when there is a print-quality issue.

A **Cleaning** message appears on the product control-panel display while the cleaning is taking place.

In order for the cleaning page to work correctly, print the page on copier-grade paper (not bond, heavy, or rough paper).

Create and use the cleaning page

1. Scroll to and touch Administration.
2. Scroll to and touch Print Quality.
3. Touch Calibration/cleaning.
4. Touch Process cleaning page.

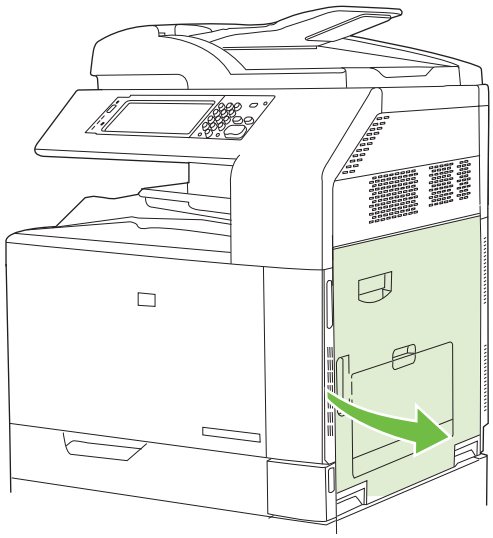
Respond to control-panel error messages

If you see a **54.Error <XX>** message in the event log, you might need to perform some maintenance on the product in order to avoid more errors and solve print-quality problems.

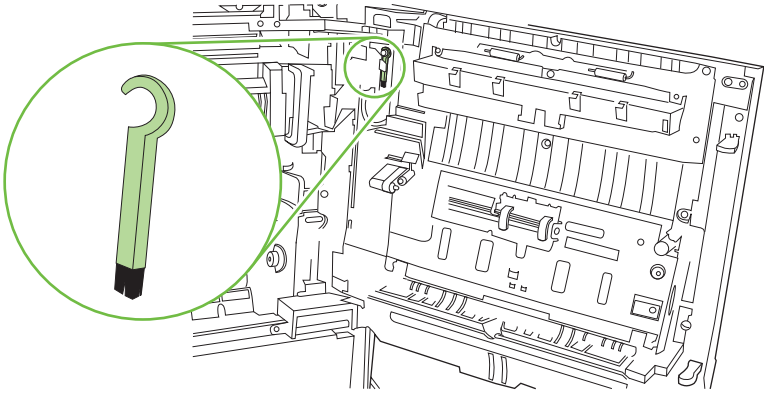
1. Open and then close the right door of the product to log a **54.Error <XX>** as the latest event in the event log.
2. Scroll to and touch Administration.
3. Scroll to and touch Troubleshooting.
4. Scroll to and touch Event Log.
5. Touch Print.
6. Find the most recent event in the log.
   - If the event is a **54.OE.01 Media Sensor** event, you need to replace the registration-second-transfer assembly.
   - If the event is a **54.OE.02 Media Sensor** event, you need to replace the product transfer kit.
   - If the event is a **54.OE.03 Media Sensor** event, you need to clean the registration-second-transfer assembly and the media sensor using the following procedure.

Clean the registration second transfer assembly

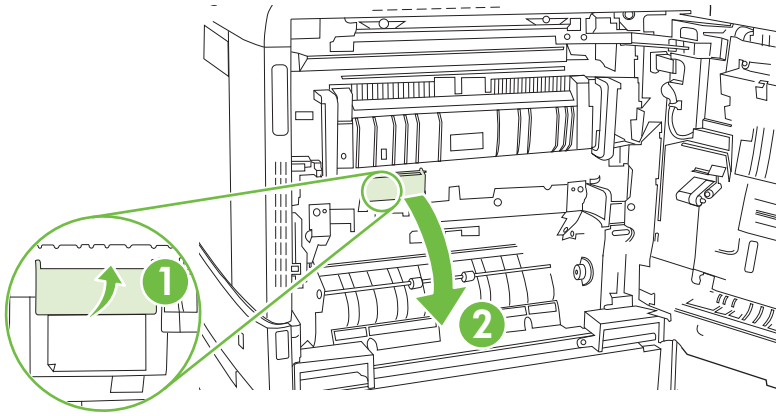
1. Open the right door.



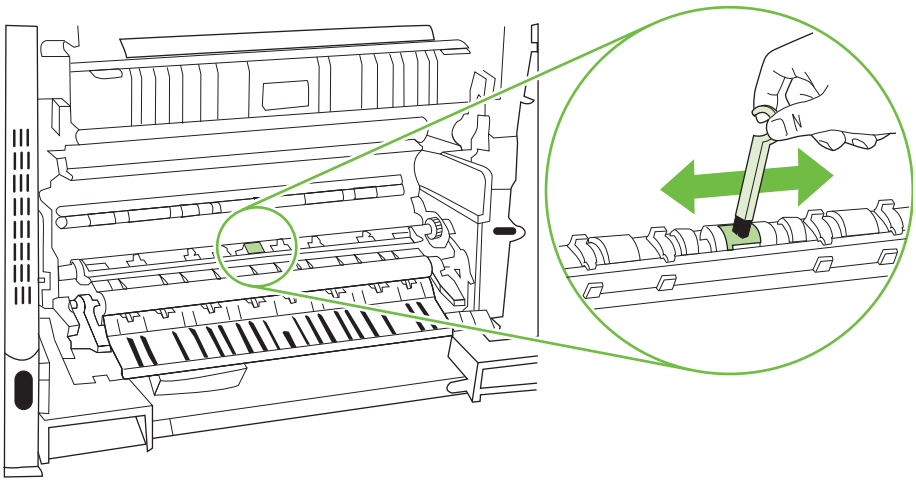
2. Locate and remove the cleaning brush.



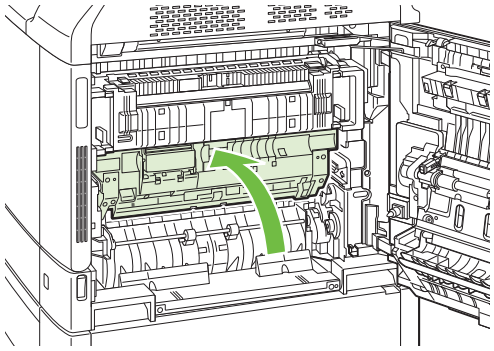
3. Lift the green handle on the transfer-access panel and open the panel.



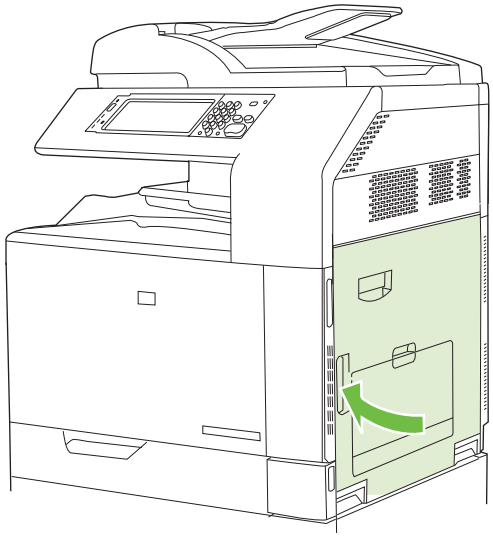
4. Clean the media sensor with the cleaning brush.



5. Close the transfer access panel, and replace the cleaning brush in its holder.



6. Close the right door.



Use manual print modes

Try the following manual print modes to see if they solve the image-quality problems. These options can be found in the Optimize submenu under the control-panel Print Quality menu. See Print Quality menu on page 48.

- **Gloss Mode**: Set this feature to High for glossy print jobs, such as photos, if you notice the gloss finish decreasing after the first page is printed.
- **Fuser Temp**: If you are seeing a faint image of the page repeated at the bottom of the page or on the following page, you should first make sure the Paper Type and Print Mode settings are correct for the type of paper you are using. If you continue to see ghost images on your print jobs, set the Fuser Temp feature to one of the Alternate settings . Try the Alternate 1 setting first and see if it solves the problem. If you continue to see the problem, try Alternate 2 and then Alternate 3. With the Alternate 2 and Alternate 3 settings, you may see an extra delay between jobs.
- **Light Media**: Set this feature to On if you are frequently seeing Fuser Delay Jam or Fuser Wrap Jam messages, especially when printing on light-weight paper or on jobs with heavy toner coverage.
- **Media Temp**: Set this feature to **Reduced** if you are having problems with paper sticking together in the output bin.

- **Low Temp**: Enable this feature if the product is operating in a low-temperature environment and you are having problems with print quality such as blisters in the printed image.
- **Low Voltage**: Enable this feature if the product is operating in a low-voltage environment and you are having problems with print quality such as blisters in the printed image.
- **Transfer 2 Bias**: Try the **Up** or **Down** setting if you are in a low-humidity environment and you are seeing faded images on your print jobs, especially on the second side of double-sided print jobs. This setting may also help if you are seeing mottled, grainy print jobs, or scattered toner.
- **Background**: Turn this feature on if pages are printing with a shaded background. Using this feature can reduce gloss levels.
- **Paper Curl**: The **Reduced** setting decreases full speed to 10 ppm (instead of 40 ppm) and 3/4 speed to 7.5 ppm (instead of 30 ppm) in order to reduce paper curl problems.
- **Heavy Mode**: Sets speed to **30 PPM** or **24 PPM** in order to better feed heavy paper.
- **Pre-rotation**: Turn this feature on if horizontal streaks appear on pages. Using this feature increases the warm-up time for the device.
- **Tray 1**: If you are seeing marks on the back side of the paper when printing from Tray 1, set the mode to **Alternate** to increase the frequency of the cleaning cycle.

Print-quality-troubleshooting pages

Use the built-in print-quality-troubleshooting pages to help diagnose and solve print-quality problems.

1. Scroll to and touch Administration.
2. Scroll to and touch Troubleshooting.
3. Touch PQ Troubleshooting.
4. Touch Print.

The product returns to the **Ready** state after printing the print-quality-troubleshooting pages. Follow the instructions on the pages that print out.

Figure 7-8 Print-quality troubleshooting procedure

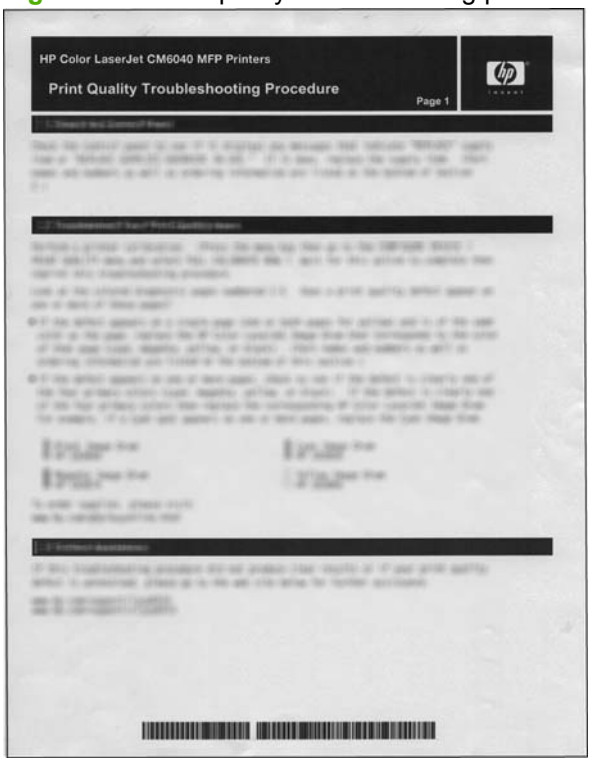


Figure 7-9 Yellow print-quality troubleshooting page

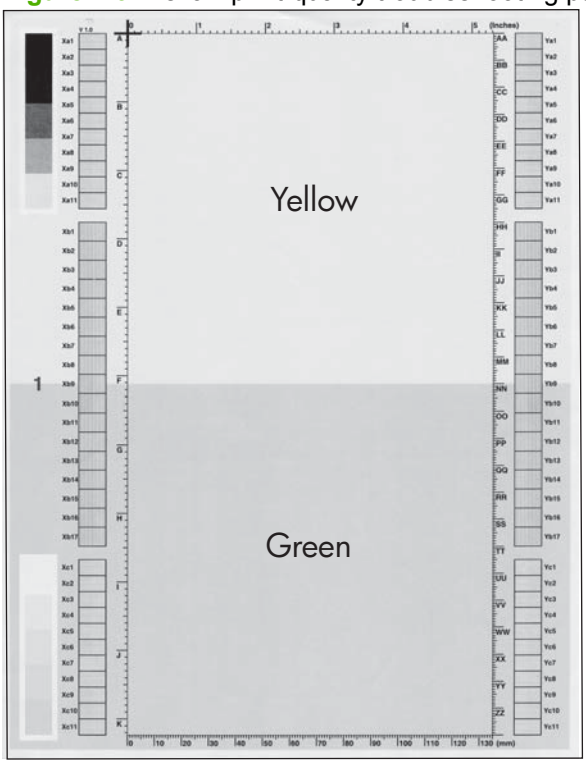
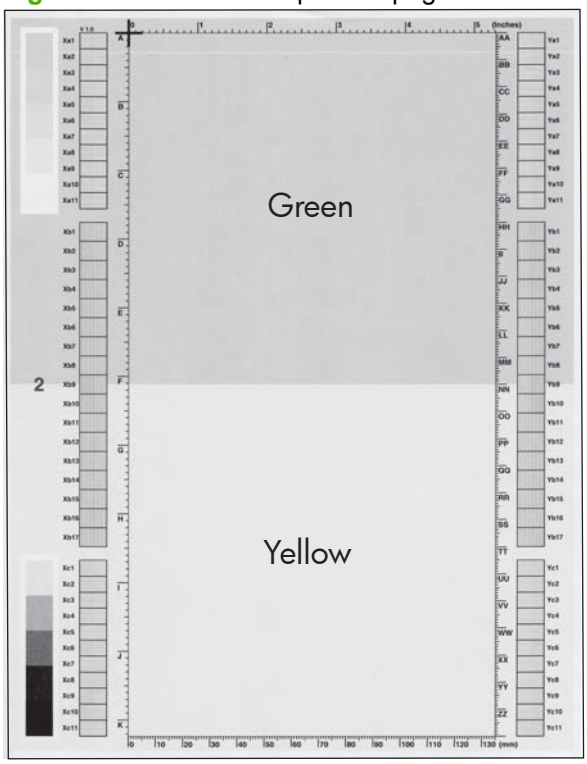
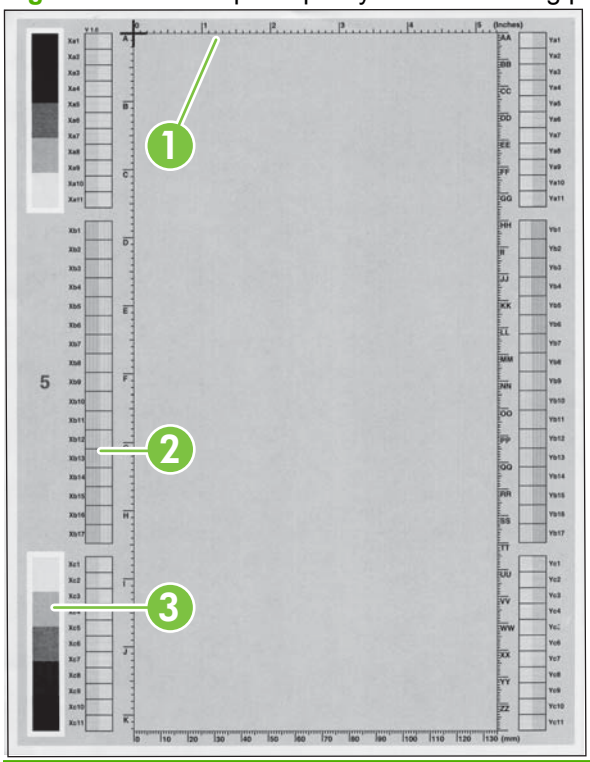


Figure 7-10 Yellow comparison page



Yellow cannot be easily seen unless combined with cyan, so half of each page is yellow and the other half is an amplified version of yellow. Compare the yellow on page one with the corresponding green on page two for defects. You can also check the cyan page for defects.

Figure 7-11 Black print-quality troubleshooting page

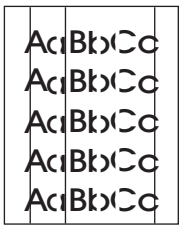
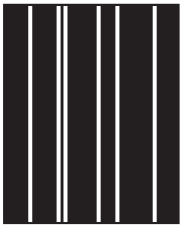
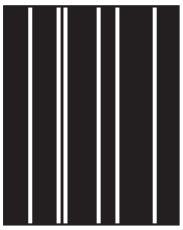


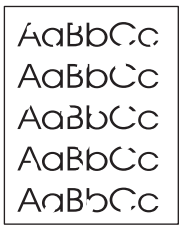
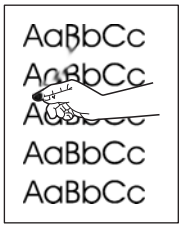
1. Grids	The grids are in inches and millimeters. They are label with letters and numbers so that defects can be described by position and by distance between repeats.
2. Color plane registration (CPR) bars	After printing, the box with no extra color in each area on each page shows how far off the CPR of that color is. Each page has two process direction areas and three scan direction areas that are labeled x and y and 1–11. The page should be fed by the long edge. Each square from the center equals 42 microns.
3. Color ramp patches	Used to detect offset for the OPC or developer in the image drum of offset in the fuser.

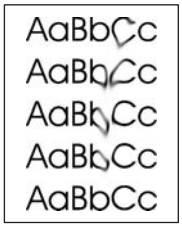
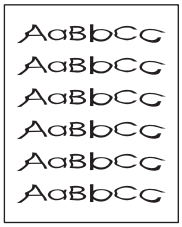
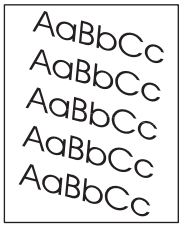
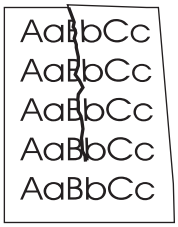
Image-quality issues

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

Problem	Cause	Solution
Print is light or faded on entire page. 	Poor contacts exist on the ITB unit and the product grounding unit.	Clean the grounding contacts. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
	Poor secondary transfer contacts exist on the secondary-transfer roller and the ITB unit.	Clean the contacts. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
Print is light or faded in a particular color. 	Poor primary transfer bias contacts exist on the ITB unit and product.	Clean the contacts of the color that produces the light print. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
	Poor primary charging bias contacts exist with the process cartridge and product.	
	Poor developing bias contacts exist with the process cartridge and product.	
Image is too dark. 	The image-density sensor is defective.	Replace the color-misregistration/image-density sensor unit.
Page is blank.	The high-voltage power-supply PCA is defective (no developing bias output).	Replace the high-voltage power-supply PCA A.
The page is all black or a solid color.	Poor primary charging contacts or developing bias contacts exist from the high-voltage power-supply PCA A to the process cartridge.	Clean each contact of the color that produces the all black or solid color. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
White spots appear in an image	The static charge eliminator is dirty.	Clean the static charge eliminator.
	The primary-transfer roller is deformed or has deteriorated.	Replace the ITB unit.
	The secondary-transfer roller is deformed or has deteriorated.	Replace the secondary-transfer roller unit.
The back of the page is dirty.	The feed roller that makes contact with the back of the media is dirty.	Use the repetitive-image-defect ruler to identify the dirty roller. Clean the dirty roller. If the dirt does not come off, replace the roller.
	The fixing inlet guide or separation guide is dirty.	Clean the dirty parts. If the dirt does not come off, replace the guide.
	The pressure roller is dirty.	Execute the cleaning page. If the dirt does not come off, replace the fixing unit.

Problem	Cause	Solution
Vertical streaks or bands appear on the page. 	Scratches are present on the circumference of the photosensitive drum.	Replace the process cartridge of the color that matches the defect.
	Scratches are present on the circumference of the fuser roller.	Replace the fuser.
	Scratches are present on the circumference of the ITB.	Replace the ITB unit.
	The ITB drive roller is deformed or has deteriorated.	
	The ITB cleaning mechanism is malfunctioning.	
Vertical white lines appear in a particular color. 	The laser beam window is dirty.	Clean the window and remove any foreign substances.
	Scratches are present on the circumference of the developing cylinder or photosensitive drum.	Replace the imaging drum of the color that matches the defect.
	The laser/scanner-unit mirror is dirty.	Replace the laser/scanner unit.
Vertical white lines appear in all colors. 	Vertical scratches are present on the fuser roller.	Replace the fuser.
	Scratches are present on the circumference of the ITB.	Replace the ITB.
Horizontal lines appear on the page.	Horizontal scratches are present on the photosensitive drum.	Replace the imaging drum of the color that matches the defect.
	Horizontal scratches are present on the fuser roller.	Replace the fuser.
A horizontal white line appears on the page.	Horizontal scratches are present on the photosensitive drum.	Replace the imaging drum of the color that matches the defect.
	Scratches are present on the circumference of the ITB.	Replace the ITB.

Problem	Cause	Solution
Image in a particular color does not print in the correct color.	Poor primary charging contacts or developing bias contacts exist between the high-voltage power-supply PCA A and the imaging drum.	Clean each contact of the color that produces the missing color. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
	The imaging drum (primary-charging roller, developing cylinder, or photosensitive drum) is defective.	Replace the imaging drum of the color that matches the defect.
	The high-voltage power-supply PCA A is defective (no primary charging bias or developing bias output).	Replace the high-voltage power-supply PCA A.
	The laser/scanner unit is defective.	Replace the laser/scanner unit.
Dropouts appear. 	The secondary-transfer roller is deformed or has deteriorated.	Replace the secondary-transfer roller unit.
	The primary-charging roller, developing cylinder, or photosensitive drum is deformed or has deteriorated.	Replace the imaging drum of the color that matches the defect.
	The fuser roller is deformed or has deteriorated.	Replace the fuser.
	The high-voltage power-supply PCA B is defective (no transfer bias output).	Replace the high-voltage power-supply PCA A.
The toner is not fully fused to the paper. 	The fuser roller or pressure roller is scarred or deformed.	Replace the fuser.
	The fuser control PCA is defective.	Replace the fuser control PCA.
	The thermistor or fuser heater has deteriorated.	Replace the fuser.
	The thermopile is defective.	Replace the thermopile case unit.
Some color is misregistered.	The product is incorrectly calibrated.	Calibrate the product.
	The ITB unit is defective.	If the ITB does not rotate smoothly or a cleaning malfunction occurs (ITB is dirty), replace the ITB unit.
	The drive gear of the ITB motor is worn or chipped.	Check each drive gear between the ITB drive roller and the ITB motor. If the gear is worn or chipped, replace the drive unit.
	The color-misregistration sensor is defective.	Replace the color-misregistration/image-density sensor unit.
	The laser/scanner unit is defective.	Replace the laser/scanner unit.
	The imaging drum is defective.	Replace the imaging drum.

Problem	Cause	Solution
Toner smears appear on the media. 	The product has residual media.	Remove the residual media.
	Poor grounding contacts exist between each imaging drum and the product.	Clean the grounding contacts on each drum and the product. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
	The fuser inlet guide is dirty.	Clean the fuser inlet guide.
The printed page contains misformed characters. 	The product is experiencing page skew.	See the “Text or graphics are skewed on the printed page” row in this table.
	The laser/scanner unit is defective.	Replace the laser/scanner unit.
Text or graphics are skewed on the printed page. 	The registration shutter spring is unhooked.	Check the spring and place it in the correct position.
	The registration shutter spring is deformed.	Replace the secondary transfer unit.
The printed page contains wrinkles or creases. 	The roller or media-feed guide is dirty.	Clean any dirty components.
	A roller is deformed or has deteriorated.	Replace any deformed or deteriorated rollers.
	The media-feed guide is damaged.	Replace the media-feed guide.
The front of the page is dirty.	The feed roller that contacts with the front of media is dirty.	Use the repetitive-image-defect ruler to identify the dirty roller. Clean the dirty roller. If the dirt does not come off, replace the roller.
	The fuser roller or pressure roller is dirty.	Clean the fuser. If the dirt does not come off, replace the fuser.

Interface troubleshooting

Communication checks

NOTE: Communication problems are normally the customer's responsibility. Time spent attempting to resolve these problems might not be covered by the Hewlett-Packard warranty.

Refer the customer to the network administrator for assistance in troubleshooting network problems.

If the printer is *not* connected to an MS-DOS-based host, use the following table to check the connection.

Table 7-25 Communication check

Check	Action
Does the computer configuration match the parameters described in the configuration instructions?	Verify that the configuration of the computer's communications port matches these parameters. View the Jetdirect configuration page for print server status and to verify configuration parameters for operation on your network. **NOTE:** If these parameters are not set correctly, an error message might appear on the control panel.

EIO troubleshooting

If the printer contains an optional HP Jetdirect print server and you cannot communicate with the printer over the network, verify the operation of the print server. Print a configuration page. If the Jetdirect card does not appear under "Installed personalities and options" on the configuration page, see the troubleshooting section of the *HP Jetdirect Print Server Administrators Guide* supplied with the print server.

If the host system and printer still do not communicate, replace the formatter PCA, or (if installed) the EIO card, and reconfigure the printer. If the problem persists, use a protocol analyzer to find the source of the problem.

△ **CAUTION:** HP LaserJet printers are not designed to work with mechanical switch-box products that do not have surge protection. These devices generate high transient voltages that cause permanent damage to the formatter PCB. This circumstance is not covered under the Hewlett-Packard warranty.

Engine diagnostics

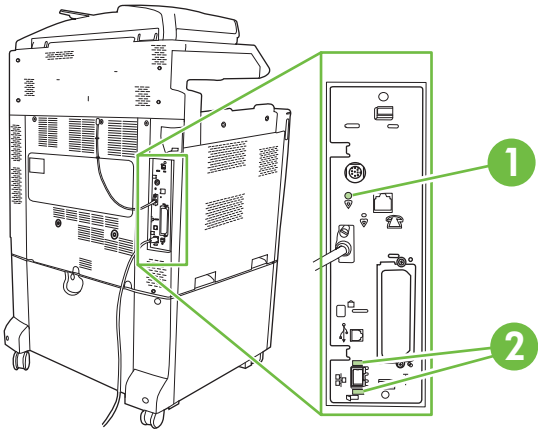
This section provides an overview of the engine diagnostics that are available in the HP Color LaserJet CM6049f MFP product. The product contains extensive internal diagnostics that help in troubleshooting print-quality, paper path, noise, component, and timing issues.

LED diagnostics

LED, engine, and individual diagnostics can identify and troubleshoot product problems.

Understand lights on the formatter

Three LEDs on the formatter indicate that the product is functioning correctly.



1	Heartbeat LED
2	HP Jetdirect LEDs (This LED exists only if HP Jetdirect is installed.)

HP Jetdirect LEDs

The embedded HP Jetdirect print server has two LEDs. The yellow LED indicates network activity, and the green LED indicates the link status. A blinking yellow LED indicates network traffic. If the green LED is off, a link failed.

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

1. Scroll to and touch Administration.
2. Touch Initial Setup.
3. Touch Networking and I/O.
4. Touch Embedded Jetdirect or EIO <X> Jetdirect.
5. Touch Link Speed.
6. Select the appropriate link speed.
7. Touch Save.

Heartbeat LED

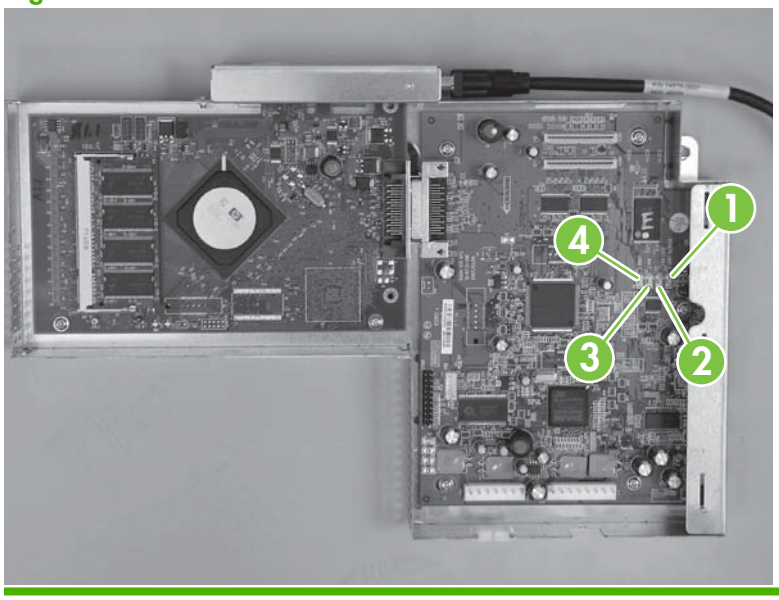
The heartbeat LED indicates that the formatter is functioning correctly. While the product is initializing after you turn it on, the LED blinks rapidly and then turns off. When the product has finished the initialization sequence, the heartbeat LED pulses on and off.

If the heartbeat LED is off, the formatter might have a problem.

Understand lights on the SCB

There are four LEDs on the SCB that help determine the status of the scanner.

Figure 7-12 SCB LEDs



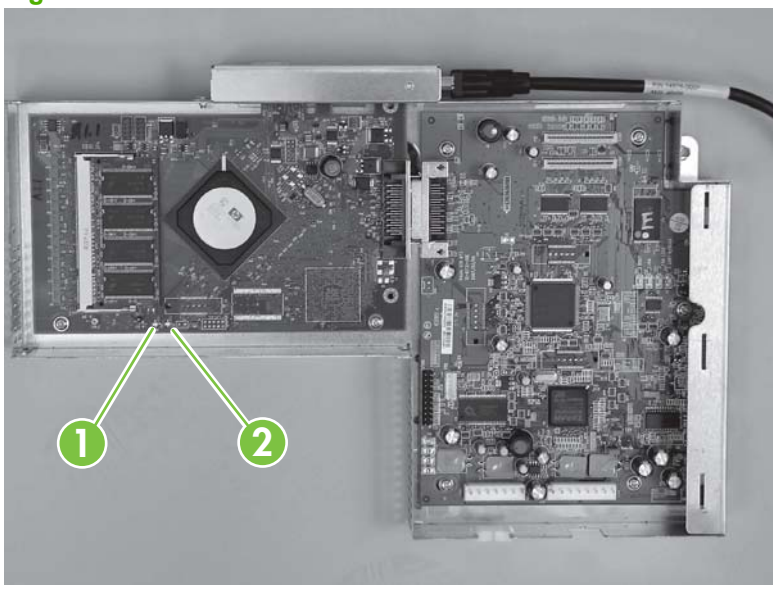
Mode	D8 (callout 4)	D7 (callout 3)	D6 (callout 2)	D5 (callout 1)	Description	Control panel error message
FW Boot OK (460.8K Baud Rate)	Steady On	Not relevant	Not relevant	Not relevant	D8 is on constantly once the scanner firmware successfully starts. CMD/ STS is running at 460.8K Baud rate.	
FW Boot OK (115.2K Baud Rate)	Steady On	Not relevant	Not relevant	Steady On	D8 and D5 are on constantly once the scanner firmware successfully starts. CMD/ STS is running at 115.2K Baud rate.	

Mode	D8 (callout 4)	D7 (callout 3)	D6 (callout 2)	D5 (callout 1)	Description	Control panel error message
Stand-by	Blinking	Not relevant	Not relevant	Not relevant	The SCB successfully ACKed the initialization command from the CPB. The commands received from the USB SCB jumpers are set in run-in mode. In either condition, the LED blinks at a rate of one per second.	
Carriage Lock	Not relevant	Steady On	Steady On	Off	The firmware detected either a carriage-lock or a home-sensor failure.	30.1.8
Jam	Not relevant	Steady On	Off	Off	The firmware detected an FB carriage jam or an ADF paper jam during scan or run-in.	30.1.2
Fan Locked	Not relevant	Off	Steady On	Off	The firmware detected a fan lock.	30.1.6 or 30.1.10 or 57.09
Scanning	Not relevant	Off	Off	Steady On	While capturing an image, the LED is steady on.	
Boot at Backup FW	Blinking	Blinking	Blinking	Blinking	The firmware started at the backup section if any CMD was received.	

Understand lights on the copy-process board (CPB)

There are two lights on the CPB.

Figure 7-13 CPB LEDs



Normal CPB operation is a steady green LED (callout 2) and a flashing amber LED (callout 1). Any other states show a failure and should be appear as an error message on the control panel.

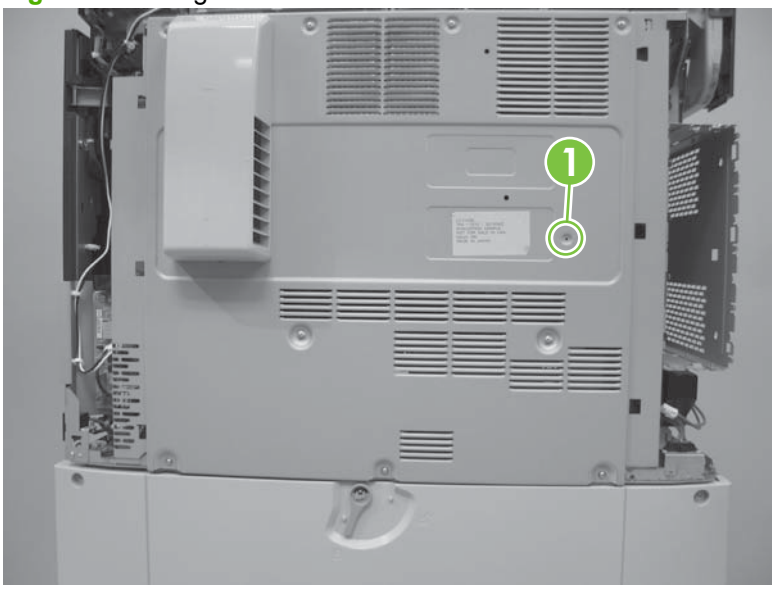
- Steady green LED: power is on and correct.
- Blinking amber LED: hardware and firmware are functioning properly.

Engine-test button

To verify that the printer engine is functioning, print an page. Use a small pointed object to depress the test-page switch located on the rear of the product. The test page should have a series of horizontal

lines. The test page can use only Tray 2 as the paper source, so make sure that paper is loaded in Tray 2.

Figure 7-14 Engine-test button



Troubleshooting menu

The Troubleshooting menu allows you to run tests that can help you identify and solve problems with the printer.

Menu item	Description
Event Log	This shows the event codes and their corresponding engine cycles on the control-panel display. See Print an event log on page 512.
Calibrate Scanner	Use this feature to compensate for offsets in the scanner imaging system (carriage head) for ADF and flatbed scans. You might need to calibrate the scanner if it is not capturing the correct sections of scanned documents. See Calibrate the scanner on page 126.
PQ Troubleshooting	This item prints a series of eight pages that include instructions, pages for each color, a demo page, and a configuration page. These pages can help isolate print-quality problems. See Print-quality-troubleshooting pages on page 572.
Fax T.30 Trace	Print or configure the fax T.30 trace report. T. 30 is the standard that specifies handshaking, protocols, and error correction between fax machines. See Solve fax problems on page 603.
Fax Transmit Signal Loss	Set loss levels to compensate for phone-line signal loss. Do not modify this setting unless requested to do so by an HP service representative because it could cause the fax to stop functioning. See Solve fax problems on page 603.
Fax V.34	Disable V.34 mode if several fax failures have occurred or if phone line conditions require it. See Solve fax problems on page 603.
Fax Speaker Mode	A technician can use this feature to evaluate and diagnose fax issues by listening to the sounds of fax modulations. See Solve fax problems on page 603 .

Menu item	Description
Diagnostic Page	Print a diagnostic page that includes color swatches and the EP parameters table. See Solve fax problems on page 603.
Disable Cartridge Check	This item allows you to remove a print cartridge to help determine which cartridge is the source of a problem. See Disable cartridge check on page 588.
Paper Path Sensors	This item performs a test on each of the printer's sensors to determine if they are working correctly and displays the status of each sensor. See Paper-path sensors test on page 588.
Paper Path Test	This item tests the paper handling features of the printer, such as the configuration of the trays. See Paper-path test on page 590.
Manual Sensor Test	This item performs tests to determine whether the paper-path sensors are operating correctly. See Manual sensor test (special-mode test) on page 591.
Component Test	This item activates individual parts independently to isolate noise, leaking, and other hardware issues. See Component tests on page 593.
Print/Stop Test	This item isolates print-quality faults more accurately by stopping the printer in mid-print cycle. Stopping the printer in mid-print cycle allows you to see where the image begins to degrade. It also causes a jam that may need to be manually removed. A service representative should perform this test. See Print/stop test on page 597.
Color Band Test	Print a color-band test page to identify arcing in the high-voltage power supply. See Color-band test on page 598.
Scanner Tests	Diagnose potential problems with the scanner. See Scanner tests on page 598.

Diagnostics mode

Some of the diagnostic tests automatically put the printer into a special diagnostics mode. In this mode, the printer can perform actions that would normally cause the printer to enter an error state. Always follow the control-panel directions in the Troubleshooting menu to exit the special diagnostics mode correctly and return the printer to a normal state.

Diagnostics that put the engine into the special diagnostics mode

Four diagnostic tests put the engine into a special state:

- Disable-cartridge check
- Paper-path sensors
- Manual sensor test
- Component test

While the product is in the special diagnostics mode, the following message should appear:

READY DIAGNOSTICS MODE

TO EXIT PRESS STOP

When the printer is in the special diagnostics mode, these four tests display in the menu and are available to be run. To gain access into other diagnostic tests or to leave the special state, press Stop, and then select **EXIT**. The printer will reset itself and then return to the normal state.

NOTE: You need to have a good understanding of how the printer operates in order to use the engine diagnostics successfully. Before proceeding with these diagnostic tests, make sure that you understand the information in chapter 5 of this manual.

Diagnostic tests

Different tests can be used to isolate different types of issues. For component or noise isolation, you can run the diagnostic test after removing the covers for a better view of the areas that are being tested. To operate the printer with the covers removed, the door-switch levers (SW1, callout 1) must be depressed (this is the door-closed position).

⚠ **WARNING!** Be careful when performing printer diagnostics to avoid risk of injury. Only trained service personnel should open and run the diagnostics with the covers removed. Never touch any of the power supplies when the printer is turned on.

Figure 7-15 Front- and right-door switch on the right side

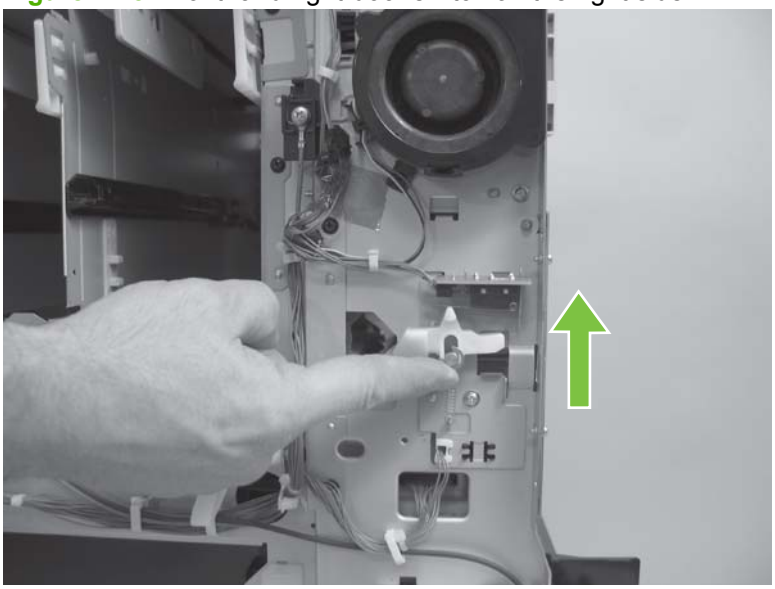
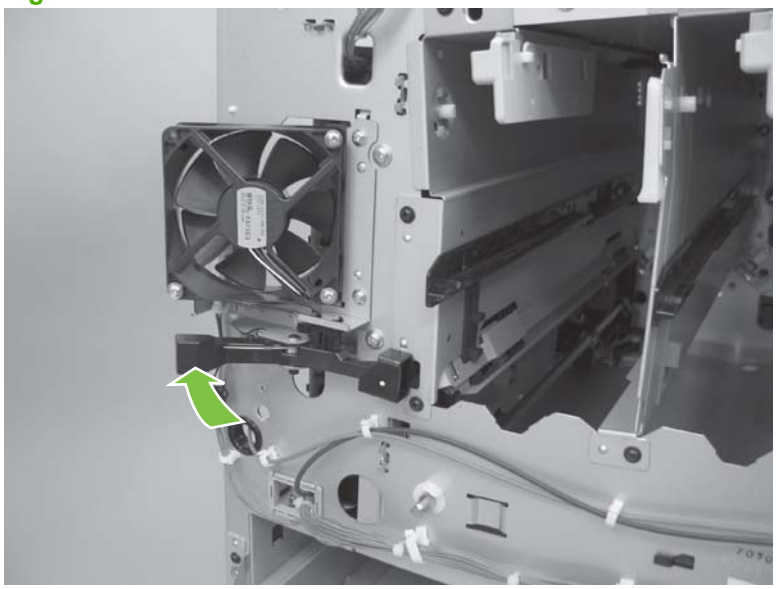


Figure 7-16 Front-door switch on the left side



NOTE: Anytime a cartridge is installed or removed while the covers are removed, the door interlock must be manually cycled to simulate opening and closing the top cover in order for the engine to recognize the change. When the covers are installed, the door switch and fuser interlock are automatically operated.

Disable cartridge check

Use this diagnostic test to print internal pages or send an external job to the product when one or more print cartridges or image drum pairs are removed or exchanged. The print cartridges and image drums are keyed. They must be removed in pairs (for example a black print cartridge and black image drum) and can only be used in the correct color slot. While the product is in this diagnostics mode, consumable supply errors are ignored, and you can navigate the menus. This test can be used to isolate problems, such as noise, and to isolate print-quality problems that are related to individual print cartridges or image drum pairs.

NOTE: Do not remove or exchange print cartridges and image drums until **after** you start the disable cartridge check diagnostic.

NOTE: Anytime a print cartridge or image drum pair is installed or removed while the covers are removed, the front door interlock must be manually cycled to simulate opening and closing the front door in order for the engine to recognize the change. When the covers are installed, the front-door switch is automatically operated.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Touch Disable Cartridge Check.

Paper-path sensors test

NOTE: To view the function of each sensor and how to toggle them manually, see Manual sensor test (special-mode test) on page 591.

This test allows you to view the status of each paper-path sensor while the product prints internal pages.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Touch Paper Path Sensors.
4. Select the paper-path test options for the test you want to run.

Table 7-26 Paper-path sensors diagnostic tests

Sensor name	Sensor number	Paper-path sensors test name
Vertical-synchronous-position sensor	SR0	A Registration
Loop sensor	SR13	B Loop
Fixing-delivery media-feed sensor	SR15	C Fuser Output
Duplexing media-reverse sensor	SR304	D Duplexer Switchback
Duplexing media-feed sensor	SR303	E Duplexer Delivery
Duplexing media-repickup sensor	SR302	F Duplexer Refeed
face-down tray media-full sensor	SR16	G Output bin full
IPTU media-feed sensor 1	SR203	H IPTU 1
IPTU media-feed sensor 2	SR202	I IPTU 2
IPTU media-feed sensor 3	SR201	J IPTU 3
Developing home-position sensor	SR21, YM, SR22 CK	K Developer alienation
Fixing home-position sensor	SR26	L Fuser pressure release[1]
ITB home-position sensor	SR10	M ITB alienation
Media sensor	MS	N Media sensor

[1] Open and close the right door to toggle the fuser pressure-release sensor.

To test the media sensor in the paper-path sensors diagnostic mode, feed paper by printing from a computer to the product or by activating the paper path diagnostic test. The following table provides the values for the N-Media sensor test.

Table 7-27 N-Media sensor test values

Code	Media type	Tray 1	Cassette
0	Unknown	✓	✓
1	Normal media 85-95 gm^2	✓	✓
3	LBP OHT	✓	✓
4	Glossy media 111-130 gm^2	✓	✓
5	Gloss film (HP Tough Paper)	✓	✓
6	Non-assured OHT		
7	Heavy media 111-130 gm^2	✓	✓

Table 7-27 N-Media sensor test values (continued)

Code	Media type	Tray 1	Cassette
8	Light media		
9	Rough media		
A	Extra Heavy Glossy media Glossy media3 176-220 gm^2	✓	✓
B	Heavy Glossy media Glossy media2 131-175 gm^2	✓	✓
C	Heavy media3 176-220 gm^2	✓	✓
D	Heavy media2 131-175 gm^2	✓	✓

To determine if the media sensor is defective or requires cleaning, check the event log for errors as described below.

If **54.Error<XX>** appears in the event log, you might need to perform maintenance on the product to avoid more errors and to solve print-quality problems.

1. Open and then close the right door of the product to log **54.Error<XX>** as the most recent event in the event log.
2. Scroll to and touch Administration.
3. Scroll to and touch Troubleshooting.
4. Scroll to and touch Event Log.
5. Touch Print.
6. Find the most recent event in the event log.
    - If the event is a **54.OE.01 Media Sensor** event, replace the registration-second-transfer assembly.
    - If the event is a **54.OE.02 Media Sensor** event, replace the ITB.
    - If the event is a **54.OE.03 Media Sensor** event, clean the registration-second-transfer assembly and the media sensor.

Paper-path test

This diagnostic test generates one or more test pages that you can use to isolate the cause of jams.

To isolate a problem, you can specify which input tray to use, specify whether to use the duplex path, and specify the number of copies to print. Multiple copies can be printed to help isolate intermittent problems. The following options become available after you start the diagnostic feature:

- Print Test Page. Run the paper-path test from the default settings: Tray 2, no duplex, and one copy. To specify other settings, scroll down the menu and select a setting, and then scroll back up and select Print Test Page to start the test.
- Source. Select Tray 1, Tray 2, or the optional trays.

- Duplex. Enable or disable 2-sided printing.
- Copies. Set the number of copies to be printed; the choices are 1,10, 50, 100, or 500.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Touch Paper Path Test.
4. Select the paper-path test options for the test you want to run.

Manual sensor test (special-mode test)

Use this diagnostic test to manually test the product sensors and switches. Each sensor is represented by a letter and number on the control-panel display. A 1 below the letter indicates that paper is present. For the paper-size sensor, the range of values is from 0 to 7.

NOTE: Sensor N cannot be tested manually.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Manual Sensor Test.

Table 7-28 Manual sensor diagnostic tests

Sensor or switch name	Sensor or switch number	Manual sensor test
Vertical-synchronous-position sensor	SR0	A Registration
Loop sensor	SR13	B Loop
Fixing-delivery media-feed sensor	SR15	C Fuser Output
Duplexing media-reverse sensor	SR304	D Duplexer Switchback
Duplexing media-feed sensor	SR303	E Duplexer Delivery
Duplexing media-repickup sensor	SR302	F Duplexer Refeed
face-down tray media-full sensor	SR16	G Output bin full
IPTU media-feed sensor 1	SR203	H IPTU 1
IPTU media-feed sensor 2	SR202	I IPTU 2
IPTU media-feed sensor 3	SR201	J IPTU 3
Developing home-position sensor	SR21 YM, SR22 CK	K Developer alienation
Fusing home-position sensor	SR26	L Fuser pressure release
ITB home-position sensor	SR10	M ITB alienation
Media sensor	MS	N Media sensor
Front-door-open-detection sensor	SR32	O Door opening/closing
Right-door-open-detection switch	SW1	P Right door sensor
Fusing-unit cover-open-detection sensor	SR34	Q Fuser door sensor

Table 7-28 Manual sensor diagnostic tests (continued)

Sensor or switch name	Sensor or switch number	Manual sensor test
Secondary-transfer-unit cover-open-detection sensor	SR33	R T2 door sensor
Tray-1 media -presence sensor	SR6	S Tray-1-paper sensor[1]
Tray-1 media-feed sensor	SR7	T Tray-1-feed sensor[2]
Tray-2 media-presence sensor	SR1	U Tray-2-paper sensor
Tray-2 media-feed sensor	SR5	V Tray-2-feed sensor
Tray-2 media-stack-surface sensor	SR2	W Tray-2 paper-surface sensor[3]
Tray-2 end-plate position-detection switch or Tray-2 side-plate position-detection switch	SW4, SW5	X Tray-2 paper-size sensor[4]
Tray-3 media-presence sensor	SR104	Y Tray-3 paper sensor
Tray-3 media-feed sensor	SR102	Z Tray-3 feed sensor
Tray-3 media-stack-surface sensor	SR105	a Tray-3 paper-surface sensor
Tray-3 end-plate position-detection switch or Tray-3 side-plate position-detection switch	SW101, SW102	b Tray-3 paper-size sensor
Tray-4 media-presence sensor	SR114	c Tray-4 paper sensor
Tray-4 media-feed sensor-surface sensor	SR112	d Tray-4 feed sensor
Tray-4 media stack	SR115	e Tray-4 paper-surface sensor
Tray-4 end-plate position-detection switch or Tray-4 side-plate position-detection switch	SW111, SW112	f Tray-4 paper-size sensor
Tray-5 media-presence sensor	SR124	g Tray-5 paper sensor
Tray-5 media-feed sensor	SR122	h Tray-5 feed sensor
Tray-5 media-stack-surface sensor	SR125	i Tray-5 paper-surface sensor
Tray-5 end-plate position-detection switch or Tray-5 side-plate position-detection switch	SW121, SW122	j Tray-5 paper-size sensor

1 The paper sensor detects paper in the tray.

2 The paper-feed sensor detects jams.

3 The paper-surface sensor detects whether the tray is raised.

4 The paper-size sensor detects paper size.

To perform an end-plate (left-side set of switches) or side-plate (right-side set of switches) switch test, do the following:

- Remove the appropriate tray (for example, if you want to test SW4 or SW5, remove Tray 2).
- Watch for the corresponding bit to toggle from 1 to 0. Note that it can take a few seconds for bits to toggle.
- Test each switch individually to see if the corresponding bit toggles from 0 to 1.

Component tests

Component test (special-mode test)

This test activates individual parts independently to isolate problems.

Each component test can be performed once or repeatedly. If you select Continuous from the drop-down menu, the test cycles the component on and off. This process continues for two minutes, and then the test terminates.

NOTE: The door-interlock switch must be defeated to run any of the component tests. If covers are removed, the door switch must be manually cycled during some tests in order for the engine to recognize a change. The ITB assembly can be open, closed, or removed while some of these tests are running. Print cartridges can be installed or removed during certain tests. The control-panel display prompts you to remove some or all cartridges during certain tests to rotate and isolate certain components and to protect the cartridges and ITB.

Transfer-motors test

This test simultaneously activates the ITB motor and four photosensitive drums.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch **Transfer Motors**.

Belt-only test

This test activates the ITB motor and belt. Control-panel messages prompt you to remove cartridges because the ITB belt contacts the photosensitive drums and cannot turn without rotating them. Rotating the photosensitive drums can damage the belt and the drums. If the covers are removed, manually activate the door switch after removing the cartridges.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch Belt only.

Image-drum motors test

This test individually activates the four photosensitive drum motors.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch Image drum motors.

CMYK-laser test

This test is made up of four tests that activate each scanner motor individually.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch CMYK Laser.

Fuser-motor test

This test activates the fuser motor and drive gears.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch Fuser Motor.

Fuser pressure-release motor test

This test activates or reverses the fuser motor and pressurizes or depressurizes the pressure roller.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch Fuser pressure release motor.

Color-alienation motor test

This test activates the developing disengaging motor, clutches and gears, and plates.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch Color alienation motor.

ITB-contact/alienation test

This test activates the primary-transfer-roller disengagement motor, separates the ITB from the photosensitive drum, and engages the ITB with only the Bk photosensitive drum or with the four photosensitive drums.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.

3. Scroll to and touch Component Test.
4. Touch ITB contact/alienation.

Paper-transport motor test

This test activates the IPTU motor and is only available when the IPTU is installed.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch Paper transport motor.

Tray-1 pickup-solenoid test

This test activates the Tray-1 pickup solenoid.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch Tray-1 pickup solenoid.

Tray-2 pickup-motor test

This test activates the Tray 2 pickup motor.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch Tray 2 pickup motor.

Duplexer reverse-motor test

This test activates the duplexing reverse motor.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Component Test.
4. Touch Duplexer reverse motor.

Duplexer refeed-motor test

This test activates the duplexing repickup motor.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.

3. Scroll to and touch Component Test.

4. Touch Duplexer refeed motor.

Table 7-29 Component test details

Component test	Motor or solenoid number	Component test control-panel display message	Test function
ITB-motor / drum-motor driving test	M10, M12 Y, M13 M, M14 C, M15 Bk	Transfer motors	Simultaneously activates the ITB motor and four drum motors for 10 seconds
ITB-motor driving test	M10	Belt only	Activates the ITB motor for 10 seconds
Drum-motor driving test	M12 Y, M13 M, M14 C, M15 Bk	Image drum motors	Individually activates the Y/M/C/Bk drum motors for 10 seconds
Scanner-motor driving test	No number, part of scanner	Black laser scanner	Activates the C/Bk scanner motor for 10 seconds
Scanner-motor driving test	No number, part of scanner	Cyan laser scanner	Activates the C/Bk scanner motor for 10 seconds
Scanner-motor driving test	No number, part of scanner	Magenta laser scanner	Activates the Y/M scanner motor for 10 seconds
Scanner-motor driving test	No number, part of scanner	Yellow laser scanner	Activates the Y/M scanner motor for 10 seconds
Fuser-motor driving test	M11	Fuser motor	Activates the fuser motor for 10 seconds
Fuser pressure-release-motor driving test	M11	Fuser pressure release motor	Activates or reverses the fuser motor and pressurizes or depressurizes the pressure roller
Developing-disengagement driving test	M18	Black alienation motor	Activates the C/Bk developing disengagement motor and engages or disengages the developing rollers
Developing-disengagement driving test	M18	Cyan alienation motor	Activates the C/Bk developing disengagement motor and engages or disengages the developing rollers
Developing-disengagement driving test	M19	Magenta alienation motor	Activates the Y/M developing disengagement motor and engages or disengages the developing rollers
Developing-disengagement driving test	M19	Yellow alienation motor	Activates the Y/M developing disengagement motor and engages or disengages the developing rollers

Table 7-29 Component test details (continued)

ITB-disengagement-motor driving test	M9	ITB contact/alienation	Activates the primary-transfer-roller disengagement motor; either separates the ITB from the photosensitive drum, engages the ITB with only the Bk photosensitive drum, or engages with four photosensitive drums.
IPTU media-feed-motor driving test	M201, M202	Paper transport motor	Available only if the IPTU is installed; activates the IPTU motor for 10 seconds
Tray-1 pickup-solenoid driving test	SL2	Tray-1 pickup solenoid	Activates the Tray-1 pickup solenoid for 10 seconds
Tray-2 cassette-pickup-motor driving test	M5, for Tray 1 and Tray 2 cassette	Tray-2 pickup motor	Activates the Tray-2 cassette pickup motor for 10 seconds
Tray-2 cassette-pickup-solenoid driving test	SL1	Tray-2 pickup solenoid	Activates the Tray-2 cassette pickup solenoid for 10 seconds
Tray-3 pickup-motor driving test	M101	Tray-3 pickup motor	Activates the Tray-3 pickup motor for 10 seconds
Tray-3 pickup-solenoid driving test	SL101	Tray-3 pickup solenoid	Activates the Tray-3 pickup solenoid for 10 seconds
Tray-4 pickup-motor driving test	M111	Tray-4 pickup motor	Activates the Tray-4 pickup motor for 10 seconds
Tray-4 pickup-solenoid driving test	SL111	Tray-4 pickup solenoid	Activates the Tray-4 pickup solenoid for 10 seconds
Tray-5 pickup-motor driving test	M121	Tray-5 pickup motor	Activates the Tray-5 pickup motor for 10 seconds
Tray-5 pickup-solenoid driving test	SL121	Tray-5 pickup solenoid	Activates the Tray-5 pickup solenoid for 10 seconds
Duplexing reverse-motor test	M303	Duplexer reverse motor	Activates the duplexing reverse motor for 10 seconds
Duplexing feed-motor test	M302	Duplexer feed motor	Activates the duplexing feed motor for 10 seconds
Duplexing repickup-motor test	M301	Duplexer refeed motor	Activates the duplexing repickup motor for 10 seconds

Print/stop test

Use this diagnostic test to isolate the cause of problems such as image-formation defects and jams within the engine. During this test you can stop the paper anywhere along the printer-paper path. The test can be programmed to stop printing internal pages or an external print job when the paper reaches a certain position. The test can also be programmed to stop from 0 to 60,000 milliseconds. If the timer is set to a value that is greater than the job-print time, you can recover the printer in one of two ways.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.

3. Scroll to and touch Print/Stop Test.
4. Select the appropriate number of milliseconds and then touch OK.

Color-band test

The color-band test page shows bands of colors that can indicate whether the product is producing colors correctly.

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Color Band Test.
4. Select the number of copies, and then touch Test Page.

Scanner tests

Use the scanner tests to verify that specific components in the scanner assembly are operating correctly. For most of the components, you must observe or listen to the component in order to verify that it is functioning as stated on the control-panel display. For the scanner sensors, you must activate the sensor and watch the condition indicator on the control-panel display to see if it changes.

Scanner tests

1. Touch Administration.
2. Scroll to and touch Troubleshooting.
3. Scroll to and touch Scanner Tests.
4. Select the appropriate test (lower lamp, sensors, ADF input motor, ADF input reverse, flatbed motor, ADF read motor, ADF read motor reverse, ADF-duplex solenoid, or ADF LED indicator).

Service-mode functions

The Service menu is locked and requires a PIN for access. This menu is intended for use by authorized service personnel.

Service menu

NOTE: The product automatically exits the Service menu after about one minute if no items are selected or changed.

1. Scroll to and touch Administration.
2. Scroll to and touch Service.
3. Touch the Service use only: text box near the center of the control-panel display. The touchscreen numeric keypad appears.
4. Touch the appropriate touchscreen numeric keypad buttons to enter the PIN (see the note at the beginning of this section).
5. Touch OK to save the PIN or Cancel to exit the screen.
6. The PIN displays in the Service use only: text box as ********.
7. Touch OK to enter the **Service** menu or Cancel to exit the screen.

The following menu items appear in the **Service** menu:

Menu item	Sub-menu item	Description
Clear Event Log		Use this item to clear the product event log.
Mono Cycle Count		The page count that is stored in NVRAM and printed on the configuration page represents the number of pages that the formatter has formatted (not including engine-test prints).
Color Cycle Count		The page count that is stored in NVRAM and printed on the configuration page represents the number of pages that the formatter has formatted (not including engine-test prints).
Refurbish Cycle Count		Use this item to record the page count when the product was refurbished.
Document Feeder Kit Count:		Set the total number of pages that have been fed through the ADF.
Document Feeder Kit Interval		Total number of pages since the document feeder kit was replaced.
ADF Count		Set the total pages fed through the ADF.
Flatbed Count		Set the total pages scanned from the flatbed.
ADF Simplex Count		Set the total single-sided pages fed through the ADF.
ADF Duplex Count		Set the total two-sided pages fed through the ADF.
Copy Scan Count		Set the total copy pages that have been scanned.
Send Scan Count		Set the number of scanned pages sent to e-mail.
Copy Pages Count		Set the number of scanned pages that have been printed.

Menu item	Sub-menu item	Description
Scanner Settings	**ADF Settings**	Set the calibration values.
	Glass Settings	Set the calibration values.
Serial number		Set the serial number.
SERVICE ID		Use this item to show the date that the product was first used on the control panel. This eliminates the need for users to keep paper receipts for proof of warranty. **Restore the service ID** If you replace the formatter, the date is lost. Use this menu item to reset the date to the original date that the product was first used. The date format is YYDDD. Use the following formula to calculate the dates: 1. To calculate YY, subtract 1990 from the calendar year. For instance, if the product was first used in 2002, calculate YY as follows: 2002 - 1990 = 12. YY = 12. 2. Subtract 1 from 10 (October is the tenth month of the year): 10 - 1 = 9. ◦ Multiply 9 by 30: 9 x 30 = 270 or add 17 to 270: 270 + 17 = 287. Thus, DDD = 287. **Convert the service ID to an actual date** You can use the product Service ID number to determine whether the product is still under warranty. Use the following formula to convert the Service ID into the installation date as follows: 1. Add 1990 to YY to get the actual year that the product was installed. 2. Divide DDD by 30. If there is a remainder, add 1 to the result. This is the month. 3. The remainder from the calculation in step 2 is the date. Using the Service ID 12287 as an example, the date conversion is as follows: 1. 12 + 1990 = 2002, so the year is 2002. 2. 287 divided by 30 = 9 with a remainder of 17. Since there is a remainder, add 1 to 9 to get 10, which represents October. 3. The remainder in step 2 is 17, so that is the date. 4. The complete date is 17-October-2002. **NOTE:** A six-day grace period is built into the date system.

Menu item	Sub-menu item	Description
Cold Reset Paper		When you perform a cold reset, the paper size that is stored in NVRAM is reset to the default factory setting. If you replace a formatter board in a country/region that uses A4 as the standard paper size, use this menu to reset the default paper size to A4. LETTER and A4 are the only available values.
Calibrate Media Sensor		When a 54.05.11 error appears in the event log, the second-transfer assembly needs to be replaced. After it is replaced, the media sensor must be calibrated. Select **Calibrate Media Sensor** in the **Service** menu, and then send 10 jobs through the product. Make sure that there is a pause between each job that allows the product to completely spin down. After this process, the sensor is calibrated.

Product resets

NVRAM initialization

NOTE: If an analog fax accessory is installed, performing an NVRAM initialization can cause the product to violate local telephone regulations. Reset the language and country/region after performing an NVRAM initialization. For more information, see the *HP LaserJet Analog Fax Accessory 300 User Guide*.

Before performing an NVRAM initialization, print a menu map and a configuration page. Use the information on these pages to reset any customer-specific settings.

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

Performing an NVRAM initialization resets the following settings and information:

- All menu settings are reset to factory default values, including the fax header and company name.
- All faxes in memory are erased.
- All speed-dials, group-dials, and phonebook entries are erased.
- All localization settings, including language and country/region, are reset.

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

To perform an NVRAM initialization

1. Turn the product off and then on.
2. When the memory count appears on the control-panel display, press and hold 3 until all three LEDs flash once and then stay on. This might take up to 20 seconds.
3. Press and release 9, and then press and release Start.
4. Press and release 6.

Solve scanner problems

Table 7-30 Scanner problems

Problem	Cause	Solution
No power to the ADF	Defective power unit	Measure the DC power output of the connector and P6 and P7 on the cable side. **CAUTION:** Do not cause a short circuit. Replace the power unit if the required power output level is not found.
Carriage jam	Check the carriage lock.	Unlock the carriage.
	Poor contact in the motor signal line	Reconnect the motor connector.
	Motor failure	Determine whether the motor functions correctly in the power-up initialization. If the carriage doesn't move, replace the motor.
ADF-lid-sensor failure	Lid-sensor failure	If the cable and the SCB are functioning correctly, replace the lid sensor.
Paper-sensor failure	Paper-sensor failure	If the cable and the SCB are functioning correctly, replace the lid sensor.
Control-panel-fan failure	Control-panel-fan failure	If the cable and the power supply function correctly, replace the fan.
SCB-fan failure	SCB-fan failure	Replace the fan if the cable and the power supply have no problem.
Carriage-fan failure.	Carriage-fan failure	If the cable and the PCA function correctly, replace the fan.
Xenon-lamp failure	Poor contact in FFC cables between the CCD board and the SCB.	Reconnect the two cables.
	FFC-cables failure	Replace the two cables.
	Xenon-lamp failure	If the xenon lamp did not turn on during running mode, replace the xenon lamp.
Black powder appears on the rod surface.	Damaged rod	Replace the rod if it is damaged.

Solve fax problems

For help solving fax problems, go to www.hp.com/go/mfpfaxaccessory300.

You can also refer to the *Analog Fax Accessory 300 Fax Guide* and the *Analog Fax Accessory 300 Send Fax Driver Guide*.

Solve e-mail problems

If you are unable to send e-mails by using the digital-send feature, you might need to reconfigure the SMTP gateway address or the LDAP gateway address. Print a configuration page to find the current SMTP and LDAP gateway addresses. See Configuration pages on page 427. Use the following procedures to check if the SMTP and LDAP gateway addresses are valid.

Validate the SMTP gateway address

NOTE: This procedure is for Windows operating systems.

1. Open an MS-DOS command prompt: click **Start**, click **Run**, and then type `cmd`.
2. Type `telnet` followed by the SMTP gateway address and then the number 25, which is the port over which the product is communicating. For example, type `telnet 123.123.123.123 25` where "123.123.123.123" represents the SMTP gateway address.
3. Press Enter. If the SMTP gateway address is *not* valid, the response contains the message `Could not open connection to the host on port 25: Connect Failed.`
4. If the SMTP gateway address is not valid, contact the network administrator.

Validate the LDAP gateway address

NOTE: This procedure is for Windows operating systems.

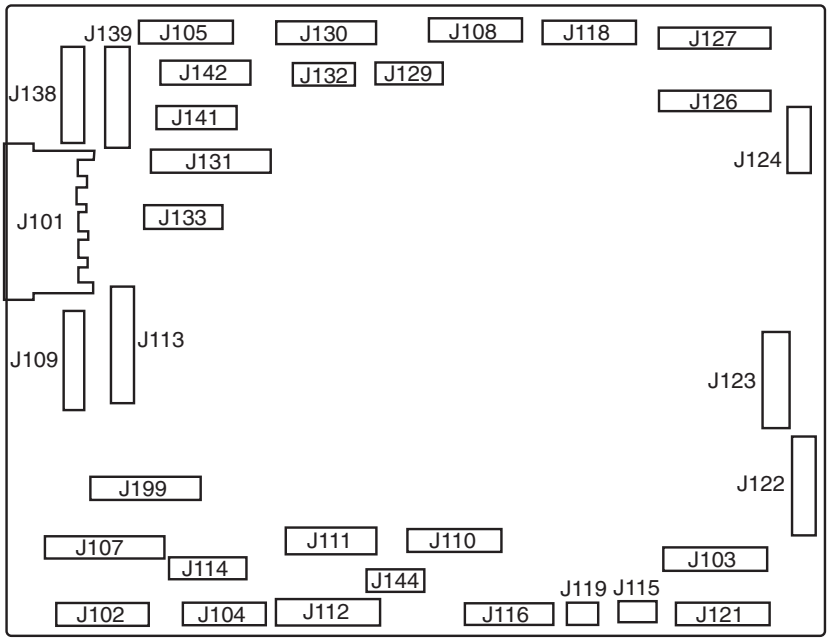
1. Open Windows Explorer. In the address bar, type `LDAP://` immediately followed by the LDAP gateway address. For example, type `LDAP://12.12.12.12` where "12.12.12.12" represents the LDAP gateway address.
2. Press Enter. If the LDAP gateway address is valid, the **Find People** dialog box opens.
3. If the LDAP gateway address is not valid, contact the network administrator.

Diagrams

Connectors

DC controller PCA

Figure 7-17 DC controller PCA



PCAs

Figure 7-18 Cartridge driver PCA

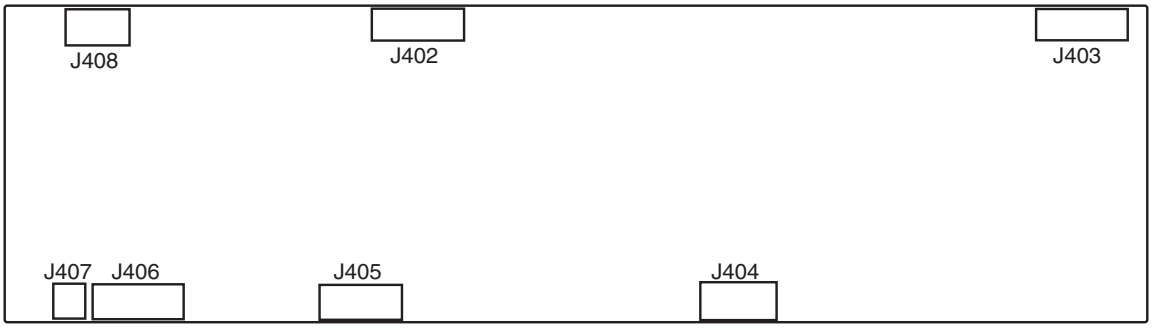


Figure 7-19 Fuser control PCA

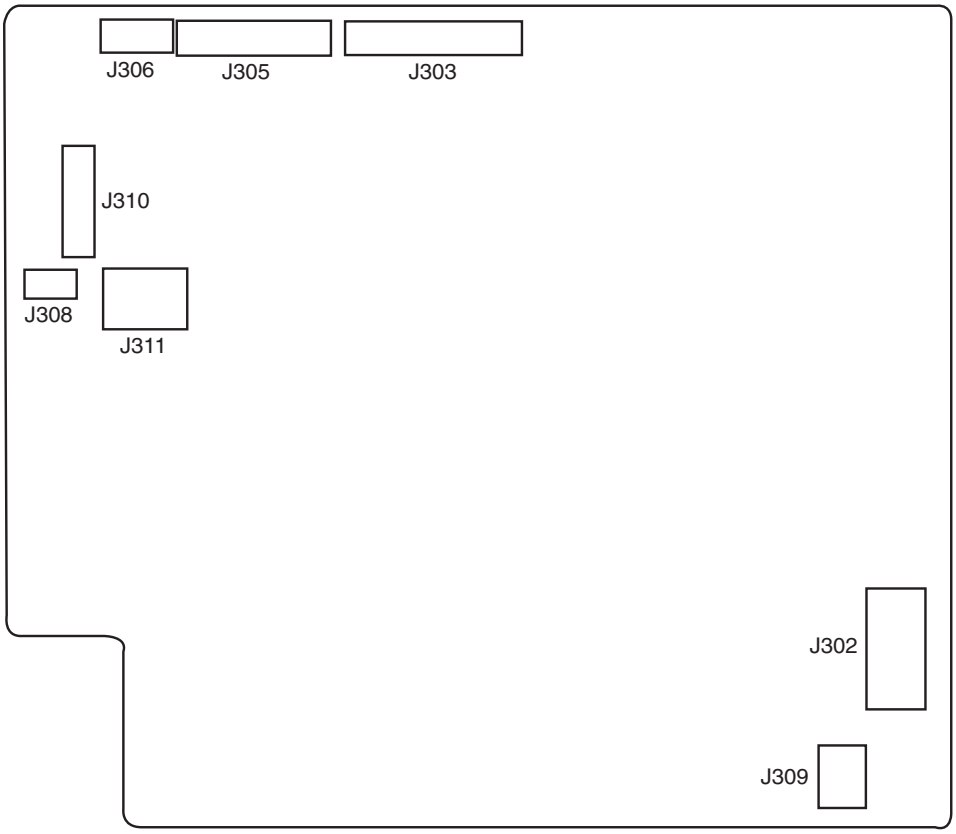


Figure 7-20 Duplexing driver PCA

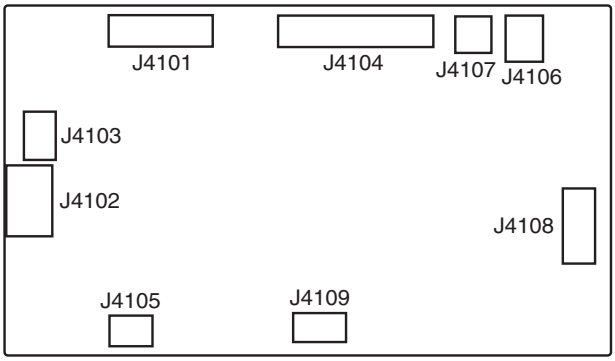


Figure 7-21 Input tray driver PCA

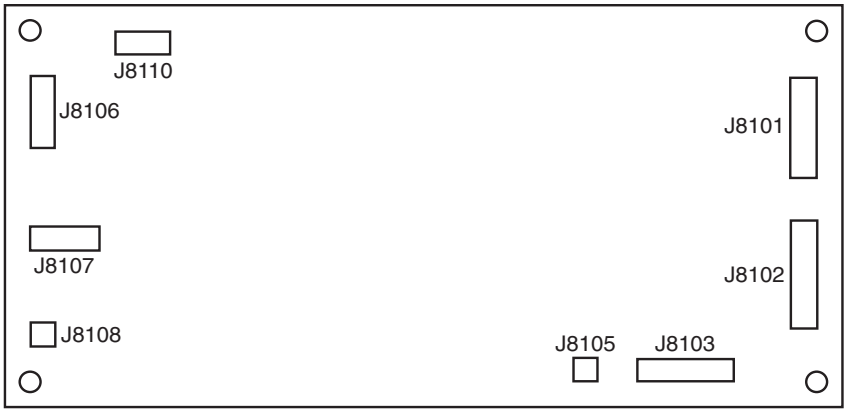
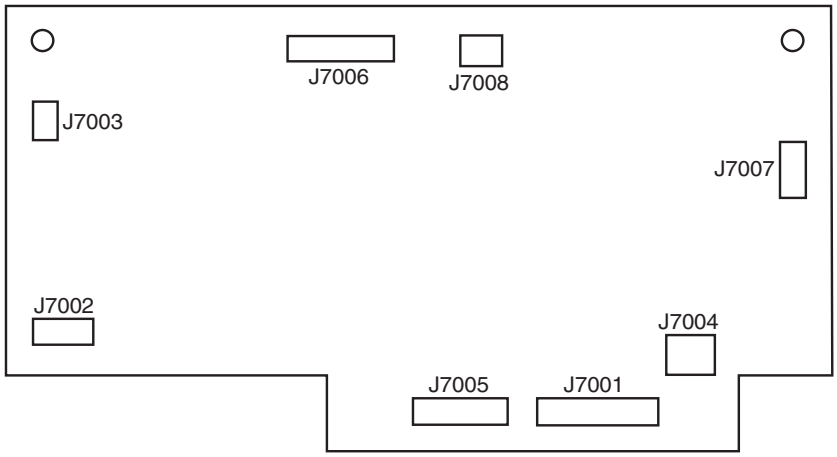


Figure 7-22 IPTU driver PCA



Product base

Figure 7-23 Product connector locations (1 of 6)

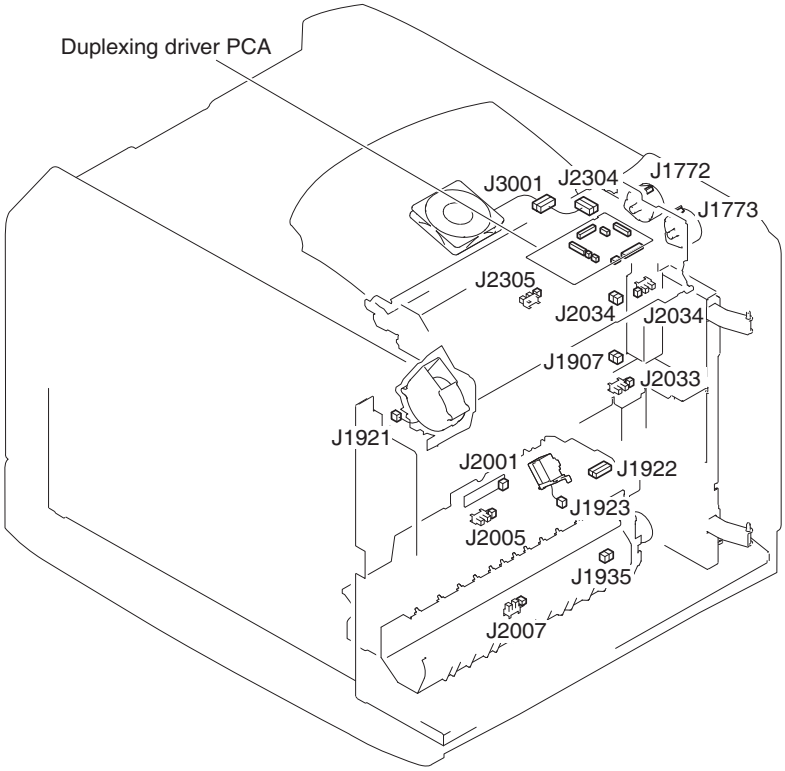


Figure 7-24 Product connector locations (2 of 6)

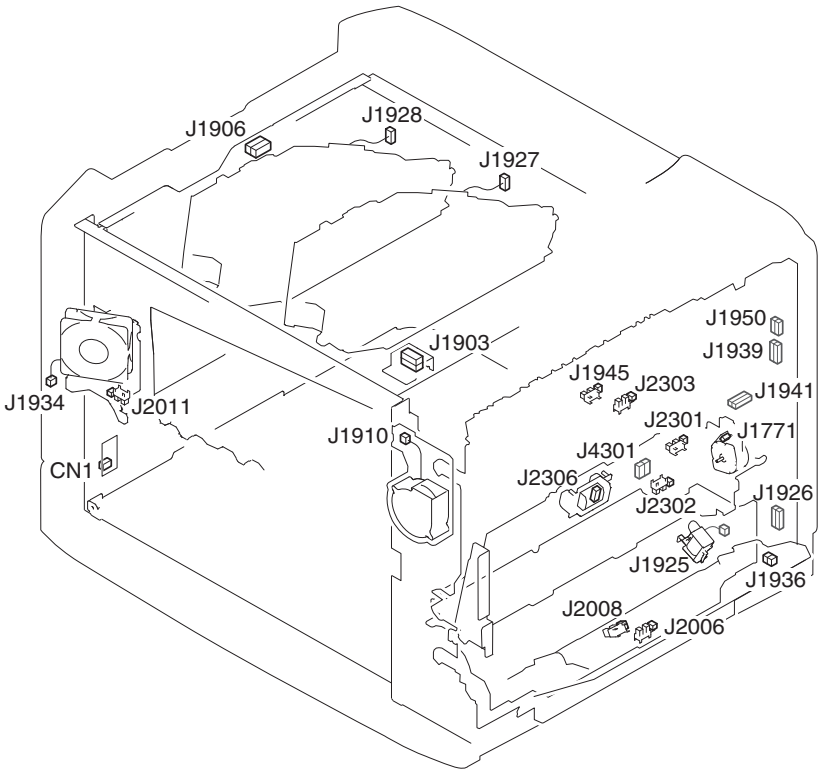


Figure 7-25 Product connector locations (3 of 6)

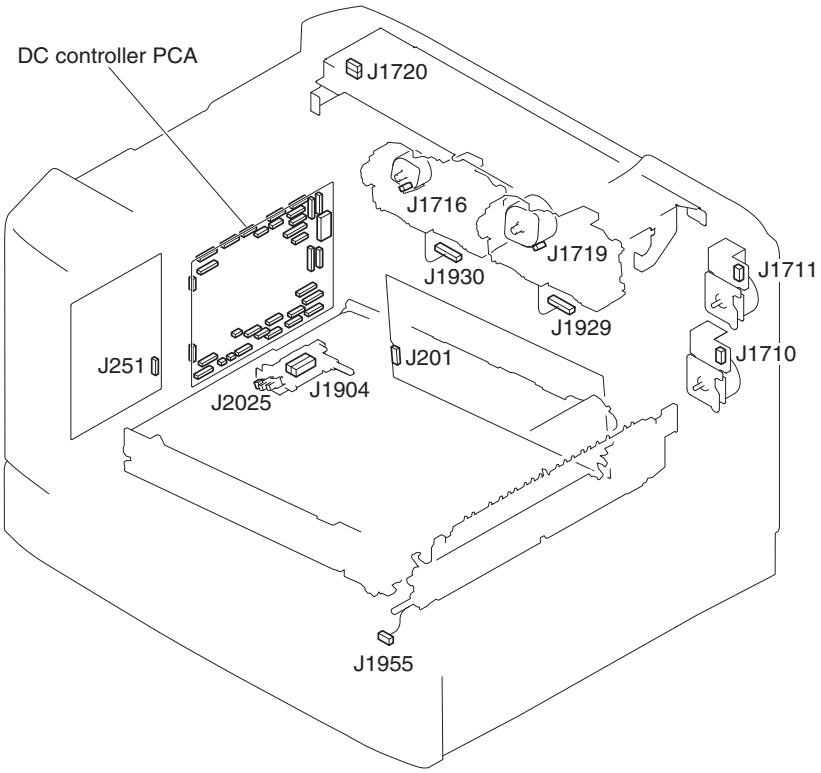


Figure 7-26 Product connector locations (4 of 6)

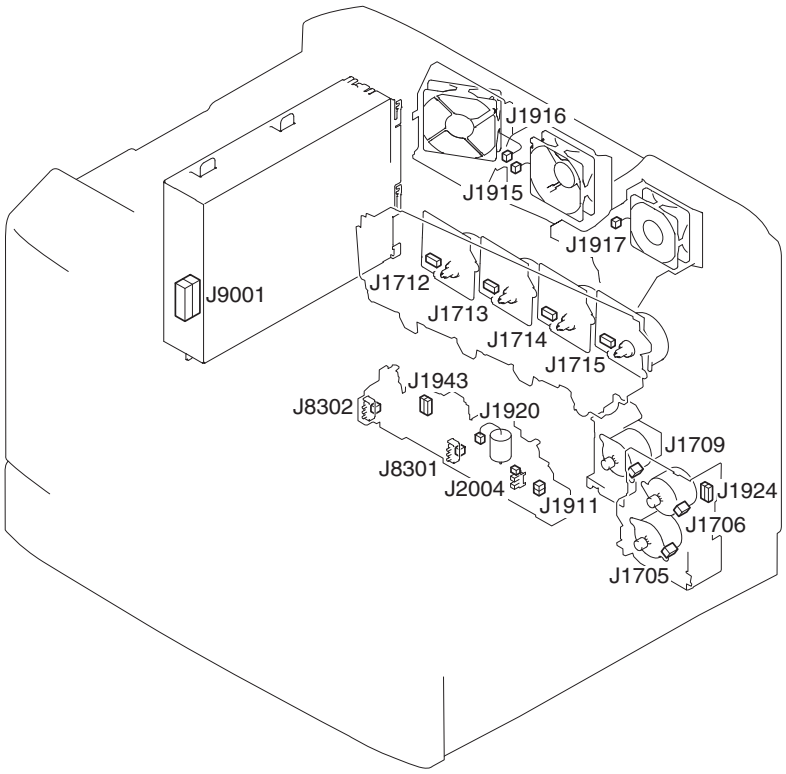


Figure 7-27 Product connector locations (5 of 6)

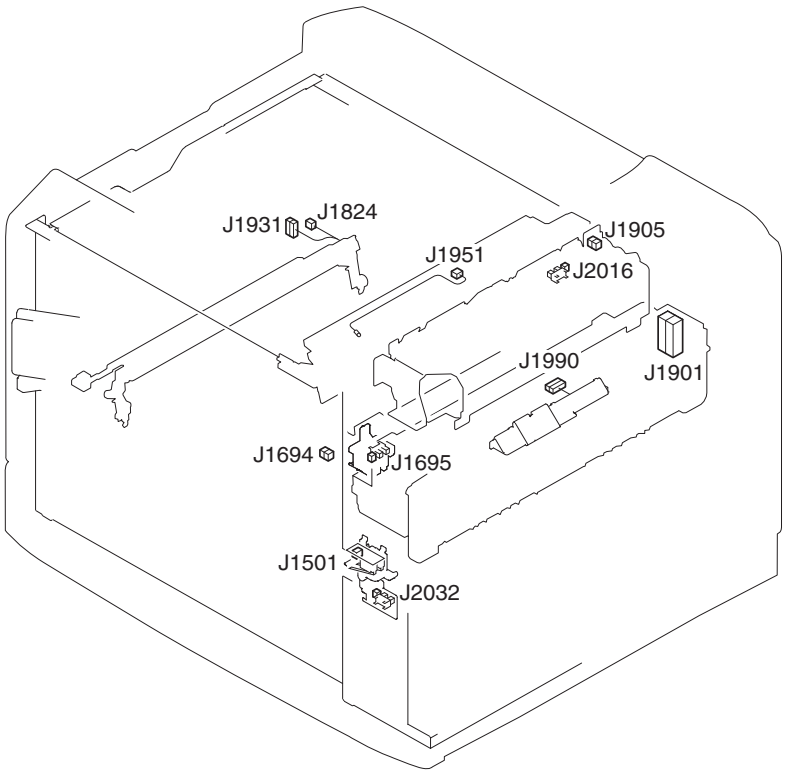
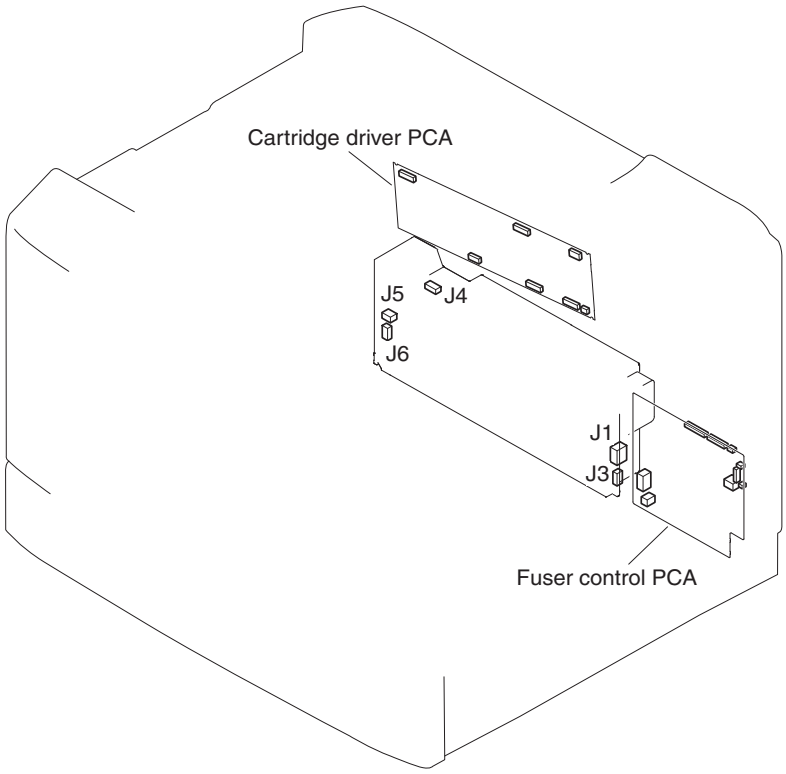
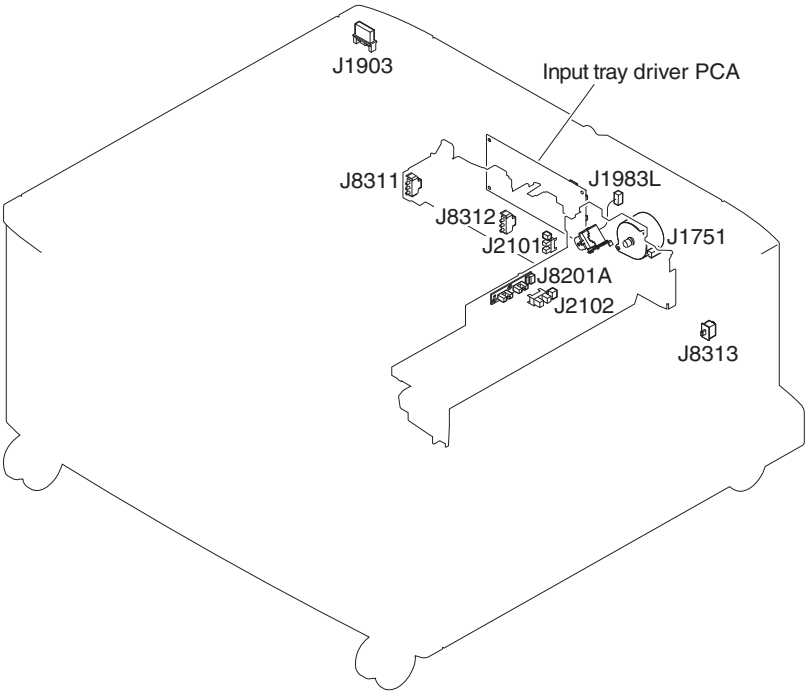


Figure 7-28 Product connector locations (6 of 6)



1 x 500 input tray

Figure 7-29 1 x 500 input tray



3 x 500 input tray

Figure 7-30 3 x 500 input tray (1 of 2)

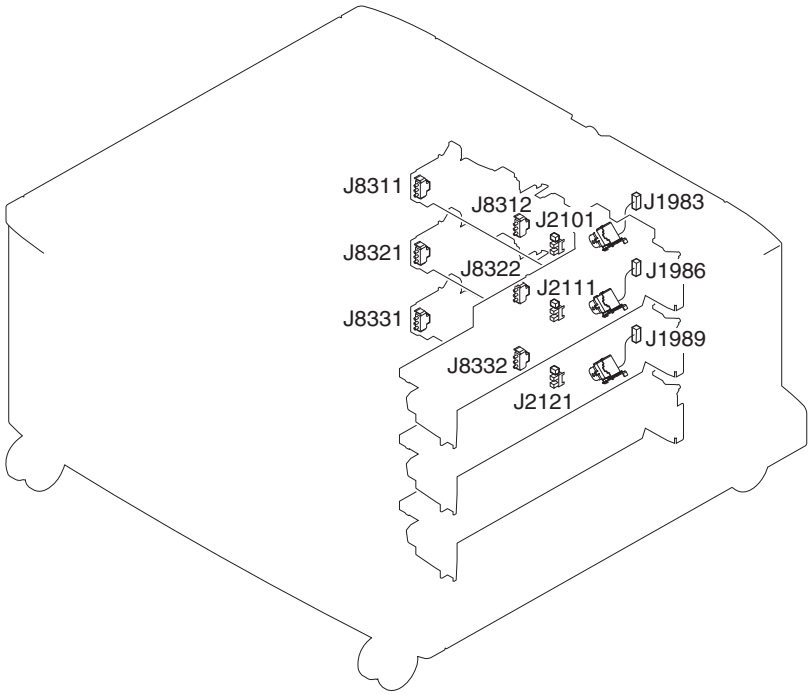
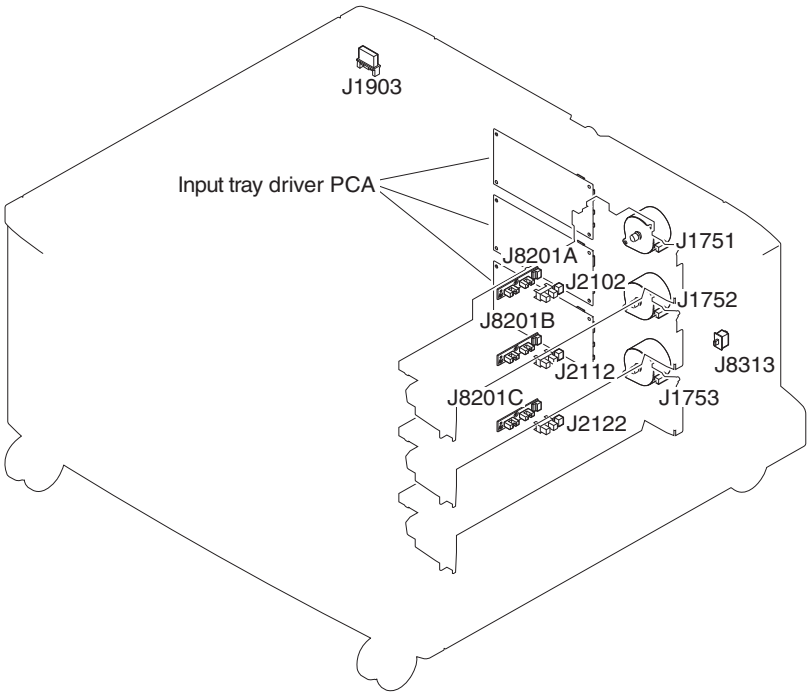
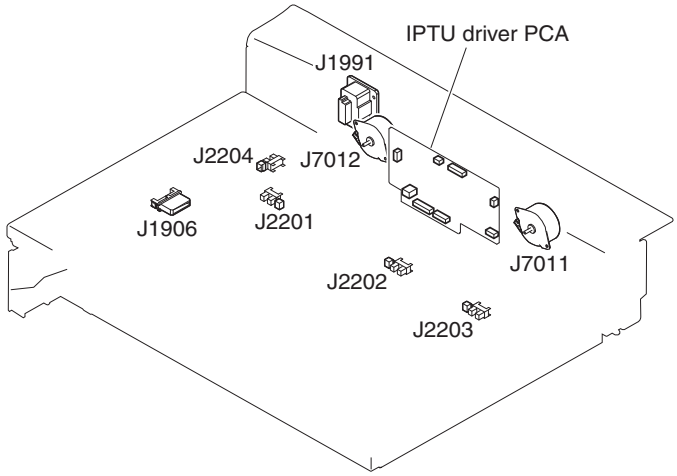


Figure 7-31 3 x 500 input tray (2 of 2)



IPTU

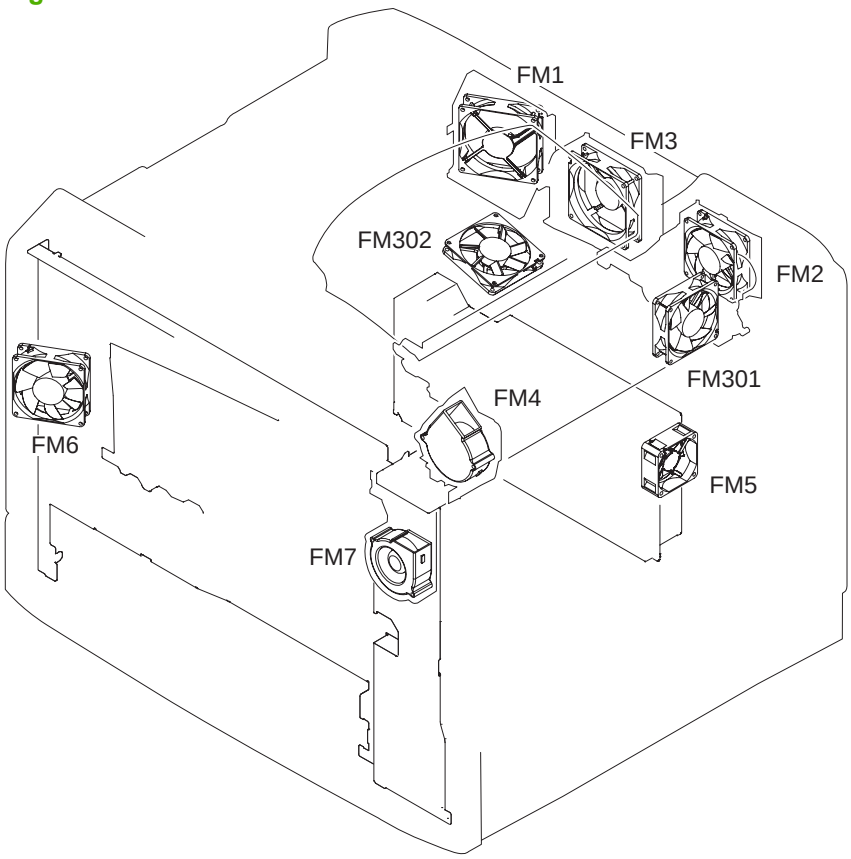
Figure 7-32 IPTU



Fans

Product base

Figure 7-33 Product fan locations



Sensors

Product base

Figure 7-34 Product sensor locations (1 of 3)

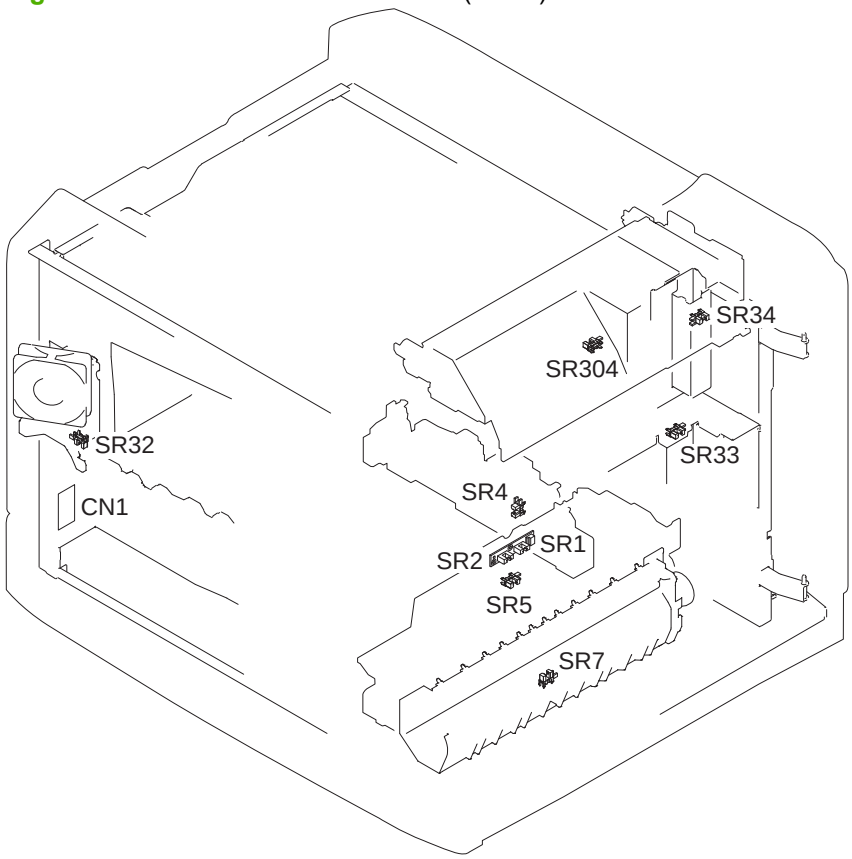


Figure 7-35 Product sensor locations (2 of 3)

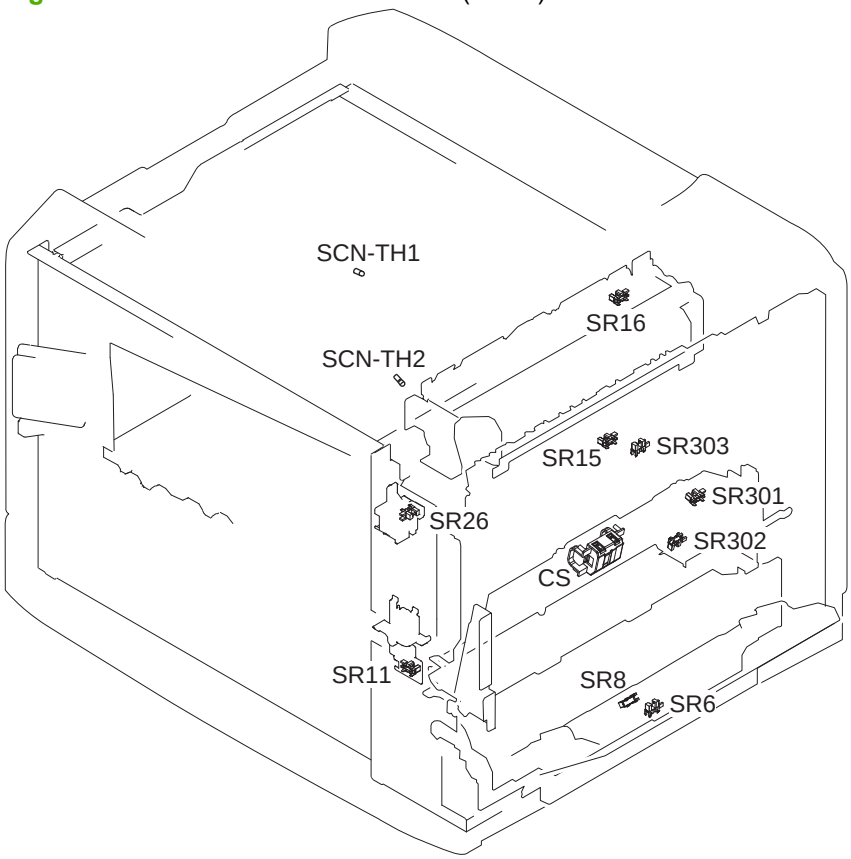
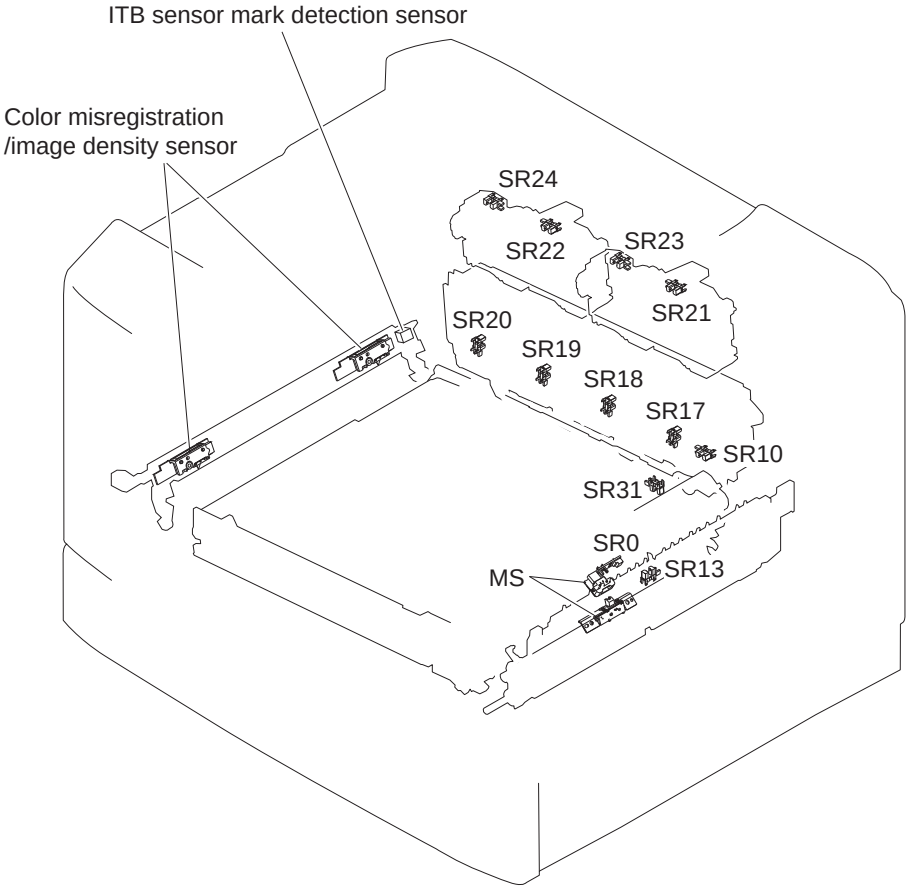
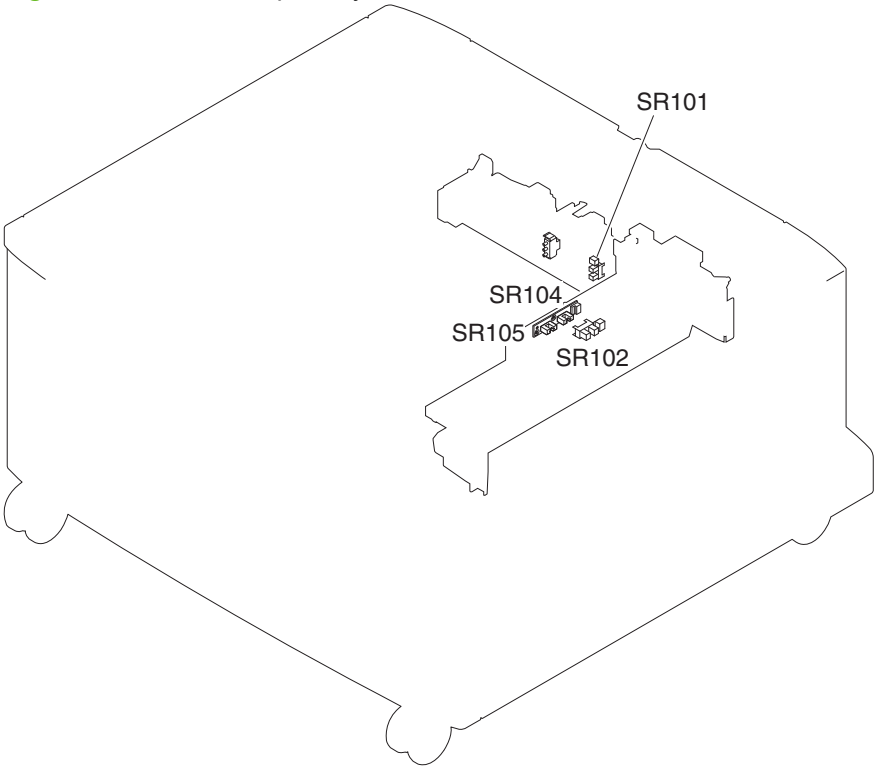


Figure 7-36 Product sensor locations (3 of 3)



1 x 500 input tray

Figure 7-37 1 x 500 input tray sensor locations



3 x 500 input tray

Figure 7-38 3 x 500 input tray sensor locations (1 of 2)

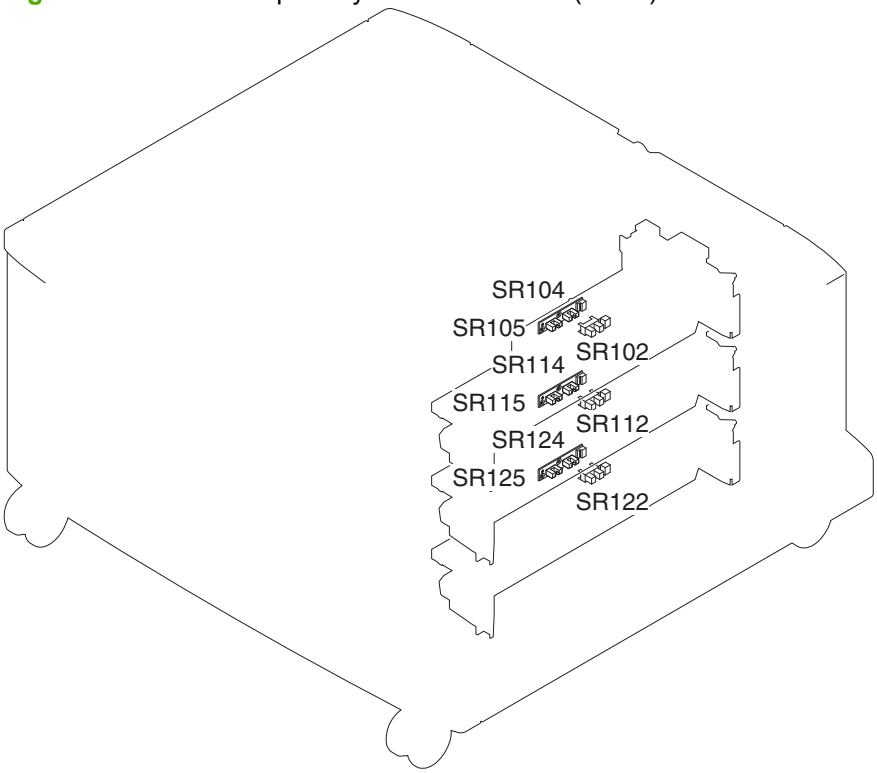
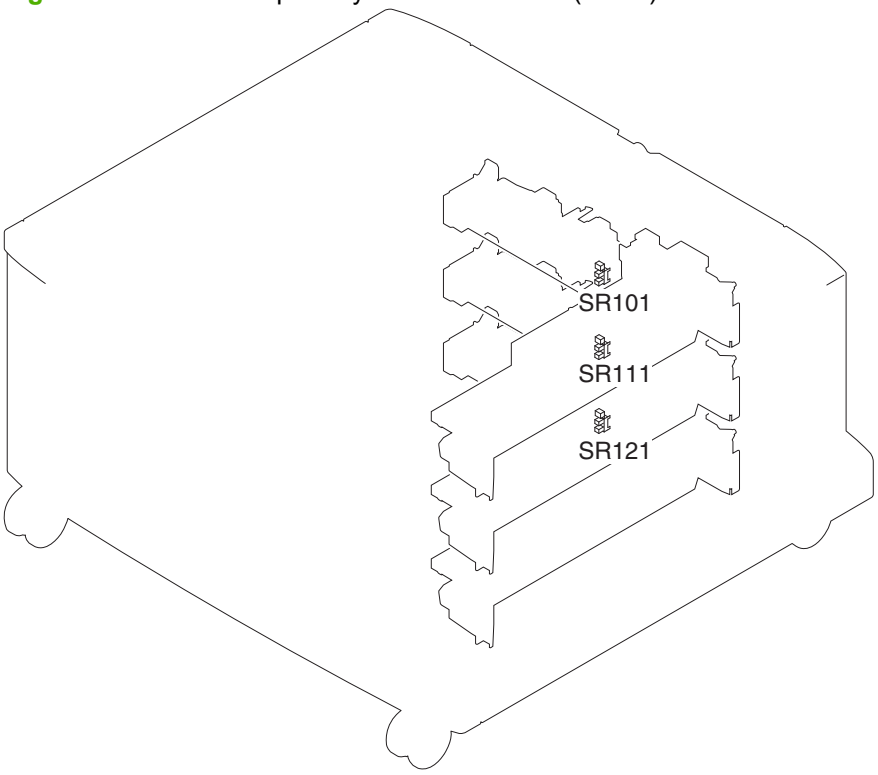
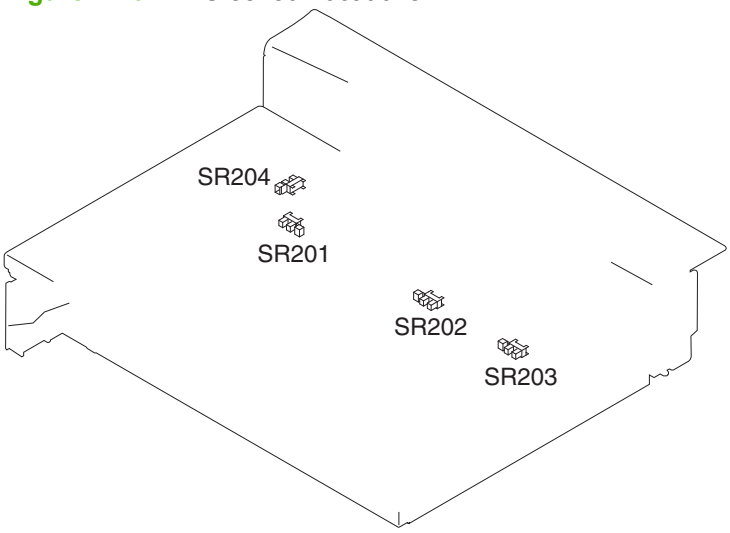


Figure 7-39 3 x 500 input tray sensor locations (2 of 2)



IPTU

Figure 7-40 IPTU sensor locations



Motors

Product base

Figure 7-41 Product motor locations (1 of 2)

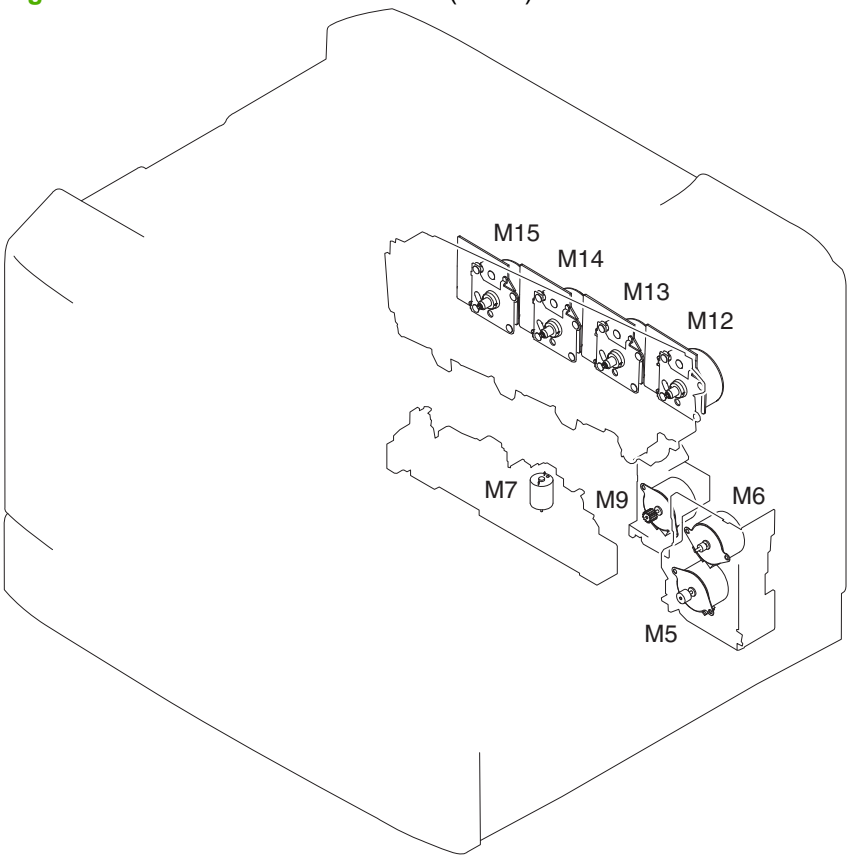
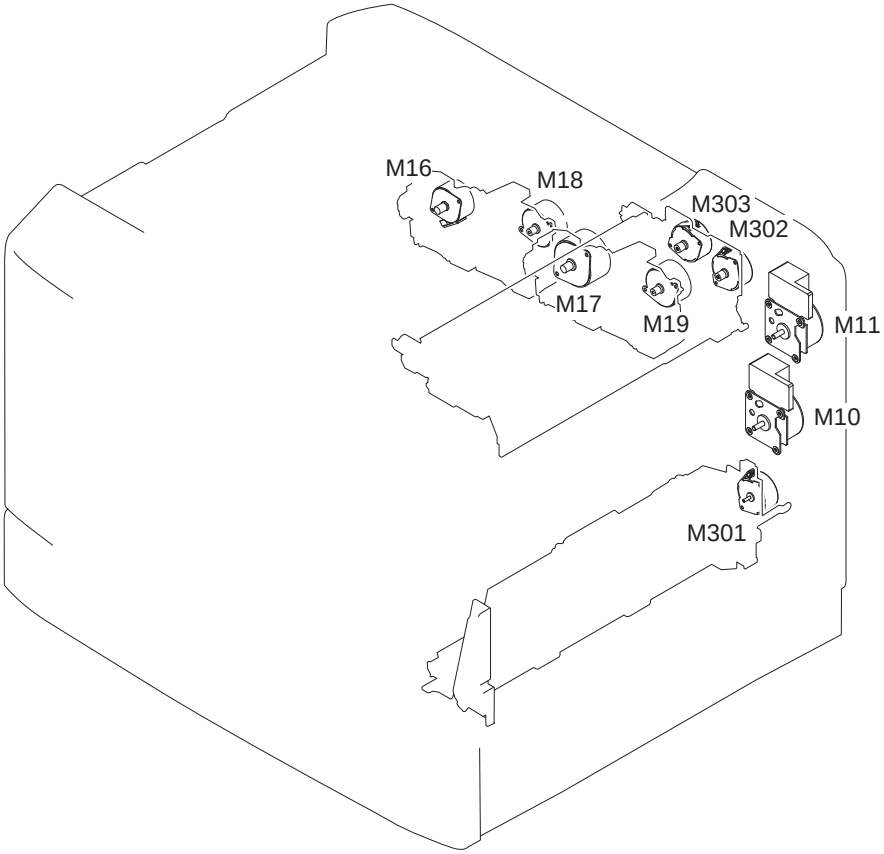
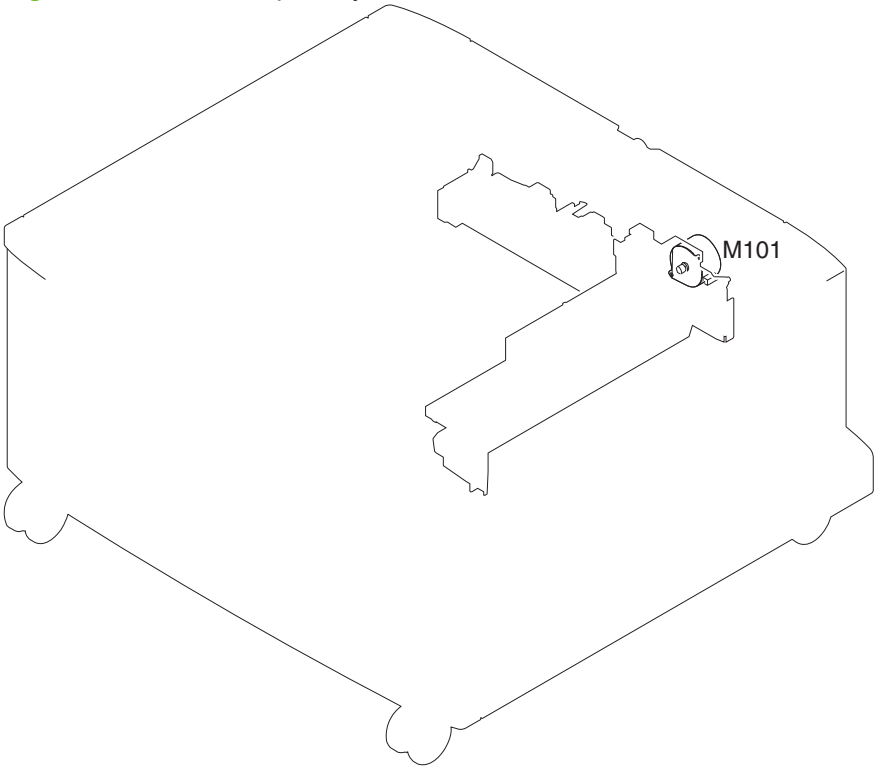


Figure 7-42 Product motor locations (2 of 2)



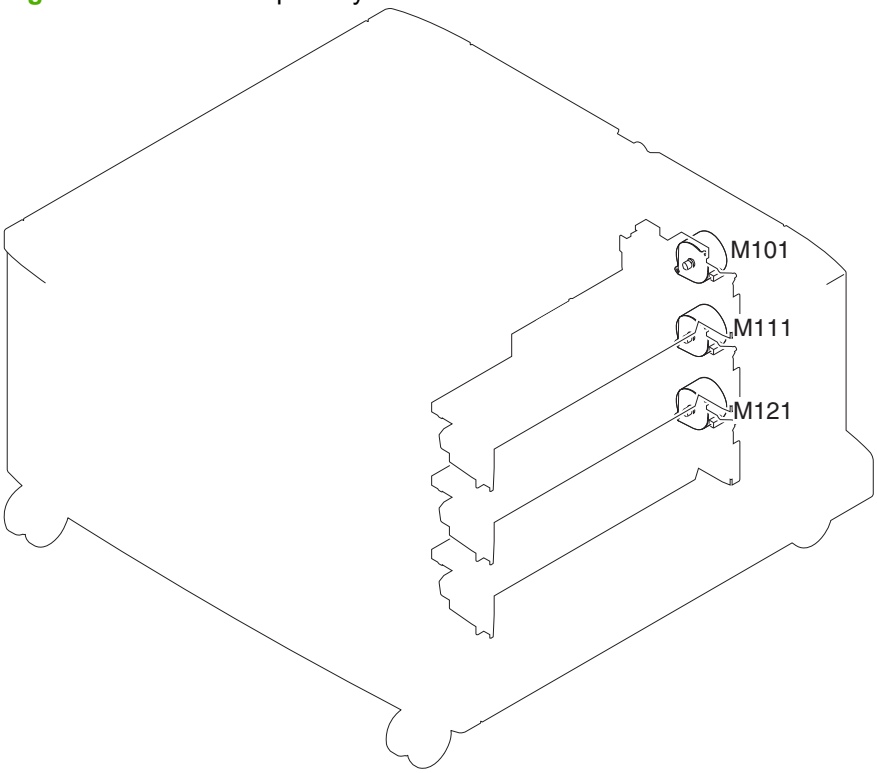
1 x 500 input tray

Figure 7-43 1 x 500 input tray motor locations



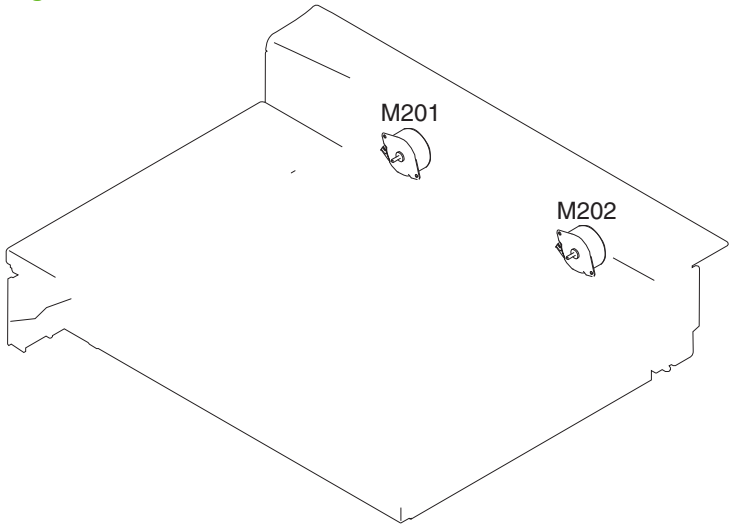
3 x 500 input tray

Figure 7-44 3 x 500 input tray motor locations



IPTU

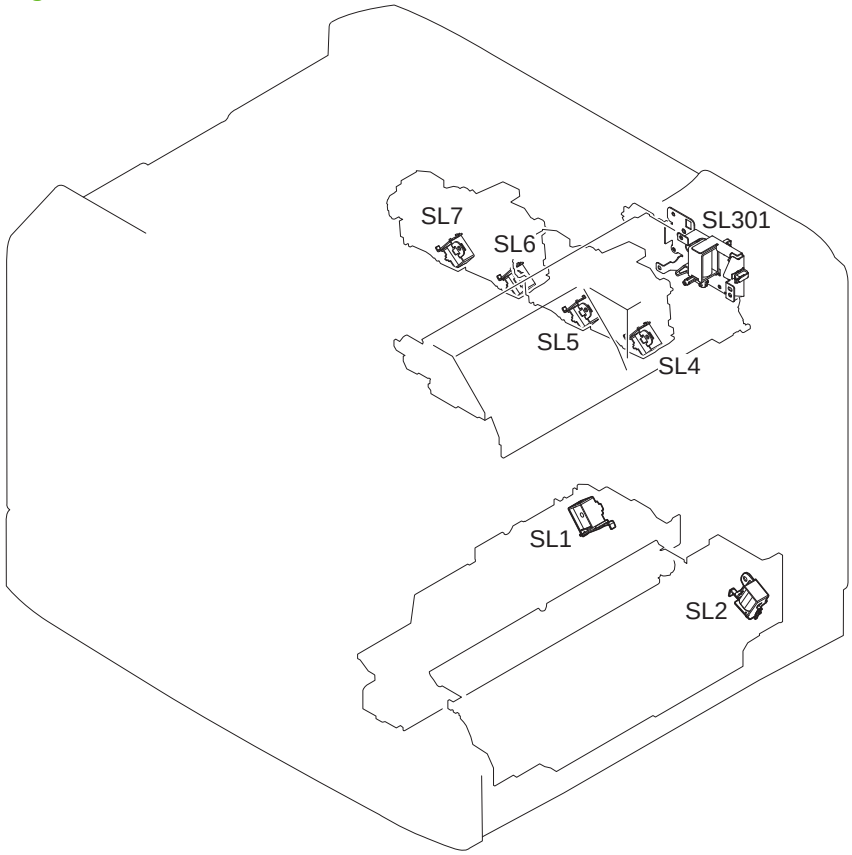
Figure 7-45 IPTU motor locations



Solenoids

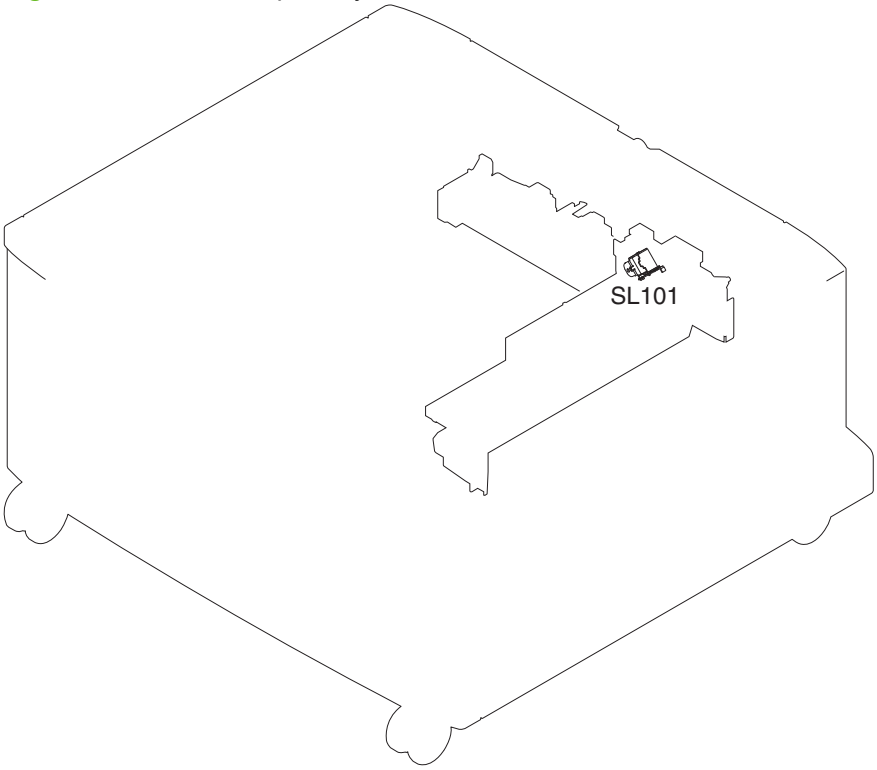
Product base

Figure 7-46 Product solenoid locations



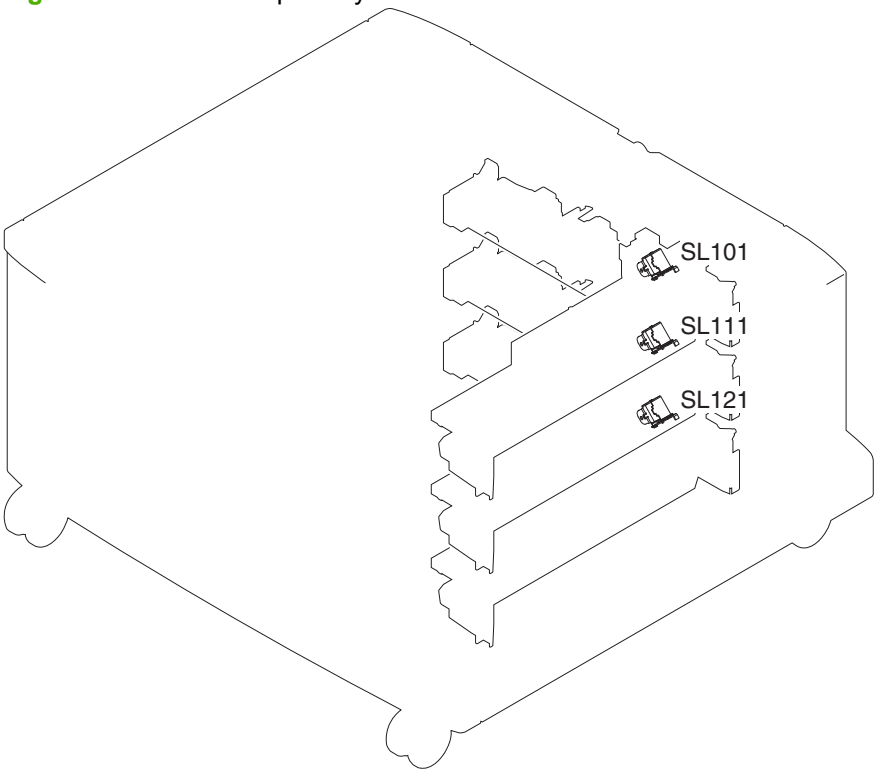
1 x 500 input tray

Figure 7-47 1 x 500 input-tray solenoid locations



3 x 500 input tray

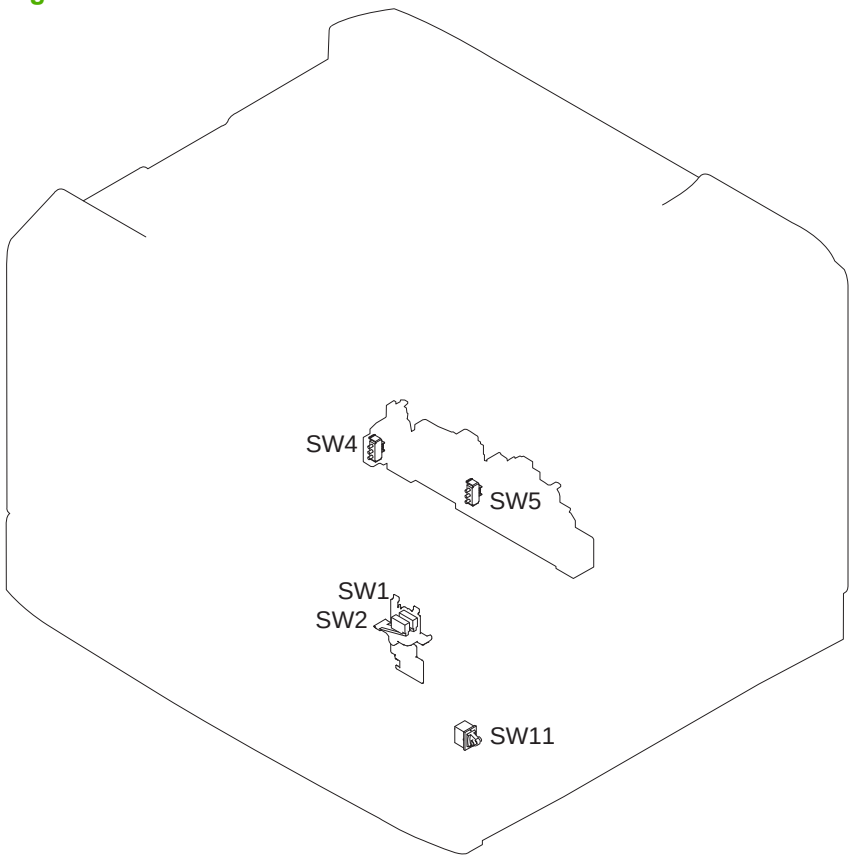
Figure 7-48 3 x 500 input-tray solenoid locations



Switches

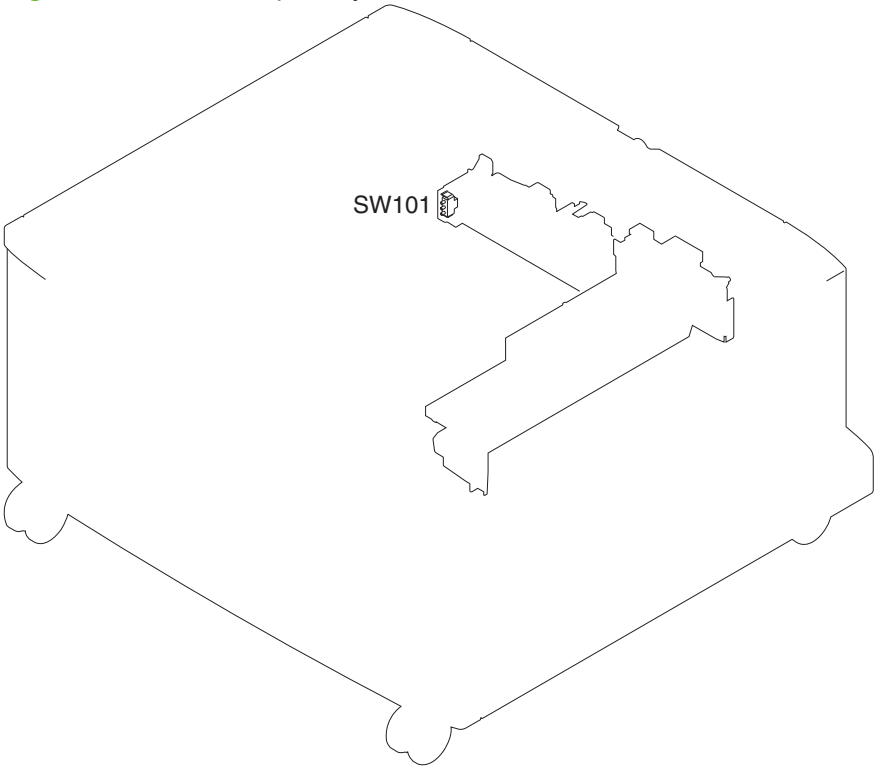
Product base

Figure 7-49 Product switch locations



1 x 500 input tray

Figure 7-50 1 x 500 input tray switch locations



3 x 500 input tray

Figure 7-51 3 x 500 input tray switch locations (1 of 2)

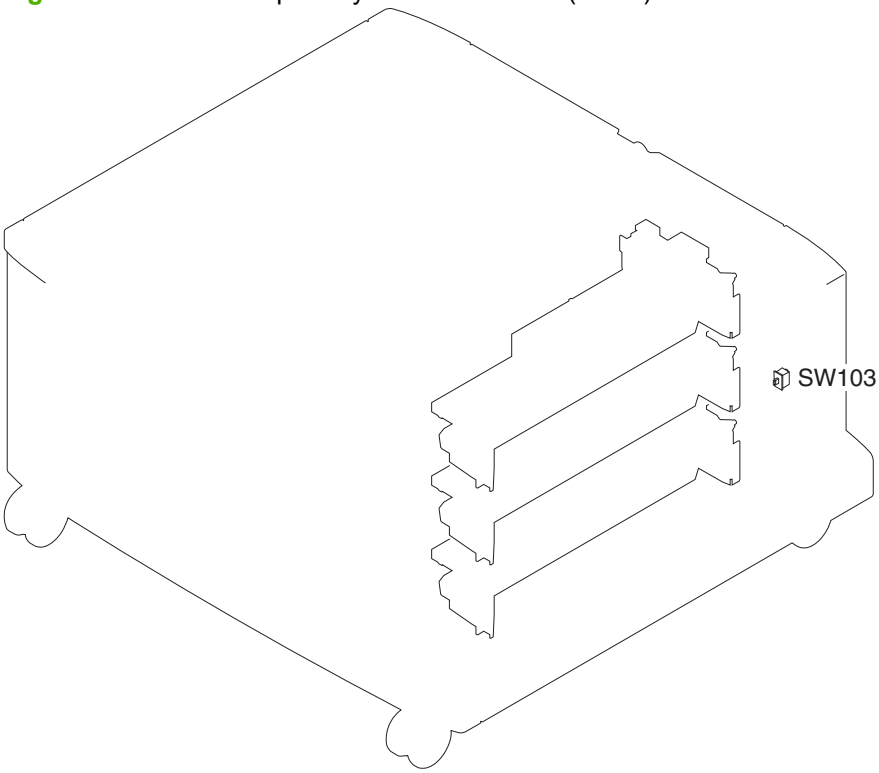
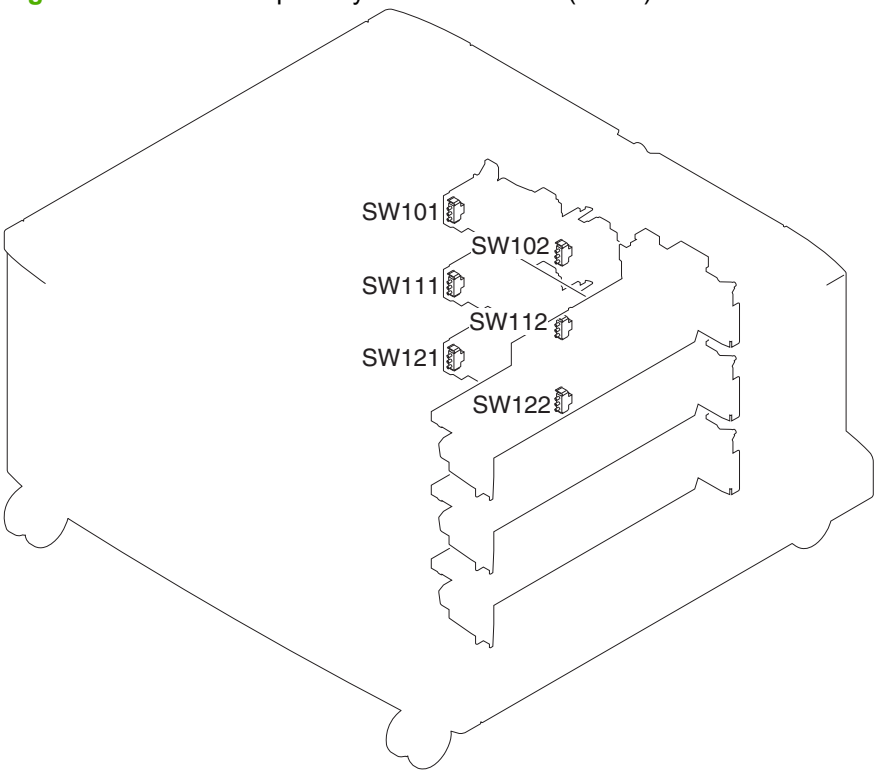


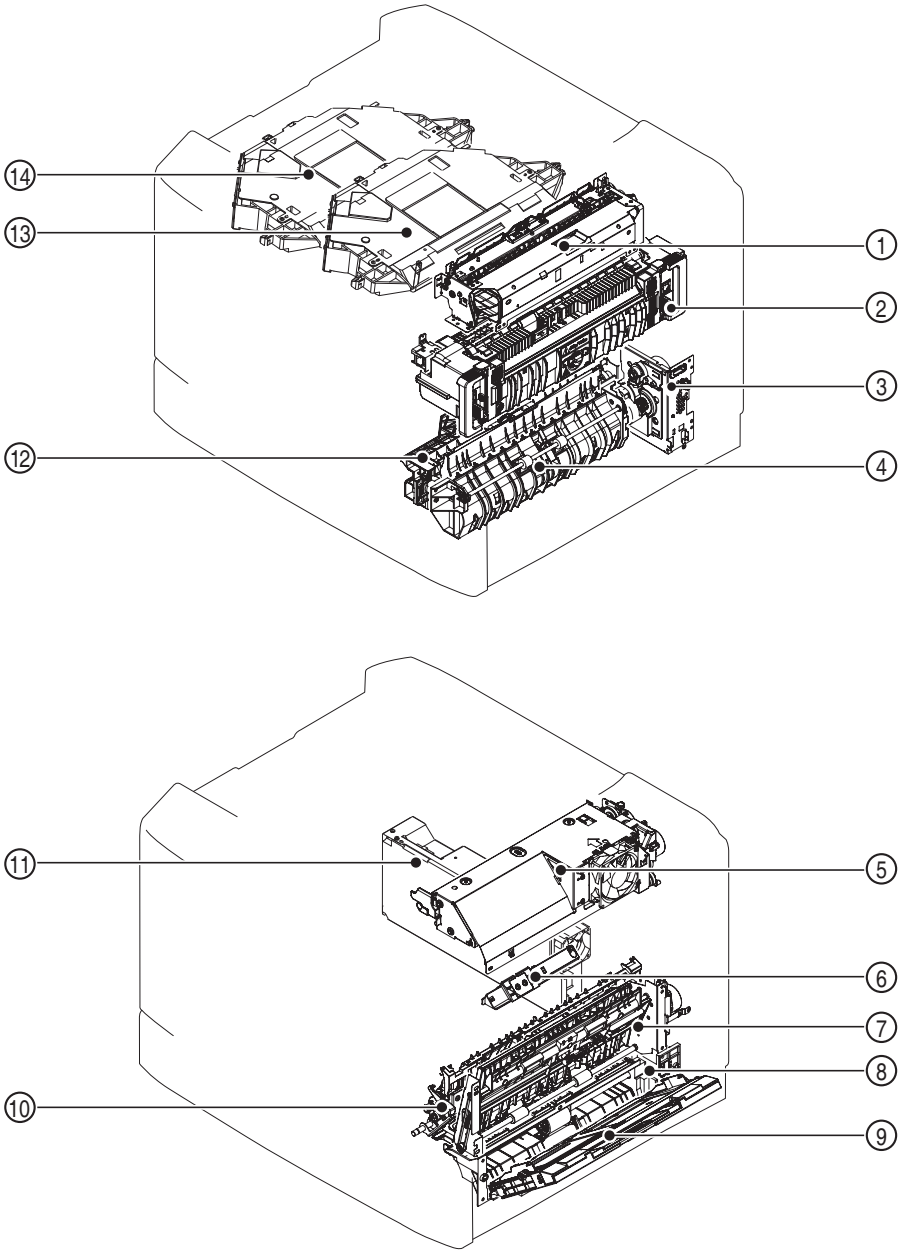
Figure 7-52 3 x 500 input tray switch locations (2 of 2)



Block diagrams

Main assemblies

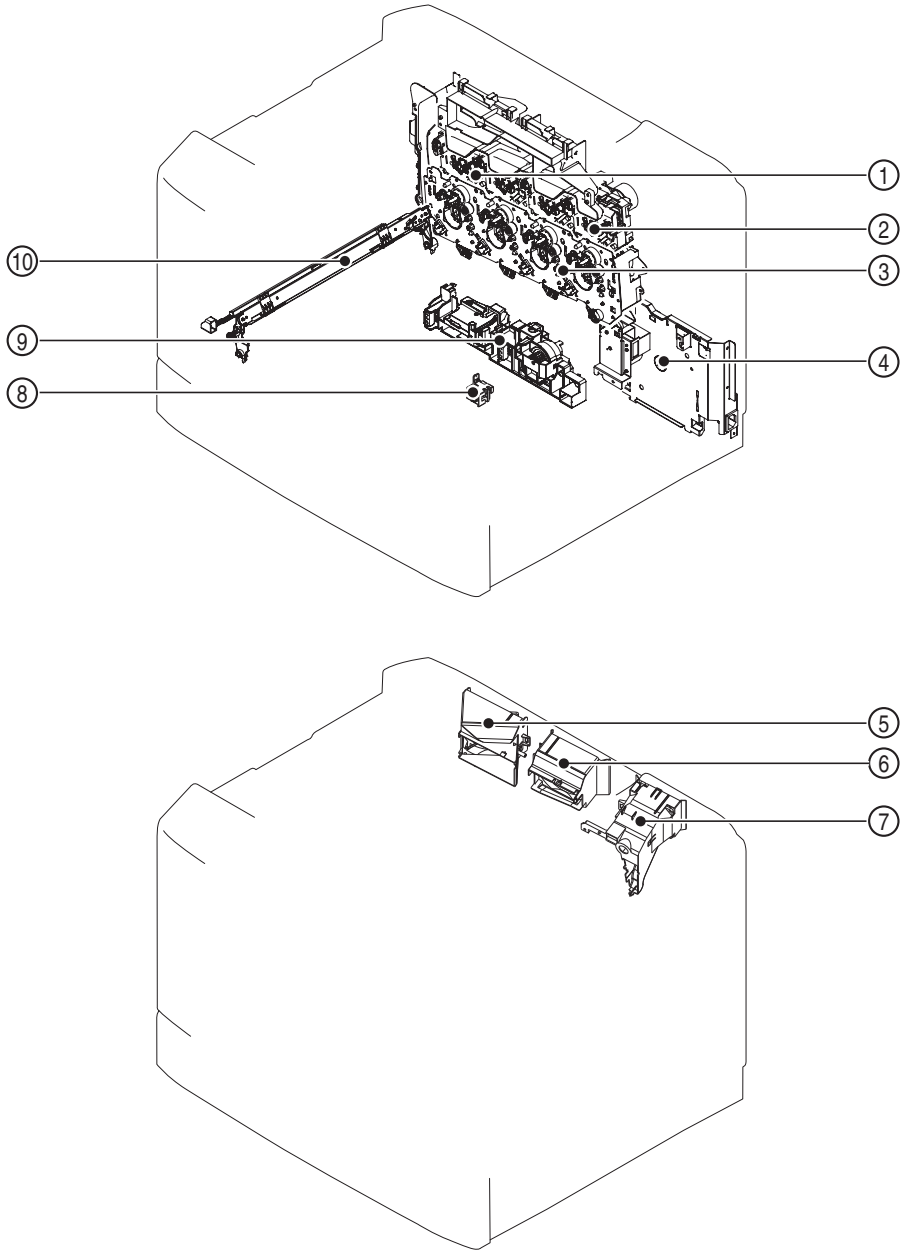
Figure 7-53 Main assemblies (1 of 2)



1	Face-down delivery unit
2	Fuser
3	Multipurpose drive unit
4	Multipurpose-tray guide unit
5	Duplexing reverse unit
6	Thermopile unit

7	Duplexing feed unit
8	Multipurpose-tray pickup unit
9	Multipurpose tray
10	Secondary transfer unit
11	Low-voltage power supply unit
12	Cassette pickup unit
13	Yellow/magenta laser/scanner unit
14	Cyan/black laser/scanner unit

Figure 7-54 Main assemblies (2 of 2)

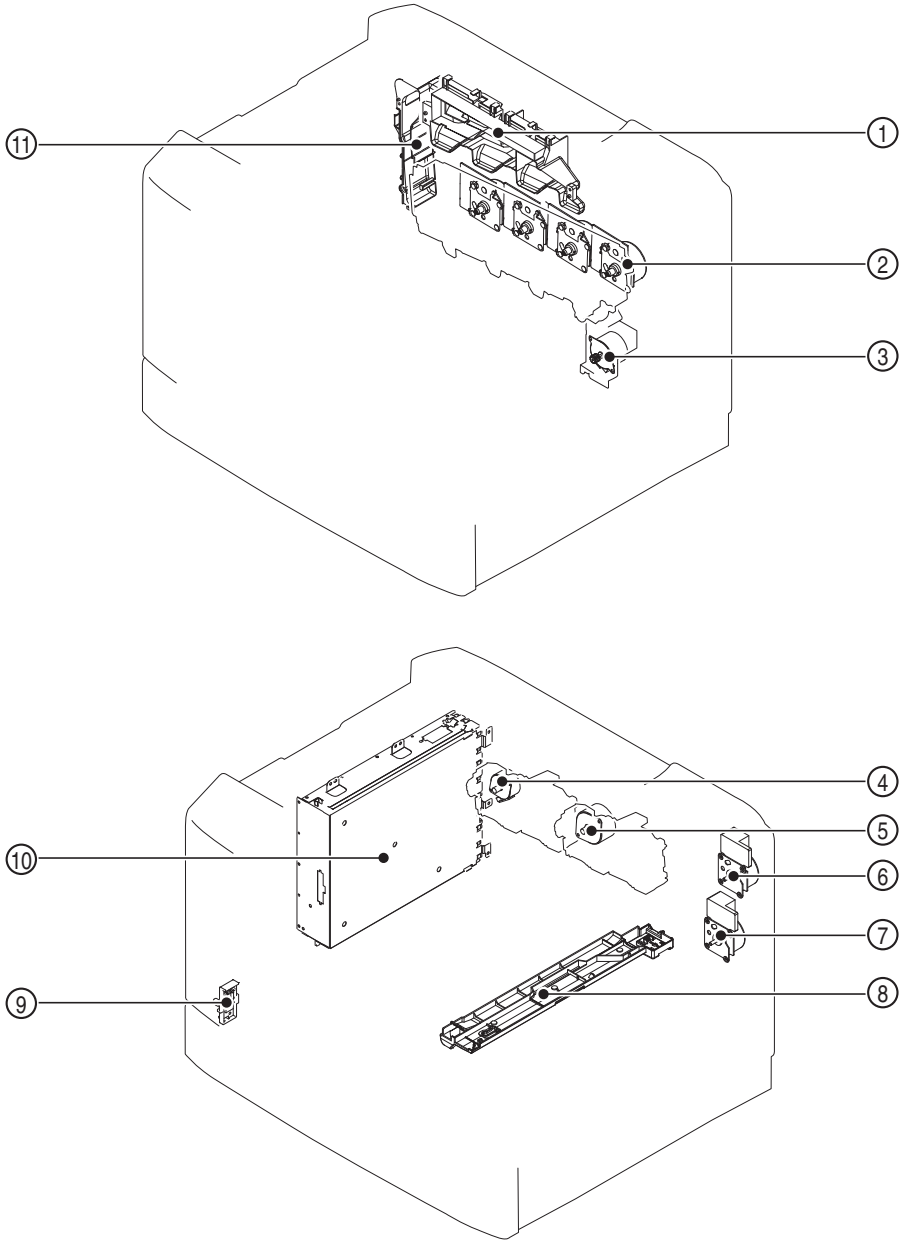


1	Print-cartridge drive unit (cyan/black)
2	Print-cartridge drive unit (yellow/magenta)
3	Main drive unit
4	Fuser power supply unit
5	Scanner fan unit
6	Cartridge fan unit
7	Fuser fan unit
8	Pressure-release sensor unit

9	Lifter drive unit
10	Color-misregistration/image-density sensor unit

Main parts

Figure 7-55 Main parts

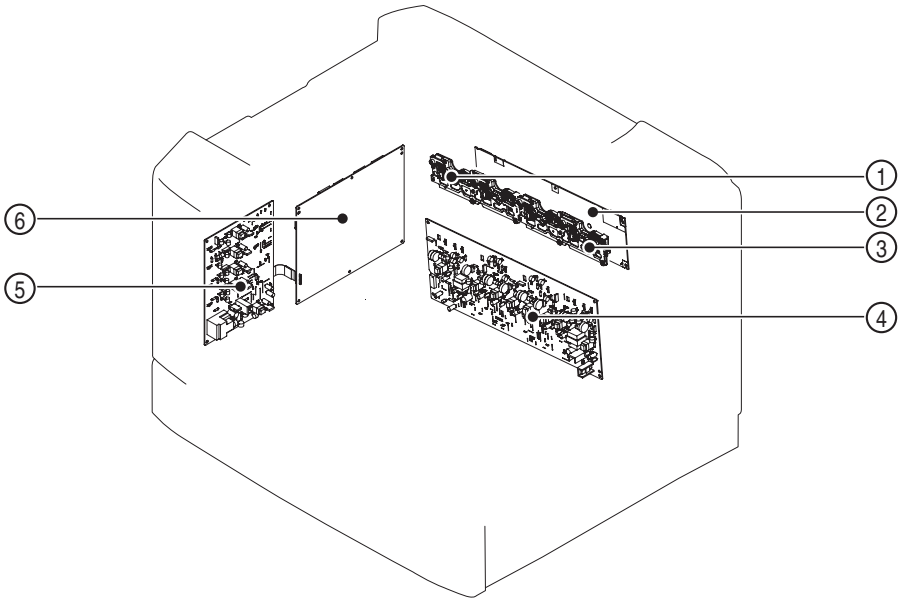


1	Cartridge-fan duct
2	Drum motor
3	primary-transfer-roller disengagement motor
4	Black-toner feed motor

5	Yellow/magenta/cyan-toner feed motor
6	Fuser motor
7	ITB motor
8	ITB duct
9	Environment sensor
10	Formatter case
11	Scanner-fan duct

PCAs

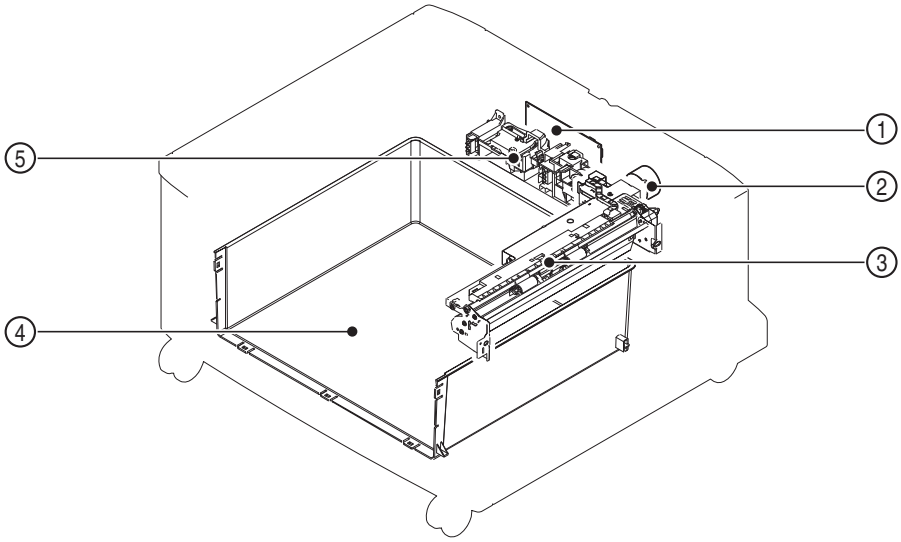
Figure 7-56 PCAs



1	Cartridge I/F PCA (cyan/black)
2	Cartridge driver PCA
3	Cartridge I/F PCA (yellow/magenta)
4	High-voltage power-supply PCA A
5	High-voltage power-supply PCA B
6	DC controller PCA

1 x 500 input tray

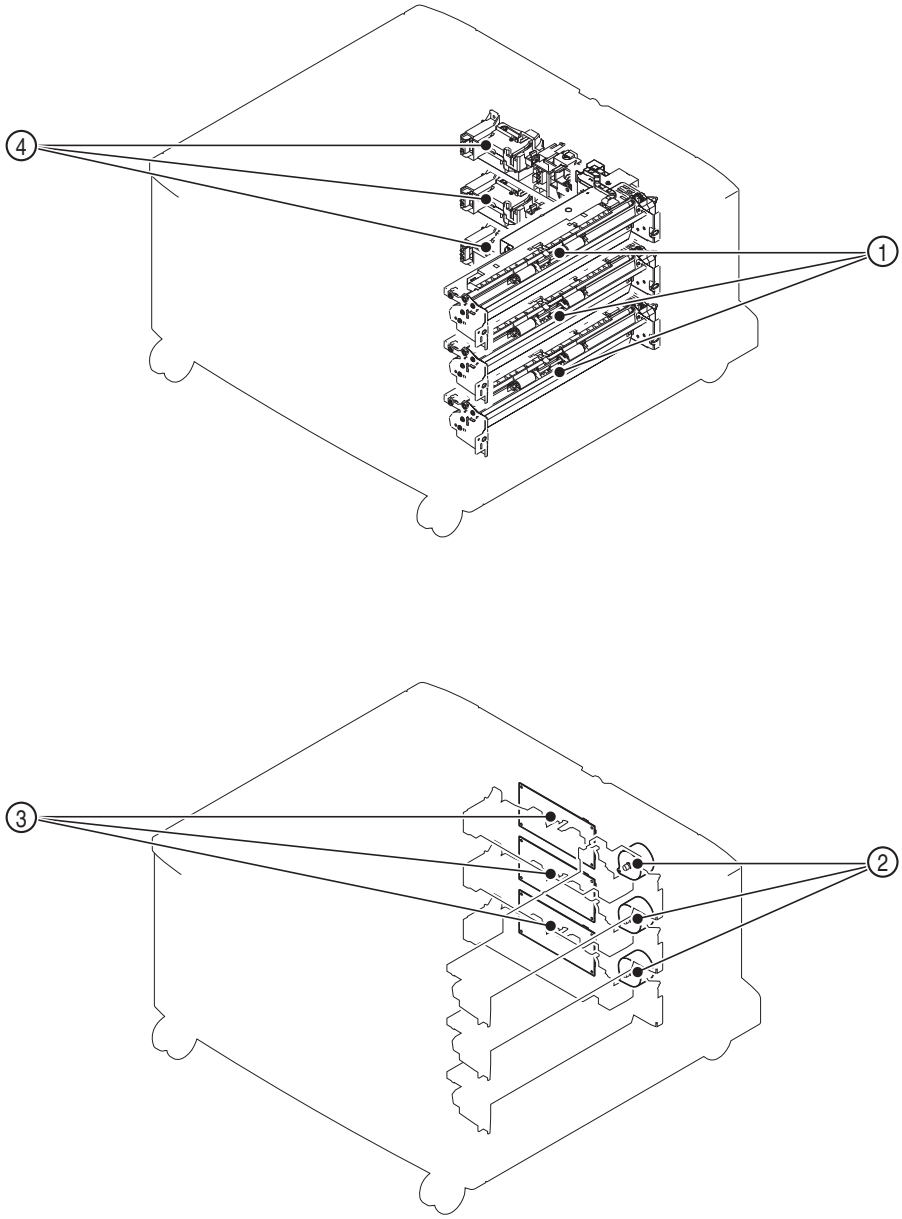
Figure 7-57 1 x 500 input tray



1	Input-tray driver PCA
2	Pickup motor
3	Pickup unit
4	Box
5	Auto-close unit

3 x 500 input tray

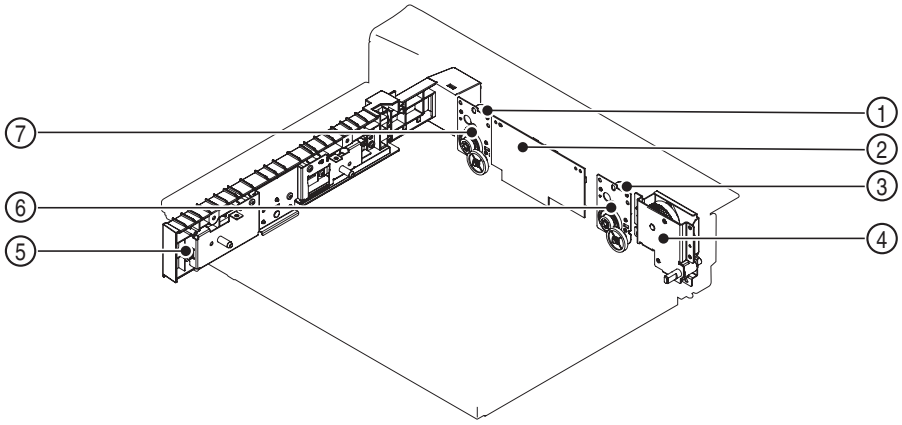
Figure 7-58 3 x 500 input tray



1	Pickup unit (upper/middle/lower cassette)
2	Pickup motor (upper/middle/lower cassette)
3	Input-tray driver PCA (upper/middle/lower cassette)
4	Auto-close unit (upper/middle/lower cassette)

Intermediate paper-transfer unit (IPTU)

Figure 7-59 IPTU



1	IPTU media-feed motor 2
2	IPTU driver PCA
3	IPTU media-feed motor 1
4	Damper unit
5	Finisher fuser unit
6	Right-belt drive unit
7	Left-belt drive unit

Scanner

Components (scanner)

For scanner diagrams, see Scanner component on page 202.

Figure 7-60 Components (scanner)

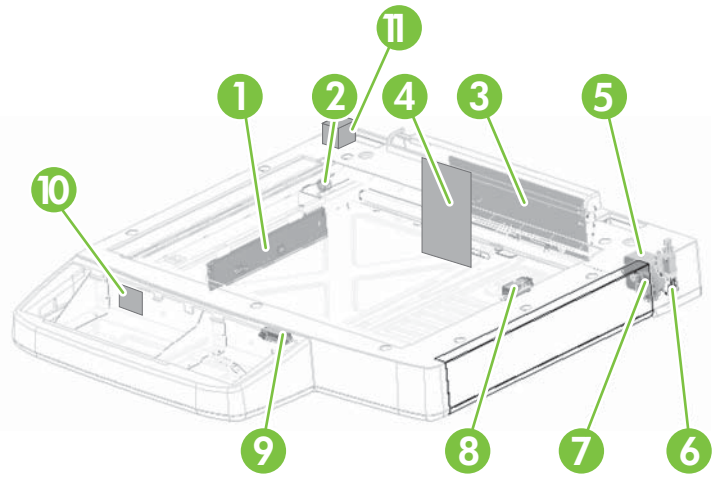


Table 7-31 Components (scanner)

1	CCD PCA

Table 7-31 Components (scanner) (continued)

2	Idle pulley
3	Copy-processor board (CPB)
4	Scanner-controller board (SCB)
5	Motor, stepper
6	ADF-open/close sensor
7	Idle gear
8	Paper sensor 2
9	Paper sensor 1
10	Control panel fan
11	Scanner fan

ADF

Sensors (ADF)

Figure 7-61 Sensors (ADF)

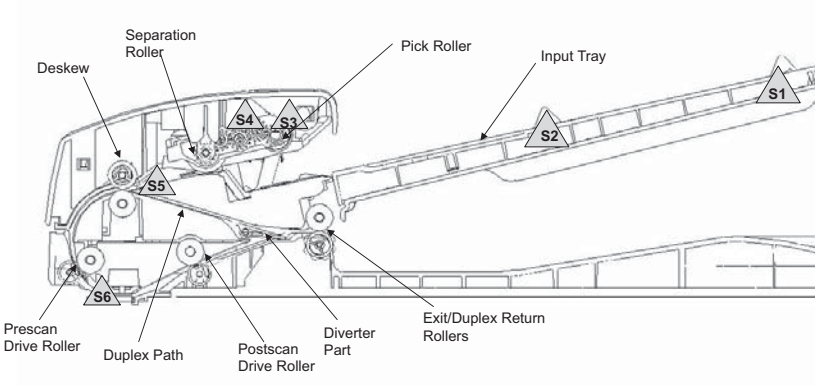
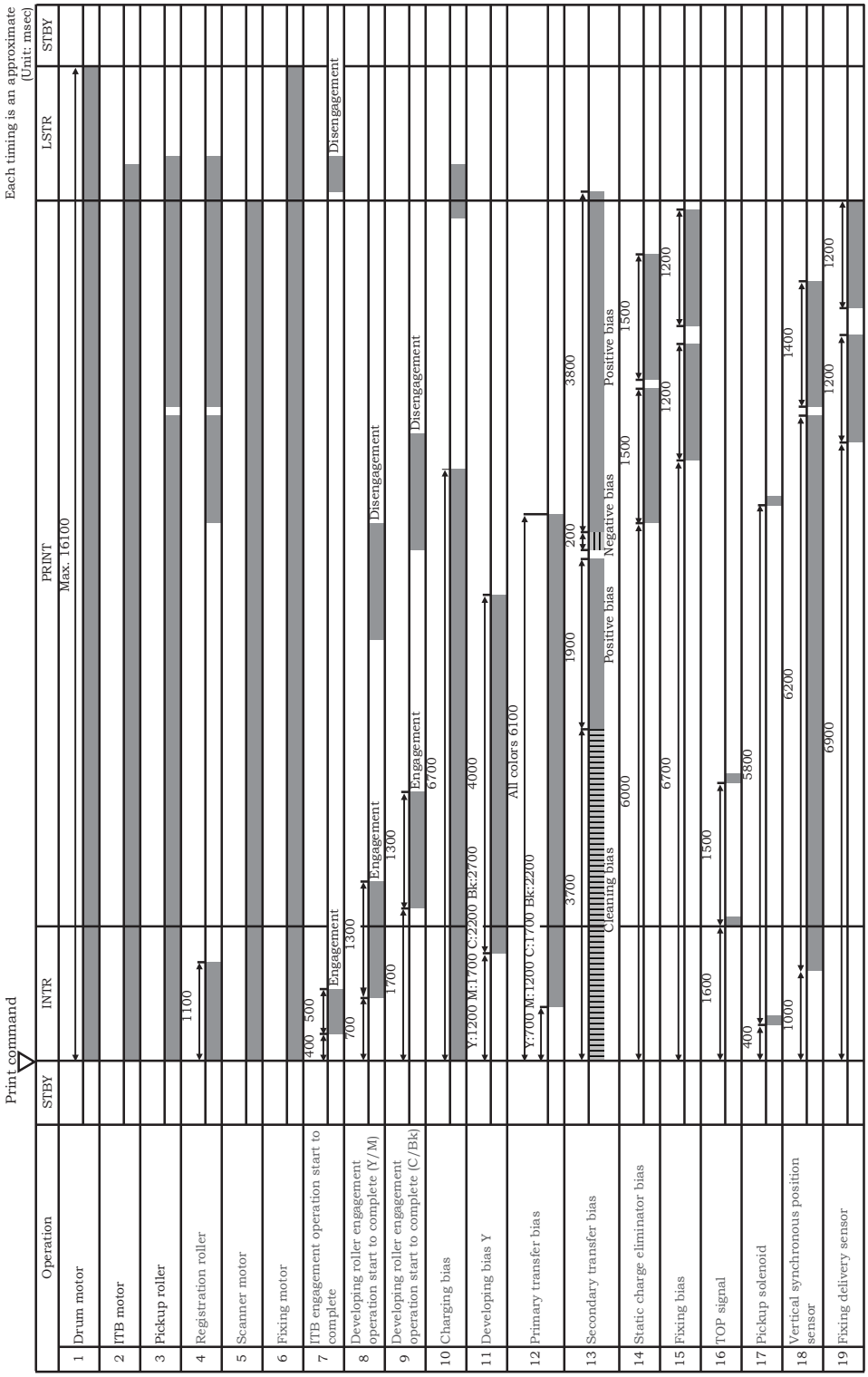


Table 7-32 Sensors (ADF)

S1	Length sensor
S2	Width sensor
S3	Cover-closed sensor
S4	Media loaded
S5	De-skew sensor
S6	Prescan sensor

General timing chart

Figure 7-62 General timing chart



General circuit diagrams

Figure 7-63 General circuit diagram (1 of 4)

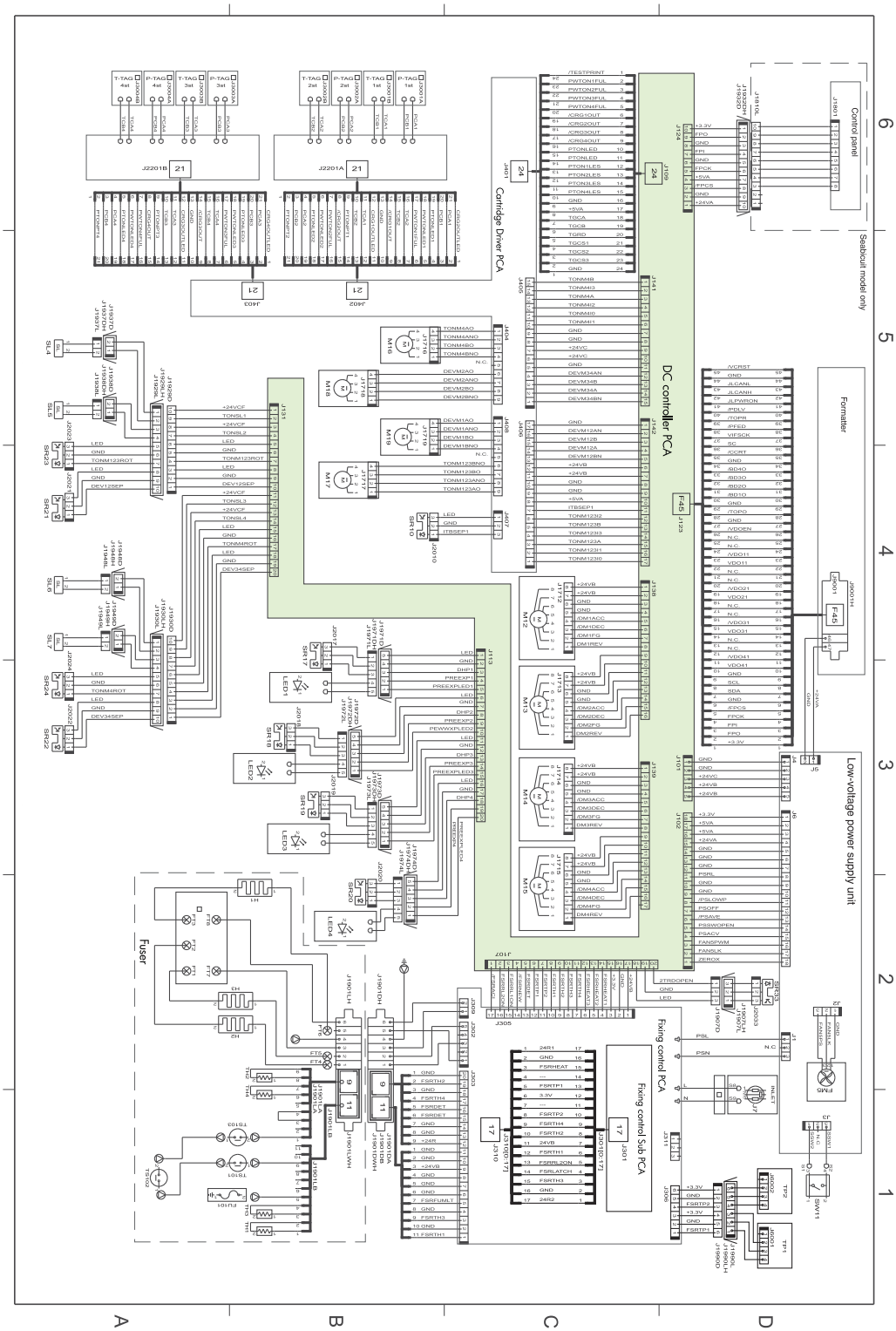


Figure 7-64 General circuit diagram (2 of 4)

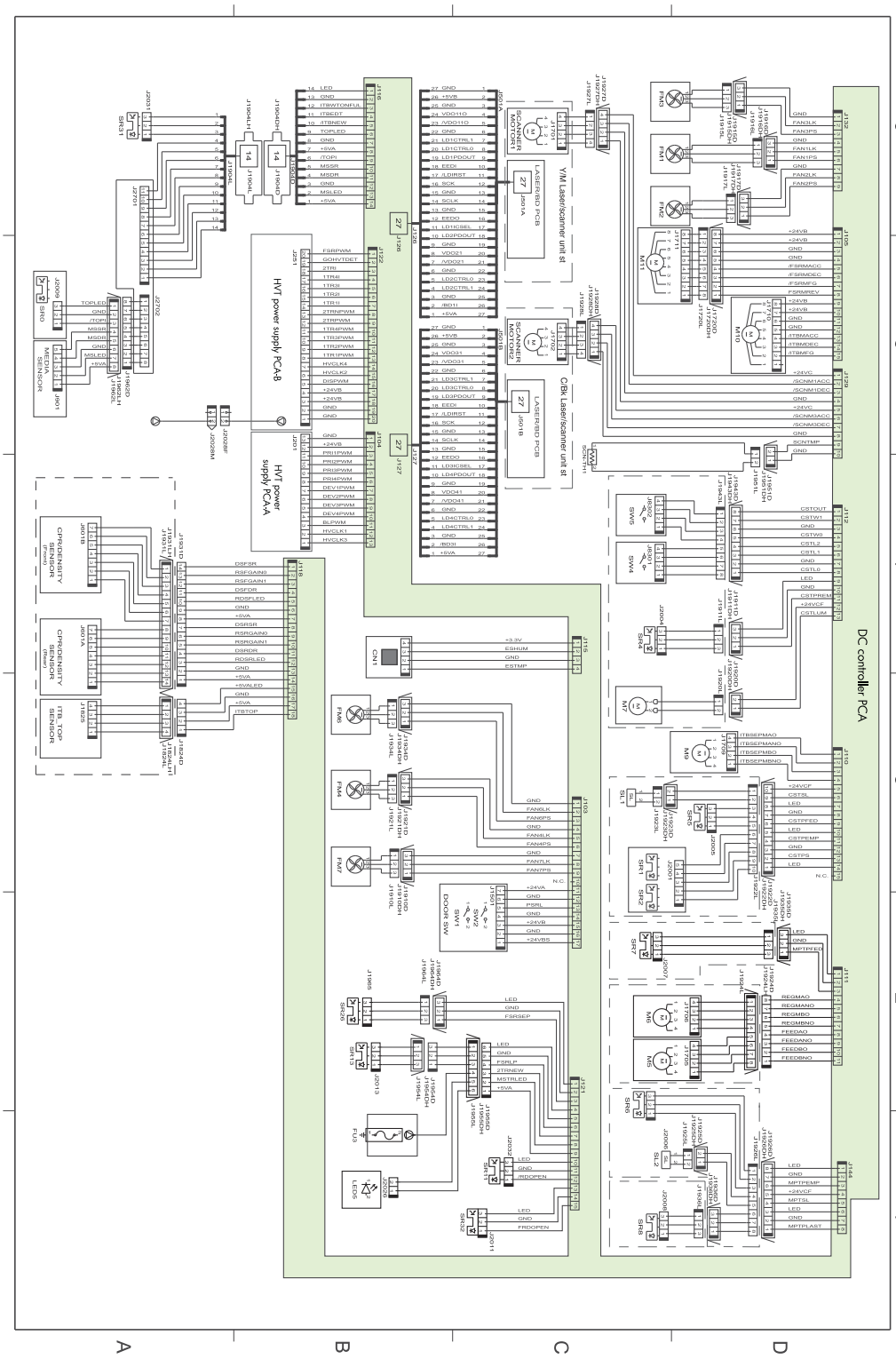


Figure 7-65 General circuit diagram (3 of 4)

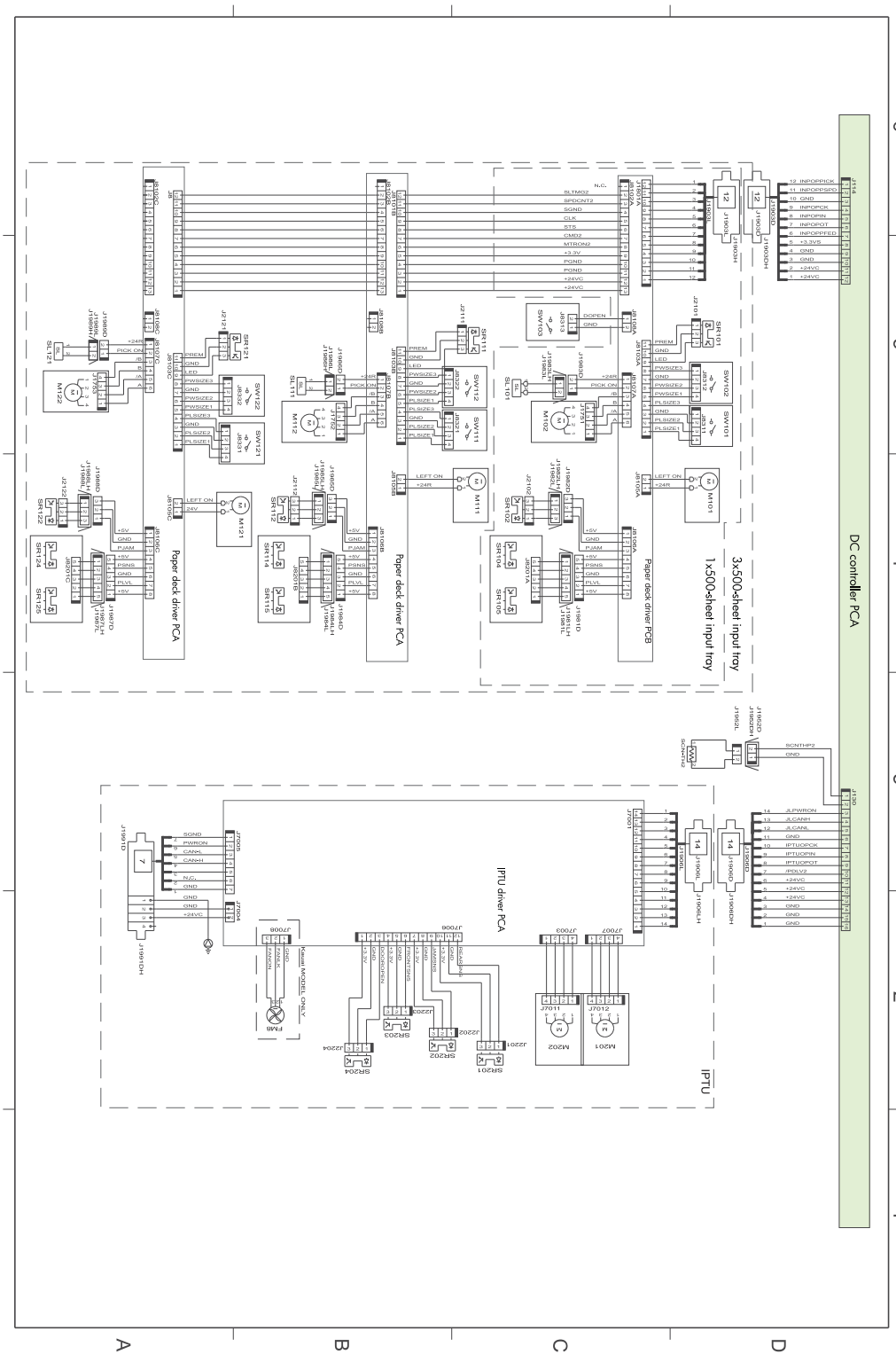
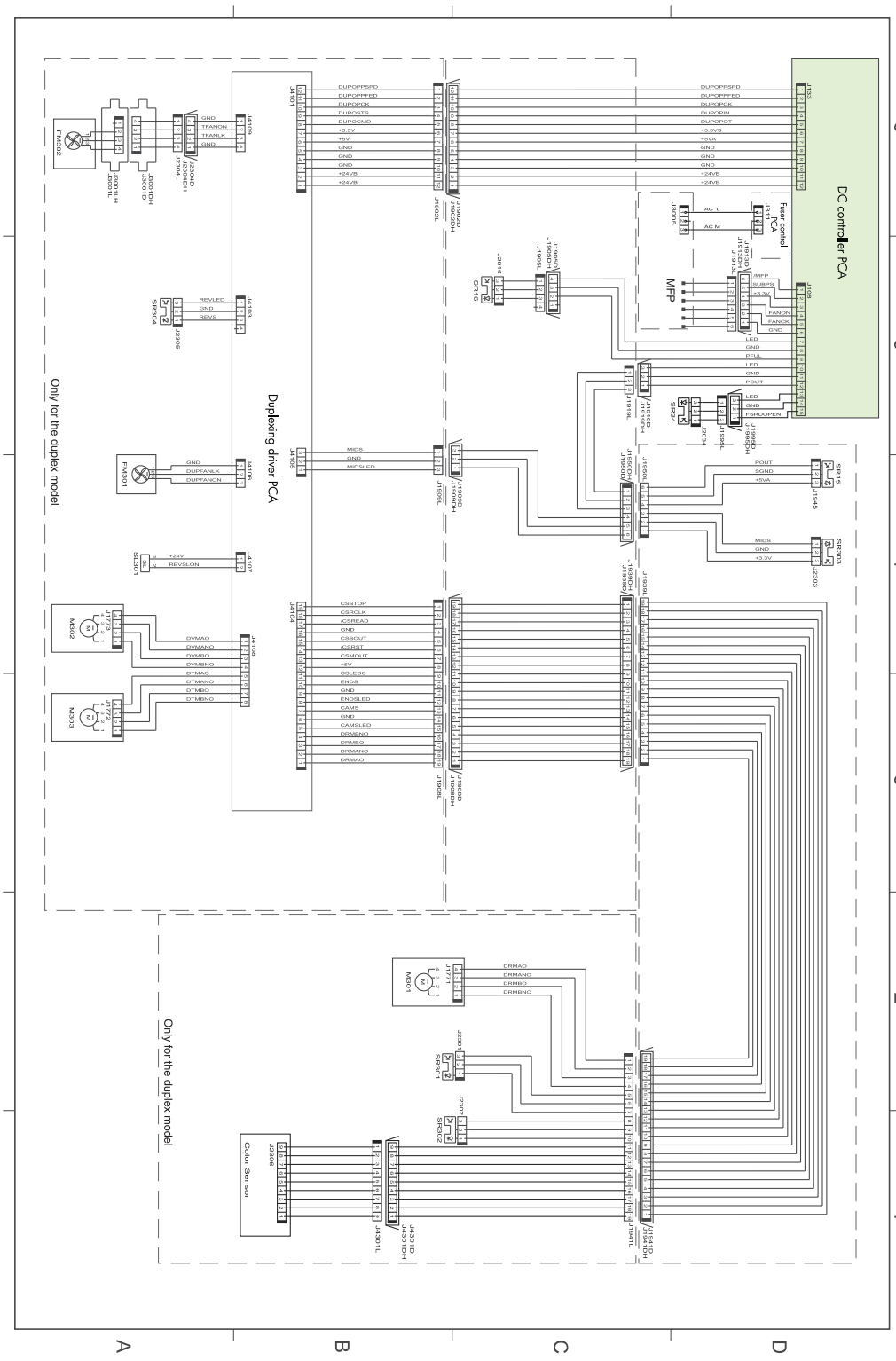


Figure 7-66 General circuit diagram (4 of 4)



Signals

Table 7-33 Input/output signals to and from DC Controller PCA

Connector	Pin	Abbreviation	I/O	Logic	Signal name
J101	1	GND			
	2	GND			
	3	+24VC			
	4	+24VB			
	5	+24VB			
J102	1	ZEROX	I	Pulse	ZERO CROSS signal
	2	FAN5LK	I	H	LVPS UNIT COOLING FAN LOCK signal
	3	FAN5PWM	O	H	LVPS UNIT COOLING FAN DRIVE signal
	4	PSACV	I	Analog	INPUT VOLTAGE DETECTION signal
	5	PSSWOPEN	I	H	POWER SWITCH MONITOR signal
	6	/PSAVE	O	Pulse	POWER SAVE MODE signal
	7	PSOFF	O	H	POWER OFF CONTROL signal
	8	/PSLOWP	O	L	POWER SAVE MODE SWITCH signal
	9	GND			
	10	GND			
	11	PSRL	O	H	DOOR OPEN DETECTION signal
	12	GND			
	13	GND			
	14	GND			
	15	+24VA			
	16	+5VA			
	17	+5VA			
	18	+3.3V			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J103	1	GND			
	2	FAN6LK	I	H	CRG FRONT AREA COOLING FAN LOCK signal
	3	FAN6PS	O	H	CRG FRONT AREA COOLING FAN DRIVE signal
	4	GND			
	5	FAN4LK	I	H	VOC FAN LOCK signal
	6	FAN4PS	O	H	VOC FAN DRIVE signal
	7	GND			
	8	FAN7LK	I	H	DELIVERY UNIT COOLING FAN LOCK signal
	9	FAN7PS	O	H	DELIVERY UNIT COOLING FAN DRIVE signal
	10	N.C.			
	11	+24VA			
	12	GND			
	13	PSRL			DOOR OPEN DETECTION signal
	14	GND			
	15	+24VB			
	16	GND			
	17	24VBS			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J104	1	GND			
	2	+24VB			
	3	PRI1PWM	O	Pulse	CHARGING BIAS CONTROL signal (Y)
	4	PRI2PWM	O	Pulse	CHARGING BIAS CONTROL signal (M)
	5	PRI3PWM	O	Pulse	CHARGING BIAS CONTROL signal (C)
	6	PRI4PWM	O	Pulse	CHARGING BIAS CONTROL signal (Bk)
	7	DEV1PWM	O	Pulse	DEVELOPING BIAS CONTROL signal (Y)
	8	DEV2PWM	O	Pulse	DEVELOPING BIAS CONTROL signal (M)
	9	DEV3PWM	O	Pulse	DEVELOPING BIAS CONTROL signal (C)
	10	DEV4PWM	O	Pulse	DEVELOPING BIAS CONTROL signal (Bk)
	11	BLPWM	O	Pulse	BLADE BIAS CONTROL signal
	12	HVCLK1	O	Pulse	HIGH-VOLTAGE TRANSFORMER CONTROL signal
	13	HVCLK3	O	Pulse	HIGH-VOLTAGE TRANSFORMER CONTROL signal

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J105	1	+24VB			
	2	+24VB			
	3	GND			
	4	GND			
	5	/FSRMACC	O	L	FIXING MOTOR ACCELERATION signal
	6	/FSRMDEC	O	L	FIXING MOTOR DECELERATION signal
	7	/FSRMFG	I	L	FIXING MOTOR SPEED DETECTION signal
	8	FSRMREV	O	H	FIXING MOTOR REVERSE signal
	9	+24VB			
	10	+24VB			
	11	GND			
	12	GND			
	13	/ITBMACC	O	L	ITB MOTOR ACCELERATION signal
	14	/ITBMDEC	O	L	ITB MOTOR DECELERATION signal
	15	/ITBMFG	I	L	ITB MOTOR SPEED DETECTION signal

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J107	1	/FSRACI	I	L	FIXING DRIVE CURRENT DETECTION signal
	2	FSRRL2ON	O	H	FIXING RELAY 2 DRIVE signal
	3	FSRRL1ON	O	H	FIXING RELAY 1 DRIVE signal
	4	/FSRNEW	I	L	NEW FIXING UNIT signal
	5	FSRDET	I	Analog	FIXING UNIT IDENTIFICATION signal
	6	FSRTP1	I	Analog	FIXING MAIN THERMOPILE TEMPERATURE signal
	7	FSRTP2	I	Analog	FIXING SUB THERMOPILE TEMPERATURE signal
	8	FSRTH1	I	Analog	FIXING ROLLER END THERMISTOR TEMPERATURE signal
	9	FSRTH2	I	Analog	PRESSURE ROLLER END THERMISTOR TEMPERATURE signal
	10	FSRTH3	I	Analog	FIXING ROLLER END THERMISTOR TEMPERATURE signal
	11	FSRTH4	I	Analog	PRESSURE ROLLER END THERMISTOR TEMPERATURE signal
	12	FSRHEAT3	O	H	PRESSURE ROLLER HEATER DRIVE signal
	13	FSRHEAT2	O	H	FIXING ROLLER SUB HEATER DRIVE signal
	14	FSRHEAT1	O	H	FIXING ROLLER MAIN HEATER DRIVE signal
	15	+3.3V			
	16	GND			
	17	+24VB			
	18	LED (+5VA)			
	19	GND			
	20	2TRDOPEN	I	H	SECONDARY TRANSFER UNIT COVER OPEN DETECTION signal

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J108	1	/MFP	I	L	MFP CONTROL sign
	2	SUBPS	O	H	MFP CONTROL signal
	3	+3.3V			
	4	FANON	O	L	IPTU FAN DRIVE signal
	5	FANLK	I	H	IPTU FAN LOCK signal
	6	GND			
	7	LED (+5VA)			
	8	GND			
	9	PFUL	I	H	FACE-DOWN TRAY MEDIA FULL signal
	10	LED (+5VA)			
	11	GND			
	12	POUT	I	H	FIXING DELIVERY media-feed signal
	13	LED (+5VA)			
	14	GND			
	15	FSRDOPEN	I	H	FIXING UNIT COVER OPEN DETECTION signal

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J109	1	/TESTPRINT	I	L	TEST PRINT signal
	2	PWTON1FUL	I	H	P-CRG WASTE TONER FULL signal (Y)
	3	PWTON2FUL	I	H	P-CRG WASTE TONER FULL signal (M)
	4	PWTON3FUL	I	H	P-CRG WASTE TONER FULL signal (C)
	5	PWTON4FUL	I	H	P-CRG WASTE TONER FULL signal (Bk)
	6	/CRG1OUT	I	L	T-CRG PRESENCE signal (Y)
	7	/CRG2OUT	I	L	T-CRG PRESENCE signal (M)
	8	/CRG3OUT	I	L	T-CRG PRESENCE signal (C)
	9	/CRG4OUT	I	L	T-CRG PRESENCE signal (Bk)
	10	PTONLED	O	H	P-CRG TONER LEVEL DETECTION LED DRIVE signal
	11	PTONLED	O	H	P-CRG TONER LEVEL DETECTION LED DRIVE signal
	12	PTON1LE	I	H	P-CRG TONER LEVEL signal (Y)
	13	PTON2LES	I	H	P-CRG TONER LEVEL signal (M)
	14	PTON3LES	I	H	P-CRG TONER LEVEL signal (C)
	15	PTON4LES	I	H	P-CRG TONER LEVEL signal (Bk)
	16	GND			
	17	+5VA			
	18	TGCA	O	CLOCK	MEMORY TAG COMMUNICATION CLOCK signal
	19	TGCB	O	CLOCK	MEMORY TAG COMMUNICATION CLOCK signal
	20	TGRD	I	H	MEMORY TAG DATA signal
	21	TGCS1	O	H	MEMORY TAG COMMUNICATION SELECT signal
	22	TGCS2	O	H	
	23	TGCS3	O	H	
	24	GND			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J110	1	ITBSEPMAO	O	H	PRIMARY TRANSFER ROLLER DISENGAGEMENT MOTOR CONTROL signal
	2	ITBSEPMANO	O	H	PRIMARY TRANSFER ROLLER DISENGAGEMENT MOTOR CONTROL signal
	3	ITBSEPMBO	O	H	PRIMARY TRANSFER ROLLER DISENGAGEMENT MOTOR CONTROL signal
	4	ITBSEPMBNO	O	H	PRIMARY TRANSFER ROLLER DISENGAGEMENT MOTOR CONTROL signal
	5	+24VCF			
	6	CSTSL	O	H	CST PICKUP SOLENOID CONTROL signal
	7	LED (+5VA)			
	8	GND			
	9	CSTPFED	I	H	CST media-feed signal
	10	LED (+5VA)			
	11	CSTPEMP	I	H	CST MEDIA PRESENCE signal
	12	GND			
	13	CSTPS	I	H	CST MEDIA STACK SURFACE signal
	14	LED (+5VA)			
	15	N.C.			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J111	1	LRD(+5VA)			
	2	GND			
	3	MPTPFED	I	H	MPT media-feed signal
	4	REGMAO	O	H	REGISTRATION MOTOR CONTROL signal
	5	REGMANO	O	H	REGISTRATION MOTOR CONTROL signal
	6	REGMBO	O	H	REGISTRATION MOTOR CONTROL signal
	7	REGMBNO	O	H	REGISTRATION MOTOR CONTROL signal
	8	FEEDAO	O	H	PICKUP MOTOR CONTROL signal
	9	FEEDANO	O	H	PICKUP MOTOR CONTROL signal
	10	FEEDBO	O	H	PICKUP MOTOR CONTROL signal
	11	FEEDBNO	O	H	PICKUP MOTOR CONTROL signal
J112	1	CSTOUT	I	H	CST SIDE PLATE POSITION signal 2
	2	CSTW1	I	H	CST SIDE PLATE POSITION signal 1
	3	GND			
	4	CSTW0	I	H	CST SIDE PLATE POSITION signal 0
	5	CSTL2	I	H	CST END PLATE POSITION signal 2
	6	CSTL1	I	H	CST END PLATE POSITION signal 1
	7	GND			
	8	CSTL0	I	H	CST END PLATE POSITION signal 0
	9	LED (+5VA)			
	10	GND			
	11	CSTPREM	I	H	CST MEDIA LEVEL signal
	12	+24VCF			
	13	CSTLUM	O	H	CST LIFT UP MOTOR DRIVE signal

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J113	1	LED (+5VA)			
	2	GND			
	3	DHP1	I	H	DRUM HOMEPOSITION signal (Y)
	4	PREEXP1	O	H	PRE-EXPOSURE LED DRIVE signal (Y)
	5	PREEXPLED1 (+5VA)			
	6	LED (+5VA)			
	7	GND			
	8	DHP2	I	H	DRUM HOMEPOSITION signal (M)
	9	PREEXP2	O	H	PRE-EXPOSURE LED DRIVE signal (M)
	10	PREEXPLED2 (+5VA)			
	11	LED (+5VA)			
	12	GND			
	13	DHP3	I	H	DRUM HOMEPOSITION signal (C)
	14	PREEXP3	O	H	PRE-EXPOSURE LED DRIVE signal (C)
	15	PREEXPLED3 (+5VA)			
	16	LED (+5VA)			
	17	GND			
	18	DHP4	I	H	DRUM HOMEPOSITION signal (Bk)
	19	PREEXP4	O	H	PRE-EXPOSURE LED DRIVE signal (Bk)
	20	PREEXPLED4 (+5VA)			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J114	1	INPOPPICK	O	H	OPTIONAL PICKUP UNIT PICKUP signal
	2	INPOPPSPD	O	H	OPTIONAL PICKUP UNIT PICKUP SPEED signal
	3	GND			
	4	INPOPCK	O	Clock	OPTIONAL PICKUP UNIT COMMUNICATION signal
	5	INPOPIN	I	H	OPTIONAL PICKUP UNIT COMMUNICATION signal
	6	INPOPOT	O	H	OPTIONAL PICKUP UNIT COMMUNICATION signal
	7	INPOPPFED	O	H	OPTIONAL PICKUP UNIT RE-PICKUP signal
	8	+3.3VS			
	9	GND			
	10	GND			
	11	+24VC			
	12	+24VC			
J115	1	+3.3V			
	2	ESHUM	I	Pulse	ENVIRONMENT signal (Humidity)
	3	GND			
	4	ESTMP	I	Analog	ENVIRONMENT signal (Temperature)

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J116	1	LED (+5VA)			
	2	GND			
	3	ITBWTONFUL	I	H	ITB WASTE TONER FULL signal
	4	ITBDET	I	Analog	ITB UNIT PRESENCE signal
	5	/ITBNEW	I	L	NEW ITB UNIT signal
	6	TOPLED (+5VA)			
	7	GND			
	8	+5VA			
	9	/TOPI	I	L	VERTICAL SYNCHRONOUS POSITION signal
	10	MSSR	I	Analog	MEDIA SENSOR REFLECTION signal
	11	MSDR	I	Analog	MEDIA SENSOR REFLECTION signal
	12	GND			
	13	MSLED	O	H	MEDIA SENSOR LED DRIVE signal (Reflection type)
	14	+5VA			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J118	1	DSFSR	I	Analog	COLOR MISREGISTRATION/ IMAGE DENSITY signal
	2	RSFGAIN0	O	H	COLOR MISREGISTRATION/ IMAGE DENSITY LIGHT RECEIVE SENSITIVITY SWITCH signal
	3	RSFGAIN1	O	H	COLOR MISREGISTRATION/ IMAGE DENSITY LIGHT RECEIVE SENSITIVITY SWITCH signal
	4	DSFDR	I	Analog	COLOR MISREGISTRATION/ IMAGE DENSITY signal
	5	RDSFLED	O	H	COLOR MISREGISTRATION/ IMAGE DENSITY LED DRIVE sig
	6	GND			
	7	+5VA			
	8	DSRSR	I	Analog	COLOR MISREGISTRATION/ IMAGE DENSITY signal
	9	RSRGAIN0	O	H	COLOR MISREGISTRATION/ IMAGE DENSITY LIGHT RECEIVE SENSITIVITY SWITCH signal
	10	RSRGAIN1	O	H	COLOR MISREGISTRATION/ IMAGE DENSITY LIGHT RECEIVE SENSITIVITY SWITCH signal
	11	DSRDR	I	Analog	COLOR MISREGISTRATION/ IMAGE DENSITY signal
	12	RDSRLED	O	H	COLOR MISREGISTRATION/ IMAGE DENSITY LED DRIVE signal
	13	GND			
	14	+5VA			
	15	+5VALED	O	H	ITB SENSOR MARK LED DRIVE signal
	16	GND			
	17	+5VA			
	18	ITBTOP	I	H	ITB SENSOR MARK signal

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J121	1	LED (+5VA)			
	2	GND			
	3	FSRSEP	I	H	FIXING UNIT HOMEPOSITION signal
	4	LED (+5VA)			
	5	GND			
	6	FSRLP	I	H	LOOP DETECTION signal
	7	/2TRNEW	I	L	NEW SECONDARY TRANSFER UNIT signal
	8	MSTRLED	O	H	MEDIA SENSOR LED DRIVE signal
	9	+5VA			
	10	LED (+3.3V)			
	11	GND			
	12	/RDOPEN	I	L	RIGHT DOOR OPEN DETECTION signal
	13	LED (+3.3V)			
	14	GND			
	15	FRDOPEN	I	H	FRONT DOOR OPEN DETECTION signal

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J122	1	FSRPWM	O	Pulse	FIXING BIAS CONTROL signal
	2	GOHVTDET	I	H	HIGH-VOLTAGE PCB IDENTIFICATION signal (Not in use)
	3	2TRI	I	Analog	SECONDARY TRANSFER CURRENT signal
	4	1TR4I	I	Analog	PRIMARY TRANSFER CURRENT signal (Bk)
	5	1TR3I	I	Analog	PRIMARY TRANSFER CURRENT signal (C)
	6	1TR2I	I	Analog	PRIMARY TRANSFER CURRENT signal (M)
	7	1TR1I	I	Analog	PRIMARY TRANSFER CURRENT signal (Y)
	8	2TRNPWM	O	Pulse	SECONDARY TRANSFER REVERSE VOLTAGE CONTROL signal
	9	2TRPWM		Pulse	SECONDARY TRANSFER VOLTAGE CONTROL signal
	10	1TR4PWM	O	Pulse	PRIMARY TRANSFER VOLTAGE CONTROL signal (Bk)
	11	1TR3PWM	O	Pulse	PRIMARY TRANSFER VOLTAGE CONTROL signal (C)
	12	1TR2PWM	O	Pulse	PRIMARY TRANSFER VOLTAGE CONTROL signal (M)
	13	1TR1PWM	O	Pulse	PRIMARY TRANSFER VOLTAGE CONTROL signal (Y)
	14	HVCLK4	O	Pulse	HIGH-VOLTAGE TRANSFORMER CONTROL signal
	15	HVCLK2	O	Pulse	HIGH-VOLTAGE TRANSFORMER CONTROL signal
	16	DISPWM	O	Pulse	STATIC CHARGE ELIMINATOR BIAS DRIVE signal
	17	+24VB			
	18	+24VB			
	19	GND			
	20	GND			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J123	1	+3.3V			
	2	FPO	O	H	OPERATION PANEL SERIAL DATA OUTPUT signal
	3	FPI	I	H	OPERATION PANEL SERIAL DATA INPUT signal
	4	FPCK	I	Pulse	OPERATION PANEL SERIAL CLOCK signal
	5	/FPCS	I	L	OPERATION PANEL CONTROLLER CHIP SELECT signal
	6	GND			
	7	SDA	I/O	Pulse	FORMATTER EEPROM COMMUNICATION DATA signal
	8	SCL	I/O	Pulse	FORMATTER EEPROM COMMUNICATION CLOCK signal
	9	GND			
	10	VDO41			
	11	/VDO41			
	12	N.C.			
	13	N.C.			
	14	VDO31	I	Pulse	VIDEO signal (C)
	15	/VDO31	I	Pulse	VIDEO signal (C)
	16	N.C.			
	17	N.C.			
	18	VDO21	I	Pulse	VIDEO signal (M)
	19	/VDO21	I	Pulse	VIDEO signal (M)
	20	N.C.			
	21	N.C.			
	22	VDO11	I	Pulse	VIDEO signal (Bk)
	23	/VDO11	I	Pulse	VIDEO signal (Bk)
	24	N.C.			
	25	N.C.			
	26	/VDOEN	O	L	VIDEO ENABLE signal
	27	GND			
	28	/TOPO	O	L	TOP OF PAGE signal
	29	GND			
	30	/BD1O	O	Pulse	BD signal (Y)
	31	/BD2O	O	Pulse	BD signal (M)

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J123 (continued)	32	/BD3O	O	Pulse	BD signal (C)
	33	/BD4O	O	Pulse	BD signal (Bk)
	34	GND			
	35	/CCRT	O	L	STATUS CHANGE NOTICE signal
	36	SC	I/O	H	STATUS COMMAND signal
	37	VIFSCK	I/O	L	SERIAL CLOCK signal
	38	/PFED	I	L	media-feed signal
	39	/TOPR	O	L	MEDIA RE-PICKUP signal
	40	/PDLV	O	L	MEDIA DELIVERY signal
	41	JLPWRON	O	H	OPTIONAL DELIVERY UNIT COMMUNICATION signal
	42	JLCANH	O	H	OPTIONAL DELIVERY UNIT COMMUNICATION signal
	43	JLCANL	I/O	L	OPTIONAL DELIVERY UNIT COMMUNICATION signal
	44	GND	O		
	45	/VCRST	I/O	L	FORMATTER RESET signal
J124	1	+24VA			
	2	GND			
	3	/FPCS	I	L	OPERATION PANEL CONTROLLER CHIP SELECT signal
	4	+5VA			
	5	FPCK	I	Pulse	OPERATION PANEL SERIAL CLOCK signal
	6	GND			
	7	FPI	I	H	OPERATION PANEL SERIAL DATA INPUT signal
	8	GND			
	9	FPO	O	H	OPERATION PANEL SERIAL DATA OUTPUT signal
	10	+3.3V			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J126	1	+5VA			
	2	BD1I	I	Pulse	BD signal (Y)
	3	GND			
	4	LD2CTRL1	O	H	LASER CONTROL signal (M)
	5	LD2CTRL0	O	H	LASER CONTROL signal (M)
	6	GND			
	7	/VDO21	O	L	VIDEO signal (M)
	8	VDO21	O	H	VIDEO signal (M)
	9	GND			
	10	LD2PDOUT	I	Analog	LASER CURRENT OUTPUT signal (M)
	11	LD1ICSEL	O	H	LASER CONTROL SWITCH signal
	12	EEDO	O	H	EEPROM WRITING DATA signal
	13	GND			
	14	SCLK	O	H	LASER IC CLOCK signal
	15	GND			
	16	SCK	O	H	EEPROM COMMUNICATION CLOCK signal
	17	/LDIRST	O	L	LASER IC RESET signal
	18	EEDI	I	H	EEPROM READING DATA signal
	19	LD1PDOUT	I	Analog	LASER CURRENT OUTPUT signal (Y)
	20	LD1CTRL0	O	H	LASER CONTROL signal (Y)
	21	LD1CTRL1	O	H	LASER CONTROL signal (Y)
	22	GND			
	23	/VDO11O	O	L	VIDEO signal (Y)
	24	VDO11O	O	H	VIDEO signal (Y)
	25	GND			
	26	+5VB			
	27	GND			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J127	1	+5VA			
	2	/BD3I	I	Pulse	BD signal (C)
	3	GND			
	4	LD4CTRL1	O	H	LASER CONTROL signal (Bk)
	5	LD4CTRL0	O	H	LASER CONTROL signal (Bk)
	6	GND			
	7	/VDO41	O	L	VIDEO signal (Bk)
	8	VDO41	O	H	VIDEO signal (Bk)
	9	GND			
	10	LD4PDOUT	I	Analog	LASER CURRENT OUTPUT signal (Bk)
	11	LD3ICSEL	O	H	LASER CONTROL SWITCH signal
	12	EEDO	O	H	EEPROM WRITING DATA signal
	13	GND			
	14	SCLK	O	L	LASER IC CLOCK signal
	15	GND			
	16	SCK	O	L	EEPROM COMMUNICATION CLOCK signal
	17	/LDIRST	O	L	LASER IC RESET signal
	18	EEDI	I	H	EEPROM READING DATA signal
	19	LD3PDOUT	I	Analog	LASER CURRENT OUTPUT signal (C)
	20	LD3CTRL0	O	H	LASER CONTROL signal (C)
	21	LD3CTRL1	O	H	LASER CONTROL signal (C)
	22	GND			
	23	/VDO31	O	L	VIDEO signal (C)
	24	VDO31	O	H	VIDEO signal (C)
	25	GND			
	26	+5VB			
	27	GND			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J129	1	+24VC			
	2	/SCNM1ACC	O	L	SCANNER MOTOR ACCELERATION signal
	3	/SCNM1DEC	O	L	SCANNER MOTOR DECELERATION signal
	4	GND			
	5	+24VC			
	6	/SCNM3ACC	O	L	SCANNER MOTOR ACCELERATION signal
	7	/SCNM3DEC	O	L	SCANNER MOTOR DECELERATION signal
	8	GND			
	9	SCNTMP1	I	Analog	LASER/SCANNER AREA TEMPERATURE signal 1
	10	GND			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J130	1	SCNTHP2	I	Analog	LASER/SCANNER AREA TEMPERATURE signal 2
	2	GND			
	3	JLPWRON	O	H	OPTIONAL DELIVERY UNIT POWER ON signal
	4	JLCANH	I/O	H	OPTIONAL DELIVERY UNIT COMMUNICATION signal
	5	JLCANL	I/O	L	OPTIONAL DELIVERY UNIT COMMUNICATION signal
	6	GND			
	7	IPTUOPCK	O	H	OPTIONAL IPTU CLOCK signal
	8	IPTUOPIN	I	L	OPTIONAL IPTU STATUS signal
	9	IPTUOPOT	O	H	OPTIONAL IPTU COMMAND signal
	10		O	H	OPTIONAL IPTU media-feed signal
	11				
	12				
	13				
	14				
	15				
	16				

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J131	1	+24VCF			
	2	TONSL1	O	H	TONER FEED SOLENOID CONTROL signal (Y)
	3	+24VCF			
	4	TONSL2	O	H	TONER FEED SOLENOID CONTROL signal (M)
	5	LED (+5VA)			
	6	GND			
	7	TONM123ROT	I	Pulse	TONER FEED SCREW ROTATION NUMBER signal (Y, M, C)
	8	LED (+5VA)			
	9	GND			
	10	DEV12SEP	I	H	DEVELOPING HOMEPOSITION signal (Y, M)
	11	+24VCF			
	12	TONSL3	O	H	TONER FEED SOLENOID CONTROL signal (C)
	13	+24VCF			
	14	TONSL4	O	H	TONER FEED SOLENOID CONTROL signal (Bk)
	15	LED (+5VA)			
	16	GND			
	17	TONM4ROT	I	Pulse	TONER FEED SCREW ROTATION NUMBER signal (Bk)
	18	LED (+5VA)			
	19	GND			
	20	DEV34SEP	I	H	DEVELOPING HOMEPOSITION signal (C, Bk)

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J132	1	GND			
	2	FAN3LK	I	H	CRG AREA COOLING FAN LOCK signal
	3	FAN3PS	O	H	CRG AREA COOLING FAN DRIVE signal
	4	GND			
	5	FAN1LK	I	H	LASER/SCANNER UNIT COOLING FAN LOCK signal
	6	FAN1PS	O	H	LASER/SCANNER UNIT COOLING FAN DRIVE signal
	7	GND			
	8	FAN2LK	I	H	FIXING UNIT COOLING FAN LOCK signal
	9	FAN2PS	O	H	FIXING UNIT COOLING FAN DRIVE signal
J133	1	DUPOPPSPD	O	H	DUPLEXING UNIT PICKUP SPEED signal
	2	DUPOPPFED	O	H	DUPLEXING UNIT RE-PICKUP signal
	3	DUPOPCK	O	H	DUPLEXING UNIT CLOCK signal
	4	DUPOPIN	I	H	DUPLEXING UNIT STATUS signal
	5	DUPOPOT	O	H	DUPLEXING UNIT COMMAND signal
	6	+3.3VS			
	7	+5VA			
	8	GND			
	9	GND			
	10	GND			
	11	+24VB			
	12	+24VB			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J138	1	+24VB			
	2	+24VB			
	3	GND			
	4	GND			
	5	/DM1ACC	O	H	DRUM MOTOR ACCELERATION signal (Y)
	6	/DM1DEC	O	H	DRUM MOTOR DECELERATION signal (Y)
	7	/DM1FG	I	Pulse	DRUM MOTOR SPEED DETECTION signal (Y)
	8	DM1REV	O	H	DRUM MOTOR REVERSE signal (Y)
	9	+24VB			
	10	+24VB			
	11	GND			
	12	GND			
	13	/DM2ACC	O	H	DRUM MOTOR ACCELERATION signal (M)
	14	/DM2DEC	O	H	DRUM MOTOR DECELERATION signal (M)
	15	/DM2FG	I	Pulse	DRUM MOTOR SPEED DETECTION signal (M)
	16	DM2REV	O	H	DRUM MOTOR REVERSE signal (M)

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J139	1	+24VB			
	2	+24VB			
	3	GND			
	4	GND			
	5	/DM3ACC	O	H	DRUM MOTOR ACCELERATION signal (C)
	6	/DM3DEC	O	H	DRUM MOTOR DECELERATION signal (C)
	7	/DM3FG	I	Pulse	DRUM MOTOR SPEED DETECTION signal (C)
	8	DM3REV	O	H	DRUM MOTOR REVERSE signal (C)
	9	+24VB			
	10	+24VB			
	11	GND			
	12	GND			
	13	/DM4ACC	O	H	DRUM MOTOR ACCELERATION signal (Bk)
	14	/DM4DEC	O	H	DRUM MOTOR DECELERATION signal (Bk)
	15	/DM4FG	I	Pulse	DRUM MOTOR SPEED DETECTION signal (Bk)
	16	DM4REV	O	H	DRUM MOTOR REVERSE signal (Bk)
	17	N.C.			

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J141	1	TONM4B	O	H	TONER FEED MOTOR CONTROL signal (Bk)
	2	TONM4I3	O	H	TONER FEED MOTOR CURRENT SWITCH signal (Bk)
	3	TONM4A	O	H	TONER FEED MOTOR CONTROL signal (Bk)
	4	TONM4I2	O	H	TONER FEED MOTOR CURRENT SWITCH signal (Bk)
	5	TONM4I0	O	H	TONER FEED MOTOR CURRENT SWITCH signal (Bk)
	6	TONM4I1	O	H	TONER FEED MOTOR CURRENT SWITCH signal (Bk)
	7	GND			
	8	GND			
	9	+24VC			
	10	+24VC			
	11	GND			
	12	DEVM34AN	O	H	DEVELOPING DISENGAGEMENT MOTOR CONTROL signal (C, Bk)
	13	DEVM34B	O	H	DEVELOPING DISENGAGEMENT MOTOR CONTROL signal (C, Bk)
	14	DEVM34A	O	H	DEVELOPING DISENGAGEMENT MOTOR CONTROL signal (C, Bk)
	15	DEVM34BN	O	H	DEVELOPING DISENGAGEMENT MOTOR CONTROL signal (C, Bk)

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J142	1	GND			
	2	DEVM12AN	O	H	DEVELOPING DISENGAGEMENT MOTOR CONTROL signal (Y, M)
	3	DEVM12B	O	H	DEVELOPING DISENGAGEMENT MOTOR CONTROL signal (Y, M)
	4	DEVM12A	O	H	DEVELOPING DISENGAGEMENT MOTOR CONTROL signal (Y, M)
	5	DEVM12BN	O	H	DEVELOPING DISENGAGEMENT MOTOR CONTROL signal (Y, M)
	6	+24VB			
	7	+24VB			
	8	GND			
	9	GND			
	10	+5VA			
	11	ITBSEP1	I	H	ITB HOMEPOSITION signal
	12	TONM123I2	O	H	TONER FEED MOTOR CURRENT SWITCH signal (Y, M, C)
	13	TONM123B	O	H	TONER FEED MOTOR CONTROL signal (Y, M, C)
	14	TONM123I3	O	H	TONER FEED MOTOR CURRENT SWITCH signal (Y, M, C)
	15	TONM123A	O	H	TONER FEED MOTOR CONTROL signal (Y, M, C)
	16	TONM123I1	O	H	TONER FEED MOTOR CURRENT SWITCH signal (Y, M, C)
	17	TONM123I0	O	H	TONER FEED MOTOR CURRENT SWITCH signal (Y, M, C)

Table 7-33 Input/output signals to and from DC Controller PCA (continued)

J144	1	LED (+5VA)			
	2	GND			
	3	MPTPEMP	I	H	MPT MEDIA PRESENCE signal
	4	+24VCF			
	5	MPTSL	O	H	MPT PICKUP SOLENOID CONTROL signal
	6	LED (+5VA)			
	7	GND			
	8	MPTPLAST	I	H	MPT LAST MEDIA signal

8 Output accessories and intermediate paper transfer unit (IPTU)

- Theory of operation
- Specifications
- Removal and replacement
- Solve problems

Theory of operation

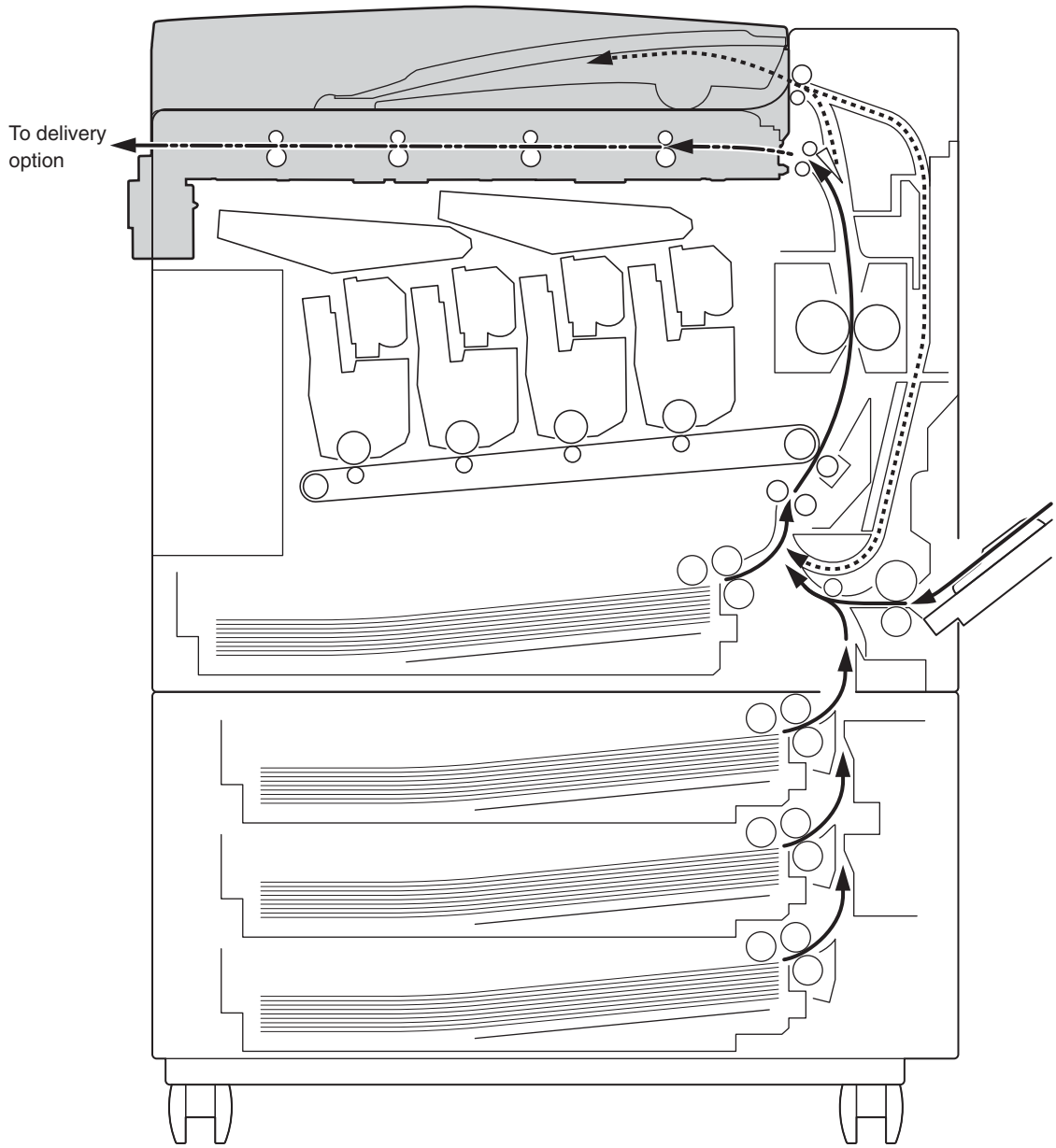
Intermediate paper transfer unit (IPTU)

NOTE: This item is called the “output accessory bridge” in the user documentation for this product.

Basic operation

The intermediate paper transfer unit (IPTU) is optionally installed to the face-down delivery unit of the product. It feeds paper to the staple/stacker or booklet maker. The face-down tray is removed when you install the IPTU.

Figure 8-1 Paper path of the IPTU



The IPTU driver controls the operational sequence of the IPTU and the serial communication with the DC controller of the product. The DC controller sends several commands to the IPTU driver at specific times. The IPTU driver drives the motors according to the commands. The IPTU driver sends the status information of the IPTU to the DC controller. The DC controller determines if there is an IPTU illegal connection. The DC controller notifies the formatter if it does not control the serial communication with the IPTU driver when the product is turned on, when it is recovering from Sleep mode, or during the pre-rotation period when the door closes. The printer supplies DC24V to the IPTU. The IPTU driver generates DC3.3V for sensors and ICs based on the DC24V.

Figure 8-2 Signal flow in the IPTU

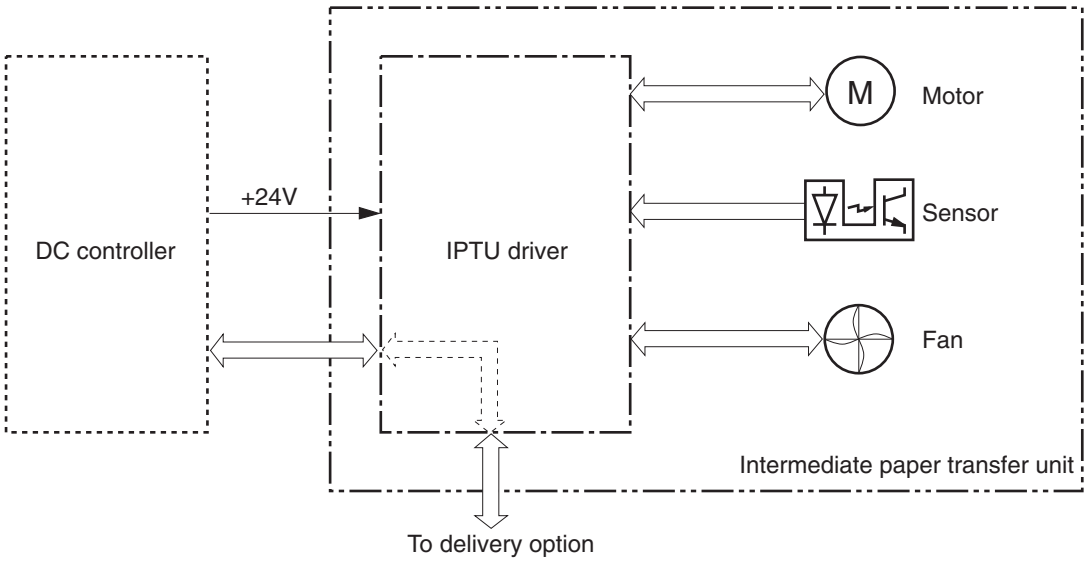


Table 8-1 Components of the IPTU

Symbol for component		Name	Remark
Motor	M201	IPTU media feed motor 2	
	M202	IPTU media feed motor 1	
Sensor	SR201	IPTU media feed sensor 3	
	SR202	IPTU media feed sensor 2	
	SR203	IPTU media feed sensor 1	
	SR204	IPTU door open detection sensor	
Fan	FM8	IPTU feed unit cooling fan	

Feed operation

The paper is delivered to the staple/stacker or booklet maker through the IPTU.

Figure 8-3 Motors and sensors of the IPTU

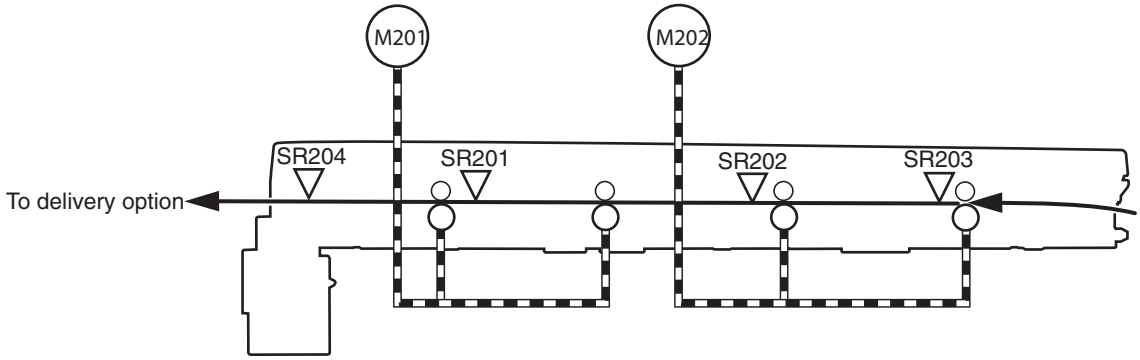


Table 8-2 IPTU components

Component		Signal	Driver
IPTU feed motor 2	M201	IPTU feed motor 2 control signal	IPTU driver
IPTU feed motor 1	M202	IPTU feed motor 1 control signal	IPTU driver
IPTU media feed sensor 3	SR201	IPTU media feed 3 signal	IPTU driver
IPTU media feed sensor 2	SR202	IPTU media feed 2 signal	IPTU driver
IPTU media feed sensor 1	SR203	IPTU media feed 1 signal	IPTU driver
IPTU door open detection sensor	SR204	IPTU door open detection signal	IPTU driver

IPTU sequence

1. The paper is fed into the IPTU after fusing.
2. The DC controller sends a drive command to the IPTU driver after the fusing delivery media feed sensor detects the leading edge of paper.
3. When it receives a command, the IPTU driver drives the IPTU feed motors to rotate the PD media feed rollers.
4. The IPTU feed rollers feed the paper to the accessory.

Jam detection

The IPTU uses three media feed sensors on the media path to detect the presence of paper and to check whether paper is being fed correctly or has jammed. The IPTU identifies a jam if the sensor detects paper at a specified time stored in the IPTU driver. The IPTU driver stops a print operation and notifies the formatter through the DC controller when it determines that a jam has occurred.

The IPTU detects the following jams:

- Delivery delay jam 1

  This jam occurs if the IPTU media feed sensor 1 does not detect the leading edge of a sheet of paper within a specified period from when the paper is delivered from the printer into the IPTU.

- Delivery delay jam 2

  This jam occurs if the IPTU media feed sensor 2 does not detect the leading edge of a sheet of paper within a specified period from when the IPTU media feed sensor 1 detects the leading edge. This jam also occurs if the IPTU media feed sensor 3 does not detect the leading edge of the sheet within a specified period from when the IPTU media feed sensor 2 detects the leading edge.

- Delivery stationary jam 1

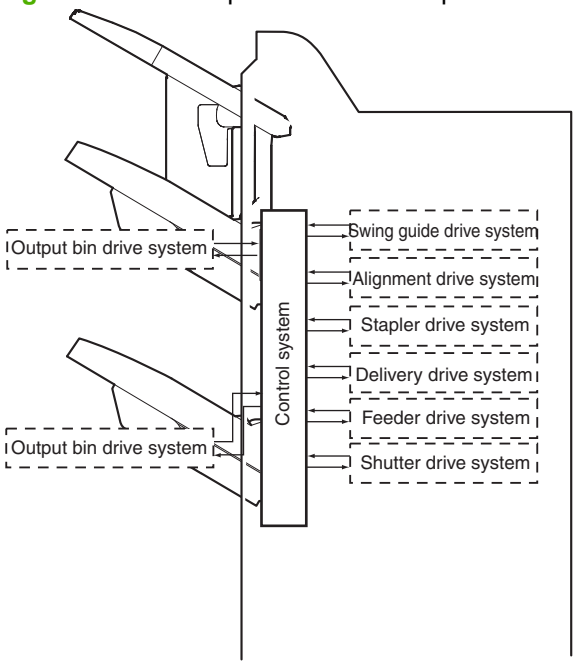
  This jam occurs if the IPTU media feed sensor 1 does not detect the trailing edge of sheet of paper within a specified period from when it detects the leading edge. This jam also occurs if the IPTU media feed sensor 2 does not detect the trailing edge of a sheet of paper within a specified period from when it detects the leading edge. This also occures if the IPTU media feed sensor 3 does not detect the trailing edge of a sheet of paper within a specified period from when it detects the leading edge.

3-bin stapler/stacker

Basic operation

The stapler/stacker delivers jobs from the product several ways. The modes of delivery include simple stacking, job offset, and stapling. The stacker controller PCA controls all operations involved in these modes, according to the commands from the product.

Figure 8-4 Basic operation of the stapler/stacker



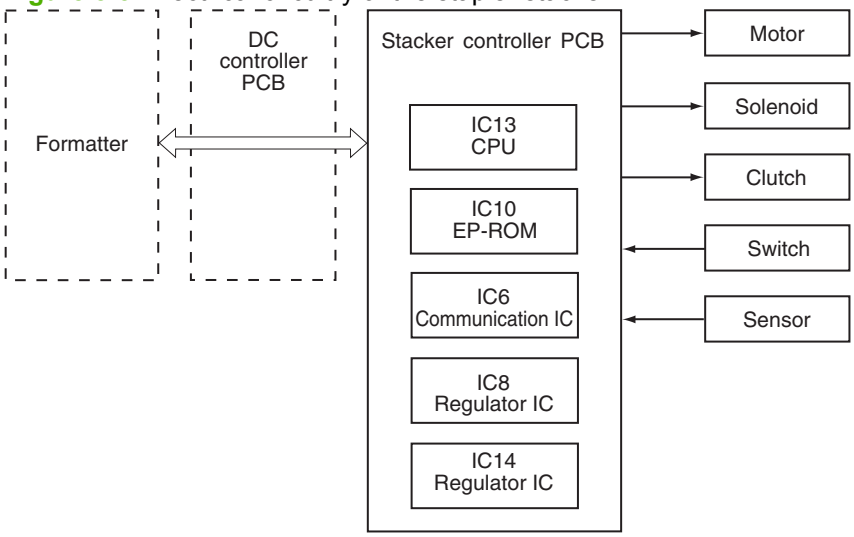
NOTE: With job offset, each sheet of a job is shifted to one side in the output bin in order to keep each sheet separate from the others.

Electrical circuitry

The stacker controller PCA controls the stacker operation sequence. A 16-bit microprocessor (CPU) is installed on the stacker controller PCA to control the stacker operation sequence and CAN communication with the video controller PCA. The stacker controller PCA drives solenoids, motors, and so forth in response to the commands received from the video controller through the CAN communication line. In addition, the stacker controller PCA reports information about various sensors and switches to the video controller through the CAN communication line. Major functions of the IC chips installed on the stacker controller PCA are as follows:

- IC13 (CPU): Controls the operation sequence
- IC10 (EEP-ROM): Backs up adjustment values
- IC6 (Communication IC): Communicates with the host machine
- IC8 (Regulator IC): Generates 5 V
- IC14 (Regulator IC): Generates 3.3 V

Figure 8-5 Electrical circuitry of the stapler/stacker



Feed drive system

Based on commands from the product, the stapler/stacker delivers jobs to the output bins in the appropriate mode: simple stacking, job offset, and stapling.

Figure 8-6 Electrical circuitry of the stapler/stacker

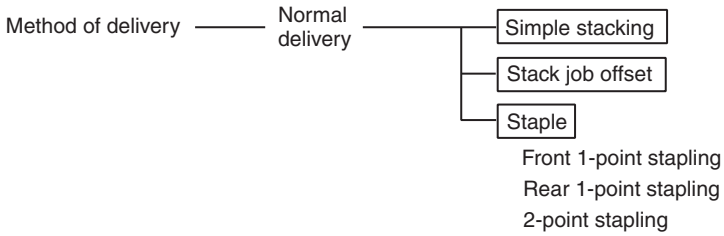
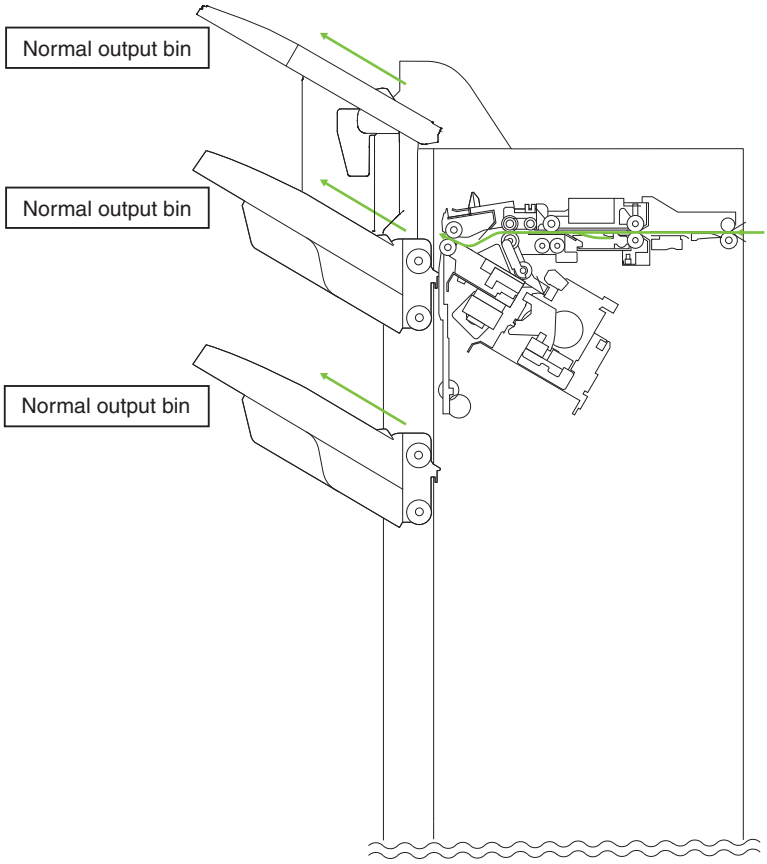


Figure 8-7 Output bins of the stapler/stacker



Construction of the control system

Jobs sent from the product are delivered to the output bin or the processing output bin according to the ejection type. For jobs delivered to the staple bin, job offset or stapling is performed according to the instructions from the product. When ejecting from the processing output bin, a stack trailing-edge assist guide is used in addition to the stack-ejection roller to eject the stack. The inlet motor (M31), stack-ejection motor (M32), and stack trailing-edge assist motor (M39) are step motors. These motors are rotated forward or backward by the microcomputer (CPU) in the stacker controller PCA. The following two sensors are provided in the paper delivery path to detect the arrival or passing of copies:

- Stacking paper-path-entry sensor (PI33)
- Stacking paper-path-delivery sensor (PI34)

Each output bin also has sensors to detect the presence of a sheet on the bin:

- First output-bin paper sensor (PI42)
- Second output-bin paper sensor (PI43)

If a sheet does not reach or pass each sensor within the prescribed time, the stacker controller PCA stops the operation and notifies the product that a jam has occurred. After a jam is cleared and all of the doors are closed, the stapler/stacker checks whether the sheet is detected by the stacking paper-

path-entry sensor or stacking paper-path-delivery sensor. If the sensors detect a sheet, the stapler/stacker determines that the jam is not fixed and sends a jam processing signal to the product again.

Figure 8-8 Stacker controller PCA (1 of 2)

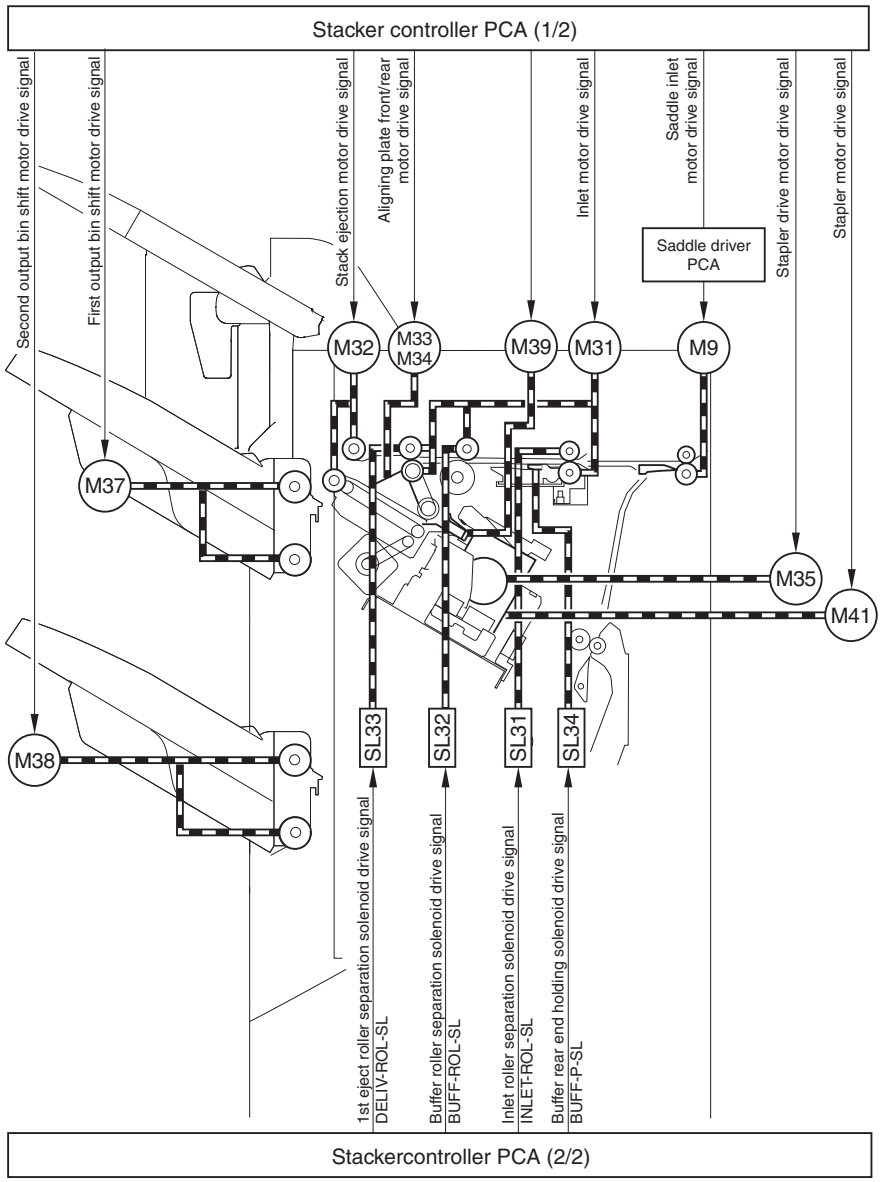
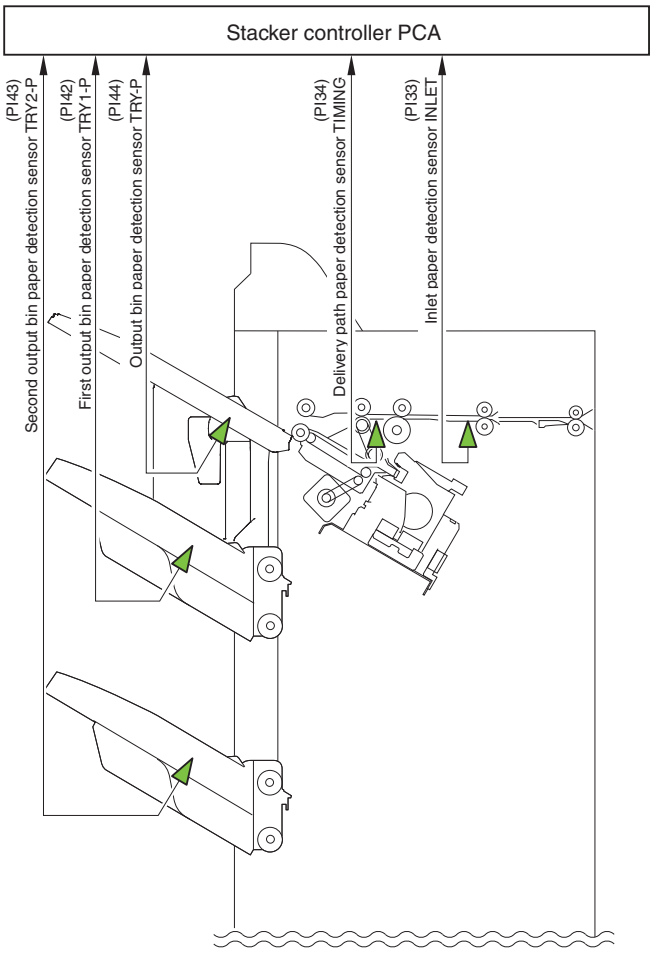


Figure 8-9 Stacker controller PCA (2 of 2)

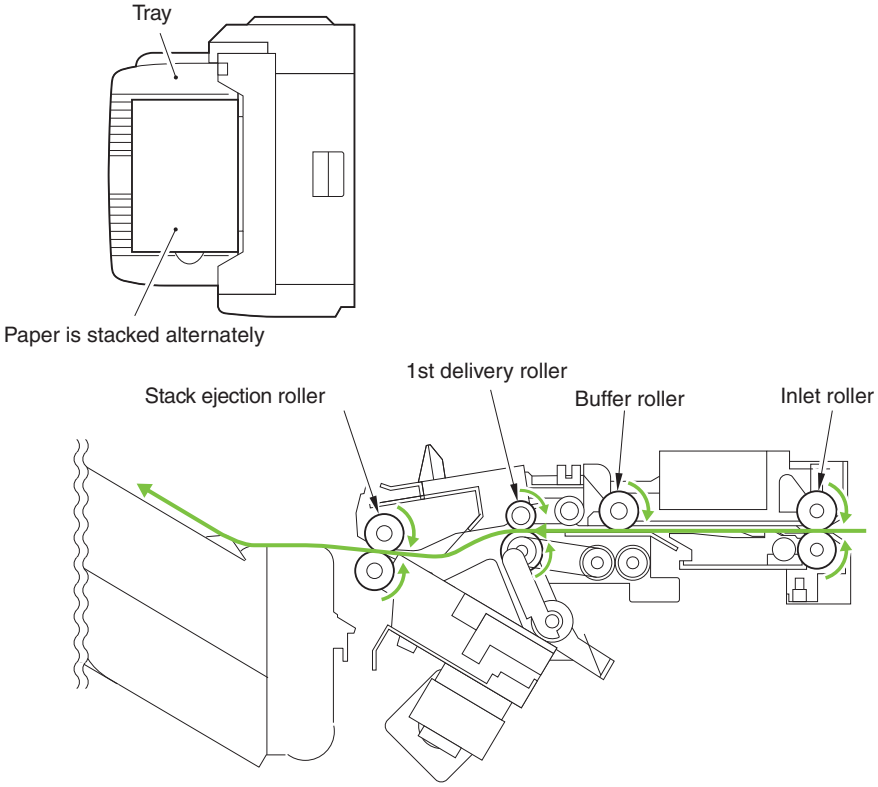


Paper delivery path (stapler/stacker and booklet maker)

There are three paper paths to output bins 1, 2, and the additional output bin depending on the ejection process.

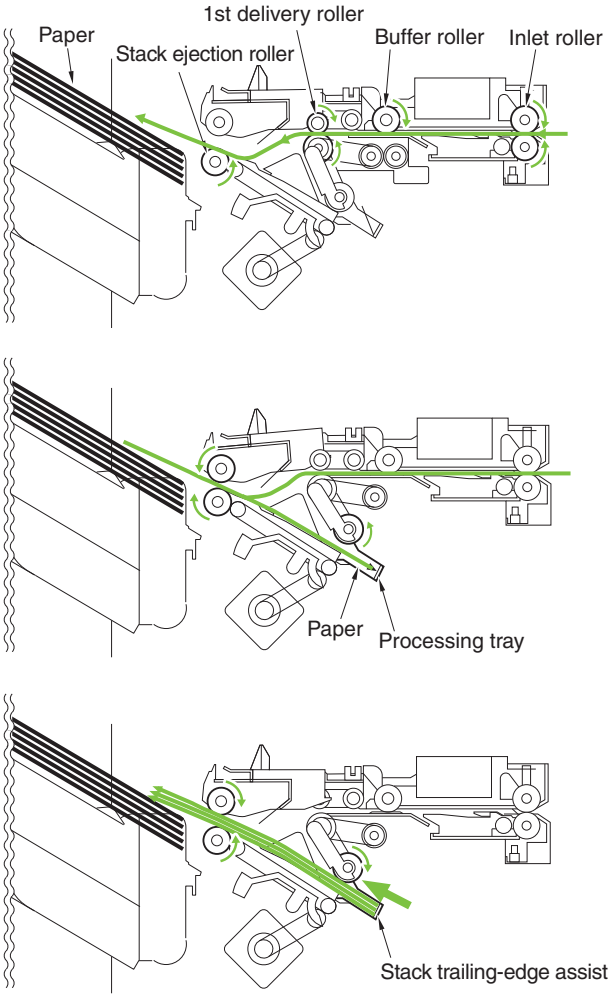
All sheets are ejected through the following path when the accessory is set to non-sort.

Figure 8-10 Paper path when set to non-sort



When the product sorts paper size other than A4, B5, or LTR or when set to staple and sort, copies are delivered to the processing output bin for aligning and stapling and then ejected using the stack trailing-edge assist.

Figure 8-11 Paper path for sizes other than A4, B5, or LTR

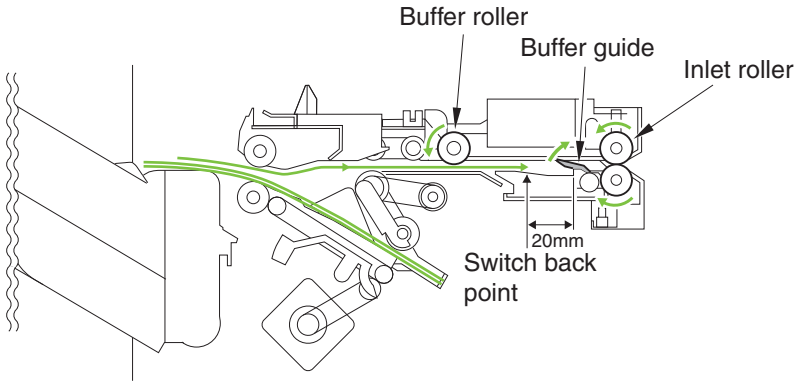


With A4, B5, or LTR paper sizes, two sheets of paper feed into the buffer (two or three sheets if 2-point stapling). The sheets are then aligned and stapled in the processing output bin and ejected. While stapling or offset is performed, copies are simultaneously ejected, delivered to the buffer, and stacked in the processing output bin. Copies are received continuously from the product. The stack delivered from the buffer is ejected to the processing output bin, and the stack processed in the processing output

bin is ejected to the output bin. Simultaneous stack ejection is described below for two A4 copies between stacks when the equipment is set to sort.

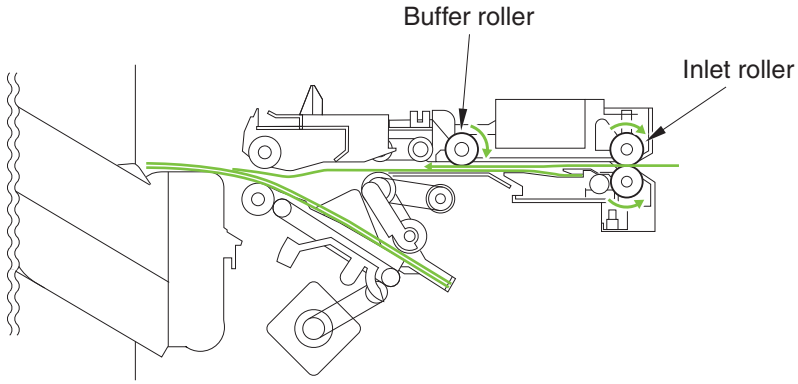
1. When the first paper reaches the switchback point, it is sent to the buffer unit, and the buffer guide holds the trailing edge of the paper.

Figure 8-12 Paper path (1 of 5)



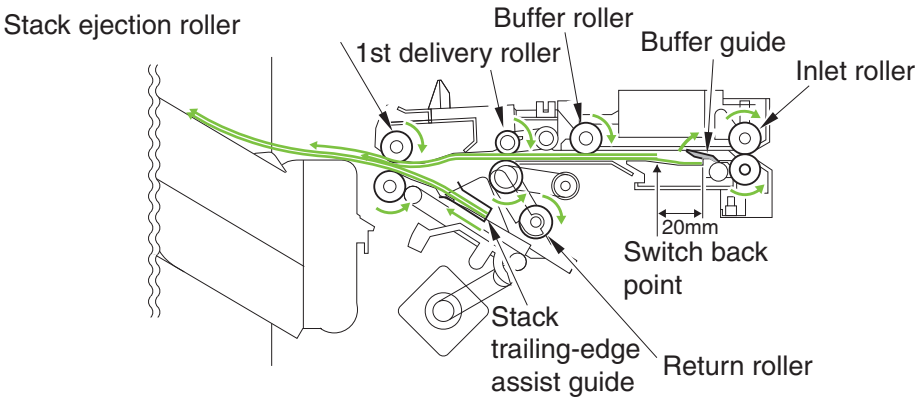
2. When the first sheet arrives at the buffer, the second sheet is sent from the product.

Figure 8-13 Paper path (2 of 5)



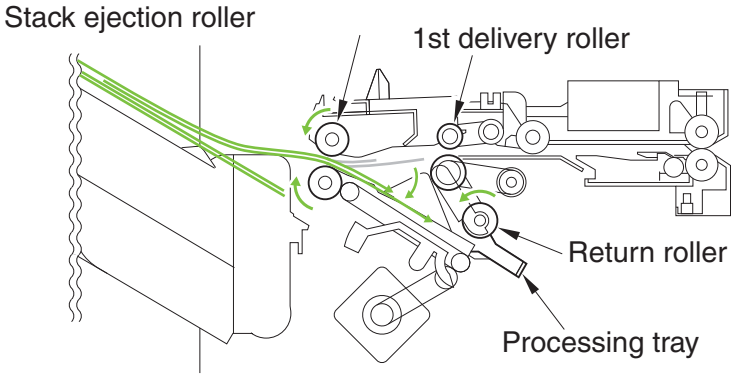
3. The first delivery roller descends and works with the stack-delivery roller to deliver the first and second sheet to the processing output bin. At the same time, the return roller and stack trailing-edge assist send the stack in the processing output bin to the output bin.

Figure 8-14 Paper path (3 of 5)



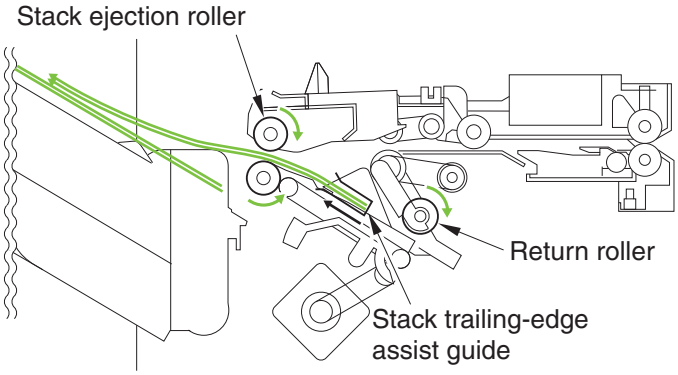
4. When the stack in the processing output bin is sent to the delivery output bin and the trailing edge of the first and second paper exits the first delivery roller, the stack-delivery roller and return roller deliver the first and second sheet to the processing output bin.

Figure 8-15 Paper path (4 of 5)



5. The first and second paper delivered to the processing output bin are aligned and then delivered to the output bin.

Figure 8-16 Paper path (5 of 5)



Intermediate-process output-bin assembly (stapler/stacker and booklet maker)

Stack job offset

The job-offset operation offsets the paper stack to the front or rear when ejecting to sort the paper stack. The forward/backward movement of the sheet delivered to the processing output bin is controlled by the front-aligning plate and rear-aligning plate. The aligned copies are stapled or ejected according to the signal from the product. When the power is turned on, the stacker controller PCA drives the aligning-plate front motor (M33) and aligning-plate rear motor (M34) to return the two aligning plates to home

position. The name and function of motors and sensors used by the stack job-offset function are shown below.

Figure 8-17 Motors and sensors for stack job offset

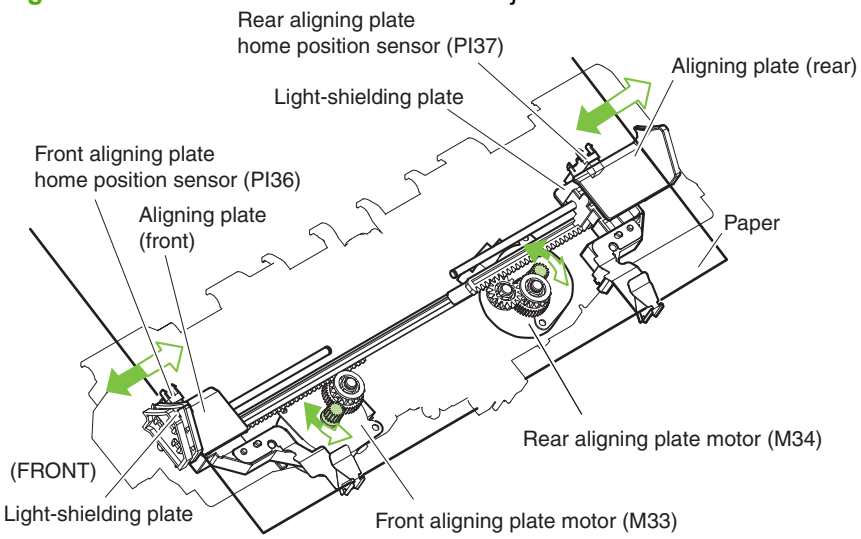


Figure 8-18 Stack job offset example

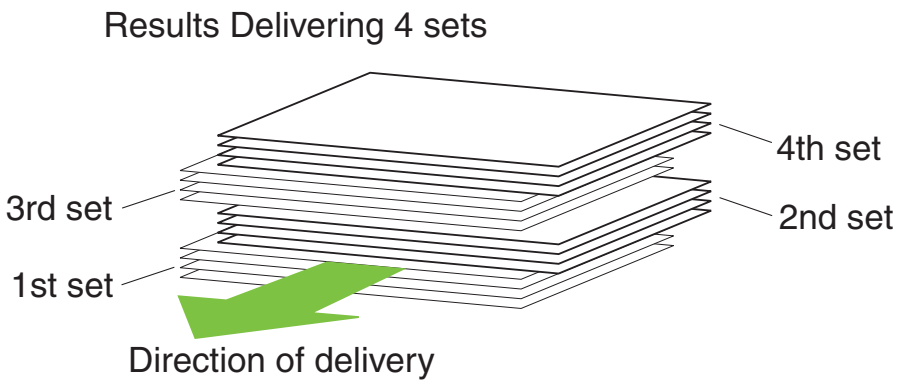


Table 8-3 Motors for the stack job offset

Motor	Function
Front-aligning-plate motor (M33)	Aligns paper in the processing output bin to the front
Rear-aligning-plate motor (M34)	Aligns paper in the processing output bin to the rear
Swing motor (M36)	Moves the swing guide up/down
Stack trailing-edge assist motor (M39)	Carry the stack end during stack ejection

Table 8-4 Sensors for the stack job offset

Sensor	Function
Swing-guide home-position (HP) sensor (PI35)	Detects the swing guide home position
Front-aligning-plate HP sensor (PI36)	Detects the aligning plate front-home position

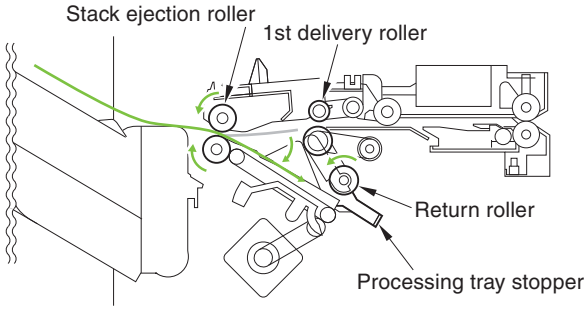
Table 8-4 Sensors for the stack job offset (continued)

Sensor	Function
Rear-aligning-plate HP sensor (PI37)	Detects the aligning plate rear-home position
Stack trailing-edge assist HP sensor (PI39)	Detects the stack trailing-edge assist home-position

Process output bin paper-stacking operation

When the trailing edge of the paper exits the first delivery roller, the sheet is delivered to the processing output bin by the stack-delivery roller and return roller and then pushed against the processing output-bin stopper.

Figure 8-19 Process output bin



Offset operation

Each sheet is pulled forward or backward using the front-aligning plate and the rear-aligning plate. The offset operation is performed each time a sheet is pulled onto the processing output bin.

Figure 8-20 Job offset operation (1 of 2)

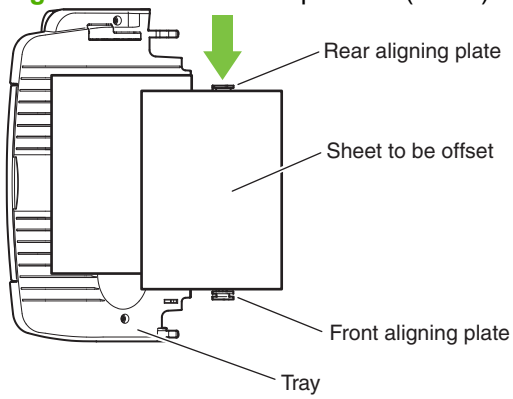
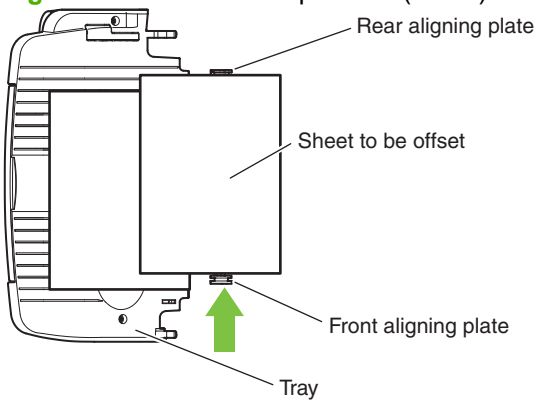


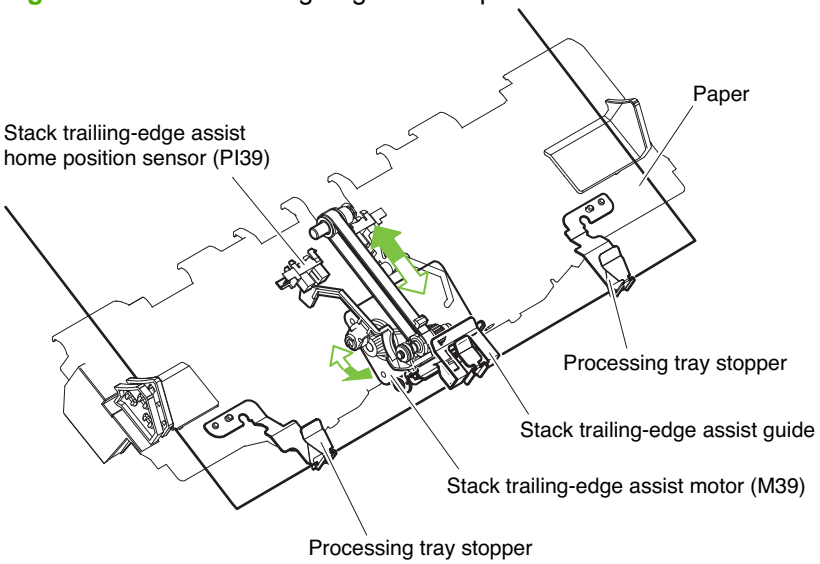
Figure 8-21 Job offset operation (2 of 2)



Stack trailing-edge assist operation

To improve stacking performance when ejecting jobs delivered to the processing output bin, a stack trailing-edge assist guide supports the back of the stack during stack ejection.

Figure 8-22 Stack trailing-edge assist operation

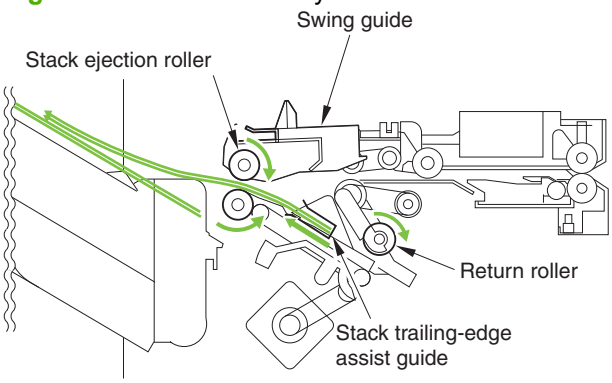


Stack delivery operation

The stack is ejected each time 2–4 large sheets or 2–6 small sheets are offset on the processing output bin. The swing motor turns and the swing guide descends causing the upper and lower stack-delivery rollers to hold the stack. The stack-delivery motor turns the stack-delivery roller and return roller. At the same time, the stack trailing-edge assist motor starts the stack trailing-edge assist guide, and the stack held by the stack-delivery rollers is moved forward. When the stack trailing-edge assist motor reverses,

the stack trailing-edge assist guide returns to home position. The stack-delivery motor then ejects the stack with the upper and lower stack-delivery rollers.

Figure 8-23 Stack delivery



Staple operation (stapler/stacker and booklet maker)

The stapling operation staples the prescribed number of copies with the stapler unit. The staple position depends on the staple mode and paper size. The stapler-shift home-position sensor (PI40) detects whether the stapler unit is at the home position. The stapler unit is equipped with a stapler-alignment interference sensor (PI46). The staple motor (M41) operation is prohibited when the stapler-alignment interference sensor (PI46) is on. This prevents stapling at the stopper and damaging the stopper when the stapler-shift motor (M35) is incorrectly adjusted. When the power is turned on, the stacker controller PCA drives the stapler-shift motor (M35) to return the stapler unit to home position. If the stapler unit is already at home position, it waits in that state.

Figure 8-24 Stapler unit

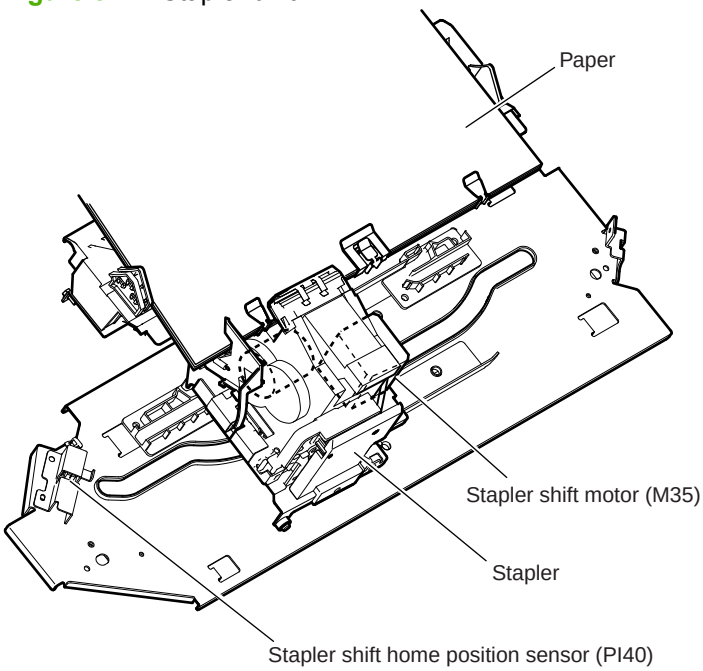


Figure 8-25 Staple location

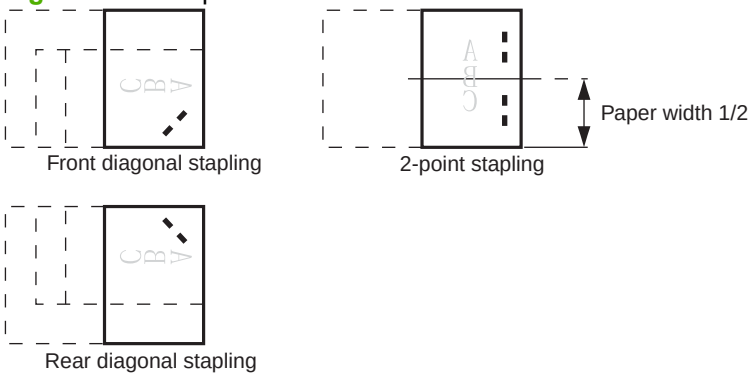


Table 8-5 **Sensors used in stapling**

Sensor	Symbol	Connector	Function	Remarks
Stapler-shift home-position sensor	PI40	J721B-6	Detects the home position for the stapler moving back and forth	
Stapler-alignment interference sensor	PI46	J717-3	Staple prohibited area detection	
Stapler home-position sensor	PI50	J717-5	Detects the home position for the stapling operation	In the stapler
Staple edging sensor	PI51	J717-6	Detects the staple top position	In the stapler
Staple sensor	PI52	J717-7	Detects presence or absence of staples in the cartridge	In the stapler

Table 8-6 **Motors used in stapling**

Function	Motor	Symbol	Remarks
Moves the stapler	Stapler-shift motor	M35	
Performs the stapling operation	Staple motor	M41	

The stacker controller PCA moves the stapler according to the specified stapling position. When the rear of the first sheet passes the first delivery roller, the stacker controller PCA stops the stack-delivery motor (M32) and then rotates it in reverse. The stack-delivery motor rotates the stack-delivery roller and return roller and delivers the paper to the processing output bin. The paper in the processing output bin is detected by the processing-output-bin paper sensor (PI38). When the paper is delivered to the processing output bin, the swing motor (M36) starts and raises the swing guide. When the swing-guide home-position sensor (PI35) detects the rising of the swing guide, the swing-guide motor stops and holds the swing guide at the raised position. After the processing-output-bin paper sensor detects the paper, the aligning motor (M33/M34) starts and aligns the paper.

Figure 8-26 Paper path for stapling

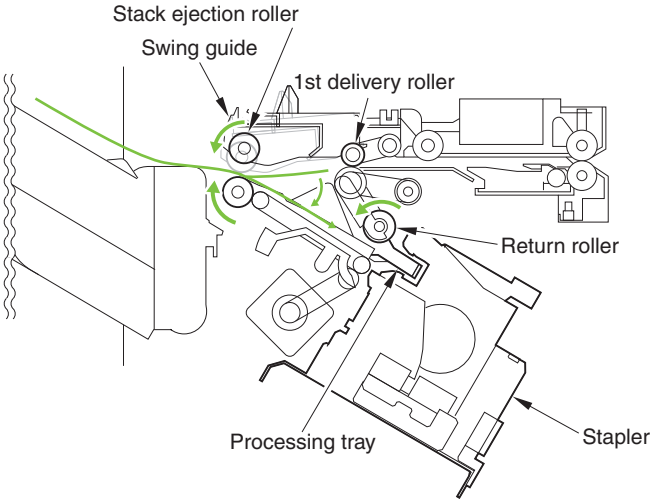
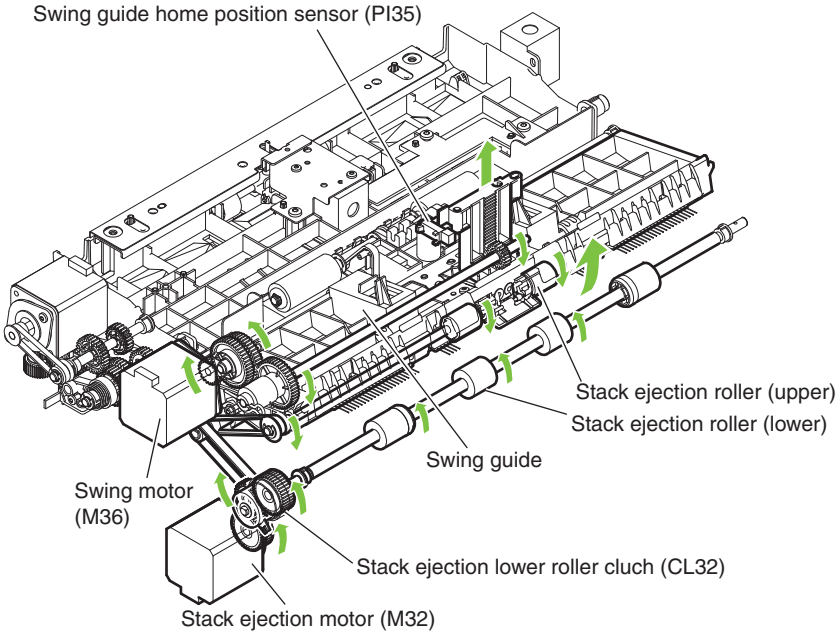
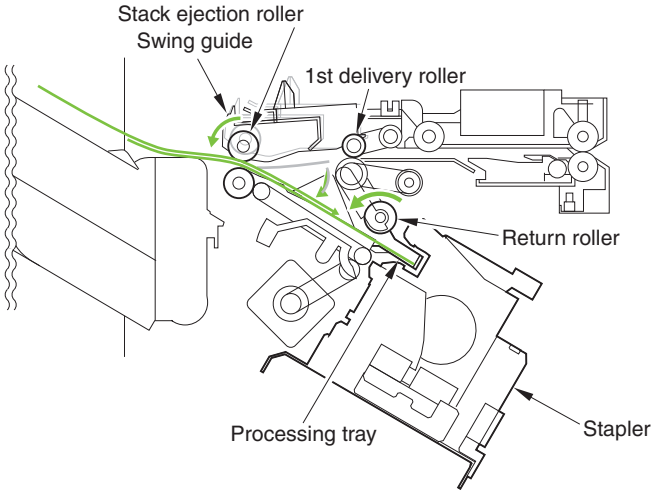


Figure 8-27 Rollers and sensors for stapling



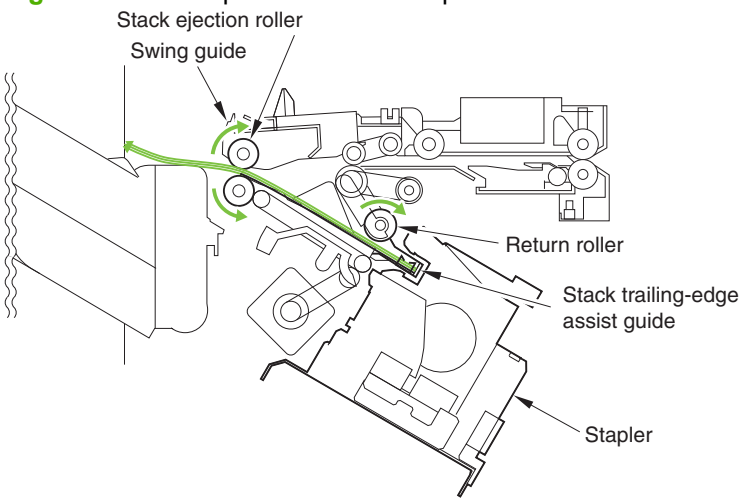
The stacker controller PCA starts the swing motor (M36) and lowers the swing guide when the rear of the second paper passes the first delivery roller. The stack-delivery motor is reversed. The stack-delivery motor rotates the stack-delivery roller (upper) and return roller and sends the paper to the processing output bin. At this point, the stack-delivery roller (lower) does not rotate because the stack-ejection lower-roller clutch (CL32) is disengaged. The output-bin paper sensor (PI38) detects the processing-output-bin paper sensor (P138). When the paper is delivered to the processing output bin, the swing motor (M36) starts and raises the swing guide. When the swing-guide home-position sensor (PI35) detects the rising of the swing guide, the swing-guide motor stops and holds the swing guide at the raised position. After the processing-output-bin paper sensor detects the paper, the aligning motor (M33/M34) starts and aligns the paper.

Figure 8-28 Paper path



When the last sheet is aligned, the stacker controller PCA moves the aligning plate to the alignment position with the aligning motor (M33/M34) (the paper is held by the aligning plate). Then the stacker controller PCA staples at the specified staple position. After stapling, the stacker controller PCA starts the swing motor (M36) and lowers the swing guide. Then the stack is ejected by the stack-delivery roller, return roller, and stack trailing-edge assist guide.

Figure 8-29 Shift process for the staple unit



Staple unit

The stapler motor (M41) rotates the cam one turn for stapling. The stapler home-position sensor (PI50) detects the home position of the cam. The macro computer (IC13) on the stacker controller PCA controls the forward and reverse rotation of the staple motor. When the stapler home-position sensor is off, the stacker controller PCA rotates the stapler motor in the forward direction until the sensor turns on, allowing the staple cam to return to the original position. The staple sensor (PI52) is used to detect the presence or absence of a staple cartridge in the machine and the presence or absence of staples in the cartridge. The staple edging sensor (PI51) determines whether staples are pushed up to the top of the

staple cartridge. For safety, the stacker controller circuit does not drive the staple motor (M41) unless the staple safety switch (MS34) is on.

Figure 8-30 Stapling operation (1 of 2)

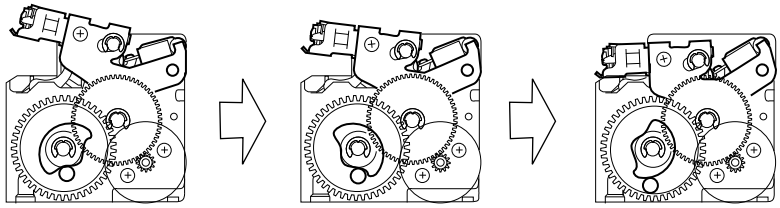
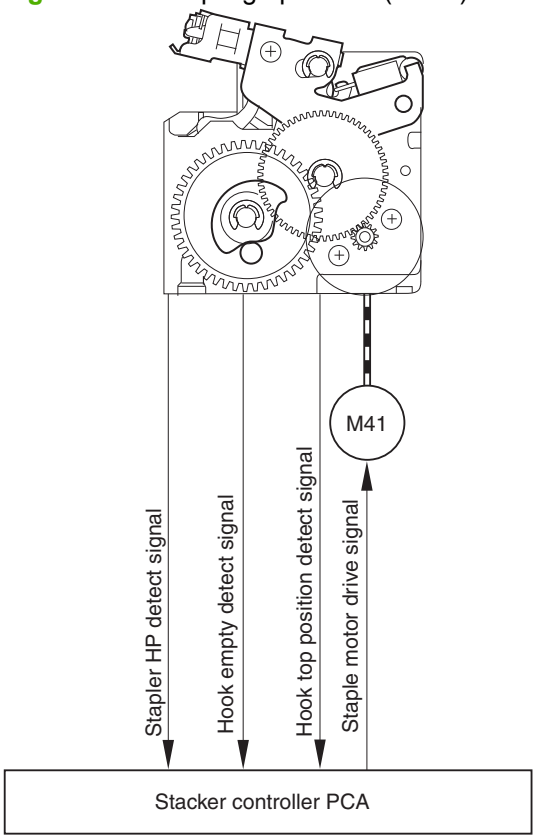


Figure 8-31 Stapling operation (2 of 2)



Shift the staple unit

The stapler-shift motor (M35) shifts the stapler unit. The stapler-shift home-position sensor (PI40) detects the home position. When there is a staple command from the product, the stapler shifts to the

staple ready position, which depends on the stapling position and paper size. The stapler unit waits at the following points when staple mode is selected:

Figure 8-32 Front 1-point stapling

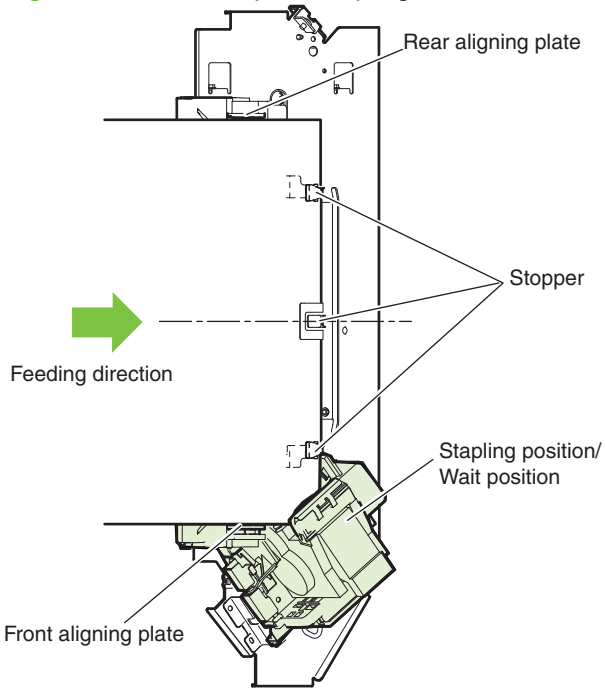


Figure 8-33 Rear 1-point stapling

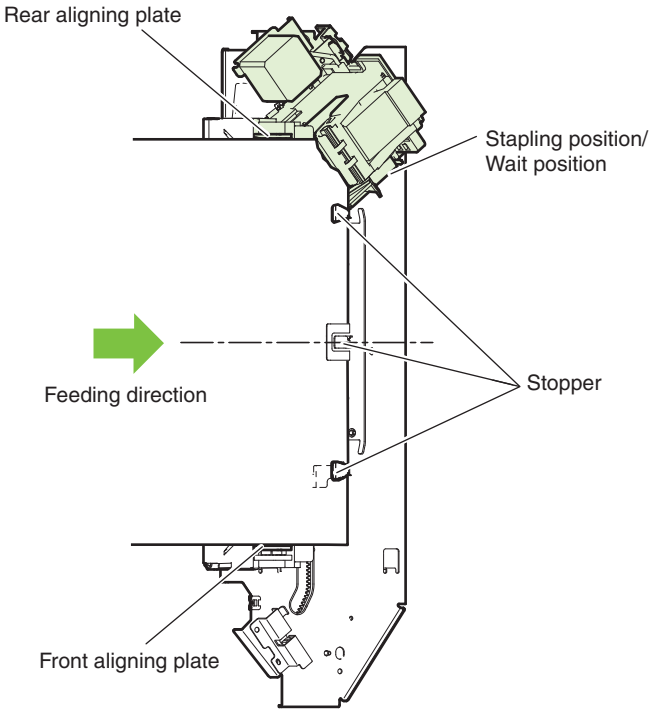
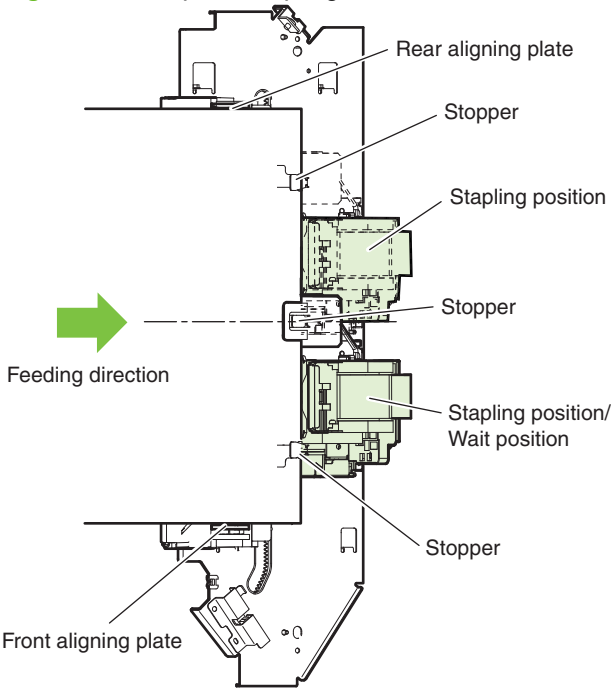


Figure 8-34 2-point stapling



Stack operation (stapler/stacker and booklet maker)

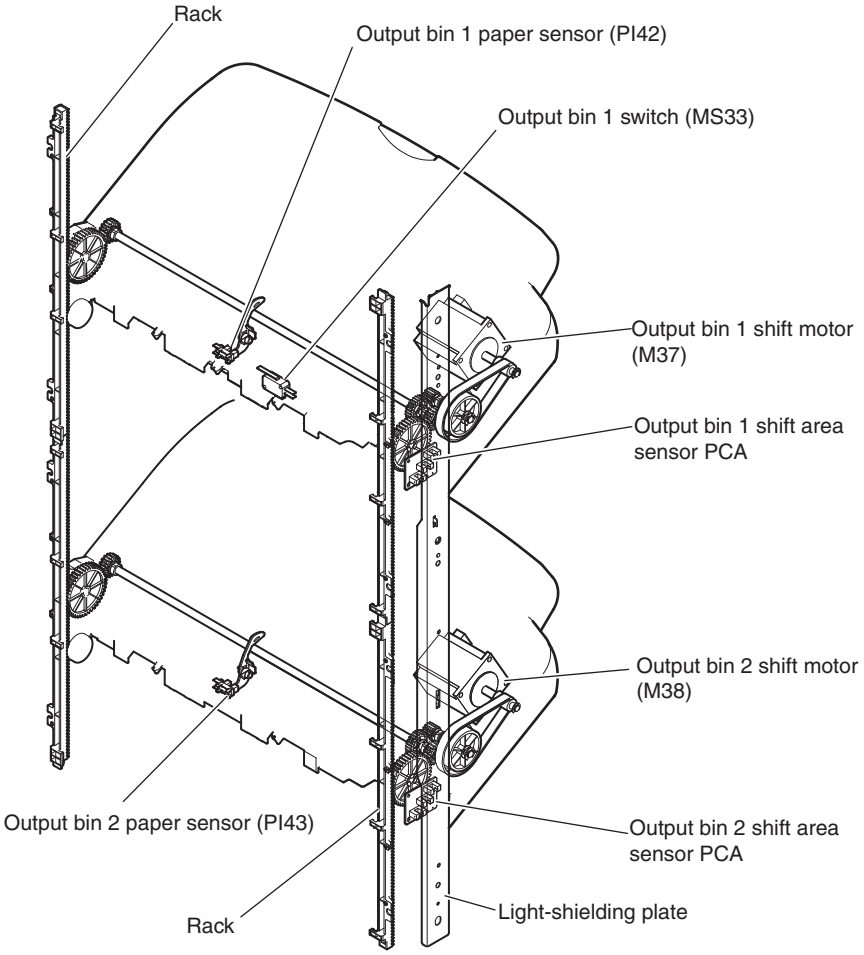
Output bin operation

This accessory has an upper output bin (output-bin 1) and a lower output bin (output-bin 2).

- The output-bin-1-shift motor (M37) and output-bin-2-shift motor (M38) move output-bin 1 and output-bin 2 up and down independently.
- The output-bin-1 paper sensor (PI42) and output-bin-2 paper sensor (PI43) detect paper stacked on the output bin.
- The output-bin-1 paper-surface sensor (PI41) and output-bin-2 paper-surface sensor (PI48) detect the home positions of output-bin 1 and output-bin 2.
- The home position is the top surface of the paper when paper is stacked on the output bin, or the position where the edge of the output bin is detected when no paper is stacked.
- When the power is turned on, the stacker controller PCA drives the output-bin-1-shift motor (M37) and output-bin-2-shift motor (M38) to return the output bin to home position. If already at home position, the output bin is moved from the home position and then returned. If both output bins are at home position, this is performed for output-bin 1 and then for output-bin 2.
- If the product specifies output-bin 2, the stacker controller PCA shifts the output bin so that output-bin 2 is at the delivery port. When paper is stacked on the output bin, a prescribed number of pulses drive the output-bin-1-shift motor (M37) or output-bin-2-shift motor (M38) to lower the output bin. Then the output bin returns to home position to prepare for the next stack.
- The upper and lower limits of the output bin are detected by three area sensors (PS981, PS982, and PS983) on the output-bin-1- and output-bin-2-shift area sensor PCA.

- The stacker controller PCA stops driving the output-bin-1-shift motor (M37) and output-bin-2-shift motor (M38) when it detects the upper or lower limit of the output bin. Also, the on/off combinations of the area sensors (PS981, PS982, PS983) are used to detect over-stacking according to the stack height for large-size and mixed stacking.
- The stacker controller PCA stops supplying +24 V to the output-bin-1-shift motor (M37) and stops the stacker operation when the output-bin-1 switch (MS33) turns on.

Figure 8-35 Items detected by the area sensors (PS981, PS982, PS983)



NOTE: PI42 is located on output-bin 1.

NOTE: PI43 is located on output-bin 2.

Figure 8-36 Output-bin components

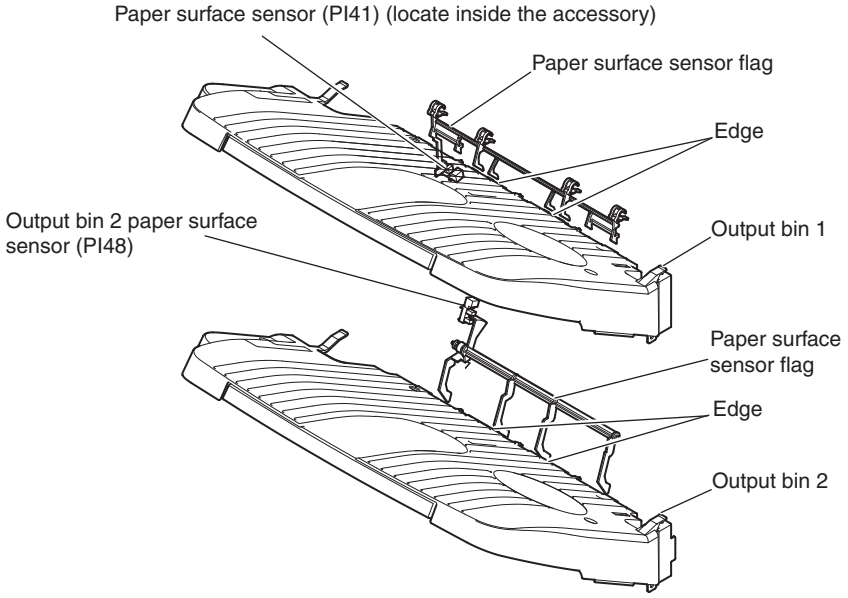


Table 8-7 **Output-bin-1-shift area sensor PCA**

Detected items	Area sensors 1 (PS983)	Area sensors 2 (PS982)	Area sensors 3 (PS981)
Output-bin-1 upper limit	off	off	off
Stack-count 500-sheet limit exceeded	on	on	off
Stack-count 1000-sheet limit exceeded	on	off	off
Output-bin-1 lower limit	on	off	on

Table 8-8 **Output-bin-2-shift area sensor PCA**

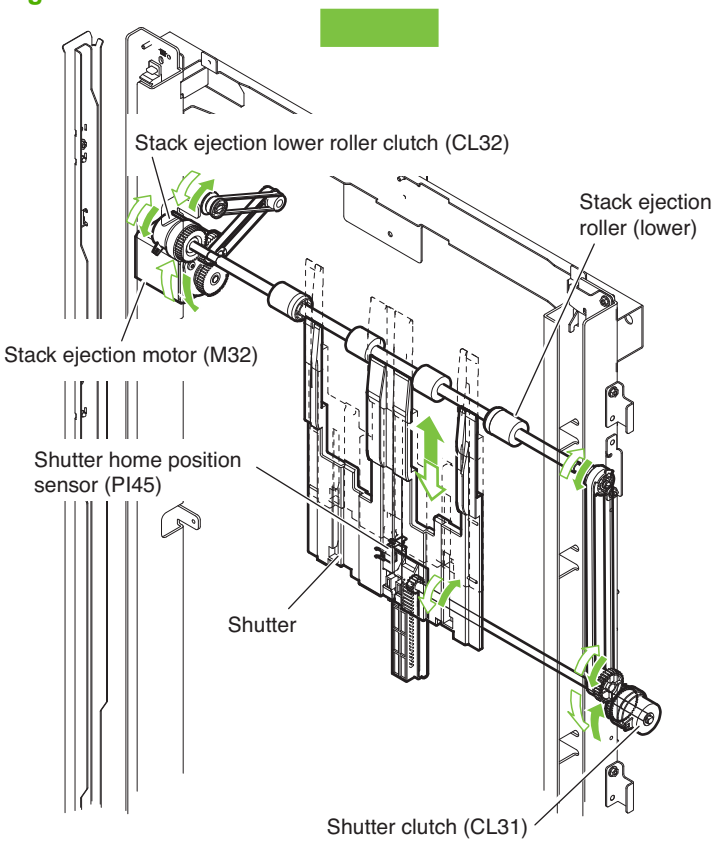
Detected items	Area sensors 1 (PS983)	Area sensors 2 (PS982)	Area sensors 3 (PS981)
Output-bin-2 upper limit	off	on	off
Stack-count 500-sheet limit exceeded	on	on	off
Stack-count 1000-sheet limit exceeded	on	off	off
Output-bin-2 lower limit (Stapler/stacker)	off	off	off
Output-bin-2 lower limit (Booklet maker)	off	off	on

Shutter operation

To prevent the delivery section from catching stacked paper in output-bin 1 when it passes, a shutter is provided at the delivery section. The shutter closes when output-bin 1 passes, even when no paper is stacked. When the shutter clutch (CL31) and stack-ejection lower-roller clutch (CL32) are on, the shutter moves up (closes) when the stack-ejection motor (M32) turns forward and moves down (open, delivery

enabled), which occurs when the motor turns backward. The shutter home-position sensor (PI45) detects the opening and closing of the shutter.

Figure 8-37 Shutter location



Jam detection

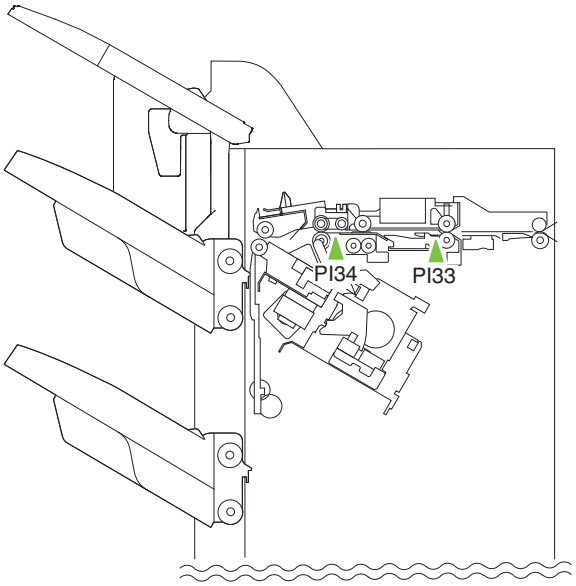
The following sensors detect paper and determine whether paper is delivered properly.

- Stacking paper-path-entry sensor (PI33)
- Stacking paper-path-delivery sensor (PI34)

A jam is identified by checking whether paper is present at each sensor at the timing programmed in the memory of the microcomputer (CPU) on the stacker controller PCA. When the CPU identifies a jam, it suspends the stacker's delivery operation and informs the product of the jam. When all doors are closed after the paper jam is removed, the stacker use the two sensors (stacking paper-path-entry sensor and stacking paper-path-delivery sensor) to check for further jams. If the sensors detect paper,

the stacker determines that the paper jam has not been removed and sends another jam removal signal to the product.

Figure 8-38 Jam detection sensors

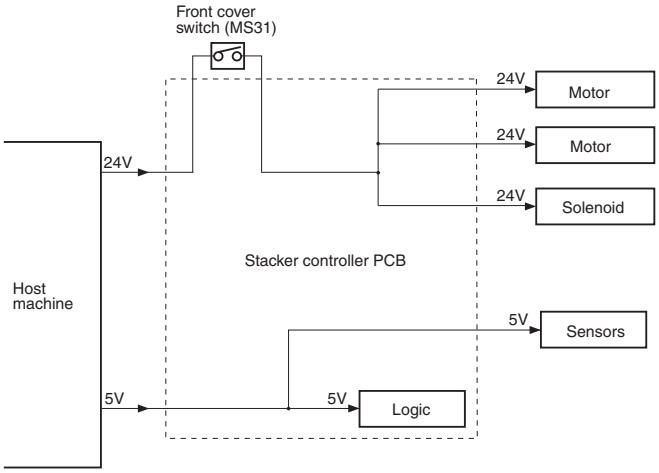


Power supply

Power-supply route

When the product power is turned on, 5 Vdc and 24 Vdc are supplied from the product to the stacker controller PCA. The 24 Vdc power drives the motors, solenoids, etc. The 5 Vdc power drives sensors, IC chips on the stacker controller PCA, etc. When the front-cover switch (MS31) is open, the 24 Vdc power for the motor drive is shut down.

Figure 8-39 Power-supply route



Protection function

The 24Vdc for the motor and solenoid drive has a fuse or motor driver for over-current protection.

HP Booklet Maker/Finisher accessory

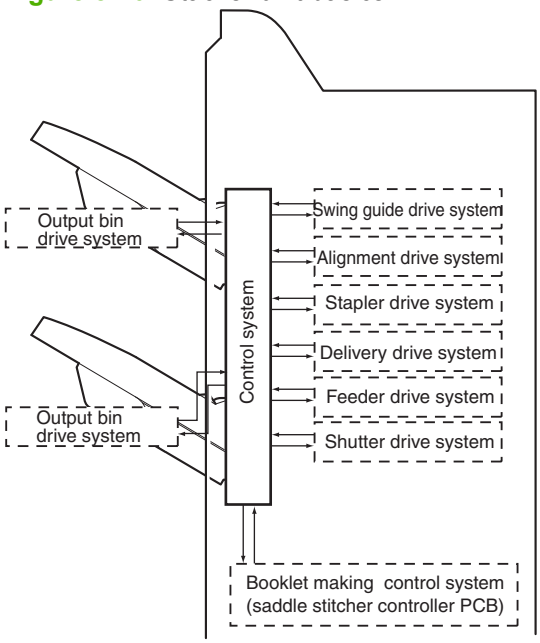
Basic operation

The following section describes the basic operation of the HP Booklet Maker/ Finisher accessory.

Basic operation of the stacker unit

The stacker unit processes jobs from the product in several ways. These include simple stacking, job offset, and stapling. The stacker controller PCA controls all operations involved in these modes, according to the commands from the product. Jobs from the product can also be routed for booklet making.

Figure 8-40 Stacker unit basics



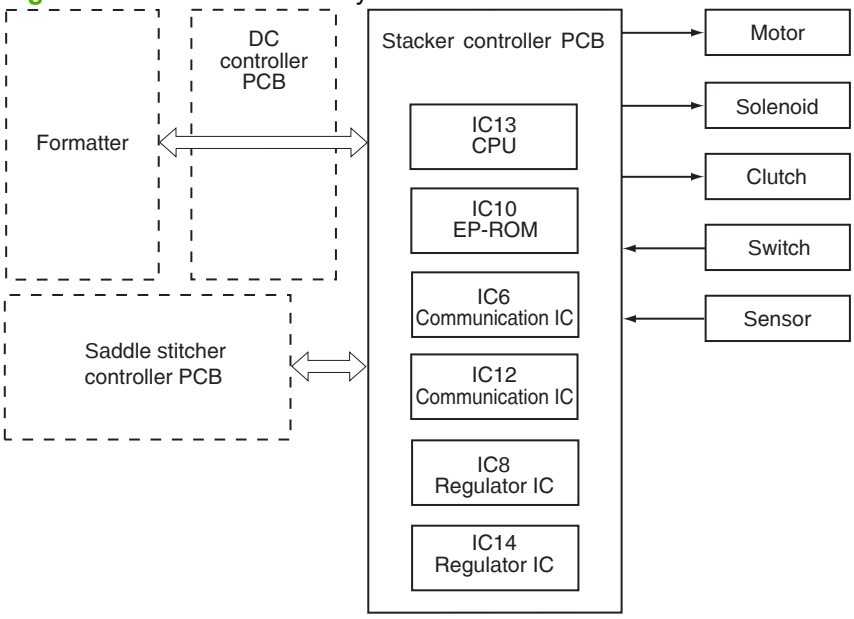
Electrical circuitry of the stacker unit

A 16-bit microprocessor (CPU) is installed on the stacker controller PCA to control the stacker operation sequence and CAN communication with the video controller PCA. The stacker controller PCA drives solenoids, motors, and so forth in response to the commands received from the video controller through the CAN communication line. In addition, the stacker controller PCA reports information about various sensors and switches to the video controller through the CAN communication line. Major functions of the IC chips installed on the stacker controller PCA are as follows:

- IC13 (CPU): Controls the operation sequence
- IC10 (EEP-ROM): Backs up adjustment values
- IC6 (Communication IC): Communicates with the host machine
- IC12 (communication IC): Communicates with the saddle stitcher unit

- IC8 (Regulator IC): Generates 5 V
- IC14 (Regulator IC) : Generates 3.3 V

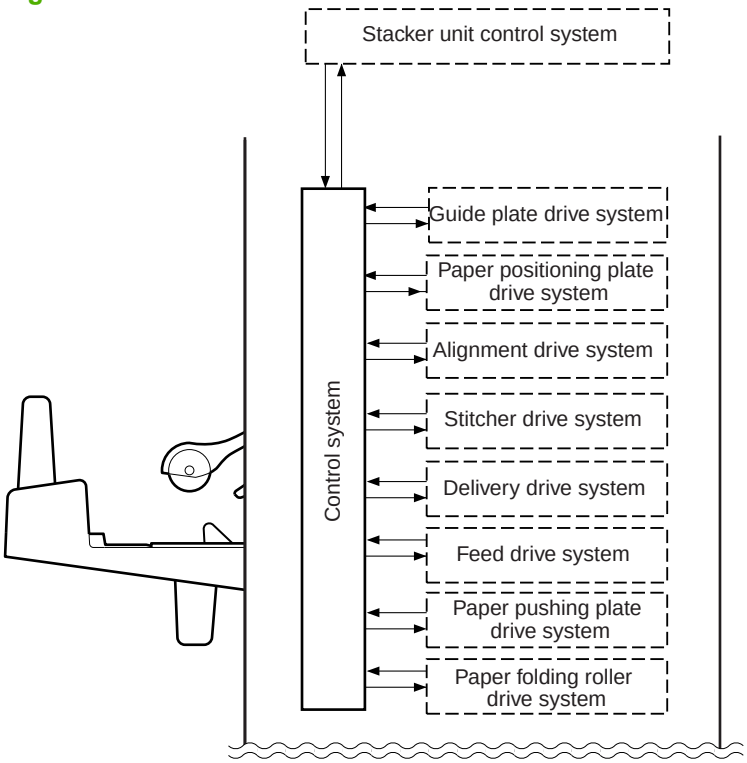
Figure 8-41 Electrical circuitry of the stacker unit



Basic operation of the booklet maker unit

The booklet maker unit staples and folds (in half) stacks of paper delivered from the stacker unit. The product sends commands via the stacker to the saddle stitcher controller PCA, which controls these operations.

Figure 8-42 Booklet maker unit basics

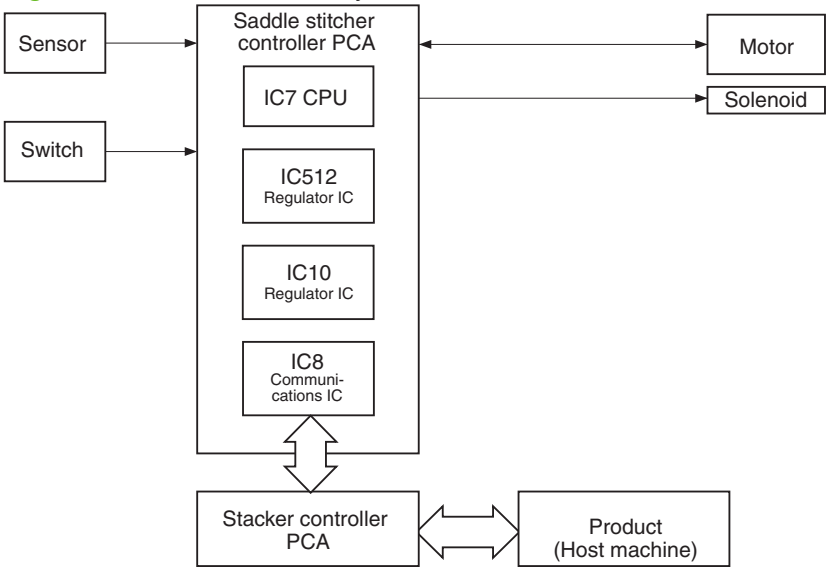


Electrical circuitry for the booklet maker unit

The saddle-stitcher controller PCA has a microprocessor that controls the sequence of operations and that handles serial communications with the stacker controller PCA. This includes driving solenoids and motors in response to the commands from the stacker controller PCA. The saddle-stitcher controller PCA is also used to communicate the state of various sensors and switches to the stacker controller PCA in serial. The functions of the major ICs mounted on the saddle stitcher controller PCA are as follows:

- IC7 (CPU): Controls the sequence of operations. Contains the sequence program
- IC8 (communications IC): Communicates with the finisher unit
- IC512 (regulator IC): Generates 5 V
- IC10 (regulator IC): Communicates with the product

Figure 8-43 Electrical circuitry for the booklet maker unit



Feed drive system

The stacker unit stacks paper delivered from the product, offsets stack jobs, or staples and delivers paper to the outputs according to commands from the product. The booklet maker unit carries, aligns, and stitches paper delivered from the product, and then feeds the resulting stack. After these operations, the booklet maker unit folds the stacks of paper and delivers them to the booklet-maker-unit output bin. The delivery methods are shown in the following figure.

Figure 8-44 Feed drive for the stacker unit

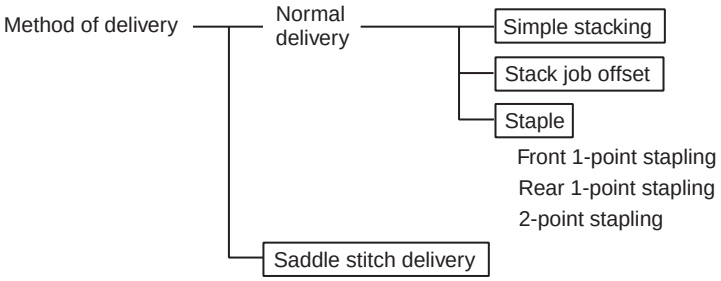
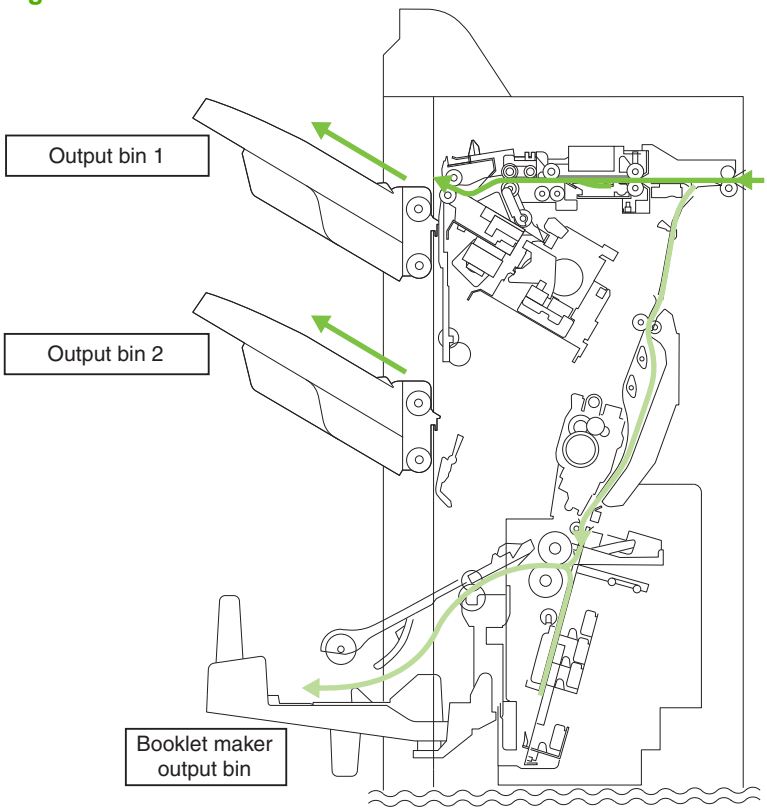


Figure 8-45 Feed drive for the booklet maker unit



Construction of the stacker-unit control system

The paper sent from the product is delivered to the output bin or the processing tray according to the type. Job offset or stapling is performed on paper delivered to the output bin, according to the instructions from the product. When paper ejects from the processing tray, a stack trailing-edge assist guide is used in addition to the stack-ejection roller to eject the stack. The inlet motor (M31), stack-ejection motor (M32), and stack trailing-edge assist motor (M39) are step motors. The microcomputer (CPU) in the stacker controller PCA rotates these motors forward or backward. The following two sensors in the paper delivery path detect the arrival or passing of papers:

- Stacking paper-path-entry sensor (PI33)
- Stacking paper-path-delivery sensor (PI34)

Each output bin also has sensors to detect the presence of a paper on the bin:

- First output-bin paper sensor (PI42)
- Second output-bin paper sensor (PI43)

If the sheet does not reach or pass each sensor within the prescribed time, the stacker controller PCA determines that the jam has occurred and stops the operation. It then notifies the product that a jam has occurred. After the jam is cleared and the doors are closed, the stacker unit checks whether the sheet is detected by the stacking paper path entry sensor or stacking paper path delivery sensor. If the sensors

detect a sheet of paper, the stacker unit determines that the jam is not cleared and re-sends the jam processing signal to the product.

Figure 8-46 Components of the stacker unit control system (1 of 2)

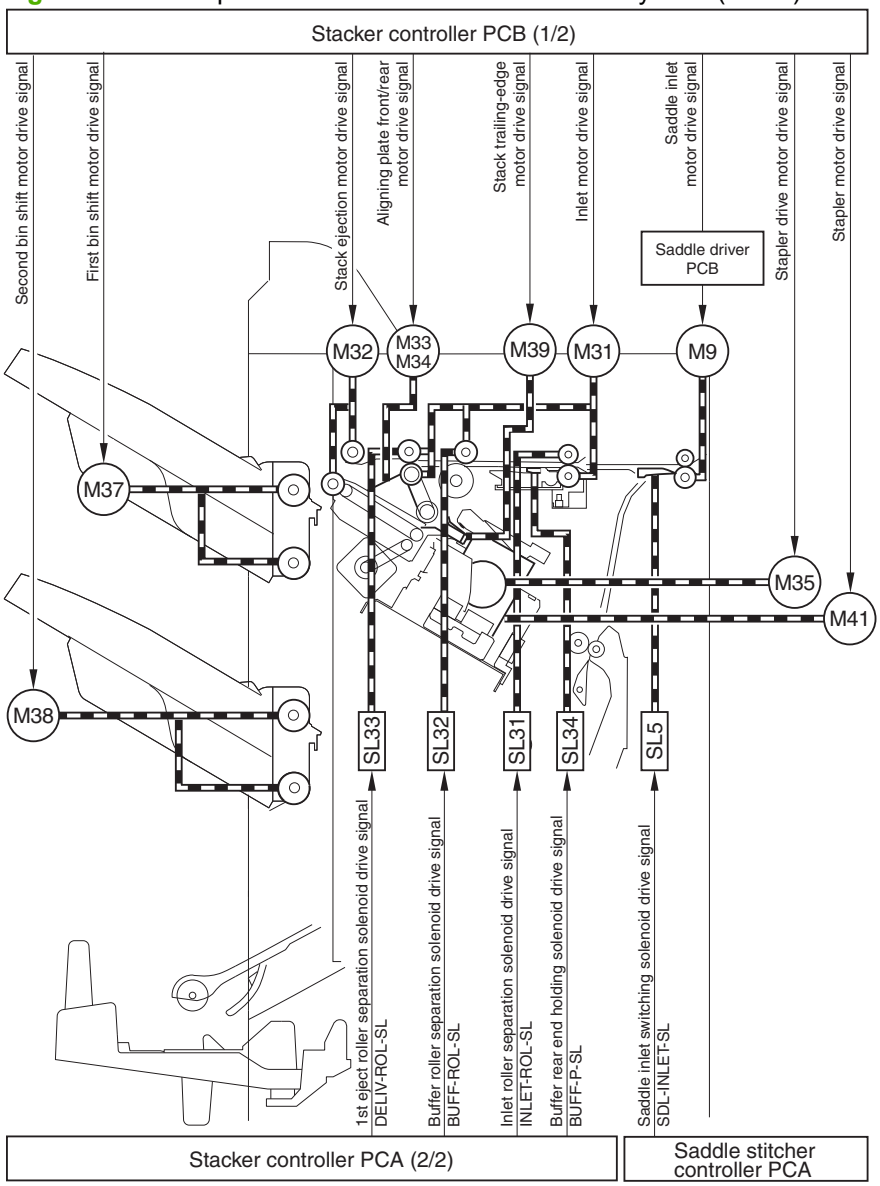
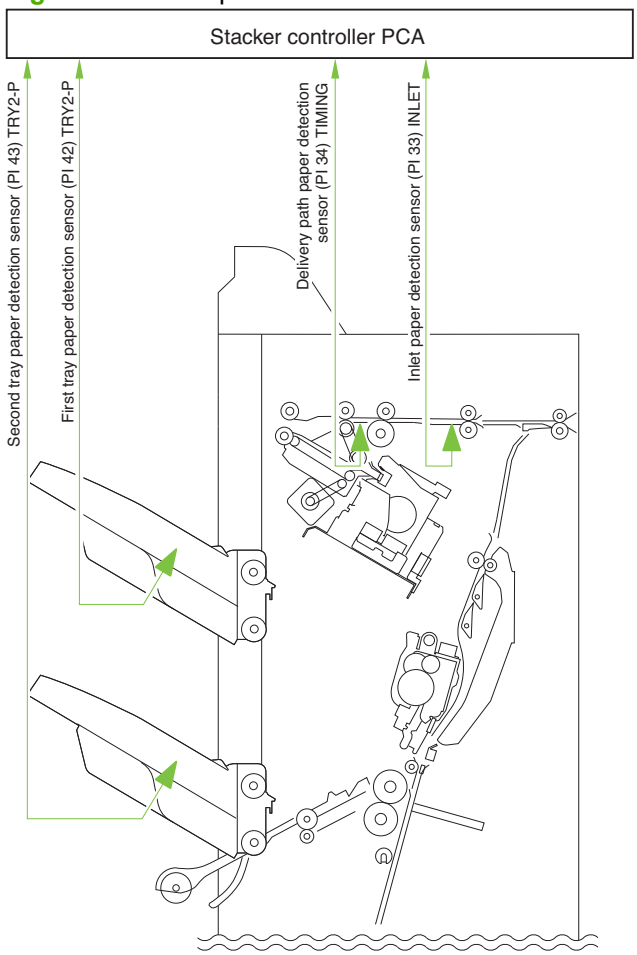


Figure 8-47 Components of the stacker unit control system (2 of 2)



Paper-delivery path for the stacker unit

See Paper delivery path (stapler/stacker and booklet maker) on page 677.

Construction of the booklet-maker-unit control system

- The paper-output mechanism keeps paper from the stacker unit in place for stapling and folding.
- The No. 1 flapper and the No. 2 flapper of the paper inlet configure the paper path to fit the paper size.
- The paper-positioning plate is kept at a predetermined location to fit the paper size.
- The paper-positioning-plate motor (M4) drives the paper-positioning plate, and the position of the plate is identified by the number of motor pulses coming from the paper-positioning-plate home-position sensor (PI7).
- The feed rollers and the crescent roller handle paper moved by the inlet roller and held in a predetermined position.
- The feed plate moves paper by coming into contact with or moving away from paper as needed.
- The alignment plates order the stack when paper is output. The alignment motor (M5) drives the alignment plates. The position of the alignment motor (M5) is identified by the number of motor pulses sent from the alignment-plate home-position sensor (PI5).

- The guide plate covers the folding rollers to prevent interference between paper and the paper-folding rollers when paper is output. The guide plate moves down before paper is folded to expose the paper-folding rollers.
- The inlet has three paper sensors (PI18, PI19, PI20) that are each suited to specific paper sizes.
- The paper-positioning plate has a paper-positioning-plate paper sensor (PI8).

Figure 8-48 Components of the booklet-maker-unit control system

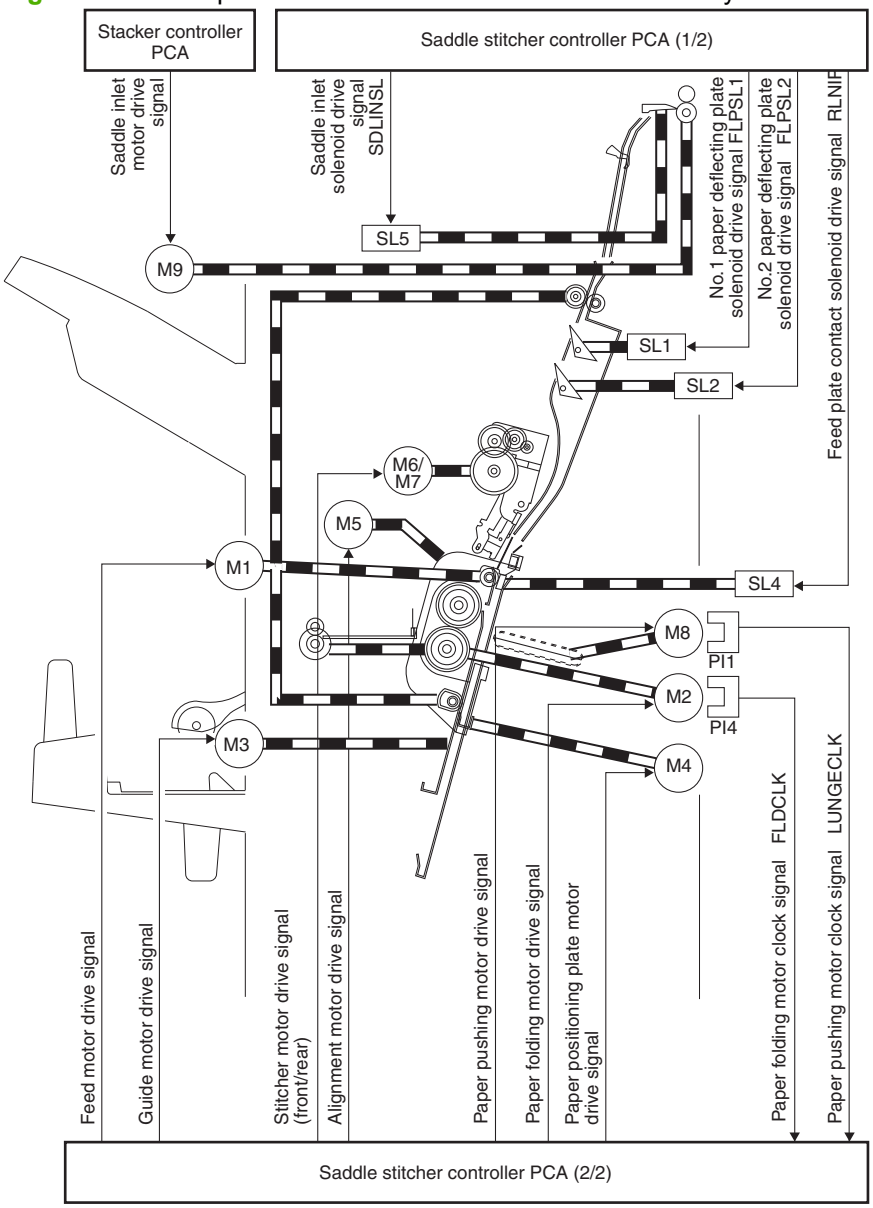
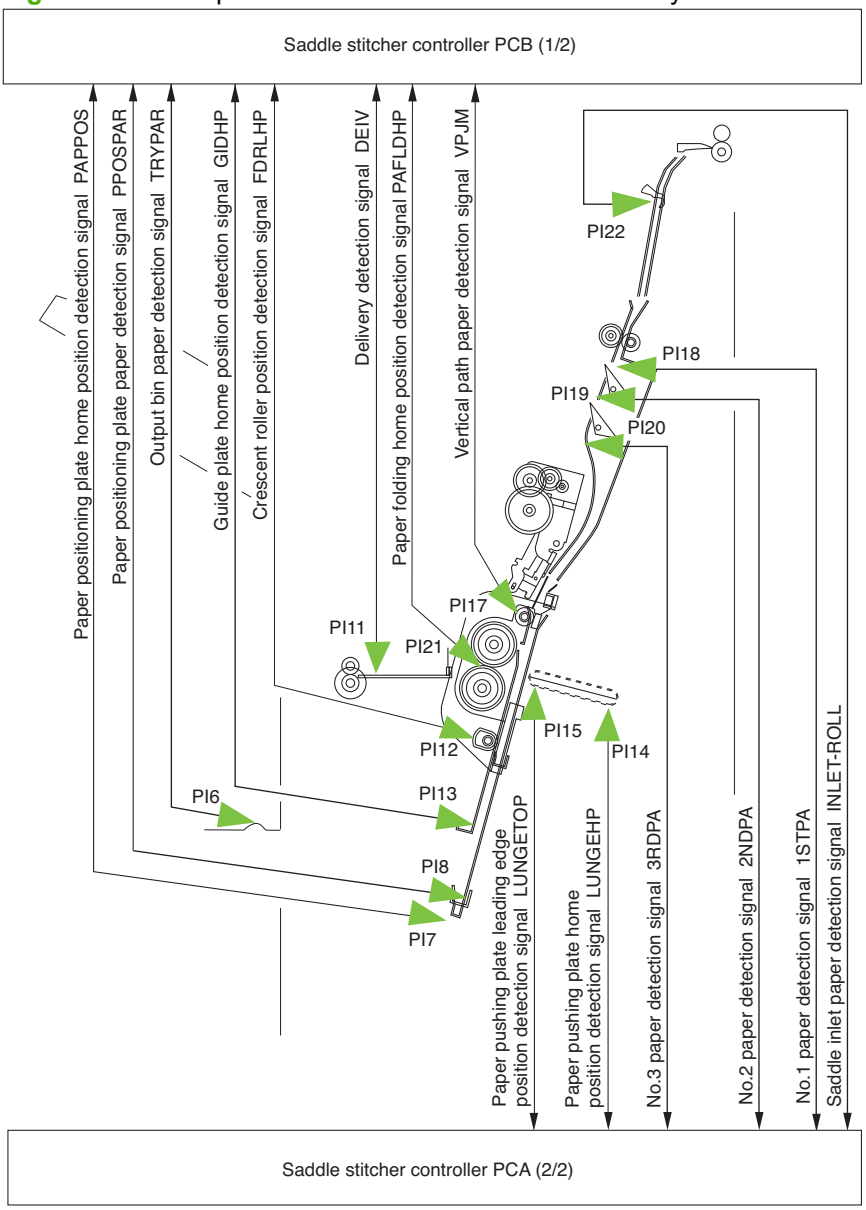


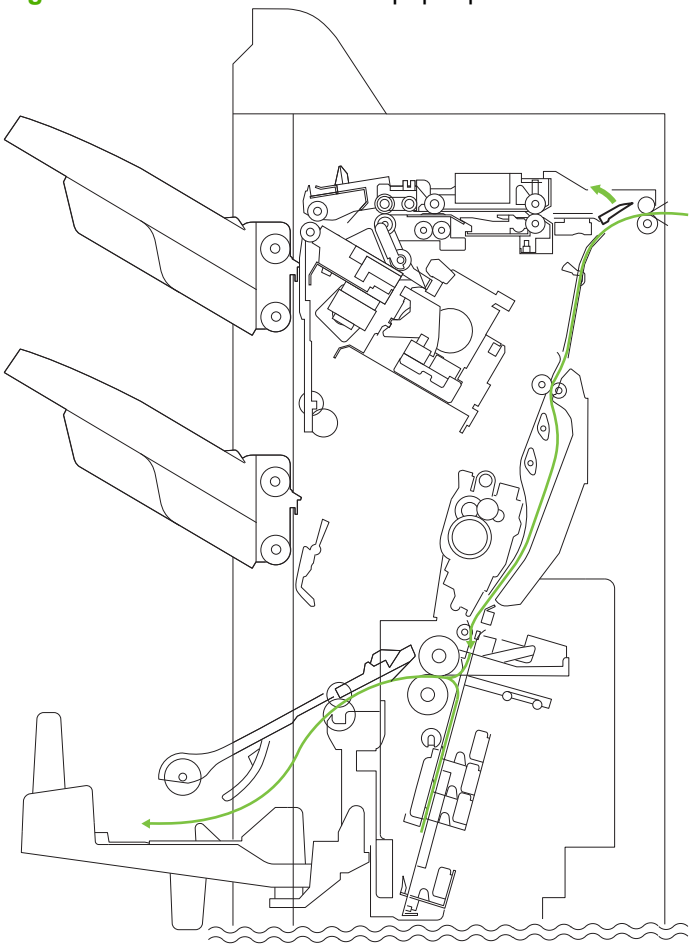
Figure 8-49 Components of the booklet-maker control system



Paper-delivery path (booklet maker only)

The saddle-stitcher flapper routes paper from the product to the booklet maker unit. The booklet maker unit staples, folds and then delivers the paper to the booklet-maker-unit output bin.

Figure 8-50 Booklet-maker-unit paper path

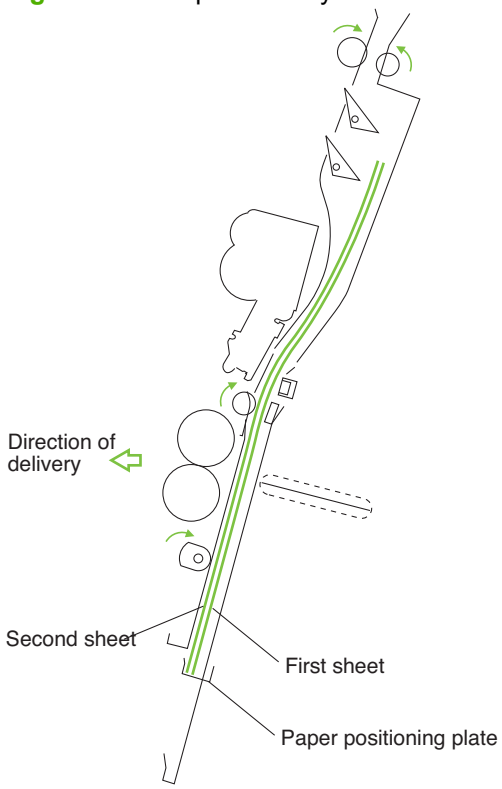


Basic operation for the booklet maker

- When receiving paper from the stacker unit, the booklet maker unit outputs paper in a vertical orientation to a vertical path.
- Two paper-deflecting plates configure the path.

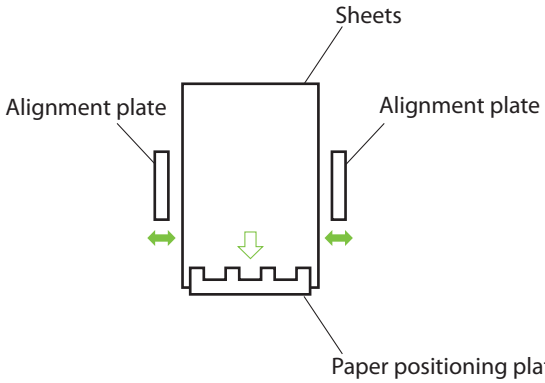
- The paper-positioning plate sets the position of the paper so that the center of the stack matches the stapling/folding position.
- Subsequent paper is output closer to the delivery slot. The volume of paper that can be output is as follows: 15 sheets (maximum of 14 sheets of 80 g/m^2 + 1 sheet of 250 g/m^2).

Figure 8-51 Paper delivery for booklet maker



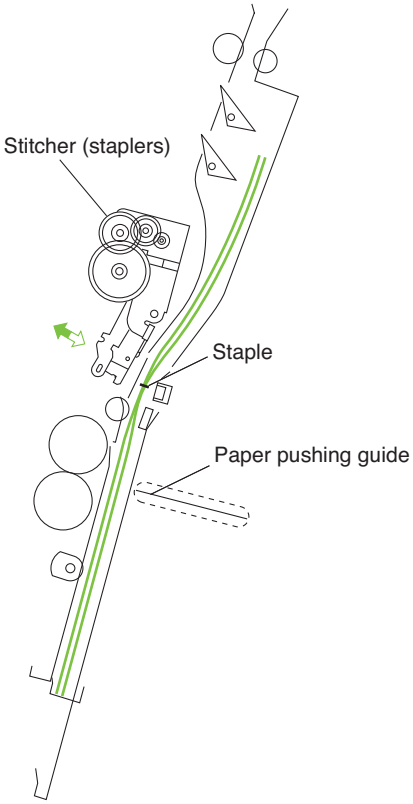
The alignment plates put paper in order when it is output to the vertical-path assembly. Mounted at the edge of the-vertical path assembly, alignment plates also prepare the stack for delivery after stapling.

Figure 8-52 Alignment plates



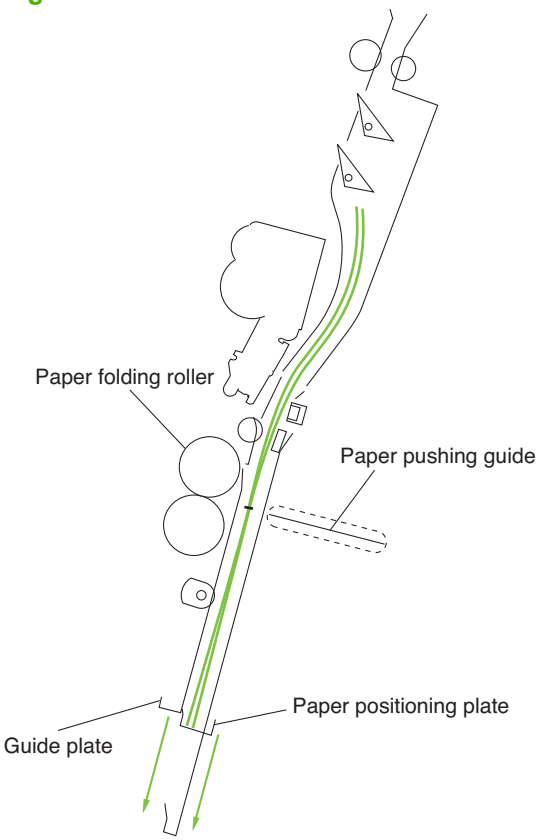
When all paper has been output, the two stitchers staple the stack. The stitchers face the center of a stack and alternate to prevent the paper from wrinkling and to limit the load on the power supply. If only one sheet arrives, stitching does not take place and the next operation (stack feeding) occurs.

Figure 8-53 Stitching the stack



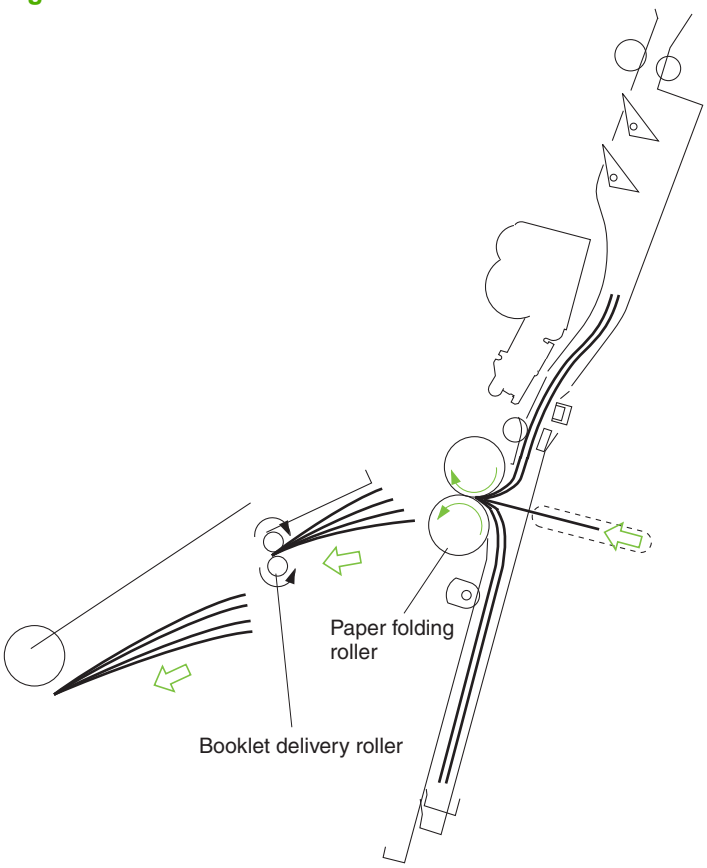
The booklet maker unit folds the stitched stack, and then feeds it to where the stapling position matches the height of the paper-pushing plate and the paper-folding roller nip. The paper-positioning plate moves the stack forward and the guide plate descends so that the paper-folding rollers directly face the stack.

Figure 8-54 Position the stack



The paper-pushing plate moves the stack to the paper-folding rollers that hold the stack at its center and fold it. The paper-folding rollers and delivery roller then output the stack to the output bin.

Figure 8-55 Fold and deliver the stack



Control of the inlet flappers

The two flappers mounted at the paper inlet configure the feed path according to paper size. The flappers detect the trailing edge of the paper and prevent the trailing paper from butting against the top of the existing stack. The following table shows the relationship between sensors and paper sizes.

Table 8-9 Sensors and paper sizes

Sensor	A3/279 mm x 432 mm (11 x 17)	B4/LGL	A4R/LTRR
No.1 paper sensor (PI18)	Used	Used	Used
No.2 paper sensor (PI19)	Not used	Used	Used
No.3 paper sensor (PI20)	Not used	Not used	Used

Each flapper is driven by its own solenoid. The following table shows the relationship between solenoids and paper sizes.

Table 8-10 Solenoids and paper sizes

Sensor	A3/279 mm x 432 mm (11 x 17)	B4/LGL	A4R/LTRR
No.1 paper-deflecting solenoid (SL1)	off	on	on
No.2 paper-deflecting solenoid (SL2)	off	off	on

Figure 8-56 A3/279 mm x 432 mm (11 x 17) paper path (3 sheets)

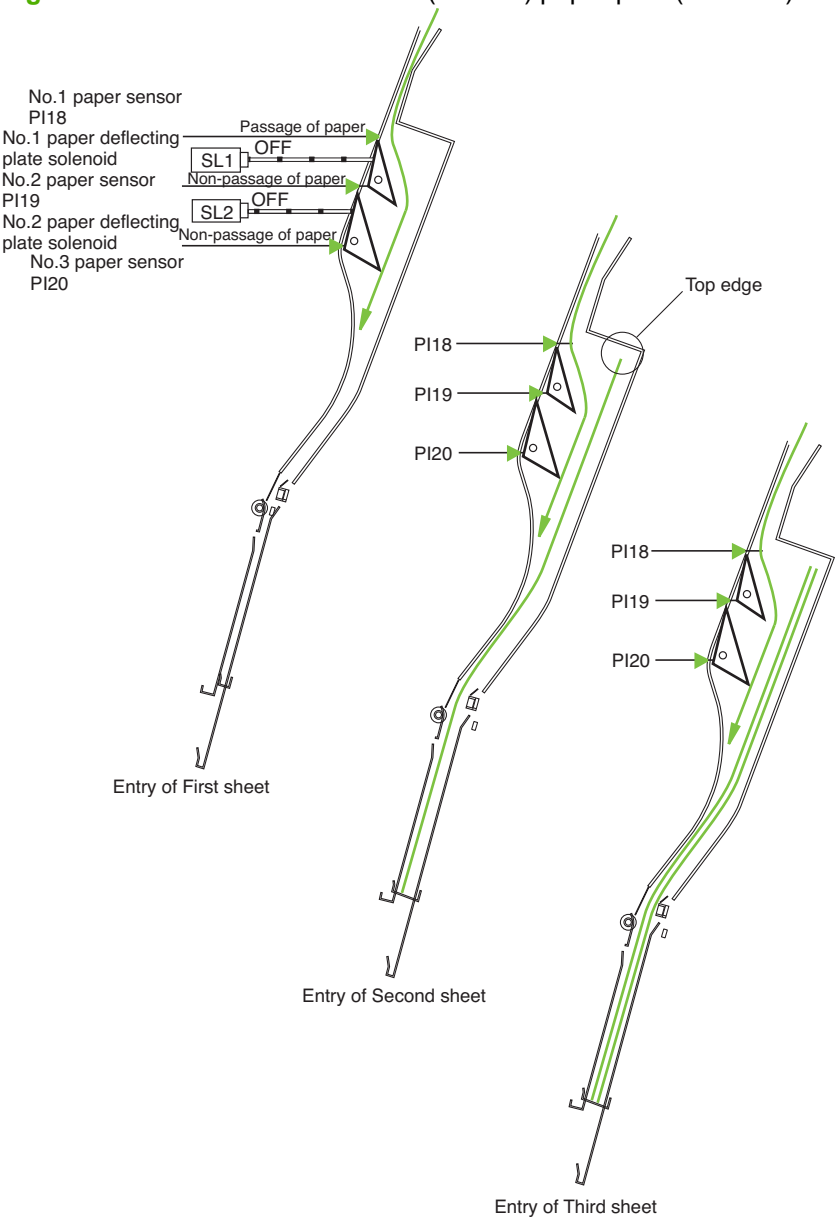


Figure 8-57 B4/LGL paper path (3 sheets)

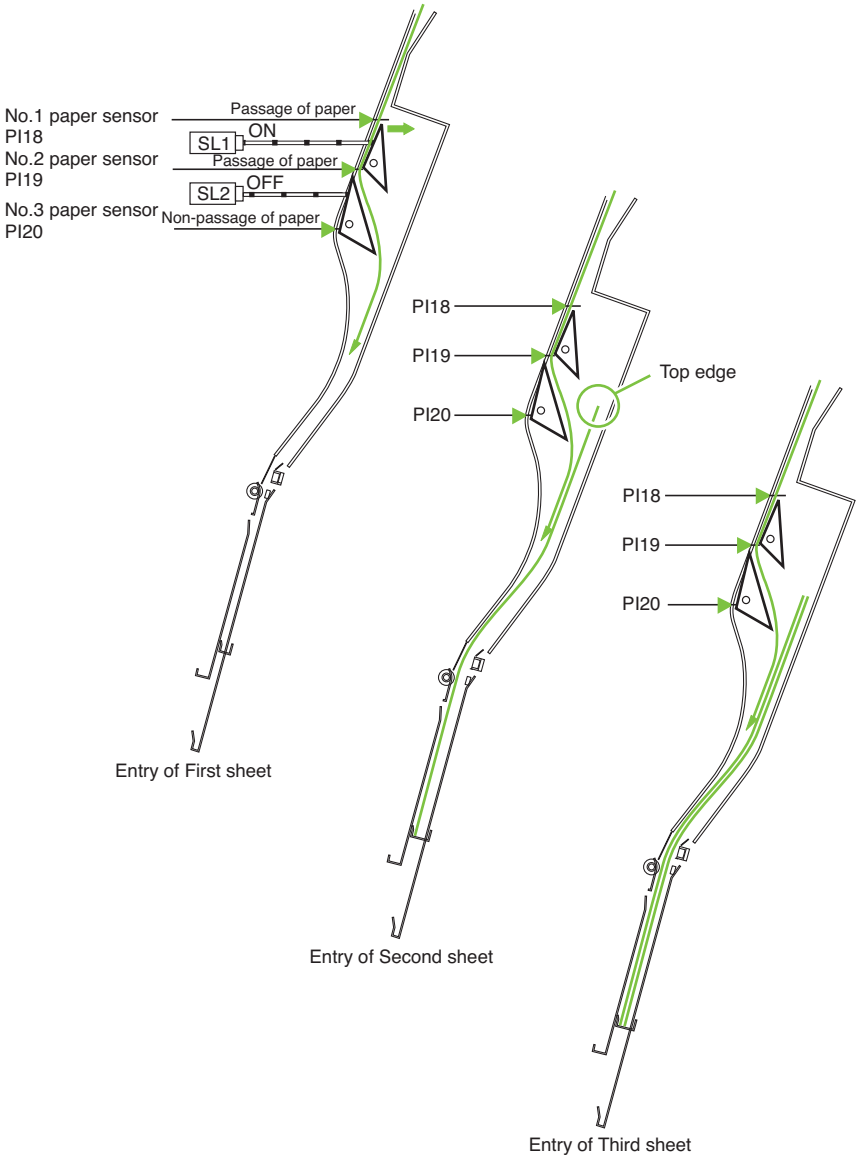
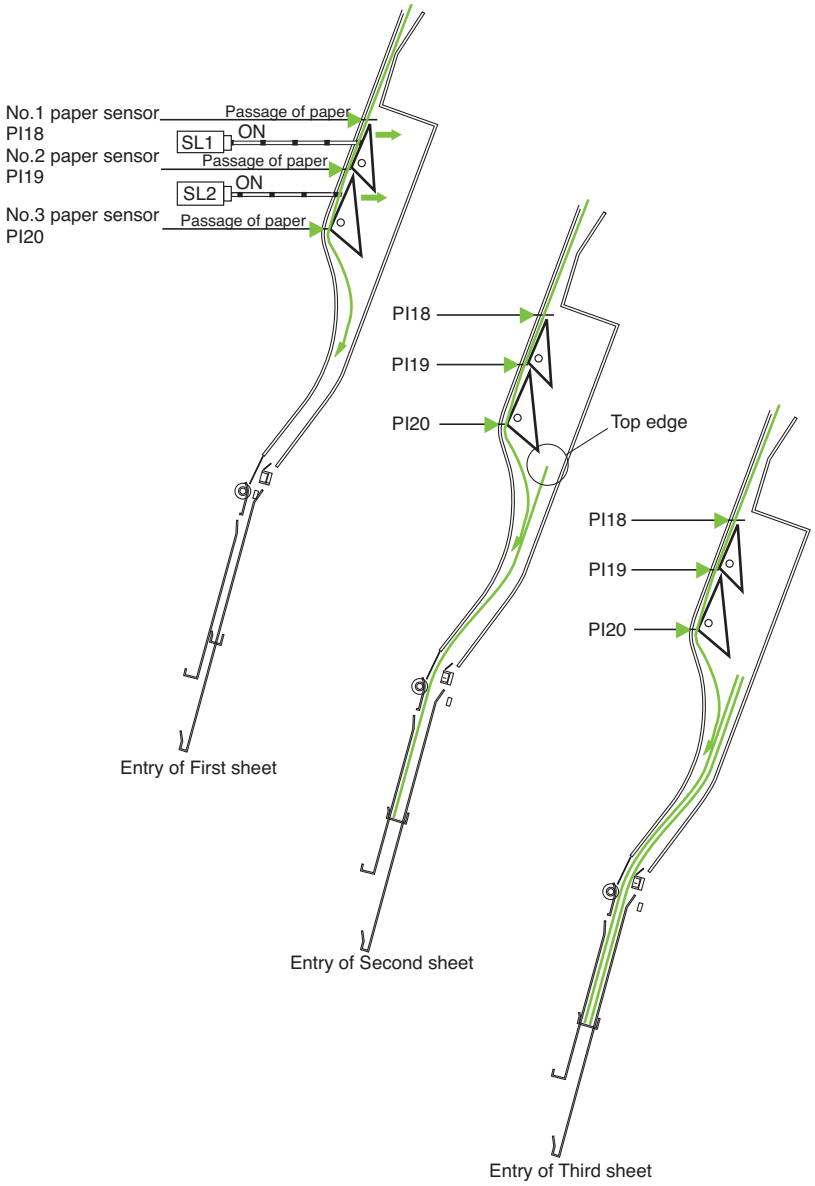


Figure 8-58 A4R/LTRR Paper Path (3 sheets)



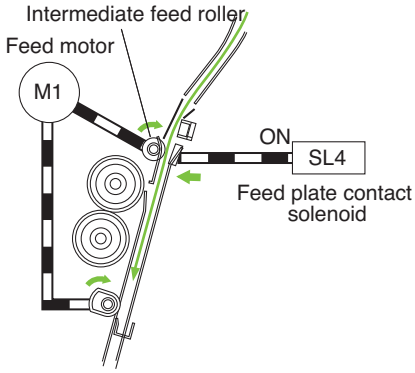
Control of paper movement

- When the leading edge of the paper has passed the inlet flapper, the intermediate-feed roller and the crescent roller start to move the paper forward.
- When the leading edge of the paper reaches the intermediate-feed roller, the feed-plate-contact solenoid (SL4) causes the roller to contact the path bed and move the paper forward. When the leading edge of the paper reaches the paper-positioning plate, contact is broken.
- When the leading edge of the first sheet reaches the paper-positioning plate, the paper-positioning-plate paper sensor (PI8) turns on. Subsequent sheets will not be checked because the first sheet will still be over the sensor.

- The crescent roller rotates while sheets are output, butting the leading edge of each sheet against the paper-positioning plate and keeping the leading edge of the stack in order.
- The alignment motor (M5) drives the alignment plates for each sheet to keep both the left and right edges of the sheet in order.

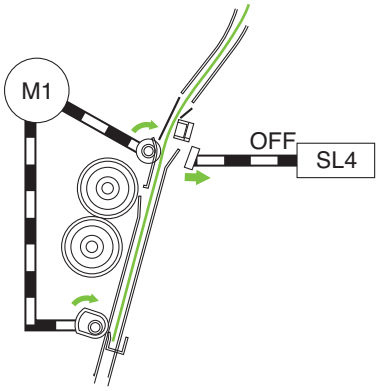
1. The solenoid turns on while paper is being moved so that the feed plate comes into contact.

Figure 8-59 Paper movement (1 of 3)



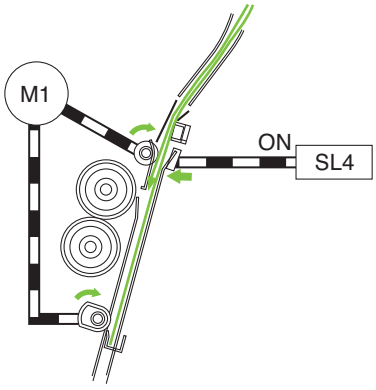
2. The solenoid turns off when the paper touches the paper-positioning plate. The feed motor continues to rotate.

Figure 8-60 Paper movement (2 of 3)



3. The solenoid turns on when the next sheet arrives, and the feed plate comes into contact.

Figure 8-61 Paper movement (3 of 3)

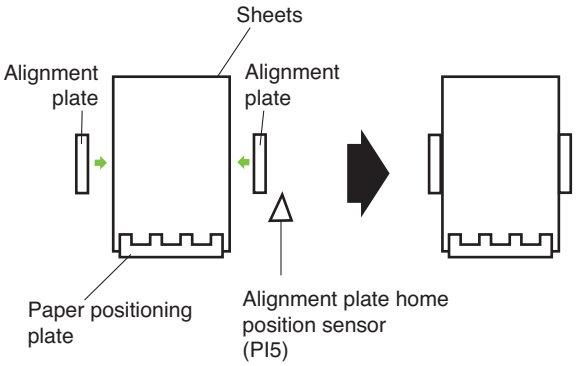


Alignment of paper

The alignment motor (M5) drives the alignment plates each time paper is output, putting both left and right edges of the sheet in order. The alignment-plate motor is a four-phase stepping motor. The position of the alignment plate is identified by the number of motor pulses from the alignment-plate home-position sensor (PI5). The following briefly describes how the saddle-stitching mechanism operates on two sheets.

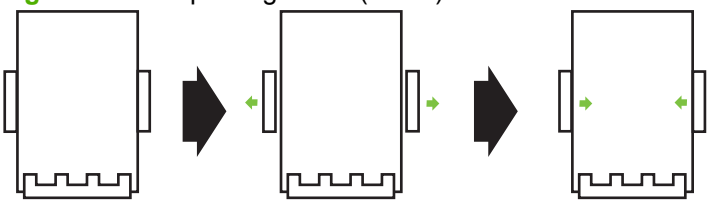
1. When the first sheet is output, the alignment plates touch the left and right edges of the stack (first alignment). The alignment plates leave the home position in advance and wait at points 10 mm from the edges of the stack.

Figure 8-62 Paper alignment (1 of 8)



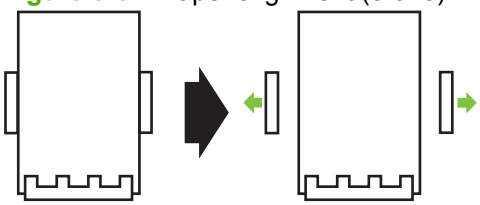
2. The alignment plates move away from the stack and then return (Second alignment).

Figure 8-63 Paper alignment (2 of 8)



3. The alignment plates move 10 mm from the edge of the stack.

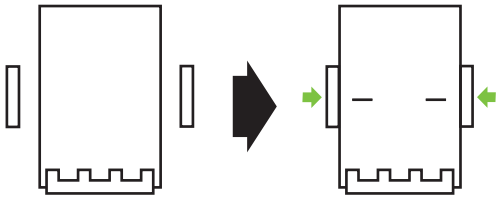
Figure 8-64 Paper alignment (3 of 8)



4. When the stack arrives, steps 1 through 3 repeat.

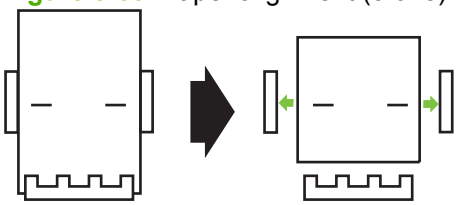
5. The alignment plates return to the stack and stitching takes place.

Figure 8-65 Paper alignment (4 of 8)



6. The alignment plates move 10 mm from the edges of the stack and folding and delivery takes place.

Figure 8-66 Paper alignment (5 of 8)



7. When the first sheet of the following stack reaches the No. 1 paper sensor, the guide moves to 10 mm from the edge of the stack for the next alignment.

Figure 8-67 Paper alignment (6 of 8)

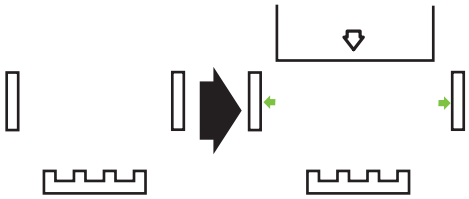


Figure 8-68 Paper alignment (7 of 8)

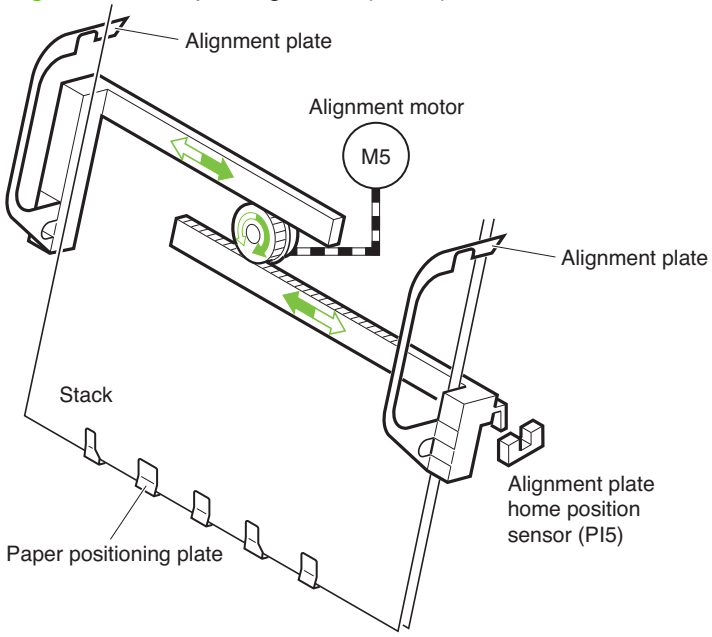
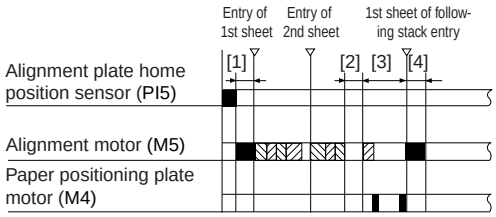


Figure 8-69 Paper alignment (8 of 8)

In case of 2 sheets:



: Alignment : Escape

[1]: Move to wait position
[2]: Stapling period
[3]: Paper folding/delivery period
[4]: Move to following stack size wait position

Control the phase of the crescent roller

During alignment, the crescent roller can create friction against the roller causing the stack to move incorrectly. To prevent this problem, the crescent-roller phase sensor (PI12) identifies the phase of the crescent roller to determine the timing of alignment. The flag for the crescent-roller phase sensor is

mounted to the crescent-roller shaft. The roller shaft rotates, turning the sensor on and off. Operation of the alignment plates corresponds with the change in the state of the sensor.

Figure 8-70 Crescent-roller process (1 of 4)

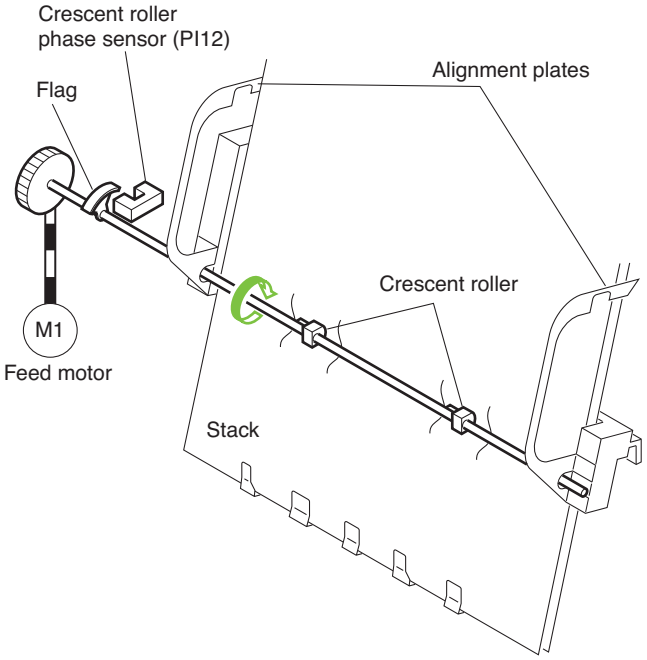


Figure 8-71 Crescent-roller process (2 of 4)

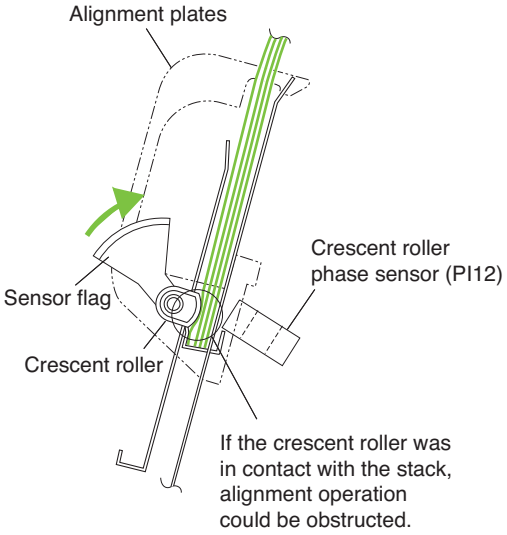


Figure 8-72 Crescent-roller process (3 of 4)

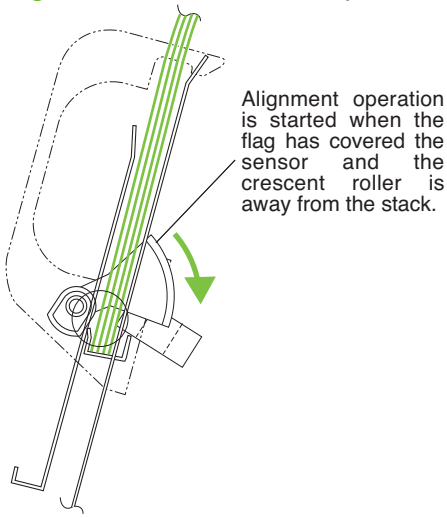
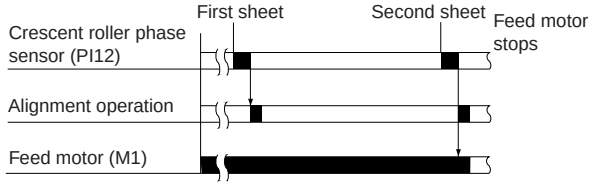


Figure 8-73 Crescent-roller process (4 of 4)



Overview of folding

The paper-folding mechanism includes a guide plate, paper-folding rollers, paper-pushing plate, and paper-positioning plate. The guide plate covers the folding rollers to prevent sheets from contacting the folding rollers during output. Before folding, the guide plate descends, allowing the folding rollers to operate. The following tables show the names and the functions of the motors and sensors used by the paper folding mechanism.

Motor	Function
Paper-folding motor (M2)	Drives the folding roller
Paper-pushing-plate motor (M8)	Drives the paper-pushing plate

Sensor	Function
Paper-pushing-plate-motor clock sensor (PI1)	Detects the paper-pushing-plate-motor clock
Paper-folding-motor clock sensor (PI4)	Detects the paper-folding-motor clock
Output-bin paper sensor (PI6)	Detects the presence/absence of a stack of sheets in the saddle output bin
Delivery sensor (PI11)	Detects the paper delivery
Paper-pushing-plate home-position sensor (PI14)	Detects the paper pushing plate leading edge position
Vertical-path paper sensor (PI17)	Detects the presence/absence of paper after removal of a jam
Paper-folding home-position sensor (PI21)	Detects the paper-folding home position

Control of stack movement

After stitching, the paper-positioning plate lowers allowing the stack to come into contact with the paper-folding rollers. The location of the paper-positioning plate is determined by the number of motor pulses from the paper-positioning home-position sensor (PI7). As the paper-positioning plate operates, the guide plate lowers for folding.

Figure 8-74 Movement of the stack

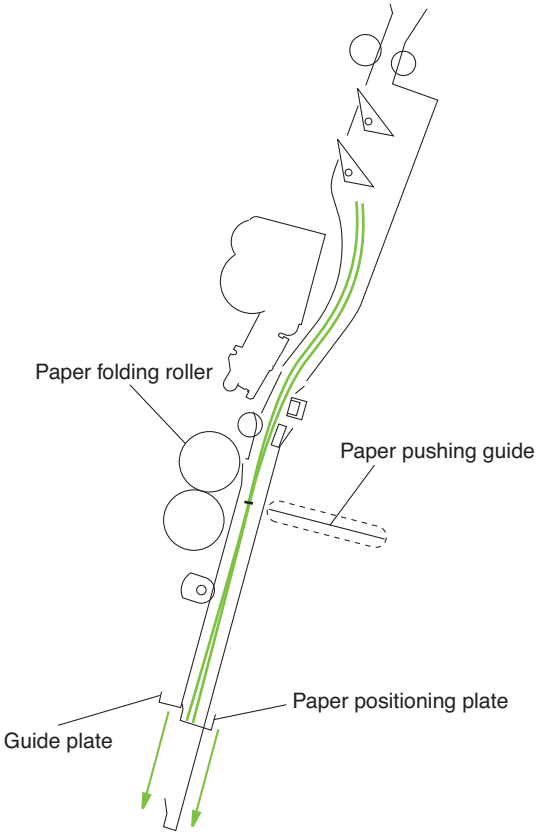
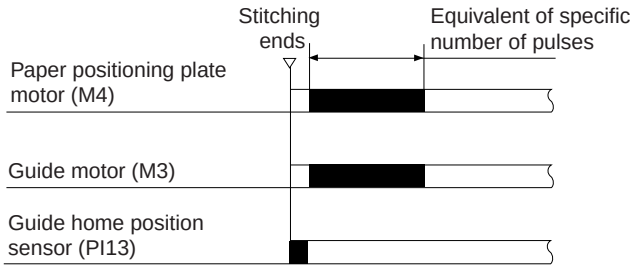


Figure 8-75 Stack sequence



Fold the stack

The paper-pushing plate pushes the center of the stack to the roller-contact section and waits at the leading-edge position until the stack is taken by the paper-folding roller. When the paper-folding roller has gripped the stack, the paper-pushing-plate motor rotates, returning the paper-pushing plate to its home position. The paper-folding roller draws the stack until the delivery roller moves it to the output bin. The thickness of the paper-folding rollers is reduced at the upper half of the periphery but maintained in the center area and at the lower half of the periphery. At the lower half of the periphery where the thickness is not reduced, the paper-folding roller (upper) and the paper-folding roller (lower) contact each other tightly, and paper starts to be folded at this position. The upper and lower rollers feed paper

while folding it and stop at the folding position. At the upper half of the periphery where the thickness is reduced, the upper and lower paper-folding rollers do not contact each other except at the center, so they only feed the paper to prevent paper from being wrinkled. The paper-folding start and stop positions are controlled by the number of motor pulses delivered from the paper-folding home-position sensor (P121).

Figure 8-76 Folding position (1 of 5)

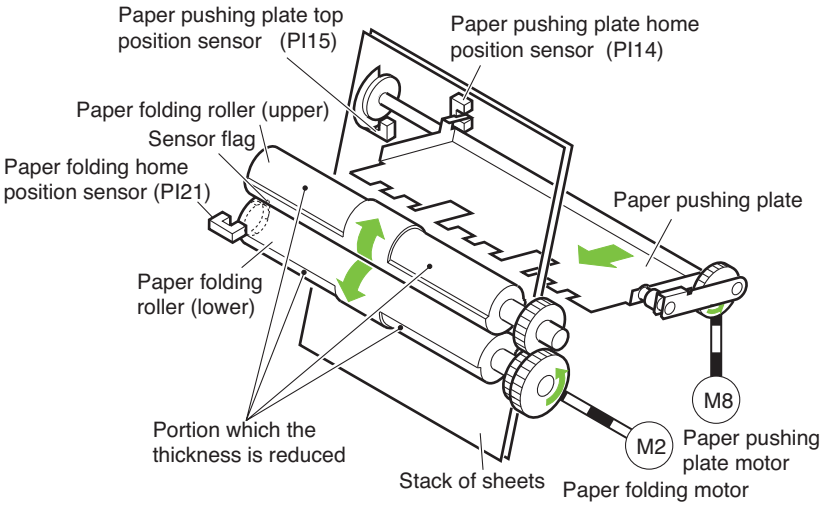


Figure 8-77 Folding process (2 of 5)

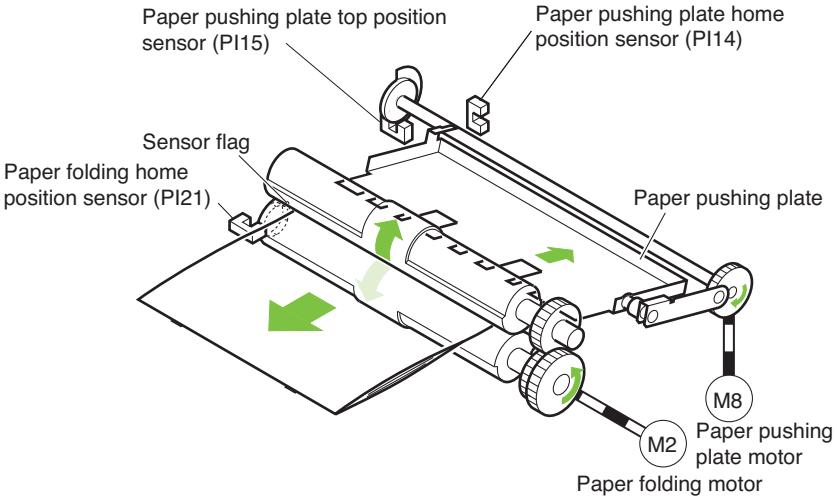


Figure 8-78 Folding start position (3 of 5)

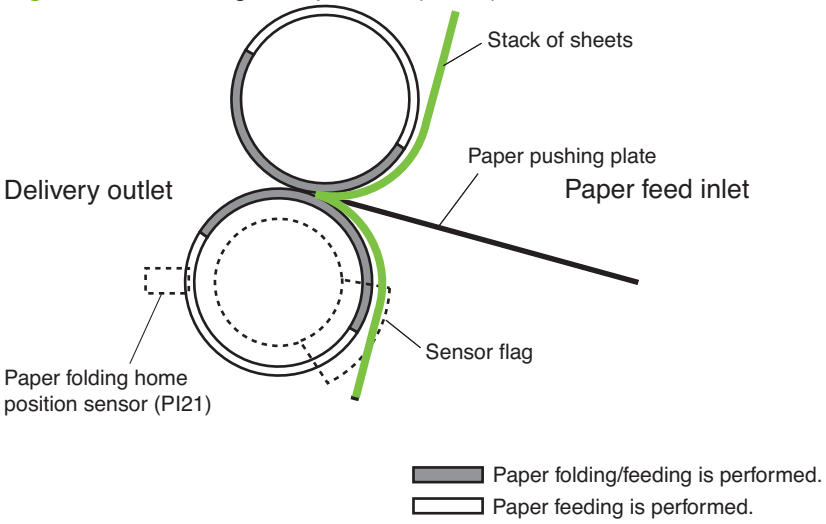


Figure 8-79 Folding start position (4 of 5)

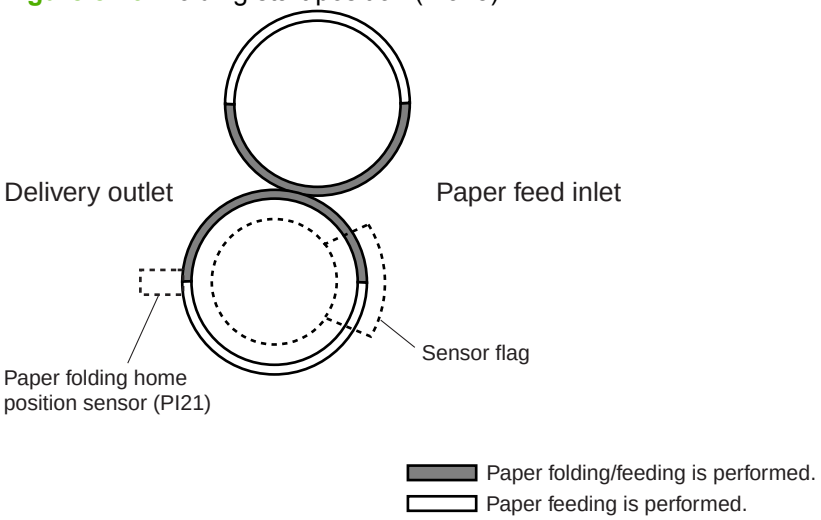
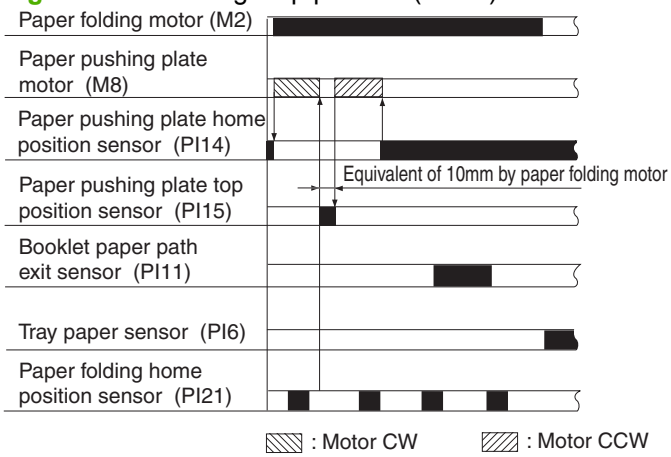


Figure 8-80 Folding stop position (5 of 5)

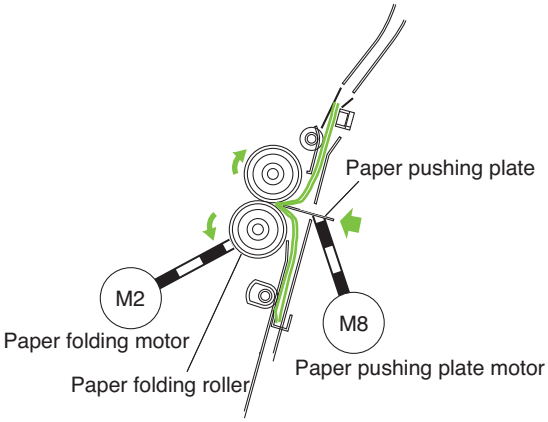


Double folding a stack

A stack of 10 or more A4R or LTRR sheets is folded twice.

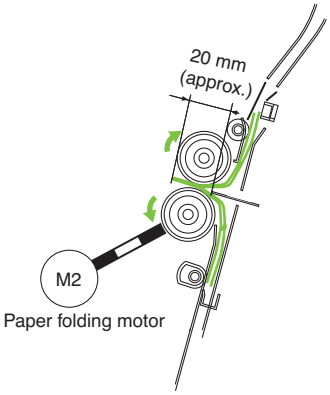
1. The paper-pushing plate pushes the stack to the paper-folding rollers.

Figure 8-81 Double-folding process (1 of 5)



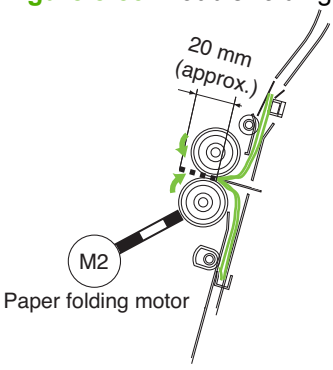
2. The paper-folding rollers grip the stack.

Figure 8-82 Double-folding process (2 of 5)



3. The paper-folding rollers rotate in reverse, pushing the stack backward 20 mm (reverse feeding).

Figure 8-83 Double-folding process (3 of 5)



4. The paper-folding rollers rotate forward to push the stack forward. The paper-pushing plate returns to its home position.

Figure 8-84 Double-folding process (4 of 5)

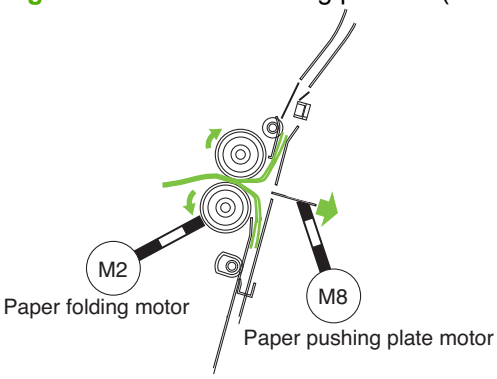
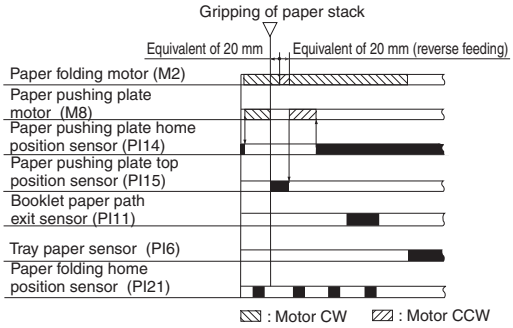


Figure 8-85 Double-folding process (5 of 5)



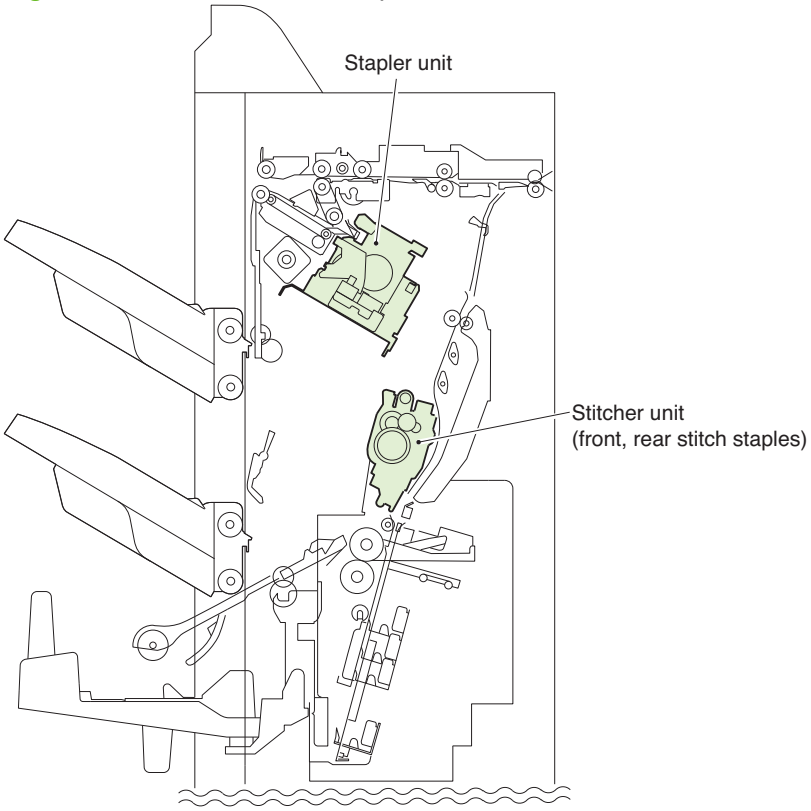
Intermediate-process-tray assembly

See Intermediate-process output-bin assembly (stapler/stacker and booklet maker) on page 681.

Staple operation

The stacker unit provides 1-point front stapling, 1-point rear stapling, and 2-point stapling. The booklet stapler provides 2-point center stapling.

Figure 8-86 Location of the staplers



Stapler unit

- The staple motor (M41) rotates the cam one turn for stapling. The macro computer (IC101) on the stacker controller PCA controls the motor.
- The staple home-position sensor (PI50) detects the home position of the cam. When the staple home-position sensor is off, the stacker controller PCA rotates the staple motor forward until the sensor turns on, moving the staple cam to its original position.
- The staple sensor (PI52) detects presence of a staple cartridge and of staples in the cartridge.
- The staple-edging sensor (PI51) determines whether staples are pushed to the top of the staple cartridge.
- For safety, the stacker-controller circuit does not drive the staple motor (M41) unless the staple safety switch (MS34) is turned on.

Figure 8-87 Stapling operation (1 of 2)

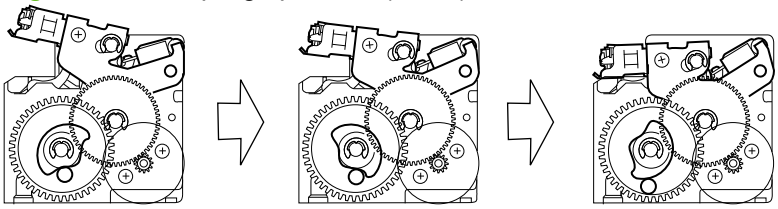
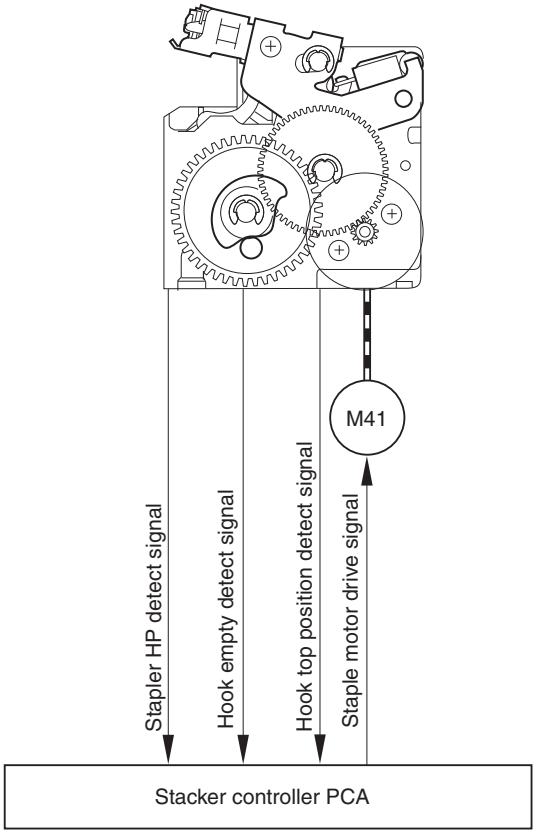


Figure 8-88 Stapling operation (2 of 2)



Stapling operation

See Staple operation (stapler/stacker and booklet maker) on page 685.

Stitcher (stapler) unit

The stitcher base unit includes two stitchers and stitcher bases. The stitchers are fixed in position and do not slide or swing. Stitching begins when the stitcher motor (M7, M6) drives the rotary cam. The front and rear stitcher units operate with a time delay to prevent wrinkling of paper and to limit the load applied to the power supply. The stitcher home-position sensor (SW7, SW5) monitors the movement of the rotary cam and allows identification of individual stitcher operations. The staple sensor (SW6, SW4)

detects the presence or absence of staples inside the staple cartridge. The alignment plates keep both edges of the stack in place while stitching takes place.

Figure 8-89 Stitcher unit

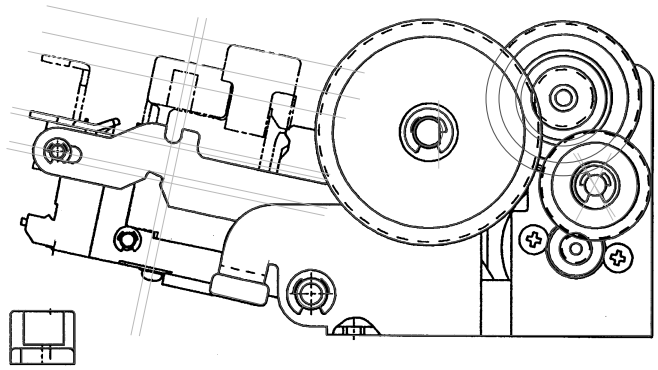


Figure 8-90 Sequence of stitching

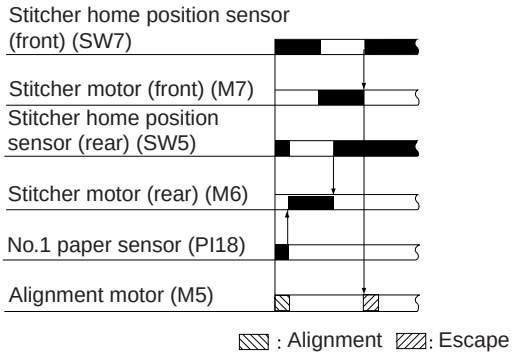
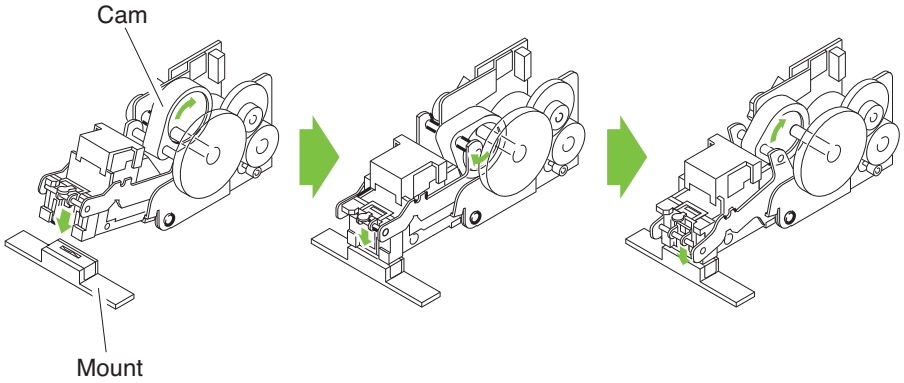


Figure 8-91 Rotation of the cam



Stack operation

See Stack operation (stapler/stacker and booklet maker) on page 691.

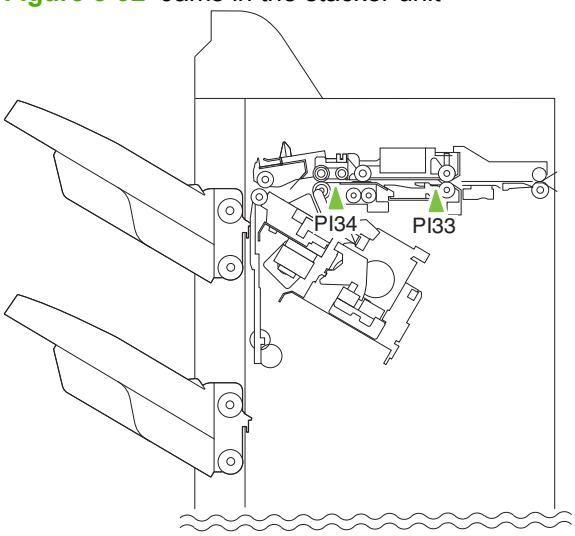
Jam detection

The stacker unit and booklet maker unit detect jams and provide messages to the product.

Detect jams in the stacker unit

The inlet sensor (PI33) and delivery sensor (PI34) detect the presence of paper to determine if paper is delivered properly. A jam is identified by checking whether paper is present at each sensor at the timing programmed in the memory of the microcomputer (CPU) on the stacker controller PCA. When the CPU identifies a jam, it suspends the stacker's delivery operation and informs the product. When all doors are closed after the paper jam is removed, the stacker checks whether paper is detected by the sensors (inlet sensor and delivery sensor). If the sensors detect paper, the stacker determines that paper jam is not removed and resends the message to the product.

Figure 8-92 Jams in the stacker unit

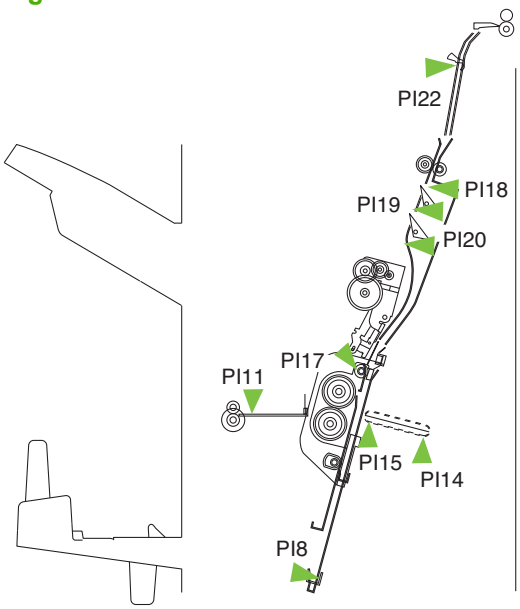


Detect jams in the booklet maker unit

The saddle stitcher unit identifies any of the following conditions as a jam, and sends the jam signal to the product. When all doors are closed after the jam is removed, the saddle stitcher unit checks whether the vertical-path paper sensor (PI17) has detected the presence of paper. If the sensor has detected

paper, the unit identifies the condition as being a faulty jam removal and sends the jam signal to the product once again.

Figure 8-93 Jams in the booklet maker unit



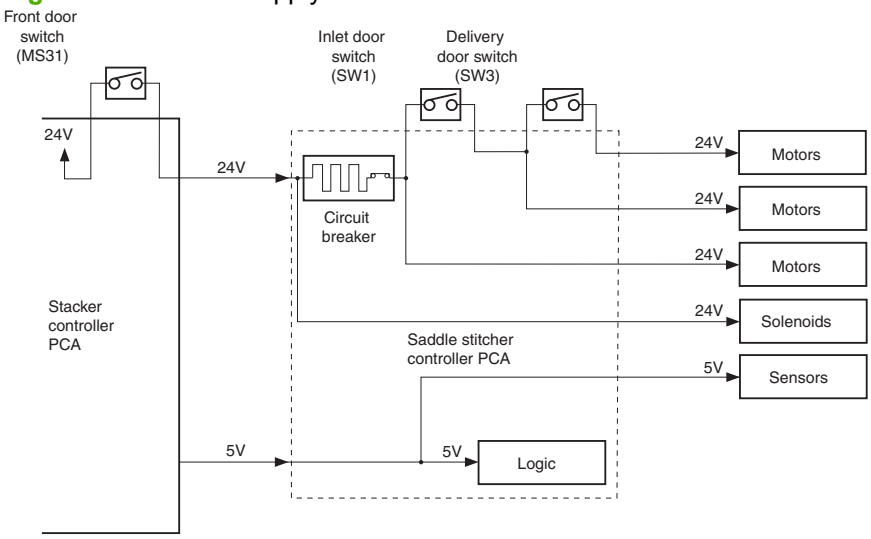
Power supply

The stacker unit and booklet maker unit use both 5 Vdc and 24 Vdc power.

Power-supply route for the stacker unit

When power is turned on, 5 Vdc and 24 Vdc are supplied from the product to the stacker controller PCA. The 24 Vdc power drives the motor, solenoid, and so on. The 5 Vdc power drives sensors, IC chips on the stacker controller PCA, and so on. Both 5 Vdc and 24 Vdc are also supplied from the stacker controller PCA to the saddle-stitcher controller PCA. The 24 Vdc power for the motor drive is shut down when the front door switch (MS31) is open. A block diagram of the power supply is shown as follows.

Figure 8-94 Power-supply route for the stacker unit



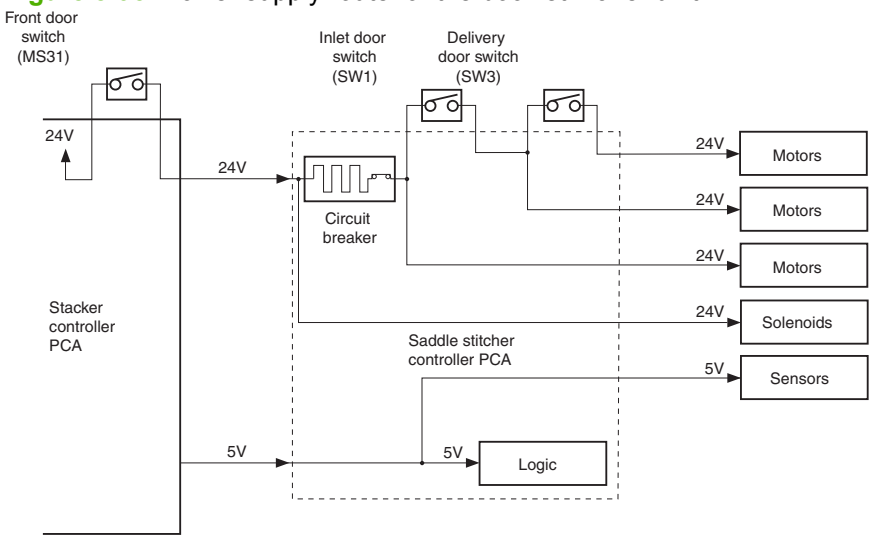
Protective function for the stacker unit

The 24 Vdc has a fuse or motor driver with over-current protection.

Power-supply route for the booklet maker unit

When the power to the product is turned on and the door is closed, 24 Vdc and 5 Vdc are supplied from the stacker-controller PCA as saddle stitcher power. The 24 V power supply to solenoids is supplied from the stacker controller PCA without passing through protection mechanisms such as microswitches. The 5 Vdc power drives sensors, IC chips on the stacker controller PCA, and so on. The 24 V power supply to motors is not supplied if either of the door switches of the booklet maker unit is open.

Figure 8-95 Power supply route for the booklet maker unit



Protective function for the booklet maker unit

The 24 Vdc power supply for motors and solenoids comes with a circuit breaker (CB1). The 24 V power supply for the guide motor (M3), alignment motor (M5), and the paper-positioning plate motor (M4) comes with a fuse designed to blow when there is too much current.

Specifications

- Accessory specifications
- Stapler/stacker output-bin capacities
- Booklet-maker output-bin capacities

Accessory specifications

Table 8-11 Stapling and stacking specifications (stapler/stacker and booklet maker)

Item	Specifications		Remarks
Stacking method	Stack sub tray (for stapler/stacker only), output bin 1 and output bin 2: by lifting tray		Stack sub tray is interlocked with output bin 1
Stacking orientation	Face down		
Paper capacity	Paper form	Cut-sheet	
	Special paper	Envelope, OHT film, colored paper, label paper, thick paper	
	Paper weight	60 g/m^2 to 220 g/m^2	
	Paper size	Feed direction: 139.7 mm to 482.6 mm	Large size paper length > 216 mm Small size maximum paper length:216 mm
		Cross feed direction: 98.425 mm to 330.2 mm	
Mode	Non sort, job offset, staple sort		
Paper size	Non sort	A3, B4, A4, A4-R, B5-R, A5-R, LDR, LGL, LTR, LTR-R, EXE-R, Youkei No.4, Kakukei No.2, COM10, Monarch, DL, C5, B5 envelope, New-DRY type postcard, 12 x 18, 312 x 440 mm, custom size	Large size: A3, B4, A4-R, LDR, LGL, LTR-R Small size: A4, B5-R, A5-R, LTR, EXE-R
	Job offset	A3, B4, A4, A4-R, LDR, LGL, LTR, LTR-R	
	Staple sort	A3, B4, A4, A4-R, LDR, LGL, LTR, LTR-R	

Table 8-11 Stapling and stacking specifications (stapler/stacker and booklet maker) (continued)

Item	Specifications			Remarks
Stacking capacity	Non sort, Job offset	Stack sub tray (for stapler/stacker only)	Large size maximum stack height: 17 mm Small maximum stack height: 24 mm	Stack tray overstacking detection is provided.
		Output bin 1	Large size maximum stack height: 73.5 mm Small size maximum stack height: 73.5 mm	
		Output bin 2	Large size maximum stack height: 73.5 mm Small size maximum stack height: 147 mm	
	Staple sort	Large size maximum stack height: 73.5 mm Small size maximum stack height: 73.5 mm 30 copies or less		
	Special paper	Not specified but up to 10 envelopes can be stacked		
Mixed stacking	Non sort	Plain paper, recycled paper 60 to 80 g/m^2	Maximum stack height: 73.5 mm	Stacking capacity is not guaranteed. The value is just for reference.
		Plain paper, thick paper 61 to 220 g/m^2	Maximum stack height: 73.5 mm	
		Special paper	Not acceptable	
	Job offset	Not specified		
	Staple sort	Maximum stack height: 73.5 mm, 30 copies or less		
Stapling position	Front 1-point stapling, Rear 1-point stapling, 2-point stapling			Rear parallel stapling
Stapling	By rotating cam			
Staple supply	Special staple cartridge (5000 staples)			
Staple near end detection	Provided: Low staple warning is signaled after the staple near end is detected.			Remaining about 40 staples
Staple detection	Provided			
Manual stapling	Not provided			

Table 8-11 Stapling and stacking specifications (stapler/stacker and booklet maker) (continued)

Item	Specifications		Remarks
Staple capacity	Large size: 2 to 30 sheets 2 sheets of 199 g/m^2 paper and 28 sheets of 80 g/m^2 paper maximum: 30 sheets in total A3, B4, A4-R, LDR, LGL, LTR-R	Plain paper: 60 g/m^2 to 81 g/m^2: 30 sheets	• Stapling thickness: 5.5 mm or less • Including 2 cover pages except extra thick paper when cover mode is applied
		Plain paper: 82 g/m^2 to 90 g/m^2: 22 sheets	
		Thick paper: 91 g/m^2 to 105 g/m^2: 14 sheets	
		Thick paper: 106 g/m^2 to 120 g/m^2: 11 sheets	
		Thick paper: 121 g/m^2 to 163 g/m^2: 9 sheets	
		Extra thick paper: 164 g/m^2 to 199 g/m^2: 6 sheets	
		Extra thick paper: 200 g/m^2 to 220 g/m^2: 5 sheets	
	Small size: 2 to 50 sheets 2 sheets of 199 g/m^2 paper and 48 sheets of 80 g/m^2 maximum: total 50 sheets A4, LTR	Plain paper: 60 g/m^2 to 81 g/m^2: 50 sheets	
		Plain paper: 82 g/m^{2}to 90 g/m^2 44 sheets	
		Thick paper: 91 g/m^2 to 105 g/m^2: 28 sheets	
		Thick paper: 106 g/m^2 to 148 g/m^2: 18 sheets	
		Thick paper:149 g/m^2 to 163 g/m^2): 13 sheets	
		Extra thick paper: 164 g/m^2 to 199 g/m^2 12 sheets	
		Extra thick paper: 200 g/m^2 to 220 g/m^2: 5 sheets	
	Glossy paper	Glossy paper: 91 g/m^2 to 130 g/m^2 8 sheets	
		Glossy paper: 131 g/m^2 to 220 g/m^2: 5 sheets	
Self-diagnosis function	Provided with staple unit failure, tray failure and jam detection etc.		Identified by LED
Dimensions	W: 662 mm x D: 657 mm x H: 1063 mm		
Weight	Approximately 54 kg		

Table 8-11 Stapling and stacking specifications (stapler/stacker and booklet maker) (continued)

Item	Specifications	Remarks
Power supply	From printer (24VDC)	
Maximum power consumption	20 W or less during standby, 20 W or less operating	

Figure 8-96 Stapling position

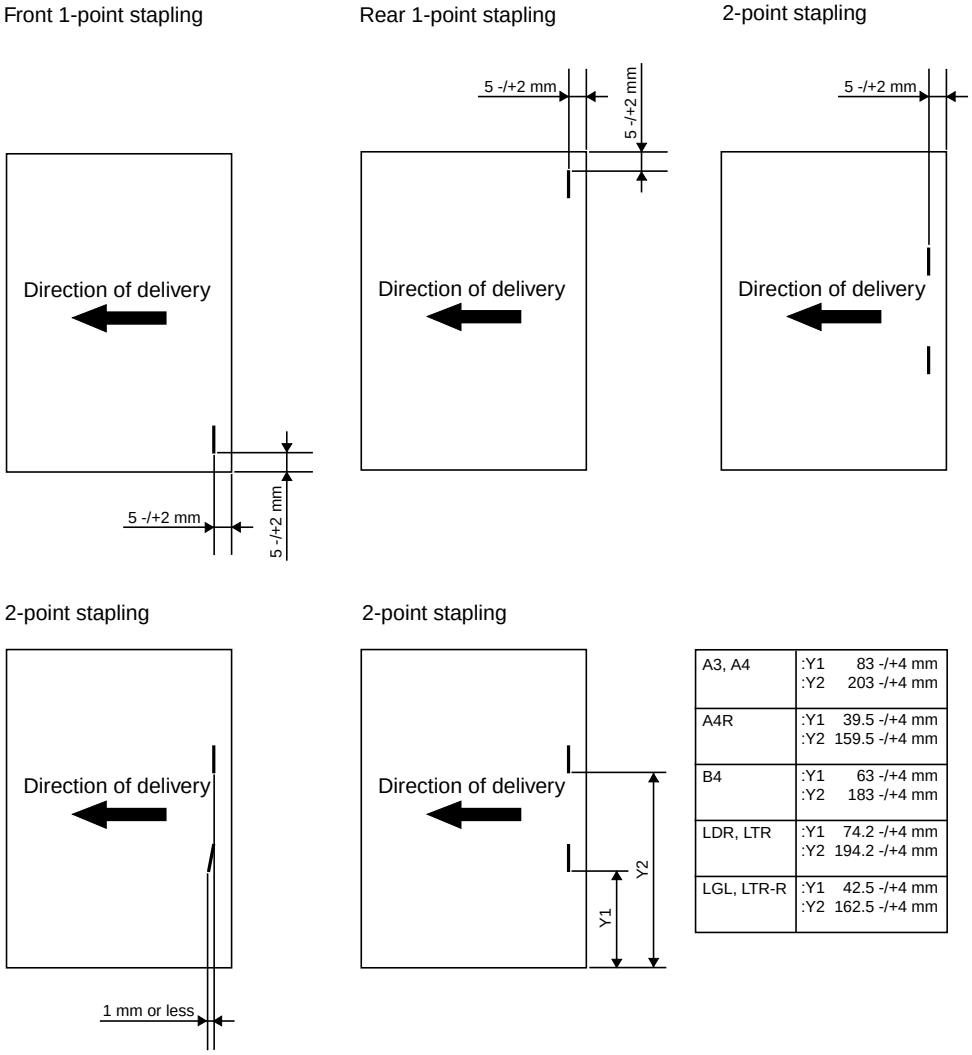


Table 8-12 Specifications for booklet making (Booklet maker only)

Item	Specifications
Stapling method	Center binding (double folding)
Paper size	A3, B4, A4-R, LDR, LGL, LTR-R

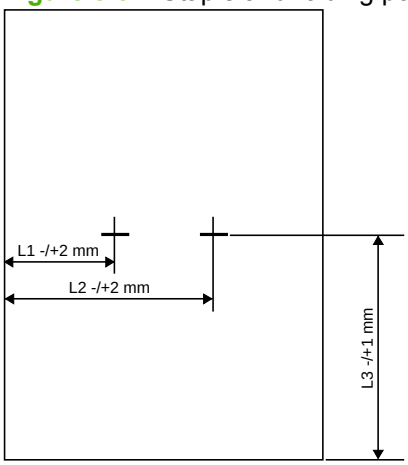
Table 8-12 Specifications for booklet making (Booklet maker only) (continued)

Item	Specifications				
Capacity	Plain paper: 60 g/m^2 to 81 g/m^2: 15 sheets				
	Plain paper: 82 g/m^2 to 90 g/m^2: 10 sheets				
	Plain paper: 91 g/m^2 to 105 g/m^2: 6 sheets				
	Plain paper: 106 g/m^2 to 148 g/m^2: 5 sheets				
	Plain paper: 149 g/m^2 to 199 g/m^2: 3 sheets				
	Plain paper: 200 g/m^2 to 220 g/m^2: 2 sheets				
	Glossy paper: 91 g/m^2 to 148 g/m^2: 5 sheets				
	Glossy paper: 149 g/m^2 to 220 g/m^2: 2 sheets				
Paper weight	60 g/m^2 to 220 g/m^2				
Stacking capacity	Paper weight	Paper size	1 to 5 sheets	6 to 10 sheets	11 to 15 sheets
	Plain paper: 60 g/m^2 to 81 g/m^2	A4R, LTR-R	20 copies	10 copies	10 copies
		LGL	10 copies	10 copies	5 copies
		A3, B4, LDR	25 copies	15 copies	10 copies
	Plain paper: 82 g/m^2 to 90 g/m^2	A4R, LTR-R	20 copies	10 copies	
		LGL	10 copies	10 copies	
		A3, B4, LDR	25 copies	15 copies	
	Plain paper: 91 g/m^2 to 105 g/m^2	Large size	10 copies	10 copies	
	Plain paper: 106 g/m^2 to 220 g/m^2	Large size	10 copies		
	Glossy paper: 91 g/m^2 to 220 g/m^2	Large size	10 copies		
Folding capacity	Without binding: 1 sheet				
	With binding: 2 to 15 sheets				
Stapling position	2 points (center distribution; fixed interval)				
Staple accommodation	2000 staples				
Staple supply	Special cartridge				
Staples	Special staple				
Staple detection	Provided				
Manual stapling	Not provided				
Folding method	Roller contact				
Folding mode	Double folding				
Folding position	Paper center				

Table 8-12 Specifications for booklet making (Booklet maker only) (continued)

Item	Specifications
Position adjustment	Provided
Power supply	From stacker unit (24VDC)

Figure 8-97 Staple and folding position



Paper Size	L1	L2	L3
A3	88.5mm	208.5mm	210.0mm
B4	68.5mm	188.5mm	182.0mm
A4R	45.0mm	165.0mm	148.5mm
LDR	79.7mm	199.7mm	216.0mm
LGL	48.0mm	168.0mm	177.8mm
LTR-R	48.0mm	168.0mm	139.7mm

Stapler/stacker output-bin capacities

The actual capacities of the stapler/stacker output bins vary from 100 sheets, to 500 sheets, to 1,000 sheets of plain paper, depending on the bin. However, the stapler/stacker has been designed to accept only 30 staple jobs at one time, regardless of the number of pages in each job. Therefore, customers may see an **OUTPUT BIN FULL** message on the control panel long before the individual output bin is at full capacity.

Table 8-13 Stapler/stacker output-bin capacities

Output bin	Actual capacity of output bin	Number of staple jobs accepted	Bin capacity for staple jobs
Top output bin	100 sheets of plain paper[1]	30 staple jobs, regardless of size	30 staple jobs, or 100 sheets (whichever comes first)
Output-bin 1	500 sheets of plain paper[1]		30 staple jobs or 500 sheets (whichever comes first)
Output-bin 2 (stacker bin)	1,000 sheets of plain paper[1]		30 staple jobs or 1,000 sheets (whichever comes first)

[1] Based on 75 g/m^2 (20 lb) paper

Example scenario:

A customer sends 40 staple jobs to the accessory with each job consisting of just two sheets (40 jobs x 2 sheets = 80 total sheets). Because the capacity of the stacker output bin is 1,000 sheets, the customer expects the 80-sheet job to output without issue.

However, the stacker bin sends an **OUTPUT BIN FULL** message to the control panel at the end of 30 jobs (30 jobs x 2 sheets = 60 total sheets). The actual full capacity of the output bin is 1,000 sheets, but

the stapler/stacker assumes the bin is full after stacking only 60 sheets due to reaching the 30-staple job limit.

The customer calls HP to complain that the stapler/stacker is not working correctly.

Booklet-maker output-bin capacities

The actual capacities of the booklet-maker output bins are 1,000 sheets of plain paper. However, the booklet maker has been designed to accept only 30 staple jobs at one time, regardless of the number of pages in each job. Therefore, customers may see an **OUTPUT BIN FULL** message on the control panel long before the individual output bin is at full capacity.

Table 8-14 Booklet-maker output-bin capacities

Output bin	Actual capacity of output bin	Number of staple jobs accepted	Bin capacity for staple jobs
Output-bin 1	1,000 sheets of plain paper[1]	30 staple jobs, regardless of size	30 staple jobs or 1000 sheets (whichever comes first)
Output-bin 2	1,000 sheets of plain paper[1]		30 staple jobs or 1,000 sheets (whichever comes first)

[1] Based on 75 g/m^2 (20 lb) paper

Removal and replacement

Intermediate paper transfer unit (IPTU)

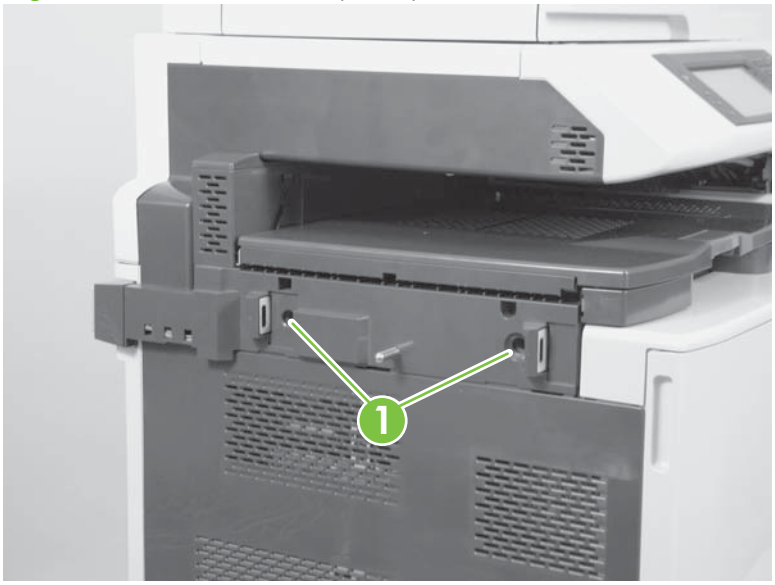
NOTE: This item is called the “output accessory bridge” in the user documentation for this product.

NOTE: For all IPTU remove and replace procedures, remove the IPTU from the product.

IPTU

1. Remove two screws (callout 1).

Figure 8-98 Remove IPTU (1 of 2)



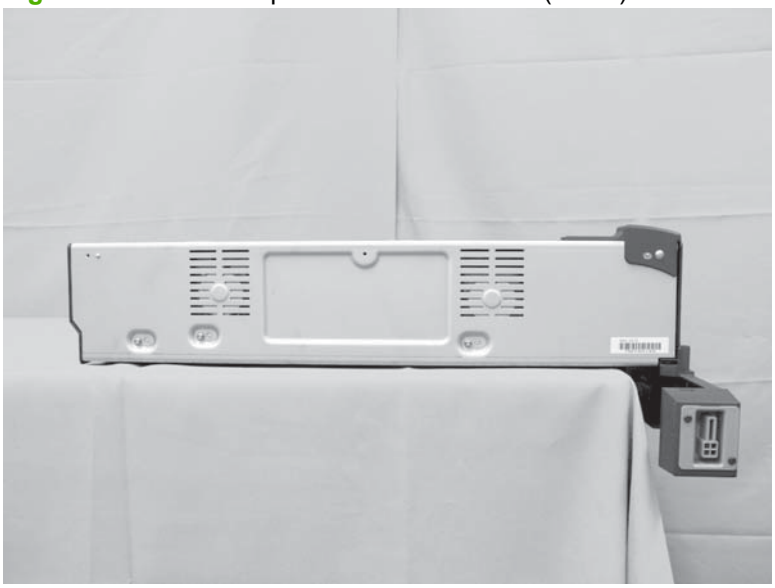
2. Slide the IPTU away from the printer to remove.

Figure 8-99 Remove IPTU (2 of 2)



△ **CAUTION:** When disassembling or reassembling the IPTU, use the edge of a work table as shown below.

Figure 8-100 Correct placement of the IPTU (1 of 2)



The connector can be damaged when the IPTU is placed on a table as shown below.

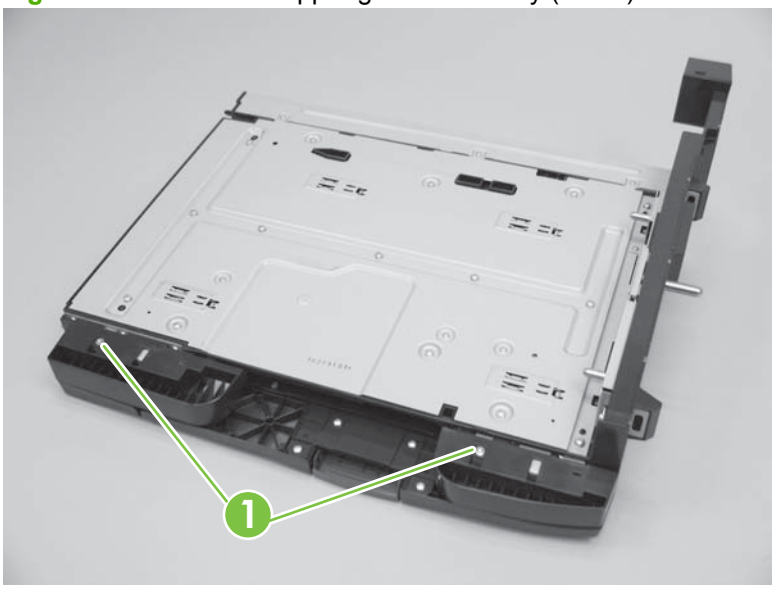
Figure 8-101 Incorrect placement of the IPTU (2 of 2)



Upper guide assembly

1. Remove two screws (callout 1).

Figure 8-102 Remove upper guide assembly (1 of 5)



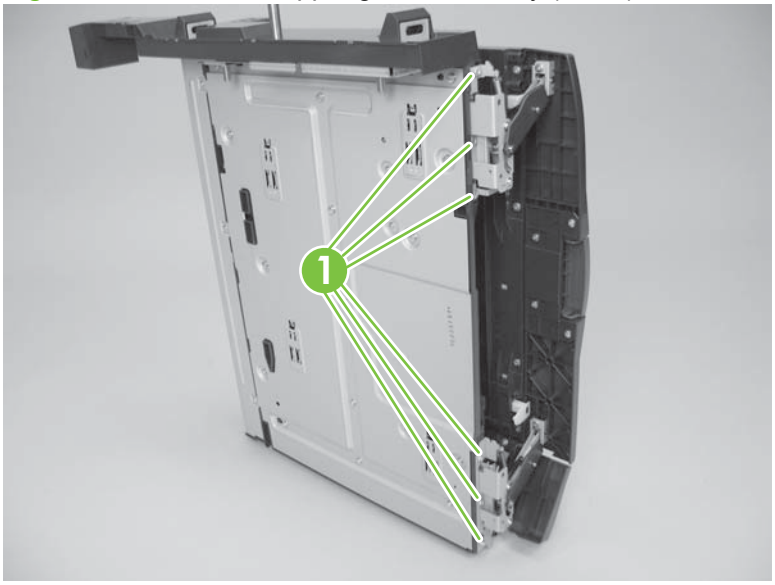
2. Release two tabs and remove two covers.

Figure 8-103 Remove upper guide assembly (2 of 5)



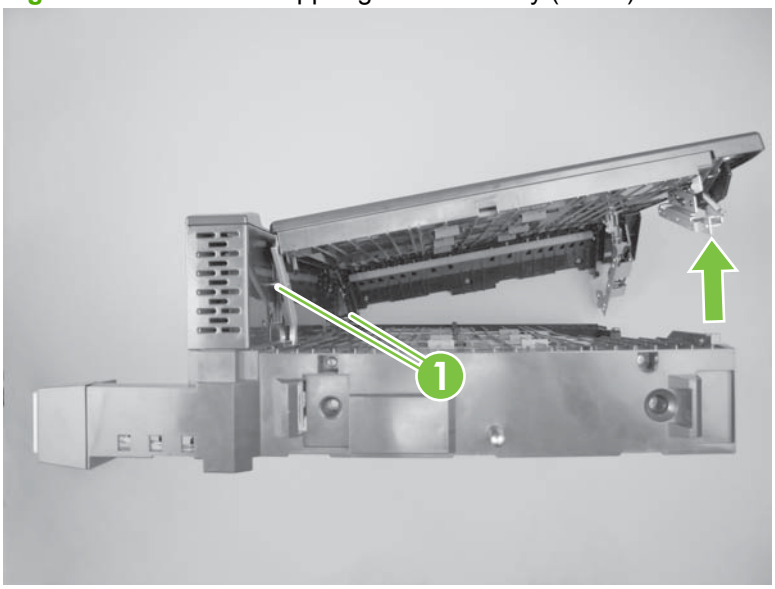
3. Remove six screws (callout 1).

Figure 8-104 Remove upper guide assembly (3 of 5)



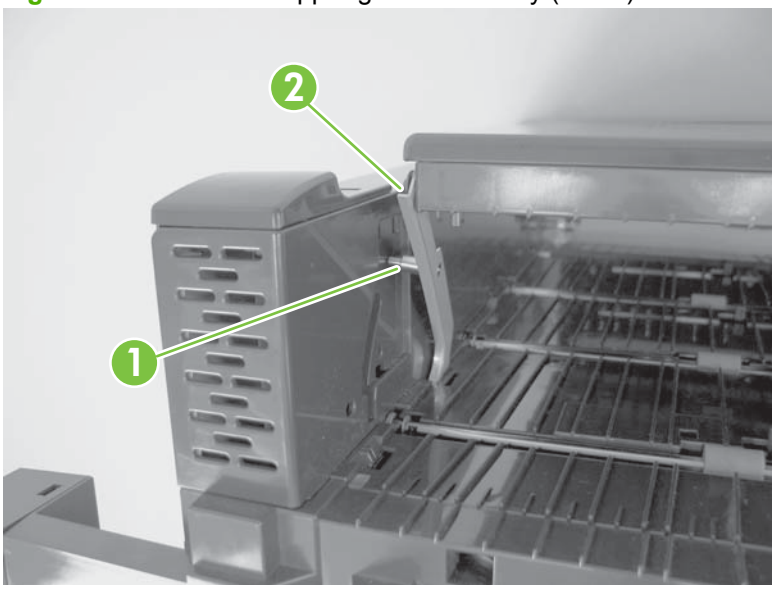
4. Separate the upper guide from the IPTU and locate the hinges (callout 1).

Figure 8-105 Remove upper guide assembly (4 of 5)



5. Remove one hinge (callout 1) from the slot and then remove one screw (callout 2). Remove the upper guide assembly.

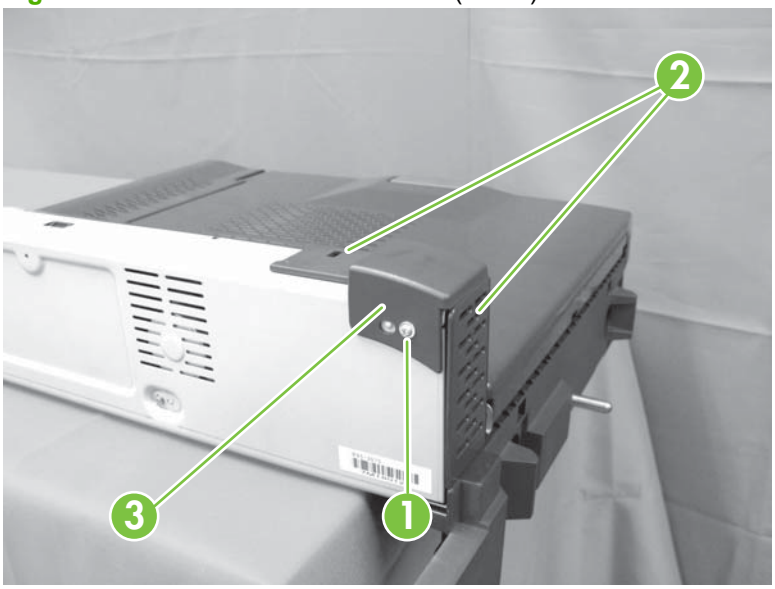
Figure 8-106 Remove upper guide assembly (5 of 5)



Rear cover

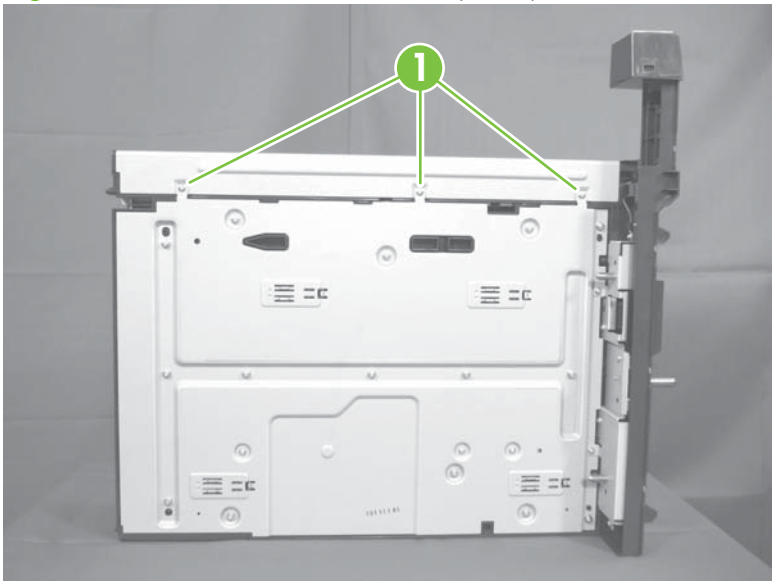
1. Remove one screw (callout 1), release two tabs (callout 2), and slide the upper cover (callout 3) in the direction the arrow indicates and remove it.

Figure 8-107 Remove the rear cover (1 of 4)



2. Remove three screws (callout 1).

Figure 8-108 Remove the rear cover (2 of 4)



3. Remove three screws with washers (callout 1), release three tabs (callout 2), and then remove the rear cover (callout 3). Release the bottom of the rear cover first and then lift.

Figure 8-109 Remove the rear cover (3 of 4)

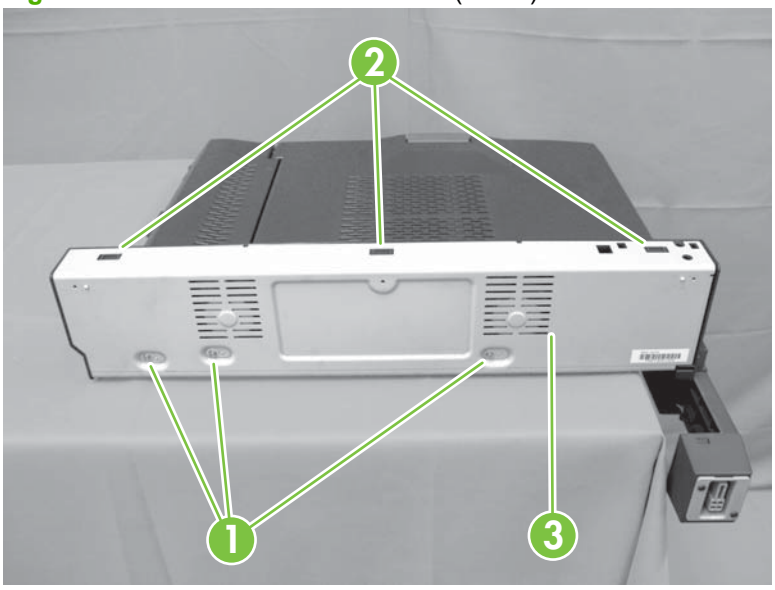
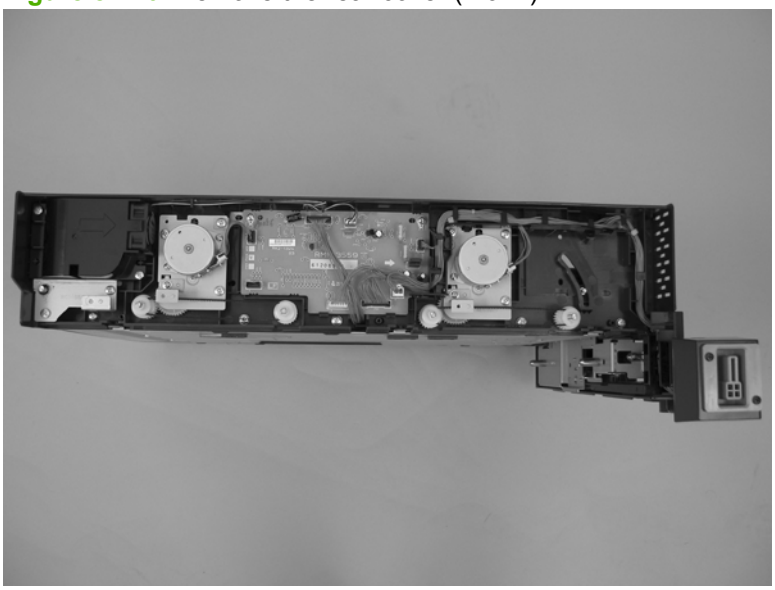
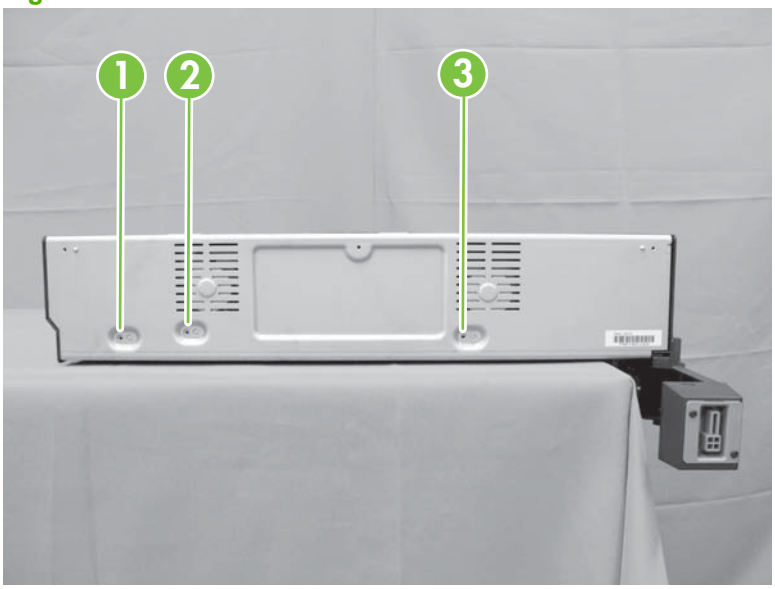


Figure 8-110 Remove the rear cover (4 of 4)



NOTE: When reassembling the rear cover, reattached one washer with each screw. Tighten the screws from left to right.

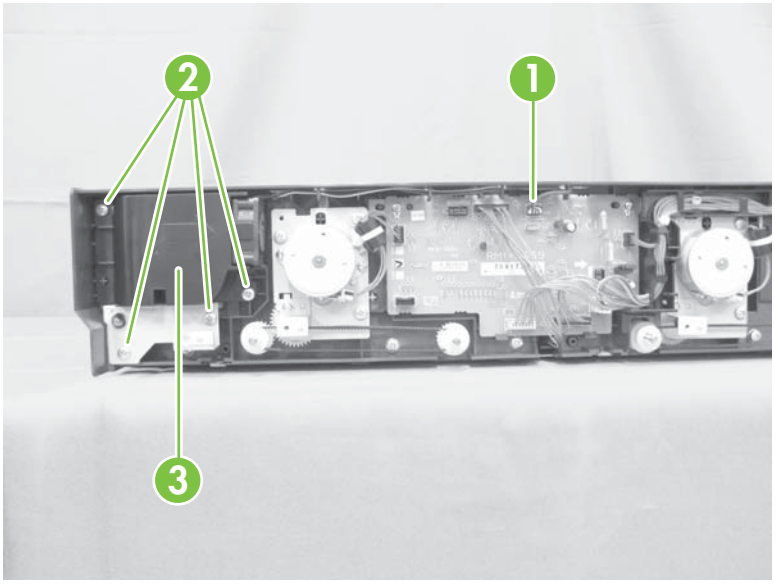
Figure 8-111 Reassemble the rear cover



Fan unit

1. Remove the following assemblies:
   - Rear cover. See Rear cover on page 740.
2. Disconnect one connector (callout 1) and then remove four screws (callout 2) and the fan unit (callout 3).

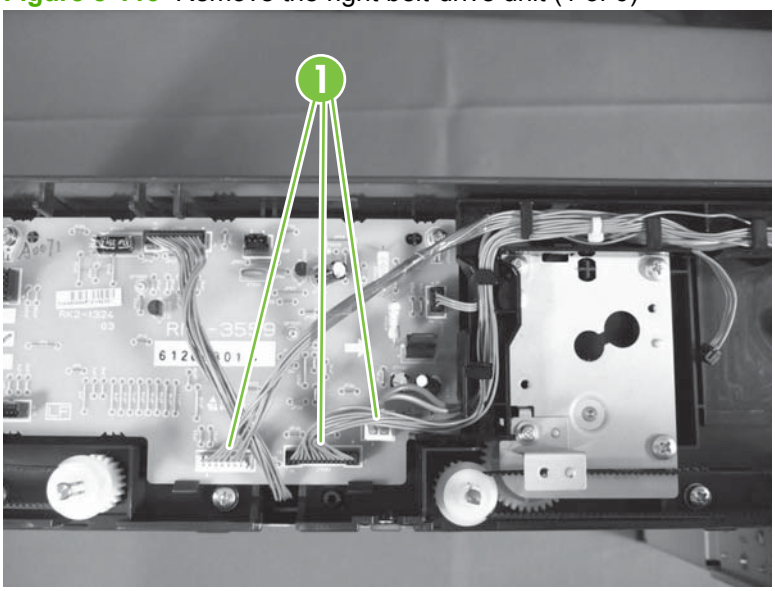
Figure 8-112 Remove the damper unit



Right belt-drive unit

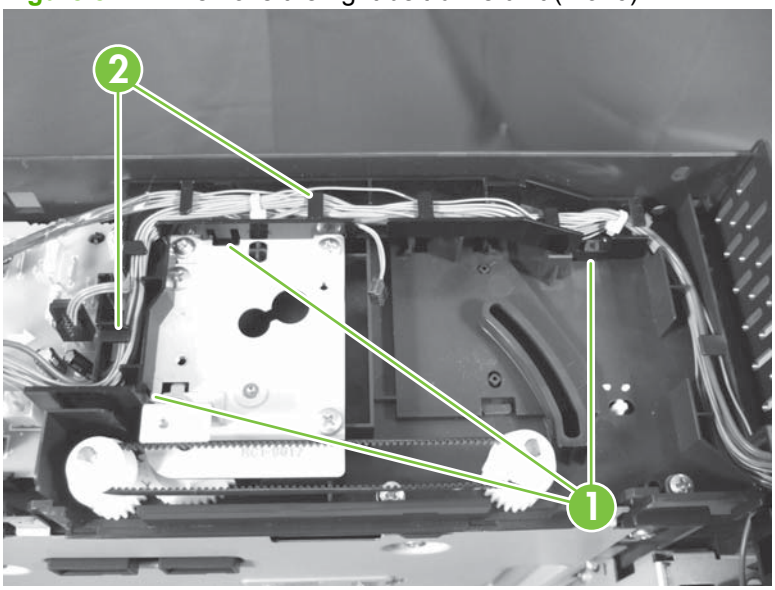
1. Remove the following:
   - Rear cover. See Rear cover on page 740.
   - IPTU paper-feed motor 2. IPTU paper-feed motor 2 on page 753
2. Disconnect three connectors (callout 1).

Figure 8-113 Remove the right belt-drive unit (1 of 6)



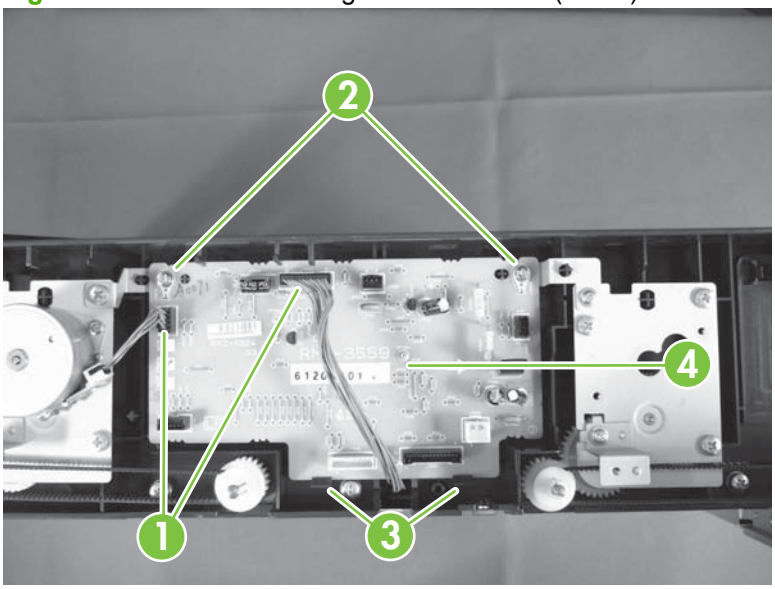
3. Release three tabs (callout 1) and then remove two wire-harness guides (callout 2).

Figure 8-114 Remove the right belt-drive unit (2 of 6)



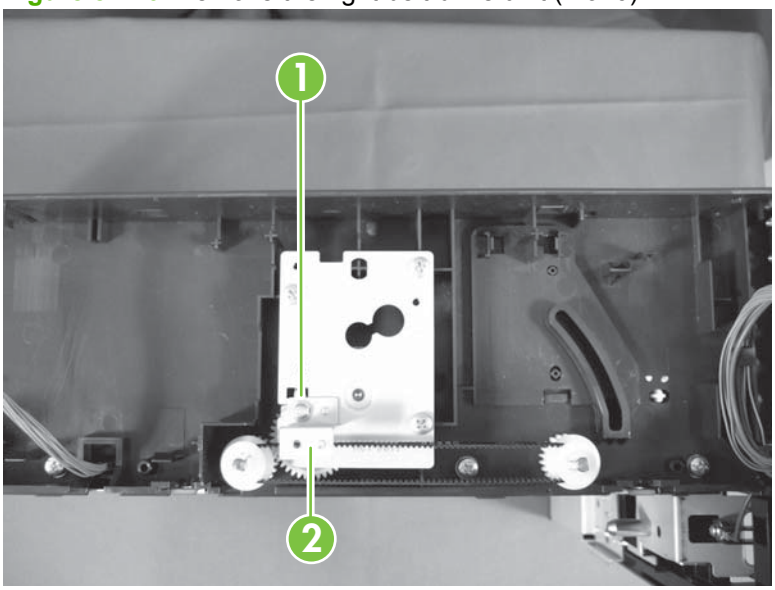
4. Disconnect two connectors (callout 1), and then remove two screws (callout 2). Release two tabs (callout 3), and then remove the IPTU driver PCA (callout 4).

Figure 8-115 Remove the right belt-drive unit (3 of 6)



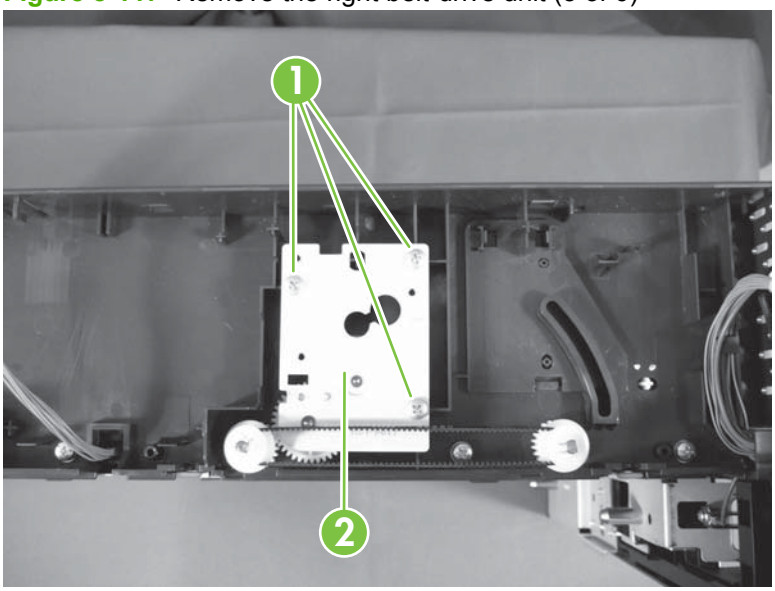
5. Remove one screw (callout 1), and then remove the belt cover plate (callout 2).

Figure 8-116 Remove the right belt-drive unit (4 of 6)



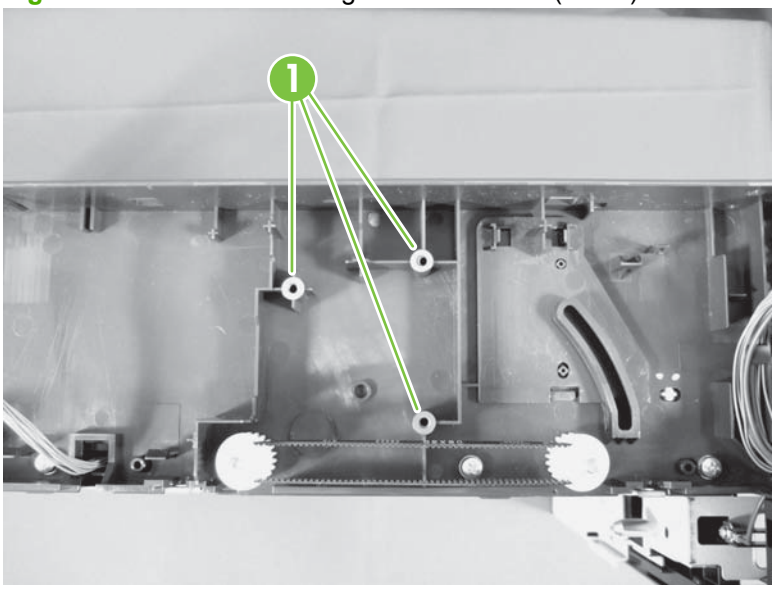
6. Remove three screws (callout 1) , and then remove the right belt-drive unit (callout 2).

Figure 8-117 Remove the right belt-drive unit (5 of 6)



NOTE: When reassembling, be sure to attach the IPTU drive using two washers with each screw.

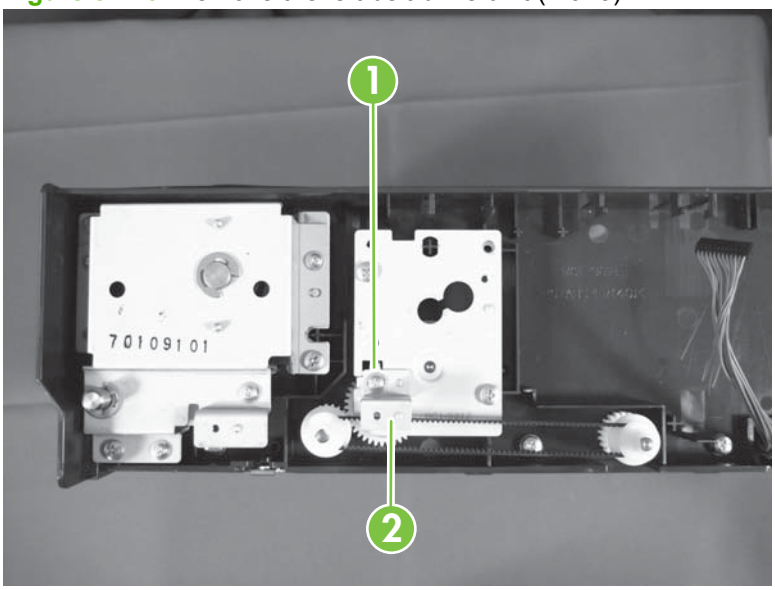
Figure 8-118 Remove the right belt-drive unit (6 of 6)



Left belt-drive unit

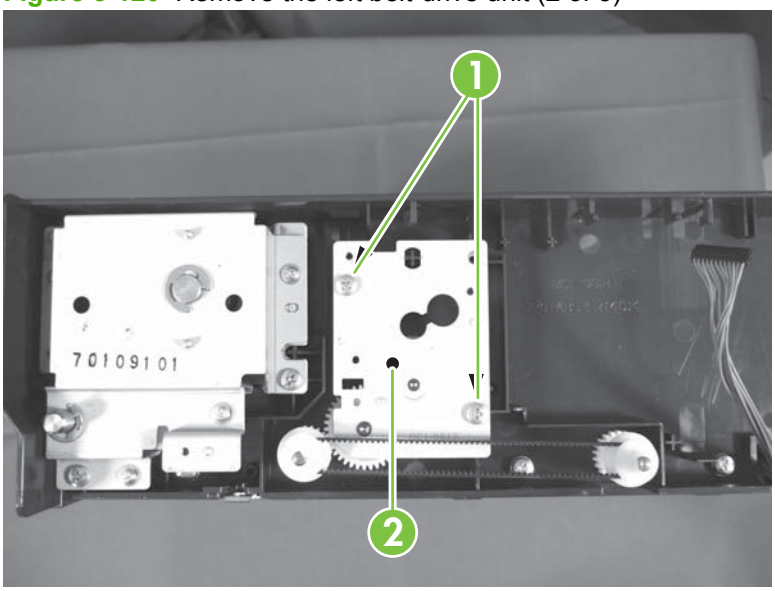
1. Remove the following:
   - Rear cover. See Rear cover on page 740.
   - Right belt-drive unit. See Right belt-drive unit on page 745.
   - IPTU paper feed motor 1. See IPTU paper-feed motor 1 on page 752.
2. Remove one screw (callout 1) , and then remove the belt cover plate (callout 2).

Figure 8-119 Remove the left belt-drive unit (1 of 3)



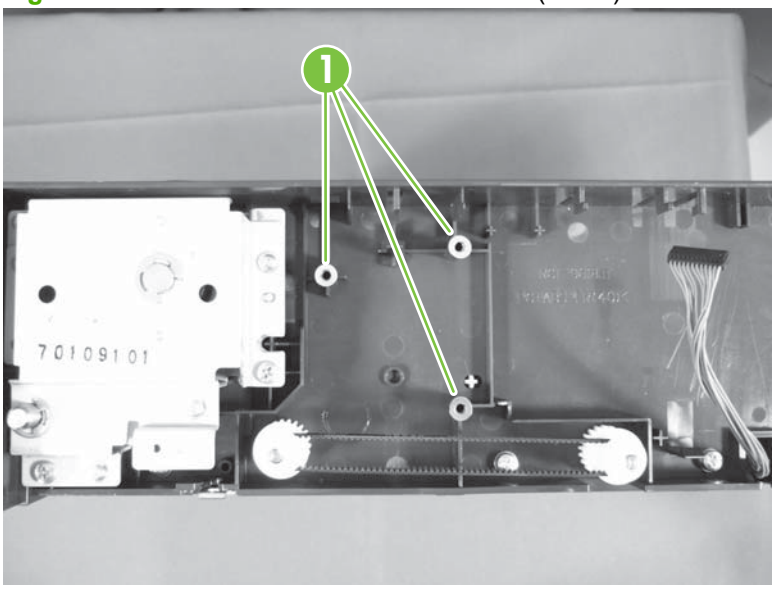
3. Remove two screws (callout 1), and then remove the left belt-drive unit (callout 2).

Figure 8-120 Remove the left belt-drive unit (2 of 3)



NOTE: When reassembling, be sure to attach the IPTU drive using two washers with each screw.

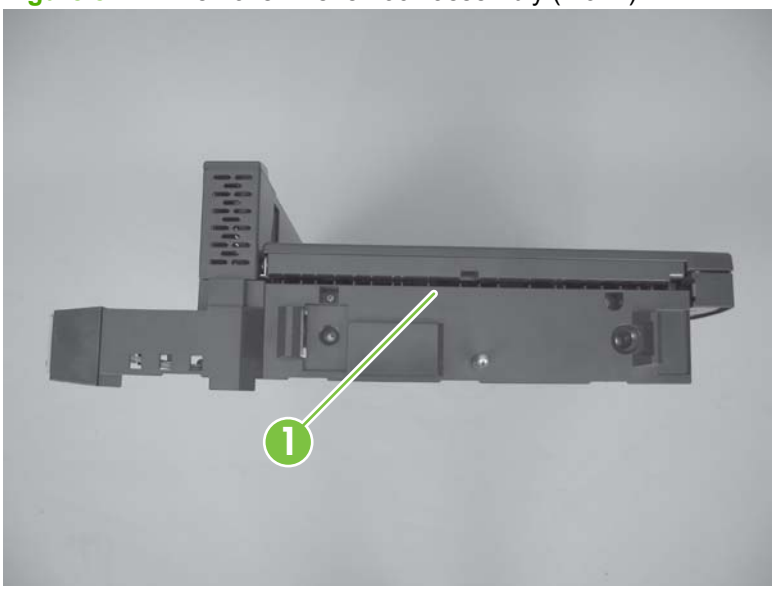
Figure 8-121 Remove the left belt-drive unit (3 of 3)



Finisher lock-assembly

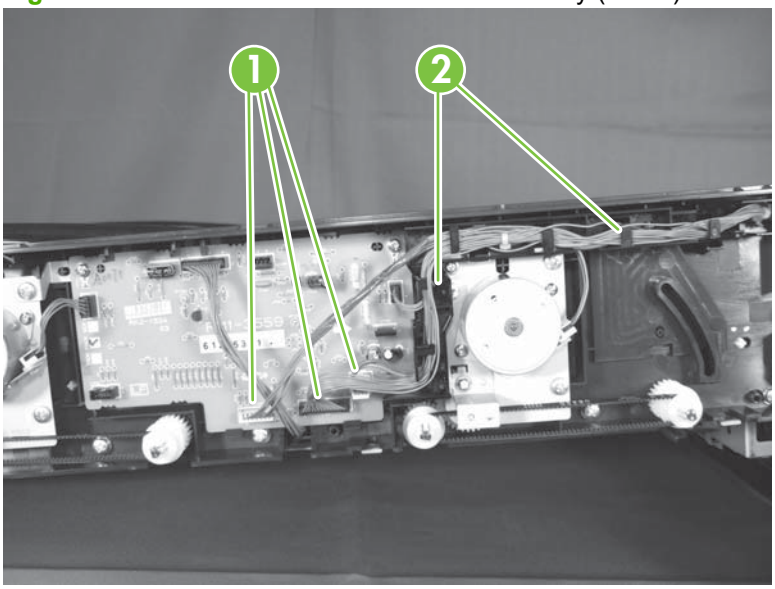
1. Remove the following:
   - Rear cover. See Rear cover on page 740.
2. Locate the finisher lock assembly (callout 1).

Figure 8-122 Remove finisher lock-assembly (1 of 4)



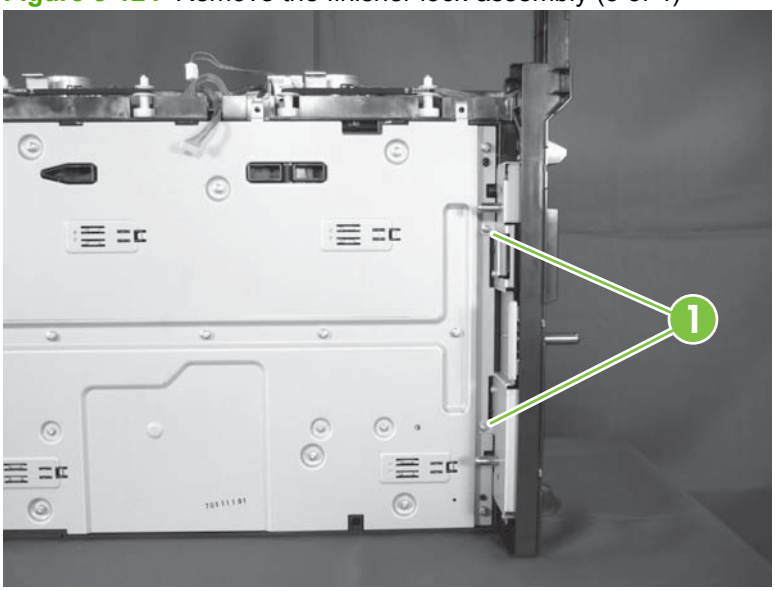
3. Disconnect three connectors (callout 1), and then release the wire harnesses from the guide (callout 2).

Figure 8-123 Remove the finisher lock-assembly (2 of 4)



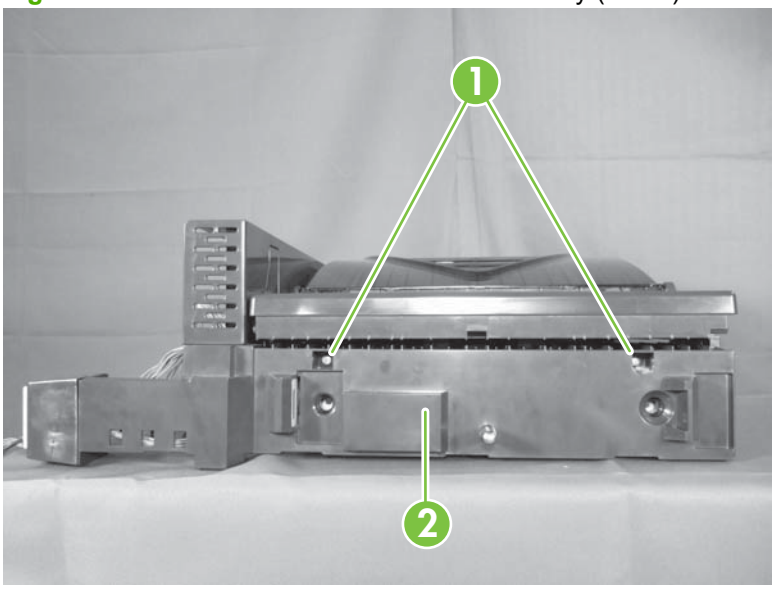
4. Remove two screws (callout 1).

Figure 8-124 Remove the finisher lock-assembly (3 of 4)



NOTE: Remove two screws (callout 1), and then remove the finisher lock-assembly (callout 2).

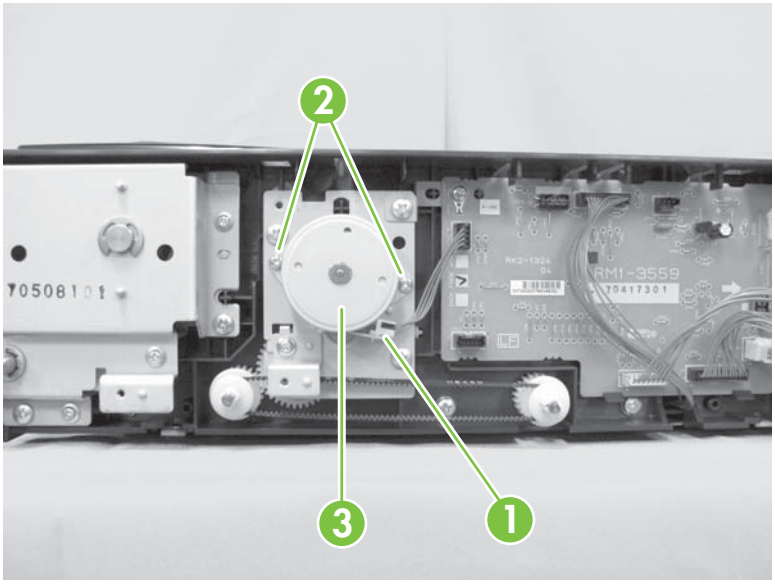
Figure 8-125 Remove the finisher lock-assembly (4 of 4)



IPTU paper-feed motor 1

1. Remove the following:
   - Rear cover. See Rear cover on page 740.
2. Disconnect one connector (callout 1). Remove two screws (callout 2), and remove then the IPTU paper-feed motor 1 (callout 3).

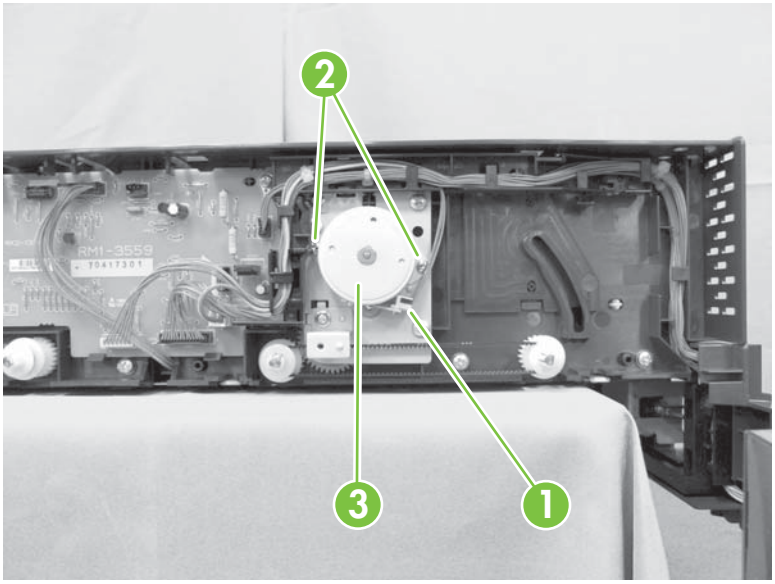
Figure 8-126 Remove the IPTU paper-feed motor 1



IPTU paper-feed motor 2

1. Remove the following:
   - Rear cover. See Rear cover on page 740.
2. Disconnect one connector (callout 1). Remove two screws (callout 2), and then remove the IPTU paper-feed motor 2 (callout 3).

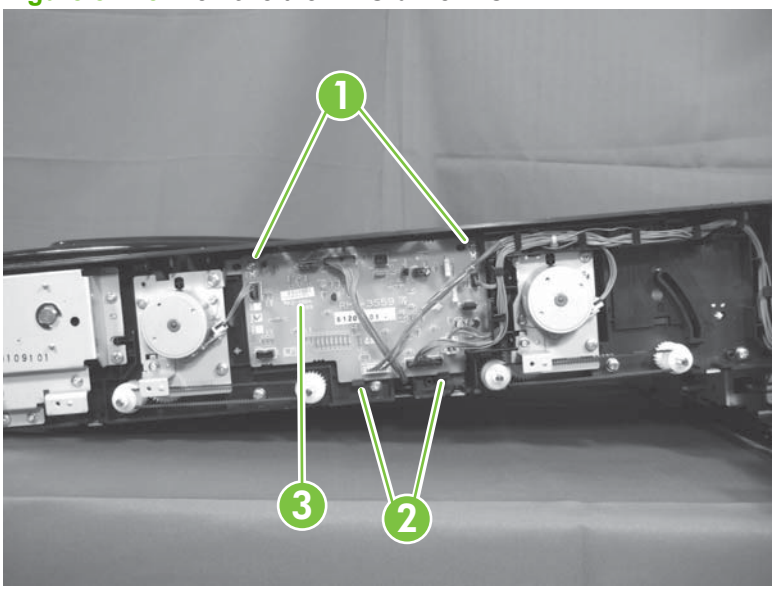
Figure 8-127 Remove the IPTU paper-feed motor 2



IPTU driver PCA

1. Remove the following:
   - Rear cover. See Rear cover on page 740.
2. Disconnect all the connectors on the IPTU driver PCA. Remove two screws (callout 1), release two tabs (callout 2), and then remove the IPTU driver PCA (callout 3).

Figure 8-128 Remove the IPTU driver PCA

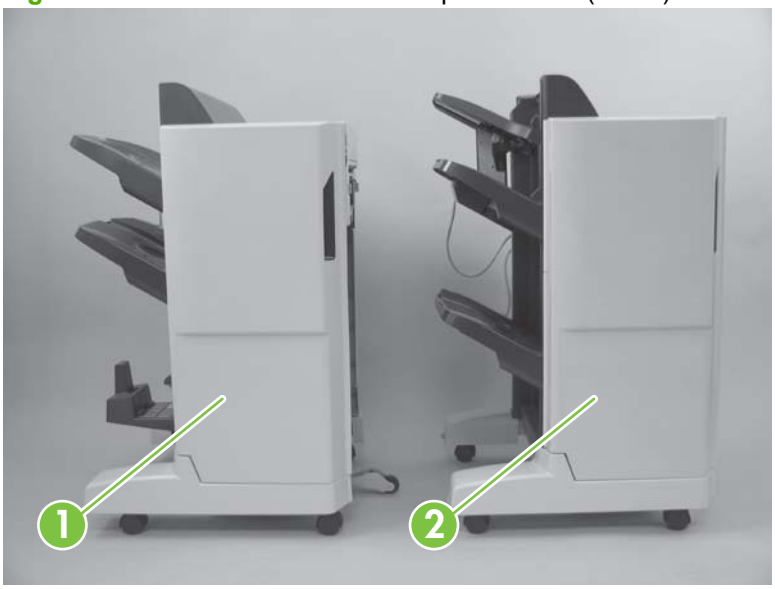


Stapler/stacker and Booklet maker

Identify the booklet maker and stapler/stacker

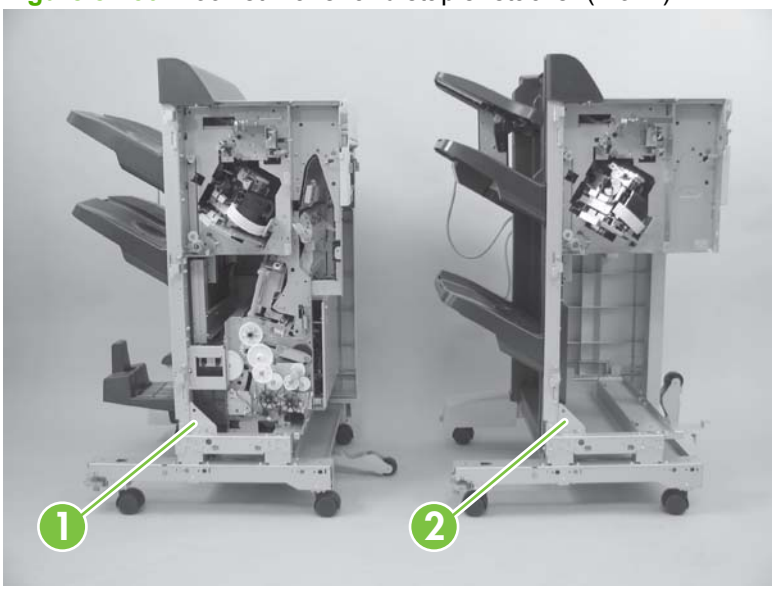
- Remove and replace procedures for the booklet maker (callout 1) and stapler/stacker (callout 2) are provided in this section.

Figure 8-129 Booklet maker and stapler/stacker (1 of 2)



Most FRUs and removal procedures apply to both the booklet maker (callout 1) and stapler/stacker (callout 2). Exceptions are noted where they exist.

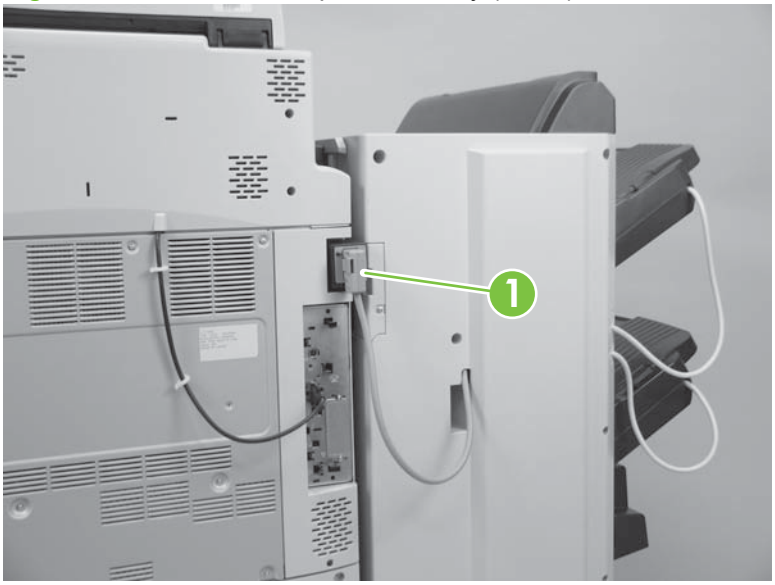
Figure 8-130 Booklet maker and stapler/stacker (2 of 2)



Remove the booklet maker and stapler/stacker from the printer

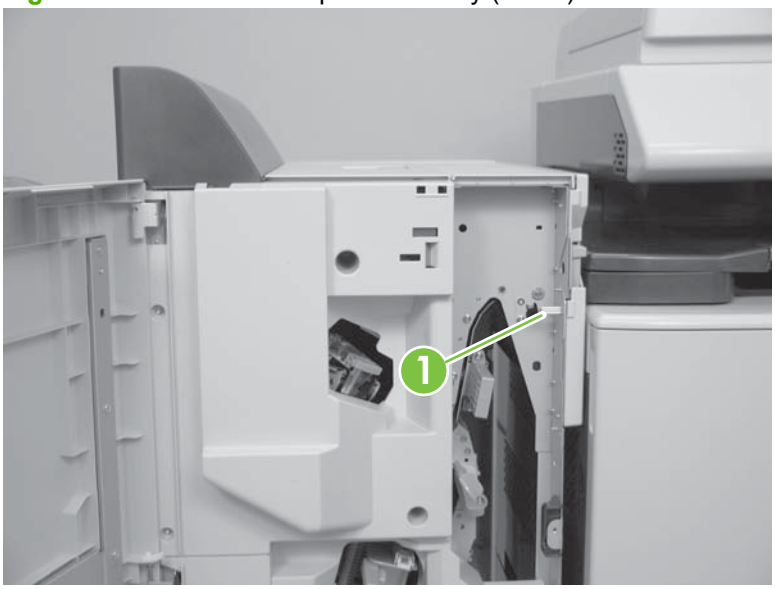
1. Turn the power off.
2. Disconnect the power cord (callout 1).

Figure 8-131 Remove output accessory (1 of 5)



3. Open the front door to the output accessory and loosen the thumb screw (callout 1).

Figure 8-132 Remove output accessory (2 of 5)



4. Press down the release button while moving the output accessory away from the printer.

Figure 8-133 Remove output accessory (3 of 5)



NOTE: When reassembling, adjust the wheels on the output accessory to ensure correct attachment to the printer.

Figure 8-134 Remove output accessory (4 of 5)

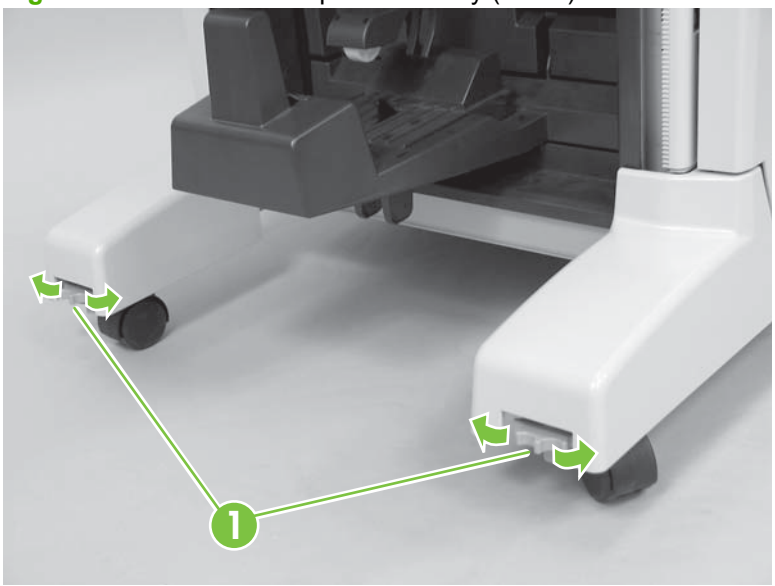
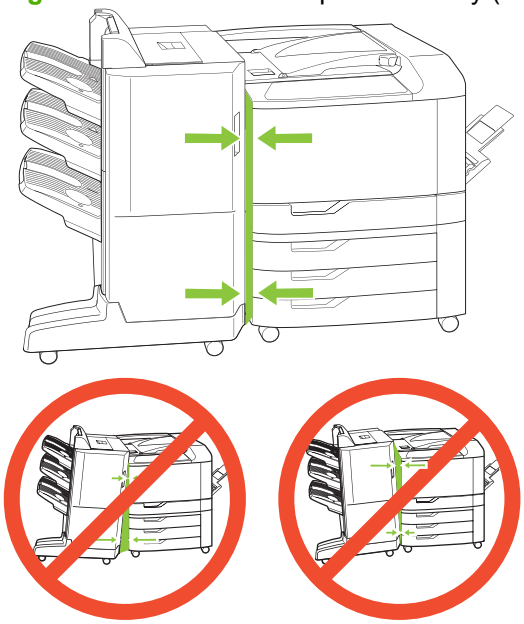


Figure 8-135 Remove output accessory (5 of 5)

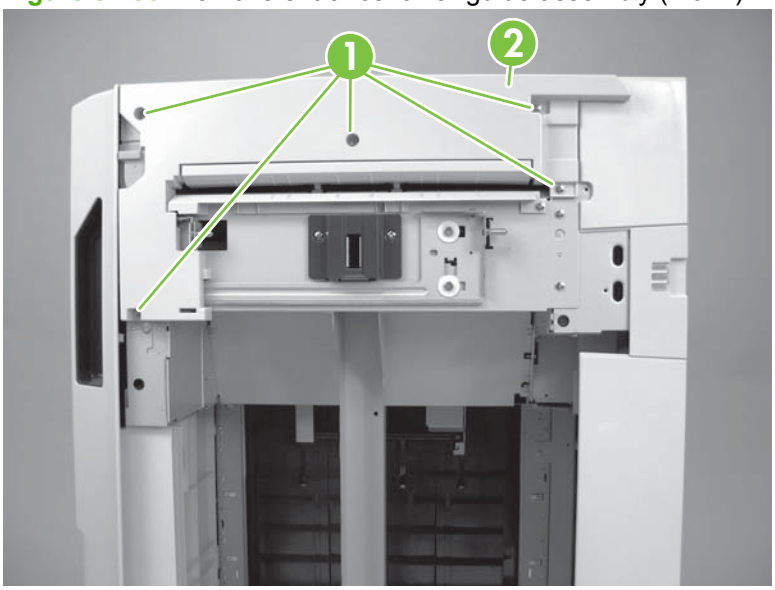


External covers

Entrance lower-guide assembly

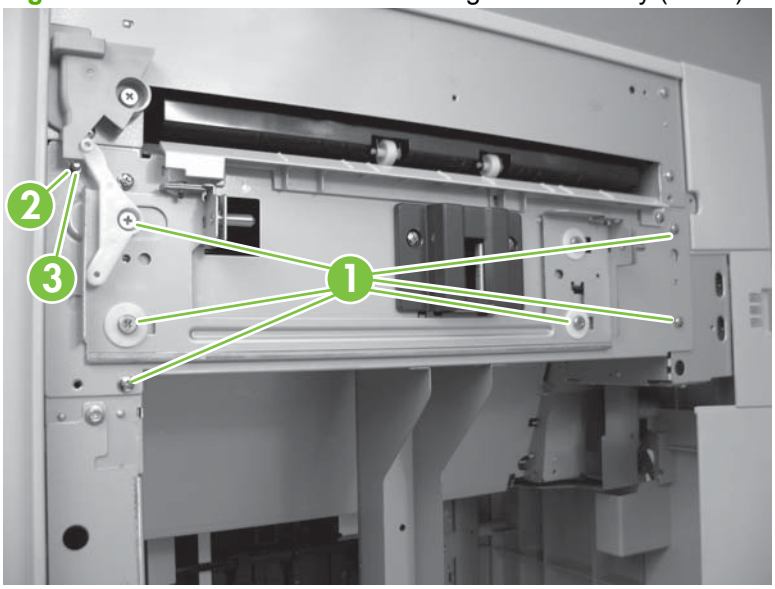
1. Remove five screws (callout 1) and the cover (callout 2).

Figure 8-136 Remove entrance lower-guide assembly (1 of 2)



2. Remove six screws (callout 1), one e-ring (callout 2), one thumbscrew (callout 3), and then remove the entrance lower-guide assembly.

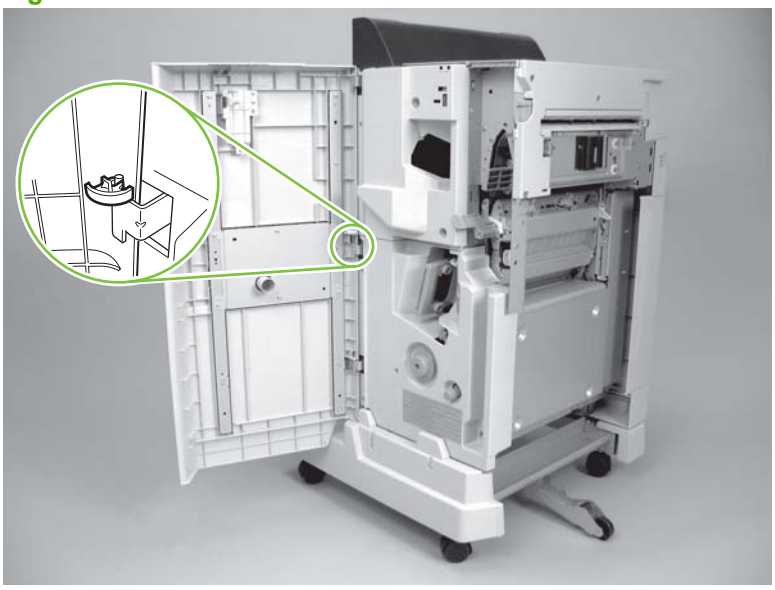
Figure 8-137 Remove entrance lower-guide assembly (2 of 2)



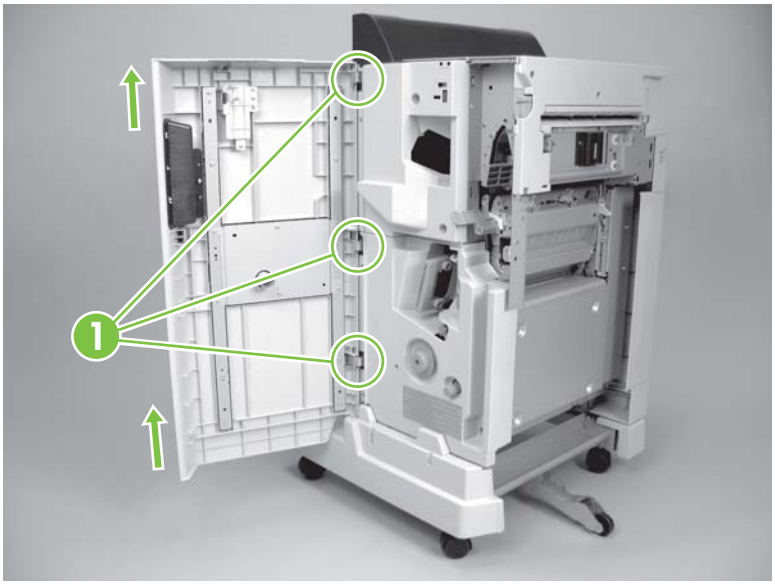
Front door

1. Open the front door (callout 1) and remove the clip (callout 2).

Figure 8-138 Remove the front door



2. Lift the front door off the three hinges (callout 1) to remove.



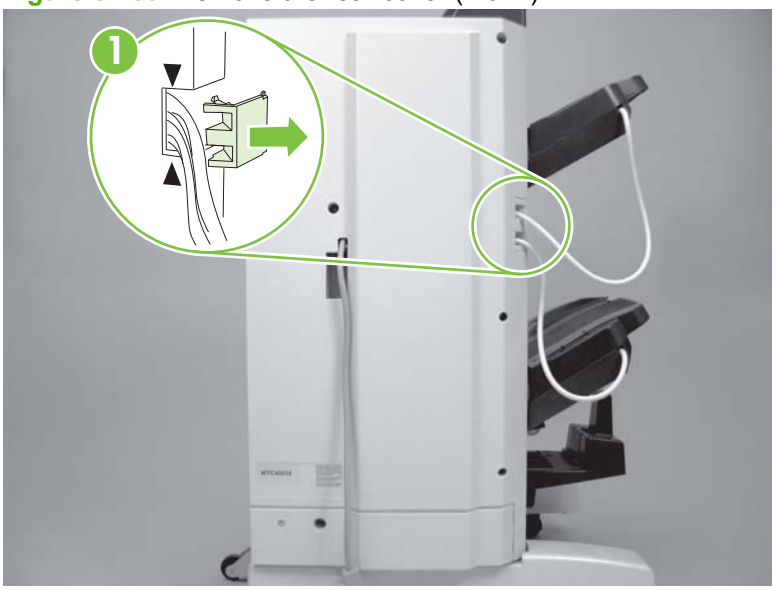
Rear cover

1. Remove the cable cover by using the two pry points marked on the rear cover to release the cover.

NOTE: Reposition output bins if necessary to remove the cable cover.

CAUTION: When moving output bins, be careful not to damage the stack-delivery gate. See Move output bins 1 and 2 on page 770.

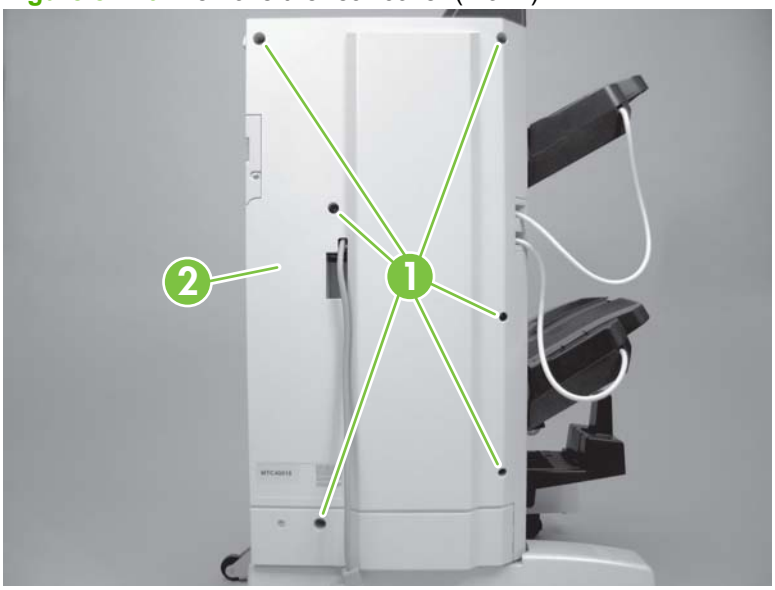
Figure 8-139 Remove the rear cover (1 of 2)



CAUTION: When reinstalling the cable cover, the cover must be flush with the rear cover so that it does not interfere with movement of the output bins, or damage can result.

2. Remove six screws (callout 1), and then lift the rear cover (callout 2) up and off.

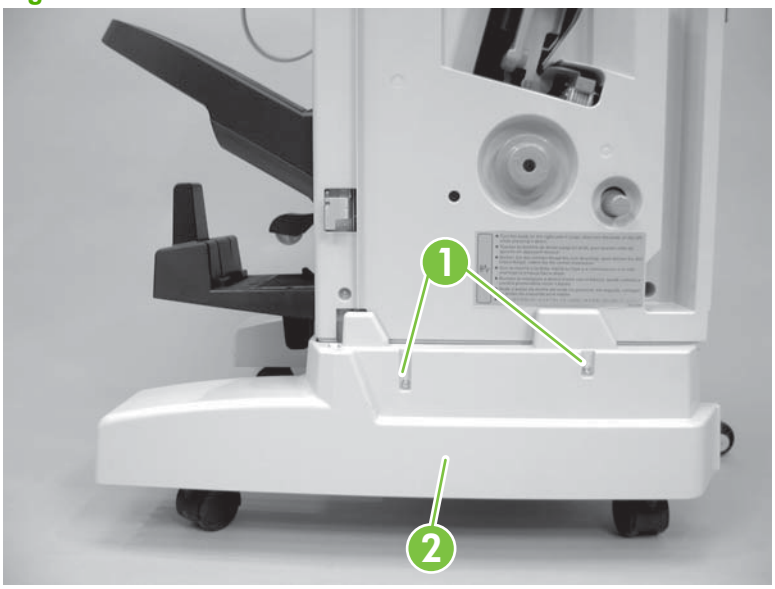
Figure 8-140 Remove the rear cover (2 of 2)



Front-foot cover

1. Remove the following:
   - Front door. See Front door on page 760
2. Remove two screws (callout 1), and then remove the front-foot cover (callout 2) by moving the cover to the left and up.

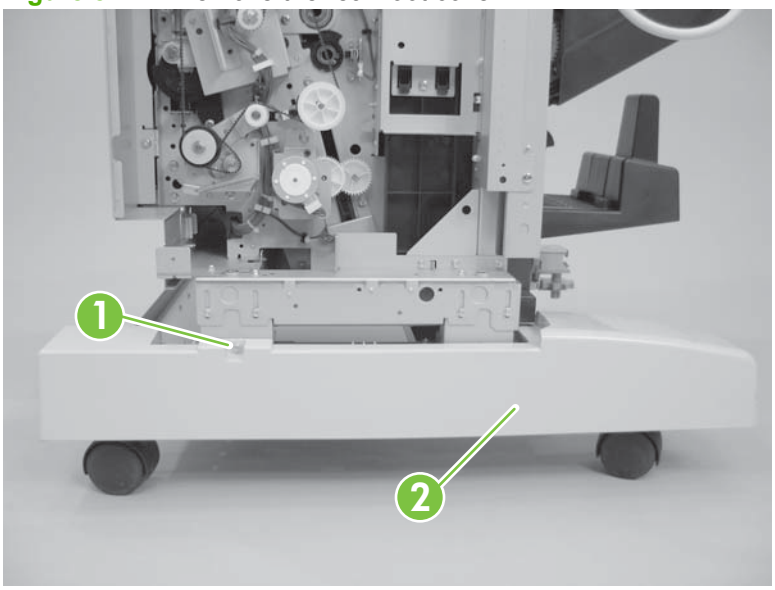
Figure 8-141 Remove the front-foot cover



Rear-foot cover

1. Remove the following:
   - Rear cover. See Rear cover on page 761.
2. Remove one screw (callout 1), and then slide the rear-foot cover (callout 2) to the right to remove.

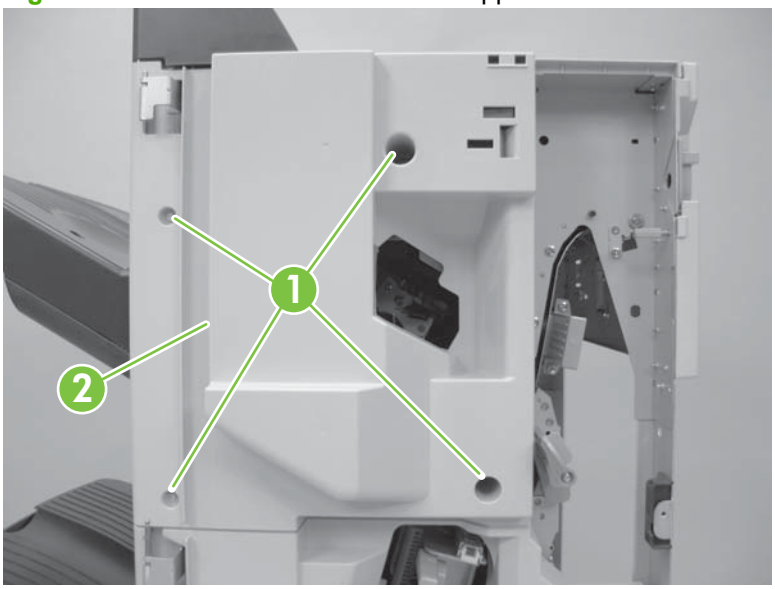
Figure 8-142 Remove the rear-foot cover



Front inside-upper cover

1. Remove the following:
   - Front door. See Front door on page 760.
2. Remove four screws (callout 1), and then remove the front inside-upper cover (callout 2).

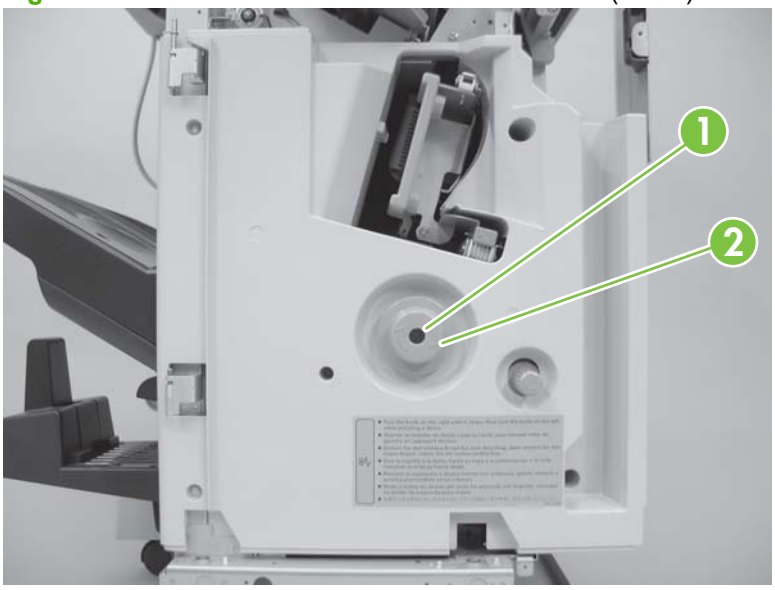
Figure 8-143 Remove the front inside-upper cover



Front inside-lower cover (booklet maker only)

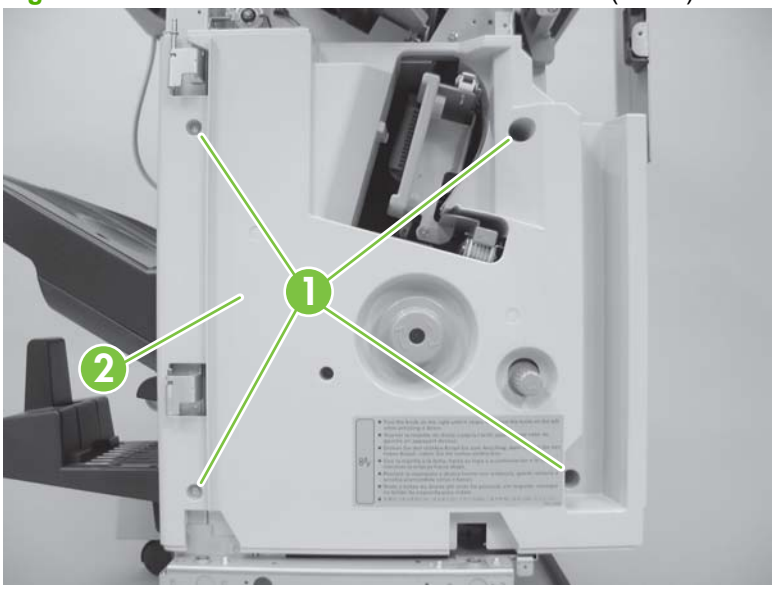
1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763
   - Front-foot cover. See Front-foot cover on page 762
2. Remove one screw (callout 1), and then remove the roller knob (callout 2).

Figure 8-144 Remove the front inside-lower cover (1 of 2)



3. Remove four screws (callout 1) and remove the front inside-lower cover (callout 2).

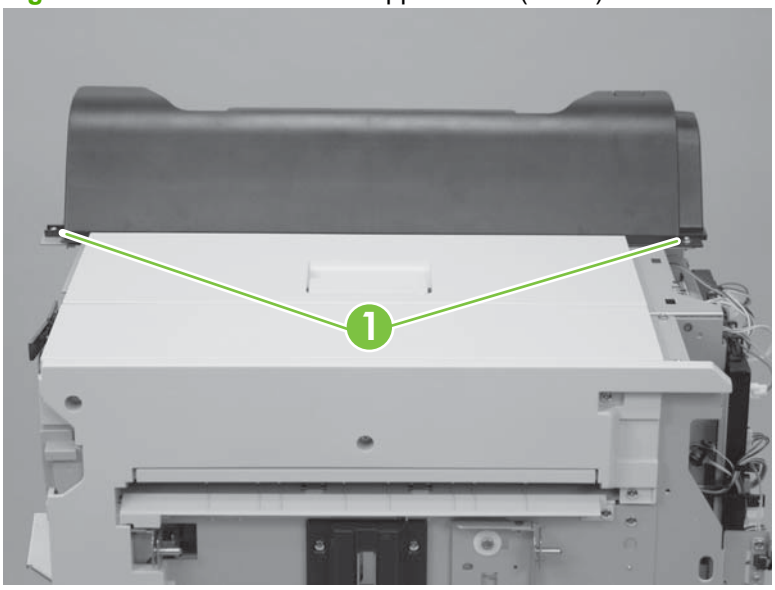
Figure 8-145 Remove the front inside-lower cover (2 of 2)



Left-upper cover

1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Rear cover. See Rear cover on page 761.
2. Remove two screws (callout 1).

Figure 8-146 Remove the left-upper cover (1 of 3)



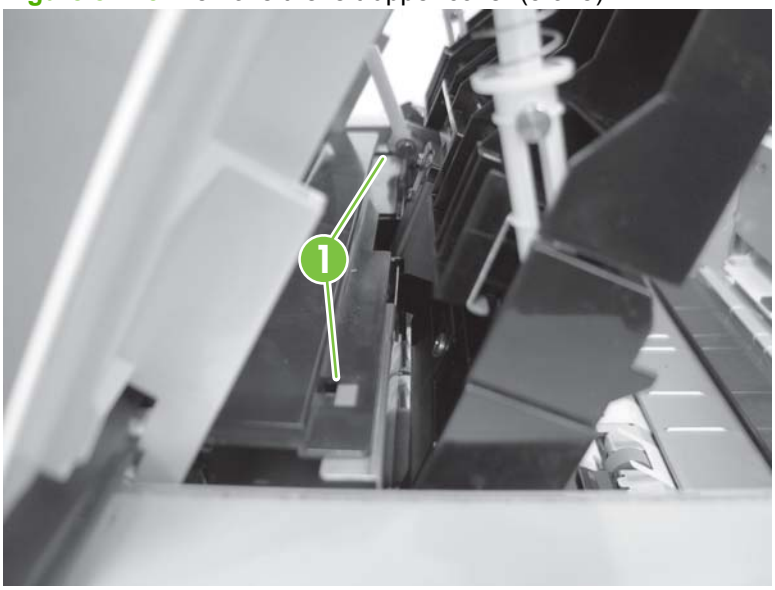
3. With the top door open, tilt the left-upper cover to the right, and then slide it to the left to remove.

Figure 8-147 Remove the left-upper cover (2 of 3)



NOTE: When replacing, hook the two tabs of the left-upper cover (callout 1) under the steel plate located under the top door.

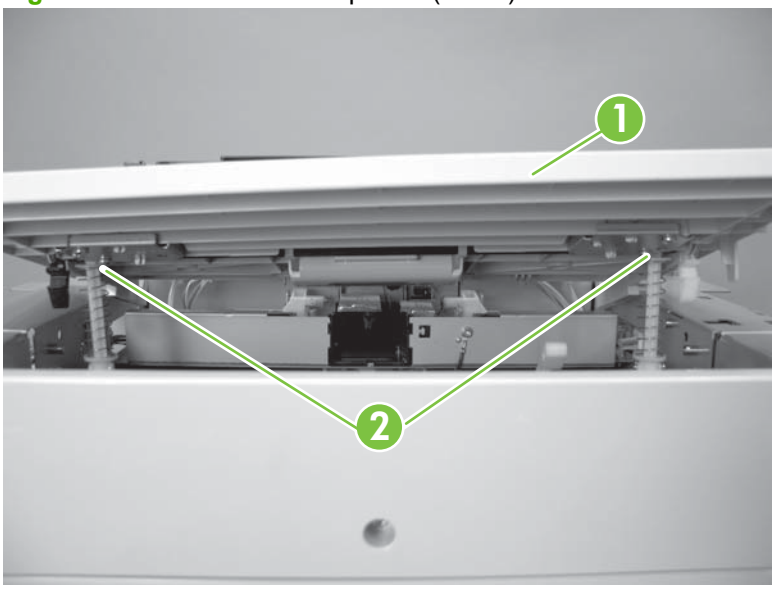
Figure 8-148 Remove the left-upper cover (3 of 3)



Top door

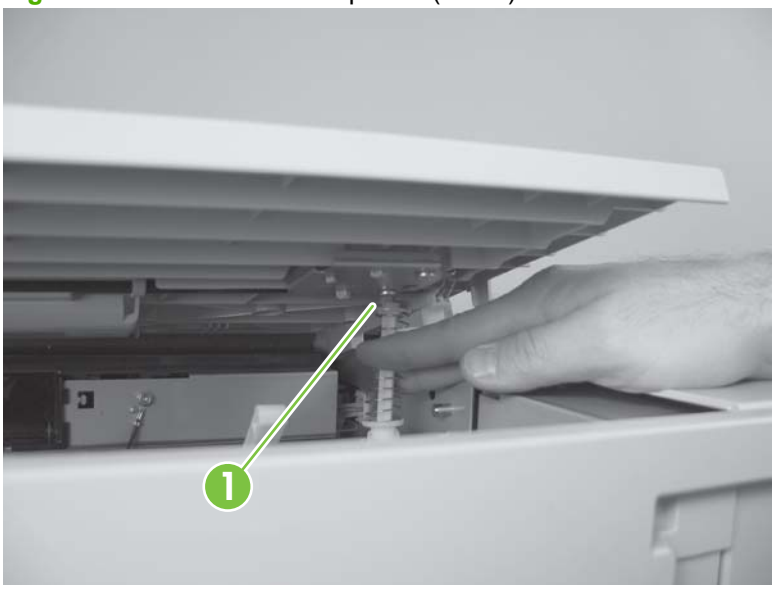
1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Rear cover. See Rear cover on page 761.
2. Open the top door (callout 1) and locate the two hooks (callout 2) at the top of the two spring-loaded arms.

Figure 8-149 Remove the top door (1 of 3)



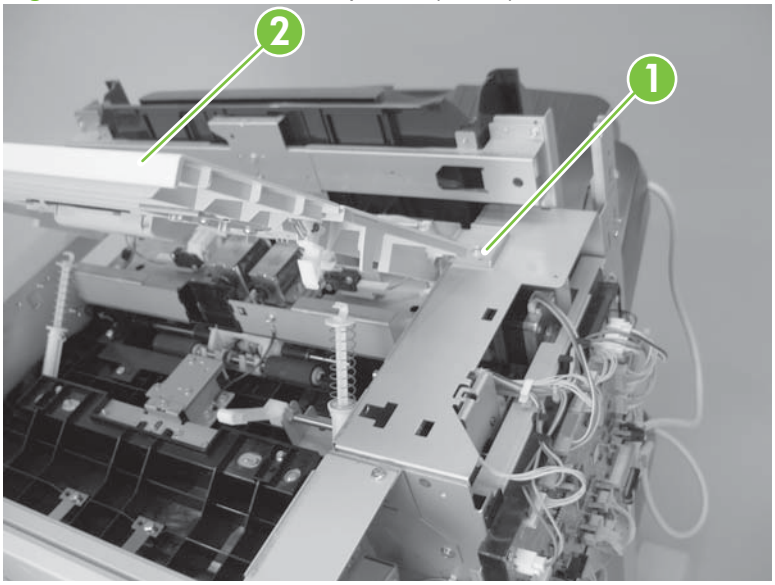
3. Press the hooks at the top (callout 1) to release them from the top door.

Figure 8-150 Remove the top door (2 of 3)



4. Remove one screw (callout 1), and then remove the top door (callout 2).

Figure 8-151 Remove the top door (3 of 3)



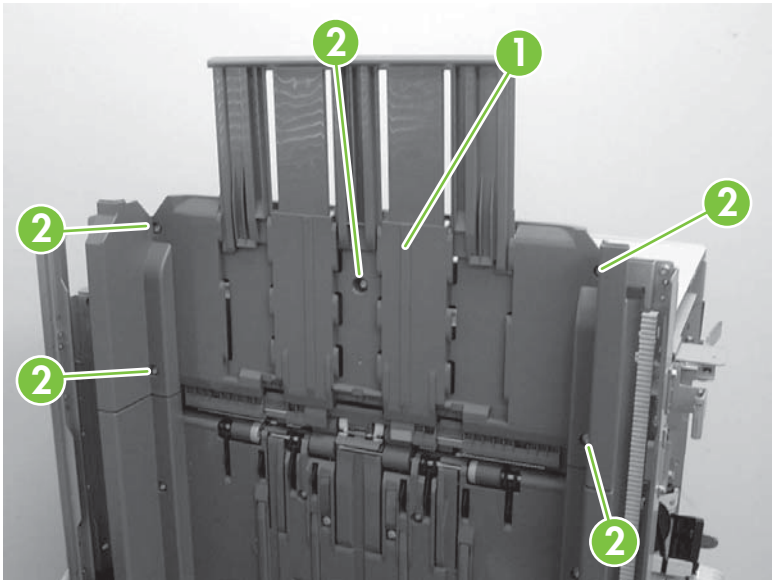
Grate-shaped upper guide

1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Rear cover. See Rear cover on page 761.
   - Left-upper cover. See Left-upper cover on page 765.

   NOTE: Position output bins below the grate-shaped upper guide.

2. Remove five screws (callout 2), and then remove the grate-shaped upper guide (callout 1).

Figure 8-152 Remove the grate-shaped upper guide



Move output bins 1 and 2

△ **CAUTION:** Lowering the output bins without lifting the shutter can cause the stack-delivery gate to come off the accessory.

1. Raise and hold the shutter to cover the stack-delivery gate.

Figure 8-153 Move output bins (1 of 3)



2. While raising the shutter, pull the output-bin lift-motor-gear clutch on the bottom of the output bin. Lower the output bin past the stack-delivery gate.

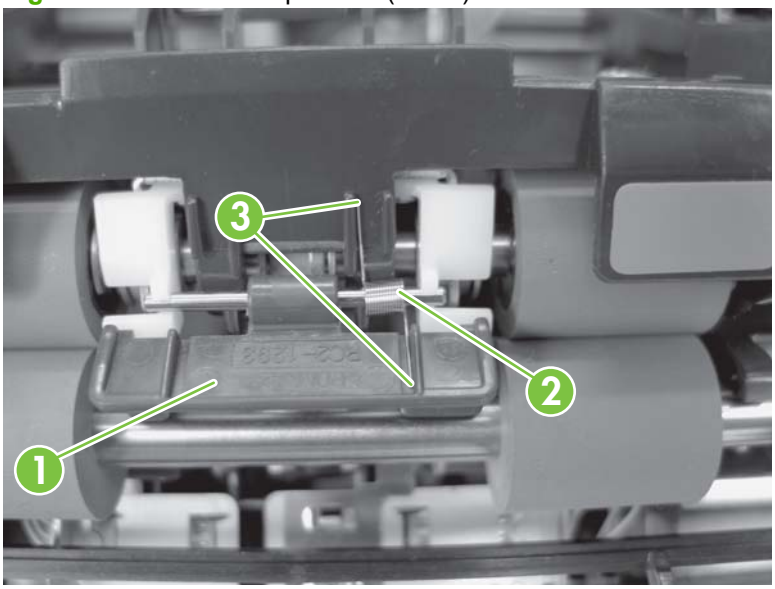
⚠ **WARNING!** Hold the output bin with your hand when releasing the clutch. When the output-bin lift-motor-gear clutch is released, the output bin drops by its own weight.

Figure 8-154 Move output bins (2 of 3)



NOTE: If the stack-delivery gate (callout 1) comes off, retain the spring (callout 2) and reinstall. The spring ends (callout 3) fit in the slots provided.

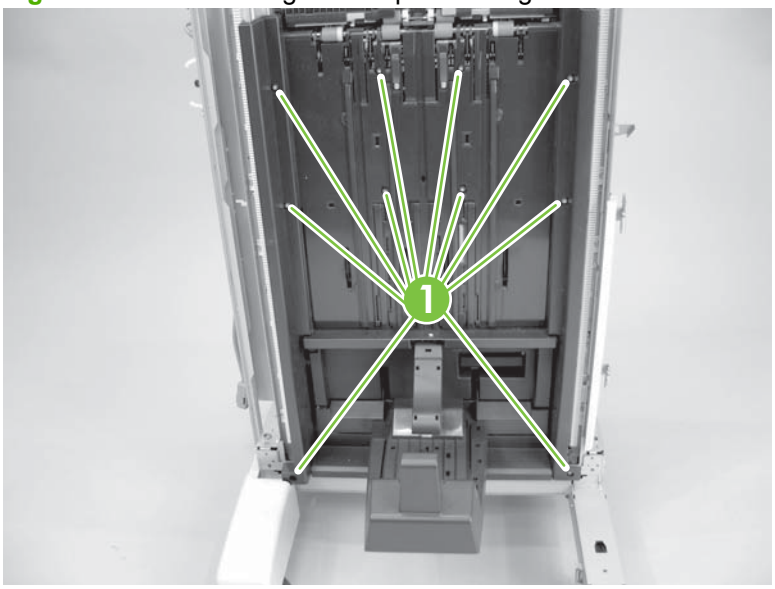
Figure 8-155 Move output bins (3 of 3)



Grate-shaped lower guide

1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front-foot cover. See Front-foot cover on page 762.
   - Rear cover. See Rear cover on page 761.
   - Rear-foot cover. See Rear-foot cover on page 762.
   - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
   - Upper output bin. See Upper output bin (stapler-stacker only) on page 803.
   - Output-bin 1. See Output-bin 1 on page 799.
   - Output-bin 2. See Output-bin 2 on page 801.
2. Remove ten screws (callout 1), and then remove the grate-shaped lower guide.

Figure 8-156 Remove grate-shaped lower guide

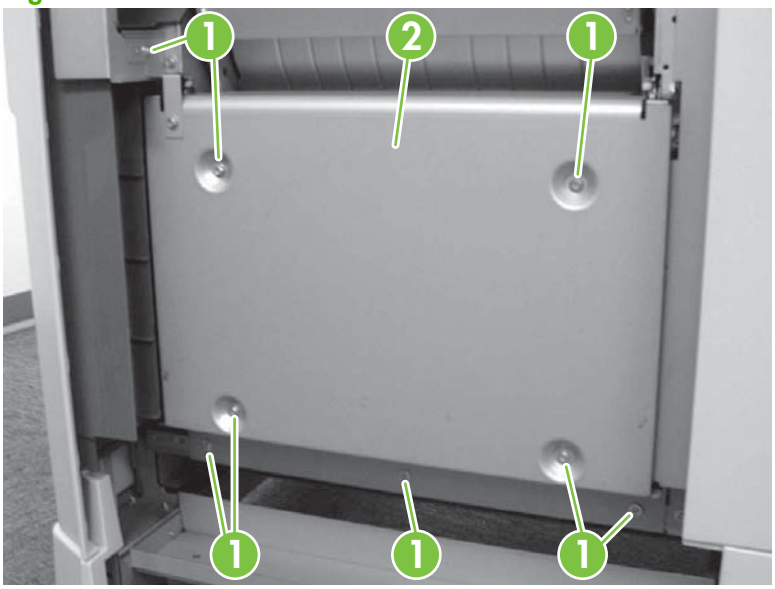


NOTE: When reinstalling, be careful not to hook the grate-shaped lower guide to the sensor flag arm.

PCA cover

▲ Remove eight screws (callout 1), and then remove the PCA cover (callout 2) (booklet maker only).

Figure 8-157 Remove the PCA cover



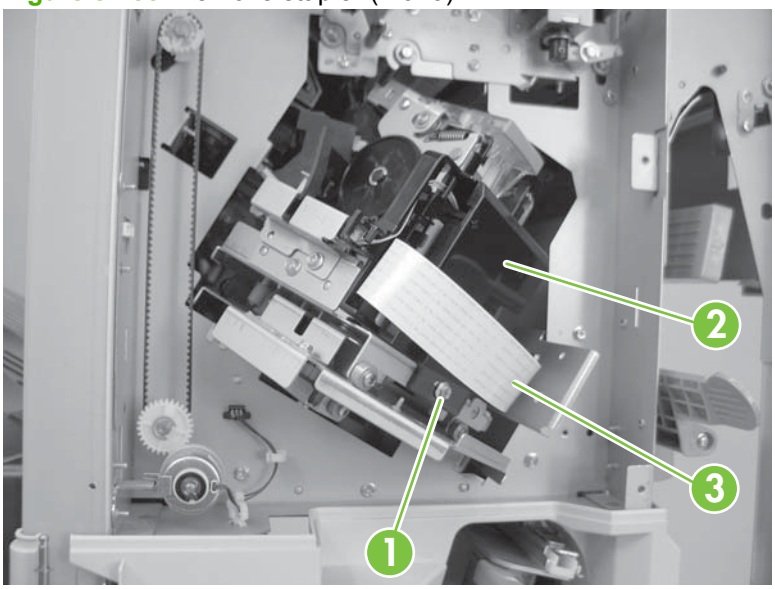
Drive system

Stapler

1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
2. Pull out the stapler, remove one screw (callout 1), and then remove the PCA cover (callout 2).

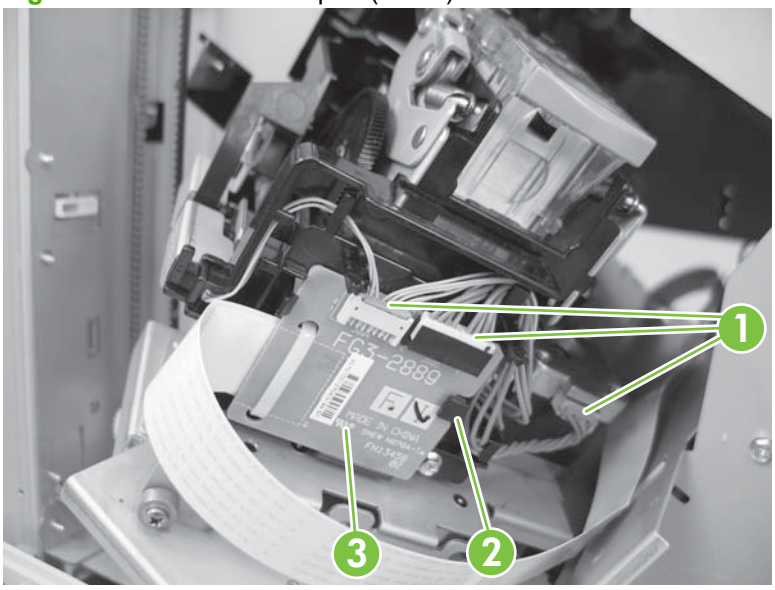
△ **CAUTION:** Handle the FCC cable (callout 3) with care. It can be easily damaged if folded, dented, or mishandled.

Figure 8-158 Remove stapler (1 of 3)



3. Disconnect three connectors (callout 1), release one tab (callout 2), and then remove the PCA (callout 3).

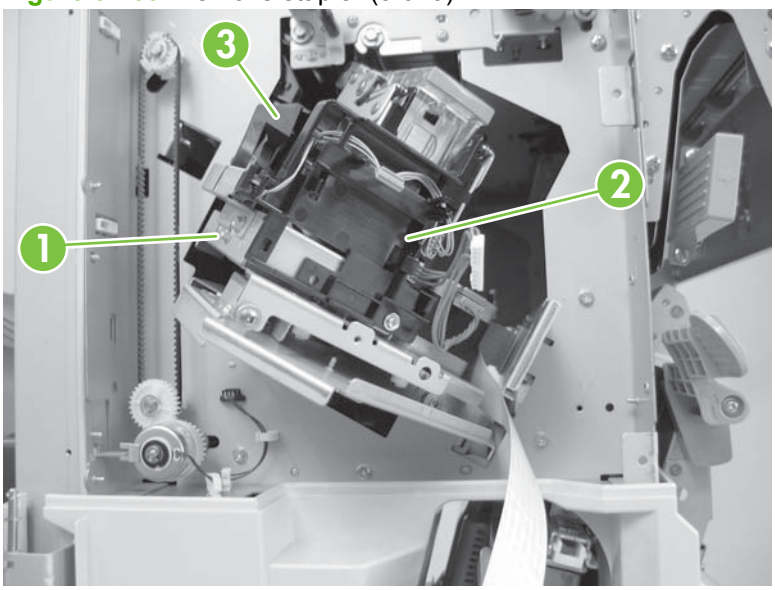
Figure 8-159 Remove stapler (2 of 3)



4. Remove one screw (callout 1), and then remove the stapler with the stapler base (callout 2).

△ **CAUTION:** When removing and reinstalling the stapler, be careful not to damage the flag (callout 3).

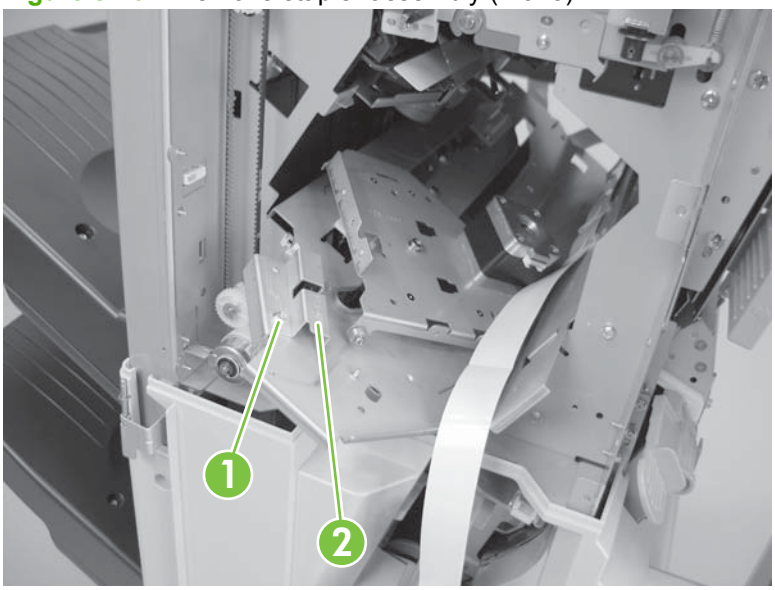
Figure 8-160 Remove stapler (3 of 3)



Stapler assembly

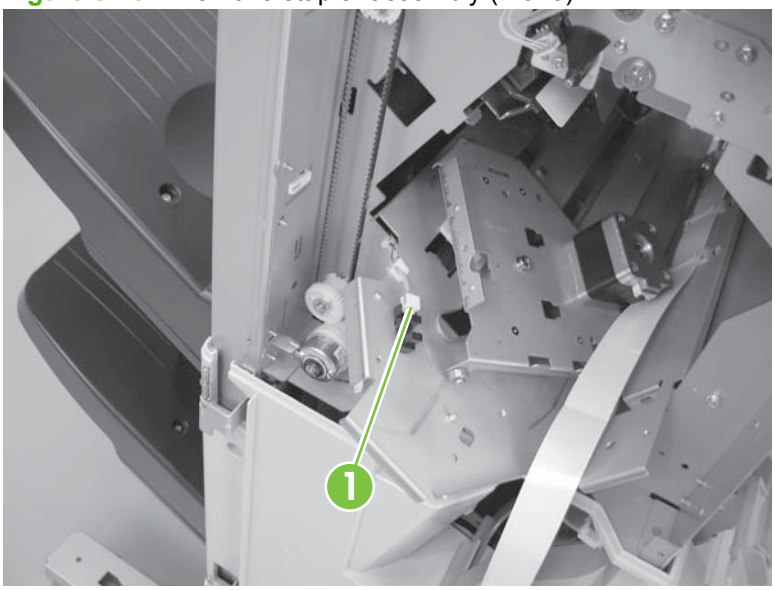
1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Rear cover. See Rear cover on page 761.
   - Stapler. See Stapler on page 774.
2. Remove one screw (callout 1), and then remove one cover (callout 2).

Figure 8-161 Remove stapler assembly (1 of 5)



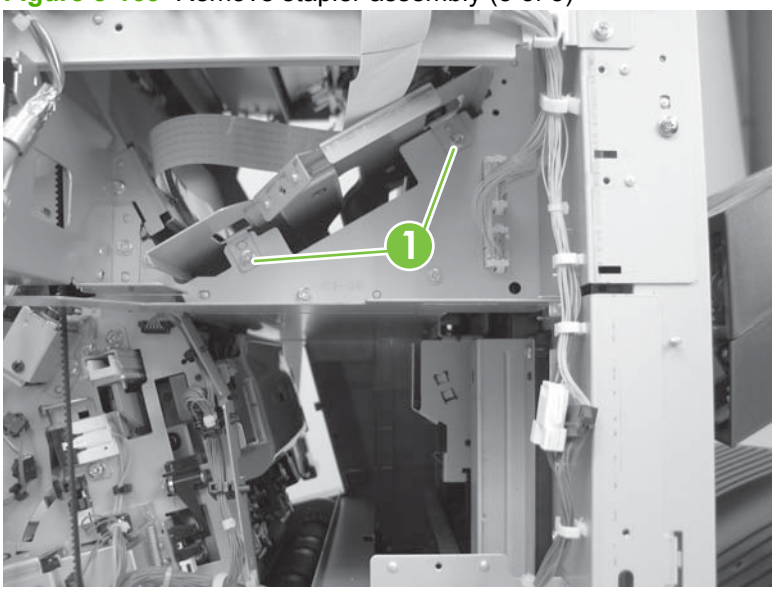
3. Disconnect one connector (callout 1).

Figure 8-162 Remove stapler assembly (2 of 5)



4. From the rear of the accessory, remove two screws (callout 1).

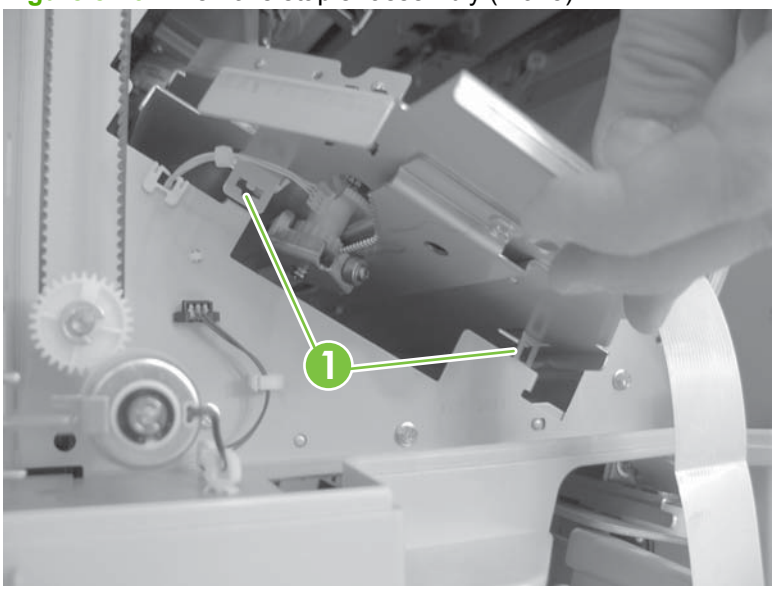
Figure 8-163 Remove stapler assembly (3 of 5)



5. From the front of the accessory, push the stapler assembly back to clear the tabs (callout 1), and then lift up. Remove the stapler assembly through the front of the accessory.

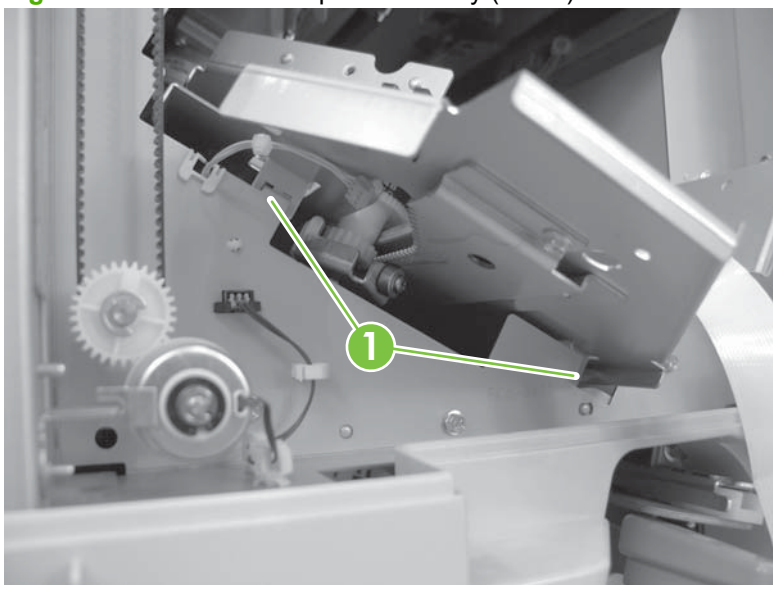
△ **CAUTION:** Handle the FCC cable (callout 3) with care. It can be easily damaged if folded, dented, or mishandled.

Figure 8-164 Remove stapler assembly (4 of 5)



NOTE: When reinstalling, make sure the tabs are positioned correctly (callout 1).

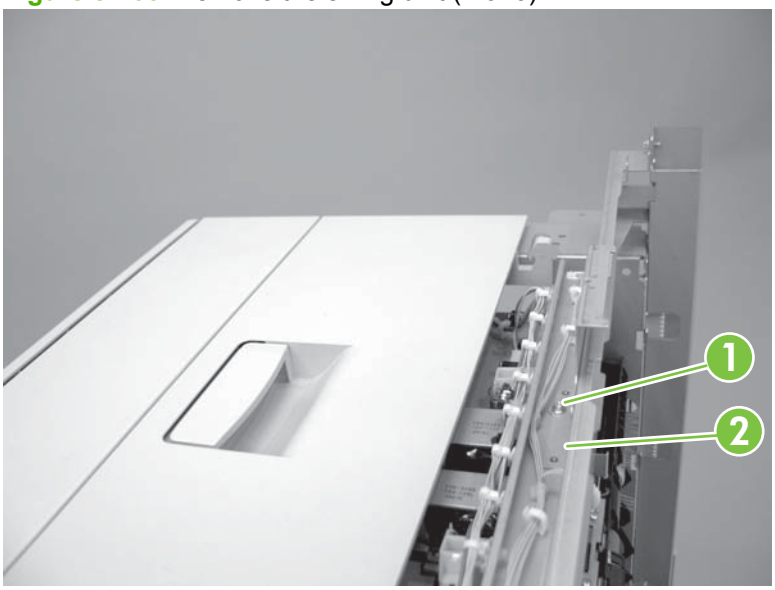
Figure 8-165 Remove stapler assembly (5 of 5)



Swing unit

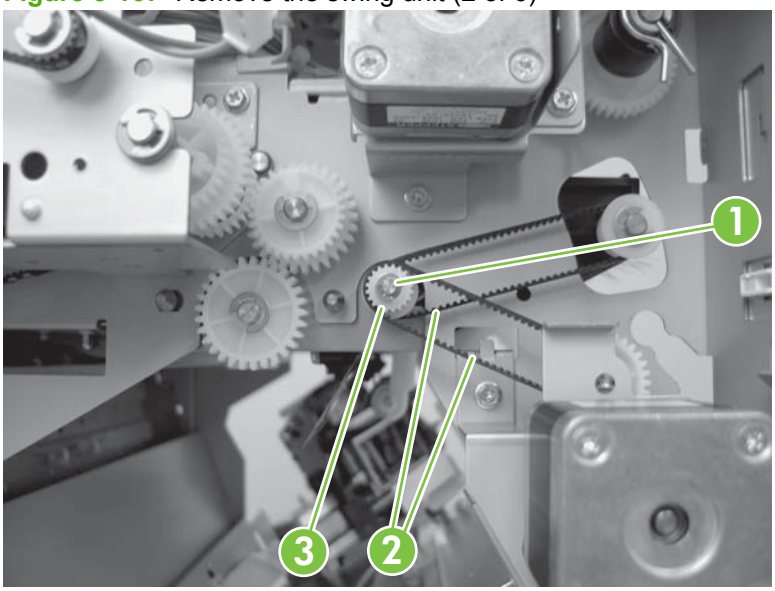
1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front-foot cover. See Front-foot cover on page 762.
   - Rear cover. See Rear cover on page 761.
   - Rear-foot cover. See Rear-foot cover on page 762.
   - Left-upper cover. See Left-upper cover on page 765.
   - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
   - Upper output bin. See Upper output bin (stapler-stacker only) on page 803.
   - Output-bin 1. See Output-bin 1 on page 799.
   - Output-bin 2. See Output-bin 2 on page 801.
   - Grate-shaped lower guide. See Grate-shaped lower guide on page 772.
   - Processing tray. See Operation-tray assembly on page 794.
2. Remove one screw (callout 1), and then lift the swing-pressure guide (callout 2) to remove.

Figure 8-166 Remove the swing unit (1 of 6)



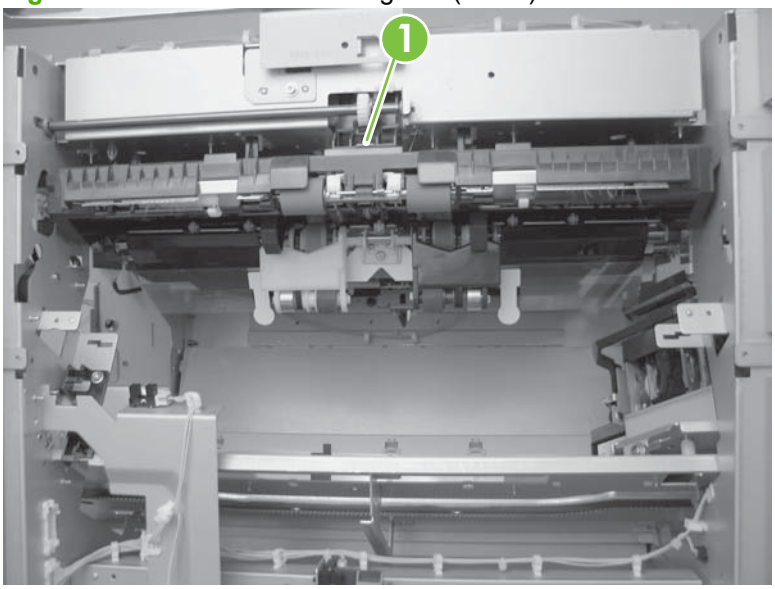
3. Remove one e-ring (callout 1), two belts (callout 2), and one gear (callout 3).

Figure 8-167 Remove the swing unit (2 of 6)



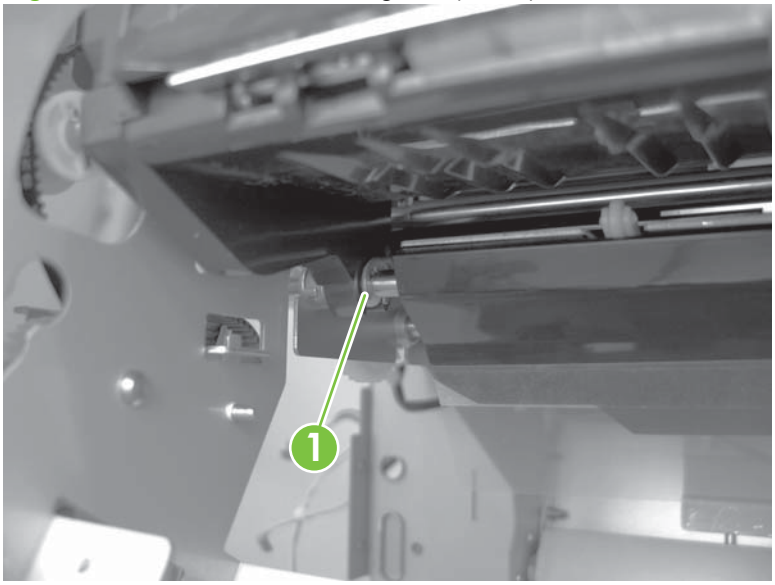
4. Unhook the swing pressure rack (callout 1) from the swing unit center hook.

Figure 8-168 Remove the swing unit (3 of 6)



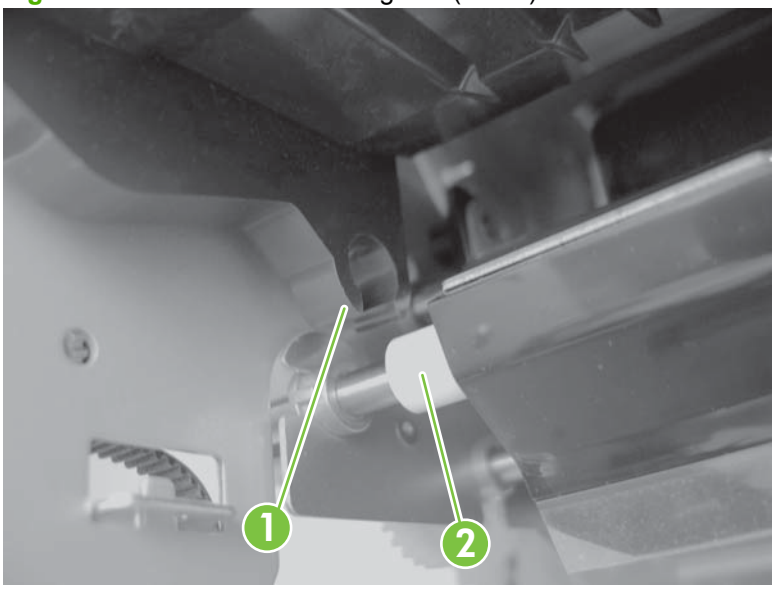
5. Remove one e-ring (callout 1) on each side of the swing unit.

Figure 8-169 Remove the swing unit (4 of 6)



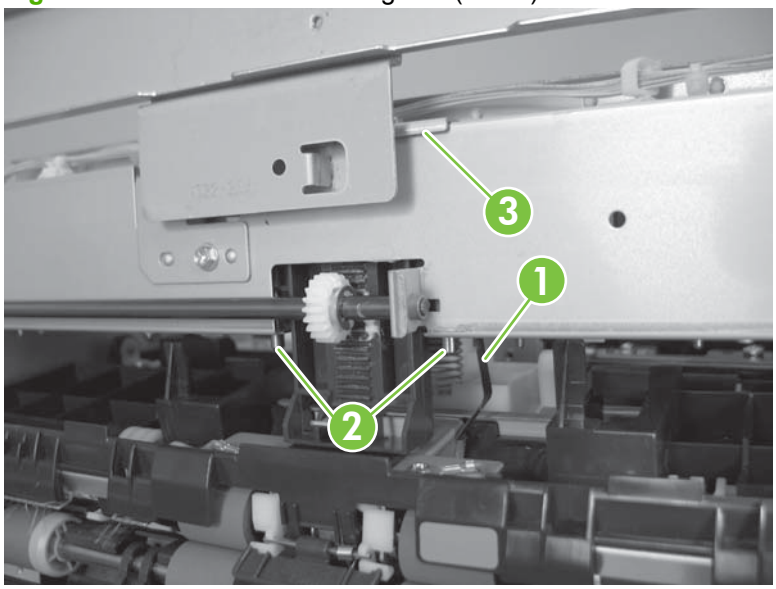
6. Slide the bushing (callout 2) to the inside and lift the swing unit (callout 1) to remove.

Figure 8-170 Remove the swing unit (5 of 6)



△ **CAUTION:** When reinstalling the swing unit, make sure the grounding plate (callout 1) is positioned so that the bottom of the grounding plate rubs against the metal plate when the swing arm moves up and down. Also make sure the pins (callout 2) are inserted correctly and the swing-pressure guide is flush (callout 3).

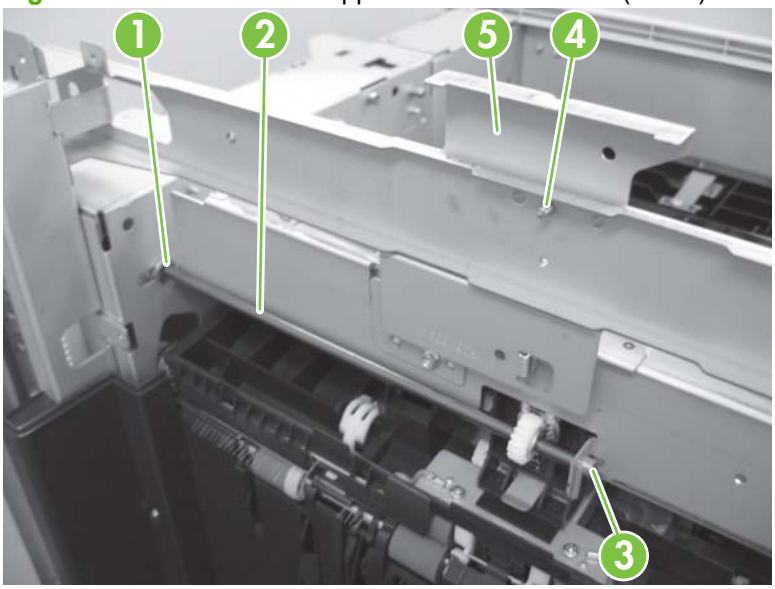
Figure 8-171 Remove the swing unit (6 of 6)



Upper crossmember unit

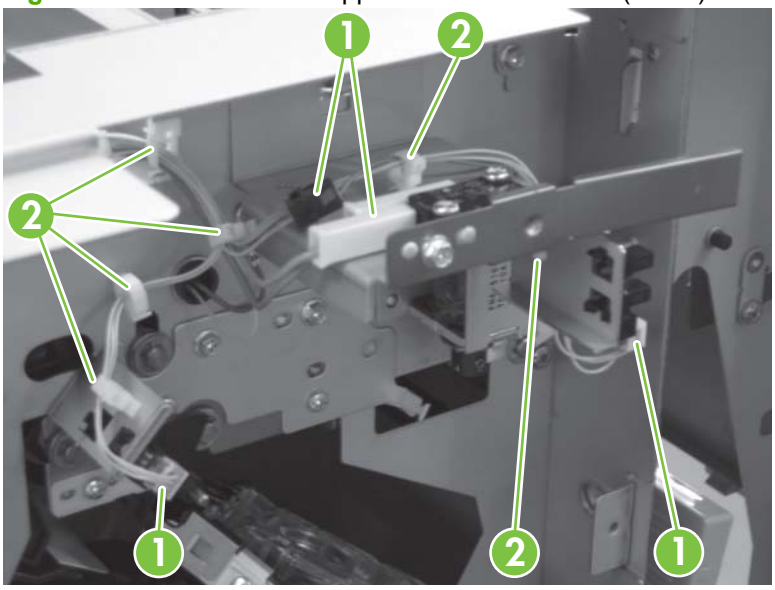
1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Rear cover. See Rear cover on page 761.
   - Left-upper cover. See Left-upper cover on page 765.
   - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
2. Remove the e-ring (callout 1). Slide the shaft (callout 2) to the rear side, and then remove the bushing (callout 3). Remove one screw (callout 4), and then remove the stopper (callout 5).

Figure 8-172 Remove the upper crossmember unit (1 of 5)



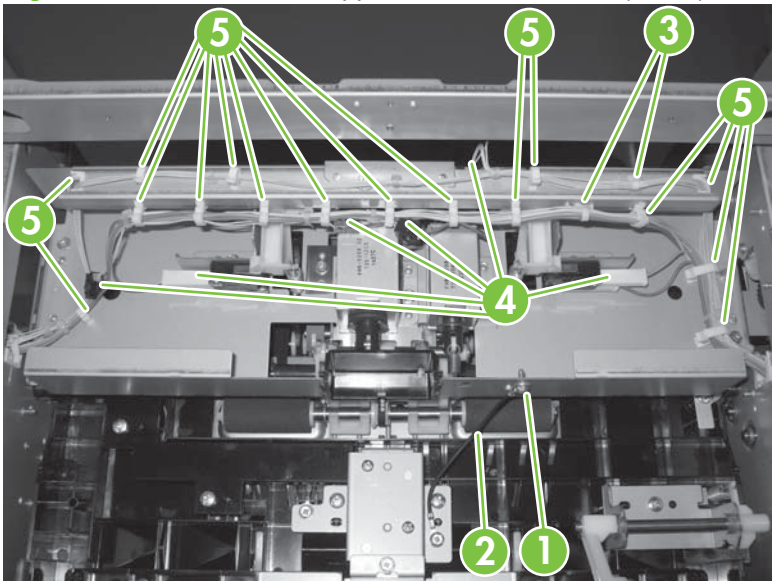
3. Disconnect four connectors (callout 1), and then remove the wire from the six wire retainers (callout 2).

Figure 8-173 Remove the upper crossmember unit (2 of 5)



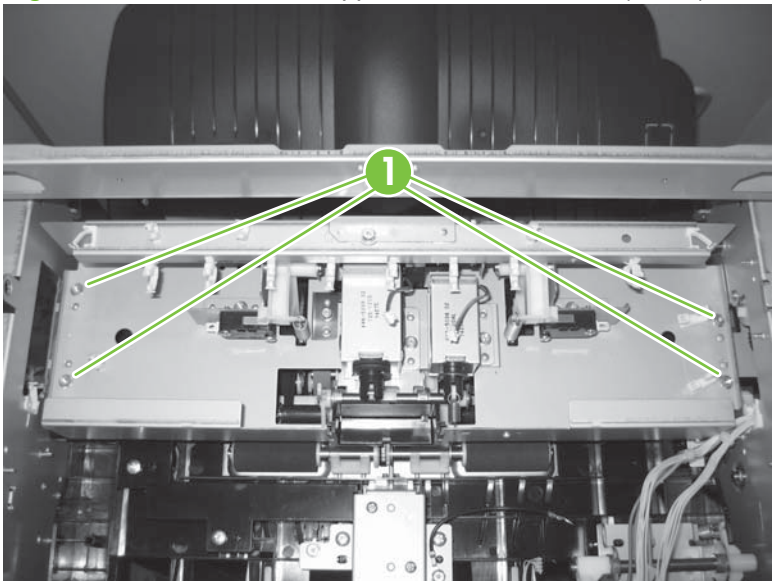
4. Remove one screw (callout 1) and a grounding wire (callout 2). Remove the two cable bands (callout 3). Disconnect six connectors (callout 4), and then release 16 wire retainers (callout 5).

Figure 8-174 Remove the upper crossmember unit (3 of 5)



5. Remove the four screws (callout 1).

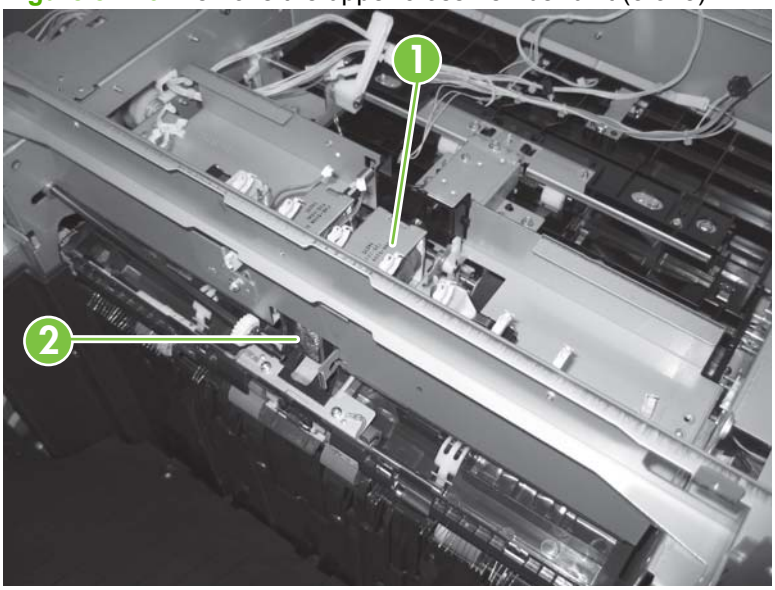
Figure 8-175 Remove the upper crossmember unit (4 of 5)



6. Lift the upper crossmember unit (callout 1), release the catch of the swing pressure rack (callout 2), and then remove the upper crossmember unit.

NOTE: Do not lose the spring that is attached to the back of the upper crossmember unit.

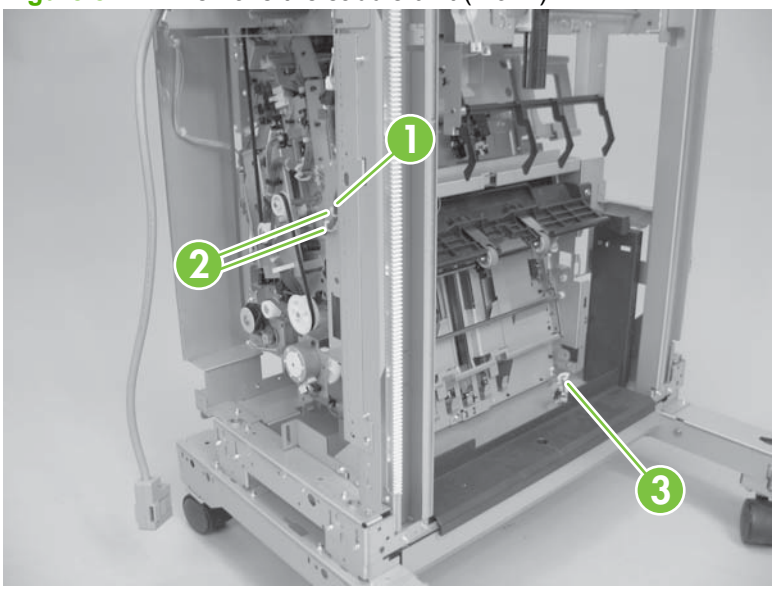
Figure 8-176 Remove the upper crossmember unit (5 of 5)



Saddle unit (booklet maker only)

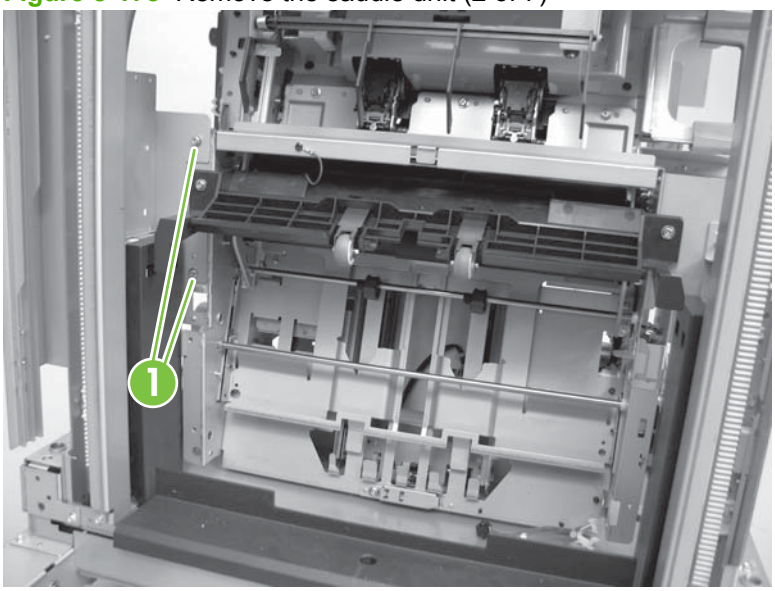
1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front-foot cover. See Front-foot cover on page 762.
   - Front inside-lower cover. See Front inside-lower cover (booklet maker only) on page 764.
   - Rear cover. See Rear cover on page 761.
   - Rear-foot cover. See Rear-foot cover on page 762.
   - Left-upper cover. See Left-upper cover on page 765.
   - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
   - Upper output bin. See Upper output bin (stapler-stacker only) on page 803.
   - Output-bin 1. See Output-bin 1 on page 799.
   - Output-bin 2. See Output-bin 2 on page 801.
   - Grate-shaped lower guide. See Grate-shaped lower guide on page 772.
   - Booklet-delivery output bin unit. See Booklet-delivery output bin unit (booklet maker only) on page 806.
   - PCA cover. See PCA cover on page 773.
   - Inlet feed unit. See Inlet feed unit (booklet maker only) on page 820 or Inlet feed unit (stapler-stacker only) on page 817.
2. Disconnect two connectors (callout 1), and then release the wire from the two retainers (callout 2). From the delivery side, release the wire from the two retainers (callout 3).

Figure 8-177 Remove the saddle unit (1 of 7)



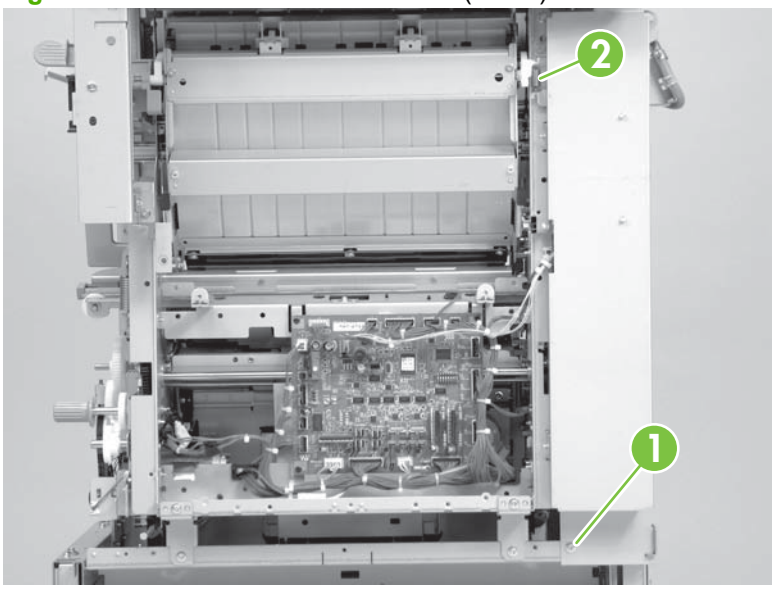
3. Remove two screws (callout 1).

Figure 8-178 Remove the saddle unit (2 of 7)



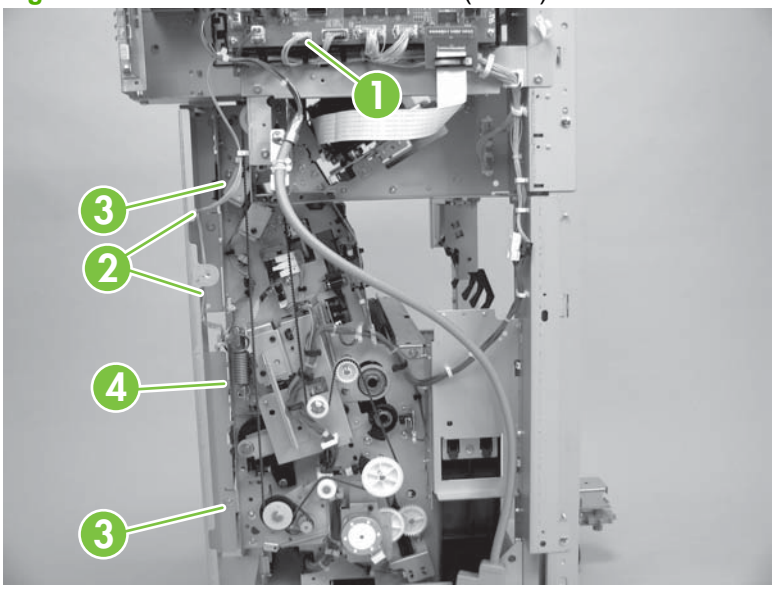
4. Remove one screw (callout 1), and then remove one spring (callout 2).

Figure 8-179 Remove the saddle unit (3 of 7)



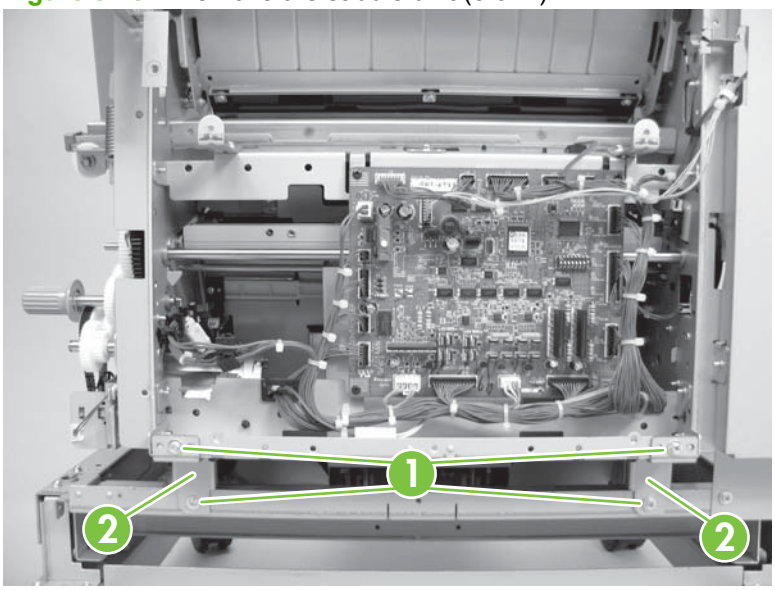
5. Disconnect one connector (callout 1). Release two wire retainers (callout 2), and then remove two screws (callout 3). Remove the guide plate (callout 4).

Figure 8-180 Remove the saddle unit (4 of 7)



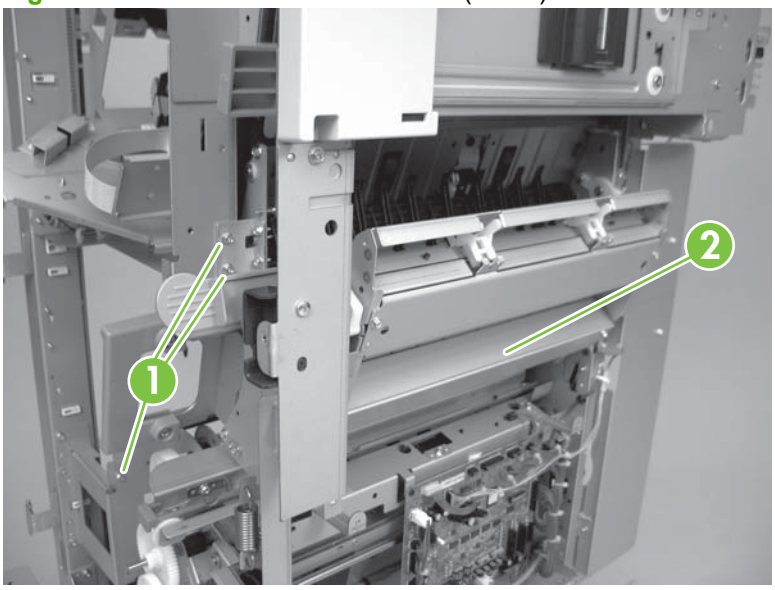
6. Remove four screws (callout 1), and then remove two brackets (callout 2).

Figure 8-181 Remove the saddle unit (5 of 7)



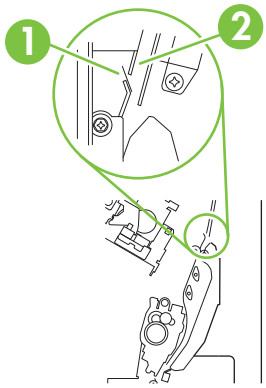
7. Remove three screws (callout 1), and then remove the saddle unit (callout 2) from the paper-feed side.

Figure 8-182 Remove the saddle unit (6 of 7)



NOTE: Install the saddle unit so that the Mylar (callout 1) at the front-upper side of the saddle is on the outside of the delivery-guide plate (callout 2). A delivery fault will occur if it is on the inside.

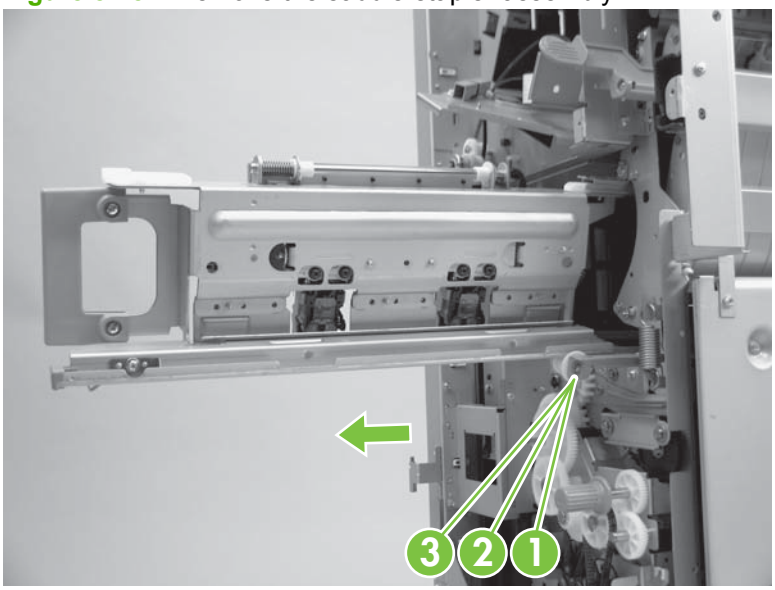
Figure 8-183 Remove the saddle unit (7 of 7)



Saddle-stapler assembly (booklet maker only)

1. Remove the following:
   - Front door. See Front door on page 760.
   - Front-foot cover. See Front-foot cover on page 762.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front inside-lower cover. See Front inside-lower cover (booklet maker only) on page 764.
2. Remove one e-ring (callout 1), one shaft (callout 2), and one roller (callout 3). With one hand on the handle and the other supporting the bottom, slide the stitcher stapler out of the accessory.

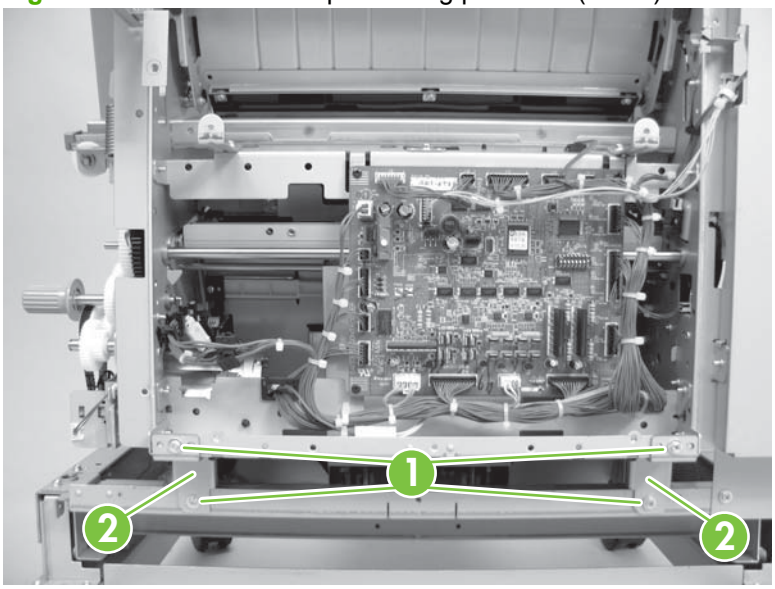
Figure 8-184 Remove the saddle-stapler assembly



Positioning plate unit (inner side-plate assembly) (booklet maker only)

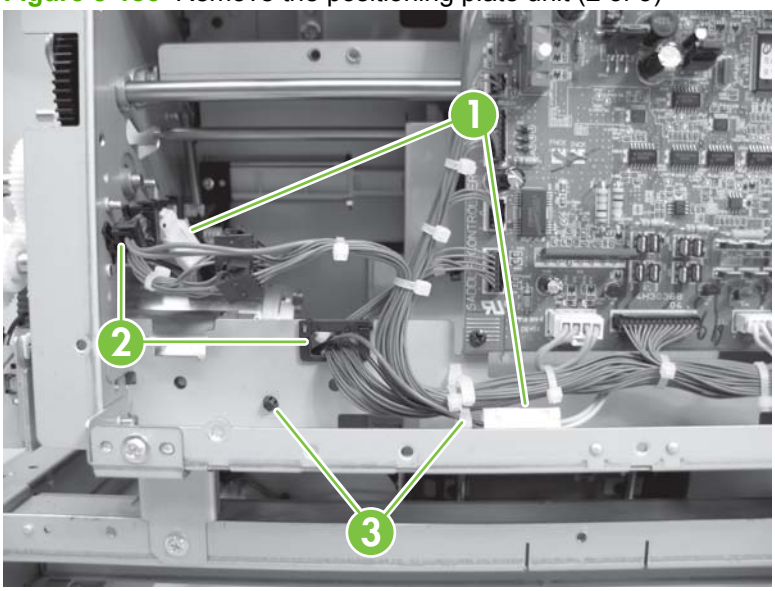
1. Remove the following:
   - Front door. See Front door on page 760.
   - Rear cover. See Rear cover on page 761.
   - Front-foot cover. See Front-foot cover on page 762.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front inside-lower cover. See Front inside-upper cover on page 763.
   - PCA cover. See PCA cover on page 773.
   - Saddle-stitcher controller PCA. See Saddle-stitcher controller PCA (booklet maker only) on page 829.
2. Remove four screws (callout 1) and two brackets (callout 2).

Figure 8-185 Remove the positioning plate unit (1 of 5)



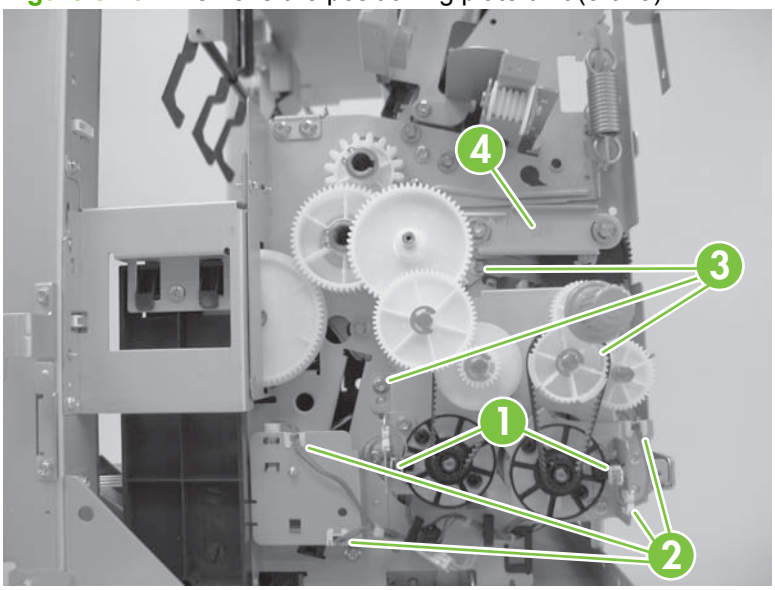
3. Disconnect two connectors (callout 1), two wire retainers (callout 2), and two clamps (callout 3).

Figure 8-186 Remove the positioning plate unit (2 of 5)



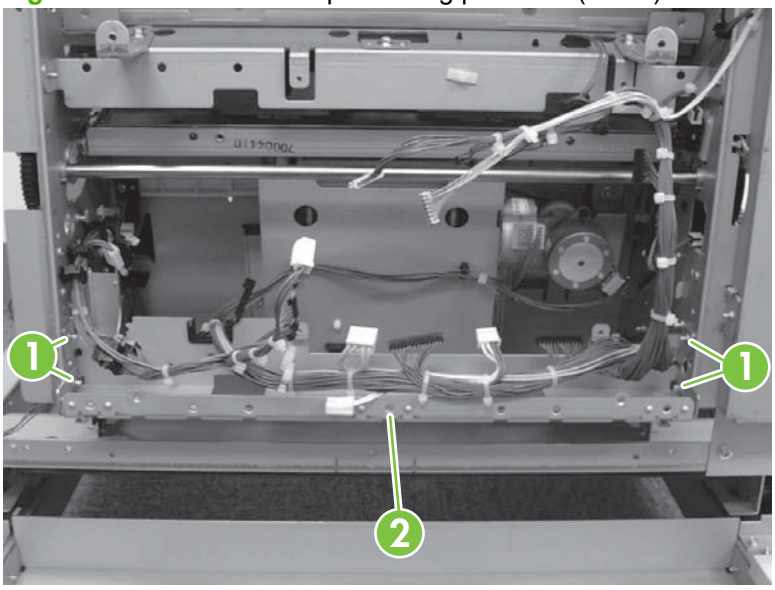
4. Disconnect two connectors (callout 1) and release four wire retainers (callout 2). Remove three screws (callout 3), and then remove the paper-folding/paper-pushing motor base (callout 4).

Figure 8-187 Remove the positioning plate unit (3 of 5)



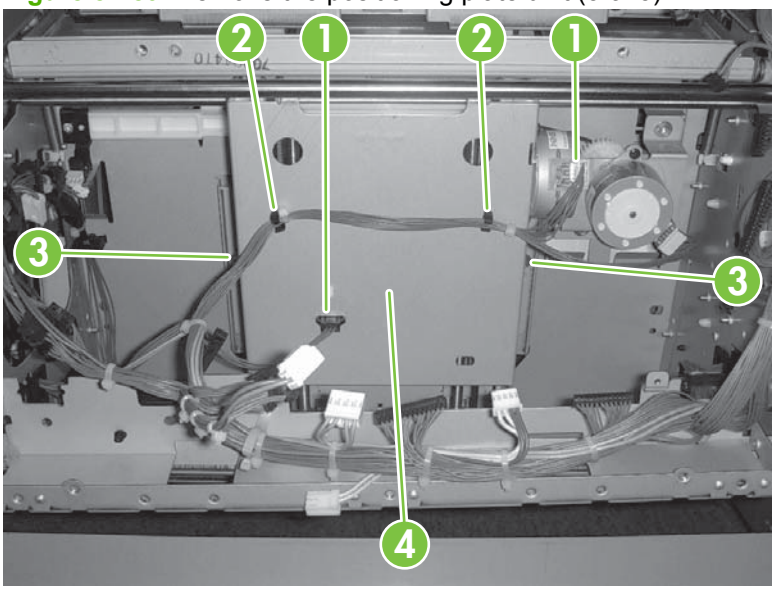
5. Remove four screws (callout 1), and then remove the stay (callout 2). Do not remove the wire retainer on the stay.

Figure 8-188 Remove the positioning plate unit (4 of 5)



6. Disconnect two connectors (callout 1) and release two wire retainers (callout 2). Remove two screws (callout 3), shift the positioning plate unit (callout 4) forward, and then remove it from the paper-feeding side.

Figure 8-189 Remove the positioning plate unit (5 of 5)



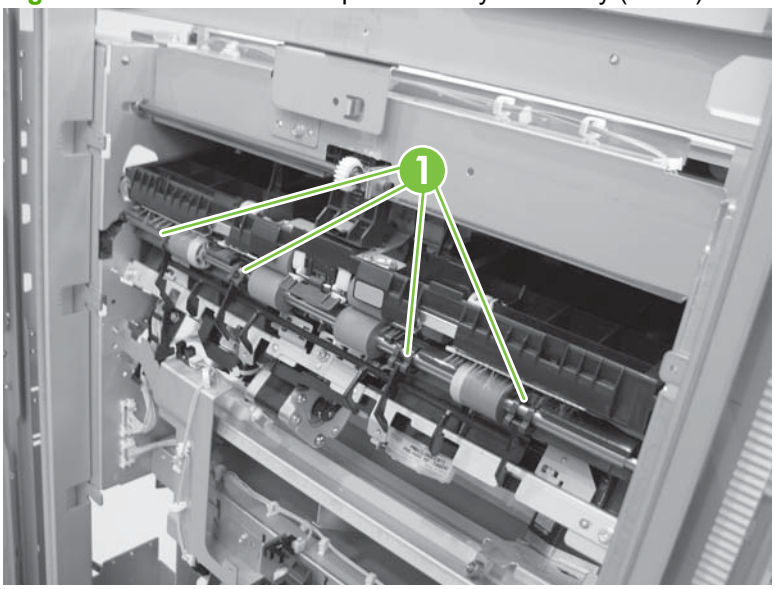
Document feed system

Operation-tray assembly

1. Remove the following:
    - Front door. See Front door on page 760.
    - Rear cover. See Rear cover on page 761.
    - Front-foot cover. See Front-foot cover on page 762.
    - Rear-foot cover. See Rear-foot cover on page 762.
    - Front inside-upper cover. See Front inside-upper cover on page 763.
    - Left-upper cover. See Left-upper cover on page 765.
    - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
    - Grate-shaped lower guide. See Grate-shaped lower guide on page 772
    - Output-bin 1. See Output-bin 1 on page 799.
    - Output-bin 2. See Output-bin 2 on page 801.
    - Upper output bin. See Upper output bin (stapler-stacker only) on page 803.

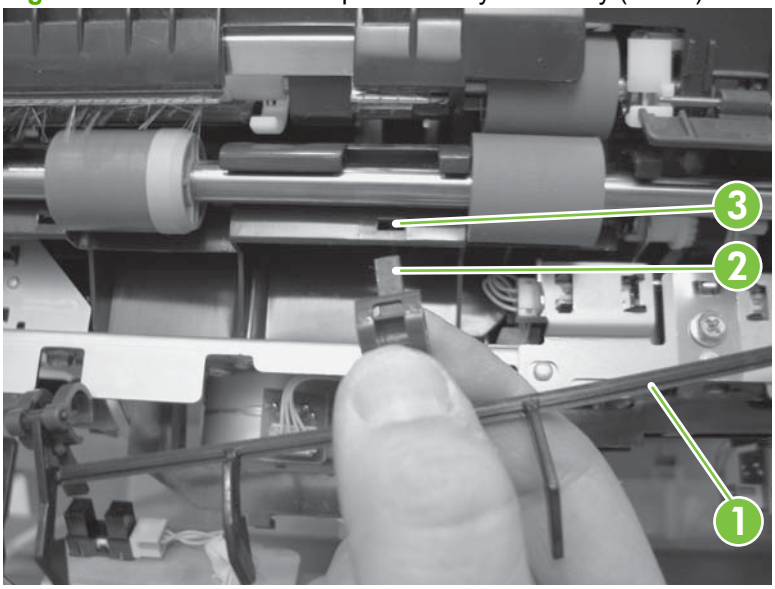
2. The sensor flag arm is very fragile. Grip the sensor flag by the snap fasteners and not by the arm. To remove the sensor flag, start at one end, grip each snap fastener at the base gently pull to remove one at a time.

Figure 8-190 Remove the operation-tray assembly (1 of 6)



NOTE: When reinstalling, the small tab (callout 2) on each snap fastener must be inserted into a hole (callout 3). The sensor flag (callout 1) will not work properly if the tabs are not installed correctly.

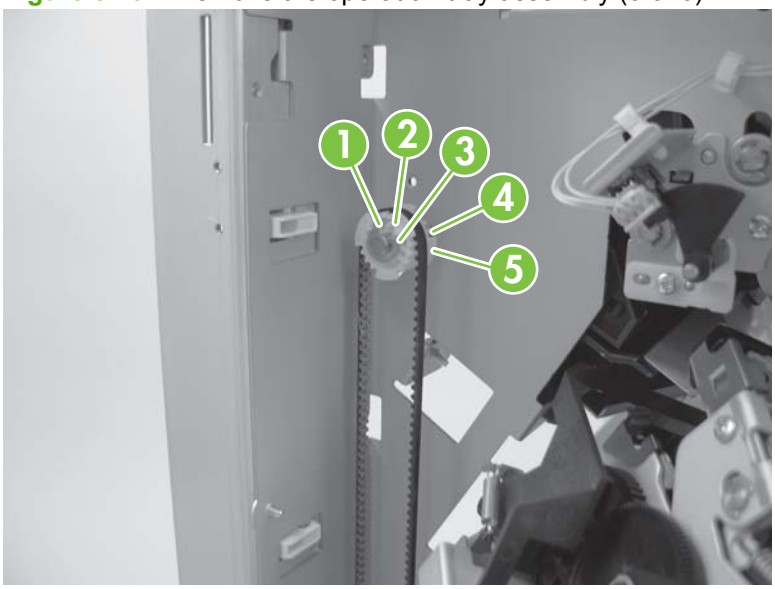
Figure 8-191 Remove the operation-tray assembly (2 of 6)



3. Remove one e-ring (callout 1), one parallel pin (callout 2), one gear (callout 3), one e-ring (callout 4), and one bushing (callout 5).

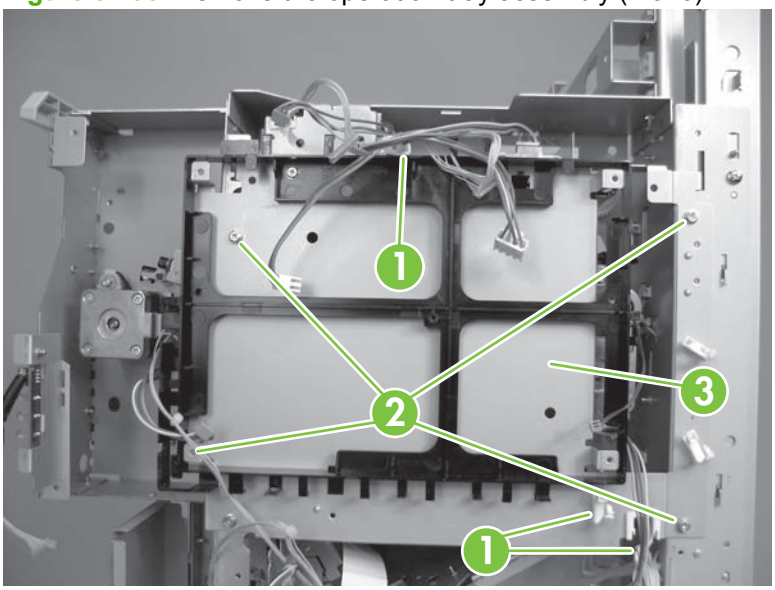
NOTE: The parallel pin (callout 3) drops when the gear (callout 2) is removed. Be sure to locate and save the pin for reinstallation.

Figure 8-192 Remove the operation-tray assembly (3 of 6)



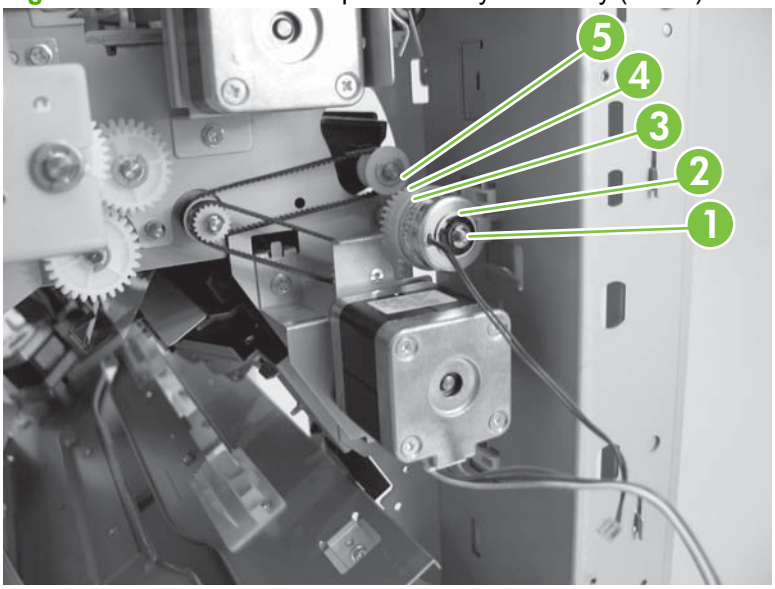
4. Release three wire retainers (callout 1). Remove four screws (callout 2), and then remove the PCA mount (callout 3).

Figure 8-193 Remove the operation-tray assembly (4 of 6)



5. Remove one e-ring (callout 1) and the stack-delivery-roller rear-side clutch (callout 2). Behind the clutch, remove one e-ring (callout 3), one bushing (callout 4), and one bearing (callout 5), and then remove the stack-delivery roller.

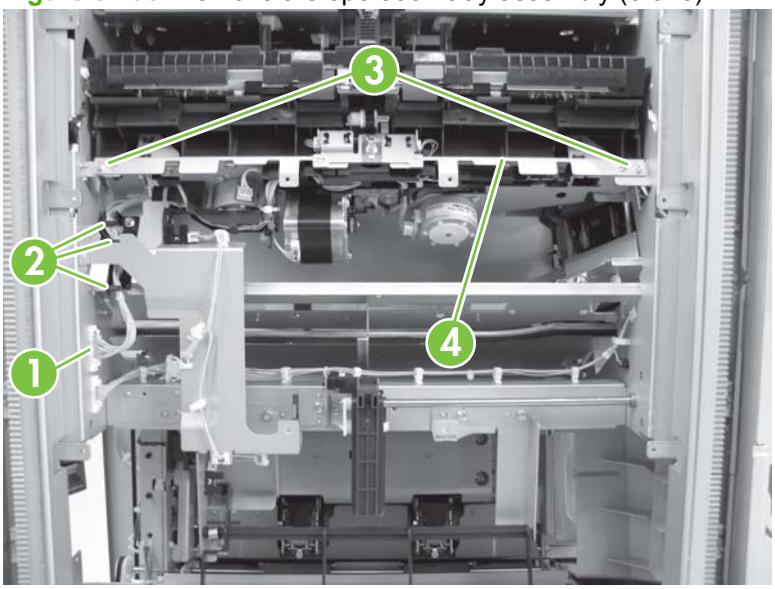
Figure 8-194 Remove the operation-tray assembly (5 of 6)



6. Disconnect one connector (callout 1), and then release one clamp and one edge saddle (callout 2). Remove two screws (callout 3), and then pull out the operation-tray assembly (callout 4) in the paper-delivery direction.

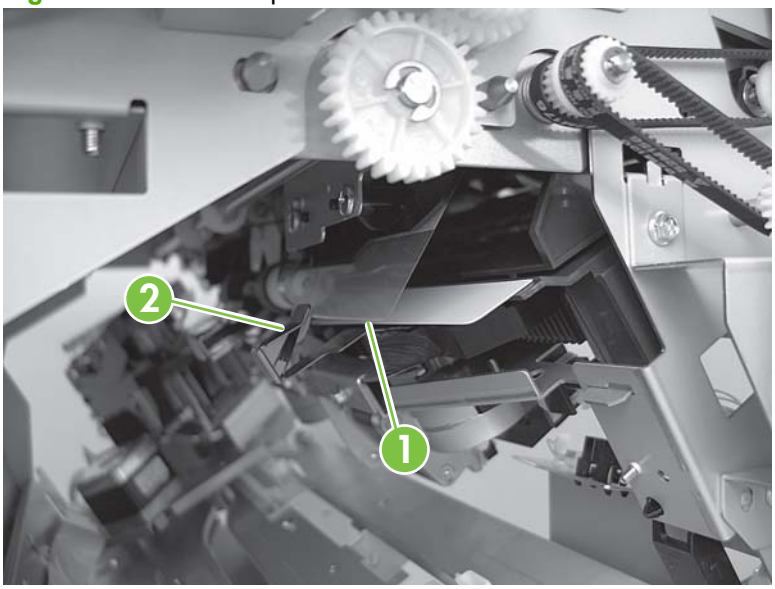
NOTE: When removing parts inside the operation tray, be careful not to exert force on the aligning plates (front/rear) or the rear-end stopper plate.

Figure 8-195 Remove the operation-tray assembly (6 of 6)



NOTE: When attaching the operation-tray assembly, do not mount the Mylar sheet (callout 1) on top of the stack trailing-edge assist guide (callout 2).

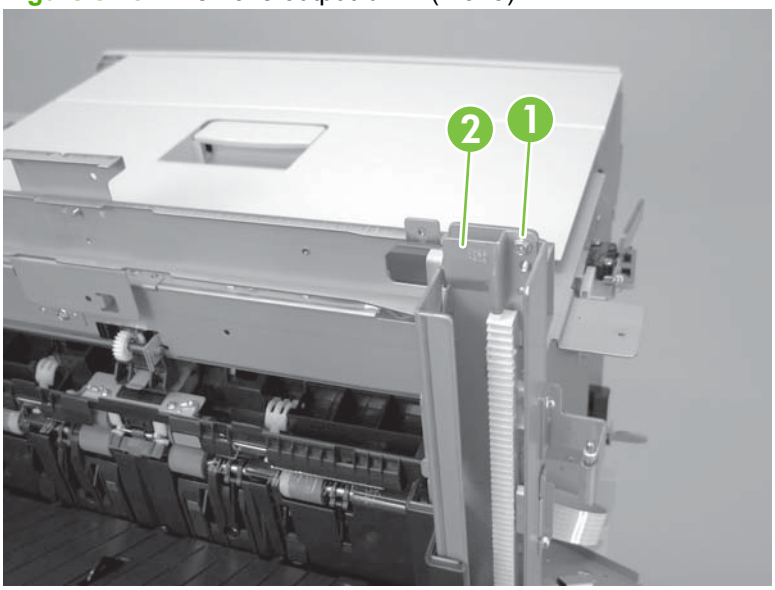
Figure 8-196 Correct position of sheet



Output-bin 1

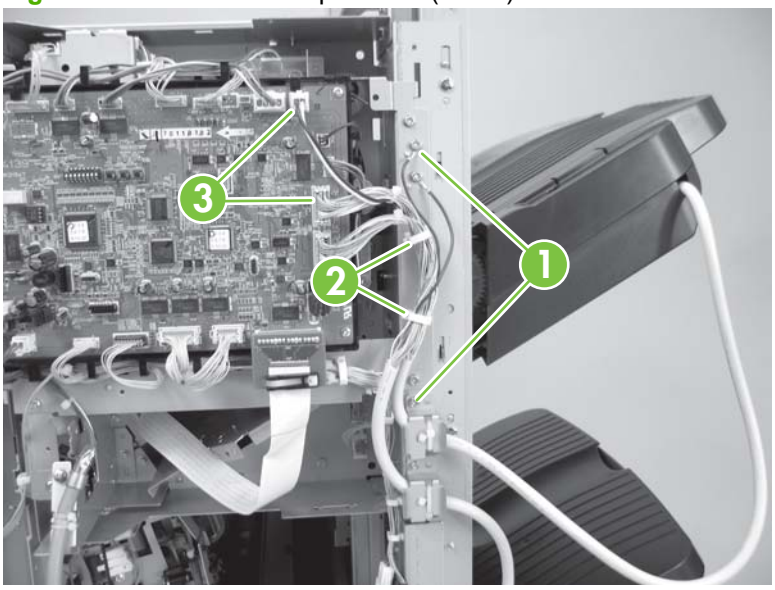
1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front-foot cover. See Front-foot cover on page 762.
   - Rear cover. See Rear cover on page 761.
   - Rear-foot cover. See Rear-foot cover on page 762.
   - Left-upper cover. See Left-upper cover on page 765.
   - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
   - Upper output bin. See Upper output bin (stapler-stacker only) on page 803
2. Remove one screw (callout 1), and then remove the stopper (callout 2).

Figure 8-197 Remove output-bin 1 (1 of 3)



3. Remove two screws (callout 1), release two wire retainers (callout 2) and then disconnect two connectors (callout 3).

Figure 8-198 Remove output-bin 1 (2 of 3)



4. Hold output-bin 1 to prevent the bin from falling. Insert your finger in the hole at the rear side of the bin and release the lift-motor gear. Lift the shutter to prevent damage to the stack-delivery gate. Lift output-bin 1 to remove.

Figure 8-199 Remove output-bin 1 (3 of 3)



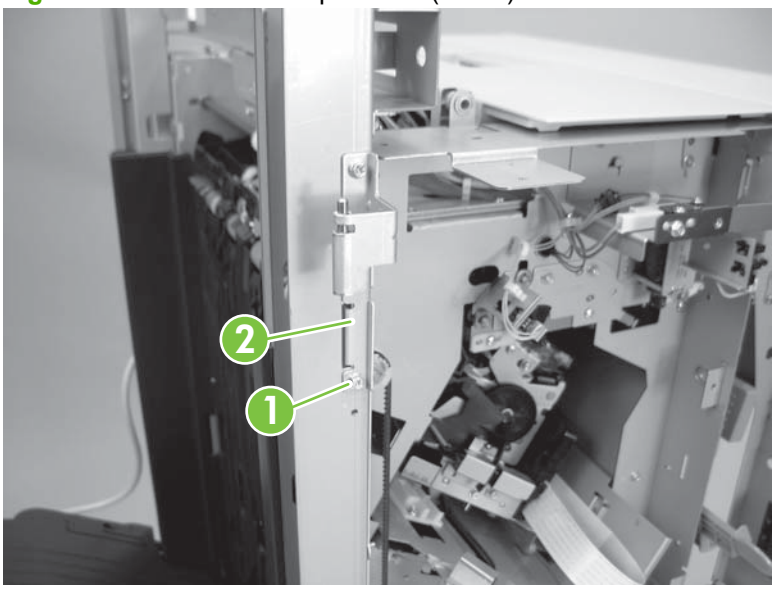
NOTE: When reinstalling, be careful not to twist the tray cable. Lift the shutter to prevent damage to the stack-delivery gate. See Move output bins 1 and 2 on page 770

NOTE: Output bin 1 and output bin 2 are different. Do not reverse the locations of the output bins when reinstalling

Output-bin 2

1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front-foot cover. See Front-foot cover on page 762.
   - Rear cover. See Rear cover on page 761.
   - Rear-foot cover. See Rear-foot cover on page 762.
   - Left-upper cover. See Left-upper cover on page 765.
   - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
   - Upper output bin. See Upper output bin (stapler-stacker only) on page 803
   - Output-bin 1. See Output-bin 1 on page 799.
2. Remove screw (callout 1), and then remove the stopper (callout 2).

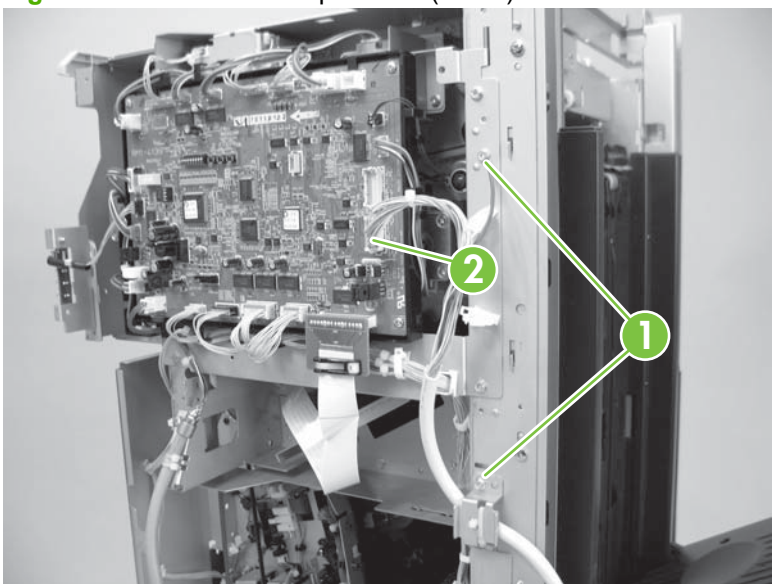
Figure 8-200 Remove output-bin 2 (1 of 3)



3. Remove two screws (callout 1) and one connector (callout 2).

NOTE: Output-bin 2 has one connector. Output-bin 1 has two connectors.

Figure 8-201 Remove output-bin 2 (2 of 3)



4. Hold output-bin 2 to prevent the bin from falling. Insert your finger in the hole at the rear side of the bin and release the lift-motor gear. Lift the shutter to prevent damage to the stack-delivery gate. Lift output-bin 2 to remove.

Figure 8-202 Remove output-bin 2 (3 of 3)



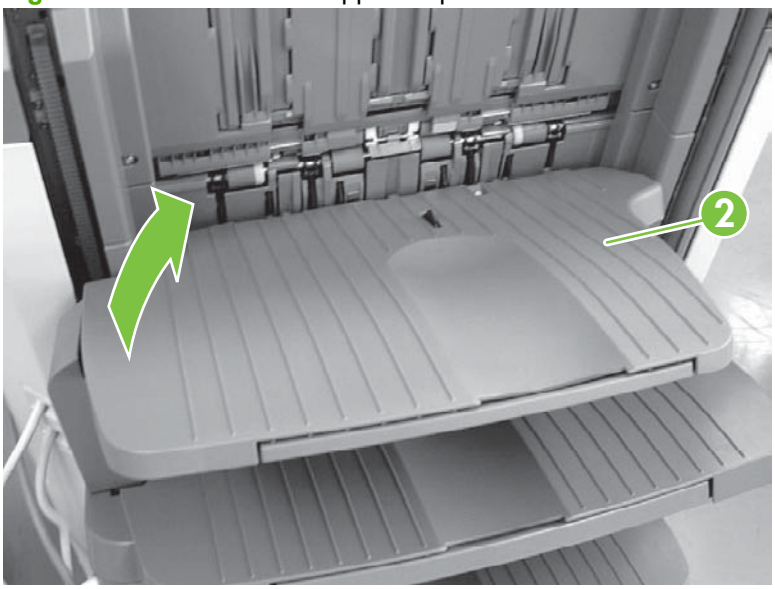
NOTE: When reinstalling, be careful not to twist the tray cable. Lift the shutter to prevent damage to the stack-delivery gate. See Move output bins 1 and 2 on page 770

NOTE: Output bin 1 and output bin 2 are different. Do not reverse the locations of the output bins when reinstalling

Upper output bin (stapler-stacker only)

- Lift the back of the upper output bin (callout 1) to remove.

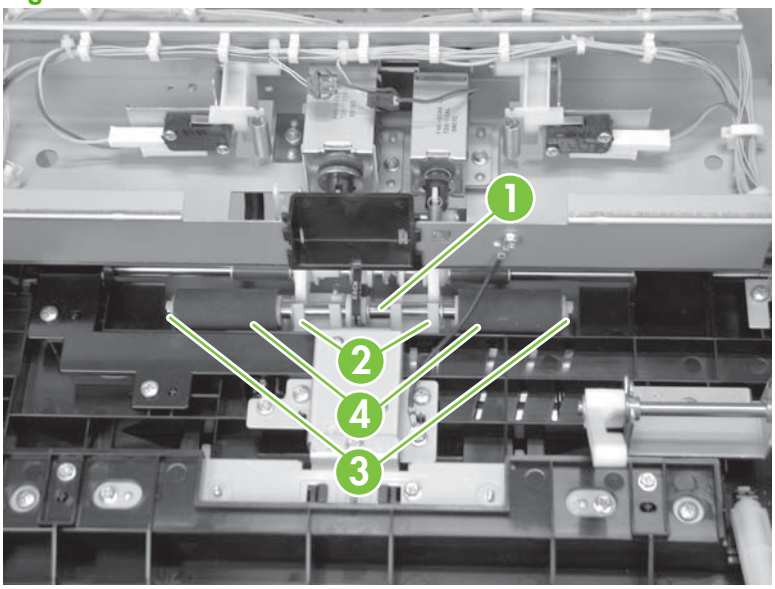
Figure 8-203 Remove the upper output bin



Buffer rollers

1. Remove the following:
   - Front door. See Front door on page 760.
   - Rear cover. See Rear cover on page 761.
   - Rear-foot cover. See Rear-foot cover on page 762.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Left-upper cover. See Left-upper cover on page 765.
2. Remove the buffer roller axis (callout 1) from the two arms (callout 2). Remove two clips (callout 3), and then remove the two buffer rollers (callout 4).

Figure 8-204 Remove buffer rollers



Booklet-delivery output bin (booklet maker only)

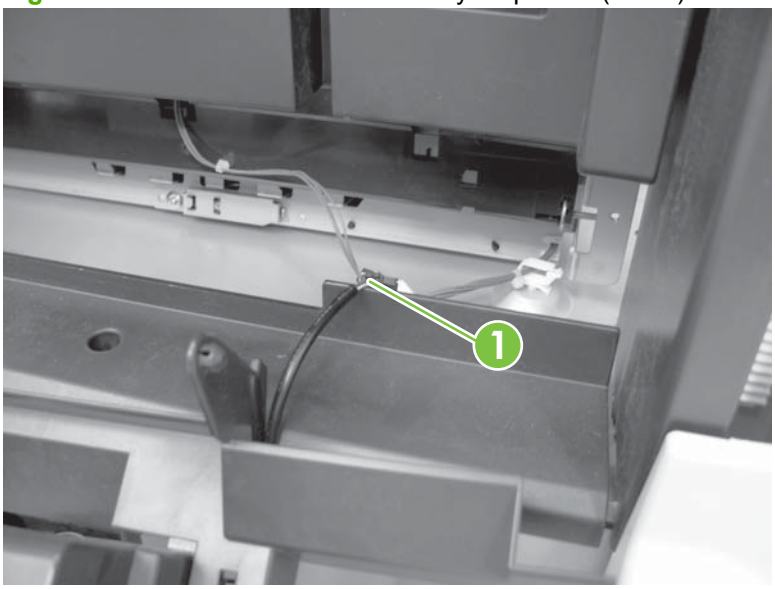
1. Press the hinge of the booklet-delivery output bin to release it from the booklet maker accessory.

Figure 8-205 Remove booklet-delivery output bin (1 of 2)



2. Disconnect one connector (callout 1), and then remove the booklet-delivery output bin.

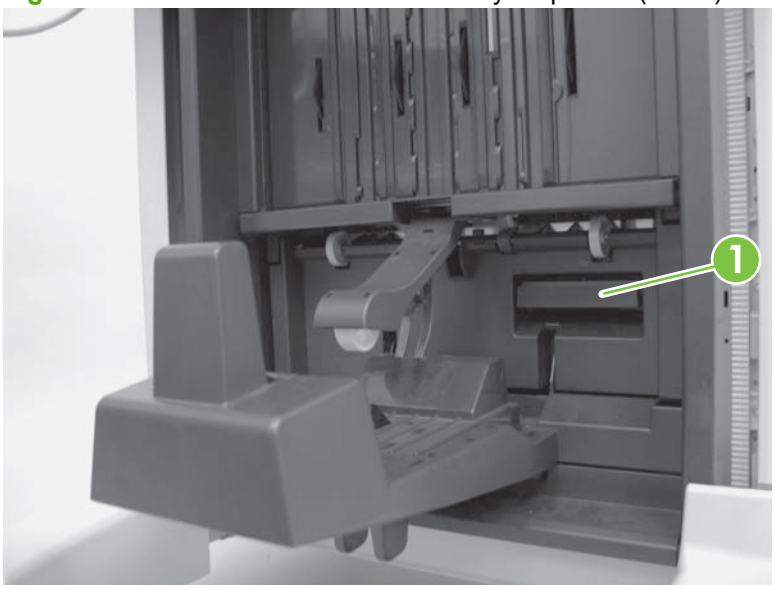
Figure 8-206 Remove booklet-delivery output bin (2 of 2)



Booklet-delivery output bin unit (booklet maker only)

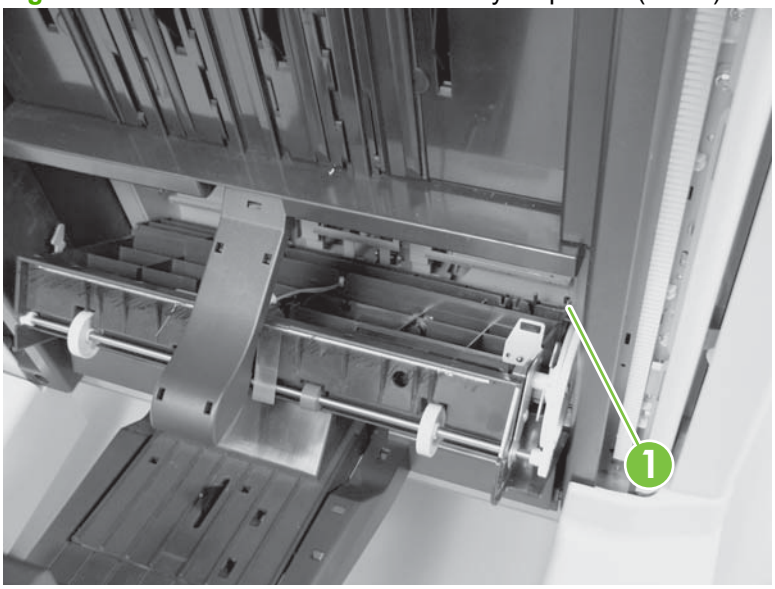
1. Lift the lever (callout 1) to open booklet-delivery output bin unit.

Figure 8-207 Remove the saddle-delivery output bin (1 of 3)



2. Remove the door pin (callout 1) to release the booklet-delivery output bin unit.

Figure 8-208 Remove the saddle delivery output bin (2 of 3)



3. Release one wire retainer (callout 1) and disconnect two connectors (callout 2). Remove the booklet-delivery output bin unit.

Figure 8-209 Remove the saddle delivery output bin (3 of 3)

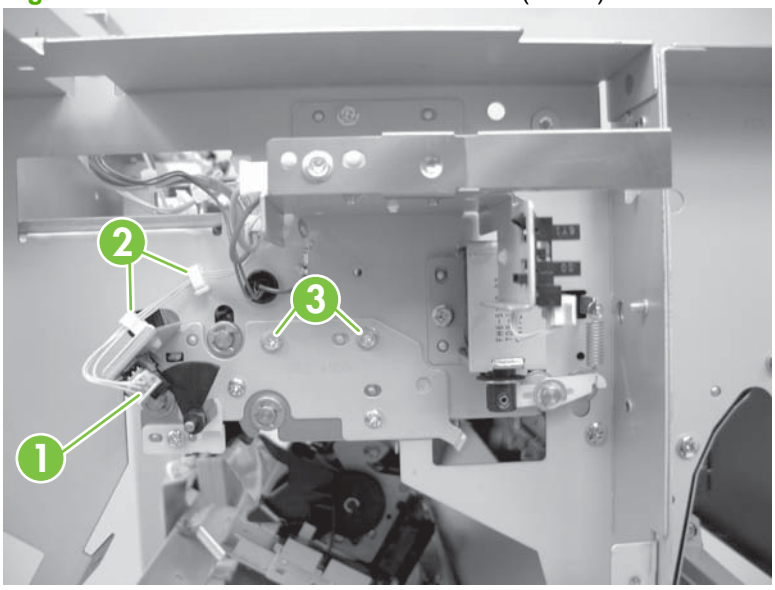


Return roller unit

1. Remove the following:
   - Front door. See Front door on page 760
   - Rear cover. See Rear cover on page 761.
   - Front-foot cover. See Front-foot cover on page 762.
   - Rear-foot cover. See Rear-foot cover on page 762.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Left-upper cover. See Left-upper cover on page 765.
   - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
   - Grate-shaped lower guide. See Grate-shaped lower guide on page 772
   - Swing unit. See Swing unit on page 779
   - Output-bin 1. See Output-bin 1 on page 799.
   - Output-bin 2. See Output-bin 2 on page 801.
   - Upper output bin (stapler-stacker only). See Upper output bin (stapler-stacker only) on page 803.

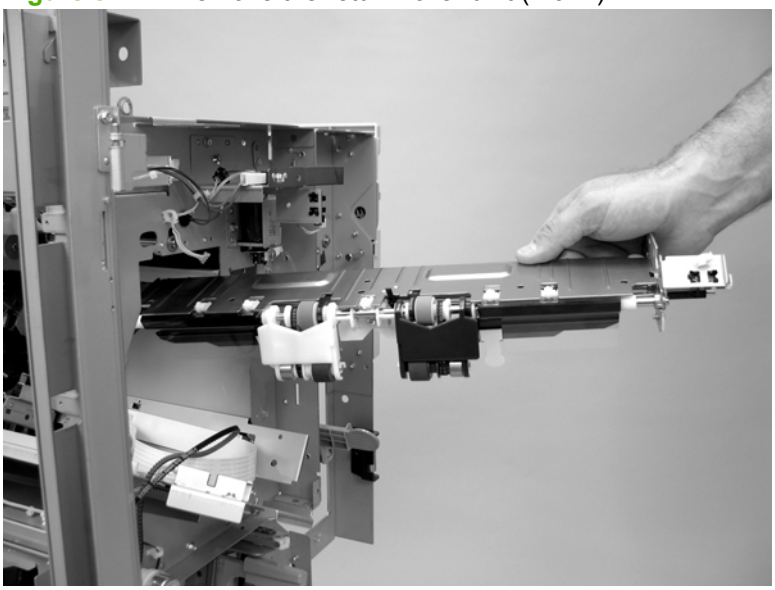
2. Disconnect one connector (callout 1), release two wire retainers (callout 2), and remove two screws (callout 3).

Figure 8-210 Remove the return roller unit (1 of 2)



3. Remove return roller unit from the front side.

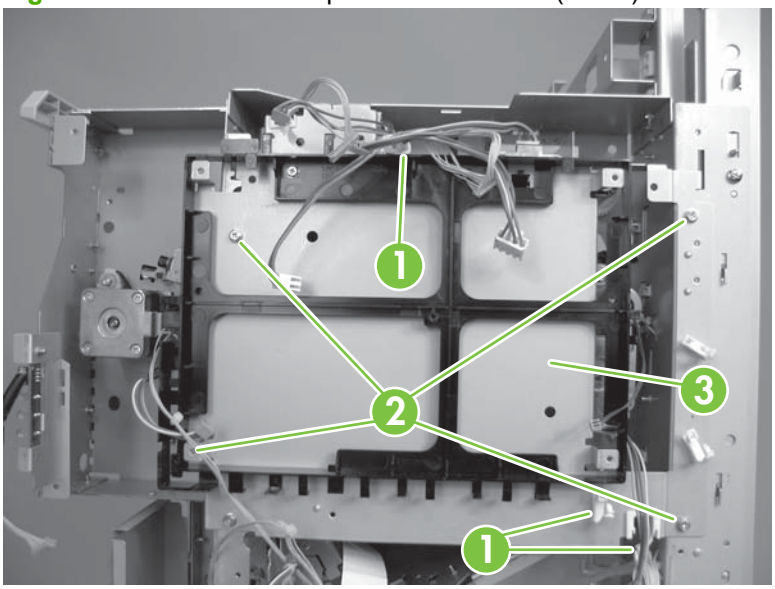
Figure 8-211 Remove the return roller unit (2 of 2)



Pressure roller unit

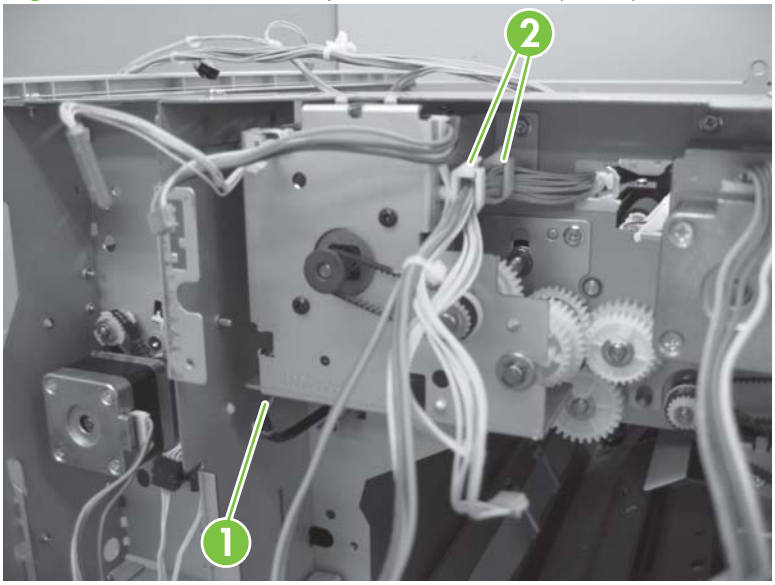
1. Remove the following:
   - See Front door on page 760.
   - Rear cover. See Rear cover on page 761.
   - Front inside-upper cover. See Front inside-upper cover on page 763
   - Left-upper cover. See Left-upper cover on page 765.
   - Top door. See Top door on page 767.
   - Upper crossmember unit. See Upper crossmember unit on page 783.
   - Stacker controller PCA. See Stacker controller PCA on page 828.
2. Release three wire retainers (callout 1), remove four screws (callout 2), and then remove the PCA mount (callout 3).

Figure 8-212 Remove the pressure roller unit (1 of 8)



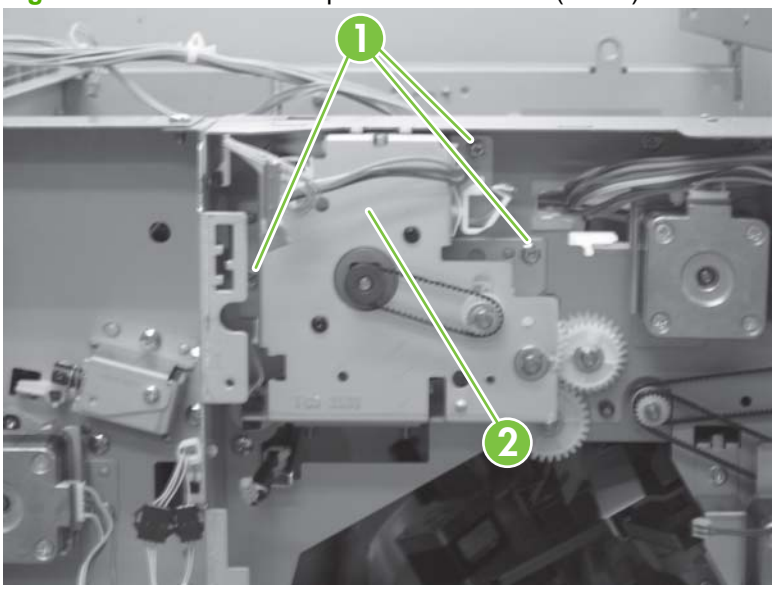
3. Disconnect one connector (callout 1) and release two wire retainers (callout 2).

Figure 8-213 Remove the pressure roller unit (2 of 8)



4. Remove three screws (callout 1), and then remove the drive unit (callout 2).

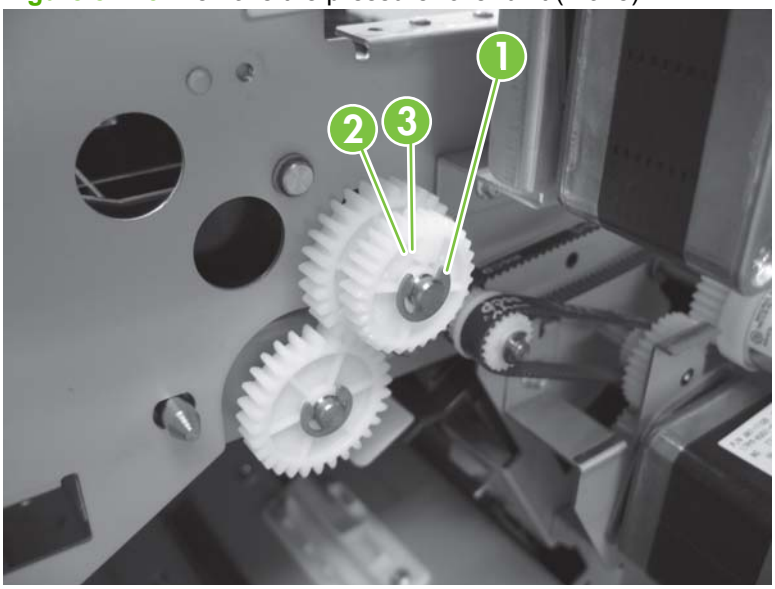
Figure 8-214 Remove the pressure roller unit (3 of 8)



5. Remove one e-ring (callout 1), one gear (callout 2), and one parallel pin (callout 3).

NOTE: The parallel pin (callout 3) drops when the gear (callout 2) is removed. Be careful not to lose it.

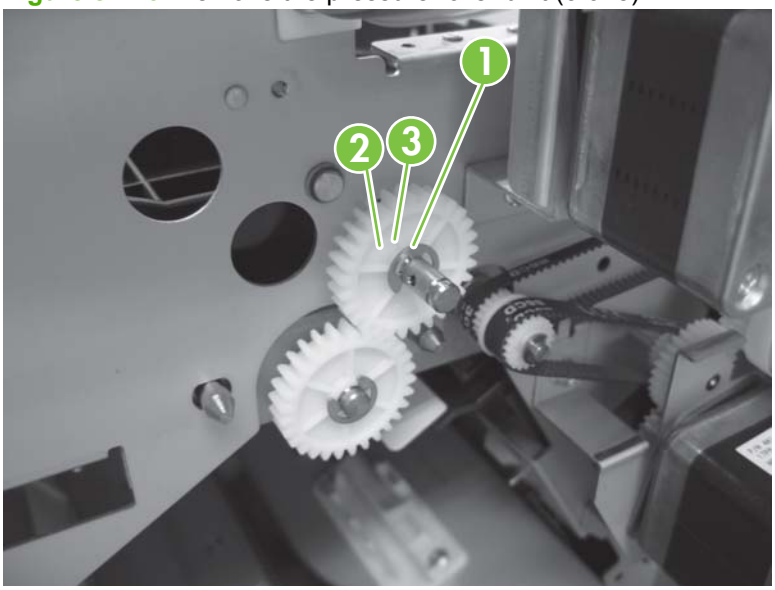
Figure 8-215 Remove the pressure roller unit (4 of 8)



6. Remove one e-ring (callout 1), one gear (callout 2), and one parallel pin (callout 3).

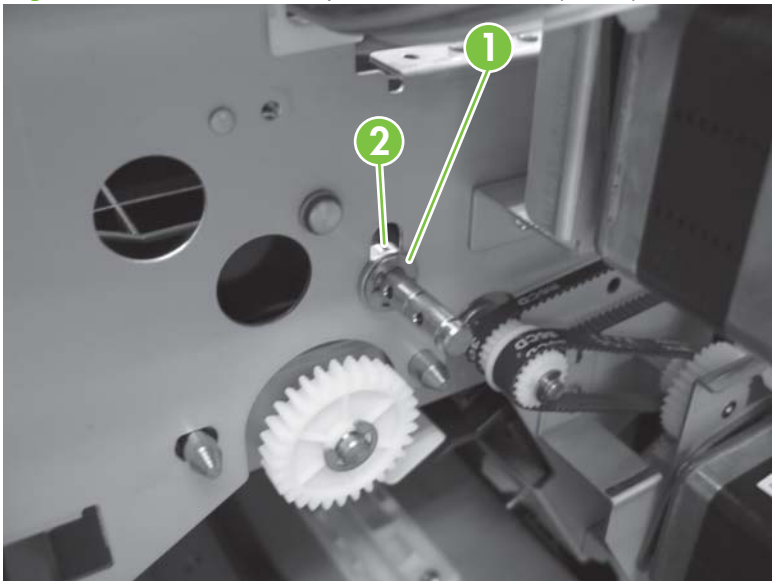
NOTE: The parallel pin (callout 3) drops when the gear (callout 2) is removed. Be careful not to lose it.

Figure 8-216 Remove the pressure roller unit (5 of 8)



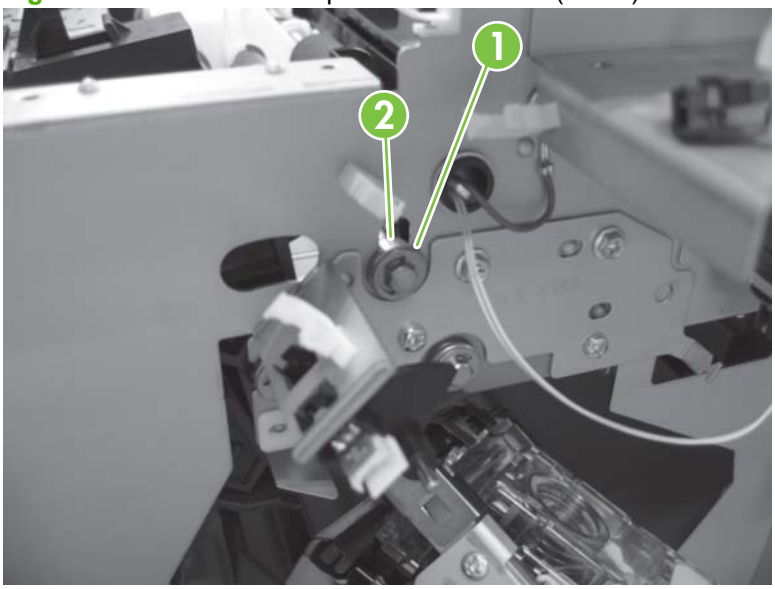
7. Remove the e-ring (callout 1) and one bushing (callout 2).

Figure 8-217 Remove the pressure roller unit (6 of 8)



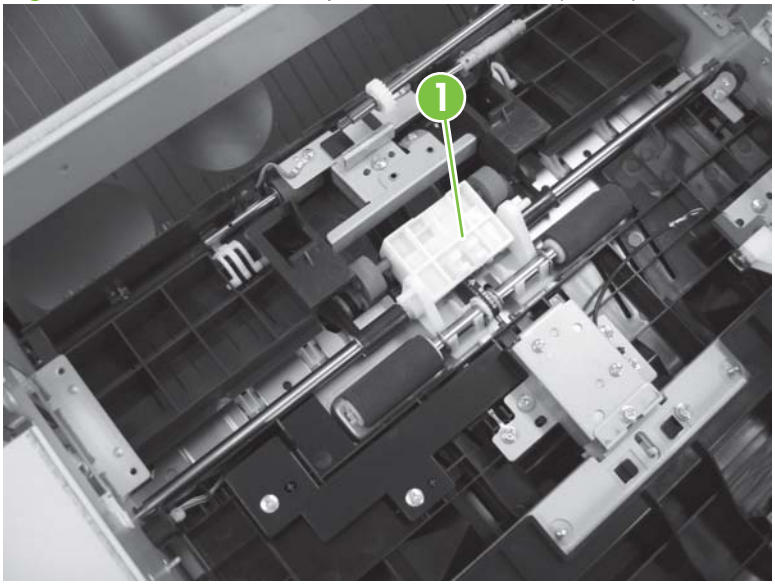
8. Remove one e-ring (callout 1) and one bushing (callout 2).

Figure 8-218 Remove the pressure roller unit (7 of 8)



9. Slide the pressure roller unit (callout 1) to the rear side, and then remove from the front side.

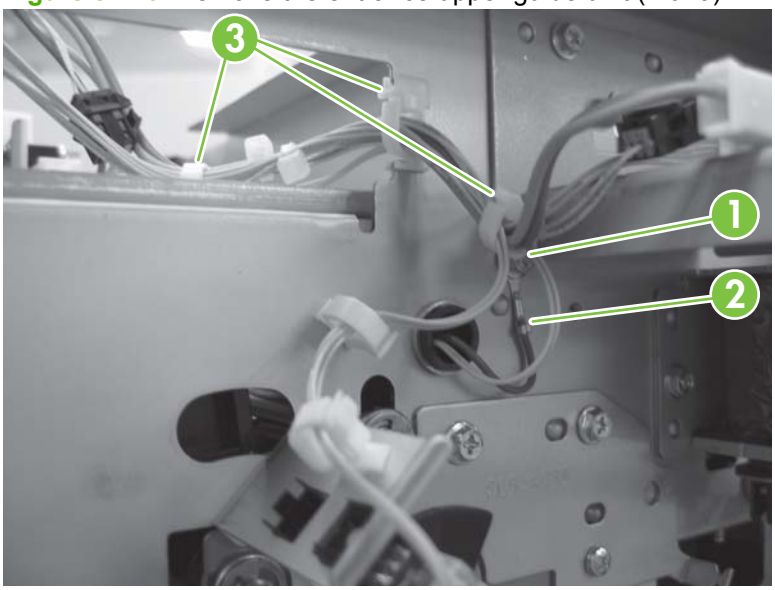
Figure 8-219 Remove the pressure roller unit (8 of 8)



Entrance upper guide unit

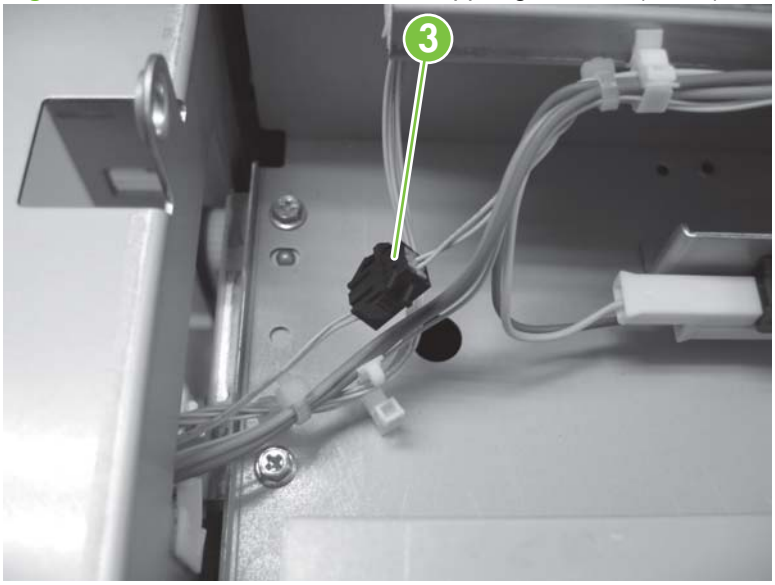
1. Remove the following:
   - Front door. See Front door on page 760.
   - Rear cover. See Rear cover on page 761.
   - Front inside-upper cover. See Front inside-upper cover on page 763
   - Left-upper cover. See Left-upper cover on page 765.
   - Top door. See Top door on page 767.
2. Remove one screw (callout 1), and then remove the grounding wire (callout 2).
3. Release three wire retainers (callout 3).

Figure 8-220 Remove the entrance upper guide unit (1 of 3)



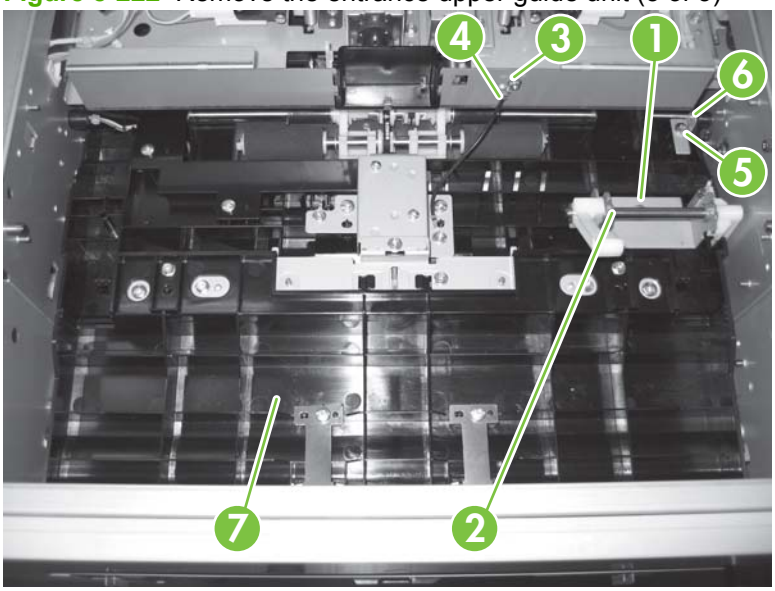
4. Disconnect one connector (callout 3).

Figure 8-221 Remove the entrance upper guide unit (2 of 3)



5. Remove one screw (callout 1), and then remove the door lock unit (callout 2).
6. Remove one screw (callout 3), and then remove the grounding wire (callout 4).
7. Remove one screw (callout 5), and then remove the one pin (callout 6).
8. Remove the entrance upper guide unit (callout 7).

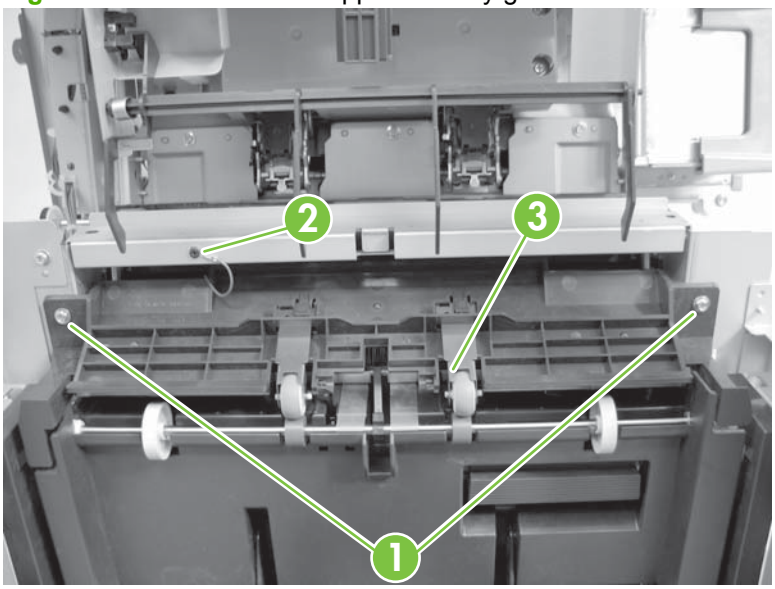
Figure 8-222 Remove the entrance upper guide unit (3 of 3)



Upper-delivery guide (booklet maker only)

1. Remove the following:
   - Front door. See Front door on page 760.
   - Rear cover. See Rear cover on page 761.
   - Front-foot cover. See Front-foot cover on page 762.
   - Rear-foot cover. See Rear-foot cover on page 762.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Left-upper cover. See Left-upper cover on page 765.
   - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
   - Grate-shaped lower guide. See Grate-shaped lower guide on page 772.
   - Output-bin 1. See Output-bin 1 on page 799.
   - Output-bin 2. See Output-bin 2 on page 801.
   - Upper output bin. See Upper output bin (stapler-stacker only) on page 803.
2. Remove two screws (callout 1), one ground screw (callout 2), and then remove the upper-delivery guide (callout 3).

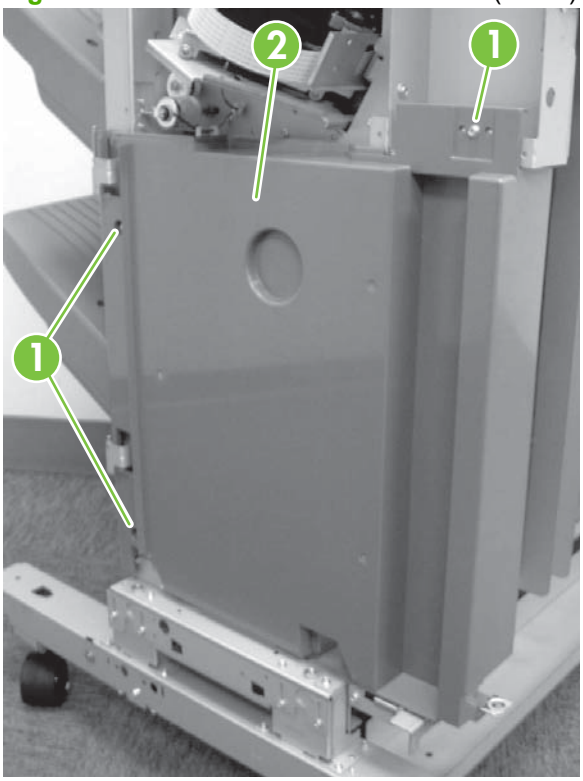
Figure 8-223 Remove the upper-delivery guide



Inlet feed unit (stapler-stacker only)

1. Remove the following:
   - Front door. See Front door on page 760.
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front-foot cover. See Front-foot cover on page 762.
2. Remove three screws (callout 1), and then remove the front inside-lower cover (callout 2).

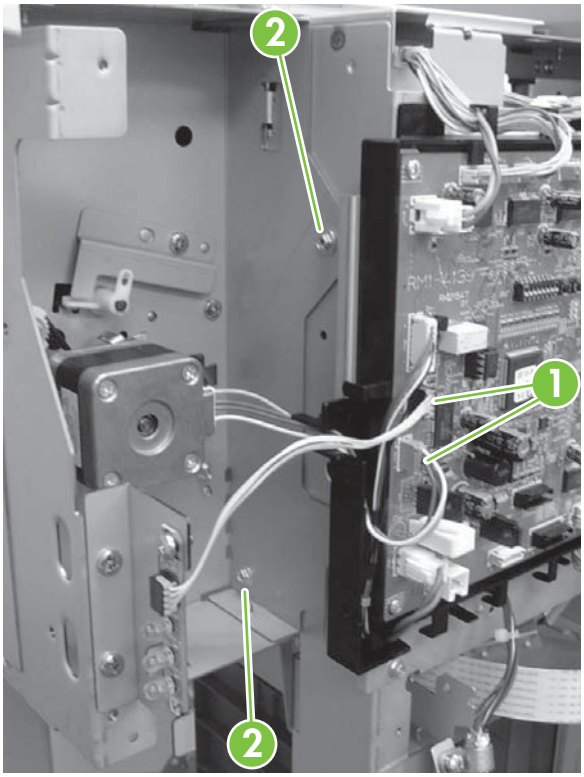
Figure 8-224 Remove the inlet feed unit (1 of 4)



3. Remove the rear cover.

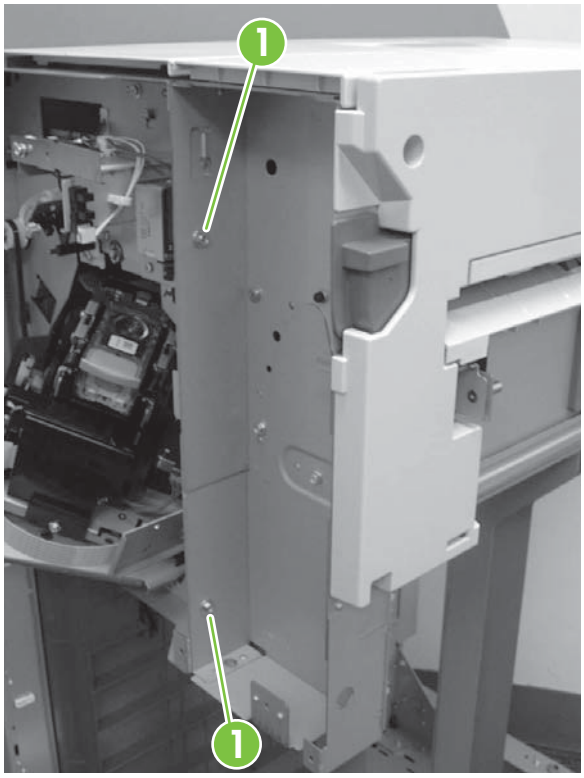
4. Remove two connectors (callout 1), and then remove two screws (callout 2).

Figure 8-225 Remove the inlet feed unit (2 of 4)



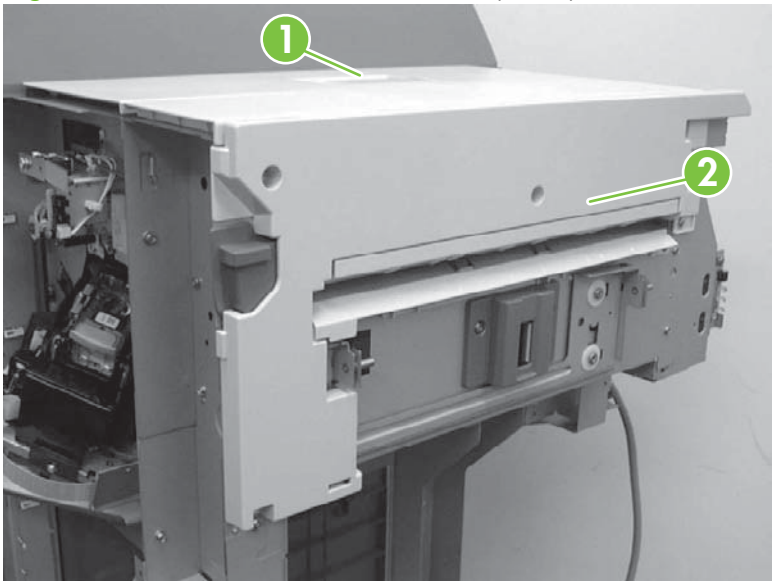
5. Remove the two screws from the front side of the inlet feed unit (callout 1).

Figure 8-226 Remove the inlet feed unit (3 of 4)



6. Open the top door (callout 1) and remove the inlet feed unit (callout 2) by lifting up and off.

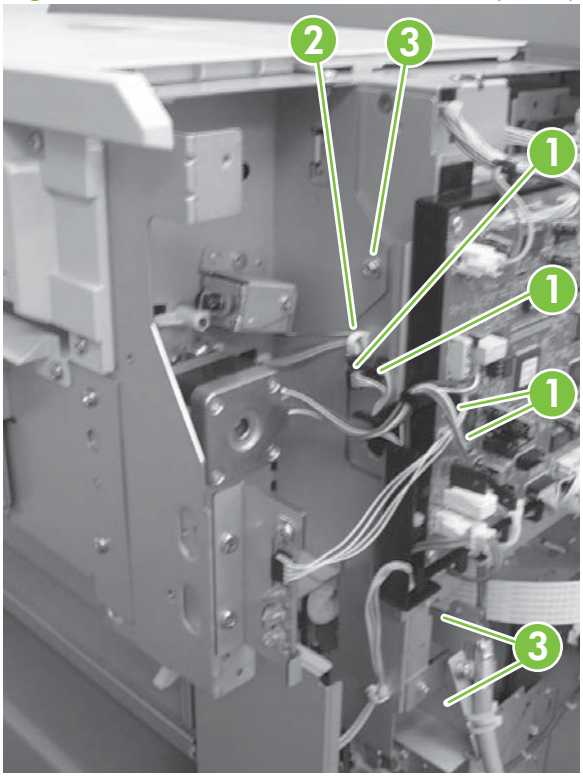
Figure 8-227 Remove the inlet feed unit (4 of 4)



Inlet feed unit (booklet maker only)

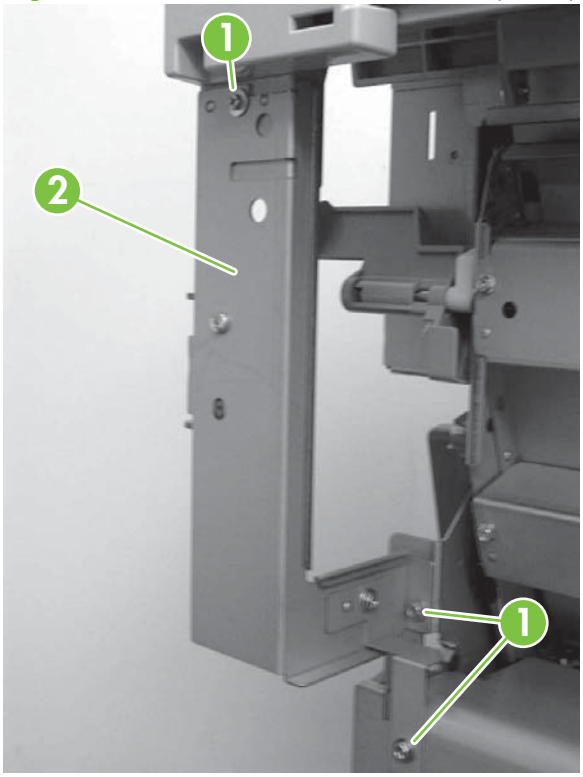
1. Remove the following:
   - Front door. See Front door on page 760
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front-foot cover. See Front-foot cover on page 762.
   - Front inside-lower cover. See Front inside-lower cover (booklet maker only) on page 764.
   - Rear cover. See Rear cover on page 761.
2. Disconnect the four connectors (callout 1), and then remove the harness from the clamp (callout 2).
3. Remove the three screws (callout 3).

Figure 8-228 Remove the inlet feed unit (1 of 4)



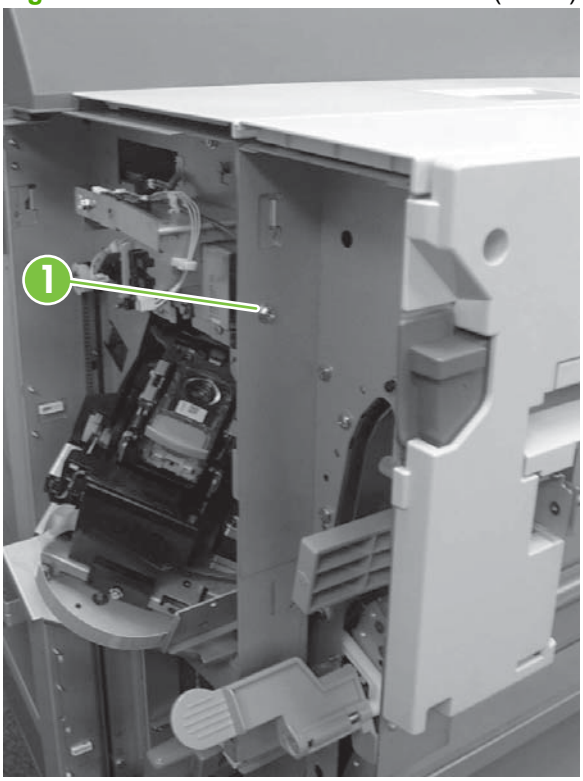
4. Remove three screws (callout 1), and then remove the support plate (callout 2).

Figure 8-229 Remove the inlet feed unit (2 of 4)



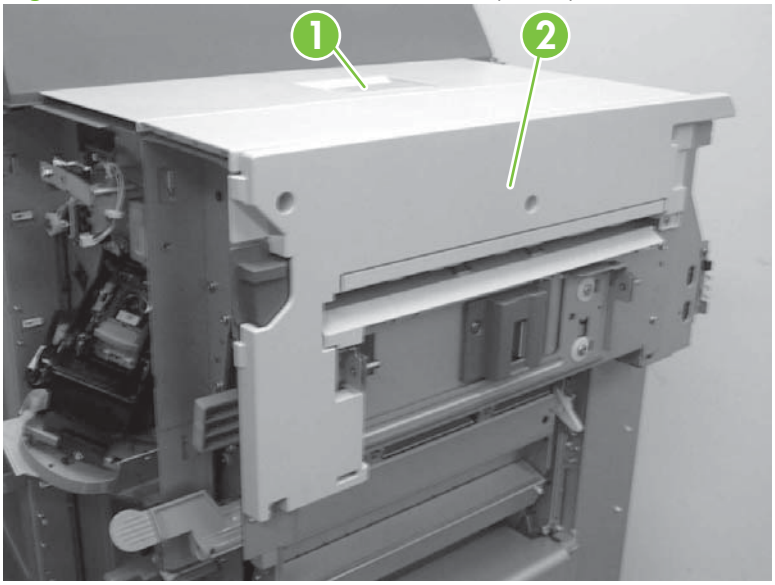
5. Remove one screw (callout 1).

Figure 8-230 Remove the inlet feed unit (3 of 4)



6. Open the top door (callout 1), and then remove the inlet feed unit (callout 2).

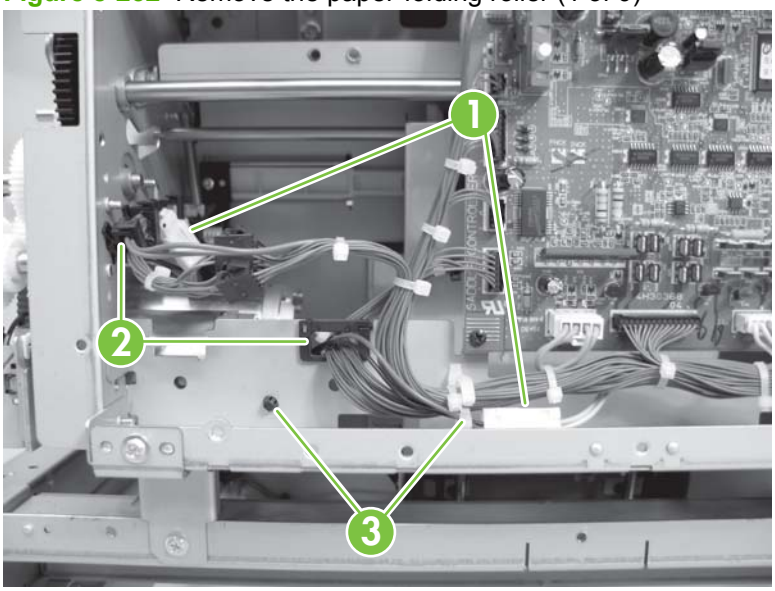
Figure 8-231 Remove the inlet feed unit (4 of 4)



Paper-folding roller (booklet maker only)

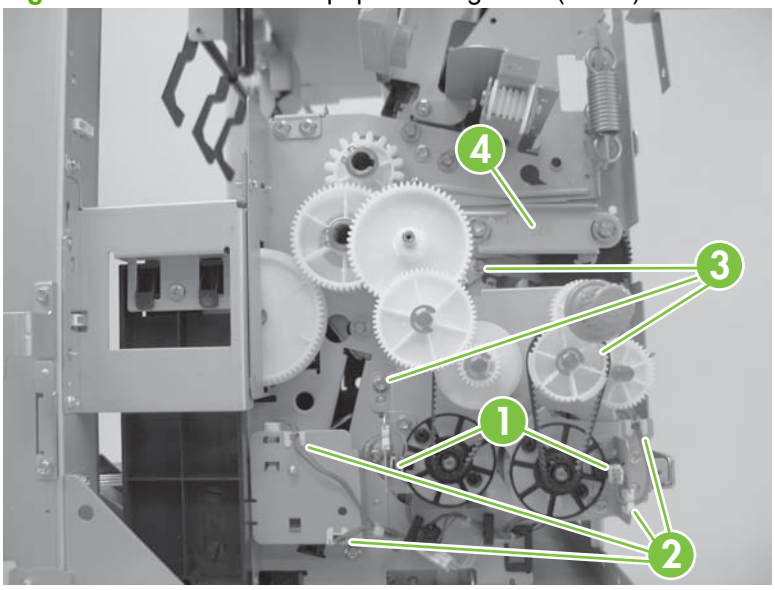
1. Remove the following:
   - Front door. See Front door on page 760
   - Front inside-upper cover. See Front inside-upper cover on page 763.
   - Front-foot cover. See Front-foot cover on page 762.
   - Front inside-lower cover. See Front inside-lower cover (booklet maker only) on page 764.
   - Rear cover. See Rear cover on page 761.
   - Rear-foot cover. See Rear-foot cover on page 762.
   - Left-upper cover. See Left-upper cover on page 765.
   - Grate-shaped upper guide. See Grate-shaped upper guide on page 769.
   - Upper output bin. See Upper output bin (stapler-stacker only) on page 803
   - Output-bin 1. See Output-bin 1 on page 799.
   - Output-bin 2. See Output-bin 2 on page 801.
   - Grate-shaped lower guide. See Grate-shaped lower guide on page 772
   - Upper-delivery guide. See Upper-delivery guide (booklet maker only) on page 816
   - PCA cover. See PCA cover on page 773
2. Disconnect two connectors (callout 1), and then release two edge saddles (callout 2) and two clamps (callout 3).

Figure 8-232 Remove the paper-folding roller (1 of 9)



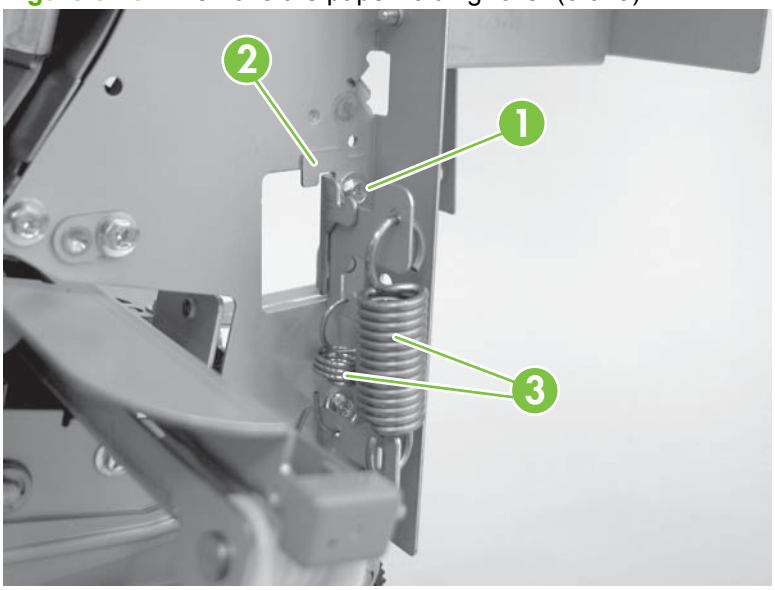
3. Disconnect two connectors (callout 1) and release four edge saddles (callout 2). Remove three screws (callout 3), and then remove the paper-folding/paper-pushing motor base (callout 4).

Figure 8-233 Remove the paper-folding roller (2 of 9)



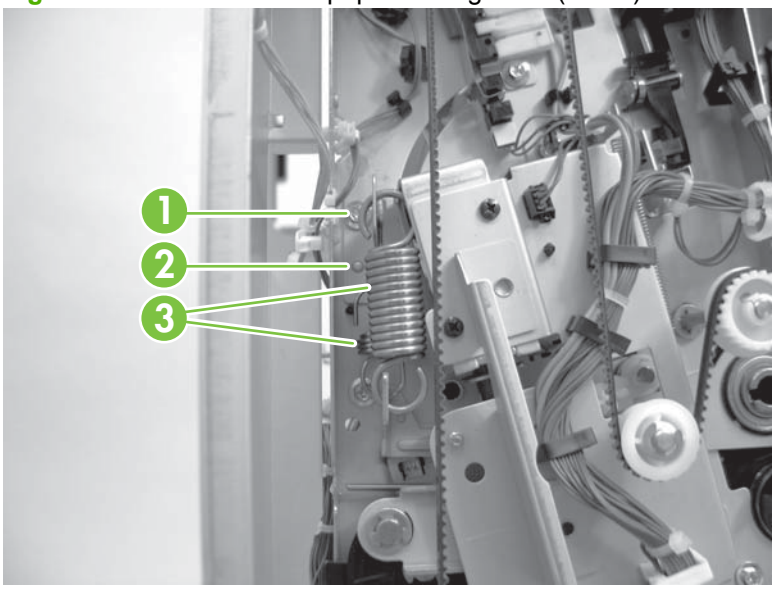
4. Remove one screw (callout 1), one spring retaining plate (callout 2), and two tension springs (callout 3).

Figure 8-234 Remove the paper-folding roller (3 of 9)



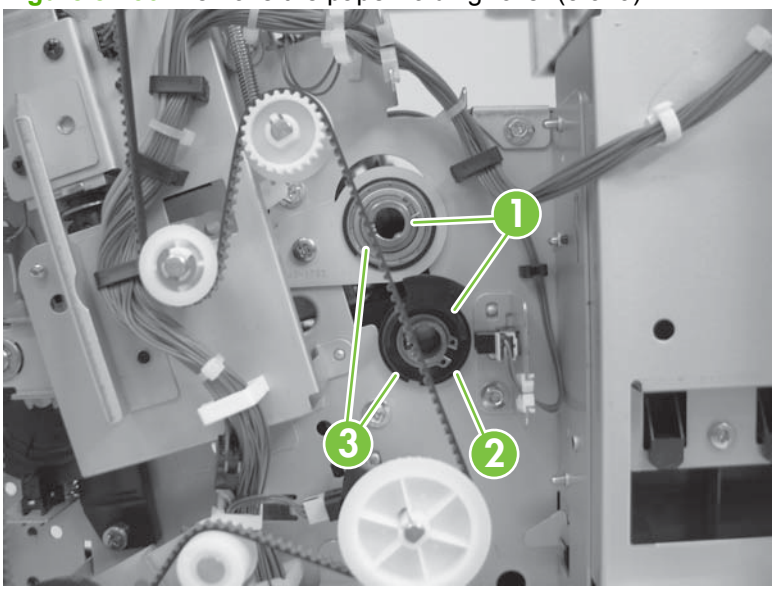
5. Remove one screw (callout 1), one spring-retaining plate (callout 2), and two tension springs (callout 3).

Figure 8-235 Remove the paper-folding roller (4 of 9)



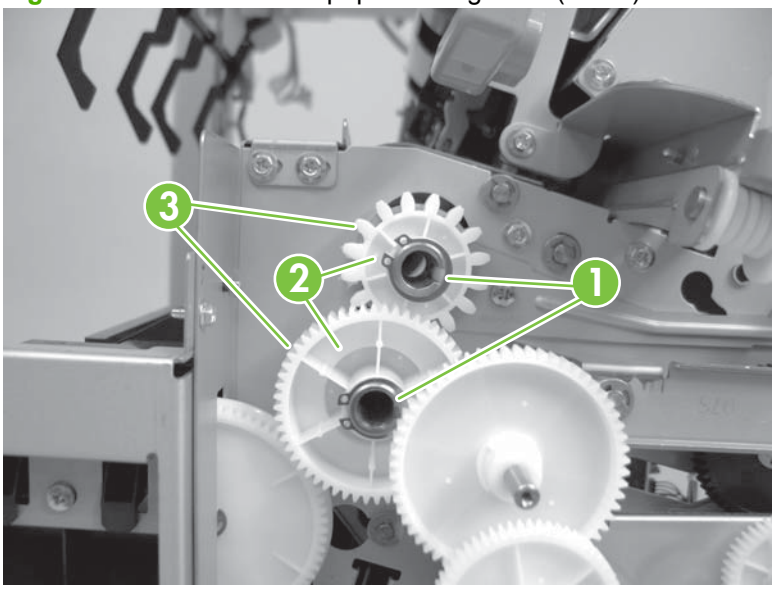
6. From the rear side, remove two c-rings (callout 1), remove one sensor flag (callout 2), and then remove two bearings (callout 3).

Figure 8-236 Remove the paper-folding roller (5 of 9)



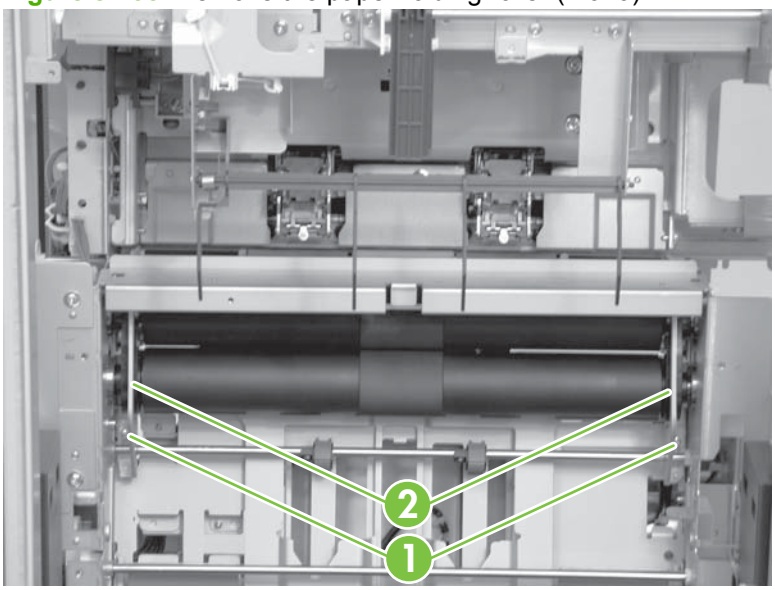
7. From the front, remove two c-rings (callout 1), remove two gears (callout 2), and then remove two bearings (callout 3).

Figure 8-237 Remove the paper-folding roller (6 of 9)



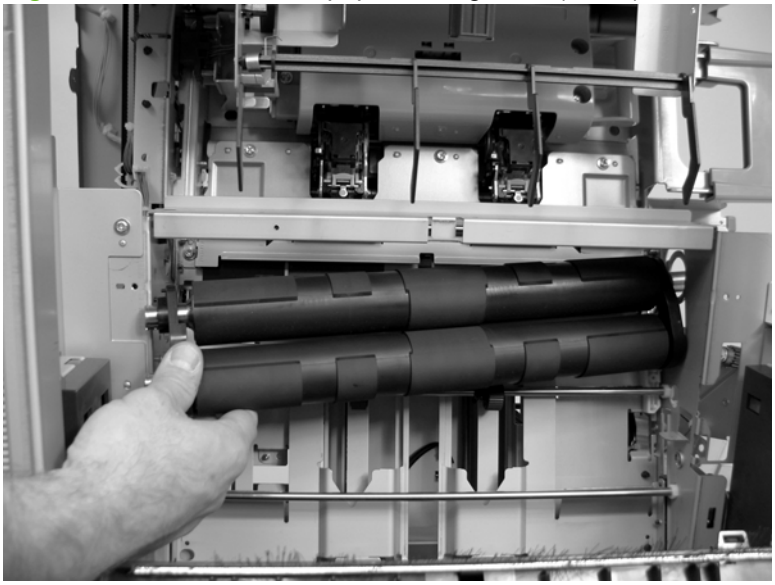
8. Open the saddle delivery output bin. Remove two screws (callout 1) and two brackets (callout 2).

Figure 8-238 Remove the paper-folding roller (7 of 9)



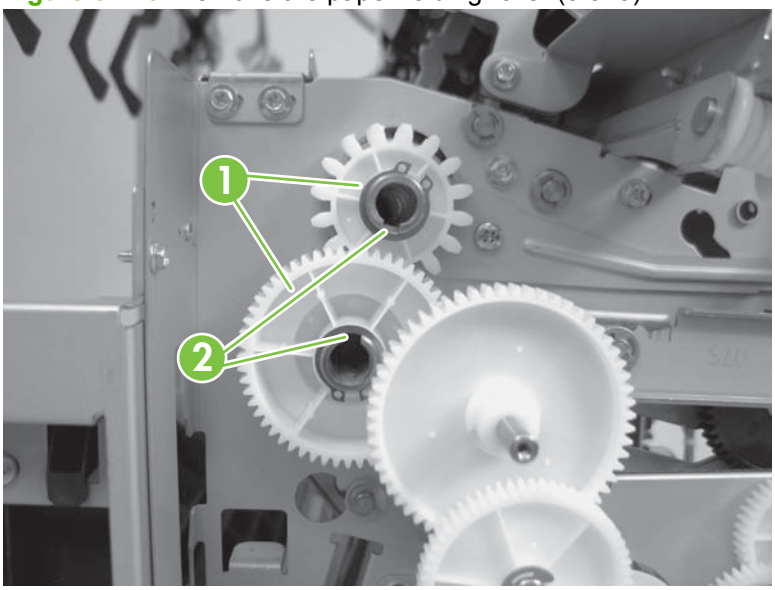
9. Slide the two paper-folding rollers to the front, and then pull them out in the delivery direction.

Figure 8-239 Remove the paper-folding roller (8 of 9)



△ **CAUTION:** When reinstalling, attach the gears (callout 1) so that the slots (callout 2) of the paper-folding rollers face each other to ensure gear alignment.

Figure 8-240 Remove the paper-folding roller (9 of 9)

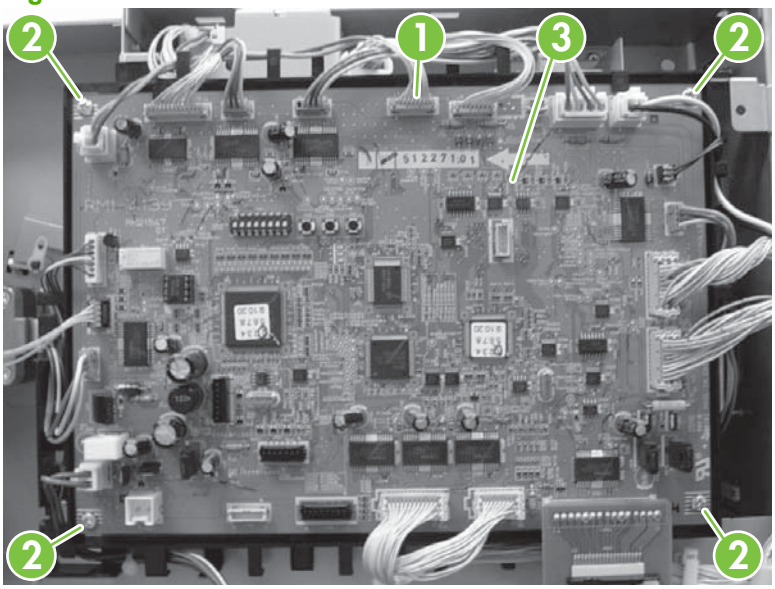


Electrical system

Stacker controller PCA

1. Remove the following:
   - Rear cover. See Rear cover on page 761.
2. Disconnect all connectors (callout 1) on the stacker controller PCA.
3. Remove four screws (callout 2), and then remove the stacker controller PCA (callout 3).

Figure 8-241 Remove the stacker controller PCA

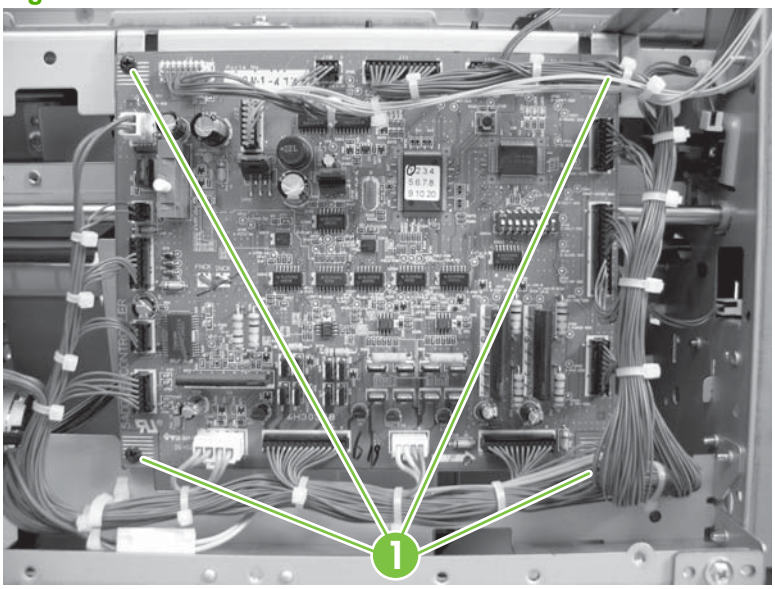


4. Adjust the stack alignment position. See Adjust the alignment position on page 859.

Saddle-stitcher controller PCA (booklet maker only)

1. Remove the following:
   - Rear cover. See Rear cover on page 761.
2. Disconnect all connectors on the saddle-stitcher controller PCA. Remove four screws (callout 1) and them remove the saddle-stitcher controller PCA.

   Figure 8-242 Remove the saddle-stitcher controller PCA

3. Adjust the folding position. See Adjust the folding position to the stitch position (Booklet maker only) on page 861.

Solve problems

Intermediate paper-transfer unit (IPTU)

NOTE: This item is called the “output-accessory bridge” in the user documentation for this product.

Stapler/stacker and booklet maker

Individual component diagnostics

Manual sensor test

The manual sensor test indicates the status of the sensors in the product. It can verify the current status or the last change in status of the listed sensors.

From the **DIAGNOSTICS** menu, scroll to and touch **Read all once** to check the current status of the sensors. Each sensor is assigned a letter. The sensor test indicates the status of each sensor with a corresponding “0” for non-activated or “1” for activated. The status message appears on the control-panel display for 10 seconds. After 10 seconds, the message is cleared and **Ready** appears on the control-panel display.

From the **DIAGNOSTICS** menu, scroll to and touch **Continuous reading** to check the last change in status of the sensors. The output device reads the status of the sensors and stores the data. Next, the output device continuously reads the sensors until it detects a change. The change-in-status message appears on the control-panel display indicating which sensor changed from the original reading. Note that the status messages appear on a first-in, first-out basis. If two or more sensors change in a short period of time, only the first change detected is indicated as a status message on the control-panel display.

Use the following table to determine which component each letter designates..

Table 8-15 Manual sensor test letter designations

Letter	Component
A	Front door 1, PI32 (Front-door sensor)
B	Front door 2, PI9 (Saddle-guide sensor)
C	Top door, PI31 (Top-door sensor)
D	Booklet door 1, PI3 (Booklet-delivery-door sensor)
E	Booklet door 2, SW3
F	Stapler home sensor, P140 (Staple-shift home-position sensor)
G	Swing unit, PI35 (Swing-guide home-position sensor)
H	Folding plate, PI13 (Guide home-position sensor)
I	Process tray assy, PI38 (Processing-tray sensor)
J	Bin-1 empty, PI42 (Output-bin-1 paper sensor)

Table 8-15 Manual sensor test letter designations (continued)

Letter	Component
K	Bin-2 empty, PI43 (Output-bin-2 paper sensor)
L	Bin-3 empty, PI44
M	Flapper 1, PI19 (#1 flapper paper sensor)
N	Flapper 2, PI20 (#2 flapper paper sensor)

Component test

The component test exercises the individual motors and solenoids one at a time so that you can determine the cause of noise inside the product. The component test exercises each motor for approximately 5 seconds and each solenoid for 3 seconds. Note that the product requires that some motors be moved back to the home position. The solenoids are deactivated after the exercise period.

A list of the motors and solenoids appears on the control-panel display, but no messages appear unless the component test detects a hardware malfunction. The following table lists the motors and solenoids that are exercised during the component test.

Table 8-16 Component test motors and solenoids

Component number	Component name
M1	Delivery motor (Feed motor)
M2	Folding motor (Paper-folding motor)
M3	Guide motor
M4	Guide-plate motor (Paper-positioning-plate motor)
M9	Inlet motor (Saddle-inlet motor)
M31	Entrance motor
M35	Staple motor (Staple-shift motor)
M36	Swing motor
M37	Tray-1 motor (Output-bin-1-shift motor)
M38	Tray-2 motor (Output-bin-2-shift motor)
M39	Process motor (Stack trailing-edge-assist motor)
SL1	Flapper-1 solenoid (#1 paper-deflecting solenoid)
SL2	Flapper-2 solenoid (#2 paper-deflector solenoid)
SL4	Booklet solenoid (Feed-plate-contact solenoid)
SL5	Switch solenoid (Saddle-inlet solenoid)
SL31	Roller 1A solenoid (Inlet-roller-alienate solenoid)
SL32	Buffer solenoid (Buffer-roller-alienate solenoid)
SL33	Output solenoid (#1 delivery-roller-alienate solenoid)
SL34	Guide solenoid (Buffer rear-end holding solenoid)

LED diagnostics

The LEDs (callout 1) on the rear cover of the accessories indicate malfunctions and errors by blinking a specified number of times.

Figure 8-243 LEDs on the output accessories

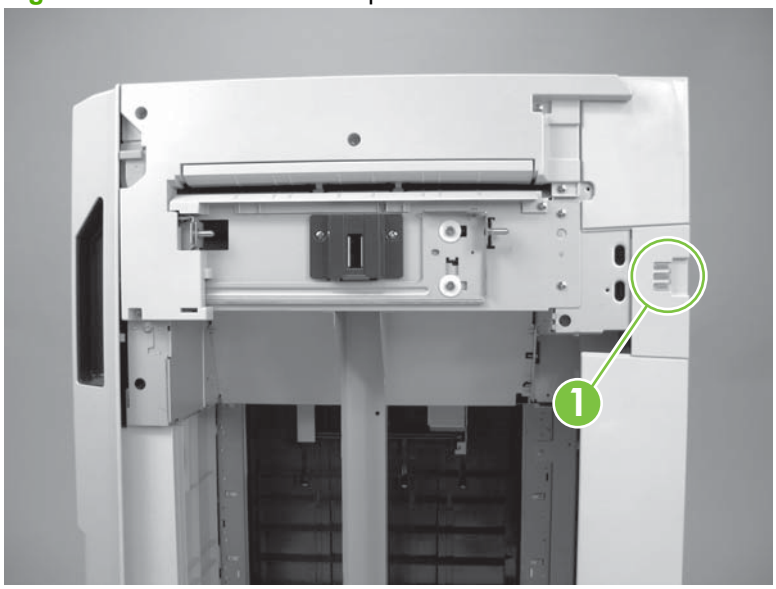


Table 8-17 LED

Classification	Number of blinks			Error
	Red LED	Yellow LED	Green LED	
Malfunction (Stacker unit)	1		1	Swing motor (M36)
	1		2	Shutter mechanism
	1		3	Stack trailing-edge-assist motor (M39)
	1		4	Front-aligning-plate motor (M33)
	1		5	Rear-aligning-plate motor (M34)
Malfunction (Stapler unit)	2		1	Staple motor (M41)
	2		2	Stapler-shift motor (M35)
Malfunction (Output bin)	3		1	Output-bin-1-shift motor (M37)
	3		2	Output-bin-2-shift motor (M38)

Table 8-17 LED (continued)

Malfunction (Booklet maker unit)	4		1	Paper-positioning-plate motor (M4)
	4		2	Guide motor (M3)
	4		3	Paper-folding motor (M2)
	4		4	Alignment motor (M5)
	4		5	Paper-pushing-plate motor (M8)
	4		7	Microswitch error
	5		1	Stitcher motor (rear) (M6)
	5		2	Stitcher motor (front) (M7)
Malfunction	Blinking			Communication error
Jam (Feed path unit)		1	1	Power-on jam
		1	2	Inlet sensor (PI33) delay jam
		1	3	Inlet sensor (PI33) stationary jam
		1	4	Upper paper-path-exit sensor (PI34) delay jam
		1	5	Upper paper-path-exit sensor (PI34) stationary jam
Jam (Stapler unit)		2	1	Stapler staple jam
Jam (Booklet-maker feed path unit)		4	1	Saddle power-on jam
		4	2	Booklet-making paper-entry sensor (PI22) delay jam
		4	3	Booklet-making paper-entry sensor (PI22) stationary jam
		4	4	Paper sensor (PI18, PI19, PI20) delay jam
		4	5	Paper sensor (PI18, PI19, PI20) stationary jam
Jam (Booklet maker unit)		5	1	Stitcher staple jam (rear)
		5	2	Stitcher staple jam (front)

Table 8-17 LED (continued)

Jam (Booklet-maker tray unit)		6	1	Booklet paper-path-exit sensor (PI11) delay jam
		6	2	Booklet paper-path-exit sensor (PI11) stationary jam
Jam		1	6	Door-open jam
		4	7	Timing jam
		4	6	Saddle-door-open jam

Diagrams

Cross sections

Figure 8-244 Stapler/stacker cross-sectional view

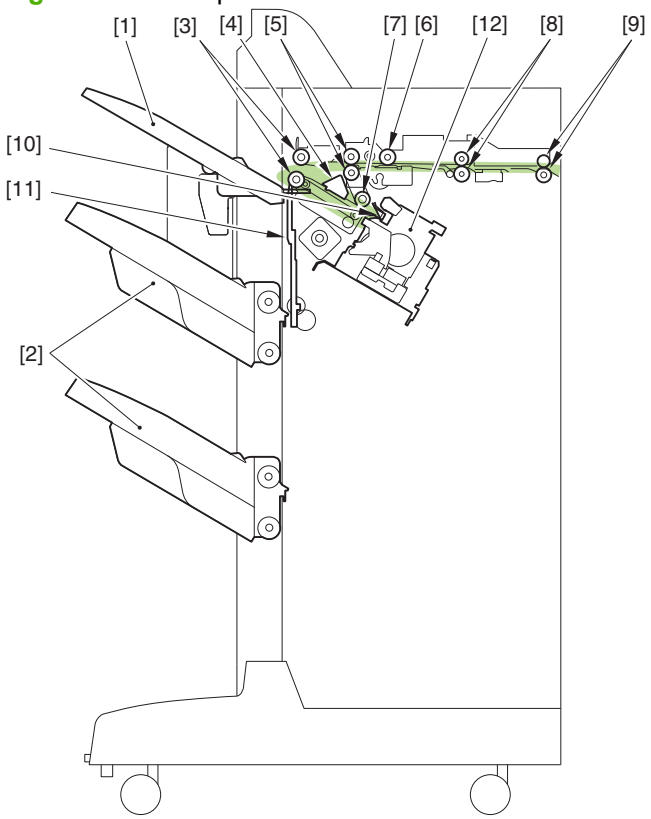


Table 8-18 Stapler/stacker cross-sectional view

1	Stack sub tray
2	Output bins
3	Stack-delivery roller
4	Aligning plate
5	First delivery roller

Table 8-18 Stapler/stacker cross-sectional view (continued)

6	Buffer roller
7	Return roller
8	Inlet roller
9	Inlet roller 1
10	Trailing-edge-assist guide
11	Shutter
12	Stapler

Figure 8-245 Booklet maker cross-sectional view highlighting the stapling/stacking paper path

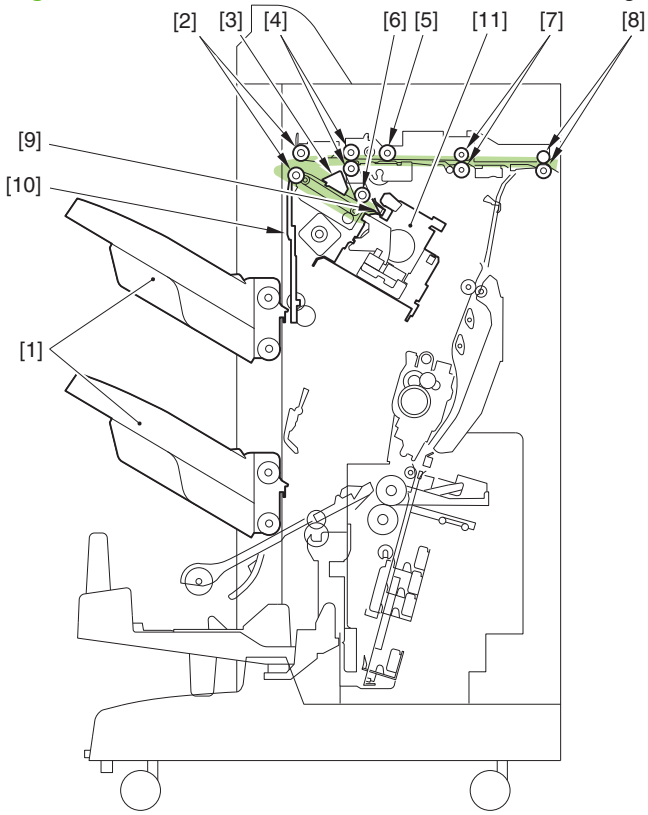


Table 8-19 Booklet maker cross-sectional view highlighting the stapling/stacking paper path

1	Output bins
2	Stack-delivery roller
3	Aligning plate
4	First delivery roller
5	Buffer roller
6	Return roller
7	Inlet roller
8	Inlet roller 1

Table 8-19 Booklet maker cross-sectional view highlighting the stapling/stacking paper path (continued)

9	Stack trailing-edge-assist guide
10	Shutter
11	Stapler

Figure 8-246 Booklet maker cross-sectional view highlighting the booklet-making paper path

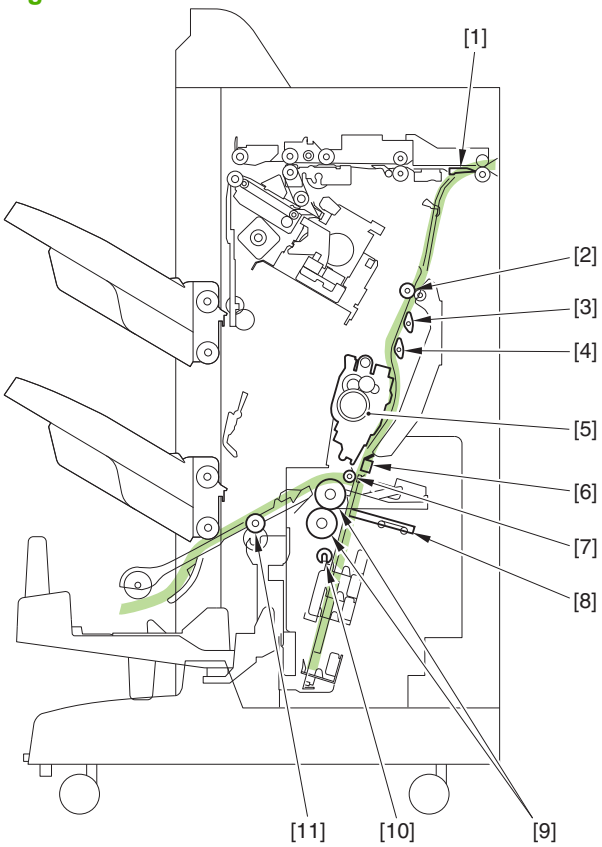
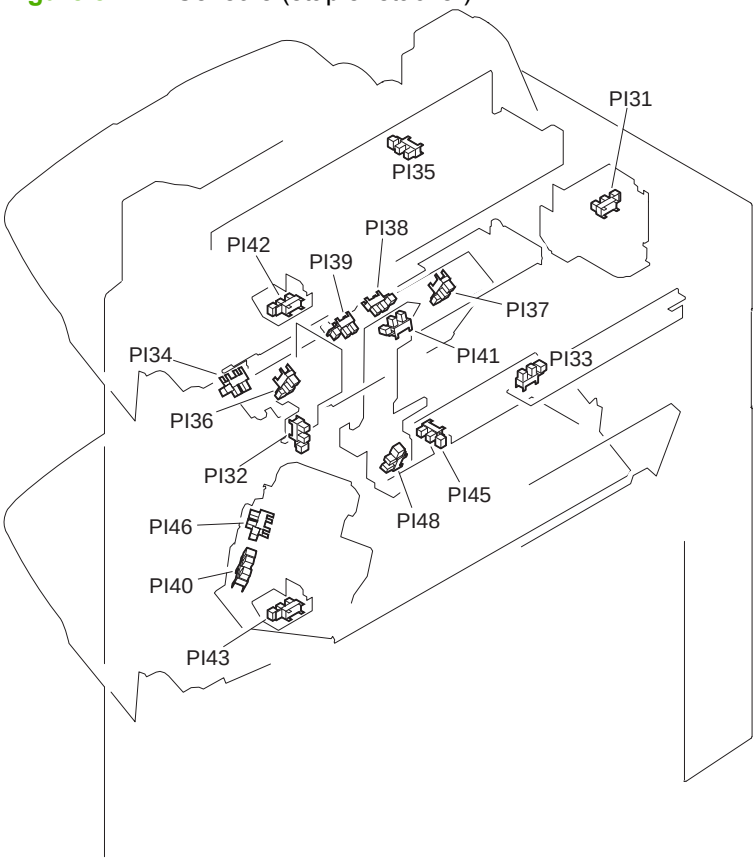


Table 8-20 Booklet maker cross-sectional view highlighting the booklet-making paper path

1	Booklet-maker entry flapper
2	Inlet roller 2
3	#1 Flapper paper sensor
4	#2 Flapper paper sensor
5	Stitcher (front, rear) staplers
6	Stitcher mount
7	Holding roller
8	Paper-pushing plate
9	Paper-folding roller
10	Crescent roller
11	Booklet-delivery roller

Sensors

Figure 8-247 Sensors (stapler/stacker)



Reference	Name	Description	Stapler PCA2	Stapler PCA1	Stapler controller PCA
PI31	Top-door sensor	Detects upper door open/close			J708
PI32	Front-door sensor	Detects front door open/close			J707
PI33	Upper paper-path-entry sensor	Detects paper entering stacker			J708
PI34	Upper paper-path-exit sensor	Detects paper-feed path			J707
PI35	Swing-guide home-position sensor	Detects swing-guide home position			J707
PI36	Front-aligning-plate home-position sensor	Detects aligning-plate front-home position			J722
PI37	Rear-aligning-plate home-position sensor	Detects aligning-plate rear-home position			J722
PI38	Processing-tray sensor	Detects paper in processing tray			J722

Reference	Name	Description	Stapler PCA2	Stapler PCA1	Stapler controller PCA
PI39	Stack trailing-edge-assist position sensor	Detects stack trailing-edge-assist home position			J722
PI40	Stapler shift home position sensor	Detects stapler home position			J721
PI41	Output-bin-1 paper-surface sensor	Detects paper surface			J721
PI42	Output-bin-1 paper sensor	Detects paper on output-bin 1			J711
PI43	Output-bin-2 paper sensor	Detects paper on output-bin 2			J716
PI45	Shutter home-position sensor	Detects shutter home position			J721
PI46	Stapler alignment-interference sensor	Detects stapler alignment interference	J994 / J993	J992 / J991	J717
PI48	Output-bin-2 paper-surface sensor	Detects paper surface on output-bin 2			J721

Figure 8-248 Sensors (booklet maker)

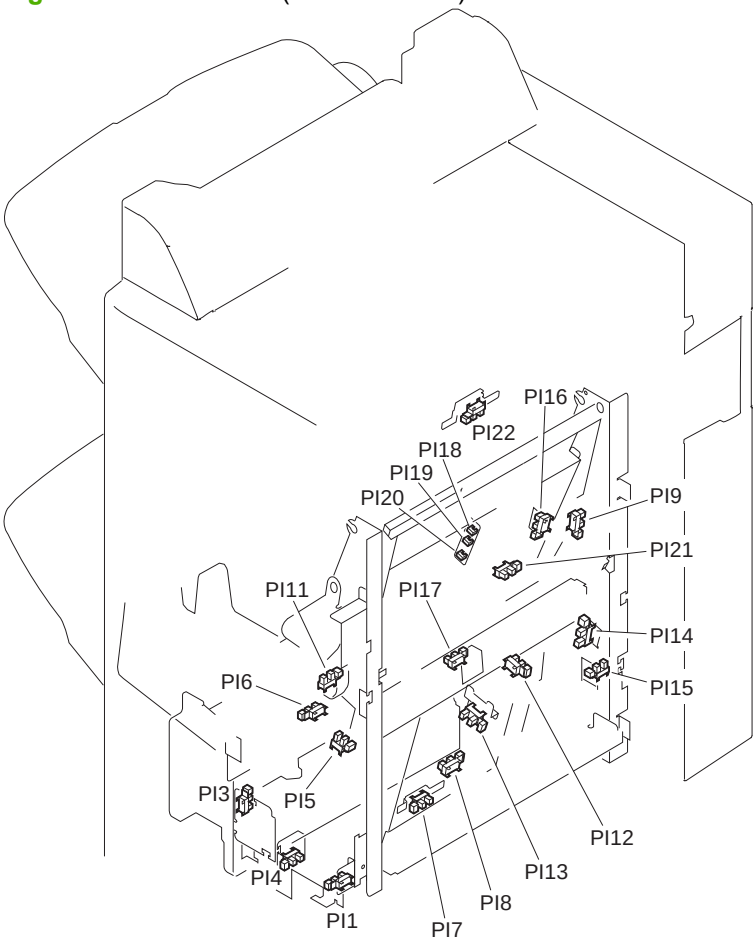


Table 8-21 **Sensors (booklet maker)**

Reference	Name	Description	Saddle-stitcher controller PCA
PI1	Paper-pushing-plate-motor clock sensor	Detects paper-pushing-plate-motor clock	J3
PI3	Booklet-delivery-door sensor	Detects eject cover open	J3
PI4	Paper-folding-motor clock sensor	Detects paper-folding-motor clock	J3
PI5	Alignment-plate home-position sensor	Detects alignment-plate home position	J3
PI6	Output-bin sensor	Detects paper on output bin	J6
PI7	Paper-positioning-plate home-position sensor	Detects paper-positioning-plate home position	J6
PI8	Paper-positioning-plate paper sensor	Detects paper on paper-positioning plate	J6
PI9	Saddle-guide assembly (Inlet door)	Detects inlet cover open	J9
PI11	Saddle-guide door (Inlet cover)	Detects paper ejection	J9

Table 8-21 Sensors (booklet maker) (continued)

Reference	Name	Description	Saddle-stitcher controller PCA
PI12	Crescent-roller phase sensor	Detects crescent-roller phase	J9
PI13	Guide home-position sensor	Detects guide home position	J9
PI14	Paper-pushing-plate home-position sensor	Detects paper-pushing-plate home position	J9
PI15	Paper-pushing-plate top-position sensor	Detects paper-pushing-plate leading-edge position	J13
PI16	Stitcher-unit IN sensor	Detects stitcher-unit storage	J13
PI17	Vertical-path paper sensor	Detects paper in vertical path	J10
PI18	No.1 paper sensor (#1 Flapper paper sensor)	Detects paper (No. 1; on paper sensor PCA)	J10
PI19	No.2 paper sensor (#2 Flapper paper sensor)	Detects paper (No. 2; on paper sensor PCA)	J10
PI20	No.3 paper sensor	Detects paper (No. 3; on paper sensor PCA)	J10
PI21	Paper-folding home-position sensor	Detects paper-fold home position	J18
PI22	Booklet-making paper-entry sensor	Detects saddle-inlet paper	J21

Microswitches

Figure 8-249 Microswitches (stapler/stacker)

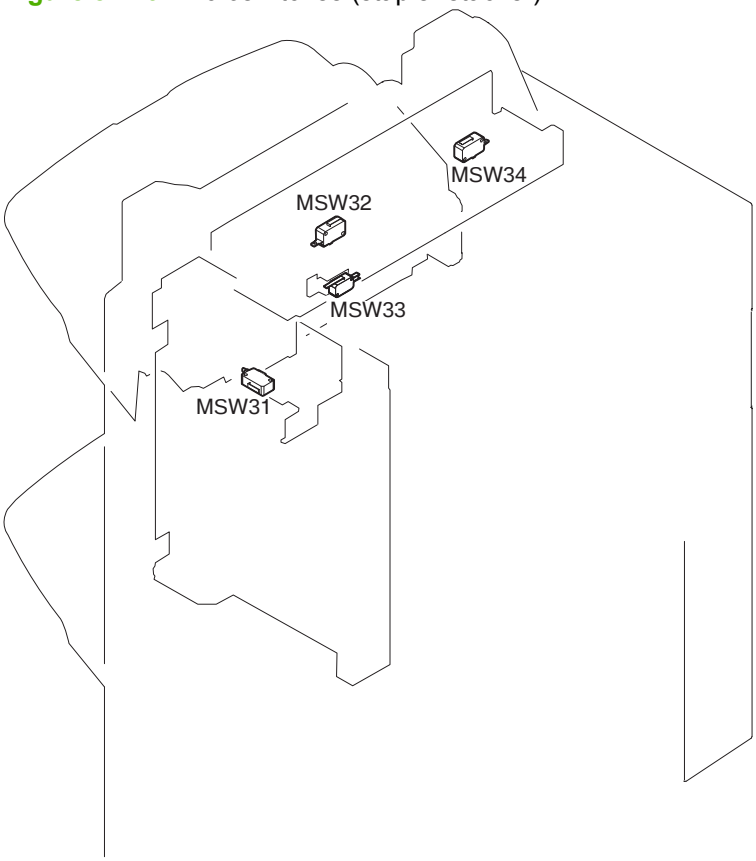


Table 8-22 Microswitches (stapler/stacker)

Part number	Name	Description	Stacker controller PCA
MSW31	Front-door switch	Detects front cover close	J719
MSW32	Swing-guide switch	Detects swing guide open	J715
MSW33	Tray-1 switch	Detects Tray 1	J714
MSW34	Staple safety switch	Detects swing guide open	J715

Figure 8-250 Microswitches (booklet maker)

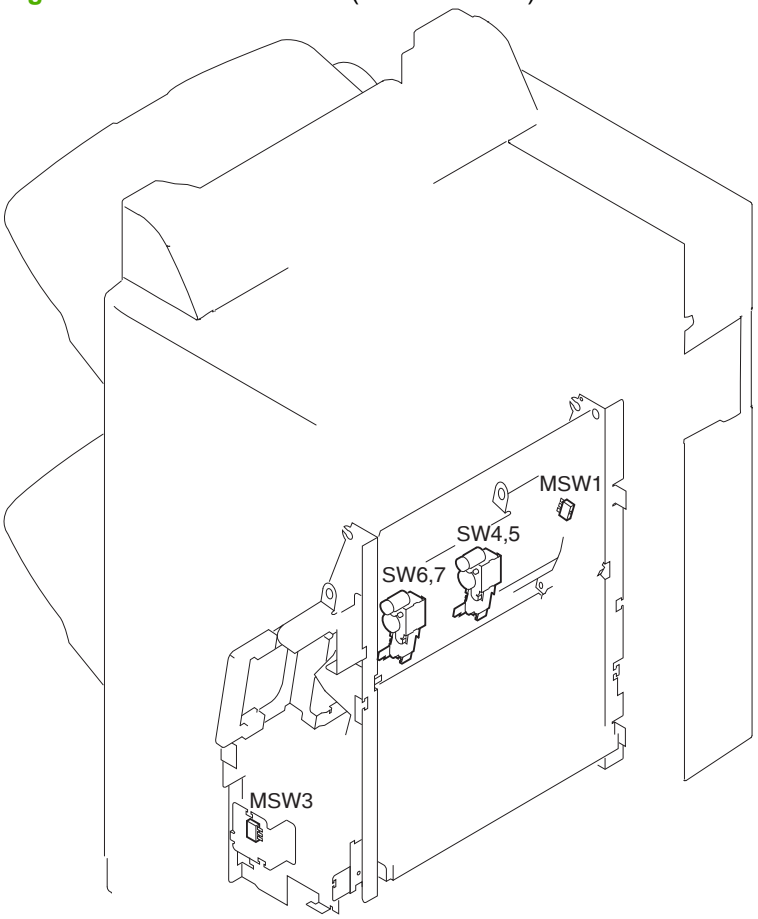


Table 8-23 Microswitches (booklet maker)

Part number	Name	Description	Stacker controller PCA
MSW1	Saddle-guide-assembly switch (Inlet switch)	Detects saddle-guide assembly (inlet door) open	J4
MSW3	Delivery-door switch	Detects ejection door open	J4
SW4	Staple sensor (rear)	Detects presence of staples (rear)	J8
SW5	Stitcher home-position sensor (rear)	Detects stitching home position (rear)	J8
SW6	Staple sensor (front)	Detects presence of staples (front)	J8
SW7	Stitcher home-position sensor (front)	Detects stitching home position (front)	J8

Solenoids

Figure 8-251 Solenoids (stapler/stacker)



Table 8-24 Solenoids (stapler/stacker)

Part number	Name	Stack controller PCA
SL31	Inlet-roller-separation solenoid	J710
SL32	Buffer-roller-separation solenoid	J710
SL33	1st-delivery-roller-separation solenoid	J710
SL34	Buffer rear-end holding solenoid	J710

Figure 8-252 Solenoids (booklet maker)

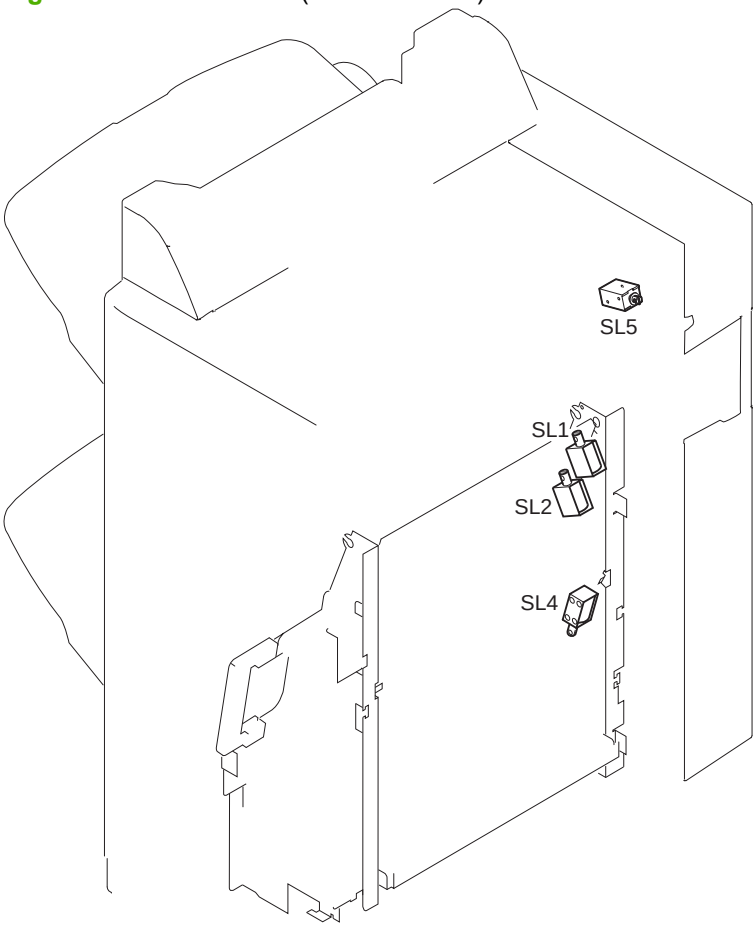


Table 8-25 Solenoids (booklet maker)

Part number	Name	Stack controller PCA
SL1	No.1 paper-deflecting solenoid	J15
SL2	No.2 paper-deflecting solenoid	J15
SL4	Feed-plate-contact solenoid	J15
SL5	Saddle-inlet solenoid	J19

Motors

Figure 8-253 Motors (stapler/stacker)

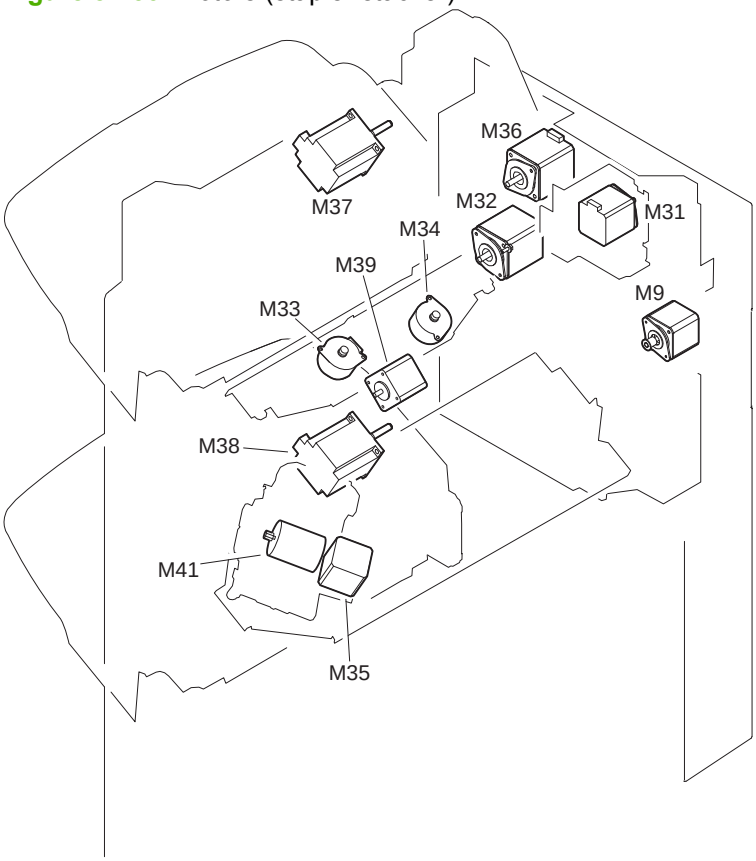


Table 8-26 **Motors (stapler/stacker)**

Part number	Name	Tray-1 driver PCA	Stapler PCA2	Stapler PCA1	Tray-2 driver PCA	Stacker controller PCA
M9	Saddle-inlet motor					J705
M31	Inlet motor					J718
M32	Stack-ejection motor					J713
M33	Front-aligning-plate motor					J722
M34	Rear-aligning-plate motor					J722
M35	Stapler-shift motor		J995 / J993	J992 / J991		J717
M36	Swing motor					J709
M37	Output-bin-1-shift motor	J952 / J951				J711
M38	Output-bin-2-shift motor				J1953 / J1951	J716

Table 8-26 Motors (stapler/stacker) (continued)

Part number	Name	Tray-1 driver PCA	Stapler PCA2	Stapler PCA1	Tray-2 driver PCA	Stacker controller PCA
M39	Stack trailing-edge-assist motor					J722
M41	Staple motor		J995 / J993	J992 / J991		J717

Figure 8-254 Motors (booklet maker)

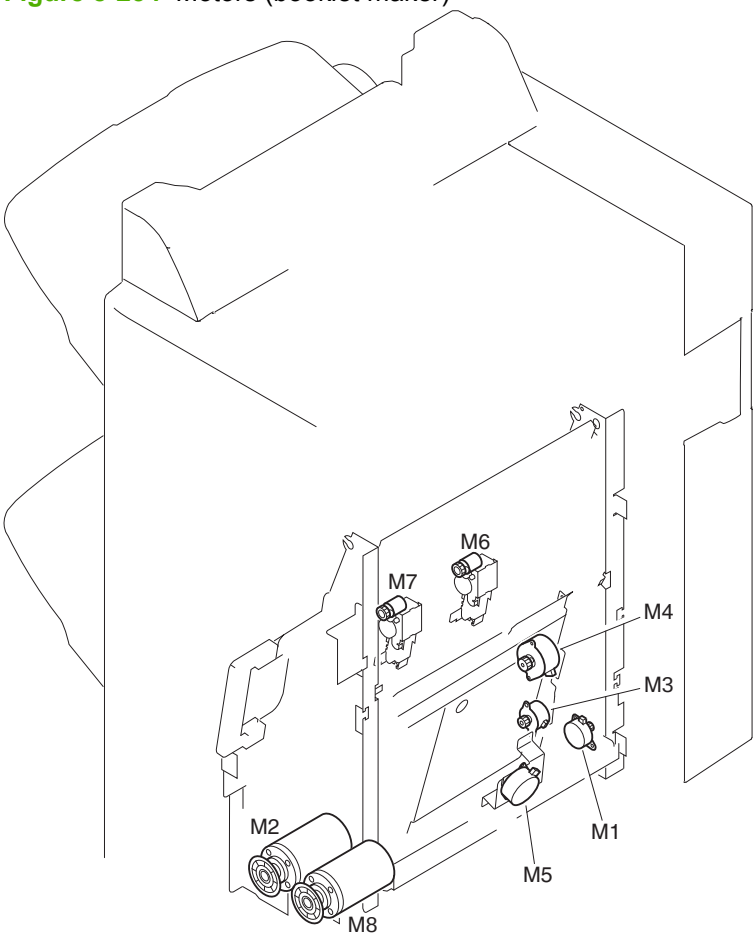


Table 8-27 Motors (booklet maker)

Part Number	Name	Saddle-stitcher controller PCA
M1	Feed motor	J5
M2	Paper-folding motor	J23
M3	Guide motor	J12
M4	Paper-positioning-plate motor	J7
M5	Alignment motor	J7
M6	Stitcher motor (rear)	J8

Table 8-27 Motors (booklet maker) (continued)

Part Number	Name	Saddle-stitcher controller PCA
M7	Stitcher motor (front)	J8
M8	Paper-pushing-plate motor	J23

Clutches

Figure 8-255 Clutches (stapler/stacker)

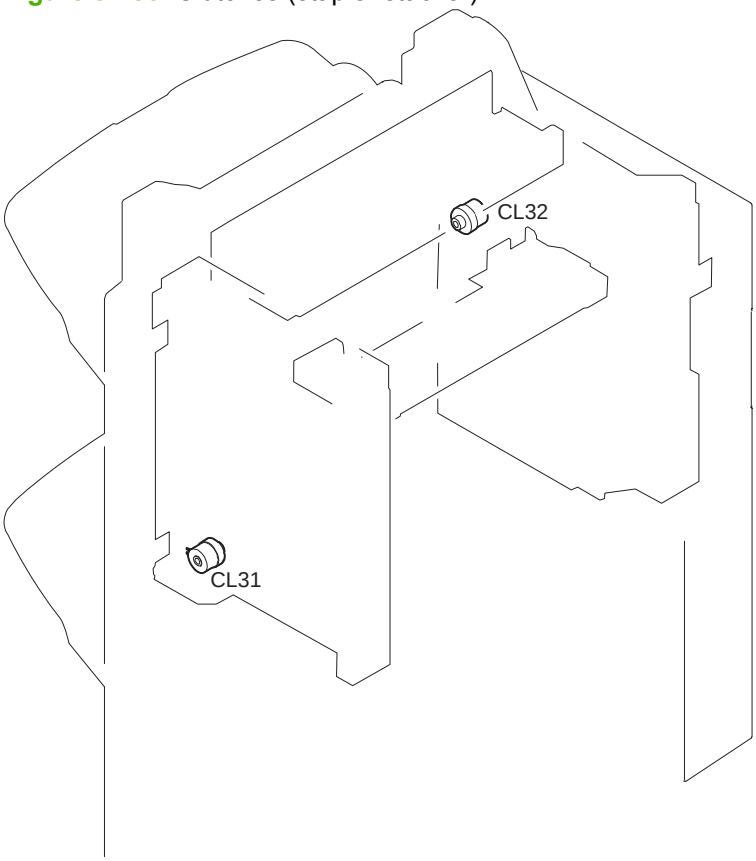


Table 8-28 Clutches (stapler/stacker)

Part number	Description	Stacker controller PCA
CL31	Shutter clutch	J721
CL32	Stack-ejection lower-roller clutch	J712

PCA

Figure 8-256 PCA (stapler/stacker)

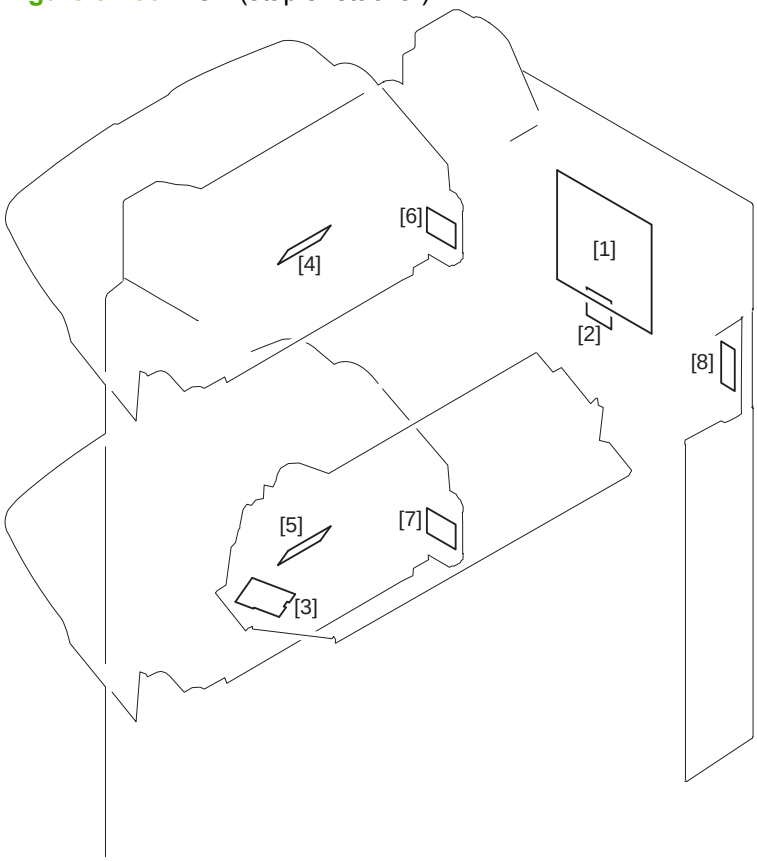


Table 8-29 PCA (stapler/stacker)

Part number	Name
1	Stacker controller PCA
2	Stapler PCA1
3	Stapler PCA2
4	Tray-1 driver PCA
5	Tray-2 driver PCA
6	Tray-1 shift-area sensor PCA
7	Tray 2 shift-area sensor PCA
8	Service LED PCA

Figure 8-257 Stacker controller PCA

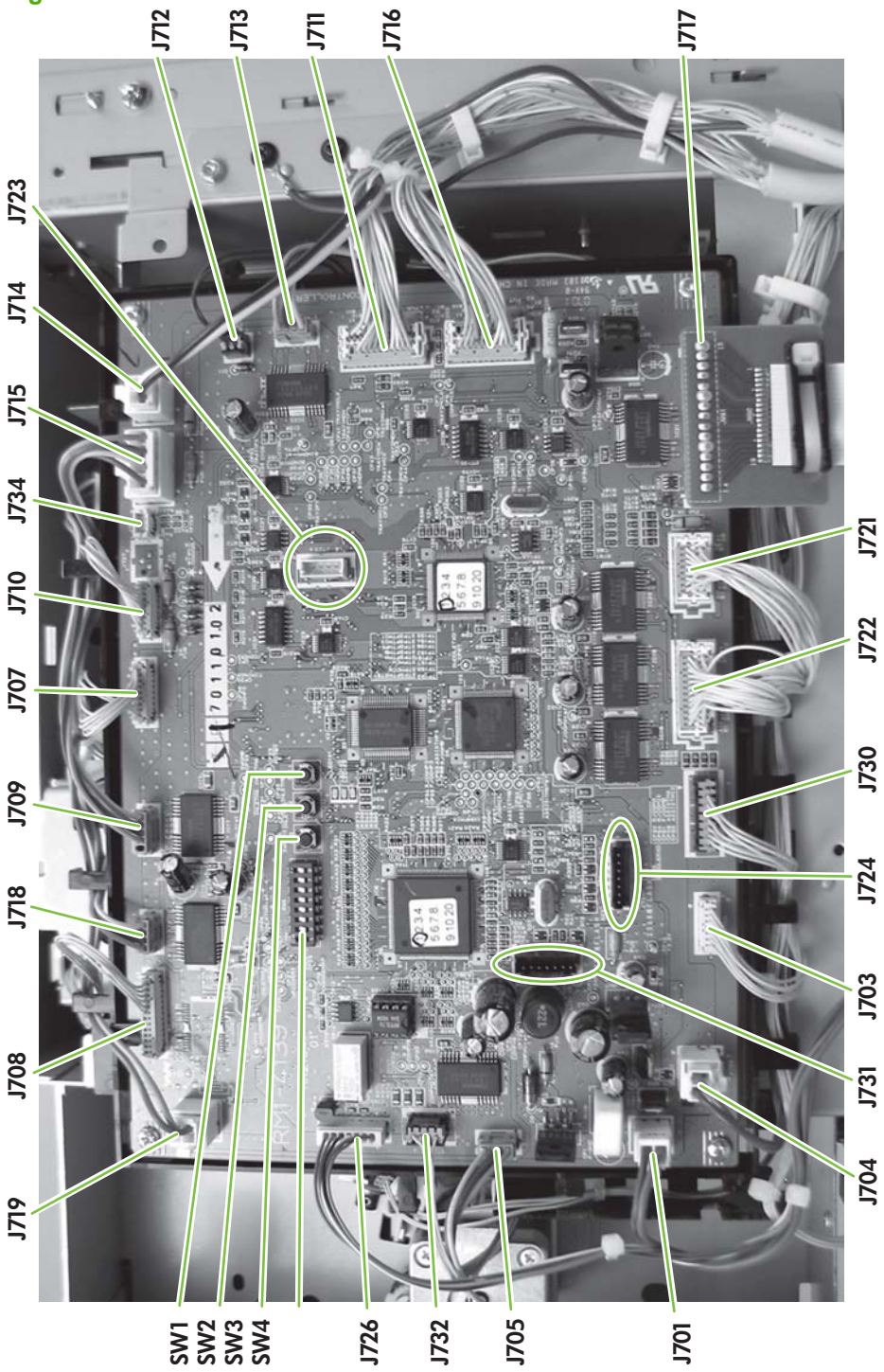


Figure 8-258 PCA (booklet maker)

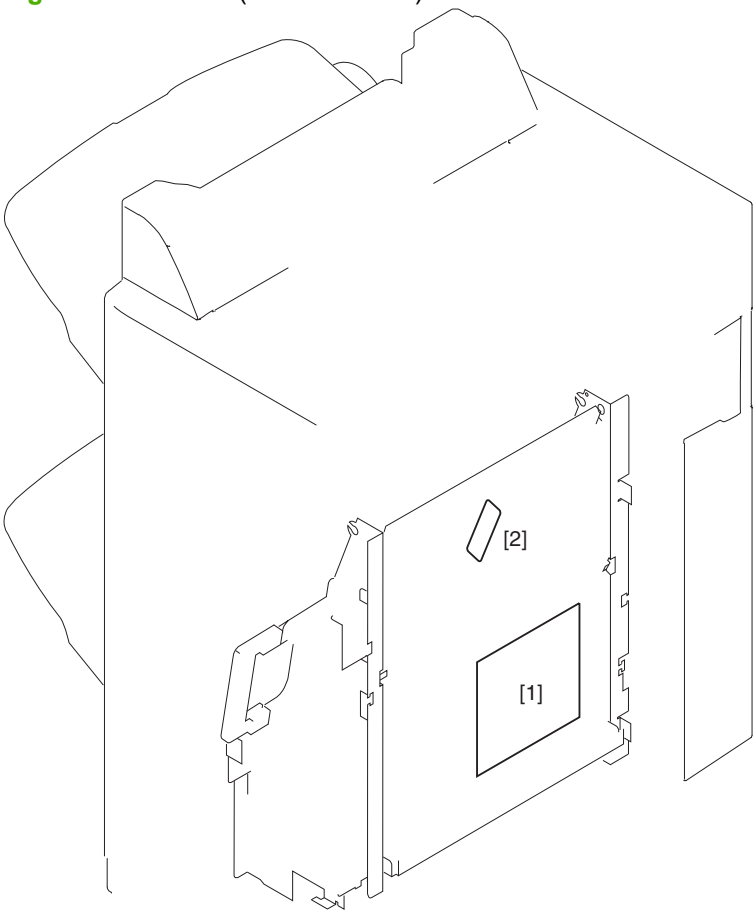
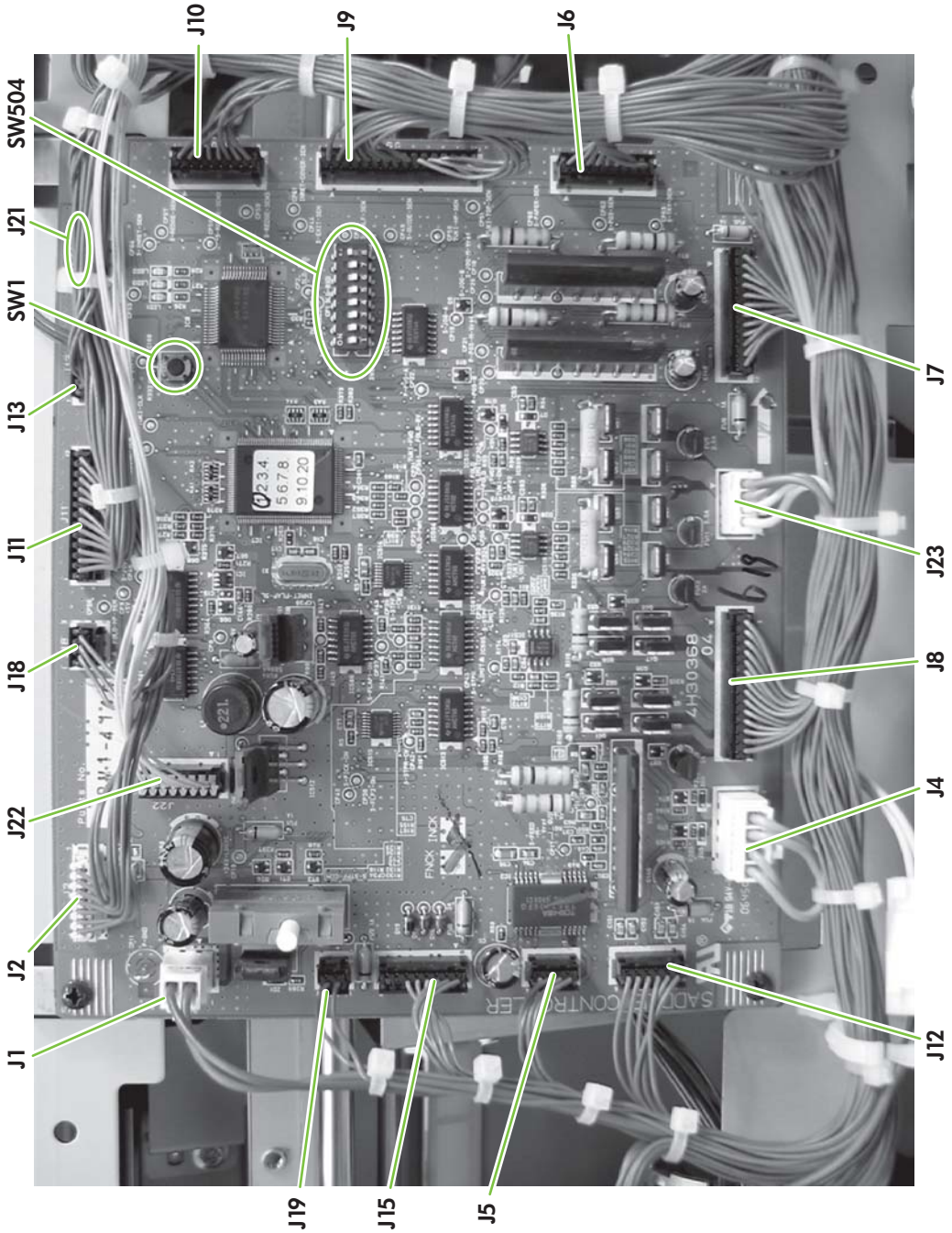


Table 8-30 PCA (booklet maker)

Part number	Name
1	Saddle-stitcher controller PCA
2	Paper sensor PCA

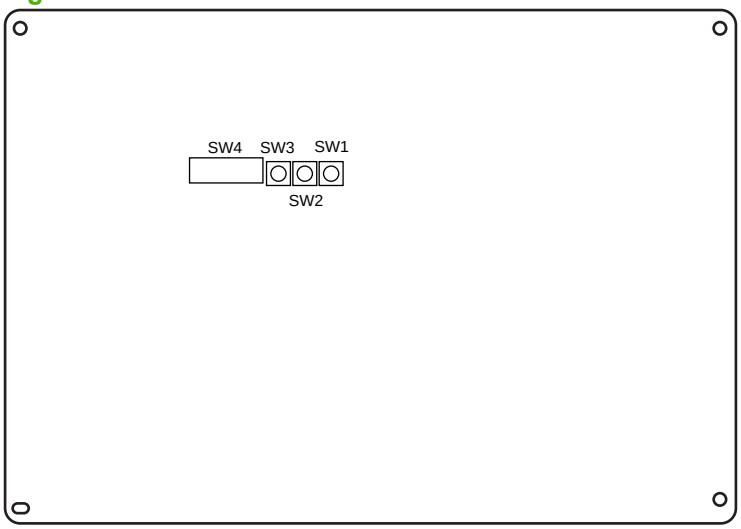
Figure 8-259 Saddle-stitcher controller PCA



Variable resistors, LED, and check pins

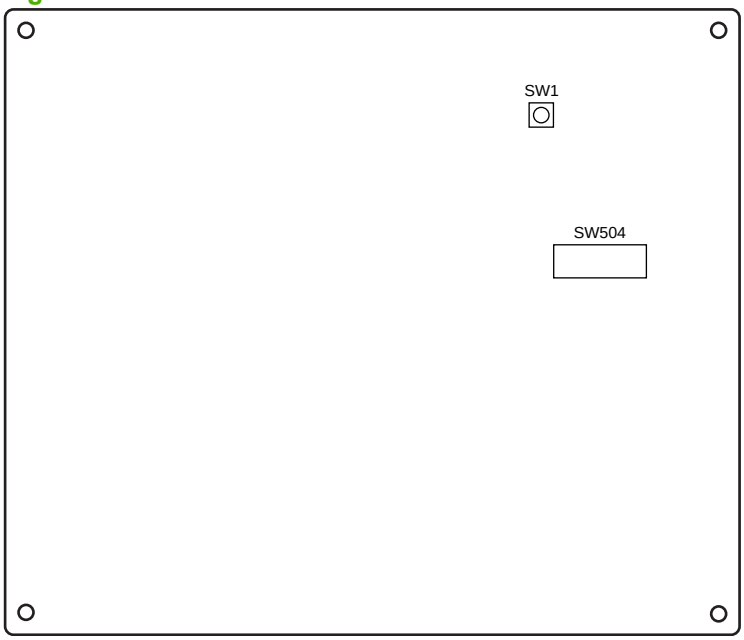
△ **CAUTION:** Do not touch check pins that are absent from the following list. They are for factory use only and special tools must be used to service them.

Figure 8-260 Stacker controller PCA switches



Switch	Function
SW1	Used for making adjustments to the alignment position/stapling position
SW2	Used for making adjustments to the alignment position/stapling position
SW3	Used to start operation for alignment position adjustment/ stapling position adjustment
SW4	Used to start operation for alignment position adjustment/ stapling position adjustment

Figure 8-261 Saddle-stitcher controller PCA switches



Switch	Function
SW504,Bit 1 to 2	Starts correction of discrepancy between stitching position and folding position
SW504,Bit 6 to 8	Stores corrected settings for stitching position and folding position
SW1	Starts correction of discrepancy between stitching position and folding position

Circuit diagrams

Figure 8-262 Stapler/stacker stacker controller PCA circuit diagram (1 of 2)

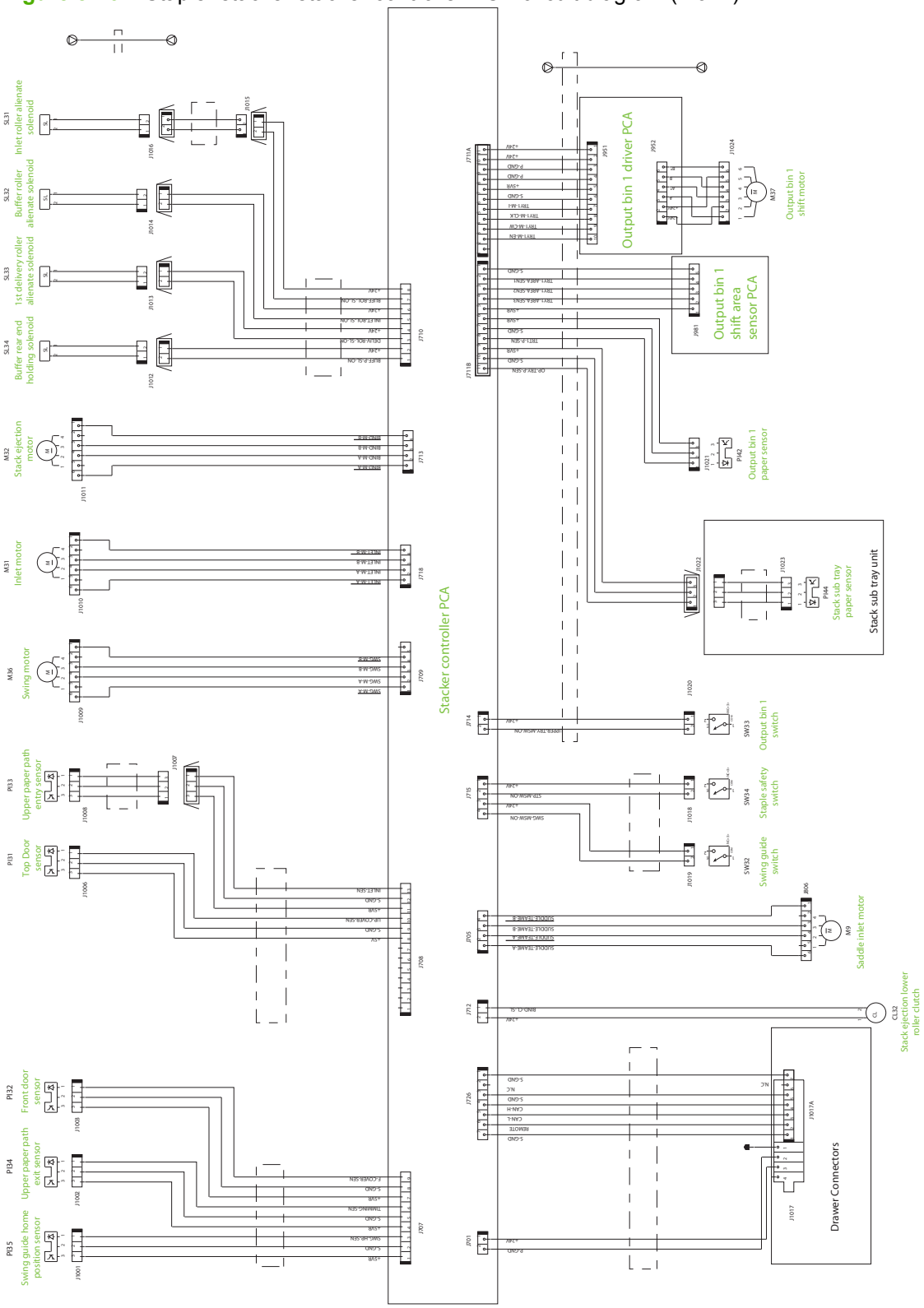
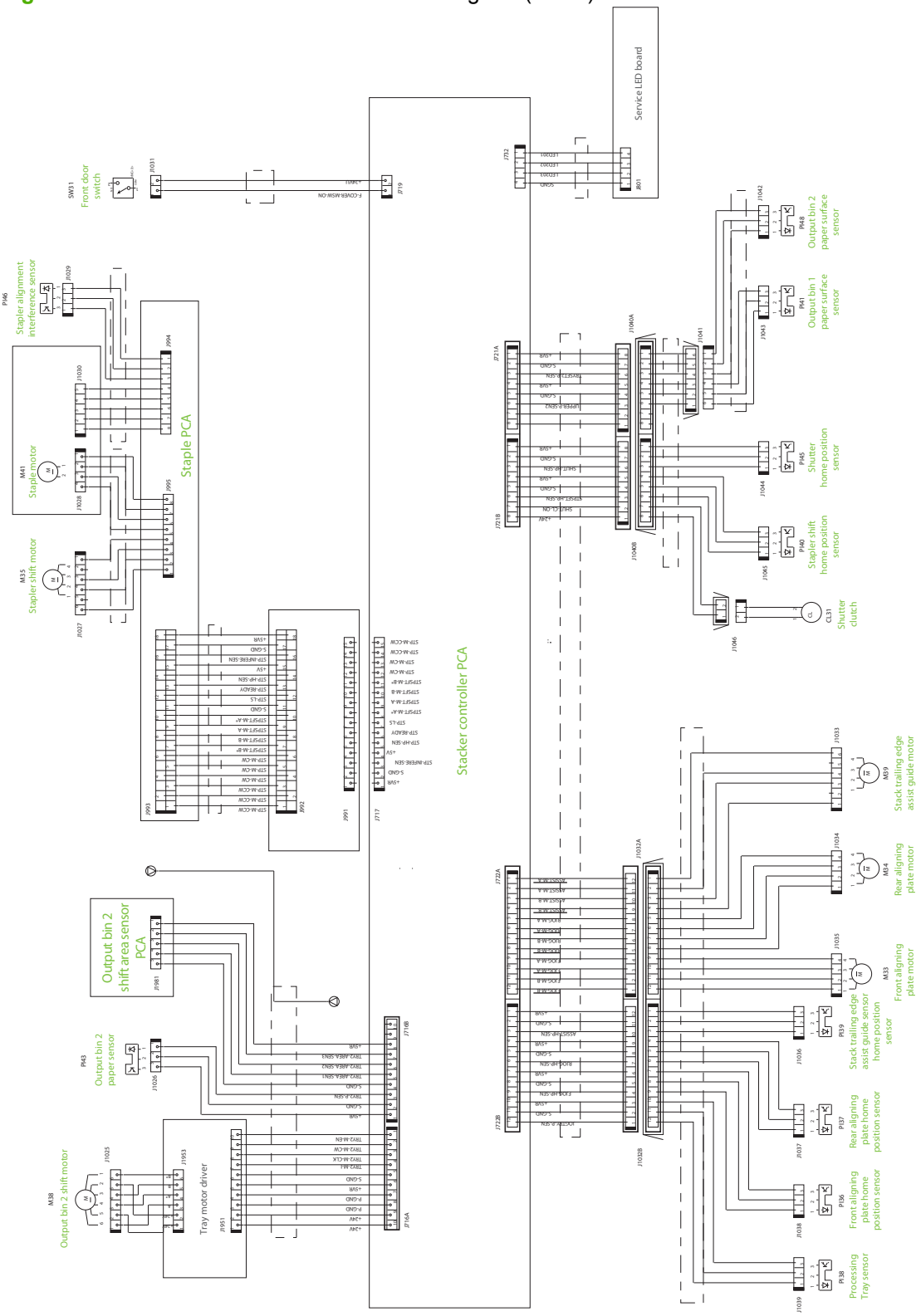


Figure 8-263 Stacker controller PCA circuit diagram (2 of 2)



NOTE: The stack sub tray unit is located only on the stapler/stacker.

Figure 8-264 Saddle-stitcher controller PCA circuit diagram (1 of 2)

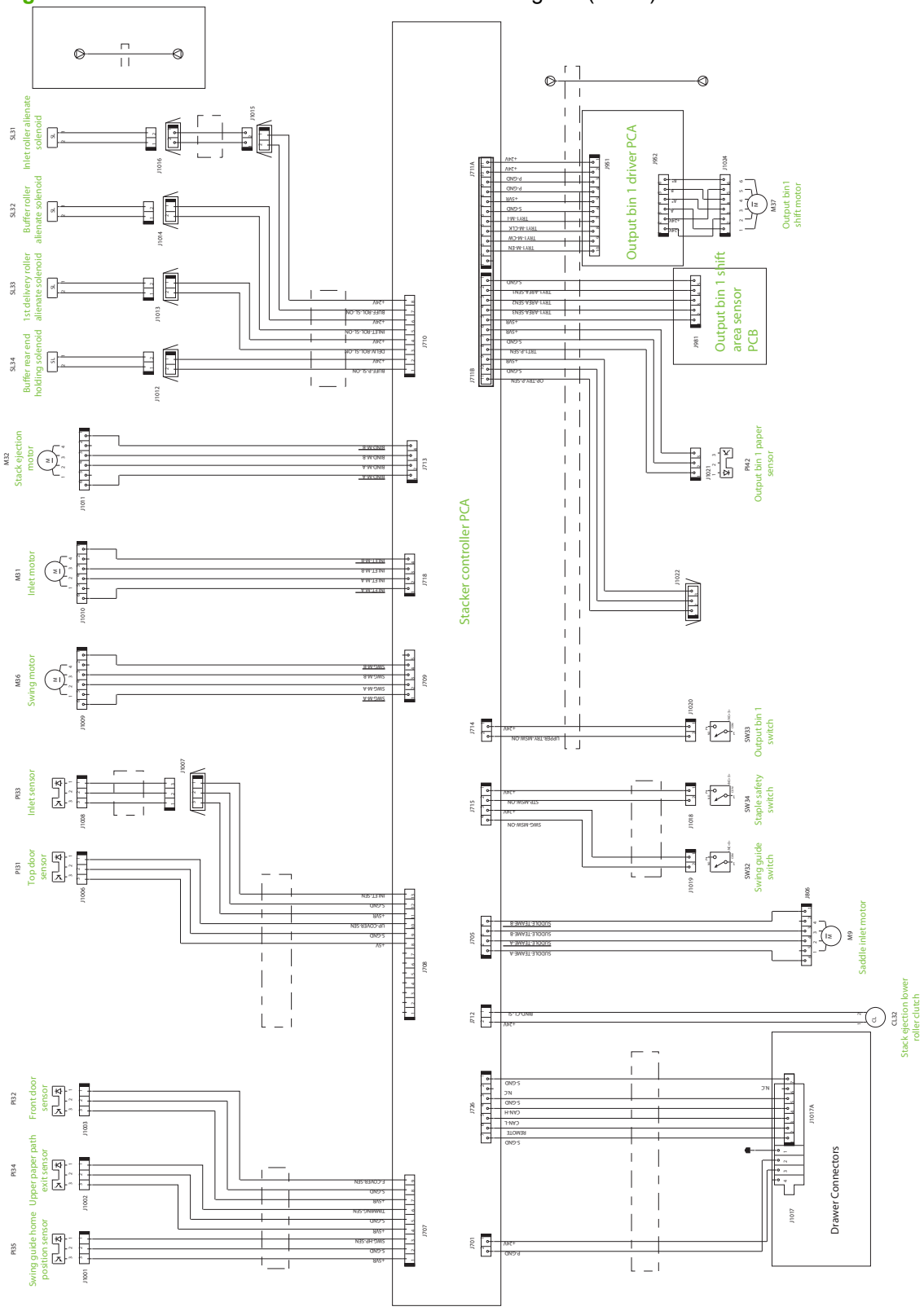


Figure 8-265 Saddle-stitcher controller PCA circuit diagram (2 of 2)

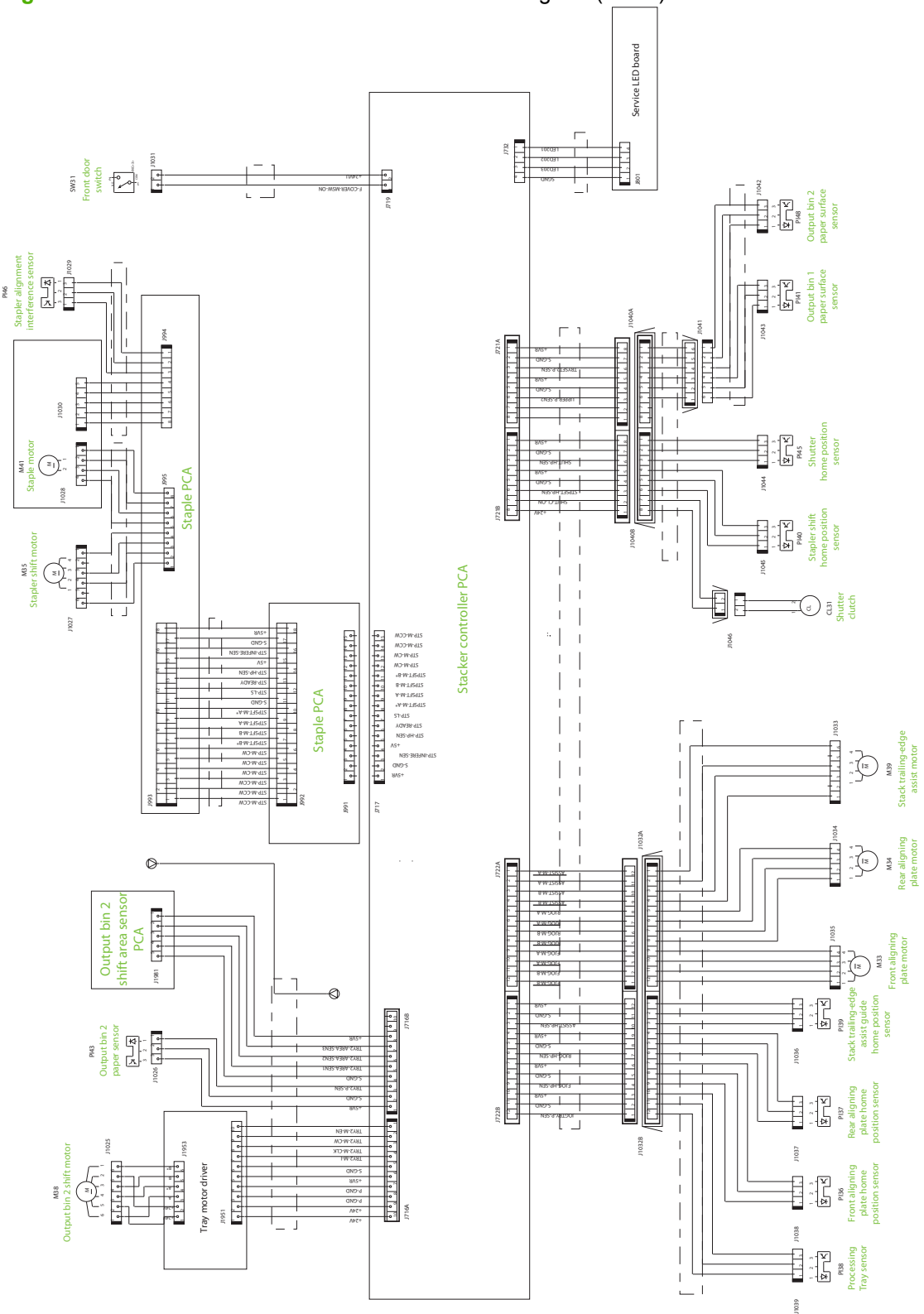
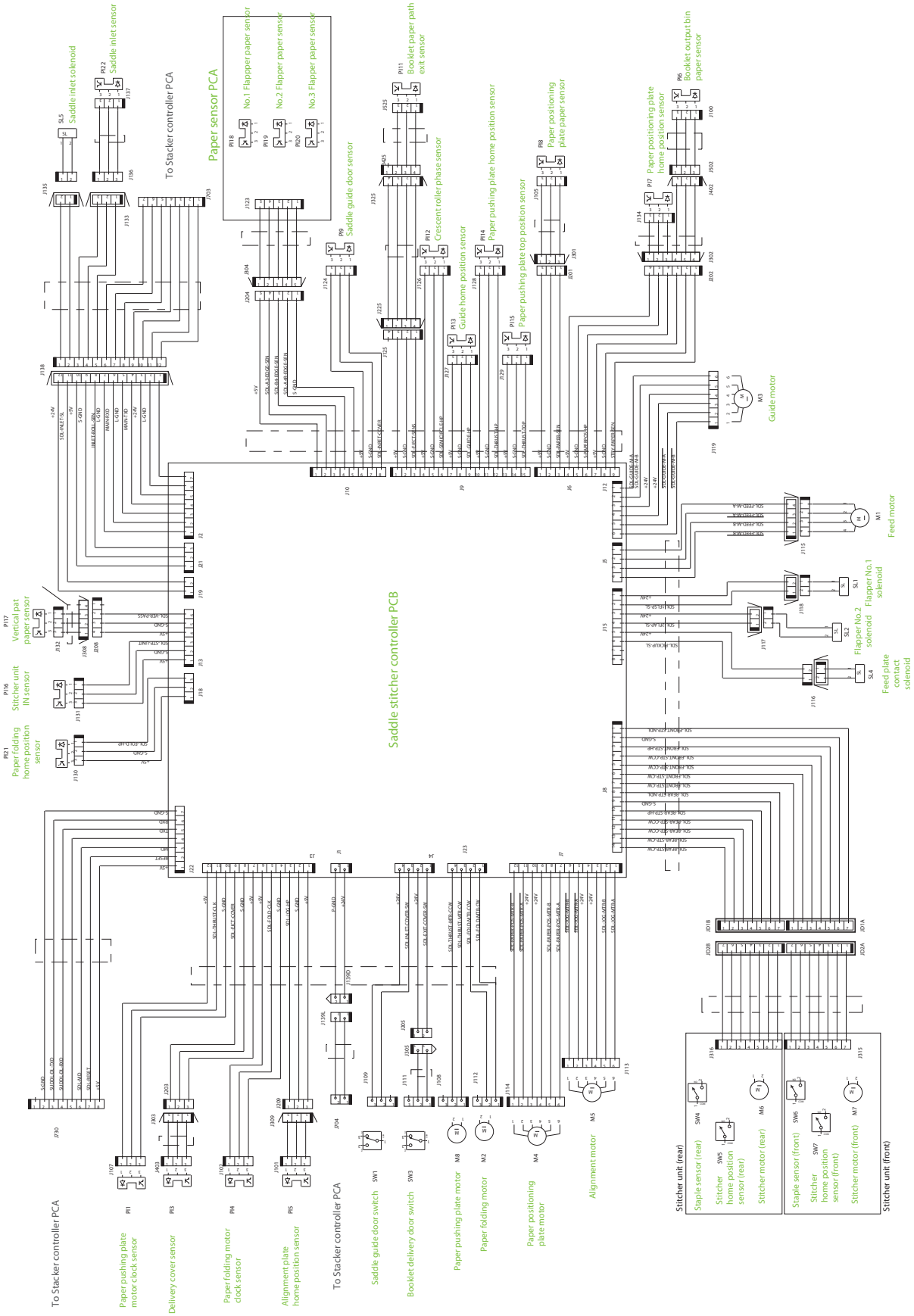


Figure 8-266 Saddle-stitcher controller PCA circuit diagram



Adjustments

Adjust the alignment position

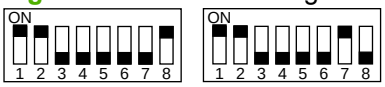
These adjustments are for the primary stapler unit for the both the stapler/stacker and booklet maker finishers.

Perform this adjustment after replacing the stacker controller PCA or when the alignment position must be changed.

NOTE: When the stacker controller PCA is replaced, EP-ROM (IC10) must be transferred from the old board to the new board so that old adjustment values stay with finisher. Otherwise, this adjustment must be made in order to program IC10.

1. Turn the printer off.
2. Disconnect the communication/power cable from the accessory to the printer.
3. Remove the rear cover of the accessory.
4. Set SW4 on the stacker controller PCA according to the paper used for adjustment.

Figure 8-267 SW4 settings



5. Reconnect the communication/power cable from the finisher to the printer.
6. Turn the printer power on at the printer.
7. Press SW3 on the stacker controller PCA. When SW3 is pressed, the swing guide opens and the alignment plate moves to prescribed position.
8. Place ten sheets of A4/LTR paper between the alignment plates and push them squarely against the stopper.

NOTE: The objective of this adjustment is to adjust the plates so that they will be lightly and evenly touching the sides of the stacked paper.

9. Press SW1 or SW2 on the stacker controller PCA and adjust the alignment plate against the paper. When SW1 is pressed, the alignment plate moves 0.42 mm forward. When SW2 is pressed, the alignment plate moves 0.42 mm backward. The adjustment range is -/+ 4.2 mm.
10. When adjustment is complete, remove the paper and press SW3 on the stacker controller PCA once to store the adjustment in memory.
11. Turn off all bits of stacker controller PCA SW4.
12. Turn the power off and install the rear cover of the stacker unit.

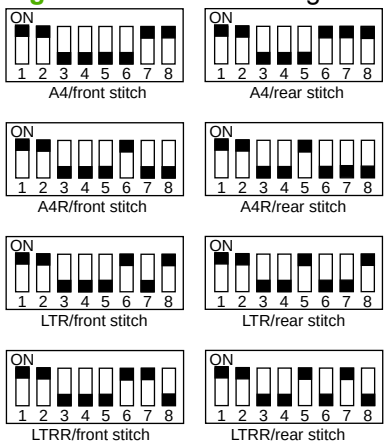
Adjust the staple position

Adjust the stapler position after replacing the stacker controller PCA or when the staple position must be changed for some reason. This adjustment sets the front and rear stitches with A4/A4R when the paper used for adjustment is AB type and with LTR/LTRR when the paper is INCH type.

NOTE: When the stacker controller PCA is replaced, EP-ROM (IC10) must be transferred from the old board to the new board so that old adjustment values stay with finisher. Otherwise, this adjustment must be made in order to program IC10.

1. Remove the rear cover.
2. Turn the printer power off and set SW4 on the stacker controller PCA according to paper/stitch position used for adjustment.

Figure 8-268 SW4 settings



3. Turn the printer power on.
4. Press SW3 on the stacker controller PCA. When SW3 is pressed, the swing guide opens and the alignment plate moves to prescribed position.
5. Place two sheets of paper between the alignment plates, push them against the stopper, and then push the rear edge of the paper against the rear alignment plate. If the gap between the front alignment plate and front edge of the paper is 1 mm or greater, adjust the plate alignment before continuing.
6. Press SW3 on the stacker controller PCA once to staple and then remove the stapled paper manually to verify the staple position.
7. Press SW3 on the stacker controller PCA once.
8. If the staple position is correct, insert a sheet of paper between the aligning plates and push it against the stopper, push the far end edge of the paper to the rear aligning plate, press SW3 once (stapling action/store adjustment value), and then proceed to step 11.
9. To adjust the staple position, press SW1 or SW2 on the stacker controller PCA and adjust the staple position. When SW1 is pressed, the staple position moves 0.49 mm forward. When SW2 is pressed, the staple position moves 0.49 mm backward.
10. Repeat steps 5 and 6 and check that the staple position is adjusted correctly.
11. Turn off all bits of SW4 on the stacker controller PCA.
12. Turn off the printer off and install the rear cover.

Adjust the folding position to the stitch position (Booklet maker only)

Adjust the position of the booklet fold by changing the settings of bits six through eight of DIPSW1 on the saddle-stitcher controller board to match the booklet stapling (stitching) position. If the saddle-stitcher controller PCA has been replaced, be sure to set the new DIPSW1 so that the settings will be the same as those on the old DIPSW1. Perform this adjustment if you must change the folding position. DIPSW1 on the saddle-stitcher controller PCA to match the stitching position (adjusting the distance over which the paper positioning plate is moved to the folding position from the stitching position).

1. Turn the printer power off and disconnect the communication/power cord from the booklet maker to the printer.
2. Remove the PCA cover from the lower portion of the booklet maker. To establish a baseline for measurements, set bits 1 through 8 of SW504 on the saddle-stitcher controller PCA as follows:

NOTE: Do not change bit 5.

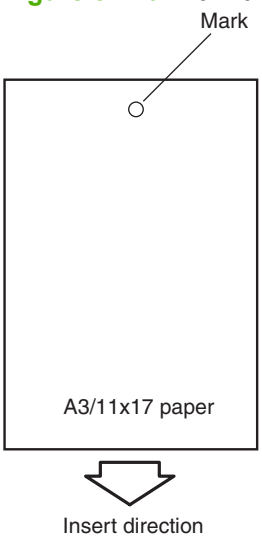
Figure 8-269 SW504 settings



Do not change bit 5.

3. Remove the rear cover. Open the front door and the paper-jam-access guide plate (saddle-guide assembly) (green handle above the booklet stapler unit) of the saddle stitcher unit. Moving to the rear of the machine, tape the actuator of the inlet-cover sensor (saddle-guide assembly) (PI9) and inlet-door switch (saddle-guide assembly) (SW1) so that both sensor and switch remain activated signaling that the saddle guide is in the closed position throughout the entire adjustment procedure.
4. You will be using two sheets of A3 or 11 x 17 paper. Mark the top of the paper as shown. This is a reference mark only to show a specific end of the paper. The mark's position just needs to be somewhere at one end of the paper as shown.

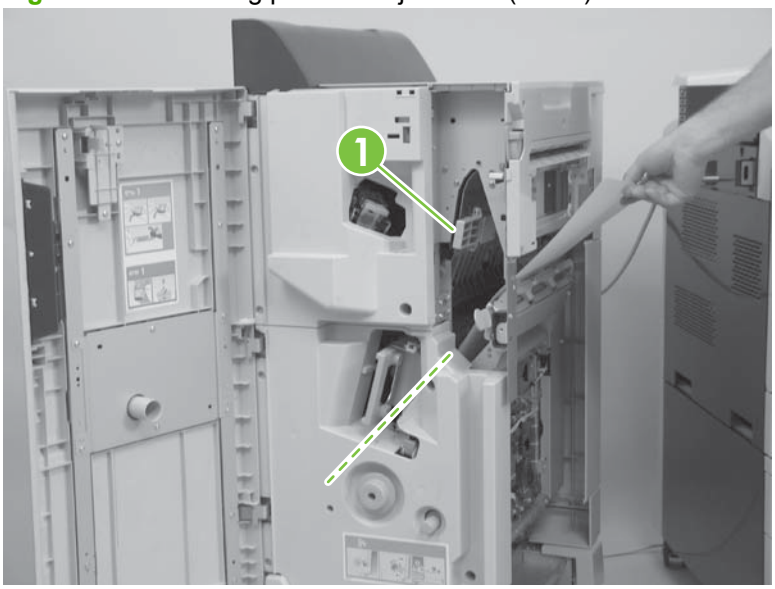
Figure 8-270 Mark the paper



5. Close the saddle-guide assembly and the front door of the accessory. Reconnect the power cord from the booklet maker to the printer. Turn the printer power on and wait until the printer is in a ready state.
6. Press SW1 on the saddle-stitcher controller PCA so that the feed motor (M1) starts to rotate. You will need to press SW1 three seconds or more if the 11 x 17 paper is used.

7. Open the front door of the booklet maker and then open saddle-guide assembly (callout 1). Insert the two sheets of marked paper down the paper path leading to the folding unit and past the booklet stapler unit. Push them in by hand until the front edge of the sheets push against the paper positioning plate.

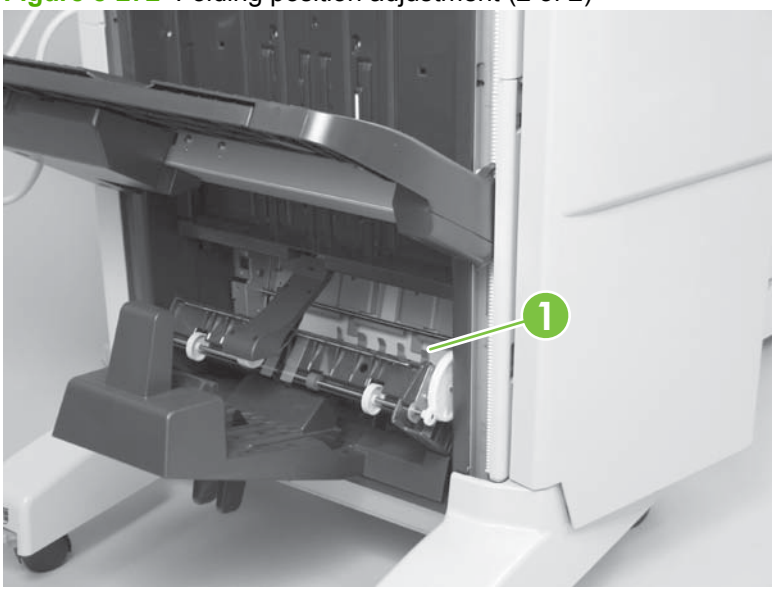
Figure 8-271 Folding position adjustment (1 of 2)



8. Verify that the paper is properly located against the paper positioning plate by opening the booklet delivery door and looking at the paper positioning plate (callout 1).

NOTE: It is important for the bottom of the sheets of paper to be squarely resting on the paper positioning plate for the adjustment to be accurate.

Figure 8-272 Folding position adjustment (2 of 2)

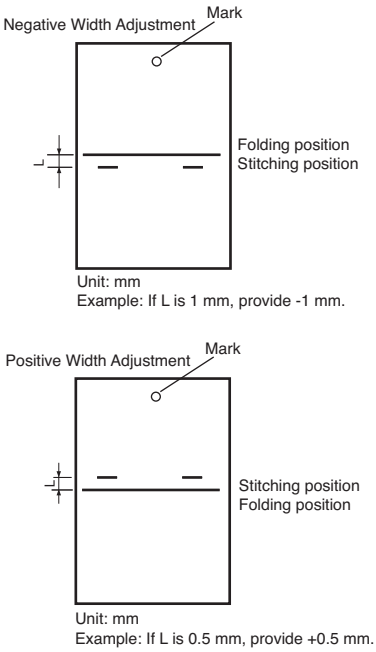


9. Close the saddle-guide assembly.

10. Press SW1 on the saddle-stitcher controller PCA. The saddle stitcher unit will "stitch" the sheets, and fold and deliver the stack automatically to the booklet output bin.

11. Measure the distance (L) between the stitching position and the folding position. Then perform "positive width adjustment" or "negative width adjustment" to suit the relationship between the stitching position and the folding position. If the stitching position is below the folding position, perform "negative width adjustment." If the stitching position is above the folding position, perform "positive width adjustment."

Figure 8-273 Positive and negative width adjustment



NOTE: If the L adjustment is significantly larger than what the adjustment allows, the most common cause is that the paper was not fully inserted and resting squarely on the paper position plate.

12. Change the settings of bits 6 through 8 on SW504 referring to the following table.

Table 8-31 SW504 settings

SW504 bit settings			Setting (in units of 0.5 mm)
Bit 6	Bit 7	Bit 8	
OFF	ON	ON	+3
OFF	ON	OFF	+2
OFF	OFF	ON	+1
OFF	OFF	OFF	0
ON	OFF	ON	-1
ON	ON	OFF	-2
ON	ON	ON	-3

Table 8-32 Do not use the following setting.

Bit 6	Bit 7	Bit 8
ON	OFF	OFF

13. When adjustment has been completed and the stitch staples are within the fold line, set SW504 bits 1 to 4 (only) to OFF.

14. Remove the tape from the actuator arm of switch SW1 and PI9 on the rear frame of the booklet-making assembly.

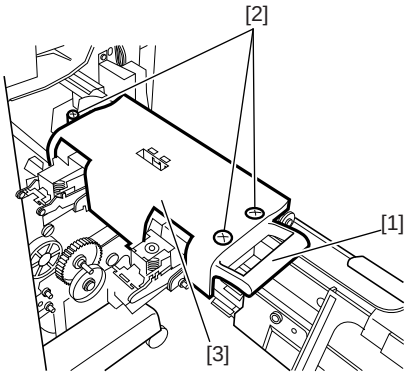
Adjust the stitcher unit

1. Open the front cover.

2. Pull out the stitcher mount unit to the front. Pull the stitcher towards you and then pull up.

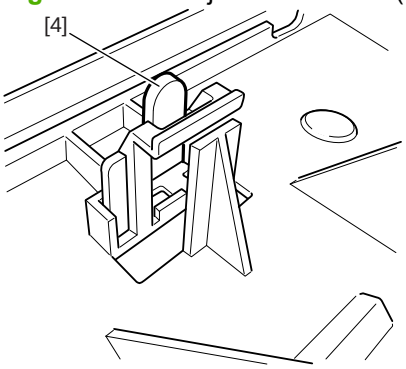
3. Remove three screws (callout 2) and then remove the stitcher cover (callout 3).

Figure 8-274 Adjust the stitcher (1 of 6)



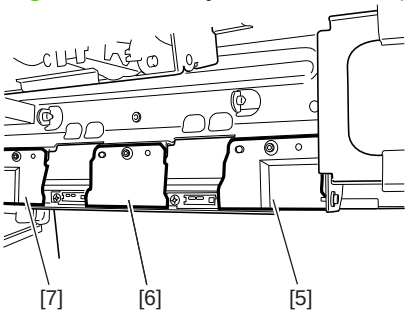
4. Remove the stitcher positioning tool (callout 4) from the back of the cover.

Figure 8-275 Adjust the stitcher (1 of 6)



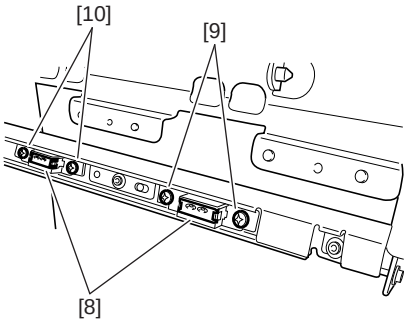
5. To adjust the front stitcher, remove the front guide plate (callout 4) and center guide plate (callout 6). To adjust the rear stitcher, remove the center guide plate (callout 6) and the rear guide plate (callout 7) (one screw each).

Figure 8-276 Adjust the stitcher (2 of 6)



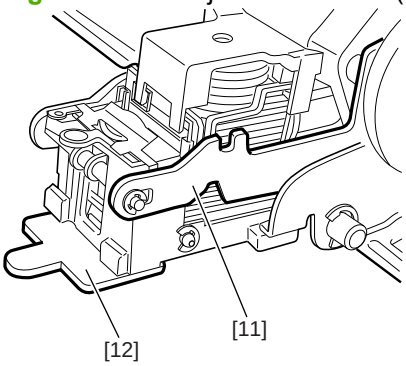
6. To adjust the front stitcher, loosen the two screws (callout 9) on the stitcher mount (callout 8). To adjust the rear stitcher, loosen the two screws (callout 10) on the stitcher mount.

Figure 8-277 Adjust the stitcher (3 of 6)



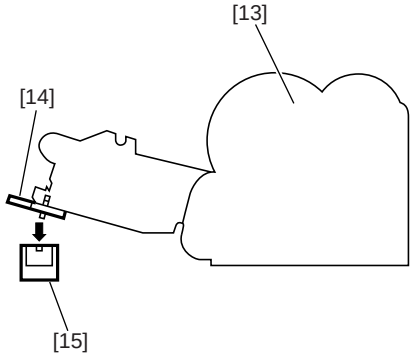
7. Insert the tool (callout 12) into the staple slot of the stitcher (callout 11).

Figure 8-278 Adjust the stitcher (5 of 6)



8. Tilt the stitcher, and turn the stitcher gear (callout 13) to match the recess of the tool (callout 14) and the mount (callout 15) and then tighten the screws on the mount to secure.

Figure 8-279 Adjust the stitcher (6 of 6)



9 Parts and diagrams

- Order parts, accessories, and supplies
- Replacement kits
- Printer
- Input-accessory devices
- Output-accessory devices
- Automatic document-feeder (ADF)
- Scanner
- Alphabetical parts list
- Numerical parts list

Order parts, accessories, and supplies

To order parts, accessories, and supplies, contact your dealer.

Orderable and non-orderable parts

NOTE: Not all components listed in the parts tables can be ordered. If a component listed has an associated part number, then it is a field-replaceable unit (FRU) and can be ordered. If the component does not have an associated part number, you must order the FRU that includes the desired component (if available).

Replacement kits

Printer supplies and accessories

Description	Part number	Product number	Qty
Control-panel kit with service document	Q3938-67963		1
Control-panel overlay kit, EN	Q3938-60107		1
Control-panel overlay kit, FR	Q3938-60108		1
Control-panel overlay kit, IT	Q3938-60109		1
Control-panel overlay kit, DE	Q3938-60110		1
Control-panel overlay kit, ES	Q3938-60111		1
Control-panel overlay kit, NL	Q3938-60112		1
Control-panel overlay kit, PT	Q3938-60113		1
Control-panel overlay kit, NO	Q3938-60114		1
Control-panel overlay kit, SV	Q3938-60115		1
Control-panel overlay kit, FI	Q3938-60116		1
Control-panel overlay kit, DA	Q3938-60117		1
Control-panel overlay kit, PL	Q3938-60118		1
Control-panel overlay kit, RU	Q3938-60119		1
Control-panel overlay kit, CS	Q3938-60120		1
Control-panel overlay kit, HU	Q3938-60121		1
Control-panel overlay kit, ZHTW	Q3938-60122		1
Control-panel overlay kit, ZHCN	Q3938-60123		1
Control-panel overlay kit, KO	Q3938-60124		1
Control-panel overlay kit, JA	Q3938-60125		1
Control-panel overlay kit, TR	Q3938-60126		1
Control-panel overlay kit, HE	Q3938-60127		1
Control-panel overlay kit, EL	Q3938-60128		1
Control-panel overlay kit, AR	Q3938-60129		1
Control-panel overlay kit, TH	Q3938-60130		1
Control-panel overlay kit, HR	Q3938-60133		1
Control-panel overlay kit, RO	Q3938-60134		1
Control-panel overlay kit, SK	Q3938-60135		1
Control-panel overlay kit, SL	Q3938-60136		1
Black print cartridge	CE830-67901	CE830C	1

Black image drum	CE304-67901	CE304C	1
Magenta print cartridge	CE303-67901	CE303C	1
Magenta image drum	CE307-67901	CE307C	1
Yellow print cartridge	CE302-67901	CE302C	1
Yellow image drum	CE306-67901	CE306C	1
Cyan print cartridge	CE301-67901	CE301C	1
Cyan image drum	CE305-67901	CE305C	1
Air-filter kit with service document	Q3931-67906		1
Image-transfer kit (150,000-page life) with service document	RM1-3307-000CN	CB463A	1
Image-fuser kit (110V) (100,000-page life) with service document	Q3938-67966	CB457A	1
Image-fuser kit (220V) (100,000-page life) with service document	Q3938-67967	CB458A	1
Formatter-assembly base kit with service document	Q3838-67960		1
Hard-drive kit with service document	Q3938-67961	J7989G	1
Memory kit, 128 MB, with service document	Q3931-67902		1
Memory kit, 256 MB, with service document	Q3931-67903		1
Memory kit, 512 MB, with service document	Q3931-67904		1
Fax card	Q3701-60014	Q3701A	
Cassette tray 2 kit with service document	Q3938-67955		1
Cassette tray 3-5 kit with service document	Q3938-67956		1
Tray 1 pickup-roller kit with service document	Q3938-67958		1
Tray 2-5 rollers kit with service document	Q3938-67959		1
T2-roller kit (150,000-page life) with service document	RM1-3319-000CN	CB459A	1
ADF roller kit (60,000-page life) with service document	Q3938-67969	CE487A	1
Duplex-switchback tray	Q3938-67964		1
Face-down cover kit with service document	Q3938-67957		1

Manual-service, EN	CE799–90928		1
Manual-service chapter 6 and 7, EN	Q3938-90960		1
Manual-service chapter 6 and 7, FR	CE799–90929		1
Manual-service chapter 6 and 7, DE	CE799–90930		1
Manual-service chapter 6 and 7, IT	CE799–90931		1
Manual-service chapter 6 and 7, ES	CE799–90934		1
Manual-service chapter 6 and 7, KO	CE799–90932		1
Manual-service chapter 6 and 7, ZHCN	CE799–90933		1
Security-lock adapter kit with service document	Q3931-67925	Q3931-67925	1
5000-staple replacement cartridge	C8091-67901 (Order this part number.)	C8091A	
2000-staple cartridge (for booklet making)	CC383-67901 (Order this part number.)	CC383A	

NOTE: Only highlighted parts are orderable.

Printer

Printer parts

Figure 9-1 Printer external covers and panels

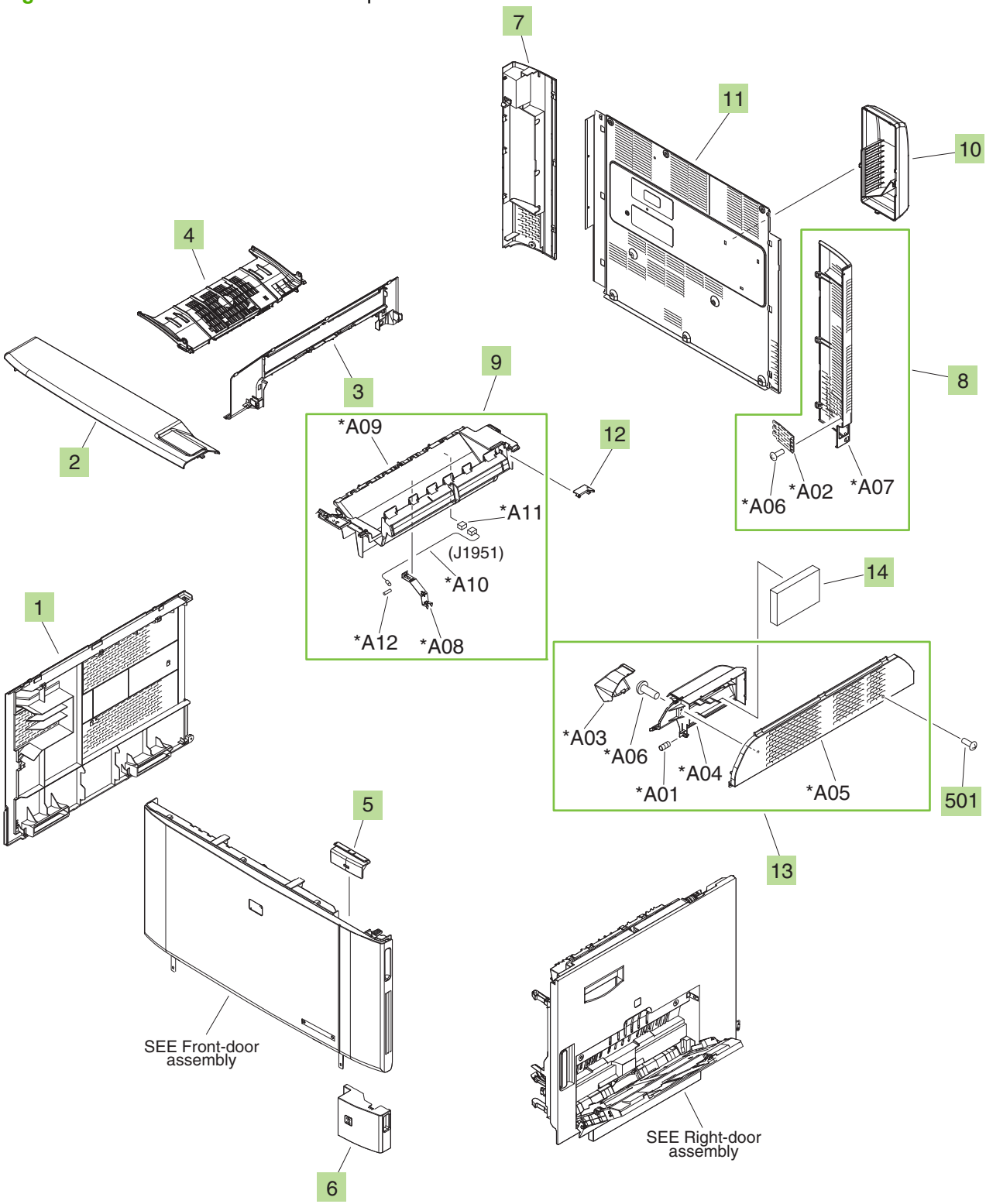


Table 9-1 Printer external covers and panels

Ref	Description	Part number	Qty
1	Cover, left	RC1-9336-000CN	1
2	Cover, front, upper	RC1-9350-000CN	1
3	Cover, paper-delivery	RC1-9351-000CN	1
4	Duplexing-tray lower assembly	RC1-5949-000CN	1
5	Front internal small-cover assembly	RC1-5953-000CN	1
6	Right-lower cover assembly	RL1-1280-000CN	1
7	Cover, rear-left	RC1-9344-000CN	1
8	Rear-right cover assembly	RM1-4415-000CN	1
9	Face-down end-tray assembly	RM1-3340-000CN	1
10	Fixing-fan cover assembly	RM1-5950-000CN	1
11	Cover, rear	RL1-1210-000CN	1
12	Cover, face-down drive	RC1-9360-000CN	1
13	Switchback-cover assembly	RM1-4408-000CN	1
14	Filter unit, air	RC1-9313-000CN	1
501	Screw, tapping, truss-head, M4X10	XB4-7401-005CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-2 Printer front-door assembly

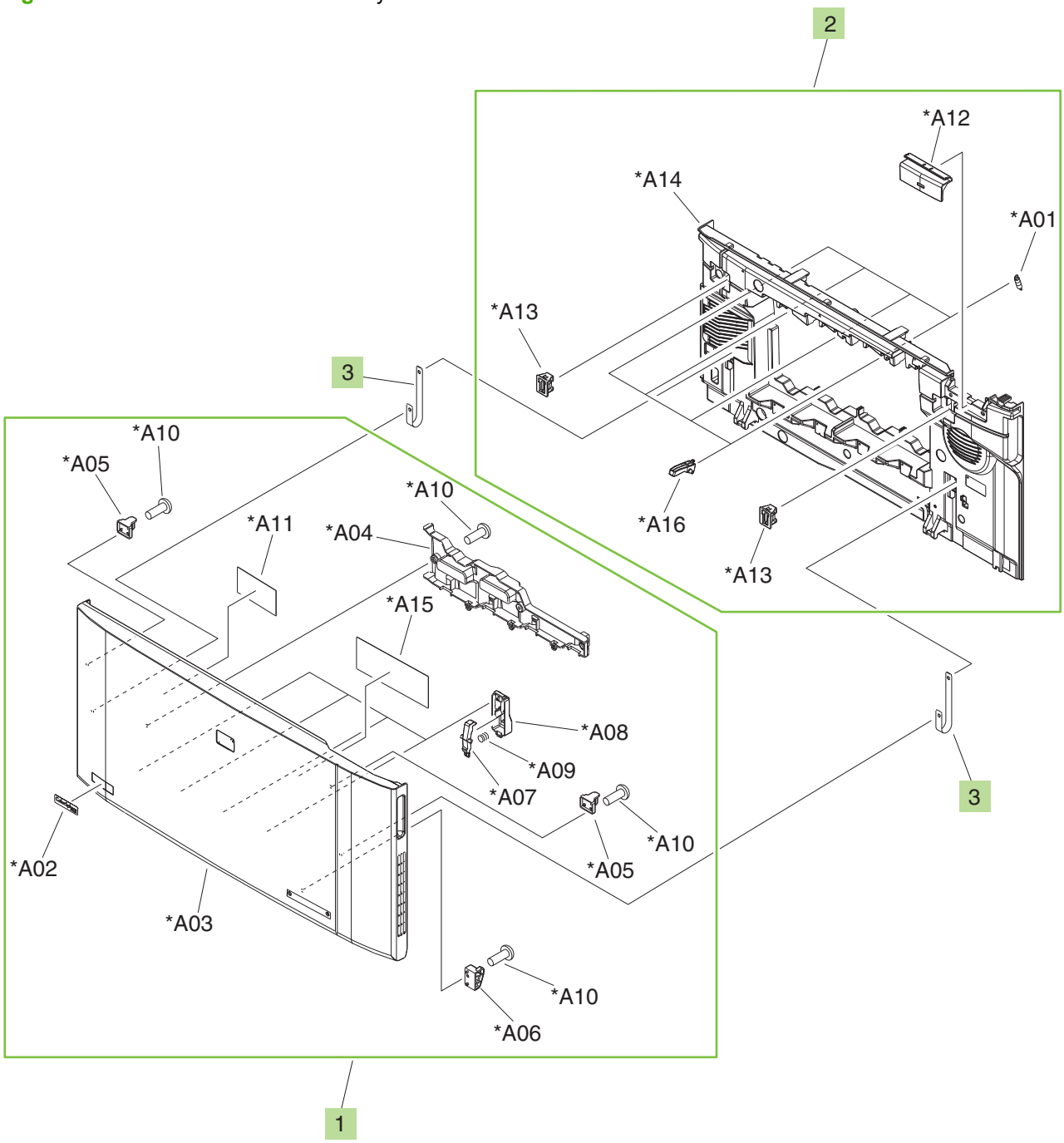


Table 9-2 Printer front-door assembly

Ref	Description	Part number	Qty
1	Front-cover assembly	RM1-3357-000CN	1
2	Front internal-cover assembly	RM1-4404-000CN	1
3	Band, door	RC1-9043-000CN	2

NOTE: Only highlighted parts are orderable.

Figure 9-3 Printer right-door assembly

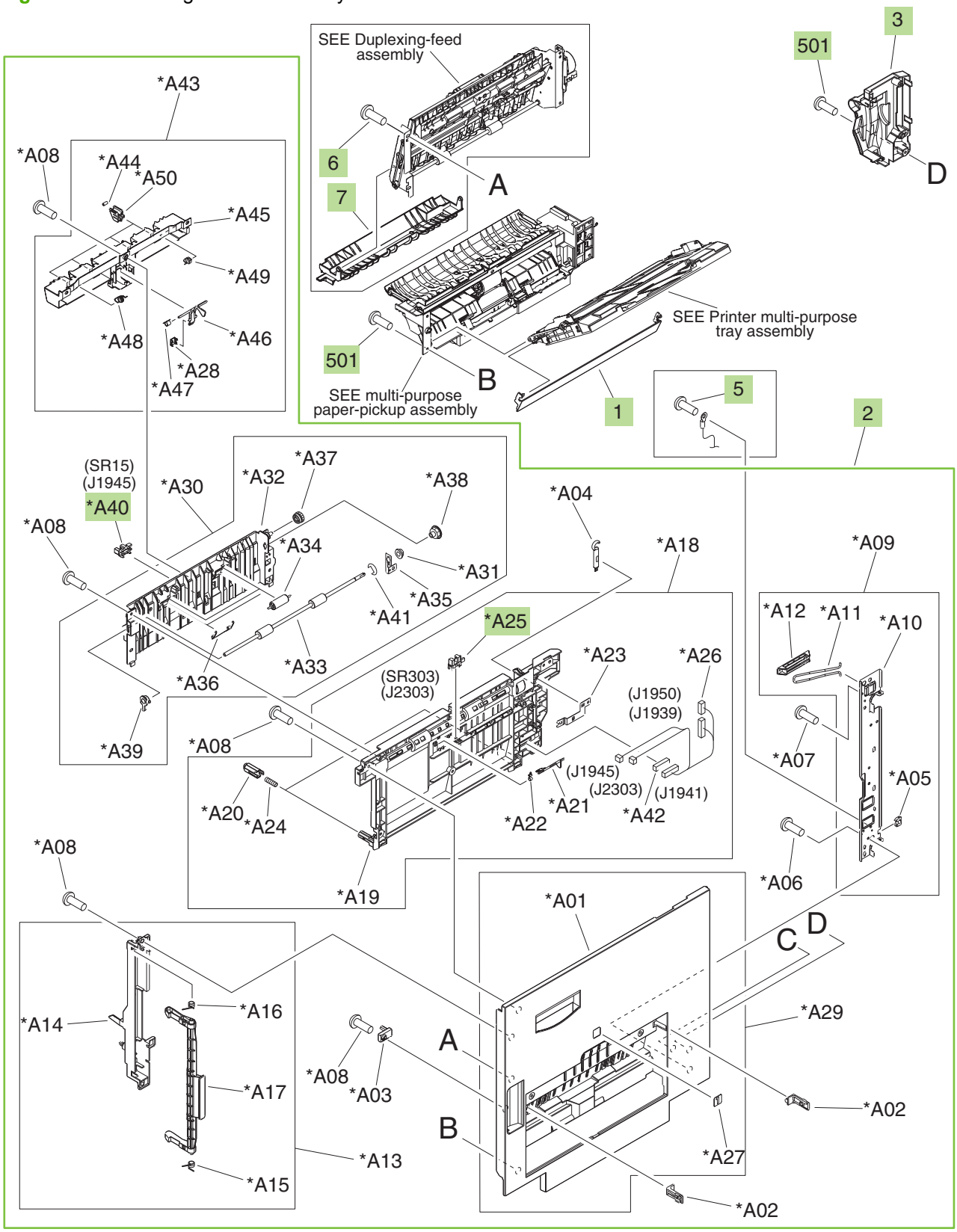


Table 9-3 Printer right-door assembly

Ref	Description	Part number	Qty
1	Cover, multi-purpose blanking	RC1-8527-000CN	1
2	Right-door sub-assembly	RM1-3333-000CN	1
3	Cover, motor	RC1-9511-000CN	1
5	Screw, RS, M3X6	XA9-1495-000CN	1
6	Screw, with washer, M4X12	XA9-1422-000CN	4
7	Guide, duplexing-feed, upper	RL1-1335-000CN	1
501	Screw, tapping, truss-head, M4X10	XB4-7401-005CN	7
A25	Photo interrupter, TLP1243	WG8-5696-000CN	1
A40	Photo interrupter, TLP1243	WG8-5696-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-4 Printer internal components (1 of 7)

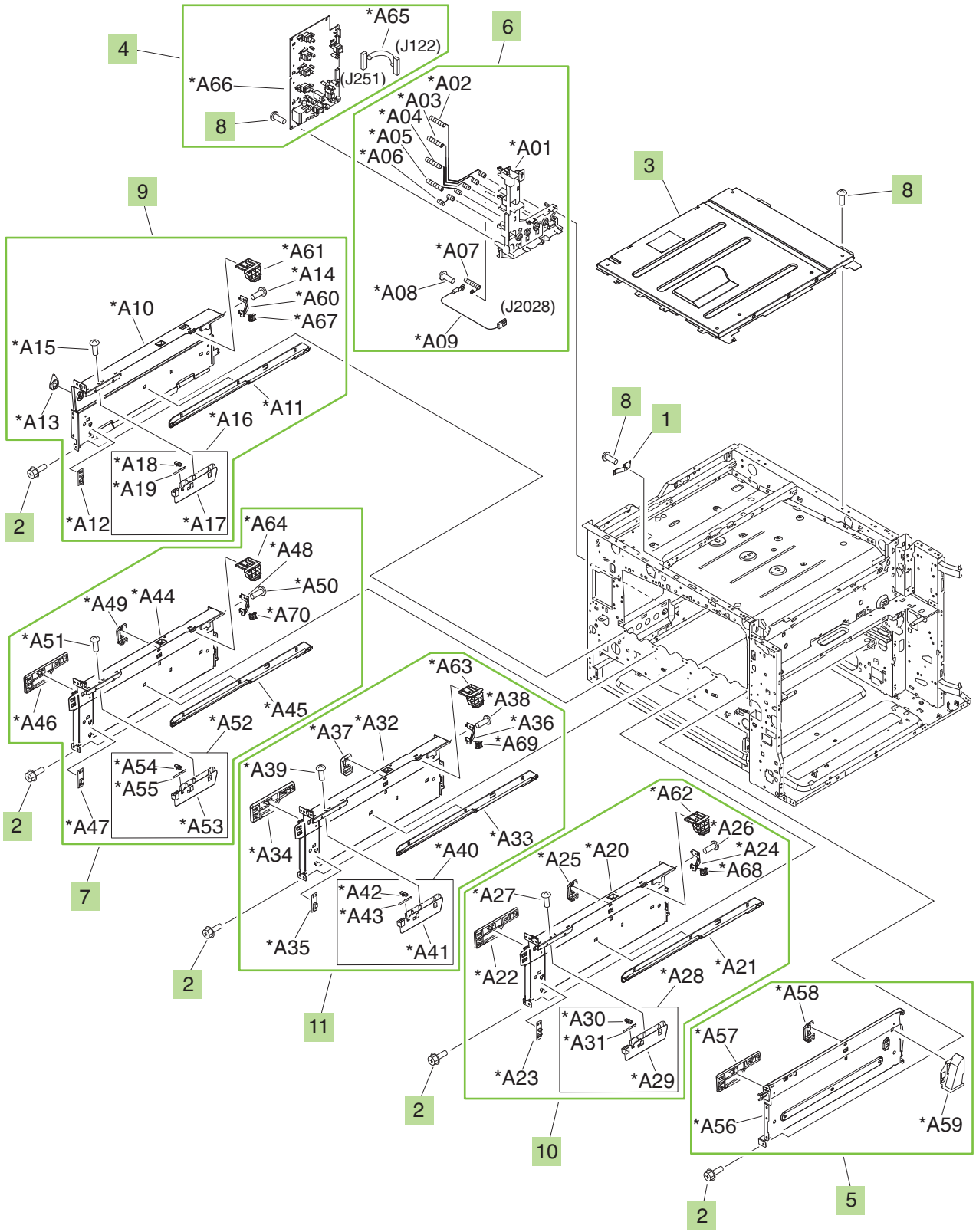


Table 9-4 Printer internal components (1 of 7)

Ref	Description	Part number	Qty
1	Spring, leaf	RC1-9233-000CN	1
2	Screw, RS, M3x8	XA9-1504-000CN	5
3	Top-cover assembly	RL1-1284-000CN	1
4	High-voltage transfer B PCA assembly	RM1-5475-000CN	1
5	Right-side wall assembly	RM1-3239-000CN	1
6	Transfer contact-holder assembly	RM1-3230-000CN	1
7	Partition-plate assembly, cyan	RM1-3238-000CN	1
8	Screw, RS, M3x6	XA9-1495-000CN	10
9	Left-side wall assembly	RM1-3233-000CN	1
10	Partition-plate assembly, yellow	RM1-3235-000CN	1
11	Partition-plate assembly, magenta	RM1-3237-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-5 Printer internal components (2 of 7)

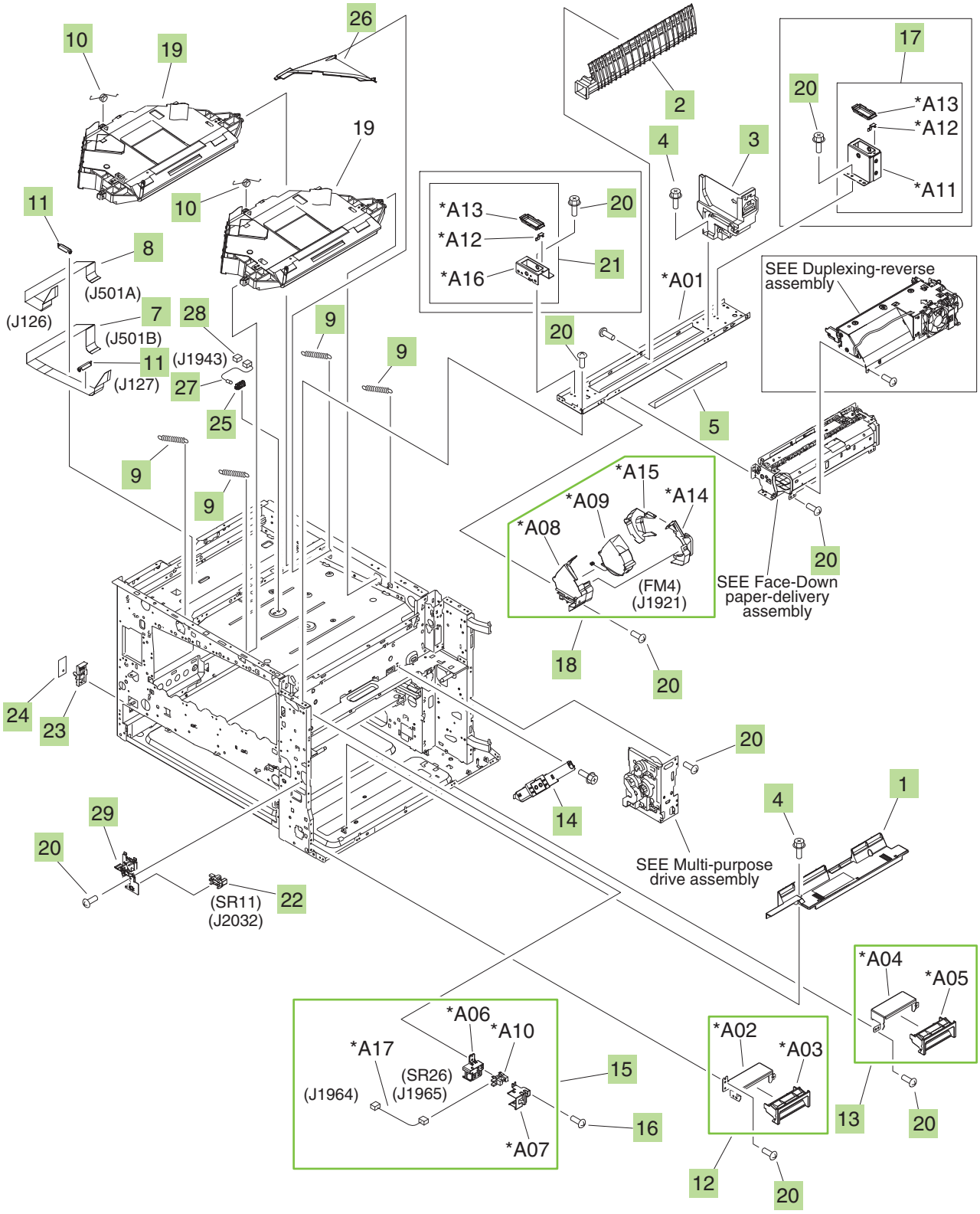


Table 9-5 Printer internal components (2 of 7)

Ref	Description	Part number	Qty
1	Guide, multi-purpose, right	RL1-1283-000CN	1
2	Guide, face-down inner	RC1-8959-000CN	1
3	Rail, reverse, rear	RC1-9206-000CN	1
4	Screw, RS, M3x8	XA9-1504-000CN	10
5	Sheet, fixing-crossmember	RC1-9232-000CN	1
7	Cable, laser flexible flat	RK2-1354-000CN	1
8	Cable, laser flexible flat	RK2-1355-000CN	1
9	Spring, tension	RU5-2822-000CN	4
10	Spring, torsion	RU5-2825-000CN	2
11	Clamp, FFC	WT2-5912-000CN	2
12	Grip-support front assembly	RM1-3225-000CN	1
13	Grip-support rear assembly	RM1-3226-000CN	1
14	Thermopile case assembly	RM1-3232-000CN	1
15	Photosensor assembly	RM1-3250-000CN	1
16	Screw, RS, M3x8	XA9-1449-000CN	2
17	Reader rear-guide assembly	RM1-4399-000CN	1
18	Fan assembly	RM1-3364-000CN	1
19	Scanner assembly kit with 1 scanner assembly and service document	Q3931-67907	1
20	Screw, RS, M3x6	XA9-1495-000CN	20
21	Reader front-guide assembly	RM1-4398-000CN	1
22	Photo interrupter, TLP1243	WG8-5696-000CN	1
23	Holder, environment-sensor	RC1-9324-000CN	1
24	Sensor unit, humidity	RK2-2376-000CN	1
25	Holder, scanner-thermistor	RC1-9260-000CN	1
26	Duct, scanner	RC1-9334-000CN	1
27	Thermistor unit	RK2-1363-000CN	1
28	Connector, snap-tight	VS1-7177-002CN	1
29	Interlock-switch assembly	RM1-3589-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-6 Printer internal components (3 of 7)

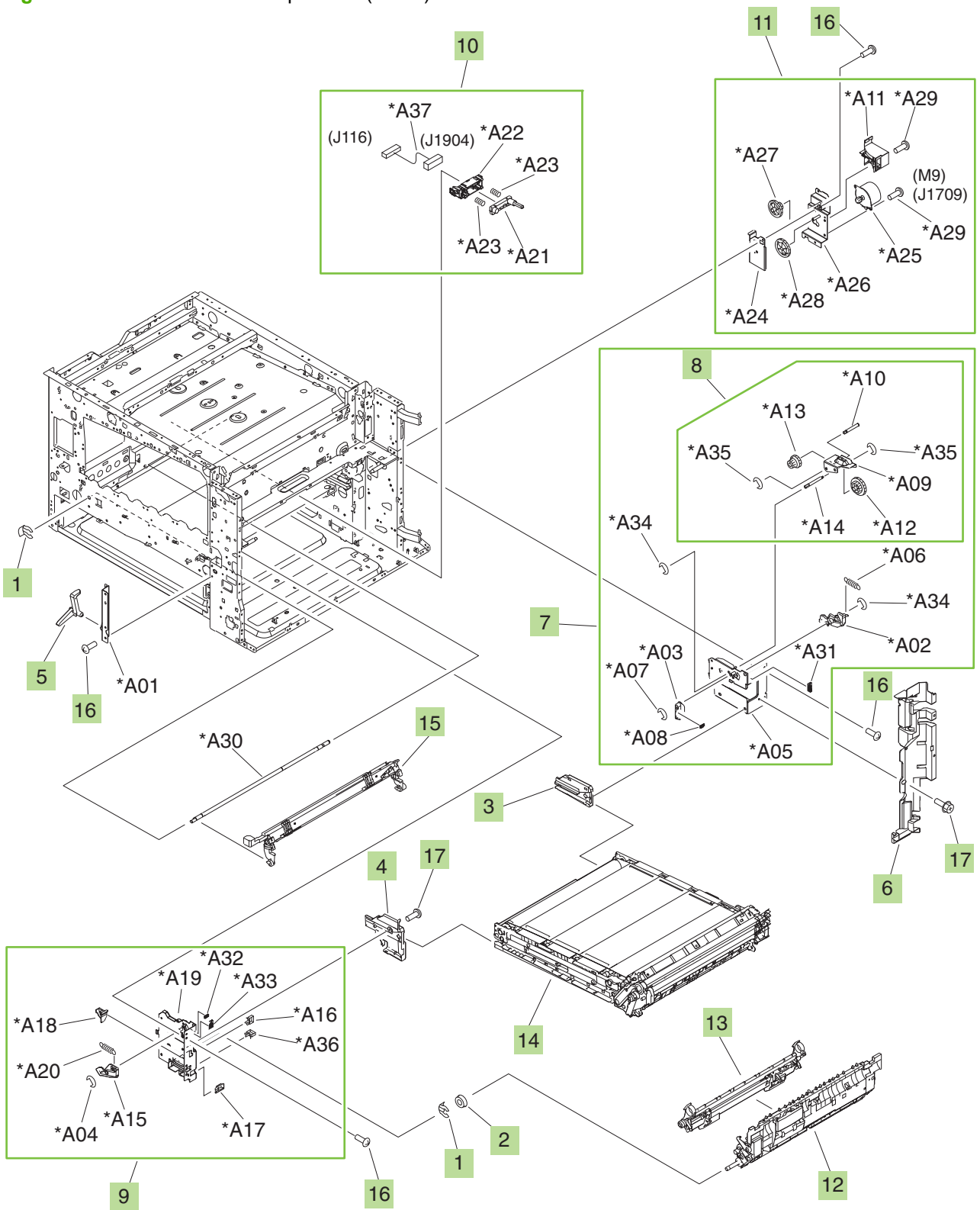


Table 9-6 Printer internal components (3 of 7)

Ref	Description	Part number	Qty
1	Retainer	RC1-8511-000CN	2
2	Bushing	RC1-8734-000CN	1
3	Guide, intermediate transfer belt (ITB)-entrance, rear	RC1-9186-000CN	1
4	Guide, intermediate transfer belt (ITB)-entrance, front	RC1-9185-000CN	1
5	Arm, 1st-estrangement	RC1-9189-000CN	1
6	Cover, internal, right	RC1-9348-000CN	1
7	Intermediate transfer belt (ITB) lock-support rear assembly	RM1-3215-000CN	1
9	Intermediate transfer belt (ITB) lock-support front assembly	RM1-3228-000CN	1
10	Intermediate transfer belt (ITB)-drawer assembly	RM1-3240-000CN	1
11	Intermediate transfer belt (ITB) estrangement-drive assembly	RM1-3280-000CN	1
12	Registration 2nd-transfer assembly kit with service document	Q3931-67909	1
13	2nd-transfer-roller assembly kit	Q3931-67910	1
14	Intermediate transfer belt (ITB) assembly kit	Q3931-67908	1
15	Color-plane-registration (CPR) sensor assembly	RM1-3258-000CN	1
16	Screw, RS, M3x6	XA9-1495-000CN	10
17	Screw, RS, M3x8	XA9-1504-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-7 Printer internal components (4 of 7)

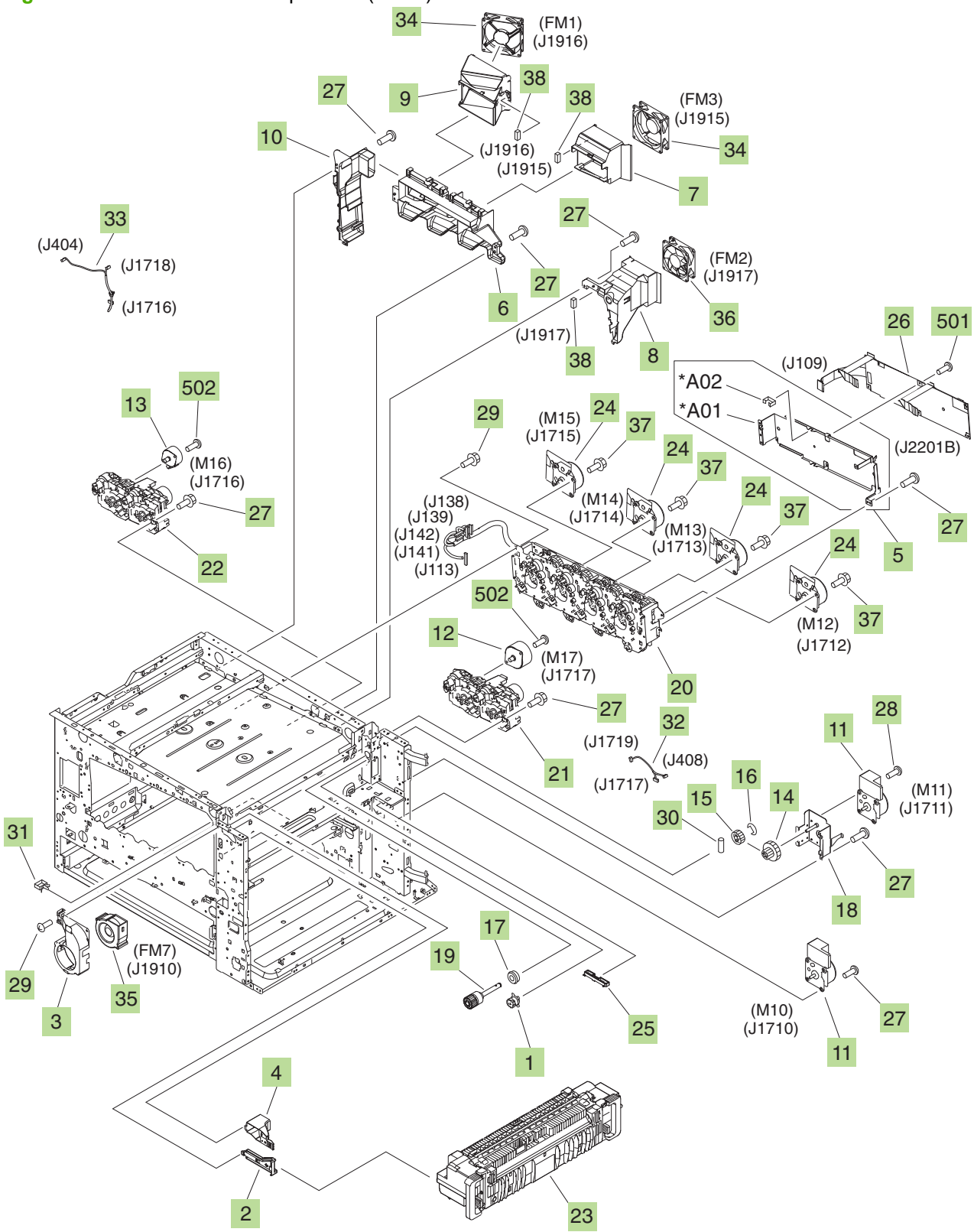


Table 9-7 Printer internal components (4 of 7)

Ref	Description	Part number	Qty
1	Damper, gear	RC1-8925-000CN	1
2	Rail, fixing, front	RC1-8931-000CN	1
3	Duct, air	RC1-8961-000CN	1
4	Duct, face-down joint	RC1-8964-000CN	1
5	Tag PCA-holder assembly	RM1-4402-000CN	1
6	Duct, cartridge	RC1-9276-000CN	1
7	Holder, cartridge-fan	RC1-9277-000CN	1
8	Holder, fixing-fan	RC1-9278-000CN	1
9	Holder, scanner-fan	RC1-9279-000CN	1
10	Duct, scanner-fan	RC1-9309-000CN	1
11	DC motor assembly	RM1-4519-000CN	2
12	Motor, stepping, DC	RK2-1366-000CN	1
13	Motor, stepping, DC	RK2-1370-000CN	1
14	Gear, 83T/25T	RU5-0790-000CN	1
15	Gear, 34T	RU5-0791-000CN	1
16	Ring, E	XD9-0234-000CN	1
17	Bearing, ball	XG9-0586-000CN	1
18	Plate, fixing-motor	RL1-1216-000CN	1
19	Fixing one-way gear assembly	RM1-3247-000CN	1
20	Main drive-unit kit	Q3931-67911	1
21	Toner-cartridge drive-assembly kit with service document	Q3931-67912	1
22	Toner-cartridge drive-assembly kit with service document	Q3931-67913	1
23	Fixing assembly kit, 110-127V, with air filter (air filter is Ref 14 in Printer external panels and covers)	Q3931-67914	1
23	Fixing assembly kit, 220-240V, with air filter (air filter is Ref 14 in Printer external panels and covers)	Q3931-67915	1
24	Drum-motor assembly	RM1-3286-000CN	4
25	Rail, fixing, rear	RC1-8939-000CN	1
26	Memory-tag PCA assembly	RM1-3585-000CN	1
27	Screw, RS, M3x6	XA9-1495-000CN	10
28	Screw, RS, M3x6	XA9-1495-000CN	4
29	Screw, RS, M3x8	XA9-1504-000CN	10
30	Pin, dowel	XD9-0240-000CN	1
31	Saddle, wire	WT2-5694-000CN	17
32	Toner-motor cable	RM1-3383-000CN	1

Table 9-7 Printer internal components (4 of 7) (continued)

Ref	Description	Part number	Qty
33	Toner-motor cable	RM1-3385-000CN	1
34	Fan	RK2-1377-000CN	2
35	Fan	RK2-1382-000CN	1
36	Fan	RK2-1378-000CN	1
37	Screw, TP, M3x6	XA9-1159-000CN	16
38	Connector, snap-tight	VS1-7177-003CN	3
501	Screw, with washer, M3x6	XB2-8300-607CN	5
502	Screw, machined, truss-head, M3x4	XB1-2300-407CN	4

NOTE: Only highlighted parts are orderable.

Figure 9-8 Printer internal components (5 of 7)

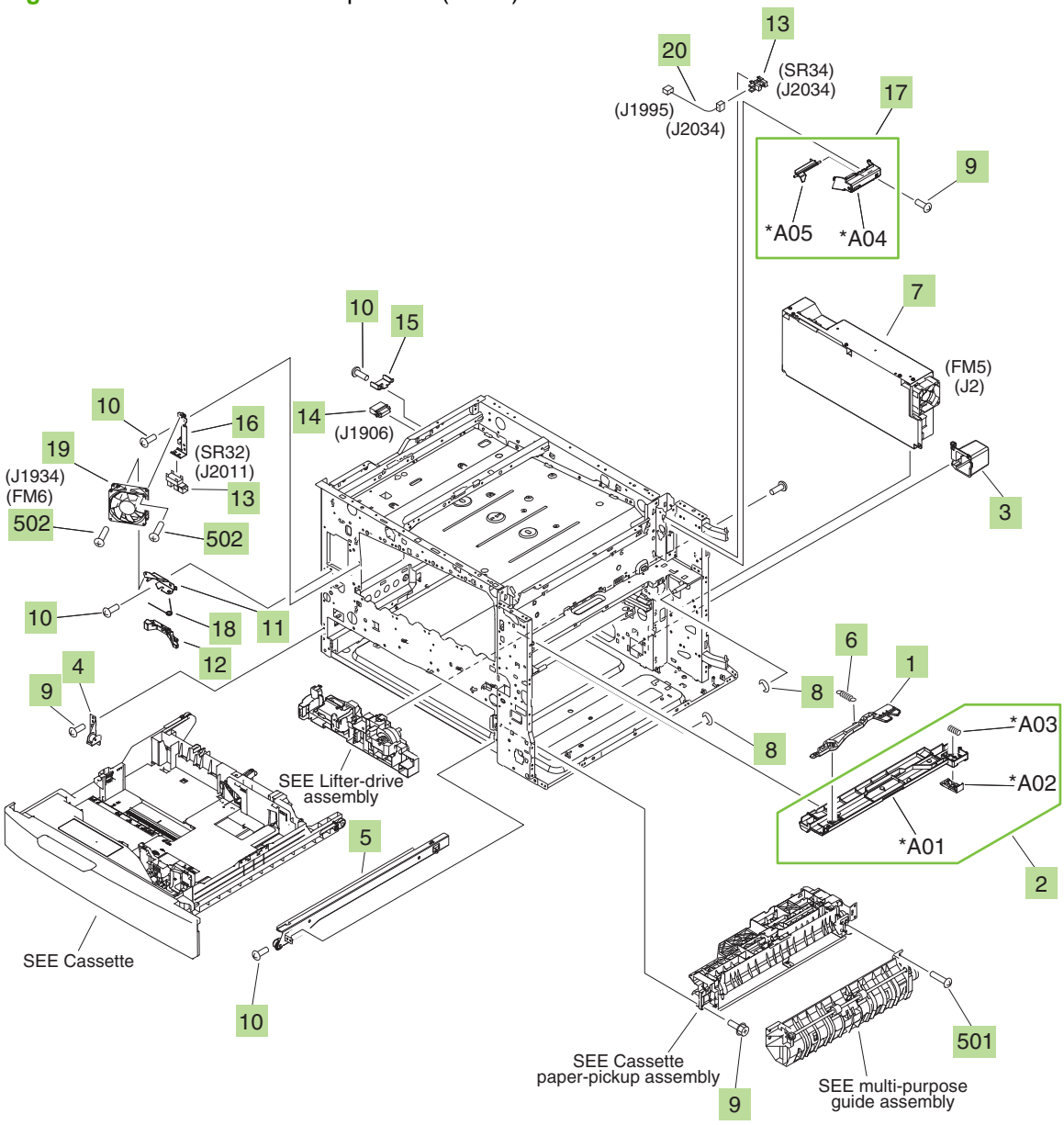


Table 9-8 Printer internal components (5 of 7)

Ref	Description	Part number	Qty
1	Lever, paper-sensing	RC1-8928-000CN	1
2	Intermediate transfer belt (ITB) duct assembly	RM1-4401-000CN	1
3	Cover, cassette back-end	RC1-9201-000CN	1
4	Rail, left, top	RL1-1213-000CN	1
5	Rail, cassette, right	RL1-1215-000CN	1
6	Spring, tension	RU5-2796-000CN	1
7	Low-voltage power-supply assembly	RM1-3594-000CN	1
8	Ring, E	XD9-0234-000CN	2
9	Screw, RS, M3x8	XA9-1504-000CN	10
10	Screw, RS, M3x6	XA9-1495-000CN	10
11	Plate, fan-fixing, front	RC1-9190-000CN	1
12	Lever, door-interlock shutter	RC1-9220-000CN	1
13	Photo interrupter, TLP1243	WG8-5696-000CN	2
14	Connector, drawer	VS1-7258-000CN	1
15	Plate, drawer-guard	RC1-9235-000CN	1
16	Plate, sensor, front	RC1-9246-000CN	1
17	Guide-sensor assembly	RM1-4400-000CN	1
18	Spring, torsion	RC1-9244-000CN	1
19	Fan	RK2-1378-000CN	1
20	Cable, fixing open-sensor	RM1-5029-000CN	1
501	Screw, tapping, truss-head, M4x10	XB4-7401-005CN	4
502	Screw, TP, M3x30	XB6-7303-005CN	2

NOTE: Only highlighted parts are orderable.

Figure 9-9 Printer internal components (6 of 7)

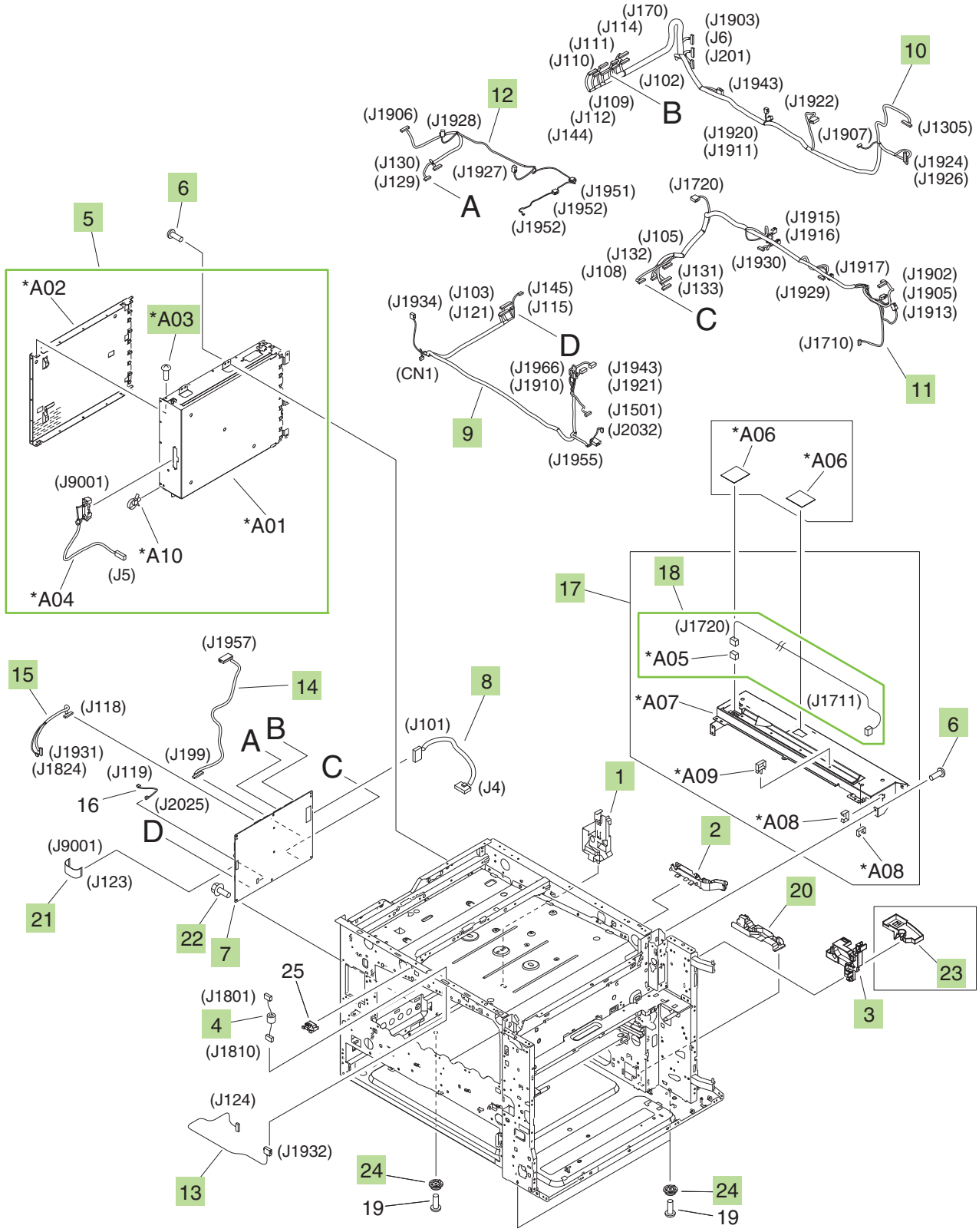


Table 9-9 Printer internal components (6 of 7)

Ref	Description	Part number	Qty
1	Guide, cable, C	RC1-9308-000CN	1
2	Guide, cable, D	RC1-9312-000CN	1
3	Guide, cable, E	RC1-9318-000CN	1
4	Panel cable	RM1-3389-000CN	1
5	Formatter-case assembly	RM1-3253-000CN	1
6	Screw, RS, M3x6	XA9-1495-000CN	20
7	DC-controller PCA assembly	RM1-6642-000CN	1
8	DC-controller power cable	RM1-3610-000CN	1
9	Front cable	RM1-3617-000CN	1
10	Rear-lower cable	RM1-3618-000CN	1
11	Rear-upper cable	RM1-3619-000CN	1
12	Scanner-joint cable	RM1-3620-000CN	1
13	Panel-joint cable	RM1-3622-000CN	1
14	Interface-joint cable	RM1-3623-000CN	1
15	Color-plane-registration (CPR)-joint cable	RM1-3624-000CN	1
16	Waste-toner-sensor cable	RM1-3640-000CN	1
17	Rear-cover-mount plate assembly	RM1-3354-000CN	1
18	Fixing-motor cable	RM1-3217-000CN	1
20	Guide, cable, B	RC1-9307-000CN	1
21	Cable, flexible flat	RK2-1356-000CN	1
22	Screw, RS, M3x8	XA9-1449-000CN	8
23	Tray, screw	RC1-9256-000CN	1
24	Foot, rubber	RC1-9208-000CN	3
A03	Screw, RS, M3x6	XA9-1495-000CN	11

NOTE: Only highlighted parts are orderable.

Figure 9-10 Printer internal components (7 of 7)

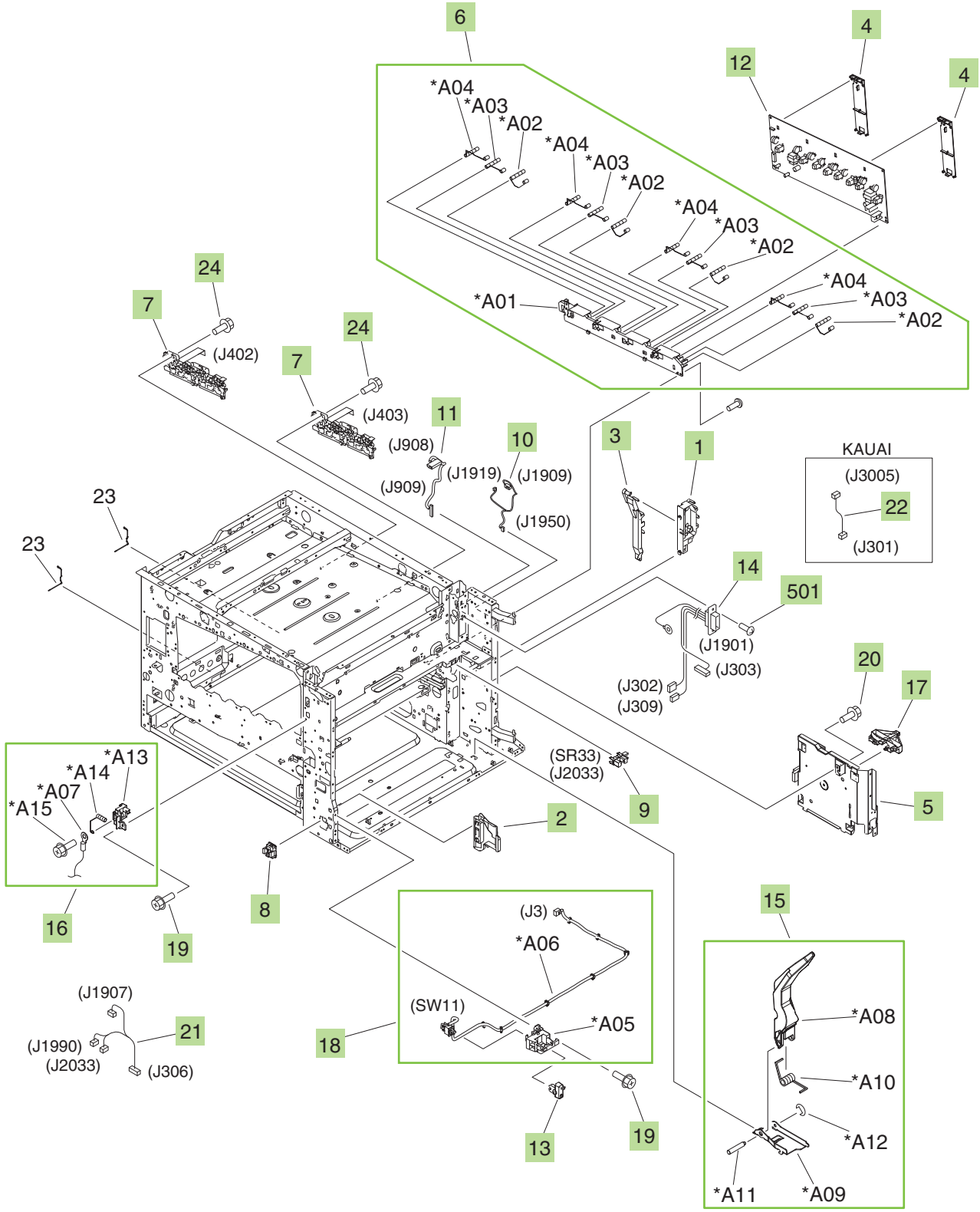


Table 9-10 Printer internal components (7 of 7)

Ref	Description	Part number	Qty
1	Guide, cable, A	RC1-9306-000CN	1
2	Cover, main-switch	RC1-9211-000CN	1
3	Guide, cable, F	RC1-9323-000CN	1
4	Plate, high-voltage transmission (HVT-A) guard	RC1-9326-000CN	1
5	Fixing power-supply assembly	RM1-3218-000CN	1
6	Cartridge contact-holder assembly	RM1-3254-000CN	1
7	Cartridge-interface assembly kit with service document	Q3931-67917	2
8	Holder, high-voltage-connector	RC1-9328-000CN	1
9	Photo interrupter, TLP1243	WG8-5696-000CN	1
10	Face-down unit-1 cable	RM1-3390-000CN	1
11	Face-down unit-2 cable	RM1-3391-000CN	1
12	High-voltage-transfer A PCA assembly	RM1-3582-000CN	2
13	Button, main-switch	RC1-9300-000CN	1
14	Fixing-joint cable	RM1-3612-000CN	1
15	T2 guide-arm assembly	RM1-4411-000CN	1
16	Fixing-bias cable assembly	RM1-4409-000CN	1
17	Guide, fixing-cable	RC1-9332-000CN	1
18	Main switch-holder assembly	RM1-3252-000CN	1
19	Screw, RS, M3x8	XA9-1504-000CN	47
20	Screw, RS, M3x6	XA9-1495-000CN	54
21	Cable TP/T2 open-sensor	RM1-5030-000CN	1
22	Cable, MFP AC	RM1-3599-000CN	1
24	Screw, RS, M13x12	XA9-1801-000CN	6
501	Screw, machined, truss-head, M4x8	XB1-2400-805CN	2

NOTE: Only highlighted parts are orderable.

Figure 9-11 Printer multi-purpose-drive assembly

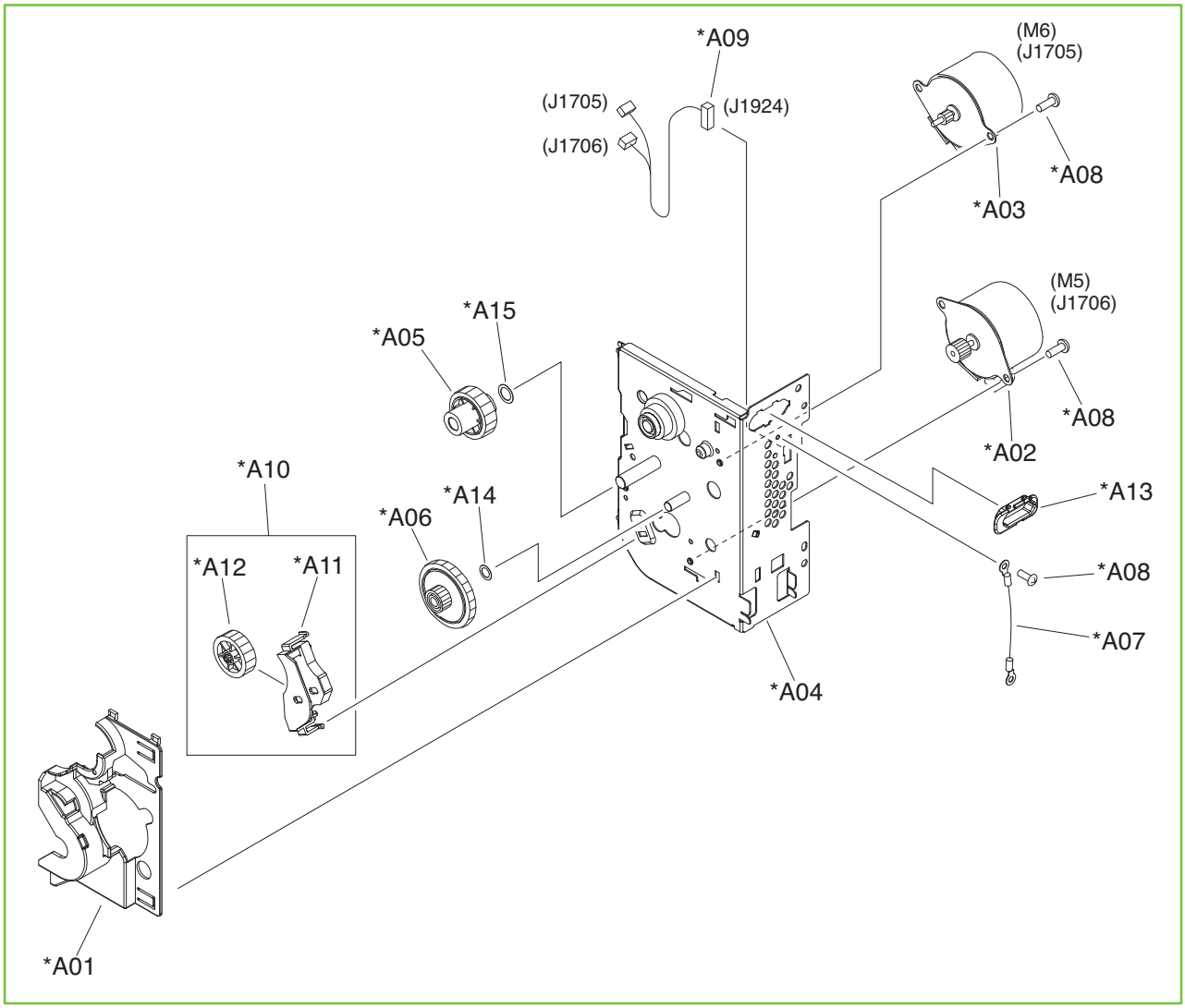


Table 9-11 Printer multi-purpose-drive assembly

Ref	Description	Part number	Qty
All	Multi-purpose-drive assembly	RM1-3366-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-12 Printer lifter-drive assembly

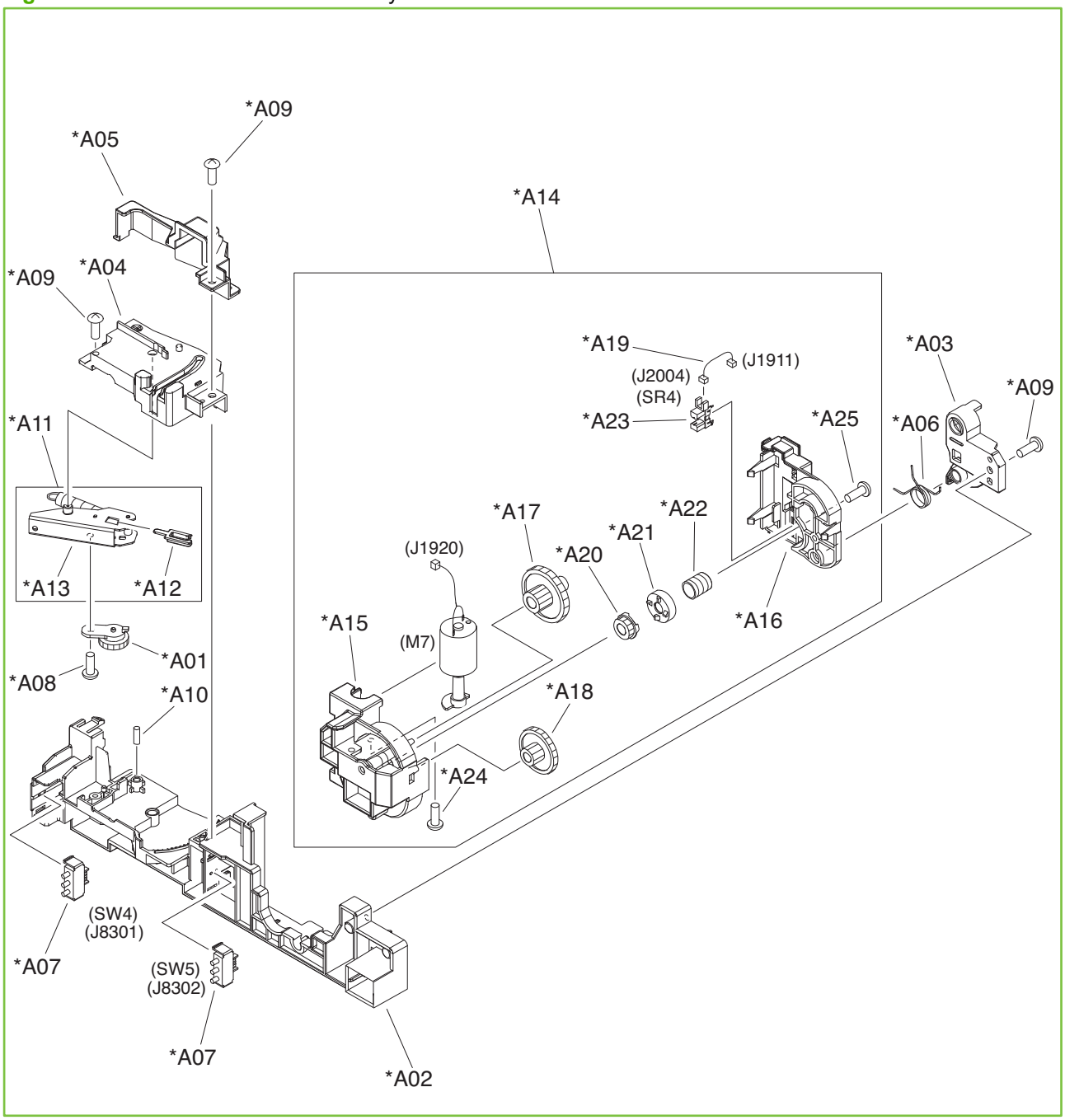


Table 9-12 Printer lifter-drive assembly

Ref	Description	Part number	Qty
All	Lifter-drive-assembly kit	RM1-3222-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-13 Printer cassette

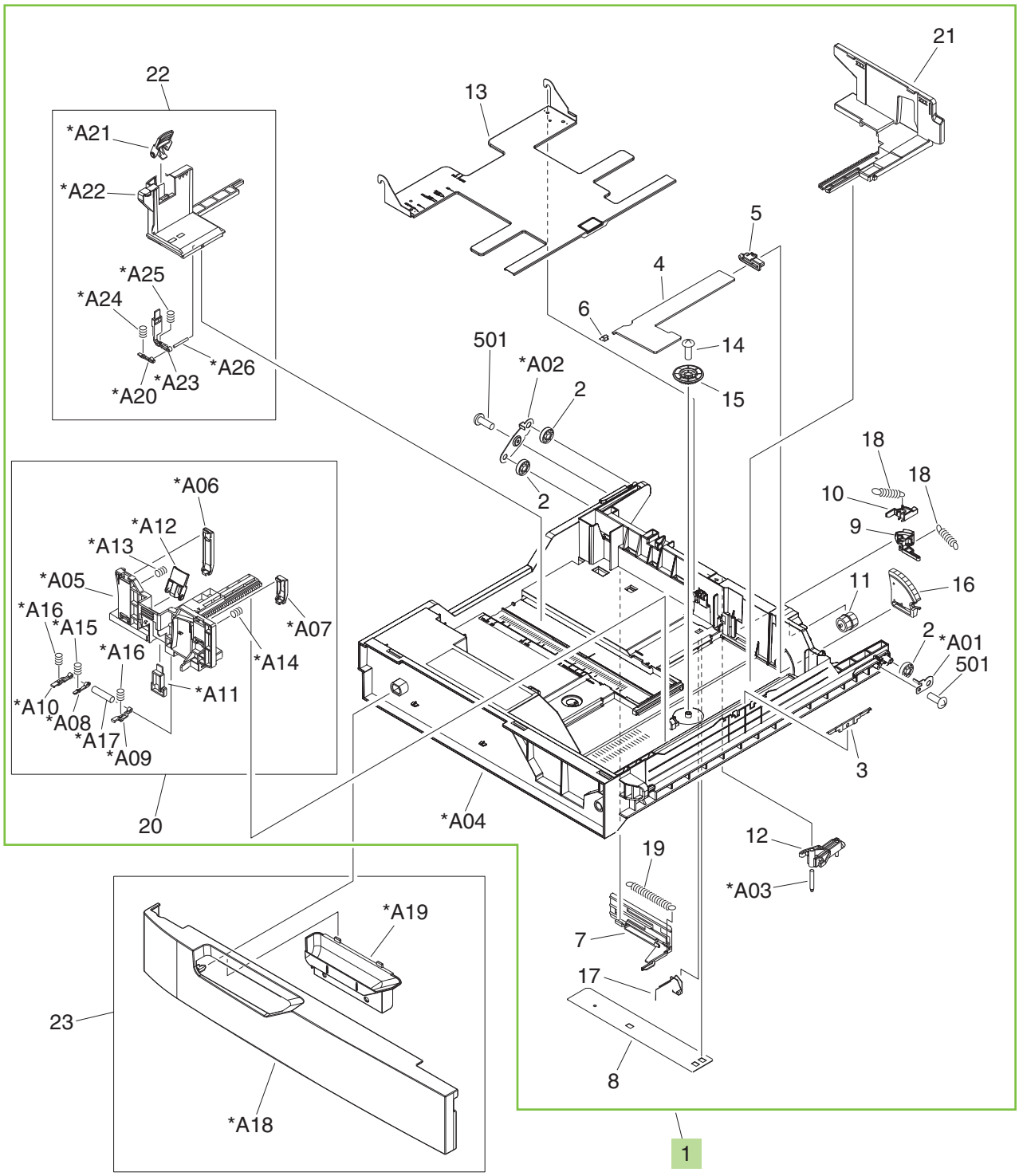


Table 9-13 Printer cassette

Ref	Description	Part number	Qty
1	Cassette-assembly kit with service document	Q3931-67918	1

NOTE: Only highlighted parts are orderable.

Figure 9-14 Printer cassette paper-pickup assembly

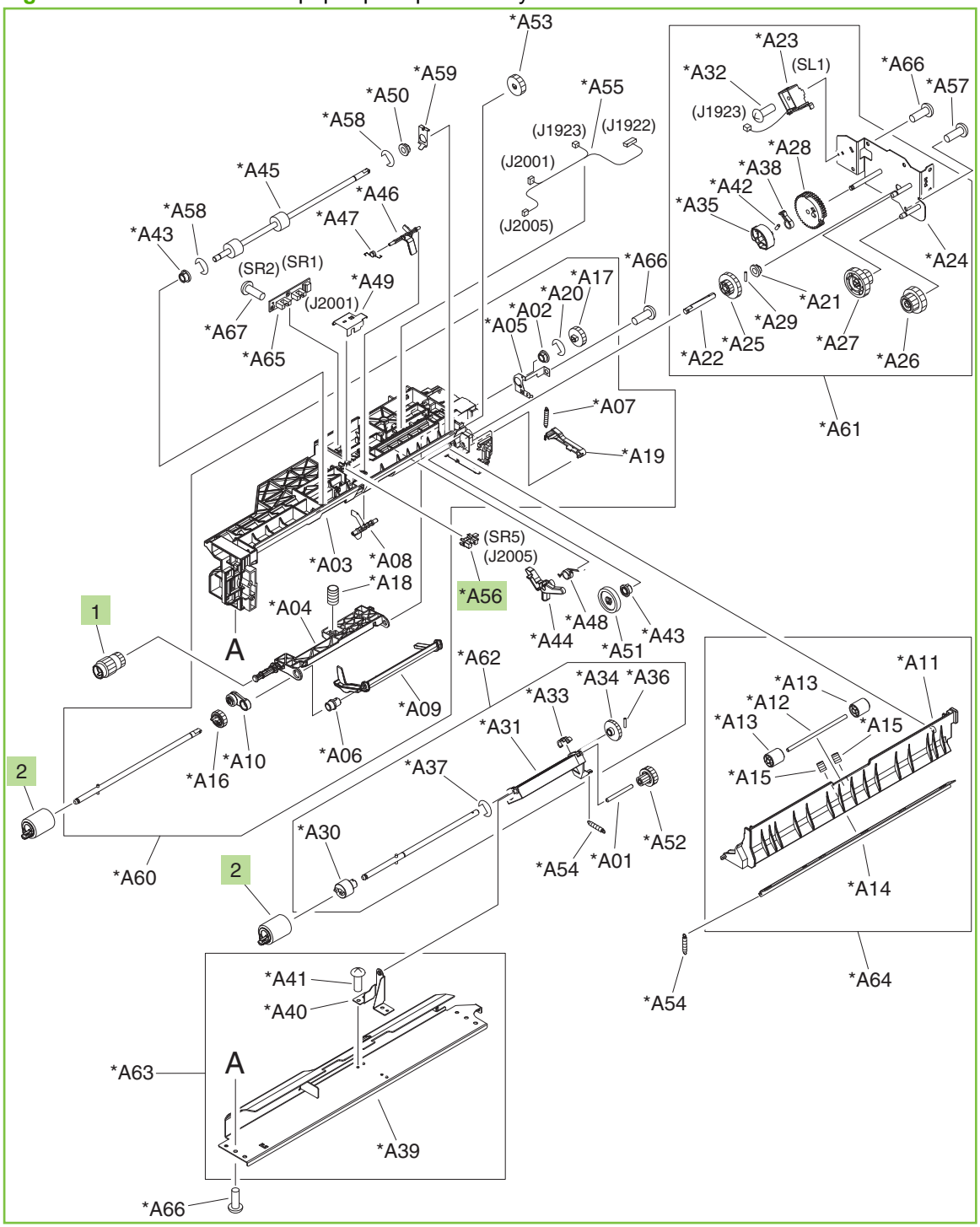


Table 9-14 Printer cassette paper-pickup assembly

Ref	Description	Part number	Qty
All	Cassette paper-pickup assembly	RM1-3206-000CN	1
1, 2	Tray 2 pickup, feed-roller kit	Q3931-67919	1
A56	Photo interrupter, TLP1243	WG8-5696-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-15 Printer multi-purpose paper-pickup assembly

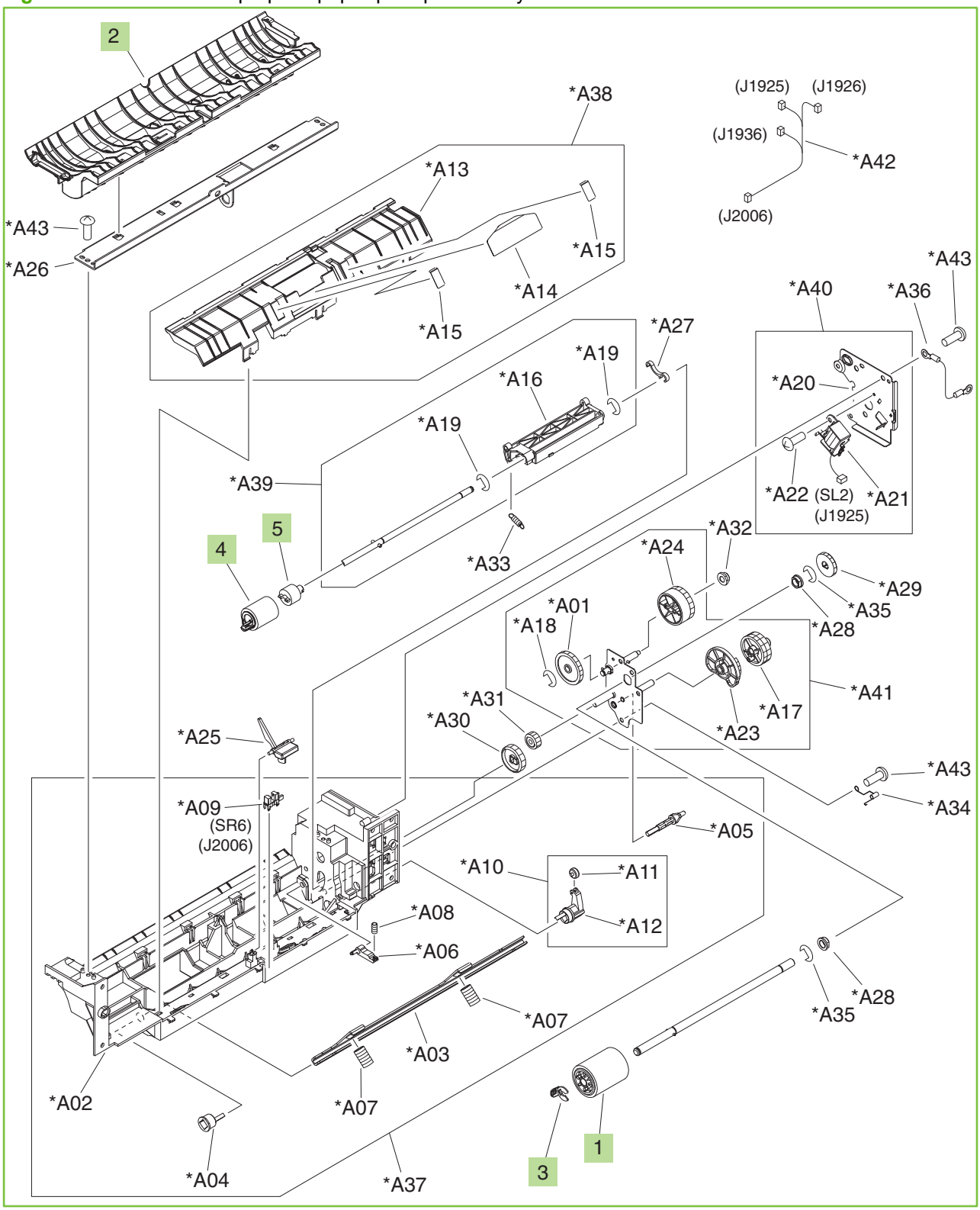


Table 9-15 Printer multi-purpose paper-pickup assembly

Ref	Description	Part number	Qty
All	Multi-purpose paper-pickup assembly	RM1-3345-000CN	1
1, 4	Tray 1 pickup, retard-roller kit	Q3931-67920	1
2	Guide, multi-purpose, upper	RC1-8526-000CN	1
3	Retainer	RC1-8511-000CN	1
5	Limiter, torque	RC1-8519-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-16 Printer multi-purpose-tray assembly

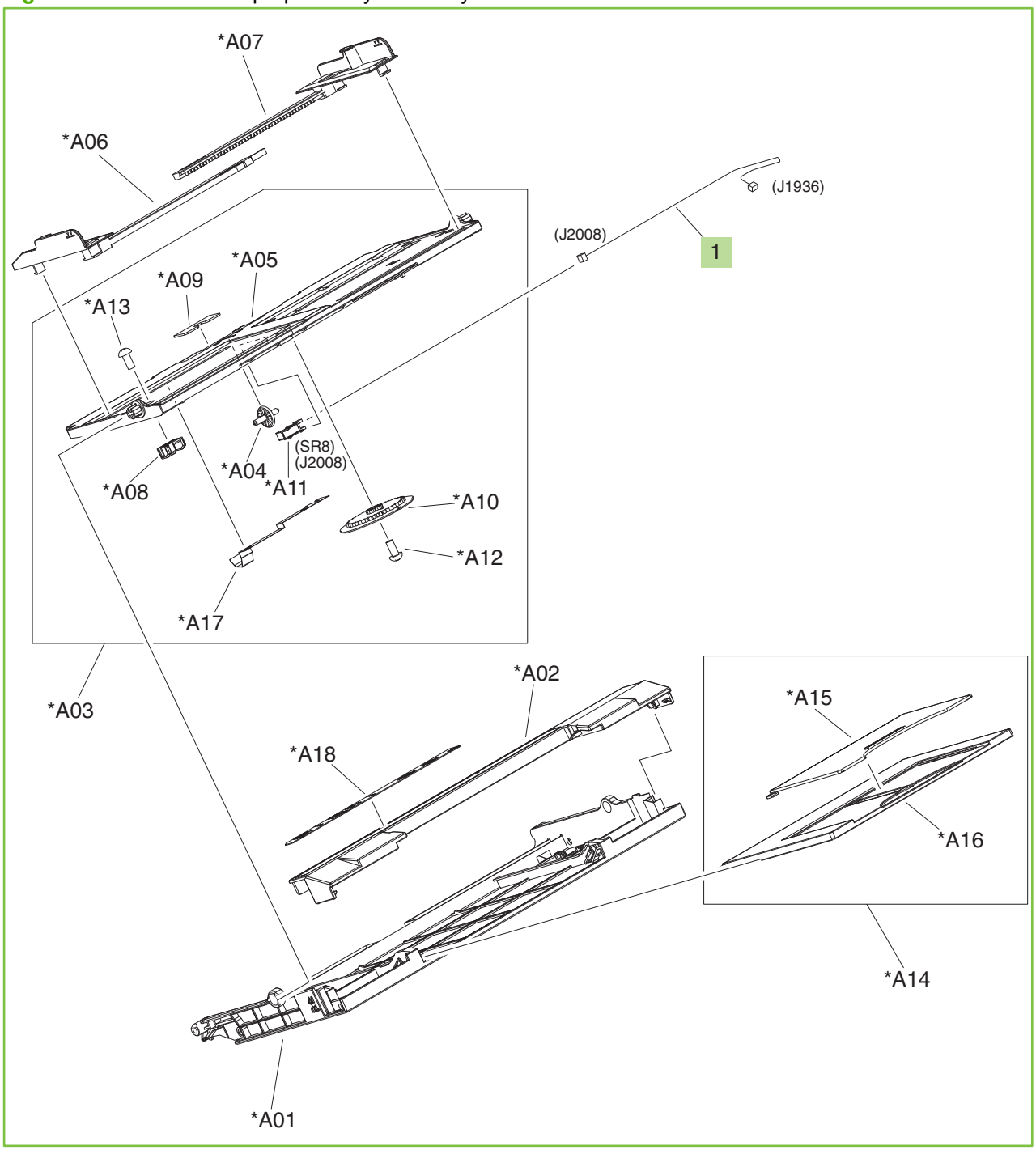


Table 9-16 Printer multi-purpose-tray assembly

Ref	Description	Part number	Qty
All	Multi-purpose-tray assembly	RM1-3341-000CN	1
1	Multi-tray cable	RM1-3630-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-17 Printer multi-purpose-guide assembly

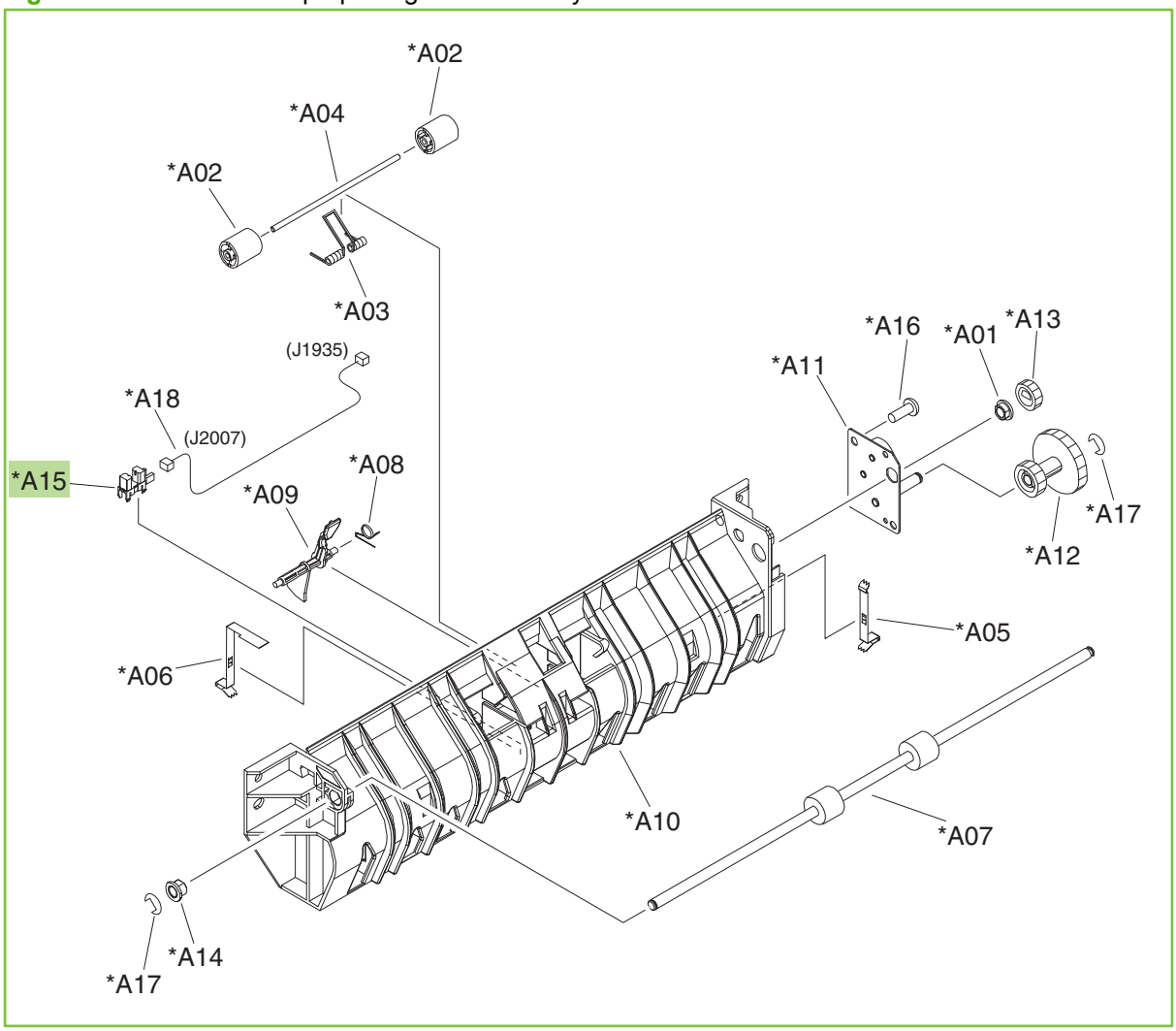


Table 9-17 Printer multi-purpose-guide assembly

Ref	Description	Part number	Qty
All	Multi-purpose-guide assembly	RM1-3291-000CN	1
A15	Photo interrupter, TLP1243	WG8-5696-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-18 Printer face-down paper-delivery assembly

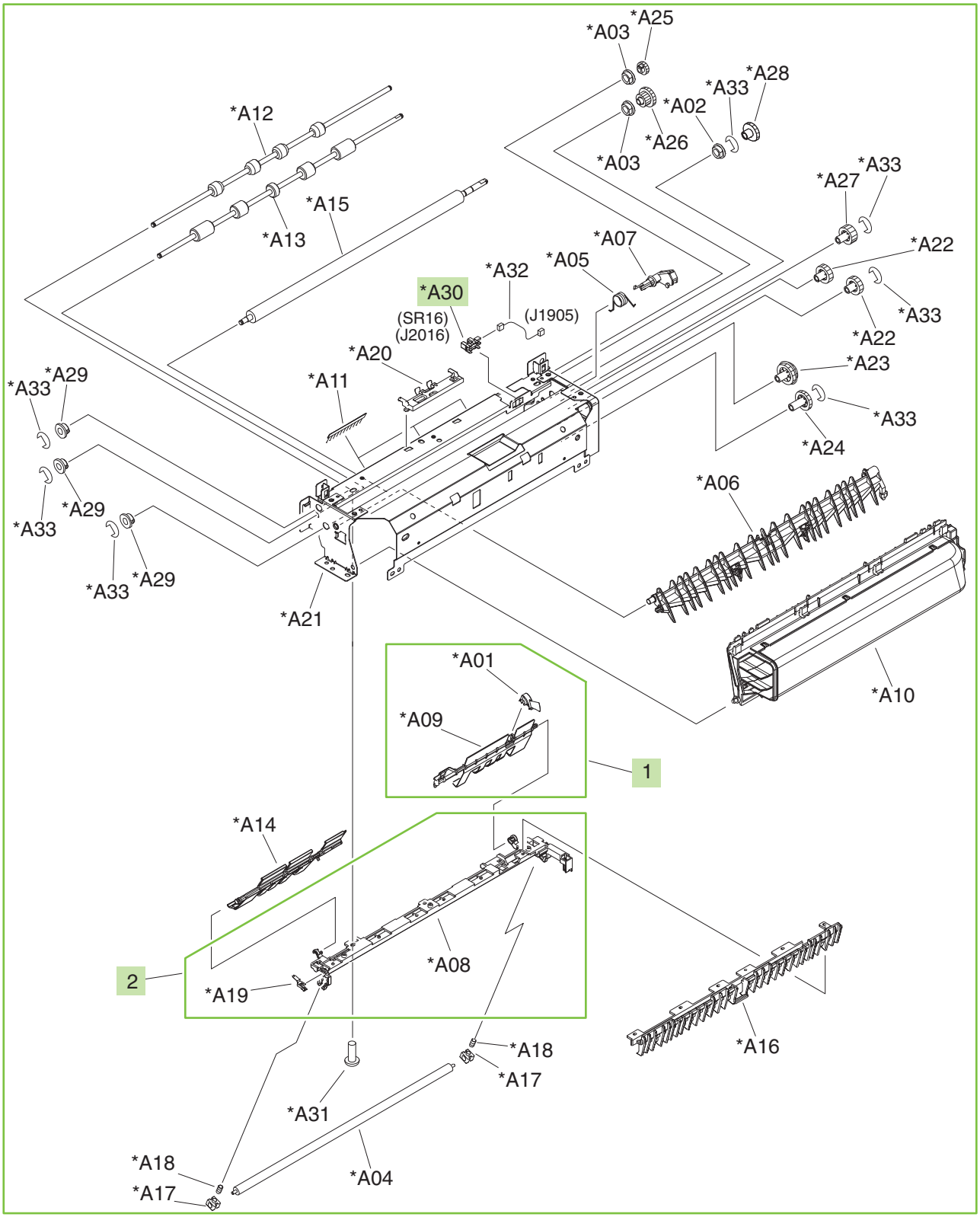


Table 9-18 Printer face-down paper-delivery assembly

Ref	Description	Part number	Qty
All	Face-down paper-delivery assembly	RM1-3293-000CN	1
1	Face-down full-flag assembly	RM1-4391-000CN	1
2	Paper-delivery-guide assembly	RM1-4407-000CN	1
A30	Photo interrupter, TLP1243	WG8-5696-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-19 Printer duplexing-reverse assembly

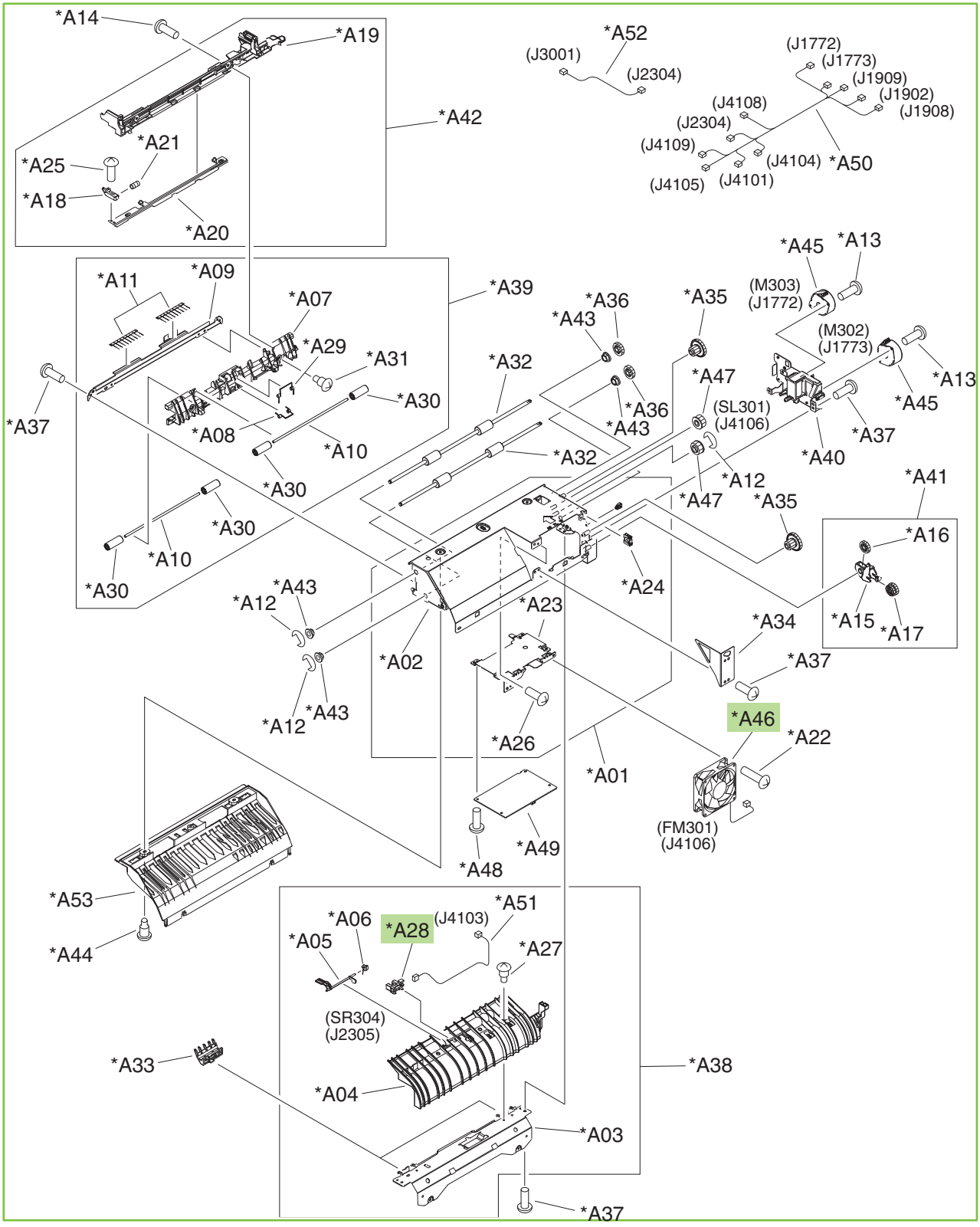


Table 9-19 Printer duplexing-reverse assembly

Ref	Description	Part number	Qty
All	Duplexing-reverse assembly	RM1-3652-000CN	1
A28	Photo interrupter, TLP1243	WG8-5696-000CN	1
A46	Fan	RK2-1378-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-20 Printer duplexing-feed assembly

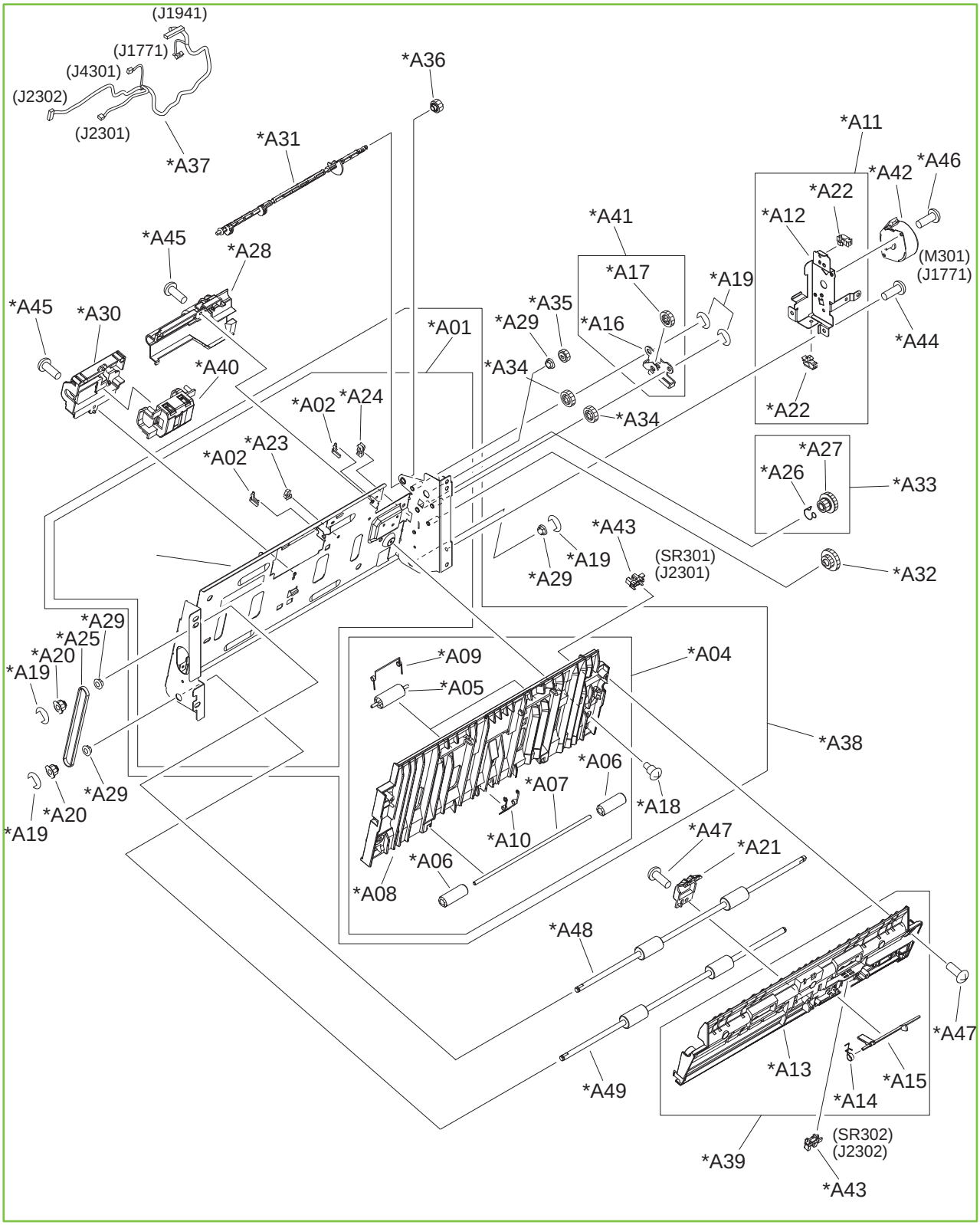


Table 9-20 Printer duplexing-feed assembly

Ref	Description	Part number	Qty
All	Duplexing-feed assembly	RM1-3665-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-21 Printer PCA assembly location

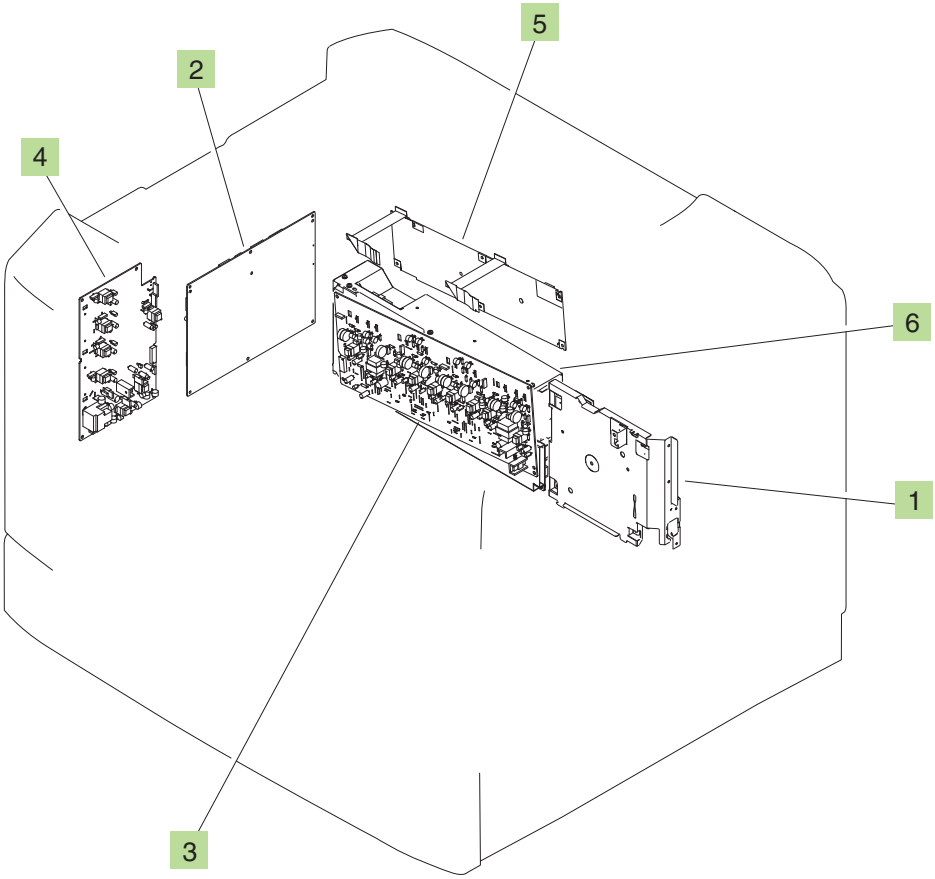


Table 9-21 Printer PCA assembly location

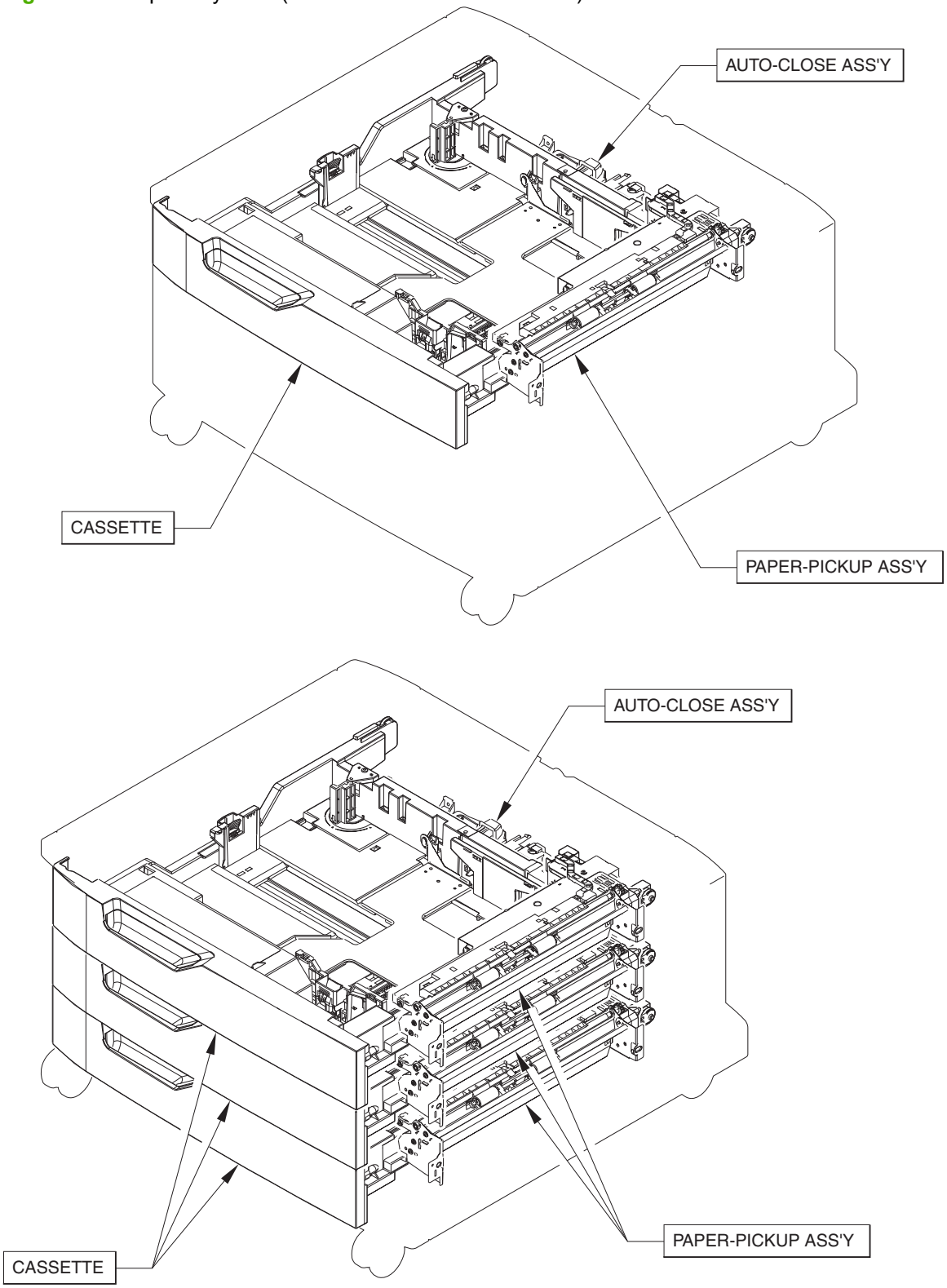
Ref	Description	Part number	Qty
1	Fixing power-supply assembly	RM1-3218-000CN	1
2	DC controller PCA assembly	RM1-6642-000CN	1
3	High-voltage-transfer A PCA assembly	RM1-3582-000CN	1
4	High-voltage-transfer B PCA assembly	RM1-5475-000CN	1
5	Memory-tag PCA assembly	RM1-3585-000CN	1
6	Low-voltage power-supply assembly	RM1-3594-000CN	1

NOTE: Only highlighted parts are orderable.

Input-accessory devices

Input trays

Figure 9-22 Input-tray units (1x500-sheet and 3x500-sheet)



NOTE: Only highlighted parts are orderable.

Figure 9-23 Input-tray main body (1x500-sheet)

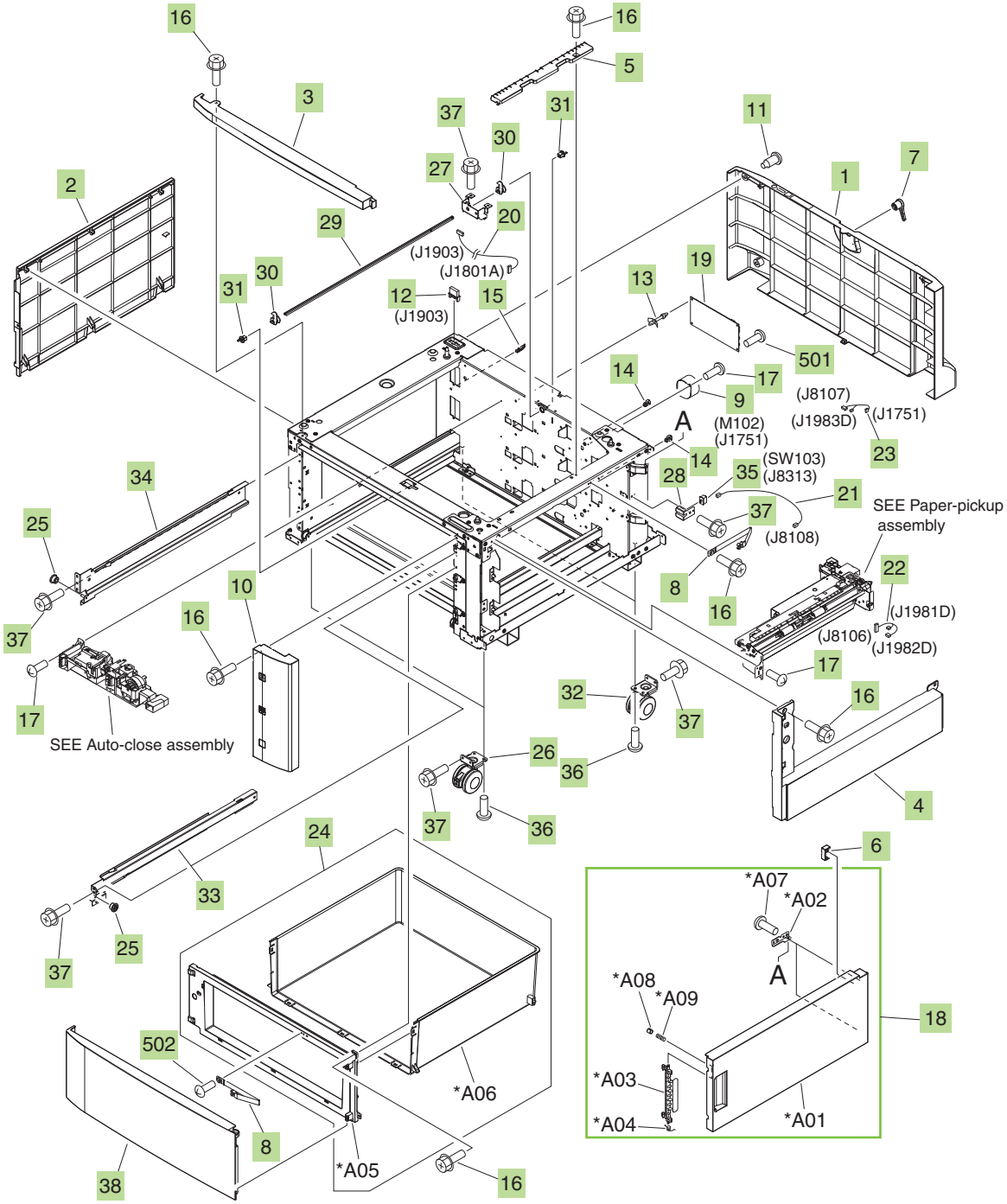


Table 9-22 Input-tray main body (1x500-sheet)

Ref	Description	Part number	Qty
1	Cover, rear	RC1-9871-000CN	1
2	Cover, left	RC1-9872-000CN	1
3	Cover, front-upper	RC1-9873-000CN	1
4	Cover, right-lower	RC1-9874-000CN	1
5	Guide, paper-feed roller	RC1-9881-000CN	1
6	Stopper, right-door	RC1-9882-000CN	1
7	Lever, lock	RC1-9883-000CN	1
8	Tape, door	RC1-9884-000CN	2
9	Motor, stepping, DC	RK2-1331-000CN	1
10	Cover, right-front	RL1-1322-000CN	1
11	Screw, stepped	RS5-9099-000CN	4
12	Connector, drawer	VS1-7257-012CN	1
13	Support, PCA	VT2-0001-008CN	2
14	Saddle, wire	WT2-5694-000CN	2
15	Clamp, cable	WT2-5738-000CN	1
16	Screw, RS, M4x8	XA9-1448-000CN	13
14	Screw, TP, M3x6	XA9-1469-000CN	7
15	Right-door assembly	RM1-3538-000CN	1
19	Paper-feed PCA assembly	RM1-3569-000CN	1
20	Cable, pickup-option drawer	RM1-3571-000CN	1
21	Cable, pickup-option door switch	RM1-3572-000CN	1
22	Cable, option-sensor PCA connect	RM1-3574-000CN	1
23	Cable, paper-pickup option	RM1-3575-000CN	1
24	Stock-box assembly	RM1-3539-000CN	1
25	Roller, rail	RC1-9231-000CN	4
26	Caster, double-lock, front	RC1-9896-000CN	2
27	Support, lock-shaft	RC1-9900-000CN	1
28	Plate, switch-cover	RC1-9901-000CN	1
29	Shaft, lock	RC1-9912-000CN	1
30	Arm, lock	RC1-9913-000CN	2
31	Bushing	RC1-9915-000CN	2
32	Caster, rear	RC1-9917-000CN	2
33	Rail, cassette, right	RL1-1310-000CN	2
34	Rail, cassette, left	RL1-1311-000CN	2

Table 9-22 Input-tray main body (1x500-sheet) (continued)

Ref	Description	Part number	Qty
35	Switch, button	WC2-5512-000CN	1
36	Screw, with washer, M5x12	XA9-0912-000CN	8
37	Screw, RS, M4x8	XA9-1448-000CN	75
38	Door, stock	RC1-9921-000CN	1
501	Screw, with washer, M3x6	XB2-8300-607CN	2
502	Screw, tapping, pan-head, M4x10	XB4-7401-006CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-24 Input-tray main body (3x500-sheet)

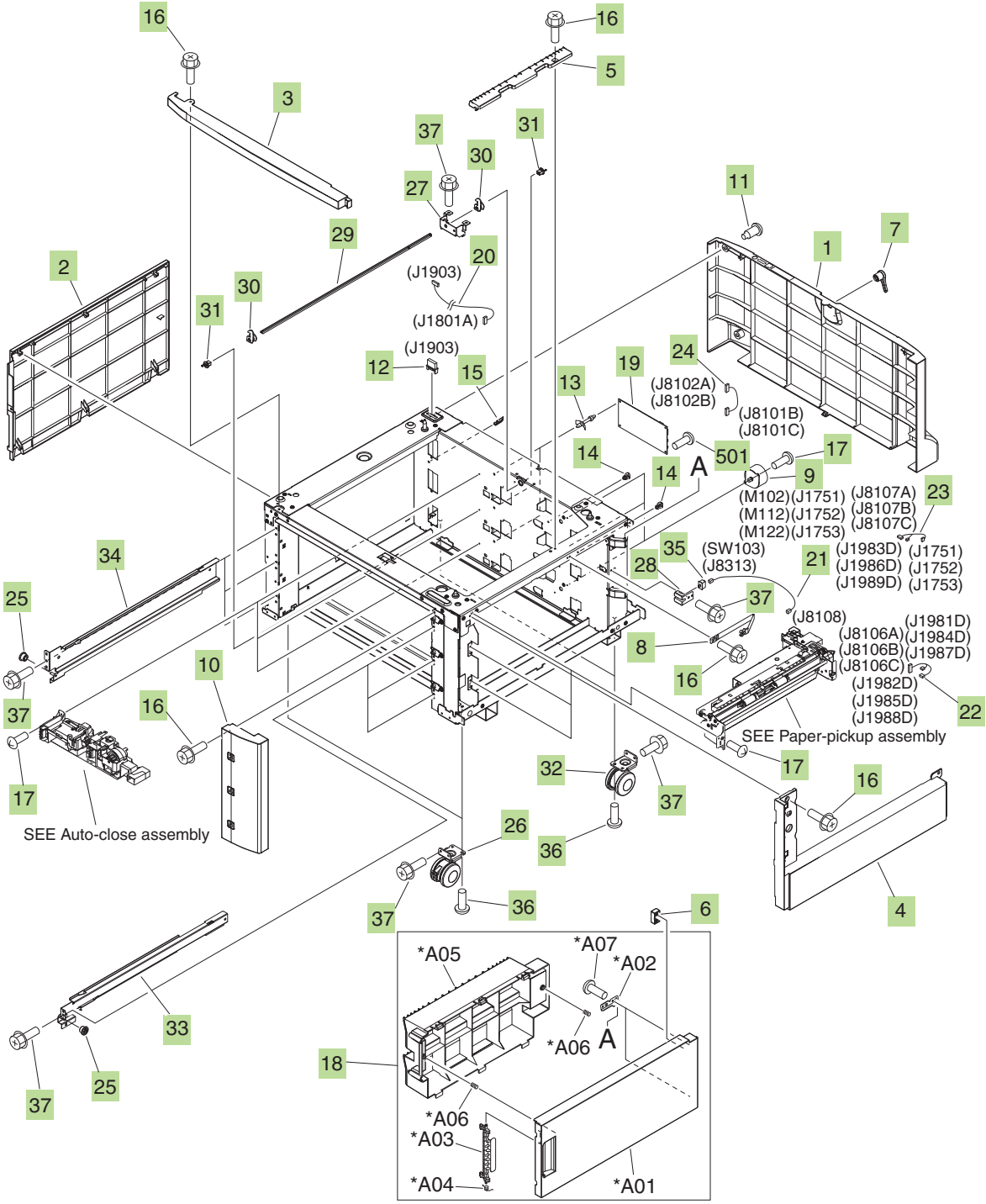


Table 9-23 Input-tray main body (3x500-sheet)

Ref	Description	Part number	Qty
1	Cover, rear	RC1-9871-000CN	1
2	Cover, left	RC1-9872-000CN	1
3	Cover, front-upper	RC1-9873-000CN	1
4	Cover, right-lower	RC1-9874-000CN	1
5	Guide, paper-feed roller	RC1-9881-000CN	1
6	Stopper, right-door	RC1-9882-000CN	1
7	Lever, lock	RC1-9883-000CN	1
8	Tape, door	RC1-9884-000CN	1
9	Motor, stepping, DC	RK2-1331-000CN	3
10	Cover, right-front	RL1-1321-000CN	1
11	Screw, stepped	RS5-9099-000CN	4
12	Connector, drawer	VS1-7257-012CN	1
13	Support, PCA	VT2-001-008CN	6
14	Saddle, wire	WT2-5694-000CN	2
15	Clamp, cable	WT2-5738-000CN	1
16	Screw, RS, M4x8	XA9-1448-000CN	10
17	Screw, TP, M3x6	XA9-1469-000CN	21
18	Right-door assembly	RM1-3537-000CN	1
19	Paper-feed PCA assembly	RM1-3569-000CN	3
20	Cable, paper-pickup-option drawer	RM1-3571-000CN	1
21	Cable, pickup-option door switch	RM1-3572-000CN	1
22	Cable, option-sensor PCA connect	RM1-3574-000CN	3
23	Cable, paper-pickup option	RM1-3575-000CN	3
24	Cable, pickup-option PCA connect	RM1-3573-000CN	2
25	Roller, rail	RC1-9231-000CN	6
26	Caster, double-lock, front	RC1-9896-000CN	2
27	Support, lock-shaft	RC1-9900-000CN	1
28	Plate, switch-cover	RC1-9901-000CN	1
29	Shaft, lock	RC1-9912-000CN	1
30	Arm, lock	RC1-9913-000CN	2
31	Bushing	RC1-9915-000CN	2
32	Caster, rear	RC1-9917-000CN	2
33	Rail, cassette, right	RL1-1310-000CN	3
34	Rail, cassette, left	RL1-1311-000CN	3

Table 9-23 Input-tray main body (3x500-sheet) (continued)

Ref	Description	Part number	Qty
35	Switch, button	WC2-5512-000CN	1
36	Screw, with washer, M5x12	XA9-0912-000CN	8
37	Screw, RS, M4x8	XA9-1448-000CN	77
501	Screw, with washer, M3x6	XB2-8300-607CN	6

NOTE: Only highlighted parts are orderable.

Figure 9-25 Input-tray auto-close assembly

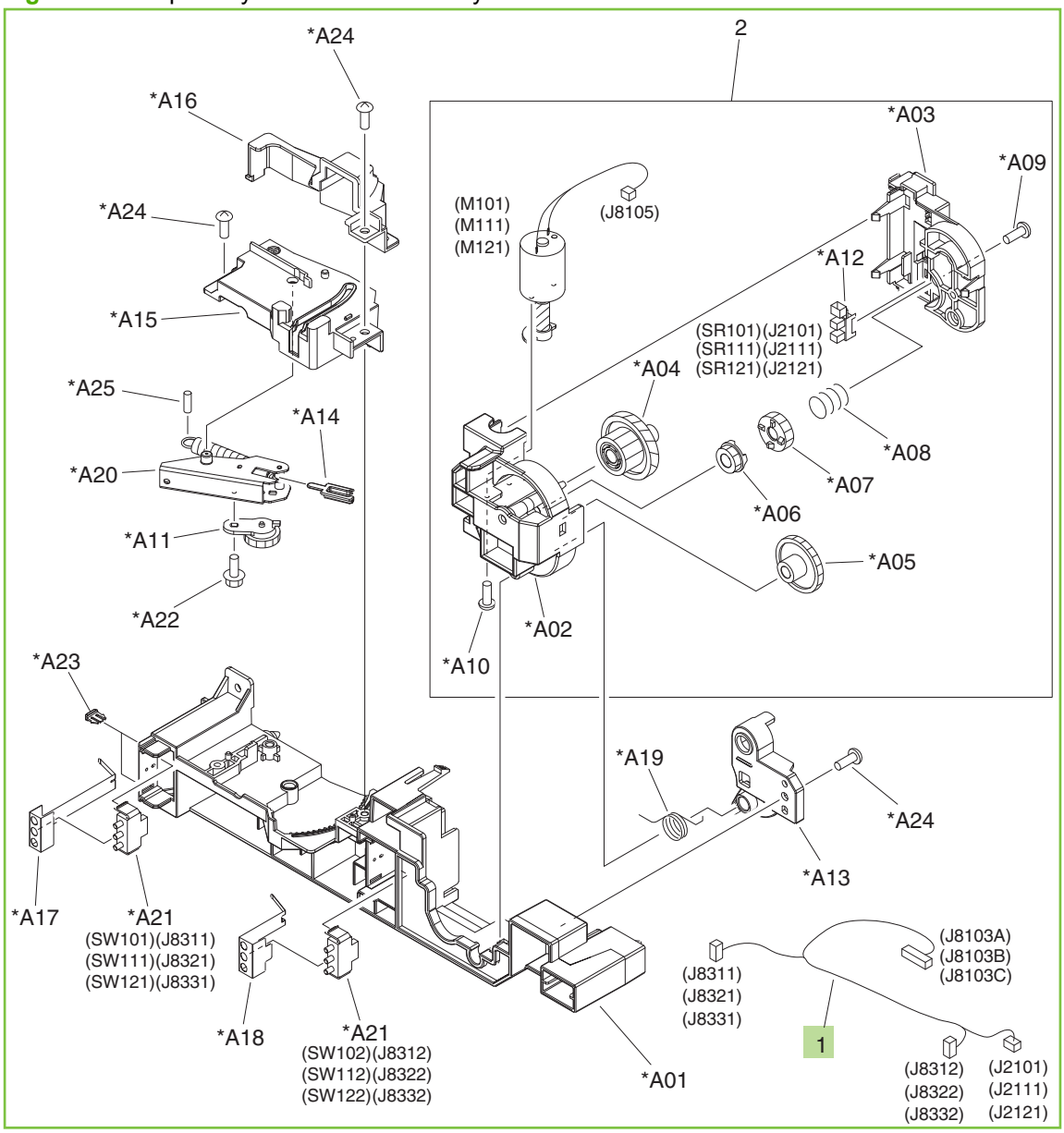


Table 9-24 Input-tray auto-close assembly

Ref	Description	Part number	Qty
All	Auto-close assembly, 1x500-sheet	RM1-3531-040CN	1
All	Auto-close assembly, 3x500-sheet	RM1-3531-040CN	3
1	Cable, pickup-option lifter unit	RM1-3576-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-26 Input-tray cassette

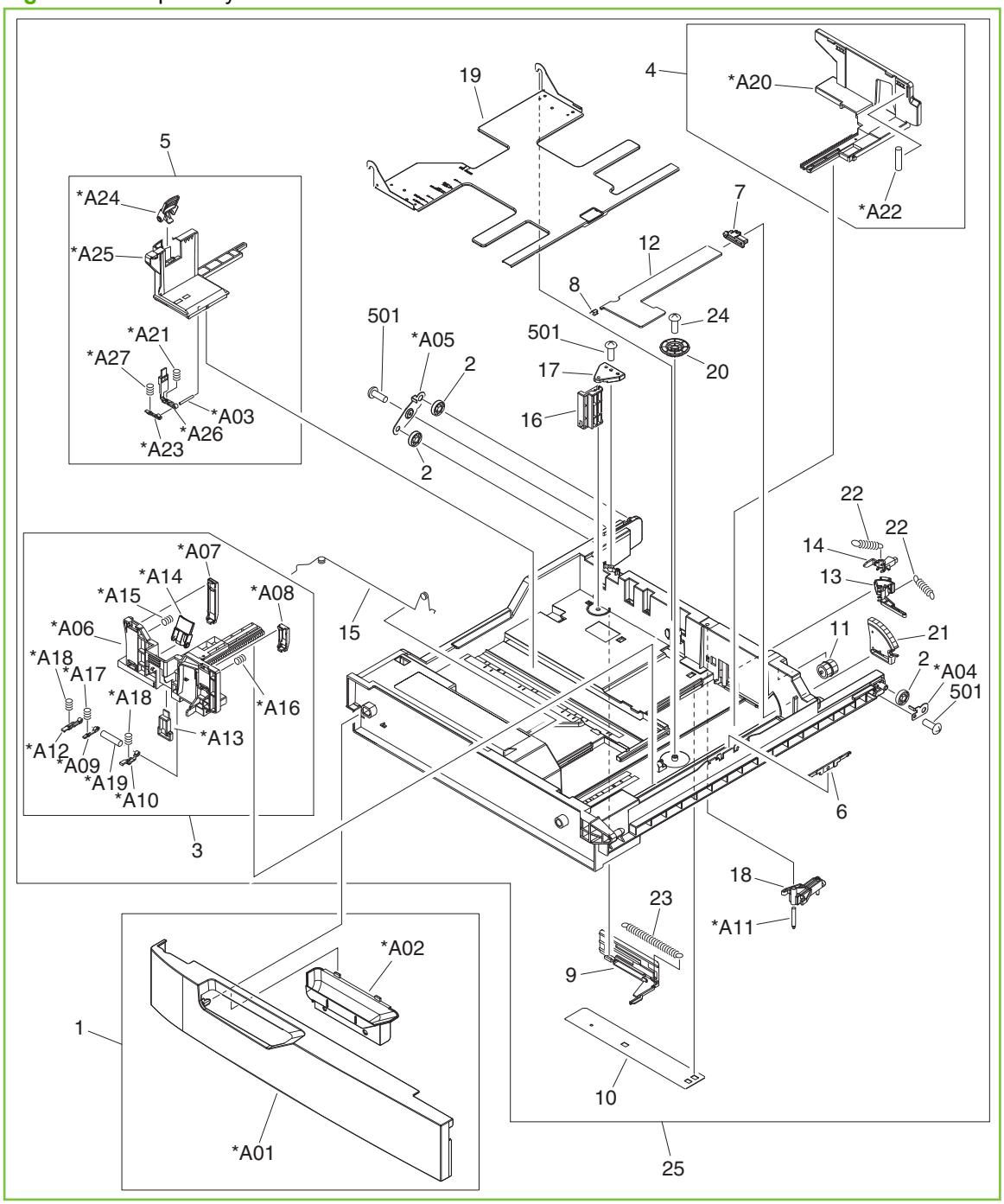


Table 9-25 Input-tray cassette

Ref	Description	Part number	Qty
All	Cassette (1x500-sheet)	RM1-3529-000CN	1
All	Cassette (3x500-sheet)	RM1-3529-000CN	3

NOTE: Only highlighted parts are orderable.

Figure 9-27 Input-tray paper-pickup assembly

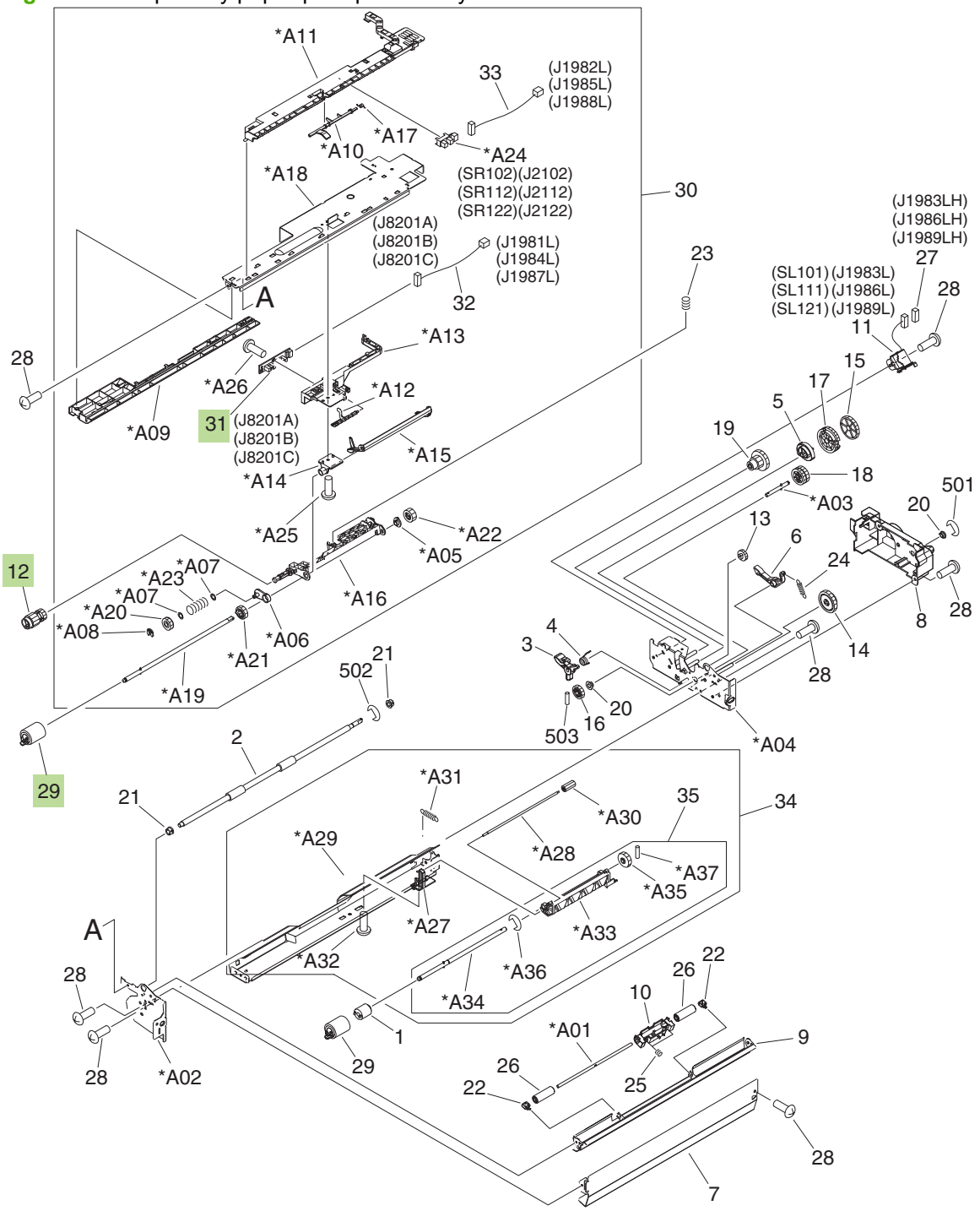


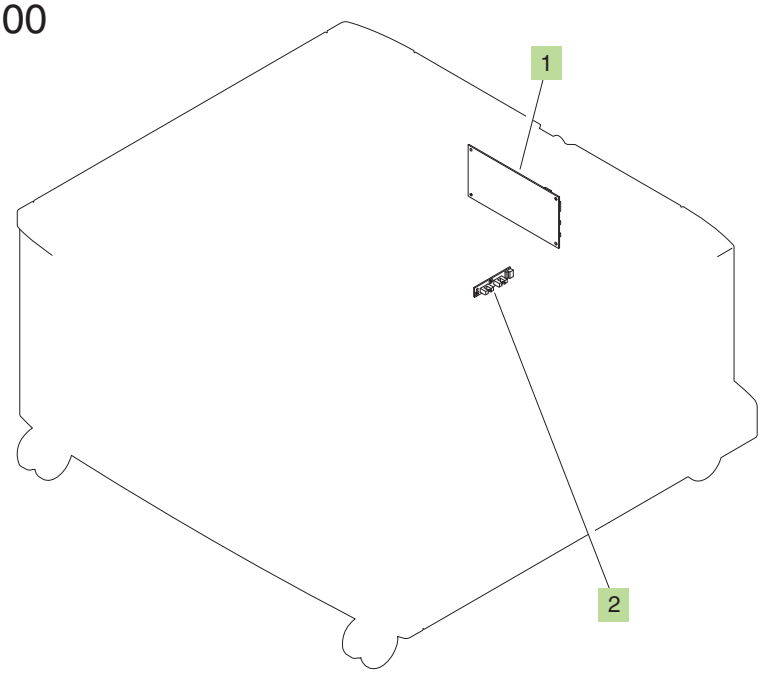
Table 9-26 Input-tray paper-pickup assembly

Ref	Description	Part number	Qty
12	Roller, paper-pickup	RL1-1289-000CN	1
29	Paper feed-roller assembly	RM1-0037-020CN	2
31	Option paper-sensor PCA assembly	RM1-3570-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-28 Input-tray PCA assembly

1x500



3x500

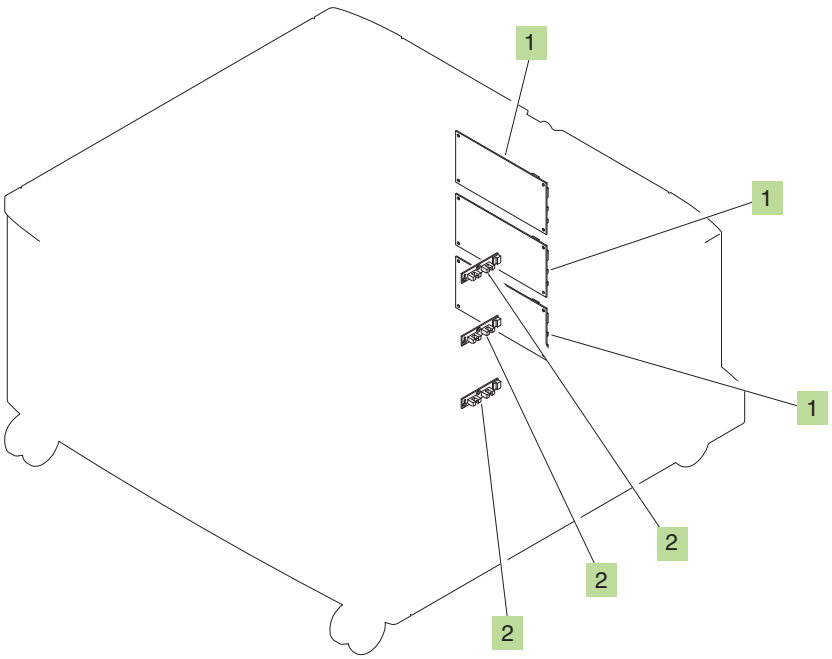


Table 9-27 Input-tray PCA assembly

Ref	Description	Part number	Qty
1	Paper-feed PCA assembly (1x500-sheet)	RM1-3569-000CN	1
1	Paper-feed PCA assembly (3x500-sheet)	RM1-3569-000CN	3

NOTE: Only highlighted parts are orderable.

Output-accessory devices

Intermediate paper-transfer unit (IPTU)

Figure 9-29 Intermediate-feed main body

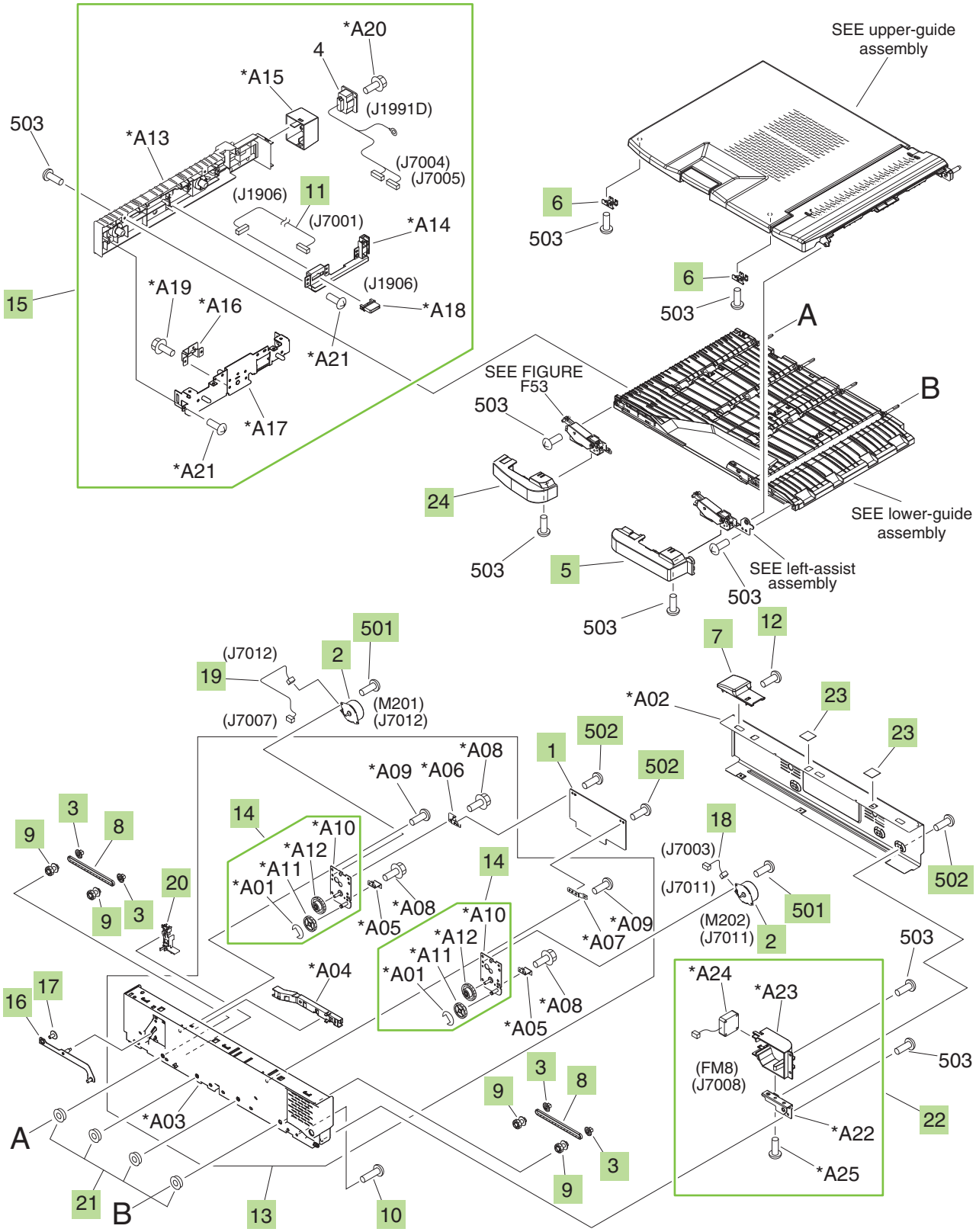


Table 9-28 Intermediate-feed main body

Ref	Description	Part number	Qty
1	Intermediate paper-transfer unit (IPTU)-driver PCA assembly	RM1-3559-000CN	1
2	Motor, stepping, DC	RK2-1320-000CN	2
3	Flange, pulley	RC1-9620-000CN	4
4	Cable, drawer	RM1-3561-000CN	1
5	Cover, assist, right	RC1-9706-000CN	1
6	Plate, assist-arm cap	RC1-9695-000CN	1
7	Cover, rear-upper	RC1-9703-000CN	1
8	Belt, paper-feed, cogged	RC1-9674-000CN	2
9	Pulley/gear, 22T	RU5-0868-000CN	4
10	Screw, M4x14	XA9-1292-000CN	5
11	Cable, drawer	RM1-3560-000CN	1
12	Screw, RS M3x8	XA9-1500-000CN	8
13	Side-cover assembly	RM1-3683-000CN	1
14	Drive-belt assembly	RM1-3684-000CN	2
15	Fin-lock assembly	RM1-3685-000CN	1
16	Arm, auxiliary	RL1-1272-000CN	1
17	Screw, B, M4x8	XA9-1277-000CN	8
18	Cable, motor	RM1-3563-000CN	1
19	Cable, motor	RM1-3564-000CN	1
20	Guide, cable, 2	RC1-9688-000CN	1
21	Bushing	RC1-4585-000CN	4
22	Fan assembly	RM1-4394-000CN	1
23	Sheet, blanking	RC1-9687-000CN	2
24	Cover, assist, left	RC1-9705-000CN	1
501	Screw, machined, truss-head, M3x4	XB1-2300-407CN	4
502	Screw, with washer, M3x6	XB2-8300-607CN	5

NOTE: Only highlighted parts are orderable.

Figure 9-30 Intermediate-feed lower-guide assembly

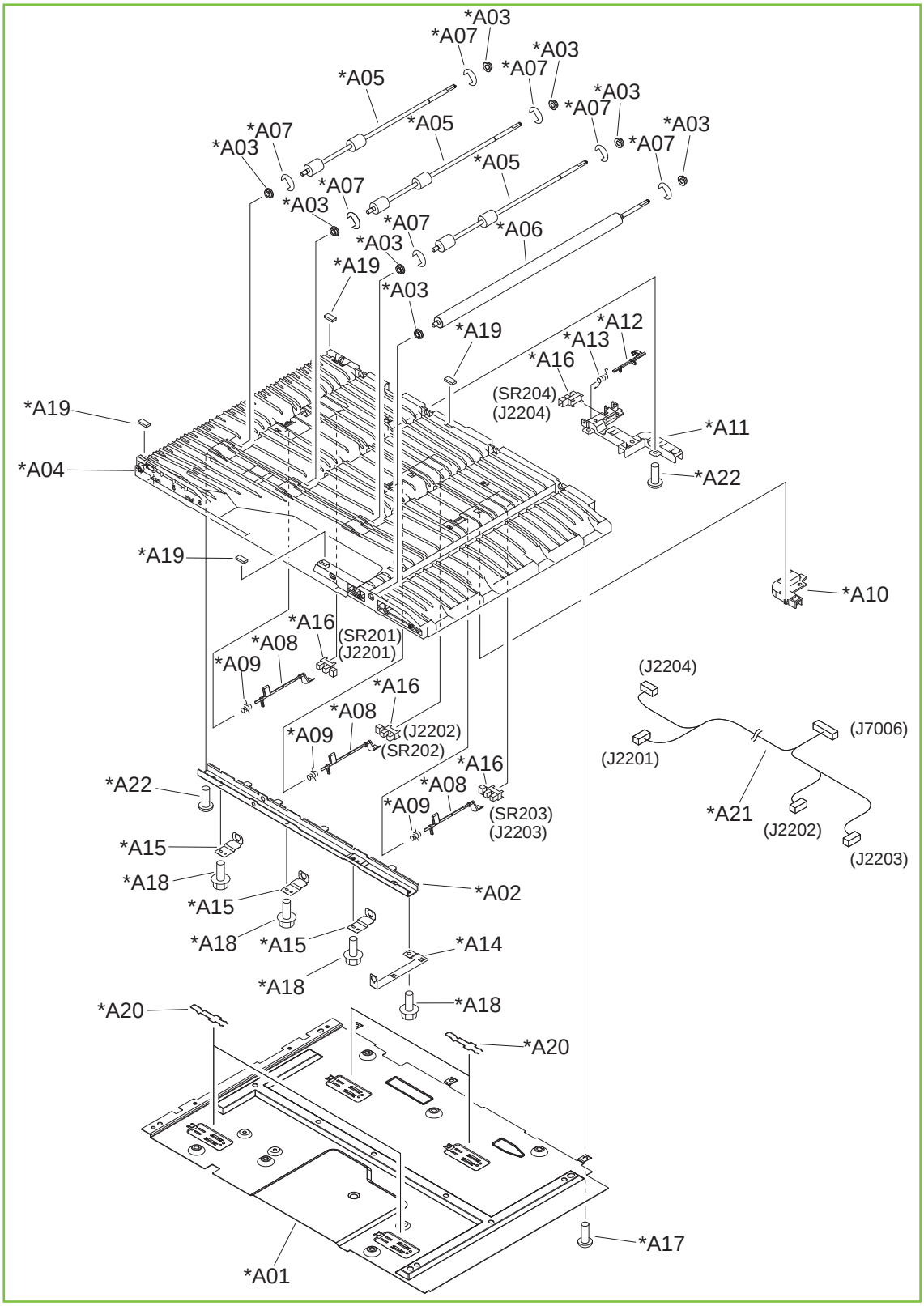


Table 9-29 Intermediate-feed lower-guide assembly

Ref	Description	Part number	Qty
All	Lower-guide assembly	RM1-3686-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-31 Intermediate-feed upper-guide assembly

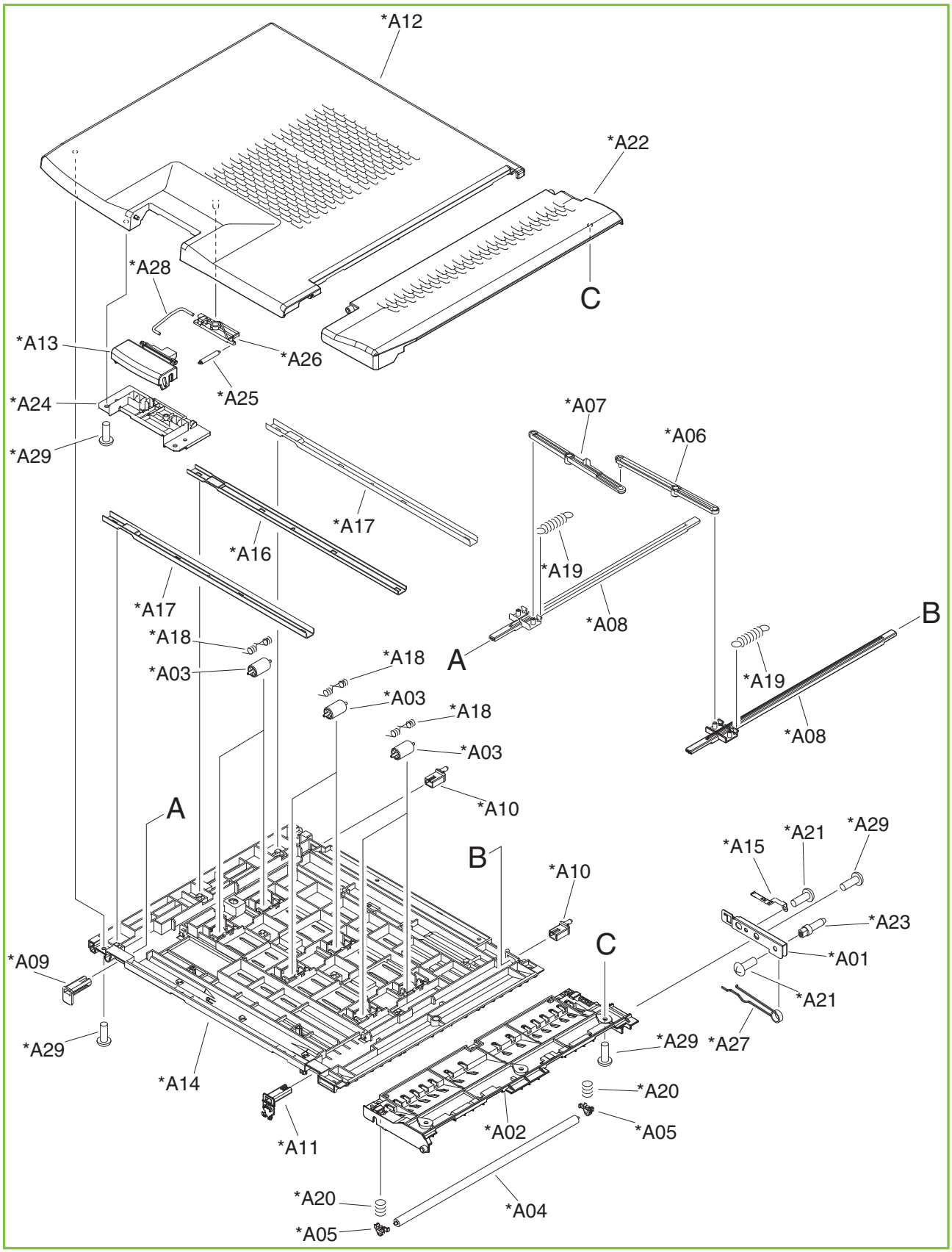


Table 9-30 Intermediate-feed upper-guide assembly

Ref	Description	Part number	Qty
All	Upper-guide assembly	RM1-4395-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-32 Left-assist assembly

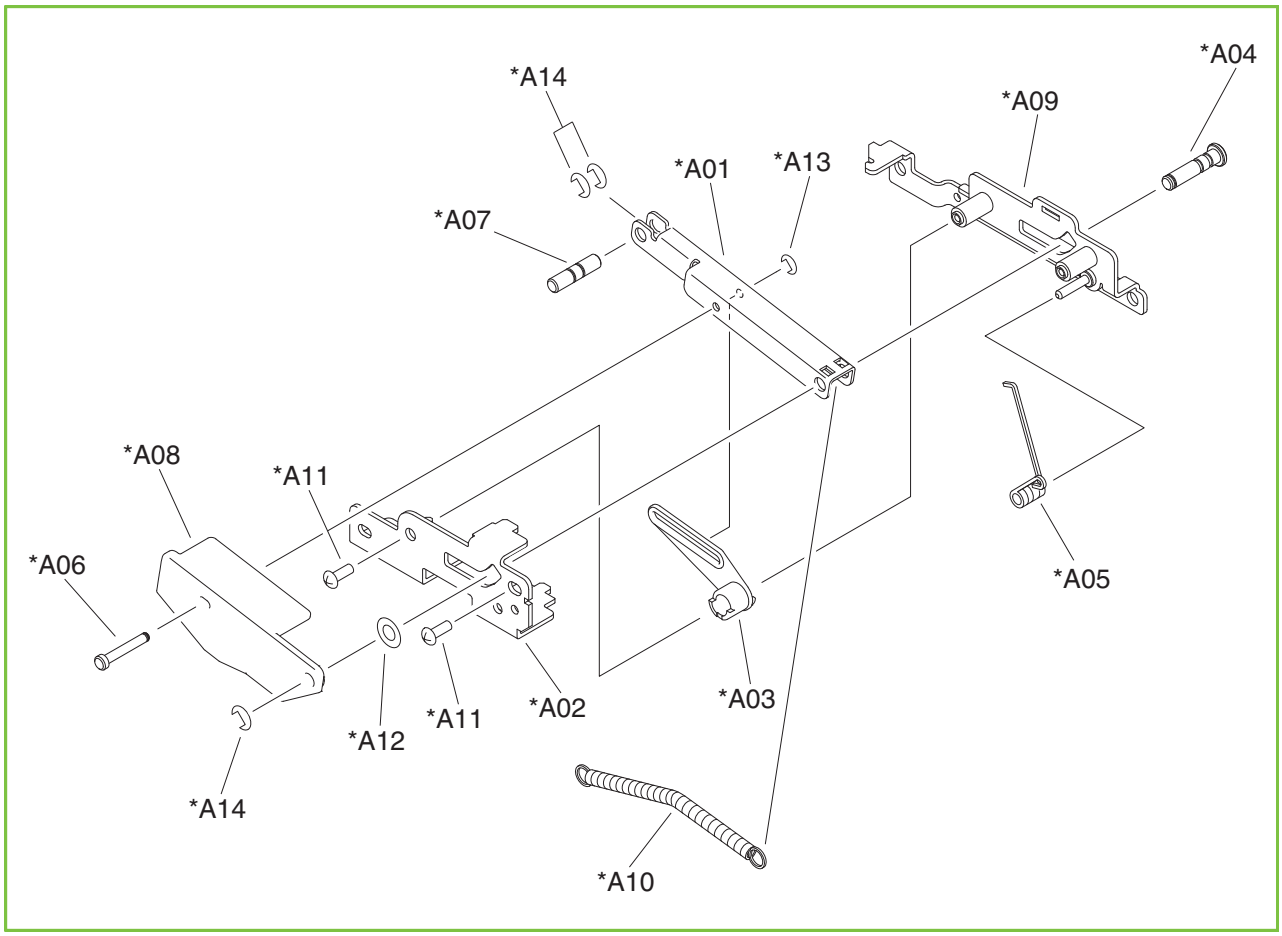


Table 9-31 Left-assist assembly

Ref	Description	Part number	Qty
All	Left-assist assembly	RM1-4396-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-33 Right-assist assembly

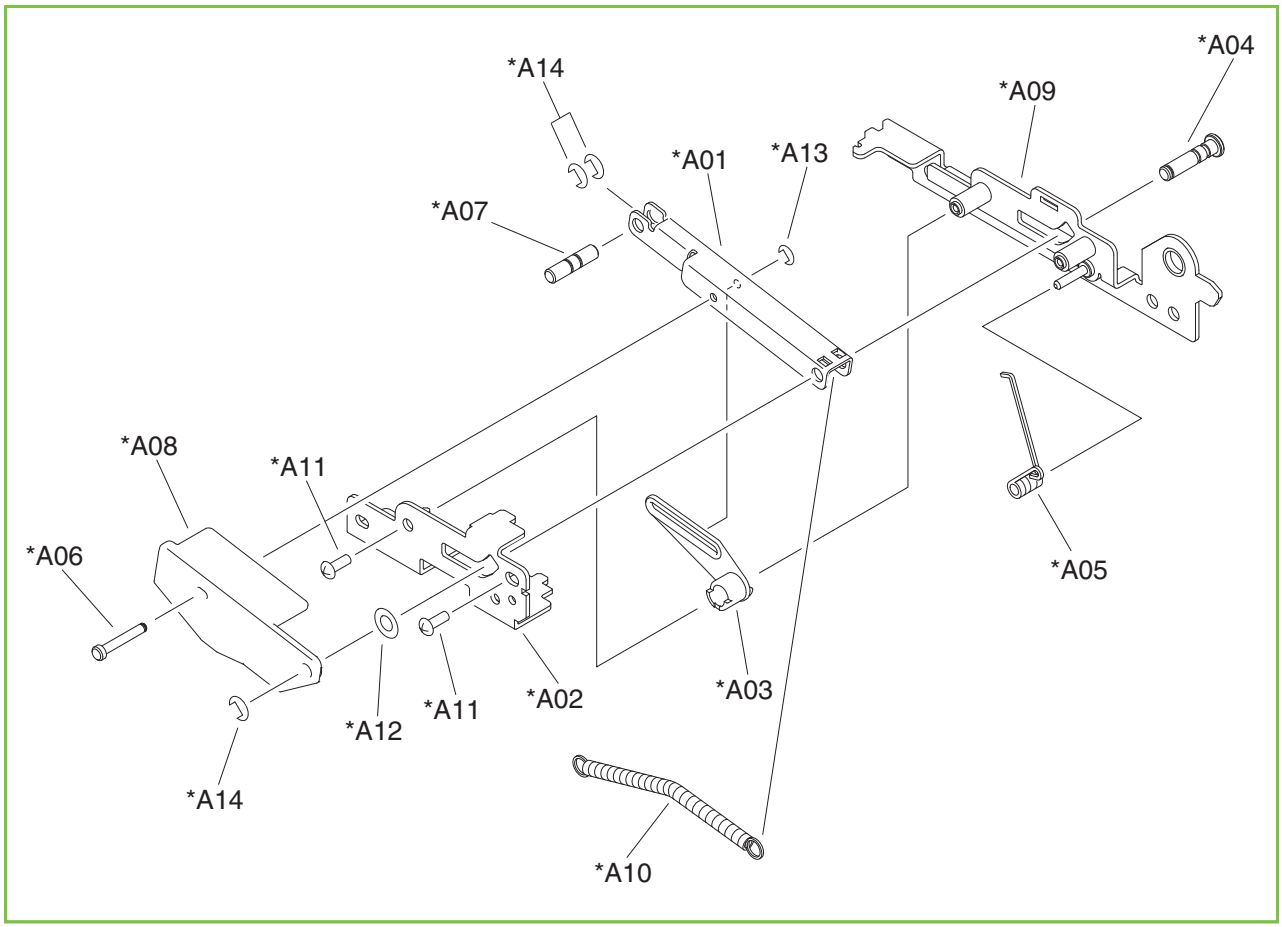


Table 9-32 Right-assist assembly

Ref	Description	Part number	Qty
All	Right-assist assembly	RM1-4397-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-34 PCA assembly

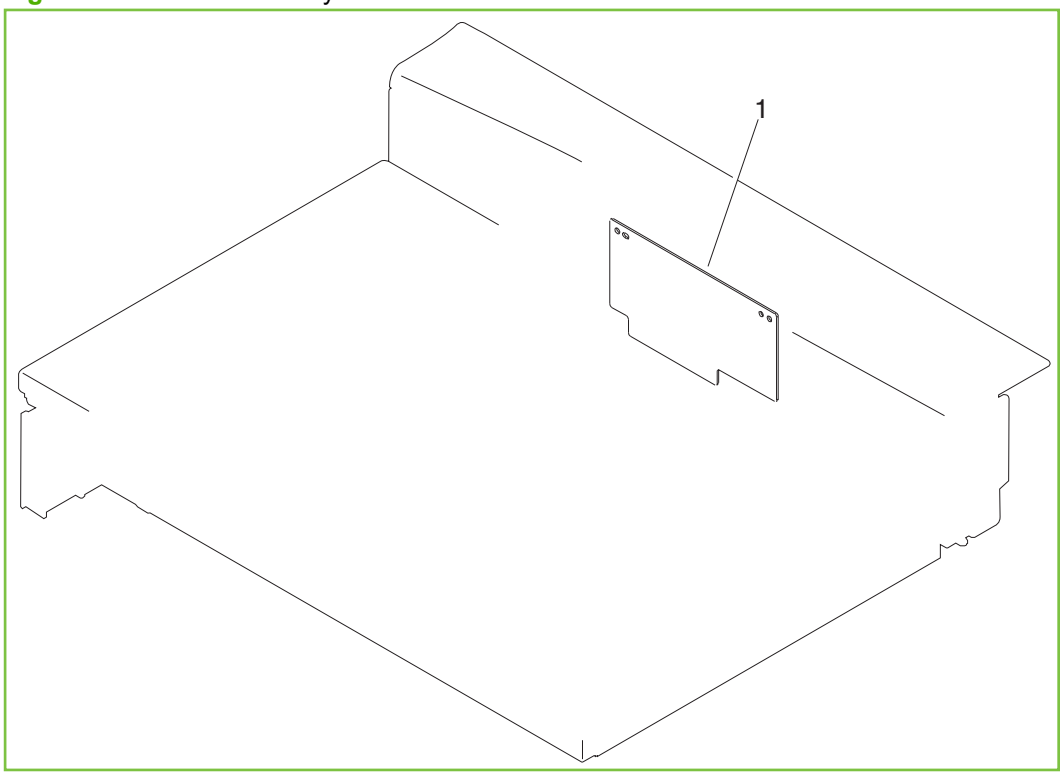


Table 9-33 PCA assembly

Ref	Description	Part number	Qty
All	Intermediate paper-transfer unit (IPTU)-driver PCA assembly	RM1-3559-000CN	1

NOTE: Only highlighted parts are orderable.

Stapler/stacker and booklet-maker

Figure 9-35 Stapler/stacker unit

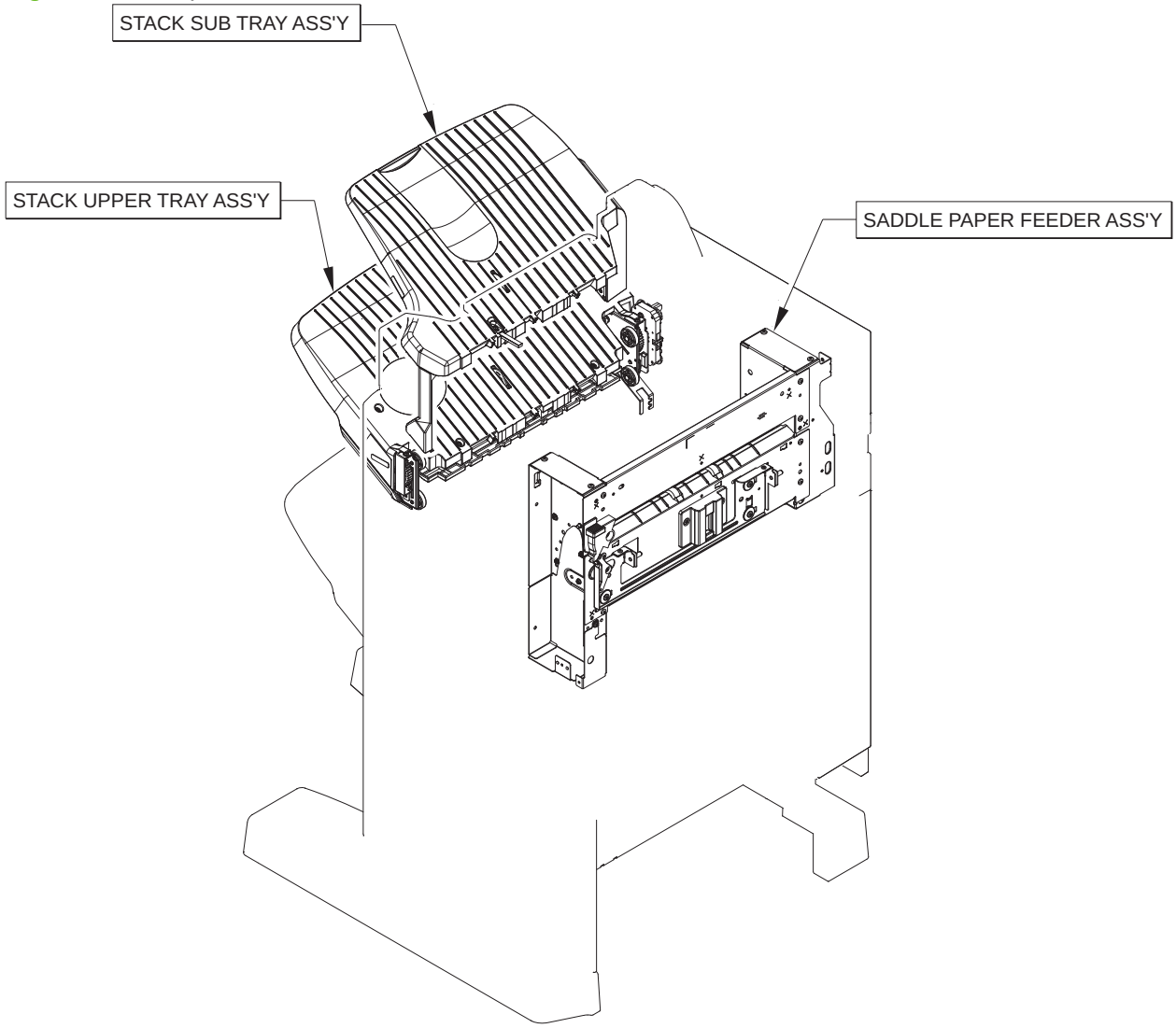


Table 9-34 Stapler/stacker unit

Ref	Description	Part number	Qty
All	Stapler/stacker whole unit	CC517A (product number)	1

NOTE: Only highlighted parts are orderable.

Figure 9-36 Booklet-maker unit

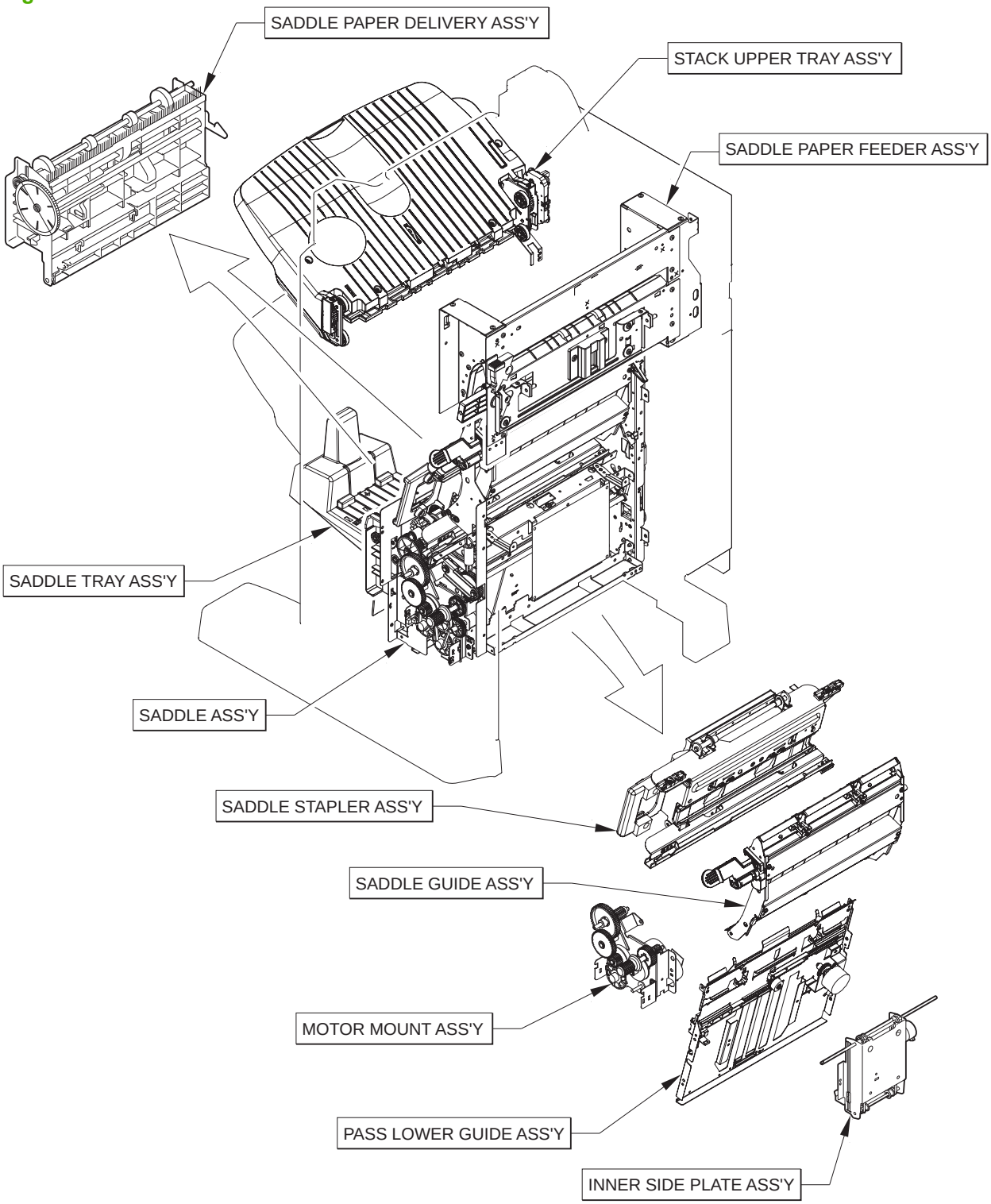


Table 9-35 Booklet-maker unit

Ref	Description	Part number	Qty
All	Booklet-maker (multi-function finisher) whole unit	CC516A (product number)	1

NOTE: Only highlighted parts are orderable.

Figure 9-37 External panels and covers (stapler/stacker)

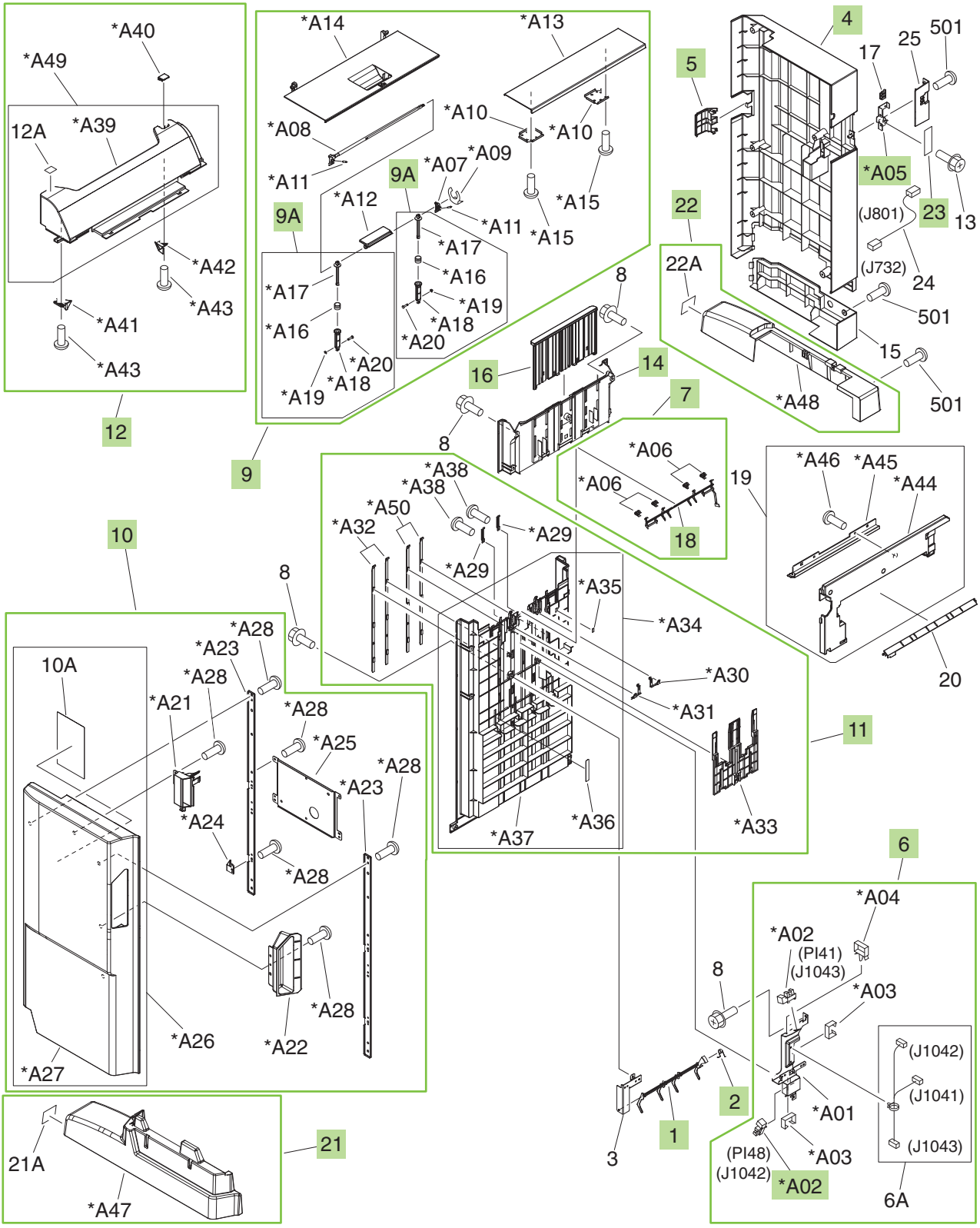


Table 9-36 External panels and covers (stapler/stacker)

Ref	Description	Part number	Qty
1	Flag, paper-sensing sensor	FC5-5004-000CN	1
2	Spring, torsion	FC5-5005-000CN	1
4	Cover, rear	RC2-1278-000CN	1
5	Cover, tray-connector	RC2-1279-000CN	1
6	Paper-face sensor assembly	4G3-0934-000CN	1
7	Paper-face sensing assembly	4G3-1624-000CN	1
9	Top-door (upper-cover) assembly	RM1-4121-000CN	1
9A	Link-slide assembly	4G3-0271-000CN	2
10	Front-door assembly	RM1-4134-000CN	1
11	Lower height-guide assembly	RM1-4135-000CN	1
12	Left upper-cover assembly	RM1-4179-000CN	1
14	Panel, height, upper	RC2-1283-000CN	1
16	Cover, option-slide	RC2-1347-000CN	1
18	Flag, paper-face sensing, upper	FC5-4162-000CN	1
21	Cover, front-lower	RL1-1717-000CN	1
22	Cover, rear-lower	RL1-1718-000CN	1
23	LED-PCA assembly	RM1-4141-000CN	1
A02	Photo interrupter, TLP1242	WG8-5593-000CN	2
A05	Mount, LED-PCA	RC2-1735-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-38 External panels and covers (booklet-maker)

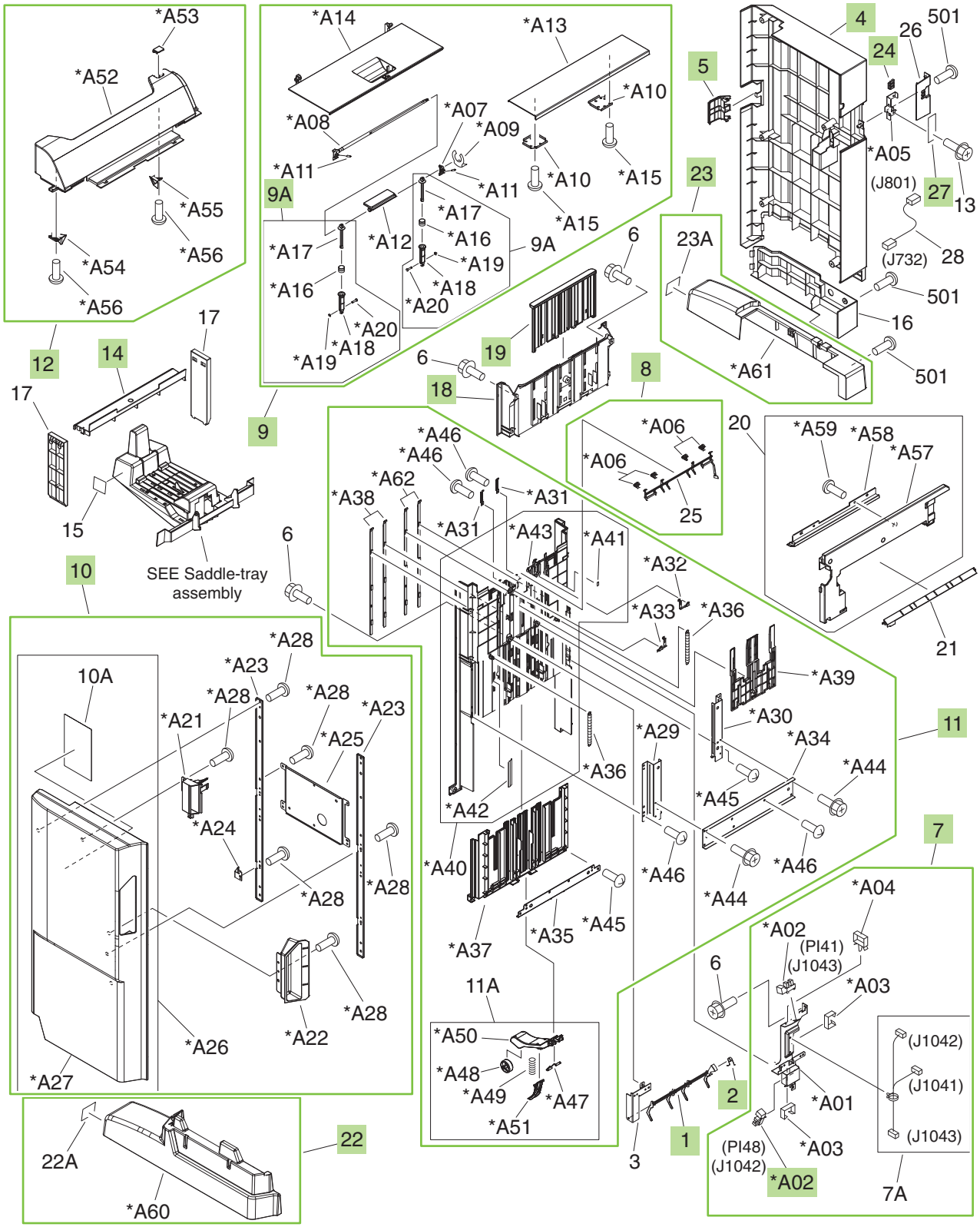


Table 9-37 External panels and covers (booklet-maker)

Ref	Description	Part number	Qty
1	Flag, paper-sensing sensor	FC5-5004-000CN	1
2	Spring, torsion	FC5-5005-000CN	1
4	Cover, rear	RC2-1278-000CN	1
5	Cover, tray-connector	RC2-1279-000CN	1
7	Paper-face sensor assembly	4G3-0934-000CN	1
8	Paper-face sensing assembly	4G3-1624-000CN	1
9	Top-door (upper-cover) assembly	RM1-4121-000CN	1
9A	Link-slide assembly	4G3-0271-000CN	2
10	Front-door assembly	RM1-4122-000CN	1
11	Middle-height cover assembly	RM1-4119-000CN	1
12	Left-upper cover assembly	RM1-4129-000CN	1
14	Cover, left-lower	RC2-1280-000CN	1
18	Panel, height, upper	RC2-1283-000CN	1
19	Guide, side-wall	RC2-1284-000CN	1
22	Cover, front-lower	RL1-1717-000CN	1
23	Cover, rear-lower	RL1-1718-000CN	1
24	Window, LED	RC2-1734-000CN	1
27	LED-PCA assembly	RM1-4141-000CN	1
A02	Photo interrupter, TLP1242	WG8-5593-000CN	2

NOTE: Only highlighted parts are orderable.

Figure 9-39 Finisher (1 of 5) (stapler/stacker and booklet-maker)

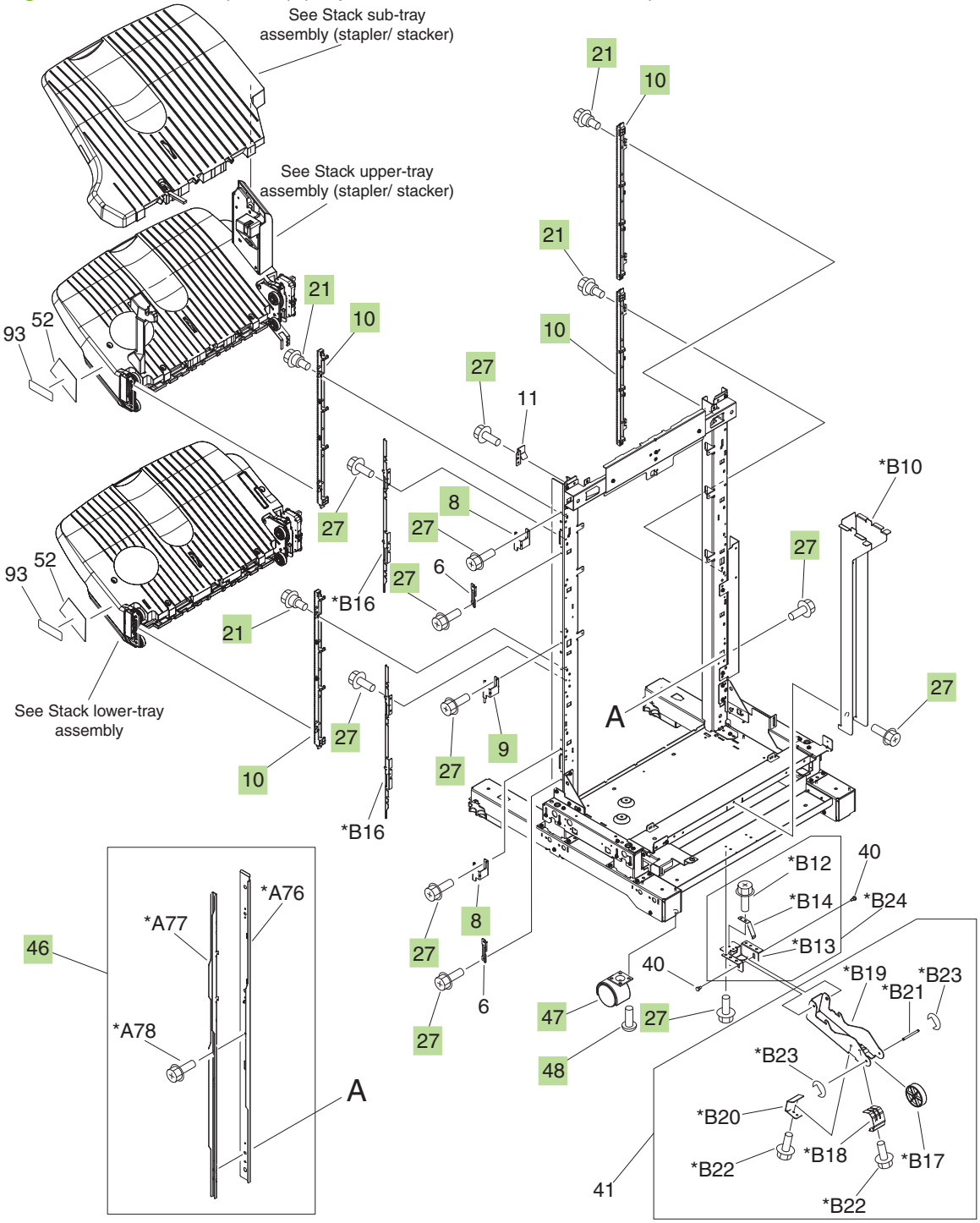


Figure 9-40 Finisher (2 of 5) (stapler/stacker and booklet-maker)

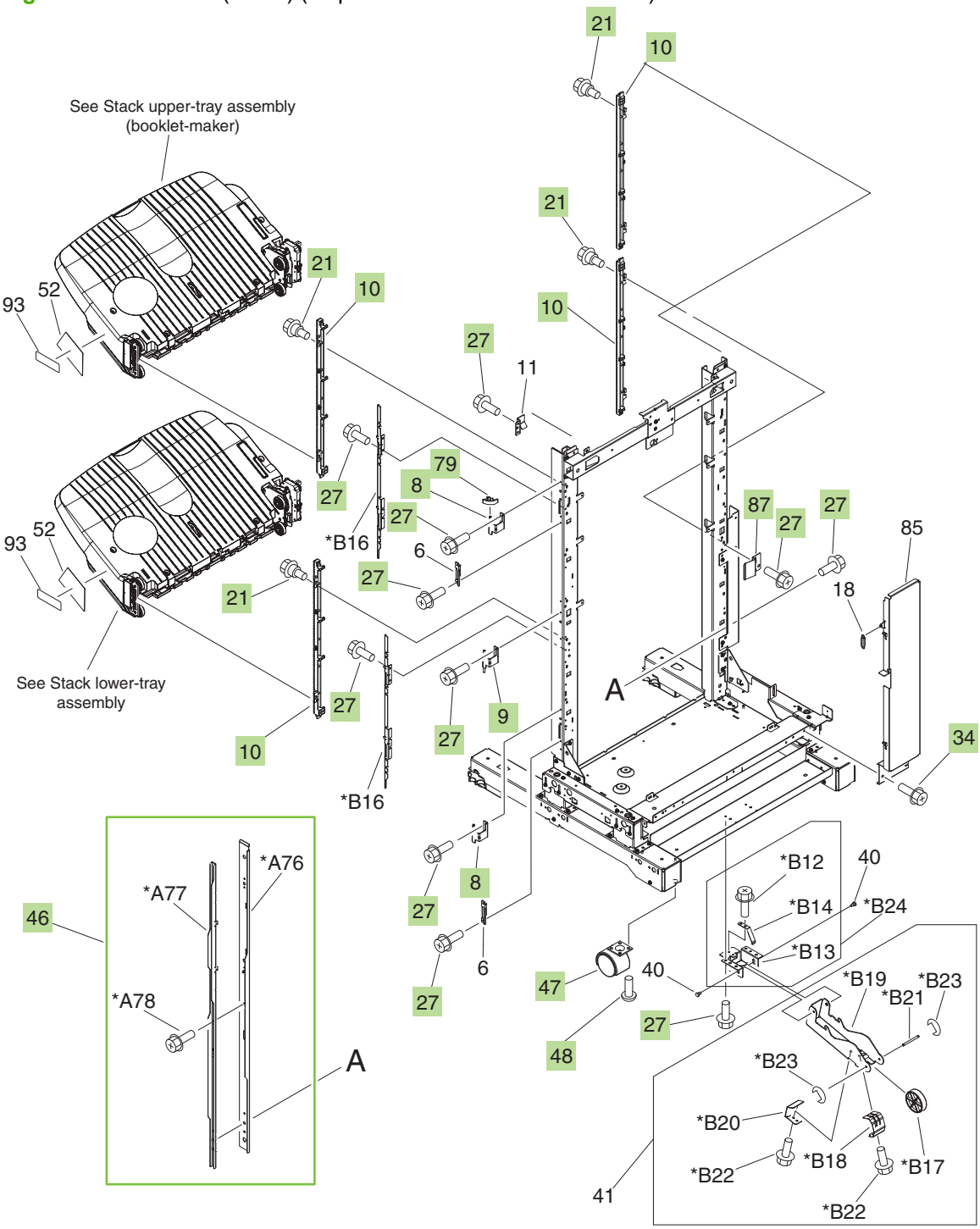


Figure 9-41 Finisher (3 of 5) (stapler/stacker and booklet-maker)

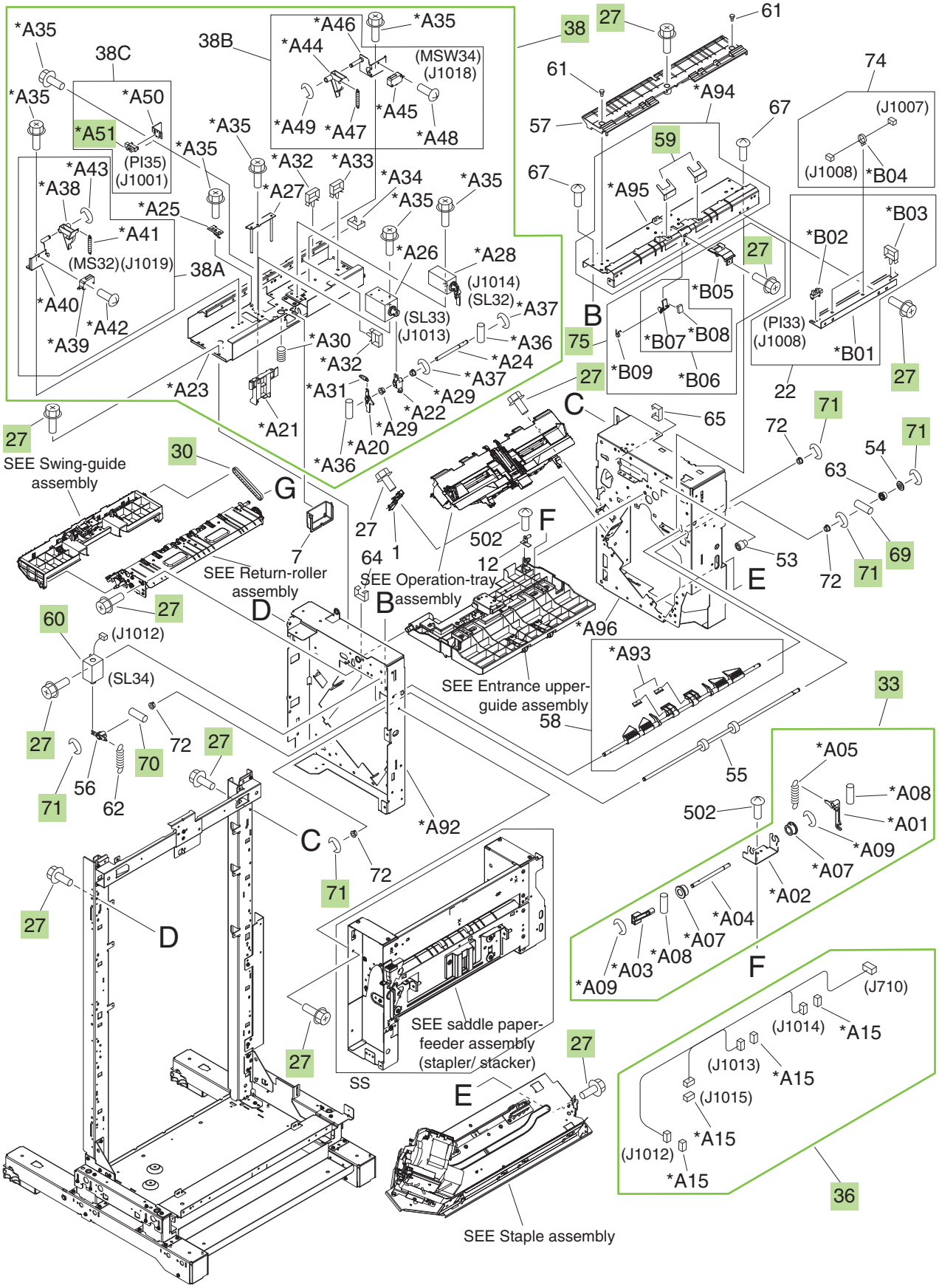


Figure 9-42 Finisher (4 of 5) (stapler/stacker and booklet-maker)

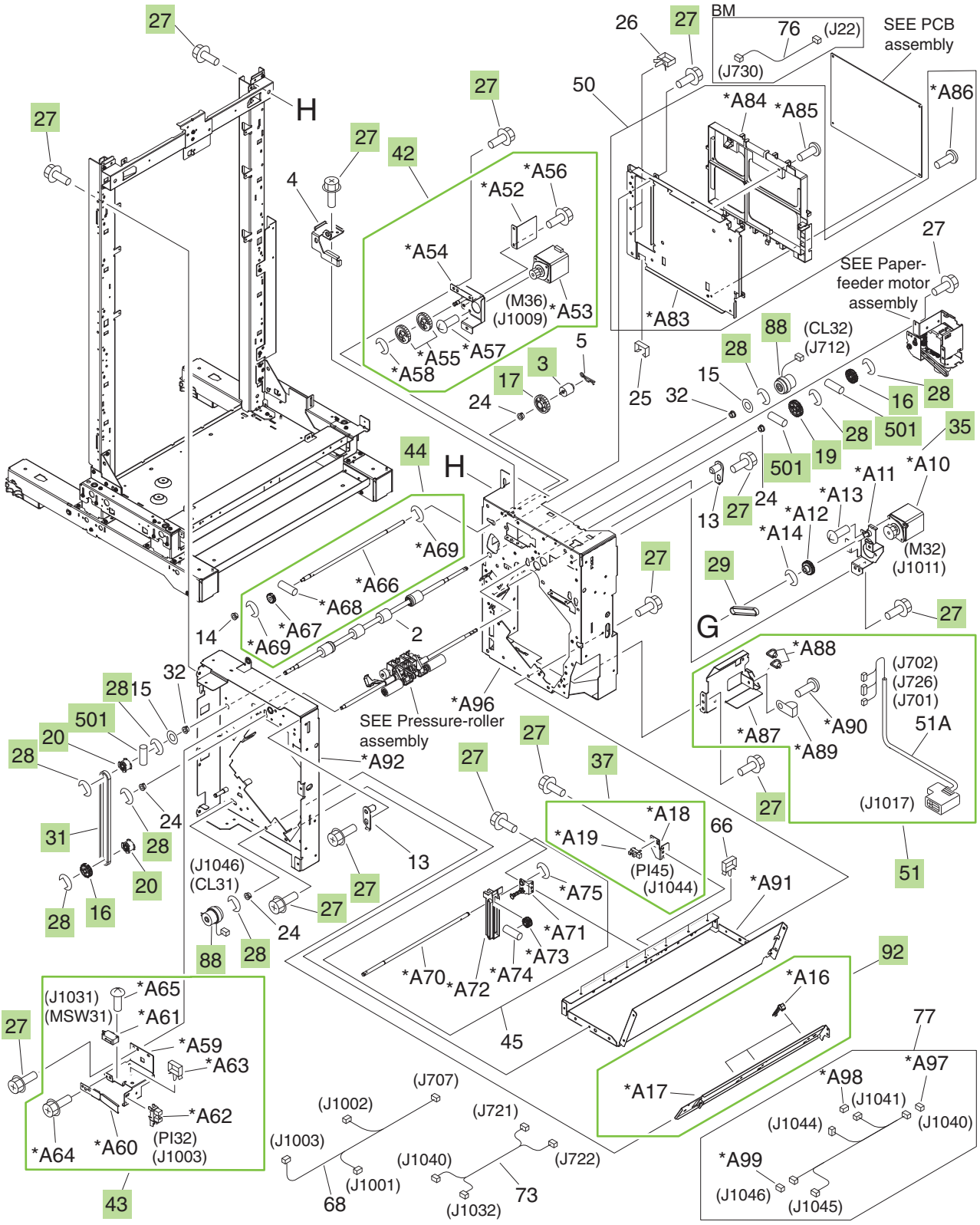


Figure 9-43 Finisher (5 of 5) (stapler/stacker and booklet-maker)

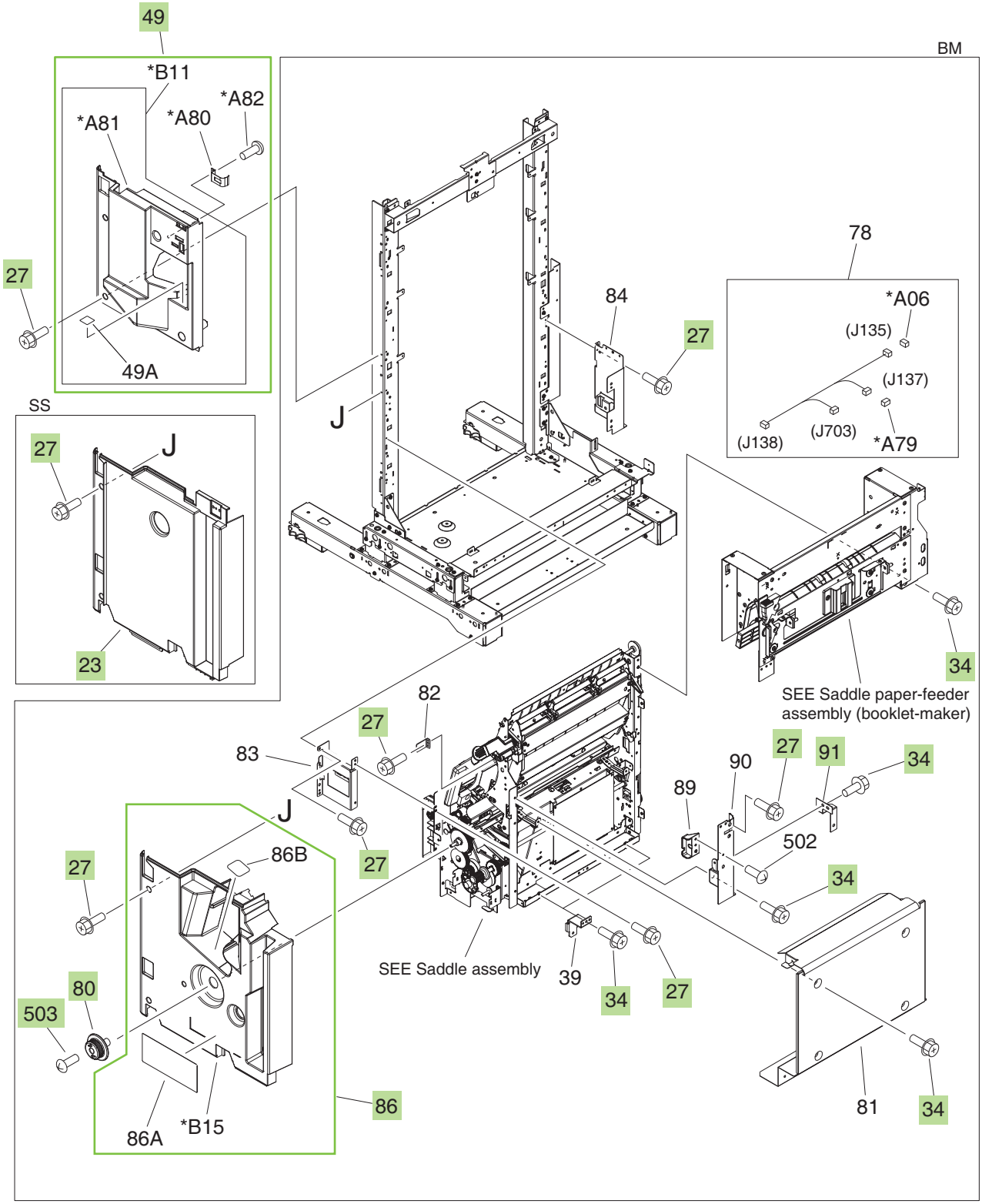


Table 9-38 Finisher (stapler/stacker and booklet-maker)

Ref	Description	Part number	Qty
3	Limiter, torque	FC5-3657-000CN	1
8	Hinge, front-door, 1	FC5-4991-030CN	2
9	Hinge, front-door, 2	FC5-4992-030CN	1
10	Rack, rail	FC5-5436-000CN	4
16	Gear, 30T	FU5-0428-000CN	2
17	Gear, 40T	FU5-0454-000CN	1
19	Gear, 29T	FU5-2399-000CN	1
20	Pulley, 20T	FU5-3086-000CN	2
21	Screw, RS stepped, M3	FU9-9059-000CN	8
23	Cover, internal, lower (stapler/stacker only)	RC2-1351-000CN	1
27	Screw, RS, M3x8	XA9-1386-000CN	83
28	Ring, E	XD9-0136-000CN	10
29	Belt, timing, cogged	XF2-1607-860CN	1
30	Belt, timing	XF2-1608-840CN	1
31	Belt, timing, cogged	XF9-0748-000CN	1
33	Upper-cover lock assembly	4G3-0210-000CN	1
34	Screw, RS, M4x8 (booklet-maker only)	XA9-0732-000CN	18
35	Stack-ejection motor assembly	4G3-0769-000CN	1
36	Cable, solenoid	FG3-2892-000CN	1
37	Shutter H.P. sensor assembly	FM2-1401-000CN	1
38	Upper-crossmember assembly	RM1-4180-000CN	1
42	Press-motor assembly	FM2-1409-000CN	1
43	Sensor/switch assembly	FM2-1417-000CN	1
44	Swing-press shaft assembly	FM2-1423-000CN	1
46	Area-sensor flag assembly	RM1-4107-000CN	1
47	Caster, universal	RC2-1315-000CN	4
48	Screw, with washer, M5x12	XA9-0912-000CN	12
49	Inner-cover assembly	RM1-4123-000CN	1
51	Cable-mount lattice assembly	RM1-4128-000CN	1
59	Sheet, entrance-guide	FC5-5542-000CN	2
60	Solenoid	FL2-0821-000CN	1
69	Pin	XD3-2200-102CN	1
70	Pin, dowel	XD3-2200-142CN	1
71	Ring, E	XD9-0136-000CN	5

Table 9-38 Finisher (stapler/stacker and booklet-maker) (continued)

Ref	Description	Part number	Qty
75	Entrance-sensor flag assembly	FM2-0718-000CN	1
79	Plate, hinge-stop (booklet-maker only)	4A3-4715-000CN	1
80	Knob (booklet-maker only)	FB3-7881-000CN	1
86	Cover, internal, lower (booklet-maker only)	RL1-1477-000CN	1
87	Plate, grounding (booklet-maker only)	4A3-1955-000CN	1
88	Clutch, electromagnetic	4H3-0370-000CN	2
91	Plate, grounding (booklet-maker only)	RC2-1356-000CN	1
92	Flexible-cable mount assembly	FM2-0720-000CN	1
501	Pin	XD3-2200-102CN	4
503	Screw, TP, M3x6 (booklet-maker only)	XB6-7300-607CN	1
A51	Photo interrupter, TLP1242	WG8-5593-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-44 Output bin 1 (stack upper-tray assembly) (1 of 2) (stapler/stacker)

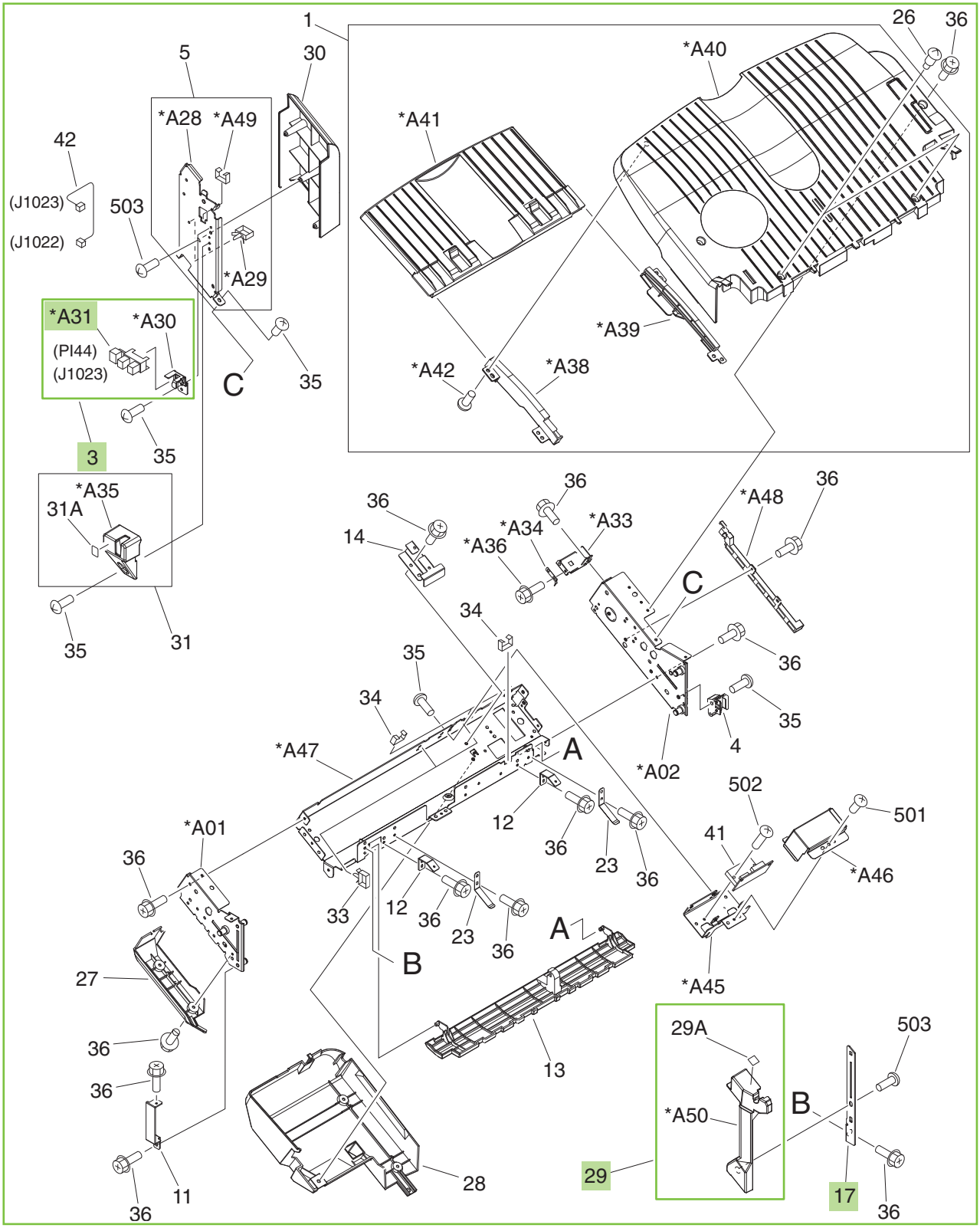


Figure 9-45 Output bin 1 (stack upper-tray assembly) (2 of 2) (stapler/stacker)

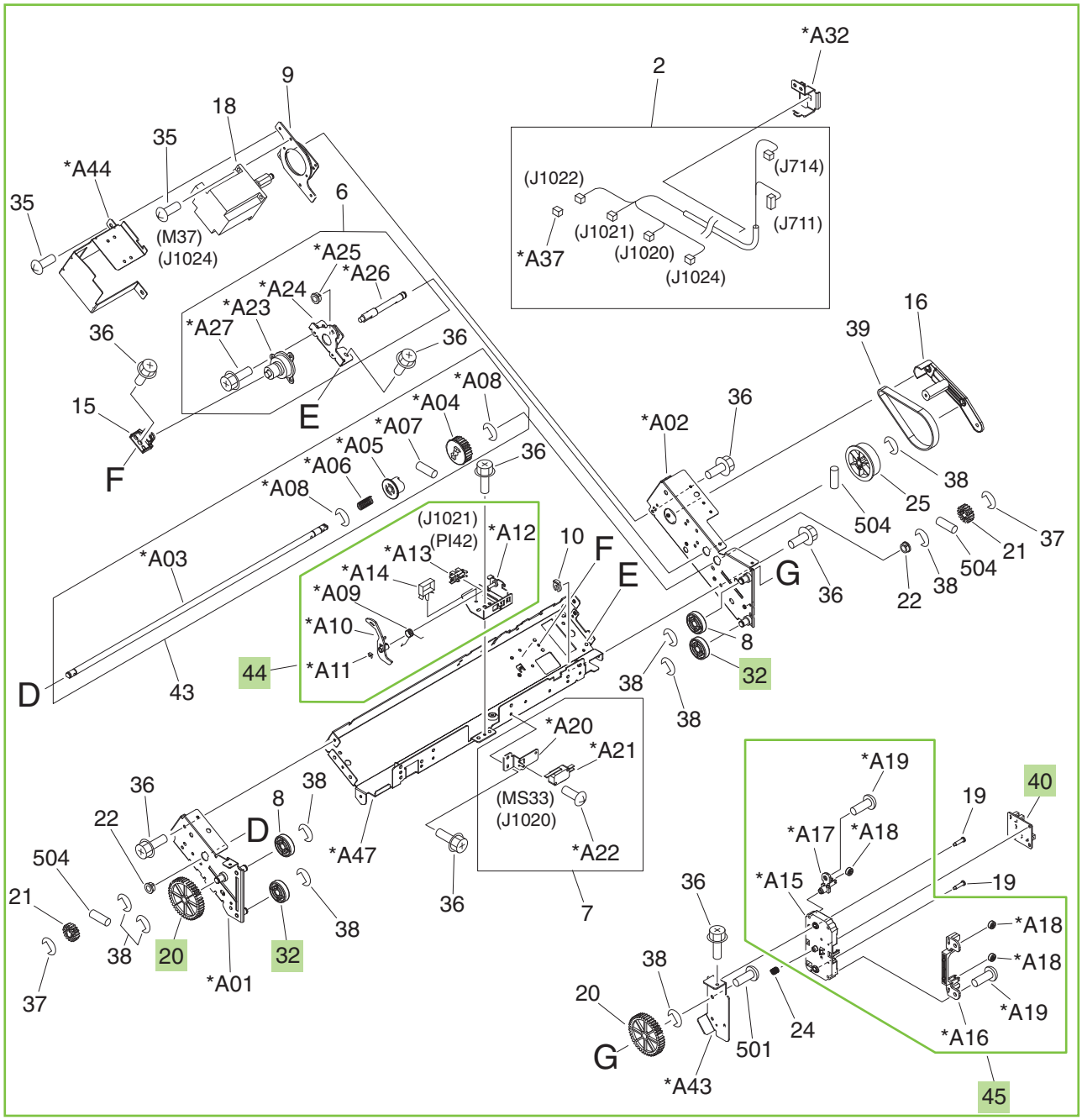


Table 9-39 Output bin 1 (stack upper-tray assembly) (stapler/stacker)

Ref	Description	Part number	Qty
All	Stack upper-tray assembly	RM1-4101-000CN	1
3	Option-sensor assembly	FM2-1708-000CN	1
17	Plate, option-tray, front	FC5-6978-000CN	1
20	Gear, 44T	FU5-0435-000CN	2
29	Cover, option-tray, front	RL1-2210-000CN	1
32	Roller, tray-guide	RU5-6035-000CN	2
40	Area-sensor PCA assembly	4G1-1498-000CN	1
44	Paper-sensor assembly	FM2-0707-000CN	1
45	Area-sensor holder assembly	FM2-0709-000CN	1
A31	Photo interrupter, TLP1242	WG8-5593-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-46 Output bin 1 (stack upper-tray assembly) (1 of 2) (booklet-maker)

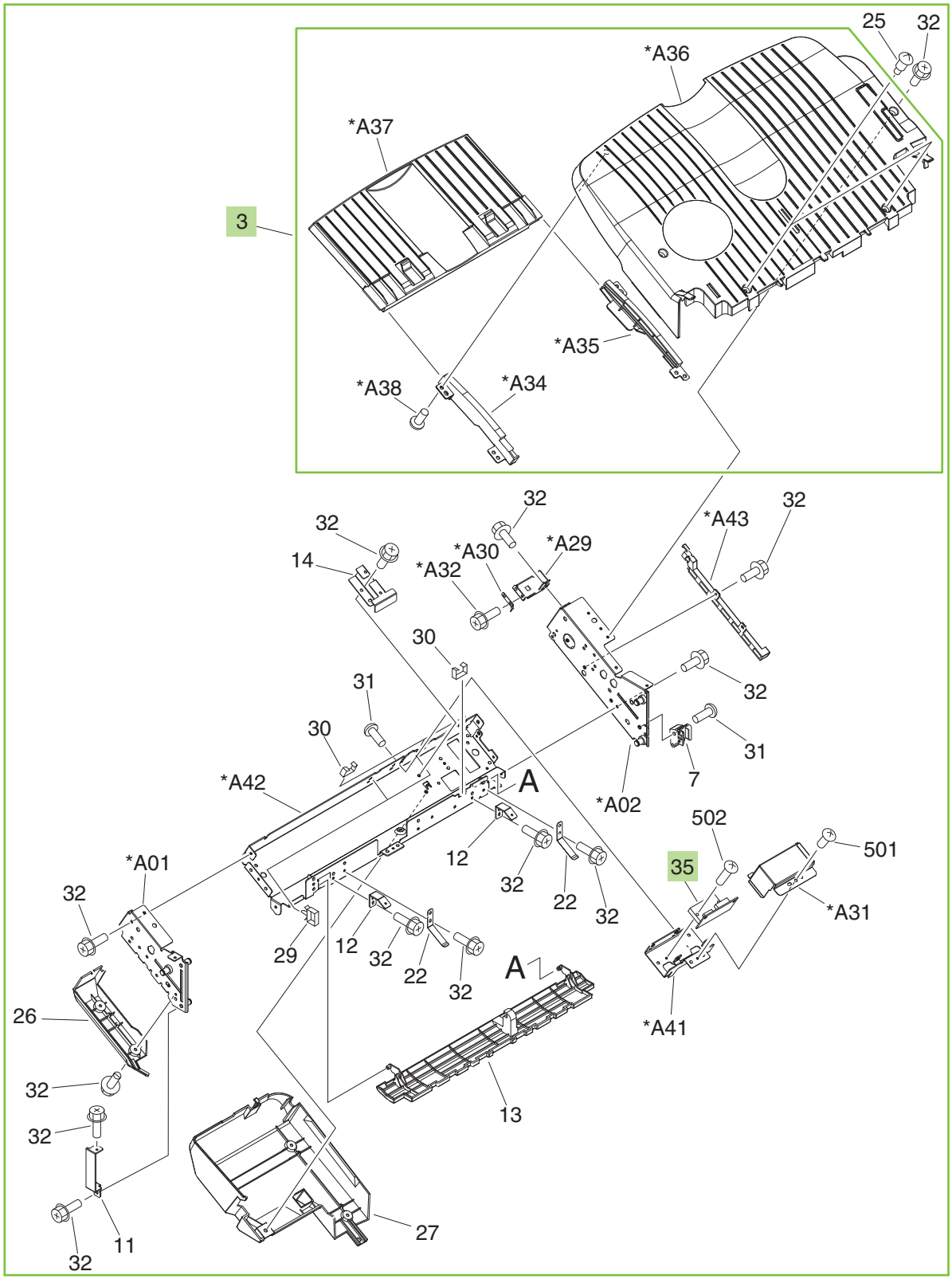


Figure 9-47 Output bin 1 (stack upper-tray assembly) (2 of 2) (booklet-maker)

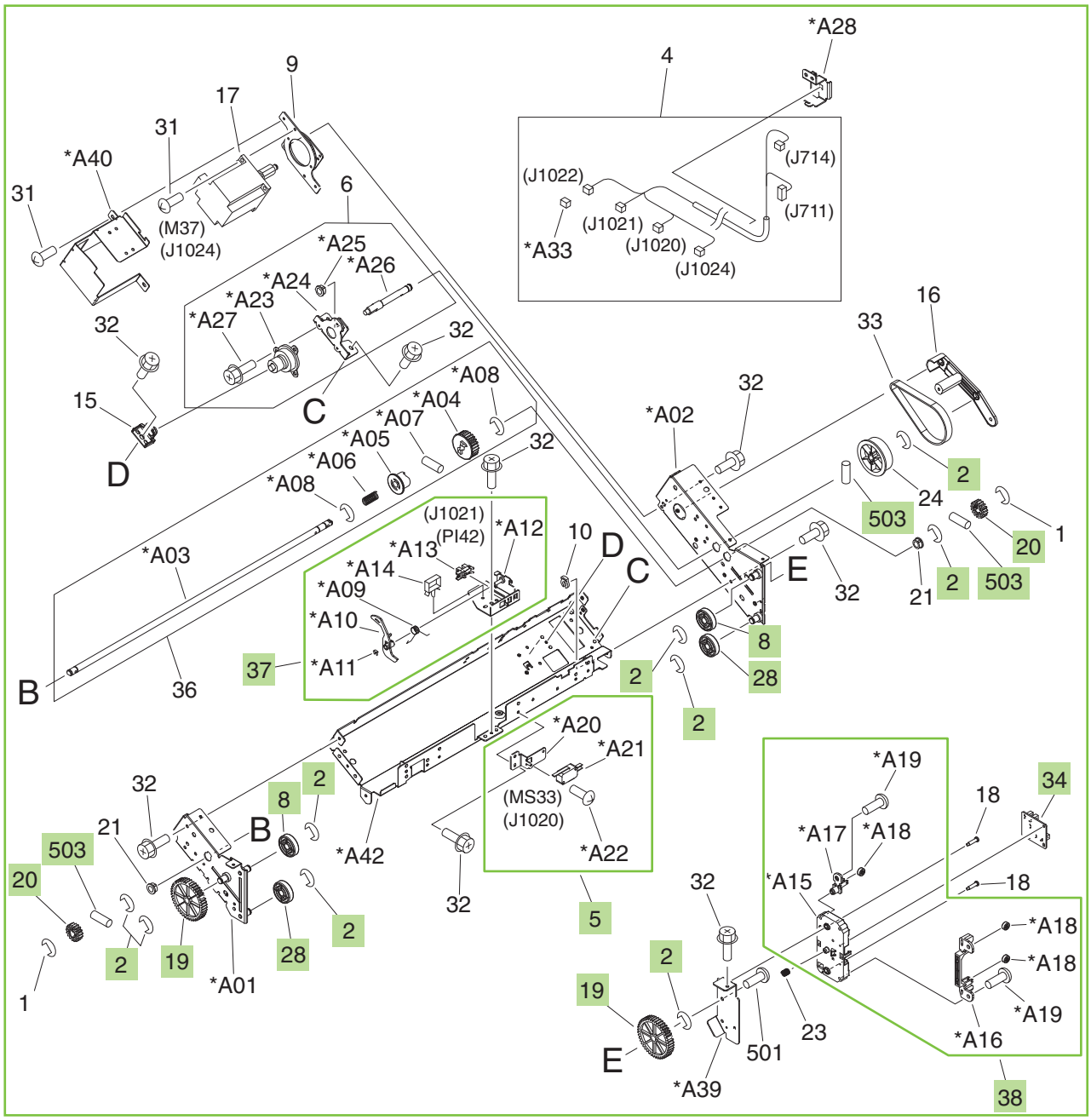


Table 9-40 Output bin 1 (stack upper-tray assembly) (booklet-maker)

Ref	Description	Part number	Qty
All	Stack upper-tray assembly	RM1-4102-000CN	1
2	Ring, E	XD9-0137-000CN	9
3	Stack-tray assembly	RM1-4104-000CN	1
5	Approach-switch assembly	FM2-0710-000CN	1
8	Roller, tray-guide	FC5-4221-000CN	2
19	Gear, 44T	FU5-0435-000CN	2
20	Gear, 17T	FU5-0457-000CN	2
28	Roller, tray-guide	RU5-6035-000CN	2
34	Area-sensor PCA assembly	4G1-1498-000CN	1
35	Tray-driver PCA assembly	FG3-2887-000CN	1
37	Paper-sensor assembly	FM2-0707-000CN	1
38	Area-sensor holder assembly	FM2-0709-000CN	1
503	Pin, dowel	XD3-2300-142CN	3

NOTE: Only highlighted parts are orderable.

Figure 9-48 Output bin 2 (stack lower-tray assembly) (1 of 2) (stapler/stacker and booklet-maker)

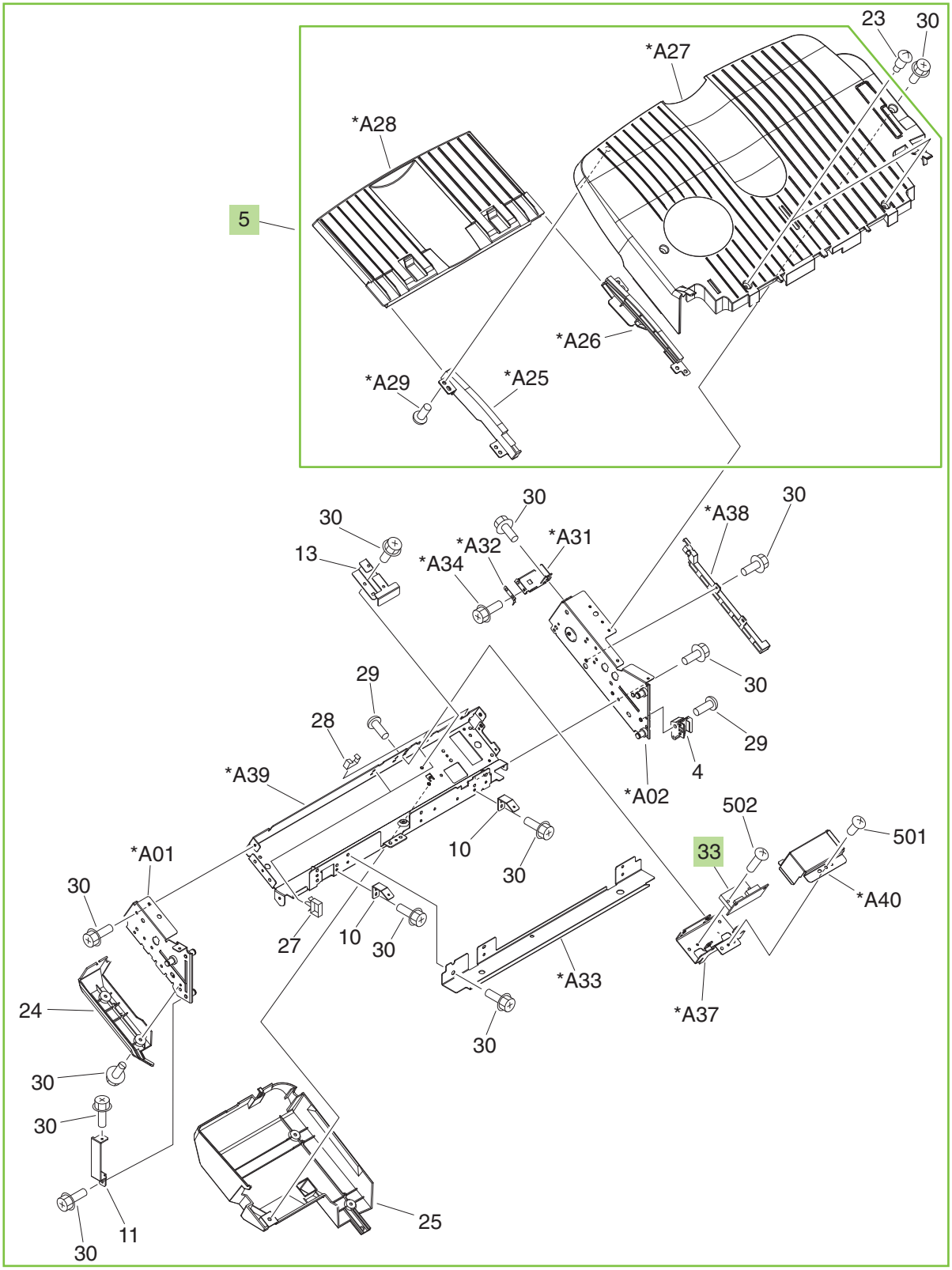


Figure 9-49 Output bin 2 (stack lower-tray assembly) (2 of 2) (stapler/stacker and booklet-maker)

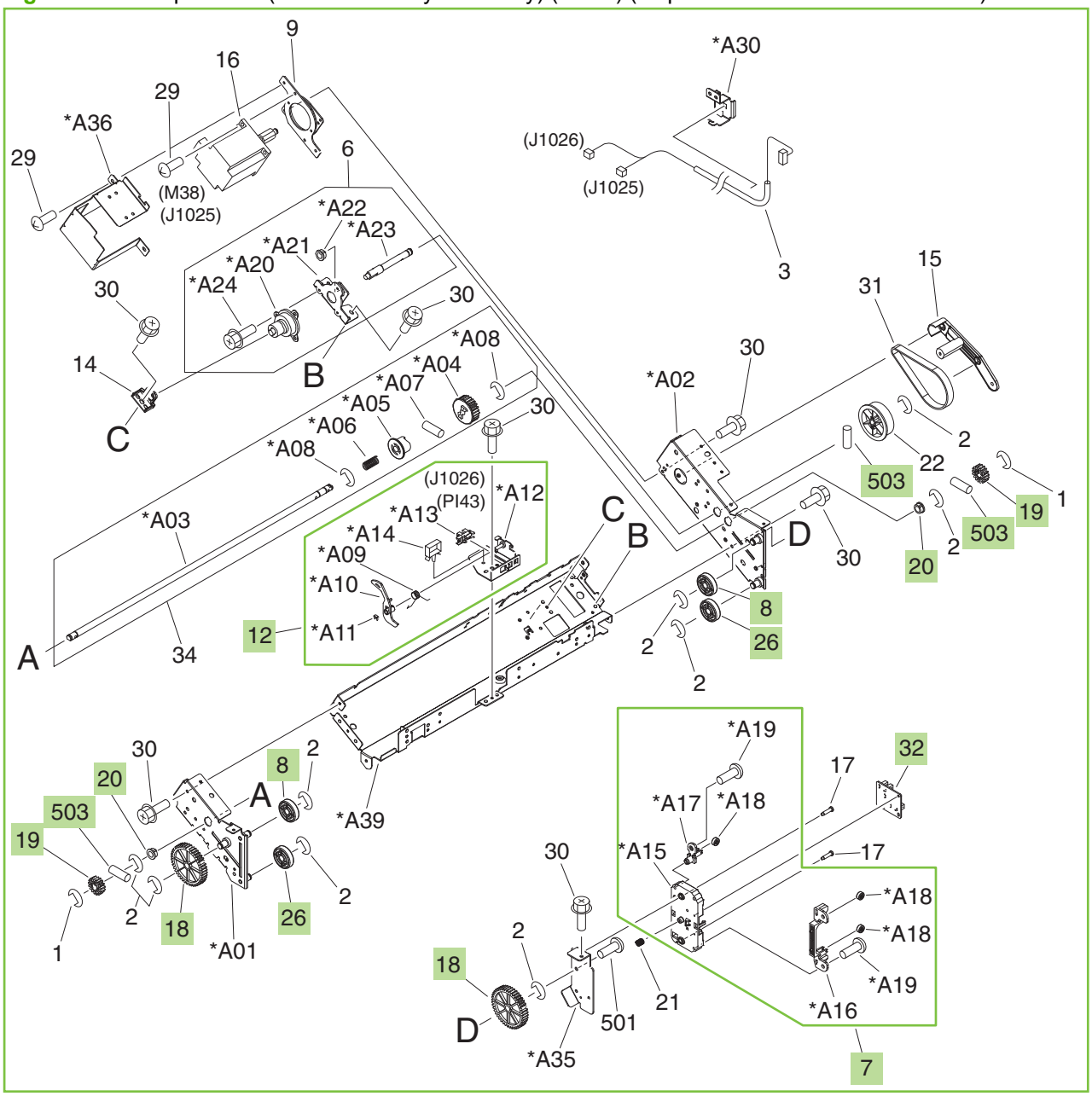


Table 9-41 Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker)

Ref	Description	Part number	Qty
All	Stack lower-tray assembly	RM1-4105-000CN	1
5	Stack-tray assembly	RM1-4104-000CN	1
7	Area-sensor holder assembly	FM2-0709-000CN	1
8	Roller, tray-guide	FC5-4221-000CN	2
12	Paper-sensor assembly	FM2-0707-000CN	1
18	Gear, 44T	FU5-0435-000CN	2
19	Gear, 17T	FU5-0457-000CN	2
20	Bushing	FU5-1169-000CN	2
26	Roller, tray-guide	RU5-6035-000CN	2
32	Area-sensor PCA assembly	4G1-1498-000CN	1
33	Tray-driver PCA assembly	FG3-2887-000CN	1
503	Pin, dowel	XD3-2300-142CN	3

NOTE: Only highlighted parts are orderable.

Figure 9-50 Top output bin (stack sub-tray assembly) (stapler/stacker)

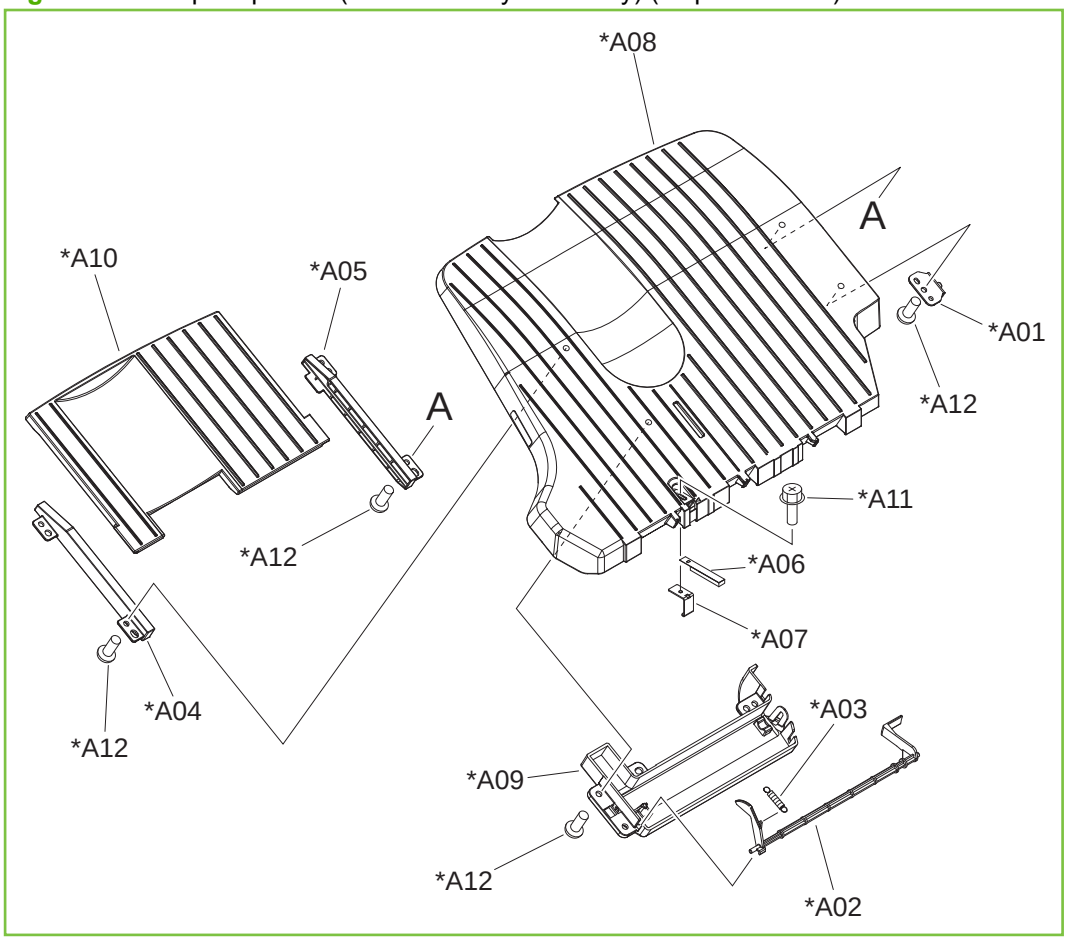


Table 9-42 Top output bin (stack sub-tray assembly) (stapler/stacker)

Ref	Description	Part number	Qty
All	Stack sub-tray assembly	RM1-4115-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-51 Operation-tray assembly (1 of 2) (stapler/stacker and booklet-maker)

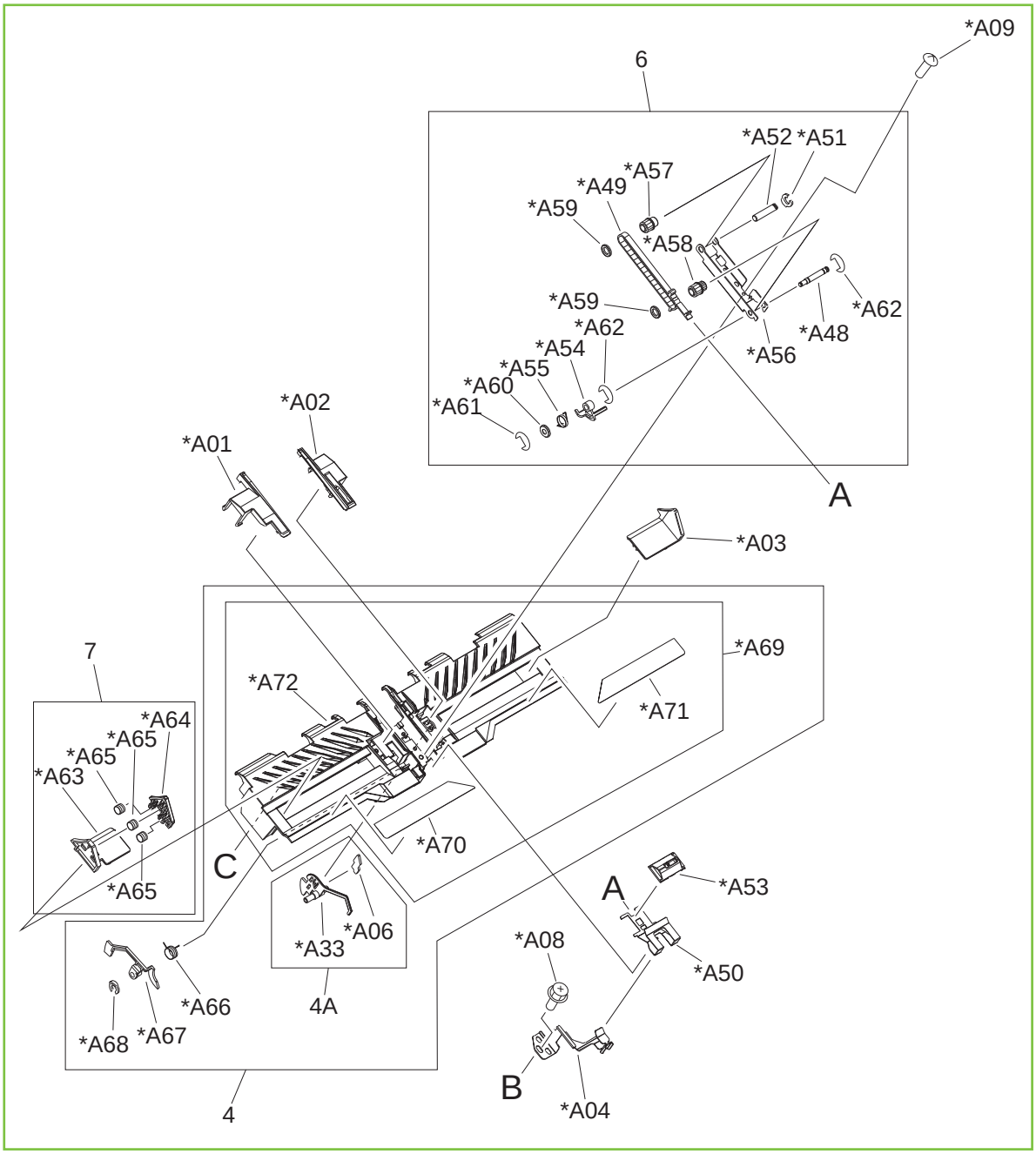


Figure 9-52 Operation-tray assembly (2 of 2) (stapler/stacker and booklet-maker)

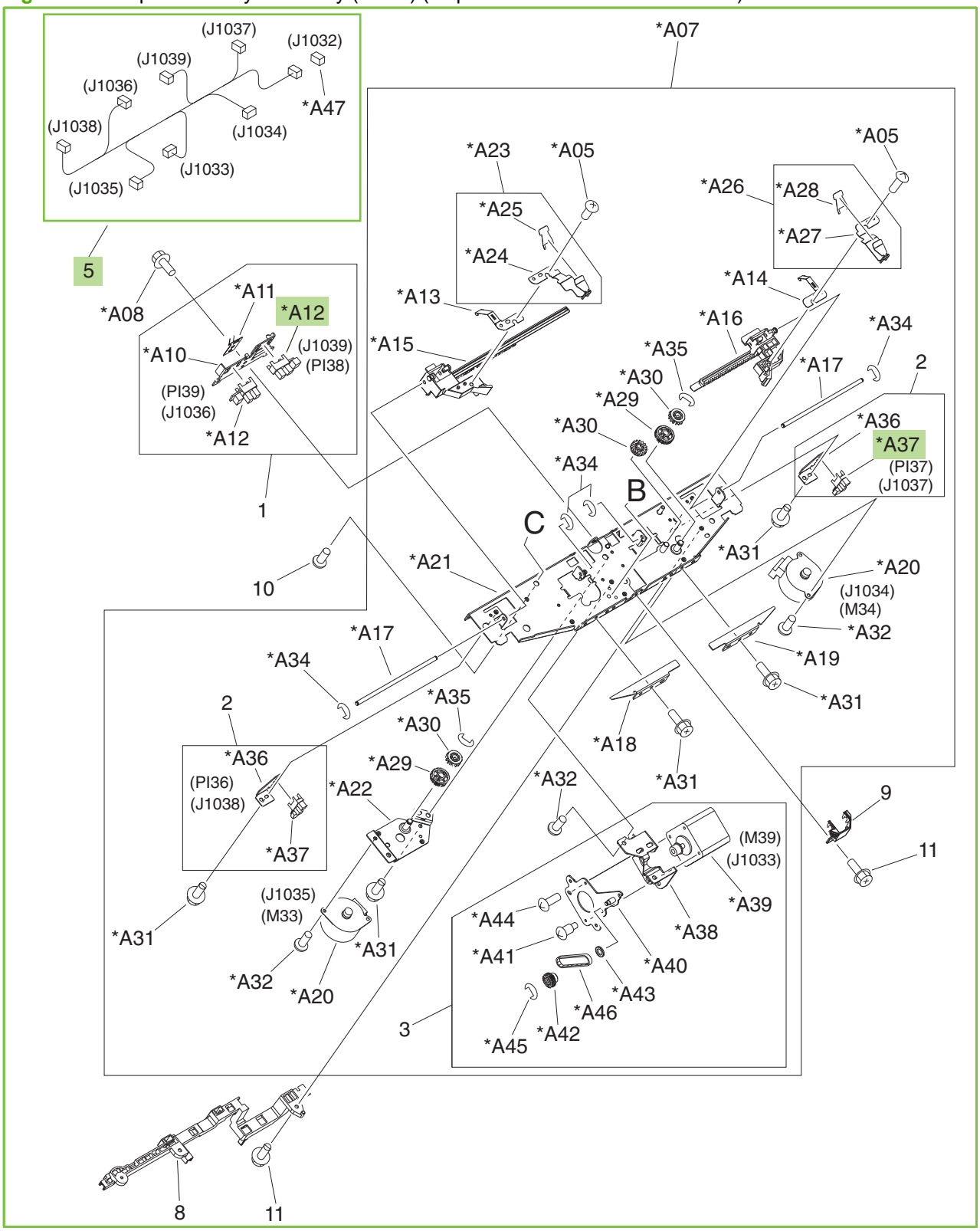


Table 9-43 Operation-tray assembly (stapler/stacker and booklet-maker)

Ref	Description	Part number	Qty
All	Operation-tray assembly	RM1-4125-000CN	1
5	Cable, operation-tray	FG3-2903-000CN	1
A12	Photo interrupter, TLP1242	WG8-5593-000CN	2
A37	Photo interrupter, TLP1242	WG8-5593-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-53 Paper-feeder motor assembly (stapler/stacker and booklet-maker)

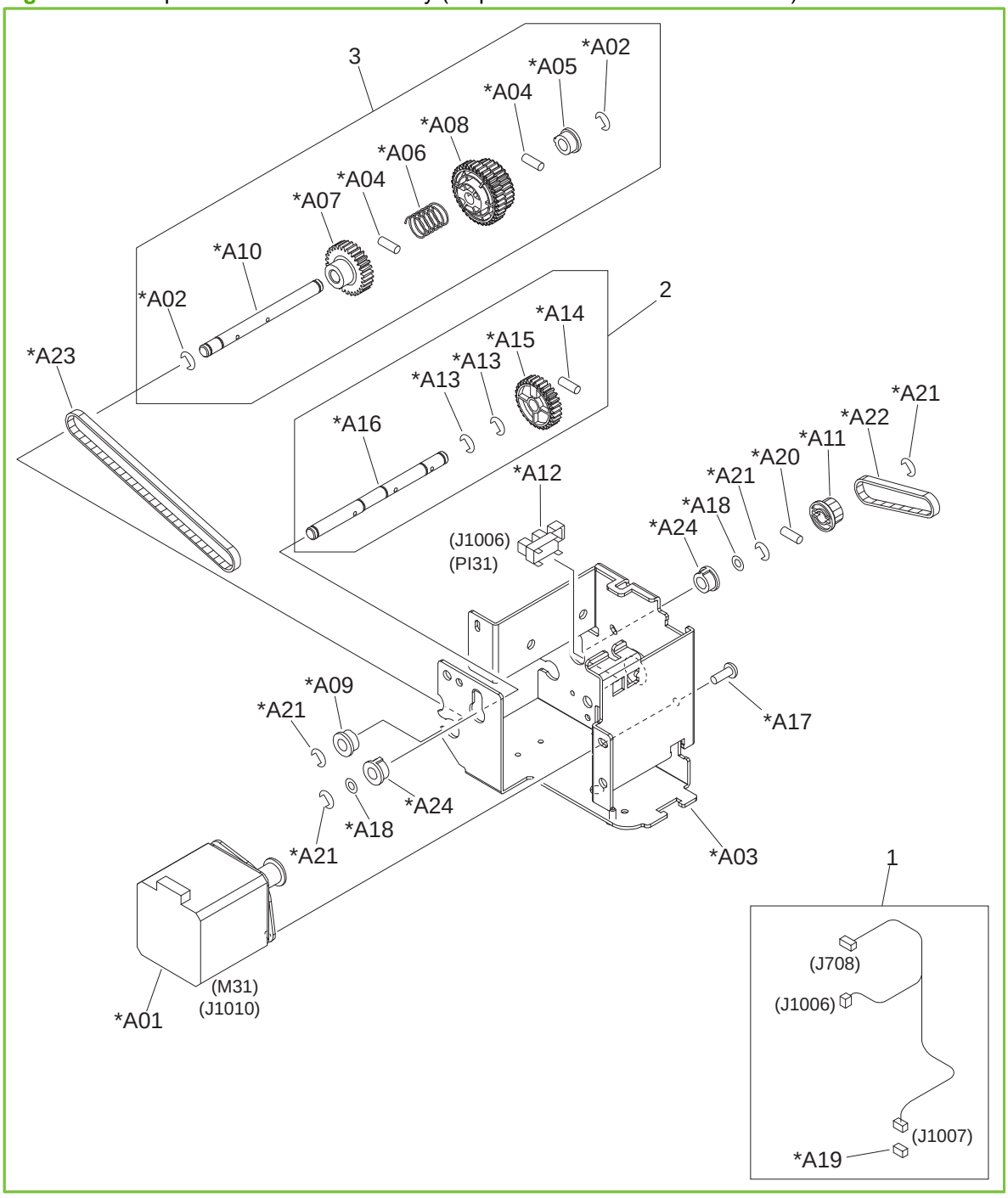


Table 9-44 Paper-feeder motor assembly (stapler/stacker and booklet-maker)

Ref	Description	Part number	Qty
All	Paper-feeder motor assembly	RM1-4175-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-54 Return-roller assembly (stapler/stacker and booklet-maker)

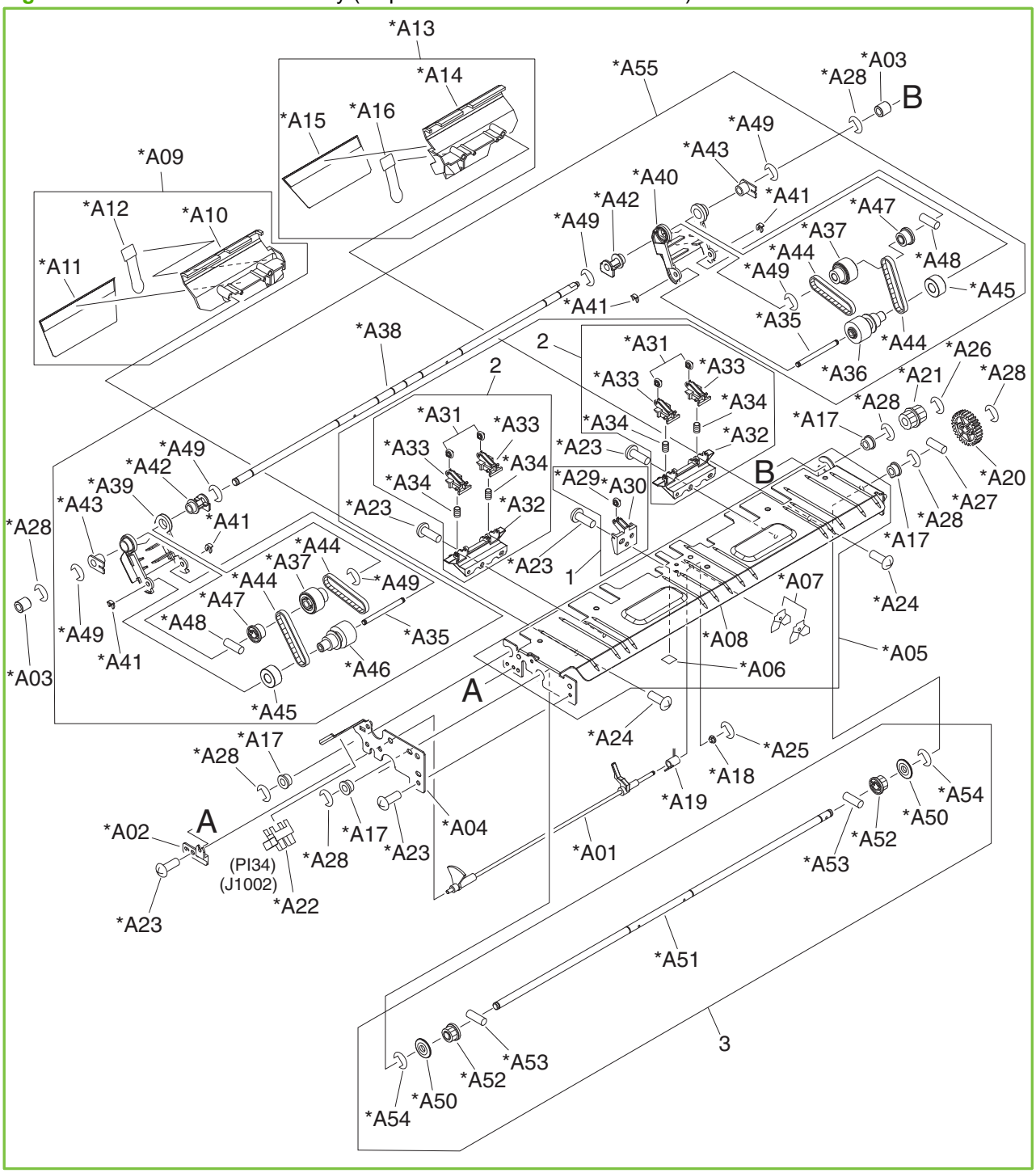


Table 9-45 Return-roller assembly (stapler/stacker and booklet-maker)

Ref	Description	Part number	Qty
All	Return-roller assembly	FM2-0725-090	1

NOTE: Only highlighted parts are orderable.

Figure 9-55 Pressure-roller assembly (stapler/stacker and booklet-maker)

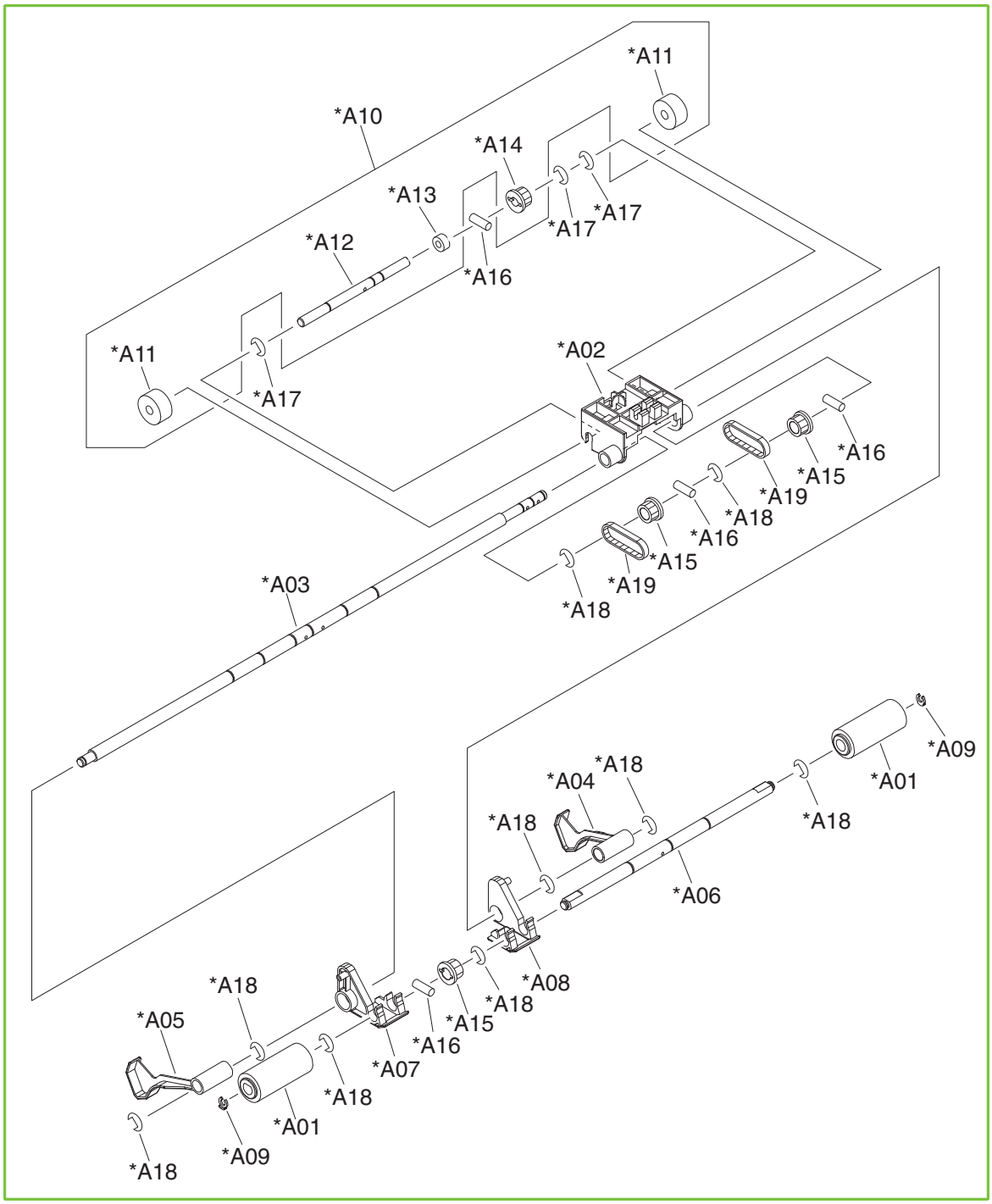


Table 9-46 Pressure-roller assembly (stapler/stacker and booklet-maker)

Ref	Description	Part number	Qty
All	Pressure-roller assembly	FM2-0730-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-56 Swing-guide assembly (stapler/stacker and booklet-maker)

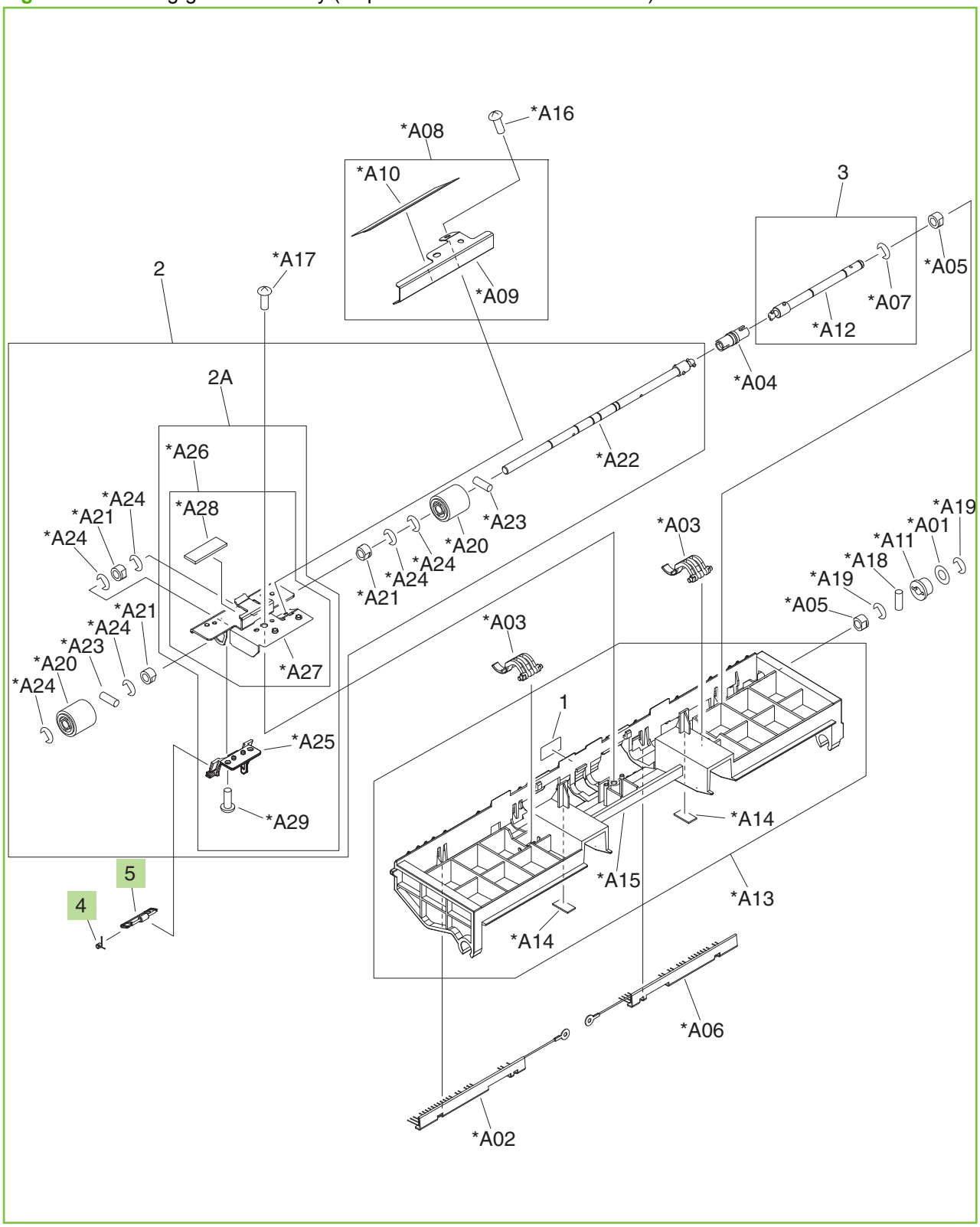


Table 9-47 Swing-guide assembly (stapler/stacker and booklet-maker)

Ref	Description	Part number	Qty
All	Swing-guide assembly	RM1-4108-000CN	1
4	Spring, torsion	FC5-6857-000CN	1
5	Arm, paper-delivery gate	RC2-1293-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-57 Entrance upper-guide assembly (stapler/stacker and booklet-maker)

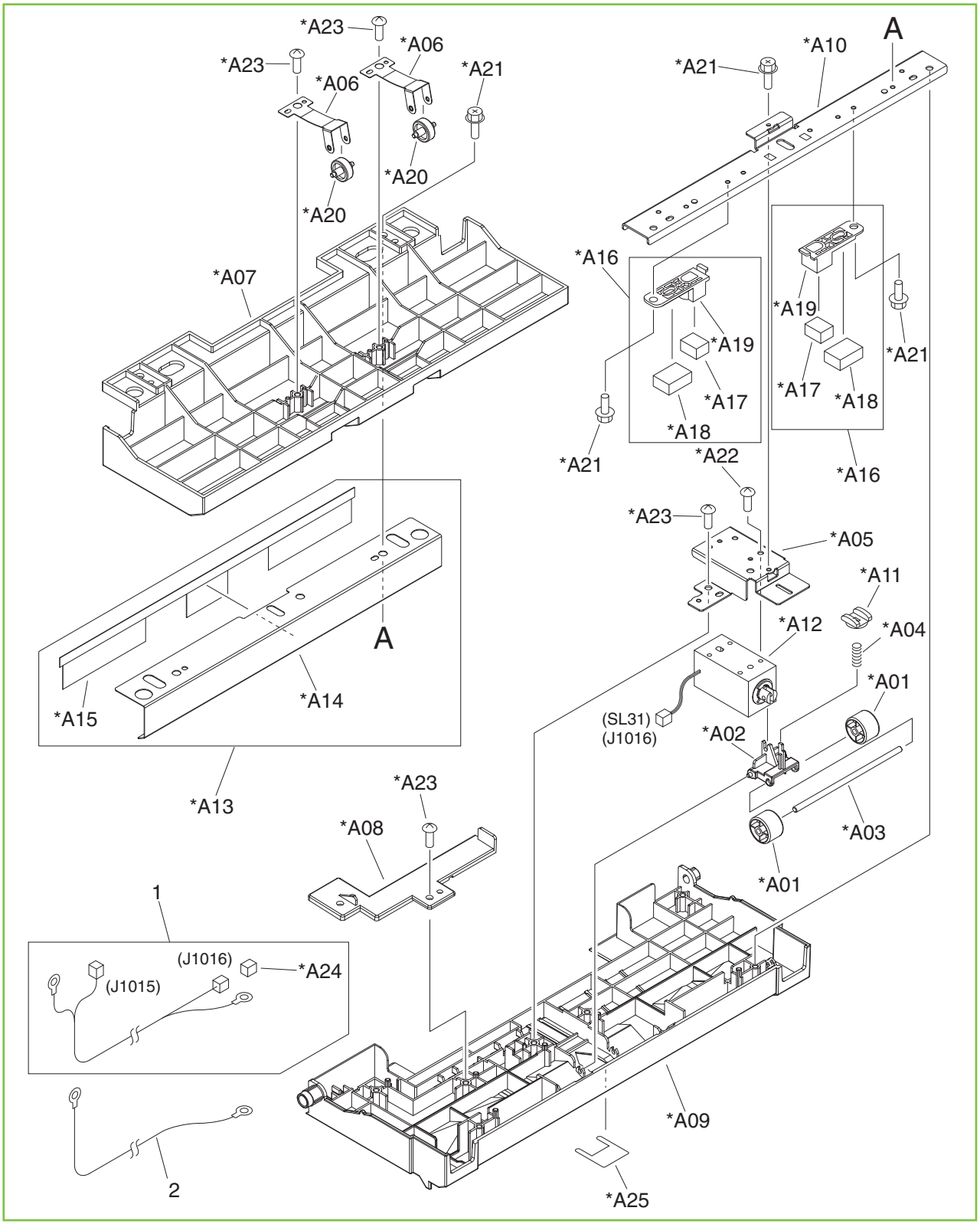


Table 9-48 Entrance upper-guide assembly (stapler/stacker and booklet-maker)

Ref	Description	Part number	Qty
All	Entrance upper-guide assembly	RM1-4172-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-58 Staple assembly (stapler/stacker and booklet-maker)

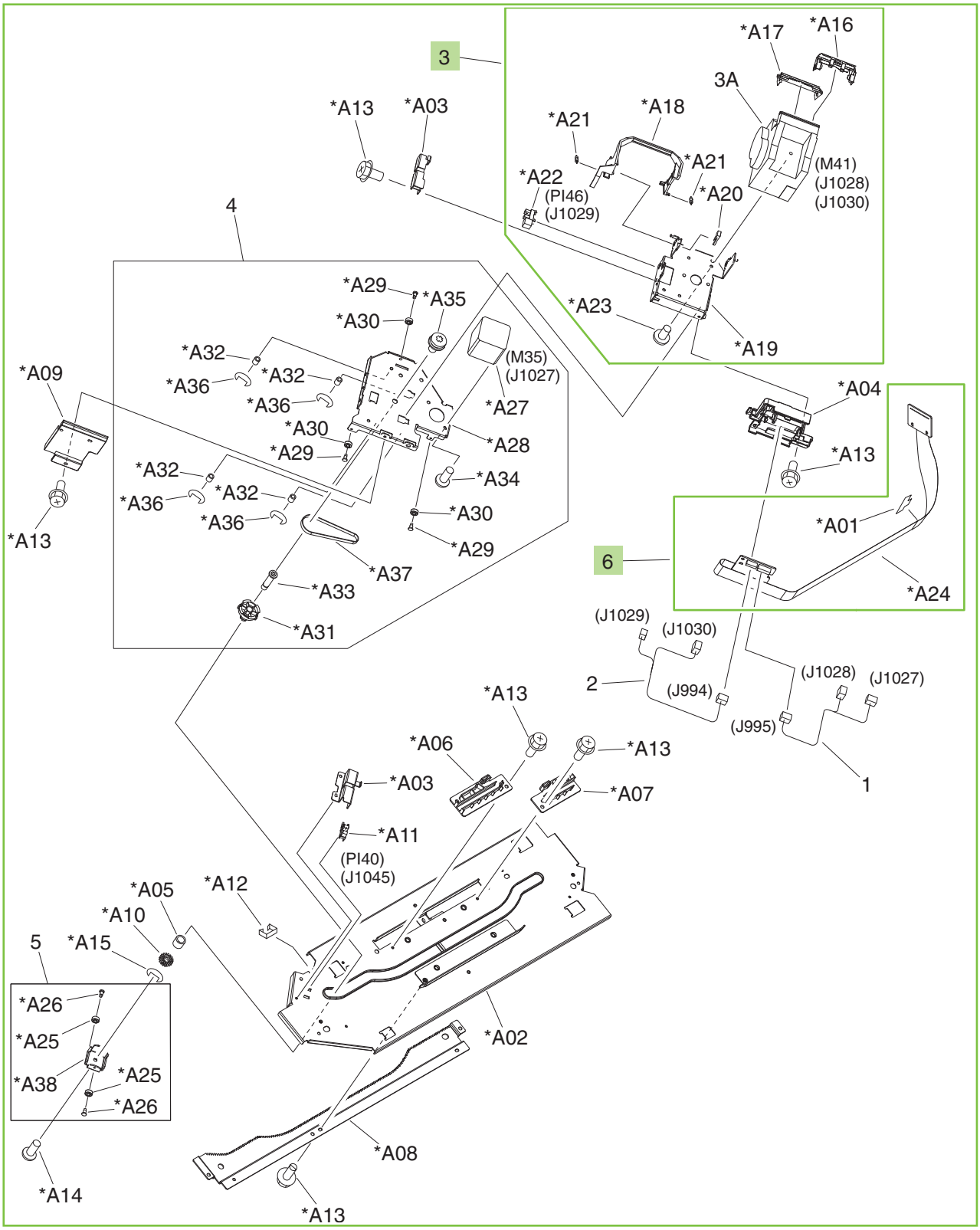


Table 9-49 Staple assembly (stapler/stacker and booklet-maker)

Ref	Description	Part number	Qty
All	Staple assembly	FM2-0721-000CN	1
3	Stapler sub-assembly	FM2-0722-000CN	1
	5000-staple replacement cartridge	C8091-67901	1
	2000-staple cartridge (for booklet making)	CC383-67901	1
6	Cable, staple-connecting assembly	4G3-1777-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-59 Saddle assembly (1 of 4) (booklet-maker)

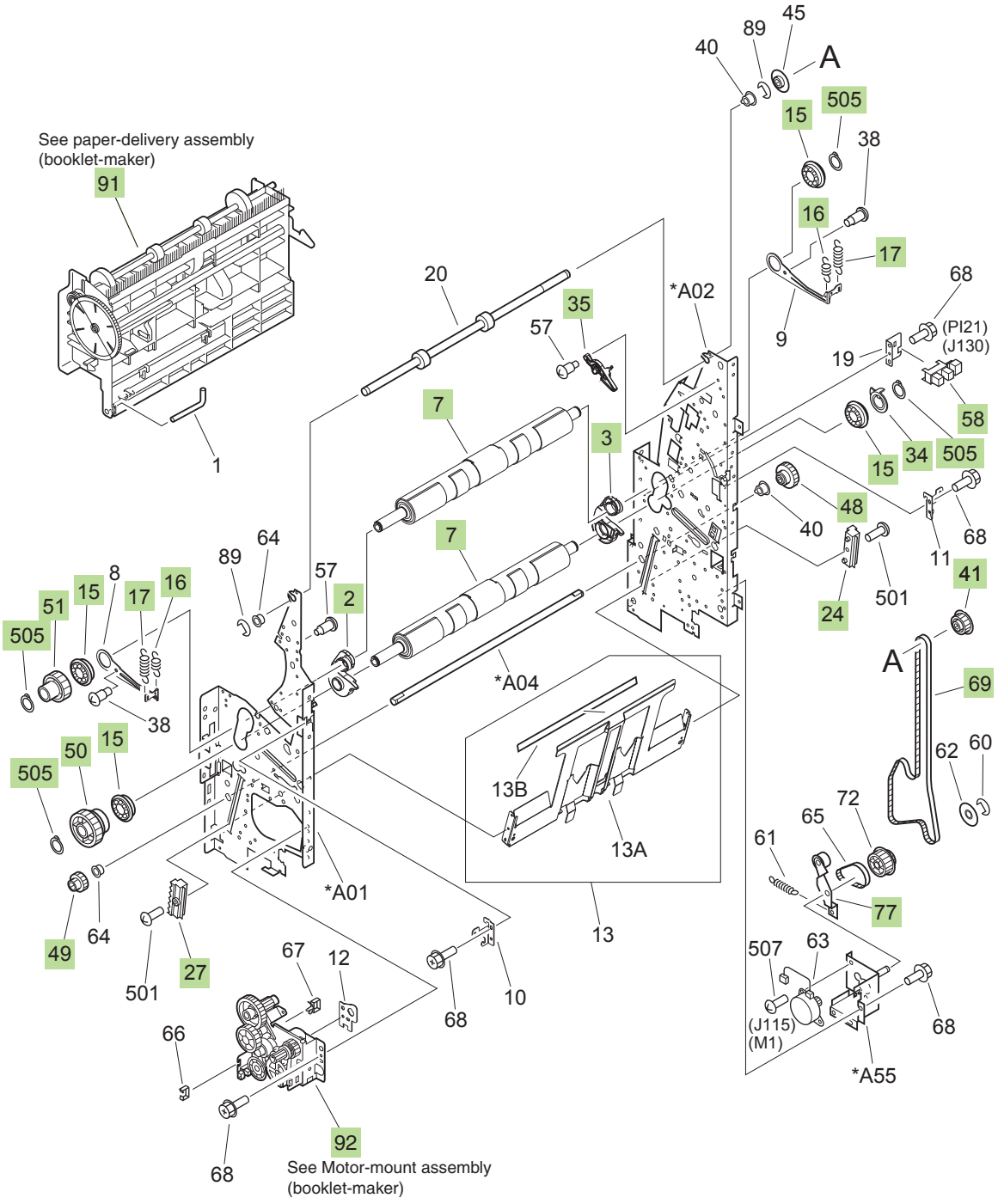


Figure 9-60 Saddle assembly (2 of 4) (booklet-maker)

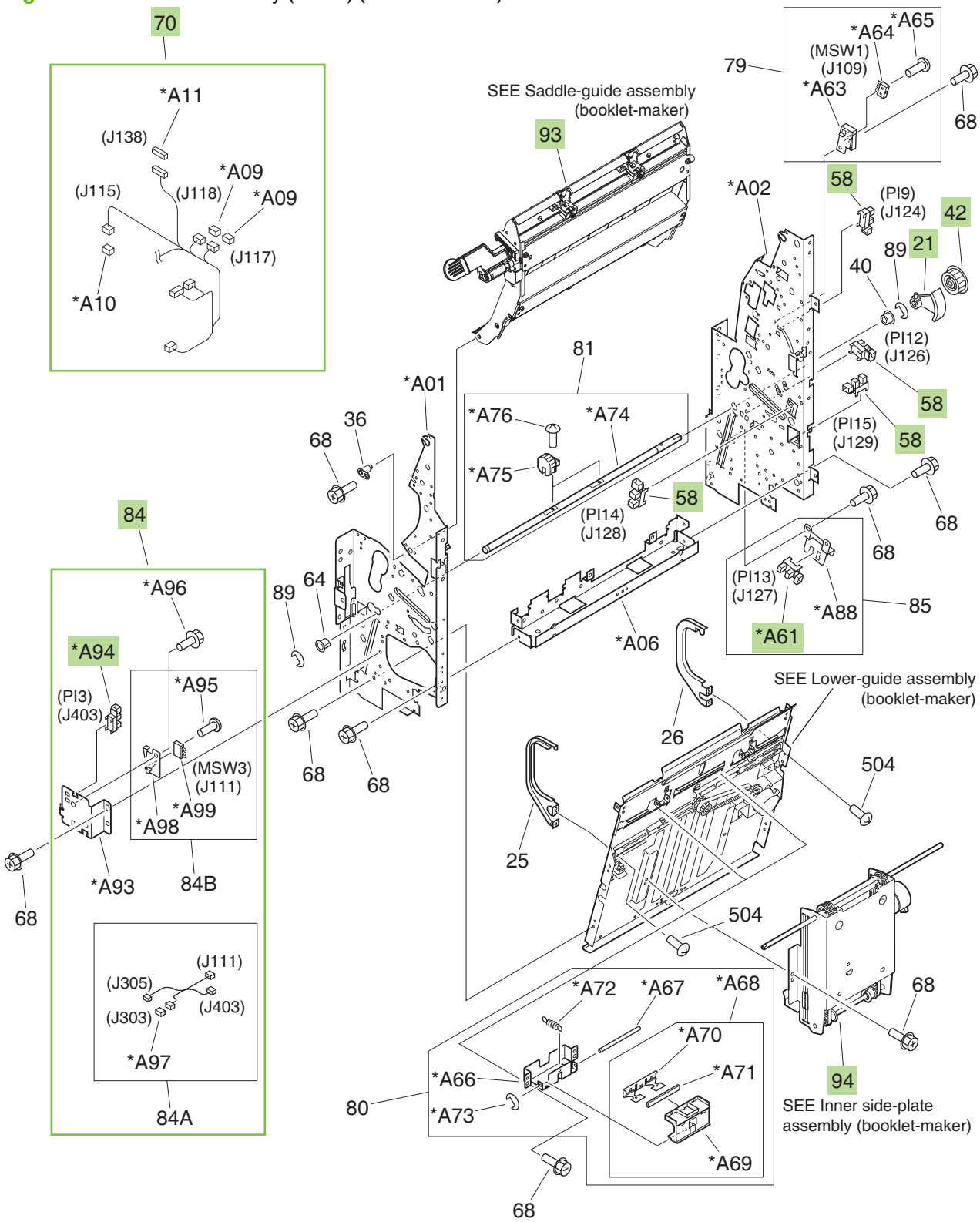


Figure 9-61 Saddle assembly (3 of 4) (booklet-maker)

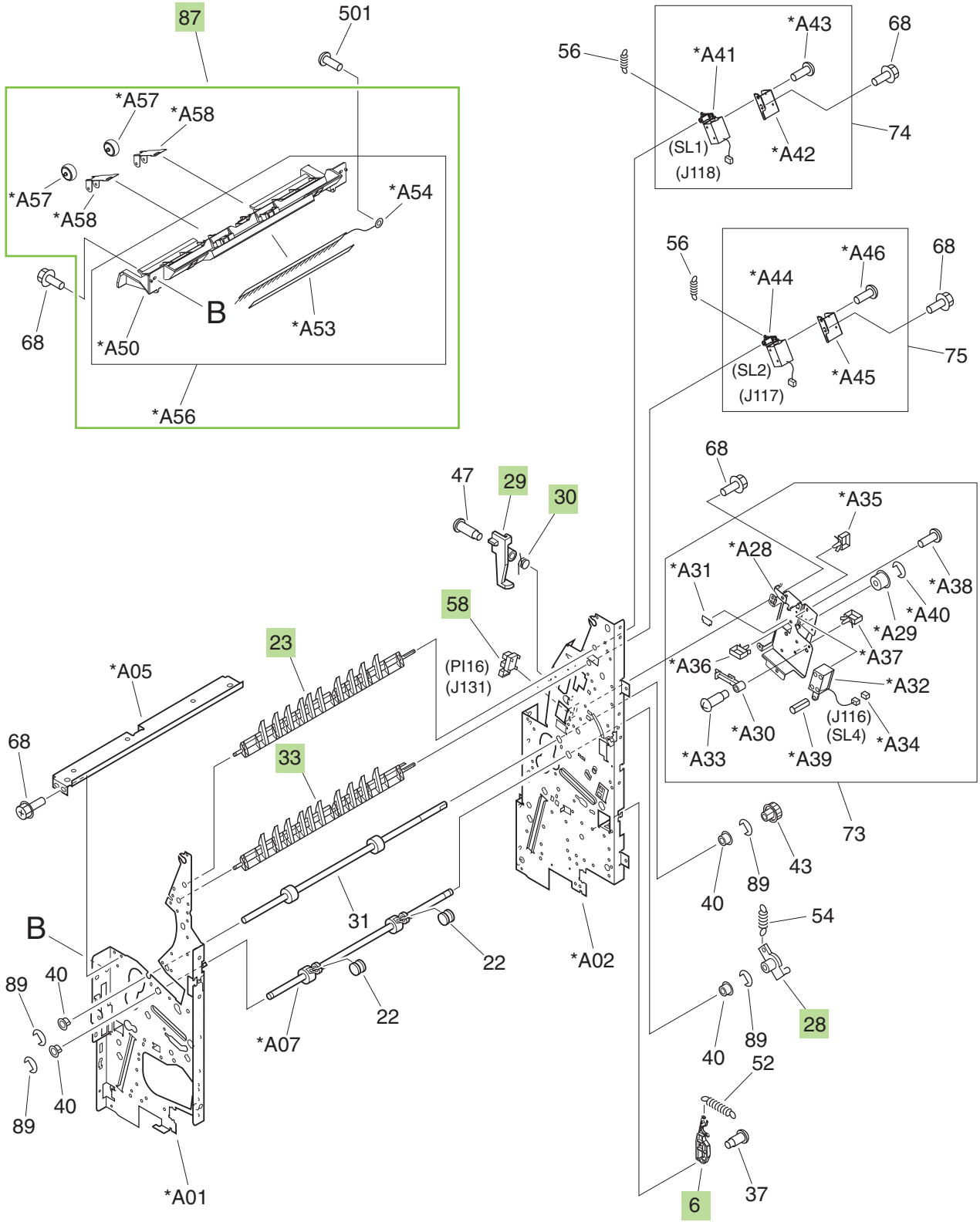


Figure 9-62 Saddle assembly (4 of 4) (booklet-maker)

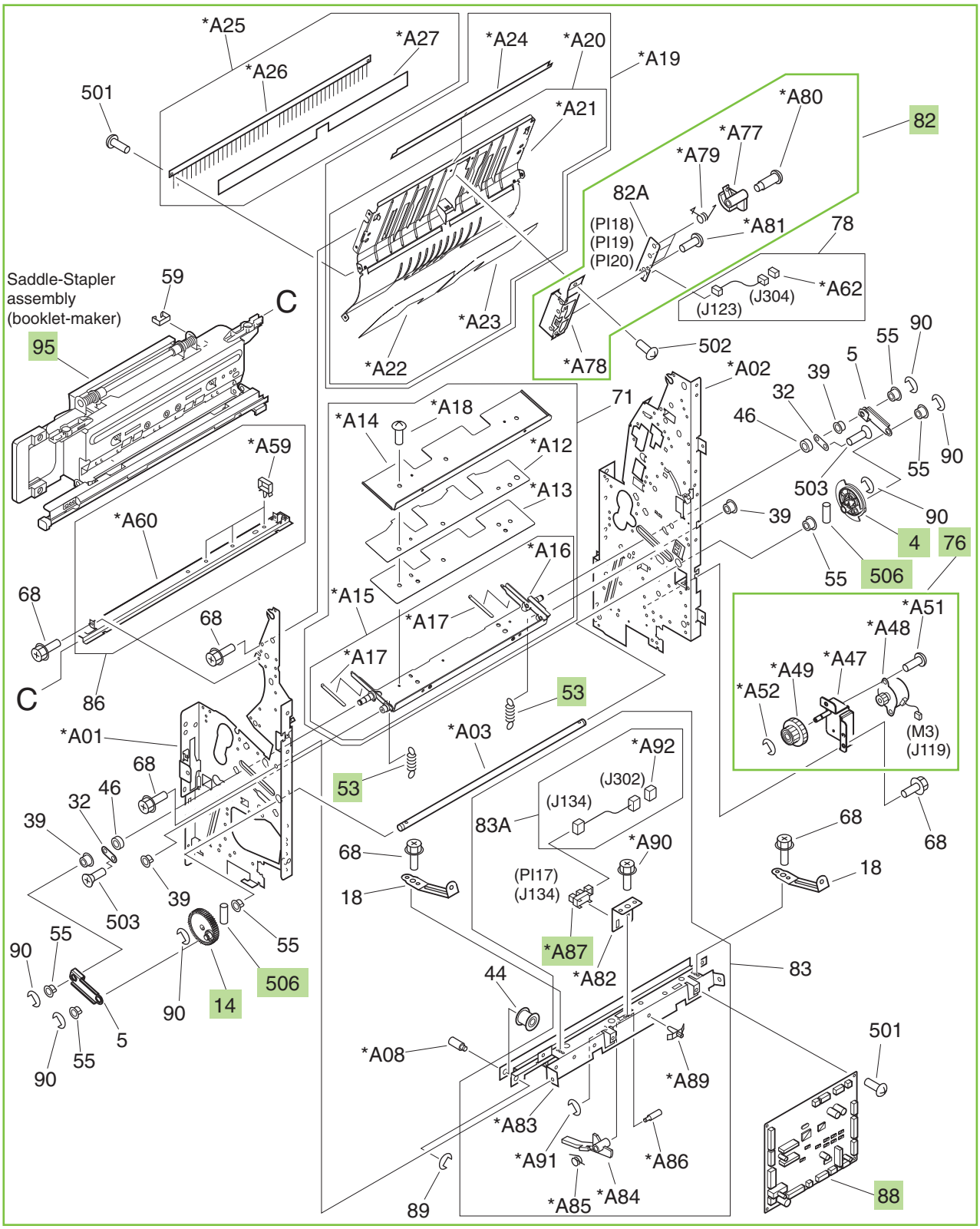


Table 9-50 Saddle assembly (booklet-maker)

Ref	Description	Part number	Qty
2	Arm, adjustment, front	4A3-1763-000CN	1
3	Arm, adjustment, rear	4A3-1764-000CN	1
4	Plate, rotation	4A3-1779-000CN	1
6	Lever, stopper	4A3-1782-000CN	1
7	Roller, folding	4A3-1783-000CN	2
14	Gear, 50T	4S3-0171-000CN	1
15	Bearing, ball, 6902ZZNR	4S3-1050-000CN	4
16	Spring, tension	4S3-2116-000CN	2
17	Spring, tension	4S3-2117-000CN	2
21	Flag, roller	FB3-7925-030CN	1
23	Deflector	FB3-7928-020CN	1
24	Rack, rear	FB3-7934-000CN	1
27	Rack, front	FB3-7967-000CN	1
28	Holder, roller, 2	FB3-7973-000CN	1
29	Flag, sensor	FB3-7979-000CN	1
30	Spring, torsion	FB3-7980-000CN	1
33	Deflector	FB5-2697-000CN	1
34	Flag, sensor	FB5-5937-020CN	1
35	Claw, latch, right	FC5-5021-000CN	1
41	Pulley, 30T	FS5-3576-000CN	1
42	Pulley, 39T	FS5-3577-000CN	1
48	Gear, 16T/33T	FS6-0822-000CN	1
49	Gear, 16T	FS6-0823-000CN	1
50	Gear, 16T/56T	FS6-0829-000CN	1
51	Gear, 16T	FS6-0830-000CN	1
53	Spring, tension	FS6-2582-000CN	2
58	Photo interrupter, TLP1242	WG8-5593-000CN	6
69	Belt, timing	XF2-3837-340CN	1
70	Cable, saddle-unit	4G1-2283-000CN	1
76	Guide-motor assembly	4G3-0725-000CN	1
77	Plate, tension	FF5-5805-040	1
82	Rear-end sensor assembly	FM2-0763-000CN	1
84	Delivery-switch mount assembly	FM2-1639-000CN	1
87	Upper delivery-guide assembly	RM1-4131-000CN	1

Table 9-50 Saddle assembly (booklet-maker) (continued)

Ref	Description	Part number	Qty
88	Saddle-controller PCA assembly	RM1-4140-000CN	1
91	Saddle paper-delivery assembly	RM1-4130-000CN	1
92	Motor-mount assembly	4G3-0670-000CN	1
93	Saddle-guide assembly	FM2-0756-000CN	1
94	Inner side-plate assembly	4G3-0671-000CN	1
95	Saddle-stapler assembly	RM1-4178-000CN	1
505	Ring, C, external	XD2-3100-152CN	4
506	Pin, dowel	XD3-2300-202CN	2
A61	Photo interrupter, TLP1242	WG8-5593-000CN	1
A87	Photo interrupter, TLP1242	WG8-5593-000CN	1
A94	Photo interrupter, TLP1242	WG8-5593-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-63 Saddle-tray assembly (booklet-maker)

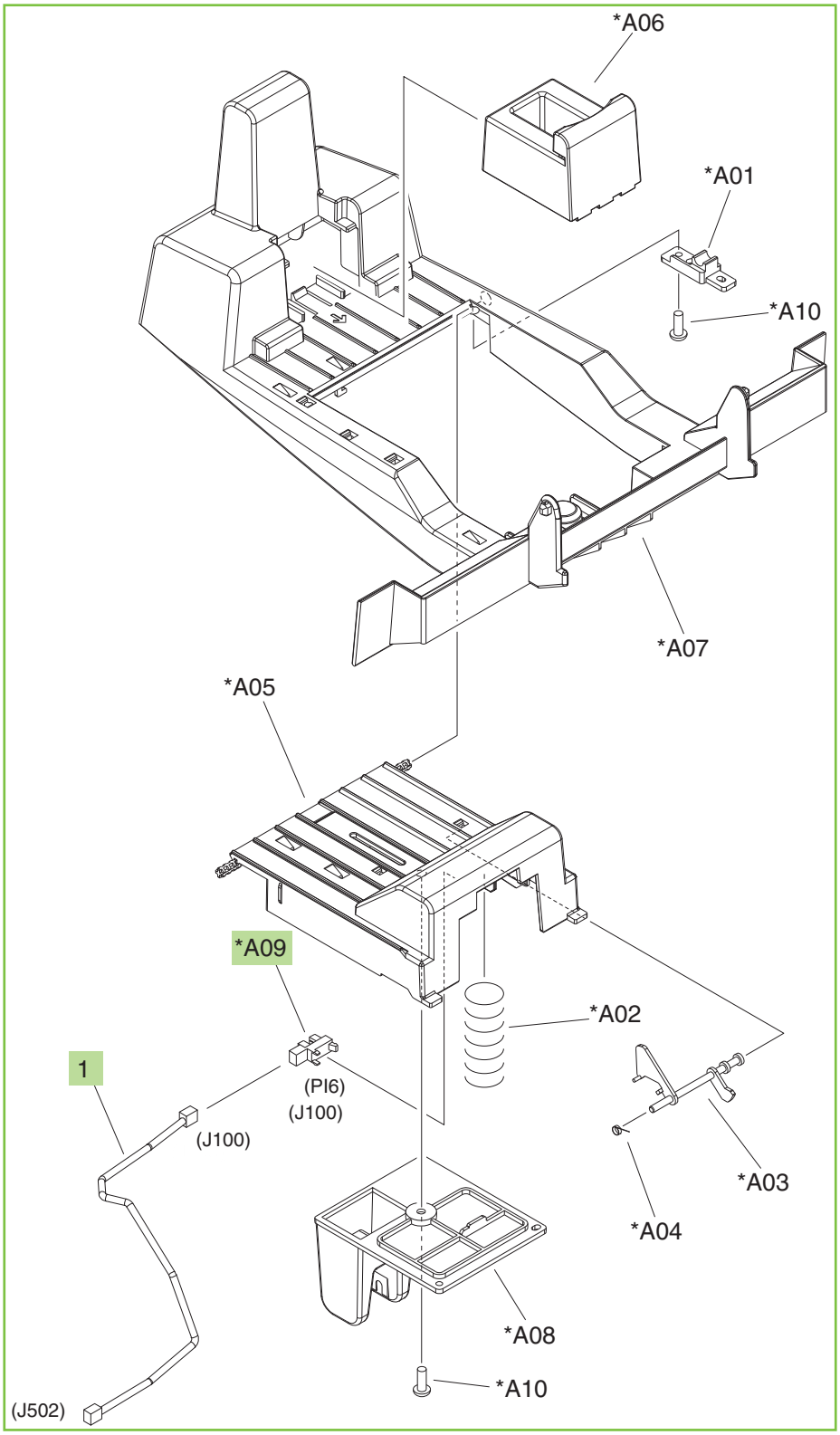


Table 9-51 Saddle-tray assembly (booklet-maker)

Ref	Description	Part number	Qty
All	Booklet-output bin (saddle-tray assembly)	RM1-4113-000CN	1
1	Cable, sensor	4G1-2285-000CN	1
A09	Photo interrupter, TLP1242	WG8-5593-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-64 Saddle-guide assembly (booklet-maker)

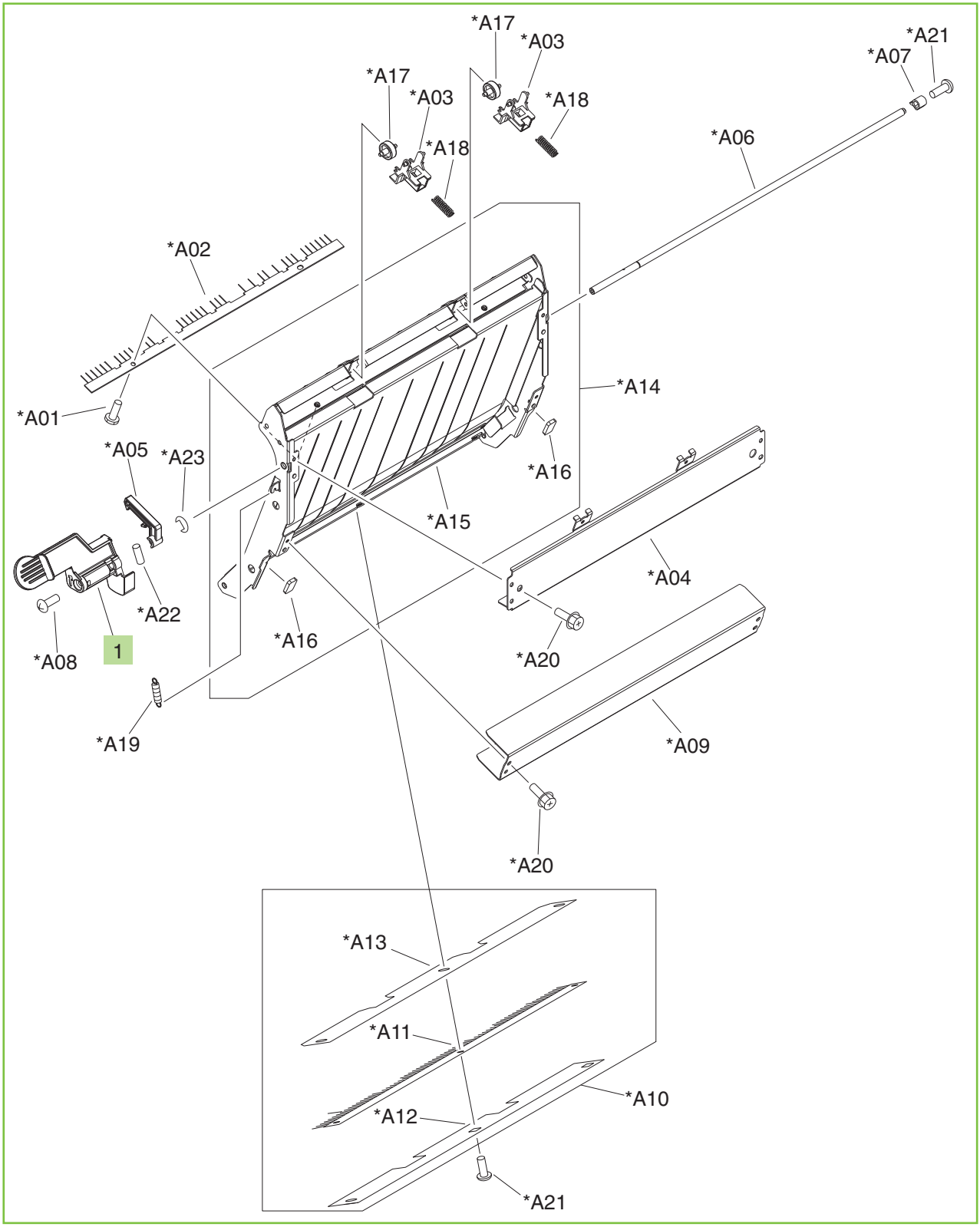


Table 9-52 Saddle-guide assembly (booklet-maker)

Ref	Description	Part number	Qty
All	Saddle-guide assembly	FM2-5024-000CN	1
1	Knob, latch	FC5-5024-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-65 Saddle-stapler assembly (booklet-maker)

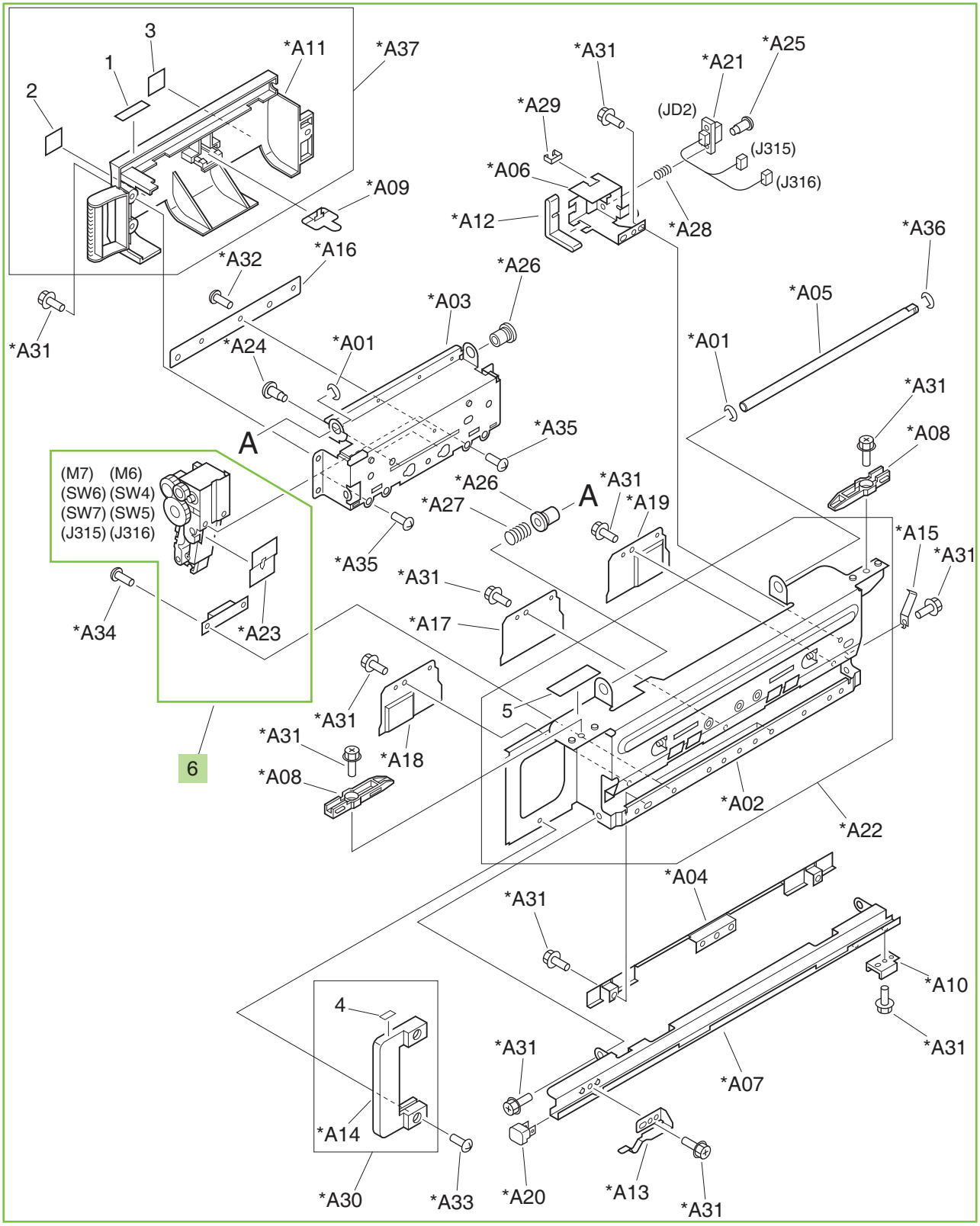


Table 9-53 Saddle-stapler assembly (booklet-maker)

Ref	Description	Part number	Qty
All	Saddle-stapler assembly	RM1-4178-000CN	1
6	Stapler unit	FL2-0846-000CN	2
	5000-staple replacement cartridge	C8091-67901	1
	2000-staple cartridge (for booklet making)	CC383-67901	1

NOTE: Only highlighted parts are orderable.

Figure 9-66 Saddle paper-feeder assembly (stapler/stacker)

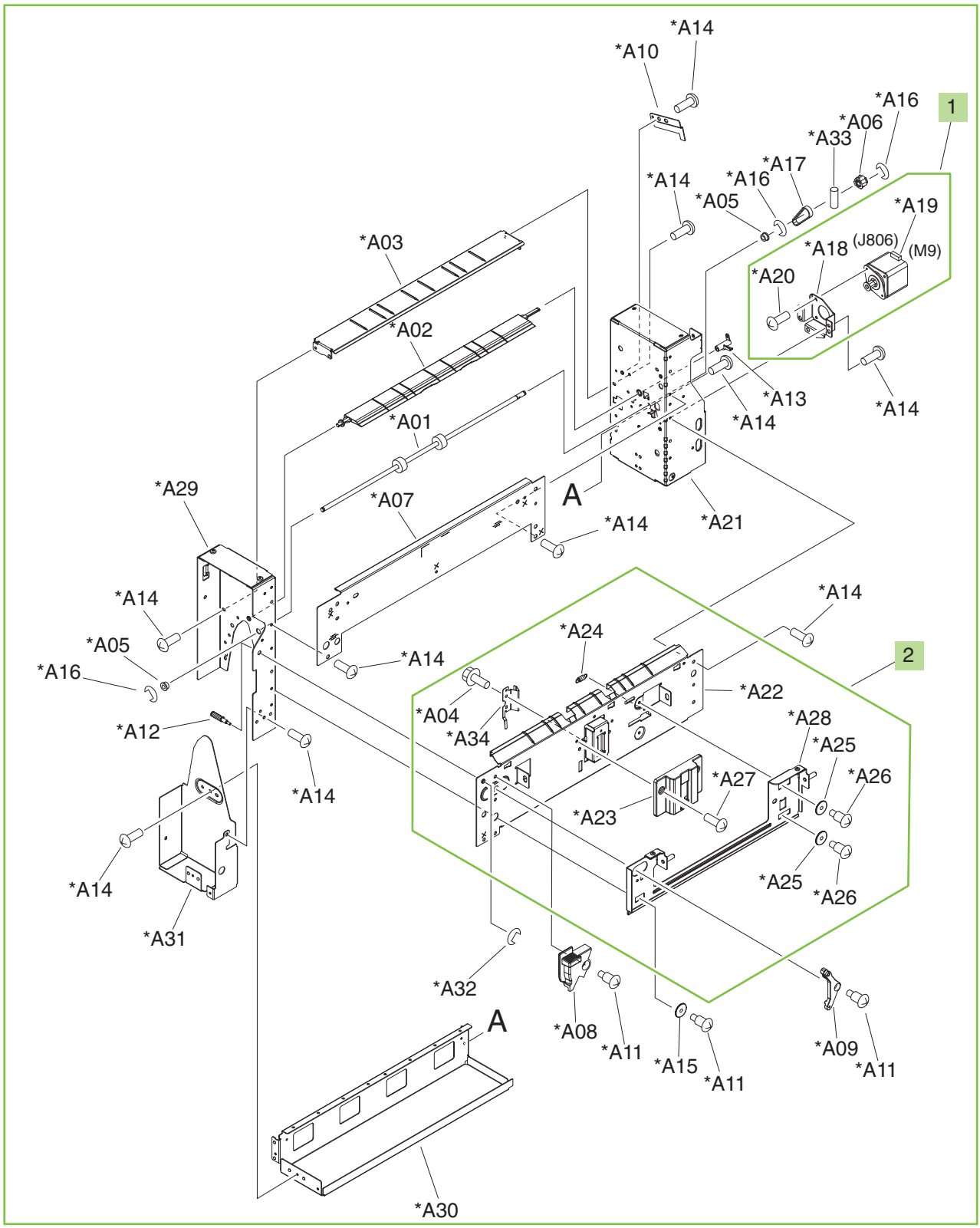


Table 9-54 Saddle paper-feeder assembly (stapler/stacker)

Ref	Description	Part number	Qty
All	Saddle paper-feeder assembly	RM1-4136-000CN	1
1	Saddle-motor assembly	FM2-0737-000CN	1
2	Entrance lower-guide assembly	RM1-4110-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-67 Saddle paper-feeder assembly (booklet-maker)

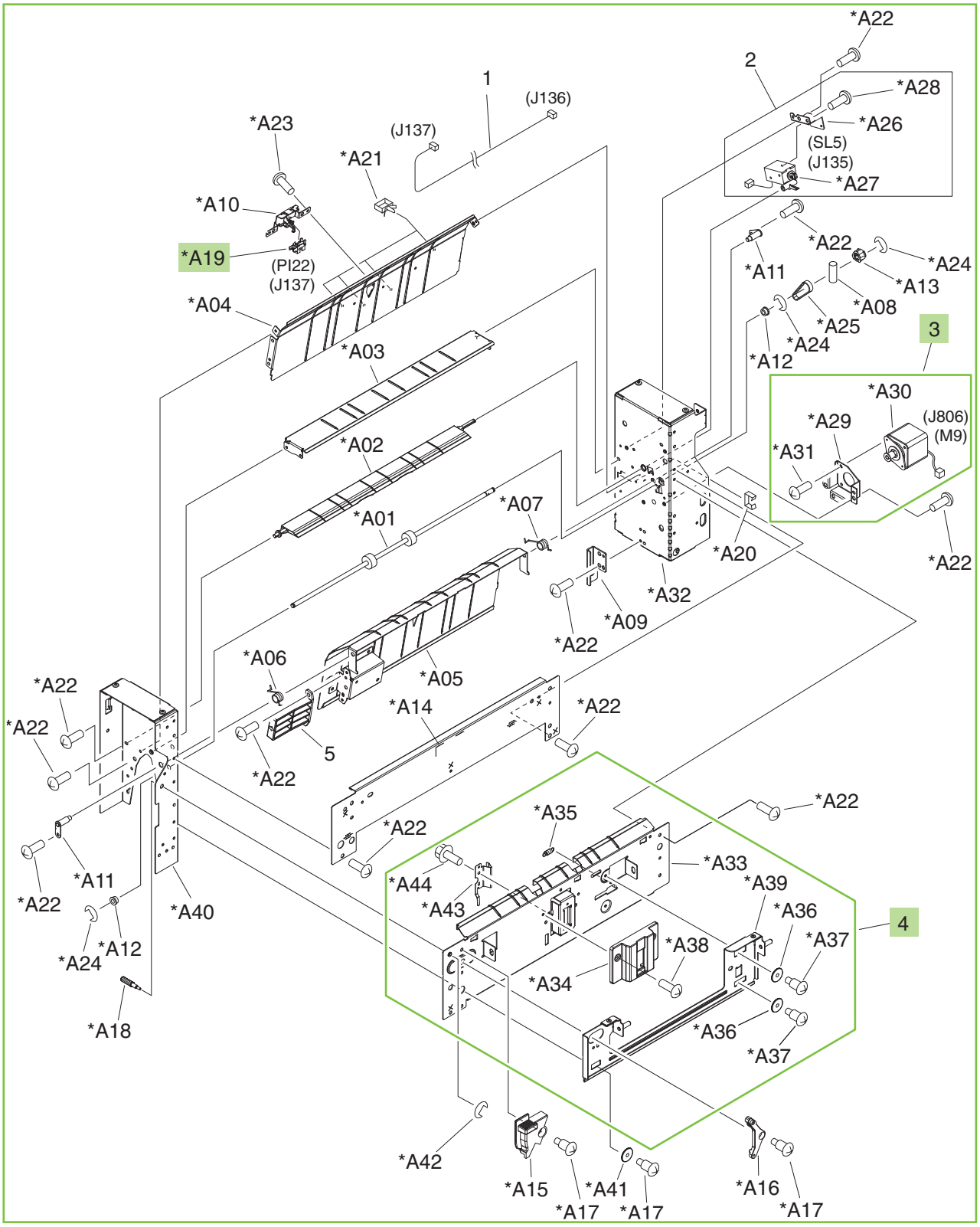


Table 9-55 Saddle paper-feeder assembly (booklet-maker)

Ref	Description	Part number	Qty
All	Saddle paper-feeder assembly	RM1-4109-000CN	1
3	Saddle-motor assembly	FM2-0737-000CN	1
4	Entrance lower-guide assembly	RM1-4110-000CN	1
A19	Photo interrupter, TLP1242	WG8-5593-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-68 Pass lower-guide assembly (booklet-maker)

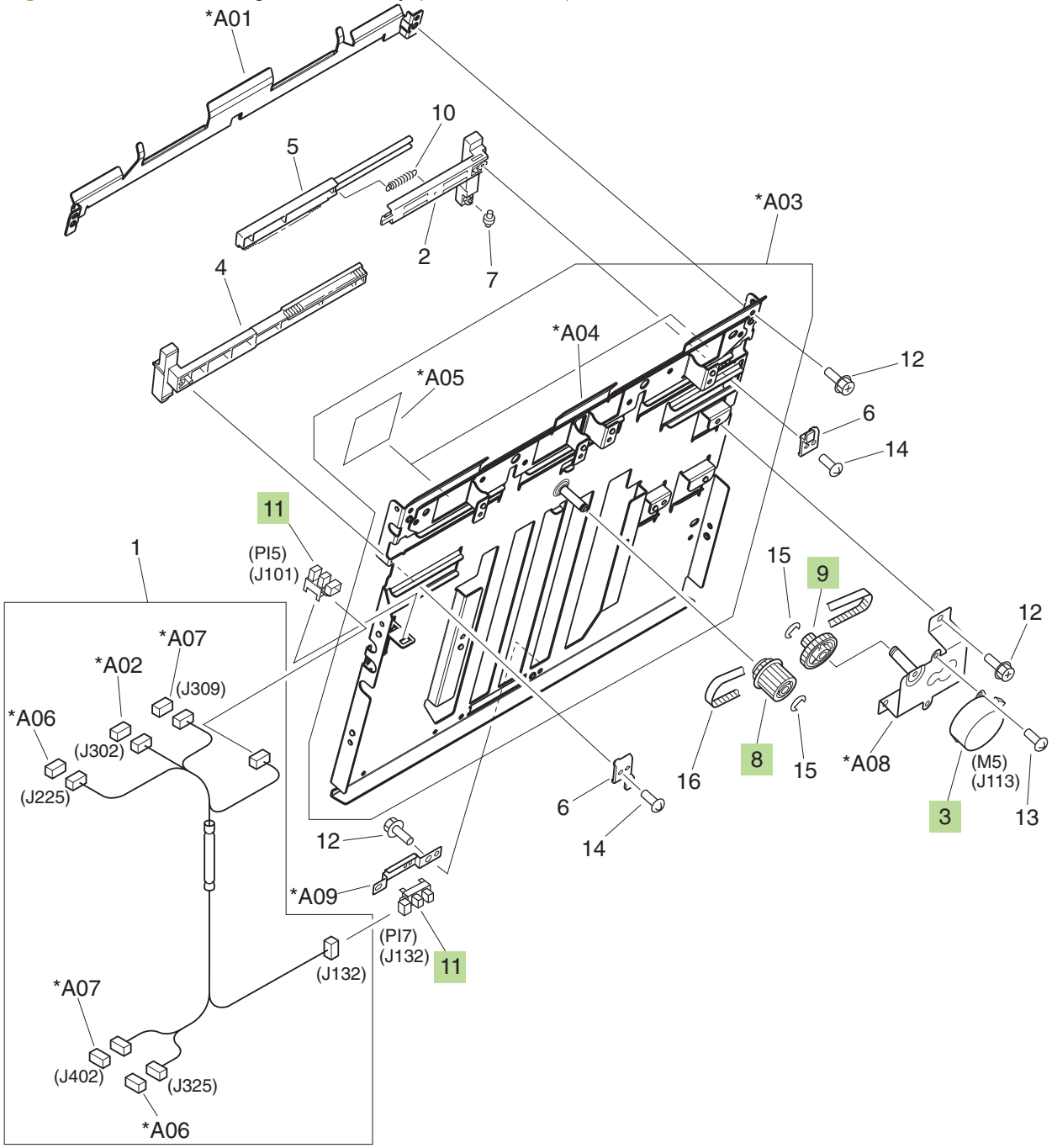


Table 9-56 Pass lower-guide assembly (booklet-maker)

Ref	Description	Part number	Qty
3	Motor, stepping	4K1-1103-000CN	1
8	Pulley, 32T/gear, 16T	FS6-0814-000CN	1
9	Pulley, 16T/gear, 32T	FS6-0815-000CN	1
11	Photo interrupter, TLP1242	WG8-5593-000CN	2

NOTE: Only highlighted parts are orderable.

Figure 9-69 Inner side-plate assembly (booklet-maker)

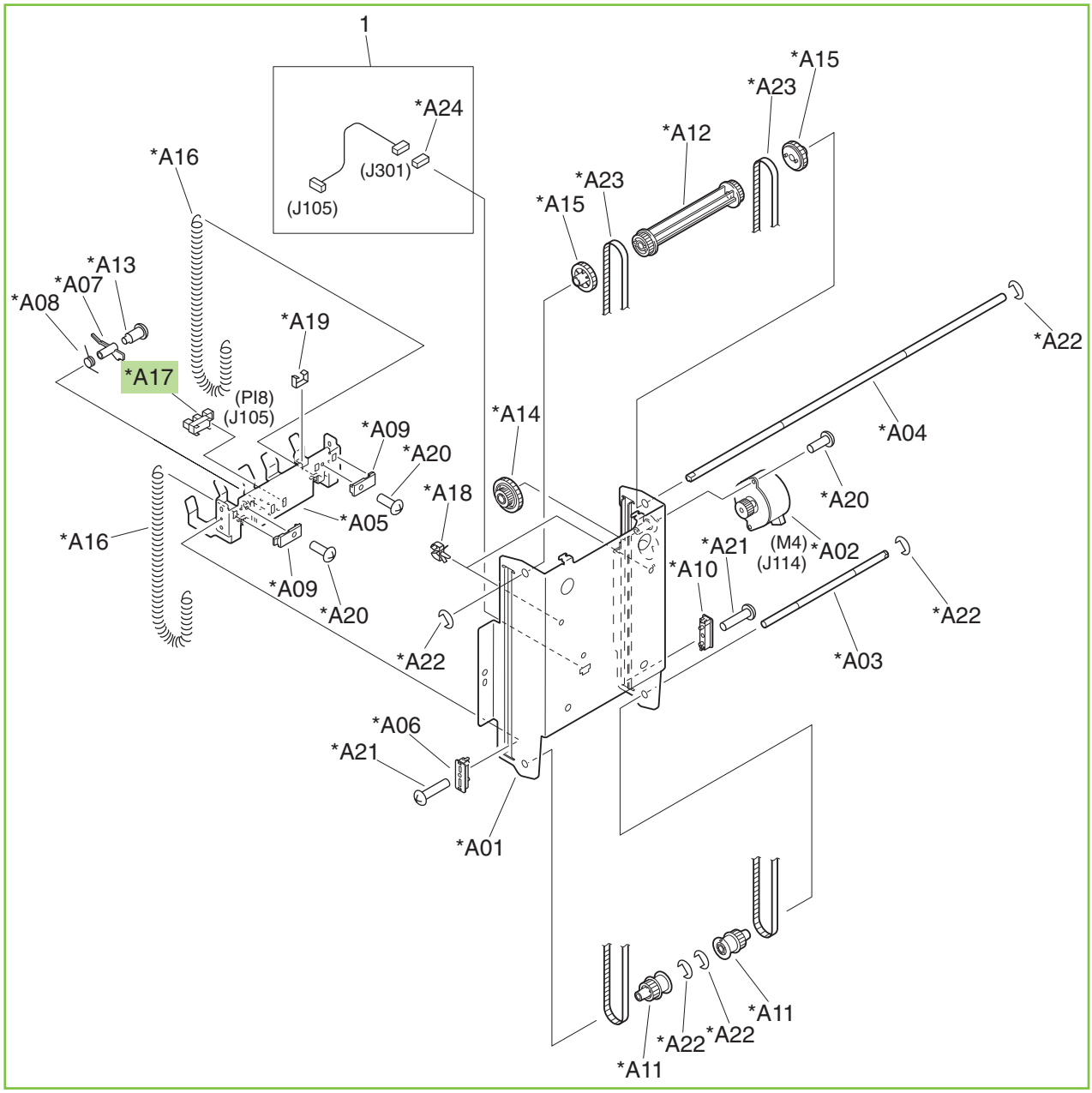


Table 9-57 Inner side-plate assembly (booklet-maker)

Ref	Description	Part number	Qty
All	Inner side-plate assembly	4G3-0671-000CN	1
A17	Photo interrupter, TLP1242	WG8-5593-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-70 Saddle paper-delivery assembly (booklet-maker)

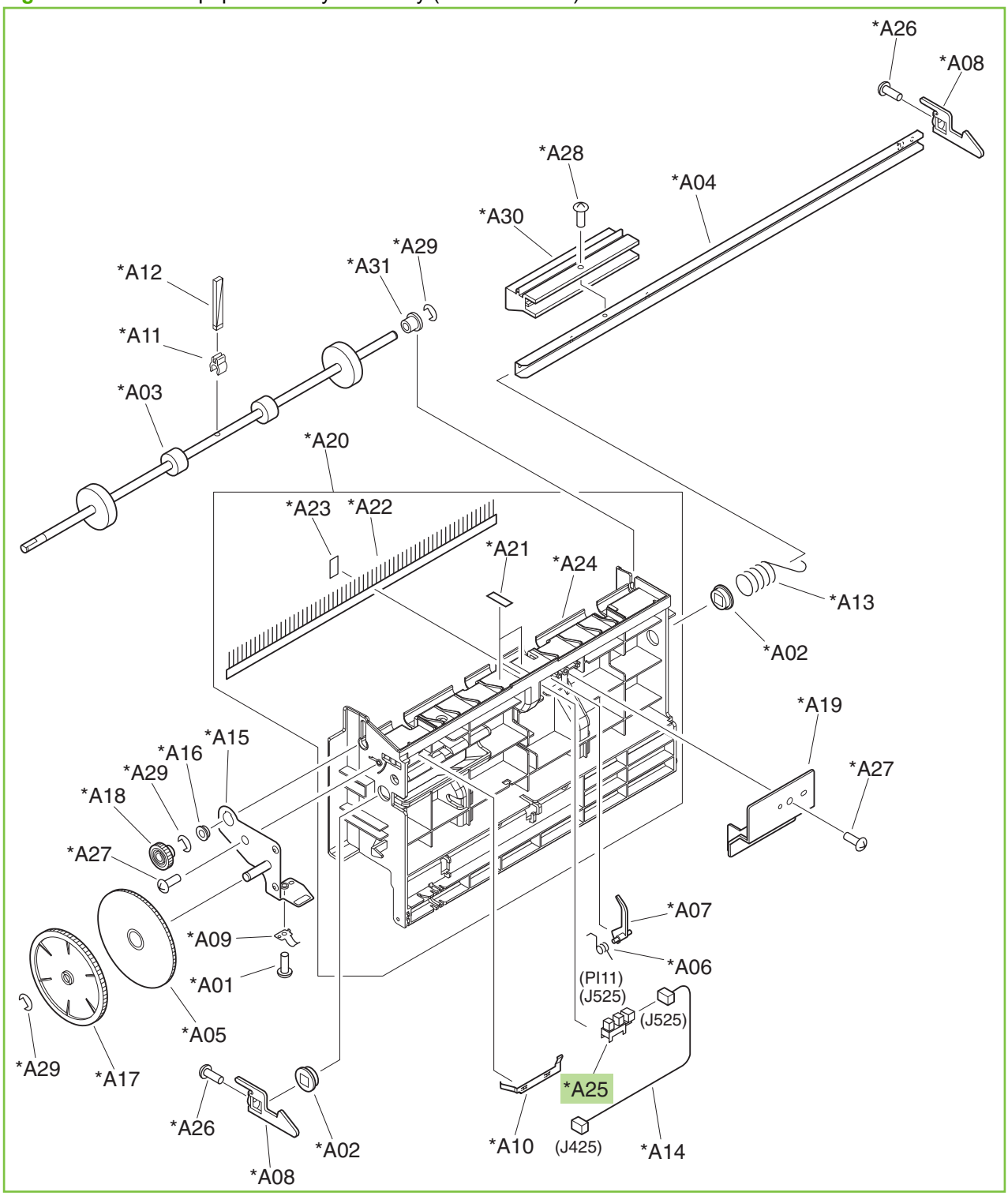


Table 9-58 Saddle paper-delivery assembly (booklet-maker)

Ref	Description	Part number	Qty
All	Saddle paper-delivery assembly	RM1-4130-000CN	1
A25	Photo interrupter, TLP1242	WG8-5593-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-71 Motor-mount assembly (booklet-maker)

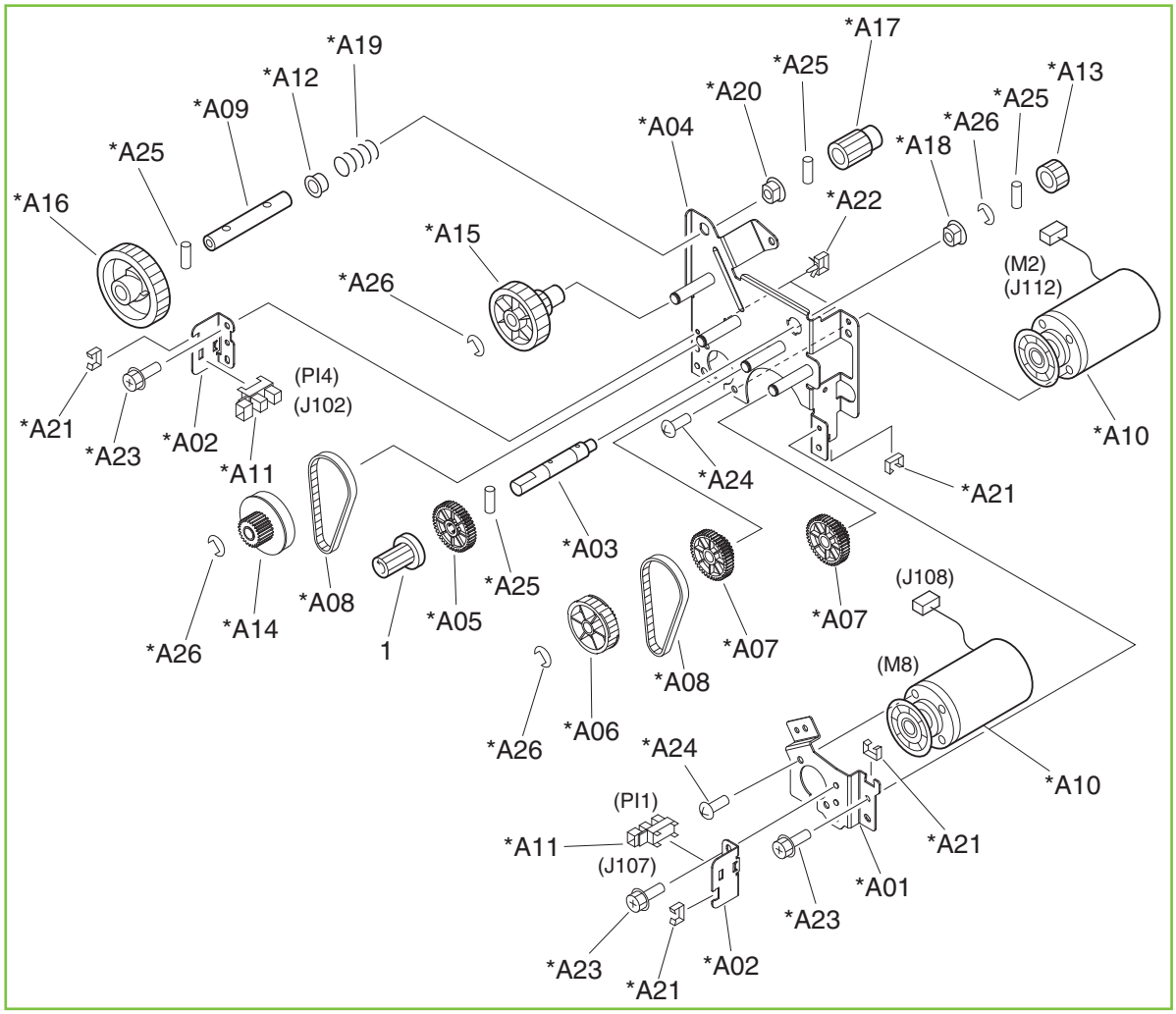


Table 9-59 Motor-mount assembly (booklet-maker)

Ref	Description	Part number	Qty
All	Motor-mount assembly	4G3-0670-000CN	1

NOTE: Only highlighted parts are orderable.

Figure 9-72 PCA assembly

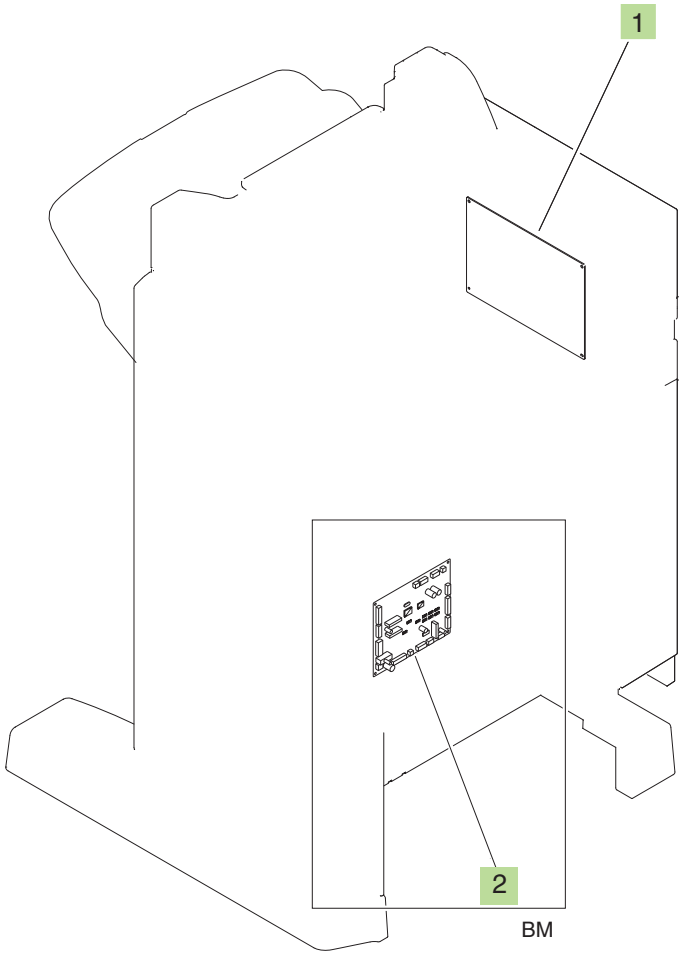


Table 9-60 PCA assembly

Ref	Description	Part number	Qty
1	Main controller PCA assembly (stapler/stacker and booklet-maker)	RM1-4139-000CN	1
2	Saddle-controller PCA assembly (booklet-maker)	RM1-4140-000CN	1

NOTE: Only highlighted parts are orderable.

Automatic document-feeder (ADF)

Automatic document feeder (ADF) assemblies

Figure 9-73 ADF unit

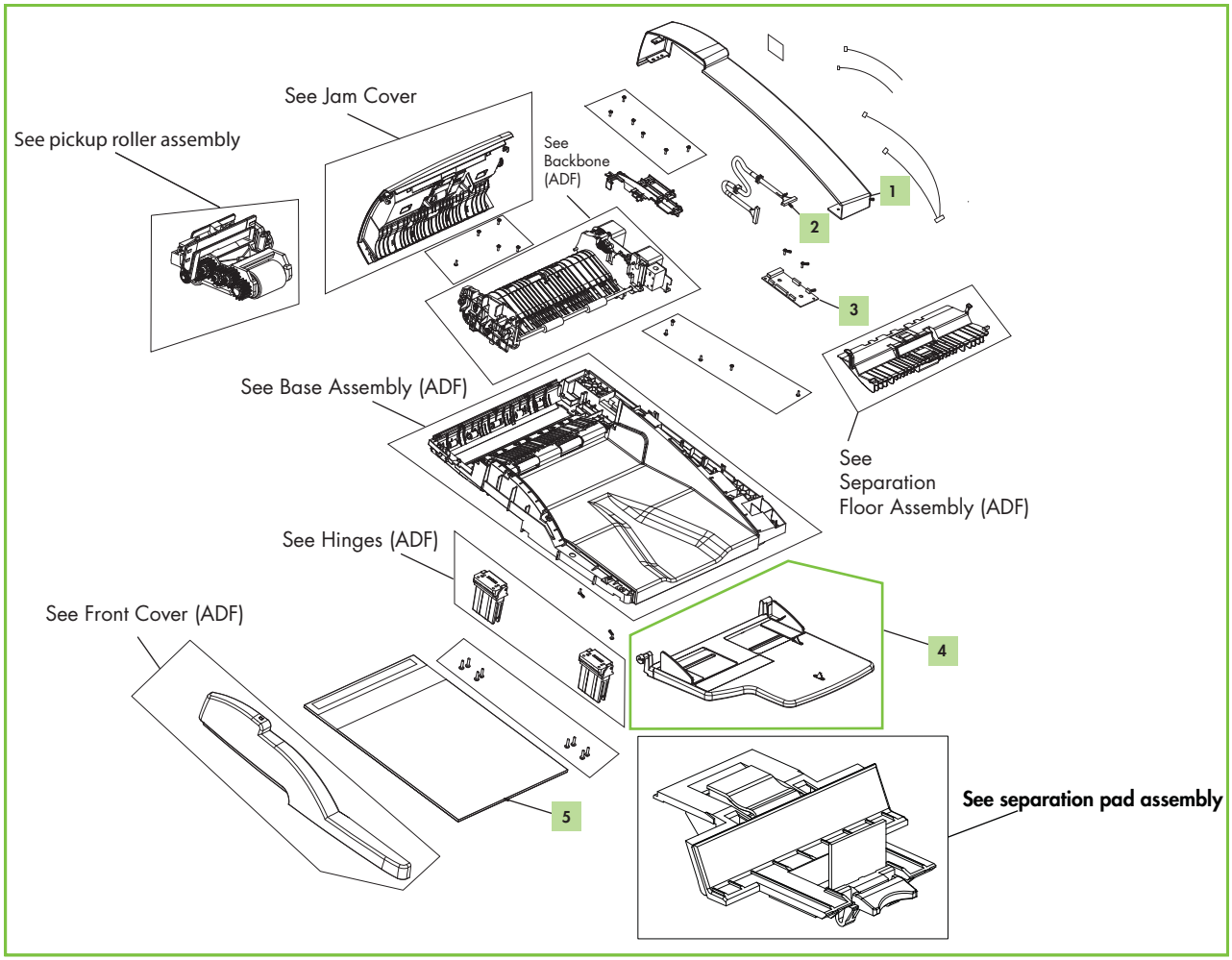


Table 9-61 ADF unit

Ref	Description	Part number	Qty
All	Automatic document feeder (ADF) whole unit	Q3938-67943	1
1	End cover (cap) back	Q3938-67945	1
2	Cable, ADF to scanner	Q3938-67948	1
3	PCA motor assembly	Q7829-67903	1
4	Tray-input assembly	Q3938-67950	1
5	Reflector foam (white backing)	Q7829-67909	1
Not shown	Flag sensor LS	Q3938-67951	1
Not shown	Photo interrupter with connector	Q7829-67914	1
Not shown	Maintenance kit	Q3938-67944	1

NOTE: Only highlighted parts are orderable.

Figure 9-74 Front-end cover

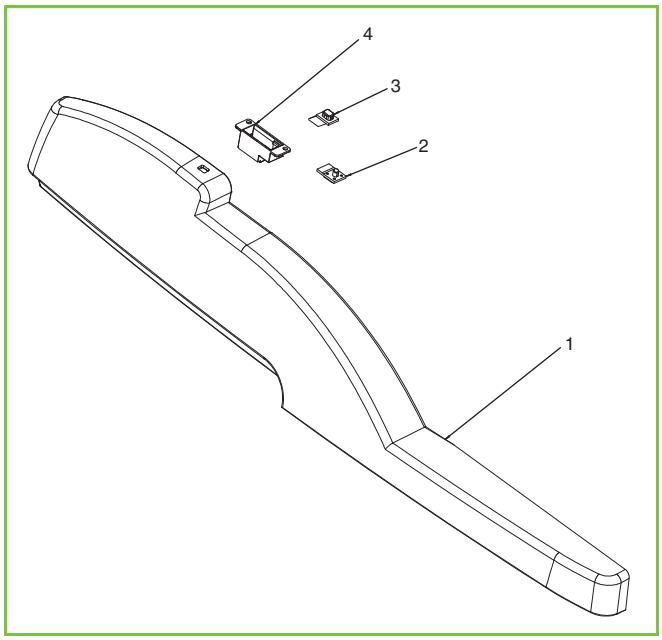


Table 9-62 Front-end cover

Ref	Description	Part number	Qty
All	End cover (cap) front assembly	Q3938-67946	1

NOTE: Only highlighted parts are orderable.

Figure 9-75 Hinge assembly

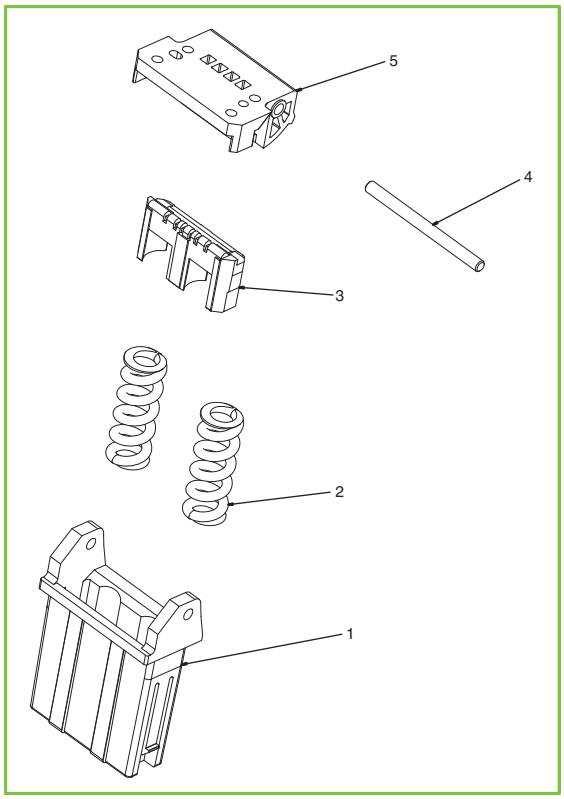
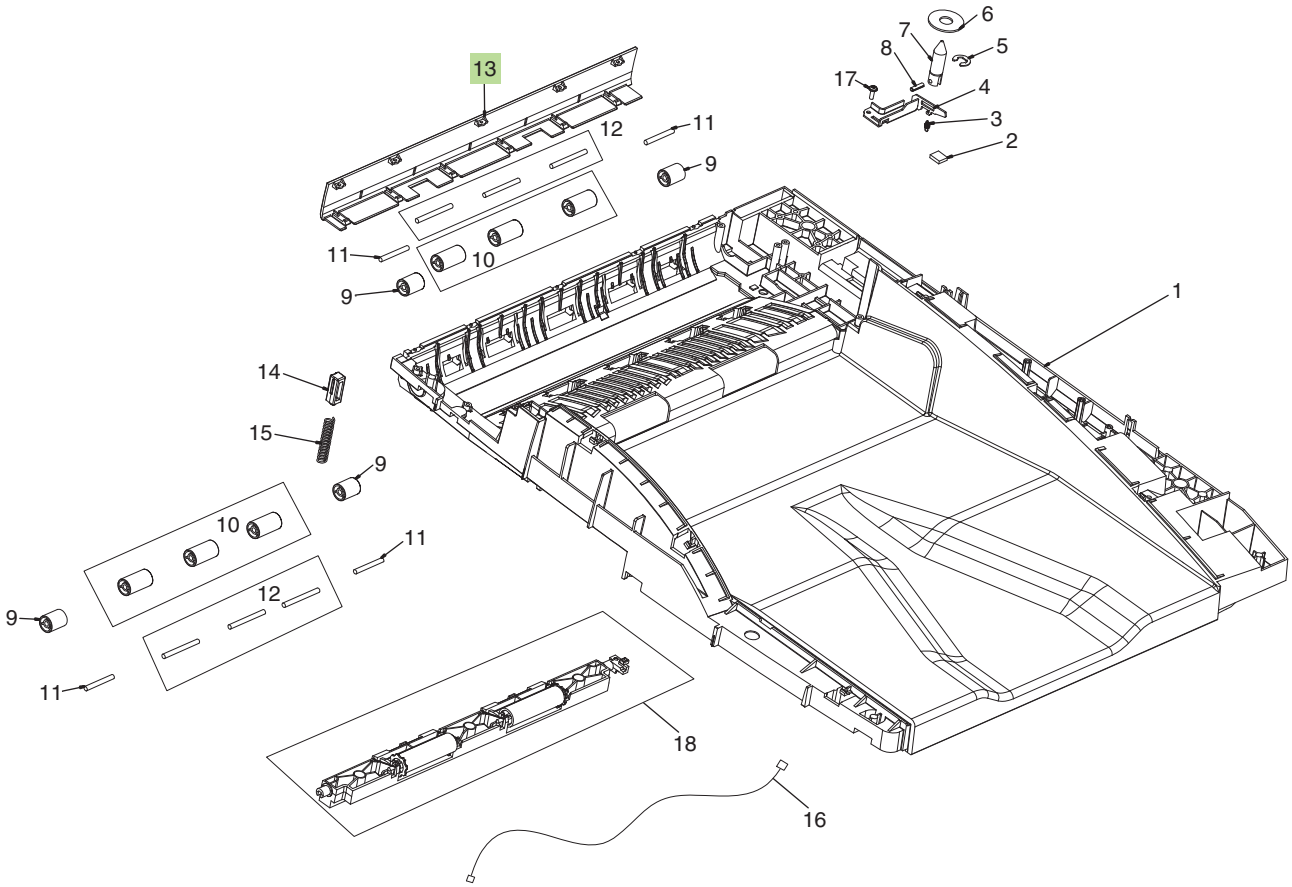


Table 9-63 Hinge assembly

Ref	Description	Part number	Qty
All	Hinge assembly	Q3938-67952	1 (Order 2)

NOTE: Only highlighted parts are orderable.

Figure 9-76 Base assembly



NOTE: Only highlighted parts are orderable.

NOTE: To order components other than the left cover for this assembly, you must order a replacement ADF unit (Q3938-67943).

Figure 9-77 Backbone assembly

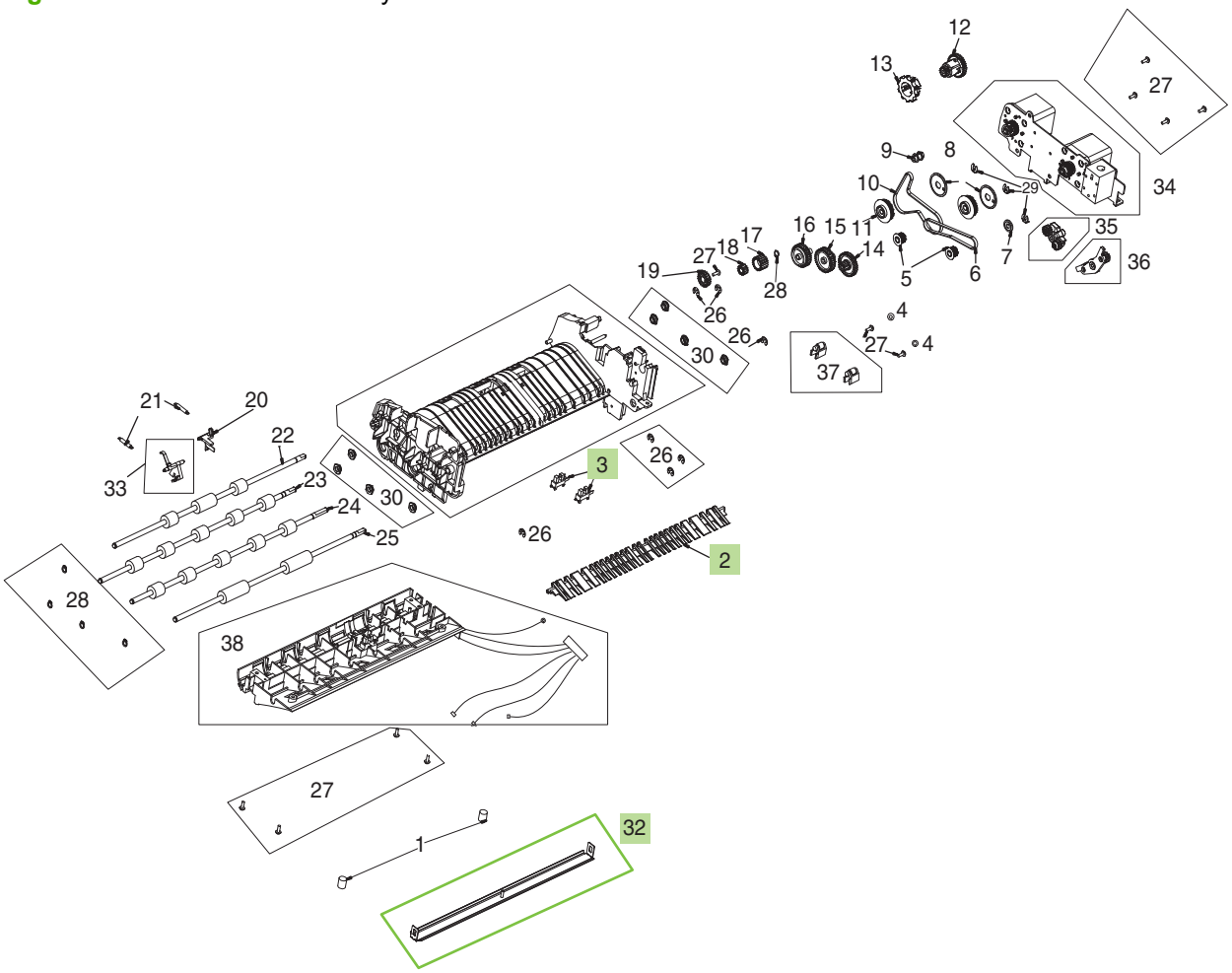


Table 9-64 Backbone assembly

Ref	Description	Part number	Qty
2	Diverter	Q3938-67953	1
3	Photo interrupter with connector	Q7829-67914	1
32	Float assembly	Q7829-67917	1

NOTE: Only highlighted parts are orderable.

Figure 9-78 Jam-cover assembly

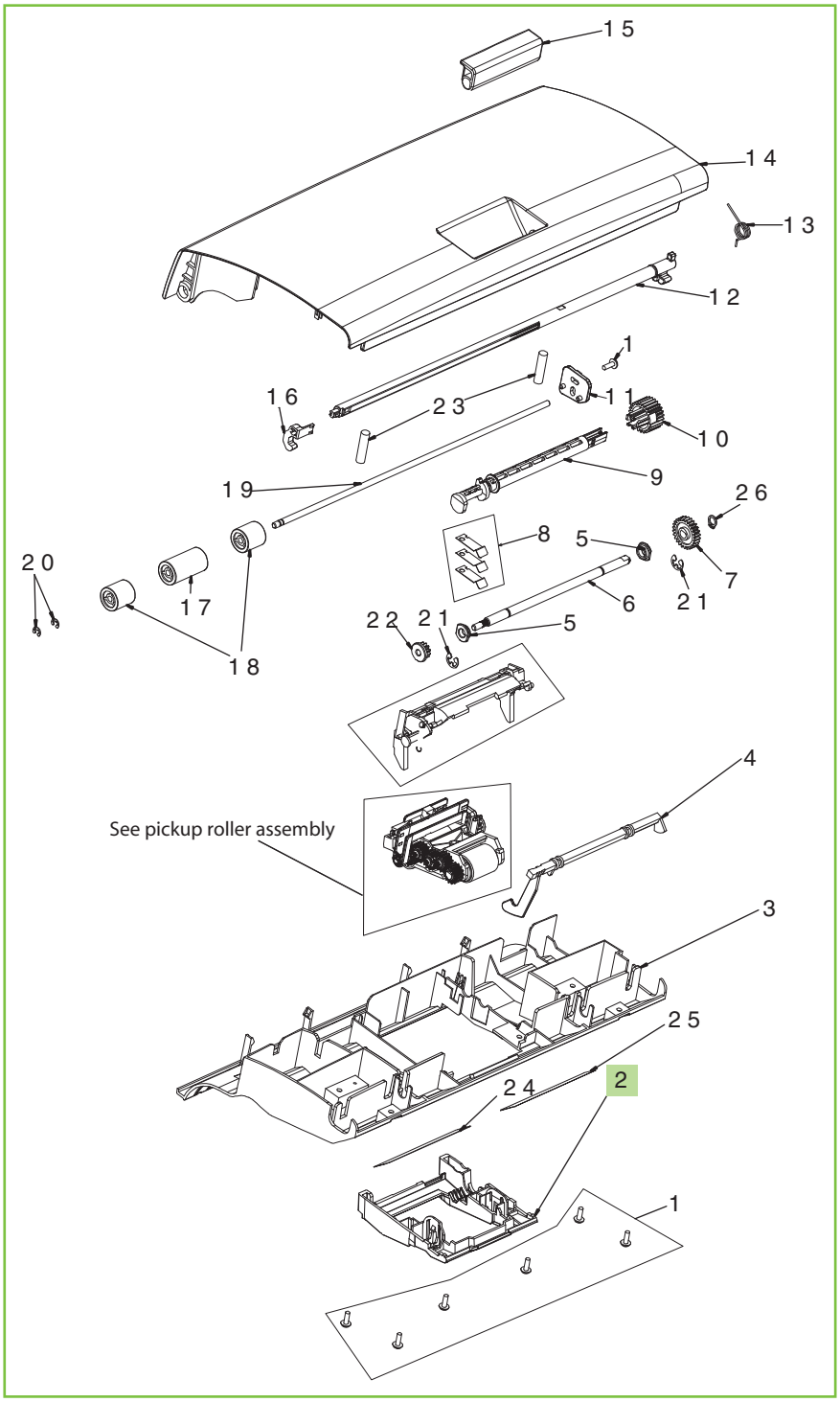


Table 9-65 Jam-cover assembly

Ref	Description	Part number	Qty
All	Jam-cover assembly	Q3938-67970	1
2	Cover pick roller	Q3938-67954	1

NOTE: Only highlighted parts are orderable.

Figure 9-79 Pickup-roller assembly

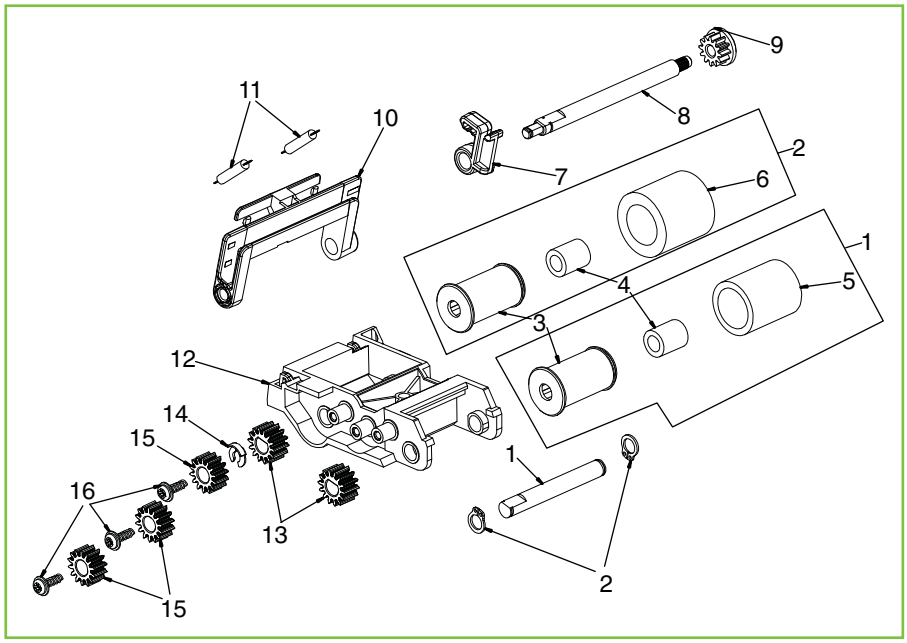


Table 9-66 Pickup-roller assembly

Ref	Description	Part number	Qty
All	Cover pick roller (part of the ADF maintenance kit)	Q3938-67954	1

NOTE: Only highlighted parts are orderable.

NOTE: The pickup roller is part of the ADF maintenance kit (which also includes the separation pad).

Figure 9-80 Separation-pad assembly

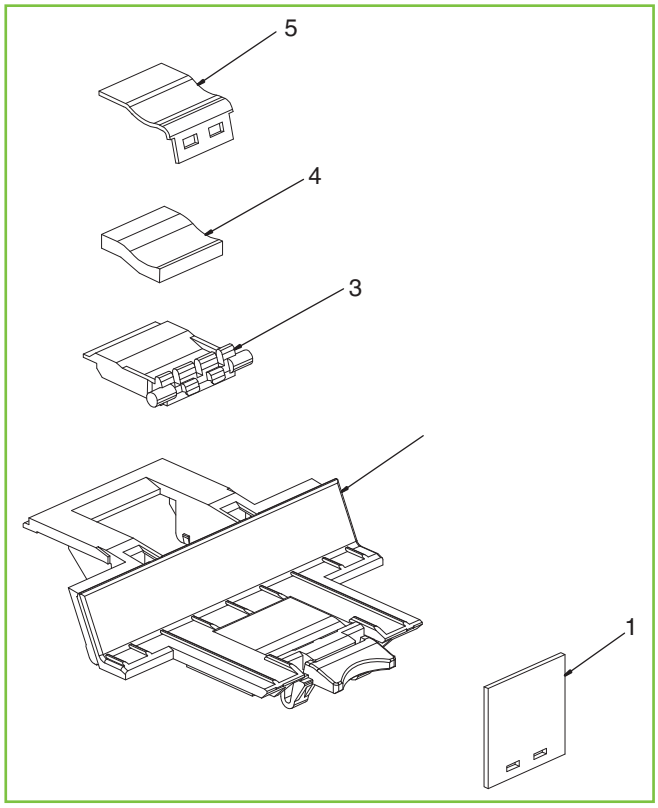


Table 9-67 Separation-pad assembly

Ref	Description	Part number	Qty
All	Separation-pad assembly (part of the ADF maintenance kit)	Q3938-67949	1

NOTE: Only highlighted parts are orderable.

NOTE: The separation pad is part of the ADF maintenance kit (which also includes the pickup roller).

Figure 9-81 Separation-floor assembly

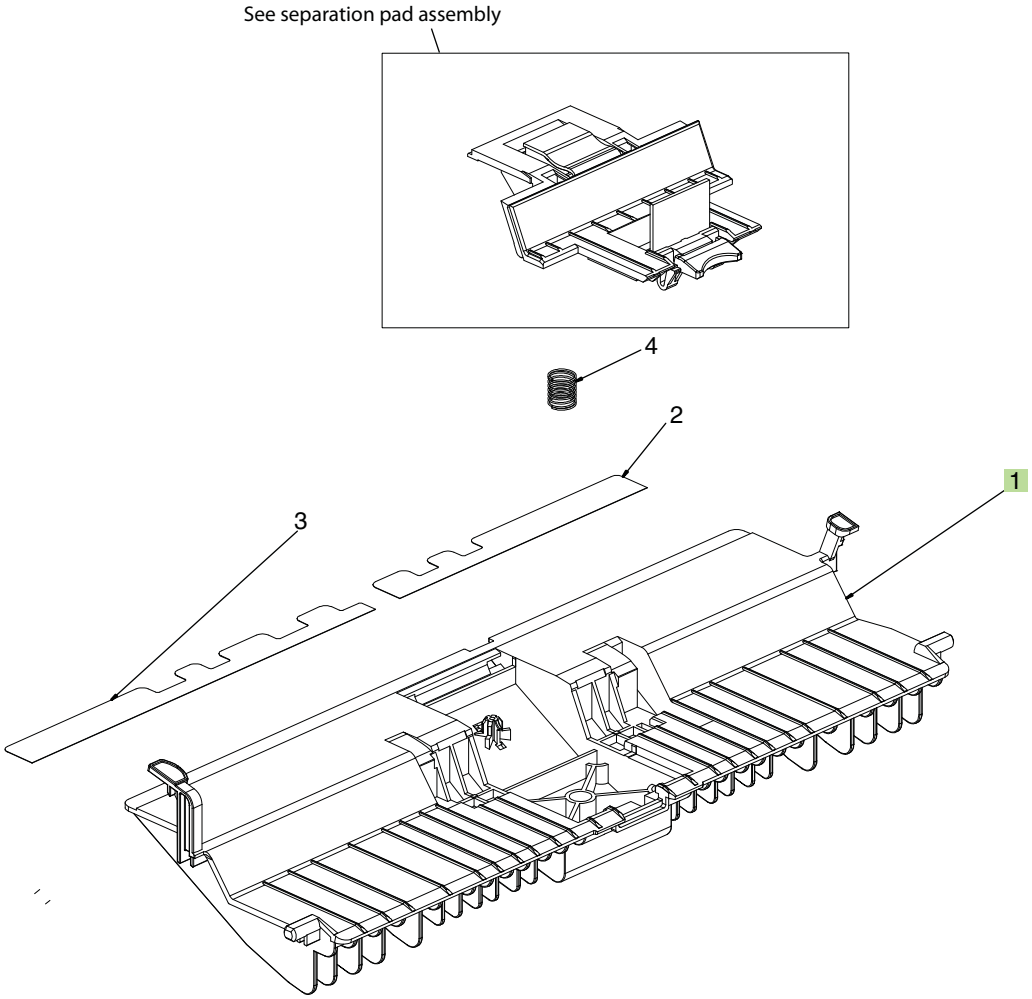


Table 9-68 Separation-floor assembly

Ref	Description	Part number	Qty
1	Separation-floor assembly	Q3938-67949	1

NOTE: Only highlighted parts are orderable.

Scanner

Scanner assemblies

Figure 9-82 Scanner unit

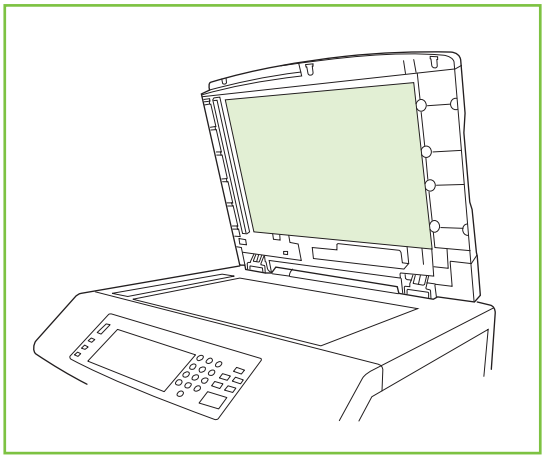


Table 9-69 Scanner unit

Ref	Description	Part number	Qty
All	Entire scanner without power supply, boards, and cable	Q3938-60132	1

NOTE: Only highlighted parts are orderable.

NOTE: The automatic document feeder (ADF) is not included.

Figure 9-83 Carriage assembly

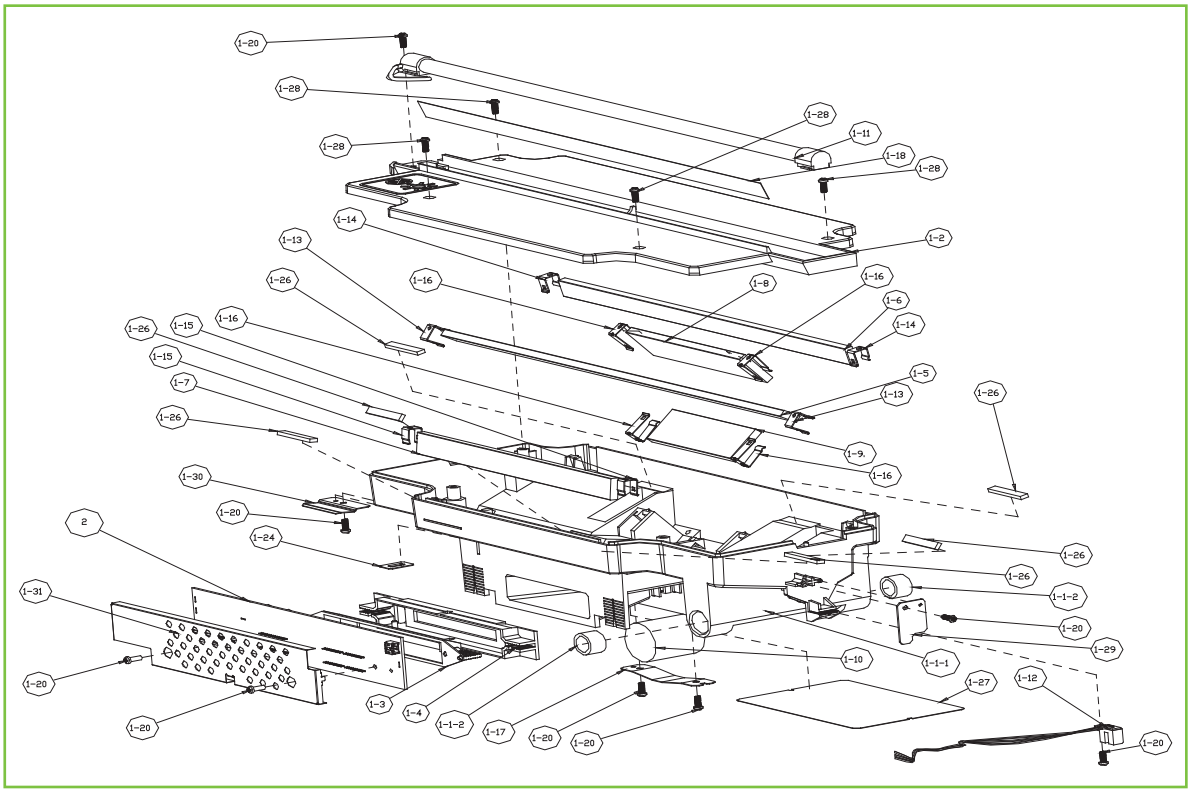


Table 9-70 Carriage assembly

Ref	Description	Part number	Qty
All	Carriage assembly	Q3938-67901	1

NOTE: Only highlighted parts are orderable.

Figure 9-84 Scanner controller-board (SCB) assembly

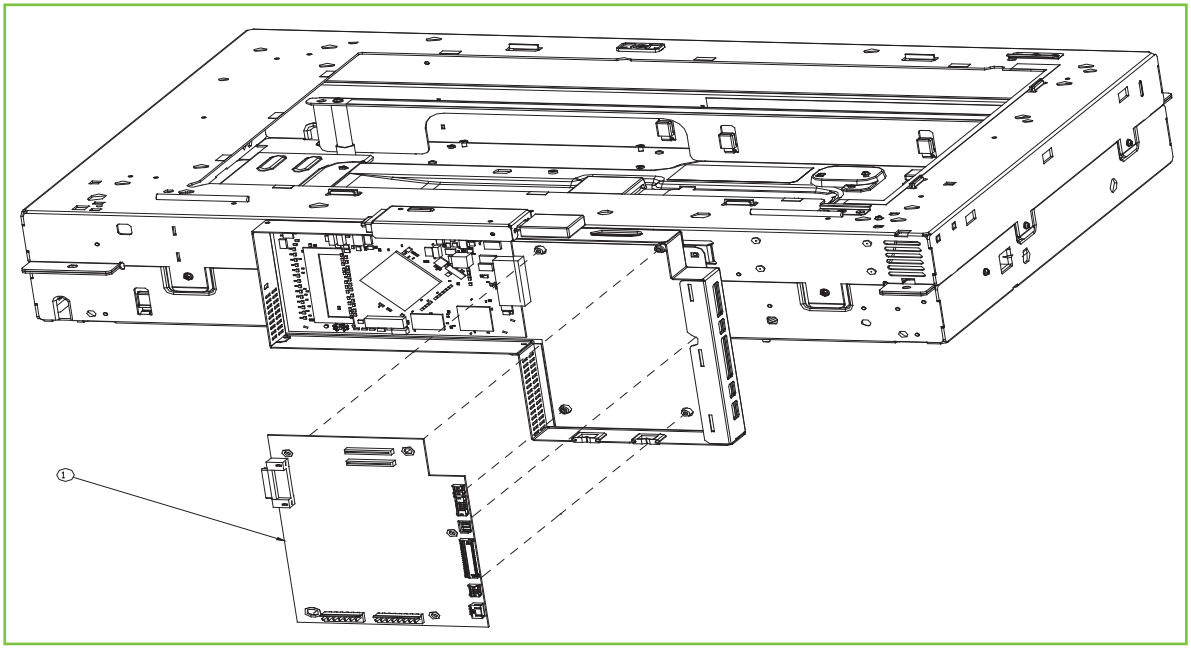


Table 9-71 Scanner controller-board (SCB) assembly

Ref	Description	Part number	Qty
All	Scanner controller-board (SCB)	Q3938-67902	1

NOTE: Only highlighted parts are orderable.

Figure 9-85 Large-pin assembly

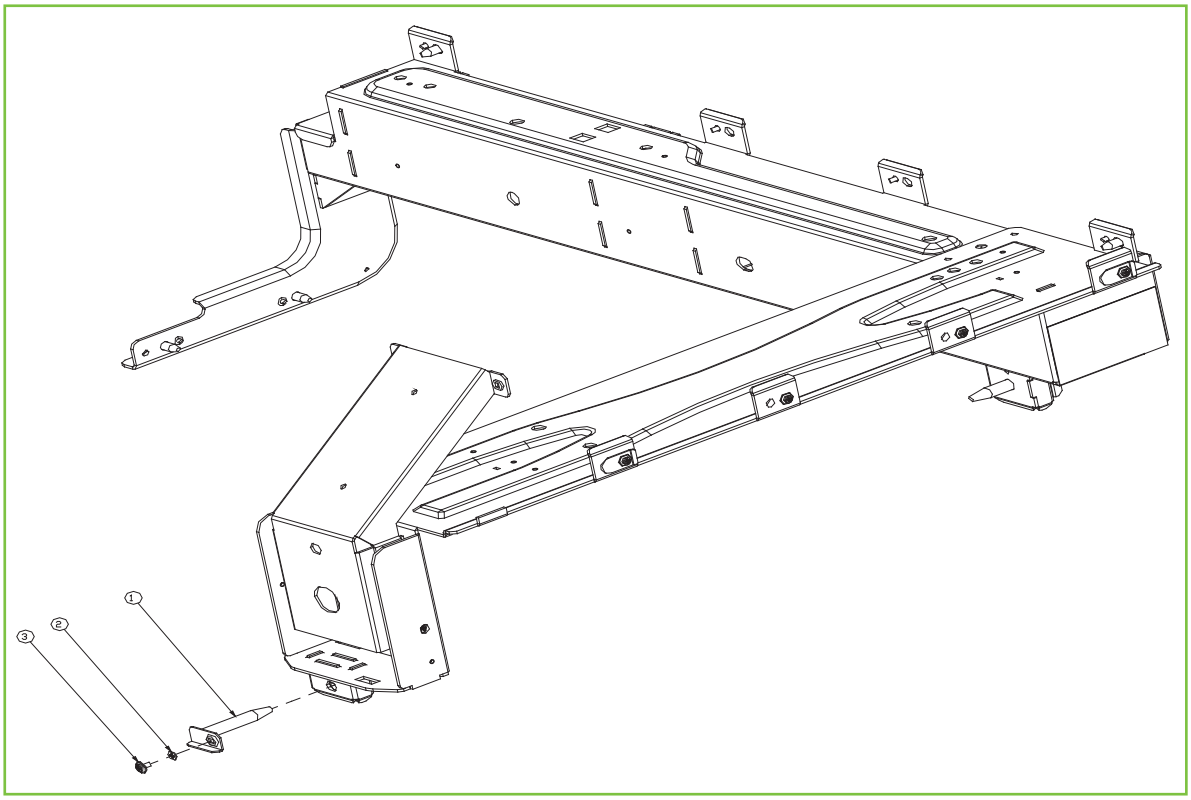


Table 9-72 Large-pin assembly

Ref	Description	Part number	Qty
All	Large-pin assembly	Q3938-67903	1

NOTE: Only highlighted parts are orderable.

Figure 9-86 Small-pin assembly

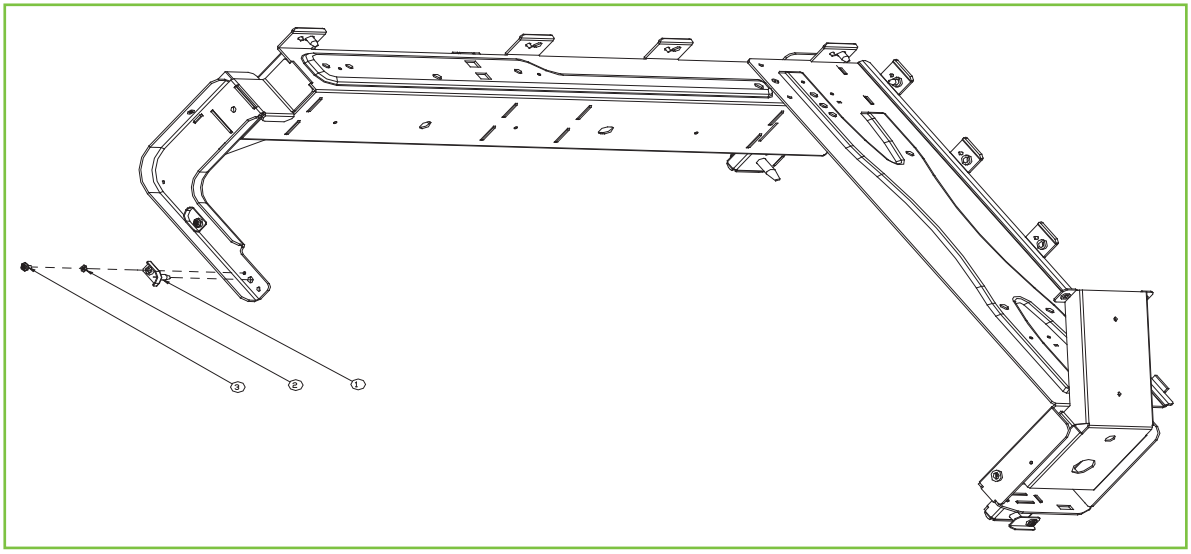


Table 9-73 Small-pin assembly

Ref	Description	Part number	Qty
All	Small-pin assembly	Q3938-67904	1

NOTE: Only highlighted parts are orderable.

Figure 9-87 Inverter assembly

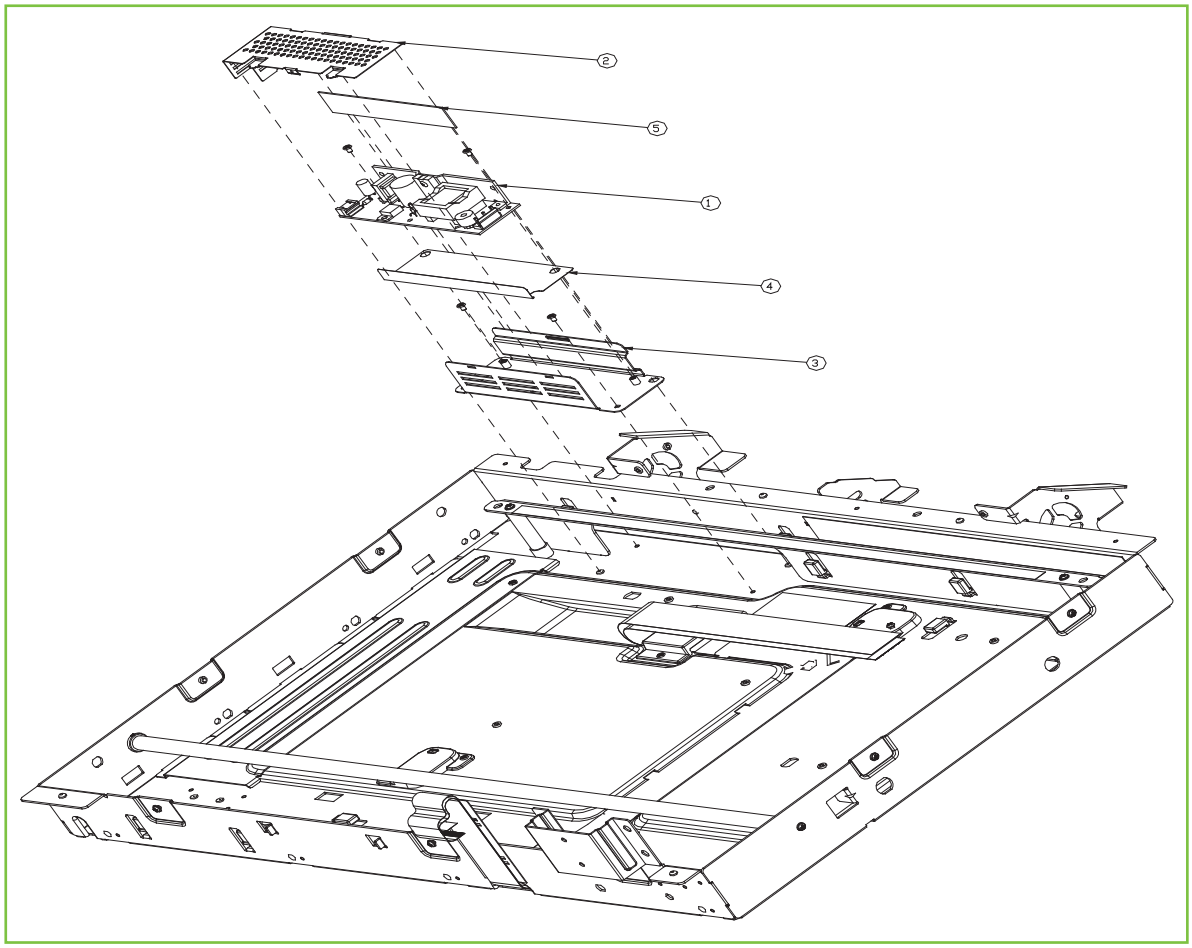


Table 9-74 Inverter assembly

Ref	Description	Part number	Qty
All	Inverter assembly	Q3938-67905	1

NOTE: Only highlighted parts are orderable.

Figure 9-88 Glass assembly

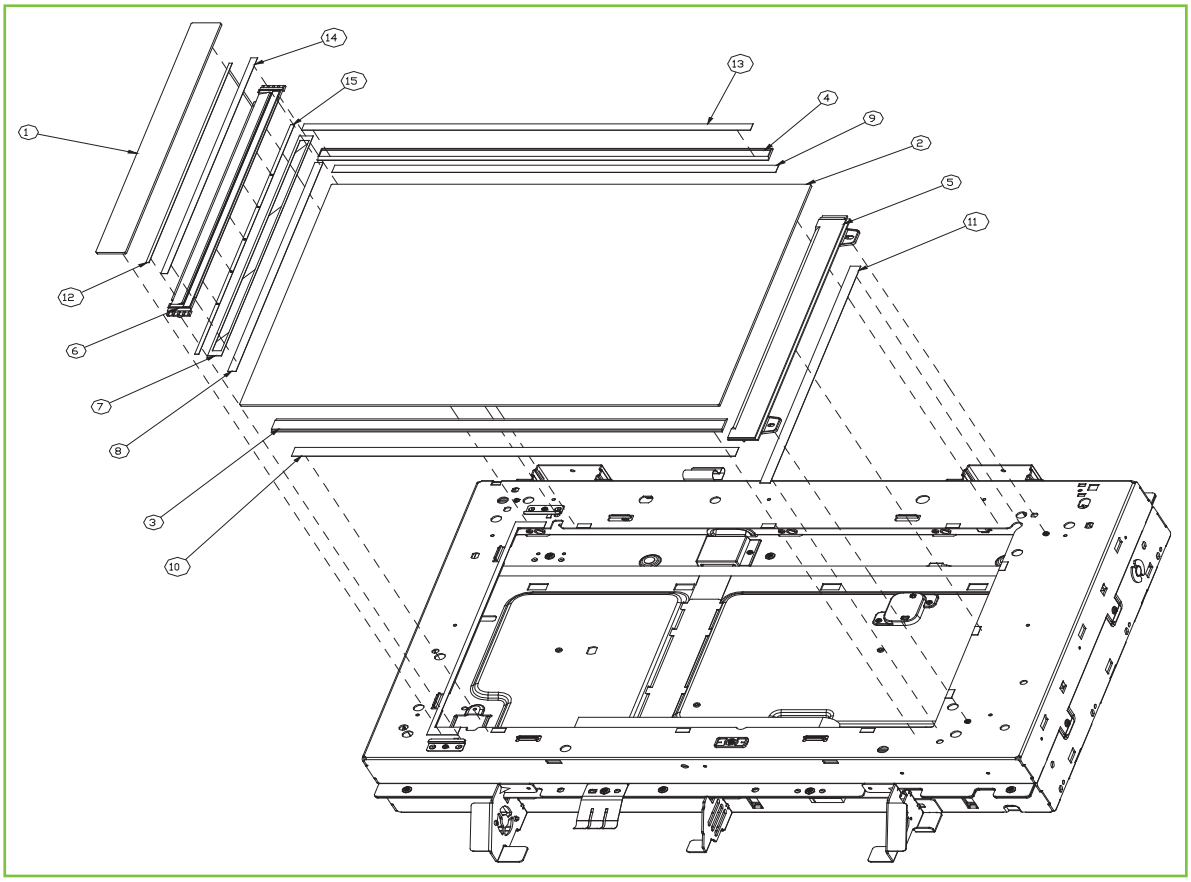


Table 9-75 Glass assembly

Ref	Description	Part number	Qty
All	Glass assembly	Q3938-67906	1

NOTE: Only highlighted parts are orderable.

Figure 9-89 Lid-sensor assembly

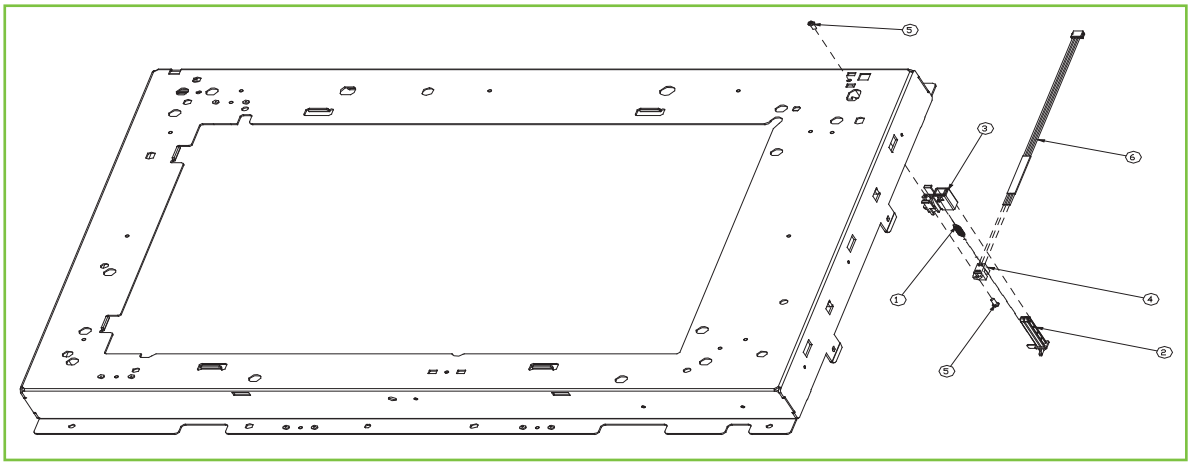


Table 9-76 Lid-sensor assembly

Ref	Description	Part number	Qty
All	Lid-sensor assembly	Q3938-67907	1

NOTE: Only highlighted parts are orderable.

Figure 9-90 Motor assembly

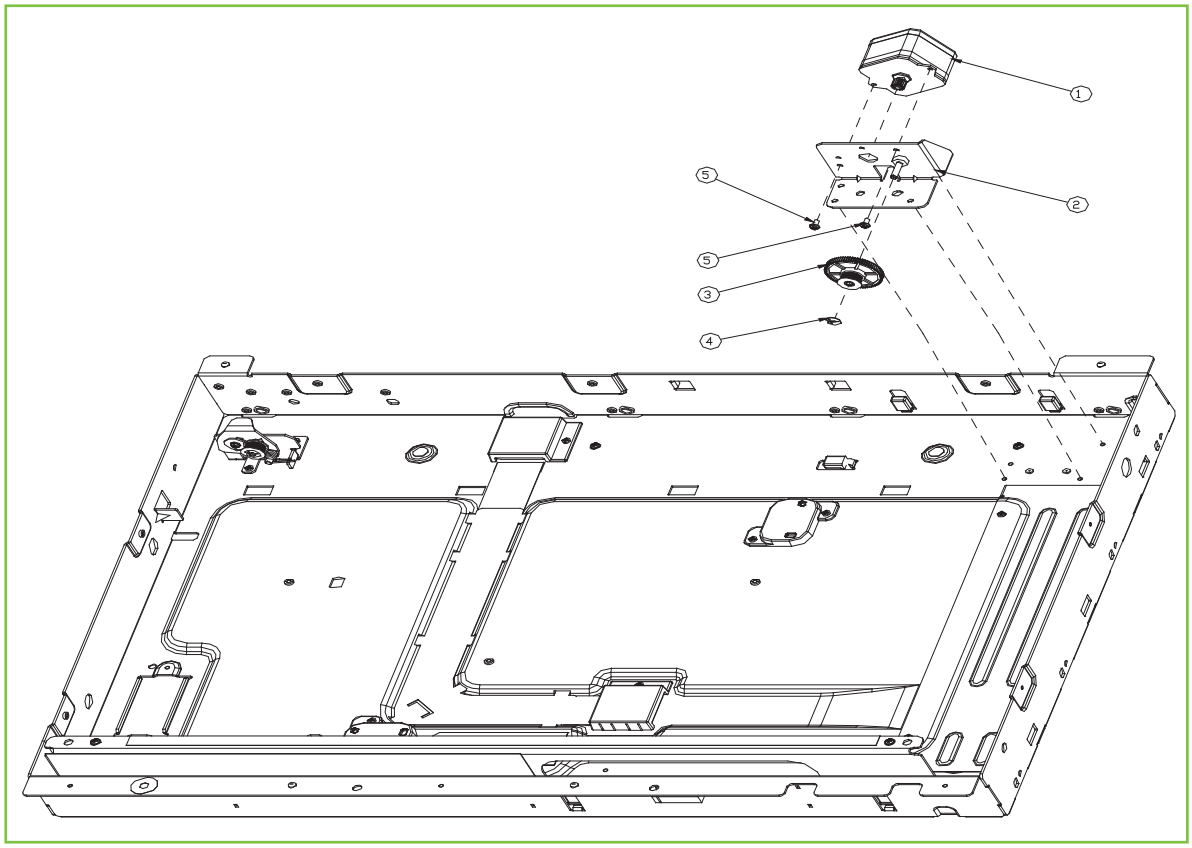


Table 9-77 Motor assembly

Ref	Description	Part number	Qty
All	Motor assembly	Q3938-67908	1

NOTE: Only highlighted parts are orderable.

Figure 9-91 Pulley assembly

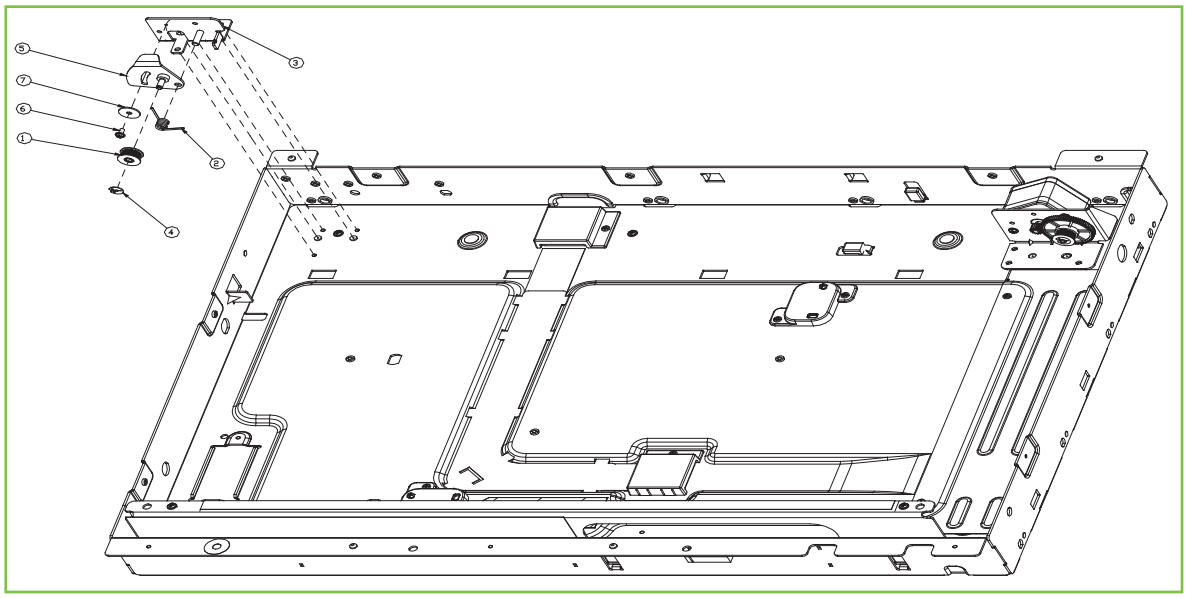


Table 9-78 Pulley assembly

Ref	Description	Part number	Qty
All	Pulley assembly	Q3938-67909	1

NOTE: Only highlighted parts are orderable.

Figure 9-92 Power-supply assembly

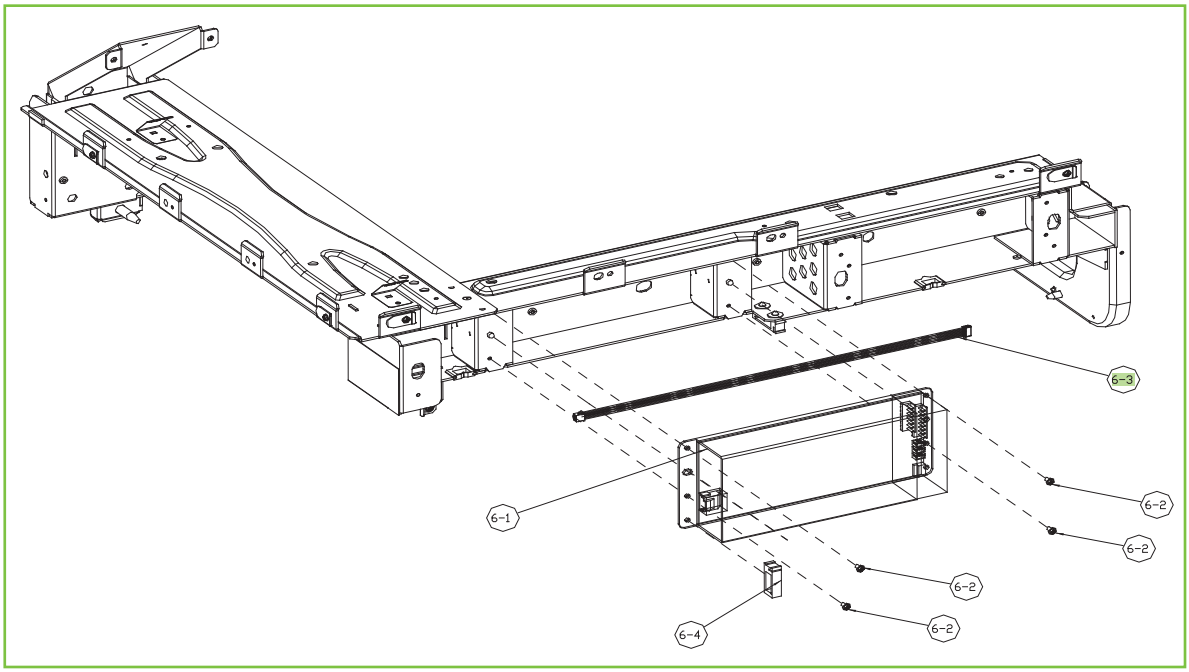


Table 9-79 Power-supply assembly

Ref	Description	Part number	Qty
All	Power-supply assembly	Q3938-67910	1
6-3	Power-supply harness	Q3938-67928	1

NOTE: Only highlighted parts are orderable.

Figure 9-93 Main-frame assembly

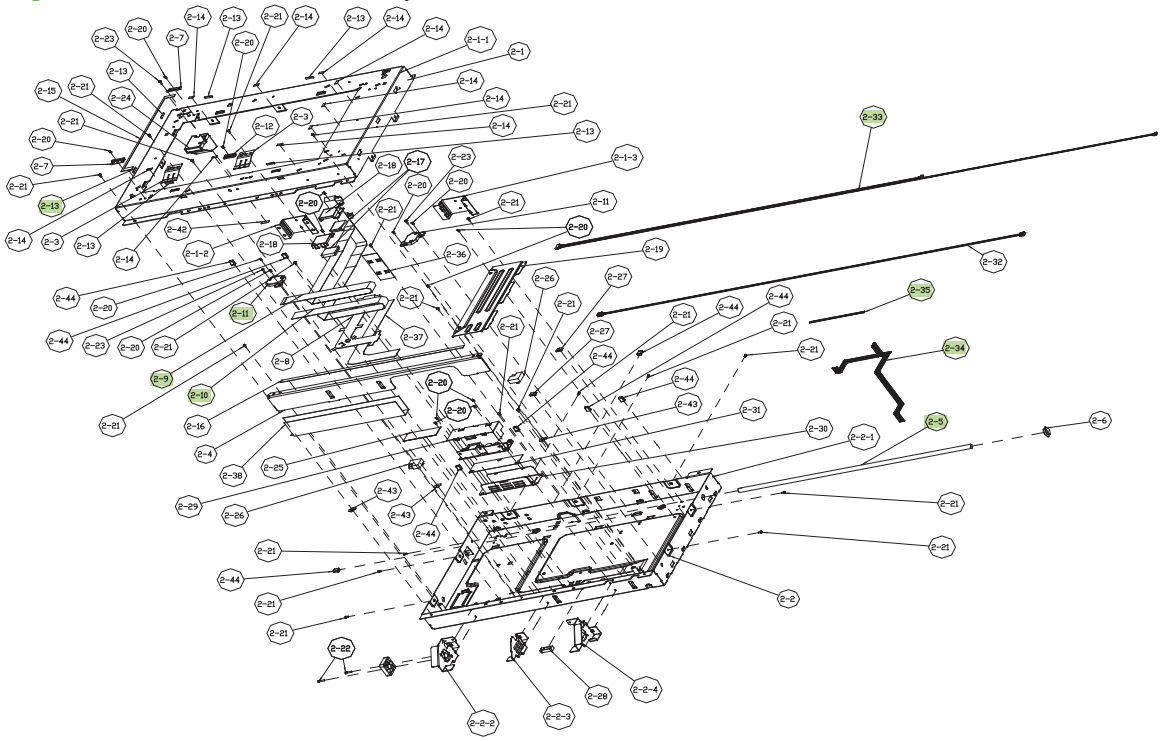
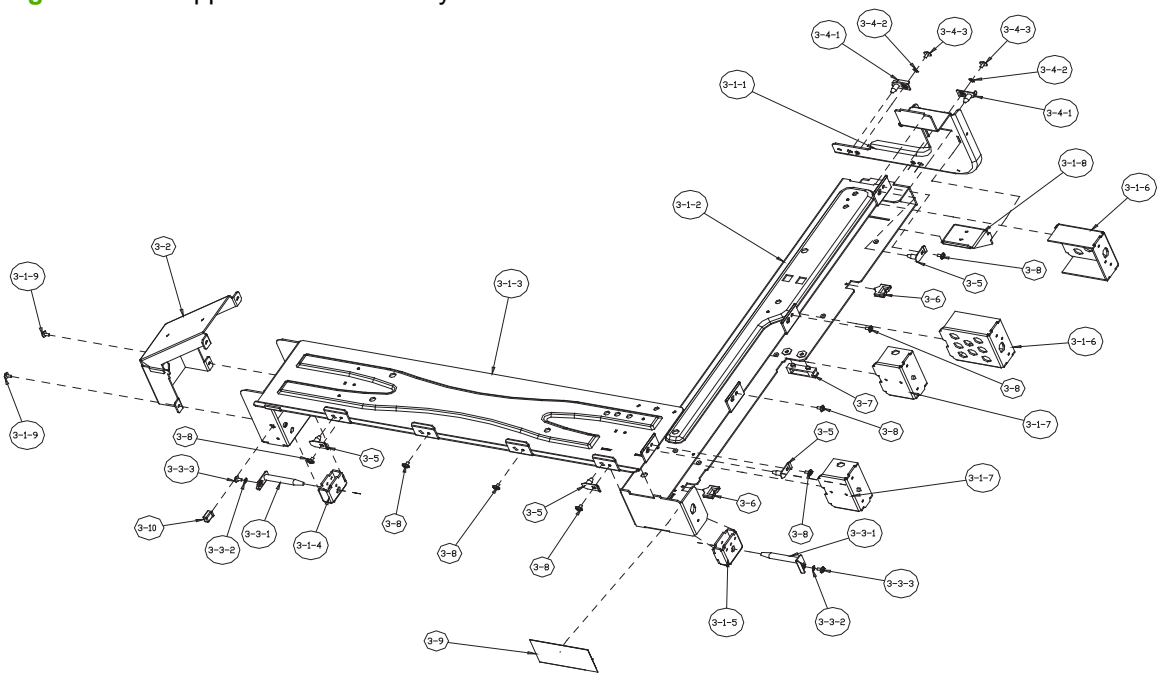


Table 9-80 Main-frame assembly

Ref	Description	Part number	Qty
2-5	Rod	Q3938-67911	1
2-9	Flat cable, 28, 940, A	Q3938-67912	1
2-10	Flat cable, 28, 970, B	Q3938-67913	1
2-11	Sensor base	Q3938-67914	2
2-13	Rubber glass guide	Q3938-67915	6

NOTE: Only highlighted parts are orderable.

Figure 9-94 Support-frame assembly



NOTE: Only highlighted parts are orderable.

Figure 9-95 Plastic-parts assembly (1 of 2)

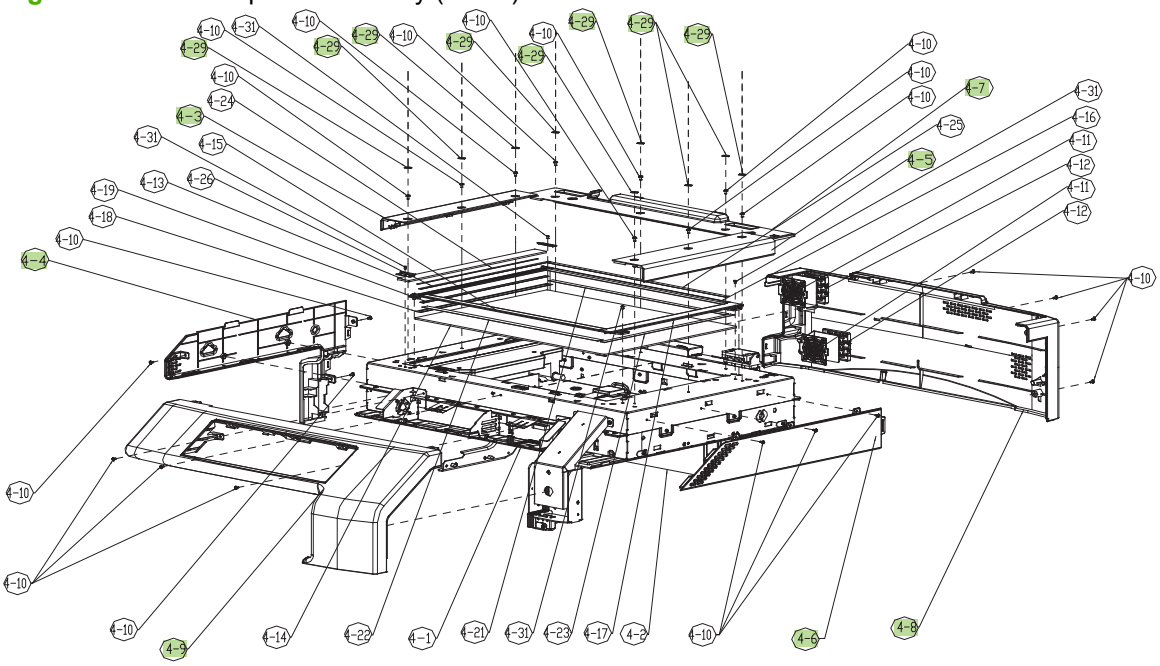


Figure 9-96 Plastic-parts assembly (2 of 2)

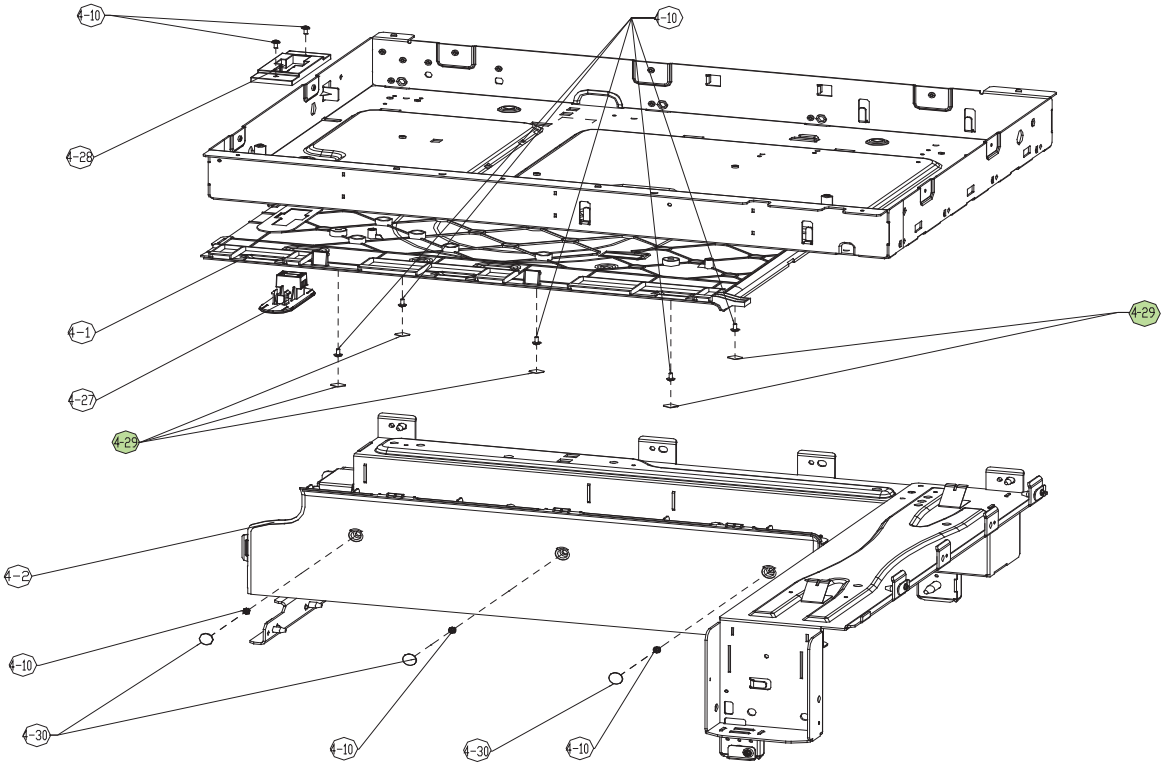
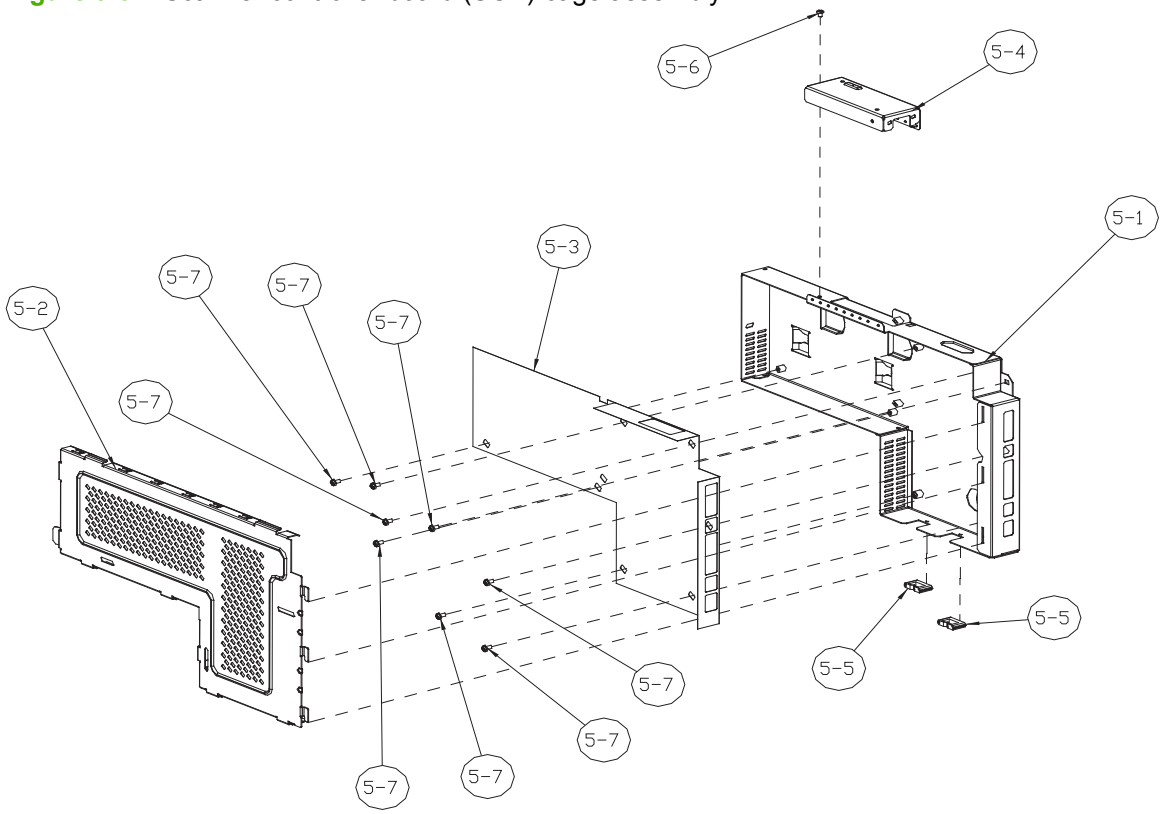


Table 9-81 Plastic-parts assembly

Ref	Description	Part number	Qty
4-3	Upper-left cover	Q3938-67920	1
4-4	Lower-left cover	Q3938-67921	1
4-5	Upper-right cover	Q3938-67922	1
4-6	Lower-right cover	Q3938-67923	1
4-7	Top cover	Q3938-67924	1
4-8	Rear cover	Q3938-67925	1
4-9	Front cover	Q3938-67926	1
4-29	Screw covers	Q3938-67927	14

NOTE: Only highlighted parts are orderable.

Figure 9-97 Scanner controller board (SCB)-cage assembly



NOTE: Only highlighted parts are orderable.

Figure 9-98 Transmission assembly

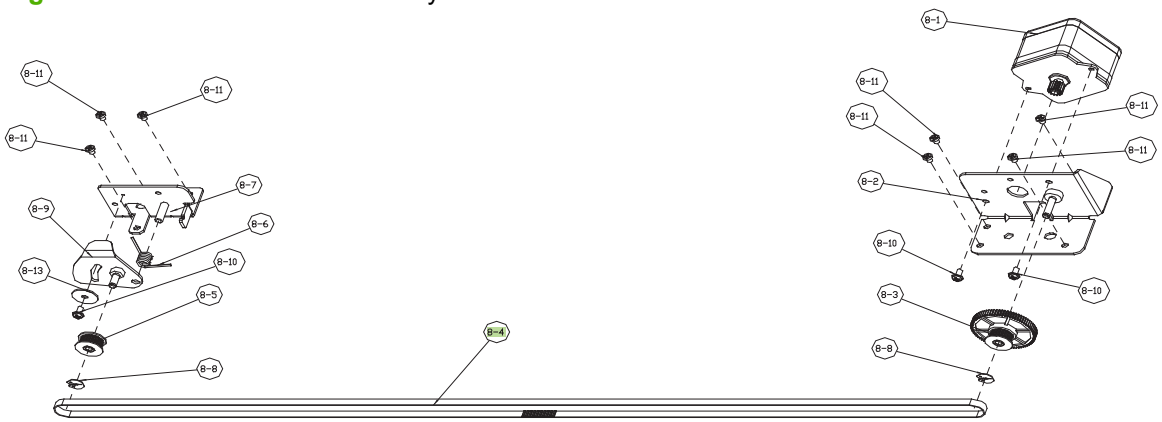


Table 9-82 Transmission assembly

Ref	Description	Part number	Qty
8-4	Timing belt	Q3938-67935	1

NOTE: Only highlighted parts are orderable.

Figure 9-99 Fan-system assembly

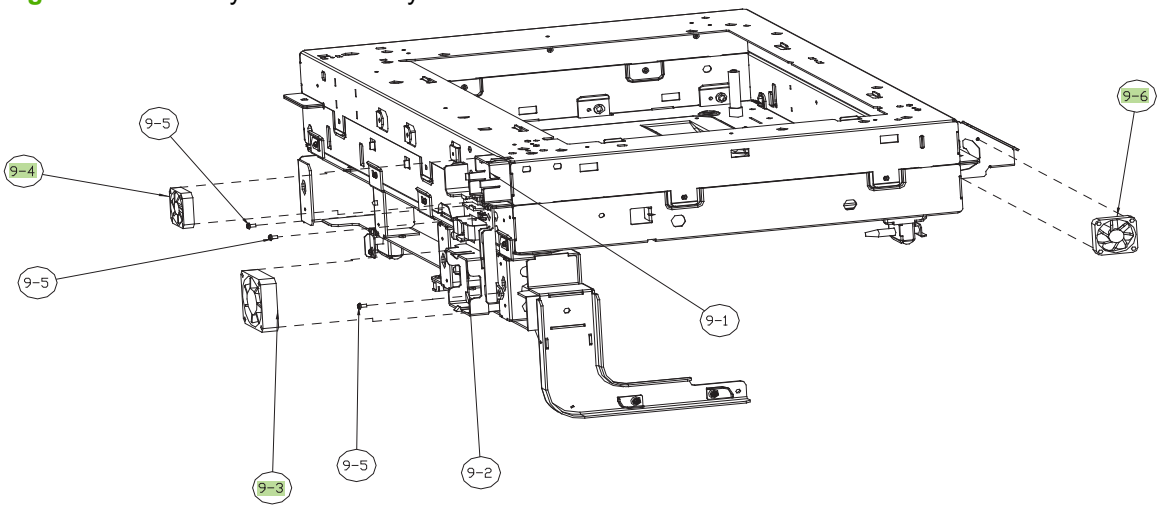


Table 9-83 Fan-system assembly

Ref	Description	Part number	Qty
9-3	Scanner controller board (SCB) fan	Q3938-67937	1
9-4	Scanner fan	Q3938-67938	1
9-6	Control-panel fan	Q3938-67939	1

NOTE: Only highlighted parts are orderable.

Figure 9-100 Havic assembly

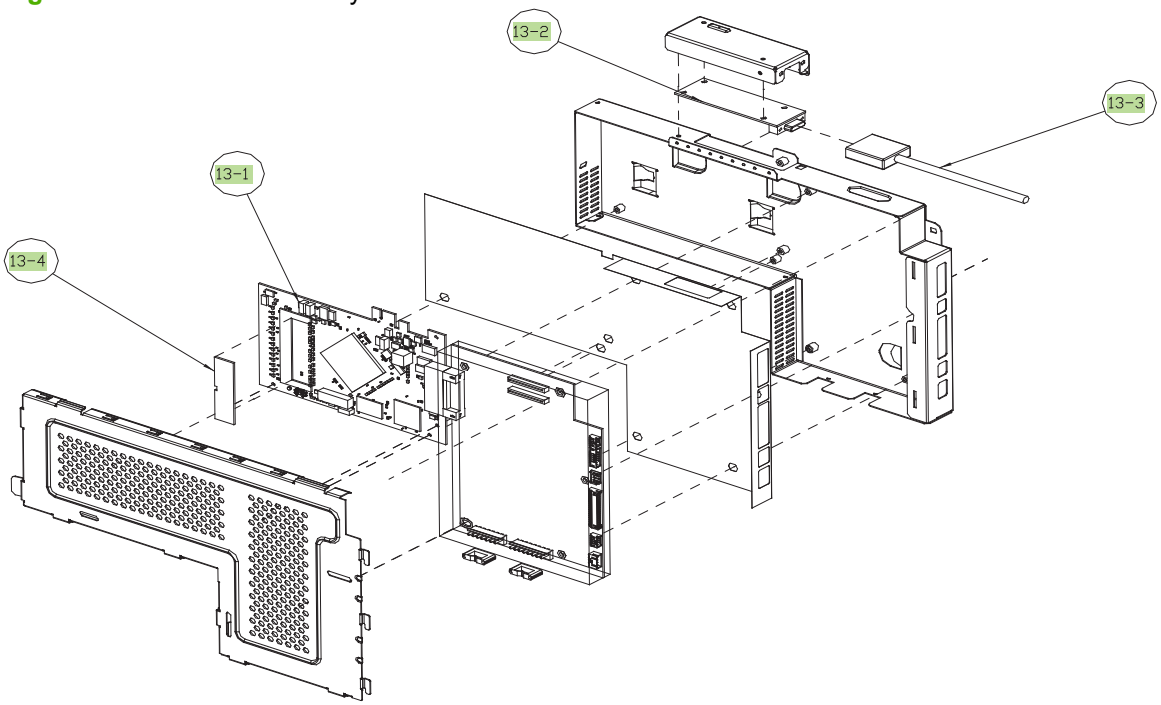


Table 9-84 Havic assembly

Ref	Description	Part number	Qty
13-1	Copy processor board (CPB)	Q3938-67940	1
13-2	SCUID board	Q3938-67941	1
13-3	PCIe cable	Q3938-67942	1
13-4	512 MB image scanner memory DIMM	Q7559A (module only) or Q3931-67904 (service kit)	1

NOTE: Only highlighted parts are orderable.

Alphabetical parts list

Table 9-85 Alphabetical parts list

Description	Part number	Table and page
2000-staple cartridge (for booklet making)	CC383-67901	Staple assembly (stapler/ stacker and booklet-maker) on page 989
2000-staple cartridge (for booklet making)	CC383-67901	Saddle-stapler assembly (booklet-maker) on page 1003
2nd-transfer-roller assembly kit	Q3931-67910	Printer internal components (3 of 7) on page 885
5000-staple replacement cartridge	C8091-67901	Staple assembly (stapler/ stacker and booklet-maker) on page 989
5000-staple replacement cartridge	C8091-67901	Saddle-stapler assembly (booklet-maker) on page 1003
512 MB image scanner memory DIMM	Q7559A (module only) or Q3931-67904 (service kit)	Havic assembly on page 1067
Approach-switch assembly	FM2-0710-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Area-sensor flag assembly	RM1-4107-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Area-sensor holder assembly	FM2-0709-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
Area-sensor holder assembly	FM2-0709-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Area-sensor holder assembly	FM2-0709-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Area-sensor PCA assembly	4G1-1498-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
Area-sensor PCA assembly	4G1-1498-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Area-sensor PCA assembly	4G1-1498-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Arm, 1st-estrangement	RC1-9189-000CN	Printer internal components (3 of 7) on page 885
Arm, adjustment, front	4A3-1763-000CN	Saddle assembly (booklet-maker) on page 995
Arm, adjustment, rear	4A3-1764-000CN	Saddle assembly (booklet-maker) on page 995

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Arm, auxiliary	RL1-1272-000CN	Intermediate-feed main body on page 937
Arm, lock	RC1-9913-000CN	Input-tray main body (1x500-sheet) on page 921
Arm, lock	RC1-9913-000CN	Input-tray main body (3x500-sheet) on page 925
Arm, paper-delivery gate	RC2-1293-000CN	Swing-guide assembly (stapler/stacker and booklet-maker) on page 985
Auto-close assembly, 1x500-sheet	RM1-3531-040CN	Input-tray auto-close assembly on page 929
Auto-close assembly, 3x500-sheet	RM1-3531-040CN	Input-tray auto-close assembly on page 929
Automatic document feeder (ADF) whole unit	Q3938-67943	ADF unit on page 1019
Band, door	RC1-9043-000CN	Printer front-door assembly on page 877
Bearing, ball	XG9-0586-000CN	Printer internal components (4 of 7) on page 887
Bearing, ball, 6902ZZNR	4S3-1050-000CN	Saddle assembly (booklet-maker) on page 995
Belt, paper-feed, cogged	RC1-9674-000CN	Intermediate-feed main body on page 937
Belt, timing	XF2-1608-840CN	Finisher (stapler/stacker and booklet-maker) on page 961
Belt, timing	XF2-3837-340CN	Saddle assembly (booklet-maker) on page 995
Belt, timing, cogged	XF2-1607-860CN	Finisher (stapler/stacker and booklet-maker) on page 961
Belt, timing, cogged	XF9-0748-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Booklet-maker (multi-function finisher) whole unit	CC516A (product number)	Booklet-maker unit on page 951
Booklet-output bin (saddle-tray assembly)	RM1-4113-000CN	Saddle-tray assembly (booklet-maker) on page 999
Bushing	RC1-8734-000CN	Printer internal components (3 of 7) on page 885
Bushing	RC1-9915-000CN	Input-tray main body (1x500-sheet) on page 921
Bushing	RC1-9915-000CN	Input-tray main body (3x500-sheet) on page 925
Bushing	RC1-4585-000CN	Intermediate-feed main body on page 937
Bushing	FU5-1169-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Button, main-switch	RC1-9300-000CN	Printer internal components (7 of 7) on page 895
Cable TP/T2 open-sensor	RM1-5030-000CN	Printer internal components (7 of 7) on page 895
Cable, ADF to scanner	Q3938-67948	ADF unit on page 1019
Cable, drawer	RM1-3561-000CN	Intermediate-feed main body on page 937
Cable, drawer	RM1-3560-000CN	Intermediate-feed main body on page 937
Cable, fixing open-sensor	RM1-5029-000CN	Printer internal components (5 of 7) on page 891
Cable, flexible flat	RK2-1356-000CN	Printer internal components (6 of 7) on page 893
Cable, laser flexible flat	RK2-1354-000CN	Printer internal components (2 of 7) on page 883
Cable, laser flexible flat	RK2-1355-000CN	Printer internal components (2 of 7) on page 883
Cable, MFP AC	RM1-3599-000CN	Printer internal components (7 of 7) on page 895
Cable, motor	RM1-3563-000CN	Intermediate-feed main body on page 937
Cable, motor	RM1-3564-000CN	Intermediate-feed main body on page 937
Cable, operation-tray	FG3-2903-000CN	Operation-tray assembly (stapler/stacker and booklet-maker) on page 977
Cable, option-sensor PCA connect	RM1-3574-000CN	Input-tray main body (1x500-sheet) on page 921
Cable, option-sensor PCA connect	RM1-3574-000CN	Input-tray main body (3x500-sheet) on page 925
Cable, paper-pickup option	RM1-3575-000CN	Input-tray main body (1x500-sheet) on page 921
Cable, paper-pickup option	RM1-3575-000CN	Input-tray main body (3x500-sheet) on page 925
Cable, paper-pickup-option drawer	RM1-3571-000CN	Input-tray main body (3x500-sheet) on page 925
Cable, pickup-option door switch	RM1-3572-000CN	Input-tray main body (1x500-sheet) on page 921
Cable, pickup-option door switch	RM1-3572-000CN	Input-tray main body (3x500-sheet) on page 925
Cable, pickup-option drawer	RM1-3571-000CN	Input-tray main body (1x500-sheet) on page 921
Cable, pickup-option lifter unit	RM1-3576-000CN	Input-tray auto-close assembly on page 929

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Cable, pickup-option PCA connect	RM1-3573-000CN	Input-tray main body (3x500-sheet) on page 925
Cable, saddle-unit	4G1-2283-000CN	Saddle assembly (booklet-maker) on page 995
Cable, sensor	4G1-2285-000CN	Saddle-tray assembly (booklet-maker) on page 999
Cable, solenoid	FG3-2892-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Cable, staple-connecting assembly	4G3-1777-000CN	Staple assembly (stapler/stacker and booklet-maker) on page 989
Cable-mount lattice assembly	RM1-4128-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Carriage assembly	Q3938-67901	Carriage assembly on page 1037
Cartridge contact-holder assembly	RM1-3254-000CN	Printer internal components (7 of 7) on page 895
Cartridge-interface assembly kit with service document	Q3931-67917	Printer internal components (7 of 7) on page 895
Cassette (1x500-sheet)	RM1-3529-000CN	Input-tray cassette on page 931
Cassette (3x500-sheet)	RM1-3529-000CN	Input-tray cassette on page 931
Cassette paper-pickup assembly	RM1-3206-000CN	Printer cassette paper-pickup assembly on page 903
Cassette-assembly kit with service document	Q3931-67918	Printer cassette on page 901
Caster, double-lock, front	RC1-9896-000CN	Input-tray main body (1x500-sheet) on page 921
Caster, double-lock, front	RC1-9896-000CN	Input-tray main body (3x500-sheet) on page 925
Caster, rear	RC1-9917-000CN	Input-tray main body (1x500-sheet) on page 921
Caster, rear	RC1-9917-000CN	Input-tray main body (3x500-sheet) on page 925
Caster, universal	RC2-1315-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Clamp, cable	WT2-5738-000CN	Input-tray main body (1x500-sheet) on page 921
Clamp, cable	WT2-5738-000CN	Input-tray main body (3x500-sheet) on page 925
Clamp, FFC	WT2-5912-000CN	Printer internal components (2 of 7) on page 883
Claw, latch, right	FC5-5021-000CN	Saddle assembly (booklet-maker) on page 995

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Clutch, electromagnetic	4H3-0370-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Color-plane-registration (CPR) sensor assembly	RM1-3258-000CN	Printer internal components (3 of 7) on page 885
Color-plane-registration (CPR)-joint cable	RM1-3624-000CN	Printer internal components (6 of 7) on page 893
Connector, drawer	VS1-7258-000CN	Printer internal components (5 of 7) on page 891
Connector, drawer	VS1-7257-012CN	Input-tray main body (1x500-sheet) on page 921
Connector, drawer	VS1-7257-012CN	Input-tray main body (3x500-sheet) on page 925
Connector, snap-tight	VS1-7177-002CN	Printer internal components (2 of 7) on page 883
Connector, snap-tight	VS1-7177-003CN	Printer internal components (4 of 7) on page 887
Control-panel fan	Q3938-67939	Fan-system assembly on page 1065
Copy processor board (CPB)	Q3938-67940	Havic assembly on page 1067
Cover pick roller	Q3938-67954	Jam-cover assembly on page 1027
Cover pick roller (part of the ADF maintenance kit)	Q3938-67954	Pickup-roller assembly on page 1029
Cover, assist, left	RC1-9705-000CN	Intermediate-feed main body on page 937
Cover, assist, right	RC1-9706-000CN	Intermediate-feed main body on page 937
Cover, cassette back-end	RC1-9201-000CN	Printer internal components (5 of 7) on page 891
Cover, face-down drive	RC1-9360-000CN	Printer external covers and panels on page 875
Cover, front, upper	RC1-9350-000CN	Printer external covers and panels on page 875
Cover, front-lower	RL1-1717-000CN	External panels and covers (stapler/stacker) on page 953
Cover, front-lower	RL1-1717-000CN	External panels and covers (booklet-maker) on page 955
Cover, front-upper	RC1-9873-000CN	Input-tray main body (1x500-sheet) on page 921
Cover, front-upper	RC1-9873-000CN	Input-tray main body (3x500-sheet) on page 925
Cover, internal, lower (booklet-maker only)	RL1-1477-000CN	Finisher (stapler/stacker and booklet-maker) on page 961

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Cover, internal, lower (stapler/stacker only)	RC2-1351-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Cover, internal, right	RC1-9348-000CN	Printer internal components (3 of 7) on page 885
Cover, left	RC1-9336-000CN	Printer external covers and panels on page 875
Cover, left	RC1-9872-000CN	Input-tray main body (1x500-sheet) on page 921
Cover, left	RC1-9872-000CN	Input-tray main body (3x500-sheet) on page 925
Cover, left-lower	RC2-1280-000CN	External panels and covers (booklet-maker) on page 955
Cover, main-switch	RC1-9211-000CN	Printer internal components (7 of 7) on page 895
Cover, motor	RC1-9511-000CN	Printer right-door assembly on page 879
Cover, multi-purpose blanking	RC1-8527-000CN	Printer right-door assembly on page 879
Cover, option-slide	RC2-1347-000CN	External panels and covers (stapler/stacker) on page 953
Cover, option-tray, front	RL1-2210-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
Cover, paper-delivery	RC1-9351-000CN	Printer external covers and panels on page 875
Cover, rear	RL1-1210-000CN	Printer external covers and panels on page 875
Cover, rear	RC1-9871-000CN	Input-tray main body (1x500-sheet) on page 921
Cover, rear	RC1-9871-000CN	Input-tray main body (3x500-sheet) on page 925
Cover, rear	RC2-1278-000CN	External panels and covers (stapler/stacker) on page 953
Cover, rear	RC2-1278-000CN	External panels and covers (booklet-maker) on page 955
Cover, rear-left	RC1-9344-000CN	Printer external covers and panels on page 875
Cover, rear-lower	RL1-1718-000CN	External panels and covers (stapler/stacker) on page 953
Cover, rear-lower	RL1-1718-000CN	External panels and covers (booklet-maker) on page 955
Cover, rear-upper	RC1-9703-000CN	Intermediate-feed main body on page 937
Cover, right-front	RL1-1322-000CN	Input-tray main body (1x500-sheet) on page 921

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Cover, right-front	RL1-1321-000CN	Input-tray main body (3x500-sheet) on page 925
Cover, right-lower	RC1-9874-000CN	Input-tray main body (1x500-sheet) on page 921
Cover, right-lower	RC1-9874-000CN	Input-tray main body (3x500-sheet) on page 925
Cover, tray-connector	RC2-1279-000CN	External panels and covers (stapler/stacker) on page 953
Cover, tray-connector	RC2-1279-000CN	External panels and covers (booklet-maker) on page 955
Damper, gear	RC1-8925-000CN	Printer internal components (4 of 7) on page 887
DC controller PCA assembly	RM1-6642-000CN	Printer PCA assembly location on page 917
DC motor assembly	RM1-4519-000CN	Printer internal components (4 of 7) on page 887
DC-controller PCA assembly	RM1-6642-000CN	Printer internal components (6 of 7) on page 893
DC-controller power cable	RM1-3610-000CN	Printer internal components (6 of 7) on page 893
Deflector	FB3-7928-020CN	Saddle assembly (booklet-maker) on page 995
Deflector	FB5-2697-000CN	Saddle assembly (booklet-maker) on page 995
Delivery-switch mount assembly	FM2-1639-000CN	Saddle assembly (booklet-maker) on page 995
Diverter	Q3938-67953	Backbone assembly on page 1025
Door, stock	RC1-9921-000CN	Input-tray main body (1x500-sheet) on page 921
Drive-belt assembly	RM1-3684-000CN	Intermediate-feed main body on page 937
Drum-motor assembly	RM1-3286-000CN	Printer internal components (4 of 7) on page 887
Duct, air	RC1-8961-000CN	Printer internal components (4 of 7) on page 887
Duct, cartridge	RC1-9276-000CN	Printer internal components (4 of 7) on page 887
Duct, face-down joint	RC1-8964-000CN	Printer internal components (4 of 7) on page 887
Duct, scanner	RC1-9334-000CN	Printer internal components (2 of 7) on page 883
Duct, scanner-fan	RC1-9309-000CN	Printer internal components (4 of 7) on page 887

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Duplexing-feed assembly	RM1-3665-000CN	Printer duplexing-feed assembly on page 915
Duplexing-reverse assembly	RM1-3652-000CN	Printer duplexing-reverse assembly on page 913
Duplexing-tray lower assembly	RC1-5949-000CN	Printer external covers and panels on page 875
End cover (cap) back	Q3938-67945	ADF unit on page 1019
End cover (cap) front assembly	Q3938-67946	Front-end cover on page 1021
Entire scanner without power supply, boards, and cable	Q3938-60132	Scanner unit on page 1035
Entrance lower-guide assembly	RM1-4110-000CN	Saddle paper-feeder assembly (stapler/stacker) on page 1005
Entrance lower-guide assembly	RM1-4110-000CN	Saddle paper-feeder assembly (booklet-maker) on page 1007
Entrance upper-guide assembly	RM1-4172-000CN	Entrance upper-guide assembly (stapler/stacker and booklet-maker) on page 987
Entrance-sensor flag assembly	FM2-0718-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Face-down end-tray assembly	RM1-3340-000CN	Printer external covers and panels on page 875
Face-down full-flag assembly	RM1-4391-000CN	Printer face-down paper-delivery assembly on page 911
Face-down paper-delivery assembly	RM1-3293-000CN	Printer face-down paper-delivery assembly on page 911
Face-down unit-1 cable	RM1-3390-000CN	Printer internal components (7 of 7) on page 895
Face-down unit-2 cable	RM1-3391-000CN	Printer internal components (7 of 7) on page 895
Fan	RK2-1377-000CN	Printer internal components (4 of 7) on page 887
Fan	RK2-1382-000CN	Printer internal components (4 of 7) on page 887
Fan	RK2-1378-000CN	Printer internal components (4 of 7) on page 887
Fan	RK2-1378-000CN	Printer internal components (5 of 7) on page 891
Fan	RK2-1378-000CN	Printer duplexing-reverse assembly on page 913
Fan assembly	RM1-3364-000CN	Printer internal components (2 of 7) on page 883
Fan assembly	RM1-4394-000CN	Intermediate-feed main body on page 937

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Filter unit, air	RC1-9313-000CN	Printer external covers and panels on page 875
Fin-lock assembly	RM1-3685-000CN	Intermediate-feed main body on page 937
Fixing assembly kit, 110-127V, with air filter (air filter is Ref 14 in Printer external panels and covers)	Q3931-67914	Printer internal components (4 of 7) on page 887
Fixing assembly kit, 220-240V, with air filter (air filter is Ref 14 in Printer external panels and covers)	Q3931-67915	Printer internal components (4 of 7) on page 887
Fixing one-way gear assembly	RM1-3247-000CN	Printer internal components (4 of 7) on page 887
Fixing power-supply assembly	RM1-3218-000CN	Printer internal components (7 of 7) on page 895
Fixing power-supply assembly	RM1-3218-000CN	Printer PCA assembly location on page 917
Fixing-bias cable assembly	RM1-4409-000CN	Printer internal components (7 of 7) on page 895
Fixing-fan cover assembly	RM1-5950-000CN	Printer external covers and panels on page 875
Fixing-joint cable	RM1-3612-000CN	Printer internal components (7 of 7) on page 895
Fixing-motor cable	RM1-3217-000CN	Printer internal components (6 of 7) on page 893
Flag sensor LS	Q3938-67951	ADF unit on page 1019
Flag, paper-face sensing, upper	FC5-4162-000CN	External panels and covers (stapler/stacker) on page 953
Flag, paper-sensing sensor	FC5-5004-000CN	External panels and covers (stapler/stacker) on page 953
Flag, paper-sensing sensor	FC5-5004-000CN	External panels and covers (booklet-maker) on page 955
Flag, roller	FB3-7925-030CN	Saddle assembly (booklet-maker) on page 995
Flag, sensor	FB3-7979-000CN	Saddle assembly (booklet-maker) on page 995
Flag, sensor	FB5-5937-020CN	Saddle assembly (booklet-maker) on page 995
Flange, pulley	RC1-9620-000CN	Intermediate-feed main body on page 937
Flat cable, 28, 940, A	Q3938-67912	Main-frame assembly on page 1057
Flat cable, 28, 970, B	Q3938-67913	Main-frame assembly on page 1057
Flexible-cable mount assembly	FM2-0720-000CN	Finisher (stapler/stacker and booklet-maker) on page 961

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Float assembly	Q7829-67917	Backbone assembly on page 1025
Foot, rubber	RC1-9208-000CN	Printer internal components (6 of 7) on page 893
Formatter-case assembly	RM1-3253-000CN	Printer internal components (6 of 7) on page 893
Front cable	RM1-3617-000CN	Printer internal components (6 of 7) on page 893
Front cover	Q3938-67926	Plastic-parts assembly on page 1061
Front internal small-cover assembly	RC1-5953-000CN	Printer external covers and panels on page 875
Front internal-cover assembly	RM1-4404-000CN	Printer front-door assembly on page 877
Front-cover assembly	RM1-3357-000CN	Printer front-door assembly on page 877
Front-door assembly	RM1-4134-000CN	External panels and covers (stapler/stacker) on page 953
Front-door assembly	RM1-4122-000CN	External panels and covers (booklet-maker) on page 955
Gear, 16T	FS6-0823-000CN	Saddle assembly (booklet-maker) on page 995
Gear, 16T	FS6-0830-000CN	Saddle assembly (booklet-maker) on page 995
Gear, 16T/33T	FS6-0822-000CN	Saddle assembly (booklet-maker) on page 995
Gear, 16T/56T	FS6-0829-000CN	Saddle assembly (booklet-maker) on page 995
Gear, 17T	FU5-0457-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Gear, 17T	FU5-0457-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Gear, 29T	FU5-2399-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Gear, 30T	FU5-0428-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Gear, 34T	RU5-0791-000CN	Printer internal components (4 of 7) on page 887
Gear, 40T	FU5-0454-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Gear, 44T	FU5-0435-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Gear, 44T	FU5-0435-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Gear, 44T	FU5-0435-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Gear, 50T	4S3-0171-000CN	Saddle assembly (booklet-maker) on page 995
Gear, 83T/25T	RU5-0790-000CN	Printer internal components (4 of 7) on page 887
Glass assembly	Q3938-67906	Glass assembly on page 1047
Grip-support front assembly	RM1-3225-000CN	Printer internal components (2 of 7) on page 883
Grip-support rear assembly	RM1-3226-000CN	Printer internal components (2 of 7) on page 883
Guide, cable, 2	RC1-9688-000CN	Intermediate-feed main body on page 937
Guide, cable, A	RC1-9306-000CN	Printer internal components (7 of 7) on page 895
Guide, cable, B	RC1-9307-000CN	Printer internal components (6 of 7) on page 893
Guide, cable, C	RC1-9308-000CN	Printer internal components (6 of 7) on page 893
Guide, cable, D	RC1-9312-000CN	Printer internal components (6 of 7) on page 893
Guide, cable, E	RC1-9318-000CN	Printer internal components (6 of 7) on page 893
Guide, cable, F	RC1-9323-000CN	Printer internal components (7 of 7) on page 895
Guide, duplexing-feed, upper	RL1-1335-000CN	Printer right-door assembly on page 879
Guide, face-down inner	RC1-8959-000CN	Printer internal components (2 of 7) on page 883
Guide, fixing-cable	RC1-9332-000CN	Printer internal components (7 of 7) on page 895
Guide, intermediate transfer belt (ITB)-entrance, front	RC1-9185-000CN	Printer internal components (3 of 7) on page 885
Guide, intermediate transfer belt (ITB)-entrance, rear	RC1-9186-000CN	Printer internal components (3 of 7) on page 885
Guide, multi-purpose, right	RL1-1283-000CN	Printer internal components (2 of 7) on page 883
Guide, multi-purpose, upper	RC1-8526-000CN	Printer multi-purpose paper-pickup assembly on page 905
Guide, paper-feed roller	RC1-9881-000CN	Input-tray main body (1x500-sheet) on page 921

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Guide, paper-feed roller	RC1-9881-000CN	Input-tray main body (3x500-sheet) on page 925
Guide, side-wall	RC2-1284-000CN	External panels and covers (booklet-maker) on page 955
Guide-motor assembly	4G3-0725-000CN	Saddle assembly (booklet-maker) on page 995
Guide-sensor assembly	RM1-4400-000CN	Printer internal components (5 of 7) on page 891
High-voltage transfer B PCA assembly	RM1-5475-000CN	Printer internal components (1 of 7) on page 881
High-voltage-transfer A PCA assembly	RM1-3582-000CN	Printer internal components (7 of 7) on page 895
High-voltage-transfer A PCA assembly	RM1-3582-000CN	Printer PCA assembly location on page 917
High-voltage-transfer B PCA assembly	RM1-5475-000CN	Printer PCA assembly location on page 917
Hinge assembly	Q3938-67952	Hinge assembly on page 1023
Hinge, front-door, 1	FC5-4991-030CN	Finisher (stapler/stacker and booklet-maker) on page 961
Hinge, front-door, 2	FC5-4992-030CN	Finisher (stapler/stacker and booklet-maker) on page 961
Holder, cartridge-fan	RC1-9277-000CN	Printer internal components (4 of 7) on page 887
Holder, environment-sensor	RC1-9324-000CN	Printer internal components (2 of 7) on page 883
Holder, fixing-fan	RC1-9278-000CN	Printer internal components (4 of 7) on page 887
Holder, high-voltage-connector	RC1-9328-000CN	Printer internal components (7 of 7) on page 895
Holder, roller, 2	FB3-7973-000CN	Saddle assembly (booklet-maker) on page 995
Holder, scanner-fan	RC1-9279-000CN	Printer internal components (4 of 7) on page 887
Holder, scanner-thermistor	RC1-9260-000CN	Printer internal components (2 of 7) on page 883
Inner side-plate assembly	4G3-0671-000CN	Saddle assembly (booklet-maker) on page 995
Inner side-plate assembly	4G3-0671-000CN	Inner side-plate assembly (booklet-maker) on page 1011
Inner-cover assembly	RM1-4123-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Interface-joint cable	RM1-3623-000CN	Printer internal components (6 of 7) on page 893

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Interlock-switch assembly	RM1-3589-000CN	Printer internal components (2 of 7) on page 883
Intermediate paper-transfer unit (IPTU)-driver PCA assembly	RM1-3559-000CN	Intermediate-feed main body on page 937
Intermediate paper-transfer unit (IPTU)-driver PCA assembly	RM1-3559-000CN	PCA assembly on page 947
Intermediate transfer belt (ITB) assembly kit	Q3931-67908	Printer internal components (3 of 7) on page 885
Intermediate transfer belt (ITB) duct assembly	RM1-4401-000CN	Printer internal components (5 of 7) on page 891
Intermediate transfer belt (ITB) estrangement-drive assembly	RM1-3280-000CN	Printer internal components (3 of 7) on page 885
Intermediate transfer belt (ITB) lock-support front assembly	RM1-3228-000CN	Printer internal components (3 of 7) on page 885
Intermediate transfer belt (ITB) lock-support rear assembly	RM1-3215-000CN	Printer internal components (3 of 7) on page 885
Intermediate transfer belt (ITB)-drawer assembly	RM1-3240-000CN	Printer internal components (3 of 7) on page 885
Inverter assembly	Q3938-67905	Inverter assembly on page 1045
Jam-cover assembly	Q3938-67970	Jam-cover assembly on page 1027
Knob (booklet-maker only)	FB3-7881-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Knob, latch	FC5-5024-000CN	Saddle-guide assembly (booklet-maker) on page 1001
Large-pin assembly	Q3938-67903	Large-pin assembly on page 1041
LED-PCA assembly	RM1-4141-000CN	External panels and covers (stapler/stacker) on page 953
LED-PCA assembly	RM1-4141-000CN	External panels and covers (booklet-maker) on page 955
Left upper-cover assembly	RM1-4179-000CN	External panels and covers (stapler/stacker) on page 953
Left-assist assembly	RM1-4396-000CN	Left-assist assembly on page 943
Left-side wall assembly	RM1-3233-000CN	Printer internal components (1 of 7) on page 881
Left-upper cover assembly	RM1-4129-000CN	External panels and covers (booklet-maker) on page 955
Lever, door-interlock shutter	RC1-9220-000CN	Printer internal components (5 of 7) on page 891
Lever, lock	RC1-9883-000CN	Input-tray main body (1x500-sheet) on page 921

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Lever, lock	RC1-9883-000CN	Input-tray main body (3x500-sheet) on page 925
Lever, paper-sensing	RC1-8928-000CN	Printer internal components (5 of 7) on page 891
Lever, stopper	4A3-1782-000CN	Saddle assembly (booklet-maker) on page 995
Lid-sensor assembly	Q3938-67907	Lid-sensor assembly on page 1049
Lifter-drive-assembly kit	RM1-3222-000CN	Printer lifter-drive assembly on page 899
Limiter, torque	RC1-8519-000CN	Printer multi-purpose paper-pickup assembly on page 905
Limiter, torque	FC5-3657-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Link-slide assembly	4G3-0271-000CN	External panels and covers (stapler/stacker) on page 953
Link-slide assembly	4G3-0271-000CN	External panels and covers (booklet-maker) on page 955
Low-voltage power-supply assembly	RM1-3594-000CN	Printer internal components (5 of 7) on page 891
Low-voltage power-supply assembly	RM1-3594-000CN	Printer PCA assembly location on page 917
Lower height-guide assembly	RM1-4135-000CN	External panels and covers (stapler/stacker) on page 953
Lower-guide assembly	RM1-3686-000CN	Intermediate-feed lower-guide assembly on page 939
Lower-left cover	Q3938-67921	Plastic-parts assembly on page 1061
Lower-right cover	Q3938-67923	Plastic-parts assembly on page 1061
Main controller PCA assembly (stapler/stacker and booklet-maker)	RM1-4139-000CN	PCA assembly on page 1017
Main drive-unit kit	Q3931-67911	Printer internal components (4 of 7) on page 887
Main switch-holder assembly	RM1-3252-000CN	Printer internal components (7 of 7) on page 895
Maintenance kit	Q3938-67944	ADF unit on page 1019
Memory-tag PCA assembly	RM1-3585-000CN	Printer internal components (4 of 7) on page 887
Memory-tag PCA assembly	RM1-3585-000CN	Printer PCA assembly location on page 917
Middle-height cover assembly	RM1-4119-000CN	External panels and covers (booklet-maker) on page 955
Motor assembly	Q3938-67908	Motor assembly on page 1051

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Motor, stepping	4K1-1103-000CN	Pass lower-guide assembly (booklet-maker) on page 1009
Motor, stepping, DC	RK2-1366-000CN	Printer internal components (4 of 7) on page 887
Motor, stepping, DC	RK2-1370-000CN	Printer internal components (4 of 7) on page 887
Motor, stepping, DC	RK2-1331-000CN	Input-tray main body (1x500-sheet) on page 921
Motor, stepping, DC	RK2-1331-000CN	Input-tray main body (3x500-sheet) on page 925
Motor, stepping, DC	RK2-1320-000CN	Intermediate-feed main body on page 937
Motor-mount assembly	4G3-0670-000CN	Saddle assembly (booklet-maker) on page 995
Motor-mount assembly	4G3-0670-000CN	Motor-mount assembly (booklet-maker) on page 1015
Mount, LED-PCA	RC2-1735-000CN	External panels and covers (stapler/stacker) on page 953
Multi-purpose paper-pickup assembly	RM1-3345-000CN	Printer multi-purpose paper-pickup assembly on page 905
Multi-purpose-drive assembly	RM1-3366-000CN	Printer multi-purpose-drive assembly on page 897
Multi-purpose-guide assembly	RM1-3291-000CN	Printer multi-purpose-guide assembly on page 909
Multi-purpose-tray assembly	RM1-3341-000CN	Printer multi-purpose-tray assembly on page 907
Multi-tray cable	RM1-3630-000CN	Printer multi-purpose-tray assembly on page 907
Operation-tray assembly	RM1-4125-000CN	Operation-tray assembly (stapler/stacker and booklet-maker) on page 977
Option paper-sensor PCA assembly	RM1-3570-000CN	Input-tray paper-pickup assembly on page 933
Option-sensor assembly	FM2-1708-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
Panel cable	RM1-3389-000CN	Printer internal components (6 of 7) on page 893
Panel, height, upper	RC2-1283-000CN	External panels and covers (stapler/stacker) on page 953
Panel, height, upper	RC2-1283-000CN	External panels and covers (booklet-maker) on page 955
Panel-joint cable	RM1-3622-000CN	Printer internal components (6 of 7) on page 893

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Paper feed-roller assembly	RM1-0037-020CN	Input-tray paper-pickup assembly on page 933
Paper-delivery-guide assembly	RM1-4407-000CN	Printer face-down paper-delivery assembly on page 911
Paper-face sensing assembly	4G3-1624-000CN	External panels and covers (stapler/stacker) on page 953
Paper-face sensing assembly	4G3-1624-000CN	External panels and covers (booklet-maker) on page 955
Paper-face sensor assembly	4G3-0934-000CN	External panels and covers (stapler/stacker) on page 953
Paper-face sensor assembly	4G3-0934-000CN	External panels and covers (booklet-maker) on page 955
Paper-feed PCA assembly	RM1-3569-000CN	Input-tray main body (1x500-sheet) on page 921
Paper-feed PCA assembly	RM1-3569-000CN	Input-tray main body (3x500-sheet) on page 925
Paper-feed PCA assembly (1x500-sheet)	RM1-3569-000CN	Input-tray PCA assembly on page 935
Paper-feed PCA assembly (3x500-sheet)	RM1-3569-000CN	Input-tray PCA assembly on page 935
Paper-feeder motor assembly	RM1-4175-000CN	Paper-feeder motor assembly (stapler/stacker and booklet-maker) on page 979
Paper-sensor assembly	FM2-0707-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
Paper-sensor assembly	FM2-0707-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Paper-sensor assembly	FM2-0707-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Partition-plate assembly, cyan	RM1-3238-000CN	Printer internal components (1 of 7) on page 881
Partition-plate assembly, magenta	RM1-3237-000CN	Printer internal components (1 of 7) on page 881
Partition-plate assembly, yellow	RM1-3235-000CN	Printer internal components (1 of 7) on page 881
PCA motor assembly	Q7829-67903	ADF unit on page 1019
PCIe cable	Q3938-67942	Havic assembly on page 1067
Photo interrupter with connector	Q7829-67914	ADF unit on page 1019
Photo interrupter with connector	Q7829-67914	Backbone assembly on page 1025

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Photo interrupter, TLP1242	WG8-5593-000CN	External panels and covers (stapler/stacker) on page 953
Photo interrupter, TLP1242	WG8-5593-000CN	External panels and covers (booklet-maker) on page 955
Photo interrupter, TLP1242	WG8-5593-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Photo interrupter, TLP1242	WG8-5593-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
Photo interrupter, TLP1242	WG8-5593-000CN	Operation-tray assembly (stapler/stacker and booklet-maker) on page 977
Photo interrupter, TLP1242	WG8-5593-000CN	Operation-tray assembly (stapler/stacker and booklet-maker) on page 977
Photo interrupter, TLP1242	WG8-5593-000CN	Saddle assembly (booklet-maker) on page 995
Photo interrupter, TLP1242	WG8-5593-000CN	Saddle assembly (booklet-maker) on page 995
Photo interrupter, TLP1242	WG8-5593-000CN	Saddle assembly (booklet-maker) on page 995
Photo interrupter, TLP1242	WG8-5593-000CN	Saddle assembly (booklet-maker) on page 995
Photo interrupter, TLP1242	WG8-5593-000CN	Saddle-tray assembly (booklet-maker) on page 999
Photo interrupter, TLP1242	WG8-5593-000CN	Saddle paper-feeder assembly (booklet-maker) on page 1007
Photo interrupter, TLP1242	WG8-5593-000CN	Pass lower-guide assembly (booklet-maker) on page 1009
Photo interrupter, TLP1242	WG8-5593-000CN	Inner side-plate assembly (booklet-maker) on page 1011
Photo interrupter, TLP1242	WG8-5593-000CN	Saddle paper-delivery assembly (booklet-maker) on page 1013
Photo interrupter, TLP1243	WG8-5696-000CN	Printer right-door assembly on page 879
Photo interrupter, TLP1243	WG8-5696-000CN	Printer right-door assembly on page 879
Photo interrupter, TLP1243	WG8-5696-000CN	Printer internal components (2 of 7) on page 883
Photo interrupter, TLP1243	WG8-5696-000CN	Printer internal components (5 of 7) on page 891
Photo interrupter, TLP1243	WG8-5696-000CN	Printer internal components (7 of 7) on page 895
Photo interrupter, TLP1243	WG8-5696-000CN	Printer cassette paper-pickup assembly on page 903

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Photo interrupter, TLP1243	WG8-5696-000CN	Printer multi-purpose-guide assembly on page 909
Photo interrupter, TLP1243	WG8-5696-000CN	Printer face-down paper-delivery assembly on page 911
Photo interrupter, TLP1243	WG8-5696-000CN	Printer duplexing-reverse assembly on page 913
Photosensor assembly	RM1-3250-000CN	Printer internal components (2 of 7) on page 883
Pin	XD3-2200-102CN	Finisher (stapler/stacker and booklet-maker) on page 961
Pin	XD3-2200-102CN	Finisher (stapler/stacker and booklet-maker) on page 961
Pin, dowel	XD9-0240-000CN	Printer internal components (4 of 7) on page 887
Pin, dowel	XD3-2200-142CN	Finisher (stapler/stacker and booklet-maker) on page 961
Pin, dowel	XD3-2300-142CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Pin, dowel	XD3-2300-142CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Pin, dowel	XD3-2300-202CN	Saddle assembly (booklet-maker) on page 995
Plate, assist-arm cap	RC1-9695-000CN	Intermediate-feed main body on page 937
Plate, drawer-guard	RC1-9235-000CN	Printer internal components (5 of 7) on page 891
Plate, fan-fixing, front	RC1-9190-000CN	Printer internal components (5 of 7) on page 891
Plate, fixing-motor	RL1-1216-000CN	Printer internal components (4 of 7) on page 887
Plate, grounding (booklet-maker only)	4A3-1955-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Plate, grounding (booklet-maker only)	RC2-1356-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Plate, high-voltage transmission (HVT-A) guard	RC1-9326-000CN	Printer internal components (7 of 7) on page 895
Plate, hinge-stop (booklet-maker only)	4A3-4715-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Plate, option-tray, front	FC5-6978-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
Plate, rotation	4A3-1779-000CN	Saddle assembly (booklet-maker) on page 995

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Plate, sensor, front	RC1-9246-000CN	Printer internal components (5 of 7) on page 891
Plate, switch-cover	RC1-9901-000CN	Input-tray main body (1x500-sheet) on page 921
Plate, switch-cover	RC1-9901-000CN	Input-tray main body (3x500-sheet) on page 925
Plate, tension	FF5-5805-040	Saddle assembly (booklet-maker) on page 995
Power-supply assembly	Q3938-67910	Power-supply assembly on page 1055
Power-supply harness	Q3938-67928	Power-supply assembly on page 1055
Press-motor assembly	FM2-1409-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Pressure-roller assembly	FM2-0730-000CN	Pressure-roller assembly (stapler/stacker and booklet-maker) on page 983
Pulley assembly	Q3938-67909	Pulley assembly on page 1053
Pulley, 16T/gear, 32T	FS6-0815-000CN	Pass lower-guide assembly (booklet-maker) on page 1009
Pulley, 20T	FU5-3086-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Pulley, 30T	FS5-3576-000CN	Saddle assembly (booklet-maker) on page 995
Pulley, 32T/gear, 16T	FS6-0814-000CN	Pass lower-guide assembly (booklet-maker) on page 1009
Pulley, 39T	FS5-3577-000CN	Saddle assembly (booklet-maker) on page 995
Pulley/gear, 22T	RU5-0868-000CN	Intermediate-feed main body on page 937
Rack, front	FB3-7967-000CN	Saddle assembly (booklet-maker) on page 995
Rack, rail	FC5-5436-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Rack, rear	FB3-7934-000CN	Saddle assembly (booklet-maker) on page 995
Rail, cassette, left	RL1-1311-000CN	Input-tray main body (1x500-sheet) on page 921
Rail, cassette, left	RL1-1311-000CN	Input-tray main body (3x500-sheet) on page 925
Rail, cassette, right	RL1-1215-000CN	Printer internal components (5 of 7) on page 891
Rail, cassette, right	RL1-1310-000CN	Input-tray main body (1x500-sheet) on page 921

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Rail, cassette, right	RL1-1310-000CN	Input-tray main body (3x500-sheet) on page 925
Rail, fixing, front	RC1-8931-000CN	Printer internal components (4 of 7) on page 887
Rail, fixing, rear	RC1-8939-000CN	Printer internal components (4 of 7) on page 887
Rail, left, top	RL1-1213-000CN	Printer internal components (5 of 7) on page 891
Rail, reverse, rear	RC1-9206-000CN	Printer internal components (2 of 7) on page 883
Reader front-guide assembly	RM1-4398-000CN	Printer internal components (2 of 7) on page 883
Reader rear-guide assembly	RM1-4399-000CN	Printer internal components (2 of 7) on page 883
Rear cover	Q3938-67925	Plastic-parts assembly on page 1061
Rear-cover-mount plate assembly	RM1-3354-000CN	Printer internal components (6 of 7) on page 893
Rear-end sensor assembly	FM2-0763-000CN	Saddle assembly (booklet-maker) on page 995
Rear-lower cable	RM1-3618-000CN	Printer internal components (6 of 7) on page 893
Rear-right cover assembly	RM1-4415-000CN	Printer external covers and panels on page 875
Rear-upper cable	RM1-3619-000CN	Printer internal components (6 of 7) on page 893
Reflector foam (white backing)	Q7829-67909	ADF unit on page 1019
Registration 2nd-transfer assembly kit with service document	Q3931-67909	Printer internal components (3 of 7) on page 885
Retainer	RC1-8511-000CN	Printer internal components (3 of 7) on page 885
Retainer	RC1-8511-000CN	Printer multi-purpose paper-pickup assembly on page 905
Return-roller assembly	FM2-0725-090	Return-roller assembly (stapler/stacker and booklet-maker) on page 981
Right-assist assembly	RM1-4397-000CN	Right-assist assembly on page 945
Right-door assembly	RM1-3538-000CN	Input-tray main body (1x500-sheet) on page 921
Right-door assembly	RM1-3537-000CN	Input-tray main body (3x500-sheet) on page 925
Right-door sub-assembly	RM1-3333-000CN	Printer right-door assembly on page 879

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Right-lower cover assembly	RL1-1280-000CN	Printer external covers and panels on page 875
Right-side wall assembly	RM1-3239-000CN	Printer internal components (1 of 7) on page 881
Ring, C, external	XD2-3100-152CN	Saddle assembly (booklet-maker) on page 995
Ring, E	XD9-0234-000CN	Printer internal components (4 of 7) on page 887
Ring, E	XD9-0234-000CN	Printer internal components (5 of 7) on page 891
Ring, E	XD9-0136-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Ring, E	XD9-0136-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Ring, E	XD9-0137-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Rod	Q3938-67911	Main-frame assembly on page 1057
Roller, folding	4A3-1783-000CN	Saddle assembly (booklet-maker) on page 995
Roller, paper-pickup	RL1-1289-000CN	Input-tray paper-pickup assembly on page 933
Roller, rail	RC1-9231-000CN	Input-tray main body (1x500-sheet) on page 921
Roller, rail	RC1-9231-000CN	Input-tray main body (3x500-sheet) on page 925
Roller, tray-guide	RU5-6035-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
Roller, tray-guide	FC5-4221-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Roller, tray-guide	RU5-6035-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Roller, tray-guide	FC5-4221-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Roller, tray-guide	RU5-6035-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Rubber glass guide	Q3938-67915	Main-frame assembly on page 1057
Saddle paper-delivery assembly	RM1-4130-000CN	Saddle assembly (booklet-maker) on page 995

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Saddle paper-delivery assembly	RM1-4130-000CN	Saddle paper-delivery assembly (booklet-maker) on page 1013
Saddle paper-feeder assembly	RM1-4136-000CN	Saddle paper-feeder assembly (stapler/stacker) on page 1005
Saddle paper-feeder assembly	RM1-4109-000CN	Saddle paper-feeder assembly (booklet-maker) on page 1007
Saddle, wire	WT2-5694-000CN	Printer internal components (4 of 7) on page 887
Saddle, wire	WT2-5694-000CN	Input-tray main body (1x500-sheet) on page 921
Saddle, wire	WT2-5694-000CN	Input-tray main body (3x500-sheet) on page 925
Saddle-controller PCA assembly	RM1-4140-000CN	Saddle assembly (booklet-maker) on page 995
Saddle-controller PCA assembly (booklet-maker)	RM1-4140-000CN	PCA assembly on page 1017
Saddle-guide assembly	FM2-0756-000CN	Saddle assembly (booklet-maker) on page 995
Saddle-guide assembly	FM2-5024-000CN	Saddle-guide assembly (booklet-maker) on page 1001
Saddle-motor assembly	FM2-0737-000CN	Saddle paper-feeder assembly (stapler/stacker) on page 1005
Saddle-motor assembly	FM2-0737-000CN	Saddle paper-feeder assembly (booklet-maker) on page 1007
Saddle-stapler assembly	RM1-4178-000CN	Saddle assembly (booklet-maker) on page 995
Saddle-stapler assembly	RM1-4178-000CN	Saddle-stapler assembly (booklet-maker) on page 1003
Scanner assembly kit with 1 scanner assembly and service document	Q3931-67907	Printer internal components (2 of 7) on page 883
Scanner controller board (SCB) fan	Q3938-67937	Fan-system assembly on page 1065
Scanner controller-board (SCB)	Q3938-67902	Scanner controller-board (SCB) assembly on page 1039
Scanner fan	Q3938-67938	Fan-system assembly on page 1065
Scanner-joint cable	RM1-3620-000CN	Printer internal components (6 of 7) on page 893
Screw covers	Q3938-67927	Plastic-parts assembly on page 1061
Screw, B, M4x8	XA9-1277-000CN	Intermediate-feed main body on page 937
Screw, M4x14	XA9-1292-000CN	Intermediate-feed main body on page 937

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Screw, machined, truss-head, M3x4	XB1-2300-407CN	Printer internal components (4 of 7) on page 887
Screw, machined, truss-head, M3x4	XB1-2300-407CN	Intermediate-feed main body on page 937
Screw, machined, truss-head, M4x8	XB1-2400-805CN	Printer internal components (7 of 7) on page 895
Screw, RS M3x8	XA9-1500-000CN	Intermediate-feed main body on page 937
Screw, RS stepped, M3	FU9-9059-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Screw, RS, M13x12	XA9-1801-000CN	Printer internal components (7 of 7) on page 895
Screw, RS, M3X6	XA9-1495-000CN	Printer right-door assembly on page 879
Screw, RS, M3x6	XA9-1495-000CN	Printer internal components (1 of 7) on page 881
Screw, RS, M3x6	XA9-1495-000CN	Printer internal components (2 of 7) on page 883
Screw, RS, M3x6	XA9-1495-000CN	Printer internal components (3 of 7) on page 885
Screw, RS, M3x6	XA9-1495-000CN	Printer internal components (4 of 7) on page 887
Screw, RS, M3x6	XA9-1495-000CN	Printer internal components (4 of 7) on page 887
Screw, RS, M3x6	XA9-1495-000CN	Printer internal components (5 of 7) on page 891
Screw, RS, M3x6	XA9-1495-000CN	Printer internal components (6 of 7) on page 893
Screw, RS, M3x6	XA9-1495-000CN	Printer internal components (6 of 7) on page 893
Screw, RS, M3x6	XA9-1495-000CN	Printer internal components (7 of 7) on page 895
Screw, RS, M3x8	XA9-1504-000CN	Printer internal components (1 of 7) on page 881
Screw, RS, M3x8	XA9-1504-000CN	Printer internal components (2 of 7) on page 883
Screw, RS, M3x8	XA9-1449-000CN	Printer internal components (2 of 7) on page 883
Screw, RS, M3x8	XA9-1504-000CN	Printer internal components (3 of 7) on page 885
Screw, RS, M3x8	XA9-1504-000CN	Printer internal components (4 of 7) on page 887
Screw, RS, M3x8	XA9-1504-000CN	Printer internal components (5 of 7) on page 891

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Screw, RS, M3x8	XA9-1449-000CN	Printer internal components (6 of 7) on page 893
Screw, RS, M3x8	XA9-1504-000CN	Printer internal components (7 of 7) on page 895
Screw, RS, M3x8	XA9-1386-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Screw, RS, M4x8	XA9-1448-000CN	Input-tray main body (1x500-sheet) on page 921
Screw, RS, M4x8	XA9-1448-000CN	Input-tray main body (1x500-sheet) on page 921
Screw, RS, M4x8	XA9-1448-000CN	Input-tray main body (3x500-sheet) on page 925
Screw, RS, M4x8	XA9-1448-000CN	Input-tray main body (3x500-sheet) on page 925
Screw, RS, M4x8 (booklet-maker only)	XA9-0732-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Screw, stepped	RS5-9099-000CN	Input-tray main body (1x500-sheet) on page 921
Screw, stepped	RS5-9099-000CN	Input-tray main body (3x500-sheet) on page 925
Screw, tapping, pan-head, M4x10	XB4-7401-006CN	Input-tray main body (1x500-sheet) on page 921
Screw, tapping, truss-head, M4X10	XB4-7401-005CN	Printer external covers and panels on page 875
Screw, tapping, truss-head, M4X10	XB4-7401-005CN	Printer right-door assembly on page 879
Screw, tapping, truss-head, M4x10	XB4-7401-005CN	Printer internal components (5 of 7) on page 891
Screw, TP, M3x30	XB6-7303-005CN	Printer internal components (5 of 7) on page 891
Screw, TP, M3x6	XA9-1159-000CN	Printer internal components (4 of 7) on page 887
Screw, TP, M3x6	XA9-1469-000CN	Input-tray main body (1x500-sheet) on page 921
Screw, TP, M3x6	XA9-1469-000CN	Input-tray main body (3x500-sheet) on page 925
Screw, TP, M3x6 (booklet-maker only)	XB6-7300-607CN	Finisher (stapler/stacker and booklet-maker) on page 961
Screw, with washer, M3x6	XB2-8300-607CN	Printer internal components (4 of 7) on page 887
Screw, with washer, M3x6	XB2-8300-607CN	Input-tray main body (1x500-sheet) on page 921
Screw, with washer, M3x6	XB2-8300-607CN	Input-tray main body (3x500-sheet) on page 925

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Screw, with washer, M3x6	XB2-8300-607CN	Intermediate-feed main body on page 937
Screw, with washer, M4X12	XA9-1422-000CN	Printer right-door assembly on page 879
Screw, with washer, M5x12	XA9-0912-000CN	Input-tray main body (1x500-sheet) on page 921
Screw, with washer, M5x12	XA9-0912-000CN	Input-tray main body (3x500-sheet) on page 925
Screw, with washer, M5x12	XA9-0912-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
SCUID board	Q3938-67941	Havic assembly on page 1067
Sensor base	Q3938-67914	Main-frame assembly on page 1057
Sensor unit, humidity	RK2-2376-000CN	Printer internal components (2 of 7) on page 883
Sensor/switch assembly	FM2-1417-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Separation-floor assembly	Q3938-67949	Separation-floor assembly on page 1033
Separation-pad assembly (part of the ADF maintenance kit)	Q3938-67949	Separation-pad assembly on page 1031
Shaft, lock	RC1-9912-000CN	Input-tray main body (1x500-sheet) on page 921
Shaft, lock	RC1-9912-000CN	Input-tray main body (3x500-sheet) on page 925
Sheet, blanking	RC1-9687-000CN	Intermediate-feed main body on page 937
Sheet, entrance-guide	FC5-5542-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Sheet, fixing-crossmember	RC1-9232-000CN	Printer internal components (2 of 7) on page 883
Shutter H.P. sensor assembly	FM2-1401-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Side-cover assembly	RM1-3683-000CN	Intermediate-feed main body on page 937
Small-pin assembly	Q3938-67904	Small-pin assembly on page 1043
Solenoid	FL2-0821-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Spring, leaf	RC1-9233-000CN	Printer internal components (1 of 7) on page 881
Spring, tension	RU5-2822-000CN	Printer internal components (2 of 7) on page 883

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Spring, tension	RU5-2796-000CN	Printer internal components (5 of 7) on page 891
Spring, tension	4S3-2116-000CN	Saddle assembly (booklet-maker) on page 995
Spring, tension	4S3-2117-000CN	Saddle assembly (booklet-maker) on page 995
Spring, tension	FS6-2582-000CN	Saddle assembly (booklet-maker) on page 995
Spring, torsion	RU5-2825-000CN	Printer internal components (2 of 7) on page 883
Spring, torsion	RC1-9244-000CN	Printer internal components (5 of 7) on page 891
Spring, torsion	FC5-5005-000CN	External panels and covers (stapler/stacker) on page 953
Spring, torsion	FC5-5005-000CN	External panels and covers (booklet-maker) on page 955
Spring, torsion	FC5-6857-000CN	Swing-guide assembly (stapler/stacker and booklet-maker) on page 985
Spring, torsion	FB3-7980-000CN	Saddle assembly (booklet-maker) on page 995
Stack lower-tray assembly	RM1-4105-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Stack sub-tray assembly	RM1-4115-000CN	Top output bin (stack sub-tray assembly) (stapler/stacker) on page 975
Stack upper-tray assembly	RM1-4101-000CN	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
Stack upper-tray assembly	RM1-4102-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Stack-ejection motor assembly	4G3-0769-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Stack-tray assembly	RM1-4104-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Stack-tray assembly	RM1-4104-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Staple assembly	FM2-0721-000CN	Staple assembly (stapler/stacker and booklet-maker) on page 989
Stapler sub-assembly	FM2-0722-000CN	Staple assembly (stapler/stacker and booklet-maker) on page 989

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Stapler unit	FL2-0846-000CN	Saddle-stapler assembly (booklet-maker) on page 1003
Stapler/stacker whole unit	CC517A (product number)	Stapler/stacker unit on page 948
Stock-box assembly	RM1-3539-000CN	Input-tray main body (1x500-sheet) on page 921
Stopper, right-door	RC1-9882-000CN	Input-tray main body (1x500-sheet) on page 921
Stopper, right-door	RC1-9882-000CN	Input-tray main body (3x500-sheet) on page 925
Support, lock-shaft	RC1-9900-000CN	Input-tray main body (1x500-sheet) on page 921
Support, lock-shaft	RC1-9900-000CN	Input-tray main body (3x500-sheet) on page 925
Support, PCA	VT2-0001-008CN	Input-tray main body (1x500-sheet) on page 921
Support, PCA	VT2-001-008CN	Input-tray main body (3x500-sheet) on page 925
Swing-guide assembly	RM1-4108-000CN	Swing-guide assembly (stapler/stacker and booklet-maker) on page 985
Swing-press shaft assembly	FM2-1423-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Switch, button	WC2-5512-000CN	Input-tray main body (1x500-sheet) on page 921
Switch, button	WC2-5512-000CN	Input-tray main body (3x500-sheet) on page 925
Switchback-cover assembly	RM1-4408-000CN	Printer external covers and panels on page 875
T2 guide-arm assembly	RM1-4411-000CN	Printer internal components (7 of 7) on page 895
Tag PCA-holder assembly	RM1-4402-000CN	Printer internal components (4 of 7) on page 887
Tape, door	RC1-9884-000CN	Input-tray main body (1x500-sheet) on page 921
Tape, door	RC1-9884-000CN	Input-tray main body (3x500-sheet) on page 925
Thermistor unit	RK2-1363-000CN	Printer internal components (2 of 7) on page 883
Thermopile case assembly	RM1-3232-000CN	Printer internal components (2 of 7) on page 883
Timing belt	Q3938-67935	Transmission assembly on page 1063
Toner-cartridge drive-assembly kit with service document	Q3931-67912	Printer internal components (4 of 7) on page 887

Table 9-85 Alphabetical parts list (continued)

Description	Part number	Table and page
Toner-cartridge drive-assembly kit with service document	Q3931-67913	Printer internal components (4 of 7) on page 887
Toner-motor cable	RM1-3383-000CN	Printer internal components (4 of 7) on page 887
Toner-motor cable	RM1-3385-000CN	Printer internal components (4 of 7) on page 887
Top cover	Q3938-67924	Plastic-parts assembly on page 1061
Top-cover assembly	RL1-1284-000CN	Printer internal components (1 of 7) on page 881
Top-door (upper-cover) assembly	RM1-4121-000CN	External panels and covers (stapler/stacker) on page 953
Top-door (upper-cover) assembly	RM1-4121-000CN	External panels and covers (booklet-maker) on page 955
Transfer contact-holder assembly	RM1-3230-000CN	Printer internal components (1 of 7) on page 881
Tray 1 pickup, retard-roller kit	Q3931-67920	Printer multi-purpose paper-pickup assembly on page 905
Tray 2 pickup, feed-roller kit	Q3931-67919	Printer cassette paper-pickup assembly on page 903
Tray, screw	RC1-9256-000CN	Printer internal components (6 of 7) on page 893
Tray-driver PCA assembly	FG3-2887-000CN	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
Tray-driver PCA assembly	FG3-2887-000CN	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
Tray-input assembly	Q3938-67950	ADF unit on page 1019
Upper delivery-guide assembly	RM1-4131-000CN	Saddle assembly (booklet-maker) on page 995
Upper-cover lock assembly	4G3-0210-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Upper-crossmember assembly	RM1-4180-000CN	Finisher (stapler/stacker and booklet-maker) on page 961
Upper-guide assembly	RM1-4395-000CN	Intermediate-feed upper-guide assembly on page 941
Upper-left cover	Q3938-67920	Plastic-parts assembly on page 1061
Upper-right cover	Q3938-67922	Plastic-parts assembly on page 1061
Waste-toner-sensor cable	RM1-3640-000CN	Printer internal components (6 of 7) on page 893
Window, LED	RC2-1734-000CN	External panels and covers (booklet-maker) on page 955

Numerical parts list

Table 9-86 Numerical parts list

Part number	Description	Table and page
4A3-1763-000CN	Arm, adjustment, front	Saddle assembly (booklet-maker) on page 995
4A3-1764-000CN	Arm, adjustment, rear	Saddle assembly (booklet-maker) on page 995
4A3-1779-000CN	Plate, rotation	Saddle assembly (booklet-maker) on page 995
4A3-1782-000CN	Lever, stopper	Saddle assembly (booklet-maker) on page 995
4A3-1783-000CN	Roller, folding	Saddle assembly (booklet-maker) on page 995
4A3-1955-000CN	Plate, grounding (booklet-maker only)	Finisher (stapler/stacker and booklet-maker) on page 961
4A3-4715-000CN	Plate, hinge-stop (booklet-maker only)	Finisher (stapler/stacker and booklet-maker) on page 961
4G1-1498-000CN	Area-sensor PCA assembly	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
4G1-1498-000CN	Area-sensor PCA assembly	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
4G1-1498-000CN	Area-sensor PCA assembly	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
4G1-2283-000CN	Cable, saddle-unit	Saddle assembly (booklet-maker) on page 995
4G1-2285-000CN	Cable, sensor	Saddle-tray assembly (booklet-maker) on page 999
4G3-0210-000CN	Upper-cover lock assembly	Finisher (stapler/stacker and booklet-maker) on page 961
4G3-0271-000CN	Link-slide assembly	External panels and covers (stapler/stacker) on page 953
4G3-0271-000CN	Link-slide assembly	External panels and covers (booklet-maker) on page 955
4G3-0670-000CN	Motor-mount assembly	Saddle assembly (booklet-maker) on page 995
4G3-0670-000CN	Motor-mount assembly	Motor-mount assembly (booklet-maker) on page 1015
4G3-0671-000CN	Inner side-plate assembly	Saddle assembly (booklet-maker) on page 995
4G3-0671-000CN	Inner side-plate assembly	Inner side-plate assembly (booklet-maker) on page 1011

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
4G3-0725-000CN	Guide-motor assembly	Saddle assembly (booklet-maker) on page 995
4G3-0769-000CN	Stack-ejection motor assembly	Finisher (stapler/stacker and booklet-maker) on page 961
4G3-0934-000CN	Paper-face sensor assembly	External panels and covers (stapler/stacker) on page 953
4G3-0934-000CN	Paper-face sensor assembly	External panels and covers (booklet-maker) on page 955
4G3-1624-000CN	Paper-face sensing assembly	External panels and covers (stapler/stacker) on page 953
4G3-1624-000CN	Paper-face sensing assembly	External panels and covers (booklet-maker) on page 955
4G3-1777-000CN	Cable, staple-connecting assembly	Staple assembly (stapler/ stacker and booklet-maker) on page 989
4H3-0370-000CN	Clutch, electromagnetic	Finisher (stapler/stacker and booklet-maker) on page 961
4K1-1103-000CN	Motor, stepping	Pass lower-guide assembly (booklet-maker) on page 1009
4S3-0171-000CN	Gear, 50T	Saddle assembly (booklet-maker) on page 995
4S3-1050-000CN	Bearing, ball, 6902ZZNR	Saddle assembly (booklet-maker) on page 995
4S3-2116-000CN	Spring, tension	Saddle assembly (booklet-maker) on page 995
4S3-2117-000CN	Spring, tension	Saddle assembly (booklet-maker) on page 995
C8091-67901	5000-staple replacement cartridge	Staple assembly (stapler/ stacker and booklet-maker) on page 989
C8091-67901	5000-staple replacement cartridge	Saddle-stapler assembly (booklet-maker) on page 1003
CC383-67901	2000-staple cartridge (for booklet making)	Staple assembly (stapler/ stacker and booklet-maker) on page 989
CC383-67901	2000-staple cartridge (for booklet making)	Saddle-stapler assembly (booklet-maker) on page 1003
CC516A (product number)	Booklet-maker (multi-function finisher) whole unit	Booklet-maker unit on page 951
CC517A (product number)	Stapler/stacker whole unit	Stapler/stacker unit on page 948
FB3-7881-000CN	Knob (booklet-maker only)	Finisher (stapler/stacker and booklet-maker) on page 961
FB3-7925-030CN	Flag, roller	Saddle assembly (booklet-maker) on page 995

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
FB3-7928-020CN	Deflector	Saddle assembly (booklet-maker) on page 995
FB3-7934-000CN	Rack, rear	Saddle assembly (booklet-maker) on page 995
FB3-7967-000CN	Rack, front	Saddle assembly (booklet-maker) on page 995
FB3-7973-000CN	Holder, roller, 2	Saddle assembly (booklet-maker) on page 995
FB3-7979-000CN	Flag, sensor	Saddle assembly (booklet-maker) on page 995
FB3-7980-000CN	Spring, torsion	Saddle assembly (booklet-maker) on page 995
FB5-2697-000CN	Deflector	Saddle assembly (booklet-maker) on page 995
FB5-5937-020CN	Flag, sensor	Saddle assembly (booklet-maker) on page 995
FC5-3657-000CN	Limiter, torque	Finisher (stapler/stacker and booklet-maker) on page 961
FC5-4162-000CN	Flag, paper-face sensing, upper	External panels and covers (stapler/stacker) on page 953
FC5-4221-000CN	Roller, tray-guide	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
FC5-4221-000CN	Roller, tray-guide	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
FC5-4991-030CN	Hinge, front-door, 1	Finisher (stapler/stacker and booklet-maker) on page 961
FC5-4992-030CN	Hinge, front-door, 2	Finisher (stapler/stacker and booklet-maker) on page 961
FC5-5004-000CN	Flag, paper-sensing sensor	External panels and covers (stapler/stacker) on page 953
FC5-5004-000CN	Flag, paper-sensing sensor	External panels and covers (booklet-maker) on page 955
FC5-5005-000CN	Spring, torsion	External panels and covers (stapler/stacker) on page 953
FC5-5005-000CN	Spring, torsion	External panels and covers (booklet-maker) on page 955
FC5-5021-000CN	Claw, latch, right	Saddle assembly (booklet-maker) on page 995
FC5-5024-000CN	Knob, latch	Saddle-guide assembly (booklet-maker) on page 1001
FC5-5436-000CN	Rack, rail	Finisher (stapler/stacker and booklet-maker) on page 961

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
FC5-5542-000CN	Sheet, entrance-guide	Finisher (stapler/stacker and booklet-maker) on page 961
FC5-6857-000CN	Spring, torsion	Swing-guide assembly (stapler/stacker and booklet-maker) on page 985
FC5-6978-000CN	Plate, option-tray, front	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
FF5-5805-040	Plate, tension	Saddle assembly (booklet-maker) on page 995
FG3-2887-000CN	Tray-driver PCA assembly	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
FG3-2887-000CN	Tray-driver PCA assembly	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
FG3-2892-000CN	Cable, solenoid	Finisher (stapler/stacker and booklet-maker) on page 961
FG3-2903-000CN	Cable, operation-tray	Operation-tray assembly (stapler/stacker and booklet-maker) on page 977
FL2-0821-000CN	Solenoid	Finisher (stapler/stacker and booklet-maker) on page 961
FL2-0846-000CN	Stapler unit	Saddle-stapler assembly (booklet-maker) on page 1003
FM2-0707-000CN	Paper-sensor assembly	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
FM2-0707-000CN	Paper-sensor assembly	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
FM2-0707-000CN	Paper-sensor assembly	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
FM2-0709-000CN	Area-sensor holder assembly	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
FM2-0709-000CN	Area-sensor holder assembly	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
FM2-0709-000CN	Area-sensor holder assembly	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
FM2-0710-000CN	Approach-switch assembly	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
FM2-0718-000CN	Entrance-sensor flag assembly	Finisher (stapler/stacker and booklet-maker) on page 961

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
FM2-0720-000CN	Flexible-cable mount assembly	Finisher (stapler/stacker and booklet-maker) on page 961
FM2-0721-000CN	Staple assembly	Staple assembly (stapler/stacker and booklet-maker) on page 989
FM2-0722-000CN	Stapler sub-assembly	Staple assembly (stapler/stacker and booklet-maker) on page 989
FM2-0725-090	Return-roller assembly	Return-roller assembly (stapler/stacker and booklet-maker) on page 981
FM2-0730-000CN	Pressure-roller assembly	Pressure-roller assembly (stapler/stacker and booklet-maker) on page 983
FM2-0737-000CN	Saddle-motor assembly	Saddle paper-feeder assembly (stapler/stacker) on page 1005
FM2-0737-000CN	Saddle-motor assembly	Saddle paper-feeder assembly (booklet-maker) on page 1007
FM2-0756-000CN	Saddle-guide assembly	Saddle assembly (booklet-maker) on page 995
FM2-0763-000CN	Rear-end sensor assembly	Saddle assembly (booklet-maker) on page 995
FM2-1401-000CN	Shutter H.P. sensor assembly	Finisher (stapler/stacker and booklet-maker) on page 961
FM2-1409-000CN	Press-motor assembly	Finisher (stapler/stacker and booklet-maker) on page 961
FM2-1417-000CN	Sensor/switch assembly	Finisher (stapler/stacker and booklet-maker) on page 961
FM2-1423-000CN	Swing-press shaft assembly	Finisher (stapler/stacker and booklet-maker) on page 961
FM2-1639-000CN	Delivery-switch mount assembly	Saddle assembly (booklet-maker) on page 995
FM2-1708-000CN	Option-sensor assembly	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
FM2-5024-000CN	Saddle-guide assembly	Saddle-guide assembly (booklet-maker) on page 1001
FS5-3576-000CN	Pulley, 30T	Saddle assembly (booklet-maker) on page 995
FS5-3577-000CN	Pulley, 39T	Saddle assembly (booklet-maker) on page 995
FS6-0814-000CN	Pulley, 32T/gear, 16T	Pass lower-guide assembly (booklet-maker) on page 1009
FS6-0815-000CN	Pulley, 16T/gear, 32T	Pass lower-guide assembly (booklet-maker) on page 1009

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
FS6-0822-000CN	Gear, 16T/33T	Saddle assembly (booklet-maker) on page 995
FS6-0823-000CN	Gear, 16T	Saddle assembly (booklet-maker) on page 995
FS6-0829-000CN	Gear, 16T/56T	Saddle assembly (booklet-maker) on page 995
FS6-0830-000CN	Gear, 16T	Saddle assembly (booklet-maker) on page 995
FS6-2582-000CN	Spring, tension	Saddle assembly (booklet-maker) on page 995
FU5-0428-000CN	Gear, 30T	Finisher (stapler/stacker and booklet-maker) on page 961
FU5-0435-000CN	Gear, 44T	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
FU5-0435-000CN	Gear, 44T	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
FU5-0435-000CN	Gear, 44T	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
FU5-0454-000CN	Gear, 40T	Finisher (stapler/stacker and booklet-maker) on page 961
FU5-0457-000CN	Gear, 17T	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
FU5-0457-000CN	Gear, 17T	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
FU5-1169-000CN	Bushing	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
FU5-2399-000CN	Gear, 29T	Finisher (stapler/stacker and booklet-maker) on page 961
FU5-3086-000CN	Pulley, 20T	Finisher (stapler/stacker and booklet-maker) on page 961
FU9-9059-000CN	Screw, RS stepped, M3	Finisher (stapler/stacker and booklet-maker) on page 961
Q3931-67907	Scanner assembly kit with 1 scanner assembly and service document	Printer internal components (2 of 7) on page 883
Q3931-67908	Intermediate transfer belt (ITB) assembly kit	Printer internal components (3 of 7) on page 885
Q3931-67909	Registration 2nd-transfer assembly kit with service document	Printer internal components (3 of 7) on page 885
Q3931-67910	2nd-transfer-roller assembly kit	Printer internal components (3 of 7) on page 885

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
Q3931-67911	Main drive-unit kit	Printer internal components (4 of 7) on page 887
Q3931-67912	Toner-cartridge drive-assembly kit with service document	Printer internal components (4 of 7) on page 887
Q3931-67913	Toner-cartridge drive-assembly kit with service document	Printer internal components (4 of 7) on page 887
Q3931-67914	Fixing assembly kit, 110-127V, with air filter (air filter is Ref 14 in Printer external panels and covers)	Printer internal components (4 of 7) on page 887
Q3931-67915	Fixing assembly kit, 220-240V, with air filter (air filter is Ref 14 in Printer external panels and covers)	Printer internal components (4 of 7) on page 887
Q3931-67917	Cartridge-interface assembly kit with service document	Printer internal components (7 of 7) on page 895
Q3931-67918	Cassette-assembly kit with service document	Printer cassette on page 901
Q3931-67919	Tray 2 pickup, feed-roller kit	Printer cassette paper-pickup assembly on page 903
Q3931-67920	Tray 1 pickup, retard-roller kit	Printer multi-purpose paper-pickup assembly on page 905
Q3938-60132	Entire scanner without power supply, boards, and cable	Scanner unit on page 1035
Q3938-67901	Carriage assembly	Carriage assembly on page 1037
Q3938-67902	Scanner controller-board (SCB)	Scanner controller-board (SCB) assembly on page 1039
Q3938-67903	Large-pin assembly	Large-pin assembly on page 1041
Q3938-67904	Small-pin assembly	Small-pin assembly on page 1043
Q3938-67905	Inverter assembly	Inverter assembly on page 1045
Q3938-67906	Glass assembly	Glass assembly on page 1047
Q3938-67907	Lid-sensor assembly	Lid-sensor assembly on page 1049
Q3938-67908	Motor assembly	Motor assembly on page 1051
Q3938-67909	Pulley assembly	Pulley assembly on page 1053
Q3938-67910	Power-supply assembly	Power-supply assembly on page 1055
Q3938-67911	Rod	Main-frame assembly on page 1057
Q3938-67912	Flat cable, 28, 940, A	Main-frame assembly on page 1057
Q3938-67913	Flat cable, 28, 970, B	Main-frame assembly on page 1057
Q3938-67914	Sensor base	Main-frame assembly on page 1057

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
Q3938-67915	Rubber glass guide	Main-frame assembly on page 1057
Q3938-67920	Upper-left cover	Plastic-parts assembly on page 1061
Q3938-67921	Lower-left cover	Plastic-parts assembly on page 1061
Q3938-67922	Upper-right cover	Plastic-parts assembly on page 1061
Q3938-67923	Lower-right cover	Plastic-parts assembly on page 1061
Q3938-67924	Top cover	Plastic-parts assembly on page 1061
Q3938-67925	Rear cover	Plastic-parts assembly on page 1061
Q3938-67926	Front cover	Plastic-parts assembly on page 1061
Q3938-67927	Screw covers	Plastic-parts assembly on page 1061
Q3938-67928	Power-supply harness	Power-supply assembly on page 1055
Q3938-67935	Timing belt	Transmission assembly on page 1063
Q3938-67937	Scanner controller board (SCB) fan	Fan-system assembly on page 1065
Q3938-67938	Scanner fan	Fan-system assembly on page 1065
Q3938-67939	Control-panel fan	Fan-system assembly on page 1065
Q3938-67940	Copy processor board (CPB)	Havic assembly on page 1067
Q3938-67941	SCUID board	Havic assembly on page 1067
Q3938-67942	PCIe cable	Havic assembly on page 1067
Q3938-67943	Automatic document feeder (ADF) whole unit	ADF unit on page 1019
Q3938-67944	Maintenance kit	ADF unit on page 1019
Q3938-67945	End cover (cap) back	ADF unit on page 1019
Q3938-67946	End cover (cap) front assembly	Front-end cover on page 1021
Q3938-67948	Cable, ADF to scanner	ADF unit on page 1019
Q3938-67949	Separation-pad assembly (part of the ADF maintenance kit)	Separation-pad assembly on page 1031
Q3938-67949	Separation-floor assembly	Separation-floor assembly on page 1033
Q3938-67950	Tray-input assembly	ADF unit on page 1019

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
Q3938-67951	Flag sensor LS	ADF unit on page 1019
Q3938-67952	Hinge assembly	Hinge assembly on page 1023
Q3938-67953	Diverter	Backbone assembly on page 1025
Q3938-67954	Cover pick roller	Jam-cover assembly on page 1027
Q3938-67954	Cover pick roller (part of the ADF maintenance kit)	Pickup-roller assembly on page 1029
Q3938-67970	Jam-cover assembly	Jam-cover assembly on page 1027
Q7559A (module only) or Q3931-67904 (service kit)	512 MB image scanner memory DIMM	Havic assembly on page 1067
Q7829-67903	PCA motor assembly	ADF unit on page 1019
Q7829-67909	Reflector foam (white backing)	ADF unit on page 1019
Q7829-67914	Photo interrupter with connector	ADF unit on page 1019
Q7829-67914	Photo interrupter with connector	Backbone assembly on page 1025
Q7829-67917	Float assembly	Backbone assembly on page 1025
RC1-4585-000CN	Bushing	Intermediate-feed main body on page 937
RC1-5949-000CN	Duplexing-tray lower assembly	Printer external covers and panels on page 875
RC1-5953-000CN	Front internal small-cover assembly	Printer external covers and panels on page 875
RC1-8511-000CN	Retainer	Printer internal components (3 of 7) on page 885
RC1-8511-000CN	Retainer	Printer multi-purpose paper-pickup assembly on page 905
RC1-8519-000CN	Limiter, torque	Printer multi-purpose paper-pickup assembly on page 905
RC1-8526-000CN	Guide, multi-purpose, upper	Printer multi-purpose paper-pickup assembly on page 905
RC1-8527-000CN	Cover, multi-purpose blanking	Printer right-door assembly on page 879
RC1-8734-000CN	Bushing	Printer internal components (3 of 7) on page 885
RC1-8925-000CN	Damper, gear	Printer internal components (4 of 7) on page 887
RC1-8928-000CN	Lever, paper-sensing	Printer internal components (5 of 7) on page 891

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RC1-8931-000CN	Rail, fixing, front	Printer internal components (4 of 7) on page 887
RC1-8939-000CN	Rail, fixing, rear	Printer internal components (4 of 7) on page 887
RC1-8959-000CN	Guide, face-down inner	Printer internal components (2 of 7) on page 883
RC1-8961-000CN	Duct, air	Printer internal components (4 of 7) on page 887
RC1-8964-000CN	Duct, face-down joint	Printer internal components (4 of 7) on page 887
RC1-9043-000CN	Band, door	Printer front-door assembly on page 877
RC1-9185-000CN	Guide, intermediate transfer belt (ITB)-entrance, front	Printer internal components (3 of 7) on page 885
RC1-9186-000CN	Guide, intermediate transfer belt (ITB)-entrance, rear	Printer internal components (3 of 7) on page 885
RC1-9189-000CN	Arm, 1st-estrangement	Printer internal components (3 of 7) on page 885
RC1-9190-000CN	Plate, fan-fixing, front	Printer internal components (5 of 7) on page 891
RC1-9201-000CN	Cover, cassette back-end	Printer internal components (5 of 7) on page 891
RC1-9206-000CN	Rail, reverse, rear	Printer internal components (2 of 7) on page 883
RC1-9208-000CN	Foot, rubber	Printer internal components (6 of 7) on page 893
RC1-9211-000CN	Cover, main-switch	Printer internal components (7 of 7) on page 895
RC1-9220-000CN	Lever, door-interlock shutter	Printer internal components (5 of 7) on page 891
RC1-9231-000CN	Roller, rail	Input-tray main body (1x500-sheet) on page 921
RC1-9231-000CN	Roller, rail	Input-tray main body (3x500-sheet) on page 925
RC1-9232-000CN	Sheet, fixing-crossmember	Printer internal components (2 of 7) on page 883
RC1-9233-000CN	Spring, leaf	Printer internal components (1 of 7) on page 881
RC1-9235-000CN	Plate, drawer-guard	Printer internal components (5 of 7) on page 891
RC1-9244-000CN	Spring, torsion	Printer internal components (5 of 7) on page 891
RC1-9246-000CN	Plate, sensor, front	Printer internal components (5 of 7) on page 891

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RC1-9256-000CN	Tray, screw	Printer internal components (6 of 7) on page 893
RC1-9260-000CN	Holder, scanner-thermistor	Printer internal components (2 of 7) on page 883
RC1-9276-000CN	Duct, cartridge	Printer internal components (4 of 7) on page 887
RC1-9277-000CN	Holder, cartridge-fan	Printer internal components (4 of 7) on page 887
RC1-9278-000CN	Holder, fixing-fan	Printer internal components (4 of 7) on page 887
RC1-9279-000CN	Holder, scanner-fan	Printer internal components (4 of 7) on page 887
RC1-9300-000CN	Button, main-switch	Printer internal components (7 of 7) on page 895
RC1-9306-000CN	Guide, cable, A	Printer internal components (7 of 7) on page 895
RC1-9307-000CN	Guide, cable, B	Printer internal components (6 of 7) on page 893
RC1-9308-000CN	Guide, cable, C	Printer internal components (6 of 7) on page 893
RC1-9309-000CN	Duct, scanner-fan	Printer internal components (4 of 7) on page 887
RC1-9312-000CN	Guide, cable, D	Printer internal components (6 of 7) on page 893
RC1-9313-000CN	Filter unit, air	Printer external covers and panels on page 875
RC1-9318-000CN	Guide, cable, E	Printer internal components (6 of 7) on page 893
RC1-9323-000CN	Guide, cable, F	Printer internal components (7 of 7) on page 895
RC1-9324-000CN	Holder, environment-sensor	Printer internal components (2 of 7) on page 883
RC1-9326-000CN	Plate, high-voltage transmission (HVT-A) guard	Printer internal components (7 of 7) on page 895
RC1-9328-000CN	Holder, high-voltage-connector	Printer internal components (7 of 7) on page 895
RC1-9332-000CN	Guide, fixing-cable	Printer internal components (7 of 7) on page 895
RC1-9334-000CN	Duct, scanner	Printer internal components (2 of 7) on page 883
RC1-9336-000CN	Cover, left	Printer external covers and panels on page 875
RC1-9344-000CN	Cover, rear-left	Printer external covers and panels on page 875

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RC1-9348-000CN	Cover, internal, right	Printer internal components (3 of 7) on page 885
RC1-9350-000CN	Cover, front, upper	Printer external covers and panels on page 875
RC1-9351-000CN	Cover, paper-delivery	Printer external covers and panels on page 875
RC1-9360-000CN	Cover, face-down drive	Printer external covers and panels on page 875
RC1-9511-000CN	Cover, motor	Printer right-door assembly on page 879
RC1-9620-000CN	Flange, pulley	Intermediate-feed main body on page 937
RC1-9674-000CN	Belt, paper-feed, cogged	Intermediate-feed main body on page 937
RC1-9687-000CN	Sheet, blanking	Intermediate-feed main body on page 937
RC1-9688-000CN	Guide, cable, 2	Intermediate-feed main body on page 937
RC1-9695-000CN	Plate, assist-arm cap	Intermediate-feed main body on page 937
RC1-9703-000CN	Cover, rear-upper	Intermediate-feed main body on page 937
RC1-9705-000CN	Cover, assist, left	Intermediate-feed main body on page 937
RC1-9706-000CN	Cover, assist, right	Intermediate-feed main body on page 937
RC1-9871-000CN	Cover, rear	Input-tray main body (1x500-sheet) on page 921
RC1-9871-000CN	Cover, rear	Input-tray main body (3x500-sheet) on page 925
RC1-9872-000CN	Cover, left	Input-tray main body (1x500-sheet) on page 921
RC1-9872-000CN	Cover, left	Input-tray main body (3x500-sheet) on page 925
RC1-9873-000CN	Cover, front-upper	Input-tray main body (1x500-sheet) on page 921
RC1-9873-000CN	Cover, front-upper	Input-tray main body (3x500-sheet) on page 925
RC1-9874-000CN	Cover, right-lower	Input-tray main body (1x500-sheet) on page 921
RC1-9874-000CN	Cover, right-lower	Input-tray main body (3x500-sheet) on page 925
RC1-9881-000CN	Guide, paper-feed roller	Input-tray main body (1x500-sheet) on page 921

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RC1-9881-000CN	Guide, paper-feed roller	Input-tray main body (3x500-sheet) on page 925
RC1-9882-000CN	Stopper, right-door	Input-tray main body (1x500-sheet) on page 921
RC1-9882-000CN	Stopper, right-door	Input-tray main body (3x500-sheet) on page 925
RC1-9883-000CN	Lever, lock	Input-tray main body (1x500-sheet) on page 921
RC1-9883-000CN	Lever, lock	Input-tray main body (3x500-sheet) on page 925
RC1-9884-000CN	Tape, door	Input-tray main body (1x500-sheet) on page 921
RC1-9884-000CN	Tape, door	Input-tray main body (3x500-sheet) on page 925
RC1-9896-000CN	Caster, double-lock, front	Input-tray main body (1x500-sheet) on page 921
RC1-9896-000CN	Caster, double-lock, front	Input-tray main body (3x500-sheet) on page 925
RC1-9900-000CN	Support, lock-shaft	Input-tray main body (1x500-sheet) on page 921
RC1-9900-000CN	Support, lock-shaft	Input-tray main body (3x500-sheet) on page 925
RC1-9901-000CN	Plate, switch-cover	Input-tray main body (1x500-sheet) on page 921
RC1-9901-000CN	Plate, switch-cover	Input-tray main body (3x500-sheet) on page 925
RC1-9912-000CN	Shaft, lock	Input-tray main body (1x500-sheet) on page 921
RC1-9912-000CN	Shaft, lock	Input-tray main body (3x500-sheet) on page 925
RC1-9913-000CN	Arm, lock	Input-tray main body (1x500-sheet) on page 921
RC1-9913-000CN	Arm, lock	Input-tray main body (3x500-sheet) on page 925
RC1-9915-000CN	Bushing	Input-tray main body (1x500-sheet) on page 921
RC1-9915-000CN	Bushing	Input-tray main body (3x500-sheet) on page 925
RC1-9917-000CN	Caster, rear	Input-tray main body (1x500-sheet) on page 921
RC1-9917-000CN	Caster, rear	Input-tray main body (3x500-sheet) on page 925
RC1-9921-000CN	Door, stock	Input-tray main body (1x500-sheet) on page 921

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RC2-1278-000CN	Cover, rear	External panels and covers (stapler/stacker) on page 953
RC2-1278-000CN	Cover, rear	External panels and covers (booklet-maker) on page 955
RC2-1279-000CN	Cover, tray-connector	External panels and covers (stapler/stacker) on page 953
RC2-1279-000CN	Cover, tray-connector	External panels and covers (booklet-maker) on page 955
RC2-1280-000CN	Cover, left-lower	External panels and covers (booklet-maker) on page 955
RC2-1283-000CN	Panel, height, upper	External panels and covers (stapler/stacker) on page 953
RC2-1283-000CN	Panel, height, upper	External panels and covers (booklet-maker) on page 955
RC2-1284-000CN	Guide, side-wall	External panels and covers (booklet-maker) on page 955
RC2-1293-000CN	Arm, paper-delivery gate	Swing-guide assembly (stapler/stacker and booklet-maker) on page 985
RC2-1315-000CN	Caster, universal	Finisher (stapler/stacker and booklet-maker) on page 961
RC2-1347-000CN	Cover, option-slide	External panels and covers (stapler/stacker) on page 953
RC2-1351-000CN	Cover, internal, lower (stapler/stacker only)	Finisher (stapler/stacker and booklet-maker) on page 961
RC2-1356-000CN	Plate, grounding (booklet-maker only)	Finisher (stapler/stacker and booklet-maker) on page 961
RC2-1734-000CN	Window, LED	External panels and covers (booklet-maker) on page 955
RC2-1735-000CN	Mount, LED-PCA	External panels and covers (stapler/stacker) on page 953
RK2-1320-000CN	Motor, stepping, DC	Intermediate-feed main body on page 937
RK2-1331-000CN	Motor, stepping, DC	Input-tray main body (1x500-sheet) on page 921
RK2-1331-000CN	Motor, stepping, DC	Input-tray main body (3x500-sheet) on page 925
RK2-1354-000CN	Cable, laser flexible flat	Printer internal components (2 of 7) on page 883
RK2-1355-000CN	Cable, laser flexible flat	Printer internal components (2 of 7) on page 883
RK2-1356-000CN	Cable, flexible flat	Printer internal components (6 of 7) on page 893
RK2-1363-000CN	Thermistor unit	Printer internal components (2 of 7) on page 883

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RK2-1366-000CN	Motor, stepping, DC	Printer internal components (4 of 7) on page 887
RK2-1370-000CN	Motor, stepping, DC	Printer internal components (4 of 7) on page 887
RK2-1377-000CN	Fan	Printer internal components (4 of 7) on page 887
RK2-1378-000CN	Fan	Printer internal components (4 of 7) on page 887
RK2-1378-000CN	Fan	Printer internal components (5 of 7) on page 891
RK2-1378-000CN	Fan	Printer duplexing-reverse assembly on page 913
RK2-1382-000CN	Fan	Printer internal components (4 of 7) on page 887
RK2-2376-000CN	Sensor unit, humidity	Printer internal components (2 of 7) on page 883
RL1-1210-000CN	Cover, rear	Printer external covers and panels on page 875
RL1-1213-000CN	Rail, left, top	Printer internal components (5 of 7) on page 891
RL1-1215-000CN	Rail, cassette, right	Printer internal components (5 of 7) on page 891
RL1-1216-000CN	Plate, fixing-motor	Printer internal components (4 of 7) on page 887
RL1-1272-000CN	Arm, auxiliary	Intermediate-feed main body on page 937
RL1-1280-000CN	Right-lower cover assembly	Printer external covers and panels on page 875
RL1-1283-000CN	Guide, multi-purpose, right	Printer internal components (2 of 7) on page 883
RL1-1284-000CN	Top-cover assembly	Printer internal components (1 of 7) on page 881
RL1-1289-000CN	Roller, paper-pickup	Input-tray paper-pickup assembly on page 933
RL1-1310-000CN	Rail, cassette, right	Input-tray main body (1x500-sheet) on page 921
RL1-1310-000CN	Rail, cassette, right	Input-tray main body (3x500-sheet) on page 925
RL1-1311-000CN	Rail, cassette, left	Input-tray main body (1x500-sheet) on page 921
RL1-1311-000CN	Rail, cassette, left	Input-tray main body (3x500-sheet) on page 925
RL1-1321-000CN	Cover, right-front	Input-tray main body (3x500-sheet) on page 925

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RL1-1322-000CN	Cover, right-front	Input-tray main body (1x500-sheet) on page 921
RL1-1335-000CN	Guide, duplexing-feed, upper	Printer right-door assembly on page 879
RL1-1477-000CN	Cover, internal, lower (booklet-maker only)	Finisher (stapler/stacker and booklet-maker) on page 961
RL1-1717-000CN	Cover, front-lower	External panels and covers (stapler/stacker) on page 953
RL1-1717-000CN	Cover, front-lower	External panels and covers (booklet-maker) on page 955
RL1-1718-000CN	Cover, rear-lower	External panels and covers (stapler/stacker) on page 953
RL1-1718-000CN	Cover, rear-lower	External panels and covers (booklet-maker) on page 955
RL1-2210-000CN	Cover, option-tray, front	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
RM1-0037-020CN	Paper feed-roller assembly	Input-tray paper-pickup assembly on page 933
RM1-3206-000CN	Cassette paper-pickup assembly	Printer cassette paper-pickup assembly on page 903
RM1-3215-000CN	Intermediate transfer belt (ITB) lock-support rear assembly	Printer internal components (3 of 7) on page 885
RM1-3217-000CN	Fixing-motor cable	Printer internal components (6 of 7) on page 893
RM1-3218-000CN	Fixing power-supply assembly	Printer internal components (7 of 7) on page 895
RM1-3218-000CN	Fixing power-supply assembly	Printer PCA assembly location on page 917
RM1-3222-000CN	Lifter-drive-assembly kit	Printer lifter-drive assembly on page 899
RM1-3225-000CN	Grip-support front assembly	Printer internal components (2 of 7) on page 883
RM1-3226-000CN	Grip-support rear assembly	Printer internal components (2 of 7) on page 883
RM1-3228-000CN	Intermediate transfer belt (ITB) lock-support front assembly	Printer internal components (3 of 7) on page 885
RM1-3230-000CN	Transfer contact-holder assembly	Printer internal components (1 of 7) on page 881
RM1-3232-000CN	Thermopile case assembly	Printer internal components (2 of 7) on page 883
RM1-3233-000CN	Left-side wall assembly	Printer internal components (1 of 7) on page 881
RM1-3235-000CN	Partition-plate assembly, yellow	Printer internal components (1 of 7) on page 881

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RM1-3237-000CN	Partition-plate assembly, magenta	Printer internal components (1 of 7) on page 881
RM1-3238-000CN	Partition-plate assembly, cyan	Printer internal components (1 of 7) on page 881
RM1-3239-000CN	Right-side wall assembly	Printer internal components (1 of 7) on page 881
RM1-3240-000CN	Intermediate transfer belt (ITB)-drawer assembly	Printer internal components (3 of 7) on page 885
RM1-3247-000CN	Fixing one-way gear assembly	Printer internal components (4 of 7) on page 887
RM1-3250-000CN	Photosensor assembly	Printer internal components (2 of 7) on page 883
RM1-3252-000CN	Main switch-holder assembly	Printer internal components (7 of 7) on page 895
RM1-3253-000CN	Formatter-case assembly	Printer internal components (6 of 7) on page 893
RM1-3254-000CN	Cartridge contact-holder assembly	Printer internal components (7 of 7) on page 895
RM1-3258-000CN	Color-plane-registration (CPR) sensor assembly	Printer internal components (3 of 7) on page 885
RM1-3280-000CN	Intermediate transfer belt (ITB) estrangement-drive assembly	Printer internal components (3 of 7) on page 885
RM1-3286-000CN	Drum-motor assembly	Printer internal components (4 of 7) on page 887
RM1-3291-000CN	Multi-purpose-guide assembly	Printer multi-purpose-guide assembly on page 909
RM1-3293-000CN	Face-down paper-delivery assembly	Printer face-down paper-delivery assembly on page 911
RM1-3333-000CN	Right-door sub-assembly	Printer right-door assembly on page 879
RM1-3340-000CN	Face-down end-tray assembly	Printer external covers and panels on page 875
RM1-3341-000CN	Multi-purpose-tray assembly	Printer multi-purpose-tray assembly on page 907
RM1-3345-000CN	Multi-purpose paper-pickup assembly	Printer multi-purpose paper-pickup assembly on page 905
RM1-3354-000CN	Rear-cover-mount plate assembly	Printer internal components (6 of 7) on page 893
RM1-3357-000CN	Front-cover assembly	Printer front-door assembly on page 877
RM1-3364-000CN	Fan assembly	Printer internal components (2 of 7) on page 883
RM1-3366-000CN	Multi-purpose-drive assembly	Printer multi-purpose-drive assembly on page 897

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RM1-3383-000CN	Toner-motor cable	Printer internal components (4 of 7) on page 887
RM1-3385-000CN	Toner-motor cable	Printer internal components (4 of 7) on page 887
RM1-3389-000CN	Panel cable	Printer internal components (6 of 7) on page 893
RM1-3390-000CN	Face-down unit-1 cable	Printer internal components (7 of 7) on page 895
RM1-3391-000CN	Face-down unit-2 cable	Printer internal components (7 of 7) on page 895
RM1-3529-000CN	Cassette (1x500-sheet)	Input-tray cassette on page 931
RM1-3529-000CN	Cassette (3x500-sheet)	Input-tray cassette on page 931
RM1-3531-040CN	Auto-close assembly, 1x500-sheet	Input-tray auto-close assembly on page 929
RM1-3531-040CN	Auto-close assembly, 3x500-sheet	Input-tray auto-close assembly on page 929
RM1-3537-000CN	Right-door assembly	Input-tray main body (3x500-sheet) on page 925
RM1-3538-000CN	Right-door assembly	Input-tray main body (1x500-sheet) on page 921
RM1-3539-000CN	Stock-box assembly	Input-tray main body (1x500-sheet) on page 921
RM1-3559-000CN	Intermediate paper-transfer unit (IPTU)-driver PCA assembly	Intermediate-feed main body on page 937
RM1-3559-000CN	Intermediate paper-transfer unit (IPTU)-driver PCA assembly	PCA assembly on page 947
RM1-3560-000CN	Cable, drawer	Intermediate-feed main body on page 937
RM1-3561-000CN	Cable, drawer	Intermediate-feed main body on page 937
RM1-3563-000CN	Cable, motor	Intermediate-feed main body on page 937
RM1-3564-000CN	Cable, motor	Intermediate-feed main body on page 937
RM1-3569-000CN	Paper-feed PCA assembly	Input-tray main body (1x500-sheet) on page 921
RM1-3569-000CN	Paper-feed PCA assembly	Input-tray main body (3x500-sheet) on page 925
RM1-3569-000CN	Paper-feed PCA assembly (1x500-sheet)	Input-tray PCA assembly on page 935
RM1-3569-000CN	Paper-feed PCA assembly (3x500-sheet)	Input-tray PCA assembly on page 935

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RM1-3570-000CN	Option paper-sensor PCA assembly	Input-tray paper-pickup assembly on page 933
RM1-3571-000CN	Cable, pickup-option drawer	Input-tray main body (1x500-sheet) on page 921
RM1-3571-000CN	Cable, paper-pickup-option drawer	Input-tray main body (3x500-sheet) on page 925
RM1-3572-000CN	Cable, pickup-option door switch	Input-tray main body (1x500-sheet) on page 921
RM1-3572-000CN	Cable, pickup-option door switch	Input-tray main body (3x500-sheet) on page 925
RM1-3573-000CN	Cable, pickup-option PCA connect	Input-tray main body (3x500-sheet) on page 925
RM1-3574-000CN	Cable, option-sensor PCA connect	Input-tray main body (1x500-sheet) on page 921
RM1-3574-000CN	Cable, option-sensor PCA connect	Input-tray main body (3x500-sheet) on page 925
RM1-3575-000CN	Cable, paper-pickup option	Input-tray main body (1x500-sheet) on page 921
RM1-3575-000CN	Cable, paper-pickup option	Input-tray main body (3x500-sheet) on page 925
RM1-3576-000CN	Cable, pickup-option lifter unit	Input-tray auto-close assembly on page 929
RM1-3582-000CN	High-voltage-transfer A PCA assembly	Printer internal components (7 of 7) on page 895
RM1-3582-000CN	High-voltage-transfer A PCA assembly	Printer PCA assembly location on page 917
RM1-3585-000CN	Memory-tag PCA assembly	Printer internal components (4 of 7) on page 887
RM1-3585-000CN	Memory-tag PCA assembly	Printer PCA assembly location on page 917
RM1-3589-000CN	Interlock-switch assembly	Printer internal components (2 of 7) on page 883
RM1-3594-000CN	Low-voltage power-supply assembly	Printer internal components (5 of 7) on page 891
RM1-3594-000CN	Low-voltage power-supply assembly	Printer PCA assembly location on page 917
RM1-3599-000CN	Cable, MFP AC	Printer internal components (7 of 7) on page 895
RM1-3610-000CN	DC-controller power cable	Printer internal components (6 of 7) on page 893
RM1-3612-000CN	Fixing-joint cable	Printer internal components (7 of 7) on page 895
RM1-3617-000CN	Front cable	Printer internal components (6 of 7) on page 893

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RM1-3618-000CN	Rear-lower cable	Printer internal components (6 of 7) on page 893
RM1-3619-000CN	Rear-upper cable	Printer internal components (6 of 7) on page 893
RM1-3620-000CN	Scanner-joint cable	Printer internal components (6 of 7) on page 893
RM1-3622-000CN	Panel-joint cable	Printer internal components (6 of 7) on page 893
RM1-3623-000CN	Interface-joint cable	Printer internal components (6 of 7) on page 893
RM1-3624-000CN	Color-plane-registration (CPR)-joint cable	Printer internal components (6 of 7) on page 893
RM1-3630-000CN	Multi-tray cable	Printer multi-purpose-tray assembly on page 907
RM1-3640-000CN	Waste-toner-sensor cable	Printer internal components (6 of 7) on page 893
RM1-3652-000CN	Duplexing-reverse assembly	Printer duplexing-reverse assembly on page 913
RM1-3665-000CN	Duplexing-feed assembly	Printer duplexing-feed assembly on page 915
RM1-3683-000CN	Side-cover assembly	Intermediate-feed main body on page 937
RM1-3684-000CN	Drive-belt assembly	Intermediate-feed main body on page 937
RM1-3685-000CN	Fin-lock assembly	Intermediate-feed main body on page 937
RM1-3686-000CN	Lower-guide assembly	Intermediate-feed lower-guide assembly on page 939
RM1-4101-000CN	Stack upper-tray assembly	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
RM1-4102-000CN	Stack upper-tray assembly	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
RM1-4104-000CN	Stack-tray assembly	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
RM1-4104-000CN	Stack-tray assembly	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
RM1-4105-000CN	Stack lower-tray assembly	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
RM1-4107-000CN	Area-sensor flag assembly	Finisher (stapler/stacker and booklet-maker) on page 961

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RM1-4108-000CN	Swing-guide assembly	Swing-guide assembly (stapler/stacker and booklet-maker) on page 985
RM1-4109-000CN	Saddle paper-feeder assembly	Saddle paper-feeder assembly (booklet-maker) on page 1007
RM1-4110-000CN	Entrance lower-guide assembly	Saddle paper-feeder assembly (stapler/stacker) on page 1005
RM1-4110-000CN	Entrance lower-guide assembly	Saddle paper-feeder assembly (booklet-maker) on page 1007
RM1-4113-000CN	Booklet-output bin (saddle-tray assembly)	Saddle-tray assembly (booklet-maker) on page 999
RM1-4115-000CN	Stack sub-tray assembly	Top output bin (stack sub-tray assembly) (stapler/stacker) on page 975
RM1-4119-000CN	Middle-height cover assembly	External panels and covers (booklet-maker) on page 955
RM1-4121-000CN	Top-door (upper-cover) assembly	External panels and covers (stapler/stacker) on page 953
RM1-4121-000CN	Top-door (upper-cover) assembly	External panels and covers (booklet-maker) on page 955
RM1-4122-000CN	Front-door assembly	External panels and covers (booklet-maker) on page 955
RM1-4123-000CN	Inner-cover assembly	Finisher (stapler/stacker and booklet-maker) on page 961
RM1-4125-000CN	Operation-tray assembly	Operation-tray assembly (stapler/stacker and booklet-maker) on page 977
RM1-4128-000CN	Cable-mount lattice assembly	Finisher (stapler/stacker and booklet-maker) on page 961
RM1-4129-000CN	Left-upper cover assembly	External panels and covers (booklet-maker) on page 955
RM1-4130-000CN	Saddle paper-delivery assembly	Saddle assembly (booklet-maker) on page 995
RM1-4130-000CN	Saddle paper-delivery assembly	Saddle paper-delivery assembly (booklet-maker) on page 1013
RM1-4131-000CN	Upper delivery-guide assembly	Saddle assembly (booklet-maker) on page 995
RM1-4134-000CN	Front-door assembly	External panels and covers (stapler/stacker) on page 953
RM1-4135-000CN	Lower height-guide assembly	External panels and covers (stapler/stacker) on page 953
RM1-4136-000CN	Saddle paper-feeder assembly	Saddle paper-feeder assembly (stapler/stacker) on page 1005
RM1-4139-000CN	Main controller PCA assembly (stapler/stacker and booklet-maker)	PCA assembly on page 1017

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RM1-4140-000CN	Saddle-controller PCA assembly	Saddle assembly (booklet-maker) on page 995
RM1-4140-000CN	Saddle-controller PCA assembly (booklet-maker)	PCA assembly on page 1017
RM1-4141-000CN	LED-PCA assembly	External panels and covers (stapler/stacker) on page 953
RM1-4141-000CN	LED-PCA assembly	External panels and covers (booklet-maker) on page 955
RM1-4172-000CN	Entrance upper-guide assembly	Entrance upper-guide assembly (stapler/stacker and booklet-maker) on page 987
RM1-4175-000CN	Paper-feeder motor assembly	Paper-feeder motor assembly (stapler/stacker and booklet-maker) on page 979
RM1-4178-000CN	Saddle-stapler assembly	Saddle assembly (booklet-maker) on page 995
RM1-4178-000CN	Saddle-stapler assembly	Saddle-stapler assembly (booklet-maker) on page 1003
RM1-4179-000CN	Left upper-cover assembly	External panels and covers (stapler/stacker) on page 953
RM1-4180-000CN	Upper-crossmember assembly	Finisher (stapler/stacker and booklet-maker) on page 961
RM1-4391-000CN	Face-down full-flag assembly	Printer face-down paper-delivery assembly on page 911
RM1-4394-000CN	Fan assembly	Intermediate-feed main body on page 937
RM1-4395-000CN	Upper-guide assembly	Intermediate-feed upper-guide assembly on page 941
RM1-4396-000CN	Left-assist assembly	Left-assist assembly on page 943
RM1-4397-000CN	Right-assist assembly	Right-assist assembly on page 945
RM1-4398-000CN	Reader front-guide assembly	Printer internal components (2 of 7) on page 883
RM1-4399-000CN	Reader rear-guide assembly	Printer internal components (2 of 7) on page 883
RM1-4400-000CN	Guide-sensor assembly	Printer internal components (5 of 7) on page 891
RM1-4401-000CN	Intermediate transfer belt (ITB) duct assembly	Printer internal components (5 of 7) on page 891
RM1-4402-000CN	Tag PCA-holder assembly	Printer internal components (4 of 7) on page 887
RM1-4404-000CN	Front internal-cover assembly	Printer front-door assembly on page 877

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RM1-4407-000CN	Paper-delivery-guide assembly	Printer face-down paper-delivery assembly on page 911
RM1-4408-000CN	Switchback-cover assembly	Printer external covers and panels on page 875
RM1-4409-000CN	Fixing-bias cable assembly	Printer internal components (7 of 7) on page 895
RM1-4411-000CN	T2 guide-arm assembly	Printer internal components (7 of 7) on page 895
RM1-4415-000CN	Rear-right cover assembly	Printer external covers and panels on page 875
RM1-4519-000CN	DC motor assembly	Printer internal components (4 of 7) on page 887
RM1-5029-000CN	Cable, fixing open-sensor	Printer internal components (5 of 7) on page 891
RM1-5030-000CN	Cable TP/T2 open-sensor	Printer internal components (7 of 7) on page 895
RM1-5475-000CN	High-voltage transfer B PCA assembly	Printer internal components (1 of 7) on page 881
RM1-5475-000CN	High-voltage-transfer B PCA assembly	Printer PCA assembly location on page 917
RM1-5950-000CN	Fixing-fan cover assembly	Printer external covers and panels on page 875
RM1-6642-000CN	DC-controller PCA assembly	Printer internal components (6 of 7) on page 893
RM1-6642-000CN	DC controller PCA assembly	Printer PCA assembly location on page 917
RS5-9099-000CN	Screw, stepped	Input-tray main body (1x500-sheet) on page 921
RS5-9099-000CN	Screw, stepped	Input-tray main body (3x500-sheet) on page 925
RU5-0790-000CN	Gear, 83T/25T	Printer internal components (4 of 7) on page 887
RU5-0791-000CN	Gear, 34T	Printer internal components (4 of 7) on page 887
RU5-0868-000CN	Pulley/gear, 22T	Intermediate-feed main body on page 937
RU5-2796-000CN	Spring, tension	Printer internal components (5 of 7) on page 891
RU5-2822-000CN	Spring, tension	Printer internal components (2 of 7) on page 883
RU5-2825-000CN	Spring, torsion	Printer internal components (2 of 7) on page 883

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
RU5-6035-000CN	Roller, tray-guide	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
RU5-6035-000CN	Roller, tray-guide	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
RU5-6035-000CN	Roller, tray-guide	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
VS1-7177-002CN	Connector, snap-tight	Printer internal components (2 of 7) on page 883
VS1-7177-003CN	Connector, snap-tight	Printer internal components (4 of 7) on page 887
VS1-7257-012CN	Connector, drawer	Input-tray main body (1x500-sheet) on page 921
VS1-7257-012CN	Connector, drawer	Input-tray main body (3x500-sheet) on page 925
VS1-7258-000CN	Connector, drawer	Printer internal components (5 of 7) on page 891
VT2-0001-008CN	Support, PCA	Input-tray main body (1x500-sheet) on page 921
VT2-001-008CN	Support, PCA	Input-tray main body (3x500-sheet) on page 925
WC2-5512-000CN	Switch, button	Input-tray main body (1x500-sheet) on page 921
WC2-5512-000CN	Switch, button	Input-tray main body (3x500-sheet) on page 925
WG8-5593-000CN	Photo interrupter, TLP1242	External panels and covers (stapler/stacker) on page 953
WG8-5593-000CN	Photo interrupter, TLP1242	External panels and covers (booklet-maker) on page 955
WG8-5593-000CN	Photo interrupter, TLP1242	Finisher (stapler/stacker and booklet-maker) on page 961
WG8-5593-000CN	Photo interrupter, TLP1242	Output bin 1 (stack upper-tray assembly) (stapler/stacker) on page 965
WG8-5593-000CN	Photo interrupter, TLP1242	Operation-tray assembly (stapler/stacker and booklet-maker) on page 977
WG8-5593-000CN	Photo interrupter, TLP1242	Operation-tray assembly (stapler/stacker and booklet-maker) on page 977
WG8-5593-000CN	Photo interrupter, TLP1242	Saddle assembly (booklet-maker) on page 995
WG8-5593-000CN	Photo interrupter, TLP1242	Saddle assembly (booklet-maker) on page 995

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
WG8-5593-000CN	Photo interrupter, TLP1242	Saddle assembly (booklet-maker) on page 995
WG8-5593-000CN	Photo interrupter, TLP1242	Saddle assembly (booklet-maker) on page 995
WG8-5593-000CN	Photo interrupter, TLP1242	Saddle-tray assembly (booklet-maker) on page 999
WG8-5593-000CN	Photo interrupter, TLP1242	Saddle paper-feeder assembly (booklet-maker) on page 1007
WG8-5593-000CN	Photo interrupter, TLP1242	Pass lower-guide assembly (booklet-maker) on page 1009
WG8-5593-000CN	Photo interrupter, TLP1242	Inner side-plate assembly (booklet-maker) on page 1011
WG8-5593-000CN	Photo interrupter, TLP1242	Saddle paper-delivery assembly (booklet-maker) on page 1013
WG8-5696-000CN	Photo interrupter, TLP1243	Printer right-door assembly on page 879
WG8-5696-000CN	Photo interrupter, TLP1243	Printer right-door assembly on page 879
WG8-5696-000CN	Photo interrupter, TLP1243	Printer internal components (2 of 7) on page 883
WG8-5696-000CN	Photo interrupter, TLP1243	Printer internal components (5 of 7) on page 891
WG8-5696-000CN	Photo interrupter, TLP1243	Printer internal components (7 of 7) on page 895
WG8-5696-000CN	Photo interrupter, TLP1243	Printer cassette paper-pickup assembly on page 903
WG8-5696-000CN	Photo interrupter, TLP1243	Printer multi-purpose-guide assembly on page 909
WG8-5696-000CN	Photo interrupter, TLP1243	Printer face-down paper-delivery assembly on page 911
WG8-5696-000CN	Photo interrupter, TLP1243	Printer duplexing-reverse assembly on page 913
WT2-5694-000CN	Saddle, wire	Printer internal components (4 of 7) on page 887
WT2-5694-000CN	Saddle, wire	Input-tray main body (1x500-sheet) on page 921
WT2-5694-000CN	Saddle, wire	Input-tray main body (3x500-sheet) on page 925
WT2-5738-000CN	Clamp, cable	Input-tray main body (1x500-sheet) on page 921
WT2-5738-000CN	Clamp, cable	Input-tray main body (3x500-sheet) on page 925

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
WT2-5912-000CN	Clamp, FFC	Printer internal components (2 of 7) on page 883
XA9-0732-000CN	Screw, RS, M4x8 (booklet-maker only)	Finisher (stapler/stacker and booklet-maker) on page 961
XA9-0912-000CN	Screw, with washer, M5x12	Input-tray main body (1x500-sheet) on page 921
XA9-0912-000CN	Screw, with washer, M5x12	Input-tray main body (3x500-sheet) on page 925
XA9-0912-000CN	Screw, with washer, M5x12	Finisher (stapler/stacker and booklet-maker) on page 961
XA9-1159-000CN	Screw, TP, M3x6	Printer internal components (4 of 7) on page 887
XA9-1277-000CN	Screw, B, M4x8	Intermediate-feed main body on page 937
XA9-1292-000CN	Screw, M4x14	Intermediate-feed main body on page 937
XA9-1386-000CN	Screw, RS, M3x8	Finisher (stapler/stacker and booklet-maker) on page 961
XA9-1422-000CN	Screw, with washer, M4X12	Printer right-door assembly on page 879
XA9-1448-000CN	Screw, RS, M4x8	Input-tray main body (1x500-sheet) on page 921
XA9-1448-000CN	Screw, RS, M4x8	Input-tray main body (1x500-sheet) on page 921
XA9-1448-000CN	Screw, RS, M4x8	Input-tray main body (3x500-sheet) on page 925
XA9-1448-000CN	Screw, RS, M4x8	Input-tray main body (3x500-sheet) on page 925
XA9-1449-000CN	Screw, RS, M3x8	Printer internal components (2 of 7) on page 883
XA9-1449-000CN	Screw, RS, M3x8	Printer internal components (6 of 7) on page 893
XA9-1469-000CN	Screw, TP, M3x6	Input-tray main body (1x500-sheet) on page 921
XA9-1469-000CN	Screw, TP, M3x6	Input-tray main body (3x500-sheet) on page 925
XA9-1495-000CN	Screw, RS, M3X6	Printer right-door assembly on page 879
XA9-1495-000CN	Screw, RS, M3x6	Printer internal components (1 of 7) on page 881
XA9-1495-000CN	Screw, RS, M3x6	Printer internal components (2 of 7) on page 883
XA9-1495-000CN	Screw, RS, M3x6	Printer internal components (3 of 7) on page 885

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
XA9-1495-000CN	Screw, RS, M3x6	Printer internal components (4 of 7) on page 887
XA9-1495-000CN	Screw, RS, M3x6	Printer internal components (4 of 7) on page 887
XA9-1495-000CN	Screw, RS, M3x6	Printer internal components (5 of 7) on page 891
XA9-1495-000CN	Screw, RS, M3x6	Printer internal components (6 of 7) on page 893
XA9-1495-000CN	Screw, RS, M3x6	Printer internal components (6 of 7) on page 893
XA9-1495-000CN	Screw, RS, M3x6	Printer internal components (7 of 7) on page 895
XA9-1500-000CN	Screw, RS M3x8	Intermediate-feed main body on page 937
XA9-1504-000CN	Screw, RS, M3x8	Printer internal components (1 of 7) on page 881
XA9-1504-000CN	Screw, RS, M3x8	Printer internal components (2 of 7) on page 883
XA9-1504-000CN	Screw, RS, M3x8	Printer internal components (3 of 7) on page 885
XA9-1504-000CN	Screw, RS, M3x8	Printer internal components (4 of 7) on page 887
XA9-1504-000CN	Screw, RS, M3x8	Printer internal components (5 of 7) on page 891
XA9-1504-000CN	Screw, RS, M3x8	Printer internal components (7 of 7) on page 895
XA9-1801-000CN	Screw, RS, M13x12	Printer internal components (7 of 7) on page 895
XB1-2300-407CN	Screw, machined, truss-head, M3x4	Printer internal components (4 of 7) on page 887
XB1-2300-407CN	Screw, machined, truss-head, M3x4	Intermediate-feed main body on page 937
XB1-2400-805CN	Screw, machined, truss-head, M4x8	Printer internal components (7 of 7) on page 895
XB2-8300-607CN	Screw, with washer, M3x6	Printer internal components (4 of 7) on page 887
XB2-8300-607CN	Screw, with washer, M3x6	Input-tray main body (1x500-sheet) on page 921
XB2-8300-607CN	Screw, with washer, M3x6	Input-tray main body (3x500-sheet) on page 925
XB2-8300-607CN	Screw, with washer, M3x6	Intermediate-feed main body on page 937
XB4-7401-005CN	Screw, tapping, truss-head, M4X10	Printer external covers and panels on page 875

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
XB4-7401-005CN	Screw, tapping, truss-head, M4X10	Printer right-door assembly on page 879
XB4-7401-005CN	Screw, tapping, truss-head, M4x10	Printer internal components (5 of 7) on page 891
XB4-7401-006CN	Screw, tapping, pan-head, M4x10	Input-tray main body (1x500-sheet) on page 921
XB6-7300-607CN	Screw, TP, M3x6 (booklet-maker only)	Finisher (stapler/stacker and booklet-maker) on page 961
XB6-7303-005CN	Screw, TP, M3x30	Printer internal components (5 of 7) on page 891
XD2-3100-152CN	Ring, C, external	Saddle assembly (booklet-maker) on page 995
XD3-2200-102CN	Pin	Finisher (stapler/stacker and booklet-maker) on page 961
XD3-2200-102CN	Pin	Finisher (stapler/stacker and booklet-maker) on page 961
XD3-2200-142CN	Pin, dowel	Finisher (stapler/stacker and booklet-maker) on page 961
XD3-2300-142CN	Pin, dowel	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
XD3-2300-142CN	Pin, dowel	Output bin 2 (stack lower-tray assembly) (stapler/stacker and booklet-maker) on page 973
XD3-2300-202CN	Pin, dowel	Saddle assembly (booklet-maker) on page 995
XD9-0136-000CN	Ring, E	Finisher (stapler/stacker and booklet-maker) on page 961
XD9-0136-000CN	Ring, E	Finisher (stapler/stacker and booklet-maker) on page 961
XD9-0137-000CN	Ring, E	Output bin 1 (stack upper-tray assembly) (booklet-maker) on page 969
XD9-0234-000CN	Ring, E	Printer internal components (4 of 7) on page 887
XD9-0234-000CN	Ring, E	Printer internal components (5 of 7) on page 891
XD9-0240-000CN	Pin, dowel	Printer internal components (4 of 7) on page 887
XF2-1607-860CN	Belt, timing, cogged	Finisher (stapler/stacker and booklet-maker) on page 961
XF2-1608-840CN	Belt, timing	Finisher (stapler/stacker and booklet-maker) on page 961
XF2-3837-340CN	Belt, timing	Saddle assembly (booklet-maker) on page 995

Table 9-86 Numerical parts list (continued)

Part number	Description	Table and page
XF9-0748-000CN	Belt, timing, cogged	Finisher (stapler/stacker and booklet-maker) on page 961
XG9-0586-000CN	Bearing, ball	Printer internal components (4 of 7) on page 887

A Service and support

- Hewlett-Packard limited warranty statement

Hewlett-Packard limited warranty statement

HP PRODUCT	DURATION OF LIMITED WARRANTY
HP Color LaserJet CM6049f MFP	90-day parts-only limited warranty to dealer

HP warrants to the initial purchaser that HP hardware and accessories will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either provide component parts or replace entire products which prove to be defective. Replacement parts or products may be either new or equivalent in performance to new.

These replacement parts or products must be installed by an HP qualified service technician. HP may replace the entire product only if, in HP's discretion, service history, diagnosis and troubleshooting indicate that replacement is warranted. This warranty is limited to replacement parts only. Cost of labor is not covered under this warranty.

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

HP does not warrant that the operation of HP products will be uninterrupted or error free.

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

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

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

Some countries/regions, states or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from country/region to country/region, state to state, or province to province.

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

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

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

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Edition 1, 02/2009

B Product specifications

- Physical specifications
- Considerations for "pre-flighting" a LaserJet
- Electrical specifications
- Acoustic specifications
- Environmental specifications

Physical specifications

Table B-1 Product dimensions

Product	Height	Depth	Width	Weight[1]
HP Color LaserJet CM6049f MFP	1194 mm (47 in)	635 mm (25 in)	704 mm (27.7 in)	145 kg (319 lb)

[1] Without print cartridge

Table B-2 Product dimensions, with all doors and trays fully opened

Product	Height	Depth	Width
HP Color LaserJet CM6049f MFP	1524 mm (60 in)	1079.5 mm (42.5 in)	983 mm (38.7 in)

Considerations for "pre-flighting" a LaserJet

HP designs LaserJet products for fast and easy packaging removal and product setup. This can usually be completed at the customer site, eliminating preflight setup. If preflight setup is required, complete the following steps:

1. Repackage the product if shipping a long distance after preflight. If not repackaging, ship using a padded van or similiar approach.
2. Remove finishing accessories, print cartridges, and toner-collection bottles and ship separately.
3. Re-use foam packaging between the ADF and flatbed glass during shipment.
4. Lock the flatbed scanner-carriage scanner lock before transport.
5. Lock the castors during shipment and unlock the castors when rolling to the final location.
6. Keep the number of pages printed during preflight to a minimum (CM6049f MFP only). Under 50 pages is recommended. This keeps the toner collection path relatively free of toner waste toner.
7. After the product is turned on, either during pre-flight or at the customer's location, confirm that the firmware version is current. Apply a firmware upgrade (RFU) if needed.

Electrical specifications

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

Table B-3 Power requirements (HP Color LaserJet CM6049f MFP)

Specification	110-volt models	220-volt models
Power requirements	100 to 127 volts (± 10%) 50/60 Hz (± 2 Hz)	220 to 240 volts (± 10%) 50/60 Hz (± 2 Hz)
Rated current	10.5 A	5.5 A

Table B-4 Power consumption HP Color LaserJet CM6049f MFP (average, in watts)

Product model	Printing	Ready	Sleep	Off
HP Color LaserJet CM6049f MFP	1265 W	251.7 W	26.5 W	0.72 W

Values subject to change. See www.hp.com/support/cljcm6049mfp for current information.

Printing and copying speeds are 40 ppm for Letter and A4 sizes.

Default time from Ready mode to Sleep mode = 60 minutes.

Recovery time from Sleep mode = less than 20 seconds

Acoustic specifications

Table B-5 Sound power and pressure level[1] (HP Color LaserJet CM6049f MFP)

Sound power level	**Declared per ISO 9296**
Printing[1]	L_{WAd}= 7.1 Bels (A) [71 dB(A)]
Copying[2]	L_{WAd}= 7.1 Bels (A) [71 dB(A)]
Ready	L_{WAd}= 4.7 Bels (A) [47 dB(A)]
Sound pressure level	**Declared per ISO 9296**
Printing[1]	L_{pAm}=50 dB (A)
Copying[2]	L_{pAm}=52 dB (A)
Ready	L_{pAm}=37 dB (A)

1 Values subject to change. See www.hp.com/support/cljcm6049mfp for current information.

2 Configuration tested: Base model, simplex copying from ADF with A4 paper size.

Environmental specifications

Environmental condition	Recommended	Allowed	Storage/standby
Temperature (product and print cartridge)	17° to 25°C (62.6° to 77°F)	10° to 30°C (50° to 86°F)	0° to 35°C (32° to 95°F)
Relative humidity	30% to 70% relative humidity (RH)	10% to 80% RH	5% to 95%
Altitude	N/A	0 meters (0 feet) to 2500 meters (8000 feet)	N/A

C Regulatory information

Compliance with FCC regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Declaration of Conformity

Declaration of Conformity
according to ISO/IEC 17050–1 and EN 17050–1

Manufacturer's Name:	Hewlett-Packard Company DoC#: BOISB-0601–02–rel.6.0
Manufacturer's Address:	11311 Chinden Boulevard, Boise, Idaho 83714-1021, USA
declares that the product	
Product Name:	HP Color LaserJet CM6030/CM6040/CM4349 MFP series
Accessories:[3)]	CB473A – 1x500-sheet input tray/stand CB474A – 3x500-sheet input tray/stand Q6999A/CC516A – Booklet Maker Q6998A/CC517A – 3-Bin Stapler/Stacker BOISB-0308-00 – Fax Module
Regulatory Model Number:[2)]	BOISB-0601-02
Product Options:	ALL Toner Cartridges/Drums: CB390A, CB381A, CB382A, CB383A, CB384A, CB385A, CB386A, CB387A, CE830C, CE301C, CE302C, CE303C, CE304C, CE305C, CE306C, CE307C

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:	CISPR 22:2005 / EN 55022:2006 – Class A[1)] EN 61000-3-2:2006 EN 61000-3-3:1995 + A1 EN 55024:1998+A1 + A2 FCC Title 47 CFR, Part 15 Class A / ICES-003, Issue 4 GB9254-1998, GB17625.1–2003
Telecom	TBR-21:1998; FCC Title 47 CFR, Part 68[4)]

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 the R&TTE Directive 1999/5/EC (Annex II), 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 product name or the product number(s).

3) All worldwide modular approvals for analog fax accessory obtained by Hewlett-Packard under the regulatory model number BOISB-0308-00 incorporate the Multi-Tech Systems MT5634SMI Socket Modem Module.

4) Telecom approvals and standards appropriate for the target countries/regions have been applied to this product, in addition to those listed above.

Boise, Idaho , USA

March 2009

For regulatory topics only:

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

Environmental product stewardship program

Protecting the environment

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

Ozone production

This product generates no appreciable ozone gas (O_3).

Power consumption

Power usage drops significantly while in Ready and Sleep mode, which saves natural resources and saves money without affecting the high performance of this product. To determine the ENERGY STAR® qualification status for this product, see the Product Data Sheet or Specifications Sheet. Qualified products are also listed at:

www.hp.com/go/energystar

Toner consumption

EconoMode uses less toner, which might extend the life of the print cartridge.

Paper use

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

Plastics

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

HP LaserJet print supplies

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

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

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

Return and recycling instructions

United States and Puerto Rico

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

Multiple returns (more than one cartridge)

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

OR

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

Single returns

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

Shipping

For all HP LaserJet print cartridge recycling returns, give the package to UPS during your next delivery or pickup, or take it to an authorized UPS drop-off center. For the location of your local UPS drop-off center, call 1-800-PICKUPS or visit www.ups.com. If you are returning via USPS label, give the package to a U.S. Postal Service carrier or drop off at a U.S. Postal Service Office. For more information, or to order additional labels or boxes for bulk returns, visit www.hp.com/recycle or call 1-800-340-2445. Requested UPS pickup will be charged normal pickup rates. Information subject to change without notice.

Non-U.S. returns

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

Paper

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

Material restrictions

This HP product contains a battery that may require special handling at end-of-life.

The battery contained in this product includes:

Type	Carbon monofluoride lithium battery
Weight	0.8 grams
Location	Formatter board
User removable	No



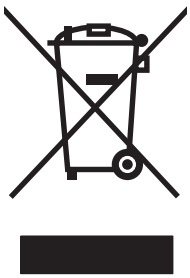


廢電池請回收

This product contains mercury in the fluorescent lamp of the control panel liquid crystal display that might require special handling at end-of-life.

For recycling information you can visit www.hp.com/go/recycle or contact your local authorities or the Electronics Industry Alliance (www.eiae.org).

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



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

Material Safety Data Sheet (MSDS)

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

For more information

To obtain information about these environmental topics:

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

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

Certificate of volatility

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

Types of memory

Volatile memory

The MFP utilizes volatile memory (64MB on the board and 256MB installed, for a total of 320MB) to store customer data during the printing and copying process. When the MFP is powered off, this volatile memory is erased.

Non-volatile memory

The MFP utilizes non-volatile memory (EEPROM) to store system control data and user preference settings. No customer print or copy data is stored in non-volatile memory. This non-volatile memory can be cleared and restored to factory defaults by performing a Cold Reset or Restore Factory Defaults from the control panel.

Hard-disk-drive memory

The MFP contains an internal hard disk drive (40GB or larger) that may retain data after the MFP is powered off. The MFP also may contain additional optional compact flash storage, or an external EIO hard disk. Data stored in these devices may be from incoming/outgoing fax or email files, stored copy or print jobs, fax or email address books, or third-party solutions. Some of this data can be erased from the control panel of the MFP, but most must be erased using the Secure Storage Erase features available within HP Web Jetadmin. Secure Storage Erase features comply with U.S. Department of Defense (DOD) specification 5220–22.M.

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 A requirements.

« Conforme à la classe A 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Ａ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Power cord statement (Japan)

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

EMC statement (Korea)

A급 기기 (업무용 방송통신기기)	이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

EMI statement (Taiwan)

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

General telecom statement

The HP Color LaserJet CM6049f MFP has the HP LaserJet Analog Fax Accessory 300 already installed to provide communication to the public switch telephone network (PSTN) for fax functionality. See the *HP LaserJet Analog Fax Accessory 300 User Guide* for all regulatory approval information and regulatory notices associated with the fax functionality and that device.

Laser statement for Finland

Luokan 1 laserlaite

Klass 1 Laser Apparat

HP LaserJet CM6049f, 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 CM6049f - 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	X	0	0
复印机组件	X	0	0	0	0	0
控制面板	0	X	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

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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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