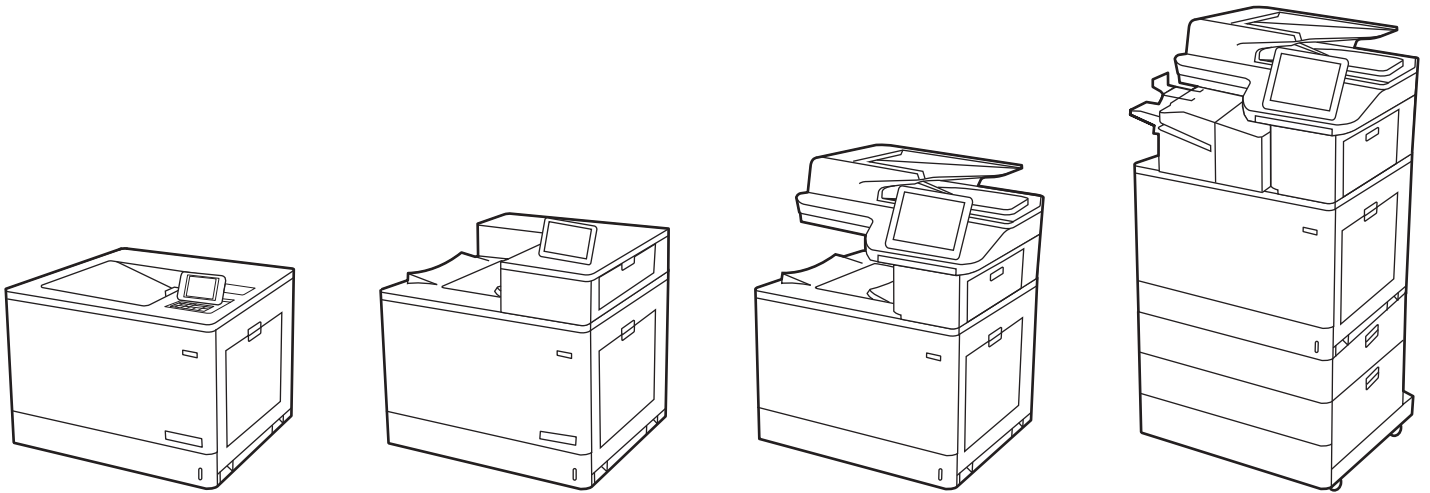




HP Color LaserJet Enterprise M751, M856
HP Color LaserJet Managed E75245, E85055
HP Color LaserJet Enterprise MFP M776

Service Manual: Troubleshooting



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www.hp.com/support/colorljM751
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HP Color LaserJet Enterprise M751, M856,
Managed E75245, E85055, and Enterprise
MFP M776 - Service Manual: Troubleshooting

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Revision history

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Table -1 Revision history

Revision number	Revision date	Revision notes
5	08/2020	Republishing to get down arrow icons to be visible in .pdf. No other changes made.
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2	11/2019	Added touchscreen menu instructions in the Service mode functions chapter. <ul style="list-style-type: none"> • Service mode functions on page 393
2	11/2019	Added touchscreen menu instructions in the Internal test and information pages chapter. <ul style="list-style-type: none"> • Internal test and information pages on page 246
2	11/2019	Added additional cross-section and circuit diagrams for the M856, E85055, and M776 models in the Diagrams chapter. <ul style="list-style-type: none"> • Diagrams on page 196
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2	11/2019	Added touchscreen menu instructions in the Print the event log chapter. <ul style="list-style-type: none"> • Print the event log on page 119
2	11/2019	Added touchscreen menu instructions in the Print the Settings menu map chapter. <ul style="list-style-type: none"> • Print the Settings menu map on page 117
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2	11/2019	Added Document feeder system and Scanning and image capture system sections for the M776 models. <ul style="list-style-type: none"> • Document feeder system (M776) on page 103 • Scanning and image capture system (M776) on page 109

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1 Theory of operations

Learn about the printer theory of operations.

Conventions used in this guide

Learn about the conventions used in this publication.



TIP: Tips provide helpful hints or shortcuts.



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



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



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

HP service and support

Learn about HP access to additional service and support information.

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Channel partners go to partner.hp.com, and then use the steps below to access the HP Web-based Interactive Search Engine (WISE).

Access WISE for Channel partners

1. Select [Services & Support](#) (near the top of the screen).
2. Under [Services Delivery](#), select [Technical Support](#).
3. Select [Technical Documentation](#).

Find information about the following topics

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- Service advisories
- Up-to-date control panel message (CPMD) troubleshooting
- Solutions for printer issues and emerging issues
- Remove and replace part instructions and videos

- Install and configure
- Printer specifications
- Warranty and regulatory information

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- [WISE - Thai](#)

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- [WISE - English](#)

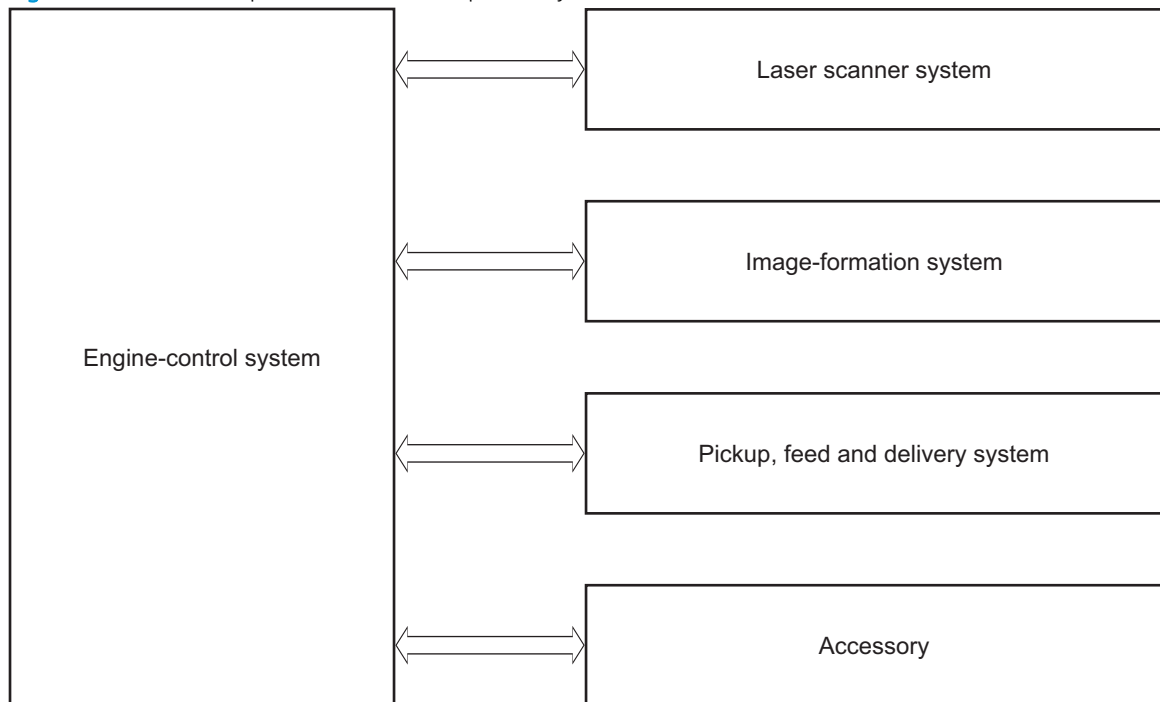
Basic operation

The printer routes all high-level processes through the formatter, which stores font information, processes the print image, and communicates with the host computer.

The basic printer operation comprises the following systems:

- The engine-control system, which includes the high-voltage and low-voltage power supplies (HVPS and LVPS), fuser control circuits, and the DC controller printed circuit assembly (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 pickup, feed and delivery system, which uses a system of rollers and belts to transport the paper through the printer
- Accessory (optional paper feeders)

Figure 1-1 Relationship between the main printer systems



Sequence of operation

Learn how the DC controller PCA controls the printer operating sequence.

Table 1-1 Sequence of operation

Period	Duration	Description
Waiting	From the time the power is turned on, the door is closed, or when the printer exits Sleep mode until the printer is ready for printing.	<ul style="list-style-type: none"> • Heats the fuser film in the fuser • Pressurizes the pressure roller in the fuser • Detects the toner cartridges • Detects the fuser • Separates all of the developer rollers from the photosensitive drums • Detects the ITB • Separates all of the primary transfer rollers from the photosensitive drums • Rotates and stops each motor • Rotates and stops each fan • Cleans the ITB • Cleans the secondary transfer roller
Standby	From the end of the waiting sequence or the last rotation, until the formatter receives a print command, or until the printer is turned off.	<ul style="list-style-type: none"> • Is in the Ready state • Enters Sleep mode if the formatter sends the sleep command • Rotates and stops each fan • Calibrates the printer if the calibration command is sent
Initial rotation	From the time the formatter receives a print command until the paper enters the paper path.	<ul style="list-style-type: none"> • Rotates each motor • Rotates each fan • Activates the high-voltage power supply (high-voltage bias) • Prepares the laser/scanner unit • Warms the fuser to the correct temperature

Table 1-1 Sequence of operation (continued)

Period	Duration	Description
Printing	From the time the first sheet of paper enters the paper path until the last sheet has passed through the fuser.	<ul style="list-style-type: none">• Forms the image on the photosensitive drums• Picks paper from the tray.• Transfers the toner to the paper• Fuses the toner image onto the paper
Last rotation	From the time the last sheet of paper exits the fuser until the motors stop rotating.	<ul style="list-style-type: none">• Stops each motor• Stops each fan• Stops the high-voltage power supply (high-voltage bias)• Stops the laser/scanner unit• Turns the fuser heater off• If another print command is received, the printer enters the initial rotation period when the last rotation is complete.

Formatter-control system


Learn about how the formatter operates.

The formatter performs the following functions:

- Controls sleep mode
- Receives and processes print data from the various printer interfaces
- Monitors control panel functions and relaying printer status information through the control panel and the network or bi-directional interface
- Develops and coordinates data placement and timing with the DC controller PCA
- Stores customer configuration settings and paper types.
- Stores font information
- Communicates with the host computer through the network or the bidirectional interface

Sleep mode

Learn about the printer sleep mode function.

 **NOTE:** To modify sleep settings: At the control panel, select the [Settings](#) menu, select the [General](#) menu, select the [Energy Settings](#) menu, and then select [Sleep Settings](#).

This feature conserves power after the printer has been idle for an adjustable period of time. When the printer is in Sleep mode, the printer retains all settings, downloaded fonts, and macros. The default setting is for Sleep mode to be enabled, and the printer enters Sleep mode after a 30-second idle time.


The printer firmware uses a combination of timers and Sleep settings to control when the printer enters a different state, as well as what states the printer will enter. The available states are listed below, in descending order, from using the most power to using the least power:


- **Active:** The printer control panel is fully illuminated. The power button light is illuminated.
- **Shallow sleep:** The printer control panel is dim and the content is grayed out, but is still readable. The power button light is illuminated.
- **Sleep:** The printer control panel is off (blacked out). The power button light blinks once every three seconds.
- **Deep sleep:** The printer control panel is off (blacked out). The power button light blinks once every three seconds. The control panel and power button appearance is the same in this state as the sleep state. However, the printer is drawing less than 1 watt of power in the deep sleep state (as opposed to 6 watts of power in the sleep state).
- **Off:** This state is entered by pressing the power button or removing power from the printer. The power button light is not illuminated.

 **NOTE:** In some countries/regions, Sleep mode cannot be turned off.

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

- The printer receives a print job, valid data, or a PML or PJI command.
- A control-panel button is pressed or the touchscreen is touched.
- A cover or door is opened.
- The engine-test switch is pressed.
- A paper tray, other than Tray 1, is opened.

 **NOTE:** If the printer is in the deep sleep state, opening Tray 1 or any other paper tray will not cause the printer to exit Sleep mode.

 **NOTE:** Printer error messages override the Sleep message. Some messages, such as 49 errors, do not allow the printer to enter Sleep mode. Other messages allow the printer to enter Sleep mode at the appropriate time, but the error message continues to appear.

Printer job language (PJI)

PJI is an integral part of printer configuration, in addition to the standard printer command language (PCL) and PostScript (PS).

With standard cabling, the printer can use PJI to perform a variety of functions, such as these:

- **Two-way communication with the host computer through a network connection or a USB device port:** The printer can inform the host about the control-panel settings, and the control-panel settings can be changed from the host.
- **Dynamic I/O switching:** The printer uses this switching to be configured with a host on each I/O. The printer can receive data from more than one I/O simultaneously, until the I/O buffer is full. This can occur even when the printer is offline.
- **Context-sensitive switching:** The printer 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 printer in landscape mode, the subsequent print jobs print in landscape only if they are formatted for landscape printing.

Printer management language (PML)

PML allows remote configuration of the printer and status read-back from the printer through the I/O ports.

Control panel

Learn about the printer control panels.

The M751 and E75245 control panel is a 2-line backlit control panel display with numeric keypad and additional buttons for navigating control panel menus.

The M856 and E85055 control panel is a 10.9 cm (4.3 in) full-color SVGA with infrared touchscreen and adjustable viewing angle.

The M776dn, M776z, and M776zs control panel is a 20.3 cm (8 in) full-color SVGA with infrared touchscreen and adjustable viewing angle.

Easy-access USB port

Learn about the easy-access USB printer function.

This printer features easy-access USB printing, for quickly printing files without sending them from a computer. The printer accepts standard USB flash drives in the USB port near the control panel. It supports the following types of files:

- **.pdf:** A portable document format file used to present and exchange documents reliably, independent of software, hardware, or operating system.
- **.prn:** A generic file created by choosing “Print to File” within the Print dialog box.
- **.pcl:** A file created in the Printer Command Language (PCL) which describes the layout of text and graphics for the document.
- **.ps:** A file created in the Adobe PostScript language. These files can contain images, text or a combination thereof.
- **.cht:** A vector graphics format file supported by a variety of charting and graphics software.
- **.bdl:** A file containing the printer firmware. Cannot be printed, but can be used to download new firmware to the printer.

The USB port is disabled by default. Follow the instructions in the printer user guide to enable the USB port and print USB documents.

CPU

Learn about the printer processor.

The formatter incorporates a 1.2 GHz processor.

Input/output (I/O)

Learn about the printer interfaces.

The printer supports the following interfaces:

- Hi-Speed USB 2.0
- 10/100/1000 Ethernet LAN connection with IPv4 and IPv6
- Easy-access USB printing (no computer required)

Memory

Learn about the printer memory.

The formatter incorporates different types of memory and storage to store the printer firmware as well as print-job data and user settings.

Firmware

Learn about printer firmware storage.

The embedded MultiMedia Card (eMMC) on the formatter stores the printer firmware. A firmware upgrade process is used to overwrite and upgrade the firmware. The upgrade can be done by using a network connection (remote upgrade) or a USB flash drive. If a hard disk drive (HDD) is installed, the firmware will automatically transfer to the HDD.

Nonvolatile random access memory (NVRAM)

The printer uses NVRAM to store printer and user configuration settings.

The contents of NVRAM are retained when the printer is turned off or disconnected.

Random access memory (RAM)

The RAM on the formatter serves as a temporary storage area for printing and system operation.

HP Memory Enhancement technology (MEt)

MEt effectively doubles the amount of standard memory through a variety of font- and data-compression methods.



NOTE: MEt is available only when printing in printer command language (PCL) mode. It is not functional when printing in PostScript (PS) mode.

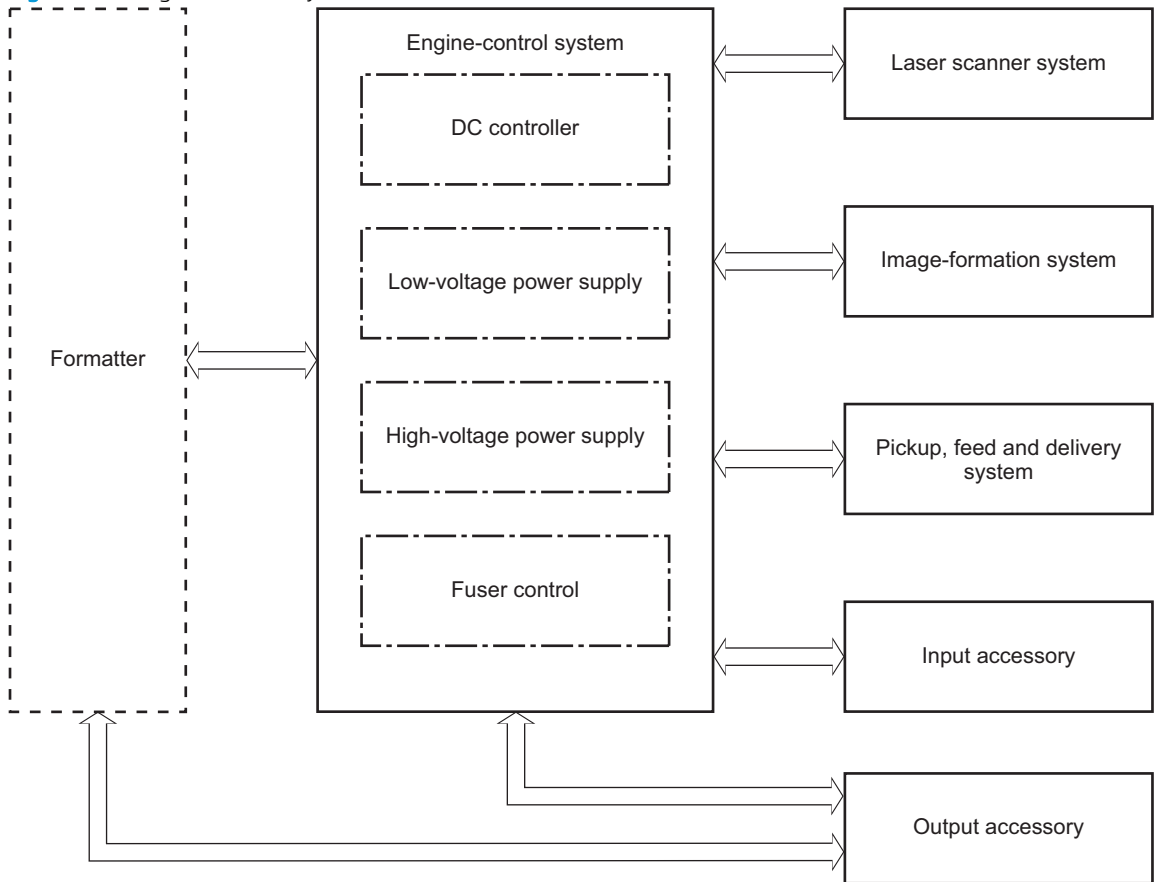
Engine-control system

Learn about the components in the engine-control system

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

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

Figure 1-2 Engine-control system



DC controller

The DC controller controls the operation of the printer and its components. The DC controller starts the printer operation when the printer power is turned on and the power supply sends DC voltage to the DC controller. After the printer enters the standby period, the DC controller sends out various signals to operate motors, solenoids, and other printer components based on the print command and image data that the host computer sends.

Figure 1-3 DC controller block diagram (1 of 2)

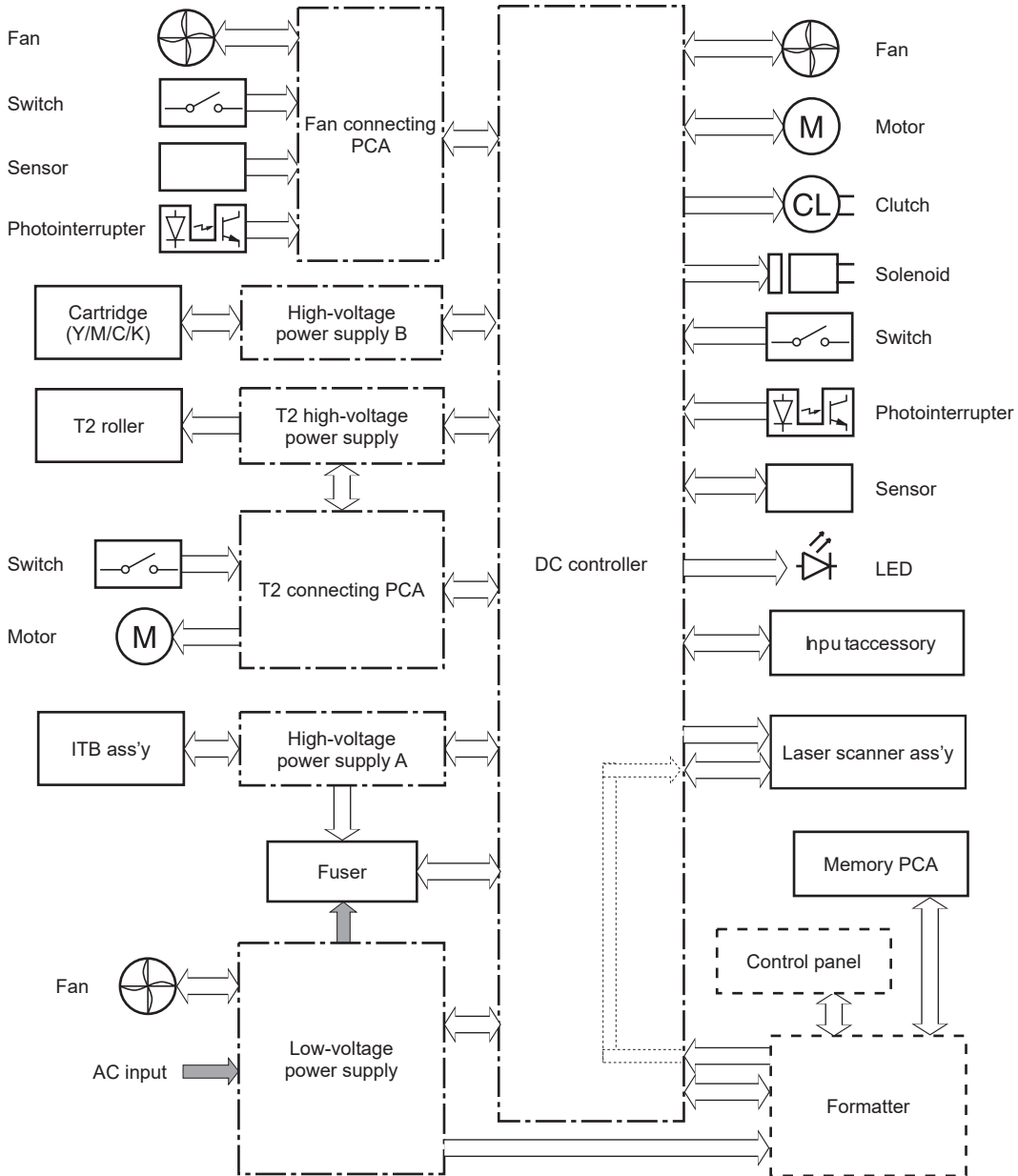
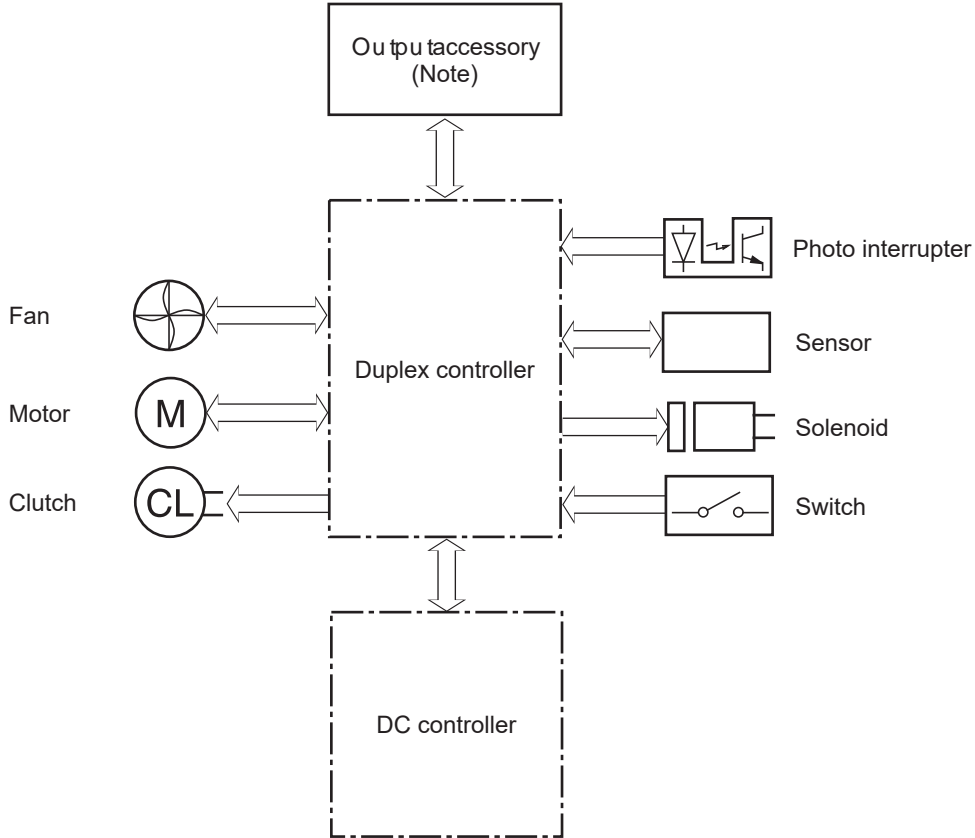


Figure 1-4 DC controller block diagram (2 of 2)



Motors

Learn about the printer motors.

The printer has 10 motors. The motors drive the components in the paper-feed and image-formation systems.

The DC controller monitors the fuser motor, the scanner motor, and drum motors 1, 2, and 3 to determine if a motor has failed. It notifies the formatter when it encounters the following conditions:

- Startup failure: the motor does not reach a specified speed within a specified time from when the motor starts.
- Rotational failure: the rotational speed of the motor is not in the specified range for a specified time after the motor reaches a specified speed.

Table 1-2 Motors

Abbreviation	Name	Purpose	Failure detection
M1	Drum motor 1	Drives the yellow, magenta, and cyan developer rollers. Engages and disengages the T1 and T2 rollers.	Yes
M2	Drum motor 2	Drives the yellow, magenta, and cyan photosensitive drums.	Yes
M3	Drum motor 3	Drives the black photosensitive drum, black developer roller, ITB, and the residual toner feed screw.	Yes

Table 1-2 Motors (continued)

Abbreviation	Name	Purpose	Failure detection
M4	Fuser motor	Drives the pressure roller and output roller. Pressurizes and releases the pressure roller. Engages and disengages the primary transfer roller. Engages and disengages the secondary transfer roller.	Yes
M5	Feed motor	Drives the Tray 1 pickup roller, the Tray 2 pickup roller, the Tray 2 feed roller, the registration roller, the intermediate feed roller, and the duplex re-pickup roller.	No
M6	Developer alienation motor	Engages and disengages the developer rollers.	Yes
M7	Scanner motor	Drives the scanner mirror.	Yes
M10	Lifter motor	Lifts the lifting plate in Tray 2.	No
M11	Switchback motor	Drives the switchback output roller.	No
(M856, E85055, and MFP M776 models only)			
M15	Switchback motor	Drives the output feed roller 2 and output upper roller.	No
(MFP models with inline finisher only)			
M12	Duplex motor	Drives duplex feed roller 1, duplex feed roller 2, and duplex feed roller 3.	No
(M856, E85055, and MFP M776 models only)			
M13	Duplex motor	Drives duplex feed roller 1, duplex feed roller 2, and duplex feed roller 3.	No
(MFP models with inline finisher only)			
M14	Color sensor alienation motor	Engages and disengages the color sensor.	No
(M856, E85055, and MFP M776 models only)			
M18	Decurl motor	Drives decurl roller and output feed roller 1.	No
(MFP models with inline finisher only)			
M19	Decurl motor	Drives decurl roller and output upper roller.	No
(M856, E85055, and MFP M776 models only)			
M29	Fuser fan shutter motor	Drives the fuser edge cooling shutter.	No
(M856, E85055, and MFP M776 models only)			

Table 1-2 Motors (continued)

Abbreviation	Name	Purpose	Failure detection
M31 (MFP models with inline finisher only)	Fuser fan shutter motor	Drives the fuser edge cooling shutter.	No
M34 (MFP models with inline finisher only)	Color sensor alienation motor	Engages and disengages the color sensor.	No

The DC controller determines the following motor failures.

- Yellow developer motor startup abnormality (drum motor 1 failure)
- Yellow developer motor rotation abnormality (drum motor 1 failure)
- Magenta developer motor startup abnormality (drum motor 1 failure)
- Magenta developer motor rotation abnormality (drum motor 1 failure)
- Cyan developer motor startup abnormality (drum motor 1 failure)
- Cyan developer motor rotation abnormality (drum motor 1 failure)
- Black developer motor startup abnormality (drum motor 3 failure)
- Black developer motor rotation abnormality (drum motor 3 failure)
- Yellow drum motor startup abnormality (drum motor 2 failure)
- Yellow drum motor rotation abnormality (drum motor 2 failure)
- Magenta drum motor startup abnormality (drum motor 2 failure)
- Magenta drum motor rotation abnormality (drum motor 2 failure)
- Cyan drum motor startup abnormality (drum motor 2 failure)
- Cyan drum motor rotation abnormality (drum motor 2 failure)
- Black drum motor startup abnormality (drum motor 3 failure)
- Black drum motor rotation abnormality (drum motor 3 failure)
- ITB motor startup abnormality (drum motor 3 failure)
- ITB motor rotation abnormality (drum motor 3 failure)
- Fuser motor startup abnormality (fuser motor failure)
- Fuser motor rotation abnormality (fuser motor failure)
- Developer alienation motor abnormality (developer alienation motor failure)
- Scanner motor startup abnormality (scanner motor failure)
- Scanner motor rotation abnormality (scanner motor failure)

Fans

Learn about the printer fans.

The printer has five fans for preventing the temperature from rising in the printer and for cooling the printed pages.

The DC controller determines if there is a fan failure and notifies the formatter if a fan locks for a specified time from when the fan starts.

Table 1-3 Fans

Abbreviation	Name	Cooling area	Type	Speed
FM1	Power supply fan	Around the low-voltage power supply	Intake	Full/half
FM2	Fuser fan	Around the fuser and delivery assembly	Intake	1/4, 1/2, 3/4, 1/1,
FM3	Cartridge front fan	Around the toner cartridges	Intake	Full/half/low
FM4	Cartridge rear fan	Around the toner cartridges	Intake	Full/half/low
FM5	Duplex fan	Around the duplex feed area and feed motor	Intake	Full
FM6	Decurl fan	Decurl roller Duplex feed area	Intake	Full
(M856, E85055, and MFP M776 models only)				
FM13				
(MFP models with inline finisher only)				
FM7	Controller fan	Around the DC controller and formatter	Exhaust	Full/half
FM10		Around the low-voltage power supply assembly		
(MFP models with inline finisher only)				

The DC controller detects the following fan failures.

- Fan motor 1 malfunction (cartridge front fan failure)
- Fan motor 2 malfunction (cartridge rear fan failure)
- Fan motor 3 malfunction (power supply fan failure)
- Fan motor 4 malfunction (duplex fan failure)
- Fan motor 5 malfunction (fuser fan failure)
- Fan motor 7 malfunction (decurl fan failure)
- Fan motor 8 malfunction (controller fan failure)

Solenoids

Learn about the printer solenoids.

Solenoids are used in printer control.

Table 1-4 Solenoids

Component abbreviation	Component name
SL1	Primary transfer roller alienation solenoid
SL3	Tray 1 pickup solenoid
SL4	Duplex flapper solenoid (MFP models with inline finisher only)
SL5	Duplex flapper solenoid (M856, E85055, and MFP M776 models only)
SL8	Duplex flapper solenoid (duplex models only)

Clutches

Learn about the printer clutches.

Clutches are used in printer control.

Table 1-5 Clutches

Component abbreviation	Component name
CL1	Tray 2 pickup clutch
CL2	Duplex re-pickup clutch (duplex models only)
CL3	Duplex clutch (M856, E85055, and MFP M776 models only)
CL4	Duplex clutch (MFP models with inline finisher only)

Switches

Learn about the printer switches.

Switches are used in printer control.

Table 1-6 Switches

Component abbreviation	Component name
SW1	24V interlock switch
SW2	5V interlock switch
SW3	Front door switch
SW4	Right door switch
SW5	Tray 2 media width size switch
SW6	Tray 2 media length size switch/Tray 2 presence switch
SW7	Power supply switch

Table 1-6 Switches (continued)

Component abbreviation	Component name
SW8	Right door switch 1 (M856, E85055, and MFP M776 models only)
SW10	Output device presence switch (MFP models with inline finisher only)
SW11	ITB toner collection unit presence switch
SW18	Power supply switch (M856, E85055, and MFP M776 models only)
SW19	Front door switch (M856, E85055, and MFP M776 models only)
SW23	Power supply switch (MFP models with inline finisher only)
SW24	Front door switch (MFP models with inline finisher only)
SW25	Right door switch 1 (MFP models with inline finisher only)
SW301	Test print switch

Photointerrupter sensors

Learn about the printer photointerrupter sensors.

Photointerrupter sensors are used in printer control.

Table 1-7 Photointerrupter sensors

Component abbreviation	Component name
SR2	Drum home position sensor CMY
SR3	Drum home position sensor K
SR4	Developer alienation sensor
SR5	Tray 2 media surface sensor
SR6	Tray 2 media out sensor
SR7	Fuser output sensor
SR8	Registration sensor
SR9	Registration media width sensor 1
SR12	Registration media width sensor 3
SR14	Tray 1 last media sensor
SR15	Tray 1 media out sensor
SR16	Fuser loop sensor 1
SR17	ITB toner collection near full sensor
SR18	Tray 2 media level sensor
SR19	FD1 media full sensor (M856, E85055, and MFP M776 models only)
SR20	Duplex flapper position sensor (M856, E85055, and MFP M776 models only)
SR21	Decurl pressure switch mechanism home position sensor (M856, E85055, and MFP M776 models only)
SR22	Duplex feed sensor (M856, E85055, and MFP M776 models only)

Table 1-7 Photointerrupter sensors (continued)

Component abbreviation	Component name
SR24	Color sensor alienation sensor (M856, E85055, and MFP M776 models only)
SR25	Registration media width sensor 2
SR26	Fuser loop sensor 2
SR27	Residual toner feed screw rotation sensor
SR28	Duplex flapper position sensor (MFP models with inline finisher only)
SR29	Duplex feed sensor (MFP models with inline finisher only)
SR30	Decurl pressure switch mechanism home position sensor (MFP models with inline finisher only)
SR31	FD1 media full sensor (MFP models with inline finisher only)
SR32	FD2 media full sensor (MFP models with inline finisher only)
SR41	FD1 media full sensor
SR42	T1 roller home position sensor
SR43	Fuser fan shutter sensor
SR44	Fuser pressure release sensor
SR49	T1 roller home position sensor (M856, E85055, and MFP M776 models only)
SR50	Fuser pressure release sensor (M856, E85055, and MFP M776 models only)
SR52	Fuser fan shutter sensor (M856, E85055, and MFP M776 models only)
SR56	T1 roller home position sensor (MFP models with inline finisher only)
SR57	Fuser pressure release sensor (MFP models with inline finisher only)
SR58	Fuser fan shutter sensor (MFP models with inline finisher only)
SR59	Color sensor alienation sensor (MFP models with inline finisher only)

Sensors

Learn about printer sensors.

Sensors are used in printer control.

Table 1-8 Sensors

Component abbreviation	Component name
TH1	Sub-thermistor 3
TH2	Sub-thermistor 2
TH3	Main thermistor
TH4	Sub-thermistor 1
TP1	Thermoswitch
TH5	Scanner temperature sensor
RD1	Registration density sensor 1

Table 1-8 Sensors (continued)

Component abbreviation	Component name
RD2	Registration density sensor 2
PAPOUT2	Fuser output sensor 2
PAPOUT3	Fuser output sensor 3
-	Environmental sensor
CS	Color sensor
MS	Media sensor

LEDs

Learn about the printer LEDs.

LEDs indicate if a printer system is correctly functioning.

Table 1-9 LEDs

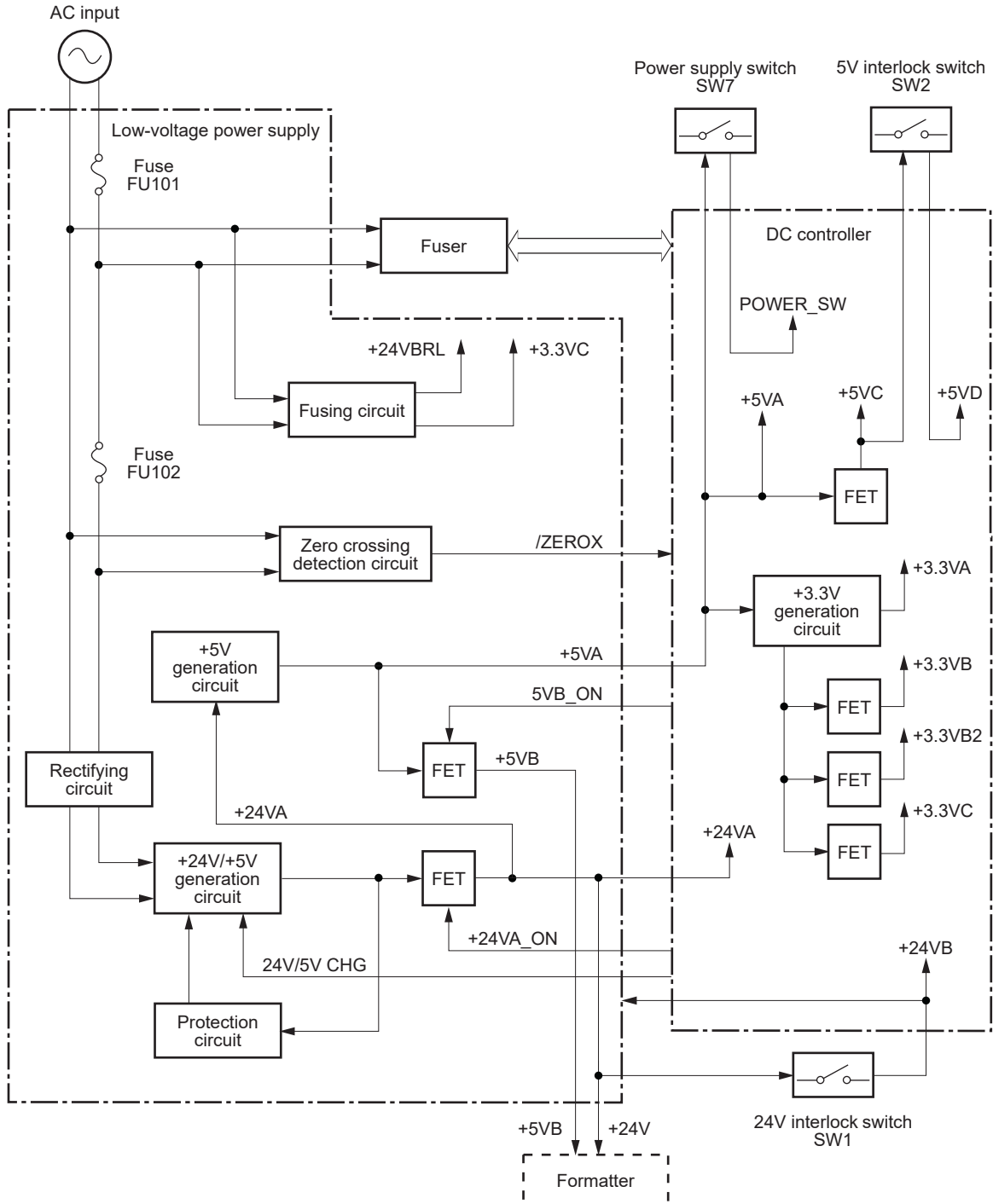
Component abbreviation	Component name
LED1	Pre-exposure LED 1
LED2	Pre-exposure LED 2
LED3	Pre-exposure LED 3
LED4	Pre-exposure LED 4

Low-voltage power supply

Learn about low-voltage power supply (LVPS) functions.

The LVPS circuit converts the AC power from the wall receptacle into the DC voltage that the printer components use.

Figure 1-5 Low-voltage power-supply circuit



Low-voltage power supply voltages description

Learn about low-voltage power supply (LVPS) voltages.

The LVPS converts the AC power into three DC voltages, which it then subdivides, as described in the following table.

Table 1-10 Converted DC voltages

Main DC voltage	Sub-voltage	Inactive OFF	Active OFF	Print/standby
+24 V	+24 VA	OFF	OFF	ON
	+24 VB	OFF	OFF	ON
	+24 VBRL	OFF	OFF	ON
+5 V	+5 VA	ON	ON	ON
	+5 VB	OFF	OFF	ON
	+5 VC	OFF	OFF	ON
	+5 VD	OFF	OFF	ON
+3.3 V	+3.3 VA	ON	ON	ON
	+3.3 VB	OFF	ON	ON
	+3.3 VB2	OFF	Intermittent	ON
	+3.3 VC	OFF	OFF	ON

Over-current/over-voltage protection

Learn about low-voltage power supply (LVPS) over-current/over-voltage protection.

The LVPS automatically stops supplying the DC voltage to the printer components whenever it detects excessive current or abnormal voltage. The LVPS has a protective circuit against over-current and over-voltage to prevent failures in the power supply circuit.

⚠ CAUTION: If DC voltage is not being supplied from the LVPS, the protective function might be running. In this case, turn the power switch off and unplug the power cord.

Do not turn the power switch on until the root cause is found and corrected.

If the protective function is active, the DC controller notifies the formatter of an LVPS failure. In addition, the LVPS has two fuses to protect against over-current. If over-current flows into the AC line, the fuse stops the AC power.

Safety

Learn about LVPS safety protection.

For personal safety, the printer interrupts +24VB power when the 24V interlock switch is turned off . This stops the DC power supply to the following components:

- High-voltage power supply (HVPS)
- Fuser motor
- Feed motor

- Developer alienation motor
- Duplex switchback motor
- Fuser fan shutter motor
- Fuser

When the remote switch control circuit turns the printer power on or off, AC power still flows, even when the power switch is turned off. Unplug the printer power cord before disassembling the printer.

Sleep mode operation

Learn about the low-voltage power supply (LVPS) Sleep mode function.

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

Low-voltage power supply failure detection

Learn about low-voltage power supply (LVPS) failure detection.

The DC controller determines a LVPS failure and notifies the formatter when the LVPS does not supply +24 V.

High-voltage power supply

Learn about high-voltage power supply (HVPS) functions.

The DC controller controls the HVPS to generate biases. The HVPS delivers the high-voltage biases to the following components used to transfer toner during the image-formation process:

- Primary charging roller (in the toner cartridges)
- Developing roller (in the toner cartridges)
- Primary transfer roller
- Secondary transfer roller
- Static charge eliminator
- Pressure roller
- ITB cleaning brush
- ITB cleaning roller

High-voltage power supply circuits

Learn about high-voltage power supply (HVPS) circuits.

The HVPS contains the following separate circuits.

Figure 1-6 High-voltage power supply circuits

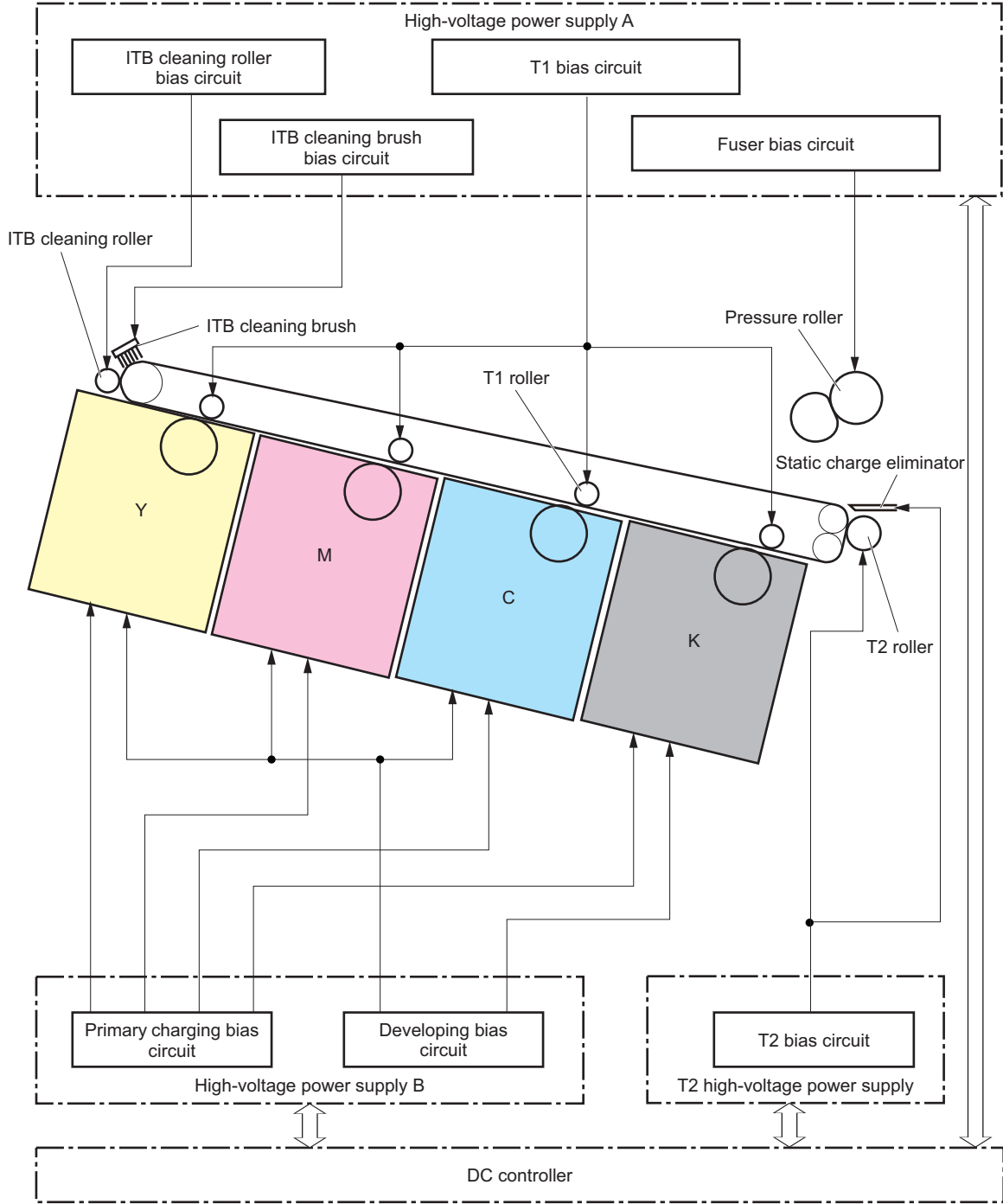


Table 1-11 High-voltage power supply circuits

Circuit	Description
Primary-charging-bias generation	The primary charging bias negatively charges the surface of the photosensitive drums to prepare for image formation.
Developing-bias generation	The developing bias adheres toner to an electrostatic latent image formed on the photosensitive drums.

Table 1-11 High-voltage power supply circuits (continued)

Circuit	Description
Primary transfer-bias generation	The primary transfer bias transfers the toner from each photosensitive drum onto the ITB.
Secondary-transfer-bias generation	The positive secondary transfer bias transfers the toner image from the ITB onto the paper. The negative bias transfers residual toner on the secondary transfer roller back to the ITB. The residual toner on the ITB is deposited in the toner collection unit.

Fuser bias

Learn about fuser bias.

The printer uses instant-on fusing. The fuser bias is DC positive for improved print quality. The fuser bias circuit is located in the high-voltage power supply.

Fuser control

Learn about fuser control functions.

The DC controller and components in the fuser perform the following functions related to fuser operation:

- Control fuser temperature
- Detect fuser failures
- Prevent excessive temperature rise
- Detect remaining life in the fuser
- Determine if the correct fuser is installed

Fuser circuits

Learn about the fuser circuits.

The fuser heater control circuit and the fuser heater safety circuit control the fuser temperature according to commands from the DC controller.

Figure 1-7 Fuser components

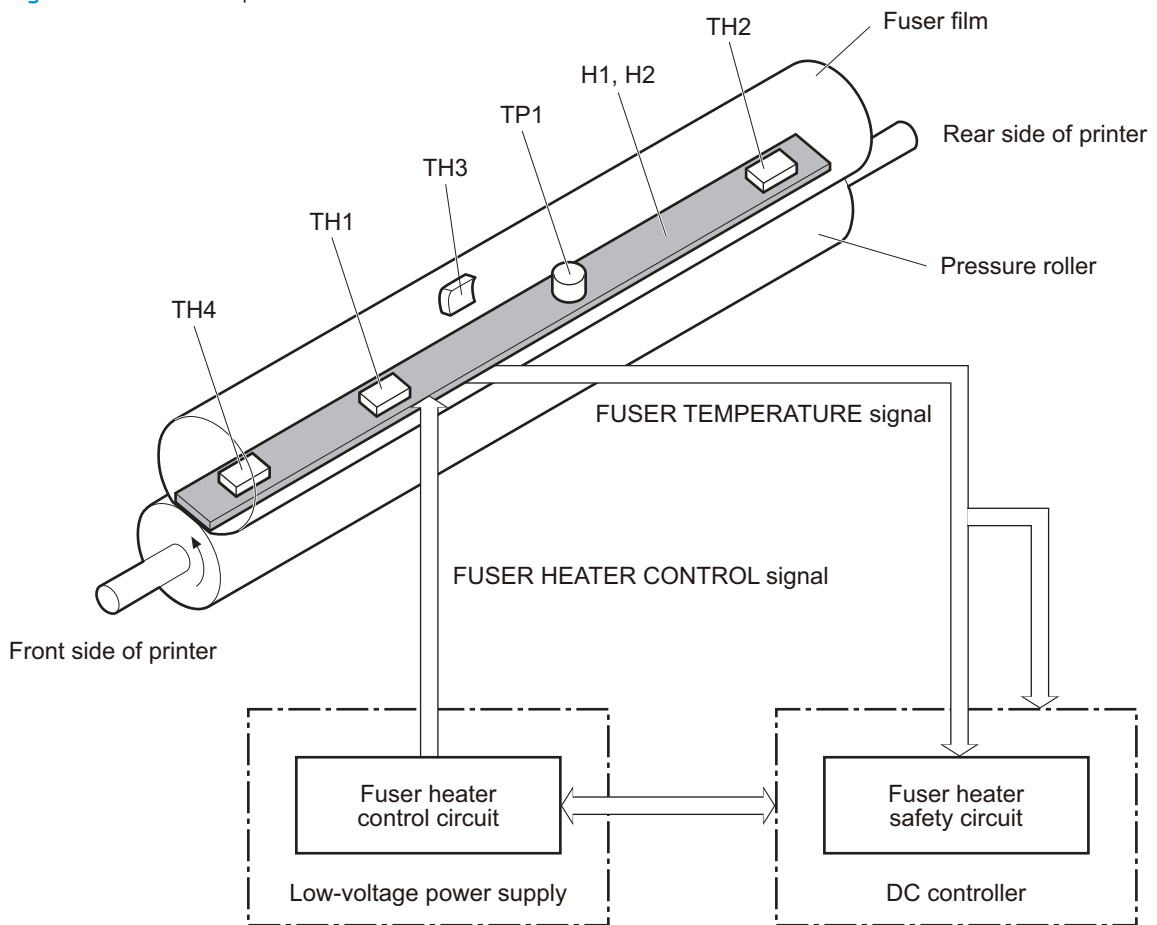


Table 1-12 Fuser components

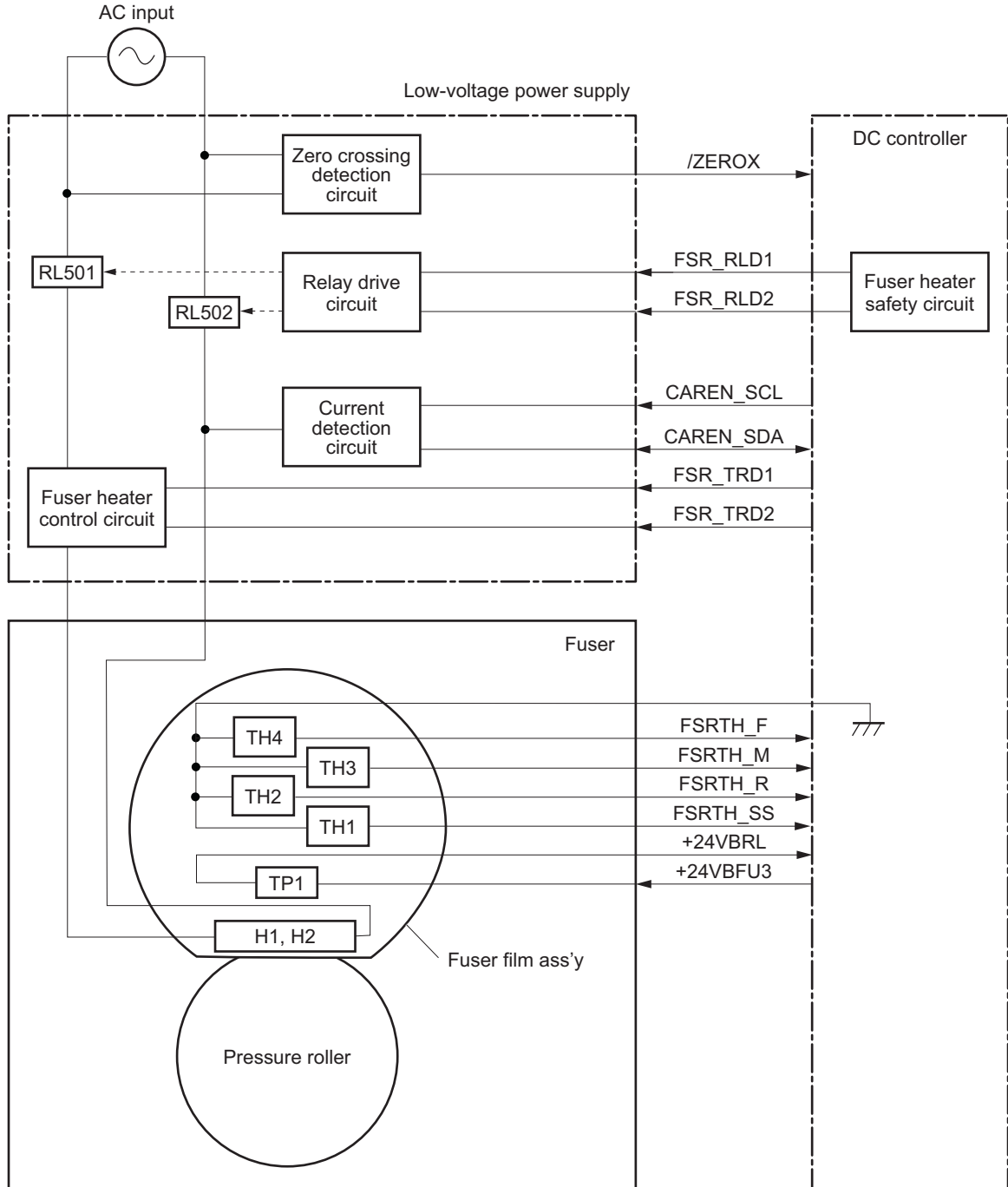
Type of component	Abbreviation	Name	Function
Heaters	H1	Fuser main heater	Heats the center area of the fuser film
Heaters	H2	Fuser sub-heater	Heats the edge of the fuser film
Thermistors (Contact type)	TH3	Main thermistor	Detects the center temperature of the fuser film
Thermistors (Contact type)	TH1	Sub-thermistor 3	Detects the temperature at one end of the fuser heater
Thermistors (Contact type)	TH2	Sub-thermistor 2	Detects the temperature at one end of the fuser heater
Thermistors (Contact type)	TH4	Sub-thermistor 1	Detects the temperature at one end of the fuser heater
Thermoswitch (Contact type)	TP1	Thermoswitch	Prevents an abnormal temperature rise of the fuser heater

Fuser control functions

Learn about fuser control functions.

The diagram below describes the LVPS, DC controller, and fuser systems.

Figure 1-8 Fuser control



The printer has the following fuser control functions.

Table 1-13 Fuser control functions

Failure detection function	Supported feature
Fuser temperature control	Yes
Fuser failure detection	Yes
Frequency detection circuit failure detection	Yes

Table 1-13 Fuser control functions (continued)

Failure detection function	Supported feature
Fuser pressure release mechanism failure detection	Yes
Fuser type discrepancy detection	Yes
Fuser type identification detection	No
Fuser presence detection	Yes
Fuser life detection	Yes
Relay failure detection	No
Fuser roller cleaning	Yes

Fuser heater protection

Learn about fuser heater protection.

Fuser heater protection is a feature that detects excessive temperatures in the fuser and interrupts the power supply to the fuser heater.

The following three protective components prevent excessive rising temperature in the fuser heater:

- **DC controller:** The DC controller constantly monitors the detected temperature of the thermistor and interrupts power to the fuser heater when it detects a temperature above a certain threshold.
- **Fuser-heater safety circuit:** The fuser heater safety circuit constantly monitors the detected temperature of the thermistor and interrupts power to the fuser heater when it detects a temperature above a certain threshold.
- **Thermoswitch:** If the temperature in the fuser heater exceeds a certain threshold, the contact to the thermoswitch breaks.

Fuser unit life detection


Learn about fuser unit life detection.

The fuser life is tracked by fuser rotations, and not by the number of pages printed. This is a more accurate tracking method since the fuser rotates for every print job and during cleaning cycles. At the beginning of a print job, the fuser rotates in order to move the paper from the tray to the imaging area. At the end of a print job, the fuser rotates in order to clear the paper path. Small print jobs cause more start and stop cycles, which cause more wear on the fuser. There will be variations in fuser life depending on customer usage. Customers who are running one and two page intermittent jobs with long pauses between each job might reach the fuser low message sooner due to the fuser rotating more times per page than it would for larger print jobs.

Fuser identification

Learn about fuser identification.

The printer detects the type and presence of the fuser. The DC controller notifies the formatter when it fails to detect the type or presence of the fuser.

 **NOTE:** This printer detects if a fuser of the correct voltage for the printer is installed. If a fuser of the incorrect voltage is installed, the DC controller notifies the formatter and an error message is displayed on the control panel.

The fuser includes a fusible link that is blown when a new fuser is installed. This automatically resets the maintenance counter.

Engine laser scanner system

Learn about the engine laser scanner system functions.

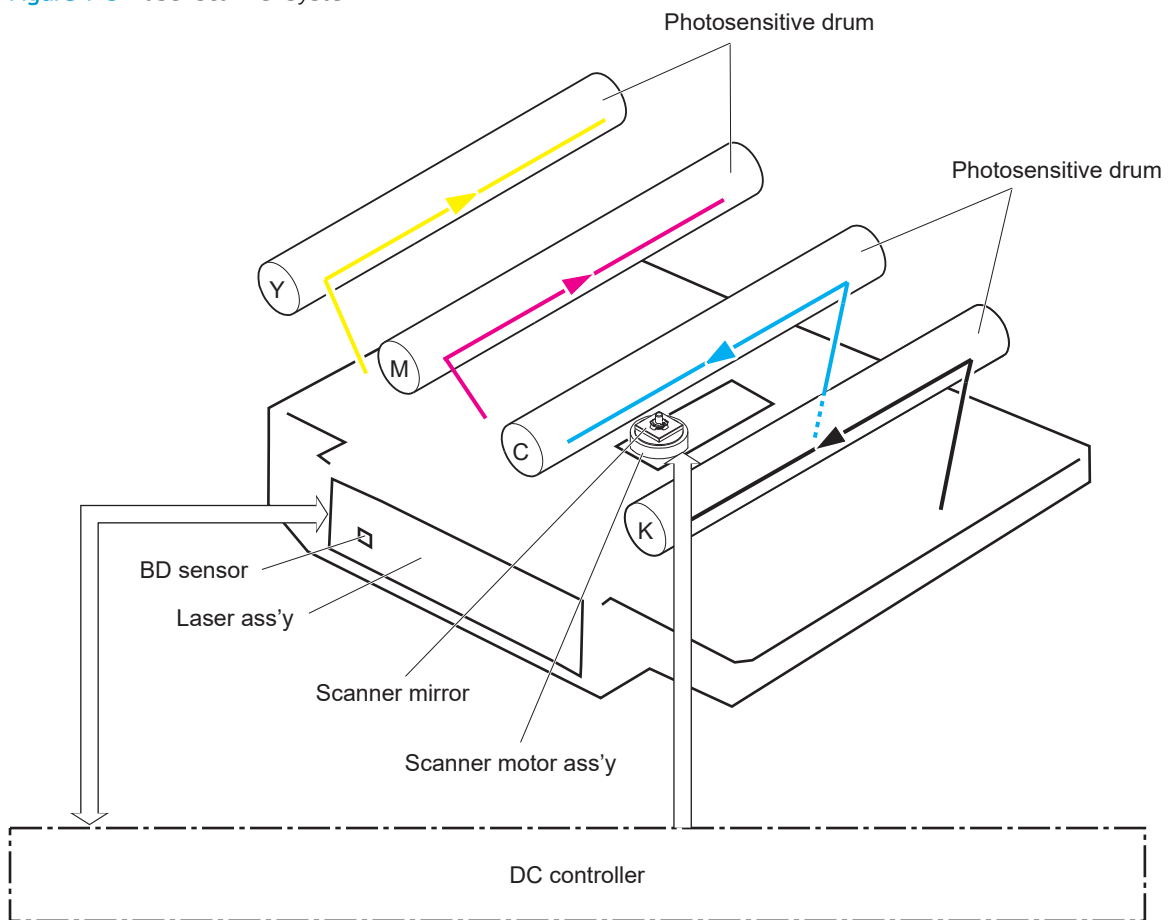
The laser/scanner system forms the latent electrostatic image on the photosensitive drums.

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.

The main components of the laser/scanner system, which are controlled by signals sent from the DC controller, are:

- Laser assembly
- Scanner motor assembly
- Beam detect (BD) sensor
- Scanner mirror

Figure 1-9 Laser scanner system



Laser scanner failure detection

Learn about laser scanner failure detection.

The DC controller determines an optical unit failure and notifies the formatter of the error status when any of the following occurs:

- **Beam detect (BD) failure detection:** The laser beam is not detected or the interval is outside the specified range during printing.
- **Laser scanner motor startup failure:** The scanner motor does not reach a specified rotation frequency within a specified period of time from when the laser scanner starts up.
- **Laser scanner motor abnormal rotation:** The laser scanner motor does not reach a specified rotational frequency within a specified period of time during a print operation.
- Laser scanner failure detection

Safety

Learn about laser scanner safety functions.

The laser scanner assembly has a mechanical laser shutter. For the safety of users and service technicians, the laser shutter interrupts the optical path of the laser scanner assembly when the front door (SW1/SW2) or right door (SW1/SW2) are opened.

Image-formation process

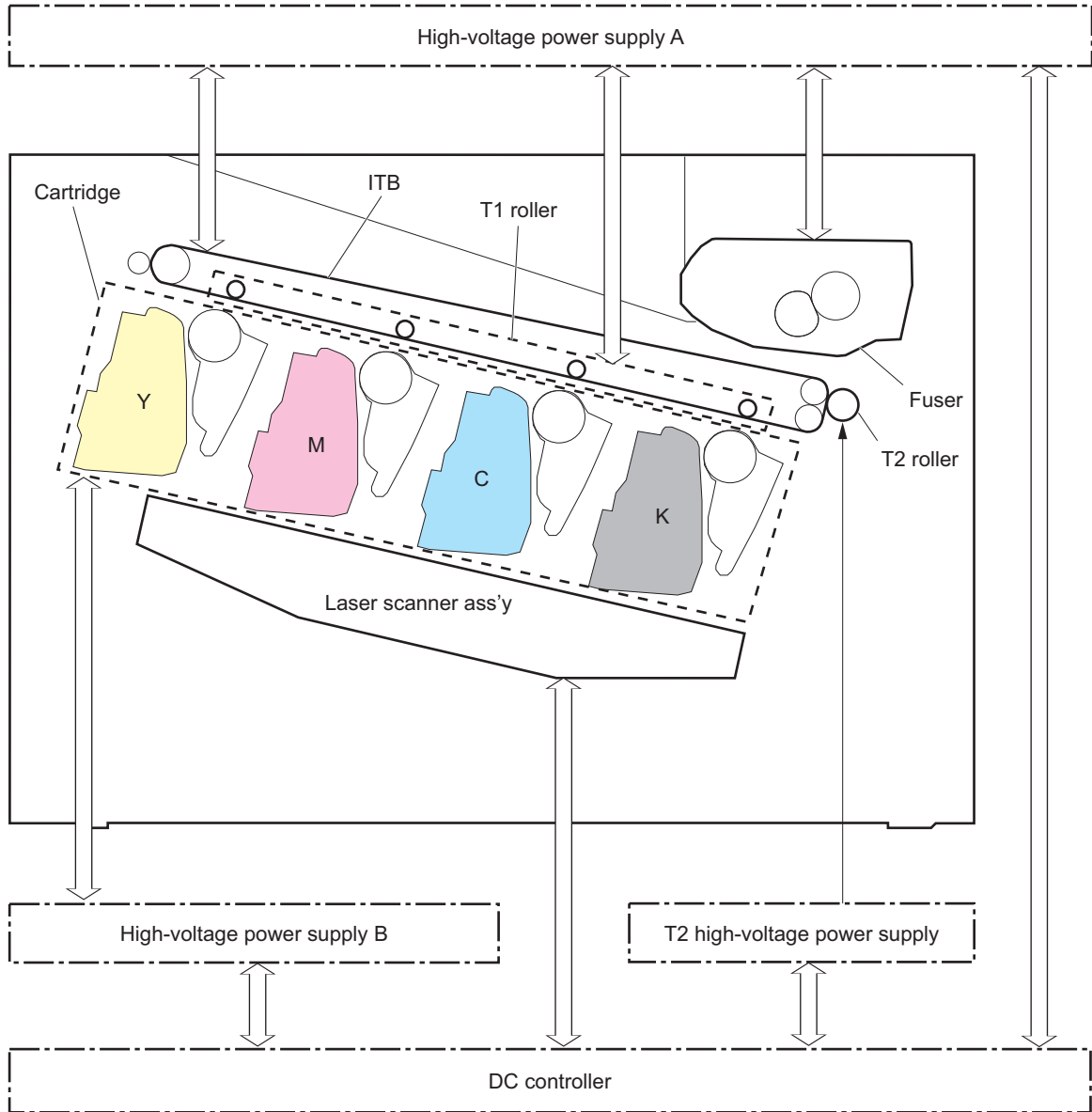
Learn about the image-formation process.

The image-formation system creates the printed image on the paper. The system consists of the following components:

- Four toner cartridges
- Four imaging drums
- Intermediate transfer belt (ITB)
- Primary transfer roller
- Secondary transfer roller
- Fuser
- Laser scanner
- High-voltage power supplies

The DC Controller controls the internal components of the image formation system (according to commands received from the formatter) to form the toner image on the photosensitive drum surface. The toner image is then transferred to the print media and fused.

Figure 1-10 Image-formation system




The drum motor drives the following image formation components:

- Imaging drums
- Developer rollers
- Primary charging rollers (follows the imaging drum)
- ITB drive roller
- ITB (follows the ITB drive roller)
- Primary transfer roller (follows the ITB)
- Secondary transfer roller (follows the ITB)

The developer alienation motor engages and disengages the developer rollers.

The fuser motor performs the following functions:

- Drives the pressure roller
- Drives the fuser film (follows the pressure roller)
- Engages and disengages the primary transfer roller
- Engages and disengages the secondary transfer roller

 **NOTE:** The primary charging rollers are located in the imaging drums. The developer rollers are located in the toner cartridges.

The following figure shows the location of the motors.

Figure 1-11 Image formation system motors

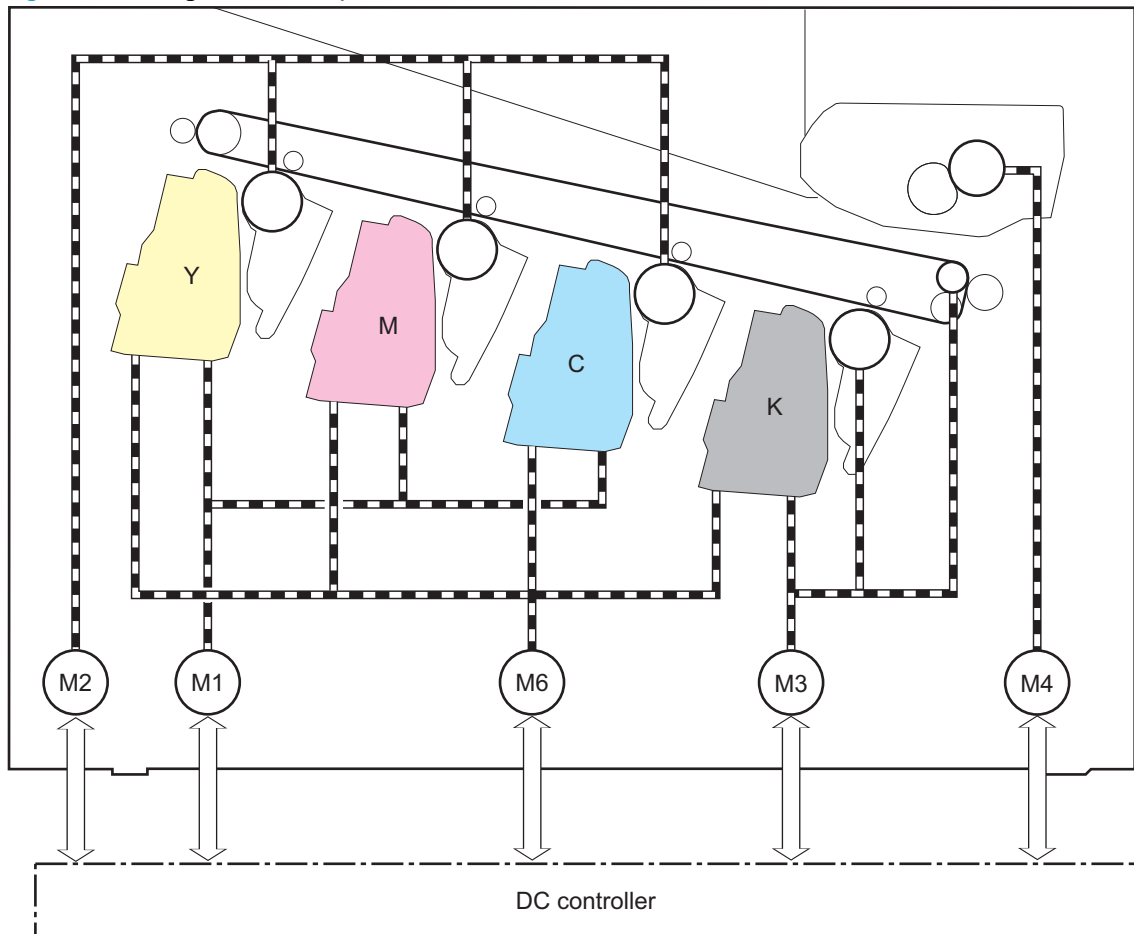


Table 1-14 Image-formation system motors

Abbreviation	Component name
M1	Drum motor 1
M2	Drum motor 2
M3	Drum motor 3
M4	Fuser motor
M6	Developer alignment motor

The following figure shows the location of the sensors.

Figure 1-12 Image-formation system sensors

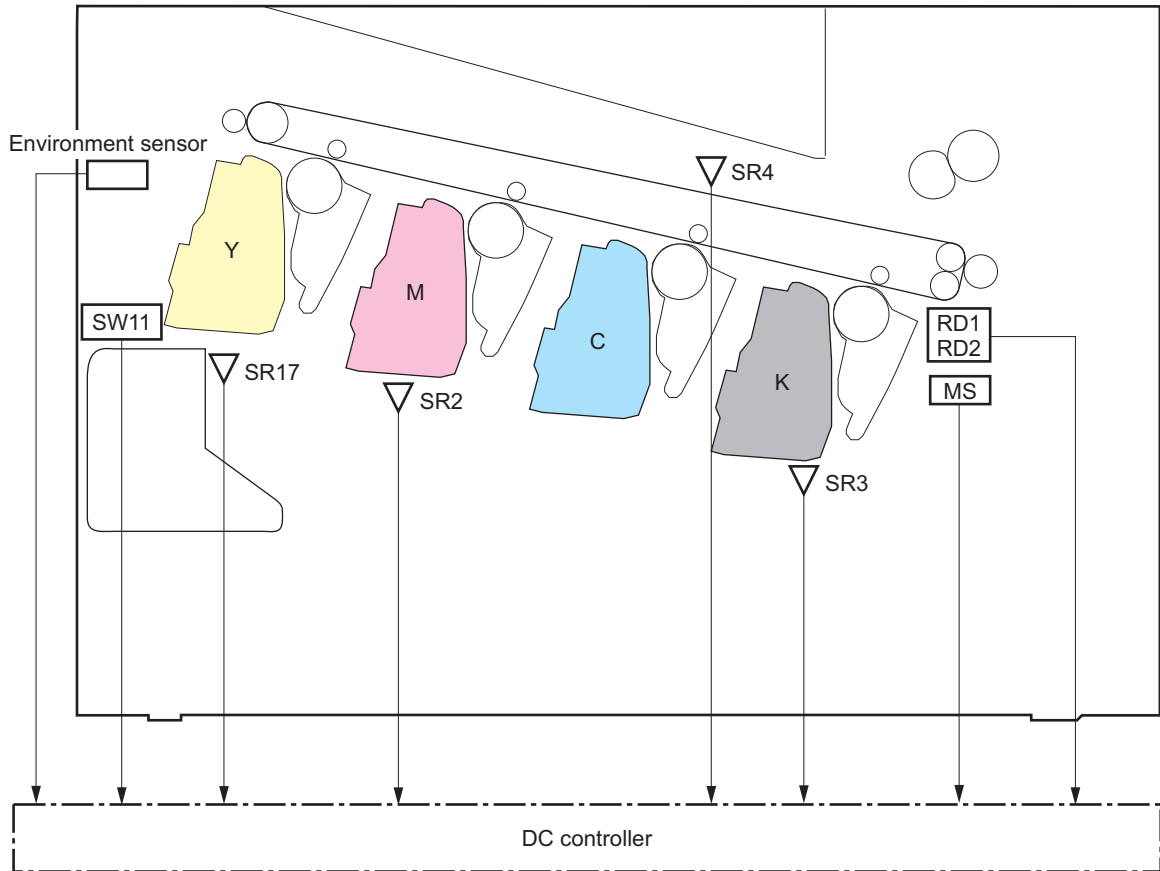


Table 1-15 Image formation system sensors

Abbreviation	Component name
SR2	Drum home position sensor CMY
SR3	Drum home position sensor K
SR4	Developer alienation sensor
SR17	ITB toner collection near full sensor
SW11	ITB toner collection unit presence switch
RD1	Registration density sensor 1
RD2	Registration density sensor 2
MS	Media sensor
--	Environmental sensor

The image-formation process consists of ten steps divided into six functional blocks.

Figure 1-13 Image-formation process

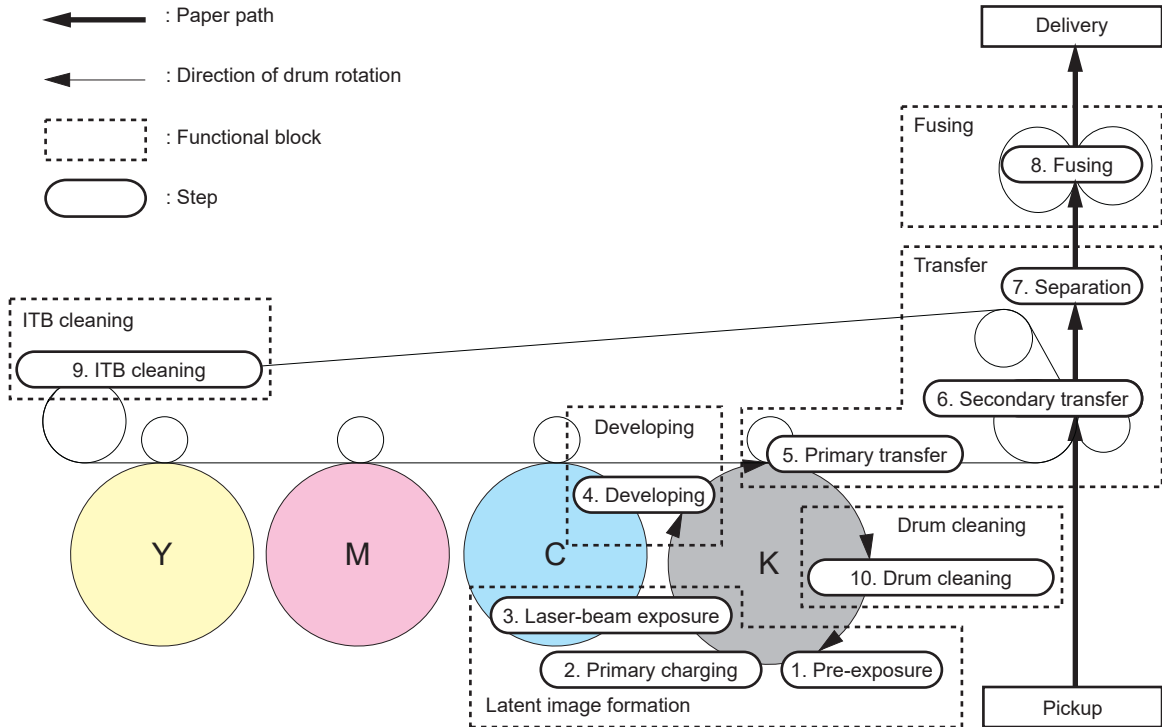


Table 1-16 Image formation process

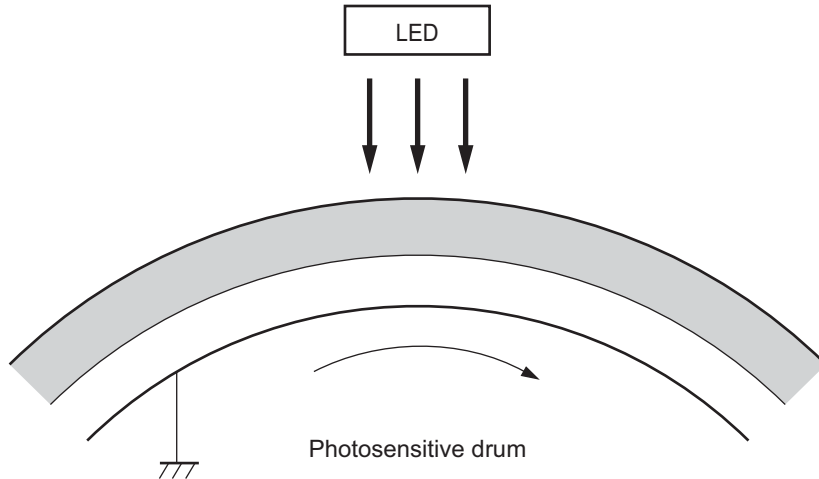
Functional block	Steps	Description
Latent image formation	1. Pre-exposure 2. Primary charging 3. Laser-beam exposure	An invisible latent image forms on the surface of the photosensitive drum.
Development	4. Developing	Toner adheres to the electrostatic latent image on the photosensitive drum.
Transfer	5. Primary transfer 6. Secondary transfer 7. Separation	The toner image transfers to the paper.
Fusing	8. Fusing	The toner fuses 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 drum.

Step 1: Pre-exposure

Learn about the pre-exposure process.

To prepare for primary charging, light from the pre-exposure LED strikes the surface of the photosensitive drum to remove any residual electrical charges from the drum surface.

Figure 1-14 Pre-exposure

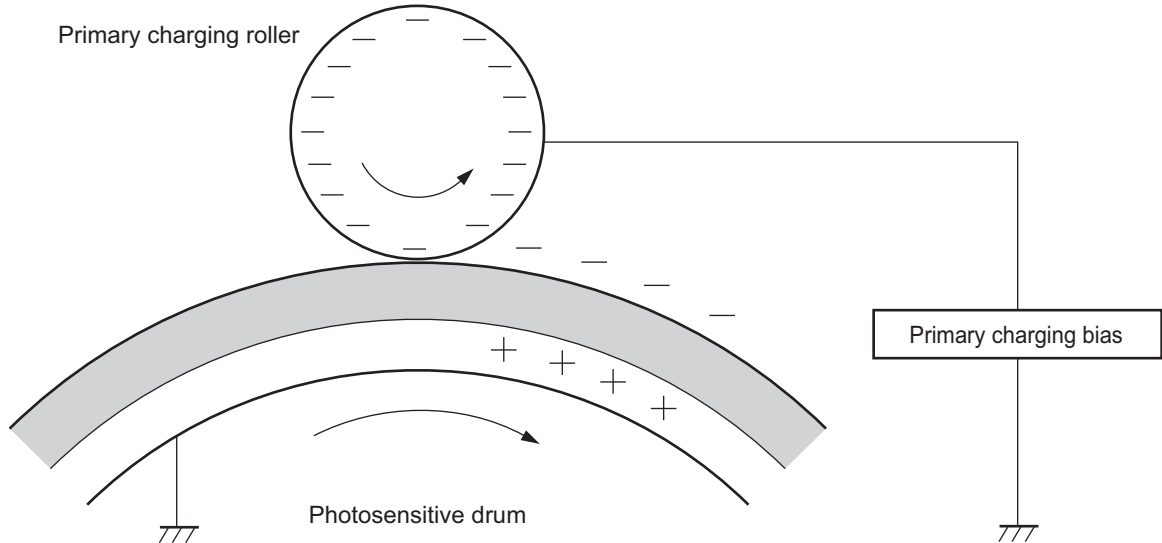


Step 2: Primary charging

Learn about the primary charging process.

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

Figure 1-15 Primary charging

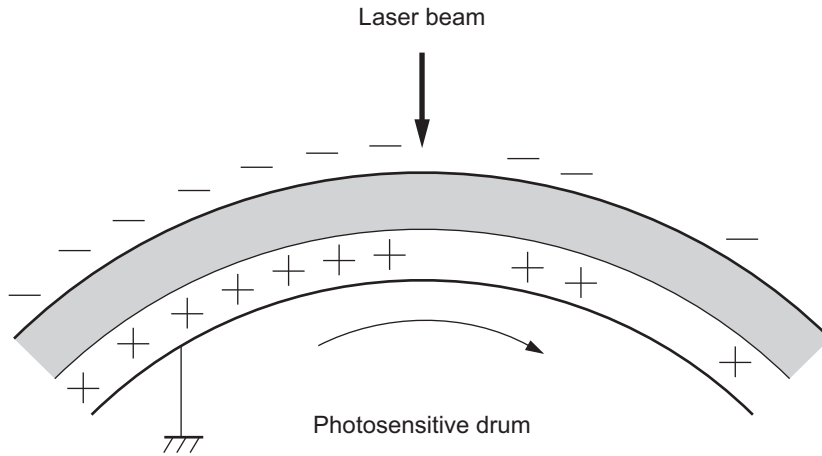


Step 3: Laser-beam exposure

Learn about the laser-beam exposure process.

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

Figure 1-16 Laser-beam exposure

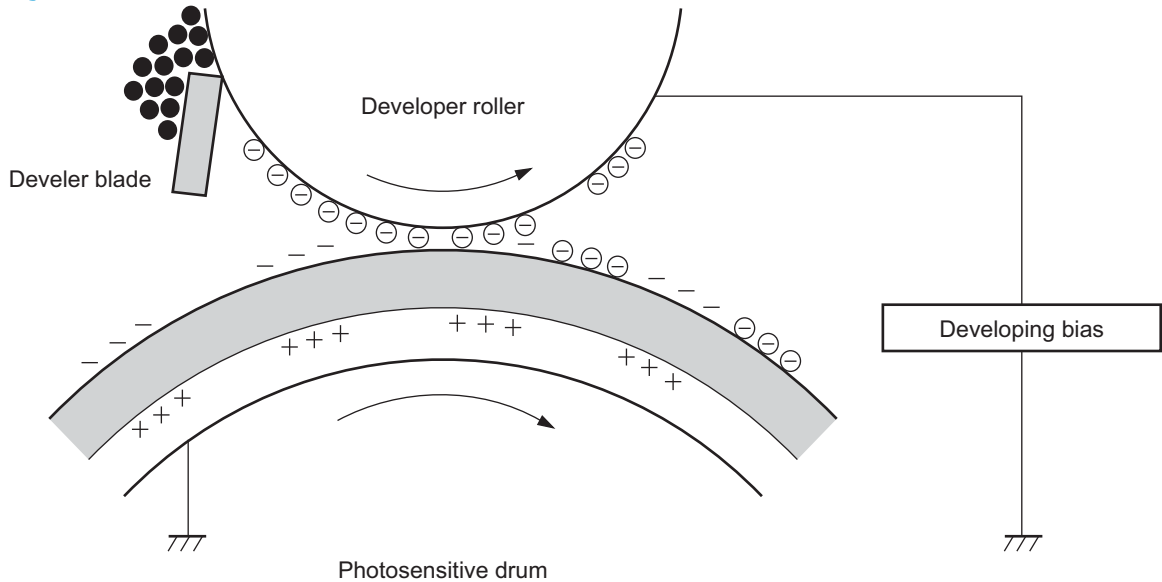


Step 4: Development

Learn about the development process.

Toner 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 1-17 Development

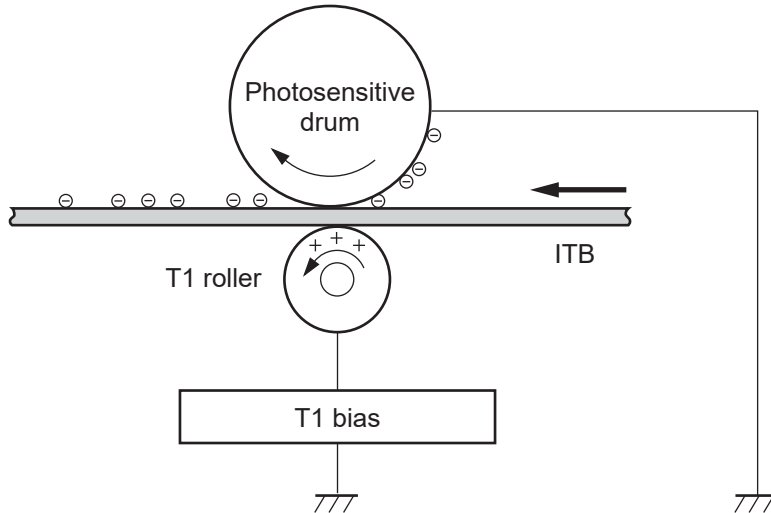


Step 5: Primary transfer

Learn about the primary transfer process.

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 transfers onto the ITB.

Figure 1-18 Primary transfer

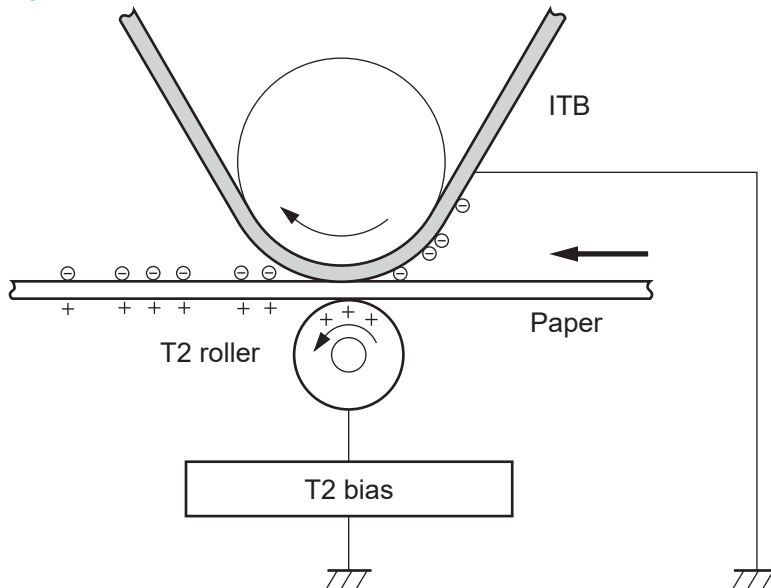


Step 6: Secondary transfer

Learn about the secondary transfer process.

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

Figure 1-19 Secondary transfer

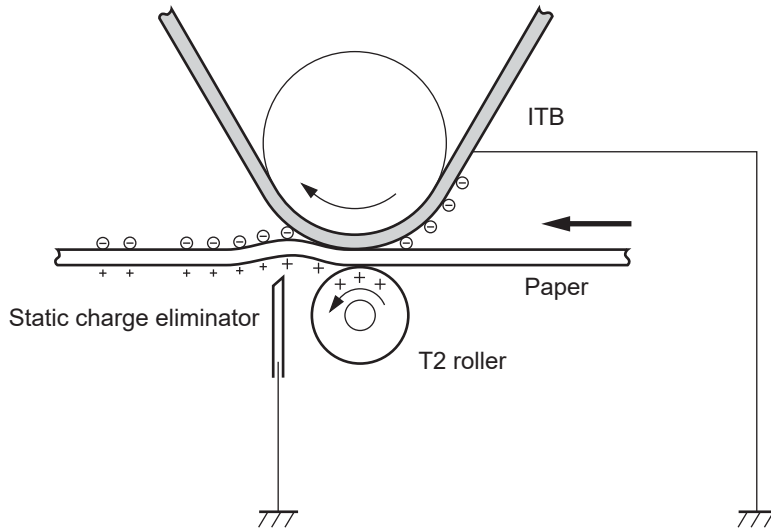


Step 7: Separation

Learn about the separation process.

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 make sure that the toner fuses correctly.

Figure 1-20 Separation

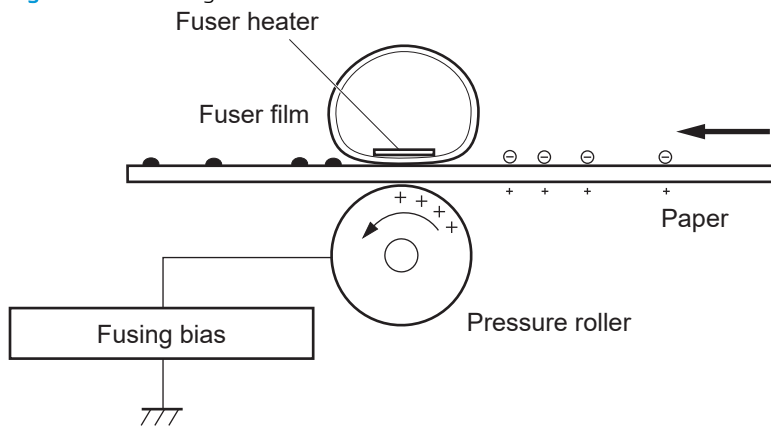


Step 8: Fusing

Learn about the fusing process.

To create the permanent image, the paper passes through heated, pressurized rollers to melt the toner onto the page. Fusing bias is added to the pressure roller to improve the print quality.

Figure 1-21 Fusing

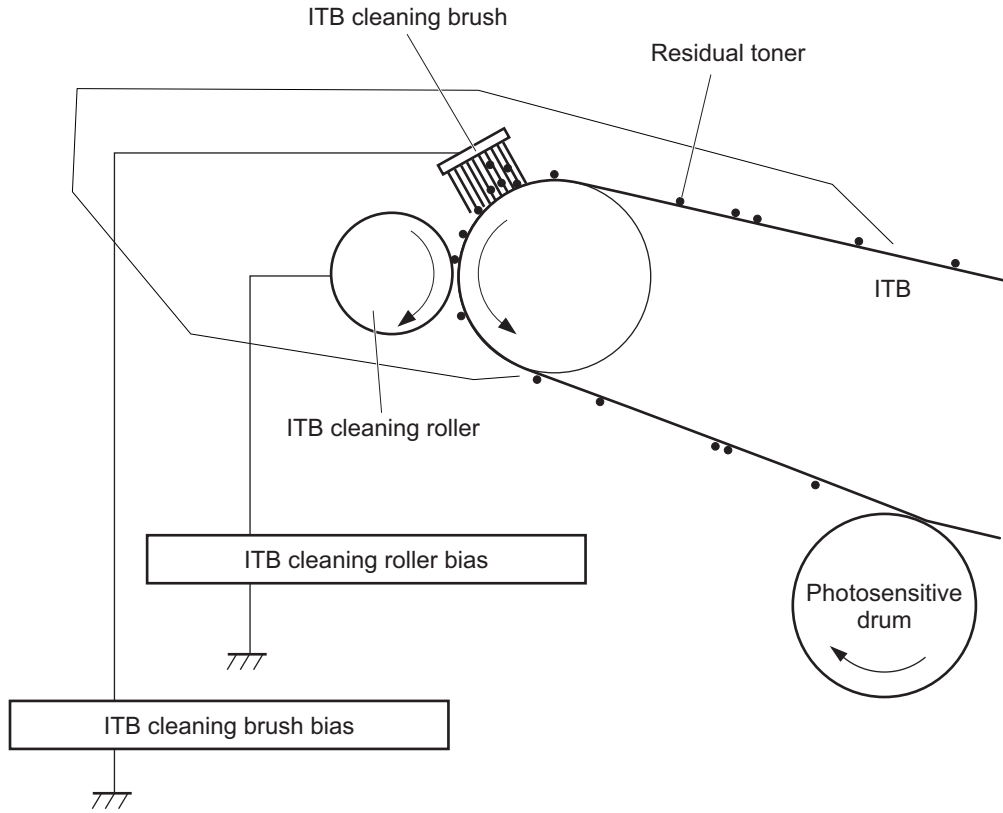


Step 9: ITB cleaning

Learn about the ITB cleaning process.

The cleaning blade scrapes the residual toner off the surface of the ITB. The residual toner feed screw deposits residual toner in the toner collection unit. The residual toner which cannot be removed by the cleaning blade is charged by the ITB cleaning brush, and then transferred from the ITB surface to a photosensitive drum by the primary transfer (T1) roller.

Figure 1-22 ITB cleaning

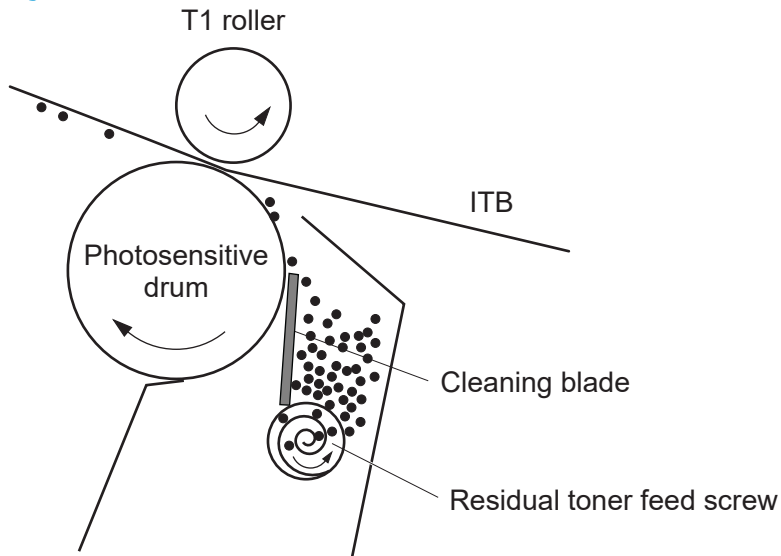


Step 10: Drum cleaning

Learn about the drum cleaning process.

The cleaning blade scrapes the residual toner off the surface of the photosensitive drum. The toner feed screw deposits the residual toner in the toner collection unit.

Figure 1-23 Drum cleaning



Toner cartridges

Learn about the printer toner cartridges.

The printer has four toner cartridges and four imaging drums, one for each color (yellow, magenta, cyan, and black).

Design

The cartridge system consists of two types of cartridges: toner cartridges and imaging drums.

The toner cartridge is filled with toner and consists of the following components:

- Developer roller
- Memory chip

The imaging drum consists of the following components:

- Photosensitive drum
- Primary-charging roller
- Memory chip

The DC controller rotates the drum motor to drive the photosensitive drum, developer roller, the primary-charging roller, and the ITB drive roller.

Figure 1-24 Toner cartridge system

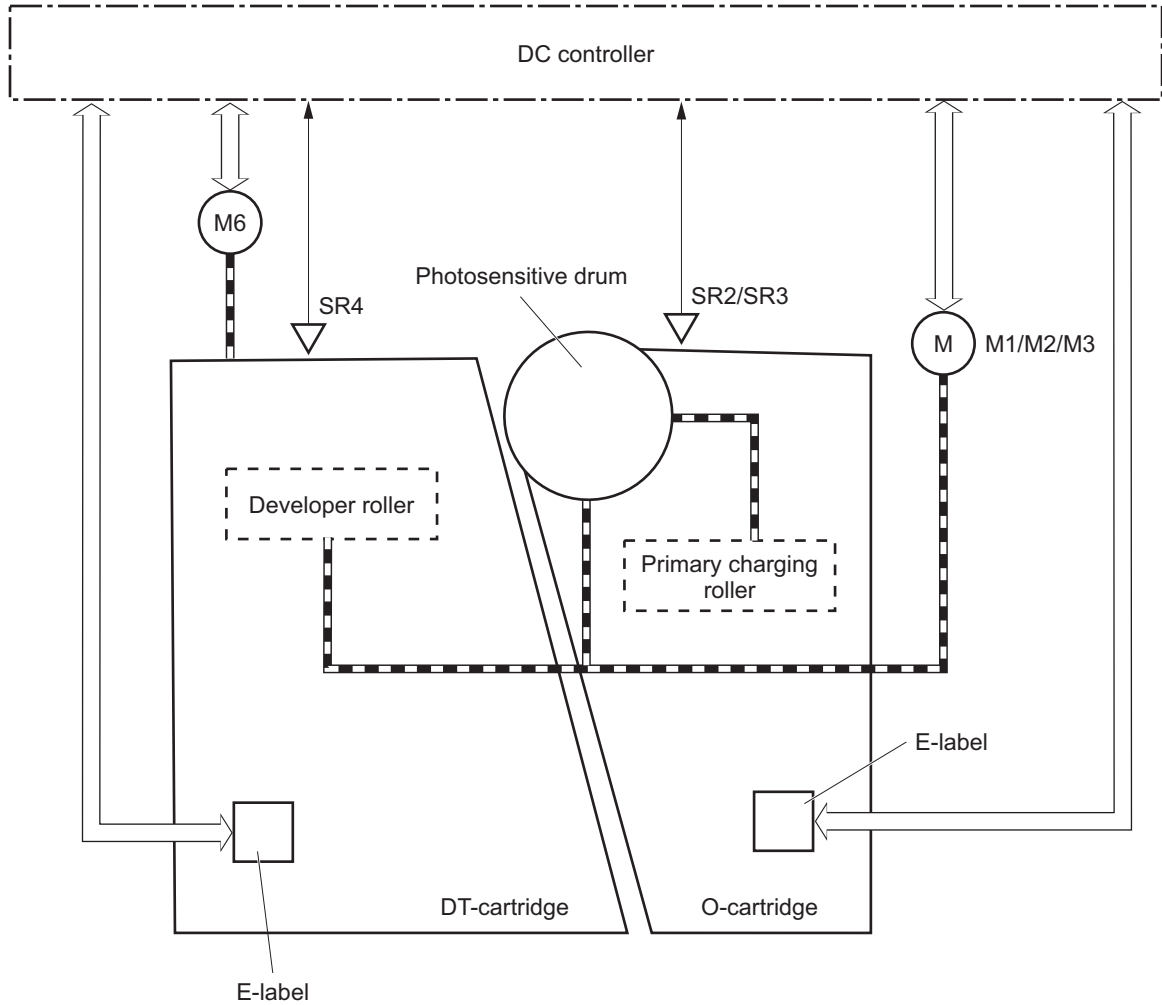


Table 1-17 Toner cartridge system

Function	Supported feature
Toner cartridge presence detection	Yes
Toner level detection	Yes
Toner cartridge life detection	Yes
Toner cartridge mis-installation detection	Yes
Developer alienation control	Yes
Developer alienation motor failure detection	Yes
Drum discharge mechanism	Not applicable

Memory chip

Learn about the toner cartridge memory chip.

The memory chip is non-volatile memory that stores information about the usage of the toner cartridge and helps protect the customer from counterfeit cartridges. This chip is also used to detect the presence of a

cartridge within the printer or when a cartridge is installed in the wrong slot. The printer reads and writes the data in the memory chip.



NOTE: The memory chip does not store any customer print, scan, copy, fax, or digital send information. The memory chip also supports the printer Jet Intelligence toner cartridge management functions.

Dynamic security

Learn about dynamic-security-enabled printers.

Certain HP printers use cartridges that have security chips or electronic circuitry. Cartridges using a non-HP chip or modified or non-HP circuitry* might not work. And, those that work today might not work in the future.

As is standard in the printing business, HP has a process for authenticating cartridges. HP continues to use security measures to protect the quality of our customer experience, maintain the integrity of our printing systems, and protect our intellectual property. These measures include authentication methods that change periodically and might prevent some third-party supplies from working now or in the future. HP printers and original HP cartridges deliver the best quality, security and reliability. When cartridges are cloned or counterfeited, the customer is exposed to quality and potential security risks, compromising the printing experience.

***Non-HP Chips and modified or non-HP electronic circuitry** are not produced or validated by HP. HP cannot guarantee that these chips or circuitry will work in your printer now or in the future. If you are using a non-original HP cartridge, please check with your supplier to ensure your cartridge has an original HP security chip or unmodified HP electronic circuitry.

JetIntelligence

Learn about toner cartridge JetIntelligence.

JetIntelligence supports two features for managing toner cartridges.

- The authentication feature allows customers to specify the use of only genuine HP toner cartridges in the printer.
- The anti-theft feature enables locking a cartridge to a specific printer or fleet of printers.

Authentication

Learn about toner cartridge authentication.

The genuine HP authentication feature allows a customer to specify that only genuine HP supplies can be used in a printer. If a non-HP or used supply is installed, the printer will not print. This feature is disabled by default, and can be enabled or disabled from the control panel or the Embedded Web Server (EWS).

If a genuine HP toner cartridge from another printer is moved to a printer with this feature enabled, the toner cartridge will authenticate and print, unless the toner cartridge has passed the low state. If the toner cartridge has passed the low state, an **Unauthorized Cartridge** message displays on the control panel.

If a non-HP toner cartridge is used in a printer with this feature enabled, the message **Unauthorized Cartridge** appears on the control-panel display.



NOTE: If a customer suspects they have a counterfeit cartridge, they should report it by going to www.hp.com/go/anticounterfeit and selecting **Report now**.

Anti-theft

Learn about toner cartridge anti-theft.

The toner cartridge anti-theft feature allows a customer to configure the printer to automatically lock genuine HP toner cartridges to a specific printer or fleet of printers when they are installed. A locked toner cartridge will only work in the specified printer or fleet of printers. This feature prevents toner cartridges from being stolen and used in another printer, or from being moved from an authorized printer to an unauthorized printer. This feature is disabled by default, and can be enabled or disabled from the control panel, the Embedded Web Server (EWS), or Web Jetadmin.

When the anti-theft feature is enabled, the toner cartridge in a printer will only work in the specified printer or fleet of printers. If a locked toner cartridge is moved to another printer, the cartridge will not print and the message **Protected Cartridge** appears on the control-panel display.



IMPORTANT: When a toner cartridge is locked to a specific printer or fleet of printers, it cannot be unlocked. This is a permanent operation.

Toner seal

Learn about the toner cartridge seal.

The toner cartridge seal is opened automatically when the toner cartridge is installed into the printer.

Toner level and cartridge life detection

Learn about toner cartridge toner level and cartridge life detection.

Toner level detection: For the toner cartridge, the DC controller detects the remaining toner in the cartridge utilizing electrical properties, and then notifies the formatter of the remaining toner level.

Cartridge life detection: For the toner cartridge and imaging drums, cartridge life detection is measured in two ways.

1. Toner level:
 - For the first 50% of cartridge life, toner level is measured through pixel counting by the DC controller. Once the level reaches 50%, the toner level sensor utilizes electrical properties and pixel counting to determine the amount of toner remaining.
2. Rotations of internal components (OPC and developer):
 - The DC controller monitors drum rotations and reports them to the formatter as percent life remaining.

Intermediate transfer belt (ITB) unit

Learn about the 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 the following main components:

- ITB
- ITB drive roller
- Primary transfer rollers
- ITB cleaner

Figure 1-25 ITB unit

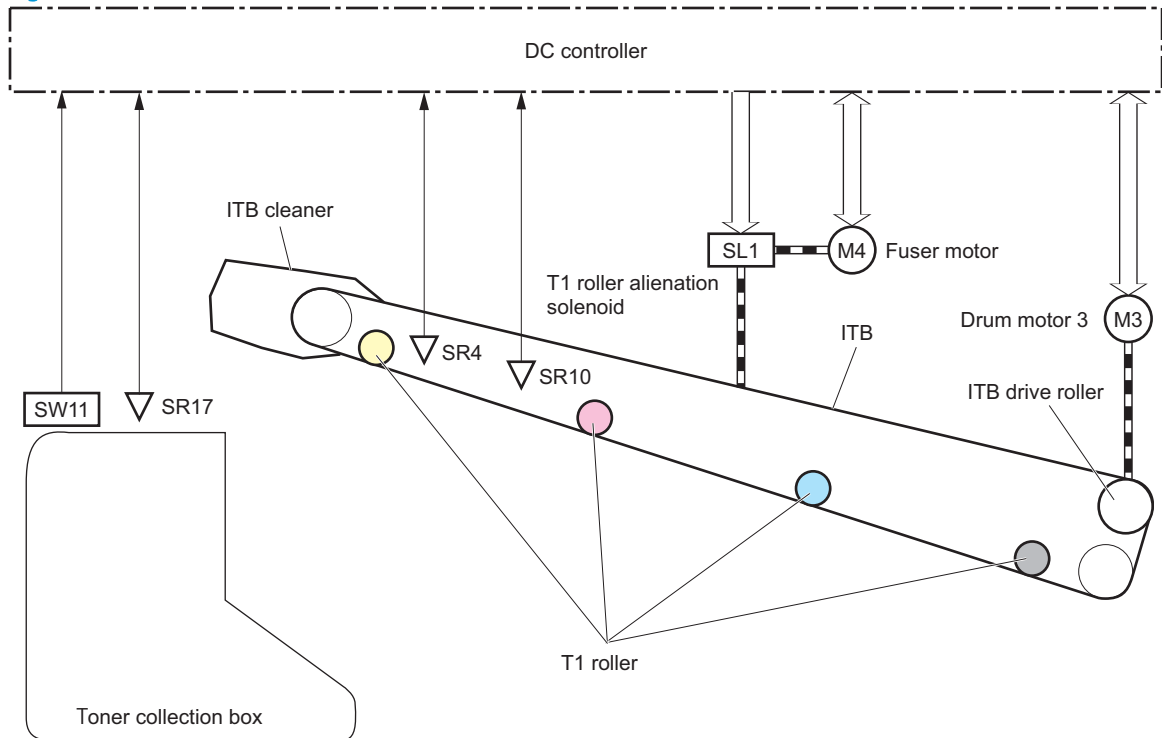


Table 1-18 ITB unit

Function	Supported feature
Primary transfer roller alienation control	Yes
Primary transfer roller alienation mechanism failure detection	Yes
ITB life detection	Yes
ITB presence detection	No
Blade cleaning mechanism	Yes
Electrostatic cleaning mechanism	Yes
ITB toner collection box full detection	No
ITB toner collection box presence detection	No
ITB perimeter detection	Yes

Table 1-18 ITB unit (continued)

Function	Supported feature
ITB seal detection sensor failure detection	No
New ITB detection	Yes
ITB cleaning mechanism	Yes
Toner collection unit full detection	Yes
Toner collection unit presence detection	Yes

Secondary transfer roller functions

Learn about the secondary transfer roller functions

Table 1-19 Secondary transfer roller functions

Function	Supported feature
Secondary transfer roller cleaning mechanism	Yes
Secondary transfer roller presence detection	No
Secondary transfer roller life detection	Yes
Secondary transfer roller alienation control	Yes

Calibration

Learn about the calibration functions

Table 1-20 Secondary transfer roller functions

Function	Supported feature
Color-plane registration (CPR) correction control	Yes
Environment correction control	Yes
Image density control (DMAX)	Yes
Image halftone control (DHALF)	Yes
Registration density sensor failure detection	Yes
Color sensor control	No
Gray axis control (GAS)	No
Environment sensor failure detection	Yes

Paper handling system

Learn about the printer paper handling system.

The DC controller controls the paper handling system according to commands from the formatter. The paper handling system uses a series of rollers to move the paper through the printer.

Paper handling functional blocks

Learn about the printer paper handling functional blocks.

The paper handling system consists of the following three functional blocks. The DC controller controls each block to pick up, feed and deliver the paper.

- **Pickup-and-feed block:** Controls the movement of the paper from each pickup source to the fuser inlet
- **Fuser-and-delivery block:** Controls the movement of the paper from the fuser to the delivery destination
- **Duplex block:** Controls the movement of the paper from the duplex switchback unit to the duplex re-pickup unit (duplex models only)

Figure 1-26 Fuser-and-delivery and pickup-and-feed blocks (M751/E75245)

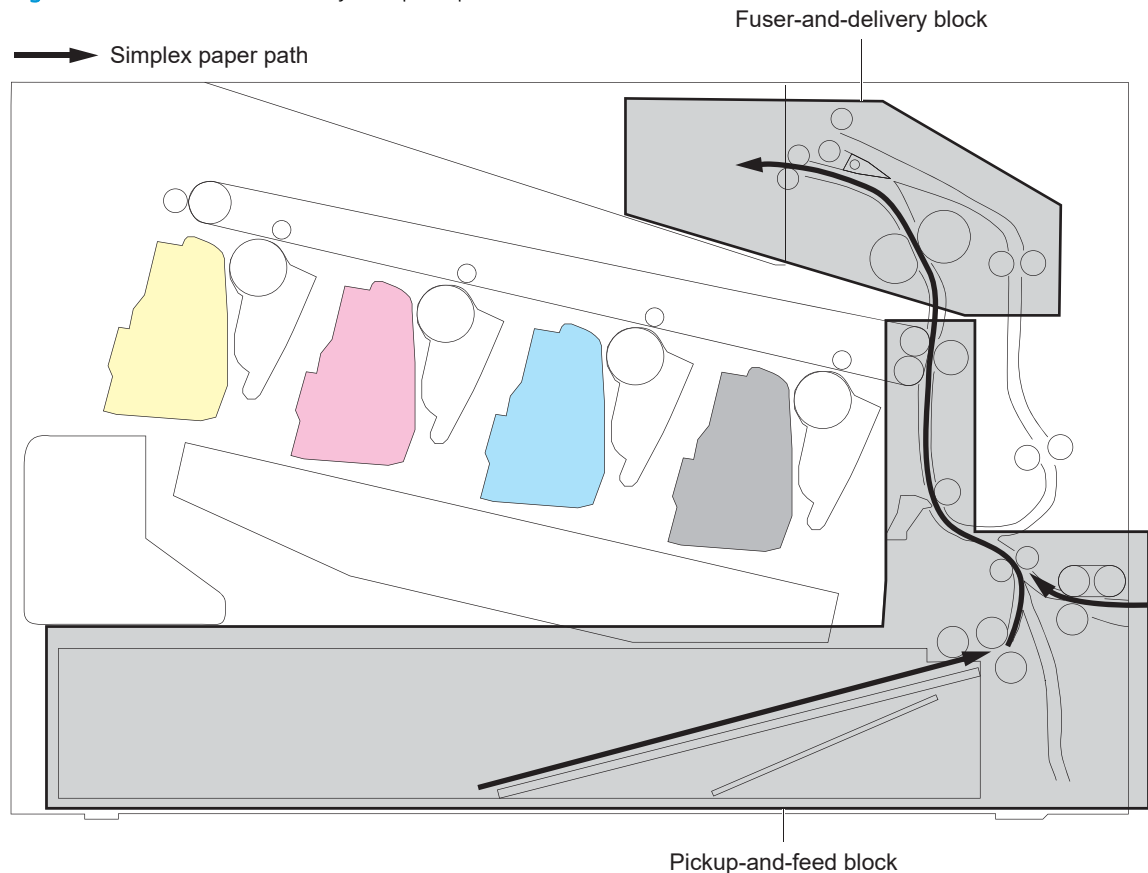


Figure 1-27 Duplex block (M751/E75245)

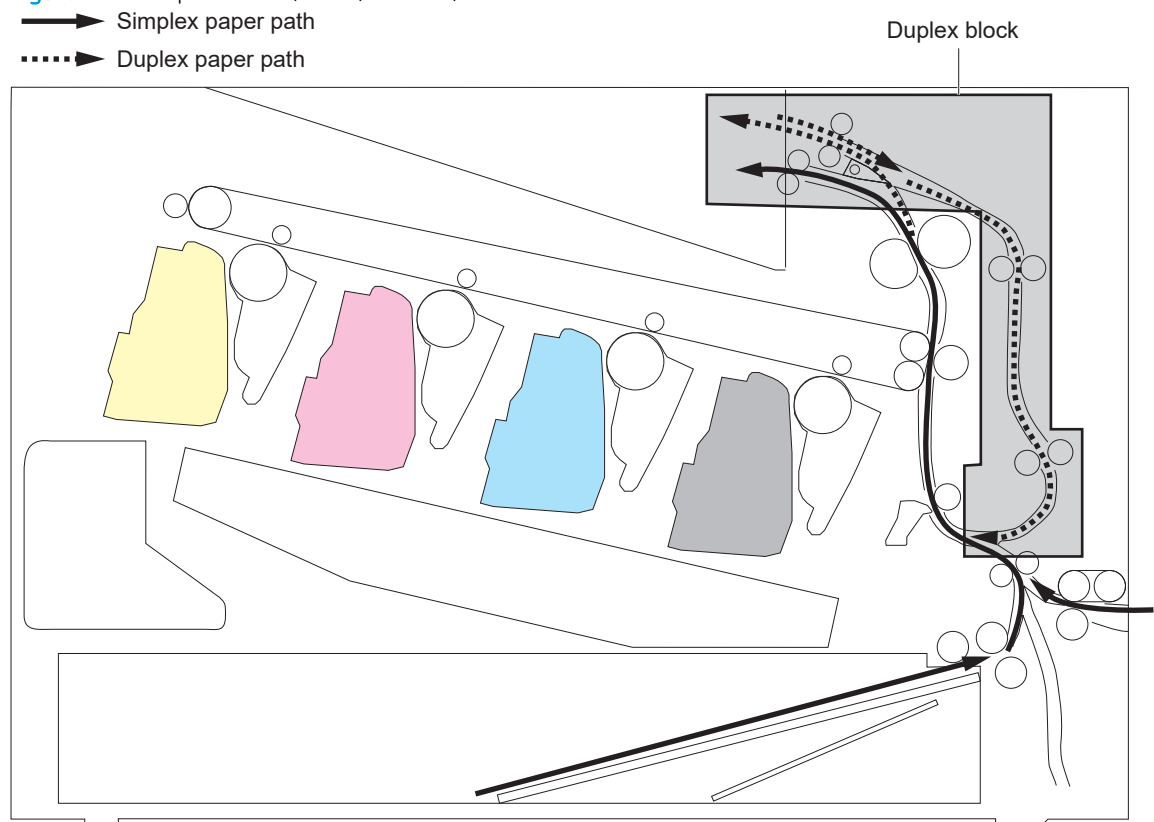


Figure 1-28 Fuser-and-delivery and pickup-and-feed blocks (M856/E85055/M776dn/M776z)

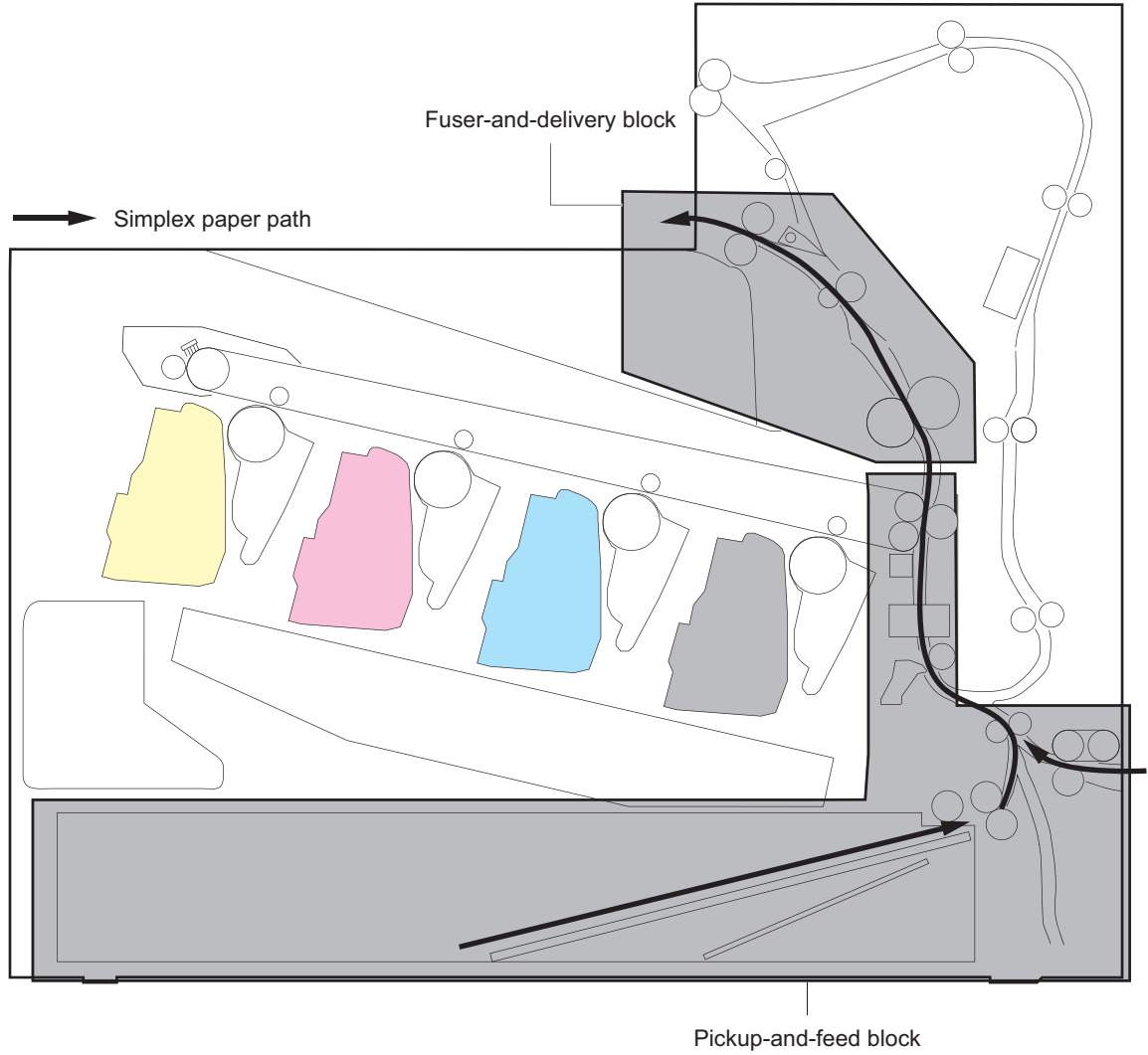


Figure 1-29 Duplex block (M856/E85055/M776dn/M776z)

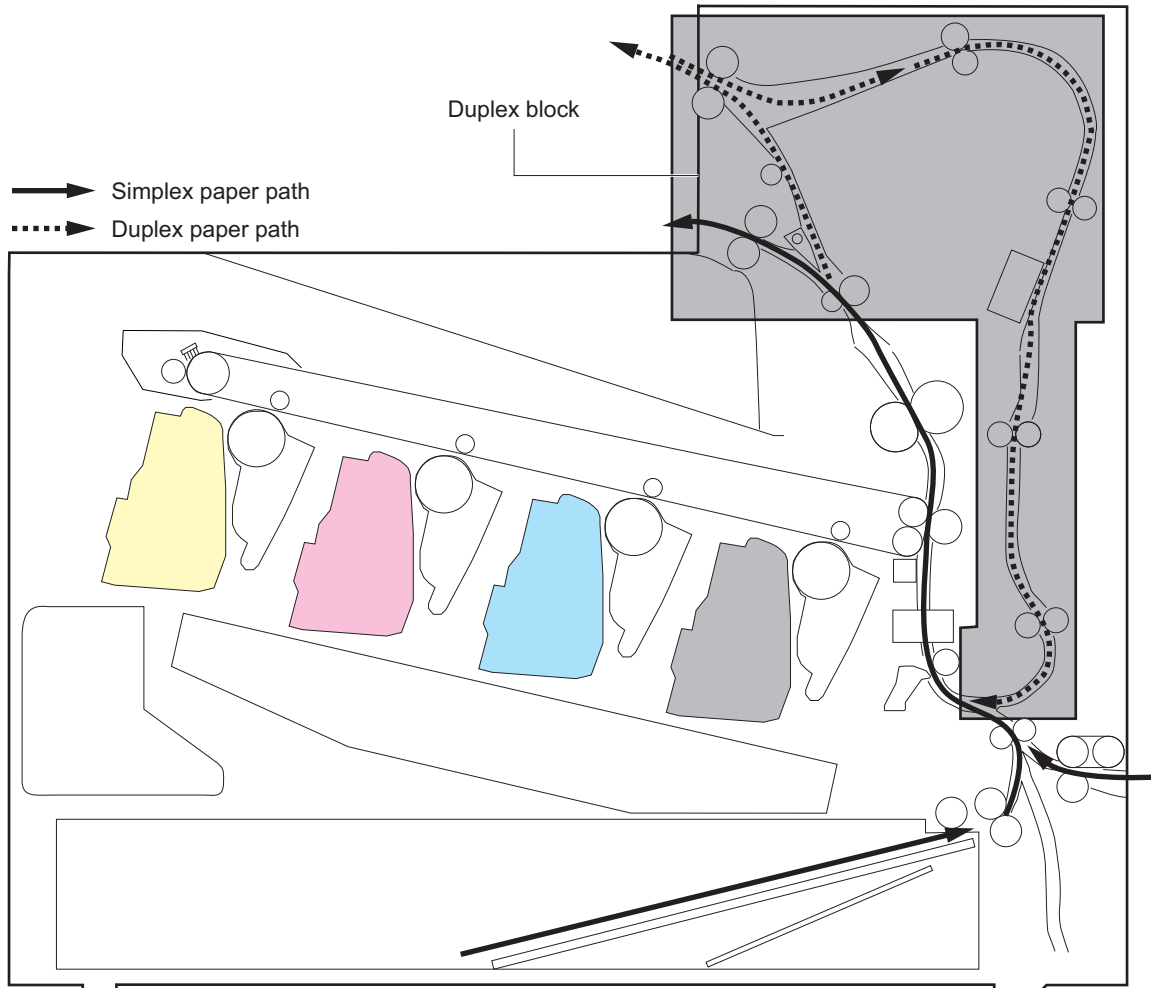


Figure 1-30 Fuser-and-delivery and pickup-and-feed blocks (M776zs)

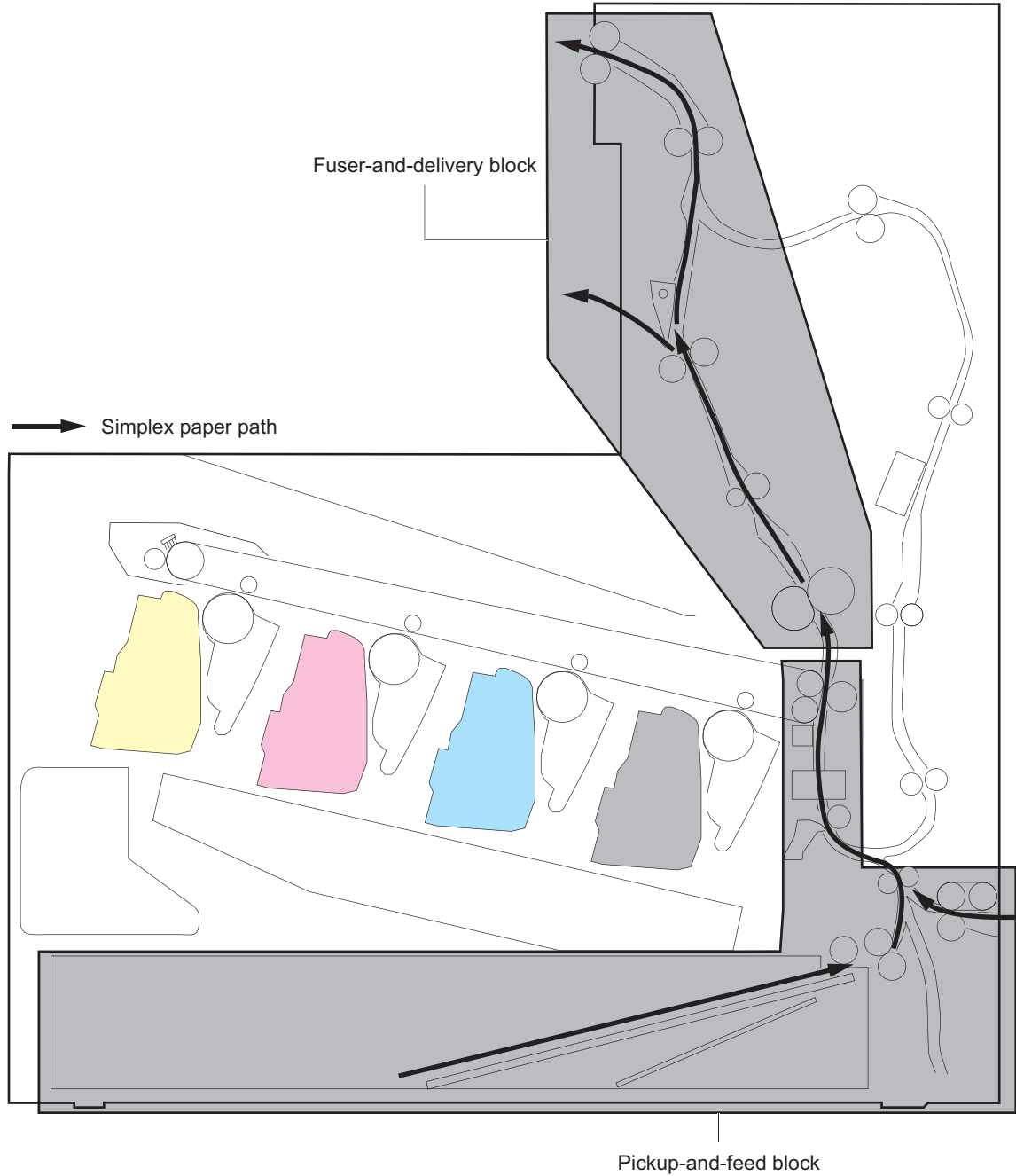


Figure 1-31 Duplex block (M776zs)

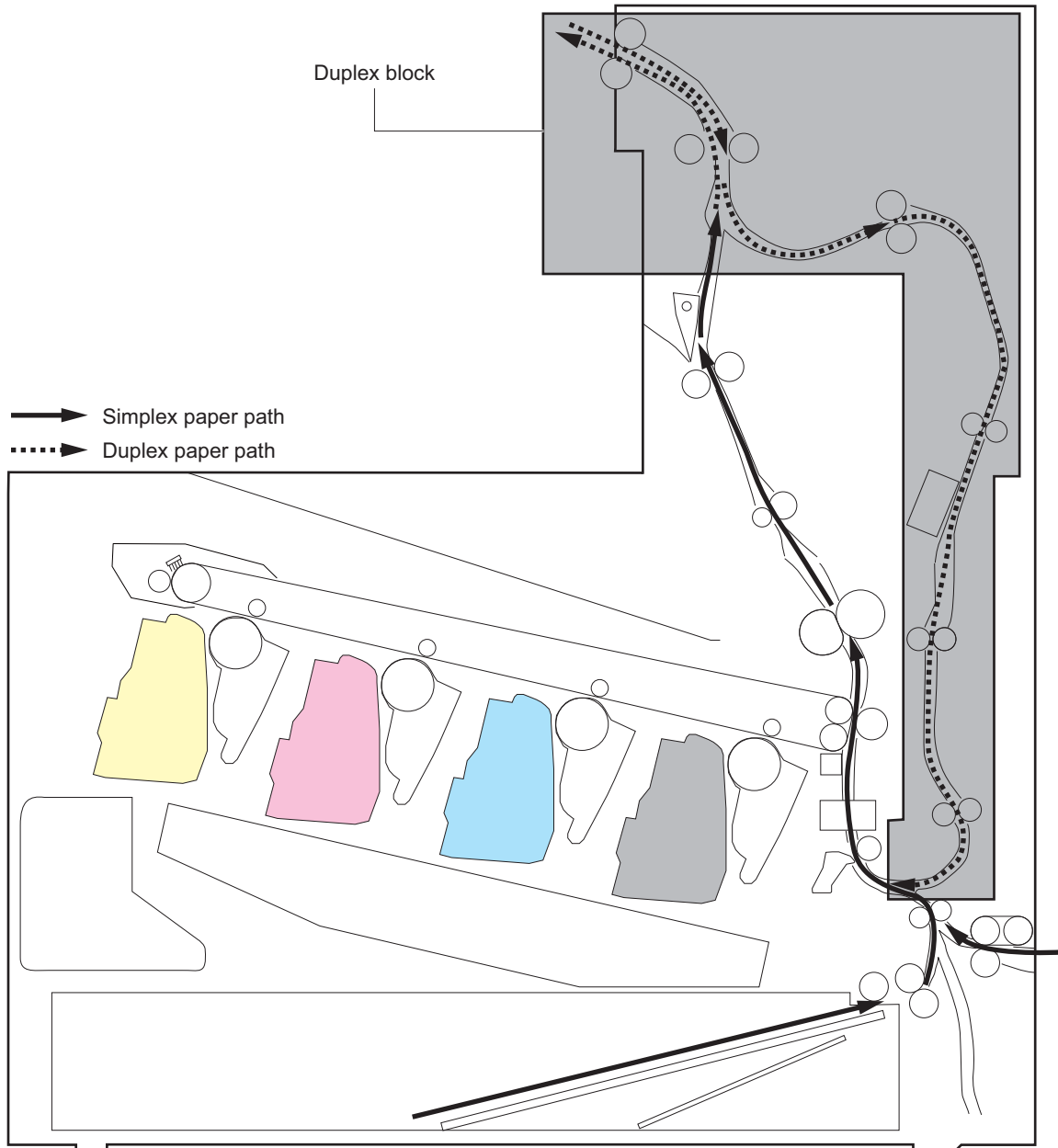


Photo sensors and switches

Learn about the printer paper handling sensors and switches.

The following figures show the photo sensors and switches for the paper handling system.

Figure 1-32 Photo sensors and switches (M751/E75245)

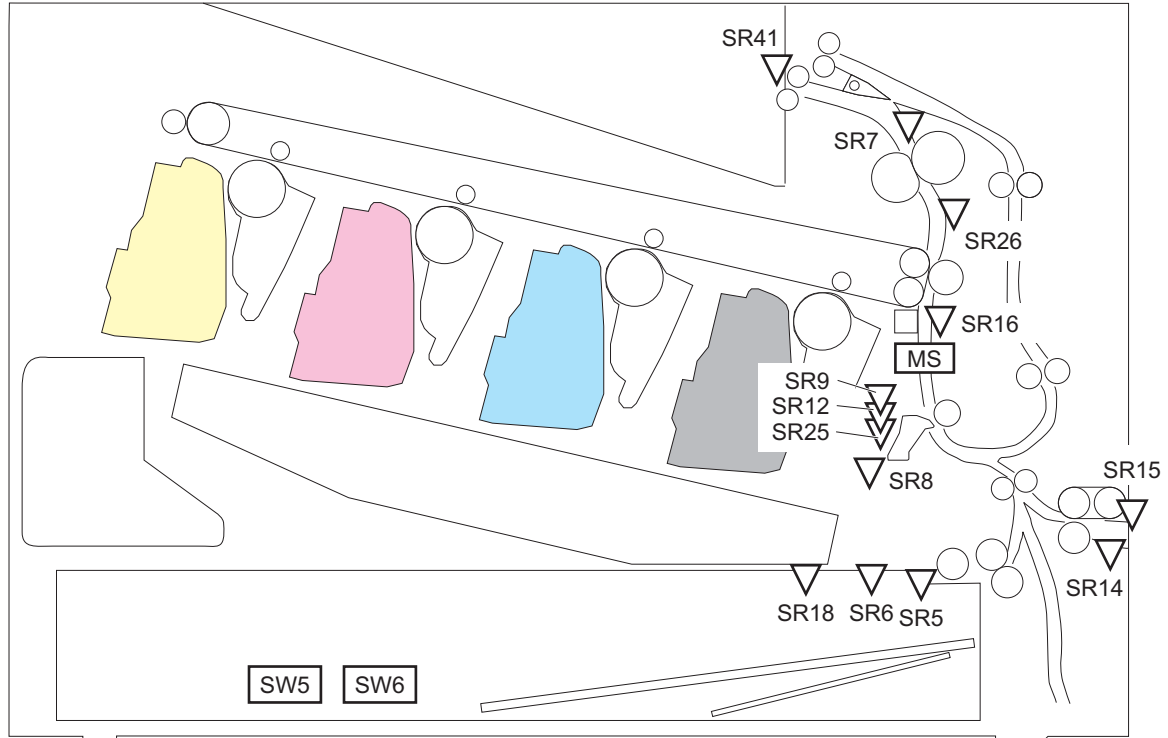


Table 1-21 Photo sensors and switches (M751/E75245)

Abbreviation	Component
SR5	Tray 2 media surface sensor
SR6	Tray 2 media out sensor
SR7	Fuser output sensor
SR8	Registration sensor
SR9	Registration media width sensor 1
SR12	Registration media width sensor 3
SR14	Tray 1 last media sensor
SR15	Tray 1 media out sensor
SR16	Fuser loop sensor 1
SR18	Tray 2 media level sensor
SR25	Registration media width sensor 2
SR26	Fuser loop sensor 2
SR41	FD1 media full sensor
MS	Media sensor
SW5	Tray 2 media width size switch
SW6	Tray 2 media length size switch/Tray 2 presence switch

Figure 1-33 Photo sensors and switches (M856/E85055/M776dn/M776z)

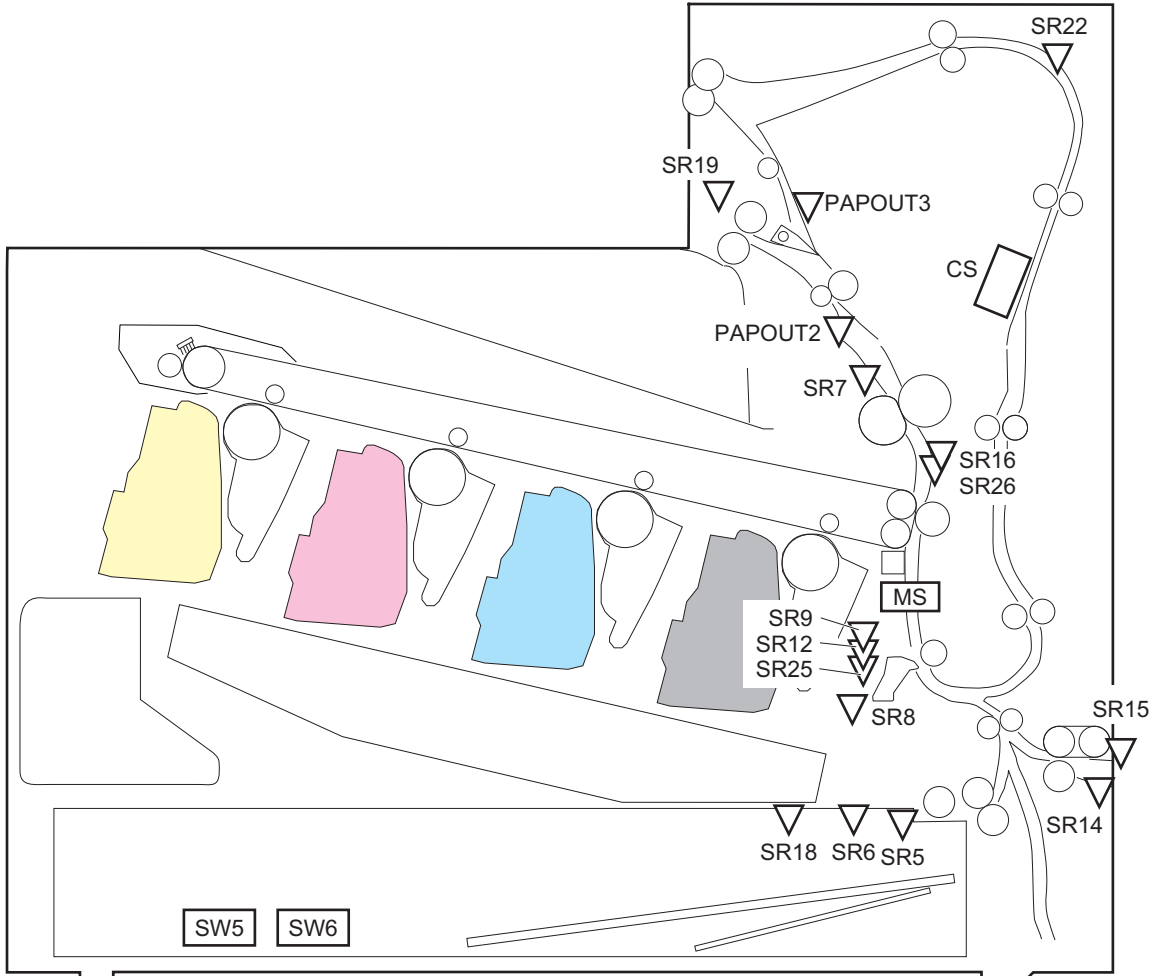


Table 1-22 Photo sensors and switches (M856/E85055/M776dn/M776z)

Abbreviation	Component
SR5	Tray 2 media surface sensor
SR6	Tray 2 media out sensor
SR7	Fuser output sensor
SR8	Registration sensor
SR9	Registration media width sensor 1
SR12	Registration media width sensor 3
SR14	Tray 1 last media sensor
SR15	Tray 1 media out sensor
SR16	Fuser loop sensor 1
SR18	Tray 2 media level sensor
SR22	Duplex feed sensor
SR25	Registration media width sensor 2
SR26	Fuser loop sensor 2

Table 1-22 Photo sensors and switches (M856/E85055/M776dn/M776z) (continued)

Abbreviation	Component
PAPOUT2	Fuser output sensor 2
PAPOUT3	Fuser output sensor 3
CS	Color sensor
MS	Media sensor
SW5	Tray 2 media width size switch
SW6	Tray 2 media length size switch/Tray 2 presence switch

Figure 1-34 Photo sensors and switches (M776zs)

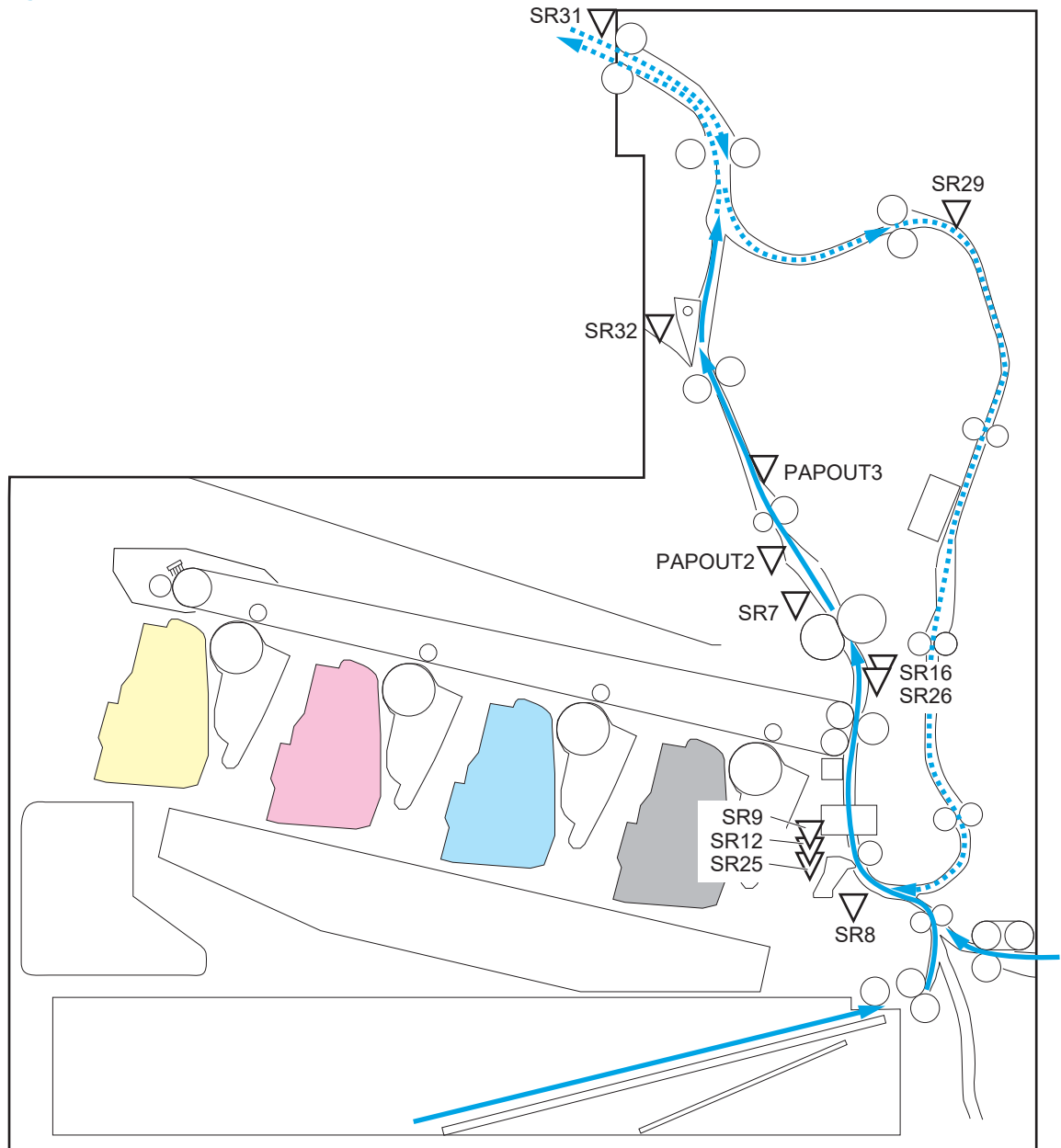


Table 1-23 Photo sensors and switches (M776zs)

Abbreviation	Component
SR5	Tray 2 media surface sensor
SR6	Tray 2 media out sensor
SR7	Fuser output sensor
SR8	Registration sensor
SR9	Registration media width sensor 1
SR12	Registration media width sensor 3
SR14	Tray 1 last media sensor
SR15	Tray 1 media out sensor
SR16	Fuser loop sensor 1
SR18	Tray 2 media level sensor
SR25	Registration media width sensor 2
SR26	Fuser loop sensor 2
SR29	Duplex feed sensor
SR31	FD1 media full sensor
SR32	FD2 media full sensor
PAPOUT2	Fuser output sensor 2
PAPOUT3	Fuser output sensor 3
CS	Color sensor
MS	Media sensor
SW5	Tray 2 media width size switch
SW6	Tray 2 media length size switch/Tray 2 presence switch

Motors, clutches, and solenoids

Learn about the printer paper handling motors, clutches, and solenoids.

The following figures show the motors, clutches, and solenoids for the paper handling system.

Figure 1-35 Motors, solenoids, and clutches (M751/E75245)

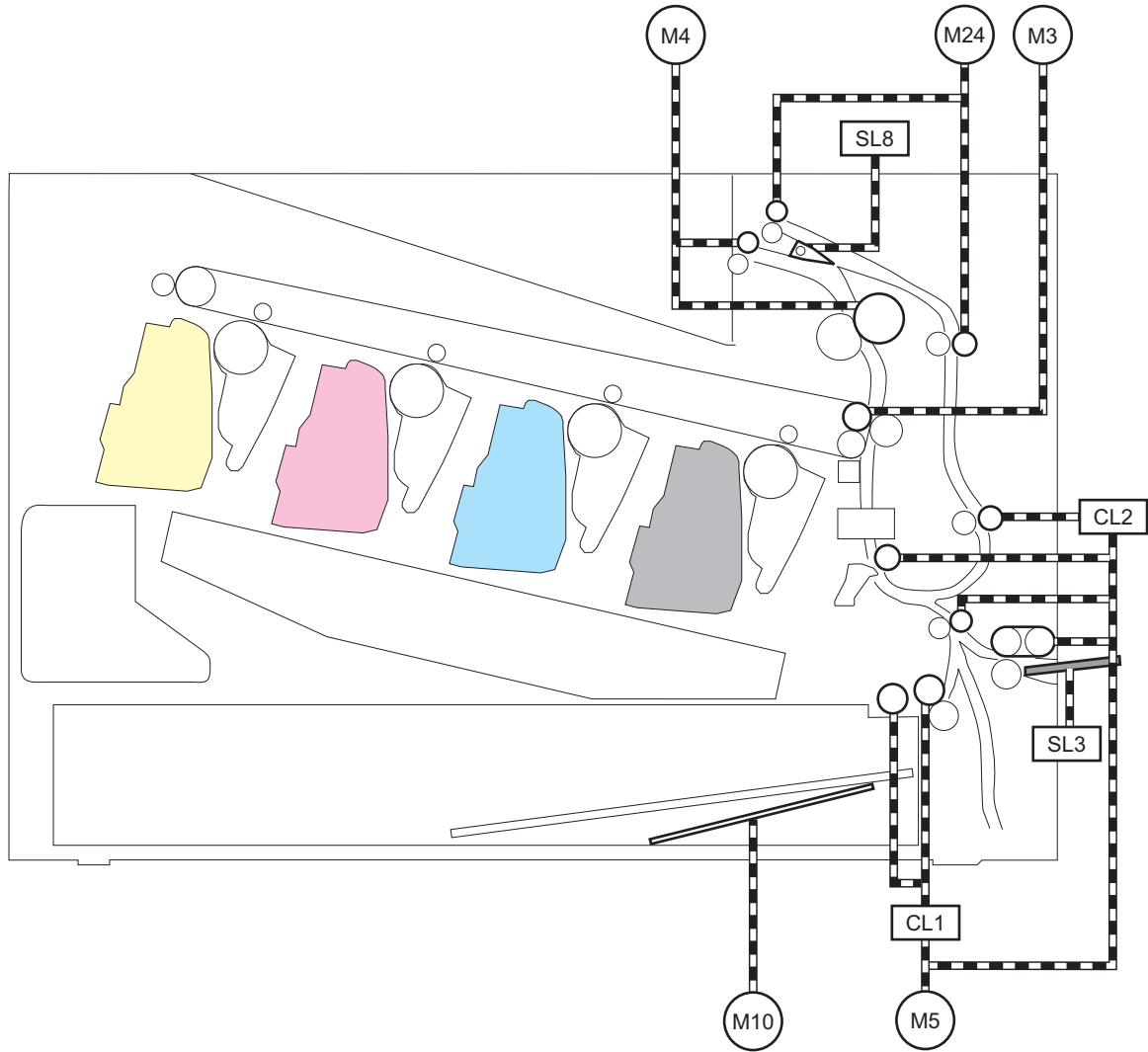


Table 1-24 Motors, solenoids, and clutches (M751/E75245)

Abbreviation	Component
M3	Drum motor 3
M4	Fuser motor
M5	Feed motor
M10	Lifter motor
M24	Duplex switchback motor
SL3	Tray 1 pickup solenoid
SL8	Duplex flapper solenoid
CL1	Tray 2 pickup clutch
CL2	Duplex re-pickup clutch

Figure 1-36 Motors, solenoids, and clutches (M856/E85055/M776dn/M776z)

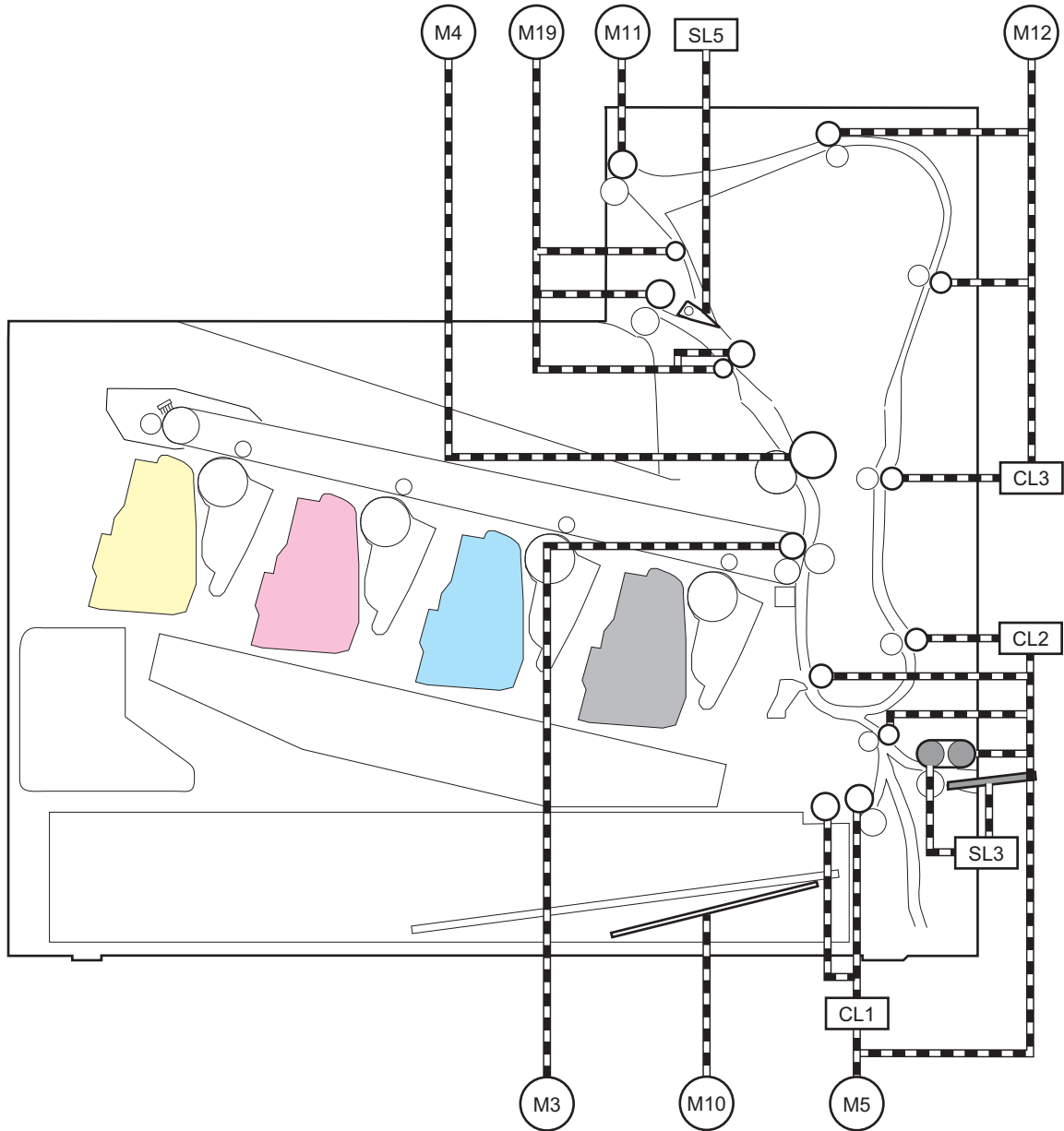


Table 1-25 Motors, solenoids, and clutches (M856/E85055/M776dn/M776z)

Abbreviation	Component
M3	Drum motor 3
M4	Fuser motor
M5	Feed motor
M10	Lifter motor
M11	Switchback motor
M12	Duplex motor
M19	Decurl motor
SL3	Tray 1 pickup solenoid

Table 1-25 Motors, solenoids, and clutches (M856/E85055/M776dn/M776z) (continued)

Abbreviation	Component
SL5	Duplex flapper solenoid
CL1	Tray 2 pickup clutch
CL2	Duplex re-pickup clutch
CL3	Duplex clutch

Figure 1-37 Motors, solenoids, and clutches (M776zs)

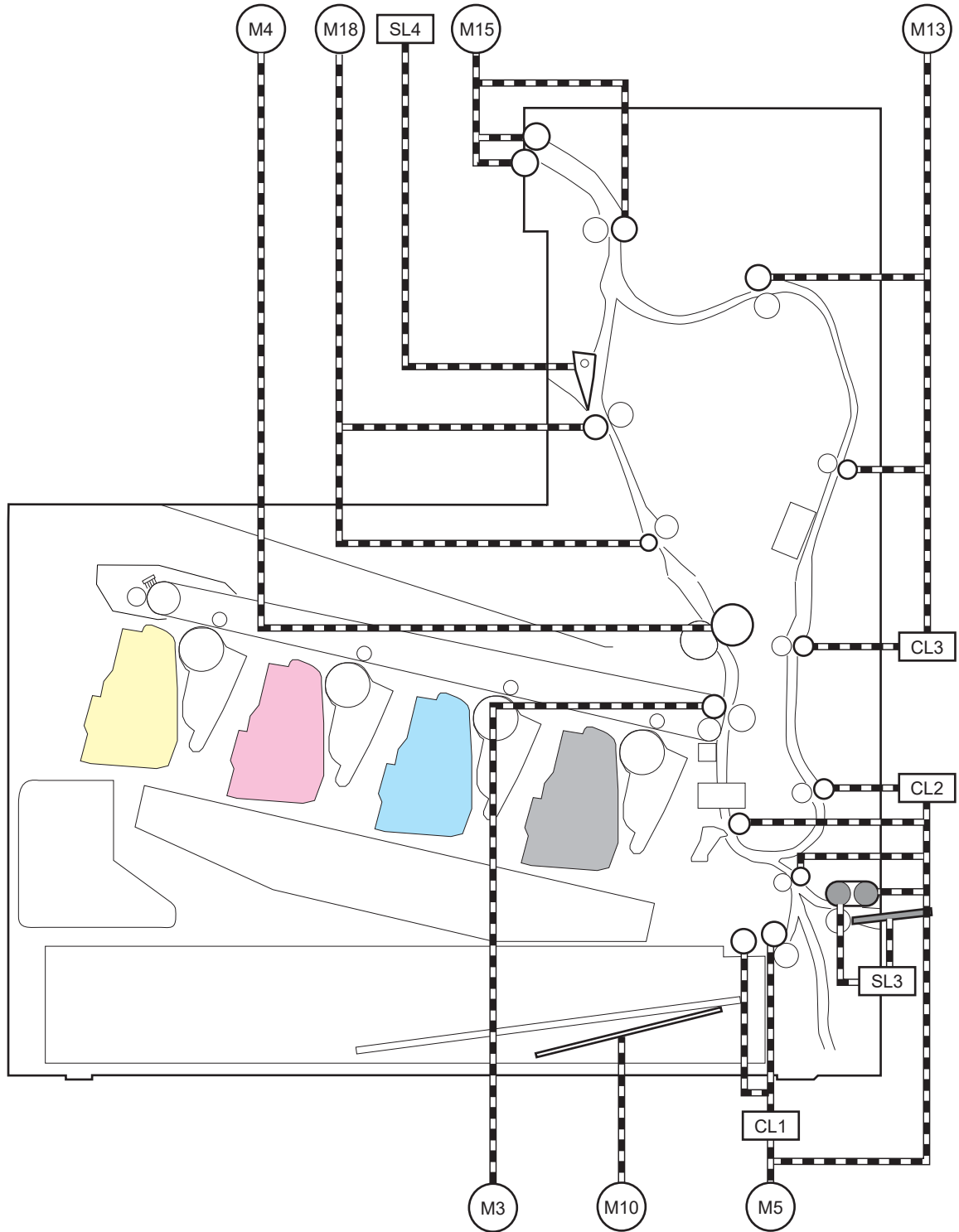


Table 1-26 Motors, solenoids, and clutches (M776zs)

Abbreviation	Component
M3	Drum motor 3
M4	Fuser motor

Table 1-26 Motors, solenoids, and clutches (M776zs) (continued)

Abbreviation	Component
M5	Feed motor
M10	Lifter motor
M13	Duplex motor
M15	Switchback motor
M18	Decurl motor
SL3	Tray 1 pickup solenoid
SL4	Duplex flapper solenoid
CL1	Tray 2 pickup clutch
CL2	Duplex re-pickup clutch
CL3	Duplex clutch

Paper trays

Learn about the printer tray functions.

Moving paper from Tray 1 and Tray 2 involves the interaction of multiple components within the printer. The following sections describe these processes.

Tray 2 media type detection

Learn about the Tray 2 media type detection.

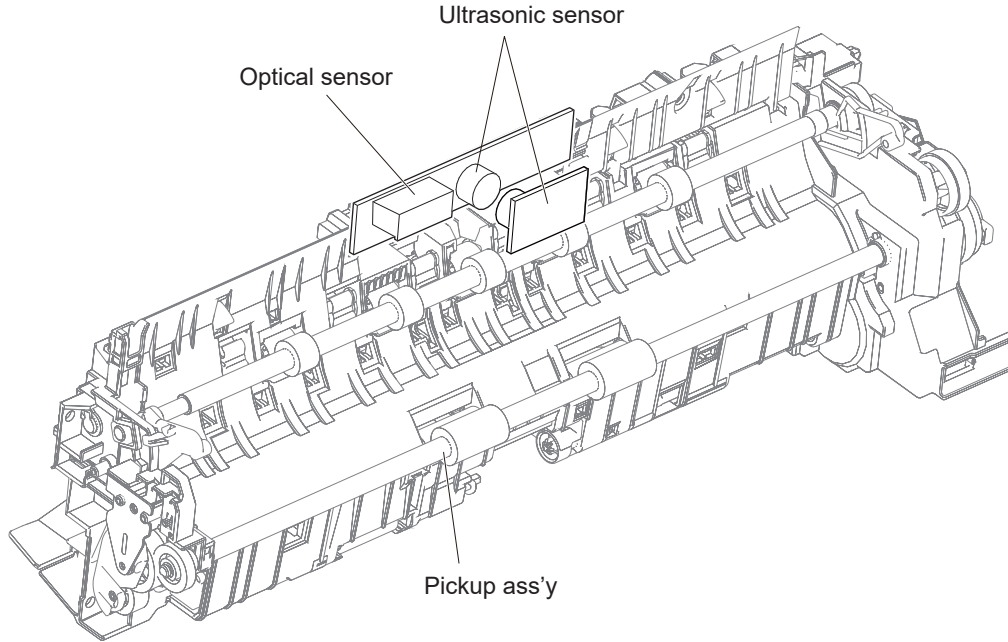
The printer selects the optimal print mode based upon the media type detected by the media sensor. The media sensor consists of an optical sensor, which detects the surface texture of the paper, and an ultrasonic sensor, which measures the thickness of the paper. The formatter informs the DC controller that the printer is in auto-sense mode and the DC controller changes the fuser mode based on media type.

Following are the print modes detected by the printer:

- Normal
- Heavy media 1
- Heavy media 2
- Heavy media 3
- Light media 1
- Glossy media 1
- Glossy media 2
- Glossy media 3
- Glossy film
- Overhead transparency

The DC controller determines a media sensor error and reports it to the formatter when the value detected by the media sensor is out of a specified range of values.

Figure 1-38 Media sensor



Feed speed control

Learn about the printer paper handling feed speed control function.

The DC controller adjusts the feed speed to improve the print quality depending on the paper type. The paper is fed at a specified speed according to the print mode designated by the formatter.

Table 1-27 Print mode and feed speed

Print mode	Feed speed	Feed speed	Media sensor detection
	Full color	Monochrome	
Auto	Not applicable	Not applicable	Yes
Normal media 1	1/1	1/1	Yes
Normal media 2	Not applicable	Not applicable	No
Heavy media 1	3/4	3/4	Yes
Heavy media 2	1/2	1/2	Yes
Heavy media 3	1/3	1/3	Yes
Heavy media 4	1/3	1/3	No
Heavy media 5	1/3	1/3	No
Heavy media 6	Not applicable	Not applicable	No
Light media 1	1/1	1/1	Yes
Light media 2	1/1	1/1	No
Light media 3	1/1	1/1	No
Glossy media 1	1/3	1/3	Yes
Glossy media 2	1/3	1/3	Yes

Table 1-27 Print mode and feed speed (continued)

Print mode	Feed speed	Feed speed	Media sensor detection
	Full color	Monochrome	
Glossy media 3	1/3	1/3	Yes
Glossy film	1/3	1/3	Yes
Photo media 1	Not applicable	Not applicable	No
Photo media 2	Not applicable	Not applicable	No
Photo media 3	Not applicable	Not applicable	No
Envelope 1	1/2	1/2	No
Envelope 2	Not applicable	Not applicable	No
Envelope 3	Not applicable	Not applicable	No
OHT	1/3	1/3	Yes
Extra light media	Not applicable	Not applicable	No
Label	1/2	1/2	No
Designated media 1 (rough media)	3/4	3/4	No
Designated media 2	No	No	No
Designated media 3 (light rough media)	3/4	3/4	No
LGT mode	1/3	1/3	No

Table 1-28 Paper handling system functions

Function	Supported
Tray 2 media size detection	Yes
Tray 2 presence detection	Yes
Tray 2 media surface detection	Yes
Tray 2 media presence detection	Yes
Tray 2 media level detection	Yes
Tray 2 lift-up control	Yes
Tray 2 lift-down control	Yes
Tray 2 multiple-feed prevention mechanism	Yes
Tray 2 pickup roller presence detection	Yes
Tray 2 pickup roll alienation detection	Yes
Tray 1 media presence detection	Yes
Tray 1 media width detection	No
Tray 1 last-media detection	Yes
Skew-feed prevention mechanism	Yes

Table 1-28 Paper handling system functions (continued)

Function	Supported
Feed speed control	Yes
Loop control	Yes
Media detection	Yes
OHT detection	Yes
Image leading edge positioning	Yes
Media length detection	Yes
Media width detection	Yes
Pressure roller pressure release control	Yes
Output bin media-full detection	Yes
Automatic delivery	Yes
Duplex switchback control	Yes
Duplex feed control	Yes

Jam detection

Learn about the printer jam detection function.

The printer 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.

- Registration sensor (SR8)
- Fuser output sensor (SR7)
- Fuser output sensor 2 (PAPOUT2; M856/E85055/M776dn/M776z/M776zs only)
- Fuser output sensor 3 (PAPOUT3; M856/E85055/M776dn/M776z/M776zs only)
- FD1 media full sensor (SR41; M751/E75245 only)
- FD1 media full sensor (SR19; M856/E85055/M776dn/M776z only)
- FD1 media full sensor (SR31; M776zs only)
- Duplex feed sensor (SR22; M856/E85055/M776dn/M776z only)
- Duplex feed sensor (SR29; M776zs only)
- Registration media width sensor 1 (PS9; M856/E85055/M776dn/M776z/M776zs only)
- Registration media width sensor 2 (PS12; M856/E85055/M776dn/M776z/M776zs only)
- Registration media width sensor 3 (PS25; M856/E85055/M776dn/M776z/M776zs only)
- PF feed sensor (PS24) – 550-sheet tray only
- PD cassette 1 feed sensor (PS15) – 2x550-sheet tray only

- PD cassette 2 feed sensor (PS18) – 2x550-sheet tray only
- HCI cassette 1 feed sensor (PS33) – high-capacity input (HCI) tray only
- HCI cassette 2 feed sensor (PS36) – HCI tray only
- HCI feed sensor (PS38) – HCI tray only

Figure 1-39 Jam detection sensors (M751/E75245 and 550-sheet tray)

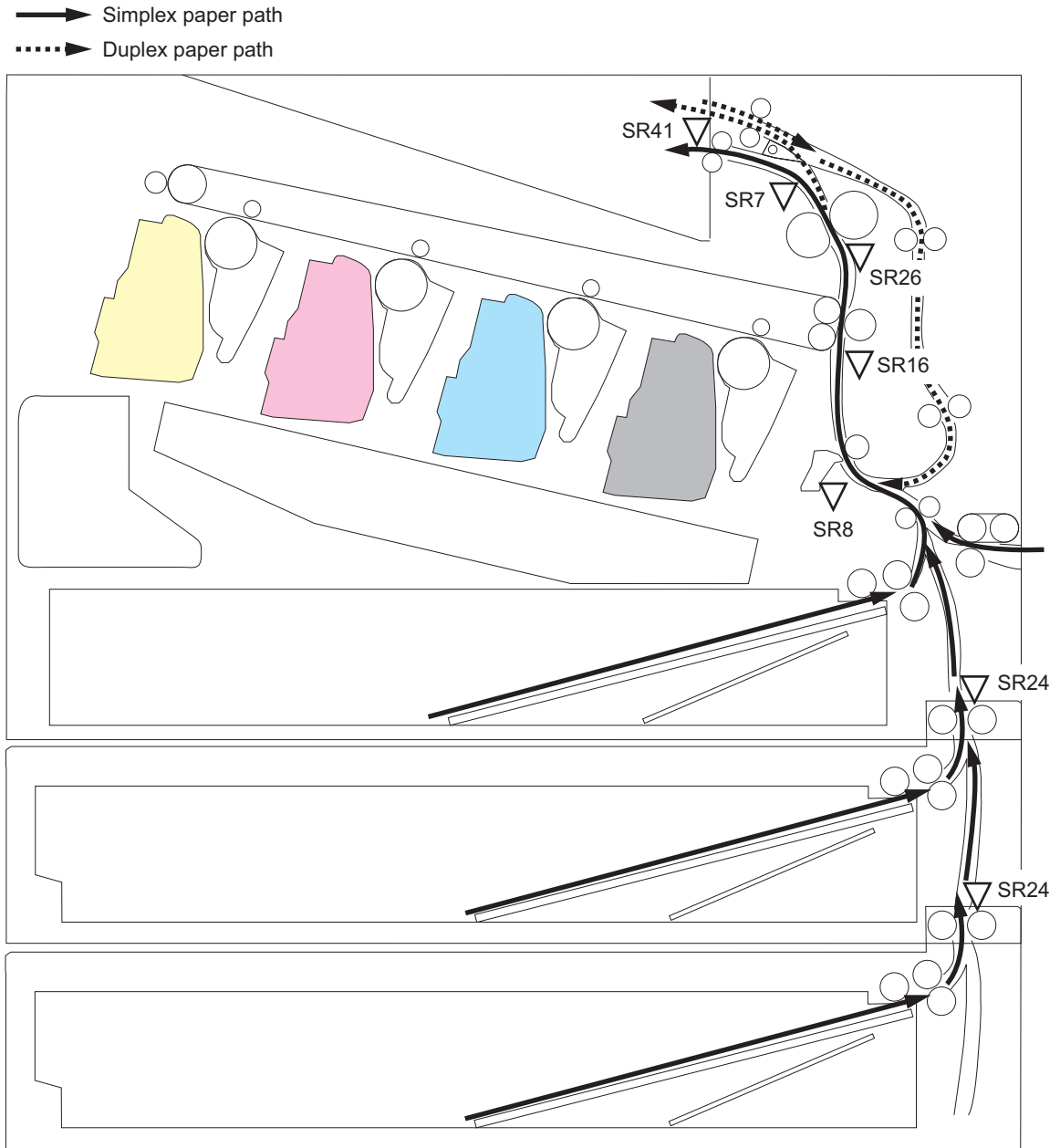


Figure 1-40 Jam detection sensors (M751/E75245 and 2x550-sheet tray)

- ▶ Simplex paper path
-▶ Duplex paper path

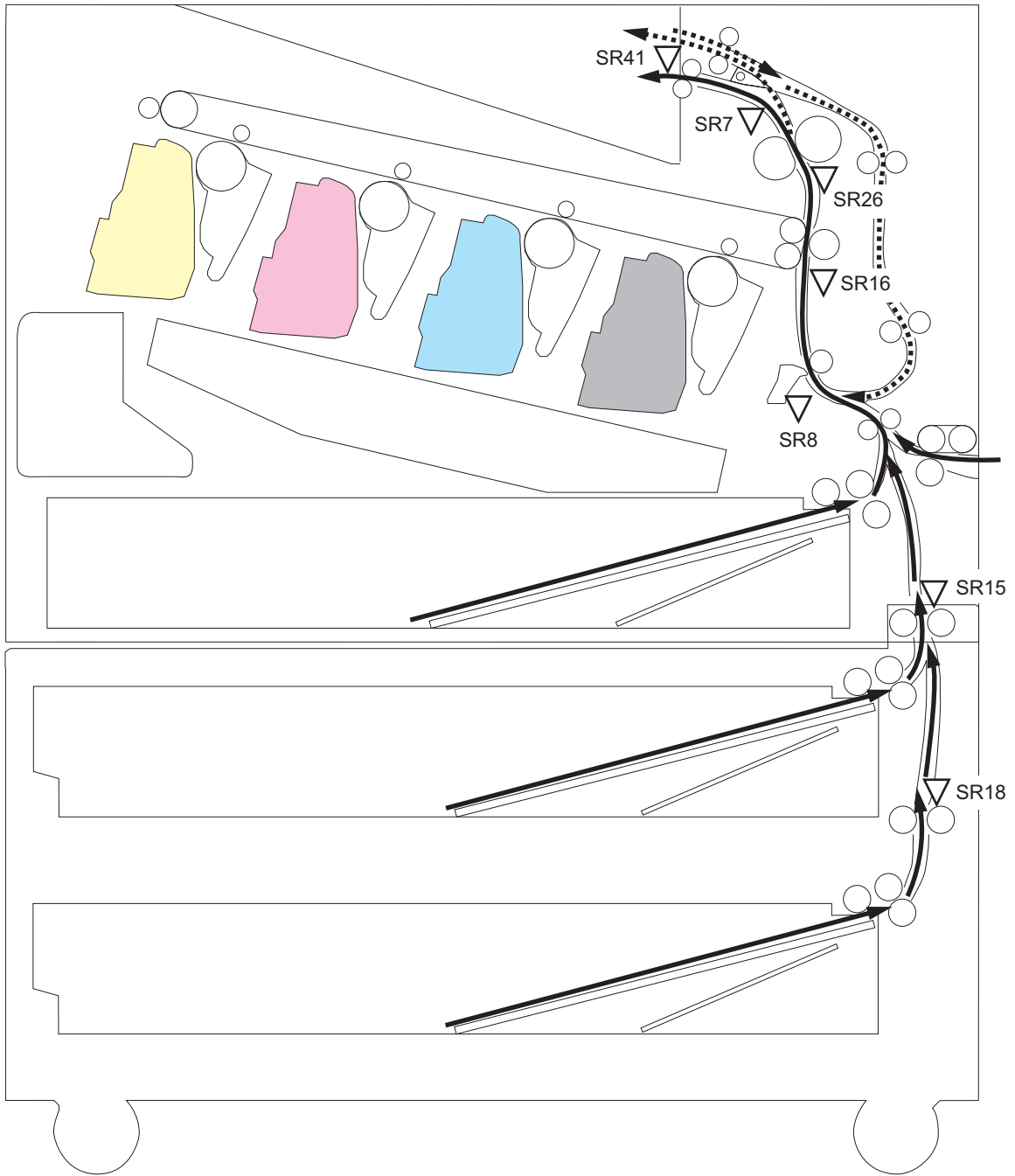


Figure 1-41 Jam detection sensors (M751/E75245 and HCI tray)

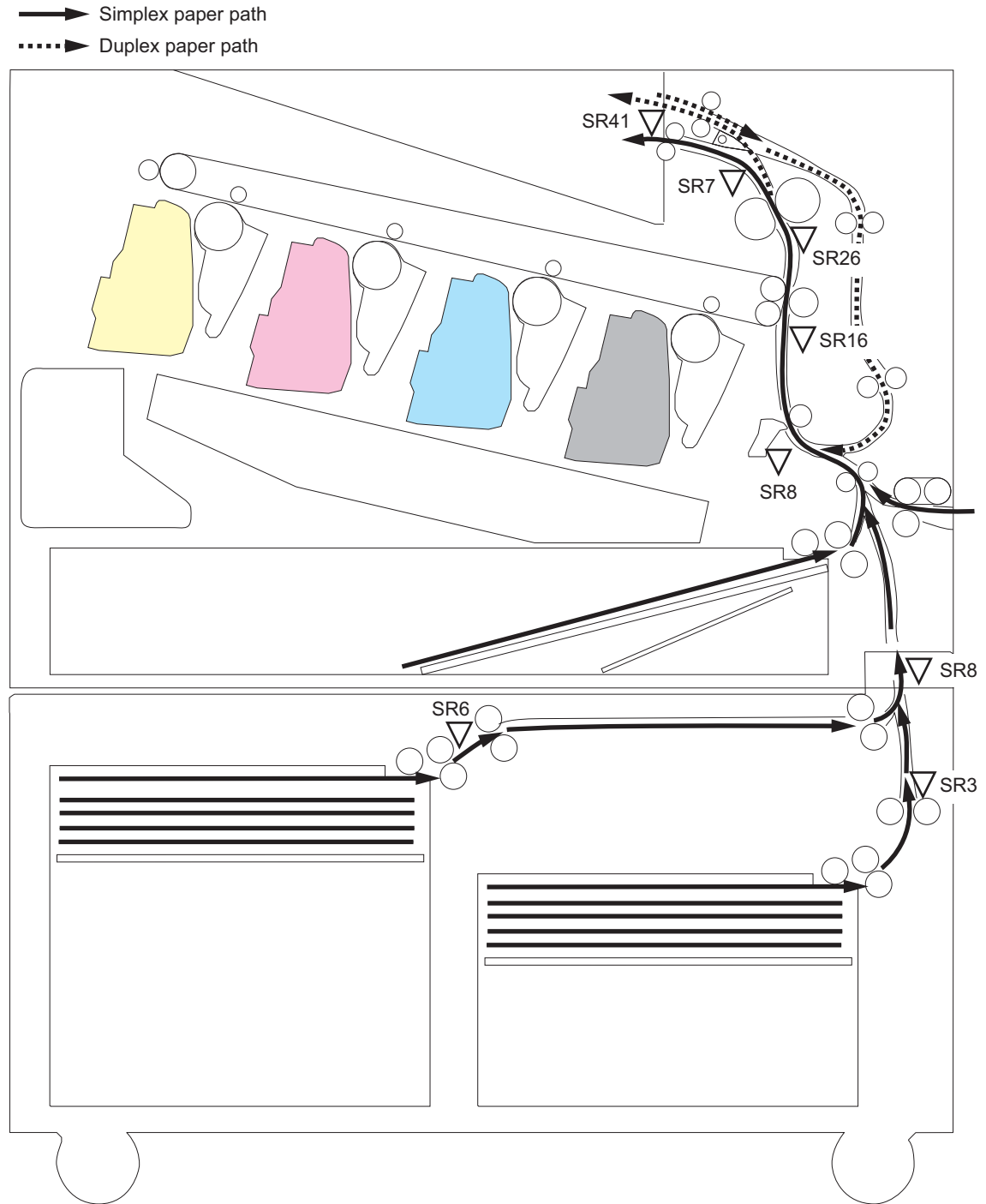


Figure 1-42 Jam detection sensors (M856/E85055/M776dn/M776z)

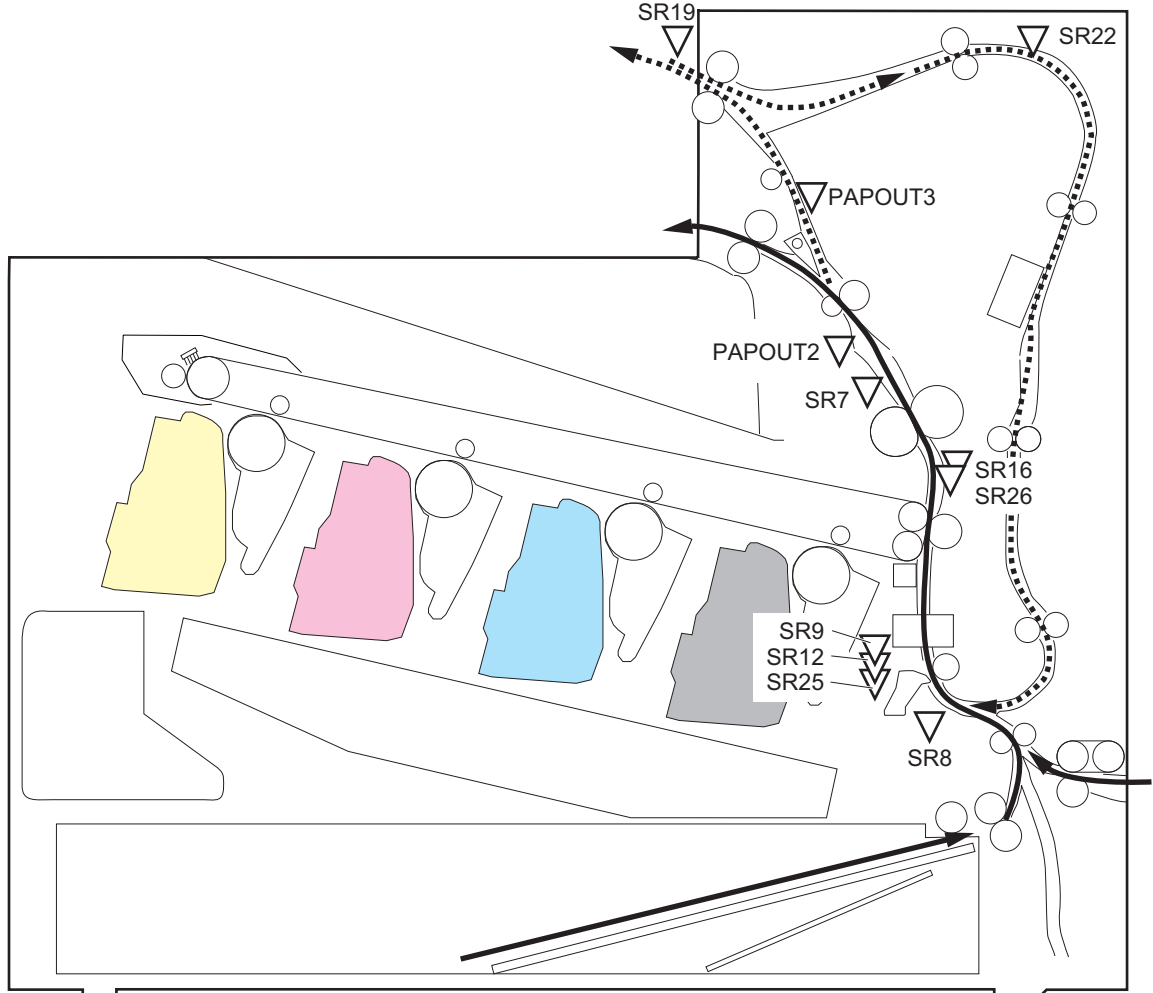


Figure 1-43 Jam detection sensors (M776zs)

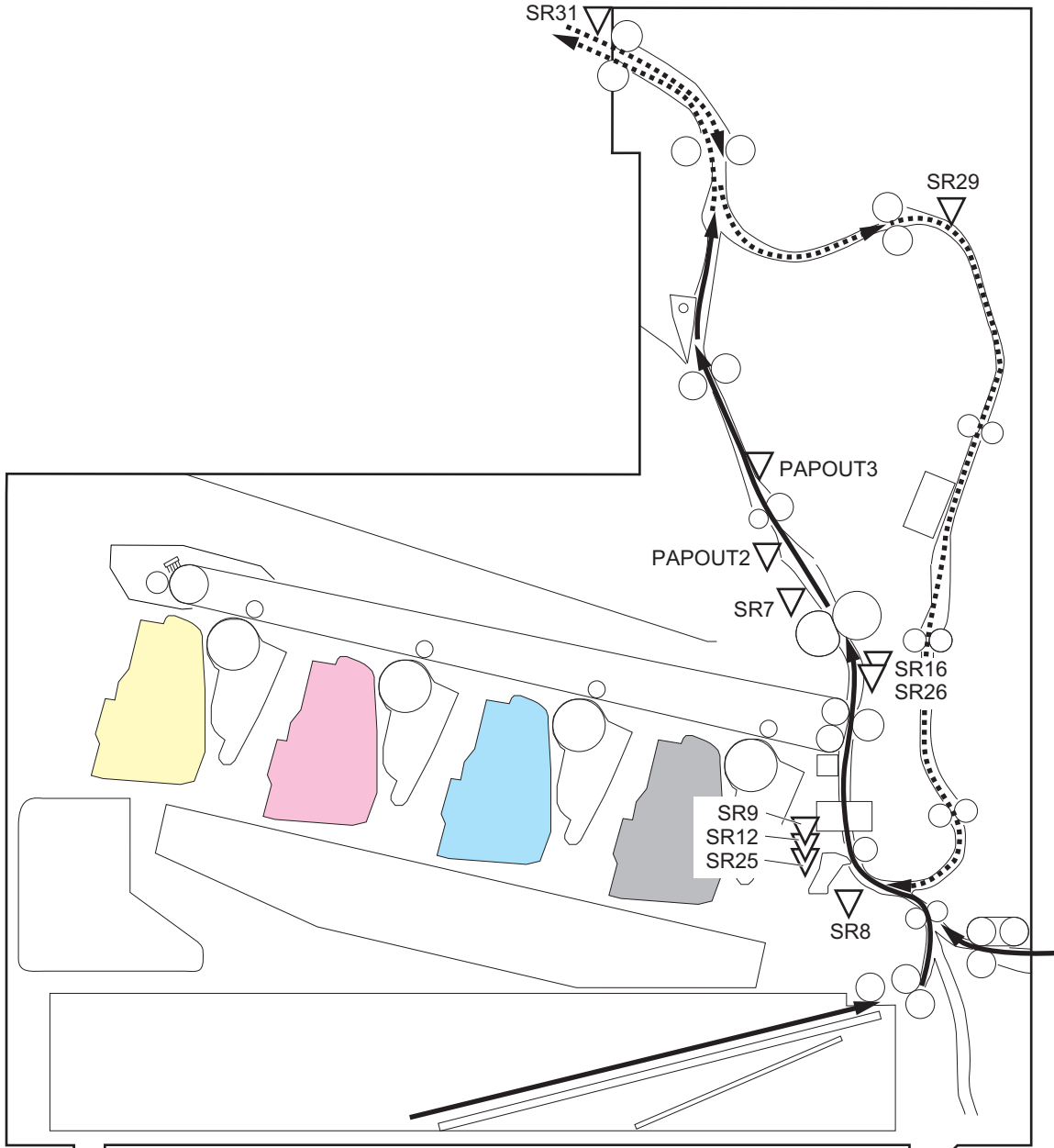


Table 1-29 Jams that the printer detects

Jam	Supported feature
No pick jam 1	Yes
No pick jam 2	Yes
No pick jam 3	Yes
No pick jam 4	No
Pickup stay jam 1	Yes
Pickup stay jam 2	No
Pickup stay jam 3	No

Table 1-29 Jams that the printer detects (continued)

Jam	Supported feature
Pickup stay jam 4	No
Fuser delivery delay jam 1	Yes
Fuser delivery delay jam 2	No
Fuser delivery delay jam 3	No
Fuser delivery delay jam 4	No
Fuser delivery stay jam 1	Yes
Fuser delivery stay jam 2	No
Fuser delivery stay jam 3	No
Fuser delivery stay jam 4	No
Residual paper jam 1	Yes
Residual paper jam 2	No
Residual paper jam 3	No
Residual paper jam 4	No
Door open jam 1	Yes
Door open jam 2	No
Door open jam 3	No
Door open jam 4	No
Multiple feed jam 1	No
Multiple feed jam 2	No
Multiple feed jam 3	No
Multiple feed jam 4	No
Fuser wrap jam 1	Yes
Fuser wrap jam 2	No
Fuser wrap jam 3	No
Fuser wrap jam 4	No
Duplex switchback jam 1	No
Duplex switchback jam 2	No
Duplex switchback jam 3	No
Duplex switchback jam 4	No
Duplex re-pickup jam 1	No
Duplex re-pickup jam 2	No
Duplex re-pickup jam 3	No
Duplex re-pickup jam 4	No

Table 1-29 Jams that the printer detects (continued)

Jam	Supported feature
Delivery delay jam 1	Yes
Delivery delay jam 2 (M776zs only)	Yes
Delivery delay jam 3	No
Delivery delay jam 4	No
Delivery stay jam 1 (M776zs only)	Yes
Delivery stay jam 2	No
Delivery stay jam 3	No
Delivery stay jam 4	No
Duplex feed delay jam 1	No
Duplex feed stay jam 1	No
Duplex re-pickup delay jam 1	Yes
Inappropriate to the delivery path jam 1 (M776zs only)	Yes
Inappropriate to the delivery path jam 2 (M856/E85055/M776dn/ M776z only)	Yes
Transfer area wrapping jam	Yes

Input accessories

Optional paper feeders are available for this printer.

The printer supports up to two 550-sheet trays in addition to one 2x550-sheet tray or one high-capacity input (HCI) tray.

550-sheet paper tray

The 550-sheet paper tray is installed under the printer. It picks up paper and feeds it into the printer.

 **NOTE:** The printer supports one or two 550-sheet paper trays.

Figure 1-44 550-sheet paper tray paper path



Table 1-30 550-sheet paper tray supported functions

Function	Supported feature
Cassette lift-up control	Yes
Cassette presence detection	Yes
Cassette media size detection	Yes
Cassette media stack surface detection	Yes
Cassette media out detection	Yes
Cassette media level detection	Yes
Multiple-feed prevention	Yes
Cassette pickup roller presence detection	Yes

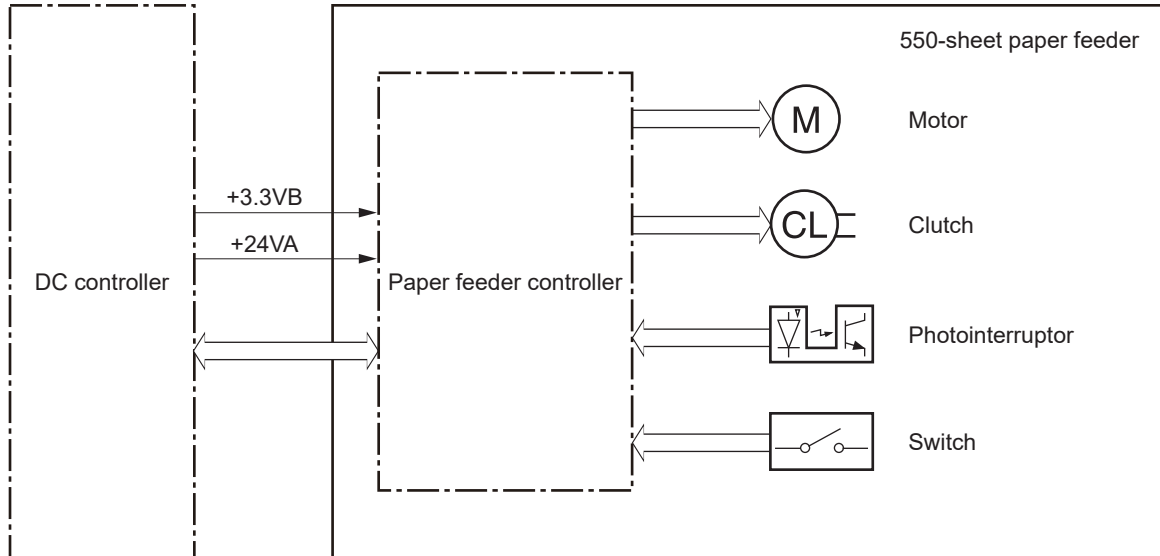
Table 1-30 550-sheet paper tray supported functions (continued)

Function	Supported feature
Cassette pickup roller alienation detection	Yes
Automatic delivery	Yes

Controller

The 550-sheet paper tray controller controls the operational sequence of the paper tray.

Figure 1-45 550-sheet paper tray controller



Motor control

The 550-sheet paper tray contains two motors that control paper feed and tray lift operations.

Table 1-31 550-sheet paper feeder motors

Abbreviation	Component name	Drives
M14	PF feed motor	Tray pickup and feed rollers
M15	PF lifter motor	Tray lift mechanism

Electrical components

The 550-sheet paper tray contains several motors, solenoids, sensors, and switches.

Table 1-32 550-sheet paper tray electrical components

Component type	Abbreviation	Component name
Motor	M14	Feed motor
Motor	M15	Lifter motor
Clutch	CL6	Pickup clutch

Table 1-32 550-sheet paper tray electrical components (continued)

Component type	Abbreviation	Component name
Photointerrupter	SR21	Lifter motor rotation sensor
Photointerrupter	SR22	Media out sensor
Photointerrupter	SR23	Media surface sensor
Photointerrupter	SR24	Feed sensor
Switch	SW15	Media width size switch
Switch	SW16	Door switch
Switch	SW17	Media length size switch/cassette presence switch
Switch	SW18	Lifting plate position sensor

Paper pickup

The 550-sheet paper tray picks up one sheet from the paper- tray and feeds it to the printer.

Figure 1-46 Paper pickup and feed operation

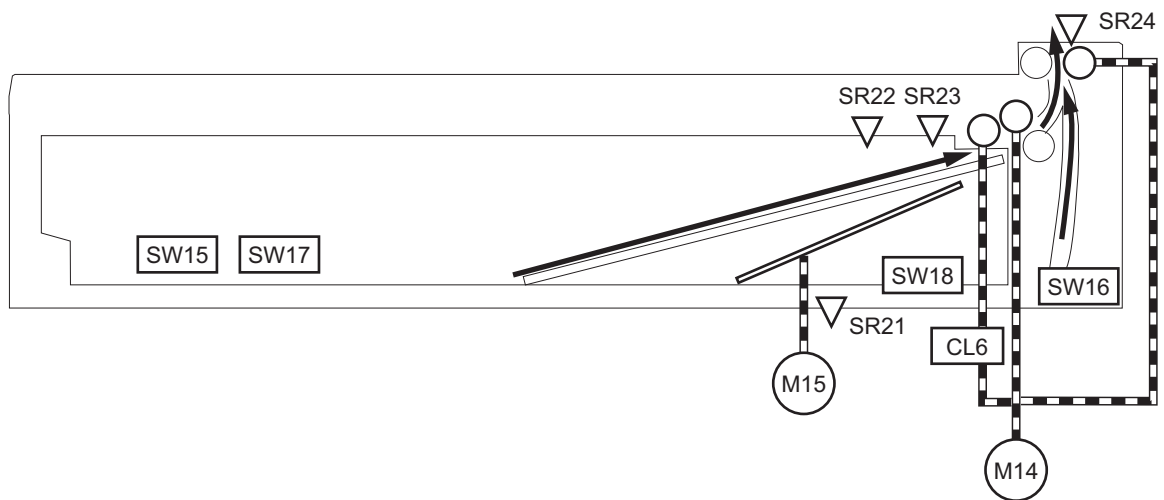


Table 1-33 Paper pickup and feed components

Abbreviation	Component name
M14	Feed motor
M15	Lifter motor
CL6	Pickup clutch
SR21	Lifter motor rotation sensor
SR22	Media out sensor
SR23	Media surface sensor
SR24	Feed sensor
SW15	Media width size switch
SW16	Door switch

Table 1-33 Paper pickup and feed components (continued)

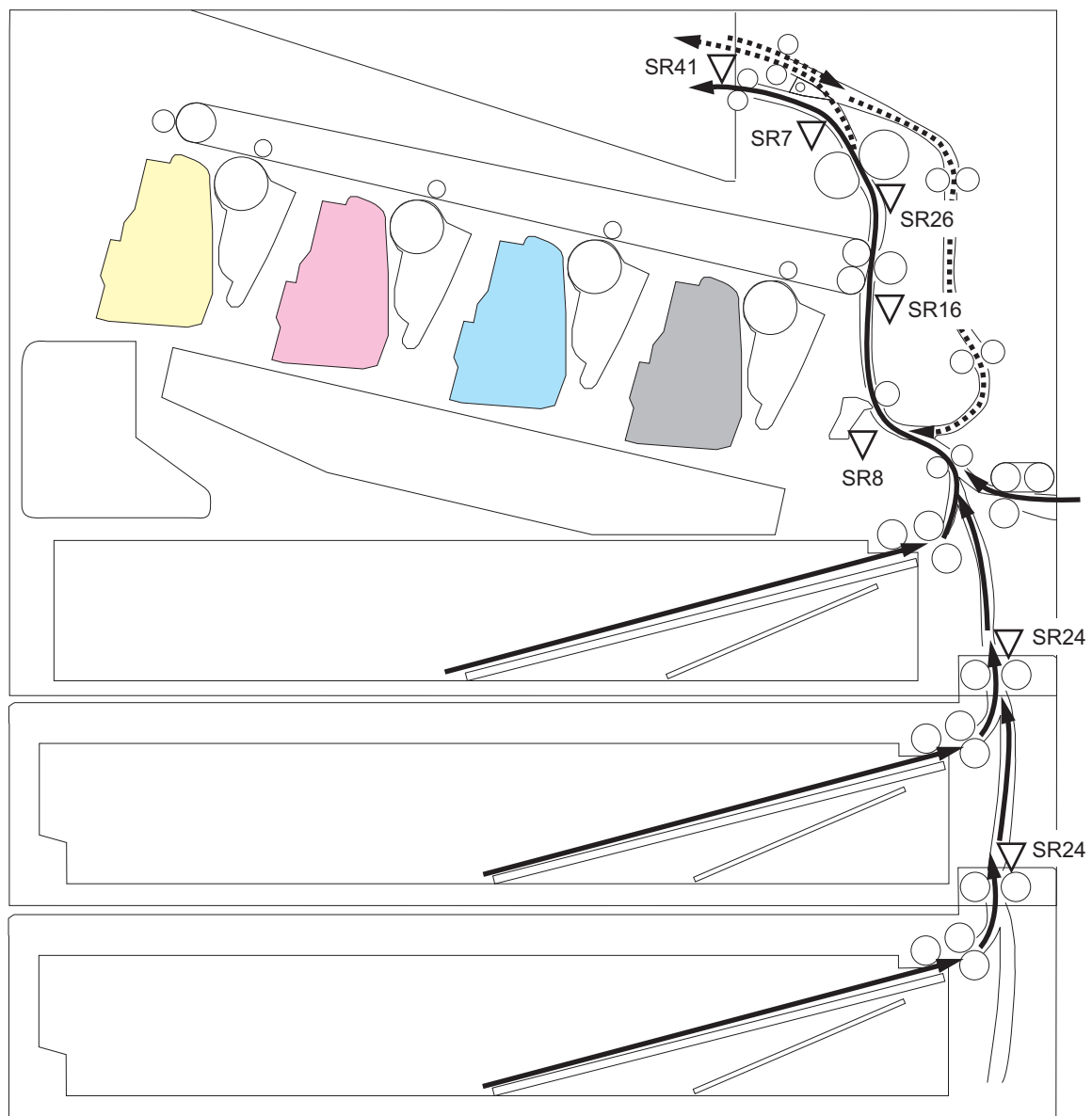
Abbreviation	Component name
SW17	Media length size switch/cassette presence switch
SW18	Lifting plate position sensor

Jam detection

The 550-sheet paper tray uses the paper feeder feed sensor (PS24) to detect the presence of paper and to check whether paper has jammed.

Figure 1-47 Jam detection (550-sheet paper tray)

- ▶ Simplex paper path
-▶ Duplex paper path



The 550-sheet paper feeder detects the following jams:

- **Media input delay jam 1 (550-sheet paper tray):** Paper did not reach the registration sensor in time.
- **Media input delay jam 2 (550-sheet paper tray):** Paper did not reach the source tray feed sensor in time.
- **Media input delay jam 3 (550-sheet paper tray):** Paper did not reach the tray 3 feed sensor in time.
- **Pickup stationary jam (550-sheet paper tray):** The feed sensor does not detect the trailing edge of paper within a specified time after the sensor detects the leading edge.
- **Residual paper jam (550-sheet paper tray):** The feed sensor detects the presence of paper for a specified time during an automatic delivery operation.
- **Right door open jam (550-sheet paper tray):** The right door open is detected during a paper feed operation.

2x550-sheet paper tray

The 2x550-sheet paper tray is installed under the printer. It picks up paper and feeds it into the printer.

Figure 1-48 2x550-sheet paper tray paper path

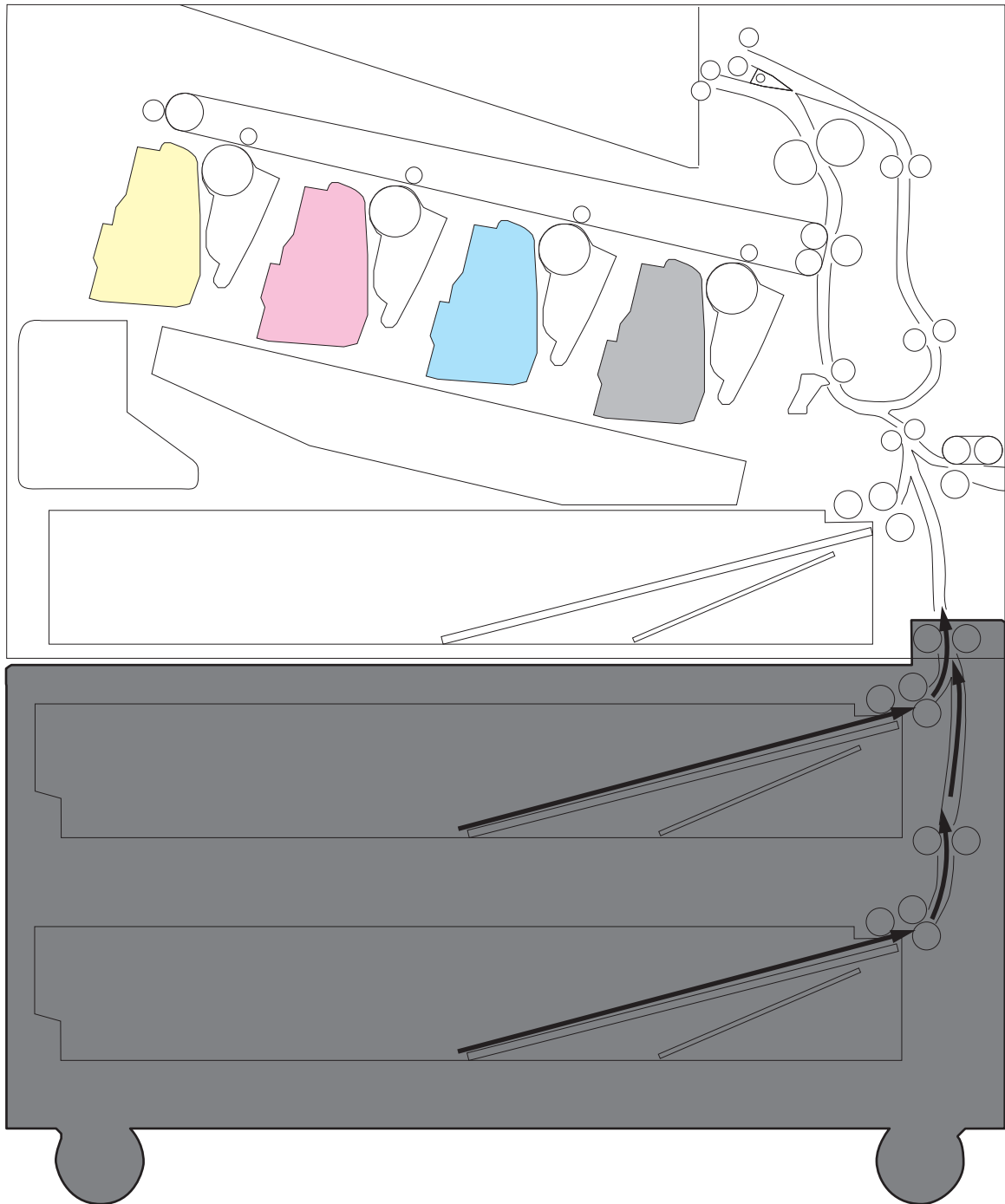


Table 1-34 2x550-sheet paper tray supported functions

Function	Supported feature
Cassette lift-up control	Yes
Cassette presence detection	Yes

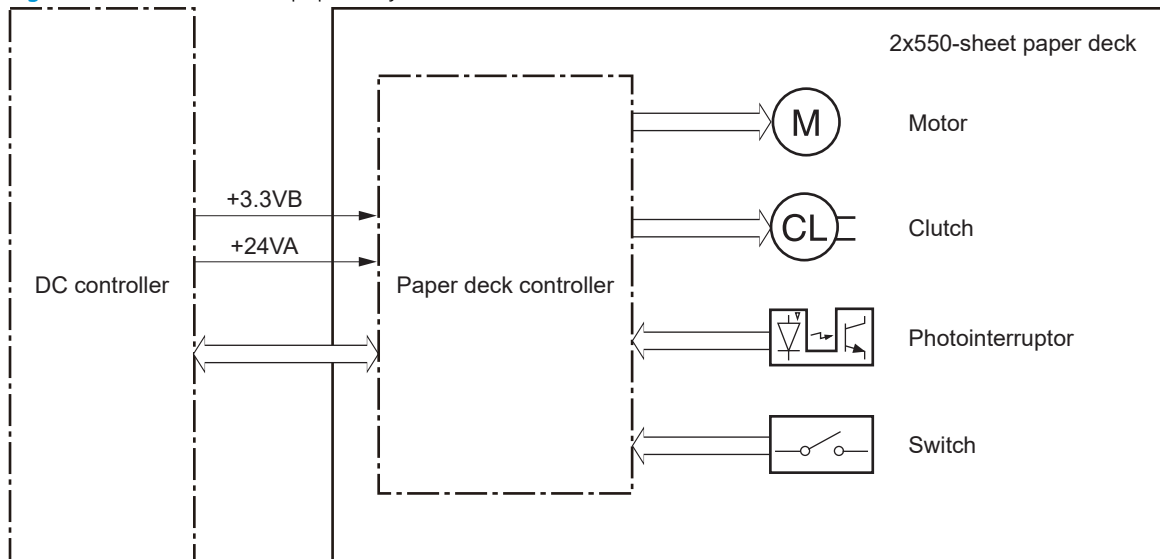
Table 1-34 2x550-sheet paper tray supported functions (continued)

Function	Supported feature
Cassette media size detection	Yes
Cassette media stack surface detection	Yes
Cassette media out detection	Yes
Cassette media level detection	Yes
Multiple-feed prevention	Yes
Cassette pickup roller presence detection	Yes
Cassette pickup roller alienation detection	Yes
Automatic delivery	Yes

Controller

The 2x550-sheet paper tray controller controls the operational sequence of the paper tray.

Figure 1-49 2x550-sheet paper tray controller



Motor control

The 2x550-sheet paper tray contains four motors that control paper feed and tray lift operations.

Table 1-35 2x550-sheet paper feeder motors

Abbreviation	Component name	Drives
M6	PD cassette 2 lifter motor	Lower tray lift mechanism
M7	PF feed motor 2	Lower tray pickup and feed rollers
M12	PD feed motor 1	Upper tray pickup and feed rollers
M15	PD cassette 1 lifter motor	Upper tray lift mechanism

Electrical components

The 2x550-sheet paper tray and stand contains several motors, solenoids, sensors, and switches.

Table 1-36 2x550-sheet paper tray and stand electrical components

Component type	Abbreviation	Component name
Motor	M6	Lower tray lifter motor
Motor	M7	Lower tray feed motor
Motor	M12	Upper tray feed motor
Motor	M13	Upper tray lifter motor
Clutch	CL4	Upper tray pickup clutch
Clutch	CL5	Lower tray pickup clutch
Photointerrupter	SR13	Upper tray media out sensor
Photointerrupter	SR14	Upper tray media surface sensor
Photointerrupter	SR15	Upper tray feed sensor
Photointerrupter	SR16	Lower tray media out sensor
Photointerrupter	SR17	Lower tray media surface sensor
Photointerrupter	SR18	Lower tray feed sensor
Photointerrupter	SR19	Lower tray lifter motor rotation sensor
Photointerrupter	SR20	Upper tray lifter motor rotation sensor
Switch	SW7	Upper tray media width size switch
Switch	SW8	Upper tray media length size switch/upper tray presence switch
Switch	SW9	Door switch
Switch	SW10	Lower tray media width size switch
Switch	SW11	Lower tray media length size switch/lower tray presence switch
Switch	SW13	Upper tray lifting plate position sensor
Switch	SW14	Lower tray lifting plate position sensor

Paper pickup

The 2x550-sheet paper tray picks up one sheet from the paper- tray and feeds it to the printer.

Figure 1-50 Paper pickup and feed operation

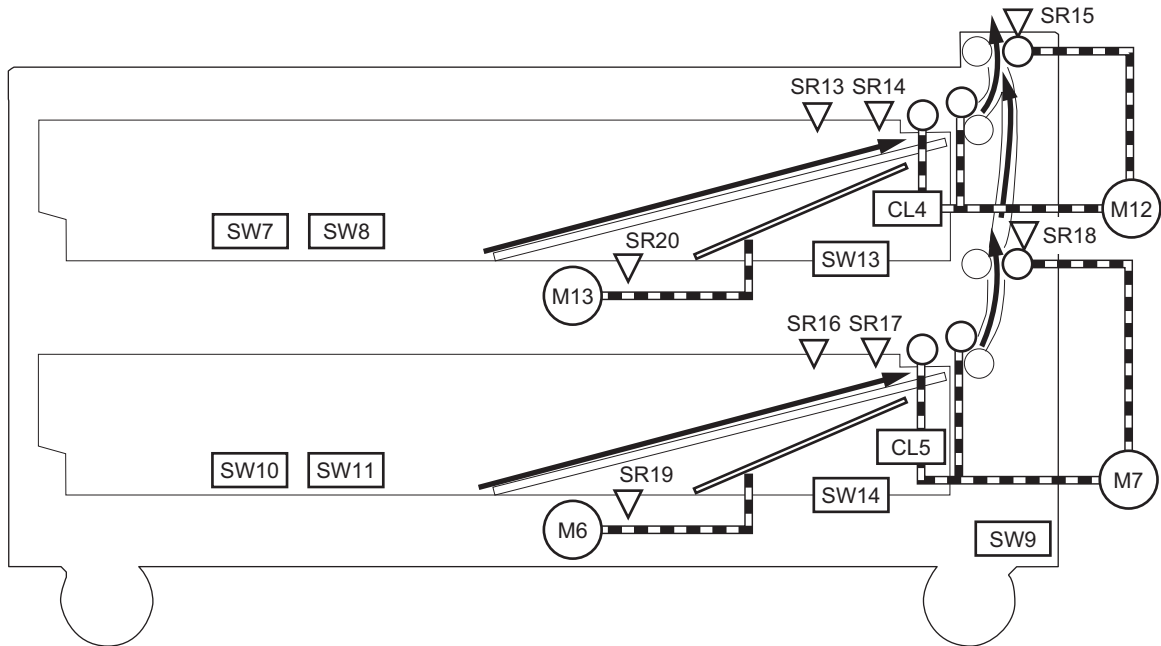


Table 1-37 Paper pickup and feed components

Abbreviation	Component name
M6	Lower tray lifter motor
M7	Lower tray feed motor
M12	Upper tray feed motor
M13	Upper tray lifter motor
CL4	Upper tray pickup clutch
CL5	Lower tray pickup clutch
SR13	Upper tray media out sensor
SR14	Upper tray media surface sensor
SR15	Upper tray feed sensor
SR16	Lower tray media out sensor
SR17	Lower tray media surface sensor
SR18	Lower tray feed sensor
SR19	Lower tray lifter motor rotation sensor
SR20	Upper tray lifter motor rotation sensor
SW7	Upper tray media width size switch
SW8	Upper tray media length size switch/upper tray presence switch
SW9	Door switch
SW10	Lower tray media width size switch
SW11	Lower tray media length size switch/lower tray presence switch

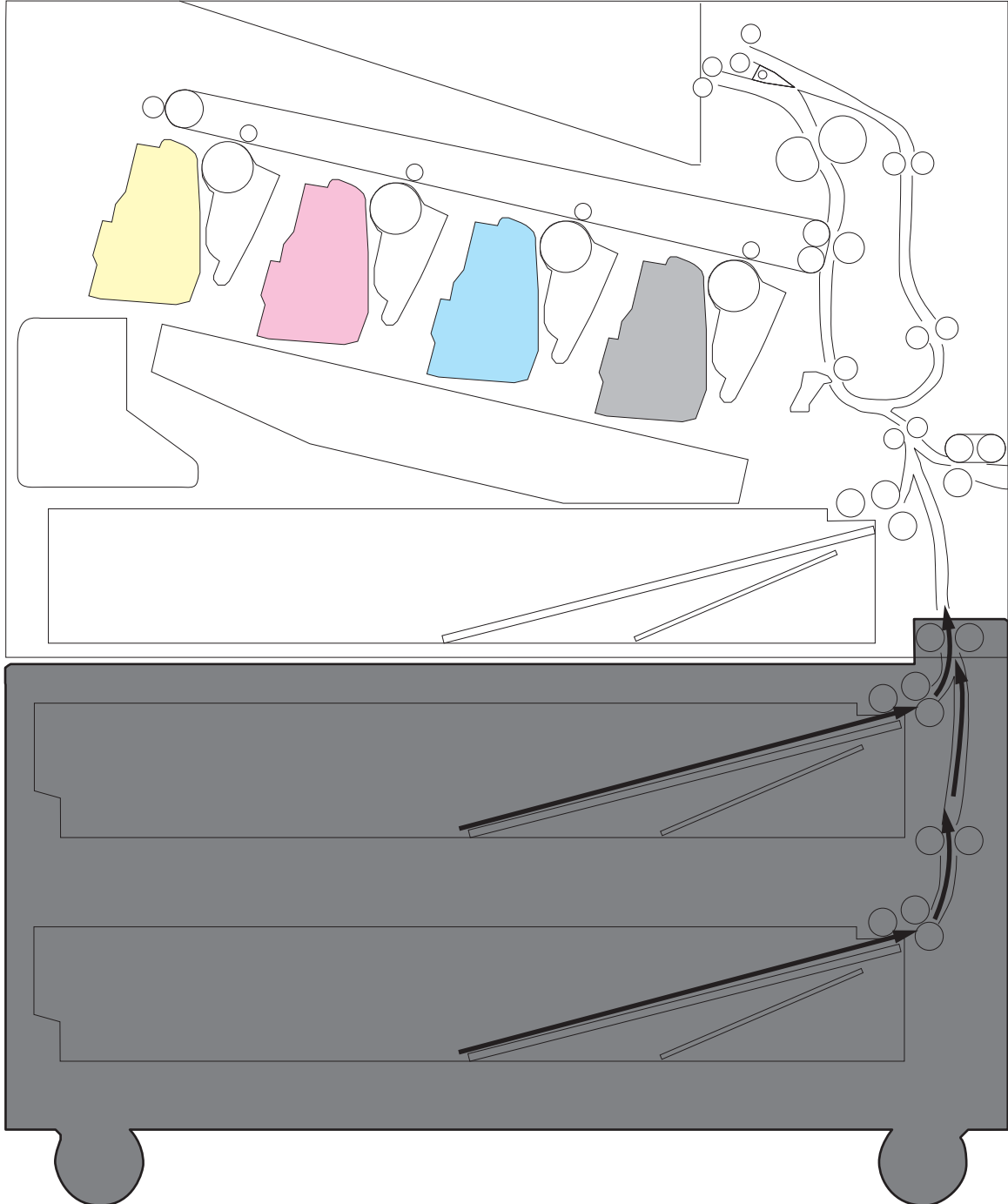
Table 1-37 Paper pickup and feed components (continued)

Abbreviation	Component name
SW13	Upper tray lifting plate position sensor
SW14	Lower tray lifting plate position sensor

Jam detection

The 2x550-sheet paper tray uses the upper tray feed sensor (PS15) and lower tray feed sensor (PS18) to detect the presence of paper and to check whether paper has jammed.

Figure 1-51 Jam detection (2x550-sheet paper tray)



The 2x550-sheet paper feeder detects the following jams:

- **Media input delay jam 1 (2x550-sheet paper tray):** Paper did not reach the registration sensor in time.
- **Media input delay jam 2 (2x550-sheet paper tray):** Paper did not reach the source tray feed sensor in time.
- **Media input delay jam 3 (2x550-sheet paper tray):** Paper did not reach the tray 3 feed sensor in time.
- **Pickup stationary jam (2x550-sheet paper tray):** The feed sensor does not detect the trailing edge of paper within a specified time after the sensor detects the leading edge.

- **Residual paper jam (2x550-sheet paper tray):** The feed sensor detects the presence of paper for a specified time during an automatic delivery operation.
- **Right door open jam (2x550-sheet paper tray):** The right door open is detected during a paper feed operation.

HCI paper tray

The HCI paper tray is installed under the printer. It picks up paper and feeds it into the printer.

Figure 1-52 HCI paper tray paper path

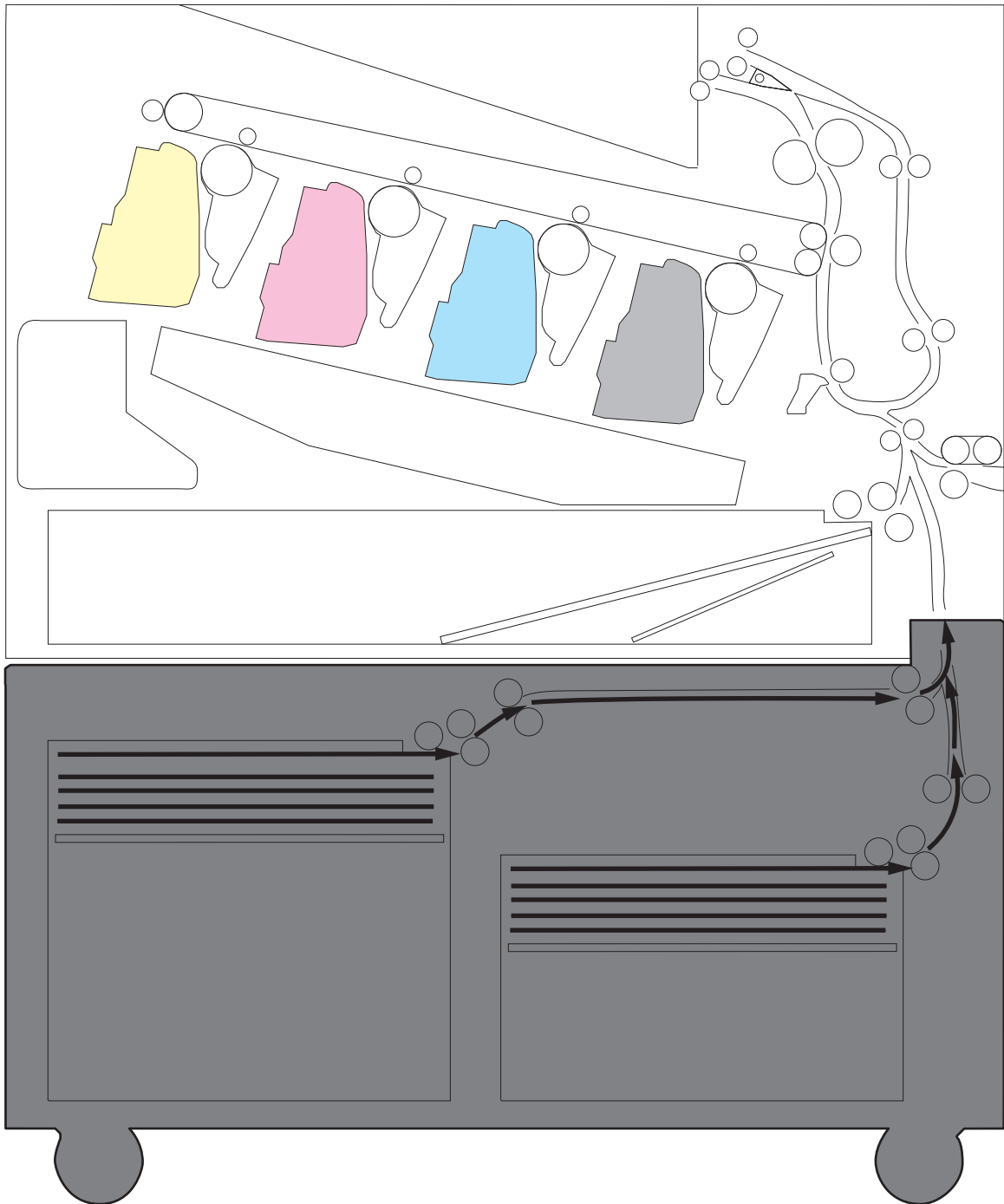


Table 1-38 HCI paper tray supported functions

Function	Supported feature
Right tray lift-up control	Yes
Left tray lift-up control	Yes

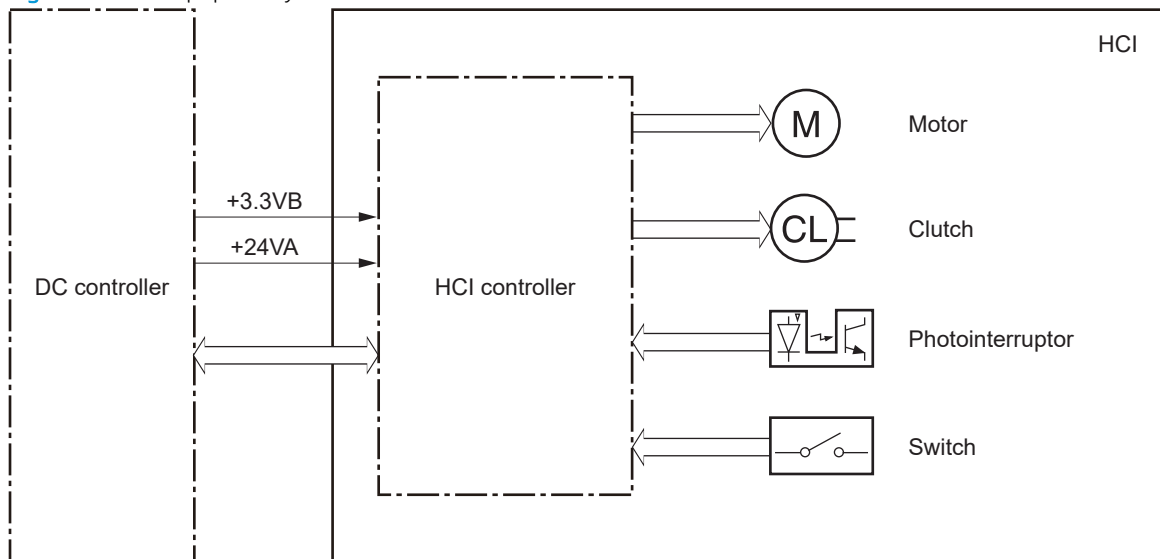
Table 1-38 HCI paper tray supported functions (continued)

Function	Supported feature
Right tray presence detection	Yes
Left tray presence detection	Yes
Right tray media size detection	Yes
Left tray media size detection	Yes
Right tray media stack surface detection	Yes
Left tray media stack surface detection	Yes
Right tray media out detection	Yes
Left tray media out detection	Yes
Right tray media level detection	Yes
Left tray media level detection	Yes
Right tray multiple-feed prevention	Yes
Left tray multiple-feed prevention	Yes
Right tray pickup roller presence detection	Yes
Left tray pickup roller presence detection	Yes
Automatic delivery	Yes

Controller

The HCI paper tray controller controls the operational sequence of the paper tray.

Figure 1-53 HCI paper tray controller



Motor control

The HCI paper tray contains four motors that control paper feed and tray lift operations.

Table 1-39 HCl paper feeder motors

Abbreviation	Component name	Drives
M31	HCl cassette 2 feed motor	Left tray pickup and feed rollers
M32	HCl cassette 1 lifter motor	Right tray lift mechanism
M33	HCl cassette 1 feed motor	Right tray pickup and feed rollers
M34	HCl cassette 2 lifter motor	Left tray lift mechanism

Electrical components

The 2,700-sheet HCl paper tray and stand contains several motors, solenoids, sensors, and switches.

Table 1-40 2,700-sheet HCl paper tray and stand electrical components

Component type	Abbreviation	Component name
Motor	M31	Left tray feed motor
Motor	M32	Right tray lifter motor
Motor	M33	Right tray feed motor
Motor	M34	Left tray lifter motor
Clutch	CL31	Right tray pickup clutch
Clutch	CL32	Left tray pickup clutch
Photointerrupter	SR31	Right tray media out sensor
Photointerrupter	SR32	Right tray media surface sensor
Photointerrupter	SR33	Right tray feed sensor
Photointerrupter	SR34	Left tray media out sensor
Photointerrupter	SR35	Left tray media surface sensor
Photointerrupter	SR36	Left tray feed sensor
Photointerrupter	SR37	Side feed guide open sensor
Photointerrupter	SR38	Feed sensor
Switch	SW31	Right tray media size switch, media level switch, and tray presence switch
Switch	SW32	Left tray media size switch, media level switch, and tray presence switch
Switch	SW33	Door switch

Paper pickup

The HCl paper tray picks up one sheet from the paper- tray and feeds it to the printer.

Figure 1-54 Paper pickup and feed operation

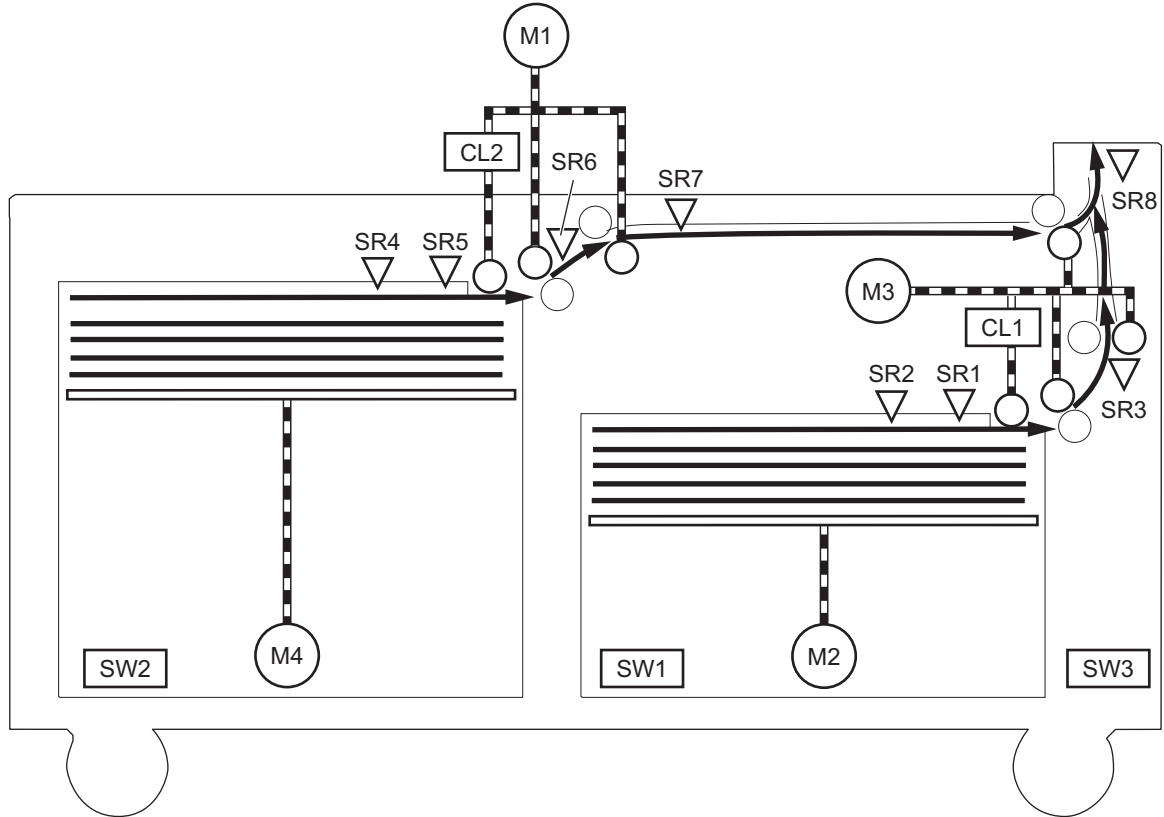


Table 1-41 Paper pickup and feed components

Abbreviation	Component name
M31	Left tray feed motor
M32	Right tray lifter motor
M33	Right tray feed motor
M34	Left tray lifter motor
CL31	Right tray pickup clutch
CL32	Left tray pickup clutch
SR31	Right tray media out sensor
SR32	Right tray media surface sensor
SR33	Right tray feed sensor
SR34	Left tray media out sensor
SR35	Left tray media surface sensor
SR36	Left tray feed sensor
SR37	Side feed guide open sensor
SR38	Feed sensor
SW31	Right tray media size switch, media level switch, and tray presence switch

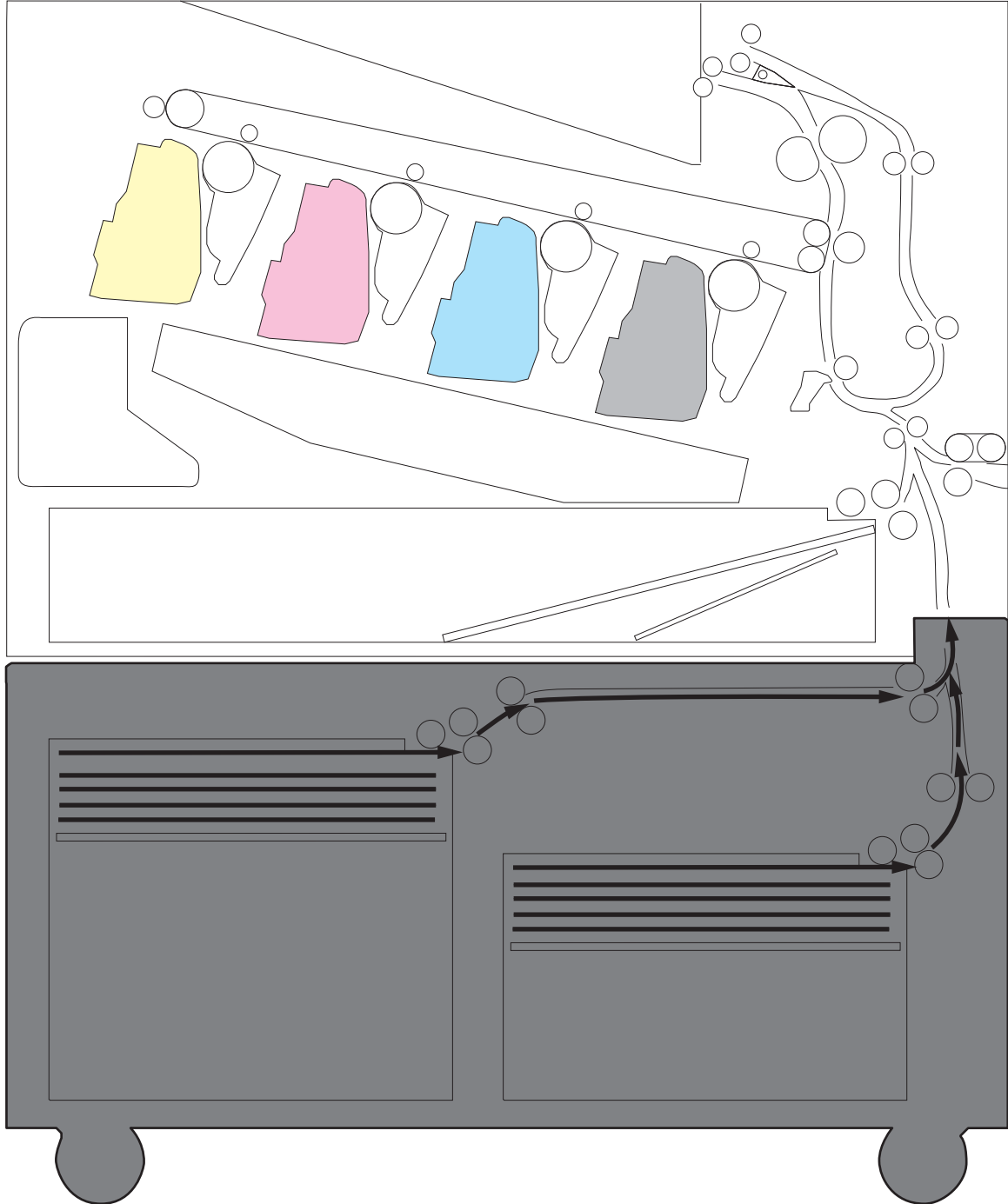
Table 1-41 Paper pickup and feed components (continued)

Abbreviation	Component name
SW32	Left tray media size switch, media level switch, and tray presence switch
SW33	Door switch

Jam detection

The HCl paper tray uses the right tray feed sensor (PS33), left tray feed sensor (PS36), and feed sensor (PS38) to detect the presence of paper and to check whether paper has jammed.

Figure 1-55 Jam detection (HCI paper tray)



The HCI paper feeder detects the following jams:

- **Media input delay jam 1 (HCI paper tray):** Paper did not reach the registration sensor in time.
- **Media input delay jam 2 (HCI paper tray):** Paper did not reach the source tray feed sensor in time.
- **Media input delay jam 3 (HCI paper tray):** Paper did not reach the tray 3 feed sensor in time.
- **Pickup stationary jam (HCI paper tray):** The feed sensor does not detect the trailing edge of paper within a specified time after the sensor detects the leading edge.

- **Residual paper jam (HCI paper tray):** The feed sensor detects the presence of paper for a specified time during an automatic delivery operation.
- **Right door open jam (HCI paper tray):** The right door open is detected during a paper feed operation.

Output accessories

An inner finisher is available for this printer.

Inner finisher

The inner finisher is installed against the printer output bin. It delivers print media to its output bin after the stapling process.

Figure 1-56 Inner finisher paper path

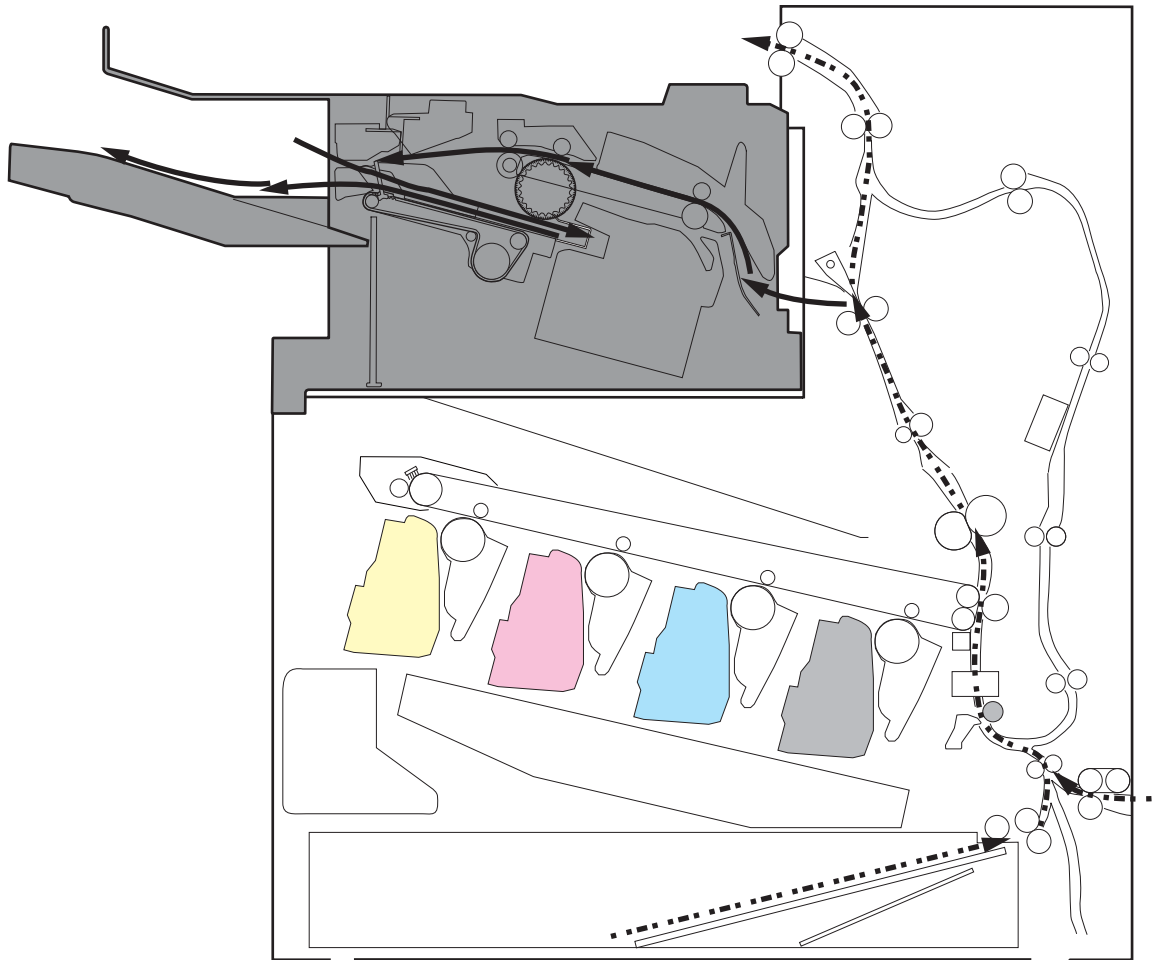


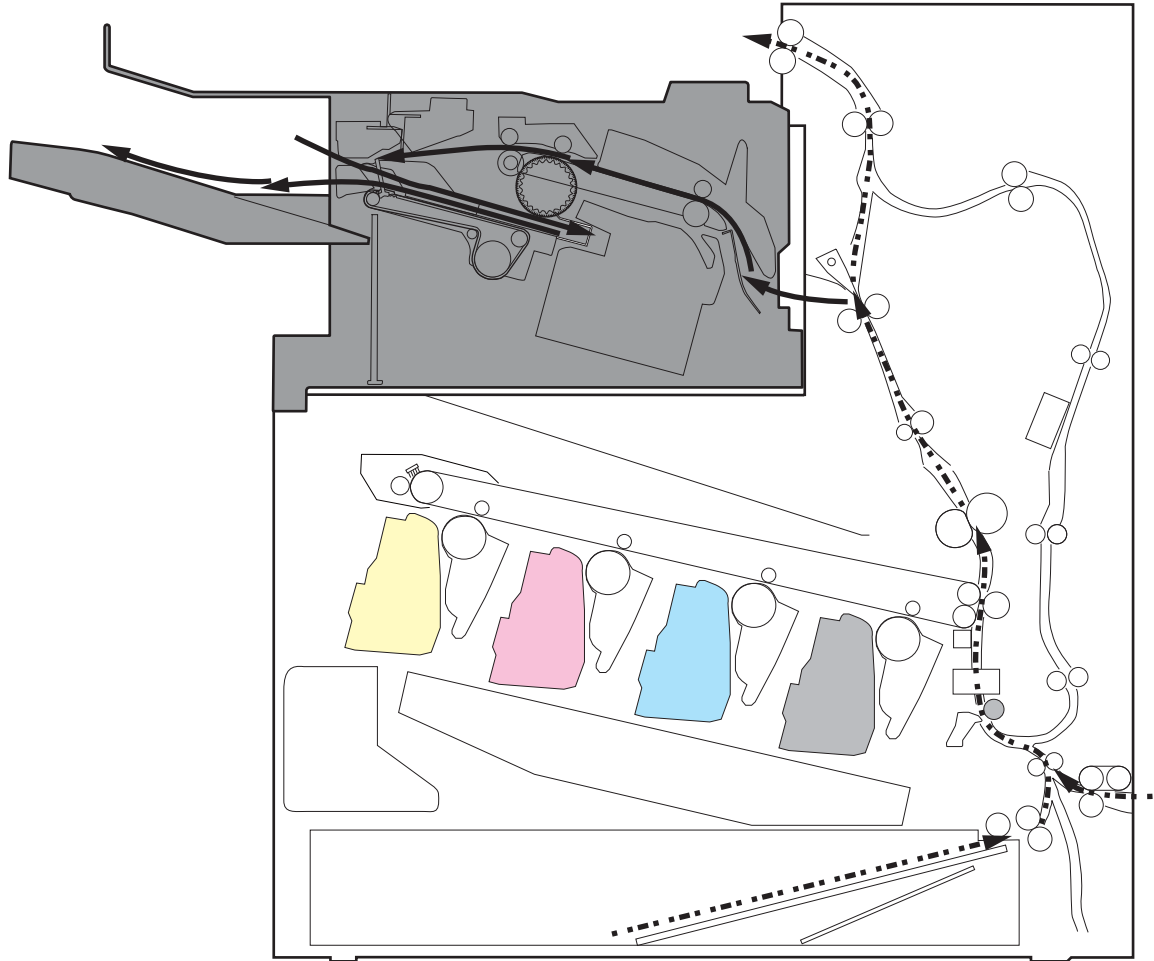
Table 1-42 Inner finisher supported functions

Function	Supported feature
Mailbox mode	Yes
Stacker mode	No
Function separator mode	No
Job separator mode	No
Collator mode	No
Staple control	Yes
Automatic delivery	Yes

Controller

The controller PCA controls the operational sequence of the inner finisher.

Figure 1-57 Inner finisher controller



Motor control

The inner finisher contains nine motors for paper feed, paper alignment, and staple functions.

Table 1-43 Inner finisher motors

Abbreviation	Component name	Drives
M1	SS feed motor	Entrance feed roller, output roller and return belt
M2	Return belt motor	Return belt
M3	Front alignment motor	Front alignment plate
M4	Rear alignment motor	Rear alignment plate
M5	Assist motor	Assist guide
M6	Tray lifting motor	Output bin
M7	Staple shift motor	Stapler
M8	Staple motor	Staple
M10	Paddle motor	Paddle

The inner finisher determines the following motor failures.

- Return belt motor failure
- Front alignment motor failure
- Rear alignment motor failure
- Assist motor failure
- Staple shift motor failure
- Staple motor failure
- Paddle motor failure

Electrical components

The inner finisher contains several motors, solenoids, sensors, and switches.

Table 1-44 Inner finisher electrical components

Component type	Abbreviation	Component name
Motor	M1	SS feed motor
Motor	M2	Return belt motor
Motor	M3	Front alignment motor
Motor	M4	Rear alignment motor
Motor	M5	Assist motor
Motor	M6	Tray lifting motor
Motor	M7	Staple shift motor
Motor	M8	Staple motor
Motor	M10	Paddle motor
Solenoid	SL1	Trailing edge dropping solenoid
Photointerrupter	PS1	Output sensor
Photointerrupter	PS2	Paddle home position sensor
Photointerrupter	PS3	Return belt home position sensor
Photointerrupter	PS4	Front alignment plate home position sensor
Photointerrupter	PS5	Rear alignment plate home position sensor
Photointerrupter	PS6	Processing tray media presence sensor
Photointerrupter	PS7	Assist home position sensor
Photointerrupter	PS8	Media holder home position sensor
Photointerrupter	PS9	Stack tray media height sensor
Photointerrupter	PS10	Stack tray lower limit sensor
Photointerrupter	PS11	Staple shift home position sensor
Photointerrupter	PS12	Manual staple sensor

Table 1-44 Inner finisher electrical components (continued)

Component type	Abbreviation	Component name
Photointerrupter	PS14	Stack tray home position sensor
Photointerrupter	PS18	Curl sensor
Switch	MSW1	Front cover switch

Delivery operation

The inner finisher delivers print media from the printer in a mode specified by the formatter.

Figure 1-58 Inner finisher delivery motors and solenoids

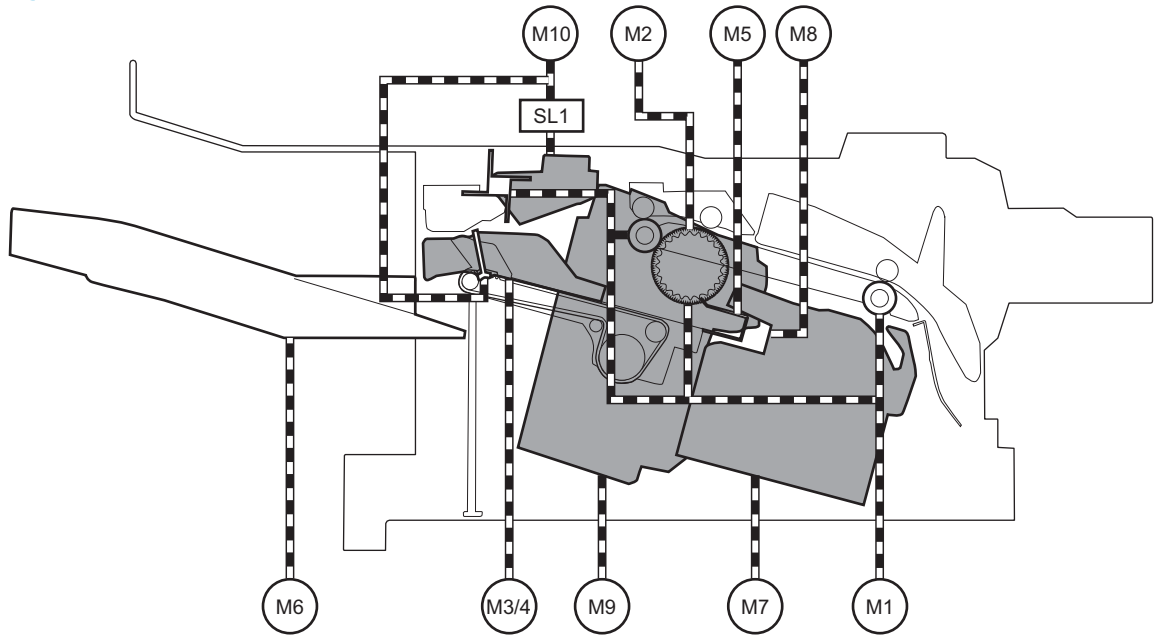


Table 1-45 Inner finisher delivery motors and solenoids

Abbreviation	Component name
M1	SS feed motor
M2	Return belt motor
M3	Front alignment motor
M4	Rear alignment motor
M5	Assist motor
M6	Tray lifting motor
M7	Staple shift motor
M8	Staple motor
M10	Paddle motor
SL1	Trailing edge dropping solenoid

Figure 1-59 Inner finisher delivery sensors and switches

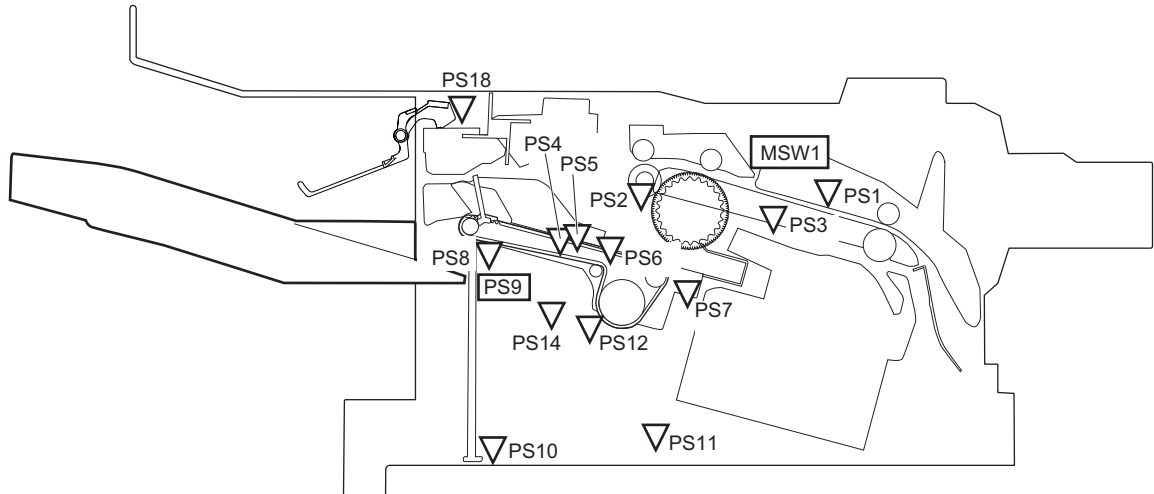


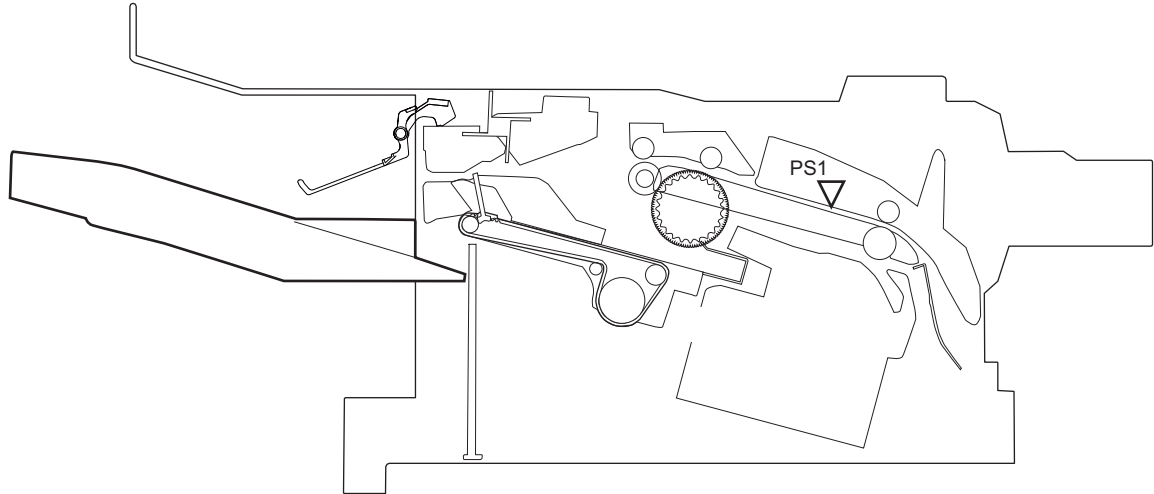
Table 1-46 Inner finisher delivery sensors and switches

Abbreviation	Component name
PS1	Output sensor
PS2	Paddle home position sensor
PS3	Return belt home position sensor
PS4	Front alignment plate home position sensor
PS5	Rear alignment plate home position sensor
PS6	Processing tray media presence sensor
PS7	Assist home position sensor
PS8	Media holder home position sensor
PS9	Stack tray media height sensor
PS10	Stack tray lower limit sensor
PS11	Staple shift home position sensor
PS12	Manual staple sensor
PS14	Stack tray home position sensor
PS18	Curl sensor
MSW1	Front cover switch

Jam detection

The inner finisher uses the output sensor (PS1) to detect the presence of the paper and to check whether the paper is being fed correctly.

Figure 1-60 Jam detection sensor (inner finisher)



The inner finisher detects the following jams:

- **Residual paper jam:** Bin 1 output init. jam.
- **Entrance delay jam:** Bin 1 output delay jam.
- **Entrance stay jam:** Bin 1 output stay jam.
- **Early timing jam:** Inter-page gap jam.
- **Manual stapler staple jam:** Manual staple jam.

Document feeder system (M776)

Review the following information about the document feeder system.



NOTE: This section is for the M776 printer only.

Document feed system

Learn about the various components of the document feed system.

This section describes the following:

- Sensors in the document feeder
- Document feeder paper path
- Simplex single-pass scanning
- Electronic duplexing (e-duplex) single-pass scanning
- Deskew operation
- Document feeder hinges

The printer supports single-pass electronic duplexing (e-duplex) copy jobs. Two separate scan modules scan the front-side and back-side of an e-duplex copy job page in a single pass through the document feeder.

For the WF class, this ADF supports a smart background which auto-crops and adjusts the image extents.

Sensors in the document feeder

Learn about the document feeder sensor locations and functions.

The document feeder contains the following sensors:

- **ADF paper present sensor:** Detects whether a document is present in the document feeder. If paper is present in the document feeder when copies are made, the printer scans the document using the document feeder. If no paper is present when copies are made, the printer scans the document using the scanner glass.
- **ADF Y (length) sensor:** Detects whether a legal-size original is present in the document feeder.
- **ADF jam cover sensor:** Detects whether the document feeder cover is open or closed.
- **ADF paper path deskew sensor:** Detects the top of the page as it enters the deskew rollers.
- **ADF paper path pick success sensor:** Detects a successful one page feed from the document feeder tray.



NOTE: This sensor uses ultrasonic sound to detect a multi-page paper feed.

- **Paper path sensor 1:** Detects the top of the page as it approaches the front-side scan module (document feeder glass).

Figure 1-61 Document feeder sensors

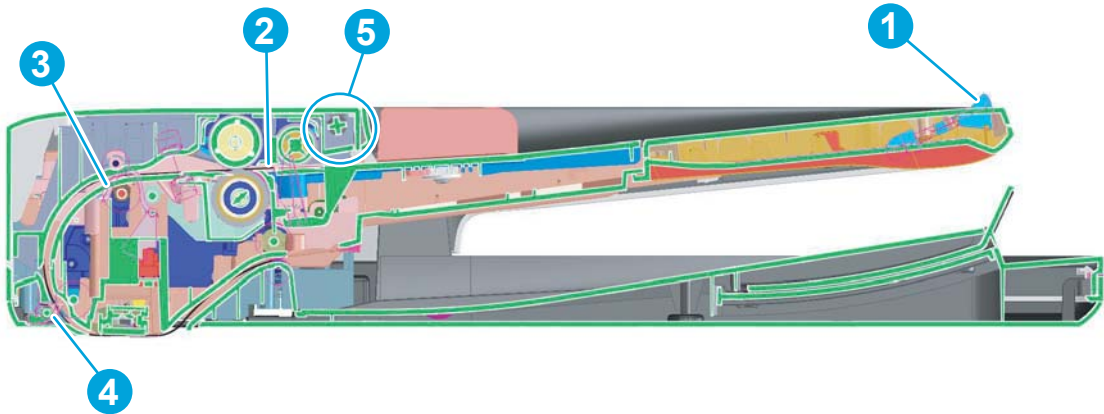


Table 1-47 Document feeder sensors

Item	Description
1	ADF Y (length) sensor
2	ADF paper present sensor
3	ADF deskew sensor
4	Paper path sensor 1 NOTE: For an e-duplex copy job, this sensor is used to activate the front-side scan module (in the scanner base) and the front-side background selector (in the document feeder), if needed.
5	ADF jam cover sensor (open the jam access cover and insert a folded piece of paper to activate the flag)

Document feeder paper path

Review the following information about the document feeder paper path.

Figure 1-62 Document feeder paper path

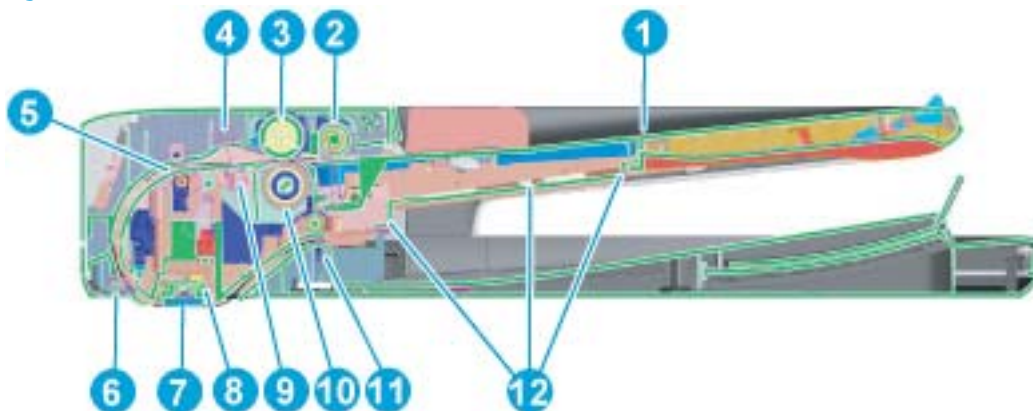


Table 1-48 Document feeder paper path

Item	Description	Item	Description
1	Input tray	7	Front-side scan module location NOTE: This scan module (document feeder glass) is located in the scanner base and is not pictured.
2	Pre-pick roller	8	Back-side scan module
3	Pick roller	9	ADF pick success transmitter
4	ADF pick success receiver	10	Separator roller
5	Deskew drive roller	11	Exit drive roller
6	Prescan drive roller	12	Lift plate

Document feeder simplex operation

Following is the basic sequence of operation for a document feeder simplex job.

1. The ADF jam cover sensor detects when the cover door is in the closed position.
2. The ADF paper present sensor activates when paper is loaded onto the input tray.
3. The feed motor rotates to raise the lift plate and starts to pick the loaded paper.
4. The ADF multi-pick (ultrasonic) sensor activates when the leading edge of the media is driven past the sensor. The printer firmware registers a successful pick operation.
5. The ADF paper path deskew activates when the leading edge of the paper passes it. The printer firmware registers the leading edge of the paper position.
6. The leading edge of the paper drives into the nip point of the deskew drive roller and the deskew pinch rollers. This creates a buckle of paper by the nip point for pick-skew correction.
7. The deskew motor rotates the deskew drive roller to pull the paper into the prescan drive roller.
8. The pick motor stops turning and allows both the pick and feed roller to turn freely while the paper is pulled in by the deskew drive roller.
9. The feed motor rotates to drive the paper into the prescan front-side sensor. The firmware registers the leading edge position of the paper as the multi-pick sensor activates.
10. The feed motor continues to rotate and drive the leading edge of the paper through the preset distance from the multi-pick sensor to the front-side scan zone. The scanner begins the scanning and data retrieval process.
11. The ADF multi-pick (ultrasonic) sensor deactivates when the trailing edge of the paper passes the sensor. The firmware registers the trailing edge of the paper position.
12. The feed motor continues to rotate and drive the trailing edge of the paper through the preset distance from the ADF multi-pick (ultrasonic) sensor to the front-side scan zone. The scanner ends the scanning and data retrieval process.
13. The feed motor continues to rotate and ejects the trailing edge of the paper into the output bin.
14. One of the following occurs:

- If the copy job is complete, the ADF paper present sensor deactivates. The feed motor reverses rotation to raise the pick roller.
- If the copy job is not complete, the ADF paper present sensor is active. The printer firmware detects additional pages in the input tray and the process repeats.

Document feeder e-duplex operation

Following is the basic sequence of operation for a document feeder simplex job.



NOTE: For an e-duplex copy job, the background scan operation begins immediately after the simplex sequence of operation ends.

1. The feed motor continues to drive the paper until the leading edge activates the prescan back-side sensor. The printer firmware registers the position of the leading edge of the paper.
2. The feed motor continues to rotate to drive the leading edge of the paper through the preset distance from prescan back-side sensor to the back-side background selector scan zone. The back-side background scan module begins scanning and retrieval of the data.
3. The prescan back-side sensor deactivates when the trailing edge of the paper passes it. The printer firmware registers the trailing edge of the paper position.
4. The feed motor continues to rotate to drive the trailing edge of the paper edge past the back-side background selector scan zone.
5. The feed motor continues to rotate and ejects the trailing edge of the paper into the output bin.
6. One of the following occurs:
 - If the copy job is complete, the ADF paper present sensor deactivates. The feed motor reverses rotation to raise the pick roller.
 - If the copy job is not complete, the ADF paper present sensor is active. The printer firmware detects additional pages in the input tray and the process repeats.

Deskew operation

Sliding side guides on the input tray make sure that the paper stack is correctly aligned at the center of the input tray when paper is loaded in the tray. The correct position of the loaded paper is parallel with the direction of travel into the document feeder paper path.

Figure 1-63 Document feeder side guides



The document feeder further reduces paper skew due to improper loading of paper in the input tray by buckling the paper to create a paper buffer.

The document feeder aligns the leading edge of the paper parallel with the deskew drive rollers before the paper is driven further into the document feeder paper path.



NOTE: If the page to be copied is smaller than the minimal sliding guide setting, do not use the document feeder for the copy job. Attempting to copy too small of a page using the document feeder can result in document feeder jams and/or damage to the original page. Instead, use the flatbed glass to copy the page.

Document feeder hinges

Review the following information about the document feeder hinges.

The document feeder hinges allow positioning the assembly vertically above the scanner glass to accommodate the placement of books and other objects up to 25 mm (1.0 in) in height on the scanner glass. The document feeder still closes (the bottom of the ADF is kept parallel to the scanner glass) and allows the printer to operate.

The document feeder will withstand a downward force of about 4.5 kg (10 lb) applied at the front edge center of the assembly—when the fulcrum (such as the spine of a book) is located anywhere on the scanner glass and parallel to its long axis—without breaking, deforming, detaching or experiencing performance degradation.

The document feeder hinges support the assembly in the open position and prevent the document feeder from suddenly closing and causing damage or a loud noise.

The hinges can hold the document feeder static in all positions higher than 100 mm (3.93 in); measured at the front of the assembly. Less than 2.3 kg (5 lb) of force is required to open or close the document feeder.

The hinges allow the document feeder to open to an angle of between 60° and 80° from the horizontal position (this angle will not allow the printer to tip over).

Figure 1-64 Document feeder open (book mode)

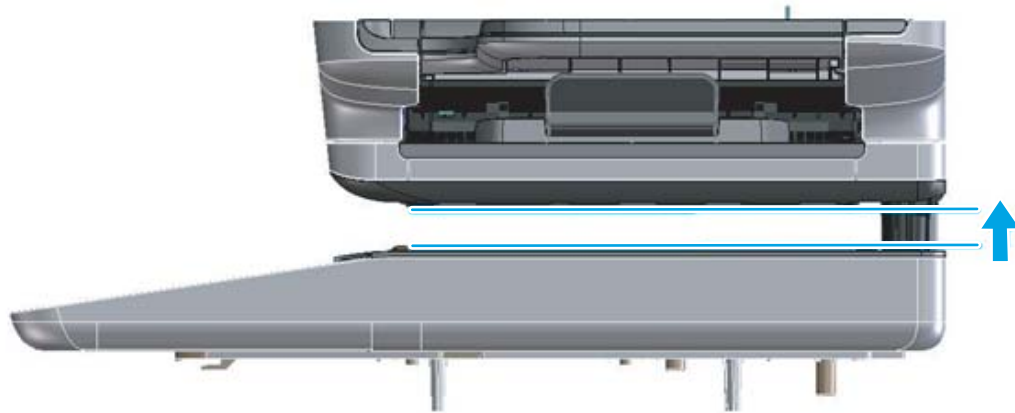


Figure 1-65 Document feeder open (60° to 80°)



Scanning and image capture system (M776)

Learn about the scanning and image capture system.

The scanner is a carriage-type platen scanner which includes the frame, glass, scan module, and a scan control board (SCB). The scanner has a sensor to detect legal-sized media and a switch to indicate when the document feeder is opened.

The document feeder and control panel are attached to the scanner. If the scanner fails, it can be replaced as a whole unit. The scanner replacement part does not include the document feeder, control panel, or SCB.

2 Solve problems

Learn about solving printer problems.

HP service and support

Learn about HP access to additional service and support information.

Additional service and support for channel partners

Channel partners go to partner.hp.com, and then use the steps below to access the HP Web-based Interactive Search Engine (WISE).

Access WISE for Channel partners

1. Select [Services & Support](#) (near the top of the screen).
2. Under [Services Delivery](#), select [Technical Support](#).
3. Select [Technical Documentation](#).

Find information about the following topics

- Service manuals
- Service advisories
- Up-to-date control panel message (CPMD) troubleshooting
- Solutions for printer issues and emerging issues
- Remove and replace part instructions and videos
- Install and configure
- Printer specifications
- Warranty and regulatory information

Additional service and support for HP internal personnel

HP internal personnel, go to one of the following Web-based Interactive Search Engine (WISE) sites:

Americas (AMS)

- [WISE - English](#)
- [WISE - Spanish](#)
- [WISE - Portuguese](#)
- [WISE - French](#)

Asia Pacific / Japan (APJ)

- [WISE - English](#)
- [WISE - Japanese](#)
- [WISE - Korean](#)
- [WISE - Chinese \(simplified\)](#)
- [WISE - Chinese \(traditional\)](#)
- [WISE - Thai](#)

Europe / Middle East / Africa (EMEA)

- [WISE - English](#)

Solve problems checklist


Learn about the solve problems checklist.

Use the solve problems checklist

Learn about using the solve problems checklist.

If the printer is not correctly functioning, complete the steps (in the order given) in the following checklist. If the printer fails a checklist step, follow the corresponding troubleshooting suggestions for that step. If a checklist step resolves the problem, skip the remaining checklist items.

1. If the control panel is blank or black, check the following before proceeding:
 - Check to make sure that the printer is not in Sleep mode (press a button on the control panel).
 - Check the power cable.
 - Check that the power is turned on.
 - Make sure that the line voltage is correct for the printer power configuration. (See the label that is on the back of the printer for voltage requirements.) If a power strip is in use, and its voltage is not within specifications, connect the printer directly into the electrical outlet. If it is already connected into the outlet, try a different outlet.

 **NOTE:** The following conditions indicate that the printer has frozen while in Sleep mode. Opening a door or pressing a control-panel button causes the printer to wake up from Sleep mode.

- The control panel home button LED is illuminated
- The power-switch LED flashes once every three to five seconds

If the control panel is not responding, or if it appears black or blank, try the following:

- a. Turn the printer power off, and then on again.
- b. Verify that the system is correctly functioning.

 **TIP:** The LED on the formatter will blink if the control panel is not detected or the cables are not properly seated.

- Try printing from a host computer. Does the printer print a test page?
 - Is the printer HP Embedded Web Server (EWS) accessible?
- c. Verify that the control panel is correctly functioning.
 1. Turn the power off.
 2. Reseat the cable connections on the bottom of the control-panel assembly and the control-panel connectors at the formatter.
 3. Turn the printer power on, and then check for functionality of the control-panel by pressing a button on the control panel.

- d. Try upgrading the firmware. If the firmware upgrade fails to resolve the problem, and the printer still freezes while in Sleep mode, elevate the case.
 - e. If the error persists and the EWS functions correctly, replace the control-panel assembly.
2. The control panel should indicate a [Ready](#), [Paused](#), or [Sleep mode on](#) status. If an error message displays, resolve the error.
 - Try using the Power-on checks section in the printer *Troubleshooting Manual* to solve the problem.
 3. For network connection errors, verify that the network port is active and that the cables are securely seated.
 - a. Check the network cable connections between the printer and the computer or network port. Make sure that the connections are secure.

 **NOTE:** The network LEDs should be illuminated and flashing.



- b. Make sure that the cables are not faulty by trying different cables, if possible.
 - c. Check the network connection. Verify that the port is active.
4. Use one of the following options to print a configuration page. If the printer is connected to a network, an HP Jetdirect page also prints.

Print a configuration page from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ to scroll to [Administration](#), and then press the [OK](#) button.
2. If necessary, use the down arrow ▼ button to scroll to [Reports](#), and then press the [OK](#) button.
3. If necessary, use the down arrow ▼ button to scroll to [Configuration/Status Pages](#), and then press the [OK](#) button.
4. Use the down arrow ▼ button to scroll to [Configuration Page](#), and then press the [OK](#) button to select it.
5. Use the up arrow ▲ button to scroll to [Print](#), and then press the [OK](#) button to print the pages.

 **TIP:** Multiple report pages can be selected, and then printed together.


Print a configuration page from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Reports](#) button. Open the following menus:

[Configuration/Status Pages](#)


[Configuration Page](#)

2. Touch [Configuration Page](#) to select it.

 **TIP:** Multiple report pages can be selected, and then printed together.


3. Touch the [Print](#) button to print the pages.

- If the pages do not print, check that at least one tray contains paper.

 **TIP:** Make sure that the selected paper size and type meet HP specifications. Also open the **Trays** menu on the printer control panel and verify that the tray is configured correctly for the paper type and size.


- If the page jams in the printer, follow the instructions on the control panel to clear the jam.
- If the page does not print correctly, the problem is with the printer hardware.
- If the page prints correctly, the printer hardware is working. The problem is with the host computer, with the print driver, or with the program.

5. Use one of the following options to print a supplies status page and then check that the maintenance items below are not at their end-of-life.

 **NOTE:** HP long-life consumables and maintenance kit life specifications are estimations. Actual individual life/yield during normal use varies depending on usage, environment, media, and other factors. Estimated life is not an implied guarantee or warrantable.

Print a supplies status page from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ to scroll to [Administration](#), and then press the [OK](#) button.
2. If necessary, use the down arrow ▼ button to scroll to [Reports](#), and then press the [OK](#) button.
3. If necessary, use the down arrow ▼ button to scroll to [Configuration/Status Pages](#), and then press the [OK](#) button.
4. Use the down arrow ▼ button to scroll to [Supplies Status Page](#), and then press the [OK](#) button to select it.
5. Use the up arrow ▲ button to scroll to [Print](#), and then press the [OK](#) button to print the pages.

 **TIP:** Multiple report pages can be selected, and then printed together.


Print a supplies status page from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Reports](#) button. Open the following menus:

[Configuration/Status Pages](#)

[Supplies Status Page](#)

2. Touch [Supplies Status Page](#) to select it.

 **TIP:** Multiple report pages can be selected, and then printed together.

3. Touch the [Print](#) button to print the pages.

If a maintenance item needs to be replaced, order the part number provided below:


- Fuser
 - 3WT87-67901 (M751/E75245; 110V)
 - 3WT88-67901 (M751/E75245; 220V)
 - 4YL16-67901 (M856/E85055/M776; 110V)
 - 4YL17-67901 (M856/E85055/M776; 220V)
 - Intermediate transfer belt (ITB)
 - RM2-1504-000CN
 - Toner collection unit
 - 3WT90-67901
 - Tray 1 rollers
 - RM2-1525-000CN
 - Tray 2-x rollers
 - RM2-1526-000CN
6. Verify that the correct print driver for this printer is installed. Check the program to make sure that the print driver for this printer is used. The print driver is on the CD that came with the printer, or can be downloaded from this Web site: <http://www.hp.com/support/colorljM751> or <http://www.hp.com/support/colorljE75245> or <http://www.hp.com/support/colorljM856> or <http://www.hp.com/support/colorljE85055> or <http://www.hp.com/support/colorljM776MFP>.
 7. Print a short document from a different program that has worked in the past. If this solution works, the problem is with the program. 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 printer software installed.
 - b. If the printer is connected to the network, connect the printer directly to a host computer with a USB cable. Redirect the printer to the correct port, or reinstall the software (make sure to select the new connection type).


Print the Settings menu map

To more easily navigate individual settings, print a report of the complete [Settings](#) menu.

Print the settings menu map from an LCD control panel (M751/E75245)

Use the following procedure to print the menu map from a touchscreen control panel.


1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Reports](#), and then select [OK](#).
2. Select [Configuration/Status Pages](#).
3. Select [Settings Menu Map](#), and then select [OK](#).
4. Use the down arrow ▼ to scroll down to [Cancel](#), and then use the right arrow ► to highlight the print icon . Select [OK](#) to print the pages.

 **TIP:** Multiple report pages can be selected, and then printed together.

Print the settings menu map from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to print the menu map from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Reports](#) button.
2. Open the [Configuration/Status Pages](#) menu.
3. Select the [Settings Menu Map](#) option.
4. Touch the [Print](#) button to print the report.


 **TIP:** Multiple report pages can be selected, and then printed together.


Print the current settings page

Printing the current settings page provides a map of the user configurable settings that might be helpful in the troubleshooting process.

Print the current settings page from an LCD control panel (M751/E75245)

Use the following procedure to print the current settings page from an LCD control panel.


1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Reports](#), and then select [OK](#).
2. Select [Configuration/Status Pages](#).
3. Select [Current Settings Page](#), and then select [OK](#).
4. Use the down arrow ▼ to scroll down to [Cancel](#), and then use the right arrow ► to highlight the print icon . Select [OK](#) to print the pages.

 **TIP:** Multiple report pages can be selected, and then printed together.

Print the current settings page from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to print the current settings page from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Reports](#) button.
2. Open the [Configuration/Status Pages](#) menu.
3. Select the [Current Settings Page](#) option.
4. Touch the [Print](#) button to print the report.


 **TIP:** Multiple report pages can be selected, and then printed together.


Print the event log

Printing the event log might be helpful in the troubleshooting process. For more information, see the Interpret control-panel messages and event log entries section in the printer troubleshooting manual.

Print the event log from the Support Tools menu from an LCD control panel (M751/E75245)

Use the following procedure to print the event log from the [Support Tools](#) menu from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select [OK](#).
2. Select [Troubleshooting](#), and then select [OK](#).
3. Select [Event Log](#).
4. Use the down arrow ▼ to scroll down to [Cancel](#), and then use the right arrow ► to highlight the print icon . Select [OK](#) to print the pages.

 **TIP:** Multiple report pages can be selected, and then printed together.


Print the event log from the Support Tools menu from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to print the event log from the [Support Tools](#) menu from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the following menus:
 - a. [Troubleshooting](#)
 - b. [Event Log](#)
3. The event log displays on the screen. To print it, touch the [Print](#) button.

Print the event log from the Service menu from an LCD control panel (M751/E75245)

Use the following procedure to print the event log from the Service menu from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select [OK](#).
2. Select [Service](#), and then select [OK](#).
3. On the sign-in screen, select [Service Access Code](#) from the drop-down list.
4. Enter the following service access code for the printer:
 - 04075119
5. Select [Event Log](#).
6. Use the down arrow ▼ to scroll down to [Cancel](#), and then use the right arrow ► to highlight the print icon . Select [OK](#) to print the pages.


Print the event log from the Service menu from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to print the event log from the [Service](#) menu from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the [Service](#) menu.
3. On the sign-in screen, select the [Service Access Code](#) option from the drop-down list.
4. Enter the following service access code for the printer:
 - **M856/E85055:** 10085619
 - **M776:** 10077619
5. Touch the [Print Event Log](#) item.

Clear the event log from an LCD control panel (M751/E75245)

Use the following procedure to clear the event log from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select [OK](#).
2. Select [Service](#), and then select [OK](#).
3. On the sign-in screen, select [Service Access Code](#) from the drop-down list.
4. Enter the following service access code for the printer:
 - 04075119
5. Select [Event Log](#).
6. Use the down arrow ▼ to scroll down to [Cancel](#), and then use the right arrow ► to highlight the trash can icon . Select [OK](#) to clear the event log.

Clear the event log from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to clear the event log from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the [Service](#) menu.
3. On the sign-in screen, select the [Service Access Code](#) option from the drop-down list.
4. Enter the following service access code for the printer:
 - **M856/E85055:** 10085619
 - **M776:** 10077619
5. Select the [Clear Event Log](#) item, and then touch the [OK](#) button.

Pre-boot menu options

The **Pre-boot** menus are available prior to the printer initializing.

CAUTION: The **Format Disk** option (printers with a hard-disk drive only) performs a disk initialization for the entire disk. The operating system, firmware files, and third party files (among other files) will be completely lost. HP does not recommend this action.

TIP: The **Pre-boot** menu can be remotely accessed by using a telnet network protocol to establish an administration connection to the printer. See the Remote Admin topic in the *Troubleshooting Manual*.

Open the Pre-boot menu from an LCD control panel (M751/E75245)

Use the following procedure to open the **Pre-boot** menu from an LCD control panel.

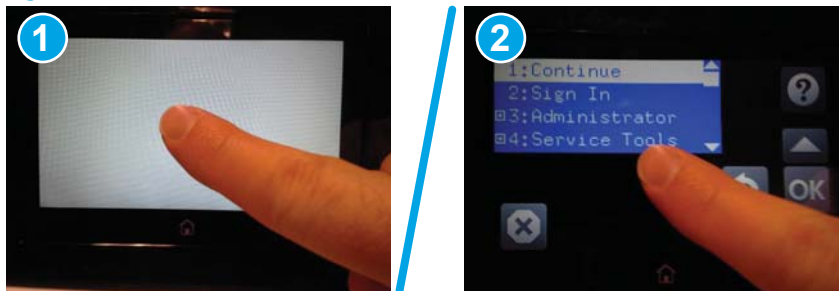
1. Press the **Cancel** **X** button when you see the **1/8** under the logo.
2. Use the arrow buttons on the control panel to navigate the **Pre-boot** menu.
3. Press the **OK** button to select a menu item.

Open the Pre-boot menu from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to open the **Pre-boot** menu from a touchscreen control panel.

1. Touch the middle of the control-panel display when you see the **1/8** under the logo.

Figure 2-1 Open the **Pre-boot** menu



2. On the **Pre-boot** menu screen, use the following buttons to navigate the tests.

Figure 2-2 Pre-boot menu

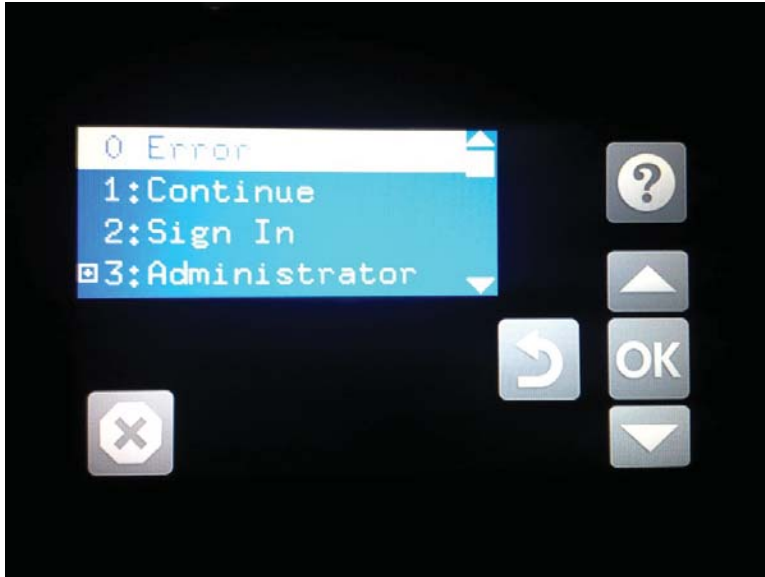









Table 2-1 Pre-boot menu button descriptions

Button	Description
	Use this button to see more information about a selected item.
	Use this button to scroll up through menu items.
	Use this button to select a highlighted menu item.
	Use this button to scroll down through menu items.
	Use this button to go back to the previous menu.
	Not used.
	Use this button to exit a diagnostic test.

3. Use the arrow buttons on the touchscreen to navigate the [Pre-boot](#) menu.
4. Touch the [OK](#) button to select a menu item.

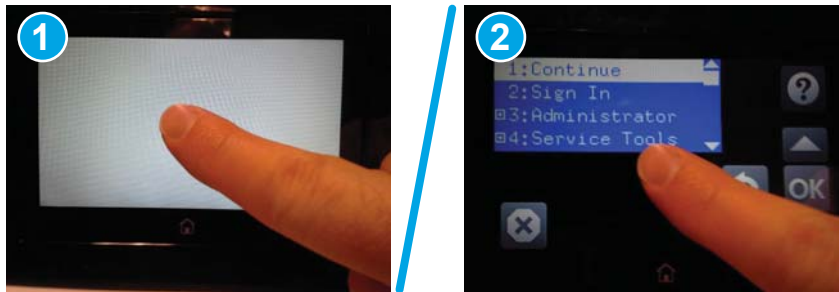
Cold reset using the Pre-boot menu from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to perform a cold reset using the [Pre-boot](#) menu from a touchscreen control panel.

⚠ CAUTION: This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost).

1. Touch the middle of the control-panel display when you see the [1/8](#) under the logo.

Figure 2-3 Open the [Pre-boot](#) menu



2. Use the down arrow ▼ button to highlight the [+3:Administrator](#) item, and then touch the [OK](#) button.
3. Use the down arrow ▼ button to highlight the [+8:Startup Options](#) item, and then touch the [OK](#) button.
4. Use the down arrow ▼ button to highlight the [2 Cold Reset](#) item, and then touch the [OK](#) button to select it.
5. Touch the Home button to return to the main [Pre-boot](#) menu and highlight the [1:Continue](#) item, and then touch the [OK](#) button.

📝 NOTE: The printer will initialize.

Cold reset using the Pre-boot menu from an LCD control panel (M751/E75245)

Use the following procedure to perform a cold reset using the [Pre-boot](#) menu from an LCD control panel.

⚠ CAUTION: This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost).

1. Press the [Cancel](#) ✕ button when you see the [1/8](#) under the logo.
2. Use the down arrow ▼ button to highlight the [+3:Administrator](#) item, and then press the [OK](#) button.
3. Use the down arrow ▼ button to highlight the [+8:Startup Options](#) item, and then press the [OK](#) button.
4. Use the down arrow ▼ button to highlight the [2 Cold Reset](#) item, and then press the [OK](#) button to select it.
5. Touch the Home button to return to the main [Pre-boot](#) menu and highlight the [1:Continue](#) item, and then touch the [OK](#) button.

📝 NOTE: The printer will initialize.

📝 NOTE: Some of the pre-boot options in the following tables are not supported by the current version of the printer firmware and are included for information only. Future versions of firmware will support these options.

Table 2-2 Pre-boot menu options (1 of 7)

Menu option	First level	Second level	Third level	Description
Continue				<p>Selecting the Continue item exits the Pre-boot menu and continues the normal boot process.</p> <p>If a selection is not made in the initial menu within 30 seconds, the printer returns to a normal boot (the same as selecting Continue).</p> <p>If the user navigates to another menu, the timeout does not apply.</p>
Sign In				Enter the administrator PIN or service PIN if one is required to open the Pre-boot menu.
Administrator				<p>This item navigates to the Administrator submenus.</p> <p>If authentication is required (and the user is not already signed in) the Sign In prompt displays. The user is required to sign in.</p>
Administrator	Download	Network USB USB Thumbdrive		This item initiates a Pre-boot firmware download process. A USB Thumbdrive option will work on all FutureSmart printers. USB or Network connections are not currently supported.
Administrator	Format Disk			<p>This item reinitializes the disk and cleans all disk partitions.</p> <p>CAUTION: Selecting the Format Disk item removes all data.</p> <p>A delete confirmation prompt is not provided.</p> <p>The system is not bootable after this action and a 99.09.67 error displays on the control panel. A firmware download must be performed to return the system to a bootable state.</p>
Administrator	Partial Clean			<p>This item reinitializes the disk (removing all data except the firmware repository where the master firmware bundle is downloaded and saved).</p> <p>CAUTION: Selecting the Partial Clean item removes all data except the firmware repository. A delete confirmation prompt is not provided.</p> <p>CAUTION: This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost).</p> <p>This allows a user to reformat the disk by removing the firmware image from the active directory without having to download new firmware code (printer remains bootable).</p>
Administrator	Change Password			Select this item to set or change the administrator password.
Administrator	Clear Password			<p>Select the Clear Password item to remove a password from the Administrator menu. Before the password is actually cleared, a message will be shown asking to confirm that the password should be cleared. Press the OK button to confirm the action.</p> <p>When the confirmation prompt displays, press the OK button to clear the password.</p>

Table 2-3 Pre-boot menu options (2 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Manage Disk	Clear Disk		Select the Clear Disk item to enable using an external device for job storage. Job storage is normally enabled only for the Boot device. This will be grayed out unless the 99.09.68 error is displayed.
Administrator	Manage Disk	Lock Disk		Select the Lock Disk item to lock (mate) a new secure disk to this printer. The secure disk already locked to this printer will remain accessible to this printer. Use this function to have more than one encrypted disk accessible by the printer when using them interchangeably. The data stored on the secure disk locked to this printer always remains accessible to this printer.
Administrator	Manage Disk	Leave Unlocked		Select the Leave Unlocked item to use a new secure disk in an unlocked mode for a single service event. The secure disk that is already locked to this printer will remain accessible to this printer and uses the old disk's encryption password with the new disk. The secure disk that is already locked to this printer remains accessible to this printer.
Administrator	Manage Disk	Clear Disk Pwd		Select the Clear Disk Pwd item to continue using the non-secure disk and clear the password associated with the yet-to-be installed secure disk. CAUTION: Data on the missing secure disk will be permanently inaccessible.
Administrator	Manage Disk	Retain Password		Select the Retain Password item to use the non-secure disk for this session only, and then search for the missing secure disk in future sessions.
Administrator	Manage Disk	Boot Device	Secure Erase	Select the Secure Erase item to erase all of the data on the disk and unlock it if required. This might take a long time. NOTE: The system will be unusable until the system files are reinstalled. The ATA secure-erase command is a one-pass overwrite, which erases the entire disk including firmware. The disk remains an encrypted disk.
Administrator	Manage Disk	Boot Device	Erase/Unlock	Select the Erase/Unlock item to cryptographically erase all data on the disk and unlock the disk to allow a user to gain access to it from any printer. NOTE: The system will be unusable until the system files are reinstalled. It erases the encryption key. The encryption key is erased, so the disk becomes a non-encrypted disk.
Administrator	Manage Disk	Boot Device	Get Status	This item provides disk status information if any is available.

Table 2-4 Pre-boot menu options (3 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Manage Disk (continued)	Internal Device		Select the Internal Device item to erase the internal device or get a status about the internal device.
Administrator	Manage Disk	Internal Device	Secure Erase	Select the Secure Erase item to erase all of the data on the disk and unlock it if required. This might take a long time. NOTE: The system will be unusable until the system files are reinstalled. The ATA secure-erase command erases the entire disk, including firmware. The disk remains an encrypted disk.
Administrator	Manage Disk	Internal Device	Erase/Unlock	Select the Erase/Unlock item to cryptographically erase all of the data on disk and unlock the disk to allow the user to gain access to it from any printer. NOTE: The system will be unusable until the system files are reinstalled. The HP High Performance Secure Hard Disk is erased.
Administrator	Manage Disk	Internal Device	Get Status	This item provides disk status information if any is available.
Administrator	Manage Disk	External Device		Select the External Device item to erase the external device or get status about the external device.
Administrator	Manage Disk	External Device	Secure Erase	Select the Secure Erase item to erase all of the data on the disk and unlock it if required. This might take a long time. NOTE: The system will be unusable until the system files are reinstalled. The ATA secure-erase command erases the entire disk, including firmware. The disk remains an encrypted disk.
Administrator	Manage Disk	External Device	Erase/Unlock	Select the Erase/Unlock item to cryptographically erase all of the data on disk and unlock the disk to allow a user to gain access to it from any printer. NOTE: The system will be unusable until the system files are reinstalled. The encryption key is erased, so the disk becomes a non-encrypted disk.
Administrator	Manage Disk	External Device	Get Status	This item provides disk status information if any is available.

Table 2-5 Pre-boot menu options (4 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [DHCP]		The network can be configured to obtain the network settings from a DHCP server or as static. Use this item for automatic IP address acquisition from the DHCP server.

Table 2-5 Pre-boot menu options (4 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [STATIC]		Use this item to manually assign the network addresses.
Administrator	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [STATIC]	IP Address	Use this item to manually enter the IP addresses.
Administrator	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [STATIC]	Subnet Mask	Use this item to manually enter the subnet mask.
Administrator	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [STATIC]	Default Gateway	Use this item to manually enter the default gateway.
Administrator	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [STATIC]	Save	Select the Save item to save the manual settings.

Table 2-6 Pre-boot menu options (5 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Startup Options			Select the Startup Options item to specify options that can be set for the next time the printer is turned on and initializes to the Ready state.
Administrator	Startup Options	Show Revision		Not currently functional: Select the Show Revision item to allow the printer to initialize and show the firmware version when the printer reaches the Ready state. Once the printer power is turned on the next time, the Show Revision item is unchecked so that the firmware revision is not shown.
Administrator	Startup Options	Cold Reset		Select the Cold Reset item to clear the IP address and all customer settings. (This item also returns all settings to factory defaults.) NOTE: Items in the Service menu are not reset.
Administrator	Startup Options	Skip Disk Load		Select the Skip Disk Load item to disable installed third-party applications.

Table 2-6 Pre-boot menu options (5 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Startup Options	Skip Cal		Select the Skip Cal item to skip the printer calibration for the very next power-initialization cycle only.
Administrator	Startup Options	Lock Service		CAUTION: Select the Lock Service item to lock the Service menu access (both in the Pre-Boot menu and the Device Maintenance menu). Service personnel must have the administrator remove the Lock Service setting before they can open the Service menu.
Administrator	Startup Options	Skip FSCK		Select the Skip FSCK item to disable Chkdisk/ScanVolume during startup.
Administrator	Startup Options	First Power		Not currently functional: This item allows the printer to initialize as if it is the first time it has been turned on. For example, the user is prompted to configure first-time settings like date/time, language, and other settings. Select this item so that it is enabled for the next time the printer power is turned on. When the printer power is turned on the next time, this item is unchecked so that the pre-configured settings are used during configuration, and the first-time setting prompt is not used.
Administrator	Startup Options	Embedded Jetdirect Off		Select the Embedded Jetdirect Off item to disable the embedded HP Jetdirect. By default this item is unchecked so that HP Jetdirect is always enabled.
Administrator	Startup Options	WiFi Accessory		Select the WiFi Accessory item to enable the wireless accessory.

Table 2-7 Pre-boot menu options (6 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Diagnostics			Diagnostic items are useful to diagnose hardware components and their interface connections. Use these items to troubleshoot specific hardware components, and the interface between them and other components.
Administrator	Diagnostics	Memory	Do Not Run	Use the Do Not Run item to exclude the Memory diagnostic when executing multiple diagnostics.
Administrator	Diagnostics		Short	Use the Short item to select a brief memory test. NOTE: This test requires about four minutes to execute.
Administrator	Diagnostics		Long	Use the Long item to select an extended memory test. NOTE: This test requires about twenty minutes to execute.
Administrator	Diagnostics	Disk	Do Not Run	Use the Do Not Run item to exclude the Disk diagnostic when executing multiple diagnostics.

Table 2-7 Pre-boot menu options (6 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Diagnostics		Short	Use the Short item to select a brief firmware self-test. NOTE: This test requires about two or three minutes to execute.
Administrator	Diagnostics		Long	Use the Long item to select an extended firmware self-test. NOTE: This test requires about sixty minutes to execute.
Administrator	Diagnostics		Optimized	Use the Optimized item to select a test that checks the active sectors on the disk. NOTE: This test requires about thirty minutes to execute.
Administrator	Diagnostics		Raw	Use the Raw item to select a test that checks every sector on the disk. NOTE: This test requires about fifty minutes to execute.
Administrator	Diagnostics		Smart	Use the Smart item to select a very brief test that checks the drive self-monitoring analysis and reporting technology (SMART) status—the drive detects and reports reliability indicators to help anticipate disk failures (SMART status).
Administrator	Diagnostics	CPB		Use the CPB item to verify the integrity of the copy processor board (CPB) and the formatter PCA connections.
Administrator	Diagnostics	Interconnect		Use the Interconnect item to verify the integrity of the interconnect PCA (ICB) and its connections.
Administrator	Diagnostics	Run Selected		Select the Run Selected item to execute a selected test. NOTE: If more than one test is selected, they are executed in sequence.

Table 2-8 Pre-boot menu options (7 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Remote Admin	Start Telnnet		The Remote Admin item allows a service technician to access to the printer Pre-boot menu remotely, and to navigate the menu selections from a remote location. IMPORTANT: A Remote Admin connection must be initiated by a person that is physically present at the printer. This person will also need to provide a randomly generated PIN to the remote service technician. NOTE: For more information about using the Remote Admin function, see "Remote Admin in the Troubleshooting Manual.
Administrator	Remote Admin	Stop Telnnet		
Administrator	Remote Admin	Refresh IP		
Administrator	System Triage	Copy Logs		If the device will not boot to the Ready state, or the diagnostic log feature found in the Troubleshooting menu is not accessible, then use the System Triage item to copy the diagnostic logs to a USB flash drive at the next printer start up. The files can then be sent to HP to help diagnose the problem.

Table 2-8 Pre-boot menu options (7 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Change Svc PWD			Use this item to change the Service menu personal identification number (PIN).
Administrator	Reset Svc PWD			If the Service menu personal identification number (PIN) has been changed. Use this item to reset it to the original PIN.
Service Tools	Reset Password			Use this item to reset the Pre-boot administrator password.
Service Tools	Subsystems			For manufacturing use only. Do not change these values.
Developer Tools	Netexec			

Remote Admin

This section describes the following Remote Admin items.

The Remote Admin feature allows remote access the printer [Pre-boot](#) menu (BIOS environment). The printer functions as a telnet server which uses the telnet networking protocol to transmit text data. Any computer (with telnet installed and enabled) can function as the telnet client to remotely display and interact with the [Pre-boot](#) menu.



IMPORTANT: While the Remote Admin function allows remote access the [Pre-boot](#) menu, for security reasons the Remote Admin connection must be initiated by a person that is physically present at the printer.

Required software and network connection


Before using the Remote Admin feature, make sure that the telnet network protocol is installed and enabled on the remote telnet client computer.

 **NOTE:** This section describes enabling and configuring the telnet feature for computers using a Windows® operating system.

HP recommends that the telnet client computer be a Windows-based system; however, there are other operating systems that support the telnet network protocol. For information about enabling and configuring the telnet network protocol for other operating systems, see the owner's manual for that operating system.

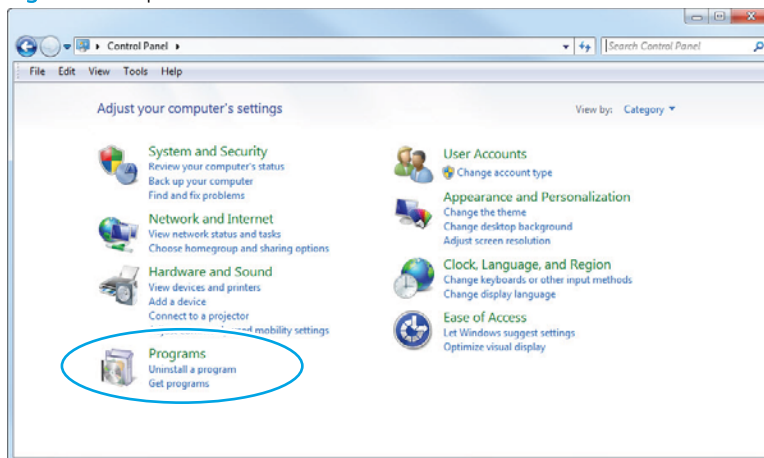
Enable the Windows telnet client

All computers using the Windows operating system have the telnet client installed, however, the telnet client function might not be enabled by default.

 **NOTE:** The figures and menus in this section are for the Windows 7 Enterprise® operating system. Screens and menu selections might vary slightly for other operating systems.

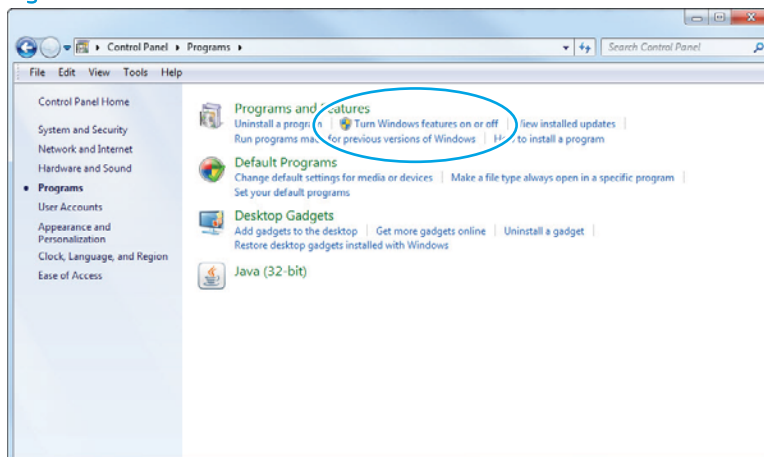
1. Use the **Start** menu to open the **Control Panel**, and then click the **Programs** item to select it.

Figure 2-4 Open the Control Panel



2. Click the **Turn Windows features on or off** item to select it.

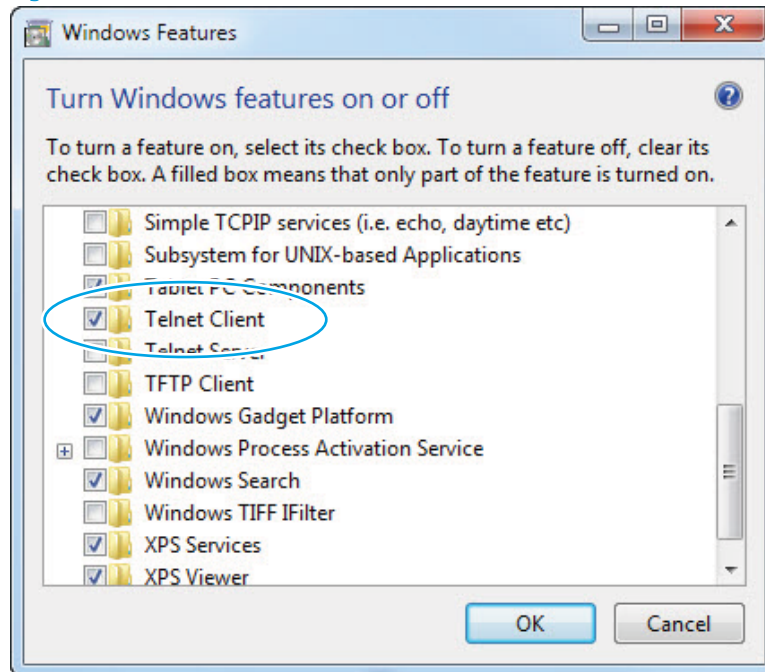
Figure 2-5 Turn Windows features on or off



3. In the **Windows Features** box, scroll down to **Telnet Client**. If the check box is not checked, click the box to select it, and then click the **OK** button.

 **TIP:** If the check box is already checked then the telnet client function is already enabled. Click the **Cancel** button.

Figure 2-6 Enable the telnet client feature



Network connection

The remote telnet client computer must have direct network access to the printer for the Remote Admin function to operate. This means that the telnet client computer must be on the same network as the printer.

The Remote Admin function cannot be accessed through a network firewall or other remote access network security programs.


If a private network is not accessible, ask the network administrator to set up a virtual private network (VPN) connection to the network.

Connect a remote connection

Use the following procedures to connect a remote connection.

Start the telnet server function at the printer from an LCD control panel (M751/E75245)

For security reasons the Remote Admin feature must be initiated by a person that is physically present at the printer. The following steps must be performed by a person that is physically present at the printer.

 **NOTE:** This person might need to sign in with an administrator or service password depending on how the printer is configured.


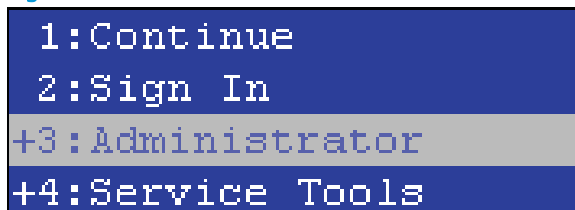
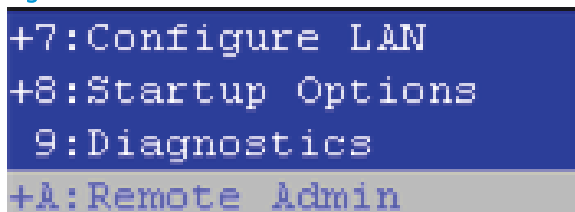
1. Turn the printer on.
2. Press the **Cancel**  button when the **1/8** displays under the HP logo on the control panel display.
3. Use the arrow buttons on the control panel to scroll down and highlight the **+3:Administrator** item, and then select **OK**.

Figure 2-7 Select the **+3:Administrator** item



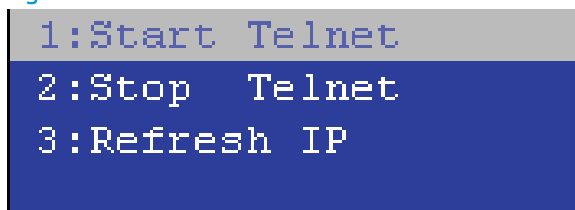
4. Use the arrow buttons on the control panel to scroll down and highlight the **+A:Remote Admin** item, and then select **OK**.

Figure 2-8 Select the **+A:Remote Admin** item



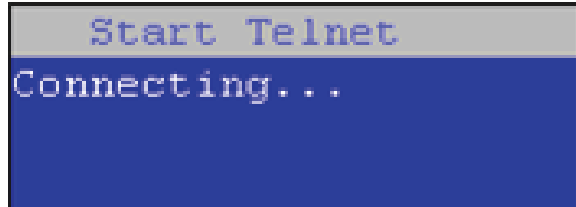
5. Use the arrow buttons on the control panel to scroll down and highlight the **1:Start Telnet** item, and then select **OK**.

Figure 2-9 Select the **1:Start Telnet** item



6. Do one of the following
 - If a connecting message displays briefly, go to step 7.

Figure 2-10 Telnet connecting message




- If an error message displays, use the steps below to identify the problem.

Figure 2-11 Telnet error message

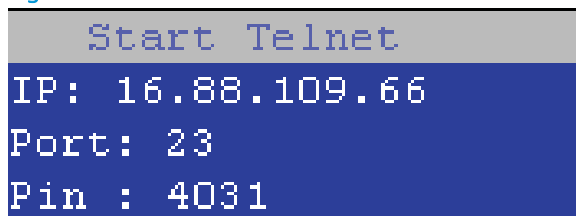


1. The printer network cable is not correctly connected.
 2. The BIOS LAN settings are incorrect.
 - The printer should be configured to use a static IP address, but is configured to use DHCP instead.
 - The printer is configured to use a static IP address, but the IP address is incorrect.
 3. The printer is correctly configured to use DHCP, but the DHCP server is not turned on or is malfunctioning.
7. When the printer telnet server function is initialized, the following screen appears. Use the information on this screen to connect the remote telnet client computer to the printer.

 **NOTE:** The printer is now ready to receive remote telnet client commands.


- **IP:** The static or dynamically allocated IP address for the printer.
- **Port:** The standard telnet port (23).
- **Pin:** A randomly generated 4-digit personal identification number (PIN).

Figure 2-12 Telnet server function initialized



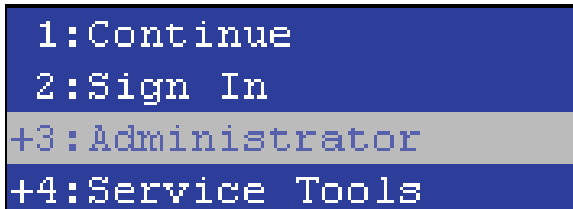
Start the telnet server function at the printer from a touchscreen control panel (M856/E85055/M776)

For security reasons the Remote Admin feature must be initiated by a person that is physically present at the printer. The following steps must be performed by a person that is physically present at the printer.

 **NOTE:** This person might need to sign in with an administrator or service password depending on how the printer is configured.

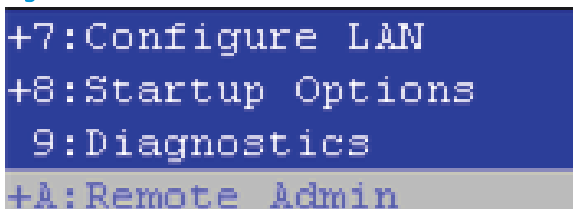
1. Turn the printer on.
2. The HP logo displays on the printer control panel. When a 1/8 with an underscore displays, touch the middle of the screen to open the [Pre-boot](#) menu.
3. Use the arrow buttons on the touchscreen to scroll down and highlight the [+3:Administrator](#) item, and then touch the [OK](#) button to select it.

Figure 2-13 Select the [+3:Administrator](#) item



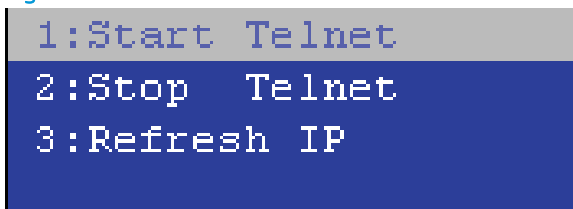
4. Use the arrow buttons on the touchscreen to scroll down and highlight the [+A:Remote Admin](#) item, and then touch the [OK](#) button to select it.

Figure 2-14 Select the [+A:Remote Admin](#) item



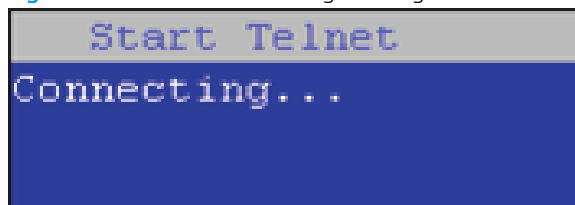
5. Use the arrow buttons on the touchscreen to scroll down and highlight the [1:Start Telnet](#) item, and then touch the [OK](#) button to select it.

Figure 2-15 Select the [1:Start Telnet](#) item



6. Do one of the following
 - If a connecting message displays briefly, go to step 7.

Figure 2-16 Telnet connecting message




- If an error message displays, use the steps below to identify the problem.

Figure 2-17 Telnet error message

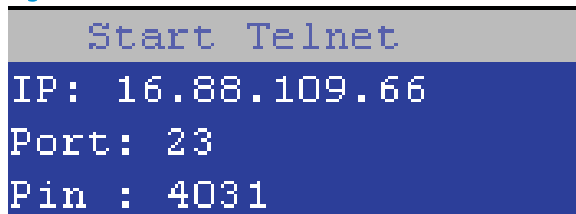


1. Check the printer network cable and make sure it is correctly connected.
 2. Verify that the BIOS LAN settings are correct.
 - If the printer should be configured to use a static IP address, make sure it is not configured to use DHCP instead.
 - The printer is configured to use a static IP address, make sure the IP address is correct.
 3. The printer is correctly configured to use DHCP, but the DHCP server is not turned on or is malfunctioning.
7. When the printer telnet server function is initialized, the following screen appears. Use the information on this screen to connect the remote telnet client computer to the printer.

 **NOTE:** The printer is now ready to receive remote telnet client commands.

- **IP:** The static or dynamically allocated IP address for the printer.
- **Port:** The standard telnet port (23).
- **Pin:** A randomly generated 4-digit personal identification number (PIN).

Figure 2-18 Telnet server function initialized

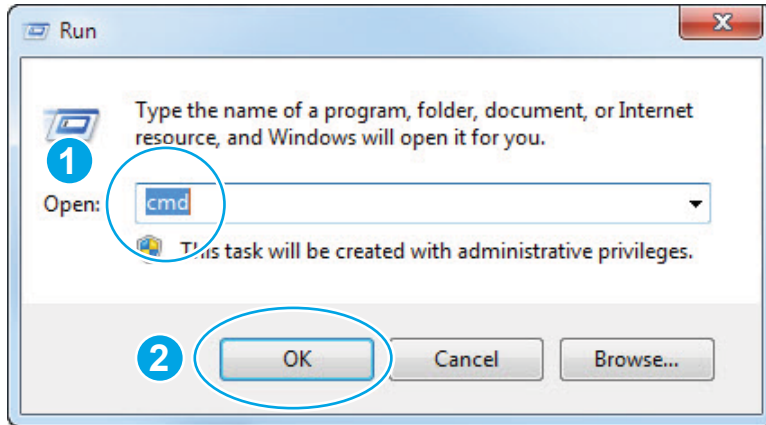


Start the telnet client function at the remote computer

The following steps establish a Remote Admin connection from a remote computer to the printer.

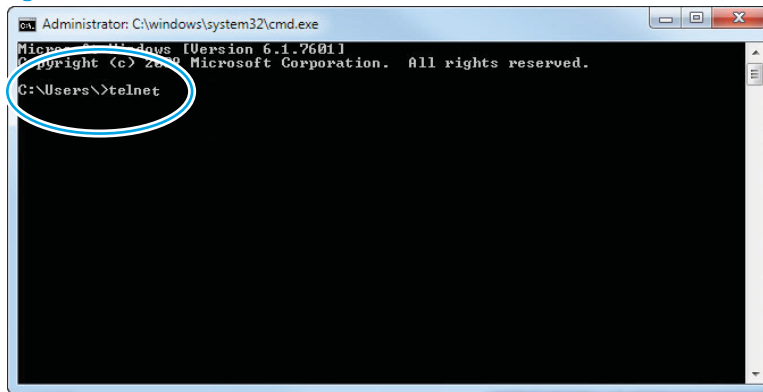
1. From the **Start** menu select **Run** to open a dialog box, type `cmd` in the **Open** field, and then select the **OK** button to open a Windows command window.

Figure 2-19 Open a command window




2. From any displayed directory, type `telnet` at the prompt, and then press the **Enter** key.

Figure 2-20 Start a telnet session



3. Type `<IP ADDRESS>` at the telnet prompt, and then press the **Enter** key.

 **NOTE:** For `<IP ADDRESS>`, substitute the IP address that was displayed when following the instructions in the Starting the telnet server function at the printer in the Troubleshooting manual.


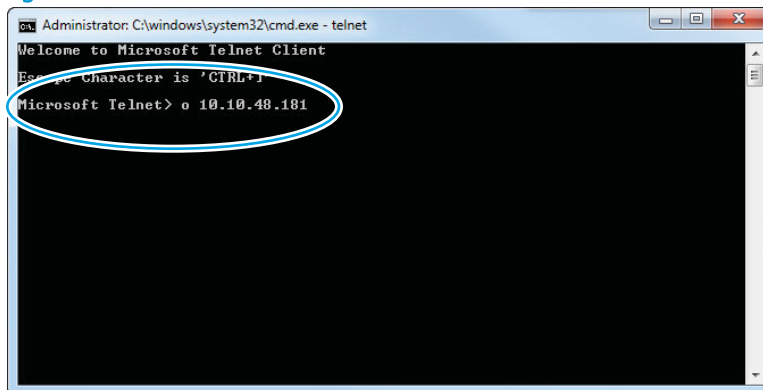
 **TIP:** If the telnet connection fails to establish a connection, the printer is probably behind a firewall or on a different network than the remote telnet client computer. See the Network connection section in the Troubleshooting manual.

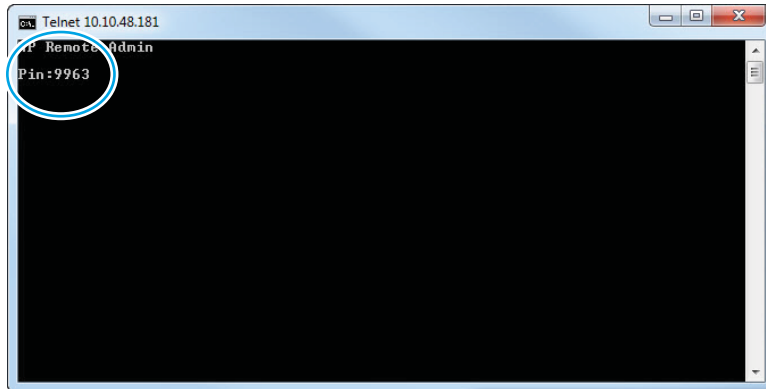
Figure 2-21 Establish a telnet connection



- At the prompt, type the PIN that was displayed when following the instructions in the Starting the telnet server function at the printer in the Troubleshooting manual. Press the **Enter** key.

IMPORTANT: Make sure to type the PIN correctly. After five incorrect PIN entries, the printer terminates the Remote Admin connection. The Remote Admin feature must be re-initiated at the printer. See the Starting the telnet server function at the printer section in the Troubleshooting manual.

Figure 2-22 Enter the PIN

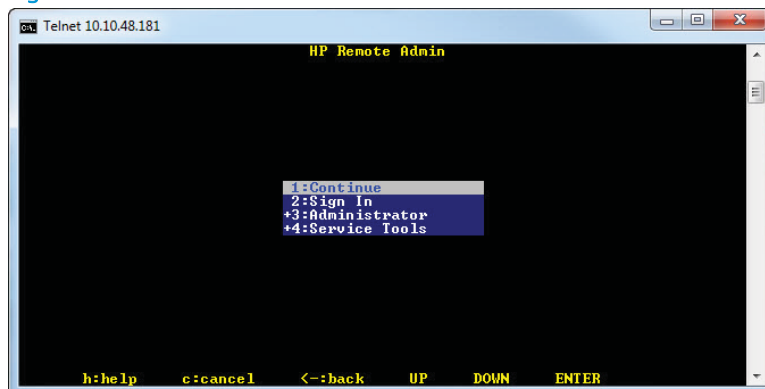


- The following screen displays when the correct PIN is entered and the Remote Admin connection is successful. For information about the Pre-boot menu and options, see the Pre-boot menu options section in the Troubleshooting manual.

NOTE: Because a Remote Admin connection is an unsecure telnet network protocol connection, the following Pre-boot menu items are disabled for the remote telnet client computer.

- The +3:Administrator menu 4:Change Password item.
- The +3:Administrator menu 5:Clear Password item.
- The +3:Administrator menu 6:Disk Manage item.

Figure 2-23 Remote Admin window



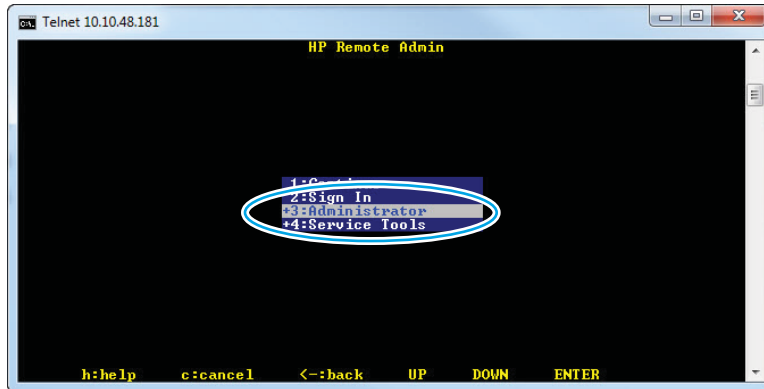
Disconnect a remote connection

The Remote Admin connection can be terminated from the printer control panel or the remote telnet client computer.

NOTE: The following procedure describes terminating a Remote Admin connection from the remote telnet client computer.

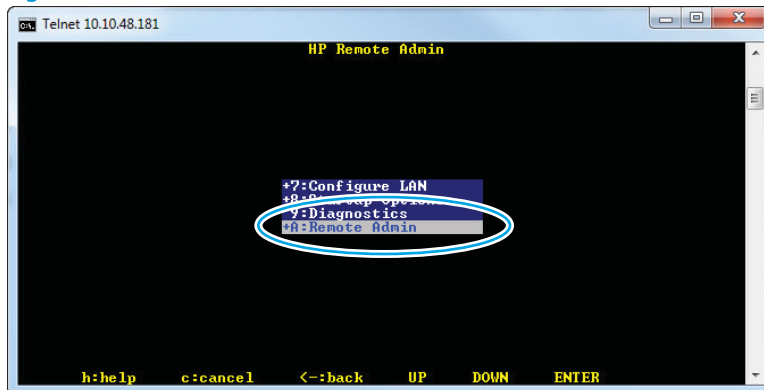
1. From the Pre-boot main menu, use the arrow buttons on the keyboard to scroll down to the **+3:Administrator** item, and then press the **Enter** key.

Figure 2-24 Access the administrator menu




2. Use the arrow buttons on the keyboard to scroll down to the **+A:Remote Admin** item, and then press the **Enter** key.

Figure 2-25 Access the remote admin menu

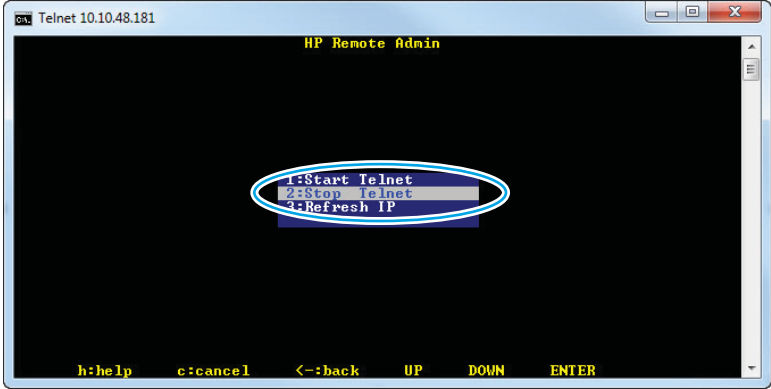


3. Use the arrow buttons on the keyboard to scroll down to the **2:Stop Telnet** item, and then press the **Enter** key. The Remote Admin connection between the printer and the remote telnet client computer terminates.

 **IMPORTANT:** The printer remains in the Pre-boot menu. Have the person that is physically present at the printer do the following:

- Touch the **Home** button to return to the main Pre-boot menu and highlight the **1:Continue** item, and then touch the **OK** button. The printer will continue to initialize.

Figure 2-26 Terminate the telnet connection



Troubleshooting process

Review the following information about the troubleshooting process.

Determine the problem source

When the printer malfunctions or encounters an unexpected situation, the printer control panel alerts the user to the situation.

This section contains a pre-troubleshooting checklist and a troubleshooting flow chart to filter out many possible causes of the problem.

- Use the pre-troubleshooting check list to gather information about the problem from the customer.
- Use the troubleshooting flowchart to pinpoint the root cause of hardware malfunctions. The flowchart guides you to the section of this chapter that contains steps for correcting the malfunction.

Before beginning any troubleshooting procedure, check the following issues:

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



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

Pre-troubleshooting checklist

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

Table 2-9 Pre-troubleshooting checklist

General topic	Questions
Environment	<ul style="list-style-type: none">• Is the printer installed on a solid, level surface (+/- 1°)?• Is the power-supply voltage within ± 10 volts of the specified power source?• Is the power-supply plug inserted in the printer and the wall outlet (not a surge protector)?• Is the operating environment within the specified parameters?• Is the printer exposed to ammonia gas, such as that produced by diazo copiers or office cleaning materials? NOTE: Diazo copiers produce ammonia gas as part of the copying processes. Ammonia gas (from cleaning supplies or a diazo copier) can have an adverse effect on some printer components (for example, the toner cartridge or cartridges OPC).• Is the printer exposed to direct sunlight?• Is the printer exposed to an air conditioning or heating vent that can cause temperature fluctuations?
Media	<ul style="list-style-type: none">• Does the customer use only supported media?• Is the media in good condition (no curls, folds, or distortion)?• Is the media stored correctly and within environmental limits?

Table 2-9 Pre-troubleshooting checklist (continued)

General topic	Questions
Input trays	<ul style="list-style-type: none"> • Is the amount of media in the tray within specifications? • Is the media correctly placed in the tray? • Are the paper guides aligned with the stack (no gaps in the stack or excessive pressure causing the stack to bow)? • Is the tray (or trays) correctly installed in the printer?
Toner cartridge	<ul style="list-style-type: none"> • Are the toner cartridges installed correctly? • Are the toner cartridges genuine HP cartridges?
Transfer unit and fuser	<ul style="list-style-type: none"> • Are the transfer unit and fuser installed correctly? <p>NOTE: For printers with an intermediate transfer belt (ITB), is the ITB installed correctly and fully seated. If a replacement ITB was installed, was all of the packing materials removed?</p>
Covers	<ul style="list-style-type: none"> • Is the toner cartridge door closed?
Condensation	<ul style="list-style-type: none"> • Does condensation occur following a temperature change (particularly in winter following cold storage)? If so, wipe affected parts dry or leave the printer on for 10 to 20 minutes. • Was a toner cartridge (or cartridges) opened soon after being moved from a cold to a warm room? If so, allow the toner cartridge (or cartridges) to sit at room temperature for 1 to 2 hours.
Miscellaneous	<ul style="list-style-type: none"> • Check for and remove any non-HP components (toner cartridges, memory modules, and EIO cards) from the printer. • Remove the printer from the network and ensure that the failure is associated with the printer before beginning troubleshooting. • For any color print-quality issues (color printers only), calibrate the printer, and then print a diagnostics page to verify print quality.

Troubleshooting flowchart

This flowchart highlights the general processes to follow to quickly isolate and solve printer hardware problems.

Each row depicts a major troubleshooting step. Follow a “yes” answer to a question to proceed to the next major step. A “no” answer indicates that more testing is needed. Go to the appropriate section in this chapter, and follow the instructions there. After completing the instructions, go to the next major step in this troubleshooting flowchart.

Table 2-10 Troubleshooting flowchart

Step	Question	Action
1	Is the printer on and does a readable message display?	Yes: Go to step 2.
Power on		<p>No:</p> <ul style="list-style-type: none"> • Follow the power-on troubleshooting checks. • After the control panel display is functional, go to step 2.

Table 2-10 Troubleshooting flowchart (continued)

Step	Question	Action
2 Control panel messages	Does the message Ready display on the control panel?	Yes: Go to step 3. No: After the errors have been corrected, go to step 3.
	3 Event log	Open the Troubleshooting menu and print an event log to see the history of errors with this printer. Yes: Go to step 4. No:
	Does the event log print?	<ul style="list-style-type: none"> • If the event log does not print, check for error messages. • If paper jams inside the printer, see the jams section of the printer service manual. • If error messages display on the control panel when trying to print an event log, see the control panel message section of the printer troubleshooting service manual. • After successfully printing and evaluating the event log, go to step 4.
4 Information pages	Open the Reports menu and print the configuration pages to verify that all the accessories are installed. Yes: Go to step 5. No:	
	Are all the accessories installed?	<ul style="list-style-type: none"> • If accessories that are installed are not listed on the configuration page, remove the accessory and reinstall it. • After evaluating the configuration pages, go to step 5.
5 Print quality	Does the print quality meet the customer's requirements? Yes: Go to step 6. No:	
		<ul style="list-style-type: none"> • Compare the images with the sample defects in the image defect tables. See the images defects table in the printer repair service manual. • After the print quality is acceptable, go to step 6.
6 Interface	Can the customer print successfully from the host computer? Yes: This is the end of the troubleshooting process. No:	
		<ul style="list-style-type: none"> • Verify that all I/O cables are connected correctly and that a valid IP address is listed on the HP Jetdirect configuration page. • If error messages display on the control panel when trying to print an event log, see the control-panel message section of the printer troubleshooting service manual. • When the customer can print from the host computer, this is the end of the troubleshooting process.

Power subsystem

Review the following information about the power subsystem.

Power-on checks

The basic printer functions should start up when the printer is connected into an electrical outlet and the power switch is pushed to the *on* position. If the printer does not start, use the information in this section to isolate and solve the problem.

If the control panel display remains blank, random patterns display, or asterisks remain on the control panel display, perform power-on checks to find the cause of the problem.

Power-on troubleshooting overview

Perform troubleshooting steps to isolate power-on failures.

During normal operation, cooling fans begins to spin briefly after the printer power is turned on. Place a hand over the vents in the left-side or rear cover. If the fans are operating, you will feel air passing out of the printer. You can lean close to the printer and hear the fans operating. If the fans are operating, the DC-side of the power supply is functioning.

After the fans are operating, the main motor turns on (unless the left door or cartridge access door is open, a jam condition is sensed, or the paper-path sensors are damaged). You might be able to visually and audibly determine if the main motor is turned on.

If the fans and main motor are operating correctly, the next troubleshooting step is to isolate print engine, formatter, and control panel problems.

Troubleshooting power on problems

Use the following procedure to troubleshoot power on problems.

If the control panel is blank when you turn on the printer, check the following items.

1. Verify that power is available to the printer. If the printer is plugged into a surge protector or uninterruptible power supply (UPS), remove it. Plug the printer directly into a known operating wall receptacle (make sure that the wall receptacle provides the correct voltage and current for the printer).

Unplug any other devices on the same circuit that the printer is using.

2. Try another known operating wall receptacle and a different power cord.
3. Make sure that the power cord is securely connected to the printer and the wall outlet.
4. Make sure that the power switch is in the *on* position, and then verify that the heartbeat LED on the formatter is blinking.
5. Make sure that the control panel display wire harness is connected.
6. Remove any external solutions, and then try to turn the printer on again.
7. To eliminate a thermal switch issue, unplug the power cord and leave it unplugged for over 20 minutes. Re-attach the power cord, and then turn the power on again.

Troubleshooting a blank control-panel display

Learn how to troubleshoot a blank control-panel display.

Customers usually report that the control panel display is not showing anything. It is very important to collect as much information as possible from the customer about the issue to help resolve it.

Following are some printer behaviors that might be reported by a customer as a blank control-panel display:

- The control panel is completely blank (no LEDs or backlight).
- The control panel is blank, but there might be LEDs illuminated.
- The control panel is blank, LEDs are on or flashing, the back light is on, but no text is visible.

Following are some possible causes of a blank control panel display:

- No power to the printer.
- The control panel contrast setting is not correctly adjusted.
- The formatter connector(s) are not fully seated into the connector(s) on the DC controller.
- The memory DIMM is missing, faulty, incorrectly installed, or is not fully seated.
- A faulty component is installed on the formatter (for example a memory DIMM, network PCA, USB device, or other component).
- The formatter is defective.
- The control panel connector is not fully seated, or the control panel is defective.
- The DC controller is defective.

Following are some areas to explore with a customer reporting a blank display:

- Was the printer newly installed or has the printer been properly functioning? If the printer was newly-installed, ask the customer if they noticed any damage to the shipping box or any damage to the printer.
- What happened just prior to the control-panel display going blank?
 - Was the printer recently serviced?
 - Did a power outage recently occur?
 - Did a lightning storm recently occur?
 - Did the customer recently add a memory DIMM or install a third-party component?
 - Was firmware recently upgraded?
- Is the control panel display completely blank (might be faint text and no back light)?
- Is the control panel display back light on?

Recommended actions:

If the control panel display is completely blank (no LEDs illuminated or no back light), check to see if the printer is getting power. Listen for fans or any printer initialization sounds when the power is turned on. If there are no signs of power, then perform the following:

1. Make sure that the printer is plugged directly into an active electrical outlet (not a power strip or uninterruptible power supply) that delivers the correct voltage.

 **TIP:** Try using a different power cable, if possible.

2. Turn the printer power on, and make sure that the fan(s) run briefly (this indicates that the power supply is operational).
3. Turn the printer power off.
4. Make sure that the control panel display wire harness and flat cable (if applicable) are properly connected and fully seated, and then turn the printer power on again.
5. Verify the status LEDs are illuminated, but the control panel display is blank.

6. From a host computer, send a print job to the printer.



NOTE: If the print job correctly prints, then the problem is most likely due to a defective control panel.

7. Log into the Embedded Web Server (EWS) and check to see if the remote control panel will load.
8. Run the control panel diagnostics.
9. Turn the printer power off, and then make sure that the memory DIMM is installed in the correct slot and is fully seated.
10. Remove all of the components/accessories installed on the formatter (for example, hard drive, solid-state drive, memory DIMMs, network PCA, USB devices, or other devices).
11. Make sure that all of the connectors on the formatter are correctly connected and fully seated.
12. Turn the printer power on, and then check the control panel display.
13. If the printer control panel is properly working, replace each removed component (one at a time) to determine which one is causing the problem.




CAUTION: Turn the printer power off before removing or installing components.

14. If the control panel display is still blank after performing the above troubleshooting steps, replace the formatter.

Control panel checks

Review the following information about control panel checks.

 **NOTE:** The printer includes a diagnostic test mode for the touchscreen control panels. Diagnostic tests are not available for the LCD control panel.

Control panel diagnostics (M856/E85055 and M776)

Review the following information about the control panel diagnostics.

Touchscreen diagnostic mode (M856/E85055 and M776)

Use the diagnostics in this section to test the control panel hardware and embedded firmware.

These tests are useful for checking control panel functionality independent of the printer control panel system diagnostics. To test the control panel using the system diagnostics, see "Control panel system diagnostics (M856/E85055)" in the *Troubleshooting Manual*.

1. **M856/E85055 only:** Locate the diagnostic-tests access button on the back of the control panel.

Figure 2-27 Diagnostic-tests access button (M856/E85055)



2. **M856/E85055 only:** Press the diagnostics-access button. Repeatedly pressing the button cycles through the available diagnostics.

 **NOTE:** A pen, pencil, or other small blunt object is needed to press the button.

 **TIP:** When pressed, the button illuminates green.

Figure 2-28 Press the diagnostics-access button (M856/E85055)



3. **M776 only:** Locate the diagnostic-tests access button on the back of the control panel.

Figure 2-29 Diagnostic-tests access button (M776)



4. **M776 only:** Press the diagnostics-access button. Repeatedly pressing the button cycles through the available diagnostics.

Figure 2-30 Press the diagnostics-access button (M776)



5. A yellow screen appears (after the first press of the button) indicating that the control panel firmware is version A (a magenta screen indicates version B firmware).

 **NOTE:** If a different color appears on the screen, contact your global business unit (GBU) to determine the firmware version.


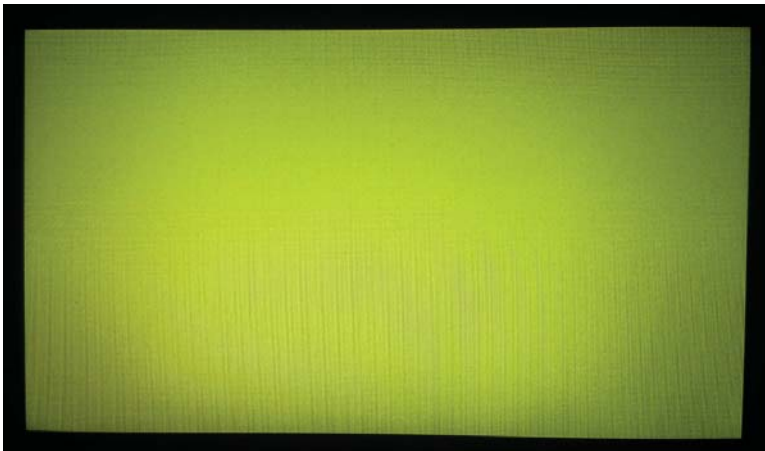
 **TIP:** After 4 seconds of inactivity, the diagnostic mode times out and is exited.

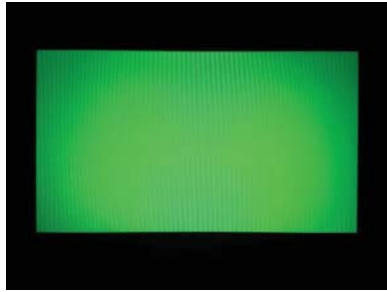
Figure 2-31 Control panel version A yellow screen



6. Touch the screen to cycle the screen through the following:
 - A red screen.



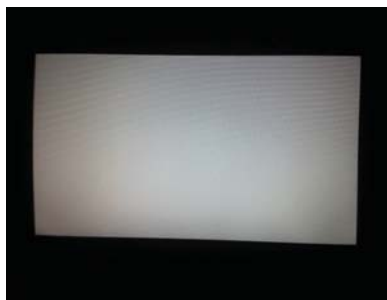
- A green screen.



- A blue screen.



- Five brightness levels of a white screen.



- A final black screen.

💡 **TIP:** When the final black screen displays, press the [Home](#) button to cycle through the diagnostic screens and test its functionality.



7. Pressing the diagnostic-tests button with the black screen displayed exits the diagnostic mode.

Control panel system diagnostics (M856/E85055/M776)

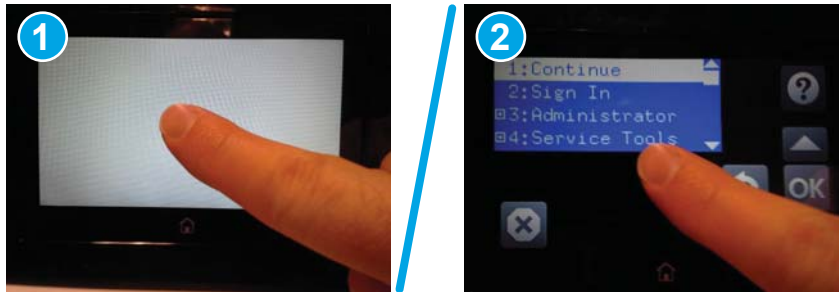
Use the diagnostics in this section to test the control panel hardware and display using the printer firmware system diagnostics.

Open the control panel system diagnostic tests

Use the following procedure to open the control panel system diagnostics tests from a touchscreen control panel.

1. Turn the printer power off, and then on again.
2. Touch the middle of the control panel display when you see the 1/8 under the logo.

Figure 2-32 Open the Pre-boot menu



3. On the Pre-boot menu screen, use the following buttons to navigate the tests.

Figure 2-33 Pre-boot menu

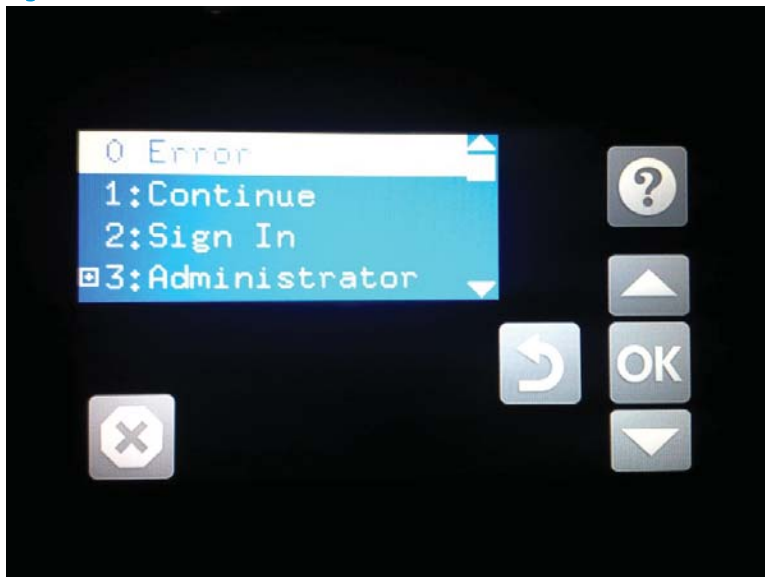


Table 2-11 Pre-boot menu button descriptions


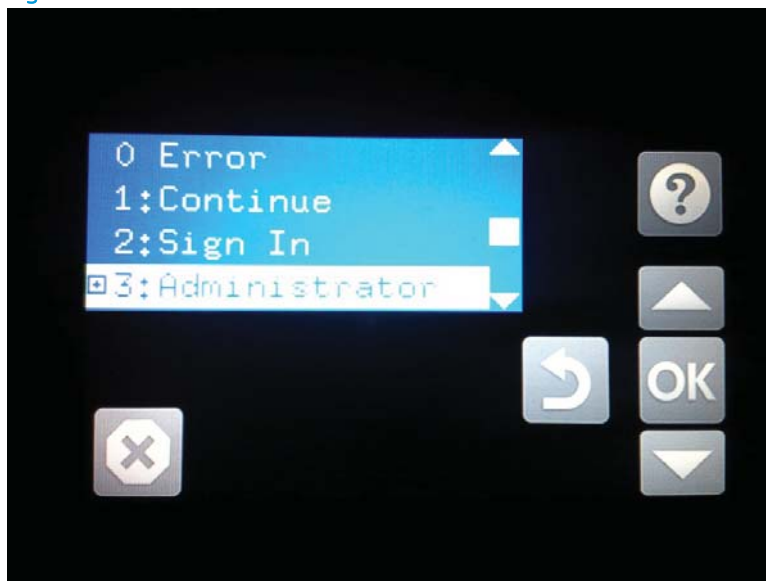
Button	Description
	Use this button to see more information about a selected item.

Table 2-11 Pre-boot menu button descriptions (continued)

Button	Description
	Use this button to scroll up through menu items.
	Use this button to select a highlighted menu item.
	Use this button to scroll down through menu items.
	Use this button to go back to the previous menu.
	Not used.
	Use this button to exit a diagnostic test.

- Use the [down arrow ▼](#) button to scroll to **+3 Administration**, and then press the [OK](#) button to select it.

Figure 2-34 Access the administration menu



5. Use the **down arrow ▼** button to scroll to **+E CP Diagnostics**, and then press the **OK** button to select it.

 **NOTE:** An administrator password might be required to continue.

Figure 2-35 Access the diagnostics menu



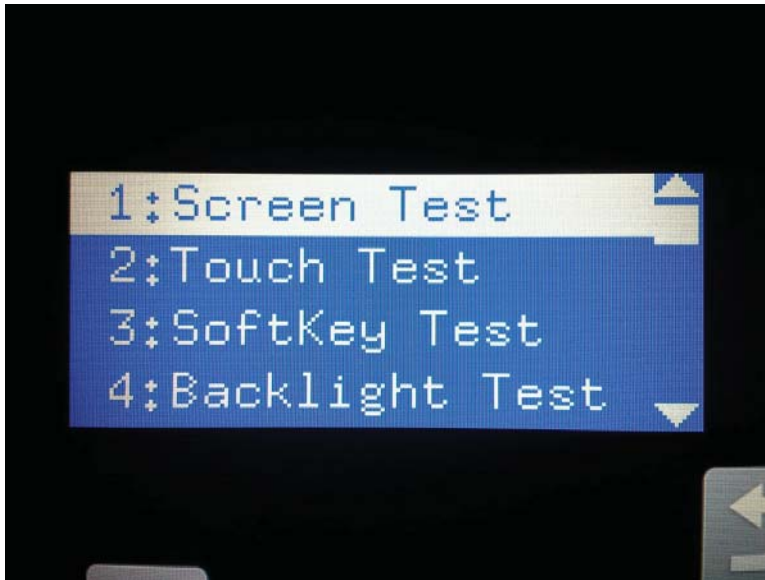
Screen test

Use the following procedure to perform a screen test.

1. Open the control panel system diagnostic tests. See "Open the control panel systems diagnostic tests" in the Troubleshooting Manual.

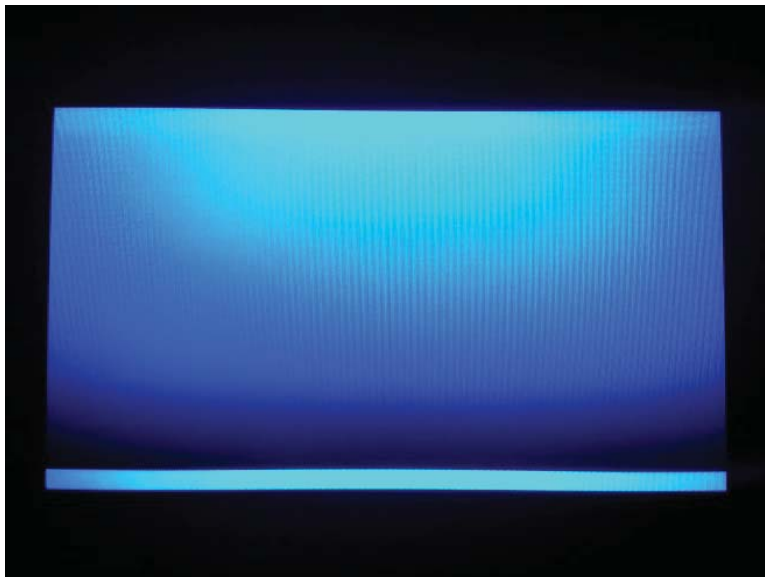
2. With **1 Screen Test** highlighted, press the **OK** button to select it.

Figure 2-36 Open the screen test



The blue vertical gradient screen appears.

Figure 2-37 Blue vertical gradient screen



3. Touch the touchscreen to scroll through the remaining touchscreen test screens.

 **NOTE:** Touch the **Home** button to exit the test.

Table 2-12 Touchscreen test screens

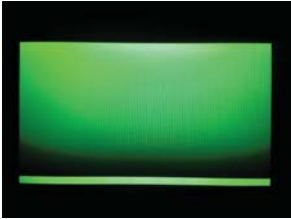
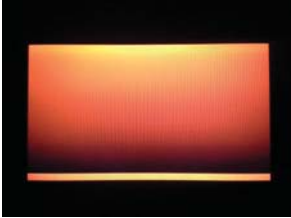
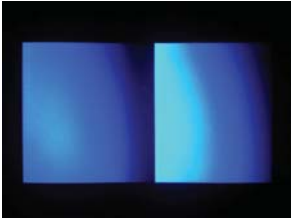
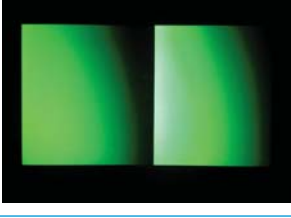
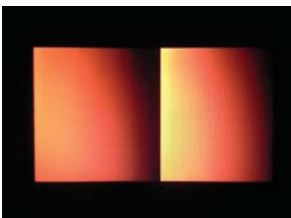



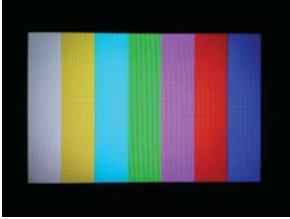
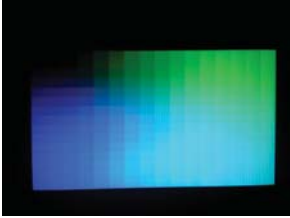
Screen	Description
 A rectangular screen with a vertical gradient from dark green at the top to light green at the bottom. A thin horizontal line is visible at the bottom edge.	Green vertical gradient
 A rectangular screen with a vertical gradient from dark red at the top to light red at the bottom. A thin horizontal line is visible at the bottom edge.	Red vertical gradient
 A rectangular screen with a horizontal gradient from dark blue on the left to light blue on the right.	Blue horizontal gradient
 A rectangular screen with a horizontal gradient from dark green on the left to light green on the right.	Green horizontal gradient
 A rectangular screen with a horizontal gradient from dark red on the left to light red on the right.	Red horizontal gradient
 A rectangular screen with a blue background and horizontal black lines, creating an interlaced effect.	Blue with black horizontal interlaced

Table 2-12 Touchscreen test screens (continued)

Screen	Description
	Green with black horizontal interlaced
	Red with black horizontal interlaced
	Blue with black vertical interlaced
	Green with black vertical interlaced
	Red with black vertical interlaced
	Black with white center

Table 2-12 Touchscreen test screens (continued)

Screen	Description
	White with black center
	Checkerboard
	Multicolor stripes
	Blue green grid meshing

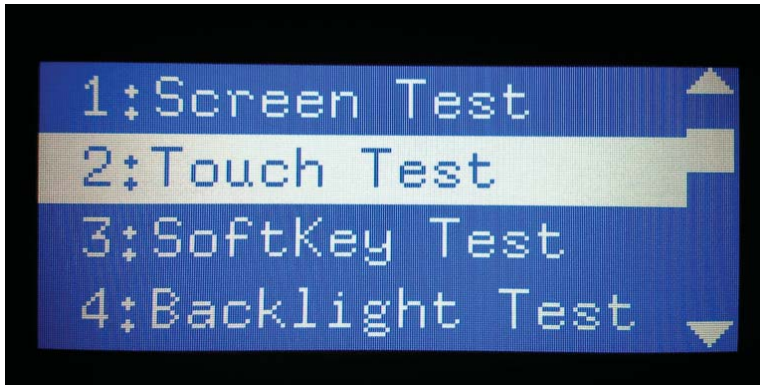
Touch test

Use the following procedure to perform a touch test.

1. Open the control panel system diagnostic tests. See "Open the control panel systems diagnostic tests" in the Troubleshooting Manual.

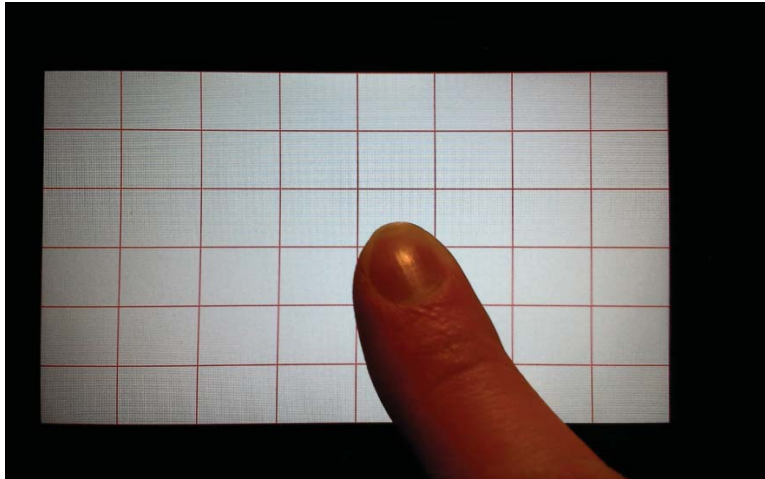
2. Use the [down arrow ▼](#) button to scroll to [2 Touch Test](#), and then press the [OK](#) button to select it.

Figure 2-38 Open the touch test



3. Use your finger to touch the white grid on the display.

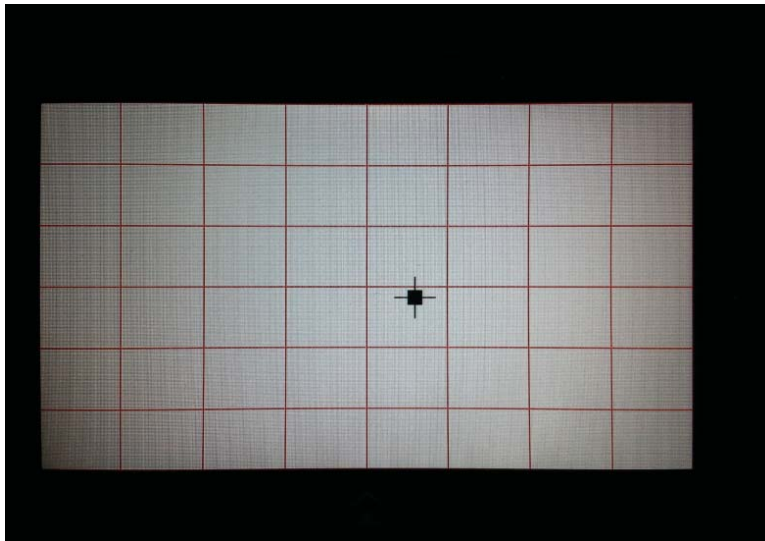
Figure 2-39 Touch the white grid



A mark appears on the grid where it was touched.

 **NOTE:** Touch the [Home](#) button to exit the test.

Figure 2-40 Verify the mark



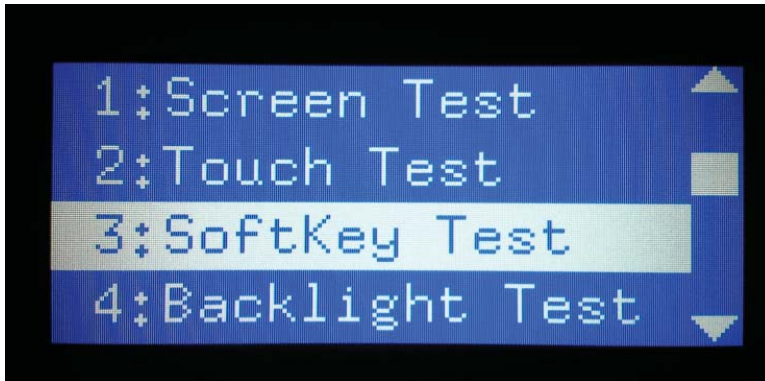
SoftKey test

Use the following procedure to perform a SoftKey test.

1. Open the control panel system diagnostic tests. See "Open the control panel systems diagnostic tests" in the Troubleshooting Manual.

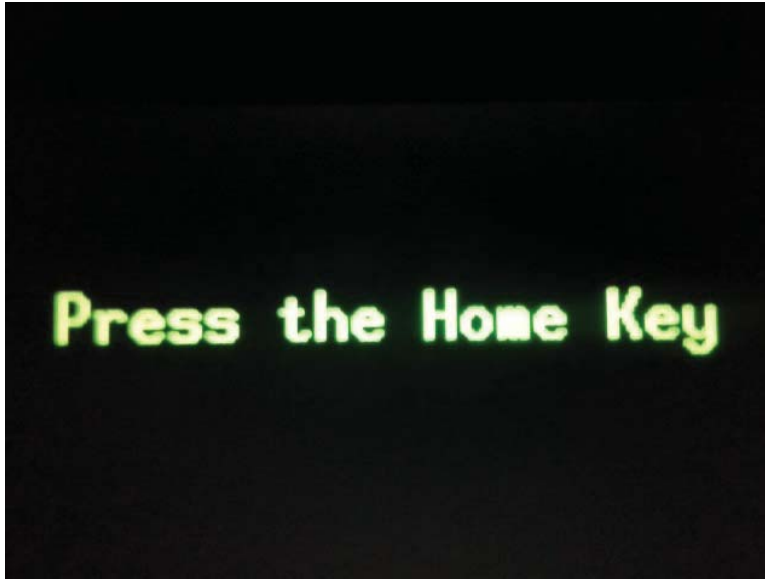
2. Use the **down arrow ▼** button to scroll to **3 SoftKey Test**, and then press the **OK** button to select it.

Figure 2-41 Open the softkey test



3. When prompted, touch the [Home](#) button.

Figure 2-42 Touch the [Home](#) button



If the test is successful, the following screen appears on the display.

 **NOTE:** Touch the screen to exit the test.

Figure 2-43 Successful test



Backlight test

Use the following procedure to perform a backlight test.

1. Open the control panel system diagnostic tests. See "Open the control panel systems diagnostic tests" in the Troubleshooting Manual.

2. Use the **down arrow ▼** button to scroll to **4 Backlight Test**, and then press the **OK** button to select it.
After selecting the **4 Backlight Test**, the screen automatically dims, and then returns to full brightness.


 **NOTE:** Touch any key to exit the test.

Figure 2-44 Open the backlight test



Sound test

Use the following procedure to perform a sound test.

1. Open the control panel system diagnostic tests. See "Open the control panel systems diagnostic tests" in the Troubleshooting Manual.

2. Use the [down arrow ▼](#) button to scroll to [5 Sound Test](#), and then press the [OK](#) button to select it.

After selecting the [5 Sound Test](#), the printer emits a series of audible tones.



 **NOTE:** Touch any key to exit the test.

Figure 2-45 Open the sound test



Keyboard test (M776z/zs only)

Use the following procedure to perform a keyboard test on M776z/zs printers only.

 **IMPORTANT:** The control panel system diagnostic tests include a [6 Keyboard Test](#) item. This test is **not** valid for the M856/E85055/M776dn printers even though this option is present in the control panel system diagnostic tests menu.

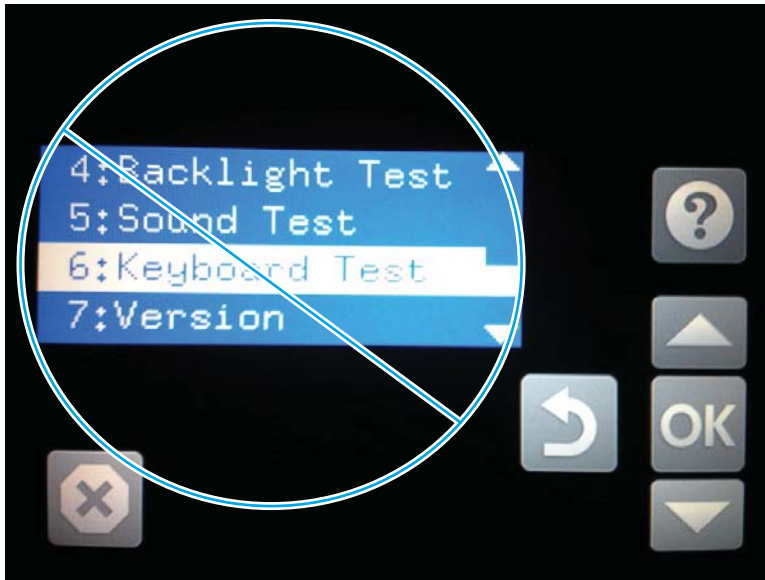
If the [6 Keyboard Test](#) is opened on the M856/E85055/M776dn printers, the printer power must be turned off to exit the test.

HP does not recommend turning the printer power off during the control panel system diagnostic tests.

1. Open the control panel system diagnostic tests. See the control panel system diagnostics test section in the Troubleshooting Manual.

2. Use the **down arrow ▼** button to scroll to **6 Keyboard Test**, and then press the **OK** button to select it.

Figure 2-46 Do not open the keyboard test except for M776z/zs printers





3. When prompted, touch the **H** key on the keyboard or the Home button to exit the test.

Version

Use the following procedure to view the control panel version information.

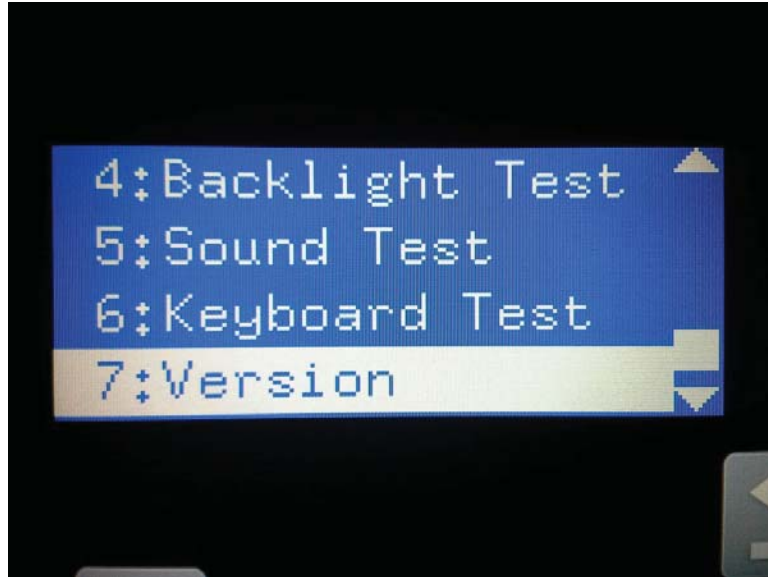
1. Open the control panel system diagnostic tests. See "Open the control panel systems diagnostic tests" in the *Troubleshooting Manual*.
2. Use the **down arrow ▼** button to scroll to **7 Version**, and then press the **OK** button to select it.

 **NOTE:** Touch any key to exit the test.

 **NOTE:** The following types of information are for the control panel only, not the printer.

- Panel ID
- Hardware (version)
- Firmware (version)
- KB Hw (version)
- KB Firm (version)
- LCD Vendor
- Touch Controller Version

Figure 2-47 Open the version information



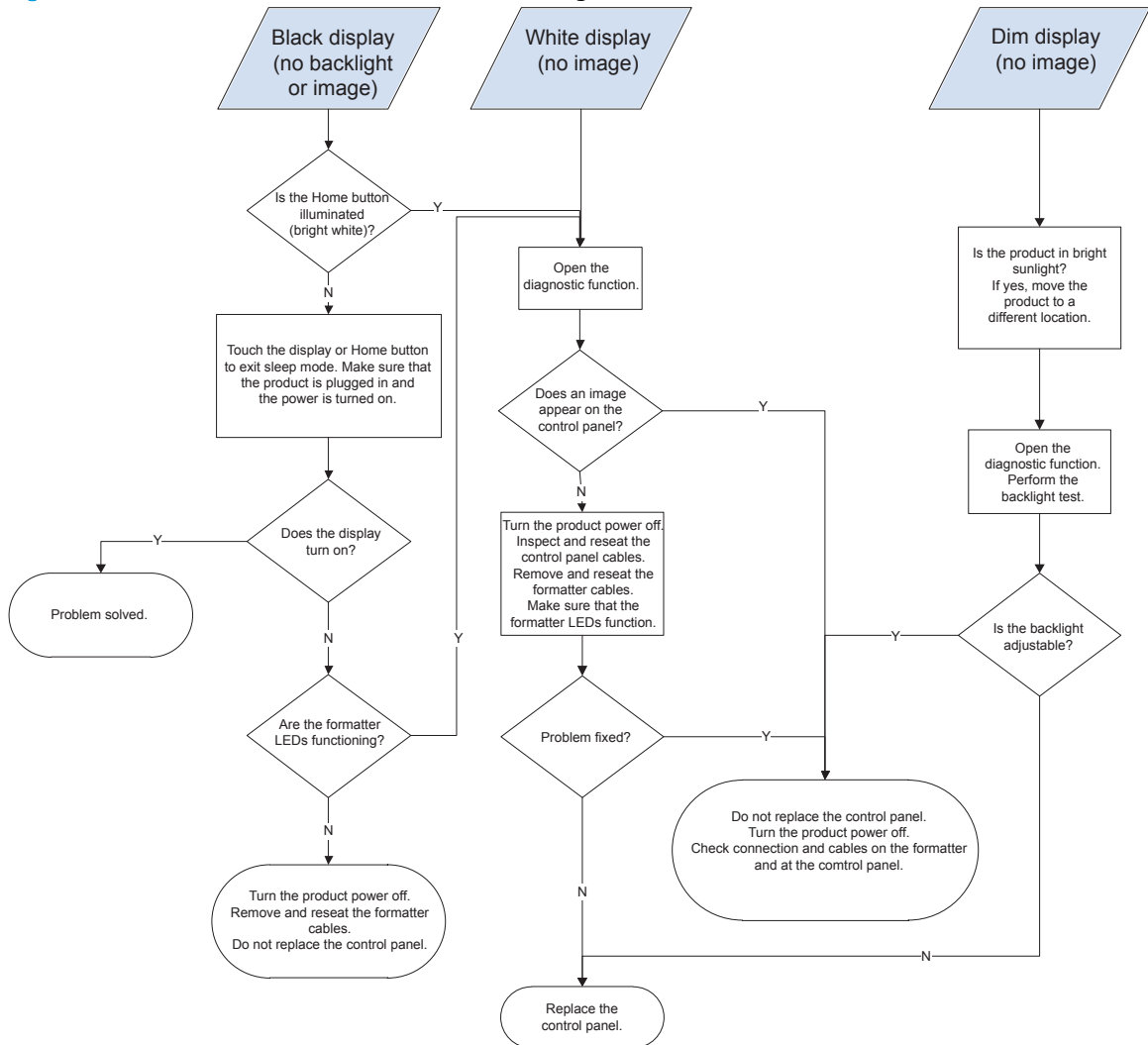
Control panel diagnostic flowcharts (M856/E85055/M776)

Use the flowcharts in this section to troubleshoot the following control panel problems.

Touchscreen black, white, or dim (no image)

To open the diagnostic function, press the button on the back of the control panel.

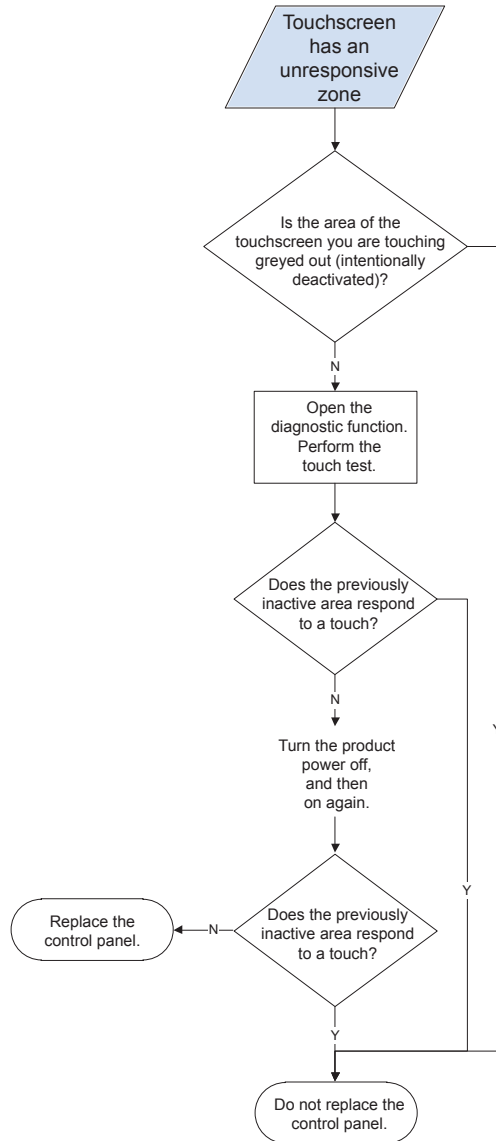
Figure 2-48 Touchscreen blank, white, or dim (no image)



Touchscreen has an unresponsive zone

To open the diagnostic function, press the button on the back of the control panel.

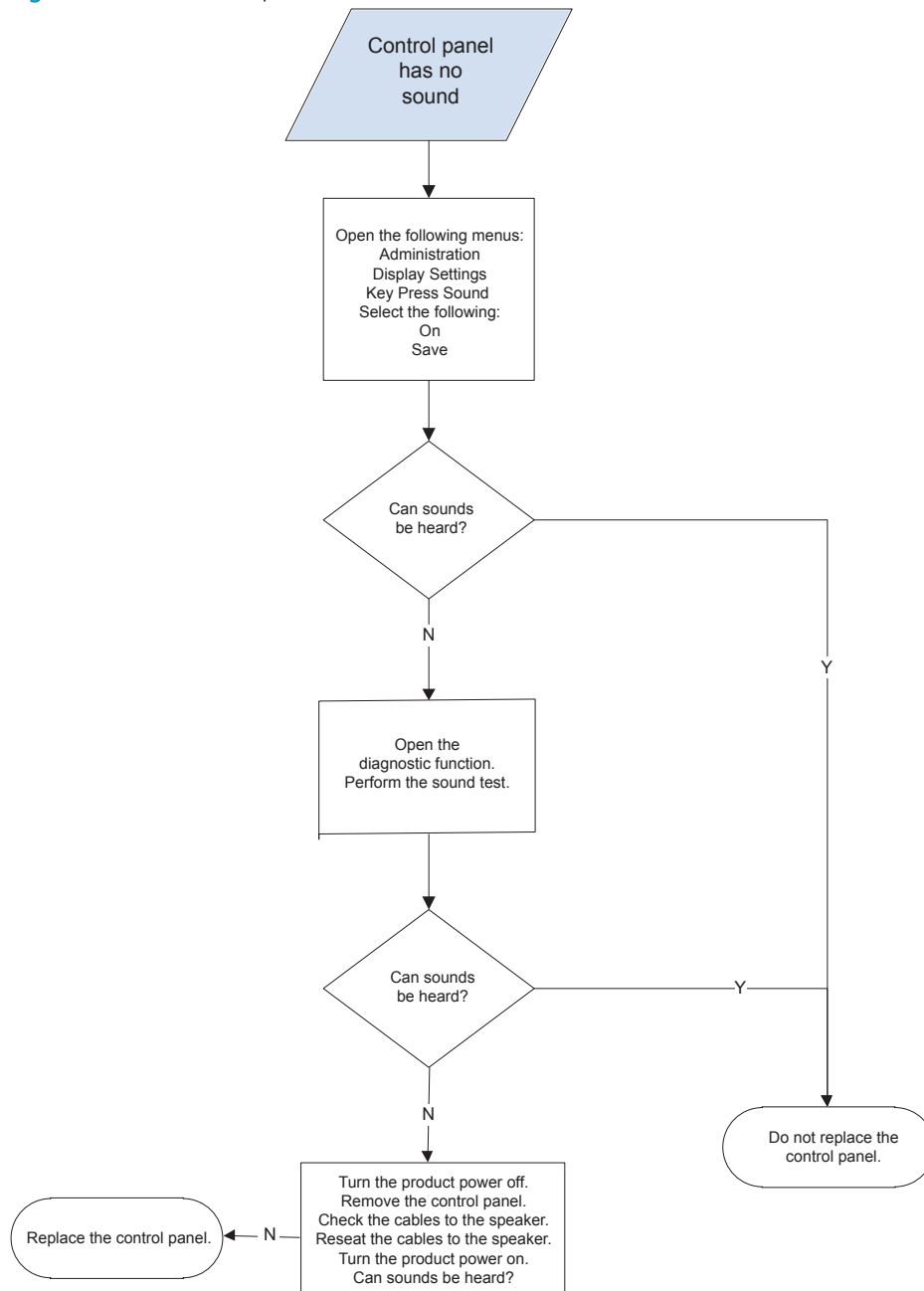
Figure 2-49 Touchscreen has an unresponsive zone



No control panel sound

To open the diagnostic function, press the button on the back of the control panel.

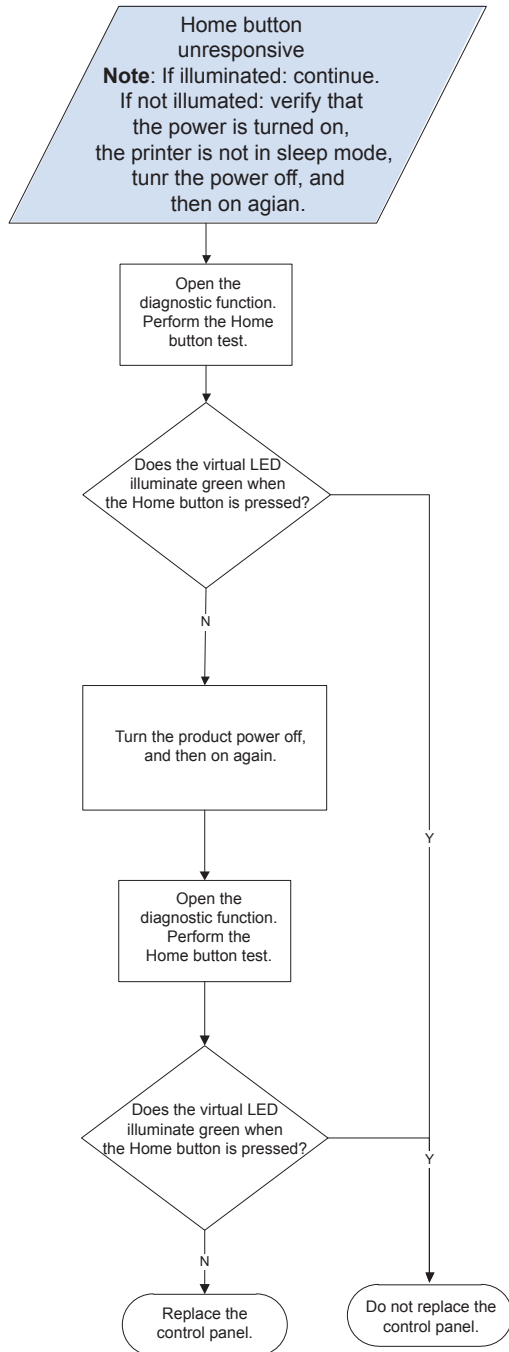
Figure 2-50 No control panel sound



Home button is unresponsive

To open the diagnostic function, press the button on the back of the control panel.

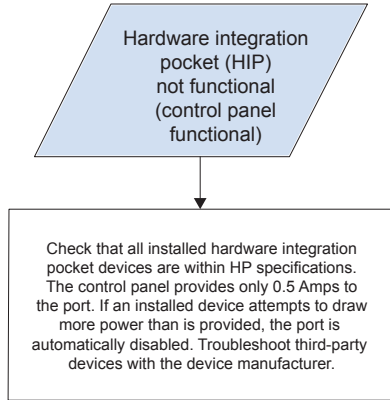
Figure 2-51 Home button is unresponsive



Hardware integration pocket (HIP) is not functioning (control panel functional)

Review the following information when the HIP is not functioning, but the control panel is functional.

Figure 2-52 Hardware integration pocket (HIP) is not functioning (control panel functional)



Tools for troubleshooting

Learn about tools that can help to solve printer problems.

Individual component diagnostics

Learn about individual component diagnostics available on the printer.

LED diagnostics

LED, engine, and individual diagnostics can identify and troubleshoot printer problems.

Understand lights on the formatter

Three LEDs on the formatter indicate whether the printer is functioning correctly.

Figure 2-53 Formatter LED lights



Table 2-13 Formatter LED lights

Callout	Description
1	Heartbeat LED
2	HP Jetdirect LEDs

Heartbeat LED

The heartbeat LED indicates whether the formatter is functioning correctly.

While the printer is initializing after it is turned on, the LED blinks rapidly, and then turns off. When the printer has finished the initialization sequence, the heartbeat LED pulses on and off.

The following table describes the heartbeat LED operation while the printer is executing the firmware boot process.

 **NOTE:** When the initialization process completes, the heartbeat LED should be illuminated solid green.

Table 2-14 Heartbeat LED, product initialization

Product initializing state	Heartbeat LED, normal state	Heartbeat LED, error state
No power (power cable disconnected or power switch off)	Off	Not applicable
Power on (immediately after the power switch is pressed)	Red, solid <ul style="list-style-type: none">• Duration should be 1 second or less	Red, solid <ul style="list-style-type: none">• Firmware error; problem finding hardware and booting the serial peripheral interface flash memory

Table 2-14 Heartbeat LED, product initialization (continued)

Product initializing state	Heartbeat LED, normal state	Heartbeat LED, error state
		<ul style="list-style-type: none"> – Boot process halted <p>Replace the formatter.</p>
Serial peripheral interface (SPI) flash memory boot	Green, solid	<p>Red, solid</p> <ul style="list-style-type: none"> • Firmware error; problem with corrupt or missing SPI flash memory <ul style="list-style-type: none"> – Boot process halted <p>Replace the formatter.</p>
HW checks on-board DRAM	Green, solid	<p>Red, solid</p> <ul style="list-style-type: none"> • Power-on self-check failure <ul style="list-style-type: none"> – Boot process halted <p>Replace the formatter.</p>
Control panel connection initializes	<p>Green, solid</p> <p>NOTE: Control panel communication is successful. If an error occurs, a message should appear on the control panel display.</p>	<p>Yellow, fast flash</p> <ul style="list-style-type: none"> • Formatter to control panel connection failed <ul style="list-style-type: none"> – Boot process continues <p>Check the cables between the formatter and control panel for damage. Make sure that the cables are fully seated.</p>
Pre-boot menu available (including diagnostics)	Green, solid	<p>Red, solid</p> <ul style="list-style-type: none"> • Diagnostic failure <ul style="list-style-type: none"> – Follow diagnostic instructions. <p>Turn the power off, and then on again to restart the initialization process.</p>
Accessing disk for firmware image	<p>Green, solid</p> <p>NOTE: If applicable, disk error messages appear on the control panel display.</p>	<p>Yellow, fast flash</p> <ul style="list-style-type: none"> • Control panel not connected
Firmware boot	<p>Green, solid</p> <p>NOTE: If applicable, error messages appear on the control panel display.</p>	<p>Yellow, fast flash</p> <ul style="list-style-type: none"> • Control panel not connected
Product operational	<p>Green, heartbeat blink</p> <p>NOTE: If applicable, error messages appear on the control panel display.</p>	<p>Yellow, fast flash</p> <ul style="list-style-type: none"> • Control panel not connected

Table 2-14 Heartbeat LED, product initialization (continued)

Product initializing state	Heartbeat LED, normal state	Heartbeat LED, error state
49.XX.YY error or initialization freezes	Not applicable	LED off NOTE: An error message (for example, 49.XX.YY) might appear on the control panel display. Eventually, a formatter connection missing message will appear. Turn the power off, and then on again to restart the initialization process. If the error persists, perform a firmware upgrade.
Control panel connection interrupted after the product is operational	Not applicable	Yellow, fast flash • Control panel not connected
Flat, flexible cable (FFC) between the formatter and DC controller is not connected or damaged	Not applicable	Yellow, solid • Formatter to DC controller connection failed Check the cable between the formatter and DC controller for damage. Make sure that the cable is fully seated.
Sleep Mode	Green, slow blink	Not applicable
Approaching Sleep Mode	Green, slow blink	Not applicable
Wake up from Sleep Mode	Follows initialization progression	Follows initialization progression
Approaching wake up from Sleep Mode	Follows initialization progression	Follows initialization progression

The following table describes the heartbeat LED operation when the printer completes the firmware boot process and is in the **Ready** state.

Table 2-15 Heartbeat LED, printer operational

LED color	Description
Green	<ul style="list-style-type: none"> • Normal operation <ul style="list-style-type: none"> – Formatter is operating normally – Firmware is operating normally – Control panel is connected
Yellow	<ul style="list-style-type: none"> • Formatter cannot connect to the control panel <ul style="list-style-type: none"> – Check control panel connections – Verify control panel functionality
Red	<ul style="list-style-type: none"> • Formatter error or failure

Table 2-15 Heartbeat LED, printer operational (continued)

LED color	Description
	<ul style="list-style-type: none">– Serial peripheral interface (SPI) flash memory boot error– Power on self-test (formatter) failed– Diagnostic (formatter) failed
Off	<p>TIP: The heartbeat LED is off if the power cable is disconnected, the printer power switch is in the off position, or the printer is in Sleep Mode.</p> <ul style="list-style-type: none">• Firmware or system freeze– Check control panel for an error message– Control panel failure <p>NOTE: This condition is not usually caused by a formatter failure. Turn the power off, and then on again. If the error persists, perform a firmware upgrade.</p>

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 has failed.

For link failures, check all the network cable connections. In addition, try to manually configure the link settings on the embedded print server by using the printer control-panel menus.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Settings](#), and then select [OK](#).
2. Open the following menus:
 1. [Networking](#)
 2. [Ethernet](#)
 3. [Link Speed](#)
3. Select the appropriate link speed, and then select [OK](#).

Tools for troubleshooting: Engine diagnostics

The printer contains extensive internal engine diagnostics that help in troubleshooting print quality, paper path, noise, assembly, and timing issues.

Engine test button

To verify that the printer engine is functioning, print an engine test page.

Use a small pointed object to depress the test-page switch located on the rear side of the printer. The test page should have a series of lines that are parallel to the long end of the page. The test page can use only Tray 2 as the paper source, so make sure that paper is loaded in Tray 2.


 **NOTE:** Depressing, and holding down, the test-page switch causes the printer to continually print test pages. Releasing the switch stops the test page continuous printing.

Figure 2-54 Engine test button



Defeating interlocks

Different tests can be used to isolate different types of issues. For assembly or noise isolation, run the diagnostic test when the front door or right door is open.

Defeating the door interlocks allows observation of the paper pick operation (and view the page enter registration).

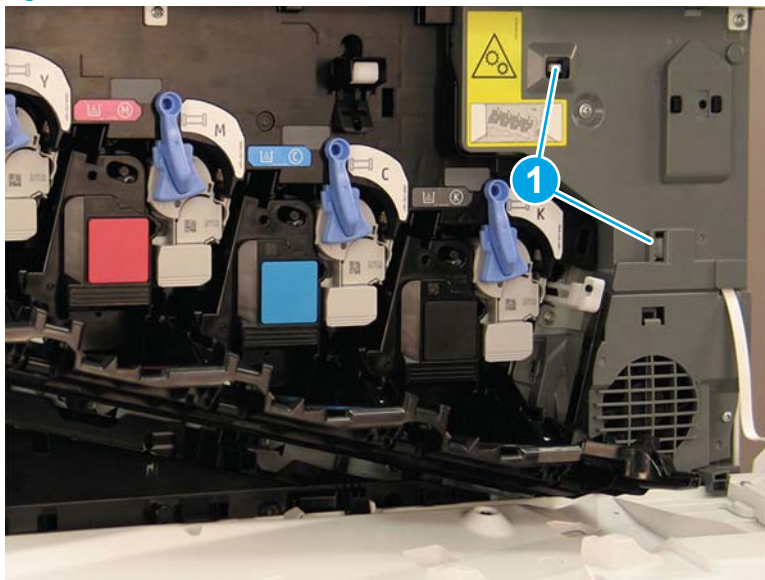
⚠ WARNING! Be careful when performing printer diagnostics to avoid risk of injury. Only trained service personnel should open and run the diagnostics with a door open. Never touch any of the power supplies when the printer is turned on.

Defeat the front door interlocks

Use the following procedure to defeat the front door interlocks.

1. Open the front door.
2. Insert folded pieces of paper into two slots (callout 1).

Figure 2-55 Defeat the front door interlocks



Disable cartridge check

Use this diagnostic test to print internal pages or send an external job to the printer when the toner cartridge is removed or exchanged. Supply errors are ignored while the printer is in this mode.

When the printer is in this mode, access the troubleshooting menus and print internal pages (the print quality pages will be the most useful). This test can be used to isolate problems, such as noise, and to isolate print-quality problems that are related to the toner cartridge.



NOTE: Do not remove or exchange the toner cartridge until after beginning the disable cartridge check diagnostic.

Disable cartridge check from an LCD control panel (M751/E75245)

Use the following procedure to disable cartridge check from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then press the **OK** button.
2. Use the down arrow ▼ button to scroll to [Troubleshooting](#), and then press the **OK** button.
3. Use the down arrow ▼ button to scroll to [Diagnostic Tests](#), and then press the **OK** button.
4. Select [Continue](#) to enter *Maintenance Mode*.
5. Use the down arrow ▼ button to scroll to [Disable Cartridge Check](#), and then press the **OK** button to select it.

Disable cartridge check from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to disable cartridge check from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the following menus:
 - a. [Troubleshooting](#)
 - b. [Diagnostic Tests](#)
 - c. [Disable Cartridge Check](#)

Paper path and sensor diagnostic tests

Review the following information about the paper path and sensor diagnostics tests.

Paper path test

This diagnostic test generates one or more test pages. Use these pages to isolate the cause of jams.

To isolate a problem, specify which input tray to use, specify whether to use the duplex path (duplex models only), and specify the number of copies to print. Multiple copies can be printed to help isolate intermittent problems. The following options become available after beginning the diagnostic feature:

- **Number of Copies:** Set the numbers of copies to be printed; the choices are 1, 10, 50, 100, or 500.
- **Paper Tray:** Select Tray 1, Tray 2, or the optional tray.
- **Output Sides:** Choose *1-sided* or *2-sided*.

Access the paper path test from an LCD control panel (M751/E75245)

Use the following procedure to access the paper path test from an LCD control panel.

1. From the **Home** screen on the printer control panel, use the arrow keys to navigate to **Support Tools**, and then press the **OK** button.
2. Use the down arrow ▼ button to scroll to **Troubleshooting**, and then press the **OK** button.
3. Use the down arrow ▼ button to scroll to **Diagnostic Tests**, and then press the **OK** button.
4. Select **Continue** to enter *Maintenance Mode*.
5. Use the down arrow ▼ button to scroll to **Paper Path Test**, and then press the **OK** button.

Access the paper path test from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to access the paper path test from a touchscreen control panel.

1. From the **Home** screen on the printer control panel, scroll to and touch the **Support Tools** button.
2. Open the following menus:
 1. **Troubleshooting**
 2. **Diagnostic Tests**
 3. **Paper Path Test**
3. Select the paper path test options for the test.

Paper path sensors test

This test displays the status of each paper-path sensor and allows viewing of sensor status while printing internal pages.

Access the paper path sensors test from a touchscreen control panel (M856/E85055/M776)


Use the following procedure to access the paper path sensors test from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the following menus:
 1. [Troubleshooting](#)
 2. [Diagnostic Tests](#)
 3. [Paper Path Sensors](#)
3. Touch [Start](#) to run the test.

Access the paper path sensors test from an LCD control panel (M751/E75245)

Use the following procedure to access the paper path sensors test from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Troubleshooting](#), and then press the [OK](#) button.
3. Use the down arrow ▼ button to scroll to [Diagnostic Tests](#), and then press the [OK](#) button.
4. Select [Continue](#) to enter *Maintenance Mode*.
5. Use the down arrow ▼ button to scroll to [Paper Path Sensors](#), and then press the [OK](#) button.

 **NOTE:** Exiting the [Paper Path Sensors](#) menu and then reentering the test will clear the test values from the previous test.

The menu list of sensors and switches for the [Paper Path Sensors](#) test varies depending on which optional accessories are installed.

For trays other than Tray 1 or Tray 2, the tray number associated with a sensor or switch depends on the number of accessories installed.

Table 2-16 Paper-path sensors diagnostic tests

Sensor name	Sensor/Switch number	Replacement part number	Description
Registration sensor	SR8	RM2-1393-010CN	Paper pickup assembly (M751/E75245)
		RM2-3908-000CN	Paper pickup assembly (M856/E85055/M776)
Fuser loop sensor 1	SR16	3WT87-67901	Fuser (M751/E75245; 110V)
		3WT88-67901	Fuser (M751/E75245; 220V)
		4YL16-67901	Fuser (M856/E85055/M776; 110V)
		4YL17-67901	Fuser (M856/E85055/M776; 220V)

Table 2-16 Paper-path sensors diagnostic tests (continued)

Sensor name	Sensor/Switch number	Replacement part number	Description
Fuser loop sensor 2	SR26	3WT87-67901	Fuser (M751/E75245; 110V)
		3WT88-67901	Fuser (M751/E75245; 220V)
		4YL16-67901	Fuser (M856/E85055/M776; 110V)
		4YL17-67901	Fuser (M856/E85055/M776; 220V)
Fuser exit sensor 1	SR7	3WT87-67901	Fuser (M751/E75245; 110V)
		3WT88-67901	Fuser (M751/E75245; 220V)
		4YL16-67901	Fuser (M856/E85055/M776; 110V)
		4YL17-67901	Fuser (M856/E85055/M776; 220V)
Paper width sensor 1	SR9	RM2-1393-010CN	Paper pickup assembly (M751/E75245)
		RM2-3908-000CN	Paper pickup assembly (M856/E85055/M776)
Paper width sensor 2	SR25	RM2-1393-010CN	Paper pickup assembly (M751/E75245)
		RM2-3908-000CN	Paper pickup assembly (M856/E85055/M776)
Paper width sensor 3	SR12	RM2-1393-010CN	Paper pickup assembly (M751/E75245)
		RM2-3908-000CN	Paper pickup assembly (M856/E85055/M776)
Full sensor	SR41	RM2-1498-000CN	Delivery assembly (M751/E75245)
		RM2-1777-000CN	Delivery assembly (M856/E85055, M776dn/M776z)
		RM2-1786-000CN	Delivery assembly (M776zs)
ITB alienation sensor	SR42	WG8-5935-000CN	IC, photointerrupter
Fuser pressure release sensor	SR44	RM2-1391-000CN	Fuser drive assembly

Manual sensor tests

The table in this section lists the sensors and switches available in the manual sensor tests.

Access the manual sensor test from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to access the manual sensor test from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the following menus:
 - a. [Troubleshooting](#)
 - b. [Diagnostic Tests](#)
 - c. [Sensors](#)
3. Activate the desired sensor, and then check the control panel display to verify the sensor state (active or inactive) and the number of times it was activated..

Access the manual sensor test from an LCD control panel (M751/E75245)

Use the following procedure to access the manual sensor test from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Troubleshooting](#), and then press the [OK](#) button.
3. Use the down arrow ▼ button to scroll to [Diagnostic Tests](#), and then press the [OK](#) button.
4. Select [Continue](#) to enter *Maintenance Mode*.
5. Use the down arrow ▼ button to scroll to [Manual Sensor Test](#), and then press the [OK](#) button.
6. Activate the desired sensor, and then check the control panel display to verify the sensor state (active or inactive) and the number of times it was activated..



NOTE: For trays other than Tray 1 or Tray 2, the tray number associated with a sensor or switch depends on the number and type of accessories installed.

Table 2-17 Manual sensor diagnostic tests

Sensor or switch	Replacement Part number	Description
SR15 Tray 1 empty sensor	RM2-1494-000CN	Right door assembly (M751/E75245)
	RM2-3434-000CN	Right door assembly (M856/E85055/M776)
SR14 Last page sensor	RM2-1494-000CN	Right door assembly (M751/E75245)
	RM2-3434-000CN	Right door assembly (M856/E85055/M776)
SR6 Tray 2 empty sensor	RM2-1393-010CN	Paper pickup assembly (M751/E75245)
	RM2-3908-000CN	Paper pickup assembly (M856/E85055/M776)

Table 2-17 Manual sensor diagnostic tests (continued)

Sensor or switch	Replacement Part number	Description
SR41 Full sensor	RM2-1498-000CN	Delivery assembly (M751/E75245)
	RM2-1777-000CN	Delivery assembly (M856/E85055, M776dn/M776z)
	RM2-1786-000CN	Delivery assembly (M776zs)
SW4 Right door switch	RM2-1445-000CN	Low-voltage power supply (M751/E75245; 110V)
	RM2-1453-000CN	Low-voltage power supply (M751/E75245; 220V)
	RM2-2473-000CN	Low-voltage power supply (M856/E85055/M776; 110V)
	RM2-2474-000CN	Low-voltage power supply (M856/E85055/M776; 220V)
SR8 Registration sensor	RM2-1393-010CN	Paper pickup assembly (M751/E75245)
	RM2-3908-000CN	Paper pickup assembly (M856/E85055/M776)
SR16 Fuser loop sensor 1	3WT87-67901	Fuser (M751/E75245; 110V)
	3WT88-67901	Fuser (M751/E75245; 220V)
	4YL16-67901	Fuser (M856/E85055/M776; 110V)
	4YL17-67901	Fuser (M856/E85055/M776; 220V)
SR7 Fuser exit sensor	3WT87-67901	Fuser (M751/E75245; 110V)
	3WT88-67901	Fuser (M751/E75245; 220V)
	4YL16-67901	Fuser (M856/E85055/M776; 110V)
	4YL17-67901	Fuser (M856/E85055/M776; 220V)
SR9 Paper width sensor 1	RM2-1393-010CN	Paper pickup assembly (M751/E75245)
	RM2-3908-000CN	Paper pickup assembly (M856/E85055/M776)
SR25 Paper width sensor 2	RM2-1393-010CN	Paper pickup assembly (M751/E75245)
	RM2-3908-000CN	Paper pickup assembly (M856/E85055/M776)
SR12 Paper width sensor 3	RM2-1393-010CN	Paper pickup assembly (M751/E75245)
	RM2-3908-000CN	Paper pickup assembly (M856/E85055/M776)
SR26 Fuser loop sensor2	3WT87-67901	Fuser (M751/E75245; 110V)
	3WT88-67901	Fuser (M751/E75245; 220V)
	4YL16-67901	Fuser (M856/E85055/M776; 110V)
	4YL17-67901	Fuser (M856/E85055/M776; 220V)

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, 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 ms. If the timer is set to a value that is greater than the job-print time, the printer can recover in one of two ways.

- After the print job is completed press the **OK** button to return to the **Troubleshooting** menu before the timer times out.
- After the timer times out, touch the **Stop** button. Activate the door switch to restart the engine and return it to a normal state.

Access the print/stop test from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to access the print/stop test from a touchscreen control panel.

1. From the **Home** screen on the printer control panel, scroll to and touch the **Support Tools** button.
2. Open the following menus:
 1. **Troubleshooting**
 2. **Diagnostic Tests**
 3. **Print/Stop Test**
3. Enter a range, and then touch the **OK** button.

Access the print/stop test from an LCD control panel (M751/E75245)

Use the following procedure to access the print/stop test from an LCD control panel.

1. From the **Home** screen on the printer control panel, use the arrow keys to navigate to **Support Tools**, and then press the **OK** button.
2. Use the down arrow ▼ button to scroll to **Troubleshooting**, and then press the **OK** button.
3. Use the down arrow ▼ button to scroll to **Diagnostic Tests**, and then press the **OK** button.
4. Select **Continue** to enter *Maintenance Mode*.

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1. From the **Home** screen on the printer control panel, use the arrow keys to navigate to **Support Tools**, and then press the **OK** button.
2. Use the down arrow ▼ button to scroll to **Troubleshooting**, and then press the **OK** button.
3. Use the down arrow ▼ button to scroll to **Diagnostic Tests**, and then press the **OK** button.
4. Select **Continue** to enter *Maintenance Mode*.
5. Use the down arrow ▼ button to scroll to **Print/Stop Test**, and then press the **OK** button.

Component tests

Use the procedure below to test various printer mechanical and electromechanical assemblies.

Access the individual component diagnostics from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to access individual component diagnostics from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the following menus:
 1. [Troubleshooting](#)
 2. [Diagnostic Tests](#)
 3. [Component Test](#)
3. Select the component test options for the test.

Access the individual component diagnostics from an LCD control panel (M751/E75245)

Use the following procedure to access the individual component diagnostics from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Troubleshooting](#), and then press the [OK](#) button.
3. Use the down arrow ▼ button to scroll to [Diagnostic Tests](#), and then press the [OK](#) button.
4. Select [Continue](#) to enter *Maintenance Mode*.
5. Use the down arrow ▼ button to scroll to [Component Test](#), and then press the [OK](#) button.
6. Select the component and desired options.
7. Select [Start](#) to start the test.
8. Select [Stop](#) to stop the test.



NOTE: For trays other than Tray 1 or Tray 2, the tray number associated with a sensor or switch depends on the number and type of accessories installed.

Table 2-18 Component test details

Component test	Item tested	Comments
Yellow drum motor	M2	Activates the specified motor
Magenta drum motor	M2	Activates the specified motor
Cyan drum motor	M2	Activates the specified motor
Black drum motor	M3	Activates the specified motor
Yellow developer motor	M1	Activates the specified motor
Magenta developer motor	M1	Activates the specified motor
Cyan developer motor	M1	Activates the specified motor
Black developer motor	M3	Activates the specified motor

Table 2-18 Component test details (continued)

Component test	Item tested	Comments
ITB motor	M3	Activates the specified motor
Alienation motor	M6	Activates the specified motor
ITB contact/alienation motor	M6	Activates the specified motor
Tray 2 pickup motor	M5	Activates the specified motor
Fuser motor	M4	Activates the specified motor
Fuser pressure release motor	M4	Activates the specified motor
Fuser shutter motor	M25	Activates the specified motor
Duplex motor	M24	Activates the specified motor
Tray 1 pickup solenoid	SL3	Activates the specified solenoid
Tray 2 pickup clutch	CL1	Activates the specified clutch
Duplex re-feed clutch	CL2	Activates the specified clutch
Switchback flapper solenoid	SL8	Activates the specified solenoid
Laser scanner motor	M7	Activates the specified motor

Diagrams

Use the diagrams in this section to identify printer components.

Block diagrams

Use the diagrams in this section to identify printer sensors, switches, and assemblies.

Cross-section diagrams

Review the following information about the cross-section diagrams.

Figure 2-56 Printer cross-section diagram (1 of 2; M751/E75245)

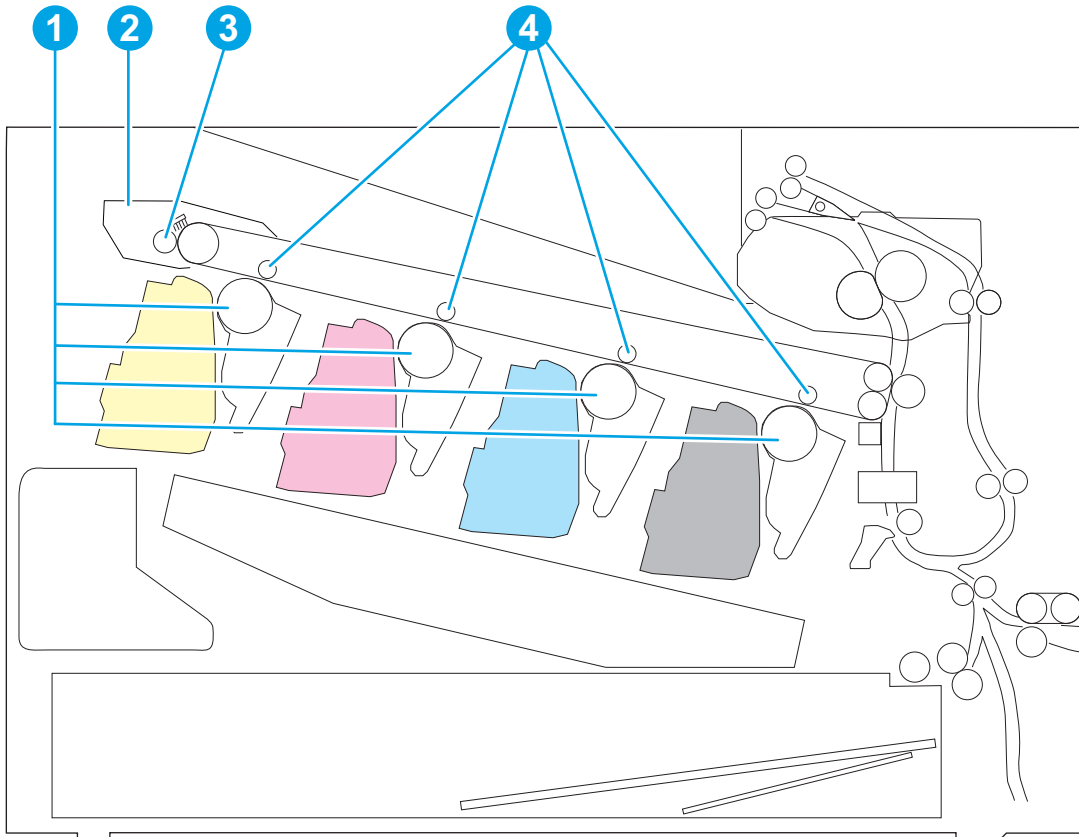


Table 2-19 Printer cross-section diagram (1 of 2; M751/E75245)

Item	Description	Item	Description
1	Photosensitive drum	3	ITB cleaning roller
2	ITB cleaning assembly	4	T1 roller

Figure 2-57 Printer cross-section diagram (2 of 2; M751/E75245)

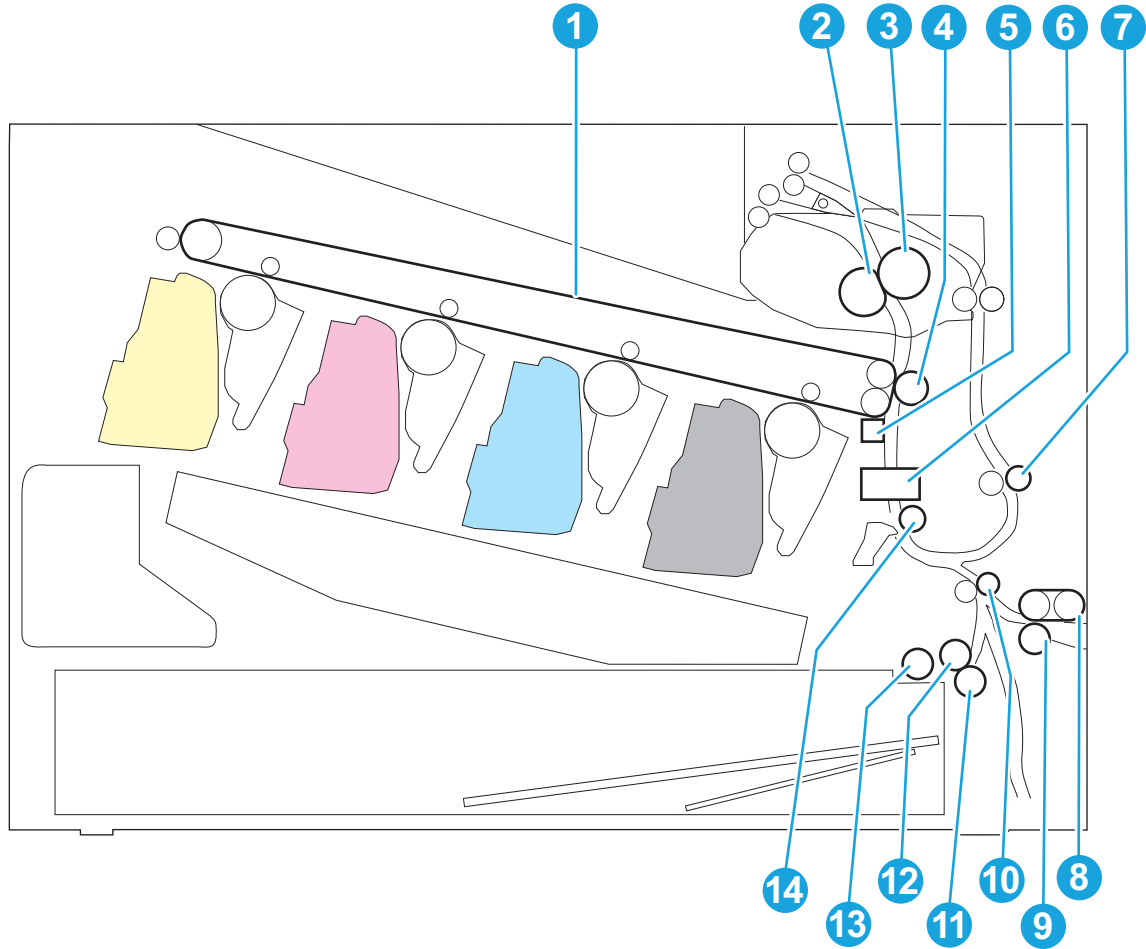


Table 2-20 Printer cross-section diagram (2 of 2; M751/E75245)

Item	Description	Item	Description
1	ITB	8	Tray 1 pickup roller
2	Fuser film	9	Tray 1 separation roller
3	Pressure roller	10	Intermediate feed roller
4	Secondary transfer roller	11	Tray 2 separation roller
5	Registration density sensor	12	Tray 2 feed roller
6	Media sensor	13	Tray 2 pickup roller
7	Duplex re-pickup roller	14	Registration roller

Figure 2-58 Printer cross-section diagram (1 of 3; M856/E85055/M776dn/M776z)

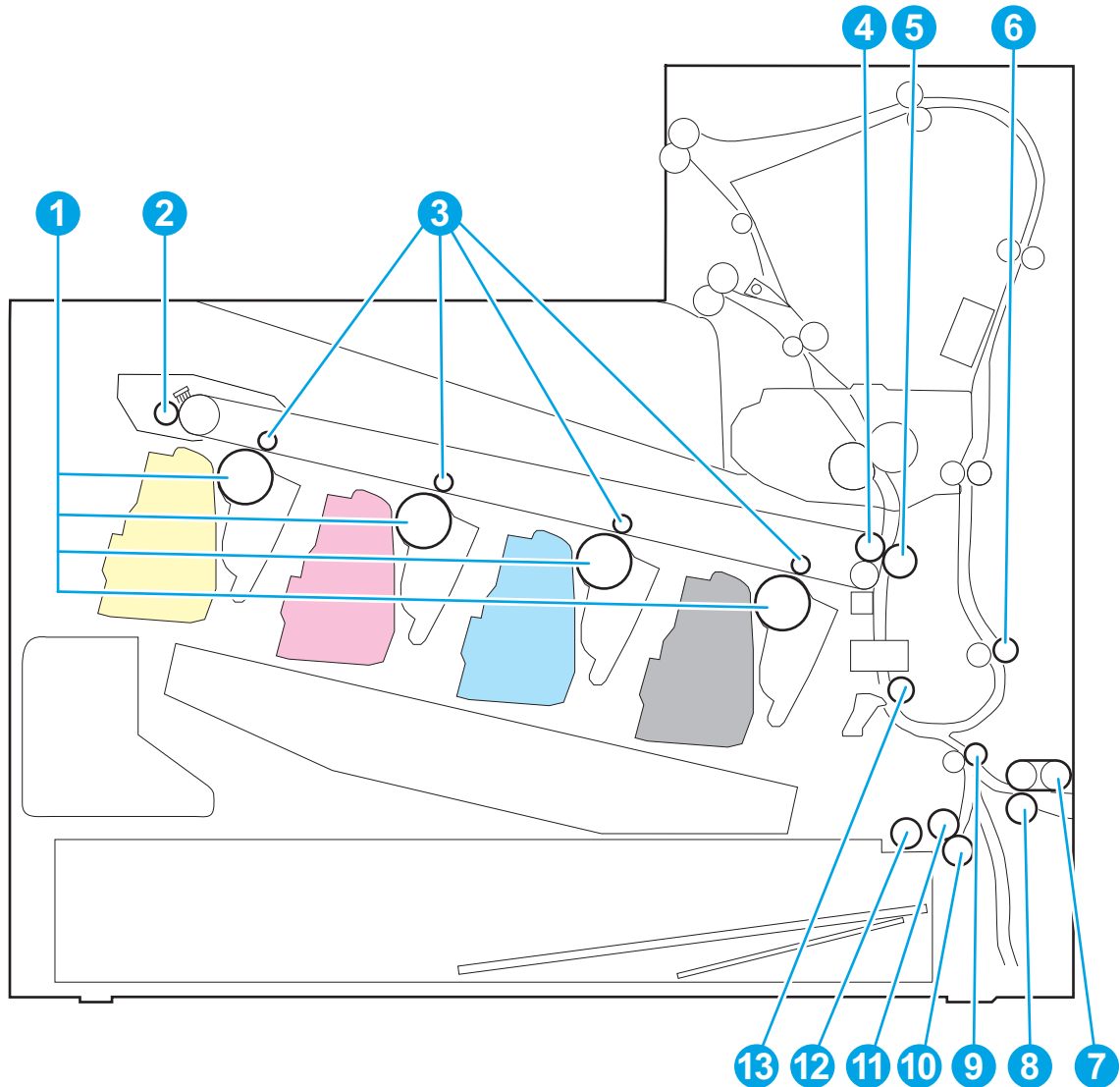


Table 2-21 Printer cross-section diagram (1 of 3; M856/E85055/M776dn/M776z)

Item	Description	Item	Description
1	Photosensitive drum	8	Tray 1 separation roller
2	ITB cleaning roller	9	Intermediate feed roller
3	T1 roller	10	Tray 2 separation roller
4	ITB drive roller	11	Tray 2 feed roller
5	T2 roller	12	Tray 2 pickup roller
6	Duplex re-pickup roller	13	Registration roller
7	Tray 1 pickup roller	N/A	N/A

Figure 2-59 Printer cross-section diagram (2 of 3; M856/E85055/M776dn/M776z)

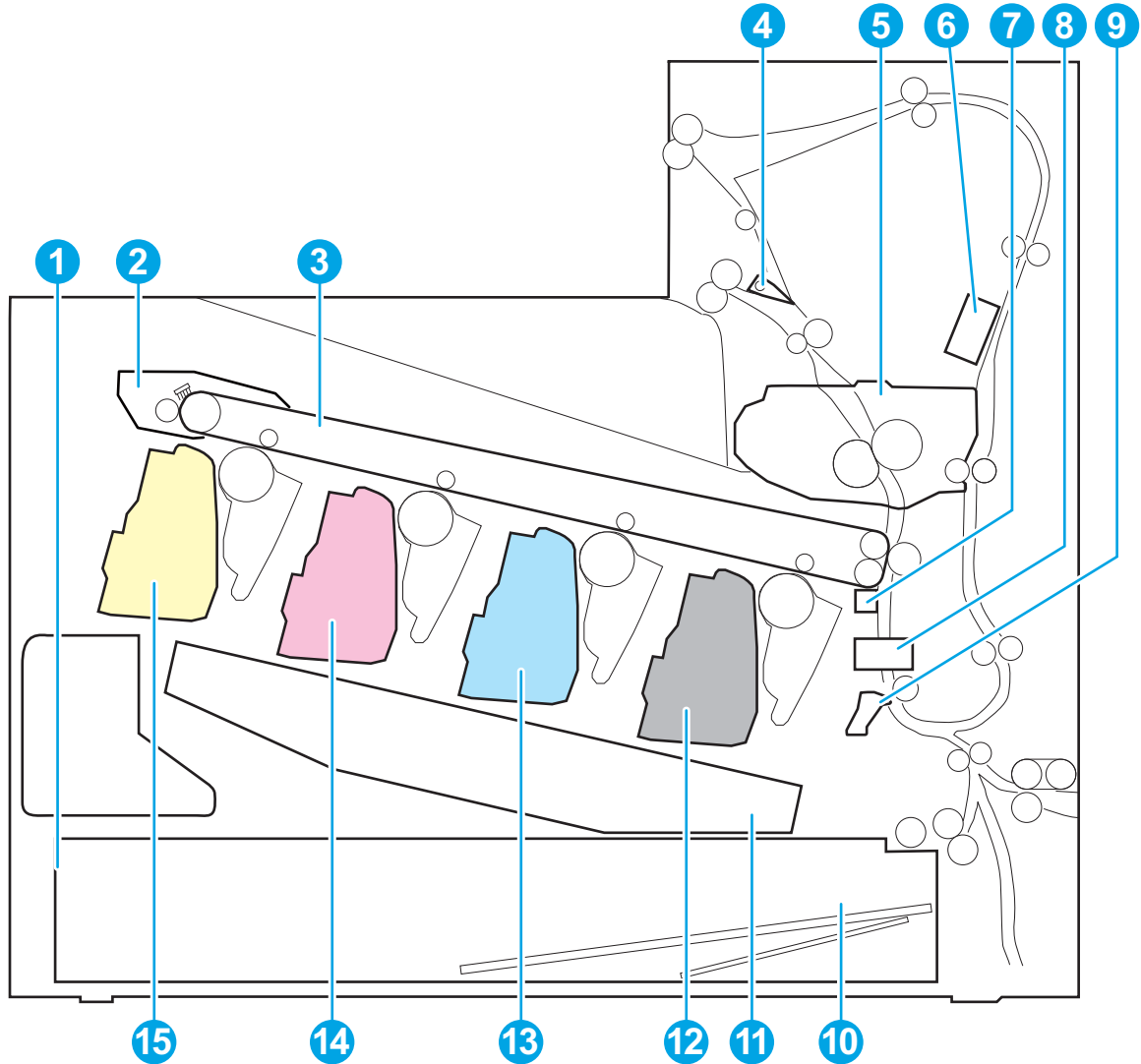


Table 2-22 Printer cross-section diagram (2 of 3; M856/E85055/M776dn/M776z)

Item	Description	Item	Description
1	Toner collection unit (TCU)	9	Registration shutter
2	ITB cleaning assembly	10	Tray 2
3	ITB	11	Laser scanner assembly
4	Duplex flapper	12	Black toner cartridge
5	Fuser	13	Cyan toner cartridge
6	Color sensor	14	Magenta toner cartridge
7	Registration density sensor	15	Yellow toner cartridge
8	Media sensor	N/A	N/A

Figure 2-60 Printer cross-section diagram (3 of 3; M856/E85055/M776dn/M776z)

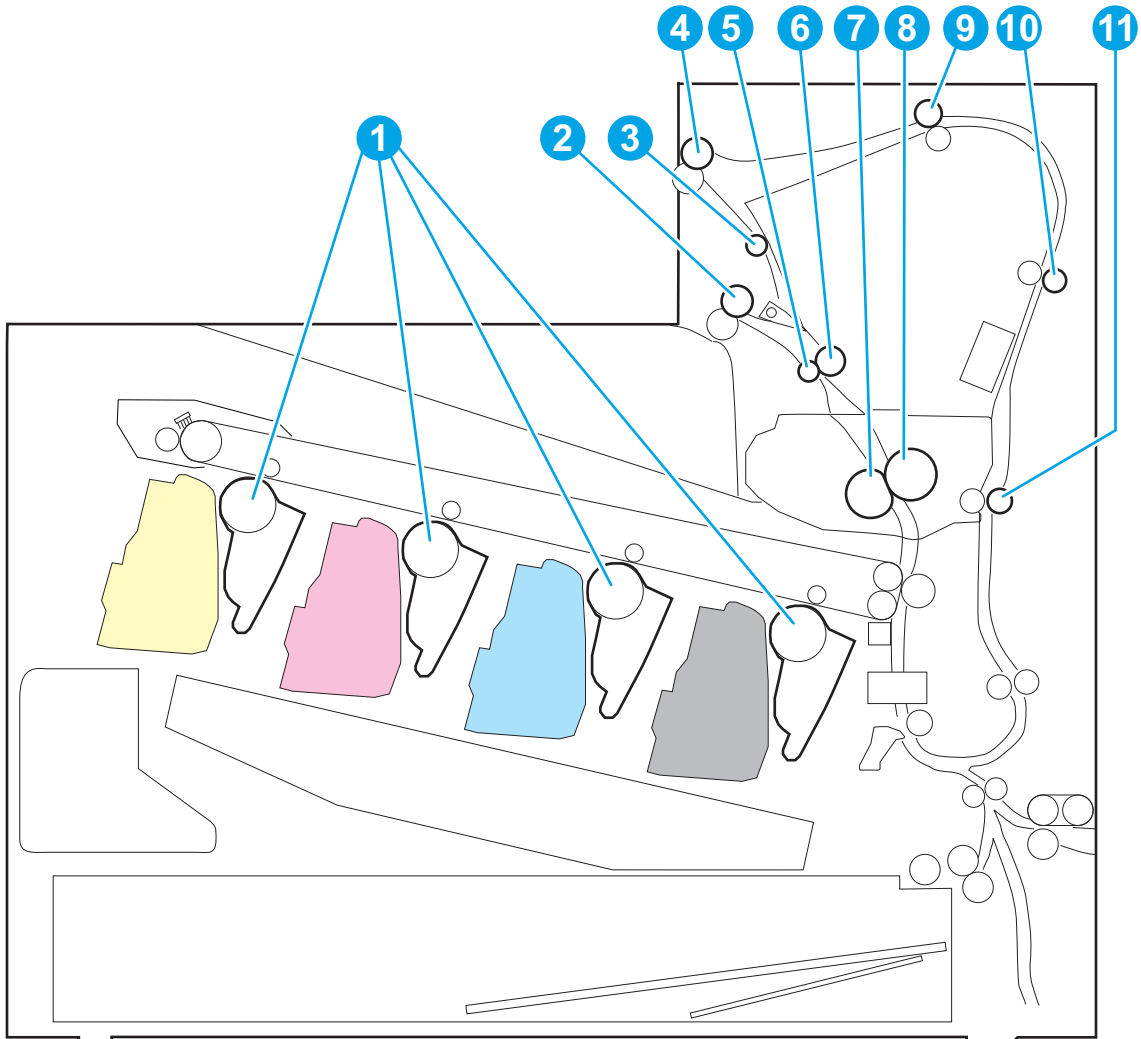


Table 2-23 Printer cross-section diagram (3 of 3; M856/E85055/M776dn/M776z)

Item	Description	Item	Description
1	Imaging drum	7	Fuser film
2	Output upper roller	8	Pressure roller
3	Switchback feed roller	9	Duplex feed roller 1
4	Switchback output roller	10	Duplex feed roller 2
5	Decurl hard roller	11	Duplex feed roller 3
6	Decurl soft roller	N/A	N/A

Figure 2-61 Printer cross-section diagram (1 of 3; M776zs)

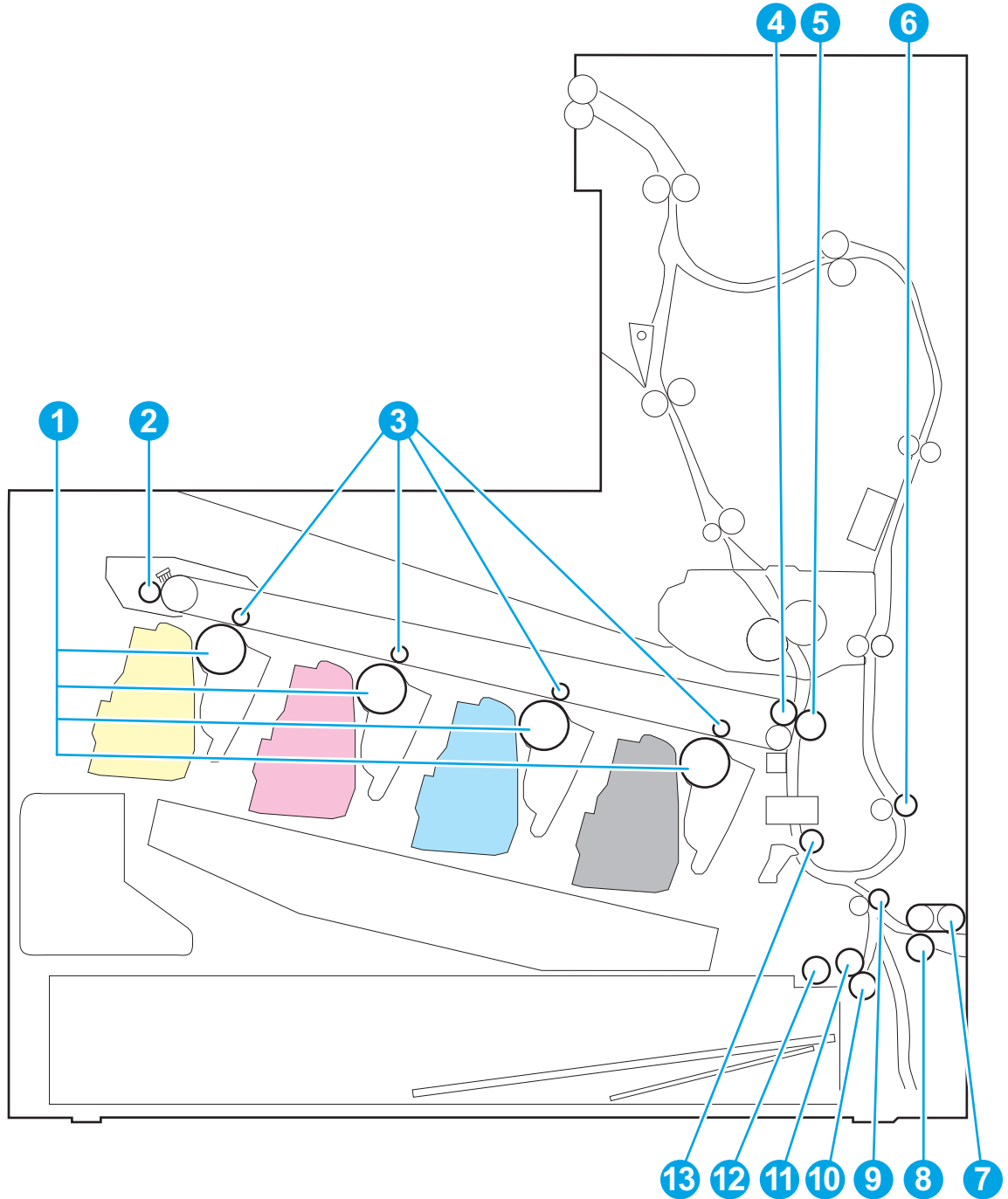


Table 2-24 Printer cross-section diagram (1 of 3; M776zs)

Item	Description	Item	Description
1	Photosensitive drum	8	Tray 1 separation roller
2	ITB cleaning roller	9	Intermediate feed roller
3	T1 roller	10	Tray 2 separation roller
4	ITB drive roller	11	Tray 2 feed roller

Table 2-24 Printer cross-section diagram (1 of 3; M776zs) (continued)

Item	Description	Item	Description
5	T2 roller	12	Tray 2 pickup roller
6	Duplex re-pickup roller	13	Registration roller
7	Tray 1 pickup roller	N/A	N/A

Figure 2-62 Printer cross-section diagram (2 of 3; M776zs)

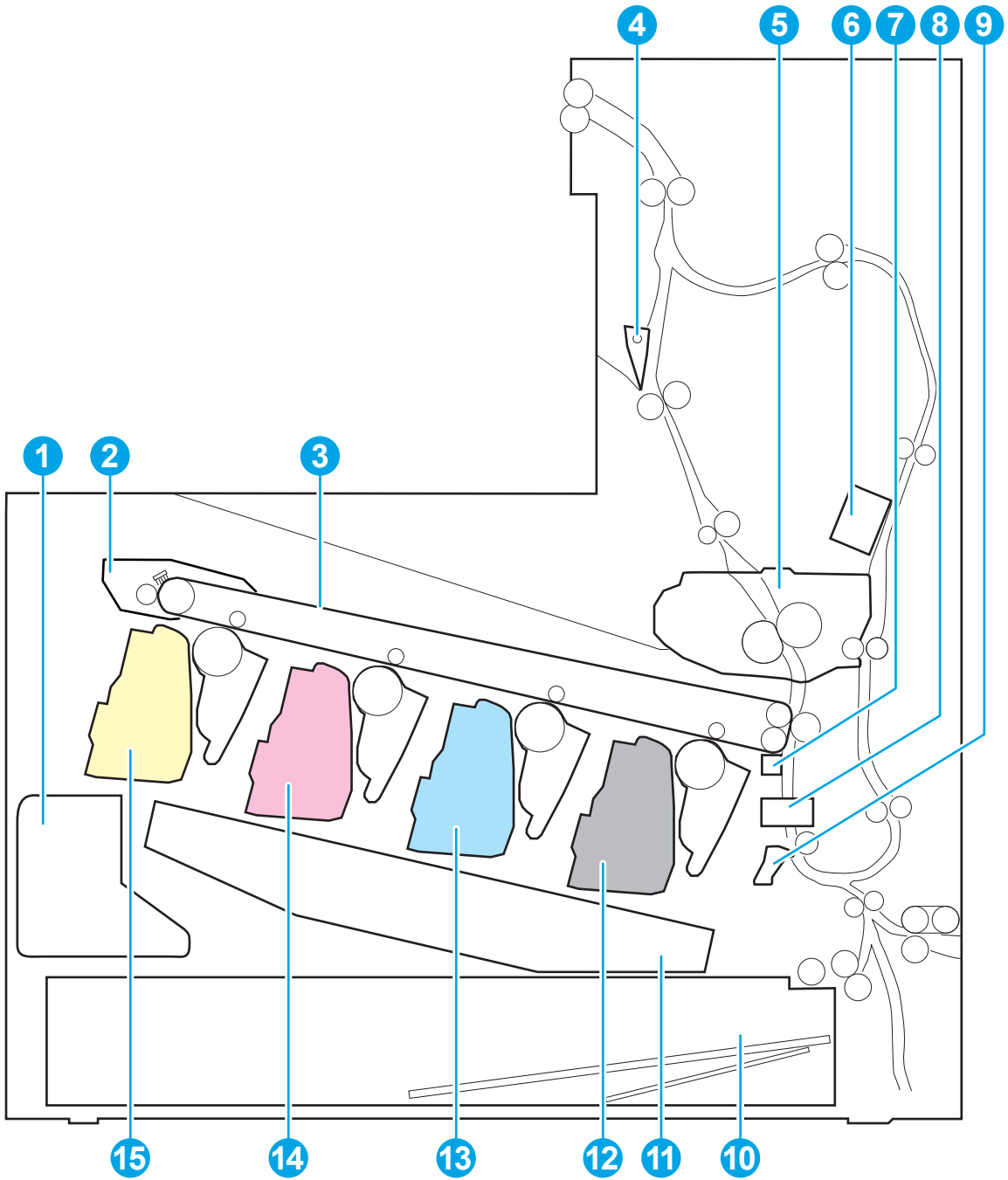


Table 2-25 Printer cross-section diagram (2 of 3; M776zs)

Item	Description	Item	Description
1	Toner collection unit (TCU)	9	Registration shutter
2	ITB cleaning assembly	10	Tray 2
3	ITB	11	Laser scanner assembly
4	Duplex flapper	12	Black toner cartridge
5	Fuser	13	Cyan toner cartridge
6	Color sensor	14	Magenta toner cartridge
7	Registration density sensor	15	Yellow toner cartridge
8	Media sensor	N/A	N/A

Figure 2-63 Printer cross-section diagram (3 of 3; M776zs)

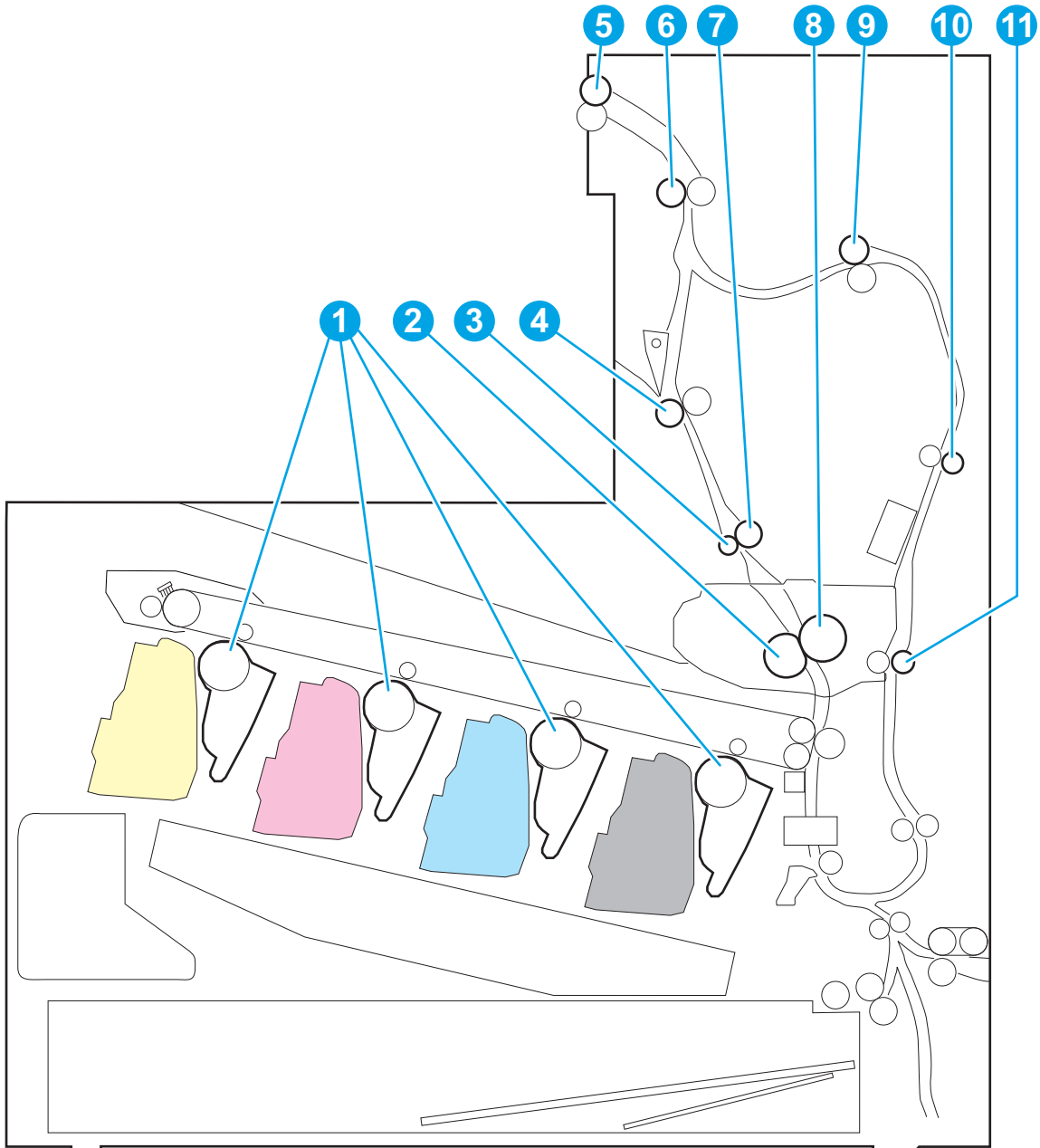


Table 2-26 Printer cross-section diagram (3 of 3; M776zs)

Item	Description	Item	Description
1	Imaging drum	7	Decurl soft roller
2	Fuser film	8	Pressure roller
3	Decurl hard roller	9	Duplex feed roller 1
4	Output feed roller 1	10	Duplex feed roller 2
5	Output upper roller	11	Duplex feed roller 3
6	Output feed roller 2	N/A	N/A

Figure 2-64 Inner finisher cross-section diagram (M776zs)

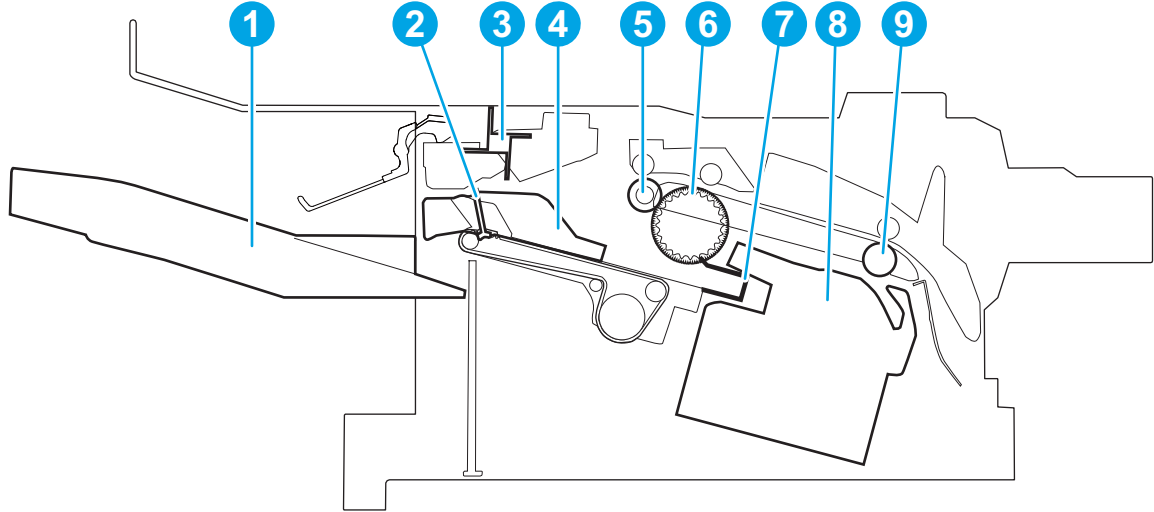


Table 2-27 Inner finisher cross-section diagram (M776zs)

Item	Description	Item	Description
1	Output bin	6	Return roller
2	Media retainer	7	Assist guide
3	Paddle	8	Stapler
4	Alignment plate	9	Entrance feed roller
5	Output roller	N/A	N/A

Figure 2-65 550-sheet paper tray cross-section diagram

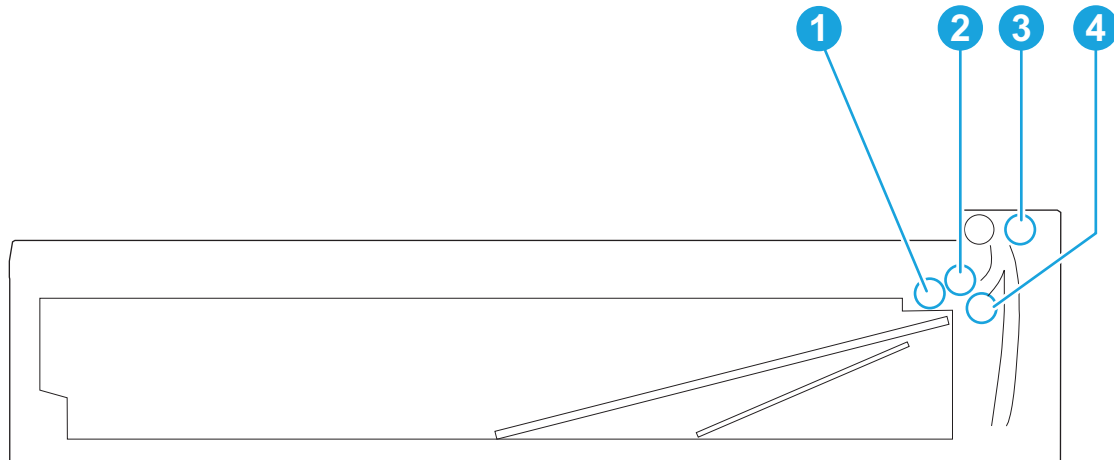


Table 2-28 550-sheet paper tray cross-section diagram

Item	Description
1	Tray pickup roller
2	Tray feed roller

Table 2-28 550-sheet paper tray cross-section diagram (continued)

Item	Description
3	Feed roller
4	Tray separation roller

Figure 2-66 2x550-sheet paper tray and stand cross-section diagram

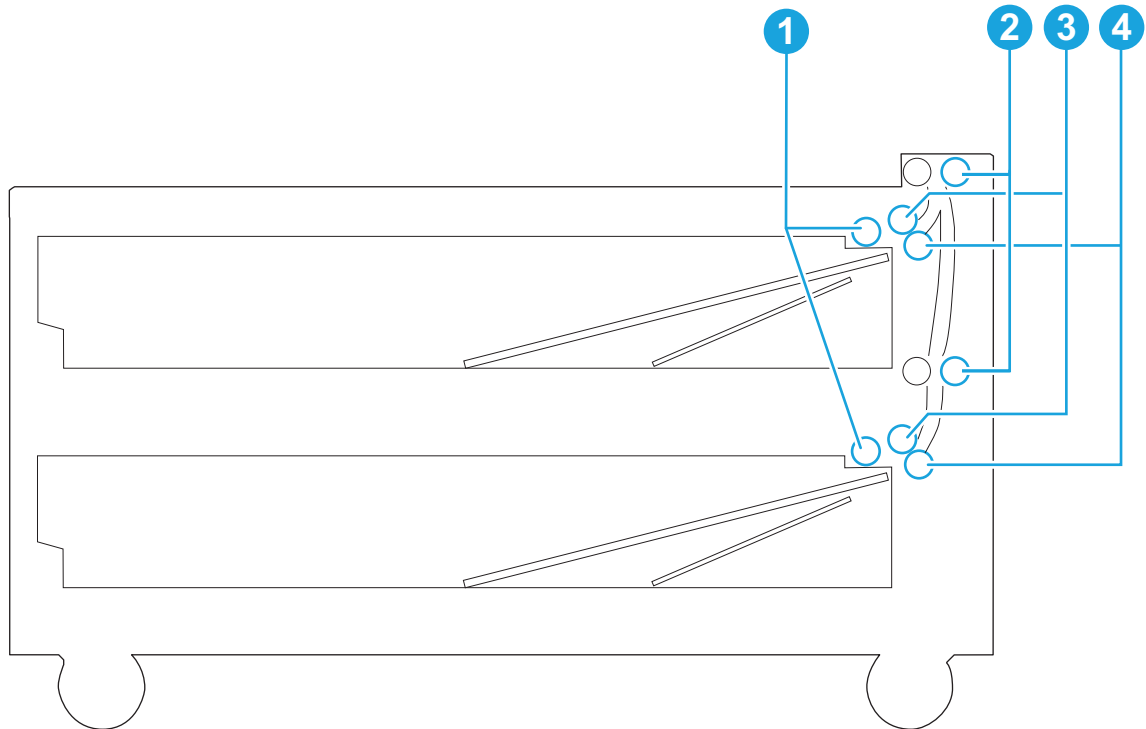


Table 2-29 2x550-sheet paper tray and stand cross-section diagram

Item	Description
1	Tray pickup roller
2	Feed roller
3	Tray feed roller
4	Tray separation roller

Figure 2-67 2,700-sheet HCI paper tray and stand cross-section diagram

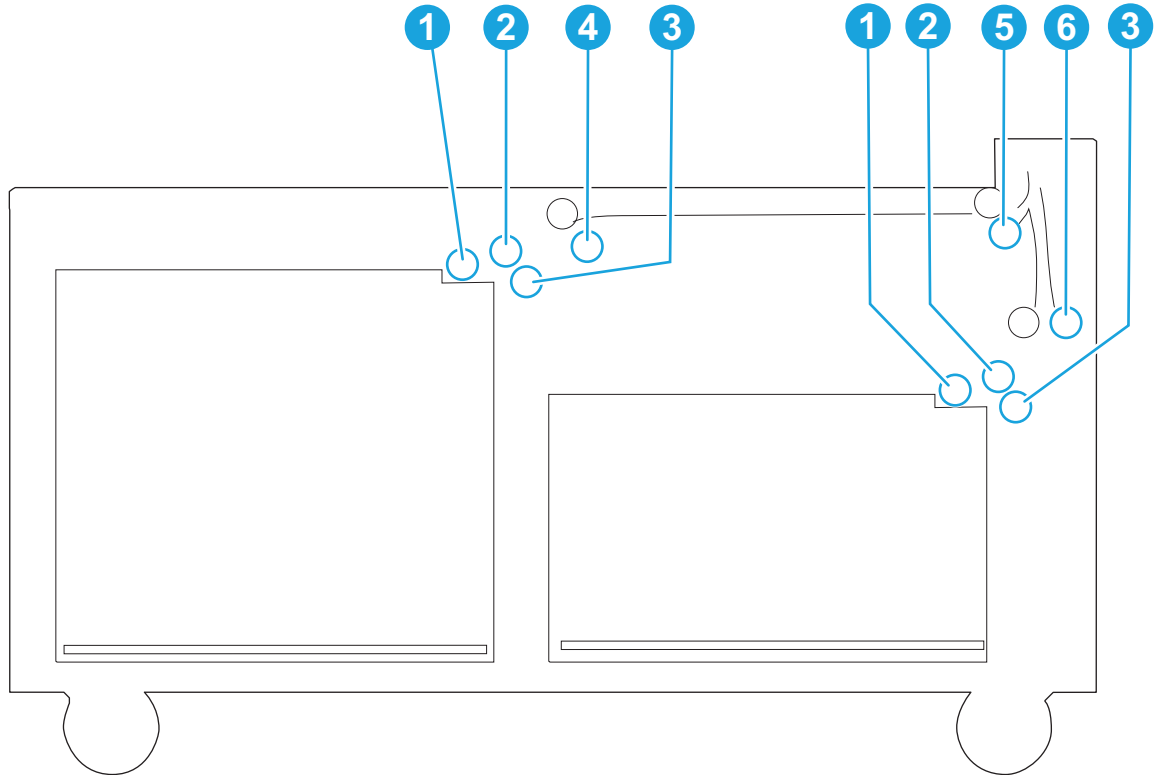


Table 2-30 2,700-sheet HCI paper tray and stand cross-section diagram

Item	Description	Item	Description
1	Tray pickup roller	4	Feed roller 2
2	Tray feed roller	5	Feed roller 3
3	Tray separation roller	6	Feed roller 1

Printed circuit assembly (PCA) connector locations

Use the diagrams in this section to identify printer PCA connector locations.

DC controller connections

Each of the connections on the DC controller PCA is indicated in the following figure.

Figure 2-68 DC controller PCA connectors

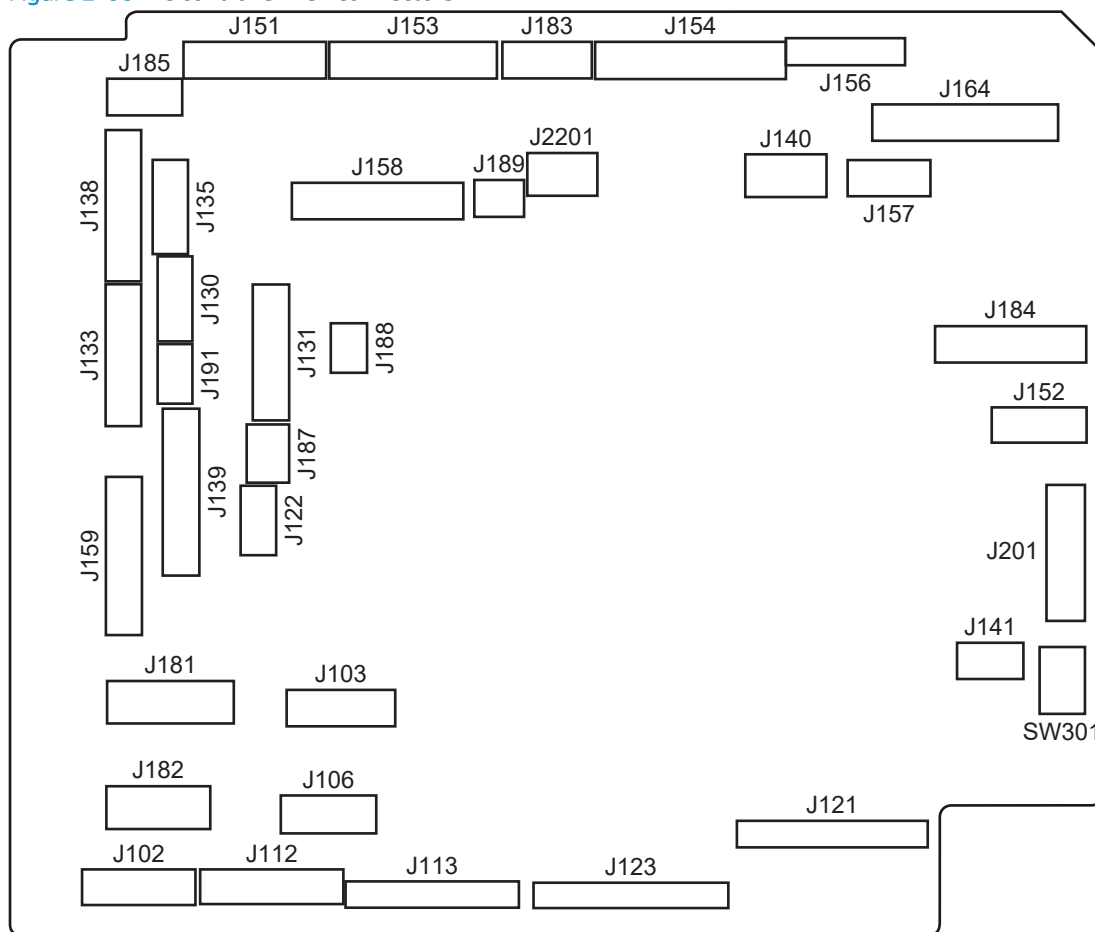


Table 2-31 DC controller PCA connectors

Item	Description	Item	Description
J102	Low-voltage power supply	J153	Front door switch
J103	Low-voltage power supply	J154	Pre-exposure LED 1 to 4
			Drum motor 1
			Drum motor 2
			Drum motor 3
			Drum home position sensor CMY
			Drum home position sensor K
			Developer alienation sensor
			T1 roller alienation solenoid

Table 2-31 DC controller PCA connectors (continued)

Item	Description	Item	Description
J106	5V interlock switch Duplex fan	J156	High-voltage power supply A PCA
J112	T2 high-voltage power supply PCA	J157	Duplex flapper solenoid Duplex switchback motor
J113	High-voltage power supply B PCA	J158	Fuser fan Cartridge front fan Cartridge rear fan ITB toner collection near full sensor Residual toner feed screw rotation sensor Environment sensor ITB toner collection unit presence switch
J121	Laser scanner assembly	J159	E-label
J122	Laser scanner assembly	J181	T2 connecting PCA
J123	Laser scanner assembly	J182	T2 connecting PCA
J130	Media sensor	J183	Fan shutter motor Fan shutter sensor
J131	Media sensor Fuser loop sensor 1 Tray 1 media out sensor Tray 1 last media sensor Tray 1 pickup solenoid	J185	Fuser pressure release sensor T1 roller home position sensor
J133	Input accessory	J187	Right door switch
J135	Registration density sensor assembly	J188	Fuser loop sensor 2
J138	Lifter motor Tray 2 media level sensor Tray 2 media width size switch Tray 2 media length size switch	J189	FD1 media full sensor

Table 2-31 DC controller PCA connectors (continued)

Item	Description	Item	Description
J139	Tray 2 media surface sensor	J191	Tray 2 pickup clutch
	Tray 2 media out sensor		Duplex re-pickup clutch
	Registration sensor		
	Registration media width sensor 1		
	Registration media width sensor 3		
	Registration media width sensor 2		
	Feed motor		
J151	Fuser relay PCA	J201	Formatter
J152	Fuser motor	SW301	Test print switch

Figure 2-69 550-sheet feeder PCA connectors

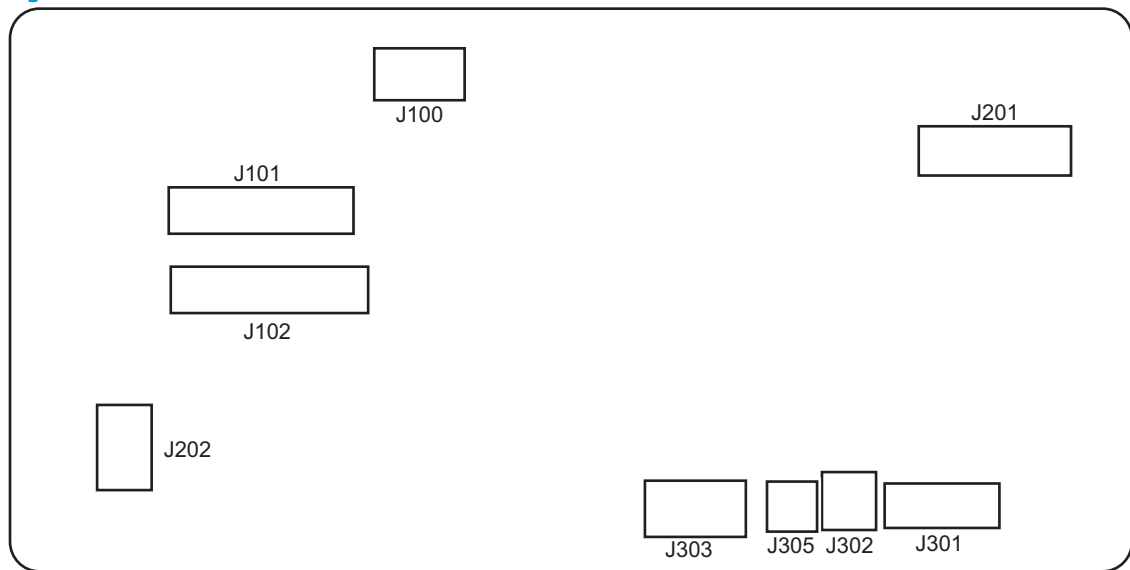


Table 2-32 550-sheet feeder PCA connectors

Item	Description	Item	Description
J100	Not used	J301	Media width size switch
			Media length size switch/ cassette presence switch
J101	Printer or paper feeder	J302	Door switch
J102	550-sheet feeder, 2x550 sheet feeder, or HCI	J303	Lifter motor rotation sensor
			Lifter motor

Table 2-32 550-sheet feeder PCA connectors (continued)

Item	Description	Item	Description
J201	Media out sensor Media surface sensor Feed sensor Pickup clutch	J305	Lifting place position sensor
J202	Feed motor	N/A	N/A

Figure 2-70 2x550-sheet feeder PCA connectors

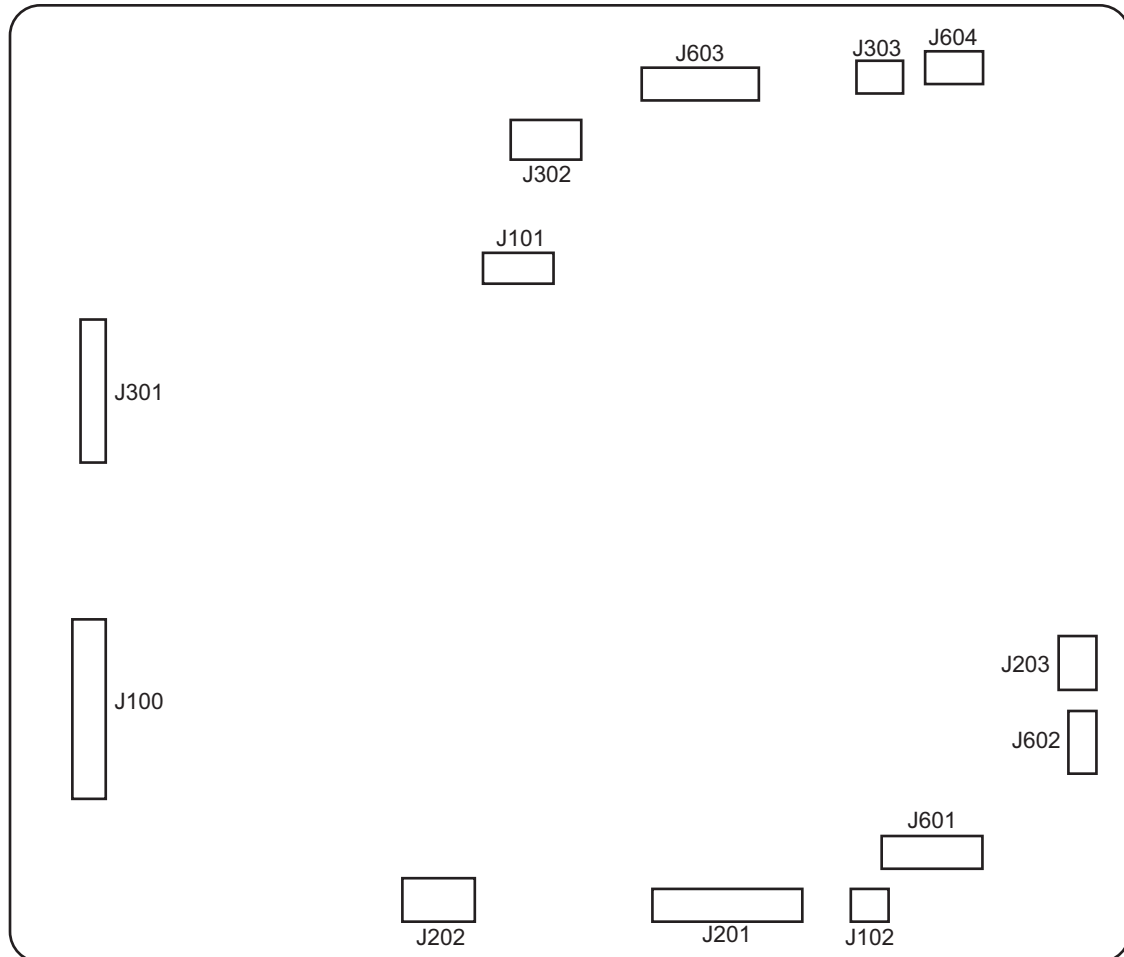


Table 2-33 2x550-sheet feeder PCA connectors

Item	Description	Item	Description
J100	Printer or paper feeder	J302	Tray feed motor 2
J101	Not used	J303	Lower tray lifter motor rotation

Table 2-33 2x550-sheet feeder PCA connectors (continued)

Item	Description	Item	Description
J102	Door switch	J601	Upper tray media width size switch Upper tray media length size switch Upper tray presence switch
J201	Upper tray media out sensor Upper tray media surface sensor Upper tray feed sensor Upper tray pickup clutch	J602	Upper tray lifter motor Upper tray lifting plate position sensor
J202	Tray feed motor 1	J603	Lower tray media width size switch Lower tray media length size switch Lower tray presence switch
J203	Upper tray lifter motor rotation	J604	Lower tray lifter motor Lower tray lifting plate position sensor
J301	Lower tray pickup clutch Lower tray media out sensor Lower tray media surface sensor Lower tray feed sensor	N/A	N/A

Figure 2-71 HCI PCA connectors

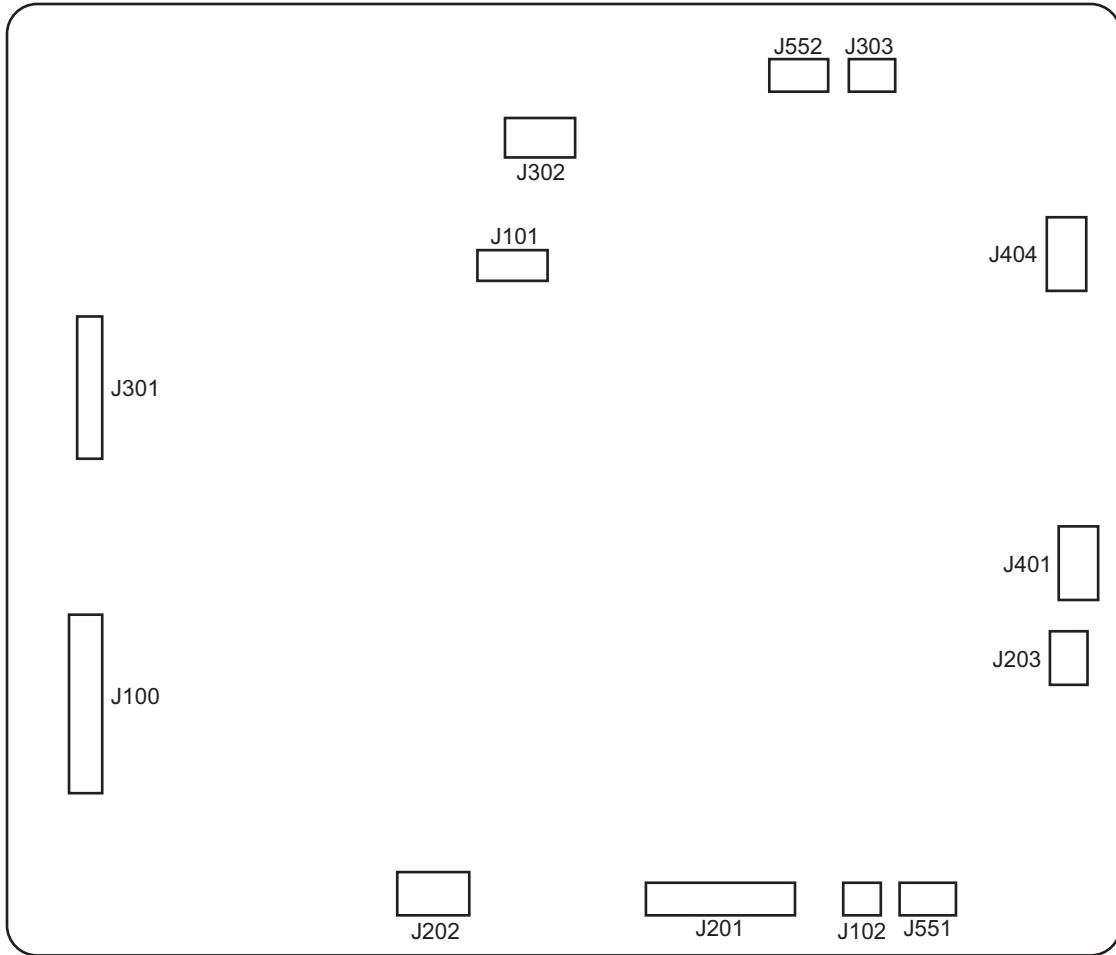


Table 2-34 HCI PCA connectors

Item	Description	Item	Description
J100	Printer or paper feeder	J302	Right tray feed motor
J101	Not used	J303	Feed sensor
J102	Door switch	J401	Left tray lifter motor
J201	Left tray pickup clutch	J404	Right tray lifter motor
	Left tray media out sensor		
	Left tray media surface sensor		
	Left tray feed sensor		
J202	Left tray feed motor	J551	Left tray media size switch
			Left tray media level switch
			Left tray presence switch

Table 2-34 HCI PCA connectors (continued)

Item	Description	Item	Description
J203	Side feed guide open sensor	J552	Right tray media size switch Right tray media level switch Right tray presence switch
J301	Right tray pickup clutch Right tray media out sensor Right tray media surface sensor Right tray feed sensor	N/A	N/A

Inner finisher PCA connections (M776zs)

Connections and components on the inner finisher PCA is indicated in the following figure.

Figure 2-72 Inner finisher PCA connectors and components

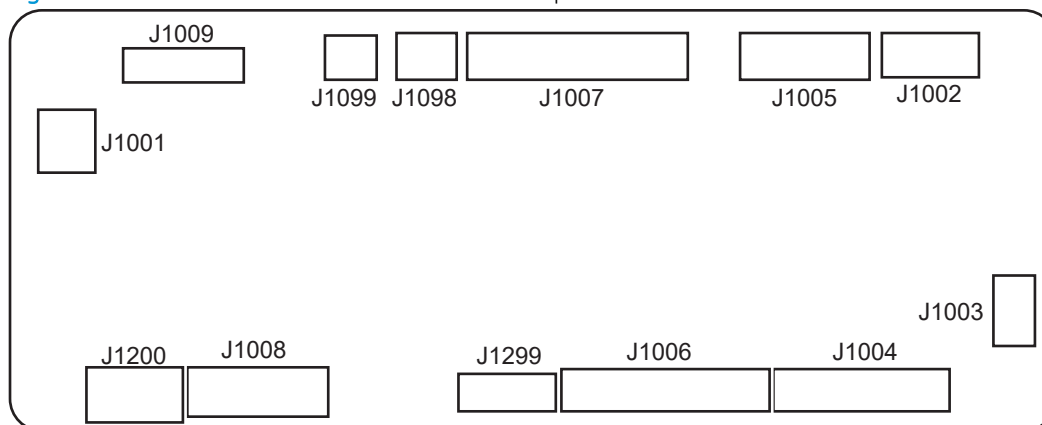


Table 2-35 Inner finisher PCA connectors and components

Item	Description	Item	Description
J1001	Staple door switch	J1008	Communication PCA (printer)
J1002	Bin1 output sensor SS feed motor	J1009	Staple motor
J1003	Staple shift motor	J1098	Curl sensor
J1004	Bin1 home position sensor Front alignment motor Rear alignment motor Assist motor	J1099	Trailing edge dropping solenoid
J1005	Return roller motor Tray lifting motor Paddle motor	J1200	Printer

Table 2-35 Inner finisher PCA connectors and components (continued)

Item	Description	Item	Description
J1006	Front jogger home position sensor	J1299	Not used
	Rear jogger home position sensor		
	Staple tray media presence sensor		
	Assist guide home position sensor		
	Media holder home position sensor		
	Bin1 media surface sensor		
J1007	Y alignment home position sensor	N/A	N/A
	Return roller home position sensor		
	Bin1 lower limit sensor		
	Staple shift home position sensor		
	Manual staple Media presence sensor		

Formatter connections

Connections and components on the formatter PCA is indicated in the following figure.

Figure 2-73 Formatter PCA connectors and components

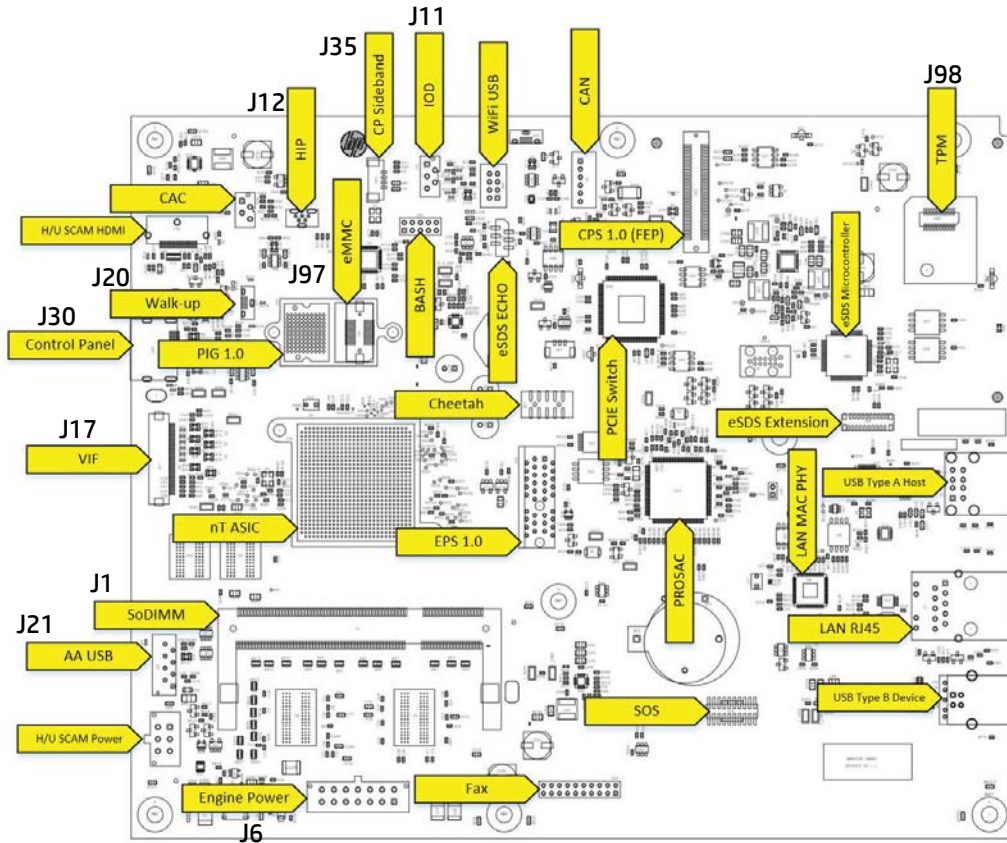


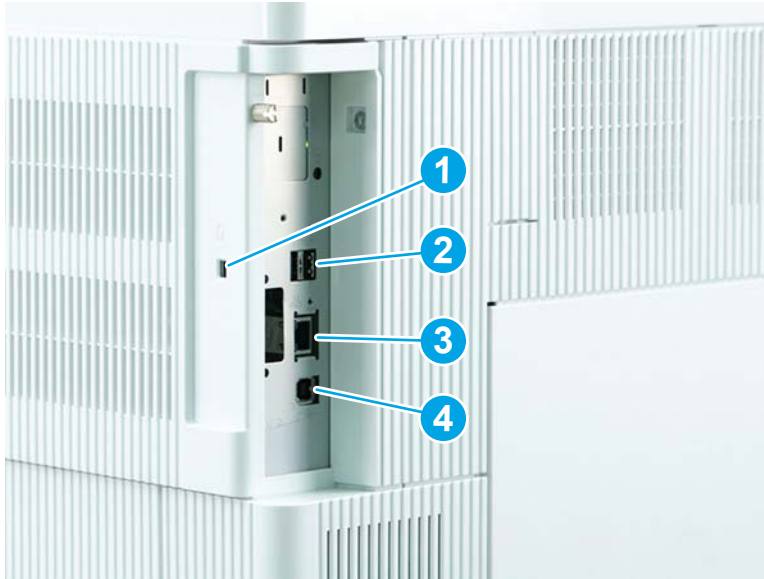
Table 2-36 Formatter connectors and components

Item	Description	Item	Description
J1	SODIMM	J21	Internal USB ports accessory
J6	Printer power	J30	Control panel
J11	Island of data (IOD)	J35	Control panel
J12	HIP pocket USB connector	J97	eMMC
J17	VIF	J98	Trusted Platform Module (TPM)
J20	Walk-up USB	N/A	N/A

External plug and port locations

Use the following figure to locate and identify the printer external port locations.

Figure 2-74 External plug and port locations



Item	Description
1	Slot for a cable-type security lock
2	USB port for job storage feature (requires a 16 GB or larger USB flash drive)
3	Local area network (LAN) Ethernet (RJ-45) network port
4	Hi-Speed USB 2.0 printing port

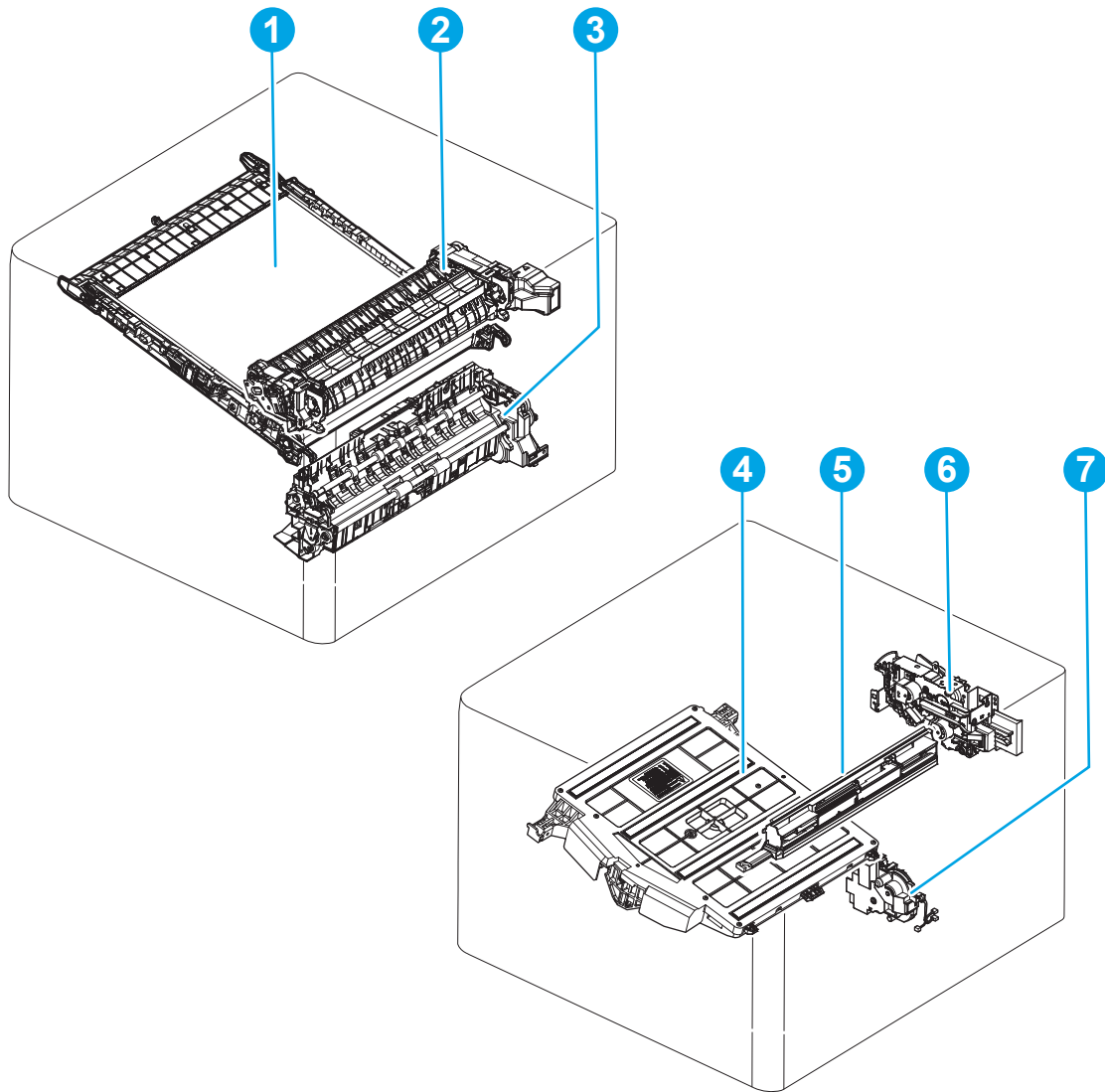
Locations of major assemblies

Use the figures in this section to identify and locate major components and assemblies in the printer.

Main assemblies

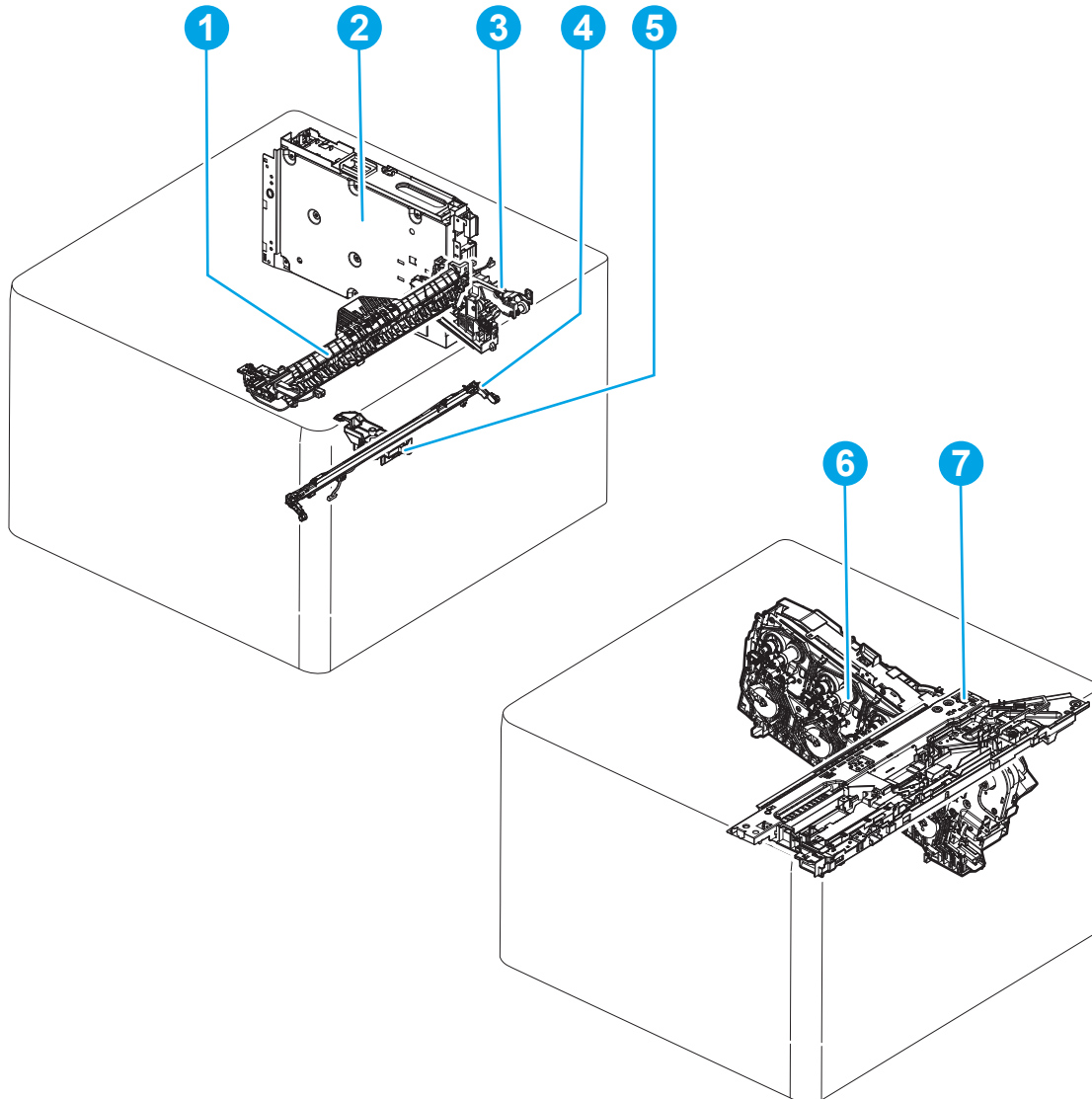
Review the following information about the main assemblies in the printer and accessories.

Figure 2-75 Main assemblies (printer base; 1 of 3)



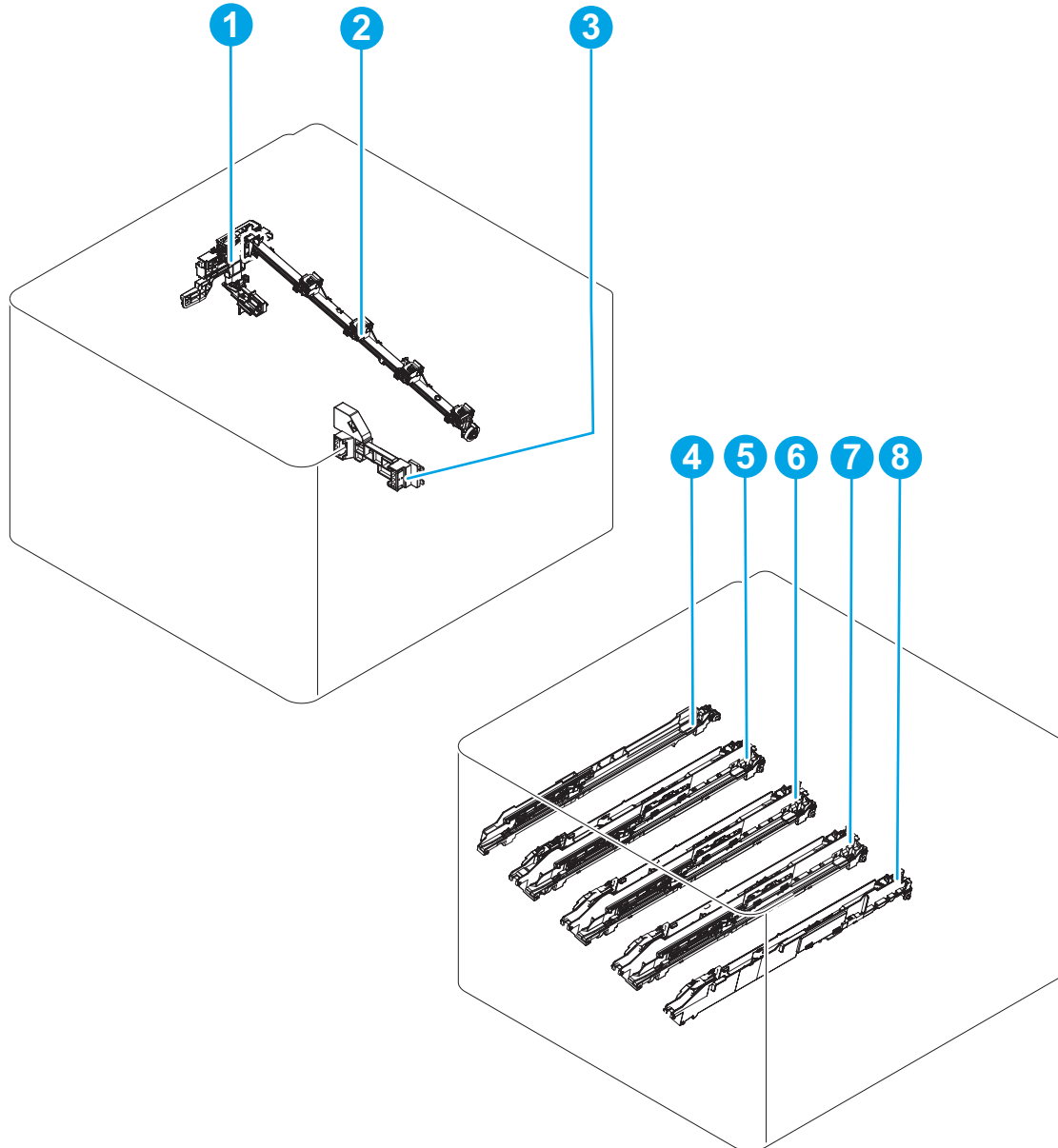
Item	Description	Item	Description
1	ITB assembly	5	Fuser shutter assembly
2	Fuser	6	Fuser drive assembly
3	Pickup assembly	7	Lifter drive assembly
4	Laser scanner assembly	N/A	N/A

Figure 2-76 Main assemblies (printer base; 2 of 3)



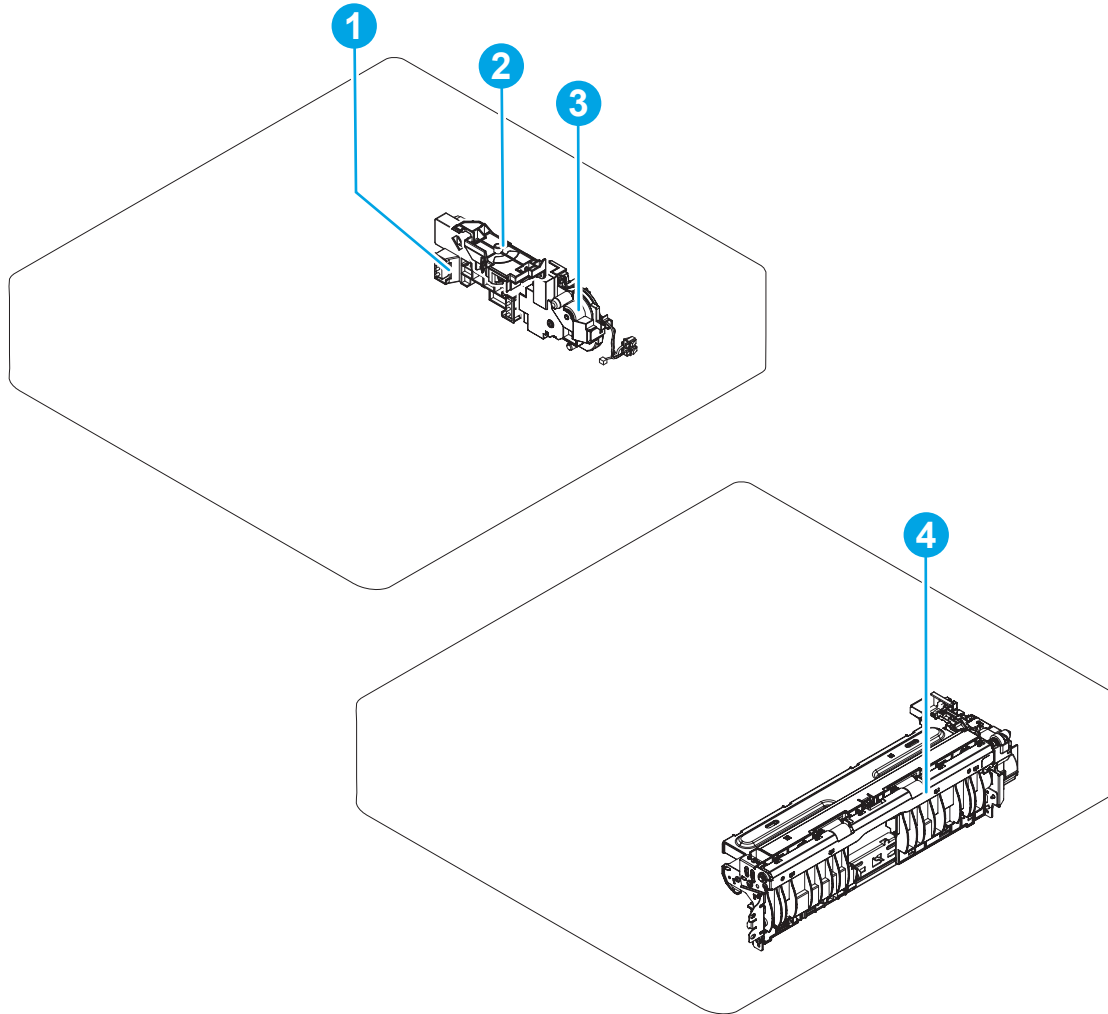
Item	Description	Item	Description
1	Delivery assembly	5	Auto-close assembly
2	Formatter case assembly	6	Main drive assembly
3	Duplex drive assembly	7	Duplex switchback assembly
4	Registration density sensor assembly	N/A	N/A

Figure 2-77 Main assemblies (printer base; 3 of 3)



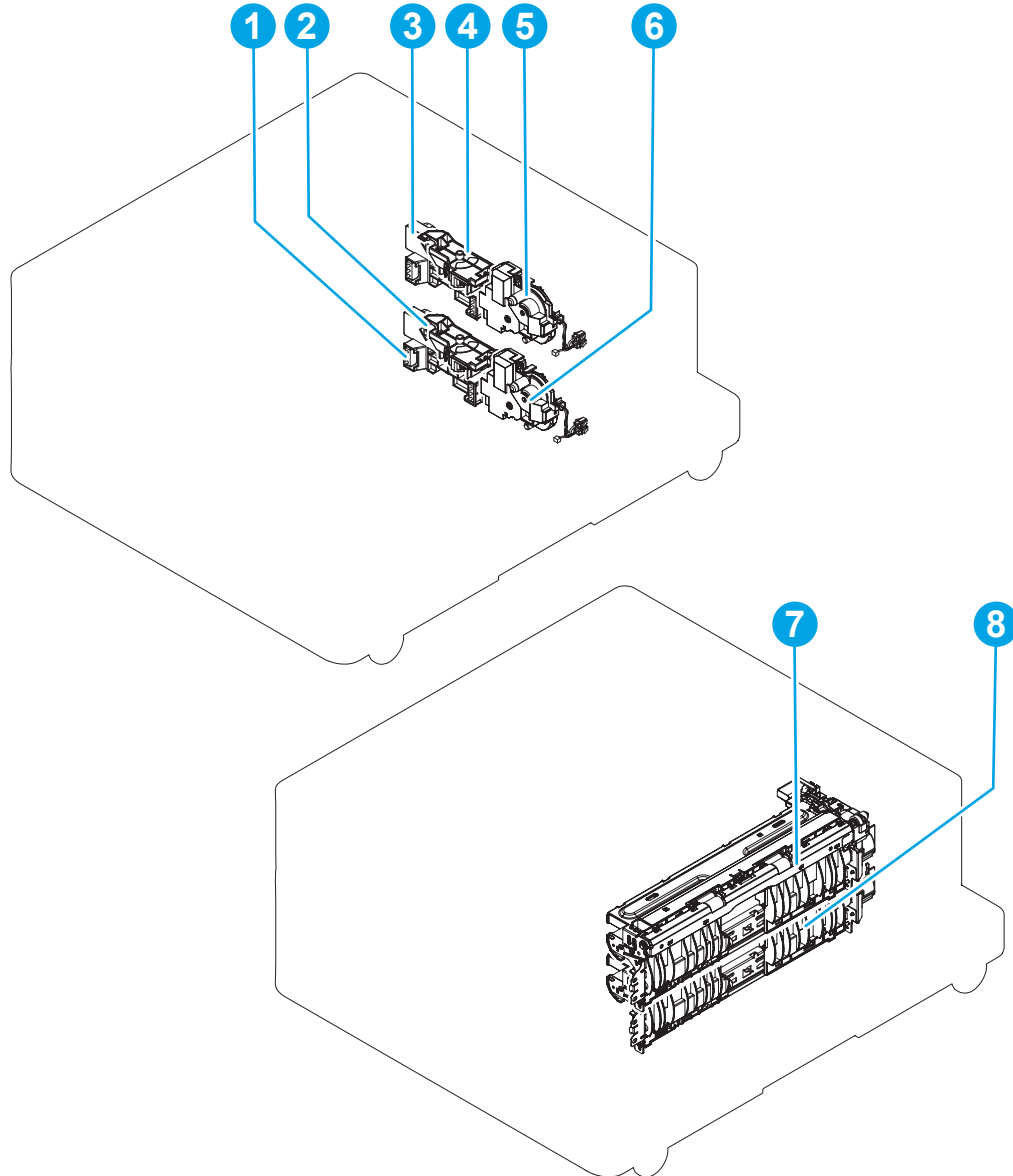
Item	Description	Item	Description
1	Waste toner duct assembly	5	First cartridge rail assembly
2	Waste toner feed assembly	6	Second cartridge rail assembly
3	Tray 2 media size switch assembly	7	Third cartridge rail assembly
4	DT-cartridge rail assembly	8	Black cartridge rail assembly

Figure 2-78 Main assemblies (550-sheet feeder)



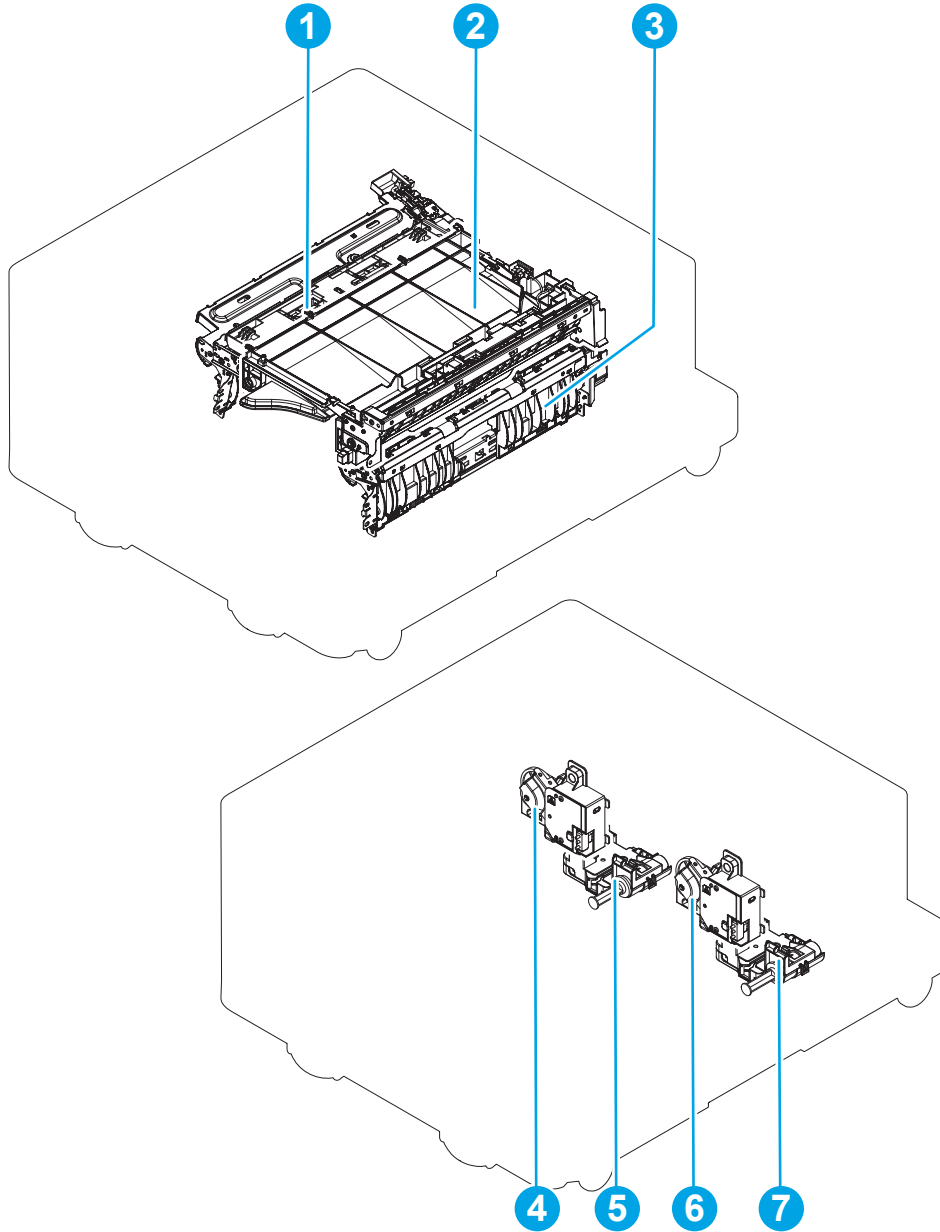
Item	Description	Item	Description
1	Media size switch assembly	3	Lifter drive assembly
2	Auto-close assembly	4	Pickup assembly

Figure 2-79 Main assemblies (2x550-sheet feeder)



Item	Description	Item	Description
1	Lower tray media size switch	5	Upper tray lifter drive assembly
2	Lower tray auto-close assembly	6	Lower tray lifter drive assembly
3	Upper tray media size switch	7	Upper tray pickup assembly
4	Upper tray auto-close assembly	8	Lower tray pickup assembly

Figure 2-80 Main assemblies (HCI feeder)

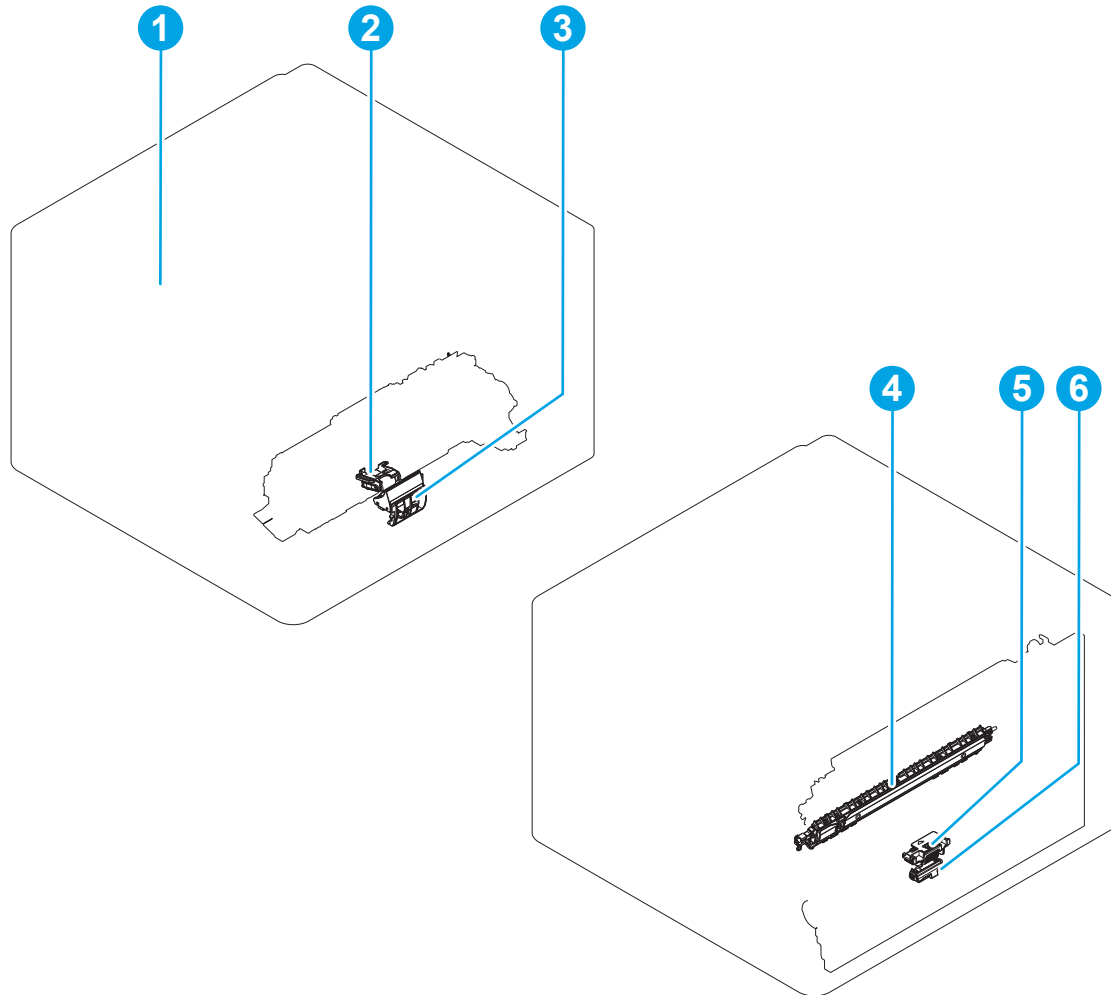


Item	Description	Item	Description
1	Left tray pickup assembly	5	Left tray auto-close assembly
2	Feed assembly	6	Right tray lifter drive assembly
3	Right tray pickup assembly	7	Right tray auto-close assembly
4	Left tray lifter drive assembly	N/A	N/A

Rollers

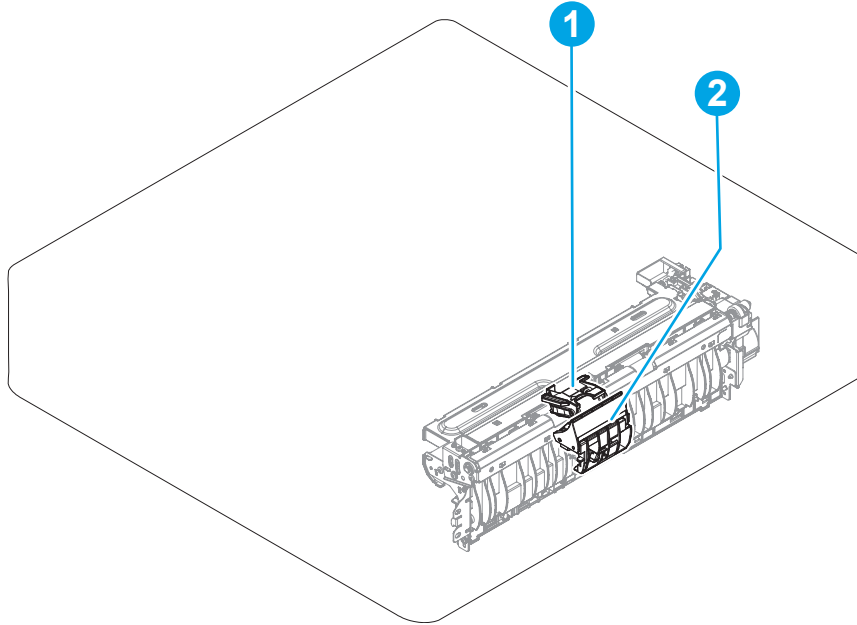
Review the following information about the rollers in the printer and accessories.

Figure 2-81 Rollers (printer base)



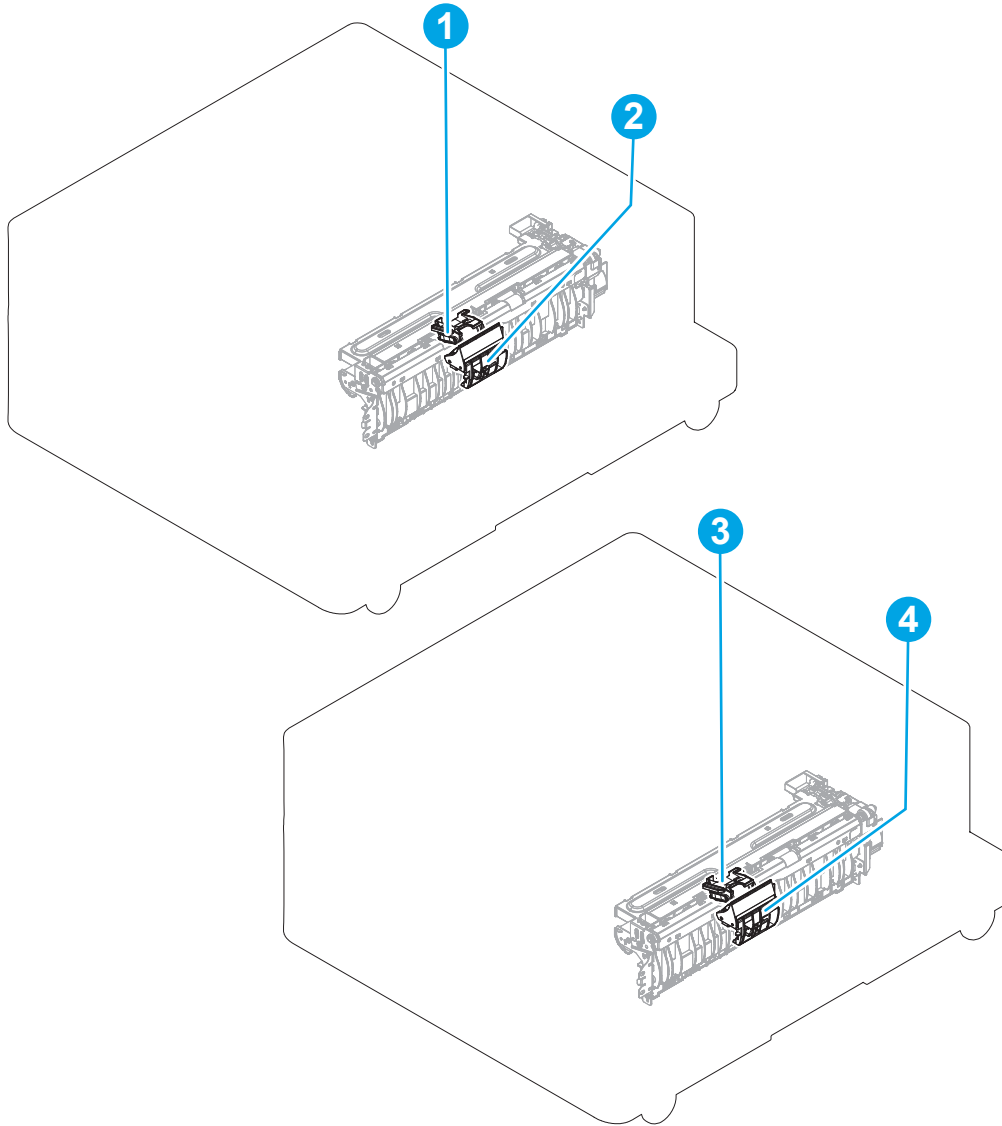
Item	Description	Item	Description
1	Toner collection unit	4	Secondary transfer roller
2	Tray 2 pickup roller	5	Tray 1 pickup roller
3	Tray 2 separation roller	6	Tray 1 separation roller

Figure 2-82 Rollers (550-sheet feeder)



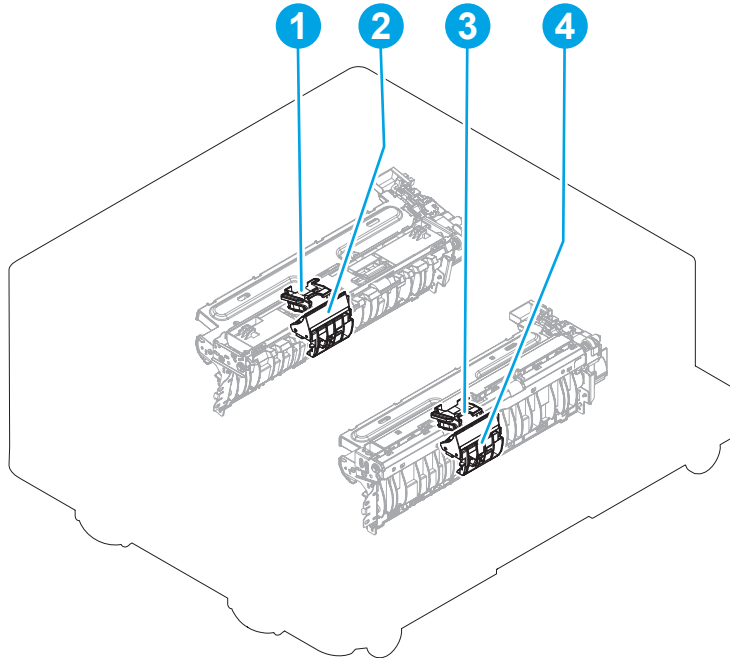
Item	Description
1	Pickup roller
2	Separation roller

Figure 2-83 Rollers (2x550-sheet feeder)



Item	Description	Item	Description
1	Upper tray pickup roller	3	Lower tray pickup roller
2	Upper tray separation roller	4	Lower tray separation roller

Figure 2-84 Rollers (HCI feeder)

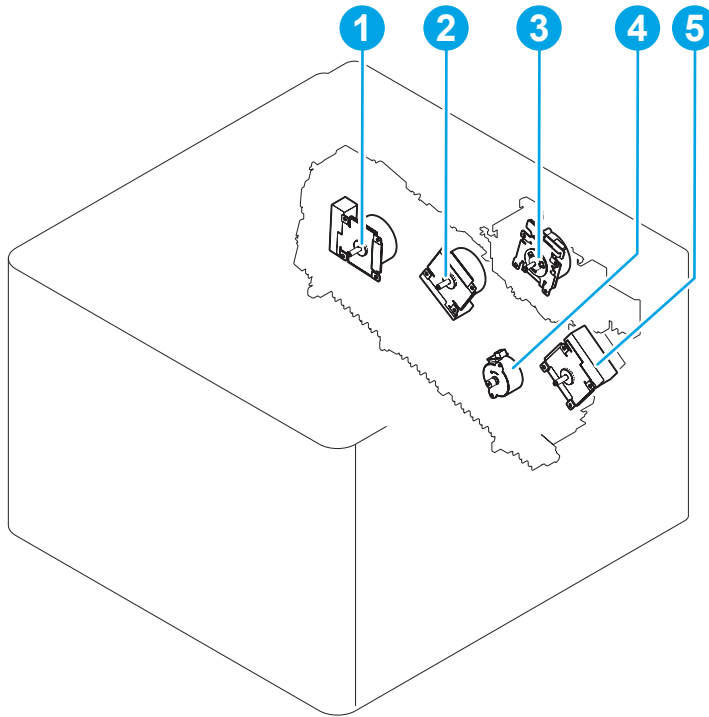


Item	Description	Item	Description
1	Left tray pickup roller	3	Right tray pickup roller
2	Left tray separation roller	4	Right tray separation roller

Motors

Review the following information about the motors in the printer.

Figure 2-85 Motors (printer base)

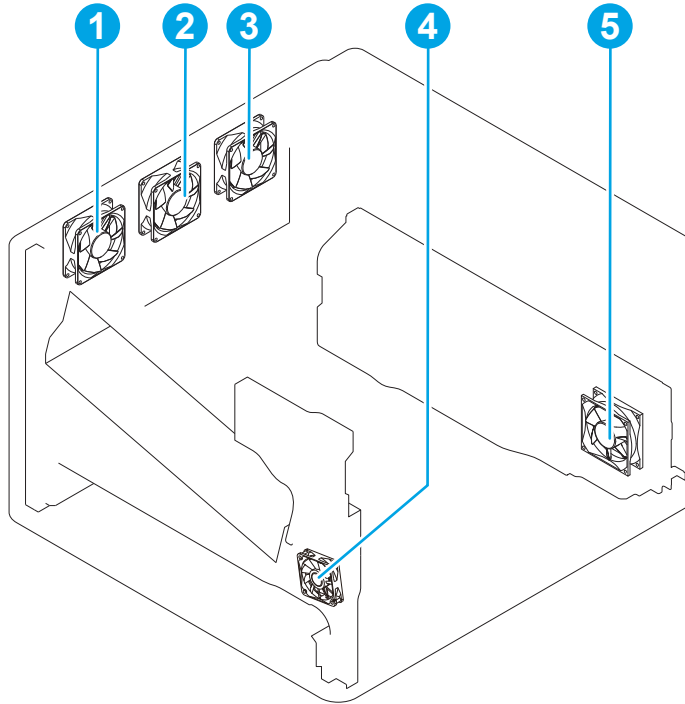


Item	Description	Item	Description
1	Drum motor 1	4	Developer alienation motor
2	Drum motor 2	5	Drum motor 3
3	Fuser motor	N/A	N/A

Fans

Review the following information about the fans in the printer.

Figure 2-86 Fans (printer base)

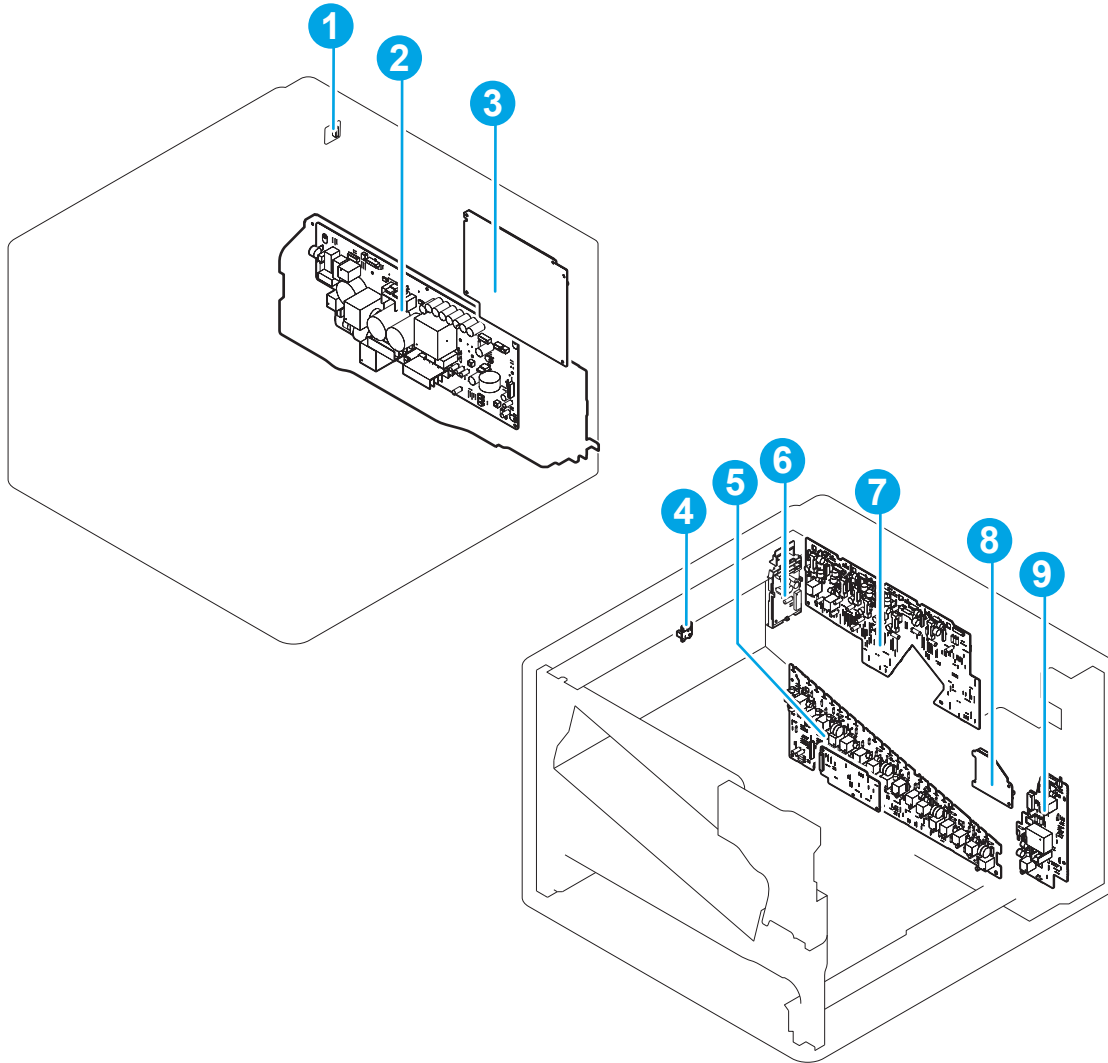


Item	Description	Item	Description
1	Cartridge front fan	4	Duplex fan
2	Fuser fan	5	Power supply fan
3	Cartridge rear fan	N/A	N/A

Printed circuit assemblies (PCAs)

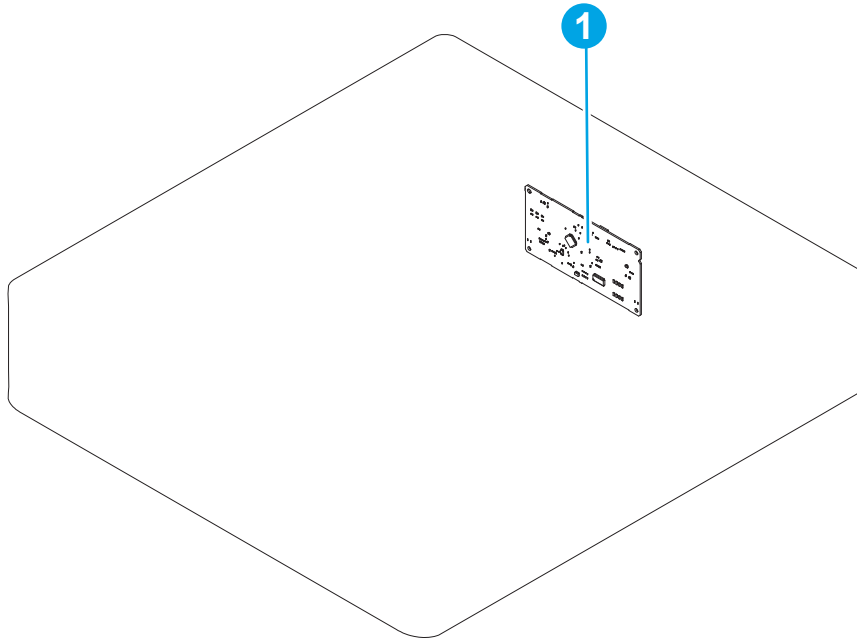
Review the following information about the PCAs in the printer and accessories.

Figure 2-87 PCAs (printer base)



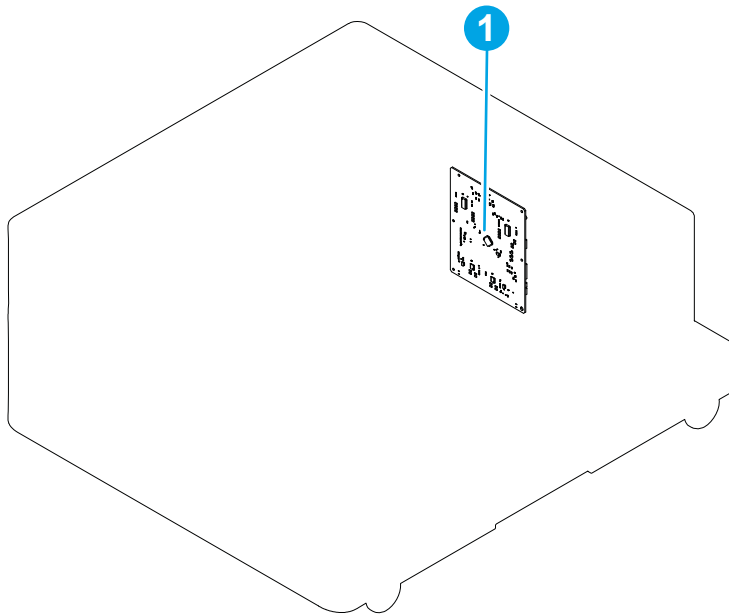
Item	Description	Item	Description
1	Memory PCA	6	Fan connecting PCA
2	Low-voltage power supply	7	High-voltage power supply A PCA
3	DC controller PCA	8	T2 connecting PCA
4	Environment sensor PCA	9	T2 high-voltage power supply PCA
5	High-voltage power supply B PCA	N/A	N/A

Figure 2-88 PCA (550-sheet feeder)



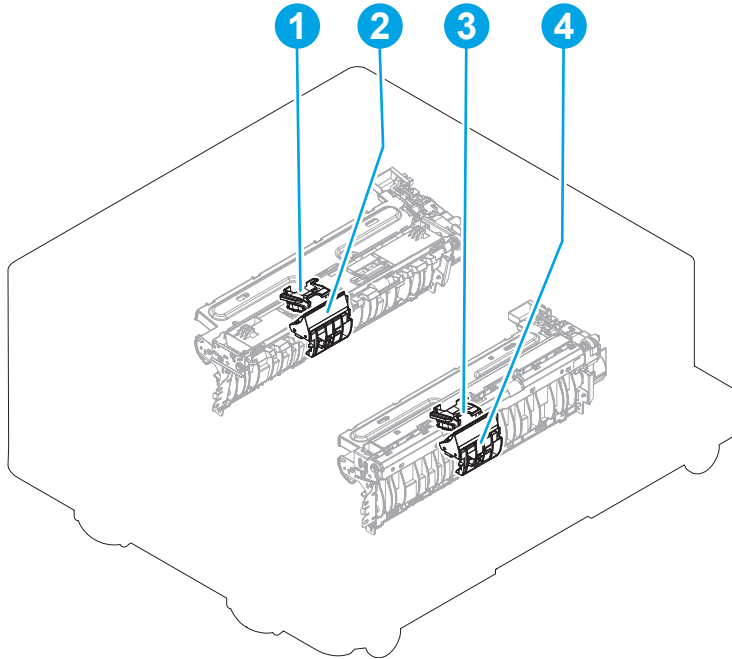
Item	Description
1	Paper feeder controller PCA

Figure 2-89 PCA (2x550-sheet feeder)



Item	Description
1	Paper deck controller PCA

Figure 2-90 PCA (HCI feeder)

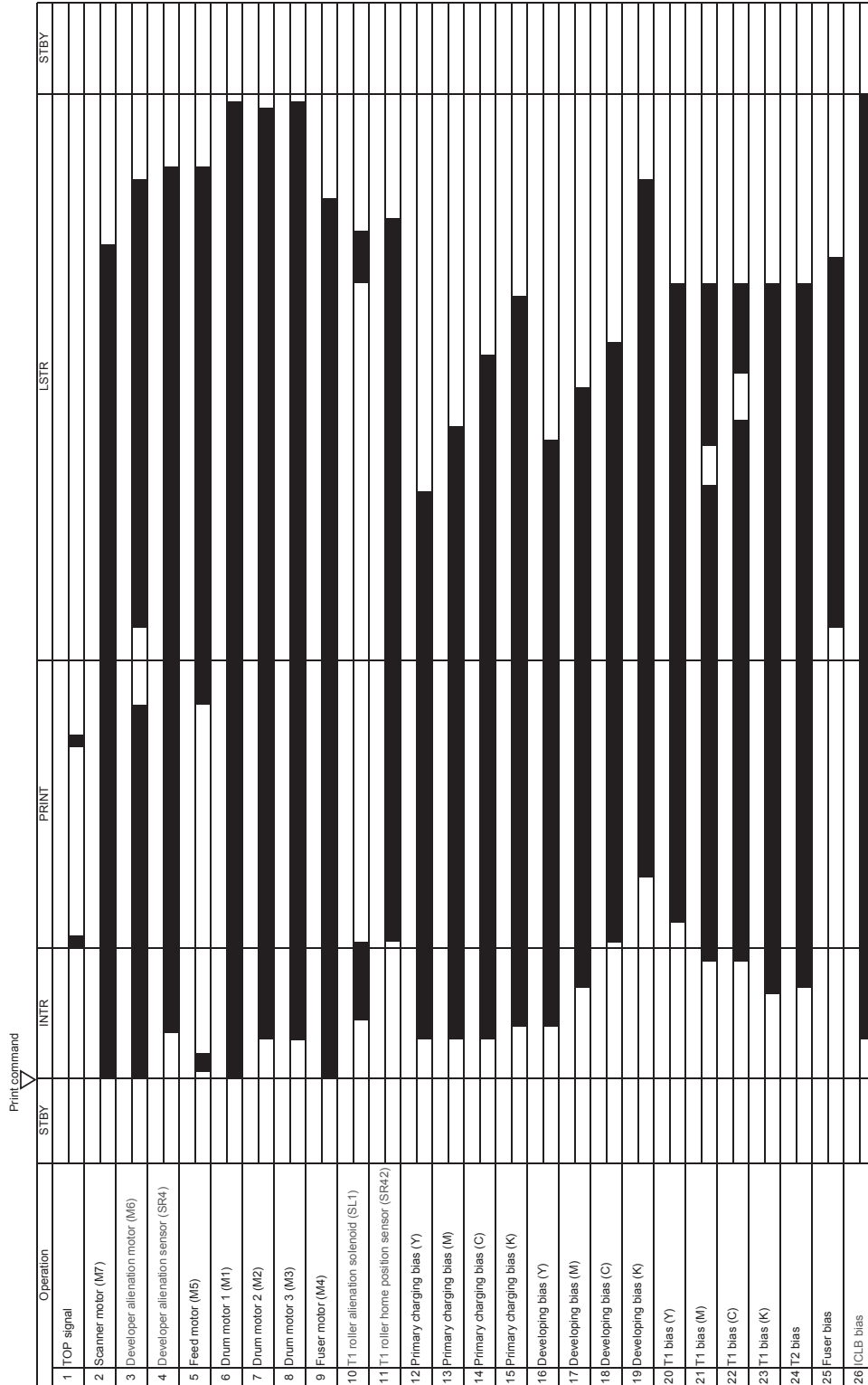


Item	Description
1	HCI controller PCA

General timing chart

Review the following information about the general timing chart.

Figure 2-91 General timing chart



General circuit diagrams

Review the following information about the general circuit diagrams.

Figure 2-92 General circuit diagram for the printer (1 of 7; M751/E75245/M856/E85055/M776dn/M776z/M776zs)

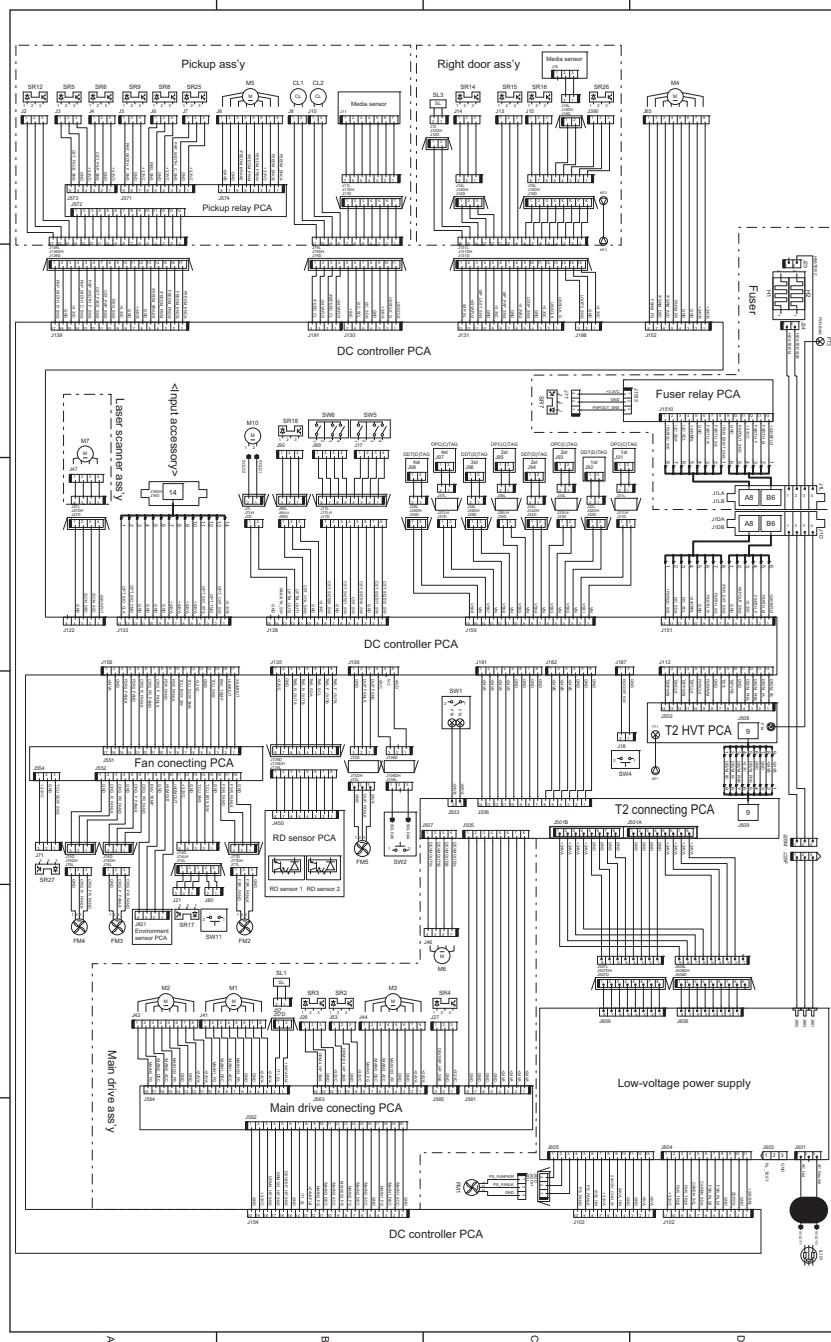




Figure 2-93 General circuit diagram for the printer (3 of 7; M751/E75245)

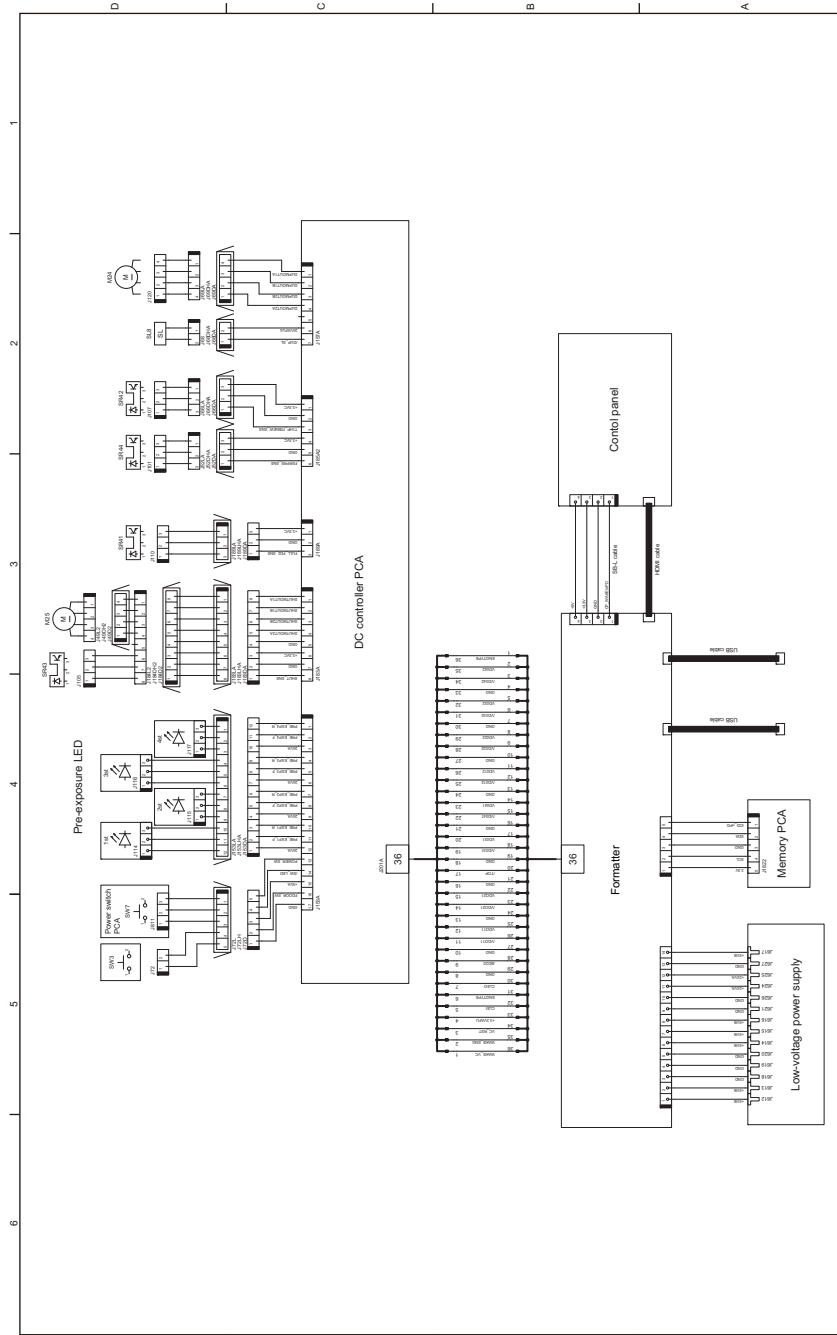


Figure 2-96 General circuit diagram for the printer (5 of 7; M856/E85055/M776dn/M776z)

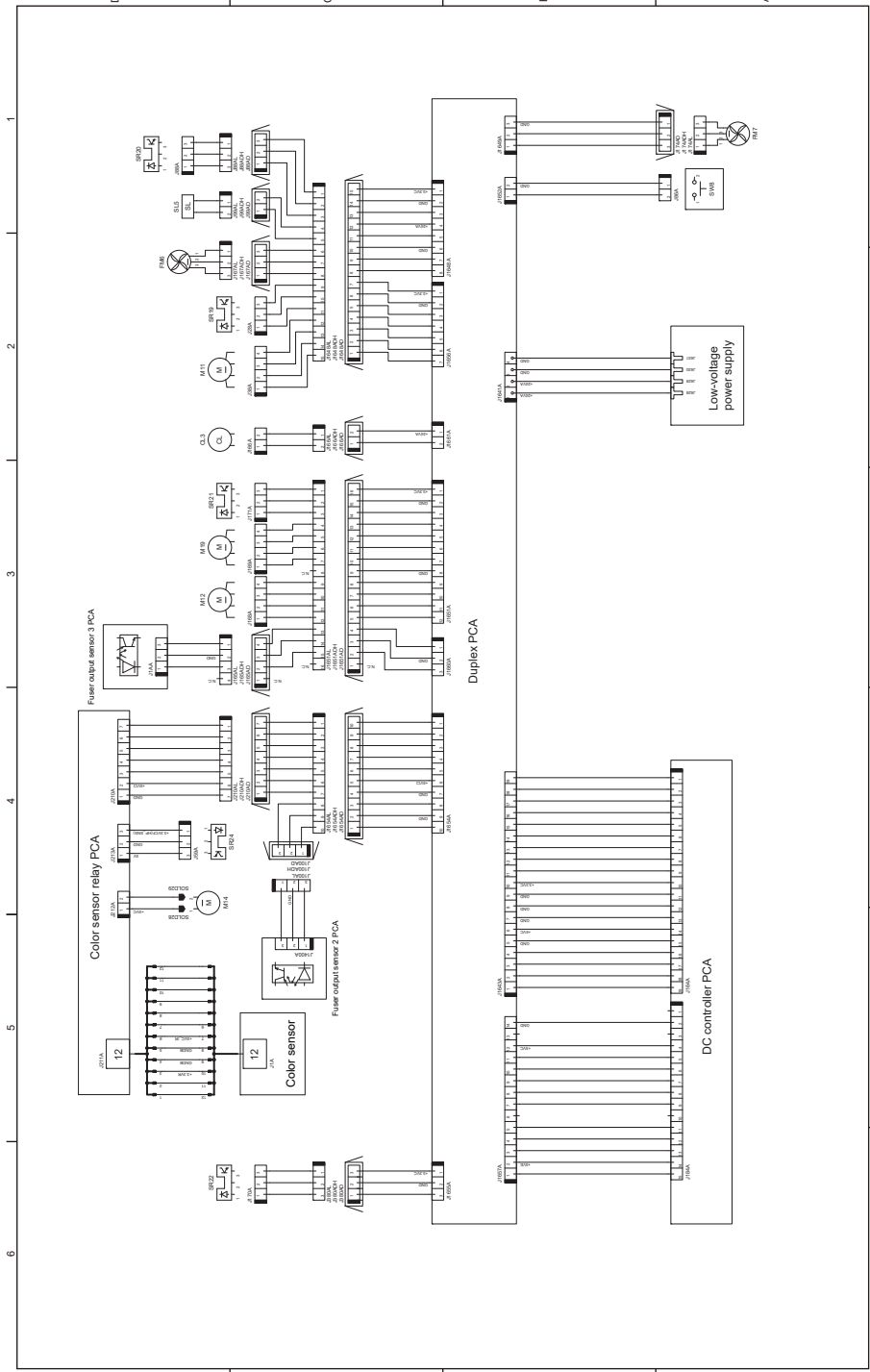


Figure 2-97 General circuit diagram for the printer (6 of 7; M776zs)

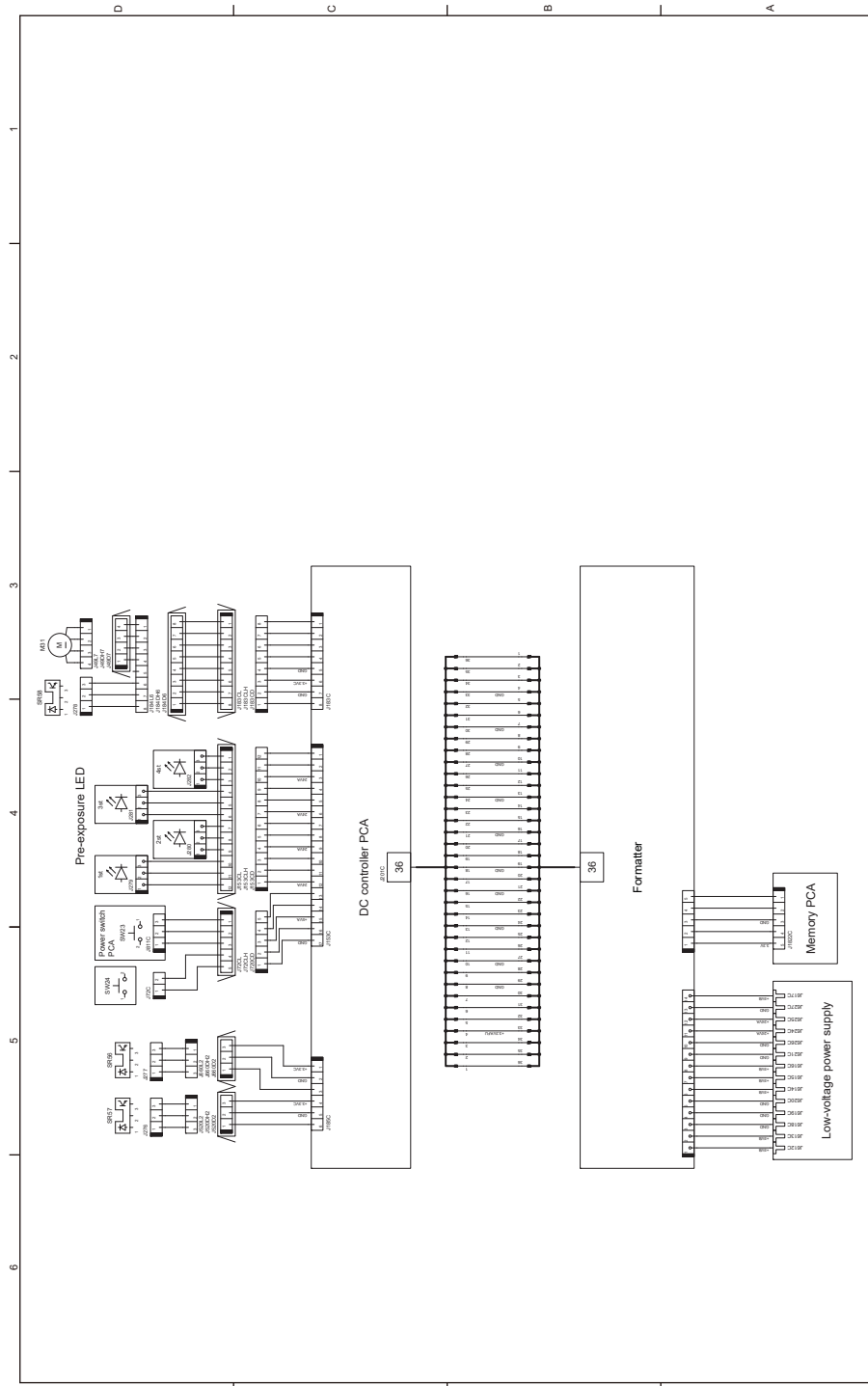


Figure 2-98 General circuit diagram for the printer (7 of 7; M776zs)

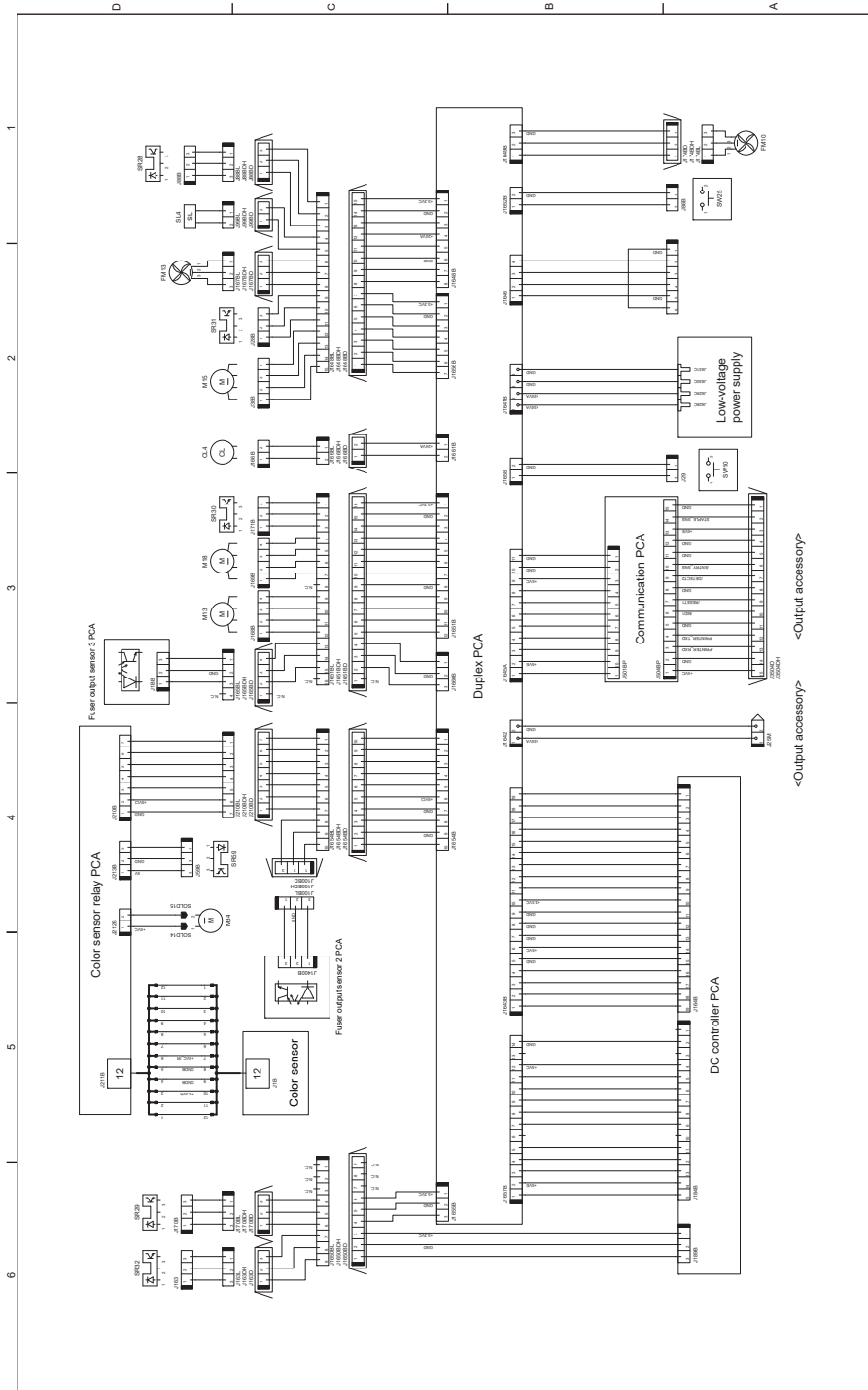


Figure 2-99 General circuit diagram for the inner finisher

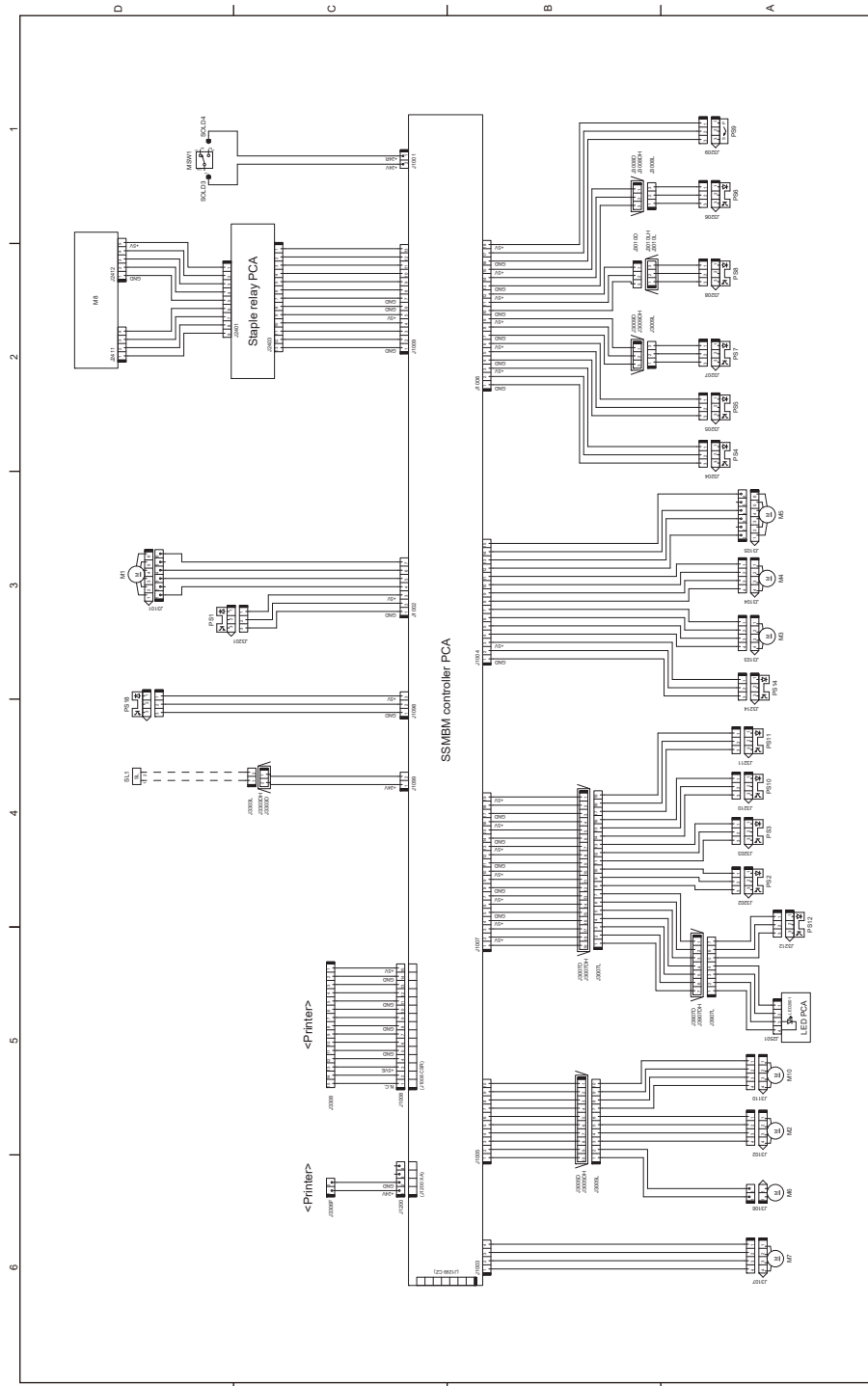


Figure 2-100 General circuit diagram for the 2x550-sheet feeder

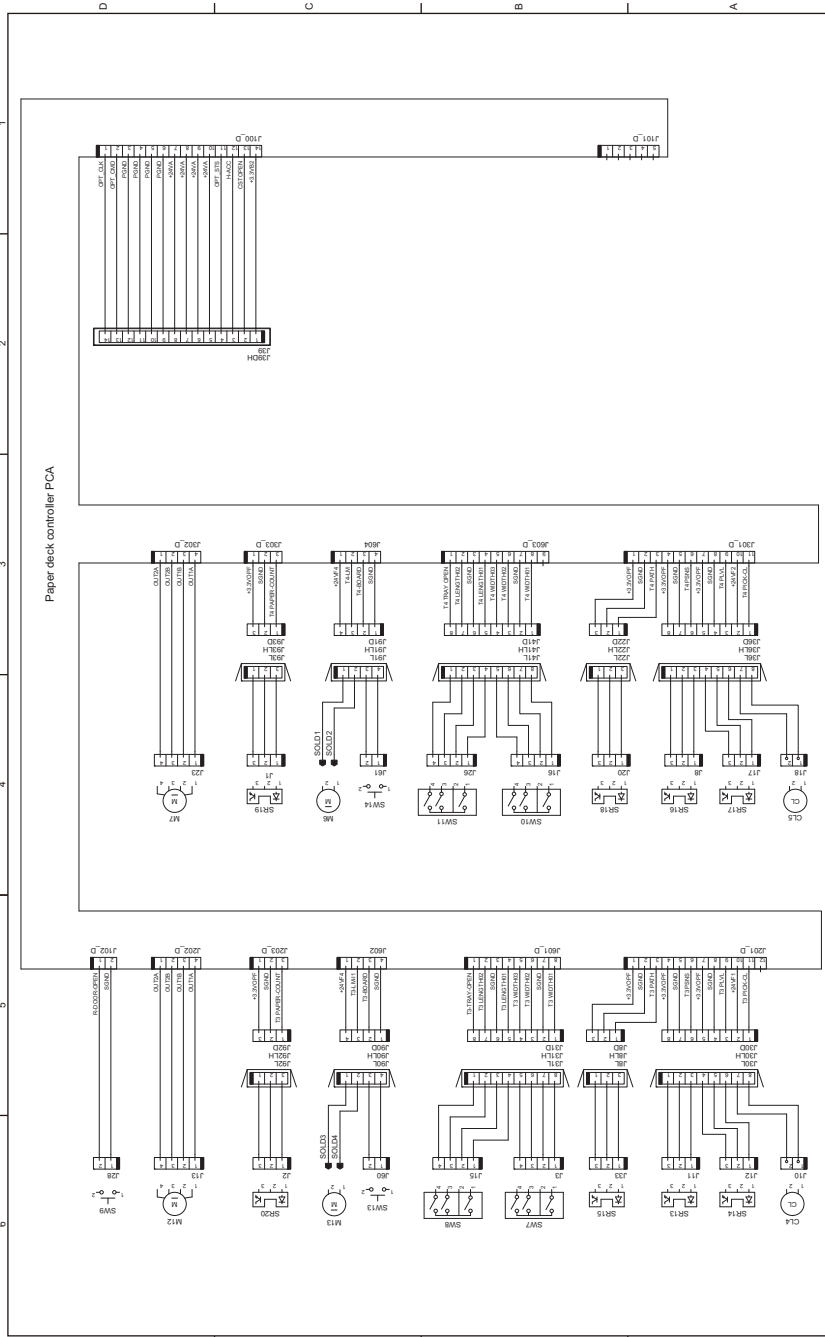
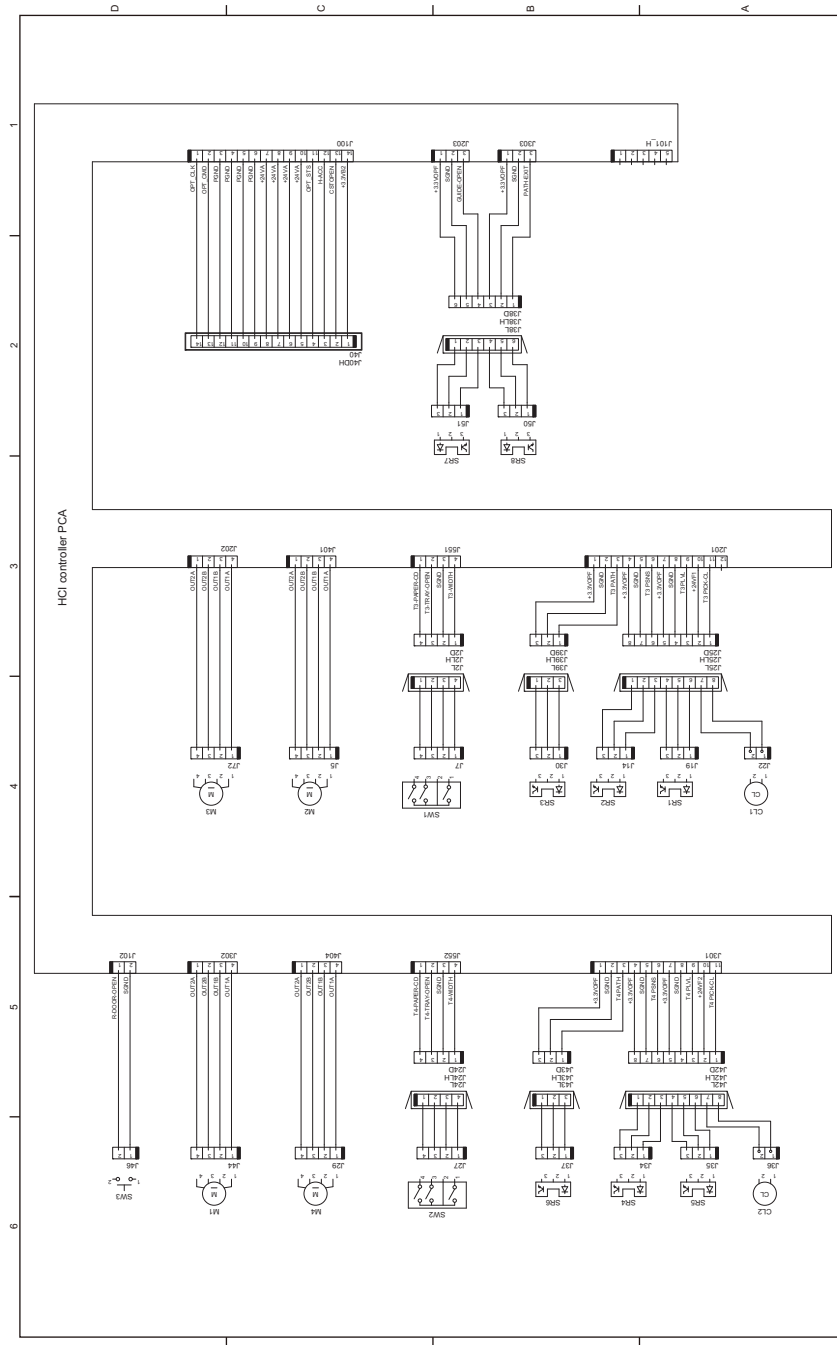


Figure 2-101 General circuit diagram for the HCI feeder



Internal test and information pages

Review the following information about the internal test and information pages.

Print a configuration page

Use the following procedure to print a configuration page.

 **NOTE:** Depending on the model, up to three pages print when printing a configuration page. In addition to the main configuration page, the HP embedded Jetdirect configuration page prints.

Print the configuration page from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to print the configuration page from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Reports](#) button.
2. Open the following menu:
 - [Configuration/Status Pages](#)
3. Touch [Configuration Page](#) to select it.
4. Touch the [Print](#) button to print the pages.

Print the configuration page from an LCD control panel (M751/E75245)

Use the following procedure to print the configuration page from an LCD control panel.


1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Reports](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Configuration/Status Pages](#), and then press the [OK](#) button.
3. Use the down arrow ▼ button to scroll to [Configuration Page](#), and then press the [OK](#) button.
4. Use the down arrow ▼ to scroll down to [Cancel](#), and then use the right arrow ► to highlight the print icon . Select [OK](#) to print the pages.

Figure 2-102 Configuration page

Configuration Page
HP Color LaserJet M751
Page 1

1 Device Information

Product Name: HP Color LaserJet M751
 Nickname: HP Color LaserJet M751
 Model Number: CXXXXA
 DC Controller Version: 7.114
 Product Serial Number: XXXXXXXXXX
 Formatter Number: XXXXXXXXXX
 Firmware Bundle Version: 0
 Firmware Revision: Banff_DCC_Only
 Firmware Datecode: 20180710
 HP FutureSmart Level: HP FutureSmart 4
 NFC revision: Not Installed
 Service ID: Z7172
 Fuser Kit Interval: 150000
 Pages Since Last Fuser Maintenance: 15200
 PS Wait Time-out: 300 seconds
 Engine Cycles*: 3380
 Color Engine Cycles*: 1745
 Cartridge Protection: Off
 Cartridge Policy: DfE
 Cartridge Index: RPLP_PAPJ
 *Not weighted for billing

5 Calibration Information

Last CPR (Engine Cycles): 3380
 Last CPR: 11/8/2017 9:36:00 PM
 Last DMax/Half (Engine Cycles): 3380
 Last DMax/Half: 11/8/2017 9:36:00 PM

2 Installed Personalities and Options

PCL: 20010402
 PCLXL: 20010402
 POSTSCRIPT: 20010402
 PDF: 20130901
 AirPrint: 2040201
 PageRASTER: 2040201
 TIFF: 20150522
 Internal Disk: Hard Disk: Enabled
 Serial Number: S0617740
 Model: Micron L65J1R
 Capacity: 14080 MB
 Hard Disk Encryption Status: Disk cannot be encrypted
 TPM: Enabled
 Firmware: 149.33
 EK Thumbprint: 45280F39048361400E189C12A814683014B99A86
 SRK Thumbprint: B37953A79089A1AE09CC2D084C4C9A24373CF9
 Embedded Jetdirect Page: 10.10.48.155
 Custom Color Table: Not Installed

6 Memory

Total RAM: 1536 MB

7 Event Log

Number of Entries in Use: 144
 Three Most Recent Entries:

Number	Cycles	Event
144	3380	10:59:40
143	3380	10:07:58
142	3380	10:06:58

8 Security

Hard Disk Encryption Status:
 Internal Disk: Disk cannot be encrypted
 Job Data Encryption Status: Encrypted (AES-128)
 Job Data Persistence: Volatile (not persistent)
 File Erase Mode: Non-Secure Fast Erase (No overwrite)
 Control Panel Password: Disabled
 Support Key: 21G4-1C5G-0V62
 Host USB plug and play: Enabled
 Device USB: Enabled
 whitelisting: Development

9 Paper Trays and Options


Default Paper Size: Letter
 Tray 1 Size: 11x17
 Tray 1 Type: Cardstock 176-220g
 Tray 2 Size: Letter
 Tray 2 Type: Bond
 Duplex Unit:
 Standard bin: 500 Sheets

3 HP Web Services

HP web Services: Disabled
 ePrint: Disabled

4 Color Density

	C	M	Y	K
Highlights	0	0	0	0
Midtones	0	0	0	0
Shadows	0	0	0	0

Nov8/2017 1:37:05 PM

English (United States)

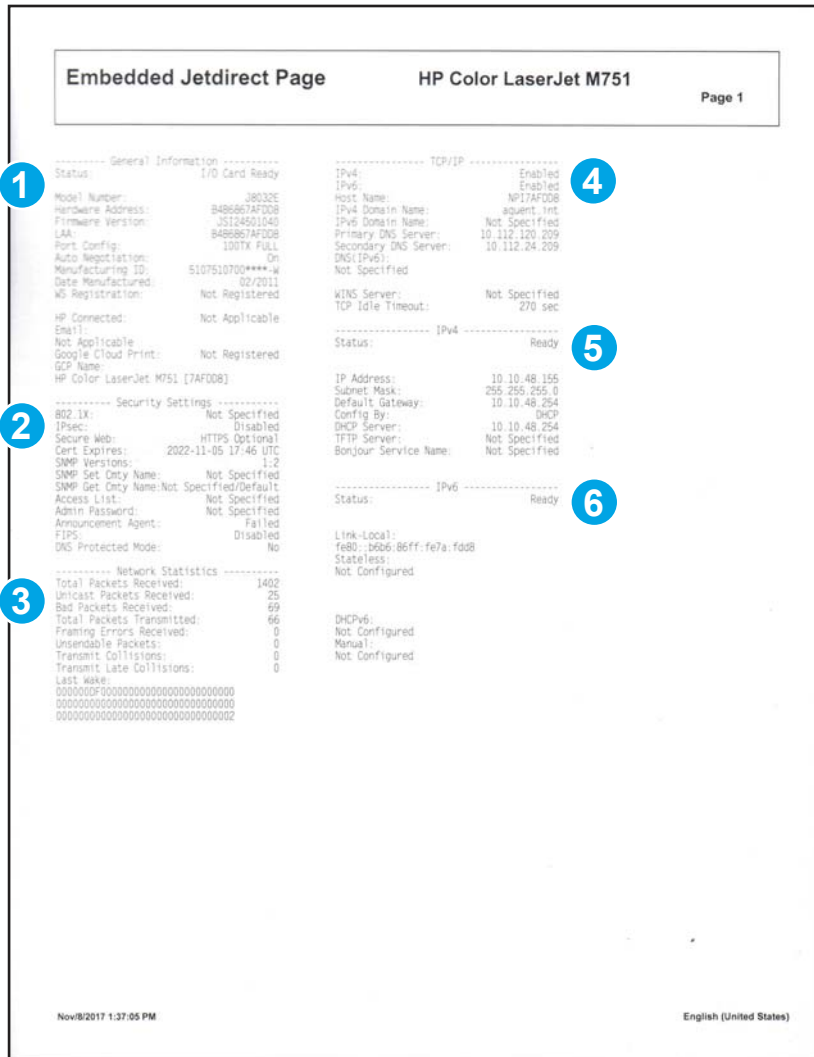
Item	Description	Item	Description
1	Device Information , including the firmware version, usage statistics, and the service ID.	6	Memory
2	Installed Personalities and Options information, including installed printer languages and hard disk information.	7	Event Log information that shows the most recent entries in the log.
3	HP Web Services status information	8	Security information that includes encryption information and current security settings.
4	Color Density information	9	Paper Trays and Options information that shows installed trays and current paper size/type settings.
5	Calibration Information that shows when the printer most recently performed a calibration.	N/A	N/A

HP embedded Jetdirect page

The second configuration page is the HP embedded Jetdirect page, which contains the following information:

Always make sure the status line under the general information line indicates "HP embedded Jetdirect page."

Figure 2-103 HP embedded Jetdirect page



Item	Description
1	General Information indicates the printer status, model number, hardware firmware version, port select, port configuration, auto negotiation, manufacturing identification, and manufactured date.
2	Security Settings information
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 information, including the IP address
5	IPv4 information
6	IPv6 information

Finding important information on the configuration pages

Certain information, such as the firmware date codes, the IP address, and the email gateways, is especially helpful while servicing the printer. This information is on the various configuration pages.

Firmware date codes: When performing a remote firmware upgrade procedure, all of the following firmware components are upgraded.

Table 2-37 Firmware date codes

Specific information	Configuration page
DC controller	Look on the main configuration page, under "Device Information."
Firmware datecode	Look on the main configuration page, under "Product Information" or "Device Information".
HP embedded Jetdirect firmware version	Look on the HP embedded Jetdirect page, under "General Information."

Accessories and internal storage: All optional devices that are installed on the printer 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.

Table 2-38 Accessories and internal storage

Specific information	Configuration page
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."
Additional 550-sheet feeders	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 printer 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 [Troubleshooting](#) menu.

Table 2-39 Engine cycles and event logs

Specific information	Configuration page
Engine cycles	Look on the main configuration page, under "Impressions" or "Device Information".
Event-log information	Look on the main configuration page, under "Event Log."
Error-log information	Look on the main configuration page, under "Event Log."



Control panel menus

You can perform basic printer setup by using the control panel menus. Use the HP Embedded Web Server for more advanced printer setup. To open the HP Embedded Web Server, enter the printer IP address or host name in the address bar of a web browser.

Reports menu

Review the following information about the Reports menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Reports](#), and then select [OK](#).

 **NOTE:** Use the up arrow ▲ button or down arrow ▼ button to highlight the report, and then press the [OK](#) button to select it. Use the down arrow ▼ to scroll down to [Cancel](#), and then use the right arrow ► to highlight the print icon . Select [OK](#) to print the pages.

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

Table 2-40 Reports menu

First level	Second level	Values	Description
Configuration/Status Pages	Settings Menu Map	Select OK to select the report.	Shows a map of the entire control panel system and the selected values for each setting.
Configuration/Status Pages	Current Settings Page	Select OK to select the report.	Shows a summary of the current settings for the printer. This might be helpful if you plan to make changes and need a record of the present configuration.
Configuration/Status Pages	Configuration Page	Select OK to select the report.	Shows the printer settings and installed accessories.
Configuration/Status Pages	How to Connect Page	Select OK to select the report.	Shows the network information typically needed to connect the printer to a network.
Configuration/Status Pages	Supplies Status Page	Select OK to select the report.	Shows the approximate remaining life for the supplies; reports statistics on total number of pages and jobs processed, serial number, page counts, and maintenance information. HP provides approximations of the remaining life for the supplies as a customer convenience. The actual remaining supply levels might be different from the approximations provided.
Configuration/Status Pages	Usage Page	Select OK to select the report.	Shows a count of all paper sizes that have passed through the printer; lists whether they were simplex, duplex, monochrome, or color; and reports the page count.

Table 2-40 Reports menu (continued)

First level	Second level	Values	Description
Configuration/Status Pages	File Directory Page	Select OK to select the report.	Shows the file name and folder name for files that are stored in the printer memory.
Configuration/Status Pages	Web Services Status Page	Select OK to select the report.	Shows the detected Web Services for the printer.
Configuration/Status Pages	Color Usage Job Log	Select OK to select the report.	Shows color jobs completed by the printer.
Other Pages	Demonstration Page	Select OK to select the report.	Prints a demonstration page.
Other Pages	RGB samples	Select OK to select the report.	Prints color samples for different RGB values. Use the samples as a guide for matching printed colors.
Other Pages	CMYK samples	Select OK to select the report.	Prints color samples for different CMYK values. Use the samples as a guide for matching printed colors.
Other Pages	PCL Font List	Select OK to select the report.	Prints the available PCL fonts.
Other Pages	PS Font List	Select OK to select the report.	Prints the available PS fonts.

Settings menu

The menus under the [Settings](#) menu contain the options for changing the printer settings. Learn about these menus and settings.

General menu

Review the following information about the [General](#) menu in the [Settings](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Settings](#), and then select [OK](#). Use the down arrow ▼ button to scroll to [General](#), and then press the [OK](#) button.

Table 2-41 General menu

First level	Second level	Third level	Fourth level	Values	Description
Date/Time Settings	Date/Time Format	Date Format		DD/MMM/YYYY MMM/DD/YYYY YYYY/MMM/DD	Use the Date/Time Settings menu to specify the date and time and to configure date/time settings.
Date/Time Settings	Date/Time Format	Time Format		12 hour (AM/PM) 24 hours	Select the format that the printer uses to show the date and time, for example 12-hour format or 24-hour format.
Date/Time Settings	Date/Time	Date			Select the date from a pop-up calendar.
Date/Time Settings	Date/Time	Time			Select the time from a pop-up keypad.
Date/Time Settings	Date/Time	Time Zone			Select the time zone.
Energy Settings	Sleep Schedule	A list of scheduled events displays.	Select an event from the list to edit it	For the selected event, change the time and days settings as desired. Done Select the trash can icon to delete the event	Use to configure the printer to automatically wake up or go to sleep at specific times on specific days. Using this feature saves energy. NOTE: You must configure the date and time settings before you can use this feature.
Energy Settings	Sleep Schedule	New event	Event Type	Wake Sleep	Select whether to add or edit a Wake event or a Sleep event, and then select the time and the days for the wake or sleep event.
Energy Settings	Sleep Schedule	New event	Time		Set the wake or sleep event time parameters.
Energy Settings	Sleep Schedule	New event	Event Days	Select days of the week from a list.	Set the wake or sleep event day parameters.

Table 2-41 General menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Energy Settings	Sleep Settings	Sleep After Inactivity Auto Off After Sleep Select one of these items:		Range: 1 to 110 minutes Default = 0 minutes	Set the number of minutes after which the printer enters Sleep or Auto Off mode. Use the arrow buttons on the control panel to increase or decrease the number of minutes.
		<ul style="list-style-type: none"> • HP Auto Off/Auto On (Wake on most events) • Shut down (Wake on power button only) 			
Display Settings	Display Brightness	A sliding bar displays with the indicator set in the middle. Use the arrow keys to select the desired brightness and then select <i>Done</i> .			Use to specify the intensity of the LCD control panel display.
Display Settings	Language Settings	Language		Select from a list of languages that the printer supports.	Use to select a different language for control panel messages and specify the default keyboard layout. When you select a new language, the keyboard layout automatically changes to match the factory default for the selected language.
Display Settings	Language Settings	Keyboard Layout		Each language has a default keyboard layout. To change it, select from a list of layouts.	Select the default keyboard layout that matches the language you want to use.
Display Settings	Information Screen			Show connection information* Hide connection information	Use this menu item to display or hide connection information on the Home screen.
Display Settings	Inactivity Timeout			Range: 10-300 seconds Default = 60 seconds	Specifies the amount of time that elapses between any activity on the control panel and when the printer resets to the default settings. When the timeout expires, the control panel display returns to the Home menu, and any user signed in to the printer is signed out.

Table 2-41 General menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Display Settings	Clearable Warnings			<p>Display during job*</p> <p>Display until cleared</p>	Use this feature to set the period that a clearable warning displays on the control panel. If the On setting is selected, clearable warnings appear until the Clearable Warnings button is pressed. If the Job setting is selected, clearable warnings stay on the display during the job that generated the warning and disappear from the display when the next job starts.
Display Settings	Continuable Events			<p>Auto-continue (10 seconds)*</p> <p>Touch OK to continue</p>	Use this option to configure the printer behavior when the printer encounters certain errors. If the Auto-continue (10 seconds) option is selected, the job will continue after 10 seconds. If the Touch OK to continue option is selected, the job will stop and require the user to touch the OK button before continuing.
Enable Device USB				<p>Enabled</p> <p>Disabled*</p>	Enables the printer to open a file from a USB drive

Table 2-41 General menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Jam Recovery				Auto* Off On	<p>This printer provides a jam recovery feature that reprints jammed pages. Select one of the following options:</p> <p>Auto: The printer attempts to reprint jammed pages when sufficient memory is available. This is the default setting.</p> <p>Off: The printer does not attempt to reprint jammed pages. Because no memory is used to store the most recent pages, performance is optimal.</p> <p>NOTE: When using this option, if the printer runs out of paper and the job is being printed on both sides, some pages can be lost.</p> <p>On: The printer always reprints jammed pages. Additional memory is allocated to store the last few pages printed. This might cause overall performance to suffer.</p>
Auto Recovery				Enabled Disabled*	<p>The printer attempts to reprint jammed pages when sufficient memory is available.</p>

Table 2-41 General menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Enable AutoSend				Disable* Enable	<p>Browse to the HP Embedded Web Server AutoSend configuration page for advanced set up and the HP online Privacy Statement Information.</p> <p>Use the Enable AutoSend menu to enable or disable the AutoSend feature. The AutoSend feature enables your product to periodically send product configuration information including serial number, event logs, page usage counts and supplies status information to HP web addresses (URLs), or email addresses. Information sent to HP is used to improve products and services, and to monitor the product if you have a relationship with HP that provides you services such as proactive cartridge replacement, pay-per-page contracts, support agreements, or usage tracking.</p>
Hold Off Print Job				On* Off	<p>Enable this feature if you want to prevent print jobs from starting while a user is initiating a copy job from the control panel. Held print jobs start printing after the copy job is finished, provided that no other copy job is in the print queue.</p>
Reset Factory Settings				Cancel Reset	<p>Touch Reset to reset current user-specified default settings to the factory default settings.</p>

Print menu

Review the following information about the [Print](#) menu in the [Settings](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Settings](#), and then select [OK](#). Use the down arrow ▼ button to scroll to [Print](#), and then press the [OK](#) button.

Table 2-42 Print menu

First level	Second level	Third level	Fourth Level	Values	Description
Enable Print from USB Drive				Enabled Disabled*	Enables the printer to open a file from a USB drive.
Managed Stored Jobs	Job Sort Order			Job Name* Date*	This option allows you list the jobs either alphabetically or chronologically.
Managed Stored Jobs	Retain Temporary Jobs			Do not retain Personal jobs only All temporary jobs	Sets which temporary jobs will be retained in the event of a printer reboot.
Managed Stored Jobs	Temporary Job Storage Limit			1-300 Default = 32	Configure global settings for jobs that are stored in the printer memory. The Temporary Job Storage Limit feature specifies the number of temporary jobs that can be stored on the printer. The maximum allowed value is 300.
Managed Stored Jobs	Standard Stored Job Retention			Off 30 minutes 1 hour 4 hours 1 day 1 week 4 weeks	Configure global settings for jobs that are stored in the printer memory. The Standard Stored Job Retention feature specifies the amount of time jobs can be stored on the printer.
Default Print Options	Number of Copies			Range: 1-32000 Default = 1	Sets the default number of copies for a copy job. This default applies when the Copy function or the Quick Copy function is initiated from the printer Home screen.
Default Print Options	Paper Selection			Select from a list of sizes that the printer supports.	Configures the default paper size used for print jobs.
Default Print Options	Default Custom Paper Size	X Dimension		Range: 2.52-12.60 inches Default = 12.60 inches	Configures the default paper size that is used when the user selects Custom as the paper size for a print job.

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
Default Print Options	Default Custom Paper Size	Y Dimension		Range: 5-18 inches Default = 18 inches	
Default Print Options	Default Custom Paper Size	Use Inches		Enabled* Disabled	
Default Print Options	Output Sides			1-sided* 2-sided	Use to indicate whether the original document is printed on one or both sides.
Default Print Options	Quality Level			Normal* Enhanced Fine Lines	Use to select the level of desired print quality.
Default Print Options	Edge-to-Edge			Normal (recommended)* Edge-to-Edge output	Use to avoid shadows that can appear along the edges of copies when the original document is printed close to the edges.
PCL and Postscript Settings	Suppress Blank Pages			Off* On	This option is for users who are generating their own PCL, which could include extra form feeds that would cause blank pages to be printed. When the On option is selected, form feeds are ignored if the page is blank.
PCL and Postscript Settings	Courier Font			Regular Dark	Select which version of the Courier font you want to use. The factory default setting is Regular, which uses an average stroke width. The Dark setting can be used if a heavier Courier font is needed.
PCL and Postscript Settings	Wide A4			Enabled Disabled*	Changes 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.
PCL and Postscript Settings	Print PS Errors			Enabled Disabled*	Use this feature to select whether a PostScript (PS) error page is printed when the printer encounters a PS error.

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
PCL and Postscript Settings	Print PDF Errors			Enabled Disabled*	Selects whether a PDF error page is printed when the printer encounters a PDF error.
PCL and Postscript Settings	Personality			Auto* PCL PS PDF	Configures the default print language or personality for the printer. Normally you should not change the printer language. If you change the setting to a specific printer language, the printer does not automatically switch from one language to another unless specific software commands are sent to it.
PCL and Postscript Settings	PCL	Font Settings	Font Source	Internal Disk resident*	Selects the font source for the user-soft default font. The list of available options varies depending on the installed printer options.
PCL and Postscript Settings	PCL		Font Number	Range: 0-110 Default = 0	Specifies the font number for the user-soft default font using the source that is specified in the Font Source menu. The printer assigns a number to each font and lists it on the PCL font list. The font number displays in the Font # column of the printout.
PCL and Postscript Settings	PCL		Font Pitch	Range: 0.44-99.99 Default = 10	If the Font Source option and the Font Number setting indicate a contour font, then use this feature to select a default pitch (for a fixed-spaced font).

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
PCL and Postscript Settings	PCL	PCL Settings	Form Length	Range: 5-128 Default = 60	Controls the PCL print-command options. PCL is a set of printer commands that HP developed to provide access to printer features. Use the Form Length feature to select the user soft -default vertical form length.
PCL and Postscript Settings	PCL	PCL Settings	Orientation	Portrait Landscape	Select the orientation that is most often used for copy or scan originals. Select the Portrait option if the short edge is at the top or select the Landscape option if the long edge is at the top.
PCL and Postscript Settings	PCL	PCL Settings	Symbol Set	Select from a list of symbol sets.	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. The factory default value for this option is PC-8. Either PC-8 or PC-850 are recommended for line-draw characters.
PCL and Postscript Settings	PCL	PCL Settings	Media Source Mapping	Standard* Classic	Use to select and maintain input trays by number when you are not using the printer driver, or when the software program has no option for tray selection. The following options are available: Standard : Tray numbering is based on newer HP LaserJet models. Classic : Tray numbering is based on HP LaserJet 4 and older models.

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
Print Quality	Adjust Color	Tonal Range		Highlights Midtones Shadows	Select the tonal range to adjust.
Print Quality	Adjust Color	Cyan Magenta Yellow Black		Use the arrow keys to adjust the sliding bar for each color.	
Print Quality	Image Registration	Tray	Tray 1 Tray 2 Tray 3 Tray 4 Tray 5 Depends upon the number of trays installed		Specify tray to be adjusted

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
Print Quality	Image Registration	Front-side Horizontal Shift		-5.00 mm to 5.00 mm	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.
		Front-side Vertical Shift			The direction that is perpendicular to the way the paper passes through the printer is referred to as X. This is also known as the scan direction. X1 is the scan direction for a single-sided page or for the second side of a two-sided page. X2 is the scan direction for the first side of a two-sided page.
		Back-side Horizontal Shift			The direction that the paper feeds through the printer is referred to as Y. Y1 is the feed direction for a single-sided page or for the second side of a two-sided page. Y2 is the feed direction for the first side of a two-sided page.
		Back-side Vertical Shift			Use the Adjust Tray <X> menu to adjust the registration settings for each tray. Before adjusting these values, print a registration test page. It provides alignment guides in the X and Y directions so you can determine which adjustments are necessary. You can adjust values for X1 Shift, X2 Shift, Y1 Shift, and Y2 Shift.
Print Quality	Image Registration	Print Test Page			Use the Print Test Page option to print a page to test the image registration. It provides alignment guides in the X and Y directions so you can determine which adjustments are necessary.

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
Print Quality	Auto Sense Behavior	Tray 1		Sense every page	
				Sense first page	
				Sense transparency only	
Print Quality	Auto Sense Behavior	All Other Trays		Sense first page	
				Sense transparency only	
Print Quality	Adjust Paper types			Select from a list of paper types	
				Reset Paper Types	
Print Quality	Optimize	Normal Paper		Standard	
				Smooth	
Print Quality	Optimize	Heavy paper		Standard	
				Smooth	
Print Quality	Optimize	Envelope control		Normal	
				Reduced Temp	
Print Quality	Optimize	Tray 1		Normal	
				Alternate	
Print Quality	Optimize	Background		Normal	
				Alternate	
Print Quality	Optimize	Uniformity Control		Normal	
				Alternate 1	
				Alternate 2	
				Alternate 3	
Print Quality	Optimize	Cac03		Off	
				On	
Print Quality	Optimize	Best Normal		Off	
				On	
Print Quality	Optimize	Tracking Control		Off	
				On	
Print Quality	Optimize	Registration		Normal	
				Alternate	
Print Quality	Optimize	Transfer Control		Normal	
				Alternate 1	

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
Print Quality	Optimize	Moisture Control		Normal Alternate	
Print Quality	Optimize	Reset Optimize		Reset	
Print Quality	Edge Control			Off Light Normal* Maximum	
Manage Trays	Use Requested Tray			Exclusively* When available	Controls how the printer handles jobs that have specified a specific input tray. Two options are available: Exclusively: The printer never selects a different tray when the user has indicated that a specific tray should be used, even if that tray is empty. When available: The printer pulls from another tray if the specified tray is empty, even though the specific tray was indicated for the job.
Manage Trays	Manually Feed Prompt			Always* Prompt on mismatch	Indicate whether a prompt should appear when the type or size for a job does not match the specified tray and the printer pulls from the multipurpose tray instead. Two options are available: Always: A prompt always displays before using the multipurpose tray. Prompt on mismatch: A prompt displays only if the size or type do not match or the tray is empty.

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
Manage Trays	Size/Type Prompt			<p>Display*</p> <p>Do not display</p>	<p>Controls whether the tray configuration message displays whenever a tray is closed. Two options are available:</p> <p>Display: Shows the tray configuration message when a tray is closed. The user is able to configure the tray settings directly from this message.</p> <p>Do not display: Prevents the tray configuration message from automatically appearing.</p>
Manage Trays	Use Another Tray			<p>Allow*</p> <p>Do not allow</p>	<p>Use to turn on or off the control panel prompt to select another tray when the specified tray is empty. Two options are available:</p> <p>Allow: When this option is selected the user is prompted to either add paper to the selected tray or to choose a different tray. This is the factory default.</p> <p>Do not allow: When this option is selected, the user is not given the option of selecting a different tray. The printer prompts the user to add paper to the tray that was initially selected.</p>

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
Manage Trays	Alternative Letterhead Mode			Disabled* Enabled	Use to load letterhead or preprinted paper into the tray the same way for all print jobs, whether you are printing to one side of the sheet or to both sides of the sheet. When this option is selected, load the paper as you would for printing on both sides. See the user documentation that came with the printer for instructions about loading letterhead for printing on both sides. When this option is selected, the printer speed slows to the speed required for printing on both sides.
Manage Trays	Duplex Blank Pages			Automatic* Always	Controls how the printer handles two-sided jobs (duplexing). Two options are available: Automatic: Choose this option to skip printing blank sides during a two-sided print job. The printer can print jobs faster when blank sides are skipped. Always: Choose this option to print all sides of a two-sided job, even if one side is blank. This might be preferable for certain jobs that use paper types such as letterhead or prepunched paper.

Table 2-42 Print menu (continued)

First level	Second level	Third level	Fourth Level	Values	Description
Manage Trays	Override A4/Letter			Yes* No	Prints on letter-size paper when an A4 job is sent but no A4-size paper is loaded in the printer (or to print on A4 paper when a letter-size job is sent but no letter-size paper is loaded). This option will also override A3 with ledger-size paper and ledger with A3-size paper.
Manage Trays	Unsupported Size Behavior			Use default size automatically* Prompt for user response	Use this feature to identify the desired behavior when printing a document on a paper size that the printer does not support.
Manage Trays	Rotate Offset			Automatic* Off	Allows printing of multiple copies of a print job in alternate orientations. For example, the first copy outputs in landscape orientation, the second outputs in portrait orientation, the third in landscape, and so on. This feature works only with Letter or A4-sized paper and requires the use of at least two paper trays. One tray is loaded to feed paper in the long-edge orientation and the other is loaded to feed paper in the short-edge orientation.

Manage Supplies menu

Review the following information about the [Manage Supplies](#) menu in the [Settings](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Settings](#), and then select [OK](#). Use the down arrow ▼ button to scroll to [Manage Supplies](#), and then press the [OK](#) button.

Table 2-43 Manage Supplies menu

First level	Second level	Values	Description
Low Warning Thresholds	Yellow Cartridge	1-100%	Set the estimated percentage at which the printer notifies you when a toner cartridge is very low.
	Magenta Cartridge	Default = 5%	
	Cyan Cartridge		
	Black Cartridge		
Low Warning Threshold Message		On	Displays a message on the control panel when a cartridge is very low.
		Off	
Very Low Behavior	Color Cartridges	Stop	
	Black Cartridge	Continue	
	Drums 1-3	Prompt to continue	
	Drum 4		
	Transfer Kit		
	Fuser Kit		
Restrict Color Use		Enable color	Use this feature to enable, restrict, or disable color printing.
		Color if allowed*	
		Disable color	
Color/Black Mix		Auto	<p>Instructs the printer when to switch between color and monochrome printing modes for the best overall performance.</p> <p>Auto: Uses the mode that is appropriate for the first page of the job. If necessary, the printer switches modes during the middle of a job and then stays in that mode until the job is finished.</p> <p>Mostly color pages: The printer uses color mode for all jobs, even if the job contains no color pages.</p> <p>Mostly black pages: The printer uses monochrome mode until it detects a color page. The printer switches back to monochrome mode when it detects a sequence of several monochrome pages.</p>
		Mostly color pages	
		Mostly black pages	

Table 2-43 Manage Supplies menu (continued)

First level	Second level	Values	Description
Store Usage Data		On supplies Not on supplies	Store Usage Data provides a way to suppress the toner cartridges from storing most of the information gathered exclusively for the purpose of understanding the usage of the printer. Select the On supplies setting to store the data on the toner cartridge memory chip. Select the Not on supplies setting to suppress the information from being stored on the memory chip.
Cartridge Protection		Off* Protect Cartridges	Select to permanently protect cartridges so that they can be used only in this product or fleet of products.
Cartridge Policy		Off* Authorized HP	Set Authorized HP to allow only genuine HP cartridges to be used in this printer.

Networking menu

Review the following information about the [Networking](#) menu in the [Settings](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Settings](#), and then select [OK](#). Use the down arrow ▼ button to scroll to [Networking](#), and then press the [OK](#) button.

Table 2-44 Networking menu

First level	Second level	Third level	Fourth level	Values	Description
Ethernet	Information	Print Security Report		Yes No*	Yes: Prints a page that contains the current security settings on the HP Jetdirect print server. No: A security settings page is not printed.
Ethernet	TCP/IP	Host Name		Use the arrow buttons to edit the host name. NPIXXXXXX*	An alphanumeric string, up to 32 characters, used to identify the printer. 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.

Table 2-44 Networking menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Ethernet	TCP/IP	IPv4 Settings	Config Method	Bootp DHCP* Auto IP Manual	<p>Specifies the method that TCP/IPv4 parameters will be configured on the HP Jetdirect print server.</p> <p>Bootp (Bootstrap Protocol): Use for automatic configuration from a BootP server.</p> <p>DHCP (Dynamic Host Configuration Protocol): Use for automatic configuration from a DHCPv4 server. If selected and a DHCP lease exists, the DHCP Release menu and the DHCP Renew menu are available to set DHCP lease options.</p> <p>Auto IP: Use for automatic link-local IPv4 addressing. An address in the form 169.254.x.x is assigned automatically.</p> <p>If you set this option to the Manual setting, use the Manual Settings menu to configure TCP/IPv4 parameters.</p>

Table 2-44 Networking menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Ethernet	TCP/IP	IPV4 Settings	Default IP	Auto IP* Legacy	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). NOTE: This feature assigns a static IP address that might interfere with a managed network. 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 printers.
Ethernet	TCP/IP	IPV4 Settings	DHCP Release	Yes No*	
Ethernet	TCP/IP	IPV4 Settings	DHCP Renew	Yes No*	
Ethernet	TCP/IP	IPV4 Settings	Primary DNS	Range: 0-255 Default = xxx.xxx.xx.xx	Specify the IP address (n.n.n.n) of a Primary Domain Name System (DNS) Server.
Ethernet		IPV4 Settings	Secondary DNS	Range: 0-255 Default = 0.0.0.0	Specify the IP address (n.n.n.n) of a Secondary DNS Server.
Ethernet	TCP/IP	IPV6 Settings	Enable	Off On*	Use this item to enable or disable IPv6 operation on the print server. Off: IPv6 is disabled. On: IPv6 is enabled.
Ethernet	TCP/IP	IPV6 Settings	Address	Manual Settings Enable Address	Use this item to enable and manually configure a TCP/IPv6 address.

Table 2-44 Networking menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Ethernet	TCP/IP	IPv6 Settings	DHCPv6 Policy	Router Specified Router Unavailable* Always	<p>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.</p> <p>Router Unavailable: If a router is not available, the print server should attempt to obtain its stateful configuration from a DHCPv6 server.</p> <p>Always: Whether a router is available, the print server always attempts to obtain its stateful configuration from a DHCPv6 server.</p>
Ethernet	TCP/IP	IPv6 Settings	Primary DNS	Range: 0-255 Default = xxx.xxx.xx.xx	Specify the IP address (n.n.n.n) of a Primary Domain Name System (DNS) Server.
Ethernet	TCP/IP	IPv6 Settings	Secondary DNS	Range: 0-255 Default = 0.0.0.0	Specify the IP address (n.n.n.n) of a Secondary DNS Server.
Ethernet	TCP/IP	Proxy Server		Select from a provided list.	<p>Specifies the proxy server to be used by embedded applications in the printer. 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.</p> <p>To specify a proxy server, enter its IPv4 address or fully-qualified domain name. The name can be up to 255 octets.</p> <p>For some networks, you might need to contact your Internet Service Provider (ISP) for the proxy server address.</p>

Table 2-44 Networking menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Ethernet	TCP/IP	Proxy Port		Range: 1-65535 Default = 00080	Enter 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.
Ethernet	TCP/IP	Idle Timeout		Range: 1-3600 Default = 0270	The time period, in seconds, after which an idle TCP print data connection is closed (default is 270 seconds, 0 disables the timeout).

Supplies menu

Review the following information about the [Supplies](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Supplies](#), and then select [OK](#).

Table 2-45 Supplies menu

First level	Values	Description
Supplies Summary		View a summary of the status of all printer supplies.
Yellow Cartridge	Status	Select a supply from the list to see the current status of the supply, the part number used to order a replacement, the number of pages printed, and the approximate number of pages remaining.
Magenta Cartridge	Order HP Part	
Cyan Cartridge	Pages Printed	
Drum 1	Approximate Pages Remaining	
Drum 2		
Drum 3		
Drum 4		
Black Cartridge		
Toner Collection Unit	Status	Select a part from the list to see the current status of the part and the part number used to order a replacement.
Transfer Kit	Order HP Part	
Fuser Kit		

Trays menu

Review the following information about the [Trays](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Trays](#), and then select [OK](#).

Table 2-46 Trays menu

First level	Second level	Values	Description
Tray 1 Tray 2-x	Size	Select paper size from a list of supported sizes.	Choose the paper size for the tray.
Tray 1 Tray 2-x	Type	Select paper type from a list of supported types.	Choose the paper type for the tray.

Support Tools menu

The menus under the [Support Tools](#) menu contain the options for maintaining the printer and troubleshooting printer problems. Learn about these menus and settings.

Maintenance menu

The menus under the [Maintenance](#) menu contain the options for backing up and restoring data, calibrating the printer, and upgrading firmware. Learn about these menus and settings.

Backup/Restore menu

Review the following information about the [Backup/Restore](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select [OK](#). Navigate to [Maintenance](#), and then select [OK](#). Navigate to [Backup/Restore](#), and then select [OK](#).

Table 2-47 Backup/Restore menu

First level	Second level	Values	Description
Back up Data	Back up Data	Back up Now Cancel	Initiate a backup. You will be prompted to enter a password to encrypt the file.
Restore Data		Insert a USB flash drive that contains the backup file in to the USB port near the control panel.	Restore data from an external source.

Calibration/Cleaning menu

Review the following information about the [Calibration/Cleaning](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select [OK](#). Navigate to [Maintenance](#), and then select [OK](#). Navigate to [Calibration/Cleaning](#), and then select [OK](#).

Table 2-48 Calibration/Cleaning menu

First level	Values	Description
Cleaning Page	Automatic Cleaning Interval Off* 1000 pages 2000 pages 5000 pages 10000 pages 20000 pages	Use this menu to configure the settings for the product to automatically print a cleaning page. Select Off to disable automatic cleaning. Select a cleaning interval to set the number of pages to be printed before an automatic cleaning page is printed. Touch Print to manually print a cleaning page. NOTE:
Quick Calibration	Start Cancel	The product automatically calibrates itself at various times. However, you can calibrate the product immediately if you see problems with print quality. Use this feature to perform a partial calibration. Use this calibration if color density or tone seems incorrect. Before calibrating the product, make sure that the Ready indicator displays on the control panel display. If a job is in progress, the calibration occurs when that job is complete.

Table 2-48 Calibration/Cleaning menu (continued)

First level	Values	Description
Full Calibration	Start	The product automatically calibrates itself at various times. However, you can calibrate the product immediately if you see problems with print quality. Use this feature to perform a full calibration, which can take up to three minutes. Use this calibration if the color layers seem Before calibrating the product, make sure that the Ready indicator displays on the control panel display. If a job is in progress, the calibration occurs when that job is complete.
	Cancel	
Power On Calibration	No delay	This feature controls the timing of calibration when the printer wakes up or is turned on.
	Delay 15 minutes	
Prepare for Shipping		Select Start to initiate a cleaning sequence that helps prepare the product for shipping. Excess toner will be transferred into the Toner Collection Unit to keep loose toner contained during shipping. This process takes about 2 minutes.
Reset Calibration	Reset	Use this feature to return the product to the factory-set default values for color calibration. Select Reset to reset the color calibration. The printer will restart with the factory-set defaults. Select Cancel to close the menu without resetting the color calibration.
	Cancel	

USB Firmware Upgrade menu

Review the following information about the [USB Firmware Upgrade](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select **OK**. Navigate to [Maintenance](#), and then select **OK**. Navigate to [USB Firmware Upgrade](#), and then select **OK**.

Insert a USB storage device with a firmware upgrade bundle into the USB port, and follow the on-screen instructions.

Service menu

Review the following information about the [Service](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select **OK**. Navigate to [Maintenance](#), and then select **OK**. Navigate to [Service](#), and then select **OK**.

The Service menu is locked and requires a PIN for access. This menu is intended for use by authorized service personnel. See the Service mode function section in the printer troubleshooting manual.

Troubleshooting menu

Review the following information about the [Troubleshooting](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select [OK](#). Navigate to [Maintenance](#), and then select [OK](#). Navigate to [Troubleshooting](#), and then select [OK](#).

Table 2-49 Troubleshooting menu



First level	Second level	Third level	Values	Description
Reports	Configuration/Status Pages		Settings Menu Map	Select the desired report and then select the print icon  to print the page.
			Current Settings Page	
			Configuration Page	
			How to Connect Page	
			Supplies Status Page	
			Usage Page	
			File Directory Page	
			Web Services Status Page	
		Color Usage Job Log		
Reports	Configuration/Status Pages	Other Pages	Demonstration Page	Select the desired report and then select the print icon  to print the page.
			RBG Samples	
			CMYK Samples	
			PCL Font List	
			PS Font List	
Print Quality Pages	PQ Troubleshooting Pages		Print	Use to print pages that can help you resolve problems with print quality.
Print Quality Pages	Diagnostics Page		Print	Use to print a diagnostics page. The page includes color swatches, diagnostic information, and calibration information.
Print Quality Pages	Color Band Test		Print	Use to print a page that helps you resolve problems with print quality.
Event Log			Print	Use to print a list of the 50 most recent events in the event log. For each event, the printed log shows the error number, page count, error code, and description or personality.
			Cancel	
Paper Path Page			Print	Shows how many pages were printed from each tray.

Table 2-49 Troubleshooting menu (continued)

First level	Second level	Third level	Values	Description
Diagnostic Tests	Disable Cartridge Check		Continue	Use this diagnostic test to print internal pages or send an external job to the printer when the toner cartridge is removed or exchanged. Supply errors are ignored while the printer is in this mode.
Diagnostic Tests	Paper Path Test	Number of Copies	Range: 1-500 Default = 1	Sets the default number of copies for a copy job. This default applies when the Copy or Quick Copy function is initiated from the printer Home screen. The factory default setting is 1.
Diagnostic Tests	Paper Path Test	Paper Tray	Select from a list of the available trays.	Generates a test page for testing paper handling features. You can define the path that is used for the test in order to test specific paper paths.
Diagnostic Tests	Paper Path Test	Output Sides	1-sided* 2-sided	
Diagnostic Tests	Print/Stop Test		Stop Next Print Job* Delay	
Diagnostic Tests	Paper Path Sensor Test		Select from a list of the printer sensors.	Initiates a test of the paper path sensors.
Diagnostic Tests	Manual Sensor Test		Select from a list of available components. Reset Sensors	Test the printer sensors and switches for correct operation. Each sensor is displayed on the control panel screen, along with its status. Manually trip each sensor and watch for it to change on the screen. Select the Stop button to abort the test.
Diagnostic Tests	Component Test		Select from a list of available components. Repeat	Use this item to exercise individual parts independently to isolate noise, leaking, or other issues. To start the test, select one of the components. The test will run the number of times specified by the Repeat option. The user might be prompted to remove parts from the printer during the test. Select the Stop button to abort the test.

Table 2-49 Troubleshooting menu (continued)

First level	Second level	Third level	Values	Description
Generate Debug Data			Start	
Retrieve Diagnostics Data			Send to email	Create files that contain information about the printer that can help identify the cause of problems.

Job Storage menu

Review the following information about the [Job Storage](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Job Storage](#), and then select [OK](#).

Table 2-50 Job Storage menu

First level	Second level	Values	Description
Stored Job to Print	Choose job to print	Print	Print a stored job.
	Choose number of copies		

USB Drive menu

Review the following information about the [USB Drive](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [USB Drive](#), and then select [OK](#).

Table 2-51 USB Drive menu

First level	Second level	Values	Description
USB File to Print	Choose file to print	Print	Print a file from a USB drive.
	Choose number of copies		

Job Log menu

Review the following information about the [Job Log](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Job Log](#), and then select [OK](#).

Table 2-52 Job Log menu

First level	Second level	Values	Description
Job Types	All jobs	Print Log	View or print a log of stored jobs.
	Print jobs		
	Encrypted jobs		
	My jobs		

Access menu

Review the following information about the [Access](#) menu.

To display: From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Access](#), and then select [OK](#).

Table 2-53 Access menu

First level	Values	Description
High Contrast	On	Increase the contrast between light and dark content on the screen.
	Off	
Invert Colors	On	Invert the colors on the screen.
	Off	
Screen Zoom	Off	Magnify the screen content by zooming in and out.
	125%	
	150%	
	200%	

Error code and control panel message troubleshooting overview

Error codes and control-panel messages display on the printer control panel to indicate the current printer status or situations that might require action.

Error codes

Error codes indicate the current printer status or situations that might require action.

Error codes are numerical, or alphanumeric, and have a set structure with six characters (example: 13.WX.YZ).

- The first two characters are numeric and represent the system component that is causing the error. For example, in error code 10.22.15, **10 = Supplies** for HP LaserJets.
- The remaining four characters (WX, Y, and Z values) further define the error.

HP LaserJet and HP PageWide Enterprise error codes are documented in the control panel message document (CPMD) for each printer

The CPMD is a comprehensive list of error codes, diagnostic and troubleshooting steps to clear or resolve the error, and other helpful information such as service mode pins and part numbers.

The CPMD is continually updated and republished with the latest information for the following error codes.

Table 2-54 Error codes: The first two characters

Error code	System component	System error description
10.WX.YZ	Supplies (LaserJet)	Supply error or supply memory error
11.WX.YZ	Real-time clock	Internal error with the clock on the formatter.
13.WX.YZ	Jam (LaserJet)	Paper jam or open door jam error.
15.WX.YZ	Jam (PageWide)	Paper jam or open door jam error.
17.WX.YZ	Supplies (PageWide)	Supply error or supply memory error.
20.WX.YZ	Printer memory	Insufficient memory or buffering error.
21.WX.YZ	Page	Page complexity causing a decompression error when trying to process job.
30.WX.YZ	Scanner	Flatbed scanner error occurring inside the unit.
31.WX.YZ	Document feeder	Document feeder, scanner, or jam error.
32.WX.YZ	Backup, restore, or reset	Backup, restore, or reset notification or error.
33.WX.YZ	Security	Backup, Disk, EFI BIOS, Firmware integrity (SureStart), or error.
40.WX.YZ	Input/Output (I/O)	Partition manager, secure erase, or USB accessory error.
41.WX.YZ	Fuser, Laser scanner, or Paper path	Miscellaneous error including general and misprint or mismatch errors typically involving (but not limited to) the fuser, the laser scanner, or the paper path.

Table 2-54 Error codes: The first two characters (continued)

Error code	System component	System error description
42.WX.YZ	Firmware	Firmware failure involving the Event Log, Shell, System Manager, or other component.
44.WX.YZ	Firmware	Firmware failure involving a digital sending component.
45.WX.YZ	OXPd/Web Kit (PageWide)	Informational notifications involving the OXPd Web Kit (communications log).
46.WX.YZ	Engine (LaserJet)	Engine communication error.
47.WX.YZ	Firmware	Job parser or printer calibration error.
48.WX.YZ	Firmware	PJA job accounting, job management, or job pipeline error.
49.WX.YZ	Firmware	Firmware communication error.
50.WX.YZ	Fuser (LaserJet)	Fuser error.
51.WX.YZ	Laser scanner (LaserJet)	Laser scanner beam error.
52.WX.YZ	Laser scanner (LaserJet)	Laser scanner startup error.
54.WX.YZ	Sensor	Sensor error (not jam related).
55.WX.YZ	DC controller (LaserJet)	DC controller communication error.
56.WX.YZ	Paper handling (LaserJet)	Paper input/output or accessory error.
57.WX.YZ	Fan	Fan error.
58.WX.YZ	Sensor	Engine sensor failure.
59.WX.YZ	Motor (LaserJet)	Motor error.
60.WX.YZ	Tray motor error (LaserJet)	Tray lifting or pick up error.
61.WX.YZ	Engine (PageWide and LaserJet)	Print engine error with the 8-bit data package.
62.WX.YZ	System (LaserJet)	LaserJet internal system error.
	Print bar (PageWide)	PageWide print system error.
63.WX.YZ	Engine (LaserJet)	General engine error (electrical, communication, etc.).
65.WX.YZ	Connector	Output accessory connection error.
66.WX.YZ	Output accessory	Output accessory error.
67.WX.YZ	Input accessory	Input accessory connection error.
69.WX.YZ	Duplexer	Duplexer error.
70.WX.YZ	DC controller (LaserJet)	DC controller firmware error.
80.WX.YZ	Managed device	Embedded Jetdirect error.
81.WX.YZ	Near Field Communication (NFC)	Wireless, Bluetooth or internal EIO error.
82.WX.YZ	Memory (hard disk, EMMC, etc.)	Disk hardware error.

Table 2-54 Error codes: The first two characters (continued)

Error code	System component	System error description
90.WX.YZ	Internal diagnostics	Internal test of systems (i.e. disk, CPB, display) or interconnection error.
98.WX.YZ	Hard disk	Hard disk partition error.
99.WX.YZ	Firmware installer	Remote Firmware Upgrade (RFU), firmware install (engine or accessory), or disk error

How to search for printer documentation

Find printer documentation using the internal HP portals.

The CPMD, error codes, and other support documentation for each printer is found on the internal HP portals [GCSN](#) and [WISE](#) (formerly SAW). GCSN is available to HP channel partners and WISE is available to call agents, service technicians, and other HP internal users. The level of detail available will depend on your access credentials.

How to search WISE for printer documentation

These instructions are for HP internal use by call agents, service technicians, and other internal users. [View a video of how to find support content in WISE.](#)

To view a list of control panel message documents per printer in WISE, enter document ID **c05048451**, to locate CPMD list.

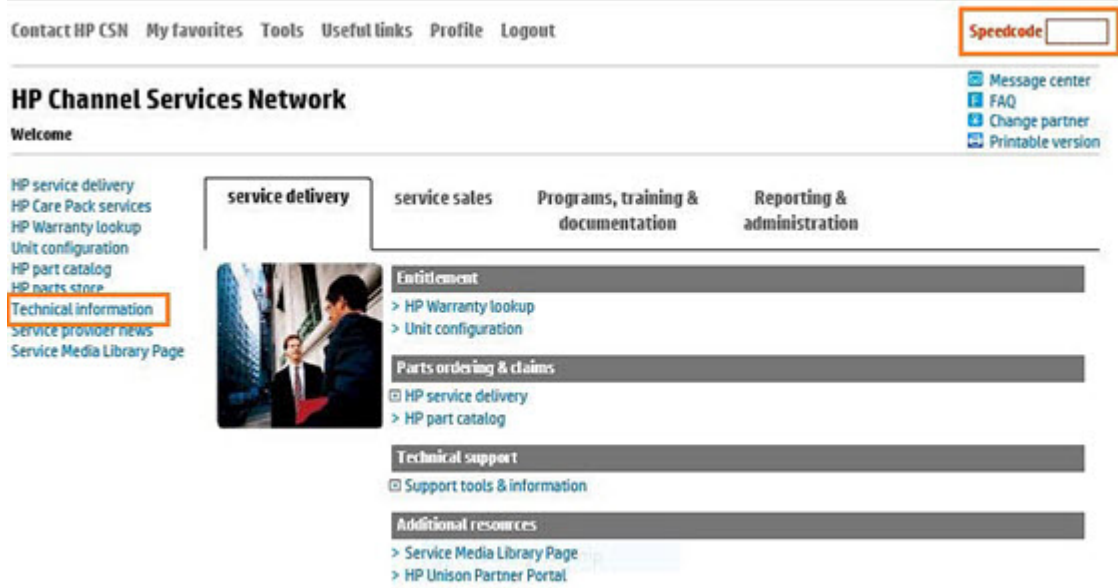
Go to WISE and enter this document ID **c05791539** for written instructions.

How to search GCSN for printer documentation

These instructions are for internal use by HP Channel Partners. [View a video of how find support content in GCSN](#), or follow the steps below.

1. On the Home screen in GCSN, open **Technical information** using one of the following two methods:
 - Type **TINF** in the **Speedcode** field found in the upper right corner and press **Enter**, or
 - On the Home page, click **Technical information** in the left pane.

Figure 2-104 GCSN home page



2. Under **Product Search**, select the **Type**, **Category**, **Family**, and **Series** that match your product model (leave the **Model** field as blank or the default).


 **NOTE:** Make sure to login to GCSN using your service-qualified credentials to access the most comprehensive content list available. To find out how to become service-qualified, contact your HP representative.

Figure 2-105 Sample product search criteria (GCSN)

Product Search **Add Favorites**

Type
Printers and Multifunction

Category
Multifunction and All-in-One

Family
HP LaserJet MFP and All-in-One Products

Series
HP Color LaserJet Enterprise MFP M682 series

Model
Select a Model

- Click **Add Favorites** and then click **Add** to add the printer to your Favorites list and allow you to bypass the **Product Search** fields next time for that particular model (optional).

Figure 2-106 Add favorites (GCSN)

- Clear all of the high-level check boxes.

Figure 2-107 Clear search criteria (GCSN)

- Select the check boxes for the document types for which you want to search.

 **NOTE:** Select only the high-level **Manuals and Guides** search option if you are not sure in which type of manual or guide the content might be listed.

Figure 2-108 Select search criteria (GCSN)

- Select **Submit**.
- If needed, click **Back To selection Criteria** and narrow your search (the maximum allowed search result is 100 documents).


 **NOTE:** Do not select the **Top Issue** option unless you only want to view top issues for that model. All other available content is filtered out.

Table 2-55 Information type selections

Technical information type	Select this checkbox
Control panel message document (CPMD)	CPMD-Map
List of all CPMDs per product	Support Information
Installation Guide or Hardware Install Guide	Maintenance/Service Guide or Install Guide
Service cost document	Install Guide or Service Guide/Manual
Service guide or Service manual	Service Guide/Manual
Self-solve or troubleshooting document	Support Information
User manual or User guide	User Guide
Warranty and Legal Guide	Warranty Statement

Resolve print-quality problems

Use the information below to troubleshoot print-quality problems, including issues with image quality and color quality.

Introduction

Use the information below to troubleshoot print-quality problems, including issues with image quality and color quality.

The troubleshooting steps can help resolve the following defects:

- Blank pages
- Black pages
- Colors that do not align
- Curled paper
- Dark or light bands
- Dark or light streaks
- Fuzzy print
- Gray background or dark print
- Light print
- Loose toner
- Missing toner
- Scattered dots of toner
- Skewed images
- Smears
- Streaks

Resolve print-quality problems

Use the information below to troubleshoot print-quality problems, including issues with image quality and color quality.

Print from a different software program

Try printing from a different software program. If the page prints correctly, the problem is with the software program from which you were printing.


Check the paper-type setting for the print job

Check the paper type setting when printing from a software program and the printed pages have smears, fuzzy or dark print, curled paper, scattered dots of toner, loose toner, or small areas of missing toner.

Check the paper type setting on the control panel


Check the paper type setting on the printer control panel, and change the setting as needed.

1. Open and close the paper tray.
2. Follow the control panel prompts to confirm or modify the paper type and size settings for the tray.
3. Make sure the paper loaded meets specifications.
4. Adjust the humidity and resistance setting on the control panel to match the environment.
 - a. Open the following menus:
 1. [Settings](#)
 2. [Print quality](#)
 3. [Adjust paper type](#)
 - b. Select the paper type that matches the type loaded in the tray.
 - c. Use the arrows to increase or decrease the humidity and resistance setting.
5. Make sure the driver settings match the control panel settings.

 **NOTE:** The print driver settings will override any control panel settings.

Check the paper type setting (Windows)

Check the paper type setting for Windows, and change the setting as needed.

 **NOTE:** The print driver settings will override any control panel settings.

1. From the software program, select the **Print** option.
2. Select the printer, and then click the **Properties** or **Preferences** button.
3. Click the **Paper/Quality** tab.
4. From the **Paper Type** drop-down list, click the **More...** option.
5. Expand the list of **Type is:** options.
6. Expand the category of paper types that best describes your paper.
7. Select the option for the type of paper you are using, and click the **OK** button.
8. Click the **OK** button to close the **Document Properties** dialog box. In the **Print** dialog box, click the **OK** button to print the job.

Check the paper type setting (macOS)

Check the paper type setting for macOS, and change the setting as needed.


1. Click the **File** menu, and then click the **Print** option.
2. In the **Printer** menu, select the printer.
3. Click **Show Details** or **Copies & Pages**.
4. Open the menus drop-down list, and then click the **Paper/Quality** menu.
5. Select a type from the **Media Type** drop-down list.
6. Click the **Print** button.

Check toner-cartridge status

Follow these steps to check the estimated life remaining in the toner cartridges and if applicable, the status of other replaceable maintenance parts.

Step one: Print the supplies status page

The supplies status page indicates the cartridge status.

1. From the Home screen on the printer control panel, select the **Reports** menu.
2. Select the **Configuration/Status Pages** menu.
3. Select **Supplies Status Page, and then**, select **Print**  to print the page.

Step two: Check supplies status

Check the supplies status report as follows.

1. Look at the supplies status report to check the percent of life remaining for the toner cartridges and, if applicable, the status of other replaceable maintenance parts.

Print quality problems can occur when using a toner cartridge that is at its estimated end of life. The supplies status page indicates when a supply level is very low. After an HP supply has reached the very low threshold, HP's premium protection warranty on that supply has ended.

The toner cartridge does not need to be replaced now unless the print quality is no longer acceptable. Consider having a replacement available to install when print quality is no longer acceptable.

If you determine that you need to replace a toner cartridge or other replaceable maintenance parts, the supplies status page lists the genuine HP part numbers.

2. Check to see if you are using a genuine HP cartridge.

A genuine HP toner cartridge has the word "HP" on it, or has the HP logo on it. For more information on identifying HP cartridges go to www.hp.com/go/learnaboutsupplies.

Print a cleaning page

During the printing process paper, toner, and dust particles can accumulate inside the printer and can cause print-quality issues such as toner specks or spatter, smears, streaks, lines, or repeating marks. Follow these steps to clean the printer's paper path.

1. Load plain paper in Tray 1.
2. From the Home screen on the printer control panel, select the **Support Tools** menu.
3. Select the following menus:


- [Maintenance](#)
 - [Calibration/Cleaning](#)
 - [Cleaning Page](#)
4. Select [Print](#) to print the page.

A **Cleaning...** message displays on the printer control panel. The cleaning process takes a few minutes to complete. Do not turn the printer off until the cleaning process has finished. When it is finished, discard the printed page.

Visually inspect the toner cartridge or cartridges

Follow these steps to inspect each toner cartridge.

1. Remove the toner cartridges from the printer, and verify that the sealing tape has been removed.
2. Check the memory chip for damage.
3. Examine the surface of the green imaging drum.

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

4. If you see any scratches, fingerprints, or other damage on the imaging drum, replace the toner cartridge.
5. Reinstall the toner cartridge, and print a few pages to see if the problem has resolved.

Check paper and the printing environment

Use the following information to check the paper selection and the printing environment.

Step one: Use paper that meets HP specifications

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

- Always use a paper type and weight that this printer supports.
- Use paper that is of good quality and free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, voids, staples, and curled or bent edges.
- Use paper that has not been previously printed on.
- Use paper that does not contain metallic material, such as glitter.
- Use paper that is designed for use in laser printers. Do not use paper that is designed only for use in Inkjet printers.
- Use paper that is not too rough. Using smoother paper generally results in better print quality.

Step two: Check the environment

The environment can directly affect print quality and is a common cause for print-quality or paper-feeding issues. Try the following solutions:

- Move the printer away from drafty locations, such as open windows or doors, or air-conditioning vents.
- Make sure the printer is not exposed to temperatures or humidity outside of printer specifications.
- Do not place the printer in a confined space, such as a cabinet.
- Place the printer on a sturdy, level surface.
- Remove anything that is blocking the vents on the printer. The printer requires good air flow on all sides, including the top.
- Protect the printer from airborne debris, dust, steam, grease, or other elements that can leave residue inside the printer.

Step three: Set the individual tray alignment

Follow these steps when text or images are not centered or aligned correctly on the printed page when printing from specific trays.

Follow these steps when text or images are not centered or aligned correctly on the printed page when printing from specific trays.

1. Load plain paper in Tray 1.
2. From the Home screen on the printer control panel, select the [Settings](#) menu.
3. Select the following menus:
 - [Copy/Print](#) or [Print](#)
 - [Print Quality](#)
 - [Image Registration](#)

4. Select **Tray**, and then select the tray to adjust.
5. Select **Print Test Page**, and then follow the instructions on the printed pages.
6. Select **Print Test Page** again to verify the results, and then make further adjustments if necessary.
7. Select **Done** to save the new settings.

Try a different print driver

Try a different print driver when printing from a software program and the printed pages have unexpected lines in graphics, missing text, missing graphics, incorrect formatting, or substituted fonts.

Download any of the following drivers from the HP Web site: <http://www.hp.com/support/colorljM751> or <http://www.hp.com/support/colorljE75245> or <http://www.hp.com/support/colorljM856> or <http://www.hp.com/support/colorljE85055> or <http://www.hp.com/support/colorljM776MFP>.

Table 2-56 Print drivers

Print driver	Description
HP PCL 6 V3 driver	This printer-specific print driver supports Windows 7 and newer operating systems that support version 3 drivers. For a list of supported operating systems, go to www.hp.com/go/support .
HP PCL-6 V4 driver	This product-specific print driver supports Windows 8 and newer operating systems that support version 4 drivers. For a list of supported operating systems, go to www.hp.com/go/support .
HP UPD PS driver	<ul style="list-style-type: none"> • Recommended for printing with Adobe software programs or with other highly graphics-intensive software programs • Provides support for printing from postscript emulation needs, or for postscript flash font support <p>NOTE: For the most consistent results, HP recommends downloading Adobe Reader and running it from a computer, rather than using the web-based software.</p>
HP UPD PCL 6	<ul style="list-style-type: none"> • Recommended for printing in all Windows environments • Provides the overall best speed, print quality, and printer feature support for most users • Developed to align with Windows Graphic Device Interface (GDI) for best speed in Windows environments • Might not be fully compatible with third-party and custom software programs that are based on PCL 5

Calibrate the printer to align the colors

Calibration is a printer function that optimizes print quality. Follow these steps to resolve print-quality problems such as misaligned color, colored shadows, blurry graphics, or other print-quality issues.

1. From the Home screen on the printer control panel, select the **Support Tools** menu.
2. Select the following menus:

- [Maintenance](#)
 - [Calibration/Cleaning](#)
 - [Full Calibration](#)
3. Select [Start](#) to start the calibration process.
 A **Calibrating** message will display on the printer control panel. The calibration process takes a few minutes to complete. Do not turn the printer off until the calibration process has finished.
 4. Wait while the printer calibrates, and then try printing again.

Troubleshoot image defects

Review examples of image defects and steps to resolve these defects.

Table 2-57 Image defects table quick reference





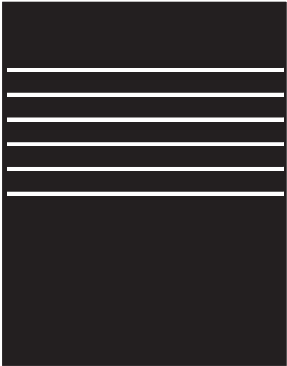
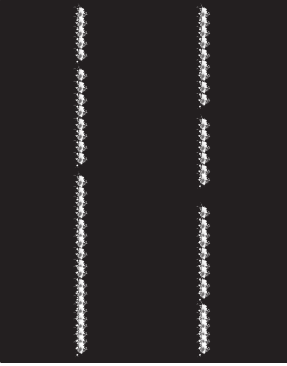
Defect	Defect	Defect
Table 2-66 Light print on page 304 	Table 2-64 Gray background or dark print on page 303 	Table 2-60 Blank page — No print on page 300 
Table 2-59 Black page on page 299 	Table 2-58 Banding defects on page 299 	Table 2-68 Streak defects on page 306 

Table 2-57 Image defects table quick reference (continued)

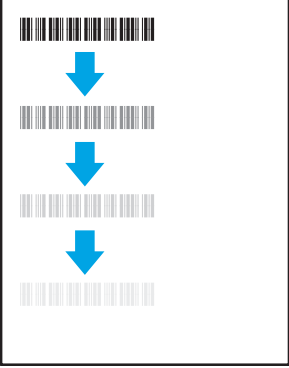


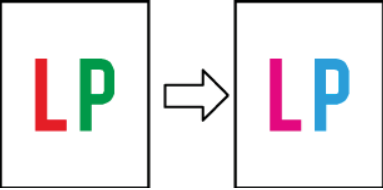
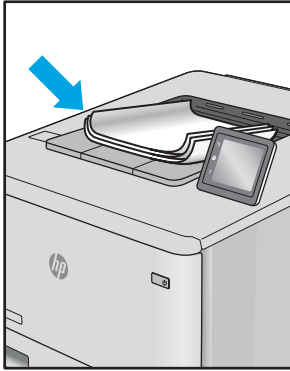

Defect	Defect	Defect
<p>Table 2-63 Fixing/fuser defects on page 302</p> 	<p>Table 2-65 Image placement defects on page 303</p> 	<p>Table 2-61 Color plane registrations defects (color models only) on page 300</p> 
<p>Table 2-62 Wrong color on page 301</p> 	<p>Table 2-67 Output defects on page 305</p> 	

Image defects, no matter the cause, can often be resolved using the same steps. Use the following steps as a starting point for solving image defect issues.

1. Reprint the document. Print quality defects can be intermittent in nature or can go away completely with continued printing.
2. Check the condition of the cartridge or cartridges. If a cartridge is in a **Very Low** state (it has passed the rated life), replace the cartridge.
3. Make sure that the driver and tray print mode settings match the media that is loaded in the tray. Try using a different ream of media or a different tray. Try using a different print mode.
4. Make sure that the printer is within the supported operating temperature/humidity range.
5. Make sure that the paper type, size, and weight are supported by the printer. See the printer support page at support.hp.com for a list of the supported paper sizes and types for the printer.

 **NOTE:** The term “fusing” refers to the part of the printing process where toner is affixed to paper.

The following examples depict letter-size paper that has passed through the printer short-edge first.

Table 2-58 Banding defects

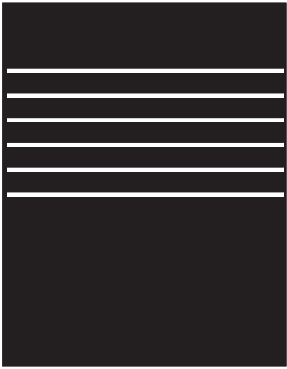
Sample	Description	Possible solutions
	<p>Dark or light lines which repeat down the length of the page, and are wide-pitch and/or impulse bands. They might be sharp or soft in nature. The defect displays only in areas of fill, not in text or sections with no printed content.</p>	<ol style="list-style-type: none"> 1. Reprint the document. 2. Try printing from another tray. 3. Replace the cartridge. 4. Use a different paper type. 5. Enterprise models only: From the Home screen on the printer control panel, go to the Adjust Paper Types menu, and then choose a print mode that is designed for a slightly heavier media than what you are using. This slows the print speed and might improve the print quality. 6. If the issue persists, go to support.hp.com.

Table 2-59 Black page


Sample	Description	Possible solutions
	<p>The entire printed page is black.</p>	<ol style="list-style-type: none"> 1. Visually inspect the cartridge to check for damage. 2. Make sure that the cartridge is installed correctly. 3. Replace the cartridge 4. If the issue persists, go to support.hp.com.

Table 2-60 Blank page — No print

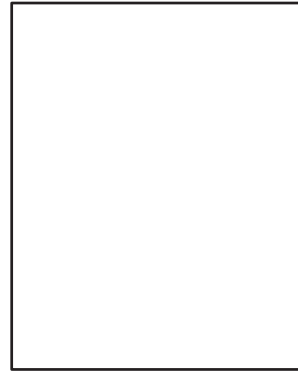
Sample	Description	Possible solutions
	<p>The page is completely blank and contains no printed content.</p>	<ol style="list-style-type: none"> 1. Make sure that the cartridges are genuine HP cartridges. 2. Make sure that the cartridge is installed correctly. 3. Print with a different cartridge. 4. Check the paper type in the paper tray and adjust the printer settings to match. If necessary, select a lighter paper type. 5. If the issue persists, go to support.hp.com.

Table 2-61 Color plane registrations defects (color models only)

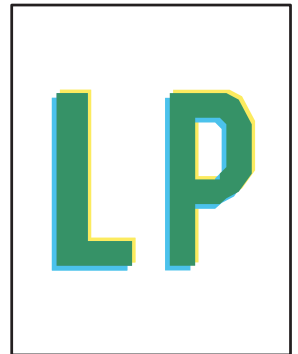
Sample	Description	Possible solutions
	<p>One or more color plane(s) is not aligned with the other color planes. This registration error will typically occur with yellow.</p>	<ol style="list-style-type: none"> 1. Reprint the document. 2. From the printer control panel, calibrate the printer. 3. If a cartridge has reached a Very Low state, or the printed output is severely faded, replace the cartridge. 4. From the printer control panel use the Restore Calibration feature to reset the printer's calibration settings to the factory defaults. 5. If the issue persists, go to support.hp.com.

Table 2-62 Wrong color

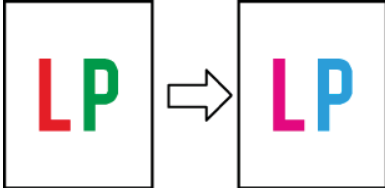
Sample	Description	Possible solutions
	One or more colors does not print the correct color.	<ol style="list-style-type: none">1. Reprint the document.2. From the printer control panel, calibrate the printer.3. If a cartridge or imaging drum has reached a Very Low state, or the printed output is severely faded, replace the cartridge or drum.4. From the printer control panel use the Restore Calibration feature to reset the printer's calibration settings to the factory defaults.5. Verify that the customer is not using a custom color table.6. If the issue persists, go to support.hp.com.

Table 2-63 Fixing/fuser defects

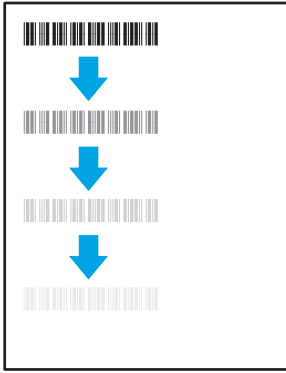
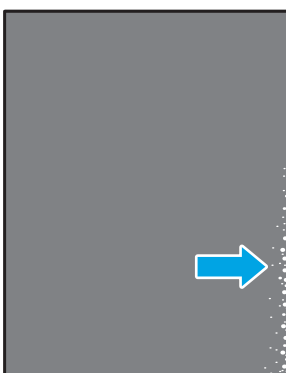
Sample	Description	Possible solutions
	<p>Slight shadows or offsets of the image are repeated down the page. The repeated image might fade with each recurrence.</p>	<ol style="list-style-type: none"> 1. Reprint the document. 2. Check the paper type in the paper tray and adjust the printer settings to match. If necessary, select a lighter paper type. 3. If the issue persists, go to support.hp.com.
	<p>Toner rubs off along either edge of the page. This defect is more common at the edges of high-coverage jobs, and on light media types, but can occur anywhere on the page.</p>	<ol style="list-style-type: none"> 1. Reprint the document. 2. Check the paper type in the paper tray and adjust the printer settings to match. If necessary, select a heavier paper type (for example, bond). 3. Enterprise models only: From the printer control panel, go to the Edge-to-Edge menu and then select Normal. Reprint the document. 4. Enterprise models only: From the printer control panel, select Auto Include Margins and then reprint the document. 5. Verify that the printed content is not outside the printable region of the printer. 6. If the issue persists, go to support.hp.com.

Table 2-64 Gray background or dark print


Sample	Description	Possible solutions
	<p>The image or text is darker than expected and/or the background is gray.</p>	<ol style="list-style-type: none"> 1. Make sure that the paper in the trays has not already been run through the printer. 2. Use a different paper type (for example, rougher paper will help this problem). 3. Reprint the document. 4. Mono models only: From the Home screen on the printer control panel, go to the Adjust Toner Density menu, and then adjust the toner density to a lower level. 5. Make sure that the printer is within the supported operating temperature and humidity range (reduce humidity or load freshly opened paper). 6. Replace the cartridge. 7. If the issue persists, go to support.hp.com.

Table 2-65 Image placement defects


Sample	Description	Possible solutions
	<p>The image is not centered, or is skewed on the page. The defect occurs when the paper is not positioned properly as it is pulled from the tray and moves through the paper path.</p>	<ol style="list-style-type: none"> 1. Reprint the document. 2. Remove the paper and then reload the tray. Make sure that all the paper edges are even on all sides. 3. Make sure that the top of the paper stack is below the tray-full indicator. Do not overfill the tray. 4. Make sure that the paper guides are adjusted to the correct size for the paper. Do not adjust the paper guides tightly against the paper stack. Adjust them to the indentations or markings in the tray. 5. If the issue persists, go to support.hp.com.

Table 2-66 Light print


Sample	Description	Possible solutions
	The printed content is light or faded on the entire page.	<ol style="list-style-type: none"><li>1. Reprint the document.<li>2. Remove the cartridge, and then shake it to redistribute the toner.<li>3. Mono models only: Make sure that the EconoMode setting is disabled, both at the printer control panel and in the print driver.<li>4. Make sure that the cartridge is installed correctly.<li>5. Print a Supplies Status Page and check the life and usage of the cartridge.<li>6. Replace the cartridge.<li>7. If the issue persists, go to support.hp.com.

Table 2-67 Output defects


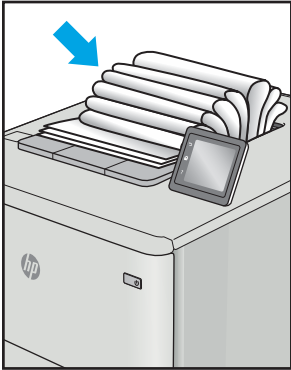
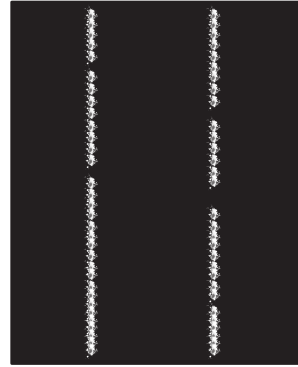
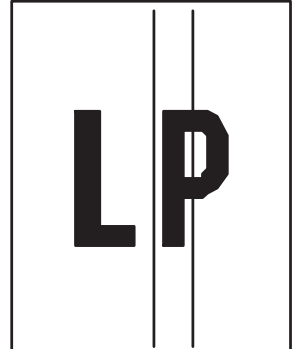
Sample	Description	Possible solutions
	<p>Printed pages have curled edges. The curled edge can be along the short or long side of the paper. Two types of curl are possible:</p> <ul style="list-style-type: none"> • Positive curl: The paper curls toward the printed side. The defect occurs in dry environments or when printing high-coverage pages. • Negative curl: The paper curls away from the printed side. The defect occurs in high-humidity environments or when printing low-coverage pages. 	<ol style="list-style-type: none"> 1. Reprint the document. 2. Positive curl: From the printer control panel, select a heavier paper type. The heavier paper type creates a higher temperature for printing. Negative curl: From the printer control panel, select a lighter paper type. The lighter paper type creates a lower temperature for printing. Try storing the paper in a dry environment prior to use, or use freshly-opened paper. 3. Print in duplex mode. 4. If the issue persists, go to support.hp.com.
	<p>The paper does not stack well in the output tray. The stack might be uneven, skewed, or the pages might be pushed out of the tray and onto the floor. Any of the following conditions can cause this defect:</p> <ul style="list-style-type: none"> • Extreme paper curl • The paper in the tray is wrinkled or deformed • The paper is a non-standard paper type, such as envelopes • The output tray is too full 	<ol style="list-style-type: none"> 1. Reprint the document. 2. Extend the output bin extension. 3. If the defect is caused by extreme paper curl, refer to the troubleshooting steps for "Output curl." 4. Use a different paper type. 5. Use freshly-opened paper. 6. Remove the paper from the output tray before the tray gets too full. 7. If the issue persists, go to support.hp.com.

Table 2-68 Streak defects

Sample	Description	Possible solutions
	<p>Light vertical streaks that usually span the length of the page. The defect displays only in areas of fill, not in text or sections with no printed content.</p>	<ol style="list-style-type: none"> 1. Reprint the document. 2. Remove the cartridge, and then shake it to redistribute the toner. 3. If the issue persists, go to support.hp.com. <p>NOTE: Both light and dark vertical streaks can occur when the printing environment is outside the specified range for temperature or humidity. Refer to your printer's environmental specifications for allowable temperature and humidity levels.</p>
	<p>Dark vertical lines which occur down the length of the page. The defect might occur anywhere on the page, in areas of fill or in sections with no printed content. On color models, these lines or streaks will also be visible on the ITB cleaning page.</p>	<ol style="list-style-type: none"> 1. Reprint the document. 2. Remove the cartridge, and then shake it to redistribute the toner. 3. Print a cleaning page. 4. Check the toner level in the cartridge. 5. If the issue persists, go to support.hp.com.

Print quality troubleshooting guide

Review the following information about print quality troubleshooting.


Repetitive image defect ruler


Review the following information about a repetitive image defect ruler.

When troubleshooting the source of some print image defects, one solution is to identify if it is a repetitive defect (does the print quality defect appear multiple times on the printed page?). If this is the case, use a ruler to measure occurrences of repetitive image defects to help solve image-quality problems. For more information, see Using a ruler to measure between repetitive defects.

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

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

 **NOTE:** Defects on the tray pickup rollers or the Tray 1 pickup roller do not cause a repetitive defect. Defects on these rollers cause a defect to appear only on the leading edge of the image.

 **TIP:** To make a printer specific repetitive defect ruler, use a metric ruler to transfer the measurements in the table below to a transparency or the edge of a piece of paper—clearly label each ruler mark with the associated defective assembly.


 **NOTE:** The primary charging roller, photosensitive drum, and developer roller cannot be cleaned because they are internal assemblies in the toner cartridge or imaging drum. If one of these assemblies is causing the defect, replace the toner cartridge or the imaging drum.


Table 2-69 Repetitive defects


Assembly	Distance between defects	Remarks
RS roller	19.6 mm (0.77 in)	In toner cartridge; appears in one color plane only
Transfer (T1) roller	25.1 mm (0.99 in)	Appears in one color plane only
Developer roller	32.4 mm (1.27 in)	In imaging drum; appears in one color plane only
Charge roller	34.4 mm (1.35 in)	In imaging drum; appears in one color plane only
ITB drive roller	47.7 mm (1.88 in)	Appears on all color planes
Transfer (T2) roller	55.9 mm (2.20 in)	Appears in all color planes on front or back of page
Fuser film	75.6 mm (2.98 in)	Appears on all color planes
Fuser pressure roller	80.1 mm (3.15 in)	Appears on all color planes
OPC drum	94.2 mm (3.71 in)	In imaging drum; appears in one color plane only
Cartridge-to-cartridge spacing	95.9 mm (3.77 in)	Distance between each color OPC
ITB	Not applicable	Requires multiple images to repeat

Use a ruler to measure between repetitive defects

The figures in this section show color repetitive defect pages. However, the process for measuring repetitive defects is valid for mono pages.

1. Identify a repetitive defect on the page.

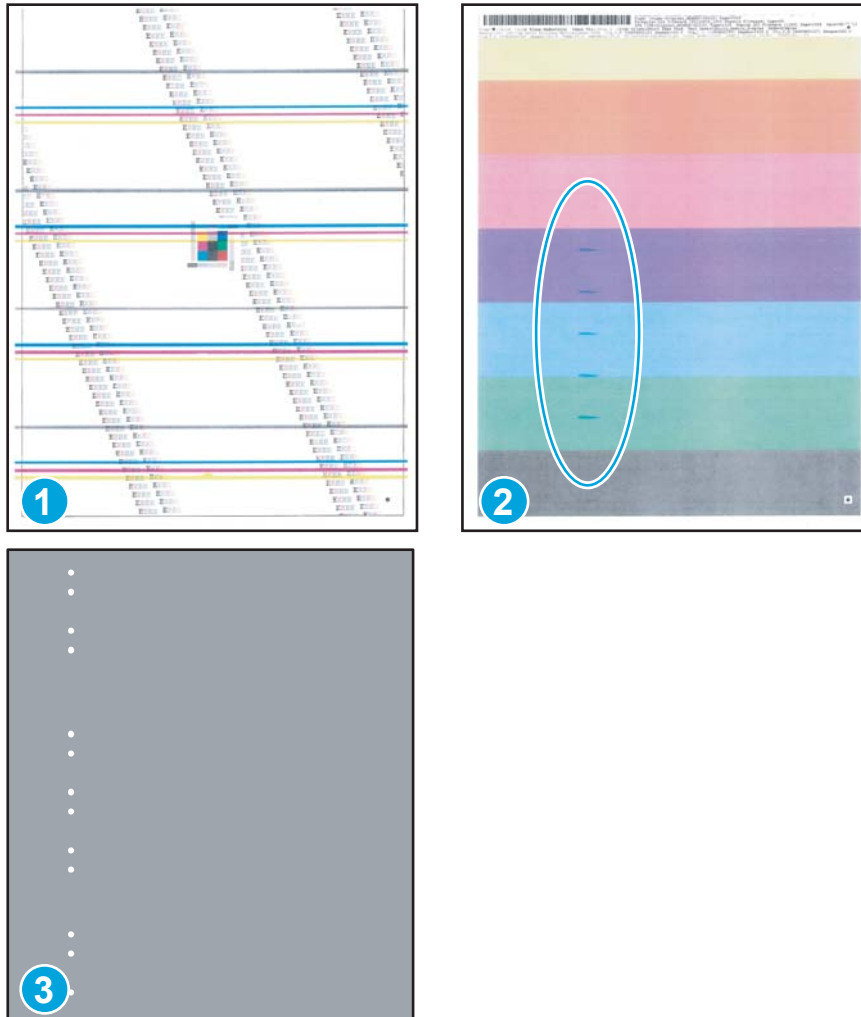
 **TIP:** Print a cleaning page to see if that resolves the defect.

 **NOTE:** Some printers allow loading Letter and A4 media in short-edge-first or long-edge-first orientation in the paper trays. When measuring repetitive defects, make sure to place the ruler at the leading edge of the page. This is the edge of the page that feeds into the printer first.

The example pages below show the following types of repetitive defects.

- Lines (callout 1)
- Smudges (callout 2)
- Dots or spots (callout 3)

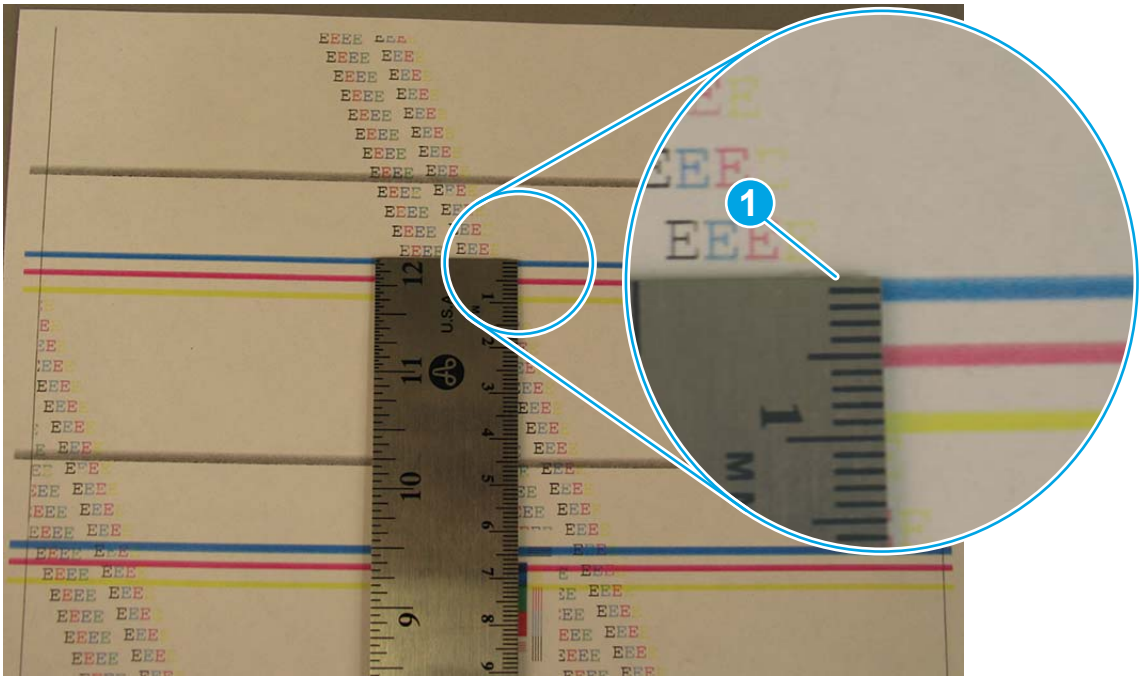
Figure 2-109 Examples of repetitive defects



 **NOTE:** These are examples only, other types of repetitive defects might appear on a page.

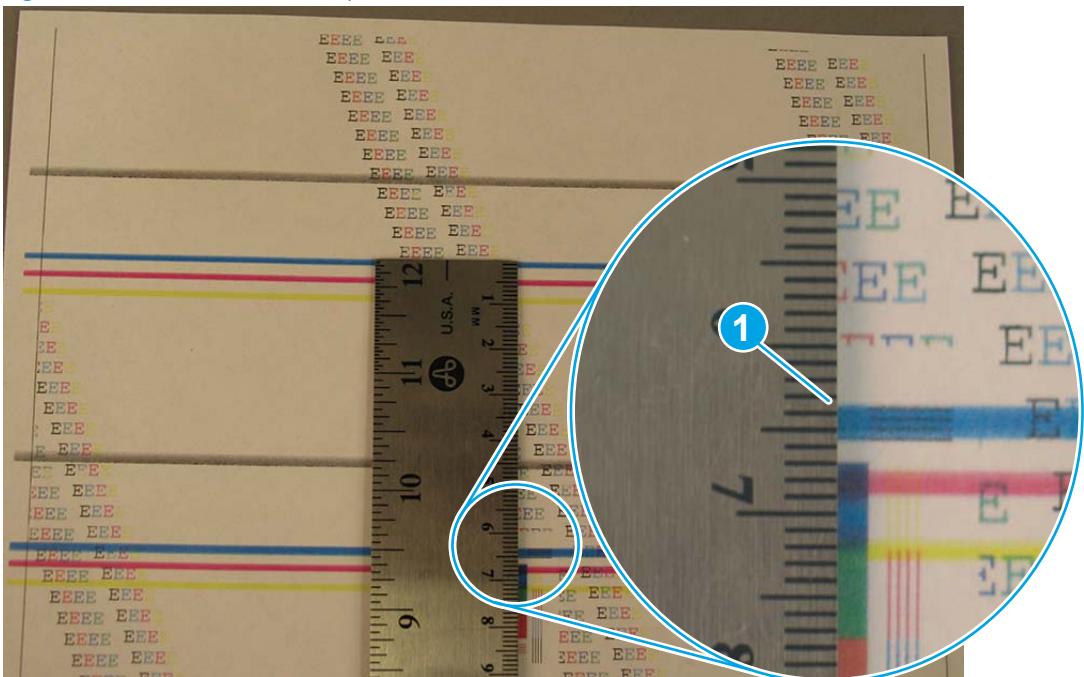
2. Position a metric ruler on the page with the “zero” ruler mark at one occurrence of the defect (callout 1).

Figure 2-110 Place the ruler on the page



3. Locate the next occurrence of the defect (callout 1).

Figure 2-111 Locate the next repetitive defect



4. Measure the distance (in millimeters) between the two occurrences (callout 1), and then use the Repetitive defects table to determine the defective assembly.


 **TIP:** Always measure from and to the same point on the defects. For example, if the ruler is “zeroed” at the top edge of a defect, measure to the top edge of the next occurrence of that defect.

Figure 2-112 Determine the defective assembly

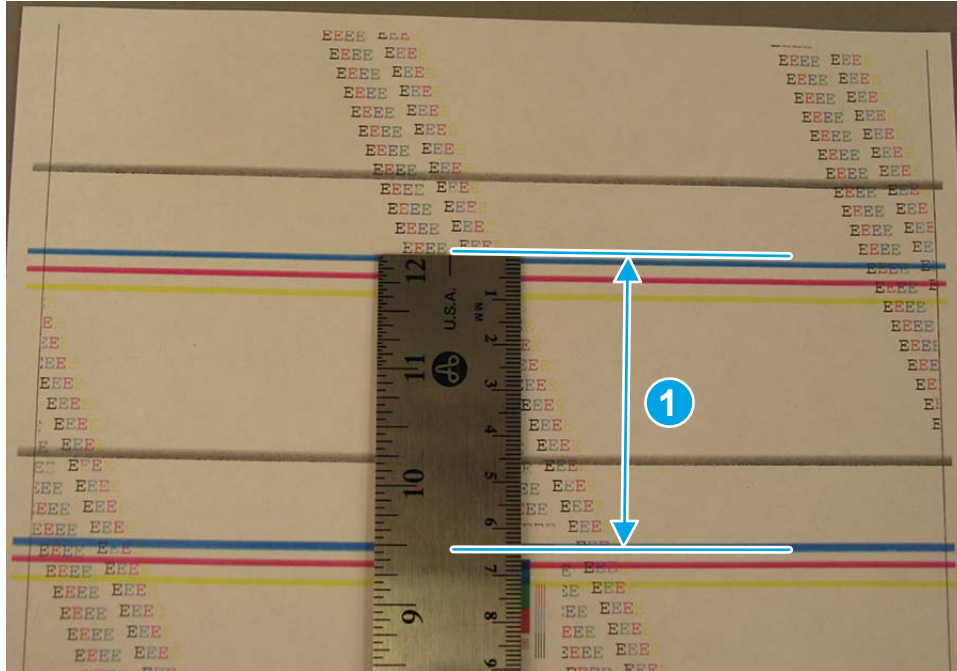



Image defect events

Learn about product specific image defects.

 **NOTE:** The following image defects are printer-specific.

0.85 mm (0.03 in) lines across page

Learn about the lines across page image defect.

Review the following information about the 0.85 mm (0.03 in) lines across page image defect.

Figure 2-113 Lines across page defect (1 of 3)

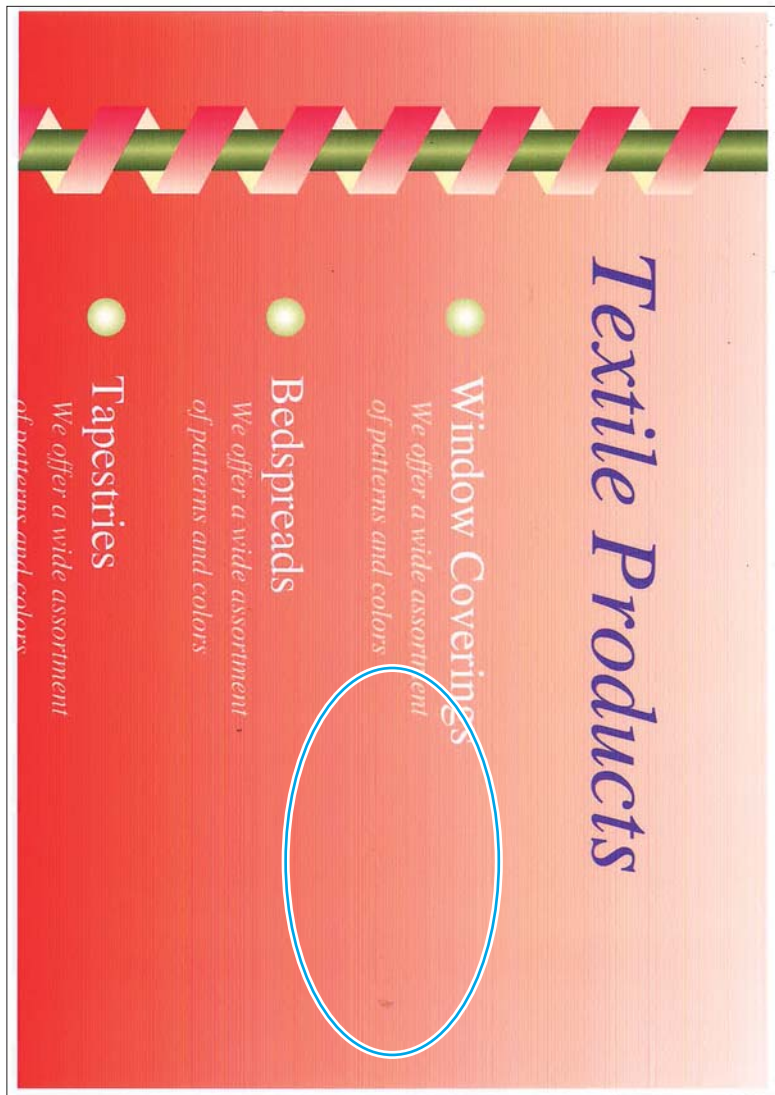


Figure 2-114 Lines across page defect (2 of 3)

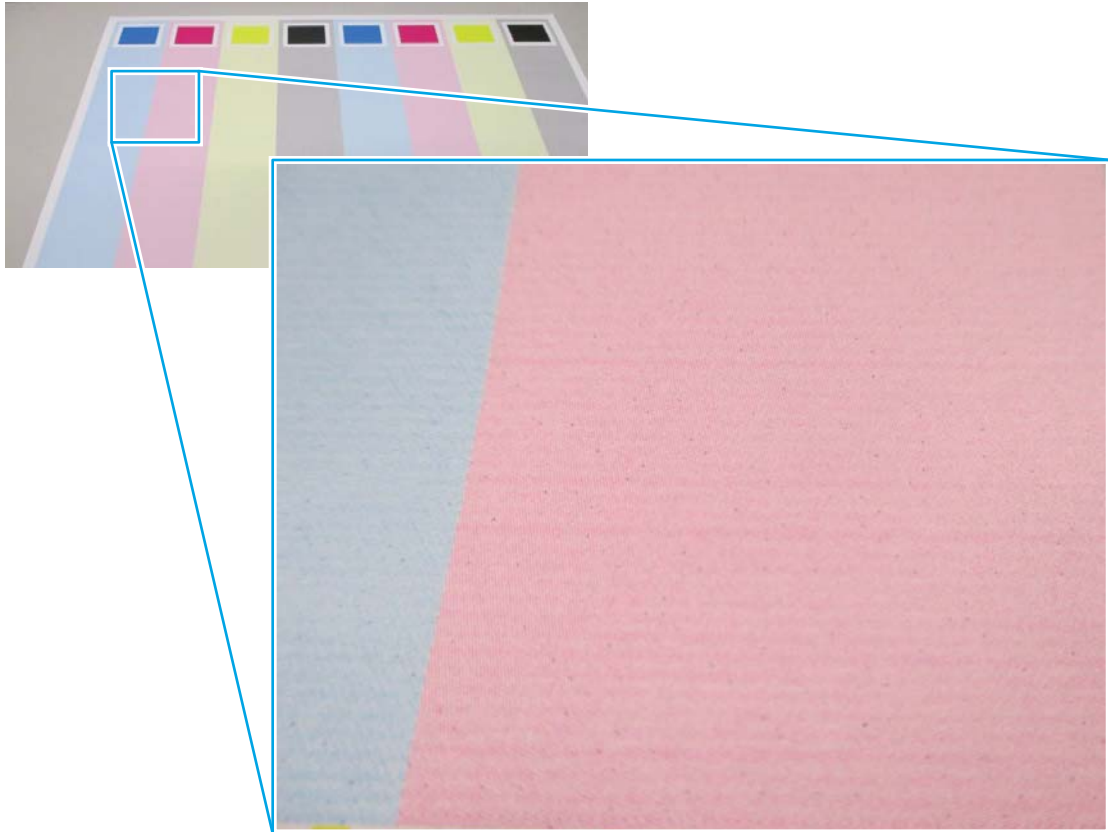
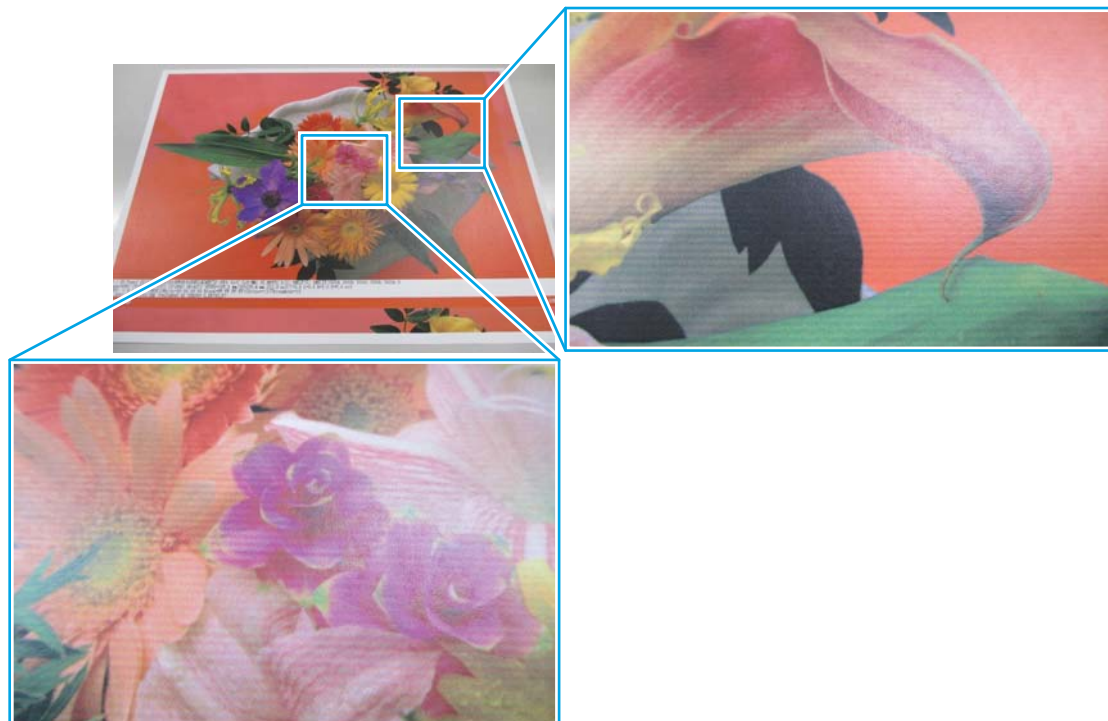


Figure 2-115 Lines across page defect (3 of 3)



Defect description

This defect appears as 0.85 mm (0.03 in) banding in a corduroy pattern over the printed page in all colors (especially on pages with high coverage).

Defect conditions

This defect only occurs when using media that require a half-speed print mode (for example thick media or labels).

Defect solutions

This defect is caused by motor vibration. Replace the motor (s).

Defect related parts

The following item(s) might need to be repaired or replaced to prevent this defect from occurring.

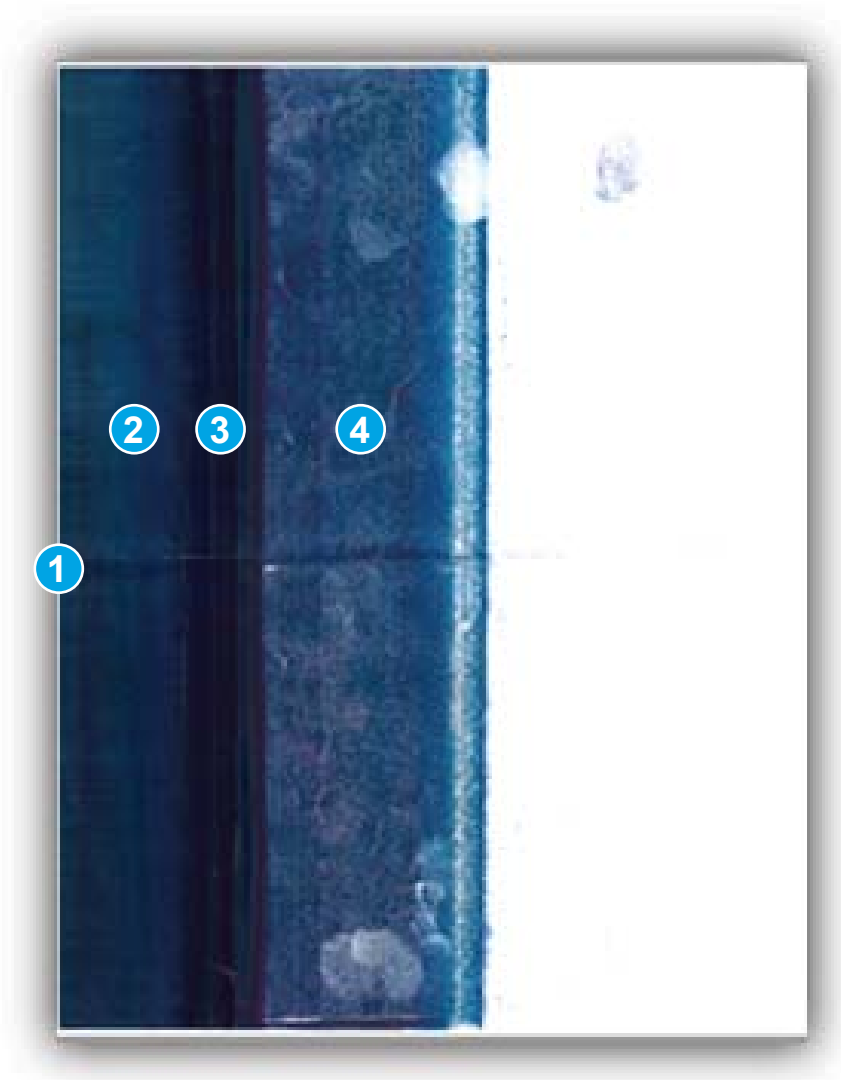
- Motor (RM2-1613-000CN)

Partial blank page

Learn about the partial blank page image defect.

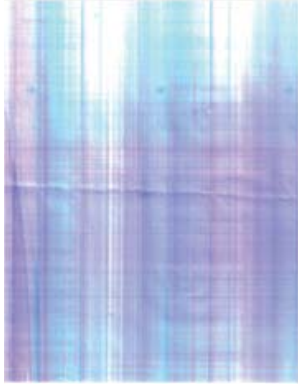
Review the following information about the partial blank page image defect.

Figure 2-116 Partial blank page image defect



- **Callout 1:** Leading edge of the page
- **Callout 2:** Fused toner
- **Callout 3:** Jam in the fuser
- **Callout 4:** Not fused toner (transfers to fingers when rubbed)

 **NOTE:** The figure below shows the printed page if the FFC is completely disconnected.




Defect description

This defect appears as a partially blank (across all four colors) page. All four colors have 100% transfer until the page jams in the fuser.

Defect conditions

The high-voltage power supply (HVPS) lower board FFC is not fully seated.

 **NOTE:** This FFC was most likely not fully connected when the power supply was reinstalled during previous service of the printer (for example, if the power supply was removed to gain access to another assembly).

Defect solutions

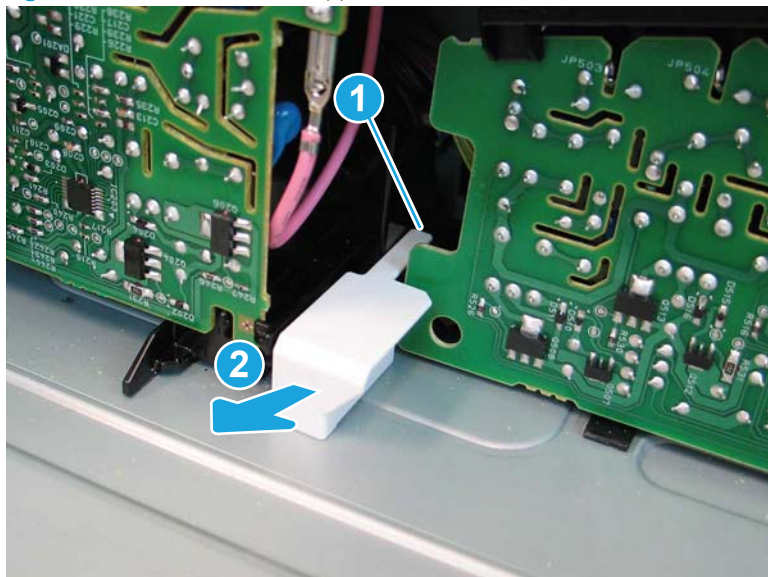
Use the following steps to solve the defect.

 **NOTE:** For complete assembly removal instructions, see the printer repair service manual.

Check the HVPS FFC

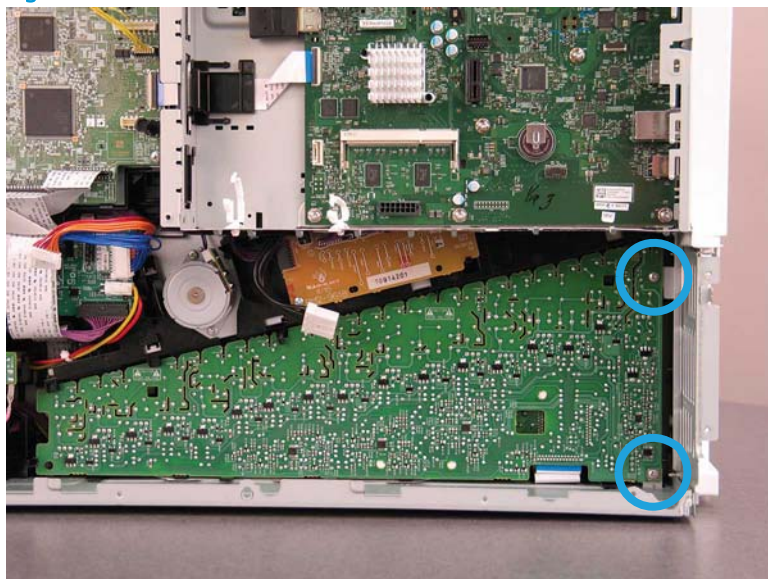
1. Release one tab (callout 1) and then slide the stopper (callout 2) away from the printer to remove it.

Figure 2-117 Remove the stopper



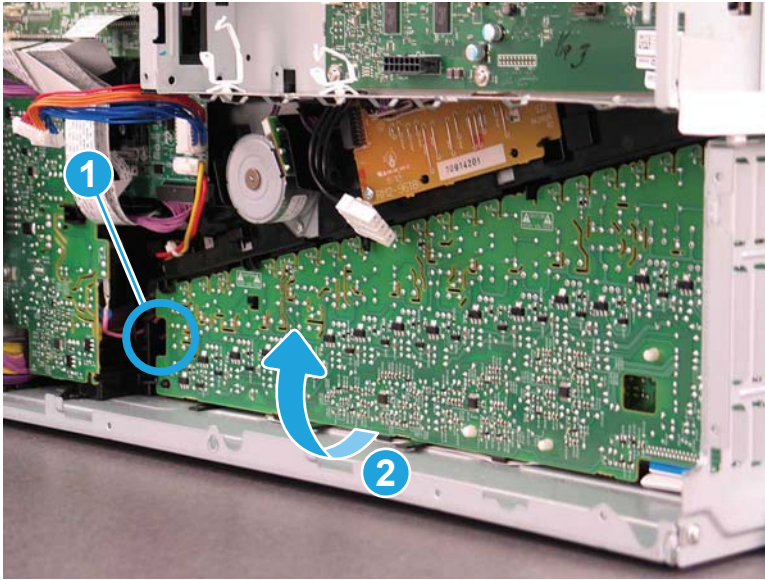
2. Remove two screws (callout 1).

Figure 2-118 Remove two screws



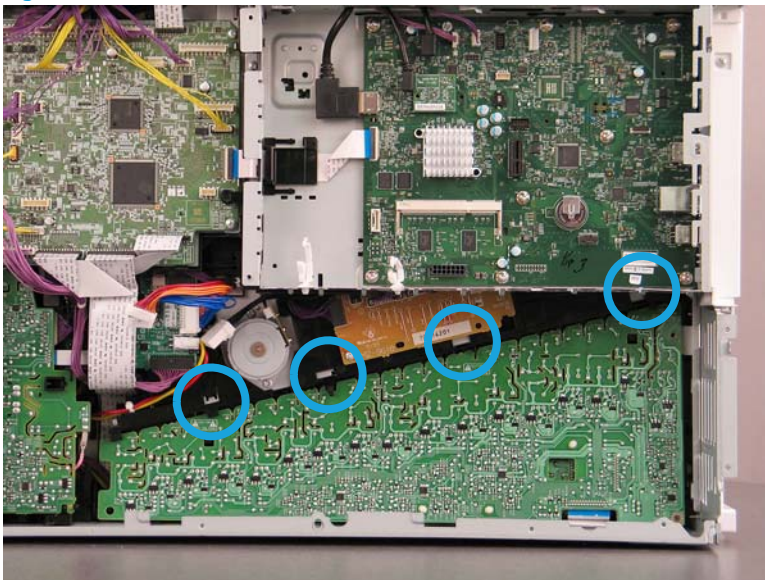
3. Release one tab (callout 1), and then gently release the lower edge of the lower HVPS.

Figure 2-119 Release the lower edge of the lower HVPS



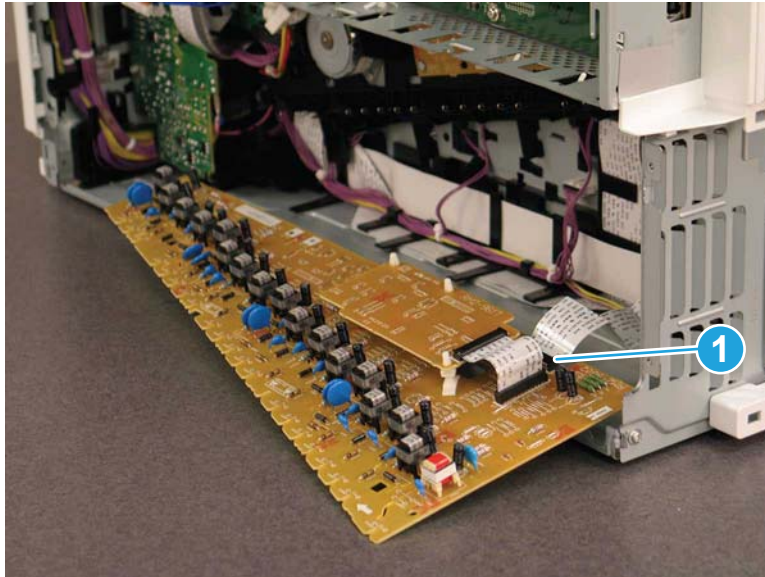
4. Release the lower HVPS from four tabs.

Figure 2-120 Release four tabs



5. Carefully rotate the top edge of the HVPS away from the printer, and then verify that the FFC (callout 1) is fully seated.

Figure 2-121 Check the FFC



Defect related parts

The following item(s) might need to be repaired or replaced to prevent this defect from occurring.

- Lower high-voltage power supply PCB assembly (RM2-9624-000CN)

Solid green and red lines down the page

Learn about the solid green and red lines down the page image defect.

Review the following information about the solid green and red lines down the page image defect.

Figure 2-122 Solid green and red lines down the page



Defect description

This defect appears as solid green and red lines down the page.

Defect conditions

The high-voltage power supply (HVPS) upper board FFC is not connected.

Defect solutions

Use the following steps to solve the defect.

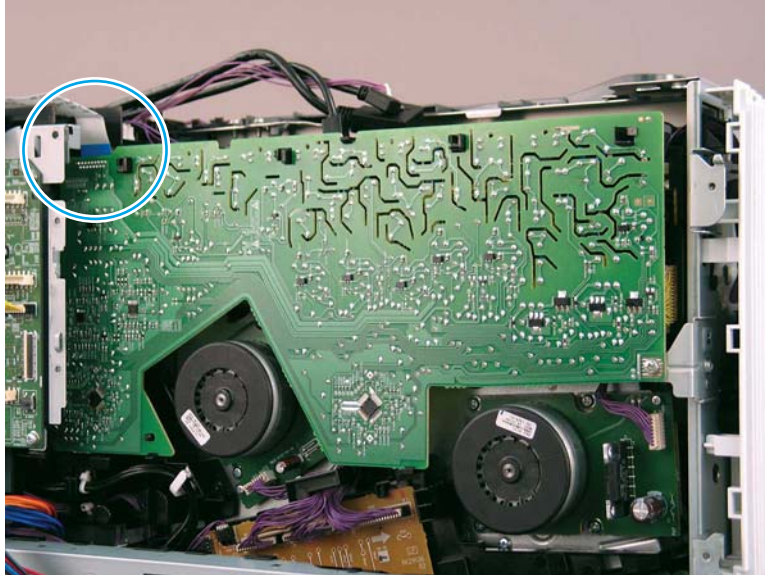


NOTE: For complete assembly removal instructions, see the printer repair service manual.

Connect the HVPS FFC

- ▲ Verify that the HVPS upper board FFC is connected.

Figure 2-123 Connect the FFC



Defect related parts

The following item(s) might need to be repaired or replaced to prevent this defect from occurring.

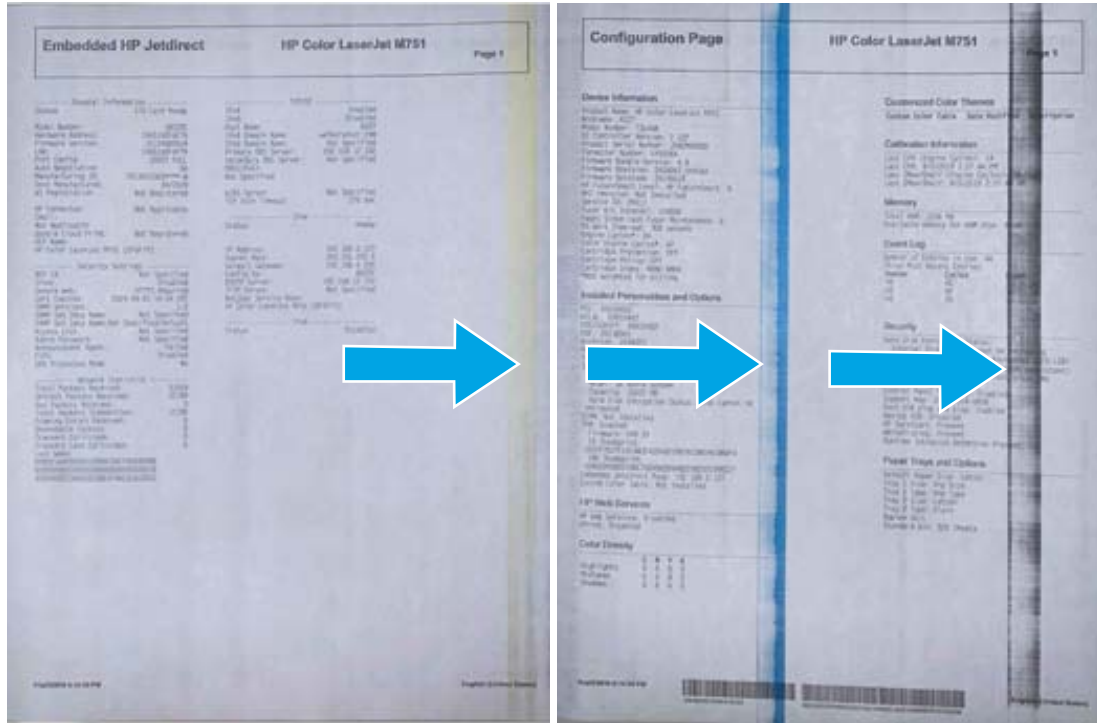
- Upper high-voltage power supply PCB assembly (RM2-9601-000CN)

CMYK streaks down the page

Learn about the CMYK streaks down the page image defect.

Review the following information about the CMYK streaks down the page image defect.

Figure 2-124 CMYK streaks down the page



Defect description

This defect appears as lines and streaks on printed pages after the printer calibrates. Lines or streaks are black or in color, and appear in the same direction that the paper is loaded.

Defect conditions

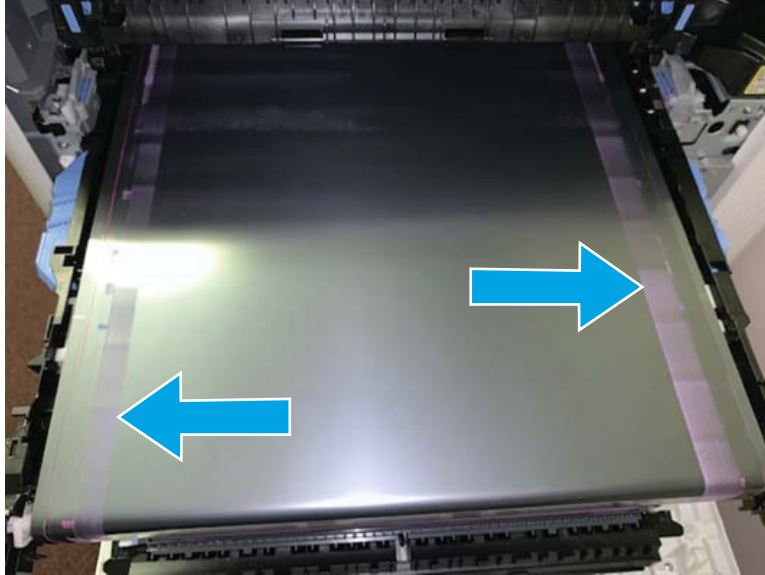
If the black or color lines are present on the intermediate transfer belt (ITB) and are not fully cleaned, it is possible to have lines and streaks on printed pages.

Defect solutions

Lines on the ITB

1. Remove the ITB and verify lines or streaks are visible.

Figure 2-125 ITB streaks



2. Perform a forced full calibration and see if the error is resolved.
3. If the error persists, do the following:
 - Print an event log, usage page, and configuration page.
 - Ask whether the customer noticed any package damage or if it was pre-staged off-site and moved to the office without packaging.
4. Order and install a replacement ITB.

Defect related parts

The following item(s) might need to be repaired or replaced to prevent this defect from occurring.

- Intermediate transfer belt (RM2-1504-000CN)

C-roller contamination streaks

Learn about the C-roller contamination streaks image defect.

Review the following information about the C-roller contamination streaks image defect.

Figure 2-126 C-roller contamination streaks



Defect description

This defect appears as streaks (light or dark) that show in halftone output.

Defect conditions

White streaks are more prone to occur after long, continuous jobs with low coverage.

The charge roller is contaminated.


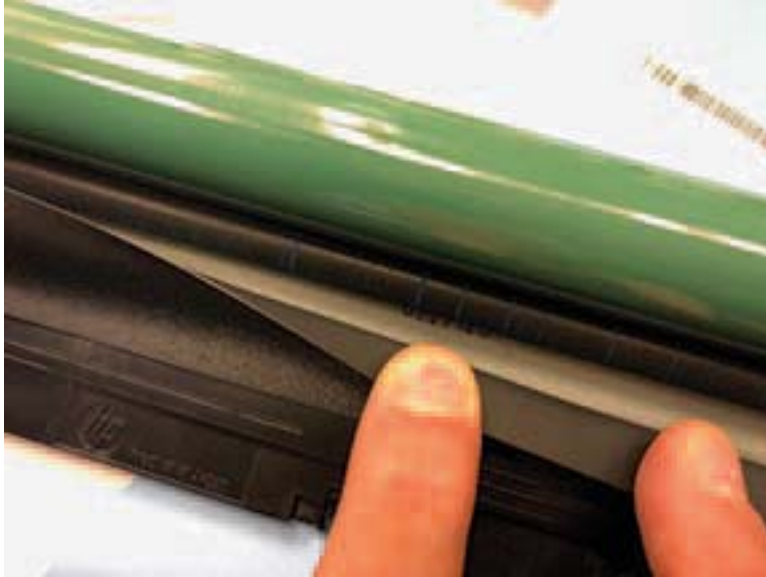
 **NOTE:** The streak(s) always exist in a single cartridge. Generally, the imaging drum is the root cause of persistent streaks [single or multiple]. Check the charge roller on the imaging drum (shown below) for toner/contamination.

Figure 2-127 Contaminated image drum



Defect solutions

Replace the affected image drum.

Defect related parts

The following item(s) might need to be repaired or replaced to prevent this defect from occurring.

- HP 660A Original LaserJet Imaging Drum (W2004-67901)

Laser path blockage streaks

Learn about the laser path blockage streaks image defect.

Review the following information about the laser path blockage streaks image defect.

Figure 2-128 Laser path blockage streaks



Defect description

This defect appears as one or more soft, wide vertical white lines in a single color plane.

Defect conditions

Lint, fiber, toner particles or other contamination present on the laser-scanner glass under the toner cartridge block the laser path to the OPC and prevents development.



NOTE: This defect might look similar to other cartridge-related streaks, but these streaks usually disappear when the affected toner cartridge is removed and then reinstalled.

Defect solutions

- Remove the affected toner cartridge and then reinstall it. This wipes the glass and should remove the contamination.
- Check and make sure that there is not a label or other foreign object blocking the laser window on the affected toner cartridge.
- Check cartridges for leakage to prevent this from occurring again.

Defect related parts

The following item(s) might need to be repaired or replaced to prevent this defect from occurring.

- Toner cartridge (if leaking)



NOTE: A variety of HP toner cartridges (standard, high yield, managed) are available for this product. See the printer *Service Manual: Repair* parts chapter to find the toner cartridge part numbers.

OPC grounding bands

Learn about the OPC grounding bands image defect.

Review the following information about the OPC grounding bands image defect.

Figure 2-129 OPC grounding bands



Defect description

This defect appears as the one primary color (CMYK) across the entire sheet of paper.

Defect conditions


This defect might occur more commonly after a cartridge replacement.

There is a defect present on the OPC surface and toner is developed across the entire length of the OPC.

Defect solutions

Try the following:

- Remove the affected image drum and then reinstall it.
- Perform a [Disable Cartridge Check](#) and swap the affected cartridge with a non-affected one.

 **NOTE:** Do not remove or exchange the toner cartridge until after beginning the disable cartridge check diagnostic.

Disable Cartridge Check

1. Select the [Support Tools](#) button.
2. Select the **Troubleshooting ► Diagnostic Tests ► Disable Cartridge Check** menu items.


If the defect stays with the cartridge, replace the affected cartridge.

If the error persists, it is an engine problem.

Defect related parts

The following item(s) might need to be repaired or replaced to prevent this defect from occurring.

- Toner cartridge

 **NOTE:** A variety of HP toner cartridges (standard, high yield, managed) are available for this product. See the printer *Service Manual: Repair* parts chapter to find the toner cartridge part numbers.

- HP 660A Original LaserJet Imaging Drum (W2004-67901)

Image placement

Learn about the image placement image defect.

Review the following information about the image placement image defect.

Figure 2-130 Image placement



Defect description

This defect appears as an image that is not centered on the page.

Defect conditions

IPA could be off in any environment and from any tray

The paper is not centered as it is pulled from the tray and goes through the paper path.

Defect solutions

Try the following:

- Make sure that the sliding guides in the affected tray are correctly adjusted.
- Instruct the customer to be very careful when loading the media into the paper tray.
- If the error is consistent when using a particular tray (1-5) or is localized to a side (simplex or duplex) print job, use the control panel menus to change the placement of the image for the specific tray or side print job.



NOTE: Print a test page and confirm the necessary adjustment.

Open the following menus: **Settings ► Print ► Print Quality ► Image Registration ► Adjust Tray X.**

Make the necessary adjustment(s):

- [Front-Side Horizontal Shift for simplex](#)
- [Front-Side Vertical Shift for simplex](#)
- [Back-Side Horizontal Shift for duplex](#)
- [Back-Side Vertical Shift for duplex](#)

Defect related parts

The following item(s) might need to be repaired or replaced to prevent this defect from occurring.

- Media

Clean the printer

Review the following information about cleaning the printer.



NOTE: To clean the printer exterior, use a soft, water-moistened cloth.

Clean the paper path

Over time, particles of toner and paper accumulate inside the printer. This can cause print-quality problems during printing. Cleaning the paper path eliminates or reduces these problems.

Clean the paper path and toner-cartridge areas every time that a toner cartridge is changed or whenever print-quality problems occur. As much as possible, keep the printer free from dust and debris.

Print a cleaning page

Use the following procedure to print a cleaning page from the control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then press the **OK** button.
2. Use the down arrow ▼ button to scroll to [Maintenance](#), and then press the **OK** button.
3. Use the down arrow ▼ button to scroll to [Calibration/Cleaning](#), and then press the **OK** button.
4. Select [Continue](#) to enter *Maintenance Mode*.
5. Use the down arrow ▼ button to scroll to [Cleaning page](#), and then press the **OK** button to print the page.
6. Follow the instruction on the printed cleaning page to finish the cleaning page process.
7. A **Cleaning...** message displays on the printer control panel. The cleaning process takes a few minutes to complete. Do not turn the printer off until the cleaning process has finished. When it is finished, discard the printed page.

Enable and configure auto cleaning

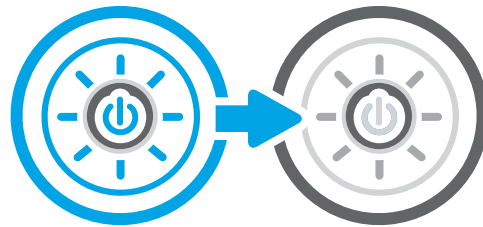
Use the procedure in this section to enable and configure the automatic cleaning function from the control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then press the **OK** button.
2. Use the down arrow ▼ button to scroll to [Maintenance](#), and then press the **OK** button.
3. Use the down arrow ▼ button to scroll to [Calibration/Cleaning](#), and then press the **OK** button.
4. Select [Cleaning Page](#).
5. Select the [Automatic Cleaning Interval](#) number of pages
6. Select [Done](#).

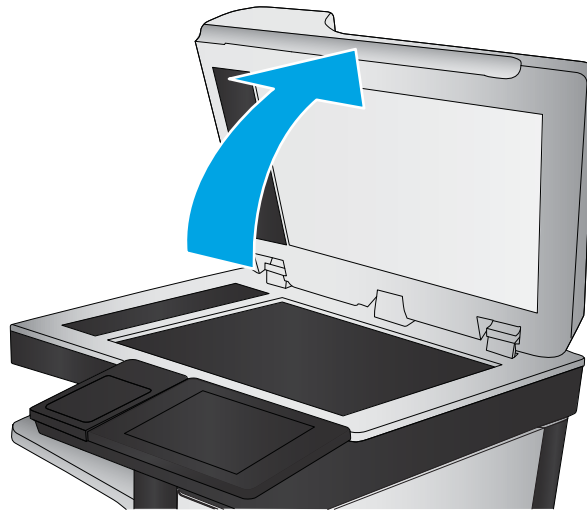
Check the scanner glass for dirt and smudges

Over time, specks of debris might collect on the scanner glass and white plastic backing, which can affect performance. Use the following procedure to clean the scanner if the printed pages have streaks, unwanted lines, black dots, poor print quality, or unclear text.

1. Press the power button to turn the printer off, and then disconnect the power cable from the electrical outlet.



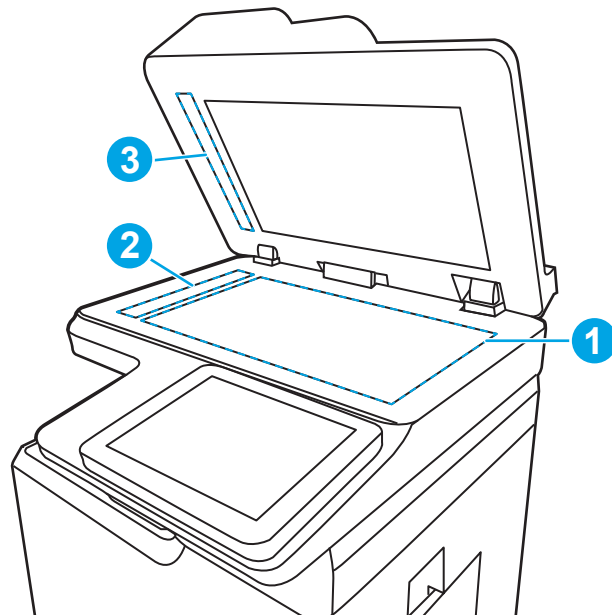
2. Open the scanner lid.



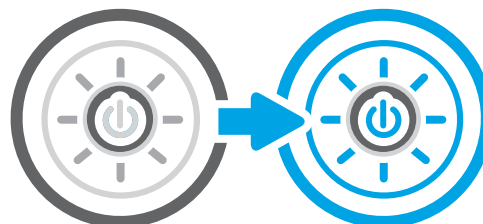
3. Clean the scanner glass (callout 1) and the document feeder strips (callout 2, callout 3) with a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.

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

NOTE: If you are having trouble with streaks on copies when you are using the document feeder, be sure to clean the small strips of glass on the left side of the scanner (callout 2, callout 3).



4. Dry the glass and white plastic parts with a chamois or a cellulose sponge to prevent spotting.
5. Connect the power cable to an outlet, and then press the power button to turn the printer on.



Solve paper handling problems

Review the following information to solve paper handling problems.

Printer feeds incorrect page size

Review the following information when the printer feeds an incorrect page size.

Table 2-70 Printer feeds incorrect page size

Cause	Solution
The correct size paper is not loaded in the tray.	Load the correct size paper in the 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 correct, 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 printer control panel.	From the control panel, select the correct size paper for the tray.
The paper size is not configured correctly for the tray.	Print a configuration page 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.

Printer pulls from incorrect tray

Review the following information when the printer pulls from an incorrect tray.

Table 2-71 Printer pulls from incorrect tray

Cause	Solution
A driver for a different printer is in use.	Use a driver for this printer.
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.

Printer will not duplex or duplexes incorrectly

Review the following information when the printer will not duplex or duplexes incorrectly.

Table 2-72 Printer will not duplex (print 2-sided jobs) or duplexes incorrectly

Cause	Solution
The duplex job is trying to use 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.

Table 2-72 Printer will not duplex (print 2-sided jobs) or duplexes incorrectly (continued)

Cause	Solution
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 leading into the printer. For Tray 2-X, load the paper printed side up with the top of the page toward the right of the printer.
The printer model does not support automatic 2-sided printing.	The printer model does not support automatic 2-sided printing.

Paper does not feed from Tray 2-X

Review the following information when the paper does not feed from Tray 2-X.

Table 2-73 Paper does not feed from Tray 2-X

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 printer control panel.	From the printer control panel, select the correct paper type for the input tray. Trays configured for a paper type with a specific weight range will not match a print job that specifies an exact weight, even if the specified weight is within the weight range.
Paper from a previous jam has not been completely removed.	Open the printer and remove any paper in the paper path. Closely inspect the fuser area for jams.
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 printer.
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.

Output is curled or wrinkled

Review the following information when the output is curled or wrinkled.

Table 2-74 Output is curled or wrinkled

Cause	Solution
Paper does not meet the specifications for this printer.	Use only paper that meets the HP paper specifications for this printer. Non-recycled, 75 g/m ² (20 lb) paper is optimal for office use.
The correct paper type for the input tray is not selected in the printer control panel.	From the printer control panel, select the correct paper type for the input tray. Trays configured for a paper type with a specific weight range will not match a print job that specifies an exact weight, even if the specified weight is within the weight range.

Table 2-74 Output is curled or wrinkled (continued)

Cause	Solution
Paper is damaged or in poor condition.	Remove paper from the input tray and load paper that is in good condition.
The printer is operating in an excessively humid environment.	Verify that the printing environment is within humidity specifications.
The print job consist of 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. Store paper in a plastic bag to protect it from humidity.
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.
The paper has previously been used for a print job.	Do not re-use paper.

Printer does not pick up paper or misfeeds

Use the following procedures if the printer will not pick up paper or misfeeds paper.

The printer does not pick up paper

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



NOTE: Tray 1 and Tray 2 are optimal for paper pickup when using special paper or media other than 20lb plain paper. For Tray 1 and Tray 2 the printer increases the number of attempts to pick up a page, which increases the reliability of successfully picking the page from the tray and decreases the possibility of a mispick jam.

HP recommends using Tray 1 or Tray 2 if the printer is experiencing excessive or reoccurring jams from trays other than Tray 1 and Tray 2, or for print jobs that require media other than 20lb plain paper.

1. Open the printer and remove any jammed sheets of paper.
2. Load the tray with the correct size of paper for the job.
3. Make sure the paper size and type are set correctly on the printer control panel.
4. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides to the appropriate indentation in the tray.
5. Check the printer control panel to see if the printer is waiting for an acknowledgment to the feed the paper manually prompt. Load paper, and continue.
6. The rollers above the tray might be contaminated. Clean the rollers with a lint-free cloth dampened with warm water.

The printer picks up multiple sheets of paper

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

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

Paper does not feed automatically

Review the following information when the paper does not feed automatically.

Table 2-75 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 OK 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 printer 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.

Inner finisher adjustments (M776zs only)

Use the following procedures to adjust the alignment of pages, the position of staples, and the pressure of the return roller on the inner finisher.

Each adjustment value is stored in stapler/stacker controller PCA's CPU (IC1), the values need to be adjusted accordingly whenever any of the following parts is replaced.

- Staple mount assembly
- Staple tray assembly
- Return roller assembly

Open the Finisher Calibration menu

Use the following procedure to open the [Finisher Calibration](#).


1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the [Service](#) menu:
3. On the sign-in screen, select [Service Access Code](#) from the drop-down list.
4. Enter the following service access code for the printer:

 **NOTE:** After entering the PIN, select [Sign In](#).

- **M776:** 10077619
5. Scroll to and touch the [Finisher Calibration](#) menu.

Align the inner finisher output stack joggers

If the printed output delivered to the output bin in the inner finisher is not aligned properly, the position of the joggers can be adjusted to compensate for the misalignment.

 **IMPORTANT:** The adjustments described here are only necessary if parts are replaced or other repairs are done on an inner finisher. They are not required for a new inner finisher.

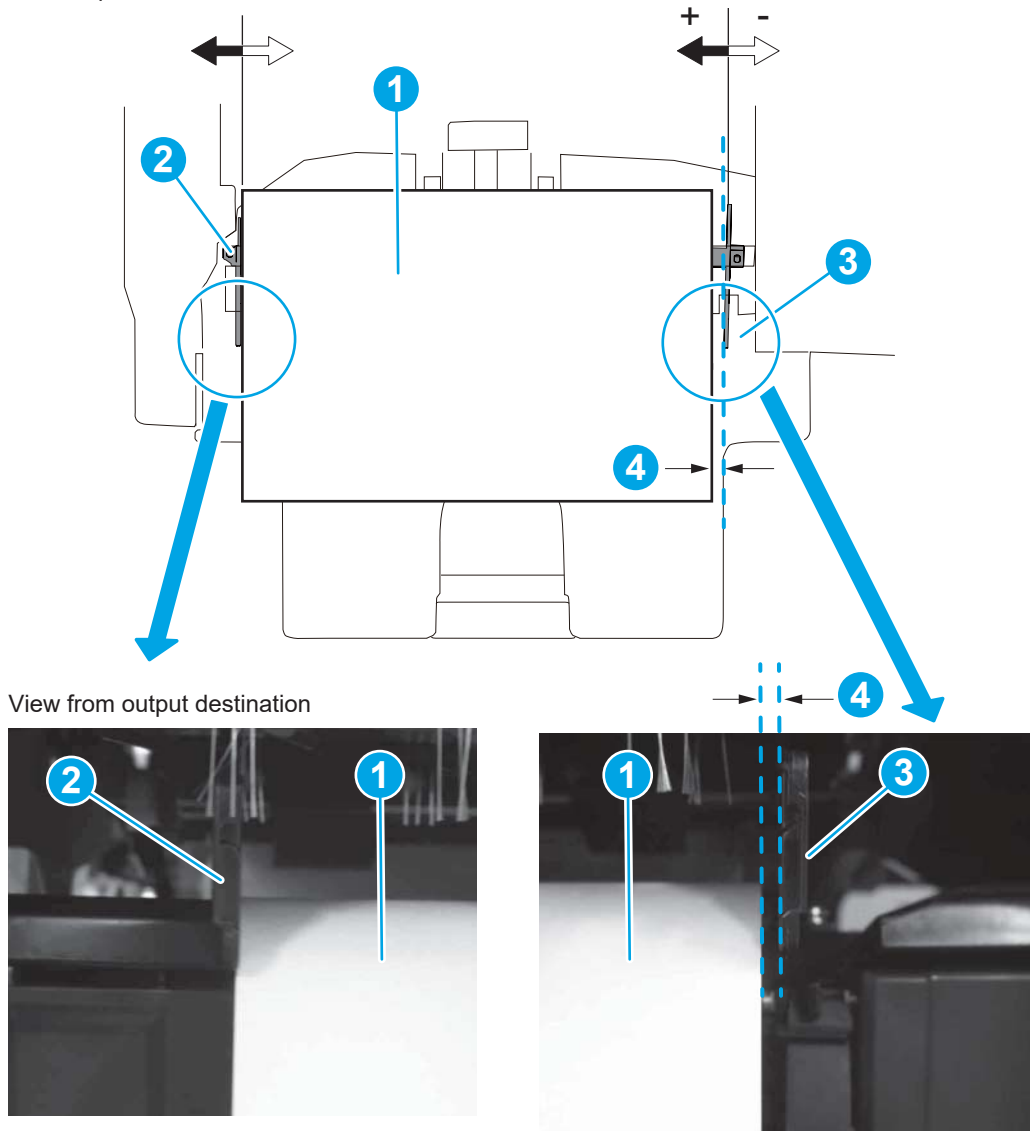
If staple tray assembly is replaced, then this adjustment is required.

1. Open the [Finisher Calibration](#) menu in the [Service](#) menu.
2. Select [Jogger Alignment](#).
3. Select [Paper Size](#).
4. Select [Print Test Job](#) to verify if alignment is necessary.
5. If alignment is necessary, press [Start](#).

6. Place a stack of paper in the output bin (callout 1) of the inner finisher. Align the stack against the rear jogger (callout 2). Measure the distance in millimeters (callout 4) between the paper and the front jogger (callout 3). Enter that measurement in the [Distance](#) field.

Figure 2-131 Adjust joggers

Top view




View from output destination

7. The amount of adjustment that was applied is shown in the [Adjustment](#) field. Select [Finish](#).
8. Select [Print Test Job](#) to verify the pages are aligned correctly. If they are not, repeat the above steps.

Adjust the inner finisher return belt tension


The inner finisher return belt aligns paper in the output stack with the right wall of the output bin. Follow these procedures to adjust the tension of this belt.

 **IMPORTANT:** The adjustments described here are only necessary if parts are replaced or other repairs are done on an inner finisher. They are not required for a new inner finisher.

1. Open the [Finisher Calibration](#) menu in the [Service](#) menu.
2. Select [Return Belt Tension](#).
3. Select [Print Test Job](#) to print a 10-page job.
4. If the pages are too far from the output bin wall, select the plus button to increase the tension on the belt. If the pages buckle, select the minus button to decrease the tension.
5. Select [Print Test Job](#) to verify the pages are aligned correctly. If they are not, repeat the above steps.

Adjust the inner finisher stapler alignment

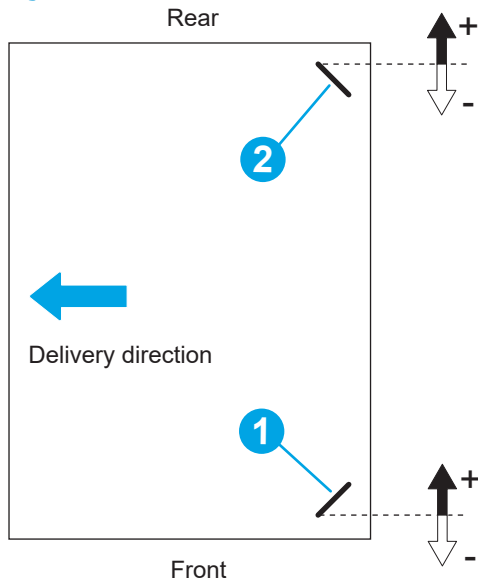
Follow this procedure to adjust the location of the staple on printed pages.

 **IMPORTANT:** The adjustments described here are only necessary if parts are replaced or other repairs are done on an inner finisher. They are not required for a new inner finisher.

1. Open the [Finisher Calibration](#) menu in the [Service](#) menu.
2. Select [Stapler Alignment](#).
3. Select [Staple Location](#).
Choose from:
 - [Top left](#)
 - [Top right](#)
 - [Two left](#)
 - [Manual stapler](#)
4. Select [Print Test Job](#) to print a 2-page staple job with the requested staple location.

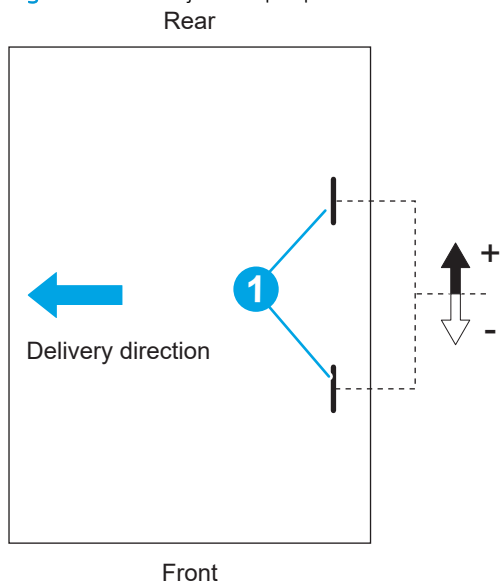
- For top left (callout 1) or top right (callout 2) staple positions, if the staple is too far from the edge of the page, select the plus button to move the staple closer to the edge. If the staple is too close to the edge of the page, select the minus button to move the staple further from the edge.

Figure 2-132 Adjust staple position top left or top right



- For two left staple positions (callout 1), if the staples are too close together, select the plus button to move them farther apart. If the staples are too far apart, select the minus button to move them closer together.

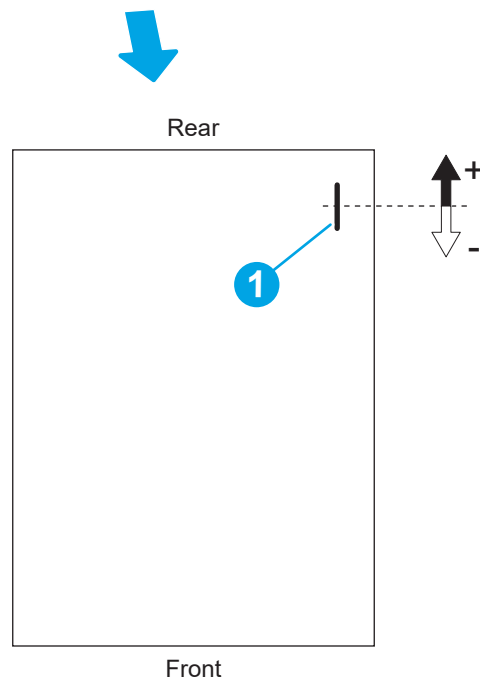
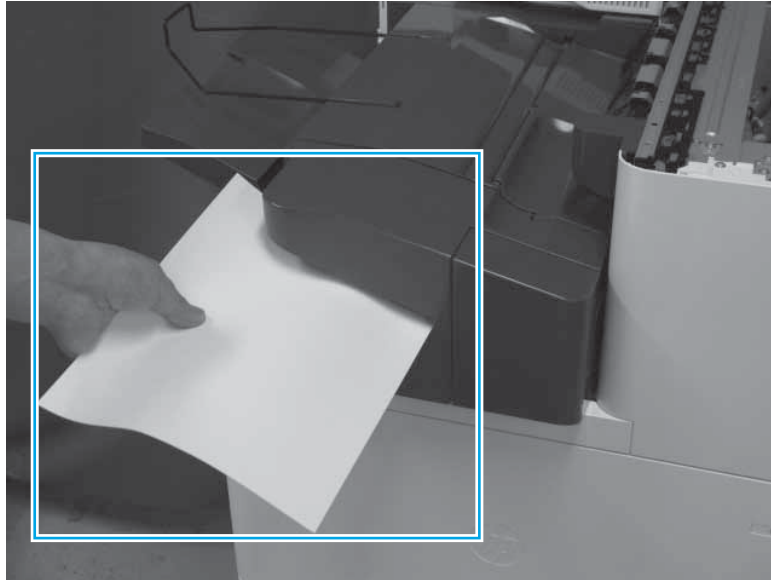
Figure 2-133 Adjust staple position two left



- Select [Print Test Job](#) to print a 2-page staple job with the requested staple location. Verify that the staple location is correct.

8. For the manual stapler, insert a face-down stack of paper into the stapler until it staples. If the staple (callout 1) is too far from the edge of the page, select the plus button to move the staple closer to the edge. If the staple is too close the edge of the page, select the minus button to move the staple further from the edge.

Figure 2-134 Adjust manual stapler position



Clear paper jams

Use the procedures in this section to clear jammed paper from the printer paper path.

Paper path jam sensor locations

Use the figures below to identify the locations of sensors where reoccurring jams are found.

Figure 2-135 Printer jam sensors (M751/E75245)

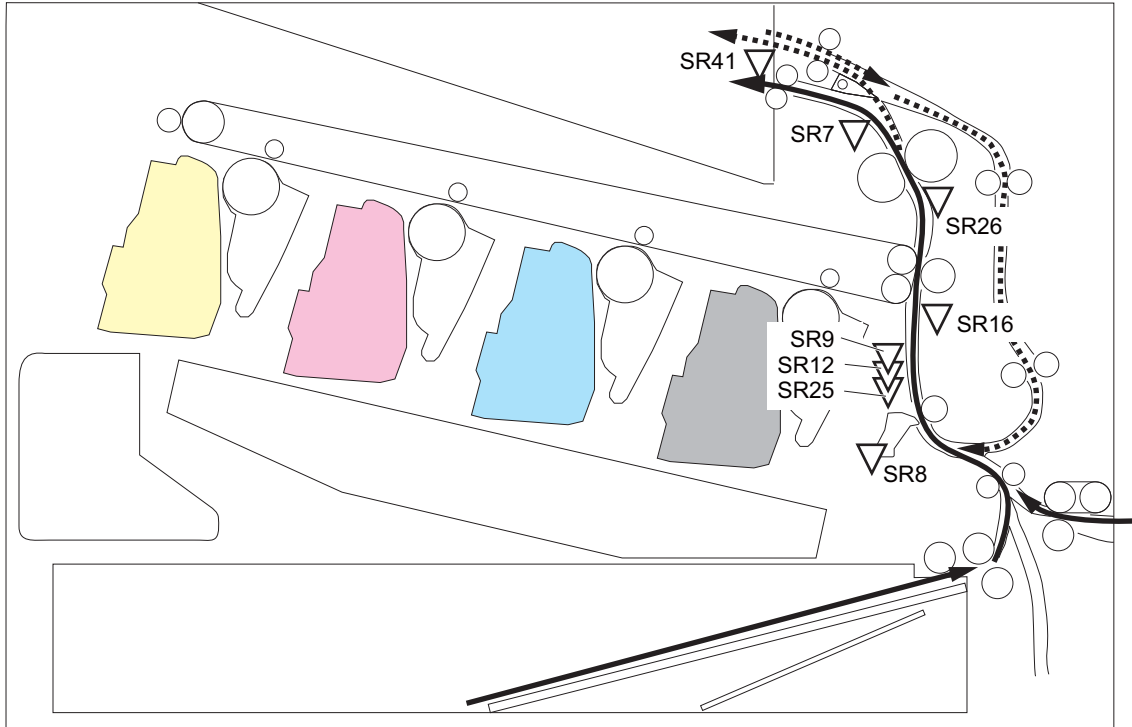


Table 2-76 Printer jam sensors (M751/E75245)

Sensor	Description	Sensor	Description
SR7	Fuser output sensor	SR16	Fuser loop sensor 1
SR8	Registration sensor	SR25	Registration media width sensor 3
SR9	Registration media width sensor 1	SR26	Fuser loop sensor 2
SR12	Registration media width sensor 2	SR41	FD1 media full sensor

Figure 2-136 Printer jam sensors (M856/E85055/M776dn/M776z)

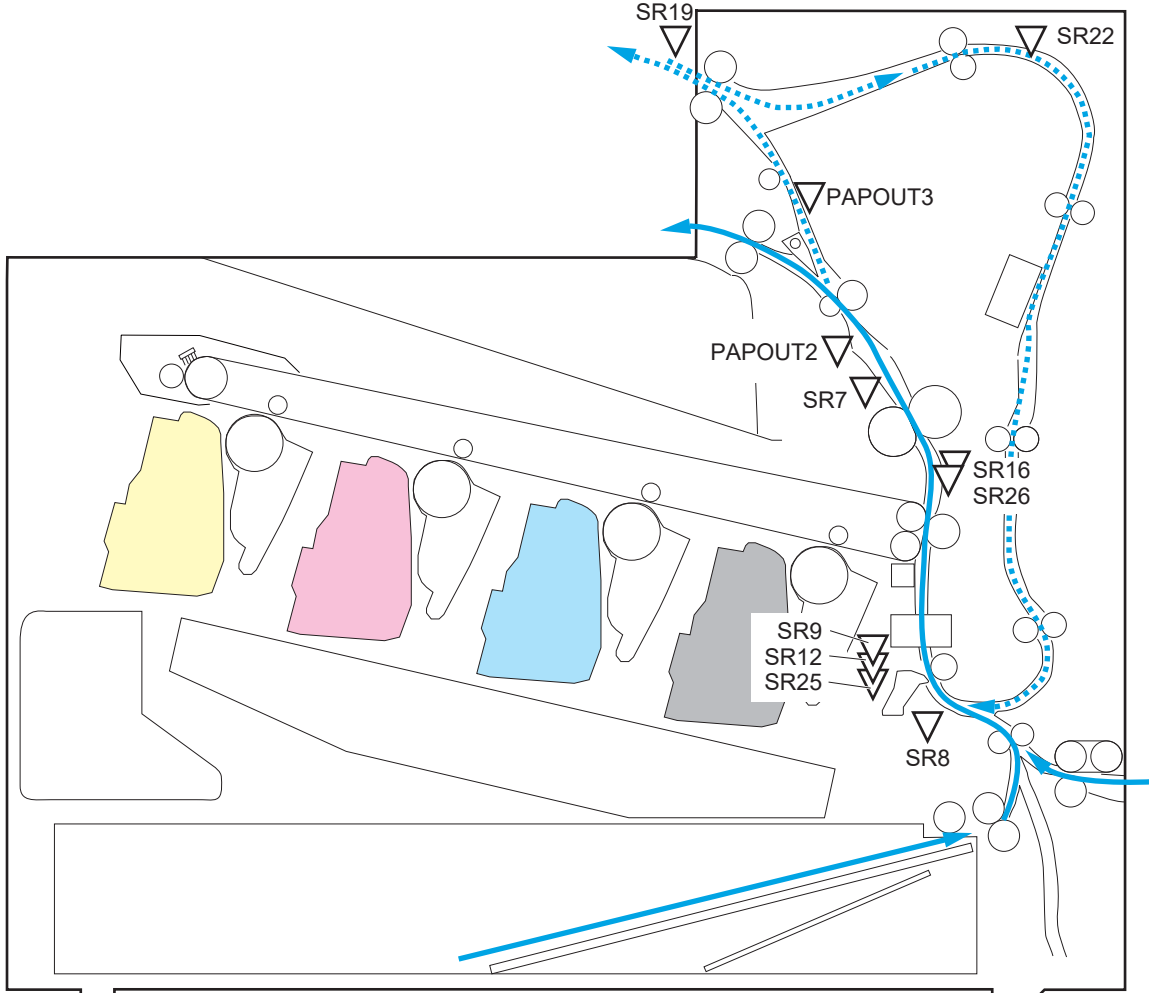


Table 2-77 Printer jam sensors (M856/E85055/M776dn/M776z)

Sensor	Description	Sensor	Description
SR7	Fuser output sensor	SR19	FD1 media full sensor
SR8	Registration sensor	SR22	Duplex feed sensor
SR9	Registration media width sensor 1	SR26	Fuser loop sensor 2
SR12	Registration media width sensor 2	PAPOUT2	Fuser output sensor 2
SR16	Fuser loop sensor 1	PAPOUT3	Fuser output sensor 3

Figure 2-137 Printer jam sensors (M776zs)

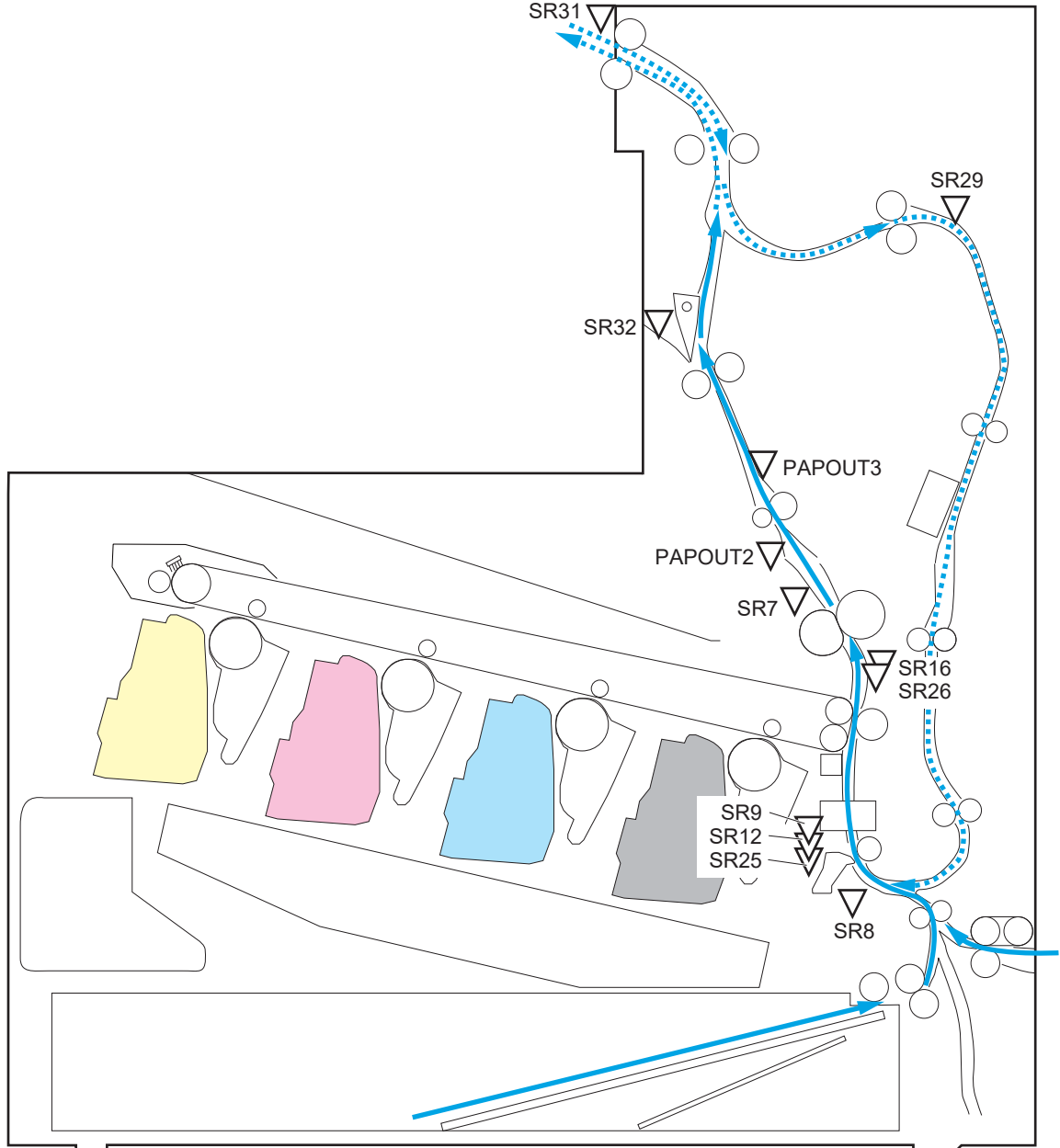


Table 2-78 Printer jam sensors (M776zs)

Sensor	Description	Sensor	Description
SR7	Fuser output sensor	SR26	Fuser loop sensor 2
SR8	Registration sensor	SR29	Duplex feed sensor
SR9	Registration media width sensor 1	SR31	FD1 media full sensor
SR12	Registration media width sensor 2	SR32	FD2 output sensor

Table 2-78 Printer jam sensors (M776zs) (continued)

Sensor	Description	Sensor	Description
SR16	Fuser loop sensor 1	PAPOUT2	Fuser output sensor 2
SR25	Registration media width sensor 3	PAPOUT3	Fuser output sensor 3

Figure 2-138 550-sheet paper tray jam sensors

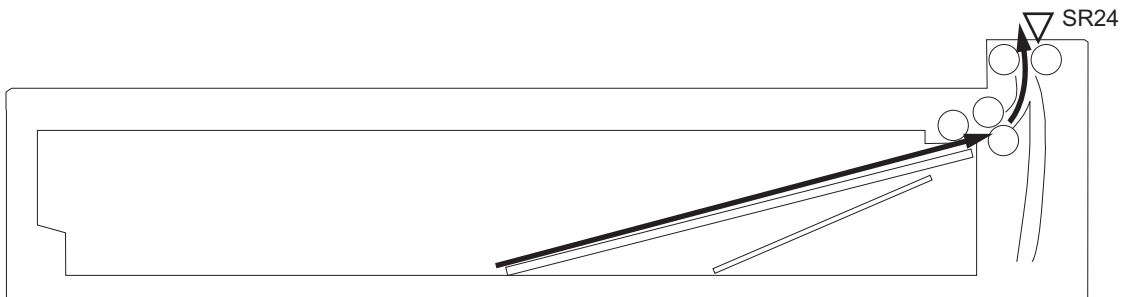


Table 2-79 550-sheet paper tray jam sensors

Sensor	Description
SR24	550-sheet feeder paper feed sensor

Figure 2-139 2x550-sheet paper tray and stand jam sensors

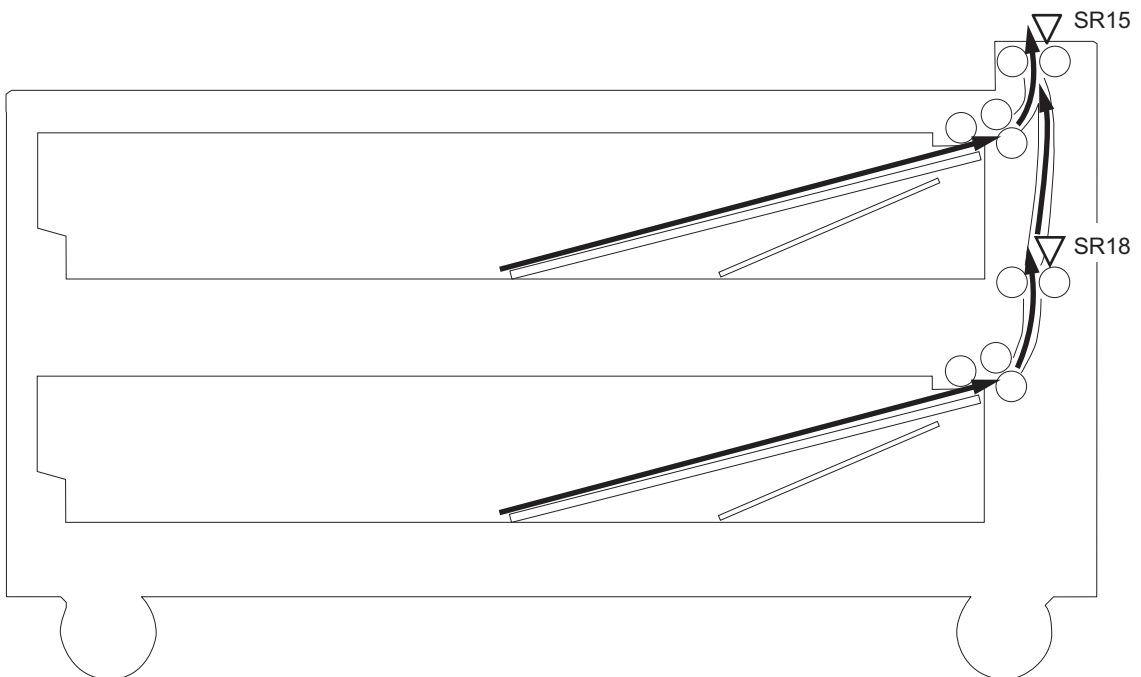


Table 2-80 2x550-sheet paper tray and stand jam sensors

Sensor	Description
SR15	2x550-sheet feeder upper tray paper feed sensor
SR18	2x550-sheet feeder lower tray paper feed sensor

Figure 2-140 2,700-sheet HCI paper tray and stand jam sensors

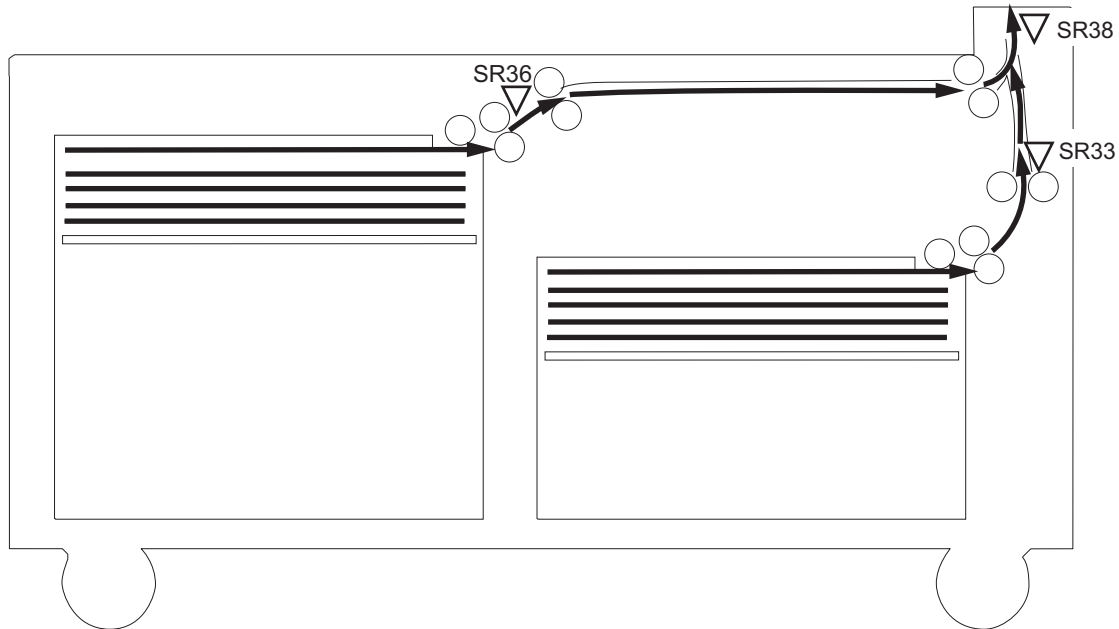


Table 2-81 2,700-sheet HCI paper tray and stand jam sensors

Sensor	Description
SR33	HCI right tray feed sensor
SR36	HCI left tray feed sensor
SR38	HCI feed sensor

Auto-navigation for clearing paper jams


Learn about printer jam clearing auto-navigation.

The auto-navigation feature assists in clearing jams by providing step-by-step instructions on the control panel.

When you complete a step, the printer displays instructions for the next step until you have completed all steps in the procedure.

Experiencing frequent or recurring paper jams?

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

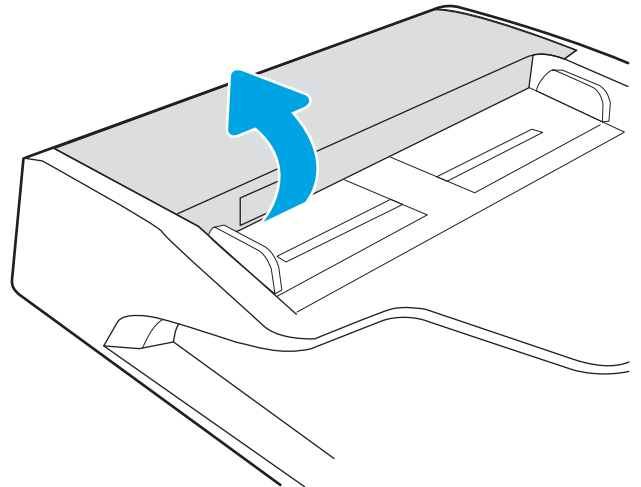
 **NOTE:** To see a video that demonstrates how to load paper in a way that reduces the number of paper jams, click [here](#).

1. Use only paper that meets HP specifications for this printer.
2. Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.
3. Use paper that has not previously been printed or copied on.
4. Make sure the tray is not overfilled. If it is, remove the entire stack of paper from the tray, straighten the stack, and then return some of the paper to the tray.
5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides so they are touching the paper stack without bending it.
6. Make sure that the tray is fully inserted in the printer.
7. If you are printing on heavy, embossed, or perforated paper, use the manual feed feature and feed sheets one at a time.
8. Open the [Trays](#) menu on the printer control panel. Verify that the tray is configured correctly for the paper type and size.
9. Make sure the printing environment is within recommended specifications.

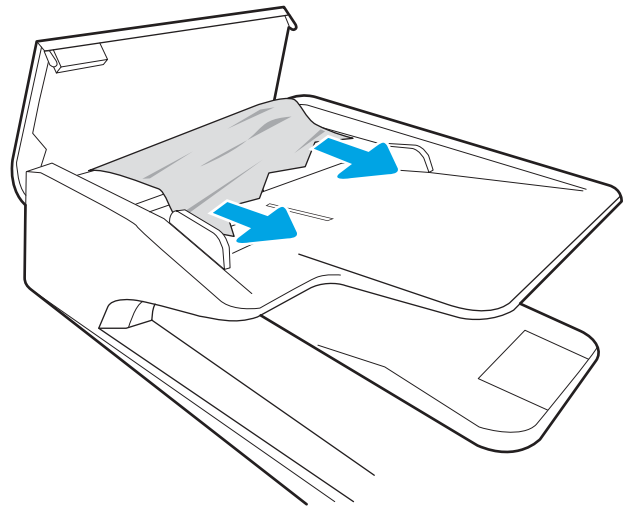
Clear paper jams in the document feeder - 31.13.yz (M776)

The following information describes how to clear paper jams in the document feeder. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

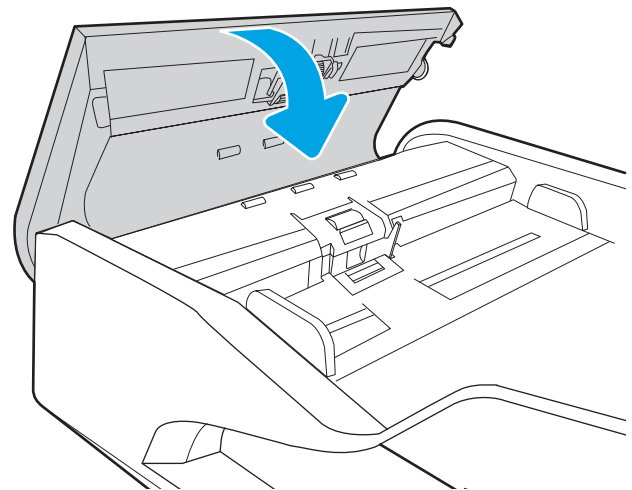
1. Open the document-feeder cover.





2. Remove any jammed paper.



3. Close the document-feeder cover.



 **NOTE:** To avoid jams, make sure the guides in the document-feeder input tray are adjusted against the document, without bending the document. To copy narrow documents, use the flatbed scanner. Remove all staples and paper clips from original documents.

 **NOTE:** Original documents that are printed on heavy, glossy paper can jam more frequently than originals that are printed on plain paper.

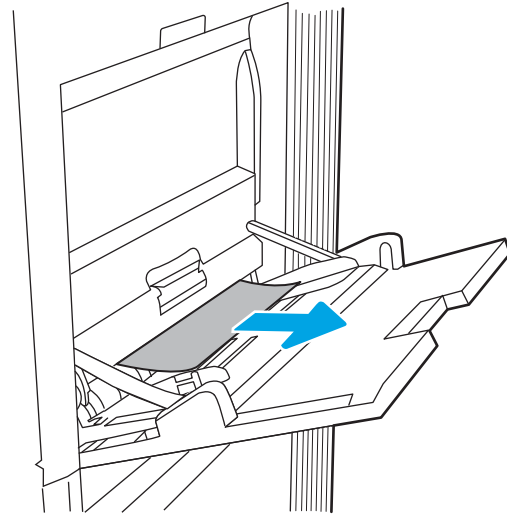
Clear paper jams in Tray 1 (13.A1)

Use the following procedure to check for paper in all possible jam locations related to Tray 1 and inside the right door.

When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

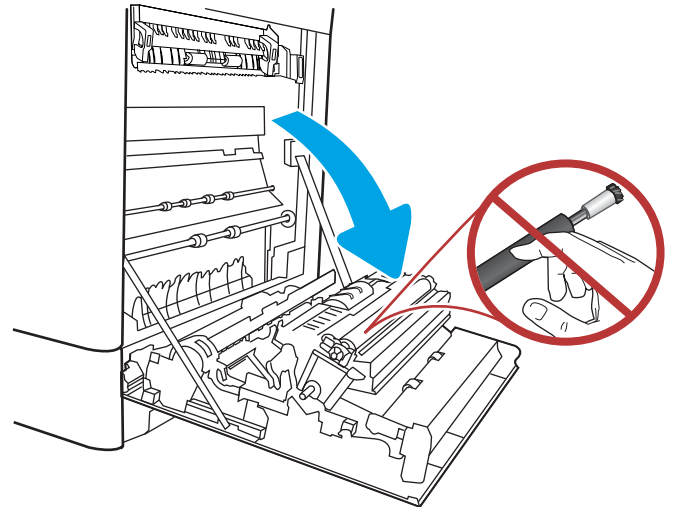
- 13.A1.XX Jam in Tray 1

1. If jammed paper is visible in Tray 1, clear the jam by gently pulling the paper straight out.

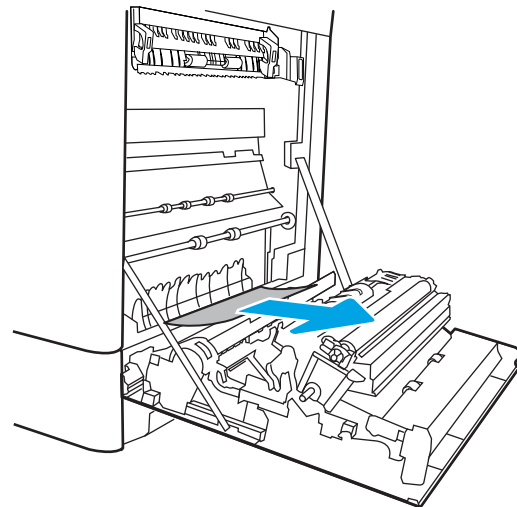


2. If you cannot remove the paper, or if no jammed paper is visible in Tray 1, close Tray 1 and open the right door.

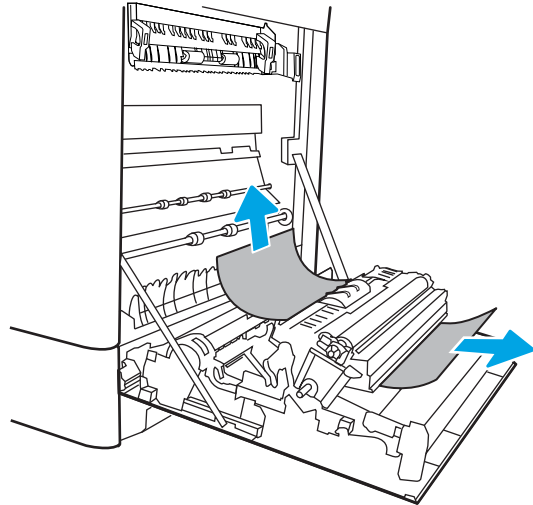
CAUTION: Do not touch the transfer roller. Contaminants can affect print quality.



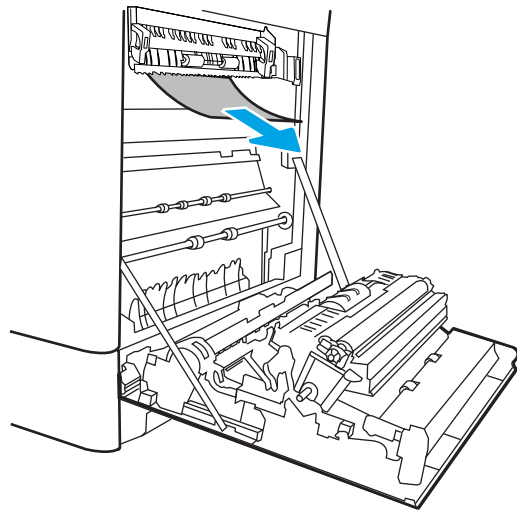
3. Gently pull out any jammed paper.



4. Gently pull out any jammed paper in the duplex area on the right door.



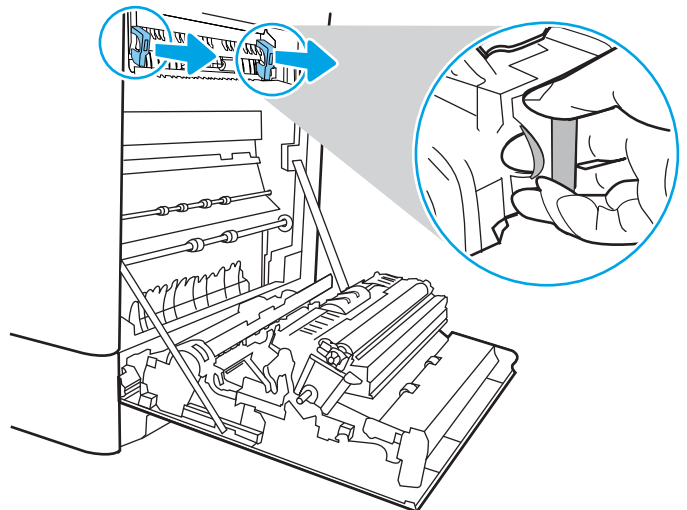
5. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.



6. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, squeeze the release levers, lift up slightly, and then pull straight out to remove the fuser.



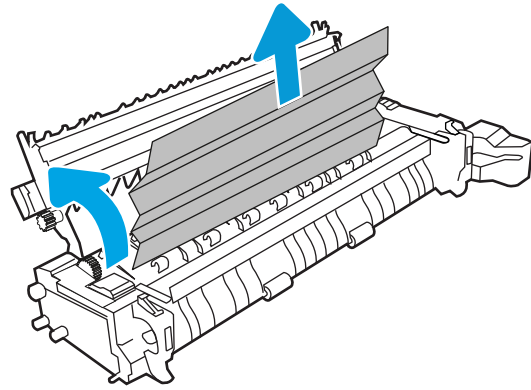
CAUTION: The fuser can be hot while the printer is in use. Wait for the fuser to cool before handling it.



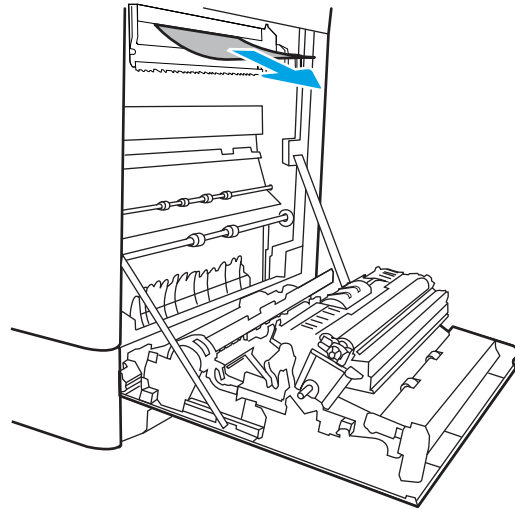
7. Open the jam-access door on the fuser. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.



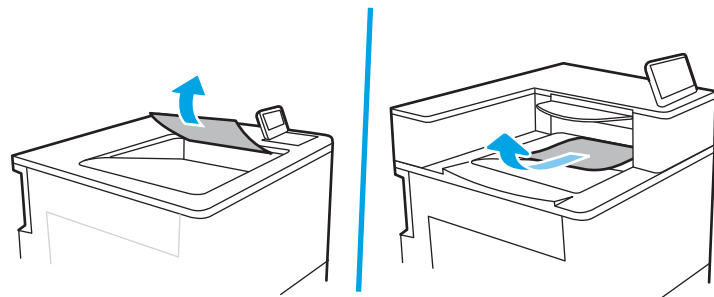
CAUTION: The fuser can be hot while the printer is in use. Wait for the fuser to cool before handling it.



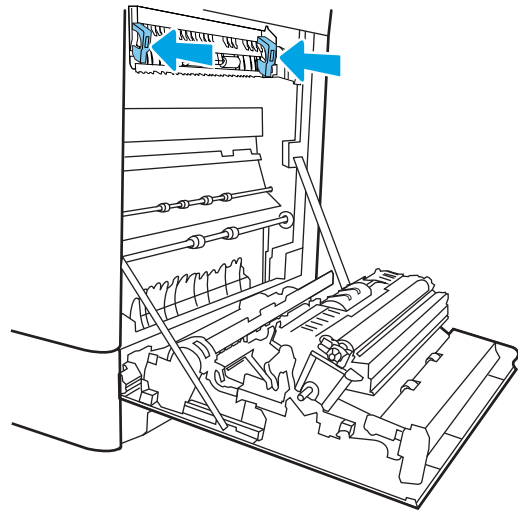
8. If paper is jammed as it enters the output bin, gently pull the paper out to remove it.



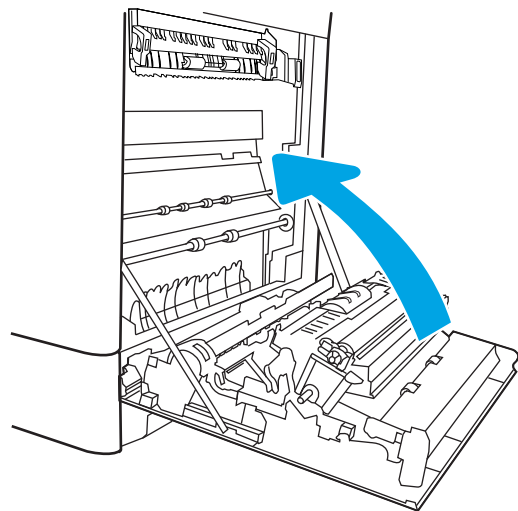
9. If paper is visible in the output bin, grasp the leading edge and gently remove it.



10. Close the jam-access door on the fuser, and push the fuser completely into the printer until it clicks into place.



11. Close the right door.



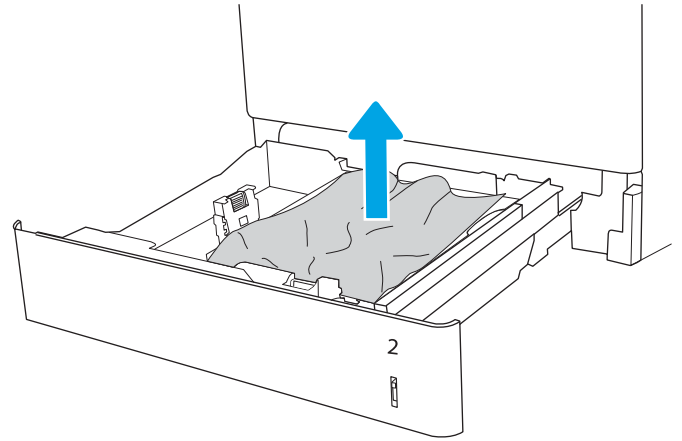
Clear paper jams in Tray 2 (13.A2)

Use the following procedure to check for paper in all possible jam locations related to Tray 2 and inside the right door.

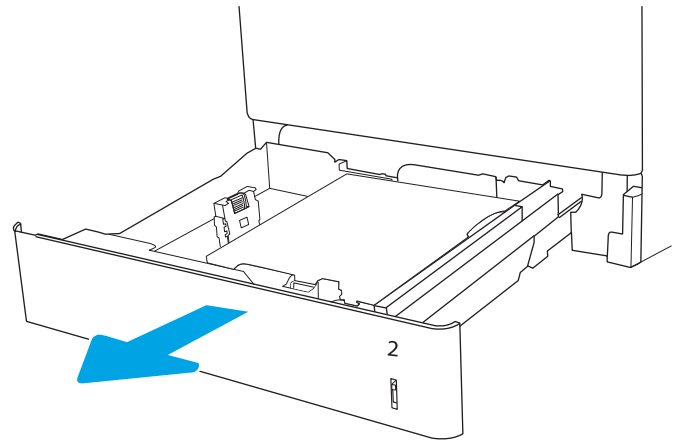
When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

- 13.A2.XX Jam in tray 2

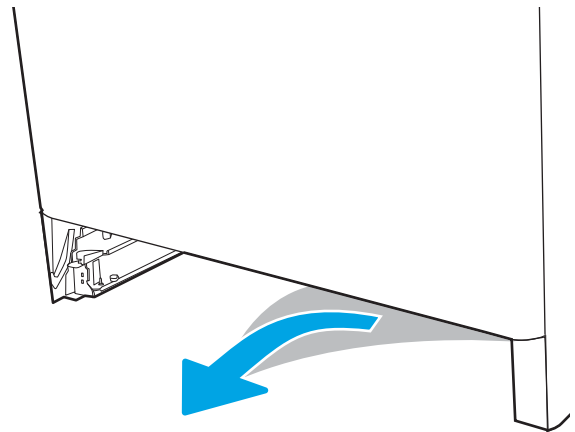
1. Open the tray and remove any jammed or damaged sheets of paper. Verify that the tray is not overfilled and that the paper guides are adjusted correctly.



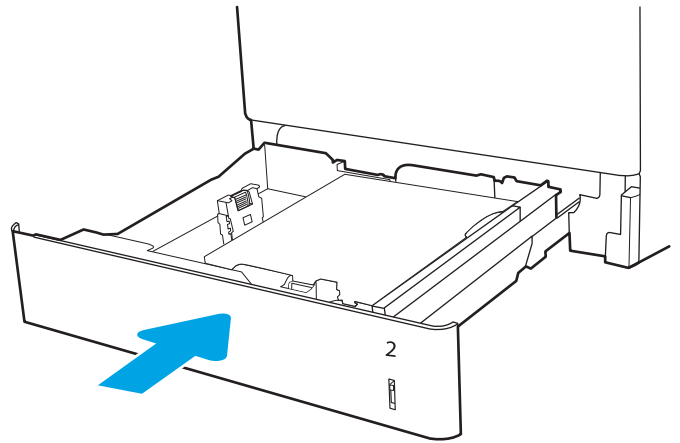
2. Pull the tray completely out of the printer by pulling and lifting it up slightly.



3. Gently remove any paper from the feed rollers inside the printer. First pull the paper to the left to release it, and then pull it forward to remove it.

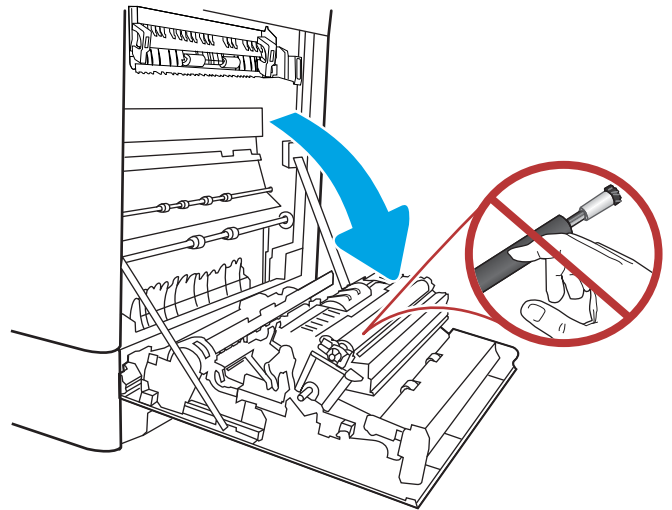


4. Install and close the tray.

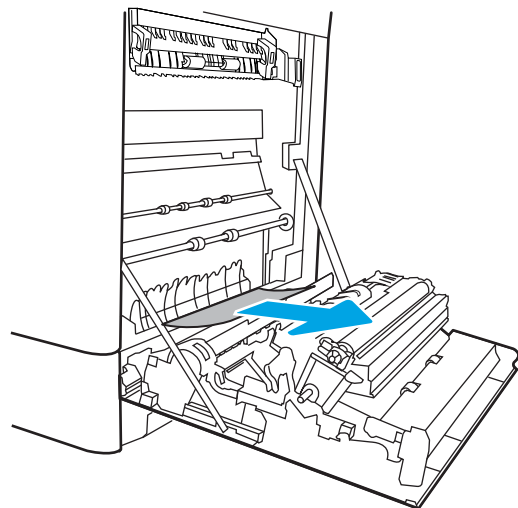


5. Open the right door.

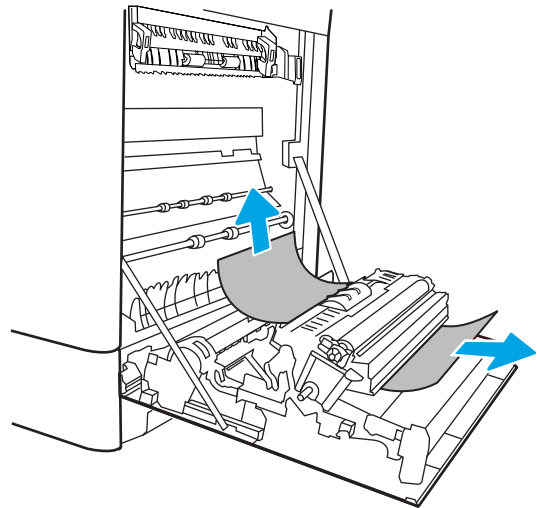
CAUTION: Do not touch the transfer roller. Contaminants can affect print quality.



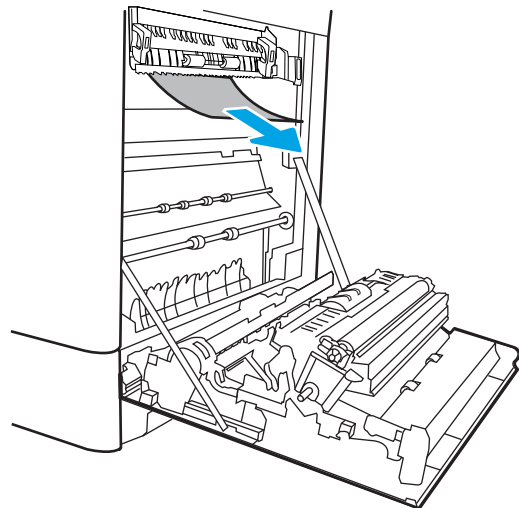
6. Gently pull out any jammed paper.



7. Gently pull out any jammed paper in the duplex area on the right door.



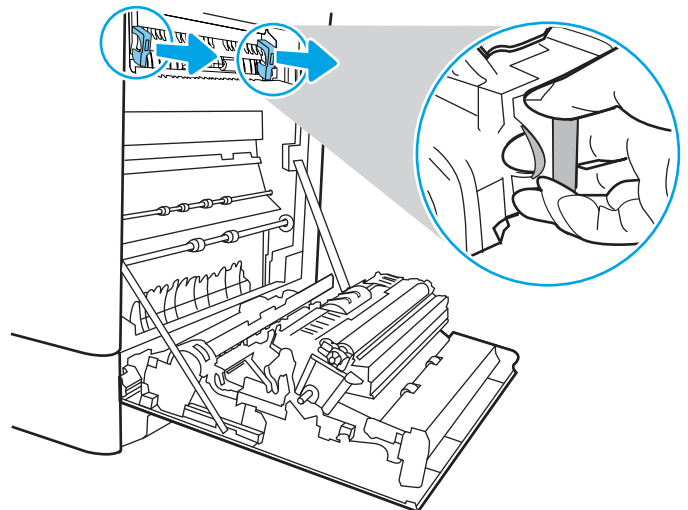
8. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.



9. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, squeeze the release levers, lift up slightly, and then pull straight out to remove the fuser.



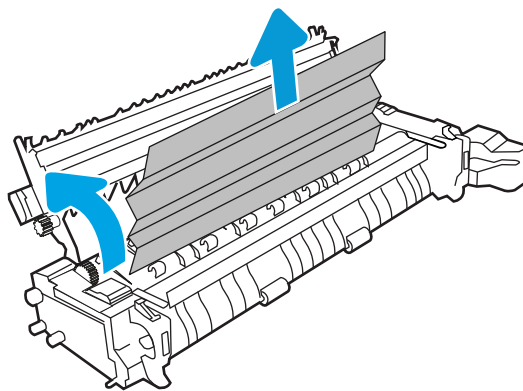
CAUTION: The fuser can be hot while the printer is in use. Wait for the fuser to cool before handling it.



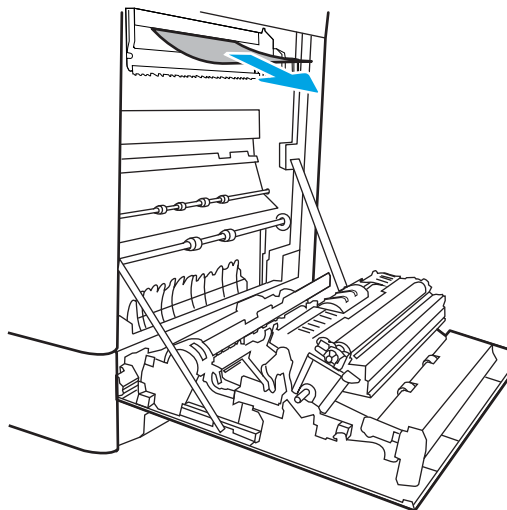
10. Open the jam-access door on the fuser. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.



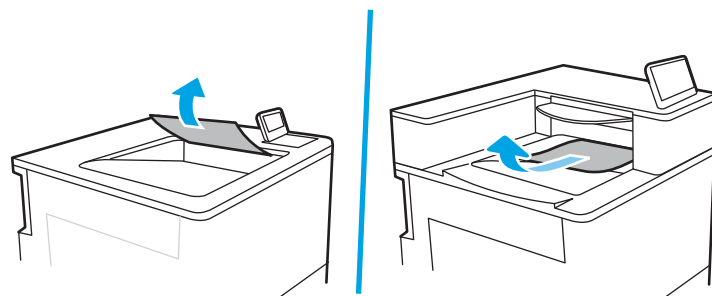
CAUTION: Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers.



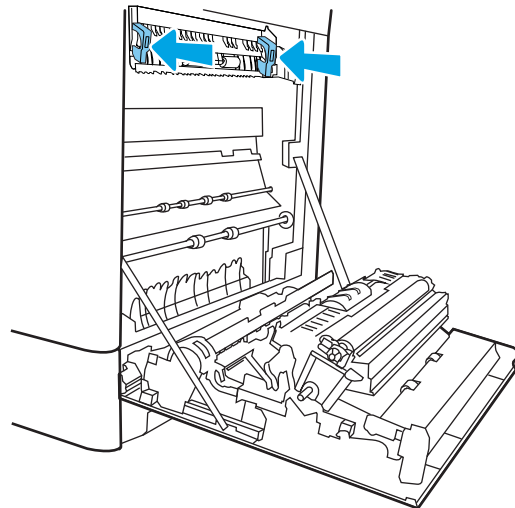
11. If paper is jammed as it enters the output bin, gently pull the paper out to remove it.



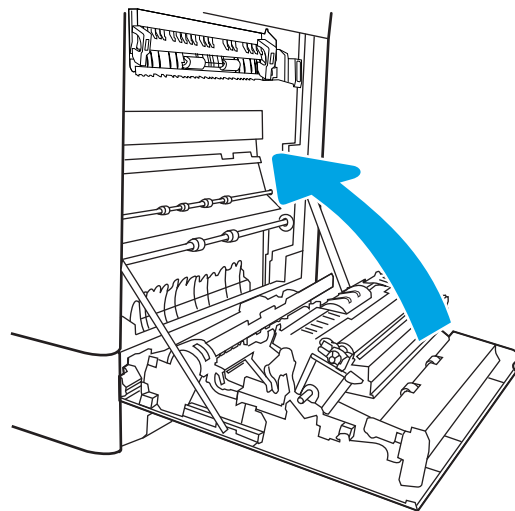
12. If paper is visible in the output bin, grasp the leading edge and gently remove it.



13. Close the jam-access door on the fuser, and push the fuser completely into the printer until it clicks into place.



14. Close the right door.



Clear jams in the fuser (13.B9, 13.B2, 13.FF)

Use the following procedure to check for paper in all possible jam locations inside the right door.

When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

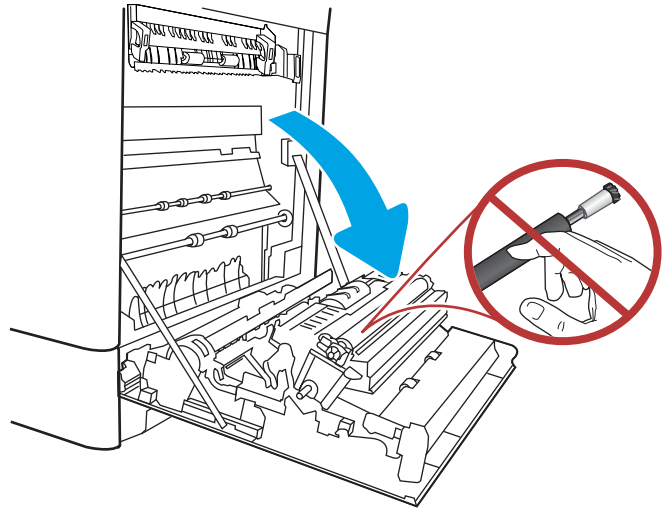
- 13.B9.XX Jam in fuser
- 13.B2.XX Jam in <Cover or Door>.
- 13.FF.EE Door Open Jam



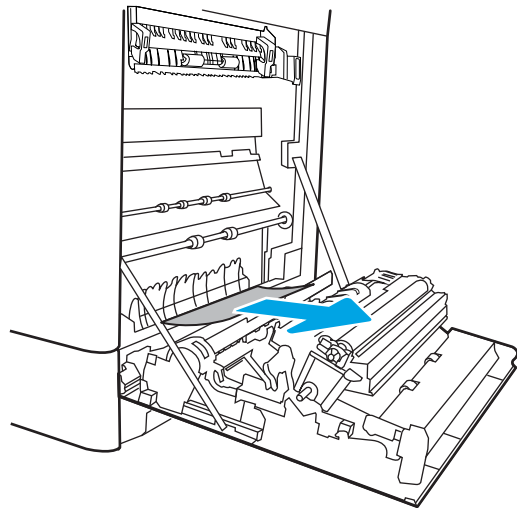
CAUTION: The fuser can be hot while the printer is in use. Wait for the fuser to cool before handling it.

1. Open the right door.

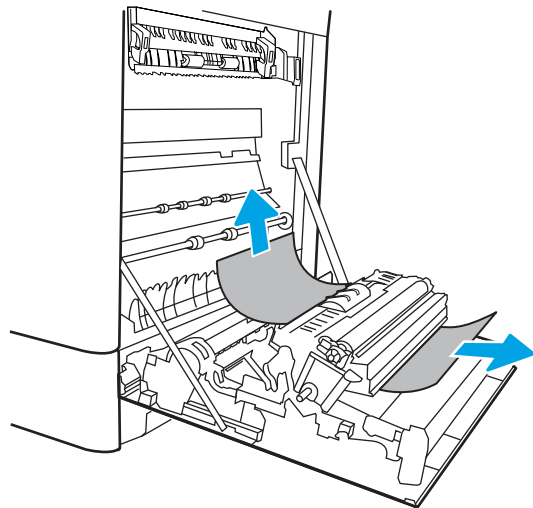
CAUTION: Do not touch the transfer roller. Contaminants can affect print quality.



2. Gently pull out any jammed paper.

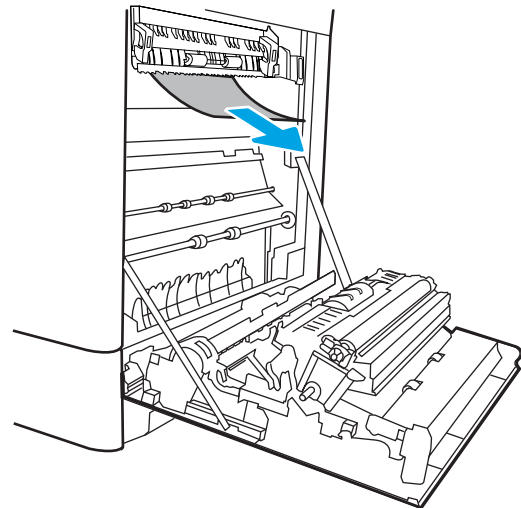


3. Gently pull out any jammed paper in the duplex area on the right door.



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

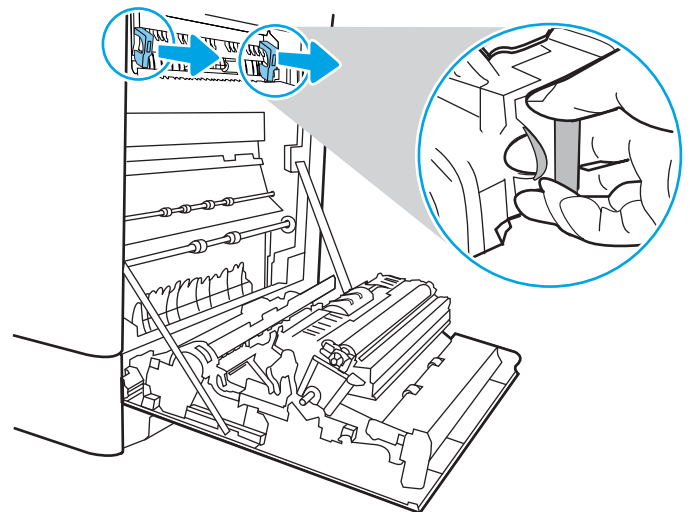
NOTE: Remove and reinstall the fuser to clear the jam condition on the fuser sensors.



5. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, squeeze the release levers, lift up slightly, and then pull straight out to remove the fuser.



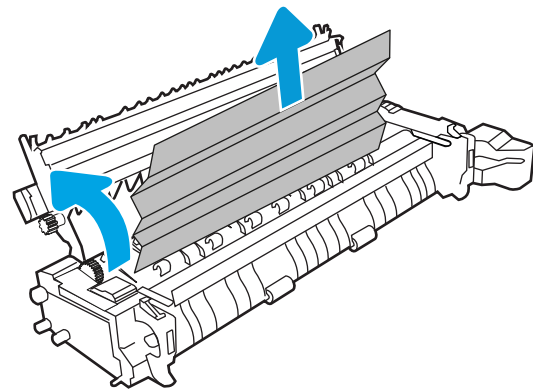
CAUTION: The fuser can be hot while the printer is in use. Wait for the fuser to cool before handling it.



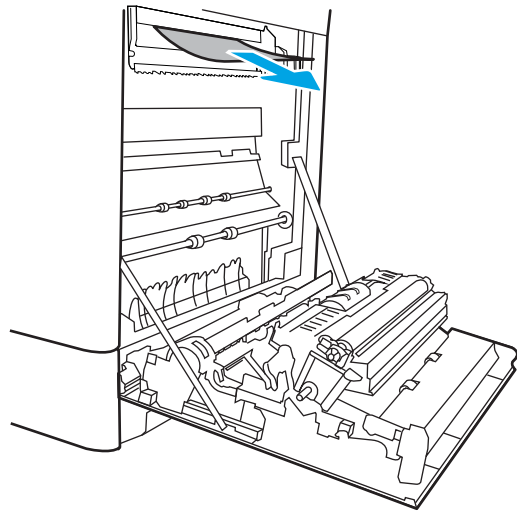
6. Open the jam-access door on the fuser. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.



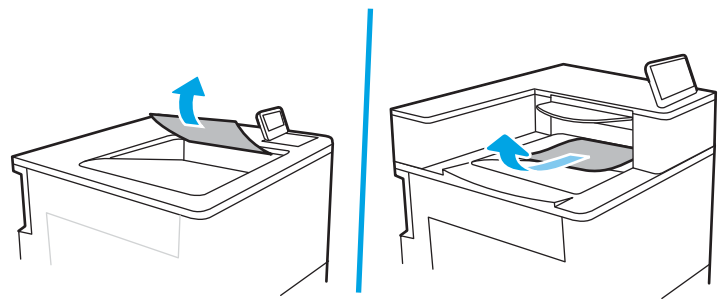
CAUTION: Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers.



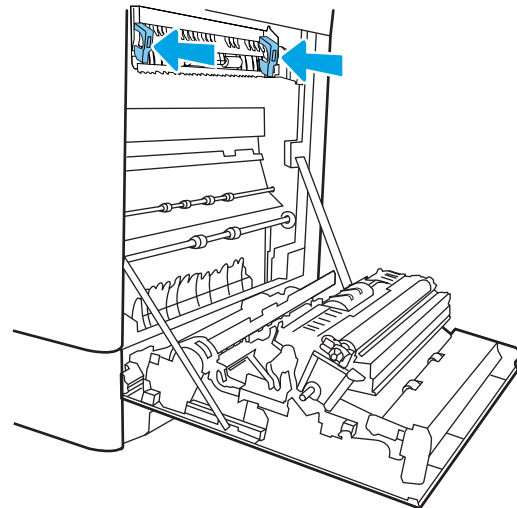
7. If paper is jammed as it enters the output bin, gently pull the paper out to remove it.



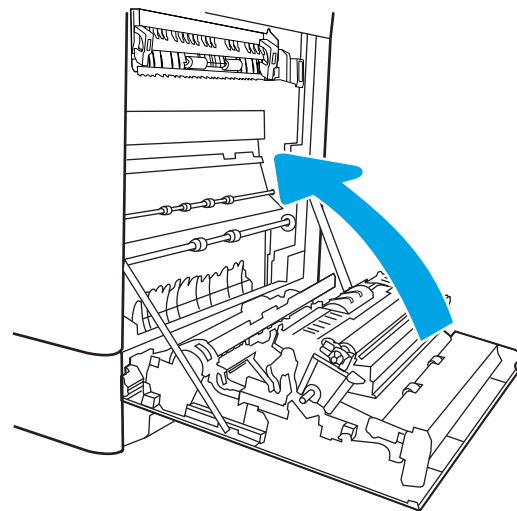
8. If paper is visible in the output bin, grasp the leading edge and gently remove it.



9. Close the jam-access door on the fuser, and push the fuser completely into the printer until it clicks into place.



10. Close the right door.



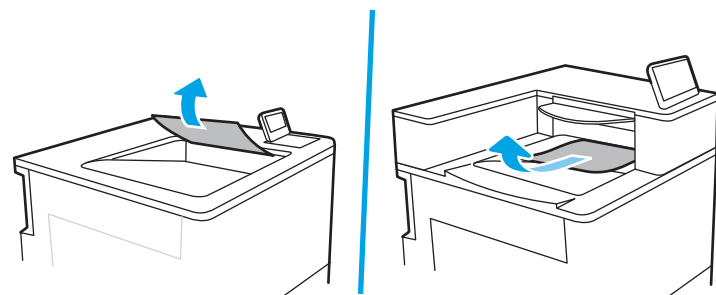
Clear paper jams in the output bin (13.E1)

Use the following procedure to clear jams in the output bin.

When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

- 13.E1.XX Jam at standard output bin

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



Clear jams in the duplex area (13.D3)

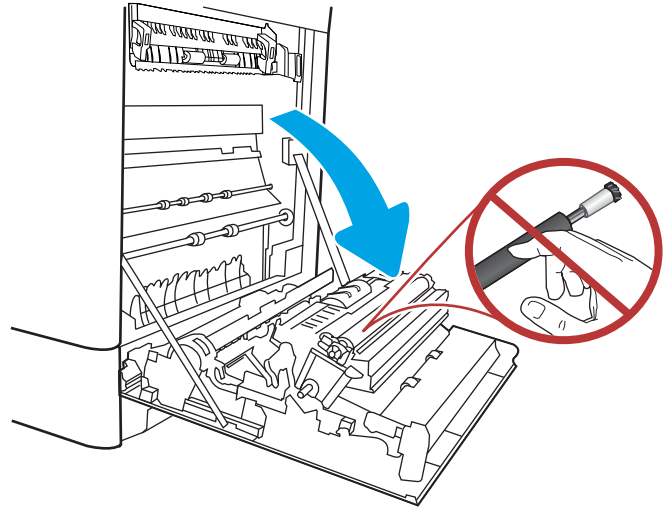
Use the following procedure to check for paper in all possible jam locations inside the right door.

When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

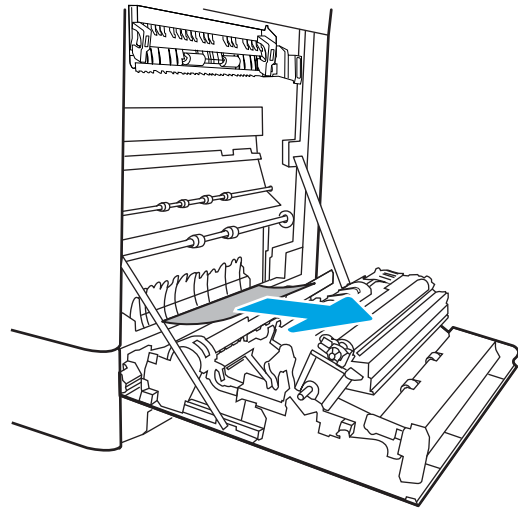
- 13.D3.XX Jam in duplex area

1. Open the right door.

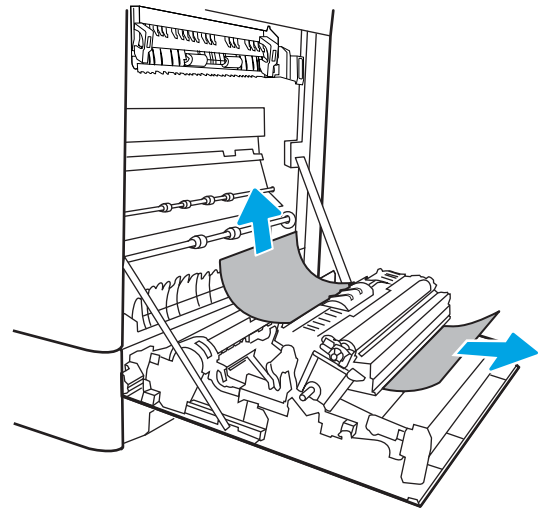
CAUTION: Do not touch the transfer roller.
Contaminants can affect print quality.



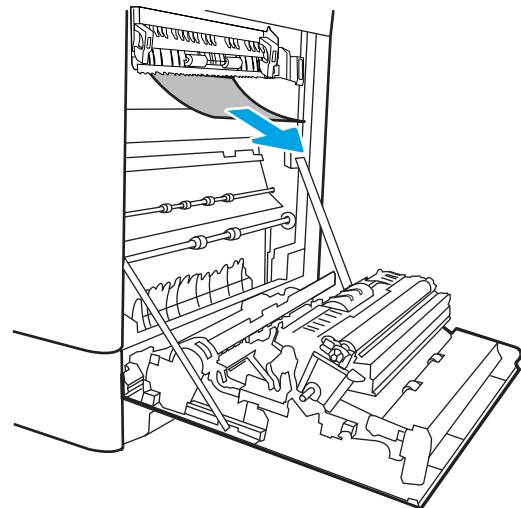
2. Gently pull out any jammed paper.



3. Gently pull out any jammed paper in the duplex area on the right door.



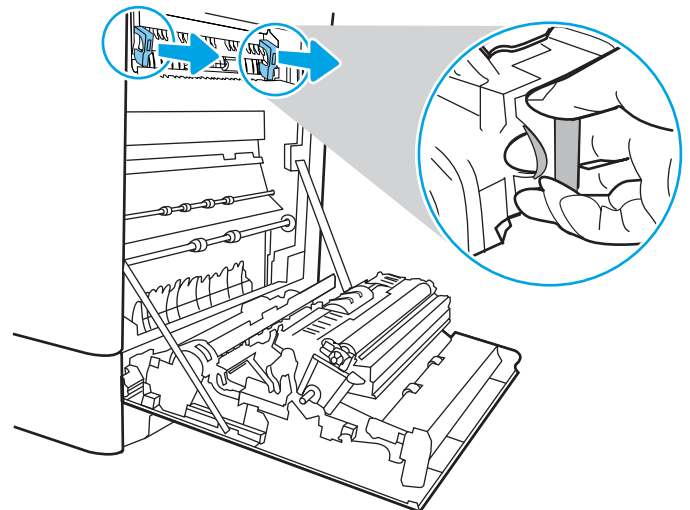
4. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.



5. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, squeeze the release levers, lift up slightly, and then pull straight out to remove the fuser.



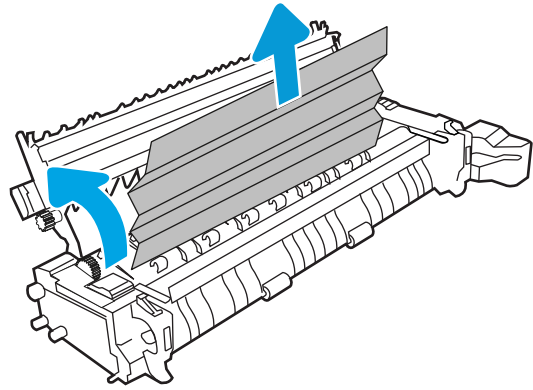
CAUTION: The fuser can be hot while the printer is in use. Wait for the fuser to cool before handling it.



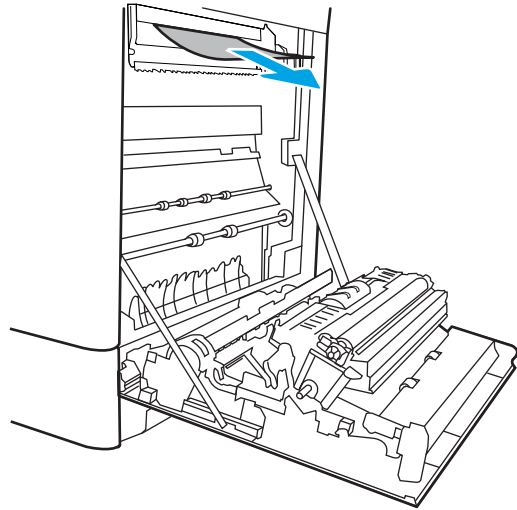
6. Open the jam-access door on the fuser. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.



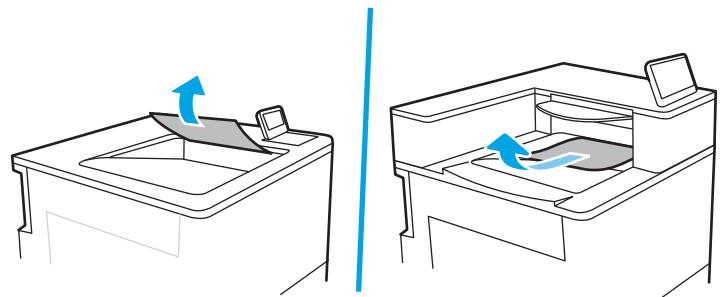
CAUTION: Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers.



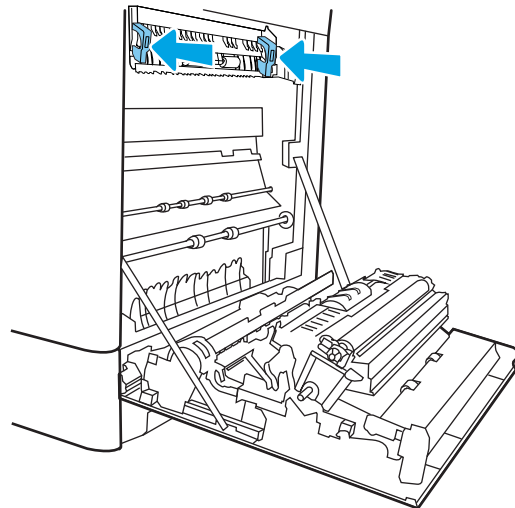
7. If paper is jammed as it enters the output bin, gently pull the paper out to remove it.



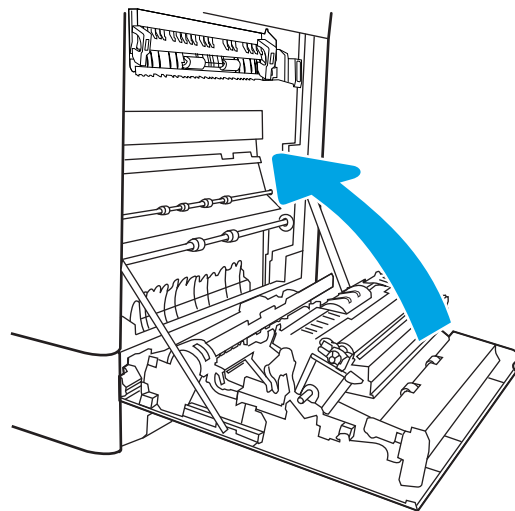
8. If paper is visible in the output bin, grasp the leading edge and gently remove it.



9. Close the jam-access door on the fuser, and push the fuser completely into the printer until it clicks into place.



10. Close the right door.



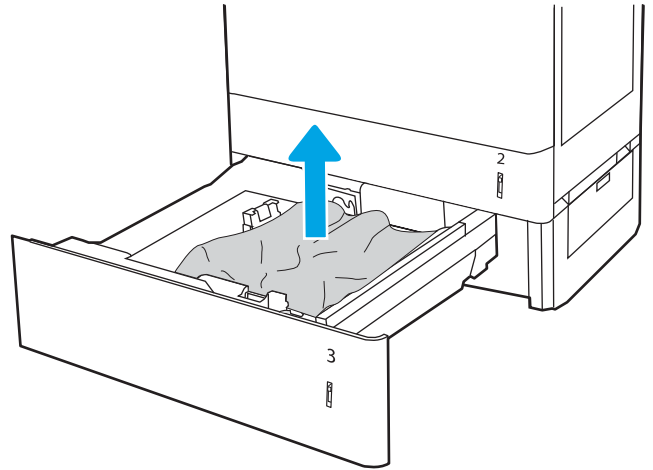
Clear paper jams in the 550-sheet paper tray (13.A3, 13.A4)

Use the following procedure to check for paper in all possible jam locations related to the 550-sheet paper tray and inside the right door.

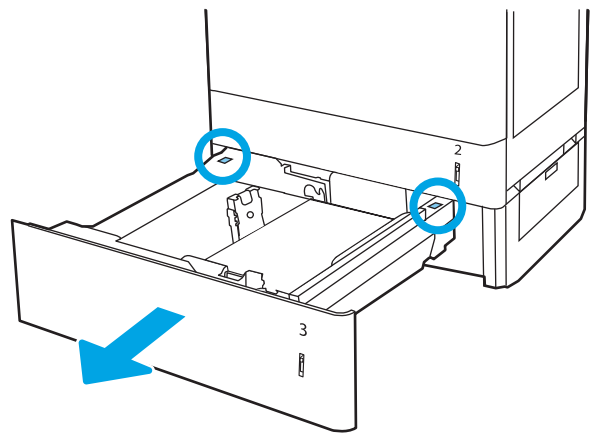
When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

- 13.A3.XX Jam in tray 3
- 13.A4.XX Jam in tray 4

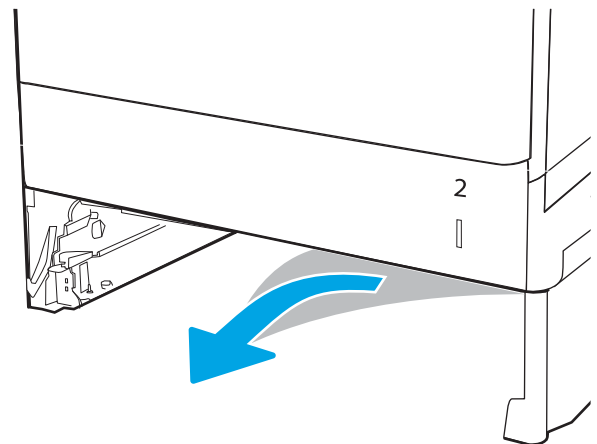
1. Open the tray and remove any jammed or damaged sheets of paper. Verify that the tray is not overfilled and that the paper guides are adjusted correctly.



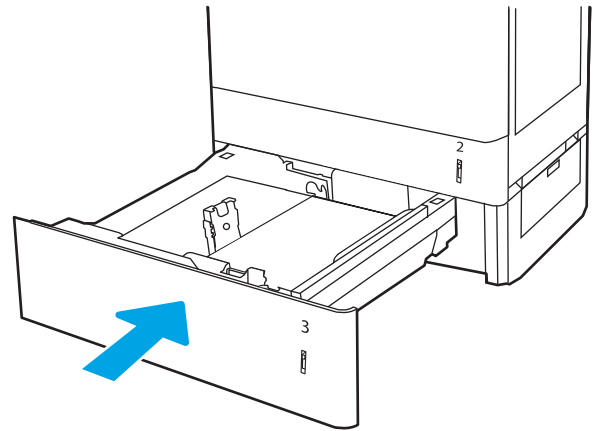
2. Release two tabs at the back of the tray, and then pull the tray completely out of the printer.



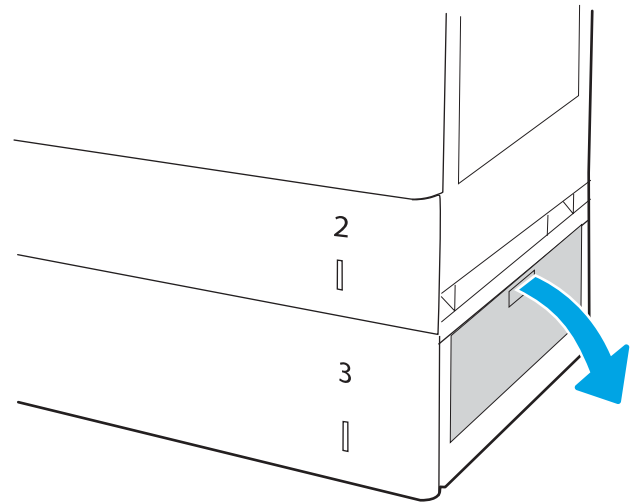
3. Remove any paper from the feed rollers inside the printer. First pull the paper to the left to release it, and then pull it forward to remove it.



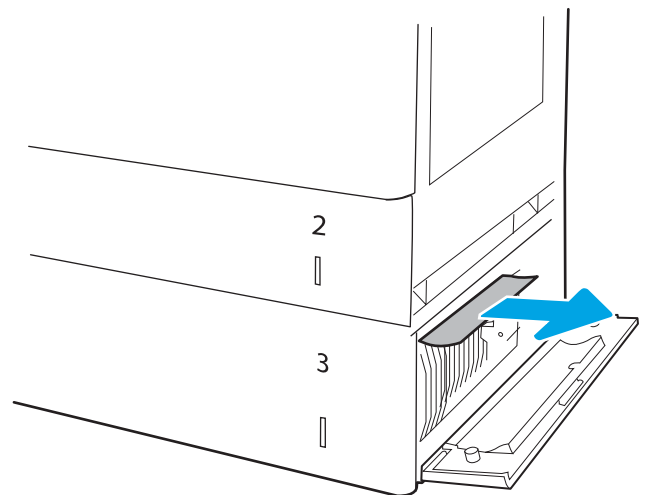
4. Install and close the tray.



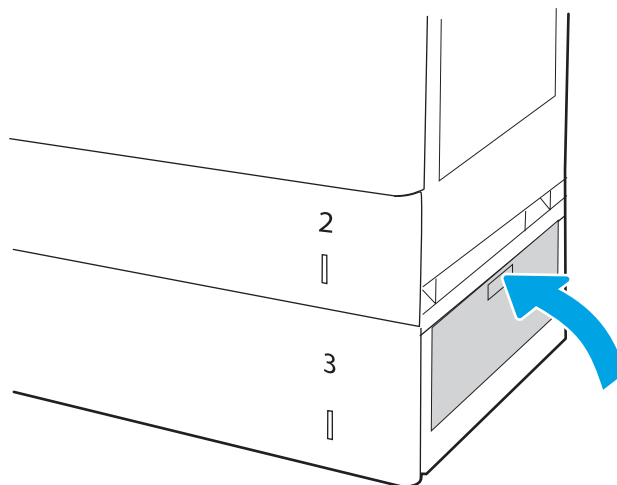
5. Open the lower-right door.



6. Gently pull out any jammed paper.

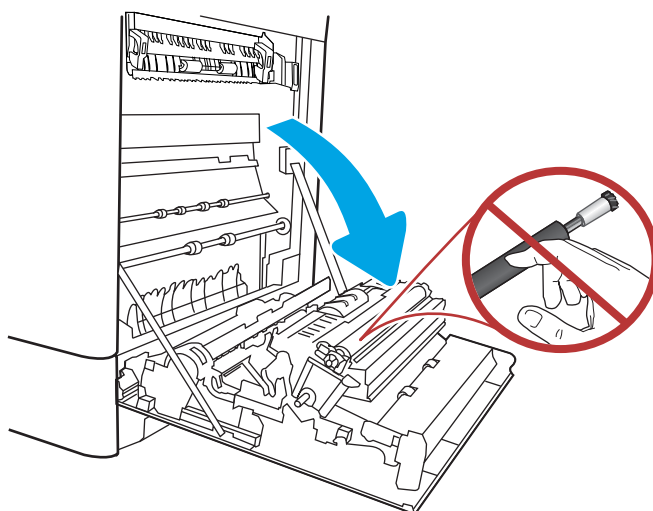


7. Close the lower-right door.

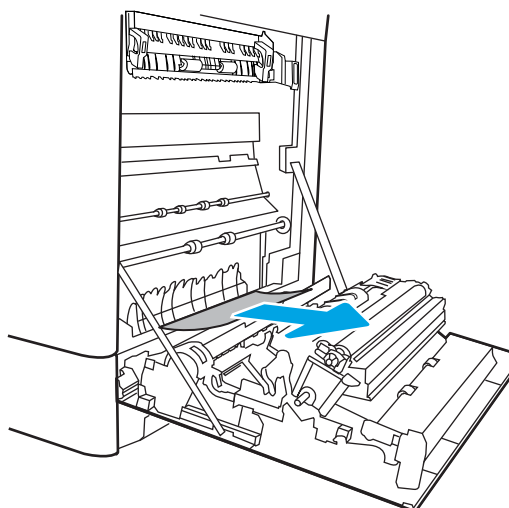


8. Open the right door.

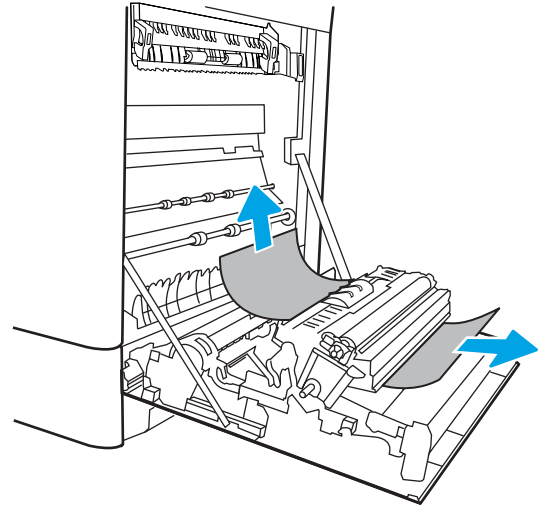
CAUTION: Do not touch the transfer roller. Contaminants can affect print quality.



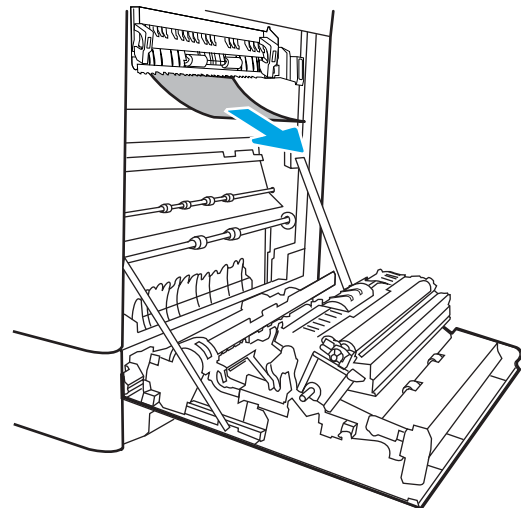
9. Gently pull out any jammed paper.



10. Gently pull out any jammed paper in the duplex area on the right door.



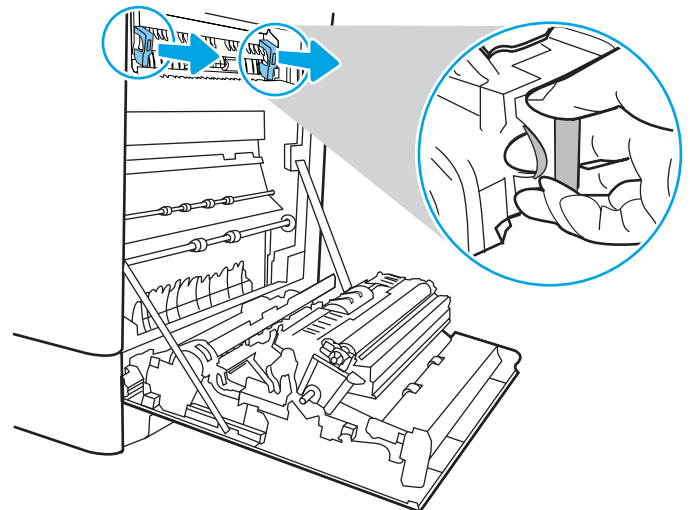
11. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.



12. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, squeeze the release levers, lift up slightly, and then pull straight out to remove the fuser.



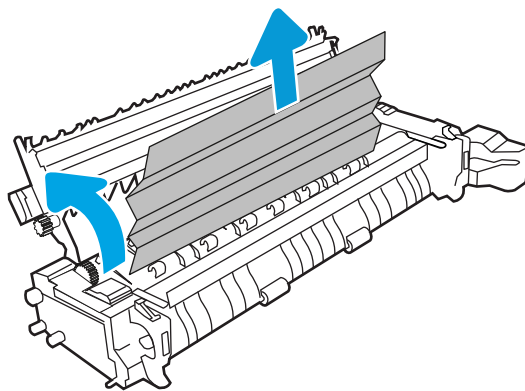
CAUTION: The fuser can be hot while the printer is in use. Wait for the fuser to cool before handling it.



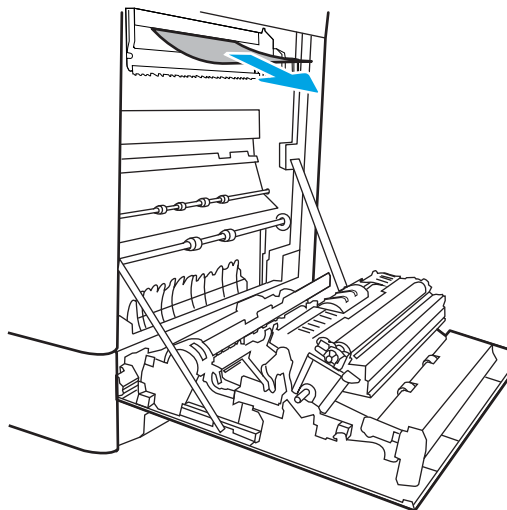
13. Open the jam-access door on the fuser. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.



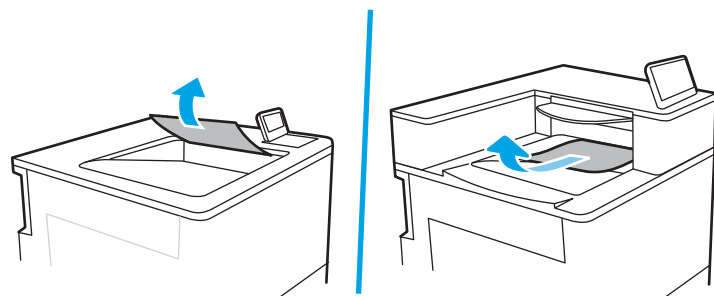
CAUTION: Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers.



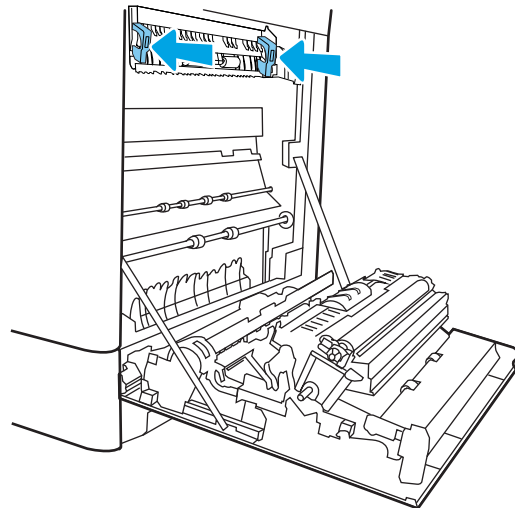
14. If paper is jammed as it enters the output bin, gently pull the paper out to remove it.



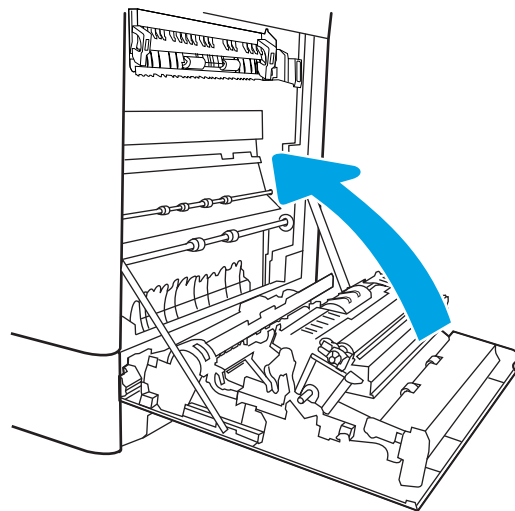
15. If paper is visible in the output bin, grasp the leading edge and gently remove it.



16. Close the jam-access door on the fuser, and push the fuser completely into the printer until it clicks into place.



17. Close the right door.



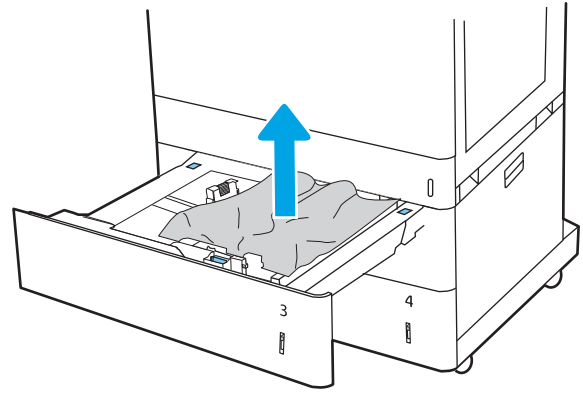
Clear paper jams in the 2x550-sheet paper tray and stand (13.A4, 13.A5)

Use the following procedure to check for paper in all possible jam locations related to the 2x550-sheet paper tray and stand and inside the right door.

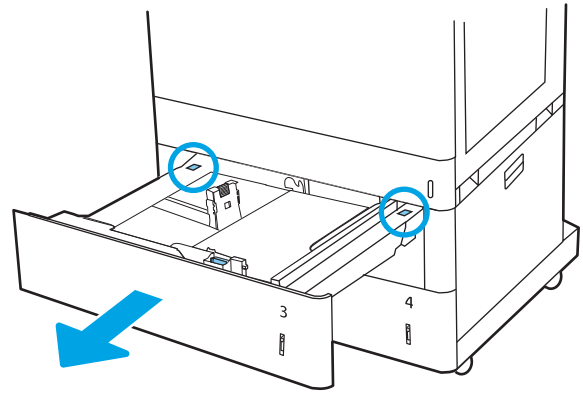
When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

- 13.A4.XX Jam in tray 4
- 13.A5.XX Jam in tray 5

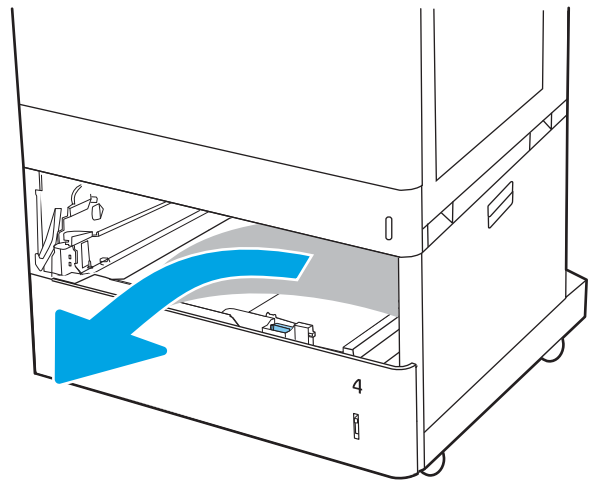
1. Open the tray and remove any jammed or damaged sheets of paper. Verify that the tray is not overfilled and that the paper guides are adjusted correctly.



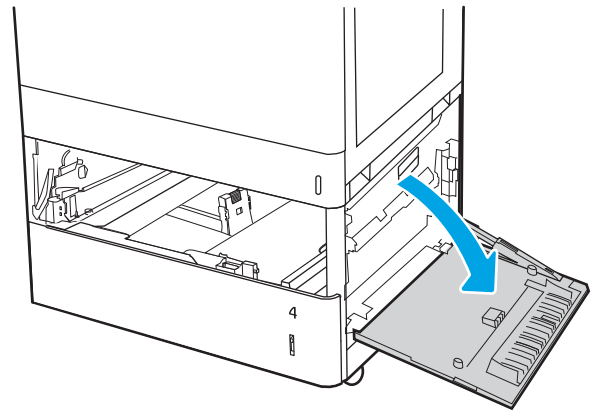
2. Release two tabs at the back of the tray, and then pull the tray completely out of the printer.



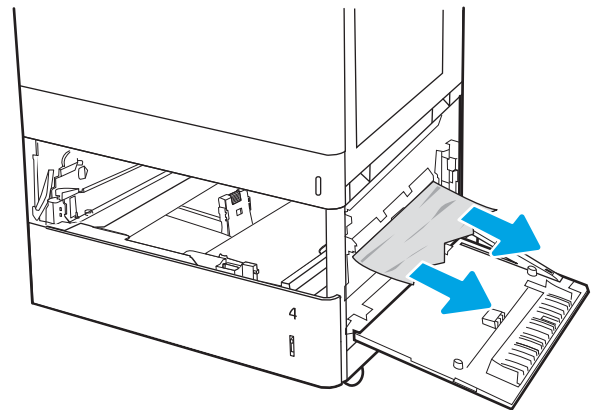
3. Remove the jammed paper from the feed rollers inside the printer. First pull the paper to the left, and then pull it forward to remove it.



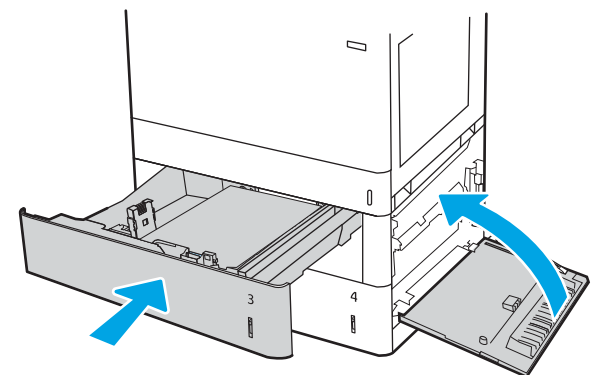
4. Open the lower-right door.



5. Gently pull out any jammed paper.

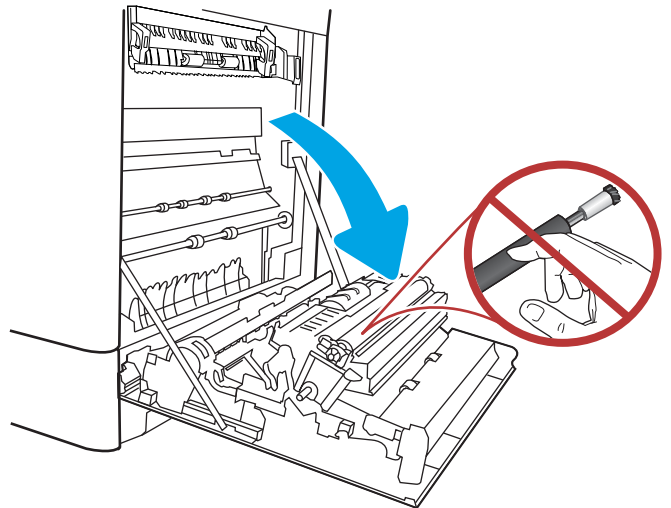


6. Close the lower-right door, and then install and close the tray.

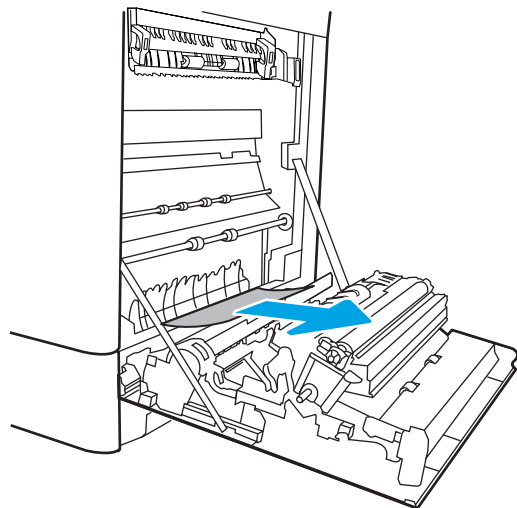


7. Open the right door.

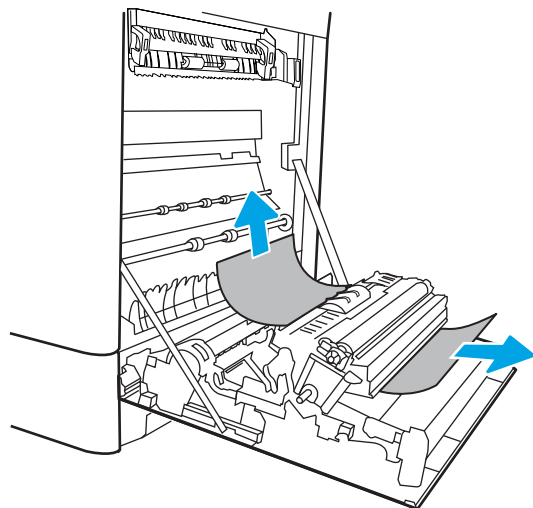
CAUTION: Do not touch the transfer roller. Contaminants can affect print quality.



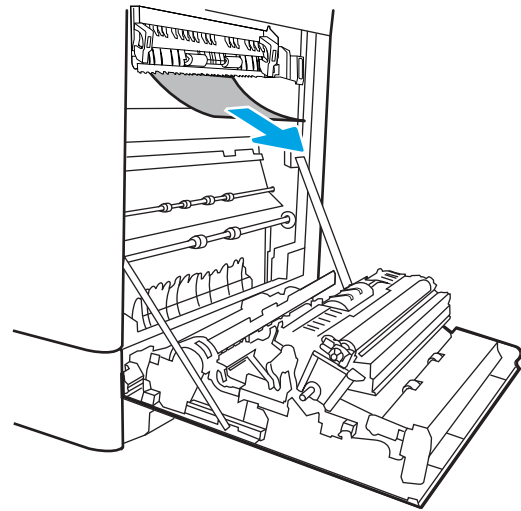
8. Gently pull out any jammed paper.



9. Gently pull out any jammed paper in the duplex area on the right door.



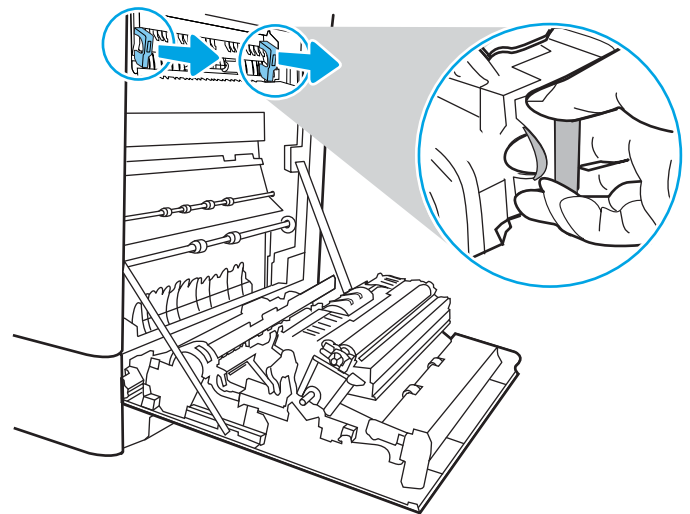
10. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.



11. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, squeeze the release levers, lift up slightly, and then pull straight out to remove the fuser.



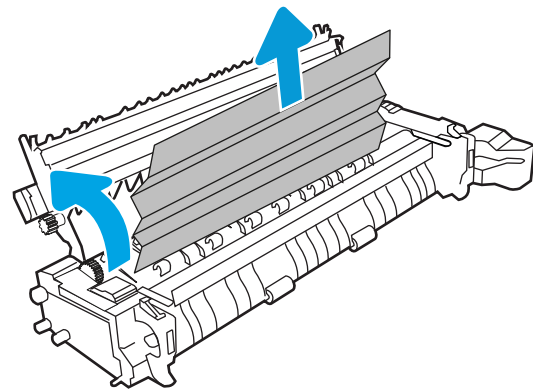
CAUTION: The fuser can be hot while the printer is in use. Wait for the fuser to cool before handling it.



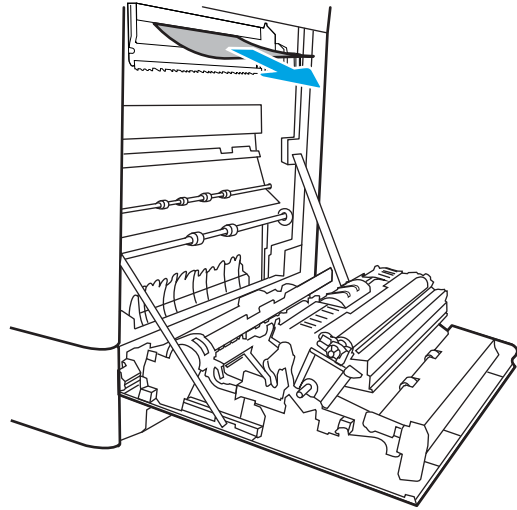
12. Open the jam-access door on the fuser. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.



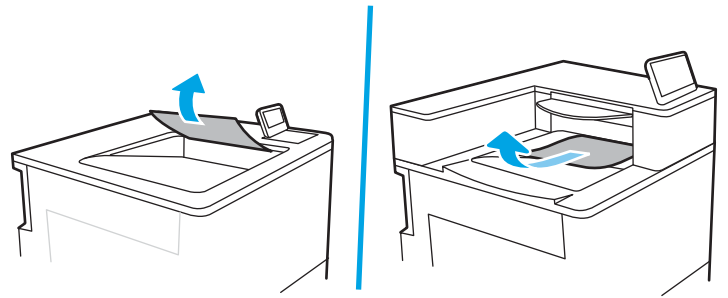
CAUTION: Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers.



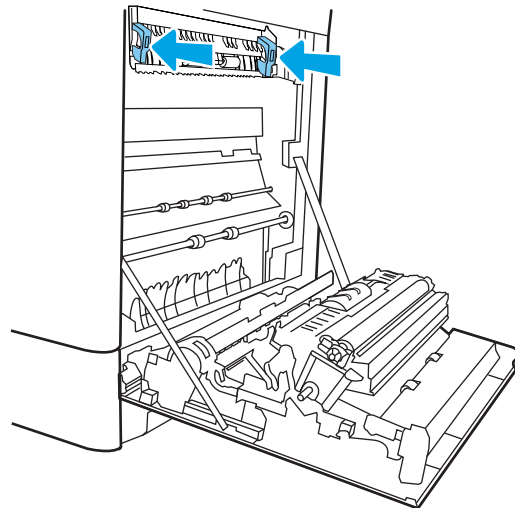
13. If paper is jammed as it enters the output bin, gently pull the paper out to remove it.



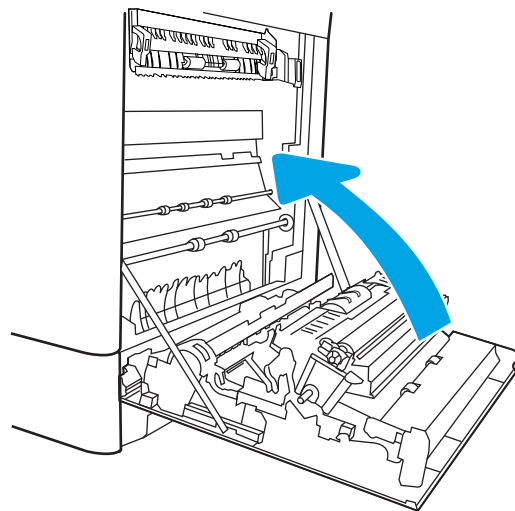
14. If paper is visible in the output bin, grasp the leading edge and gently remove it.



15. Close the jam-access door on the fuser, and push the fuser completely into the printer until it clicks into place.



16. Close the right door.

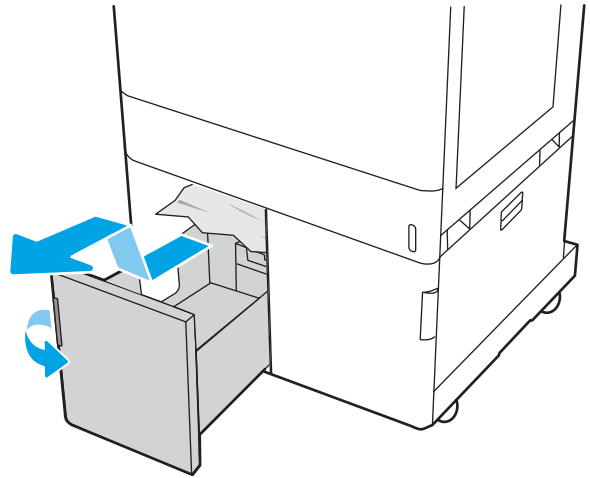


Clear paper jams in the 2,700-sheet HCl paper tray and stand (13.A3, 13.A4, 13.A5, 13.A7)

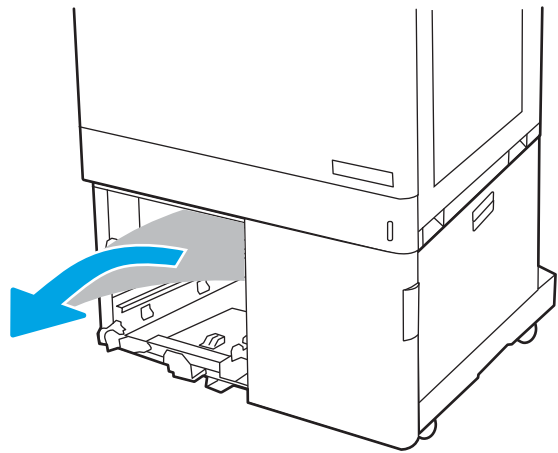
Use the following procedure to check for paper in all possible jam locations related to the 2,700-sheet HCl paper tray and stand and inside the right door.

When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

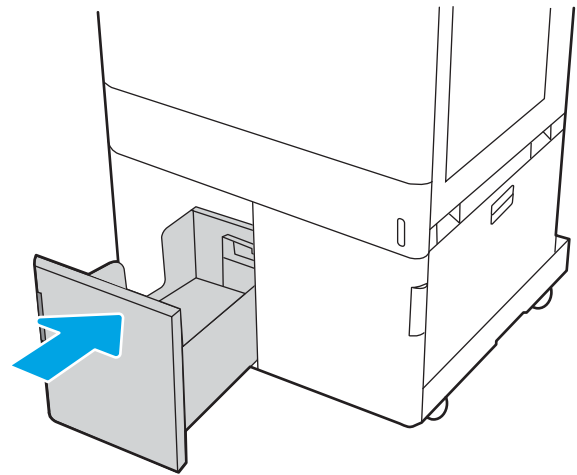
1. Release the tray latch on the left HCI tray. Slide the tray away from the printer until it stops, and then lift it up and away from the printer to remove it.



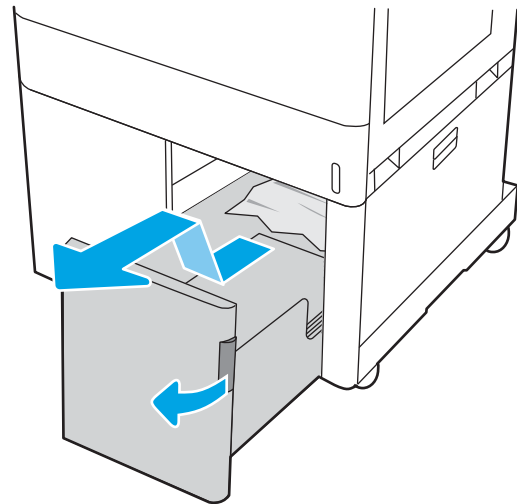
2. Remove any jammed paper from the feed rollers inside the printer. First pull the paper to the left, and then pull it forward to remove it.



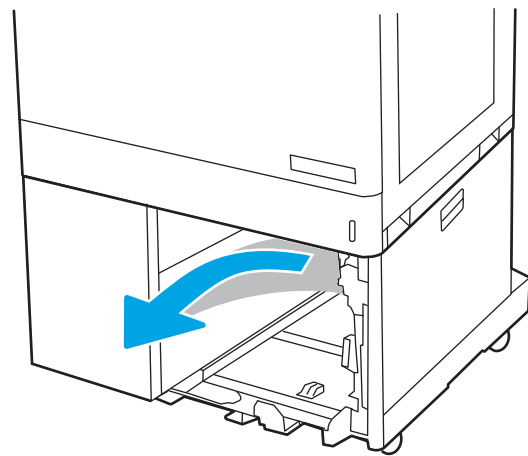
3. Install and close the left HCI tray.



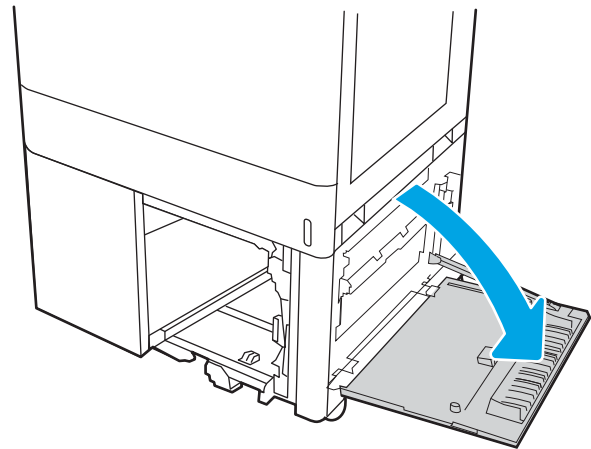
4. Release the tray latch on the right HCl tray. Slide the tray away from the printer until it stops, and then lift it up and away from the printer to remove it.



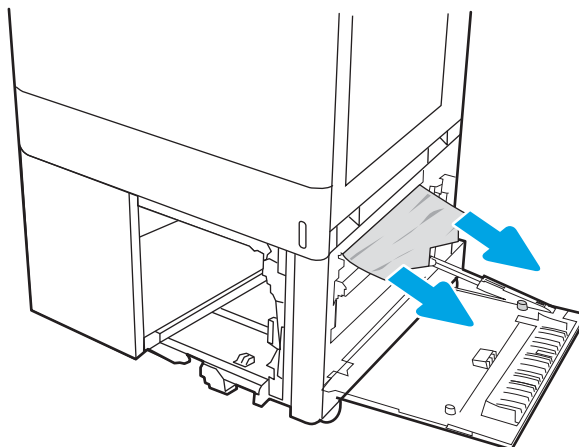
5. Remove any jammed paper from the feed rollers inside the printer. First pull the paper to the left, and then pull it forward to remove it.



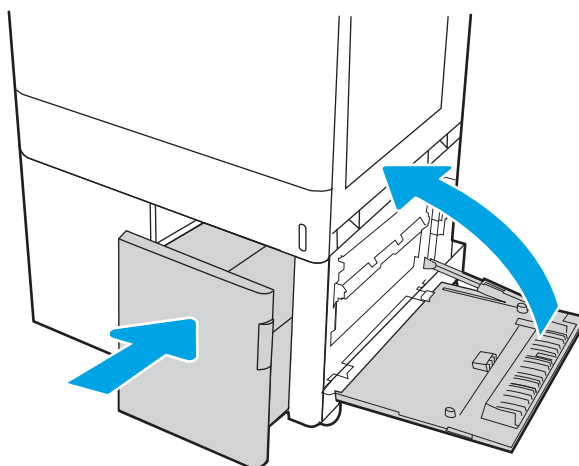
6. Open the lower-right door.



7. Remove any damaged sheets.

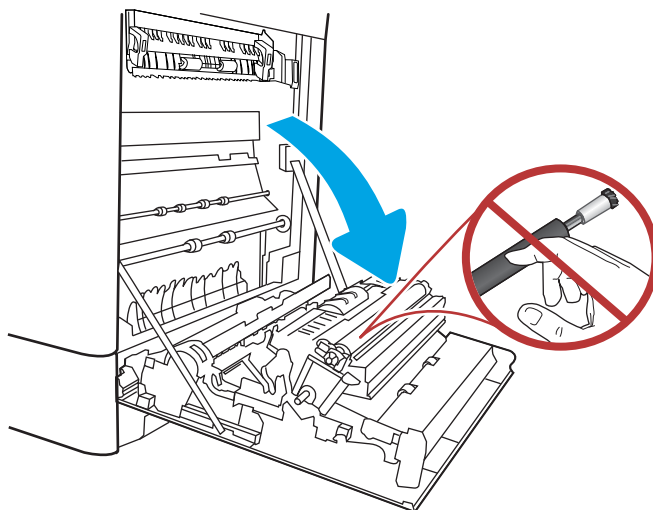


8. Close the lower-right door, and then install and close the right HCl tray.

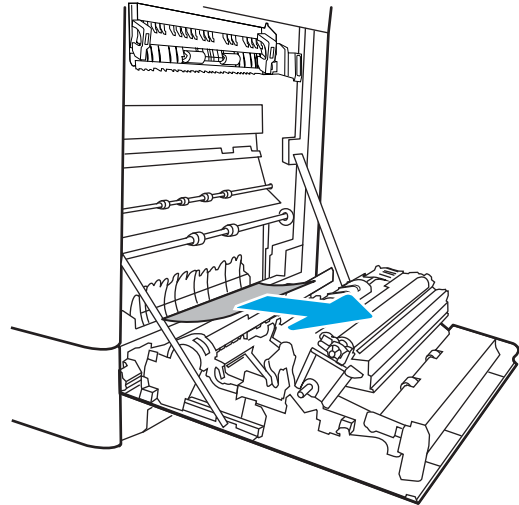


9. Open the right door.

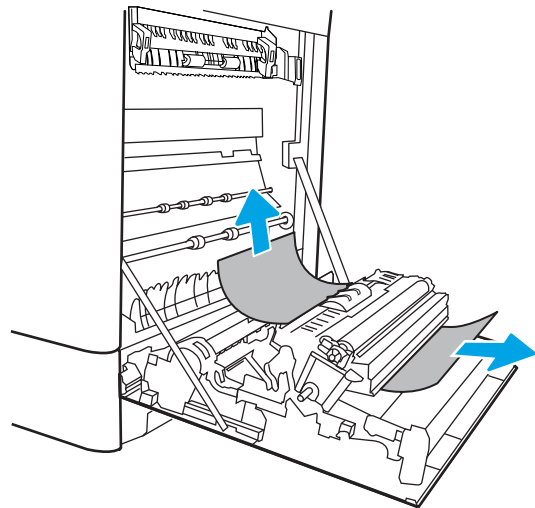
CAUTION: Do not touch the transfer roller. Contaminants can affect print quality.



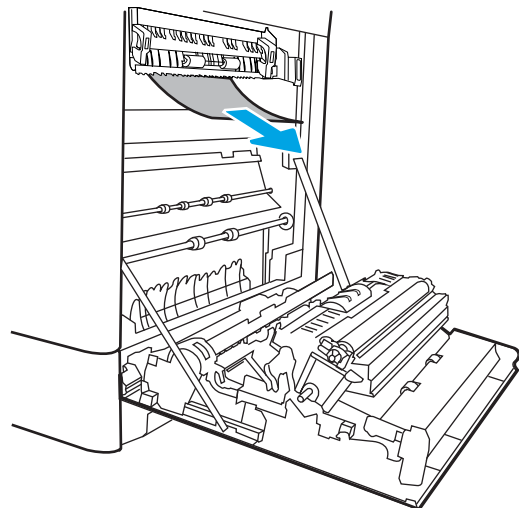
10. Gently pull out any jammed paper.



11. Gently pull out any jammed paper in the duplex area on the right door.



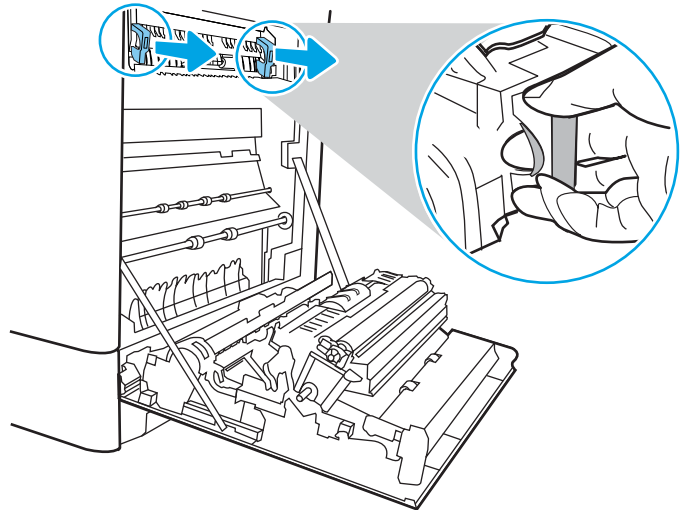
12. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.



13. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, squeeze the release levers, lift up slightly, and then pull straight out to remove the fuser.



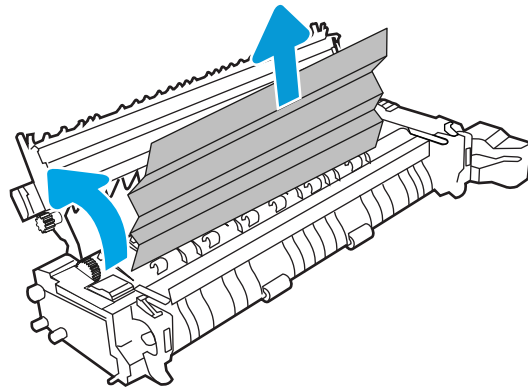
CAUTION: The fuser can be hot while the printer is in use. Wait for the fuser to cool before handling it.



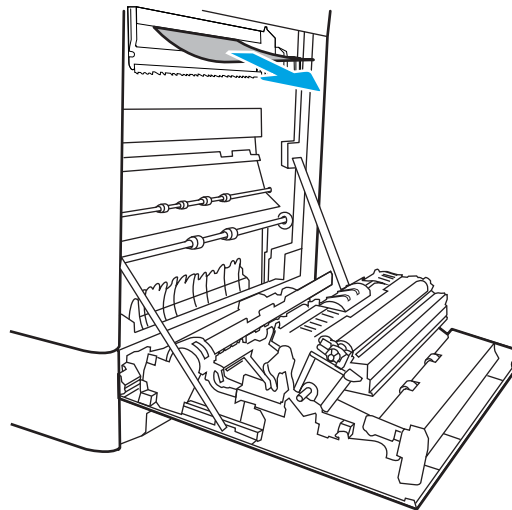
14. Open the jam-access door on the fuser. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.



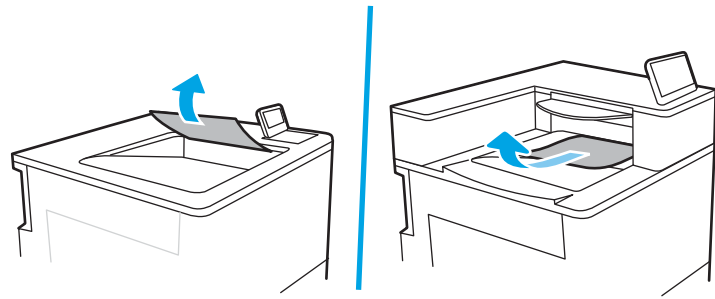
CAUTION: Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers.



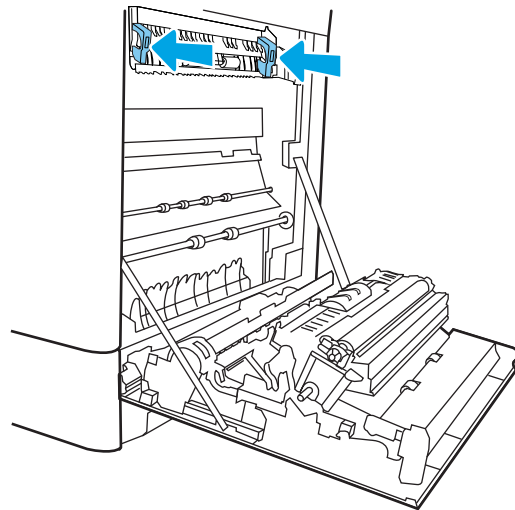
15. If paper is jammed as it enters the output bin, gently pull the paper out to remove it.



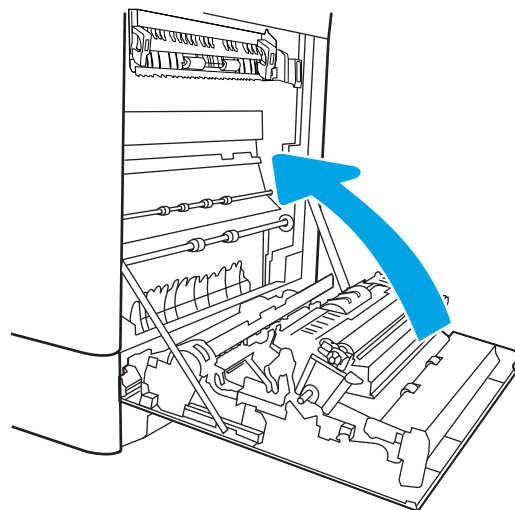
16. If paper is visible in the output bin, grasp the leading edge and gently remove it.



17. Close the jam-access door on the fuser, and push the fuser completely into the printer until it clicks into place.



18. Close the right door.



Change jam recovery from the control panel

Use the following procedure to change jam recovery from the control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Settings](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [General](#), and then press the [OK](#) button.

3. Use the down arrow ▼ button to scroll to [Jam Recovery](#), and then press the [OK](#) button.
4. Use the down arrow ▼ button to scroll to an option, and then press the [OK](#) button to select it.
 - [Auto](#) — The printer attempts to reprint jammed pages when sufficient memory is available. This is the default setting.
 - [Off](#) — The printer does not attempt to reprint jammed pages. Because no memory is used to store the most recent pages, performance is optimal.




NOTE: Some pages can be lost if the printer runs out of paper while printing a duplex job with Jam Recovery set to [Off](#).

- [On](#) — The printer always reprints jammed pages. Additional memory is allocated to store the last few pages printed.

Solve performance problems

Review the following information and procedures to solve performance problems.

 **NOTE:** Tray 1 and Tray 2 are optimal for paper pickup when using special paper or media other than 20lb plain paper. For Tray 1 and Tray 2 the printer increases the number of attempts to pick up a page, which increases the reliability of successfully picking the page from the tray and decreases the possibility of a mis-pick jam.

HP recommends using Tray 1 or Tray 2 if the printer is experiencing excessive or reoccurring jams from trays other than Tray 1 and Tray 2, or for print jobs that require media other than 20lb plain paper.

Factors affecting print performance

Review the following information about factors affecting print performance.

Table 2-82 Solve performance problems

Problem	Cause	Solution
Pages print but are totally blank.	The document might contain blank pages.	Check the original document to see if content is present on all of the pages.
Pages print but are totally blank.	The printer might be malfunctioning.	To check the printer, print a Configuration page.
Pages print but are totally blank.	Make sure that the printer is not feeding multiple pages (especially if very thin paper is used).	Make sure that the paper meets HP specifications for this printer. For a complete list of specific HP-brand paper that this printer supports, go to http://www.hp.com/support/colorljM751 or http://www.hp.com/support/colorljE75245 or http://www.hp.com/support/colorljM856 or http://www.hp.com/support/colorljE85055 or http://www.hp.com/support/colorljM776MFP .
Pages print very slowly. NOTE: Some software programs process print jobs slowly.	Heavier paper types can slow the print job.	Print on a different type of paper.
Pages print very slowly. NOTE: Some software programs process print jobs slowly.	Complex pages can print slowly.	Proper fusing might require a slower print speed to ensure the best print quality.
Pages print very slowly. NOTE: Some software programs process print jobs slowly.	Large batches, narrow paper, and special paper such as gloss, transparency, cardstock, and HP Tough Paper can slow the print job.	Print in smaller batches, on a different type of paper, or on a different size of paper.
Pages did not print.	The printer might not be pulling paper correctly.	Make sure paper is loaded in the tray correctly.
Pages did not print.	The paper is jamming in the printer.	Clear the jam.
Pages did not print.	The USB cable might be defective or incorrectly connected.	<ul style="list-style-type: none">• Disconnect the USB cable at both ends and reconnect it.• Try printing a job that has printed in the past.• Try using a different USB cable.

Table 2-82 Solve performance problems (continued)

Problem	Cause	Solution
Pages did not print.	Other devices are running on the host computer.	The printer might not share a USB port. If an external hard drive or network switchbox is connected to the same port as the printer, the other device might be interfering with the printer. To connect and use the printer, disconnect the other device or use two USB ports on the host computer.
Pages did not print.	The print job might not have arrived at the printer.	Check the printer status queue. Also, the Printing message should appear on the control panel display.

Print speeds

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

- Page formatting time

The printer must pause for each page to be formatted before it prints. Complex pages take more time to format, resulting in reduced print speed. However, most jobs print at full engine speed.

- Media size

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

- Media mode

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

- Printer temperature

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

- Other print speed reduction factors

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

- Density control sequence; occurs every 150 pages and takes about 120 seconds

The printer does not print

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

1. Make sure the printer is turned on and that the control panel indicates it is ready.

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

The printer prints slowly

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

1. Make sure the computer meets the minimum specifications for this printer. For a list of specifications, go to this Web site: <http://www.hp.com/support/colorljM751> or <http://www.hp.com/support/colorljE75245> or <http://www.hp.com/support/colorljM856> or <http://www.hp.com/support/colorljE85055> or <http://www.hp.com/support/colorljM776MFP>.
2. When the printer is configured to print on some paper types, such as heavy paper, the printer prints more slowly so it can correctly fuse the toner to the paper. If the paper type setting is not correct for the type of paper you are using, change the setting to the correct paper type.
3. If the host computer or the printer is connected to a wireless network, low signal quality or interference might be delaying print jobs.

Solve connectivity problems

Review the following information and procedures to solve connectivity problems.

Solve USB connection problems

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

- Verify that the cable is connected to the computer and to the product.
- Verify that the cable is not longer than 2 m (6.65 ft). Try using a shorter cable.
- Verify that the cable is working correctly by connecting it to another product. Replace the cable if necessary.

Solve wired network problems

Review the following information and procedures to solve wired network problems.

Introduction

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

Poor physical connection

Use the following procedure when the printer has a poor physical connection.

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

The computer is using the incorrect IP address for the printer

Use the following procedure when the computer is using the incorrect IP address for the printer.

1. Open the printer properties and click the **Ports** tab. Verify that the current IP address for the printer is selected. The printer IP address is listed on the printer configuration page.
2. If you installed the printer using the HP standard TCP/IP port, select the box labeled **Always print to this printer, even if its IP address changes**.
3. If you installed the printer using a Microsoft standard TCP/IP port, use the hostname instead of the IP address.
4. If the IP address is correct, delete the printer and then add it again.

The computer is unable to communicate with the printer

Use the following procedure when the computer is unable to communicate with the printer.

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

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

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

New software programs might be causing compatibility problems

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

The computer or workstation might be set up incorrectly

Use the following procedure when the computer or workstation might be set up incorrectly.

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

The printer is disabled, or other network settings are incorrect

Use the following procedure when the printer is disabled, or other network settings are incorrect.

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

Service mode functions

Review the following information about service mode functions.

Open the service menu from an LCD control panel (M751/E75245)

Use the following procedure to open the service menu from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select [OK](#).
2. Navigate to [Maintenance](#), and then select [OK](#).
3. Navigate to [Service](#), and then select [OK](#).
4. Enter the following service access code for the printer:


 **NOTE:** After entering the PIN, select [Sign In](#).

- **M751, E75245:** 04075119

Open the service menu from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to open the service menu from a touchscreen control panel.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
2. Open the [Service](#) menu:
3. On the sign-in screen, select [Service Access Code](#) from the drop-down list.
4. Enter the following service access code for the printer:

 **NOTE:** After entering the PIN, select [Sign In](#).

- **M856, E85055:** 10085619
- **M776:** 10077619

Service menu items

The following menu items appear in the [Service](#) menu.

Table 2-83 [Service](#) menu

First level	Second level	Value	Description
Event Log	Print		Print or view the event log.
Cycle Counts	Total Engine Cycles		Set the page count that was stored in NVRAM prior to installing a new formatter.
Cycle Counts	Mono Cycle Count		Set the mono page printed count.
Cycle Counts	Color Cycle Count		Set the color page printed count.

Table 2-83 Service menu (continued)

First level	Second level	Value	Description
Scanner Settings	Item to Adjust	Glass: Left edge	Set the adjustment values.
		Glass: Rear edge	WARNING! Do not change these values unless instructed to do so.
		ADF: Leading front edge	
		ADF: Leading back edge	
		ADF: Trailing front edge	
		ADF: Trailing back edge	
		ADF: Left side front	
		ADF: Left side back	
		ADF: Feed direction magnification	
Serial number			Set the serial number.
Service ID			Use this item to show the date that the printer was first used on the control panel. This eliminates the need for users to keep paper receipts for proof of warranty.
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.
MPS Settings	Low Alerts	On	
		Off	
MPS Settings	Reset Supplies Level	Reset to Level 1	
		Reset to Level 2	
		Reset to Level 3	
		Reset to Non-HP Managed Mode	
Finisher Calibration	Jogger Alignment	Letter (8.5x11)	Check or calibrate the output stack joggers.
		NOTE: M776zs model only. A4 (10x297 mm)	Follow the instructions on the screen to test and modify the output stack alignment.

Table 2-83 Service menu (continued)

First level	Second level	Value	Description
Finisher Calibration NOTE: M776zs model only.	Stapler Alignment	Staple Location	Adjust the position of the staple on a stapled job.
		Top left	Follow the instructions on the screen to test and modify the staple position.
		Top right	
		Two left	
	Manual stapler		
Finisher Calibration NOTE: M776zs model only.	Return Belt Tension		Adjust the tension of the return belt on the inner finisher.
			Follow the instructions on the screen to test and modify the return belt tension.
PTT Test Mode NOTE: Fax models only.			Test the internal modem for the analog fax accessory.
PTT Test Mode NOTE: Fax models only.	Hook Operations	Off Hook	
		On Hook	
PTT Test Mode NOTE: Fax models only.	Generate Random Data	Select a value from the list.	
PTT Test Mode NOTE: Fax models only.	Generate DTMF Tone Burst	Select a value from the list.	
PTT Test Mode NOTE: Fax models only.	Generate DTMF Continuous Tone	Select a value from the list.	
PTT Test Mode NOTE: Fax models only.	Generate Pulse Burst	Select a value from the list.	
PTT Test Mode NOTE: Fax models only.	Generate Tone Dial Number	Enter dial number.	
PTT Test Mode NOTE: Fax models only.	Generate Pulse Dial Number	Enter dial number.	
PTT Test Mode NOTE: Fax models only.	Generate Single Modem Tone	Range: 1100–2100 Hz	
		Default = 2100 Hz	
PTT Test Mode NOTE: Fax models only.	Line Measurements		
PTT Test Mode NOTE: Fax models only.	Fax Transmit Signal Loss		

Table 2-83 Service menu (continued)

First level	Second level	Value	Description
Reset Supplies	Registration Roller		After replacing a supply kit, choose it from the list and select Reset .
	Duplex Roller		
	Multipurpose Tray Roller Kit		
	Tray 2 Roller Kit		
Test Support	Continuous Scan	2 Sided	
		Save to Disk	
Test Support	Continuous Copy	2 Sided	
		Save to Disk	
Test Support	Continuous print from USB		
Test Support	Automatic Calibrations	On*	
		Off	
Test Support	Raw Scan	2-sided	
		Mechanical Calibration	
Test Support	Runtime Configuration (M751/ E75245)	Do not change	
		E75245MSKU	
		E75245MSKU_EIC	
		M751 Duplex	
		M751 Duplex_EIC	
		M751 No Duplex	
		M751 No Duplex_EIC	
Test Support	Runtime Configuration (M856/ E85055)	Do not change	
		E85055MSKU	
		E85055MSKU_EIC	
		M856	
		M856EIC	
		Standard	
		Standard	

Table 2-83 Service menu (continued)

First level	Second level	Value	Description
Test Support	Runtime Configuration (M776)	Do not change	
		M776	
		M776EIC	
		M776flow	
		M776flowEIC	
		Standard	
		Workflow	
Fax V.29 Speed	V.29 9600		Select the desired fax speed.
NOTE: Fax models only.	V.29 7200		

Printer resets

Review the following information and procedures about printer resets.

Restore factory-set defaults from the control panel

Use the following procedure to restore factory-set defaults from the control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Settings](#), and then select [OK](#).
2. Use the down arrow ▼ button to scroll to [General](#), and then press the [OK](#) button.
3. Use the down arrow ▼ button to scroll to [Reset Factory Settings](#), and then press the [OK](#) button to select it.
4. A verification message advises that completing the reset function might result in loss of data. Touch the [Reset](#) button to complete the process.

Restore the service ID

Use the following procedure to restore the service ID.

Restore the service ID

When replacing the formatter, the service ID is lost. Use the [Service ID](#) menu item in the [Service](#) menu to reset the service ID to reflect the original date that the printer 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 printer 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: $9 \times 30 = 270$ or add 17 to 270: $270 + 17 = 287$. Thus, $DDD = 287$.

Convert the service ID to an actual date

Use the printer Service ID number to determine whether the printer 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 printer 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 . Because 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.

The complete date is 17-October-2002.

 **NOTE:** A six-day grace period is built into the date system.

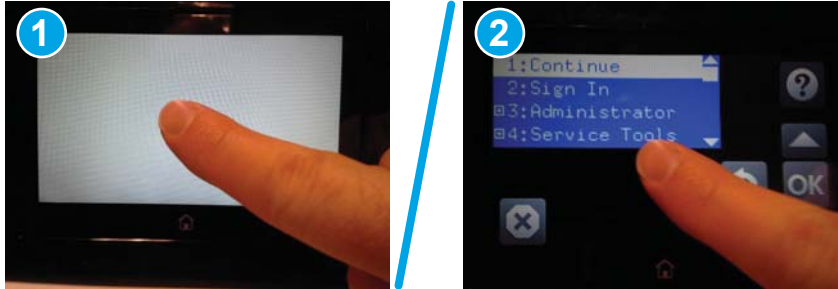
Cold reset using the Pre-boot menu from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to perform a cold reset using the [Pre-boot](#) menu from a touchscreen control panel.

 **CAUTION:** This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost).

1. Touch the middle of the control-panel display when you see the [1/8](#) under the logo.

Figure 2-141 Open the Pre-boot menu



2. Use the down arrow ▼ button to highlight the +3:Administrator item, and then touch the OK button.
3. Use the down arrow ▼ button to highlight the +8:Startup Options item, and then touch the OK button.
4. Use the down arrow ▼ button to highlight the 2 Cold Reset item, and then touch the OK button to select it.
5. Touch the Home button to return to the main Pre-boot menu and highlight the 1:Continue item, and then touch the OK button.

 **NOTE:** The printer will initialize.

Cold reset using the Pre-boot menu from an LCD control panel (M751/E75245)

Use the following procedure to perform a cold reset using the Pre-boot menu from an LCD control panel.

 **CAUTION:** This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost).

1. Press the Cancel ✕ button when you see the 1/8 under the logo.
2. Use the down arrow ▼ button to highlight the +3:Administrator item, and then press the OK button.
3. Use the down arrow ▼ button to highlight the +8:Startup Options item, and then press the OK button.
4. Use the down arrow ▼ button to highlight the 2 Cold Reset item, and then press the OK button to select it.
5. Touch the Home button to return to the main Pre-boot menu and highlight the 1:Continue item, and then touch the OK button.

 **NOTE:** The printer will initialize.


 **NOTE:** Some of the pre-boot options in the following tables are not supported by the current version of the printer firmware and are included for information only. Future versions of firmware will support these options.

Table 2-84 Pre-boot menu options (1 of 7)

Menu option	First level	Second level	Third level	Description
Continue				<p>Selecting the Continue item exits the Pre-boot menu and continues the normal boot process.</p> <p>If a selection is not made in the initial menu within 30 seconds, the printer returns to a normal boot (the same as selecting Continue).</p> <p>If the user navigates to another menu, the timeout does not apply.</p>

Table 2-84 Pre-boot menu options (1 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Sign In				Enter the administrator PIN or service PIN if one is required to open the Pre-boot menu.
Administrator				This item navigates to the Administrator submenus. If authentication is required (and the user is not already signed in) the Sign In prompt displays. The user is required to sign in.
Administrator	Download	Network USB USB Thumbdrive		This item initiates a Pre-boot firmware download process. A USB Thumbdrive option will work on all FutureSmart printers. USB or Network connections are not currently supported.
Administrator	Format Disk			This item reinitializes the disk and cleans all disk partitions. CAUTION: Selecting the Format Disk item removes all data. A delete confirmation prompt is not provided. The system is not bootable after this action and a 99.09.67 error displays on the control panel. A firmware download must be performed to return the system to a bootable state.
Administrator	Partial Clean			This item reinitializes the disk (removing all data except the firmware repository where the master firmware bundle is downloaded and saved). CAUTION: Selecting the Partial Clean item removes all data except the firmware repository. A delete confirmation prompt is not provided. CAUTION: This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost). This allows a user to reformat the disk by removing the firmware image from the active directory without having to download new firmware code (printer remains bootable).
Administrator	Change Password			Select this item to set or change the administrator password.
Administrator	Clear Password			Select the Clear Password item to remove a password from the Administrator menu. Before the password is actually cleared, a message will be shown asking to confirm that the password should be cleared. Press the OK button to confirm the action. When the confirmation prompt displays, press the OK button to clear the password.

Table 2-85 Pre-boot menu options (2 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Manage Disk	Clear Disk		Select the Clear Disk item to enable using an external device for job storage. Job storage is normally enabled only for the Boot device. This will be grayed out unless the 99.09.68 error is displayed.

Table 2-85 Pre-boot menu options (2 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Manage Disk	Lock Disk		<p>Select the Lock Disk item to lock (mate) a new secure disk to this printer.</p> <p>The secure disk already locked to this printer will remain accessible to this printer. Use this function to have more than one encrypted disk accessible by the printer when using them interchangeably.</p> <p>The data stored on the secure disk locked to this printer always remains accessible to this printer.</p>
Administrator	Manage Disk	Leave Unlocked		<p>Select the Leave Unlocked item to use a new secure disk in an unlocked mode for a single service event. The secure disk that is already locked to this printer will remain accessible to this printer and uses the old disk's encryption password with the new disk.</p> <p>The secure disk that is already locked to this printer remains accessible to this printer.</p>
Administrator	Manage Disk	Clear Disk Pwd		<p>Select the Clear Disk Pwd item to continue using the non-secure disk and clear the password associated with the yet-to-be installed secure disk.</p> <p>CAUTION: Data on the missing secure disk will be permanently inaccessible.</p>
Administrator	Manage Disk	Retain Password		<p>Select the Retain Password item to use the non-secure disk for this session only, and then search for the missing secure disk in future sessions.</p>
Administrator	Manage Disk	Boot Device	Secure Erase	<p>Select the Secure Erase item to erase all of the data on the disk and unlock it if required.</p> <p>This might take a long time.</p> <p>NOTE: The system will be unusable until the system files are reinstalled. The ATA secure-erase command is a one-pass overwrite, which erases the entire disk including firmware. The disk remains an encrypted disk.</p>
Administrator	Manage Disk	Boot Device	Erase/Unlock	<p>Select the Erase/Unlock item to cryptographically erase all data on the disk and unlock the disk to allow a user to gain access to it from any printer.</p> <p>NOTE: The system will be unusable until the system files are reinstalled. It erases the encryption key. The encryption key is erased, so the disk becomes a non-encrypted disk.</p>
Administrator	Manage Disk	Boot Device	Get Status	<p>This item provides disk status information if any is available.</p>

Table 2-86 Pre-boot menu options (3 of 7)

Menu option	First level	Second level	Third level	Description
Administrator	Manage Disk	Internal Device		<p>Select the Internal Device item to erase the internal device or get a status about the internal device.</p>
(continued)	(continued)			

Table 2-86 Pre-boot menu options (3 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Manage Disk	Internal Device	Secure Erase	Select the Secure Erase item to erase all of the data on the disk and unlock it if required. This might take a long time. NOTE: The system will be unusable until the system files are reinstalled. The ATA secure-erase command erases the entire disk, including firmware. The disk remains an encrypted disk.
Administrator	Manage Disk	Internal Device	Erase/Unlock	Select the Erase/Unlock item to cryptographically erase all of the data on disk and unlock the disk to allow the user to gain access to it from any printer. NOTE: The system will be unusable until the system files are reinstalled. The HP High Performance Secure Hard Disk is erased.
Administrator	Manage Disk	Internal Device	Get Status	This item provides disk status information if any is available.
Administrator	Manage Disk	External Device		Select the External Device item to erase the external device or get status about the external device.
Administrator	Manage Disk	External Device	Secure Erase	Select the Secure Erase item to erase all of the data on the disk and unlock it if required. This might take a long time. NOTE: The system will be unusable until the system files are reinstalled. The ATA secure-erase command erases the entire disk, including firmware. The disk remains an encrypted disk.
Administrator	Manage Disk	External Device	Erase/Unlock	Select the Erase/Unlock item to cryptographically erase all of the data on disk and unlock the disk to allow a user to gain access to it from any printer. NOTE: The system will be unusable until the system files are reinstalled. The encryption key is erased, so the disk becomes a non-encrypted disk.
Administrator	Manage Disk	External Device	Get Status	This item provides disk status information if any is available.

Table 2-87 Pre-boot menu options (4 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Configure LAN	IP Mode [DHCP]		The network can be configured to obtain the network settings from a DHCP server or as static. Use this item for automatic IP address acquisition from the DHCP server.
Administrator	Configure LAN	IP Mode [STATIC]		Use this item to manually assign the network addresses. NOTE: This configuration is only active when the Pre-boot menu is open.

Table 2-87 Pre-boot menu options (4 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [STATIC]	IP Address	Use this item to manually enter the IP addresses.
Administrator	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [STATIC]	Subnet Mask	Use this item to manually enter the subnet mask.
Administrator	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [STATIC]	Default Gateway	Use this item to manually enter the default gateway.
Administrator	Configure LAN NOTE: This configuration is only active when the Pre-boot menu is open.	IP Mode [STATIC]	Save	Select the Save item to save the manual settings.

Table 2-88 Pre-boot menu options (5 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Startup Options			Select the Startup Options item to specify options that can be set for the next time the printer is turned on and initializes to the Ready state.
Administrator	Startup Options	Show Revision		Not currently functional: Select the Show Revision item to allow the printer to initialize and show the firmware version when the printer reaches the Ready state. Once the printer power is turned on the next time, the Show Revision item is unchecked so that the firmware revision is not shown.
Administrator	Startup Options	Cold Reset		Select the Cold Reset item to clear the IP address and all customer settings. (This item also returns all settings to factory defaults.) NOTE: Items in the Service menu are not reset.
Administrator	Startup Options	Skip Disk Load		Select the Skip Disk Load item to disable installed third-party applications.
Administrator	Startup Options	Skip Cal		Select the Skip Cal item to skip the printer calibration for the very next power-initialization cycle only.

Table 2-88 Pre-boot menu options (5 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Startup Options	Lock Service		<p>CAUTION: Select the Lock Service item to lock the Service menu access (both in the Pre-Boot menu and the Device Maintenance menu).</p> <p>Service personnel must have the administrator remove the Lock Service setting before they can open the Service menu.</p>
Administrator	Startup Options	Skip F5CK		Select the Skip F5CK item to disable Chkdisk/ScanVolume during startup.
Administrator	Startup Options	First Power		<p>Not currently functional: This item allows the printer to initialize as if it is the first time it has been turned on.</p> <p>For example, the user is prompted to configure first-time settings like date/time, language, and other settings.</p> <p>Select this item so that it is enabled for the next time the printer power is turned on.</p> <p>When the printer power is turned on the next time, this item is unchecked so that the pre-configured settings are used during configuration, and the first-time setting prompt is not used.</p>
Administrator	Startup Options	Embedded Jetdirect Off		<p>Select the Embedded Jetdirect Off item to disable the embedded HP Jetdirect.</p> <p>By default this item is unchecked so that HP Jetdirect is always enabled.</p>
Administrator	Startup Options	WiFi Accessory		Select the WiFi Accessory item to enable the wireless accessory.

Table 2-89 Pre-boot menu options (6 of 7)

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Diagnostics			Diagnostic items are useful to diagnose hardware components and their interface connections. Use these items to troubleshoot specific hardware components, and the interface between them and other components.
Administrator	Diagnostics	Memory	Do Not Run	Use the Do Not Run item to exclude the Memory diagnostic when executing multiple diagnostics.
Administrator	Diagnostics		Short	Use the Short item to select a brief memory test. NOTE: This test requires about four minutes to execute.
Administrator	Diagnostics		Long	Use the Long item to select an extended memory test. NOTE: This test requires about twenty minutes to execute.
Administrator	Diagnostics	Disk	Do Not Run	Use the Do Not Run item to exclude the Disk diagnostic when executing multiple diagnostics.
Administrator	Diagnostics		Short	Use the Short item to select a brief firmware self-test. NOTE: This test requires about two or three minutes to execute.

Table 2-89 Pre-boot menu options (6 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Diagnostics		Long	Use the Long item to select an extended firmware self-test. NOTE: This test requires about sixty minutes to execute.
Administrator	Diagnostics		Optimized	Use the Optimized item to select a test that checks the active sectors on the disk. NOTE: This test requires about thirty minutes to execute.
Administrator	Diagnostics		Raw	Use the Raw item to select a test that checks every sector on the disk. NOTE: This test requires about fifty minutes to execute.
Administrator	Diagnostics		Smart	Use the Smart item to select a very brief test that checks the drive self-monitoring analysis and reporting technology (SMART) status—the drive detects and reports reliability indicators to help anticipate disk failures (SMART status).
Administrator	Diagnostics	CPB		Use the CPB item to verify the integrity of the copy processor board (CPB) and the formatter PCA connections.
Administrator	Diagnostics	Interconnect		Use the Interconnect item to verify the integrity of the interconnect PCA (ICB) and its connections.
Administrator	Diagnostics	Run Selected		Select the Run Selected item to execute a selected test. NOTE: If more than one test is selected, they are executed in sequence.

Table 2-90 Pre-boot menu options (7 of 7)


Menu option	First level	Second level	Third level	Description
Administrator (continued)	Remote Admin	Start Telnet		The Remote Admin item allows a service technician to access to the printer Pre-boot menu remotely, and to navigate the menu selections from a remote location. IMPORTANT: A Remote Admin connection must be initiated by a person that is physically present at the printer. This person will also need to provide a randomly generated PIN to the remote service technician. NOTE: For more information about using the Remote Admin function, see "Remote Admin in the Troubleshooting Manual.
Administrator	Remote Admin	Stop Telnet		
Administrator	Remote Admin	Refresh IP		
Administrator	System Triage	Copy Logs		If the device will not boot to the Ready state, or the diagnostic log feature found in the Troubleshooting menu is not accessible, then use the System Triage item to copy the diagnostic logs to a USB flash drive at the next printer start up. The files can then be sent to HP to help diagnose the problem.
Administrator	Change Svc PWD			Use this item to change the Service menu personal identification number (PIN).

Table 2-90 Pre-boot menu options (7 of 7) (continued)

Menu option	First level	Second level	Third level	Description
Administrator	Reset Svc PWD			If the Service menu personal identification number (PIN) has been changed. Use this item to reset it to the original PIN.
Service Tools	Reset Password			Use this item to reset the Pre-boot administrator password.
Service Tools	Subsystems			For manufacturing use only. Do not change these values.
Developer Tools	Netexec			

Format Disk and Partial Clean functions

Review the following information about the [Format Disk](#) and [Partial Clean](#) functions.

 **NOTE:** Only for printers with an optional hard-disk drive (HDD) installed).

Active and repository firmware locations


The firmware bundle consists of multiple parts. The main components are the Windows CE Operating System and the printer/peripheral firmware files.

There are two locations/partitions on the hard drive where the firmware components are stored:

- The Active, where the operating system and firmware currently are executing.
- The Repository, the recovery location.

If the Active location is damaged, or a [Partial Clean](#) was performed, the printer automatically copies over the OS and firmware files from the Repository location and the printer recovers.

If both the Active and Repository locations are damaged, or a [Format Disk](#) was performed, then both locations are gone and the error message **99.09.67** displays on the control-panel display. The user must upload the firmware to the printer in order for it to function again.

 **CAUTION:** The [Format Disk](#) option performs a disk initialization for the entire disk. The operating system, firmware files, and third party files (among other files) will be completely lost. HP does not recommend this action.

Partial Clean

The [Partial Clean](#) option erases all partitions and data on the disk drive, except for the firmware repository where a backup copy of the firmware file is stored. This allows the disk drive to be reformatted without having to download a firmware upgrade file to return the printer to a bootable state.

Characteristics of a Partial Clean

- Customer-defined settings, third-party solutions, firmware files, and the operating system are deleted.
- Rebooting the printer restores the firmware files from the Repository location, but does not restore any customer-defined settings.
- For previous HP printers, a Hard Disk Initialization is similar to executing the [Partial Clean](#) function for this printer.

 **CAUTION:** HP recommends backing-up printer configuration data before executing a [Partial Clean](#) to retain customer-defined settings (if needed). See the [Backup/Restore](#) item in the [Device Maintenance](#) menu.

Reasons for performing Partial Clean


- The printer continually boots up in an error state.




 **NOTE:** Try clearing the error prior to executing a [Partial Clean](#).


- The printer will not respond to commands from the control panel.
- Executing the [Partial Clean](#) function is helpful for troubleshooting hard disk problems.
- To reset the printer by deleting all solutions and customer-defined settings.
- The printer default settings are not properly working.

Execute a Partial Clean from an LCD control panel (M751/E75245)

Use the following procedure to execute a [Partial Clean](#) from an LCD control panel.

 **CAUTION:** This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost).

1. Press the [Cancel](#)  button when you see the 1/8 under the logo.
2. Use the down arrow  button to highlight the [+3:Administrator](#) item, and then press the [OK](#) button.
3. Use the down arrow  button to highlight [Partial Clean](#) and then press the [OK](#) button.
4. Press the [OK](#) button again.
5. Press the Home button to highlight [Continue](#), and then press the [OK](#) button.

 **NOTE:** The printer initializes.

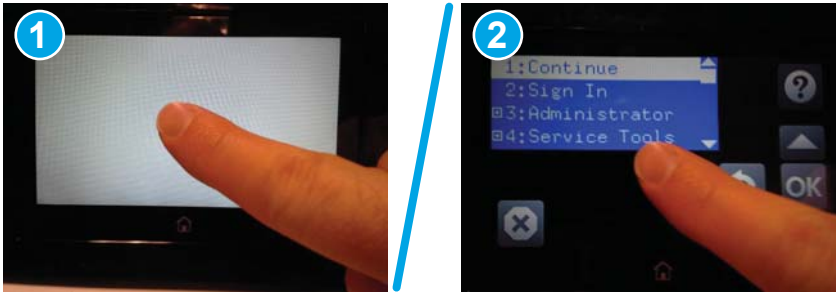
Execute a Partial Clean from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to execute a [Partial Clean](#) from a touchscreen control panel.

 **CAUTION:** This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost).

1. Touch the middle of the control-panel display when you see the 1/8 under the logo.

Figure 2-142 Open the Pre-boot menu



2. Use the down arrow ▼ button to highlight the +3:Administrator item, and then press the OK button.
3. Use the down arrow ▼ button to highlight Partial Clean and then press the OK button.
4. Press the OK button again.
5. Press the Home button to highlight Continue, and then press the OK button.

 **NOTE:** The printer initializes.

Format Disk

The [Format Disk](#) option erases the entire disk drive.


 **CAUTION:** After executing a [Format Disk](#) option, the printer is *not* bootable.

Characteristics of a Format Disk

- Customer-defined settings, third-party solutions, firmware files, and the operating system are deleted.

 **NOTE:** Rebooting the printer *does not* restore the firmware files.

- Rebooting the printer restores the firmware files from the Repository location, but does not restore any customer-defined settings.
- After executing the [Format Disk](#) function, the message **99.09.67** displays on the control panel.
- After executing the [Format Disk](#) function, the printer firmware must be reloaded.

 **CAUTION:** HP recommends not using the [Format Disk](#) option unless an error occurs and the solution in the printer service manual recommends this solution. After executing the [Format Disk](#) function, the printer is unusable.

HP recommends backing-up printer configuration data before executing a [Format Disk](#) to retain customer-defined settings (if needed). See the [Backup/Restore](#) item in the [Device Maintenance](#) menu.

Reasons for performing Format Disk


- The printer continually boots up in an error state.




 **NOTE:** Try clearing the error prior to executing a [Format Disk](#).

- The printer will not respond to commands from the control panel.
- Executing the [Format Disk](#) function is helpful for troubleshooting hard disk problems.
- To reset the printer by deleting all solutions and customer-defined settings.

Execute a Format Disk from an LCD control panel (M751/E75245)

Use the following procedure to execute a [Format Disk](#) from an LCD control panel.

 **CAUTION:** This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost).

1. Press the [Cancel](#)  button when you see the **1/8** under the logo.
2. Use the down arrow  button to highlight the **+3:Administrator** item, and then press the [OK](#) button.
3. Use the down arrow  button to highlight [Format Disk](#), and then press the [OK](#) button.
4. Press the [OK](#) button again.

 **NOTE:** When the [Format Disk](#) operation is complete, reload the printer firmware.

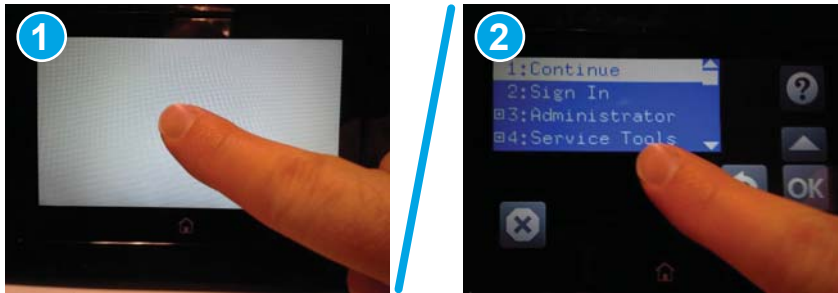
Execute a Format Disk from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to execute a [Format Disk](#) from a touchscreen control panel.

⚠ CAUTION: This procedure resets all printer configurations and settings to factory defaults (customer configurations and settings are lost).

1. Touch the middle of the control-panel display when you see the 1/8 under the logo.

Figure 2-143 Open the Pre-boot menu




2. Use the down arrow ▼ button to highlight the +3:Administrator item, and then press the OK button.
3. Use the down arrow ▼ button to highlight Format Disk, and then press the OK button.
4. Press the OK button again.


📝 NOTE: When the Format Disk operation is complete, reload the printer firmware.


Firmware upgrades

Learn where to go to download the most recent firmware upgrade for the printer.

- In the US, go to <http://www.hp.com/support/colorljM751> or <http://www.hp.com/support/colorljE75245> or <http://www.hp.com/support/colorljM856> or <http://www.hp.com/support/colorljE85055> or <http://www.hp.com/support/colorljM776MFP>.
 - a. Select **Get drivers, Software, and Firmware**, and then select the appropriate product by name.

 **NOTE:** More than one printer model might be listed. Make sure to select the correct model so that the upgraded firmware supports all of the printer functions.
 - b. Select the driver language and operating system.
 - c. Locate the firmware download, and then select **Download**.
- Outside the U.S., go to www.hp.com/support.
 - a. Select your country/region.
 - b. Select **Drivers & Downloads**.
 - c. Enter the product name in the **Find my product** dialogue box, and then select **Go**.

 **TIP:** Click on the **How do I find my product name/number?** link to see a short video on identifying the printer name and number.
 - d. Select the appropriate product by name.

 **NOTE:** More than one printer model might be listed. Make sure to select the correct model so that the upgraded firmware supports all of the printer functions.
 - e. Select the driver language and operating system.
 - f. Locate the firmware download, and then select **Download**.

Determine the installed revision of firmware

Use the following procedure to determine the installed revision of firmware.

 **NOTE:** Print a configuration page to determine the installed revision of firmware.

Print the configuration page from the control panel

Use the following procedure to print the configuration page from a LCD control panel on an M506/M507 printer.


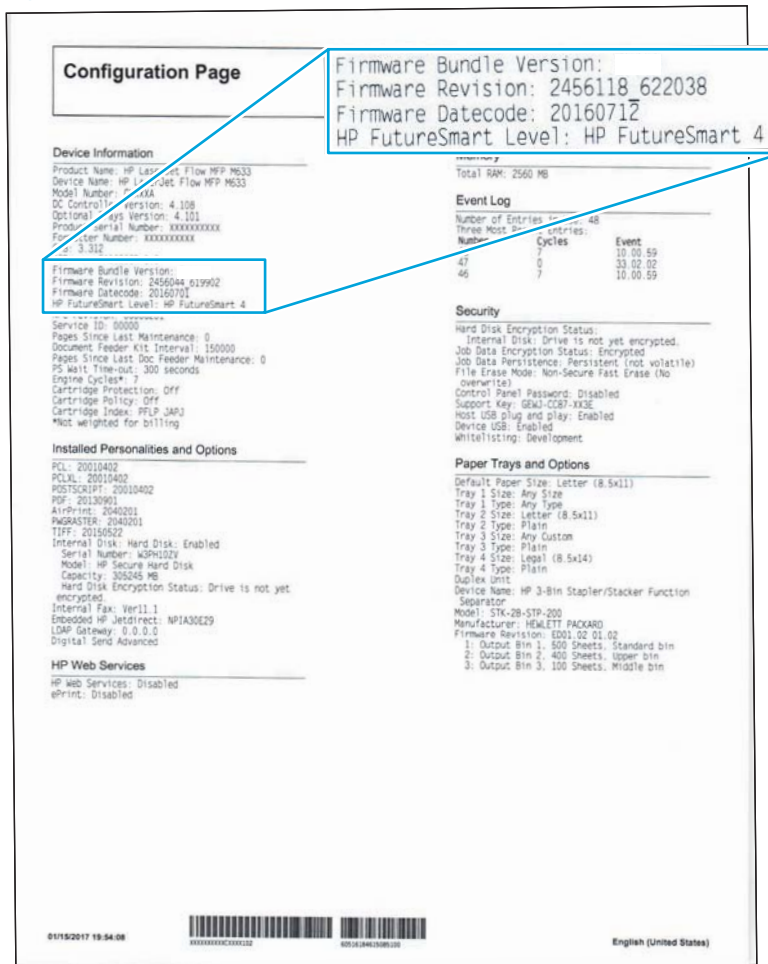
1. From the **Home** screen on the printer control panel, use the arrow keys to navigate to **Reports**, and then press the **OK** button.
2. Use the down arrow ▼ button to scroll to **Configuration/Status Pages**, and then press the **OK** button.
3. Use the down arrow ▼ button to scroll to **Configuration Page**, and then press the **OK** button.
4. Use the down arrow ▼ to scroll down to **Cancel**, and then use the right arrow ► to highlight the print icon . Select **OK** to print the page.

Figure 2-144 Configuration page firmware version




Perform a firmware upgrade

The firmware bundle is a .bdl file. This file requires an interactive upgrade method. The traditional FTP, LPR, or Port 9100 methods of upgrading are not available.

Use one of the following methods to upgrade the firmware for this printer.

HP Embedded Web Server

Use the following procedure to perform a firmware upgrade using the HP Embedded Web Server.

 **NOTE:** The printer should be at the **Ready** state.

The firmware update might take 10 minutes or longer based on the input/output (I/O) transfer rates and the time it takes for the printer to reinitialize.


1. Open an Internet browser window.
2. Enter the printer IP address in the URL line.
3. Select the **Firmware Upgrade** link from the **General** tab or from the **Troubleshooting** tab.
4. Browse to the location that the firmware upgrade file was downloaded to, and then select the firmware file—the file has a .bdl file extension. Select the **Install** button to perform the upgrade.

 **NOTE:** Do not close the browser window OR interrupt communication until the HP Embedded Web Server (EWS) displays the confirmation page.

5. After the printer reinitializes, print a configuration page and verify that the latest firmware version has been installed.




USB flash drive (Pre-boot menu)

Use the following procedures to perform a firmware upgrade using a USB flash drive and the Pre-boot menu.



 **IMPORTANT:** Only use this method of performing a firmware upgrade if the printer cannot initialize to the Ready state.

USB flash drive firmware (Pre-boot menu) update from an LCD control panel (M751/E75245)


Use the following procedure to perform a USB flash drive firmware (Pre-boot menu) update from an LCD control panel.

1. Press the **Cancel**  button when you see the 1/8 under the logo.
2. Press the down arrow  button to highlight **+3 Administrator**, and then press the **OK** button.
3. If necessary, press the down arrow  button to highlight **+1 Download**, and then press the **OK** button.
4. Insert the USB flash drive with the .bdl file on it into the USB port on the printer.

 **NOTE:** If the error message **No USB Thumbdrive Files Found** displays on the control panel display, try using a different portable storage device.

5. Press the down arrow  button to highlight **USB Thumbdrive**, and then press the **OK** button.
6. Press the down arrow  button to highlight the .bdl file, and then press the **OK** button.

 **NOTE:** The upgrade process can take 10 minutes or longer to complete.

 **TIP:** If there is more than one .bdl file on the storage device, make sure to select the correct file for this printer.

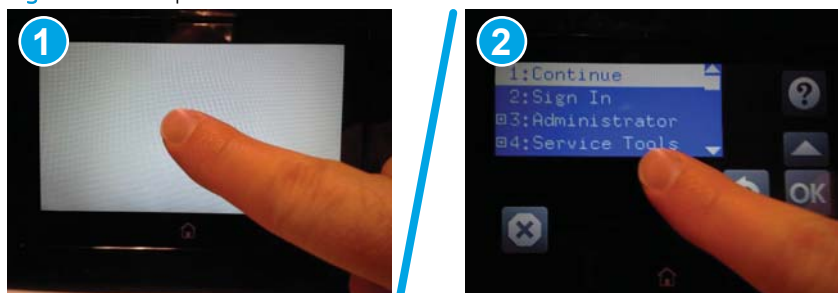
7. When the message **Complete** displays on the control panel display, turn the printer power off, and then on again.
8. When the upgrade process is complete, print a configuration page and verify that the upgrade firmware version was installed.

USB flash drive firmware (Pre-boot menu) update from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to perform a USB flash drive firmware (Pre-boot menu) update from a touchscreen control panel.

1. Copy the .bdl file to a portable USB flash drive.
2. Touch the middle of the control panel display when you see the 1/8 under the logo.

Figure 2-145 Open the Pre-boot menu



3. Touch the down arrow ▼ button to highlight **+3 Administrator**, and then touch the **OK** button.
4. If necessary, touch the down arrow ▼ button to highlight **+1 Download**, and then touch the **OK** button.
5. Insert the USB flash drive with the .bdl file on it into the USB port on the printer.



NOTE: If the error message **No USB Thumbdrive Files Found** displays on the control panel display, try using a different portable storage device.

6. Touch the down arrow ▼ button to highlight **USB Thumbdrive**, and then touch the **OK** button.
7. Touch the down arrow ▼ button to highlight the .bdl file, and then touch the **OK** button.



NOTE: The upgrade process can take 10 minutes or longer to complete.





TIP: If there is more than one .bdl file on the storage device, make sure to select the correct file for this printer.

8. When the message **Complete** displays on the control panel display, touch the down arrow ▼ button several times until the message **Continue** displays.
9. Touch the **OK** button to begin the upgrade. When the upgrade is complete, the printer will initialize to the **Ready** state.
10. When the upgrade process is complete, print a configuration page and verify that the upgrade firmware version was installed.

USB flash drive (control panel menu)

Use the following procedures to perform a firmware upgrade using a USB flash drive and the control panel menu.


 **NOTE:** USB flash drives that are not using a FAT32 format, or do not have a CD formatted partition, might not be recognized by the printer. If the printer does not recognize a USB flash drive, try using a different USB flash drive.

 **TIP:** The USB port on the printer must be enabled. If it is disabled, use the [Enable Retrieve from USB](#) item in the [General Settings](#) menu to enable it.

USB flash drive firmware (control panel menu) update from an LCD control panel (M751/E75245)

Use the following procedure to perform a USB flash drive firmware (control panel menu) update from an LCD control panel.

1. From the [Home](#) screen on the printer control panel, use the arrow keys to navigate to [Support Tools](#), and then select [OK](#).
2. Navigate to [Maintenance](#), and then select [OK](#).
3. Navigate to [USB Firmware Upgrade](#), and then select [OK](#).
4. Insert the USB flash drive with the .bdl file on it into the USB port on the printer.
5. If necessary, use the down arrow ▼ button to scroll to the appropriate .bdl file, and then press the [OK](#) button to select.

 **NOTE:** If there is more than one .bdl file on the storage device, make sure to select the correct file for this printer.

6. Use the down arrow ▼ button to scroll to [Install](#), and then press the [OK](#) button to start the firmware upgrade.

 **NOTE:** Print a configuration page and verify that the upgrade firmware version was installed.

USB flash drive firmware (control panel menu) update from a touchscreen control panel (M856/E85055/M776)

Use the following procedure to perform a USB flash drive firmware (control panel menu) update from a touchscreen control panel.

1. Copy the .bdl file to a portable USB flash drive.
2. Turn the printer on, and then wait until it reaches the **Ready** state.
3. From the [Home](#) screen on the printer control panel, scroll to and touch the [Support Tools](#) button.
4. Open the [Maintenance](#) menu.
5. Touch the [USB Firmware Upgrade](#) button.
6. Insert the USB flash drive with the .bdl file on it into the USB port on the printer.
7. Touch the .bdl file, and then touch the [Upgrade](#) button.

 **TIP:** If there is more than one .bdl file on the storage device, make sure to select the correct file for this printer.

8. Select one of the following options:

- [Upgrade](#)



NOTE: The upgrade process can take 10 minutes or longer to complete.

- [Re-install](#)
- [Downgrade](#)

9. When the upgrade is complete, the printer will initialize to the [Ready](#) state. Print a configuration page and verify that the upgrade firmware version was installed.

Solve fax or email problems

Fax or email troubleshooting information is not provided in this service manual. The most current information is available in WISE or HP Channel Services Network (CSN). Search using model number then use "fax troubleshooting" as the search term.

Additional service and support for HP internal personnel

HP internal personnel, go to one of the following Web-based Interactive Search Engine (WISE) sites:

Americas (AMS)

- [WISE - English](#)
- [WISE - Spanish](#)
- [WISE - Portuguese](#)
- [WISE - French](#)

Asia Pacific / Japan (APJ)

- [WISE - English](#)
- [WISE - Japanese](#)
- [WISE - Korean](#)
- [WISE - Chinese \(simplified\)](#)
- [WISE - Chinese \(traditional\)](#)
- [WISE - Thai](#)

Europe / Middle East / Africa (EMEA)

- [WISE - English](#)

A Printer specifications

Review the following specifications for the printers.

Printer dimensions

Make sure your printer environment is large enough to accommodate the printer.

Table A-1 Dimensions for the printer

Dimension	Printer fully closed	Printer fully opened
Height	398.5 mm (15.7 in)	442.5 mm (17.4 in)
Depth	589 mm (23.2 in)	992 mm (39 in)
Width	556 mm (21.9 in)	1,051 mm (41.4 in)
Weight	45.1 kg (99.4 lb)	45.1 kg (99.4 lb)

Table A-2 Dimensions for the 550-sheet paper tray

Dimension	Value
Height	150 mm (5.9 in)
Depth	Tray closed: 584 mm (23 in) Tray opened: 999 mm (39.3 in)
Width	Door closed: 556 mm (21.9 in) Door opened: 640 mm (25.2 in)
Weight	10.2 kg (22.5 lb)

Table A-3 Dimensions for the printer with one 550-sheet paper tray

Dimension	Printer fully closed	Printer fully opened
Height	524.5 mm (20.6 in)	568.5 mm (22.4 in)
Depth	589 mm (23.2 in)	1,004 mm (39.5 in)
Width	556 mm (21.9 in)	1,051 mm (41.4 in)
Weight	55.3 kg (121.9 lb)	55.3 kg (121.9 lb)

Table A-4 Dimensions for the 2 x 550-sheet paper tray and stand

Dimension	Value
Height	347 mm (13.7 in)
Depth ¹	Tray closed: 659 mm (25.9 in) Tray open: 1,074 mm (42.3 in)
Width ¹	Door closed: 556 mm (21.9 in) Door open: 771 mm (30.4 in)
Weight ¹	22.9 kg (50.5lb)

¹ Does not include stability feet.

Table A-5 Dimensions for the printer with the 2 x 550-sheet paper tray and stand

Dimension	Printer and accessories fully closed	Printer and accessories fully opened
Height	722.5 mm (28.4 in)	766.5 mm (30.2 in)
Depth ¹	659 mm (25.9 in)	1,074 mm (42.3 in)
Width ¹	556 mm (21.9 in)	1,051 mm (41.4 in)
Weight ¹	68.0 kg (149.9 lb)	68.0 kg (149.9 lb)

¹ Does not include stability feet.

Table A-6 Dimensions for the 2,700-sheet high-capacity input paper tray and stand

Dimension	Value
Height	347 mm (13.7 in)
Depth ¹	Tray closed: 659 mm (25.9 in) Tray open: 1,064 mm (41.9 in)
Width ¹	Door closed: 556 mm (21.9 in) Door open: 771 mm (30.4 in)
Weight ¹	28.2 kg (62.2 lb)

¹ Does not include stability feet.

Table A-7 Dimensions for the printer with the 2,700-sheet high-capacity input paper tray and stand

Dimension	Printer and accessories fully closed	Printer and accessories fully opened
Height	722.5 mm (28.4 in)	766.5 mm (30.2 in)
Depth ¹	659 mm (25.9 in)	1,064 mm (41.9 in)
Width ¹	556 mm (21.9 in)	1,051 mm (41.4 in)
Weight ¹	73.3 kg (161.6 lb)	73.3 kg (161.6 lb)

¹ Does not include stability feet.

Table A-8 Dimensions for the stand

Dimension	Value
Height	347 mm (13.7 in)
Depth ¹	Door closed: 659 mm (25.9 in) Door opened: 1,185 mm (46.7 in)
Width ¹	Door closed: 556 mm (21.9 in) Door opened: 556 mm (21.9 in)
Weight ¹	15.8 kg (34.9 lb)

¹ Does not include stability feet.

Table A-9 Dimensions for the printer with the stand

Dimension	Printer and accessories fully closed	Printer and accessories fully opened
Height	722.5 mm (28.4 in)	766.5 mm (30.2 in)
Depth ¹	659 mm (25.9 in)	1,185 mm (46.7 in)
Width ¹	556 mm (21.9 in)	1,051 mm (41.4 in)
Weight ¹	61.4 kg (135.4 lb)	61.4 kg (135.4 lb)

¹ Does not include stability feet.

Printer space requirements

HP recommends that the following distances be added to the printer dimensions provided in this chapter to make sure there is sufficient space to open doors and covers, and to provide proper ventilation.

- From the left-side or right-side of the printer to an obstruction, add:
 - 430 mm (17 in)
- From the front-side of the printer to an obstruction, add:
 - 610 mm (24 in)
- From the back-side of the printer to an obstruction, add:
 - 460 mm (18 in)

Power consumption, electrical specifications, and acoustic emissions

Review the following information about power consumption, electrical specifications, and acoustic emissions.

See <http://www.hp.com/support/colorljM751> or <http://www.hp.com/support/colorljE75245> or <http://www.hp.com/support/colorljM856> or <http://www.hp.com/support/colorljE85055> or <http://www.hp.com/support/colorljM776MFP> for current information.

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

Operating-environment range

Review the operating-environment range.

Table A-10 Operating-environment specifications¹

Environment	Recommended	Allowed
Temperature	17° to 25°C (62.6° to 77°F)	15° to 30°C (59° to 86°F)
Relative humidity	30% to 70% relative humidity (RH)	10% to 80% RH

¹ These values are subject to change. For current information, go to <http://www.hp.com/support/colorljM751> or <http://www.hp.com/support/colorljE75245> or <http://www.hp.com/support/colorljM856> or <http://www.hp.com/support/colorljE85055> or <http://www.hp.com/support/colorljM776MFP>.

Certificate of Volatility

Review the certificates of volatility for the printers.

Figure A-1 Certificate of Volatility (1 of 2; M751/E75245)

HP Certificate of Volatility				
Model: HP Color LaserJet Managed E75245 HP Color LaserJet Enterprise M751		Part Numbers: T3U64A T3U43A T3U44A		Address: HP Inc. 11311 Chinden Blvd. Boise, ID 83714
Volatile Memory				
Does the device contain volatile memory (Memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (SRAM, DRAM, etc): DDR3 DRAM	Size: 1.5GB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Operating system and print/scan buffer	Steps to clear memory: When the printer is powered OFF, the memory is erased.
Non-Volatile Memory				
Does the device contain non-volatile memory (Memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (Flash, EEPROM, etc): EEPROM (IOD)	Size: 64KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Stores customer setting data for backup/restore.	Steps to clear memory: There are no steps to clear this data.
Type (Flash, EEPROM, etc): SPI Flash	Size: 4MB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Contains the boot code and factory product configuration data required for the device to function. User modifications are limited to downloading digitally signed HP firmware images.	Steps to clear memory: There are no steps to clear this data.
Mass Storage				
Does the device contain mass storage memory (Hard Disk Drive, Tape Backup)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc): eMMC Module (Removeable)	Size: 16GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Operating system and user data	Steps to clear memory: Update the firmware.
USB				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below				
USB input includes print jobs, HP digitally signed firmware upgrades, and third-party application loading. USB ports can be disabled.				
Can any data other than scan upload be sent to the USB device)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below				
Diagnostic service logs can be uploaded to a USB device. Print files can be printed via a USB thumb drive.				
Additional Information: This product has both a USB device port and two USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal mini-B USB port enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and third-party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				
RF/RFID				
Does the item use RF or RFID for receive or transmit of any data including remote diagnostics. (e.g. Cellular phone, Bluetooth) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below				
Purpose:				
Frequency:			Bandwidth:	
Modulation:			Effective Radiate Power (ERP):	
Specifications:				

Figure A-2 Certificate of Volatility (2 of 2; M751/E75245)

Other Transmission Capabilities	
Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:	
Purpose:	
Frequency:	Bandwidth:
Modulation:	Effective Radiate Power (ERP):
Specifications:	

Other Capabilities
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:
Purpose:
Specifications

Author Information
Email: Technical.Marketing@hp.com
Date Prepared: 7/19/2019

Figure A-3 Certificate of Volatility (1 of 2; M856/E85055)

HP Certificate of Volatility				
Model: HP Color LaserJet Managed E85055 HP Color LaserJet Enterprise M856		Part Numbers: T3U64A T3U51A T3U52A		Address: HP Inc. 11311 Chinden Blvd. Boise, ID 83714
Volatile Memory				
Does the device contain volatile memory (Memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (SRAM, DRAM, etc): DDR3 DRAM	Size: 1.5GB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Operating system and print/scan buffer	Steps to clear memory: When the printer is powered OFF, the memory is erased.
Non-Volatile Memory				
Does the device contain non-volatile memory (Memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (Flash, EEPROM, etc): EEPROM (IOD)	Size: 64KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Stores customer setting data for backup/restore.	Steps to clear memory: There are no steps to clear this data.
Type (Flash, EEPROM, etc): SPI Flash	Size: 4MB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Contains the boot code and factory product configuration data required for the device to function. User modifications are limited to downloading digitally signed HP firmware images.	Steps to clear memory: There are no steps to clear this data.
Mass Storage				
Does the device contain mass storage memory (Hard Disk Drive, Tape Backup)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc): eMMC Module (Removeable)	Size: 16GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Operating system and user data	Steps to clear memory: Update the firmware.
USB				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below				
USB input includes print jobs, HP digitally signed firmware upgrades, and third-party application loading. USB ports can be disabled.				
Can any data other than scan upload be sent to the USB device)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below				
Diagnostic service logs can be uploaded to a USB device. Print files can be printed via a USB thumb drive.				
Additional Information: This product has both a USB device port and two USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal mini-B USB port enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and third-party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				
RF/Rfid				
Does the item use RF or RFID for receive or transmit of any data including remote diagnostics. (e.g. Cellular phone, Bluetooth) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below				
Purpose:				
Frequency:			Bandwidth:	
Modulation:			Effective Radiate Power (ERP):	
Specifications:				
Additional information: A Wi-Fi option is available only on the T3U52A				

Figure A-4 Certificate of Volatility (2 of 2; M856/E85055)

Other Transmission Capabilities	
Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:	
Purpose:	
Frequency:	Bandwidth:
Modulation:	Effective Radiate Power (ERP):
Specifications:	

Other Capabilities
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:
Purpose:
Specifications

Author Information
Email: Technical.Marketing@hp.com
Date Prepared: 7/19/2019

Figure A-5 Certificate of Volatility (1 of 2; M776)

HP Certificate of Volatility				
Model: HP Color LaserJet Enterprise M776		Part Numbers: T3U55A T3U56A 3WT91A		Address: HP Inc. 11311 Chinden Blvd. Boise, ID 83714
Volatile Memory				
Does the device contain volatile memory (Memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (SRAM, DRAM, etc): DDR3 DRAM	Size: 2GB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Operating system and print/scan buffer	Steps to clear memory: When the printer is powered OFF, the memory is erased.
Non-Volatile Memory				
Does the device contain non-volatile memory (Memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (Flash, EEPROM, etc): EEPROM (IOD)	Size: 64KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Stores customer setting data for backup/restore.	Steps to clear memory: There are no steps to clear this data.
Type (Flash, EEPROM, etc): SPI Flash	Size: 4MB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Contains the boot code and factory product configuration data required for the device to function. User modifications are limited to downloading digitally signed HP firmware images.	Steps to clear memory: There are no steps to clear this data.
Mass Storage				
Does the device contain mass storage memory (Hard Disk Drive, Tape Backup)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc): HDD (Removeable)	Size: 500GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Operating system and user data	Steps to clear memory: Update the firmware.
USB				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below				
USB input includes print jobs, HP digitally signed firmware upgrades, and third-party application loading. USB ports can be disabled.				
Can any data other than scan upload be sent to the USB device? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below				
Diagnostic service logs can be uploaded to a USB device. Print files can be printed via a USB thumb drive.				
Additional Information: This product has both a USB device port and two USB host ports. Data on the USB host ports can be accessed from the device port. Also, an internal mini-B USB port enables an accessory option where a Hardware Integration Pocket (HIP) device can be added. The HIP option conforms to the HIP protocol and enables both HP and third-party hardware/software. The HIP device does not ship with the product and is added by the user as an option.				
RF/Rfid				
Does the item use RF or RFID for receive or transmit of any data including remote diagnostics. (e.g. Cellular phone, Bluetooth) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below				
Purpose:				
Frequency:		Bandwidth:		
Modulation:		Effective Radiate Power (ERP):		
Specifications:				
Additional information: A Wi-Fi option is available only on the T3U56A and 3WT91A models.				

Figure A-6 Certificate of Volatility (2 of 2; M776)

Other Transmission Capabilities	
Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:	
Purpose:	
Frequency:	Bandwidth:
Modulation:	Effective Radiate Power (ERP):
Specifications:	

Other Capabilities
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:
Purpose:
Specifications

Author Information
Email: Technical.Marketing@hp.com
Date Prepared: 7/19/2019

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