

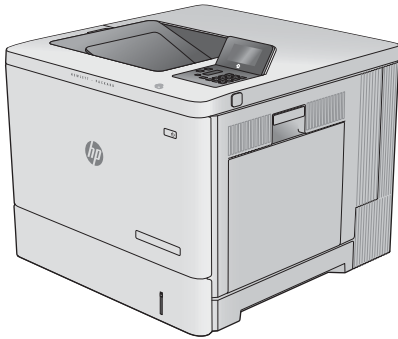


Color LaserJet Enterprise M552, M553, M577

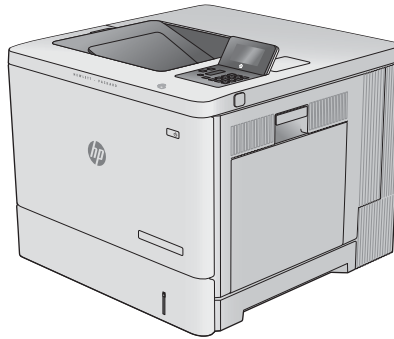
Color LaserJet Managed E55040

Color LaserJet Managed MFP E57540, Flow MFP E57540

Troubleshooting Manual



M553n



M552dn
M553dn
Managed M553dnm



M553x
Managed 553xm



M577dn
Managed MFP E57540dn



M577f



M577c
M577z
Managed MFP M577cm
Managed MFP E57540c

www.hp.com/support/colorlj552

www.hp.com/support/colorlj553

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For printer part removal and part number information, see the Repair Manual.



HP Color LaserJet Enterprise M552, M553,
MFP M577, Managed M553, E55040, MFP
M577, MFP E57540, Managed Flow MFP
M577, MFP E57540

Troubleshooting Manual

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Conventions used in this guide


 **TIP:** Helpful hints or shortcuts.

 **NOTE:** Information that explains a concept or how to complete a task.

 **Reinstallation tip:** Reinstallation helpful hints, shortcuts, or considerations.

 **IMPORTANT:** Information that help the user to avoid potential printer error conditions.

 **CAUTION:** Procedures that the user must follow to avoid losing data or damaging the printer.

 **WARNING!** Procedures that the user must follow to avoid personal injury, catastrophic loss of data, or extensive damage to the printer.

Related documentation and software

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

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1 Theory of operation

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- [Formatter-control system](#)
- [Engine-control system](#)
- [Engine laser/scanner system](#)
- [Pickup, feed, and delivery system](#)
- [Input accessories](#)
- [Scanning and image capture system \(M577\)](#)
- [Document feeder system \(M577\)](#)

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Channel partners, go to HP Channel Services Network (CSN) at www.hp.com/partners/csn.

At these locations, find information on the following topics:

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

Channel partners, access training materials in the HP University and Partner Learning Center at <https://content.ext.hp.com/sites/LMS/HPU.page>.

To access HP PartSurfer information from any mobile device, go to <http://partsurfermobile.hp.com/>.

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 power supply 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 feeder)
- Image scanner (M577)

Figure 1-1 Relationship between the main printer systems

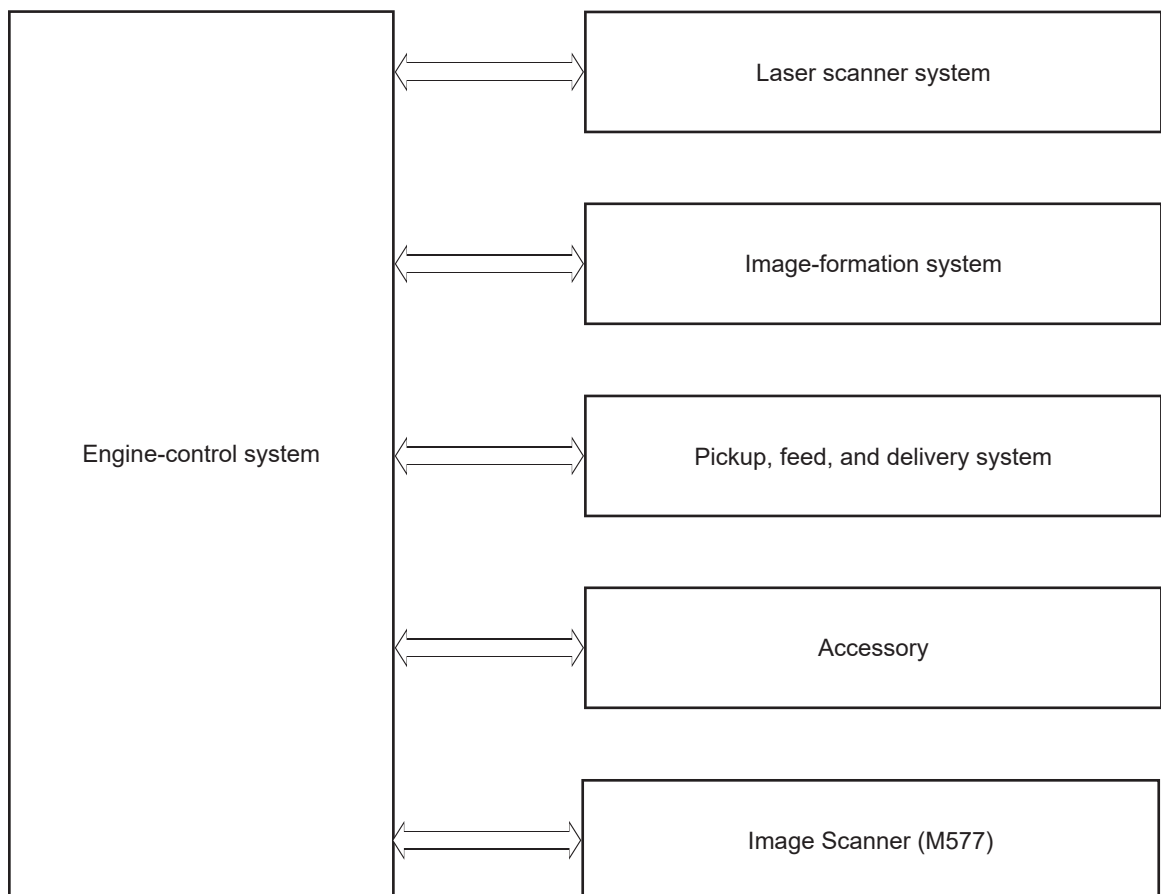
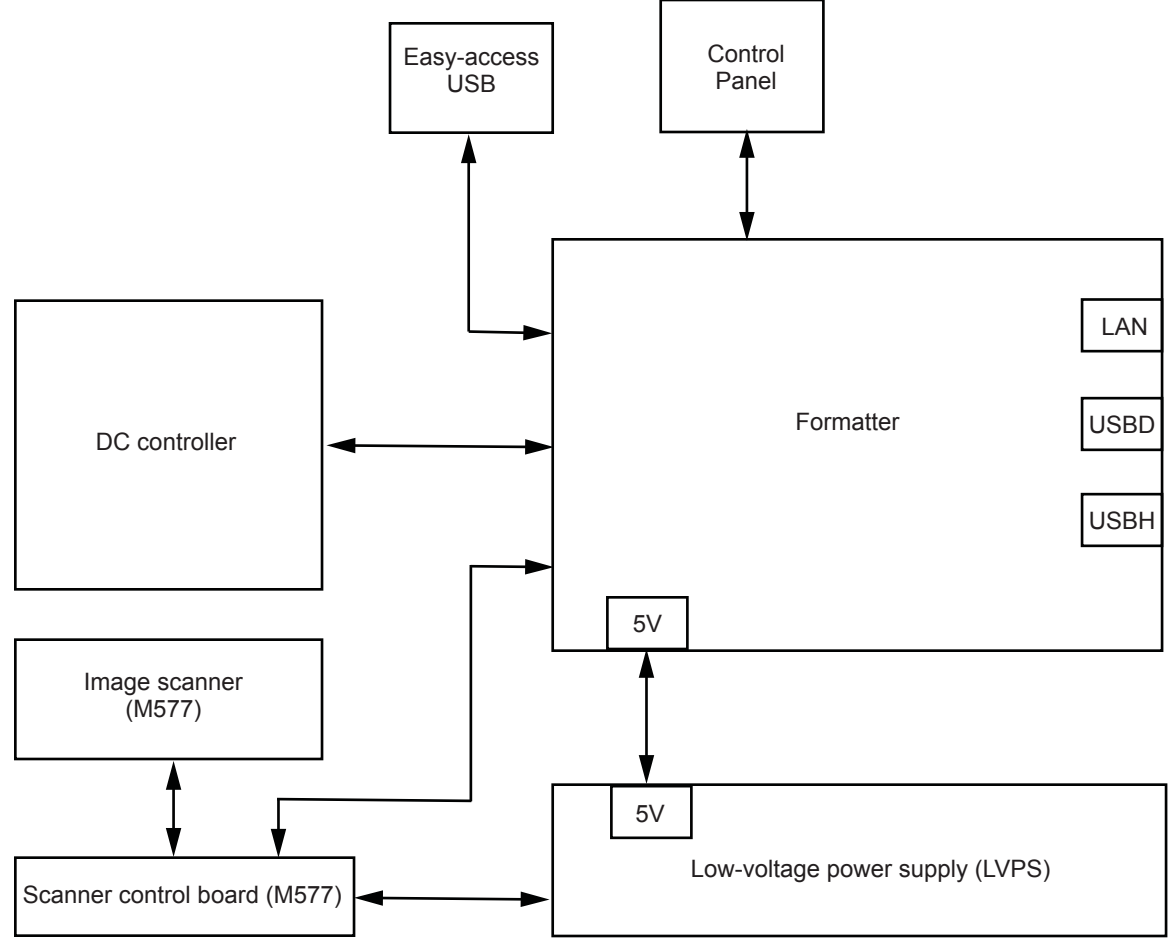


Figure 1-2 System block diagram



Sequence of operation

The DC controller PCA controls the operating sequence, as described in the following table.

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">• Detects the fuser• Heats the fuser sleeve in the fuser• Pressurizes the pressure roller in the fuser• Detects the toner cartridges• Separates all of the developing rollers from the photosensitive drums in the toner cartridges• Separates all of the transfer rollers from the photosensitive drums in the toner cartridges• Rotates and stops each motor• Rotates and stops each fan• Detects the ITB• Cleans the ITB and secondary transfer roller
Standby	From the end of the waiting sequence, 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 if the formatter sends the calibration command
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• 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• 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">• Moves the last printed sheet into the output bin• Stops each motor• Stops each fan• Stops the high-voltage power supply• 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

The formatter performs the following functions:

- Controls sleep mode
- Receives and processes print data from the various printer interfaces
- Monitors control panel functions and relays 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 font information
- Communicates with the host computer through the network or the bidirectional interface

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

Sleep mode

 **NOTE:** In the [General Settings](#) menu (a submenu of the [Administration](#) menu), this item is termed [Sleep Timer 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 self-test switch is pressed.
- A paper tray, other than Tray 1, is opened.



NOTE: If the printer is in the deep sleep state, opening a paper tray will not cause the printer to exit Sleep mode.



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



TIP: When the printer is in Sleep mode, the sub-power supply is off and the low-voltage power supply is on.

Printer job language (PJL)

PJL 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 PJL 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

The M552dn, M553n and M553dn control panel is a 6.85 cm (2.7 in) four-line color display with numeric keypad and additional buttons for navigating control panel menus. The M553x control panel is a 10.9 cm (4.3 in) full-color SVGA with infrared touchscreen and adjustable viewing angle. The M577 control panel is a 20.3 cm (8 in) full-color SVGA with infrared touchscreen and adjustable viewing angle.

The M553x and M577 control panels have a diagnostic mode to allow testing of the touchscreen, [Home](#) button, and speaker. The control panels do not require calibration.

Easy-access USB port

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
- .prn
- .pcl
- .ps
- .cht

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

Wireless

The M553x and M577z models contain a wireless card to enable wireless direct printing over a 802.11b/g/n wireless connection.



NOTE: This card does not enable the printer to connect to the network.

Near field communication (NFC)

The M553x and M577z models support NFC capabilities. NFC enables a connection between the printer and a mobile device, such as a smartphone or tablet, by touching the device to the NFC icon on the bottom of the control panel. Documents and images from the mobile device can then be printed through the wireless card on the printer.

CPU

The formatter incorporates a 1.2 GHz processor.

Input/output (I/O)

The printer has three I/O interfaces:

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

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

The embedded MultiMedia Card (eMMC) on the formatter stores the firmware for the M552 and M553 models. The hard disk drive (HDD) on the formatter stores the firmware for the M577 models. A remote firmware upgrade process is used to overwrite and upgrade the firmware.

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.



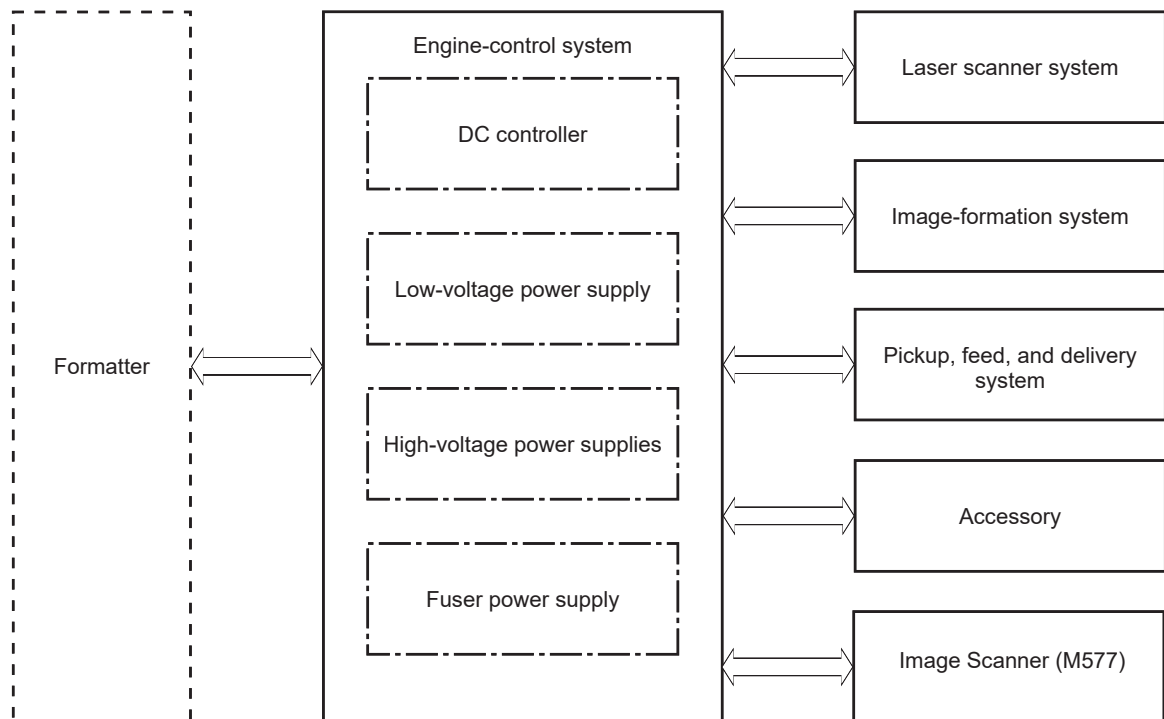
NOTE: MEt is available only in when printing in printer command language (PCL) mode. It is not functional when printing in PostScript (PS) mode.

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
- One low-voltage power supply
- Two high-voltage power supplies
- One fuser power supply

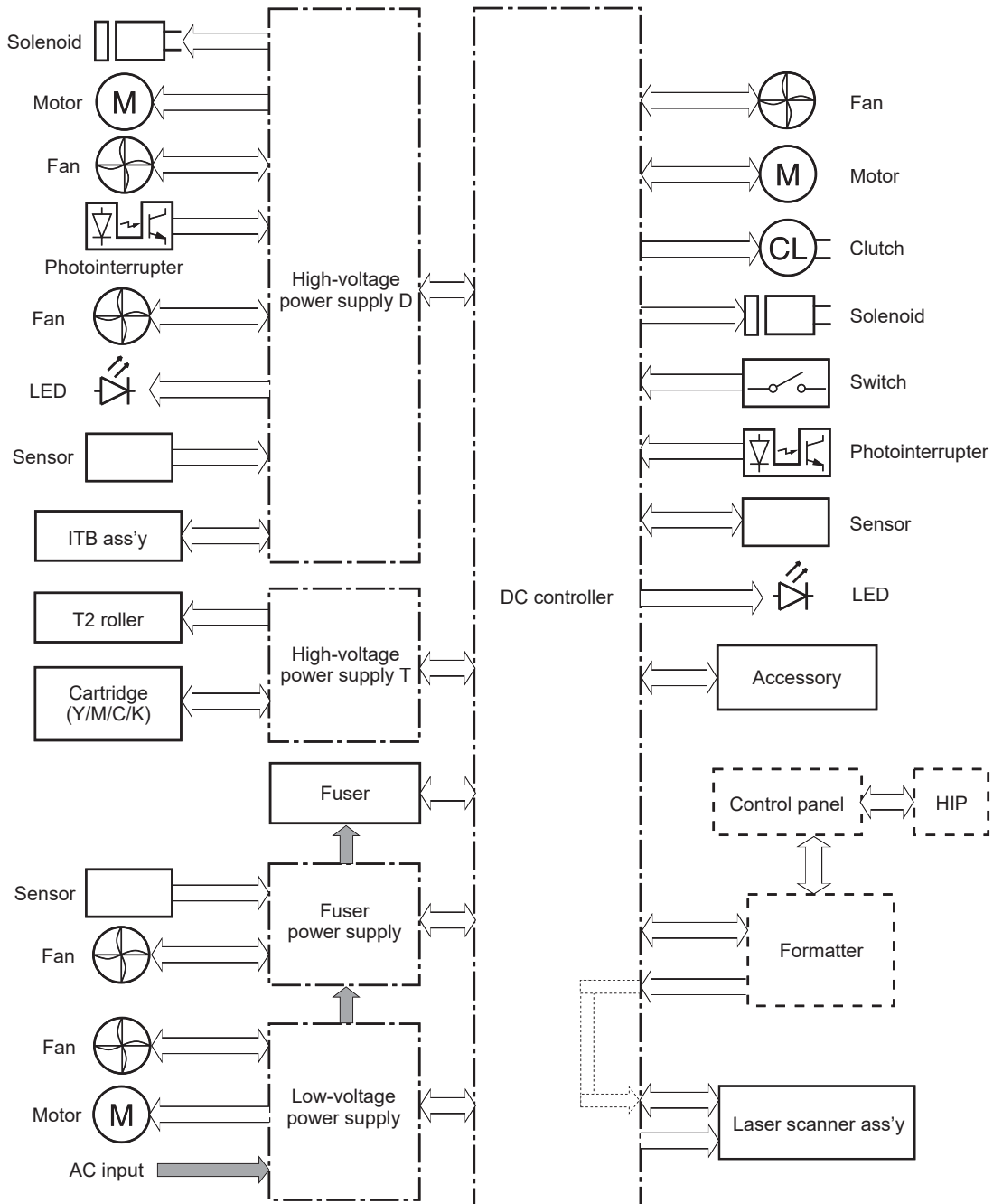
Figure 1-3 Engine-control system



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 1-4 DC controller block diagram



Motors

The printer has eight 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	Replacement part number
M1	Drum motor 1	Drives the yellow photosensitive drum, yellow developing roller, and magenta developing roller	Yes	Drum motor (RM2-0078-000CN)
M2	Drum motor 2	Drives the magenta photosensitive drum, cyan photosensitive drum, and cyan developing roller	Yes	Drum motor (RM2-0078-000CN)
M3	Drum motor 3	Drives the black photosensitive drum, black developing roller, and ITB	Yes	Drum motor (RM2-0078-000CN)
M4	Fuser motor	Drives the pressure roller and delivery roller; the pressurization and release of the pressure roller; and the engagement and disengagement of the primary and secondary transfer rollers	Yes	Fuser drive assembly (RM2-0009-000CN)
M5	Pickup motor	Drives the registration roller, Tray 1 pickup roller, Tray 2 pickup roller, and Tray 2 feed roller	No	Paper pickup drive assembly (RM2-0008-000CN)
M6	Developer disengagement motor	Drives the engagement and disengagement of the developing rollers	No	Stepping motor (RK2-6027-000CN)
M7	Scanner motor	Drives the scanner mirror	Yes	Laser scanner assembly (RM2-6545-000CN)
M8	Duplex reverse motor (M552dn, M553dn, M553x, and M577 only)	Drives the duplex reverse roller	No	Duplex drive assembly (RM2-0006-000CN)

Fans

The printer has four 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 the fan locks for a specified time from when the fan starts.

Table 1-3 Fans

Abbreviation	Name	Cooling area	Type	Speed	Replacement part number
FM1	Power supply fan	Around the low-voltage power supply unit	Intake	Full/half	Fan (RK2-2416-000CN)
FM2	Cartridge fan	Around the toner cartridges	Intake	Full	Fan (RK2-6124-000CN)
FM3	Delivery fan	Around the output tray Around the fuser area	Exhaust	Full/half	Fan (RK2-2728-000CN)
FM4	Fuser fan	Around the fuser	Exhaust	Full/half	Fan (RK2-2418-000CN)

Solenoids

Table 1-4 Solenoids

Abbreviation	Component name
SL1	Primary transfer roller disengagement solenoid
SL2	Tray 1 pickup solenoid
SL3	Duplex reverse solenoid (M552dn, M553dn, M553x, and M577 only)

Clutches

Table 1-5 Clutches

Abbreviation	Component name
CL1	Tray 2 pickup clutch
CL2	Duplex re-pickup clutch (M552dn, M553dn, M553x, and M577 only)

Switches

Table 1-6 Switches

Abbreviation	Component name	Replacement part number
SW1	24V interlock switch	Interlock switch cable assembly (RM2-7206-000CN; part not available)
SW3	Right door switch	Switch button (WC2-5806-000CN; part not available)
SW4	Power supply switch	Lever, switch (RC4-0131-000CN; part not available)

Table 1-6 Switches (continued)

Abbreviation	Component name	Replacement part number
SW5	Tray 2 detection switch	Switch button (WC2-5806-000CN; part not available)
SW1001	Test print switch	Part not available

Sensors

Table 1-7 Sensors

Abbreviation	Component name	Replacement part
PS1	Loop sensor	Part not available
SE1	Media sensor	Registration assembly <ul style="list-style-type: none"> • RM2-0093-000CN (M553n) • RM2-0018-000CN (M552dn, M553dn, M553x, M577)
SR1	Drum home position sensor 1	Part not available
SR2	Drum home position sensor 2	Part not available
SR3	Drum home position sensor 3	Part not available
SR4	Developing home position sensor	Part not available
SR5	Primary transfer roller disengagement sensor	Estrangement detect PCA assembly (RM2-7157-000CN)
SR6	Top-of-page (TOP) sensor (M552dn, M553dn, M553x and M577 only)	Part not available
SR6N	Top-of-page (TOP) sensor (M553n only)	Part not available
SR8	Tray 1 media-out sensor	Part not available
SR9	Fuser delivery sensor	Part not available
SR10	Output bin media-full sensor	Part not available
SR11	Fuser pressure release sensor	Photointerrupter (WG8-5953-000CN; part not available)
SR12	Tray 2 media-out sensor	Part not available
SR13	Media width sensor, front (M552dn, M553dn, M553x and M577 only)	Part not available
SR13N	Media width sensor, front (M553n only)	Part not available
SR14	Media width sensor, rear (M552dn, M553dn, M553x and M577 only)	Part not available
SR14N	Media width sensor, rear (M553n only)	Part not available
	Registration density sensor	Density detect assembly (RM2-7160-000CN)
	Environment sensor (temperature and humidity)	Environment sensor PCA (RM2-7154-000CN)
	Yellow toner-level sensor	Cartridge lift-up rail assembly (RM2-0025-000CN; part not available)
	Magenta toner-level sensor	Cartridge lift-up rail assembly (RM2-0025-000CN; part not available)
	Cyan toner-level sensor	Cartridge lift-up rail assembly (RM2-0025-000CN; part not available)
	Black toner-level sensor	Cartridge lift-up rail assembly (RM2-0025-000CN; part not available)
	Residual toner collection unit full sensor	Waste toner detect PCA (RM2-7130-000CN)

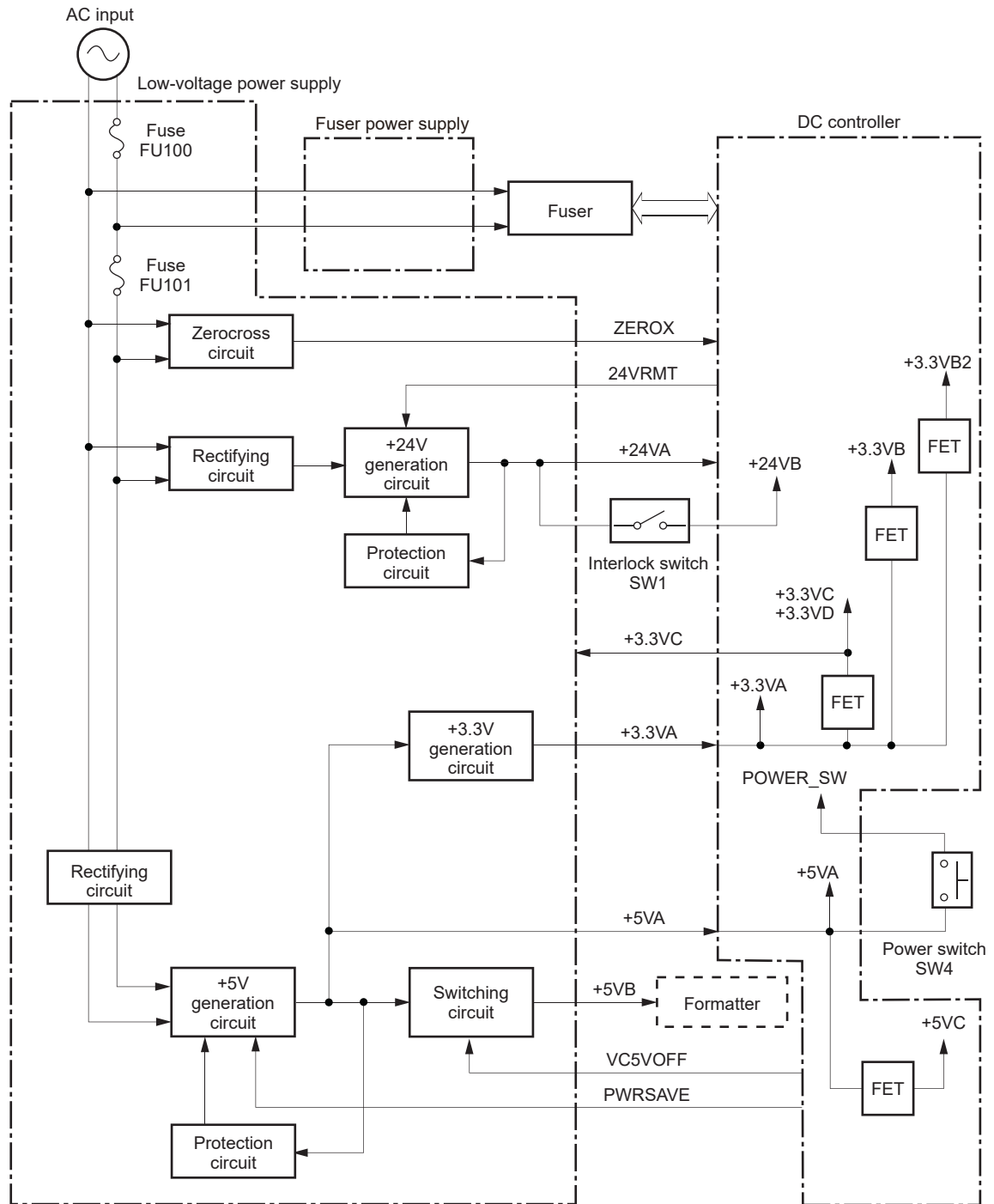
Table 1-7 Sensors (continued)

Abbreviation	Component name	Replacement part
	Pre-exposure LED 1-3	Pre-exposure PCA (RM2-7168-000CN)
	Pre-exposure LED 4	Pre-exposure PCA (RM2-7169-000CN)

Low-voltage power supply

The low-voltage power-supply (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

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

Table 1-8 Converted DC voltages

Main DC voltage	Sub-voltage	Behavior
+24 V	+24 VA	Constantly supplied Stopped during active OFF or inactive OFF
	+24 VB	Interrupted when the right door is open (SW1)
	+24 VC	Interrupted when the right door is open (SW1)
+5 V	+5 VA	Constantly supplied
	+5 VB	Constantly supplied
	+5 VC	Constantly supplied Stopped during active OFF or inactive OFF
+3.3 V	+3.3 VA	Constantly supplied
	+3.3 VB	Constantly supplied Stopped during inactive OFF
	+3.3 VC	Constantly supplied Stopped during active OFF or inactive OFF
	+3.3 VD	Constantly supplied Stopped during active OFF or inactive OFF

Over-current/over-voltage protection

The low-voltage power supply automatically stops supplying the DC voltage to the printer components whenever it detects excessive current or abnormal voltage. The low-voltage power supply 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 low-voltage power supply, 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 a low-voltage power supply failure. In addition, the low-voltage power supply has two fuses to protect against over-current. If over-current flows into the AC line, the fuse stops the AC power.

Sleep mode operation

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 low-voltage power supply has failed, and it notifies the formatter.

Low-voltage power supply failure detection

The DC controller determines a low-voltage power supply failure and notifies the formatter when the low-voltage power supply does not supply +24 V.

Low-voltage power supply functions

The printer has the following low-voltage power supply functions.

Table 1-9 Low-voltage power supply functions

Function	Supported feature
Sleep mode	Yes
Power supply voltage detection	Yes
Automatic power OFF	Yes
Automatic power ON/OFF	Yes
Active OFF	Yes
Inactive OFF	Yes
Network mode	No
Power switch illumination	Yes
Low-voltage power supply failure detection	Yes
Power save mode	No

High-voltage power supply

The DC controller controls the high-voltage power supply (HVPS) to generate biases. The high-voltage power supply 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
- Pressure roller
- ITB cleaning brush

High-voltage power supply circuits

The high-voltage power supply contains the following separate circuits.

Figure 1-6 High-voltage power supply circuits

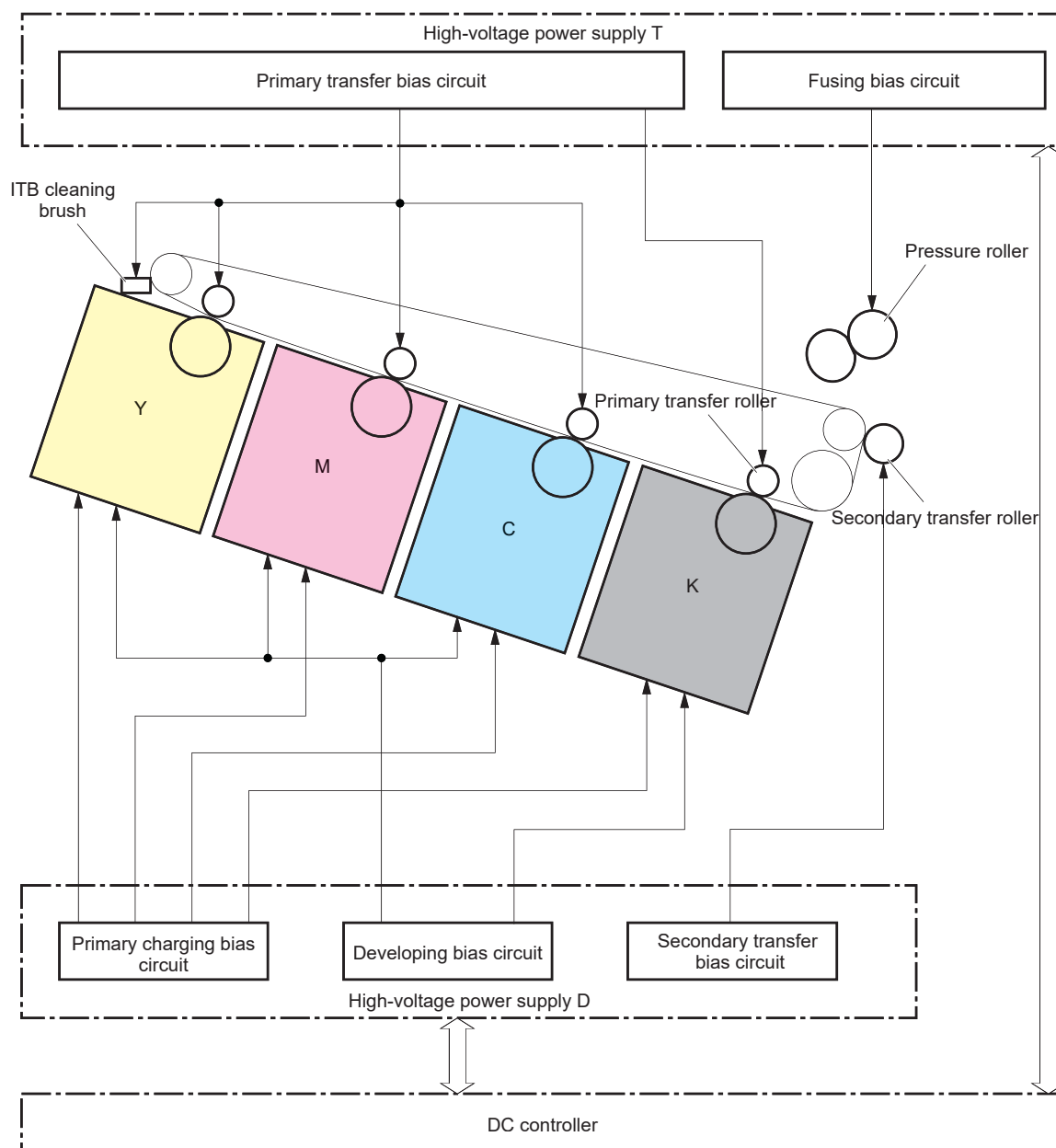


Table 1-10 High-voltage power supply circuits

Circuit	Description
Primary-charging-bias generation	The primary charging bias negatively charges the surface of the photosensitive drum to prepare for image formation.

Table 1-10 High-voltage power supply circuits (continued)

Circuit	Description
Developing-bias generation	The developing bias adheres toner to an electrostatic latent image formed on the photosensitive drums.
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

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, HVPS (T).

Fuser control

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

The fuser heater control circuit and the fuser heater safety circuit control the fuser temperature according to commands from the DC controller. The fuser consists of the following major components:

Figure 1-7 Fuser components

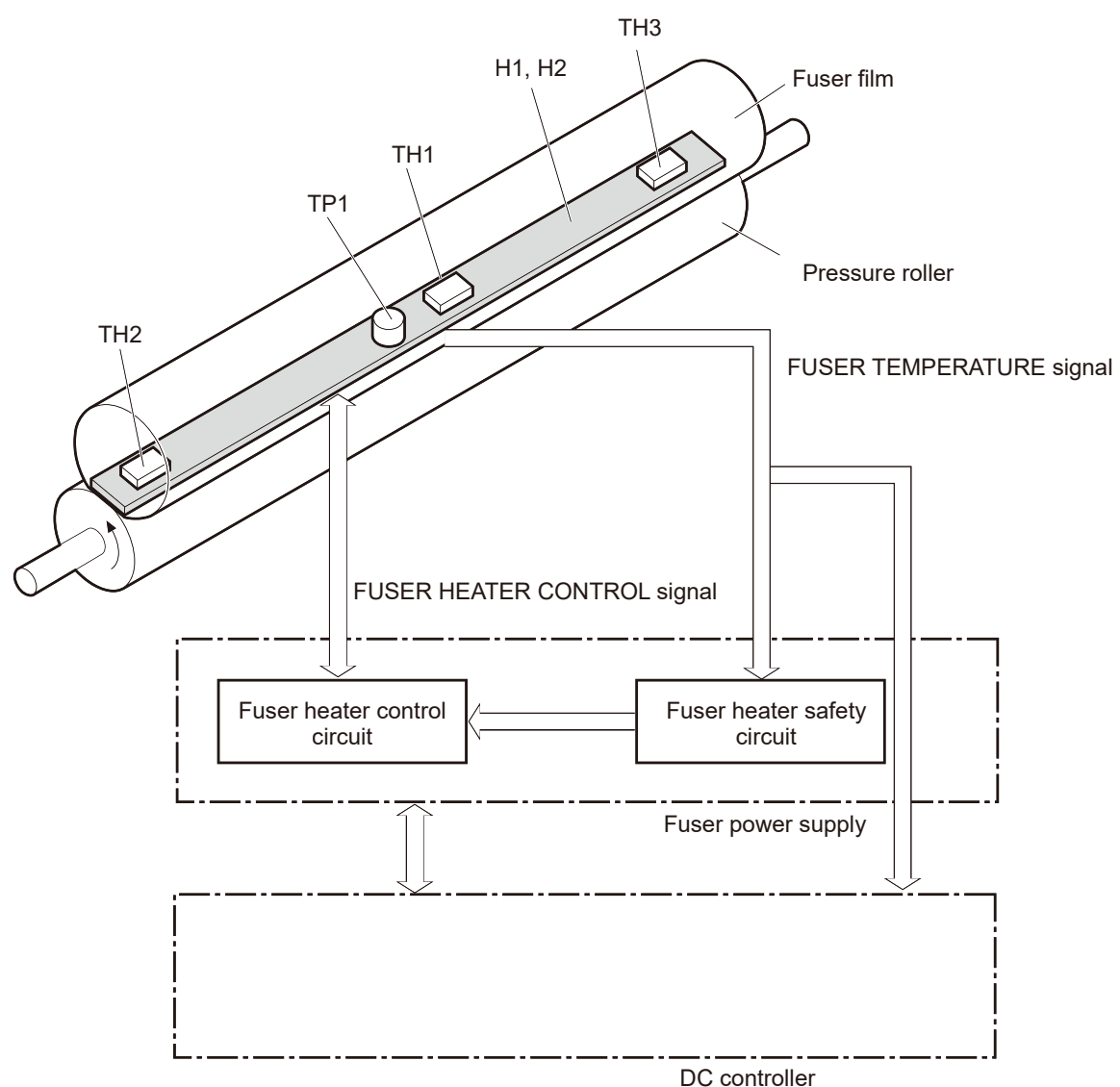


Table 1-11 Fuser components

Type of component	Abbreviation	Name	Function
Heaters	H1	Fuser main heater	Heats the center of the fuser sleeve
	H2	Fuser sub-heater	Heats the edge of the fuser sleeve
Thermistors	TH1	Main thermistor	Detects the center temperature of the fuser heater
(Contact type)	TH2	Sub-thermistor 1	Detects the temperature at one end of the fuser heater

Table 1-11 Fuser components (continued)

Type of component	Abbreviation	Name	Function
	TH3	Sub-thermistor 2	Detects the temperature at one end of the fuser heater
Thermoswitch (Non-contact type)	TP1	Thermoswitch	Prevents an abnormal temperature rise in the fuser heater

Fuser control functions

The printer has the following fuser control functions.

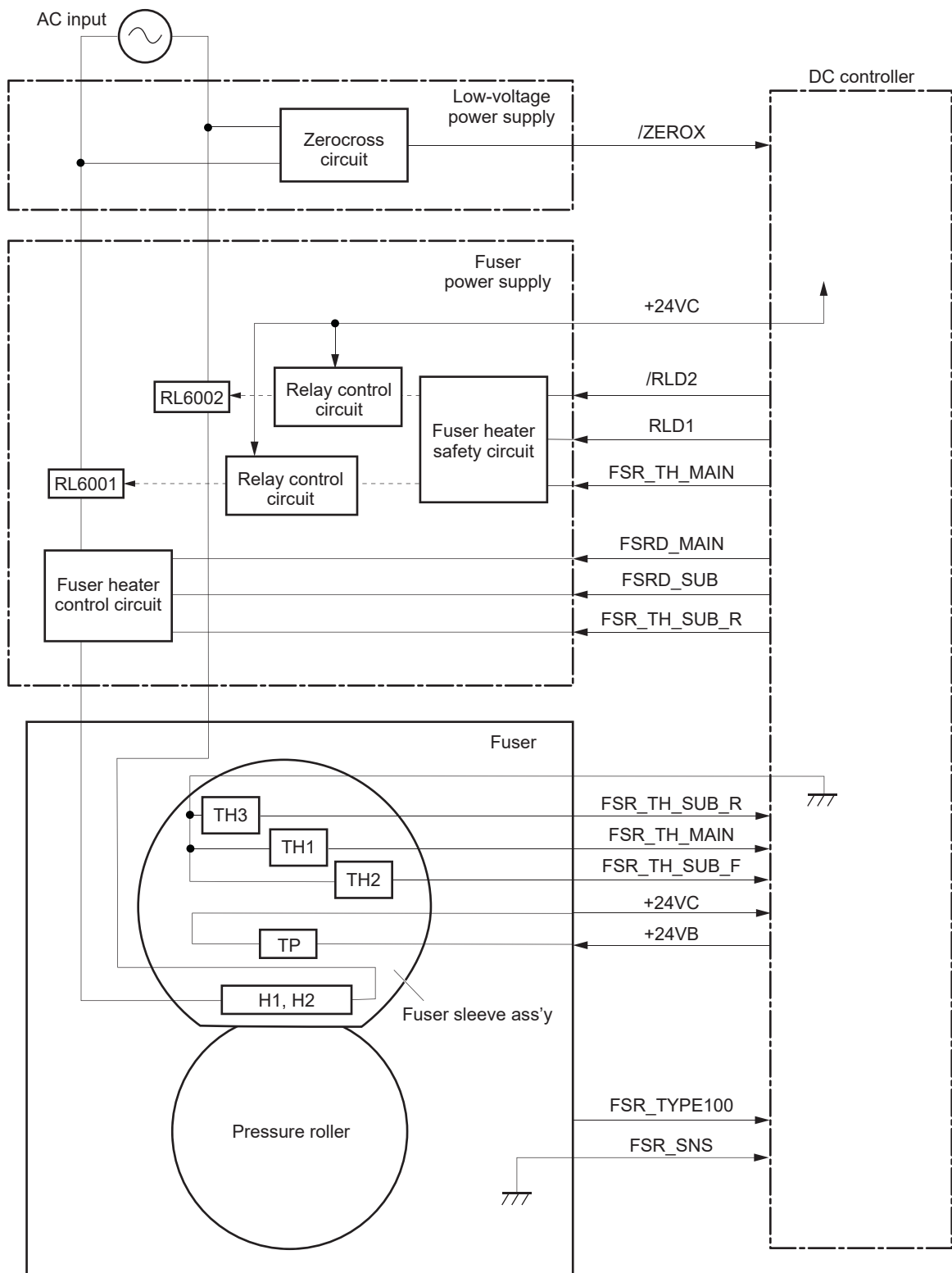
Table 1-12 Low-voltage power supply functions

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

Fuser temperature control

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

Figure 1-8 Fuser temperature-control circuit



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 the fuser heater from excessive rising temperature:

- **DC controller:** When a thermistor or sub-thermistor detects a temperature above a certain threshold, the DC controller interrupts power to the specific heater.
- **Fuser-heater safety circuit:** The fuser heater safety circuit monitors the detected temperature of the sub-thermistors.
- **Thermoswitch:** If the temperature in the heaters is abnormally high, and the temperature in the thermoswitch exceeds a specified value, the contact to the thermoswitch breaks.

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. 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

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.

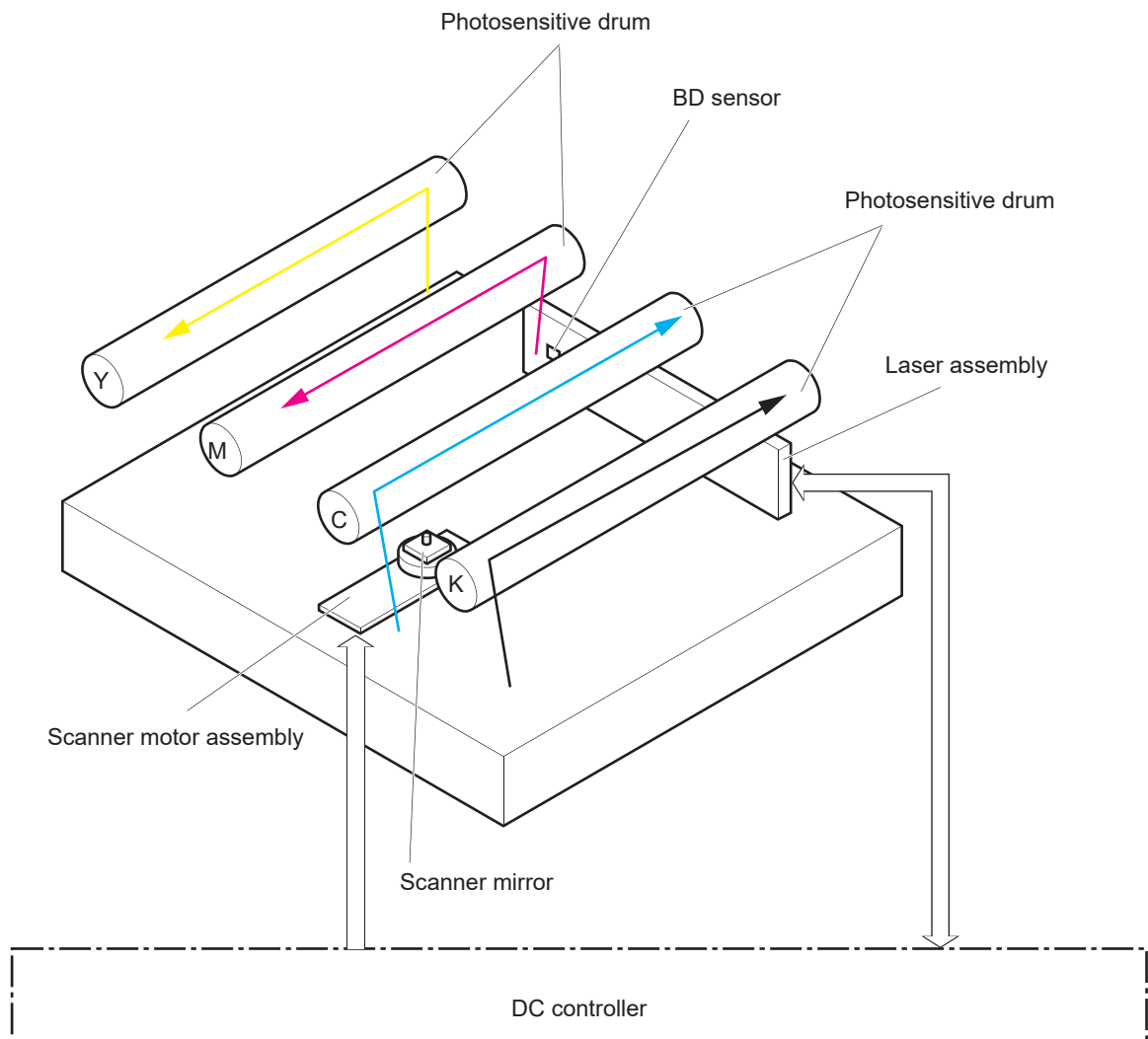
Engine laser/scanner system

The laser/scanner system forms the latent electrostatic image on the photosensitive drums inside each of the toner cartridges.

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 are the laser assembly and the scanner motor assembly, which are controlled by signals sent from the DC controller.

Figure 1-9 Laser/scanner system



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:

- **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.

Safety

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 top door is opened (SW101).

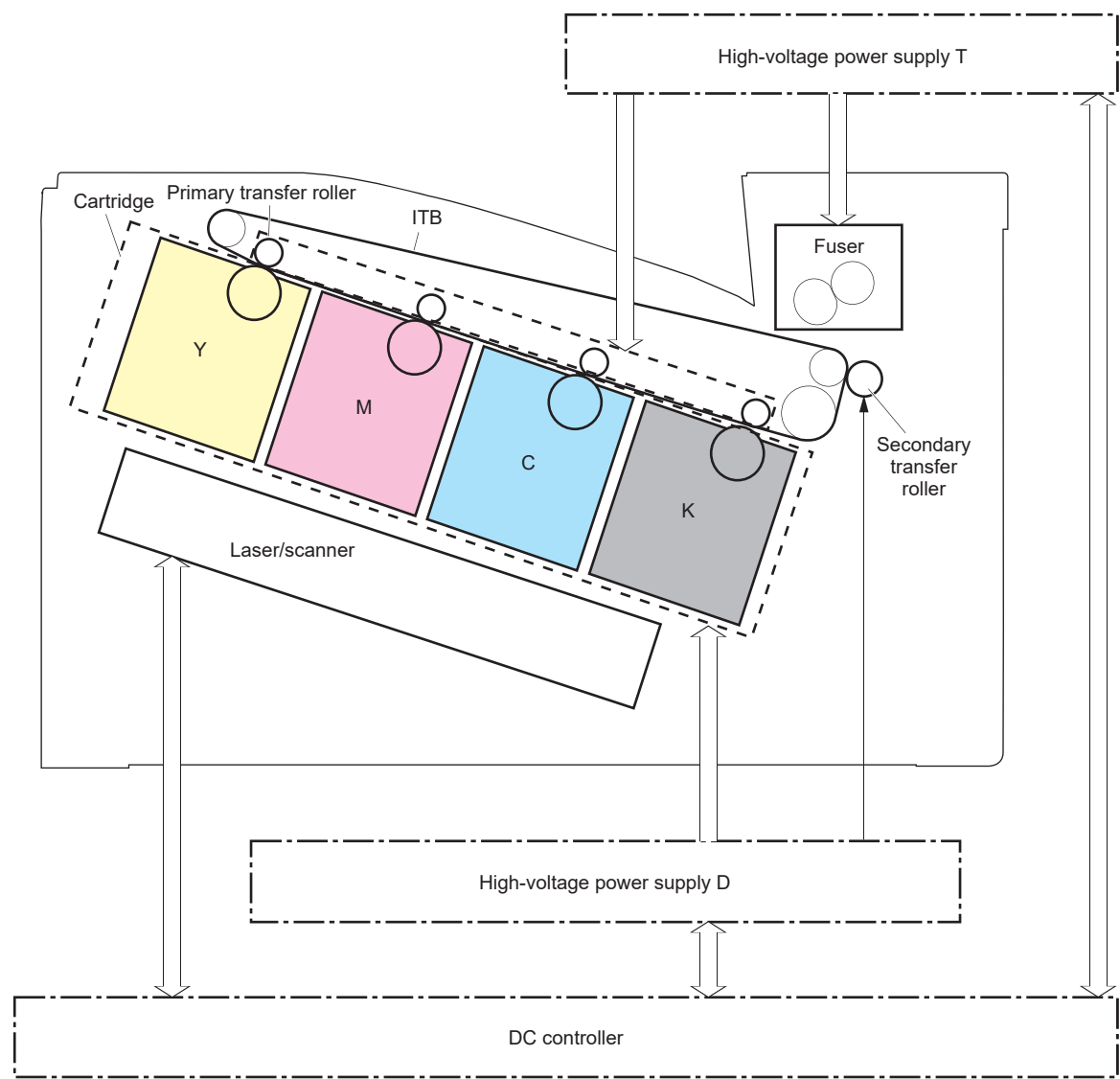
Image-formation process

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

- Toner cartridges
- Intermediate transfer belt (ITB)
- Primary transfer roller
- Secondary transfer roller
- Fuser
- Laser/scanner
- High-voltage power supply D
- High-voltage power supply T

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 following figure shows the motors for the image-formation system.

Figure 1-11 Motors

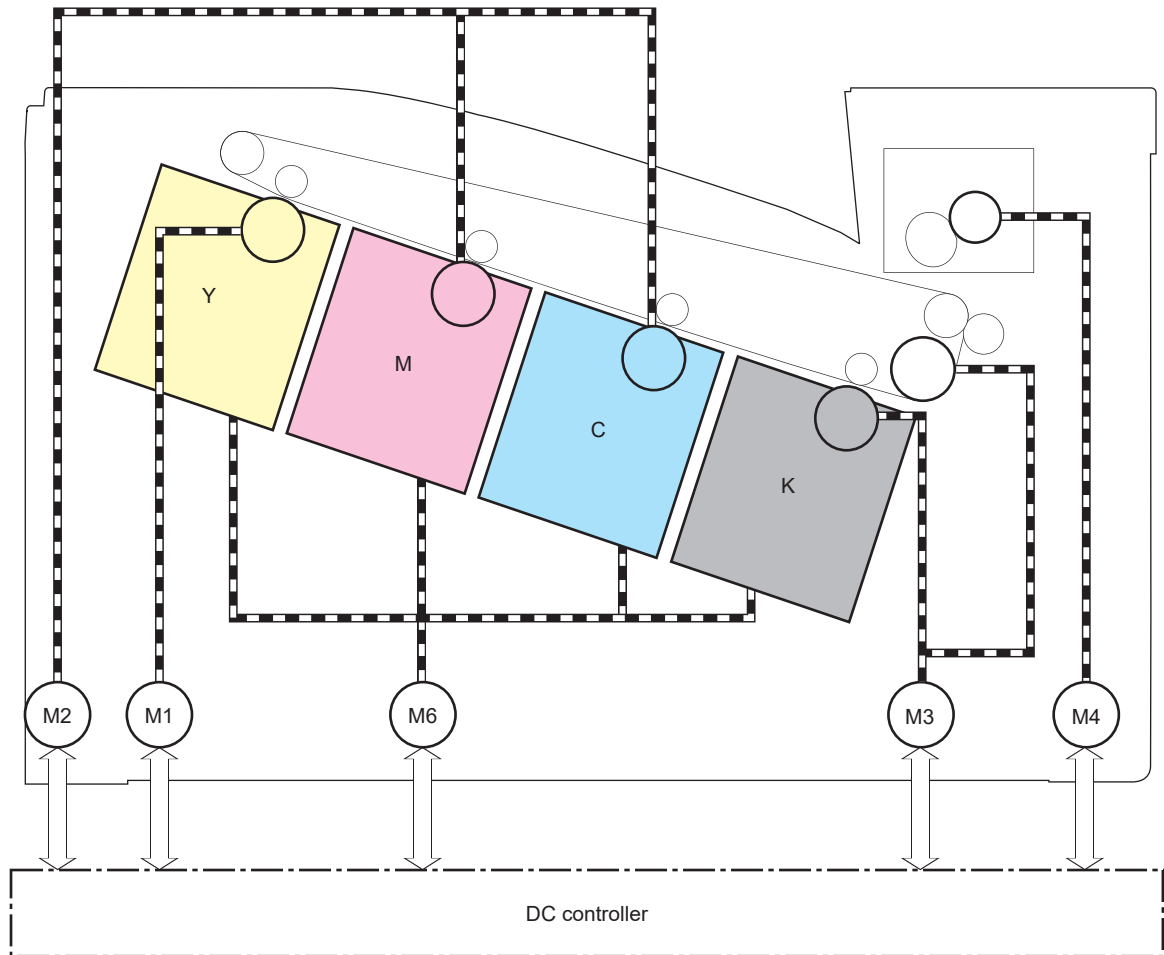


Table 1-13 Motors

Abbreviation	Component	Replacement part number
M1	Drum motor 1	Drum motor assembly (RM2-0078-000CN)
M2	Drum motor 2	Drum motor assembly (RM2-0078-000CN)
M3	Drum motor 3	Drum motor assembly (RM2-0078-000CN)
M4	Fuser motor	Fuser motor assembly (RM2-0077-000CN)
M6	Developer disengagement motor	Stepping motor (RK2-6027-000CN)

The following figure shows the sensors for the image-formation system.

Figure 1-12 Sensors

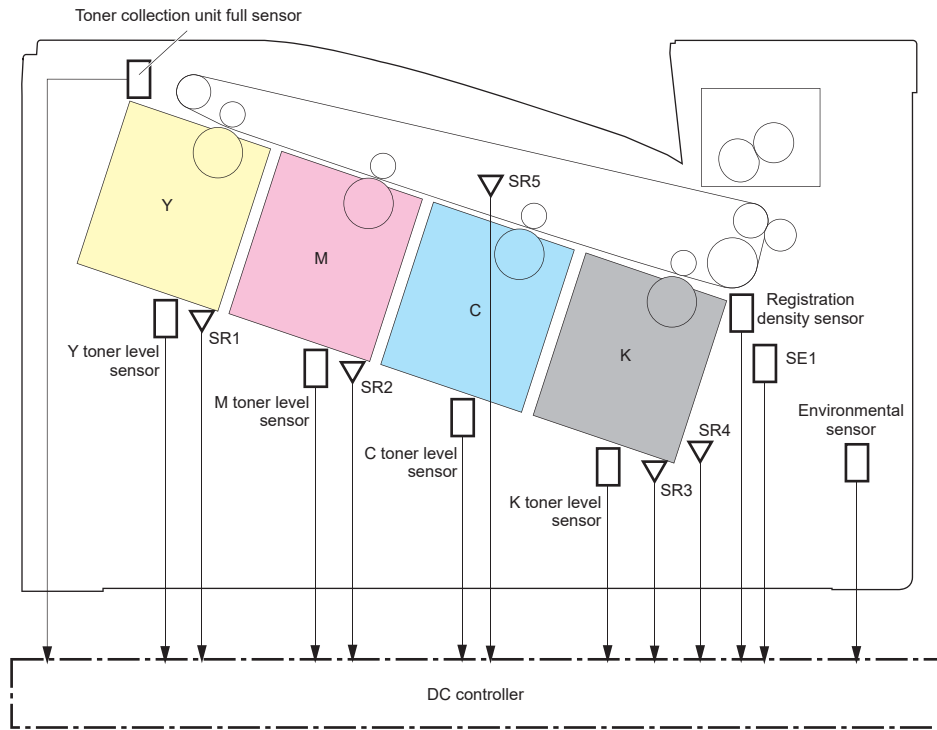


Table 1-14 Sensors

Abbreviation	Component	Replacement part number
SR1	Drum home position sensor 1	Main motor drive assembly (B5L25-67902)
SR2	Drum home position sensor 2	Main motor drive assembly (B5L25-67902)
SR3	Drum home position sensor 3	Main motor drive assembly (B5L25-67902)
SR4	Developing home position sensor	Main motor drive assembly (B5L25-67902)
SR5	Primary transfer roller disengagement sensor	Estrangement detect PCA assembly (RM2-7157-000CN)
SE1	Media sensor	Registration assembly <ul style="list-style-type: none"> • RM2-0093-000CN (M553n) • RM2-0018-000CN (M552dn, M553dn, M553x, M577)
	Yellow toner-level sensor	Part not available
	Magenta toner-level sensor	Part not available
	Cyan toner-level sensor	Part not available
	Black toner-level sensor	Part not available
	Registration density sensor	Density detect assembly (RM2-7160-000CN)
	Environmental sensor	Environmental sensor PCA assembly (RM2-7154-000CN)
	Toner collection unit full sensor	Waste toner detect PCA assembly (RM2-7130-000CN)
	Pre-exposure LEDs 1, 2, and 3	Pre-exposure PCA assembly (RM2-7168-000CN)
	Pre-exposure LED 4	Pre-exposure PCA assembly (RM2-7169-000CN)

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

Figure 1-13 Image-formation process

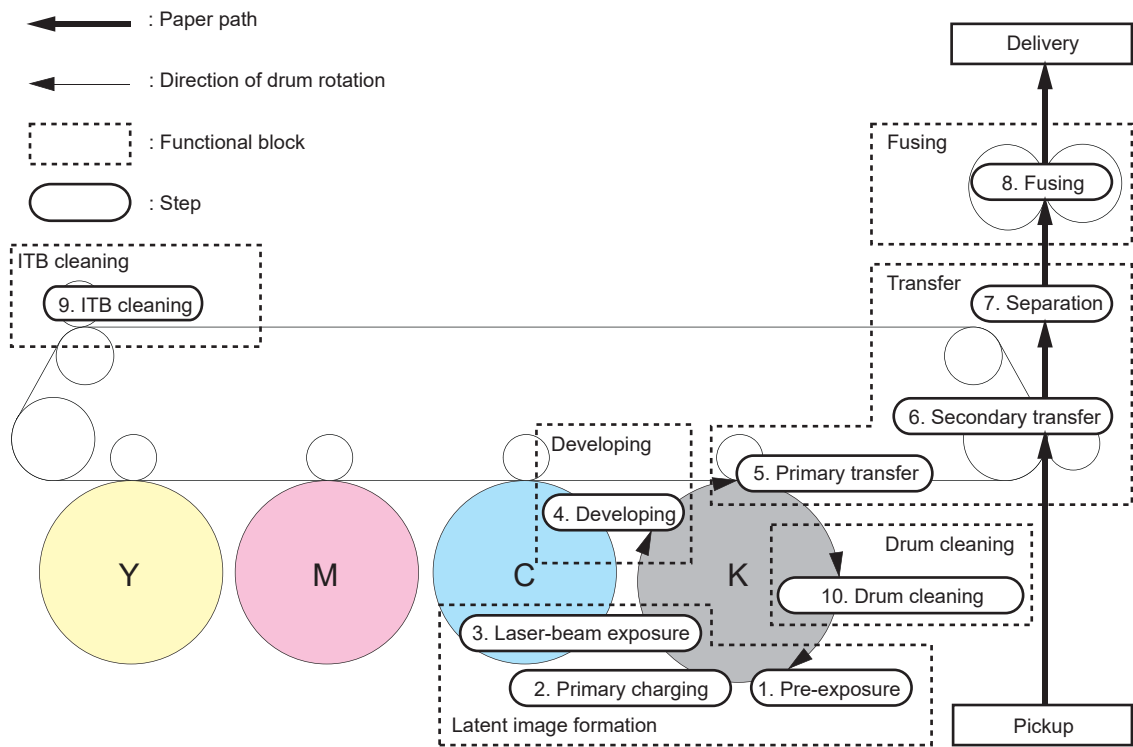


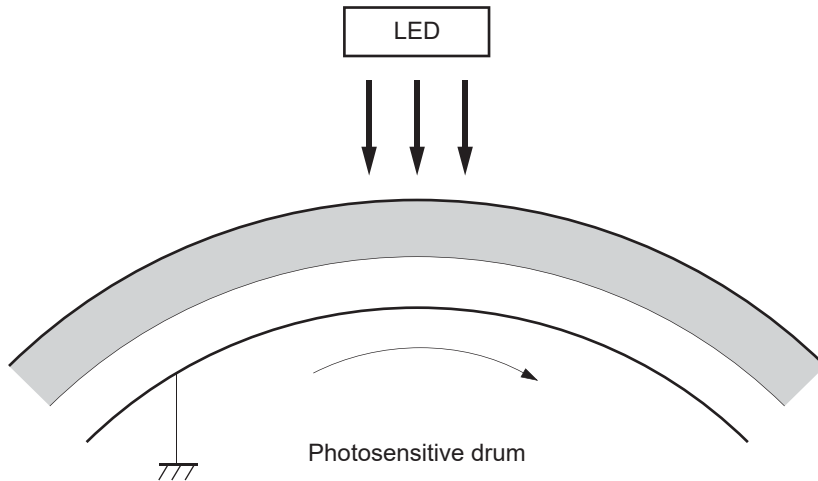
Table 1-15 Image formation process

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

Step 1: Pre-exposure

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

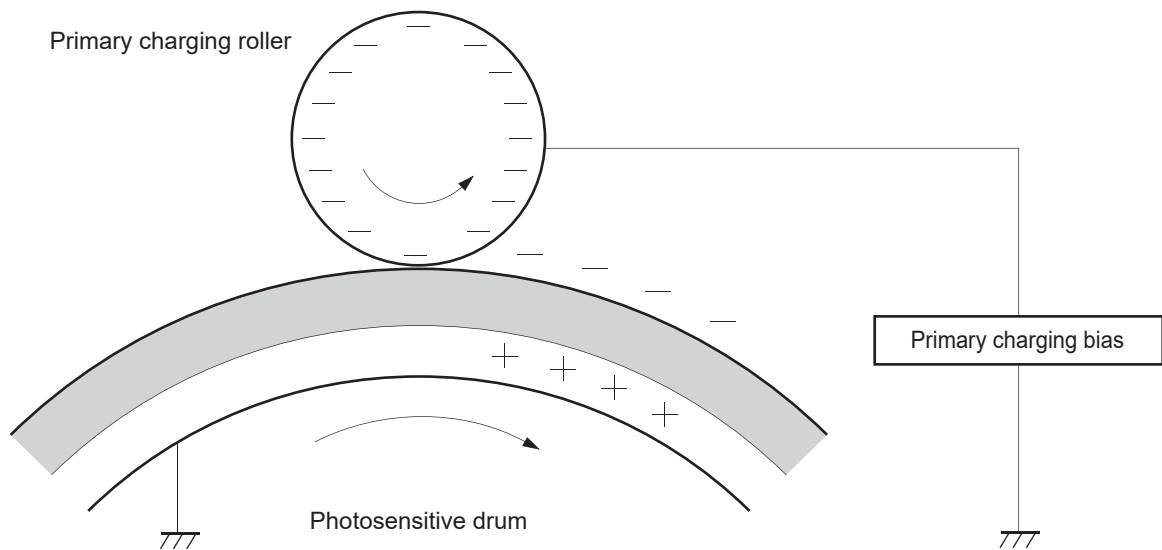
Figure 1-14 Pre-exposure



Step 2: Primary charging

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

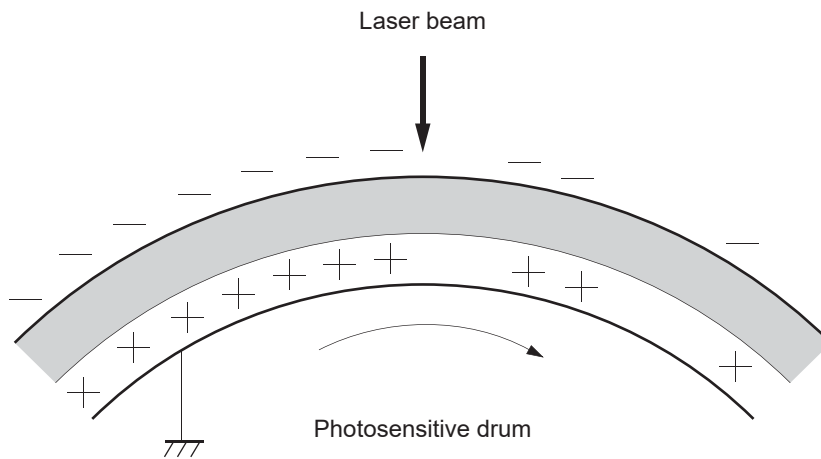
Figure 1-15 Primary charging



Step 3: Laser-beam exposure

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.

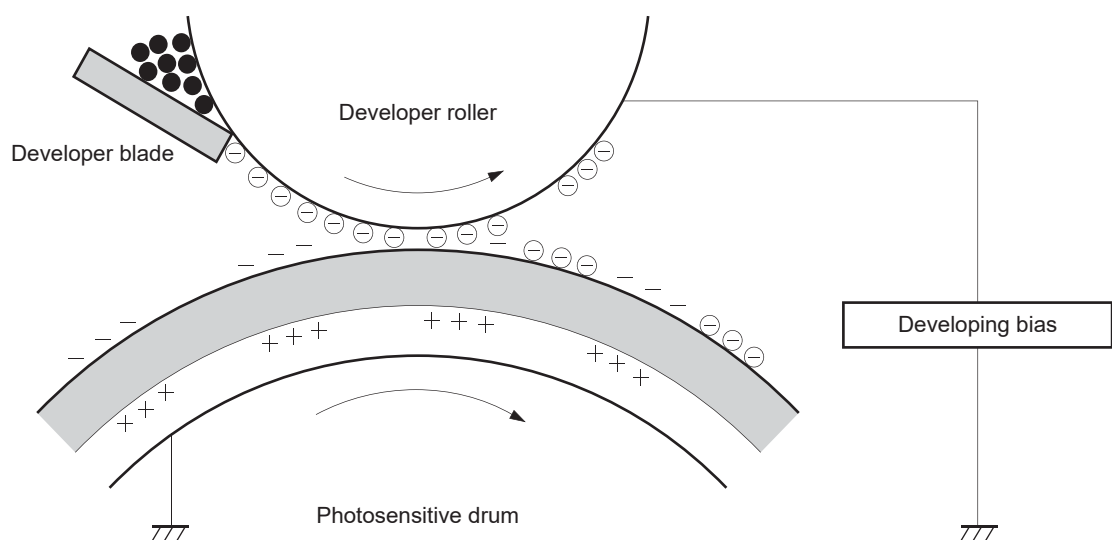
Figure 1-16 Laser-beam exposure



Step 4: Development

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.

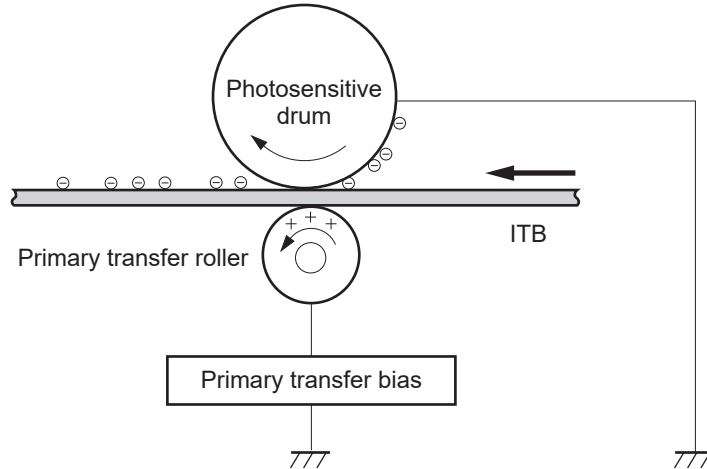
Figure 1-17 Development



Step 5: Primary transfer

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.

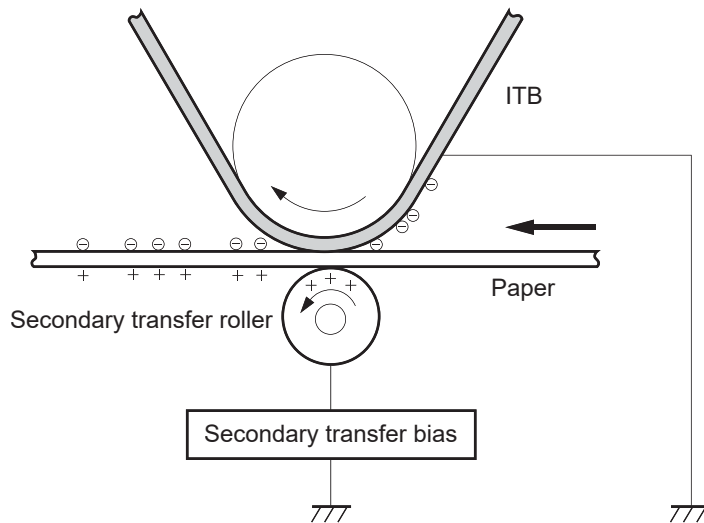
Figure 1-18 Primary transfer



Step 6: Secondary transfer

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.

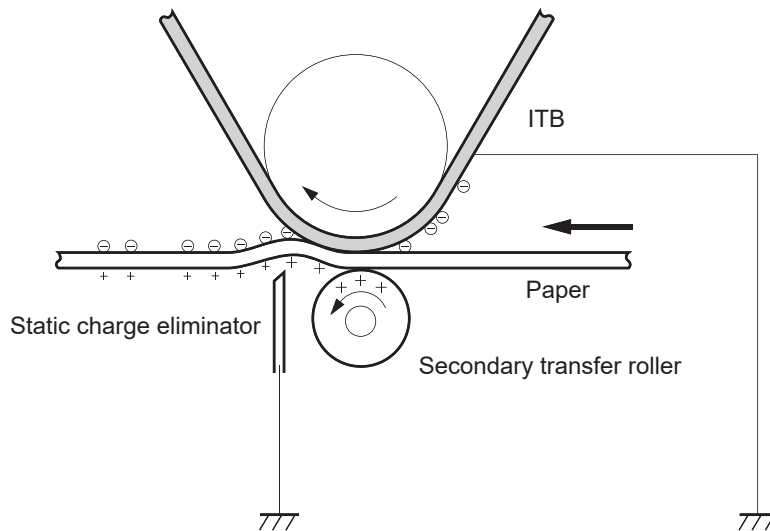
Figure 1-19 Secondary transfer



Step 7: Separation

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.

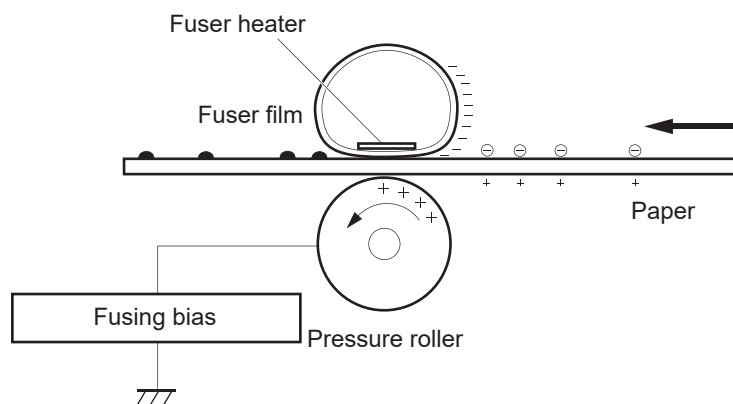
Figure 1-20 Separation



Step 8: Fusing

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.

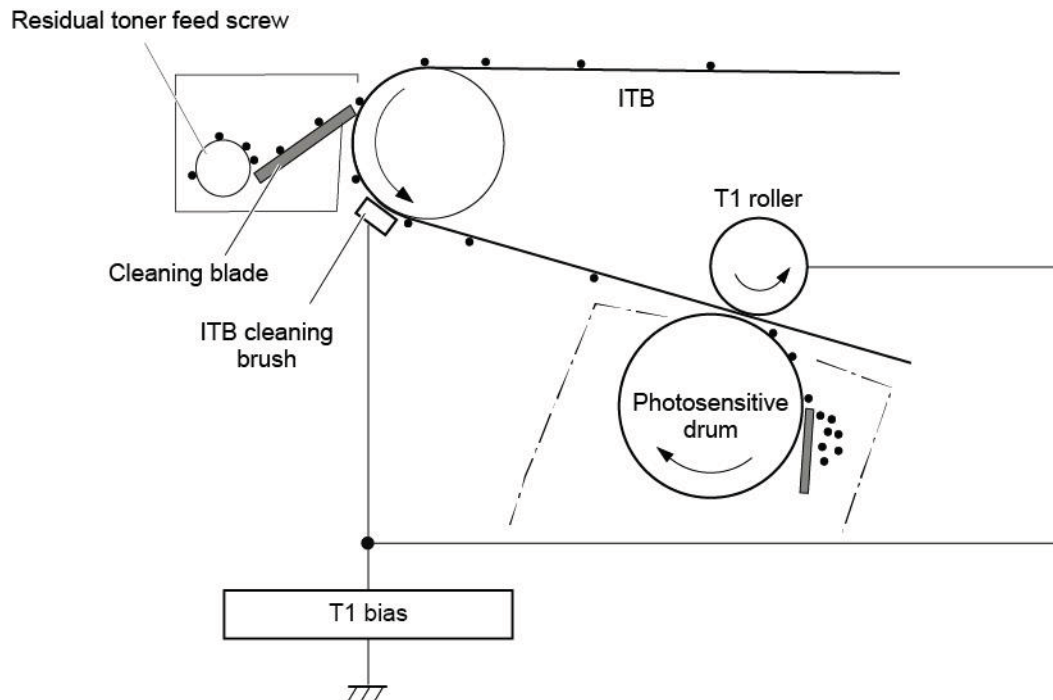
Figure 1-21 Fusing



Step 9: ITB cleaning

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 the photosensitive drum by the primary transfer (T1) roller.

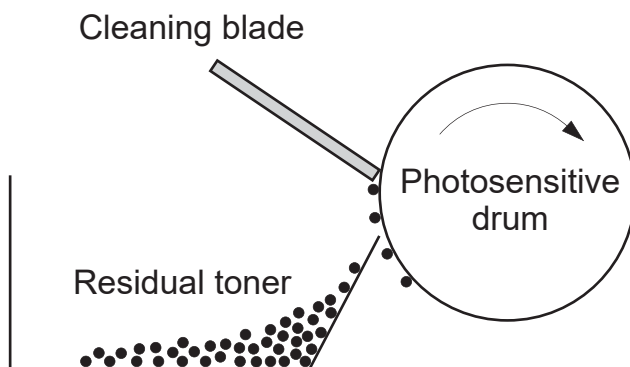
Figure 1-22 ITB cleaning



Step 10: Drum cleaning

The cleaning blade scrapes the residual toner off the surface of the photosensitive drum, and toner is deposited in the toner collection portion of the cartridge.

Figure 1-23 Drum cleaning



Toner cartridges

The printer has four toner cartridges, one for each color: cyan, magenta, yellow, and black.

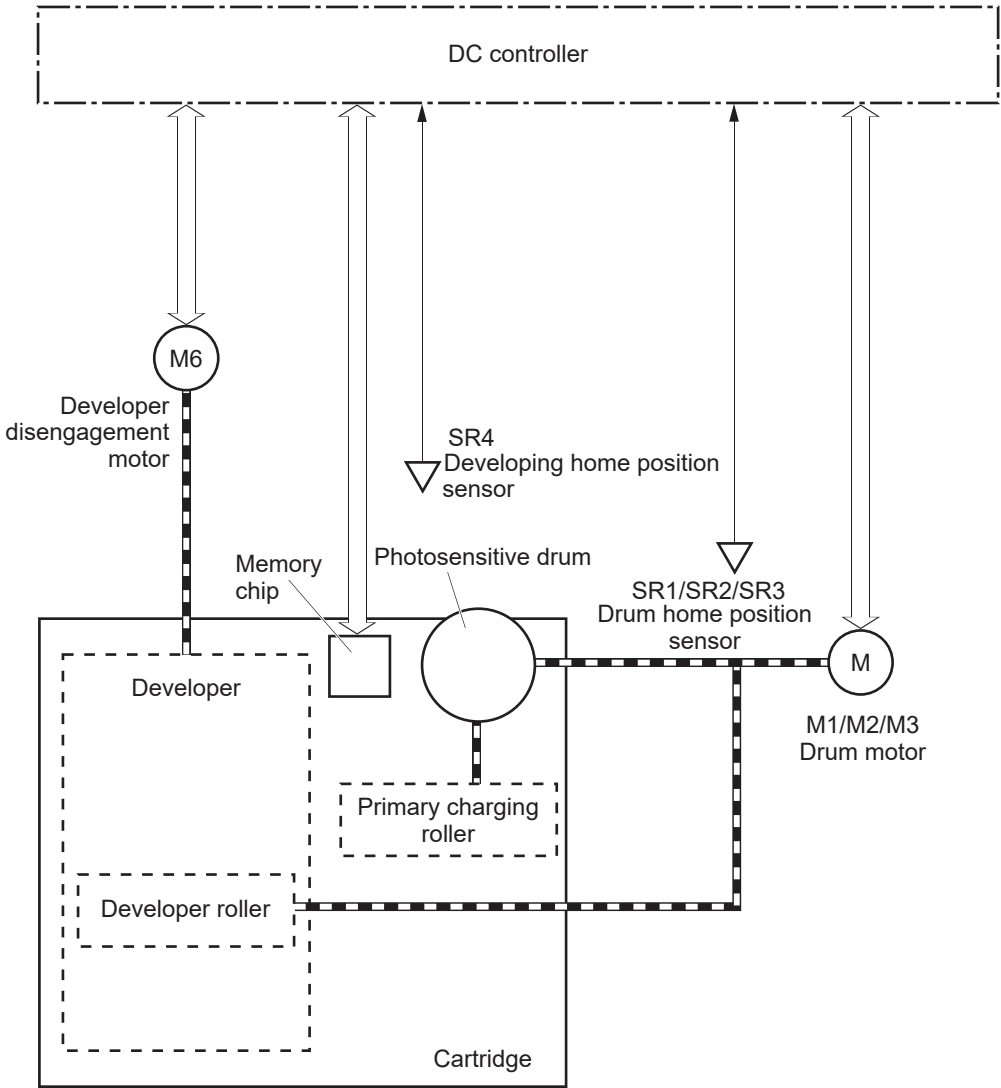
Design

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

- Photosensitive drum
- Developer roller
- Primary-charging roller
- Memory chip

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

Figure 1-24 Toner cartridge system



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.

Toner seal

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

Toner level and cartridge life detection

Toner level detection: The DC controller detects the remaining toner in the cartridge by the optical detection method and then notifies the formatter of the remaining toner level.

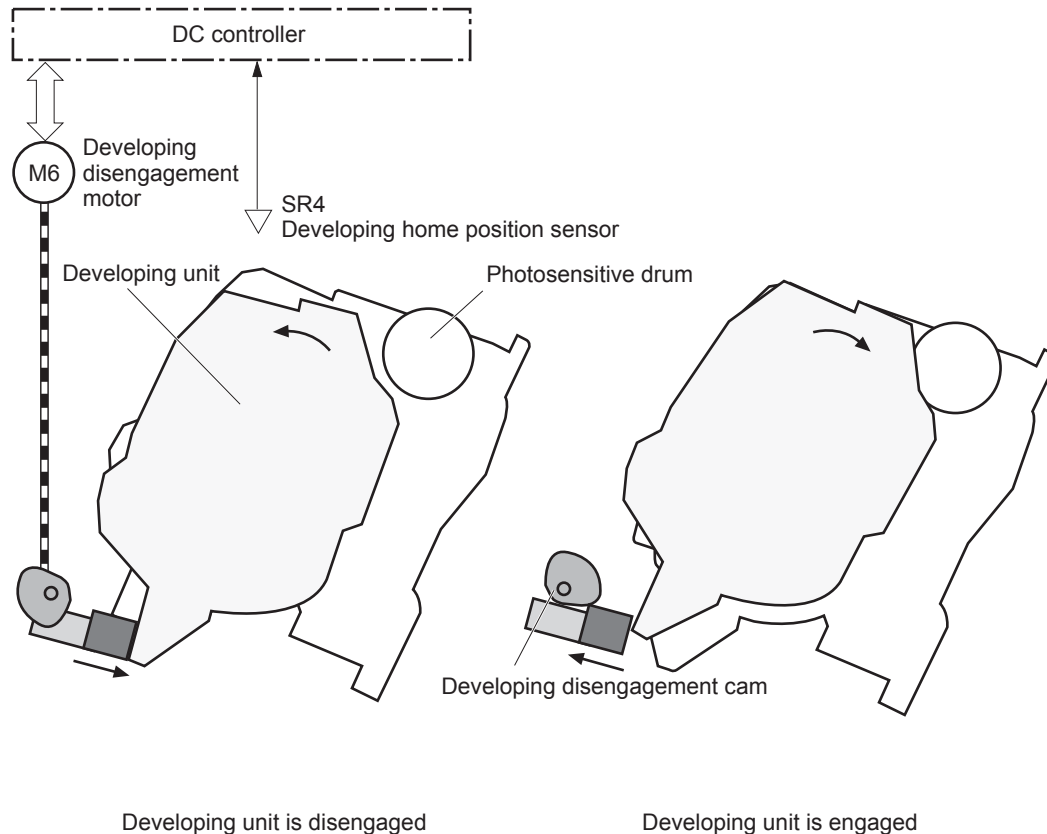
Cartridge life detection: Cartridge life detection is measured in two ways.

1. Toner level:
 - For the first 75% of cartridge life, toner level is measure through pixel counting by the DC controller. Once the level reaches 25%, the toner level sensor utilizes electrical properties to determine the amount of toner remaining.
2. Rotations of internal components (OPC and developer roller):
 - The DC controller monitors these two life parameters and reports them to the formatter as percent life remaining. End of cartridge life is determined by the lower value of the two.

Developing unit engagement and disengagement control

The printer can print in full-color mode or in black-only mode. To print in black-only mode, the printer disengages the developing rollers in the cyan, magenta, and yellow toner cartridges, which maximizes the life of the cartridges.

Figure 1-25 Developer roller engagement and disengagement control



The developer roller engagement and disengagement control operates as follows: When the printer is turned on and when each print job is completed, all four of the developing units are disengaged from the photosensitive drums.

- The drive of the developer disengagement motor rotates the developer disengagement cam.
- As the cam rotates, the developing unit engages with or separates from the photosensitive drum.

When the print mode is full color, the developing units engage with the drums. When the print mode is black-only, only the black developing unit engages with the drum.

The DC controller determines a developer disengagement motor failure and notifies the formatter when it does not detect a specified signal from the developer disengagement sensor during the developing unit engagement and disengagement operation.

Cartridge Authentication Technology (CAT)

CAT 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

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

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.



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

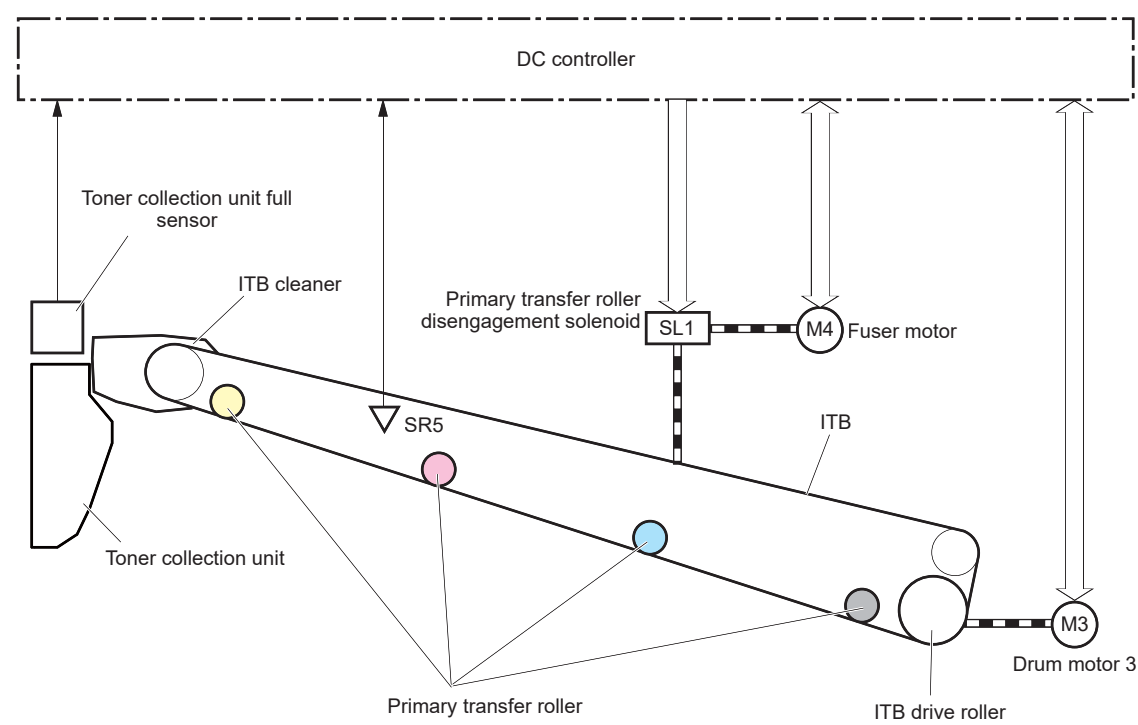
Intermediate transfer belt (ITB) unit

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:

- Intermediate transfer belt (ITB)
- ITB-drive roller
- Primary-transfer roller
- ITB cleaner

Drum motor 3 drives the ITB drive roller, which rotates the ITB. The motion of the ITB causes the primary transfer rollers to rotate. The ITB cleaner cleans the ITB surface.

Figure 1-26 ITB unit



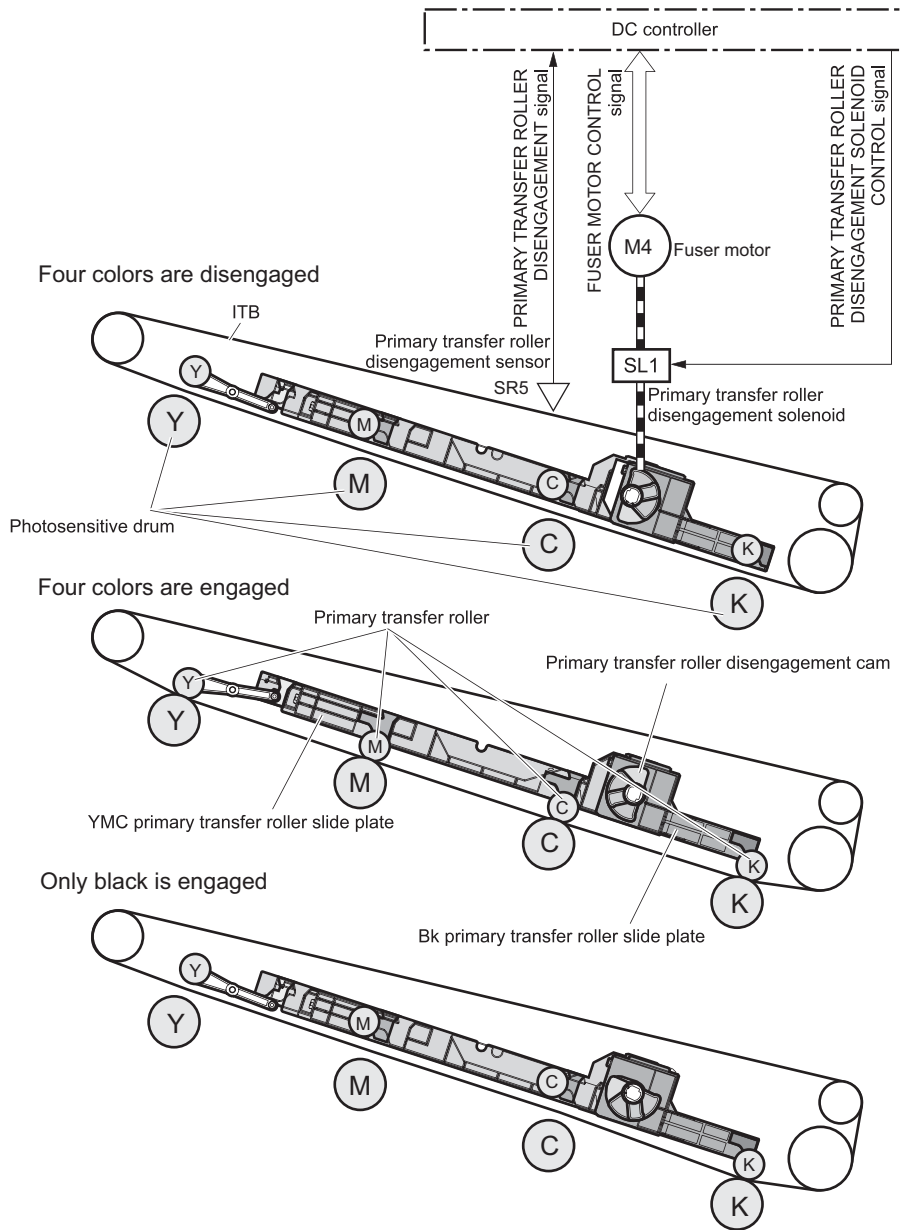
Primary-transfer roller engagement and disengagement control

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

Table 1-16 Primary-transfer roller engagement states

All rollers disengaged	The ITB is disengaged from all the four photosensitive drums. This state is the home position for the ITB unit.
All rollers engaged	The ITB is engaged with all four photosensitive drums. This is the state for full-color printing.
Black roller engaged	The ITB is engaged with only the black photosensitive drum. This is the state for black-only printing.

Figure 1-27 Three states of primary-transfer roller engagement and disengagement



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

The DC controller expects to receive a signal from the ITB home-position sensor when the primary-transfer roller engages or disengages. If the DC controller does not receive this signal, but detects that the primary-transfer-roller disengagement motor is rotating, the DC controller determines that the primary-transfer-disengagement mechanism has failed, and notifies the formatter.

ITB unit detection

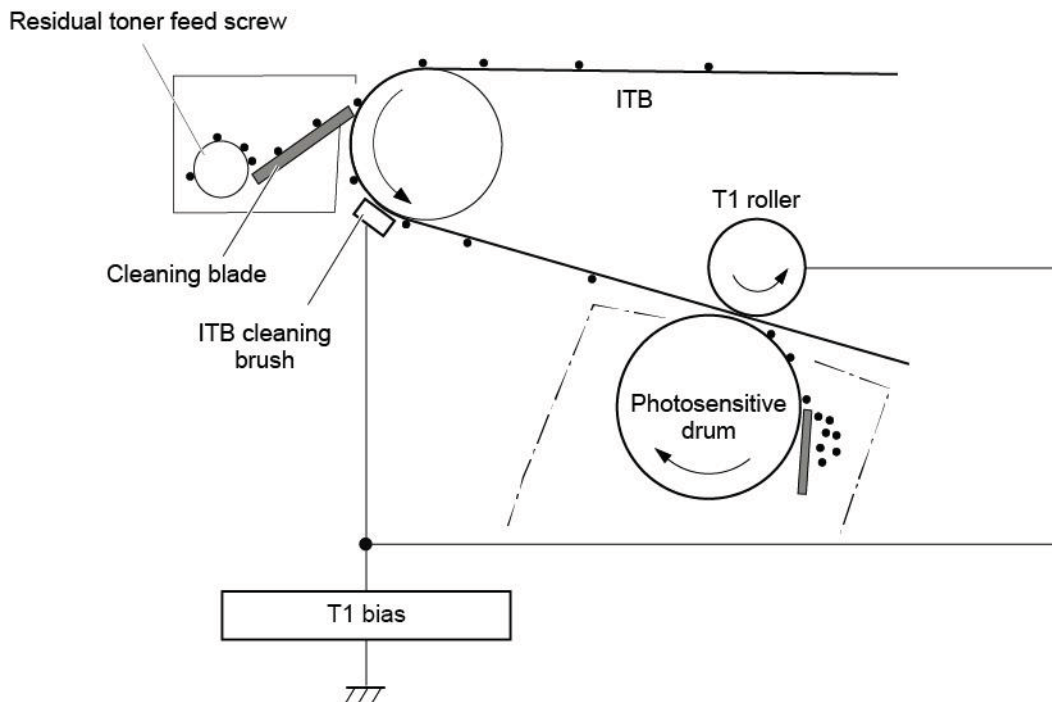
The DC controller monitors several signals from the ITB unit to detect status.

ITB unit life detection	<p>The DC controller detects whether the ITB unit is new by monitoring the new ITB unit sensor. The DC controller determines the ITB unit is at end of life and notifies the formatter when a specified number of pages are printed after the ITB unit is replaced. If swapping ITB units between two printers for troubleshooting purposes, be sure to return the ITB units to their original printers to maintain the correct life count.</p> <p>NOTE: When installing a new ITB, refer to the instructions for resetting the ITB life counter in the installation guide provided with the replacement part.</p>
ITB unit presence detection	<p>The DC controller detects the presence of an ITB unit by monitoring the primary-transfer roller disengagement sensor. The DC controller turns on the primary-transfer disengagement solenoid for specified times during an initial rotation period when the following events occur:</p> <ul style="list-style-type: none">• The printer is turned on• The printer exits sleep mode• The door is closed <p>The DC controller determines the absences of an ITB unit and notifies the formatter when it does not detect a specified signal from the new primary-transfer roller disengagement sensor.</p>

ITB cleaning mechanism

The cleaning blade in the ITB cleaner scrapes the residual toner off the ITB surface and deposits the residual toner into the toner collection unit. The residual toner feed screw deposits the residual toner to the residual toner feed unit. The ITB motor and the residual toner feed motor drive the screw. The residual toner that cannot be removed by the cleaning blade is charged by the ITB cleaning brush, and then transferred from the ITB surface to the photosensitive drum by the primary transfer (T1) roller. The DC controller detects whether the toner collection unit is full by using the toner collection unit full sensor, and then notifies the formatter.

Figure 1-28 ITB cleaning process



Secondary transfer roller functions

The secondary transfer roller transfers the image from the ITB onto the paper.

The printer has the following secondary transfer roller functions.

Table 1-17 Secondary transfer roller functions

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

Calibration

The printer calibrates itself to maintain proper print quality. The calibration corrects color-misregistration and color-density variation due to environmental changes or internal variation in the printer.

The printer has the following calibration functions.

Table 1-18 Calibration functions

Function	Supported feature
Color-plane registration 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

Pickup, feed, and delivery system

The DC controller controls the pickup, feed, and delivery system according to commands from the formatter. The pickup, feed, and delivery system uses a series of rollers to move the paper through the printer.

The pickup, feed, and delivery 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 (M552dn, M553dn, M553x, and M577 only)

Figure 1-29 Pickup, feed, and delivery system

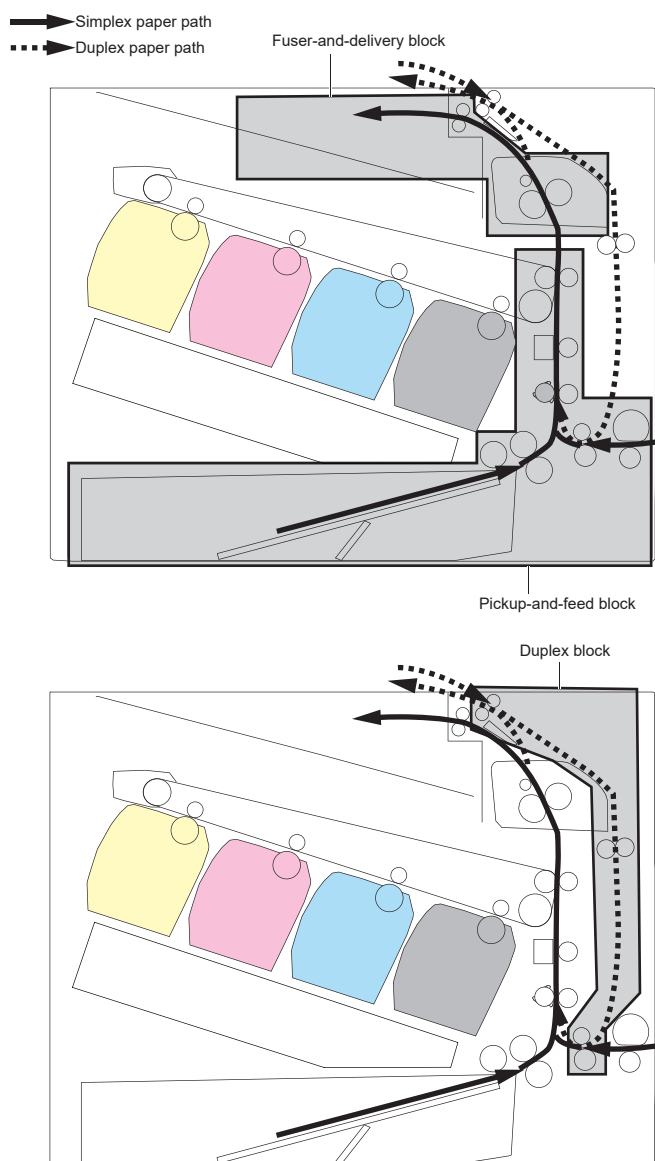


Photo sensors and switches

The following figure shows the sensors and switches for the pickup, feed, and delivery system.

Figure 1-30 Photo sensors and switches

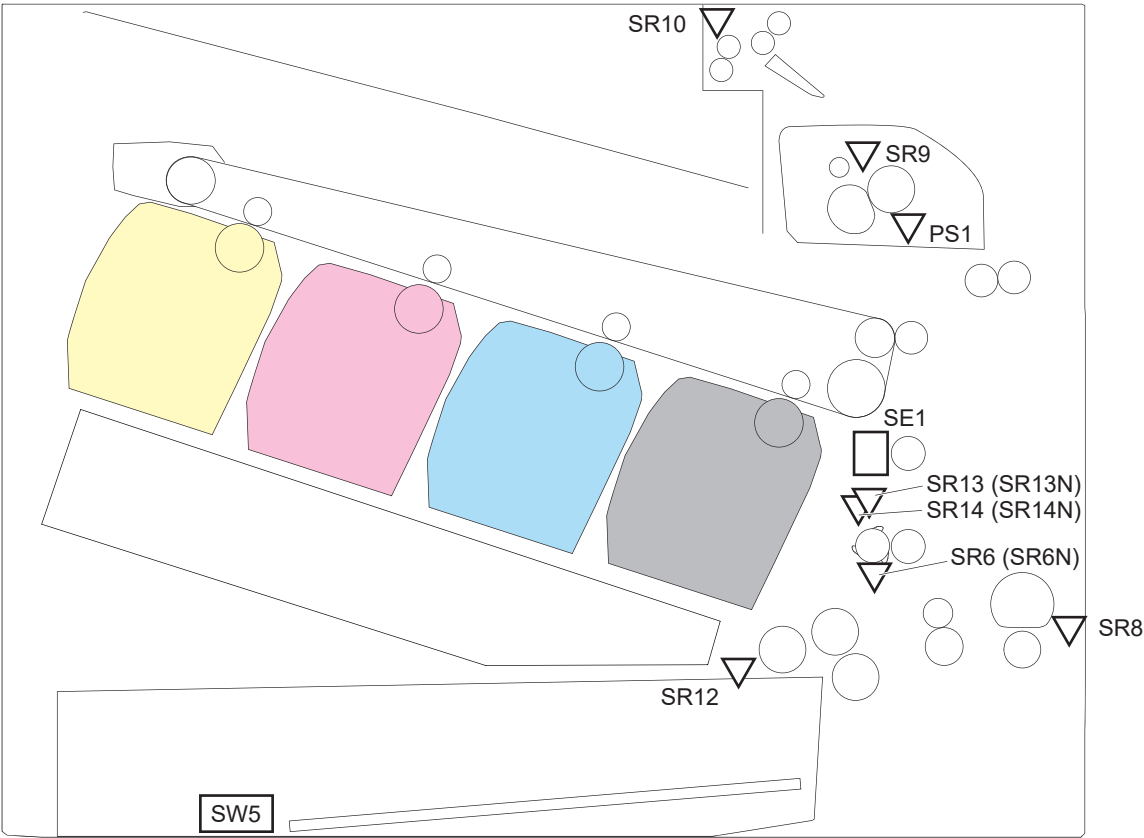


Table 1-19 Photo sensors and switches

Abbreviation	Component	Replacement part number
PS1	Loop sensor	Fuser <ul style="list-style-type: none">• B5L35-67901 (110V)• B5L36-67901 (220V)
SE1	Media sensor	Registration assembly <ul style="list-style-type: none">• RM2-0093-000CN (M553n)• RM2-0018-000CN (M552dn, M553dn, M553x, M577)
SR6	Top-of-page (TOP) sensor (M552dn, M553dn, M553x, and M577 only)	Registration assembly (RM2-0018-000CN)
SR6N	Top-of-page (TOP) sensor (M553n only)	Registration assembly (RM2-0093-000CN)
SR8	Tray 1 media-out sensor	Right door assembly (RM2-0019-000CN)

Table 1-19 Photo sensors and switches (continued)

Abbreviation	Component	Replacement part number
SR9	Fuser delivery sensor	Fuser <ul style="list-style-type: none"> • B5L35-67901 (110V) • B5L36-67901 (220V)
SR10	Output bin media-full sensor	Paper delivery assembly <ul style="list-style-type: none"> • RM2-0092-000CN (M553n) • RM2-0016-000CN (M552dn, M553dn, M553x, M577)
SR11	Fuser pressure release sensor	Part not available
SR12	Tray 2 media-out sensor	Paper pickup assembly (RM2-0017-000CN)
SR13	Media width sensor, front (M552dn, M553dn, M553x and M577 only)	Registration assembly (RM2-0018-000CN)
SR13N	Media width sensor, front (M553n only)	Registration assembly (RM2-0093-000CN)
SR14	Media width sensor, rear (M552dn, M553dn, M553x and M577 only)	Registration assembly (RM2-0018-000CN)
SR14N	Media width sensor, rear (M553n only)	Registration assembly (RM2-0093-000CN)
SW5	Tray 2 detection switch	Part not available

Motors, clutches, and solenoids

The following figure shows the motors, clutches, and solenoids for the pickup, feed, and delivery system.

Figure 1-31 Motors, clutches, and solenoids

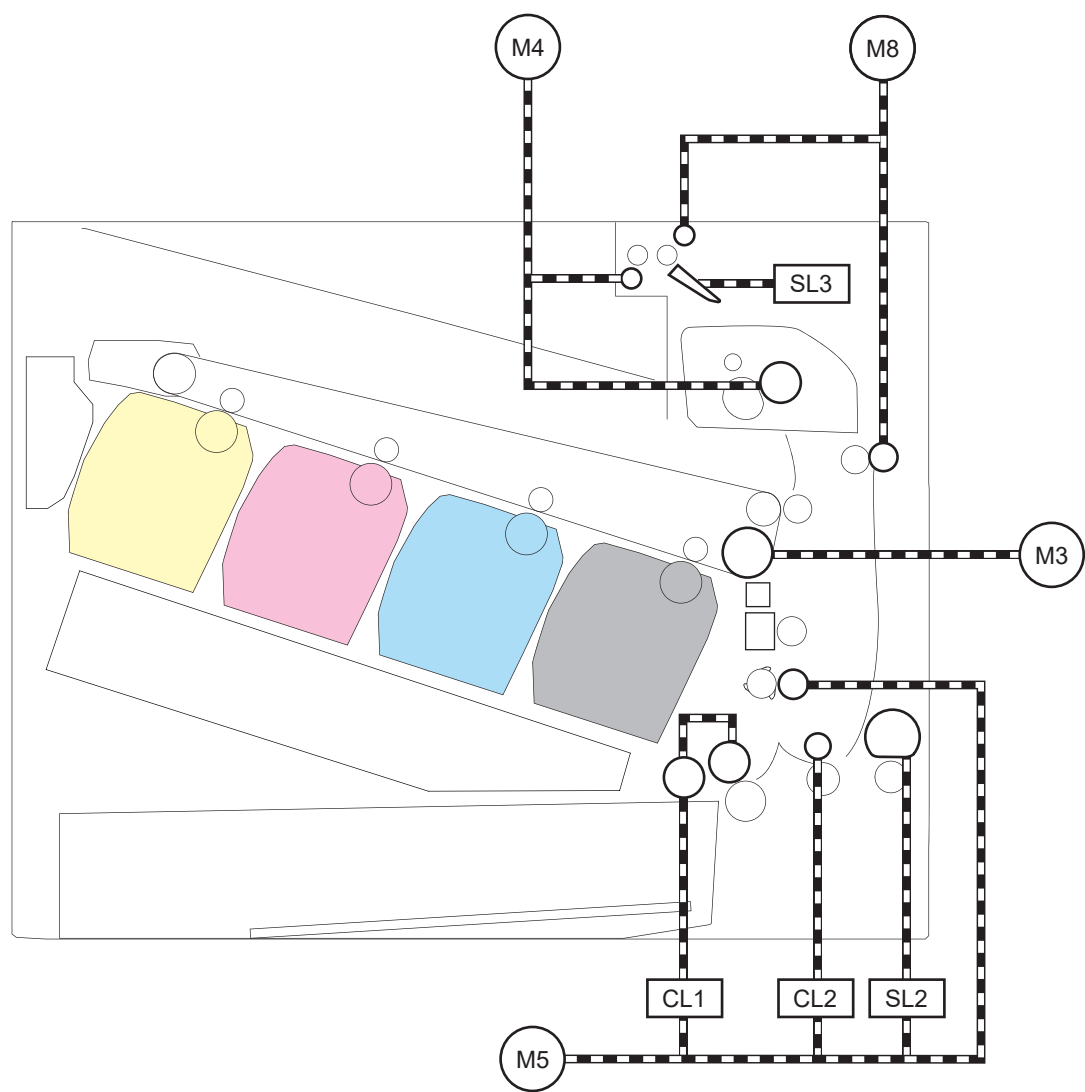


Table 1-20 Motors, clutches, and solenoids

Abbreviation	Component	Replacement part number
M3	Drum motor 3	Drum motor assembly (RM2-0078-000CN)
M4	Fuser motor	Fuser motor assembly (RM2-0077-000CN)
M5	Pickup motor	Paper pickup drive assembly (RM2-0008-000CN)
M6	Developer disengagement motor	Stepping motor (RK2-6027-000CN)
M7	Scanner motor	Laser scanner assembly (RM2-0100-000CN)
M8	Duplex reverse motor (M552dn, M553dn, M553x, and M577 only)	Duplexing drive assembly (RM2-0006-000CN)

Table 1-20 Motors, clutches, and solenoids (continued)

Abbreviation	Component	Replacement part number
CL1	Tray 2 pickup clutch	Lifter drive assembly (RM2-0010-000CN)
CL2	Duplex re-pickup clutch (M552dn, M553dn, M553x, and M577 only)	Duplexing drive assembly (RM2-0006-000CN)
SL1	Primary transfer roller alienation solenoid	Fuser drive assembly <ul style="list-style-type: none"> RM2-0091-000CN (M553n) RM2-0009-000CN (M552dn, M553dn, M553x, M577)
SL2	Tray 1 pickup solenoid	Right door assembly (RM2-0019-000CN)
SL3	Duplex reverse solenoid (M552dn, M553dn, M553x, and M577 only)	Duplexing drive assembly (RM2-0006-000CN)

Tray 1 (multipurpose)/Tray 2 (base printer)

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

Tray 1 paper pickup and feed

The printer picks up one sheet of paper from Tray 1.

Following are the sequence of steps for the Tray 1 pickup operation.



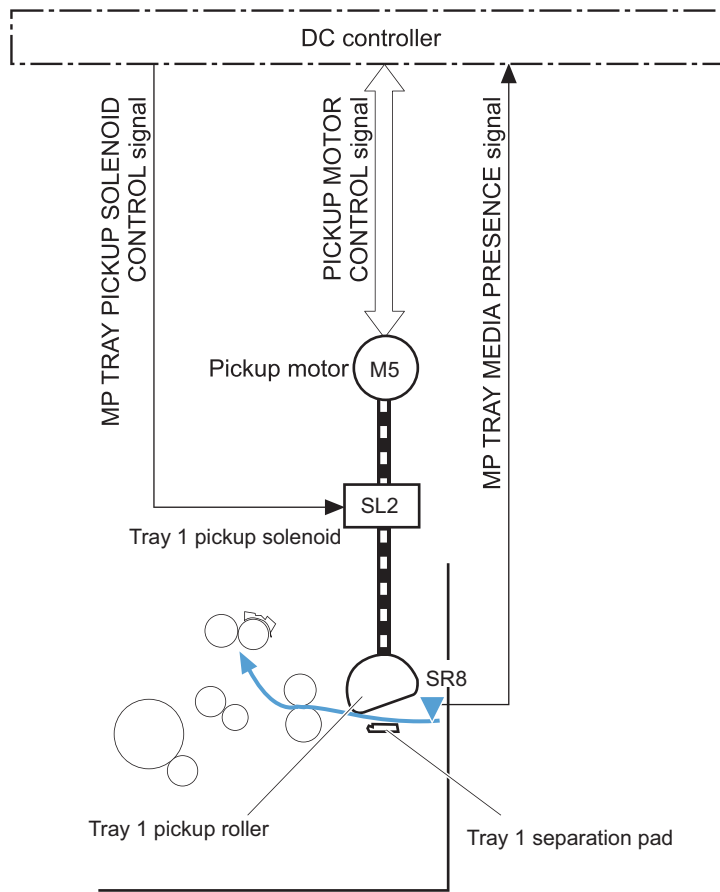
NOTE: Tray 1 and Tray 2 are optimal for paper pickup when using special paper or media other than 20 lb plain paper. For Tray 1, the printer increases the number of attempts to pick up a page, which increases the reliability of successfully picking the page from the tray and decreases the possibility 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 20 lb plain paper.

1. The pickup motor reverses when a print command is received from the formatter.
2. When the DC controller turns on the Tray 1 pickup solenoid, the Tray 1 pickup roller rotates and the lifting plate lifts.
3. As the lifting plate rises, the paper is picked up.
4. The Tray 1 separation pad removes any multiply-fed sheets, and one sheet is fed into the printer.

The Tray 1 media-out sensor (SR8) detects whether paper is present in Tray 1.

Figure 1-32 Tray 1 pickup mechanism



Tray 2 paper presence detection

The Tray 2 media-out sensor (SR12) detects the presence of paper in Tray 2.

The DC controller notifies the formatter when the Tray 2 media-out sensor detects that paper is absent.

Tray 2 lift operation

The printer keeps the paper stack surface at the correct pickup position. The Tray 2 lift-up operation is performed under the following conditions:

- The printer is turned on
- Tray 2 is installed
- The paper stack surface in Tray 2 lowers

The operational sequence of the Tray 2 lift operation is as follows:

1. The pickup motor (M5) rotates and the lifter moves up. Note that this printer uses the pickup motor rather than a dedicated lifter motor.
2. When the Tray 2 media stack surface sensor 2 detects the stack surface of media, the lifter motor stops.
3. The lifter motor rotates again to lift the lifter when the Tray 2 media stack surface sensor 1 detects the stack surface and then lowers during printing.

When a Tray 2 media stack surface sensors does not detect the stack surface within a specified time period after the lifter motor starts rotating, the DC controller determines a lifter motor failure and notifies the formatter.

Tray 2 paper pickup

Following are the sequence of steps for the Tray 2 pickup operation.



NOTE: Tray 1 and Tray 2 are optimal for paper pickup when using special paper or media other than 20 lb plain paper. For Tray 1, 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 20 lb plain paper.

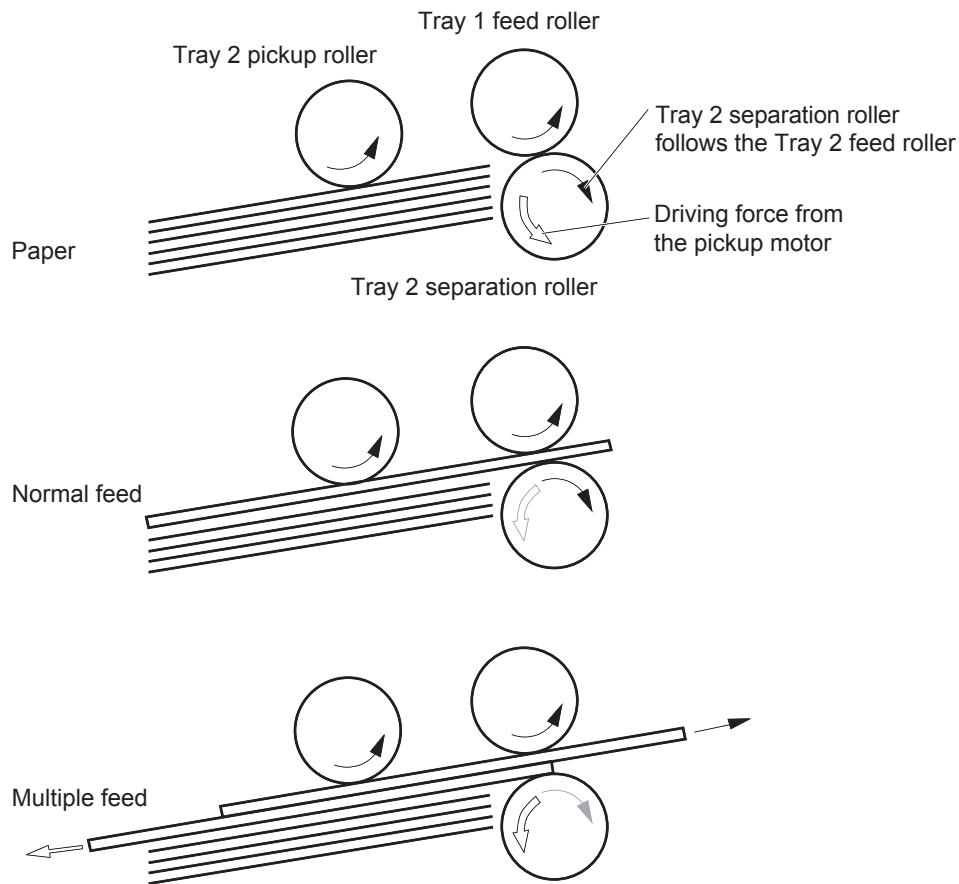
1. The printer is turned on or Tray 2 is inserted.
2. The tray lift-up operation raises the lifting plate so paper can be picked up.
3. The pickup motor rotates when a print command is received from the formatter.
4. The Tray 2 pickup roller and Tray 2 feed roller rotate.
5. The Tray 2 pickup solenoid turns on at a specified time.
6. The Tray 2 pickup cam rotates.
7. As the pickup arm lowers, the Tray 2 pickup roller touches the surface of the paper stack.
8. One sheet of paper feeds into the printer.

Tray 2 multiple-feed prevention

The printer uses a separation roller method to prevent multiple sheets of print media from entering the paper path.

The separation roller overruns if just one sheet of paper is picked. If two or more sheets are picked, only the top sheet will be fed to registration and the multiply-fed sheets will be held at the pickup location by the separation roller. This printer does not have an actively-driven separation roller.

Figure 1-33 Tray 2 multiple-feed prevention



Tray 2 presence detection

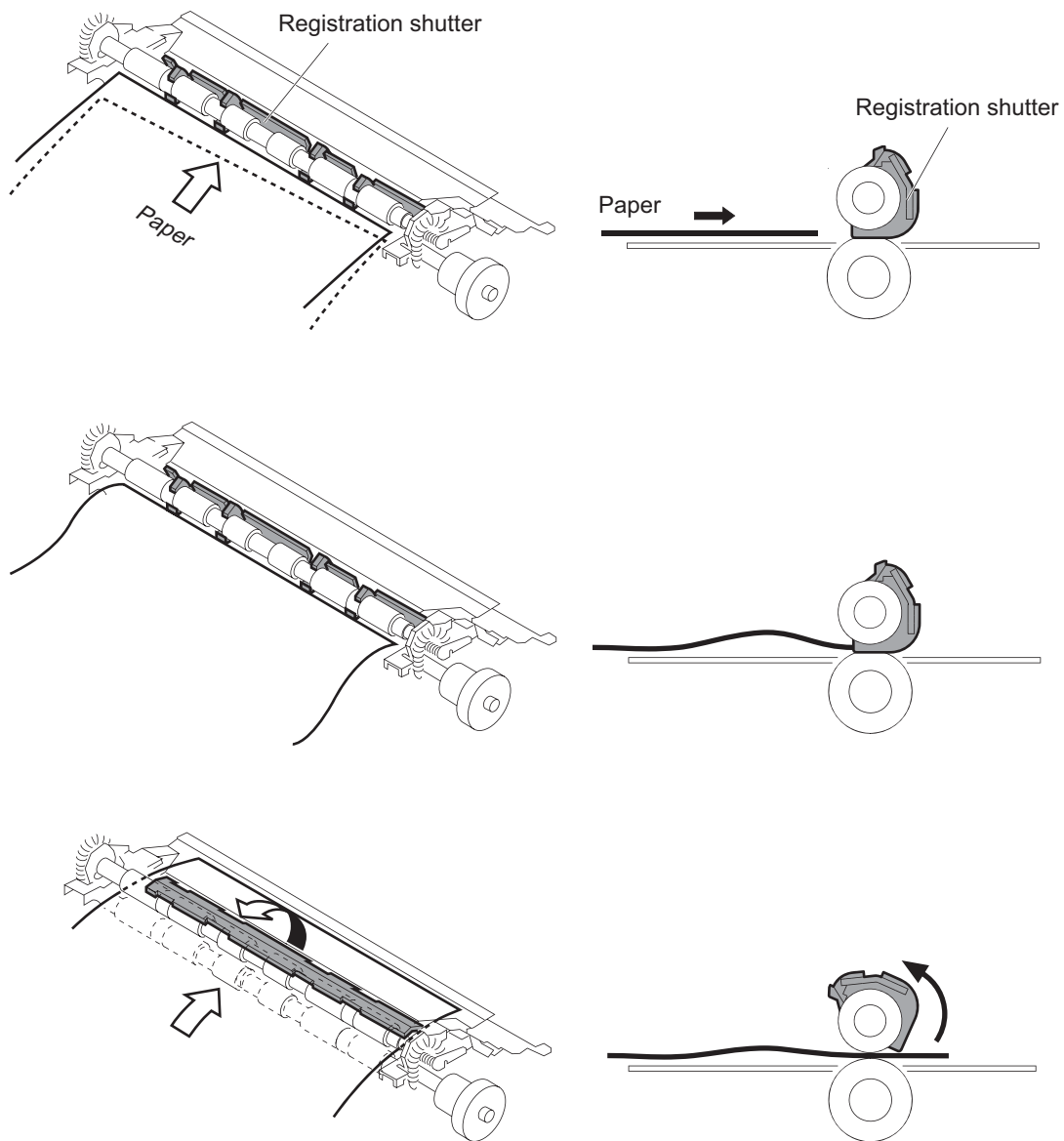
The Tray 2 presence sensor is in the lifter drive unit. The sensor detects the tray-presence sensor flag and determines whether the cassette is installed correctly.

Tray 2 skew feed prevention

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

1. The leading edge of paper strikes the registration shutter, and the leading edge is aligned with the shutter.
2. As the feed rollers keep pushing the paper, the paper warps.
3. When the force is great enough, the registration shutter rotates, and the paper passes through straightened.

Figure 1-34 Skew-feed prevention



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.

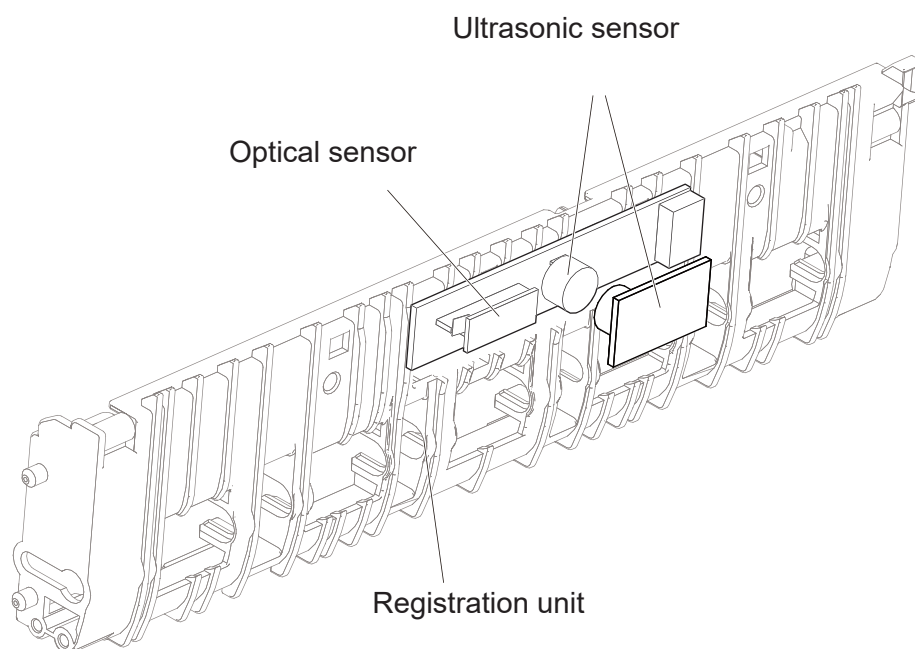
Following are the print modes detected by the printer:

- Normal
- Heavy media 1
- Heavy media 2
- Heavy media 3

- Light media
- Glossy media 1
- Glossy media 2
- Glossy media 3
- LBP_OHT

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 1-35 Media sensors



Feed speed control

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 1-21 Print mode and feed speed

Print mode	Feed speed ¹	Media sensor detection
Normal	1/1	Yes
Heavy media 1	Pro	No
Heavy media 2	1/2	Yes
Heavy media 3	1/3	Yes
Light media 1	1/1	Yes
Light media 2	1/1	Yes
Light media 3	1/3	Yes

Table 1-21 Print mode and feed speed (continued)

Print mode	Feed speed ¹	Media sensor detection
Glossy media 1	1/3	Yes
Glossy media 2	1/3	Yes
Glossy media 3	1/3	Yes
Glossy film	1/3	Yes
Envelope 1	1/2	No
OHT	1/3	Yes
Label	1/2	No
Designated media 1	1/2	No
Designated media 2	1/3	No
Designated media 3	Pro	No

¹ Speed for both full color and black and white pages
 1/1 speed = 210 mm/s
 Pro speed = 174 mm/s
 1/2 speed = 105 mm/s
 1/3 speed = 70 mm/s

Duplexing unit (M552dn, M553dn, M553dnm, M553x, M553xm, and M577 only)

The duplexing unit reverses the paper and feeds it through the paper path to print the second side.

Duplexing reverse and duplex feed control

The duplex reverse control reverses the paper after the first side is printed and feeds it to the duplex re-pickup position to print the second side of the page.

1. At a specified time after the first side of a page is printed, the duplex reverse motor rotates, and the duplex reverse solenoid is turned on.
2. The duplex flapper moves, and the paper feeds to the duplex reverse unit.
3. After a specified period of time, the duplex reverse motor reverses, and the paper feeds to the duplex feed unit.
4. The duplex reverse motor and the pickup motor move the paper to the duplex re-pickup position.
5. The duplex reverse motor and the duplex feed clutch stop, and the paper feed operation pauses.
6. After a specified period of time, the duplex reverse motor rotates, and the duplex feed clutch is turned on. The paper is then picked up again.

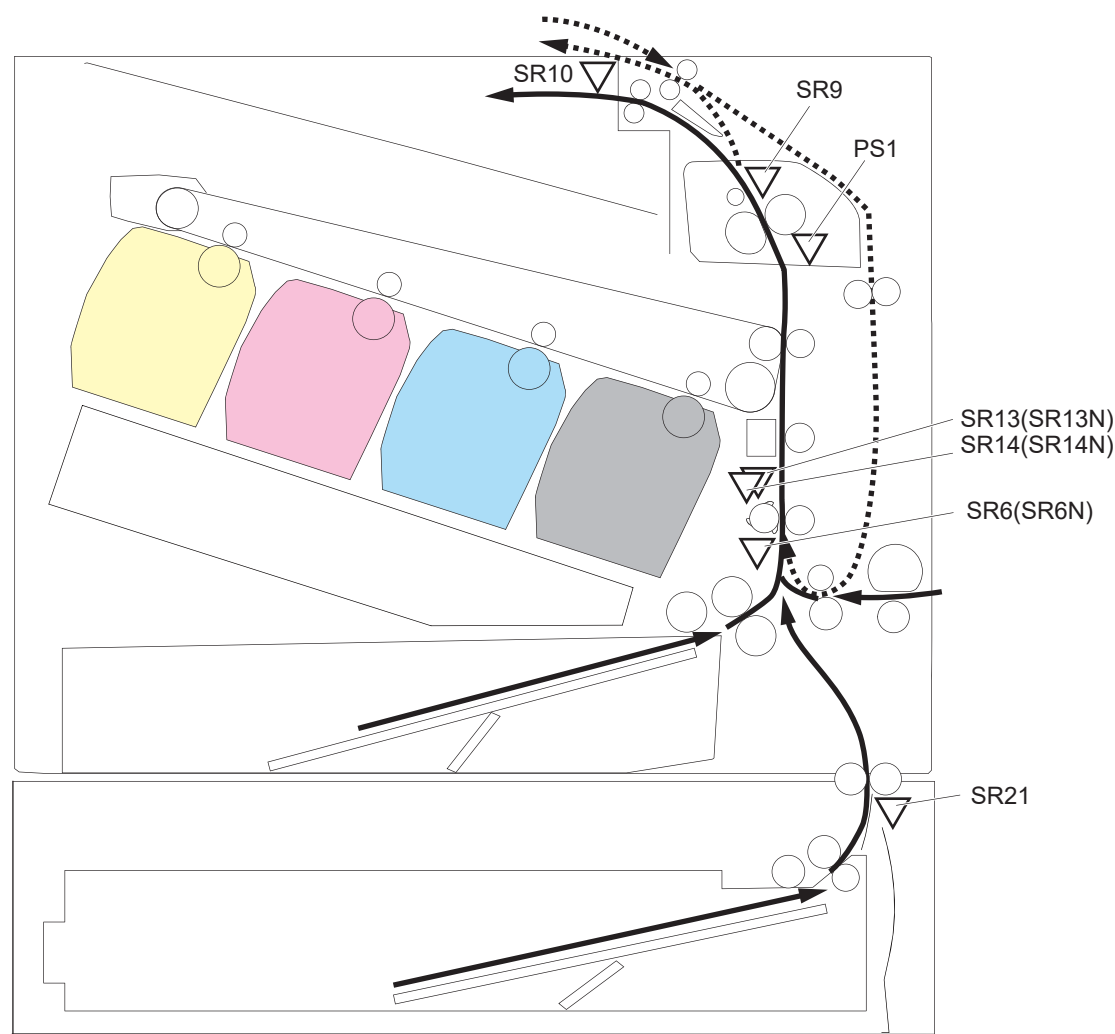
Jam detection/prevention

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.

- Top of page (TOP) sensor (SR6/SR6N)
- Media width sensor (front, SR13/SR13N)

- Media width sensor (rear, SR14/SR14N)
- Loop sensor (PS1)
- Fuser delivery sensor (SR9)
- Output bin media-full sensor (SR10)
- 1x550 sheet paper feeder media feed sensor (SR21)

Figure 1-36 Jam detection sensors



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

Table 1-22 Jams that the printer detects

Jam	Description
Media input delay jam 1	Media did not reach the registration sensor in time.
Media input delay jam 2	Media did not reach the source tray feed sensor in time.
Media input delay jam 3	Media did not reach the tray 3 feed sensor in time.

Table 1-22 Jams that the printer detects (continued)

Jam	Description
Duplex re-feed jam 1	Media did not reach the registration sensor in time.
Media input stay jam 1	Media remained at the registration sensor longer than legal-sized media should remain.
Fuser delivery delay jam 1	Media did not reach the fuser output sensor in time.
Fuser delivery stay jam 1	Media stayed at fuser output sensor longer than it should stay. Media is in duplex path.
Fuser delivery stay jam 2	Media stayed at fuser output sensor longer than it should stay. Media is in simplex path.
Wrap jam 1	Media is first detected at fuser output sensor and then disappeared from the sensor before it should have disappeared.
Door open jam	A door is open while paper is moving through the printer.
Residual Media in paper path jam 1	Media detected in the paper path.

Fuser wrapping jam detection

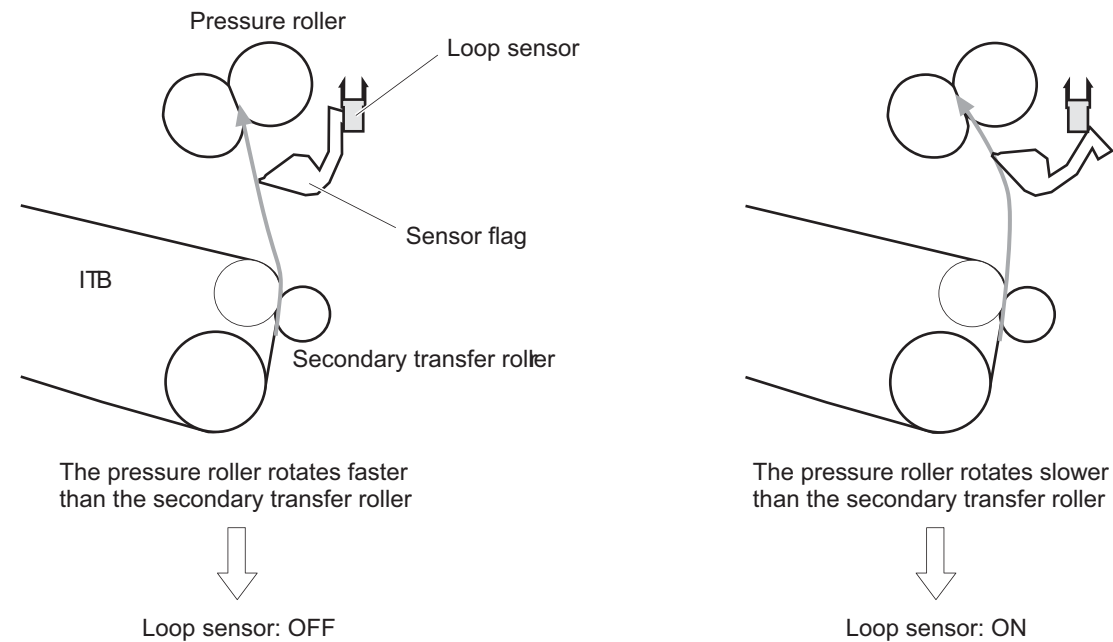
The printer includes controls for detecting when a jam occurs causing the paper to wrap around the fuser roller.

Loop control

The loop control stabilizes the paper feed operation before the paper enters the fuser. If the pressure roller rotates slower than the secondary transfer roller, the paper loop increases and an image defect or paper crease occurs. If the pressure roller rotates faster than the secondary transfer roller, the paper loop decreases and a vertical scanning magnification failure occurs because the pressure roller pulls the paper.

To prevent these problems, the loop sensor detects the paper loop before the paper enters the fuser. The DC controller adjusts the rotational speed of the fuser motor according to the output signals from the loop sensor and maintains the paper loop. The DC controller slows the fuser motor when the sensor is off and speeds up the motor when the sensor is on.

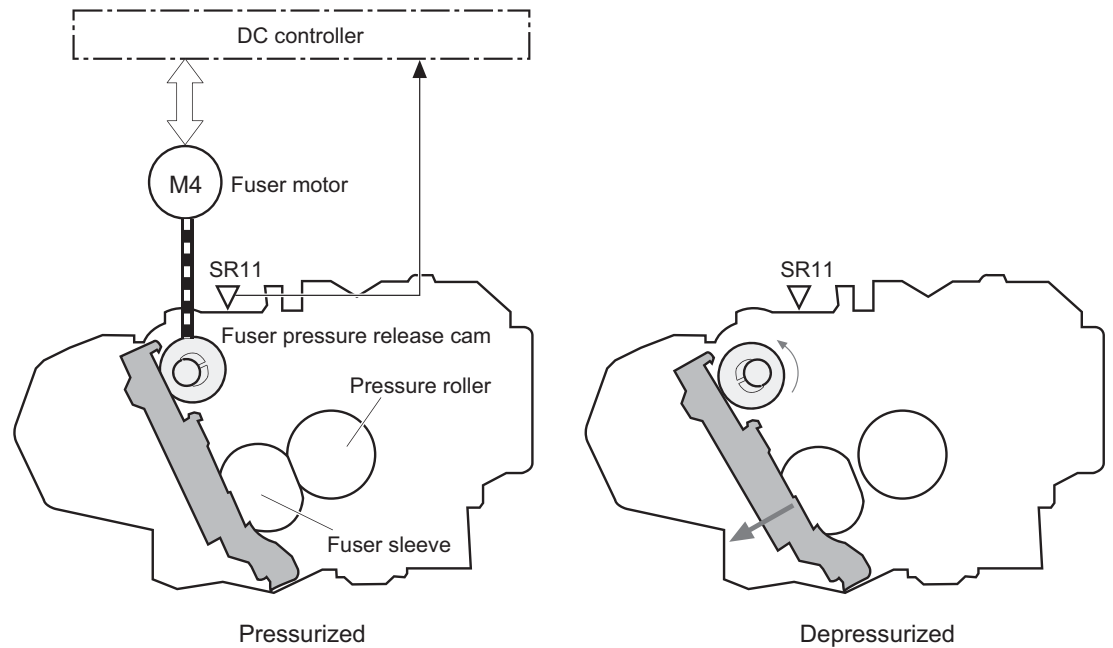
Figure 1-37 Loop control mechanism



Pressure roller pressurization and depressurization control

To prevent excessive wear on the pressure roller and help with jam-clearing procedures, the pressure roller pressurizes only during printing and standby. The DC controller reverses the fuser motor. The fuser motor rotates the fuser pressure-release cam.

Figure 1-38 Pressure roller pressurization control




The pressure roller depressurizes under the following conditions:

- The printer is turned off
- Any failure occurs
- During power-save mode
- A paper jam is detected

If the DC controller does not sense the fuser pressure-release sensor for a specified period after it reverses the fuser motor, it notifies the formatter that a fuser pressure-release mechanism failure has occurred.

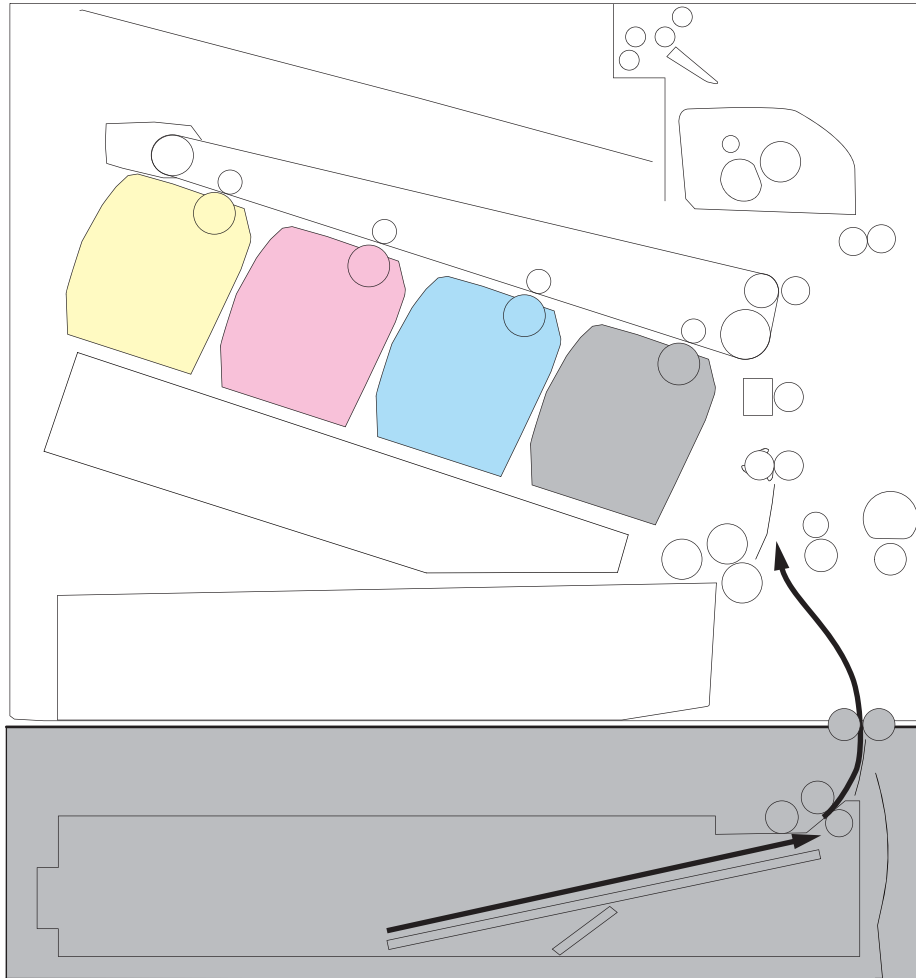
Input accessories

 **NOTE:** An optional 550-sheet paper feeder is available for this printer. The printer supports up to three of these paper feeders at a time.

Trays 3-5

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

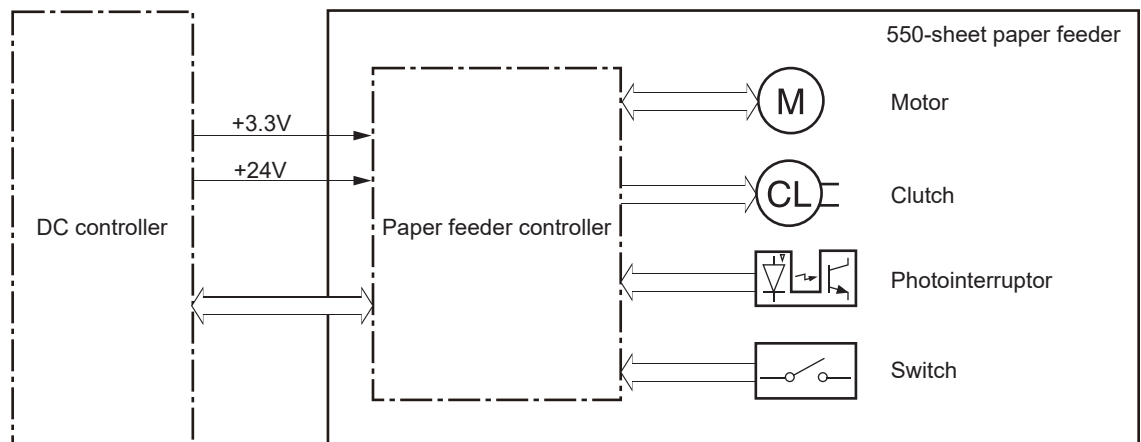
Figure 1-39 550-sheet paper feeder



Trays 3-5 driver PCA

The paper feeder controller controls the operational sequence of the paper feeder.

Figure 1-40 Tray 3-5 driver PCA



Trays 3-5 motor control

The 550-sheet paper feeder has one motor for lifting the tray and feeding paper.

Table 1-23 Trays 3-5 motor control

Component		Drives	Failure detection
M20	Feed motor (550-sheet paper feeder)	Tray pickup roller (B5L24-67904)	No
		Tray feed roller (B5L24-67904)	
		Paper feed assembly (RM2-5145-000CN)	
		Lifter drive assembly (RM2-5149-000CN)	

Trays 3-5 electrical components

The paper feeder contains several motors, solenoids, sensors, and switches, as described in the following table.

Table 1-24 Tray 3-5 electrical components

Component type	Abbreviation	Component name	Replacement part number
Motor	M20	Feed motor (550-sheet paper feeder)	Paper feed assembly (RM2-5145-000CN)
Clutch	CL20	Tray pick up clutch (550-sheet paper feeder)	Lifter drive assembly (RM2-5149-000CN)
Switches	SW20	Right door switch (550-sheet paper feeder)	Right door (RM2-5146-000CN)
	SW21	Tray detection switch (550-sheet paper feeder)	Switch button (WC2-5806-000CN)
Sensors	SR20	Tray media-out sensor (550-sheet paper feeder)	Paper pick up assembly (RM2-5154-000CN)
	SR21	Feed sensor (550-sheet paper feeder)	Paper feed assembly (RM2-5145-000CN)

Table 1-24 Tray 3-5 electrical components (continued)

Component type	Abbreviation	Component name	Replacement part number

Trays 3-5 paper pickup

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

Figure 1-41 Paper pickup and feed operation (550-sheet paper feeder)

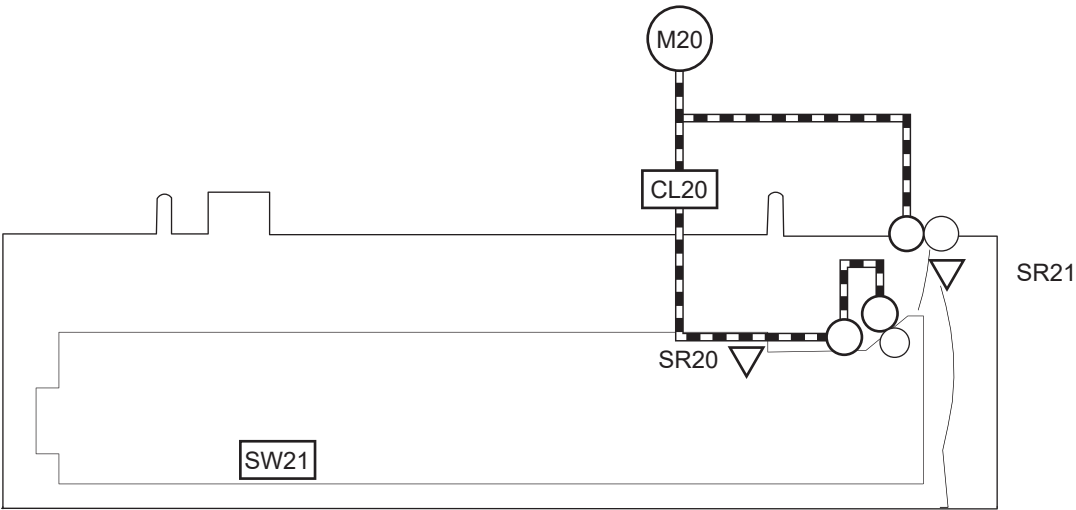


Table 1-25 Pickup feed components (1x550-sheet paper feeder)

Abbreviation	Component	Replacement part number
M20	Feed motor (550-sheet paper feeder)	Paper feed assembly (RM2-5145-000CN)
CL20	Tray pickup clutch (550-sheet paper feeder)	Part not available
SR20	Tray media-out sensor (550-sheet paper feeder)	Paper pick up assembly (RM2-5154-000CN)
SR21	Feed sensor (550-sheet paper feeder)	Paper feed assembly (RM2-5145-000CN)
SW21	Tray detection switch (550-sheet paper feeder)	Switch button (WC2-5806-000CN)

Trays 3-5 multiple feed prevention

The multiple-feed prevention for the 550-sheet paper feeder is operated in the same way as that of the printer base.

Trays 3-5 tray presence detection

The presence detection for the 550-sheet paper feeder is the same way as that of the printer base.

Trays 3-5 tray lift operation

The 550-sheet paper feeder keeps the paper stack surface at the correct pickup position. The tray lift operation occurs under the following conditions:

- The printer is turned on.
- The tray is inserted.
- The paper stack surface of the tray lowers.

The sequence occurs as follows:

1. The feeder tray-lifting motor rotates and the lifter moves up.
2. When the paper-feeder media-stack-surface sensor detects the stack surface of the paper, the lifting motor stops.
3. The lifting motor rotates again to lift the lifter when the paper-feeder media-stack-surface sensor detects the stack surface, and then lowers during printing.

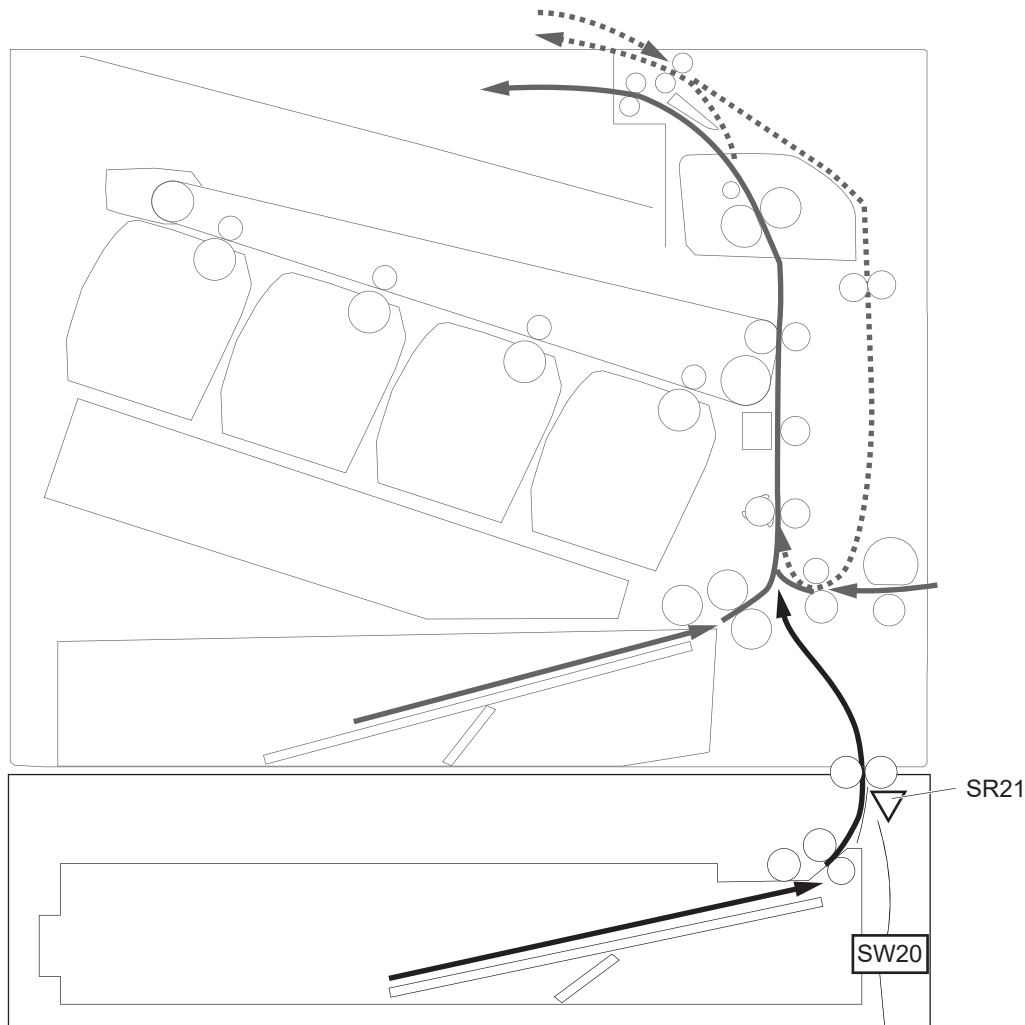
If a tray media-stack-surface sensor does not detect a stack surface within a specified period after the lifting motor starts rotating, the paper feeder driver determines that the lifting motor has failed and notifies the formatter through the DC controller.

The paper-feeder driver notifies the formatter if either of the paper-feeder media-stack-surface sensors fails to detect the stack surface within a specified period from when a lift-up operation starts.

Trays 3-5 jam detection

The 550-sheet paper feeder uses the feed sensor (SR21) and right door switch (SW20) to detect the presence of paper and to check whether paper has jammed.

Figure 1-42 Jam detection (1x550-sheet paper feeder)



The 550-sheet paper feeder detects the following jams:

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

Scanning and image capture system (M577)



NOTE: This section is for the M577 printer only.

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.

Document feeder system (M577)



NOTE: This section is for the M577 printer only.

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 M577c/z models, the document feeder supports a smart background, which auto-crops and adjusts the image extents.

Sensors in the document feeder

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 1-43 Document feeder sensors

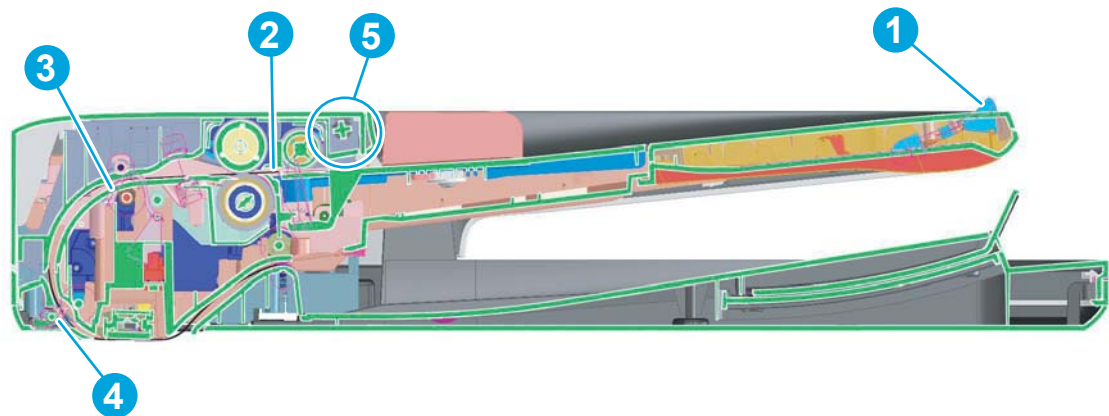


Table 1-26 Document feeder sensors

Item	Description
1	ADF Y (length) sensor
2	ADF paper present sensor
3	ADF skew 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

Figure 1-44 Document feeder paper path

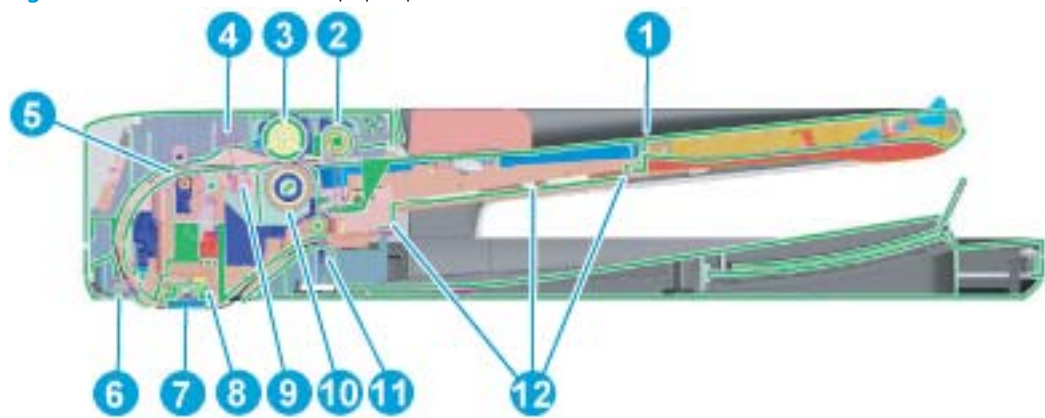


Table 1-27 Document feeder paper path

Item	Description	Item	Description
1	Input tray	7	Front-side scan module
2	Pre-pick roller	8	Back-side scan module

Table 1-27 Document feeder paper path (continued)

Item	Description	Item	Description
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

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 it is driven further into the document feeder paper path.

Figure 1-45 Deskew operation



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 document feeder is kept parallel to the scanner glass) and allows the printer to operate.

The document feeder hinges provide height adjustment of 25 mm (1.0 in) when a maximum downward force of 4.5 kg (10 lb) is applied at the front edge of the assembly, with the fulcrum (such as the spine of a book) centered on the scanner glass and parallel to its long axis.

The document feeder will withstand a downward force of at least 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 in a damaging or loud manner.

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 1-46 Document feeder open (book mode)

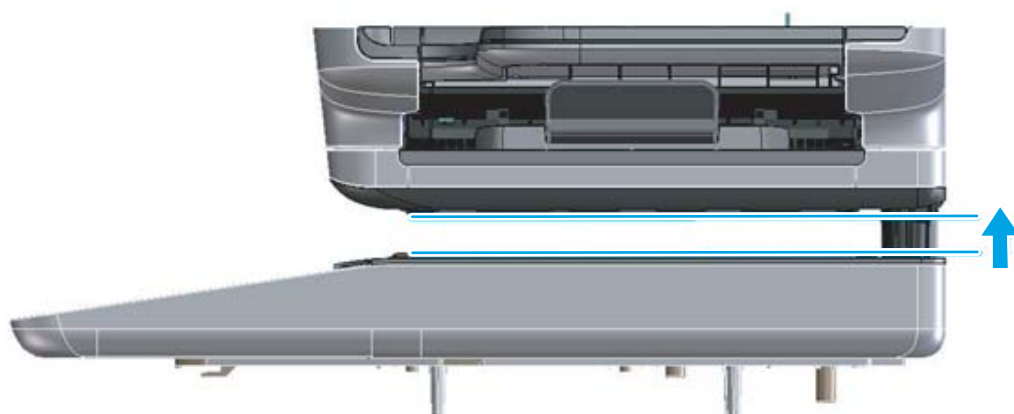


Figure 1-47 Document feeder open (60° to 80°)



2 Solve problems

- [For additional service and support](#)
- [Solve problems checklist](#)
- [Troubleshooting process](#)
- [Tools for troubleshooting](#)
- [Solve image-quality problems](#)
- [Clean the printer](#)
- [Solve paper handling problems](#)
- [Solve performance problems](#)
- [Solve connectivity problems](#)
- [Service mode functions](#)
- [Firmware upgrades](#)
- [Solve email problems](#)

For additional service and support

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

AMS

- <https://support.hp.com/wise/home/ams-en>
- <https://support.hp.com/wise/home/ams-es>
- <https://support.hp.com/wise/home/ams-pt>

APJ

- <https://support.hp.com/wise/home/api-en>
- <https://support.hp.com/wise/home/api-ja>
- <https://support.hp.com/wise/home/api-ko>
- <https://support.hp.com/wise/home/api-zh-Hans>
- <https://support.hp.com/wise/home/api-zh-Hant>

EMEA

- <https://support.hp.com/wise/home/emea-en>

Channel partners, go to HP Channel Services Network (CSN) at www.hp.com/partners/csn.

At these locations, find information on the following topics:

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

Channel partners, access training materials in the HP University and Partner Learning Center at <https://content.ext.hp.com/sites/LMS/HPU.page>.

To access HP PartSurfer information from any mobile device, go to <http://partsurfermobile.hp.com/>.

Solve problems checklist

- [Solve problems checklist](#)
- [Print the configuration page](#)
- [Print menu map](#)
- [Print current settings pages](#)
- [Print event log](#)
- [Pre-boot menu options](#)

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 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.

If the control panel is not responding to touch (M553x or M577 models), or if it appears black or blank, follow the steps below.



NOTE: The following conditions indicate that the printer has frozen while in Sleep mode:

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

Opening a door, tapping the control panel (M553x and M577 models), or pressing a control-panel button (M552dn and M553n/dn models) causes the printer to wake up from Sleep mode.

- a. Turn the printer power off, and then on again.
- b. Try upgrading the firmware. If the firmware upgrade fails to resolve the problem, elevate the case after collecting the following information:
 - Try printing to the printer from a host computer. Does the printer print a page?
 - Is the printer HP Embedded Web Server (EWS) accessible?
 - Turn the printer power off, and then on again. Save the printer diagnostic file.

To save diagnostic files from a touchscreen control panel (M553x)

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) option.
2. Scroll to and touch the [Troubleshooting](#) option.
3. Scroll to and touch the [Generate Debug Data](#) option, and then touch the [Start](#) button. Wait for the operation to complete.
4. Install a USB drive in the easy-access USB port.
5. Scroll to and touch the [Retrieve Diagnostic Data](#) option.
6. Scroll to and touch the [Diagnostic Files](#) option.
7. Select the [Create zipped debug information file](#) option, and then touch the [Save](#) button.
8. Scroll to and touch the [Include crash dump files](#) option.
9. Select [On](#), and then touch the [Save](#) button.
10. Scroll to and touch the [Clean up debug information](#) option.
11. Select [Off](#), and then touch the [Save](#) button.
12. Select [Export to USB](#) and wait for the operation to complete.
13. Remove the USB drive.


To save diagnostic files from a touchscreen control panel (M577)

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) option.
2. Scroll to and touch the [Troubleshooting](#) option.
3. Scroll to and touch the [Generate Debug Data](#) option, and then touch the [Start](#) button. Wait for the operation to complete.
4. Install a USB drive in the easy-access USB port.
5. Scroll to and touch the [Retrieve Diagnostic Data](#) option.
6. Select [Create zipped debug information](#).
7. Select [Include crash dump files](#).
8. Make sure that [Cleanup debug information](#) is **not** selected.
9. Touch the [Export to USB](#) button and wait for the operation to complete.
10. Remove the USB drive.

To save diagnostic files from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow button to scroll to [Administration](#) 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 [Generate Debug Data](#), and then press the [OK](#) button. Wait for the operation to complete.
 4. Use the down arrow ▼ button to scroll to [Retrieve Diagnostic Data](#), and then press the [OK](#) button.
 5. Use the down arrow ▼ button to scroll to [Diagnostic Files](#), and then press the [OK](#) button.
 6. Use the down arrow ▼ button to scroll to [Create zipped debug information file](#) option, and then press the [OK](#) button.
 7. Use the down arrow ▼ button to scroll to [Include crash dump files](#), and then press the [OK](#) button.
 8. Use the down arrow ▼ button to scroll to [On](#), and then press the [OK](#) button.
 9. Use the down arrow ▼ button to scroll to [Clean up debug information](#), and then press the [OK](#) button.
 10. Use the down arrow ▼ button to scroll to [Off](#), and then press the [OK](#) button.
 11. Use the down arrow ▼ button to scroll to [Export to USB](#), and then press the [OK](#) button. Wait for the operation to complete.
 12. Remove the USB drive.
- c. Verify that the control panel is correctly functioning by accessing the control panel diagnostics. See the Control-panel checks section of the printer *Troubleshooting Manual*.

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

If the control panel does not respond to the diagnostic button, try the following:

- Turn the printer power off.
 - Reseat the cable connections on the bottom of the control-panel assembly and the control-panel connectors at the formatter.
 - Turn the printer power on, and then check for functionality of the control-panel.
- d. If the error persists, 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, check the cables.
 - a. Check the network cable connections between the printer and the computer or network port. Make sure that the connections are secure.
 - 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. Print a configuration page. If the printer is connected to a network, an HP Jetdirect page also prints.


Print a configuration page from a touchscreen control panel

- a. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
- b. Open the following menus:
 - [Reports](#)
 - [Configuration/Status Pages](#)
 - [Configuration Page](#)
- c. Touch [Configuration Page](#) to select it.
- d. Touch the [Print](#) button to print the pages.


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

Print a configuration page from an LCD control panel

- a. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
- b. If necessary, use the down arrow ▼ button to scroll to [Reports](#), and then press the [OK](#) button.
- c. If necessary, use the down arrow ▼ button to scroll to [Configuration/Status Pages](#), and then press the [OK](#) button.
- d. Use the down arrow ▼ button to scroll to [Configuration page](#), and then press the [OK](#) button to select it.
- e. 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.

- 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. Print a supplies status page and then check that the maintenance items below are not at their end-of-life.

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

Print a supplies status page from a touchscreen control panel

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

- [Reports](#)
 - [Configuration/Status Pages](#)
 - [Supplies Status Page](#)
- c. Touch the [Print](#) button to print the page, and then check the maintenance items (listed below in this step).

Print a supplies status page from an LCD control panel

- a. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
- b. If necessary, use the down arrow ▼ button to scroll to [Reports](#), and then press the [OK](#) button.
- c. If necessary, use the down arrow ▼ button to scroll to [Configuration/Status Pages](#), and then press the [OK](#) button.
- d. Use the down arrow ▼ button to scroll to [Supplies Status Page](#), and then press the [OK](#) button to select it.
- e. Use the up arrow ▲ button to scroll to [Print](#), and then press the [OK](#) button to print the page, and then check the maintenance items (listed below in this step).



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.

- Fuser kit; estimated life: 150,000 images (depending on usage and average number of pages per job)
 - B5L35-67902 (110V)
 - B5L36-67902 (220V)
 - Document feeder maintenance kit; estimated life: 75,000 pages
 - B5L52-67903
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: www.hp.com/support/colorljM552, www.hp.com/support/colorljM553, www.hp.com/support/colorljM577MFP, www.hp.com/support/colorljE55040, www.hp.com/support/colorljE57540MFP.
 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 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 pages print.


Print the configuration page from a touchscreen control panel

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

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

Print the configuration page from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
2. Open the following menus:
 - [Reports](#)
 - [Configuration/Status Pages](#)
3. Use the down arrow ▼ button to scroll to [Configuration Page](#), and then press the [OK](#) button to select it.
4. 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 menu map

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

Print the menu map from a touchscreen control panel


1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Reports](#)
 - [Configuration/Status Pages](#)
3. Select the [Administration 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 menu map from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
2. Open the following menus:

- [Reports](#)
 - [Configuration/Status Pages](#)
3. Use the down arrow ▼ button to scroll to [Administration Menu Map](#), and then press the [OK](#) button to select it.
 4. 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 current settings pages

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 a touchscreen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Reports](#)
 - [Configuration/Status Pages](#)
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 current settings page from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
2. Open the following menus:
 - [Reports](#)
 - [Configuration/Status Pages](#)
3. Use the down arrow ▼ button to scroll to [Current Settings Page](#), and then press the [OK](#) button to select it.
4. 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 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 Administration menu from a touchscreen control panel

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

Print the event log from the Administration menu from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Troubleshooting](#), and then press the [OK](#) button.
3. If necessary, use the down arrow ▼ button to scroll to [Print Event Log](#), and then press the [OK](#) button to print the page.

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 [Device Maintenance](#) 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:
 - 04055215 (M552)
 - 04055315 (M553)
 - 11057715 (M577)
5. Touch the [Print Event Log](#) or [View Event Log](#) item.

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 down arrow ▼ button to scroll to [Device Maintenance](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Service](#), and then press the [OK](#) button.
3. On the sign-in screen, use the down arrow ▼ button to scroll to [Service Access Code](#) option and then press the [OK](#) button.
4. Enter the following service access code for the printer:
 - 04055215 (M552)
 - 04055315 (M553)
 - 11057715 (M577)
5. If necessary, use the down arrow ▼ button to scroll to [Print Event Log](#), and then press the [OK](#) button to print the page.

Clear the event log from a touchscreen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Device Maintenance](#) 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:
 - 04055215 (M552)
 - 04055315 (M553)
 - 11057715 (M577)
5. Select the [Clear Event Log](#) item, and then touch the [OK](#) button.

Clear the event log from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Device Maintenance](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Service](#), and then press the [OK](#) button.
3. On the sign-in screen, use the down arrow ▼ button to scroll to [Service Access Code](#) option and then press the [OK](#) button.
4. Enter the following service access code for the printer:
 - 04055215 (M552)
 - 04055315 (M553)
 - 11057715 (M577)
5. If necessary, use the down arrow ▼ button to scroll to [Clear Event Log](#), and then press the [OK](#) button.

Pre-boot menu options

The [Pre-boot](#) menus are available prior to the printer initializing.

⚠ 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.

💡 TIP: The Pre-boot menu can be remotely accessed by using a telnet network protocol to establish an administration connection to the printer. See [Remote Admin on page 97](#).

Open the Pre-boot menu from a touchscreen control panel

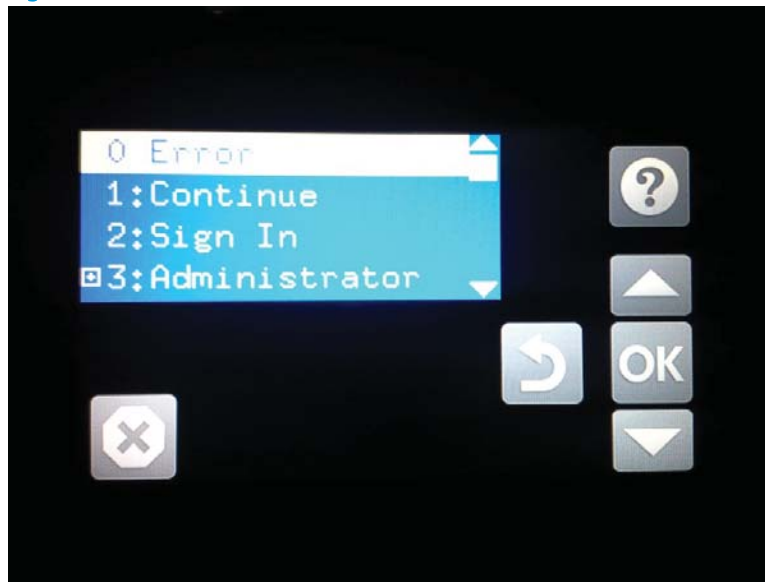
1. Touch in the middle of the control-panel display when you see the 1/8 under the HP logo.

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



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.

Open the Pre-boot menu from an LCD control panel

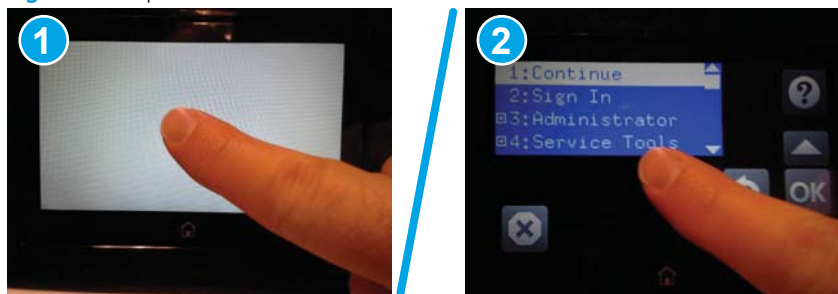
1. Press the [Cancel](#)  button when you see the [1/8](#) under the HP logo.
2. Use the arrow buttons on the control panel to navigate the [Pre-boot](#) menu.
3. Press the [OK](#) button to select a menu item.

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 in the middle of the control-panel display when you see the [1/8](#) under the HP 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

⚠ 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 HP logo.
2. Use the ▼ button to highlight the [+3:Administrator](#) item, and then press the [OK](#) button.
3. Use the ▼ 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.

Table 2-1 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>
	Download	Network		<p>This item initiates a Pre-boot firmware download process. A USB Thumbdrive option will work on all FutureSmart products. USB or Network connections are not currently supported.</p>
		USB		
		USB Thumbdrive		
	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>
	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.
(continued)	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 2-2 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.
		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.
		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.
		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.
		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.
		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.
			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.
			Get Status	This item provides disk status information if any is available.

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

Menu option	First level	Second level	Third level	Description
Administrator	Manage Disk	Internal Device		Select the Internal Device item to erase the internal device or get a status about the internal device.
(continued)	(continued)		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 erases the entire disk, including firmware. The disk remains an encrypted disk.</p>
			Erase/Unlock	<p>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.</p> <p>NOTE: The system will be unusable until the system files are reinstalled. The HP High Performance Secure Hard Disk is erased.</p>
			Get Status	This item provides disk status information if any is available.
		External Device		Select the External Device item to erase the external device or get status about the external 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.</p> <p>The ATA secure-erase command erases the entire disk, including firmware. The disk remains an encrypted disk.</p>
			Erase/Unlock	<p>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.</p> <p>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.</p>
			Get Status	This item provides disk status information if any is available.

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

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

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

Menu option	First level	Second level	Third level	Description
			Default Gateway	Use this item to manually enter the default gateway.
			Save	Select the Save item to save the manual settings.

Table 2-5 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.
		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.
		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.
		Skip Disk Load		Select the Skip Disk Load item to disable installed third-party applications.
		Skip Cal		Select the Skip Cal item to skip the printer calibration for the very next power-initialization cycle only.
		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.
		Skip FSCK		Select the Skip FSCK item to disable Chkdisk/ScanVolume during startup.
Administrator (continued)	Startup Options (continued)	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.

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

Menu option	First level	Second level	Third level	Description
		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.
		WiFi Accessory		Select the WiFi Accessory item to enable the wireless accessory.

Table 2-6 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.
		Memory	Do Not Run	Use the Do Not Run item to exclude the Memory diagnostic when executing multiple diagnostics.
			Short	Use the Short item to select a brief memory test. NOTE: This test requires about four minutes to execute.
			Long	Use the Long item to select an extended memory test. NOTE: This test requires about twenty minutes to execute.
		Disk	Do Not Run	Use the Do Not Run item to exclude the Disk diagnostic when executing multiple diagnostics.
			Short	Use the Short item to select a brief firmware self-test. NOTE: This test requires about two or three minutes to execute.
			Long	Use the Long item to select an extended firmware self-test. NOTE: This test requires about sixty minutes to execute.
	Diagnostics (continued)	Disk (continued)	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.
			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.

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

Menu option	First level	Second level	Third level	Description
			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).
		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 2-7 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 on page 97 .
		Stop Telnet		
		Refresh IP		
	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.
	Change Svc PWD			Use this item to change the Service menu personal identification number (PIN).
	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				This item requires the service access code. If the printer does not reach the Ready state, use this item to print the error logs. The logs can be copied to a USB storage accessory when the printer is initialized. Send these files to HP to help troubleshoot the cause of the problem.
	Reset Password			Use this item to reset the Pre-boot administrator password.
	Subsystems			For manufacturing use only. Do not change these values.
Developer Tools	Netexec			

Remote Admin

The Remote Admin feature allows remote access to 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 to the Pre-boot menu, for security reasons, the Remote Admin connection must be initiated by a person that is physically present at the printer.

This section describes the following Remote Admin items.

- [Required software and network connection](#)
- [Connect a remote connection](#)
- [Disconnect a remote connection](#)

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.

Telnet client

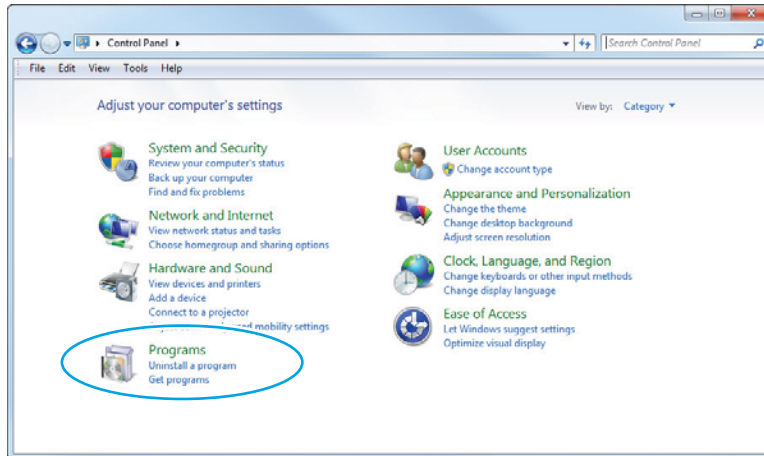
Enable the Windows telnet client

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.

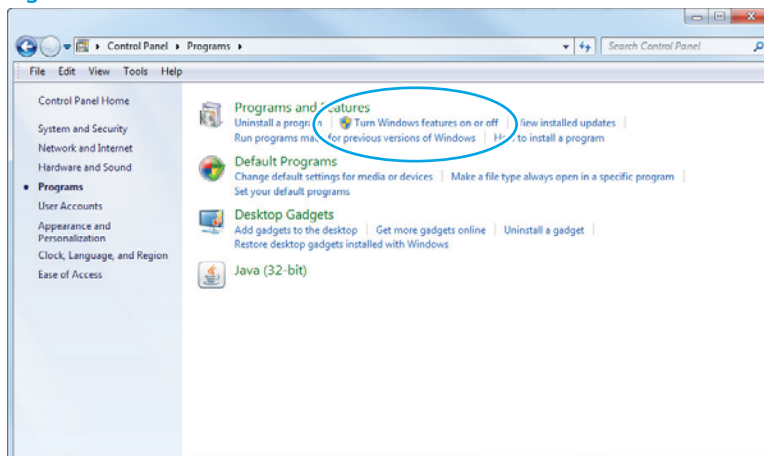
1. Use the **Start** menu to open the **Control Panel**, and then click the **Programs** item to select it.

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.


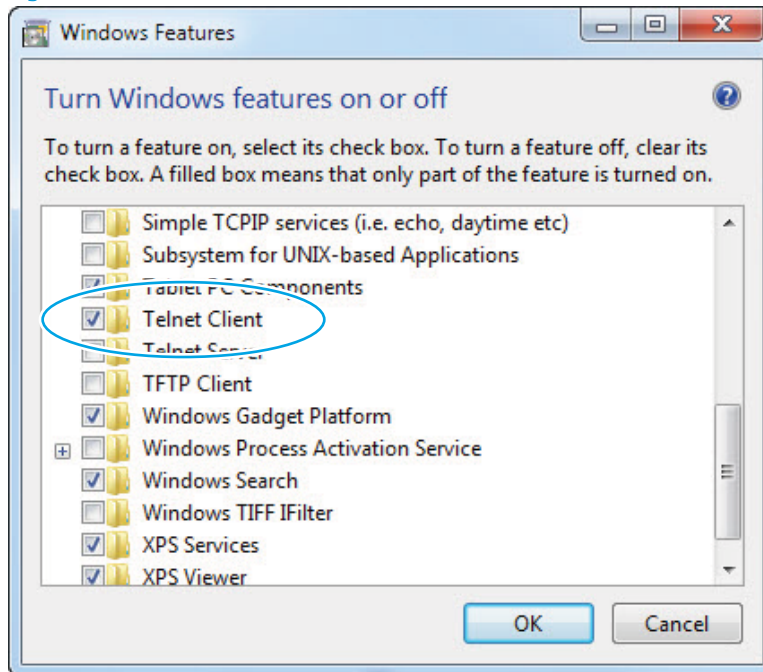
 **TIP:** If the check box is already checked then the telnet client function is already enabled. Click the **Cancel** button.

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

Start the telnet server function at the printer

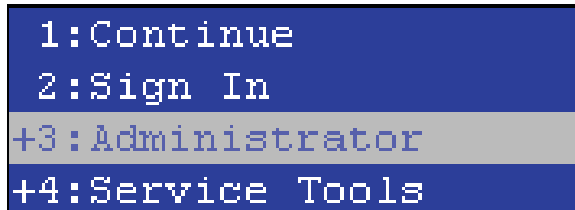
For security reasons the Remote Admin feature must be initiated by a person that is physically present at the printer. The following steps must be performed by a person that is physically present at the printer.

 **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 displays below the logo, touch in the middle of the control-panel display to open the **Pre-boot** menu.

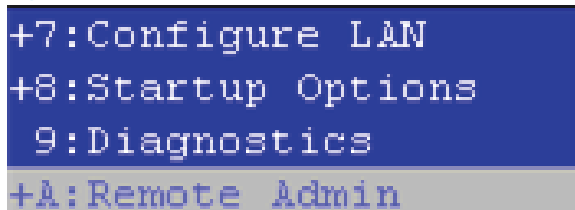
3. Use the arrow buttons on the touchscreen to scroll down and highlight the **+3:Administrator** item, and then touch the **OK** button to select it.

Figure 2-7 Select the +3:Administrator item



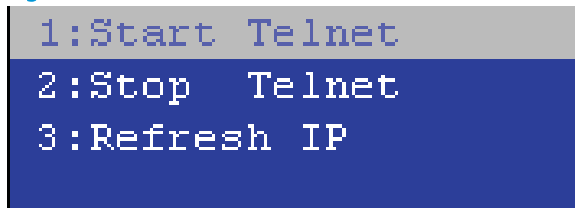
4. Use the arrow buttons on the touchscreen to scroll down and highlight the **+A:Remote Admin** item, and then touch the **OK** button to select it.

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



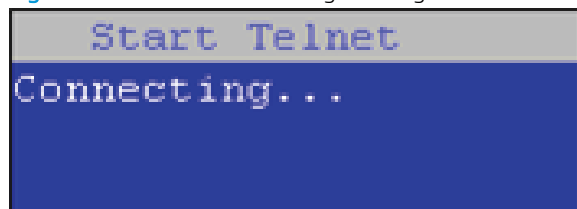
5. Use the arrow buttons on the touchscreen to scroll down and highlight the **1:Start Telnet** item, and then touch the **OK** button to select it.

Figure 2-9 Select the 1:Start Telnet item



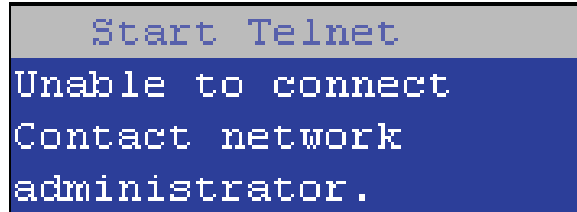
6. Do one of the following
 - If a connecting message displays briefly, go to step [7](#).

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

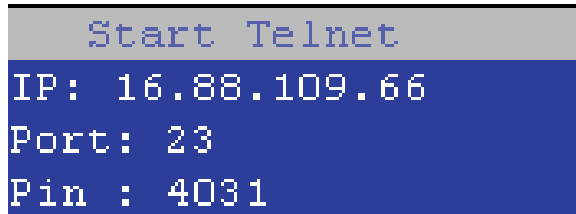


- a. The printer network cable is not correctly connected BIOS LAN settings are incorrect.
 - o The printer should be configured to use a static IP address, but is configured to use DHCP instead.
 - o The printer is configured to use a static IP address, but the IP address is incorrect.
 - b. The printer 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

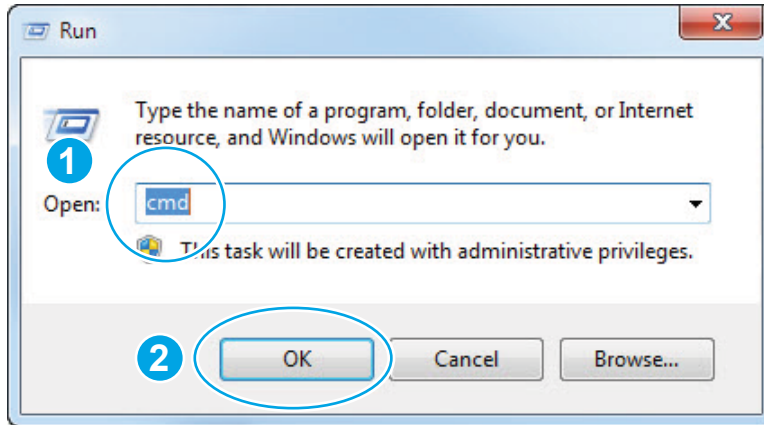


Start the telnet client function at the remote computer

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

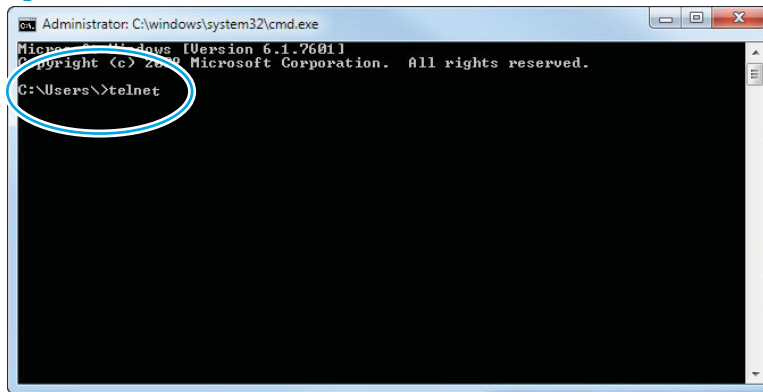
1. From the **Start** menu click **Run** to open a dialog box, type `cmd` in the **Open** field, and then click the **OK** button to open a Windows command window.

Figure 2-13 Open a command window




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

Figure 2-14 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 in step 7 in [Start the telnet server function at the printer on page 99](#).


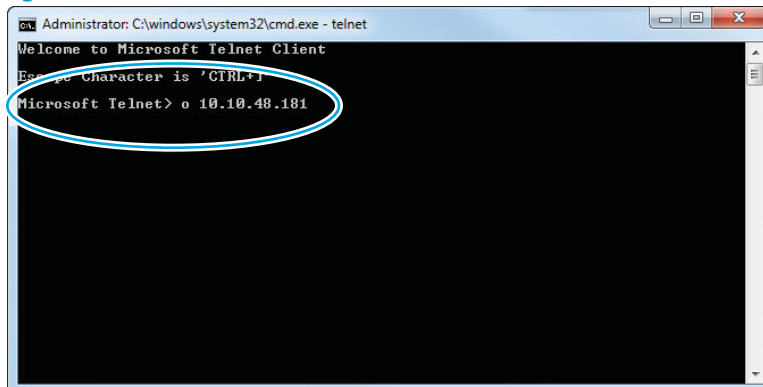
 **TIP:** If the telnet connection fails to establish a connection, the printer is probably behind a firewall or on a different network than the remote telnet client computer. See [Network connection on page 99](#).

Figure 2-15 Establish a telnet connection



4. Type the PIN that was displayed in step 7 in [Start the telnet server function at the printer on page 99](#) at the prompt, and then press the **Enter** key.


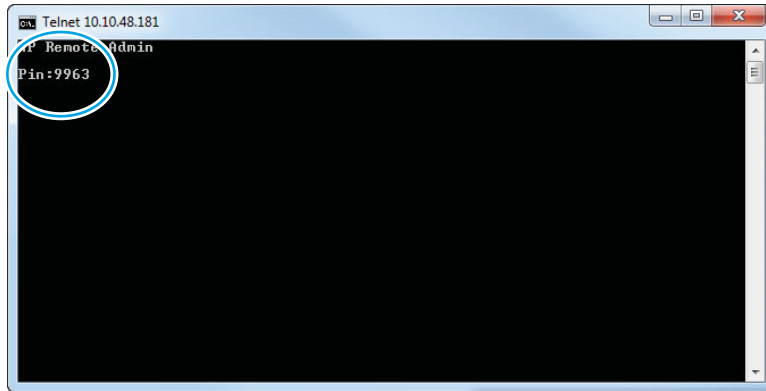

 **IMPORTANT:** Make sure to type the PIN correctly. After five incorrect PIN entries, the printer terminates the Remote Admin connection. The Remote Admin feature must be re-initiated at the printer. See [Start the telnet server function at the printer on page 99](#).

Figure 2-16 Enter the PIN

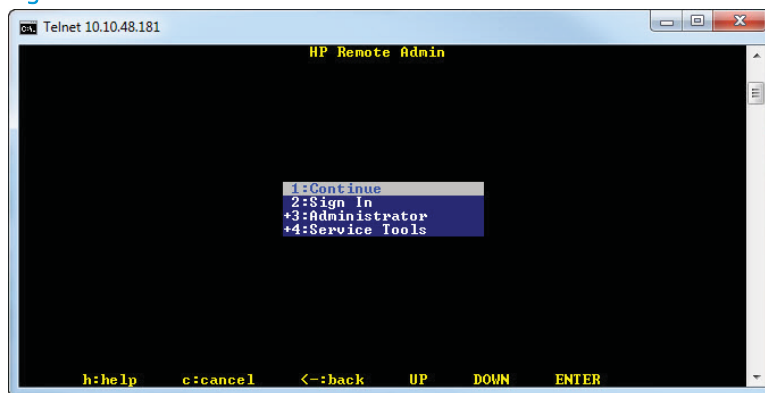


5. The following screen displays when the correct PIN is entered and the Remote Admin connection is successful. For information about the Pre-boot menu and options, see [Pre-boot menu options on page 88](#).

 **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 2-17 Remote Admin window



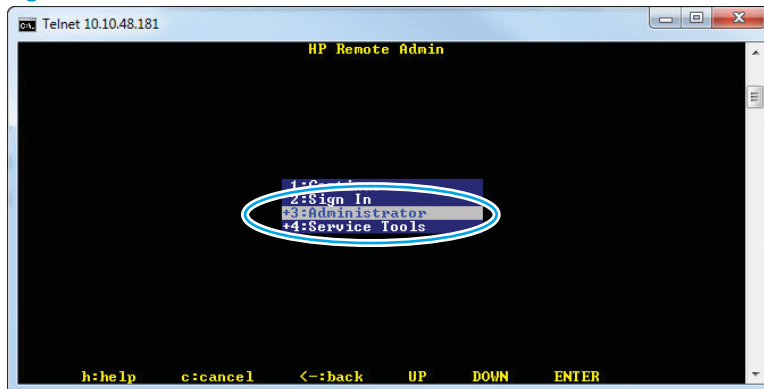
Disconnect a remote connection

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.

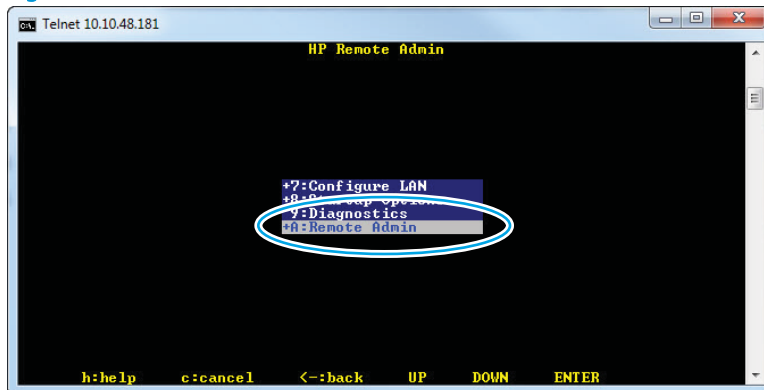
1. From the Pre-boot main menu, use the arrow buttons on the keyboard to scroll down to the **+3:Administrator** item, and then press the **Enter** key.

Figure 2-18 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 2-19 Access the remote admin menu

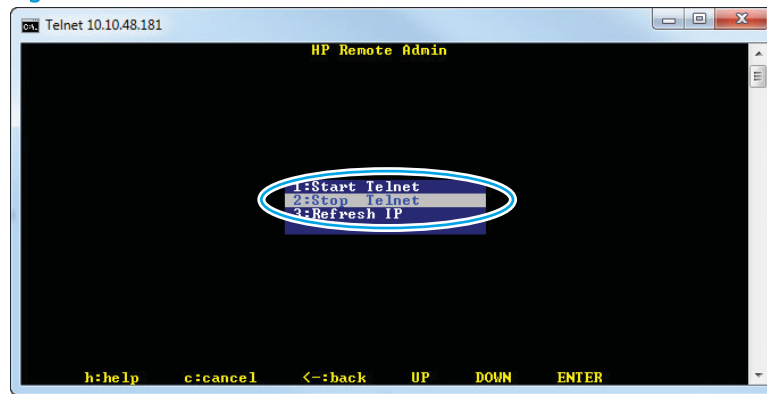


3. Use the arrow buttons on the keyboard to scroll down to the **2:Stop Telnet** item, and then press the **Enter** key. The Remote Admin connection between the printer and the remote telnet client computer terminates.

 **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 2-20 Terminate the telnet connection



Troubleshooting process

- [Determine the problem source](#)
- [Power subsystem](#)
- [Control panel checks](#)

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 checklist to gather information about the problem from the customer. Use the troubleshooting flowchart to help diagnose the root cause of the problem. The remainder of this chapter provides steps for correcting problems.

- Use the pre-troubleshooting check list to gather information about the problem from the customer. See [Pre-troubleshooting checklist on page 106](#).
- Use the troubleshooting flowchart to pinpoint the root cause of hardware malfunctions. The flowchart provides guides to the section of this chapter that contain steps to correct the malfunction. See [Troubleshooting flowchart on page 107](#).

Before beginning any troubleshooting procedure, check the following issues:

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



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

Pre-troubleshooting checklist

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

General topic	Questions
Environment	<ul style="list-style-type: none">• Is the 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 outlet?• 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?
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?

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? Is the tray (or trays) correctly installed in the printer?
Toner cartridge	<ul style="list-style-type: none"> Is the toner cartridge (or cartridges) installed correctly?
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, calibrate the printer.

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 2-8 Troubleshooting flowchart

1 Power on	Is the printer on and does a readable message display?		Follow the power-on troubleshooting checks. See Power subsystem on page 108 .
	Yes ↓	No →	After the control panel display is functional, see step 2.
2 Control panel messages	Does the message Ready display on the control panel?		After the errors have been corrected, go to step 3.
	Yes ↓	No →	

Table 2-8 Troubleshooting flowchart (continued)

3 Event log	Open the Troubleshooting menu and print an event log to see the history of errors with this printer. Does the event log print?		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, see step 4.
	Yes ↓	No →	
4 Information pages	Open the Reports menu and print the configuration pages to verify that all the accessories are installed. Are all the accessories installed?		If accessories that are installed are not listed on the configuration page, remove the accessory and reinstall it. After evaluating the configuration pages, see step 5.
	Yes ↓	No →	
5 Print quality	Does the print quality meet the customer's requirements?		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, see step 6.
	Yes ↓	No →	
6 Interface	Can the customer print successfully from the host computer?		Verify that all I/O cables are connected correctly and that a valid IP address is listed on the 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.
	Yes. This is the end of the troubleshooting process.	No →	

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

During normal operation, a cooling fan begins to spin briefly after the printer power is turned on. Place a hand over the vents in the rear cover, near the formatter. When the fan is correctly operating, air passing out of the printer is felt. Lean close to the printer to hear the fan operating. If the fan is operating, the dc side of the power supply is functioning.

After the fan is operating, the main motor turns on (unless the top cover is open, a jam condition is sensed, or the paper-path sensors are damaged). Visually and audibly determine that the main motor is turned on.

If the fan and main motor are operating correctly, the next troubleshooting step is to isolate printer, formatter, and control panel problems. Perform an engine test. If the formatter is damaged, it might interfere with the engine test. If the engine-test page does not print, try removing the formatter, and then performing the engine

test again. If the engine test is then successful, the problem is almost certainly with the formatter, the control panel, or the cable that connects them.

Troubleshooting power on problems

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, and then 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. Listen for startup noises (fans and motors) and illuminated lights on the control panel.



NOTE: Operational fans, motors, and control-panel lights indicate the following:

- AC power is present at the printer.
 - The low-voltage power supply (LVPS) is providing either or both 24 Vdc and 5 Vdc voltages.
 - The DC controller microprocessor is functioning.
-

4. Check the following:
 - a. Turn the printer on, and then listen for startup noises. If normal startup noises are heard, go to step c below.
 - b. If normal startup noises are not heard, turn the printer off, and then remove any installed accessories (for example, paper feeders).

Turn the printer on, and then listen for startup noises. If normal startup noises are heard, the problem might be with one of the accessories.
 - c. Turn the printer off and then remove the power connector from the formatter. Turn the printer on, and then use a small pointed object (like a paper clip) to depress the test-page switch located on the rear side of the printer (near the formatter).



NOTE: The test page can only use Tray 2 as the paper source, so make sure that paper is loaded in Tray 2.



- d. If the engine test page prints, the print engine is operating normally.
- e. If the engine test page does not print, replace the low-voltage power supply (LVPS):
 - RM2-7165-000CN (M552, M553)
 - RM2-7164-000CN (M577)
- f. If, after replacing the LVPS, normal startup noises are still not heard, replace the DC controller:
 - RM2-7186-000CN (M552, M553)
 - RM2-7187-000CN (M577)
- g. If after replacing the DC controller normal startup noises are still not heard, replace the fuser power supply (RM2-7125-000CN).



NOTE: If the error persists after replacing these assemblies, escalate the problem to the Global Business Unit (GBU).

Troubleshooting a blank control panel

A blank control panel display can be caused by one or more of the following:

- No power to the printer
- Power supply has tripped (over-current/over-voltage/temperature issue)
- Connectors on the formatter are not fully seated



TIP: The three LEDs on the formatter indicate that the printer is functioning correctly.

HP recommends fully troubleshooting the formatter and control panel before replacing either assembly. Use the connectivity LED to troubleshoot formatter and control panel errors to avoid unnecessarily replacing these assemblies. See the LED diagnostics section in the printer troubleshooting manual.

- Faulty component installed on the formatter (for example, memory DIMM or disk drive)
- Control panel connectors not fully seated

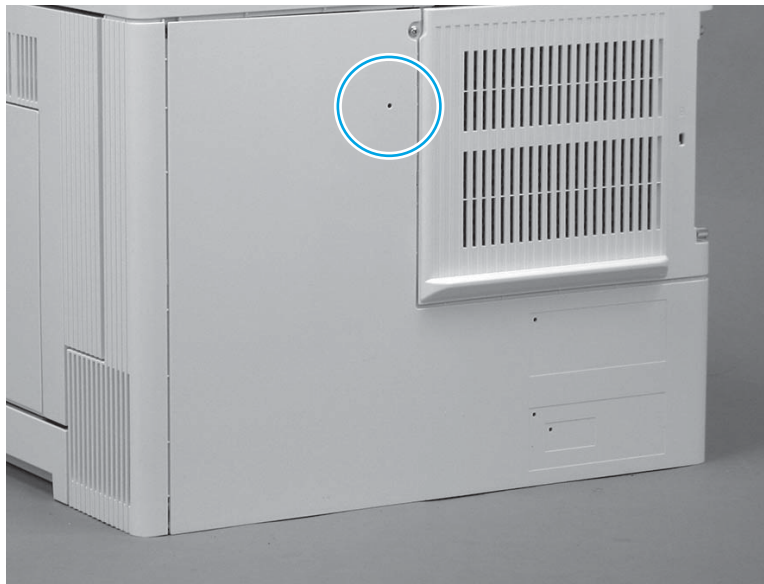
- Faulty formatter
- Faulty control panel

Follow these steps to troubleshoot a blank control panel:

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, and then 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).
2. Make sure that the power switch is in the *on* position.
3. Make sure that the fan runs briefly, which indicates that the power supply is operational.
4. Make sure that the control-panel display wire harness is connected.
5. Make sure that the formatter connectors are seated. Make sure the power switch is in the on position, and then verify that the heartbeat LED is blinking and that the connectivity LED is illuminated.
6. Remove any external solutions, and then try to turn the printer on again.
7. If the control panel display is blank, but the main cooling fan runs briefly after the printer power is turned on, try printing an engine-test page to determine whether the problem is with the control-panel display, formatter, or other printer assemblies.
 - a. Disconnect all of the formatter connectors.
 - b. Use a small pointed object to depress the test-page switch located on the rear of the printer.




NOTE: The test page can only use Tray 2 as the paper source, so make sure that paper is loaded in Tray 2.



- c. If the engine test page prints, the print engine is operating normally (a failed engine test print page does not necessarily indicate that the print engine or DC controller is defective).
- d. Use the control-panel diagnostics to test the control panel. See the Control panel checks section in the printer troubleshooting manual. If the error persists, proceed to step [8](#).

8. If the print engine appears to be correctly operating (the engine test page successfully printed) and the control panel is still blank, replace the low-voltage power supply (LVPS)
9. If after replacing the LVPS normal startup noises and lights are still not present, replace the DC controller.

 **NOTE:** If the error persists after replacing these assemblies, escalate the problem to the Global Business Unit (GBU).

Control panel checks

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

- [Control-panel diagnostics](#)
- [Control panel diagnostic flowcharts \(M553x and M577\)](#)

Control-panel diagnostics

- [Touchscreen diagnostic mode \(M553x and M577\)](#)
- [Control-panel system diagnostics \(M553x and M577\)](#)

Touchscreen diagnostic mode (M553x and M577)

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 \(M553x and M577\) on page 117](#).

1. **M553x only:** Locate the diagnostic-tests access button on the back of the control panel.

Figure 2-21 Diagnostic-tests access button



2. **M553x 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 2-22 Press the diagnostics-access button



3. **M577 only:** Locate the diagnostic-tests access button on the back of the control panel.

Figure 2-23 Diagnostic-tests access button




4. **M577 only:** Press the diagnostics-access button. Repeatedly pressing the button cycles through the available diagnostics.

Figure 2-24 Press the diagnostics-access button



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.


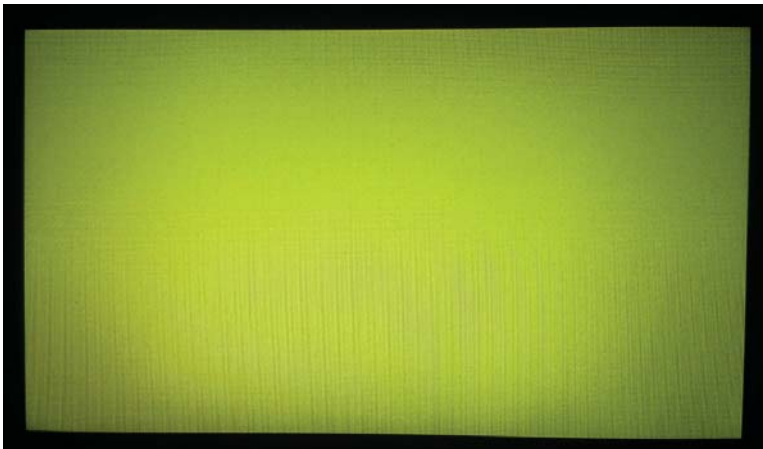
 **TIP:** After 4 seconds of inactivity, the diagnostic mode times out and is exited.

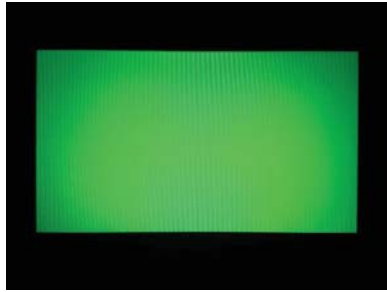
Figure 2-25 Control-panel version A yellow screen



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



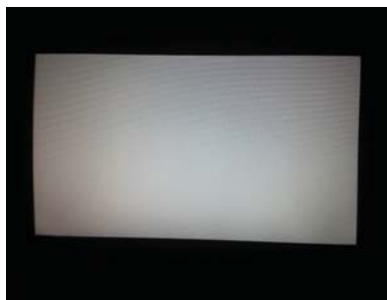
- A green screen.



- A blue screen.



- Five brightness levels of a white screen.



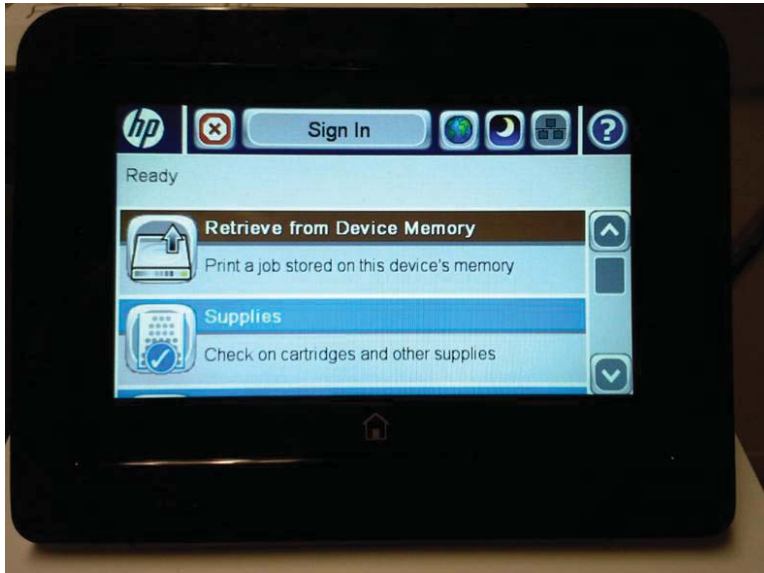
- A final black screen.

💡 **TIP:** When the final black screen displays, press the Home button to cycle through the diagnostic screens again.



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

Figure 2-26 Exit the diagnostic mode



Control-panel system diagnostics (M553x and M577)

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

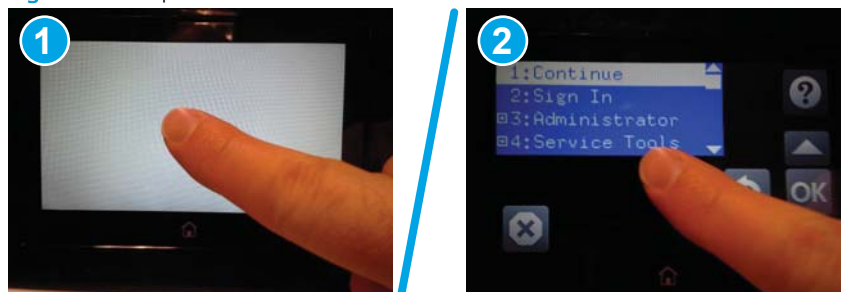
- [Open the control-panel system diagnostic tests](#)
- [Screen test](#)
- [Touch test](#)
- [SoftKey test](#)
- [Backlight test](#)
- [Sound test](#)
- [Keyboard test \(M577 only\)](#)
- [Version](#)

Open the control-panel system diagnostic tests

Open the control-panel system diagnostic tests from a touchscreen control panel

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

Figure 2-27 Open the Pre-boot menu



3. On the [Pre-boot](#) menu screen, use the following buttons to navigate the tests.

Figure 2-28 Pre-boot menu



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.



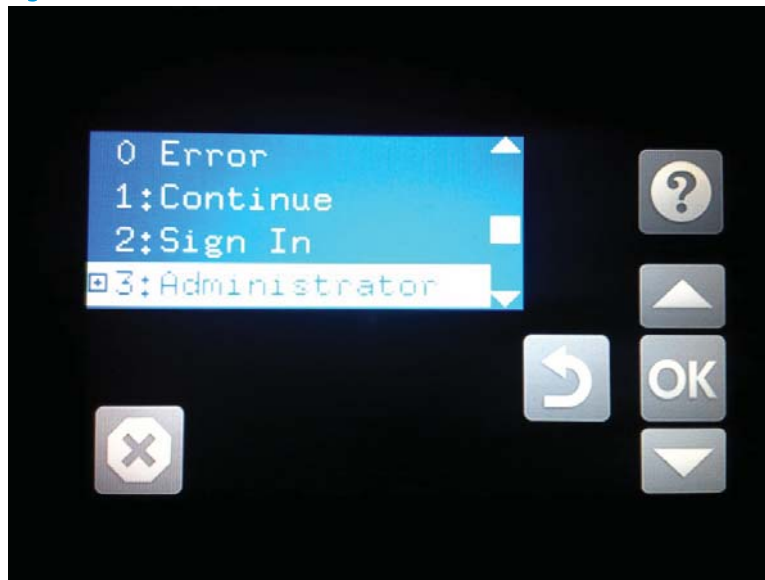
Not used.



Use this button to exit a diagnostic test.

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

Figure 2-29 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 2-30 Access the diagnostics menu



Screen test

1. Open the control-panel system diagnostic tests. See [Open the control-panel system diagnostic tests on page 117](#).
2. With 1 Screen Test highlighted, press the OK button to select it.

Figure 2-31 Open the screen test



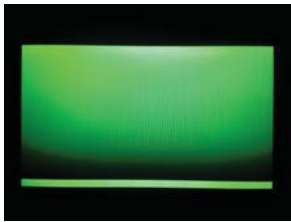
3. The blue vertical gradient screen appears.

Figure 2-32 Blue vertical gradient screen

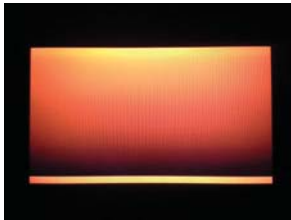


4. Touch the touchscreen to scroll through the remaining touchscreen test screens.

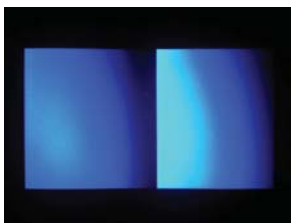
 **NOTE:** Touch the Home button to exit the test.



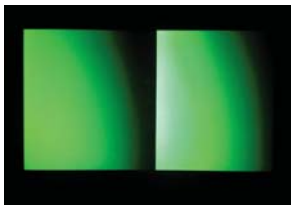
Green vertical gradient



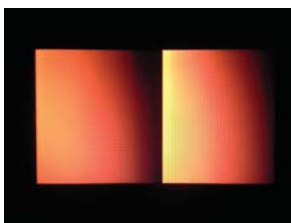
Red vertical gradient



Blue horizontal gradient



Green horizontal gradient



Red horizontal gradient



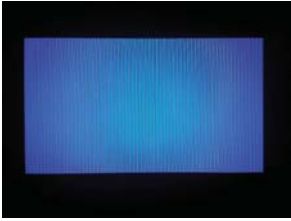
Blue with black horizontal interlaced



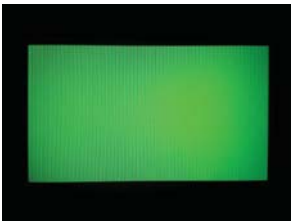
Green with black horizontal interlaced



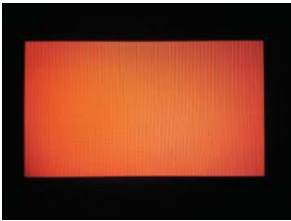
Red with black horizontal interlaced



Blue with black vertical interlaced



Green with black vertical interlaced



Red with black vertical interlaced



Black with white center



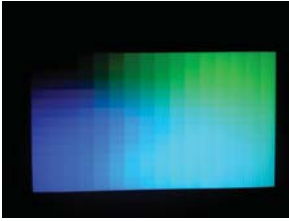
White with black center



Checkerboard



Multicolor stripes

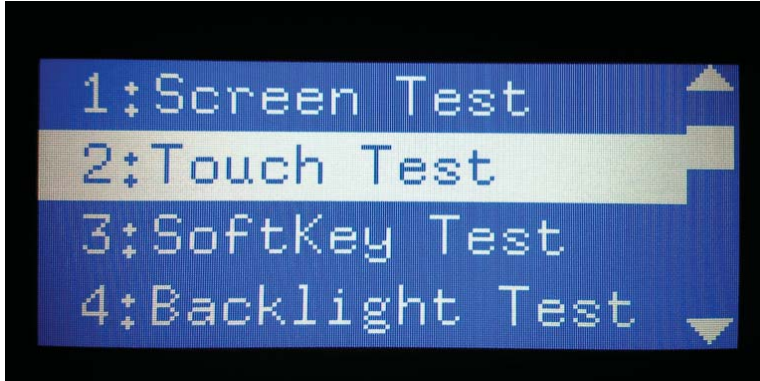


Blue green grid meshing

Touch test

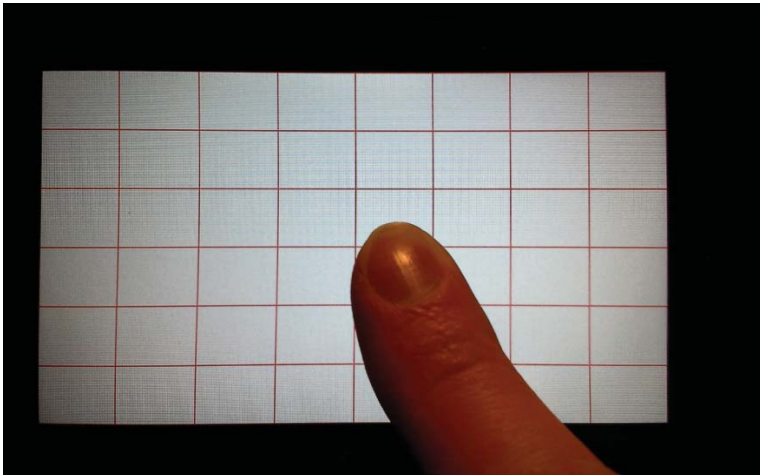
1. Open the control-panel system diagnostic tests. See [Open the control-panel system diagnostic tests on page 117](#).
2. Use the [down arrow ▼](#) button to scroll to [2 Touch Test](#), and then press the [OK](#) button to select it.

Figure 2-33 Open the touch test



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

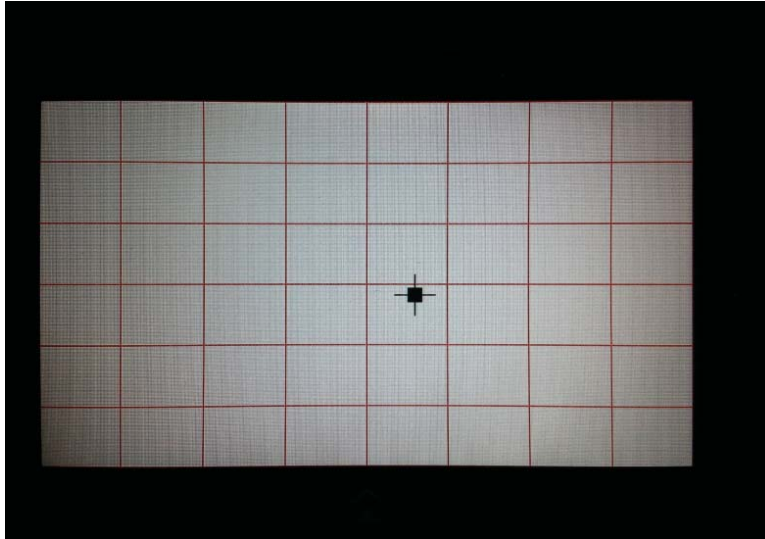
Figure 2-34 Touch the white grid



4. A mark appears on the grid where it was touched.

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

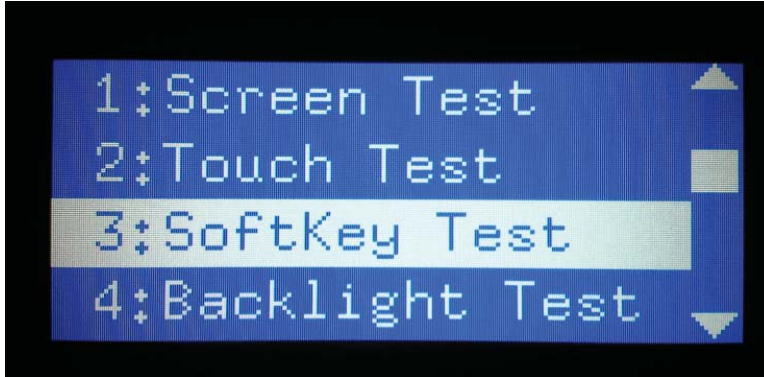
Figure 2-35 Verify the mark



SoftKey test

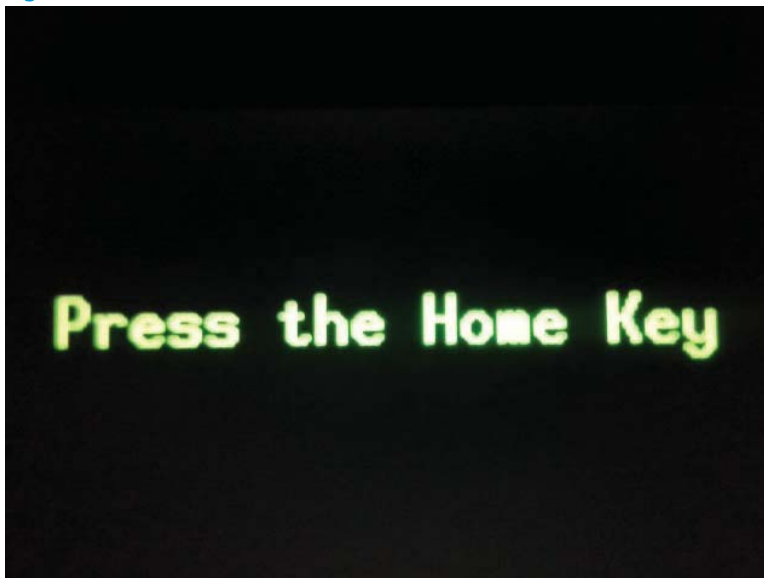
1. Open the control-panel system diagnostic tests. See [Open the control-panel system diagnostic tests on page 117](#).
2. Use the [down arrow ▼](#) button to scroll to [3 SoftKey Test](#), and then press the [OK](#) button to select it.

Figure 2-36 Open the softkey test



3. When prompted, touch the Home button.

Figure 2-37 Touch the Home button



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



NOTE: Touch the screen to exit the test.

Figure 2-38 Successful test



Backlight test

1. Open the control-panel system diagnostic tests. See [Open the control-panel system diagnostic tests on page 117](#).
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 2-39 Open the backlight test



Sound test

1. Open the control-panel system diagnostic tests. See [Open the control-panel system diagnostic tests on page 117](#).
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 2-40 Open the sound test



Keyboard test (M577 only)

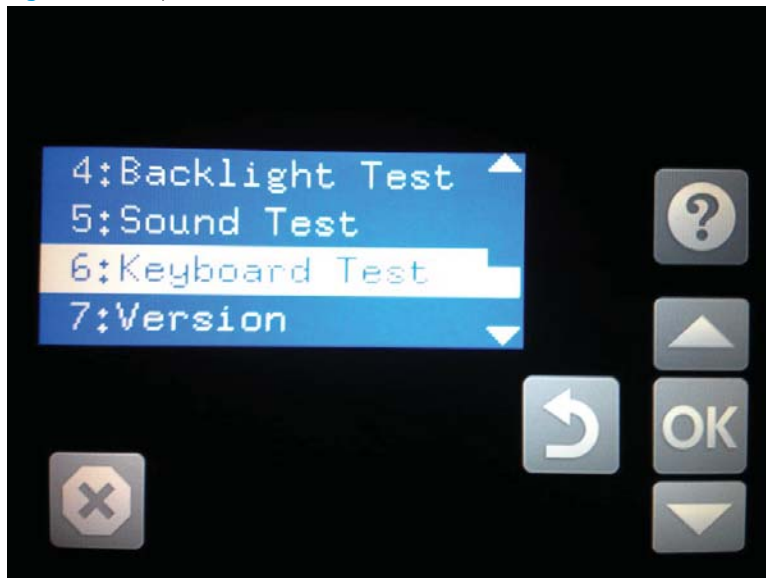
 **IMPORTANT:** This test is **not** valid for the M552 and M553 models, even though this option is present in the control-panel system diagnostic tests menu.

If the [6 Keyboard Test](#) is opened on the M552 or M553 models, 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 [Open the control-panel system diagnostic tests on page 117](#).
2. Use the [down arrow ▼](#) button to scroll to [6 Keyboard Test](#), and then press the [OK](#) button to select it.

Figure 2-41 Open the sound test



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

Version

1. Open the control-panel system diagnostic tests. See [Open the control-panel system diagnostic tests on page 117](#).
2. Use the [down arrow ▼](#) button to scroll to [7 Version](#), and then press the [OK](#) button to select it.

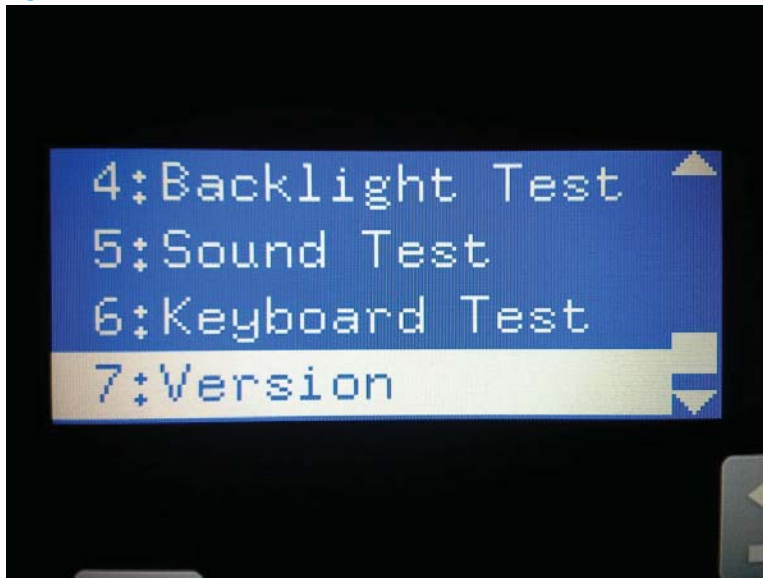


NOTE: Touch any key to exit the test.

Select [7 Version](#) to view the following types of information:

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

Figure 2-42 Open the sound test



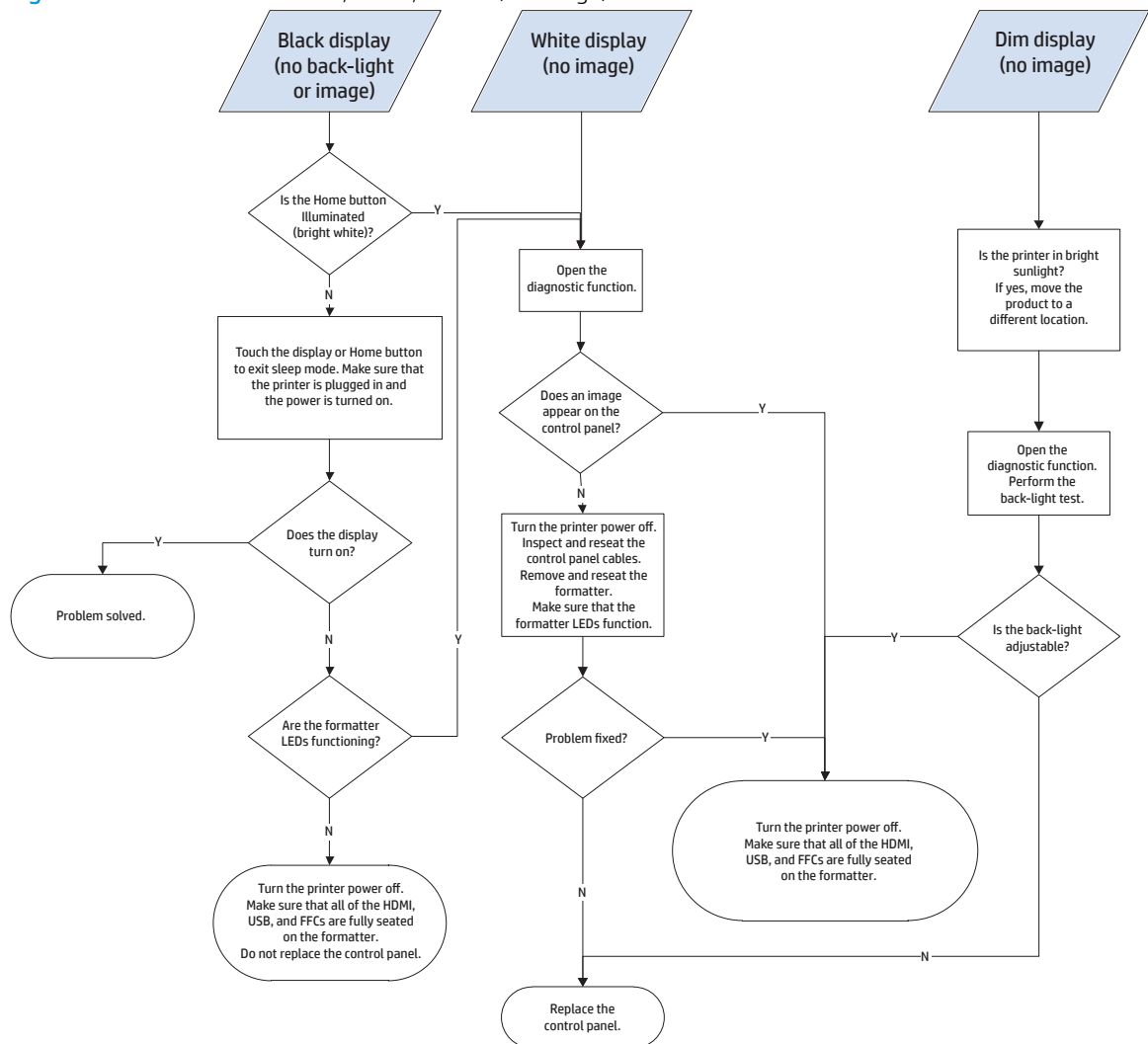
Control panel diagnostic flowcharts (M553x and M577)

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

- Touchscreen is blank, white, or dim (no image).
- Touchscreen is slow to respond or requires multiple presses to respond.
- Touchscreen has an unresponsive zone.
- No control panel sound.
- [Home](#) button is unresponsive.
- Hardware integration pocket (HIP) is not functioning (control panel functional).

Touchscreen black, white, or dim (no image)

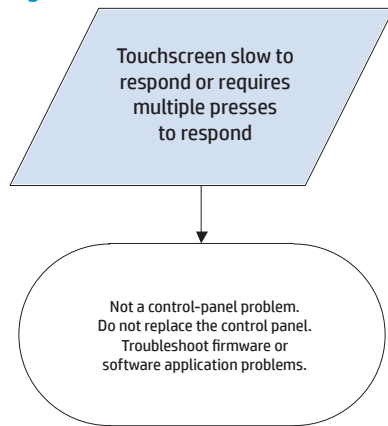
Figure 2-43 Touchscreen blank, white, or dim (no image)



Touchscreen is slow to respond or requires multiple presses to respond

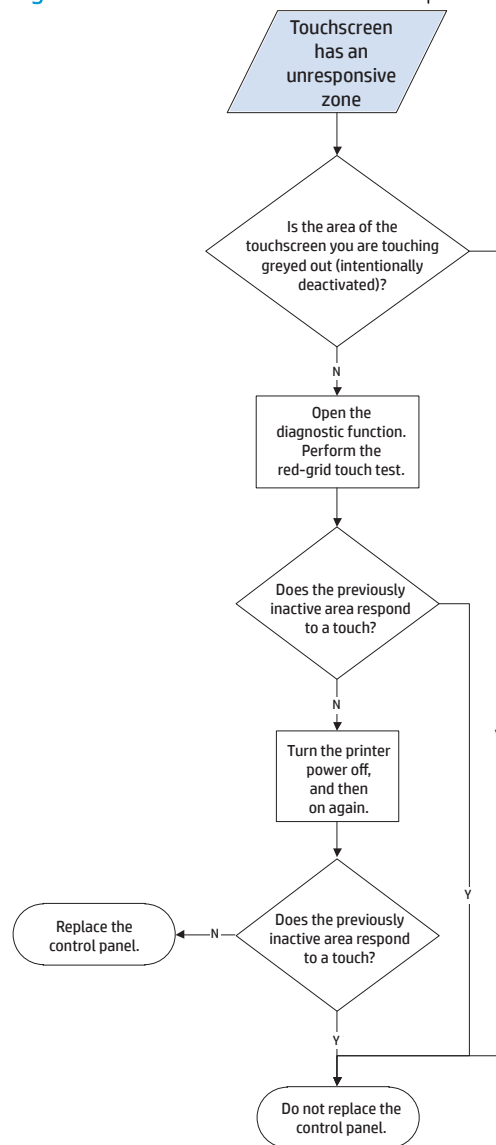
 **TIP:** Use the red-grid touch test to verify that all areas of the touchscreen are correctly functioning. See [Touch test on page 124](#).

Figure 2-44 Touchscreen is slow to respond or requires multiple presses to respond



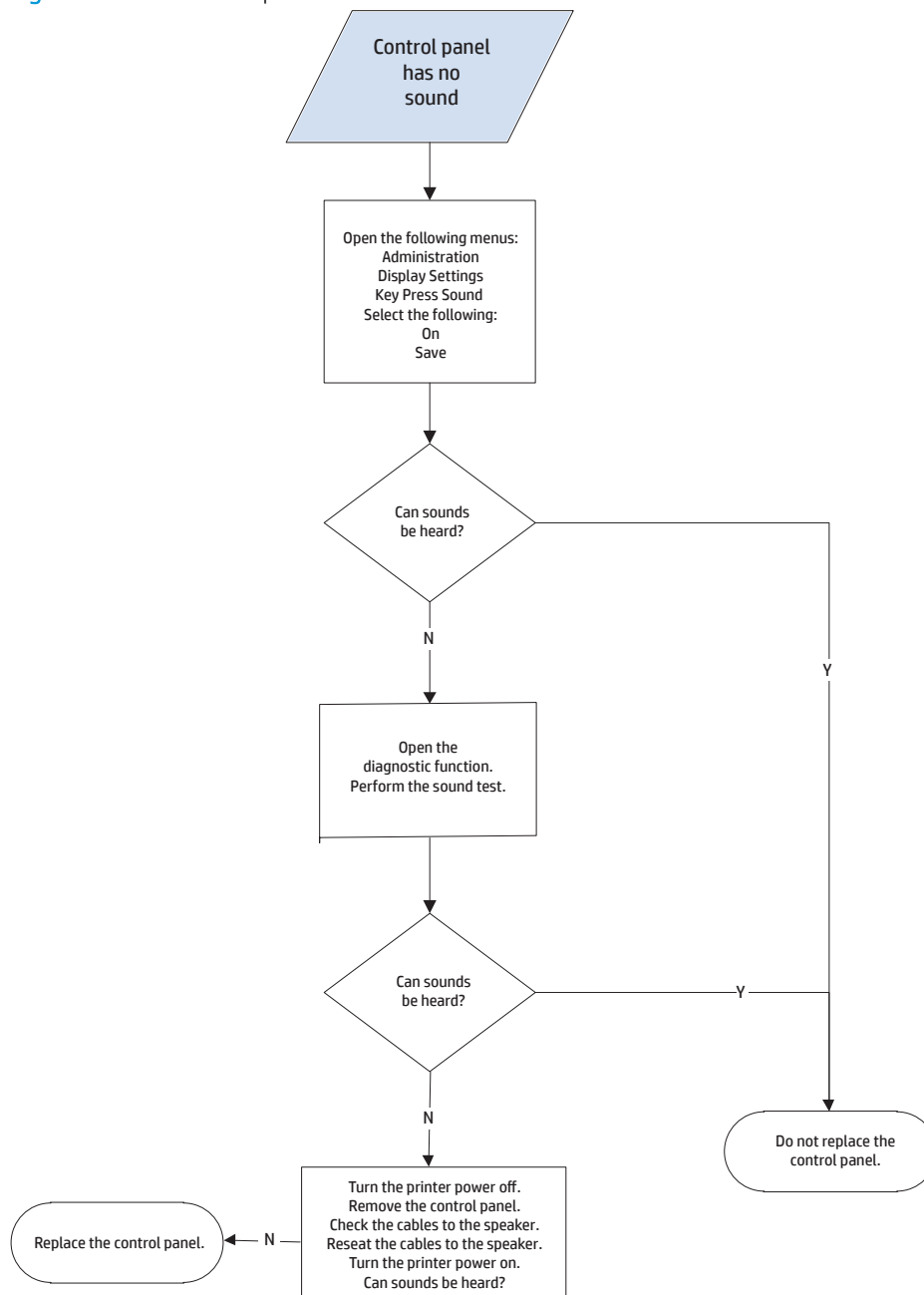
Touchscreen has an unresponsive zone

Figure 2-45 Touchscreen has an unresponsive zone



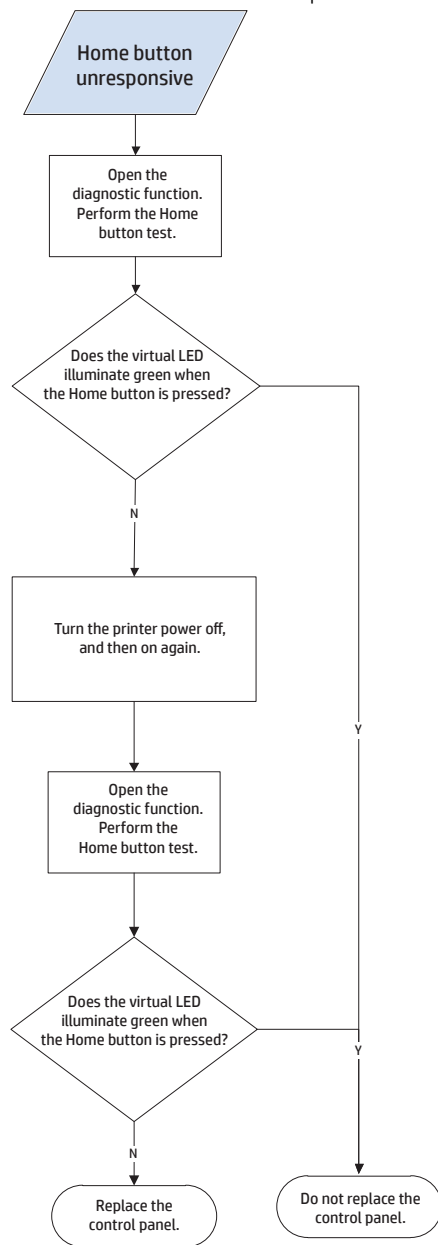
No control panel sound

Figure 2-46 No control panel sound



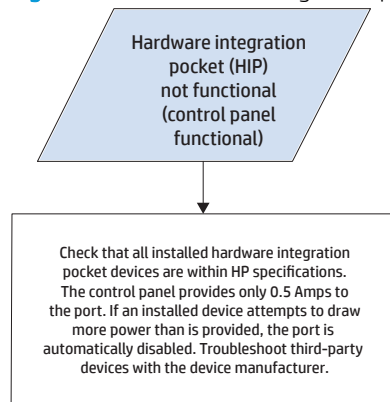
Home button is unresponsive

Figure 2-47 Home button is unresponsive



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

Figure 2-48 Hardware integration pocket (HIP) is not functioning (control panel functional)



Tools for troubleshooting

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

- [Individual component diagnostics](#)
- [Diagrams](#)
- [Internal test and information pages](#)
- [Control-panel menus](#)
- [Error code and control panel message troubleshooting overview](#)

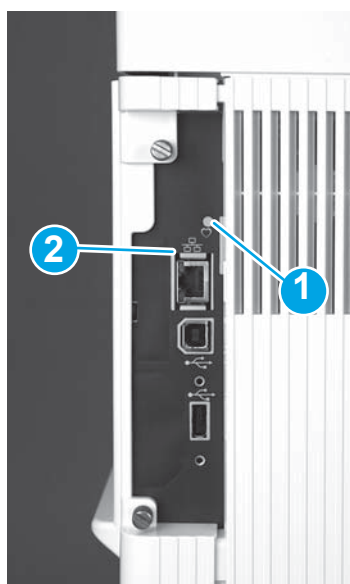
Individual component diagnostics

Tools for troubleshooting: LED diagnostics

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

Understand lights on the formatter

Two LEDs on the formatter indicate that the printer is functioning correctly.



- | | |
|---|-------------------|
| 1 | Heartbeat LED |
| 2 | HP Jetdirect LEDs |

Heartbeat LED

The heartbeat LED indicates that the formatter is functioning correctly. While the product is initializing after it is turned on, the LED blinks rapidly, and then turns off. When the product has finished the initialization sequence, the heartbeat LED pulses on and off.

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

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

If after initialization, the heartbeat LED is not solid green, see [Table 2-10 Heartbeat LED, product operational on page 141](#).

Table 2-9 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 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<ul style="list-style-type: none">Boot process halted Replace the formatter.
Serial peripheral interface (SPI) flash memory boot	Green, solid	Red, solid <ul style="list-style-type: none">Firmware error; problem corrupt or missing SPI flash memory<ul style="list-style-type: none">Boot process halted Replace the formatter.
HW checks on board DRAM	Green, solid	Red, solid <ul style="list-style-type: none">Power on self check failure<ul style="list-style-type: none">Boot process halted Replace the formatter.
Control panel connection initializes	Green, solid <p>NOTE: Control panel communication successful. If an error occurs, a message should appear on the control-panel display.</p>	Yellow, fast flash <ul style="list-style-type: none">Formatter to control panel connection failed<ul style="list-style-type: none">Boot process continues Check the cables between the formatter and control panel for damage. Make sure that the cables are fully seated.
Pre-boot menu available (including diagnostics)	Green, solid	Red, solid <ul style="list-style-type: none">Diagnostic failure<ul style="list-style-type: none">Follow diagnostic instructions Turn the power off, and then on again to restart the initialization process.
Accessing disk for firmware image	Green, solid <p>NOTE: If applicable, disk error messages appear on the control-panel display.</p>	Yellow, fast flash <ul style="list-style-type: none">Control panel not connected

Table 2-9 Heartbeat LED, product initialization (continued)

Product initializing state	Heartbeat LED, normal state	Heartbeat LED, error state
Firmware boot	Green, solid NOTE: If applicable, error messages appear on the control-panel display.	Yellow, fast flash • Control panel not connected
Product operational	Green, heartbeat blink NOTE: If applicable, error messages appear on the control-panel display.	Yellow, fast flash • Control panel not connected
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 product completes the firmware boot process and is in the **Ready** state.

Table 2-10 Heartbeat LED, product 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

Table 2-10 Heartbeat LED, product operational (continued)

LED color	Description
	<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 <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 product power switch is in the off position, or the product is in Sleep Mode.</p> <ul style="list-style-type: none"> • Firmware or system freeze <ul style="list-style-type: none"> – 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, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Network Settings](#)
 - [Embedded Jetdirect Menu](#)
 - [Link Speed](#)
3. Select the appropriate link speed, and then touch the [OK](#) button.

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 of the printer. The test page should have a series of lines that are parallel to the short 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.

Figure 2-49 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. To operate the printer with the doors open, the interlock switch levers must be depressed to simulate a closed-cover position.

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

💡 TIP: Fold a stiff piece of paper, for example a business card or index card, into a 10 mm (.375 in) strip, and insert the strip into the slots for the front door and right door logic switches.

1. Open the front door, and then insert a folded piece of paper into one slot.

Figure 2-50 Defeating interlocks (front door)



2. Open the right door, and then insert a folded piece of paper into two slots.

Figure 2-51 Defeating interlocks (right door; right side)

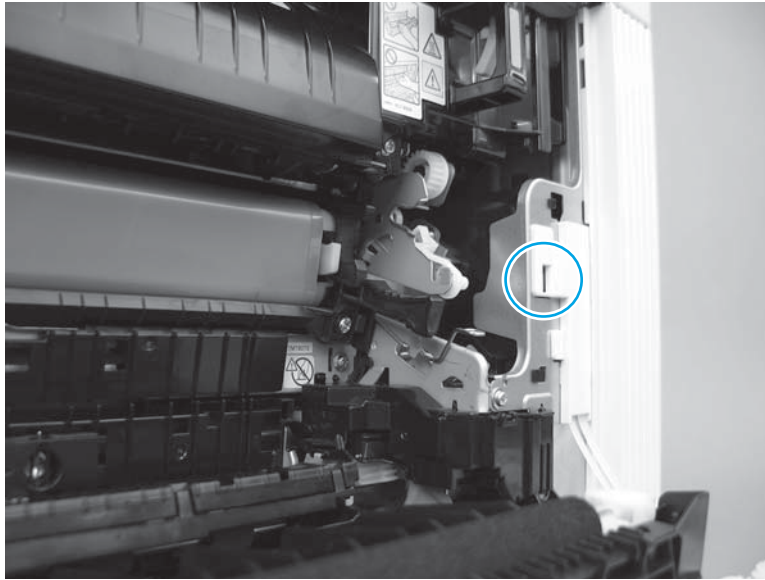
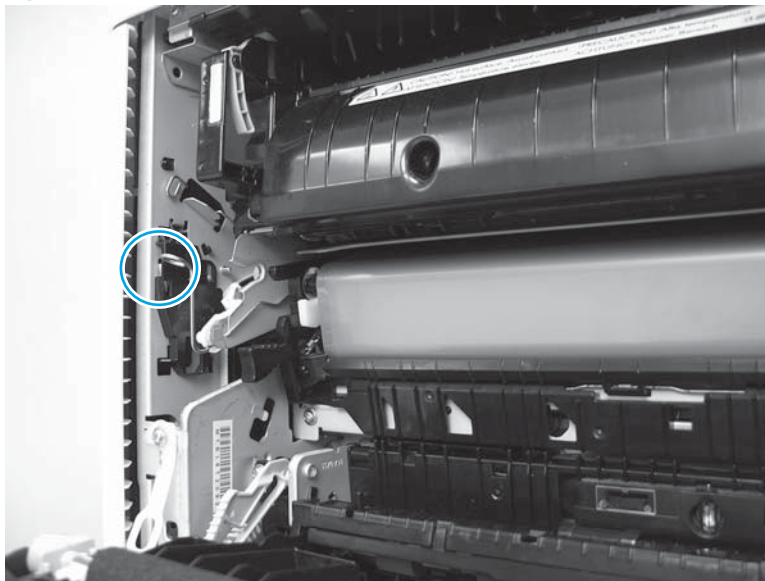


Figure 2-52 Defeating interlocks (right door; left side)



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 a touchscreen control panel

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

Disable cartridge check from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), 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 [Diagnostics](#), and then press the [OK](#) button.
4. Use the down arrow ▼ button to scroll to [Disable Cartridge Check](#), and then press the [OK](#) button to select it.

Tools for troubleshooting: Paper path and sensor diagnostic tests

Use these diagnostic tests to manually test the printer sensors, switches.



NOTE: The menu list of sensors and switches for the [Paper path sensors test](#), [Manual Sensor Test](#), and the [Tray/Bin Manual Sensor Test](#) varies depending on which optional accessories are installed.

The tables in this section describe the sensor tests available with an optional 1x550-sheet paper feeder installed.

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.

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, 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:

- **Print Test Page:** Run the paper-path test from the default settings: Tray 2, no duplex, and one copy. To specify other settings, scroll down the menu, and select the setting, and then scroll back up and select [Print Test Page](#) to start the test.
- **Source Tray:** Select Tray 1, Tray 2, or the optional tray.
- **Test Duplex Path:** Enable or disable two-sided printing.
- **Number of Copies:** Set the numbers of copies to be printed; the choices are 1, 10, 50, 100, or 500.

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 [Administration](#) button.
2. Open the following menus:
 - [Troubleshooting](#)
 - [Diagnostic Tests](#)
 - [Paper Path Test](#)
3. Select the paper-path test options for the test.

Access the paper path test from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), 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. Use the down arrow ▼ button to scroll to [Paper Path Test](#), and then press the [OK](#) button.

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

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Troubleshooting](#)
 - [Diagnostic Tests](#)
 - [Paper Path Sensors](#)

Access the paper path sensors test from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), 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. 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 motors for the Paper path sensors test varies depending on which optional accessories are installed.

The following table describes the sensor tests available with an optional 1x550-sheet paper feeder installed.

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 2-11 Paper-path sensors diagnostic tests

Sensor name	Sensor/Switch number	Replacement part number	Descriptions
Tray 3 feed sensor ¹	SR21	RM2-5145-000CN	Paper feed assembly
Registration sensor	SR6	RM2-0093-000CN (M553n) RM2-0018-000CN (M552dn, M553dn, M553x, M577)	Registration assembly
Fuser loop 1 sensor	PS1	B5L35-67902 (110 V) B5L36-67902 (220 V)	Fuser
Front media width sensor	SR13	RM2-0093-000CN (M553n) RM2-0018-000CN (M552dn, M553dn, M553x, M577)	Registration assembly

Table 2-11 Paper-path sensors diagnostic tests (continued)

Sensor name	Sensor/Switch number	Replacement part number	Descriptions
Rear media width sensor	SR14	RM2-0093-000CN (M553n) RM2-0018-000CN (M552dn, M553dn, M553x, M577)	Registration assembly
Fuser pressure release sensor	SR11	B5L35-67902 (110 V) B5L36-67902 (220 V)	Fuser
Fuser output sensor	SR9	B5L35-67902 ((110 V) B5L36-67902 (220 V)	Fuser
Developer alienation sensor	SR4	B5L25-67902	Main drive assembly
Output bin full sensor	SR10	RM2-0092-000CN (M553n) RM2-0016-000CN (M552dn, M553dn, M553x, M577)	Paper delivery assembly

¹ Only appears if optional accessories are installed.

Manual sensor tests

The table in this section lists the sensors and switches available in the [Manual Sensor Test](#).

Access the manual sensor test from a touchscreen control panel

The [Manual Sensor Test](#) screen shows the sensor number, sensor name (M553x only), sensor state (active or inactive), and the number of times the sensor has been toggled (activated).

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Troubleshooting](#)
 - [Diagnostic Tests](#)
 - [Manual Sensor Test](#)
3. Activate the desired sensor, and then check the control-panel display to verify the sensor state (active or inactive).
 - The [State](#) virtual LED next to the sensor number and sensor name illuminates green when the sensor is active.
 - The [Toggle](#) virtual LED next to the sensor number and sensor name illuminates green after the sensor is activated and increments by one each time the sensor is interrupted (activated or deactivated).


For example, opening the front door increments the [SW1 Front door opening/closing Toggle](#) item count two times—once when the door is opened, and once when the door is closed.
4. Touch the [Reset Sensors](#) button to reset the [Toggle](#) count item.

-or-

Touch the [Cancel](#) button or the [Return](#) arrow button to exit the [Manual Sensor Test](#) screen and return to the [Diagnostic Tests](#) menu.

Access the manual sensor test from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), 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. Use the down arrow ▼ button to scroll to [Manual Sensor Test](#), and then press the [OK](#) button.
5. Activate the desired sensor, and then check the control-panel display to verify the sensor state (active or inactive).

 **TIP:** Press the return arrow ↩ button to reset the sensor or press the Cancel  button to exit the test.

- The **State** virtual LED next to the sensor number and sensor name illuminates green when the sensor is active.
- The **Toggle** virtual LED next to the sensor number and sensor name illuminates green after the sensor is activated and increments by one each time the sensor is interrupted (activated or deactivated).

For example, opening the cartridge door increments the **SW4 Front door opening/closing Toggle** item count two times—once when the door is opened, and once when the door is closed.



NOTE: The following table describes the sensor tests available with an optional 1x550-sheet paper feeder installed.

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.

For a diagram of sensor locations, see [Figure 2-53 Printer base, sensors and switches block diagram on page 160](#).

Table 2-12 Manual sensor diagnostic tests

Sensor or switch	Replacement Part number	Description
SW4 Front door opening/closing sensor	RM2_7133-000CN	Switch PCA assembly
SW3 Right door opening/closing sensor	WC2-5806-000CN	Switch button assembly
SR21 Tray 3 feed sensor ¹	RM2-5145-000CN	Paper feed assembly
SR6 Registration sensor	RM2-0093-000CN (M553n) RM2-0018-000CN (M552dn, M553dn, M553x, M577)	Registration assembly
PS1 Fuser loop 1 sensor	B5L35-67902 (110 V) B5L36-67902 (220 V)	Fuser
SR13 Front Media width sensor SR13N Front Media width sensor	RM2-0017-000CN	Paper pickup assembly
SR14 Rear media width sensor SR14N Rear media width sensor	RM2-0017-000CN	Paper pickup assembly
SR11 Fuser pressure release sensor	B5L35-67902 (110 V) B5L36-67902 (220 V)	Fuser
SR9 Fuser output sensor	B5L35-67902 (110 V) B5L36-67902 (220 V)	Fuser
SR10 Output bin full sensor	RM2-0092-000CN (M553n) RM2-0016-000CN (M552dn, M553dn, M553x, M577)	Paper delivery assembly

¹ Only appears if optional accessories are installed.

Tray/bin manual sensor test

The table in this section lists the sensors and switches available in the [Tray/Bin Manual Sensor Test](#).

Access the tray/bin manual sensor test from a touchscreen control panel

The [Tray/Bin Manual Sensor Test](#) screen shows the sensor number, sensor name, sensor state (active or inactive), and the number of times the sensor has been toggled (activated).

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Troubleshooting](#)
 - [Diagnostic Tests](#)
 - [Tray/Bin Manual Sensor Test](#)
3. Activate the desired sensor, and then check the control-panel display to verify the sensor state (active or inactive).
 - The [State](#) virtual LED next to the sensor number and sensor name illuminates green when the sensor is active.
 - The [Toggle](#) virtual LED next to the sensor number and sensor name illuminates green after the sensor is activated and increments by one each time the sensor is interrupted (activated or deactivated).

For example, opening Tray 2 increments the [SW5 Tray 2 detection switch Toggle](#) item count two times—once when the tray is opened, and once when the tray is closed.


4. Touch the [Reset Sensors](#) button to reset the [Toggle](#) count item.

-or-

Touch the [Cancel](#) (M553x) or the [Return](#) arrow button to exit the [Tray/Bin Manual Sensor Test](#) screen and return to the [Diagnostic Tests](#) menu.

Access the tray/bin manual sensor test from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), 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. Use the down arrow ▼ button to scroll to [Tray/Bin manual Sensor Test](#), and then press the [OK](#) button.
5. Activate the desired sensor, and then check the control-panel display to verify the sensor state (active or inactive).

 **TIP:** Press the return arrow ↩ button to reset the sensor or press the Cancel  button to exit the test.

- The [State](#) virtual LED next to the sensor number and sensor name (M605x and M606x only) illuminates green when the sensor is active.
- The [Toggle](#) virtual LED next to the sensor number and sensor name (M605x and M606x only) illuminates green after the sensor is activated and increments by one each time the sensor is interrupted (activated or deactivated).

For example, opening Tray 2 increments the [SW5 Tray 2 detection switch Toggle](#) item count two times—once when the tray is opened, and once when the tray is closed.



NOTE: The following table describes the sensor tests available with an optional 1x550-sheet paper feeder installed.

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 2-13 Tray/bin manual sensors

Sensor or switch name	Replacement part number	Descriptions
SR5 Tray 2 paper sensor	WC2-5806-000CN (part not available)	Switch button assembly
SR8 Tray 1 paper sensor	RM2-0015-000CN	Right door assembly
SR12 Cassette media out sensor	RM2-0017-000CN	Paper pickup assembly
SR20 Tray 3-X media out sensor ¹	RM2-5154-000CN	Paper pickup assembly NOTE: Also associated with the media presence sensor.
SW21 Tray 3 cassette sensor ¹	WC2-5806-000CN (part not available)	Switch button assembly
SR21 Tray 3 feed sensor ¹	RM2-5145-000CN	Paper feeder assembly
SW20 Right door sensor ¹	RM2-5146-000CN	Right door assembly
SR10 Output bin media out sensor	RM2-0092-000CN (M553n) RM2-0016-000CN (M552dn, M553dn, M553x, M577)	Paper delivery assembly

¹ Only appears if optional accessories are installed.

Tools for troubleshooting: 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 [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.



NOTE: Do not try to perform a print/stop test while the printer is calibrating, because restarting the printer might be necessary. If a jam message displays on the control panel during testing, activate the door switch.

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 [Administration](#) button.
2. Open the following menus:
 - [Troubleshooting](#)
 - [Diagnostic Tests](#)
 - [Print/Stop Test](#)
3. Enter a range, and then touch the [OK](#) button.

Access the print/stop test from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), 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 Test](#), and then press the [OK](#) button.
4. Use the down arrow ▼ button to scroll to [Print/Stop Test](#), and then press the [OK](#) button.

Tools for troubleshooting: Component tests

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



NOTE: The menu list of components for the [Component Test](#) varies depending on which optional accessories are installed.

The table in this section describes the components available with an optional 1x550-sheet paper feeder installed.

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.

Individual component diagnostics (special-mode test)

This test activates individual parts independently to isolate problems.



NOTE: The front door or right side door interlocks must be defeated to run the component tests. Some tests might require that the ITB and toner cartridges be removed. A control-panel display prompt appears indicate removing some, or all of the cartridges, during certain tests.

Access the individual component diagnostics from a touchscreen control panel

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

Access the individual component diagnostics from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), 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 Test](#), and then press the [OK](#) button.
4. Use the down arrow ▼ button to scroll to [Component Test](#), and then press the [OK](#) button.



NOTE: The table in this section describes the components available with an optional 1x550-sheet paper feeder installed.

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 2-14 Component test details

Component test	Item tested	Replacement part number	Comments
Drum motors	M1	RM2-0078-000CN	Activates the specified motor.
	M2		
	M3		
Fuser drive assembly	M4	RM2-0091-000CN (M553n) RM2-0009-000CN (M552dn, M553dn, M553x, M577)	Activates the specified motor.
Fuser pressure release motor	M6	RK2-6027-000CN	Activates the specified motor.
Tray 2 pickup motor	M5	RM2-0008-000CN Pickup drive assembly	Activates the specified motor.
Tray 3 pickup motor ¹	M20	RM2-5145-000CN Paper feed assembly	Activates the specified motor.
Duplex pickup motor	M8	RM2-0006-000CN (M552dn, M553dn, M553x, M577) Duplex drive assembly	Activates the specified motor.
Tray 1 pickup solenoid	SL2	RM2-0017-000CN Paper pickup assembly	Activates the specified solenoid.
Tray 2 pickup solenoid	SL1	RM2-0090-000CN (M553n) RM2-0022-000CN (M552dn, M553dn, M553x, M577) Tray 1 roller alienation (part of secondary transfer assembly)	Activates the specified solenoid.
Tray 3-X pickup solenoid	Not applicable	RM2-5154-000CN Paper pickup assembly	Activates the specified solenoid.
Duplex switchback solenoid	SL3	RM2-0006-000CN (M552dn, M553dn, M553x, M577) Duplex drive assembly	Activates the specified solenoid.
Feed roller clutch	CL1	RM2-0010-000CN Lifter drive assembly	Activates the specified clutch.
Laser Scanner motor	M7	RM2-6545-000CN Laser/scanner assembly	Activates the specified motor.
Repeat	Not applicable	Not applicable	Choose Off to execute the test once. Choose On to execute the test continuously.

¹ Only appears if optional accessories are installed.

Tools for troubleshooting: Scanner tests (M577 only)

Use these diagnostic tests to manually test the document feeder and scanner sensors.

Scanner tests

This section lists the sensors available in the [Scanner Tests](#).

Document feeder and image scanner sensor replacement parts

If a document feeder or image scanner sensor fails, replace the following assemblies:

- Document feeder sensors
 - Document feeder whole unit kit for M577dn/f models; 5851-6568



NOTE: Includes the white backing kit.

- Document feeder whole unit kit for M577c/z models; 5851-6569



NOTE: Includes the white backing kit.

- Scanner sub assembly (SSA) kit; F2A76-67909



NOTE: Includes the white backing kit.

Use the scanner tests

The [Scanner Tests](#) screen shows the sensor name, sensor state (active or inactive), and the number of times the sensor has been toggled (activated).

1. From the [Home](#) screen on the product control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Troubleshooting](#)
 - [Diagnostic Tests](#)
 - [Scanner Tests](#)
 - [Sensors](#)
3. Touch the sensor name on the [Scanner Tests](#) screen to display a sensor location graphic on the control-panel display.
4. Activate the desired sensor, and then check the control-panel display to verify the sensor state (active or inactive).
 - The [State](#) virtual LED next to the sensor number and sensor name illuminates green when the sensor is active.
 - The [Toggle](#) virtual LED next to the sensor number and sensor name illuminates green after the sensor is activated and increments by one each time the sensor is interrupted (activated or deactivated).

For example, opening the flatbed cover increments the [Flatbed cover Toggle](#) item count two times—once when the door is opened, and once when the door is closed.

5. Touch the [Reset Sensors](#) button to reset the [Toggle](#) count item.

-or-

Touch the [Cancel](#) button to exit the [Scanner Tests](#) screen, and then touch the [Cancel](#) button again to return to the [Diagnostic Tests](#) menu.

Scanner tests sensors

- [ADF paper present](#)
- [ADF Y \(length\)](#)
- [ADF jam cover](#)
- [ADF paper path deskew](#)
- [ADF paper path pick success](#)
- [Paper path sensor 1 \(unreachable\)](#)
- [Paper path sensor 2 \(unreachable\)](#)
- [Flatbed Y \(length\)](#)
- [Flatbed cover](#)

Diagrams

- [Diagrams: Block diagrams](#)
- [Diagrams: Printed circuit assembly \(PCA\) connector locations](#)
- [Diagrams: External plug and port locations](#)
- [Diagrams: Locations of major assemblies](#)
- [Diagrams: General timing chart](#)
- [Diagrams: General circuit diagrams](#)

Diagrams: Block diagrams

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

Sensors and switches

Figure 2-53 Printer base, sensors and switches block diagram

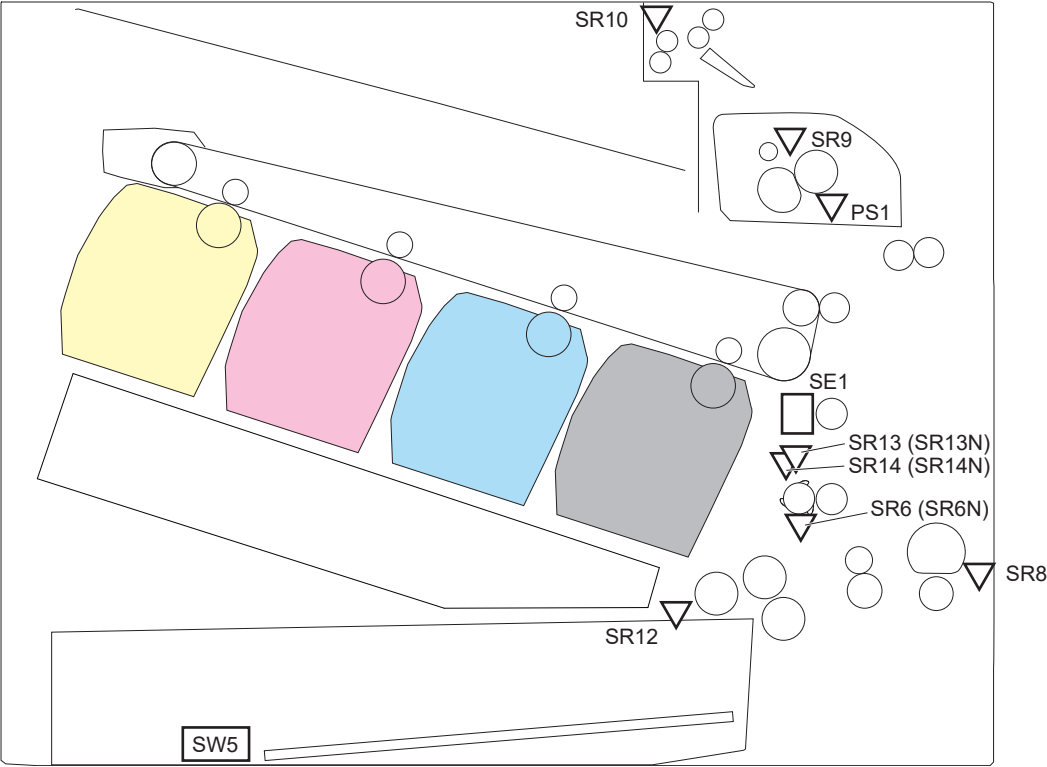


Table 2-15 Printer base, sensors and switches block diagram

Item	Description	Item	Description
SR6	Top-of-Page (TOP) sensor (duplex models)	SR13N	Media width (front, simplex models)
SR6N	Top-of-Page (TOP) sensor (simplex models)	SR14	Media width (rear, duplex models)
SR8	Tray 1 (multipurpose tray) media-out sensor	SR14N	Media width (rear, simplex models)
SR9	Fuser delivery sensor	PS1	Loop sensor
SR10	Output bin media-full sensor	SE1	Media sensor
SR12	Tray 2 (cassette) media-out sensor	SW5	Tray 2 (cassette) detection switch
SR13	Media width (front, duplex models)		

Figure 2-54 1x550-sheet paper feeder, sensors and switches block diagram

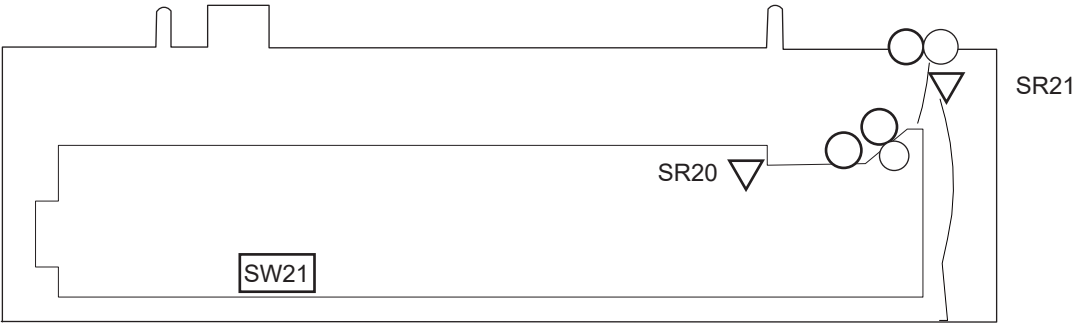


Table 2-16 1x550-sheet paper feeder, sensors and switches block diagram

Item	Description
SR20	Tray 3/4/5(cassette) media-out sensor
SR21	Paper feeder media feed sensor
SW21	Tray 3/4/5(cassette) detection switch

Figure 2-55 Document feeder, sensors block diagram

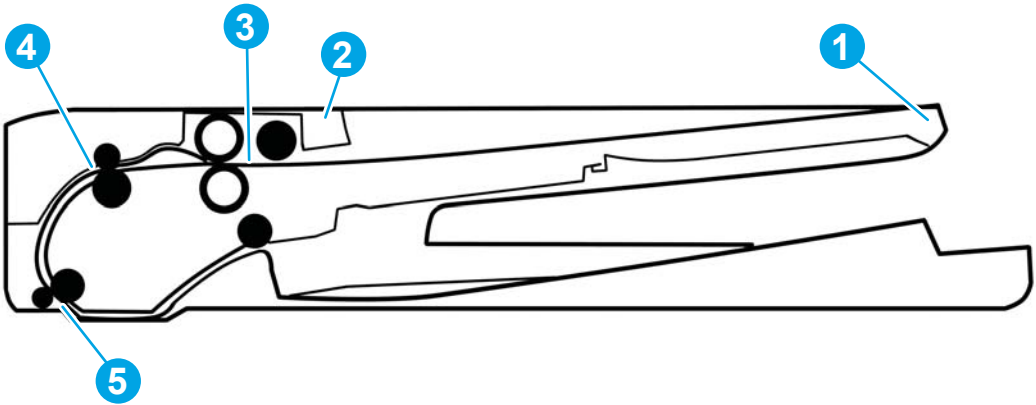


Table 2-17 Document feeder, sensors block diagram

Item	Description
1	Length sensor
2	Jam cover sensor
3	Paper present sensor
4	Deskew sensor
5	Paper path sensor

Cross section diagrams

Figure 2-56 Printer base cross section diagram

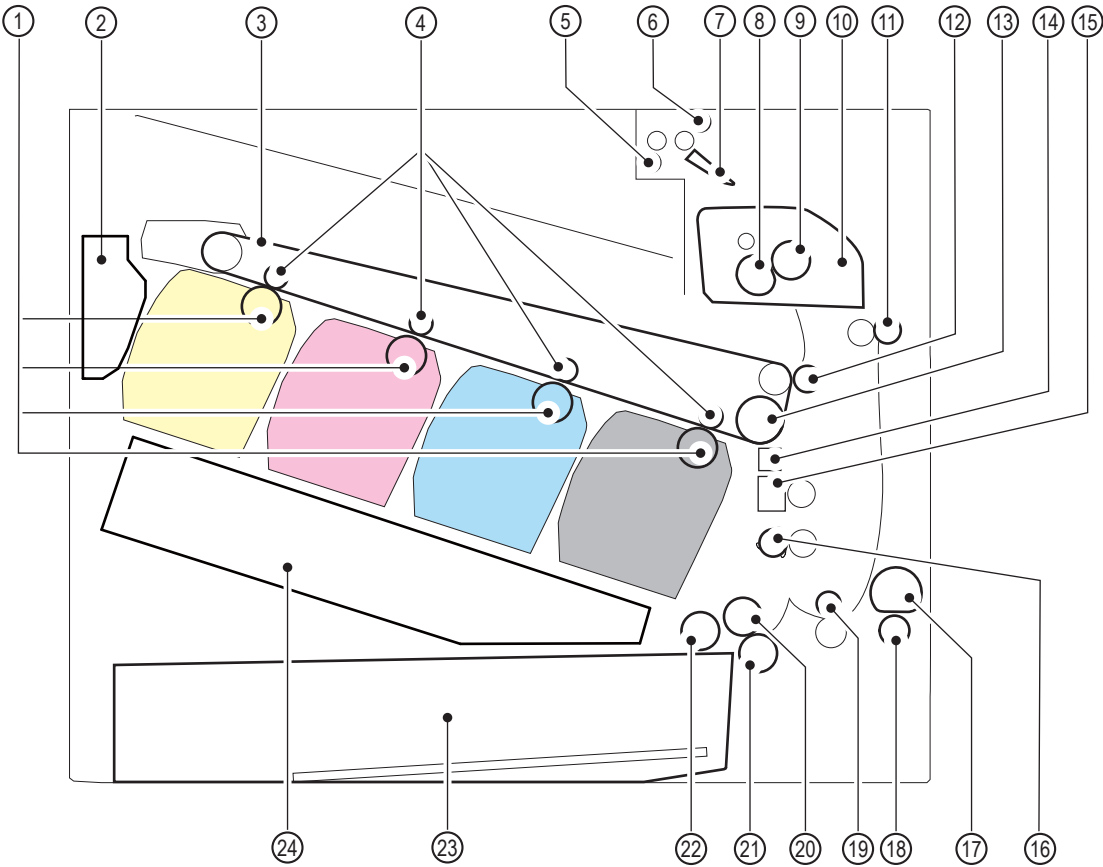


Table 2-18 Printer base cross section diagram

Item	Description	Item	Description
1	Photosensitive drum	13	ITB drive roller
2	Intermediate transfer belt (ITB) toner collection box	14	Registration density sensor
3	ITB	15	Media sensor
4	Primary transfer (T1) roller	16	Registration roller
5	Output roller	17	Tray 1 (multipurpose tray) pickup roller
6	Duplex switchback roller (M552dn, M553dn, M553x)	18	Tray 1 (multipurpose tray) separation roller
7	Duplex flapper (M552dn, M553dn, M553x)	19	Duplex re-pickup roller (M552dn, M553dn, M553x)
8	Fuser film	20	Tray 2 feed roller
9	Pressure roller	21	Tray 2 separation roller
10	Fuser	22	Tray 2 pickup roller
11	Duplex feed roller (M552dn, M553dn, M553x)	23	Tray 2
12	Secondary transfer (T2) roller	24	Laser/scanner assembly

Figure 2-57 1x550-sheet paper feeder cross section diagram

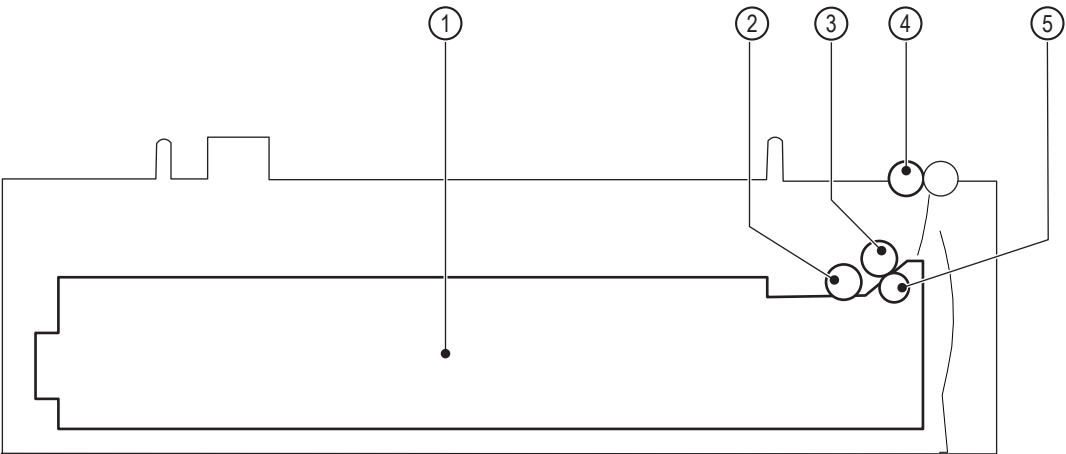


Table 2-19 1x550-sheet paper feeder cross section diagram

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

Diagrams: Printed circuit assembly (PCA) connector locations

Use the figures in this section to identify PCA connectors.

Figure 2-58 DC controller PCA

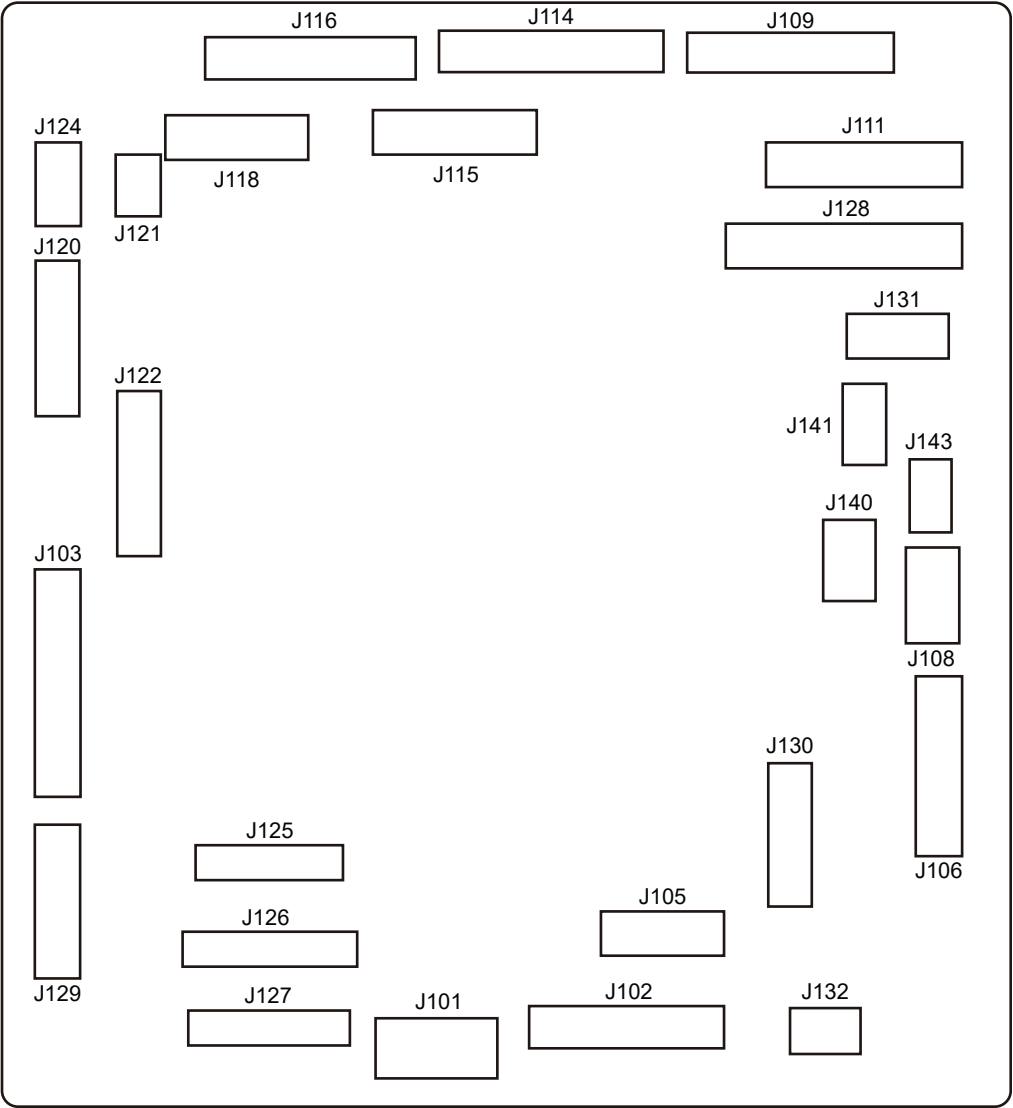


Table 2-20 DC controller PCA

Item	Description	Item	Description
J101	Low-voltage power supply assembly (LVPS) 24V interlock switch	J122	Tray 2 (cassette) pickup clutch (CL1) Tray 1 (multipurpose tray pickup solenoid (SL2) Tray 2 (cassette) detection switch (SW5) Environmental sensor Tray 1 (multipurpose tray) media-out sensor (SR8)
J102	LVPS	J124	Media sensor (SE1)
J103	Scanner motor (M7) Memory chip, toner cartridges Paper feeder	J125	High-voltage power supply D (HVP5D)

Table 2-20 DC controller PCA (continued)

Item	Description	Item	Description
J105	LVP5	J126	Y/M laser assembly
J106	Formatter	J127	C/K laser assembly
J108	Empty	J128	Fuser power supply (FPS)
J109	High-voltage power supply T (HVPST)	J129	Y/M/C/K toner level sensor
J111	Drum motor 1 (M1) Drum motor 2 (M2)	J130	Drum motor 3 (M3) Developer home position sensor
J114	Fuser motor (M4) Primary transfer (T1) roller alienation solenoid Drum home position sensor 1 Drum home position sensor 2 Drum home position sensor 3	J131	Output bin media-full sensor (SR10) High-voltage power supply T (HVPST)
J115	Right door switch Power supply switch Fuser pressure release sensor Pre-exposure LED 3 - 4	J132	Developer alienation (disengagement) motor (M6)
J116	Fuser	J140	Empty
J118	Duplex re-pickup clutch (CL2; duplex models only) Top-of-Page (TOP) sensor (SR6, duplex; SR6N, simplex) Media width sensor, front (SR13, duplex; SR13N simplex) Media width sensor, rear (SR14, duplex; SR14N simplex)	J141	Empty
J120	Registration density sensor, front Registration density sensor, rear	J143	Empty
J121	Tray 2 (cassette) media-out sensor		

Figure 2-59 Formatter PCA

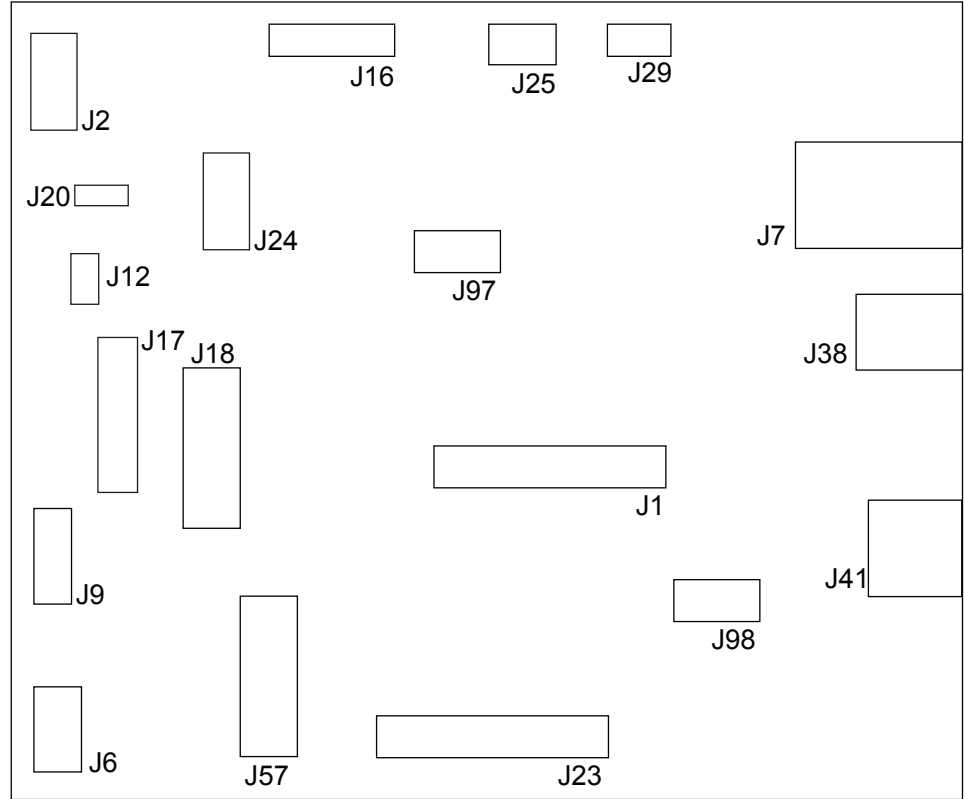


Table 2-21 Formatter PCA

Item	Description	Item	Description
J1	Slim DIMM	J23	Not used
J2	Control panel (touchscreen models)	J24	Not used
J6	Formatter Power Cable	J25	Wireless cable
J7	Network LAN	J29	I/O
J9	AA module power cable	J38	USB-device
J12	HIP/AA USB	J41	USB-host
J16	Control panel power cable	J57	BASH
J17	DC controller (flat cable)	J97	Embedded MultiMedia Card (eMMC)
J18	Hard-disk drive (optional HDD)	J98	Trusted Platform Module (optional TPM)
J20	Walkup USB		

Formatter PCA (M577)

Figure 2-60 Formatter PCA

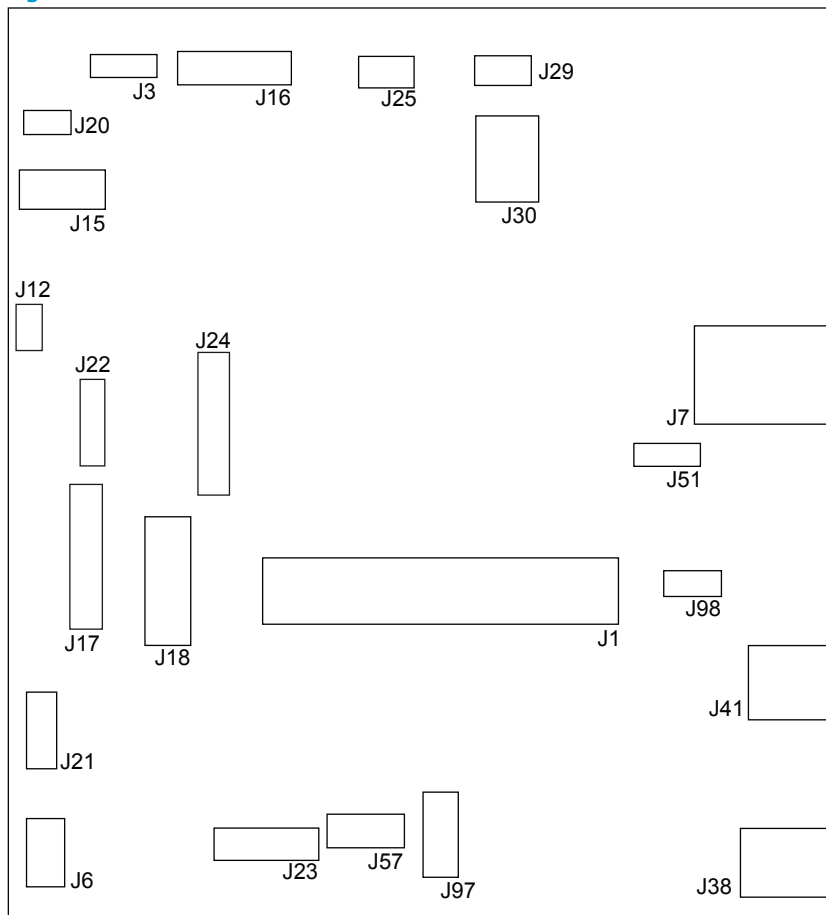


Table 2-22 Formatter PCA

Item	Description	Item	Description
J1	DIMM	J23	Not used
J3	Dedicated NFC (not used)	J24	Not used
J6	Formatter power cable	J25	Wireless cable
J7	Network LAN	J29	Island of Data (IOD)
J12	HIP	J30	Control panel HDMI
J15	Fax	J38	USB-device
J16	Control panel sideband cable	J41	USB-host
J17	DC controller (flat cable)	J51	BASH
J18	Hard-disk drive	J57	Debug
J20	Easy-access USB	J97	eMMC
J21	Accessible Architecture (AA)	J98	Trusted Platform Module (optional TPM)
J22	Scanner HDMI		

1x550-sheet paper feeder PCA

Figure 2-61 1x550-sheet paper feeder PCA

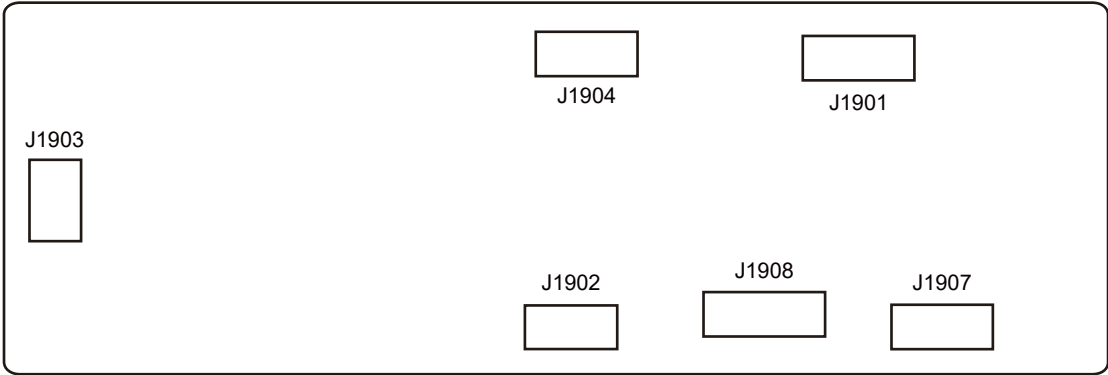


Table 2-23 1x550-sheet paper feeder PCA

Item	Description	Item	Description
J1901	DC controller PCA or paper feeder	J1904	Tray 3/4/5 (cassette) media-out sensor (SR20 Feed senor (SR21)
J1902	Tray 3/4/5 (cassette) pickup clutch (CL20) Right door switch Tray 3/4/5 (cassette) detection switch (SW21)	Ji907	Paper feeder
J1903	Feed motor (M20)	J1908	Empty

Scanner control board PCA

Figure 2-62 Scan control board PCA

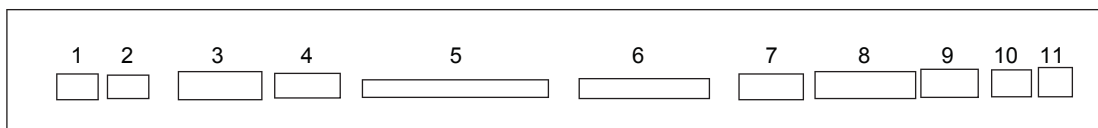


Table 2-24 Scan control board PCA

Item	Description	Item	Description
1	Stapler power	7	Document feeder motors (feed and deskew)
2	Scan control board power (24V)	8	Document feeder sensors (prescan, media present, and top hatch)
3	PAM to SCAM communication (HDMI)	9	Document feeder ultrasonic sensor receiver and deskew sensor
4	Image scanner sensors (paper feeder open and image scanner media length) and cave LED	10	Document feeder letter/legal input tray sensor
5	Image scanner (S1) FFC (scanner data and image scanner motor)	11	Document feeder ultrasonic sensor transmitter
6	Document feeder (S2) FFC (scanner data)		

Diagrams: External plug and port locations

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

 **NOTE:** The power cord plug is below the formatter, on the left-hand side of the printer.

Figure 2-63 External plug and port locations

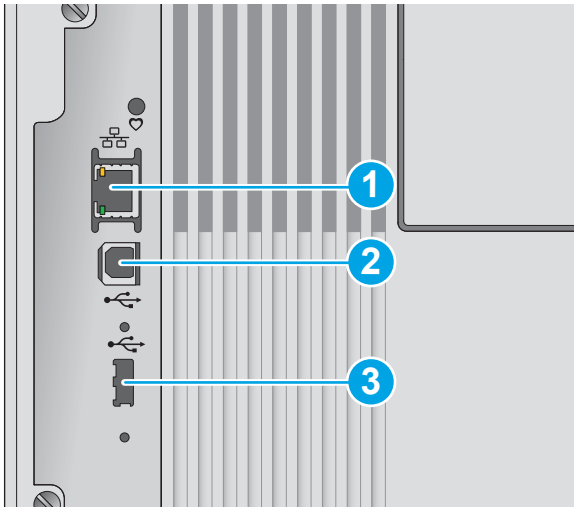


Table 2-25 External plug and port locations

Item	Description
1	Local area network (LAN) Ethernet (RJ-45) network port
2	Hi-Speed USB 2.0 printing port
3	USB port for connecting external USB devices (this port might be covered)
NOTE: For easy-access USB printing, use the USB port near the control panel.	

Diagrams: Locations of major assemblies

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

Main assemblies (printer base)

Figure 2-64 Main assemblies, printer base (1 of 2)

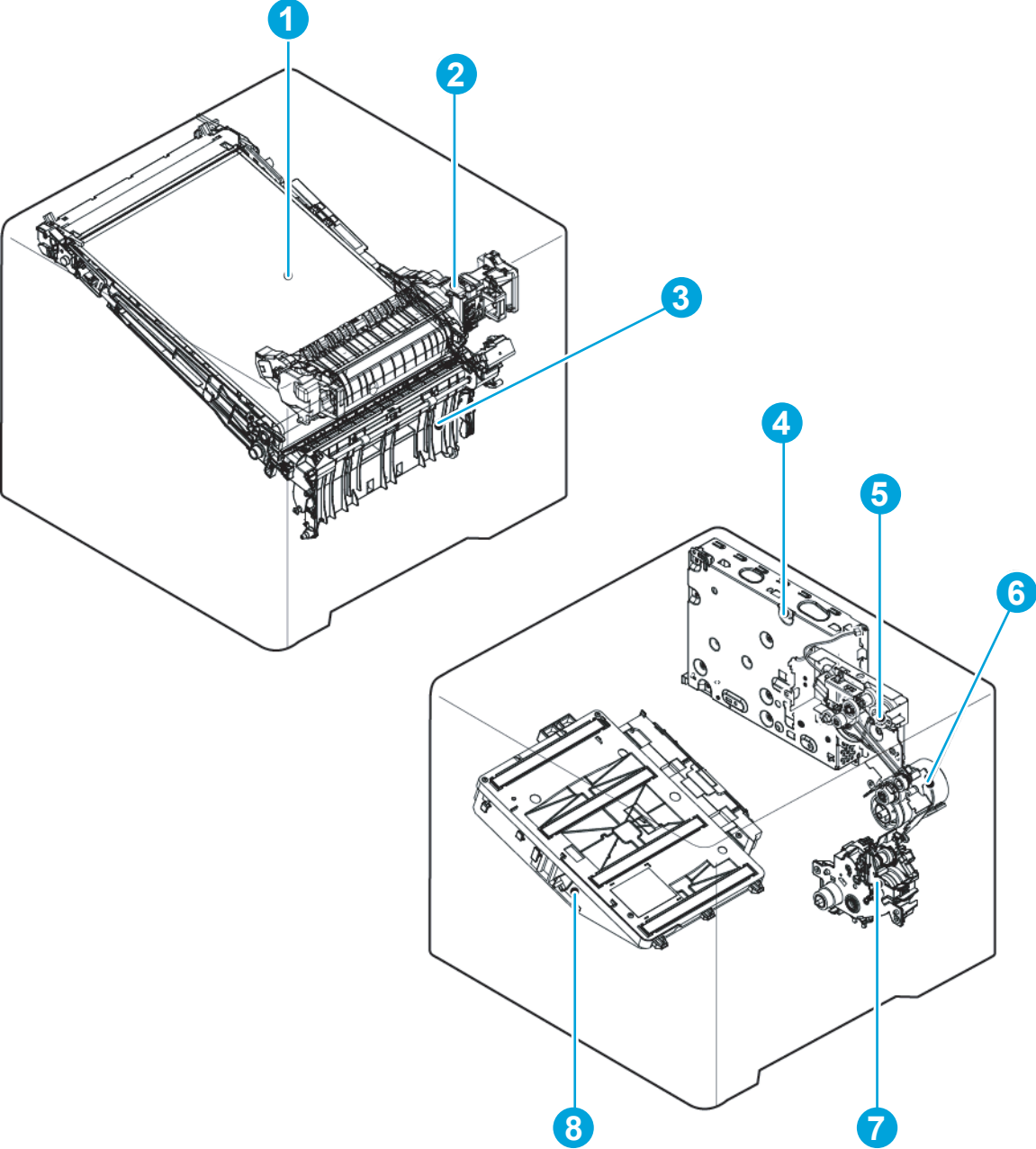


Table 2-26 Main assemblies, printer base (1 of 2)

Item	Description	Item	Description
1	Intermediate transfer belt (ITB)	5	Fuser drive assembly
2	Fuser	6	Pickup drive assembly

Table 2-26 Main assemblies, printer base (1 of 2) (continued)

Item	Description	Item	Description
3	Secondary transfer (T2) roller assembly	7	Lifter drive assembly
4	Formatter case assembly	8	Laser/scanner assembly

Figure 2-65 Main assemblies, printer base (2 of 2)

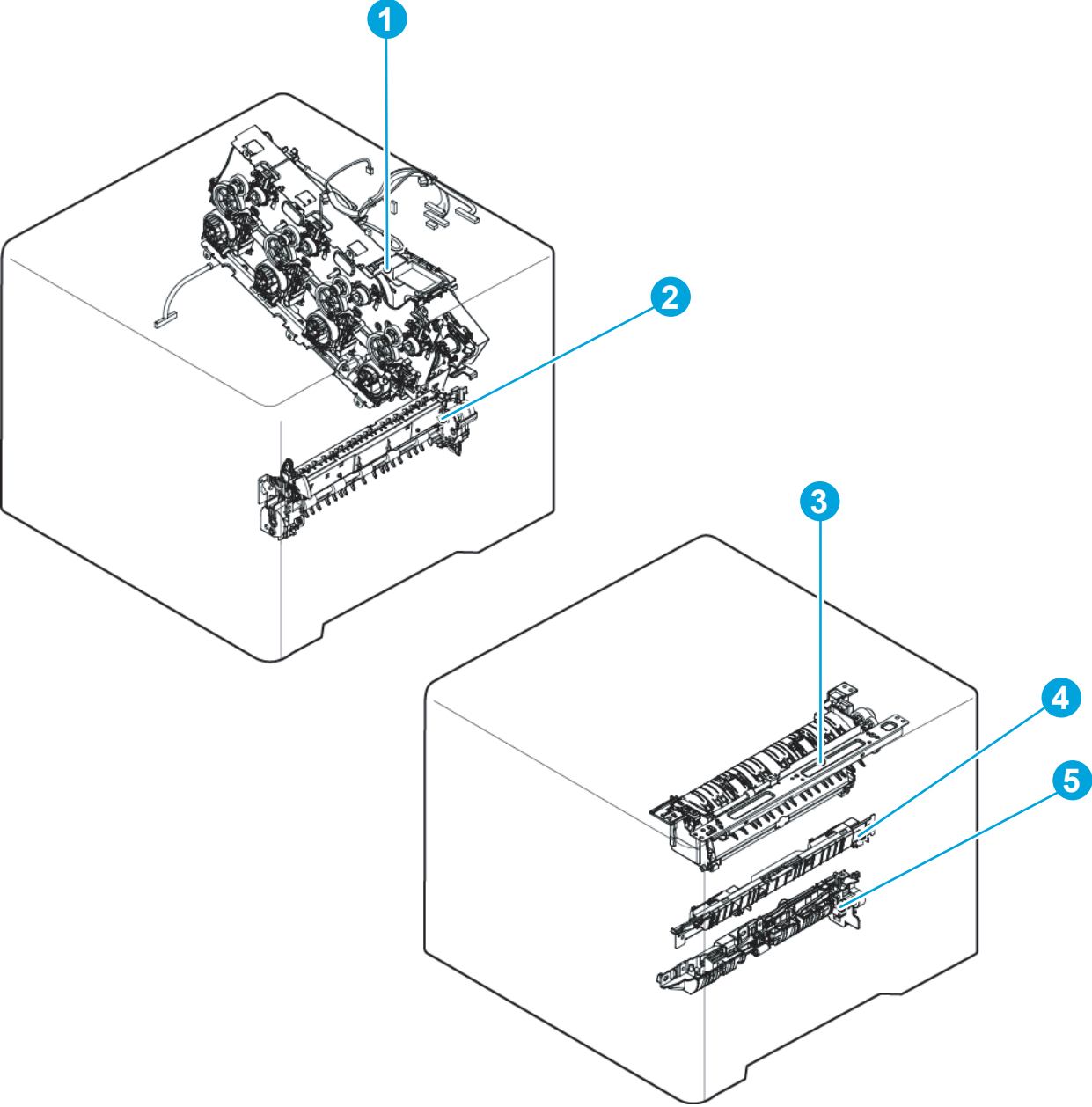


Table 2-27 Main assemblies, printer base (2 of 2)

Item	Description	Item	Description
1	Main drive assembly	4	Registration density sensor assembly

Table 2-27 Main assemblies, printer base (2 of 2) (continued)

Item	Description	Item	Description
2	Registration assembly	5	Cassette pickup assembly
3	Delivery assembly		

Printed circuit assembly (PCA) locations

Figure 2-66 PCA locations (printer base)

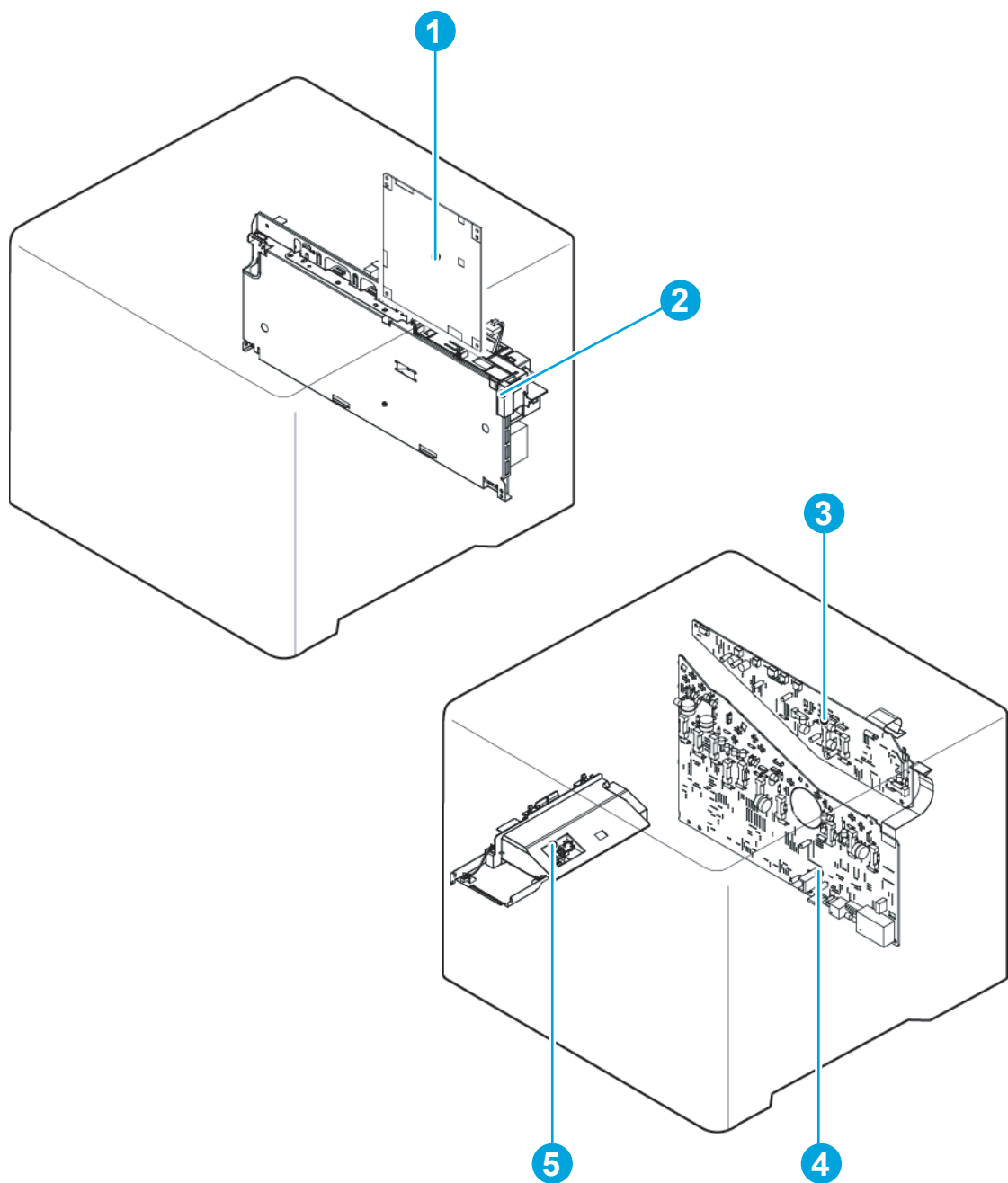


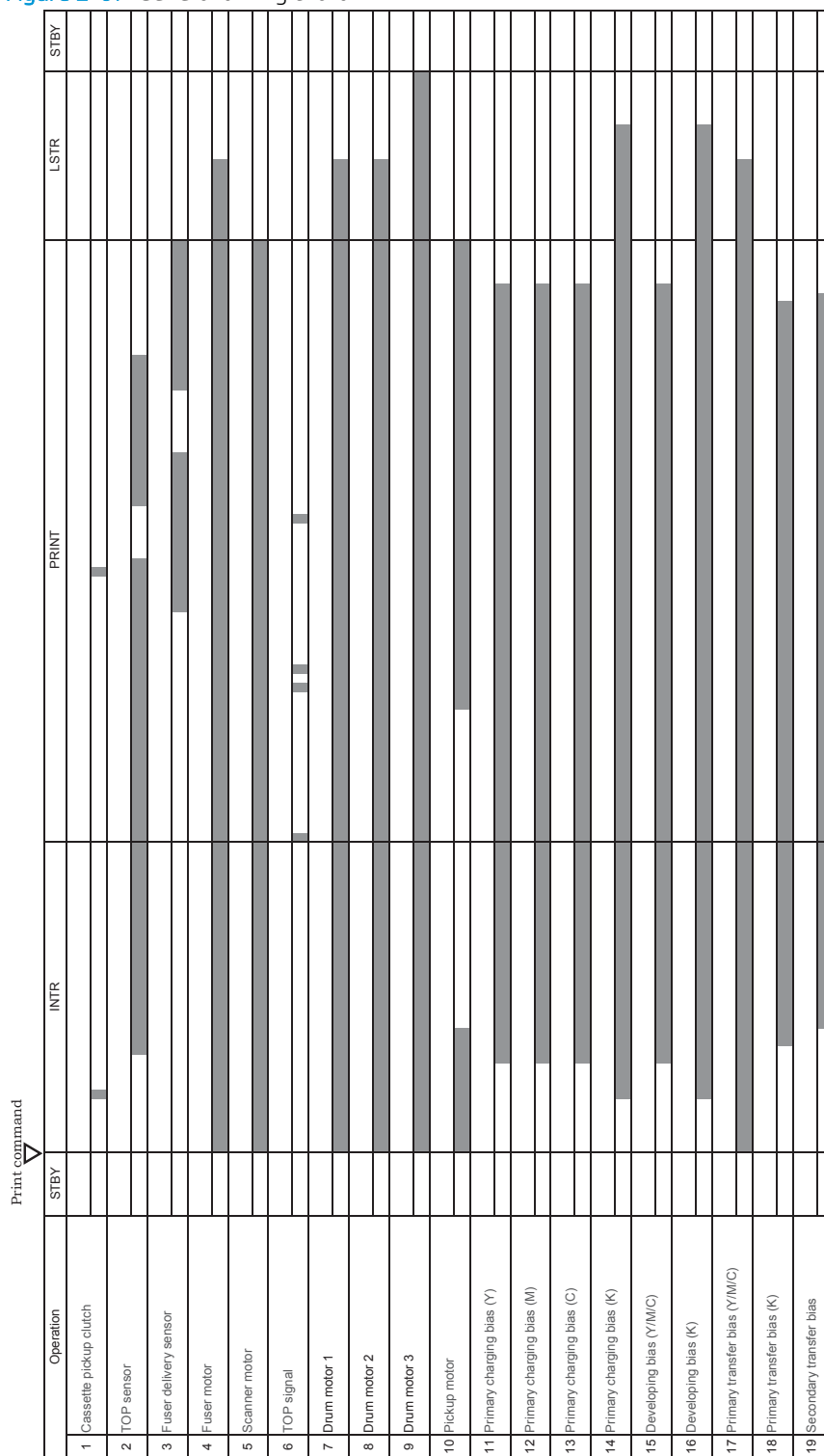
Table 2-28 PCA locations (printer base)

Item	Description	Item	Description
1	DC controller	4	High-voltage power supply D (HVPSD)
2	Low-voltage power supply (LVPS)	5	Fuser power supply (FPS)
3	High-voltage power supply T (HVPST)	Not shown	Formatter

NOTE: Located to the right of the DC controller.

Diagrams: General timing chart

Figure 2-67 General timing chart



Diagrams: General circuit diagrams

Figure 2-68 General circuit diagram (printer base) (1 of 2)

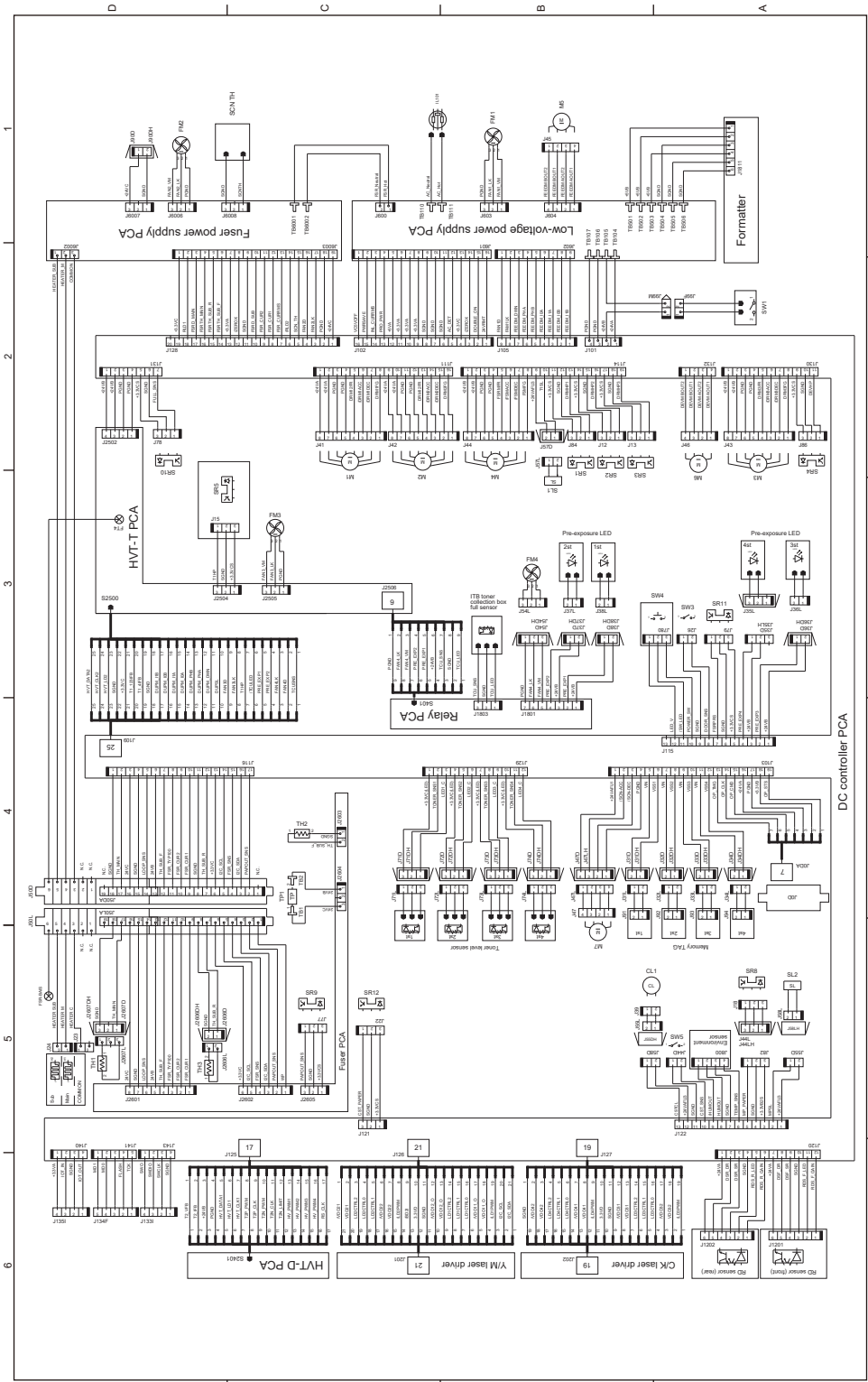


Figure 2-69 General circuit diagram (printer base) (2 of 2)

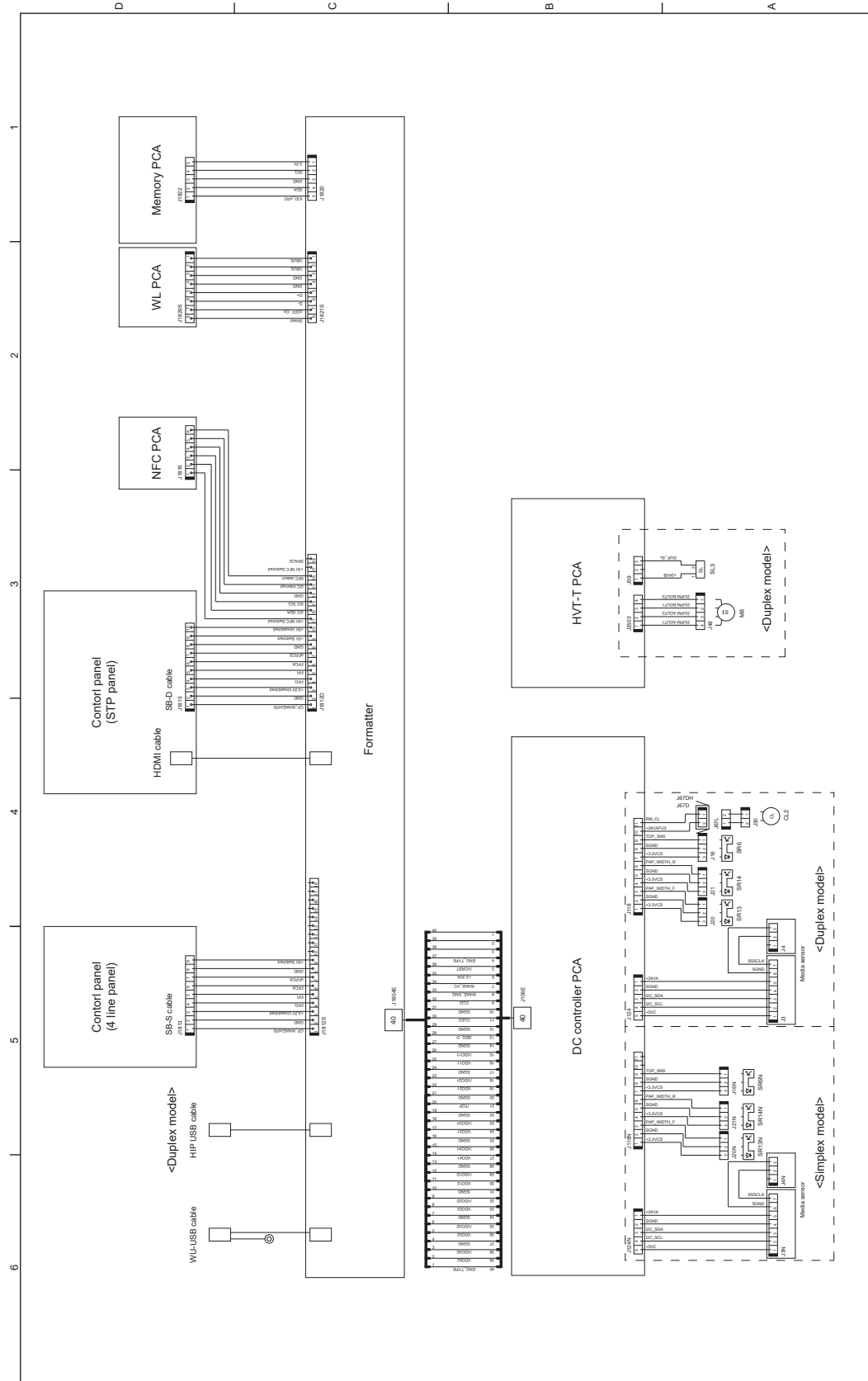
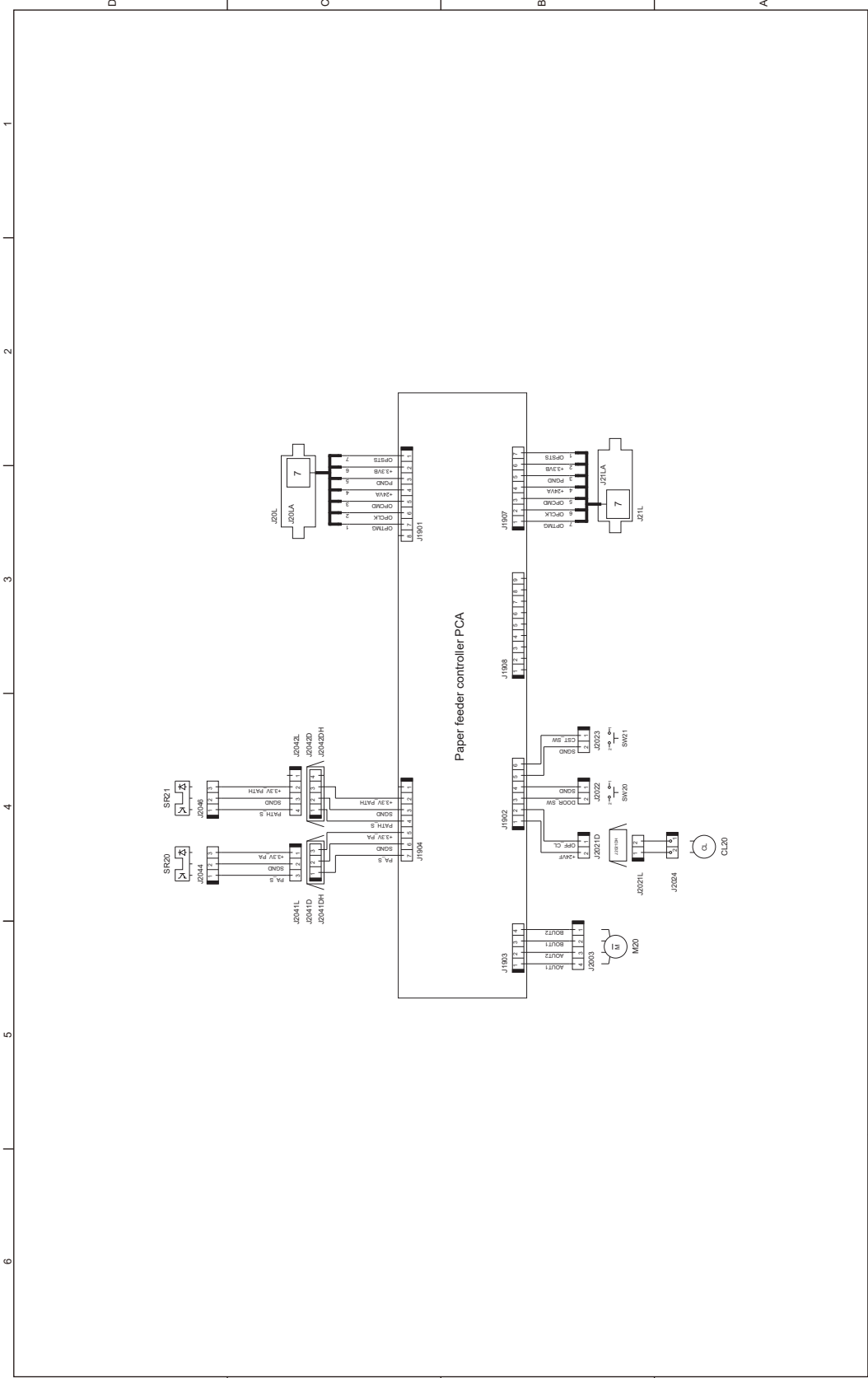


Figure 2-70 General circuit diagram 1x550-sheet paper feeder



Internal test and information pages

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 pages print.

Print the configuration page from a touchscreen control panel

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

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

Figure 2-71 Configuration page

1

Device Information

Product Name: HP Color LaserJet M552
Device Name: HP Color LaserJet M552
Model Number: CXXXXA
DC Controller Version: 4.121
Optional Trays Version: 3.101
Device Serial Number: XXXXXXXXXX
Formatter Number: XXXXXXXXXX
Firmware Bundle Version: Beta
Firmware Revision: Z388666.495689
Firmware Datecode: 20140911
HP FutureSmart Level: HP FutureSmart 3
NFC revision: Not Installed
Service ID: 00000
Fuser Kit Interval: 150000
Pages Since Last Fuser Maintenance: 1300
PS Wait Time-out: 300 seconds
Engine Cycles*: 34
Color Engine Cycles*: 19
Cartridge Protection: Off
Cartridge Policy: Off
Cartridge Index: QLP MAPJ
*Not weighted for billing

2

Installed Personalities and Options

PCL: 20010402
PCLXL: 20010402
POSTSCRIPT: 20010402
PDF: 20130901
AirPrint: 2040201
Internal Disk: Hard Disk: Enabled
Serial Number: CECCA4A8
Model: Toshiba D9G400
Capacity: 3776 MB
Hard Disk Encryption Status: Disk cannot be encrypted
Embedded HP JetDirect J8032E: 10.10.48.160
Custom Color Table: Not Installed

3

HP Web Services

HP Web Services: Disabled
ePrint: Disabled

4

Color Density

	C	M	Y	K
Highlights	0	0	0	0
Mistones	0	0	0	0
Shadows	0	0	0	0

5

Calibration Information

Last CPR (Engine Cycles): 23
Last CPR: 5/20/2000 8:06:42 AM
Last DMax/Dia1f (Engine Cycles): 23
Last DMax/Dia1f: 5/20/2000 8:06:42 AM

6

Memory

Total RAM: 1024 MB

7

Event Log

Number of Entries in Use: 22
Three Most Recent Entries:

Number	Cycles	Event
22	0	33.02.02
21	0	33.02.02
20	0	33.02.02

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: ALG-MSK-JYKM
Host USB plug and play: Enabled
Device USB: Enabled

9

Paper Trays and Options

Default Paper Size: Letter
Tray 1 Size: Any Size
Tray 1 Type: Any Type
Tray 2 Size: Letter
Tray 2 Type: Plain
Tray 3 Size: Letter
Tray 3 Type: Plain
Duplex Unit:
1: Output Bin 1, 300 Sheets, Standard bin

May/20/2000 11:25:43 PM



English (United States)

Table 2-29 Configuration page

Item	Description	Item	Description
1	Device information	6	Memory
2	Installed personalities and options	7	Event log
3	HP Web services	8	Security
4	Color density	9	Paper trays and options
5	Calibration information		

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 "I/O Card Ready."

Figure 2-72 Configuration page

Embedded Jetdirect Page **HP Color LaserJet M552** **Page 1**

1 ----- General Information -----
 Status: I/O Card Initializing
 Model Number: J8029A
 Hardware Address: 001122334455
 Firmware Version: J0124s00140
 Data Rate Detected: 10/100 Mb/s
 Link Config: Unknown
 Manufacturing ID: 5107510700****
 Build Date: 04/08/2014 06:00:45
 WS Registration: Not Registered
 ePrint: Not Applicable
 Email: Not Applicable

2 ----- Security Settings -----
 IPsec: Disabled
 Secure Web: HTTPS Required
 Cert Expires: 2016-02-01 00:00 UTC
 SNMP Versions: 1,2
 SNMP Set Cmt Name: Not Specified
 SNMP Get Cmt Name: Not Specified/Default
 Access List: Not Specified
 Admin Password: Not Specified
 Announcement Agent: Success

3 ----- Network Statistics -----
 Total Packets Received: 0
 Unicast Packets Received: 0
 Bad Packets Received: 0
 Framing Errors Received: 0
 Total Packets Transmitted: 0
 Undeliverable Packets: 0
 Transmit Collisions: 0
 Transmit Late Collisions: 0
 Last Wake: 0000118A000000000000000000000000
 FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
 00000000FFFFFFFFFFFFFFFFFFFFFFFF0000

4 ----- TCP/IP -----
 IPv4: Enabled
 IPv6: Enabled
 Host Name: NP1334455
 IPv4 Domain Name: Not Specified
 IPv6 Domain Name: Not Specified
 Primary DNS Server: Not Specified
 Secondary DNS Server: Not Specified
 DNS (IPv6): Not Specified
 Not Specified
 WINS Server: Not Specified
 TCP Idle Timeout: 90 sec

5 ----- IPv4 -----
 Status: Ready
 IP Address: 16.87.241.20
 Subnet Mask: 255.255.252.0
 Default Gateway: 16.87.240.1
 Config By: DHCP
 DHCP Server: Not Specified
 TFTP Server: Not Specified
 Bonjour Service Name: Not Specified

6 ----- IPv6 -----
 Status: Ready
 Link-Local: fe80::211:22ff:fe33:4455
 Stateless: Not Configured
 DHCPv6: Not Configured
 Manual: Not Configured

May/18/2000 11:49:58 PM English (United States)

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, undeliverable 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.

Table 2-31 Important information on the configuration pages

Type of information	Specific information	Configuration page
Firmware date codes When performing a remote firmware upgrade procedure, all of these firmware components are upgraded.	DC controller	Look on the main configuration page, under "Device Information."
	Firmware date code	Look on the main configuration page, under "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.	Embedded HP Jetdirect	Look on the main configuration page, under "Installed Personalities and Options." Shows model and ID.
	Total RAM	Look on the main configuration page, under "Memory."
	Duplex unit	Look on the main configuration page, under "Paper Trays and Options."
Additional 500-sheet feeders	Additional 500-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 Diagnostics menu.	Engine cycles	Look on the main configuration page, under "Device Information."
	Event-log information	Look on the main configuration page, under "Event Log."

Print a cleaning page

Print the cleaning from a touchscreen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the following menus:
 - [Calibration/Cleaning](#)
3. Touch [Cleaning Page](#), and then press the [OK](#) button to print the page.
4. The cleaning process can take several minutes. When it is finished, discard the printed page.

Print the cleaning page from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Device Maintenance](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Calibration/Cleaning](#), and then press the [OK](#) button.
3. If necessary, use the down arrow ▼ button to scroll to [Cleaning](#), and then press the [OK](#) button to print the page.
4. Follow the instruction on the printed cleaning page to finish the cleaning page process.

Enable and configure auto cleaning

Use the procedure in this section to enable and configure the automatic cleaning function.

To enable the auto cleaning function from a touchscreen control panel



NOTE: M553x models only.

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the following menus:
 - [Calibration/Cleaning](#)
 - [Auto Cleaning](#)
3. Select the [Enable](#) item, and then touch the [Save](#) button.

Control-panel menus

Administration menu

Perform basic printer setup by using the [Administration](#) menu. 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

To display: At the printer control panel, select the [Administration](#) menu, and then select the [Reports](#) menu.

 **NOTE:** For the M553x model, use the [Print](#) button to print the report.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight the report, and then press the [OK button](#). Then use the ▲ button to highlight [Print](#), and then press the [OK button](#) to print the report.

Table 2-32 Reports menu

First level	Second level	Values	Description
Configuration/Status Pages	Administration Menu Map		Shows a map of the entire Administration menu and the selected values for each setting.
	Current Settings Page		Print a summary of the current settings for the printer. This might be helpful when making changes and need a record of the current printer configuration.
	Configuration Page		Shows the printer settings and installed accessories.
	How to Connect Page		Shows network connection information.
	Supplies Status Page		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.
	Usage Page		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.
	File Directory Page		Shows the file name and folder name for files that are stored in the printer memory.
Configuration/Status Pages	Web Services Status Page		Shows the detected Web Services for the printer.
(continued)			

Table 2-32 Reports menu (continued)

First level	Second level	Values	Description
	Color Usage Page		Shows the number of color and monochrome pages printed, and a list of users printing pages using the printer.
Fax Reports	Fax Activity Log		
	Billing Codes Report		Provides a list of billing codes that have been used for outgoing faxes. This report shows how many sent faxes were billed to each code.
	Blocked Fax List		A list of phone numbers that are blocked from sending faxes to this printer.
	Speed Dial List		Shows the speed dials that have been set up for this printer.
	Fax Call Report		A detailed report of the last fax operation, either sent or received.
Other Pages	Demonstration Page		Prints a demonstration page.
	RGB Samples		Prints color samples for different RGB values. Use the samples as a guide for matching printed colors.
	CMYK samples		Prints color samples for different CMYK values. Use the samples as a guide for matching printed colors.
	PCL Font List		Prints the available PCL fonts.
	PS Font List		Prints the available PS fonts.

General Settings menu

To display: At the printer control panel, select the [Administration](#) menu, and then select the [General Settings](#) menu.

In the following table, asterisks (*) indicate the factory default setting.



NOTE: For the M553x and M577 models, use the [Save](#) button to save a selected option.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight an option, and then press the [OK](#) button to save the selected option.

Table 2-33 [General Settings](#) menu

First level	Second level	Third level	Fourth level	Values	Description
Date/Time Settings	Date/Time Format	Date Format		DD/MMM/YYYY	Use the Date/Time Settings menu to specify the date and time and to configure date/time settings.
				MMM/DD/YYYY	
				YYYY/MMM/DD	
		Time Format		12 hour (AM/PM)	Select the format that the printer uses to show the date and time, for example 12-hour format or 24-hour format.
				24 hours	
	Date/Time	Time Zone		Select the time zone from a list.	
		Date		Select the date from a pop-up calendar.	
		Time		Select the time from a pop-up keypad.	
		Adjust for Daylight Savings		Checkbox	If the geographical area uses daylight savings time, select the Adjust for Daylight Savings box.
Energy Settings	Sleep Schedule	A list of scheduled events displays.		+ (Add)	Use to configure the printer to automatically wake up or go to sleep at specific times on specific days. Using this feature saves energy.
				Edit	
				Delete	
		Event Type		Wake	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.
				Sleep	

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Energy Settings			Event Time		
(continued)			Event Days	Select days of the week from a list.	
	Sleep Timer Settings	Sleep Mode/Auto Off After		Range: 1 to 120 minutes Default = 60 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.
		Wake/Auto On to These Events			All Events* Network port Power button only
	Optimum Speed/Energy Usage			Faster first page* Save energy Save more energy Save most energy	
Print Quality	Adjust Color	Highlights	Cyan Magenta Yellow Black Default	-5 to 5	Use this item to set the default print-quality values and to trigger cleaning actions for optimum print quality. If specific types of paper are used, or using the printer in extreme environments, adjustments in this menu might be required. Highlights are the brightest color-values in an image. For each color, select a setting to adjust the darkness or lightness of highlights on the printed page. Decrease the value to lighten the highlights. Increase the value to darken the highlights. Default: Resets all the color-density settings to the factory default values.

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Print Quality		Midtones	Cyan	-5 to 5	Midtones are the middle-range color values in an image. For each color, select a setting to adjust the darkness or lightness of midtones on the printed page. Decrease the value to lighten the midtones. Increase the value to darken the midtones.
(continued)			Magenta		
			Yellow		
			Black		
		Shadows	Cyan	-5 to 5	Shadows are the darkest color values in an image. For each color, select a setting to adjust the darkness or lightness of shadows on the printed page. Decrease the value to lighten the shadows. Increase the value to darken the shadows.
			Magenta		
			Yellow		
			Black		
			Default		
		Restore Color Values			Resets all the color-density settings to the factory default values.

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Print Quality (continued)	Image Registration	Adjust Tray <X>	Print Test Page		<p>Shift the margin alignment to center the image on the page from top to bottom and from left to right. This item can also align the image on the front with the image printed on the back.</p> <p>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 used to determine which adjustments are necessary. Adjust the values for X1 Shift, X2 Shift, Y1 Shift, and Y2 shift.</p> <p>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 used to determine which adjustments are necessary.</p>
Print Quality (continued)			X1 Shift Y1 Shift X2 Shift Y2 Shift	-5.00 mm to 5.00 mm	<p>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.</p> <p>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.</p>

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
	Auto Sense Mode (M552/M553)	Tray 1 Sensing		Full sensing	Use the Auto Sense Mode feature to configure which paper types the printer should automatically sense. The following settings are available: Full sensing : Use this setting to suppress media type misprints (might result in slower printer performance and possible decreased cartridge life). Expanded sensing : The printer senses only the first page and assumes the rest of the pages are the same type. Transparency Only : The printer senses only the first page. The printer distinguishes transparencies from other paper types.
	Auto Sense Behavior (M577)			Expanded sensing*	
				Transparency Only	
Print Quality (continued)		Tray X Sensing (M552/M553)		Expanded sensing*	When configuring the Auto Sense Mode option for Tray 1 and Tray 2, the <x> variable represents the highest number of trays installed on the printer.
		Tray >1 Sensing (M577)		Transparency Only	
	Adjust Paper Types	Select from a list of paper types that the printer supports. The available options are the same for each paper type.	Print Mode	Select from a list of print modes.	Changing the Print Mode setting is usually the first thing to try to resolve print-quality problems. Problems can include toner not sticking well to the page, a faint image of the page repeated on the same or following page, incorrect gloss level, etc.

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Print Quality (continued)			Resistance Mode	Normal*	Use this setting to correct print quality problems in low-humidity environments and highly resistive paper. Use the Up option to solve print quality problems that are related to poor toner-transfer. Use the Down option in the event that small, “pin-hole” defects occur.
				Up	
				Down	
			Humidity Mode	Normal*	Use this setting to correct print quality problems in high humidity environments. Use the alternate settings if the printer is in a high humidity environment and it is experiencing problems with low toner density on the first page of a job.
				Alternate 1 (M552/M553)	
				Alternate 2 (M552/M553)	
				Alternate 3 (M552/M553)	
				High (M577)	
			Pre-Rotation Mode	Off	Use this feature to eliminate ghost images on printed pages.
				On*	
			Fuser Temp Mode	Up	
	Optimize	Normal paper	Paper Curl Mode	Down	Use this setting to reduce paper curl in print jobs.
				Normal*	
				Normal*	Use to optimize various print modes that address print quality issues. Use the Smooth setting to correct print quality problems when using very smooth paper of normal weight.
				Reduced	
				Standard*	
				Smooth	

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
		Heavy paper		Standard*	Use this setting to correct print quality problems when using very smooth, heavyweight paper 129-216 g/m2 (32-58 lb). The Smooth setting should be used if the printer is having print quality problems with very smooth, heavy paper.
				Smooth	
		Best Normal (M552/ M553)		Normal*	If envelopes are sticking together in the output bin, use this setting to reduce the fuser temperature.
		Envelope Control (M577)		Reduced Temp	
		Environment (M552/ M553)		Normal*	Enable if the printer is operating in a low temperature environment and is having problems with print quality such as blisters in the printed image.
				Reduced Temp	
		Line Voltage (M552/ M553)		Normal*	Use this setting if there are scattered lines in printed pages.
				Low Voltage	
Print Quality (continued)		Tray 1		Normal*	Affects how often the printer performs an internal cleaning procedure. Use the Alternate setting if the printer is having problems with extra toner on pages. In this mode, the printer performs the cleaning procedure after each job that is printed from Tray 1. Using this mode increases wear on all the toner cartridges.
				Alternate	

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
		Background		Normal* Alternate 1 Alternate 2 Alternate 3	Use if pages are printing with a shaded background. Using this feature might reduce gloss levels. Use the Alternate 1 setting if the page shows a shaded background on the entire page. Use the Alternate 2 setting if the page is showing thin vertical lines on the background. The Alternate 3 setting applies the Alternate 1 setting and the Alternate 2 setting at the same time. Use this setting if the first two settings do not correct the problem.
Print Quality (continued)		Uniformity control		Normal* Alternate 1 Alternate 2 (M552/M553) Alternate 3 (M552/M553)	This setting might help correct uniformity in print quality issues, such as a mottled appearance due to poor transfer of toner onto the page. The Alternate 1 setting increases the T1 transfer bias and can be used for any media type. The Alternate 2 setting decreases the fuser temperature and reduces the throughput. Use this setting if the printer is experiencing mottled output due to poor fusing on normal or light paper types. The Alternate 3 setting applies the Alternate 1 setting and the Alternate 2 setting at the same time. Use this setting if the first two settings do not correct the problem.
		Tracking control		On* Off	Normally, this setting should be set to On . Tracking control algorithm is turned ON/OFF. It is not expected that the customer will ever need to change this setting.

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
		Registration		Normal* Alternate	Use this setting if the printer is having trouble with color-planes shifting or overlapping on the page. Use the Alternate setting if the page has color mis-registration problems.
Print Quality (continued)		Transfer control		Normal* Alternate 1 Alternate 2 (M552/M553) Alternate 3 (M552/M553)	Use this setting to correct transfer issues in print jobs. Turn this feature on if green, mottled images are printed on the page. Note that using this mode can increase problems with blurry images or specks of toner on the leading or trailing edge of the paper. The Alternate 1 setting reduces the T1 bias and should be used when re-transfer occurs. The Alternate 2 setting increases the inter-page gap. Using this setting reduces throughput and might decrease the print-cartridge life. The Alternate 3 setting applies the Alternate 1 setting and the Alternate 2 setting at the same time. Use this setting if the first two settings do not correct the problem.
		Fuser Temp (M552/M553)		Normal* Alternate	If the page shows a faint image of the page repeated at the bottom of the page or on the following page, first make sure the Adjust Paper Types setting and the Print Mode setting are correct for the type of paper used. If ghost images continue to appear on the print jobs, set the Fuser Temp feature to the Alternate setting.
		Restore Optimize			Use to return all the settings in the Optimize menu to the factory-default values.

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
	Resolution			Image Ret 3600 1200dpi x 1200dpi	Sets the resolution at which the printer prints.
Print Quality (continued)	Edge control			Off Light Normal* Maximum	<p>This setting determines how edges are rendered. Edge Control has two components: adaptive half-toning and trapping. Adaptive half-toning increases edge sharpness. Trapping reduces the effect of color-plane misregistration by overlapping the edges of adjacent objects slightly. Select one of the following options:</p> <p>Off: Turns off both trapping and adaptive half-toning.</p> <p>Light: Sets trapping at a minimal level, and adaptive half-toning is on.</p> <p>Normal: Trapping is at a medium level and adaptive half-toning is on.</p> <p>Maximum: Trapping is at the highest level, and adaptive half-toning is on.</p>

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Jam Recovery				Auto* (M552/M553) Automatic* (M577) 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 a decrease in overall performance.</p>
Auto Recovery				Enabled Disabled*	<p>The printer attempts to reprint jammed pages when sufficient memory is available. This is the default setting.</p>
	General Stored Job Settings			Job Name* Date	<p>This option lists the jobs either alphabetically or chronologically.</p>
		Default Folder Name			<p>Type the name for the stored jobs folder that is accessible to all users.</p>

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Manage Stored Jobs (continued)		Temporary Stored Jobs Limit		1-100 Default = 32	Configure global settings for jobs that are stored in the printer memory. This feature specifies the number of jobs that can be stored on the printer. The maximum allowed value is 100.
	Temporary Stored Jobs Settings (M552/M553)	Delete Temporary Jobs After		Off* 30 Minutes (M577) 1 Hour 4 Hours 1 Day 1 Week 4 Weeks (M577)	Sets a maximum storage-time limit for stored jobs. If a stored job is not printed during this period, it is deleted.
		Sort Stored Jobs By (M577)		Job Name Date	
		Retain Temporary Jobs after Reboot		Do not retain Personal jobs only All temporary jobs	
		Delete Standard Stored Jobs After (M577)		*Off* 30 Minutes 1 Hour 4 Hours 1 Day 1 Week 4 Weeks	
Enable Retrieve from USB				Enabled Disabled*	Enables the printer to open a file from a USB drive.
Enable Device USB (M577)				Enabled* Disabled	

Table 2-33 General Settings menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Hold Off Print Job				Enabled* Disabled	<p>Enable this feature 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>
Enable Auto Send (M552/M553)				Enabled* Disabled	<p>Use this item to enable or disable the auto send feature.</p>
Restore Factory Settings				Restore Cancel	<p>Use to restore all printer settings to their factory defaults.</p>

Copy Settings menu (M577 only)

To display: At the product control panel, select the [Administration](#) menu, and then select the [Copy Settings](#) menu.

In the following table, asterisks (*) indicate the factory default setting.

Table 2-34 Copy Settings menu (M577 only)

First level	Second level	Third level	Values	Description
Copies			1–9999	Configure the default options for copy jobs. If the user does not specify the job options when creating the job, the default options are used.
			Default = 1	
Sides			1-sided original, 1-sided output*	Use to indicate whether the original document is printed on one or both sides, and whether the copies should be printed on one or both sides. For example, select 1-sided original, 2-sided output when the original is printed on one side, but you want to make two-sided copies.
			2-sided original, 2-sided output	
			1-sided original, 2-sided output	
			2-sided original, 1-sided output	
	Orientation	Portrait*		Specify portrait or landscape orientation and select the way the second sides are printed. Portrait orientation means the short edge of the page is along the top.
		Landscape		Landscape orientation means the long edge of the page is along the top.

Table 2-34 Copy Settings menu (M577 only) (continued)

First level	Second level	Third level	Values	Description
Sides (continued)		2-Sided Format	Book-style	If you are making two-sided copies, select a 2-sided format option. Book-style: The back side of the original is printed right-side-up, and the back side of the copy is printed the same way. Use this option for originals and copies that are bound along the left edge. Flip-style: The back side of the original is printed upside-down, and the back side of the copy is printed the same way. Use this option for originals and copies that are to be bound along the top edge. Book-style original; Flip-style copy: The back side of the original is printed right-side-up, but the back side of the copy is printed upside-down. Use this option when the original is bound along the left edge, but you want the copies to be bound along the top edge. Flip-style original; Book-style copy: The back side of the original is printed upside-down, but the back side of the copy is printed right-side-up. Use this option when the original is bound along the top edge, but you want the copies to be bound along the left edge.
			Flip-style	
			Book-style original; Flip-style copy	
			Flip-style original; Book-style copy	
Color/Black			Automatically Detect*	
			Color	
			Black	

Table 2-34 Copy Settings menu (M577 only) (continued)

First level	Second level	Third level	Values	Description
Collate			Collate on (Sets in page order)* Collate off (Pages grouped)	<p>If you are making more than one copy, select the Collate on (Sets in page order) option to assemble the pages in the correct order in each set of copies.</p> <p>Select the Collate off (Pages grouped) option to group the same pages together. For example, if you are making five copies of an original document that has two pages, all five first pages would be grouped together and all five second pages would be grouped together.</p>
Reduce/Enlarge			Auto* 100% 75% 50% 125% 150% 200% Range X-Y (25-400%)	<p>Use to scale the size of the document up or down. Select one of the predefined percentages, or select the Scaling field and type a percentage between 25 and 400. The Auto option automatically scales the image to fit the paper size in the tray.</p> <p>NOTE: To reduce the image, select a scaling percentage that is less than 100. To enlarge the image, select a scaling percentage that is greater than 100.</p>
	Auto Include Margins			The product reduces the image slightly to fit the entire scanned image within the printable area on the page.
Paper Selection			Manually feed Automatic Tray 1: [Type], [Size] Tray <X>: [Type], [Size]	For the best color and image quality, select the appropriate paper type from the control panel menu or from the print driver.
Image Adjustment	Darkness		Select a value using the slide bar, or touch Automatic .	<p>Use to improve the overall quality of the copy.</p> <p>Adjust the Darkness setting to increase or decrease the amount of white and black in the colors.</p>

Table 2-34 Copy Settings menu (M577 only) (continued)

First level	Second level	Third level	Values	Description
Image Adjustment (continued)	Contrast		Select a value using the slide bar, or touch Automatic .	Adjust the Contrast setting to increase or decrease the difference between the lightest and darkest color on the page.
	Background Cleanup		Select a value using the slide bar, or touch Automatic .	Adjust the Background Cleanup setting if you are having trouble copying a faint image.
	Sharpness		Select a value using the slide bar, or touch Automatic .	Adjust the Sharpness setting to clarify or soften the image. For example, increasing the sharpness could make text appear crisper, but decreasing it could make photographs appear smoother.
	Default			Select this to make the selected Image Adjustment setting the default value.
Content Orientation	Orientation		Portrait* Landscape	For some features to work correctly, you must specify the way the content of the original document is placed on the page. Portrait orientation means the short edge of the page is along the top. Landscape orientation means the long edge of the page is along the top.

Table 2-34 Copy Settings menu (M577 only) (continued)

First level	Second level	Third level	Values	Description
Content Orientation (continued)	2-Sided Format		Book-style	If you are making two-sided copies, select a 2-sided format option.
			Flip-style	
			Book-style original; Flip-style copy	<p>Book-style: The back side of the original is printed right-side-up, and the back side of the copy is printed the same way. Use this option for originals and copies that are bound along the left edge.</p> <p>Flip-style: The back side of the original is printed upside-down, and the back side of the copy is printed the same way. Use this option for originals and copies that are to be bound along the top edge.</p> <p>Book-style original; Flip-style copy: The back side of the original is printed right-side-up, but the back side of the copy is printed upside-down. Use this option when the original is bound along the left edge, but you want the copies to be bound along the top edge.</p> <p>Flip-style original; Book-style copy: The back side of the original is printed upside-down, but the back side of the copy is printed right-side-up. Use this option when the original is bound along the top edge, but you want the copies to be bound along the left edge.</p>
			Flip-style original; Book-style copy	
Optimize Text/Picture	Manually adjust*		Optimize For slider	Use this setting to optimize the output for a particular type of content.

Table 2-34 Copy Settings menu (M577 only) (continued)

First level	Second level	Third level	Values	Description
Optimize Text/Picture (continued)			Text	Manually adjust: Use to manually optimize the setting for each document.
			Printed picture	
			Photograph	
				Printed picture: Use for line drawings and preprinted images, such as magazine clippings or pages from books. If you see bands of irregular color or intensity on copies, try selecting the Printed picture setting to improve the quality.
				Photograph: Use for photographic prints.
Pages per Sheet			One (1)	Copies multiple pages onto one sheet of paper.
			Two (2)	
			Four (4)	
				NOTE: Before using this screen, use the Content Orientation screen to describe the original document orientation.
	Page Order		Right, then down	If you are printing four pages per sheet, select the page order. To print the pages in rows, select the Right, then down option. To print the pages in columns, select the Down, then right option.
			Down, then right	
	Add Page Borders			If you are printing two or more pages per sheet and you want to print a border around each page, select the Add Page Borders option.
Original Size			Select from a list of sizes that the product supports.	Describes the page size of the original document.
Booklet	Booklet Format		Booklet off	Use to copy two or more pages onto one sheet of paper so you can fold the sheets in the center to form a booklet. The product arranges the pages in the correct order. For example, if the original document has eight pages, the product prints pages 1 and 8 on the same sheet.
			Booklet on	
	Original Size		Select from a list of sizes that the product supports.	Describes the page size of the original document.

Table 2-34 Copy Settings menu (M577 only) (continued)

First level	Second level	Third level	Values	Description
Booklet (continued)	Sides		1-sided original, 1-sided output*	Use to indicate whether the original document is printed on one or both sides, and whether the copies should be printed on one or both sides. For example, select 1-sided original, 2-sided output when the original is printed on one side, but you want to make two-sided copies.
			2-sided original, 2-sided output	
			1-sided original, 2-sided output	
			2-sided original, 1-sided output	
	Borders on Each Page			To print a border around each page, select the Borders on Each Page option.
Edge-to-Edge	Paper Selection		Manually feed	For the best color and image quality, select the appropriate paper type from the control panel menu or from the print driver.
			Automatic	
			Tray 1: [Type], [Size]	
			Tray <X>: [Type], [Size]	
Job Build				
Multi-feed Detection				

Table 2-34 Copy Settings menu (M577 only) (continued)

First level	Second level	Third level	Values	Description
2-sided ID Scan			ID Scan off*	Allows scanning both sides of an ID card and place both images on one page.
			ID Scan on	
Book Mode			Book Mode off*	Captures pages from a book. You can choose to scan the left page, the right page, or both pages together.
			Book Mode on	

Scan/Digital Send Settings menu (M577 only)

To display: At the product control panel, select the [Administration](#) menu, and then select the [Scan/Digital Send Settings](#) menu.

In the following table, asterisks (*) indicate the factory default setting.

Table 2-35 Scan/Digital Send Settings menu (M577 only)

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings	E-mail Setup Wizard				Use to configure settings that apply to sending documents through email or saving documents to a folder on the network or on a USB multi-drive. The E-mail Setup Wizard feature configures the product to send scanned images as email attachments. To open the product HP Embedded Web Server and set up the email notification server, enter the product IP address into a Web browser.
Save to Network Folder Options	NOTE: Email Settings only				
Save to USB Options					
NOTE: The same options are available for each of these features, except where noted.					

Table 2-35 Scan/Digital Send Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
	Default Job Options	Image Preview		Make optional* Require preview Disable preview	<p>Defines the default job options for each function. If you do not specify the job options when creating the job, the default options are used. For complete setup, go to the HP Embedded Web Server by typing the IP address of the product into a Web browser.</p> <p>Use the Image Preview feature to scan a document and display a preview before completing the job. Select whether this feature is available on the product.</p> <p>Make optional: The feature is optional, depending on the user who is signed in.</p> <p>Require preview: Previews are required for all users.</p> <p>Disable preview: Previews are disabled for all users.</p>
		Default File Name			<p>The product is shipped with a factory default file name of [Untitled] for any scanned files that are sent or saved. Use this feature to specify a different default file name. If you are saving a file to a network folder or USB storage product and a file with the default file name already exists, a number is appended to the file name, for example, [Untitled]001.</p>

Table 2-35 Scan/Digital Send Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
	Default Job Options (continued)	Document File Type		Select from a list of file types.	<p>PDF provides the best overall image and text quality.</p> <p>JPEG is a good choice for most graphics. Most computers have a browser that can view .JPEG files. This file type produces one file per page.</p> <p>TIFF is a standard file format that many graphics programs support. This file type produces one file per page.</p> <p>MTIFF: stands for multi-page TIFF. This file type saves multiple scanned pages in a single file.</p> <p>XPS (XML Paper Specification) creates an XAML file that preserves the original formatting of the document and supports color graphics and embedded fonts.</p> <p>PDF/A</p> <p>Text (OCR)</p> <p>Unicode Text (OCR)</p> <p>RTF (OCR)</p> <p>Searchable PDF (OCR)</p> <p>Searchable PDF/A (OCR)</p> <p>HTML (OCR)</p> <p>CSV (OCR)</p>

Table 2-35 Scan/Digital Send Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
	Default Job Options (continued)	Optimize Text/Picture		Manually adjust* Text Printed picture Photograph	Use to optimize the output for a particular type of content. You can optimize the output for text, printed pictures, or a mixture. Manually adjust: Use the slider to manually optimize the setting for text or for pictures. Text: Use to optimize the text portion of the copy when text and/or pictures are on the original. Printed picture: Use for line drawings and preprinted images, such as magazine clippings or pages from books. Photograph: Best suited for making copies of printed pictures.
		Output Quality		High (large file) Medium* Low (small file)	Use to select the quality for the output. Higher-quality images require a larger file size than lower-quality images. Larger files take more time to send, and some recipients might have trouble receiving larger files.
		Original Sides		1-sided 2-sided	Use to describe the layout for each side of the original document. First select whether the original document is printed on one side or both sides. Then touch the Orientation setting to indicate whether the original has portrait or landscape orientation. If it is printed on both sides, also select the 2-sided format that matches the original document.

Table 2-35 Scan/Digital Send Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
	Default Job Options (continued)	Original Sides (continued)	Orientation	Automatically detect Portrait* Landscape	For some features to work correctly, you must specify the way the content of the original document is placed on the page. Portrait orientation means the short edge of the page is along the top. Landscape orientation means the long edge of the page is along the top. In the Orientation area, select whether the original document has a portrait or landscape orientation.
			2-Sided Format	Book-style Flip-style	Book-style : The back side of the original is printed right-side-up, and the back side of the copy is printed the same way. Use this option for originals and copies that are bound along the left edge. Flip-style : The back side of the original is printed upside-down, and the back side of the copy is printed the same way. Use this option for originals and copies that are to be bound along the top edge.
	Default Job Options (continued)	Resolution		600 dpi 400 dpi 300 dpi 200 dpi 150 dpi* 75 dpi	Sets the resolution for sent documents. Higher resolution images have more dots per inch (dpi), so they show more detail. Lower resolution images have fewer dots per inch and show less detail, but the file size is smaller. Some file types, for example a file that will be processed with OCR, require a specific resolution. When these file types are selected, the Resolution setting might automatically change to a valid value.

Table 2-35 Scan/Digital Send Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
		Content Orientation	Orientation	Auto Detect Portrait* Landscape	For some features to work correctly, you must specify the way the content of the original document is placed on the page. Portrait orientation means the short edge of the page is along the top. Landscape orientation means the long edge of the page is along the top. In the Orientation area, select whether the original document has a portrait or landscape orientation.
			2-Sided Format	Book-style* Flip-style	Use to configure the default style for 2-sided print jobs. If the Book-style option is selected, the back side of the page is printed the right way up. This option is for print jobs that are bound along the left edge. If the Flip-style option is selected, the back side of the page is printed upside-down. This option is for print jobs that are bound along the top edge.
	Default Job Options (continued)	Color/Black		Automatically detect* Color Black/Gray Black	Use to enable or disable color scanning. Automatically detect : Automatically scans documents in color if at least one page has color. Color : Scans documents in color. Black/Gray : Scans documents in grayscale. Black : Scans documents in black and white with a compressed file size.
			Original Size	Select from a list of supported sizes.	Use to describe the page size of the original document.

Table 2-35 Scan/Digital Send Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
		Notification		Do not notify*	Configure to receive notification about the status of a sent document.
				Notify when job completes	
				Notify only if job fails	Do not notify: Turns off this feature. Notify when job completes: Select to receive notification for this job only.
				Print	Notify only if job fails: Select to receive notification only if the job is not sent successfully.
				E-mail	Print: Select to print the notification at this product.
			Include Thumbnail		NOTE: When sending an analog fax, select Include Thumbnail to receive a thumbnail image of the first page of the fax in your notification.
	Default Job Options (continued)	Notification (continued)	Notification E-mail address		E-mail: Select to receive the notification in an email. Touch the text box following Email Address , and then type the email address for the notification.
		Image Adjustment	Darkness		Use to improve the overall quality of the copy. Adjust the Darkness setting to increase or decrease the amount of white and black in the colors.
			Contrast		Adjust the Contrast setting to increase or decrease the difference between the lightest and darkest color on the page.
			Background Cleanup		Adjust the Background Cleanup setting if you are having trouble copying a faint image.

Table 2-35 Scan/Digital Send Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
			Sharpness		Adjust the Sharpness setting to clarify or soften the image. For example, increasing the sharpness could make text appear crisper, but decreasing it could make photographs appear smoother.
			Automatic Tone		
			Default		Select this to make the selected Image Adjustment setting the default value.
	Default Job Options (continued)	Job Build		Job Build off* Job Build on	Use to combine several original documents into one job. Also use to scan an original document that has more pages than the document feeder can accommodate at one time. The product temporarily saves all the scanned images. After you have scanned all the pages for the job, touch Finish to finish the job.
		Cropping Options		Do not crop* Crop to paper Crop to content	Use this menu item to automatically crop the scan for digital sending. Use the Crop to content option to scan the smallest possible area that has detectable content.
		Erase Edges		Use Inches Back side erase Front side erase	Use this menu item to remove blemishes, such as dark borders or staple marks, by cleaning the specified edges of the scanned image. In each of the text boxes enter the measurements, in millimeters or inches, for how much of the top edge, bottom edge, left edge, and right edge to clean.

Table 2-35 Scan/Digital Send Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
		Multi-feed Detection		Disabled Enabled*	When enabled, scanning will stop if HP EveryPage technology detects multiple pages being fed at one time. When disabled, this feature will not stop scanning when multi-feeds are detected.
		Blank Page Suppression		Disabled* Enabled	Use to prevent blank pages in the original document from being included in the output document.
	Default Job Options (continued)	Create Multiple Files		Disabled* Enabled	Enable this feature to scan pages into separate files based on a specified page limit set in Maximum pages per file .
Digital Send Service Setup	Allow Usage of Digital Sending Software (DSS) Server			Enabled* Disabled	Configure how the product interacts with the HP Digital Sending Software (DSS) server. HP DSS handles digital sending tasks, such as faxing, emailing, and sending scanned documents to a network folder or USB storage device. Use the Allow Usage of Digital Sending Software (DSS) Server option to configure the product to use HP DSS.
	Allow Transfer to New Digital Sending Software (DSS) Server			Enabled* Disabled	Use the Allow Transfer to New Digital Sending Software (DSS) Server option to specify whether DSS management of a product is transferable to a different DSS.

Fax Settings menu (M577 only)

To display: At the product control panel, select the [Administration](#) menu, and then select the [Fax Settings](#) menu.

In the following table, asterisks (*) indicate the factory default setting.

Table 2-36 Fax Settings menu (M577 only)

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings	Fax Send Setup	Fax Setup Wizard			Configure settings for sending faxes from the product. Use the Fax Setup Wizard feature to set up options for faxing. NOTE: To set up LAN fax or Internet fax, use the HP Embedded Web Server. To open the HP Embedded Web Server, type the product network address into a Web browser. To configure the fax features, select the Fax tab.
		Fax Dialing Settings	Fax Dial Volume	Off Low* High	These settings control how the fax modem dials the outgoing fax number when faxes are sent.
			Dialing Mode	Tone* Pulse	
			Redial Interval	1 – 5 Minutes Default = 5 minutes	
			Fax Send Speed	Fast* Medium Slow	
			Dialing Prefix		
			Detect Dial Tone		
			Redial on Error	Range: 0 – 9 Default = 2	
			Redial on No Answer	Range: 0 – 2 Default = 0	
			Redial on Busy	Range: 0 – 9 Default = 3	

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings (continued)	Fax Send Setup (continued)	General Fax Send Settings	Fax Number Confirmation	Enabled	If this feature is enabled, you must enter the fax number twice.
				Disabled*	
			PC Fax Send	Enabled*	Enables users who have the correct driver installed to send faxes through the product from their computers.
				Disabled	
			JBIG Compression	Enabled*	The JBIG compression reduces fax- transmission time, which can result in lower phone charges. However, using JBIG compression sometimes causes compatibility problems with older fax machines. If this occurs, turn off the JBIG compression.
				Disabled	
			Error Correction Mode	Enabled*	When error-correction mode is enabled and an error occurs during fax transmission, the product sends or receives the error portion again.
				Disabled	
			Fax Header	Prepend*	Use to prepend or overlay the fax header page.
				Overlay	
			Fax Number Speed Dial Matching	Enabled	Use this item to match the fax number that you type to numbers that are saved as a speed dial.
				Disabled*	

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings (continued)	Fax Send Setup (continued)	Billing Codes	Enable Billing Codes	Off	<p>When billing codes are enabled, a prompt displays that asks the user to enter the billing code for an outgoing fax. This prompt does not appear if the Allow users to edit billing codes check box is not checked.</p> <p>You can also use the billing codes report in the Reports menu to view the list of the billing codes that have been used for faxes that have been sent from the product. The list is grouped by billing code and also shows fax details. This feature can be used for billing or usage tracking.</p>
				On*	
			Default Billing Code		Specify a default billing code for faxing. If you specify a default billing code, this code displays in the Billing Code field when the user sends an outgoing fax. If this field is blank, no default billing code is provided for the user.
			Minimum Length	Range: 1 – 16 Default = 1	Specify the required length of the billing code. Billing codes can be between 1 and 16 characters long.
			Allow users to edit billing codes	Off On*	

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings (continued)	Default Job Options	Image Preview		Make optional*	Use the Image Preview feature to scan a document and display a preview before completing the job. Select whether this feature is available on the product. Make optional : The feature is optional, depending on the user who is signed in. Require preview : Previews are required for all users. Disable preview : Previews are disabled for all users.
				Require preview	
				Disable preview	
		Resolution		Standard (100 x 200dpi)* Fine (200 x 200dpi) Superfine (300 x 300dpi)	Select the resolution for outgoing faxes. If you increase the resolution, faxes might be clearer but they could transmit more slowly. Some file types, for example a file that will be processed with OCR, require a specific resolution. When these file types are selected, the Resolution setting might be automatically changed to a valid value.
		Original Sides		1-sided* 2-sided	Use to describe the layout for each side of the original document. First select whether the original document is printed on one side or both sides. Then touch the Orientation setting to indicate whether the original has portrait or landscape orientation. If it is printed on both sides, also select the 2-sided format that matches the original document.

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings (continued)	Default Job Options (continued)	Original Sides (continued)	Orientation	Portrait* Landscape	For some features to work correctly, you must specify the way the content of the original document is placed on the page. Portrait: This setting means the short edge of the page is along the top. Landscape: This setting means the long edge of the page is along the top.
			2-Sided Format	Book-style* Flip-style	Book-style: The back side of the original is printed right-side-up, and the back side of the copy is printed the same way. Use this option for originals and copies that are bound along the left edge. Flip-style: The back side of the original is printed upside-down, and the back side of the copy is printed the same way. Use this option for originals and copies that are to be bound along the top edge.
		Notification		Do not notify* Notify when job completes Notify only if job fails	Use to receive notification about the status of a sent document. Do not notify: Turns off this feature. Notify when job completes: Select to receive notification for this job only. Notify only if job fails: Select to receive notification only if the job is not sent successfully.

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings (continued)	Default Job Options (continued)	Notification (continued)		Print	Print: Select to print the notification at this product.
				E-mail	E-mail: Select to receive the notification in an email. Touch the text box following Email Address, and then enter the email address for the notification.
			Include Thumbnail		When sending an analog fax, select Include Thumbnail to receive a thumbnail image of the first page of the fax in your notification.
			Notification E-mail address		Provide the email address that will receive notifications.
			Prompt user prior to job start	On Off*	
		Content Orientation	Orientation	Portrait* Landscape	For some features to work correctly, you must specify the way the content of the original document is placed on the page. Portrait: This setting means the short edge of the page is along the top. Landscape: This setting means the long edge of the page is along the top.

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings	Default Job Options	Content Orientation	2-Sided Format	Book-style*	Use to configure the default style for 2-sided print jobs. If the Book-style option is selected, the back side of the page is printed the right way up. This option is for print jobs that are bound along the left edge. If the Flip-style option is selected, the back side of the page is printed upside-down. This option is for print jobs that are bound along the top edge.
(continued)	(continued)	(continued)		Flip-style	
		Original Size		Select from a list of sizes that the product supports.	Use to describe the page size of the original document.
		Image Adjustment	Darkness		Use to improve the overall quality of the copy. Adjust the Darkness setting to increase or decrease the amount of white and black in the colors.
			Contrast		Adjust the Contrast setting to increase or decrease the difference between the lightest and darkest color on the page.
			Background Cleanup		Adjust the Background Cleanup setting if you are having trouble copying a faint image.
			Sharpness		Adjust the Sharpness setting to clarify or soften the image. For example, increasing the sharpness could make text appear crisper, but decreasing it could make photographs appear smoother.

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings (continued)	Default Job Options (continued)	Image Adjustment (continued)	Automatic Tone		The product automatically adjusts the Darkness , Contrast , and Background Cleanup settings to the most appropriate for the scanned document.
			Default		Select this to make the selected Image Adjustment setting the default value.
		Optimize Text/Picture	Manually adjust*	Optimize For Text Printed picture Photograph	Optimizes the output for a particular type of content. You can optimize the output for text, printed pictures, or a mixture. Manually adjust : Use to manually optimize the setting for text or for pictures. Text : Use to optimize the text portion of the copy where text and/or pictures are on the original. Printed picture : Use for line drawings and preprinted images, such as magazine clippings or pages from books. Photograph : Best suited for making copies of printed pictures.
		Job Build		Job Build off* Job Build on	Use to divide a complex job into smaller segments. This is useful when you are copying or scanning an original document that has more pages than the document feeder can hold, or when you want to combine pages that have different sizes into one job. You can use either the glass or the document feeder to scan the original documents.

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings (continued)	Default Job Options (continued)	Multi-feed Detection		Disabled	When enabled, scanning will stop if HP EveryPage technology detects multiple pages being fed at one time.
				Enabled*	
		Blank Page Suppression		Disabled*	When disabled, this feature will not stop scanning when multi-feeds are detected.
				Enabled	Prevents blank pages in the original document from being included in the output document.
Fax Receive Settings	Fax Receive Setup	Fax Setup Wizard			Configure settings for receiving faxes from the product.
					Use the Fax Setup Wizard feature to set up options for faxing.
					NOTE: To set up LAN fax or Internet fax, use the HP Embedded Web Server. To open the HP Embedded Web Server, type the product network address into a Web browser. To configure the fax features, select the Fax tab.
		Ringer Volume		Off	Use to configure settings for receiving faxes.
				Low*	
				High	
		Rings To Answer		Range: 1–6	
				Default = 1	
		Fax Receive Speed		Fast*	
				Medium	
				Slow	
		Ring Interval		Range: 220–600 ms	
				Default = 600 ms	
		Ring Frequency		Range: 1–200	
				Default = 68hz	

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Receive Settings (continued)	Fax Printing Schedule			Always store faxes	If you have concerns about the security of private faxes, use this feature to store faxes rather than having them automatically print. Select Incoming Fax Options, and then you can choose to always store faxes, always print them, or you can set up a schedule for each day of the week.
				Always print faxes*	
				Use Fax Printing Schedule	
		Schedule	Add (plus sign)	Print incoming faxes	If you are using a fax printing schedule, use this menu to configure when to print faxes.
		Touch this to set up a fax printing schedule if you selected the Use Fax Printing Schedule option.	Edit	Store incoming faxes	
			Delete	Time	
				Event Days	

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Receive Settings (continued)	Blocked Fax Numbers	Fax Number to Block			<p>The blocked fax list can contain up to 30 numbers. When the product receives a call from one of the blocked fax numbers, it deletes the incoming fax. It also logs the blocked fax in the activity log along with job-accounting information.</p> <p>Add blocked numbers: Enter a fax number into the Fax Number to Block field, and then touch the arrow button to add a new number to the blocked fax list.</p> <p>To remove blocked numbers: Select a number and touch the Delete button to delete it from the blocked fax list.</p> <p>To clear all blocked numbers: Touch the Delete All button to clear all of the numbers from the blocked fax list.</p> <p>You can also use the Blocked Fax List report in the Information menu to view the list of the fax numbers that have been blocked on this product.</p>
Fax Receive Settings (continued)	Default Job Options	Notification		Do not notify*	Configure to receive notification about the status of a sent document.
				Notify when job completes Notify only if job fails	<p>Do not notify: Turns off this feature.</p> <p>Notify when job completes: Select to receive notification for this job only.</p> <p>Notify only if job fails: Select to receive notification only if the job is not sent successfully.</p>

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
				Print	E-mail: Select to receive the notification in an email. Touch the text box following Email Address , and then enter the email address for the notification.
				E-mail*	
			Include Thumbnail		NOTE: When sending an analog fax, select Include Thumbnail to receive a thumbnail image of the first page of the fax in your notification.
			Notification E-mail address		
		Stamp Received Faxes		Enabled	Use this option to add the date, time, sender's phone number, and page number to each page of the faxes that this product receives.
				Disabled*	
		Fit to Page		Enabled*	Use to shrink faxes that are larger than Letter-size or A4-size so that they can fit onto a Letter-size or A4-size page. If this feature set to Disabled , faxes larger than Letter or A4 will flow across multiple pages.
				Disabled	
Fax Receive Settings	Default Job Options	Paper Selection		Automatic*	
(continued)	(continued)			Select from a list of the trays.	
		Sides		1-sided*	Use to describe the layout for each side of the original document. First select whether the original document is printed on one side or both sides. Then touch the Orientation setting to indicate whether the original has portrait or landscape orientation. If it is printed on both sides, also select the 2-sided format that matches the original document.
				2-sided	

Table 2-36 Fax Settings menu (M577 only) (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax Forwarding	Enable Fax Forwarding			Disabled*	Use to forward received faxes to another fax machine.
				Enabled	
		Type of Fax Job to Forward		All faxes	
				Sent faxes	
				Received faxes	
		Fax Forwarding Number			
Clear Fax Activity Log					Clears all events from the Fax Activity Log list.

General Print Settings menu

To display: At the printer control panel, select the [Administration](#) menu, and then select the [General Print Settings](#) menu.

In the following table, asterisks (*) indicate the factory default setting.



NOTE: For the M553x model, use the [Save](#) button to save a selected option.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight an option, and then press the [OK](#) button to save the selected option.

Table 2-37 General Print Settings menu

First level	Second level	Values	Description
Manual Feed		Enabled	Use to enable or disable the manual-feed feature, which allows the user to feed paper into the printer by hand. When this feature is enabled, the user can select manual feed from the control panel as the paper source for a job. If a tray is not specified as part of a job, manual feed is selected.
		Disabled*	
Courier Font		Regular*	Select which version of the Courier font 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.
		Dark	
Wide A4		Enabled	Changes the printable area of A4-size paper. When enabled, eighty 10-pitch characters can be printed on a single line of A4 paper.
		Disabled*	
Print PS Errors		Enabled	Use this feature to select whether a PostScript (PS) error page is printed when the printer encounters a PS error.
		Disabled*	
Print PDF Errors		Enabled	Selects whether a PDF error page is printed when the printer encounters a PDF error.
		Disabled*	
Personality		Auto*	Configures the default print language or personality for the printer. Normally the printer language should not be changed. If this item is changed 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	
		POSTSCRIPT	
		PDF	

Table 2-37 General Print Settings menu (continued)

First level	Second level	Values	Description
PCL	Form Length	Range: 5 – 128 Default = 60	Controls the PCL print-command options. PCL is a set of printer commands that Hewlett-Packard developed to provide access to printer features. Use the Form Length feature to select the user-soft default vertical form length.
	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.
	Font Source	Internal *	Selects the font source for the user-soft default font. The list of available options varies depending on the installed printer options.
	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.
	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).
	Font Point Size	Range: 4.00 – 999.75 Default = 12.00	If the Font Source option and the Font Number setting indicate a contour font, then use this feature to select a default point size (for a proportional-spaced font).
	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.

Table 2-37 General Print Settings menu (continued)

First level	Second level	Values	Description
PCL (continued)	Append CR to LF	No*	Configure whether a carriage return (CR) is appended to each line feed (LF) encountered in backwards-compatible PCL jobs (pure text, no job control). Select Yes to append the carriage return. The default setting is No . Some environments, such as UNIX, indicate a new line by using only the line-feed control code. This option allows the user to append the required carriage return to each line feed.
		Yes	
	Suppress Blank Pages	No*	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 Yes option is selected, form feeds are ignored if the page is blank.
		Yes	
	Media Source Mapping	Standard*	Use this item to select and maintain input trays by number when the printer driver is not used, 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.
		Classic	

Default Print Options menu

To display: At the printer control panel, select the [Administration](#) menu, and then select the [Default Print Options](#) menu.

In the following table, asterisks (*) indicate the factory default setting.



NOTE: For the M553x model, use the [Save](#) button to save a selected option.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight an option, and then press the [OK](#) button to save the selected option.

Table 2-38 [Default Print Options](#) menu

First level	Second level	Values	Description
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 Paper Size		Select from a list of sizes that the printer supports.	Configures the default paper size used for print jobs.
Default Custom Paper Size	X Dimension	Range: 3–8.5 inches Default = 8.5 inches	Configures the default paper size that is used when the user selects Custom as the paper size for a print job.
	Y Dimension	Range: 5–14 inches Default = 14 inches	
	Use Inches	Enabled * Disabled	
Sides		1-sided * 2-sided	Use this item to indicate whether the original document is printed on one or both sides, and whether the copies should be printed on one or both sides. For example, select the 1-sided original, 2-sided output option when the original is printed on one side, but the print job requires two-sided copies. Select the Orientation setting to specify portrait or landscape orientation and to select the way the second sides are printed.

Table 2-38 Default Print Options menu (continued)

First level	Second level	Values	Description
2-Sided Format		Book-style*	Configures the default style for 2-sided print jobs. If the Book-style option is selected, the back side of the page is printed the right way up. This option is for print jobs that are bound along the left edge. If the Flip-style option is selected, the back side of the page is printed upside-down. This option is for print jobs that are bound along the top edge.
		Flip-style	
Edge-to-Edge		Normal (recommended)*	Use to avoid shadows that can appear along the edges of copies when the original document is printed close to the edges.
		Edge-to-Edge output	

Display Settings menu

To display: At the printer control panel, select the [Administration](#) menu, and then select the [Display Settings](#) menu.

In the following table, asterisks (*) indicate the factory default setting.



NOTE: For the M553x model, use the [Save](#) button to save a selected option.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight an option, and then press the [OK](#) button to save the selected option.

Table 2-39 [Display Settings](#) menu

First level	Second level	Values	Description
Display Brightness		Range: -10 to 10 The default value is 0.	Use to specify the intensity of the LCD control-panel display.
Key Press Sound		On * Off	Use to specify whether sounds are heard when touching the screen or pressing buttons on the control panel.
Language Settings	Language	Select from a list of languages that the printer supports.	Use this item to select a different language for control-panel messages.
How to Connect Button (M552dn, M553dn, M553x, M577)		Display * Hide	Use this menu item to display or hide the How to Connect Button on the Home screen.
Network Address Button (M552dn, M553dn, M553x)		Display * Hide	Use this menu item to display or hide the IP address on the Home screen.
Date and Time (M552dn, M553dn, M553x, M577)		Show Date and Time * Hide Date and Time	Select whether to display or hide the date and time on the control panel Home screen.
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 2-39 Display Settings menu (continued)

First level	Second level	Values	Description
Clearable Warnings		On Job*	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.
Continuable Events		Auto-continue (10 seconds)* Touch OK to continue	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 press the OK button before continuing.

Manage Supplies menu

To display: At the printer control panel, select the [Administration](#) menu, and then select the [Manage Supplies](#) menu.

In the following table, asterisks (*) indicate the factory default setting.



NOTE: For the M553x and M577 models, use the [Save](#) button to save a selected option.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight an option, and then press the [OK](#) button to save the selected option.

Table 2-40 [Manage Supplies](#) menu

First level	Second level	Third level	Fourth level	Values	Description
Supplies Status				Print	
				View (M577 only)	
Supply Settings	Black Cartridge	Low Threshold Settings		1 - 100%	Set the estimated percentage at which the printer notifications appear when the toner cartridge is very low.
				Default = 10%	
		Very Low Settings		Stop	Specifies how the printer notifications appear when the toner cartridge is very low. Stop : The printer stops until the toner cartridge is replaced. Prompt to continue : The printer stops and a prompt appears to replace the toner cartridge. Acknowledging the prompt to continue printing. Continue : The printer alerts the user that a toner cartridge is very low, but it continues printing.
				Prompt to continue*	
				Continue	
	Color Cartridges	Low Threshold Settings	Cyan	1 - 100%	Set the estimated percentage at which printer notification appears when the toner cartridge is very low. A different percentage for each color is allowed.
			Magenta	Default = 10%	
			Yellow		

Table 2-40 Manage Supplies menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Supply Settings (continued)	Color Cartridges (continued)	Very Low Settings		Stop	Specifies how the printer notifications appear when the toner cartridge is very low. Stop: The printer stops until the toner cartridge is replaced. Prompt to continue: The printer stops and a prompt appears to replace the toner cartridge. Acknowledging the prompt to continue printing. Continue: The printer alerts the user that a toner cartridge is very low, but it continues printing.
				Prompt to continue*	
				Continue	
	Toner Collection Unit (M552, M553)	Very Low Settings		Stop	Configure how the printer responds when the toner collection unit (TCU) is reaching the end of its estimated life. Stop: The printer stops until the TCU is replaced. Prompt to continue: The printer stops and a prompt appears to replace the TCU. Acknowledge the prompt and continue printing. Continue: The printer alerts the user that the TCU is almost full, but it continues printing.
				Prompt to continue*	
				Continue	
	Fuser Kit	Low Threshold Settings		1-100%	Set the estimated percentage at which the printer notification appears when the fuser is low.
				Default = 10%	

Table 2-40 Manage Supplies menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Supply Settings (continued)	Fuser Kit (continued)	Very Low Settings		Stop	<p>Configure how the printer responds when the fuser is reaching the end of its estimated life.</p> <p>Stop: The printer stops until the fuser is replaced.</p> <p>Prompt to continue: The printer stops and a prompts appears to replace the fuser. Acknowledge the prompt and continue printing.</p> <p>Continue: The printer alerts the user that the fuser is very low, but it continues printing.</p>
				Prompt to continue*	
				Continue	
	Document Feeder Kit	Low Threshold Settings		1-100%	
				Default = 10%	
		Very Low Settings		Stop	
				Prompt to continue*	
				Continue	
	Restrict Color Use			Enable	Use this feature to enable, restrict, or disable color printing or copying.
				Disable color	
				Color if allowed*	

Table 2-40 Manage Supplies menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Supply Settings (continued)	Color/Black Mix			Auto* Mostly Color Pages Mostly Black Pages	<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>
	Store Usage Data			On supplies Not on supplies	<p>The Store Usage Data menu 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.</p>
	Cartridge Protection			Off* Protect Cartridges	<p>Select to permanently protect cartridges so that they can be used only in this product or fleet of products.</p>
	Cartridge Policy			Off* Authorized HP	<p>Set to Authorized HP to allow only genuine HP cartridges to be used in this product.</p>

Table 2-40 Manage Supplies menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Supply Messages	Low Message			On*	Use to configure whether a message displays on the control panel when supplies are getting low, but have not yet reached the low threshold.
				Off	
Reset Supplies	New Fuser Kit			No*	Select this option when a new fuser kit is installed.
				Yes	
	New Document Feeder Kit			No*	Select this option when a new document feeder kit is installed.
				Yes	

Manage Trays menu

To display: At the printer control panel, select the [Administration](#) menu, and then select the [Manage Trays](#) menu.

In the following table, asterisks (*) indicate the factory default setting.



NOTE: For the M553x model, use the [Save](#) button to save a selected option.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight an option, and then press the [OK](#) button to save the selected option.

Table 2-41 [Manage Trays](#) menu

First level	Values	Description
Use Requested Tray	Exclusively* First	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. First : The printer pulls from another tray if the specified tray is empty, even though the user specifically indicated a tray for the job.
Manually Feed Prompt	Always* Unless loaded	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. Unless loaded : A message displays only if the multipurpose tray is empty.
Size/Type Prompt	Display* Do not display	Controls whether the tray configuration message displays whenever a tray is closed. Two options are available: Display : Shows the tray configuration message when a tray is closed. The user is able to configure the tray settings directly from this message. Do not display : Prevents the tray configuration message from automatically appearing.
Use Another Tray	Enabled* Disabled	Use to turn on or off the control panel prompt to select another tray when the specified tray is empty. Two options are available: Enabled : When this option is selected, the user is prompted either to add paper to the selected tray or to choose a different tray. Disabled : 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.


Table 2-41 Manage Trays menu (continued)

First level	Values	Description
Alternative Letterhead Mode	Disabled* Enabled	Use this item to load letterhead or preprinted paper into the tray the same way for all print jobs (for printing either to one side of the sheet or to both sides of the sheet). When this option is selected, load the paper as if 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.
Duplex Blank Pages	Auto* Yes	Controls how the printer handles two-sided jobs (duplexing). Two options are available: Auto: Enables Smart Duplexing, which instructs the printer not to process blank pages. Yes: Disables Smart Duplexing and forces the duplexer to flip the sheet of paper even if it is printed on only one side. This might be preferable for certain jobs that use paper types such as letterhead or prepunched paper.
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.

Network Settings menu

To display: At the printer control panel, select the [Administration](#) menu, and then select the [Network Settings](#) menu.

In the following table, asterisks (*) indicate the factory default setting.

 **NOTE:** For the M553x model, use the [Save](#) button to save a selected option.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight an option, and then press the [OK](#) button to save the selected option.

Table 2-42 Network Settings menu

First level	Values	Description
I/O Timeout	Range: 5 – 300 sec Default = 15	Use to set the I/O timeout period in seconds. I/O timeout refers to the elapsed time before a print job fails. If the stream of data that the printer receives for a print job is interrupted, this setting indicates how long the printer will wait before it reports that the job has failed.
Wireless Menu	See Table 2-43 Wireless Menu on page 243 for details.	
Embedded Jetdirect Menu	See Table 2-44 Embedded Jetdirect Menu on page 243 for details. These menus have the same structure. If an additional HP Jetdirect network card is installed in the EIO slot, then both menus are available.	

Table 2-43 Wireless Menu

First level	Second level	Third level	Fourth level	Values	Description
Wii-Fi Direct	Status			On Off*	Please refer to the Jetdirect Administrator's Guide
Security	Secure Web			HTTPS Required* HTTPS Optional	Please refer to the Jetdirect Administrator's Guide
	Reset Security			Yes No*	Please refer to the Jetdirect Administrator's Guide

Table 2-44 Embedded Jetdirect Menu

First level	Second level	Third level	Fourth level	Values	Description
Information	Print Sec 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.

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
TCP/IP	Enable			On*	On: Enable the TCP/IP protocol.
				Off	Off: Disable the TCP/IP protocol.
	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.
	IPv4 Settings	Config Method		Bootp	Specifies the method that TCP/IPv4 parameters will be configured on the HP Jetdirect print server. Bootp (Bootstrap Protocol): Use for automatic configuration from a BootP server. 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. Auto IP: Use for automatic link-local IPv4 addressing. An address in the form 169.254.x.x is assigned automatically. When this option is set to the Manual setting, use the Manual Settings menu to configure TCP/IPv4 parameters.
				DHCP*	
				Auto IP	
				Manual	

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
TCP/IP	IPv4 Settings	Manual Settings	IP Address	Enter the address.	(Available only if the Config Method option is set to the Manual option.) Configure parameters directly from the printer control panel.
(continued)	(continued)	NOTE: This menu is available only available when using the Manual option under the Config Method menu.	Subnet Mask	Enter the address.	
			Default Gateway	Enter the address.	
			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 products.
			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.
			Secondary DNS	Range: 0 – 255 Default = 0.0.0.0	Specify the IP address (n.n.n.n) of a Secondary DNS Server.
	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.
		Address	Manual Settings	Enable Address	Use this item to enable and manually configure a TCP/IPv6 address.

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
TCP/IP (continued)	IPv6 Settings (continued)	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>
		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.
		Secondary DNS		Range: 0 – 255 Default = 0.0.0.0	Specify the IP address (n.n.n.n) of a Secondary DNS Server.
TCP/IP (continued)	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, contact the Internet Service Provider (ISP) for the proxy server address.</p>

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
	Proxy Port			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 the network, and can be a value from 0 to 65535.
	Idle Timeout			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).
Security	Secure Web			HTTPS Required* HTTPS Optional	<p>For configuration management, specify whether the HP Embedded Web Server will accept communications using HTTPS (Secure HTTP) only, or both HTTP and HTTPS.</p> <p>HTTPS Required: For secure, encrypted communications, only HTTPS access is accepted. The print server will appear as a secure site.</p>
Security (continued)	IPSEC			Keep Disable*	<p>Specify the IPSec status on the print server.</p> <p>Keep: IPSec status remains the same as currently configured.</p> <p>Disable: IPSec operation on the print server is disabled.</p>
	802.1X			Reset Keep*	<p>Specify whether the 802.1X settings on the print server are reset to the factory defaults.</p> <p>Reset: The 802.1X settings are reset to the factory defaults.</p> <p>Keep: The current 802.1X settings are maintained.</p>

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
	Announcement Agent			Enable*	
				Disable	
	Reset Security			Yes	Specify whether the current security settings on the print server will be saved or reset to factory defaults.
				No*	
					Yes: Security settings are reset to factory defaults.
					No: The current security settings are maintained.

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Diagnostics (M552, M553)	Embedded Tests	LAN HW Test		Yes	Provides tests to help diagnose network hardware or TCP/IP network connection problems.
				No*	<p>Embedded tests help to identify whether a network fault is internal or external to the printer. Use an embedded test to check hardware and communication paths on the print server. After selecting and enabling a test, and setting the execution time, select the Execute option to initiate the test.</p> <p>Depending on the execution time, a selected test runs continuously until either the printer is turned off, or an error occurs and a diagnostic page is printed.</p> <p>CAUTION: Running this embedded test will erase the TCP/IP configuration.</p> <p>This test performs an internal loop-back test. An internal loop-back test will send and receive packets only on the internal network hardware. There are no external transmissions to the network.</p>
		HTTP Test		Yes	<p>This test checks operation of HTTP by retrieving predefined pages from the printer, and tests the HP Embedded Web Server.</p> <p>Select the Yes option to choose this test, or the No option to not choose it.</p>
				No*	

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Diagnostics (M552, M553) (continued)	Embedded tests (continued)	SNMP Test		Yes	This test checks operation of SNMP communications by accessing predefined SNMP objects on the printer. Select the Yes option to choose this test, or the No option to not choose it.
				No*	
		Data Path Test		Yes	This test helps to identify data path and corruption problems on an HP postscript level 3 emulation printer. It sends a predefined PS file to the printer. However, the test is paperless; the file will not print. Select the Yes option to choose this test, or the No option to not choose it.
				No*	
		Select All Tests		Yes	Use this item to select all available embedded tests. Select the Yes option to choose all tests. Select the No option to select individual tests.
				No*	
		Execution Time [H]		Range: 1 – 24 hours Default = 1 hour	Specify the length of time (in hours) that an embedded test will be run. Select zero (0) to run the test runs indefinitely, until an error occurs or the printer is turned off. Data gathered from the HTTP, SNMP, and Data Path tests is printed after the tests have completed.
			Execute	No* Yes	No: Do not initiate the selected tests. Yes: Initiate the selected tests.

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Diagnostics (M552, M553) (continued)	Ping Test	Dest Type		IPv4	This test is used to check network communications. It sends link-level packets to a remote network host, then waits for an appropriate response. Specify whether the target printer is an IPv4 or IPv6 node.
				IPv6	
		Dest IPv4		Range: 0 – 255 Default = 127.0.0.1	Enter the IPv4 address.
		Dest IPv6		Select from a provided list. Default = :: 1	Enter the IPv6 address.
		Packet Size		Default = 64	Specify the size of each packet, in bytes, to be sent to the remote host. The minimum is 64 (default) and the maximum is 2048.
		Timeout		Default = 001	Specify the length of time, in seconds, to wait for a response from the remote host. The maximum is 100.
		Count		Default = 004	Specify the number of ping test packets to send for this test. Select a value from 0 to 100. To configure the test to run continuously, select 0.
		Print Results		Yes No*	
		Execute		Yes No*	No: Do not initiate the selected tests. Yes: Initiate the selected tests.
			Ping Results	Packets Sent	

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Diagnostics (M552, M553) (continued)	Ping Results (continued)	Packets Received		Default = 00000	Shows the number of packets (0 - 65535) received from the remote host since the most recent test was initiated or completed. The default is 0.
		Percent Lost		Default = 000	Shows the percent (0 to 100) of ping test packets that were sent with no response from the remote host since the most recent test was initiated or completed.
		RTT Min		Default = 0000	Shows the minimum detected roundtrip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		RTT Max		Default = 0000	Shows the maximum detected roundtrip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		RTT Average		Default = 0000	Shows the average round-trip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		Ping In Progress		Yes No*	Shows whether a ping test is in progress. Yes Indicates a test in progress. No Indicates that a test completed or was not run.
		Refresh		Yes No*	When viewing the ping test results, this item upgrades the ping test data with current results. Select the Yes option to upgrade the data, or the No option to maintain the existing data. However, a refresh automatically occurs when the menu times out or the user manually returns to the main menu.

Table 2-44 Embedded Jetdirect Menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Link Speed				Auto*	<p>The link speed and communication mode of the print server must match the network. The available settings depend on the printer and installed print server. Select one of the following link configuration settings:</p> <p>CAUTION: Changing the link setting might result in lost network communications between the print server and networked printer.</p> <p>The print server uses auto-negotiation to configure itself with the highest link speed and communication mode allowed. If auto-negotiation fails, either the 100TX Half feature or the 10T Half feature is set depending on the detected link speed of the hub/switch port. (A 1000T half-duplex selection is not supported.)</p>
				10T Half	10 Mbps, half-duplex operation.
				10T Full	10 Mbps, full-duplex operation.
				10T Auto	100 Mbps, half-duplex operation.
				100TX Half	100 Mbps, full-duplex operation.
				100TX Full	Limits auto-negotiation to a maximum link speed of 100 Mbps.
				100TX Auto	1000 Mbps, full-duplex operation.

Troubleshooting menu

To display: At the printer control panel, select the [Administration](#) menu, and then select the [Troubleshooting](#) menu.

In the following table, asterisks (*) indicate the factory default setting.



NOTE: For the M553x model, use the [Save](#) button to save a selected option.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight an option, and then press the [OK](#) button to save the selected option.

Table 2-45 Troubleshooting menu

First level	Second level	Third level	Fourth level	Values	Description
Event Log				View* (M553)	Use to print a list of the 1,000 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.
				Print	
Paper Path Page				View* (M553x)	Shows how many pages were printed from each tray.
				Print	
Fax (M577 only)	Fax T.30 Trace	Print T.30 Report		Print	Use to print or configure the fax T.30 trace report. T. 30 is the standard that specifies handshaking, protocols, and error correction between fax machines.
		When to Print Report		Never automatically print*	Configure the T.30 report to print after certain events. You can choose to print the report after every fax job, every fax job sent, every fax job received, every send error, or every receive error.
				Print after every fax	
				Print only after fax send jobs	
				Print after any fax error	
				Print only after fax send errors	
				Print only after fax receive errors	
		Fax V.34		Normal*	Use to disable V.34 modulations if several fax failures have occurred or if phone line conditions require it.
				Off	
		Fax Speaker Mode		Normal*	Used by a technician to evaluate and diagnose fax issues by listening to the sounds of fax modulations
				Diagnostic	

Table 2-45 Troubleshooting menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Fax (M577 only) (continued)	Fax Log Entries			Standard*	The standard fax log includes basic information such as the time and whether the fax was successful. The detailed fax log shows the intermediate results of the redial process not shown in the standard fax log.
				Detailed*	
Print Quality Pages	Print PQ Troubleshooting Page			Print	Use this item to print pages that can help resolve problems with print quality.
				Print	Use to print a diagnostics page. The page includes color swatches and a table of electrophotographic (EP) parameters.
	Color Band Test	Print Test Page		Print	Use to print a page to help identify arcing in the high-voltage power supply for each color. The page contains a series of colored bars. If streaks appear on a bar, the high-voltage power supply for the corresponding color might have a problem.
		Copies		Range: 1 – 30 Default = 1	Some problems with the high-voltage power supply do not appear until after several pages have been printed, so this test includes an option to print up to 30 pages.
Diagnostic Tests	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.
	Paper Path Sensors			Select from a list of the printer sensors.	Initiates a test of the paper path sensors.
	Paper Path Test	Source Tray		Select from a list of the available trays.	Generates a test page for testing paper handling features. Test specific paper paths by choosing which path the printer uses for the test.
Diagnostic Tests (continued)	Paper Path Test	Test Duplex Path		Off*	
	(continued)	(continued)		On	

Table 2-45 Troubleshooting menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
		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.
	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. Press the Stop button to abort the test.
	Tray/Bin Manual Sensor Test			Select from a list of available components. Reset Sensors	Test the sensors in the trays and bins 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. Press the Stop button to abort the test.
	Component Test			Select from a list of available components.	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. Press the Stop button to abort the test.
	Print/Stop Test (M552, M553)				Specify the length of time in milliseconds (0–60,000).
	Scanner Tests (M577)			Sensors	
	Fax Test Report (M577)				Touch Start to process the Fax Test Report.
	Continuous Scan (M577)			2-sided	

Table 2-45 Troubleshooting menu (continued)

First level	Second level	Third level	Fourth level	Values	Description
Retrieve Diagnostic Data				Create device data file Create zipped debug information file Include crash dump files Clean up debug information Export to USB	Create files that contain information about the printer that can help identify the cause of problems.
Generate Debug Data				Start	
Retrieve Fax Diagnostic Data (M577)					Enter user access code to retrieve fax diagnostic data.

Device Maintenance menu

Backup/Restore menu

To display: At the printer control panel, select the [Device Maintenance](#) menu, and then select the [Backup/Restore](#) menu.

In the following table, asterisks (*) indicate the factory default setting.



NOTE: For the M553x model, use the [Save](#) button to save a selected option.

For all other models, use the up arrow ▲ button or down arrow ▼ button to highlight an option, and then press the [OK](#) button to save the selected option.

Table 2-46 Backup/Restore menu

First level	Second level	Third level	Values	Description
Back up Data	Backup Now			Initiate a backup.
Restore Data			Insert a USB drive that contains the backup file.	Restore data from an external source.

Calibration/Cleaning menu (M577 only)

To display: At the product control panel, select the [Device Maintenance](#) menu, and then select the [Calibration/Cleaning](#) menu.

In the following table, asterisks (*) indicate the factory default setting.

Table 2-47 Calibration/Cleaning menu (M577)

First level	Second level	Values	Description
Cleaning Settings	Auto Cleaning	Off*	Use to select the Auto Cleaning menu or the Cleaning Interval menu.
		On	

Table 2-47 Calibration/Cleaning menu (M577) (continued)

First level	Second level	Values	Description
	Cleaning Interval	Select from a list of cleaning intervals.	Use to set the interval when the cleaning page should be printed. The interval is measured by the number of pages printed.
	Cleaning Size	Select from a list of support sizes.	Select the paper size to use for the cleaning page.
Cleaning Page		Print	Use to process the cleaning page that was created by using the Create Cleaning Page menu. The process takes up to 1.5 minutes.
Quick Calibration		Start	<p>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.</p> <p>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.</p>
Full Calibration		Start	<p>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 to be shifted on the page.</p> <p>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.</p>
Restore Calibration		Restore	If there are problems with print quality that have not been resolved using a Full Calibration , touch Restore to restore the calibration values to factory default settings. The product will turn off, then on.

Table 2-47 Calibration/Cleaning menu (M577) (continued)

First level	Second level	Values	Description
Delay Calibration at Wake/Power On		Disabled Enabled*	Controls the timing of power-on calibration when the product wakes up or is turned on. Wake: Select if you are not using the feature and want to print jobs immediately when the product wakes up or is turned on, before calibration begins. No: The product will calibrate immediately when it wakes up or is turned on. The product will not print any jobs until it finishes calibrating. Yes: Enables the product that is asleep to accept print jobs before it calibrates. It might start calibrating before it has printed all the jobs it has received. This option allows quicker printing when coming out of sleep mode or when you turn the product on, but print quality might be reduced. NOTE: For the best results, allow the product to calibrate before printing. Print jobs performed before calibration might not be of the highest quality.
Calibrate Scanner			Touch Next to calibrate the device scanner. Messages on the control-panel display will lead you through the calibration process.
Clean Rollers		Reset Cancel	Maintenance History screen is view only. There are two options: the Reset option to reset the page count, or the Cancel option to go back to the previous screen.
Clean Document Feeder Settings	Low Threshold Settings	Range: 0 – 100% Default = 10%	Configure cleaning settings for the document feeder.
	Very Low Settings	Stop Prompt to continue* Continue	

USB Firmware Upgrade menu

To display: At the printer control panel, select the [Device Maintenance](#) menu, and then select the [USB Firmware Upgrade](#) menu.

Insert a USB storage device with a firmware upgrade bundle into the USB port, and follow the on-screen instructions.

HP FutureSmart Level menu

To display: At the printer control panel, select the [Device Maintenance](#) menu, and then select the [HP FutureSmart Level](#) menu.

Select an HP FutureSmart level that is available in the currently installed firmware, and then select [Change](#).

Service menu

To display: At the printer control panel, select the [Device Maintenance](#) menu, and then select the [Service](#) menu.

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.

Error code and control panel message troubleshooting overview

Error codes

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 are numerical, or alphanumerical, 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 2-48 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.
42.WX.YZ	Firmware	Firmware failure involving the Event Log, Shell, System Manager, or other component.

Table 2-48 ERROR CODES: The first two characters (continued)

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.
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

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. To learn how to find support content in WISE, watch the video [here](#).

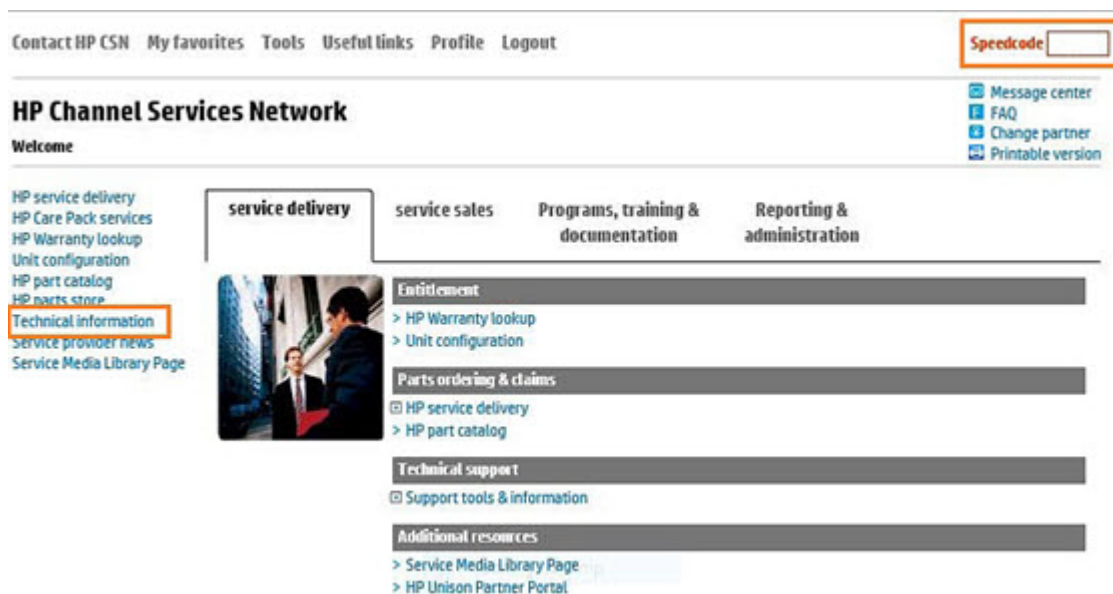
To view a list of control panel message documents per printer in **WISE**, enter document ID **c05048451**, to locate CPMD list.

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. To learn how to find support content in GCSN, watch the video [here](#) or follow these steps:

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.



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 2-73 Sample product search criteria

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

3. 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).

Product Search [Add Favorites](#)

Type
Printers and Multifunction

Category
Multifunction and All-in-One

Family
HP LaserJet MFP and All-in-One Products

4. Clear all of the high-level check boxes.

Select the appropriate check boxes for the document types you wish to review.

<input type="checkbox"/> Support Communications	<input type="checkbox"/> Manuals and Guides	<input type="checkbox"/> Support Information
<input type="checkbox"/> Customer Advisory	<input type="checkbox"/> Illustrated Parts Map	<input type="checkbox"/> ActionProcedureMap
<input type="checkbox"/> Customer Bulletin	<input type="checkbox"/> Install Guide	<input type="checkbox"/> CPMDMap
<input type="checkbox"/> Customer Notice	<input type="checkbox"/> Maintenance/Service Guide	<input type="checkbox"/> Support Information
<input type="checkbox"/> Customer Work Instruction (CSR)	<input type="checkbox"/> Parts Guide	<input type="checkbox"/> Top Issue (Notes: If you are selecting top issue it will return only top issue documents)
<input type="checkbox"/> Product Change Notification	<input type="checkbox"/> QuickSpec	<input type="checkbox"/> Software Support & Drivers Information
<input type="checkbox"/> Security Bulletin	<input type="checkbox"/> Reference Manual	<input type="checkbox"/> Product Bulletin/QuickSpec
<input type="checkbox"/> Service Action Advisory	<input type="checkbox"/> Service Guide/Manual	<input type="checkbox"/> Buy Care Packs
<input type="checkbox"/> Service Advisory	<input type="checkbox"/> Technical Reference Guide	
<input type="checkbox"/> Service Bulletin	<input type="checkbox"/> Training Material	

- 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.

Select the appropriate check boxes for the document types you wish to review.

<input type="checkbox"/> Support Communications	<input type="checkbox"/> Manuals and Guides	<input type="checkbox"/> Support Information
<input type="checkbox"/> Customer Advisory	<input type="checkbox"/> Illustrated Parts Map	<input type="checkbox"/> ActionProcedureMap
<input type="checkbox"/> Customer Bulletin	<input type="checkbox"/> Install Guide	<input checked="" type="checkbox"/> CPMDMap
<input type="checkbox"/> Customer Notice	<input checked="" type="checkbox"/> Maintenance/Service Guide	<input checked="" type="checkbox"/> Support Information
<input type="checkbox"/> Customer Work Instruction (CSR)	<input type="checkbox"/> Parts Guide	<input type="checkbox"/> Top Issue (Note: If you are selecting top issue it will return only top issue documents)
<input type="checkbox"/> Product Change Notification	<input type="checkbox"/> QuickSpec	<input type="checkbox"/> Software Support & Drivers Information
<input type="checkbox"/> Security Bulletin	<input type="checkbox"/> Reference Manual	<input type="checkbox"/> Product Bulletin/QuickSpec
<input type="checkbox"/> Service Action Advisory	<input checked="" type="checkbox"/> Service Guide/Manual	<input type="checkbox"/> Buy Care Packs
<input type="checkbox"/> Service Advisory	<input type="checkbox"/> Technical Reference Guide	
<input type="checkbox"/> Service Bulletin	<input type="checkbox"/> Training Material	
<input type="checkbox"/> Service Notice	<input type="checkbox"/> Troubleshooting Guide	
<input type="checkbox"/> Service Product Announcement	<input type="checkbox"/> Upgrade Manual	
<input type="checkbox"/> Service Program Announcement	<input checked="" type="checkbox"/> User Guide	
<input type="checkbox"/> Technical Work Instruction (TWI)	<input type="checkbox"/> Warranty Statement	
	<input type="checkbox"/> White Papers	

- 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 will be filtered out.

Technical information type	Select this checkbox
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

Solve image-quality problems

- [Improve print quality](#)

Improve print quality

Use the information in this section to diagnose and solve image-quality problems.



NOTE: Often print-quality problems can be resolved easily by making sure that the printer is well-maintained, using paper that meets HP specifications, or running a cleaning page.

Color band test

The color-band test page shows bands of colors that can indicate whether the printer is producing colors correctly.

Access the color band test from a touchscreen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Troubleshooting](#)
 - [Print Quality Pages](#)
 - [Color Band Test](#)
3. Touch the [Print Test page](#) button, and then touch the [Print](#) button to print the pages.


Access the color band test from an LCD control panel


1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Troubleshooting](#), and then press the [OK](#) button to select it.
3. Use the down arrow ▼ button to scroll to [Print Quality Pages](#), and then press the [OK](#) button to select it.
4. Use the down arrow ▼ button to scroll to [Color Band Test](#), and then press the [OK](#) button to select it.

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 [Use a ruler to measure between repetitive defects on page 268](#).

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 lint-free paper. If dirt is difficult to remove, rub the roller with lint-free paper 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 [Table 2-49 Repetitive defects on page 267](#) to a transparency or the edge of a piece of paper—clearly label each ruler mark with the associated defective assembly.

Table 2-49 Repetitive defects

Assembly	Distance between defects
Primary charging roller ¹	27 mm (1.06 in)
Developer roller ¹¹	32 mm (1.26 in)
Registration roller	42 mm (1.65 in)
Secondary transfer roller	50 mm (1.97 in)
Fuser film ²	58 mm (2.28 in)
Pressure roller ²	69 mm (2.83 in)
Photosensitive drum ¹	75 mm (2.95 in)


¹ The primary charging roller, photosensitive drum and developer roller cannot be cleaned. If any of these rollers are indicated, replace the toner cartridge.

² The primary fuser sleeve unit or pressure roller cannot be cleaned because they are internal assemblies in the fuser. If one of these assemblies is causing the defect, replace the fuser.


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.

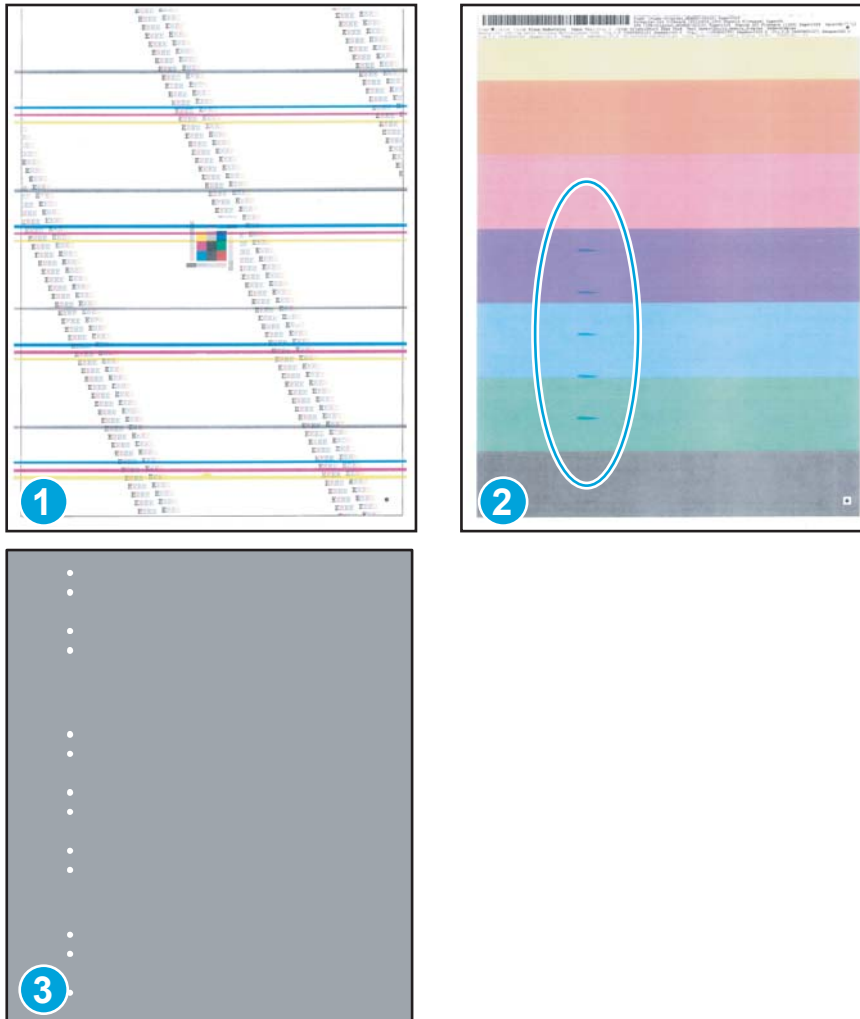
 **TIP:** Print a cleaning page to see if that resolves the defect.

The example pages below show the following types of repetitive defects.

 **NOTE:** These are examples only, other types of repetitive defects might appear on a page.

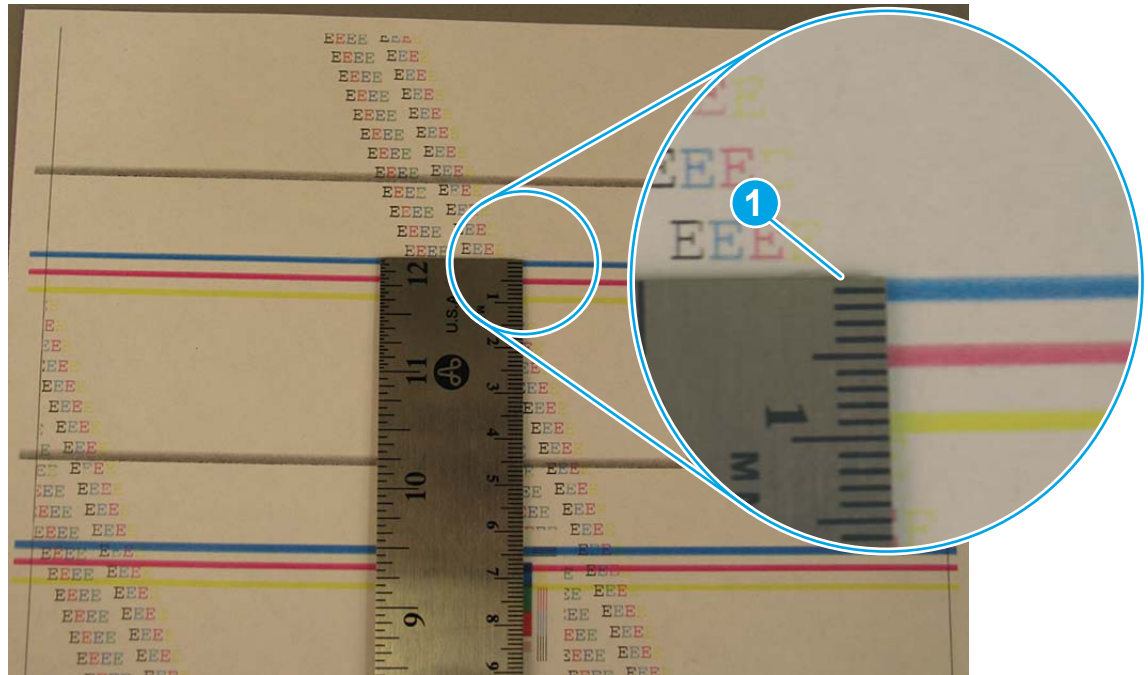
- Lines (callout 1)
- Smudges (callout 2)
- Dots or spots (callout 3)

Figure 2-74 Examples of repetitive defects



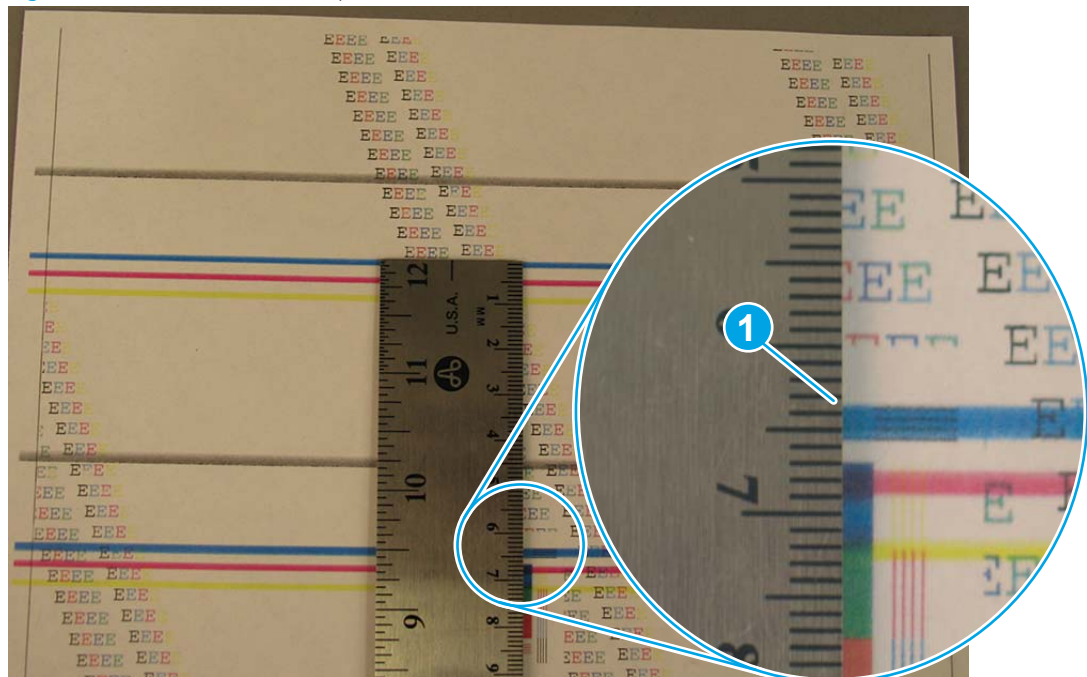
2. Position a metric ruler on the page with the “zero” ruler mark at one occurrence of the defect (callout 1).

Figure 2-75 Place the ruler on the page



3. Locate the next occurrence of the defect (callout 1).

Figure 2-76 Locate the next repetitive defect



4. Measure the distance (in millimeters) between the two occurrences (callout 1), and then use [Table 2-49 Repetitive defects on page 267](#) to determine the defective assembly.


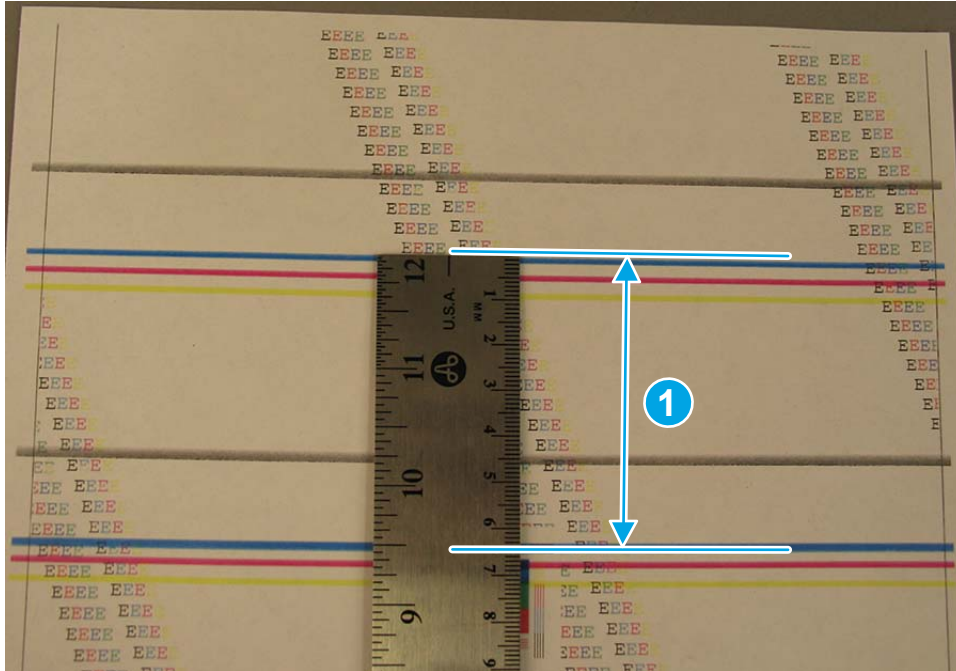
 **TIP:** Always measure from and to the same point on the defects. For example, if the ruler is “zeroed” at the top edge of a defect, measure to the top edge of the next occurrence of that defect.

Figure 2-77 Determine the defective assembly



Print-quality troubleshooting pages

Use the print-quality-troubleshooting pages to help diagnose and solve color print-quality problems.



NOTE: To get further assistance in print quality troubleshooting, go to www.hp.com/support/colorljM552, www.hp.com/support/colorljM553, www.hp.com/support/colorljM577MFP, www.hp.com/support/colorljE55040, www.hp.com/support/colorljE57540MFP and select PQ Troubleshooting Tools.

Print the print-quality troubleshooting pages from a touchscreen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Troubleshooting](#)
 - [Print Quality Pages](#)
 - [Print PQ Troubleshooting Page](#)
3. Touch the [Print](#) button. The printer prints several print-quality troubleshooting pages.

Print the print-quality troubleshooting pages from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), 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 [Print Quality Pages](#), and then press the [OK](#) button to print the page.
4. Use the down arrow ▼ button to scroll to [Print PQ Troubleshooting Page](#), and then press the [OK](#) button to print the page.

Follow the instructions on the print-quality troubleshooting procedure page.



NOTE: The printer returns to the **Ready** state after printing the print-quality-troubleshooting pages. Follow the instructions on the pages that print out.

Figure 2-78 Print-quality troubleshooting procedure



Figure 2-79 Yellow print-quality troubleshooting page

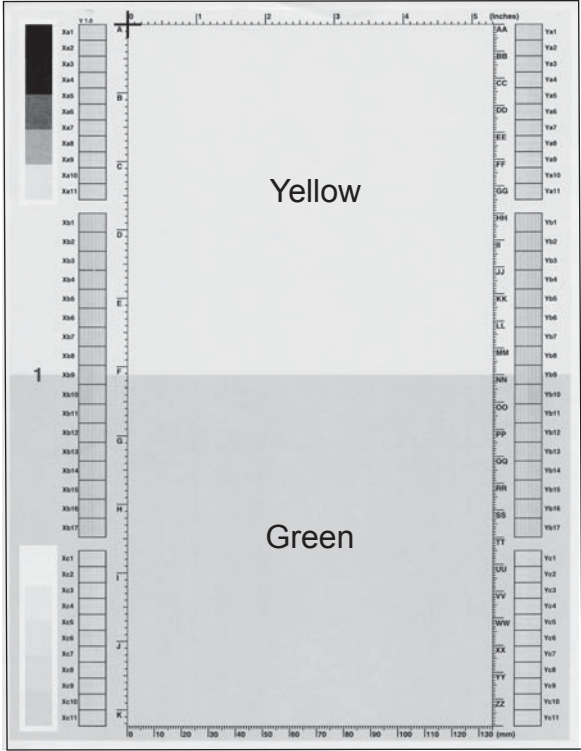
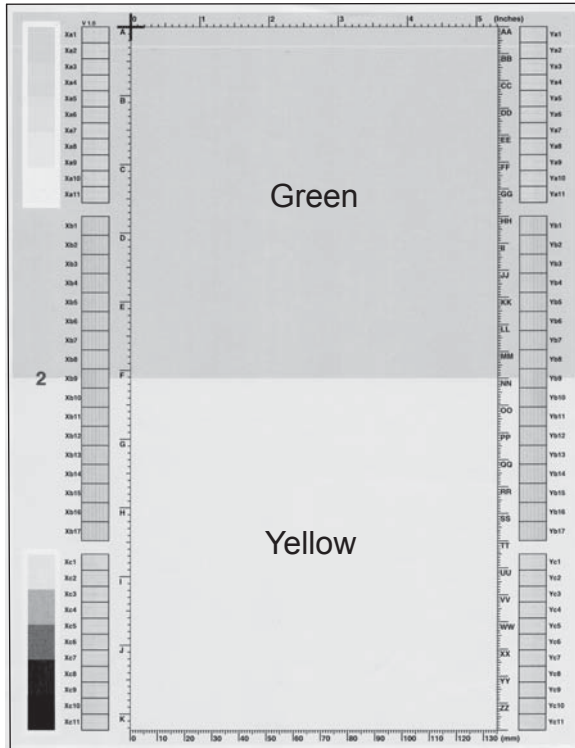
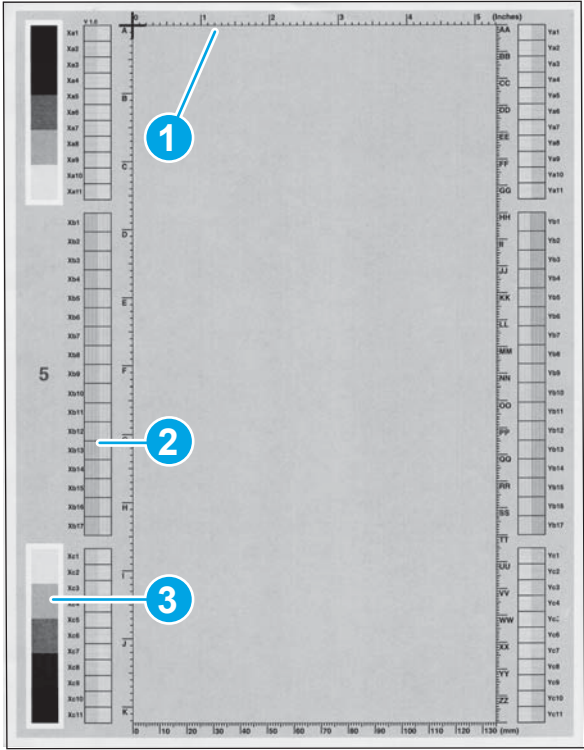


Figure 2-80 Yellow comparison page




Yellow cannot be easily seen unless combined with cyan, so half of each page is yellow and the other half is an amplified version of yellow print problems (green half). Compare the yellow on page one with the corresponding green on page two for defects. Also check the cyan page for defects.

Figure 2-81 Black print-quality troubleshooting page



1. Grids	The grids are in inches and millimeters. They are labeled with letters and numbers so that defects can be described by position and by distance between repeats.
2. Color plane registration (CPR) bars	After printing, the box with no extra color in each area on each page shows how far off the CPR of that color is. Each page has two process direction areas and three scan direction areas that are labeled x and y and 1–11. The page should be fed by the long edge. Each square from the center equals 42 microns.
3. Color ramp patches	Used to detect offset for the OPC or developer in the image drum or offset in the fuser.

 **NOTE:** To get further assistance in print quality troubleshooting, go to www.hp.com/support/colorljM552, www.hp.com/support/colorljM553, www.hp.com/support/colorljM577MFP, www.hp.com/support/colorljE55040, www.hp.com/support/colorljE57540MFP and select PQ Troubleshooting Tools.

Print-quality assessment page

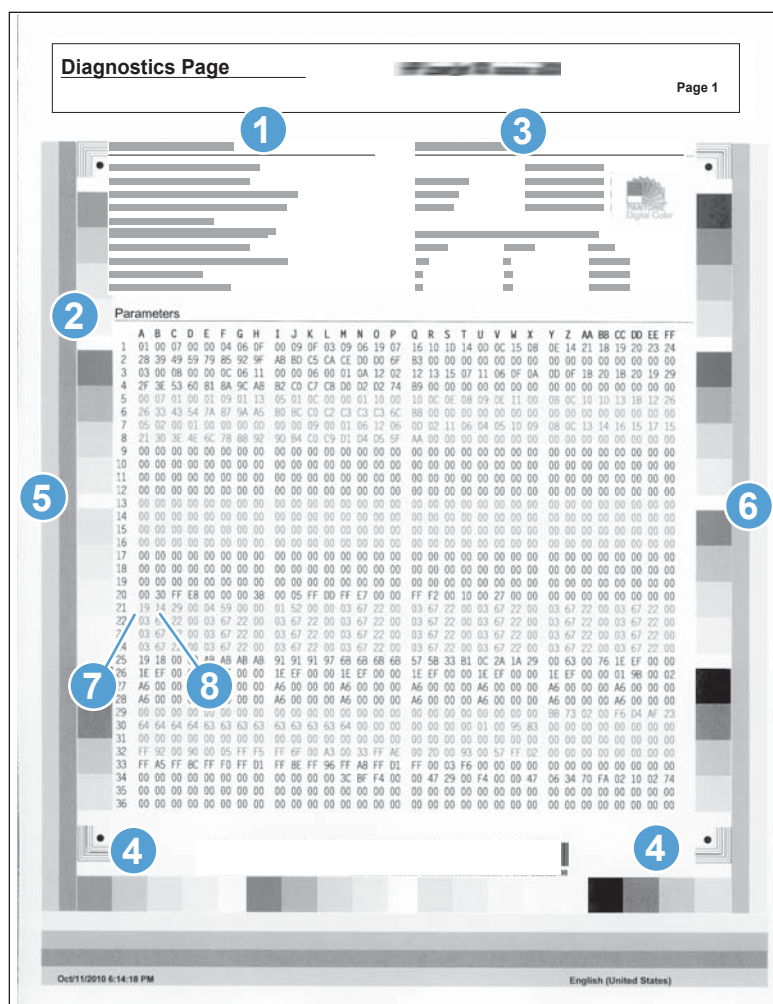
Use the diagnostics page to evaluate problems with color plane registration, EP parameters, and print quality.

Print a print-quality assessment page from a touchscreen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Troubleshooting](#)
 - [Print Quality Pages](#)
 - [Diagnostics Page](#)
3. Touch the [Print](#) button.

Print a print-quality assessment page from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), 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 [Print Quality Pages](#), and then press the [OK](#) button to print the page.
4. Use the down arrow ▼ button to scroll to [Diagnostics Page](#), and then press the [OK](#) button to print the page.



1	Calibration information
2	Parameters
3	Color density
4	Color plane registration
5	Primary colors
6	Secondary colors
7	Temperature values (21A)
8	Humidity values (21B)

Print from a different software program

Try printing from a different software program. If the page prints correctly, the problem is with the original software program.

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 (Windows)

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 (Mac OS X)

1. Click the **File** menu, and then click the **Print** option.
2. In the **Printer** menu, select the printer.
3. By default, the print driver displays the **Copies & Pages** menu. Open the menus drop-down list, and then click the **Finishing** menu.
4. Select a type from the **Media Type** drop-down list.
5. Click the **Print** button.

Check toner-cartridge status

Print the supplies status page from a touchscreen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [Reports](#)
 - [Configuration/Status Pages](#)
3. Touch [Supplies Status Page](#), and then press the [Print](#) button to print the page.

Print the supplies status page from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
2. Open the following menus:

- [Reports](#)
 - [Configuration/Status Pages](#)
3. Use the down arrow ▼ button to scroll to [Supplies Status](#), and then press the [OK](#) button to select it.
 4. Use the up arrow ▲ button to scroll to [Print](#), and then press the [OK](#) button to print the page.

Check the supplies status page for the following information:

- Estimated percentage of cartridge or cartridges life remaining
- Approximate pages remaining
- Part number or numbers for HP toner cartridge or cartridges
- Number of pages printed

Clean the printer

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.

Print a cleaning page

Print the cleaning from a touchscreen control panel


1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the following menus:
 - [Calibration/Cleaning](#)
3. Touch [Cleaning Page](#), and then press the [OK](#) button to print the page.
4. The cleaning process can take several minutes. When it is finished, discard the printed page.

Print the cleaning page from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Device Maintenance](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Calibration/Cleaning](#), and then press the [OK](#) button.
3. If necessary, use the down arrow ▼ button to scroll to [Cleaning](#), and then press the [OK](#) button to print the page.
4. Follow the instruction on the printed cleaning page to finish the cleaning page process.

Visually inspect the toner cartridge or cartridges

1. Remove the toner cartridge or 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 imaging drum on the cartridge.

 **CAUTION:** Do not touch the roller (imaging drum). Fingerprints on the imaging drum can cause print-quality problems.

4. If you see any scratches, fingerprints, or other damage on an imaging drum, replace the toner cartridge or cartridges.
5. If the imaging drum does not appear to be damaged, rock the toner cartridge or cartridges gently several times and reinstall it. Print a few pages to see if the problem has resolved.

Check paper and the printing environment

Step one: Use paper that meets 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.

Calibrate the printer

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

Calibrate the printer from a touchscreen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the following menus:
 - [Calibration/Cleaning](#)

3. Touch [Full Calibrate](#) or [Quick Calibrate](#) to start the calibration process.
4. Wait while the printer calibrates, and then try printing again.

Calibrate the printer from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Device Maintenance](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Calibration/Cleaning](#), and then press the [OK](#) button.
3. If necessary, use the down arrow ▼ button to scroll to [Full Calibrate](#) or [Quick Calibrate](#), and then press the [OK](#) button to start the calibration process.
4. Wait while the printer calibrates, and then try printing again.

Use manual print modes

Try the following manual print modes to see if they solve the image-quality 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.

Select a manual print mode from a touch screen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [General Settings](#)
 - [Print Quality](#)
 - [Adjust Paper Types](#) or [Optimize](#)
3. Select a paper type, and then select the mode to adjust.
4. Select a value for the mode, and then touch the [Save](#) button.

Select a manual print mode from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [General Settings](#), and then press the [OK](#) button.
3. Use the down arrow ▼ button to scroll to [Print Quality](#), and then press the [OK](#) button.
4. Use the down arrow ▼ button to scroll to [Adjust Paper Types](#) or [Optimize](#), and then press the [OK](#) button.

Table 2-50 Print modes under the [Adjust Paper Types](#) submenu

Print Mode	<ul style="list-style-type: none"> • Plain • HP EcoSMART Lite • HP Matte 105g • HP Matte 120g • HP Matte 150g • HP Matte 200g • HP Soft Glossy 120g • HP Soft Glossy 150g • HP Soft Glossy 200g • Light 60-74g • HP Mid-Weight 90-110g • Heavy 111-130g • Extra Heavy 131-175g • Cardstock 176-220g • Mid-Wt Glossy 96-110g • Hvy Glossy 111-130g • XHvyGlossy 131-175g • Card Glossy 176-220g • Color Transparency • Labels • Letter Head • Envelope • Preprinted • Prepunched • Colored • Bond • Recycled • Rough • Opaque Film • Restore Modes
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Table 2-51 Print modes under the **Optimize** submenu

Normal Paper	Set to Smooth when printing on smooth paper of normal weight.
Heavy Paper	Set to Smooth when printing on smooth, heavy media types.
Envelope Control	Set to Reduced Temp if envelopes are sticking due to moisture in the envelop adhesive.
Tray 1	Set the mode to Alternate if marks appear on the back side of the paper when printing from Tray 1. This sets the printer to initiate a clean sequence every time a job finishes when the printer is set for Any Size and Any Type for Tray 1.
Background	Set to Alternate 1 when a background occurs all over the page.
Uniformity Control	Set to Alternate 1 to improve uniformity on any paper type.
Tracking Control	Improves color stability by adjusting the bias voltage. Make sure this mode is set to On .
Registration	Set to Alternate when color misregistration occurs.
Transfer control	Set to Alternate 1 to reduce primary transfer bias and to resolve low density or blotchy images.
Restore Optimize	Use Restore Optimize to reset the menu defaults.

Image defects table

The following examples depict letter-size paper that has passed through the printer short-edge first. These examples illustrate problems that would affect all the printed pages, whether they are printed in color or in black only.

Table 2-52 Image defects table


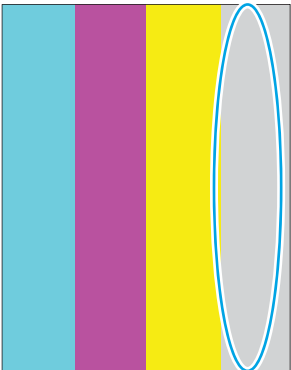

Problem	Sample	Cause	Solution
Print is light or faded on entire page.		<p>Poor contacts exist on the ITB unit and the printer grounding unit.</p> <p>Poor secondary transfer contacts exist on the secondary transfer roller and the ITB.</p>	<p>Clean the grounding contacts. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.</p> <p>Clean the contacts. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.</p>
Print is light or faded in a particular color.		<p>Poor primary transfer bias (T1) contacts on the ITB unit and printer.</p> <p>Poor primary charging bias contacts with the toner cartridge and printer.</p> <p>Poor developing bias contacts with the toner cartridge and printer.</p> <p>Defective registration density sensor.</p>	<p>Clean the contacts of the color that produces the light print. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.</p> <p>Replace the registration density sensor.</p>
Print is too dark.		Defective registration density sensor.	Replace the registration density sensor.

Table 2-52 Image defects table (continued)

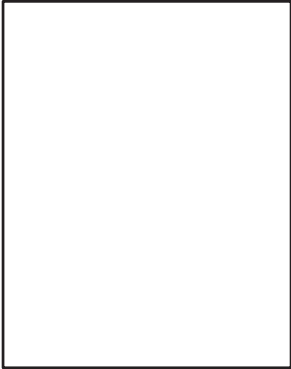

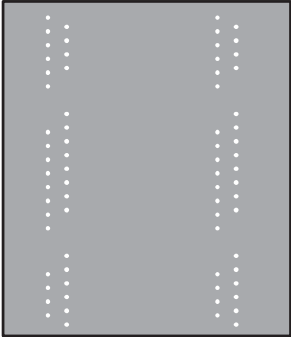
Problem	Sample	Cause	Solution
Page is blank.		The high-voltage power-supply D is defective (no developing bias output).	Replace the high-voltage power supply D.
The page is solid black or a solid color.		Poor contact exists in the primary charging bias or developing bias contacts between the toner cartridge and the printer.	Clean each contact of the color that produces the all black or solid color. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts. Replace the affected toner cartridge.
White spots appear in the image.		<div>The static eliminator is dirty.</div> <div>The primary transfer roller is deformed or has deteriorated</div> <div>The secondary transfer roller is deformed or has deteriorated.</div>	<div>Clean the static eliminator.</div> <div>Replace the ITB.</div> <div>Replace the secondary transfer roller assembly.</div>

Table 2-52 Image defects table (continued)

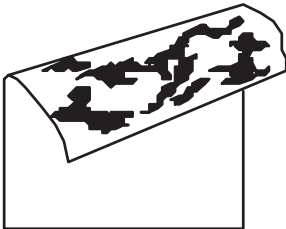
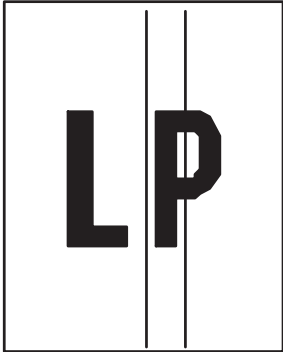
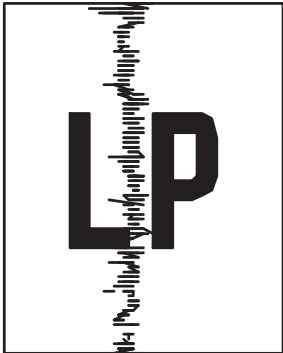
Problem	Sample	Cause	Solution
The back of the page is dirty.		The secondary transfer roller is dirty.	Replace the secondary transfer roller.
		The fuser inlet guide or separation guide is dirty.	Clean the dirty parts. If the dirt does not come off, replace the guide.
		The pressure roller is dirty.	Run the cleaning page several times. If the issue persists, replace the fuser.
Vertical streaks or bands appear on the page.		Scratches are present on the circumference of the developing cylinder or photosensitive drum.	Replace the toner cartridge of the color that matches the defect.
		Scratches are present on the circumference of the fuser roller.	Replace the fuser.
		Scratches are present on the circumference of the ITB.	Replace the ITB.
		The ITB drive roller is deformed or has deteriorated.	
		The ITB cleaning mechanism is malfunctioning.	
Vertical white lines appear in a particular color.		An unknown substance has adhered to the laser beam window.	Remove any unknown substances.
		Scratches are present on the circumference of the developing roller or photosensitive drum.	Replace the affected toner cartridge.
		The laser/scanner-unit mirror is dirty.	Replace the laser/scanner assembly.

Table 2-52 Image defects table (continued)




Problem	Sample	Cause	Solution
Vertical white lines appear in all colors.		Horizontal scratches on the fuser roller.	Replace the fuser.
		Scratches are present on the circumference of the ITB.	Replace the ITB.
Horizontal lines appear on the page.		Repetitive horizontal lines appear.	Use the repetitive defects ruler to identify the dirty roller. Clean the roller. If the roller cannot be cleaned, replace the fuser.
		Horizontal scratches are present on the photosensitive drum.	Replace the toner cartridge of the color that matches the defect.
		Horizontal scratches are present on the fuser roller.	Replace the fuser.
A horizontal white line displays on the page.		Repetitive horizontal white lines appear.	Use the repetitive defects ruler to identify the dirty roller. Clean the roller. If the roller cannot be cleaned, replace the roller.
		Horizontal scratches are present on the photosensitive drum.	Replace the toner cartridge of the color that matches the defect.
		Scratches are present on the circumference of the ITB.	Replace the ITB.

Table 2-52 Image defects table (continued)

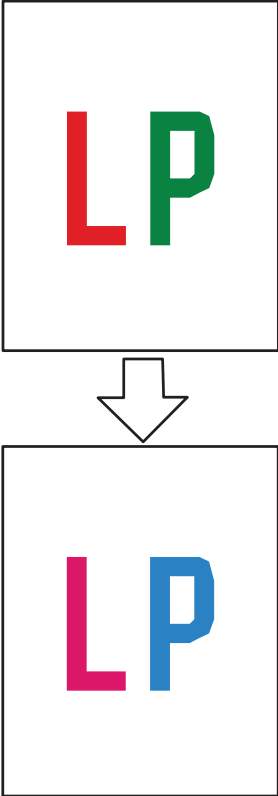

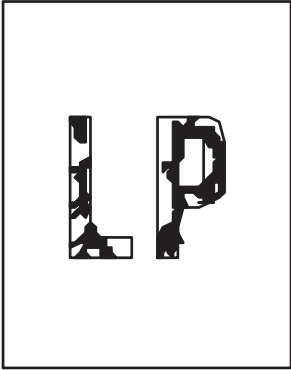
Problem	Sample	Cause	Solution
Image in a particular color does not print in the correct color.		Poor contact exists in the primary charging bias or developing bias contacts between the toner cartridge and the printer.	Clean each contact of the color that produces the missing color. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
		The toner cartridge (primary charging roller, developing roller, or photosensitive drum) is defective.	Replace the toner cartridge of the color that matches the defect.
		The high-voltage power-supply D is defective (no primary charging bias or developing bias output).	Replace the high-voltage power supply D.
		The laser/scanner unit is defective.	Replace the laser/scanner assembly.
Dropouts appear.		The secondary transfer roller is deformed or has deteriorated.	Replace the secondary-transfer-roller.
		The primary charging roller, developing roller, or photosensitive drum is deformed or has deteriorated.	Replace the toner cartridge of the color that matches the defect.
		The fuser roller is deformed or has deteriorated.	Replace the fuser.
		The high-voltage power-supply T is defective (no transfer bias output).	Replace the high-voltage power-supply T.
The toner is not fully fused to the paper.		The fuser roller or pressure roller is scarred or deformed.	Replace the fuser.
		The fuser control circuit is defective.	Replace the fuser-power supply (FPS).
		The thermistor is defective.	Replace the fuser.
		The fuser heater is defective.	

Table 2-52 Image defects table (continued)


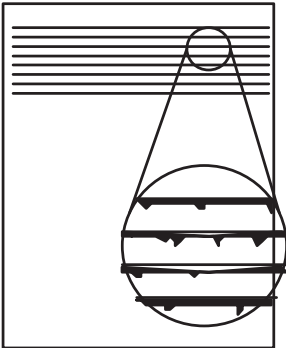
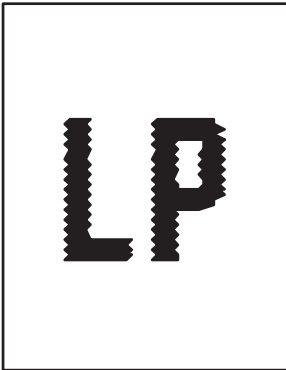
Problem	Sample	Cause	Solution
Some color is misregistered.		The printer is incorrectly calibrated.	Calibrate the printer.
		The ITB unit is defective.	If the ITB does not rotate smoothly or a cleaning malfunction occurs (ITB is dirty), replace the ITB.
		The drive gear of the drum motor (ITB drive motor) is worn or chipped.	Check each drive gear between the ITB drive roller and the ITB motor. If the gear is worn or chipped, replace the main drive assembly.
		The registration density sensor is defective.	Open and close the front door several times to clean the registration density sensor. If the problem persists, replace the registration density sensor.
		The laser/scanner unit is defective.	Replace the laser/scanner assembly.
		The toner cartridge is defective.	Replace the toner cartridge of the affected color.
Toner smears appear on the paper.		The printer has residual paper.	Remove the residual paper.
		The fuser inlet guide is dirty.	Clean the fuser inlet guide.
		Poor grounding contact exists in the toner cartridge.	Replace the toner cartridge of the color that matches the defect.
The printed page contains malformed characters.		The printer is experiencing page skew.	See the “Text or graphics are skewed on the printed page” row in this table.
		The laser/scanner unit is defective.	Replace the laser/scanner assembly.

Table 2-52 Image defects table (continued)


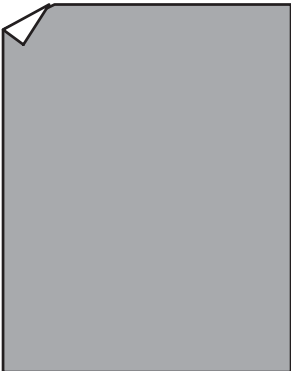
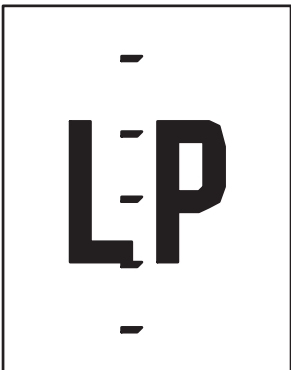
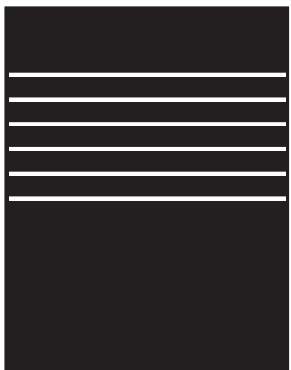

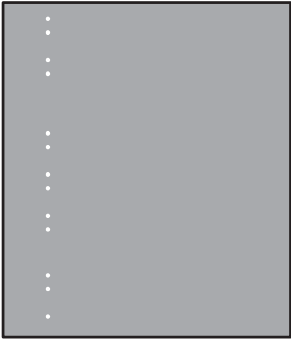
Problem	Sample	Cause	Solution
Text or graphics are skewed on the printed page.		<p>The registration shutter spring is unhooked.</p> <p>The registration shutter spring is deformed.</p>	<p>Check the spring and place it in the correct position.</p> <p>Replace the secondary transfer assembly.</p>
The printed page contains wrinkles or creases.		<p>The roller or paper feed guide is dirty.</p> <p>A feed roller is deformed or has deteriorated.</p> <p>The paper feed guide is damaged.</p>	<p>Clean any dirty components.</p> <p>Replace any deformed or deteriorated rollers.</p> <p>Replace the paper-feed-guide unit.</p>
The front of the page is dirty.		<p>The photosensitive drum is dirty.</p> <p>The fuser roller or pressure roller is dirty.</p>	<p>Replace the toner cartridge of the color that matches the defect.</p> <p>Execute a fuser roller clean mode procedure. If the dirt does not come off, replace the fuser.</p> <p>NOTE: Cleaning the fuser with HP tough paper provides better results than with plain paper. The cleaning process might need to be executed several times to remove all contaminants on the fuser.</p>
Repetitive horizontal lines appear.			See repetitive image defect table. Clean the indicated roller. If the contaminant does not come off, replace appropriate roller or assembly.

Table 2-52 Image defects table (continued)

Problem	Sample	Cause	Solution
Vertical density variations appear in a particular color.		The surface of the photosensitive drum has deteriorated.	Replace the toner cartridge associated with the defect.
		The laser/scanner is defective.	Replace the laser/scanner assembly
Repetitive white spots appear in the image.		Repetitive white spots appear in the image.	See the repetitive image defect table. Clean the indicated roller. If the contaminant does not come off, replace appropriate roller or assembly.
		The secondary transfer roller is deformed or has deteriorated.	Replace the secondary transfer roller assembly.
		An unknown substance has adhered to the primary charging roller or photosensitive drum.	Replace the toner cartridge associated with the defect.
		The ITB is dirty.	Print approximately 20 pages with a solid colored image.
		The ITB is damaged.	Replace the ITB.

Clean the printer



NOTE: To clean the printer exterior, use a soft, water-moistened cloth.

- [Clean the paper path](#)
- [Print a cleaning page](#)
- [Clean the Tray 1 rollers](#)
- [Clean the Tray 2-X rollers](#)
- [Check the scanner glass for dirt and smudges \(M577 only\)](#)
- [Clean the pickup rollers and separation pad in the document feeder \(M577 only\)](#)

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 the 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

Print the cleaning from a touchscreen control panel

1. From the [Home](#) screen on the printer control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the following menus:
 - [Calibration/Cleaning](#)
3. Touch [Cleaning Page](#), and then press the [OK](#) button to print the page.
4. The cleaning process can take several minutes. When it is finished, discard the printed page.

Print the cleaning page from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Device Maintenance](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Calibration/Cleaning](#), and then press the [OK](#) button.
3. If necessary, use the down arrow ▼ button to scroll to [Cleaning](#), and then press the [OK](#) button to print the page.
4. Follow the instruction on the printed cleaning page to finish the cleaning page process.

Clean the Tray 1 rollers

Step 1: Remove the Tray 1 pickup roller

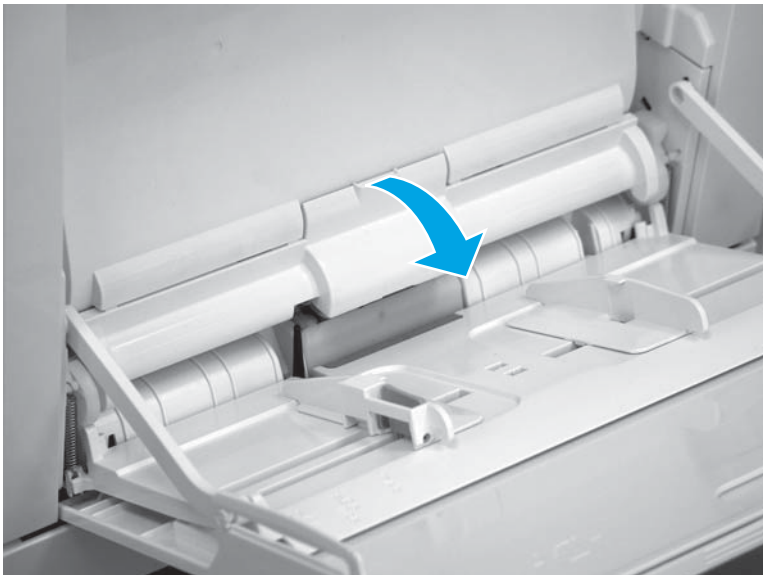
1. Open Tray 1.

Figure 2-82 Open Tray 1



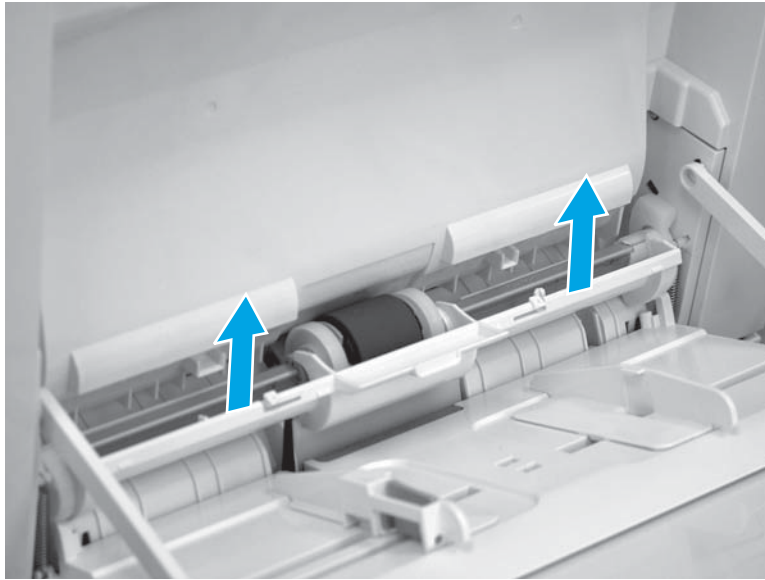
2. Pull on the center of the cover to open it.

Figure 2-83 Open the roller cover



3. Pull the cover straight off of the printer to remove it.

Figure 2-84 Remove the cover



4. Release two tabs (callout 1) between the roller collar and roller, and then rotate the top of the roller (callout 2) out and away from the printer.


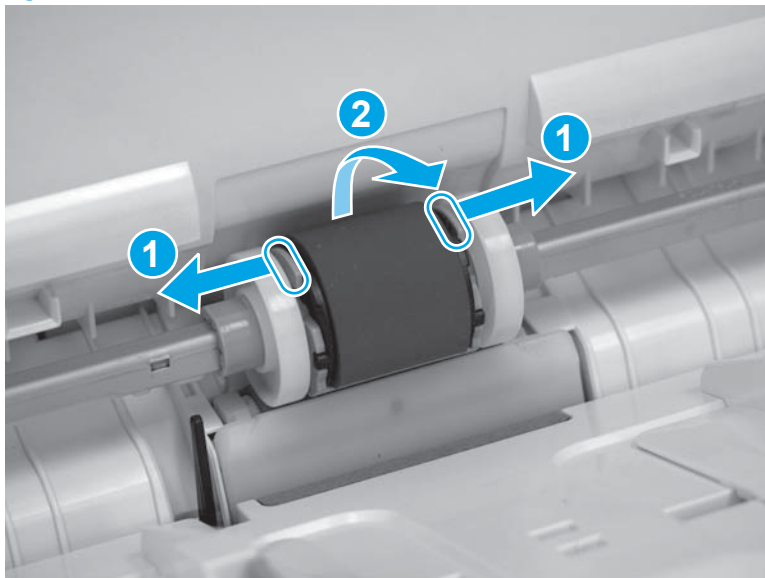
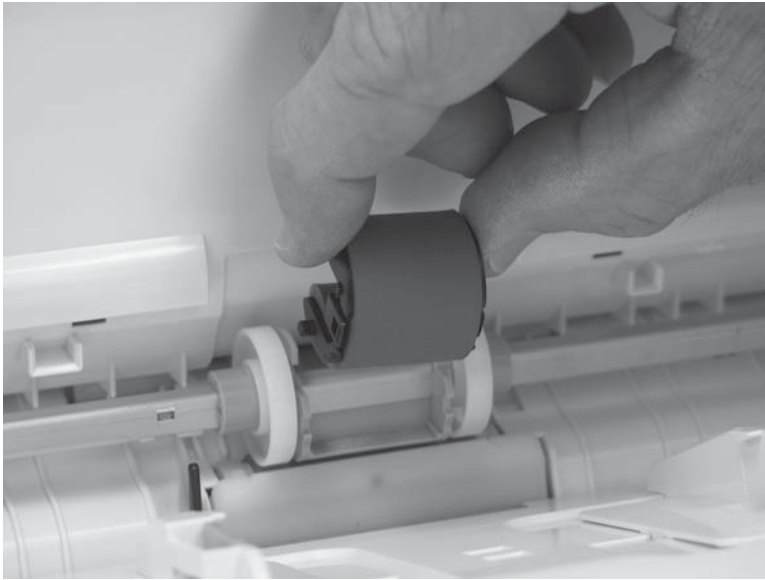
 **TIP:** Pushing down on the top of the roller might make it easier to release the tabs.

Figure 2-85 Release two tabs



5. Remove the roller.

Figure 2-86 Remove the roller

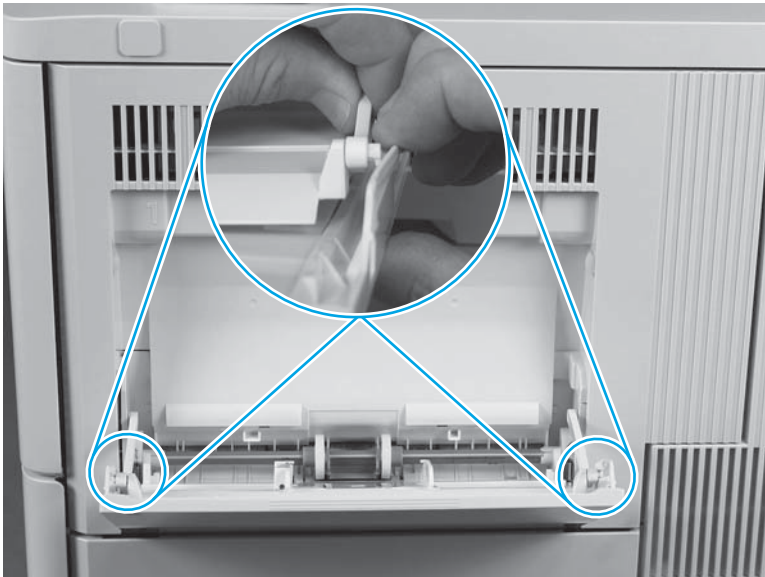


Step 2: Remove the Tray 1 separation roller

1. Carefully flex the right- and left-side tray retainers to release them.

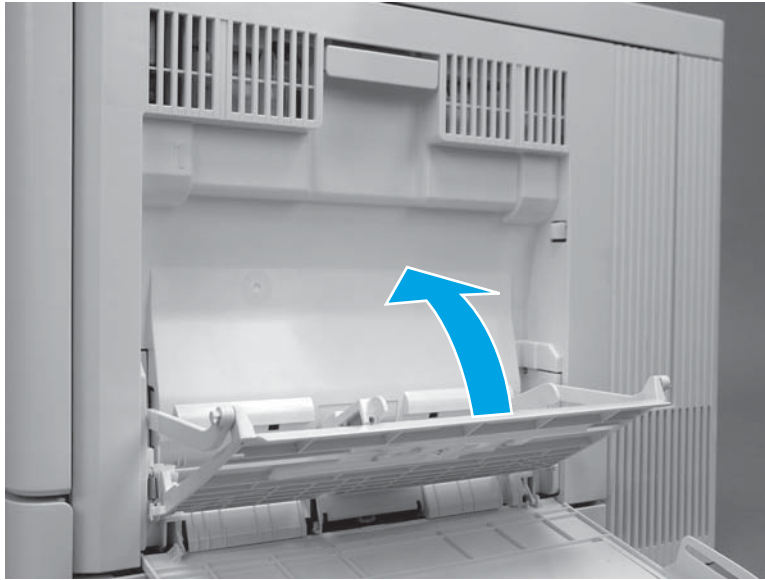
 **TIP:** Raise the tray to the halfway closed position to make it is easier to release the retainers.

Figure 2-87 Release the tray retainers



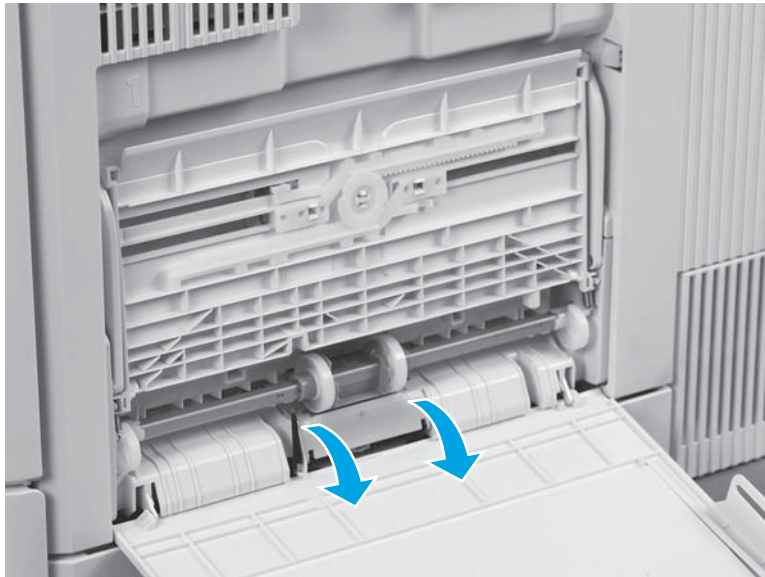
2. Carefully raise Tray 1 up into the printer.

Figure 2-88 Raise Tray 1 up



3. Firmly grasp the corners of the separation roller cover, and then rotate it down and away from the printer to remove it.

Figure 2-89 Open the roller cover



4. Release one tab (callout 1), and then rotate the end of the roller out and away from the holder (callout 2).


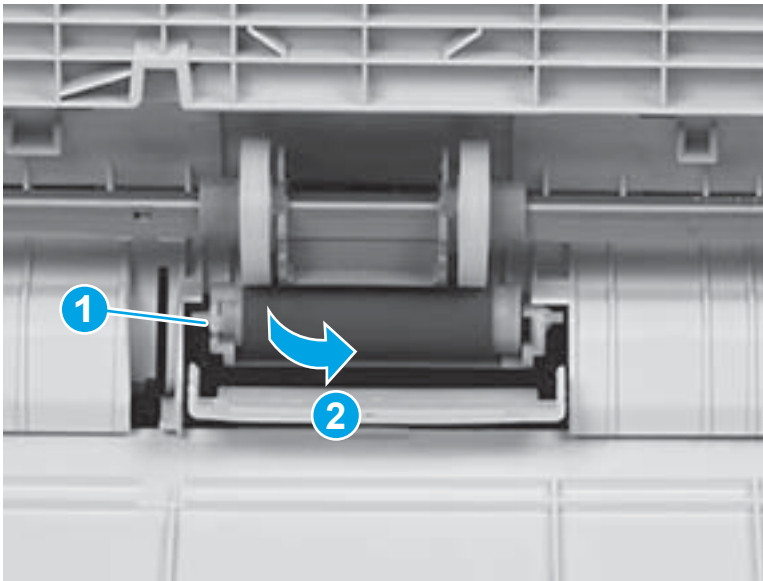
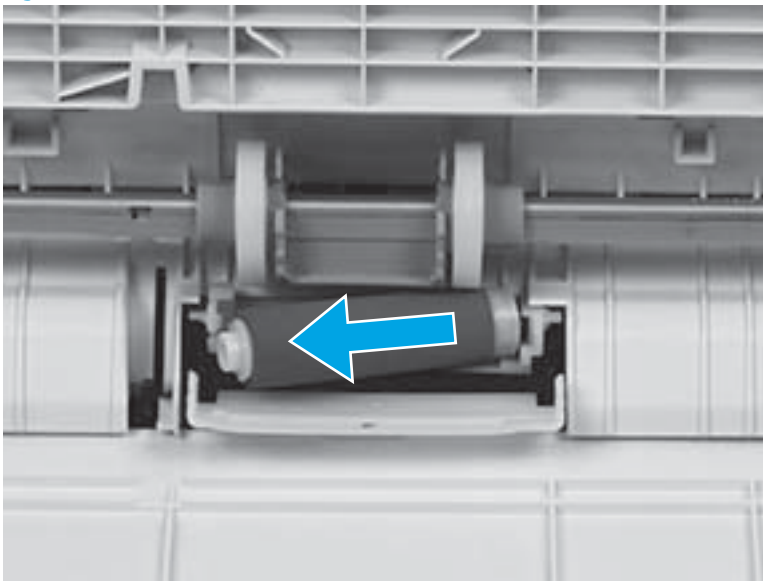
 **TIP:** It might be necessary to use a small flat-blade screwdriver to complete this step.

Figure 2-90 Release one tab



5. Slide the roller out of the holder to remove it.

Figure 2-91 Remove the roller

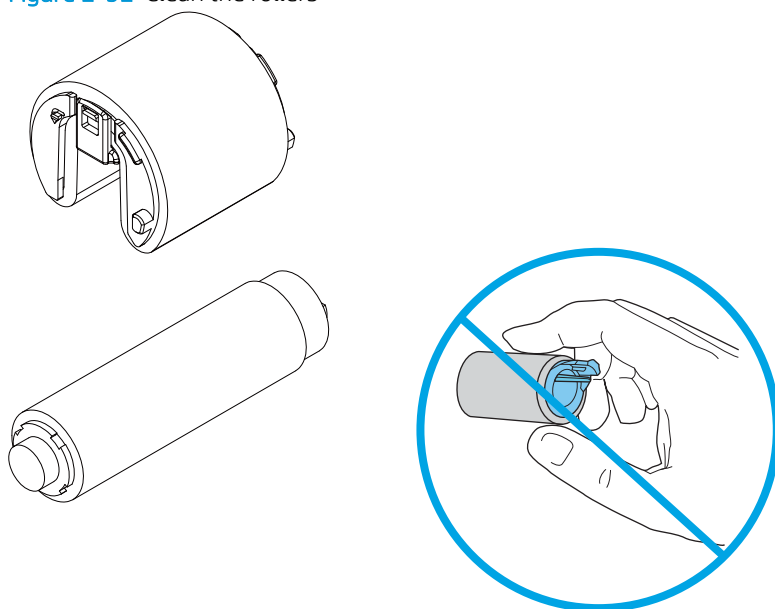


Step 3: Clean the Tray 1 rollers

- ▲ Use a damp, lint-free cloth to gently clean the rollers.

 **CAUTION:** When handling the rollers, avoid touching the roller surfaces. Skin oils and fingerprints on a roller surface can cause print-quality problems.

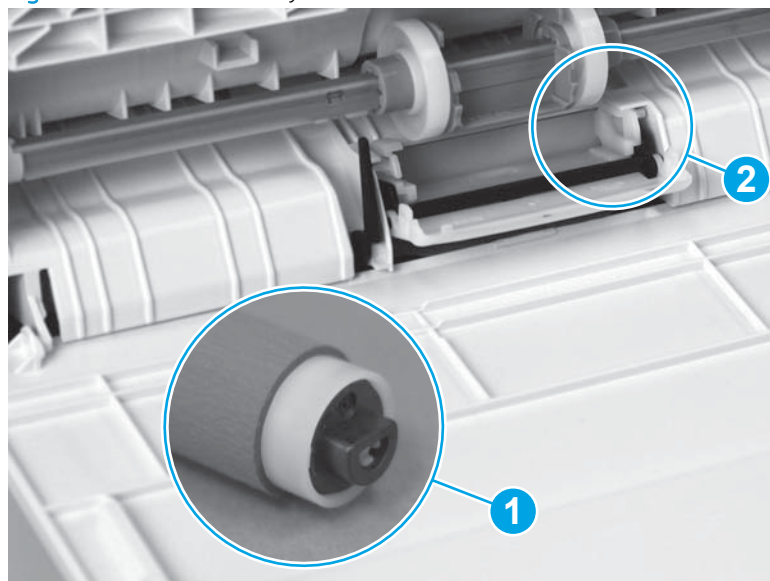
Figure 2-92 Clean the rollers



Step 4: Install the Tray 1 separation roller

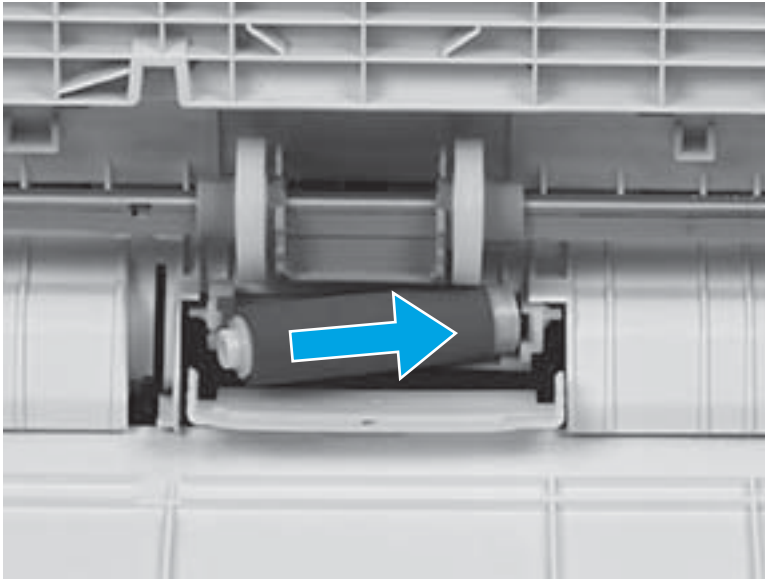
1. Before beginning, locate the keyed end of the replacement separation roller (callout 1) and the holder (callout 2).

Figure 2-93 Locate the keyed end of the roller and the holder



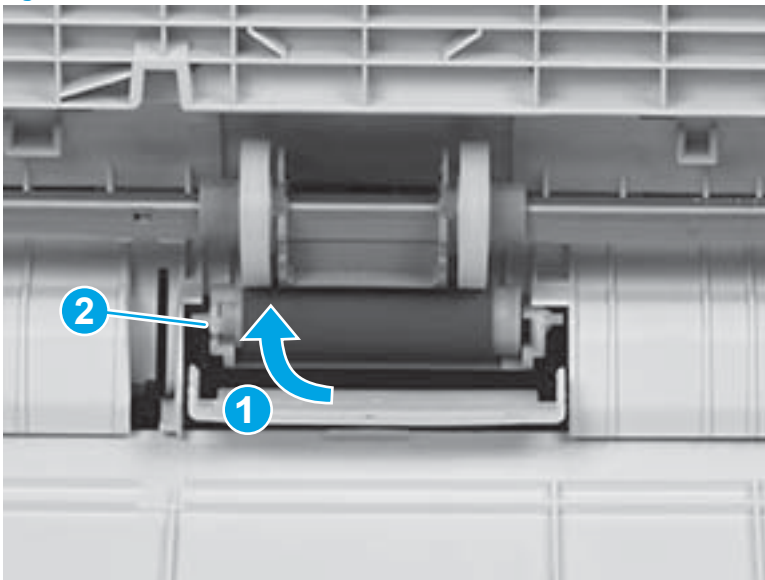
2. Slide the keyed end of the roller into the holder to install it.

Figure 2-94 Install the roller



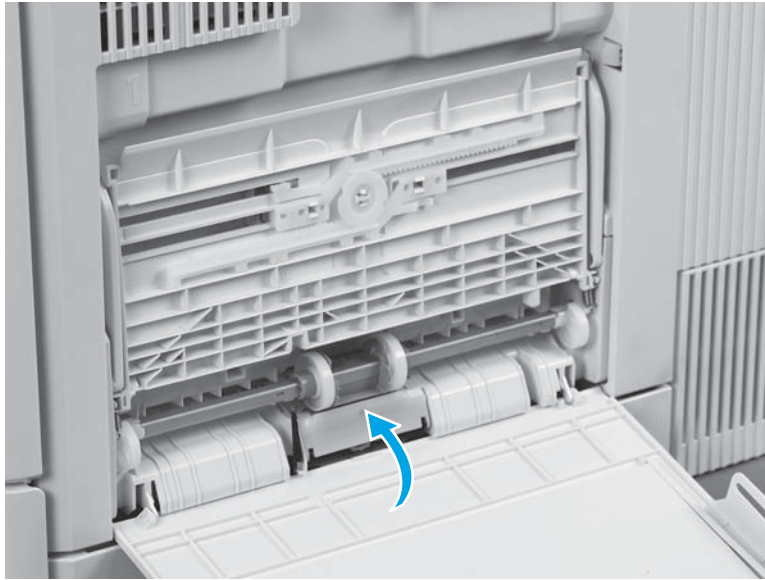
3. Rotate the end of the roller into the holder (callout 1) until the tab (callout 2) snaps into place.

Figure 2-95 Rotate the end of the roller into the holder



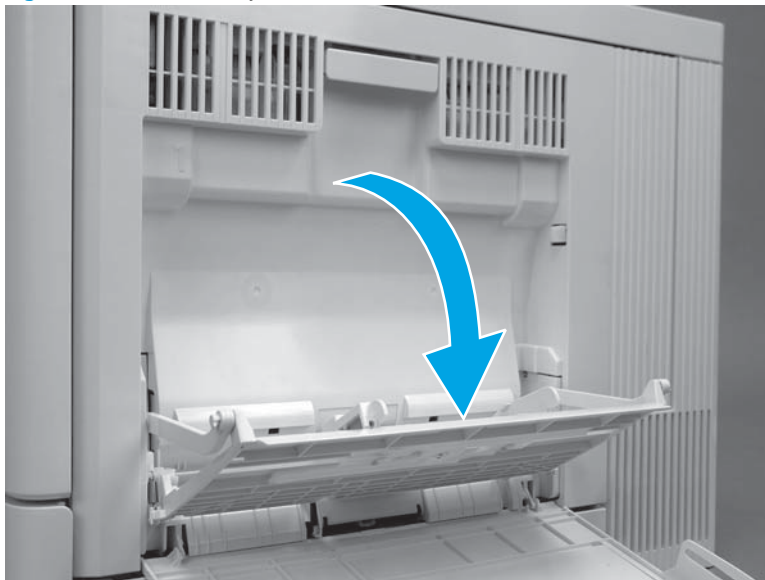
4. Position the separation roller cover on the printer, and then rotate it up and towards the printer to install it.

Figure 2-96 Close the roller cover



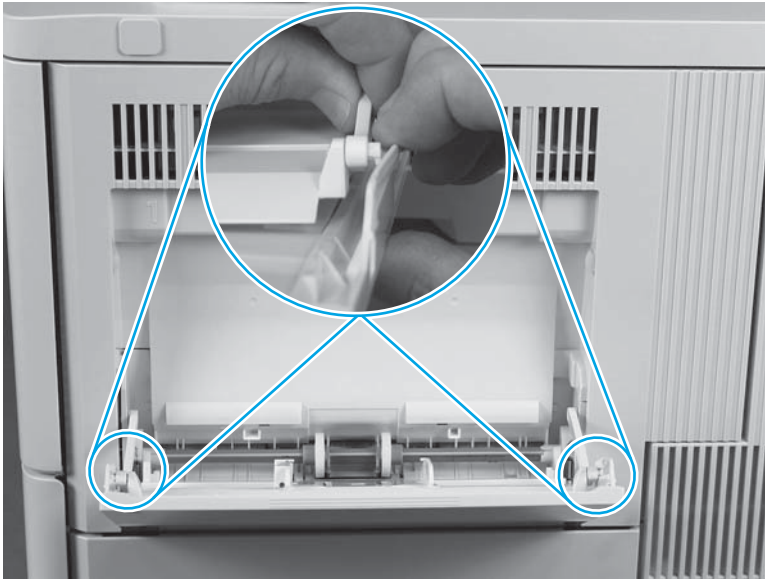
5. Carefully lower Tray 1 down.

Figure 2-97 Lower Tray 1 down



6. Carefully flex the right- and left-side tray retainers to reconnect them.

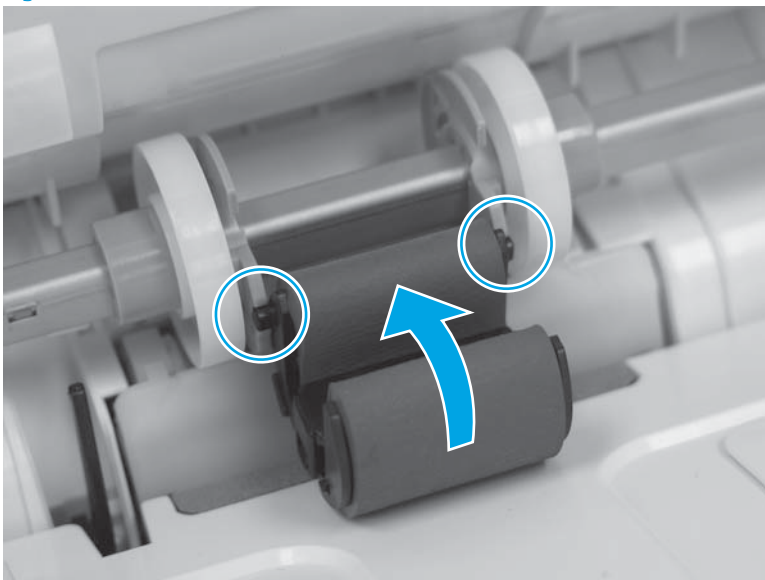
Figure 2-98 Reconnect the tray retainers



Step 5: Install the Tray 1 pickup roller

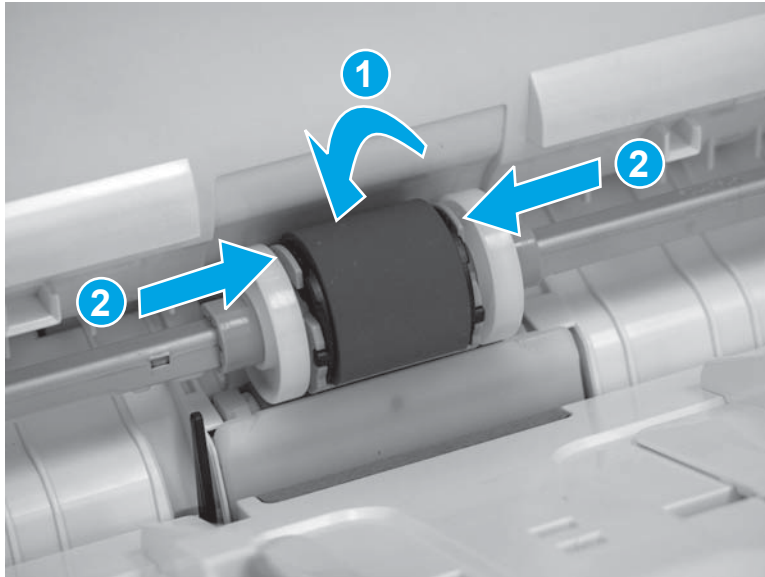
1. Position the replacement pickup roller with the pins in the provided slots on the holder, and then rotate the top of the roller up and toward the printer.

Figure 2-99 Install the roller



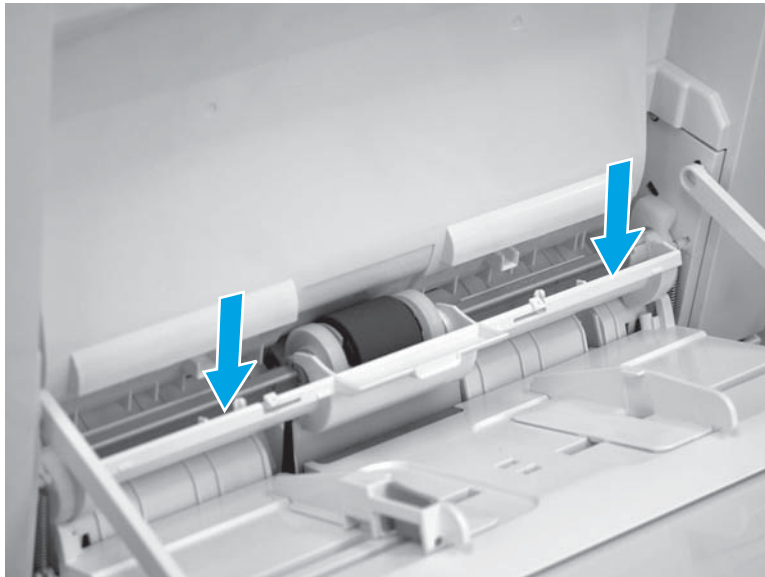
2. Continue to rotate the top of the roller toward the printer (callout 1), until two tabs (callout 2) snap into place.

Figure 2-100 Reconnect two tabs



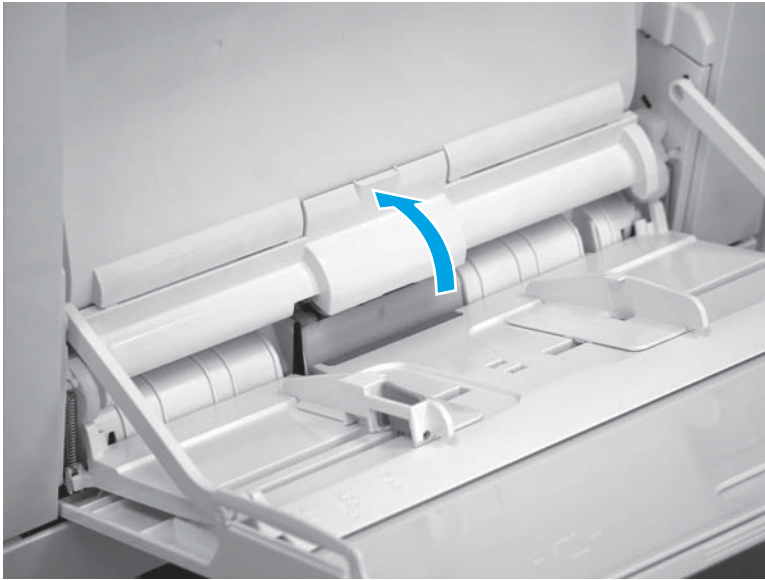
3. Install the roller cover.

Figure 2-101 Install the roller cover



4. Close the roller cover.

Figure 2-102 Close the roller cover




5. Close Tray 1.

Figure 2-103 Close Tray 1



Clean the Tray 2-X rollers

Step 1: Remove the Tray 2-X paper pickup roller assembly

 **NOTE:** The procedure in this section shows Tray 2 in the figures. However, this procedure is also correct for Tray 3, Tray 4, or Tray 5.

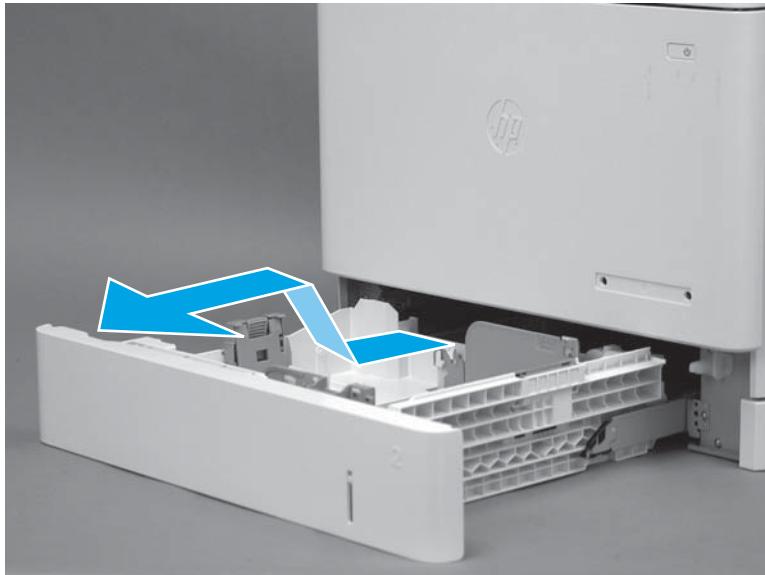
1. Pull the tray out until it stops.

Figure 2-104 Pull the tray out



2. Lift the front of the tray, and then pull it out of the printer to remove it.

Figure 2-105 Remove the tray



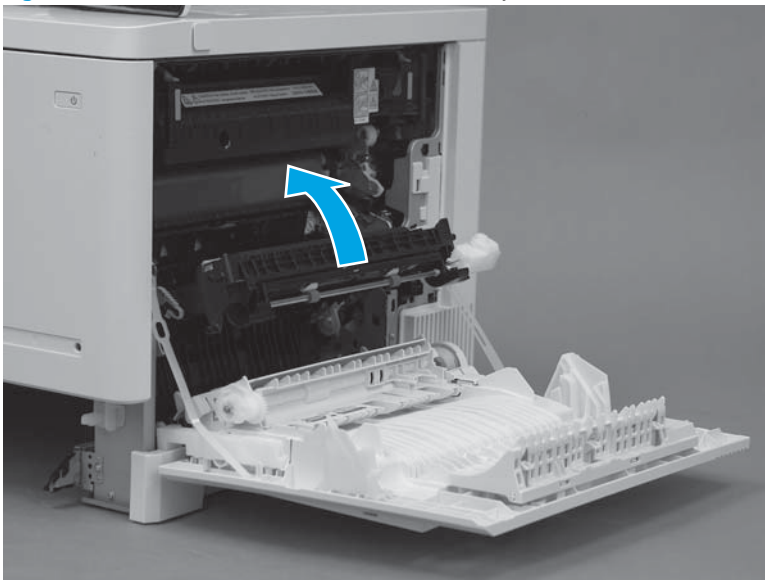
3. Open the right door.

Figure 2-106 Open the right door



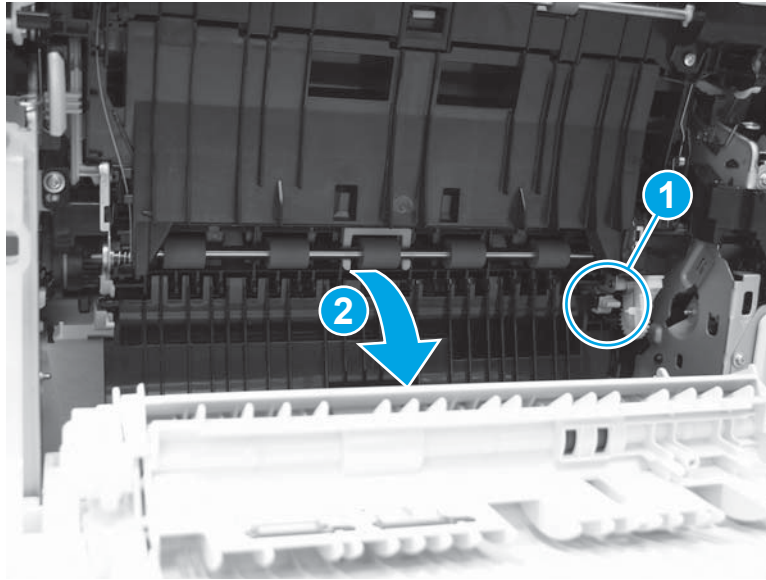
4. Carefully raise the transfer roller assembly up and into the printer.

Figure 2-107 Raise the transfer roller assembly



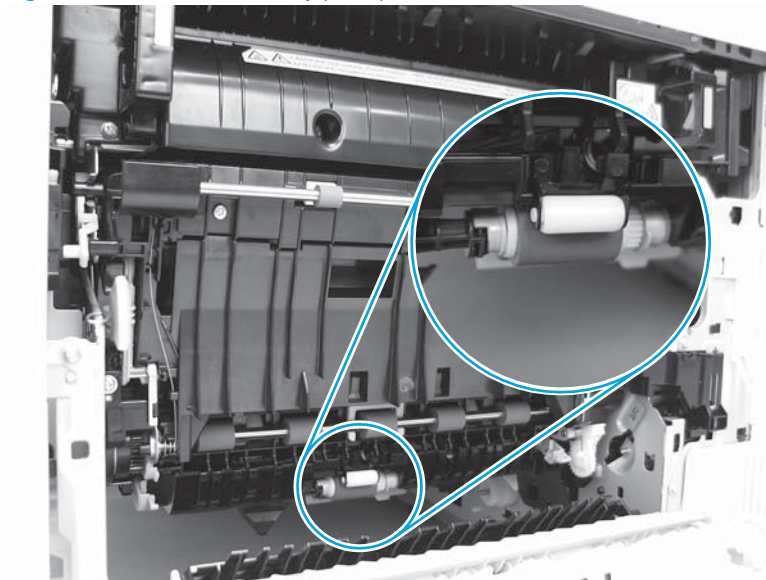
5. Release the green handle (callout 1), and then lower the paper guide (callout 2).

Figure 2-108 Lower the paper guide



6. Locate the tray pickup roller assembly.

Figure 2-109 Locate the tray pickup roller



7. Slide the assembly to the left to compress the spring loaded shaft (callout 1), and then rotate the right end of the assembly down and away from the printer (callout 2).


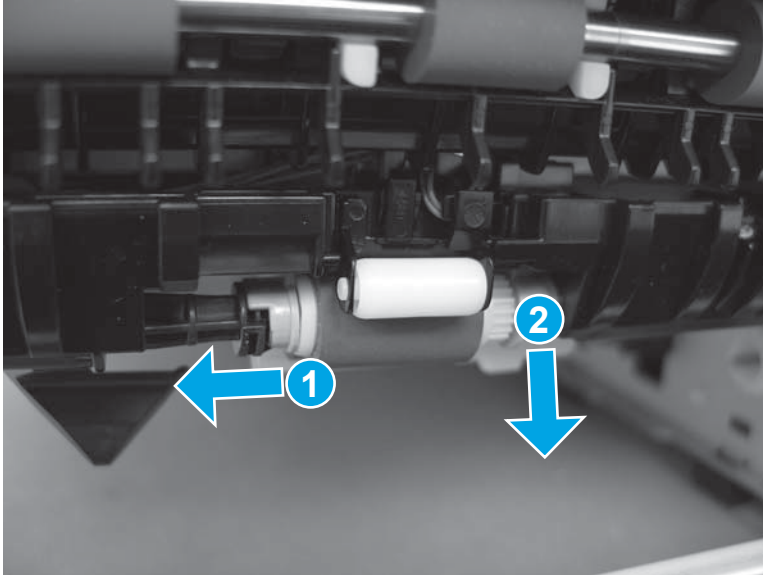
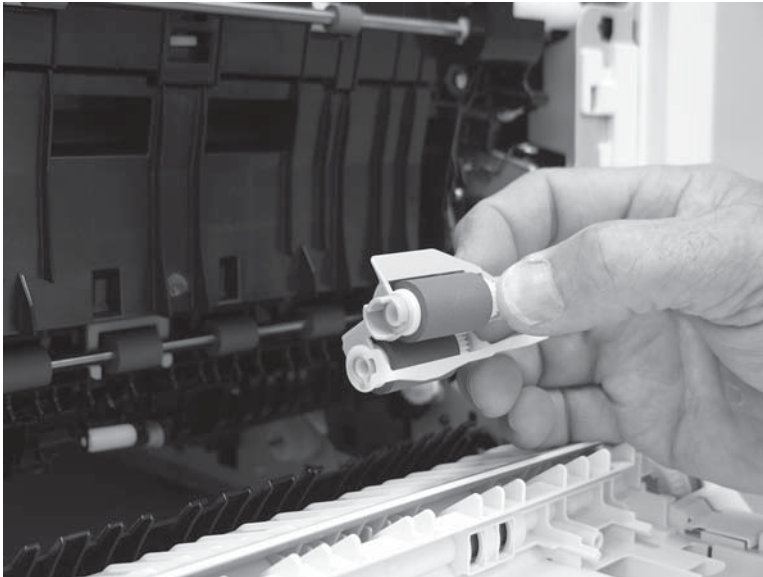
 **TIP:** It might be easier to access the roller through the tray cavity, while viewing it through the right door opening.

Figure 2-110 Slide the assembly to the left



8. Remove the roller assembly.

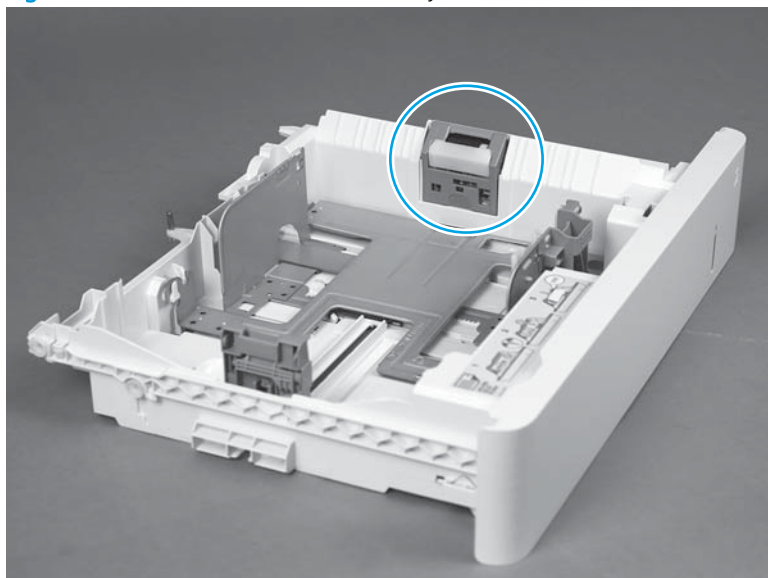
Figure 2-111 Remove the roller assembly



Step 2: Remove the Tray 2-X separation roller

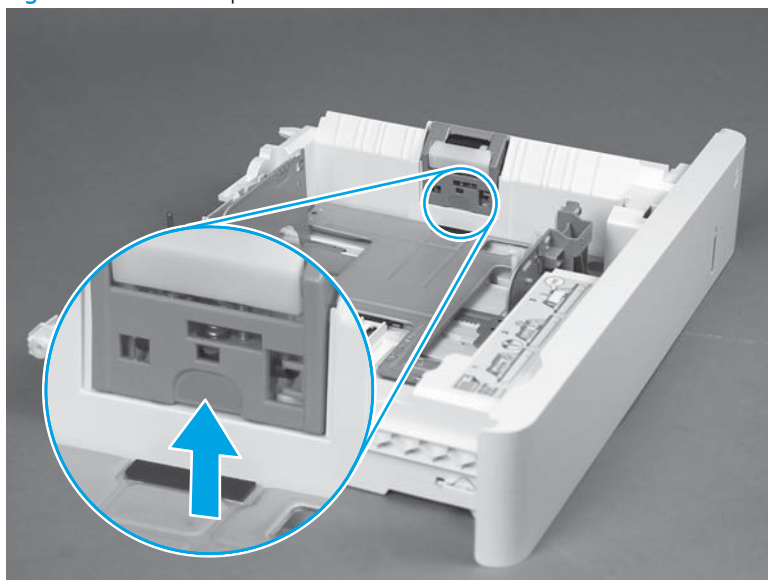
1. Locate the tray separation roller.

Figure 2-112 Locate the roller assembly



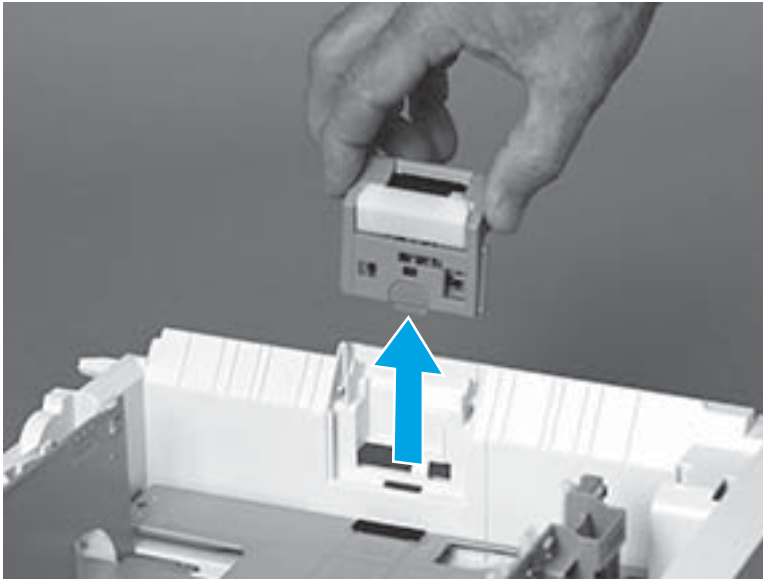
2. Push up on the blue label to release the roller assembly.

Figure 2-113 Push up on the blue label



3. Slide the roller assembly straight up to remove it.

Figure 2-114 Remove the roller assembly



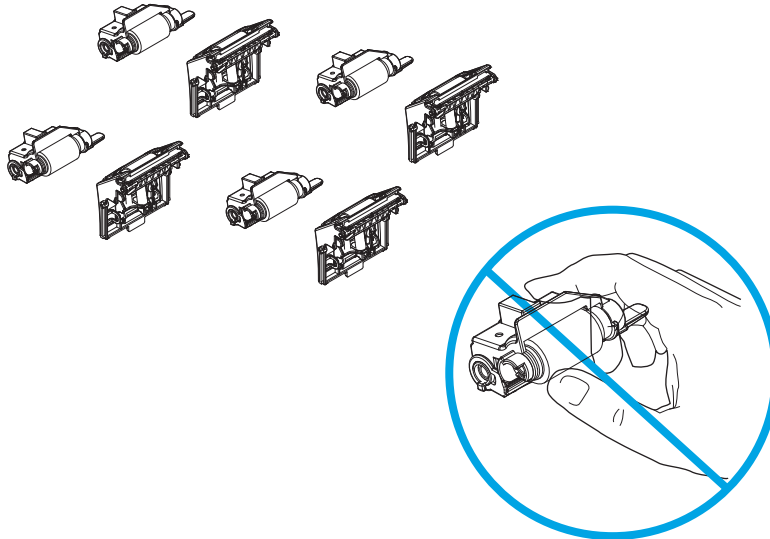
Step 3: Clean the Tray 2-X rollers

- ▲ Use a damp, lint-free cloth to gently clean the rollers.

CAUTION: When handling the rollers, avoid touching the roller surfaces. Skin oils and fingerprints on a roller surface can cause print-quality problems.

NOTE: The number of rollers depends on the number input accessories installed.

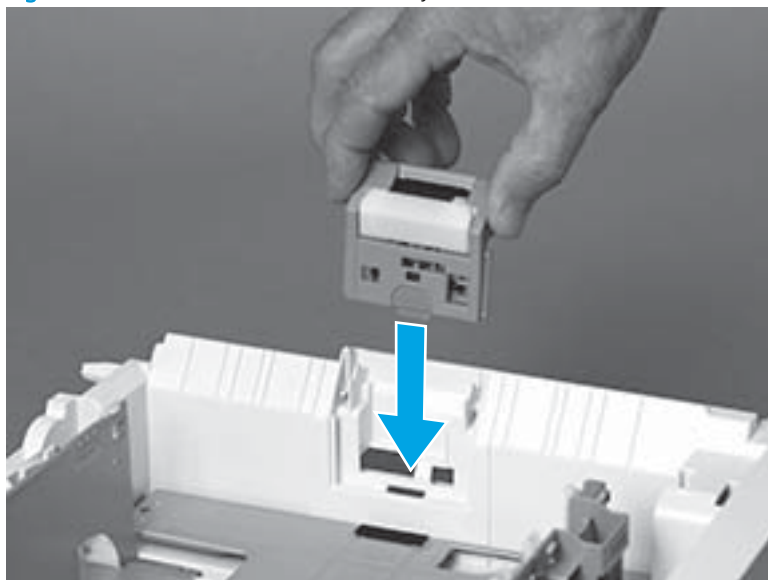
Figure 2-115 Clean the rollers



Step 4: Install the Tray 2-X separation roller

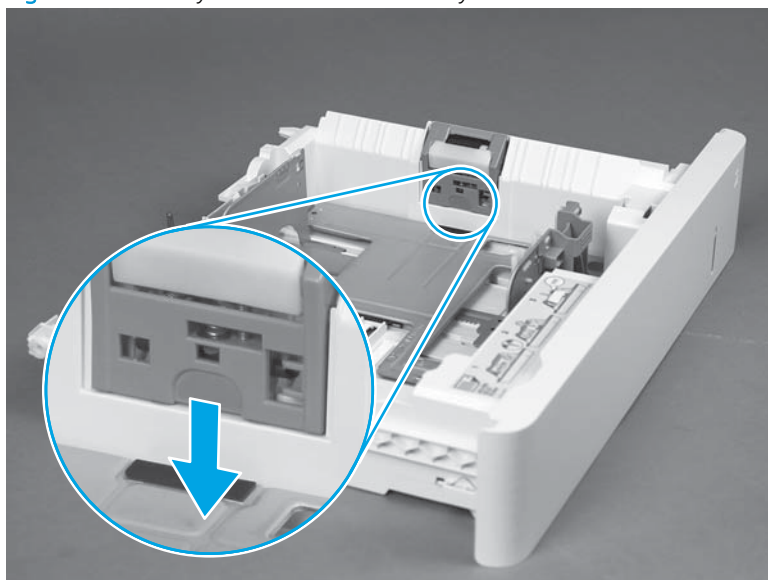
1. Slide the roller assembly straight into the tray to install it.

Figure 2-116 Install the roller assembly



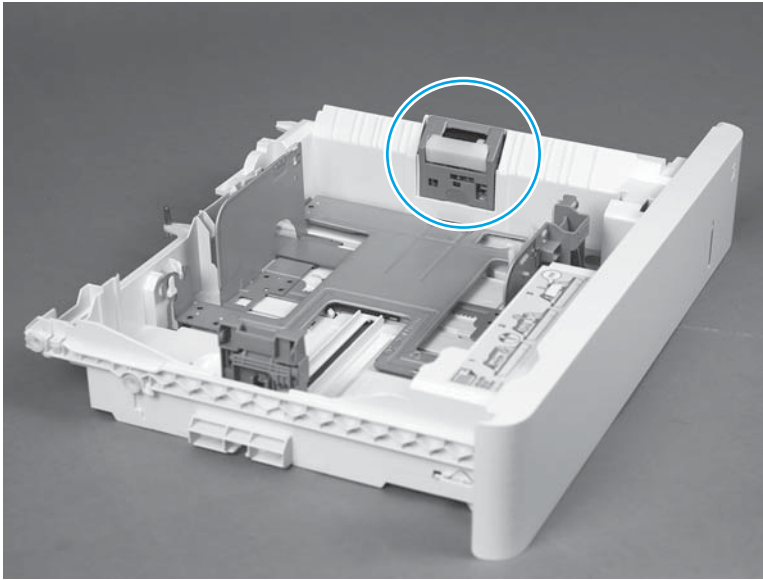
2. Make sure that the roller assembly is fully seated.

Figure 2-117 Fully seat the roller assembly



3. Verify that the roller assembly is correctly installed—it should be firmly attached to the tray.

Figure 2-118 Check the installation

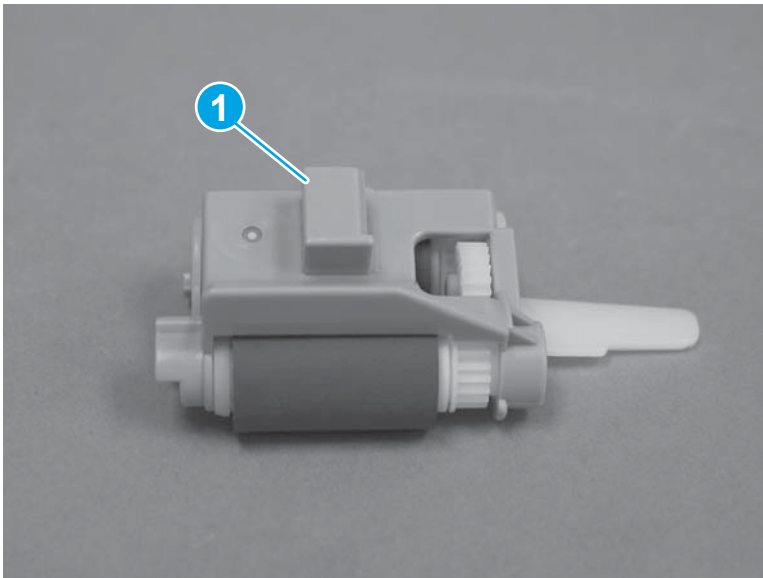


Step 5: Install the Tray 2-X paper pickup roller assembly

1. Before proceeding, take note of the mounting tab (callout 1) on the replacement roller assembly.

 **IMPORTANT:** When correctly installed, a black-plastic protrusion in the printer fits into this tab to hold the roller in the upright position.

Figure 2-119 Note of the mounting tab



2. Position the roller assembly in the printer with the spring loaded shaft compressed.


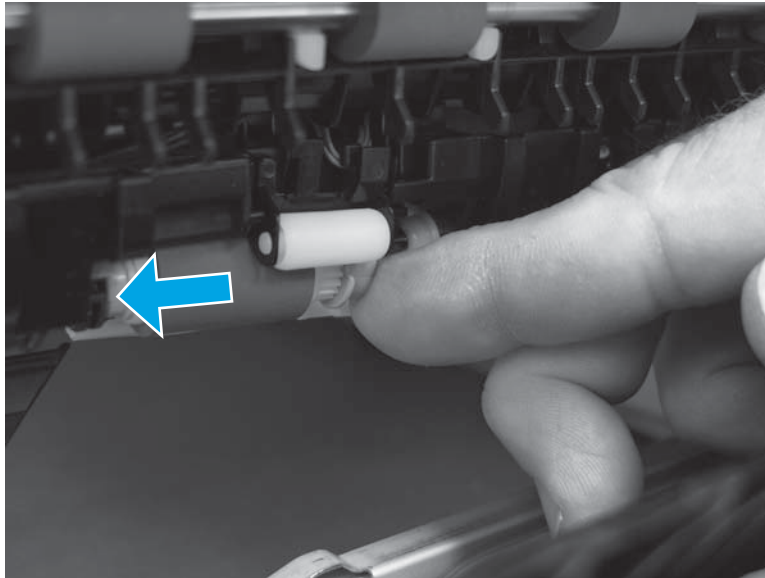
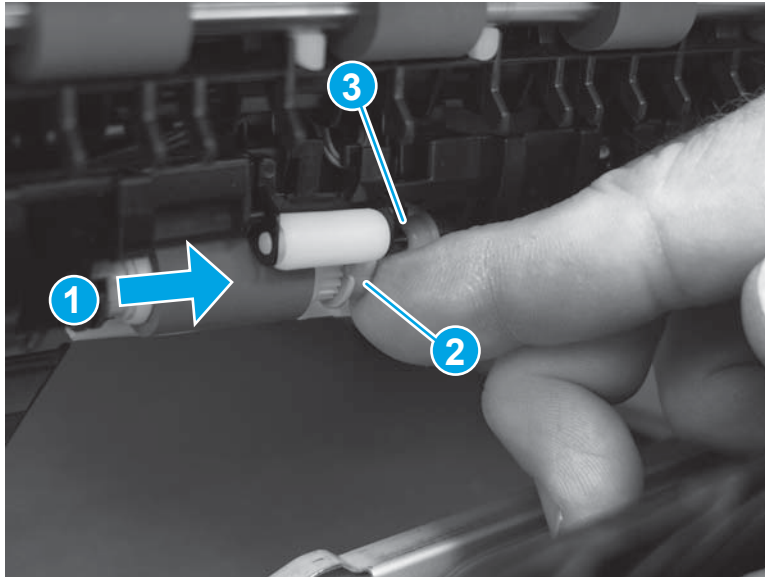
 **TIP:** It might be easier to access the roller through the tray cavity, while viewing it through the right door opening.

Figure 2-120 Position the roller assembly in the printer



3. Carefully release the spring loaded shaft (callout 1) with the roller in place. The collar (callout 2) on the assembly fits over the bushing (callout 3) in the printer.

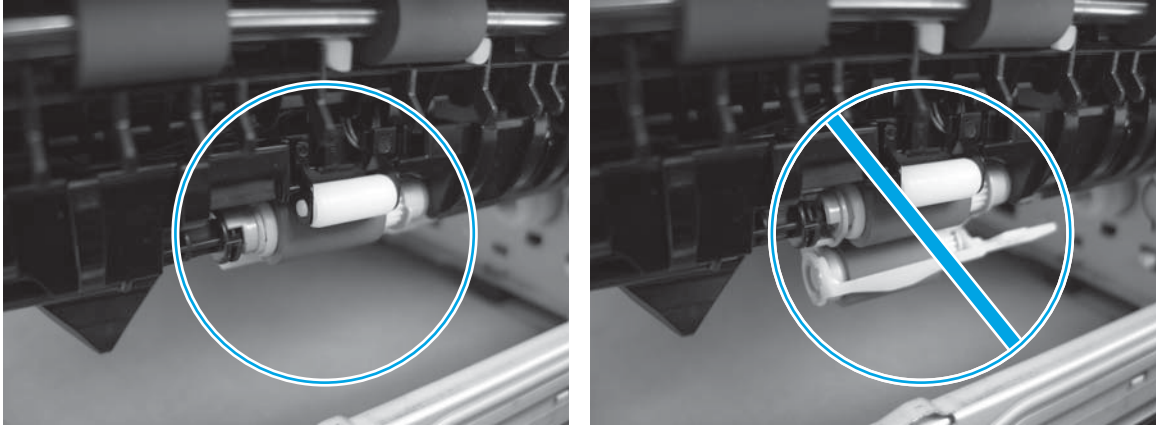
Figure 2-121 Release the spring loaded shaft



4. Make sure that the roller assembly is correctly installed. It must not hang down into the tray cavity. If the roller hangs down into the tray cavity, remove it, and then reinstall it.

CAUTION: If the roller assembly is not correctly installed, it will be damaged when the tray is installed.

Figure 2-122 Verify the roller installation



5. Close the right door.

With the front of the tray slightly lifted, align the sides of the tray with the rails in the printer, and then carefully slide the tray into the printer.

TIP: As the tray slides into the printer, lower the front of it.

Figure 2-123 Install the tray



6. Close the tray.

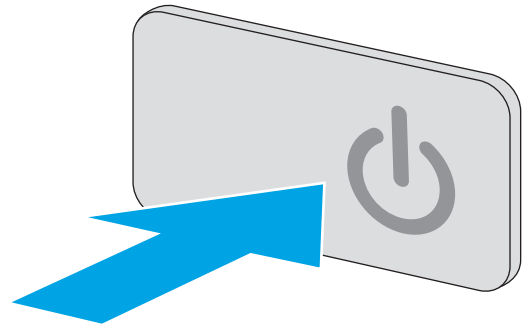
Figure 2-124 Close the tray



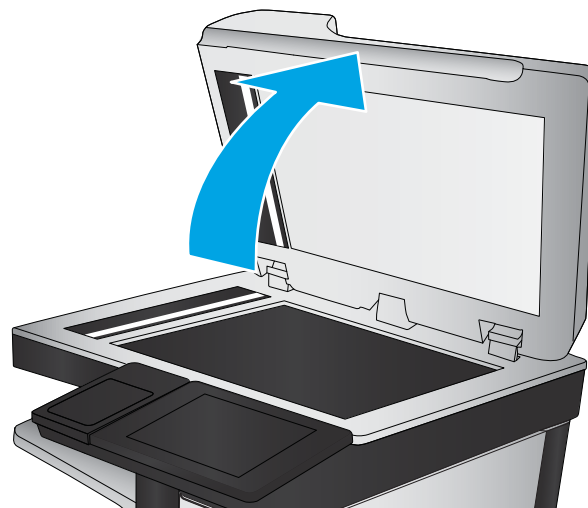
Check the scanner glass for dirt and smudges (M577 only)

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.



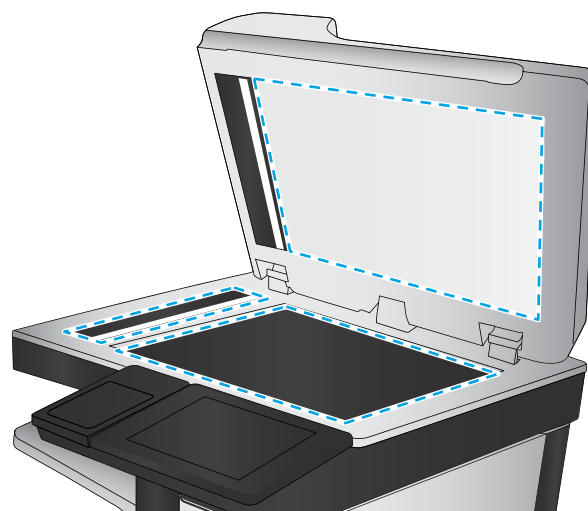
2. Open the scanner lid.



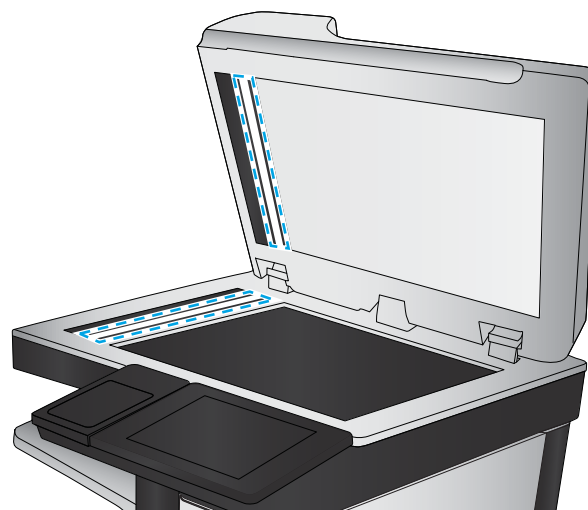
3. Clean the scanner glass, the document feeder strips, and the white plastic backing with a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.

CAUTION: Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the printer; as 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 strip of glass on the left side of the scanner.



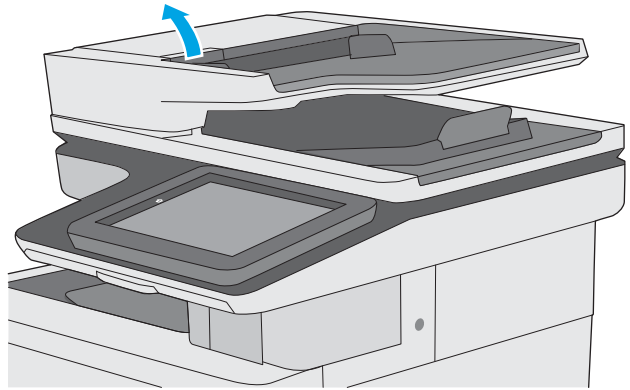
4. Clean the two thin white strips on the left side of both the scanner and the document feeder with a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.



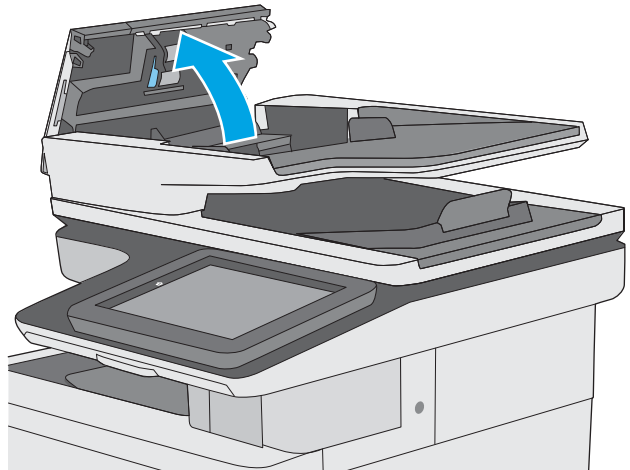
5. Dry the glass and white plastic parts with a chamois or a cellulose sponge to prevent spotting.
6. Connect the power cable to an outlet, and then press the power button to turn the printer on.

Clean the pickup rollers and separation pad in the document feeder (M577 only)

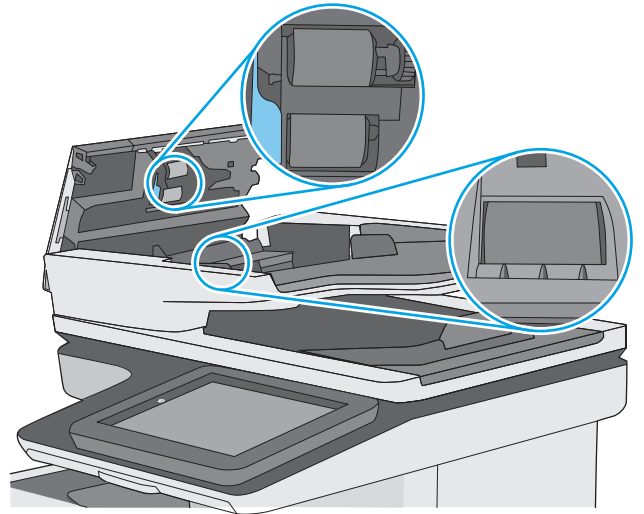
1. Lift the document-feeder latch.



2. Open the document-feeder cover.



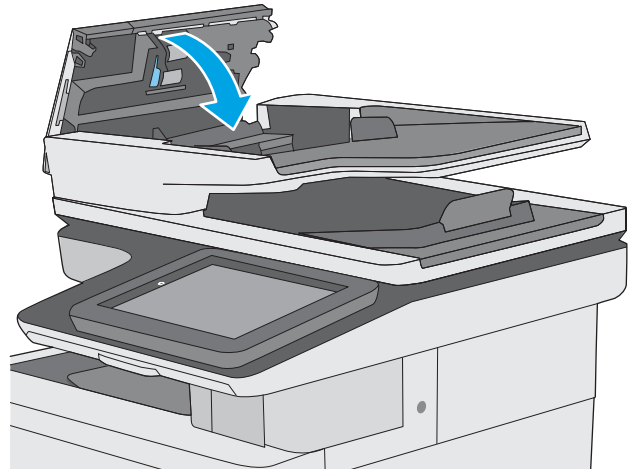
3. Remove any visible lint or dust from each of the feed rollers and the separation pad using compressed air or a clean lint-free cloth moistened with warm water.



4. Close the document-feeder cover.

NOTE: Verify that the latch on the top of the document-feeder cover is completely closed.

If the error persists, install a document feeder maintenance kit (B5L52-67903).



Solve paper handling problems

- [Printer feeds incorrect page size](#)
- [Printer pulls from incorrect tray](#)
- [Printer will not duplex or duplexes incorrectly](#)
- [Paper does not feed from Tray 2-X](#)
- [Output is curled or wrinkled](#)
- [Printer does not pick up paper or misfeeds](#)
- [Clear paper jams](#)

Printer feeds incorrect page size

Table 2-53 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

Table 2-54 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

Table 2-55 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.

Table 2-55 Printer will not duplex (print 2-sided jobs) or duplexes incorrectly (continued)

Cause	Solution
The printer driver is not set up for duplex printing.	Set up the printer driver to enable duplex printing.
The first page is printing on the back of preprinted forms or letterhead.	Load preprinted forms and letterhead in Tray 1 with the letterhead or printed side down, with the top of the page 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

Table 2-56 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

Table 2-57 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.
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 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.

Table 2-57 Output is curled or wrinkled (continued)


Cause	Solution
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.
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 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 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.

HP recommends printing labels from Tray 2 only.

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

Table 2-58 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.

Clear paper jams

- [Paper path jam sensor locations](#)
- [Auto-navigation for clearing jams](#)
- [Experiencing frequent or recurring paper jams?](#)
- [Clear paper jams in the document feeder](#)
- [Clear paper jams in Tray 1](#)
- [Clear paper jams in Tray 2](#)
- [Clear paper jams in the optional 550-sheet trays](#)
- [Clear paper jams in the right door and the fuser area](#)
- [Clear paper jams in the output bin](#)

- [Change jam recovery](#)

Paper path jam sensor locations

 **NOTE:** Use the figures below to identify the locations of sensors where reoccurring jams are found.

Figure 2-125 Printer base jam sensors

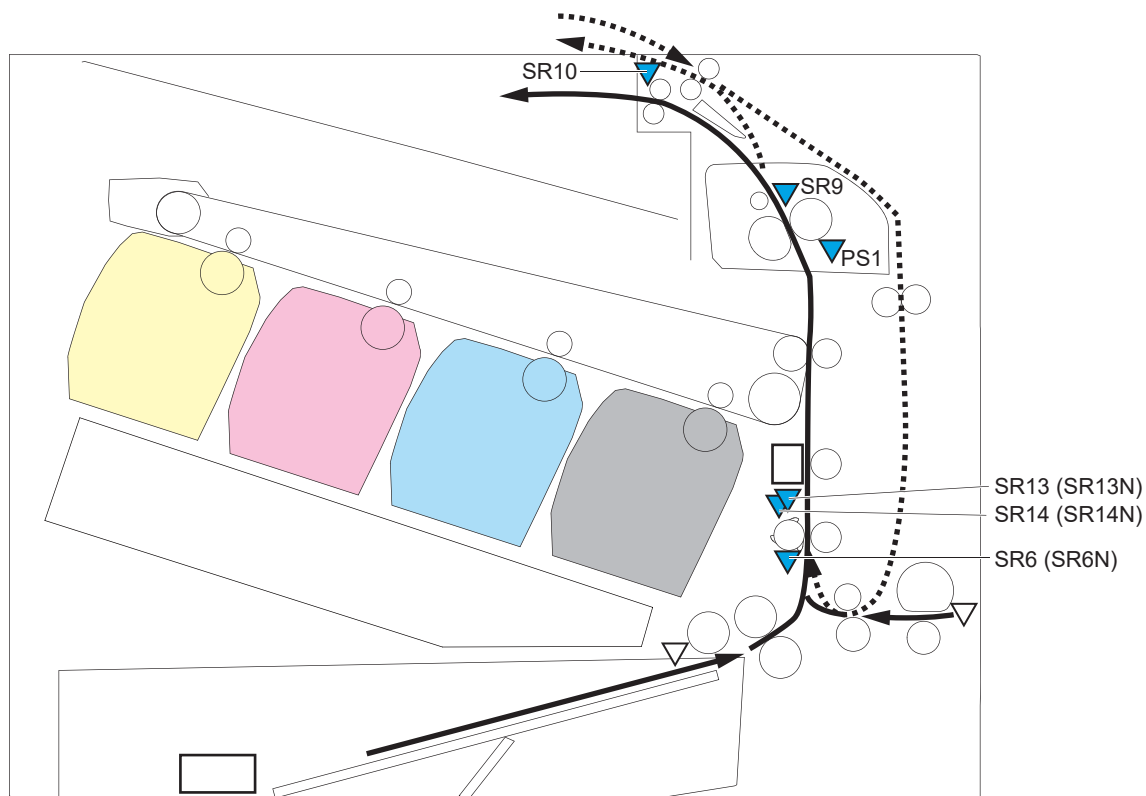


Table 2-59 Printer base jam sensors

Sensor	Description	Sensor	Description
SR6	TOP sensor	PS1	Switchback jam sensor
SR6N ¹			
SR13	Media width sensor front	SR9	Fuser delivery sensor
SR13N ¹			
SR14	Media width sensor rear		
SR14N ¹			

¹ Simplex models.

Figure 2-126 1x550-sheet paper-feeder jam sensors

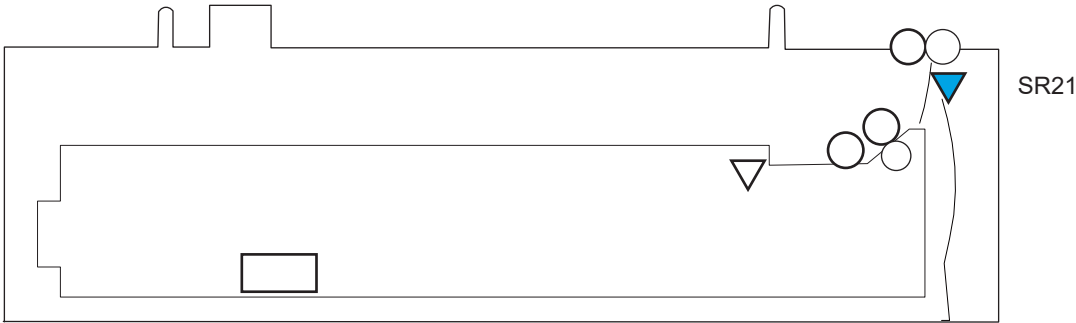


Table 2-60 1x550-sheet paper-feeder jam sensors

Sensor	Description
SR21	1x550-sheet paper feeder media feed sensor

Figure 2-127 Document feeder jam sensors

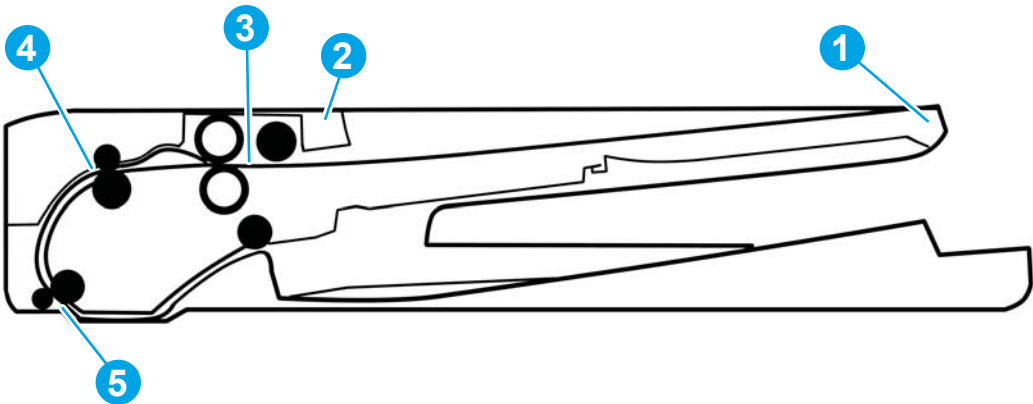


Table 2-61 Document feeder, sensors block diagram

Item	Description
1	Length sensor
2	Jam cover sensor
3	Paper present sensor
4	Deskew sensor
5	Paper path sensor

Auto-navigation for clearing jams

The auto-navigation feature assists you in clearing jams by providing step-by-step instructions on the control panel. When you complete a step, the product displays instructions for the next step until you have completed all steps in the procedure.

Experiencing frequent or recurring paper jams?

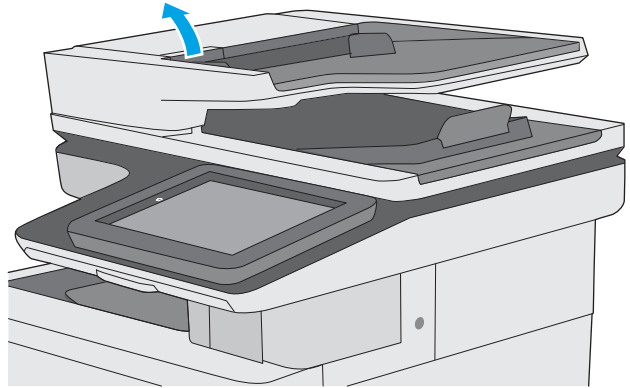
To reduce the number of paper jams, try these solutions.

1. Use only paper that meets HP specifications for this product.
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 product.
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 product 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.

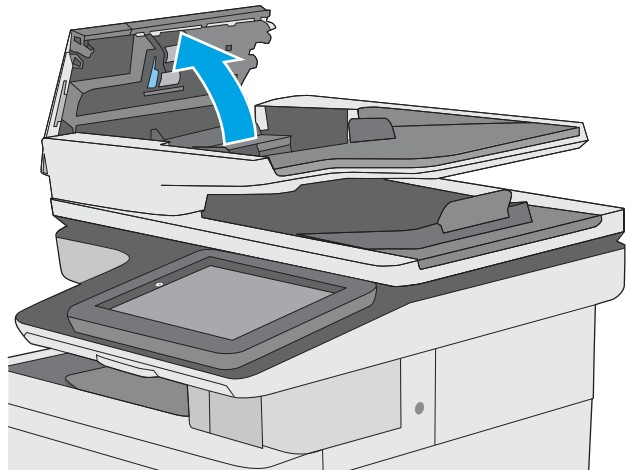
Clear paper jams in the document feeder

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.

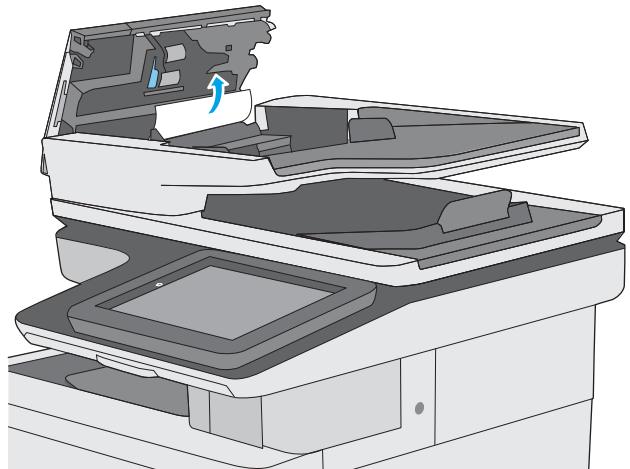
1. Lift the latch to release the document-feeder cover.



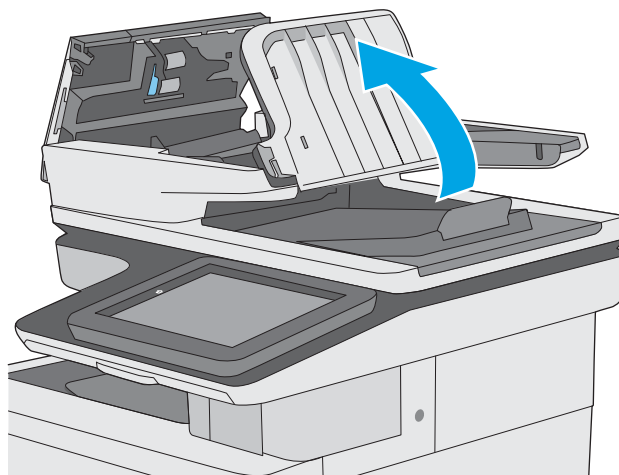
2. Open the document-feeder cover.



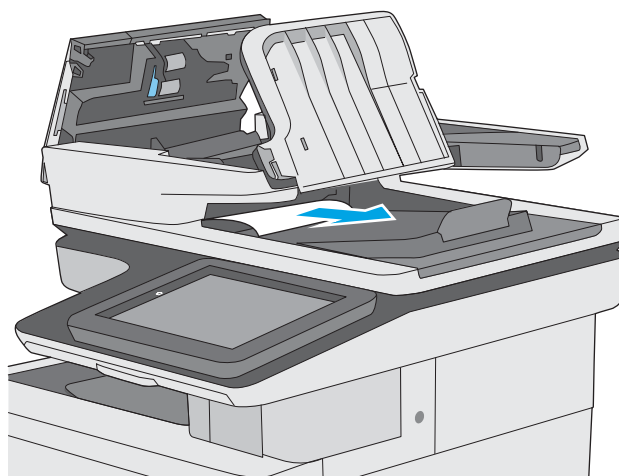
3. Remove any jammed paper.



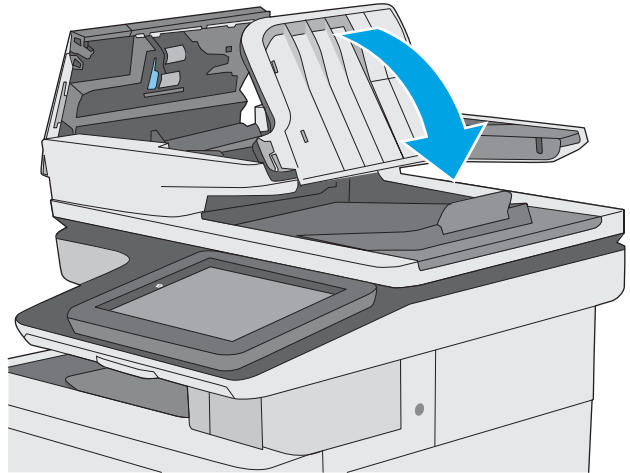
4. Lift the document-feeder input tray.



5. Remove any jammed paper.

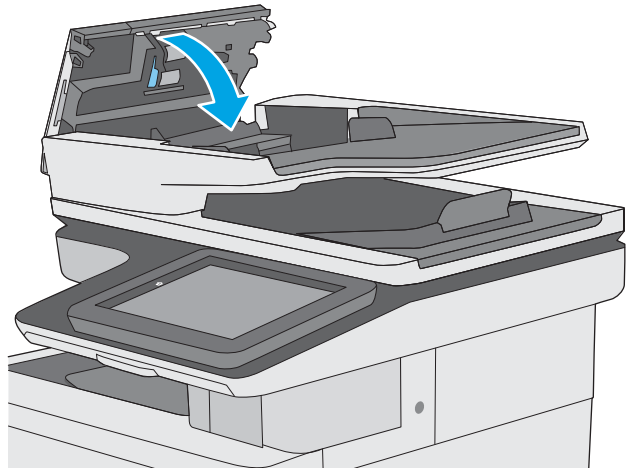



6. Lower the document-feeder input tray.




7. Close the document-feeder cover.

NOTE: Verify that the latch on the top of the document-feeder cover is completely closed. Misfeed or no-pick errors might occur if the document-feeder cover is not completely closed.



 **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.

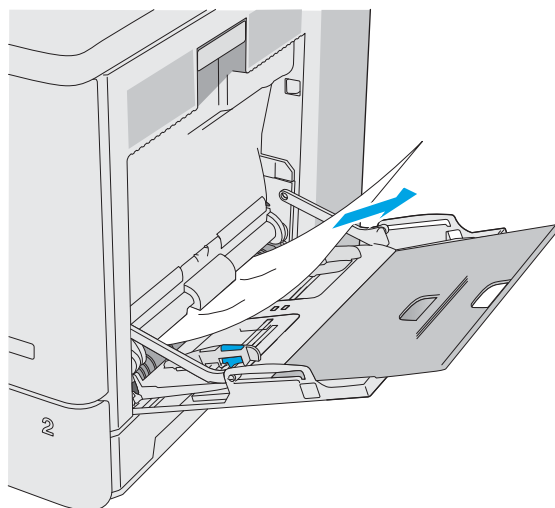
 **NOTE:** Original documents that are printed on heavy, glossy paper can jam more frequently than originals that are printed on plain paper.

Clear paper jams in Tray 1

Use the following procedure to check for paper in all possible jam locations related to Tray 1. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

1. If most of the sheet of paper is visible in the tray, slowly pull the jammed paper out of the printer. Make sure that the entire sheet is removed. If it tears, continue with the following steps to find the remnants.

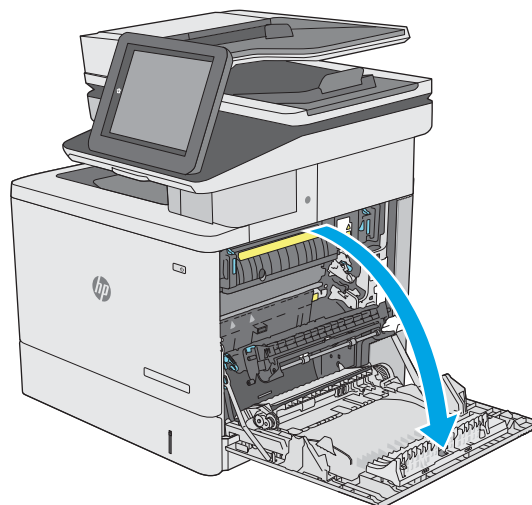
If most of the sheet of paper has been pulled inside the printer, continue with the following steps.



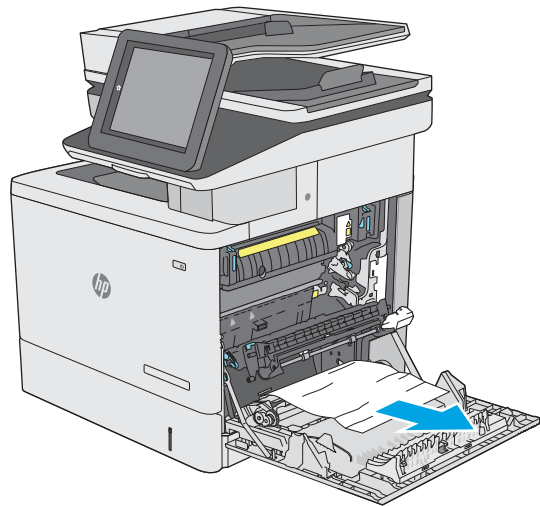
2. Lift the latch on the right door to release it.



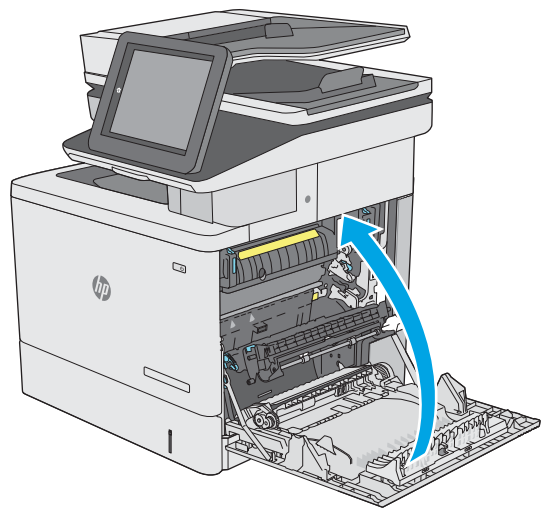
3. Open the right door.



4. If jammed paper is present, gently pull it out.



5. Close the right door.



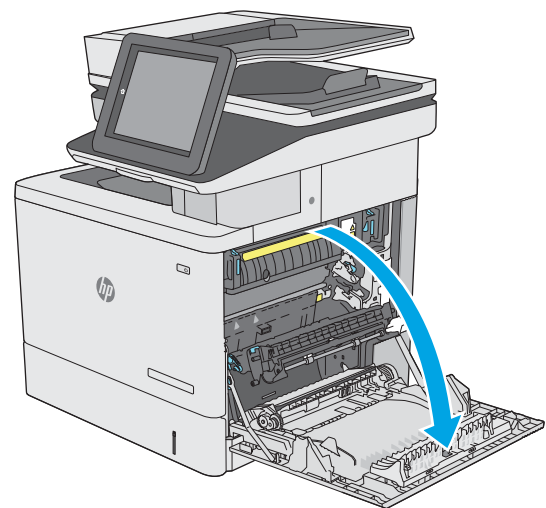
Clear paper jams in Tray 2

Use the following procedure to check for paper in all possible jam locations related to Tray 2. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

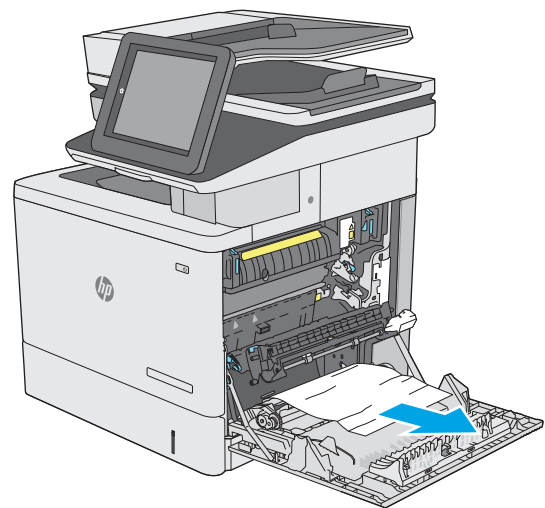
1. Lift the latch on the right door to release it.



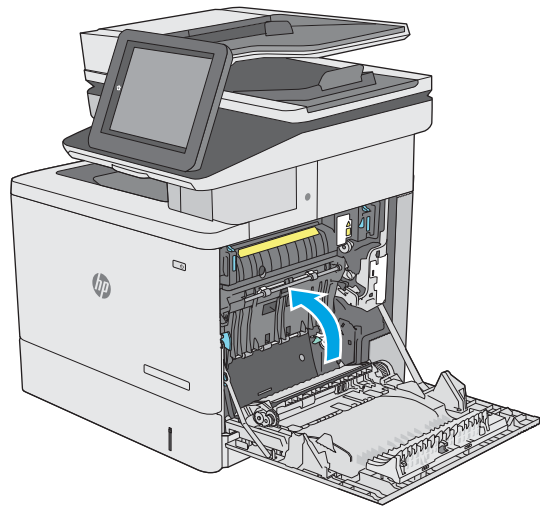
2. Open the right door.



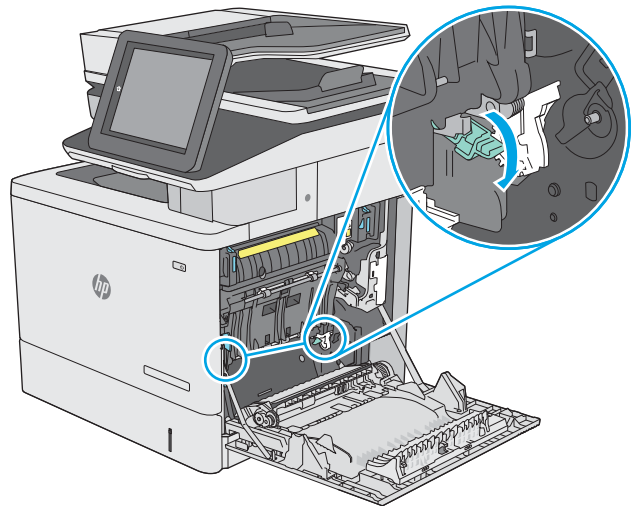
3. Gently pull out any jammed paper from the pick up area.



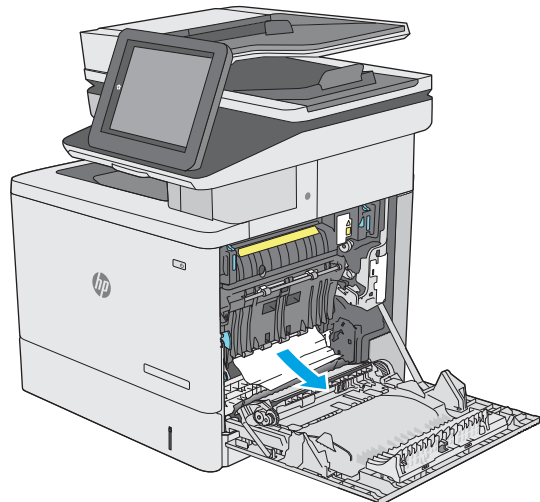
4. Close the transfer assembly.



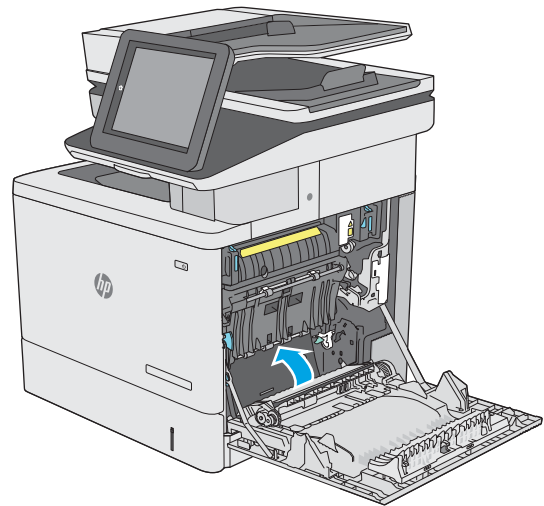
5. Push down on the green levers to release the jam-access cover.



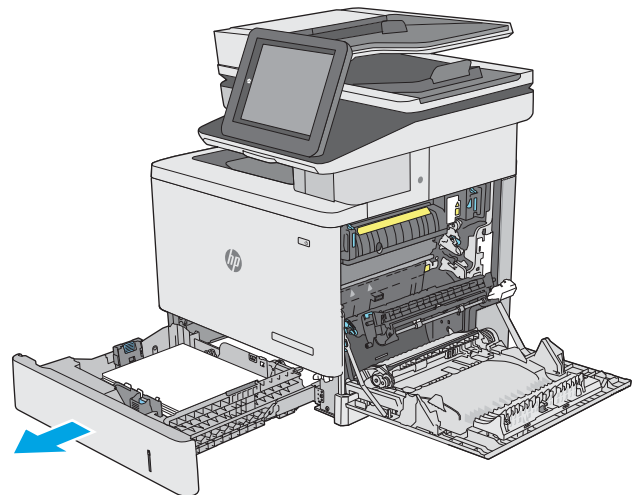
6. Gently pull out any jammed paper. If the paper tears, make sure to remove all remnants.



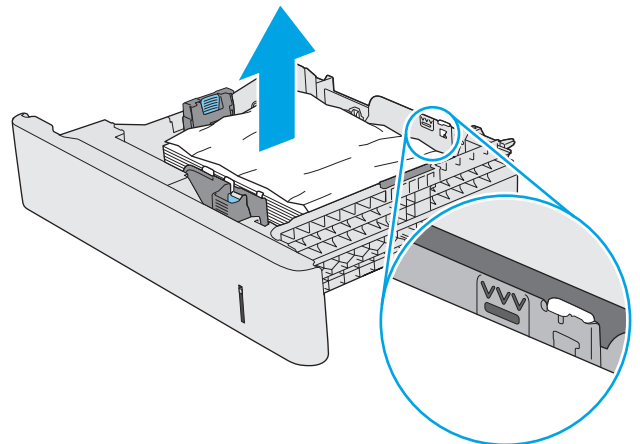
7. Close the jam-access cover, and then lower the transfer assembly.



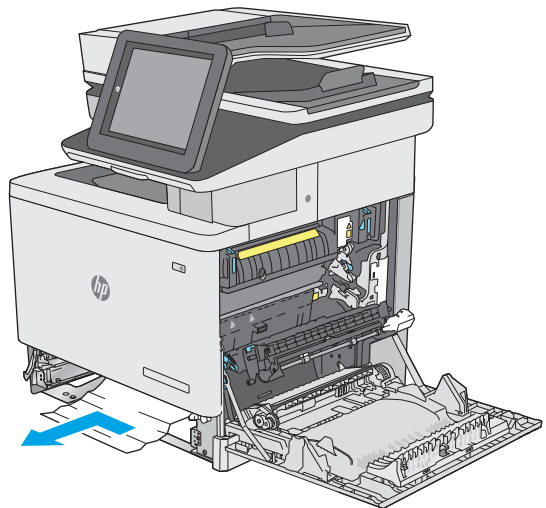
8. Pull the tray completely out of the printer by pulling and lifting it up slightly.



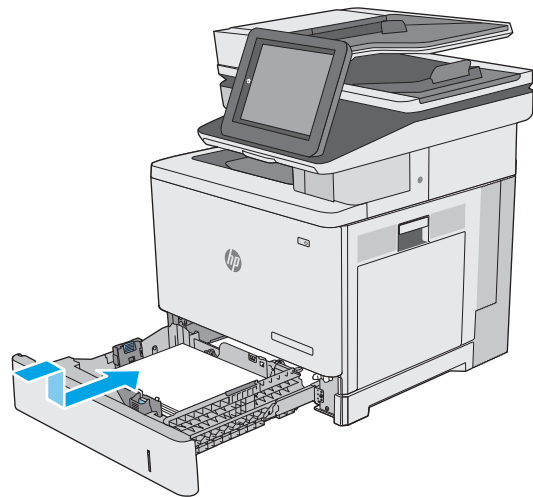
9. Remove any jammed or damaged sheets of paper. Verify that the tray is not overfilled and that the paper guides are adjusted correctly.



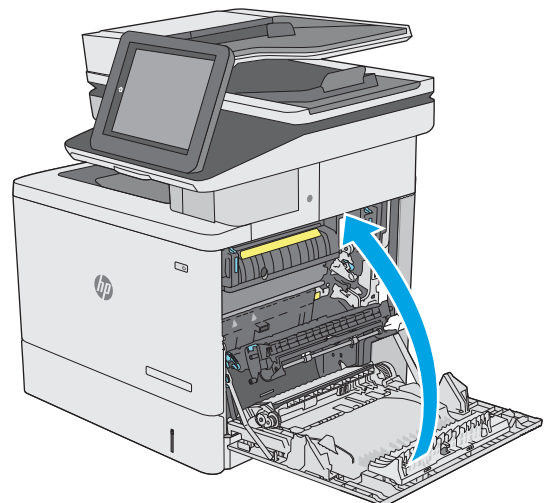
10. Remove any paper from the feed rollers inside the printer. First pull the paper to the left to release it, and then pull it forward to remove it.



11. Reinsert and close the tray.



12. Close the right door.



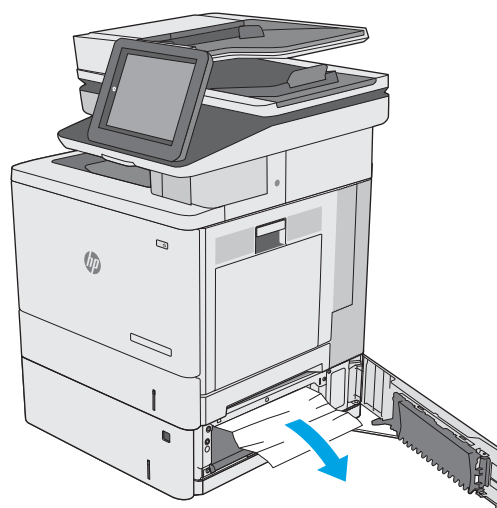
Clear paper jams in the optional 550-sheet trays

Use the following procedure to check for paper in all possible jam locations related to the optional 550-sheet paper feeders. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

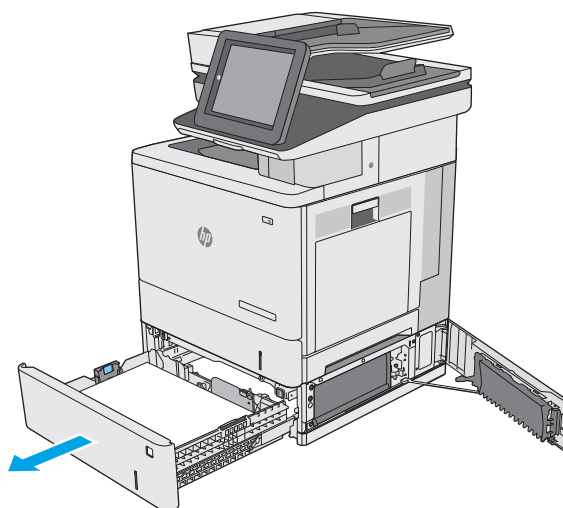
1. Open the lower-right door.



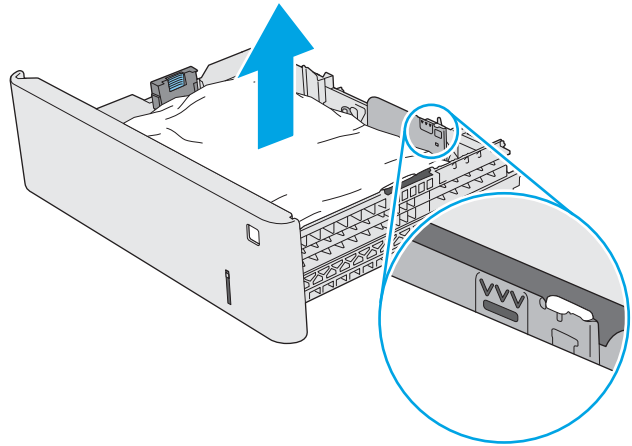
2. Gently pull out any jammed paper.



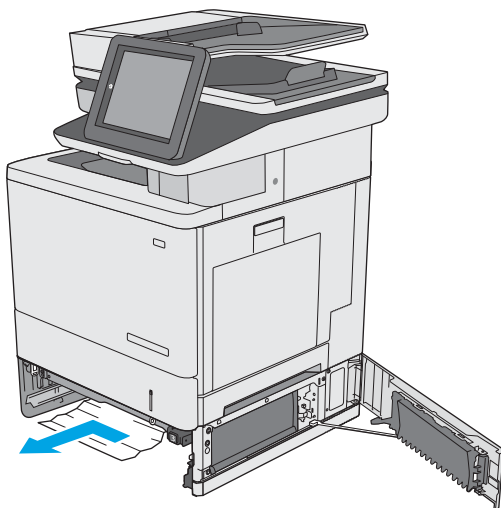
3. Pull the tray completely out of the printer by pulling and lifting it up slightly.



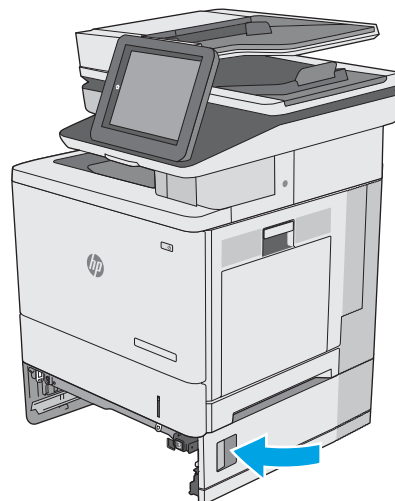
4. Remove any jammed or damaged sheets of paper. Verify that the tray is not overfilled and that the paper guides are adjusted correctly.



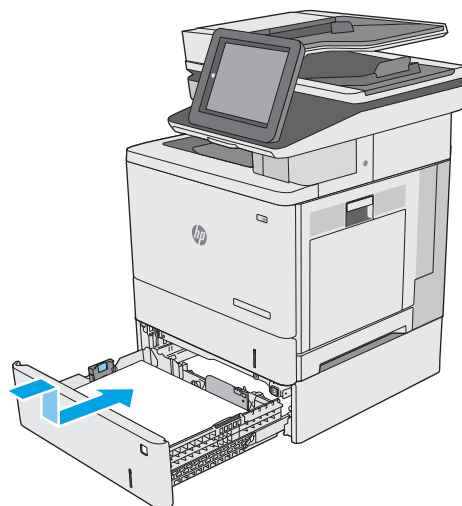
5. Remove any paper from the feed rollers inside the printer. First pull the paper to the left to release it, and then pull it forward to remove it.



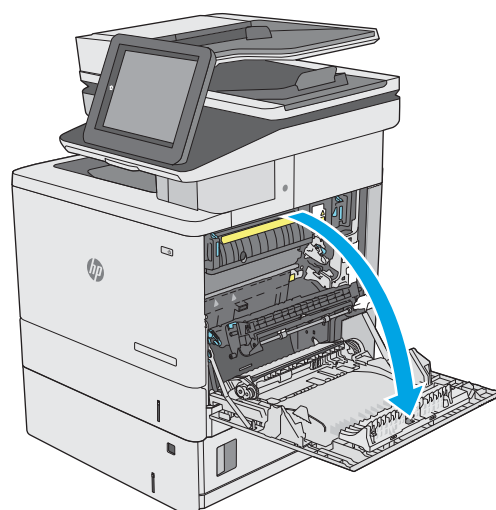
6. Close the lower-right door.



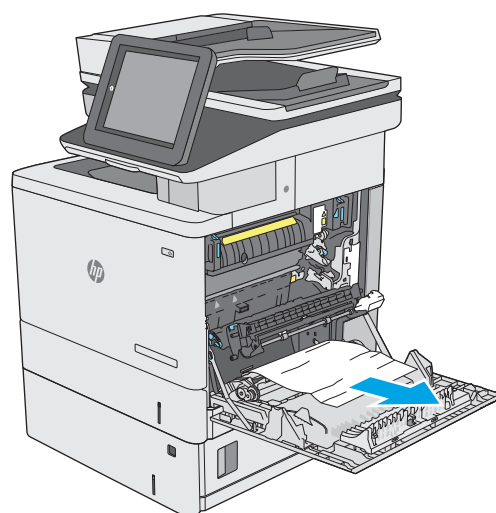
7. Reinsert and close the tray.



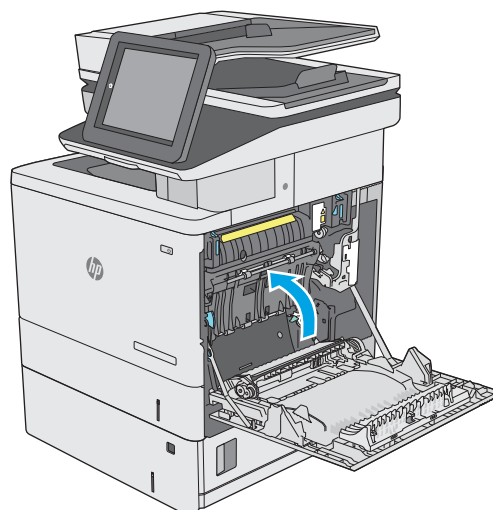
8. Open the right door.



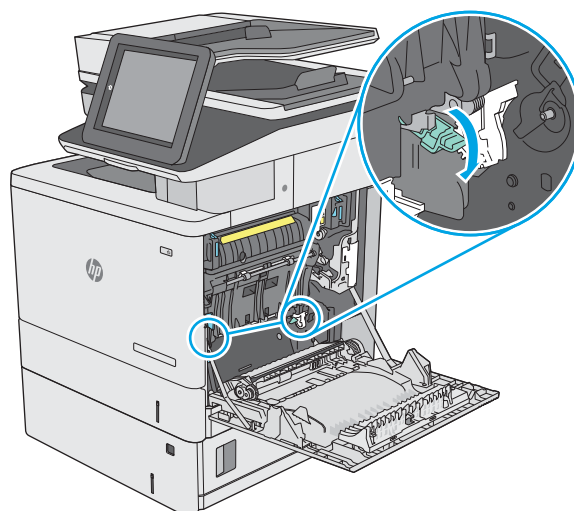
9. Gently pull out any jammed paper from the pick up area.



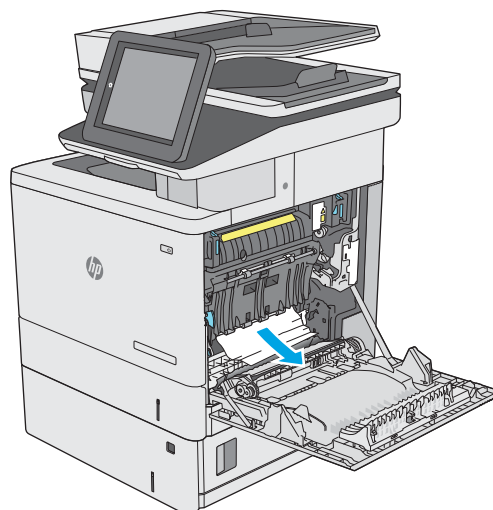
10. Close the transfer assembly.



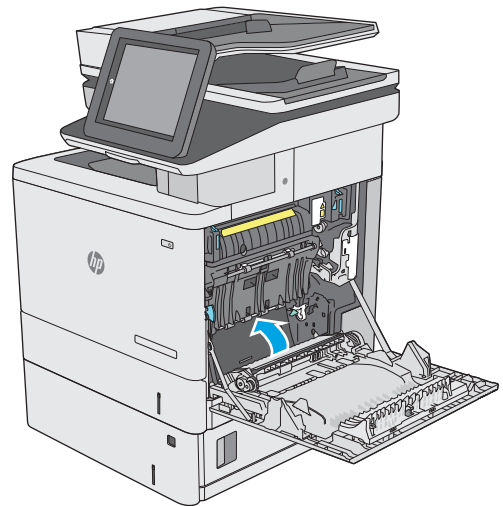
11. Push down on the green levers to release the jam-access cover.



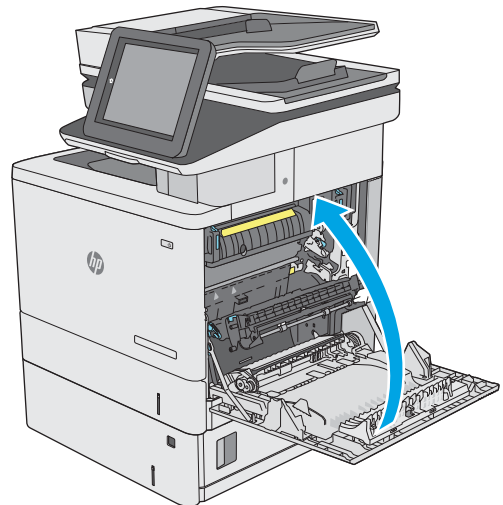
12. Gently pull out any jammed paper. If the paper tears, make sure to remove all remnants.



13. Close the jam-access cover, and then lower the transfer assembly.



14. Close the right door.



Clear paper jams in the right door and the fuser area

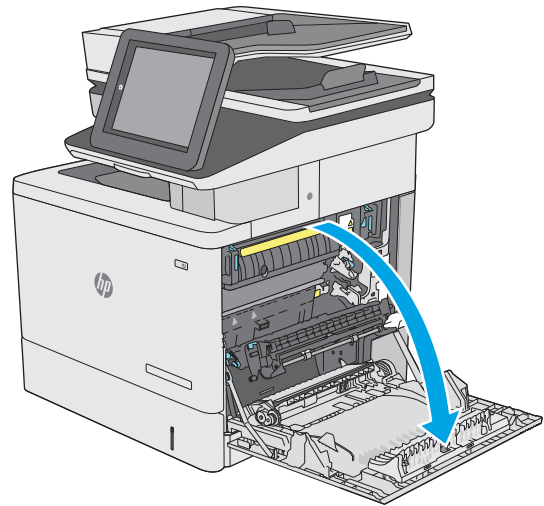
Use the following procedure to check for paper in all possible jam locations inside the right door. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

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

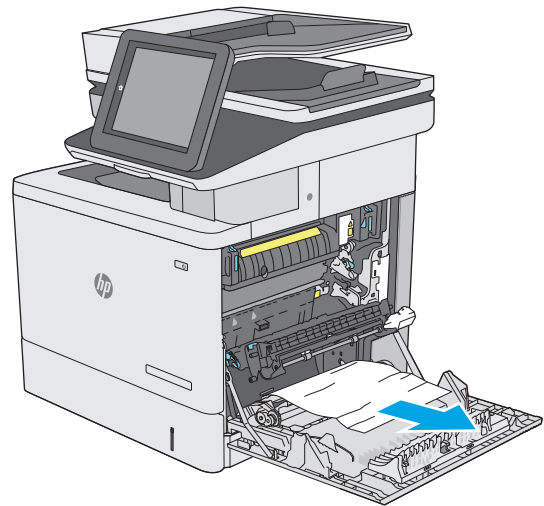
1. Lift the latch on the right door to release it.



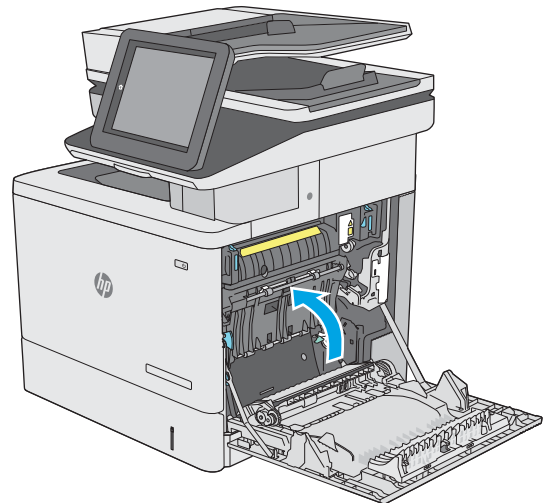
2. Open the right door.



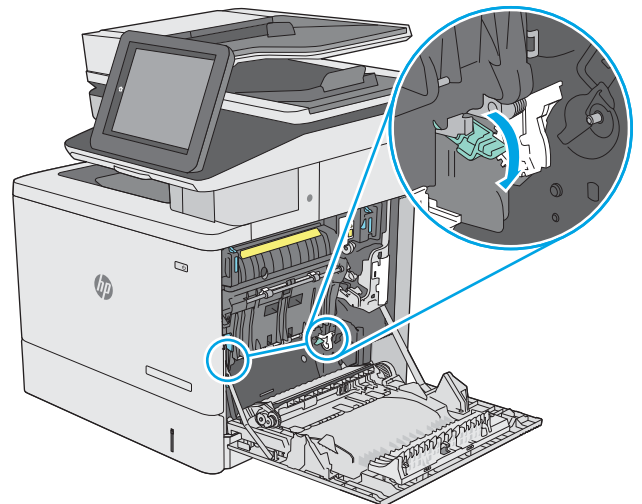
3. Gently pull out any jammed paper from the pick up area.



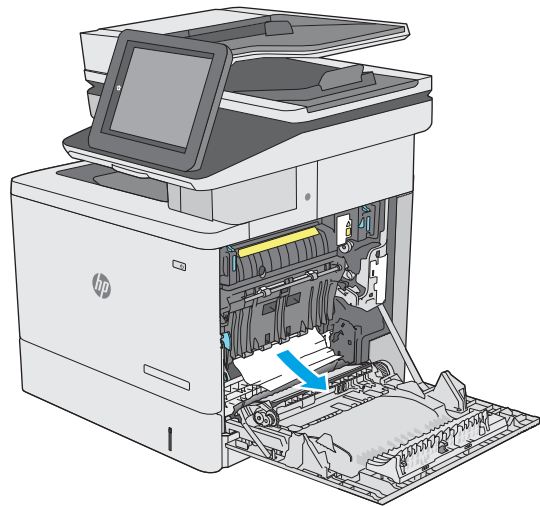
4. Close the transfer assembly.



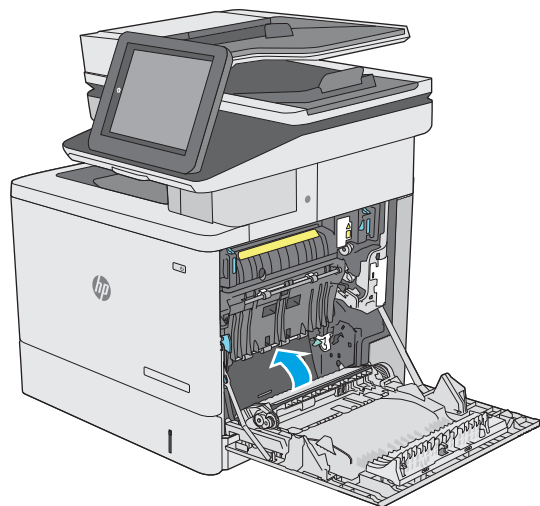
5. Push down on the green levers to release the jam-access cover.



6. Gently pull out any jammed paper. If the paper tears, make sure to remove all remnants.

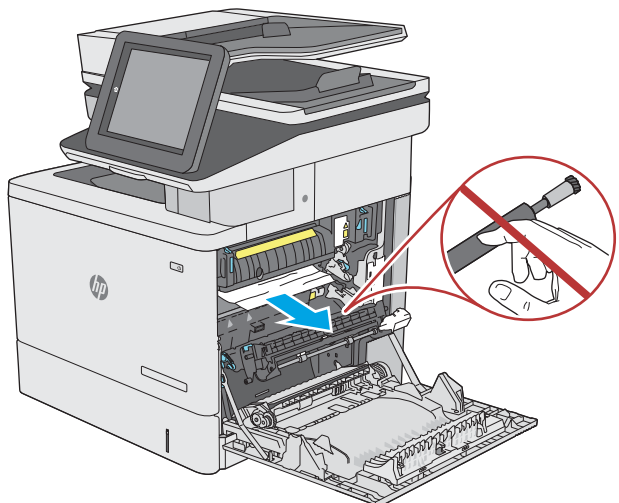


7. Close the jam-access cover, and then lower the transfer assembly.

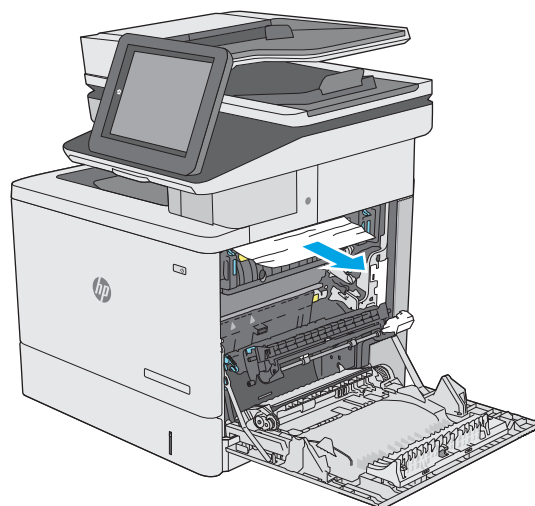


8. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.

CAUTION: Do not touch the foam on the transfer roller. Contaminants can affect print quality.

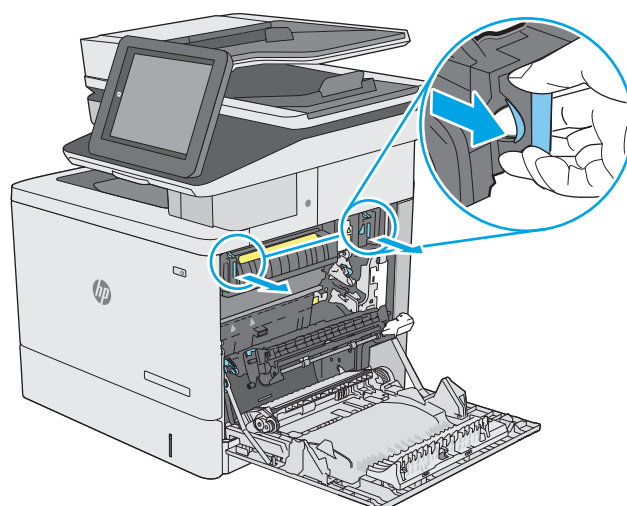


9. If paper is jammed as it enters the output bin, gently pull the paper out to remove it.



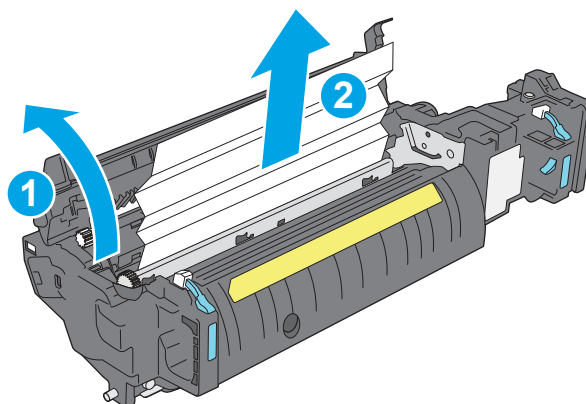
10. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, lift up slightly, and then pull straight out to remove the fuser.

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

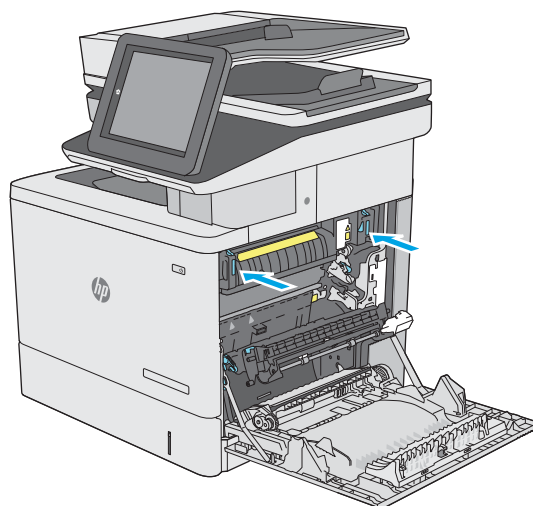


11. Open the jam-access door. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.

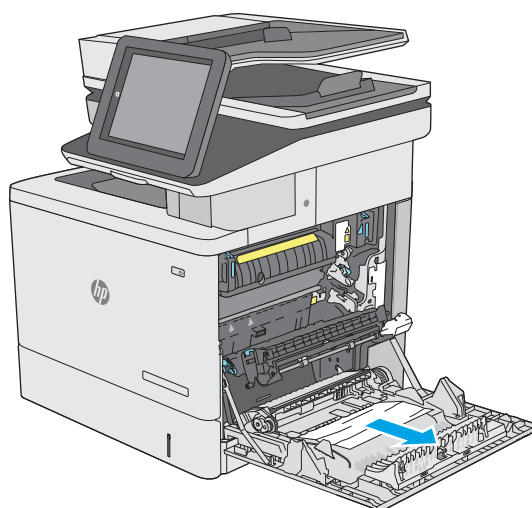
CAUTION: Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers until they have cooled.



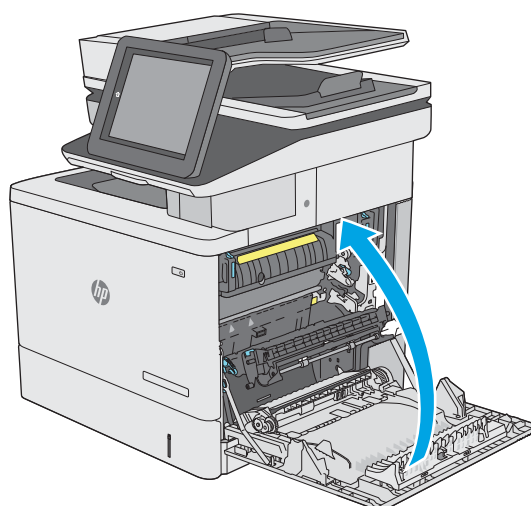
12. Close the jam-access door, and push the fuser completely into the printer until it clicks into place.



13. Check for jammed paper in the duplex path inside the right door, and remove any jammed paper.



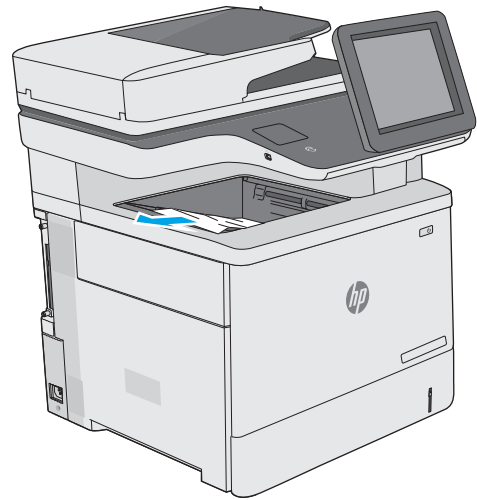
14. Close the right door.



Clear paper jams in the output bin

Use the following procedure to clear jams in the output bin. When a jam occurs, the control panel displays an animation that assists in clearing the jam.


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




Change jam recovery

This printer provides a jam recovery feature that reprints jammed pages.

Change jam recovery from a touchscreen control panel

1. From the Home screen on the printer control panel, scroll to and touch the [Administration](#) button.
 2. Open the [General Settings](#) menu, and then open the [Jam Recovery](#) menu.
 3. Select one of the following options:
 - [Automatic](#) — 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.

Change jam recovery from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
 2. Use the down arrow ▼ button to scroll to [General Settings](#), 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.
 - [Automatic](#) — 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



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](#)
- [Print speeds](#)
- [The printer does not print or it prints slowly](#)
- [The printer prints slowly](#)

Factors affecting print performance

Table 2-62 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.
	The printer might be malfunctioning.	To check the printer, print a Configuration page.
Pages print very slowly.	Heavier paper types can slow the print job.	Print on a different type of paper.
	Complex pages can print slowly.	Proper fusing might require a slower print speed to ensure the best print quality.
	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.
	The paper is jamming in the printer.	Clear the jam.
	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.
	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.

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 or it prints slowly

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 from the CD that came with 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 printer, 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 printer name 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

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: www.hp.com/support/colorljM552, www.hp.com/support/colorljM553, www.hp.com/support/colorljM577MFP, www.hp.com/support/colorljE55040, www.hp.com/support/colorljE57540MFP.
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

- [Solve USB connection problems](#)
- [Solve wired network 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

Check the following items to verify that the product is communicating with the network. Before beginning, print a configuration page from the product control panel and locate the product IP address that is listed on this page.

- [Poor physical connection](#)
- [The computer is using the incorrect IP address for the product](#)
- [The computer is unable to communicate with the product](#)
- [The product is using incorrect link and duplex settings for the network](#)
- [New software programs might be causing compatibility problems](#)
- [The computer or workstation might be set up incorrectly](#)
- [The product is disabled, or other network settings are incorrect](#)



NOTE: HP does not support peer-to-peer networking, as the feature is a function of Microsoft operating systems and not of the HP print drivers. For more information, go to Microsoft at www.microsoft.com.

Poor physical connection

1. Verify that the product 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 product, 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 product

1. Open the printer properties and click the **Ports** tab. Verify that the current IP address for the product is selected. The product IP address is listed on the product configuration page.
2. If you installed the product 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 product using a Microsoft standard TCP/IP port, use the hostname instead of the IP address.
4. If the IP address is correct, delete the product and then add it again.

The computer is unable to communicate with the product

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**.
 - b. Type `ping` followed by the IP address for your product.

For Mac OS X, open the Network Utility, and then supply the IP address in the correct field in the **Ping** pane.
 - 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 product, and the computer are all configured for the same network.

The product is using incorrect link and duplex settings for the network

Hewlett-Packard 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

1. Check the network drivers, print drivers, and the network redirection settings.
2. Verify that the operating system is configured correctly.

The product 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

- [Service menu](#)
- [Printer resets](#)
- [Format Disk and Partial Clean functions](#)

Service menu

The [Service](#) menu is PIN-protected for added security. Only authorized service people have access to the [Service](#) menu. When selecting [Service](#) from the list of menus, the printer prompts the user to enter an eight-digit personal identification number (PIN).



NOTE: The printer automatically exits the [Service](#) menu after about one minute if no items are selected or changed.

Open the service menu from a touchscreen control panel

1. From the Home screen on the printer control panel, scroll to and touch the [Device Maintenance](#) 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:
 - 04055215 (M552)
 - 04055315 (M553)
 - 11057715 (M577)

Open the service menu from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Device Maintenance](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [Service](#), and then press the [OK](#) button to select it.
3. Use the down arrow ▼ button to scroll to [Service Access Code](#), and then press the [OK](#) button to select it.
4. Enter the following service access code for the printer:



NOTE: After entering the PIN, press the [OK](#) button.

- 04055215 (M552)
- 04055315 (M553)
- 11057715 (M577)

The following menu items appear in the [Service](#) menu:

First level	Second level	Value	Description
Event Log	Print		Print or the event log.

First level	Second level	Value	Description
Clear Event Log	Clear		Use this item to clear the printer event log.
Cycle Counts	Total Engine Cycles		Set the page count that was stored in NVRAM prior to installing a new formatter.
	Mono Cycle Count		Set the mono page printed count.
	Color Cycle Count		Set the color page printed count.
	Refurbish Cycle Count		Use this item to record the page count when the printer was refurbished.
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.
New Registration Roller		Yes No	Reset the counter for the registration roller after replacing the registration assembly.
New Transfer Kit		Yes No	Reset the counter for the registration roller after replacing the transfer kit.
Low Alerts		Enable Disable	Turn on (or off) low alerts (for supplies).
Reset Low Alerts			<ul style="list-style-type: none"> Reset to level 1 Reset to level 2 Reset to level 3 Set to non-HP managed mode
Test Support	Continuous Print from USB		
	Automatic Calibrations	Disabled Enabled*	

Printer resets

Restore factory-set defaults



NOTE: The printer restarts automatically after the reset operation completes.

Restore factory-set defaults from a touchscreen control panel

1. From the Home screen on the printer control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
 - [General Settings](#)
 - [Restore Factory Settings](#)
3. A verification message advises that completing the reset function might result in loss of data. Touch the [Reset](#) button to complete the process.

Restore factory-set defaults from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Administration](#), and then press the [OK](#) button.
2. Use the down arrow ▼ button to scroll to [General Settings](#), and then press the [OK](#) button to select it.
3. Use the down arrow ▼ button to scroll to [Restore Factory Settings](#), and then press the [OK](#) button to select it.
4. Use the down arrow ▼ button to scroll to [Restore](#), and then press the [OK](#) button to select it.
5. 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

Restore the service ID

When replacing the formatter, the date is lost. Use this menu item to reset the date to 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.
4. The complete date is 17-October-2002.

 **NOTE:** A six-day grace period is built into the date system.

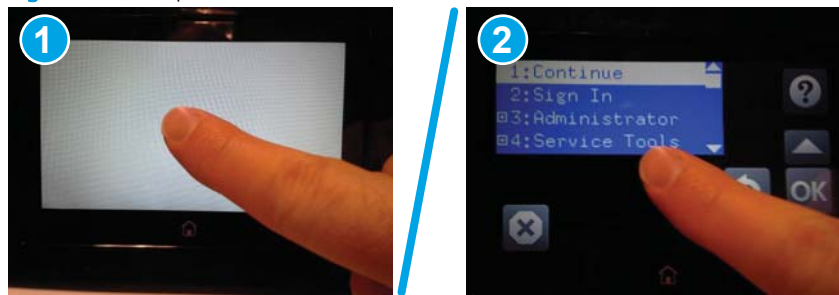
Printer cold reset

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

Figure 2-128 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

 **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 HP 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.

Format Disk and Partial Clean functions



NOTE: Only for products 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 data from the partitions, 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 products, 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.

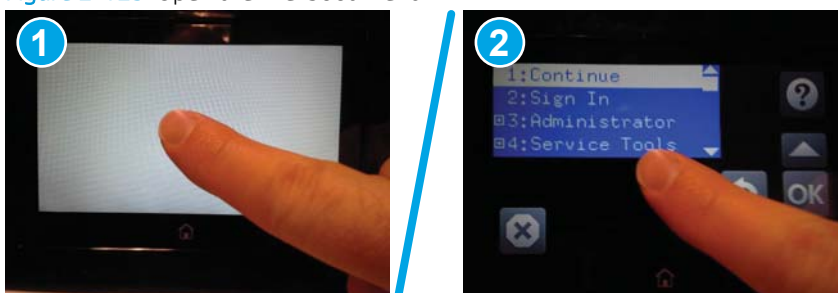
- To reset the printer by deleting all solutions and customer-defined settings.
- The printer default settings are not properly working.

Execute a Partial Clean

Execute a Partial Clean from a touchscreen control panel

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

Figure 2-129 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 Partial Clean and then touch the OK button.
4. Touch the OK button again.
5. Touch the Home button to highlight Continue, and then touch the OK button.

 **NOTE:** The printer initializes.

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 HP 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.


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](#).

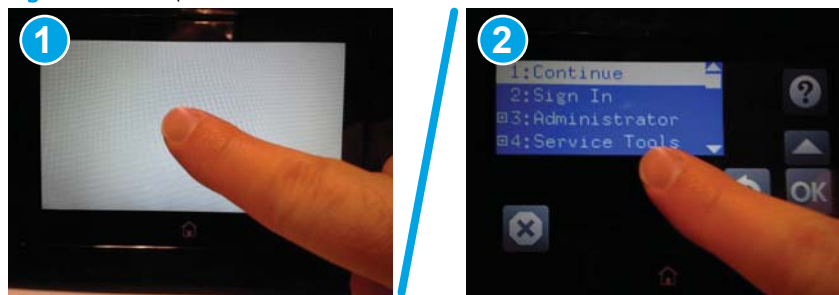
- The printer will not respond to commands from the control panel.
- Executing the [Format Disk](#) function is helpful for troubleshooting hard disk problems.
- To reset the printer by deleting all solutions and customer-defined settings.

Execute a Format Disk

Execute a Format Disk from a touchscreen control panel

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


Figure 2-130 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 **Format Disk**, and then touch the **OK** button.
4. Touch the **OK** button again.

 **NOTE:** When the [Format Disk](#) operation is complete, reload the printer firmware.

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 HP 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.

Firmware upgrades

To download the most recent firmware upgrade for the printer, go to:

- In the US, go to www.hp.com/support/colorljM552, www.hp.com/support/colorljM553, www.hp.com/support/colorljM577MFP, www.hp.com/support/colorljE55040, www.hp.com/support/colorljE57540MFP.

- a. Select **Get drivers, Software, and Firmware**, and then select the appropriate printer 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 product 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 printer 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 printer 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 product functions.

- e. Select the driver language and operating system.
- f. Locate the firmware download, and then select **Download**.

- [Determine the installed revision of firmware](#)
- [Perform a firmware upgrade](#)

Determine the installed revision of firmware



NOTE: Print a configuration page to determine the installed revision of firmware. The firmware revision number is found in the "Device Information" section on the configuration page.

Print the configuration page from a touchscreen control panel

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

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

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



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.

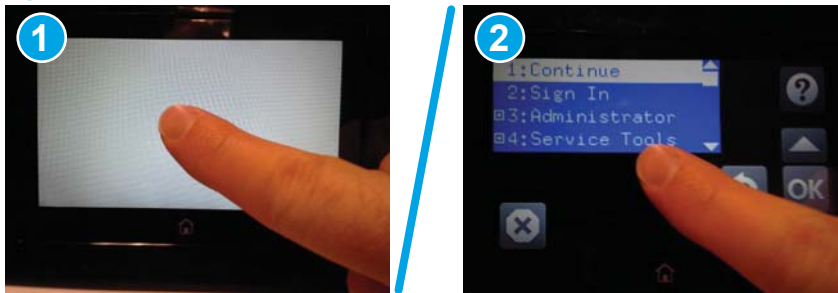
USB flash drive (Pre-boot menu)

 **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 a touchscreen control panel

1. Copy the .bdl file to a portable USB flash drive.
2. Touch in the middle of the control-panel display when you see the 1/8 under the HP logo.


Figure 2-131 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.

 **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 ▼ 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 firmware (Pre-boot menu) update from an LCD control panel

1. Press the Cancel  button when you see the 1/8 under the HP 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.



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, press the ▼ button several times until the message **Continue** displays.
8. Touch the **OK** button to begin the upgrade. When the upgrade is complete, the printer will initialize to the **Ready** state.
9. 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)



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 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 [Device Maintenance](#) button.
4. Touch the [USB Firmware Upgrade](#) button.
5. Insert the portable USB storage device with the .bdl file on it into the USB port on the front of the printer.
6. 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.

7. Select one of the following options:

- [Upgrade](#)



NOTE: The upgrade process can take 10 minutes or longer to complete.

- [Re-install](#)
- [Downgrade](#)

8. 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.

USB flash drive firmware update from an LCD control panel

1. From the [Home](#) screen on the printer control panel, use the down arrow ▼ button to scroll to [Device Maintenance](#), and then press the [OK](#) button.
2. Open the following menus:
 - [USB Firmware Upgrade](#)
3. Insert the portable USB storage device with the .bdl file on it into the USB port on the printer.
4. If necessary, use the down arrow ▼ button to scroll to the appropriate .bdl file, and then press the [OK](#) button to select.
5. Use the down arrow ▼ button to scroll to [Upgrade](#), and then press the [OK](#) button to start the firmware upgrade.



NOTE: If the firmware in the .bdl file on the portable USB storage device matches the installed firmware on the printer, [Upgrade](#) is replaced by [Re-Install](#).

Solve email problems

If [Scan to E-mail](#) problems occur, try these solutions:

- Make sure this feature has been set up. If this feature has not been set up, use the setup wizard in the HP Device Toolbox (Windows) or HP Utility for Mac OS X software to set it up.
- Make sure the Scan to Email feature is enabled. If it has been disabled, enable the feature through the HP Device Toolbox (Windows) or HP Utility for Mac OS X software.
- Make sure that the printer is connected to a computer or to a network.

Cannot connect to the email server

- Make sure the SMTP or LDAP server name is correct. Check this setting with your system administrator or Internet Service Provider.
- If the printer cannot establish a secure connection to the SMTP or LDAP server, try without the secure connection or try a different server or port. Check this setting with your system administrator or Internet Service Provider.
- If the SMTP or LDAP server requires authentication, make sure a valid user name and password are used.
- If the SMTP or LDAP server uses an authentication method that is not supported, try a different server. Check this setting with your system administrator or Internet Service Provider.

Validate the SMTP gateway (Windows)

1. Open an MS-DOS command prompt: click **Start**, click **Run**, type `cmd`, and then press the [Enter](#) key.
2. In the command prompt window, type `telnet` followed by the SMTP gateway address and then the number 25, which is the port over which the printer is communicating. For example, type `telnet 123.123.123.123 25` where "123.123.123.123" represents the SMTP gateway address.
3. Press the [Enter](#) key. If the SMTP gateway address is not valid, the response contains the message **Could not open connection to the host on port 25: Connect Failed**.
4. If the SMTP gateway address is not valid, contact the network administrator.

Validate the LDAP gateway (Windows)

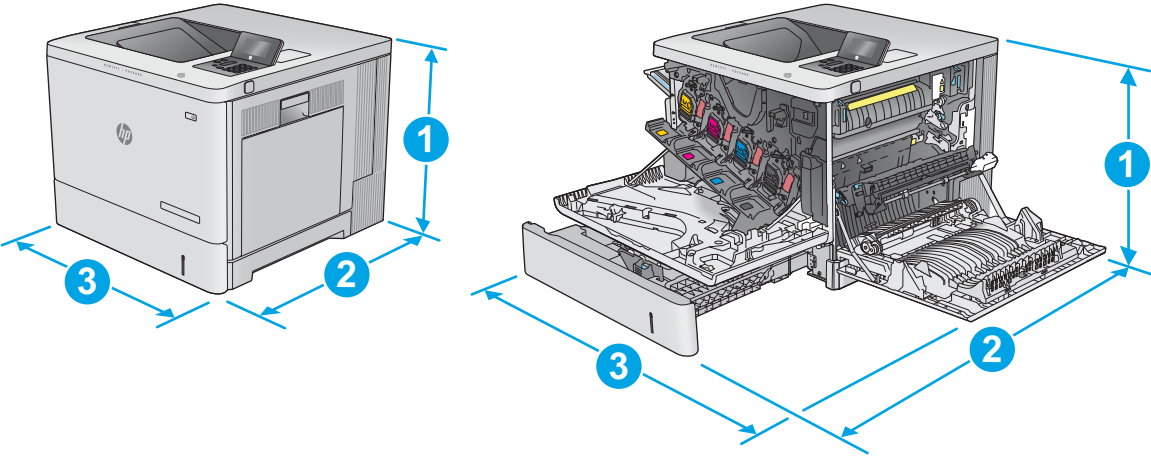
1. Open Windows Explorer. In the address bar, type `LDAP://` immediately followed by the LDAP gateway address. For example, type `LDAP://12.12.12.12` where "12.12.12.12" represents the LDAP gateway address.
2. Press the [Enter](#) key. If the LDAP gateway address is valid, the **Find People** dialog box opens.
3. If the LDAP gateway address is not valid, contact the network administrator.

A Printer specifications

- [Printer dimensions](#)
- [Printer space requirements](#)
- [Power consumption, electrical specifications, and acoustic emissions](#)
- [Operating-environment range](#)
- [Certificates of Volatility](#)

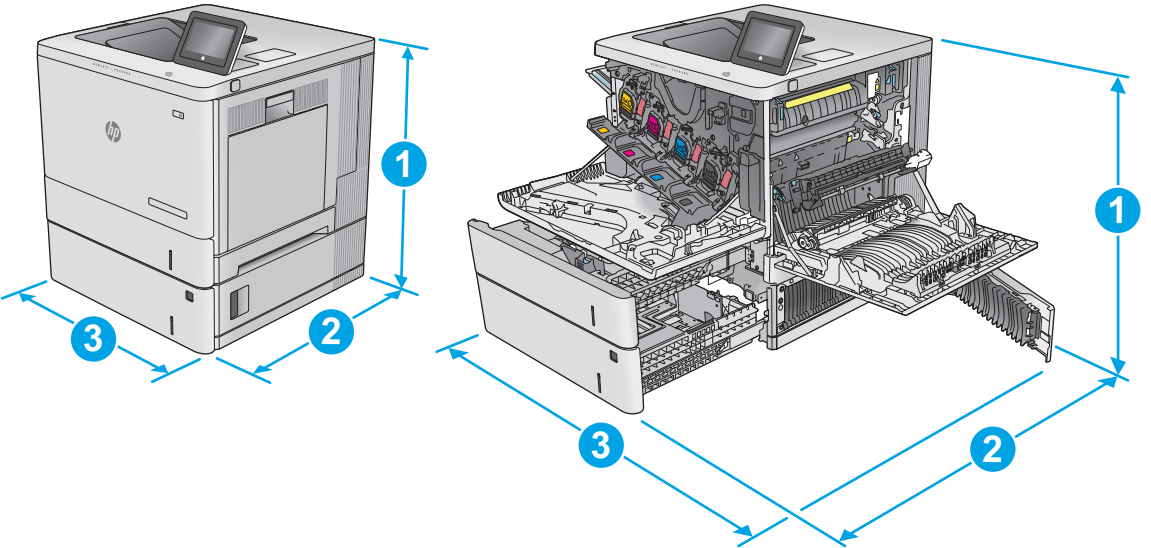
Printer dimensions

Figure A-1 Dimensions for the M552dn and M553n/dn models



	Printer fully closed	Printer fully opened
1. Height	399 mm (15.7 in)	399 mm (15.7 in)
2. Depth	479 mm (18.9 in)	771 mm (30.4 in)
3. Width	458 mm (18.0 in)	826 mm (32.5 in)
Weight	n model: 27 kg (59.5lb) dn model: 27.5 kg (60.6 lb)	

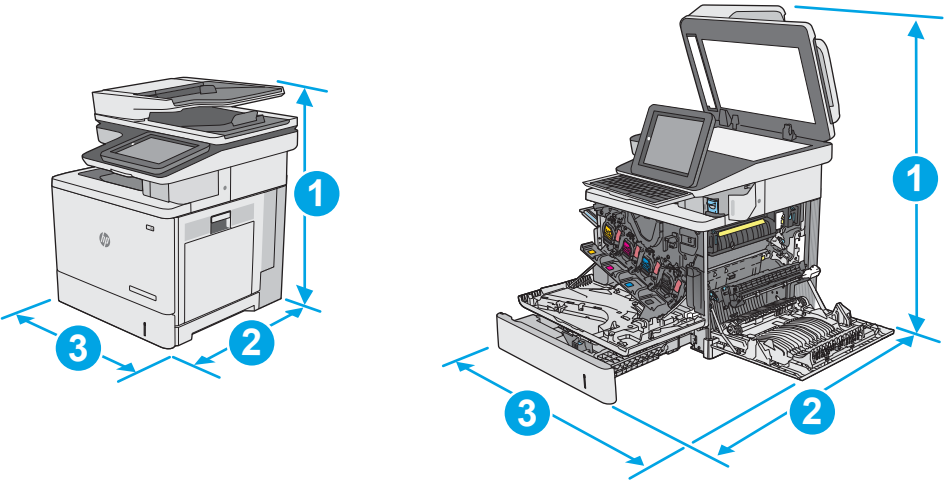
Figure A-2 Dimensions for the M553x model



	Printer fully closed	Printer fully opened
1. Height	581 mm (22.9 in)	581 mm (22.9 in)
2. Depth	479 mm (18.9 in)	771 mm (30.4 in)

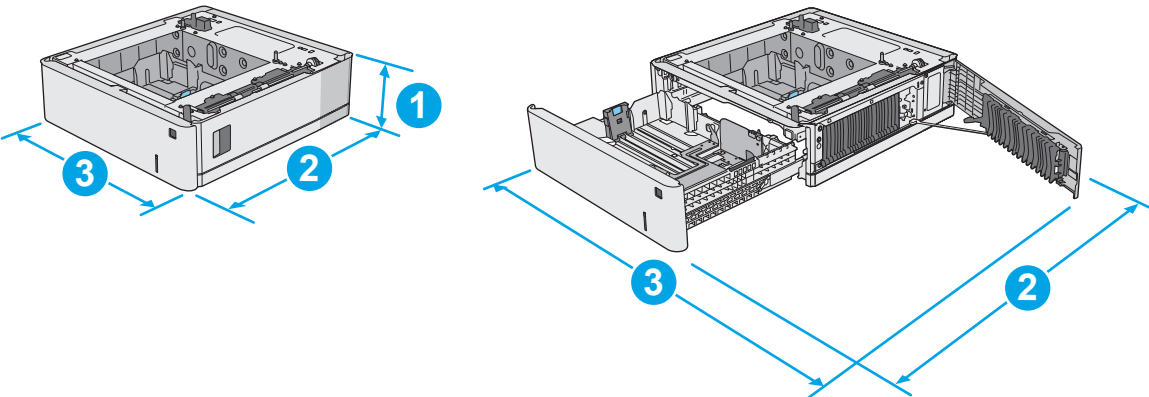
	Printer fully closed	Printer fully opened
3. Width	458 mm (18.0 in)	853 mm (33.6 in)
Weight	33.4 kg (73.6 lb)	

Figure A-3 Dimensions for the M577 models



	Printer fully closed	Printer fully opened
1. Height	583 mm (23 in)	837 mm (33 in)
2. Depth	504 mm (19.8 in)	853 mm (33.6 in)
3. Width	482 mm (19 in)	803 mm (31.6 in)
Weight	dn model: 38.1 kg (84 lb) f model: 38.3 kg (84.5 lb) z model: 38.6 kg (85 lb)	

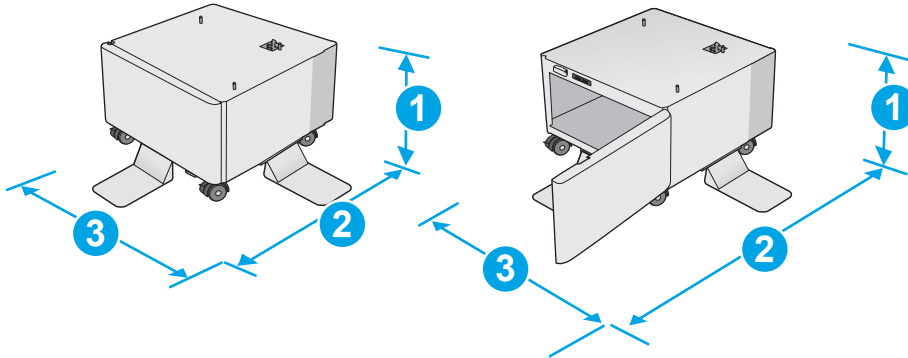
Figure A-4 Dimensions for the 1 x 550-sheet paper feeder



1. Height	130 mm (5.1 in)
2. Depth	Tray closed: 465 mm (18.3 in) Tray opened: 768 mm (30.2 in)

3. Width	Lower-right door closed: 458 mm (18.0 in)
	Lower-right door opened: 853 mm (33.6 in)
Weight	5.8 kg (12.8 lb)

Figure A-5 Dimensions for the cabinet/stand

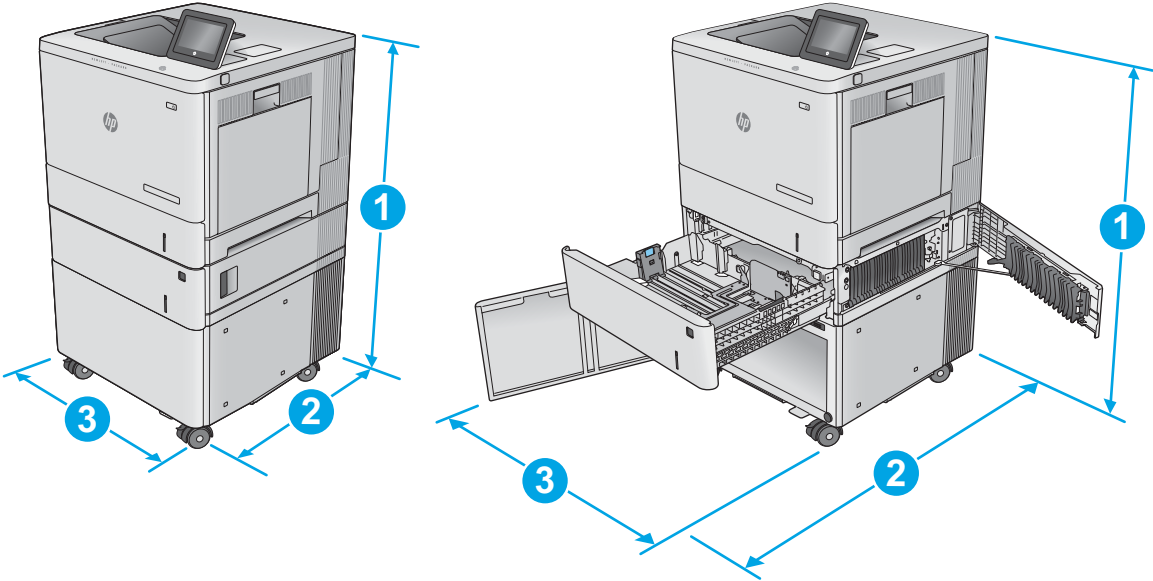


1. Height	295 mm (11.6 in)
2. Depth	Door closed: 869 mm (34.2 in)
	Door opened: 1113 mm (43.8 in)
3. Width	884 mm (34.8 in)
Weight	17.7 kg (39 lb)



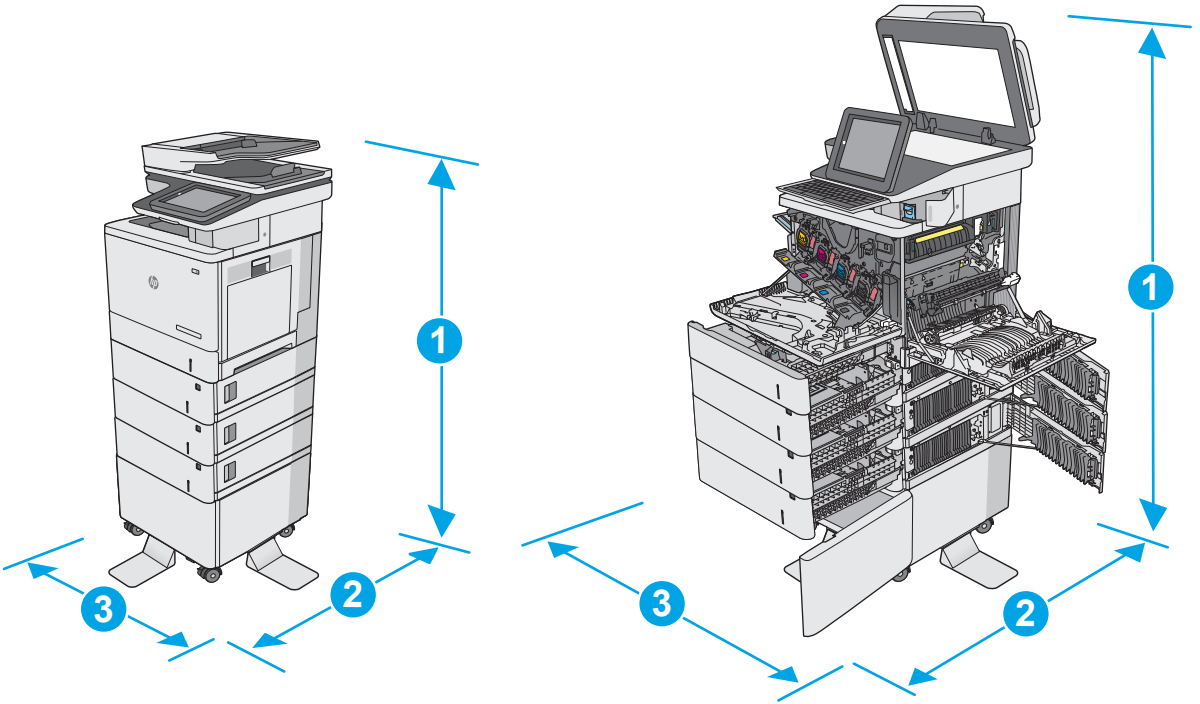
NOTE: These values are subject to change. For the most current information go to www.hp.com/support/M552www.hp.com/support/M553www.hp.com/support/M577www.hp.com/support

Figure A-6 Dimensions for the M552 and M553 models with one 1 x550-sheet tray and the cabinet/stand



	Printer and accessories fully closed	Printer and accessories fully opened
1. Height	876 mm (34.5 in)	876 mm (34.5 in)
2. Depth	479 mm (18.9 in)	900 mm (35.4 in)
3. Width	458 mm (18.0 in)	853 mm (33.6 in)
Weight	51.1 kg (112.7 lb)	

Figure A-7 Dimensions for the M577 models with three 1 x 550-sheet paper feeders and the cabinet/stand



	Printer and accessories fully closed	Printer and accessories fully opened
1. Height	1268 mm (49.9 in)	1522 mm (59.9 in)
2. Depth	869 mm (34.2 in)	1113 mm (43.8 in)
3. Width	884 mm (34.8 in)	853 mm (33.6 in)
Weight	dn model: 73.2 kg (161.4 lb) f model: 73.4 kg (161.8 lb) z model: 73.7 kg (162.5 lb)	

¹ These values are subject to change. For current information, go to www.hp.com/support/colorljM552, www.hp.com/support/colorljM553, www.hp.com/support/colorljM577MFP, www.hp.com/support/colorljE55040, www.hp.com/support/colorljE57540MFP.


² Do not extend more than one paper tray at a time.

Printer space requirements

HP recommends that 30 mm (1.81 in) 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. See [Printer dimensions on page 370](#).

Power consumption, electrical specifications, and acoustic emissions

See www.hp.com/support/colorljM552, www.hp.com/support/colorljM553, www.hp.com/support/colorljM577MFP, www.hp.com/support/colorljE55040, www.hp.com/support/colorljE57540mfp 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

Table A-1 Operating-environment specifications

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
Altitude	Not applicable	0 to 3000 m (0 to 9,842 ft)

Certificates of Volatility

Figure A-8 Certificate of Volatility (M522/M553; 1 of 2)

Hewlett-Packard Certificate of Volatility				
Model: Color LaserJet Enterprise M552 and M553	Part Number: M552n=B5L23A; M553n=B5L24A M553dn=B5L25A; M553x=B5L26A		Address: Hewlett Packard Company 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): DRAM	Size: 1GB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Temporary storage for system operation and print buffer.	Steps to clear memory: There are no steps to clear this data.
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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	Size: 32KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Store customer setting data for backup/restore	Steps to clear memory: There are no steps to clear this data.
Type (Flash, EEPROM, etc): SPI	Size: 4MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: BIOS	Steps to clear memory: There are no steps to clear this data.
Type (Flash, EEPROM, etc): None	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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	Size: 4GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: JEDI and user data	Steps to clear memory: Firmware update
Type (HDD, Tape, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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				
Walk-up USB print				
Can any data other than scan upload be sent to the USB device)? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below				

Figure A-9 Certificate of Volatility (M522/M553; 2 of 2)

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 type="checkbox"/> No If Yes please describe below			
Purpose			
Frequency:)		Bandwidth:	
Modulation:		Effective Radiate Power (ERP):	
Specifications:			
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below:			
Purpose: Wireless direct print.			
Frequency: 2.4Ghz		Bandwidth:	
Modulation:		Effective Radiate Power (ERP):	
Specifications: 802.11 b/g			
Other Capabilities			
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below:			
Purpose: NFC; to support tap to print only			
Specifications: NFC Tag Type 4 ISO 14443B Compliant			
Author Information			
Name:	Title: Security Technical Marketing Engineer	Email:	Business Unit: IPG
			Date Prepared: 01/22/15

Figure A-10 Certificate of Volatility (M577; 1 of 2)

Hewlett-Packard Certificate of Volatility				
Model: HP Color LaserJet Enterprise MFP M577		Part Number: B5L46A=M4577dn B5L47A= M4577f B5L48A= M4577z B5L54A= M4577c		Address: Hewlett Packard Company 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): DRAM	Size: 1792MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Operation system and print/scan buffer	Steps to clear memory:
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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):	Size: 32KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Store customer setting data for backup/restore	Steps to clear memory:
Type (Flash, EEPROM, etc):	Size: 4MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: BIOS	Steps to clear memory:
Type (Flash, EEPROM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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	Size: 320GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: OS and user data	Steps to clear memory: firmware update
Type (HDD, Tape, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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				
Walkup USB Print				
Can any data other than scan upload be sent to the USB device)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below				
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 type="checkbox"/> No If Yes please describe below				
Purpose:				
Frequency:			Bandwidth:	
Modulation:			Effective Radiate Power (ERP):	
Specifications:				

Figure A-11 Certificate of Volatility (M577; 2 of 2)

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below:	
Purpose: WiFi Direct Print	
Frequency: 2.4 GHz	Bandwidth:
Modulation:	Effective Radiate Power (ERP):
Specifications: 802.11 b/g/n	

Other Capabilities
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below: NFC
Purpose: To support Tap-to-Print only
Specifications: NFC Tag Type 4 ISO14443B Compliant

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