



Color LaserJet Pro M153-M154
Color LaserJet Pro MFP M178-M181
Color LaserJet Pro M253-M254
Color LaserJet Pro MFP M278-M281

Troubleshooting Manual



M153-M154



M178-M181



M253-M254



M278-M281



www.hp.com/support/ljM153
www.hp.com/support/ljM178MFP
www.hp.com/support/ljM253
www.hp.com/support/ljM278MFP

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



HP Color LaserJet Pro M153-M154, M253-
M254, MFP M178-M181, M278-M281

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.

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- <https://support.hp.com/wise/home/ams-es>
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1 Theory of operation

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- [Scanning and image capture system \(M178-M181 and M278-M281 models\)](#)
- [Document feeder system operation \(M180nw, M181fw, and M278-M281 models\)](#)
- [Fax functions and operation \(fax models\)](#)

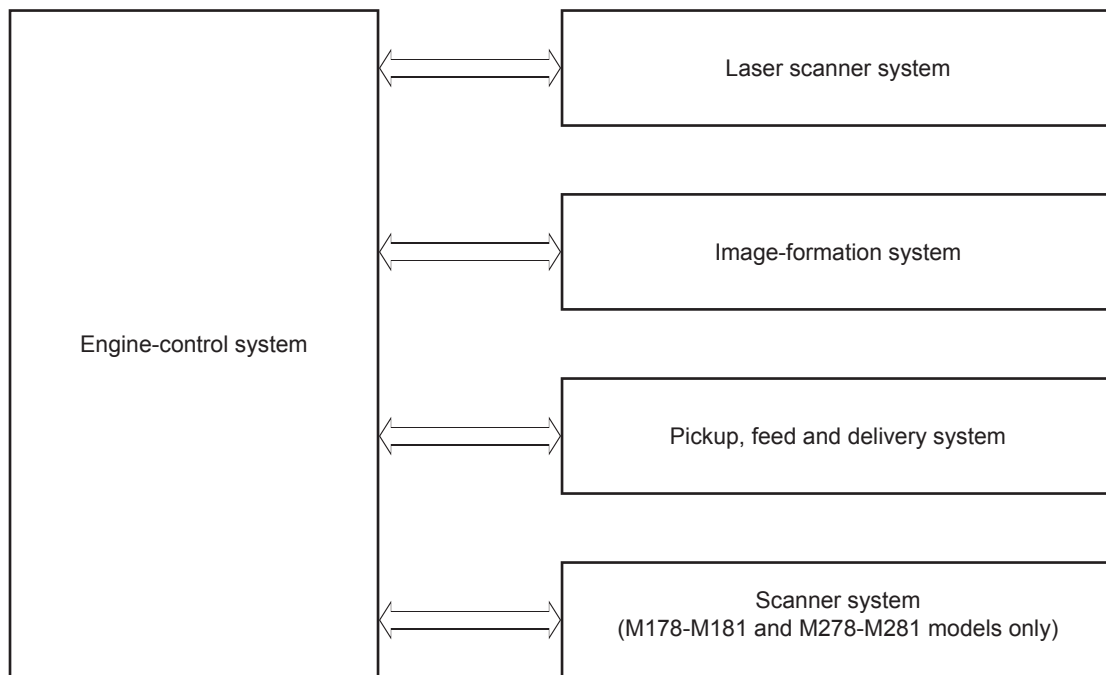
Basic operation

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:

- Engine control system
- Laser scanner system
- Image-formation system
- Pickup, feed, and delivery system
- Integrated scanner system (M178-M181 and M278-M281 models)

Figure 1-1 Basic operation



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">• Heats the fuser film in the fuser• Pressurizes the fuser pressure roller• Detects the toner cartridges• Separates all of the developer rollers from the photosensitive drums• Rotates and stops each motor• Rotates and stops the main fan• Cleans the intermediate transfer belt (ITB) and secondary transfer roller• Detects cable breakage on the thermistor• Detects any residual paper in the engine
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">• The printer is in the Ready state• The printer enters sleep mode if the sleep command is received from the formatter• The printer calibrates if it is time for an automatic calibration
Initial rotation	From the time the formatter receives a print command until the paper enters the paper path	<ul style="list-style-type: none">• Rotates each motor and the main fan• Activates the high-voltage power supply• Prepares the laser scanner unit• Warms the fuser to the correct temperature
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 and the main fan• Stops the high-voltage power supply• Stops the laser scanner unit• Stops the fuser• Cleans the ITB and secondary transfer roller• If the DC controller receives another print command, the printer enters the initial rotation period when the last rotation is complete.

Formatter-control system

The formatter is involved in the following procedures:

- Controlling the sleep delay function
- Receiving and processing print data from the various printer inputs
- Monitoring control-panel functions and relaying printer status information (through the control panel and the bidirectional input/output)
- Developing and coordinating data placement and timing with the DC controller PCA
- Storing font information
- Communicating with the host computer through the bidirectional interface


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

Sleep delay

When the printer is in sleep delay mode, the control-panel backlight is turned off, but the printer retains all printer settings, downloaded fonts, and macros. The default setting is a 15-minute idle time. The setting can be changed or turned off from the control panel menus.

The printer exits sleep delay mode and enters the warm-up cycle when any of the following occurs:

- A print job, valid data, or a PML or PJI command is received at the serial port.
- The control panel is touched.
- A document is loaded in the document feeder or the scanner lid is opened.
- A tray is opened.

 **TIP:** Error messages override the sleep delay message. The printer enters sleep mode at the appropriate time, but the error message continues to display.

Printer job language (PJI)

Printer job language (PJI) is an integral part of configuration, in addition to the standard printer command language (PCL) and PostScript (PS). With standard cabling, use PJI to perform a variety of functions, such as these:

- **Dynamic I/O switching:** The printer can be configured with a host on each I/O by using dynamic I/O switching. Even when the printer is offline, it can receive data from more than one I/O simultaneously, until the I/O buffer is full.
- **Context-sensitive switching:** The printer can automatically recognize the personality (PS or PCL) of each job and configure itself in 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 are printed in landscape mode only if they are formatted for it.

Printer management language (PML)

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

Control panel

The formatter sends and receives printer status and command data to and from the control panel.

Easy-access USB port (touchscreen models)

This printer features printing from a USB flash drive. This printer supports printing the following types of files from the USB flash drive:

- .pdf
- .jpg
- .prn and .PRN
- .cht and .CHT
- .pxl
- .pcl and .PCL
- .ps and .PS
- .doc and .docx
- .ppt and .pptx

When a USB flash drive is inserted into the front of the printer, the control panel displays the [USB Flash Drive](#) menu. The files present on the USB flash drive can be accessed from the control panel. Any files in a supported format on the USB flash drive can be printed directly from the printer control panel. Pages also can be scanned and saved to the USB flash drive from the control panel.

Wireless (wireless models)

Wireless models contain a wireless card to enable 802.11b/g/n wireless communication.

Low end data model (LEDM)

The low-end data model (LEDM) provides one consistent data representation method and defines the dynamic and capabilities tickets shared between clients and devices, as well as the access protocol, event, security, and discovery methods.

Advanced control language (ACL) overview

The advanced control language (ACL) is a language that supports printer control and firmware downloads in printers that support both PJI/PCL and host-based printing. Each sequence of ACL commands must be preceded by a unified exit command (UEL) and an @PJL ENTER LANGUAGE=ACL command. The ACL sequence is always followed by a UEL. Any number of commands can be placed between the UELs. The only exception to these rules is the download command. If a firmware download is completed, the download command must be the last command in the sequence. It will not be followed by a UEL.

The firmware searches for the UEL sequence when parsing commands. However, while downloading binary data such as host-based code or NVRAM data, the firmware suspends UEL parsing. To handle hosts that “disappear” during binary sequences, the firmware times out all ACL command sessions. If a timeout occurs during a non-download command sequence, it is treated as the receipt of a UEL. If a timeout occurs during firmware download, the printer resets.

Near field communication (NFC) (wireless models)

This printer supports near field communication (NFC) capabilities. NFC enables an easy, one-to-one HP wireless direct print connection using a simple device-to-device touch. Mobile device users can quickly connect to the printer and print documents and images from a mobile device, such as a smartphone or tablet, by touching the device to the NFC icon on the printer.

CPU

The formatter incorporates an 800 MHz processor.

Input/output

The following sections discuss the input and output features of the printer.

USB

The printer includes a universal serial bus (USB) 2.0 connection.

USB hosts

The printer includes USB hosts for USB flash drive and wireless communication control.

10/100 networking

The printer includes a 10/100 network (ethernet) connection.

Fax (M181 and M281 models)

The M181 and M281 models include a fax telephone line connection.

Memory

If the printer encounters a problem when managing available memory, a clearable warning message displays on the control panel.

Firmware

Memory on the formatter stores the firmware. A remote firmware upgrade process is used to overwrite and upgrade the firmware.

Nonvolatile random access memory (NVRAM)

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

Flash memory

NOR: Stores microprocessor control programs and internal character sets (fonts).


NAND: Stores fax memory (M181 and M281 models) and driver installation software.

Random access memory (RAM)

The M154a and M154n model comes with 128 MB of memory installed. All other models come with 256 MB of memory installed. The formatter has 256 MB NAND Flash.

HP Memory enhancement technology (MEt)

The HP Memory Enhancement technology (MEt) effectively doubles the standard memory through a variety of font- and data-compression methods.

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

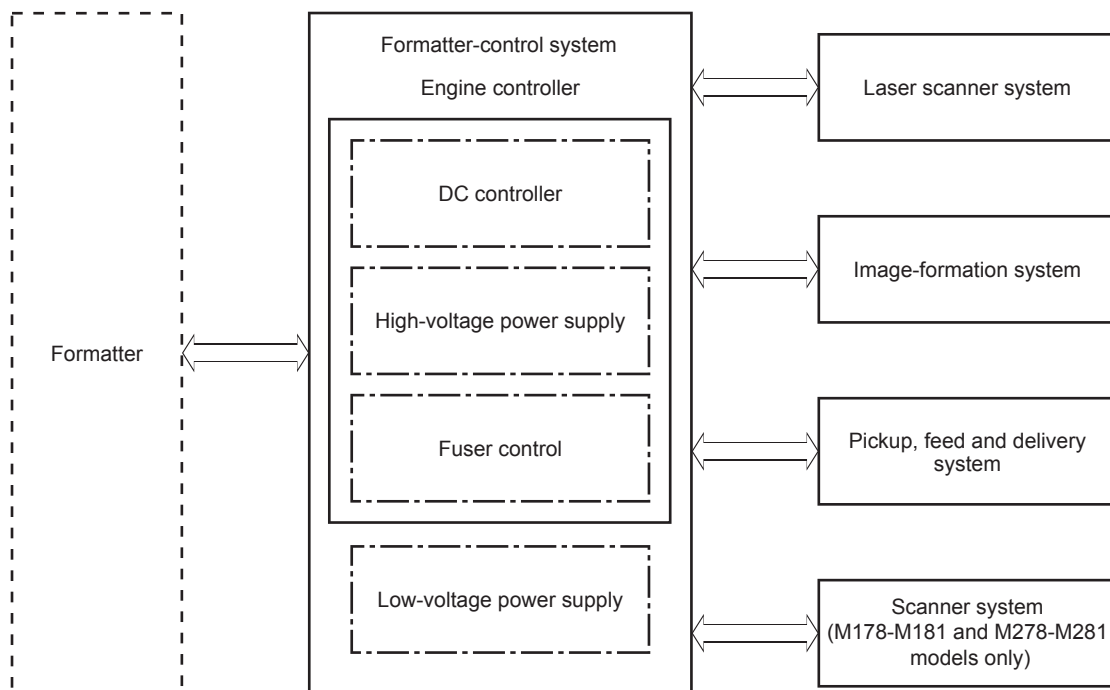
Engine-control system

The engine-control system receives commands from the formatter and coordinates all of the other systems. The engine-control system contains the following components:

- Engine control unit: DC controller and high-voltage power supply
- Low-voltage power supply
- Fuser control

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

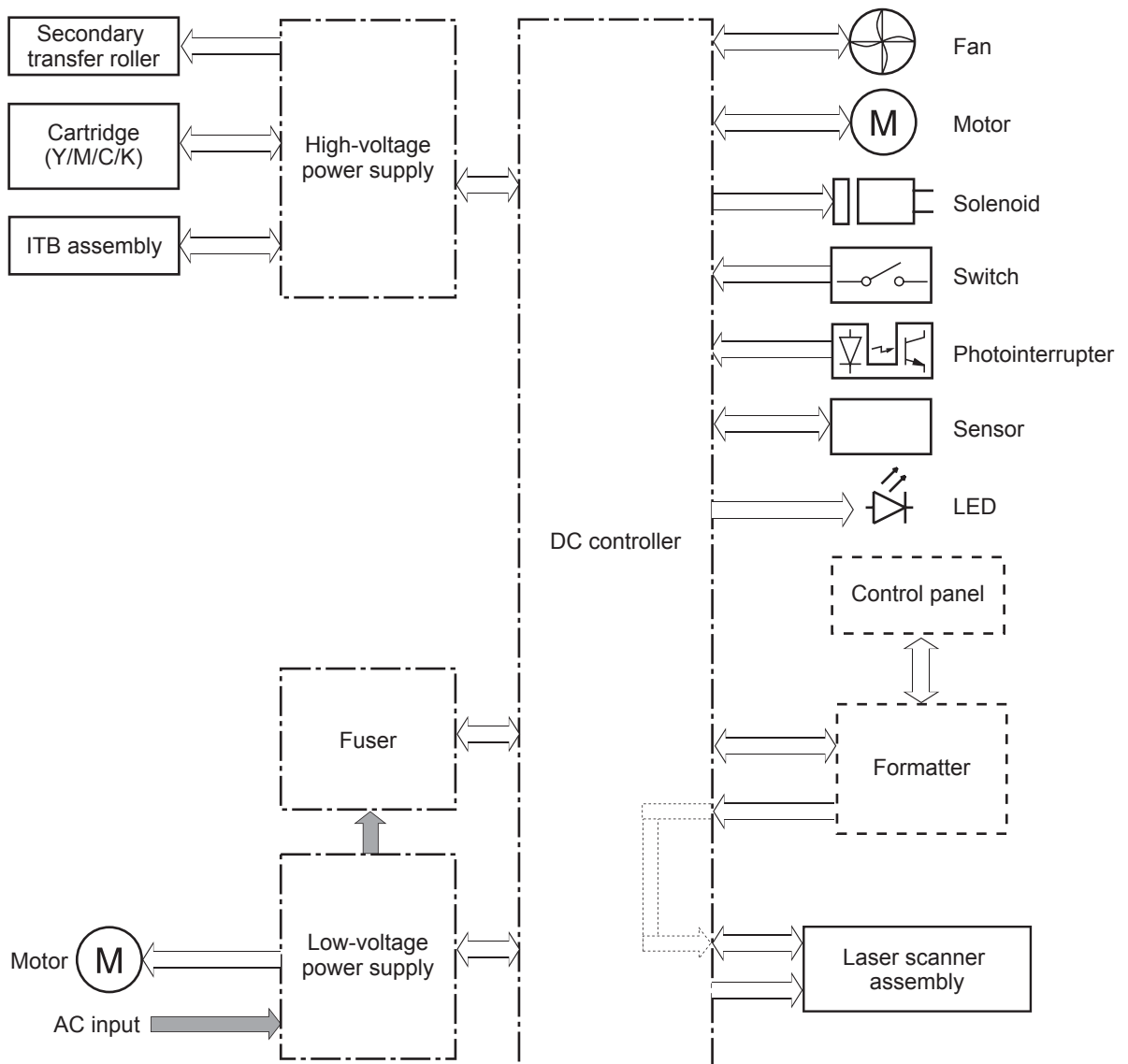
Figure 1-2 Engine control system



DC controller

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

Figure 1-3 Engine control unit



Motors

The printer includes four motors that affect the paper-feed and image-formation processes.

Table 1-2 Printer motors

Component name	Abbreviation	Components driven
Main motor	M701	<ul style="list-style-type: none">• Photosensitive drum• Developer• Intermediate transfer belt (ITB)
Fuser motor	M702	<ul style="list-style-type: none">• Pressure roller• Pressure/release of the pressure roller• Output roller
Pickup motor	M703	<ul style="list-style-type: none">• Cassette pickup roller• Cassette feed roller• Registration roller• Duplex re-pickup roller (duplex models)• Duplex feed roller (duplex models)• Priority slot feed roller (M253-M254 and M278-M281 models)
Scanner motor	M704	<ul style="list-style-type: none">• Scanner mirror

The DC controller determines the following motor failures:

- ITB motor start-up failure
- ITB motor rotation failure
- Developer alienation failure

Fans

The printer has one fan for preventing the printer from overheating and for cooling the delivered media.

Table 1-3 Printer fan

Component name	Abbreviation	Cooling area	Type	Speed
Main fan	FM1	<ul style="list-style-type: none">• Toner cartridges• Low-voltage power supply area	Intake	Full/Half

The DC controller determines the fan motor 1 failure.

Solenoids

The printer has five solenoids. Solenoids are used for printer operation control.

Table 1-4 Solenoids

Component abbreviation	Component name
SL711	Pickup solenoid

Table 1-4 Solenoids (continued)

Component abbreviation	Component name
SL712	Developer alienation solenoid
SL713	Duplex re-pickup solenoid (duplex models)
SL714	Duplex switchback solenoid (duplex models)
SL715	Lifter solenoid

Switches

The printer has seven switches. Switches are used for printer operation control.

Table 1-5 Switches

Component abbreviation	Component name
SW1	Developer home position detection switch
SW2	Fuser pressure release detection switch
SW3	Rear door switch, left
SW4	Front door switch
SW5	Priority slot media presence detection switch (M253-M254 and M278-M281 models)
SW6	Rear door switch, right (simplex models)
SW7	Cassette detection switch
SW601	Power switch

Sensors

The printer has 16 sensors. Sensors are used for remote detection of various functions during printer operation.

Table 1-6 Sensors

Component abbreviation	Component name
SR1	Fuser output sensor (M153-M154 and M178-M181 models)
SR601	Media width sensor, right
SR602	Media width sensor, left
SR606	Loop sensor (simplex models)
SR607	Fuser delivery sensor (M253-M254 and M278-M281 models)
SR608	Output sensor (M178-M181 models)
SR609	Output sensor 2 (M253-M254 and M278-M281 models)
SR616	Loop sensor (duplex models)
SR661	Registration sensor
SR662	Cassette paper out sensor
SR663	Lifter sensor
SR664	Cassette paper surface sensor
SR665	Priority slot TOP sensor (M253-M254 and M278-M281 models)
SR668	Cassette paper width sensor (M153-M154 and M178-M181 models)
(NA)	Registration density sensor
(NA)	Environment sensor (measures temperature and humidity)

Low-voltage power supply

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

Overcurrent/overvoltage protection

The low-voltage power supply has a protective function against overcurrent and overvoltage conditions to prevent failures in the power supply circuit. If an overcurrent or overvoltage event occurs, the system automatically cuts off the output voltage.

If the DC power is not being supplied from the low-voltage power supply, the protective function might have activated. In this case, turn off the power switch, and then disconnect the power cord. Do not connect the power cord or turn the power switch on again until the root cause is found.

Low-voltage power supply unit failure detection

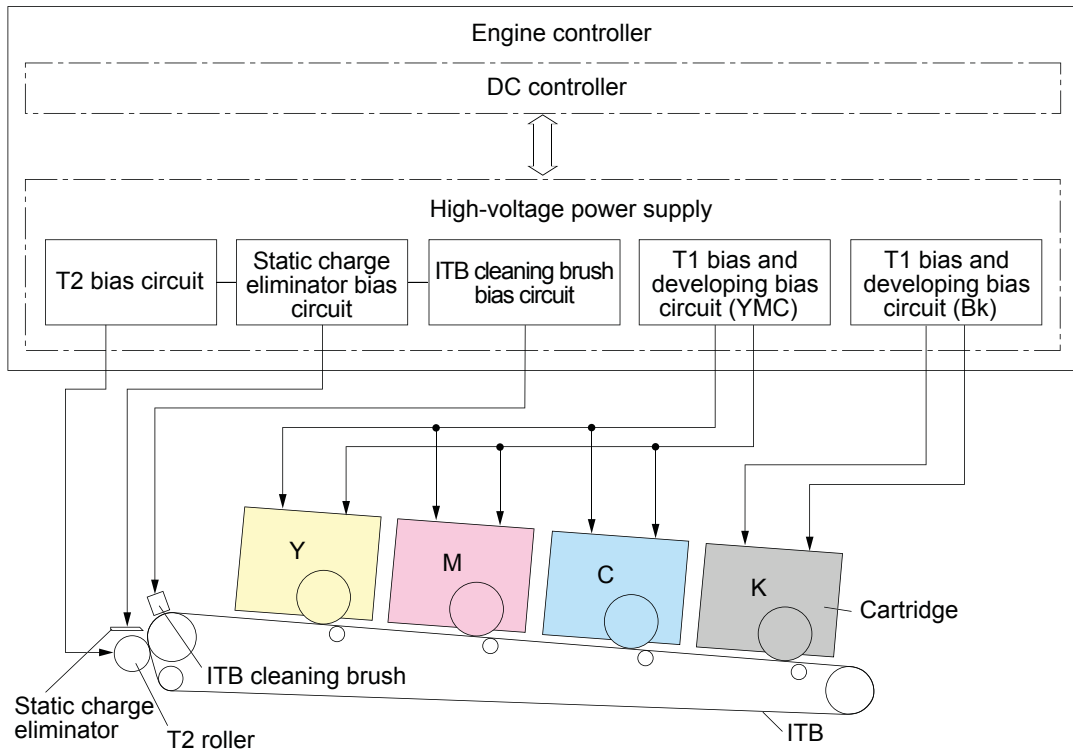
The DC controller determines a low-voltage power supply failure, stops 24V output, and notifies the formatter when it detects that the 24V output is higher than the specified voltage.

High-voltage power supply

The DC controller controls the high-voltage power supply to generate high-voltage biases. The high-voltage power supply generates the high-voltage biases that are applied to the following components:

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

Figure 1-4 High-voltage power supply



Fuser control

The printer uses an on-demand fusing method. 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 1-5 Fuser components

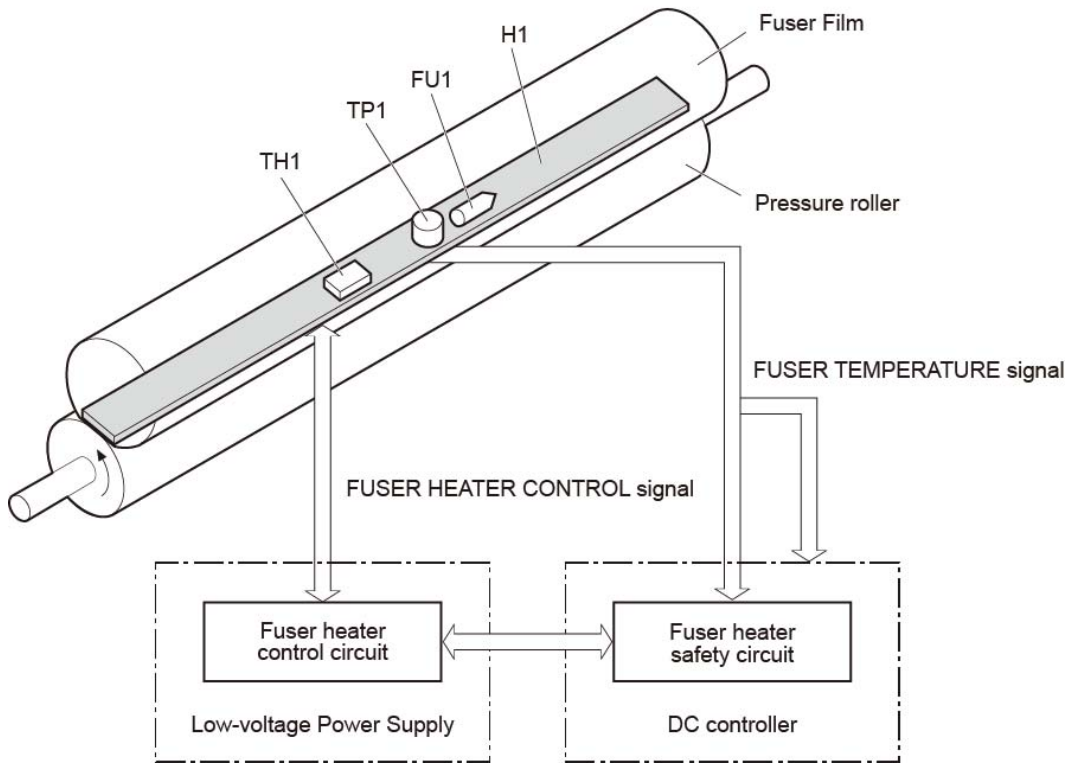
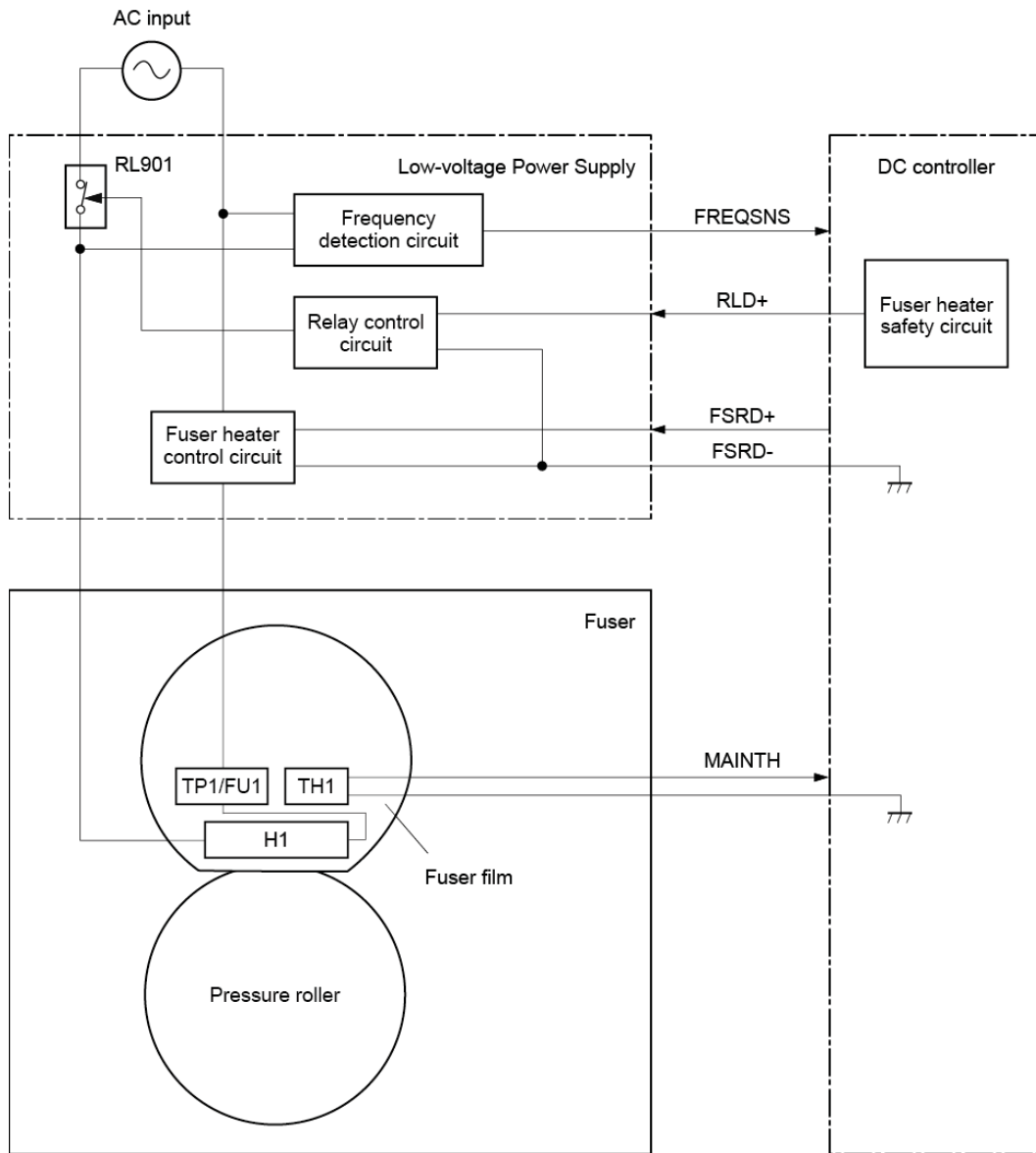


Table 1-7 Fuser components

Component Name	Abbreviation	Function
Fuser heater	H1	Heats the fuser film assembly
Thermistor (contact type)	TH1	Detects the center temperature of the fuser heater (contact type).
Temperature fuse (M181-M181 and M153-M154 models)	FU1	Prevents an abnormal temperature rise of the fuser heater (contact type).
Thermoswitch (M253-M254 and M278-M281)	TP1	Prevents an abnormal temperature rise in the fuser heater (contact type).

Fuser control block diagram

Figure 1-6 Fuser control



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.

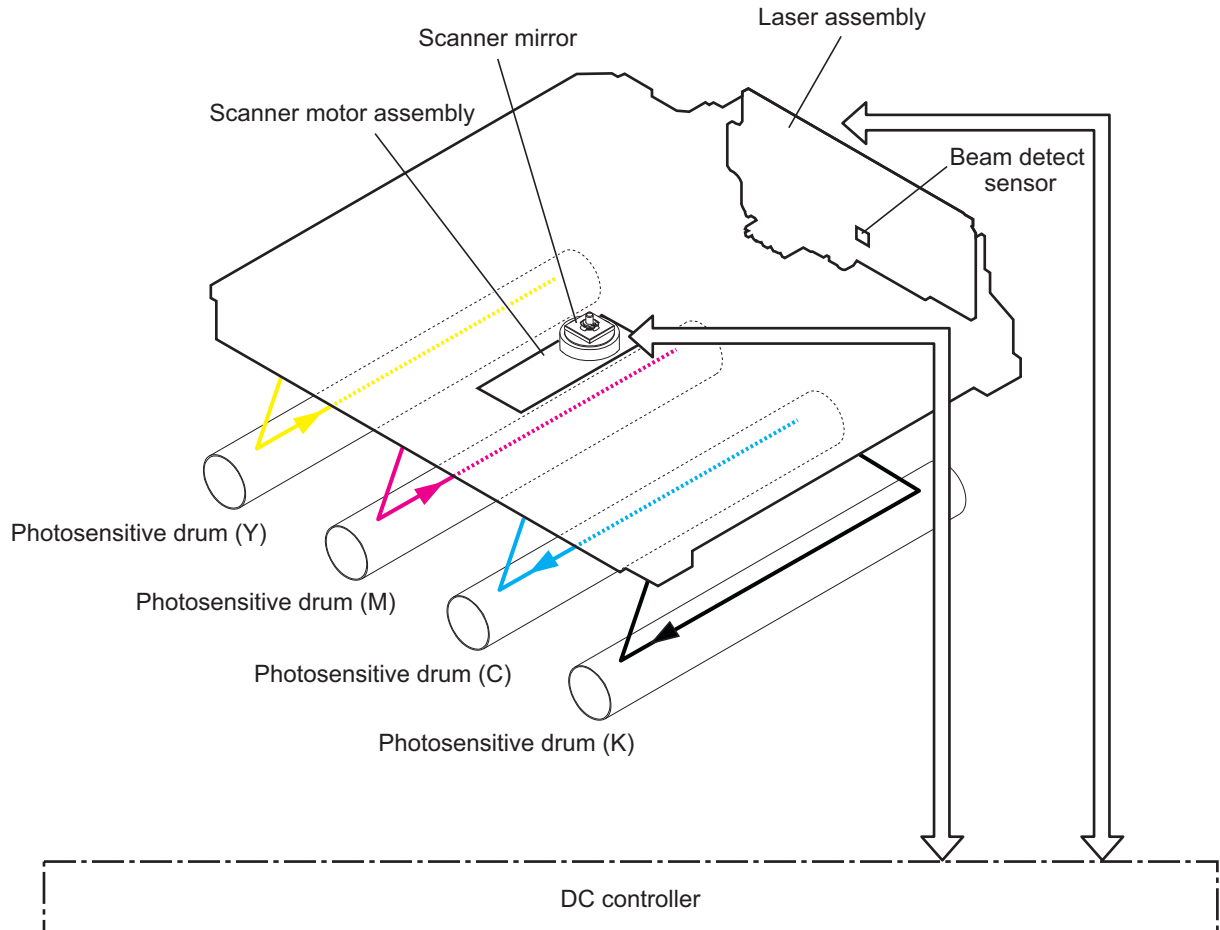
The following three protective components prevent the fuser heater from excessive rising temperature:

- **DC controller:** The DC controller constantly monitors the temperature of the thermistor. When the DC controller detects an excessive temperature, it deactivates the FUSER HEATER CONTROL signal and turns off the relays (RL101) to interrupt power supply to the fuser heater.
- **Fuser heater safety circuit:** The fuser heater safety circuit constantly monitors the detected temperature of the thermistors. When the fuser heater safety circuit detects an excessive temperature, it turns off the relays (RL101) to interrupt power supply to the fuser heater.
- **Temperature fuse (M153-M154 and M178-M181 models):** When the temperature fuse detects an abnormally high temperature in the fuser heater, the contact of the temperature fuse opens and interrupts the power supply to the fuser heater.
- **Thermoswitch (M253-M254 and M278-M281 models)** The contact of the thermoswitch opens to interrupt the power supply to the fuser heater when the temperature is abnormally high.

Laser scanner system

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

Figure 1-7 Laser scanner system



Laser failure detection

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

- Scanner motor start-up failure
- Scanner motor rotational failure

Image formation system

Image formation process

The image-formation system consists of 8 steps divided into six functional blocks.

Figure 1-8 Image-formation process

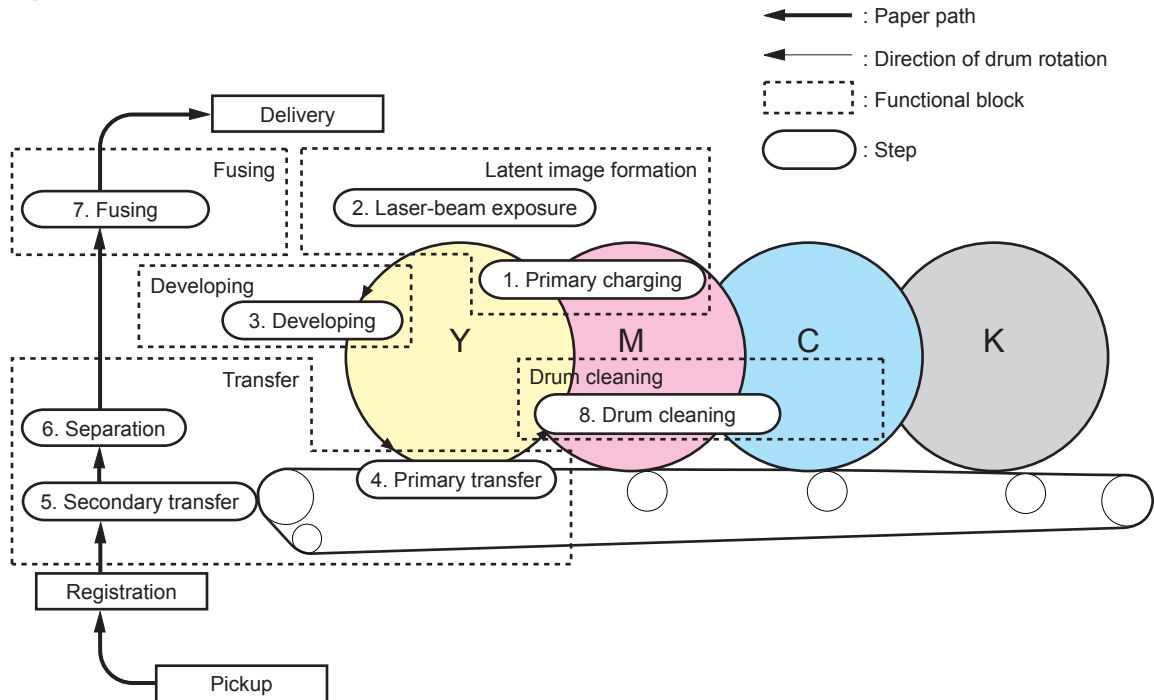


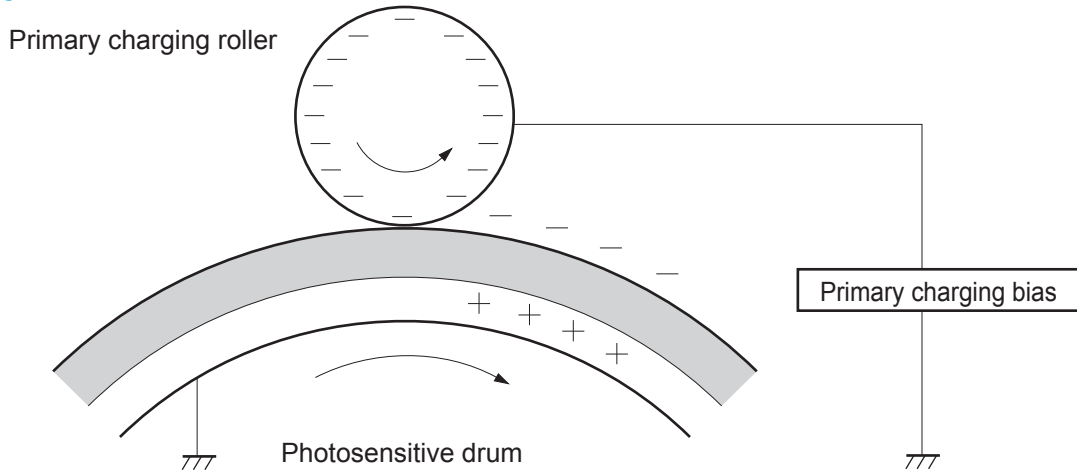
Table 1-8 Image formation process

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

Step 1: Primary charging

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

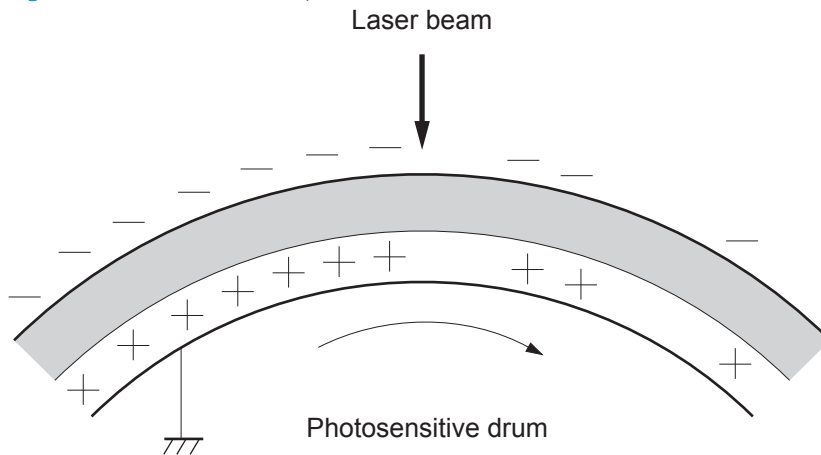
Figure 1-9 Primary charging



Step 2: 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.

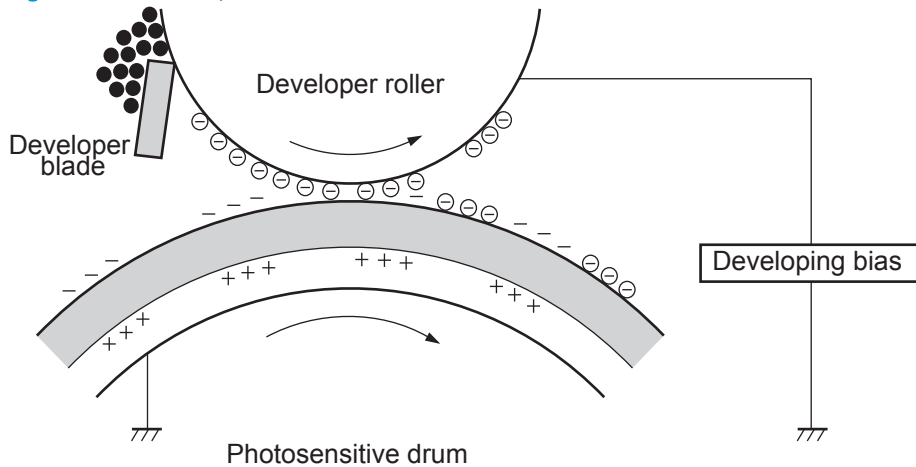
Figure 1-10 Laser-beam exposure



Step 3: 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.

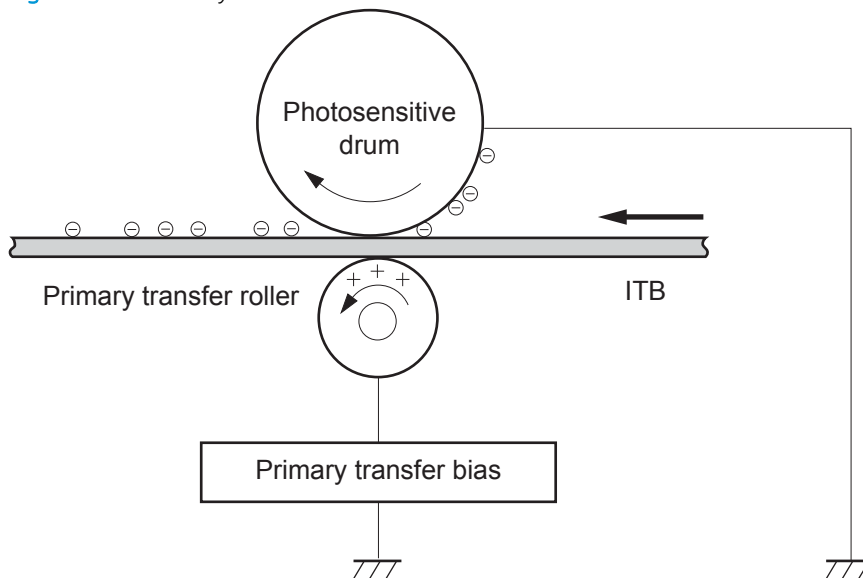
Figure 1-11 Development



Step 4: 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 then the complete toner image transfers onto the ITB.

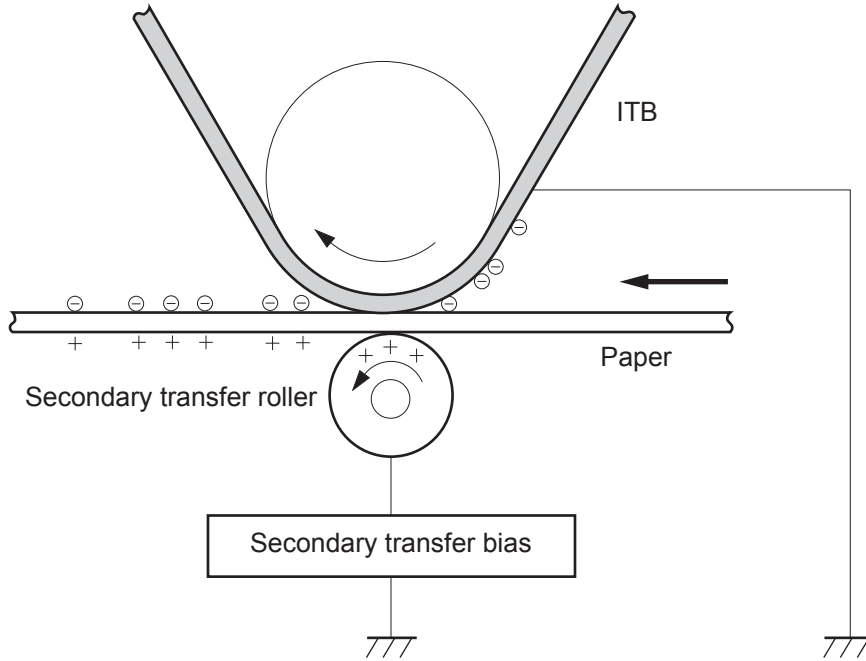
Figure 1-12 Primary transfer



Step 5: Secondary transfer

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

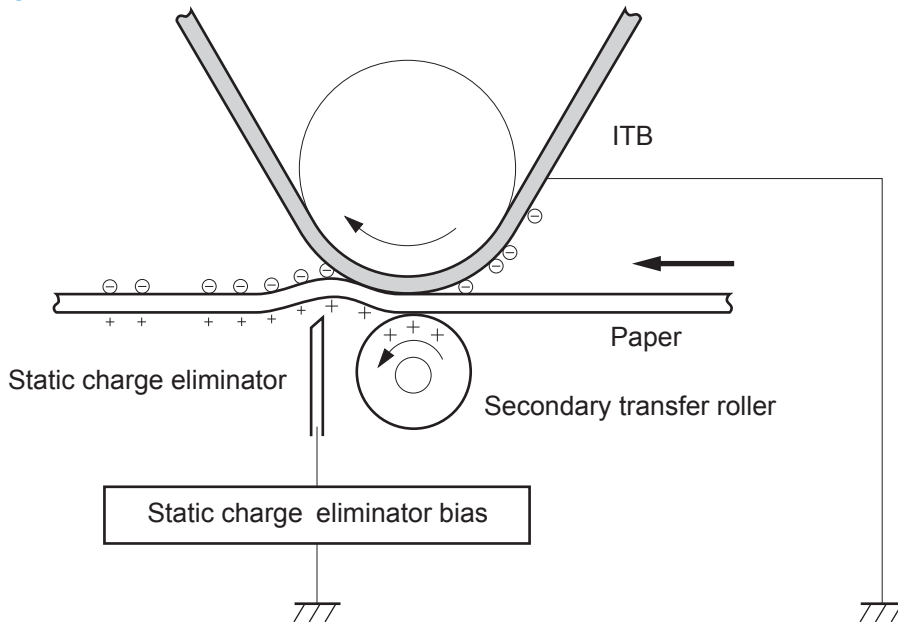
Figure 1-13 Secondary transfer



Step 6: Separation

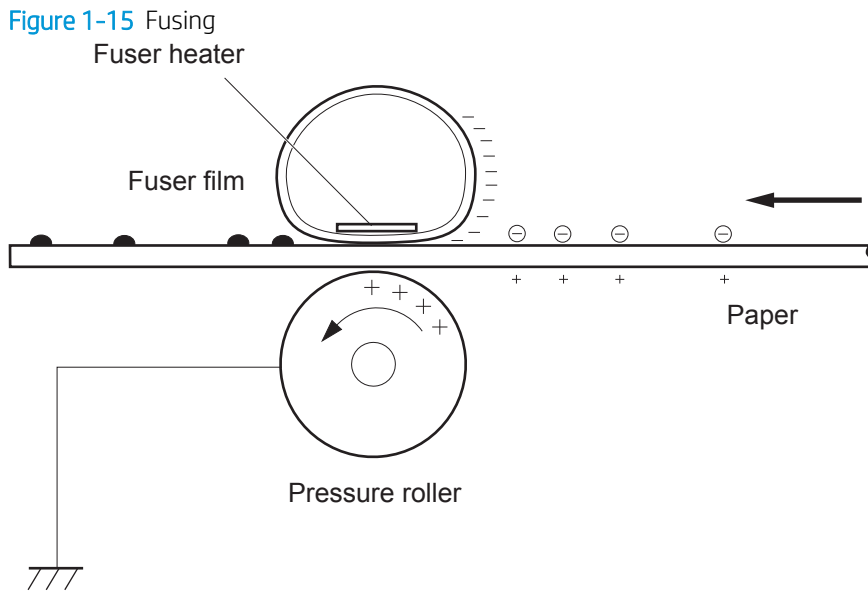
The stiffness of the paper causes it to separate from the ITB as the ITB bends. The static-charge eliminator removes excess charge from the paper to make sure that the toner fuses correctly.

Figure 1-14 Separation



Step 7: Fusing

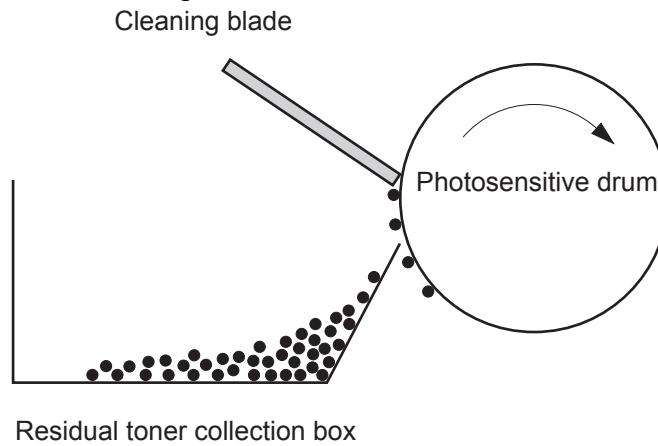
To create the permanent image, the paper passes through heated, pressurized rollers to melt the toner onto the page.



Step 8: Drum cleaning

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

Figure 1-16 Drum cleaning



Toner cartridges

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

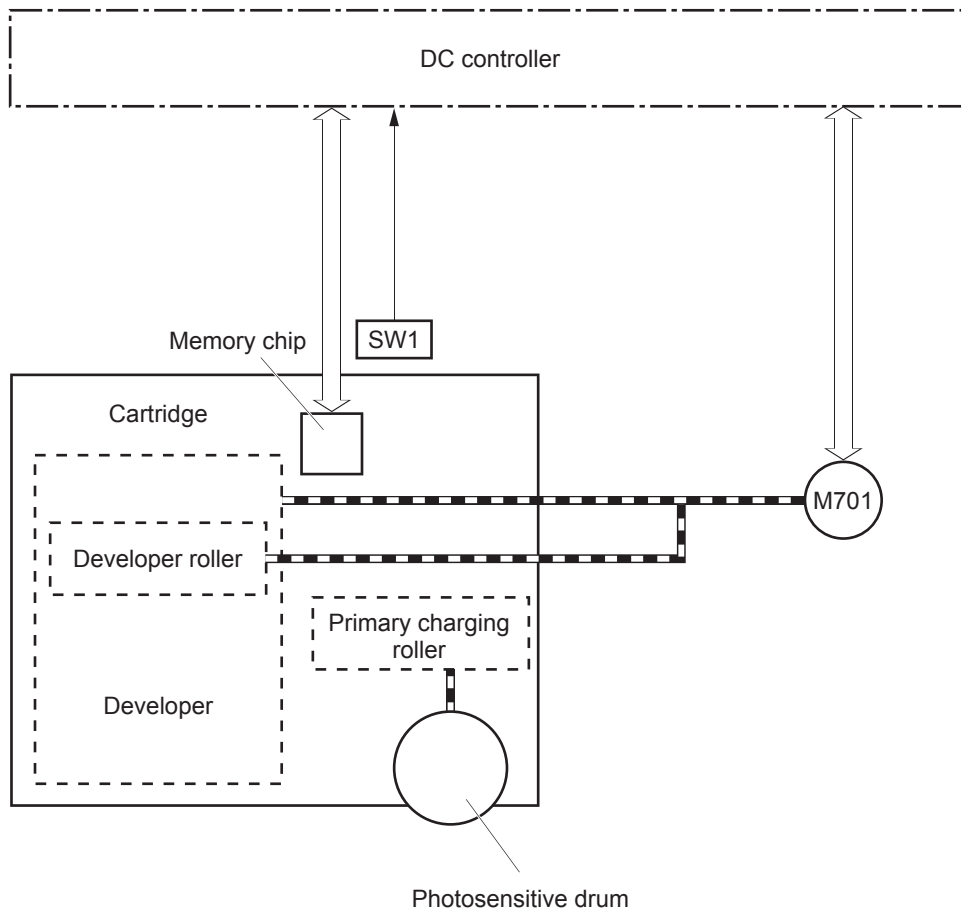
Design

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

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

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

Figure 1-17 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.

JetIntelligence

JetIntelligence supports two features for managing toner cartridges.

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

Authentication

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.

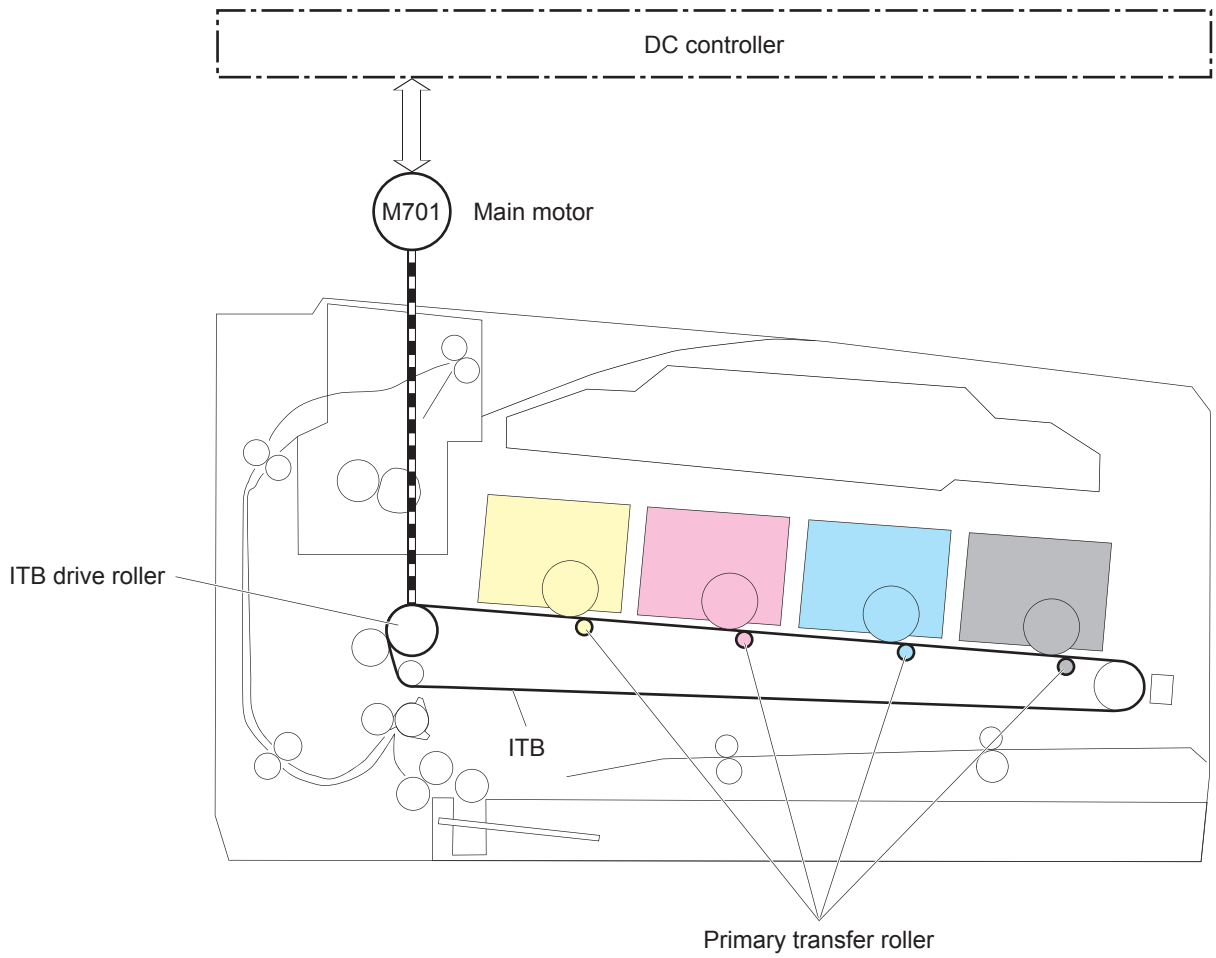
Intermediate transfer belt (ITB) assembly

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

- ITB
- ITB drive roller
- Primary transfer roller

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

Figure 1-18 ITB assembly



Engine pickup, feed, and delivery system

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 following components:

- **Pickup-and-feed block:** From each pickup source to the fuser inlet
- **Fuser-and-delivery block:** From the fuser to the delivery destination
- **Duplex block** (duplex models): From the duplex switchback unit to the duplex re-pickup unit

Figure 1-19 Paper path

- ▶ Simplex paper path
- ⋯▶ Duplex paper path

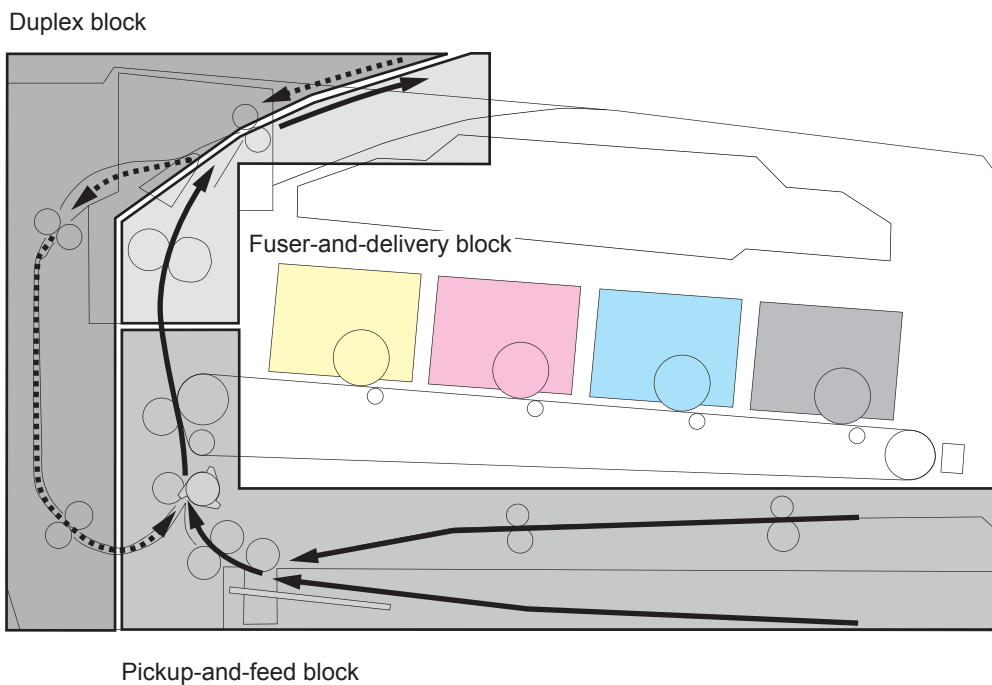


Figure 1-20 Switches and sensors for the pickup, feed, and delivery system

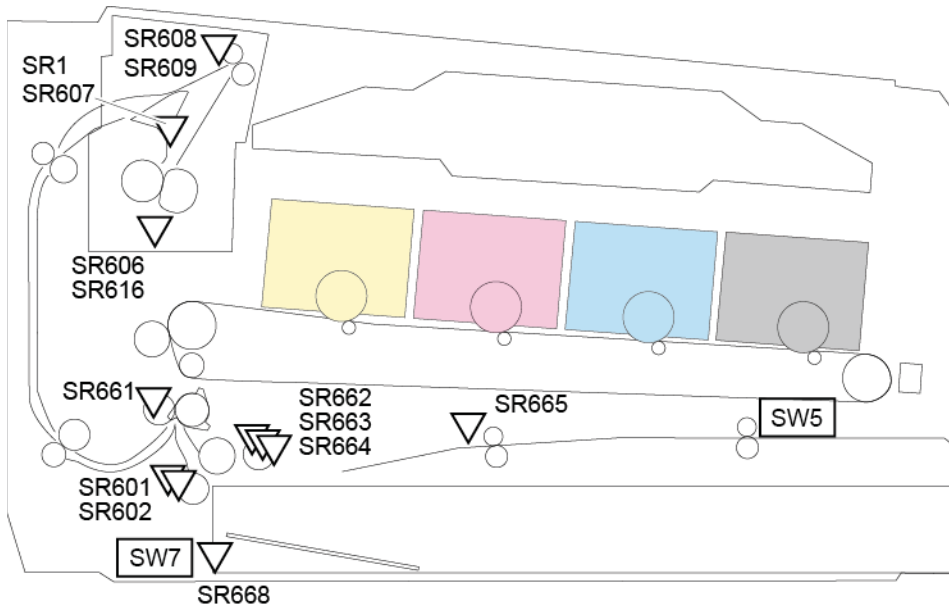


Table 1-9 Switches and sensors for the pickup, feed, and delivery system

Abbreviation	Component
SR1	Fuser output sensor (M153-M154 and M178-M181 models)
SR601	Media width sensor, right
SR602	Media width sensor, left
SR606	Loop sensor (simplex models)
SR607	Fuser delivery sensor (M253-M254 and M278-M281 models)
SR608	Output sensor (M178-M181 models)
SR609	Output sensor 2 (M253-M254 and M278-M281 models)
SR616	Loop sensor (duplex models)
SR661	Registration sensor
SR662	Cassette paper out sensor
SR663	Lift sensor
SR664	Cassette paper surface sensor
SR665	Priority slot TOP sensor (M253-M254 and M278-M281 models)
SR668	Cassette paper width sensor (M153-M154 and M178-M181 models)
SW5	Priority slot paper -presence switch (M253-M254 and M278-M281 models)
SW7	Cassette detection switch

Figure 1-21 Motors and solenoids for the pickup, feed, and delivery system

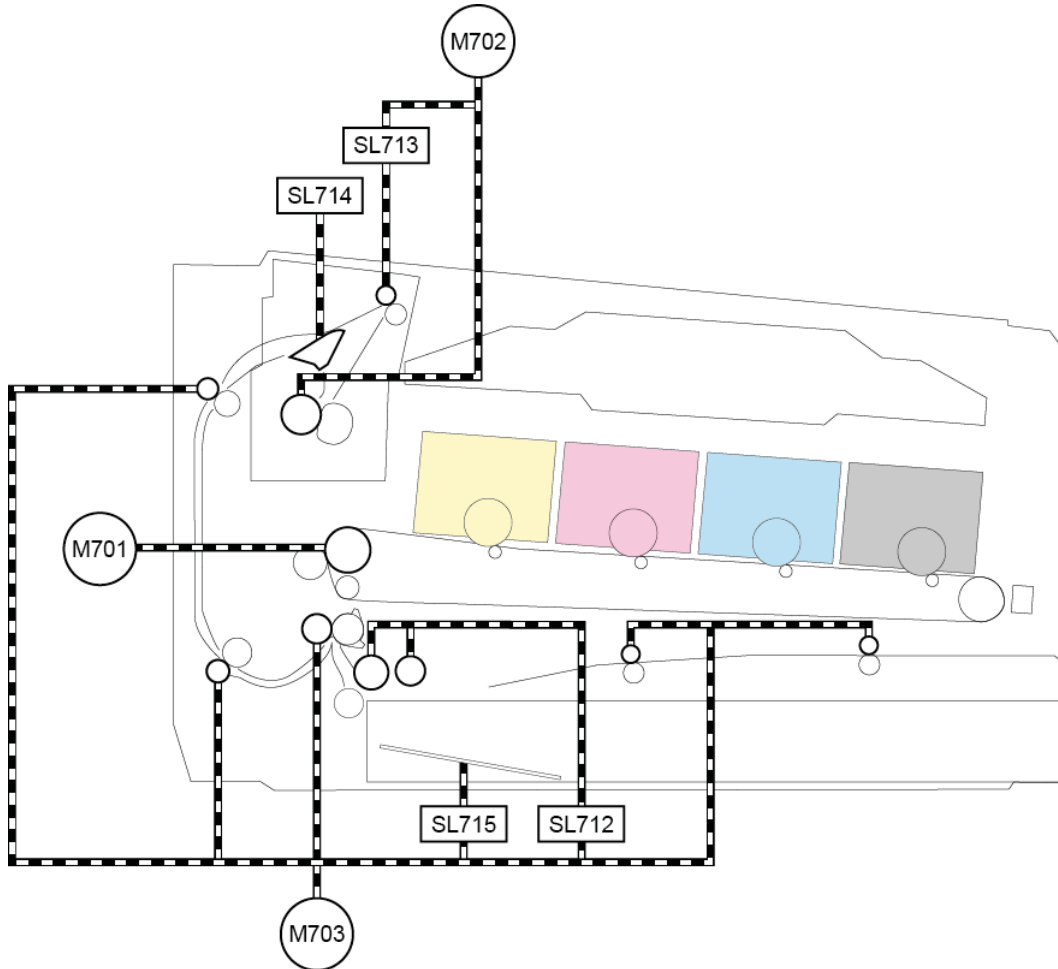


Table 1-10 Motors and solenoids for the pickup, feed, and delivery system

Abbreviation	Component
M701	Main motor
M702	Fuser motor
M703	Pickup motor
SL712	Cassette pickup solenoid
SL713	Duplex re-pickup solenoid (duplex models)
SL714	Duplex switchback solenoid (duplex models)
SL715	Lifter solenoid

Priority input slot pickup (M253-M254 and M278-M281 models)

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

The sequence of steps for the priority input slot pickup operation is as follows:

1. After receiving a print command from the formatter, the DC controller reverses the pickup motor, which causes the priority input slot separation roller to rotate.
2. The DC controller turns on the priority input slot pickup solenoid, causing the pickup roller to rotate, and paper is picked from the stack.
3. The priority input slot separation roller isolates a single sheet of paper in case more than one sheet was picked. The single sheet of paper is fed into the printer. This mechanism is the same as for the cassette pickup operation.

Cassette pickup

Following is the sequence of steps for the cassette tray pickup operation:

1. After receiving a print command from the formatter, the DC controller rotates the pickup motor.
2. This causes the lifting mechanism to lift the paper stack against the pick roller.
3. The cassette pickup roller, cassette feed roller, and cassette separation roller rotate to feed the sheet of paper.

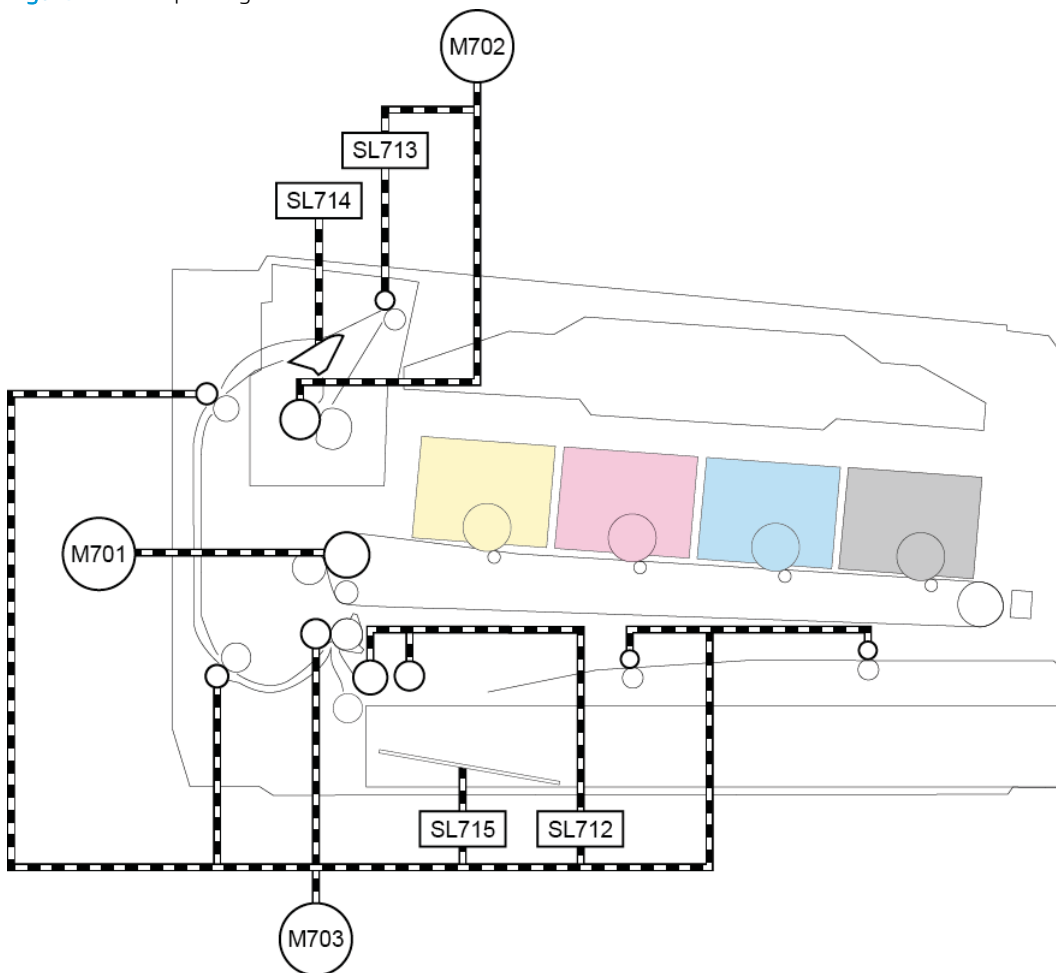
Duplexing unit (duplex models)

The duplexing unit reverses the paper and feeds it through the paper path to print the second side. The duplexing unit consists of the following components:

- **Duplexing reverse unit:** Located on top of the printer
- **Duplexing feed unit:** Located on the right side

The DC controller controls the operational sequence of the duplex block. The DC controller drives each load, such as motors, solenoids, and clutches, depending on the duplexing reverse unit and duplexing feed unit controls.

Figure 1-22 Duplexing unit controls



Duplex reverse and duplex feed control

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

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

Duplex pickup operation

The printer has the following two duplex-media-feed modes, depending on the paper size:

- **One-sheet mode:** Prints one sheet that is printed on two sides in one duplex print operation.
- **Two-sheet mode:** Prints two sheets that are printed on two sides in one duplex print operation.

Jam detection

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

- Priority slot top-of-page (TOP) sensor (M253-M254 and M278-M281 models)—SR665
- Media width sensor, right—SR601
- Media width sensor, left—SR602
- Registration sensor—SR661
- Loop sensor—SR606 (simplex models) or SR616 (duplex models)
- Fuser delivery sensor—SR1 (M153-M154 and M178-M181 models) or SR607 (M253-M254 and M278-M281 models)
- Output sensor—SR608 (M178-M181 models)
- Output sensor 2—SR609 (M253-M254 and M278-M281 models)

The printer detects the following jams:

- No pick jam 1
- No pick jam 2 (M253-M254 and M278-M281 models)
- Pickup stay jam 1
- Fuser delivery delay jam 1
- Fuser delivery stay jam 1
- Residual paper jam 1
- Residual paper jam 2 (M253-M254 and M278-M281 models)
- Door open jam 1
- Fuser wrapping jam 1
- Duplex re-pickup jam 1 (duplex models)
- Delivery delay jam 1 (M253-M254, M178-M181, and M278-M281 models)
- Delivery stay jam 1 (M253-M254, M178-M181, and M278-M281 models)
- Inappropriate to the delivery part Jam 1

Scanning and image capture system (M178-M181 and M278-M281 models)

The image scanner is located on the top of the printer. The contact image sensor component of the image scanner captures an electronic image of the document on the glass. The formatter controls the operation of the image capture system. The image scanner is available in two configurations:

- **Flatbed image scanner model** (M180n model only): This model consists of only the flatbed image scanner. The document to be scanned is placed face-down on the scanner glass.
- **Integrated scanner assembly model** (M180nw, M181fw, and M278-M281 models): This model consists of an automatic document feeder and image scanner. The document feeder feeds a document to be scanned from the document feeder input tray to the scanner glass.

Figure 1-23 Flatbed image scanner model block diagram

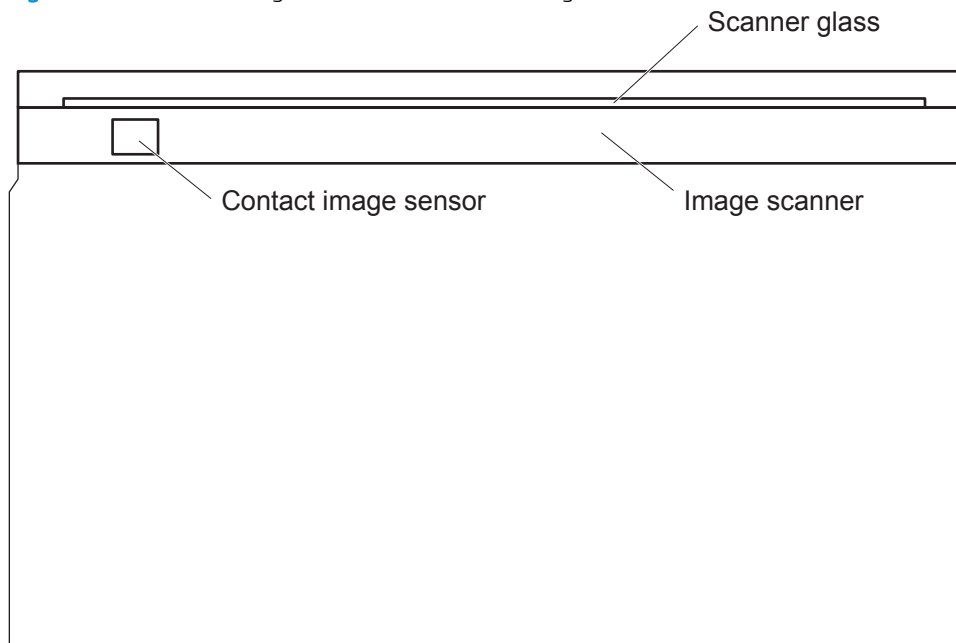
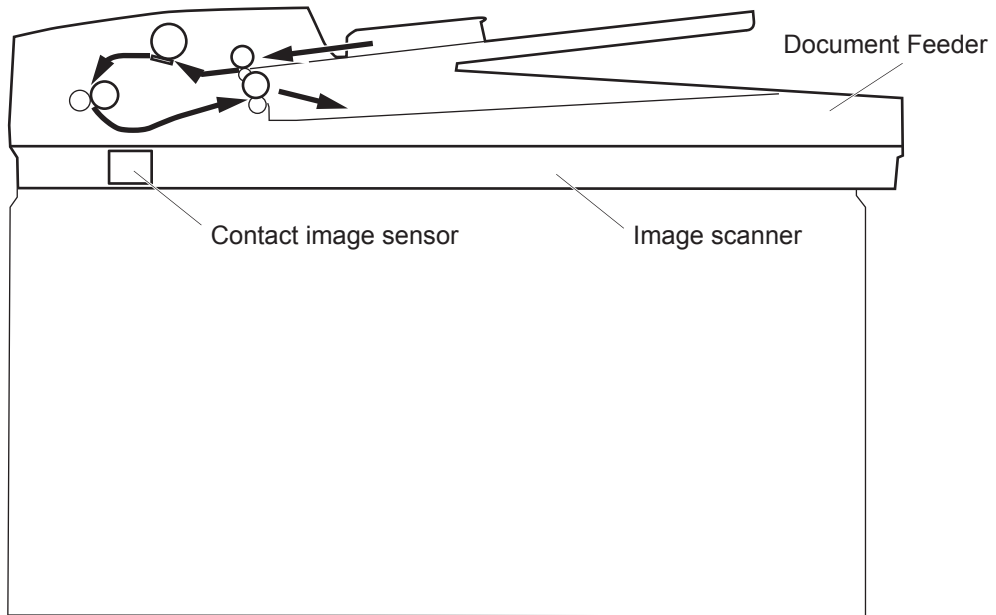


Figure 1-24 Integrated scanner assembly model block diagram



Motor and sensors

The following figure shows the motors and sensors in the scanning and image capture system.

Figure 1-25 Motor and sensors

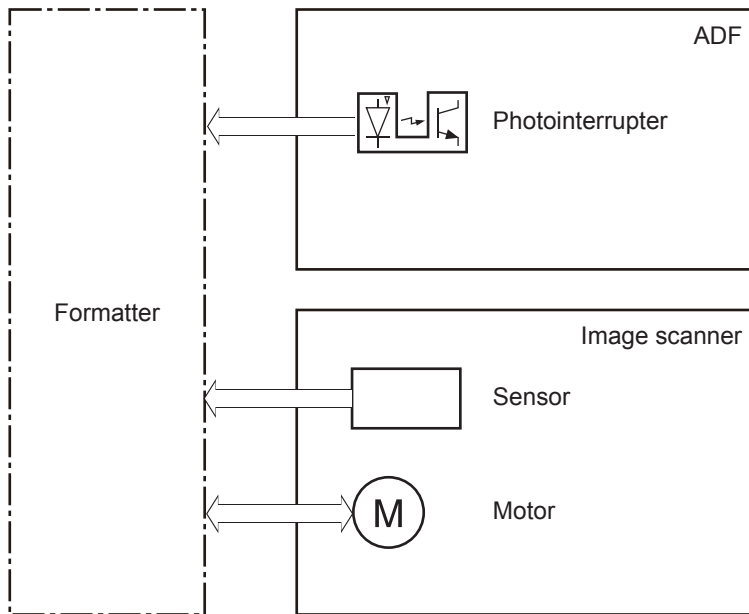


Table 1-11 Motor and sensors

Component type	Abbreviation	Component name
Motor	M2	Scan motor (drives document feeder rollers and contact image sensor)
Sensor	CIS	Contact image sensor
Photointerrupter	PS791	Document feeder document out sensor
	PF792	Document feeder TOF sensor

Document feeder system operation (M180nw, M181fw, and M278-M281 models)

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

The standard operation of the document feeder consists of the following steps:

- **Standby (paper-loading) mode:** In standby mode, the lift plate is in the down position. When a document is loaded into the input tray, the paper-present sensor detects its presence.

When a copy/scan is initiated, the document feeder motor engages the gear train and raises the lift plate until the document makes contact with the pick roller. The document feeder then begins the pick, feed, and lower sequence.

- **Pick:** The pick roller rotates and moves one or more sheets forward into the document feeder where the sheets engage with the separation roller. The separation roller contacts the document feeder separation pad, which separates multiple sheets into a single sheet.
- **Feed:** The single sheet continues through the document feeder paper path (aided by the pre-scan rollers) until the leading edge of the page activates the top-of-form sensor. Activation of this sensor initiates the scan process, and the scanner acquires the image as the document moves over the document feeder glass. The post-scan rollers then eject the sheet into the output area. The pick and feed steps are repeated as long as paper is detected by the paper-present sensor.
- **Home:** When the form sensor detects the trailing edge of the last page, the last sheet is ejected and the motor turns on a sequence that rests the separation floor back down in standby mode, which allows it to detect when more media is loaded.

Fax functions and operation (fax models)

The following sections describe the printer fax capabilities.

Computer and network security features

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

The following printer features prevent virus transmission:

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

PSTN operation

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

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

On most telephone systems, the TIP and RING signals appear on pins 3 and 4 of the RJ-11 modular jack (the one on the fax card, as defined in the common 6 wire RJ standard). These two signals do not have to be polarized because all of the equipment works with either TIP or RING on one pin and the other signal on the other pin. This means that cables of either polarity can interconnect and still work.



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


Receive faxes when you hear fax tones

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

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


1. If you are near the printer, do one of the following:

- **Touchscreen control panel:** From the Home screen on the printer control panel, select the **Fax**  icon.
 - **2-line control panel:** On the printer control panel, press the Start Fax  button..
2. Press 1-2-3 in sequence on the extension telephone keypad, listen for fax transmission sounds, and then hang up.


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

Distinctive ring function





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

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

Set up the distinctive ring function (touchscreen control panel)

1. On the Home screen, select the **Fax**  icon.
2. Scroll to and select **Fax Setup**.
3. Scroll to and select **Basic Setup**.
4. Scroll to and select **Distinctive Ring**.
5. Select one of the following options:
 - **All Rings** (default setting)
 - **Single**
 - **Double**
 - **Triple**
 - **Double and Triple**

Set up the distinctive ring function (2-line control panel)

1. Select **OK** to gain access to menus.
2. Use the right arrow  to scroll to the **Fax Setup** menu, and then select **OK**.
3. Use the right arrow  to scroll to the **Basic Setup** menu, and then select **OK**.
4. Use the right arrow  to scroll to the **Distinctive Ring** menu, and then select **OK**.
5. Use the right arrow  to select one of the following options:

- [All Rings](#) (default setting)
- [Single](#)
- [Double](#)
- [Triple](#)
- [Double and Triple](#)

6. Select [OK](#) to retain selection.

Fax by using voice over IP (VOIP) services

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

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

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

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

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

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

The fax subsystem

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

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

Fax card in the fax subsystem

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

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

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

Safety isolation

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

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

Safety-protection circuitry

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

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

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

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

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

Data path

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

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

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

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

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

Hook state

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

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

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

Downstream device detection

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

Hook switch control

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

Ring detect

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

Line current control

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

Billing or metering tone filters

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

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

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

Fax page storage in flash memory

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

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

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

Stored fax pages

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

Advantages of flash memory storage

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

The printer also has scan-ahead functionality that makes use of flash memory. Scan-ahead automatically scans pages into flash memory before a fax job is sent. This allows the sender to pick up the original document immediately after it is scanned, eliminating the need to wait until the fax transmission is complete.

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

2 Solve problems

- [Solve problems checklist](#)
- [Troubleshooting process](#)
- [Tools for troubleshooting](#)
- [Improve print quality](#)
- [Print quality troubleshooting guide](#)
- [Clean the printer](#)
- [Solve paper-handling problems](#)
- [Solve performance problems](#)
- [Solve connectivity problems](#)
- [Service mode functions](#)
- [Solve fax problems \(fax models only\)](#)
- [Solve email problems](#)
- [Firmware upgrades](#)

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. Make sure that the printer is set up correctly.
 - a. Press the power button to turn on the printer or to deactivate the Auto-Off mode.
 - b. Check the power-cable connections.
 - c. Make sure that the line voltage is correct for the printer power configuration. See the label that is on the printer for voltage requirements. If you are using a power strip and its voltage is not within specifications, plug the printer directly into the wall. If it is already plugged into the wall, try a different outlet.
2. Check the cable connections.
 - a. Check the cable connection between the printer and the computer. Make sure that the connection is secure.
 - b. Make sure that the cable itself is not faulty, by using a different cable if possible.
 - c. Check the network connection: Make sure that the network light is lit. The network light is next to the network port on the back of the printer.

If the printer remains unable to connect to the network, uninstall and then reinstall the printer. If the error persists, contact a network administrator.
3. Check to see if any messages appear on the control panel.
4. Make sure that the paper you are using meets specifications.
5. Make sure that the paper is loaded correctly in the input tray.
6. Make sure that the printer software is installed correctly.
7. Verify that you have installed the printer driver for this printer, and that you are selecting this printer from the list of available printers.
8. Print a configuration report.




Print a configuration report from a 2-line control panel

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **Reports**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Configuration Report**, and then select **OK**.
- d. Select ↵ to return to the Home screen.




Print a configuration report from a touchscreen control panel

- a. From the Home screen on the printer control panel, select **Setup** .
- b. Select **Reports**.
- c. Select **Configuration Report**.

Print a configuration report from the M153-M154 LED control panel

- a. Press and hold the Resume  button until the Ready  light begins blinking.
- b. Release the Resume  button.

Print a configuration report from the M178-M181 LED control panel

- a. Select and hold the Start Mono Copy  button until the Ready  light begins blinking.
- b. Release the Start Mono Copy  button.




After printing the configuration report, check the following:

- a. If the page does not print, verify that the input tray contains paper and that the paper is properly loaded.
 - b. Make sure that each toner cartridge is installed correctly.
 - c. If the page jams in the printer, clear the jam.
 - d. If the print quality is unacceptable, complete the following steps:
 - Verify that the print settings are correct for the paper you are using.
 - Solve print-quality problems.
9. Print a small document from a different program that has printed in the past. If this solution works, then the problem is with the program you are using. If this solution does not work (the document does not print), complete these steps:
- a. Try printing the job from another computer that has the printer software installed.
 - b. Check the cable connection. Direct the printer to the correct port, or reinstall the software, selecting the connection type you are using.


Print the menu map

To more easily navigate individual settings, print a report of the complete printer menus.

Print the menu map from a 2-line control panel

1. On the printer control panel, select **OK**.
2. Use the right arrow  to scroll to **Reports**, and then select **OK**.
3. Use the right arrow  to scroll to **Menu Structure**, and then select **OK**.
4. Select  to return to the Home screen.

Print the menu map from a touchscreen control panel

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Reports**.
3. Select **Menu Structure**.

Print the Menu Structure from an LED control panel

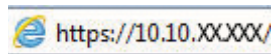
1. Open the HP Embedded Web Service (EWS):


Direct connected printers

- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- a. Print a configuration report to determine the IP address or host name.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

2. Select the **Home** tab, and then select the **Reports**.
3. Select **Menu Structure**, and then select **Print**.


Print a configuration report

Print a configuration report to test the printer.




Print a configuration report from a 2-line control panel

1. On the printer control panel, select **OK**.
2. Use the right arrow ► to scroll to **Reports**, and then select **OK**.
3. Use the right arrow ► to scroll to **Configuration Report**, and then select **OK**.
4. Select ↵ to return to the Home screen.




Print a configuration report from a touchscreen control panel

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Reports**.
3. Select **Configuration Report**.

Print a configuration report from the M153-M154 LED control panel

- ▲ Select and hold the Resume  button until the Ready  light is blinking, and then release the Resume  button.




Print a configuration report from the M178-M181 LED control panel

1. Select and hold the Start Mono Copy  button until the Ready  light begins blinking.
2. Release the Start Mono Copy  button.


Print the service page (includes the event log)

Printing the service page provides a list of printer settings that might be helpful in the troubleshooting process, as well as the event log, which stores the last 10 error events that the printer experienced.

Print the service page from a 2-line control panel

1. On the printer control panel, select **OK**.
2. Use the right arrow  to scroll to **Reports**, and then select **OK**.
3. Use the right arrow  to scroll to **Service Page**, and then select **OK** to print the report.
4. Select  to return to the Home screen.

Print the service page from a touchscreen control panel

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Reports**.
3. Select **Service Page** to print the report.

Print the service page from an LED control panel

1. Open the HP Embedded Web Service (EWS):

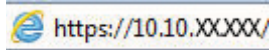
Direct connected printers

- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.

- **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- a. Print a configuration report to determine the IP address or host name.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

2. Select the **Home** tab, and then select the **Reports**.
3. Find **Service Page**, and then select **Print**.

The event log is located in the lower right-hand corner of the service page.

Troubleshooting process

Determine the problem source

When the printer malfunctions or encounters an unexpected situation, the printer control panel alerts the user to the situation. This section contains a pre-troubleshooting checklist to filter out many possible causes of the problem. 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 troubleshooting flowchart to pinpoint the root cause of hardware malfunctions. The flowchart provides guides to the sections of this chapter that contain steps to correct the malfunction.

Before beginning any troubleshooting procedure, check the following issues:

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



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

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 2-1 Troubleshooting flowchart

1 Power on	Is the printer on and does a readable message display?	Follow the power-on troubleshooting checks. After the control panel display is functional, see step 2.
	Yes ↓ No →	
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 →	
3 Event log	Print the service page to view the event log to see the history of errors with this printer. Does the service page print?	If the service page does not print, check for error messages. If paper jams inside the printer, see the Clear paper jams section of this manual. If error messages display on the control panel when trying to print a service page, see the Control panel message section of this 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 report to verify that all the accessories are installed. Are all the accessories installed?	If accessories that are installed are not listed on the configuration report, remove the accessory and reinstall it. After evaluating the configuration report, see step 5.
	Yes ↓ No →	

Table 2-1 Troubleshooting flowchart (continued)

5 Print quality	Does the print quality meet the customer's requirements?		Compare any print defects with the repetitive defect ruler in this 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 messages section of this 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 fan intake vents located on the right-side cover. When the fan is correctly operating, air passing into 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.

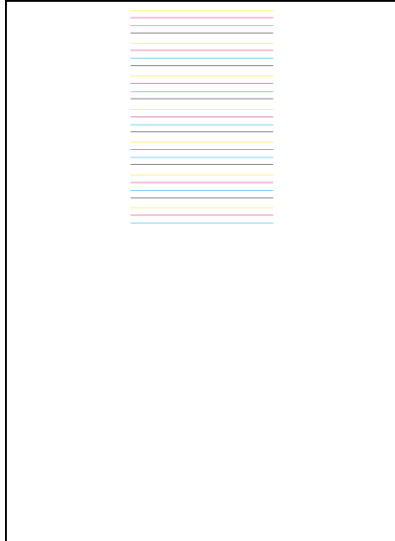
After the fan is operating, the main motor turns on (unless the top cover is open, a jam condition is sensed, or the paper-path sensors are damaged). Visually and audibly determine that the main motor is turned on.

If the fan and main motor are operating correctly, the next troubleshooting step is to isolate print engine, 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.

Perform an engine test

- ▲ With the printer on and in the Ready state, open and then close the front door four times (for a simplex print out on both simplex and duplex models) or five times (for a duplex print on duplex models). The printer prints the engine test page.

Figure 2-1 Engine test page



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. If startup noises are not heard, check the following:
 - a. Turn the printer off, and then remove the formatter.
 - b. Turn the printer on, and then listen for startup noises. If normal startup noises are heard, go to step [5](#).

 **NOTE:** The control panel will be blank with the formatter removed.

- c. If normal startup noises and lights are still not present, replace the LVPS.
- d. If after replacing the LVPS normal startup noises are still not heard, replace the DC controller.

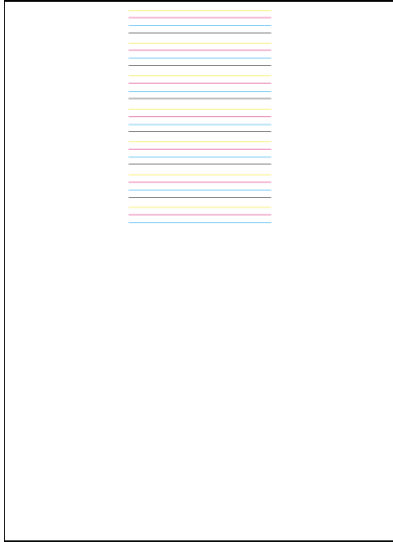
 **NOTE:** If the error persists after replacing these assemblies, escalate the problem to the Global Business Unit (GBU).

5. Try printing an engine test page.


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

- ▲ With the printer on and in the Ready state, open and then close the front door four times (for a simplex print out on both simplex and duplex models) or five times (for a duplex print on duplex models). The printer prints the engine test page.

Figure 2-2 Engine test page



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).

 **NOTE:** If the engine test page does not print, turn the printer off, remove the formatter, and then try the engine test again. If the page prints, the problem might be the formatter.

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).
- Formatter not fully seated.

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

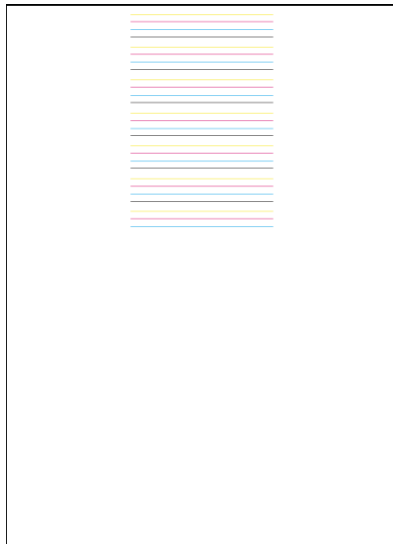
HP recommends fully troubleshooting the formatter and control panel before replacing either assembly. Use the link LED (green) to troubleshoot formatter and control panel errors to avoid unnecessarily replacing these assemblies. See the LED diagnostics section in this manual.

- Faulty component installed on the formatter (for example, memory DIMM or disk drive).
- Control panel connector not fully seated.
- Faulty formatter.
- Faulty DC controller.
- Faulty control panel.

Troubleshooting 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 is seated and operating correctly. Turn off the printer and remove the formatter. Reinstall the formatter, make sure the power switch is in the on position, and then verify that the network LED (amber) is blinking and that the link LED (green) 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.
 - ▲ With the printer on and in the Ready state, open and then close the front door four times (for a simplex print out on both simplex and duplex models) or five times (for a duplex print on duplex models). The printer will print the engine test page.

Figure 2-3 Engine test page



- 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).
- ▲ Use the control-panel diagnostics to test the control panel. See the Control panel checks section below. If the error persists, proceed to the next step.
 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

The printer includes diagnostic tests for the control panel. This mode allows for troubleshooting issues with the LEDs (2-line control panels), display, and the buttons.

1. Open the secondary service menu.

2-line control panels

- a. From the printer control panel, select **OK**.
- b. Press and hold the left arrow ◀.
- c. Press **Cancel** ✖.
- d. Select **OK** to reopen the **Setup** menu.
- e. Use the right arrow ▶ to scroll to the **2ndary Service** menu, and then select **OK**.

 **NOTE:** Need to turn printer off then on to exit 2ndary Service menu.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select **Setup** ⚙️.
- b. Touch the space between the Home 🏠 and Help ❓.
- c. Select **Back** ↶.
- d. Select **Setup** ⚙️.
- e. Scroll to and select **2ndary Service** menu.

 **NOTE:** Need to turn printer off then on to exit 2ndary Service menu.

LED control panels

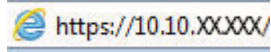
- a. Open the HP Embedded Web Service (EWS):

Direct connected printers

- i. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.
- ii. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- i. Print a configuration report to determine the IP address or host name.
- ii. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

- b. Select the **System** tab, from the left side of screen select **Service**.
 - c. On the lower part of the screen, select **Go to the 2ndary Service Page**.
2. Select one of the following tests:
- **LED test:** Test the LED lights on 2-line control panels. The touchscreen control panels do not have any LEDs.
 - **Display Test:** Test the control panel display.
 - **Button Test:** Test the control panel buttons.

 **NOTE:** Need to turn printer off then on to exit the 2ndary Service menu.

Tools for troubleshooting

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

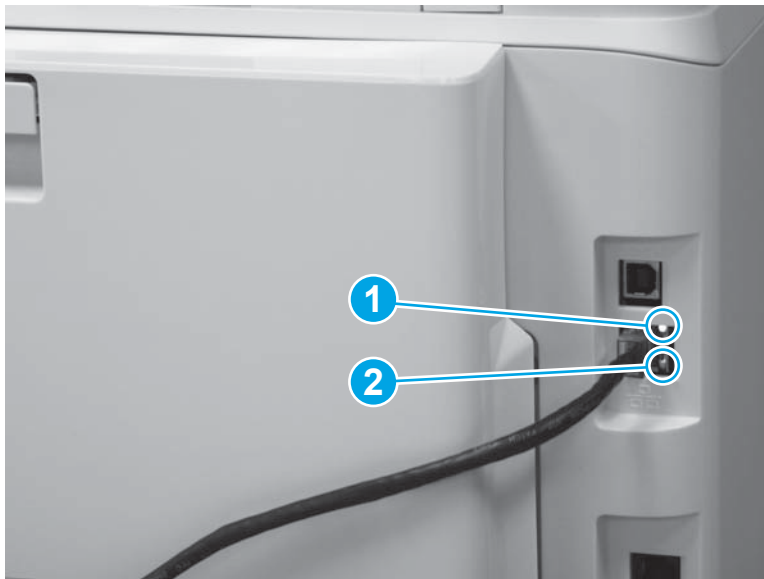
Individual component diagnostics

Tools for troubleshooting: LED diagnostics

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

Network port LEDs

The formatter has two network port LEDs. When the printer is connected to a properly working network through a network cable, the amber LED indicates network activity, and the green LED indicates the link status.





-
- 1 Link status LED (green)
 - 2 Network activity LED (amber)
-

A blinking amber LED indicates network traffic. If the green LED is off, a link has failed. For link failures, check all of the network cable connections. In addition, you can try to manually configure the network card link speed setting by using the printer control-panel.

2-line control panels:

1. On the printer control panel, press **OK**.
2. Use the right arrow ► to scroll to **Network Setup**, and then select **OK**.
3. Use the right arrow ► to scroll to **Link Speed**, and then select **OK**.
4. Use the right arrow ► to scroll to appropriate link speed, and then select **OK**.
5. Select ↵ to return to the Home screen.

Touchscreen control panels:

1. From the Home screen on the printer control panel and select **Setup** .
2. Select the following menus:
 - **Network Setup**
 - **Link Speed**
3. Select the appropriate link speed.
4. Select  to return to the Home screen.

LED control panels:

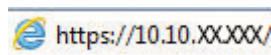
1. Open the HP Embedded Web Service (EWS):


Direct connected printers

- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- a. Print a configuration report to determine the IP address or host name.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

2. Select the **Networking** tab, and then from the left side of the screen, select **Advanced**.
3. Under the **Other Settings** heading, set the **Link Speed** from the drop-down menu, and then select **Apply**.

Two-line control panel LEDs

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

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

¹ The printer restarts after one of these errors occurs.

Tools for troubleshooting: Engine diagnostics

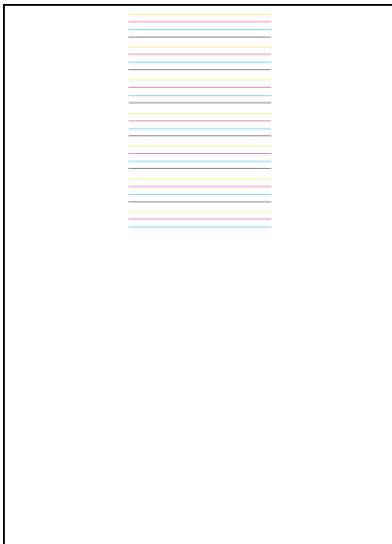
The printer contains extensive internal engine diagnostics that help in troubleshooting print quality, paper path, noise, assembly, and timing issues.

Engine test

To verify that the printer engine is functioning, print an engine test page. 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 the cassette tray as the paper source, so make sure that paper is loaded in the cassette tray.

- ▲ With the printer on and in the Ready state, open and then close the front door four times (for a simplex print out on both simplex and duplex models) or five times (for a duplex print on duplex models). The printer prints the engine test page.

Figure 2-4 Engine test page



Diagrams

Use the diagrams in this section to identify printer components.

Diagrams: Block diagrams

Sensors and switches

Figure 2-5 Sensors and switches

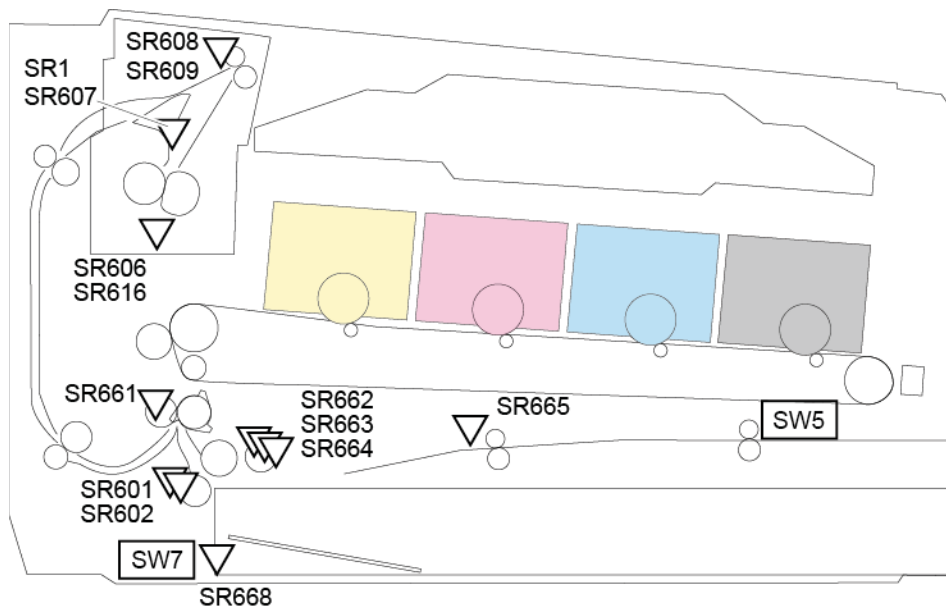


Table 2-2 Switches and sensors for the pickup, feed and delivery system

Item	Description	Item	Description
SW5	Priority feed slot media presence detection switch	SR609	Output sensor (M253-M254 and M278-M281 models only)
SW7	Cassette detection switch	SR616	Loop sensor (duplex models only)
SR601	Media width sensor (right)	SR661	Registration sensor
SR602	Media width sensor (left)	SR662	Loop sensor (duplex models only)
SR606	Loop sensor (simplex models only)	SR663	Lifter sensor
SR607	Fuser delivery sensor (M253-M254 and M278-M281 models only)	SR664	Cassette paper surface sensor
Item	Description	SR665	Priority feed slot TOP (M253-M254 and M278-M281 models only)
SR608	Output sensor (M178-181 models only)	SR668	Cassette paper width sensor (M153-M154 and M178-181 models only)

Diagrams: Printed circuit assembly (PCA) connector locations

- [Diagrams: Formatter connections](#)
- [Diagrams: DC controller connections](#)

Diagrams: Formatter connections

Figure 2-6 Formatter connections (M153-M154 and M253-M254 models)

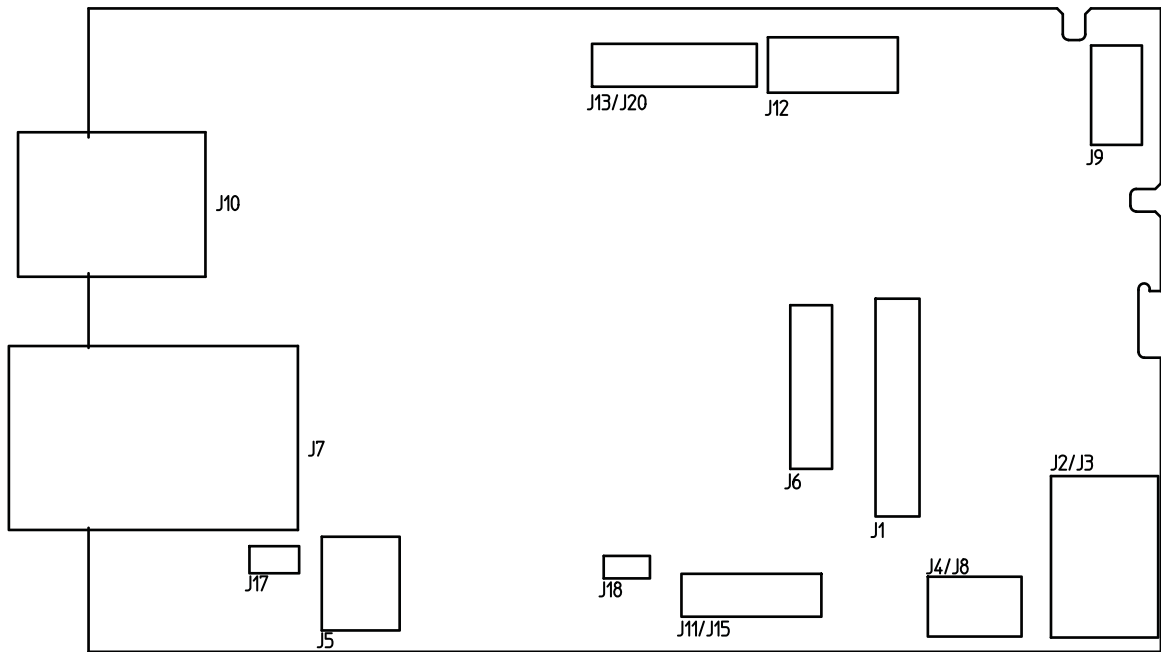


Table 2-3 Formatter connections (M153-M154 and M253-M254 models)

Item	Description	Item	Description
J1	Not used	J10	USB port
J2/J3	Power entry	J11/J15	Engine control unit
J4/J8	Walkup USB	J12	Control panel
J5	Not used	J13/J20	Control panel
J6	Not used	J17	Not used
J7	Ethernet port	J18	Not used
J9	Wi-Fi module		

Figure 2-7 Formatter connections (M178-181 and M278-281 models)

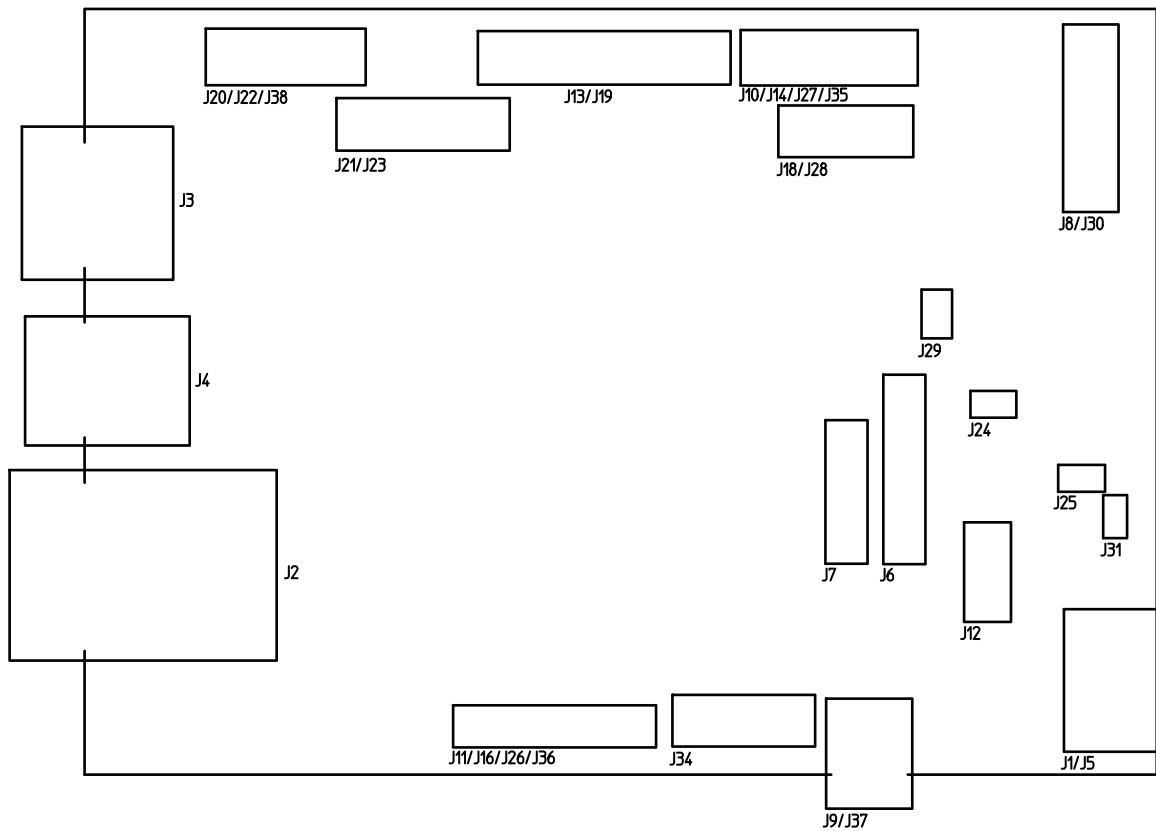


Table 2-4 Formatter connections (M178-181 and M278-281 models)

Item	Description	Item	Description
J1/J5	Power entry	J12	Fax
J2	Ethernet port	J13/J19	Flatbed scanner
J3	Not used	J18/J28	Control panel
J4	USB port	J20/J22/J38	ADF connector
J6	Not used	J24	Not used
J7	Not used	J25	Not used
J8/J30	Wi-Fi module	J29	Not used
J9/J37	Walkup USB	J31	Not used
J10/J14/J27/J35	Control panel	J34	Not used
J11/J16/J26/J36	Engine control unit		

Diagrams: DC controller connections

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

Figure 2-8 DC controller PCA connectors

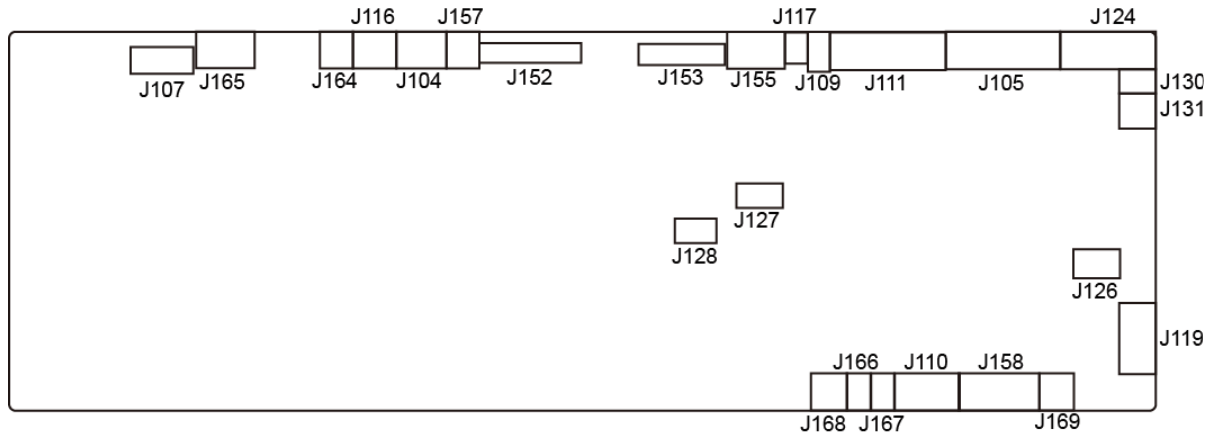


Table 2-5 DC controller connectors

Item	Description	Item	Description
J104	Fuser	J130	Front door switch
J105	Low-voltage power supply assembly	J131	Power supply switch
J107	Formatter	J152	Yellow/Magenta laser scanner assembly
J109	Scanner motor	J153	Cyan/Black laser scanner
J110	Environment sensor Media width sensor (left) Media width sensor (right)	J155	Formatter
J111	Pickup motor Pickup solenoid Developer alienation solenoid Main fan Fuser motor Development home position detection switch	J157	Duplex re-pickup solenoid (duplex models only) Duplex switch back solenoid (duplex models only)
J116	Loop sensor) Rear door switch (right) (simplex models only)	J158	Registration sensor Cassette paper out sensor Lifter sensor Cassette paper surface sensor
J117	Priority feed slot media presence detection switch (M253-M254 and M278-M281 models only)	J164	Fuser output sensor

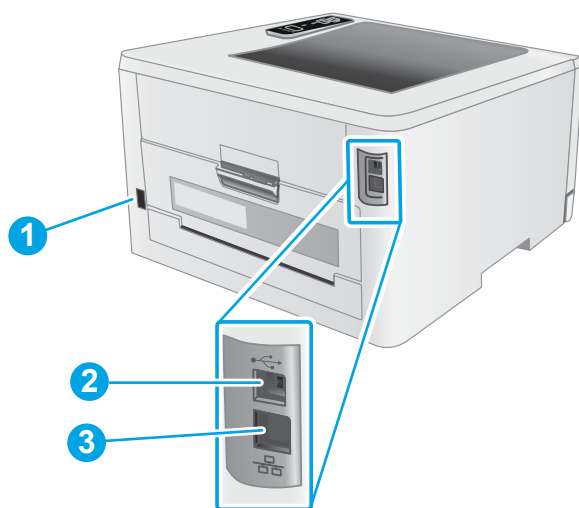
Table 2-5 DC controller connectors (continued)

Item	Description	Item	Description
J119	Registration density sensor	J165	Output sensor 2 (M253-M254 and M278-M281 models only) Output sensor (M178-181 models only)
J124	E-label	J166	Lifter solenoid
J126	(Not used.)	J167	Cassette detection switch
J127	(Not used.)	J168	Cassette paper width sensor (M153-M154 and M178-181 models only)
J128	(Not used)	J169	Priority feed slot TOP sensor (M253-M254 and M278-M281 model only)

Diagrams: External plug and port locations

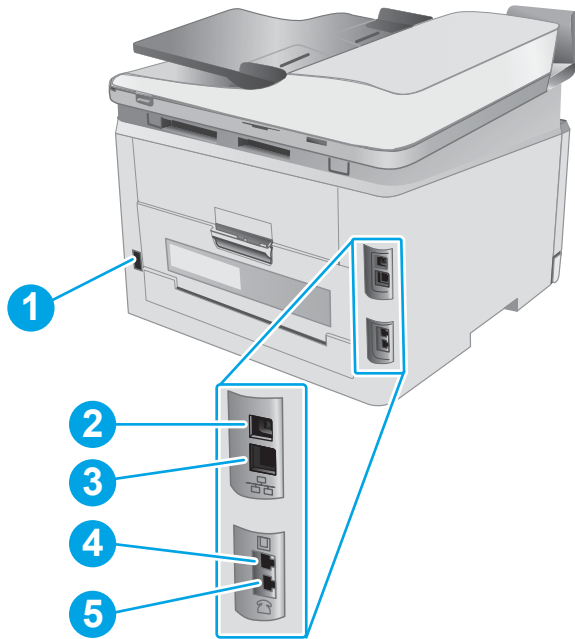
- [M153-M154 external plug and port locations](#)
- [M178-M181 external plug and port locations](#)
- [M253-M254 external plug and port locations](#)
- [M278-M281 external plug and port locations](#)

M153-M154 external plug and port locations



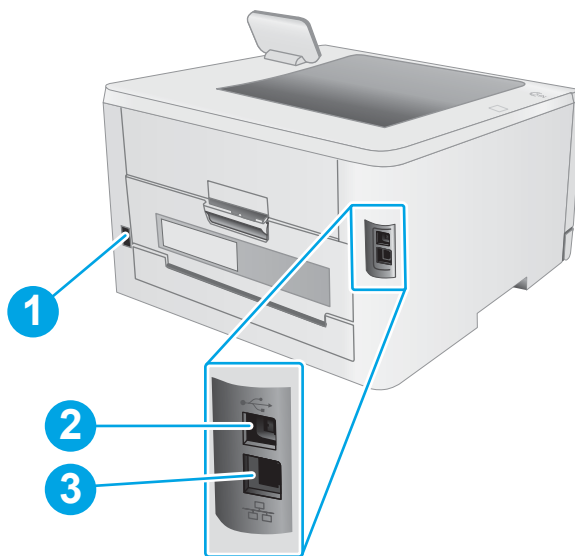
1	Power cord receptacle
2	Hi-Speed USB 2.0 port
3	Network port

M178-M181 external plug and port locations



1	Power cord receptacle
2	Hi-Speed USB 2.0 port
3	Network port
4	Fax "line in" port for attaching fax line to printer (M181 models only)
5	Telephone "line out" port for attaching an extension phone, answering machine, or other device (M181 models only)

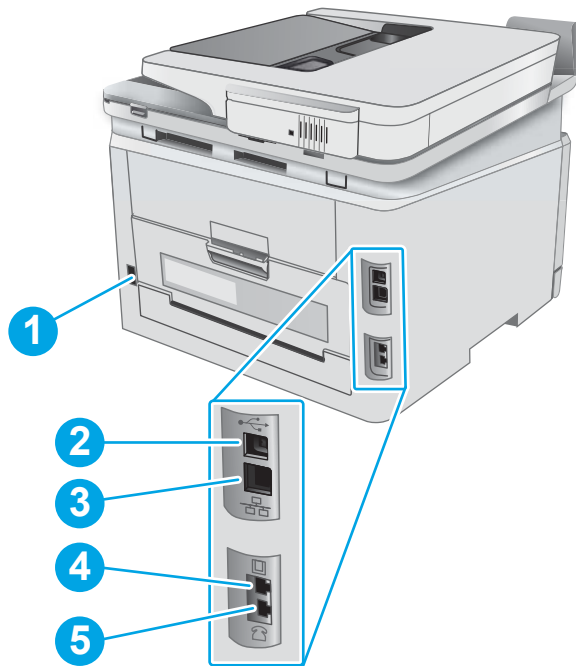
M253-M254 external plug and port locations



1	Power cord receptacle
---	-----------------------

2	Hi-Speed USB 2.0 port
3	Network port

M278-M281 external plug and port locations



1	Power cord receptacle
2	Hi-Speed USB 2.0 port
3	Network port
4	Fax "line in" port for attaching fax line to printer (M281 models only)
5	Telephone "line out" port for attaching an extension phone, answering machine, or other device (M281 models only)

Diagrams: Locations of major components

Major components (printer base)

Figure 2-9 Major components (printer base)

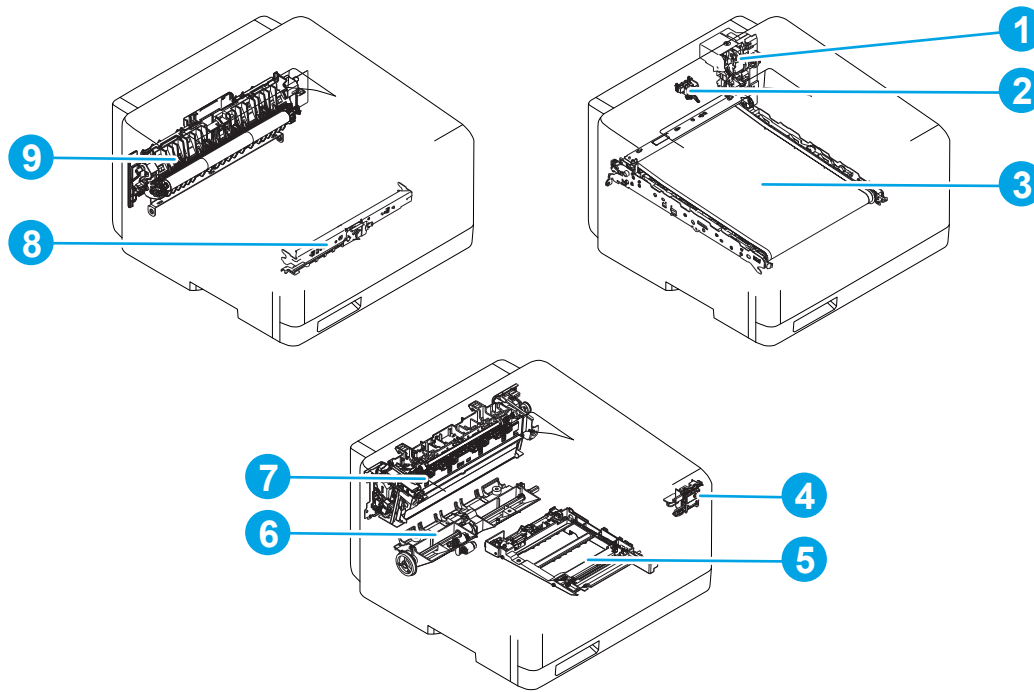
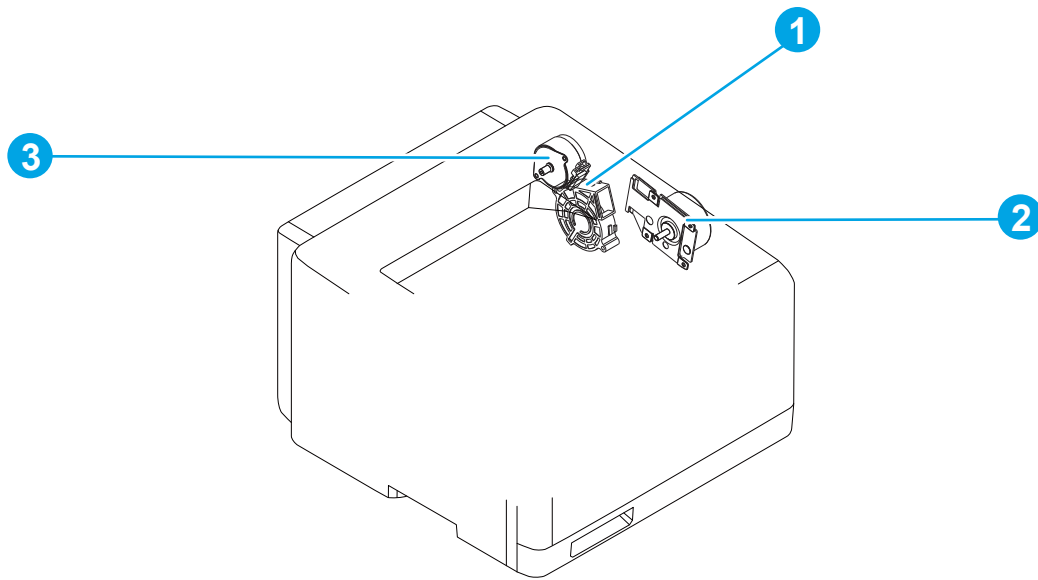


Table 2-6 Major components (printer base)

Item	Description	Item	Description
1	Duplex drive assembly (duplex models only)	6	Pickup guide assembly
2	Output sensory assembly	7	Fuser
3	Intermediate transfer belt (ITB)	8	Registration density sensor assembly
4	Power switch assembly	9	Rear door assembly(M153-M154 and M253-M254 models only)
5	Priority feed slot assembly (M253-M254 and M278-M281 models only)		

Motors and fan

Figure 2-10 Motors and fan



Item	Description	Item	Description
1	Main fan	3	Fuser motor
2	Main motor		

Rollers (printer base)

Figure 2-11 Rollers (printer base)

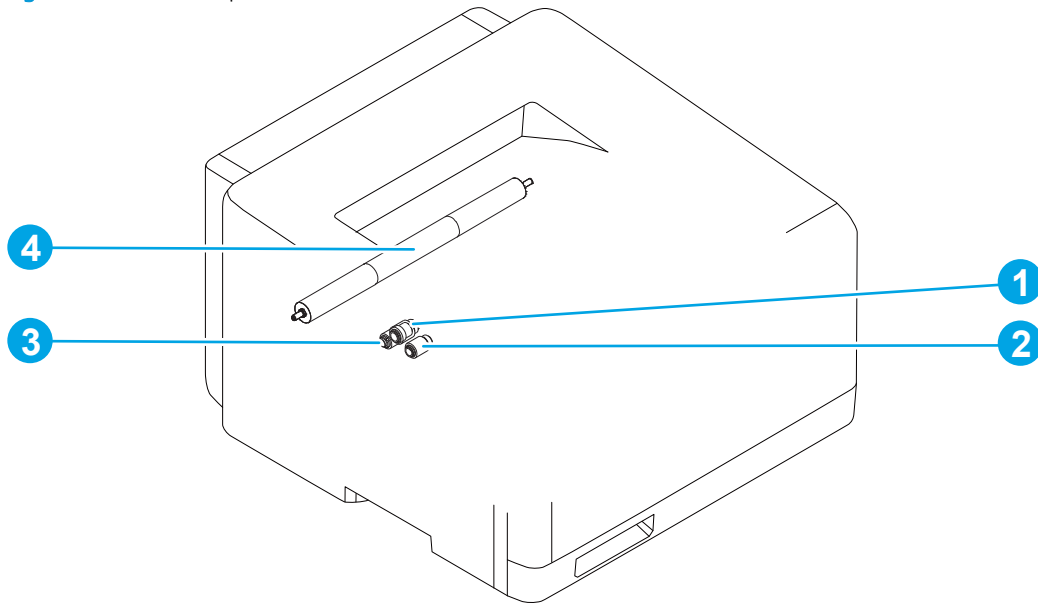


Table 2-7 Rollers (printer base)

Item	Description	Item	Description
1	Feed roller	3	Separation roller
2	Pickup roller	4	Secondary transfer roller

PCAs (printer base)

Figure 2-12 Main PCAs (printer base)

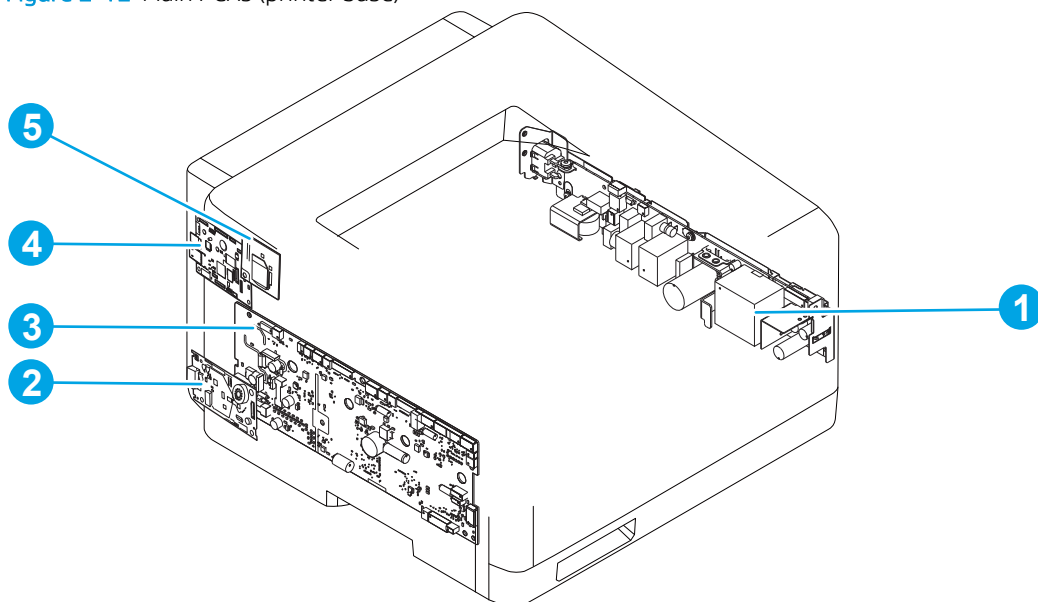
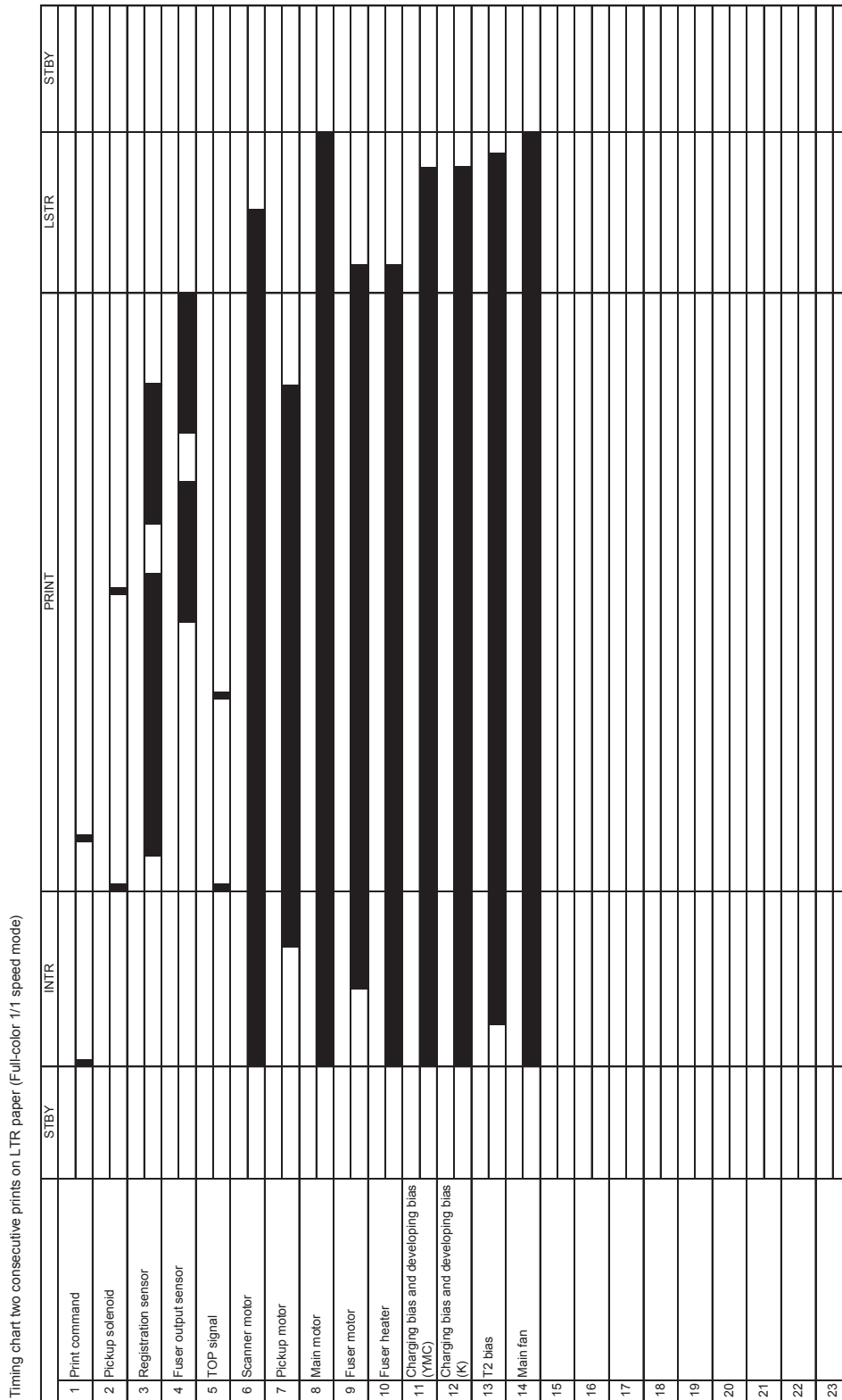


Table 2-8 Main PCAs (printer base)

Item	Description	Item	Description
1	Low-voltage power supply assembly	4	Formatter PCA
2	Fax PCA (M181 and M281 models only)	5	Wireless PCA (wireless models only)
3	DC controller PCA		

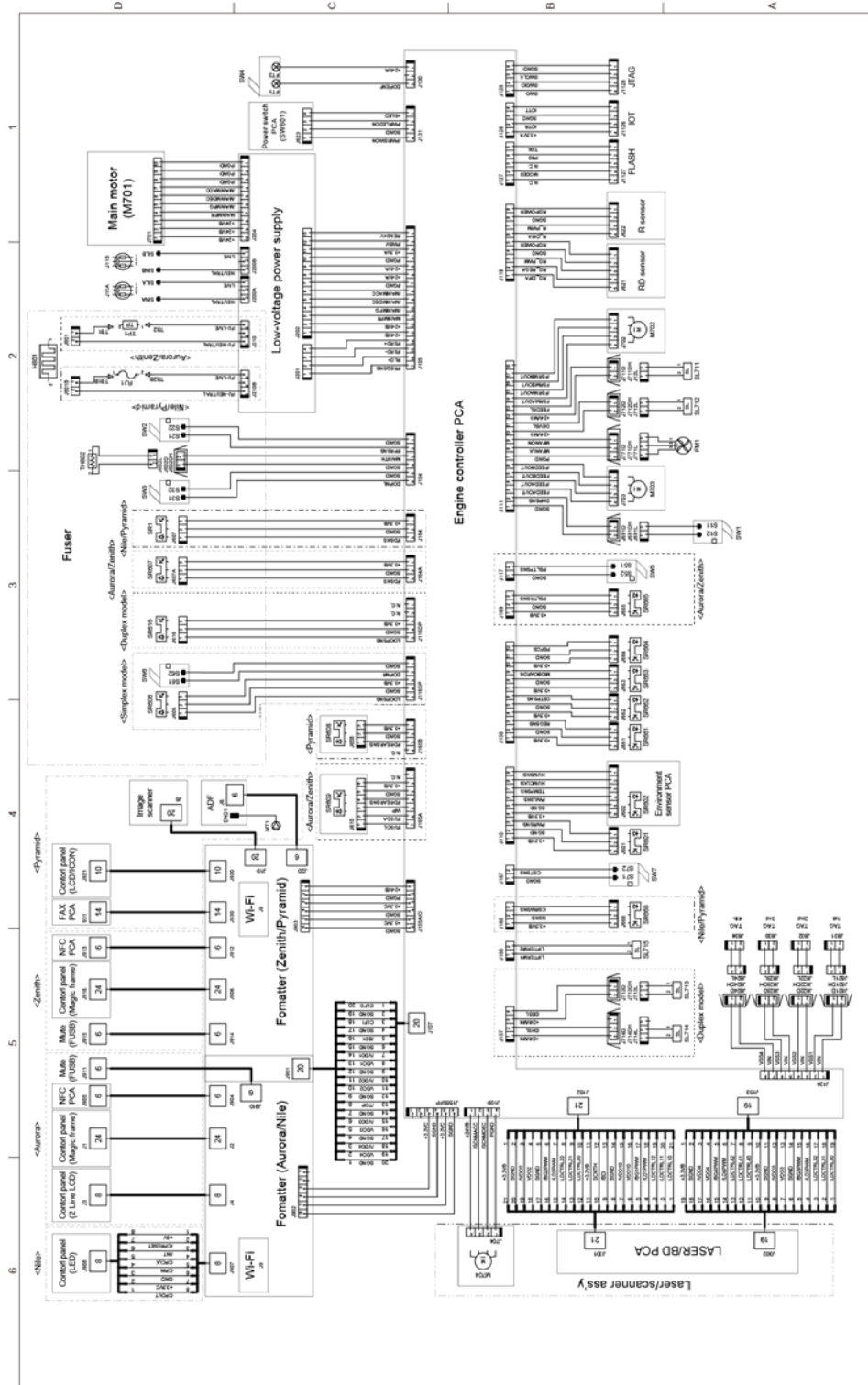
Diagrams: Timing chart

Figure 2-13 General timing chart



Diagrams: Circuit diagrams

Figure 2-14 General circuit diagram (printer base)




Advanced configuration with HP Embedded Web Server (EWS) and HP Device Toolbox (Windows)


Use the HP Embedded Web Server to manage printing functions from your computer instead of the printer control panel.

- View printer status information
- Determine the remaining life for all supplies and order new ones
- View and change tray configurations (paper types and sizes)
- View and print internal pages
- View and change network configuration

The HP Embedded Web Server works when the printer is connected to an IP-based network. The HP Embedded Web Server does not support IPX-based printer connections. You do not have to have Internet access to open and use the HP Embedded Web Server.

When the printer is connected to the network, the HP Embedded Web Server is automatically available.

 **NOTE:** HP Device Toolbox is available only if you performed a full installation when you installed the printer. Depending on how the printer is connected, some features might not be available.





 **NOTE:** The HP Embedded Web Server is not accessible beyond the network firewall.




Open the HP Embedded Web Server (EWS) from the Start menu




1. Click the **Start**, and then click the **Programs** item.
2. Click your HP printer group, and then click the **HP Device Toolbox** item.

Open the HP Embedded Web Server (EWS) from a Web browser

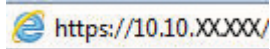
1. **2-line control panels:** On the printer control panel, select **OK**. Use the right arrow ► to scroll to **Network Setup**, and then select **OK**. Then scroll to **Show IP Address**, and then select **OK** to display the IP address or host name. Select ↵ to return to Home screen.

Touchscreen control panels: From the Home screen on the printer control panel, select Connection Information  / , and then select the **Network Connected**  or the **Network Wi-Fi ON**  button to display the IP address or host name.

M153-M154 LED control panels: Select and hold the Resume  button until the Ready  light is blinking, and then release the Resume  button. Find the IP address or host name of the printer on the configuration report.

M178-M181 LED control panels: Select and hold the Start Mono Copy  button until the Ready  light begins blinking, and then release the Start Mono Copy  button. Find the IP address or host name of the printer on the configuration report.

- Open a Web browser, and in the address line, type the IP address or host name exactly as it appears on the printer control panel or the configuration report. Press the **Enter** key on the computer keyboard. The EWS opens.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

Tab or section	Description
Home tab Provides printer, status, and configuration information.	<ul style="list-style-type: none"> • Device Status: Shows the printer status and shows the approximate percent life remaining of HP supplies. • Supplies Status: Shows the approximate percent life remaining of HP supplies. Actual supply life remaining can vary. Consider having a replacement supply available to install when print quality is no longer acceptable. The supply does not need to be replaced unless the print quality is no longer acceptable. • Device Configuration: Shows the information found on the printer configuration report. • Network Summary: Shows the information found on the printer network configuration report. • Reports: Print the configuration and supplies status pages that the printer generates. • Event Log: Shows a list of all printer events and errors.
System tab Provides the ability to configure the printer from your computer.	<ul style="list-style-type: none"> • Device Information: Provides basic printer and company information. • Paper Setup: Change the default paper-handling settings for the printer. • Print Quality: Change the default print-quality settings for the printer. • EcoSMART Console: Change the default times for entering Sleep mode or Auto Power Down mode. Configure which events cause the printer to wake. • Paper Types: Configure print modes that correspond to the paper types that the printer accepts. • System Setup: Change the system defaults for the printer. • Service: Perform the cleaning procedure on the printer. • Save and Restore: Save the current settings for the printer to a file on the computer. Use this file to load the same settings onto another printer or to restore these settings to this printer at a later time. • Administration: Set or change the printer password. Enable or disable printer features. <p>NOTE: The System tab can be password-protected. If this printer is on a network, always consult with the administrator before changing settings on this tab.</p>
Print tab Provides the ability to change default print settings from your computer.	<ul style="list-style-type: none"> • Printing: Change the default print settings, such as number of copies and paper orientation. These are the same options that are available on the control panel. • PCL5c: View and change the PCL5c settings. • PostScript: Turn off or on the Print PS Errors feature.

Tab or section	Description
Fax tab (Fax models only)	<ul style="list-style-type: none"> • Receive Options: Configure how the printer handles incoming faxes. • Phone Book: Add or delete entries in the fax phone book. • Junk Fax List: Set fax numbers to block from sending faxes to the printer. • Fax Activity Log: Review recent fax activity for the printer.
Scan tab (MFP models only)	<p>Configure the Scan to Network Folder and Scan to E-mail features.</p> <ul style="list-style-type: none"> • Network Folder Setup: Configure folders on the network to which the printer can save a scanned file. • Scan to E-mail Setup: Begin the process to set up the Scan to E-mail feature. • Outgoing E-mail Profiles: Set an email address that will appear as the “from” address for all emails sent from the printer. Configure the SMTP Server information. • E-mail Address Book: Add or delete entries in the email address book. • E-mail Options: Configure a default subject line and body text. Configure default scan settings for emails.
Networking tab (Network-connected printers only) Provides the ability to change network settings from your computer.	<p>Network administrators can use this tab to control network-related settings for the printer when it is connected to an IP-based network. It also allows the network administrator to set up Wireless Direct functionality. This tab does not appear if the printer is directly connected to a computer.</p>
HP Web Services tab	Use this tab to set up and use various Web tools with the printer.

Internal test and information pages

The following internal test and information pages are available from the **Setup** menu (depending on the printer model):

- Demo Page
- Fax Reports (fax models only)
- Menu Structure
- Configuration Report
- Supplies Status
- Network Summary
- Usage Page
- Service Page
- Diagnostic Page
- Print Quality Page
- Default Info Page

Print the configuration report

The configuration report lists current printer settings and properties. This page also contains a status log report. To print a configuration report, complete one of the following procedures.




IMPORTANT: Depending on the printer model, other pages might print with the configuration report. Also, the information found on a configuration report can vary depending on the printer model.




Print the configuration report from a 2-line control panel

1. On the printer control panel, select **OK**.
2. Use the right arrow ► to scroll to **Reports**, and then select **OK**.
3. Use the right arrow ► to scroll to **Configuration Report**.




Print the configuration report from a touchscreen control panel

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Reports**.
3. Select **Configuration Report**.

Print a configuration report from the M153-M154 LED control panel

1. Press and hold the Resume  button until the Ready  light begins blinking.
2. Release the Resume  button.

Print a configuration report from the M178-M181 LED control panel

1. Select and hold the Start Mono Copy  button until the Ready  light begins blinking.
2. Release the Start Mono Copy  button.

Finding important information on the configuration report

The figure below shows an example of a configuration report from the HP LaserJet MFP M154nw.

Figure 2-15 M154 sample configuration report

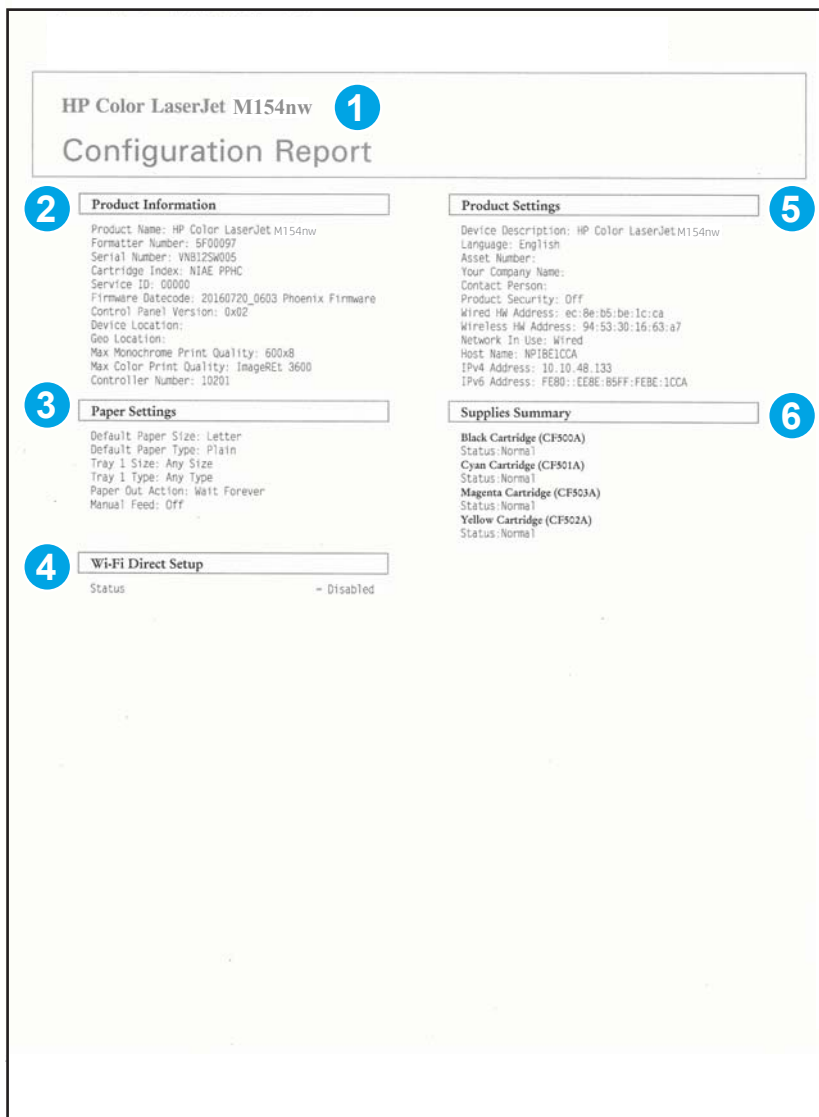


Table 2-9 M154 sample configuration report

Item	Description	Item	Description
1	Printer name and model information	4	Wi-Fi direct setup
2	Product information	5	Product settings information
3	Paper settings information	6	Supplies summary

The figure below shows an example of the first page of a configuration report from the HP LaserJet MFP M181fw.

Figure 2-16 M181 sample configuration report (first page)

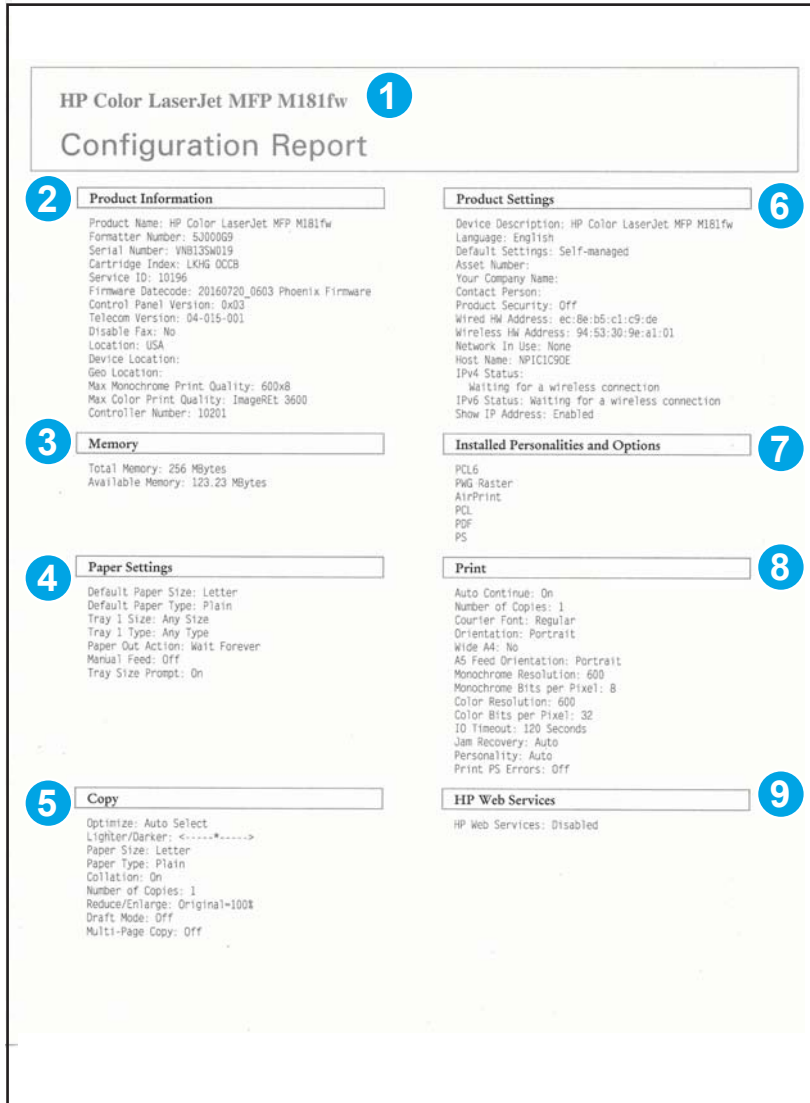


Table 2-10 M181 sample configuration report (first page)

Item	Description	Item	Description
1	Printer name and model information	6	Product settings information
2	Product information	7	Installed personalities and options information
3	Memory information	8	Print information
4	Paper settings information	9	HP Web Services information
5	Copy information		

The figure below shows an example of the second page of a configuration report from the HP LaserJet MFP M181fw.

Figure 2-17 M181 sample configuration report (second page)

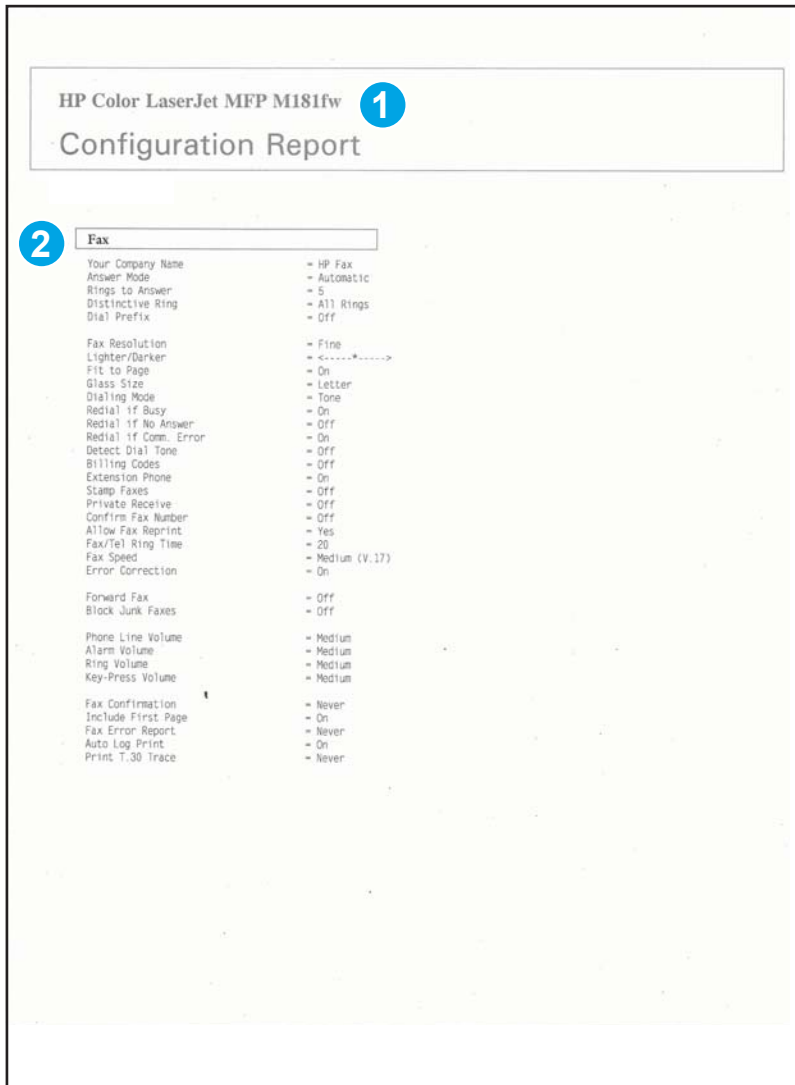
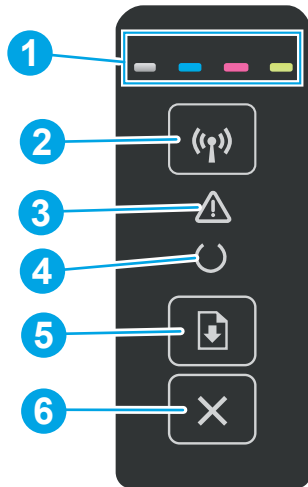





Table 2-11 M181 sample configuration report (second page)

Item	Description
1	Printer name and model information
2	Fax information (fax models)

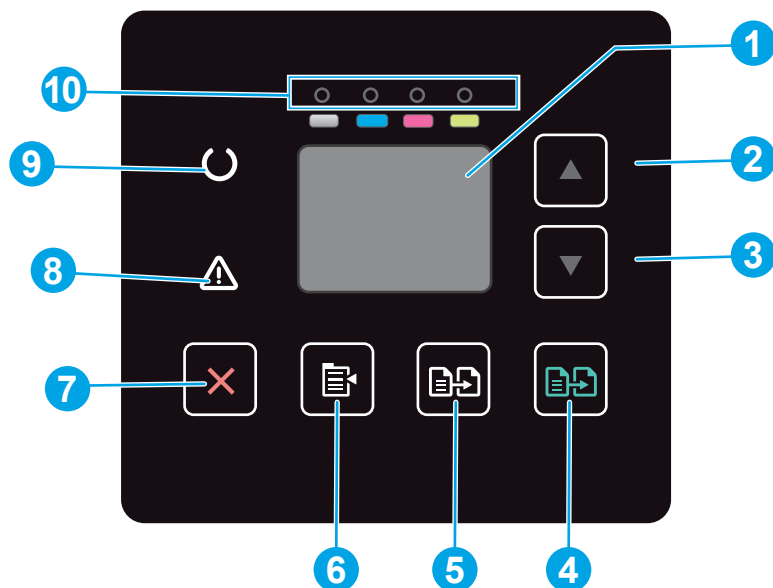
Control panel menus







Control-panel view (M153-M154 model)



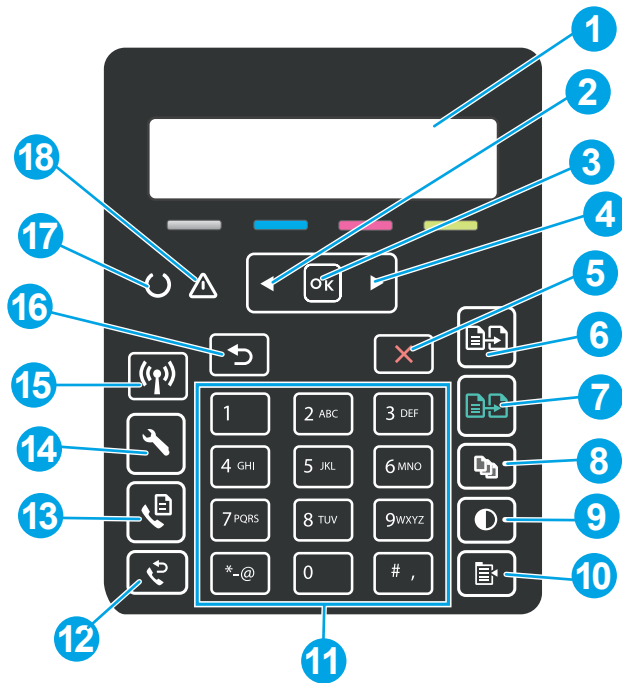
1	Supplies LEDs	A Supplies light blinks when a supply error occurs, and it glows without blinking when the supply is very low and replacement is required.
2	Wireless  and LED (wireless models only)	Select this to turn the wireless feature on or off, or to configure a Wi-Fi Direct connection. Press and hold to configure a WPS connection. If the wireless LED light is on, there is a stable wireless connection. If it is blinking, there is either a WPS or Wi-Fi Direct configuration process in progress. If it is blinking rapidly, there is an issue with the wireless connection.
3	Attention LED	The Attention light blinks when the printer requires user attention. If the Attention light is on, the printer is in an error state.
4	Ready LED	The Ready light is on when the printer is ready to print. It blinks when the printer is receiving print data.
5	Resume 	Select this to begin a print job. If the printer is in an error state, select Resume to clear the error and resume printing. In manual duplex mode, select Resume to print the second side of the page.
6	Cancel 	Select this to cancel a print job.






LED control-panel view (M180n model)










1	Control panel LED display	The screen displays error codes and numerical information for copy jobs.
2	Up arrow ▲	Select this to increase the value that appears on the display.
3	Down arrow ▼	Select this to decrease the value that appears on the display.
4	Start Color Copy 	Select this to start a color copy job.
5	Start Mono Copy 	Select this to start a mono copy job.
6	Copy Setup 	Select this to navigate through the Number of Copies, Lighter/Darker, and Reduce/Enlarge options. The default option is Number of Copies.
7	Cancel 	Select this to perform the following actions: <ul style="list-style-type: none"> • Cancel a print job when the printer is printing. • Reset the current copy settings to the default values when the printer is idle. • Exit Copy Default Setting mode without saving the value when the printer is in Copy Default Setting mode.
8	Attention  LED	The Attention light blinks when the printer requires user attention, such as when the printer runs out of paper or a toner cartridge needs to be changed. If the light glows without blinking, the printer has experienced an error.
9	Ready  LED	The Ready light glows without blinking when the printer is ready to print. It blinks when the printer is receiving print data or canceling a print job.
10	Supplies LEDs	A Supplies light blinks when a supply error occurs, and it glows without blinking when the supply is very low and replacement is required.

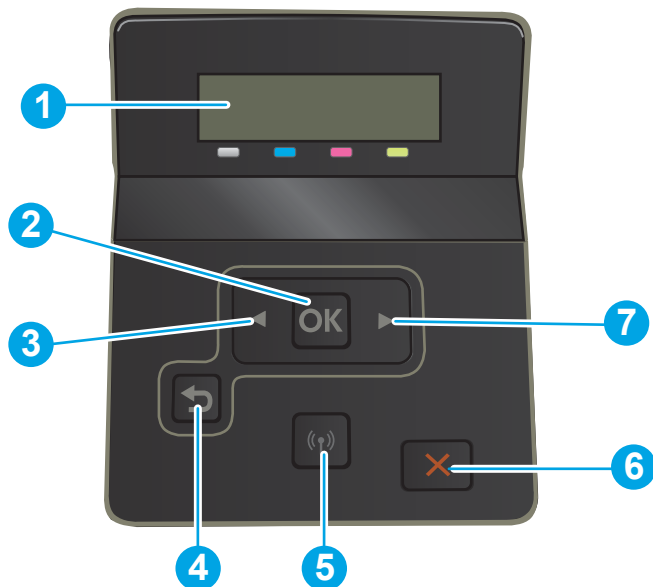
2-line LCD control-panel view (M180nw and M181fw models)



1	2-line control panel display	The screen displays menus and printer information.
2	Left arrow ◀	Select this to navigate through the menus or to decrease a value that appears on the display.
3	OK	Select OK for the following actions: <ul style="list-style-type: none"> • Open the control-panel menus. • Open a submenu displayed on the control-panel display. • Select a menu item. • Clear some errors. • Begin a print job in response to a control-panel prompt (for example, when the message Select [OK] to continue appears on the control-panel display).
4	Right arrow ▶	Select this to navigate through the menus or to increase a value that appears on the display.
5	Cancel ✕	Select this to cancel a print job or to exit the control panel menus.
6	Start Mono Copy 	Select this to start a mono copy job.
7	Start Color Copy 	Select this to start a color copy job.
8	Number of Copies 	Select this to set the number of copies to be produced.
9	Lighter/Darker 	Select this to adjust the darkness setting for the current copy job.
10	Copy Menu 	Select this to open the Copy menu.
11	Alphanumeric keypad	Select the keypad to provide fax numbers.

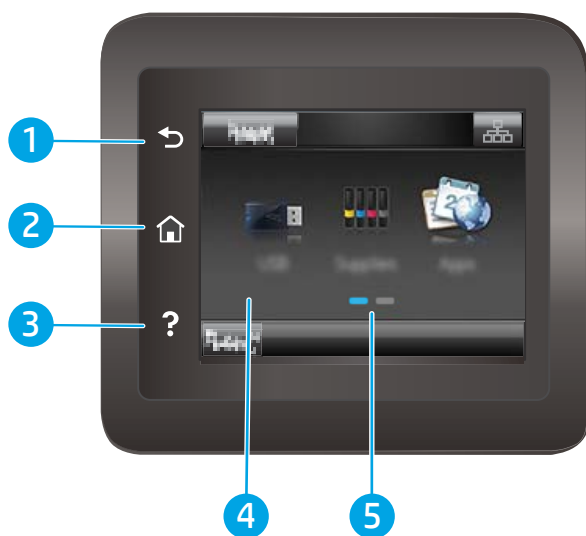
12	Fax Redial  (fax models only)	Select this to recall the fax number used for the previous fax job.
13	Start Fax  (fax models only)	Select this to start a fax job.
14	Setup 	Select this to open the Setup menu.
15	Wireless 	Select this to access the wireless menu.
16	Back arrow 	Select this for the following actions: <ul style="list-style-type: none"> • Exit the control-panel menus. • Scroll back to a previous menu in a submenu list. • Scroll back to a previous menu item in a submenu list (without saving changes to the menu item).
17	Ready  LED	The Ready light glows without blinking when the printer is ready to print. It blinks when the printer is receiving print data or canceling a print job.
18	Attention  LED	The Attention light blinks when the printer requires user attention, such as when the printer runs out of paper or a toner cartridge needs to be changed. If the light glows without blinking, the printer has experienced an error.




2-line control-panel view (M254nw and M254dn models)




1	2-line control panel display	This screen displays menus and printer information.
2	OK	Select OK for the following actions: <ul style="list-style-type: none"> • Open the control-panel menus. • Open a submenu displayed on the control-panel display. • Select a menu item. • Clear some errors. • Begin a print job in response to a control-panel prompt (for example, when the message Select [OK] to continue appears on the control-panel display).
3	Left arrow ◀	Select this to navigate through the menus or to decrease a value that appears on the display.
4	Back arrow ↶	Select this for the following actions: <ul style="list-style-type: none"> • Exit the control-panel menus. • Scroll back to a previous menu in a submenu list. • Scroll back to a previous menu item in a submenu list (without saving changes to the menu item).
5	Wireless (📶) (wireless models only)	Select this button to access the wireless menu.
6	Cancel ✖	Select this to cancel a print job or to exit the control panel menus.
7	Right arrow ▶	Select this to navigate through the menus or to increase a value that appears on the display.

Touchscreen control-panel view (M254dw model)



1	Back 	Select this to return to the previous screen.
2	Home 	Select this to navigate to the Home screen.
3	Help 	Select this to open the control-panel help system.
4	Touchscreen	The display provides access to menus, help animations, and printer information.
5	Home page screen indicator	The display indicates which Home screen the control panel is currently displaying.

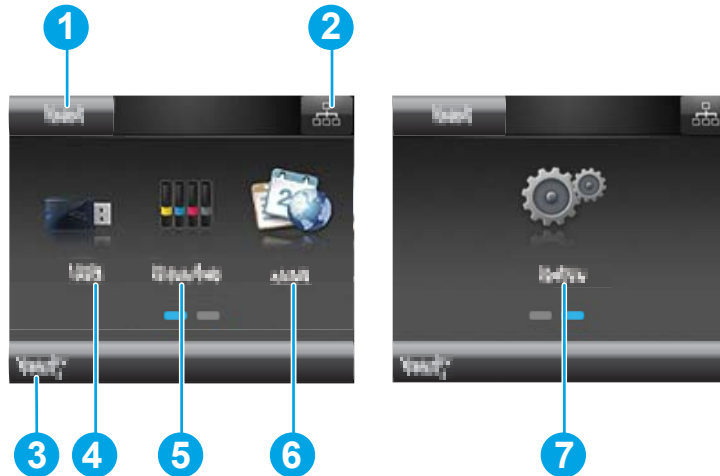
 **NOTE:** While the control panel does not have a standard **Cancel**, during many printer processes a **Cancel** appears on the touchscreen. This permits users to cancel a process before the printer completes it.







Home screen layout

The Home screen provides access to the printer features and indicates the current status of the printer.

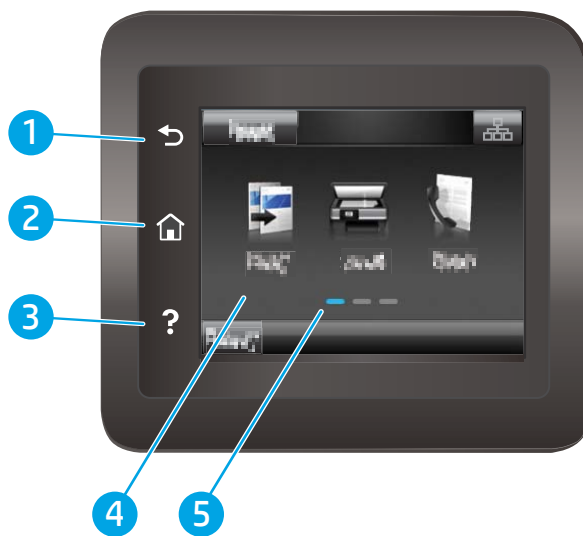
Return to the Home screen at any time by selecting Home on the printer control panel.




 **NOTE:** The features that appear on the Home screen can vary, depending on the printer configuration.




1	Reset	Select this to reset any temporary job settings to the default printer settings.
2	Connection Information	Select this to open the Connection Information menu, which provides network information. It appears as either a wired network icon  or a wireless network icon  , depending on the type of network to which the printer is connected.
3	Printer status	This screen area provides information about the overall printer status.
4	USB 	Select this to open the USB Flash Drive menu.
5	Supplies 	Select this to view information about supplies status.
6	Apps 	Select this to open the Apps menu to print directly from select Web applications.
7	Setup 	Select this to open the Setup menu.

Touchscreen control-panel view (M278-M281 models)



1	Back 	Returns to the previous screen
2	Home 	Provides access to the Home screen
3	Help 	Provides access to the control-panel help system
4	Color touchscreen	Provides access to menus, help animations, and printer information.
5	Home page screen indicator	The display indicates which Home screen the control panel is currently displaying.

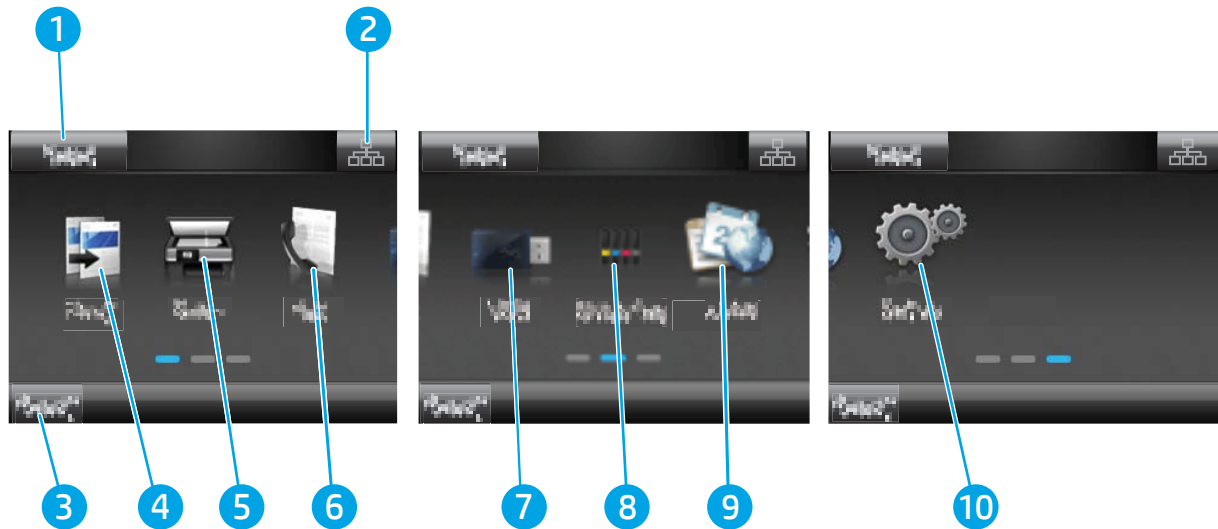
 **NOTE:** While the control panel does not have a standard **Cancel**, during many printer processes a **Cancel** appears on the touchscreen. This permits users to cancel a process before the printer completes it.










Home screen layout

The Home screen provides access to the printer features and indicates the current status of the printer.

Return to the Home screen at any time by selecting the Home on the printer control panel.

 **NOTE:** The features that appear on the Home screen can vary, depending on the printer configuration.




1	Reset	Select this to reset any temporary job settings to the default printer settings.
2	Connection Information	Select this to open the Connection Information menu, which provides network information. It appears as either a wired network icon  or a wireless network icon  , depending on the type of network to which the printer is connected.
3	Printer status	This screen area provides information about the overall printer status.
4	Copy 	Select this to open the copy feature.
5	Scan 	Select this to open the scan features: <ul style="list-style-type: none">• Scan to USB Drive• Scan to Network Folder• Scan to E-mail
6	Fax 	Select this to open the fax features.
7	USB 	Select this to open the USB Flash Drive menu.
8	Supplies 	Select this to view information about supplies status.
9	Apps 	Select this to open the Apps menu to print directly from select Web applications.
10	Setup 	Select this to open the Setup menu.

Setup menu

To open this menu, either select **OK** (2-line control panels). Select the [Setup](#)  (touchscreen control panels). The following sub menus are available:

- [HP Web Services](#)
- [Reports](#)
- [Self Diagnostics](#)
- [Fax Setup](#)

 **NOTE:** HP Color LaserJet Pro MFP M181 and M281 models only.

- [System Setup](#)
- [Service](#)
- [Network Setup](#)
- [Quick Forms](#)
- [Fax Phone Book](#)
- [Fax Functions](#)

 **NOTE:** HP Color LaserJet Pro MFP M181 models only

HP Web Services menu

Table 2-12 HP Web Services menu

Menu item	Description
Enable Web Services	Use Enable Web Services to set up Web Services on the printer. NOTE: You must be connected to a network to enable HP Web Services.
Proxy Settings	The Proxy Settings sub-menu includes the following: <ul style="list-style-type: none"> • Proxy Server • Proxy Port • User name • Password

Reports menu

Table 2-13 Reports menu

Menu item	Description
Demo Page	Prints a page that demonstrates print quality.
Fax Reports (fax models only)	<ul style="list-style-type: none">• Fax Confirmation: Sets whether the printer prints a confirmation report after a successful fax job.• Include First Page: Sets whether the printer includes a thumbnail image of the first page of the fax on the report.• Fax Error Report: Sets whether the printer prints a report after a failed fax job.• Print Last Call Report: Prints a detailed report of the last fax operation, either sent or received.• Fax Activity Log:<ul style="list-style-type: none">– Print Log Now: Prints a list of the faxes that have been sent from or received by this printer.– Auto Log Print: Automatically prints a report after every fax job.• Print Phone Book: Prints a list of the speed dials that have been set up for this printer.• Print Junk Fax List: Prints a list of phone numbers that are blocked from sending faxes to this printer.• Print All Fax Reports: Prints all fax-related reports.
Menu Structure	Prints a control-panel menu layout map.
Configuration Report	Prints a list of the printer settings.
Supplies Status	Prints the toner cartridge status. Includes the following information: <ul style="list-style-type: none">• Approximate pages remaining• Supply level• Serial number• Number of pages printed• First install date• Last used date
Network Summary	Displays status for: <ul style="list-style-type: none">• Network hardware configuration• Enabled features• TCP/IP and SNMP information• Network statistics• Wireless network configuration (wireless models only)
Usage Page	Displays the number of pages printed, faxed, copied, and scanned by the printer. (Specific items reported are model dependent.)
PCL Font List	Prints a list of all installed PCL 5 fonts.
PS Font List	Prints a list of all installed PS fonts.

Table 2-13 Reports menu (continued)

Menu item	Description
PCL6 Font List	Prints a list of all installed PCL 6 fonts.
Color Usage Log	Prints information about the color supply usage.
Service Page	Prints the service page. The service page includes information about supported paper types, copy settings, and other settings that are not included on the configuration report. It also includes the event log.
Diagnostic Page	Prints diagnostic information about calibration and color quality.
Print Quality Page	Prints a page that helps solve problems with print quality.
Default Info Page	Prints a page that shows the default settings for the LaserJet Update feature.

Self Diagnostics menu

Table 2-14 Self Diagnostics menu

Menu item	Description
Run Network Test (if connected to a wired network)	The network test provides information on the following: <ul style="list-style-type: none"> • Diagnostics summary
Run Wireless Test (if connected to a wireless network — wireless models only)	<ul style="list-style-type: none"> • Troubleshooting • Configuration summary
Run Fax Test	Test the printer fax capabilities.

Fax Setup menu



NOTE: HP Color LaserJet Pro MFP M181 and M281 models only.

In the following table, items that have an asterisk (*) indicate the factory default setting.

Table 2-15 Fax Setup menu

Menu item	Sub-menu item	Sub-menu item	Description
Fax Setup Utility			This is a tool for configuring the fax settings. Follow the onscreen prompts and select the appropriate response for each question.
Basic Setup	Time/Date	(Settings for time format, current time, date format, and current date.)	Sets the time and date setting for the printer.
	Fax Header	Enter Your Fax Number	Sets the identifying information that is sent to the receiving printer.
		Enter Company Name	Identifies the fax sender (optional)
	Answer Mode	Automatic* Manual TAM Fax/Tel	<p>Sets the type of answer mode. The following options are available:</p> <ul style="list-style-type: none"> • Automatic: The printer automatically answers an incoming call on the configured number of rings. • Manual: The user must select the Start Fax button or use an extension phone number to make the printer answer the incoming call. • TAM: A telephone answering machine (TAM) is attached to the auxiliary phone port of the printer. The printer will not pick up any incoming call, but will listen for fax tones after the answering machine has picked up the call. • Fax/Tel: The printer must automatically pick up the call and determine if the call is a voice or fax call. If the call is a fax call, the printer handles the call as usual. If the call is a voice call, an audible synthesized ring is generated to alert the user of an incoming voice call.
	Rings to Answer		Sets the number of rings that must occur before the fax modem answers. The default setting is 5.

Table 2-15 Fax Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Basic Setup (continued)	Distinctive Ring	All Rings*	If you have distinctive ring phone service, use this item to configure how the printer responds to incoming calls.
		Single	<ul style="list-style-type: none"> • All Rings: The printer answers any calls that come through the telephone line. • Single: The printer answers any calls that produce a single-ring pattern. • Double: The printer answers any calls that produce a double-ring pattern. • Triple: The printer answers any calls that produce a triple-ring pattern. • Double and Triple: The printer answers any calls that produce a double-ring or triple-ring pattern.
	Dial Prefix	On Off*	Specifies a prefix number that must be dialed when sending faxes from the printer. If this feature is turned on, the printer prompts you for the number and then it automatically includes that number every time a fax is sent.
Phone Book Setup		Individual Setup	Edits the fax phone book speed dials and group-dial entries. The printer supports up to 120 phone book entries, which can be either individual or group entries.
		Group Setup	
		Delete entry	Deletes a specific entries in the phone book.
		Delete all entries	Deletes all entries in the phone book.
		Print report now	Prints a list of all the individual and group dial entries in the phone book.
Advanced Setup	Fax Resolution	Standard	Sets the resolution for sent documents. Higher resolution images have more dots per inch (dpi), so they show more detail. Lower resolution images have fewer dots per inch and show less detail, but the file size is smaller and the fax takes less time to transmit.
		Fine*	
		Superfine	
		Photo	
		Lighter/Darker	Sets the darkness for outgoing faxes.
	Fit to Page	On*	Shrinks incoming faxes that are larger than the paper size set for the tray.
		Off	
	Glass Size	Letter	Sets the default paper size for documents being scanned from the flatbed scanner. NOTE: The default setting is determined by the choice of location during the initial printer setup.
A4			
Dialing Mode	Tone*	Sets whether the printer should use tone or pulse dialing.	
	Pulse		
Redial if Busy	On*	Sets whether the printer should attempt to redial if the line is busy.	
	Off		

Table 2-15 Fax Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Advance Setup (continued)	Redial if No Answer	On	Sets whether the printer should attempt to redial if the recipient fax number does not answer.
		Off*	
	Redial if Comm. Error	On*	Sets whether the printer should attempt to redial the recipient fax number if a communication error occurs.
		Off	
	Detect Dial Tone	On	Sets whether the printer should check for a dial tone before sending a fax.
		Off*	
	Billing Codes	On	Enables the use of billing codes when set to On . A prompt appears for the billing code for an outgoing fax.
		Off*	
	Extension Phone	On*	When this feature is enabled, the 1-2-3 buttons on the extension phone can be pressed to cause the printer to answer an incoming fax call.
		Off	
	Stamp Faxes	On	Sets the printer to print the date, time, sender's phone number, and page number on each page of incoming faxes.
		Off*	
	Private Receive	On	Setting Private Receive to On requires you to set a printer password. After setting the password, the following options are set:
		Off*	
		<ul style="list-style-type: none"> • Private Receive is turned on. 	
<ul style="list-style-type: none"> • All old faxes are deleted from memory. 			
<ul style="list-style-type: none"> • Fax Forwarding is set to Off and is not allowed to be changed. • All incoming faxes are stored in memory. 			
Confirm Fax Number	On	Confirm a fax number by entering it a second time.	
	Off*		
Allow Fax Reprint	On*	Sets whether incoming faxes are stored in memory for reprinting later.	
	Off		
Fax/Tel Ring Time	20	Sets the time, in seconds, after which the printer should stop sounding the Fax/Tel audible ring to notify the user of an incoming voice call.	
	30		
	40		
	70		
Print Duplex	On	Enables or disables the two-sided printing feature for multiple-page faxes (duplex models only).	
	Off		
Fax Speed	Fast(V.34)*	Sets the allowed fax communication speed.	
	Medium(V.17)		
	Slow(V.29)		

System Setup menu

In the following table, items that have an asterisk (*) indicate the factory default setting.

Table 2-16 System Setup menu

Menu item	Sub-menu item	Sub-menu item	Description
Language	(List of available control-panel display languages.)		Sets the language in which the control panel displays messages and printer reports.
Paper Setup	Default Paper Size	Letter	Sets the size for printing internal reports, faxes, or any print job that does not specify a size. NOTE: The default setting is determined by the choice of location during the initial printer setup.
		A4	
		Legal	
	Default Paper Type	Lists available paper types.	Sets the type for printing internal reports, faxes, or any print job that does not specify a type.
	Priority feed slot	Paper Type Paper Size	Configures the size and type for the tray.
Cassette tray	Paper Type Paper Size	Configures the size and type for the tray.	
	Paper Out Action	Wait forever* Cancel Override	Determines how the printer reacts when a print job requires a paper size or type that is unavailable or when the tray is empty. <ul style="list-style-type: none"> • Wait forever: The printer waits until you load the correct paper. • Override: Print on a different size paper after a specified delay. • Cancel: Automatically cancel the print job after a specified delay. • If you select either the Override or Cancel item, the control panel prompts you for the number of seconds to delay.
Print Quality	Color Calibration	Calibrate Now	Performs a full calibration.
	Adjust Alignment	Power-On Calibration	• Calibrate Now: Performs an immediate calibration.
		Print test page	• Power-On Calibration: Specify the length of time the printer should wait after you turn it on before it calibrates.
		Adjust Priority Feed Slot Adjust cassette tray	
Energy Settings	Sleep/Auto Off After	1 Minute	Specifies the amount of idle time before the printer enters sleep mode.
		5 minutes	
		15 Minutes*	
		30 Minutes	
		1 Hour	

Table 2-16 System Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Energy Settings (continued)	Shut Down After	2 Hours	Set the amount of elapsed time before the printer turns itself off.
		4 Hours	
		8 Hours	
		24 Hours	
	Delay Shut Down	No Delay When Ports Are Active	Select whether or not the printer delays shutting down after the user presses the power button. No Delay: The printer shuts down immediately. When Ports Are Active: The printer waits until there is no I/O port activity before shutting down.
Supply Settings	Black Cartridge	Very Low Setting	Stop: The printer stops printing until you replace the print cartridge. Prompt*: The printer stops printing and prompts you to replace the print cartridge. You can acknowledge the prompt and continue printing. Continue: The printer alerts you that the print cartridge is very low, but it continues printing.
		Low Threshold	Enter a percentage for the low threshold setting.
	Color Cartridges	Very Low Setting	Stop: The printer stops printing until you replace the print cartridge. Prompt*: The printer stops printing and prompts you to replace the print cartridge. You can acknowledge the prompt and continue printing. Continue: The printer alerts you that the print cartridge is very low, but it continues printing. Print Black: When a color print cartridge becomes very low, the printer prints in black only to prevent fax interruptions. When you choose to replace the very low print cartridge, color printing resumes automatically. NOTE: Prompt is the default setting, but if you install the fax wizard on your first incoming fax, the setting switches automatically to Print Black .
		Low Threshold	Set a low threshold percentage setting for the following colors: <ul style="list-style-type: none"> • Cyan • Magenta • Yellow
	Store Usage Data		Select where to store the printer's usage data, either on the supplies or not on the supplies.
	Cartridge Policy	Off* Authorized HP	Use the Cartridge Policy feature to allow only genuine HP cartridges to be used with this printer. When someone attempts to install a cartridge that is not a genuine HP cartridge, the printer control panel displays a message informing that the cartridge is unauthorized, and it displays information explaining how to proceed.

Table 2-16 System Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Supplies Settings (continued)	Cartridge Protection	Protect Cartridges	Use the Cartridge Protection feature to permanently associate toner cartridges with a specific printer so they cannot be used in other printers. When someone attempts to transfer a protected cartridge from the original printer into another printer, that printer will not print. The printer control panel displays a message informing that the cartridge is protected, and it displays information explaining how to proceed. After selecting Protect Cartridges , when the printer prompts to confirm, select Continue to enable the feature. NOTE: After enabling cartridge protection for the printer, all subsequent toner cartridges installed in the printer are automatically and <i>permanently</i> protected. To avoid protecting a new cartridge, disable the feature before installing the new cartridge. To disable the feature, select Cancel rather than Continue in this step.
		Off*	
Volume Settings	Alarm Volume	Off	Set the volume levels for the printer.
	Ring Volume	Soft	
	Key-Press Volume	Medium*	
	Phone Line Volume	Loud	
Time/Date	12 Hour		Set the time and date setting for the printer.
	24 Hour		
Administration	Product Security	On	Set the printer-security feature. If you select the On setting, you must set a password.
		Off	
	USB Flash Drive	On*	Enable, or disable, the USB flash drive.
		Off	
	Disable Fax (fax models only)	Yes	Enable, or disable, faxing to and from the printer.
		No*	
	Scan to Network Folder	On*	Enable, or disable, the printer's scan to folder capability.
Off			
Scan to E-mail	On*	Enable, or disable, the printer's scan to email feature.	
	Off		
Color Copy	On*	Enable, or disable, the printer's color copying feature.	
	Off		
Inactivity Timer			Set the amount of time that passes before a given menu or item will close due to printer inactivity.
Courier Font	Regular*		Set Courier font values.
	Dark		

Service menu

In the following table, items that have an asterisk (*) indicate the factory default setting.

Table 2-17 Service menu

Menu item	Sub-menu item	Sub-menu item	Description	
Fax Service	Clear Saved Faxes		Clears all faxes in memory.	
	Run Fax Test		Performs a fax test to verify that the phone cord is connected to the correct outlet and that there is a signal on the phone line. A fax test report is printed indicating the results.	
	Print T.30 Trace	Now		Prints or schedules a report that is used to troubleshoot fax transmission issues.
		Never*		
		If Error		
	At End of Call			
	Error Correction	On* Off	The error correction mode allows the sending device to re-transmit data if it detects an error signal.	
	Fax Service Log (fax models only)		The fax service log prints out the last 40 entries in the fax log.	
Cleaning Page			<p>Cleans the printer when specks or other marks appear on printed output. The cleaning process removes dust and excess toner from the paper path.</p> <p>When selected, the printer prompts you to load plain Letter or A4 paper in Priority feed slot. Select the OK button to begin the cleaning process. Wait until the process completes. Discard the page that prints.</p>	
USB Speed	High*		Sets the USB speed for the USB connection to the computer. For the printer to actually operate at high speed, it must have high speed enabled and be connected to an EHCI host controller that is also operating at high speed. This menu item does not reflect the current operating speed of the printer.	
	Full			
Less Paper Curl	On		When printed pages are consistently curled, this option sets the printer to a mode that reduces curl.	
	Off*			
Archive Print	On		When printing pages that will be stored for a long time, this option sets the printer to a mode that reduces toner smearing and dusting.	
	Off*			
Firmware Datecode			Displays the current firmware datecode	
Restore Defaults			Sets all settings to the factory default values	
Signature Check	Cancel if Invalid*		Validates HP firmware downloads.	
	Prompt if Invalid			

Table 2-17 Service menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
HP Smart Install	On*		Enable, or disable, the HP Smart Install feature on the printer.
	Off		
LaserJet Update	Check for Updates Now	Install Now	Check for printer firmware updates.
		Remind Me Later	
		Skip this Update	
	Manage Updates	Allow Downgrade	Manage how the printer handles firmware updates.
		Check Automatically	
		Prompt Before Install	
		Allow Updates	
SMTP Comm. Report			The SMTP Communication Report contains the SMTP communication to and from the printer from the last Scan to E-mail job.

Network Setup menu

In the following table, items that have an asterisk (*) indicate the factory default setting.

Table 2-18 Network Setup menu

Menu item	Sub-menu item	Description
Wireless Menu (wireless models only)	Wireless Setup Wizard	Guides you through the steps to set up the printer on a wireless network.
	Wi-Fi Protected Setup	If your wireless router supports this feature, use this method to set up the printer on a wireless network. This is the simplest method.
	Run Wireless Test	Tests the wireless network and prints a report with the results.
	Turn Wireless On/Off	Enables or disables the wireless network feature.
	Wireless Band Frequency	Sets the wireless frequency.
Wi-Fi Direct	On	Manage the printer's Wi-Fi Direct settings.
	Off	
	Wi-Fi Direct Name	Set the printer name for a Wi-Fi Direct setup.
	Connection Method	
	Wi-Fi Direct Password	
	Number of Devices	
	Print Wi-Fi Direct Guide	
Google Cloud Print	Registration Status	
	Print Information Sheet (M181 models)	
	Print Claim Sheet (M281 models)	
	Proxy Settings	
IPv4 Config Method	DHCP	The printer automatically configures all the TCP/IP settings via DHCP, BootP or AutoIP. Manual: You can manually configure the IP address, subnet mask, and default gateway. The control panel prompts you to specify values for each address section. As each address is completed, the printer prompts for address confirmation before moving to the next one. After all three addresses are set, the network reinitializes.
	BOOTP	
	Auto IP	
	Manual	
Auto Crossover	On	This item is used when you are connecting the printer directly to a personal computer using an Ethernet cable (you might have to set this to On or Off depending on the computer being used).
	Off	
Network Services	IPv4	Enable or disable the IPv4 and IPv6 protocols. By default, each protocol is enabled.
	IPv6	
Show IP Address	Yes*	Displays IP address.
	No	

Table 2-18 Network Setup menu (continued)

Menu item	Sub-menu item	Description
Link Speed	Automatic*	Sets the link speed manually if needed.
	10T Full	After setting the link speed, the printer automatically restarts.
	10T Half	
	100TX Full	
	100TX Half	
Security	Product Security	Enable printer security. If turned on, the printer prompts you to set a password. After it is set, the password will be needed to change printer settings.
	HTTPS Enforcement	An encrypted communication and secure identification of a network web server. Only enabled if the printer is password protected.
	Firewall	Enable, disable, or reset the printer firewall.
	Access Control List	Enable, disable, or reset the network access control list.
	802.1x (wireless models only)	Enable or disable the 802.1x wireless authentication protocol.
	Reset All Security	Reset the security settings to the factory-set default values.
Restore Defaults		Resets all network configurations to their factory defaults.

Quick Forms menu

Table 2-19 Quick Forms menu

Menu item	Sub-menu item	Description
Notebook Paper	Narrow Rule	Prints pages that have preprinted lines.
	Wide Rule	
	Child Rule	
Graph Paper	1/8 inch	Prints pages that have preprinted graph lines.
	5 mm	
Checklist	1-Column	Prints pages that have preprinted lines with check boxes.
	2-Column	
Music Paper	Portrait	Prints pages that have preprinted lines for writing music.
	Landscape	

Function specific menus

The printer features function-specific menus for copying, faxing, scanning, and using a USB flash drive. To open these menus, select the button on for that function on the control panel.

USB menu

Open this menu by selecting [USB](#) (touchscreen control panels). The following file types are supported:

- .PDF
- .JPG
- .PRN
- .CHT
- .PXL
- .PCL
- .PS
- .DOC
- .DOCX
- .PPT
- .PPTX
- .XLS
- .XLSX

Table 2-20 USB menu

Menu item	Description
Print Documents	<p>Prints documents stored on the USB flash drive. Use the arrow keys to scroll through the documents. Select the names of documents to print.</p> <p>Select the summary screen to change settings such as the number of copies, the paper size, or the paper type.</p> <p>Select Print to print the documents.</p>
View and Print Photos	<p>Previews photos on the USB flash drive. Use the arrow keys to scroll through the photos. Select the preview image for each photo to print. Adjust the settings and save the changes as the new default settings. To print the photos, Select Print.</p>
Scan to USB Drive	<p>Scans a document and stores it as a .PDF file or .JPEG image on the USB flash drive.</p>

Fax Menu (M181 and M281 models only)

Touchscreen control panels: From Home screen select [Fax](#), and then select [Fax Menu](#).

2-line control panels: Select [OK](#). Then using right arrow ► to scroll to [Fax Functions](#), and then select [OK](#). Use arrow keys to scroll through menu selections.

Table 2-21 Fax Menu

Menu item	Sub-menu item	Sub-menu item	Description
Fax Reports	Fax Confirmation	On Every Fax	Sets whether the printer prints a confirmation report after a successful fax job.
		On Send Fax Only	
On Receive Fax Only			
Never*			
	Include First Page	On*	Sets whether the printer includes a thumbnail image of the first page of the fax on the report.
		Off	

Table 2-21 Fax Menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description	
Fax Reports (continued)	Fax Error Report	On Every Error*	Sets whether the printer prints a report after a failed fax job.	
		On Send Error		
		On Receive Error		
		Never		
		Print Last Call Report		Prints a detailed report of the last fax operation, either sent or received.
	Fax Activity Log	Print Log Now		Print Log Now: Prints a list of the faxes that have been sent from or received by this printer.
		Auto Log Print		Auto Log Print: Automatically prints a report after every fax job.
		Print Phone Book		Prints a list of the speed dials that have been set up for this printer.
		Print Junk Fax list		Prints a list of phone numbers that are blocked from sending faxes to this printer.
		Print Billing Report		Prints a list of billing codes that have been used for outgoing faxes. This report shows how many sent faxes were billed to each code. This menu item appears only when the billing codes feature is turned on.
	Print All Fax Reports		Prints all fax-related reports.	
Send Options	Send Fax Later		Allows a fax to be sent at a later time and date.	
	Send a fax	Enter fax phone number.	Sends a fax.	
	Broadcast Fax		Sends a fax to multiple recipients.	
	Fax Job Status		Displays pending fax jobs, and allows you to cancel pending fax jobs.	
	Fax Resolution	Standard		Sets the resolution for sent documents. Higher resolution images have more dots per inch (dpi), so they show more detail. Lower resolution images have fewer dots per inch and show less detail, but the file size is smaller.
Fine*				
Superfine				
Photo				
Receive Options	Print Private Faxes		Prints stored faxes when the private-receive feature is turned on. The printer prompts you for the system password.	

Table 2-21 Fax Menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Receive Options (continued)	Block Junk Faxes	Add Number	Modifies the junk fax list. The junk fax list can contain up to 30 numbers. When the printer receives a call from one of the junk fax numbers, it deletes the incoming fax. It also logs the junk fax in the activity log along with job-accounting information.
		Delete Number	
		Delete All Numbers	
		Print Junk Fax list	
	Reprint Faxes	Prints the received faxes stored in available memory. This item is available only if you have turned on the Allow Fax Reprint feature in the Fax Setup menu.	
Phone Book Setup	Forward Fax	On Off*	Sets the printer to send all received faxes to another fax machine.
	Polling Receive		Allows the printer to call another fax machine that has polling send enabled.
	Individual Setup		Edits the fax phone book speed dials and group-dial entries. The printer supports up to 120 phone book entries, which can be either individual or group entries.
	Group Setup		
	Delete Entry	Deletes a specific phone book entry	
Delete All Entries	Deletes all entries in the phone book		
Print Report Now	Prints a list of all the individual and group dial entries in the phone book		
Change Defaults			Opens the Fax Setup menu.

Copy menu (M178-M181 and M278-M281 models only)

To open this menu, select [Copy](#), and then select [Settings](#).



NOTE: Settings that have been changed with this menu expire 2 minutes after the last copy completes.

Table 2-22 Copy menu

Menu item	Sub-menu item	Sub-menu item	Description
ID Copy			Copies both sides of identification cards, or other small-size documents, onto the same side of one sheet of paper.
Number of Copies	(1-99)		Specifies the number of copies.

Table 2-22 Copy menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description		
Reduce/Enlarge	Original=100%		Specifies the size of the copy.		
	Legal to Letter=78%				
	Legal to A4=83%				
	A4 to Letter=94%				
	Letter to A4=97%				
	Full Page=91%				
	Fit to Page				
	2 Pages per Sheet				
Lighter/Darker	4 Pages per Sheet		Specifies the contrast of the copy.		
	Custom: 25 to 400%				
	Describe Original	Auto Select*		Specifies the type of content in the original document, so the copy is the best match for the original.	
		Mixed			
		Text			
		Picture			
	Paper	Letter			Specifies the paper size. NOTE: The default paper size setting is determined by the choice of location during the initial printer setup.
		Legal			
A4					
Multi-Page Copy	Off*		When this feature is on, the printer prompts you to load another page onto the scanner glass or to indicate that the job is complete.		
	On				
Collation	On*		Specifies whether to collate copy jobs.		
	Off				
Draft Mode	Off*		Specifies whether to use draft-quality printing for copies.		
	On				
Image Adjustment	Lightness		Adjusts the image quality settings for copies.		
	Contrast				
	Sharpen				
	Background Removal				
	Color Balance				
	Grayness				

Table 2-22 Copy menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Set as New Defaults			Saves any changes you have made to this menu as the new defaults.
Tray Select	*Automatic		
	Priority feed slot		
	Cassette tray		
Restore Defaults			Restores the factory defaults for this menu.

Scan menu (M178-M181 and M278-M281 models only)

Table 2-23 Scan menu

Menu item	Description
Scan to USB Drive	Scans a document and stores it as a .PDF file or .JPEG image on the USB flash drive.
Scan to Network Folder	Scans a document to a network folder.
Scan to E-mail	Scans a document and sends as an email attachment.

Apps

Use the [Apps](#) menu to install HP Web Services applications.

Control panel message document (CPMD)

Control panel messages and event log entries

The CPMD is not provided in this service manual. The CPMD for this printer is available on the HP Web-based Interactive Search Engine (WISE) website. Click [Web-based Interactive Search Engine](#) to access the website, and then search by printer name. The CPMD is available to channel partners through the HP Channel Services Network (CSN).

Improve print quality

- [Introduction](#)
- [Update the printer firmware](#)
- [Print from a different software program](#)
- [Check the paper-type setting for the print job](#)
- [Check toner-cartridge status](#)
- [Print a cleaning page](#)
- [Visually inspect the toner cartridge or cartridges](#)
- [Check paper and the printing environment](#)
- [Try a different print driver](#)
- [Check the EconoMode settings](#)
- [Adjust Print Density](#)
- [Calibrate the printer to align the colors](#)
- [Adjust color settings \(Windows\)](#)
- [Print and interpret the print quality page](#)

Introduction

The following information provides troubleshooting steps to resolve print-quality problems, including the following problems:

- Smears
- Fuzzy print
- Dark print
- Light print
- Streaks
- Missing toner
- Scattered dots of toner
- Loose toner
- Skewed images

To resolve these or other print-quality problems, try the following solutions in the order presented.

For information about resolving specific image defects, see the Resolving print quality problems section of this manual.

Update the printer firmware

Try upgrading the printer firmware. For more information, see the Firmware upgrades section of this manual.

Print from a different software program

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

Check the paper-type setting for the print job

Check the paper type setting when printing from a software program and the printed pages have smears, fuzzy or dark print, curled paper, scattered dots of toner, loose toner, or small areas of missing toner.

Check the paper type setting on the printer

1. Open the tray.
2. Verify that the tray is loaded with the correct type of paper.
3. Close the tray.
4. **Touchscreen or 2-line control panels only:** Follow the control panel instructions to confirm or modify the paper type settings for the tray.

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 (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

Follow these steps to check the estimated life remaining in the toner cartridges and if applicable, the status of other replaceable maintenance parts.

Step one: Print the supplies status page (2-line control panels)

1. On the printer control panel, press **OK**.
2. Use the right arrow ► to scroll to **Reports**, and then select **OK**.
3. Use the right arrow ► to scroll to **Supplies Status**, and then select **OK**.
4. Scroll to the **Supplies Status** item, and then select **OK** to print the supplies status page.

Step one: Print the supplies status page (touchscreen control panels)

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Reports**.
3. Select **Supplies Status** to print the supplies status page.
4. To print a report of the status of all supply items, including the genuine HP part number for reordering the supply, select **Manage Supplies**, and then select **Print Supplies Status**.

Step one: Print the supplies status page (LED control panels)

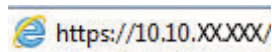
1. Open the HP Embedded Web Service (EWS):

Direct connected printers

- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- a. Print a configuration report to determine the IP address or host name.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

Choosing **Continue to this website (not recommended)** will not harm the computer while navigating within the EWS for the HP printer.

2. Select the **Home** tab, and then from the left side of the screen, select **Reports**.
3. Select **Supplies Status**, and then select **Print**.

Step two: Check supplies status

1. Look at the supplies status report to check the percent of life remaining for the toner cartridges and if applicable, the status of other replaceable maintenance parts.

Print quality problems can occur when using a toner cartridge that is at its estimated end of life. The supplies status page indicates when a supply level is very low. After an HP supply has reached the very low threshold, HP's premium protection warranty on that supply has ended.

The toner cartridge does not need to be replaced now unless the print quality is no longer acceptable. Consider having a replacement available to install when print quality is no longer acceptable.

If you determine that you need to replace a toner cartridge or other replaceable maintenance parts, the supplies status page lists the genuine HP part numbers.

2. Check to see if you are using a genuine HP cartridge.

A genuine HP toner cartridge has the words "HP" or "Hewlett-Packard" on it, or has the HP logo on it. For more information on identifying HP cartridges go to www.hp.com/go/learnaboutsupplies.


Print a cleaning page

During the printing process paper, toner, and dust particles can accumulate inside the printer and can cause print-quality issues such as toner specks or spatter, smears, streaks, lines, or repeating marks.

Use the following procedure to print a cleaning page.

 **NOTE:** The steps vary according to the type of control panel.

2-line control panels

1. On the printer control panel, press the Setup  button.
2. Select the following menus:
 - [Service](#)
 - [Cleaning Page](#)
3. Load plain letter or A4 paper when you are prompted, and then select [OK](#).

A **Cleaning** message displays on the printer control panel. Wait until the process is complete. Discard the page that prints.

Touchscreen control panels

1. From the Home screen on the printer control panel, select the [Setup](#) menu.
2. Select the following menus:

- [Service](#)
 - [Cleaning Page](#)
3. Load plain letter or A4 paper when you are prompted, and then select **OK**.

A **Cleaning** message displays on the printer control panel. Wait until the process is complete. Discard the page that prints.


LED control panels

1. Open the HP Printer Assistant.
 - **Windows 10:** From the **Start** menu, click **All Apps**, click **HP**, and then select the printer name.
 - **Windows 8.1:** Click the down arrow in lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right-click an empty area on the **Start** screen, click **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, click **Start**, select **All Programs**, click **HP**, click the folder for the printer, and then select the printer name.
2. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.
3. On the **Systems** tab, click **Service**.
4. In the **Cleaning Mode** area, click **Start** to begin the cleaning process.

Visually inspect the toner cartridge or cartridges

Follow these steps to inspect each toner cartridge.

1. Remove the toner cartridges from the printer, and verify that the sealing tape has been removed.
2. Check the memory chip for damage.
3. Examine the surface of the green imaging drum.

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

4. If you see any scratches, fingerprints, or other damage on the imaging drum, replace the toner cartridge.
5. Reinstall the toner cartridge, and print a few pages to see if the problem has resolved.

Check paper and the printing environment

Step one: Use paper that meets HP specifications

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

- Always use a paper type and weight that this printer supports.
- Use paper that is of good quality and free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, voids, staples, and curled or bent edges.
- Use paper that has not been previously printed on.
- Use paper that does not contain metallic material, such as glitter.
- Use paper that is designed for use in laser printers. Do not use paper that is designed only for use in Inkjet printers.
- Use paper that is not too rough. Using smoother paper generally results in better print quality.

Step two: Check the environment

The environment can directly affect print quality and is a common cause for print-quality or paper-feeding issues. Try the following solutions:

- Move the printer away from drafty locations, such as open windows or doors, or air-conditioning vents.
- Make sure the printer is not exposed to temperatures or humidity outside of printer specifications.
- Do not place the printer in a confined space, such as a cabinet.
- Place the printer on a sturdy, level surface.
- Remove anything that is blocking the vents on the printer. The printer requires good air flow on all sides, including the top.
- Protect the printer from airborne debris, dust, steam, grease, or other elements that can leave residue inside the printer.


Step three: Set the individual tray alignment

Follow these steps when text or images are not centered or aligned correctly on the printed page when printing from specific trays.



NOTE: The steps vary according to the type of control panel.

2-line control panels

1. On the printer control panel, press the Setup  button.
2. Select the following menus:
 - System Setup
 - Print Quality
 - Adjust Alignment
 - Print Test Page
3. Select the tray to adjust, and then follow the instructions on the printed pages.
4. Print the test page again to verify the results. Make further adjustments if necessary.
5. Select **OK** to save the new settings.

Touchscreen control panels

1. From the Home screen on the printer control panel, select the **Setup** menu.
2. Select the following menus:
 - System Setup
 - Print Quality
 - Adjust Alignment
 - Print Test Page
3. Select the tray to adjust, and then follow the instructions on the printed pages.
4. Print the test page again to verify the results. Make further adjustments if necessary.
5. Select **OK** to save the new settings.

LED control panels

1. Open the HP Embedded Web Server (EWS):
 - a. Open the HP Printer Assistant.
 - **Windows 10:** From the **Start** menu, click **All Apps**, click **HP**, and then select the printer name.
 - **Windows 8.1:** Click the down arrow in lower left corner of the **Start** screen, and then select the printer name.

- **Windows 8:** Right-click an empty area on the **Start** screen, click **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, click **Start**, select **All Programs**, click **HP**, click the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.
2. Click the **System** tab, and then select the **Service** page.
 3. In the **Adjust Alignment** area, select the tray to adjust.
 4. Adjust the alignment settings, and then click **Apply**
 5. Click **Print Test Page** to print a test page in order to confirm the new alignment settings.

Try a different print driver

Try a different print driver when printing from a software program and the printed pages have unexpected lines in graphics, missing text, missing graphics, incorrect formatting, or substituted fonts.

Download any of the following drivers from the HP Web site: www.hp.com/support/ljM153, www.hp.com/support/ljM178MFP, www.hp.com/support/ljM253 or www.hp.com/support/ljM278MFP.

HP PCL.6 driver	If available, this printer-specific print driver supports older operating systems like Windows® XP and Windows Vista®. For a list of supported operating systems, go to www.hp.com/go/support .
HP PCL 6 driver	This printer-specific print driver supports Windows 7 and newer operating systems that support version 3 drivers. For a list of supported operating systems, go to www.hp.com/go/support .
HP PCL-6 driver	This product-specific print driver supports Windows 8 and newer operating systems that support version 4 drivers. For a list of supported operating systems, go to www.hp.com/go/support .
HP UPD PS driver	<ul style="list-style-type: none"> • Recommended for printing with Adobe® software programs or with other highly graphics-intensive software programs • Provides support for printing from postscript emulation needs, or for postscript flash font support
HP UPD PCL 6	<ul style="list-style-type: none"> • Recommended for printing in all Windows environments • Provides the overall best speed, print quality, and printer feature support for most users • Developed to align with Windows Graphic Device Interface (GDI) for best speed in Windows environments • Might not be fully compatible with third-party and custom software programs that are based on PCL 5

Check the EconoMode settings

HP does not recommend the full-time use of EconoMode. If EconoMode is used full-time, the toner supply might outlast the mechanical parts in the toner cartridge. If print quality begins to degrade and is no longer acceptable, consider replacing the toner cartridge.



NOTE: This feature is available with the PCL 6 print driver for Windows. If you are not using that driver, you can enable the feature by using the HP Embedded Web Server.

Follow these steps if the entire page is too dark or too light.

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, and locate the **Print Quality** area.
4. If the entire page is too dark, use these settings:
 - Select the **600 dpi** option, if available.
 - Select the **EconoMode** check box to enable it.

If the entire page is too light, use these settings:

- Select the **FastRes 1200** option, if available.
 - Clear the **EconoMode** check box to disable it.
5. Click the **OK** button to close the **Document Properties** dialog box. In the **Print** dialog, click the **OK** button to print the job.

Adjust Print Density


Complete the following steps to adjust the print density.

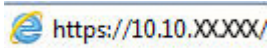


NOTE: The steps vary according to the type of control panel.

1. Open the HP Embedded Web Server (EWS):



2-line control panels

- a. On the printer control panel, press the Setup  button. Open the **Network Setup** menu, select **Show IP Address**, and then select **Yes**. Return to the Home screen to view the IP address.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer control panel. Press the **Enter** key on the computer keyboard. The EWS opens.

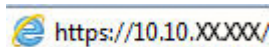



NOTE: If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select the Network  button or the Wireless  button to display the IP address or host name.

- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer control panel. Press the **Enter** key on the computer keyboard. The EWS opens.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

LED control panels

- a. Open the HP Printer Assistant.
 - **Windows 10:** From the **Start** menu, click **All Apps**, click **HP**, and then select the printer name.
 - **Windows 8.1:** Click the down arrow in lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right-click an empty area on the **Start** screen, click **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, click **Start**, select **All Programs**, click **HP**, click the folder for the printer, and then select the printer name.
 - b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.
2. Click the **System** tab, and then select the **Print Density** page.
 3. Select the correct density settings.
 4. Click **Apply** to save the changes.

Calibrate the printer to align the colors

Calibration is a function that optimizes print quality.


Follow these steps to resolve print-quality problems such as misaligned color, colored shadows, blurry graphics, or other print-quality issues.

2-line control panels

1. On the printer control panel, select **OK**.
2. Use the right arrow ► to scroll to **System Setup**, and then select **OK**.
3. Use the right arrow ► to scroll to **Print Quality**, and then select **OK**.
4. Use the right arrow ► to scroll to **Color Calibrate**, and then select **OK**.
5. Use the right arrow ► to scroll to **Calibrate Now**, and then select **OK** to start the calibration process.

A **Calibrating** message on the printer control panel. The calibration process takes a few minutes to complete. Do not turn the printer off until the calibration process has completed.
6. Wait while the printer calibrates, and then try printing again.

Touchscreen control panels

1. On the printer control panel, select **Setup** .
2. Select the following menus:
 - **System Setup**
 - **Print Quality**
 - **Color Calibration**
 - **Calibrate Now**
3. A **Calibrating** message will display on the printer control panel. The calibration process takes a few minutes to complete. Do not turn the printer off until the calibration process has finished.
4. Wait while the printer calibrates, and then try printing again.

LED control panels

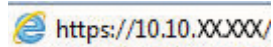
1. Open the HP Embedded Web Service (EWS):


Direct connected printers

- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- a. Print a configuration report to determine the IP address or host name.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

Choosing **Continue to this website (not recommended)** will not harm the computer while navigating within the EWS for the HP printer.

2. Select the **System** tab, and then from the left side of the screen, select **Print Quality**.
3. Select the **Calibrate Now** check box, and then select **Apply**.

4. A **Calibrating** message will display on the printer control panel. The calibration process takes a few minutes to complete. Do not turn the printer off until the calibration process is completed.
5. Wait while the printer calibrates, and then try printing again.

Adjust color settings (Windows)


When printing from a software program, follow these steps if colors on the printed page do not match colors on the computer screen, or if the colors on the printed page are not satisfactory.

Change the color options

1. From the software program, select the **Print** option.
2. Select the printer, and then click the **Properties** or **Preferences** button.
3. Click the **Color** tab.
4. Click the **Print in Grayscale** option to print a color document in black and shades of gray. Use this option to print color documents for photocopying or faxing. Also use this option to print draft copies or to save color toner.
5. Click the **OK** button to close the **Document Properties** dialog box. In the **Print** dialog box, click the **OK** button to print the job.

Print and interpret the print quality page

2-line control panels

1. On the printer control panel, press the Setup  button.
2. Select the **Reports** menu.
3. Select the **Print Quality Page** item.

Touchscreen control panels

1. From the Home screen on the printer control panel, select the **Setup** menu.
2. Select the **Reports** menu.
3. Select the **Print Quality Page** item.

LED control panels

1. Open the HP Embedded Web Server (EWS).
 - a. Open the HP Printer Assistant.
 - **Windows 10:** From the **Start** menu, click **All Apps**, click **HP**, and then select the printer name.
 - **Windows 8.1:** Click the down arrow in lower left corner of the **Start** screen, and then select the printer name.

- **Windows 8:** Right-click an empty area on the **Start** screen, click **All Apps** on the app bar, and then select the printer name.
- **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, click **Start**, select **All Programs**, click **HP**, click the folder for the printer, and then select the printer name.

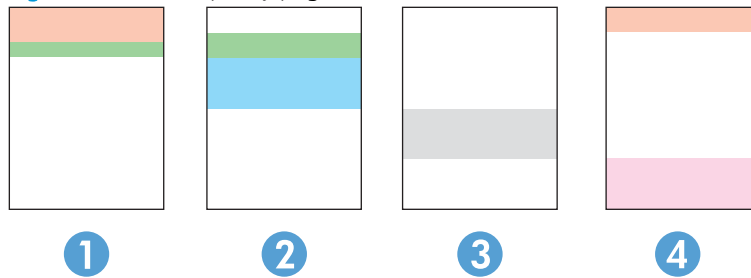
b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

2. Click the **Home** tab, and then select the **Reports** page.

3. Find **Print Quality Page** in the list of reports, and then click **Print**.

This page contains five bands of color, which are divided into four groups as indicated in the following illustration. By examining each group, you can isolate the problem to a particular toner cartridge.

Figure 2-18 Print quality page



Section	Toner cartridge
1	Yellow
2	Cyan
3	Black
4	Magenta

- If dots or streaks appear in only one of the groups, replace the toner cartridge that correlates with that group.
- If dots appear in more than one group, print a cleaning page. If this does not solve the problem, determine if the dots are always the same color; for example, if magenta dots appear in all five color bands. If the dots are all the same color, replace that toner cartridge.
- If streaks appear in multiple color bands, contact HP. A component other than the toner cartridge is probably causing the problem.

Print quality troubleshooting guide

- [Resolving print quality problems](#)
 - [Introduction](#)
 - [Troubleshoot print quality problems](#)
- [Printer-specific image defects](#)
 - [Repetitive image defects](#)
 - [Printer-specific print quality troubleshooting guide](#)

Resolving print quality problems

- [Introduction](#)
- [Troubleshoot print quality problems](#)

Introduction

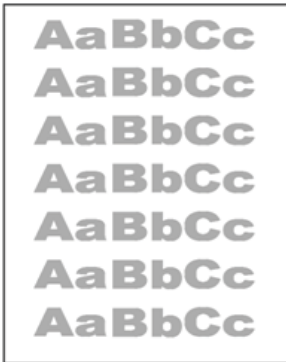
The following information provides troubleshooting steps for solving image defect issues, including the following defects:

- Light print
- Gray background or dark print
- Blank pages
- Black pages
- Dark or light bands
- Dark or light streaks
- Missing toner
- Skewed images
- Colors that do not align
- Curled paper

Troubleshoot print quality problems

Table 2-24 Image defects table quick reference

[Table 2-25 Light print on page 126](#)



[Table 2-26 Gray background or dark print on page 126](#)



[Table 2-27 Blank page — No print on page 127](#)



[Table 2-28 Black page on page 127](#)



[Table 2-29 Banding defects on page 128](#)



[Table 2-30 Streak defects on page 128](#)

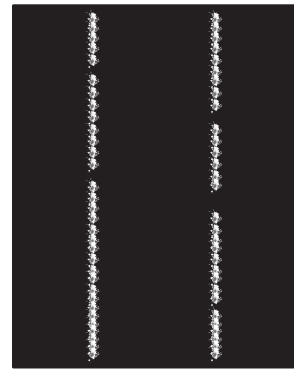


Table 2-24 Image defects table quick reference (continued)

Table 2-31 Fixing/fuser defects on page 129

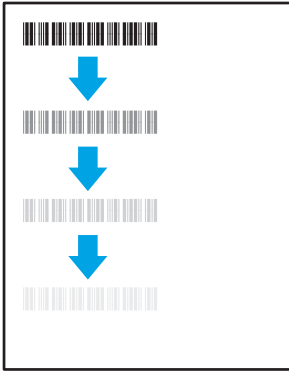


Table 2-32 Image placement defects on page 129



Table 2-33 Color plane registrations defects (color models only) on page 130

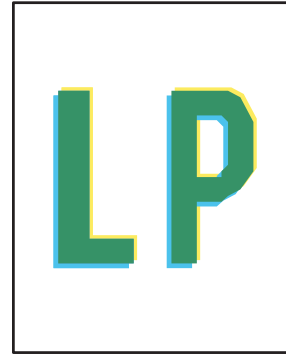


Table 2-34 Output defects on page 130

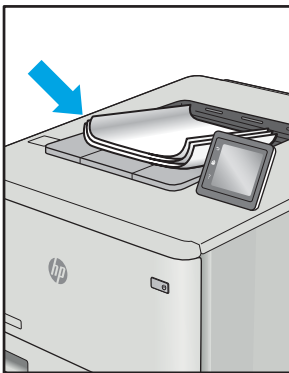



Image defects, no matter the cause, can often be resolved using the same steps. Use the following steps as a starting point for solving image defect issues.

1. Reprint the document. Print quality defects can be intermittent in nature or can go away completely with continued printing.
2. Check the condition of the cartridge or cartridges. If a cartridge is in a **Very Low** state (it has passed the rated life), replace the cartridge.
3. Make sure that the driver and tray print mode settings match the media that is loaded in the tray. Try using a different ream of media or a different tray. Try using a different print mode.
4. Make sure that the printer is within the supported operating temperature/humidity range.
5. Make sure that the paper type, size, and weight are supported by the printer. See the printer support page at support.hp.com for a list of the supported paper sizes and types for the printer.

 **NOTE:** The term “fusing” refers to the part of the printing process where toner is affixed to paper.

The following examples depict letter-size paper that has passed through the printer short-edge first.

Table 2-25 Light print

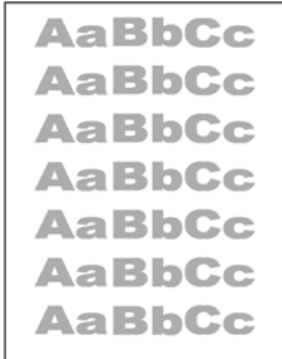
Description	Sample	Possible solutions
<p>Light print:</p> <p>The printed content on the entire page is light or faded.</p>		<ol style="list-style-type: none"> 1. Reprint the document. 2. Remove the cartridge, and then shake it to redistribute the toner. 3. Mono models only: Make sure that the Economode setting is disabled both at the printer control panel and in the print driver. 4. Make sure that the cartridge is installed correctly. 5. Print a Supply status page and check for life and usage of the cartridge. 6. Replace the cartridge. 7. If the problem persists, go to support.hp.com.

Table 2-26 Gray background or dark print


Description	Sample	Possible solutions
<p>Gray background or dark print:</p> <p>The image or text is darker than expected.</p>		<ol style="list-style-type: none"> 1. Make sure that the paper in the trays has not already been run through the printer. 2. Use a different paper type. 3. Reprint the document. 4. Mono models only: From the Home screen on the printer control panel, go to the Adjust Toner Density menu, and then adjust the toner density to a lower level. 5. Make sure that the printer is in within the supported operating temperature and humidity range. 6. Replace the cartridge. 7. If the problem persists, go to support.hp.com.

Table 2-27 Blank page — No print


Description	Sample	Possible solutions
<p>Blank page — No print:</p> <p>The page is completely blank and contains no printed content.</p>		<ol style="list-style-type: none">1. Make sure that the cartridge is genuine HP cartridges.2. Make sure that the cartridge is installed correctly.3. Print with a different cartridge.4. Check the paper type in the paper tray and adjust the printer settings to match. If necessary, select a lighter paper type.5. If the problem persists, go to support.hp.com.

Table 2-28 Black page


Description	Sample	Possible solutions
<p>Black page:</p> <p>The entire printed page is black.</p>		<ol style="list-style-type: none">1. Visually inspect the cartridge to check for damage.2. Make sure that the cartridge is installed correctly.3. Replace the cartridge4. If the problem persists, go to support.hp.com.

Table 2-29 Banding defects


Description	Sample	Possible solutions
<p>Repetitive wide-pitch banding and impulse bands:</p> <p>Dark or light lines which repeat down the length of the page. They might be sharp or soft in nature. The defect displays only in areas of fill, not in text or sections with no printed content.</p>		<ol style="list-style-type: none"> 1. Reprint the document. 2. Try printing from another tray. 3. Replace the cartridge. 4. Use a different paper type. 5. Enterprise models only: From the Home screen on the printer control panel, go to the Adjust Paper Types menu, and then choose a print mode that is designed for a slightly heavier media than what you are using. This slows the print speed and might improve the print quality. 6. If the problem persists, go to support.hp.com.

Table 2-30 Streak defects

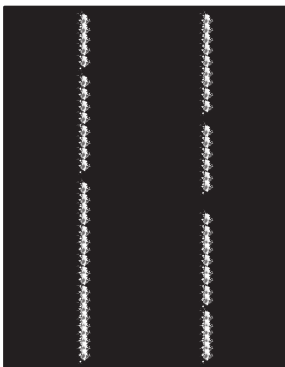
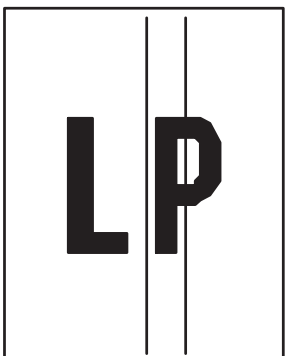
Description	Sample	Possible solutions
<p>Light vertical streaks:</p> <p>Light streaks that usually span the length of the page. The defect displays only in areas of fill, not in text or sections with no printed content.</p>		<ol style="list-style-type: none"> 1. Reprint the document. 2. Remove the cartridge, and then shake it to redistribute the toner. 3. If the problem persists, go to support.hp.com. <p>NOTE: Both light and dark vertical streaks can occur when the printing environment is outside the specified range for temperature or humidity. Refer to your printer's environmental specifications for allowable temperature and humidity levels.</p>
<p>Dark vertical streaks and ITB cleaning streaks (color models only):</p> <p>Dark lines which occur down the length of the page. The defect might occur anywhere on the page, in areas of fill or in sections with no printed content.</p>		<ol style="list-style-type: none"> 1. Reprint the document. 2. Remove the cartridge, and then shake it to redistribute the toner. 3. Print a cleaning page. 4. Check the toner level in the cartridge. 5. If the problem persists, go to support.hp.com.

Table 2-31 Fixing/fuser defects

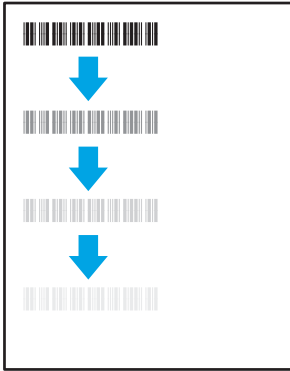
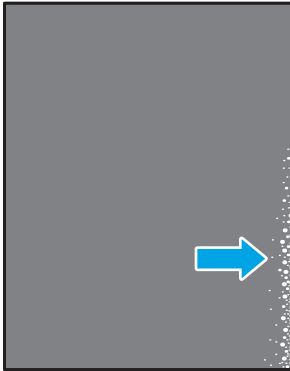
Description	Fixing/fuser	Possible solutions
<p>Hot fuser offset (shadow):</p> <p>Slight shadows, or offsets, of the image repeated down the page. The repeated image might fade with each recurrence.</p>		<ol style="list-style-type: none"> 1. Reprint the document. 2. Check the paper type in the paper tray and adjust the printer settings to match. If necessary, select a lighter paper type. 3. If the problem persists, go to support.hp.com.
<p>Poor fusing:</p> <p>Toner rubs off along either edge of page. This defect is more common at the edges of high-coverage jobs and on light media types but can occur anywhere on the page.</p>		<ol style="list-style-type: none"> 1. Reprint the document. 2. Check the paper type in the paper tray and adjust the printer settings to match. If necessary, select a heavier paper type. 3. Enterprise models only: From the printer control panel, go to the Edge-to-Edge menu and then select Normal. Reprint the document. 4. Enterprise models only: From the printer control panel, select Auto Include Margins and then reprint the document. 5. If the problem persists, go to support.hp.com.

Table 2-32 Image placement defects


Description	Sample	Possible solutions
<p>Margins and skew:</p> <p>The image is not centered, or is skewed on the page. The defect occurs when the paper is not positioned properly as it is pulled from the tray and moves through the paper path.</p>		<ol style="list-style-type: none"> 1. Reprint the document. 2. Remove the paper and then reload the tray. Make sure that all the paper edges are even on all sides. 3. Make sure that the top of the paper stack is below the tray full indicator. Do not overfill the tray. 4. Make sure that the paper guides are adjusted to the correct size for the paper. Do not adjust the paper guides tightly against the paper stack. Adjust them to the indentations or markings in the tray. 5. If the problem persists, go to support.hp.com.

Table 2-33 Color plane registrations defects (color models only)


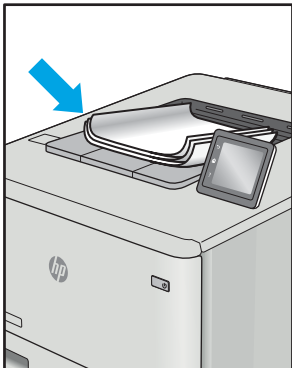
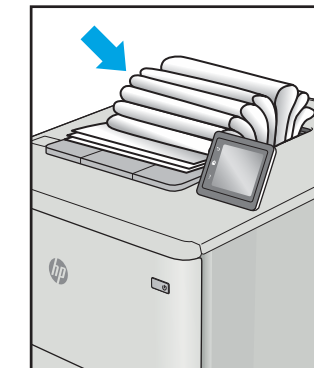
Description	Sample	Possible solutions
<p>Color plane registrations:</p> <p>One or more color of the planes is not aligned with the other color planes. The primary error will typically occur with yellow.</p>		<ol style="list-style-type: none"> 1. Reprint the document. 2. From the printer control panel, calibrate the printer. 3. If a cartridge has reached a Very Low state or the printed output is severely faded, replace the cartridge. 4. From the printer control panel use the Restore Calibration feature to reset the printer's calibration settings to the factory defaults. 5. If the problem persists, go to support.hp.com.

Table 2-34 Output defects

Description	Sample	Possible solutions
<p>Output curl:</p> <p>Printed paper has curled edges. The curled edge can be along the short or long side of the paper. Two types of curl are possible:</p> <ul style="list-style-type: none"> • Positive curl: The paper curls toward the printed side. The defect occurs in dry environments or when printing high coverage pages. • Negative curl: The paper curls away from the printed side. The defect occurs in high-humidity environments or when printing low coverage pages. 		<ol style="list-style-type: none"> 1. Reprint the document. 2. Positive curl: From the printer control panel, select a heavier paper type. The heavier paper type creates a higher temperature for printing. Negative curl: From the printer control panel, select a lighter paper type. The lighter paper type creates a lower temperature for printing. Try storing the paper in a dry environment prior or use freshly opened paper. 3. Print in duplex mode. 4. If the problem persists, go to support.hp.com.
<p>Output stacking:</p> <p>The paper does not stack well in the output tray. The stack might be uneven, skewed, or the pages might be pushed out of the tray and onto the floor. Any of the following conditions can cause this defect:</p> <ul style="list-style-type: none"> • Extreme paper curl • The paper in the tray is wrinkled or deformed • The paper is a non-standard paper type, such as envelopes • The output tray is too full 		<ol style="list-style-type: none"> 1. Reprint the document. 2. Extend the output bin extension. 3. If the defect is caused by extreme paper curl, complete the troubleshooting steps for Output curl. 4. Use a different paper type. 5. Use freshly opened paper. 6. Remove the paper from the output tray before the tray gets too full. 7. If the problem persists, go to support.hp.com.

Printer-specific image defects

- [Repetitive image defects](#)
- [Printer-specific print quality troubleshooting guide](#)

Repetitive image defects


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 131](#).

Use a ruler to measure occurrences of repetitive image defects to help solve image-quality problems. Place the ruler next to the first occurrence of the defect on the page. Find the distance between identical defects and use the table below to identify the component that is causing the defect.

 **NOTE:** 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.

Table 2-35 Repetitive image defects


Distance between identical defects	Component	Notes
11.0 mm (0.433 in)	Output kicker rollers	
22.6 mm (0.89 in)	Developer roller	Appears in the form of dropouts.
23.6 mm (0.93 in)	Primary charging roller	Appears in the form of dropouts.
51.5 mm (2.03 in)	Secondary transfer roller	Appears in the form of dropouts or dirt on the back of the page.
56.5 mm (2.22 in)	Fuser film	Appears in the form of dirt, dropouts, or loose toner.
	Fuser pressure roller	Appears in the form of dirt (front or back of the page) or loose toner.
63.0 mm (2.48 in)	Photosensitive drum	Appears in the form of dirt or dropouts.
66.7 mm (2.63 in)	Intermediate transfer belt (ITB) (drive roller)	
67.0 mm (2.64 in)	Cartridge station pitch	

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

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.

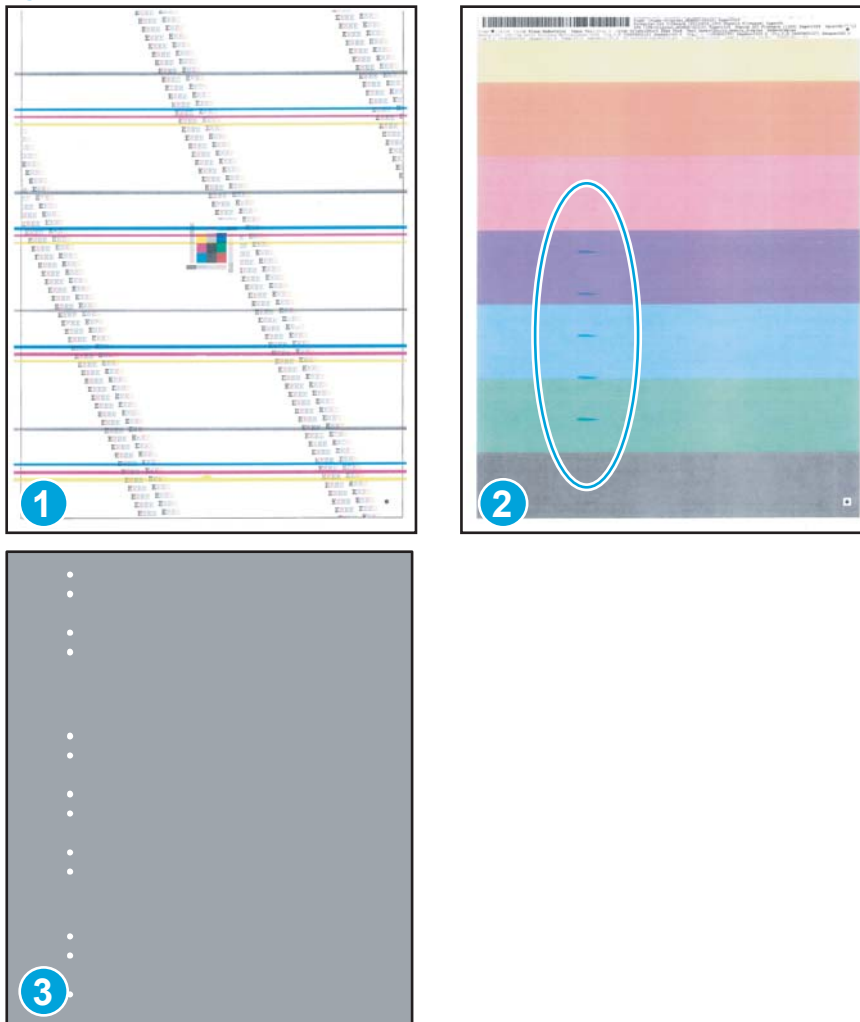
 **TIP:** Print a cleaning page to see if that resolves the defect.

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.

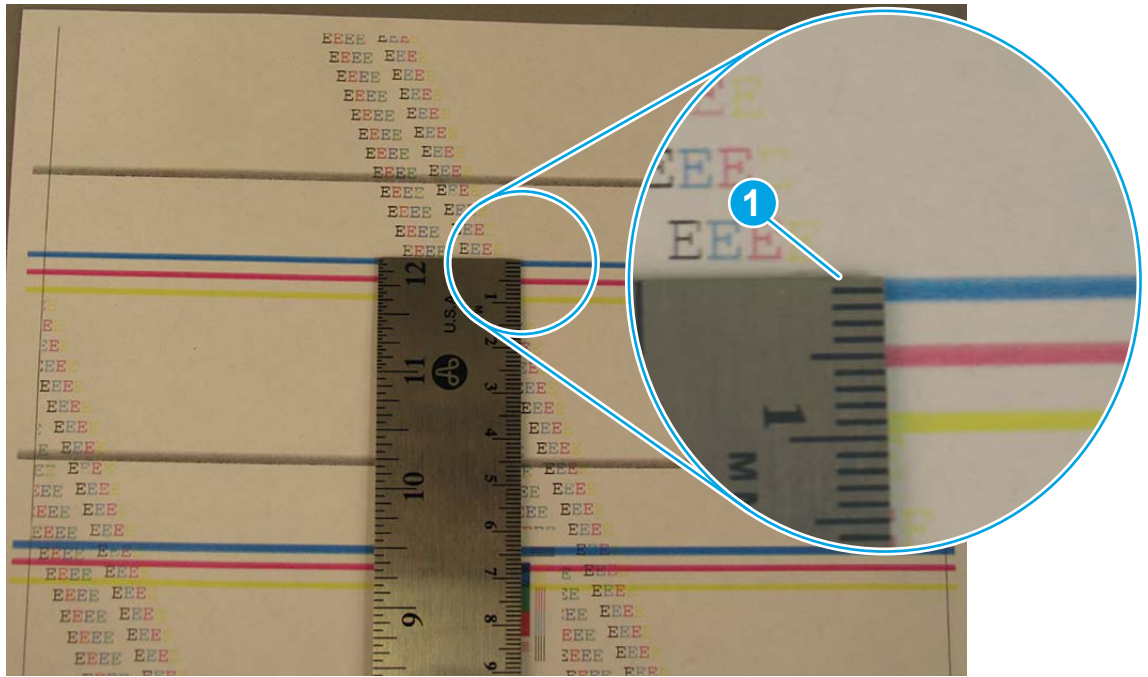
- Lines (callout 1)
- Smudges (callout 2)
- Dots or spots (callout 3)

Figure 2-19 Examples of repetitive defects



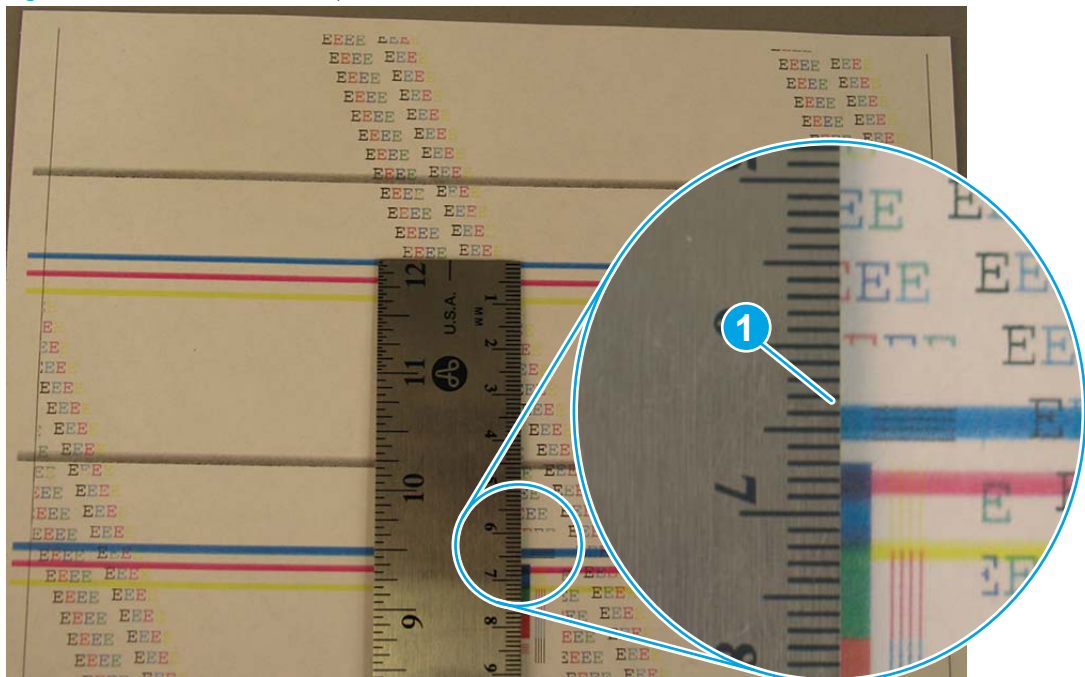
2. Position a metric ruler on the page with the “zero” ruler mark at one occurrence of the defect (callout 1).

Figure 2-20 Place the ruler on the page



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

Figure 2-21 Locate the next repetitive defect



4. Measure the distance (in millimeters) between the two occurrences (callout 1), and then use [Table 2-35 Repetitive image defects on page 131](#) to determine the defective assembly.


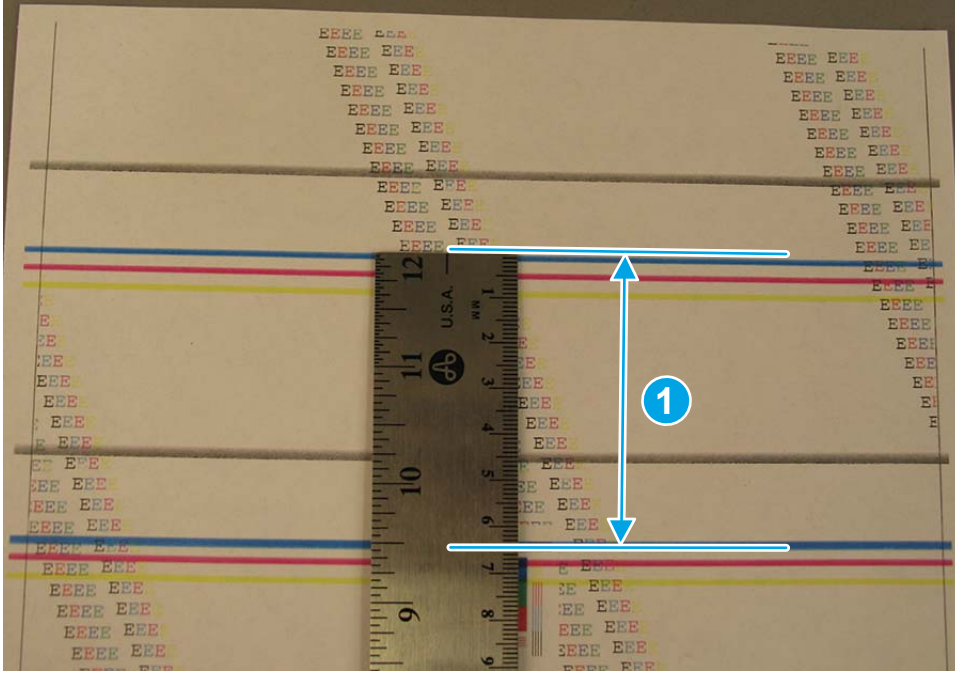
 **TIP:** Always measure from and to the same point on the defects. For example, if the ruler is “zeroed” at the top edge of a defect, measure to the top edge of the next occurrence of that defect.

Figure 2-22 Determine the defective assembly



Printer-specific print quality troubleshooting guide

- [Light print \(1 of 2\)](#)
- [Light print \(2 of 2\)](#)
- [Dark print](#)
- [Blank page](#)
- [All black or solid color page](#)
- [White spots](#)
- [Dirt on the back of the page](#)
- [Vertical lines](#)
- [Vertical white lines \(one color\)](#)
- [Vertical white lines \(all colors\)](#)
- [Horizontal lines](#)
- [Horizontal white lines](#)
- [Missing color](#)
- [Dropouts](#)
- [Loose toner](#)
- [Color misregistration](#)
- [Toner smear](#)
- [Malformed or misplaced image](#)
- [Wrinkles or creases](#)
- [Page skew](#)
- [Dirt on front of page](#)
- [Vertical density variation](#)
- [Repetitive image defects](#)

Light print (1 of 2)

Figure 2-23 Light print (1 of 2)



Description

Print is light on the entire page.

Solution

Clean the grounding contacts on the printer, the intermediate transfer belt (ITB) assembly, and the secondary transfer roller. If the problem remains after cleaning, check the contacts for deformation or damage. Replace any defective parts.

Light print (2 of 2)

Figure 2-24 Light print (2 of 2)



Description

Print is light in a particular color.

Solution

- Clean the contacts on the intermediate transfer belt (ITB) and the color of cartridge that produces the light print. Clean the corresponding contacts on the printer. If the problem remains after cleaning, check the contacts for deformation or damage. Replace any defective parts.
- Replace the registration density sensor assembly.

Dark print

Figure 2-25 Dark print



Description

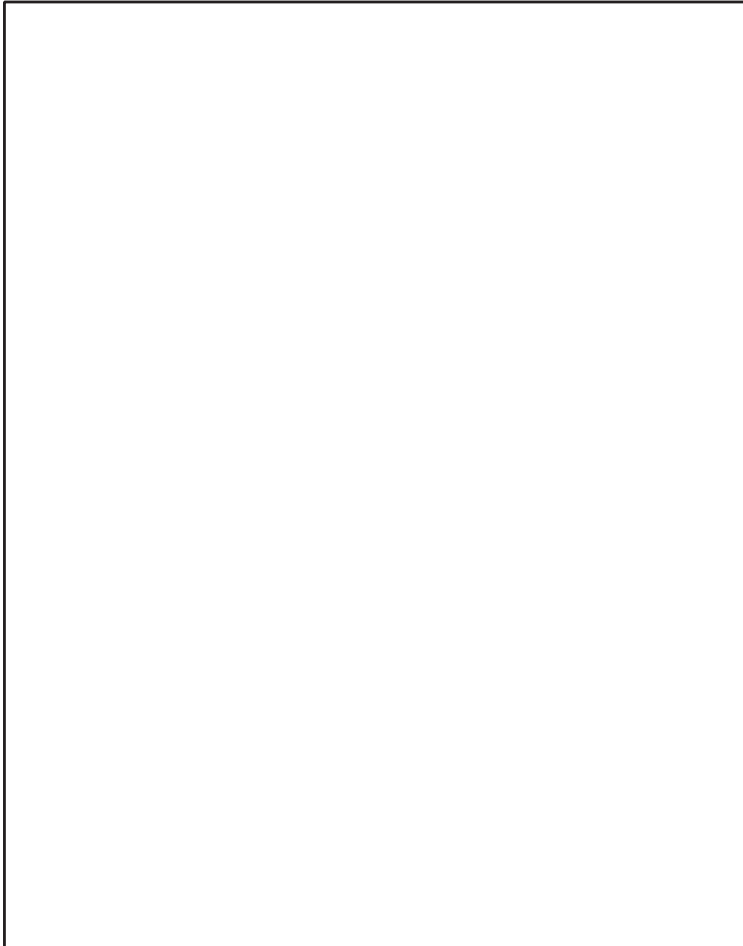
The image is too dark.

Solution

Replace the registration density sensor assembly.

Blank page

Figure 2-26 Blank page



Description

The page is completely blank.

Solution

Replace the engine controller PCA.

All black or solid color page

Figure 2-27 All black or solid color page



Description

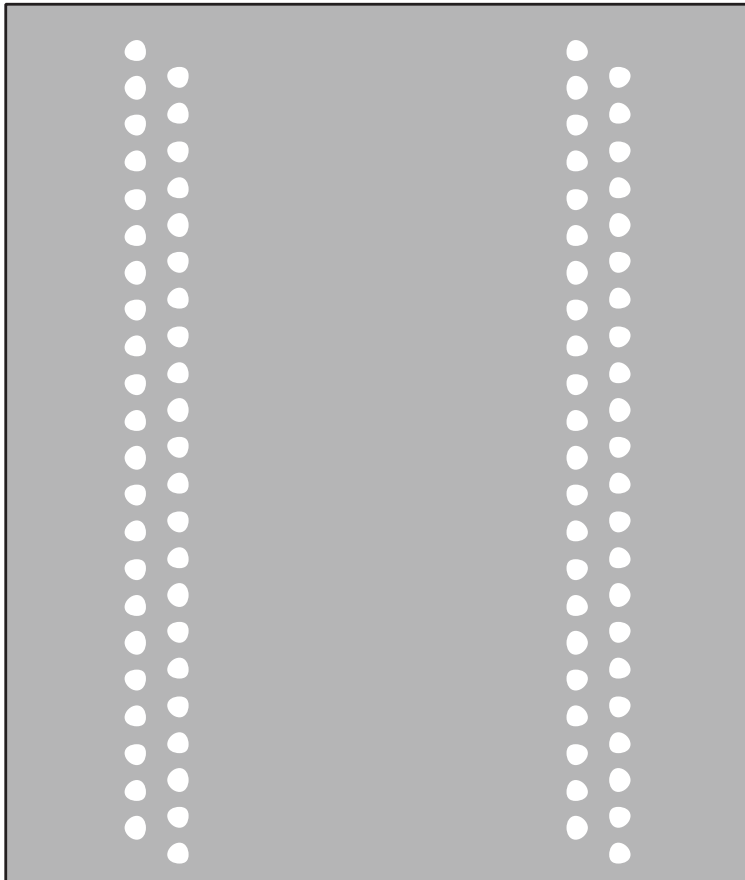
The page is all black or a solid color.

Solution

Clean the contacts on the cartridge of the color that produces the all black or solid color. Clean the corresponding contacts on the printer. If the problem remains after cleaning, check the contacts for deformation or damage. Replace any defective parts.

White spots

Figure 2-28 White spots



Description

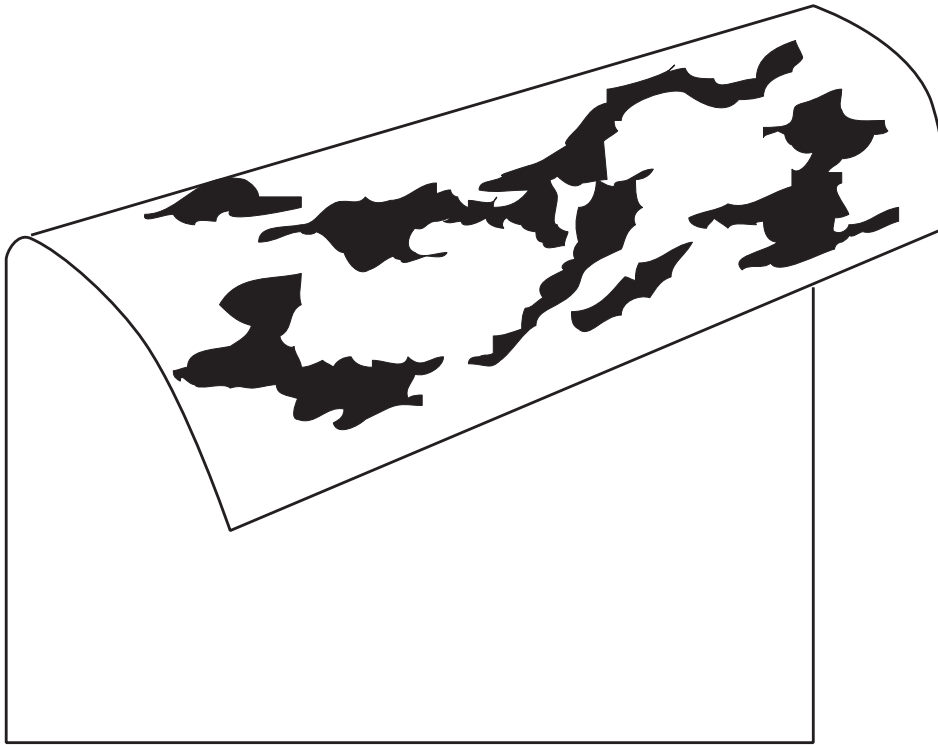
White spots appear on the page.

Solution

- Clean the static charge eliminator.
- Replace the intermediate transfer belt (ITB) assembly.
- Replace the secondary transfer roller.

Dirt on the back of the page

Figure 2-29 Dirt on the back of the page



Description

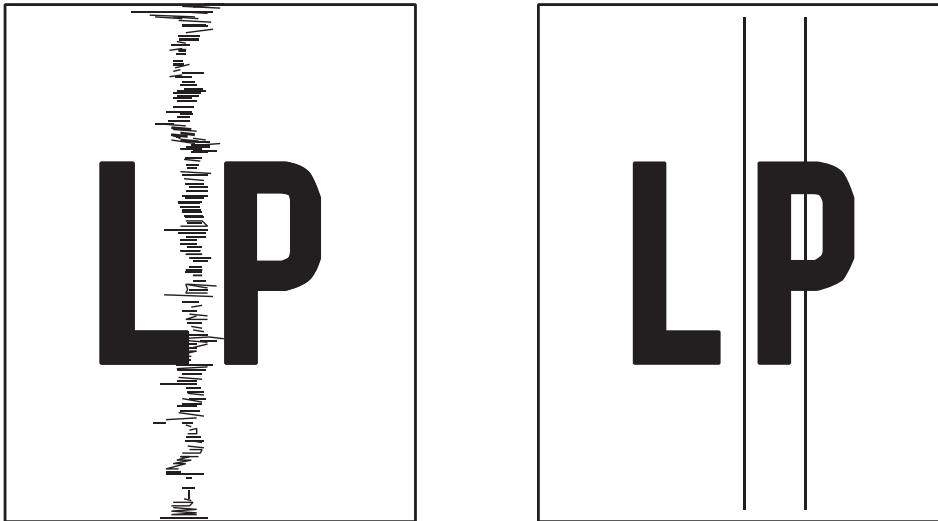
The back of the page is dirty.

Solution

- Replace the secondary transfer roller.
- Clean the fuser inlet guide and separation guide. If the contamination does not come off, replace the fuser.
- Execute a “fuser roller cleaning designation” of the multi-purpose mode. If the contamination does not come off, replace the fuser.

Vertical lines

Figure 2-30 Vertical lines



Description

Vertical bands or streaks appear on the page.

Solution

- Inspect the toner cartridges. If scratches are present on the surface of the photosensitive drum, replace the toner cartridge.
- Inspect the fuser film. If scratches are present on the surface of the film, replace the fuser.
- Inspect the intermediate transfer belt (ITB). If scratches are present on the surface of the ITB, replace it.
- Inspect the ITB drive roller. If the roller is deformed or has deteriorated, replace the ITB.
- If the ITB cleaning mechanism is malfunctioning, replace the ITB.

Vertical white lines (one color)

Figure 2-31 Vertical white lines (one color)



Description

Vertical white lines appear in a particular color.

Solution

- Remove any foreign substances from the laser beam window.
- If scratches are present on the developer roller or photosensitive drum in the toner cartridge, replace the cartridge.
- If the laser scanner mirror is dirty, replace the printer.

Vertical white lines (all colors)

Figure 2-32 Vertical white lines (all colors)



Description

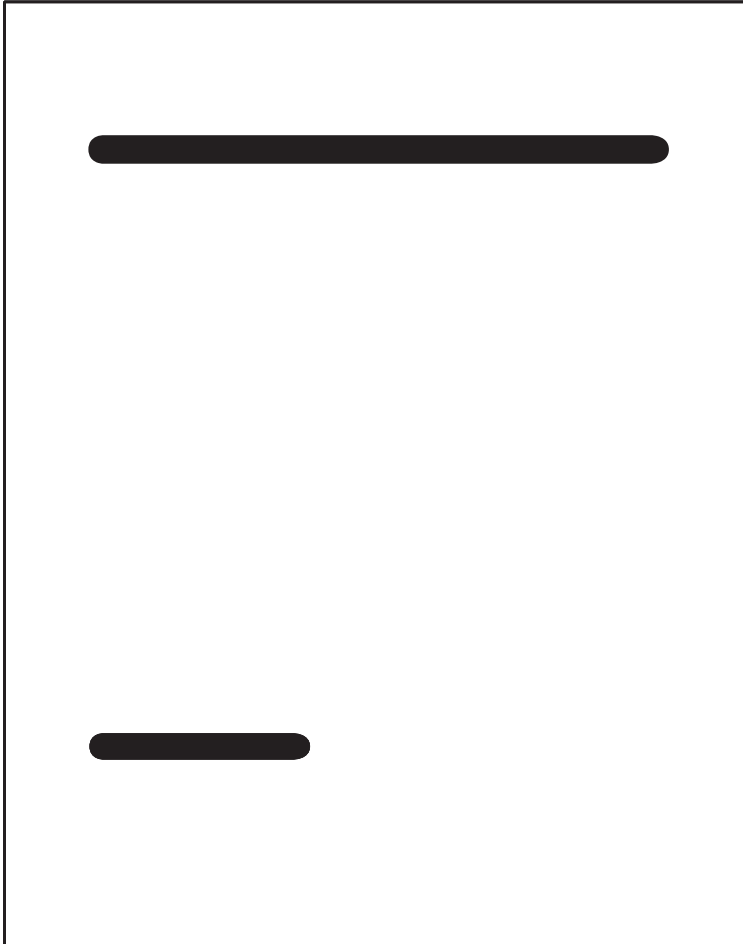
Vertical white lines appear in all colors.

Solution

- If horizontal scratches are present on the fuser film, replace the fuser.
- If scratches are present on the circumference of the intermediate transfer belt (ITB), replace the ITB.

Horizontal lines

Figure 2-33 Horizontal lines



Description

Horizontal lines appear on the page.

Solution

- If the lines are repeating down the page, see [Repetitive image defects on page 131](#) for instructions on how to measure the distance between the lines and associate a printer component with that measurement. Clean any contamination off of the identified component. If the contamination cannot be removed, replace the component.
- If horizontal scratches are present on the photosensitive drum, replace the toner cartridge of the affected color.
- If horizontal scratches are present on the fuser film, replace the fuser.

Horizontal white lines

Figure 2-34 Horizontal white lines



Description

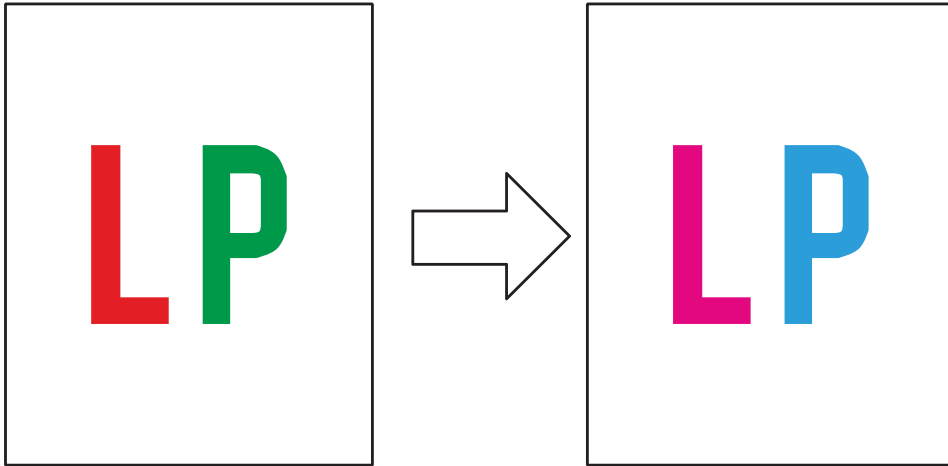
Horizontal white lines appear on the page.

Solution

- If the lines are repeating down the page, see [Repetitive image defects on page 131](#) for instructions on how to measure the distance between the lines and associate a printer component with that measurement. Clean any contamination off of the identified component. If the contamination cannot be removed, replace the component.
- If horizontal scratches are present on the photosensitive drum, replace the toner cartridge of the affected color.
- If horizontal scratches are present on the intermediate transfer belt (ITB), replace the ITB.

Missing color

Figure 2-35 Missing color



Description

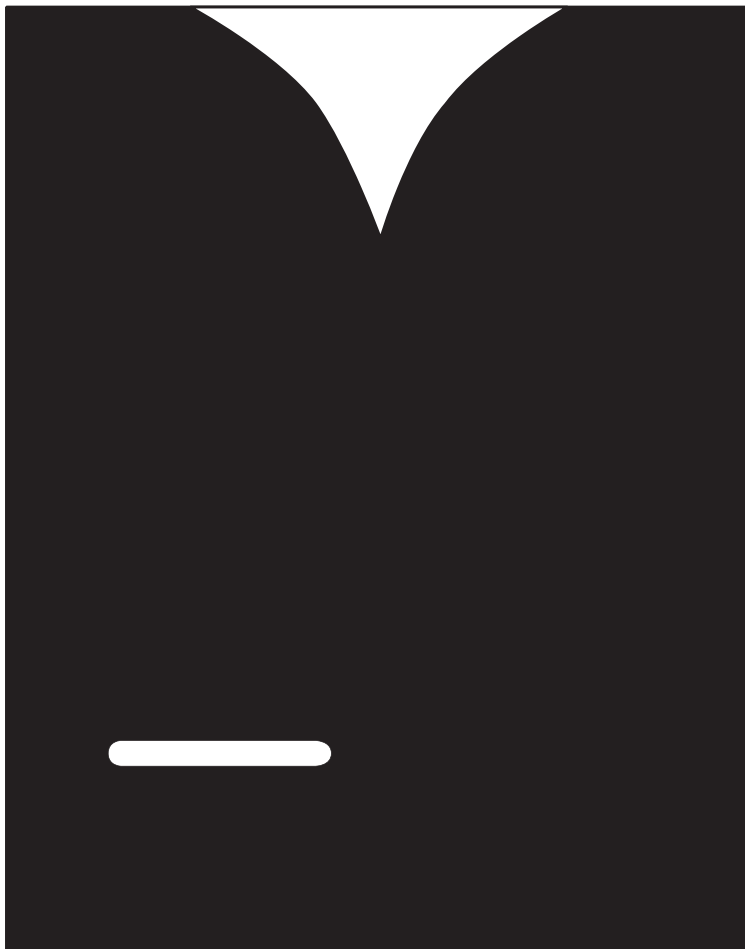
The image in a particular color does not print in the correct color.

Solution

- Clean the contacts on the color of cartridge that produces the missing color. Clean the corresponding contacts on the printer. If the problem remains after cleaning, check the contacts for deformation or damage. Replace any defective parts:
 - If the toner cartridge contact is damaged or deformed, replace the toner cartridge.
 - If the high-voltage power supply contact is damaged or deformed, replace the engine controller PCA.
 - If the laser scanner assembly contact is damaged or deformed, replace the printer.

Dropouts

Figure 2-36 Dropouts



Description

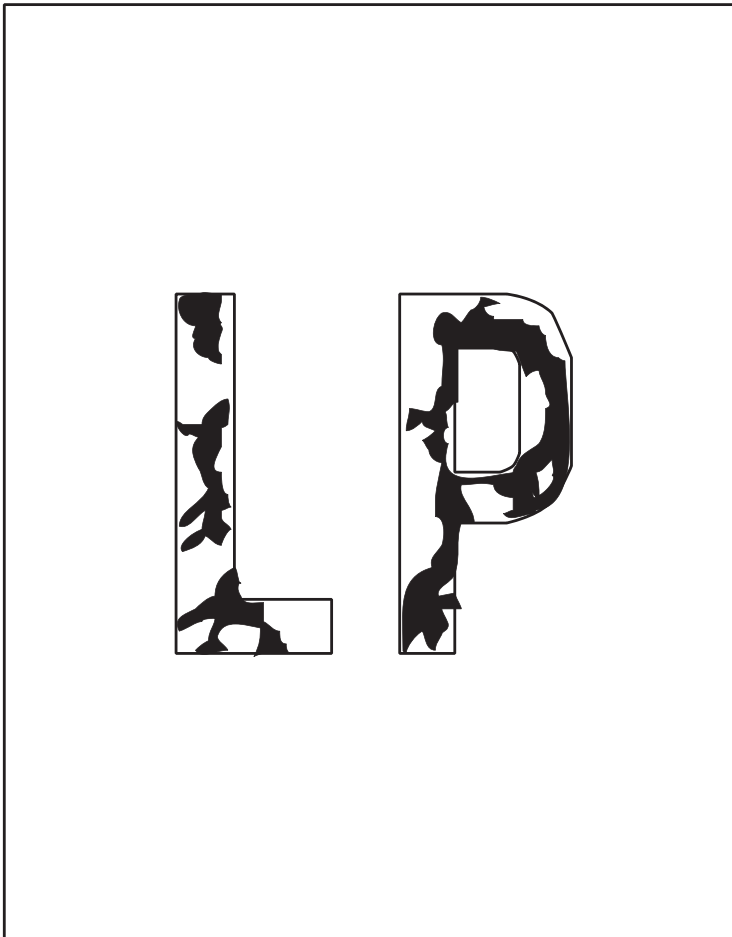
Portions of the image, in one or more colors, are missing.

Solution

- If the secondary transfer roller is deformed or has deteriorated, replace it.
- If the primary charging roller, developer roller, or photosensitive drum in the cartridge are deformed or have deteriorated, replace the toner cartridge.
- If the fuser film is deformed or has deteriorated, replace the fuser.
- If the high-voltage power supply is defective (no transfer bias output), replace the engine controller PCA.

Loose toner

Figure 2-37 Loose toner



Description

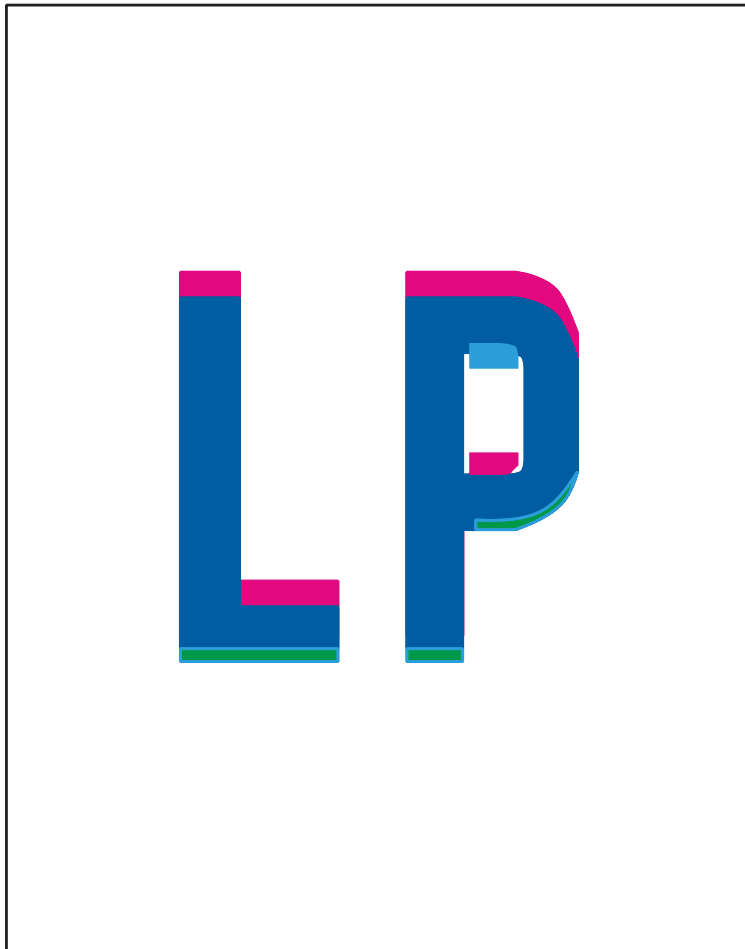
Toner is not fully fused to the paper.

Solution

- If the fuser film or pressure roller is scarred or deformed, replace the fuser.
- If the thermistor is defective, replace the fuser.
- If the fuser heater is defective, replace the fuser.
- If the fuser control circuit is defective, replace the low-voltage power supply.

Color misregistration

Figure 2-38 Color misregistration



Description

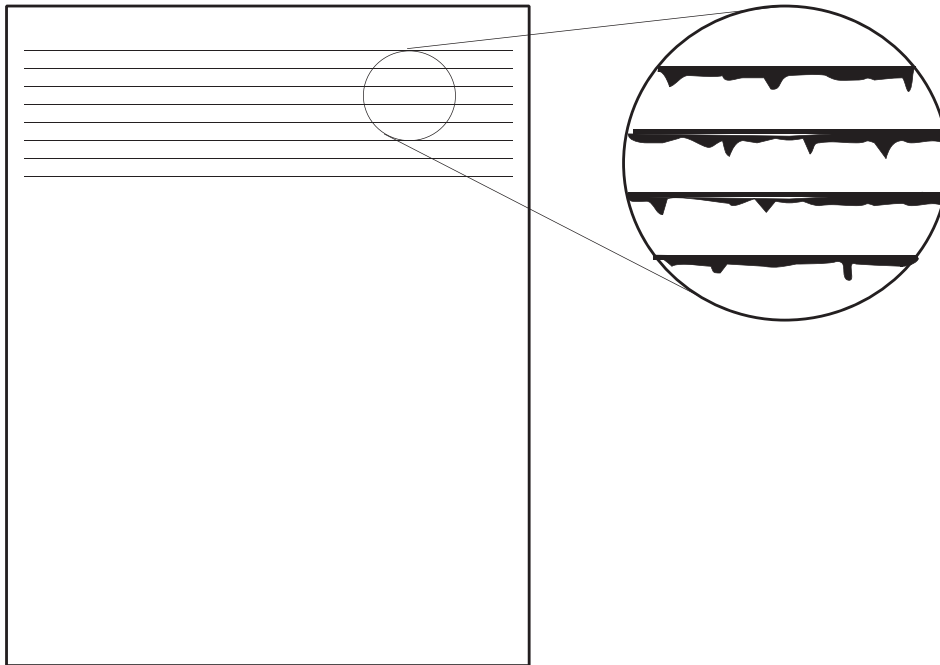
One color is misaligned.

Solution

- Calibrate the printer.
- Replace the cartridge corresponding to the color that is misaligned.
- If the intermediate transfer belt (ITB) does not rotate smoothly or the ITB surface is not clean, replace it.
- If the registration density sensor is defective, replace it.
- If the laser scanner assembly is defective, replace it.

Toner smear

Figure 2-39 Toner smear



Description

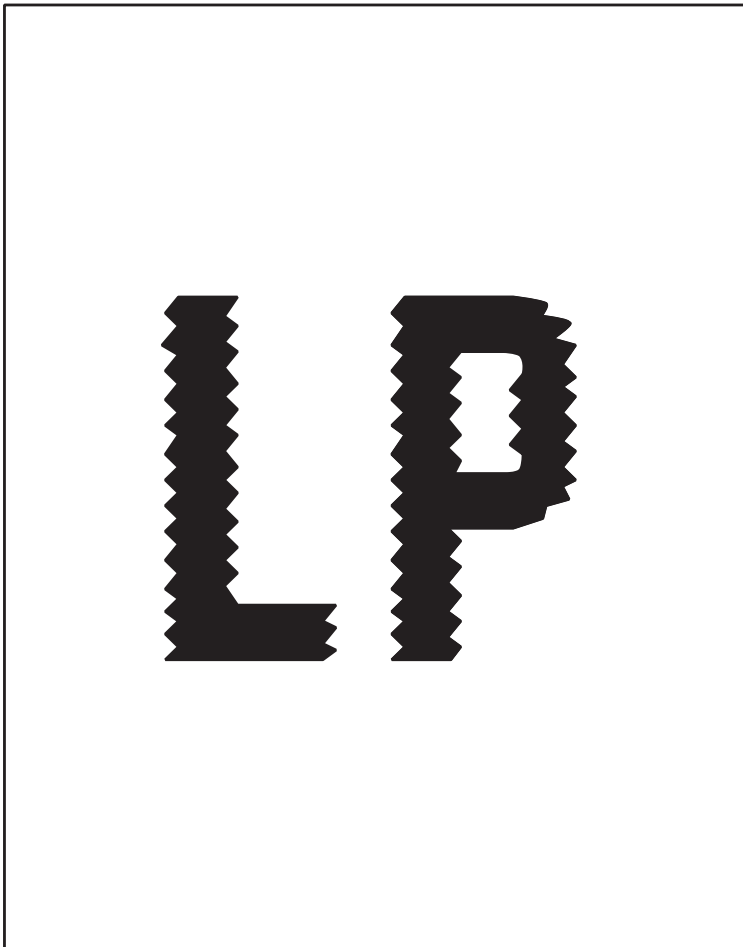
Toner is smeared on the paper.

Solution

- Remove any residual paper in the printer
- Clean the contacts on the cartridge of the color that produces the toner smear. Clean the corresponding contacts on the printer. If the problem remains after cleaning, check the contacts for deformation or damage. Replace any defective parts.
- If a foreign substance is adhered to the fuser inlet guide or the guide is dirty, clean the guide.

Malformed or misplaced image

Figure 2-40 Malformed or misplaced image



Description

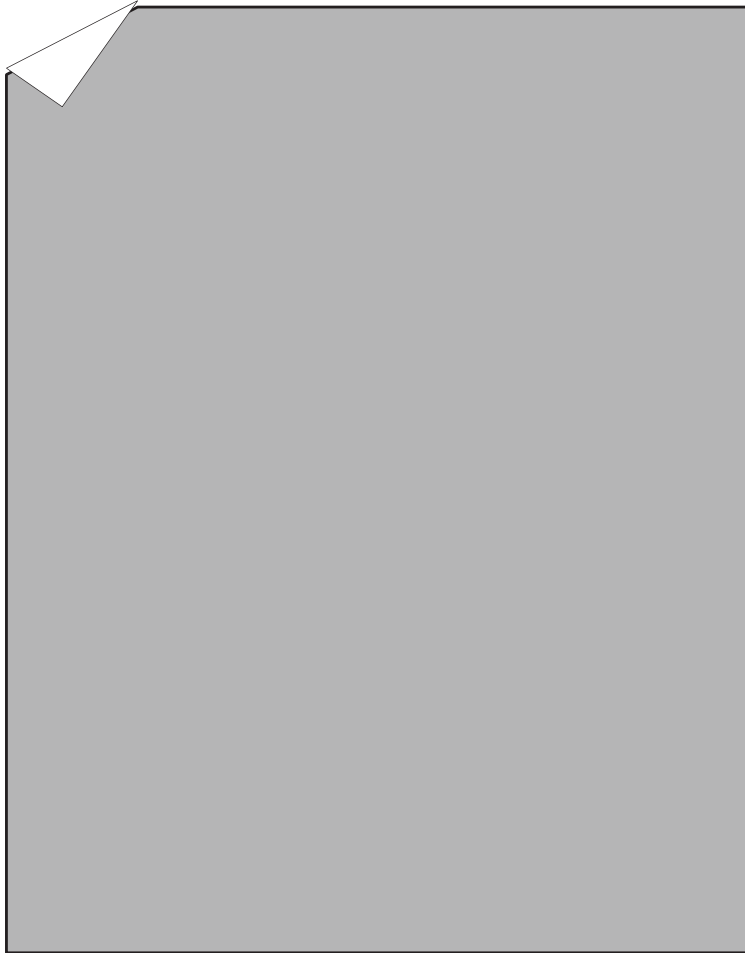
An image on the page is malformed or incorrectly placed.

Solution

- If the printer is experiencing page skew, see [Page skew on page 155](#)
- If the laser scanner assembly is defective, replace the printer.

Wrinkles or creases

Figure 2-41 Wrinkles or creases



Description

The printed page contains wrinkles or creases.

Solution

- If the feed roller or paper feed guide are dirty, clean them.
- If the feed roller is deformed or worn, replace the roller.
- If the paper feed guide is damaged, replace the guide.

Page skew

Figure 2-42 Page skew



Description

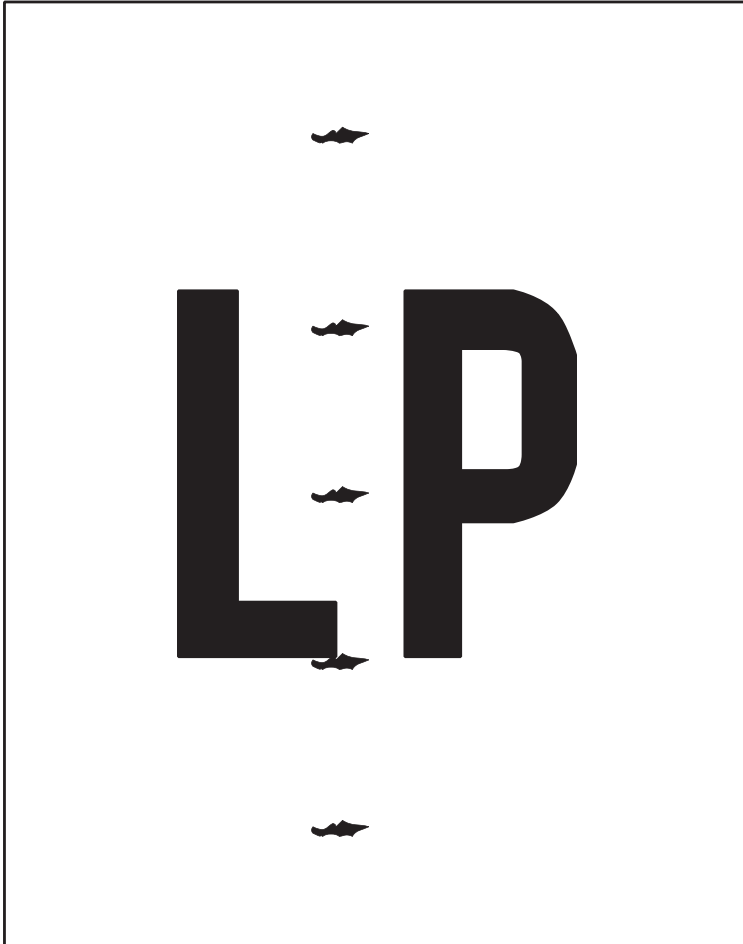
The image is skewed on the page.

Solution

- Check the spring on the registration shutter. If it is unhooked or in the wrong position, place it in the correct position.
- If the registration shutter spring is deformed, replace the printer.
-

Dirt on front of page

Figure 2-43 Dirt on front of page



Description

The front of the page is “dirty” with stray toner marks.

Solution

- If the photosensitive drum of the toner cartridge associated with the stray toner marks is dirty, replace the toner cartridge.
- If the fuser film or pressure roller is contaminated, execute a “fuser roller cleaning designation” in MP mode. If the contamination cannot be removed, replace the fuser.
-

Vertical density variation

Figure 2-44 Vertical density variation



Description

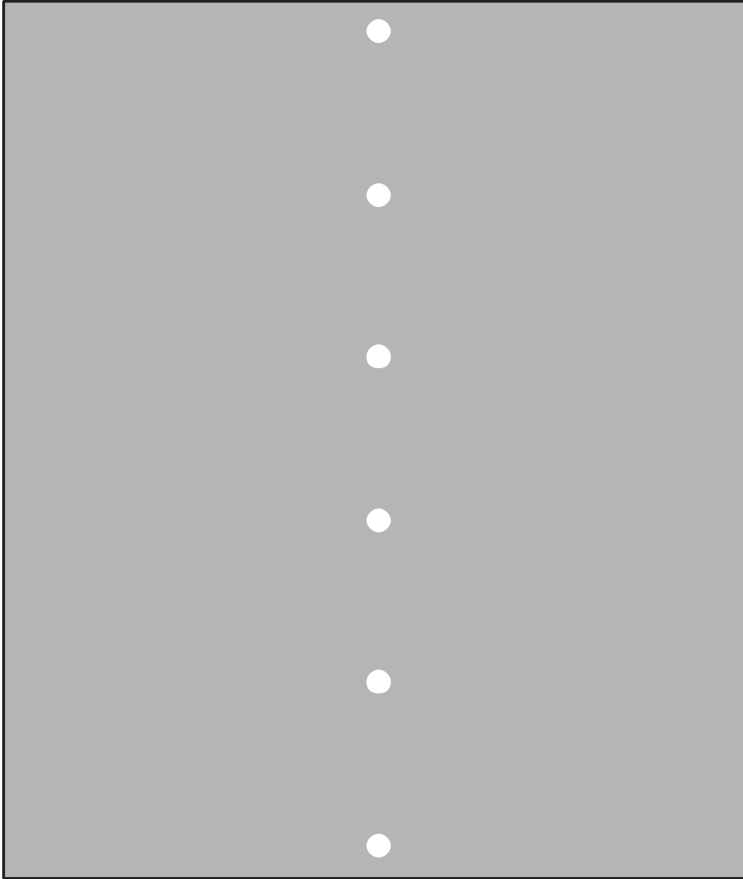
The vertical density varies on images on the page.

Solution

- If the photosensitive drum surface has deteriorated on the cartridge color associated with the density variation, replace the toner cartridge.
- If the laser scanner assembly is defective, replace the printer.

Repetitive image defects

Figure 2-45 Repetitive image defects



Description

Repetitive white spots appear in an image.

Solution

- See [Repetitive image defects on page 131](#) for instructions on how to measure the distance between the spots and associate a printer component with that measurement. Clean any contamination off of the identified component. If the contamination cannot be removed, replace the component.
- If the intermediate transfer belt (ITB) is dirty, print about 20 copies of a solid-color image covering the page.
- If the ITB is scarred, replace it.
- If the secondary transfer roller is deformed or has deteriorated, replace it.
- If a foreign substance is adhered to the primary charging roller or photosensitive drum in any of the toner cartridges, replace the cartridge.

Clean the printer

Over time, particles of toner and paper accumulate inside the printer. This can cause print-quality problems during printing. Cleaning the printer 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.

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

Print a cleaning page


2-line control panels

1. From the printer control panel, select **OK**.
2. Use the right arrow ► to scroll to **Service**, and then select **OK**.
3. Use the right arrow ► to scroll to **Cleaning Page** option, and then select **OK**.
4. Load plain letter or A4 paper when prompted.

Select **OK** to begin the cleaning process.

The printer prints the first side and then prompts you to remove the page from output bin and reload into the cassette tray, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

Touchscreen control panels

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Service**.
3. Select **Cleaning Page**.
4. Load plain letter or A4 paper when you are prompted.
5. Select the **OK** button to begin the cleaning process.

The printer prints the first side and then prompts you to remove the page from the output bin and reload it in the cassette tray, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

LED control panels

- ▲ Open the HP Embedded Web Service (EWS):

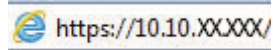
Direct connected printers

- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.

- **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- a. Print a configuration report to determine the IP address or host name.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

Choosing **Continue to this website (not recommended)** will not harm the computer while navigating within the EWS for the HP printer.

- c. Select the **System** tab, and then from the left side of the screen, select **Service**.
- d. Under the **Cleaning Mode** heading, select **Start**.

Clean the scanner glass strip and platen

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 glass and white plastic backing.

1. Use the power switch to turn off the printer, and then unplug the power cable from the electrical socket.
2. Open the scanner lid.

3. Clean the scanner glass (callout 1) and the white plastic backing (callout 2) with a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.



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

💡 TIP: See this English-language video for a demonstration of how to identify and clean debris that causes streaks on copies: www.youtube.com/watch?v=CGn7FJvH8sE.

4. Dry the glass and white plastic backing with a chamois or a cellulose sponge to prevent spotting.
5. Connect the printer, and then use the power switch to turn on the printer.

Clean the pickup and separation rollers

1. Turn off the printer, unplug the power cable from the printer, and then remove the rollers.
2. Dab a lint-free cloth in isopropyl alcohol, and then scrub the roller.

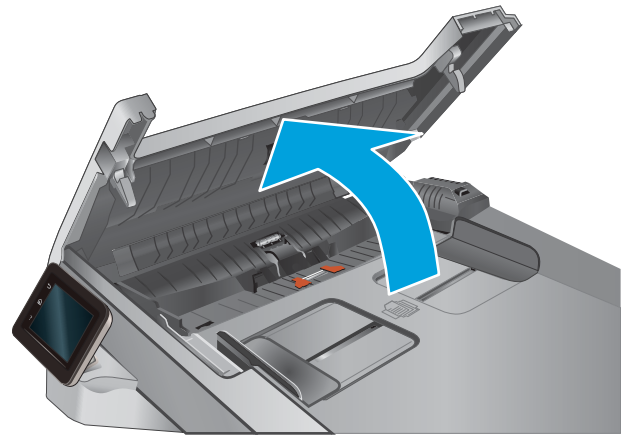
⚠ WARNING! Alcohol is flammable. Keep the alcohol and cloth away from an open flame. Before you close the printer and connect the power cable, allow the alcohol to dry completely.

📄 NOTE: In certain areas of California (USA), air pollution control regulations restrict the use of liquid isopropyl alcohol (IPA) as a cleaning agent. In those areas of California, please disregard the previous recommendations and use a dry, lint free cloth, moistened with water, to clean the pickup roller.

3. Use a dry, lint free cloth, to wipe the rollers and remove loose dirt.

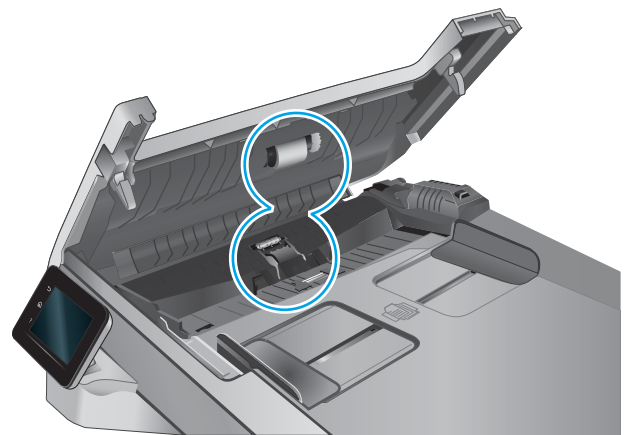
Clean the pickup rollers and separation pad in the document feeder

1. Open the document-feeder cover.

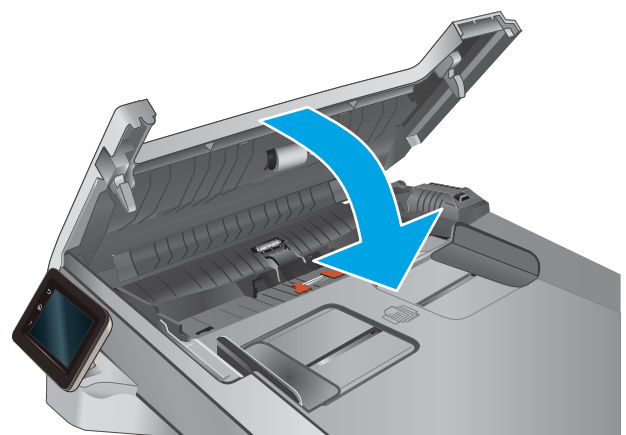


2. Remove any visible lint or dust from each of the feed rollers and the separation pad using compressed air or a clean lint-free cloth moistened with warm water.

NOTE: Lift up the roller assembly to access and clean the second roller.



3. Close document feeder cover.



Clean the touchscreen

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

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

Solve paper-handling problems

Printer feeds incorrect page size

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 report or use the control panel to determine the paper size for which the tray is configured.
The guides in the tray are not against the paper.	Verify that the paper guides are touching the paper, but not so tightly that the paper is buckled.

Printer pulls from incorrect tray

Printer pulls from incorrect tray

Cause	Solution
You are using a driver for a different printer.	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 report 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

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

Cause	Solution
You are trying to duplex on unsupported paper.	Verify that the paper is supported for duplex printing.
The printer driver is not set up for duplex printing.	Set up the printer driver to enable duplex printing.
The first page is printing on the back of preprinted forms or letterhead.	Load preprinted forms and letterhead in the priority feed slot (M253-M254 and M278-M281 models only) with the letterhead or printed side down, and with the top of the page leading into the printer. For the cassette tray, load the paper printed side up, with the top of the page toward the right side of the printer.

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

Cause	Solution
The printer model does not support automatic duplex printing.	The printer model does not support automatic duplex printing.
The printer configuration is not set for duplexing.	In Windows, run the automatic configuration feature: <ol style="list-style-type: none">1. Click the Start button, point to Settings, and then click Printers (for Windows 2000) or Printers and Faxes (for Windows XP).2. Right-click the HP printer icon, and then click Properties or Printing Preferences.3. Click the Device Settings tab.4. Under Installable Options, click Update Now in the Automatic Configuration list.

Paper does not feed from the cassette tray

Paper does not feed from cassette tray

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.
The paper size is not configured correctly for the input tray.	Print a configuration report 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

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.
Paper is damaged or in poor condition.	Remove paper from the input tray and load paper that is in good condition.
Printer is operating in an excessively humid environment.	Verify that the printing environment is within humidity specifications.
You are printing large, solid-filled areas.	Large, solid-filled areas can cause excessive curl. Try using a different pattern.

Output is curled or wrinkled

Cause	Solution
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

The printer does not pick up paper

If the printer does not pick up paper from the tray, try these solutions.

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 pickup, feed, or separation rollers 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.

The document feeder jams, skews, or picks up multiple sheets of paper (M181 and M278-M281 models)

- The original might have something on it, such as staples or self-adhesive notes, that must be removed.
- Check that all rollers are in place and that the roller-access cover inside the document feeder is closed.
- Make sure that the top document-feeder cover is closed.
- The pages might not be placed correctly. Straighten the pages and adjust the paper guides to center the stack.
- The paper guides must be touching the sides of the paper stack to work correctly. Make sure that the paper stack is straight and the guides are against the paper stack.
- The document-feeder input tray or output bin might contain more than the maximum number of pages. Make sure the paper stack fits below the guides in the input tray, and remove pages from the output bin.
- Verify that there are no pieces of paper, staples, paper clips, or other debris in the paper path.
- Clean the document-feeder rollers and the separation pad. Use compressed air or a clean, lint-free cloth moistened with warm water. If misfeeds still occur, replace the rollers.

Paper does not feed automatically

Paper does not feed automatically	
Cause	Solution
Manual feed is selected in the software program.	Load the cassette tray with paper, or, if the paper is loaded, select OK .
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 report 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.

Prevent paper jams

To reduce the number of paper jams, try these solutions.

- Use only paper that meets HP specifications for this printer.
- Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.
- Use paper that has not previously been printed or copied on.
- 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.
- 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.
- Make sure that the tray is fully inserted in the printer.

- When printing on heavy, embossed, or perforated paper, use the manual feed feature and feed sheets one at a time.
- From the Home screen on the printer control panel, navigate to the [Paper Setup](#) menu. Verify that the tray is configured correctly for the paper type and size.
- Make sure the printing environment is within recommended specifications.

Clear paper jams

Introduction

The following information includes instructions for clearing paper jams from the printer.

- [Experiencing frequent or recurring paper jams?](#)
- [Paper jam locations](#)
- [Clear paper jams in the document feeder \(M180nw and M181fw models only\)](#)
- [Clear paper jams in the document feeder \(M278-M281 models only\)](#)
- [Clear paper jams in the priority feed slot \(M253-M254 and M278-M281 models only\)](#)
- [Clear paper jams in the cassette tray \(M153-M154 and M178-M181 models only\)](#)
- [Clear paper jams in the cassette tray \(M253-M254 and M278-M281 models only\)](#)
- [Clear paper jams in the rear door and the fuser area \(simplex models\)](#)
- [Clear paper jams in the duplexer \(M253-M254\)](#)
- [Clear paper jams in the duplexer \(M278-M281\)](#)
- [Clear paper jams in the output bin \(M153-M154\)](#)
- [Clear paper jams in the output bin \(M178-M181\)](#)
- [Clear paper jams in the output bin \(M253-M254\)](#)
- [Clear paper jams in the output bin \(M278-M281\)](#)

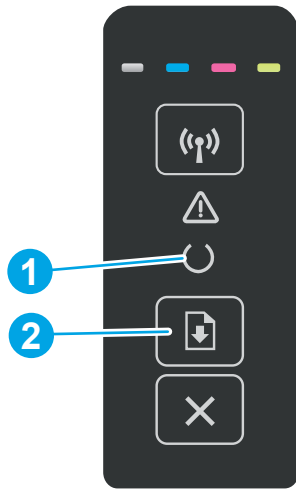
Experiencing frequent or recurring paper jams?


The following sections include information for solving problems with frequent paper jams.




- [M153-M154 models](#)
- [M178-M181 models](#)
- [M253-M254 models](#)
- [M278-M281 models](#)


M153-M154 models


Follow these steps to solve problems with frequent paper jams. If the first step does not resolve the problem continue with the next step until you have resolved the problem.



-
- 1 Ready LED
 - 2 Resume  button
-




1. If paper has jammed in the printer, clear the jam and then print a configuration report to test the printer.
2. Check that the tray is configured for the correct paper size and type. Adjust paper settings if necessary.
 - a. Print a configuration report to determine the IP address or host name.
 - i. Press and hold the Resume  button until the Ready  light begins blinking.
 - ii. Release the Resume  button.
 - b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS opens.

 <https://10.10.XX.XXX/>

 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.
 - c. Click the **System** tab, and then click the **Paper Setup** page.
 - d. Select the type of paper that is in the tray.
 - e. Select the size of paper that is in the tray.
 - f. Once selections have been made, select **Apply** to retain the settings.
3. Turn the printer off, wait 30 seconds, and then turn it on again.
4. Print a cleaning page to remove excess toner from inside the printer.
 - a. Open the HP Printer Assistant.

- **Windows 10:** From the **Start** menu, click **All Apps**, click **HP**, and then select the printer name.
 - **Windows 8.1:** Click the down arrow in lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right-click an empty area on the **Start** screen, click **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, click **Start**, select **All Programs**, click **HP**, click the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.
 - c. On the **System** tab, click **Service**.
 - d. In the **Cleaning Mode** area, select **Start** to begin the cleaning process.
 - e. Load plain letter or A4 when prompted.

The printer prints the first side and then prompts you to remove the page from the output bin and reload it in the cassette tray, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

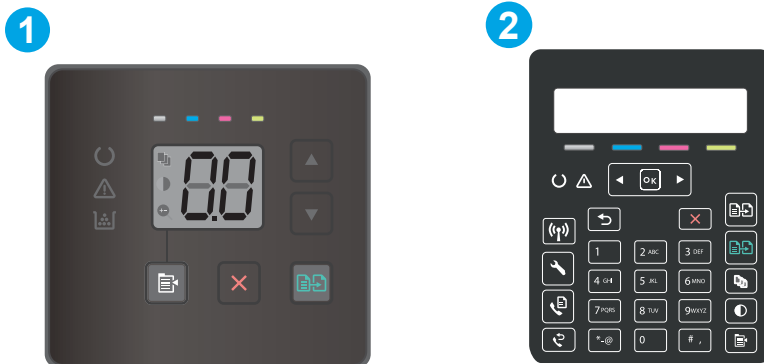
5. Print a configuration report to test the printer.
 - a. Press and hold the Resume  button until the Ready  light begins blinking.
 - b. Release the Resume  button.

If none of these steps resolves the problem, the printer might need service. Contact HP customer support.

M178-M181 models

Follow these steps to solve problems with frequent paper jams. If the first step does not resolve the problem continue with the next step until you have resolved the problem.

 **NOTE:** The steps vary according to the type of control panel.



- 1 LED control panel
- 2 2-line control panel

1. If paper has jammed in the printer, clear the jam and then print a configuration report to test the printer.
2. Check that the tray is configured for the correct paper size and type on the printer control panel. Adjust paper settings if necessary.

LED control panels:

- a. Open the HP Embedded Web Server (EWS):
 - i. Open the HP Printer Assistant.
 - **Windows 10:** From the **Start** menu, click **All Apps**, click **HP**, and then select the printer name.
 - **Windows 8.1:** Click the down arrow in lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right-click an empty area on the **Start** screen, click **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, click **Start**, select **All Programs**, click **HP**, click the folder for the printer, and then select the printer name. The HP printer assistant opens.
 - ii. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.
- b. Click the **System** tab, and then click the **Paper Setup** page.
- c. Select the tray from the list.
- d. Select **Default Paper Type** and then select the type of paper that is in the tray.
- e. Select **Default Paper Size** and then select the size of paper that is in the tray.
- f. Select **Apply** to retain settings.

2-line control panels:

- a. On the printer control panel, select **OK**.
 - b. Use the right arrow ► to scroll to **System Setup**, and then select **OK**.
 - c. Use the right arrow ► to scroll to **Reports**, and then select **OK**.
 - d. Use the right arrow ► to scroll to **Paper Setup**, and then select **OK**.
 - e. Select the tray from the list.
 - f. Select **Default Paper Type** and then select the type of paper that is in the tray.
 - g. Select **Default Paper Size** and then select the size of paper that is in the tray.
3. Turn the printer off, wait 30 seconds, and then turn it on again.
 4. Print a cleaning page to remove excess toner from inside the printer.

LED control panels:

- a. Open the HP Printer Assistant.

- **Windows 10:** From the **Start** menu, click **All Apps**, click **HP**, and then select the printer name.
 - **Windows 8.1:** Click the down arrow in lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right-click an empty area on the **Start** screen, click **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, click **Start**, select **All Programs**, click **HP**, click the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.
 - c. On the **Systems** tab, click **Service**.
 - d. In the **Cleaning Mode** area, select **Start** to begin the cleaning process.
 - e. Load plain letter or A4 paper when prompted.

The printer prints the first side and then prompts you to remove the page from the output bin and reload it in the cassette tray, keeping the same orientation. Wait until the process is complete. Discard the page that prints.



2-line control panels:

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **Service**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Cleaning Page**, and then select **OK**.
- d. Load plain letter or A4 paper when you are prompted.

The printer prints the first side and then prompts you to remove the page from the output bin and reload it in the cassette tray, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

5. Print a configuration report to test the printer.

LED control panels

- a. Select and hold the Start Mono Copy  button until the **Ready**  light begins blinking.
- b. Release the Start Mono Copy  button.

2-line control panels:

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **Reports**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Configuration Report**.

If none of these steps resolves the problem, the printer might need service. Contact HP customer support.

M253-M254 models

Follow these steps to solve problems with frequent paper jams. If the first step does not resolve the problem continue with the next step until you have resolved the problem.

 **NOTE:** The steps vary according to the type of control panel.




- | | |
|---|---------------------------|
| 1 | 2-line control panel |
| 2 | Touchscreen control panel |

1. If paper has jammed in the printer, clear the jam and then print a configuration report to test the printer.
2. Check that the tray is configured for the correct paper size and type on the printer control panel. Adjust paper settings if necessary.

2-line control panels:

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **System Setup**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Reports**, and then select **OK**.
- d. Use the right arrow ► to scroll to **Paper Setup**, and then select **OK**.
- e. Select the tray from the list.
- f. Select **Default Paper Type** and then select the type of paper that is in the tray.
- g. Select **Default Paper Size** and then select the size of paper that is in the tray.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select **Setup** .
- b. Open the following menus:
 - **System Setup**
 - **Paper setup**
- c. Select the tray from the list.


- d. Select [Default Paper Type](#) and then select the type of paper that is in the tray.
- e. Select [Default Paper Size](#) and then select the size of paper that is in the tray.
3. Turn the printer off, wait 30 seconds, and then turn it on again.
4. Print a cleaning page to remove excess toner from inside the printer.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Service](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Cleaning page](#), and then select [OK](#).
- d. Select [OK](#) to begin cleaning process.
- e. Load plain letter or A4 paper when prompted.

The printer prints the first side and then prompts you to remove the page from the output bin and reload it in the cassette tray, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Select [Service](#)
- c. Select [Cleaning Page](#)
- d. Load plain letter or A4 paper when prompted.
- e. Select [OK](#) to begin cleaning process.
- f. Load plain letter or A4 paper when prompted.


The printer prints the first side and then prompts you to remove the page from the output bin and reload it in the cassette tray, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

5. Print a configuration report to test the printer.

2-line control panels:

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Reports](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Configuration Report](#).



Touchscreen control panels


- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Select [Reports](#).
- c. Select [Configuration Report](#).

If none of these steps resolves the problem, the printer might need service. Contact HP customer support.

M278-M281 models

Follow these steps to solve problems with frequent paper jams. If the first step does not resolve the problem continue with the next step until you have resolved the problem.

1. If paper has jammed in the product, clear the jam and then print a configuration report to test the product.
2. Check that the tray is configured for the correct paper size and type on the product control panel. Adjust paper settings if necessary.
 - a. From the Home screen on the product control panel, select [Setup](#) .
 - b. Open the following menus:
 - [System Setup](#)
 - [Paper setup](#)
 - c. Select the tray from the list.
 - d. Select [Default Paper Type](#) and then select the type of paper that is in the tray.
 - e. Select [Default Paper Size](#) and then select the size of paper that is in the tray.
3. Turn the product off, wait 30 seconds, and then turn it on again.
4. Print a cleaning page to remove excess toner from inside the product.
 - a. From the Home screen on the product control panel, select [Setup](#) .
 - b. Select [Service](#).
 - c. Select [Cleaning Page](#) to start the cleaning process..
 - d. Load plain letter or A4 paper when you are prompted.

The printer prints the first side and then prompts you to remove the page from the output bin and reload it in the cassette tray, keeping the same orientation. Wait until the process is complete. Discard the page that prints.
5. Print a configuration report to test the product.
 - a. From the Home screen on the product control panel, select [Setup](#) .
 - b. Select [Reports](#).
 - c. Select [Configuration Report](#).

If none of these steps resolves the problem, the product might need service. Contact HP customer support.

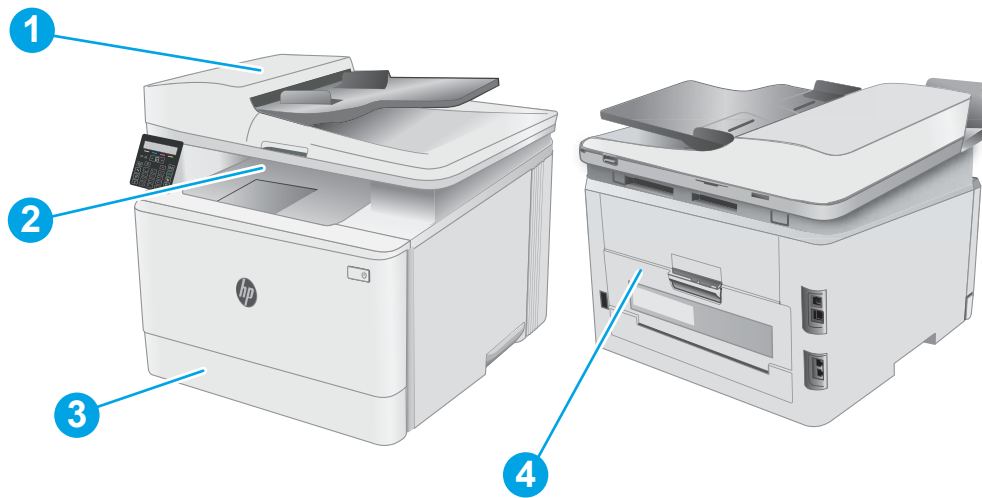
Paper jam locations

Figure 2-46 Paper jam locations (M153-M154)



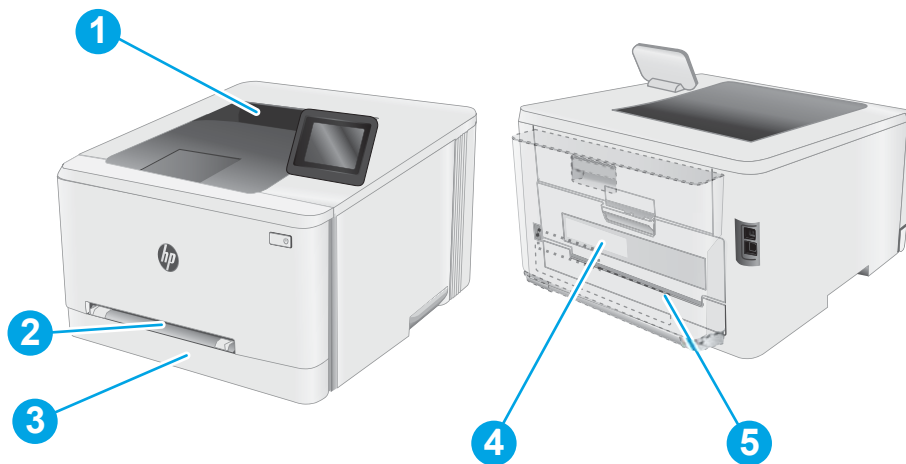
1	Output bin
2	Cassette tray
3	Rear door and fuser area

Figure 2-47 Paper jam locations (M178-M181)



1	Document feeder (fw models only)
2	Output bin
3	Cassette tray
4	Rear door and fuser area

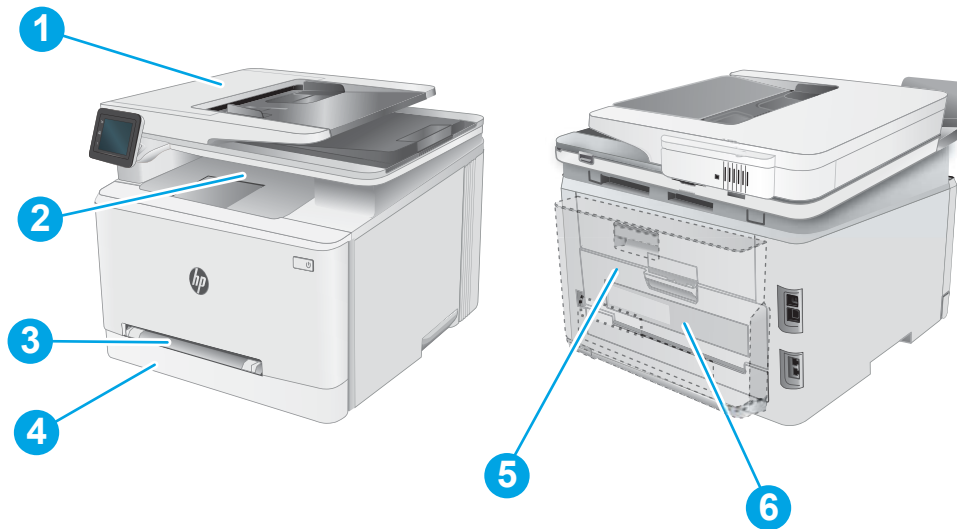
Figure 2-48 Paper jam locations (M253-M254)



1	Output bin
---	------------

2	Priority feed slot
3	Cassette tray
4	Rear door and fuser area
5	Duplexer (duplex models only)

Figure 2-49 Paper jam locations (M278-M281)

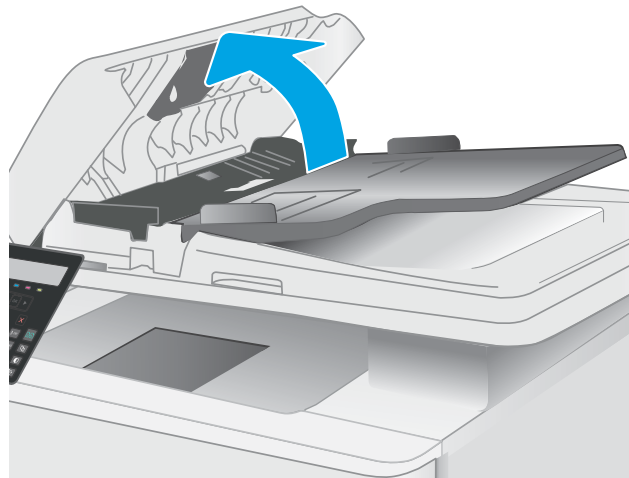


1	Document feeder
2	Output bin
3	Priority feed slot
4	Cassette tray
5	Rear door and fuser area
6	Duplexer (duplex models only)

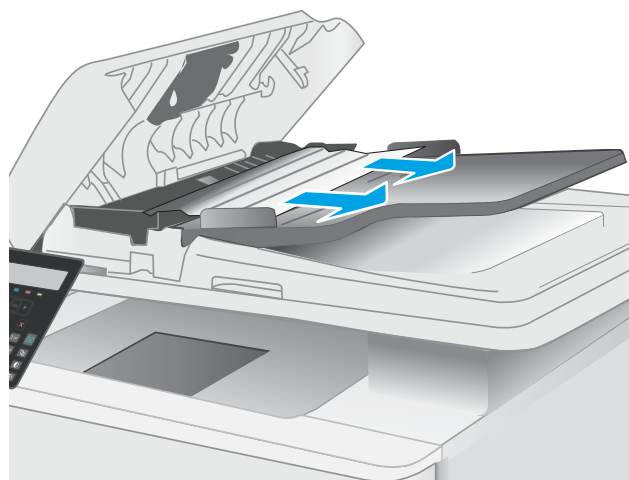
Clear paper jams in the document feeder (M180nw and M181fw models only)

Use the following procedure to check for paper in all possible jam locations related to document feeder. When a jam occurs, the control panel might display a message that assists in clearing the jam.

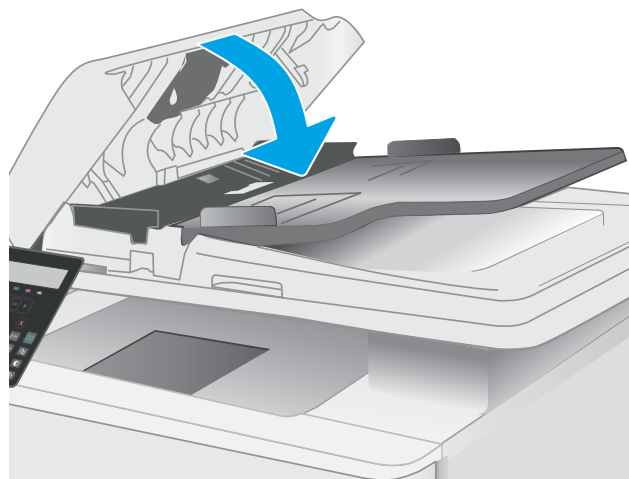
1. Open the document-feeder cover.



2. Remove any jammed paper.



3. Close the scanner lid.



4. Lift the document feeder input tray to provide better access to the document feeder output bin, and then remove any jammed paper from the output area.





5. Lift up on document feeder. If paper is jammed behind the white plastic backing, gently pull it out.



6. Lower the document feeder.



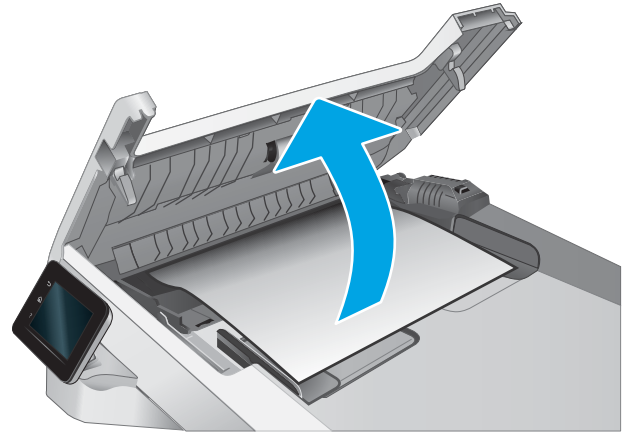
 **NOTE:** To avoid jams, make sure the guides in the document-feeder input tray are adjusted tightly against the document. Remove all staples and paper clips from original documents.

 **NOTE:** Original documents that are printed on heavy, glossy paper can jam more frequently than originals that are printed on plain paper.

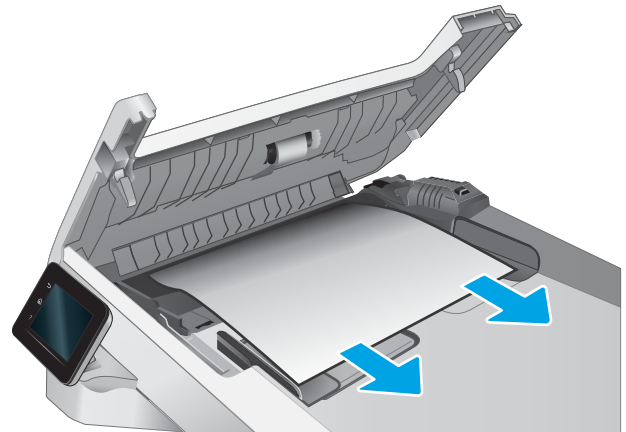
Clear paper jams in the document feeder (M278-M281 models only)

Use the following procedure to check for paper in all possible jam locations related to document feeder. When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

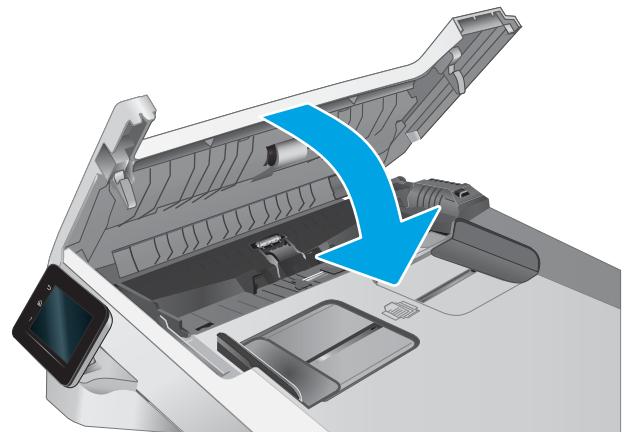
1. Open the document-feeder cover.



2. Remove any jammed paper.



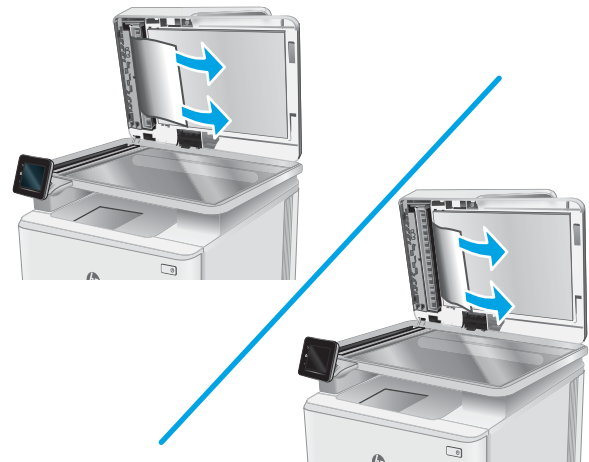
3. Close the document feeder cover.



4. Lift the document feeder input tray to provide better access to the document feeder output bin, and then remove any jammed paper from the output area.





5. Lift up on document feeder. If paper is jammed behind the white plastic backing, gently pull it out.



6. Lower the document feeder.



 **NOTE:** To avoid jams, make sure the guides in the document-feeder input tray are adjusted tightly against the document. 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.

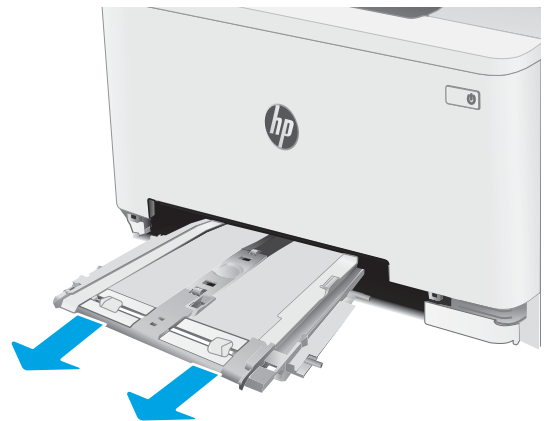
Clear paper jams in the priority feed slot (M253-M254 and M278-M281 models only)

Use the following procedure to clear jams in priority feed slot. When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

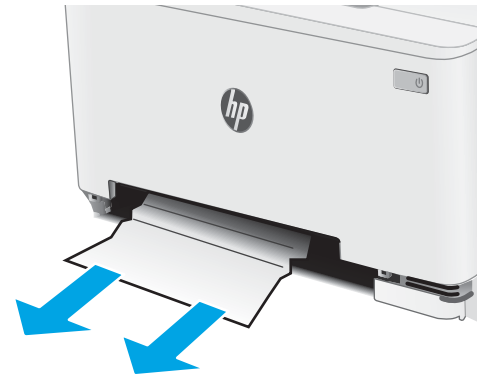
1. Pull the cassette tray completely out of the printer.



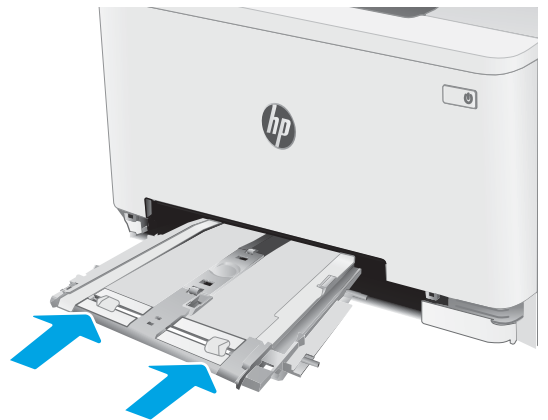
2. Push down on the single-sheet priority feed slot, and then pull out the feed slot tray.



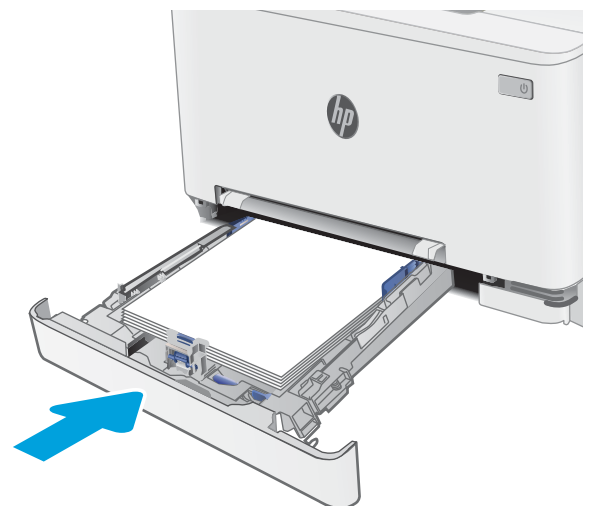
3. Gently pull any jammed paper straight out of the single-sheet priority feed slot.




4. Push the single-sheet priority feed slot tray into the printer.



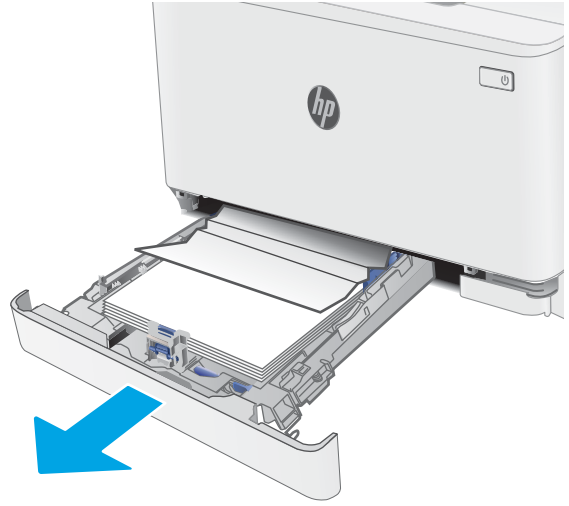
5. Reinsert and close the cassette tray



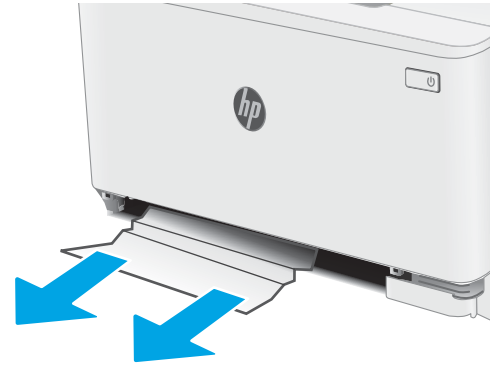
Clear paper jams in the cassette tray (M153-M154 and M178-M181 models only)

Use the following procedure to clear jams in priority feed slot. When a jam occurs, the Attention  LED flashes.

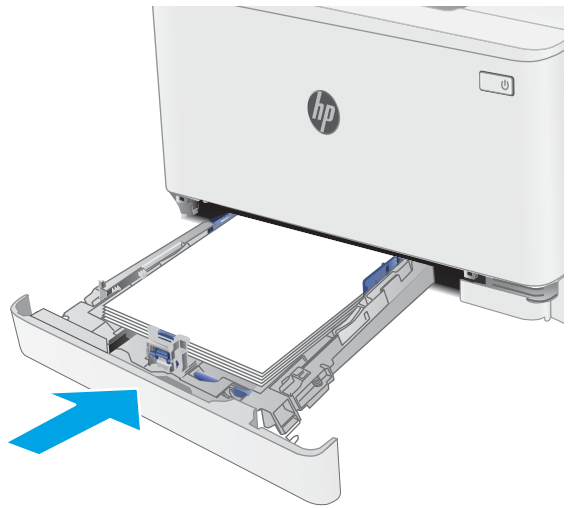
1. Pull the cassette tray completely out of the printer.



2. Remove any jammed or damaged sheets of paper.



3. Reinsert and close the cassette tray.



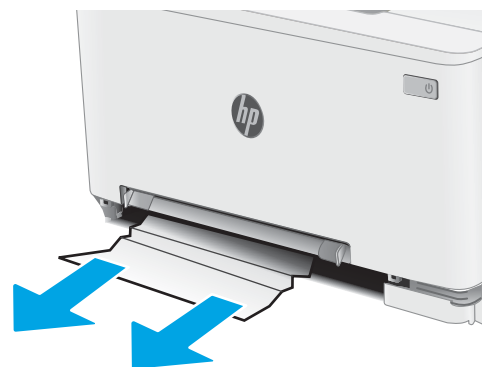
Clear paper jams in the cassette tray (M253-M254 and M278-M281 models only)

Use the following procedure to check for paper in all possible jam locations related to the cassette tray. When a jam occurs, the control panel might display a message and an animation that assists in clearing the jam.

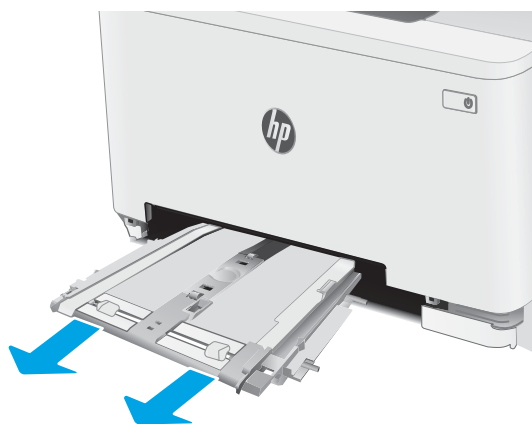
1. Pull the cassette tray completely out of the printer.



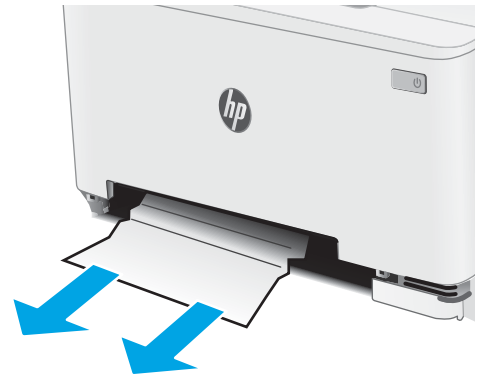
2. Remove any jammed or damaged sheets of paper.



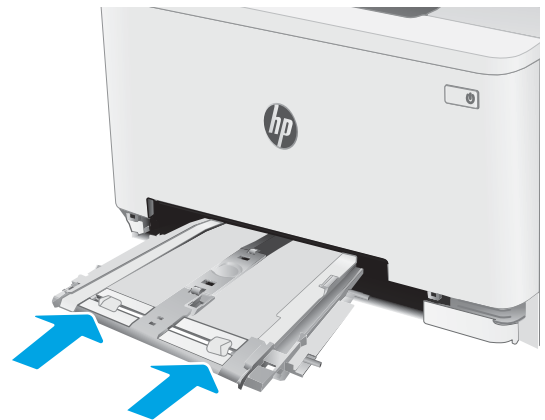
3. If no jammed paper is visible, or if jammed paper is deep enough in the cassette feed area that it is difficult to remove, press down on the single-sheet priority feed slot, and then remove the priority feed slot tray.



4. Remove any jammed or damaged sheets of paper.



5. Push the single-sheet priority feed slot tray into the printer.



6. Reinsert and close the cassette tray.



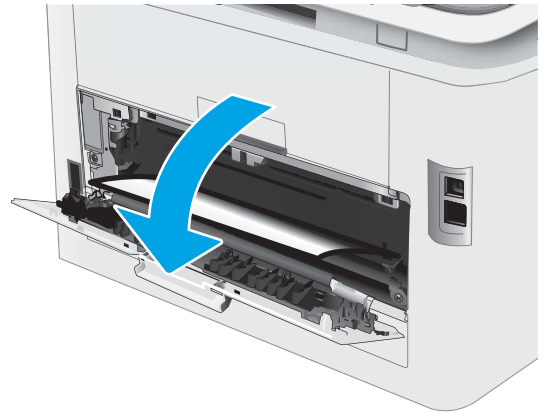
Clear paper jams in the rear door and the fuser area (simplex models)

Use the following procedure to clear jams in the rear door and fuser area. When a jam occurs, the control panel might display a message and 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.

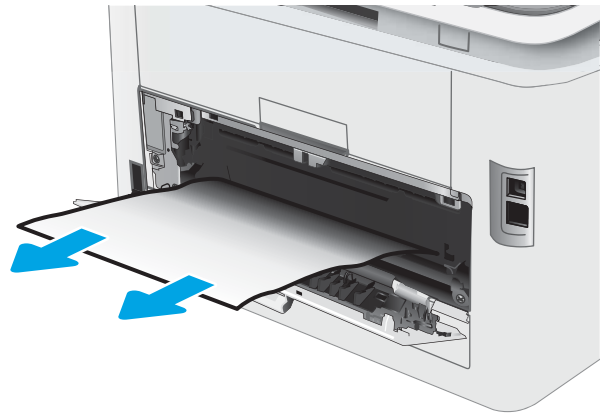
1. Open the rear door.



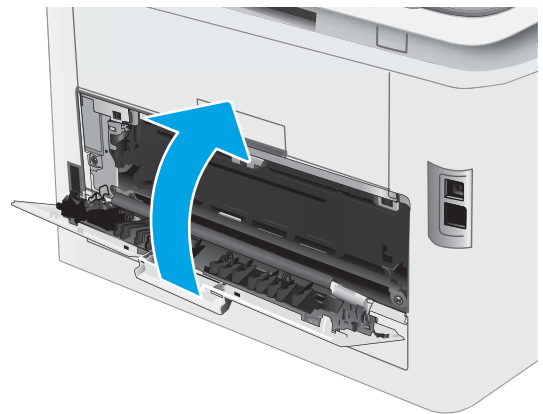
2. Gently pull out any jammed paper from the rollers in the rear door area.



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



3. Close the rear door.



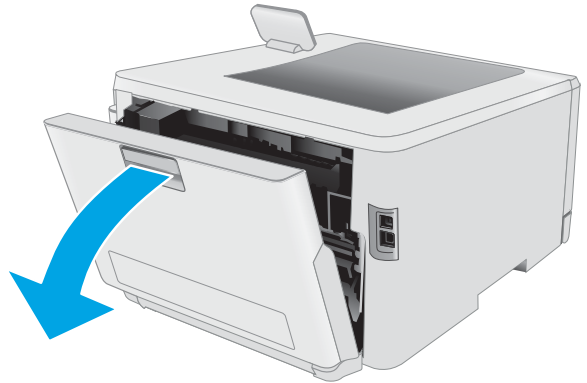
Clear paper jams in the duplexer (M253-M254)

Use the following procedure to clear jams in the duplexer. When a jam occurs, the control panel might display a message and 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.

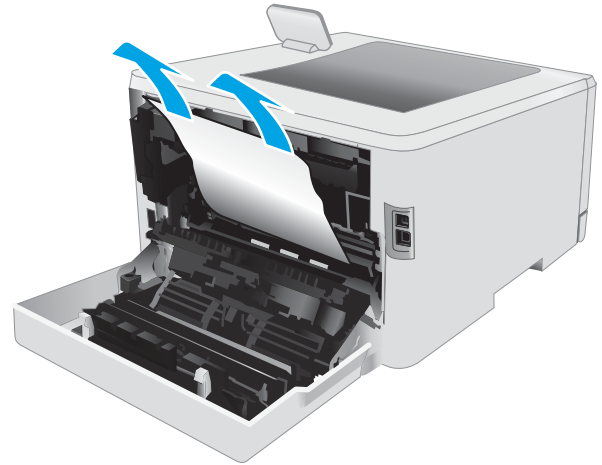
1. At the rear of the printer, open the duplexer.



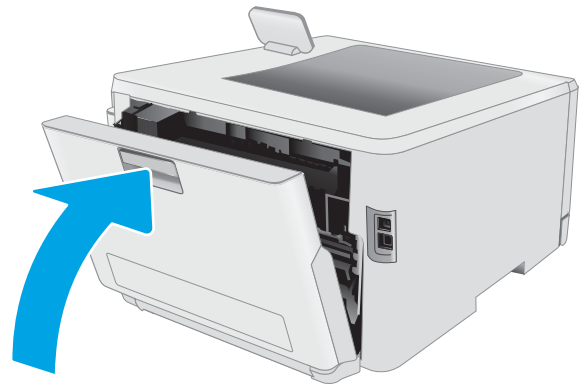
2. Remove any jammed or damaged sheets of paper.



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



3. Close the duplexer.



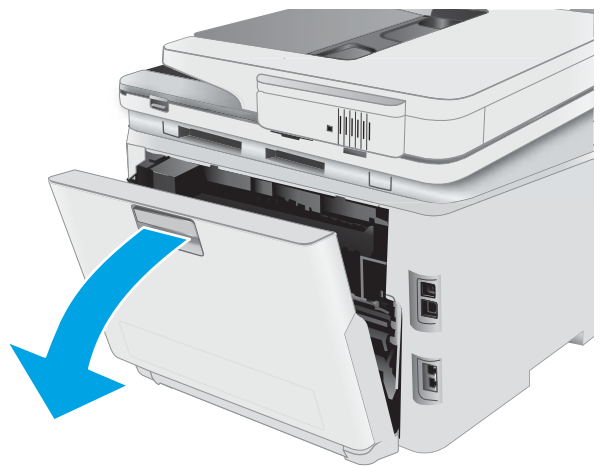
Clear paper jams in the duplexer (M278-M281)

Use the following procedure to clear jams in the duplexer. When a jam occurs, the control panel might display a message and 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. At the rear of the printer, open the duplexer.



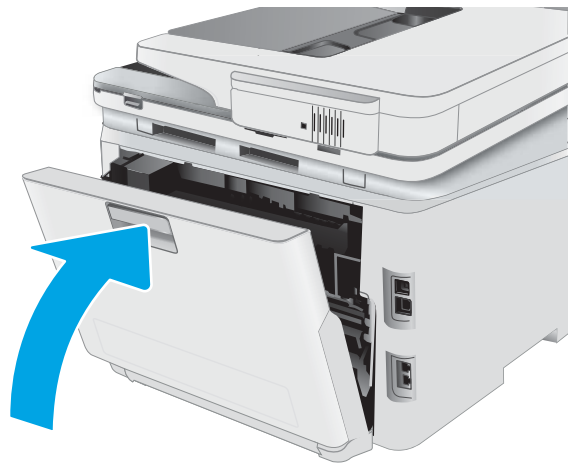
2. Remove any jammed or damaged sheets of paper.




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



3. Close the duplexer.



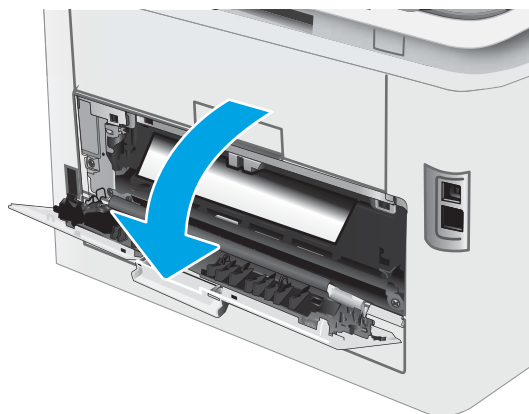
Clear paper jams in the output bin (M153-M154)

Use the following procedure to check for paper in all possible jam locations related to the output bin. When a jam occurs, the Attention  LED flashes.



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

1. Open the rear door.



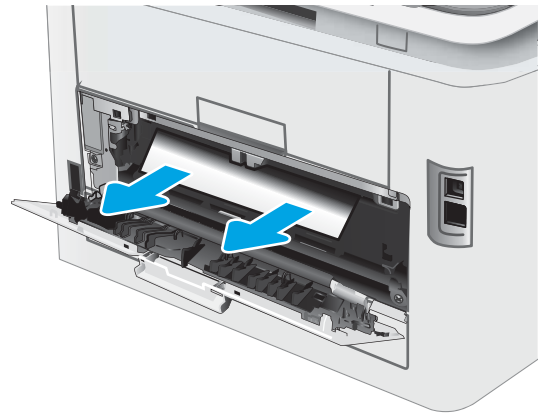
2. If paper is visible in the output bin, grasp the leading edge and remove it.



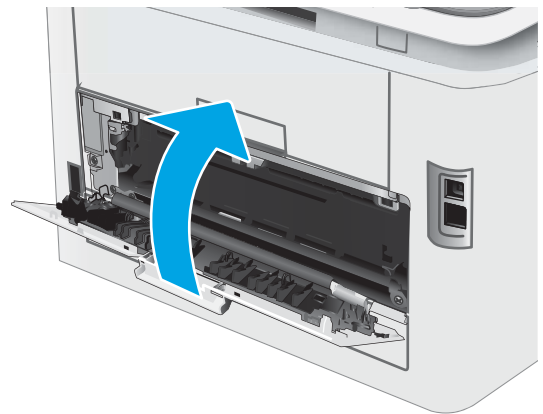
3. Gently pull out any jammed paper from the rollers in the rear door area.




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



4. Close the rear door.



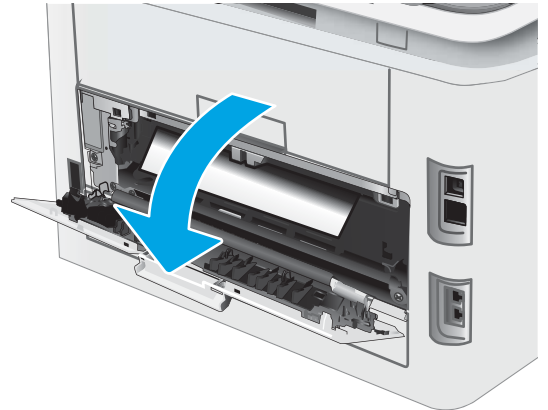
Clear paper jams in the output bin (M178-M181)

Use the following procedure to check for paper in all possible jam locations related to the output bin. When a jam occurs, on the LED control panel, the Attention  LED flashes and a message that assists in clearing the jam might display on the 2-line control panel.



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

1. Open the rear door.



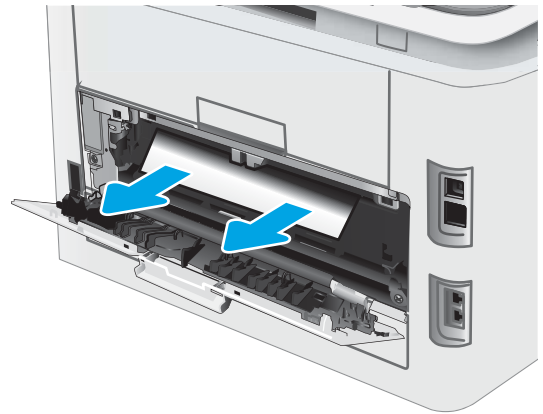
2. If paper is visible in the output bin, grasp the leading edge and remove it. Use both hands to remove jammed paper to avoid tearing the paper.



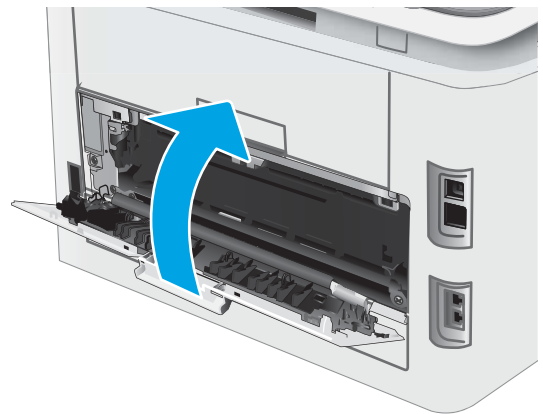
3. Gently pull out any jammed paper from the rollers in the rear door area.



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



4. Close the rear door.



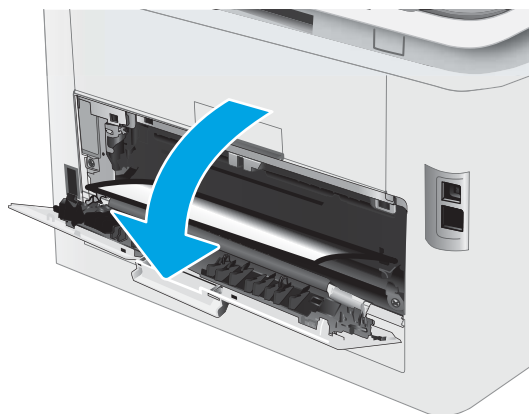
Clear paper jams in the output bin (M253-M254)

Use the following procedure to check for paper in all possible jam locations related to the output bin. When a jam occurs, the control panel might display a message and 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. Open the rear door.



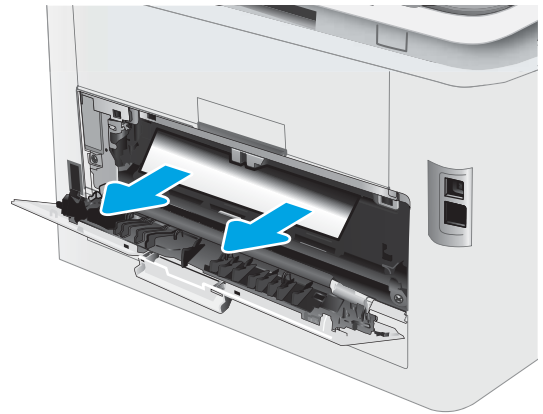
2. If paper is visible in the output bin, grasp the leading edge and remove it. Use both hands to remove jammed paper to avoid tearing the paper.



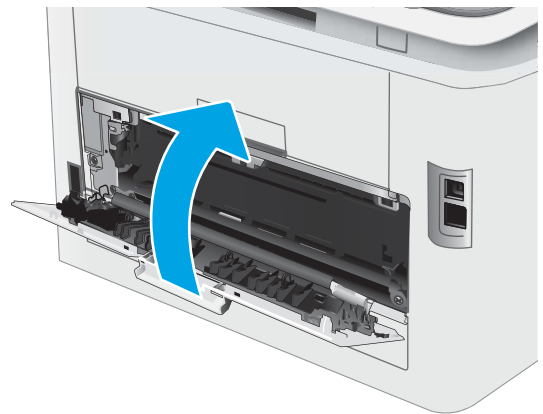
3. Gently remove any jammed paper from the rollers in the rear door area.



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



4. Close the rear door.



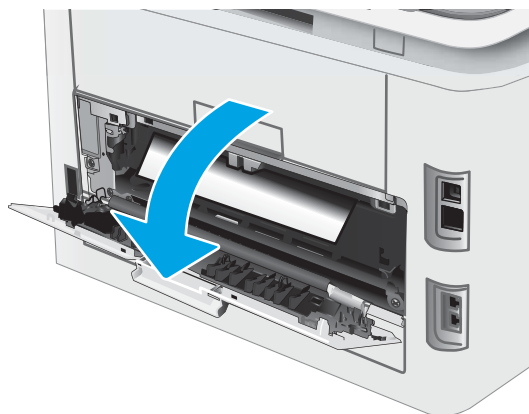
Clear paper jams in the output bin (M278-M281)

Use the following procedure to check for paper in all possible jam locations related to the output bin. When a jam occurs, the control panel might display a message and 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. Open the rear door.



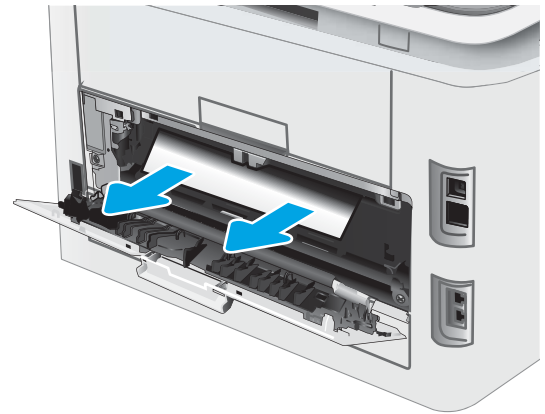
2. If paper is visible in the output bin, grasp the leading edge and remove it. Use both hands to remove jammed paper to avoid tearing the paper.



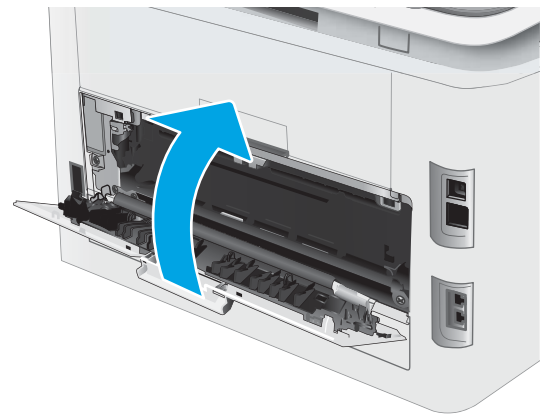
3. Gently remove any jammed paper from the rollers in the rear door area.



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



4. Close the rear door.



Solve performance problems

Table 2-36 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 report.
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.

Solve connectivity problems

Solve USB connection problems

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

- Verify that the cable is connected to the computer and to the printer.
- Verify that the cable is not longer than 5 m (16.4 ft). Try using a shorter cable.
- Verify that the cable is working correctly by connecting it to another printer. Replace the cable if necessary.

Solve wired network problems

Introduction

Check the following items to verify that the printer is communicating with the network. Before beginning, print a configuration report from the printer control panel and locate the printer IP address that is listed on this page.

- [Poor physical connection](#)
- [The computer is using the incorrect IP address for the printer](#)
- [The computer is unable to communicate with the printer](#)
- [The printer 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 printer 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 printer is attached to the correct network port using a cable of the correct length.
2. Verify that cable connections are secure.
3. Look at the network port connection on the back of the printer, and verify that the amber activity light and the green link-status light are lit.
4. If the problem continues, try a different cable or port on the hub.

The computer is using the incorrect IP address for the printer

1. Open the printer properties and click the **Ports** tab. Verify that the current IP address for the printer is selected. The printer IP address is listed on the printer configuration report.
2. If you installed the printer using the HP standard TCP/IP port, select the box labeled **Always print to this printer, even if its IP address changes**.

3. If you installed the printer using a Microsoft standard TCP/IP port, use the hostname instead of the IP address.
4. If the IP address is correct, delete the printer and then add it again.

The computer is unable to communicate with the printer

1. Test network communication by pinging the network.
 - a. Open a command-line prompt on your computer.
 - For Windows, click **Start**, click **Run**, type `cmd`, and then press **Enter**.
 - For OS X, go to **Applications**, and then **Utilities**, and open **Terminal**.
 - b. Type `ping` followed by the IP address for your printer.
 - c. If the window displays round-trip times, the network is working.
2. If the ping command failed, verify that the network hubs are on, and then verify that the network settings, the printer, and the computer are all configured for the same network.

The printer is using incorrect link and duplex settings for the network

HP recommends leaving these settings in automatic mode (the default setting). If you change these settings, you must also change them for your network.

New software programs might be causing compatibility problems

Verify that any new software programs are correctly installed and that they use the correct print driver.

The computer or workstation might be set up incorrectly

1. Check the network drivers, print drivers, and the network redirection settings.
2. Verify that the operating system is configured correctly.

The printer is disabled, or other network settings are incorrect

1. Review the configuration report to check the status of the network protocol. Enable it if necessary.
2. Reconfigure the network settings if necessary.

Solve wireless network problems

Introduction

Use the troubleshooting information to help resolve issues.



NOTE: To determine whether HP NFC and HP wireless direct printing are enabled on your printer, print a configuration report from the printer control panel. If a page titled [Wireless](#) is included, HP Jetdirect 2800w NFC & Wireless Direct Accessory printing is enabled on the printer.

- [Wireless connectivity checklist](#)
- [The printer does not print after the wireless configuration completes](#)

- [The printer does not print, and the computer has a third-party firewall installed](#)
- [The wireless connection does not work after moving the wireless router or printer](#)
- [Cannot connect more computers to the wireless printer](#)
- [The wireless printer loses communication when connected to a VPN](#)
- [The network does not appear in the wireless networks list](#)
- [The wireless network is not functioning](#)
- [Perform a wireless network diagnostic test](#)
- [Reduce interference on a wireless network](#)

Wireless connectivity checklist

- Verify that the network cable is not connected.
- Verify that the printer and the wireless router are turned on and have power. Also make sure that the wireless radio in the printer is turned on.
- Verify that the service set identifier (SSID) is correct. Print a configuration report to determine the SSID. If you are not sure the SSID is correct, run the wireless setup again.
- With secured networks, verify that the security information is correct. If the security information is incorrect, run the wireless setup again.
- If the wireless network is working correctly, try accessing other computers on the wireless network. If the network has Internet access, try connecting to the Internet over a wireless connection.
- Verify that the encryption method (AES or TKIP) is the same for the printer as it is for the wireless access point (on networks using WPA security).
- Verify that the printer is within the range of the wireless network. For most networks, the printer must be within 30 m (100 ft) of the wireless access point (wireless router).
- Verify that obstacles do not block the wireless signal. Remove any large metal objects between the access point and the printer. Make sure poles, walls, or support columns containing metal or concrete do not separate the printer and wireless access point.
- Verify that the printer is located away from electronic devices that might interfere with the wireless signal. Many devices can interfere with the wireless signal including motors, cordless phones, security system cameras, other wireless networks, and some Bluetooth devices.
- Verify that the print driver is installed on the computer.
- Verify that you have selected the correct printer port.
- Verify that the computer and printer connect to the same wireless network.
- For OS X, verify that the wireless router supports Bonjour.

The printer does not print after the wireless configuration completes

1. Make sure that the printer is turned on and in the ready state.
2. Turn off any third-party firewalls on your computer.

3. Make sure that the wireless network is working correctly.
4. Make sure that your computer is working correctly. If necessary, restart the computer.
5. Verify that you can open the HP Embedded Web Server from a computer on the network.

The printer does not print, and the computer has a third-party firewall installed

1. Update the firewall with the most recent update available from the manufacturer.
2. If programs request firewall access when you install the printer or try to print, make sure you allow the programs to run.
3. Temporarily turn off the firewall, and then install the wireless printer on the computer. Enable the firewall when you have completed the wireless installation.

The wireless connection does not work after moving the wireless router or printer

1. Make sure that the router or printer connects to the same network that your computer connects to.
2. Print a configuration report.
3. Compare the service set identifier (SSID) on the configuration report to the SSID in the printer configuration for the computer.
4. If the numbers are not the same, the devices are not connecting to the same network. Reconfigure the wireless setup for the printer.

Cannot connect more computers to the wireless printer

1. Make sure that the other computers are within the wireless range and that no obstacles block the signal. For most networks, the wireless range is within 30 m (100 ft) of the wireless access point.
2. Make sure that the printer is turned on and in the ready state.
3. Turn off any third-party firewalls on your computer.
4. Make sure that the wireless network is working correctly.
5. Make sure that your computer is working correctly. If necessary, restart the computer.

The wireless printer loses communication when connected to a VPN

- Typically, you cannot connect to a VPN and other networks at the same time.

The network does not appear in the wireless networks list

- Make sure the wireless router is turned on and has power.
- The network might be hidden. However, you can still connect to a hidden network.

The wireless network is not functioning

1. Make sure that the network cable is not connected.
2. To verify if the network has lost communication, try connecting other devices to the network.
3. Test network communication by pinging the network.

- a. Open a command-line prompt on your computer.
 - For Windows, click **Start**, click **Run**, type `cmd`, and then press **Enter**.
 - For OS X, go to **Applications**, then **Utilities**, and open **Terminal**.
 - b. Type `ping` followed by the router IP address.
 - c. If the window displays round-trip times, the network is working.
4. Make sure that the router or printer connects to the same network that the computer connects to.
 - a. Print a configuration report.
 - b. Compare the service set identifier (SSID) on the configuration report to the SSID in the printer configuration for the computer.
 - c. If the numbers are not the same, the devices are not connecting to the same network. Reconfigure the wireless setup for the printer.


Perform a wireless network diagnostic test

From the printer control panel, you can run a diagnostic test that provides information about the wireless network settings.

2-line control panels

1. On the printer control panel, select **OK**.
2. Use the right arrow ► to scroll to **Self Diagnostics**, and then select **OK**.
3. Use the right arrow ► to scroll to **Run Wireless Test**, and then select **OK** to start the test. The printer prints a test page that shows test results.

Touchscreen control panels

1. From the Home screen on the control panel, select **Setup** .
2. Select **Self Diagnostics**.
3. Select **Run Wireless Test** to start the test. The printer prints a test page that shows test results.

LED control panels

1. Open the HP Embedded Web Service (EWS):

Direct connected printers

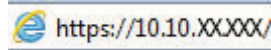
- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.

- **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
- **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.

b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- a. Print a configuration report to determine the IP address or host name.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

Choosing **Continue to this website (not recommended)** will not harm the computer while navigating within the EWS for the HP printer.

2. Select the **Networking** tab, and then from the left side of the screen, select **Wireless Configuration**.
3. Under the **Status** heading, select the **On** option, and then select **Print Test Report**.

Reduce interference on a wireless network

The following tips can reduce interference in a wireless network:

- Keep the wireless devices away from large metal objects, such as filing cabinets, and other electromagnetic devices, such as microwaves and cordless telephones. These objects can disrupt radio signals.
- Keep the wireless devices away from large masonry structures and other building structures. These objects can absorb radio waves and lower signal strength.
- Position the wireless router in a central location in line of sight with the wireless printers on the network.

Service mode functions


Service menu

The Service menu is used to adjust print settings, restore factory default settings, and clean the print paper path.

2-line control panels

1. From the printer control panel, select **OK**.
2. Using the right arrow ► scroll to **Service** , and then select **OK**.

Touchscreen control panels

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Service** .

LED control panels

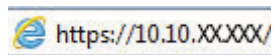
1. Open the HP Embedded Web Service (EWS):


Direct connected printers

- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
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 - **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- a. Print a configuration report to determine the IP address or host name.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

Choosing **Continue to this website (not recommended)** will not harm the computer while navigating within the EWS for the HP printer.

2. Select the **System** tab, and then from the left side of the screen, select **Service** .

The following menu items appear in the [Service](#) menu:

Table 2-37 Service menu

Menu item	Sub-menu item	Description
Fax Service (fax models only)	Clear Saved Faxes	These items provide the means to test and adjust fax functionality.
	Run Fax Test	
	Print T.30 Trace	
	Error Correction	
	Fax Service Log	
Cleaning Page		This function removes dust and toner from the print paper path.
USB Speed	High	This item sets the printer USB speed.
	Full	
Less Paper Curl	On	This feature puts the printer into a mode that reduces paper curl.
	Off*	
Archive Print	On	This feature puts the printer into a mode that produces output less susceptible to toner smearing and dusting for preservation and archival.
	Off*	
Firmware Datecode		This feature displays the printer firmware date code.
Restore Defaults		Resets all customer-accessible menu settings back to the factory default settings (except language).
Signature Check		This item configures how the printer proceeds when a firmware upgrade file does not have a valid signature.
LaserJet Update	Check for Updates Now	This items provides the means to manually update the firmware or to set up automatic firmware updates.
	Manage Updates	
SMTP Comm. Report		This report provides information regarding the printer communication with an SMTP server for the last Scan to E-Mail job.
HP Smart Install	On*	Enable or disable the HP Smart install feature on the printer.
	Off	

Secondary service menu

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

2-line control panels

1. From the printer control panel, press the **OK** button.
2. Select and hold the left arrow ◀.
3. Select **Cancel** ✖.
4. Select **OK** to reopen the **Setup** menu.
5. Use right arrow ▶ scroll to **2ndary Service**, and then select **OK**.

Touchscreen control panels

1. From the Home screen on the printer control panel, select the **Setup** ⚙️.
2. Select the space between the Home 🏠 and Help ❓.
3. Select **Back** arrow ↶.
4. Select **Setup** ⚙️.
5. Scroll to **2ndary Service**, and then select it.

LED control panels

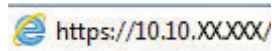
1. Open the HP Embedded Web Service (EWS):


Direct connected printers

- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.
 - **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
 - **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.
- b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- a. Print a configuration report to determine the IP address or host name.
- b. Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.

 <https://10.10.XX.XXX/>

 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

Choosing **Continue to this website (not recommended)** will not harm the computer while navigating within the EWS for the HP printer.

2. Select the **System** tab, and then from the left side of the screen, select **Service** .
3. Scroll to the bottom of the screen and select **Go to the secondary service page**.

The following menu items appear in the secondary service menu:

Table 2-38 Secondary service menu

Menu item	Sub-menu item	Description
Default Settings	Self-managed	This item optimizes open security settings with a proactive configuration for a self-managed environment.
	IT-managed	This item optimizes centralized administration of a group of printers with enhanced security settings in an information technology (IT) administrator managed environment.
Location	A list of available locations displays	This item sets certain printer parameters that are dependent on the location, such as the default paper size and the symbol set. Scroll to the appropriate location and select Yes to set the location. The printer automatically restarts after you change the location.
Line Frequency		This item allows the refresh rate of the touchscreen control panel to be changed between 50 and 60 Hz.
LED test (2-line control panels only)		2-line control panels: This test verifies that the LEDs on the control-panel display function correctly. At the beginning of the test, each of the LEDs turns on one-at-a-time. Press the OK button to continue to the next LED.
Display test		2-line control panels: This test begins by testing the pixels on each line. Then, each of the 255 characters is displayed in groups of 16. Press the OK button to continue to the next group of 16 characters. You can cancel the test at any time by touching the Cancel button. Touchscreen control panels: The test sets the display colors. Select the OK button to confirm each setting.
Button test		This test verifies that the control-panel buttons function correctly. The display prompts you to select each button.
CP FW Version		This item displays the current control panel firmware version.
NAND Reset		This item resets the NAND memory.
802.11n (Wireless models only)		This item enables or disables the wireless 802.11n functionality.
Permanent Config	Prevent*	
	Allow	
Auto On/Auto Off	Enable*	Use this item to enable or disable Auto On//Auto Off feature.
	Disable	
Service Reports	Cont. Self-Test	This item prints a continuous configuration report.
	Error report	This item prints an error report that contains the last 5 instances of 49.xx.yy or 79.xx.yy errors.

Table 2-38 Secondary service menu (continued)

Menu item	Sub-menu item	Description
	DS Fax	
Color Cal.	Adjust color	This item adjusts density settings for contrast, highlights, midtones, and shadows. Adjust each color individually.
	Timing	This item specifies how frequently the printer should automatically perform a color calibration. The default setting is 48 hours. You can turn automatic calibration off.
Scan Calibration		This item calibrates the scanner assembly (M178-M181 and M278-M281 models only).
Clean Belt		This item runs additional belt-cleaning cycles.
Speed		Use this item to toggle between high and low.
Fax Settings		For M181 and M281 models only

Printer resets

Restore the factory-set defaults

Restoring the factory-set defaults returns all of the printer and network settings to the factory defaults. It will not reset the page count, tray size, or language. To restore the printer to the factory-default settings, follow these steps.

⚠ CAUTION: Restoring the factory-set defaults returns all of the settings to the factory defaults, and it also deletes any pages that are stored in the memory.

2-line control panels

1. On the printer control panel, press the **OK** button.
2. Use the right arrow **▶** to scroll to **Service**, and then select **OK**.
3. Use the right arrow **▶** to scroll to **Restore defaults**, and then select **OK**.

Touchscreen control panels

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Restore Defaults**.

LED control panels

1. Open the HP Embedded Web Service (EWS):

Direct connected printers

- a. Open the HP Printer Assistant
 - **Windows 10:** From the **Start** menu, select **All Apps**, select **HP**, and then select the printer name.
 - **Windows 8.1:** Select the down arrow in the lower left corner of the **Start** screen, and then select the printer name.

- **Windows 8:** Right click an empty area on the **Start** screen, select **All Apps** on the app bar, and then select the printer name.
- **Windows 7, Windows Vista, and Windows XP:** From the computer desktop, select **Start**, select **All Programs**, select **HP**, select the folder for the printer, and then select the printer name.

b. In the HP Printer Assistant, select **Print**, and then select **HP Device Toolbox**.

Network connected printers

- Print a configuration report to determine the IP address or host name.
- Open a web browser, and in the address line, type the IP address or host name exactly as it displays on the printer configuration report. Press the **Enter** key on the computer keyboard. The EWS will open.



 **NOTE:** If the web browser displays a message indicating that accessing the website might not be safe, select the option to continue to the website. Accessing this website will not harm the computer.

Choosing **Continue to this website (not recommended)** will not harm the computer while navigating within the EWS for the HP printer.

- Select the **System** tab, and then from the left side of the screen, select **Save and Restore**.
- Select **Restore defaults**.


NVRAM initialization

 **CAUTION:** Be sure to print a configuration report before performing an NVRAM initialization.

An NVRAM initialization erases all data stored in the unprotected NVRAM sections. Performing an NVRAM initialization resets the following settings and information:


- All menu settings are reset to factory default values.
- All localization settings, including language and country/region, are reset.

After performing an NVRAM initialization, reconfigure any computers that print to this printer so that the computers can recognize the printer.

- Turn the printer off.
- Perform one of the following steps:
 - **2-line control panels:** Select and hold the right-arrow ► and the Cancel ✕ buttons simultaneously. Keep them depressed as you turn the printer on.
 - **Touchscreen control panels:** Turn the printer on, and then, as soon as the HP logo appears, press and hold the lower right quadrant of the control panel.
 - **M153-M154 LED control panels:** Select and hold the Resume  button. Keep it depressed as you turn the printer on and hold it for 20 seconds.
 - **M178-M181 LED control panels:** Select and hold the up arrow ▲ and the Cancel ✕ buttons simultaneously. Keep them depressed as you turn the printer on.




NOTE: It takes about 45 seconds before the NVRAM initialization process begins.

3. Perform one of the following steps:
 - **2-line control panels:** When the **Permanent Storage Init.** message appears on the display, release the right-arrow ► and the Cancel ✗ buttons.
 - **Touchscreen control panels:** When the **Permanent Storage Init.** message appears on the display, release the touchscreen.
 - **M153-M154 LED control panels:** When the Ready LED turns on, release the Resume  button.
 - **M178-M181 LED control panels:** When the Ready LED turns on, release the up arrow ▲ and the Cancel ✗ buttons.
4. The NVRAM initialization starts.
5. When the printer has finished the NVRAM initialization, it returns to the Ready state.


Super NVRAM initialization

A super NVRAM initialization restores the printer to the “generic printer mode” in which it arrived from the factory. This means that you will have to reset the language and country/region settings when the printer starts after the initialization. A super NVRAM initialization erases all data stored in the protected and unprotected NVRAM sections.

1. Turn the printer off.
2. Perform one of the following steps:
 - **2-line control panels:** Select and hold the left-arrow ◀ and the Cancel ✗ simultaneously. Keep them depressed as you turn the printer on.
 - **Touchscreen control panels:** Turn the printer on, and then, as soon as the HP logo appears, press and hold the lower left quadrant of the control panel.
 - **M153-M154 LED control panels:** Select and hold the Resume  button. Keep it depressed as you turn the printer on and hold it for 40 seconds.
 - **M178-M181 LED control panels:** Select and hold the down arrow ▼ and the Cancel ✗ buttons simultaneously. Keep them depressed as you turn the printer on.



NOTE: It takes about 45 seconds before the super NVRAM initialization process begins.

3. Perform one of the following steps:
 - **2-line control panels:** When the **Permanent Storage Init.** message appears on the display, release the left-arrow ◀ and the Cancel ✗ buttons.
 - **Touchscreen control panels:** When the **Permanent Storage Init.** message appears on the display, release the touchscreen.
 - **M153-M154 LED control panels:** When the Attention LED turns on, release the Resume  button.
 - **M178-M181 LED control panels:** When the Attention LED turns on, release the down arrow ▼ and the Cancel ✗ buttons.

4. The super NVRAM initialization starts.
5. When the super NVRAM initialization completes, the printer enters the generic printer mode.

Solve fax problems (fax models only)


Checklist for solving fax problems

- Several possible fixes are available. After each recommended action, retry faxing to see if the problem is resolved.
 - For best results during fax problem solving, make sure the line from the printer is connected directly to the wall phone port. Disconnect all other devices that are connected to the printer.
1. Verify that the telephone cord is connected to the correct port on the back of the printer.
 2. Check the phone line by using the fax test:

2-line control panels

- a. On the printer control panel, select **OK**, and then use the right arrow ►, and scroll to **Service**, and select **OK**.
- b. Use the right arrow ► to scroll to **Self Diagnostics**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Run Fax Test**, and then select **OK**. The printer prints a fax test report.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select **Setup** , and then select **Service**.
- b. Select **Self Diagnostics**.
- c. Select **Run Fax Test**. The printer prints a fax report.

The report contains the following possible results:

- **Pass:** The report contains all of the current fax settings for review.
 - **Fail:** The report indicates the nature of the error and contains suggestions for how to resolve the issue.
3. Verify that the printer firmware is current:
 - a. Print a configuration report from the control panel **Reports** menu to obtain the current firmware date code.
 - b. Go to www.hp.com.
 1. Click the **Support & Drivers** link.
 2. Click the **Download drivers and software (and firmware)** link option.
 3. In the **For product** box, enter the printer model number, and then select **Go**.
 4. Click the link for your operating system.
 5. Scroll to the Firmware section of the table.

- If the listed version matches the version on the configuration report, you have the most current version.
- If the versions are different, download the firmware upgrade file and upgrade the firmware on the printer following the on-screen instructions.



NOTE: The printer must be connected to a computer with internet access to upgrade firmware.

- Resend the fax.

4. Verify that the fax was set up when the printer software was installed.

From the computer, in the HP program folder, run the Fax Setup Utility.

5. Verify that the telephone service supports analog fax.

- If using ISDN or digital PBX, contact your service provider for information about configuring to an analog fax line.
- If using a VoIP service, change the [Fax Speed](#) setting to [Slow V.29](#) from the control panel. Ask if your service provider supports fax and for the recommended fax modem speed. Some companies might require an adapter.
- If you are using a DSL service, make sure that a filter is included on the phone-line connection to the printer. Contact the DSL service provider, or purchase a DSL filter if you do not have one. If a DSL filter is installed, try another filter because filters can be defective.

6. If the error persists, find more detailed problem-solving solutions in the sections that follow this one.


Perform a fax diagnostic test

From the printer control panel, you can run a diagnostic test that provides information about the printer fax settings.

2-line control panels

1. On the printer control panel, select [OK](#).
2. Use the right arrow ► to scroll to [Service](#), and then select [OK](#).
3. Use the right arrow ► to scroll to [Fax Service](#), and then select [OK](#).
4. Use the right arrow ► to scroll to [Run Fax Test](#), and then select [OK](#) to start the test. The printer prints a test page that shows test results.

Touchscreen control panels

1. From the Home screen on the printer control panel, select [Setup](#) .
2. Open the following menus:
 - [Service](#)
 - [Fax Service](#)
3. Select [Run Fax Test](#) to start the test. The printer prints a test page that shows the results.

Solve general fax problems





- [Faxes are sending slowly](#)
- [Print quality of a photo is poor or prints as a gray box.](#)
- [Fax quality is poor](#)
- [Selected Cancel !\[\]\(849840539e55921a3851a4ff96d7400d_img.jpg\) to cancel a fax, but the fax was still sent](#)
- [No fax address book displays](#)
- [Not able to locate the fax settings in HP Web Jetadmin](#)
- [The header is appended to the top of the page when the overlay option is enabled](#)
- [A mix of names and numbers is in the recipients box](#)
- [A one-page fax prints as two pages](#)
- [A document stops in the document feeder in the middle of faxing](#)
- [The volume for sounds coming from the fax accessory is too high or too low](#)
- [Use fax over VoIP networks](#)

Faxes are sending slowly


The printer is experiencing poor phone line quality.


- Retry sending the fax when the line conditions have improved.
- Check with the phone service provider that the line supports fax.
- Turn off the [Error Correction](#) setting.

2-line control panels

- a. On the printer control panel, select [OK](#), use the right arrow  to scroll to [Service](#) , and then select [OK](#).
- b. Use the right arrow  to scroll to [Fax Service](#), and then select [OK](#).
- c. Use the right arrow  to scroll to [Error Correction](#), and then select [OK](#).
- d. Use the right arrow  to scroll to [Off](#) setting, and then select [OK](#) to retain settings.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select the [Setup](#) .
- b. Select [Service](#).
- c. Select [Fax Service](#).
- d. Select [Error Correction](#).
- e. Select [Off](#) setting.


 **NOTE:** This can reduce image quality.

- Use white paper for the original. Do not use colors such as gray, yellow, or pink.
- Increase the [Fax Speed](#) setting.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Fax Setup](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Advanced Setup](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Fax Speed](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to the correct setting, and then select [OK](#) to retain settings.


Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
 - b. Select [Service](#).
 - c. Select [Fax Service](#).
 - d. Select [Advanced Setup](#).
 - e. Select [Fax Speed](#).
 - f. Select the correct setting.
- Divide large fax jobs into smaller sections, and then fax them individually.
 - Change the fax settings on the control panel to a lower resolution.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Fax Setup](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Advanced Setup](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Fax Resolution](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to the correct setting, and then select [OK](#) to retain settings.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Select [Fax Setup](#).
- c. Select [Advanced Setup](#).
- d. Select [Fax Resolution](#).
- e. Select the correct setting.

Print quality of a photo is poor or prints as a gray box.

You are using the wrong page-content setting or the wrong resolution setting.

Try setting the [Optimize Text/Picture](#) option to the [Photo](#) setting.

Fax quality is poor


Fax is blurry or light.

- Increase fax resolution when sending faxes. Resolution does not affect received faxes.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Fax Setup](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Advanced Setup](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Fax Resolution](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to the correct setting, and then select [OK](#) to retain settings.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Select [Fax Setup](#).
- c. Select [Advanced Setup](#).
- d. Select [Fax Resolution](#).
- e. Select the correct setting.




NOTE: Increasing resolution slows transmission speed.

- Turn on the [Error Correction](#) setting from the control panel.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Service](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Fax Service](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Error Correction](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to [On](#) setting, and then select [OK](#) to retain settings.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Select [Service](#).
- c. Select [Fax Service](#).

- d. Select [Error Correction](#).
- e. Select the [On](#) setting.
- Check the toner cartridges and replace if necessary.
- Ask the sender to darken the contrast setting on the sending fax machine, and then resend the fax.

Selected **Cancel** to cancel a fax, but the fax was still sent

If the job is too far along in the sending process, you cannot cancel the job.

This is normal operation.

No fax address book displays

The fax address book feature has not been enabled.

Use the HP MFP Digital Sending Software Configuration utility to enable the fax address book feature.

Not able to locate the fax settings in HP Web Jetadmin

Fax settings in HP Web Jetadmin are located under the status page drop-down menu.

Select **Digital Sending and Fax** from the drop-down menu.

The header is appended to the top of the page when the overlay option is enabled

For all forwarded faxes, the printer appends the overlay header to the top of a page.

This is normal operation.

A mix of names and numbers is in the recipients box

Names and numbers can both display, depending on where they are from. The fax address book lists names, and all other databases list numbers.

This is normal operation.

A one-page fax prints as two pages

The fax header is being appended to the top of the fax, pushing text to a second page.

To print a one page fax on one page, set the overlay header to overlay mode, or adjust the fit-to-page setting.

A document stops in the document feeder in the middle of faxing

A jam is in the document feeder.

Clear the jam, and send the fax again.


The volume for sounds coming from the fax accessory is too high or too low

The volume setting needs to be adjusted.

2-line control panels

1. Adjust the volume settings, select **OK**.
2. Use the right arrow ► to scroll to **System Setup**, and then select **OK**.
3. Use the right arrow ► to scroll to **Volume Settings**, and then select **OK**.
4. Use the right arrow ► to select volume settings, and once selections have been made, select **OK** to retain settings.

Touchscreen control panels

1. Adjust the volume settings, select **Setup** .
2. Select **System Setup**.
3. Select **Volume Settings**, select settings.

Use fax over VoIP networks

VoIP technology converts the analog phone signal into digital bits. These are then assembled into packets which travel on the Internet. The packets are converted and transmitted back to analog signals at or near the destination.

Transmission of information on the Internet is digital instead of analog. Therefore, there are different constraints on the fax transmission that might require different fax settings than the analog Public Switched Telephone Network (PSTN). Fax is very dependent upon timing and signal quality, so a fax transmission is more sensitive to a VoIP environment.

The following are suggested changes in settings for the printer when it is connected to a VoIP service:

- Begin with the fax speed set to **Medium (V.17)**. This might be helpful in environments where a new VoIP network is in use.
- If numerous errors or retries occur with the fax speed set to **Fast**, set it to **Medium (V.17)**.
- If errors and retries persist, set the fax speed to **Slow (V.29)** because some VoIP systems cannot handle the higher signal rates associated with fax.
- In rare cases, if errors persist, turn off ECM on the printer. The image quality might decrease. Ensure that the image quality is acceptable with ECM off before using this setting.
- If the preceding setting changes have not improved the VoIP fax reliability, contact your VoIP provider for help.

Solve problems receiving faxes

Table 2-39 Solve problems receiving faxes

Problem	Cause	Solution
The fax does not respond.	The fax has a dedicated phone line.	<ul style="list-style-type: none">• Set the Answer Mode option to the Automatic setting from the control panel.

2-line control panels

Table 2-39 Solve problems receiving faxes (continued)



Problem	Cause	Solution
		<ul style="list-style-type: none"> a. On the printer control panel, select OK. b. Use the right arrow ► to scroll to Fax Setup, and then select OK. c. Use the right arrow ► to scroll to Basic Setup, and then select OK. d. Use the right arrow ► to scroll to Answer Mode, and then select OK. e. Use the right arrow ► to scroll to Automatic setting, and then select OK to retain settings.
		<p>Touchscreen control panels</p> <ul style="list-style-type: none"> a. From the Home screen on the printer control panel, select Setup . b. Select Fax Setup. c. Select Basic Setup. d. Select Answer Mode. e. Select the Automatic setting.
	An answering machine is connected to the printer.	<ul style="list-style-type: none"> • Set the Answer Mode option to the TAM setting and connect the answering machine to the “telephone” port.
		<p>2-line control panels</p> <ul style="list-style-type: none"> a. On the printer control panel, select OK. b. Use the right arrow ► to scroll to Fax Setup, and then select OK. c. Use the right arrow ► to scroll to Basic Setup, and then select OK. d. Use the right arrow ► to scroll to Answer Mode, and then select OK. e. Use the right arrow ► to scroll to TAM setting, and then select OK to retain settings.
		<p>Touchscreen control panels</p> <ul style="list-style-type: none"> a. From the Home screen on the printer control panel, select Setup . b. Select Fax Setup. c. Select Basic Setup. d. Select Answer Mode. e. Select the TAM setting.

Table 2-39 Solve problems receiving faxes (continued)










Problem	Cause	Solution
		<p>If the TAM setting is unavailable, set the Answer Mode option to the Automatic setting.</p> <ul style="list-style-type: none"> Set the Rings to Answer setting to at least one ring more than the number of rings for which the answering machine is set. <p>2-line control panels</p> <ol style="list-style-type: none"> On the printer control panel, select OK. Use the right arrow  to scroll to Fax Setup, and then select OK. Use the right arrow  to scroll to Basic Setup, and then select OK. Use the right arrow  to scroll to Rings to Answer, and then select OK. Use the right arrow  to scroll to the correct setting, and then select OK to retain settings. <p>Touchscreen control panels</p> <ol style="list-style-type: none"> From the Home screen on the printer control panel, select Setup . Select Fax Setup. Select Basic Setup. Select Rings to Answer. Select the correct setting. <ul style="list-style-type: none"> Connect the answering machine to the “telephone” port. If the printer has a telephone handset connected, set the Answer Mode option to the Fax/Tel setting to route calls to the correct device. When detecting a voice call, the printer generates a ring tone that alerts you to pick up the telephone handset. <p>2-line control panels</p> <ol style="list-style-type: none"> On the printer control panel, select OK. Use the right arrow  to scroll to Fax Setup, and then select OK. Use the right arrow  to scroll to Basic Setup, and then select OK. Use the right arrow  to scroll to Answer Mode, and then select OK. Use the right arrow  to scroll to Fax/Tel settings, and then select OK to retain settings. <p>Touchscreen control panels</p>

Table 2-39 Solve problems receiving faxes (continued)







Problem	Cause	Solution
		<ul style="list-style-type: none"> a. From the Home screen on the printer control panel, select Setup . b. Select Fax Setup. c. Select Basic Setup. d. Select Answer Mode. e. Select the Fax/Tel setting.
	<p>A handset is connected to the printer.</p>	<ul style="list-style-type: none"> • Make sure the phone is hung up. • Change the Answer Mode option to match the printer setup. <p>2-line control panels</p> <ul style="list-style-type: none"> a. On the printer control panel, select OK. b. Use the right arrow  to scroll to Fax Setup, and then select OK. c. Use the right arrow  to scroll to Basic Setup, and then select OK. d. Use the right arrow  to scroll to Answer Mode, and then select OK. e. Use the right arrow  to scroll to setting that matches the printer setup, and then select OK to retain settings. <p>Touchscreen control panels</p> <ul style="list-style-type: none"> a. From the Home screen on the printer control panel, select Setup . b. Select Fax Setup. c. Select Basic Setup. d. Select Answer Mode. e. Select the setting that matches the printer setup. <p>Set the Answer Mode option to the Fax/Tel setting to automatically receive faxes. The Fax/Tel setting automatically detects whether the incoming transmission is a fax or a voice call and routes the call to the appropriate device.</p>
	<p>The Answer Mode setting is set to the Manual setting.</p>	<ul style="list-style-type: none"> • Select Start Fax on the printer control panel.
	<p>Voice mail is available on the fax line.</p>	<ul style="list-style-type: none"> • Add a distinctive ring service to your telephone line and change the Distinctive Ring setting on the printer to match the ring pattern supplied by the telephone company. Contact your telephone company for information. <p>2-line control panels</p>

Table 2-39 Solve problems receiving faxes (continued)



Problem	Cause	Solution
		<ol style="list-style-type: none"> a. On the printer control panel, select OK. b. Use the right arrow ► to scroll to Fax Setup, and then select OK. c. Use the right arrow ► to scroll to Basic Setup, and then select OK. d. Use the right arrow ► to scroll to Distinctive Ring, and then select OK. e. Use the right arrow ► to scroll to the correct setting , and then select OK to retain settings. <p>Touchscreen control panels</p> <ol style="list-style-type: none"> a. From the Home screen on the printer control panel, select Setup . b. Select Fax Setup. c. Select Basic Setup. d. Select Distinctive Ring. e. Select the correct setting. <ul style="list-style-type: none"> • Buy a dedicated line for faxing. • Set the Answer Mode option to the Manual setting. <p>2-line control panels</p> <ol style="list-style-type: none"> a. On the printer control panel, select OK. b. Use the right arrow ► to scroll to Fax Setup, and then select OK. c. Use the right arrow ► to scroll to Basic Setup, and then select OK. d. Use the right arrow ► to scroll to Answer Mode, and then select OK. e. Use the right arrow ► to scroll to Manual setting , and then select OK to retain settings. <p>Touchscreen control panels</p> <ol style="list-style-type: none"> a. From the Home screen on the printer control panel, select Setup . b. Select Fax Setup. c. Select Basic Setup. d. Select Answer Mode. e. Select Manual setting. <p>NOTE: You must be present to receive faxes.</p>

Table 2-39 Solve problems receiving faxes (continued)


Problem	Cause	Solution
	The printer is connected to a DSL phone service.	<ul style="list-style-type: none"> • Check the installation and features. A DSL modem requires a high-pass filter on the phone line connection to the printer. Contact your DSL service provider for a filter or buy a filter. • Verify that the filter is connected. • Replace the existing filter to make sure that it is not defective.
	The printer uses a fax over IP or VoIP phone service.	<ul style="list-style-type: none"> • Set the Fax Speed option to the Slow(V.29) or Medium(V.17) setting. <p>2-line control panels</p> <ol style="list-style-type: none"> a. On the printer control panel, select OK. b. Use the right arrow ► to scroll to Fax Setup, and then select OK. c. Use the right arrow ► to scroll to Advanced Setup, and then select OK. d. Use the right arrow ► to scroll to Fax Speed, and then select OK. e. Use the right arrow ► to scroll to the correct setting, and then select OK to retain settings. <p>Touchscreen control panels</p> <ol style="list-style-type: none"> a. From the Home screen on the printer control panel, select Setup . b. Select Fax Setup. c. Select Advanced Setup. d. Select Fax Speed. e. Select the correct setting. <ul style="list-style-type: none"> • Contact your service provider to make sure that fax is supported and for a recommended fax speed setting. Some companies might require an adapter.
Sender receives a busy signal	A handset is connected to the printer.	<ul style="list-style-type: none"> • Make sure the phone is hung up. • Change the Answer Mode option to match the printer setup. <p>2-line control panels</p> <ol style="list-style-type: none"> a. On the printer control panel, select OK. b. Use the right arrow ► to scroll to Fax Setup, and then select OK. c. Use the right arrow ► to scroll to Basic Setup, and then select OK.

Table 2-39 Solve problems receiving faxes (continued)


Problem	Cause	Solution
		<p>d. Use the right arrow ► to scroll to Answer Mode , and then select OK.</p> <p>e. Use the right arrow ► to scroll to the setting that matches the printer setup, and then select OK to retain settings.</p> <p>Touchscreen control panels</p> <p>a. From the Home screen on the printer control panel, select Setup .</p> <p>b. Select Fax Setup.</p> <p>c. Select Basic Setup.</p> <p>d. Select Answer Mode.</p> <p>e. Select the setting that matches the printer setup.</p> <p>Set the Answer Mode option to the Fax/Tel setting to automatically receive faxes. The Fax/Tel setting automatically detects whether the incoming transmission is a fax or a voice call and routes the call to the appropriate device.</p>
	A phone line splitter is being used.	<ul style="list-style-type: none"> • If you are using a phone line splitter, remove the splitter and set up the phone as a downstream phone. • Make sure the phone is hung up. • Make sure the phone is not being used for a voice call when faxing.
No dial tone	A phone line splitter is being used.	<ul style="list-style-type: none"> • If using a phone line splitter, remove the phone line splitter and set up the phone as a downstream phone.
	The phone cable is not connected correctly to the printer.	Verify that the telephone cord is plugged into the correct port on the back of the printer.
Printer rings once, but does not answer	An answering machine or voice messaging service is sharing the phone line with the printer.	<ul style="list-style-type: none"> • Answering machine: Set the Answer Mode option to the TAM setting and connect the answering machine to the “telephone” port. • Voice mail: Add a distinctive ring service to your telephone line and change the Distinctive Ring setting on the printer to match the ring pattern supplied by the telephone company. Contact your telephone company for information.

Table 2-39 Solve problems receiving faxes (continued)


Problem	Cause	Solution
	The Distinctive Ring setting is incorrectly set.	<p>2-line control panels</p> <ol style="list-style-type: none"> On the printer control panel, select OK. Use the right arrow ► to scroll to Fax Setup, and then select OK. Use the right arrow ► to scroll to Basic Setup, and then select OK. Use the right arrow ► to scroll to Distinctive Ring, and then select OK. Use the right arrow ► to scroll to the correct setting, and then select OK to retain settings. <p>Touchscreen control panels</p> <ol style="list-style-type: none"> From the Home screen on the printer control panel, select Setup . Select Fax Setup. Select Basic Setup. Select Distinctive Ring. Select the correct setting.
	The sender number is blocked, and the printer is ringing once before blocking the fax job.	This is normal printer behavior.
Printer continues to ring, but does not answer	The Answer Mode setting is set to the Manual setting.	Select Start Fax on the printer control panel.

Table 2-39 Solve problems receiving faxes (continued)



Problem	Cause	Solution
	The Rings to Answer setting is incorrectly set.	<p>2-line control panels</p> <ol style="list-style-type: none"> On the printer control panel, select OK. Use the right arrow ► to scroll to Fax Setup, and then select OK. Use the right arrow ► to scroll to Basic Setup, and then select OK. Use the right arrow ► to scroll to Rings to Answer, and then select OK. Use the right arrow ► to scroll to the correct setting, and then select OK to retain settings. <p>Touchscreen control panels</p> <ol style="list-style-type: none"> From the Home screen on the printer control panel, select Setup . Select Fax Setup. Select Basic Setup. Select Rings to Answer.. Select the correct setting.
	The Distinctive Ring setting is incorrectly set.	<p>2-line control panels</p> <ol style="list-style-type: none"> On the printer control panel, select OK. Use the right arrow ► to scroll to Fax Setup, and then select OK. Use the right arrow ► to scroll to Basic Setup, and then select OK. Use the right arrow ► to scroll to Distinctive Ring, and then select OK. Use the right arrow ► to scroll to the correct setting, and then select OK to retain settings. <p>Touchscreen control panels</p> <ol style="list-style-type: none"> From the Home screen on the printer control panel, select Setup . Select Fax Setup. Select Basic Setup. Select Distinctive Ring. Select the correct setting.
Printer does not ring, no fax received	The phone cable is not connected correctly to the printer.	Verify that the telephone cord is plugged into the correct port on the back of the printer.

Table 2-39 Solve problems receiving faxes (continued)

Problem	Cause	Solution
Printer answers, but fax does not print	The Private Receive feature is on	<ul style="list-style-type: none">• When the Private Receive feature is activated, received faxes are stored in memory. A password is required to print the stored faxes.• Enter the password to print the fax. If you do not know the password, contact the printer administrator. <p>NOTE: Memory errors might occur if the faxes are not printed. The printer will not answer if the memory is full.</p>
	The printer is out of paper.	Verify that paper is loaded.
Header information prints on top of the fax information	For all forwarded faxes, the printer appends the overlay header to the top of a page.	This is normal printer behavior.

Solve problems sending faxes

Table 2-40 Solve problems sending faxes

Problem	Cause	Solution
Fax does not send	The Send Fax Later option is enabled and scheduled to send the fax at a later time.	This is normal printer behavior.

Table 2-40 Solve problems sending faxes (continued)



Problem	Cause	Solution
	The redial settings are all inactive, causing the printer to try dialing once and then stop if it encounters a busy signal, no answer, or an error.	<p>Change the redial settings to prompt the printer to try to resend the fax automatically.</p> <p>2-line control panels</p> <ol style="list-style-type: none"> On the printer control panel, select OK. Use the right arrow ► to scroll to Fax Setup, and then select OK. Use the right arrow ► to scroll to Advanced Setup, and then select OK. Use the right arrow ► to scroll to Redial if Busy select the correct setting, and then select OK to retain settings. Use the right arrow ► to scroll to Redial if No Answer select the correct setting, and then select OK to retain settings. Use the right arrow ► to scroll to Redial if Comm. Error select the correct setting, and then select OK to retail settings. Select the correct setting for each options. <p>Touchscreen control panels</p> <ol style="list-style-type: none"> From the Home screen on the printer control panel, select Setup . Open the Fax Setup. Select Advanced Setup. Select the following items: <ul style="list-style-type: none"> – Redial if Busy – Redial if No Answer – Redial if Comm. Error Select the correct setting for each option.
	Outgoing fax calls keep dialing. The printer automatically redials a fax number if the redial options are on.	This is normal printer behavior. To prevent the fax from resending, set the Redial if Busy option to 0, set the Redial if No Answer option to 0, and set the Redial if Comm. Error option to 0.
	The fax number is too long.	Enter a phone number that is the proper length.
Fax stops while sending	The receiving fax machine might be malfunctioning.	Try sending to another fax machine.
	The phone line might not be working.	Disconnect the printer from the phone jack, and connect a phone. Try to make a phone call to verify that the phone line is working.
	The phone line might be noisy or poor quality.	Try using a slower fax speed to improve the reliability of transmission.

Table 2-40 Solve problems sending faxes (continued)

Problem	Cause	Solution
	A call-waiting feature might be active.	Verify that the fax telephone line does not have an activated call-waiting feature. A call-waiting notice can interrupt a fax call in progress, which causes a communication error.
Sent faxes are not arriving at the receiving fax machine	The receiving fax machine is turned off or has an error condition, such as being out of paper.	Ask the recipient to make sure that the fax machine is turned on and ready to receive faxes.
	The receiving machine is blocking the sending machine number.	Ask the recipient to make sure that the receiving fax machine is not blocking the sending machine fax number.

Fax error messages on the control panel

The No Fax Detected message displays

 **NOTE:** This error does not always refer to a missed fax. If a voice call is made to a fax number by mistake and the caller hangs up, the **No Fax Detected** message displays on the control panel.

- Ask the sender to resend the fax.
- Make sure that the telephone cord from the printer is connected to the wall telephone jack.
- Try a different phone cord.
- Connect the printer phone cord to a jack for another phone line.
- Make sure the telephone line and phone wall jack are active by connecting a telephone and checking for a dial tone.
- Make sure that the telephone cord is connected to the “line” port on the printer.
- Check the phone line by running a fax test from the control panel.
- If the error persists, contact HP. See www.hp.com/support/ljM153, www.hp.com/support/ljM178MFP, www.hp.com/support/ljM253 or www.hp.com/support/ljM278MFP or the support flyer that came in the printer box.

The Communication error message appears


- Ask the sender to send the fax again or send at a later time when line conditions have improved.
- Disconnect the printer telephone cord from the wall, connect a telephone to the phone jack on the wall, and try making a call. Plug the printer phone cord into a jack for another phone line.
- Try a different phone cord.
- Set the **Fax Speed** option to the **Slow(V.29)** or **Medium(V.17)** setting.

2-line control panels

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **Fax Setup**, and then select **OK**.

- c. Use the right arrow ► to scroll to [Advanced Setup](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Fax Speed](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to the correct setting, and then select [OK](#) to retain settings.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
 - b. Select [Fax Setup](#).
 - c. Select [Advanced Setup](#).
 - d. Select [Fax Speed](#).
 - e. Select the correct setting.
- Turn off the [Error Correction](#) feature to prevent automatic error correction.




NOTE: Turning off the [Error Correction](#) feature can reduce image quality.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Service](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Fax Service](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Error Correction Mode](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to [Off](#) setting, and then select [OK](#) to retain the settings.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
 - b. Select [Service](#).
 - c. Select [Fax Service](#).
 - d. Select [Error Correction Mode](#).
 - e. Select [Off](#) setting.
- Print the [Fax Activity Log](#) report from the control panel to determine if the error occurs with a specific fax number.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Reports](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Fax Reports](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Fax Activity Log](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to [Print Log Now](#) setting, and then select [OK](#) to retain the settings.

Touchscreen control panels

- a. Select [Fax](#), and then select [Fax Menu](#).
 - b. Select [Fax Reports](#).
 - c. Select [Fax Activity Log](#).
 - d. Select [Print Log Now](#) option.
- If the error persists, contact HP. See www.hp.com/support/ljM153, www.hp.com/support/ljM178MFP, www.hp.com/support/ljM253 or www.hp.com/support/ljM278MFP or the support flyer that came in the printer box.


No Dial Tone

- Make sure that the telephone cord is connected to the correct port on the printer.
- Make sure that the telephone cord from the printer is connected directly to the wall telephone jack.
- Check for a dial tone on the phone line by using the [Start Fax](#).
- Disconnect the printer telephone cord from the wall, connect a telephone to the phone jack on the wall, and try making a voice call.
- Disconnect the telephone cord from both the printer and the wall and reconnect the cord.
- Make sure that you are using the telephone cord that came with the printer.
- Connect the printer phone cord to a jack for another phone line.
- Check the phone line by using the [Run Fax Test](#) option from the [Service](#) menu on the control panel.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Service](#) , and then select [OK](#).
- c. Use the right arrow ► to scroll to [Fax Service](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Run Fax Test](#), and then select [OK](#).

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Select [Service](#).
- c. Select [Fax Service](#).
- d. Select [Run Fax Test](#) item.

The Fax is busy message appears

- Try sending the fax again.
- Call the recipient to ensure that the fax machine is on and ready.
- Check that you are dialing the correct fax number.

- Check for a dial tone on the phone line by using the [Start Fax](#).
- Make sure that the phone line is working by disconnecting the printer, connecting a telephone to the phone line, and making a voice call.
- Connect the printer phone cord to a jack for another phone line, and try sending the fax again.
- Try a different phone cord.
- Send the fax at a later time.
- If the error persists, contact HP. See www.hp.com/support/ljM153, www.hp.com/support/ljM178MFP, www.hp.com/support/ljM253 or www.hp.com/support/ljM278MFP or the support flyer that came in the printer box.


The No fax answer message appears

- Try to resend the fax.
- Call the recipient to ensure that the fax machine is on and ready.
- Check that you are dialing the correct fax number.
- Disconnect the printer telephone cord from the wall, connect a telephone to the phone jack on the wall, and try making a voice call.
- Connect the printer phone cord to a jack for another phone line.
- Try a different phone cord.
- Make sure that the phone cord from the wall telephone jack is connected to the line port.
- Check the phone line by using the [Run Fax Test](#) option from the [Service](#) menu on the control panel.

2-line control panels

- On the printer control panel, select [OK](#).
- Use the right arrow ► to scroll to [Service](#) , and then select [OK](#).
- Use the right arrow ► to scroll to [Fax Service](#), and then select [OK](#).
- Use the right arrow ► to scroll to [Run Fax Test](#), and then select [OK](#).

Touchscreen control panels

- From the Home screen on the printer control panel, select [Setup](#) .
 - Select [Service](#).
 - Open the [Fax Service](#).
 - Select the [Run Fax Test](#) item.
- If the error persists, contact HP. See www.hp.com/support/ljM153, www.hp.com/support/ljM178MFP, www.hp.com/support/ljM253 or www.hp.com/support/ljM278MFP or the support flyer that came in the printer box.

Document feeder paper jam

- Verify that the paper meets printer size requirements. The printer does not support pages longer than 381 mm (15 in) for faxing.
- Copy or print the original to letter, A4, or legal size paper, and then resend the fax.

The Fax storage is full message appears

- Turn the printer off then on.
- Print stored faxes that have not been printed.

2-line control panels

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **Fax Functions**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Receive Options**, and then select **OK**.
- d. Use the right arrow ► to scroll to **Print Private Faxes**, and then select **OK**.
- e. Provide the password when the printer prompts input.


Touchscreen control panels

- a. Select **Fax**, and then select **Fax Menu**.
 - b. Select **Receive Options**.
 - c. Select **Print Private Faxes** item.
 - d. Provide the password when the printer prompts input.
- Delete stored faxes from memory.

2-line control panels

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **Service**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Fax Service**, and then select **OK**.
- d. Use the right arrow ► to scroll to **Clear Saved Faxes**, and then select **OK**.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select **Setup** .
 - b. Select **Service**.
 - c. Select **Fax Service**.
 - d. Select **Clear Saved Faxes** item.
- Divide the large fax job into smaller sections, and then fax them individually.

Scanner error

- Verify that the paper meets printer size requirements. The printer does not support pages longer than 381 mm (15 in) for faxing.
- Copy or print the original onto letter, A4, or legal size paper and then resend the fax.

The control panel displays a Ready message with no attempt to send the fax

- Check the fax activity log for errors.

2-line control panels

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **Reports**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Fax Reports**, and then select **OK**.
- d. Use the right arrow ► to scroll to **Fax Activity Log**, and then select **OK**.
- e. Use the right arrow ► to scroll to **Print Log Now**, and then select **OK**.

Touchscreen control panels

- a. Select **Fax**, and then select **Fax Menu**.
 - b. Select **Reports**.
 - c. Select **Fax Activity Log**.
 - d. Select **Print Log Now** option.
- If a phone is connected to the printer, make sure that the phone is hung up.
 - Disconnect all other lines between the fax and the printer.
 - Connect the printer directly into the wall telephone jack and resend the fax.

The control panel displays the message "Storing page 1" and does not progress beyond that message

- Delete stored faxes from memory.

2-line control panels

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **Service**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Fax Service**, and then select **OK**.
- d. Use the right arrow ► to scroll to **Clear Saved Faxes**, and then select **OK**.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select **Setup** .
- b. Select **Service**.

- c. Select [Fax Service](#).
- d. Select [Clear Saved Faxes](#) item.

Faxes can be received, but not sent


Send fax and nothing happens.

1. Check for a dial tone on the phone line by using the [Start Fax](#) button.
2. Turn the printer off then on.
3. Use the control panel or the HP Fax Setup Wizard to configure the fax time, date, and fax header information.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Fax Setup](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Basic Setup](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Fax Header](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to [and enter the correct setting](#), and then select [OK](#).

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
 - b. Select [Fax Setup](#).
 - c. Select [Basic Setup](#).
 - d. Select [Fax Header](#).
 - e. Enter the correct settings.
4. Verify that any extension phones on the line are hung up.
 5. If using a DSL service, make sure that the phone line connection to the printer includes a high-pass filter.

Printer is password protected

If a network administrator has set a printer password, then you must obtain the password in order to use the printer fax features.

Unable to use fax functions from the control panel

- The printer might be password protected. Use the HP Embedded Web Server, HP Toolbox software, or the control panel to set a password.
- If you do not know the password for the printer, contact your system administrator.
- Verify with the system administrator that the fax functionality has not been disabled.


Unable to use speed dials

- Make sure that the fax number is valid.
- If an outside line requires a prefix, turn on the [Dial Prefix](#) option or include the prefix in the speed dial number.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Fax Setup](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Basic Setup](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Dial Prefix](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to [On](#) setting, and then select [OK](#) to retain settings.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Select [Fax Setup](#).
- c. Select [Basic Setup](#).
- d. Select [Dial Prefix](#).
- e. Select [On](#) setting.


Unable to use group dials

- Make sure that the fax number is valid.
- If an outside line requires a prefix, turn on the [Dial Prefix](#) option or include the prefix in the speed dial number.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Fax Setup](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Basic Setup](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Dial Prefix](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to [On](#) setting, and then select [OK](#) to retain settings.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Select [Fax Setup](#).
- c. Select [Basic Setup](#).

- d. Select [Dial Prefix](#).
- e. Select [On](#) setting.
- Set up all entries in the group with speed dial entries.
 - a. Open an unused speed dial entry.
 - b. Enter the fax number for the speed dial.
 - c. Select [OK](#) to save the speed dial.


Receive a recorded error message from the phone company when trying to send a fax

- Make sure you dial the fax number correctly, and make sure that the phone service is not blocked. For example, some phone services might prevent long distance calling.
- If an outside line requires a prefix, turn on the [Dial Prefix](#) option or include the prefix in the speed dial number.

2-line control panels

- a. On the printer control panel, select [OK](#).
- b. Use the right arrow ► to scroll to [Fax Setup](#), and then select [OK](#).
- c. Use the right arrow ► to scroll to [Basic Setup](#), and then select [OK](#).
- d. Use the right arrow ► to scroll to [Dial Prefix](#), and then select [OK](#).
- e. Use the right arrow ► to scroll to [On](#) setting, and then select [OK](#) to retain settings.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Select [Fax Setup](#).
- c. Select [Basic Setup](#).
- d. Select [Dial Prefix](#).
- e. Select [On](#) setting.



NOTE: To send a fax without a prefix, when the [Dial Prefix](#) option is turned on, send the fax manually.

- Send a fax to an international number
 - a. If a prefix is required, manually dial the telephone number with the prefix.
 - b. Enter the country/region code before dialing the phone number.
 - c. Wait for pauses as you hear the tones on the phone.
 - d. Send the fax manually from the control panel.

Unable to send a fax when a phone is connected to the printer

- Make sure that the telephone is hung up.
- Make sure that the telephone is not being used for a voice call when faxing.
- Disconnect the phone from the line, and then try sending the fax.

Troubleshoot fax codes and trace reports

View and interpret fax error codes

Use fax error codes from the fax activity log to solve problems with the printer fax features.

Error code	Description	Solution
232	<p>Possible causes include the following:</p> <ul style="list-style-type: none">• A communication failure has occurred between the two machines.• The user at the remote machine might have selected Stop or Cancel.• The power at the remote machine has been interrupted, or deliberately turned off causing the fax session to be interrupted.	<ol style="list-style-type: none">1. Resend the fax at a different time when telephone line conditions have improved.2. If the error persists, and error correction is in use for the fax session, disable the Error Correction setting.
282	<p>Possible causes include the following:</p> <ul style="list-style-type: none">• The printer has not received any data at the start of a page during reception in error correction mode, but the modem has not detected a remote disconnect.• The remote machine is probably transmitting sync frames instead of data and has either jammed or broken.	Have the sender verify that the sending machine is working correctly, and then request that the sender resend the fax.
321	There was a communication error with the receiving fax machine due to poor telephone line conditions.	Resend the fax at a different time when telephone line conditions have improved.
344-348	<p>Possible causes include the following:</p> <ul style="list-style-type: none">• The remote machine has failed to respond to a fax command from the local machine due to the connection being interrupted.• The user at the remote machine might have selected Stop or Cancel.• In rare instances, incompatibility between the two machines can cause the remote machine to simply terminate the call.	<ol style="list-style-type: none">1. Resend the fax at a different time when telephone line conditions have improved.2. If the error persists, and error correction is in use for the fax session, disable the Error Correction setting.
381	<p>Possible causes include the following:</p> <ul style="list-style-type: none">• The remote machine has failed to respond to a fax command from the local machine due to the connection being interrupted.• The user at the remote machine might have pressed the Stop button.	<ol style="list-style-type: none">1. Resend the fax at a different time when telephone line conditions have improved.2. If the error persists, and error correction is in use for the fax session, disable the Error Correction setting.


Fax trace report

A fax T.30 trace report has information that can help resolve fax transmission problems. If you call HP for help in resolving these problems, print a T.30 trace report before you call.

2-line control panels

- a. On the printer control panel, select **OK**.
- b. Use the right arrow ► to scroll to **Service**, and then select **OK**.
- c. Use the right arrow ► to scroll to **Fax Service**, and then select **OK**.
- d. Use the right arrow ► to scroll to **Print T.30 Trace**, and then select **Now**.

Touchscreen control panels

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Service**.
3. Select **Fax Service**.
4. Select **Print T.30 Trace**, and then select **Now**.



NOTE: This procedure prints a report for the last fax job, successful or not. To generate a report for each unsuccessful fax job, select the **If Error** setting. To generate a report for each fax job, select the **At End of Call** setting.

Fax logs and reports

Use the following instructions to print fax logs and reports:

Print all fax reports

Use this procedure to print all of the following reports at one time:

- Last Call Report
- Fax Activity Log
- Phone Book Report
- Junk Fax List
- Billing Report (when Billing Codes are turned on)
- Configuration Report
- Usage Page

2-line control panel

1. On the printer control panel, select **OK**.
2. Use the right arrow ► to scroll to **Reports**, and then select **OK**.

3. Use the right arrow ► to scroll to [Fax Reports](#), and then select [OK](#).
4. Use the right arrow ► to scroll to [Print All Fax Reports](#), and then select [OK](#).

Touchscreen control panels

1. From the Home screen on the printer control panel, select [Fax](#).
2. Select [Fax Menu](#).
3. Select [Fax Reports](#).
4. Select [Print All Fax Reports](#).

Print individual fax reports

2-line control panel

1. On the printer control panel, select [OK](#).
2. Use the right arrow ► to scroll to [Reports](#), and then select [OK](#).
3. Use the right arrow ► to scroll to [Fax Reports](#), and then select [OK](#).
4. Use the right arrow ► to scroll to and select the name of the report, and then select [OK](#).

Touchscreen control panels

1. From the Home screen on the printer control panel, select [Fax](#).
2. Select [Fax Menu](#).
3. Select [Fax Reports](#).
4. Select the name of the report to print.

Set the fax error report

A fax error report is a brief report that indicates the printer experienced a fax job error. You can set it to print after the following events:

- Every fax error (the factory-set default)
- Send fax error
- Receive fax error
- Never



NOTE: With this option, you will have no indication that a fax failed to be transmitted unless you print a fax activity log.

2-line control panel

1. On the printer control panel, select [OK](#).
2. Use the right arrow ► to scroll to [Reports](#), and then select [OK](#).

3. Use the right arrow ► to scroll to [Fax Reports](#), and then select [OK](#).
4. Use the right arrow ► to scroll to [Fax Error Reports](#), and then select [OK](#), and then select the printing option, and then select [OK](#) to retain settings.

Touchscreen control panels

1. From the Home screen on the printer control panel, select [Fax](#).
2. Select [Fax Menu](#).
3. Select [Fax Reports](#).
4. Select [Fax Error Reports](#), and then select the printing option.

Set the fax-error-correction mode


Usually, the printer monitors the signals on the telephone line while it is sending or receiving a fax. If the printer detects an error during the transmission and the error-correction setting is [On](#), the printer can request that the portion of the fax be resent. The factory-set default for error correction is [On](#).

You should turn off error correction only if you are having trouble sending or receiving a fax, and you are willing to accept the errors in the transmission. Turning off the setting might be useful when you are trying to send a fax overseas or receive one from overseas, or if you are using a satellite telephone connection.

2-line control panel

1. On the printer control panel, select [OK](#).
2. Use the right arrow ► to scroll to [Service](#), and then select [OK](#).
3. Use the right arrow ► to scroll to [Fax Service](#), and then select [OK](#).
4. Use the right arrow ► to scroll to [Error Correction](#), use the right arrow ► to scroll to [On](#), and then select [OK](#) to retain settings.

Touchscreen control panels

1. From the Home screen on the printer control panel, select [Setup](#) .
2. Select [Service](#).
3. Select [Fax Service](#).
4. Select [Error Correction](#), and then select [On](#).

Change the fax speed


The fax-speed setting is the modem protocol that the printer uses to send faxes. It is the worldwide standard for full-duplex modems that send and receive data across telephone lines at up to 33,600 bits per second (bps). The factory-set default for the fax-speed setting is [Fast V.34](#).

You should change the setting only if you are having trouble sending a fax to or receiving a fax from a particular device. Decreasing the fax speed might be useful when you are trying to send a fax overseas, or receive one from overseas, or if you are using a satellite telephone connection.

2-line control panel

1. On the printer control panel, select **OK**.
2. Use the right arrow ► to scroll to **Fax Setup**, and then select **OK**.
3. Use the right arrow ► to scroll to **Advanced Setup**, and then select **OK**.
4. Use the right arrow ► to scroll to **Fax Speed**, use the right arrow ► to scroll to and select the fax speed, and then select **OK** to retain settings.

Touchscreen control panels

1. From the Home screen on the printer control panel, select **Setup** .
2. Select **Fax Setup**.
3. Select **Fax Speed**.
4. Scroll to and select the **Fax Speed**, and then select the speed setting.

Use fax on a DSL, PBX, or ISDN system


HP printers are designed specifically for use with traditional analog phone services. They are not designed to work on DSL, PBX, ISDN lines, or VoIP services, but they work with the proper setup and equipment.

 **NOTE:** HP recommends discussing DSL, PBX, ISDN, and VoIP setup options with the service provider.

The HP LaserJet printer is an analog device that is not compatible with all digital phone environments (unless a digital-to-analog converter is used). HP does not guarantee that the printer will be compatible with digital environments or digital-to-analog converters.

DSL

A digital subscriber line (DSL) uses digital technology over standard copper telephone wires. This printer is not directly compatible with those digital signals. However, if the configuration is specified during DSL setup, the signal can be separated so that some of the bandwidth is used to transmit an analog signal (for voice and fax) while the remaining bandwidth is used to transmit digital data.

 **NOTE:** Not all faxes are compatible with DSL services. HP does not guarantee that the printer will be compatible with all DSL service lines or providers.

A typical DSL modem employs a filter to separate the higher frequency DSL modem communication from lower frequency analog phone and fax modem communication. It is often necessary to use a filter with analog phones and analog fax products that are connected to a telephone line used by a DSL modem. The DSL service provider usually provides this filter. Contact the DSL provider for more information or for assistance.

PBX

The printer is an analog device that is not compatible in all digital phone environments. Digital-to-analog filters or converters might be needed for faxing functionality. If faxing issues occur in a PBX environment, it might be necessary to contact the PBX provider for assistance. HP does not guarantee that the printer will be compatible with digital environments or digital-to-analog converters.

Contact the PBX provider for more information and for assistance.

ISDN

The printer is an analog device that is not compatible in all digital phone environments. Digital-to-analog filters or converters might be needed for faxing functionality. If faxing issues occur in an ISDN environment, it might be necessary to contact the ISDN provider for assistance. HP does not guarantee that the printer will be compatible with ISDN digital environments or digital-to-analog converters.

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.

Firmware upgrades


HP offers periodic printer updates, new Web Services apps, and new features to existing Web Services apps. Follow these steps to update the firmware for a single printer. When you update the firmware, Web Service apps will update automatically.

There are two supported methods to perform a firmware update on this printer. Use only one of the following methods to update the printer firmware.

Method one: Update the firmware using the control panel

Use these steps to load the firmware from the control panel (for network-connected printers only), and/or set the printer to automatically load future firmware updates. For USB-connected printers, use method two.

1. Make sure the printer is connected to a wired (Ethernet) or wireless network with an active Internet connection.

 **NOTE:** The printer must be connected to the internet to update the firmware via a network connection.


2. Scroll to and open the [Service](#) menu, and then open the [LaserJet Update](#) menu.

 **NOTE:** If the [LaserJet Update](#) option is not listed, use method two.

2-line control panels

- a. Use the right arrow ► to scroll to [Service](#), and then select [OK](#).
- b. Use the right arrow ► to scroll to [LaserJet Update](#), and then select [OK](#).


Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Scroll to and open the [Service](#) menu.
- c. Select [LaserJet Update](#).

LED control panels

- ▲ Use method two for LED control panels.

3. Check for updates.
 - For touchscreen control panels, select [Check for Updates Now](#).
 - For 2-line control panels, use the right arrow ► to scroll to [Check for Updates Now](#), and then select [OK](#).
 - Use method two for LED control panels.

 **NOTE:** The printer automatically checks for an update, and if a newer version is detected, the update process automatically starts.


4. Set the printer to automatically update the firmware when updates become available.

 **NOTE:** This option is not available for LED control panels.

2-line control panels

- a. Use the right arrow ► to scroll to [Service](#), and then select **OK**.
- b. Use the right arrow ► to scroll to [LaserJet Update](#), and then select **OK**.
- c. Use the right arrow ► to scroll to [Manage Updates](#), and then select **OK**.
- d. Use the right arrow ► to scroll to [Allow Updates](#), and then select **OK**.
- e. Use the right arrow ► to scroll to [Yes](#), and then select **OK**.
- f. Use the right arrow ► to scroll to [Check Automatically](#), and then select **OK**.
- g. Use the right arrow ► to scroll to [On](#), and then select **OK**.

Touchscreen control panels

- a. From the Home screen on the printer control panel, select [Setup](#) .
- b. Scroll to and open the [Service](#) menu.
- c. Select [LaserJet Update](#).
- d. Select [Manage Updates](#).
- e. Select [Allow Updates](#).
- f. Select [Yes](#).
- g. Select [Check Automatically](#).
- h. Select [On](#).

Method two: Update the firmware using the Firmware Update Utility

Use these steps to manually download and install the Firmware Update Utility from HP.com.



NOTE: This method is the only firmware update option available for printers connected to the computer via a USB cable. It also works for printers connected to a network.



NOTE: Use this option for LED control panels.

1. Go to www.hp.com/go/support, click the **Drivers & Software** link, type the printer name in the search field, press the **ENTER** button, and then select the printer from the list of search results.
2. Select the operating system.
3. Under the **Firmware** section, locate the **Firmware Update Utility**.
4. Click **Download**, click **Run**, and then click **Run** again.
5. When the utility launches, select the printer from the drop-down list, and then click **Send Firmware**.



NOTE: To print a configuration report to verify the installed firmware version before or after the update process, click **Print Config**.

6. Follow the on-screen instructions to complete the installation, and then click the **Exit** button to close the utility.

A Certificates of volatility

- [Certificate of volatility \(M153-M154\)](#)
- [Certificate of volatility \(M178-M181\)](#)
- [Certificate of volatility \(M253-M254\)](#)
- [Certificate of volatility \(M278-M281\)](#)

Certificate of volatility (M153-M154)

Figure A-1 Certificate of volatility M153-M154 (1 of 2)

Hewlett-Packard Certificate of Volatility				
Model: M154a M154nw	Part Number: T6B51A T6B52A	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: 128MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Used for temporary storage during the processing of jobs and for applications running on the OS.	Steps to clear memory: Power off printer
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): Flash	Size: 128MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Device FW, Fax system	Steps to clear memory: Perform a NVRAM initialization to clear unprotected data as explained in SM (for service person to perform only).
Type (Flash, EEPROM, etc): EEPROM	Size: 16KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Printer specific data such as page count, internal engine reports.	Steps to clear memory: Perform a NVRAM initialization to clear unprotected data as explained in SM (for service person to perform only).
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below				
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 checked="" type="checkbox"/> No If Yes please describe below				
Purpose:				
Frequency:		Bandwidth:		
Modulation:		Effective Radiate Power (ERP):		
Specifications:				

Figure A-2 Certificate of volatility M153-M154 (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: Wireless Network Connectivity (NW only)	
Frequency: 2.4GHz, 5GHz	Bandwidth: 802.11n 20Mhz
Modulation:	Effective Radiate Power (ERP):
Specifications: 802.11n/a/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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:	
Purpose:	
Specifications:	

Certificate of volatility (M178-M181)

Figure A-3 Certificate of volatility M178-M181 (1 of 2)

Hewlett-Packard Certificate of Volatility				
Model: M180n M181fw M180nw	Part Number: T6B70A T6B71A T6B74A	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: 256MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Used for temporary storage during the processing of jobs and for applications running on the OS.	Steps to clear memory: Power off printer
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): Flash	Size: 128MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Device FW, Fax system	Steps to clear memory: Perform a NVRAM initialization to clear unprotected data as explained in SM (for service person to perform only).
Type (Flash, EEPROM, etc): EEPROM	Size: 16KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Printer specific data such as page count, internal engine reports.	Steps to clear memory: Perform a NVRAM initialization to clear unprotected data as explained in SM (for service person to perform only).
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below				
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 checked="" type="checkbox"/> No If Yes please describe below				
Purpose:				
Frequency:		Bandwidth:		
Modulation:		Effective Radiate Power (ERP):		
Specifications:				

Figure A-4 Certificate of volatility M178-M181 (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: Wireless Network Connectivity (NW,FW only)	
Frequency: 2.4GHz, 5GHz	Bandwidth: 802.11n 20Mhz
Modulation:	Effective Radiate Power (ERP):
Specifications: 802.11n/a/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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:	
Purpose:	
Specifications:	

Certificate of volatility (M253-M254)

Figure A-5 Certificate of volatility M253-M254 (1 of 2)

Hewlett-Packard Certificate of Volatility				
Model: M254nw M254dw M254dn	Part Number: T6B59A T6B60A T6B61A	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 (M254nw, M254dn)	Size: 128MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Used for temporary storage during the processing of jobs and for applications running on the OS.	Steps to clear memory: Power off printer
Type (SRAM, DRAM, etc): DRAM (M254dw)	Size: 256MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Used for temporary storage during the processing of jobs and for applications running on the OS.	Steps to clear memory: Power off printer
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): Flash (M254nw, M254dn)	Size: 128MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Device FW, Fax system	Steps to clear memory: Perform a NVRAM initialization to clear unprotected data as explained in SM (for service person to perform only).
Type (Flash, EEPROM, etc): Flash (M254dw)	Size: 256MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Device FW, Fax system	Steps to clear memory: Perform a NVRAM initialization to clear unprotected data as explained in SM (for service person to perform only).
Type (Flash, EEPROM, etc): EEPROM(all models)	Size: 16KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Printer specific data such as page count, internal engine reports.	Steps to clear memory: Perform a NVRAM initialization to clear unprotected data as explained in SM (for service person to perform only).
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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 (ONLY ON M254dw) If Yes please describe below				
The front USB host can accept print jobs, scan uploads, and can be used to upload printer firmware.				
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				

Figure A-6 Certificate of volatility M253-M254 (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 checked="" 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 Network Connectivity (NW,DW only)	
Frequency: 2.4GHz, 5GHz	Bandwidth: 802.11n 20Mhz
Modulation:	Effective Radiate Power (ERP):
Specifications: 802.11n/a/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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:	
Purpose:	
Specifications:	

Certificate of volatility (M278-M281)

Figure A-7 Certificate of volatility M278-M281 (1 of 2)

Hewlett-Packard Certificate of Volatility				
Model: M280nw M281fdn M281fdw M281cdw	Part Number: T6B80A T6B81A T6B82A T6B83A	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: 256MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Used for temporary storage during the processing of jobs and for applications running on the OS.	Steps to clear memory: Power off printer
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): Flash	Size: 256MB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Device FW, Fax system	Steps to clear memory: Perform a NVRAM initialization to clear unprotected data as explained in SM (for service person to perform only).
Type (Flash, EEPROM, etc): EEPROM	Size: 16KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Printer specific data such as page count, internal engine reports.	Steps to clear memory: Perform a NVRAM initialization to clear unprotected data as explained in SM (for service person to perform only).
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
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				
The front USB host can accept print jobs, scan uploads, and can be used to upload printer firmware.				
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 checked="" type="checkbox"/> No If Yes please describe below				
Purpose:				
Frequency:		Bandwidth:		
Modulation:		Effective Radiate Power (ERP):		
Specifications:				

Figure A-8 Certificate of volatility M278-M281 (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: Wireless Network Connectivity (NW,DW only)	
Frequency: 2.4GHz, 5GHz	Bandwidth: 802.11n 20Mhz
Modulation:	Effective Radiate Power (ERP):
Specifications: 802.11n/a/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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:	
Purpose:	
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