LaserJet Pro M201, M202
LaserJet Pro MFP M225, M226

Troubleshooting Manual

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M202n

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M202dw

M225dn
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M226dn

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HP LaserJet Pro MFP M225/M226 and HP LaserJet Pro M201/M202 Printer series

Troubleshooting Manual

Conventions used in this guide

☼ **TIP:**   Tips provide helpful hints or shortcuts.

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

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

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

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1 Theory of operation

Basic operation

Major product systems

The product contains the following major systems:

- Engine-control system
- Laser/scanner system
- Image-formation system
- Pickup-and-feed system

Product block diagram

Figure 1-1 Product block diagram
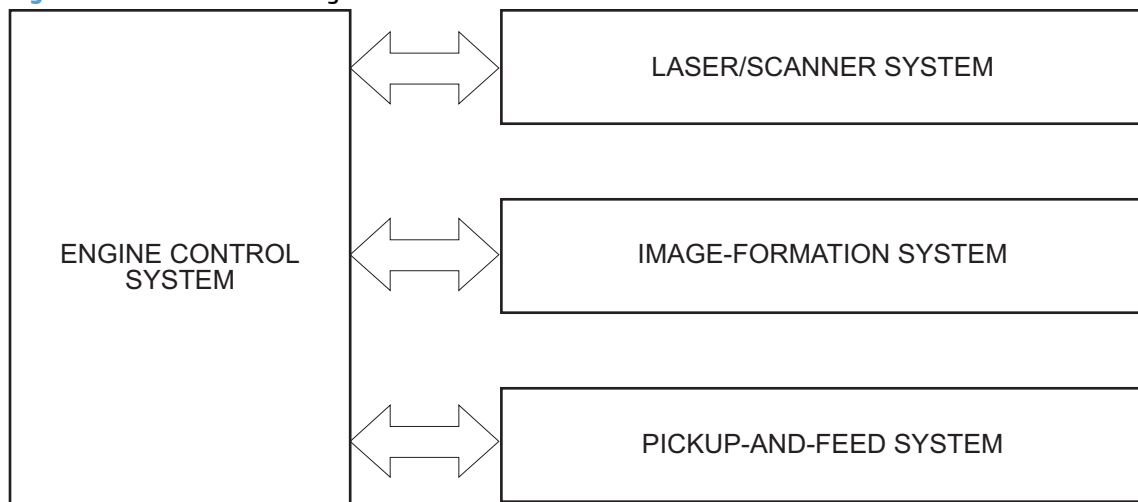
Sequence of operation

The DC controller in the engine-control system controls the operational sequences of the product. The table below describes durations and operations for each period of a print operation from when the product is turned on until the motor stops rotating.

Normal sequence of operation

Table 1-1 **Sequence of operation**

Name	Timing	Purpose
WAIT	From the time the power switch is turned on, the door is closed or the product exits Sleep mode until the product gets ready for a print operation.	Brings the product to ready state. The product performs the following during the operations: ● Detects the print cartridge ● Heats the fuser film in the fuser ● Rotates, and the stops, the main motor
STBY (standby)	From the end of the WAIT or LSTR period until either a print command is sent or the power switch is turned off.	Maintains the product in printable condition. The product performs the following during the operation: ● Enters Auto-Off mode if Auto-Off command is received
INTR (initial rotation)	From the time a print command is received until the paper is picked up.	The product performs the following during the operations: ● Drives the main motor ● Activates the high-voltage power supply ● Activates the laser/scanner ● Warms the fuser heater
PRINT	From the end of the INTR period until the last sheet completes the fuser operation.	Forms the image on the photosensitive drum based on the VIDEO signals from the formatter. Transfers and fuses the toner image to the paper.
LSTR (last rotation)	From the end of the PRINT period until the main motor stops rotating.	Moves the last printed sheet out of the product. The product performs the following during the operations: ● Stops the main motor ● Deactivates the high-voltage power supply ● Deactivates the laser/scanner ● Deactivates the fuser heater The product enters the INTR period as the LSTR period is completed, if the formatter sends another print command.

Formatter-control system

The formatter is responsible for the following procedures:

● Controlling sleep mode

● Receiving and processing print data from the various product interfaces

● Monitoring control-panel functions and relaying product-status information (through the control panel and the network or bidirectional interface)

● Developing and coordinating data placement and timing with the DC controller PCA

● Storing font information

● Communicating with the host computer through the network or the bidirectional interface

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

Sleep mode

> **NOTE:** This product uses an Auto-Off feature for sleep mode.

After a user-specified time, the Auto-Off feature automatically conserves electricity by substantially reducing power consumption when the product is not printing. After a user-specified time, the product automatically reduces its power consumption (Auto-Off). The product returns to the ready state when a button is pressed, a print job is received, or a door is opened. When the product is in Auto-Off mode, all of the control-panel LEDs and the power button backlight LED are off.

> **NOTE:** Although the product lights are off in Auto-Off mode, the product functions normally when it receives a print job.

Input/output

The product receives print data primarily from the following:

● Hi-Speed USB 2.0 port

● 802.11b/g/n wireless networking (wireless models only)

CPU

The formatter incorporates a 750 MHz ARM processor.

Memory

The random access memory (RAM) on the formatter PCA contains the page, I/O buffers, and the font storage area. RAM stores printing and font information received from the host system, and can also serve to temporarily store a full page of print-image data before the data is sent to the print engine.

Firmware

● HP LaserJet Pro MFP M225/M226 Printer series

◦ The product has 256 MB of Synchronous DRAM, which is used for run-time firmware imaging and specific print job information for the print job.

● HP LaserJet Pro M201/M202 Printer series

◦ The product has 128 MB of Synchronous DRAM, which is used for run-time firmware imaging and specific print job information for the print job.

Memory use

● HP LaserJet Pro MFP M225/M226 Printer series

◦ The product has a 2 KB EEPROM and 256 MB of NAND Flash Memory, which is used for product configuration information and printer driver firmware.

● HP LaserJet Pro M201/M202 Printer series

◦ The product has a 8 KB EEPROM and 64 MB of NAND Flash Memory, which is used for product configuration information and printer driver firmware.

PJL overview

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

● Two-way communication with the host computer through a network connection or a USB connection. The product can inform the host about such things as the control-panel settings, and the control-panel settings can be changed from the host.

● Dynamic I/O switching. The product uses this switching to be configured with a host on each I/O. The product can receive data from more than one I/O simultaneously, until the I/O buffer is full. This can occur even when the product is offline.

● Context-sensitive switching. The product can automatically recognize the personality (PS or PCL) of each job and configure itself to serve that personality.

● Isolation of print environment settings from one print job to the next. For example, if a print job is sent to the product in landscape mode, the subsequent print jobs print in landscape mode only if they are formatted for landscape printing.

PML

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

LEDM overview

NOTE: HP LaserJet Pro M201/M202 Printer series

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.

ACL overview

The advanced control language (ACL) is a language that supports product control and firmware downloads in printers that support both PJL/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 done, 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 product resets.

Control panel

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

USB flash drive

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

- PDF

- RGB JPEG

When a USB flash drive is inserted into the front of the product, the control panel will display the USB Flash Drive menu. The files present on the USB flash drive can be accessed from the control panel using the touch screen. Any RGB jpeg or pdf files on the USB flash drive can be printed directly from the product control panel. Pages also can be scanned and saved to the USB flash drive from the control panel.

Engine-control system

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

The engine control system contains the following major components:

- Engine-control unit (ECU)

    - DC controller

    - Low-voltage power supply

- High-voltage power supply

- Fuser control

Figure 1-2 Engine-control system
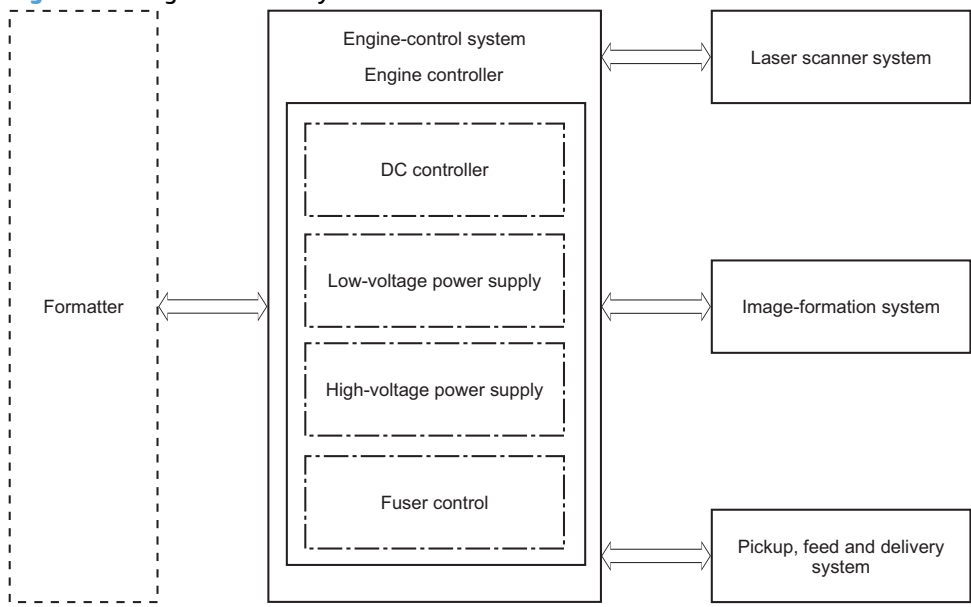
DC controller operations

The DC controller controls the operational sequences of the product systems.

Figure 1-3 DC controller block diagram
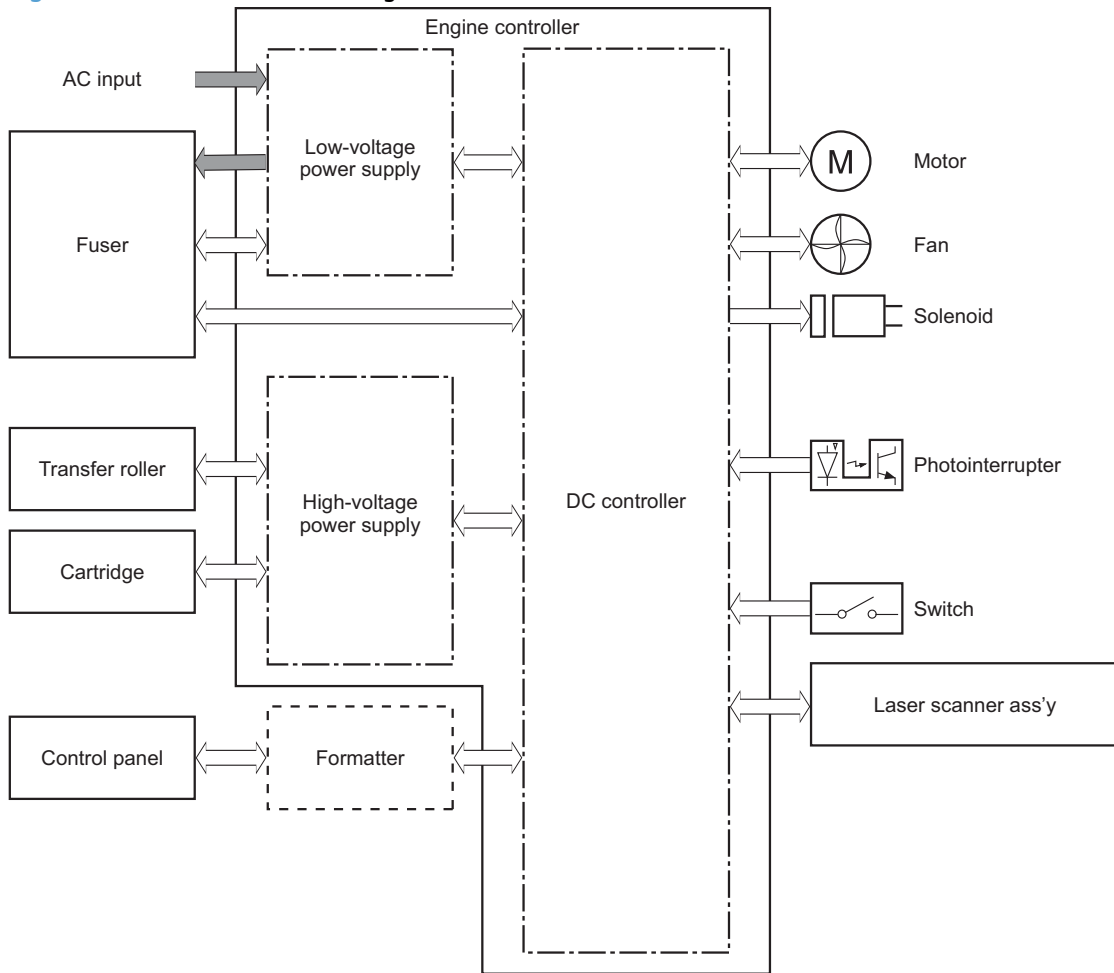
Table 1-2 DC controller controlled components

Component	Designator	Description
Motor	M1	Main motor
	M2	Scanner motor
Fan	FM1	Main fan
		Duplex models only.
Solenoid	SL1	Pickup solenoid
	SL2	Duplex reverse solenoid
		NOTE: Duplex models only.
Switch	SW501	Cartridge-door switch
Photointerrupter	PS701	Fuser delivery sensor
	PS702	Media-width sensor

Table 1-2 DC controller controlled components (continued)

Component	Designator	Description
	PS751	Top-of-Page (TOP) sensor
	PS901	Main-motor rotation-number detection sensor

Motors, fans, clutches, solenoids, switches, and sensors

Figure 1-4 Motors

M1

M2
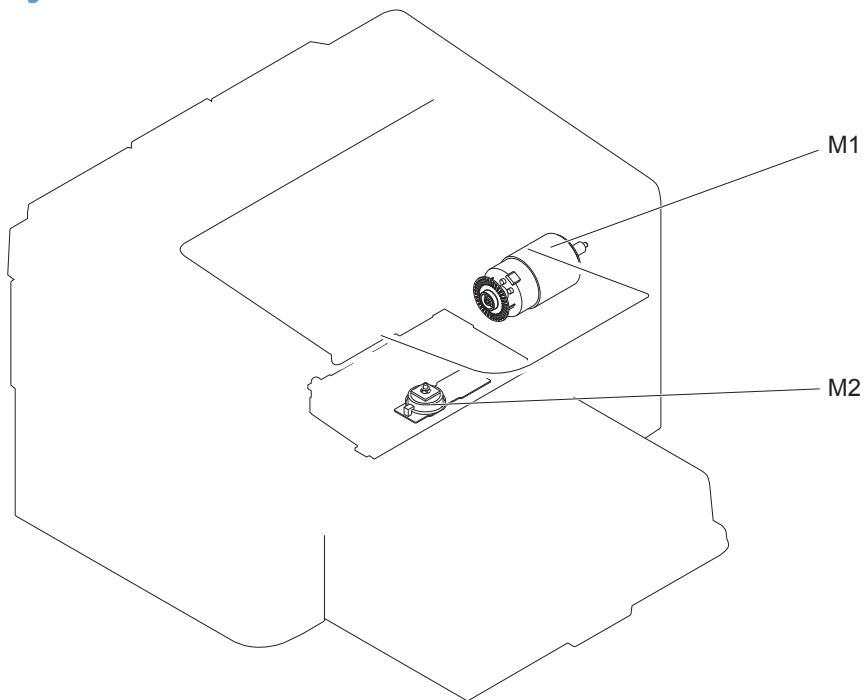
Table 1-3 Motors

Item	Description	Components driven
M1	Main motor	● Pickup roller
		● Feed roller
		● Photosensitive drum
		● Developing roller
		● Pressure roller
		● Delivery roller
		● Duplex feed roller
M2	Scanner motor	● Scanner mirror

Figure 1-5 Fans

FM1
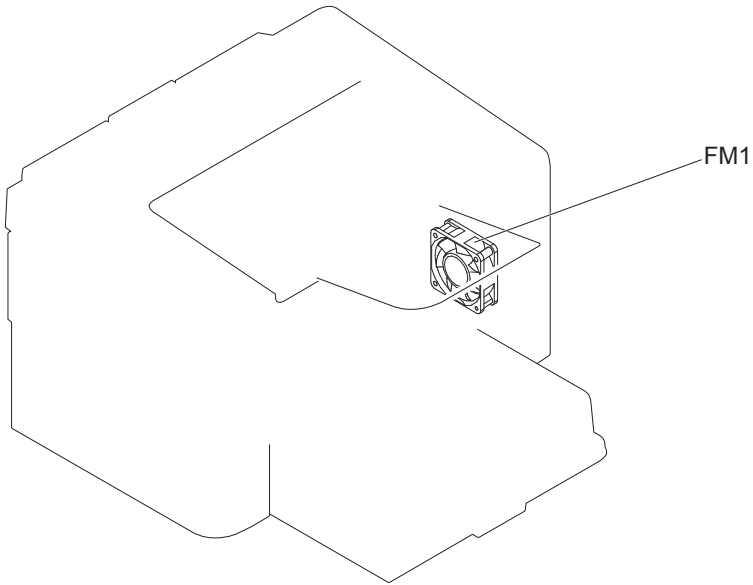
Table 1-4 Fans

Item	Description
FM1	Main fan

Figure 1-6 Solenoids and clutches
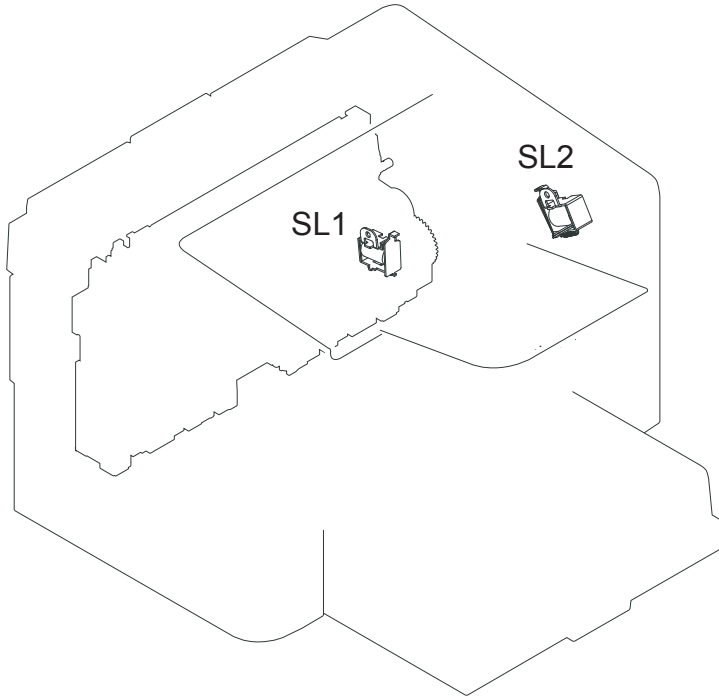
Table 1-5 Solenoids and clutches

Item	Description
SL1	Pickup solenoid
SL2	Duplex reverse solenoid
	NOTE: Duplex models only.

Figure 1-7 Switches
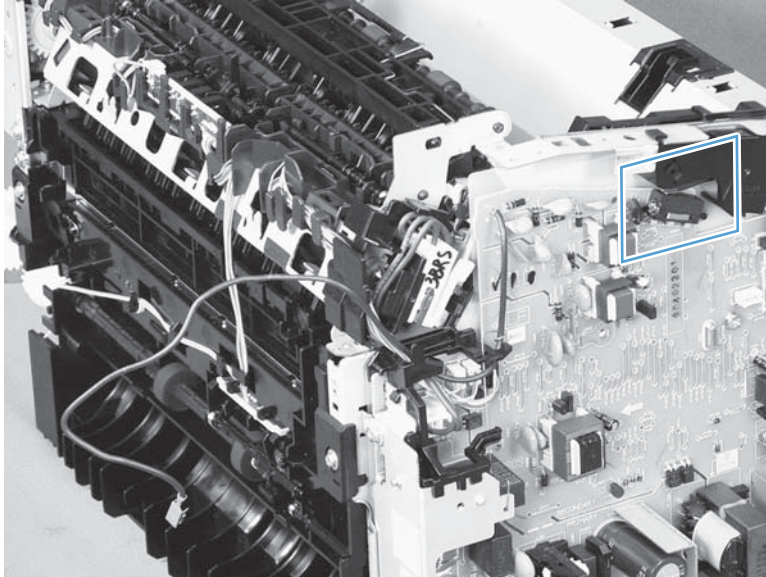
Table 1-6 Switches

Item	Description
SW501	Cartridge-door switch
SW502	Power switch; not shown

Figure 1-8 Sensors
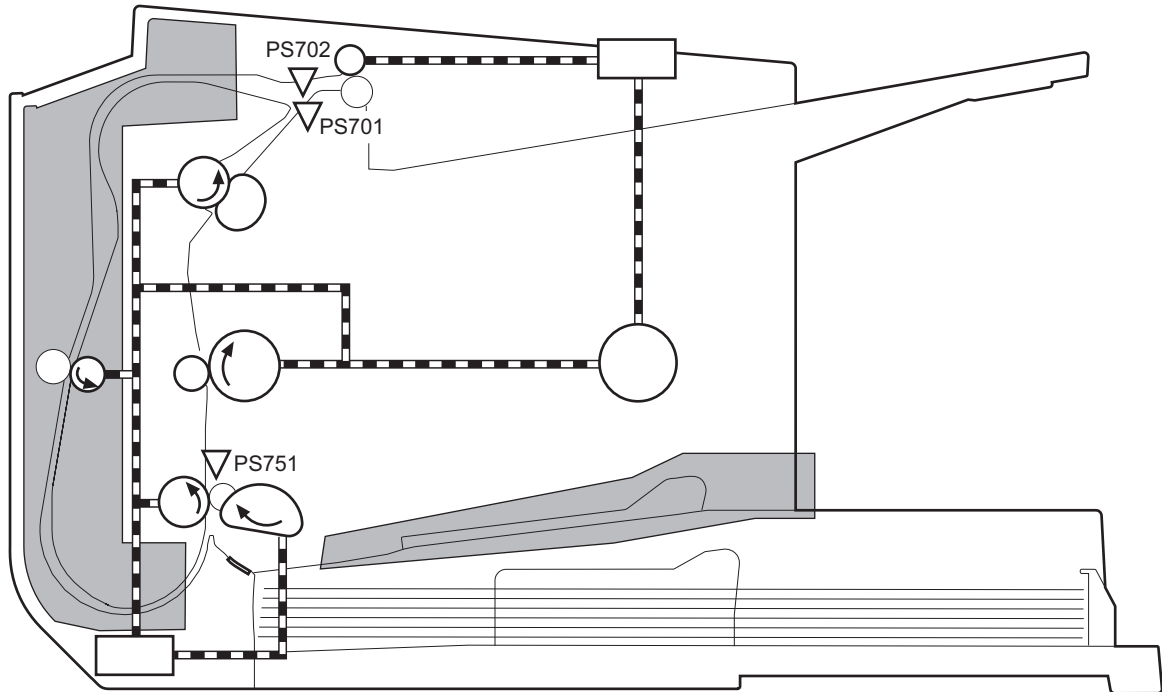
Table 1-7 Sensors

Item	Description
PS701	Fuser delivery sensor

Table 1-7 Sensors (continued)

Item	Description
PS702	Media-width sensor
PS751	Top-of-Page (TOP) sensor
PS901	Main-motor rotation-number sensor; not shown

Fuser-control circuit

The fuser-control circuit monitors and controls the temperature in the fuser. The product uses on-demand fusing. The fuser-control circuit consists of the following major components:

- Fuser heater (H1); heats the center area of the fusing film

- Thermal fuse (FU1): Prevents an abnormal temperature rise of fuser heater (Contact type)

- Thermistor (TH1); detects the center temperature of the fuser heater (contact type)

Figure 1-9 Fuser control circuit
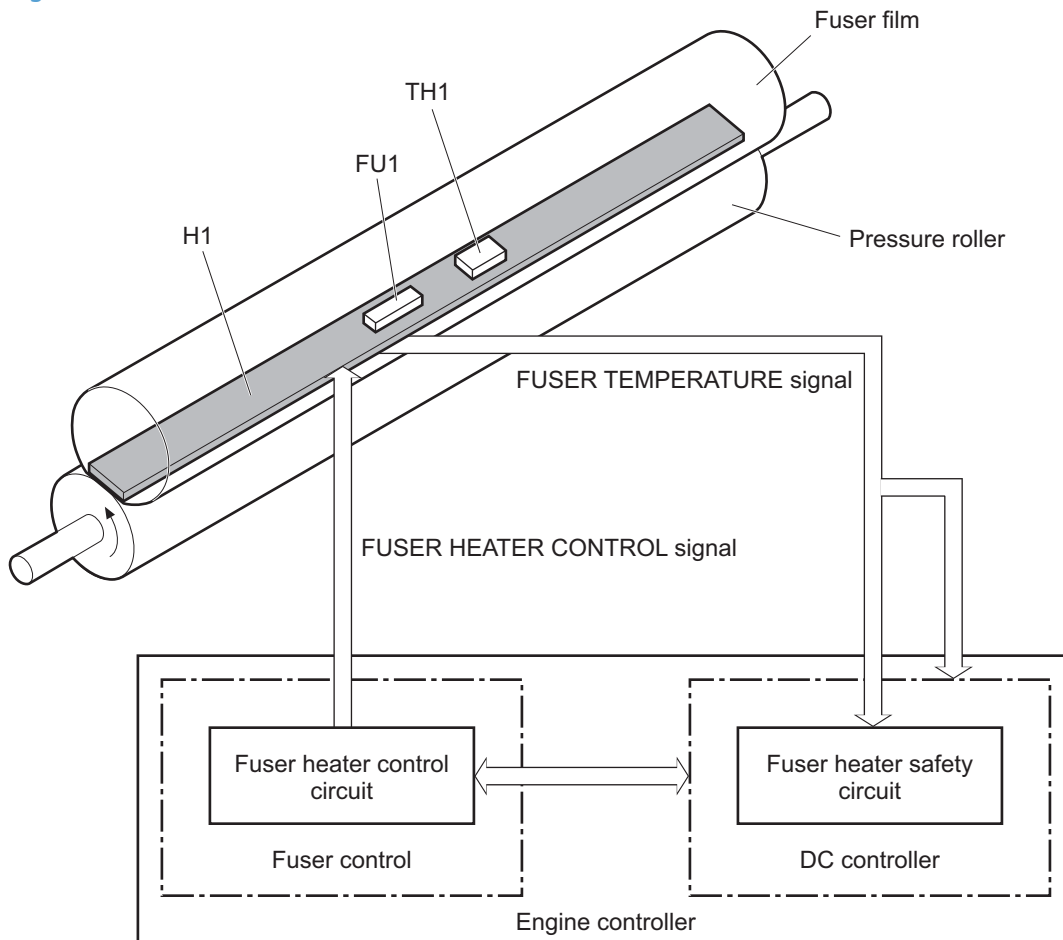
Fuser failure detection

The DC controller determines a fuser unit failure, releases the relay to interrupt power supply to the fuser heater, and notifies the formatter of a failure state when it encounters the following conditions:

● Start up failure

  ◦ If the main thermistor does not detect a specified temperature during the start up process of the heater in the wait period.

  ◦ If the main thermistor does not detect a specified temperature during the heater temperature control in the initial rotation period.

● Abnormal low temperature

  ◦ If the main thermistor detects an abnormal low temperature of the fuser unit during the printing operation.

● Abnormal high temperature

  ◦ If the main thermistor detects an abnormal high temperature of the fuser unit.

● Frequency detection circuit failure

  ◦ If a specified frequency of the FREQUENCY signal is not detected within a specified period after the product is turned on.

Fuser temperature control

The fuser temperature control maintains the temperature of the fuser heater at its targeted temperature.

The DC controller monitors the FIXING TEMPERATURE (FSRTH) signals and sends the FIXING HEATER CONTROL (FSRD) signal according to the detected temperature. The fuser heater control circuit controls the fuser heater depending on the signal so that the heater remains at the targeted temperature.

Figure 1-10 Fuser-heater control circuit
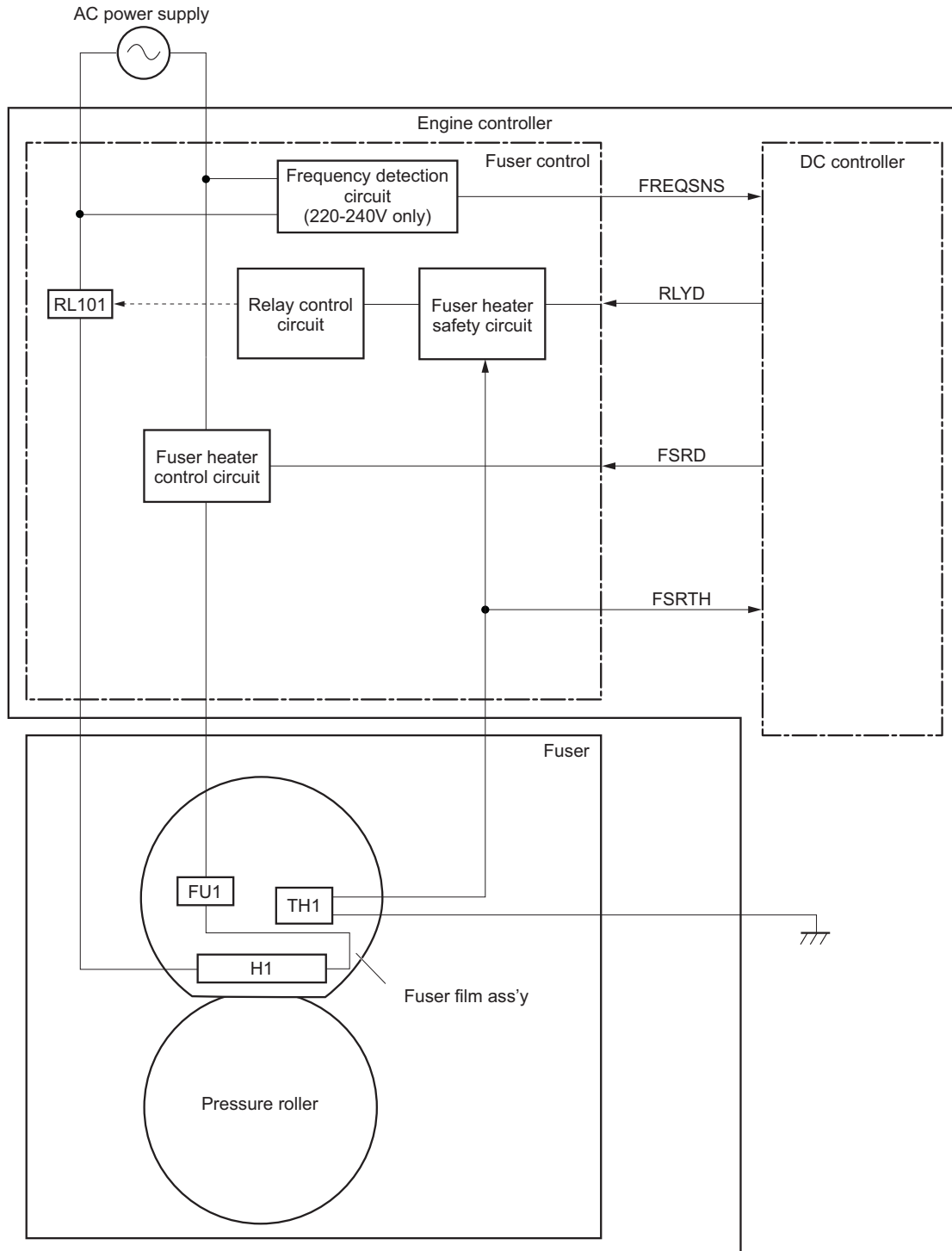
Fuser heater protective function

The fuser heater protective function detects an excessive temperature rise of the fuser unit and interrupts power supply to the fuser heater.

The following three protective components prevent an abnormal temperature rise of the fuser heater:

● DC controller

  ◦ The DC controller monitors the detected temperature of the thermistor. The DC controller deactivates the FUSER HEATER CONTROL signal and releases the relay (RL101) to interrupt power supply to the fuser heater when it detects an excessive temperature.

● Fuser heater safety circuit

  ◦ The fuser heater safety circuit monitors the detected temperature of the thermistor. The fuser heater safety circuit releases the relay (RL101) to interrupt power supply to the fuser heater when it detects an excessive temperature.

● Thermal fuse

  ◦ The thermal fuse blows to interrupt power supply to the fuser heater when the temperature of the fuser heater is abnormally high.

Pressure roller cleaning

The pressure roller cleaning process is initiated by the formatter. The process removes toner that has accumulated on the pressure roller by transferring it to a sheet of paper.

● The product feeds a sheet of paper after receiving the cleaning command from the formatter.

● Main motor rotation is stopped when the trailing edge of the paper passes through the transfer roller.

● The main motor rotation is repeatedly started and then stopped. The fuser heater is turned on and then off at the same interval as main motor rotation.

● Toner adhered to the pressure roller is fused to the paper.

● The paper is ejected from the product.

Low-voltage power supply

The low-voltage power supply (LVPS) converts ac input voltage to dc voltage. The LVPS has two fuses on the PCA. The LVPS 24 V output is interrupted to the fuser and the high-voltage power supply if the cartridge-door interlock switch (SW501) is in the off position (cover open).

⚠ **WARNING!**   The product power switch only interrupts dc voltage from the LVPS. The ac voltage is present in the product when the power cord is plugged into a power receptacle and the power switch is in the off position. You must unplug the product power cord before servicing the product.

Figure 1-11 Low-voltage power supply (LVPS)
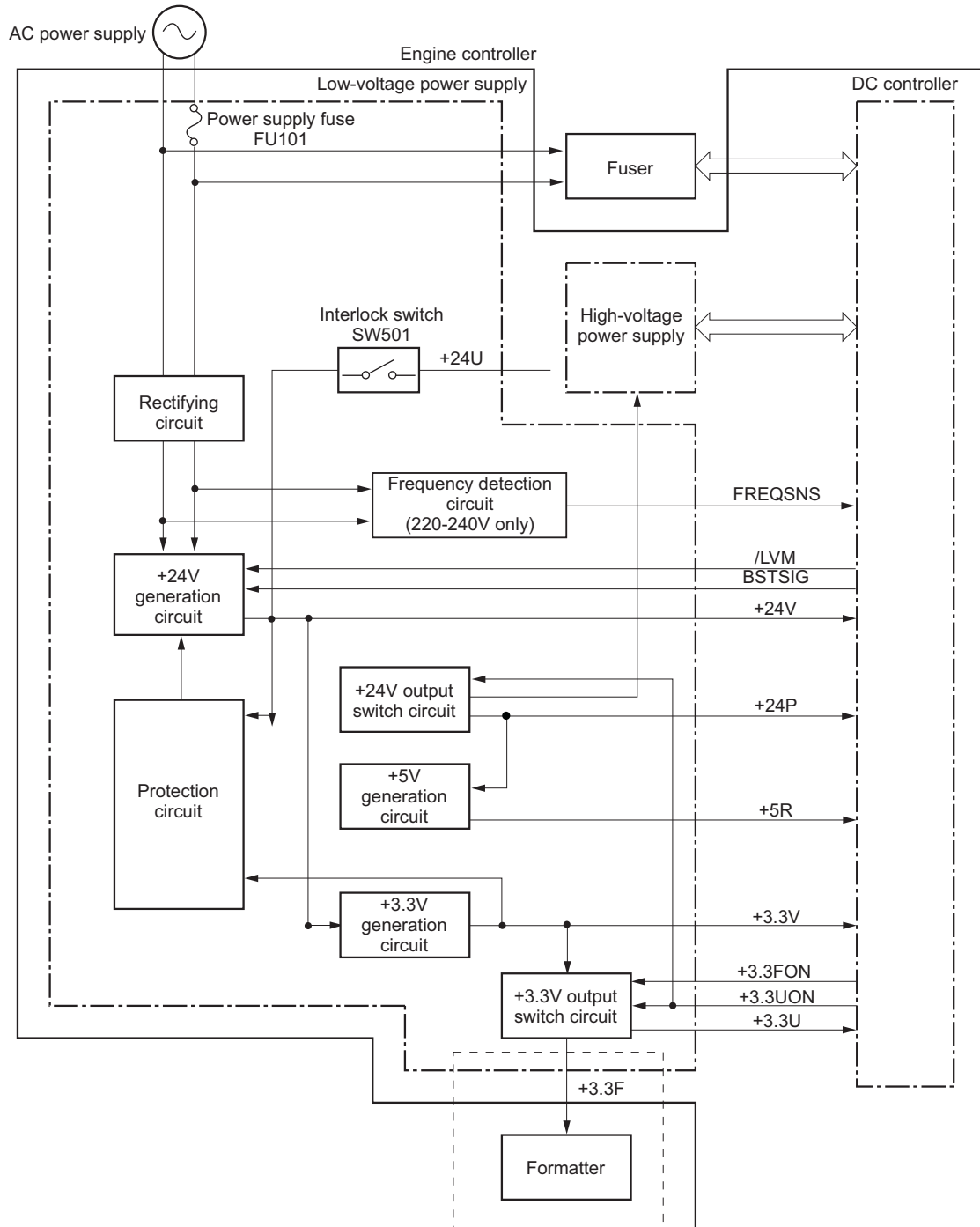
Table 1-8 List of DC power supply

Main DC voltage	Sub-voltage	Behavior
+24V	+24V	• Constantly supplied
	+24P	• Supplied when the power switch is turned ON • Stopped during standby period or sleep mode
	+24U	• Interrupted when the cartridge door open (SW501)
+5V	+5R	• Supplied when the power switch is turned ON • Stopped during standby period or sleep mode
+3.3V	+3.3V	• Constantly supplied
	+3.3P	• Supplied when the power switch is turned ON • Stopped during standby period or sleep mode
	+3.3U	• Supplied when the power switch is turned ON

Overcurrent/overvoltage protection

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

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

If DC voltage is not being supplied from the low-voltage power supply, the protective function might be running. In this case, turn the printer OFF, unplug the power cord. Do not turn the power switch ON until the root cause is found and corrected.

⚠ **WARNING!** If you believe the overcurrent or overvoltage protection circuits have been activated, do not plug in the product power cord or turn on the product power until the cause of the failure is found and corrected.

In addition, the low-voltage power supply has one power supply fuse (FU101) to protect against overcurrent. If overcurrent flows into the AC line, the fuse blows to stop AC power.

High-voltage power supply

The high-voltage power supply (HVPS) applies biases to the following components:

- Primary charging roller

- Developing roller

- Transfer roller

Figure 1-12 High-voltage power supply

High-voltage power supply

The high-voltage power supply (HVPS) applies biases to the following components:

- Primary charging roller

- Developing roller

- Transfer roller

Figure 1-12 High-voltage power supply

Engine controller

DC controller

High-voltage power supply

Primary charging bias circuit

Developing bias circuit

Transfer bias circuit

To primary charging roller

To developing roller

Cartridge

Photosensitive drum

Transfer roller
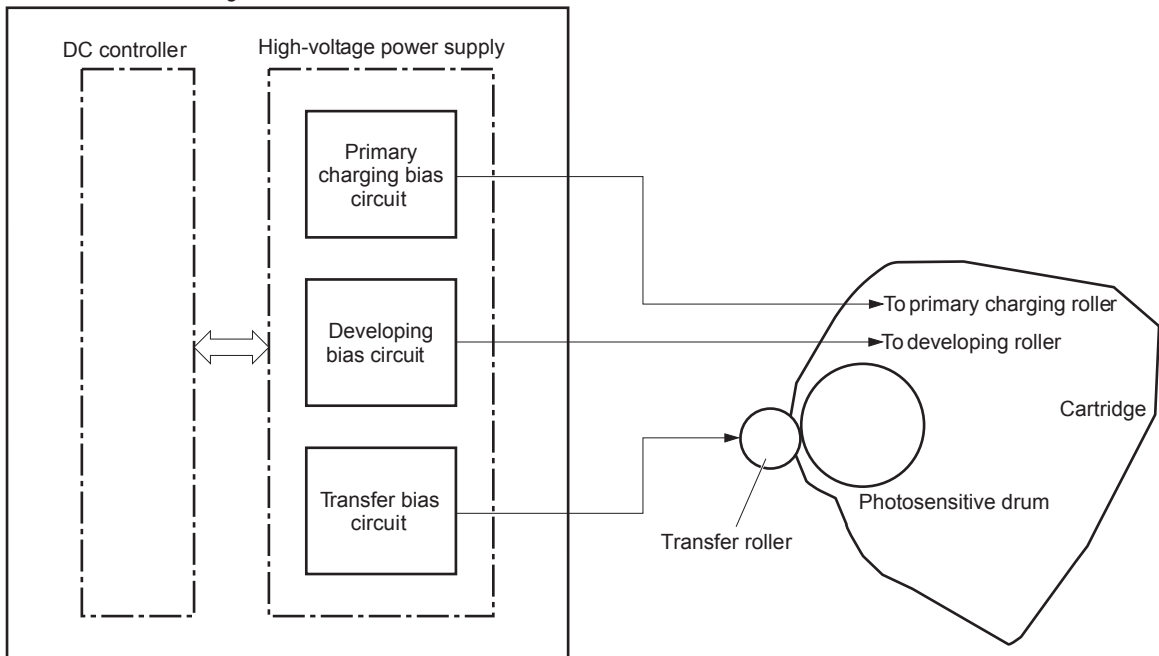
Laser/scanner system

The laser/scanner system receives VIDEO signals from the ECU and formatter and converts the signals into latent images on the photosensitive drum.

The main components of the laser/scanner are the laser unit and the scanner motor unit. The DC controller sends signals to the laser/scanner to control the functions of these components.

Figure 1-13 Laser/scanner system
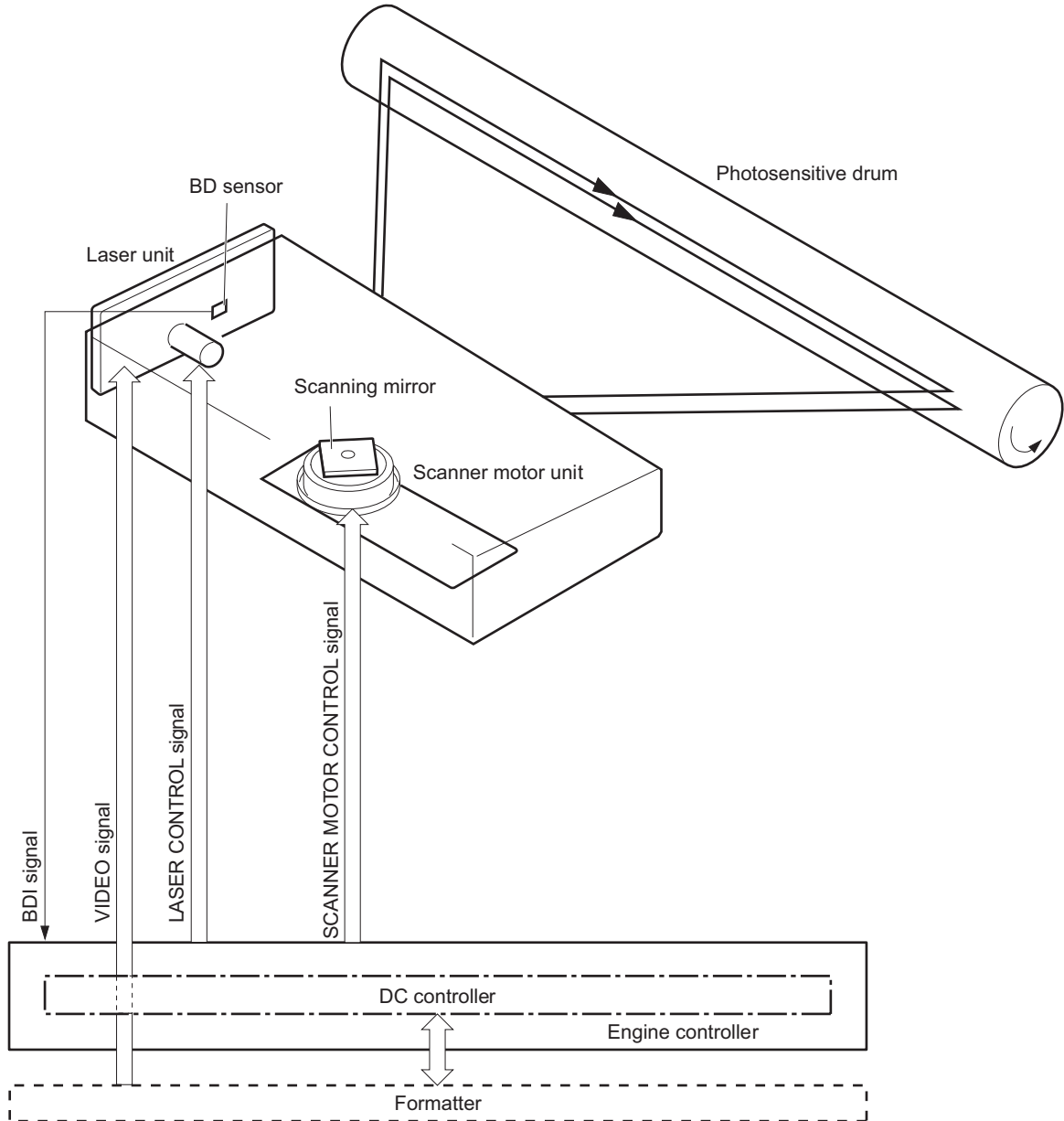
Laser failure detection

The DC controller determines an optical unit failure and notifies the formatter, if the laser/scanner encounters the following conditions:

- The scanner motor does not reach a specified rotation within a specified period of the scanner motor start up.

- The rotation of the scanner motor is out of specified range for a specified period during the scanner motor drive.

- The BD interval is out of a specified value during a print operation.

Image-formation system

Electrophotographic process

The electrophotographic process forms an image on the paper. Following are the major components used in the process:

- Print cartridge

- Transfer roller

- Fuser

- Laser/scanner

- High-voltage power supply

The DC controller uses the laser/scanner and HVPS to form the toner image on the photosensitive drum. The image is transferred to the paper and then fused onto the paper.

Figure 1-14 Electrophotographic process block diagram (1 of 2)
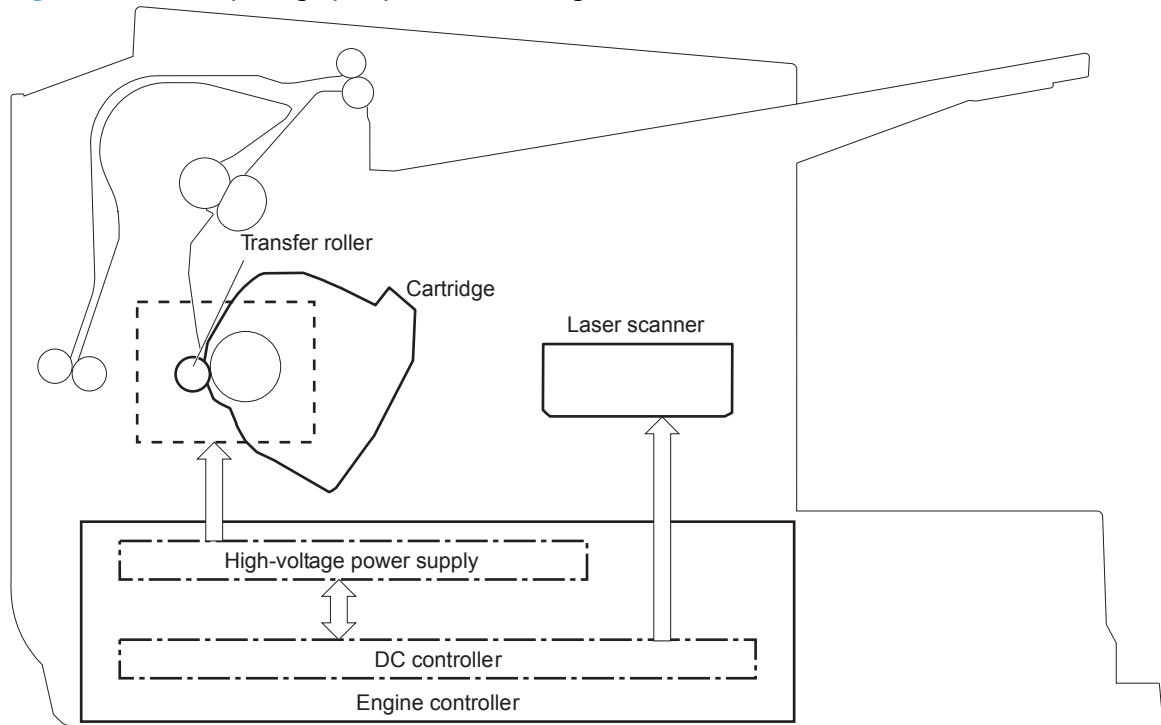
The DC controller rotates the main motor to drive the following components:

- Photosensitive drum

- Developing drum

- Primary charging roller (follows the rotation of the photosensitive drum)

- Transfer roller (follows the rotation of the photosensitive drum)

Figure 1-15 Electrophotographic process block diagram (2 of 2)
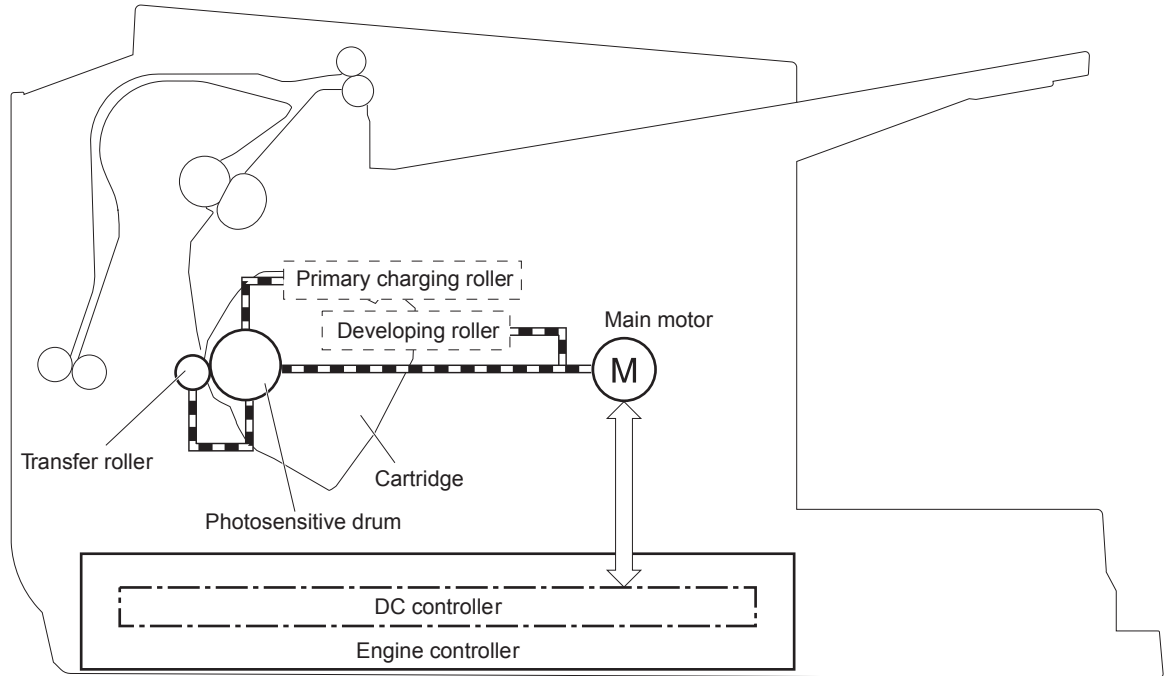
Image formation process

Each of the following process function independently and must be coordinated with the other product processes. Image formation consists of the following processes:

- Latent-image formation block

    ◦ Step 1: primary charging

    ◦ Step 2: laser-beam exposure

- Developing block

    ◦ Step 3: developing

- Transfer block

    ◦ Step 4: transfer

    ◦ Step 5: separation

- Fusing block

    ◦ Step 6: fusing

- Drum cleaning block

    ◦ Step 7: drum cleaning

Figure 1-16 Image formation process
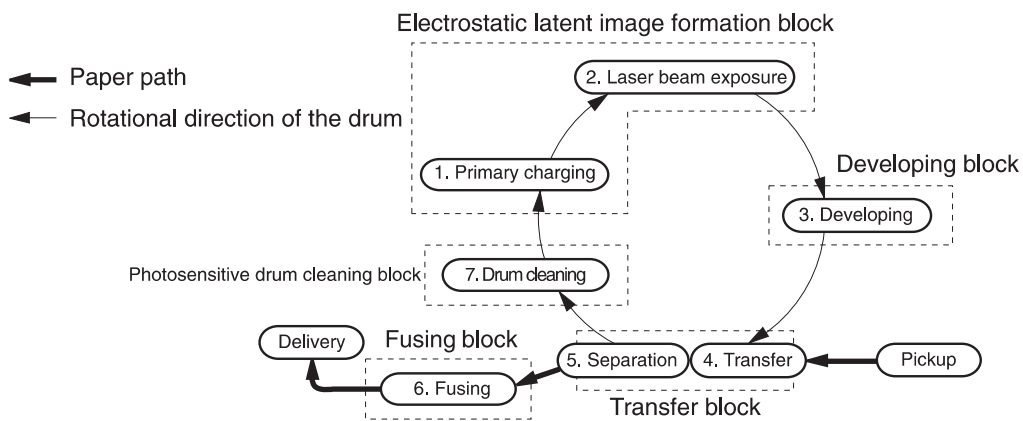
Latent-image formation stage

During the latent-image formation stage, the laser/scanner forms an invisible image on the photosensitive drum in the print cartridge.

Primary charging

Step 1: DC and AC biases are applied to the primary charging roller, which transfers a uniform negative potential to the photosensitive drum.

Figure 1-17 Primary charging
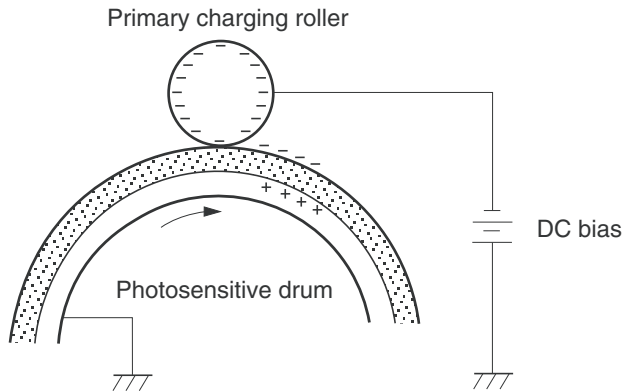
Laser beam exposure

Step 2: The laser beam scans the photosensitive drum to neutralize negative charges on parts of the drum surface. An electrostatic latent image is formed on the drum where negative charges were neutralized.

Figure 1-18 Laser beam exposure
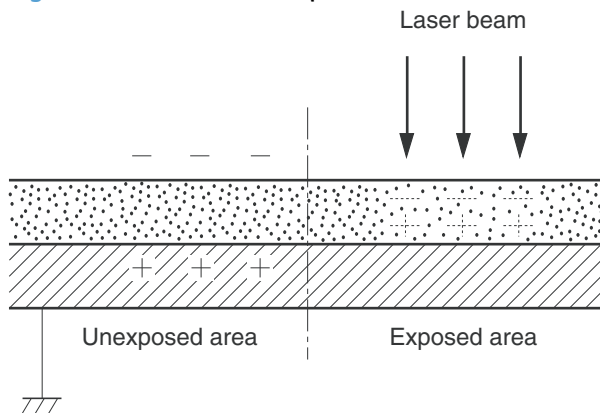
Developing stage

Print cartridge

Step 3: In the print cartridge, the developing cylinder transfers toner onto the electrostatic latent image on the photosensitive drum.

Figure 1-19 Print cartridge
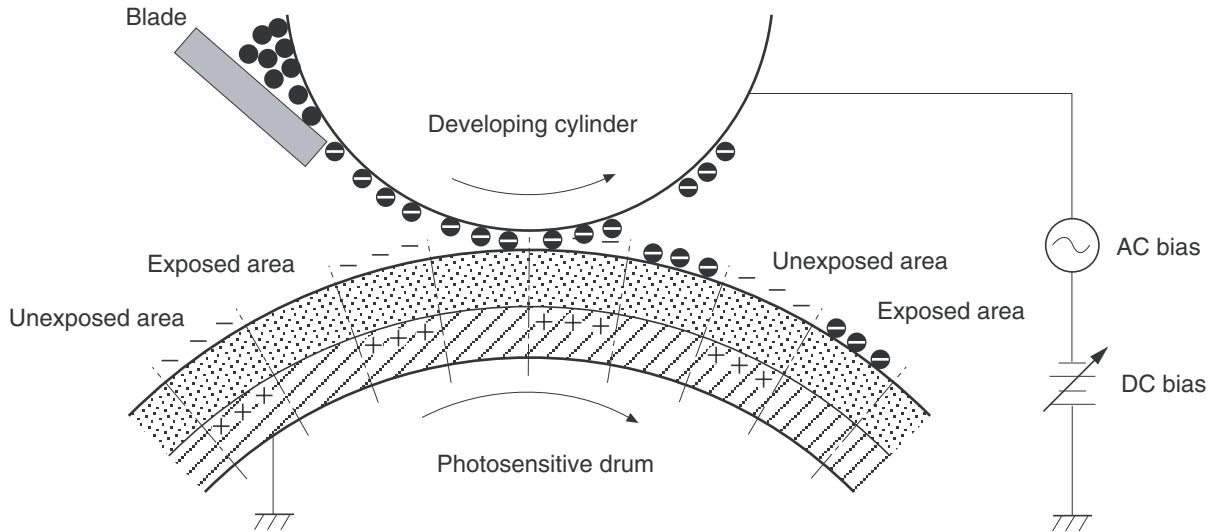
Toner acquires a negative charge from the friction that occurs when the developing roller rotates against the developing blade. The developing bias is applied to the developing roller to make a potential difference between the developing roller and the photosensitive drum. The negatively charged toner is attracted to the latent image on the photosensitive drum because the drum surface has a higher potential.

Transfer stage

Step 4: The transfer charging roller, to which a DC positive bias is applied, imparts a positive charge on the paper. When the page comes in contact with the photosensitive drum, the toner is transferred to the paper.

Figure 1-20 Transfer
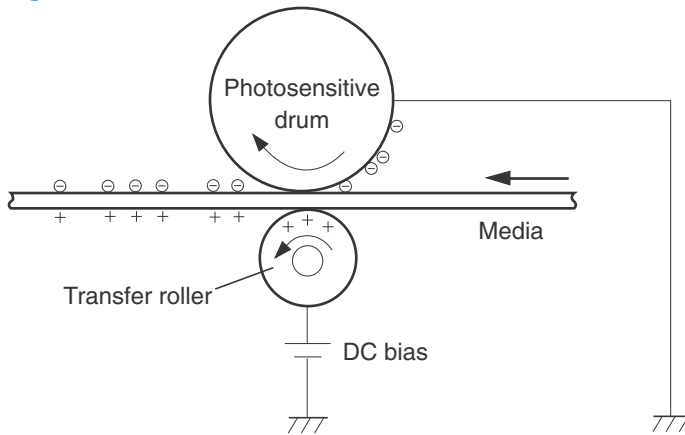
Step 5: The elasticity of the paper causes its separation from the photosensitive drum. A static charge eliminator aids separation by weakening any electrostatic adhesion.

Figure 1-21 Separation
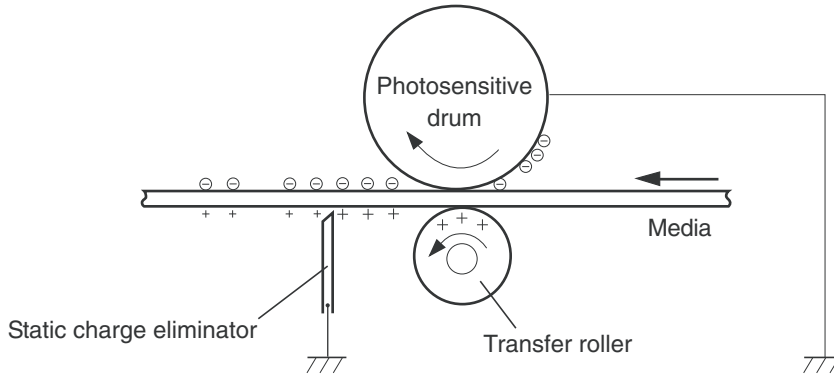
Fusing stage

Step 6: The DC negative bias applied to the fusing film strengthens the holding force of the toner on the paper and prevents the toner from scattering.

The product uses an on-demand fuser method. The toner image is permanently affixed to the paper by heat and pressure.

Figure 1-22 Fusing
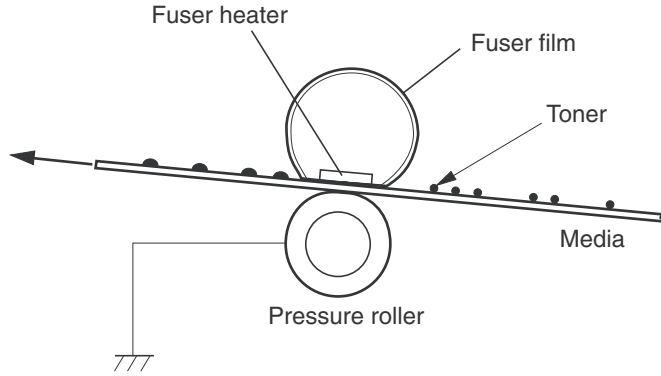
Cleaning stage

Step 7: The cleaning blade scrapes the residual toner off of the photosensitive drum and deposits it into the waste toner case.

Figure 1-23 Drum cleaning
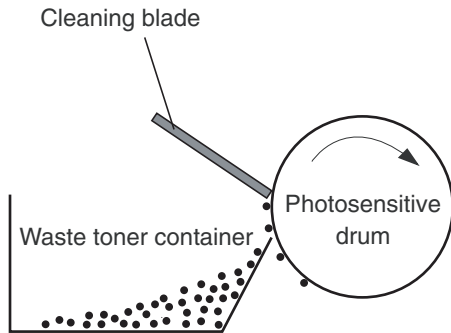
Pickup, feed, and delivery system

The media feed system picks up, feeds, and delivers the page.

Figure 1-24 Pickup, feed, and delivery system block diagram
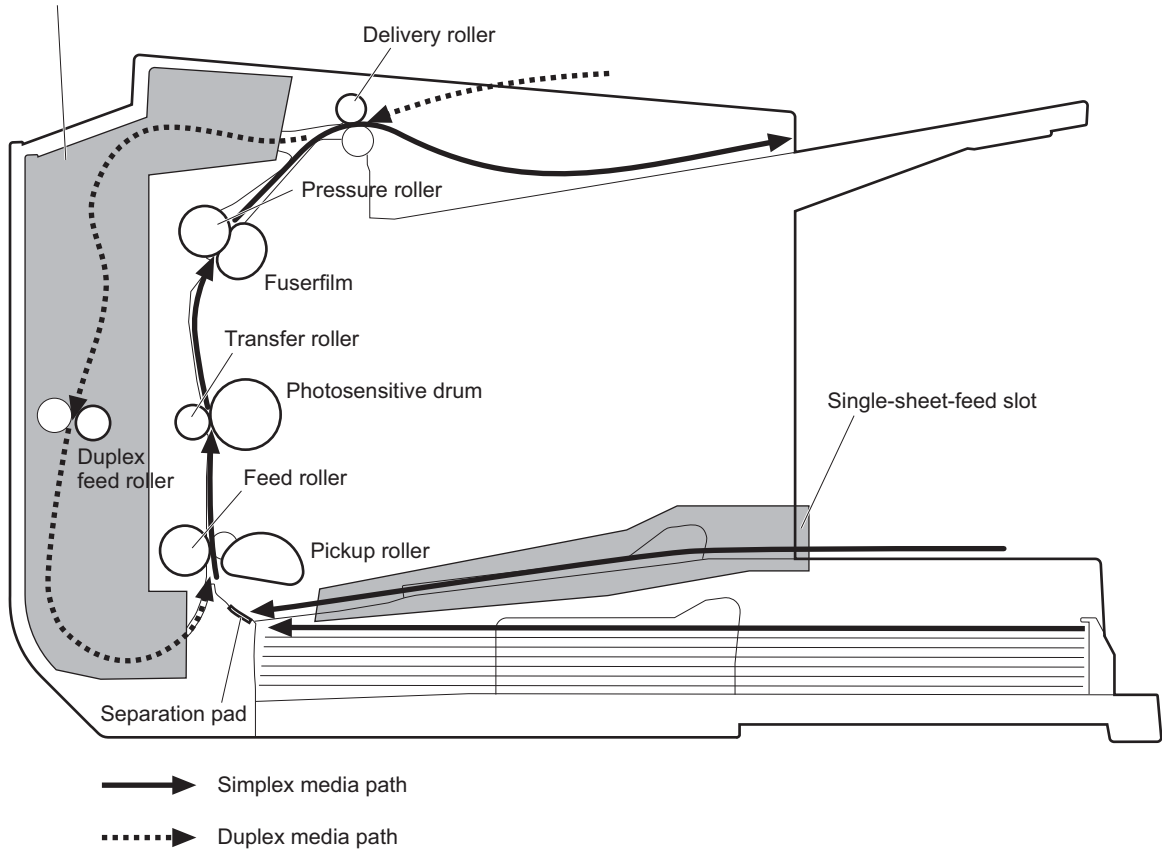
Photo sensors and switches

NOTE: The illustration in this section also shows the product motor, photo sensors, and solenoid. The power switch is not shown.

Figure 1-25 Photo sensors, motor, and solenoid
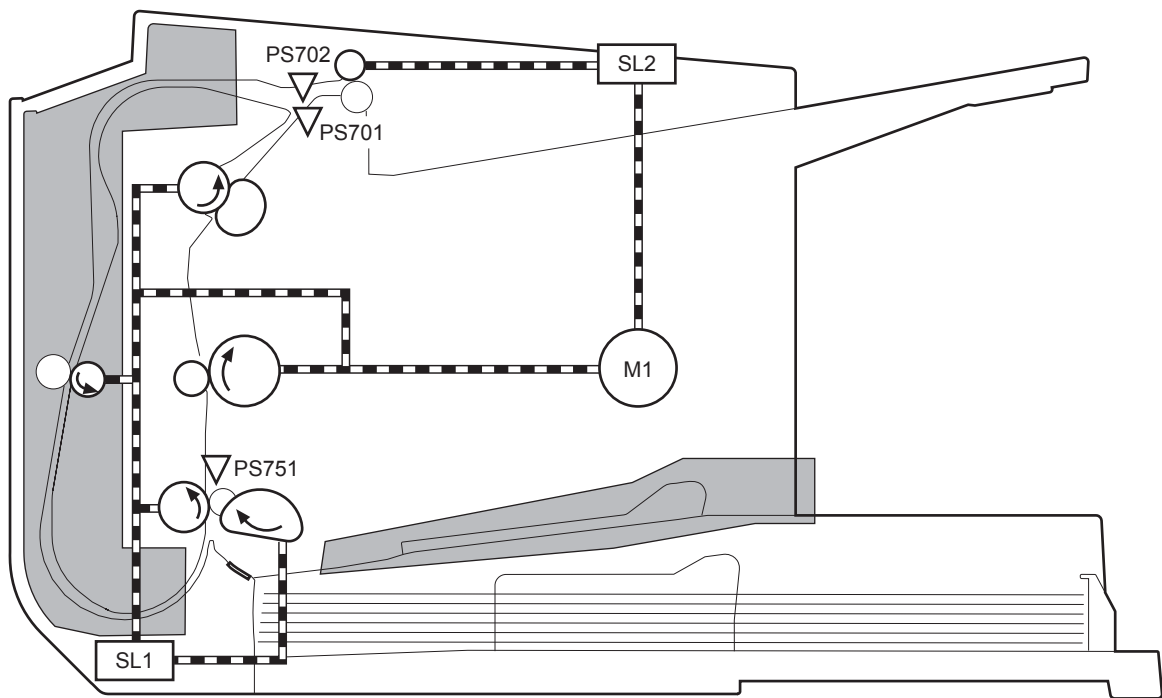
Table 1-9 Photo sensors, motor, and solenoid

Item	Description
M1	Main motor
SL1	Pickup solenoid

Table 1-9 **Photo sensors, motor, and solenoid (continued)**

Item	Description
SL2	Duplex feed solenoid **NOTE:** Duplex models only.
PS701	Fuser delivery sensor
PS702	Media–width sensor
PS751	TOP sensor

Multiple-feed prevention

The product uses a separation roller to prevent multiple sheets of media from entering the product. The paper separation roller follows the rotational direction of the pickup roller because it does not have its own driving force.

- **Normal-feed**: The separation roller is driven by the pickup roller through a sheet of print media. That is, the separation roller rotates in the media feed direction.

- **Multiple-feed**: The low friction force between the sheets weakens the rotational force from the pickup roller. The separation roller is limited in its rotational force and it does not rotate with such a weak driving force from the pickup roller. Since the separation roller does not rotate, the multiple sheets do not feed into the product.

The following figure illustrates the mechanism of the multiple-feed prevention.

Figure 1-26 Multiple-feed prevention

<Normal-feed>   <Multiple-feed>
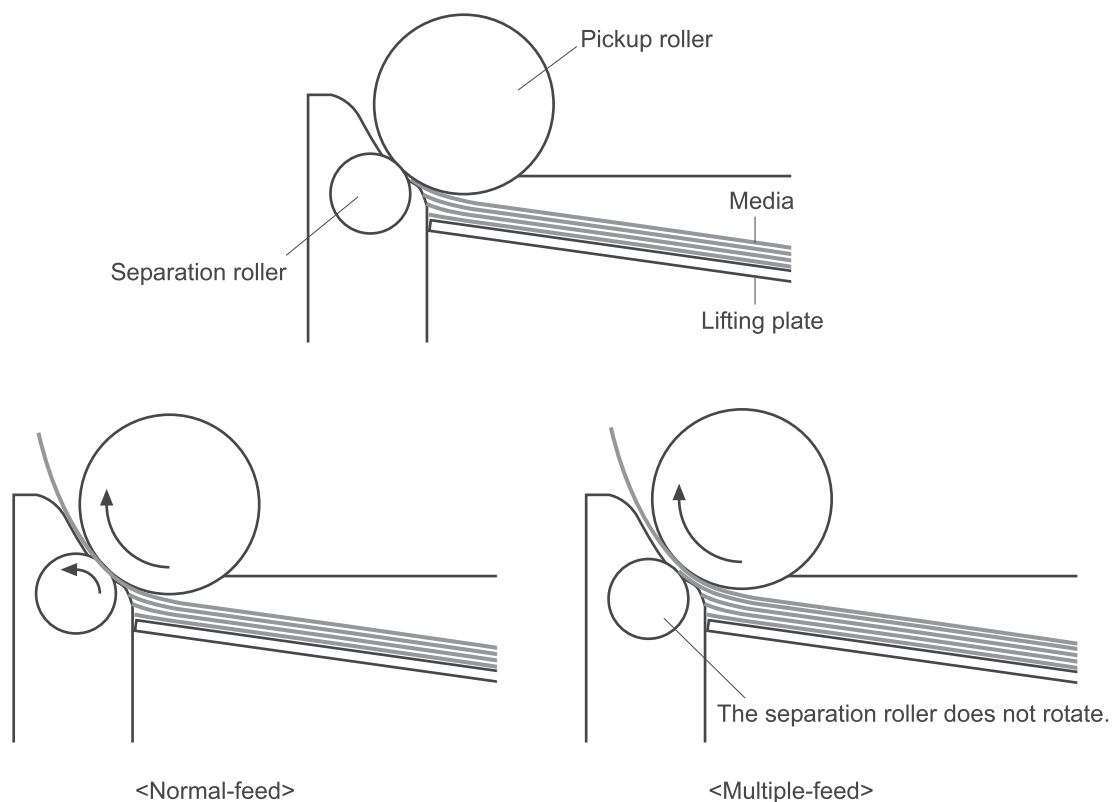
Jam detection

The product uses the following sensors to detect the presence of paper and to check for jams. The page must pass each sensor within a specified time.

NOTE: To find the following components, see .

- PS701; fuser delivery sensor

- PS702; TOP sensor

NOTE: The product automatically ejects paper if the TOP sensor detects residual paper within the product when the power is turned on or the door is closed.

The product detects the following jams:

- Pickup stationary jam

- Delivery delay jam

- Delivery stationary jam

- Fuser wrapping jam

- Door open jam

- Residual media jam

- Duplex reverse delay jam (duplex models only)

- Duplex reverse stationary jam (duplex models only)

- Duplex re-pickup delay jam (duplex models only)

Scanning and image capture system

The flatbed image scanner captures an electronic image of the document on the glass. The scanner does this by illuminating the document with LEDs (red, green, and blue) and capturing the image in the image sensor to create an electronic format of the document. The flatbed scanner consists of three main elements.

● CIS scanner

  The CIS (contact image sensor) scanner captures an image using the product's optical path. Red, green, and blue LEDs sequentially illuminate a small strip of the document (often called a raster line), and the optical system captures each color in a single row of CCD sensors that cover the entire page width. Because only one color is captured for each line per exposure, the three colors are recombined electronically to create the full color image. For monochromatic scans or copies, all three LEDs are illuminated to create a white light for the scan so the raster line can be captured in one exposure.

● Mechanical drive system

  The drive system moves the CIS scanner along the document length to create the image. In this product, the drive system consists of a small DC motor with an optical encoder, which operates a rack and pinion mechanism to move the CIS scanner. The speed of the drive system is proportional to the scan resolution (300 ppi is much faster than 1200 ppi) and also proportional to the type of scan (color scans are slower than monochromatic scans).

  The carriage drive moves the CIS scan head along the document length to create the image. In this product, a small DC motor with an optical encoder creates this motion. The speed of the carriage drive is proportional to the scan resolution (300 ppi is much faster than 600 ppi) and also proportional to the type of scan (color scans are three-times slower than monochromatic scans).

● Image processing system (formatter)

  The formatter processes the scanner data into either a copy or a scan to the computer. For copies, the image data is sent directly to the product without being transmitted to the computer. Depending on user selections for the copy settings, the formatter enhances the scanner data significantly before sending it to the product. Image data is captured at 300 ppi for copies and is user selectable for scans to the computer. Each pixel is represented by 8 bits for each of the three colors (256 levels for each color), for a total of 24 bits per pixel (24-bit color).

Scanner power-on sequence of events

When the product is turned on, it performs the following tests:

● **Motor test**. The product moves the motor left and right to confirm operation. It reports a scanner error 12 if no motion is detected in the motor encoder system.

● **Wall find**. The scan carriage moves slowly to the left while watching an encoder on the carriage motor to determine when the carriage has found the side wall or stop. This enables the product to identify the document origin (position of the original). If the document origin cannot be located, a default position is used instead.

● **LED check**. The product moves the carriage to the white calibration label under the left side of the flatbed image scanner, and it verifies that the minimum and maximum response is acceptable. It reports a scanner error 14 if the response is unacceptable.

● **Home find**. The scan carriage uses the optical scanner to find physical reference features that relate to the document origin at the left side of the image glass. This process ensures accurate location of the

first document pixels so that the user documents will have an accurate placement of the image on scans and copies. It reports a scanner error 6 message if the reference features are not found.

● **Calibration**. This test, also known as scanner color calibration, enables the product to identify the black and white on every pixel in the CCD. Calibration occurs in two major processes: a broad (analog) adjustment of all pixels to bring them into the target output range, and a pixel-by-pixel adjustment (digital) to fine tune the actual black and white response. The calibration process occurs under the left side of flatbed image scanner where there is a special white calibration label.

Calibration is the most important step in creating a high quality image. Calibration problems can include color inaccuracies, brightness inaccuracies, and vertical streaks through the image. The calibration process identifies any bad pixels and enables the image formatter to recreate the lost information from adjacent pixels. Extreme cases of this problem can appear as large vertical streaks or image smears. The user has no control over the calibration process itself or this pixel-replacement process.

Copy or scan sequence of events

To create an accurate rendition of a document, the scanner must be calibrated for the requested operation. If the user selects a scan at 600 ppi color, the flatbed image scanner calibrates for that specific operational mode. Subsequently, the flatbed image scanner automatically re-calibrates for the next requested operation. Calibration does not occur for every new copy request.

Normal sequence of operation for a flatbed copy or scan job includes the following.

1. LEDs illuminate.

2. Carriage motion begins moving the CIS scanner toward the right.

3. Image capture continues for the entire page or length requested in a scan operation.

4. Carriage returns to the home position on the left.

Scanner operation

Figure 1-27 Scanner mechanism
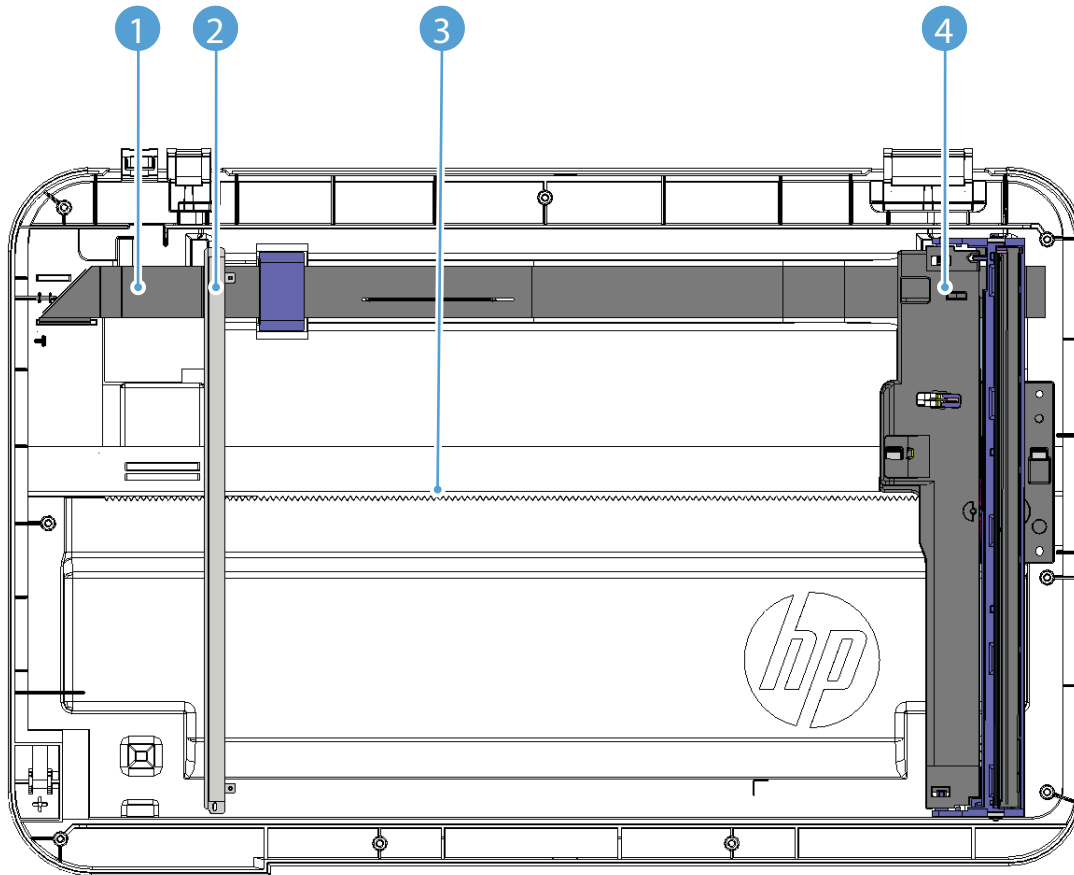
Callout	Description
1	FFC
2	Calibration strip
3	Rack
4	Carriage

At power-on, the CIS scanner moves slowly to the left. The motor encoder is monitored to determine when the scanner has found the left side wall. The scanner then moves to the right and identifies the document origin (position of the original). If the document origin cannot be located, a default position is used.

When a copy/scan is initiated, the product first checks to determine if a document is present in the ADF. If an ADF document is detected, the scanner moves to the left side of the scan tub and scans the image as the document is fed through the ADF.

If no document is detected in the ADF, the scanner acquires the image from the flatbed by scanning while moving from left to right across the flatbed glass.

ADF operation

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

The standard operation of the ADF consists of the standby (paper loading) mode, pick, feed, and lift 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 ADF motor engages the gear train and raises the lift plate until the document makes contact with the pick roller. The ADF then begins the pick, feed, and lower sequence:

● Pick

The pick roller rotates and moves one or more sheets forward into the ADF where the sheets engage with the separation roller. The separation roller contacts the ADF separation pad, which separates multiple sheets into a single sheet.

● Feed

The single sheet continues through the ADF 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 ADF 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.

Note that the ADF will not function when the ADF door is open.

ADF paper path and ADF sensors

The paper-present sensor determines if paper is in the ADF. The form sensor detects the top and bottom edges of the document.

The following diagram shows the ADF paper path.

Figure 1-28 ADF paper path
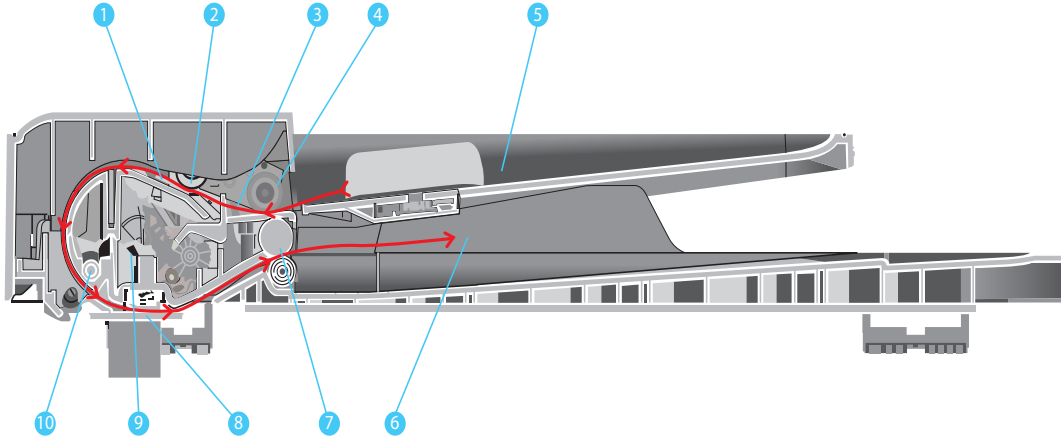
Item	Description
1	Separation pad
2	Separation roller
3	Paper present sensor
4	Pre-feed roller
5	Input area
6	Output area
7	Post-scan roller
8	ADF glass
9	Top-of-Form sensor
10	Pre-scan roller

The paper-present sensor determines if paper has been loaded in the ADF. The top-of-form sensor detects the top and bottom edges of the document.

ADF jam detection

The ADF uses two sensors to determine if a jam has occurred. The paper-present sensor detects the presence of media in the ADF input tray. The top-of-form sensor detects media moving through the ADF. A jam can be detected under any of the following conditions:

- Document feeder mispick

  When a document is detected in the ADF input tray and a command to copy/scan is received, the ADF attempts to pick the page from the input tray. If the page is not picked is not successfully, the ADF will pulse the motor and cycle the lift plate in an attempt to dislodge the stuck page. Three attempts are

made to advance the paper to the form sensor. If the paper does not advance, a **Document feeder mispick** message will appear on the control panel display.

● Long-document jam

   If a page is picked and advanced to the top-of-form sensor, but the trailing edge of the page is not detected within the time allowed for a 381-mm (15-inch) document (the maximum allowable page length for the ADF), a **Document feeder jam** message will appear on the control panel display.

● Stall jam

   When a page that is less than 381 mm (15 inches) long has advanced to the top-of-form sensor but has not left it within the expected period of time, the page has probably stalled or jammed, and a **Document feeder jam** message will appear on the control panel display.

When a jam is detected, the ADF stops feeding paper, and displays a jam message on the control-panel display.

Fax functions and operation

The following sections describe the product fax capabilities.

Computer and network security features

The product 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 product 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 product generates more signaling tones, such as dialing digits, to tell the CO how to connect the call. The product 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 phone systems, the TIP and RING wires appear on pins 3 and 4 of the RJ-11 modular jack (the one on the fax card). These two wires do not have to be polarized because all the equipment works with either TIP or RING on pin 3 and the other wire on pin 4. This means that cables of either polarity can interconnect and will still work.

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

Receive faxes when you hear fax tones

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

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

● If you are near the product, press Start Fax on the control panel.

● Press 1-2-3 in sequence on the extension phone keypad, listen for fax transmission sounds, and then hang up.

📝 **NOTE:** In order for the second method to work, the Extension Phone setting must be set to Yes.

Distinctive ring function

Ring-pattern or distinctive-ring service is available through some local telephone companies. The service allows you to have more than one telephone number on a single line. Each telephone number has a unique ring pattern, so that you can answer voice calls and the product can answer fax calls.

If you subscribe to a ring-pattern service with a telephone company, you must set the product to answer the correct ring pattern. Not all countries/regions support unique ring patterns. Contact the telephone company to determine if this service is available in your country/region.

NOTE: If you do not have ring-pattern service and you change the ring-pattern settings to something other than the default, All Rings, the product might not be able to receive faxes.

The settings are as follows:

- All Rings: The product answers any calls that come through the telephone line.

- Single: The product answers any calls that produce a single-ring pattern.

- Double: The product answers any calls that produce a double-ring pattern.

- Triple: The product answers any calls that produce a triple-ring pattern.

- Double and Triple: The product answers any calls that produce a double-ring or triple-ring pattern.

Set up the distinctive ring function

1. From the Home screen, touch the Setup 🔧 button.

2. Touch the Fax Setup menu.

3. Touch the Basic Setup menu.

4. Touch the Distinctive Ring, and then touch the name of an option.

Fax by using Voice over IP 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 the service supports fax over IP services.

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

The fax subsystem is designed to support V.34 fax transmission, lower 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 product. One is used in the North American, South American, and Asia Pacific 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 phone 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 product 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 phone line). The fax card protection circuitry provides margin against combinations of over-voltage and over-current 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 SIDACTOR) provides differential protection. This product 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 either through 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 phone 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 product takes control of calls that it recognizes as fax calls. If the product 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 product is on-hook but current exists in the downstream phone 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 product 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 phone that is connected to the product without being cut off if a fax is not being received.

Downstream current 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 product (the right side of the RJ-11 jack). The DSP uses the signal to ensure that the product does not go off-hook (and disconnect 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 works 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 product goes on-hook.

Billing- (metering-) tone filters

Switzerland and Germany provide high-frequency AC signals on the phone 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 product 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 product, 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 product 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 product 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 send, the product will resend the fax in case of errors. The product 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 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 product experiences other errors while printing faxes.

The product 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 is 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.

USB flash drive

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

- PDF

- RGB JPEG

When a USB flash drive is inserted into the front of the product, the control panel will display the USB Flash Drive menu. The files present on the USB flash drive can be accessed from the control panel using the touch screen. Any RGB jpeg or pdf files on the USB flash drive can be printed directly from the product control panel. Pages also can be scanned and saved to the USB flash drive from the control panel.

2 Solve problems

Troubleshooting process

Pre-troubleshooting checklist

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

General topic	Questions
Environment	• Is the product installed on a solid, level surface (+/- 1°)?
	• Is the power-supply voltage within ± 10 volts of the specified power source?
	• Is the power-supply plug inserted in the product and the outlet?
	• Is the operating environment within the specified parameters?
	• Is the product exposed to ammonia gas, such as that produced by diazo copiers or office cleaning materials?
	NOTE: Diazo copiers produce ammonia gas as part of the copying processes. Ammonia gas (from cleaning supplies or a diazo copier) can have an adverse affect on some product components (for example, the print-cartridge OPC).
	• Is the product exposed to direct sunlight?
Media	• Does the customer use only supported media?
	• Is the media in good condition (no curls, folds, or distortion)?
	• Is the media stored correctly and within environmental limits?
Input trays	• Is the amount of media in the tray within specifications?
	• Is the media correctly placed in the tray?
	• Are the paper guides aligned with the stack?
	• Is the cassette correctly installed in the product?
Toner cartridges	• Is each toner cartridge installed correctly?
Transfer unit and fuser	• Are the transfer unit and fuser installed correctly?
Covers	• Is the front cover closed?
Condensation	• Does condensation occur following a temperature change (particularly in winter following cold storage)? If so, wipe affected parts dry or leave the product on for 10 to 20 minutes.
	• Was the toner cartridge opened soon after being moved from a cold to a warm room? If so, allow the toner cartridge to sit at room temperature for 1 to 2 hours.
Miscellaneous	• Check for and remove any non-HP components (toner cartridges, memory modules, and EIO cards) from the product.
	• If the hardware or software configuration has not changed or the problem is not associated with any specific software, see the complete service manual for this product.
	• Remove the product from the network and ensure that the failure is associated with the product before beginning troubleshooting.
	• For any print-quality issues, calibrate the product.

Determine the problem source

When the product malfunctions or encounters an unexpected situation, the product 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 section of this chapter that contain steps tocorrect the malfunction.

Before beginning any troubleshooting procedure, check the following issues:

- Are supply items within their rated life?

- Does the configuration page reveal any configuration errors?

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

Troubleshooting flowchart

This flowchart highlights the general processes to follow to quickly isolate and solve product 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 product on and does a readable message display?		Follow the power-on troubleshooting checks. See Power-on checks on page 52. 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**	Open the Troubleshooting menu and print an event log to see the history of errors with this product. Does the event log print?		If the event log does not print, check for error messages. If paper jams inside the product, see the jams section of the product service manual. If error messages display on the control panel when trying to print an event log, see the control panel message section of the product troubleshooting service manual. After successfully printing and evaluating the event log, see step 4.
	Yes ↓	No →	
4 **Information pages**	Open the Reports menu and print the configuration pages to verify that all the accessories are installed. Are all the accessories installed?		If accessories that are installed are not listed on the configuration page, remove the accessory and reinstall it. After evaluating the configuration pages, see step 5.
	Yes ↓	No →	

Table 2-1 Troubleshooting flowchart (continued)

| 5

Print quality	Does the print quality meet the customer's requirements?		Compare the images with the sample defects in the image defect tables. See the images defects table in the product service manual.
	Yes ↓	No →	After the print quality is acceptable, see step 6.
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. |
| | Yes. This is the end of the troubleshooting process. | No → | If error messages display on the control panel when trying to print an event log, see the control-panel message section of the product troubleshooting service manual.

When the customer can print from the host computer, this is the end of the troubleshooting process. |

Power subsystem

Power-on checks

Turn on the power. If the control-panel LEDs do not illuminate, perform the power-on checks to find the cause of the problem.

1.   Verify that the product is plugged into an active electrical outlet that delivers the correct voltage.

2.   Verify that the power switch is in the on position.

3.   Make sure that the product makes the expected start-up sounds.

> **NOTE:**   The overcurrent/overvoltage protection circuit in the low-voltage power supply unit might be functioning. Turn the product off, unplug the power cord, and turn the product on. If the product does not function, the fuse melts, or the power supply is malfunctioning, replace the engine controller unit.

Control-panel checks

Use the product control panel to conduct tests on the control panel LEDs, display, or buttons.

> **NOTE:**   When the menus are accessed, some of the touchscreen buttons located along the sides of the control-panel display are not illuminated. Use the figure below to locate the Cancel ✕ button and the left arrow button to access the control-panel tests.

Figure 2-1 Control-panel 2ndary Service test access buttons

1. From the Home screen on the product control panel, touch the Setup 🔧 button.

2. From the Setup Menu screen, simultaneously touch the non-illuminated left arrow button ◀ and the Cancel ✕. This will activate the 2ndary Service Menu.

3. After touching both buttons, the Home screen appears. Touch the Setup Menu icon to access the 2ndary Service Menu bar.

4. From the Service Menu, touch the 2ndary Service menu bar.

Tools for troubleshooting

Individual component diagnostics

Engine diagnostics

Printing test pages helps you determine whether or not the product engine and the formatter are functioning. 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.

NOTE: Information pages also can be used to solve product issues. For information about printing information pages, see the product user guide.

Engine-test button

NOTE: The product has a firmware engine-test button that is activated by opening and closing the print-cartridge door in a specific pattern.

HP LaserJet Pro MFP M225/M226 Printer series

1. Make sure that paper is correctly loaded in the tray.

2. Make sure that the output bin tray extension is in the open position.

3. Turn the product on. Wait for the product to reach the ready state.

4. Open, and then close the print-cartridge door six times at an interval of about two seconds to start the engine-test.

5. If the engine test is successful, an engine-test page prints with a series of vertical lines across the page.

Figure 2-2 Sample engine test page
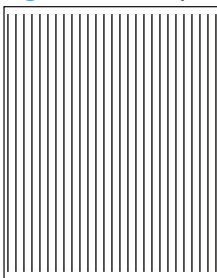
HP LaserJet Pro M201/M202 Printer series

1. Make sure that paper is correctly loaded in the tray.

2. Make sure that the output bin tray extension is in the open position.

3. Turn the product on. Wait for the product to reach the ready state.

4. Open, and then close the print-cartridge door five times at an interval of about two seconds to activate the internal engine-test button.

5. If the engine test is successful, an engine-test page prints with a series of vertical lines across the page.

Components tests

Drum rotation functional check

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

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

1. Open the print-cartridge door.

2. Remove the print cartridge.

3. Mark the drive gear on the cartridge with a felt-tipped marker. Note the position of the mark.

4. Replace the print cartridge and close the print-cartridge door. The startup sequence should rotate the drum enough to move the mark.

5. Open the print-cartridge door and inspect the gear that was marked in step 3. Verify that the mark moved.

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

Half self-test functional check

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

1. Print a Configuration page.

2. Open the print-cartridge-door after the paper advances halfway through the product (about five seconds after the motor begins rotating). The leading edge of the paper should have advanced past the print cartridge.

3. Remove the print cartridge.

4. Open the print cartridge drum shield to view the drum surface. If a dark and distinct toner image is present on the drum surface, assume that the first two functions of the electrophotographic process are functioning (image formation and development). Troubleshoot the failure as a transfer or fusing problem.

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

1. Make sure you removed the entire length of the sealing tape from the print cartridge before you installed the cartridge.

2. Perform a drum rotation functional check to make sure that the drum is rotating.

3. Make sure that the high-voltage contacts are clean and not damaged.

Diagrams

Location of connectors

Figure 2-3 Engine controller PCA connectors (M201, M202)
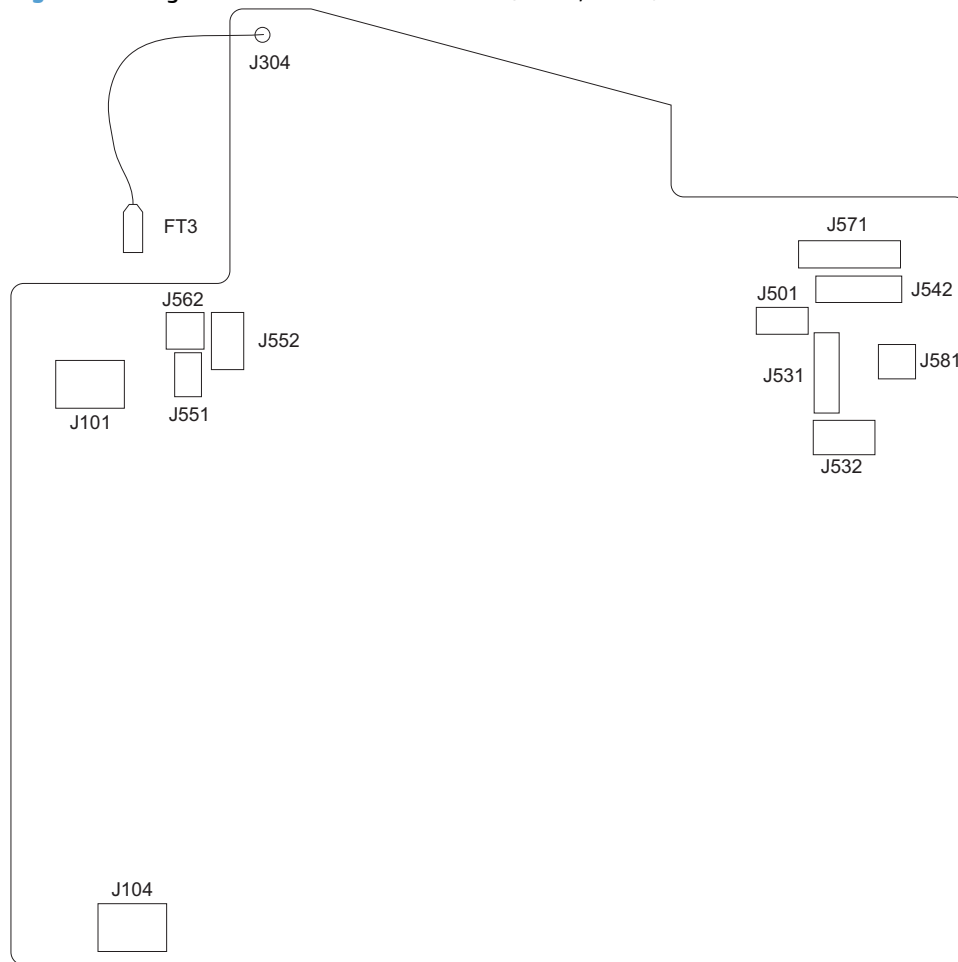
Item	Description	Item	Description
J101	Fuser	J552	Media-width sensor
J104	Power inlet		Fuser delivery sensor
J501	Not used		Thermistor
J531	Formatter	J562	Pickup solenoid
J532	Formatter	J571	Motor drive PCA
J542	Laser/scanner assembly	J581	E-label
J551	TOP sensor		

Figure 2-4 Engine controller PCA connectors (M225, M226)
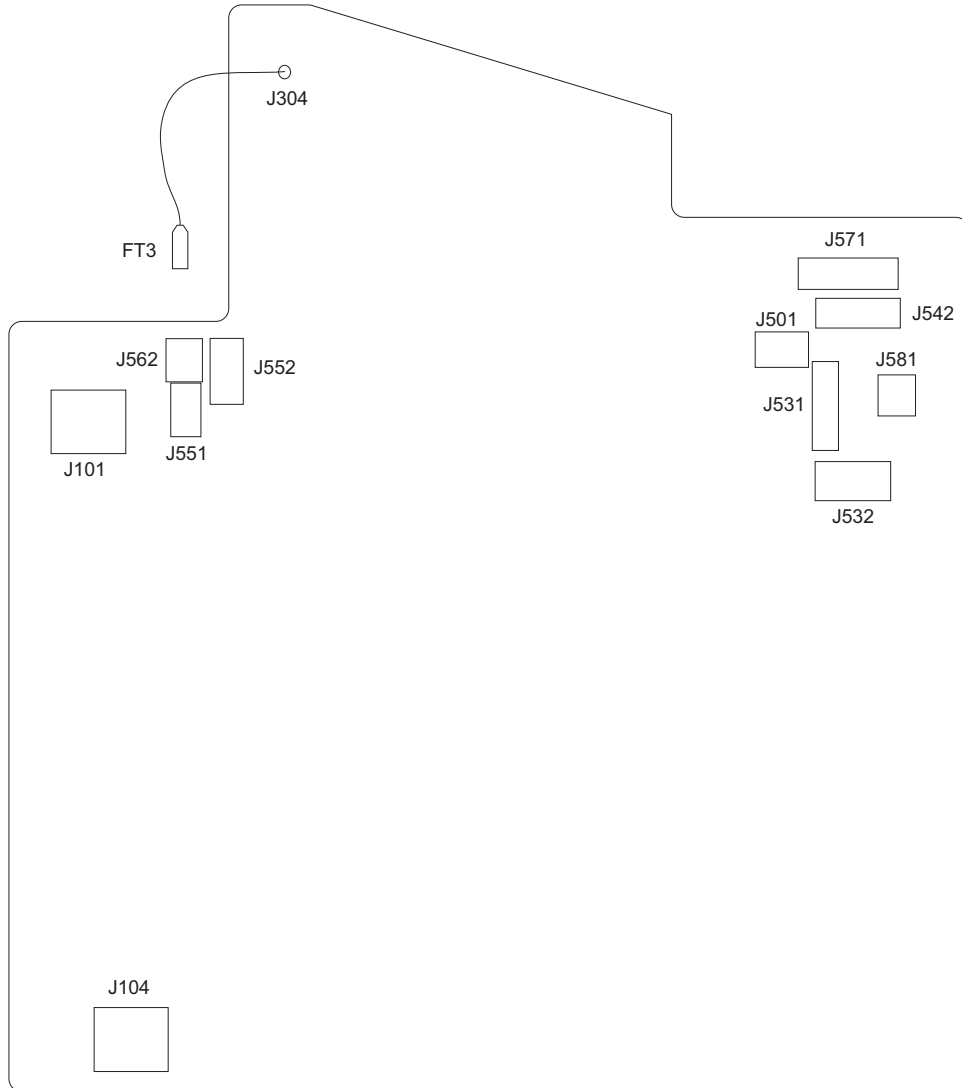
Item	Description	Item	Description
J101	Fuser	J552	Media-width sensor
J104	Power inlet		Fuser delivery sensor
J501	Not used		Thermistor
J531	Formatter	J562	Pickup solenoid
J532	Formatter	J571	Motor drive PCA
J542	Laser/scanner assembly	J581	E-label
J551	TOP sensor		

Plug/jack locations

Figure 2-5 Plug/jack locations (print-only products)

**M201dw
M202dw**

**M201n
M202n**
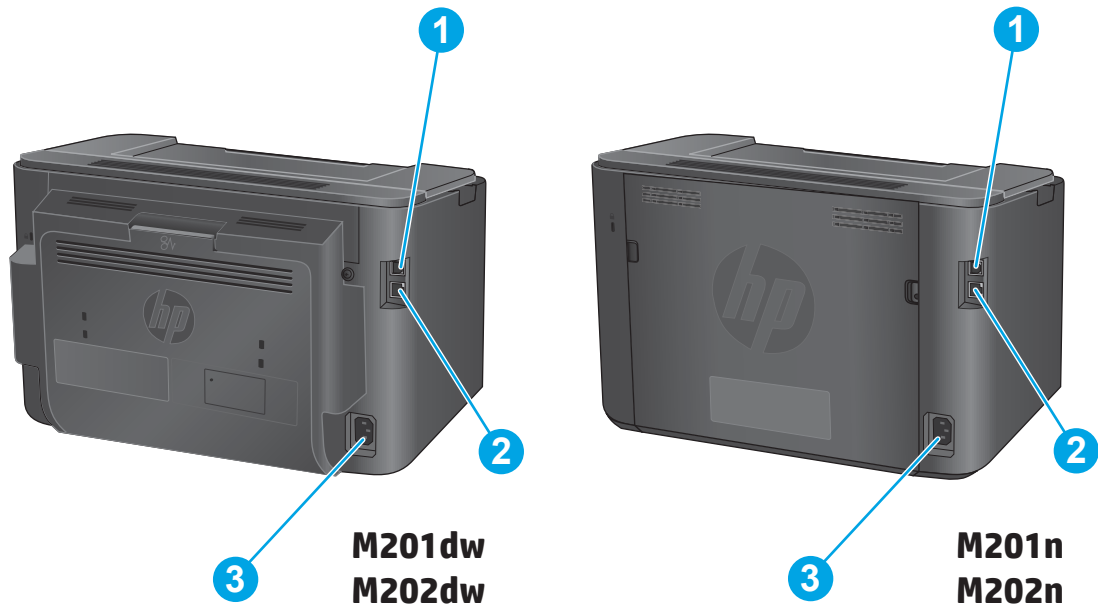
Item	Description
1	High-speed USB 2.0 port
2	Ethernet port
3	Power connection

Figure 2-6 Plug/jack locations (MFP products)

M225dn M225dw
M225rdn M226dw
M226dn
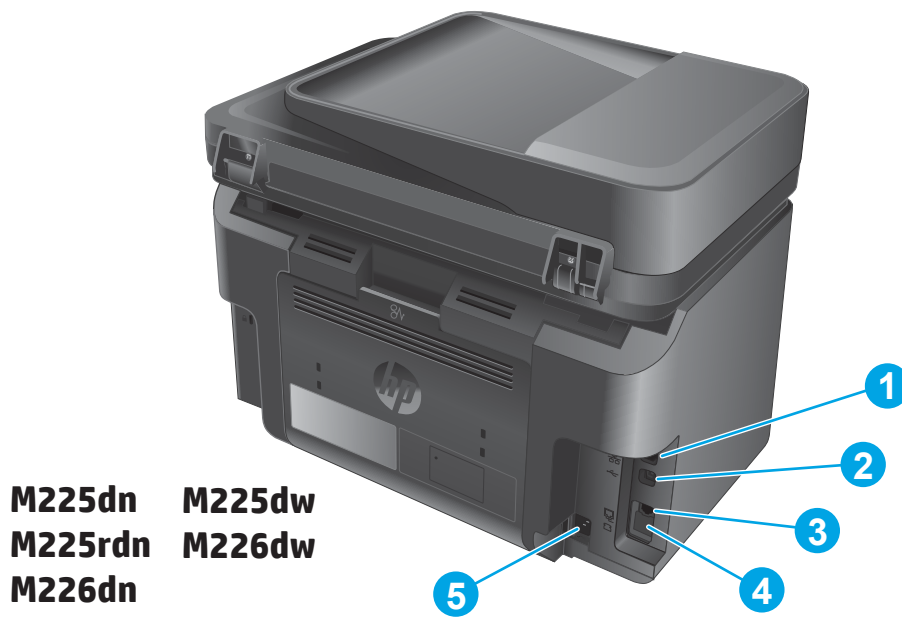
Item	Description
1	Ethernet port
2	Hi-Speed USB 2.0 port
3	Fax "line in" port
4	Telephone "line out" port
	NOTE: This port is covered with a rubber cap. Pull the cap down from the top edge to access the port.
5	Power connection

Locations of major components

Main assemblies
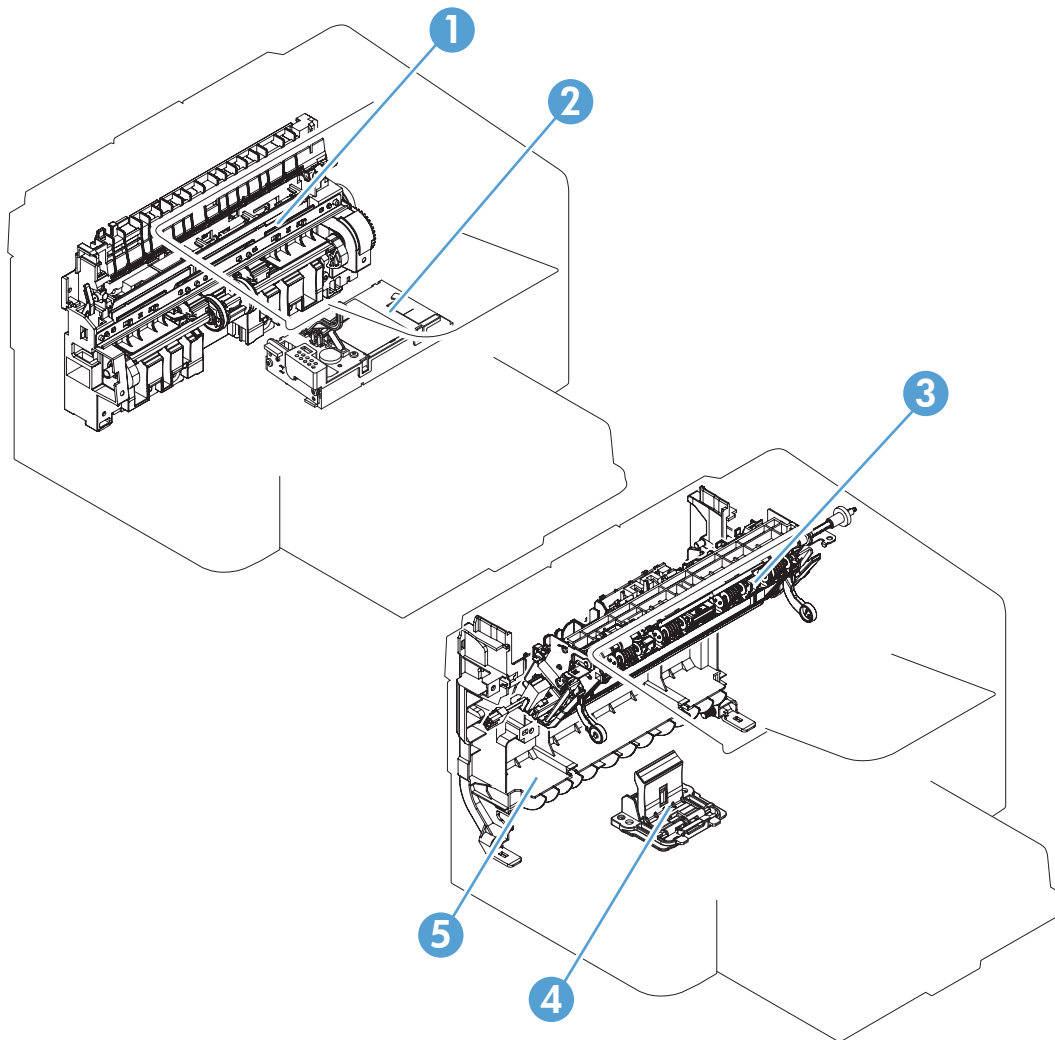
1	Pickup unit
2	Laser scanner unit
3	Fuser
4	Separation pad
5	Duplex frame unit
	NOTE: Duplex models only

Figure 2-8 Rollers, solenoids, and fan
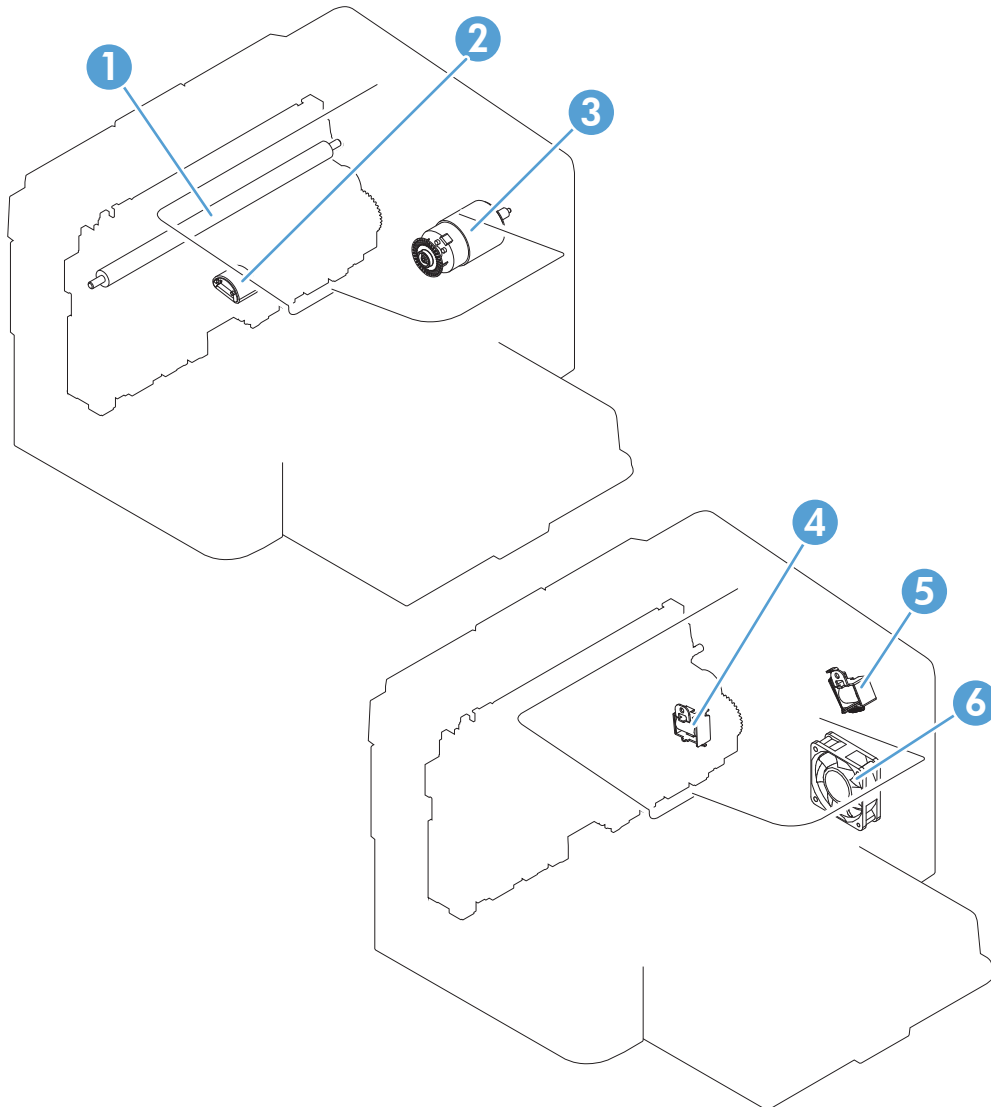
1	Transfer roller
2	Pickup roller
3	Main motor
4	Pickup solenoid
5	Duplex reverse solenoid
6	Main fan
	NOTE: MFP products only

Figure 2-9 PCA locations
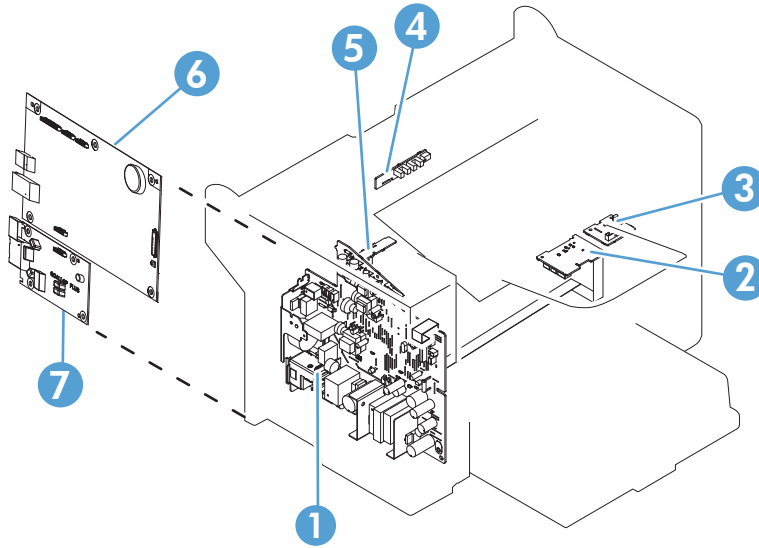
1	Engine controller PCA
2	Motor PCA
3	Duplexing PCA
4	Delivery sensor PCA
5	Paper pickup sensor PCA
6	Formatter PCA
7	Fax card PCA
	NOTE: MFP products only

Figure 2-10 Cross section view (M201, M202)

Item	Description	Item	Description
1	Duplex feed assembly **NOTE:** Duplex models only.	7	Print cartridge
2	Duplex feed roller **NOTE:** Duplex models only.	8	Laser/scanner
3	Pressure roller	9	Pickup roller
4	Fuser film assembly	10	Separation pad
5	Delivery roller	11	Feed roller
6	Photo sensitive drum	12	Transfer roller

Figure 2-11 Cross section view (M225, M226)

Item	Description	Item	Description
1	Duplex feed assembly **NOTE:** Duplex models only.	7	Print cartridge
2	Duplex feed roller **NOTE:** Duplex models only.	8	Laser/scanner
3	Pressure roller	9	Pickup roller
4	Fuser film assembly	10	Separation pad
5	Delivery roller	11	Feed roller
6	Photo sensitive drum	12	Transfer roller

General timing charts

Figure 2-12 General timing diagram
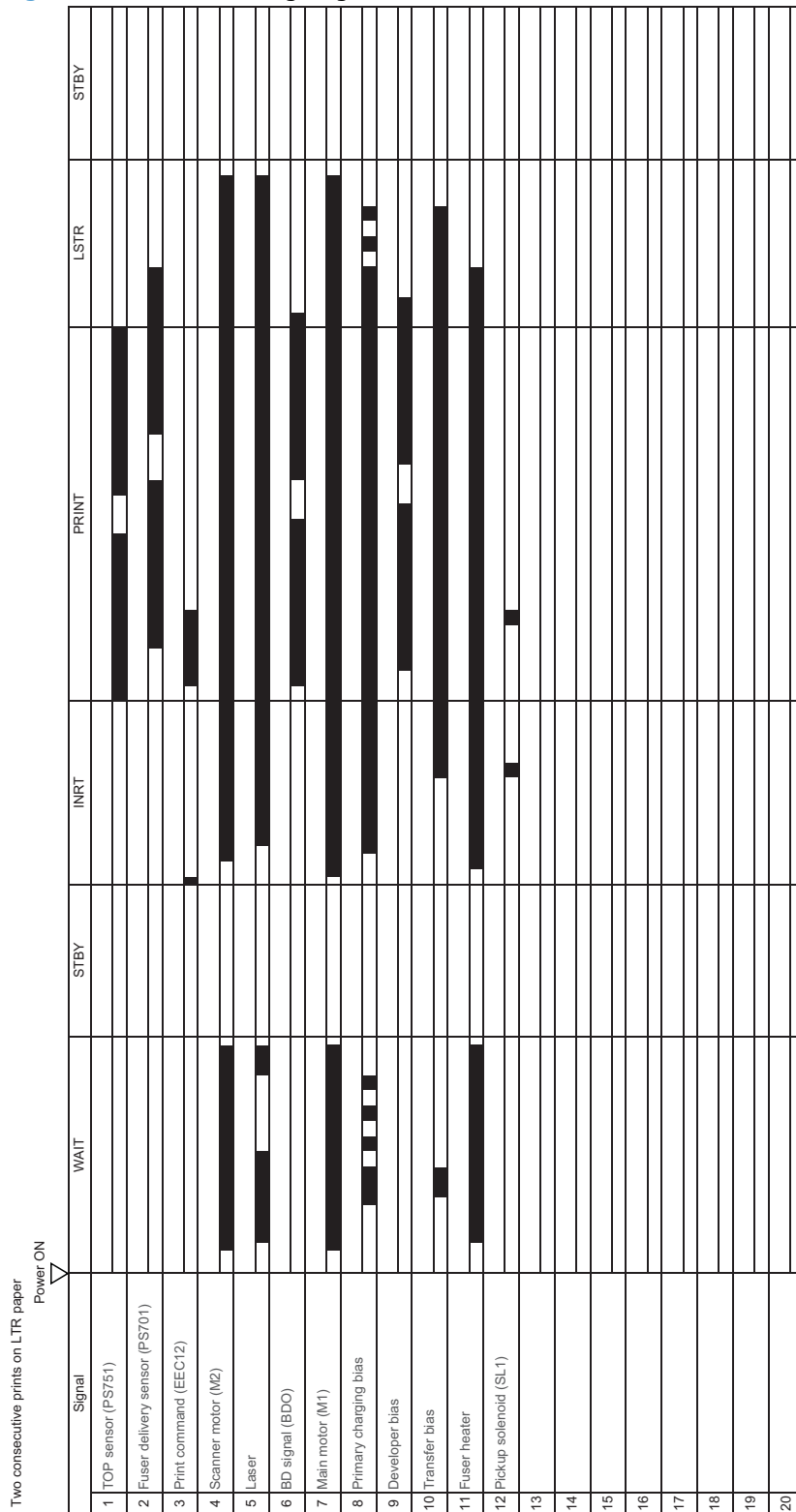
Figure 2-13 Circuit diagram (M201, M202)
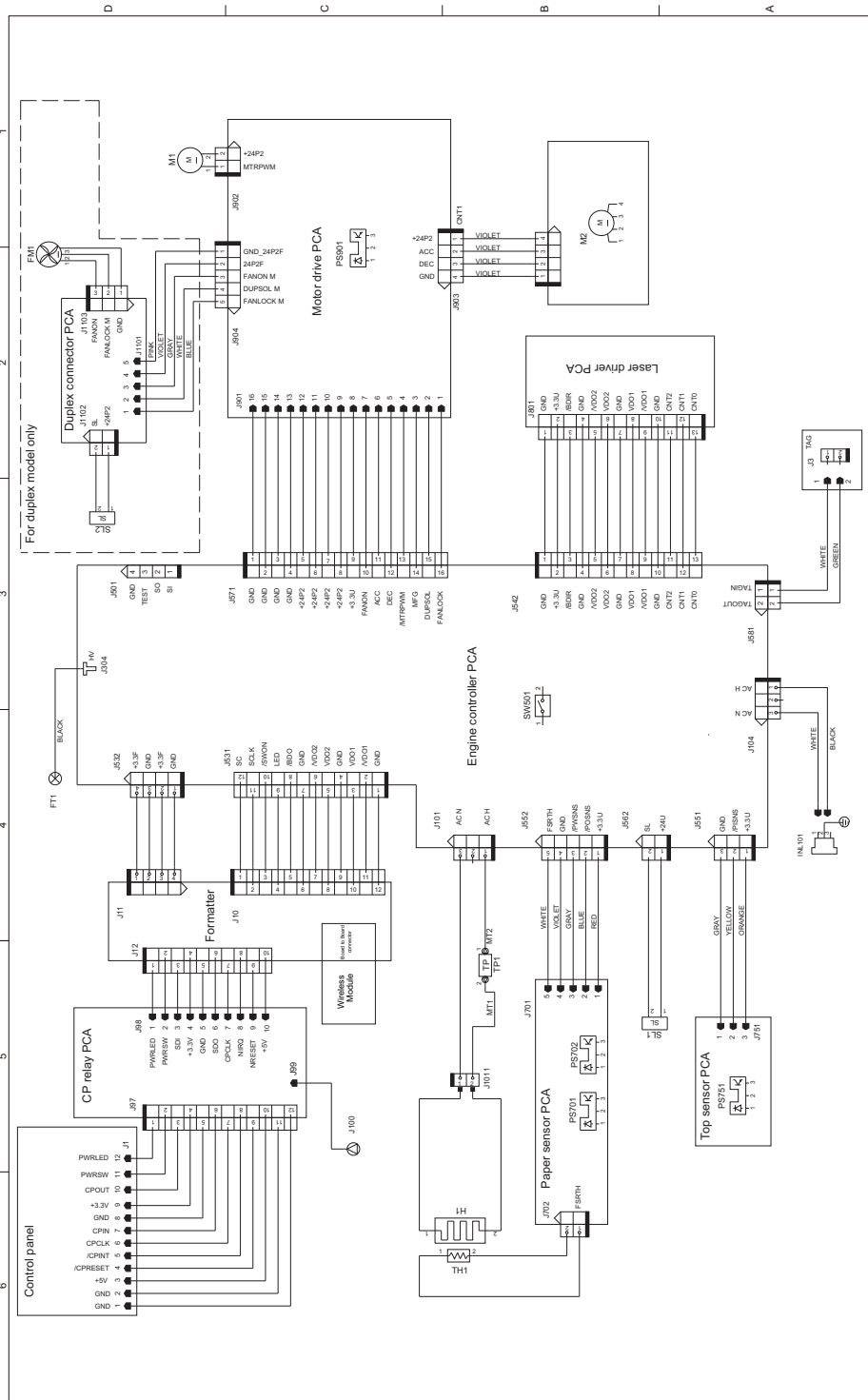
Figure 2-14 Circuit diagram (M225, M226)
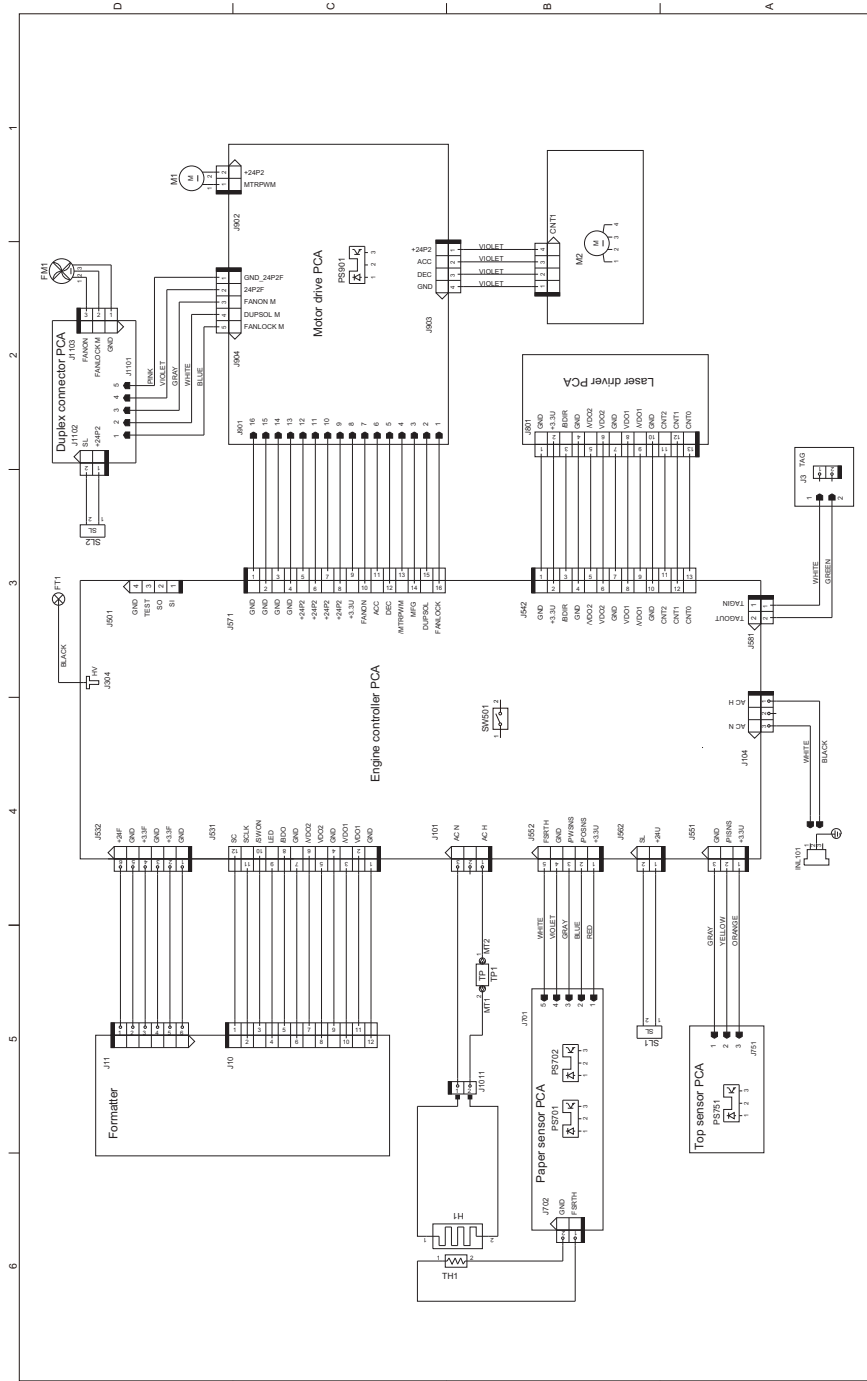
Advanced configuration with HP Embedded Web Server (EWS) and HP Device Toolbox (Windows)

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

- View product status information

- Determine the remaining life for all supplies and order new ones

- View and change tray configurations

- View and change the product control-panel menu configuration

- View and print internal pages

- Receive notification of product and supplies events

- View and change network configuration

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

When the product 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 product. Depending on how the product 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
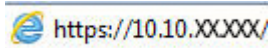
1. Click the **Start** button, and then click the **Programs** item.

2. Click your HP product group, and then click the **HP Device Toolbox** item.

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

1. LCD control panels: On the product control panel, press the Setup ⚙ button. Open the **Network Setup** menu and then select **Show IP Address** to display the IP address or host name.

    Touchscreen control panels: From the Home screen on the product control panel, touch the Network ⊶ button to display the IP address or host name.

2. Open a Web browser, and in the address line, type the IP address or host name exactly as it displays on the product control panel. Press the Enter key on the computer keyboard. The EWS opens.

    🌐 https://10.10.XXXXX/

Tab or section	Description
Home tab Provides product, status, and configuration information.	- **Device Status**: Shows the product 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 product configuration page. - **Network Summary**: Shows the information found on the product network configuration page. - **Reports**: Print the configuration and supplies status pages that the product generates. - **Event Log**: Shows a list of all product events and errors.

Tab or section	Description
System tab Provides the ability to configure the product from your computer.	● **Device Information**: Provides basic product and company information. ● **Paper Setup**: Change the default paper-handling settings for the product. ● **Print Quality**: Change the default print-quality settings for the product. ● **EcoSMART Console**: Change the default times for entering Sleep mode or Auto Power Down mode. Configure which events cause the product to wake. ● **Paper Types**: Configure print modes that correspond to the paper types that the product accepts. ● **System Setup**: Change the system defaults for the product. ● **Service**: Perform the cleaning procedure on the product. ● **Save and Restore**: Save the current settings for the product to a file on the computer. Use this file to load the same settings onto another product or to restore these settings to this product at a later time. ● **Administration**: Set or change the product password. Enable or disable product features. **NOTE:** The **System** tab can be password-protected. If this product is on a network, always consult with the administrator before changing settings on this tab.
Print tab Provides the ability to change default print settings from your computer.	● **Printing**: Change the default product 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.
Fax tab (Fax products only)	● **Receive Options**: Configure how the product 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 product. ● **Fax Activity Log**: Review recent fax activity for the product.
Scan tab (touchscreen models only)	Configure the Scan to Network Folder and Scan to E-mail features. ● **Network Folder Setup**: Configure folders on the network to which the product 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 product. 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 products only) Provides the ability to change network settings from your computer.	Network administrators can use this tab to control network-related settings for the product 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 product is directly connected to a computer.
HP Web Services tab	Use this tab to set up and use various Web tools with the product.

Internal print-quality test pages

Cleaning page

If you are experiencing toner specks or dots on the printouts, clean the paper path. This process uses a transparency to remove dust and toner from the paper path. Do not use bond or rough paper.
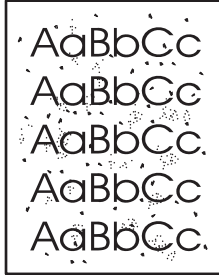
📝 **NOTE:** For best results use a sheet of transparency. If you do not have any transparencies, you can use copier-grade paper (60 to 163 g/m² (16 to 43 lb)) that has a smooth surface.

1. Make sure that the product is idle and the ready light ⟲ is on.

   📝 **NOTE:** If the product is in the auto-off state, the ready light ⟲ is off.

2. Load paper in the input tray.

3. Open the product **Properties**.

4. Click the **Device Settings** tab.

5. In the **Cleaning Page** area, click the **Start** button to process the cleaning page.

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

Configuration page

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

- Press and hold the go button ⤓ when the ready light ⟲ is on and no other jobs are printing. Release the go button ⤓ when the ready light ⟲ begins blinking. The configuration page prints.

- Select **Config Page** from the **Print Information Pages** drop-down on the **Services** tab in the product Preferences.

- **HP LaserJet Pro M201/M202 Printer series series only**: Open the embedded Web server, click the **Information** tab, and then select **Print Info Pages**. Click the **Print** button next to **Print Configuration Page**.

Print-quality troubleshooting tools

Repetitive defect ruler

If the product output has a consistent, repetitive defect, then use the table in this section to determine which part needs to be replaced based on the measured distance between the repetitions of the defect.

Component	Distance between defects (mm)	Type of defects
Primary charging roller	About 27	Dir on page
		Dropouts
Photosensitive drum	About 75	Dirt on page
		Dropouts
Developing roller	About 34	Dirt on page
		Dropouts
Transfer roller	About 39	Dropouts
		Dirt on the back of page
Fuser film	About 57	Dirt on page
		Dropouts
		Loose toner
Pressure roller	About 56	Dirt on the back of page
		Loose toner

Control panel menus

Print product reports and menu maps

To enable you to more easily navigate to individual settings, you can print a report of the complete menu structure:

1.   From the Home screen on the product control panel, touch Service.

2.   Touch Reports.

3.   Touch Menu Structure. The product prints the menu structure report.

4.   To return to the Home screen, touch the Home button.

Tools for troubleshooting: Control panel menus

Setup menu

To open this menu, touch the Setup 🔧 button. The following sub-menus are available:

●   HP Web Services

●   Reports

- Self Diagnostics

- Fax Setup

- System Setup

- Service

- Network Setup

- Quick Forms

HP Web Services menu

NOTE: This menu is also available by touching the Web Services 🖨 button on the Home screen.

Table 2-2 HP Web Services menu

Menu item	Description
Enable Web Services	If no wired or wireless network connection is available or if Web Services is disabled, use Enable Web Services to set up Web Services on the product. **NOTE:** You must be connected to a network to enable HP Web Services.
Display E-mail Address	If Web Services is enabled, this option displays the product ePrint email address.
Print Information Sheet	If Web Services is enabled, this option prints the HP ePrint mobile printing report. Use this report to setup ePrint in ePrint Center.
Turn ePrint On/Off	If Web Services is enabled, use this option to turn the ePrint function on or off.
Turn Apps On/Off	If Web Services is enabled, use this option to turn apps on or off.
Remove Web Services	If Web Services is enabled, use this option to disable Web Services and remove the ePrint address.
Proxy Settings	The Proxy Settings sub-menu includes the following: • Proxy Server • Proxy Port • User Name • Password

Reports menu

Table 2-3 Reports menu

Menu item	Description
Demo Page	Prints a page that demonstrates print quality.
Fax Reports	Prints various fax reports. Report options include the following: • Fax Activity Report • Phone Book
Menu Structure	Prints a map of the control panel-menu layout. The active settings for each menu are listed.

Table 2-3 Reports menu (continued)

Menu item	Description
Configuration Report	Prints a list of all the product settings. Includes basic network information when the product is connected to a network.
Supplies Status	Prints the status for each toner cartridge, including the following information: ● Estimated percentage of cartridge life remaining ● Approximate pages remaining ● Part numbers for HP toner cartridges ● Number of pages printed
Network Summary	Prints a list of all product network settings
Usage Page	Prints a page that lists PCL pages, PCL 6 pages, PS pages, pages that were jammed or mispicked in the product, monochrome (black and white) or color pages; and reports the page count
PCL Font List	Prints a list of all the PCL fonts that are installed
PS Font List	Prints a list of all the PostScript (PS) fonts that are installed
PCL6 Font List	Prints a list of all the PCL6 fonts that are installed
Color Usage Log	Prints a report that shows the user name, application name, and color usage information on a job-by-job basis
Service Page	Prints the service report
Diagnostics Page	Prints the calibration and color diagnostics pages
Print Quality Page	Prints a page that helps solve problems with print quality
Default Info Page	Prints a page that lists the default settings for the product.

Self Diagnostics menu (MFP products only)

Table 2-4 Self Diagnostics menu

Menu item	Description
Run Wireless Test	Performs a wireless network test and prints the results.
Run Fax test	Performs a fax connectivity test and prints the results.

Fax Setup menu (MFP products only)

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

Table 2-5 Fax Setup menu

Menu item	Sub-menu item	Sub-menu item	Description
Fax Set-Up Utility			This is a tool for configuring the fax settings. Follow the on-screen prompts and select the appropriate response for each question.

Table 2-5 Fax Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Basic Setup	Time/Date	12 Hour	Sets the time and date setting for the product.
		24 Hour	
	Fax Header		Sets the identifying information that is sent to the receiving product.
	Answer Mode	Automatic* Manual TAM Fax/Tel	Sets the type of answer mode. The following options are available: ● Automatic: The product automatically answers an incoming call on the configured number of rings. ● Manual: The user must touch the Start Fax button or use an extension phone number to make the product answer the incoming call. ● TAM: A telephone answering machine (TAM) is attached to the Auxiliary phone port of the product. The product 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 product 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 product 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.
	Distinctive Ring	All Rings* Single Double Triple Double and Triple	If you have distinctive ring phone service, use this item to configure how the product responds to incoming calls. ● All Rings: The product answers any calls that come through the telephone line. ● Single: The product answers any calls that produce a single-ring pattern. ● Double: The product answers any calls that produce a double-ring pattern. ● Triple: The product answers any calls that produce a triple-ring pattern. ● Double and Triple: The product 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 product.

Table 2-5 Fax Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Advanced setup	Fax Resolution	Standard Fine* Superfine Photo	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.
	Lighter/Darker		Sets the darkness for outgoing faxes.
	Fit to Page	On* Off	Shrinks incoming faxes that are larger than the paper size set for the tray.
	Glass Size	Letter* A4	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 product setup.
	Dialing Mode	Tone* Pulse	Sets whether the product should use tone or pulse dialing.
	Redial if Busy	On* Off	Sets whether the product should attempt to redial if the line is busy.
	Redial if No Answer	On Off*	Sets whether the product should attempt to redial if the recipient fax number does not answer.
	Redial if Comm. Error	On* Off	Sets whether the product should attempt to redial the recipient fax number if a communication error occurs.
	Detect Dial Tone	On* Off	Sets whether the product should check for a dial tone before sending a fax.
	Billing codes	On Off*	Enables the use of billing codes when set to On. A prompt appears where you can enter the billing code for an outgoing fax.
	Extension Phone	On* Off	When this feature is enabled, the 1-2-3 buttons on the extension phone may be pressed to cause the product to answer an incoming fax call.
	Stamp Faxes	On Off*	Sets the product to print the date, time, sender's phone number, and page number on each page of incoming faxes.
	Private Receive	On Print faxes Off*	Setting Private Receive to On requires you to set a product password. After setting the password, the following options are set: ● Private Receive is turned on. ● All old faxes are deleted from memory. ● Fax forwarding is set to Off and is not allowed to be changed. ● All incoming faxes are stored in memory.

Table 2-5 Fax Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
	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 product should stop sounding the Fax/Tel audible ring to notify the user of an incoming voice call.
		30	
		40	
		70	
	Print duplex	On	Sets duplex printing as the default for faxes.
		Off*	**NOTE:** Duplex models only.
	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 2-6 System Setup menu

Menu item	Sub-menu item	Sub-menu item	Description
Language	(Lists available control-panel display languages.)		Sets the language in which the control panel displays messages and product 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.
		A4	
		Legal	**NOTE:** The default setting is determined by the choice of location during the initial product setup.
	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.

Table 2-6 System Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
	Tray 1	Paper Type	Paper Type and Paper Size select the default type and size for Tray 1 from the list of available sizes and types.
		Paper Size	
		Paper Out Action	Paper Out Action determines how the product reacts when a print job requires a paper size or type that is unavailable or when the tray is empty. Available options:
			● Wait forever : The product 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	Adjust Alignment	Print Test Page	Use this menu to shift the margin alignment to center the image on the page from top to bottom and from left to right. Before adjusting these values, print a test page. It provides alignment guides in the X and Y directions so you can determine which adjustments are necessary.
		Adjust Tray 1	Enter the amount to shift the margin alignment to center the image on the page. Available options:
			● X1 Shift : Center the image from side to side on a single-sided page or for the second side of a two-sided page.
			● X2 Shift : Center the image from side to side on the first side of a two-sided page.
			● Y Shift : Center the image from top to bottom on the page.
Energy Settings	Sleep/Auto Off After	5 Minutes	Specifies the amount of idle time before the product enters sleep mode.
		15 Minutes	
		30 Minutes	
		60 Minutes	
	Wake Events	Control Panel Touch	Select the events that bring the product out of sleep mode.
		USB Job	
		LAN Job	
		Wireless Job	
		Fax	

Table 2-6 System Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
	Shut Down After	Never	Set the amount of elapsed time before the product turns itself off.
		2 Hours	
		4 Hours	
		8 Hours	
Print Density			Determines how much toner to apply to thicken lines and edges.
Supply Settings	Black Cartridge	Very Low Setting	• Stop: The product stops printing until you replace the toner cartridge. • Prompt: The product stops printing and prompts you to replace the toner cartridge. You can acknowledge the prompt and continue printing. • Continue* The product alerts you that the toner cartridge is very low, but it continues printing.
		Low Threshold	Enter a percentage for the low threshold setting.
	Store Usage Data	Not on Supplies*	Select where to store the product's usage data, either on the supplies or not on the supplies.
		On Supplies	
Volume Settings	Alarm Volume		Set the volume levels for the product. The following options are available for each volume setting: • Off • Soft* • Medium • Loud
	Ring Volume		
	Key-Press Volume		
	Phone Line Volume		
Time/Date	12 Hour		Sets the time and date setting for the product.
	24 Hour		
Administration	Product Security	• On	Enable or disable the password feature.
		• Off*	
	USB Flash Drive	• On*	Enable or disable the USB Flash Drive feature.
		• Off	
	Disable Fax	• On	Enable or disable the fax feature.
		• Off*	
	Scan to Network Folder	• On*	Enable or disable the Scan to Network Folder feature.
		• Off	
	Scan to email	• On*	Enable or disable the Scan to email feature.
		• Off	

Table 2-6 System Setup menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Inactivity Timer			Enable or disable the inactivity timer. (If a user is signed in and walks away, the inactivity timer automatically signs the user out.)
Courier Font			Adjust the display font contrast.

Service menu

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

Table 2-7 Service menu

Menu item	Sub-menu item	Sub-menu item	Description
Fax Service NOTE: MFP products only	Clear Saved Faxes		Clears all faxes in memory.
	Run Fax Test		Performs a fax test to verify that the phone cord is plugged in 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		Prints or schedules a report that is used to troubleshoot fax transmission issues. Schedule options include the following: • Now • Never* • If Error • At End of Call
	Error Correction		The error correction mode allows the sending device to re-transmit data if it detects an error signal.
	Fax Service Log		The fax service log prints out the last 40 entries in the fax log.
Cleaning Page			Cleans the product when specks or other marks appear on printed output. The cleaning process removes dust and excess toner from the paper path. When selected, the product prompts you to load plain Letter or A4 paper in Tray 1. Touch the OK button to begin the cleaning process. Wait until the process completes. Discard the page that prints.
USB Speed	High* Full		Sets the USB speed for the USB connection to the computer. For the product to actually operate at high speed, it must have high speed enabled and be connected to an EHCI host controller that is also operating at high speed. This menu item does not reflect the current operating speed of the product.
Less Paper Curl			When printed pages are consistently curled, this option sets the product to a mode that reduces curl.
Archive Print			When printing pages that will be stored for a long time, this option sets the product to a mode that reduces toner smearing and dusting.
Firmware Date Code			Displays the firmware date code.
Restore Defaults			Sets all settings to the factory default values.

Table 2-7 Service menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Signature Check	Cancel if Invalid		Validates HP firmware downloads.
	Prompt if Invalid		
LaserJet Update	Check for Updates Now		Checks for new firmware updates using the network (wired or wireless).
	Manage Updates	Allow Downgrade	Allows installing a lower firmware version than is currently installed. The following options are available: • Yes • No
		Check Automatically	Enables or disables the function to periodically check for firmware updates. The following options are available: • On • Off
		Prompt Before Install	When an update is ready, displays a control panel message for confirmation before installing. The following options are available: • Install Automatically • Always Prompt
		Allow Updates	Enables or disables firmware updates. The following options are available: • Yes • No
SMTP Comm Report			Contains the SMTP communication to and from the device from the last scan-to-email job.

Network Setup menu

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

Table 2-8 Network Setup menu

Menu item	Sub-menu item	Description
Wireless Menu	Wireless Direct Settings	Manage the product's wireless direct settings.
	Wireless Setup Wizard	Guides you through the steps to set up the product on a wireless network.
	Wi-Fi Protected Setup	If your wireless router supports this feature, use this method to set up the product 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.
IPv4 Config Method	DHCP* BootP Auto IP Manual	DHCP: The product automatically configures all the TCP/IP settings via DHCP. BootP: The product automatically configures all the TCP/IP settings via BootP. Auto IP: The product automatically configures all the TCP/IP settings via Auto IP. 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 product prompts for address confirmation before moving to the next one. After all three addresses are set, the network reinitializes.
Network Services	IPv4 IPv6	Enable or disable the IPv4 and IPv6 protocols. By default, each protocol is enabled.
Link Speed	Automatic* 10T Full 10T Half 100TX Full 100TX Half	Sets the link speed manually if needed. After setting the link speed, the product automatically restarts.
Security	Product Security	Set product security options. If enabled, the product prompts you to set a password. After it is set, the password is required to change product settings. The following options are available: ● On ● Off*
	HTTPS Enforcement	Sets the product so that it communicates only with Web sites that use hypertext transfer protocol secure (HTTPS). The following options are available: ● Yes ● No*
	Firewall	Enable, disable, or reset the product firewall.

Table 2-8 Network Setup menu (continued)

Menu item	Sub-menu item	Description
	Access Control List	Enable, disable, or reset the network access control list.
	802.1X	Enable, disable, or reset 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 2-9 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 (MFP products only)

USB Flash Drive

Menu item	Description
Print Documents	Prints documents stored on the USB drive. Use the arrow buttons to scroll through the documents. Touch the names of documents that you want to print.
	Touch the summary screen to change settings such as the number of copies, the paper size, or the paper type.
	Touch the Print button when you are ready to print the documents.
View and Print Photos	Previews photos on the USB drive. Use the arrow buttons to scroll through the photos. Touch the preview image for each photo that you want to print. You can adjust the settings, and you can save the changes as the new default settings. When you are ready to print the photos, touch the Print button.
Scan to USB Drive	Scans a document and stores it as a .PDF document or .JPEG image on the USB flash drive.

Fax Menu

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

Table 2-10 Fax Menu

Menu item	Sub-menu item	Sub-menu item	Description
Fax Reports	Fax Confirmation	On Every Fax	Sets whether the product 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 product includes a thumbnail image of the first page of the fax on the report.
		Off	
	Fax Error Report	On Every Error*	Sets whether the product prints a report after a failed fax job.
		On Send Error	
		On Receive Error	
		Never	
	Print Last Call Report	On*	Prints a detailed report of the last fax operation, either sent or received.
		Off	
	Fax Activity Log	Print Log Now	Print Log Now: Prints a list of the faxes that have been sent from or received by this product. Auto Log Print: Automatically prints a report after every fax job.
		Auto Log Print	
	Print Phone Book		Prints a list of the speed dials that have been set up for this product.
	Print Junk Fax List		Prints a list of phone numbers that are blocked from sending faxes to this product.
	Print All Fax Reports		Prints all fax-related reports.
Send Options	Send Fax Later	Send Fax time	Allows a fax to be sent at a later time and date.
		Send Fax date	
	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	

Table 2-10 Fax Menu (continued)

Menu item	Sub-menu item	Sub-menu item	Description
Receive Options	Block Junk Faxes	Add Number Delete Number Delete All Numbers Print Junk Fax List	Modifies the junk fax list. The junk fax list can contain up to 30 numbers. When the product 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.
	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.
	Forward Fax	On Off*	Sets product to send all received faxes to another fax machine.
	Polling Receive		Allows the product to call another fax machine that has polling send enabled.
Phone Book Setup	Individual Setup		Edits the fax phone book speed dial entries.
	Group Setup		Edits the fax phone book groups.
	Delete Entry		Deletes a specific phone book entry.
	Delete All Entries		Deletes all entries in the phone book.
	Print Report		Prints a list of all the individual dial entries in the phone book.
Change Defaults	Fax Setup Utility		Opens the Fax Setup menu.

Copy Menu

To open this menu, touch the Copy button on the Home screen, and then touch the Settings button.

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

Table 2-11 Copy Menu

Menu item	Sub-menu item	Description
Number of Copies		Specifies the number of copies.

Table 2-11 Copy Menu (continued)

Menu item	Sub-menu item	Description
Reduce/Enlarge	Original=100%*	Specifies the size of the copy.
	Legal to letter= 77%	
	Legal to A4=82%	
	A4 to Letter=92%	
	Letter to A4=97%	
	Full Page=91%	
	Fit to Page	
	2 Pages per Sheet	
	4 Pages per Sheet	
	Custom: 25 to 400%	
Lighter/Darker		Specifies the contrast of the copy.
Optimize	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.
	Legal	**NOTE:** The default paper size setting is determined by the choice of location during the initial product setup.
	A4	
Multi-Page Copy	Off*	When this feature is enabled, the product prompts you to load another page onto the scanner glass or to indicate that the job is complete.
	On	
Tray Select	Tray 1	Specifies which tray to use for copies.
	Tray 2	
	Tray 3	
Two Sided	1 to 1*	Specifies the duplex setting for copies.
	1 to 2	**NOTE:** This item is available for duplex models only.
	2 to 2	
	2 to 1	
Draft Mode	Off*	Specifies whether to use draft- quality printing for copies.
	On	

Table 2-11 Copy Menu (continued)

Menu item	Sub-menu item	Description
Image Adjustment	Lightness	Adjusts the image quality settings for copies.
	Contrast	
	Sharpen	
	Background Removal	
	Color balance	
	Sharpness	
	Grayness	
Collation	On	Specifies whether to collate copy jobs.
	Off*	
Set as New Defaults		Saves any changes you have made to this menu as the new defaults.
Restore Defaults		Restores the factory defaults for this menu.

Scan menu

Menu item	Sub-menu item	Sub-menu item	Description
Scan to USB Drive

NOTE: Touch the Settings button to access the sub menus. | Scan File Type | JPEG

PDF | Scans a document and stores it as a .PDF document or .JPEG image on the USB flash drive. |
| | Scan Resolution | 75 dpi

150 dpi

300 dpi | Specifies the resolution to use for the scanned image.

Scan quality increases by using higher resolution, but the document size also increases. |
| | Scan Paper Size | Letter

Legal

A4 | Specifies the size of the page to use for the scanned document. |
| | Scan Source | Document Feeder

Flatbed Scanner | Specifies whether the scanned page is in the document feeder or on the scanner glass. |
| | File Name Prefix | | Provides a way to set a standard name prefix for scan job files. |
| | Output Color | Color

Black & White | Specifies whether the scan output document will be a color image or a monochrome image. |
| | Set as New Defaults | | Saves any changes you have made to this menu as the new defaults. |

Apps

Use the Apps menu to install HP Web Services applications.

Interpret control panel messages

The majority of the control panel messages are to guide users through typical operations. The control panel messages indicate the status of the current operation and include a page count on the second line of the display where applicable. When the product receives fax data, print data, or scan commands, control panel messages indicate status. They also indicate alert messages, warning messages, and critical error messages that might require action from the user.

Control panel message types

Alert and warning messages appear temporarily and might require you to acknowledge the message by pressing OK to resume or press Cancel ✕ to cancel the job. With certain warnings, the job might not complete, or the print quality might be affected. If the alert or warning message is related to printing, and the auto-continue feature is on, the product will attempt to resume the print job after the warning has appeared for 10 seconds without acknowledgement.

Critical error messages can indicate some kind of failure. Turning the product off and then turning it on might fix the problem. If a critical error persists, the product might require service.

Control panel messages

Control panel message	Description	Recommended action
49 Error **Turn off then on**	The product has experienced a firmware error.	1. Press the power button to turn the product off. 2. If a surge protector is being used, remove it. Plug the power cord directly into a wall outlet. 3. Wait at least 30 seconds, turn the product on, and then wait for the product to initialize. 4. If the error persists, disconnect and then reconnect the FFCs and the connectors on the formatter PCA. 5. If the error persists, replace the formatter PCA.

Control panel message	Description	Recommended action
50.X Fuser Error **Turn off then on**	The product has an internal hardware error.	1. Press the power button to turn the product off. 2. If a surge protector is in use, remove it. Connect the power cord directly into a wall outlet. 3. Wait at least 25 minutes, turn the product on, and then wait for the product to initialize. 4. If the error persists, reconnect J101 and J552 on the engine controller PCA. 5. If the error persists, check the power source. Make sure that the power source meets the minimum system requirements (40Hz to 70Hz). 6. If the error persists, replace the fuser. 7. If the error persists, replace the engine controller PCA.
51.XX Error **Turn off then on**	The printer has experienced an internal hardware error. The product may display the following message: **51.20 Black laser scanner error**	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the printer to initialize. If a surge protector is used, remove it. Plug the printer directly into the wall socket. Use the power switch to turn on the printer. If the message persists, contact HP support.
54.XX Error **Turn off then on**	The printer has experienced an error with one of the internal sensors. The product may display one of the following messages: ● 54.18 Black toner level sensor error ● 54.19 TOP sensor error ● 54.1200 Black density measurement abnormality ● 54.1500 Black CPR pattern can't be read ● 54.21 BD errors	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the printer to initialize. If a surge protector is used, remove it. Plug the printer directly into the wall socket. Use the power switch to turn on the printer. If the message persists, contact HP support.
55.X Error **Turn off then on**	The printer has experienced an internal error. The printer may experience one of the following errors: ● 55.0 DC controller communication error ● 55.0601 DC controller NVRAM data error ● 55.0602 DC controller NVRAM access error ● 55.1 DC controller memory error	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the printer to initialize. If a surge protector is used, remove it. Plug the printer directly into the wall socket. Use the power switch to turn on the printer. If the message persists, contact HP support.

Control panel message	Description	Recommended action
57 Fan Error[1]	The product has a general fan error.	1. Press the power button to turn the product off.
		2. If a surge protector is in use, remove it. Connect the power cord directly into a wall outlet.
		3. Wait at least 30 seconds, turn the product on, and then wait for the product to initialize.
		4. If the error persists, reconnect the J1103 connector on the duplex connector PCA.
		5. If the error persists, replace the main fan.
59.X Error **Turn off then on**	The printer has experienced a problem with one of the motors. The product may display one of the following errors: • 59.3 Fuser motor startup error • 59.4 Fuser motor rotation error • 59.50 Image drum motor startup error - black • 59.73 Developer motor startup error • 59.83 Developer motor rotation error • 59.C0 Developer motor rotation error • 59.F0 Transfer alienation failure	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the printer to initialize. If a surge protector is used, remove it. Plug the printer directly into the wall socket. Use the power switch to turn on the printer. If the message persists, contact HP support.
79 Error **Turn off then on**	The product has experienced a firmware error	1. Press the power button to turn the product off.
		2. If a surge protector is in use, remove it. Connect the power cord directly into a wall outlet.
		3. Wait at least 30 seconds, turn the product on, and then wait for the product to initialize.
		4. If the error persists, disconnect and then reconnect the FFCs and the connectors on the formatter PCA.
		5. If the issue persists, replace the formatter PCA.
Black cartridge low	The print cartridge is nearing the end of its useful life.	Printing can continue, but consider having a replacement supply on hand.

Control panel message	Description	Recommended action
Black cartridge very low	The print cartridge is at the end of its useful life. The product continues printing to prevent fax interruptions.	To ensure optimal print quality, HP recommends replacing the print cartridge at this point. You can continue printing until you notice a decrease in print quality. Actual cartridge life may vary.
		Once an HP supply has reached very low, HP's premium Protection Warranty on that supply has ended. All print defects or cartridge failures incurred when an HP supply is used in continue at very low mode will not be considered to be defects in materials or workmanship in the supply under the HP Print Cartridge Warranty Statement.
Cleaning...	The printer is in cleaning mode.	No action is required.
Communication Error[1]	A fax communication error occurred between the product and the sender or receiver.	Allow the product to retry sending the fax. Unplug the product telephone cord from the wall, plug in a telephone, and try making a call. Plug the product phone cord into a jack for another phone line.
		Try a different phone cord.
		Set the Fax Speed option to the Slow(V.29) setting or disable the Fast(V.34) setting.
		Turn off the Error Correction feature to prevent automatic error correction.
		NOTE: Turning off the Error Correction feature can reduce image quality.
		Print the Fax Activity Log report from the control panel to determine if the error occurs with a specific fax number.
		If the error persists, replace the fax PCA.
Device error, press OK	Generic engine error.	This is a warning message only. Job output might be affected.
Door open	The print cartridge door is open.	1. Close the print cartridge door.
		2. If the error persists, check the tab that engages with the cartridge door open sensor on the cartridge door.
		3. If the tab is broken or missing, replace the cartridge door.
		4. If the tab is present, replace the engine controller PCA.

Control panel message	Description	Recommended action
Fax is busy **Canceled send**[1]	The fax line to which you were sending a fax was busy. The product has canceled sending the fax.	Call the recipient to ensure that the fax machine is on and ready. Check that you are dialing the correct fax number. Check that the Redial if Busy option is enabled. Check for a dial tone on the phone line by touching the Start Fax button. Make sure that the phone is working by disconnecting the product, plugging in a telephone to the phone line, and making a voice call. Plug the product phone cord into a jack for another phone line, and then try sending the fax again. Try a different phone cord. If the error persists, replace the fax PCA.
Fax is busy **Redial Pending**[1]	The fax line to which you were sending a fax was busy. The product automatically redials the busy number.	Allow the product to retry sending the fax. 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 touching the Start Fax button. Make sure that the phone is working by disconnecting the product, plugging in a telephone to the phone line, and making a voice call. Plug the product phone cord into a jack for another phone line, and try sending the fax again. Try a different phone cord. If the error persists, replace the fax PCA.

Control panel message	Description	Recommended action
Fax recv. error[1]	An error occurred while trying to receive a fax.	Ask the sender to resend the fax.
		Try faxing back to the sender or another fax machine.
		Check for a dial tone on the phone line by touching the Start Fax button.
		Check that the telephone cord is securely connected by unplugging and replugging the cord.
		Make sure that you are using the telephone cord that came with the product.
		Make sure that the phone is working by disconnecting the product, plugging in a telephone to the phone line, and making a voice call.
		Decrease the fax speed. Ask the sender to resend the fax.
		Turn off the Error Correction feature to prevent automatic error correction.
		NOTE: Turning off the Error Correction feature can reduce image quality.
		Connect the product to a different phone line.
		If the error persists, replace the fax PCA.
Fax Send error[1]	An error occurred while trying to send a fax.	Try resending the fax.
		Try faxing to another fax number.
		Check for a dial tone on the phone line by touching the Start Fax button.
		Check that the telephone cord is securely connected by unplugging and replugging the cord.
		Make sure that you are using the telephone cord that came with the product.
		Make sure that the phone is working by disconnecting the product, plugging in a telephone to the phone line, and making a voice call.
		Connect the product to a different phone line.
		Set the fax resolution to Standard instead of the default of Fine.
		If the error persists, replace the fax PCA.
Fax storage is full **Canceling recv.**[1]	During the fax transmission, the product ran out of memory. Only the pages that fit into memory will be printed.	Print all of the faxes, and then have the sender resend the fax. Have the sender divide the fax job into multiple jobs before resending. Cancel all fax jobs or clear the faxes from memory.

Control panel message	Description	Recommended action
Fax storage is full **Canceling send**[1]	During the fax job, the memory filled. All pages of the fax have to be in memory for a fax job to work correctly. Only the pages that fit into memory were sent.	Print all received faxes or wait until all pending faxes are sent. Ask the sender to send the fax again. Ask the sender to divide a large fax job into smaller sections, and then fax them individually. Make sure that the resolution of the sending fax machine is not set to the Photo setting or the Superfine setting. Cancel all fax jobs or clear the faxes from memory.
Genuine HP supply installed	A genuine HP supply was installed.	No action necessary.
Incompatible \<Black\>[1]	You have installed a print cartridge that is intended for use in a different HP product model. The product might not function correctly with this print cartridge installed.	Install the correct print cartridge for this product.
Install \<Black\> cartridge[1]	The print cartridge is not installed with the door closed.	Install the print cartridge.
Invalid driver Press OK	You are using the incorrect printer driver.	Select the printer driver that is appropriate for your product.
Manual duplex alternates with **Load tray 1** **Press [OK]**	The product is processing a manual duplex job.	To print the second side, place the pages face down in the tray with the top edge first.
Manual feed \<SIZE\>, \<TYPE\> alternates with **Press [OK] for available media**	The product is set for the manual feed mode.	Load the tray with the correct size and type of paper, or press OK to use the paper that is in the tray.
Memory is low **Press [OK]**	The product does not have enough memory to process the job.	If the product is processing other jobs, send the job again after those jobs have finished. If the problem continues, turn off the power by using the power switch, and then wait at least 30 seconds. Turn on the power and wait for the product to initialize.
Misprint **Press [OK]**	The product has experienced an internal hardware error.	1. Reprint the pages. 2. If the error persists, turn the product off, and then turn it on. 3. Print the pages again. 4. If the error persists, clean the rollers in the paper pick assembly, the duplexer door, and the duplexer frame.

Control panel message	Description	Recommended action
No dial tone[1]	The product could not detect a dial tone.	Check for a dial tone on the phone line by touching the Start Fax button.
		Unplug the telephone cord from both the product and the wall and replug the cord.
		Make sure that you are using the telephone cord that came with the product.
		Unplug the product telephone cord from the wall, plug in a telephone, and try making a voice call.
		Make sure that the phone cord from the wall telephone jack is plugged into the line ⊣ᶙ port.
		Plug the product phone cord into 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.
		If the error persists, replace the fax PCA.
No fax answer **Canceled send**[1]	Attempts to redial a fax number failed, or the Redial if No Answer option was turned off.	Call the recipient to ensure that the fax machine is on and ready.
		Check that you are dialing the correct fax number.
		Check that the redial option is enabled.
		Unplug the telephone cord from both the product and the wall and replug the cord.
		Unplug the product telephone cord from the wall, plug in a telephone, and try making a voice call.
		Make sure that the phone cord from the wall telephone jack is plugged into the line ⊣ᶙ port.
		Plug the product phone cord into a jack for another phone line.
		If the error persists, replace the fax PCA.

Control panel message	Description	Recommended action
No fax answer **Redial Pending**[1]	The receiving fax line did not answer. The product attempts to redial after a few minutes.	Allow the product to retry sending the fax. Call the recipient to ensure that the fax machine is on and ready. Check that you are dialing the correct fax number. If the product continues to redial, unplug the product telephone cord from the wall, plug in a telephone, and try making a voice call. Make sure that the phone cord from the wall telephone jack is plugged into the line ⌐⌵ port. Plug the product phone cord into a jack for another phone line. Try a different phone cord. If the error persists, replace the fax PCA.
No Fax Detected[1]	The product answered the incoming call but did not detect that a fax machine was calling.	Allow the product to retry receiving the fax. Try a different phone cord. Plug the product phone cord into a jack for another phone line. If the error persists, replace the fax PCA.

Control panel message	Description	Recommended action
Print failure, press OK. If error repeats, turn off then on.	The product experienced an internal communication error.	1. Press the power button to turn the product off. 2. If a surge protector is in use, remove it. Connect the power cord directly into a wall outlet. 3. Wait at least 30 seconds, turn the product on, and then wait for the product to initialize. 4. Resend the print job. 5. If the error persists, clean the pick up roller and the duplexer rollers. 6. If the error persists, check the sensor lever in the fuser inlet area. 7. If the sensor lever is stuck, clean it, and then make sure it moves smoothly. 8. If the sensor lever is broken or damaged, replace the fuser. 9. If the error persists, check the sensor lever in the upper part of the paper pickup assembly. 10. If the sensor lever is stuck, clean it an make sure that it moves smoothly. 11. If the sensor lever is broken or damaged, replace the paper pickup assembly. 12. If the error persists, reconnect J551 on the engine controller PCA. 13. If the error persists, replace the paper pickup assembly.
Remove shipping lock from <Black> cartridge[1]	A shipping lock remains on the print cartridge.	Remove the print cartridge, remove the shipping lock, and then reinstall the cartridge.
Replace <Black>[1]	The product is configured to stop when the print cartridge level is very low.	Replace the print cartridge, or configure the settings to continue printing after the print cartridge reaches the very low level.
Unexpected size in tray 1	The paper in the tray does not match the size needed for the current print job.	1. Load paper that is the correct size, and verify that the tray is set to the correct size. 2. If the issue persists, reconnect the J551 connector on the engine controller unit. 3. If the issue persists, replace the paper pickup assembly.
Unsupported <Black> **Press [OK] to continue**[1]	The product has detected a print cartridge that was not made by HP.	Press the OK button to continue printing. If you believe you purchased an HP supply, go to www.hp.com/go/anticounterfeit. Service or repairs that are required as a result of using unsupported supplies is not covered under HP warranty.

Control panel message	Description	Recommended action
Used <Black> cartridge is installed	A used supply is installed.	No action necessary.
Press OK to continue[1]		Product repair that is required from using used print cartridges is not covered under warranty. Supply status and features that depend on it are unavailable with used cartridges.

[1]   MFP products only.

Event-log messages

Print the event log

1.   Make sure the product is in the ready state.

2.   From the Home screen on the product control panel, touch the Setup ⚒ button.

3.   Touch the left arrow button, and then quickly touch the Cancel ✕ button.

4.   The product returns to the Ready state. touch the Setup ⚒ button to reopen the menus.

5.   Touch the 2ndary Service menu.

6.   Touch the Service Reports menu.

7.   Touch the Error Report item.

Show an event log

You can use **HP Device Toolbox** to view the event log from a computer.

NOTE: This tool is available only if you performed a full installation when you installed the product.

1.   Click the **Start** button, and then click the **Programs** item.

2.   Click your HP product group, and then click the **HP Device Toolbox** item.

3.   Click the **Home** tab, and then click the **Event Log** item. The event log shows a list of all product events and errors.

Event log messages

The following table contains any event log codes for this product that correspond to a control-panel error message. To resolve these events, consult the control panel error message.

Table 2-12 Event-log messages

Event code	Description
13.0000	Paper jam
20.0000	Memory out
21.0000	Page misfeed or mispick
41.2000	Beam detect malfunction
41.3000	Unexpected size

Table 2-12 Event-log messages (continued)

Event code	Description
50.0000	Fuser error
50.1000	Low fuser temperature error
50.3000	High fuser temperature error
50.4000	Fuser drive circuit error
51.0000	Beam detect or laser error
52.0000	Engine laser scanner error
55.3000	Engine-formatter communication error
55.4000	Engine communication timeout error
57.0000	Fan motor error
57.0600	Fan motor error

Some product events do not produce a message that displays on the control panel. Instead, they are only recorded in the event log.

Table 2-13 Event-log-only messages

Event code	Description	Solution
50.2000	Slow fuser error	
50.7000	Fuser open error	
	Low sub-thermistor fuser error	
	High sub-thermistor fuser error	
51.2000	Black scanner laser error (inline devices only)	
54.0100	Environmental sensor error	Verify that the DC controller connectors are firmly connected.
		If the error persists, replace the temperature/humidity sensor.
		If the error persists, replace the DC controller.
54.0600	Density sensor error	Verify that the cables between the DC controller is firmly connected.
54.1100	Black density out of range	If the error persists, replace the color misregistration sensor.
54.1200	Black density measurement abnormality	If the error persists, replace the DC controller.

Table 2-13 Event-log-only messages (continued)

Event code	Description	Solution
54.1599	Black CPR pattern cannot be read	1. Turn off the power by using the power switch, and then wait at least 30 seconds. 2. Turn on the power and wait for the product to initialize. If the error persists, verify that the cables between the color misregistration sensor and the DC controller are firmly connected. If the error persists, replace the color misregistration sensor. If the error persists, replace the toner cartridge tray. If the error persists, replace the DC controller.
54.1800	Black toner level sensor error	1. Turn off the power by using the power switch, and then wait at least 30 seconds. 2. Turn on the power and wait for the product to initialize. If the error persists, replace the DC controller.
54.2100	Beam detect (BD) error	If the error persists, replace the DC controller. If the error persists, replace the product.
54.2500	Top-of-page sensor error	Verify that the DC controller connectors are firmly connected. If the error persists, replace the DC controller.

Improve print quality, print-only products

Improve print quality

If the product is having print-quality problems, try the following solutions in the order presented to resolve the issue.

- Print from a different software program
- Check the paper-type setting for the print job
- Check the toner-cartridge status
- Print a cleaning page
- Visually inspect the toner cartridge for damage
- Check paper and the printing environment
- Check other print job settings
- Try a different print driver

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 the page was printed.

Check the paper-type setting for the print job

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

Check the paper type setting (Windows)

1. From the software program, select the **Print** option.
2. Select the product, 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 being used, 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. Select the product.
3. Click **Show Details**, and then click the **Media & Quality** menu or the **Paper/Quality** menu.

4. Select a type from the **Media-type** drop-down list.

5. Click the **Print** button.

Check the toner-cartridge status

Check the supplies status page for the following information:

- Estimated percentage of cartridge life remaining

- Approximate pages remaining

- Part numbers for HP toner cartridges

- Number of pages printed

Use the following procedure to print the supplies status page:

1. On the product control panel, press the OK button.

2. Scroll to the **Reports** menu, and press the OK button.

3. Scroll to the **Supplies Status** option, and then press the OK button to print a report of the status of all supply items.

4. Check the percent of life remaining for the toner cartridge 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 a toner cartridge or other replaceable maintenance part needs to be replaced, the supplies status page lists the genuine HP part numbers.

5. Check to see if a genuine HP cartridge is installed.

   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.

   Hewlett-Packard cannot recommend the use of non-HP supplies, either new or remanufactured. Because they are not HP products, HP cannot influence their design or control their quality. If you are using a refilled or remanufactured toner cartridge and are not satisfied with the print quality, replace the toner cartridge with a genuine HP toner cartridge.

Print a cleaning page

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

Follow these steps to clean the product's paper path.

1. On the product control panel, press the OK button.

2. Scroll to the **Service** menu, and press the OK button.

3. Scroll to the **Cleaning Page** option, and press the OK button.

   A **Cleaning** message displays on the product control panel. The cleaning process takes a few minutes to complete. Do not turn the product off until the cleaning process has finished. When it is finished, discard the printed page.

Visually inspect the toner cartridge for damage

1. Remove the toner cartridge from the product, and verify that the sealing tape has been removed.

2. Check the memory chip for damage.

3. Examine the surface of the imaging drum on the toner cartridge.

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

4. If there are any scratches, fingerprints, or other damage on the imaging drum, replace the toner cartridge.

5. If the imaging drum does not appear to be damaged, rock the toner cartridge gently several times and reinstall it. Print a few pages to see if the problem has resolved.

Check paper and the printing environment

Step one: Use paper that meets HP specifications

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

- Always use a paper type and weight that this product 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 product away from drafty locations, such as open windows or doors, or air-conditioning vents.

- Make sure the product is not exposed to temperatures or humidity outside of product specifications.

- Do not place the product in a confined space, such as a cabinet.

- Place the product on a sturdy, level surface.

- Remove anything that is blocking the vents on the product. The product requires good air flow on all sides, including the top.

- Protect the product from airborne debris, dust, steam, grease, or other elements that can leave residue inside the product.

Check other print job settings

When printing from a software program, follow these steps to try to resolve the issue by adjusting other print-driver settings.

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, 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 product, 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.

   - Select the **EconoMode** check box to enable it.

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

   - Select the **FastRes 1200** option.

   - 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.

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/ljM201, www.hp.com/support/ljM202, www.hp.com/support/ljMFPM225, www.hp.com/support/ljMFPM226.

HP PCL 6 driver	● Provided as the default driver on the product CD. This driver is automatically installed unless a different one is selected.
	● Recommended for all Windows environments
	● Provides the overall best speed, print quality, and product-feature support for most users
	● Developed to align with the Windows Graphic Device Interface (GDI) for the best speed in Windows environments
	● Might not be fully compatible with third-party and custom software programs that are based on PCL 5
HP UPD PS driver	● 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 5	● Recommended for general office printing in Windows environments
	● Compatible with previous PCL versions and older HP LaserJet products
	● The best choice for printing from third-party or custom software programs
	● The best choice when operating with mixed environments, which require the product to be set to PCL 5 (UNIX, Linux, mainframe)
	● Designed for use in corporate Windows environments to provide a single driver for use with multiple product models
	● Preferred when printing to multiple product models from a mobile Windows computer
HP UPD PCL 6	● 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

Improve print quality, MFP products

Improve print quality

- [Print from a different software program](#)
- [Set the paper-type setting for the print job](#)
- [Check the toner-cartridge status](#)
- [Clean the product](#)
- [Inspect the toner cartridge for damage](#)
- [Check the paper and printing environment](#)
- [Check other print job settings](#)
- [Try a different print driver](#)

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.

Set the paper-type setting for the print job

Check the paper-type setting if you are printing from a software program and the pages have any of these problems:

- smeared print
- fuzzy print
- dark print
- curled paper
- scattered dots of toner
- loose toner
- small areas of missing toner

Check the paper-type setting (Windows)

1. From the software program, select the **Print** option.
2. Select the product, and then click the **Properties** or **Preferences** button.
3. Click the **Paper/Quality** tab.
4. From the **Media:** drop-down list, select the correct paper type.
5. Click the **OK** button to close the **Document Properties** dialog box. In the **Print** dialog, 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. Select the product.

3. Click **Show Details**, and then click the **Media & Quality** menu or the **Paper/Quality** menu.

4. Select a type from the **Media-type** drop-down list.

5. Click the **Print** button.

Check the toner-cartridge status

Check the supplies status page for the following information:

● Estimated percentage of cartridge life remaining

● Approximate pages remaining

● Part numbers for HP toner cartridges

● Number of pages printed

Use the following procedures to print the supplies status page:

LCD control panel

1. On the product control panel, press the Setup 🔧 button.

2. Open the following menus:

   ● **Reports**

   ● **Supplies status**

3. Use the arrow keys to select **Print Supplies status page**, and then press the OK button.

Touchscreen control panel

1. From the Home screen on the product control panel, touch the Supplies 🖾 button.

2. Touch the Report button to print the supplies status page.

Clean the product

Print a cleaning page

LCD control panel

1. From the product control panel, press the Setup 🔧 button.

2. Open the **Service** menu.

3. Use the arrow keys to select the **Cleaning mode** option, and then press the OK button.

   The product prints the first side and then prompts you to remove the page from the output bin and reload it in Tray 1, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

Touchscreen control panel

1. From the Home screen on the product control panel, touch the Setup ⚙ button.

2. Touch the Service menu.

3. Touch the Cleaning Page button.

4. Load plain letter or A4 paper when you are prompted.

5. Touch the OK button to begin the cleaning process.

    The product prints the first side and then prompts you to remove the page from the output bin and reload it in Tray 1, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

Check the scanner glass for dirt and smudges

Over time, specks of debris might collect on the scanner glass and white plastic backing, which can affect performance. Use the following procedure to clean the scanner.

1. Press the power button to turn the product off, and then disconnect the power cable from the electrical outlet.

2. Open the scanner lid.

3. Clean the scanner glass and the white plastic backing underneath the scanner lid 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 product; these can damage the product. Do not place liquids directly on the glass or platen. They might seep and damage the product.

4. Dry the glass and white plastic parts with a chamois or a cellulose sponge to prevent spotting.

5. Connect the power cable to an outlet, and then press the power button to turn the product on.

Inspect the toner cartridge for damage

1. Remove the toner cartridge from the product, and verify that the sealing tape has been removed.

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

3. Check the memory chip for damage.

4. Examine the surface of the imaging drum on the toner cartridge.

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

    ●   If you see any scratches, fingerprints, or other damage on the imaging drum, replace the toner cartridge.

    ●   If the imaging drum does not appear to be damaged, rock the toner cartridge gently several times and reinstall it.

5. Print a few pages to see if these steps resolved the issue.

Check the paper and printing environment

Use paper that meets HP specifications

Use different paper if you are having any of the following problems:

- The printing is too light or seems faded in areas.

- Specks of toner are on the printed pages.

- Toner is smearing on the printed pages.

- Printed characters seem misformed.

- Printed pages are curled.

Always use a paper type and weight that this product supports. In addition, follow these guidelines when selecting paper:

- 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 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.

Check the product environment

Verify that the product is operating within the environmental specifications listed in the product Warranty and Legal Guide.

Check other print job settings

When printing from a software program, follow these steps to try to resolve the issue by adjusting other print-driver settings.

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, 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 product, 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.

- Select the **EconoMode** check box to enable it.

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

- Select the **FastRes 1200** option.

- 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.

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/ljM201, www.hp.com/support/ljM202, www.hp.com/support/ljMFPM225, www.hp.com/support/ljMFPM226.

HP PCL 6 driver	● Provided as the default driver on the product CD. This driver is automatically installed unless a different one is selected.
	● Recommended for all Windows environments
	● Provides the overall best speed, print quality, and product-feature support for most users
	● Developed to align with the Windows Graphic Device Interface (GDI) for the best speed in Windows environments
	● Might not be fully compatible with third-party and custom software programs that are based on PCL 5
HP UPD PS driver	● 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 5	● Recommended for general office printing in Windows environments
	● Compatible with previous PCL versions and older HP LaserJet products
	● The best choice for printing from third-party or custom software programs
	● The best choice when operating with mixed environments, which require the product to be set to PCL 5 (UNIX, Linux, mainframe)
	● Designed for use in corporate Windows environments to provide a single driver for use with multiple product models
	● Preferred when printing to multiple product models from a mobile Windows computer
HP UPD PCL 6	● 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

Improve copy and scan quality

Check the scanner glass for dirt and smudges

Over time, specks of debris might collect on the scanner glass and white plastic backing, which can affect performance. Use the following procedure to clean the scanner.

1. Press the power button to turn the product off, and then disconnect the power cable from the electrical outlet.

2. Open the scanner lid.

3. Clean the scanner glass and the white plastic backing underneath the scanner lid 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 product; these can damage the product. Do not place liquids directly on the glass or platen. They might seep and damage the product.

4. Dry the glass and white plastic parts with a chamois or a cellulose sponge to prevent spotting.

5. Connect the power cable to an outlet, and then press the power button to turn the product on.

Check the paper settings

1. On the product control panel, press or touch the Setup ⚙ button.

2. Open the System Setup menu.

3. Open the Paper setup menu.

4. Select the tray from the list.

5. Select Paper Type and then select the type of paper that is in the tray.

6. Select Paper Size and then select the size of paper that is in the tray.

Optimize for text or pictures

The following copy-quality settings are available:

- Auto Select: Use this setting when you are not concerned about the quality of the copy. This is the default setting.

- Mixed: Use this setting for documents that contain a mixture of text and graphics.

- Text: Use this setting for documents that contain mostly text.

- Picture: Use this setting for documents that contain mostly graphics.

LCD control panel

1. Load the document on the scanner glass according to the indicators on the product.

2. On the product control panel, press the Copy Menu 🗒 button.

3. Select the **Optimize** menu.

4. Use the arrow buttons to scroll through the options, and then press the OK button to select an option.

5. Touch the Start Copy 🖹🔁 button to start copying.

Touchscreen control panel

1. Load the document on the scanner glass according to the indicators on the product.

2. From the Home screen on the product control panel, touch the Copy button.

3. Touch the Settings button, and then scroll to and touch the Optimize button. Touch the arrow buttons to scroll through the options, and then touch an option to select it.

4. Touch the Start Copy button to start copying.

Edge-to-edge copying

The product cannot print fully edge-to-edge. There is a 4 mm (0.2 inch) unprintable border around the page.

Considerations for printing or scanning documents with cropped edges:

● When the original is smaller than the output size, move the original 4 mm (0.2 inch) away from the corner indicated by the icon on the scanner. Recopy or scan in this position.

● When the original is the size of the printed output that you want, use the Reduce/Enlarge feature to reduce the image so the copy is not cropped.

Clean the pickup rollers and separation pad in the document feeder

If the document feeder experiences paper-handling problems, such as jams or multiple-page feeds, clean the document-feeder rollers and separation pad.

1. Lift the document-feeder input tray.
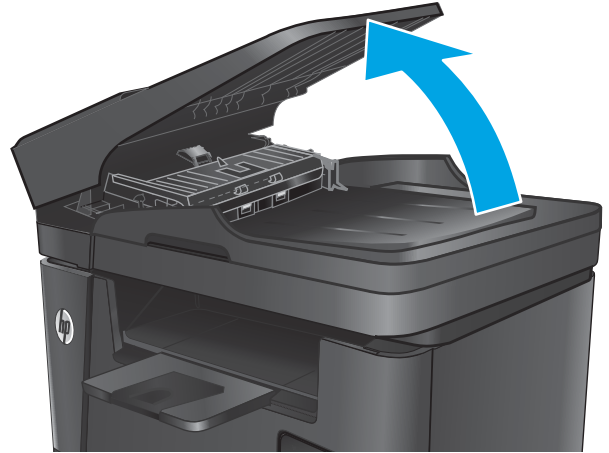
2. Use a moist, lint-free cloth to wipe both pickup rollers and the separation pad to remove dirt.

    CAUTION: Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the product; these can damage the product. Do not place liquids directly on the glass or platen. They might seep and damage the product.
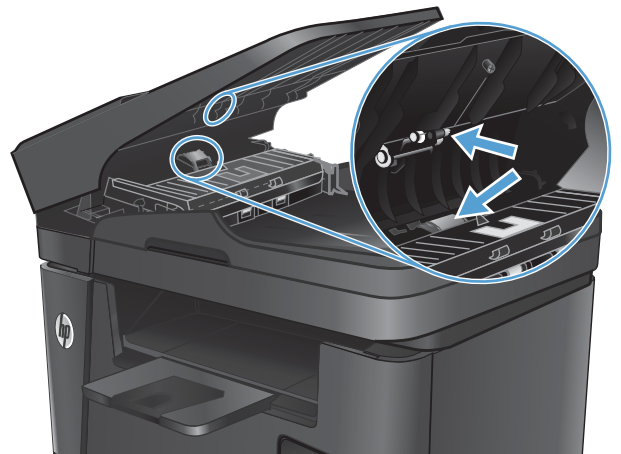
3. Close the document-feeder input tray.
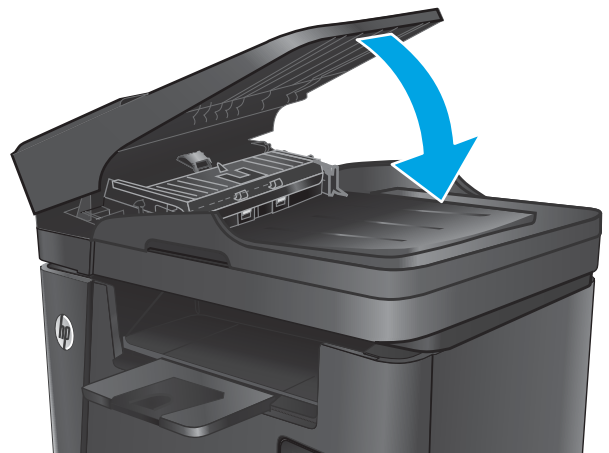
Improve fax image quality

Check the scanner glass for dirt or smudges

Over time, specks of debris might collect on the scanner glass and white plastic backing, which can affect performance. Use the following procedure to clean the scanner.

1. Press the power button to turn the product off, and then disconnect the power cable from the electrical outlet.

2. Open the scanner lid.

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

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

4. Dry the glass and white plastic parts with a chamois or a cellulose sponge to prevent spotting.

5. Close the scanner lid.

6. Connect the power cable to an outlet, and then press the power button to turn the product on.

Check the send-fax resolution setting

1. On the product control panel, press or touch the Setup ⚙ button.

2. Select Fax Setup.

3. Select Advanced Setup, and then select Fax Resolution.

4. Select the resolution setting, and then press or touch OK.

Check the lightness/darkness setting

If the fax output is too light or too dark, check the lightness/darkness setting to make sure it is appropriate for the fax job.

1. On the product control panel, press or touch the Setup ⚙ button.

2. Select Fax Setup, and then select Advanced Setup.

3. Select Lighter/Darker, and then adjust the setting for your fax job.

Check the Error Correction setting

Usually, the product monitors the signals on the telephone line while it is sending or receiving a fax. If the product detects an error during the transmission and the error-correction setting is On, the product 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.

1. On the product control panel, press or touch the Setup ⚙ button.

2. Select Service, and then select Fax Service.

3. Select Error Correction, and then select On.

Check the Fit-to-Page setting

If the product printed a fax job off the page, turn on the fit-to-page feature from the product control panel.

NOTE: Make sure that the default paper size setting matches the size of the paper in the tray.

1. On the product control panel, press or touch the Setup ⚙ button.

2. Select Fax Setup, and then select Advanced Setup.

3. Select Fit to Page, and then select On.

Clean the pickup rollers and separation pad in the document feeder

If the document feeder experiences paper-handling problems, such as jams or multiple-page feeds, clean the document-feeder rollers and separation pad.

1. Lift the document-feeder input tray.
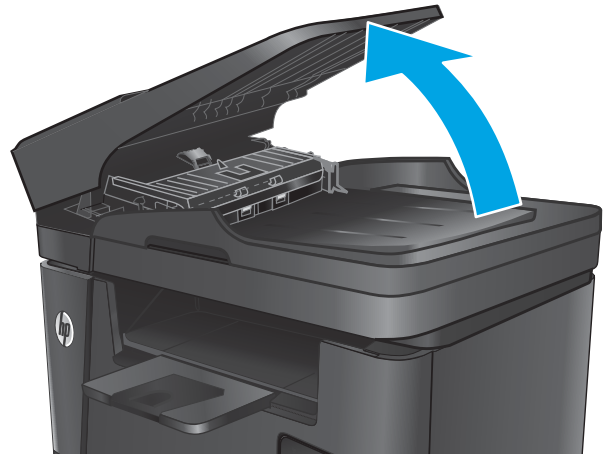
2. Use a moist, lint-free cloth to wipe both pickup rollers and the separation pad to remove dirt.

    CAUTION: Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the product; these can damage the product. Do not place liquids directly on the glass or platen. They might seep and damage the product.
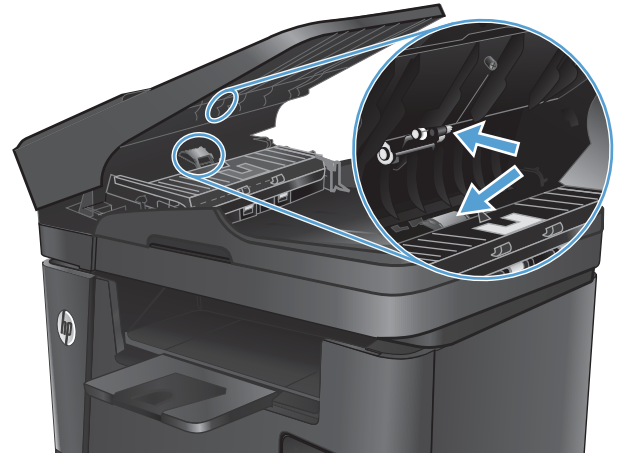
3. Close the document-feeder input tray.
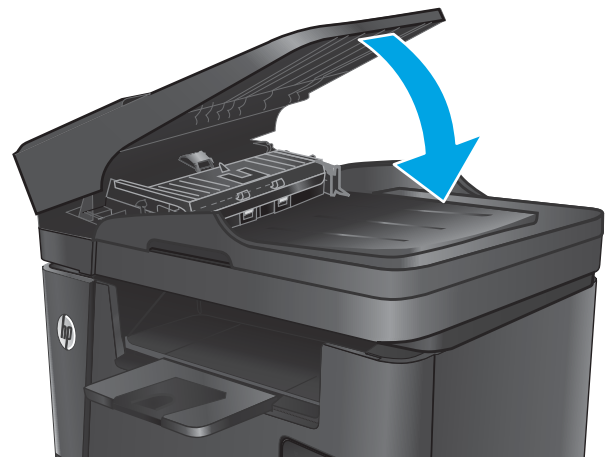
Send to a different fax machine

Send the fax job to a different fax machine to see if another machine will successfully receive the fax job.

● If another fax machine receives the fax successfully, check the connection and settings on the original receiving fax machine.

● If another fax machine does not receive the fax successfully, check the fax settings on your product. If the fax is still unsuccessful, there might be interference on the phone line. Try to resend the fax later.

Check the sender's fax machine

Ask the sender to darken the contrast setting on the sending fax machine, and then resend the fax.

If the received fax quality is still poor, check the fax settings on your product.

Solve Paper Jam or feed problems

Product does not pick up paper or misfeeds

The product does not pick up paper

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

1.   Open the product and remove any jammed sheets of paper.

2.   Load the tray with the correct size of paper for your job.

3.   Make sure the paper size and type are set correctly on the product 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 product control panel to see if the product is waiting for you to acknowledge a prompt to feed the paper manually. Load paper, and continue.

6.   The rollers above the tray might be contaminated. Clean the rollers with a lint-free cloth dampened with warm water.

The product picks up multiple sheets of paper

If the product 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 product.

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

📝 **NOTE:** This information applies to MFP products only.

●   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.

- From the Home screen on the product control panel, scroll to and touch the Supplies button. Check the status of the document-feeder kit, and replace it if necessary.

Clean the pickup rollers and separation pad in the document feeder

If the document feeder experiences paper-handling problems, such as jams or multiple-page feeds, clean the document-feeder rollers and separation pad.

1. Lift the document-feeder input tray.

2. Use a moist, lint-free cloth to wipe both pickup rollers and the separation pad to remove dirt.

    CAUTION: Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the product; these can damage the product. Do not place liquids directly on the glass or platen. They might seep and damage the product.
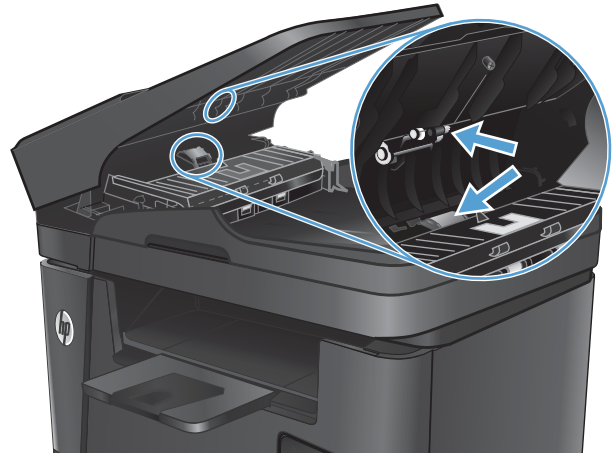
3. Close the document-feeder input tray.
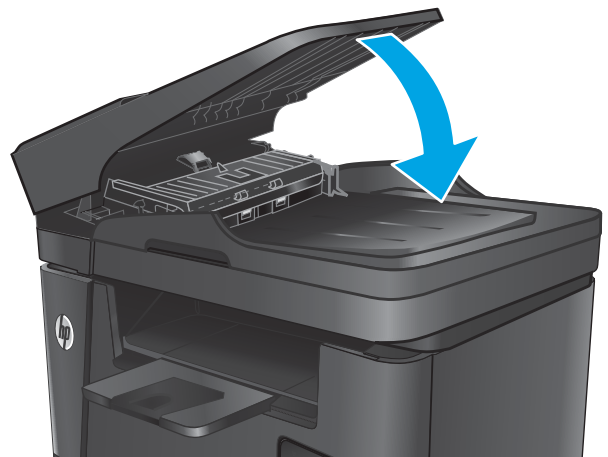
Clear jams (print-only products)

- Jam locations

- Experiencing frequent or recurring paper jams?

- Clear jams in the toner-cartridge area

- Clear jams in the output bin

- Clear jams in the duplexer (dw models only)

Jam locations
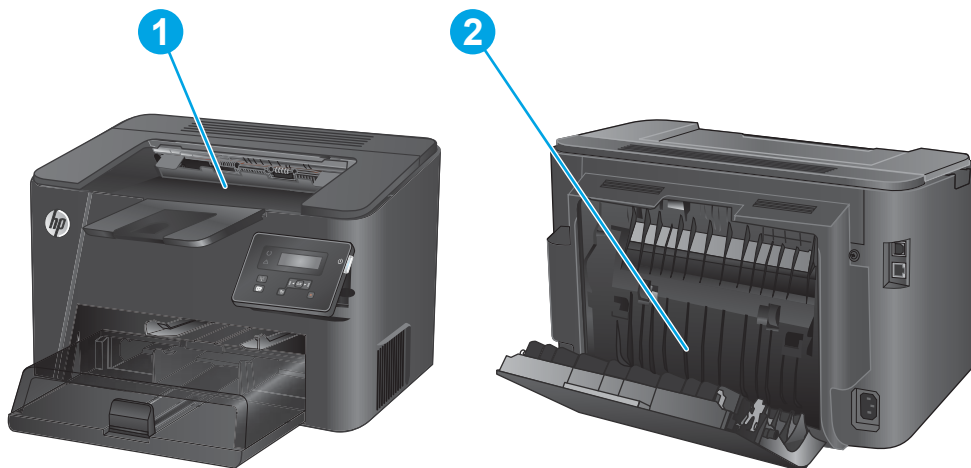
1	Toner-cartridge area and output bin	See Clear jams in the toner-cartridge area on page 124 and Clear jams in the output bin on page 125.
2	Duplex area (dw models only)	See Clear jams in the duplexer (dw models only) on page 127.

Experiencing frequent or recurring paper jams?

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

1. Use only paper that meets HP specifications for this product.

2. Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.

3. Use paper that has not previously been printed or copied on.

4. Make sure the tray is not overfilled. If it is, remove the entire stack of paper from the tray, straighten the stack, and then return some of the paper to the tray.

5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides so they are touching the paper stack without bending it.

6. Make sure that the tray is fully inserted in the product.

7. If you are printing on heavy, embossed, or perforated paper, use the manual feed feature and feed sheets one at a time.

8. Verify that the tray is configured correctly for the paper type and size.

   a. On the product control panel, press the OK button.

   b. Open the following menus:

      ● **System Setup**

      ● **Paper Setup**

   c. Verify the tray is configured for the paper type and size.

9. Make sure the printing environment is within recommended specifications.

Clear jams in the toner-cartridge area

A **Jam in cartridge area** message displays on the product control panel.

1. Open the top cover.

2. Remove the toner cartridge.
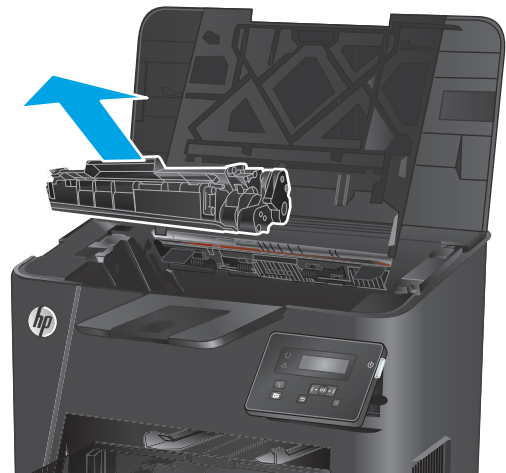
3. Remove any jammed paper from the toner-
    cartridge area. Use both hands to remove
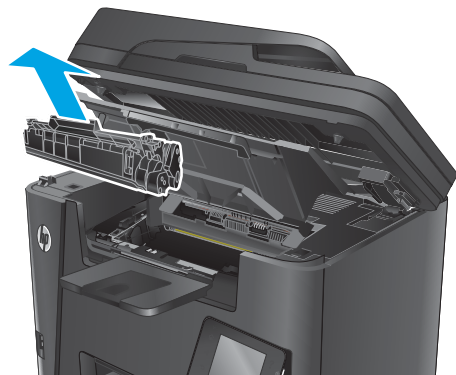   jammed paper to avoid tearing the paper.
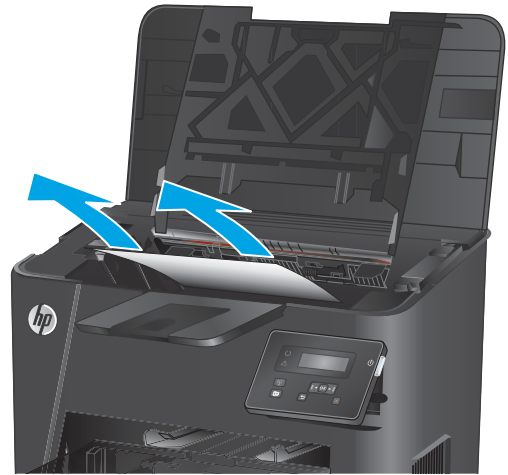
4. Reinsert the toner cartridge.

5. Close the top cover.

6. If the error message still displays on the control
    panel, press OK to clear it.

Clear jams in the output bin

A **Jam in output bin** message displays on the product control panel.

1. Open the top cover.

2. Pull out the green tab to release the jam-access cover.
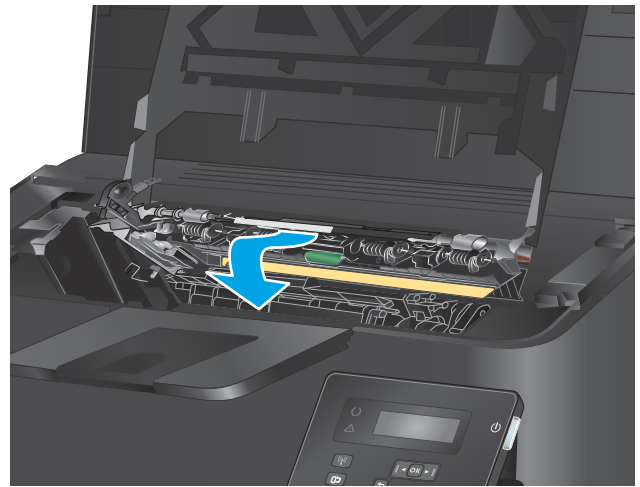
3. Remove any jammed paper.

4. Close the jam-access cover.
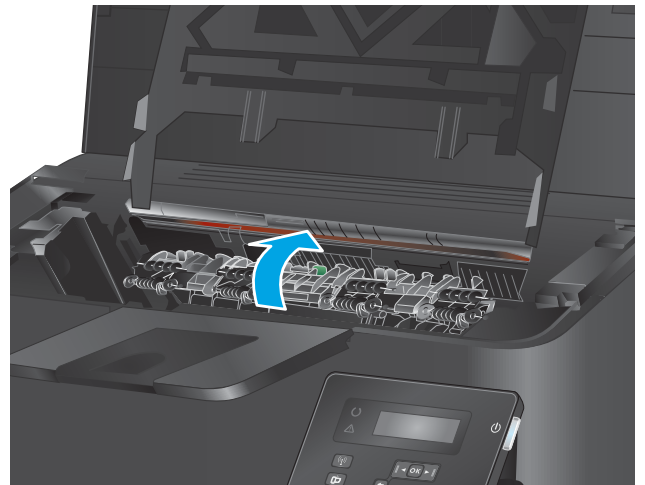
5. Close the top cover.

6. If the error message still displays on the control panel, press OK to clear it.

Clear jams in the duplexer (dw models only)

A **Jam in duplex area** message displays on the product control panel.
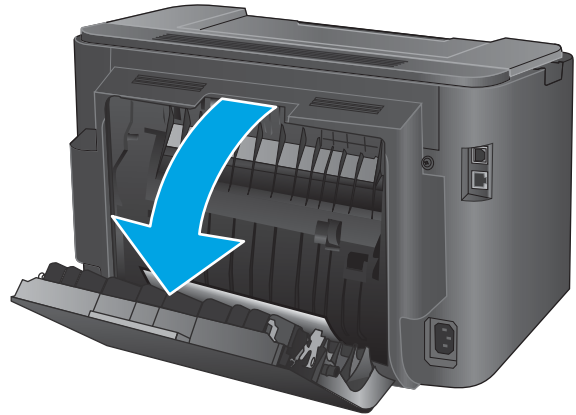
1. Open the rear door.

2. Remove any jammed paper from the duplex area. Use both hands to remove jammed paper to avoid tearing the paper.
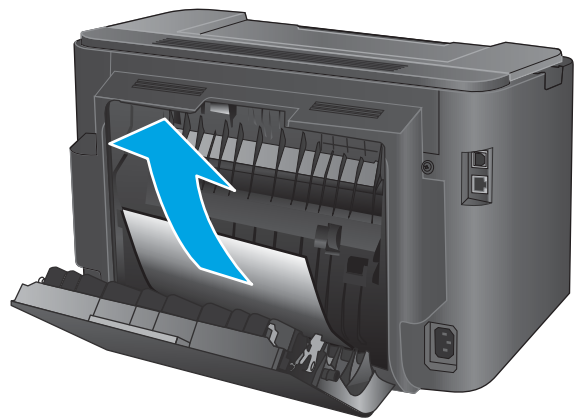
3. Close the rear door.
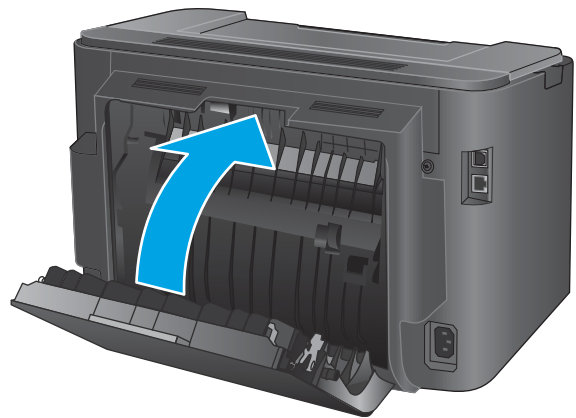
4. If the error message still displays on the control panel, press OK to clear it.

Clear jams (MFP products)

- Jam locations
- Experiencing frequent or recurring paper jams?
- Clear jams in the document feeder
- Clear jams in the toner-cartridge area
- Clear jams in the output bin
- Clear jams in the duplexer

Jam locations
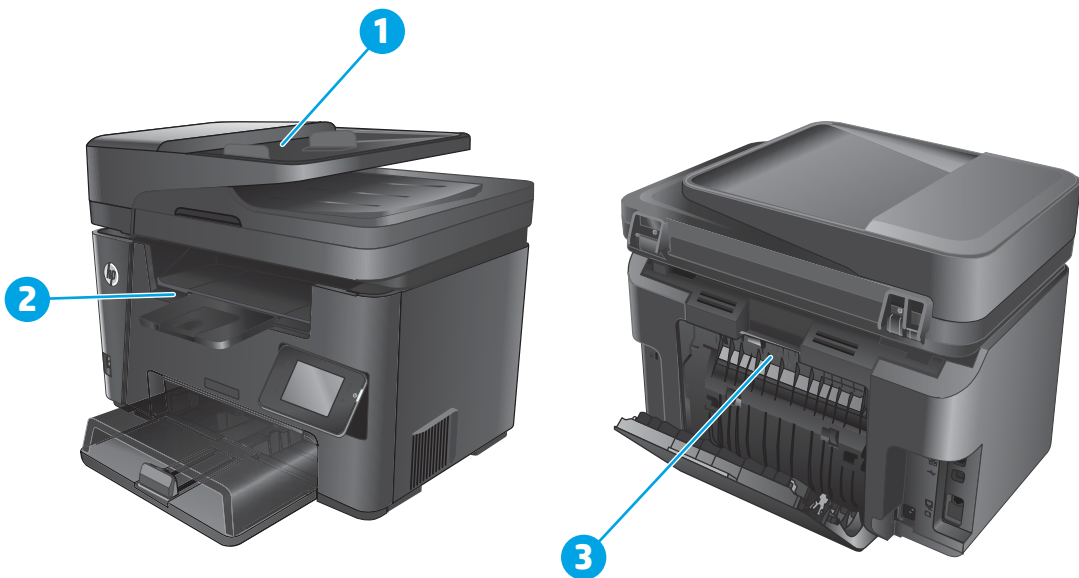
1	Document feeder	See Clear jams in the document feeder on page 130.
2	Toner-cartridge area and output bin	See Clear jams in the toner-cartridge area on page 124 and Clear jams in the output bin on page 125.
3	Duplex area	See Clear jams in the duplexer (dw models only) on page 127.

Experiencing frequent or recurring paper jams?

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 page 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. On the product control panel, press or touch the Setup ✎ button.

b. Open the System Setup menu.

c. Open the Paper setup menu.

d. Select the tray from the list.

e. Select Paper Type and then select the type of paper that is in the tray.

f. Select 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. On the product control panel, press or touch the Setup ✎ button.

b. Open the Service menu.

c. Select Cleaning Page.

d. Load plain letter or A4 paper when you are prompted.

e. Touch the OK button to begin the cleaning process.

   The product prints the first side and then prompts you to remove the page from the output bin and reload it in Tray 1, keeping the same orientation. Wait until the process is complete. Discard the page that prints.

5. Print a configuration page to test the product.

a. On the product control panel, press or touch the Setup ✎ button.

b. Open the Reports menu.

c. SelectConfiguration Report.

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

Clear jams in the document feeder

A **Jam in the document feeder** message displays on the product control panel.

1. Remove any loose paper from the document feeder input tray that has not fed into the product.

2. Remove any jammed paper visible in the input tray area. Use both hands to slowly pull out the jammed paper to avoid tearing the paper.
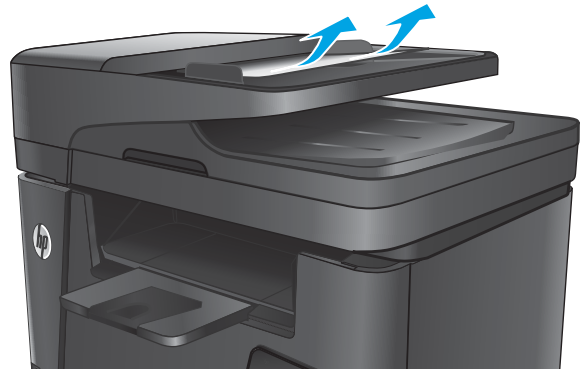
3. Lift the document-feeder input tray.
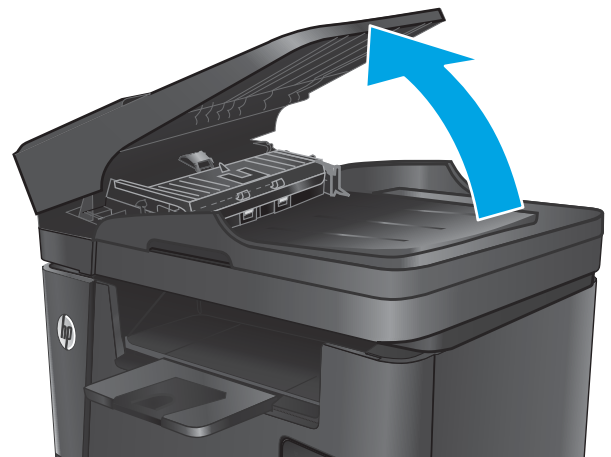
4. Lift the jam-access cover in the document feeder.
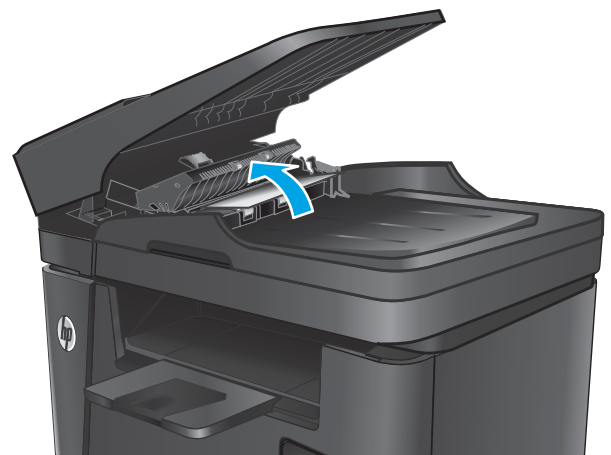
5. Remove any jammed paper from under the cover.
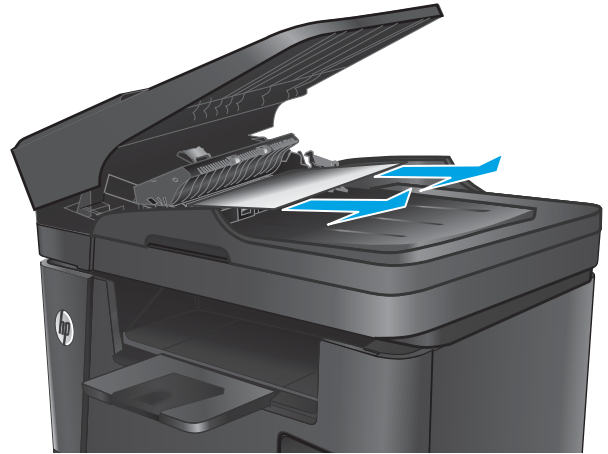
6. Close the jam-access cover.
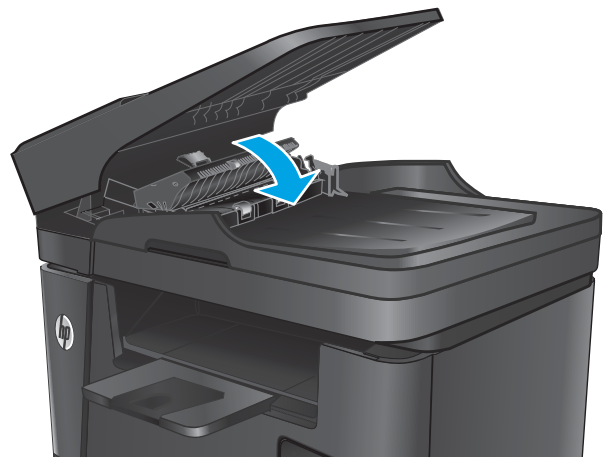
7. Close the document-feeder input tray.
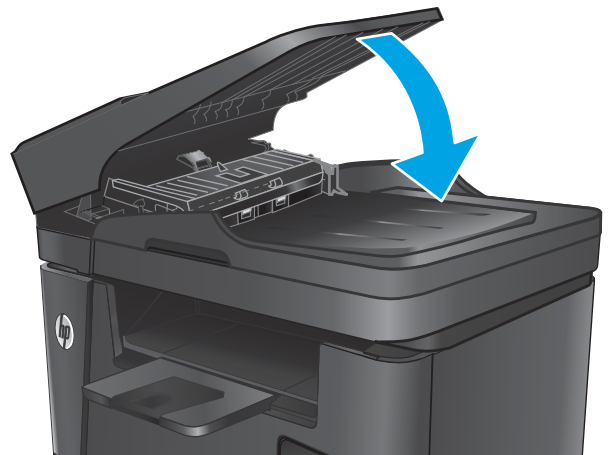
Clear jams in the toner-cartridge area

A **Jam in cartridge area** message displays on the product control panel.

📝 **NOTE:** For the dw models, an animation showing the jam-clearing procedure displays on the control panel.

1. Lift the scanner assembly.

2. Open the top cover.

3. Remove the toner cartridge.

4. Remove any jammed paper from the toner-cartridge area. Use both hands to remove jammed paper to avoid tearing the paper.

5. Reinsert the toner cartridge.
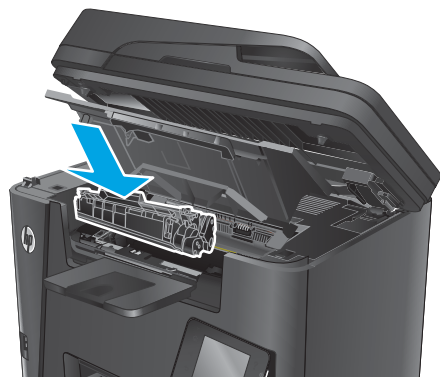
6. Close the top cover.

7. Lower the scanner assembly.

8. If the error message still displays on the control panel, press or touch OK to clear it.

Clear jams in the output bin

A **Jam in output bin** message displays on the product control panel.

NOTE: For the dw models, an animation showing the jam-clearing procedure displays on the control panel.

1. Lift the scanner assembly.

2. Open the top cover.

3. Pull out the green tab to release the jam-access cover.
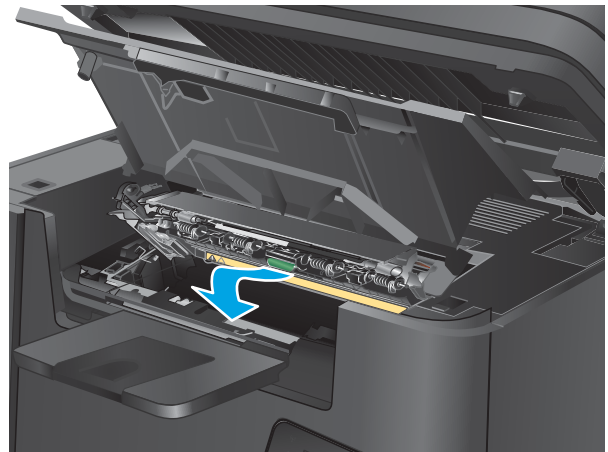
4. Remove any jammed paper.

5. Close the jam-access cover.
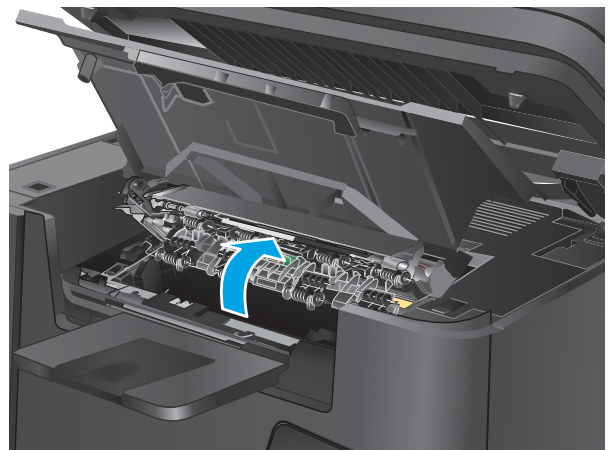
6. Close the top cover.
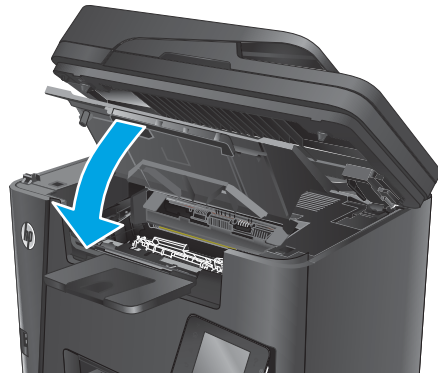
7. Lower the scanner assembly.

8. If the error message still displays on the control panel, press or touch OK to clear it.

Clear jams in the duplexer

A **Jam in duplex area** message displays on the product control panel.

📝 **NOTE:** For the dw models, an animation showing the jam-clearing procedure displays on the control panel.

1. Open the rear door.

2. Remove any jammed paper from the duplex area. Use both hands to remove jammed paper to avoid tearing the paper.

3. Close the rear door.

4. If the error message still displays on the control panel, press or touch OK to clear it.

Solve performance problems

Factors affecting print performance

Table 2-14 Factors affecting print performance

Problem	Cause	Solution
Pages print but, are totally blank.	The sealing tape might still be in the toner cartridges.	Verify that the sealing tape has been completely removed from the toner cartridges.
	The document might contain blank pages.	Check the document that you are printing to see if content appears on all of the pages.
	The product might be malfunctioning.	To check the product, print a Configuration page.
Pages print very slowly. **NOTE:** The product print speed is effected by various factors (for example, media size or page complexity).	Heavier media types can slow the print job.	Print on a different type of media.
	Complex pages can print slowly.	Proper fusing might require a slower print speed to ensure the best print quality.
	Paper type not set correctly.	Select the type to match the paper.
Pages did not print.	The product might not be pulling media correctly.	Ensure paper is loaded in the tray correctly. If the problem persists, you might need to replace the pickup rollers and the separation pad.
	The media is jamming in the product.	Clear the jam.
	The USB cable might be defective or incorrectly connected.	● Disconnect the USB cable at both ends and reconnect it. ● Try printing a job that has printed in the past. ● Try using a different USB cable.
	Other devices are running on your computer.	The product might not share a USB port. If you have an external hard drive or network switchbox that is connected to the same port as the product, the other device might be interfering. To connect and use the product, you must disconnect the other device or you must use two USB ports on the computer.

Print speeds

Print speed is the number of pages that print in one minute. Print speed depends on different engine-process speeds or operational pauses between printed pages during normal product operation. Factors that determine the print speed of the product include the following:

● Page formatting time

The product must pause for each page to be formatted before it prints. Complex pages take more time to format, resulting in reduced print speed. However, most jobs print at full engine speed (35 ppm on Letter-size media or 33 ppm on A4-size media).

- Media size

  Legal-size media reduces print speed because it is longer than the standard Letter- or A4–size media. A reduce print speed is used when printing on narrow media to prevent the edges of the fuser from overheating.

- Media mode

  Some media types require a reduced print speed to achieve maximum print quality on that media. For example, glossy, heavy, and specialty media (for example, envelopes or photos) require a reduced print speed. To maximize the print speed for special media types, ensure that you select the correct media type in the print driver.

- Product temperature

  To prevent product damage, print speed is reduced if the product reaches a specific internal temperature (thermal slow down). The starting temperature of the product, ambient environment temperature, and the print job size effect the number of pages that can be printed before the product reduces the print speed. Thermal slow down reduces print speed by printing four pages and then pausing for an amount of time before printing continues.

- Other print speed reduction factors

  Other factors (especially during large print jobs) that can cause reduced print speeds include:

  ◦ Density control sequence; occurs every 150 pages and takes about 120 seconds.

The product does not print or it prints slowly

The product does not print

If the product does not print at all, try the following solutions.

1. Make sure the product is turned on and that the control panel indicates it is ready.

   - If the control panel does not indicate the product is ready, turn the product off and then on again.

   - If the control panel indicates the product is ready, try sending the job again.

2. If the control panel indicates the product has an error, resolve the error and then try sending the job again.

3. Make sure the cables are all connected correctly. If the product is connected to a network, check the following items:

   - Check the light next to the network connection on the product. If the network is active, the light is green.

   - Make sure that you are using a network cable and not a phone cord to connect to the network.

   - Make sure the network router, hub, or switch is turned on and that it is working correctly.

4. Install the HP software from the CD that came with the product. Using generic printer drivers can cause delays clearing jobs from the print queue.

5. From the list of printers on your computer, right-click the name of this product, click **Properties**, and open the **Ports** tab.

   ● If you are using a network cable to connect to the network, make sure the printer name listed on the **Ports** tab matches the product name on the product configuration page.

   ● If you are using a USB cable and are connecting to a wireless network, make sure the box is checked next to **Virtual printer port for USB**.

6. If you are using a personal firewall system on the computer, it might be blocking communication with the product. Try temporarily disabling the firewall to see if it is the source of the problem.

7. If your computer or the product is connected to a wireless network, low signal quality or interference might be delaying print jobs.

The product prints slowly

If the product prints, but it seems slow, try the following solutions.

1. Make sure the computer meets the minimum specifications for this product. For a list of specifications, go to this Web site: www.hp.com/support/ljM201, www.hp.com/support/ljM202, www.hp.com/support/ljMFPM225, www.hp.com/support/ljMFPM226.

2. When you configure the product to print on some paper types, such as heavy paper, the product prints more slowly so it can correctly fuse the toner to the paper. If the paper type setting is not correct for the type of paper you are using, change the setting to the correct paper type.

3. If your computer or the product is connected to a wireless network, low signal quality or interference might be delaying print jobs.

Solve connectivity problems

📝 **NOTE:** Restore the factory default settings for the product. See <u>Service mode functions, print-only products on page 147</u> or <u>Service mode functions, MFP products on page 148</u>. If the problem persists, try the solutions in this section.

Solve direct-connect problems

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

- Verify that the cable is connected to the computer and to the product.

- Verify that the cable is not longer than 2 meters (6 feet). Replace the cable if necessary.

- Verify that the cable is working correctly by connecting it to another product. Replace the cable if necessary.

Solve wired network problems

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

- <u>Poor physical connection</u>

- <u>The computer is using the incorrect IP address for the product</u>

- <u>The computer is unable to communicate with the product</u>

- <u>The product is using incorrect link and duplex settings for the network</u>

- <u>New software programs might be causing compatibility problems</u>

- <u>The computer or workstation might be set up incorrectly</u>

- <u>The product is disabled, or other network settings are incorrect</u>

📝 **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 <u>www.microsoft.com</u>.

Poor physical connection

1. Verify that the product is attached to the correct network port using a cable of the correct length.

2. Verify that cable connections are secure.

3. Look at the network port connection on the back of the product, and verify that the amber activity light and the green link-status light are lit.

4. If the problem continues, try a different cable or port on the hub.

The computer is using the incorrect IP address for the product

1. Open the printer properties and click the **Ports** tab. Verify that the current IP address for the product is selected. The product IP address is listed on the product configuration page.

2. If you installed the product using the HP standard TCP/IP port, select the box labeled **Always print to this printer, even if its IP address changes**.

3. If you installed the product using a Microsoft standard TCP/IP port, use the hostname instead of the IP address.

4. If the IP address is correct, delete the product and then add it again.

The computer is unable to communicate with the product

1. Test network communication by pinging the network.

   a. Open a command-line prompt on your computer.

      ● For Windows, click **Start**, click **Run**, type `cmd`, and then press Enter.

      ● For OS X, go to **Applications**, then **Utilities**, and open **Terminal**.

   b. Type `ping` followed by the IP address for your product.

   c. If the window displays round-trip times, the network is working.

2. If the ping command failed, verify that the network hubs are on, and then verify that the network settings, the product, and the computer are all configured for the same network.

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

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

New software programs might be causing compatibility problems

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

The computer or workstation might be set up incorrectly

1. Check the network drivers, print drivers, and the network redirection settings.

2. Verify that the operating system is configured correctly.

The product is disabled, or other network settings are incorrect

1. Review the configuration page to check the status of the network protocol. Enable it if necessary.

2. Reconfigure the network settings if necessary.

Solve wireless network problems

● Wireless connectivity checklist

● The product does not print after the wireless configuration completes

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

● The wireless connection does not work after moving the wireless router or product

● Cannot connect more computers to the wireless product

● The wireless product 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 product and the wireless router are turned on and have power. Also make sure that the wireless radio in the product is turned on.

- Verify that the service set identifier (SSID) is correct. Print a configuration page 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 product as it is for the wireless access point (on networks using WPA security).

- Verify that the product is within the range of the wireless network. For most networks, the product 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 product. Make sure poles, walls, or support columns containing metal or concrete do not separate the product and wireless access point.

- Verify that the product 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 product connect to the same wireless network.

- For OS X, verify that the wireless router supports Bonjour.

The product does not print after the wireless configuration completes

1. Make sure that the product 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 product HP Embedded Web Server from a computer on the network.

The product 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 product or try to print, make sure you allow the programs to run.

3. Temporarily turn off the firewall, and then install the wireless product 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 product

1. Make sure that the router or product connects to the same network that your computer connects to.

2. Print a configuration page.

3. Compare the service set identifier (SSID) on the configuration page 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 product.

Cannot connect more computers to the wireless product

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 product 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 product 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 product connects to the same network that the computer connects to.

  a. Print a configuration page.

  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 product.

Perform a wireless network diagnostic test

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

1. From the Home screen on the product control panel, touch the Setup ⚒ button.

2. Open the Self Diagnostics menu.

3. Touch the Run Wireless Test button to start the test. The product prints a test page that shows test results.

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 products on the network.

Service mode functions, print-only products

Restore the factory-set defaults

Restoring the factory-set defaults returns all of the product and network settings to the factory defaults. It will not reset the page count, tray size, or language. To restore the product 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. The procedure then automatically restarts the product.

1. On the product control panel, press the OK button to open the menus.

2. Open the following menus:

    ●   **Service**

    ●   **Restore Defaults**

    The product automatically restarts.

Service mode functions, MFP products

Restore the factory-set defaults

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

1. On the product control panel, press or touch the Setup ⚒ button.

2. Open the **Service** menu.

3. Select the **Restore Defaults** option, and then press or touch the OK button.

   The product automatically restarts.

Solve fax problems

- Check the hardware setup
- Faxes are sending slowly
- Fax quality is poor
- Fax cuts off or prints on two pages

Check the hardware setup

- 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 product is connected directly to the wall phone port. Disconnect all other devices that are connected to the product.

1. Verify that the telephone cord is connected to the correct port on the back of the product.

2. Check the phone line by using the fax test:

    a. On the product control panel, press or touch the Setup 🔧 button.

    b. Select Service, and then select Fax Service.

    c. Select Run Fax Test. The product prints a fax test 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 product firmware is current:

    a. Go to www.hp.com/support.

    b. Click **Drivers & Software**, type your product number in the window, and then click **Search**. If necessary, click your model in a list of similar products.

        The **Software & Driver Downloads** page opens.

    c. Select your operating system from the drop-down menu, and then click **Next**.

    d. Click the plus sign next to **Firmware**, and then click **HP LaserJet Firmware Update Utility**.

    e. Click **Download**.

    f. When the download is complete, follow the on-screen instructions to install and run the utility.

        The utility checks for firmware updates for your HP product. If updates are found, the utility installs the available update.

    g. When firmware updates are complete, try to resend the fax.

4. Verify that the fax was set up when the product 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.

> 📝 **NOTE:** HP products are designed specifically for use with analog phone services.

- 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 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 product. 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.

Faxes are sending slowly

The product 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.

- Use white paper for the original. Do not use colors such as gray, yellow, or pink.

- Divide large fax jobs into smaller sections, and then fax them individually.

- Turn off the Error Correction setting.

  1. On the product control panel, press or touch the Setup 🔧 button.

  2. Select Service, and then select Fax Service.

  3. Select Error Correction, and then select Off.

  > 📝 **NOTE:** Turning off Error Correction can reduce image quality.

- Increase the Fax Speed setting.

  1. On the product control panel, press or touch the Setup 🔧 button.

  2. Select Fax Setup, and then select Advanced Setup.

  3. Select Fax Speed, and then select the correct setting.

- Change the fax settings on the control panel to a lower resolution.

  > 📝 **NOTE:** Higher resolution faxes can take longer to send than lower resolution faxes.

  1. On the product control panel, press or touch the Setup 🔧 button.

  2. Select Fax Setup, and then select Advanced Setup.

  3. Select Fax Resolution, and then select the correct setting.

Fax quality is poor

Fax is blurry or too light.

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

  1. On the product control panel, press or touch the Setup ⚒ button.

  2. Select Fax Setup, and then select Advanced Setup.

  3. Select Fax Resolution, and then select the correct setting.

  📝 **NOTE:** Increasing resolution slows transmission speed.

- Turn on the Error Correction setting from the control panel.

  1. On the product control panel, press or touch the Setup ⚒ button.

  2. Select Service, and then select Fax Service.

  3. Select Error Correction, and then select On.

- Check the toner cartridge and replace the cartridge if necessary.

- Ask the sender to darken the contrast setting on the sending fax machine, and then resend the fax.

Fax cuts off or prints on two pages

- Set the Default Paper Size setting. Faxes print on a single size of paper based on the Default Paper Size settings.

  1. On the product control panel, press or touch the Setup ⚒ button.

  2. Select System Setup, and then select Paper Setup.

  3. Select Paper Size, and then select the correct setting.

- Set the paper type and size for the tray used for faxes.

- Turn on the Fit to Page setting to print longer length faxes on letter or A4 size paper.

  1. On the product control panel, press or touch the Setup ⚒ button.

  2. Select Fax Setup, and then select Advanced Setup.

  3. Select Fit to Page, and then select On.

  📝 **NOTE:** If the Fit to Page setting is off and the Default Paper Size setting is set to Letter, a Legal-size original prints on two pages.

Product updates

Update the firmware

HP offers periodic product updates, new Web Services apps, and new features to existing Web Services apps. Follow these steps to update the product firmware for a single product. When you update the firmware, Web Service apps will update automatically.

There are two supported methods to perform a firmware update on this product. Use only one of the following methods to update the product firmware.

Method one: Update the firmware using the control panel

Use these steps to load the firmware from the control panel (for network-connected products only), and/or set the product to automatically load future firmware updates. For USB-connected products, skip to method two.

1. Make sure the product is connected to a wired (Ethernet) or wireless network with an active Internet connection.

   NOTE: The product must be connected to the internet to update the firmware via a network connection.

2. From the Home screen on the product control panel, open the Setup menu.

   ● For touchscreen control panels, touch the Setup ⚲ button.

   ● For standard control panels, press the left or right arrow button.

3. 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.

4. Check for updates.

   ● For touchscreen control panels, touch Check for Updates Now.

   ● For standard control panels, select **Check for Update**.

   NOTE: The product automatically checks for an update, and if a newer version is detected, the update process automatically starts.

5. Set the product to automatically update the firmware when updates become available.

   From the Home screen on the product control panel, open the Setup menu.

   ● For touchscreen control panels, touch the Setup ⚲ button.

   ● For standard control panels, press the left or right arrow button.

   Scroll to and open the Service menu, open the LaserJet Update menu, and then select the Manage Updates menu.

   Set the product to automatically update the firmware.

   ● For touchscreen control panels, set the Allow Updates option to YES, and then set the Check automatically option to ON.

   ● For standard control panels, set the **Allow Updates** option to **YES**, and then set the **Automatic Check** option to **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 products connected to the computer via a USB cable. It also works for products connected to a network.

1. Go to www.hp.com/go/support, click the **Drivers & Software** link, type the product name in the search field, press the ENTER button, and then select the product 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 product from the drop-down list, and then click **Send Firmware**.

   NOTE: To print a configuration page 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   Specifications

- Physical specifications
- Power consumption
- Acoustic specifications
- Environmental specifications
- Certificate of Volatility

Physical specifications

Table A-1 Physical specifications[1]

Specification	HP LaserJet Pro MFP M225/M226 Printer series	HP LaserJet Pro M201/M202 Printer series
Product weight	7.6 kg (16.8 lb)	5.9 kg (13.0 lb) (simplex products)
		6.4 kg (14.1 lb) (duplex products)
Product height	262 mm (10.31 in)	252 mm (9.92 in) (simplex products)
		251 mm (9.88 in) (duplex products)
Product depth	290 mm (11.42 in)	253 mm (9.96 in) (simplex products)
		292 mm (11.49 in) (duplex products)
Product width	443 mm (17.44 in)	379 mm (14.92 in) (simplex products)
		384 mm (15.12 in) (duplex products)

[1] Values are based on preliminary data. See www.hp.com/support/ljM201, www.hp.com/support/ljM202, www.hp.com/support/ljMFPM225, www.hp.com/support/ljMFPM226.

Power consumption

Table A-2 HP LaserJet Pro MFP M225/M226 and HP LaserJet Pro M201/M202 Printer series (average in watts)[1] [2] [3]

Product	Printing	Ready	HP Auto Off	Manual Off
HP LaserJet Pro MFP M225/M226 Printer series	1224	4.9	4.7	0.59
HP LaserJet Pro M201/M202 Printer series	1201	2.4	4.7	0.59

[1] Values are based on preliminary data. See www.hp.com/support/ljM201, www.hp.com/support/ljM202, www.hp.com/support/ljMFPM225, www.hp.com/support/ljMFPM226 for current information.
[2] Power reported is highest values measured for all product models using all standard voltages.
[3] Default time from Ready Mode to HP Auto Off = 5 minutes

Acoustic specifications

Table A-3 HP LaserJet Pro MFP M225/M226 and HP LaserJet Pro M201/M202 Printer series[1]

Sound power level	Declared per ISO 9296
Printing	• HP LaserJet Pro MFP M225/M226 Printer series
	○ L_{WAd}= 6.49 Bels (A) [64.9 dB(A)]
	• HP LaserJet Pro M201/M202 Printer series
	○ L_{WAd}= 6.49 Bels (A) [64.9 dB(A)]
Ready	• HP LaserJet Pro MFP M225/M226 Printer series
	○ Inaudible
	• HP LaserJet Pro M201/M202 Printer series

Table A-3 HP LaserJet Pro MFP M225/M226 and HP LaserJet Pro M201/M202 Printer series[1] (continued)

Sound power level	Declared per ISO 9296
	◦ Inaudible

Sound pressure level - bystander position	Declared per ISO 9296
Printing	• HP LaserJet Pro MFP M225/M226 Printer series
	◦ L_{pAm}=48 dB (A)
	• HP LaserJet Pro M201/M202 Printer series
	◦ L_{pAm}=48 dB (A)
Ready	• HP LaserJet Pro MFP M225/M226 Printer series
	◦ Inaudible
	• HP LaserJet Pro M201/M202 Printer series
	◦ Inaudible

[1] Values are based on preliminary data. See www.hp.com/support/ljM201, www.hp.com/support/ljM202, www.hp.com/support/ljMFPM225, www.hp.com/support/ljMFPM226 for current information.

Environmental specifications

Table A-4 Environmental specifications

	Operating[1]	Storage[1]
Temperature	10° to 32.5°C (50° to 91°F)	0° to 35°C (32° to 95°F)
Relative Humidity	10% to 80%	10% to 80%

[1] Values are based on preliminary data. See www.hp.com/support/ljM201, www.hp.com/support/ljM202, www.hp.com/support/ljMFPM225, www.hp.com/support/ljMFPM226.

Certificate of Volatility

Hewlett-Packard Certificate of Volatility				
Model: HP LaserJet Pro M201/M202 Series	Part Number: M201n=CF455A, M201dw=CF456A, M202n=C6N20A, M202dw=C6N21A		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)? ☒ Yes ☐ No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (SRAM, DRAM, etc): SDRAM - DDR3	Size: 128MB	User Modifiable: ☐ Yes ☒ No	Function: Print job specific information, and information stored in RAM disk	Steps to clear memory: When the printer is powered off, the memory is erased.
Type (SRAM, DRAM, etc):	Size:	User Modifiable: ☐ Yes ☐ No	Function:	Steps to clear memory:
Type (SRAM, DRAM, etc):	Size:	User Modifiable: ☐ Yes ☐ 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)? ☒ Yes ☐ No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (Flash, EEPROM, etc): EEPROM	Size: 16KB	User Modifiable: ☐ Yes ☒ No	Function: Printer specific data such as page count, configuration etc.	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): NAND Flash	Size: 256MB	User Modifiable: ☐ Yes ☒ No	Function: FW code/Smart Install image/ partial printer configuration information storage.	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: ☐ Yes ☐ No	Function:	Steps to clear memory:

Mass Storage				
Does the device contain mass storage memory (Hard Disk Drive, Tape Backup)? ☐ Yes ☒ No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc):	Size:	User Modifiable: ☐ Yes ☐ No	Function:	Steps to clear memory:

Figure A-2 Certificate of Volatility (2 of 2)

Hewlett-Packard Certificate of Volatility		
Model: HP LaserJet Pro MFP M225/M226 Series	Part Number: M225dn=CF484A, M226dw=CF485A, M225rdn=CF486A, M226dn=C6N22A, M226dw=C6N23A	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)? ☒ Yes ☐ No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (SRAM, DRAM, etc): SDRAM - DDR3	Size: 256MB	User Modifiable: ☐ Yes ☒ No	Function: Print/Scan/Fax job specific information, and information stored in RAM disk	Steps to clear memory: When the printer is powered off, the memory is erased.
Type (SRAM, DRAM, etc):	Size:	User Modifiable: ☐ Yes ☐ No	Function:	Steps to clear memory:
Type (SRAM, DRAM, etc):	Size:	User Modifiable: ☐ Yes ☐ 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)? ☒ Yes ☐ No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (Flash, EEPROM, etc): EEPROM	Size: 16KB	User Modifiable: ☐ Yes ☒ No	Function: Printer specific data such as page count, configuration etc.	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): NAND Flash	Size: 256MB	User Modifiable: ☐ Yes ☒ No	Function: FW code/Fax job/Smart Install image/partial printer configuration information storage.	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: ☐ Yes ☐ No	Function:	Steps to clear memory:

Mass Storage				
Does the device contain mass storage memory (Hard Disk Drive, Tape Backup)? ☐ Yes ☒ No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc):	Size:	User Modifiable: ☐ Yes ☐ No	Function:	Steps to clear memory:

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