# HP Color LaserJet Pro M454
# HP Color LaserJet Pro MFP M479

## Service Manual: Troubleshooting

# HP Color LaserJet Pro M454, HP Color LaserJet Pro MFP M479

Service Manual: Troubleshooting

# Revision history

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Table -1  Revision history

| Revision number | Revision date | Revision notes |
| --- | --- | --- |
| 1 | 6/2019 | HP LaserJet Pro M454 |
| | | HP LaserJet Pro MFP M479 |
| | | Troubleshooting manual initial release |

## Conventions used in this guide

☀ **TIP:** Helpful hints or shortcuts.

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

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

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

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

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

# HP service and support

Learn about HP access to additional service and support information.

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- Service manuals

- Service advisories

- Up-to-date control panel message (CPMD) troubleshooting

- Install and configure

- Printer specifications

- Solutions for printer issues and emerging issues

- Remove and replace part instructions and videos

- Warranty and regulatory information

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- [https://support.hp.com/wise/home/ams-en](https://support.hp.com/wise/home/ams-en)WISE - English

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- [https://support.hp.com/wise/home/apj-th](https://support.hp.com/wise/home/apj-th)WISE - Thai

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# Basic operation

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

The basic printer operation comprises the following systems:

- Engine control system
- Laser scanner system
- Image-formation system
- Pickup, feed, and delivery system
- Accessory (optional paper feeder)
- Integrated scanner system (M479 models only)

**Figure 1-1** Relationship between the main printer systems
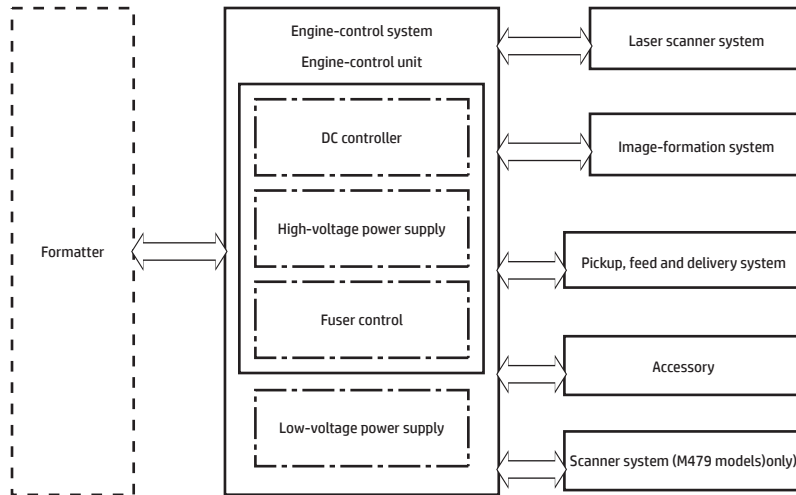
# Sequence of operation

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

**Table 1-1  Sequence of operation**

| Period | Duration | Description |
|---|---|---|
| Waiting | From the time the power is turned on, the door is closed, or when the printer exits sleep mode until the printer is ready for printing. | • Heats the fuser roller in the fuser<br>• Pressurizes the fuser film<br>• Detects the toner cartridges<br>• Separates all of the developing rollers from the photosensitive drums in the toner cartridges<br>• Rotates and stops each motor<br>• Cleans the intermediate transfer belt (ITB) and secondary transfer roller<br>• Detects cable breakage on the thermistor<br>• Rotates and stops each fan<br>• Detects any residual paper in the engine |
| Standby | From the end of the waiting sequence, the last rotation until the formatter receives a print command, or until the printer is turned off. | • Is in the Ready state<br>• Enters Sleep mode if the formatter sends the sleep command<br>• The printer calibrates if it is time for an automatic calibration |
| Initial rotation | From the time the formatter receives a print command until the paper enters the paper path. | • Rotates each motor<br>• Rotates each fan<br>• Activates the high-voltage power supply<br>• Prepares the laser/scanner unit<br>• Warms the fuser to the correct temperature |
| Printing | From the time the first sheet of paper enters the paper path until the last sheet has passed through the fuser. | • Forms the image on the photosensitive drums<br>• Transfers the toner to the paper<br>• Fuses the toner image onto the paper |
| Last rotation | From the time the last sheet of paper exits the fuser until the motors stop rotating. | • Moves the last printed sheet into the output bin<br>• Stops each motor<br>• Stops the high-voltage power supply<br>• Stops the laser/scanner unit<br>• Turns the fuser heater off<br>• Cleans the ITB and secondary transfer roller<br>• If another print command is received, the printer enters the initial rotation period when the last rotation is complete. |

# Formatter-control system

The formatter performs the following functions:

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

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

## Sleep delay

When the printer is in sleep delay mode, the control-panel backlight is turned off, but the printer retains all printer settings, downloaded fonts, and macros. The default setting is a 1-minute idle time. The setting can be changed from the control panel menus.

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

- A print job, valid data, or a PML or PJL command is received at the serial port.
- The control panel is touched (button press or touchscreen touch depending on model).
- Inserting paper into the ADF will wake up the device. Opening the scanner lid will not wake up the device. There is no sensor for the scanner lid open. (M479 only).
- Quick press on the power button.
- Connecting the ethernet cable to a live network.
- Connecting the fax cable to a live phone line.
- Inserting a USB drive in either the front USB port or the USB port on the back of the device.
- Opening the front door.
- Opening the rear door.
- Connecting a USB cable to a PC that is powered on.

**NOTE:** Opening the paper tray will not wake up the device.

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

## Setting up sleep delay

### 2-line control panels

1. On the product control panel, press the OK button. Then use ◀ or ▶ to navigate to Power Management, and then select OK then use the ◀ or ▶ to navigate to Settings.

2. Open the following menus:

   ● Power Management

3. Use the arrow keys to select the time for the Sleep Delay , and then press the OK button.

### Touchscreen control panels

1. From the Home screen on the product control panel, swipe down, and then select Setup ⚙ button.

2. Open the following menus:

   ● Power Management

   ● Sleep Delay

3. Select the time for the Sleep Delay.

## Printer job language (PJL)

PJL is an integral part of printer configuration, in addition to the standard PCL and PostScript (PS). With standard cabling, the printer can use PJL to perform a variety of functions.

● **Dynamic I/O switching:** The printer can be configured with a host on each I/O by using dynamic I/O switching. Even when the printer is offline, it can receive data from more than one I/O simultaneously, until the I/O buffer is full.

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

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

## Printer management language (PML)

PML allows remote configuration of the printer and status monitoring through the input/output (I/O) ports.

## Control panel

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

## Walk-up USB

**NOTE:** Touchscreen models only.

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

- .pdf

- .jpg

- .prn and .PRN

- .pcl and .PCL

- ps and .PS

- doc and .docx

- .ppt and .pptx

When a USB flash drive is inserted into the front of the printer, the control panel will display the USB Flash Drive menu. The files present on the USB flash drive can be accessed from the control panel.

Any files in a supported format on the USB flash drive can be printed directly from the printer control panel. Pages also can be scanned and saved to the USB flash drive from the control panel.

## Wireless

**NOTE:** Wireless models only.

Wireless products contain a wireless card to enable 802.11b/g/n wireless communication. Dual band support for 2.4Ghz and 5 Ghz.

## Low end data model (LEDM) overview

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.

## CPU

The formatter incorporates a 1200 MHz processor.

## Input/output (I/O)

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

## USB

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

## USB hosts

The printer includes USB hosts for USB flash drive and Job Storage.

## 10/100/1000 networking

The printer includes a 10/100/1000 network (ethernet) connection.

## Fax

The printer includes a fax phone line connection.

## Memory

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

### Firmware

The formatter stores the printer firmware. A remote firmware upgrade process is used to overwrite and upgrade the firmware.

### Nonvolatile random access memory (NVRAM)

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

### Flash memory

**NAND**: Stores fax memory (M479 models only).

### Random access memory

The M454 and M479 models comes with 512 MB of memory installed. The formatter has 256 MB NAND Flash.

### HP Memory Enhancement technology (MEt)

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

📝 NOTE: The MEt is available only in PCL mode; it is not functional when printing in PS mode.

# Engine-control unit

The engine-control unit includes the DC controller and the high-voltage power supply.

Figure 1-2 Engine-control unit
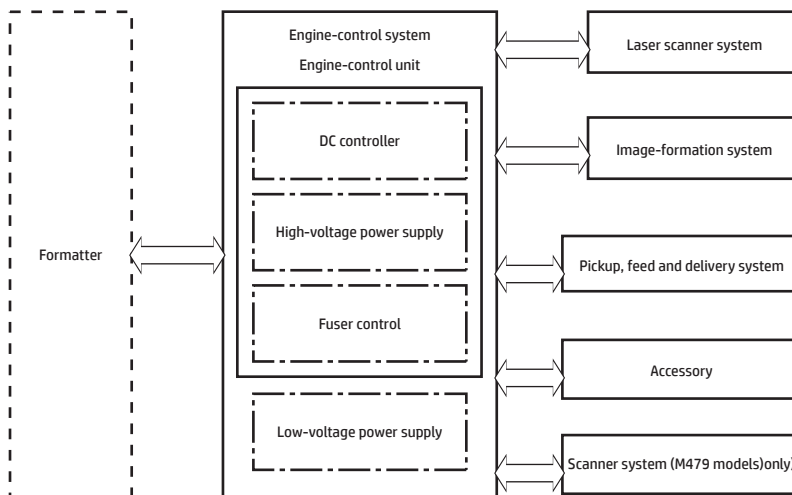
# DC controller

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

**Table 1-2** Printer electrical components

| Component type | Abbreviation | Component name |
|---|---|---|
| Motor | M1 | Pickup motor |
| | M2 | Drum motor |
| | M3 | Developer motor |
| | M4 | Fuser motor |
| | M10 | Scanner motor |
| Fan | FM1 | Power supply fan |
| | FM2 | Cartridge fan |
| Clutch | CL1 | Duplex re-pickup clutch[1] |
| Solenoid | SL1 | Tray 1 (MP) pickup solenoid |
| | SL2 | Developer alienation solenoid (K) |
| | SL3 | Cassette (Tray 2) pickup solenoid |
| | SL4 | Developer alienation solenoid (YMC) |
| | SL5 | Lifter solenoid |
| | SL10 | Duplex switchback solenoid[1] |
| | SL30 | T1 brush alienation solenoid |
| Switch | SW1 | Front door switch |
| | SW2 | Developer alienation detection switch (YMC) |
| | SW3 | Developer alienation detection switch (K) |
| | SW4 | T1 brush alienation detection switch |
| | SW5 | Fuser pressure release detection switch |
| | SW6 | Cassette detection switch |
| | SW7 | Front door switch 2[1] |
| | SW601 | Power switch |
| Photo interrupter | SR1 | Registration sensor |
| | SR2 | Loop sensor |
| | SR3 | Fuser output sensor |
| | SR4 | Output bin media-full sensor |
| | SR5 | Cassette (Tray 2) media out sensor |
| | SR6 | Tray 1(MP) media out sensor |

Table 1-2 Printer electrical components (continued)

| Component type | Abbreviation | Component name |
|---|---|---|
| | SR7 | Cassette (Tray 2) media surface sensor |
| | SR8 | Lifter sensor |
| | SR21 | Duplex switchback sensor[1] |
| | SR22 | Duplex re-pickup sensor[1] |
| Sensor | | Registration density sensor |
| | | Environment sensor |

[1] Duplex models only

# High-voltage power supply

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

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

Figure 1-3 High-voltage power supply



Figure 1-3 High-voltage power supply
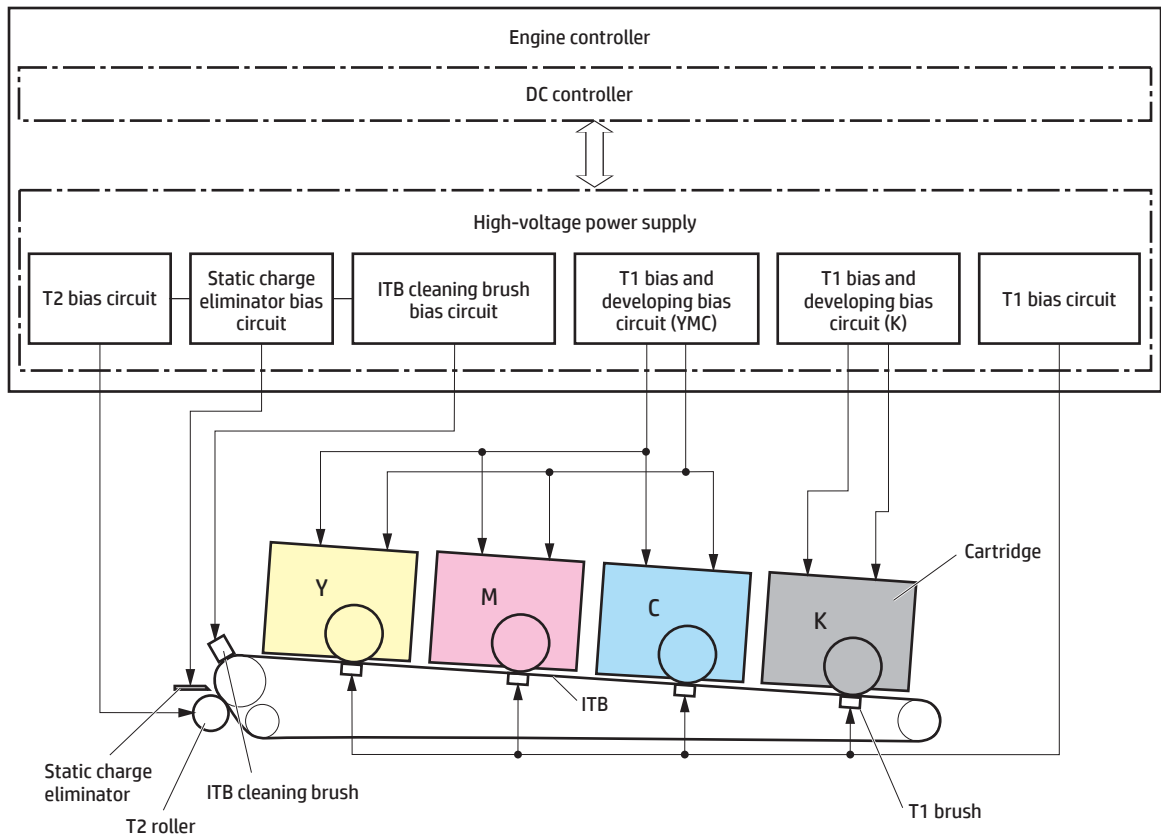
## Motors

The printer has five motors for the paper-feed and image-formation.

📝 NOTE: The DC controller determines the following motor failures.

- Drum motor (ITB motor start-up failure)
- Drum motor (ITB motor rotation failure)
- Fuser motor (fuser motor start-up failure)
- Fuser motor (fuser motor rotation failure)
- Developer motor (developer alienation motor failure)

Table 1-3 Motors[1]

| Component name | | Components driven |
| --- | --- | --- |
| M1 | Pickup motor | • Tray 1 (MP) tray pickup roller |
| | | • Tray 1 (MP) tray feed roller |
| | | • Cassette (Tray 2) pickup roller |
| | | • Cassette (Tray 2) feed roller |
| | | • Registration roller |
| | | • Duplex feed roller[2] |
| | | • Duplex re-pickup roller[2] |
| | | • Lift up of cassette (Tray 2) |
| M2 | Drum motor | • Photosensitive drum |
| | | • Intermediate transfer belt (ITB) |
| M3 | Developer motor | • Developer roller |
| | | • Contact/alienation of developer roller |
| M4 | Fuser motor | • Fuser roller |
| | | • Output roller |
| | | • Duplex switchback roller[2] |
| | | • Pressure/release of pressure film |
| | | • Fuser film |
| M10 | Laser/scanner motor | Laser/scanner mirror |

[1] Because the integrated scanner assembly on the M479 models is a whole unit replacement, those motors are not included on this list.
[2] Duplex models only

# Fans

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

NOTE: The DC controller determines the following fan failures.

- Power supply fan (fan motor 1 failure)
- Cartridge fan (fan motor 2 failure)

Table 1-4 Fans

| Component name | | Cooling area | Type | Speed |
|---|---|---|---|---|
| FM1 | Power supply fan | Around the low-voltage power supply unit | Intake | Variable (full/middle/half) |
| FM2 | Cartridge fan | Around the toner cartridges and fuser | Intake | Variable (full/half) |

# Engine laser/scanner system

📝 **NOTE:** The laser scanner assembly of this printer has the laser shutter mechanism. For personal safety, the laser shutter interrupts the laser optical path of laser scanner assembly when the following cover/door is opened.

- Front door

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

The laser/scanner system consists of the following components.

📝 **NOTE:** The printer has one laser scanner assembly for yellow, magenta, cyan and black.

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

**Figure 1-4** Laser/scanner system
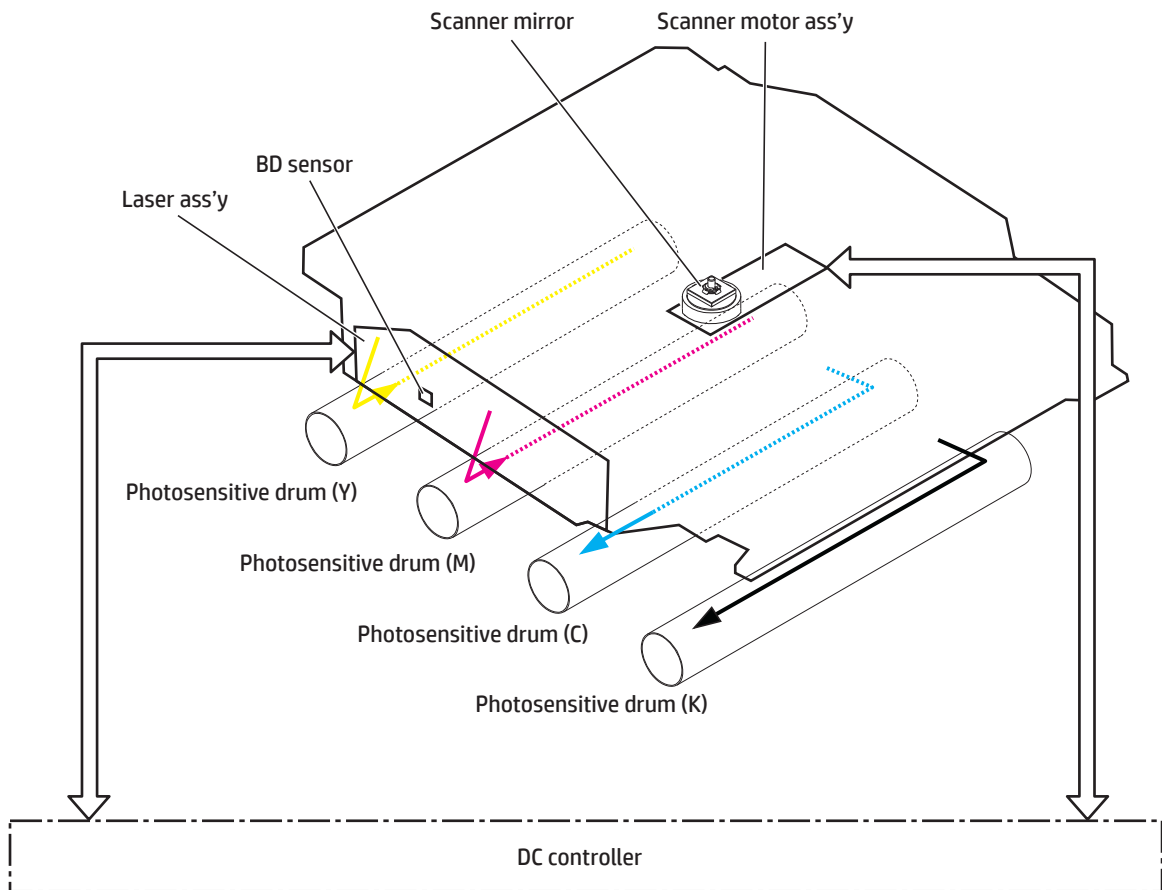
# Laser/scanner failure detection

The DC controller detects the following laser scanner failure conditions and notifies the formatter:

- Laser scanner failure detection

# Image-formation system

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

Following are the main components of the image-formation system:

- Toner cartridges
- Intermediate Transfer Belt (ITB)
- Secondary transfer (T2) roller
- Fuser
- Laser scanner assembly
- High-voltage power supply (HVPS)

**Figure 1-5** Image-formation system block diagram
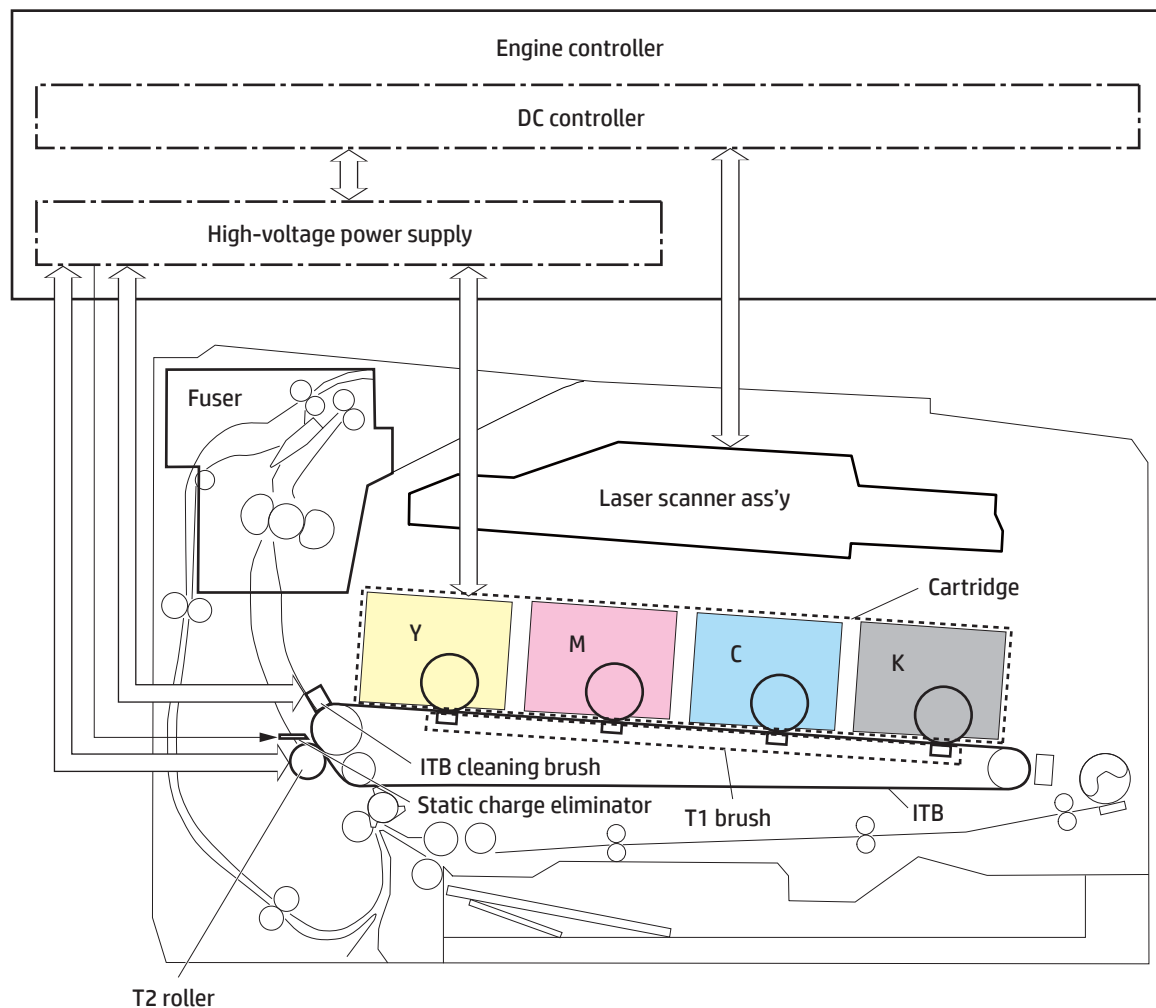


The DC controller rotates the following motors to drive each component.

- Drum motor

- — Photosensitive drum

- — Primary charging roller (follows the photosensitive drum)[1]

- — ITB drive roller

- — ITB (follows the ITB drive roller)

- — T2 roller (follows the ITB)

- Developer motor

  - — Developer roller[1]

  - — Contact/alienation of developing roller

- Fuser motor

  - — Fuser roller

  - — Fuser film (follows the fuser roller)

  - — Pressure film (follows the fuser roller)

[1]The primary charging roller and developer roller are in the toner cartridges.

**Figure 1-6** Image-formation drive system
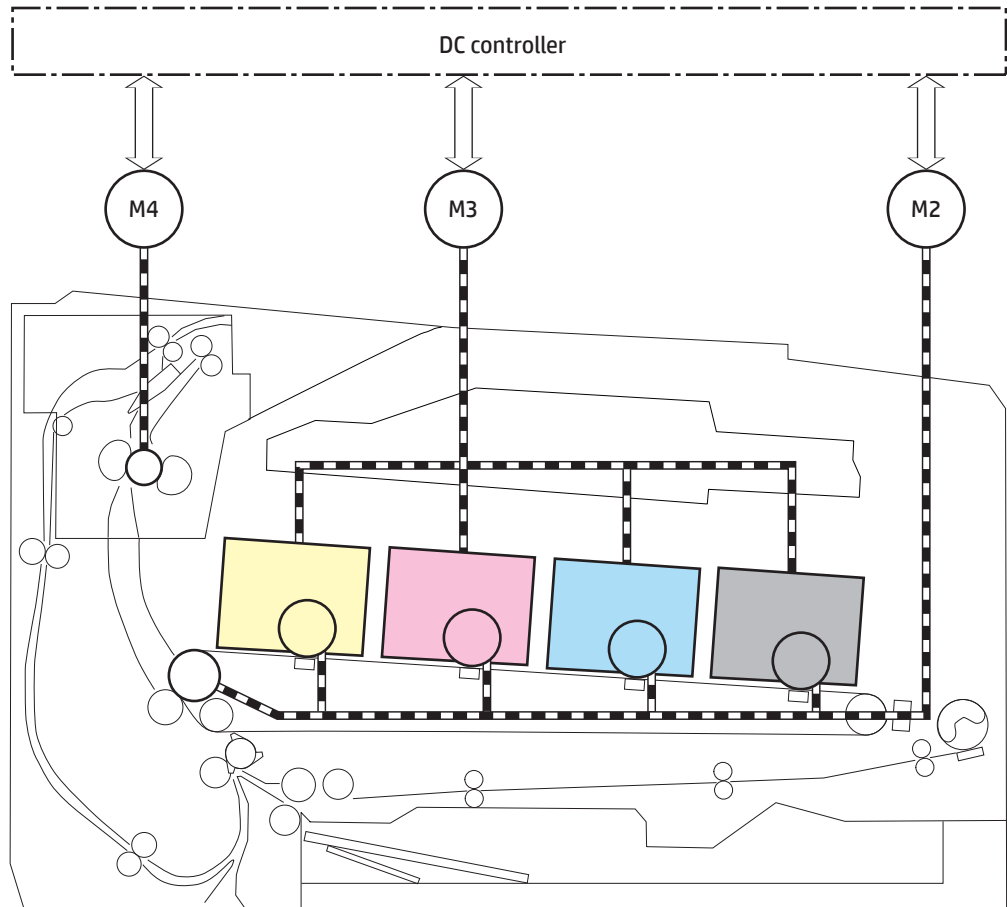


**Table 1-5** Image-formation drive system

| Abbreviation | Component name |
| --- | --- |
| M2 | Drum motor |
| M3 | Developer motor |
| M4 | Fuser motor |

Figure 1-7 Image-formation switch and sensor system



Figure 1-7 Image-formation switch and sensor system
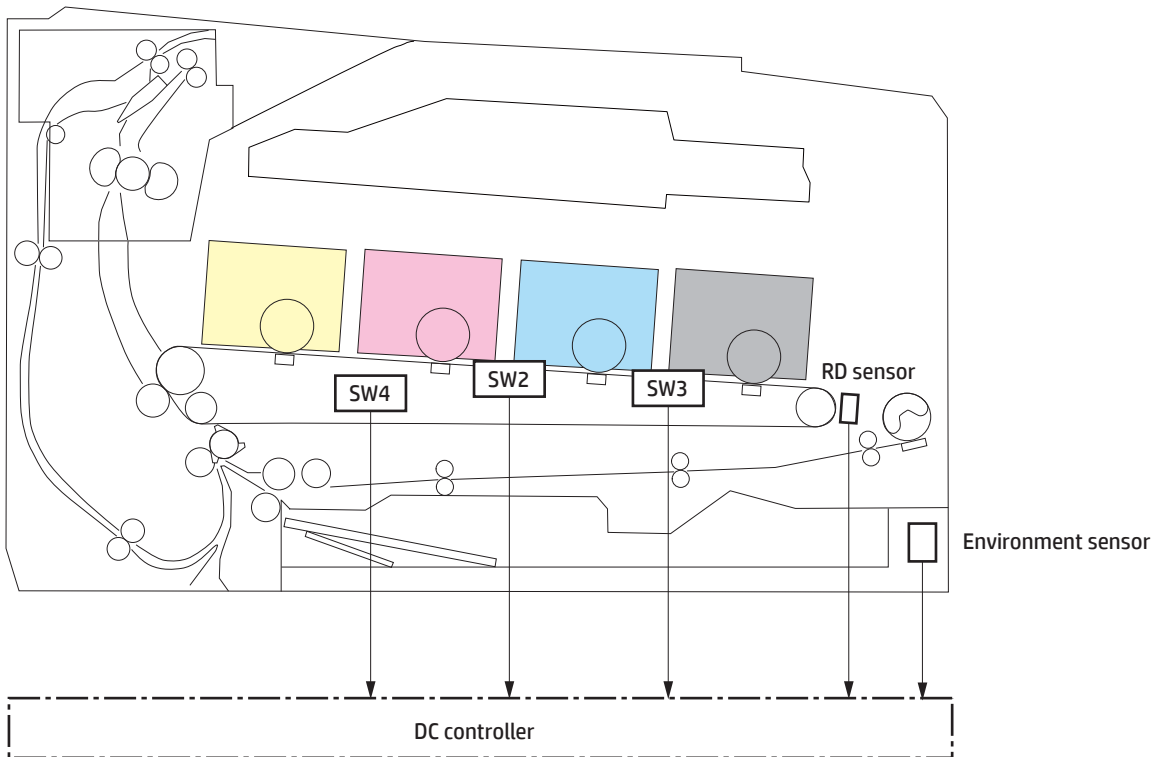
Table 1-6 Image-formation switch and sensor system

| Abbreviation | Component name |
|---|---|
| SW2 | Developer alienation detection switch (YMC) |
| SW3 | Developer alienation detection switch (K) |
| SW4 | T1 brush alienation detection switch |
| | Registration density (RD) sensor |
| | Environment sensor |

## Image-formation process

The image-formation process consists of eight steps divided into five functional blocks.

**Figure 1-8** Image-formation process



| Legend |
|---|
| : Paper path |
| : Direction of drum rotation |
| : Functional block |
| : Step |

Diagram elements:
- Delivery
- Fusing — 7. Fusing
- Latent image formation — 2. Laser-beam exposure, 1. Priminary charging
- Developing — 3. Developing
- Y, M, C, K
- Drum cleaning — 8. Drum cleaning
- Transfer — 6. Separation, 5. Secondary transfer, 4. Primary transfer
- Registration
- Pickup
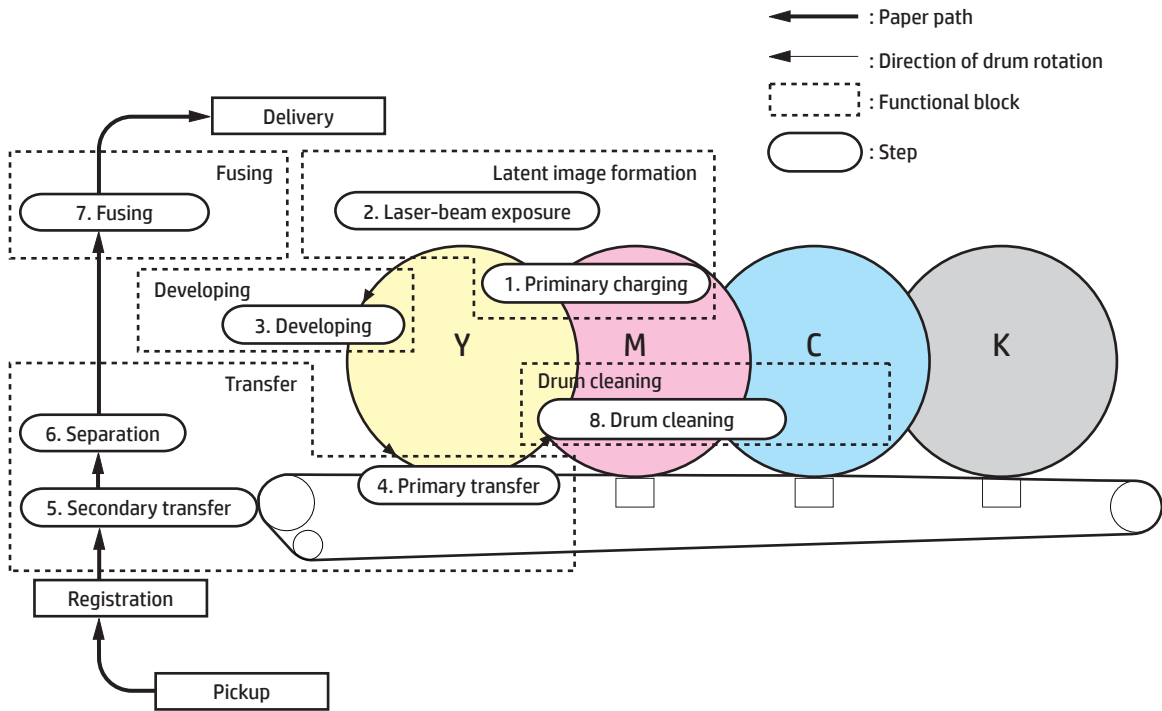
**Table 1-7** Image formation process

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

## Step 1: Primary charging

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

Figure 1-9 Primary charging

Primary charging roller

Primary charging bias

Photosensitive drum
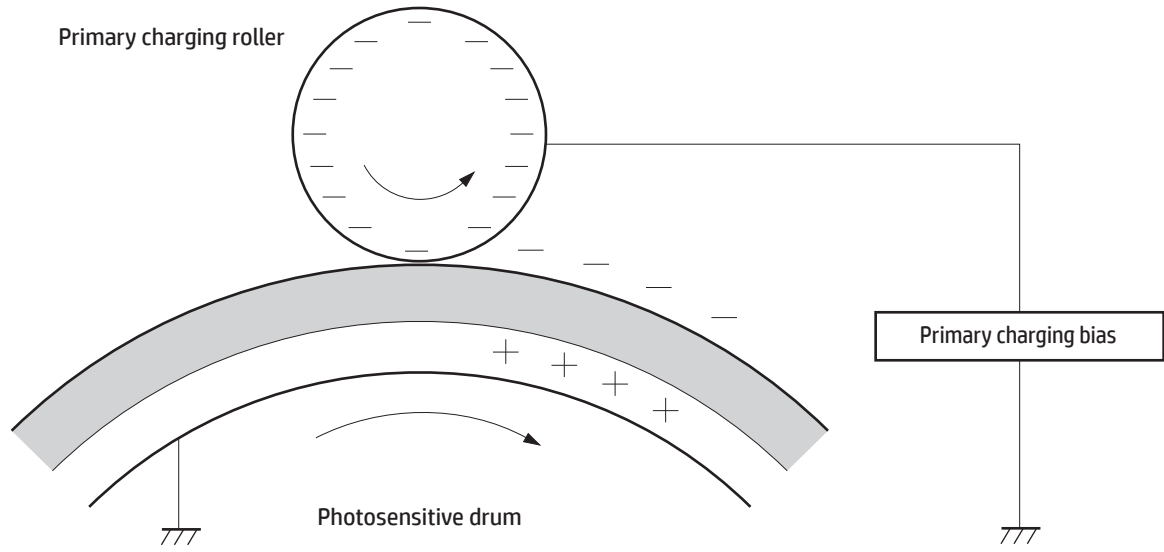
## Step 2: Laser-beam exposure

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

Figure 1-10 Laser-beam exposure
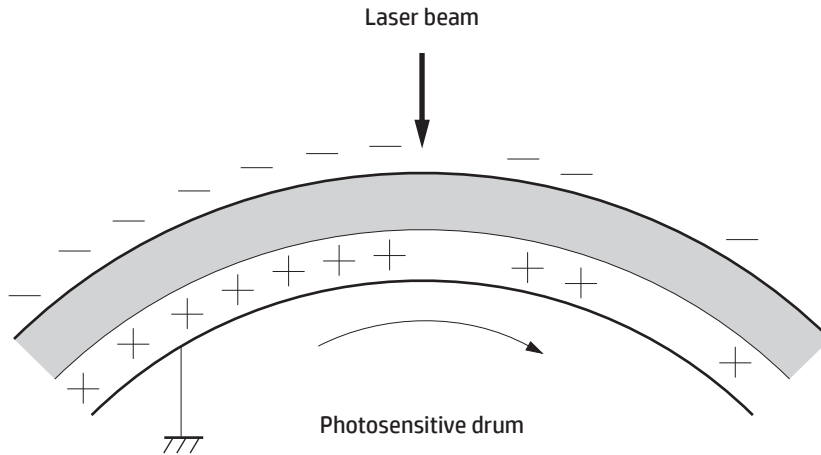


## Step 3: Development

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

Figure 1-11 Development
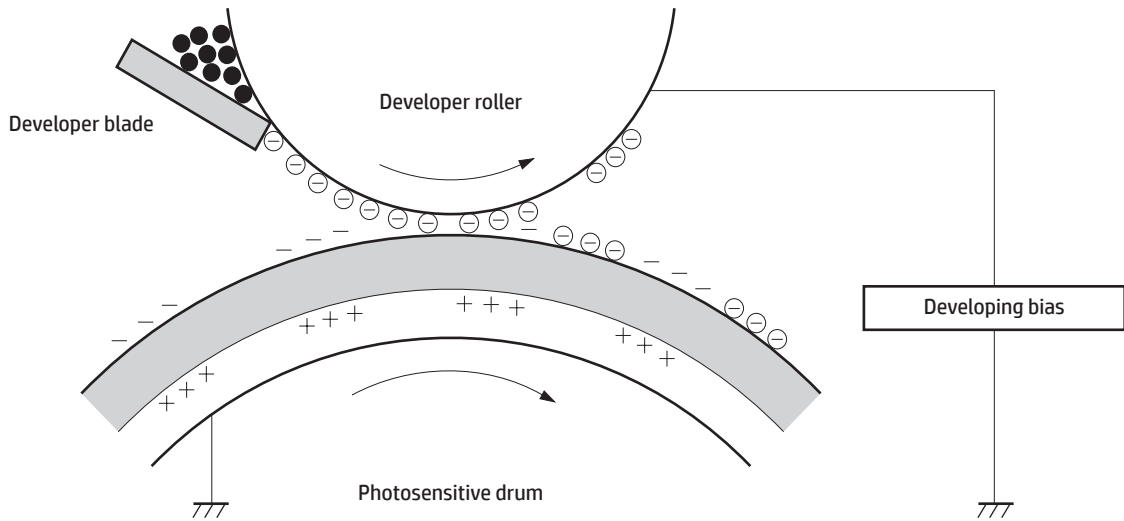
## Step 4: Primary transfer

The positively charged primary-transfer brushes contact the ITB, giving the ITB a positive charge. The ITB attracts the negatively charged toner from the surface of each photosensitive drum, and the complete toner image transfers onto the ITB.

Figure 1-12  Primary transfer
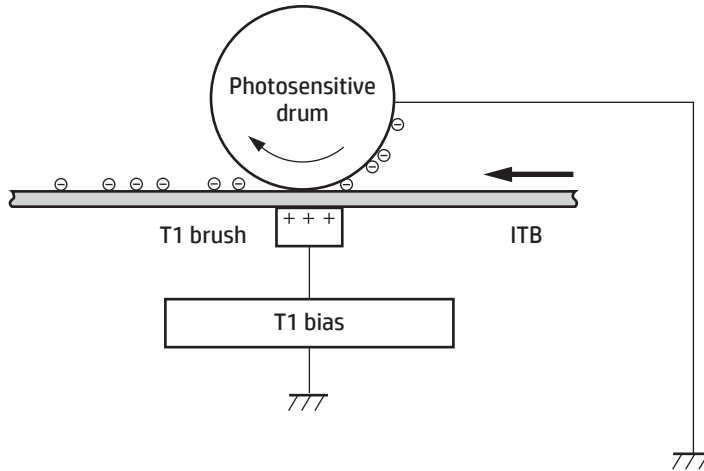


## Step 5: Secondary transfer

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

Figure 1-13  Secondary transfer
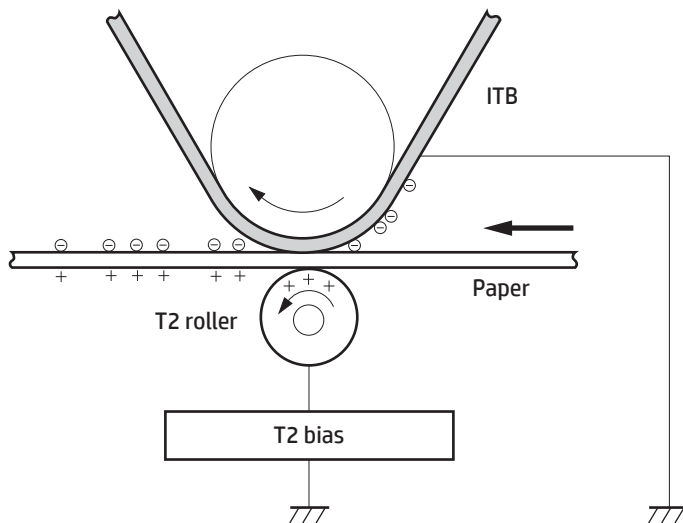
### Step 6: Separation

The stiffness of the paper causes it to separate from the ITB as the ITB bends. The static-charge eliminator removes excess charge from the paper for stable paper feeding and print quality.

**Figure 1-14** Separation
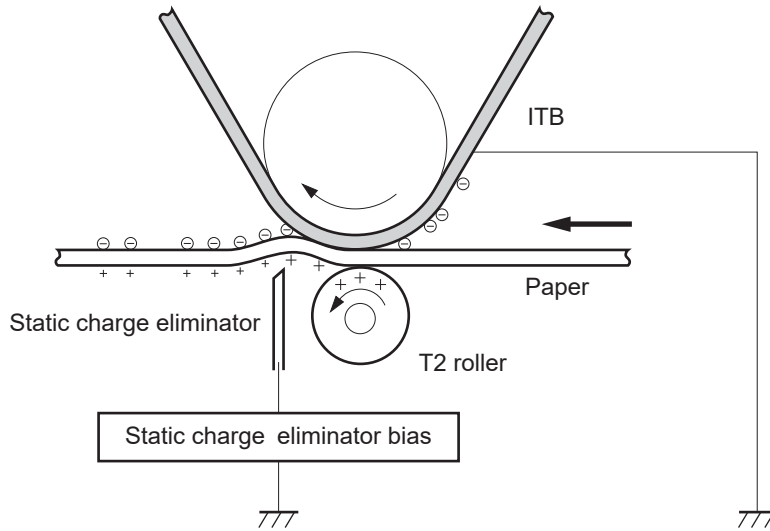


### Step 7: Fusing

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

**Figure 1-15** Fusing
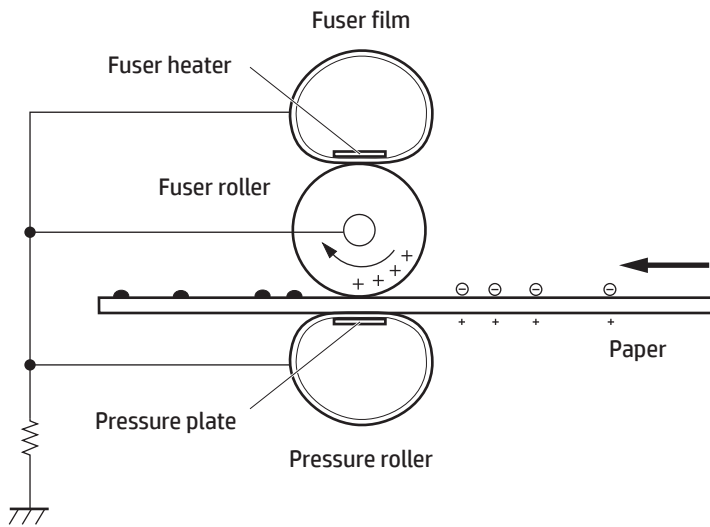


### Step 8: Drum cleaning

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

**Figure 1-16** Drum cleaning

Cleaning blade

Photosensitive
drum

Residual toner collection box
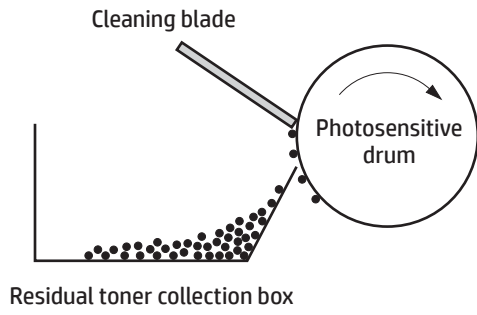
# Toner cartridges

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

## Design

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

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

Figure 1-17  Toner cartridge block diagram
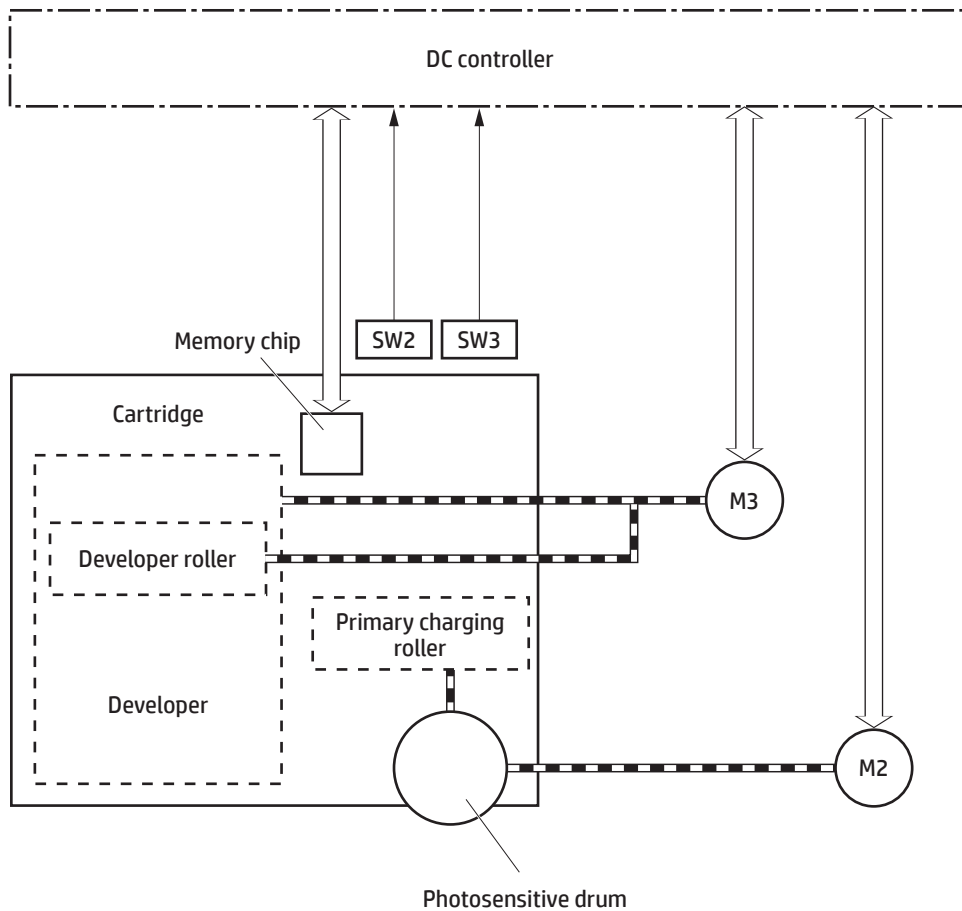


The printer has the following toner cartridge control functions.

Table 1-8  Toner cartridge control functions

| Function | Supported feature |
| --- | --- |
| Toner cartridge presence detection | Yes |
| Toner level detection | Yes |
| Toner cartridge life detection | Yes |
| Toner cartridge mis-installation detection | No |

Table 1-8  Toner cartridge control functions (continued)

| Function | Supported feature |
|---|---|
| Developer alienation control | Yes |
| Developer alienation motor failure detection | Yes |
| Drum discharge mechanism | No |

## HP Cartridges with JetIntelligence

HP Cartridges with JetIntelligence support two features for managing toner cartridges.

- The HP Cartridge Policy feature allows customers to specify the use of only genuine HP toner cartridges in the printer.

- The anti-theft feature enables locking a cartridge to a specific printer or fleet of printers.

### HP Cartridge Policy

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

If a genuine HP cartridge has passed the low state and is installed in a printer that has this feature enabled, the printer will display an **Unauthorized Cartridge** message on the control panel and will not print.

If a non-HP toner cartridge is used in a printer with this feature enabled, the message **Unauthorized Cartridge** appears on the control-panel display and the printer will not print.

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

### Anti-theft or cartridge protection

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

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

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

## Memory chip

The memory chip is non-volatile memory that stores information about the usage of the toner cartridge and helps protect the customer from counterfeit cartridges. This chip is also used to detect the presence of a cartridge within the printer or when a cartridge is installed in the wrong slot. The printer reads and writes the data in the memory chip.

## Dynamic security

Learn about dynamic-security-enabled printers.

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

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

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

## Toner seal

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

## Toner cartridge life detection

The DC controller detects the cartridge life by monitoring the total rotations and remaining toner level of the toner cartridge. The DC controller determines a cartridge end of life and notifies the formatter when total rotations of the cartridge reaches a specified time or the cartridge runs out of toner.

## Developing unit engagement and disengagement control

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

The developing-roller engagement and disengagement control operates as follows: When the printer is turned on and when each print job is completed, all four of the developing units are disengaged from the photosensitive drums. When development is not needed, a special cam mechanism on the developer roller stops the rotation separate from the developer disengagement cam, providing even more life for the cartridge.

- The drive of the developer disengagement motor rotates the developer disengagement cam.

- As the cam rotates, the developing unit engages with or separates from the photosensitive drum.

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

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

# Intermediate transfer belt (ITB) unit

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

- Intermediate transfer belt (ITB)

- ITB-drive roller

- T1 brushes

The drum motor (M2) drives the ITB drive roller, which rotates the ITB.

Figure 1-18  ITB unit
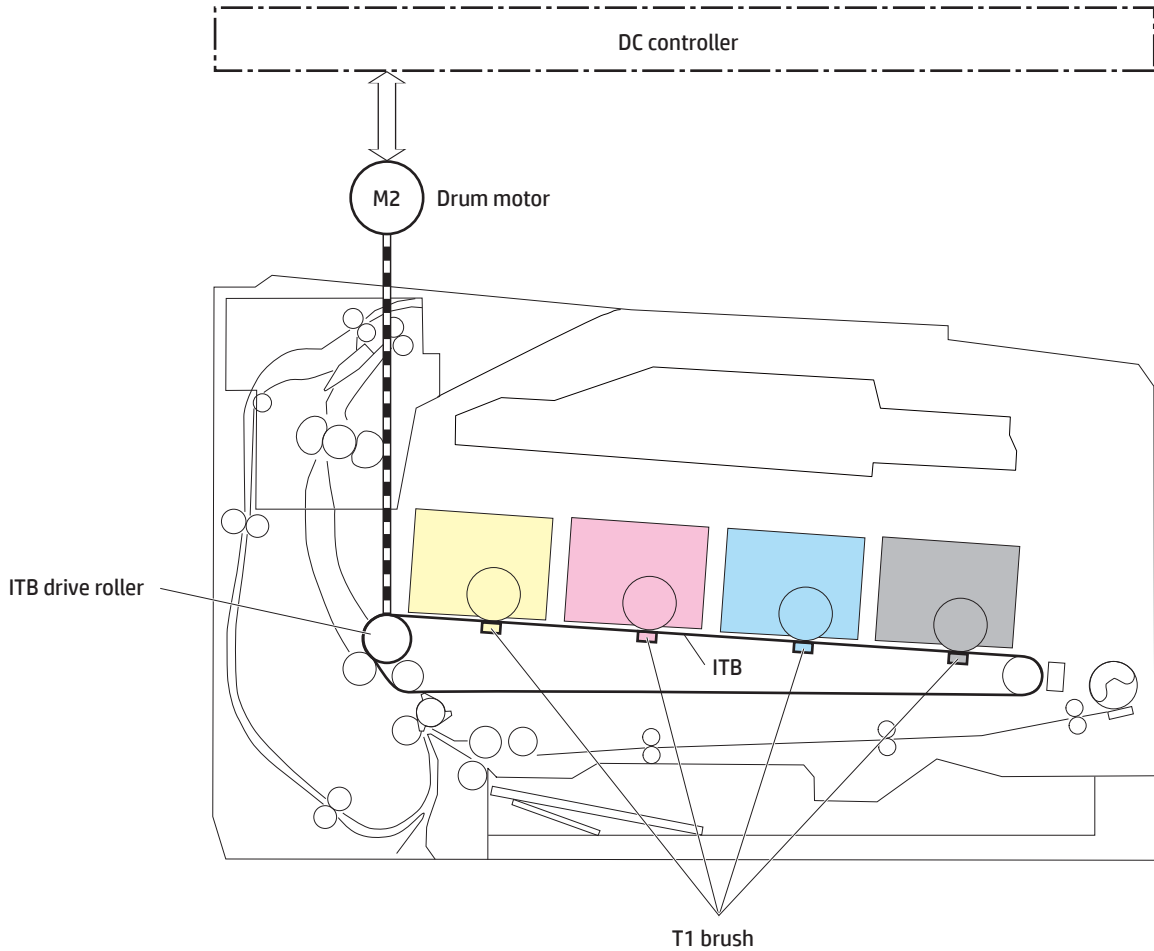


## Secondary transfer roller functions

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

The printer has the following secondary transfer roller functions.

Table 1-9  Secondary transfer roller functions

| Function | Supported feature |
| --- | --- |
| Secondary transfer roller cleaning mechanism | Yes |
| Secondary transfer roller presence detection | No |

Table 1-9  Secondary transfer roller functions (continued)

| Function | Supported feature |
|---|---|
| Secondary transfer roller life detection | No |
| Secondary transfer roller alienation control | No |

# Color self calibration

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

The printer has the following calibration functions.

Table 1-10  Calibration functions

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

# Engine pickup, feed, and delivery system

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

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

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

**Figure 1-19** Engine pickup, feed, and delivery system

→ Simplex paper path

⋯▶ Duplex paper path



Duplex block

Fuser-and-delivery block

Pickup-and-feed block
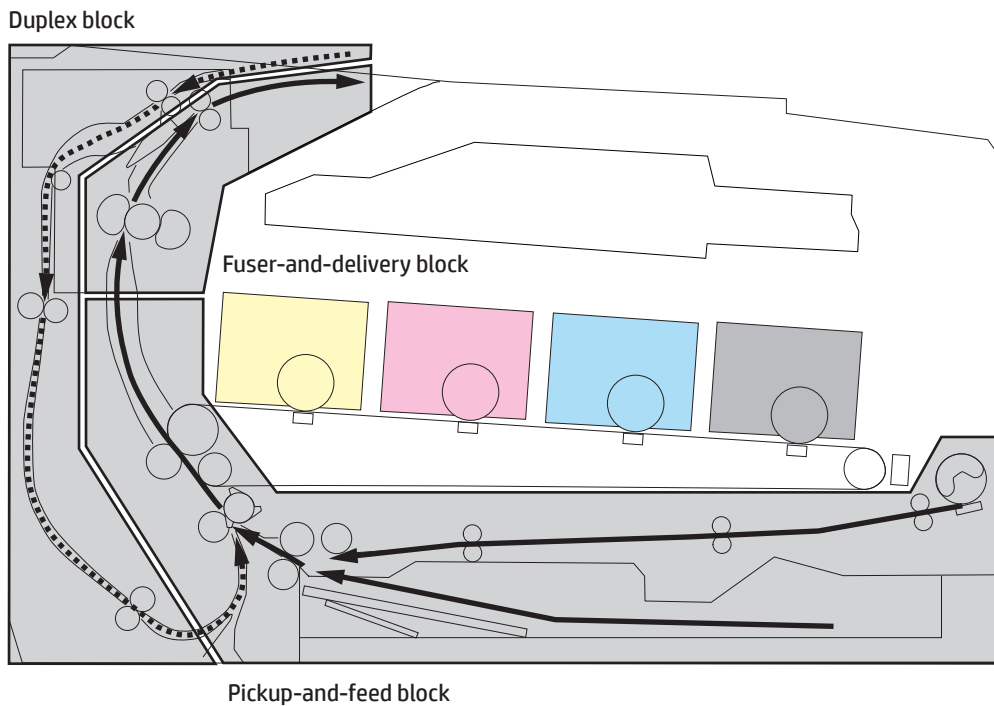
## Photo sensors and switches

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

Figure 1-20  Photo sensors and switches
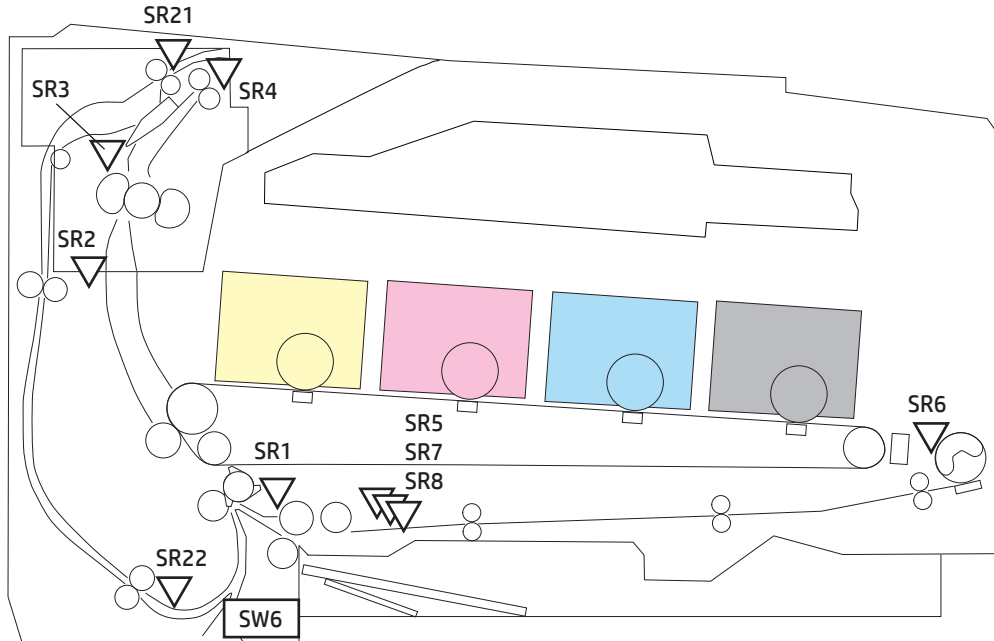


Table 1-11  Photo sensors and switches

| Abbreviation | Component | Replacement part number |
|---|---|---|
| SR1 | Registration sensor | |
| SR2 | Loop sensor | |
| SR3 | Fuser output sensor | |
| SR4 | Output bin media-full sensor | |
| SR5 | Cassette (Tray 2) media out sensor | |
| SR6 | Tray 1 (MP) tray media out sensor | |
| SR7 | Cassette (Tray 2) media surface sensor | |
| SR8 | Lifter sensor | |
| SR21 | Duplex switchback sensor[1] | |
| SR22 | Duplex re-pickup sensor[1] | |
| SW6 | Cassette (Tray2 ) detection switch | |

[1]  Duplex models only

# Motors, clutches, and solenoids

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

Figure 1-21  Motors, clutches, and solenoids
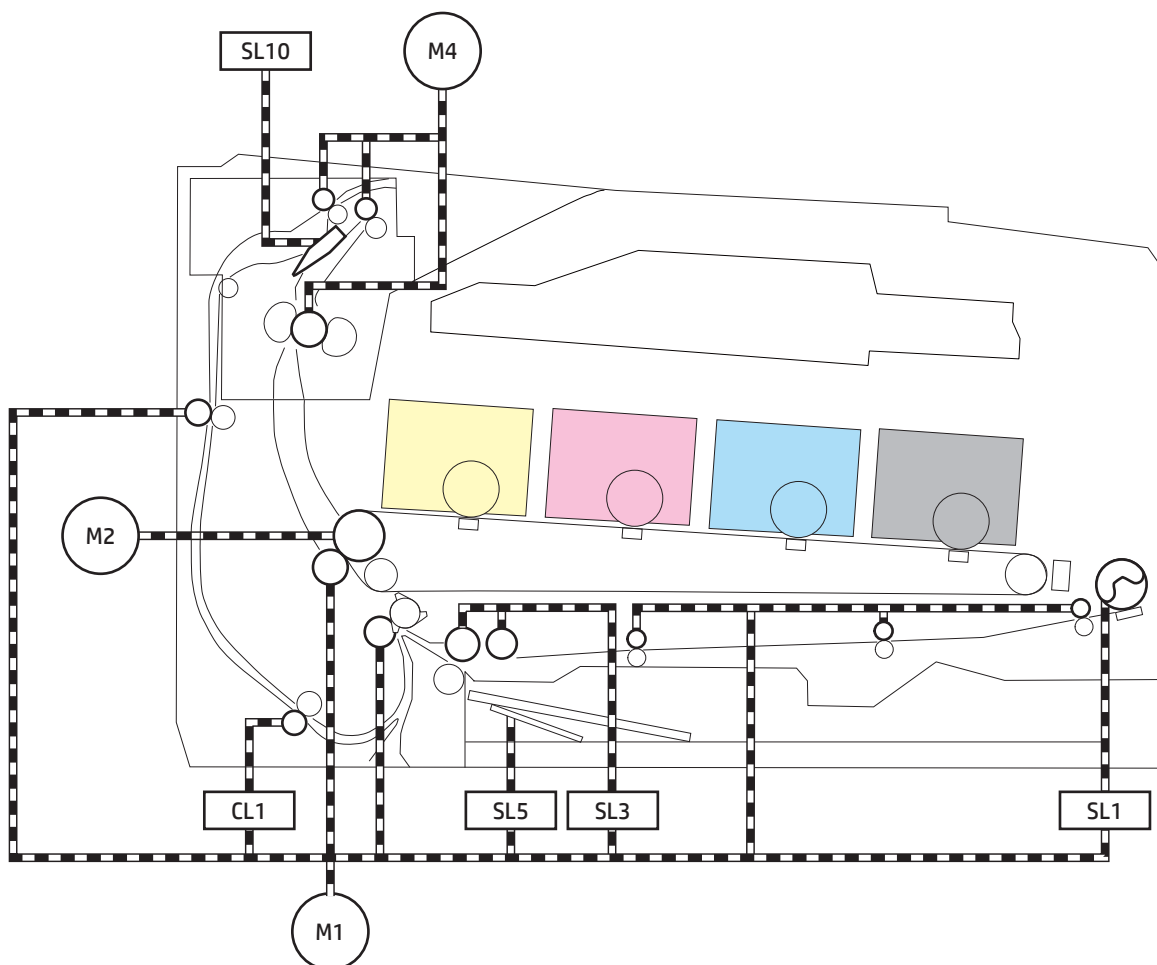


Table 1-12  Motors, clutches, and solenoids

| Abbreviation | Component | Replacement part number |
|---|---|---|
| M1 | Pickup motor assembly | RM2-7350-000CN |
| M2 | Drum motor assembly | RM2-7342-000CN |
| M4 | Fuser motor assembly | RM2-7349-000CN |
| CL1 | Duplex re-pickup clutch | |
| SL1 | Tray 1 (MP) tray pickup solenoid | |
| SL3 | Cassette (Tray 2) pickup solenoid | |
| SL5 | Lifter solenoid | |
| SL10 | Duplex switchback solenoid | |

[1]  Duplex models only

## Feed speed control

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

Table 1-13  Print mode and feed speed

| Print mode | Feed speed | |
| --- | --- | --- |
| | Full color | Monochrome |
| Auto | Not applicable | Not applicable |
| Normal media 1 | 1/1 | 1/1 |
| Normal media 2 | 1/1 | 1/1 |
| Heavy media 1 | 1/2 | 1/2 |
| Heavy media 2 | 1/2 | 1/2 |
| Heavy media 3 | 1/2 | 1/2 |
| Light media 1 | 1/1 | 1/1 |
| Light media 2 | 1/1 | 1/1 |
| Light media 3 | 1/1 | 1/1 |
| Glossy media 1 | 1/3 | 1/3 |
| Glossy media 2 | 1/3 | 1/3 |
| Glossy media 3 | 1/3 | 1/3 |
| Glossy film | 1/3 | 1/3 |
| Photo media 1 | 1/3 | 1/3 |
| Photo media 2 | Not applicable | Not applicable |
| Photo media 3 | Not applicable | Not applicable |
| Envelope 1 | 1/2 | 1/2 |
| Envelope 2 | 1/3 | 1/3 |
| Envelope 3 | Not applicable | Not applicable |
| Label | 1/2 | 1/2 |
| Designated media 1 | Not applicable | Not applicable |
| Designated media 2 | Not applicable | Not applicable |
| Designated media 3 | Not applicable | Not applicable |

## Pickup and feed delivery features

The printer has the following pickup, feed and delivery functions:

Table 1-14  Print mode and feed speed

| Function | Supported feature |
| --- | --- |
| Cassette (Tray 2) media size detection | No |

Table 1-14  Print mode and feed speed (continued)

| Function | Supported feature |
|---|---|
| Cassette (Tray 2) presence detection | Yes |
| Cassette (Tray 2) media overfill detection | Yes |
| Cassette (Tray 2) media surface detection | Yes |
| Cassette (Tray 2) media presence detection | Yes |
| Cassette (Tray 2) media level detection | No |
| Cassette (Tray 2) lift-up control | Yes |
| Cassette (Tray 2) lift-down control | No |
| Cassette (Tray 2) multiple-feed prevention mechanism | Yes |
| Tray 1 (MP) tray media presence detection | Yes |
| Tray 1 (MP) tray media width detection | No |
| Tray 1 (MP) tray last-media detection | No |
| Skew-feed prevention mechanism | Yes |
| Feed speed control | Yes |
| Loop control | Yes |
| Media detection | No |
| Image leading edge positioning | Yes |
| Media length detection | Yes |
| Media width detection | No |
| Pressure roller pressure release control | Yes |
| Output bin media-full detection | Yes |
| Automatic delivery | Yes |
| Duplex switchback control[1] | Yes |
| Duplex feed control[1] | Yes |

[1]

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

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

After receiving a print command from the formatter, the DC controller rotates the pickup motor, which causes the lifting mechanism to lift the paper stack against the pick roller, at which time the cassette pickup roller, cassette feed roller, and cassette separation roller rotate to feed the sheet.

## Duplexing unit

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

## Duplexing reverse and duplex feed control

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

1. After the first side has printed, the duplexing flapper solenoid opens, which creates a paper path into the duplexing-reverse unit.

2. After the paper has fully entered the duplexing-reverse unit, the duplexing-reverse motor reverses and directs the paper into the duplexing-feed unit.

3. The duplexing re-pickup motor and duplexing feed motor move the paper into the duplexing re-pickup unit.

4. To align the paper with the toner image on the ITB, the duplexing re-pickup motor stops and the paper pauses.

5. The paper re-enters the paper path, and the second side prints.

## Duplex pickup operation

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

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

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

# Jam detection/prevention

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

- Registration sensor (SR1)

- Loop sensor (SR2)

- Fuser output sensor (SR3)

- Loop sensor (PS1)

- Output bin media-full sensor (SR4)

- Duplex switchback sensor (SR21)[1]

- Duplex re-pickup sensor (SR22)[1]

[1] Duplex models only.

**Figure 1-22** Jam detection sensors
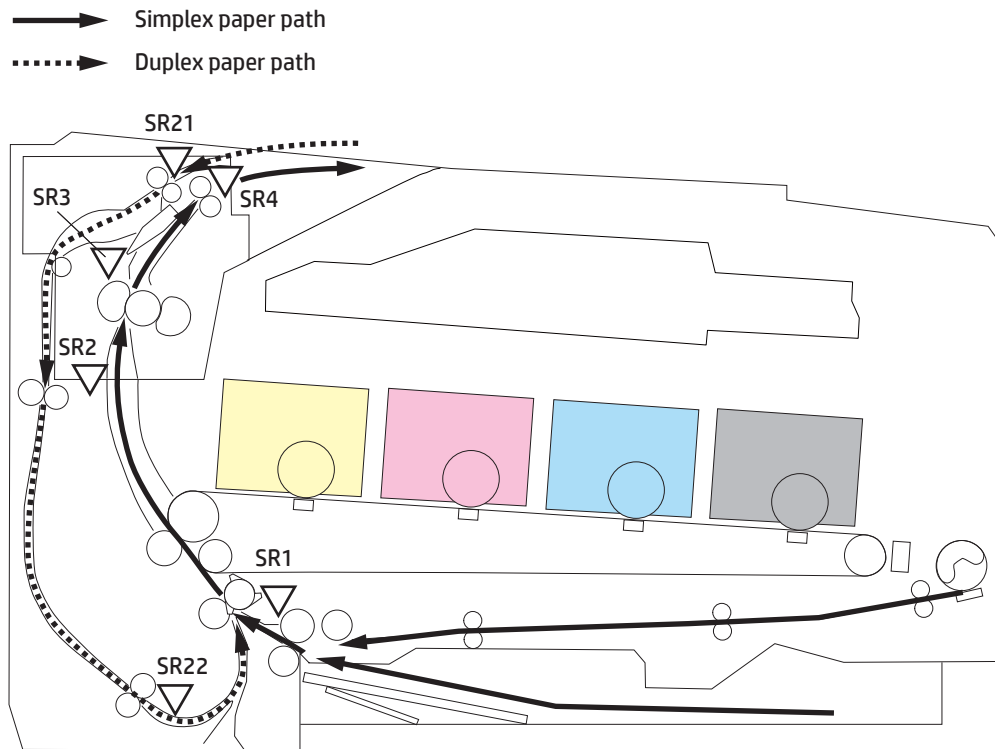
The printer determines that a jam has occurred if one of these sensors detects paper at an inappropriate time. The DC controller stops the print operation and notifies the formatter.

The printer detects the following jams:

- No pick jam 1
- No pick jam 2
- Pickup stay jam 1
- Fuser delivery delay jam 1
- Fuser delivery stay jam 1
- Residual paper jam 1
- Residual paper jam 2
- Door open jam 1
- Fuser wrap jam 1
- Fuser wrap jam 2 [1]
- Duplex switchback delay jam [1]
- Duplex switchback stay jam [1]
- Duplex feed delay jam [1]
- Duplex re-pickup delay jam [1]
- Delivery delay jam 1 [1]
- Delivery stay jam 1 [2]

[1] Duplex models only.

[2] M479 models only

# Input accessories

📝 **NOTE:**   An optional 550-sheet paper feeder is available for this printer.

## Tray 3

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

Figure 1-23  550-sheet paper feeder
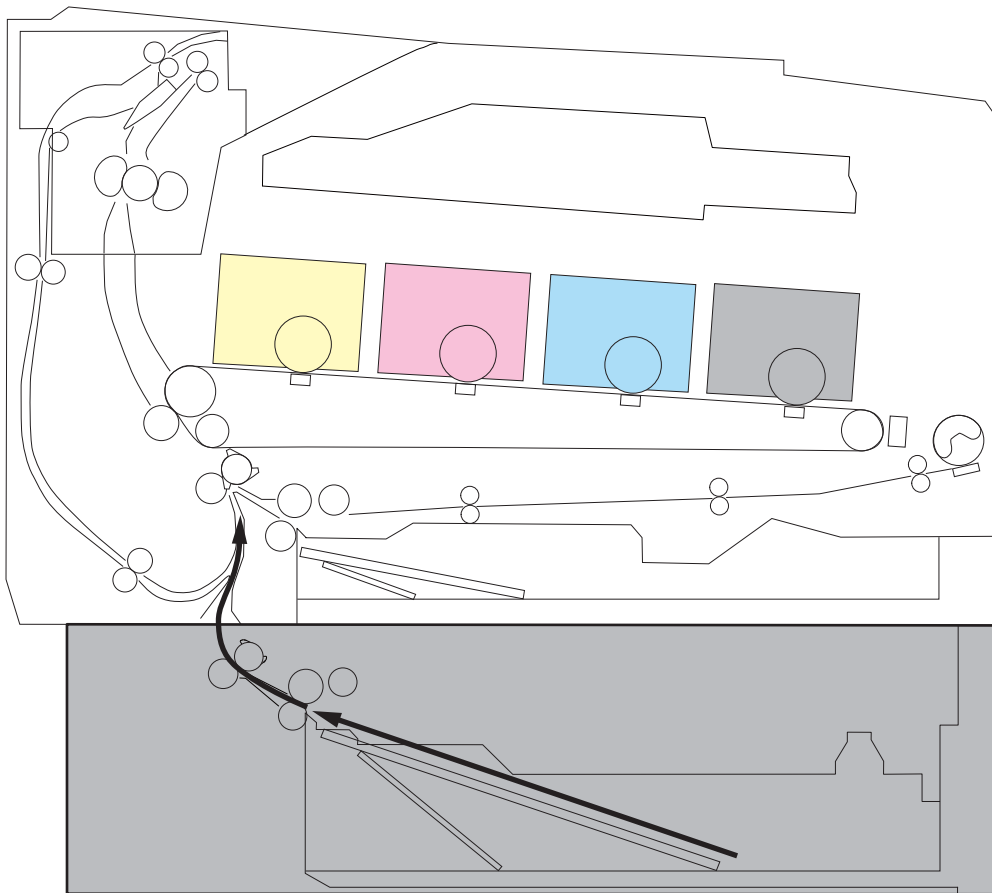


### Tray 3 paper feeder controller

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

Figure 1-24 Tray 3 paper feeder controller



Figure 1-24 Tray 3 paper feeder controller
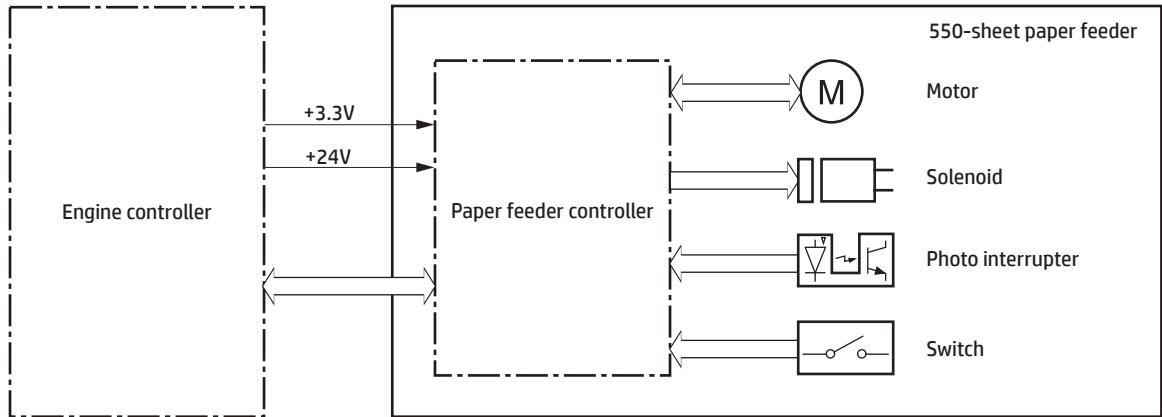
Table 1-15 Tray 3 paper feeder electrical components

| Component type | Abbreviation | Component name |
|---|---|---|
| Motor | M9 | Pickup motor |
| Clutch | SL20 | Cassette (Tray 3) pickup solenoid |
| | SL21 | Lifter solenoid |
| Switch | SW31 | Cassette (Tray 3) detection switch |
| Photo interrupter | SR31 | Feed sensor |
| | SR32 | Cassette (Tray 3) media surface sensor |
| | SR33 | Lifter sensor |
| | SR34 | Cassette (Tray 3) media out sensor |

## Tray 3 motor control

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

Table 1-16 Tray 3 motor control

| Component | | Drives | Failure detection |
|---|---|---|---|
| M9 | Pickup motor | Cassette (Tray 3) pickup roller | No |
| | | Cassette (Tray 3) feed roller | |
| | | Feed roller (550-sheet paper feeder) | |
| | | Lifter drive assembly | |

## Tray 3 paper pickup

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

Figure 1-25 Paper pickup and feed operation (550-sheet paper feeder)
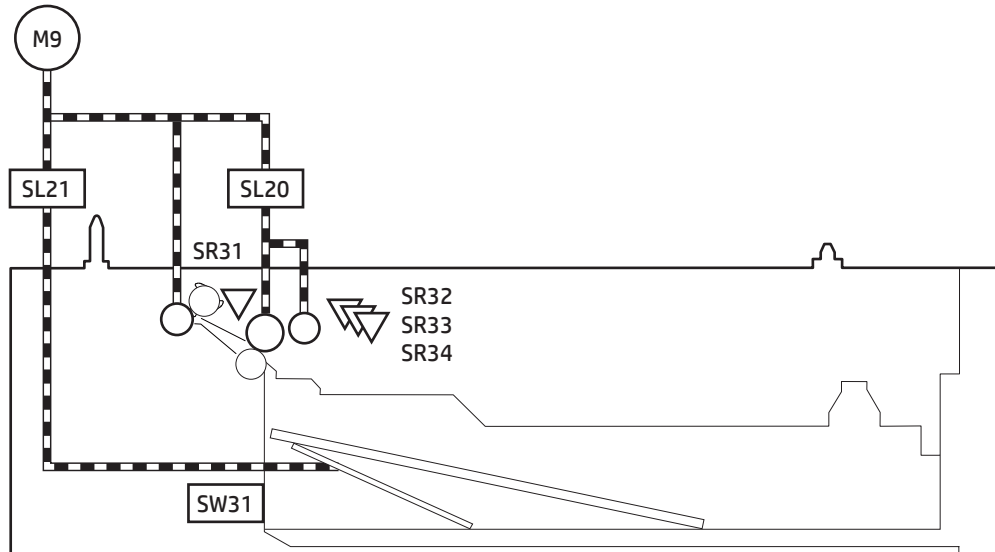


Table 1-17 Pickup feed components (1x550-sheet paper feeder)

| Abbreviation | Component |
| --- | --- |
| M9 | Pickup motor |
| SL20 | Cassette (Tray 3) pickup solenoid |
| SL21 | Lifter solenoid |
| SR31 | Feed sensor |
| SR32 | Cassette (Tray 3) media surface sensor |
| SR33 | Lifter sensor |
| SR34 | Cassette (Tray 3) media output sensor |
| SW31 | Cassette (Tray 3) detection switch |

## Tray 3 pickup and feed functions

The paper feeder has the following pickup and feed functions:

- Cassette (Tray 3) lift-up control
- Cassette (Tray 3) presence detection
- Cassette (Tray 3) media stack surface detection
- Cassette (Tray 3) media out detection
- Multiple-feed prevention
- Automatic delivery

## Tray 3 jam detection

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

●   Feed sensor (SR31)

Jam detection sensors (Tray 3)
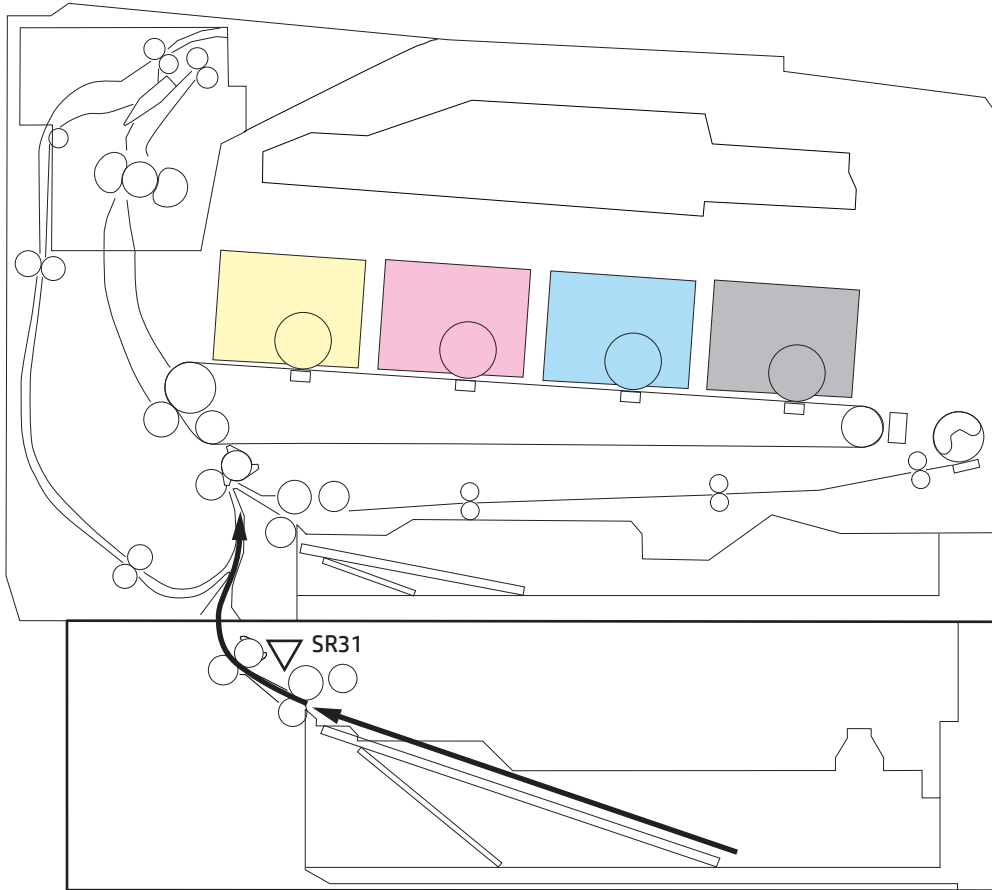


The printer determines that a jam has occurred if one of these sensors detects paper at an inappropriate time. The DC controller stops the print operation and notifies the formatter.

The printer detects the following paper feeder jams:

●   No pick jam 1

●   No pick jam 2

●   Pickup stay jam 1

●   Fuser delivery delay jam 1

●   Fuser delivery stay jam 1

●   Residual paper jam 1

# Scanning and image capture system

📝 NOTE:    This section is for the M479 printers only.

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 printer, the drive system consists of a small DC motor with an optical encoder, a drive belt, and a guide rod. 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).

- 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 printer 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 printer. 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).

# Document feeder system

📝 NOTE: This section is for the M479 printers only.

## Document feeder simplex operation

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

When the printer duplex scans from the document feeder, the paper moves through one time, because the document feeder has a contact image sensor (CIS) scanner for side two which is scanned simultaneously with side one (M479 only). Duplex scanning does not apply to the M479dw models all other M479 models support duplex scanning.

The standard operation of the document feeder 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 document feeder motor engages the gear train and raises the lift plate until the document makes contact with the pick roller. The document feeder then begins the pick, feed, and lower sequence.

- Pick

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

- Feed

  The single sheet continues through the document feeder paper path (aided by the pre-scan rollers) until the leading edge of the page activates the top-of-form sensor. Activation of this sensor initiates the scan

process, and the scanner acquires the image as the document moves over the document feeder glass. The post-scan rollers then eject the sheet into the output area. The pick and feed steps are repeated as long as paper is detected by the paper-present sensor.

- Home

    When the form sensor detects the trailing edge of the last page, the last sheet is ejected and the motor turns on a sequence that rests the separation floor back down in standby mode, which allows it to detect when more media is loaded.

# Fax functions and operation (fax models only)

The following sections describe the printer fax capabilities.

## Computer and network security features

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

The following printer features prevent virus transmission:

- No direct connection exists between the fax line and any devices that are connected to the USB or Ethernet ports.

- The internal firmware cannot be modified through the fax connection.

- All fax communications go through the fax subsystem, which does not use Internet data-exchange protocols.

## PSTN operation

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

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

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

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

## Receive faxes when you hear fax tones

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

If the printer 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 printer, 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 1-2-3 sequence to work, the extension phone setting must be set to On in the Fax Setup menu.

# Distinctive ring function

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

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

## Set up the distinctive ring function

1. Swipe down on the dash board and then select the Settings ⚙ menu.

2. Open the Fax Setup menu.

3. Select the Preferences menu.

4. Select the Distinctive Ring setting.

5. Use the arrow buttons to select one of the following options:

   - Ring Patter Detection

   - All Standard Rings (default setting)

   - Single

   - Double

   - Triple

   - Double and Triple

# Fax by using voice over IP (VOIP) services

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

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

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

- Internet traffic becomes heavy and packets are lost.

- Latency (the time it takes for a packet to travel from its point of origin to its point of destination) becomes excessive.

If you experience problems using the fax feature on a VoIP network, ensure that all of the printer cables and settings are correct. Configuring the Fax Speed setting to Fax (V34), Medium(V.17) or Slow(V.29) can also improve your ability to send a fax over a VoIP network.

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

## The fax subsystem

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

The fax subsystem is designed to support 33,600 bps (V.34) fax transmission, medium speeds 14,400 bps ( V.17 fax).

## Fax card in the fax subsystem

Four versions of the fax card are used in the printer. One is used in the US/Rest of the World, EMEA, Brazil, and AP/Philippines 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 printer reliability in the telecom environment.

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

### Safety-protection circuitry

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

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

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

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

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

## Data path

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

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

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

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

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

## Hook state

Another magnetically coupled signal is the control signal that disconnects the downstream telephone devices (such as a 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 printer takes control of calls that it recognizes as fax calls. If the printer does not directly pick up the call, it monitors incoming calls for the fax tone or for the user to direct it to receive a fax. This idle mode is also called eavesdropping. This mode is active when the printer is on-hook but current exists in the downstream 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 printer does not take control of the line unless it detects a fax tone or the user causes it to connect manually. This feature allows the user to make voice calls from a phone that is connected to the printer without being cut off if a fax is not being received.

## Downstream device detection

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

## Hook switch control

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

## Ring detect

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

## Line current control

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

### Billing or metering tone filters

Switzerland and Germany provide high-frequency AC signals on the 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 printer stores all fax pages in flash memory automatically. After these pages are written into flash memory, they are stored until the pages are sent to another fax machine, printed on the printer, transmitted to the computer, or erased by the user.

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

### Stored fax pages

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

### Advantages of flash memory storage

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

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

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

# 2 Solve problems

# HP service and support

Learn about HP access to additional service and support information.

## Additional service and support for channel partners

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

### Access WISE for Channel partners

1. Select **Services & Support**, and then select **Services Delivery**.

2. Select **Technical Support**, and then select **Technical Documentation**.

### Find information about the following topics

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

## Additional service and support for HP internal personnel

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

### Americas (AMS)

- https://support.hp.com/wise/home/ams-enWISE - English
- https://support.hp.com/wise/home/ams-esWISE - Spanish
- https://support.hp.com/wise/home/ams-ptWISE - Portuguese
- https://support.hp.com/wise/home/ams-frWISE - French

### Asia Pacific / Japan (APJ)

- https://support.hp.com/wise/home/apj-enWISE - English
- https://support.hp.com/wise/home/apj-jaWISE - Japanese
- https://support.hp.com/wise/home/apj-koWISE - Korean
- https://support.hp.com/wise/home/apj-zh-HansWISE - Chinese (simplified)
- https://support.hp.com/wise/home/apj-zh-HantWISE - Chinese (traditional)
- https://support.hp.com/wise/home/apj-thWISE - Thai

Europe / Middle East / Africa (EMEA)

– https://support.hp.com/wise/home/emea-enWISE - English

# Troubleshooting process

## Solve problems checklist

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

1. Make sure that the printer is set up correctly.

    a. Press the power button to turn on the printer or to deactivate the Auto-Off mode.

    b. Check the power-cable connections.

    c. Make sure that the line voltage is correct for the printer power configuration. See the label that is on the printer for voltage requirements. If you are using a power strip and its voltage is not within specifications, plug the printer directly into the wall. If it is already plugged into the wall, try a different outlet.

2. Check the cable connections.

    a. Check the cable connection between the printer and the computer. Make sure that the connection is secure.

    b. Make sure that the cable itself is not faulty, by using a different cable if possible.

    c. Check the network connection: Make sure that the network light is lit. The network light is next to the network port on the back of the printer.

    If the printer remains unable to connect to the network, uninstall and then reinstall the printer. If the error persists, contact a network administrator.

3. Check to see if any messages appear on the control panel.

4. Make sure that the paper you are using meets specifications.

5. Make sure that the paper is loaded correctly in the input tray.

6. Make sure that the printer software is installed correctly.

7. Verify that you have installed the printer driver for this printer, and that you are selecting this printer from the list of available printers.

8. Print a configuration page.

    a. **2-line control panels**: On the printer control panel, press the OK button to access the Main Menu, and then use the ◀ or ▶ to navigate to the Reports menu, then select OK button. Use ◀ or ▶ to navigate to Configuration report.

    **Touchscreen control panels**: From the Home screen on the printer control panel, swipe down on the dash board, touch ◉Setup icon, and then scroll through to open the Reports menu.

    b. Select Configuration Report.

**After printing the configuration page, check the following:**

**a.** If the page does not print, verify that the input tray contains paper and that the paper is properly loaded.

**b.** Make sure that each toner cartridge is installed correctly.

**c.** If the page jams in the printer, clear the jam.

**d.** If the print quality is unacceptable, complete the following steps:

- Verify that the print settings are correct for the paper you are using.

- Solve print-quality problems.

**9.** Print a small document from a different program that has printed in the past. If this solution works, then the problem is with the program you are using. If this solution does not work (the document does not print), complete these steps:

**a.** Try printing the job from another computer that has the printer software installed.

**b.** Check the cable connection. Direct the printer to the correct port, or reinstall the software, selecting the connection type you are using.

## Print the menu map

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

**1.** **2-line control panels**: On the printer control panel, press the OK button to access the Main Menu, and then use the ◀ or ▶ to navigate to the Reports menu, then select OK button. Use ◀ or ▶ to navigate to Menu structure.

**Touchscreen control panels**: From the Home screen on the printer control panel, swipe down on the dash board, touch ⚙Setup icon, and then scroll through to open the Reports menu.

**2.** Select Menu Structure.

## Print a configuration page

Print a configuration page to test the printer.

**1.** **2-line control panels**: On the printer control panel, press the OK button to access the Main Menu, and then use the ◀ or ▶ to navigate to the Reports menu, then select OK button. Use ◀ or ▶ to navigate to Configuration report.

**Touchscreen control panels**: From the Home screen on the printer control panel, swipe down on the dash board, touch ⚙Setup icon, and then scroll through to open the Reports menu.

**2.** Select Configuration Report.

### Print the Printer Status Report (includes a partial event log)

The event log provides the last 10 events the event log must be printed from the Printer Maintenance menu, then select Troubleshooting , and then select Event Logs.

1. **2-line control panels**: On the printer control panel, press the OK button to access the Main Menu, and then use the ◀ or ▶ to navigate to the Reports menu, then select OK button. Use ◀ or ▶ to navigate to Printer Status Report.

   📝 **NOTE:** The event log can also be printed from the Printer Maintenance menu, select Troubleshooting, and then select Event Log

   **Touchscreen control panels**: From the Home screen on the printer control panel, swipe down on the dash board, touch ⚙Setup icon, and then scroll through to open the Reports menu.

2. Select Printer Status Report.

   📝 **NOTE:** The event log can also be printed from the Printer Maintenance menu, touch Troubleshooting, and then touch Event Log

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

## Determine the problem source

When the printer malfunctions or encounters an unexpected situation, the printer control panel alerts the user to the situation. This section contains a pre-troubleshooting checklist and a troubleshooting flow chart to filter out many possible causes of the problem. Use the pre-troubleshooting checklist to gather information about the problem from the customer. Use the troubleshooting flowchart to help diagnose the root cause of the problem. The remainder of this chapter provides steps for correcting problems.

- Use the pre-troubleshooting check list to gather information about the problem from the customer. See Pre-troubleshooting checklist on page 55.

- Use the troubleshooting flowchart to pinpoint the root cause of hardware malfunctions. The flowchart provides guides to the section of this chapter that contain steps to correct the malfunction. See Troubleshooting flowchart on page 56.

Before beginning any troubleshooting procedure, check the following issues:

- Are supply items within their rated life?

- Does the configuration page reveal any configuration errors?

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

## Pre-troubleshooting checklist

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

| General topic | Questions |
|---|---|
| Environment | • Is the printer installed on a solid, level surface (+/- 1°)? |
| | • Is the power-supply voltage within ± 10 volts of the specified power source? |
| | • Is the power-supply plug inserted in the printer and the outlet? |
| | • Is the operating environment within the specified parameters? |
| | • Is the printer exposed to ammonia gas, such as that produced by diazo copiers or office cleaning materials? |

| General topic | Questions |
|---|---|
| | **NOTE:** Diazo copiers produce ammonia gas as part of the copying processes. Ammonia gas (from cleaning supplies or a diazo copier) can have an adverse effect on some printer components (for example, the toner cartridge or cartridges OPC). |
| | ● Is the printer exposed to direct sunlight? |
| Media | ● 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 tray (or trays) correctly installed in the printer? |
| HP Genuine Toner cartridge | ● Is the correct regionalized toner cartridge (or cartridges) installed correctly? |
| Transfer unit and fuser | ● Are the transfer unit and fuser installed correctly? |
| | **NOTE:** For printers with an intermediate transfer belt (ITB), is the ITB installed correctly and fully seated. If a replacement ITB was installed, was all of the packing materials removed? |
| Covers | ● Is the toner cartridge door closed? |
| Condensation | ● Does condensation occur following a temperature change (particularly in winter following cold storage)? If so, wipe affected parts dry or leave the printer on for 10 to 20 minutes. |
| | ● Was a toner cartridge (or cartridges) opened soon after being moved from a cold to a warm room? If so, allow the toner cartridge (or cartridges) to sit at room temperature for 1 to 2 hours. |
| Miscellaneous | ● Check for and remove any non-HP components (toner cartridges, memory modules, and EIO cards) from the printer. |
| | ● Remove the printer from the network and ensure that the failure is associated with the printer before beginning troubleshooting. |
| | ● For any color print-quality issues, calibrate the printer. |

## Troubleshooting flowchart

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

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

**Table 2-1** Troubleshooting flowchart

| 1 **Power on** | Is the printer on and does a readable message display? | | Follow the power-on troubleshooting checks. See Power subsystem on page 57. |
|---|---|---|---|
| | Yes ↓ | No → | After the control panel display is functional, see step 2. |
| 2 | Does the message **Ready** display on the control panel? | | After the errors have been corrected, go to step 3. |

Table 2-1 Troubleshooting flowchart (continued)

| Control panel messages | Yes ↓ | No → | |
|---|---|---|---|
| 3<br><br>Event log | Open the Troubleshooting menu and print an event log to see the history of errors with this printer.<br><br>Does the event log print? | | If the event log does not print, check for error messages.<br><br>If paper jams inside the printer, see the jams section of the printer service manual.<br><br>If error messages display on the control panel when trying to print an event log, see the control panel message section of the printer troubleshooting service manual.<br><br>After successfully printing and evaluating the event log, see step 4. |
| | Yes ↓ | No → | |
| 4<br><br>Information pages | Open the Reports menu and print the configuration pages to verify that all the accessories are installed.<br><br>Are all the accessories installed? | | If accessories that are installed are not listed on the configuration page, remove the accessory and reinstall it.<br><br>After evaluating the configuration pages, see step 5. |
| | Yes ↓ | No → | |
| 5<br><br>Print quality | Does the print quality meet the customer's requirements? | | Compare the images with the sample defects in the image defect tables. See the images defects table in the printer repair service manual.<br><br>After the print quality is acceptable, see step 6. |
| | Yes ↓ | No → | |
| 6<br><br>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.<br><br>If error messages display on the control panel when trying to print an event log, see the control-panel message section of the printer troubleshooting service manual.<br><br>When the customer can print from the host computer, this is the end of the troubleshooting process. |
| | Yes. This is the end of the troubleshooting process. | No → | |

# Power subsystem

## Power-on checks

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

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

### Power-on troubleshooting overview

During normal operation, a cooling fan begins to spin briefly after the printer power is turned on. Place a hand over the fan intake vents located on the right-side cover. When the fan is correctly operating, air passing into the printer is felt. Lean close to the printer to hear the fan operating. If the fan is operating, the dc side of the power supply is functioning.

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

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

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

### Perform an engine test

▲ With the printer on and in the Ready state.

#### Simplex models

- 1. Open and close front door.

- 2. Open and close front door again within 1.5 seconds.

- 3. Repeat step 1 and step 2 four times and one sheet of the test pattern prints on the front of the page.

#### Duplex models

- 1. Open and close front door.

- 2. Open and close front door again within 1.5 seconds.

- 3. Repeat step 1 and step 2 five times and one sheet of the test pattern prints on both front and back of the page.

Figure 2-1 Engine test page
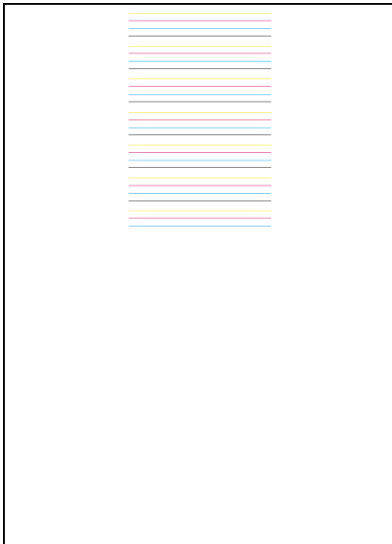


### Troubleshooting power on problems

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

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

2. Try another known operating wall receptacle and a different power cord.

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

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

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

4. If startup noises are not heard, check the following:

   a. Turn the printer off, and then remove the power from the formatter.

   b. Turn the printer on, and then listen for startup noises. If normal startup noises are heard, go to step 5.

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

   c. If normal startup noises and lights are still not present, replace the LVPS.

   d. If after replacing the LVPS normal startup noises are still not heard, replace the DC controller.

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

5. Try printing an engine test page.

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

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

   Figure 2-2 Engine test page
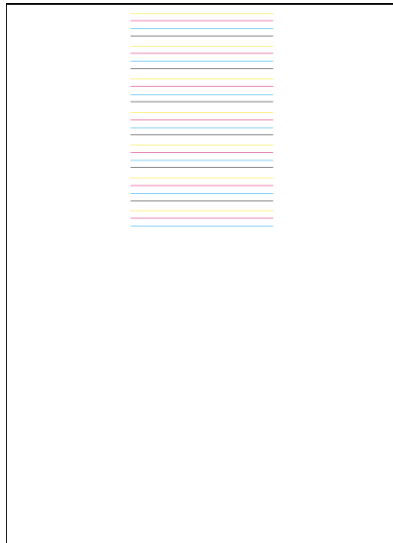
   

   If the engine test page prints, the print engine is operating normally (a failed engine test print page does not necessarily indicate that the print engine or DC controller is defective).

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

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

- No power to the printer.

- Power supply has tripped (over-current/over-voltage/temperature issue).

- Formatter not fully seated.

---

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

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

---

- Faulty component installed on the formatter (for example, memory DIMM or disk drive).

- Control panel connector not fully seated.

- Faulty formatter.

- Faulty DC controller.

- Faulty control panel.

## Troubleshooting a blank control panel

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

2. Make sure that the power switch is in the *on* position.

3. Make sure that the fan runs briefly, which indicates that the power supply is operational.

4. Make sure that the control-panel display wire harness is connected.

5. Make sure that the formatter is seated and operating correctly. Turn off the printer and remove the formatter. Reinstall the formatter, make sure the power switch is in the on position, and then verify that the network LED (amber) is blinking and that the link LED (green) is illuminated.

6. Remove any external solutions, and then try to turn the printer on again.

7. If the control panel display is blank, but the main cooling fan runs briefly after the printer power is turned on, try printing an engine-test page to determine whether the problem is with the control-panel display, formatter, or other printer assemblies.

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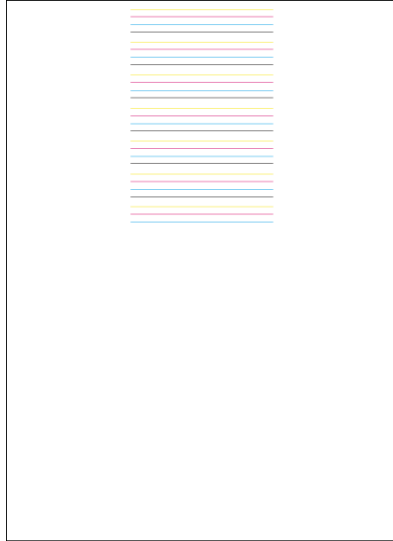
Engine test page



If the engine test page prints, the print engine is operating normally (a failed engine test print page does not necessarily indicate that the print engine or DC controller is defective).

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

8. If the print engine appears to be correctly operating (the engine test page successfully printed) and the control panel is still blank, replace the low-voltage power supply (LVPS).

9. If after replacing the LVPS normal startup noises and lights are still not present, replace the DC controller.

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

## Control panel checks

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

1. Open the Service menu.

### 2-line control panels (M454 nw/dn models)

a. From the printer control panel, press the OK button.

b. Press the ⤺ once, then press ✕ followed by pressing twice on the ⤺ button.

c. Press the OK button, then press the ◀ or the ▶ button to scroll through menu items until you reach the **Service** menu, and then press the OK button.

d. Using the ◀ or ▶ to the navigate to **Service Test** menu, and then press the OK button.

e. Then use the ◀ or ▶ to navigate to **Test LEDs**, and then select OK.

### Touchscreen control panels (M454dw and M479 models)

   **a.** From the Home screen on the printer, press the 🏠 button, then press on the ↩ button, and then twice on the 🏠 button.

   **b.** Scroll down to the Service menu and touch it to access the service menu.

   **c.** Scroll down to **Service Test** menu and touch it to gain access to service test menu.

   **d.** Touch the **Test Display**.

**2.** Select one of the following tests:

- Test LED: Test the LED lights on 2-line control panels. The touchscreen control panels do not have any LEDs.

- Test Display: Test the control panel display.

- Test Keys: Test the control panel buttons.

# Tools for troubleshooting

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

## Individual component diagnostics

### Tools for troubleshooting: LED diagnostics

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

#### Network port LEDs

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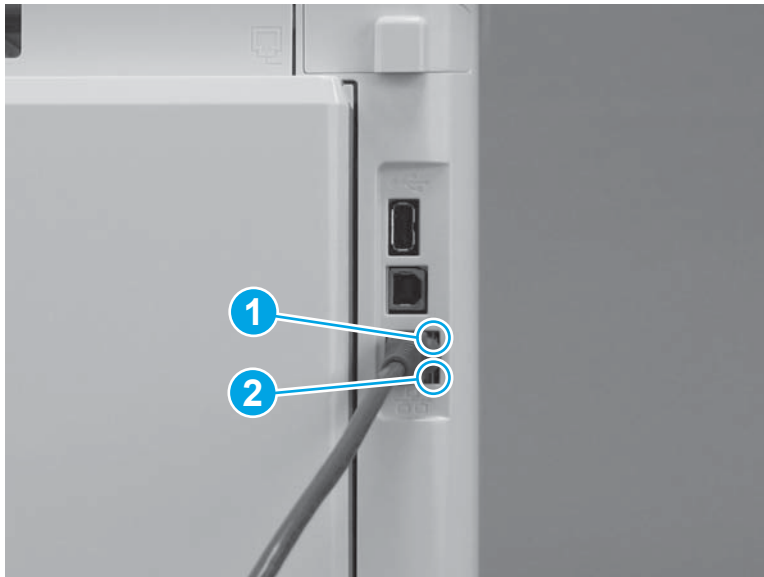


| 1 | Link status LED (green) |
|---|---|
| 2 | Network activity LED (amber) |

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

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

2. Open the following menus:

   ● Network Setup

   ● Link Speed

3. Select the appropriate link speed.

### Two-line control panel LEDs

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

| Printer state | Ready light state | Attention light state |
| --- | --- | --- |
| Initializing | Blinking | Blinking |
| Ready | On | Off |
| Receiving data/processing job or cancelling job | Blinking | Off |
| Error message | Off | Blinking |
| Firmware Assert/Crash[1] | On | On |

[1] The printer restarts after one of these errors occurs.

## Tools for troubleshooting: Engine diagnostics

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

### Engine test

To verify that the printer engine is functioning, print an engine test page. The test page should have a series of lines that are parallel to the short end of the page. The test page can use only Tray 2 as the paper source, so make sure that paper is loaded in Tray 2.

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

**Figure 2-4** Engine test page
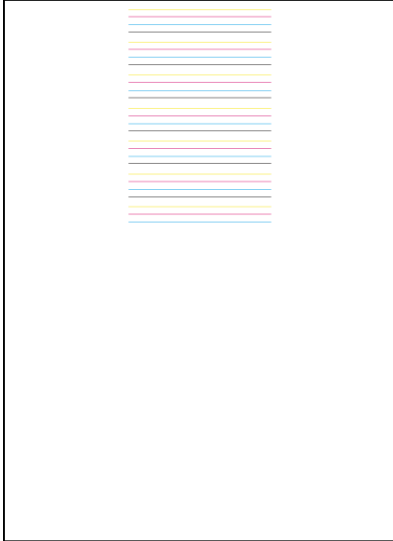
# Diagrams

Use the diagrams in this section to identify printer components.

## Diagrams: Block diagrams

### Sensors and switches (printer base)

Figure 2-5  Sensors and switches (printer base)
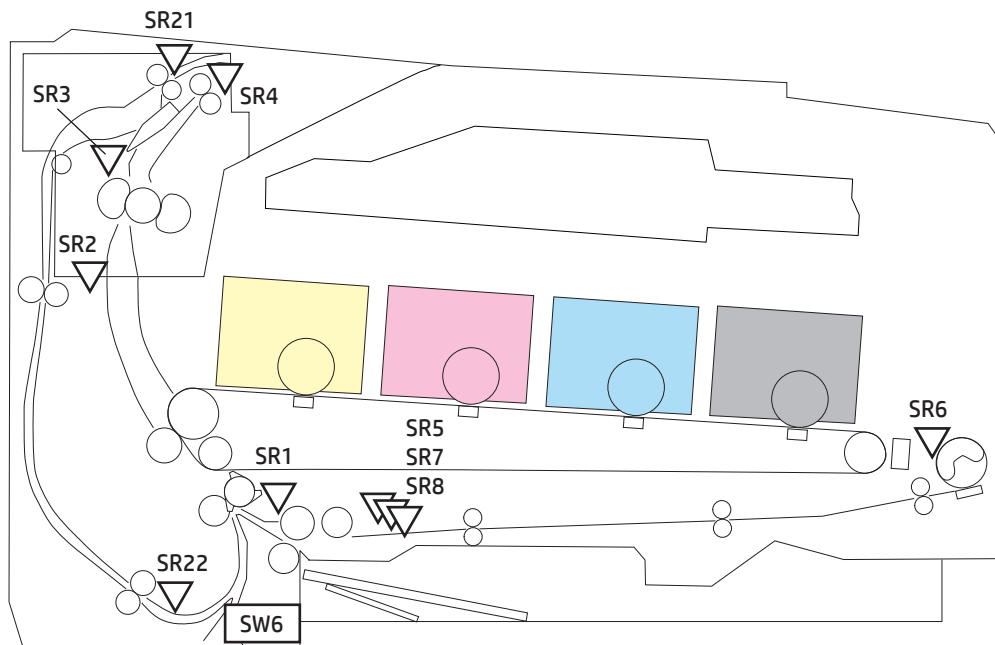


| Item | Description | Item | Description |
|------|-------------|------|-------------|
| SR1 | Registration sensor | SR7 | Tray media surface sensor |
| SR2 | Loop sensor | SR8 | Lifter sensor |
| SR3 | Fuser output sensor | SR21 | Duplex switchback sensor (duplex models only) |
| SR4 | Output bin media-full sensor | SR22 | Duplex re-pickup sensor (duplex models only) |
| SR5 | Tray media out sensor | SW6 | Tray detection switch |
| SR6 | Tray 1 media out sensor | | |

**Figure 2-6** Sensors and switches (550-sheet paper feeder)
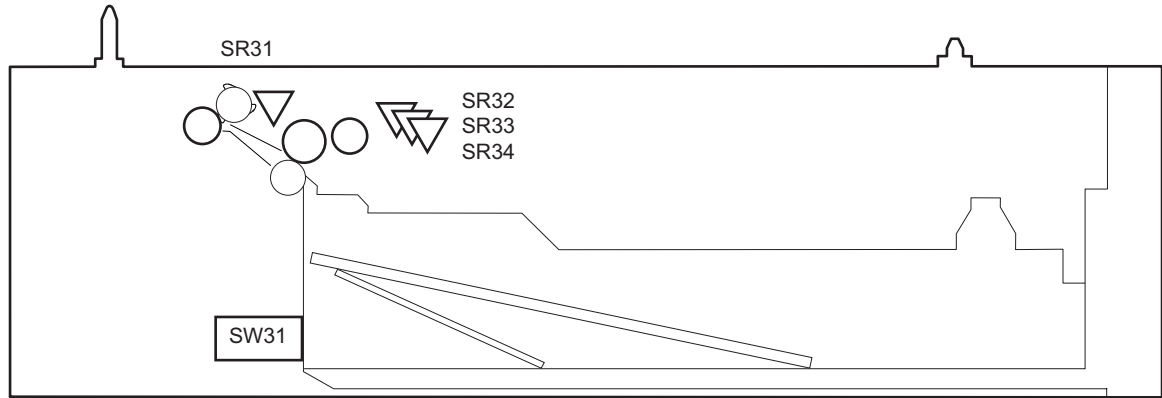


| Item | Description | Item | Description |
|------|-------------|------|-------------|
| SR31 | Feed sensor | SR34 | Tray media output sensor |
| SR32 | Tray media surface sensor | SW31 | Tray detection switch |
| SR33 | Lifter sensor | | |

# Diagrams: Printed circuit assembly (PCA) connector locations

- Diagrams: Formatter connections
- Diagrams: Engine controller PCA connections
- Diagrams: 550-sheet paper feeder controller PCA connections

## Diagrams: Formatter connections

Figure 2-7  Formatter connections M454nw/dn models
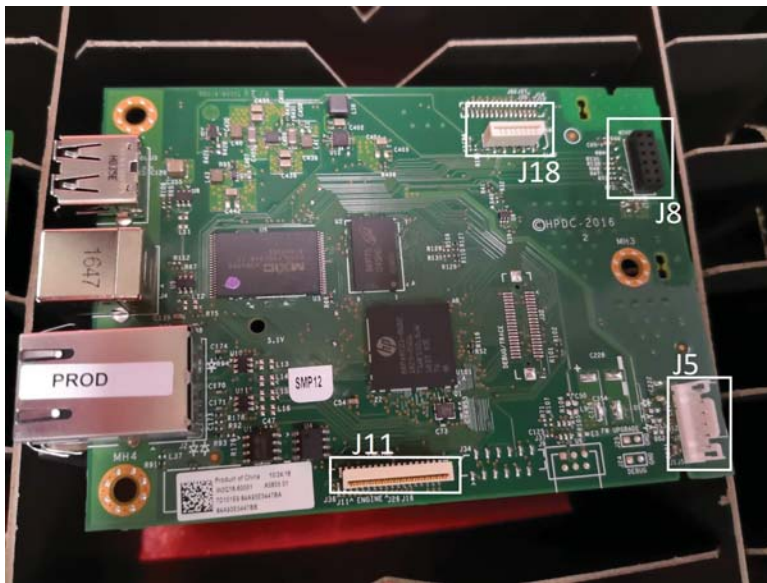


Table 2-2  Formatter connections M454nw/dn models

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| J5 | Power | J11 | Engine interface |
| J8 | Wireless radio | J18 | Control panel (2-line) |

**Figure 2-8** Formatter connections M454dw model
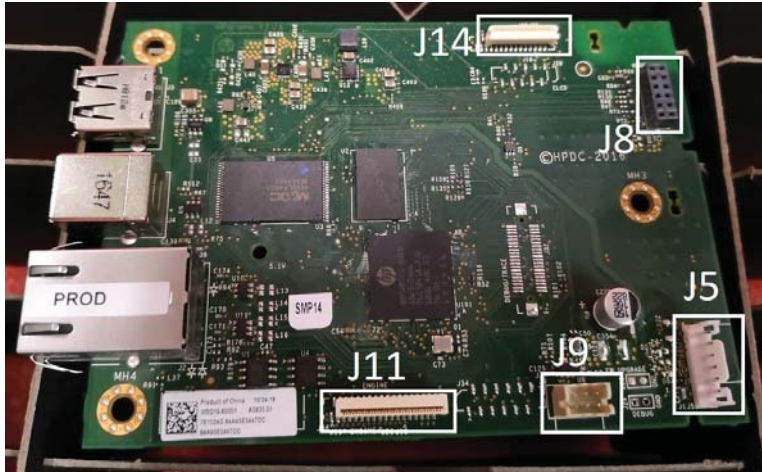


**Table 2-3** Formatter connections M454dw model

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| J5 | Power | J11 | Engine interface |
| J8 | Wireless radio | J14 | Control panel (touchscreen) |
| J9 | Walk-up USB port | | |

**Figure 2-9** Formatter connections M479fnw/fdn/fdw models
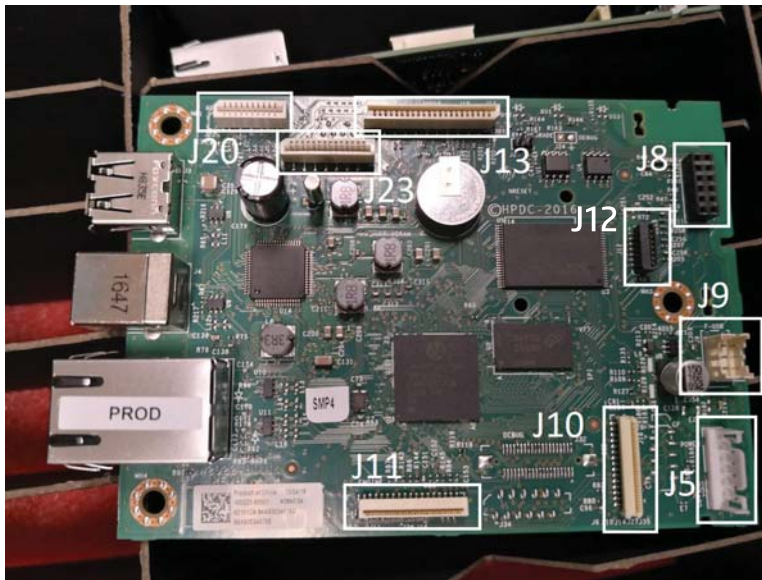


**Table 2-4** Formatter connections M479fnw/fdn/fdw models

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| J5 | Power | J12 | Fax (M479 only) |
| J8 | Wireless radio | J13 | Flatbed Scanner |
| J9 | Walk-up USB port | J20 | Automatic Document feeder (ADF) |

**Table 2-4** Formatter connections M479fnw/fdn/fdw models (continued)

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| J10 | Control panel (touchscreen) | J23 | E-duplex scanner (M479 only) |
| J11 | Engine interface | | |

**Figure 2-10** Formatter connections M479dw models



**Table 2-5** Formatter connections M479dw models

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| J5 | Power | J11 | Engine interface |
| J8 | Wireless radio | J12 | Fax (M479 only) |
| J9 | Walk-up USB | J13 | Flatbed Scanner |
| J10 | Control panel (touchscreen) | J20 | Automatic Document feeder (ADF) |

## Diagrams: Engine controller PCA connections

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

**Figure 2-11** Engine controller PCA connectors
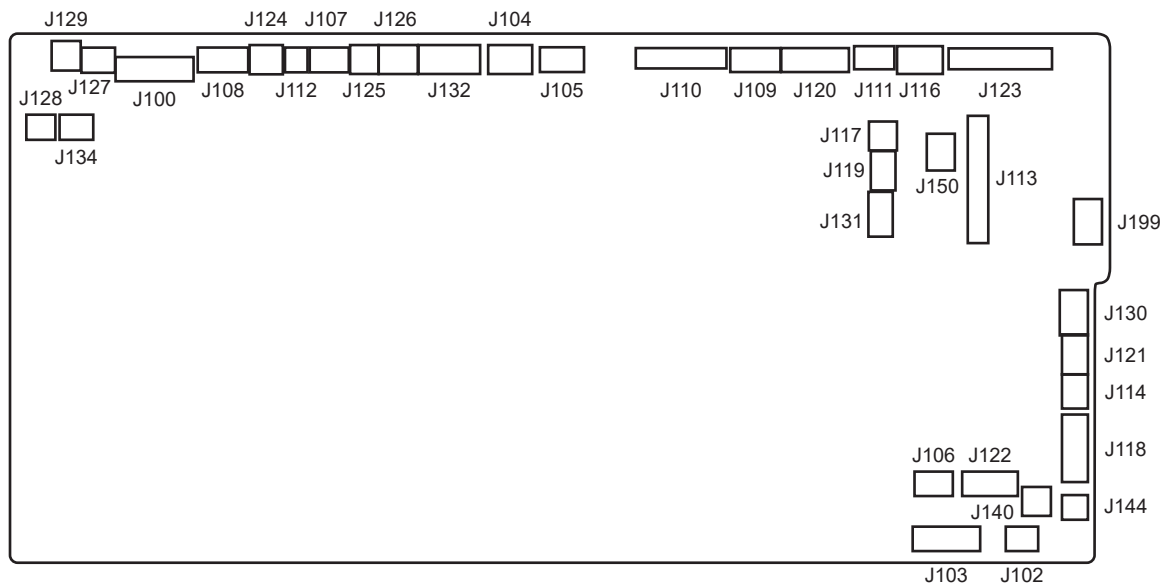


**Table 2-6** Engine controller PCA connectors

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| J100 | Formatter | J120 | Memory chip |
| J102 | Registration sensor | J121 | Environment sensor |
| J103 | Tray media out sensor<br>Lifter sensor<br>Tray media surface sensor | J122 | Paper feeder |
| J104 | DC Controller | J123 | Cyan/black laser assembly |
| J105 | Low-voltage power supply | J124 | Fuser |
| J106 | Intermediate transfer belt (ITB) | J125 | Fuser |
| J107 | Output bin media-full sensor | J126 | Fuser |
| J108 | Loop sensor<br>Fuser output sensor | J127 | Fuser (duplex models only) |
| J109 | Fuser power supply | J128 | Duplex re-pickup clutch (duplex models only) |
| J110 | Yellow/magenta laser assembly | J129 | Fuser (duplex models only) |
| J111 | Scanner motor | J130 | Not used |
| J112 | Fuser pressure release detection switch | J131 | Not used |
| J113 | Driver PCA | J132 | Formatter |
| J114 | Tray 1 media out sensor | J134 | Duplex re-pickup sensor (duplex models only) |
| J116 | Low-voltage power supply | J140 | Lifter solenoid |

Table 2-6 Engine controller PCA connectors (continued)

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| J117 | Front door switch | J144 | Tray detection switch |
| J118 | Registration density sensor | J150 | Front door switch 1 |
| J119 | Power supply switch | J199 | DC Controller |

### Diagrams: 550-sheet paper feeder controller PCA connections

Each of the connections on the 550-sheet paper feeder controller PCA is indicated in the following figure.

**Figure 2-12** 550-sheet paper feeder controller PCA connectors
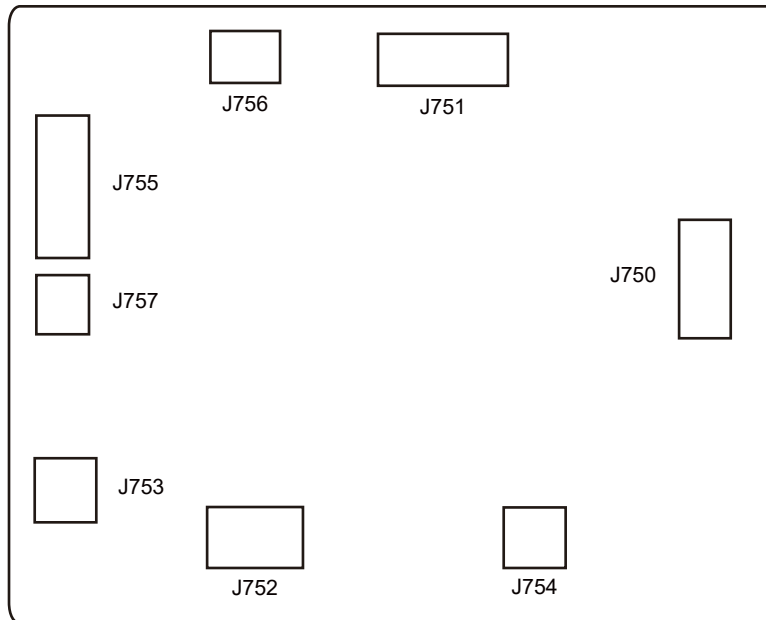


**Table 2-7** 550-sheet paper feeder controller PCA connectors

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| J750 | Engine controller PCA | J754 | Tray pickup solenoid |
| J751 | Not used | J755 | Tray media surface sensor |
|      |             |      | Lifter sensor |
|      |             |      | Tray media out sensor |
| J752 | Pickup motor | J756 | Feed sensor |
| J753 | Lifter solenoid | J757 | Tray detection switch |

## Diagrams: External plug and port locations
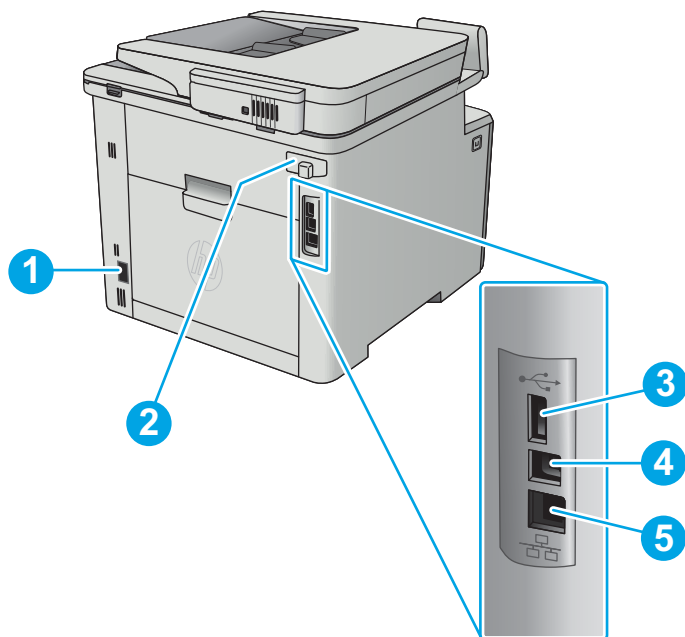
| 1 | Power cord receptacle |
|---|---|
| 2 | Fax ports (M479 models only) |
| 3 | USB port for job storage |
| 4 | USB port for direct connection to a computer |
| 5 | Ethernet port |

## Diagrams: Locations of major components

### Major components (printer base)

Figure 2-13 Major components (printer base)
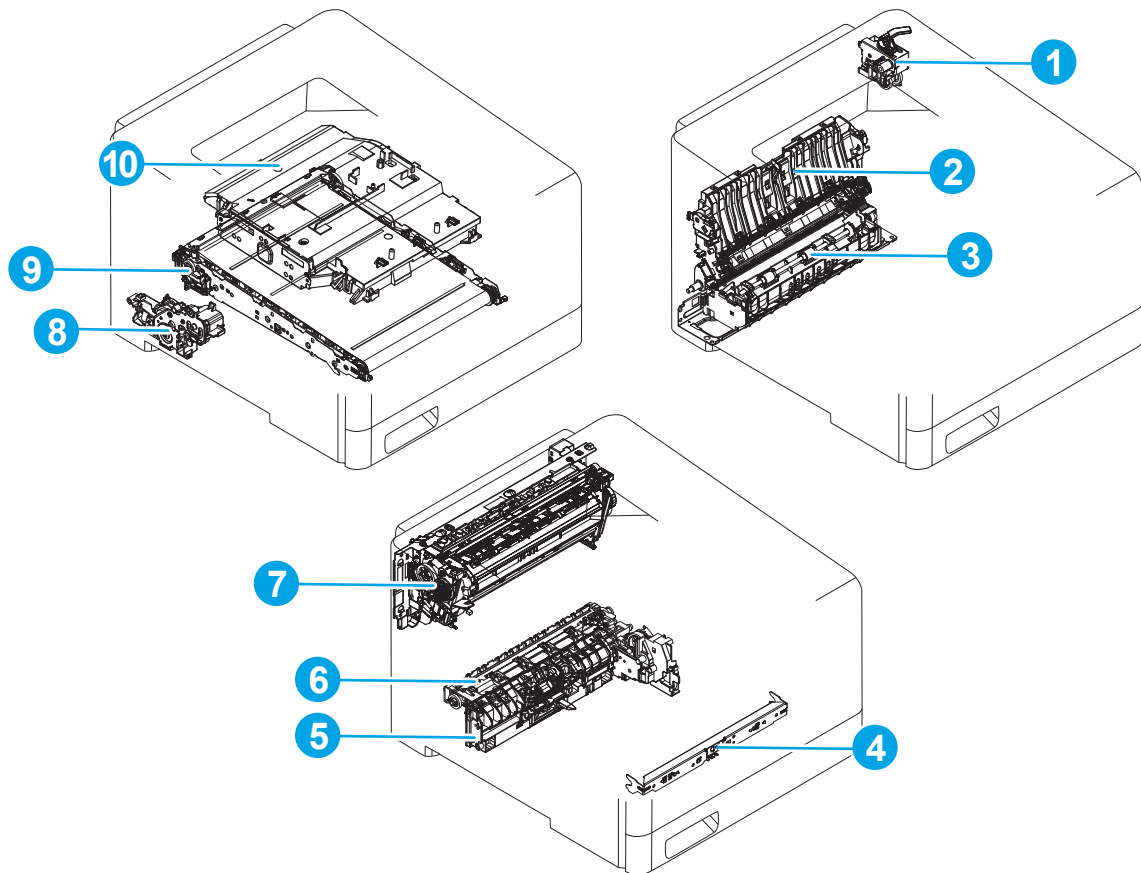


Table 2-8 Major components (printer base)

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| 1 | Duplex drive assembly (duplex models only) | 6 | Registration assembly |
| 2 | Secondary transfer assembly | 7 | Fuser |
| 3 | Re-pickup assembly (duplex models only) | 8 | Lifter drive assembly |
| 4 | Registration density sensor | 9 | Intermediate transfer belt (ITB) |
| 5 | Tray pickup assembly | 10 | Laser scanner |

## Motors (printer base)

Motors (printer base)
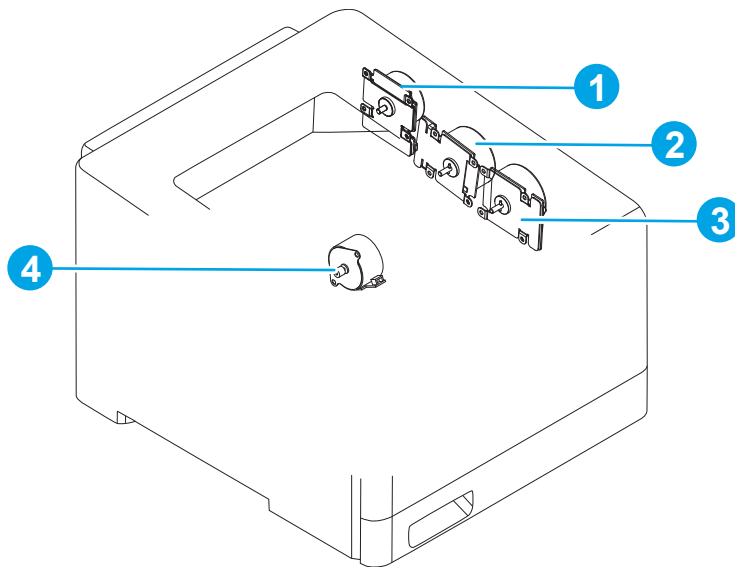


Table 2-9 Motors (printer base)

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| 1 | Fuser motor | 3 | Developer motor |
| 2 | Drum motor | 4 | Pickup motor |

## Fans (printer base)

Figure 2-15  Fans (printer base)
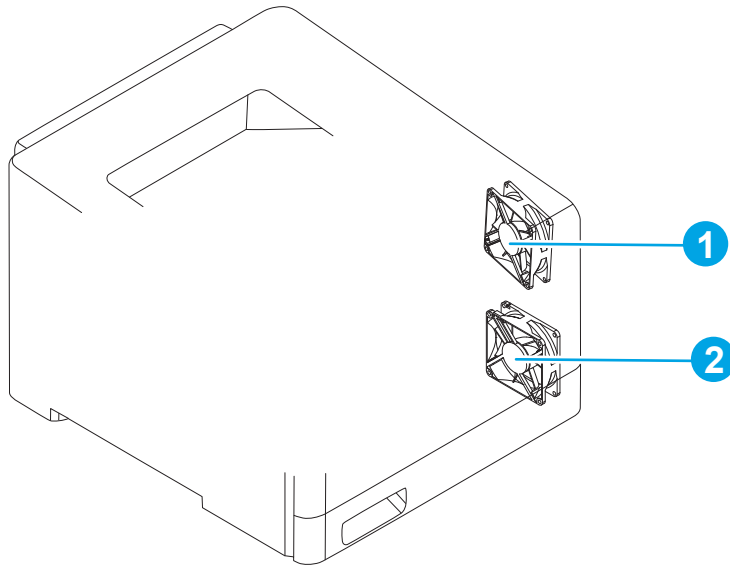


Table 2-10  Fans (printer base)

| Item | Description | Item | Description |
| --- | --- | --- | --- |
| 1 | Cartridge fan | 2 | Power supply fan |

## Rollers and power switch (printer base)

Figure 2-16  Rollers and power switch (printer base)
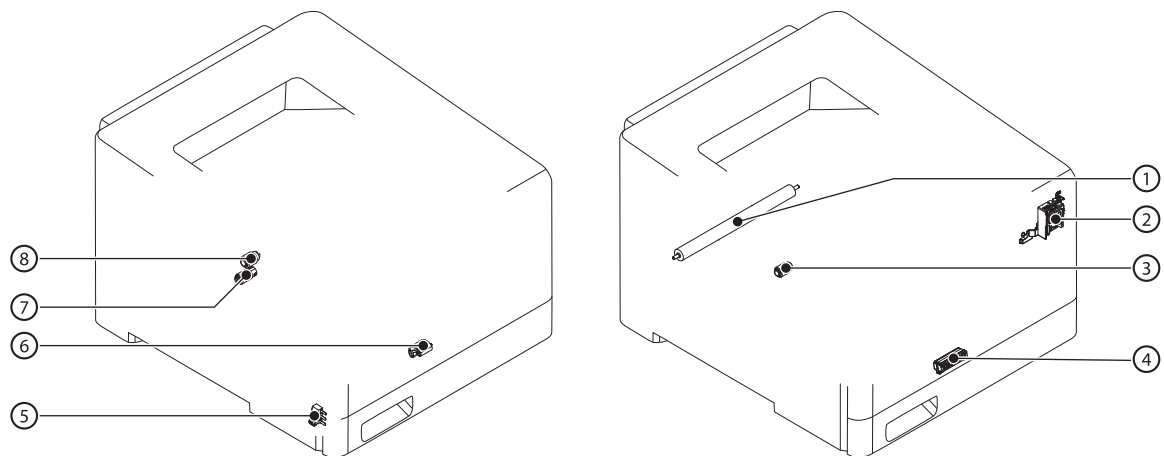


Table 2-11  Rollers and power switch (printer base)

| Item | Description | Item | Description |
| --- | --- | --- | --- |
| 1 | Secondary transfer roller | 5 | Front door switch 2 |
| 2 | Power supply switch | 6 | Tray 1 pickup roller |

Table 2-11  Rollers and power switch (printer base) (continued)

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| 3 | Pickup roller | 7 | Separation roller |
| 4 | Tray 1 separation pad | 8 | Feed roller |

### PCAs (printer base)

Figure 2-17  PCAs (printer base)
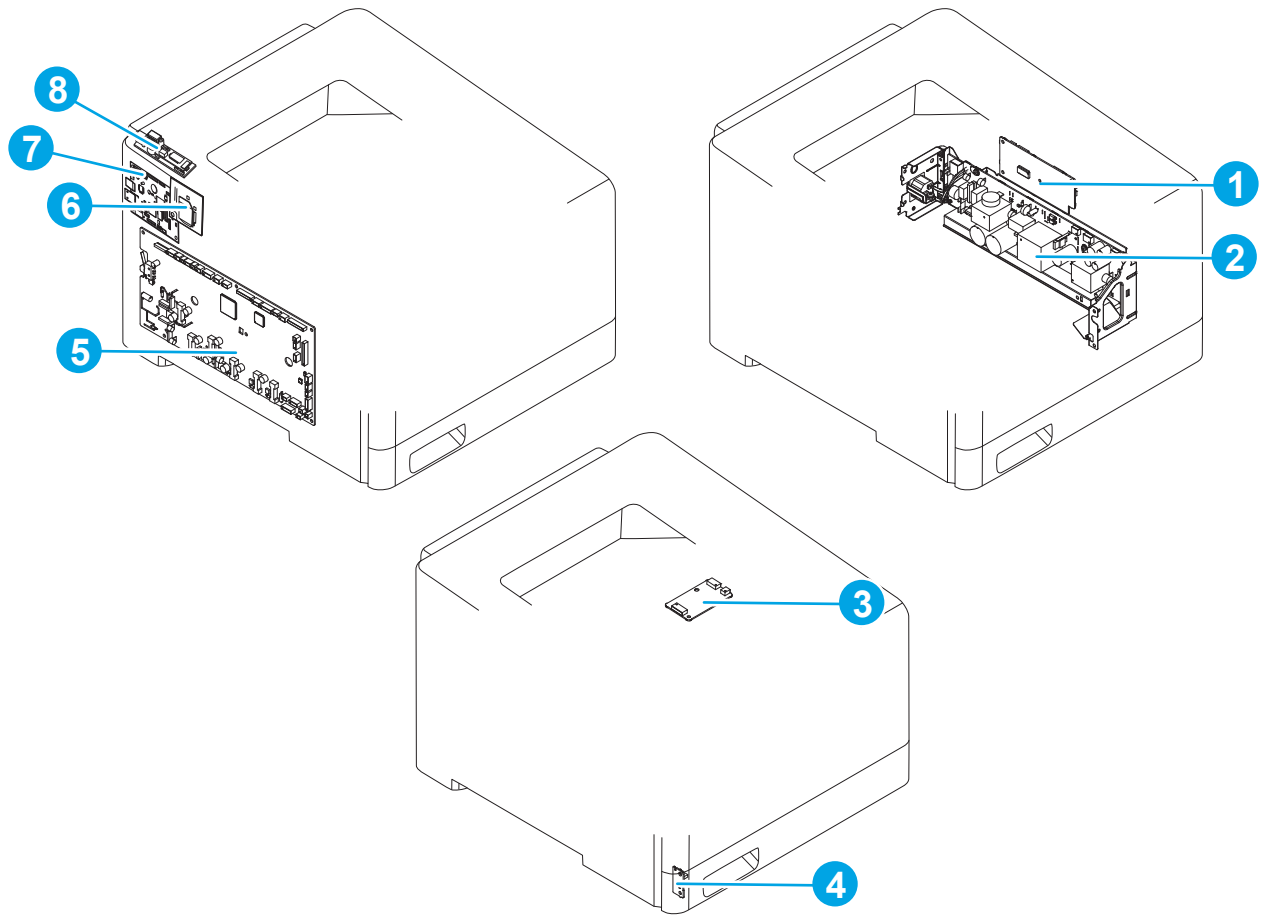


Table 2-12  PCAs (printer base)

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| 1 | Driver PCA | 5 | Engine controller PCA |
| 2 | Low-voltage power supply | 6 | Wireless PCA (M479fnw/fdw models) |
| 3 | Memory PCA | 7 | Formatter PCA |
| 4 | Environment sensor | 8 | Fax PCA (M479 models only) |

## Major components (550-sheet paper feeder)

Figure 2-18  Major components (550-sheet paper feeder)
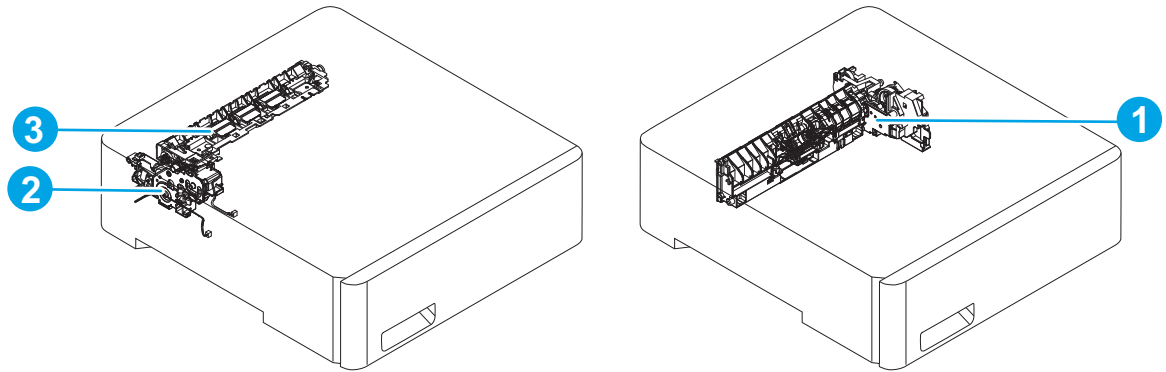


Table 2-13  Major components (550-sheet paper feeder)

| Item | Description | Item | Description |
| --- | --- | --- | --- |
| 1 | Tray pickup assembly | 3 | Paper feed assembly |
| 2 | Lifter drive assembly | | |

## PCA (550-sheet paper feeder)

Figure 2-19  PCA (550-sheet paper feeder)
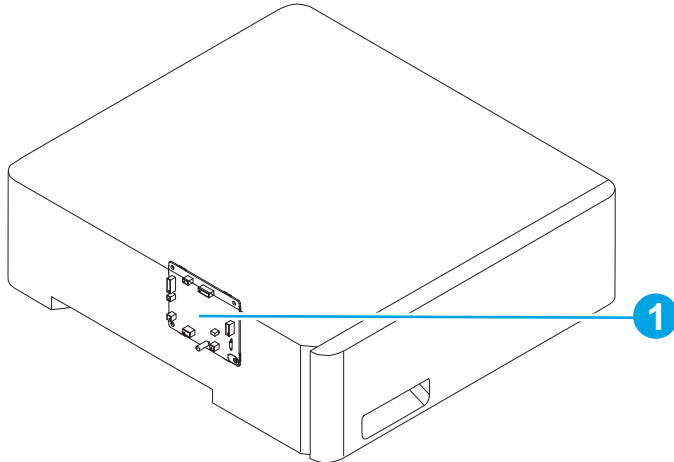


Table 2-14  PCA (550-sheet paper feeder)

| Item | Description |
| --- | --- |
| 1 | Paper feeder controller PCA |

## Motors and rollers (550-sheet paper feeder)

Figure 2-20 Motors and rollers (550-sheet paper feeder)
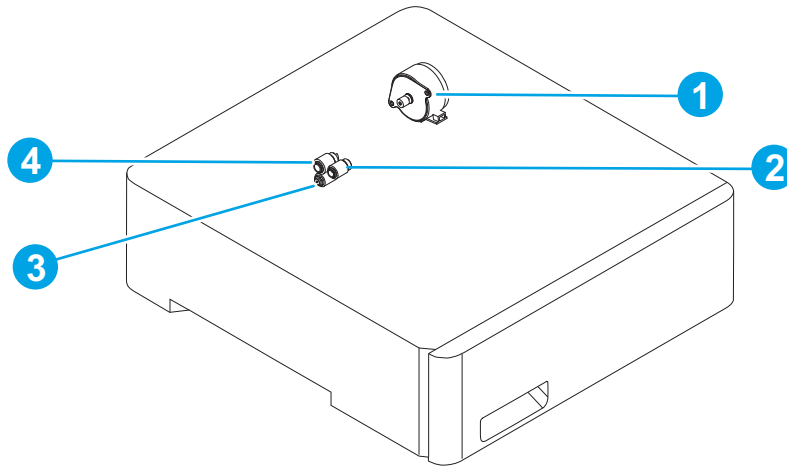


Table 2-15 Motors and rollers (550-sheet paper feeder)

| Item | Description | Item | Description |
|------|-------------|------|-------------|
| 1 | Pickup motor | 3 | Separation roller |
| 2 | Pickup roller | 4 | Feed roller |

## Diagrams: Timing chart

Figure 2-21  General timing chart



Timing chart two consecutive prints on LTR paper (Full-color 1/1 speed mode)

| | | STBY | INTR | PRINT | LSTR | STBY |
|---|---|---|---|---|---|---|
| 1 | Print command | | | | | |
| 2 | Pickup solenoid | | | | | |
| 3 | Registration sensor | | | | | |
| 4 | Fuser output sensor | | | | | |
| 5 | TOP signal | | | | | |
| 6 | Scanner motor | | | | | |
| 7 | Pickup motor | | | | | |
| 8 | Drum motor | | | | | |
| 9 | Developer motor | | | | | |
| 10 | Fuser motor | | | | | |
| 11 | Fuser heater | | | | | |
| 12 | Charging bias and developing bias (YMC) | | | | | |
| 13 | Charging bias and developing bias (K) | | | | | |
| 14 | T1 bias | | | | | |
| 15 | T2 bias | | | | | |
| 16 | Cartridge fan | | | | | |
| 17 | Power supply fan | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |

## Diagrams: Circuit diagrams

Figure 2-22 General circuit diagram (printer base)
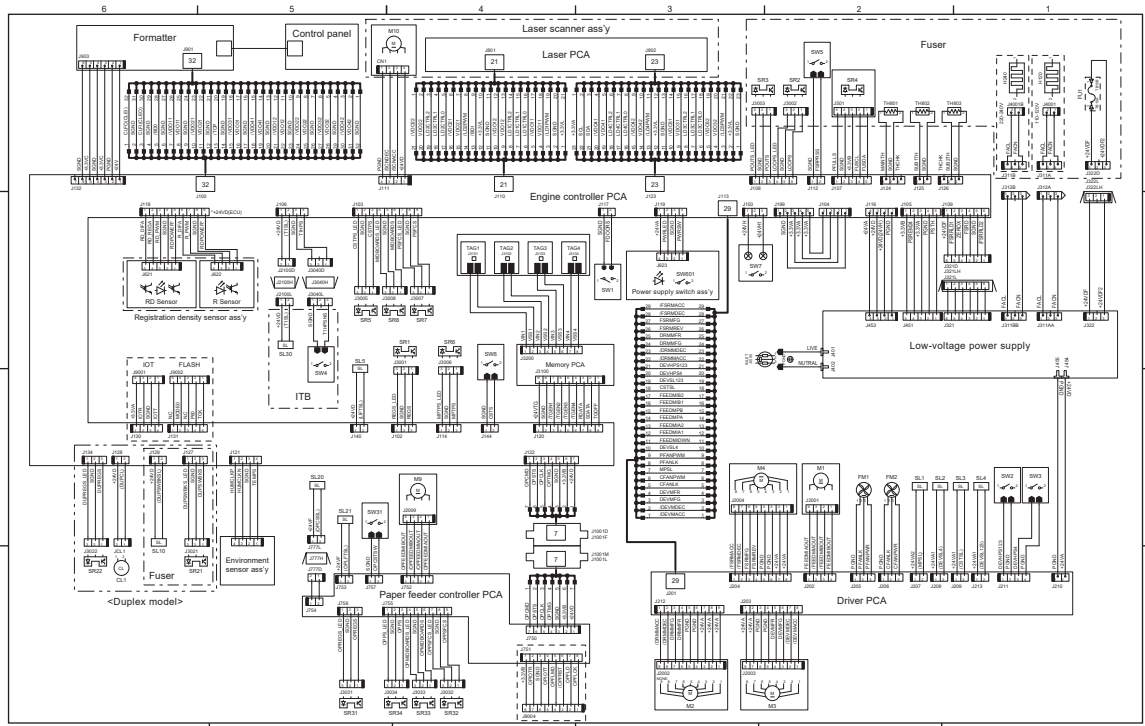


## Advanced configuration with HP Embedded Web Server (EWS) and HP Device Toolbox (Windows)

In order to get the Device Toolbox, the Printer Assistant needs to be opened first. Use the HP Embedded Web Server to manage printing functions from your computer instead of the printer control panel.

- View printer status information

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

- View and change tray configurations (paper types and sizes)

- View and print internal pages

- View and change network configuration

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

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

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

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

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

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

2. Choose HP from the **Start** menu apps lists.

3. Choose **HP** folder, and then choose **Printer** icon with the printer name such as, HP Color LaserJet Pro M478f-9f

4. From the HP Printer Assistant, select **Print, Scan and Fax** tab and then select **Print**. Now select **Printer Home Page (EWS)**.

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

1. **2-line control panels**: On the printer control panel, press the OK button. Press **OK** to enter the Setup menu, use the ◀ or the ▶ buttons to navigate to Network Setup menu, and then select **OK** button. From the Network Setup menu use the ◀ or the ▶ buttons to navigate to General Settings, and then press OK. From the General Settings menu select Show IP Address, and then press the OK button to save setting.

   **Touchscreen control panels**: From the Home screen on the printer control panel, swipe down on the dash board, and touch the Connection Information button. ⊞ or the Network Wi-Fi ON (((ᵧ))) 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 printer control panel. Press the Enter key on the computer keyboard. The EWS opens.

   🖉 https://10.10.XXXXX/
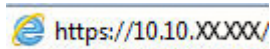
   📝 **NOTE:** If the Web browser displays a **There is a problem with this website's security certificate** message when attempting to open the EWS, click **Continue to this website (not recommended)**.

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

| Tab or section | Description |
|---|---|
| **Home** tab<br><br>Provides printer, information, and configuration. | ● **Scan to Email**: Configure target email profiles fir the scan-to-email feature.<br>● **HP Digital Fax** : Configure the printer to save faxes to a network folder or to forward faxes to an email address.<br>● **Sleep Mode**: Sleep inactivity 1 minute (default).<br>● **Web Services**: Setup web services and turn on HP ePrint.<br>● **Printer Update**: Check for printer updates.<br>● **Estimated Cartridges Levels**: Shows the current levels of toner remaining.<br>● **Network Summary**: Shows IP address and Host Name.<br>● **Print Quality Toolbox**: Run maintenance tools to improve the print quality of your printouts. |
| **Scan** tab<br><br>Provides the ability to configure the printer from your computer. | ● **Scan to Computer**<br>● **Scan to Email**<br>Outgoing Email Settings: The printer allows you to scan documents and send them to one more email addresses as attachments-without additional scanning software.<br>Default Settings: Configure your scan settings and email messages for email sent from the printer.<br>Quick Sets: Allow the user to create a quick set for specific settings for scan to email.<br>● **Scan to Network Folder**<br>Default Settings: Configure your scan to network folder default settings.<br>Quick Sets: Allow the user to create a quick set for specific settings for scan to network folder. |

| Tab or section | Description |
|---|---|
| | • **Scan to Sharepoint** |
| | Default Settings: Configure your scan to Sharepoint default settings. |
| | Quick Sets: Allow the user to create a quick set for specific settings for scan to Sharepoint. |
| | • **Scan to USB** : Allows the user to scan directly to a USB drive using the walk-up USB port. |
| | Default Settings: Allows the user to set default settings for scan to USB drive. |
| | Quick Sets: Allows the user to create a quick set for specific settings for scan to USB drive. |
| | • **Address Book** : Allows the user to create an address book of contacts for future use. |
| | Contacts: Select an address book to create, view, and manage its contacts. |
| | Address Book Settings: Allows the user to store frequently used contacts in address books saved in the printer memory. In addition to the "Local" address book, other custom address books, can be created for storing local contacts. |
| **Copy/Print** tab<br><br>Provides the ability to change default print settings from your computer. | • **Copy**: Change the default copy settings, such as number of copies and paper orientation. These are the same options that are available on the control panel. |
| | Quick Sets: Allows the user to create a quick set for specific settings for copy jobs. |
| | Default Settings: Allows the user to set default settings copy settings. |
| | • **Print** Change the default print settings, such as number of copies and paper orientation. These are the same options that are available on the control panel. |
| | Default Settings: Allows the user to set default settings print settings. |
| | • **Restrict Color** |
| | Settings: The user can use these settings to restrict the printer's usage of color when printing, both for copy jobs (if available) and print jobs. The user can turn off all color printing or a set of custom color printing settings for certain users or software applications. |
| **Fax** tab<br><br>(Fax models only) | • **Settings**: Configure how the printer handles incoming faxes. |
| | – Fax Setup Wizard: Allows the user to install the fax using the fax wizard, which walks the user through all the settings to setup the fax. |
| | – Basic Fax Settings: Before you can begin using the fax features of the device, you must configure the fax header. When a fax is transmitted, the current date and time are printed along with the fax header. In some countries/regions, setting the fax header information is a legal requirement. |
| | – Advanced Fax Settings: This setting is modified when you select or change the country/region setting for the device. |
| | – Fax Forwarding: You can set the device to automatically redirect incoming faxes to another fax number. |
| | – Junk Fax Blocker: If you do not want to receive faxes from specific people or businesses, you can block their fax number. To block a fax number click "New" enter the number, and then click "Apply". To unblock a fax number, select the number, and then click "Delete". |
| | – **Information**: Provides information about faxes sent from and received by the device. |
| | Fax Log: The printed log includes information for both incoming and outgoing faxes. |
| | – **HP Digital Fax**: The printer can either save incoming black and white faxes to a designated folder on the network or forward them as an email attachment to a designated email address. |
| **Web Services** tab<br><br>(MFP models only) | • **Setup**: With Web Services, you can print on the go using HP ePrint and add print apps to your printer using HP Connected. To enable Web Services, make sure the printer is connected to the network and the Internet. |

| Tab or section | Description |
|---|---|
| | • **Print Info Page**: The information page for Web Services contains useful information and simple instructions on how to use HP ePrint and print apps. |
| | • **Proxy Settings**: Allows the user to set proxy settings either manually or with no proxy. |
| **Network** tab<br><br>(Network-connected printers only)<br><br>Provides the ability to change network settings from your computer. | Network administrators can use this tab to control network-related settings for the printer when it is connected to an IP-based network. It also allows the network administrator to set up Wireless Direct functionality. This tab does not appear if the printer is directly connected to a computer.<br><br>• **General**<br><br>Network Summary: Displays the wired, wireless and Wi-Fi direct settings.<br><br>Network Identification: Displays the host name, domain name for both IPv4/IPv6.<br><br>Network Protocols: To operate properly on a TC/IP network, the device must be configured with valid TC/IP network configuration parameters, such as an Internet Protocol (IP) address that is valid for your network.<br><br>Proxy Settings: Allows the user set proxy settings either manually or with no proxy.<br><br>• **Wireless (802.11)**<br><br>Status: Provides the user the status of the wired network, such as host name, connection status, etc.<br><br>IPv4 Configuration: Allows the user to set the settings for IPv4 network settings. such as DHCP, BOOTP, Auto IP, Manual IP.<br><br>IPv6 Configuration: Allows the user to manually input IP address, Preferred DNS server and Alternate DNS server information for their network.<br><br>Advanced: Allows the user set the Network Interface and Link Settings.<br><br>• **Wired (802.3)**<br><br>Status: Provides the user the status of the wired network, such as host name, connection status, etc.<br><br>Wireless Setup Wizard: This wizard will help you to configure your device to connect to a wireless network.<br><br>IPv4 Configuration: Allows the user to set the settings for IPv4 network settings. such as DHCP, BOOTP, Auto IP, Manual IP.<br><br>IPv6 Configuration: Allows the user to manually input IP address, Preferred DNS server and Alternate DNS server information for their network.<br><br>Wireless Band Frequency: Select the wireless band frequency that the printer will use when connecting to wireless devices.<br><br>Advanced: Allow the user to set Network Interface, Network name and Network Settings.<br><br>• **Wi-Fi Direct**<br><br>Status: With Wi-Fi Direct, you can print from a mobile device (such as a smartphone or notebook computer) directly to the printer without connecting to a wireless network.<br><br>• **Bluetooth Smart**<br><br>Status: Bluetooth Smart is an ultra-low power wireless technology that provides connection between the printer and other devices (such as a smartphone, tablets, and computers). this feature is turned on by default.<br><br>• **AirPrint**<br><br>Status: AirPrint enables easy network printing from Apple-supported products - no driver installation or software downloads required.<br><br>• **Google Cloud Print** |

| Tab or section | Description |
| --- | --- |
| | Setup: With Google Cloud Print, you can use a computer or mobile device to print documents and photos directly to your web-connected printer. |

- **Internet Printing Protocol**

  Status: Internet Printing Protocol (IPP) is an internet-standard protocol that allows you to print documents and manage IPP related jobs over the internet.

  User Access List: The User Access List allows you to add and set printing permissions for users printing from mobile devices.

- **Security**

  Certificates: By default a pre-installed self-signed printer certificate is created to identify this printer. You can change this certificate to more accurately identify the printer and to update the length of time the certificate is valid.

  Management Protocol: The EWS can use two communication methods to transfer information between the device and your web browser: HTTP and HTTPS.

  SNMP: Allows the user to manually set his SNMP network.

  802.1X Authentication: Allows you authenticate users, printer certificates, and enable protocols.

  Access Control List: Allows you to specify which IPv4 addresses on your network are allowed access to the device. If the list is empty, then any system is allowed access.

- **Advance Settings**

  Device Announcement Agent: : Allows a configuration server (such as HP Imaging & Printing Security Center) to automatically configure network printers, with no administrator intervention required.

  Bonjour: Bonjour services (which use mDNS, or Multicast Domain Name System) are typically used on small networks for HP address and name resolution (through UPD port 5353), where a conventional DNS server is not used.

  SMB: Allows the user to manually set SMB settings.

  WINS: The Windows Internet Naming Service (WINS) server provides Internet Protocol (IP) address and name resolution services for network computers and devices.

  SLP: Service Location Protocol (SLP) is an Internet standard network protocol that provides a framework to allow networking application to discover the existence, location, and configuration of networked services in enterprise networks.

  LPD: Line Printer Daemon (LPD) refers to the protocol and programs associated with line-printer spooling services that may be installed on various TC/IP systems.

  LLMNR: Link-Local Multicast Name Resolution (LLMNR) is a protocol based on the Domain Name System (DNS) packet format that allows both IPv4 and IPv6 host to perform name resolution for hosts on the same local link.

  Port 9100 Printing: The device supports raw IP printing through TCP Port 9100. This HP proprietary TC/IP port on the printers is the default port for printing. It is accessed by HP software (for example, the HP Standard Port).

  Microsoft Web Services: Enabled or disable the Microsoft Web Services Dynamic Discovery (WS-Discovery) protocols or Microsoft Web Services for Devices (WSD) print and WSD scan services supported on the printer.

  Syslog: Allows the user to manually set syslog settings.

  Advanced DHCP Settings: Allows the user to manually set DHCP advanced settings.

| Tab or section | Description |
| --- | --- |
| **Tools** tab | Use this tab to set up and use various settings on the printer. |

- **Product Information**

| Tab or section | Description |
|---|---|
| | Provides the user a quick view of the product information, such as, model number, serial number, service ID, page count, etc. |
| | Supply Status: Provides the user a quick view of the supply status, such as, remaining pages, product number for supplies, etc. |

- **Reports**

  Usage Reports: Provides the user a quick view of the usage information, such as, total page count, color pages, mono pages, duplex pages, jams, etc.

  Printer Reports: Allows the user to print PCL fonts, PS font list, menu map and configuration pages.

  Event Log: Provides a list of printer's last 250 error messages. This log can be used to help diagnose and troubleshoot printer problems and intermittent failures.

  Job Log: Provides a list of the most recent jobs performed by the printer. To see more information about specific jobs click "View Details".

  Color Usage Job Log: Provides a quick view of color and mono pages printed.

- **Utilities**

  Pint Quality Toolbox: Run maintenance tools to improve the print quality of your printouts.

  Color Calibration: Allows the user to schedule color calibrations.

  Asset Tracking: Helps track your office assets, you can assign and asset number/location to this device.

  Online Help: Provides links to solution pages for printer issues. To connect to the correct page, the printer will send the HP information including event details, model number, and printer serial number. HP will treat this information in the manner set out in the HP Privacy Statement. If you do not wish to send this information to HP, but would like to receive generic support for your printer, visit Product support.

- **Backup and Restore**

  Backup: Feature allows you to create a password-encrypted file that stores the printer's settings.

  Restore: If needed, you can restore the printer's settings using a backup file created by the EWS. To restore the printer's settings, enter the password for the backup file, enter the pathname or browse for the backup file, and then click "Load".

  **Printer Restart**

  Power Cycle: Some printer problems (such as repeated printing supplies errors) can be resolved by turning off the printer, and then turning it back on again.

- **Printer Updates**

  Firmware Updates: The printer can download and install printer updates from the Internet. By downloading and installing updates you agree to the HP Connected Terms of Use.

**Settings**

- **Power Management**

  Shutdown Mode: Allows the user to set up the shutdown time when device is inactive.

  Shutdown Mode: Allows the user to set up the shutdown time when device is inactive.

  Sleep Mode: Allows the user to set up sleep after inactivity settings.

- **Preferences**

  General Printer Settings: If data for the print job is delayed (due to network problems, for example), determine how many seconds the printer waits for the data before it cancels the print job.

| Tab or section | Description |
| --- | --- |

Date and Time: Allows the user to manually set the date and time for the printer.

International: Allows the user to manually set the country/region. Changing this setting resets some settings to the default for the selected country/region. Such settings include the default paper size and many fax settings.

Tray and Paper Management: Allows the user to set the paper settings to be used when printing tray-specific print jobs.

Image Registration: Adjust the alignment for individual trays when text or images are not centered or aligned correctly on the printed page.

Display Settings: Adjust screen brightness, inactivity timer and continuable events.

- **Supplies**

  Supply Settings: Allows the user to set the threshold at which the printer provides notification that cartridges are running low.

  Anonymous Usage Information Storage: The HP cartridges used with this printer contain a memory chip that assists in the operation of the printer. In addition, this memory chip stores a limited set of anonymous information about the usage of the printer, which might include the following: the date when the cartridge was first installed, the date when the cartridge was last used, the number of pages printed using the cartridge, the page coverage, frequency of printing, the printing modes used, any printing errors that might have occurred, and printer model.

- **Control Panel Customization**

  Home Screen Customization: Allows the user to use EWS to remotely add and remove control panel icons on the printer's home screen. You can also change the order in which they appear on the home screen by dragging and dropping icons.

  Quick Sets: Are pre-configured sets of options that allow users to easily start a job without having to manually configure frequently used job settings.

- **Security**

  Password Settings: Allows the user to set a password to prevent unauthorized users from remotely configuring the printer or viewing printer settings from the EWS.

  Account Policy: Allows the user to set password complexity and maximum password length.

  Administration Settings: Allows the user to customize the printer by enabling or disabling the features available for users.

  Access Control: Sign in method can be used when signing in from the printer control panel. If relating printer permissions to network group of users or groups, be sure to use a sign in method that matches what is used when signing in at a computer.

  Protect Stored Data: Stored jobs are documents that are stored on the printer and available for printing. To use this feature, insert a flash storage device into the printer. All stored jobs are saved on this flash storage device.

- **Email Alerts**

  Email Server: Enter the settings for the email (SMTP) server and for the email address that the device uses when it sends email messages (which will appear in the FROM part of the email address).

  Alert Destinations: You can "Edit" or "Delete" a list by selecting the checkbox to the left of list name.

  Alert Settings: You can configure the printer to send email messages when printer problems occur, as well the length of time the EWS will wait before sending these email messages (the "threshold").

- **Restore Defaults**

| Tab or section | Description |
|---|---|
| | Restore Factory Defaults: To restore the printer settings. Settings that have been configured in the printer will be deleted and original factory settings for these features will be restored. |
| | Restore Network Settings: If you need to reset wireless or wired (Ethernet) settings (such as proxy settings) or need to reconfigure a network. |

- **Firewall**

Firewall Rules: Allows the user to set firewall rules.

Firewall Rule Priority: Allows the user to set firewall priority rules.

Firewall Address Template: Allows the user to set firewall template.

Firewall Services Template: Allows the user to set firewall services template.

Firewall Service Lists: Allows the user to set firewall service lists.

Firewall Options: This option ensures HTTPS remains accessible even if it is blocked by the firewall policy. Allows the administrator to test the policy without inadvertently locking themselves out of the device.

# Control panel menus

## 2-line control-panel view (M454nw and M454dn models)



| 1 | 2-line control panel display | This screen displays menus and printer information. |
|---|---|---|
| 2 | OK button | Press the OK button for the following actions: |
| | | ● Open the control-panel menus. |
| | | ● Open a submenu displayed on the control-panel display. |
| | | ● Select a menu item. |
| | | ● Clear some errors. |
| | | ● Begin a print job in response to a control-panel prompt (for example, when the message **Press [OK] to continue** appears on the control-panel display). |
| 3 | Right arrow ▶ button | Use this button to navigate through the menus or to increase a value that appears on the display. |
| 4 | Cancel ✕ button | Press this button to cancel a print job or to exit the control panel menus. |
| 5 | Wireless button (wireless models only) | Use this button to navigate the open the **Wireless** menu and wireless status information. |
| 6 | Back arrow ↩ button | Use this button for the following actions: |
| | | ● Exit the control-panel menus. |
| | | ● Scroll back to a previous menu in a submenu list. |
| | | ● Scroll back to a previous menu item in a submenu list (without saving changes to the menu item). |
| 7 | Left arrow ◀ button | Use this button to navigate through the menus or to decrease a value that appears on the display. |
| 8 | Ready LED | The Ready light is on when the printer is ready to print. It blinks when the printer is receiving print data, or when the printer is in sleep mode. |
| 9 | Attention LED | The Attention light blinks when the printer requires user attention. |

## Touchscreen control-panel view (M454dw model)
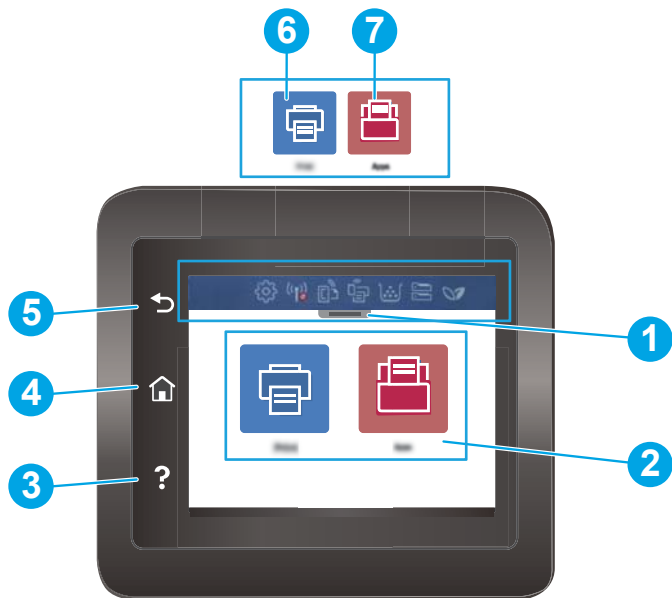


| 1 | Home screen dash board icons | See the table that follows for a description of the icons. |
|---|---|---|
| | | Pull down the tab to open the Jobs menu. |
| 2 | Color touchscreen | Provides access to the control panels help system. |
| 3 | Help ? button | Touch this button to open the control-panel help system. |
| 4 | Home button | Touch this button to navigate to the Home screen. |
| 5 | Back button | Touch this button to return to the previous screen. |
| 6 | | Print icon. Touch this icon to open the Print menu. |
| 7 | | Apps icon. Touch this icon to open the Apps menus. |
| | | NOTE:   Provides a list of available apps that are available by country/region. |

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

## Touchscreen control-panel view (M479 models)



| | | |
|---|---|---|
| 1 | Home screen dash board display icons | See the table that follows for a description of the icons. |
| | | Pull down this tab to open the Jobs menu. |
| 2 | Home screen icons | Touch these icons to open the menus for these functions. |
| 3 | Help ? button | Provides access to the control-panel help system |
| 4 | Home button | Provides access to the Home screen |
| 5 | Back button | Returns to the previous screen |
| 6 | Color touchscreen | Provides access to menus, help animations, and printer information. |
| 7 | Sign-in button | Touch this button to sign in to the printer. |
| 8 | | Copy icon. Touch this icon to open the Copy menu. |
| 9 | | Scan icon. Touch this icon to open the Scan menus. |
| | | ● Scan to USB Drive |
| | | ● Scan to Network Folder |
| | | ● Scan to E-mail |
| | | ● Scan to Computer |
| | | ● Scan to SharePoint |
| 10 | | Print icon. Touch this icon to open the Print menu. |
| 11 | | Fax icon. Touch this icon to open the Fax menus. |
| 12 | | Apps icon. Touch this icon to open the Apps menus. |

| | | NOTE: Provides a list of available that are available by country/region. |
|---|---|---|
| 13 | ⊟ | Quick Sets icon. Touch this icon to access shortcut jobs that are set up for the frequently performed tasks. This icon appears after a Quick Set is configured. |
| | | Quick Sets are configured in the Embedded Web Server under **Settings** Control panel Customization. |

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

## Setup menu

To open this menu, either press the OK button (2-line control panels) or touch the Setup ⚙ button (touchscreen control panels). The following sub menus are available:

- Preferences

- Network Setup

- Wi-Fi Direct (M454dw and M479 models only)

- Wireless (M454dw/nw and M479dw/fnw/fdw models only)

- Bluetooth Low Energy

- Wi-Fi Direct

- Bluetooth Low Energy

- Web Services Setup

- Tray Management

- Paper Setup

- Supply Settings

- Printer Maintenance

- Print Settings

- Power Management

- Reports

- Security

- Fax Setup (M479 models only)

- Quick Forms

- 

### Preferences menu

Table 2-16  Preferences menu

| Menu item | Description |
|---|---|
| Date and Time | Use Date and Time to set the date and time on the printer (M479 models only). |

**Table 2-16 Preferences menu (continued)**

| Menu item | Description |
|---|---|
| | **NOTE:** Not available on single function devices. |
| Language | Use Language to set the language on the printer. |
| Country/Region | The Country/Region sets the country/region on the printer. |
| Keyboard | Select the Keyboard setting from the list of available options. This option is selecting how the keyboard is shown. The default is QWERTY. Other choices are AZERTY, QWERTZ and ABC<br><br>**NOTE:** Only available on touchscreen models. |
| Screen Brightness | The Screen Brightness sets the screen brightness on the printer.<br><br>Use and set the brightness by touching the slider to brightness you desire.<br><br>**NOTE:** Not available on the 2-line display and 2.7 inch control panel models. |
| Sound Effects Volume | Sound Effects Volume sets the sound effects volume. Use and set the sound effects volume by touching the slider to the loudness you desire.<br><br>**NOTE:** Not available on the 2-line displays and 2.7 inch control panels models. |
| Continuable Events | The Continuable Events setting allows the printer to continue printing when an event appears on the control panel.<br><br>● Manual*<br><br>● Auto Continue<br><br>**NOTE:** Not available on 2-line display models. |
| Store Anonymous Usage Information<br><br>Store Usage Information (available on 2 line control panel models only) | Use the radio button to enable or disable the Store Anonymous Usage Information setting.<br><br>The HP cartridges used with the printer contain a memory chip that assists in the operation of the printer. In addition, this memory chip stores a limited set of anonymous information about the usage of the printer, which might include the following:<br><br>● Data when the cartridge was first installed<br><br>● Data when the cartridge was last used<br><br>● Number of pages printed using the cartridge<br><br>● Page coverage<br><br>● Frequency of printing<br><br>● Printing models used<br><br>● Any printing errors that might have occurred<br><br>● Printer model<br><br>This information helps HP design future printers to meet our customer's printing needs. The data collected from the cartridge memory chip does not contain information that can be used to identify a customer or use of the cartridge or their printer. For more information, see the documentation provided with the printer. If you are concerned about providing this anonymous information, click Off to turn off the memory chip's ability to collect the printer's usage information.<br><br>**NOTE:** Not available on the 2.7 inch control panel models.<br><br>For 2-line control panel display models Store Usage, only allows the user to decide whether or not to send the Anonymous Usage Information from the previous menu. |

## Network Setup menu

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

Table 2-17  Network Setup menu

| Menu item | Sub-menu item | Description |
|---|---|---|
| Ethernet Settings | View Ethernet Details | |
| | IP Settings | For touchscreen models only: |
| | | Automatic |
| | | Manual (static) |
| | | For 2-line display models only: |
| | | • DHCP |
| | | • BOOTP |
| | | • Auto-IP |
| | | • Manual (static) |
| | | The printer automatically configures all the TCP/IP settings via DHCP, BootP or AutoIP. |
| | | Manual: You can manually configure the IP address, subnet mask, and default gateway. The control panel prompts you to specify values for each address section. As each address is completed, the printer prompts for address confirmation before moving to the next one. After all three addresses are set, the network reinitializes. |
| Link Speed | Automatic* | Sets the link speed manually if needed. |
| | 10T Full | After setting the link speed, the printer automatically restarts. |
| | 10T Half | |
| | 100TX Full | |
| | 100TX Half | |
| | 1000T Full | |
| Wireless Settings (wireless models only) | Wireless Settings | You can enable or disable this feature. (only available on touchscreen models) |
| | Wireless | You can enable or disable this feature. (only available on 2-line display models) |
| | Print Start Guide | Prints the start guide. |
| | Wireless Setup Wizard | Guides you through the steps to set up the printer on a wireless network. |
| | Wi-Fi Protected Setup | If your wireless router supports this feature, use this method to set up the printer on a wireless network. This is the simplest method. |
| | View Wireless Details | Displays IP address, Signal, Network Name, Channel, MAC address, Host Name, Bonjour Name, Subnet Mask Gateway. |
| | | NOTE:   Not available on 2-line display models. |
| | Print Wireless Test Report | Tests the wireless network and prints a report with the results. |
| | Print Wireless Test Report | Prints the wireless test report. |
| | IP Settings | For touchscreen models only: |

Table 2-17 Network Setup menu (continued)

| Menu item | Sub-menu item | Description |
|---|---|---|
| | | Automatic |
| | | Manual |
| | | (static) |
| | | For 2-line display models only: |
| | | • DHCP |
| | | • BOOTP |
| | | • Auto-IP |
| | | • Manual (static) |
| | 5 GHz Band Frequency | Allow the user to enable the ability to find and connect to 5GHz wireless networks. |
| General Settings | Show IP Address | Shows the IP address on the display. |
| | Proxy Settings<br><br>NOTE: Available on 2-line display models only. | Enter proxy information.<br><br>On<br><br>Off |
| | Host Name<br><br>NOTE: Not available on 2-line display models. | Enter host name. |
| | Bonjour Name<br><br>NOTE: Not available on 2-line display models. | Enter bonjour name.<br><br>Change<br><br>OK |
| | IPv6 | Turn IPv6 on or off by using the radio button. |
| | Legacy Default IP<br><br>Not available on 2-line display models. | Enables the printer to use to connect the printer to the network using legacy default IP.<br><br>Yes<br><br>No |
| Security | Disable Access Control List | Access Control List (ACL) allows the user to specify which IPv4 addresses on their network are allowed access to the device. If the list is empty, then any systems is allowed access. |
| | Reset 802.1X Settings | Reset the security settings to the factory-set default values. |
| | 802.1x (wireless models only) | Enable or disable the 802.1x wireless authentication protocol. |
| Print network configuration | | Prints the current network configuration and settings. |
| Restore Defaults | | Resets all network configurations to their factory defaults. |

## Wi-Fi Direct menu (wireless models only)

Table 2-18 Wi-Fi Direct menu

| Menu item | Sub-menu item | Description |
|---|---|---|
| Wi-Fi direct | Wi-Fi Direct Status | Allows user to turn Wi-Fi Direct On or Off<br><br>**NOTE:** Not available on the 2.7 inch and 4 inch control panels models. |
| | Wi-Fi Direct | Allows the user to use the toggle to enable or disable Wi-Fi Direct.<br><br>**NOTE:** Not available on 2-line display models. |
| | Connection Method | Specify the Wi-Fi Direct connection method.<br><br>● Automatic<br><br>● Manual |
| | Print Wi-Fi Direct Guide | Prints the wi-fi direct guide.<br><br>**NOTE:** Not available on the 2.7 inch and 4 inch control panels models. |
| | Wi-Fi Direct Name | Manage the printer's Wi-Fi Direct settings. Use the radio button to enable or disable this feature.<br><br>**NOTE:** Not available on the 2.7 inch and 4 inch control panels models. |
| | Wi-Fi Direct Password | Ask user to input wi-fi password.<br><br>**NOTE:** Not available on the 2.7 inch and 4 inch control panels models. |

## Bluetooth low energy menu

Table 2-19 Bluetooth menu

| Menu item | Sub-menu item | Description |
|---|---|---|
| Bluetooth Smart | | Manage the printer's Bluetooth low energy settings. Use radio button to enable or disable this feature.<br><br>**NOTE:** Not available on 4 inch control panels models. |
| Bluetooth Low Energy | | Use the slider button (touchscreen models) to turn Bluetooth Low Energy or select (2-line display models) On or Off. |

## Web Services Setup menu

Table 2-20 HP Web Services menu

| Menu item | Description |
|---|---|
| Display email address | Enabling Web services will allow HP to collect serial number and locations as part of the printer setup process.<br><br>The printer will display the email address. |
| Print Info Page | The printer will print an Information page. |

**Table 2-20** HP Web Services menu (continued)

| Menu item | Description |
|---|---|
| HP ePrint | Allows for the enabling of HP ePrint. |
| Remove Web Services | Allows the user to disable web services. |

## Tray Management menu

**Table 2-21** Tray management menu

| Menu item | Sub-menu item | Description |
|---|---|---|
| Tray Assignment<br><br>NOTE: Not available on 2-line display models. | Copy<br><br>NOTE: Only available on the AiO models. | Allows the user to configure copy tray settings. |
| | Fax Printing<br><br>NOTE: Only available on the AiO models. | Allows the user to configure fax printing tray settings. |
| | USB Printing | Enabling Web services will allow HP to collect serial number and locations as part of the printer setup process.<br><br>The printer will display the email address. |
| | Default Paper Size | Sets the size for printing internal reports, faxes, or any print job that does not specify a size.<br><br>Letter<br><br>A4<br><br>Legal<br><br>NOTE: The default setting is determined by the choice of location during the initial printer setup. |
| | Default Paper Type | Sets the type for printing internal reports, faxes, or any print job that does not specify a type<br><br>List available paper types. |
| Paper Out Action | Auto Continue Timeout | Determines how the printer reacts when a print job requires paper size or type that is unavailable or when the tray is empty.<br><br>Immediate: The printer waits until you load the correct paper.<br><br>Wait forever: The printer waits until you load the correct paper.<br><br>● 5 minutes<br><br>● 10 minutes<br><br>● 20 minutes<br><br>● 30 minutes<br><br>● 45 minutes<br><br>● 1 hour |
| | Auto Continue Action | Determines how the printer reacts when a print job requires paper size or type that is unavailable or when the tray is empty. |

Table 2-21 Tray management menu (continued)

| Menu item | Sub-menu item | Description |
|---|---|---|
| | | ● Cancel: Automatically cancels the print job after a specified delay. |
| | | ● Override: Print on a different size paper after a specified delay. |
| Image Adjust | Tray 1 | X1 shift: Registration of the image on the paper from side to side, as the paper lies in the tray. For duplex models, this side is the second side (Back) of the paper. |
| | | X2 shift: Registration of the image on the paper from side to side, as the paper lies in the tray for the first side (front) of a duplexed page. This item appears only on duplex models. |
| | | NOTE:  Set X1 shift first. |
| | | Y shift: Registration of the image on the paper from top to bottom as the paper lies in the tray. |
| | Tray 2 | X1 shift: Registration of the image on the paper from side to side, as the paper lies in the tray. For duplex models, this side is the second side (Back) of the paper. |
| | | X2 shift: Registration of the image on the paper from side to side, as the paper lies in the tray for the first side (front) of a duplexed page. This item appears only on duplex models. |
| | | NOTE:  Set X1 shift first. |
| | | Y shift: Registration of the image on the paper from top to bottom as the paper lies in the tray. |
| | Tray 3 (optional accessory) | X1 shift: Registration of the image on the paper from side to side, as the paper lies in the tray. For duplex models, this side is the second side (Back) of the paper. |
| | | X2 shift: Registration of the image on the paper from side to side, as the paper lies in the tray for the first side (front) of a duplexed page. This item appears only on duplex models. |
| | | NOTE:  Set X1 shift first. |
| | | Y shift: Registration of the image on the paper from top to bottom as the paper lies in the tray. |
| Paper Size/Type Prompt | Display | Prompts the user to select paper type and size for the tray. |
| | Do not display | Does not prompt the user to select paper type and size. |
| Alternate Letterhead Mode | | Use radio button to enable or disable this feature. |
| | Default Paper Size<br><br>Not available on 2.7 inch and 4 inch control panels models. | Prompts the user to select the default paper size for alternate letterhead mode. |
| | Default Paper Type<br><br>Not available on 2.7 inch and 4 inch control panels models. | Prompts the user to select the default paper type for alternate letterhead mode. |

## Paper Setup menu

Table 2-22  Paper setup menu

| Menu item | Sub-menu item | Description |
|---|---|---|
| Tray 1 | Paper size | List of available paper sizes. |
| | Paper type | List of available paper types |
| Tray 2 | Paper size | List of available paper sizes. |
| | Paper type | List of available paper types |
| Tray 3 (optional accessory) | Paper size | List of available paper sizes. |
| | Paper type | List of available paper types |

## Supply Settings menu

Table 2-23  Supply settings menu

| Menu item | Sub-menu item | Description |
|---|---|---|
| Black cartridge | Very low setting | Stop: The printer stops printing until the print cartridge is replaced. |
| | | Prompt: The printer stops printing and prompts user to replace print cartridge. You can acknowledge the prompt and continue printing. |
| | | Continue: The printer alerts the user the print cartridge is very low, but it continues printing. |
| | Low threshold | Enter a percentage for the low threshold setting. |
| Color cartridge | Very low setting | Stop: The printer stops printing until the print cartridge is replaced. |
| | | Prompt: The printer stops printing and prompts user to replace print cartridge. You can acknowledge the prompt and continue printing. |
| | | Continue: The printer alerts the user the print cartridge is very low, but it continues printing. |
| | Low threshold | Enter a percentage for the low threshold setting. |
| Store Usage Data | On supplies | Select where to store the printer's usage data, either on the supplies or not on the supplies. |
| | Not on supplies | |
| Cartridge Policy | Off | Use the Cartridge policy feature to allow only genuine HP cartridges to be used with this printer. When someone attempts to install a cartridge that is not a genuine HP cartridge, the printer control panel displays a message informing that the cartridge is unauthorized, and it displays information explaining how to proceed. |
| | Authorize HP | |
| Cartridge Protection | Off | Use the Cartridge protection feature to permanently associate toner cartridges with a specified printer so they cannot be used in other printers. When someone attempts to transfer a protected cartridges from the original printer into another printer, that printer will not print. The printer control panel displays a message informing that the cartridge is protected, and it displays information explaining how to proceed. |
| | Protect cartridges | |
| | | After selecting Protect cartridge, when the printer prompts to confirm, select Continue to enable the feature. |

Table 2-23 Supply settings menu (continued)

| Menu item | Sub-menu item | Description |
|---|---|---|
| | | NOTE: After enabling cartridge protection for the printer, all subsequent toner cartridges installed in the printer are automatically and permanently protected. To avoid protecting a new cartridge, disable the feature before installing the new cartridge. To disable the feature, select Cancel rather than Continue in this step. |

## Printer maintenance menu

Table 2-24 Printer maintenance menu

| Menu item | Sub-menu item | Description |
|---|---|---|
| Color Calibration | Calibrate now | Performs a full calibration.<br><br>Calibrate now: Performs an immediate calibrations. |
| | Power-on Calibration | Power-on Calibration: Specify the length of time the printer should wait after you turn it on before it calibrates. |
| | Calibrate Timer | Select the calibrate timer setting.<br><br>Off<br><br>● 12 hours<br><br>● 24 hours<br><br>● 48 hours<br><br>● 96 hours<br><br>● 168 hours |
| Print Quality Tools | Print a demo page | Prints a page that demonstrates print quality. |
| | Diagnostic Page | Prints diagnostic information about calibration and color quality. |
| | Print Quality | Prints a page that helps solve problems with print quality. |
| | Cleaning Page | Cleans the printer when specs or other marks appear on printed output. The cleaning process removes dust and excess toner from the paper path.<br><br>When selected, the printer prompts the user 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. |
| | Clean Belt | Cleans the Immediate Transfer Belt (ITB) when streaks or other marks appear on printed output. The cleaning process removes dust and excess toner from the paper path. Press Clean Belt and the process starts, takes about 20 seconds and you will hear the engine spin during the cleaning process. |
| Jam Recovery | Automatic<br>Off<br>Off | Select how you want the printer to recover after a paper jam has occurred.<br><br>Auto: The printer automatically turns jam recover on when sufficient memory is available. |

Table 2-24  Printer maintenance menu (continued)

| Menu item | Sub-menu item | Description |
|---|---|---|
| | | On: The printer reprints any page involved in a jam. Additional memory is allocated to store the last few pages printed. This might cause overall printer performance to suffer. |
| | | Off: The printer does not reprint any page that was involved in a paper jam. Because no memory is used to store the most recent pages, performance is optimal. |
| Less Paper Curl | On | When printed pages are consistently curled, this option sets the printer to a mode that reduces curl. Use the slider icon to enable or disable this feature. |
| Troubleshooting | Event Logs | Prints a list of the last 50 events and errors that happened on the printer. <br><br> This will show a list on the display of the event logs. On a touch screen display, there is also an option to print the list of events. <br><br> On 2-line displays, there are two menu options: <br><br> ● Print All <br><br> ● Event Log List |
| Troubleshooting (continued) | Fax | Print Fax Trace <br><br> Prints a fax trace. <br><br> NOTE:  Only available on the fax models. |
| Update the Printer | | If selecting Update the Printer allows the user to do the following: <br><br> ● Check for Printer Update Now <br><br> ● Printer Update Options allows the user to turn Auto Update Off or On. <br><br> ● Manage Updates <br><br> Allows updates Yes or NO and or Allow Downgrades Yes or No. |
| Restore | Restore Network Settings | Resets all network configurations to their factory defaults. |
| | Restore Factory Defaults | Resets all settings to factory defaults values. |
| | Cold Reset | Resets all settings to factory defaults values. |
| | Printer Supply Region Reset | There are three regional sets of cartridges, US/ROW, EMEA, and AP. Each time a cartridge is inserted into the printer it reads the region of the cartridge and sets the device to that region. If the customer buys a cartridge from another region that does not match the printer's region then the printer's region will need to be reset from this menu. <br><br> Only available on 4 inch control panels models. |

## Print Settings menu

📝 **NOTE:** Not available for the 2-line control panel.

**Table 2-25 Print Settings menu**

| Menu item | | Description |
|---|---|---|
| Personality | Automatic* | Use the radio button to select the printer's personality |
| | ● PCL 5 only | |
| | ● PCL6 only | |
| | ● PS only | |
| Copies | | Use your finger to swipe and set the default number of copies when a print job is initiated (default is 1). When finished, touch Done to save settings. |
| Duplex | Disable | Use the radio button to select default duplex orientation for print jobs. |
| | ● Enable* | **NOTE:** Only available on duplex models. |
| PCL Settings | Form length | Use your finger to swipe and select the default form length for a print job. When finished touch Done to save the settings. |
| | Append CR to LF | |
| | Orientation | Use the radio button to select default orientation for print jobs. |
| | ● Portrait * | |
| | ● Landscape | |
| | Font Number | Use your finger to swipe and set the default Font Number for a print job. When finished, touch Done to save the settings. |
| | Font Pitch | Use your finger to swipe and set the default Font Pitch for a print job. When finished, touch Done to save the settings. |
| | Font Point Size | Use your finger to swipe and set the default Font Point Size for a print job. When finished, touch Done to save the settings. |
| | Symbol Set | Use the radio button to select from a list of available symbol sets. |
| | Append CR to LF | Use the radio button to enable or disable this item (default is off) |
| | ● Off* | |
| | ● On | |
| Print PS Error | | If a PS error occurs, the printer will print the PS error. |

### Power Management menu

📝 **NOTE:** Not available for the 2-line control panel.

**Table 2-26** Power management menu

| Menu item | | Description |
|---|---|---|
| Sleep Mode<br><br>Sleep Delay<br><br>(available only on 2-line display models) | ● 1 minute<br><br>● 5 minutes<br><br>● 15 minutes<br><br>● 30 minutes<br><br>● 60 minutes | Use the radio buttons to set the amount of printer inactive time before the printer enters Sleep Mode. |
| Shutdown Mode<br><br>(only available on touchscreen models)<br><br>Shutdown after Sleep<br><br>(only available on 2-line display models) | ● 1 hour<br><br>● 2 hours<br><br>● 3 hours<br><br>● 4 hours<br><br>● 5 hours<br><br>● 6 hours<br><br>● 7 hours<br><br>● 8 hours | Select the amount of elapsed time before the printer turns itself off. |
| Disable Shutdown | No delay<br><br>When ports are active | No delay: The printer shuts down immediately once Shutdown mode or Shutdown after sleep timer is achieved.<br><br>When ports are active: the printer waits until there is no I/O port activity before shutting down. |

## Reports menu

**Table 2-27** Reports menu

| Menu item | Description |
|---|---|
| Fax Reports (M479 models only) | • Last transaction log<br><br>• Last 30 transaction fax logs<br><br>• Caller ID report<br><br>• Junk fax report |
| Menu Structure | Prints a control-panel menu layout map. |
| Printer Configuration Report | Prints a list of the printer settings. |
| Printer Status Report | Prints the printer status report. Includes the following information:<br><br>• Product Information<br><br>• Print usage information<br><br>• Hardware events<br><br>• System events<br><br>• Additional Assistance<br><br>• Wireless network test<br><br>• Connectivity settings |
| Print Quality Report | Prints a page that helps solve problems with print quality. |
| Supplies Status Page | Prints the toner cartridge status. Includes the following information:<br><br>• Approximate pages remaining<br><br>• Supply level<br><br>• Serial number<br><br>• Number of pages printed<br><br>• First install date<br><br>• Last used date |
| Web Access Test Report | Verifies web access is available. Includes the following information:<br><br>• Solution<br><br>• Diagnostics results<br><br>• Current configuration |
| Usage Page | Prints the number of pages printed, faxed, copied, and scanned by the printer. (Specific items reported are model dependent.) |
| Network Configuration Page | Prints the network configuration pages. Includes information:<br><br>• Network hardware configuration<br><br>• General information<br><br>• 802.3 Wired<br><br>• 802.1 1 Wireless (wireless models only)<br><br>• Wi-Fi Direct (wireless models only) |

Table 2-27  Reports menu (continued)

| Menu item | Description |
|---|---|
|  | – IPv4 |
|  | – IPv6 |
|  | • Port 9100 |
|  | • LPD |
|  | • Bonjour |
|  | • SLP |
|  | • Microsoft Web Services |
|  | • SNMP |
|  | • IPP |
|  | • IPPS |
|  | • Proxy Settings |
| Wireless Test Report | Prints the wireless test report. Includes information: (wireless models only) |
|  | • Solution |
|  | • Diagnostics results |
|  | • Current configuration |
| Job Log | Displays a list of the most recent print jobs. |
| Web Services Summary | NOTE:  Prints web services summary page. (available on 2-line display models) |
| PCL Font List | Prints a list of all installed PCL 5 fonts. |
| PS Font List | Prints a list of all installed PS fonts. |
| PCL6 Font List | Prints a list of all installed PCL 6 fonts. |

## Fax Setup menu (M479 models)

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

Table 2-28  Fax Setup menu

| Menu item | Sub-menu item | Sub-menu item | Description |
|---|---|---|---|
| Setup Wizard |  |  | This is a tool for configuring the fax settings. Follow the on screen prompts and select the appropriate response for each question. |
|  | Preferences |  |  |
|  |  | Scan and Fax Method | Allows the printer to scan the entire document before dialing, and it prints an image of the first page faxed on the confirmation page. |
|  |  | Auto Answer | Sets the type of answer mode. use toggle to enable or disable this feature. |
|  |  | Auto Redial | Sets whether the printer should attempt to redial if the line is busy. |

**Table 2-28 Fax Setup menu (continued)**

| Menu item | Sub-menu item | Sub-menu item | Description |
|---|---|---|---|
| | | Automatic Reduction | Automatically reduces the size of the fax to fit the size of paper in tray. |
| | | 2-sided Fax Printing | Enables or disables the two-sided printing feature for multiple pace faxes. (duplex models only) |
| | | Tray Selection | Select the tray where you want the faxes to print from for fax jobs. |
| | | Stamping | Enables or disables the printer to print the date, time, sender's phone number, and page number on each page of an incoming fax. |
| | | Dialing Prefix | Enables or disables whether a prefix number must be dialed when sending faxes from the printer, If the feature is turned on, the printer prompts the user for the number and then it automatically includes that number for every time a fax is sent. |
| Setup Wizard (continued) | Preferences (continued) | Fax Header | Enter your fax number<br><br>Sets the identifying information that is sent to the receiving printer.<br><br>Enter company name<br><br>Identifies the fax sender (optional). |
| | | Error Correction Mode | The error correction mode allows the sending device to re-transmit data if it detects an error signal. |
| | | Backup Fax Reception | Set up Backup fax reception. Depending on your preference and security requirements, the user can set up the device to:<br><br>● Store all the faxes it receives<br><br>● Only the faxes it receives while the printer is in an error condition<br><br>● None of the faxes it receives |
| | | HP Digital Fax | Directs the user on how to setup HP Digital Fax from the software and will print out instructions on how to setup HP Digital Fax. |
| | | Fax Forwarding | Enables or disables fax forwarding. |
| | | Junk Fax Blocking | Enables or disables fax junk blocking for incoming junk faxes. |
| | | Distinctive Ring | If you have distinctive ring phone service, use this item to configure how the printer responds to incoming calls.<br><br>● All rings: The printer answers any calls that come through the telephone line.<br><br>● Single: The printer answers any calls that produce a single ring pattern.<br><br>● Double: The printer answers any calls that produce a double ring pattern.<br><br>● Triple: The printer answers any calls that produce a triple ring pattern.<br><br>● Double and triple: The printer answers any calls that produce a double and triple ring pattern. |

Table 2-28  Fax Setup menu (continued)

| Menu item | Sub-menu item | Sub-menu item | Description |
|---|---|---|---|
| | | Rings to answer | Sets the number of rings that must occur before the fax modem answers. The default setting is five. |
| | | Fax Volume | Sets the volume for incoming faxes. |
| | | Dial Type | Sets whether the printer should use tone or pulse dialing.<br>• Tone*<br>• Pulse |
| | | Speed | Sets the allowed fax communication speed.<br>• Fast 33,600 bps (V.34)<br>• Medium 14,400 (V.17)<br>• Slow 9600 bps (V.29) |
| | | Confirm Fax Number | Confirm a fax number by entering it a second time.<br>• On*<br>• Off |
| Setup Wizard (continued) | Preferences (continued) | Billing Code | Enables the use of billing codes when set to On. A prompt appears for the billing code for an outgoing fax. |
| | | Restore Settings | Restores settings to the original fax settings. |
| | Tools | Run Fax Test | Preforms a fax test to verify that the phone cord is connected to the correct outlet and that there is a signal on the phone line. A fax test report is printed indicating the results. |
| | | Clear Fax Logs/ Memory | Clears all faxes in logs and memory. |
| | Reports | Fax Confirmation | Sets whether the printer prints a confirmation report after a successful fax job. |
| | | Fax Error Reports | Sets whether the printer prints a report after a failed fax. |
| | | Print Fax Reports | Prints all fax related reports. |

## Security menu

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

**Table 2-29  Security menu**

| Menu item | Description |
| --- | --- |
| Device Announcement Agent | Use the radio button to enable or disable this feature. When enabled at the device, a special device announcement agent locates the Security Manager server and request a secure communication. Allows for automatic device configuration. |

## Quick Forms menu

**Table 2-30  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 Orientation | Prints pages that have preprinted lines for writing music. |
| | Landscape Orientation | |

## Function specific menus

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

### USB menu

Open this menu by touching the USB button (touchscreen control panels only). The following file types are supported:

- .PDF
- .JPG
- .PRN

- .PCL
- .PS
- .DOC

- .DOCX
- .PPT
- .PPTX

- .XLSX
- .XLS

Table 2-31  USB menu

| Menu item | Description |
| --- | --- |
| Print Documents | Prints documents stored on the USB flash drive. Use the arrow buttons to scroll through the documents. Touch the names of documents 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 to print the documents. |
| View and Print Photos | Previews photos on the USB flash drive. Use the arrow buttons to scroll through the photos. Touch the preview image for each photo to print. Adjust the settings and save the changes as the new default settings. To print the photos, touch the Print button. |
| Scan to USB Drive | Scans a document and stores it as a .PDF file or .JPEG image on the USB flash drive. |

### Fax Menu (M479 models only)

To open this menu, touch the Fax button, and then touch the Fax Menu button.

Table 2-32  Fax Menu

| Menu item | Sub-menu item | Sub-menu item | Description |
| --- | --- | --- | --- |
| Send Now | | | Sends fax immediately. |
| Send Later | | | Allows a fax to be sent at a later time and date. |
| Fax Setup | | | |
| | Setup Wizard | | Assist the user in setting up the fax features. |
| | Preferences | Scan and Fax Method | Use radio button to enable or disable this feature. |
| | | Auto Answer | Use radio button to enable or disable this feature. |
| Fax Setup (continued) | Preferences (continued) | Auto redial | Use radio button to enable or disable these features. |
| | | | - Busy redial |

Table 2-32 Fax Menu (continued)

| Menu item | Sub-menu item | Sub-menu item | Description |
|---|---|---|---|
| | | | ●    No answer redial |
| | | | ●    Connection problem redial |
| | | Automatic Reduction | Use radio button to enable or disable this feature. |
| | | Tray selection | Sets the default tray selection. |
| | | | ●    Automatically selects |
| | | | ●    Tray 1 |
| | | | ●    Tray 2 |
| | | | ●    Tray 3 (optional) |
| | | Stamping | Sets the printer to print the date, time, sender's phone number, and page number on each page. |
| | | | Use the radio button to enable or disable this feature. |
| | | Dialing Prefix | Specifies a prefix number that must be dialed when sending faxes from the printer. |
| | | | On |
| | | | Off |
| | | Fax Header | Allows the user to customize fax header. |
| | | Error Correction Mode | Use radio button to enable or disable this feature. |
| | | Backup Fax Reception | On |
| | | | Off |
| | | HP Digital Fax | |
| | | Fax Forwarding | On |
| | | | Off |
| | | Junk Fax Blocking | Allows the user to create a list of phone numbers they want to block. |
| Fax Setup (continued) | Preferences (continued) | Distinctive Ring | If you have distinctive ring phone service, use this item to configure how the printer responds to incoming calls. |
| | | | ●    Ring pattern detection |
| | | | ●    Single Ring: The printer answers any calls that produces a single ring pattern. |
| | | | ●    Double Ring: The printer answers any calls that |

Table 2-32  Fax Menu (continued)

| Menu item | Sub-menu item | Sub-menu item | Description |
|---|---|---|---|
| | | | produces a double ring pattern. |
| | | | • **Triple Ring**: The printer answers any calls that produces a triple ring pattern. |
| | | | • **Double and Triple Ring**: The printer answers any calls that produces a double ring or triple ring pattern. |
| | | | • **All standard rings***: The printer answers any calls that come through the telephone line. |
| | | Rings to Answer | Allows the user to select the number of rings before printer answers. |
| | | Fax Volume | • Soft* <br> • Loud <br> • Off |
| | | Dial Type | Sets whether the printer should use tone or pulse. <br> • Tone <br> • Pulse |
| | | Speed | Sets the allowed fax communication speed. <br> • Fast (33600 bps) <br> • Medium *(144000 bps) <br> • Slow (96000 bps) |
| Fax Setup (continued) | Preferences (continued) | Confirm Fax Number | Confirm the fax number by entering it a second time <br><br> Use the radio button to enable or disable this feature. |
| | | Billing Code | Enables the user to use billing codes when the feature is set to On. A prompt appears for user to input the billing code for an outgoing fax. |
| Reprint | | OK <br><br> Cancel | Sets whether it will reprint a confirmation report or fax after a successful fax job. |
| Phone Book | | | Allows the user to create a list of the speed dials for this printer. |

## Copy menu ( M479 models only)

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

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

Table 2-33 Copy menu

| Menu item | Sub-menu item | Sub-menu item | Description |
|---|---|---|---|
| Touch the Copy icon<br><br>Document | Copy Document | | |
| | 2-sided Copying<br><br>NOTE: This menu option is also available under the main Copy menu. | 1-1 sided<br><br>1-2 sided (duplex models only)<br><br>2-1 sided<br><br>2-2 sided (duplex models only) | Specifies whether originals are one-sided or two-sided and whether copies should be one-sided or two-sided |
| | 2–sided format | | NOTE: Will be grayed out if 2-sided is turned off. |
| | Tray Selection | Auto select<br><br>Tray 1<br><br>Tray 2<br><br>Tray 3 (optional accessory) | Allows the user to select default tray. Each tray can be configured to paper type and size. |
| | Color Black<br><br>NOTE: This option is also available under the main Copy menu. | Print copy in color<br><br>Print copy in black | Allows the user to select whether they want the copy to print in color or mono. |
| | Touch to Preview | | This allows the user to preview the current copy job. |
| Copy | Settings | | |
| | 2-sided Copying<br><br>NOTE: This menu option is also available under the main Copy menu. | 1-1 sided<br><br>1-2 sided (duplex models only)<br><br>2-1 sided<br><br>2-2 sided (duplex models only) | Specifies whether originals are one-sided or two-sided and whether copies should be one-sided or two-sided<br><br>NOTE: 2-side will be disabled if 2-sided is turned off. |
| | 2–sided format | | NOTE: Will be grayed out if 2-sided is turned off. |
| | Resize | Legal to Letter=72%<br><br>A4 to Letter=91%<br><br>Letter to A4=94%<br><br>Full Page=91%<br><br>Fit to Page<br><br>2 Pages per Sheet<br><br>None*<br><br>Custom: 25 to 400% | Specifies the size of the copy. |

Table 2-33 Copy menu (continued)

| Menu item | Sub-menu item | Sub-menu item | Description |
|---|---|---|---|
| | Original Size | Provides a list of available paper sizes. | Specifies the paper size.<br><br>**NOTE:** The default paper size setting is determined by the choice of location during the initial printer setup. |
| | Tray Selection | Auto select<br><br>Tray 1<br><br>Tray 2<br><br>Tray 3 (optional accessory) | Allows the user to select default tray. Each tray can be configured to paper type and size. |
| | Quality | Best<br><br>Normal *<br><br>Draft | Sets in image quality settings for copies. |
| | Lighter/Darker | | |
| | Color Black<br><br>**NOTE:** This option is also available under the main Copy menu. | Print copy in color<br><br>Print copy in black | Allows the user to select whether they want the copy to print in color or mono. |
| | Enhancements | Auto Select*<br><br>Mixed<br><br>Text<br><br>Photo | Specifies the type of content in the original document, so the copy is the best match for the original. |
| | Binding Margin | On<br><br>Off | |
| | Save Current Settings | | Saves the settings that the user selected. |
| | Save Current Settings | | Saves any changes you have made to this menu as new defaults. |
| | Restore Defaults | | Restores the factory defaults for this menu. |
| ID Card<br><br>**NOTE:** This item is available from the main Copy screen. You do not need to touch the Settings button to access it. | | | Copies both sides of identification cards, or other small-size documents, onto the same side of one sheet of paper. |
| Number of Copies | (1–99) | | Specifies the number of copies. |
| Preview | Touch to preview copy. | | This allows the user to preview the current copy job. |

### Scan menu (M479 models only)

Table 2-34  Scan menu

| Menu item | Description |
|---|---|
| Scan to USB Drive | Scans a document and stores it as a .PDF file or .JPEG image on the USB flash drive. |
| Scan to Network Folder | Scans a document to a network folder. |
| Scan to E-mail | Scans a document and sends as an email attachment. |
| Scan to SharePoint | Scans to a SharePoint. <br><br> **NOTE:** SharePoint 365 is not supported. |
| Scan to Computer | Scans to a local computer or remote computer. |

### Apps

Use the Apps menu to install HP Web Services applications.

### Print

Print from USB Allows the user to print directly from a USB device.

### Quick sets

Quick Sets are pre-configured sets of options that allow users to easily start a job without having to manually configure frequently used job settings. A Quick Set can be accessed from the Home screen Quick Set. Quick Sets are saved as unique jobs that do not impact the default options of the apps. Quick Sets that are displayed on the control panel under the Quick Set tile.

**NOTE:** Quick Sets will not appear on the Home screen, unless a Quick Set has been configured.

# Hidden menus

The printer features hidden menus for Service, Support, and Enable/Disable. To open these menus, touch the button for that function on the control panel.

## Support menu

▲ **2-line control panels**: On the printer control panel, press the ✕ button, then press the ↰ , then press the ✕ button twice.



**Touchscreen control panels**: From the Home screen on the printer control panel, press the ↰ four times.
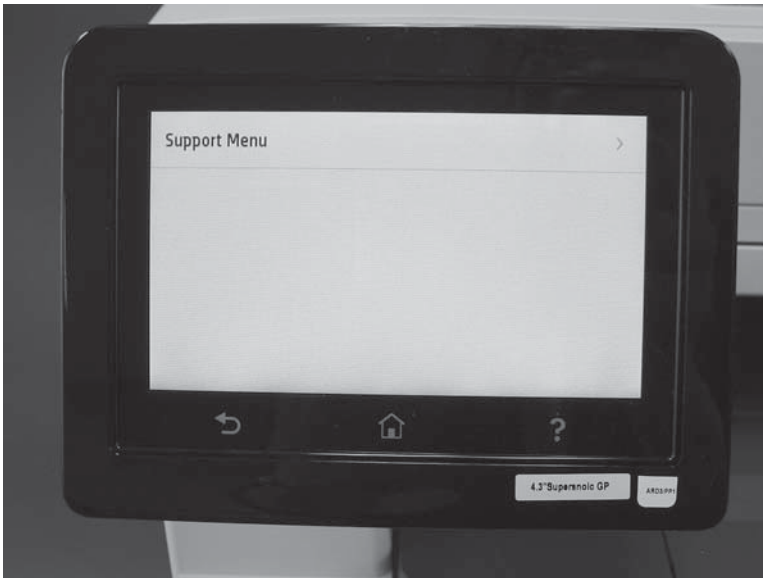


Table 2-35  Support Menu

| Menu item | Secondary menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| Information Menu | Model number | Displays the products model number. | |

Table 2-35 Support Menu (continued)

| | Serial number | Displays the products serial number. | |
|---|---|---|---|
| | Region/Language | Displays the products region/language settings. | |
| | Counters | Displays the products total page counts and cycles. | |
| | Firmware version | Displays the product firmware version. | |
| | Event log | Displays the products last five events. The user can cycle through each event. | |
| | Assert history | Displays the products last five asserts. The user can cycle through each assert. | |
| | Wireless Region (wireless models only) | OK<br><br>Cancel | Displays the region. |
| Resets Menu | Country and language reset | ● Allows the country and language to be reset after the unit powers down.<br><br>● All user menu settings to default. | |
| | Partial reset | ● All user menu settings to default<br><br>● All telephony parameter values to default (fax models only).<br><br>● Initiate select country and language UI.<br><br>● Clear wireless settings to default (wireless models only).<br><br>NOTE: The items below will not be cleared:<br><br>● Fax memory (fax models only)<br><br>● Device counters | |
| Resets Menu<br><br>(continued) | Semi-full reset | All partial rests plus:<br><br>● Clears fax journal information (fax models only).<br><br>● Clears all speed dials/ broadcast list (fax models only). | |

Table 2-35  Support Menu (continued)

|  |  | • Clears personal header information (fax models only) |
|---|---|---|
|  |  | • Clears instant Share settings. |
|  |  | • Clears wireless settings (IP, SSID, WEP) (wireless models only) |
|  |  | NOTE:   See the following: |
|  |  | • Wireless settings are cleared on a Semi-full and Full resets (wireless models only) |
|  |  | • Device counters are not cleared on Semi-full or Partial resets. |
| System Configuration Menu | Hardware failure status | Shows the status of the hardware failure. If user selects, the hardware failure status, it will be cleared. |
|  |  | This function, Hardware/failure status, is needed so a support agent can instruction the customer to enter the Support Menu, then the Support System Configuration Menu, then select the Hardware Failure Status, and then clear the DSID_IDS_HW_FAILURE so the value can be set to zero. |
|  | Set boot mode to user mode | Sets the unit to user mode from manufacturing mode. |
| Fax Diagnostics Menu (MPF models only) | Run Fax Test | Executes the fax test. |
|  | Reset Fax Parameter | Resets the fax parameters (not just a specific one). |
|  | Change Fax Parameter | Allows for controlled changes to individual fax parameters. |
|  | Fax Parameter Report | Prints a complete list of all parameters including the number, current value, and defaults. |
|  | Fax Trace Report | Prints two reports, most recent and last fax trace with an error. |
|  | Fax Status Report | Prints fax status report. |

Table 2-35  Support Menu (continued)

| | | | |
|---|---|---|---|
| | Speaker Mode | Enable the speaker throughout fax transmission. | |
| | Ring Monitor | • R = ring count and cadence.<br><br>• XX Hz= 0 if attached phone is on-hook. 1 =if attached phone is off-hook. | |
| Fax Diagnostics Menu (MPF models only)<br><br>(continued) | CNG Monitor | • f3 =counter increments if a frequency is detected in side tone while eavesdropping.<br><br>• f2 =counter increments if a frequency is detected in actual CNG tone.<br><br>• f1 =counter increments if a frequency is detected in CNG frequency range.<br><br>• Z =total CNG tones detected during a session. | |
| | Signal Power | Signal power is displayed. | |
| Connectivity Diagnostics Menu | Connectivity report | Prints a report that contains all the various connectivity settings. | |
| | Wireless diagnostics test (wireless model only) | Preforms the same wireless diagnostics test as in the Customer UI, through the front control panel of the printer. This diagnostic tool tests the wireless setup of the product. | |
| | Capture NW trace | 5 minutes<br><br>10 minutes<br><br>30 minutes<br><br>Stop | Captures a network trace and saves the trace in an encrypted format to a USB flash drive inserted into the front USB port. |
| | Print wireless metrics | OK<br><br>Cancel | Prints the wireless metric data report. |
| Reports Menu | OK<br><br>Cancel | | |
| | Print mech button | Code = x | Allows the user to print any of the Tap reports that are supported by the platform. |

Table 2-35  Support Menu (continued)

|  |  |  |
|---|---|---|
|  |  | **NOTE:** Print Tap report number 4 to see a list of supported tap reports for these devices. |
|  | Config page (MFP models only) | Prints a complete list of all fax parameters including the number, current value, and defaults. |
|  | Fax trace (MFP models only) | Prints a T30 protocol history of the last fax transaction. |
|  | Counter report | Prints a summary of the device usage. |
| Scan Diagnostics Menu (MFP models only) | Test scan motor | Subsystem test of the flatbed scan motor and scan drive mechanism. |
| Enable/Disable Menu | All network | OK |
|  |  | Cancel |
| Enable/Disable Menu (continued) | Ethernet | OK |
|  |  | Cancel |
|  | All wireless (wireless models only) | OK |
|  |  | Cancel |
|  | Wireless infrastructure (wireless models only) | OK |
|  |  | Cancel |
|  | Wireless access point (wireless models only) | OK |
|  |  | Cancel |
|  | Memory devices | OK |
|  |  | Cancel |
|  | Fax (MFP models only) | OK |
|  |  | Cancel |
|  | Fax reprint (MFP models only) | OK |
|  |  | Cancel |
|  | Copy (MFP models only) | OK |
|  |  | Cancel |
|  | Color Copy (MFP models only) | OK |
|  |  | Cancel |
|  | Color print from memory device | OK |
|  |  | Cancel |
|  | Digital send (MFP models only) | OK |
|  |  | Cancel |

Scan Diagnostics Menu diagram:

Test Scanner Motor —OK→ Scan motor cycles? x —OK→ Finished: X cycles. Press cancel to continue
←Cancel—
—Cancel—

Table 2-35 Support Menu (continued)

| | HP web services (ePrint and Apps) | OK |
| | | Cancel |
| | HP ePrint | OK |
| | | Cancel |
| | Print Apps | OK |
| | | Cancel |
| | Webscan (MFP models only) | OK |
| | | Cancel |
| | Usage data collection | OK |
| | | Cancel |
| **Enable/Disable Menu** (continued) | Firmware update | OK |
| | | Cancel |
| | Reset to factory defaults | OK |
| | | Cancel |

## Service menu

▲ **2-line control panels**: On the printer control panel, press the ⬅button, then press the ✕, then press the ↩ button twice.



**Touchscreen control panels**: From the Home screen on the printer control panel, press the 🏠 button once, then press the ↩ button once, and then press the 🏠 button twice.

Tools for troubleshooting

Table 2-36  Service menu

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| **System Configuration Menu** | Enter serial number | Allows a manual entry of the 10-digit product serial number. Service needs the ability to enter all ten characters. |  |
| | Enter service ID | Allows a manual entry of the 5-digit service ID (YYDDD). |  |
| | Enter ethernet MAC address | Allows manual entry of the ethernet MAC address. |  |
| | Enter wireless MAC address | Allows a manual entry of the wireless MAC address. NOTE:  Not applicable for products without wireless function. |  |
| | R/W parameter | Allows manual setting of any configurable parameters. Press OK will write the parameter, Cancel will not write the parameter. |  |
| **System Configuration Menu** (continued) | LED color calibration | Allows scanning calibration of the color LEDs to be enabled or disabled. |  |

Table 2-36 Service menu (continued)

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| | | **IMPORTANT:** Special note for LED Color Calibration. | |
| | | 1. There are two important NVM values for LED color calibration. They are as follows: | |
| | | — LED cal-valid (1: valid, 0: invalid) | |
| | | — LED cal matrix (3x3 matrix – — > 9 coefficients) | |
| | | 2. If the LED calibration is successfully done at the factory, CIMation will: | |
| | | — Set the LED cal-valid to 1, and | |
| | | — Generate an optimal LED cal-matrix and send it to NVM of the unit. | |
| | | 3. If the LED calibration fails (e.g. can't read a barcode, etc.), CIMation will: | |
| | | — Set the LED cal-valid to 0, and | |
| | | — NOT send any matrix to NVM. | |
| | | 4. At the time of the scan/copy: | |
| | | — If LED cal-valid is set to 1, the LED cal-matrix in NVM is used for color conversion. | |
| | | — If LED cal-valid is set to 1, the default matrix in FW is used for color conversion. | |
| | | 5. Even though there is a valid LED cal-matrix in the NVM, | |

Table 2-36  Service menu (continued)

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| | | the NVM values can be reset during FW reflashing process depending on the initial state of the unit. This NVM reset can cause the LED cal-valid and LED cal-matrix set to be all zeros, resulting in black only output scan/copy.<br><br>6.  Depending on the LED spectral characteristics, the LED cal-matrix can be very similar to the default matrix. Little difference from the default matrix means little difference in copy output between LED cal On or Off. | |
| Resets Menu | Country and language reset | • Allows the country and language to be reset after unit powers down.<br><br>• All user menu settings to default. |  |
| | Partial reset | • All user menu settings to default<br><br>• All telephony parameter values to default (MFP models only).<br><br>• Initiate select country and language UI.<br><br>NOTE:  The items below will not be cleared:<br><br>Wireless settings (wireless models only)<br><br>Fax memory (MFP models only)<br><br>Device counters | NOTE:  When one of the Resets is selected by pressing OK button, the device will power off and it will not power on unless the power button is pressed again. After it powers up it will perform the corresponding reset. |
| Resets Menu<br><br>(continued) | Semi-Full reset | All partial resets plus:<br><br>• Clears fax journal information (MFP models only). | |

Table 2-36 Service menu (continued)

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| | | • Clears all speed dials/broadcast list (MFP models only).<br><br>• Clears personal header information (MFP models only).<br><br>• Clears wireless settings, (IP, SSID, WEP) (wireless models only).<br><br>NOTE: See the following:<br><br>• Wireless settings are cleared on a semi-full or full resets.<br><br>• Device counters are not cleared on semi-full and partial resets. | |
| | OOBE reset | Sets the unit back to the factory default state. | |

IMPORTANT: The NVM values that are **never** reset:

● Device unique calibration values

● Serial number

● Derivative setting (includes soft features)

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| Special Reports | Print mech button tap | Allows a user to print any of the Tap reports that are supported by the platform. | |
| | Network security page | Prints a summary of the network related information. | |
| | Config page | Prints a complete list of all parameters including the number, current value, and defaults. | |
| | Fax trace (MFP models only) | Prints a T30 protocol history of the last fax transactions. | |
| | Counter report | Prints a summary of device usage. | |
| Service Test Menu | Test scan motor | Subsystem test of the flatbed scan motor and scan drive mechanism. | Test Scanner Motor —OK→ Scan motor cycles? x ←Cancel— →OK→ Finished: X cycles. Press cancel to continue ←Cancel— |

Table 2-36  Service menu (continued)

| Menu item | First menu item | Description | Additional information (if necessary) |
|-----------|-----------------|-------------|----------------------------------------|
| | Cont_adf_pick | Continuous picking from the ADF. |  |
| | Test keys | Interactive test of all front panel buttons. |  |
| Service Test Menu (continued) | Test LEDs | Continuous test of LED functionality (blinking or on steady). NOTE: The following items are not part of the Test LEDs: • The network LEDs |  |
| | Test Display | Subsystem functional test of all the CGD segments and the back light (not supported on the 2–line control panel). |  |
| | Infinite H's test | Subsystem test that prints continuous pages of the letter "H" in black. |  |
| | Infinite color H's test | Subsystem test that prints continuous pages of the letter "H" in color. |  |
| | Test front USB port | Test that verifies when a device is inserted in the front USB port that the device is recognized with a PASS or FAIL results. |  |

## Boot Screen Menu

▲ **2-line control panels**: While the device is off, press and hold the  button and then power on the device. The device will boot to a black screen. Input the following sequence: Press the  button once, then press the  button once, and then press the  button twice.

📝 NOTE: After the device boots to a black screen, the technician only has six seconds to start the sequence of the button presses or the device will continue to boot up normally.

**Touchscreen control panels**: While the device is off, hold the ↩ button then power the device on. The device will boot to a black screen. Input the following sequence press on the ⌂ button once, then press the ↩ button once, and then press the ⌂ button twice.



Table 2-37  Boot screen menu

| Menu item | Sub-menu item | Sub-menu item | Description |
|-----------|---------------|---------------|-------------|
| **MFG** | Set the device to manufacturing mode. | | |
| **Reflash** | Enters reflash mode. | | |
| **Menu** | Provides further options for the device: | Partial Reset | • All user menu setting to default.<br>• All telephony parameter values to default. |

Table 2-37 Boot screen menu (continued)

| Menu item | Sub-menu item | Sub-menu item | Description |
|---|---|---|---|
| | | | • Initiate select country and language UI.<br><br>NOTE: The items below will not be cleared:<br><br>• Wireless settings<br><br>• Fax memory<br><br>• Device counters |
| **Menu**<br><br>(continued) | Provides further options for the device: | Semi reset | All partial resets plus:<br><br>• Clears fax journal information.<br><br>• Clears all speed dials/ broadcast list.<br><br>• Clears personal header information.<br><br>• Clears Instant Share settings.<br><br>• Clears wireless settings (IP, SSID, WEP).<br><br>NOTE: See the following:<br><br>• Wireless settings that **are cleared** on a Semi-full and Full resets.<br><br>• Device counters **are not** cleared on Semi-full and Partial resets. |
| | | Full Reset | Resets all menu settings to default.<br><br>• All telephony parameter values to default<br><br>• Initiate select country and language UI<br><br>• Clears fax memory<br><br>• Clears fax journal information<br><br>• Clears all speed dials/ broadcast lists<br><br>• Clears personal header information<br><br>• Clears junk fax numbers<br><br>• Clears Instant Share settings<br><br>• UVL Reset; clears the IP address, the SSID and any WEP settings. |

Table 2-37 Boot screen menu (continued)

| Menu item | Sub-menu item | Sub-menu item | Description |
|---|---|---|---|
| | | | • Service ID set to all zero's |
| | | | • All counters set to zero |
| | | | • Clears stored error codes |
| | | | • Resets date and time offset |
| | | OOB reset | Sets the unit back to the factory defaults. |
| | | Forced user mode | |
| | | No print mech | |
| | | No scan mode | |
| | | No scan no mech | |
| | | Clear derivatives | |
| | | Clear derivatives | |
| | | Memory Init only | |
| | | Safe load | |
| | | No FW update | |
| | | Normal off W IO once | |

# Error code and control panel message troubleshooting overview

## Error codes

Error codes and control-panel messages display on the printer control panel to indicate the current printer status or situations that might require action. Error codes are numerical, or alphanumerical, and have a set structure with six characters (example: 13.WX.YZ).

- The first two characters are numeric and represent the system component that is causing the error. For example, in error code `10.04.10`, **10** = **Supplies** for HP LaserJets.

- The remaining four characters (WX, Y, and Z values) further define the error.

HP LaserJet and HP PageWide Enterprise error codes are documented in the control panel message document (CPMD) for each printer.

The CPMD is a comprehensive list of error codes, diagnostic and troubleshooting steps to clear or resolve the error, and other helpful information such as service mode pins and part numbers.

The CPMD is continually updated and republished with the latest information for the following error codes.

Table 2-38 ERROR CODES: The first two characters

| Error code | System Component | System Error Description |
|---|---|---|
| 01 | IO | 4 - WiFi |
| **10.WX.YZ** | Supplies (LaserJet) | Supply error or supply memory error. |

Table 2-38  ERROR CODES: The first two characters (continued)

| 13.WX.YZ | Jam (LaserJet) | Paper jam or open door jam error. |
|----------|----------------|-----------------------------------|
| 21.WX.YZ | Misprint | Page complexity causing a decompression error when trying to process job. |
| 30.WX.YZ | Scanner | Flatbed scanner error occurring inside the unit. |
| 31.WX.YZ | Document feeder | Document feeder, scanner, or jam error. |
| 32.WX.YZ | Backup, restore, or reset | Backup, restore, or reset notification or error. |
| 33.WX.YZ | Security | Backup, Disk, EFI BIOS, Firmware integrity (SureStart), or error. |
| 44.WX.YZ | Digital Send | Firmware failure involving a digital sending component. |
| 50.WX.YZ | Fuser (LaserJet) | Fuser error. |
| 51.WX.YZ | Laser scanner (LaserJet) | Laser scanner beam error. |
| 52.WX.YZ | Laser scanner motor (LaserJet) | Laser scanner motor startup error. |
| 53.WX.YZ | Engine peripheral | Duplexer installed/removed, optional cassette installed/removed, Tray 1-3 lifter error |
| 54.WX.YZ | Sensor | Sensor error (not jam related). |
| 55.WX.YZ | Engine data error (LaserJet) | Engine data error. |
| 56.WX.YZ | Paper handling (LaserJet) | Paper input/output or accessory error. |
| 57.WX.YZ | Fan | Fan error. |
| 58.WX.YZ | Engine power | Engine power failure. |
| 59.WX.YZ | Motor (LaserJet) | Motor error. |
| 60.WX.YZ | Tray motor error (LaserJet) | Tray lifting or pick up error. |

## How to search for printer documentation

The CPMD, error codes, and other support documentation for each printer is found on the internal HP portals GCSN and WISE (formerly SAW). GCSN is available to HP channel partners and WISE is available to call agents, service technicians, and other HP internal users. The level of detail available will depend on your access credentials.

### How to search WISE for printer documentation

These instructions are for HP internal use by call agents, service technicians, and other internal users. To learn how to find support content in WISE, watch the video here.

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

Go to **WISE** and enter this document ID **c05791539** for written instructions.

### How to search GCSN for printer documentation

These instructions are for internal use by HP Channel Partners. To learn how to find support content in GCSN, watch the video [here](#) or follow these steps:

1. On the Home screen in GCSN, open **Technical information** using one of the following two methods:

   - Type `TINF` in the **Speedcode** field found in the upper right corner and press `Enter`, or

   - On the Home page, click **Technical information** in the left pane.
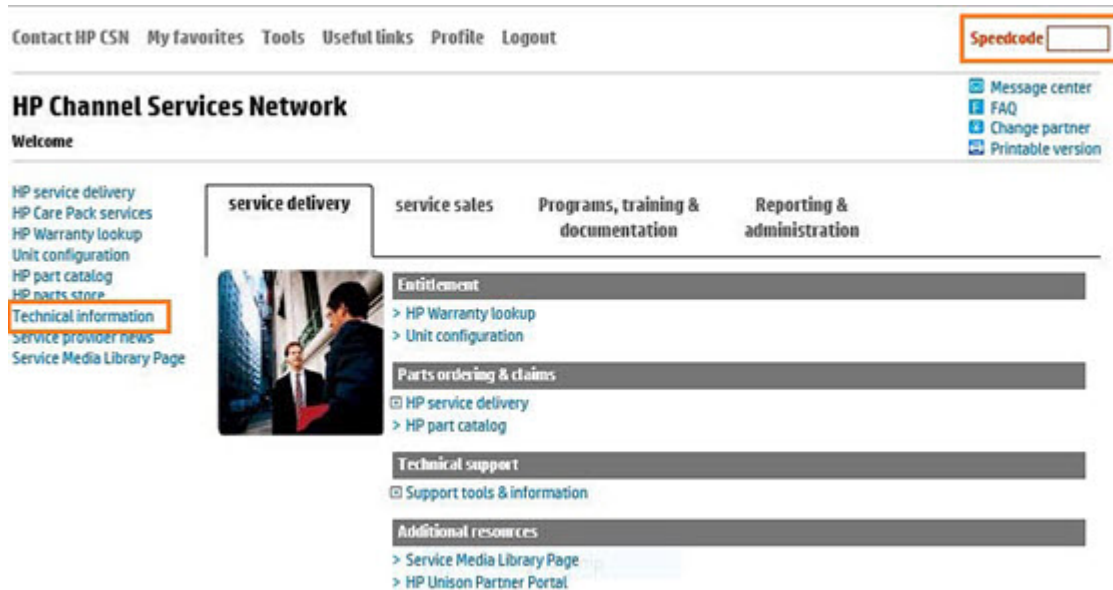


2. Under **Product Search**, select the **Type**, **Category**, **Family**, and **Series** that match your product model (leave the **Model** field as blank or the default).

📝 **NOTE:** Make sure to login to GCSN using your service-qualified credentials to access the most comprehensive content list available. To find out how to become service-qualified, contact your HP representative.

**Figure 2-23** Sample product search criteria

3. Click **Add Favorites** and then click **Add** to add the printer to your Favorites list and allow you to bypass the **Product Search** fields next time for that particular model (Optional).



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



5. Select the check boxes for the document types for which you want to search.

📝 **NOTE:** Select only the high-level **Manuals and Guides** search option if you are not sure in which type of manual or guide the content might be listed.



6. Select **Submit**.

7. If needed, click **Back To selection Criteria** and narrow your search (the maximum allowed search result is 100 documents).

📝 **NOTE:** Do not select the **Top Issue** option unless you only want to view top issues for that model. All other available content will be filtered out.

| Technical information type | Select this checkbox |
|---|---|
| CPMD | **CPMD–Map** |
| List of all CPMDs per product | **Support Information** |
| Installation Guide or Hardware Install Guide | **Maintenance/Service Guide** or **Install Guide** |
| Service cost document | **Install Guide** or **Service Guide/Manual** |
| Service guide or Service manual | **Service Guide/Manual** |
| Self-solve or troubleshooting document | **Support Information** |
| User manual or User guide | **User Guide** |
| Warranty and Legal Guide | **Warranty Statement** |

# Solve image quality problems

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

## Improve print quality

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

If the printer is having scan, fax, or copy quality problems, try the following solutions and also see "Improve scan quality," "Improve fax quality," or "Improve copy quality" for further solutions.

- Print from a different software program
- Check the paper-type setting for the print job
- Check toner-cartridge status
- Print and interpret the print quality page
- Clean the printer
- Visually inspect the toner cartridge
- Check paper and the printing environment
- Calibrate the printer to align the colors
- 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.

## Check the paper-type setting for the print job

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

### Check the paper type setting (Windows)

1. From the software program, select the **Print** option.

2. Select the printer, and then click the **Properties** or **Preferences** button.

3. Click the **Paper/Quality** tab.

4. From the **Paper Type** drop-down list, click the **More...** option.

5. Expand the list of **Type is:** options.

6. Expand the category of paper types that best describes your paper.

7. Select the option for the type of paper you are using, and click the **OK** button.

8. Click the **OK** button to close the **Document Properties** dialog box. In the **Print** dialog box, click the **OK** button to print the job.

### Check the paper type setting (Mac OS X)

1. Click the **File** menu, and then click the **Print** option.

2. In the **Printer** menu, select the printer.

3. By default, the print driver displays the **Copies & Pages** menu. Open the menus drop-down list, and then click the **Finishing** menu.

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

5. Click the **Print** button.

## Check toner-cartridge status

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

### Step one: Print the quality pages (2-line control panels)

1. On the printer control panel, press the OK button to enter the Main menu, use the ▶ or ◀ buttons to scroll through the menus, select Setup menu.

   and press the OK button.

   and press the OK button.

2. Use the ▶ or ◀ buttons to scroll through the menus, select **Reports** and press the OK button.

3. Scroll to the using the ▶ or ◀ to scroll to **Supplies Status** menu, and then press the OK button.

4. Scroll to the **Print Supplies status page** item, and then press the OK button.

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

1. From the Home swipe down to get to the home screen dash board, and then touch the Setup 🔘 icon.

2. Scroll to and touch Reports .

3. Scroll to and touch the Supplies Status item to print the supplies status page.

### Step two: Check supplies status

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

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

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

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

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

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

## Print and interpret the print quality page

### Step one: Print the Print Quality Report page (touchscreen control panels)

1. From the Home swipe down to get to the home screen dash board, and then touch the Setup Menu icon.

2. Scroll to and touch Reports.

3. Scroll to and touch the Print Quality Report item to print the print quality report page.

1. **2-line control panels**: On the printer control panel, press the OK button. Use the ▶ or ◀ buttons to scroll through the menu.

2. Open the Reports menu by pressing OK button.

   by pressing OK button.

   by pressing OK button.

3. Select the Print Quality Report item and select it by pressing the OK button.

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

**Figure 2-24** Print quality page
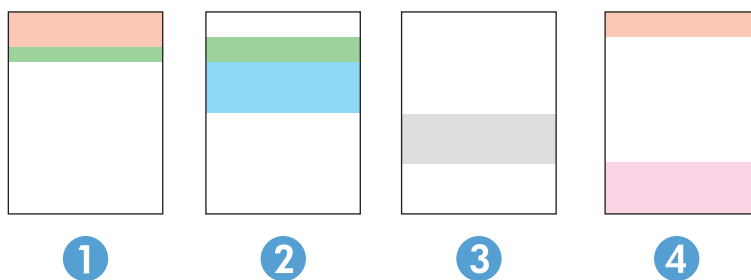


| Section | Toner cartridge |
|---------|-----------------|
| 1 | Yellow |
| 2 | Cyan |

| Section | Toner cartridge |
|---------|-----------------|
| 3 | Black |
| 4 | Magenta |

- If dots or streaks appear in only one of the groups, replace the toner cartridge that correlates with that group.

- If dots appear in more than one group, print a cleaning page. If this does not solve the problem, determine if the dots are always the same color; for example, if magenta dots appear in all five color bands. If the dots are all the same color, replace that toner cartridge.

- If streaks appear in multiple color bands, contact HP. A component other than the toner cartridge is probably causing the problem.

## Clean the printer

### Print a cleaning page

See for instructions on how to print a cleaning page.

### Clean the scanner glass strip and platen

See for instructions on how to clean the scanner glass and white plastic backing.

## Visually inspect the toner cartridge

Follow these steps to inspect each toner cartridge.

1. Remove the toner cartridge from the printer.

2. Check the memory chip for damage.

3. Examine the surface of the green imaging drum.

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

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

5. Reinstall the toner cartridge, and print a few pages to see if the problem has resolved.

## Check paper and the printing environment

### Step one: Use paper that meets HP specifications

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

- Always use a paper type and weight that this printer supports.

- Use paper that is of good quality and free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, voids, staples, and curled or bent edges.

- Use paper that has not been previously printed on.

- Use paper that does not contain metallic material, such as glitter.

- Use paper that is designed for use in laser printers. Do not use paper that is designed only for use in Inkjet printers.

- Use paper that is not too rough. Using smoother paper generally results in better print quality.

### Step two: Check the environment

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

- Move the printer away from drafty locations, such as open windows or doors, or air-conditioning vents.

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

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

- Place the printer on a sturdy, level surface.

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

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

## Calibrate the printer to align the colors

Calibration is a function that optimizes print quality.

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

### 2-line control panels

1. On the printer control panel, press the OK button, use the ◄ or ► buttons to scroll through the menus.

2. Open the following menus:

   - Setup Menu

   - Printer Maintenance

   - Color Calibration

   - Calibration Now

3. Press the OK button to start the calibration process.

   A **Calibrating** message will display on the printer control panel. The calibration process takes a few minutes to complete. Do not turn the printer off until the calibration process has finished.

4. Wait while the printer calibrates, and then try printing again.

### Touchscreen control panels

1. On the printer control panel, swipe down to gain access to the home screen dash board, and then select Setup ⚙ icon.

2. Open the following menus:

   - Setup

   - Printer Maintenance

- Color Calibration

- Calibrate Now

3.  A **Calibrating** message will display on the printer control panel. The calibration process takes a few minutes to complete. Do not turn the printer off until the calibration process has finished.

4.  Wait while the printer calibrates, and then try printing again.

## 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.

### Adjust color settings (Windows)

Follow these steps if colors on the printed page do not match colors on the computer screen, or if the colors on the printed page are not satisfactory.

### Change the color theme

1.  From the software program, select the **Print** option.

2.  Select the printer, and then click the **Properties** or **Preferences** button.

3.  Click the **Color** tab.

4.  Select a color theme from the **Color Themes** drop-down list.

    - **Default (sRGB)**: This theme sets the printer to print RGB data in raw device mode. When using this theme, manage color in the software program or in the operating system for correct rendering.

    - **Vivid (sRGB)**: The printer increases the color saturation in the midtones. Use this theme when printing business graphics.

    - **Photo (sRGB)**: The printer interprets RGB color as if it were printed as a photograph using a digital mini lab. The printer renders deeper, more saturated colors differently than with the Default (sRGB) theme. Use this theme when printing photos.

    - **Photo (Adobe RGB 1998)**: Use this theme with printing digital photos that use the Adobe RGB color space rather than sRGB. Turn off color management in the software program when using this theme.

    - **None**: No color theme is used.

5.  Click the **OK** button to close the **Document Properties** dialog box. In the **Print** dialog box, click the **OK** button to print the job.

### Change the color options

1.  From the software program, select the **Print** option.

2.  Select the printer, and then click the **Properties** or **Preferences** button.

3.  Click the **Color** tab.

4.  Click the **Automatic** or **Manual** setting.

    - **Automatic** setting: Select this setting for most color print jobs.

    - **Manual** setting: Select this setting to adjust the color settings independently from other settings. Click the **Settings** button to open the manual color-adjustment window.

**NOTE:** Changing color settings manually can impact output. HP recommends that only color graphics experts change these settings.

5. Click the **Print in Grayscale** selection box to print a color document in black and shades of gray. Use this option to print color documents for photocopying or faxing. Also use this option to print draft copies or to save color toner.

6. Click the **OK** button to close the **Document Properties** dialog box. In the **Print** dialog box, 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/colorljM454, www.hp.com/support/colorljM479MFP.

| HP PCL 6 driver | <ul><li>Provided as the default driver on the printer CD. This driver is automatically installed unless you select a different one.</li><li>Recommended for all Windows environments</li><li>Provides the overall best speed, print quality, and printer-feature support for most users</li><li>Developed to align with the Windows Graphic Device Interface (GDI) for the best speed in Windows environments</li><li>Might not be fully compatible with third-party and custom software programs that are based on PCL 5</li></ul> |
|---|---|
| HP UPD PS driver | <ul><li>Recommended for printing with Adobe® software programs or with other highly graphics-intensive software programs</li><li>Provides support for printing from postscript emulation needs, or for postscript flash font support</li></ul> |
| HP UPD PCL 5 | <ul><li>Recommended for general office printing in Windows environments</li><li>Compatible with previous PCL versions and older HP LaserJet printers</li><li>The best choice for printing from third-party or custom software programs</li><li>The best choice when operating with mixed environments, which require the printer to be set to PCL 5 (UNIX, Linux, mainframe)</li><li>Designed for use in corporate Windows environments to provide a single driver for use with multiple printer models</li><li>Preferred when printing to multiple printer models from a mobile Windows computer</li></ul> |
| HP UPD PCL 6 | <ul><li>Recommended for printing in all Windows environments</li><li>Provides the overall best speed, print quality, and printer feature support for most users</li><li>Developed to align with Windows Graphic Device Interface (GDI) for best speed in Windows environments</li><li>Might not be fully compatible with third-party and custom software programs that are based on PCL 5</li></ul> |

# Print quality troubleshooting guide

## Repetitive defects ruler

When troubleshooting the source of some print image defects, one solution is to identify if it is a repetitive defect (does the print quality defect appear multiple times on the printed page?). If this is the case, use a ruler to measure occurrences of repetitive image defects to help solve image-quality problems. For more information, see Use a ruler to measure between repetitive defects on page 140.

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

> **NOTE:** Do not use solvents or oils to clean rollers. Instead, rub the roller with a lint-free cloth. If dirt is difficult to remove, rub the roller with a lint-free cloth that has been dampened with water.

**Table 2-39  Repetitive image defects**

| Distance between identical defects | Component | Notes |
|---|---|---|
| 22.6 mm (0.89 in) | Developer roller | Appears in the form of dropouts. |
| 23.6 mm (0.93 in) | Primary charging roller | Appears in the form of dropouts. |
| 29.6 mm (1.17 in) | RS roller | |
| 35.0 mm (1.38 in) | Intermediate transfer belt (ITB) assist roller | |
| 50.0 mm (1.97 in) | Secondary transfer roller | Appears in the form of dropouts or dirt on the back of the page. |
| 50.0 mm (1.97 in) | Large assist roller | |
| 57.0 mm (2.24 in) | Fuser rollers (3) | Appears in the form of dirt (front or back of page) or loose toner. |
| 63.0 mm (2.48 in) | Photosensitive drum | Appears in the form of dirt or dropouts. |
| 63.0 mm (2.48 in) | Tension roller | |
| 75.0 mm (2.95 in) | Scale | |
| 78.0 mm (3.07 in) | Cartridge station | |
| 78.0 mm (3.07 in) | Intermediate transfer belt (ITB) drive roller | |
| 712.0 mm (28.03 in) | Intermediate transfer belt (ITB) length | |

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

## Use a ruler to measure between repetitive defects

The figures in this section show color repetitive defect pages. However, the process for measuring repetitive defects is valid for mono pages.

1.  Identify a repetitive defect on the page.

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

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

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

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

Figure 2-25 Examples of repetitive defects
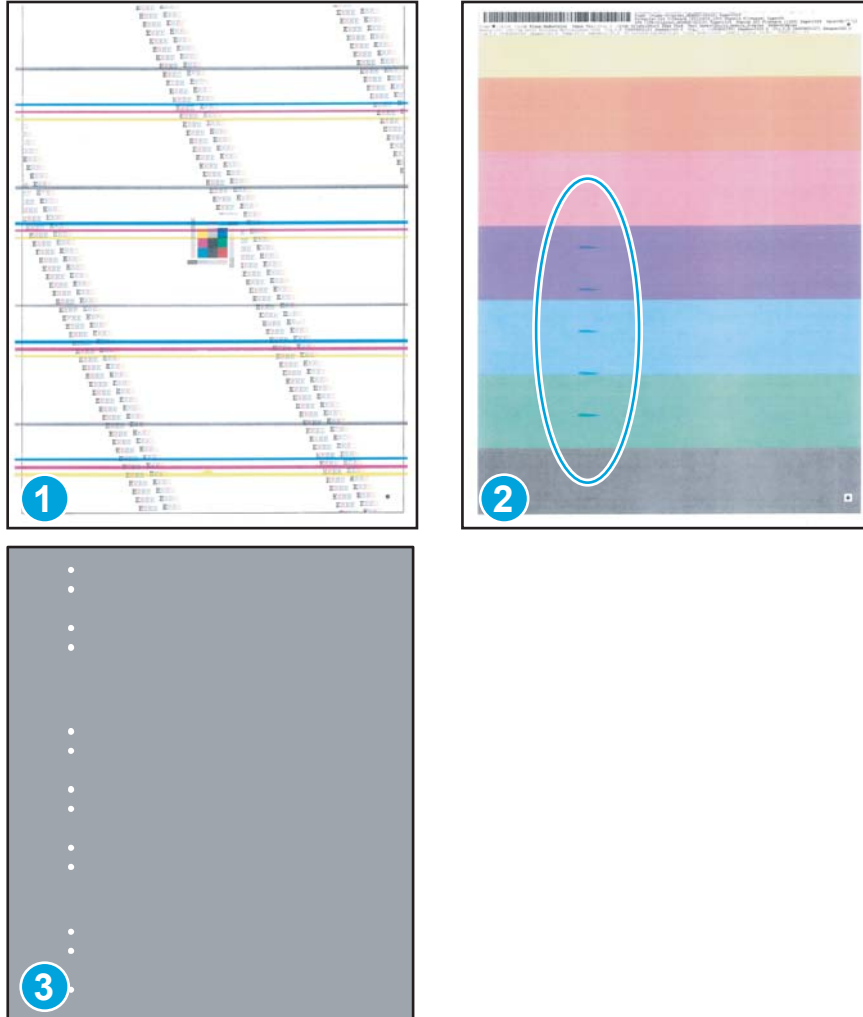
2. Position a metric ruler on the page with the "zero" ruler mark at one occurrence of the defect (callout 1).

Figure 2-26  Place the ruler on the page
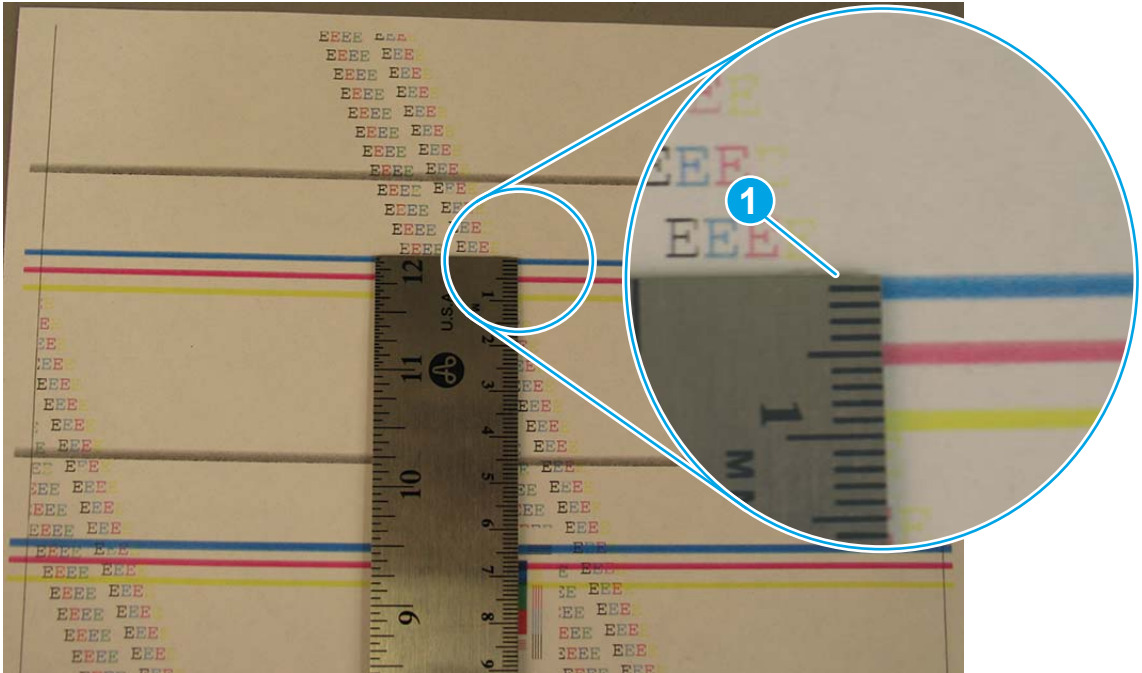


3. Locate the next occurrence of the defect (callout 1).

Figure 2-27  Locate the next repetitive defect
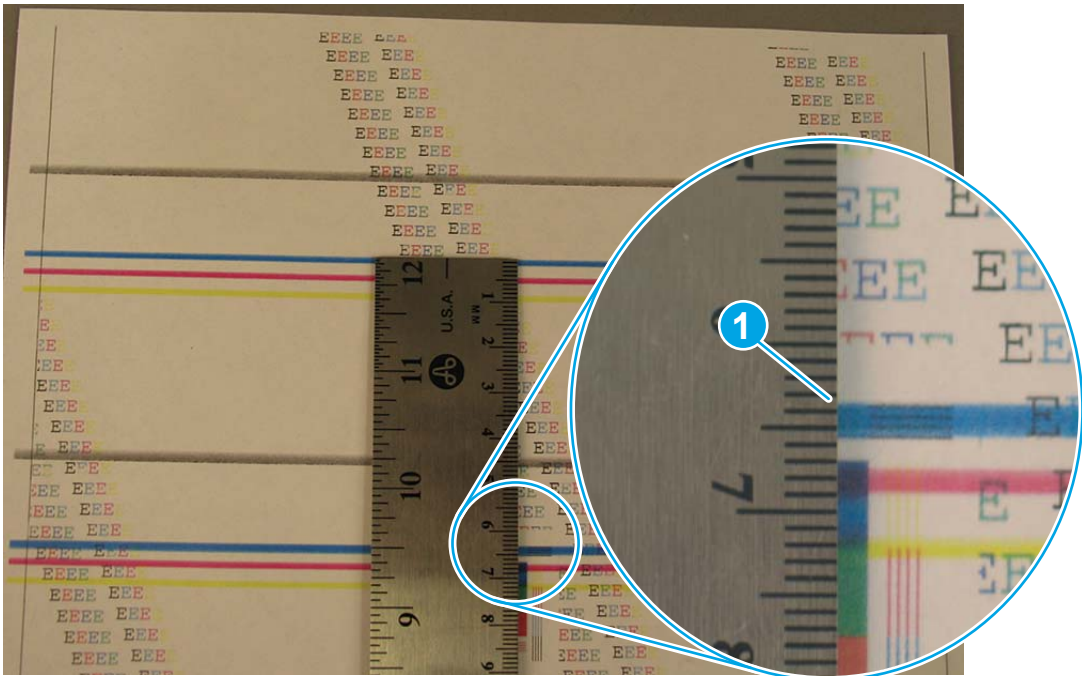
4. Measure the distance (in millimeters) between the two occurrences (callout 1), and then use Table 2-39 Repetitive image defects on page 140 to determine the defective assembly.

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

Figure 2-28 Determine the defective assembly
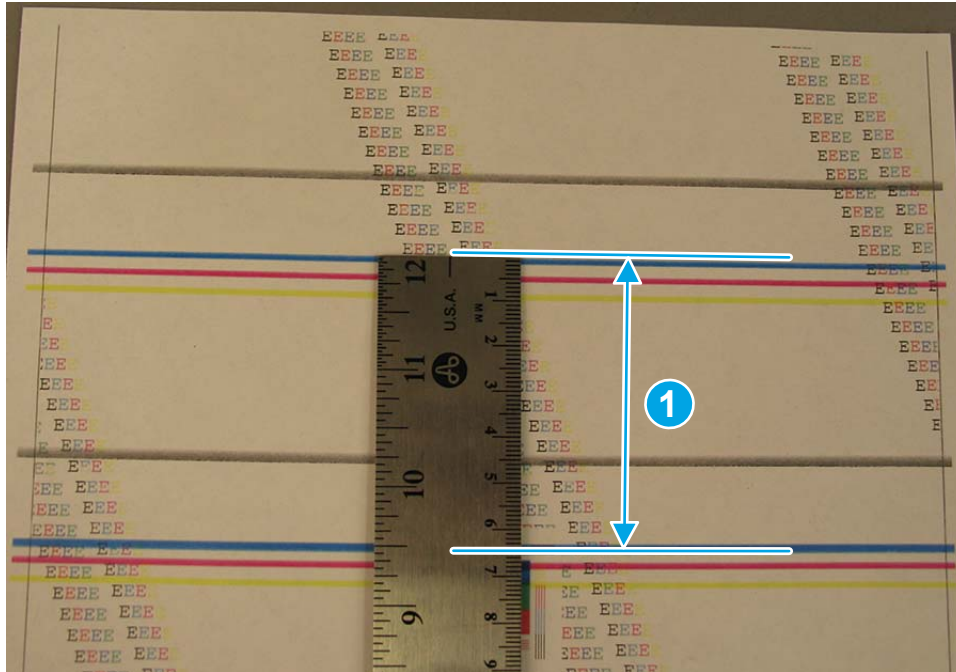


### Print quality of a photo is poor or prints as a gray box.

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

Try setting the Optimize Text/Picture option to the Photo setting.

# Clean the printer

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

Clean the paper path and toner-cartridge areas every time that the toner cartridge is changed or whenever print-quality problems occur. As much as possible, keep the printer free from dust and debris.

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

## Print a cleaning page

### 2-line control panels

1. From the printer control panel, press the OK button. Use the ▶ or the ◀ buttons to scroll through the menus.

2. Open the **Setup** menu.

3. Use the arrow keys to scroll through and select Printer Maintenance, and then press OK button.

4.  Use the arrow keys to select Print Quality Tools option, and then press the OK button.

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

    The printer will prompt you to load paper in Tray 1 and then press OK to start. The printer 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 panels

1.  From the Home screen swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

2.  Touch the Printer Maintenance menu.

3.  Touch the Print Quality Tools menu.

4.  Touch the Cleaning Page button.

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

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

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

## Clean the scanner glass strip and platen

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

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

2.  Open the scanner lid.

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



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

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

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

5.  Connect the printer, and then use the power switch to turn on the printer.

## Clean the pickup and separation rollers

1.  Turn off the printer, unplug the power cable from the printer, and then remove the rollers.

2.  Dab a lint-free cloth in isopropyl alcohol, and then scrub the roller.

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

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

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

# Clean the pickup rollers and separation pad in the document feeder

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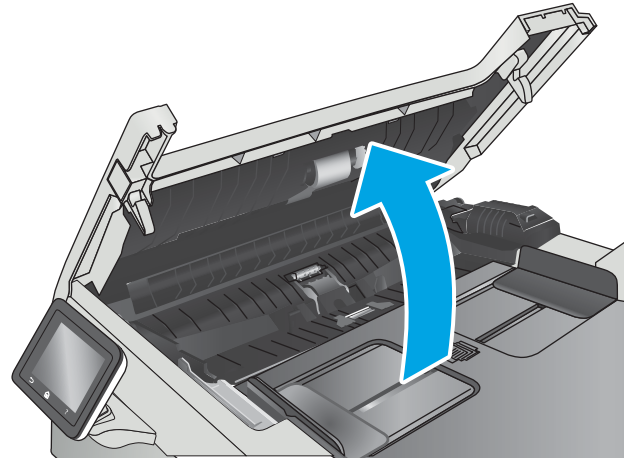
2. Use a moist, lint-free cloth to wipe both pickup rollers and the separation pad to remove dirt.

   CAUTION:   Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the printer; these can damage the printer.
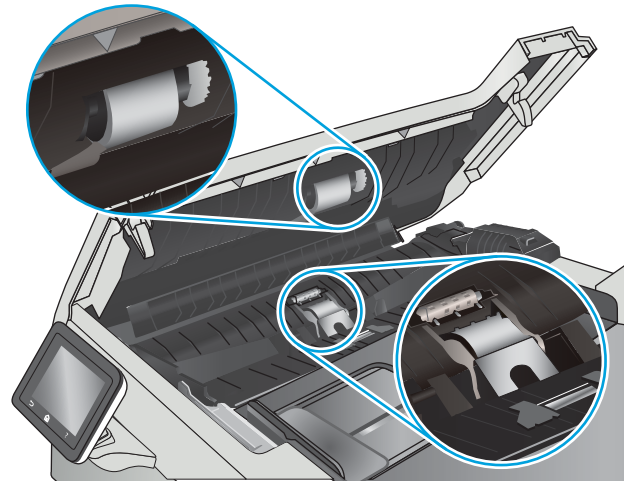
3. Close the document feeder access cover.
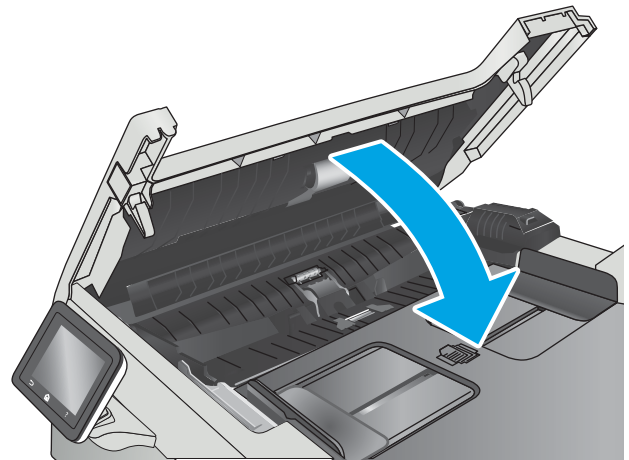
## Clean the touchscreen

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

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

# Solve paper-handling problems

## Printer feeds incorrect page size

**Printer feeds incorrect page size**

| Cause | Solution |
|---|---|
| The correct size paper is not loaded in the tray. | Load the correct size paper in the tray. |
| The correct size paper is not selected in the software program or printer driver. | Confirm that the settings in the software program and printer driver are correct, because the software program settings override the printer driver and control panel settings, and the printer driver settings override the control panel settings. |
| The correct size paper for the tray is not selected in the printer control panel. | From the control panel, select the correct size paper for the tray. |
| The paper size is not configured correctly for the tray. | Print a configuration page or use the control panel to determine the paper size for which the tray is configured. |
| The guides in the tray are not against the paper. | Verify that the paper guides are touching the paper, but not so tightly that the paper is buckled. |

## Printer pulls from incorrect tray

**Printer pulls from incorrect tray**

| Cause | Solution |
|---|---|
| You are using a driver for a different printer. | Use a driver for this printer. |
| The specified tray is empty. | Load paper in the specified tray. |
| The paper size is not configured correctly for the input tray. | Print a configuration page or use the control panel to determine the paper size for which the tray is configured. |
| The guides in the tray are not against the paper. | Verify that the guides are touching the paper. |

## Printer will not duplex or duplexes incorrectly

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

| Cause | Solution |
|---|---|
| You are trying to duplex on unsupported paper. | Verify that the paper is supported for duplex printing. |
| The printer driver is not set up for duplex printing. | Set up the printer driver to enable duplex printing. |

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

| Cause | Solution |
|---|---|
| The first page is printing on the back of preprinted forms or letterhead. | Load preprinted forms and letterhead in Tray 1 with the letterhead or printed side down, with the top of the page leading into the printer. For Tray 2 and 3, load the paper printed side up with the top of the page toward the right of the printer. |
| The printer model does not support automatic 2-sided printing. | The printer model does not support automatic 2-sided printing. |
| The printer configuration is not set for duplexing. | In Windows, run the automatic configuration feature:<br><br>1. Click the **Start** button, point to **Settings**, and then click **Printers** (for Windows 2000) or **Printers and Faxes** (for Windows XP).<br><br>2. Right-click the HP printer icon, and then click **Properties** or **Printing Preferences**.<br><br>3. Click the **Device Settings** tab.<br><br>4. Under **Installable Options**, click **Update Now** in the **Automatic Configuration** list. |

# Paper does not feed from Tray 2

**Paper does not feed from Tray 2 or 3**

| Cause | Solution |
|---|---|
| The correct size paper is not loaded. | Load the correct size paper. |
| The input tray is empty. | Load paper in the input tray. |
| The correct paper type for the input tray is not selected in the printer control panel. | From the printer control panel, select the correct paper type for the input tray. Trays configured for a paper type with a specific weight range will not match a print job that specifies an exact weight, even if the specified weight is within the weight range. |
| Paper from a previous jam has not been completely removed. | Open the printer and remove any paper in the paper path. Closely inspect the fuser area for jams. |
| None of the optional trays appear as input tray options. | The optional trays only display as available if they are installed. Verify that any optional trays are correctly installed. Verify that the printer driver has been configured to recognize the optional trays. |
| An optional tray is incorrectly installed. | Print a configuration page to confirm that the optional tray is installed. If not, verify that the tray is correctly attached to the printer. |
| The paper size is not configured correctly for the input tray. | Print a configuration page or use the control panel to determine the paper size for which the tray is configured. |
| The guides in the tray are not against the paper. | Verify that the guides are touching the paper. |

# Output is curled or wrinkled

**Output is curled or wrinkled**

| Cause | Solution |
|---|---|
| Paper does not meet the specifications for this printer. | Use only paper that meets the HP paper specifications for this printer. |
| Paper is damaged or in poor condition. | Remove paper from the input tray and load paper that is in good condition. |
| Printer is operating in an excessively humid environment. | Verify that the printing environment is within humidity specifications. |
| You are printing large, solid-filled areas. | Large, solid-filled areas can cause excessive curl. Try using a different pattern. |
| Paper used was not stored correctly and might have absorbed moisture. | Remove paper and replace it with paper from a fresh, unopened package. |
| Paper has poorly cut edges. | Remove paper, flex it, rotate it 180 degrees or turn it over, and then reload it into the input tray. Do not fan paper. If the problem persists, replace the paper. |
| The specific paper type was not configured for the tray or selected in the software. | Configure the software for the paper (see the software documentation). Configure the tray for the paper. |
| The paper has previously been used for a print job. | Do not re-use paper. |

# Printer does not pick up paper or misfeeds

## The printer does not pick up paper

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

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

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

3. Make sure the paper size and type are set correctly on the printer control panel.

4. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides to the appropriate indentation in the tray.

5. Check the printer control panel to see if the printer is waiting for an acknowledgment to the feed the paper manually prompt. Load paper, and continue.

6. The pickup, feed, or separation rollers might be contaminated. Clean the rollers with a lint-free cloth dampened with warm water.

## The printer picks up multiple sheets of paper

If the printer picks up multiple sheets of paper from the tray, try these solutions.

1. Remove the stack of paper from the tray and flex it, rotate it 180 degrees, and flip it over. *Do not fan the paper.* Return the stack of paper to the tray.

2. Use only paper that meets HP specifications for this printer.

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

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

5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides to the appropriate indentation in the tray.

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

## The document feeder jams, skews, or picks up multiple sheets of paper (M479 models)

- The original might have something on it, such as staples or self-adhesive notes, that must be removed.

- Check that all rollers are in place and that the roller-access cover inside the document feeder is closed.

- Make sure that the top document-feeder cover is closed.

- The pages might not be placed correctly. Straighten the pages and adjust the paper guides to center the stack.

- The paper guides must be touching the sides of the paper stack to work correctly. Make sure that the paper stack is straight and the guides are against the paper stack.

- The document feeder input tray or output bin might contain more than the maximum number of pages. Make sure the paper stack fits below the guides in the input tray, and remove pages from the output bin.

- Verify that there are no pieces of paper, staples, paper clips, or other debris in the paper path.

- Clean the document-feeder rollers and the separation pad. Use compressed air or a clean, lint-free cloth moistened with warm water. If misfeeds still occur, replace the rollers.

## Paper does not feed automatically

Paper does not feed automatically

| Cause | Solution |
|---|---|
| Manual feed is selected in the software program. | Load Tray 2 with paper, or, if the paper is loaded, press the OK button. |
| The correct size paper is not loaded. | Load the correct size paper. |
| The input tray is empty. | Load paper into the input tray. |
| Paper from a previous jam has not been completely removed. | Open the printer and remove any paper in the paper path. |
| The paper size is not configured correctly for the input tray. | Print a configuration page or use the control panel to determine the paper size for which the tray is configured. |
| The guides in the tray are not against the paper. | Verify that the rear and width paper guides are touching the paper. |

# Prevent paper jams

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

- Use only paper that meets HP specifications for this printer.

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

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

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

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

- Make sure that the tray is fully inserted in the printer.

- When printing on heavy, embossed, or perforated paper, use the manual feed feature and feed sheets one at a time.

- Make sure the printing environment is within recommended specifications.

- Follow these steps to verify that the tray is configured for the correct paper size and type on the printer control panel. Adjust paper settings if necessary.

  a.  **2-line control panels**: On the product control panel, press the OK button.

      use the ◀ or the ▶ to scroll through the menus.

      **Touchscreen control panels**: On the printer control panel Home screen, swipe down to gain access to the home screen dash board, and then, touch the Setup ⚙ icon.

  b.  Open the 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.

# Clear paper jams

## Introduction

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

- Experiencing frequent or recurring paper jams?

- Paper jam locations

- Clear paper jams in the document feeder (M479 models only)

- Clear paper jams in Tray 1

- Clear paper jams in Tray 2

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

- Clear paper jams in the output bin

- Clear paper jams in the duplexer (duplex models)

## 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 printer, clear the jam and then print a configuration page to test the printer.

2.  Check that the tray is configured for the correct paper size and type on the printer control panel. Adjust paper settings if necessary.

a.   **2-line control panels**: On the product control panel, press the OK button. Use the ◀ or the ▶ buttons to scroll through the menus.

　　　**Touchscreen control panels**: On the printer control panel, swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b.   Open the 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 printer off, wait 30 seconds, and then turn it on again.

4.   Print a cleaning page to remove excess toner from inside the printer.

a.   **2-line control panels**: On the product control panel, press the OK button. Use the ◀ or the ▶ buttons to scroll through the menus.

　　　**Touchscreen control panels**: On the printer control panel, swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b.   Open the Printer Maintenance menu.

c.   Open the Print Quality Tools menu.

d.   Select Cleaning Page.

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

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

　　　The printer prints the first side and then prompts you to remove the page from the output bin and reload it in 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 printer.

a.   **2-line control panels**: On the product control panel, press the OK button. Use the ◀ or the ▶ buttons to scroll through the menus.

　　　**Touchscreen control panels**: On the printer control panel, swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b.   Open the Reports menu.

c.   Select Configuration Report.

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

# Paper jam locations
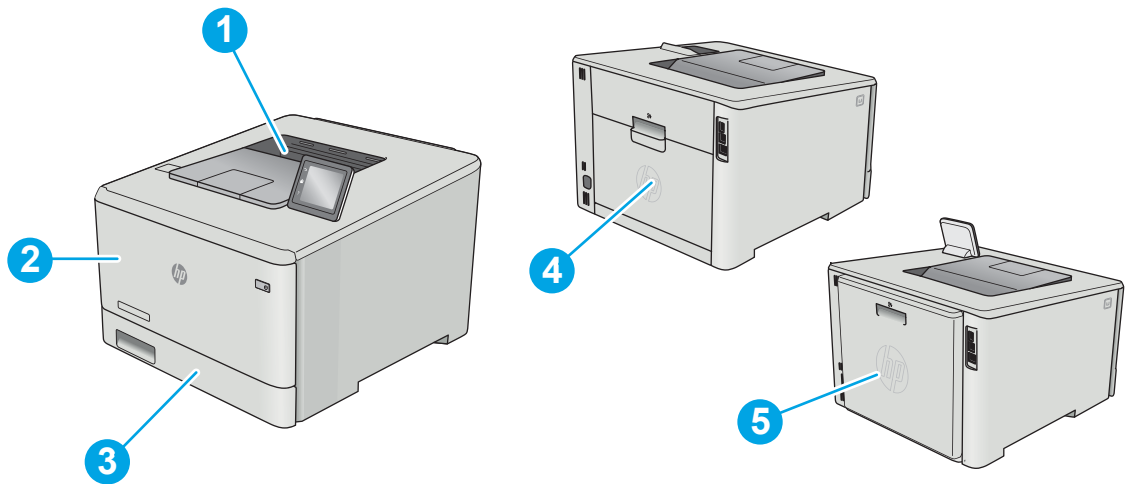
| | |
|---|---|
| 1 | Output bin |
| 2 | Tray 1 |
| 3 | Tray 2 |
| 4 | Rear door (nw model only) |
| 5 | Duplexer (duplex models only) |

| | |
|---|---|
| 1 | Document feeder |
| 2 | Output bin |
| 3 | Tray 1 |
| 4 | Tray 2 |
| 5 | Rear door and fuser area |
| 6 | Duplexer (duplex models only) |
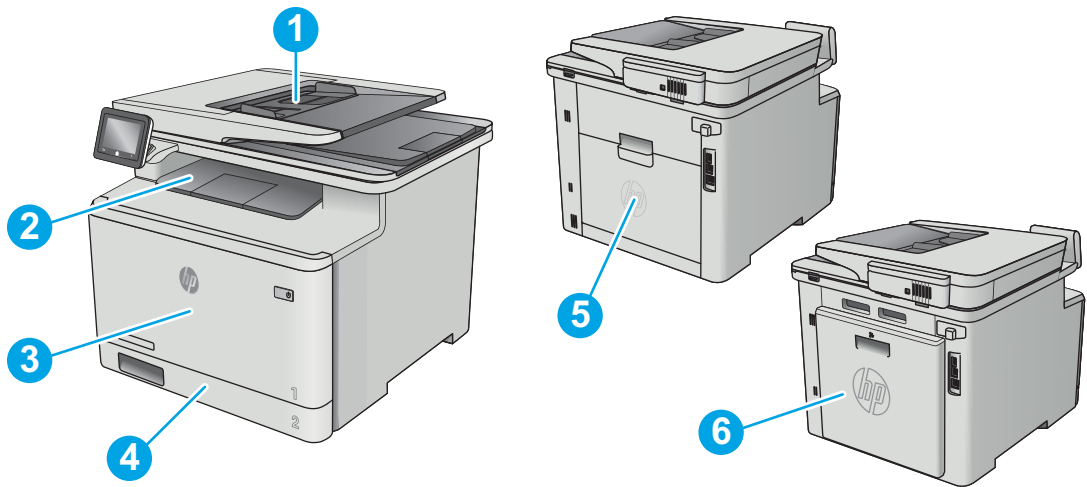
# Clear paper jams in the document feeder (M479 models only)

The following information describes how to clear paper jams in the document feeder. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

1. Open the document-feeder cover.
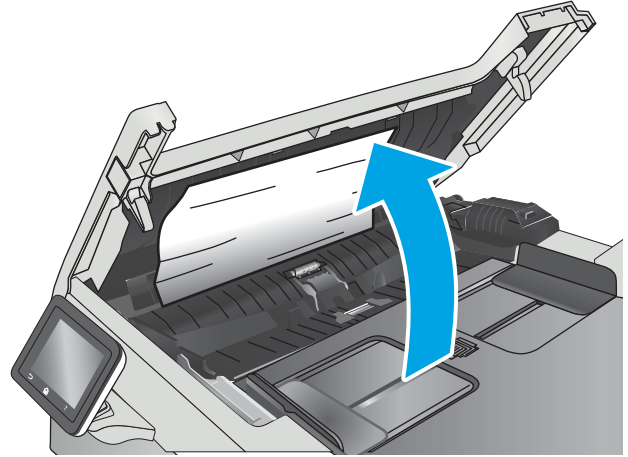
2. Remove any jammed paper.
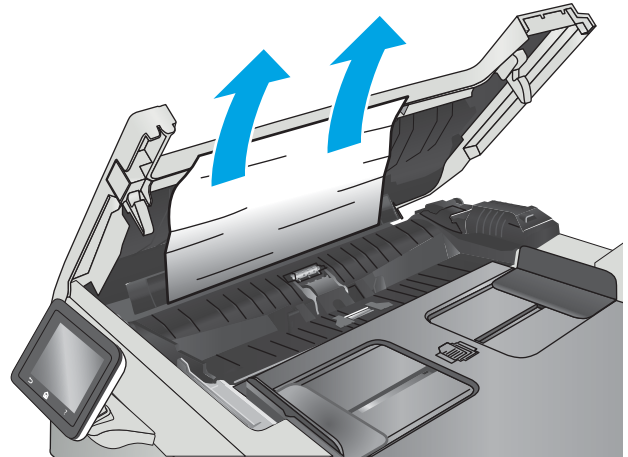
3. Close the scanner lid.
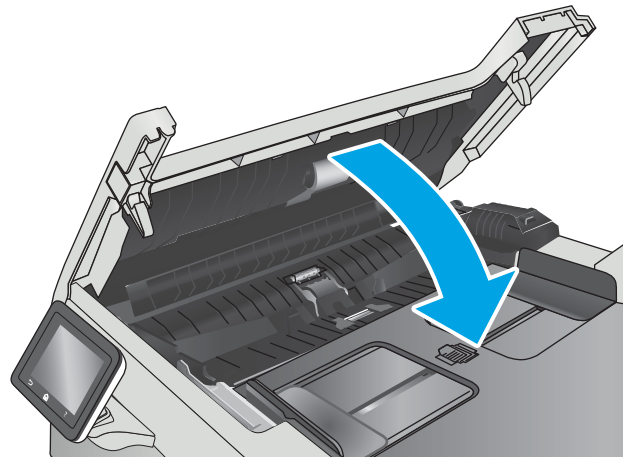
4. Lift the document feeder input tray to provide better access to the document feeder output bin, and then remove any jammed paper from the output area.

5. Open the scanner lid. If paper is jammed behind the white plastic backing, gently pull it out.

6. Lower the scanner lid.

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

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

## Clear paper jams in Tray 1

When a jam occurs, the control panel displays an animation that assists in clearing the jam.

**NOTE:** If the sheet tears, remove all fragments before resuming printing.

1. If you can see the jammed sheet in Tray 1, remove the jammed sheet by pulling it straight out.
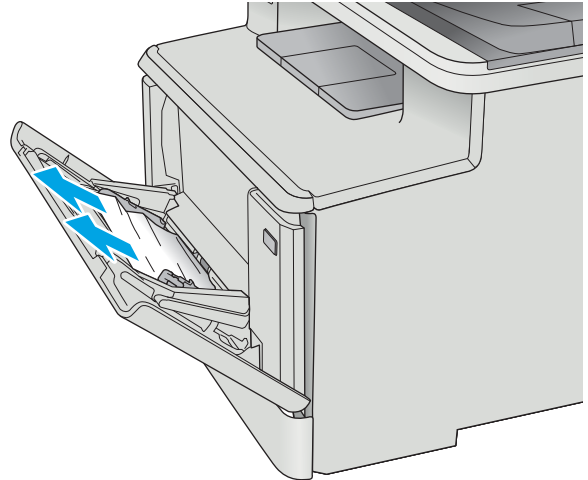
2. If you cannot see the jammed sheet, close Tray 1, and then remove Tray 2.
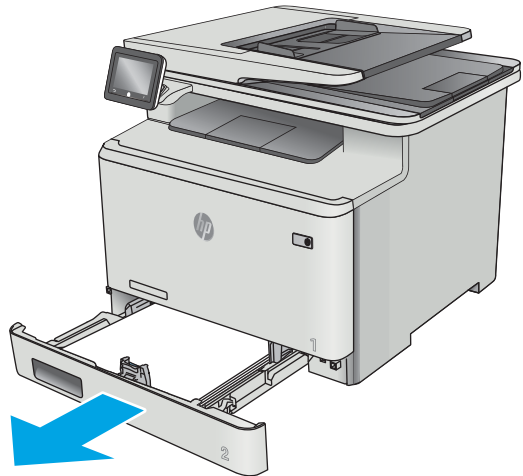
3. At the left side of the Tray 2 cavity, press the tab to lower the tray plate, and then remove any paper. Remove the jammed sheet by gently pulling it straight out.
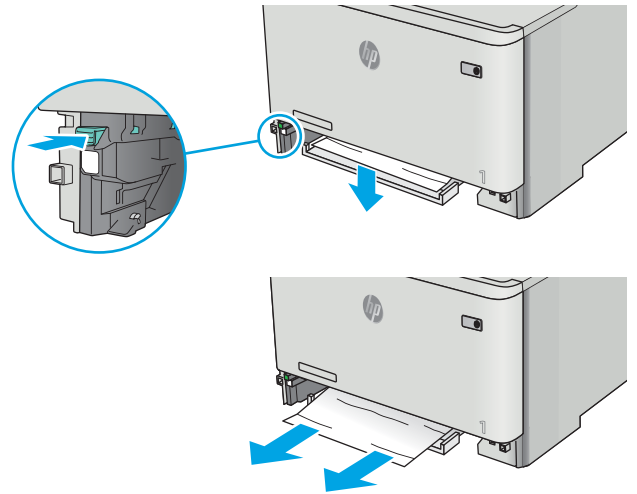
4. Push the tray plate back up into place.
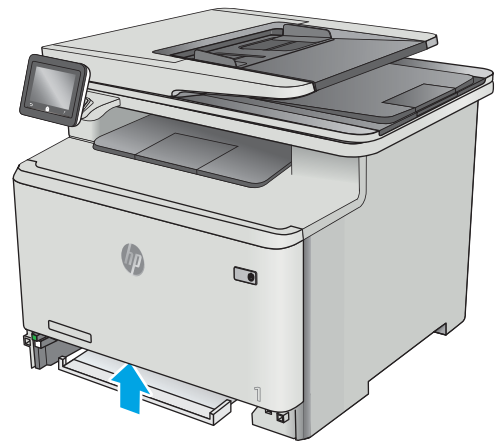
5.  Reinstall Tray 2.
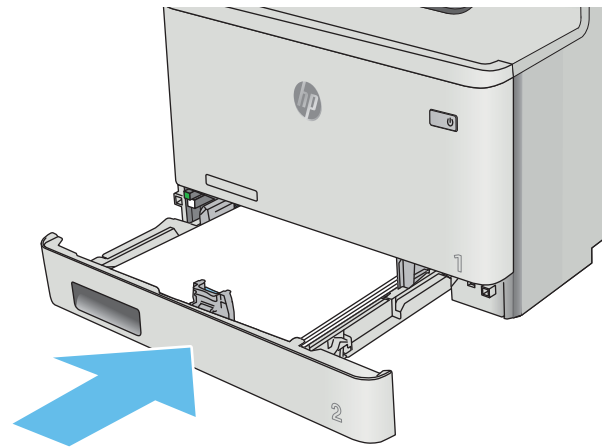
6.  Reopen Tray 1 and load paper into the tray.
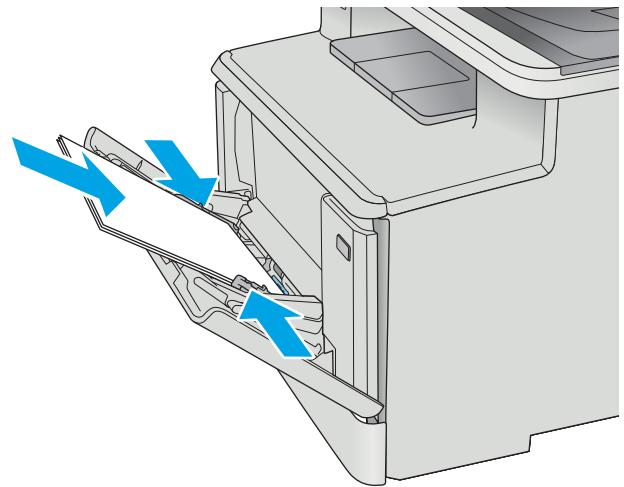
# Clear paper jams in Tray 2

Use the following procedure to check for a paper jam in Tray 2. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

1.  Pull the tray completely out of the printer.
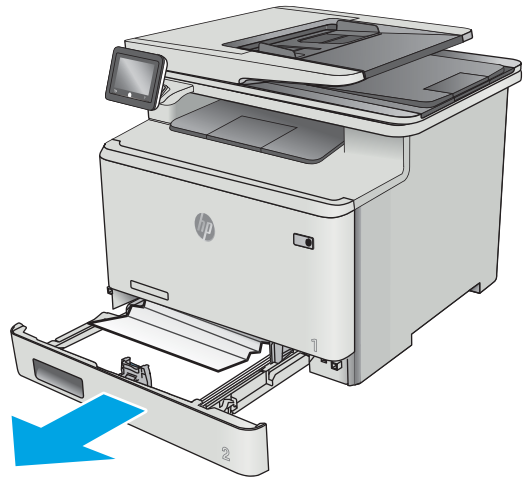
2.  Remove any jammed or damaged sheets of paper.
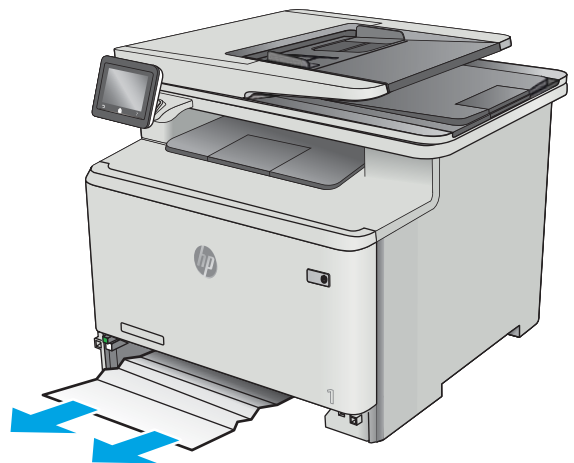
3.  Reinsert and close Tray 2.
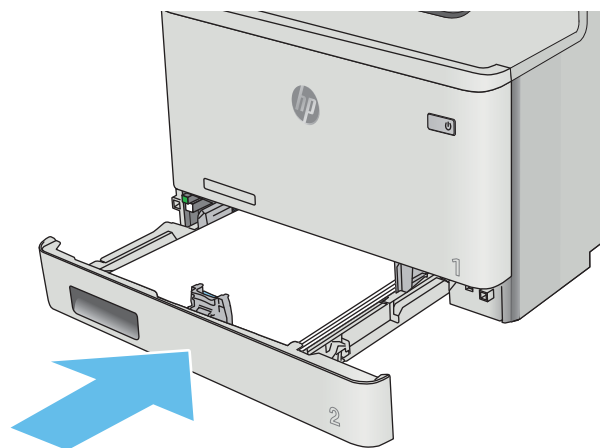
## Clear paper jams in the rear door and the fuser area (simplex models)

Use the following procedure to check for paper inside the rear door. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

⚠ **CAUTION:** The fuser is located above the rear door, and it is hot. Do not attempt to reach into the area above the rear door until the fuser is cool.

1.  Open the rear door.
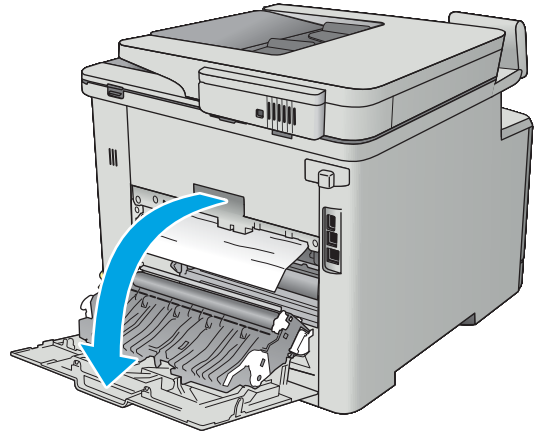
2. Gently pull out any jammed paper from the rollers in the rear door area.
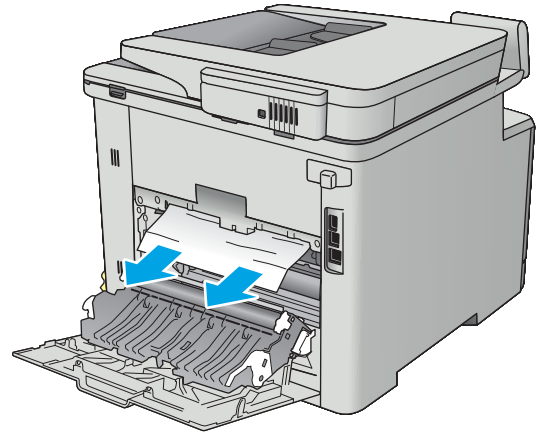
3. Close the rear door.
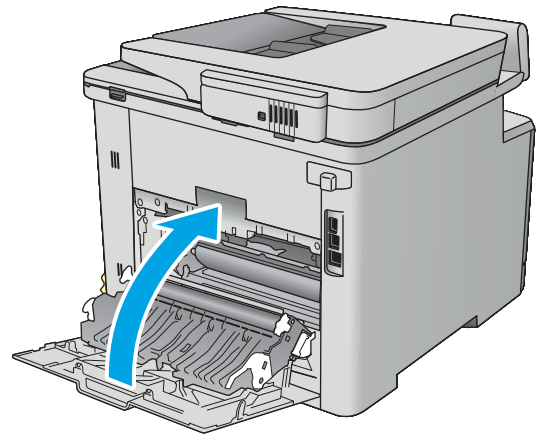
# Clear paper jams in the output bin

Use the following procedure to clear jams in the output bin. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

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

# Clear paper jams in the duplexer (duplex models)

Use the following procedure to check for paper in the duplexer. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

1. At the rear of the printer, open the duplexer.
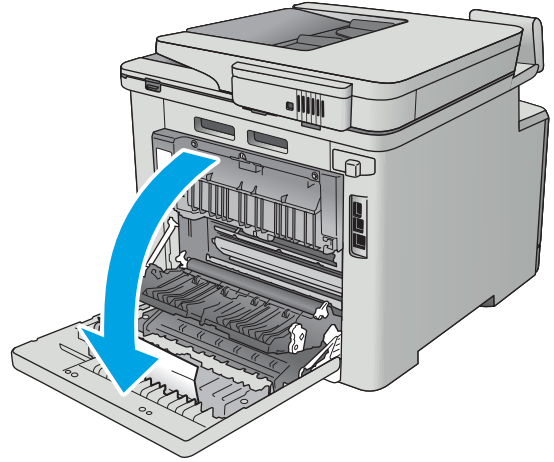
2. Remove any jammed or damaged sheets of paper.

   CAUTION:   The fuser is located above the rear door, and it is hot. Do not attempt to reach into the area above the rear door until the fuser is cool.
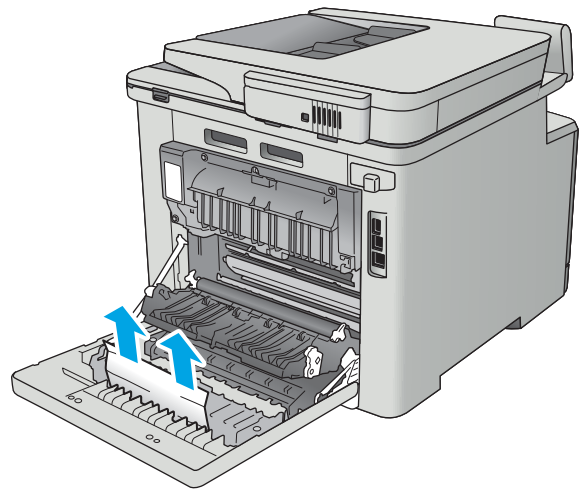
3. Close the duplexer.
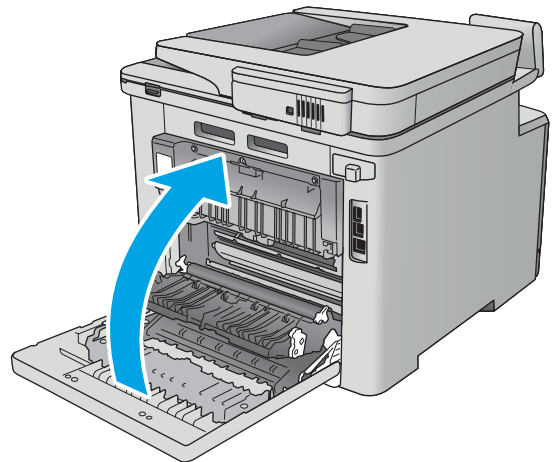
# Solve performance problems

Table 2-40  Solve performance problems

| Problem | Cause | Solution |
|---------|-------|----------|
| Pages print but are totally blank. | The document might contain blank pages. | Check the original document to see if content is present on all of the pages. |
| | The printer might be malfunctioning. | To check the printer, print a configuration page. |
| Pages print very slowly. | Heavier paper types can slow the print job. | Print on a different type of paper. |
| | Complex pages can print slowly. | Proper fusing might require a slower print speed to ensure the best print quality. |
| | Large batches, narrow paper, and special paper such as gloss, transparency, cardstock, and HP Tough Paper can slow the print job. | Print in smaller batches, on a different type of paper, or on a different size of paper. |
| Pages did not print. | The printer might not be pulling paper correctly. | Make sure paper is loaded in the tray correctly. |
| | The paper is jamming in the printer. | Clear the jam. |
| | The USB cable might be defective or incorrectly connected. | <ul><li>Disconnect the USB cable at both ends and reconnect it.</li><li>Try printing a job that has printed in the past.</li><li>Try using a different USB cable.</li></ul> |
| | Other devices are running on the host computer. | The printer might not share a USB port. If an external hard drive or network switchbox is connected to the same port as the printer, the other device might be interfering with the printer. To connect and use the printer, disconnect the other device or use two USB ports on the host computer. |

# Solve connectivity problems

## Solve USB connection problems

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

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

## Solve wired network problems

### Introduction

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

- Poor physical connection

- The computer is using the incorrect IP address for the printer

- The computer is unable to communicate with the printer

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

- New software programs might be causing compatibility problems

- The computer or workstation might be set up incorrectly

- The printer is disabled, or other network settings are incorrect

**NOTE:** HP does not support peer-to-peer networking, as the feature is a function of Microsoft operating systems and not of the HP print drivers. For more information, go to Microsoft at www.microsoft.com.

## Poor physical connection

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

2. Verify that cable connections are secure.

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

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

## The computer is using the incorrect IP address for the printer

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

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

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

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

## The computer is unable to communicate with the printer

1. Test network communication by pinging the network.

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

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

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

   b. Type ping followed by the IP address for your printer.

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

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

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

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

### New software programs might be causing compatibility problems

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

### The computer or workstation might be set up incorrectly

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

2.  Verify that the operating system is configured correctly.

### The printer is disabled, or other network settings are incorrect

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

2.  Reconfigure the network settings if necessary.

## Solve wireless network problems

### Introduction

Use the troubleshooting information to help resolve issues.

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

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

### Wireless connectivity checklist

- Verify that the network cable is not connected.

- Verify that the printer and the wireless router are turned on and have power. Also make sure that the wireless radio in the printer is turned on.

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

- Verify that the printer is within the range of the wireless network. For most networks, the printer must be within 30 m (100 ft) of the wireless access point (wireless router).

- Verify that obstacles do not block the wireless signal. Remove any large metal objects between the access point and the printer. Make sure poles, walls, or support columns containing metal or concrete do not separate the printer and wireless access point.

- Verify that the printer is located away from electronic devices that might interfere with the wireless signal. Many devices can interfere with the wireless signal including motors, cordless phones, security system cameras, other wireless networks, and some Bluetooth devices.

- Verify that the print driver is installed on the computer.

- Verify that you have selected the correct printer port.

- Verify that the computer and printer connect to the same wireless network.

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

### The printer does not print after the wireless configuration completes

1. Make sure that the printer is turned on and in the ready state.

2. Turn off any third-party firewalls on your computer.

3. Make sure that the wireless network is working correctly.

4. Make sure that your computer is working correctly. If necessary, restart the computer.

5. Verify that you can open the HP Embedded Web Server from a computer on the network.

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

1. Update the firewall with the most recent update available from the manufacturer.

2. If programs request firewall access when you install the printer or try to print, make sure you allow the programs to run.

3. Temporarily turn off the firewall, and then install the wireless printer on the computer. Enable the firewall when you have completed the wireless installation.

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

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

2. Print a configuration 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 printer.

### Cannot connect more computers to the wireless printer

1. Make sure that the other computers are within the wireless range and that no obstacles block the signal. For most networks, the wireless range is within 30 m (100 ft) of the wireless access point.

2. Make sure that the printer is turned on and in the ready state.

3. Turn off any third-party firewalls on your computer.

4. Make sure that the wireless network is working correctly.

5. Make sure that your computer is working correctly. If necessary, restart the computer.

## The wireless printer loses communication when connected to a VPN

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

## The network does not appear in the wireless networks list

- Make sure the wireless router is turned on and has power.

- The network might be hidden. However, you can still connect to a hidden network.

## The wireless network is not functioning

1. Make sure that the network cable is not connected.

2. To verify if the network has lost communication, try connecting other devices to the network.

3. Test network communication by pinging the network.

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

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

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

    b. Type `ping` followed by the router IP address.

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

4. Make sure that the router or printer connects to the same network that the computer connects to.

    a. Print a configuration 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 printer.

## Perform a wireless network diagnostic test

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

1. **Touch screen:** From the Home screen on the control panel touch the Setup icon, then touch Network Setup menu. **2-line displays:** Use the ◀ or the ▶ to navigate through the menus, select Network Setup then press OK.

2. Open the Wireless Settings menu.

3. Touch the Print Wireless Test Report to start the test. The printer 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 printers on the network.

# Service/Support menus and Repair Mode functions

## Service menu

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

### 2-line control panels

1. From the printer control panel, press the ⤺ button once, then press the ✕, and then press the ⤺ button twice to gain access to the Service menu.

2. Open the **Service** menu.

### Touchscreen control panels

1. From the Home screen on the printer control panel, press ⌂ button once, then press the ⤺ once, and then press the ⌂ twice to gain access to the Service menu.

2. Touch the Service menu.

The following menu items appear in the Service menu:

Table 2-41  **Service menu**
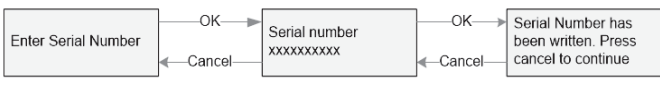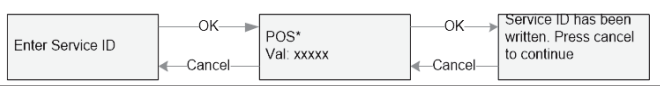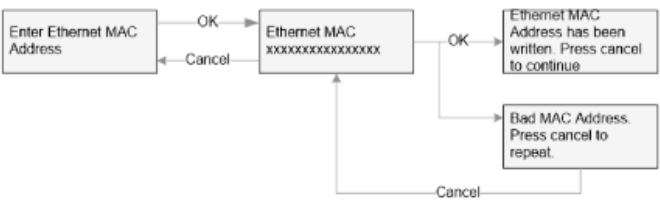
| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| System Configuration Menu | Enter serial number | Allows a manual entry of the 10-digit product serial number. Service needs the ability to enter all ten characters. |  |
| | Enter service ID | Allows a manual entry of the 5-digit service ID (YYDDD). |  |
| | Enter ethernet MAC address | Allows manual entry of the ethernet MAC address. |  |

Table 2-41  Service menu (continued)

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| | Enter wireless MAC address | Allows a manual entry of the wireless MAC address.<br><br>NOTE:  Not applicable for products without wireless function. |  |
| | R/W parameter | Allows manual setting of any configurable parameters. Press OK will write the parameter, Cancel will not write the parameter. |  |
| System Configuration Menu<br><br>(continued) | LED color calibration | Allows scanning calibration of the color LEDs to be enabled or disabled.<br><br>IMPORTANT:  Special note for LED Color Calibration.<br><br>1. There are two important NVM values for LED color calibration. They are as follows:<br><br>– LED cal-valid (1: valid, 0: invalid)<br><br>– LED cal matrix (3x3 matrix – –> 9 coefficients)<br><br>2. If the LED calibration is successfully done at the factory, CIMation will:<br><br>– Set the LED cal-valid to 1, and<br><br>– Generate an optimal LED cal-matrix and send it to NVM of the unit.<br><br>3. If the LED calibration fails (e.g. can't read a barcode, etc.), CIMation will:<br><br>– Set the LED cal-valid to 0, and<br><br>– NOT send any matrix to NVM. |  |

Table 2-41  Service menu (continued)

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| | | **4.** At the time of the scan/copy: | |
| | | — If LED cal-valid is set to 1, the LED cal-matrix in NVM is used for color conversion. | |
| | | — If LED cal-valid is set to 1, the default matrix in FW is used for color conversion. | |
| | | **5.** Even though there is a valid LED cal-matrix in the NVM, the NVM values can be reset during FW reflashing process depending on the initial state of the unit. This NVM reset can cause the LED cal-valid and LED cal-matrix set to be all zeros, resulting in black only output scan/copy. | |
| | | **6.** Depending on the LED spectral characteristics, the LED cal-matrix can be very similar to the default matrix. Little difference from the default matrix means little difference in copy output between LED cal On or Off. | |

Table 2-41 Service menu (continued)

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| Resets Menu | Country and language reset | • Allows the country and language to be reset after unit powers down.<br><br>• All user menu settings to default. |  |
| | Partial reset | • All user menu settings to default<br><br>• All telephony parameter values to default (MFP models only).<br><br>• Initiate select country and language UI.<br><br>NOTE: The items below will not be cleared:<br><br>Wireless settings (wireless models only)<br><br>Fax memory (MFP models only)<br><br>Device counters | NOTE: When one of the Resets is selected by pressing OK button, the device will power off and it will not power on unless the power button is pressed again. After it powers up it will perform the corresponding reset. |
| Resets Menu<br><br>(continued) | Semi-Full reset | All partial resets plus:<br><br>• Clears fax journal information (MFP models only).<br><br>• Clears all speed dials/broadcast list (MFP models only).<br><br>• Clears personal header information (MFP models only).<br><br>• Clears wireless settings, (IP, SSID, WEP) (wireless models only).<br><br>NOTE: See the following:<br><br>• Wireless settings are cleared on a semi-full or full resets.<br><br>• Device counters are not cleared on semi-full and partial resets. | |
| | OOBE reset | Sets the unit back to the factory default state. | |

IMPORTANT: The NVM values that are **never** reset:

● Device unique calibration values

Table 2-41  Service menu (continued)

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| | | ● Serial number | |
| | | ● Deivative setting (includes soft features) | |
| Special Reports | Print mech button tap | Allows a user to print any of the Tap reports that are supported by the platform. | |
| | Network security page | Prints a summary of the network related information. | |
| | Config page | Prints a complete list of all parameters including the number, current value, and defaults. | |
| | Fax trace (MFP models only) | Prints a T30 protocol history of the last fax transactions. | |
| | Counter report | Prints a summary of device usage. | |
| Service Test Menu | Test scan motor | Subsystem test of the flatbed scan motor and scan drive mechanism. |  |
| | Cont_adf_pick | Continuous picking from the ADF. |  |
| | Test keys | Interactive test of all front panel buttons. |  |
| Service Test Menu (continued) | Test LEDs | Continuous test of LED functionality (blinking or on steady). NOTE:  The following items are not part of the Test LEDs: ● The network LEDs |  |
| | Test Display | Subsystem functional test of all the CGD segments and the back light (not supported on the 2–line control panel). |  |

Table 2-41  Service menu (continued)

| Menu item | First menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| | Infinite H's test | Subsystem test that prints continuous pages of the letter "H" in black. |  |
| | Infinite color H's test | Subsystem test that prints continuous pages of the letter "H" in color. |  |
| | Test front USB port | Test that verifies when a device is inserted in the front USB port that the device is recognized with a PASS or FAIL results. |  |

# Support menu

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

## 2-line control panels (M454nw/dn models)

▲ From the printer control panel, press the ✕ button, then press the ↰ once, and then press the ✕ twice to gain access to the Support menu.

## Touchscreen control panel (M454dw and M479 models)

▲ From the Home screen on the printer control panel, press the ↰ button four times to gain access to the Support menu.

The following menu items appear in the support menu:

Table 2-42  Support Menu

| Menu item | Secondary menu item | Description | Additional information (if necessary) |
|---|---|---|---|
| Information Menu | Model number | Displays the products model number. | |
| | Serial number | Displays the products serial number. | |
| | Region/Language | Displays the products region/language settings. | |
| | Counters | Displays the products total page counts and cycles. | |
| | Firmware version | Displays the product firmware version. | |
| | Event log | Displays the products last five events. The user can cycle through each event. | |

Table 2-42  Support Menu (continued)

| | | | |
|---|---|---|---|
| | Assert history | Displays the products last five asserts. The user can cycle through each assert. | |
| | Wireless Region (wireless models only) | OK<br><br>Cancel | Displays the region. |
| Resets Menu | Country and language reset | ● Allows the country and language to be reset after the unit powers down.<br><br>● All user menu settings to default. | |
| | Partial reset | ● All user menu settings to default<br><br>● All telephony parameter values to default (fax models only).<br><br>● Initiate select country and language UI.<br><br>● Clear wireless settings to default (wireless models only).<br><br>NOTE:  The items below will not be cleared:<br><br>● Fax memory (fax models only)<br><br>● Device counters | |
| Resets Menu<br><br>(continued) | Semi-full reset | All partial rests plus:<br><br>● Clears fax journal information (fax models only).<br><br>● Clears all speed dials/broadcast list (fax models only).<br><br>● Clears personal header information (fax models only)<br><br>● Clears instant Share settings.<br><br>● Clears wireless settings (IP, SSID, WEP) (wireless models only)<br><br>NOTE:  See the following:<br><br>● Wireless settings are cleared on a Semi-full and Full resets | |

Table 2-42 Support Menu (continued)

| | | (wireless models only) |
| | | ● Device counters are not cleared on Semi-full or Partial resets. |
| System Configuration Menu | Hardware failure status | Shows the status of the hardware failure. If user selects, the hardware failure status, it will be cleared. |
| | | This function, Hardware/ failure status, is needed so a support agent can instruction the customer to enter the Support Menu, then the Support System Configuration Menu, then select the Hardware Failure Status, and then clear the DSID_IDS_HW_FAILURE so the value can be set to zero. |
| | Set boot mode to user mode | Sets the unit to user mode from manufacturing mode. |
| Fax Diagnostics Menu (MPF models only) | Run Fax Test | Executes the fax test. |
| | Reset Fax Parameter | Resets the fax parameters (not just a specific one). |
| | Change Fax Parameter | Allows for controlled changes to individual fax parameters. |
| | Fax Parameter Report | Prints a complete list of all parameters including the number, current value, and defaults. |
| | Fax Trace Report | Prints two reports, most recent and last fax trace with an error. |
| | Fax Status Report | Prints fax status report. |
| | Speaker Mode | Enable the speaker throughout fax transmission. |
| | Ring Monitor | ● R = ring count and cadence. |
| | | ● XX Hz= 0 if attached phone is on-hook. 1 =if attached phone is off-hook. |
| Fax Diagnostics Menu (MPF models only) | CNG Monitor | ● f3 =counter increments if a frequency is |

Table 2-42 Support Menu (continued)

| (continued) | | detected in side tone while eavesdropping. | |
| | | • f2 =counter increments if a frequency is detected in actual CNG tone. | |
| | | • f1 =counter increments if a frequency is detected in CNG frequency range. | |
| | | • Z =total CNG tones detected during a session. | |
| | Signal Power | Signal power is displayed. | |
| Connectivity Diagnostics Menu | Connectivity report | Prints a report that contains all the various connectivity settings. | |
| | Wireless diagnostics test (wireless model only) | Preforms the same wireless diagnostics test as in the Customer UI, through the front control panel of the printer. This diagnostic tool tests the wireless setup of the product. | |
| | Capture NW trace | 5 minutes | Captures a network trace and saves the trace in an encrypted format to a USB flash drive inserted into the front USB port. |
| | | 10 minutes | |
| | | 30 minutes | |
| | | Stop | |
| | Print wireless metrics | OK | Prints the wireless metric data report. |
| | | Cancel | |
| Connectivity Diagnostics Menu | OK | | |
| | Cancel | | |
| | Print mech button | Code = x | Allows the user to print any of the Tap reports that are supported by the platform. NOTE: Print Tap report number 4 to see a list of supported tap reports for these devices. |
| | Config page (MFP models only) | Prints a complete list of all fax parameters including the number, current value, and defaults. | |
| | Fax trace (MFP models only) | Prints a T30 protocol history of the last fax transaction. | |

Table 2-42  Support Menu (continued)

| | | | |
|---|---|---|---|
| | Counter report | Prints a summary of the device usage. | |
| **Scan Diagnostics Menu (MFP models only)** | Test scan motor | Subsystem test of the flatbed scan motor and scan drive mechanism. |  |
| **Enable/Disable Menu** | All network | OK | |
| | | Cancel | |
| **Enable/Disable Menu**<br><br>(continued) | Ethernet | OK | |
| | | Cancel | |
| | All wireless (wireless models only) | OK | |
| | | Cancel | |
| | Wireless infrastructure (wireless models only) | OK | |
| | | Cancel | |
| | Wireless access point (wireless models only) | OK | |
| | | Cancel | |
| | Memory devices | OK | |
| | | Cancel | |
| | Fax (MFP models only) | OK | |
| | | Cancel | |
| | Fax reprint (MFP models only) | OK | |
| | | Cancel | |
| | Copy (MFP models only) | OK | |
| | | Cancel | |
| | Color Copy (MFP models only) | OK | |
| | | Cancel | |
| | Color print from memory device | OK | |
| | | Cancel | |
| | Digital send (MFP models only) | OK | |
| | | Cancel | |
| | HP web services (ePrint and Apps) | OK | |
| | | Cancel | |
| | HP ePrint | OK | |
| | | Cancel | |
| | Print Apps | OK | |
| | | Cancel | |
| | Webscan (MFP models only) | OK | |
| | | Cancel | |

Table 2-42  Support Menu (continued)

| | Usage data collection | OK |
|---|---|---|
| | | Cancel |
| **Enable/Disable Menu** (continued) | Firmware update | OK |
| | | Cancel |
| | Reset to factory defaults | OK |
| | | Cancel |

# Printer resets

## Restore the factory-set defaults

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

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

1. **2-line control panels**: On the printer control panel, press the OK button to enter the Setup menu, use the left ◄ and the right ► to navigate to Printer Maintenance menu, then use arrow buttons to navigate to Restore menu, press the OK button, and then use arrow buttons to navigate to Restore Factory Defaults, and then press the OK button.

   **Touchscreen control panels**: From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch 🔅 icon.

2. Open the Printer Maintenance menu.

3. Open the Restore menu.

4. Select the Restore Factory Defaults option.

   The printer automatically restarts.

## Semi-full reset

⚠ **CAUTION:**   Be sure to print a configuration page before performing an semi-full reset.

A semi-full reset erases all data stored in the unprotected NVRAM sections. Performing a semi-full resets the following settings and information:

- All menu settings are reset to factory default values.

- All localization settings, including language and country/region, are reset.

After performing a semi-full reset, reconfigure any computers that print to this printer so that the computers can recognize the printer.

1. Turn the printer off.

2. **2-line control panels**: Press the ✕ and the Cancel ✕ button once, and then press the ↰. button once, and then press the ✕ button twice. to enter the Support menu. Use the ◀ or the ▶ to navigate to Resets menu and then press the OK button. Use arrow keys to navigate to Semi-fill reset , and then press the OK button.

   **Touchscreen control panels**: Press the ↰ four times to enter the Support menu. Touch Resets menu, and then touch Semi-full resets menu.

3. When the **Semi-full reset** message appears on the display.

   The semi-full reset starts.

4. When the printer has finished the semi-full reset, it returns to the Ready state.

## OOBE or Cold reset

⚠ **WARNING!**    An OOBE or Cold reset will reset the printer's page count to zero and removes the formatter association to the printer serial number. The lack of formatter association to the printer serial number might affect the printer's warranty entitlement. Also, the printer will not be allowed to connect to the HP cloud.

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

1. Turn the printer off.

2. **2-line control panels**: Press the OK button to enter the Setup Menu. Use the ◀ or the ▶ to navigate to Printer Maintenance menu, press OK button, and then use the arrow buttons to navigate to Restore menu press the OK button, and then use arrow buttons to navigate to Cold Reset, and then press the OK button.

   **Touchscreen control panels**: From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch ⚙ icon, then touch Printer Maintenance menu, then touch Restore menu, and then touch Cold Reset.

3. The **Cold Resets** message appears on the display.

   The cold resets starts.

4. When the cold reset has been completed, the printer enters the generic printer mode.

# Repair Mode

## When using toner cartridges multiple times

📝 **IMPORTANT:**    This topic describes how to use toner cartridges in multiple devices for testing or verifying repairs.

This applies to the following HP printers:

● HP Color LaserJet Pro M453–M454 series

● HP Color LaserJet Pro MFP M478–M479 series

There are a limited number of times a toner cartridge (or a set of cartridges) can be installed in different printers. For example, if a set of cartridges is repeatedly used to test printers that have been repaired, it is recommended that the printer is first put into **Repair Mode** before installing the test cartridges into the printer. Failing to use **Repair Mode** will cause the test cartridges to be disabled after use in several printers. If the toner cartridge is disabled a supplies error message **10.0X.11** appears on the control-panel display, and the toner cartridge will not be functional.

**NOTE:** **Repair Mode** remains enabled for up to 75 printed pages or until the printer powered is turned off.

### Supplies error messages

- **10.00.11**: Black cartridge problem > Bad data from supply
- **10.01.11**: Cyan cartridge problem > Bad data from supply
- **10.02.11**: Magenta cartridge problem > Bad data from supply
- **10.03.11**: Yellow cartridge problem > Bad data from supply

To enter **Repair Mode**, perform the following steps for the type of control panel being used:

### For 2-line control panels

1. While in a Ready state, press the OK button to enter the Main Menu.
2. Press the OK button to enter the Setup Menu.
3. Use the left ◀ or the right ▶ buttons to navigate to Printer Maintenance menu, and then press OK button.
4. From the Printer Maintenance menu, use the left ◀ or the right ▶ to navigate to the Restore menu, and then press the OK ;button.
5. From the Restore menu, use the left ◀ or the right ▶ to navigate to the Repair Mode, and then press the OK button.
6. Follow the on-screen instructions by pressing the OK button, and then immediately install one or more test cartridges.

### For touch screen control panels

1. From the touch screen pull down the dashboard and select the Setup icon to enter the Setup 🔘 menu.
2. From the Setup menu, scroll to and then select Printer Maintenance menu.
3. From the Printer Maintenance menu, select Restore .
4. From the Restore menu, select Repair Mode.
5. A dialog will appear, follow the instructions in the dialog to Start the Repair Mode touch OK, and then immediately install one or more test cartridges into the printer.

**NOTE:** If the Repair Mode is not present in the Restore menu, then the firmware must be updated to acquire this functionality. The Repair Mode setting was not present in the original first release of firmware with these products. The print cartridges do not need to be installed to perform a firmware update.

# Solve fax problems (MFP models only)

## Checklist for solving fax problems

- Several possible fixes are available. After each recommended action, retry faxing to see if the problem is resolved.
- For best results during fax problem solving, make sure the line from the printer is connected directly to the wall phone port. Disconnect all other devices that are connected to the printer.

1. Verify that the telephone cord is connected to the correct port on the back of the printer.
2. Check the phone line by using the fax test:

a.  From the Home screen on the printer control panel, swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b.  Select the Fax Setup menu.

c.  Select the Tools menu.

d.  Select the Run Fax Test option. The printer 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 printer firmware is current:

a.  Print a configuration page from the control panel Reports menu to obtain the current firmware date code.

b.  Go to www.hp.com.

1.  Click the **Support & Drivers** link.

2.  Click the **Download drivers and software (and firmware)** link option.

3.  In the **For product** box, enter the printer model number, and then click the **Go** button.

4.  Click the link for your operating system.

5.  Scroll to the Firmware section of the table.

- If the listed version matches the version on the configuration page, you have the most current version.

- If the versions are different, download the firmware upgrade file and upgrade the firmware on the printer following the on-screen instructions.

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

- Resend the fax.

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

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

5.  Verify that the telephone service supports analog fax.

- If using ISDN or digital PBX, contact your service provider for information about configuring to an analog fax line.

- If using a VoIP service, change the Fax Speed setting to Slow V.29 from the control panel. Ask if your service provider supports fax and for the recommended fax modem speed. Some companies might require an adapter.

- If you are using a DSL service, make sure that a filter is included on the phone-line connection to the printer. Contact the DSL service provider, or purchase a DSL filter if you do not have one. If a DSL filter is installed, try another filter because filters can be defective.

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

## Perform a fax diagnostic test

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

1. From the Home screen on the printer control panel, swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

2. Open the following menus:

   - Fax Setup menu

   - Tools menu

3. Touch the Run Fax Test to start the test. The printer prints a test page that shows test results.

## Solve general fax problems

- Faxes are sending slowly

- Fax quality is poor

- You touched the Cancel ✗ button to cancel a fax, but the fax was still sent

- Not able to locate the fax settings in HP Web Jetadmin

- The header is appended to the top of the page when the overlay option is enabled

- A mix of names and numbers is in the recipient's box

- A one-page fax prints as two pages

- A document stops in the document feeder in the middle of faxing

- The volume for sounds coming from the fax accessory is too high or too low

- Use fax over VoIP networks

### Faxes are sending slowly

The printer is experiencing poor phone line quality.

- Retry sending the fax when the line conditions have improved.

- Check with the phone service provider that the line supports fax.

- Turn off the Error Correction setting.

   a. From the Home screen on the printer control panel, swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

   b. Open the Fax Setup menu.

   c. Open the Preferences menu.

   d. Open the Error Correction menu.

   e. Select the Off setting.

   📝 NOTE:    This can reduce image quality.

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

- Increase the Fax Speed setting.

a.   From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b.   Open the Fax Setup menu.

c.   Open the Preferences menu.

d.   Open the Speed menu.

e.   Select the correct setting.

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

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

a.   From the Home screen on the printer control panel touch the Fax icon, touch Send Now at the bottom left of screen, select the ⚙ icon, then touch Fax Settings, then touch Resolution, and then touch the desired resolution. If you want to retain this setting for all future faxes, touch Save Current Settings at the bottom of the Fax Settings screen.

b.   Open the Fax Setup menu.

c.   Open the Advanced Setup menu.

d.   Open the Fax Resolution menu.

e.   Select the correct setting.

## Fax quality is poor

Fax is blurry or light.

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

a.   From the Home screen on the printer control panel, touch the Fax icon, then touch Send Now at the bottom left of screen, select the ⚙ icon, then touch Fax Settings, then touch Resolution, and then touch the desired resolution. If you want to retain this setting for all future faxes, touch Save Current Settings at the bottom of the Fax Settings screen.

b.   Open the Fax Setup menu.

c.   Open the Advanced Setup menu.

d.   Open the Fax Resolution menu.

e.   Select the correct setting.

📝 NOTE:   Increasing resolution slows transmission speed.

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

a.   From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b.   Open the Fax Setup menu.

c.   Open the Preferences menu.

d.   Open the Error Correction menu.

e.   Select the On setting.

- Check the toner cartridges and replace if necessary.

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

## You touched the Cancel ✕ button to cancel a fax, but the fax was still sent

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

This is normal operation.

## Not able to locate the fax settings in HP Web Jetadmin

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

Select **Digital Sending and Fax** from the drop-down menu.

## The header is appended to the top of the page when the overlay option is enabled

For all forwarded faxes, the printer appends the overlay header to the top of a page.

This is normal operation.

## A mix of names and numbers is in the recipient's box

Names and numbers can both display, depending on where they are from. The fax address book lists names, and all other databases list numbers.

This is normal operation.

## A one-page fax prints as two pages

The fax header is being appended to the top of the fax, pushing text to a second page.

## A document stops in the document feeder in the middle of faxing

A jam is in the document feeder.

Clear the jam, and send the fax again.

## The volume for sounds coming from the fax accessory is too high or too low

The volume setting needs to be adjusted.

Adjust the volume in the Fax Setup menu and the Preferences menu.

## Use fax over VoIP networks

VoIP technology converts the analog phone signal into digital bits. These are then assembled into packets which travel on the Internet. The packets are converted and transmitted back to analog signals at or near the destination.

Transmission of information on the Internet is digital instead of analog. Therefore, there are different constraints on the fax transmission that might require different fax settings than the analog Public Switched Telephone Network (PSTN). Fax is very dependent upon timing and signal quality, so a fax transmission is more sensitive to a VoIP environment.

**The following are suggested changes in settings for the printer when it is connected to a VoIP service:**

- Begin with the fax speed set to Medium (V.17). This might be helpful in environments where a new VoIP network is in use.

- If numerous errors or retries occur with the fax speed set to Fast, set it to Medium (V.17).

- If errors and retries persist, set the fax speed to Slow (V.29) because some VoIP systems cannot handle the higher signal rates associated with fax.

- In rare cases, if errors persist, turn off ECM on the printer. The image quality might decrease. Ensure that the image quality is acceptable with ECM off before using this setting.

- If the preceding setting changes have not improved the VoIP fax reliability, contact your VoIP provider for help.

# Solve problems receiving faxes

**Table 2-43  Solve problems receiving faxes**

| Problem | Cause | Solution |
|---|---|---|
| The fax does not respond. | The fax has a dedicated phone line. | • Set the Answer Mode option to the Automatic setting from the control panel.<br><br>a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.<br><br>b. Open the Fax Setup menu.<br><br>c. Open the Preferences menu.<br><br>d. Open the Auto Answer menu.<br><br>e. Select the Automatic setting. |
|  | An answering machine is connected to the printer. | • Set the Answer Mode option to the TAM setting and connect the answering machine to the "telephone" port.<br><br>a. From the Home screen on the printer control panel swipe down to gain access the home screen dash board, and then touch the Setup ⚙ icon.<br><br>b. Open the Fax Setup menu.<br><br>c. Open the Preferences menu.<br><br>d. Open the Auto Answer menu.<br><br>e. Select the TAM setting.<br><br>If the TAM setting is unavailable, set the Auto Answer option to the Automatic setting.<br><br>• Set the Rings to Answer setting to at least one ring more than the number of rings for which the answering machine is set.<br><br>a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon. |

Table 2-43 Solve problems receiving faxes (continued)

| Problem | Cause | Solution |
|---|---|---|
| | | **b.** Open the Fax Setup menu. |
| | | **c.** Open the Preferences menu. |
| | | **d.** Open the Rings to Answer menu. |
| | | **e.** Select the correct setting. |
| | | • Connect the answering machine to the "telephone" port. |
| | | • If the printer has a telephone handset connected, set the Auto Answer option to the Fax/Tel setting to route calls to the correct device. When detecting a voice call, the printer generates a ring tone that alerts you to pick up the telephone handset. |
| | | **a.** From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon. |
| | | **b.** Open the Fax Setup menu. |
| | | **c.** Open the Preferences menu. |
| | | **d.** Open the Auto Answer menu. |
| | | **e.** Select the Fax/Tel setting. |
| | A handset is connected to the printer. | • Make sure the phone is hung up. |
| | | • Change the Answer Mode option to match the printer setup. |
| | | **a.** From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon. |
| | | **b.** Open the Fax Setup menu. |
| | | **c.** Open the Preferences menu. |
| | | **d.** Open the Auto Answer menu. |
| | | **e.** Select the setting that matches the printer setup. |
| | | Set the Answer Mode option to the Fax/Tel setting to automatically receive faxes. The Fax/Tel setting automatically detects whether the incoming transmission is a fax or a voice call and routes the call to the appropriate device. |
| | The Auto Answer setting is set to the Manual setting. | • Touch the Fax icon on the printer control panel. |
| | Voice mail is available on the fax line. | • Add a distinctive ring service to your telephone line and change the Distinctive Ring setting on the printer to match the ring pattern supplied by the telephone company. Contact your telephone company for information. |
| | | **a.** From the Home screen on the printer control panel swipe down to gain access to the home |

Table 2-43 Solve problems receiving faxes (continued)

| Problem | Cause | Solution |
|---------|-------|----------|
| | | screen dash board, and then touch the Setup ⚙ icon. |
| | | **b.** Open the Fax Setup menu. |
| | | **c.** Open the Preferences menu. |
| | | **d.** Open the Distinctive Ring menu. |
| | | **e.** Select the correct setting. |
| | | ● Buy a dedicated line for faxing. |
| | | ● Set the Answer Mode option to the Manual setting. |
| | | **a.** From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon. |
| | | **b.** Open the Fax Setup menu. |
| | | **c.** Open the Preferences menu. |
| | | **d.** Open the Auto Answer menu. |
| | | **e.** Select the Manual setting. |
| | | **NOTE:** You must be present to receive faxes. |
| | The printer is connected to a DSL phone service. | ● Check the installation and features. A DSL modem requires a high-pass filter on the phone line connection to the printer. Contact your DSL service provider for a filter or buy a filter. |
| | | ● Verify that the filter is connected. |
| | | ● Replace the existing filter to make sure that it is not defective. |
| | The printer uses a fax over IP or VoIP phone service. | ● Set the Fax Speed option to the Slow(V.29) or Medium(V.17) setting. |
| | | **a.** From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon. |
| | | **b.** Open the Fax Setup menu. |
| | | **c.** Open the Preferences menu. |
| | | **d.** Open the Speed menu. |
| | | **e.** Select the correct setting. |
| | | ● Contact your service provider to make sure that fax is supported and for a recommended fax speed setting. Some companies might require an adapter. |
| Sender receives a busy signal | A handset is connected to the printer. | ● Make sure the phone is hung up. |
| | | ● Change the Answer Mode option to match the printer setup. |
| | | **a.** From the Home screen on the printer control panel swipe down to gain access to the home |

Table 2-43  Solve problems receiving faxes (continued)

| Problem | Cause | Solution |
|---------|-------|----------|
| | | screen dash board, and then touch the Setup icon. |
| | | **b.** Open the Fax Setup menu. |
| | | **c.** Open the Preferences menu. |
| | | **d.** Open the Auto Answer menu. |
| | | **e.** Select the setting that matches the printer setup.<br><br>Set the Auto Answer option to the Fax/Tel setting to automatically receive faxes. The Fax/Tel setting automatically detects whether the incoming transmission is a fax or a voice call and routes the call to the appropriate device. |
| | A phone line splitter is being used. | ● If you are using a phone line splitter, remove the splitter and set up the phone as a downstream phone.<br><br>● Make sure the phone is hung up.<br><br>● Make sure the phone is not being used for a voice call when faxing. |
| No dial tone | A phone line splitter is being used. | ● If using a phone line splitter, remove the phone line splitter and set up the phone as a downstream phone. |
| | The phone cable is not connected correctly to the printer. | Verify that the telephone cord is plugged into the correct port on the back of the printer. |
| Printer rings once, but does not answer | An answering machine or voice messaging service is sharing the phone line with the printer. | ● **Answering machine**: Set the Auto Answer option to the TAM setting and connect the answering machine to the "telephone" port.<br><br>● **Voice mail**: Add a distinctive ring service to your telephone line and change the Distinctive Ring setting on the printer to match the ring pattern supplied by the telephone company. Contact your telephone company for information. |
| | The Distinctive Ring setting is incorrectly set. | 1. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup icon.<br><br>2. Open the Fax Setup menu.<br><br>3. Open the Preferences menu.<br><br>4. Open the Distinctive Ring menu.<br><br>5. Select the correct setting. |
| | The sender number is blocked, and the printer is ringing once before blocking the fax job. | This is normal printer behavior. |
| Printer continues to ring, but does not answer | The Auto Answer setting is set to the Manual setting. | Touch the Fax icon on the printer control panel. |
| | The Rings to Answer setting is incorrectly set. | 1. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup icon. |

Table 2-43 Solve problems receiving faxes (continued)

| Problem | Cause | Solution |
|---|---|---|
| | | **2.** Open the Fax Setup menu. |
| | | **3.** Open the Preferences menu. |
| | | **4.** Open the Rings to Answer menu. |
| | | **5.** Select the correct setting. |
| | The Distinctive Ring setting is incorrectly set. | **1.** From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon. |
| | | **2.** Open the Fax Setup menu. |
| | | **3.** Open the Preferences menu. |
| | | **4.** Open the Distinctive Ring menu. |
| | | **5.** Select the correct setting. |
| Printer does not ring, no fax received | The phone cable is not connected correctly to the printer. | Verify that the telephone cord is plugged into the correct port on the back of the printer. |
| Printer answers, but fax does not print | The printer is out of paper. | Verify that paper is loaded. |
| Header information prints on top of the fax information | For all forwarded faxes, the printer appends the overlay header to the top of a page. | This is normal printer behavior. |

# Solve problems sending faxes

Table 2-44  Solve problems sending faxes

| Problem | Cause | Solution |
|---|---|---|
| Fax does not send | The Send Fax Later option is enabled and scheduled to send the fax at a later time. | This is normal printer behavior. |
| | The redial settings are all inactive, causing the printer to try dialing once and then stop if it encounters a busy signal, no answer, or an error. | Change the redial settings to prompt the printer to try to resend the fax automatically.<br>**1.** From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.<br>**2.** Open the Fax Setup menu.<br>**3.** Open the Preferences menu.<br>**4.** Open the following items:<br>   – Auto Redial<br>**5.** Select the correct setting for each option. |
| | Outgoing fax calls keep dialing. The printer automatically redials a fax number if the redial options are on. | This is normal printer behavior. To prevent the fax from resending, set the Redial if Busy option to 0, set the Redial if No Answer option to 0, and set the Redial if Comm. Error option to 0. |
| | The fax number is too long. | Enter a phone number that is the proper length. |

Table 2-44 Solve problems sending faxes (continued)

| Problem | Cause | Solution |
|---------|-------|----------|
| Fax stops while sending | The receiving fax machine might be malfunctioning. | Try sending to another fax machine. |
| | The phone line might not be working. | Disconnect the printer from the phone jack, and connect a phone. Try to make a phone call to verify that the phone line is working. |
| | The phone line might be noisy or poor quality. | Try using a slower fax speed to improve the reliability of transmission. |
| | A call-waiting feature might be active. | Verify that the fax telephone line does not have an activated call-waiting feature. A call-waiting notice can interrupt a fax call in progress, which causes a communication error. |
| Sent faxes are not arriving at the receiving fax machine | The receiving fax machine is turned off or has an error condition, such as being out of paper. | Ask the recipient to make sure that the fax machine is turned on and ready to receive faxes. |
| | The receiving machine is blocking the sending machine number. | Ask the recipient to make sure that the receiving fax machine is not blocking the sending machine fax number. |

# Fax error messages on the control panel

## The No Fax Detected message displays

> **NOTE:** This error does not always refer to a missed fax. If a voice call is made to a fax number by mistake and the caller hangs up, the **No Fax Detected** message displays on the control panel.

- Ask the sender to resend the fax.

- Make sure that the telephone cord from the printer is connected to the wall telephone jack.

- Try a different phone cord.

- Connect the printer phone cord to a jack for another phone line.

- Make sure the telephone line and phone wall jack are active by connecting a telephone and checking for a dial tone.

- Make sure that the telephone cord is connected to the "line" port on the printer.

- Check the phone line by running a fax test from the control panel.

- If the error persists, contact HP. See www.hp.com/support/colorljM454, www.hp.com/support/colorljM479MFP or the support flyer that came in the printer box.

## The Communication error message appears

- Ask the sender to send the fax again or send at a later time when line conditions have improved.

- Disconnect the printer telephone cord from the wall, connect a telephone to the phone jack on the wall, and try making a call. Plug the printer phone cord into a jack for another phone line.

- Try a different phone cord.

- Set the Speed option to the Slow(V.29) or Medium(V.17) setting.

a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b. Open the Fax Setup menu.

c. Open the Preferences menu.

d. Open the Speed menu.

e. Select the correct setting.

- Turn off the Error Correction feature to prevent automatic error correction.

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

a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b. Open the Fax Setup menu.

c. Open the Preferences menu.

d. Open the Error Correction Mode menu.

e. Select the Off setting.

- Print the Fax Activity Log report from the control panel to determine if the error occurs with a specific fax number.

a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b. Open the Fax Setup menu.

c. Open the Reports menu.

d. Select the Print Fax Report option.

- If the error persists, contact HP. See www.hp.com/support/colorljM454, www.hp.com/support/colorljM479MFP or the support flyer that came in the printer box.

## No Dial Tone

- Make sure that the telephone cord is connected to the correct port on the printer.

- Make sure that the telephone cord from the printer is connected directly to the wall telephone jack.

- Check for a dial tone on the phone line by using the Start Fax button.

- Disconnect the printer telephone cord from the wall, connect a telephone to the phone jack on the wall, and try making a voice call.

- Disconnect the telephone cord from both the printer and the wall and reconnect the cord.

- Make sure that you are using the telephone cord that came with the printer.

- Connect the printer phone cord to a jack for another phone line.

- Check the phone line by using the Run Fax Test option from the Tools menu on the control panel.

a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

b. Open the Fax Setup menu.

**c.** Open the Tools menu.

**d.** Select the Run Fax Test item.

## The Fax is busy message appears

- Try sending the fax again.

- Call the recipient to ensure that the fax machine is on and ready.

- Check that you are dialing the correct fax number.

- Check for a dial tone on the phone line by using the Start Fax button.

- Make sure that the phone line is working by disconnecting the printer, connecting a telephone to the phone line, and making a voice call.

- Connect the printer phone cord to a jack for another phone line, and try sending the fax again.

- Try a different phone cord.

- Send the fax at a later time.

- If the error persists, contact HP. See www.hp.com/support/colorljM454, www.hp.com/support/colorljM479MFP or the support flyer that came in the printer box.

## The No fax answer message appears

- Try to resend the fax.

- Call the recipient to ensure that the fax machine is on and ready.

- Check that you are dialing the correct fax number.

- Disconnect the printer telephone cord from the wall, connect a telephone to the phone jack on the wall, and try making a voice call.

- Connect the printer phone cord to a jack for another phone line.

- Try a different phone cord.

- Make sure that the phone cord from the wall telephone jack is connected to the line port.

- Check the phone line by using the Run Fax Test option from the Tools menu on the control panel.

  **a.** From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

  **b.** Open the Fax Setup menu.

  **c.** Open the Tools menu.

  **d.** Select the Run Fax Test item.

- If the error persists, contact HP. See www.hp.com/support/colorljM454, www.hp.com/support/colorljM479MFP or the support flyer that came in the printer box.

## Document feeder paper jam

- Verify that the paper meets printer size requirements. The printer does not support pages longer than 381 mm (15 in) for faxing.

- Copy or print the original to letter, A4, or legal size paper, and then resend the fax.

## The Fax storage is full message appears

- Turn the printer off then on.

- Delete stored faxes from memory.

  a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

  b. Open the Fax Setup menu.

  c. Open the Tools menu.

  d. Select the Clear Fax/Logs/Memory item.

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

## Scanner error

- Verify that the paper meets printer size requirements. The printer does not support pages longer than 381 mm (15 in) for faxing.

- Copy or print the original onto letter, A4, or legal size paper and then resend the fax.

## The control panel displays a Ready message with no attempt to send the fax

- Check the fax activity log for errors.

  a. From the Home screen on the control panel swipe down to gain access to the home screen dash board, then touch the Set up ⚙ icon, and then touch Fax Setup.

  b. Open the Reports menu.

  c. Open the Print Fax Reports menu.

  d. Select the Print option.

- If a phone is connected to the printer, make sure that the phone is hung up.

- Disconnect all other lines between the fax and the printer.

- Connect the printer directly into the wall telephone jack and resend the fax.

## The control panel displays the message "Storing page 1" and does not progress beyond that message

- Delete stored faxes from memory.

  a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

  b. Open the Fax Setup menu.

  c. Open the Tools menu.

  d. Select the Clear Fax Logs/Memory item.

## Faxes can be received, but not sent

Send fax and nothing happens.

1. Check for a dial tone on the phone line by using the Start Fax button.

2. Turn the printer off then on.

3. Use the control panel or the Fax Setup Wizard to configure the fax time, date, and fax header information.

   a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

   b. Open the Fax Setup menu.

   c. Open the Preferences menu.

   d. Open the Fax Header menu.

   e. Enter the correct settings.

4. Verify that any extension phones on the line are hung up.

5. If using a DSL service, make sure that the phone line connection to the printer includes a high-pass filter.

## Printer is password protected

If a network administrator has set a printer password, then you must obtain the password in order to use the printer fax features.

## Unable to use fax functions from the control panel

- The printer might be password protected. Use the HP Embedded Web Server, HP Toolbox software, or the control panel to set a password.

- If you do not know the password for the printer, contact your system administrator.

- Verify with the system administrator that the fax functionality has not been disabled.

## Unable to use speed dials

- Make sure that the fax number is valid.

- If an outside line requires a prefix, turn on the Dial Prefix option or include the prefix in the speed dial number.

   a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

   b. Open the Fax Setup menu.

   c. Open the Preferences menu.

   d. Open the Dialing Prefix menu.

   e. Select the On setting.

## Unable to use group dials

- Make sure that the fax number is valid.

- If an outside line requires a prefix, turn on the Dial Prefix option or include the prefix in the speed dial number.

   a. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board , and then touch the Setup ⚙ icon.

   b. Open the Fax Setup menu.

   c. Open the Preferences menu.

**d.** Open the Dialing Prefix menu.

**e.** Select the On setting.

- Set up all entries in the group with speed dial entries.

  **a.** Open an unused speed dial entry.

  **b.** Enter the fax number for the speed dial.

  **c.** Touch the OK to save the speed dial.

## Receive a recorded error message from the phone company when trying to send a fax

- Make sure you dial the fax number correctly, and make sure that the phone service is not blocked. For example, some phone services might prevent long distance calling.

- If an outside line requires a prefix, turn on the Dialing Prefix option or include the prefix in the speed dial number.

  **a.** From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

  **b.** Open the Fax Setup menu.

  **c.** Open the Preferences menu.

  **d.** Open the Dialing Prefix menu.

  **e.** Select the On setting.

  📝 NOTE: To send a fax without a prefix, when the Dialing Prefix option is turned on, send the fax manually.

- Send a fax to an international number

  **a.** If a prefix is required, manually dial the telephone number with the prefix.

  **b.** Enter the country/region code before dialing the phone number.

  **c.** Wait for pauses as you hear the tones on the phone.

  **d.** Send the fax manually from the control panel.

## Unable to send a fax when a phone is connected to the printer

- Make sure that the telephone is hung up.

- Make sure that the telephone is not being used for a voice call when faxing.

- Disconnect the phone from the line, and then try sending the fax.

## Troubleshoot fax codes and trace reports

### View and interpret fax error codes

Use fax error codes from the fax activity log to solve problems with the printer fax features.

| Error code | Description | Solution |
|---|---|---|
| 232 | Possible causes include the following:<br><br>• A communication failure has occurred between the two machines. | 1. Resend the fax at a different time when telephone line conditions have improved. |

| Error code | Description | Solution |
|---|---|---|
| | • The user at the remote machine might have pressed the Stop or Cancel button.<br><br>• The power at the remote machine has been interrupted, or deliberately turned off causing the fax session to be interrupted. | 2. If the error persists, and error correction is in use for the fax session, disable the Error Correction setting. |
| 282 | Possible causes include the following:<br><br>• The printer has not received any data at the start of a page during reception in error correction mode, but the modem has not detected a remote disconnect.<br><br>• The remote machine is probably transmitting sync frames instead of data and has either jammed or broken. | Have the sender verify that the sending machine is working correctly, and then request that the sender resend the fax. |
| 321 | There was a communication error with the receiving fax machine due to poor telephone line conditions. | Resend the fax at a different time when telephone line conditions have improved. |
| 344-348 | Possible causes include the following:<br><br>• The remote machine has failed to respond to a fax command from the local machine due to the connection being interrupted.<br><br>• The user at the remote machine might have pressed the Stop or Cancel button.<br><br>• In rare instances, incompatibility between the two machines can cause the remote machine to simply terminate the call. | 1. Resend the fax at a different time when telephone line conditions have improved.<br><br>2. If the error persists, and error correction is in use for the fax session, disable the Error Correction setting. |
| 381 | Possible causes include the following:<br><br>• The remote machine has failed to respond to a fax command from the local machine due to the connection being interrupted.<br><br>• The user at the remote machine might have pressed the Stop button. | 1. Resend the fax at a different time when telephone line conditions have improved.<br><br>2. If the error persists, and error correction is in use for the fax session, disable the Error Correction setting. |

## Fax trace report

A fax T.30 trace report has information that can help resolve fax transmission problems. If you call HP for help in resolving these problems, print a T.30 trace report before you call.

1.  From the Home screen on the printer control panel swipe up to gain access to home screen dash board, and then touch the Home ⌂ button, ↩ once, and then press the Home ⌂ button twice to gain access to the Service menu.

2.  Touch the Special Reports menu.

3.  Touch the Fax Trace menu.

4.  Touch the Print T.30 Trace button, and then touch the Print button.

📝 NOTE:   This procedure prints a report for the last fax job, successful or not. To generate a report for each unsuccessful fax job, select the If Error setting. To generate a report for each fax job, select the At End of Call setting.

# Fax logs and reports

Use the following instructions to print fax logs and reports:

## Print all fax reports

Use this procedure to print all of the following reports at one time:

- Last Transaction Log
- Print Fax Log
- Phone Book Report
- Junk Fax Report
- Billing Report (when Billing Codes are turned on)
- Configuration Report
- Usage Page

1. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

2. Touch the Reports button.

3. Touch the Fax Reports button.

4. Touch the name of the report that you want to print.

## Print individual fax reports

1. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⚙ icon.

2. Touch the Reports button.

3. Touch the Fax Reports button.

4. Touch the name of the report that you want to print.

## Set the fax error report

A fax error report is a brief report that indicates the printer experienced a fax job error. You can set it to print after the following events:

- Every fax error (the factory-set default)
- Send fax error
- Receive fax error
- Never

📝 NOTE:    With this option, you will have no indication that a fax failed to be transmitted unless you print a Fax Error Report. This option can be turned on and will automatically print when an error occurs. There is a Last Transaction Log or Last 500 Transaction Fax Logs available.

1. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, touch the Setup ⊙ icon.

2. Touch the Fax Setup button.

3. Touch the Reports button.

4. Touch the Fax Error Report button, and then touch the printing option that you want to use.

## Set the fax-error-correction mode

Usually, the printer monitors the signals on the telephone line while it is sending or receiving a fax. If the printer detects an error during the transmission and the error-correction setting is On, the printer can request that the portion of the fax be resent. The factory-set default for error correction is On.

You should turn off error correction only if you are having trouble sending or receiving a fax, and you are willing to accept the errors in the transmission. Turning off the setting might be useful when you are trying to send a fax overseas or receive one from overseas, or if you are using a satellite telephone connection.

1. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⊙ icon.

2. Touch the Fax Setup menu.

3. Touch the Preferences menu.

4. Touch the Error Correction button, and then touch the toggle button to turn it On.

## Change the fax speed

The fax-speed setting is the modem protocol that the printer uses to send faxes. It is the worldwide standard for full-duplex modems that send and receive data across telephone lines at up to 33,600 bits per second (bps). The factory-set default for the fax-speed setting is Fast 33,600 bps (V.34).

You should change the setting only if you are having trouble sending a fax to or receiving a fax from a particular device. Decreasing the fax speed might be useful when you are trying to send a fax overseas, or receive one from overseas, or if you are using a satellite telephone connection.

1. From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch the Setup ⊙ icon.

2. Touch the Fax Setup menu.

3. Touch the Preferences menu.

4. Scroll to and touch the Speed button, and then touch the speed setting that you want to use.

## Use fax on a DSL, PBX, or ISDN system

HP printers are designed specifically for use with traditional analog phone services. They are not designed to work on DSL, PBX, ISDN lines, or VoIP services, but they work with the proper setup and equipment.

📝 NOTE: HP recommends discussing DSL, PBX, ISDN, and VoIP setup options with the service provider.

The HP LaserJet printer is an analog device that is not compatible with all digital phone environments (unless a digital-to-analog converter is used). HP does not guarantee that the printer will be compatible with digital environments or digital-to-analog converters.

### DSL

A digital subscriber line (DSL) uses digital technology over standard copper telephone wires. This printer is not directly compatible with those digital signals. However, if the configuration is specified during DSL setup, the signal can be separated so that some of the bandwidth is used to transmit an analog signal (for voice and fax) while the remaining bandwidth is used to transmit digital data.

> 📝 **NOTE:** Not all faxes are compatible with DSL services. HP does not guarantee that the printer will be compatible with all DSL service lines or providers.

A typical DSL modem employs a filter to separate the higher frequency DSL modem communication from lower frequency analog phone and fax modem communication. It is often necessary to use a filter with analog phones and analog fax products that are connected to a telephone line used by a DSL modem. The DSL service provider usually provides this filter. Contact the DSL provider for more information or for assistance.

### PBX

The printer is an analog device that is not compatible in all digital phone environments. Digital-to-analog filters or converters might be needed for faxing functionality. If faxing issues occur in a PBX environment, it might be necessary to contact the PBX provider for assistance. HP does not guarantee that the printer will be compatible with digital environments or digital-to-analog converters.

Contact the PBX provider for more information and for assistance.

### ISDN

The printer is an analog device that is not compatible in all digital phone environments. Digital-to-analog filters or converters might be needed for faxing functionality. If faxing issues occur in an ISDN environment, it might be necessary to contact the ISDN provider for assistance. HP does not guarantee that the printer will be compatible with ISDN digital environments or digital-to-analog converters.

# Solve email problems

If Scan to E-mail problems occur, try these solutions:

- Make sure this feature has been set up. If this feature has not been set up, use the setup wizard in the HP Device Toolbox (Windows) or HP Utility for Mac OS X software to set it up.

- Make sure the Scan to Email feature is enabled. If it has been disabled, enable the feature through the HP Device Toolbox (Windows), which is only accessible through HP Printer Assistant, or HP Utility for Mac OS X software.

- Make sure that the printer is connected to a computer or to a network.

# Cannot connect to the email server

- Make sure the SMTP or LDAP server name is correct. Check this setting with your system administrator or Internet Service Provider.

- If the printer cannot establish a secure connection to the SMTP or LDAP server, try without the secure connection or try a different server or port. Check this setting with your system administrator or Internet Service Provider.

- If the SMTP or LDAP server requires authentication, make sure a valid user name and password are used.

- If the SMTP or LDAP server uses an authentication method that is not supported, try a different server. Check this setting with your system administrator or Internet Service Provider.

### Validate the SMTP gateway (Windows)

1.  Open an MS-DOS command prompt: click **Start**, click **Run**, type `cmd`, and then press the Enter key.

2.  In the command prompt window, type `telnet` followed by the SMTP gateway address and then the number 25, which is the port over which the printer is communicating. For example, type `telnet 123.123.123.123  25` where "123.123.123.123" represents the SMTP gateway address.

3.  Press the Enter key. If the SMTP gateway address is not valid, the response contains the message **Could not open connection to the host on port 25: Connect Failed**.

4.  If the SMTP gateway address is not valid, contact the network administrator.

### Validate the LDAP gateway (Windows)

1.  Open Windows Explorer. In the address bar, type `LDAP://` immediately followed by the LDAP gateway address. For example, type `LDAP://12.12.12.12` where "12.12.12.12" represents the LDAP gateway address.

2.  Press the Enter key. If the LDAP gateway address is valid, the **Find People** dialog box opens.

3.  If the LDAP gateway address is not valid, contact the network administrator.

# Update the firmware

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

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

## Method one: Update the firmware using the control panel

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

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

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

2.  From the Home screen on the printer control panel swipe down to gain access to the home screen dash board, and then touch Setup menu.

    ●   For touchscreen control panels, touch the Setup 🔘 icon.

    ●   For 2 line control panels, press OK, and then use the left ◀ or the right ▶ buttons to scroll through the menus.

3.  Scroll to and open the Printer Maintenance menu, and then open the Update the printer menu.

    > **NOTE:** If the Update the printer option is not listed, use method two.

4.  Check for updates.

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

    ●   For 2-line display control panels, select **Check Now**.

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

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

- For touchscreen control panels swipe down to gain access to the home screen dash board, and then touch the Setup Menu, ⚙ button.

- For 2-line control panels, use the left ◄ or the right ► buttons to scroll through the menus.

Scroll to and open the Setup menu, open the Printer Maintenance menu, and then scroll to Update the Printer menu, then select Printer Update Options, and then choose from the following options:

- Install Automatically

- Alert me when available

- Do not check

Set the printer to automatically update the firmware.

- For touchscreen control panels, set the Mange Updates option to **Allow Updates** and select OK, and then set the **Check automatically** option to ON.

- For 2-line control panels, set the Manage Updates then select **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 printers connected to the computer via a USB cable. It also works for printers connected to a network.

1. Go to www.hp.com/go/support, click the **Drivers & Software** link, type the printer name in the search field, press the ENTER button, and then select the printer from the list of search results.

2. Select the operating system.

3. Under the **Firmware** section, locate the **HP Printer Update**.

4. Click **Download**, click **Run**, and then click **Run** again.

5. When the utility launches, select the printer(s)you wish to update, and then select **Update** button.

**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    Certificates of volatility

- [Certificates of volatility](#)

# Certificates of volatility

**Figure A-1** Certificate of volatility M454 non-wireless (1 of 2)

| Hewlett-Packard Certificate of Volatility | | |
|---|---|---|
| Model:<br><br>**HP Color LaserJet<br>Pro M454dn** | Part Number:<br><br>W1Y44A | Address:<br>Hewlett Packard Company<br>11311 Chinden Blvd<br>Boise, ID 83714 |

| Volatile Memory | | | | |
|---|---|---|---|---|
| Does the device contain volatile memory (Memory whose contents are lost when power is removed)?<br>☒ Yes ☐ No  If Yes please describe the type, size, function, and steps to clear the memory below | | | | |
| Type (SRAM, DRAM, etc):<br>DRAM | Size:<br>512MB | User Modifiable:<br><br><br>☐Yes ☒No | Function: Used for temporary storage during the processing of jobs and for applications running on the OS | Steps to clear memory:<br>When the printer is powered OFF, the memory is erased. |
| Type (SRAM, DRAM, etc): | Size: | User Modifiable:<br><br><br>☐Yes ☐No | Function: | Steps to clear memory:<br><br><br>. |
| Type (SRAM, DRAM, etc): | Size: | User Modifiable:<br>☐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)?<br>☒ Yes ☐ No  If Yes please describe the type, size, function, and steps to clear the memory below | | | | |
| Type (Flash, EEPROM, etc):<br>Flash | Size:<br>256MB | User Modifiable:<br>☐Yes ☒No | Function: Device Firmware | Steps to clear memory:<br>NA |
| Type (Flash, EEPROM, etc): | Size: | User Modifiable:<br><br>☐Yes ☐No | Function: | Steps to clear memory: |
| Type (Flash, EEPROM, etc): | Size: | User Modifiable:<br>☐Yes ☐No | Function: | Steps to clear memory: |

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

| USB |
|---|
| Does the item accept USB input and if so, for what purpose (i.e. Print Jobs, device firmware updates, scan upload)?<br>☒ Yes ☐ No  If Yes please describe below |
| The rear USB host, when configured, will accept stored jobs, encrypted files stored and deleted by user. |
| Can any data other than scan upload be sent to the USB device)?<br>☐Yes ☒No If Yes please describe below |
| |

| RF/RFID | |
|---|---|
| Does the item use RF or RFID for receive or transmit of any data including remote diagnostics. (e.g. Cellular phone, Bluetooth) ☐ Yes ☒ No  If Yes please describe below | |
| Purpose: | |
| Frequency: | Bandwidth: |
| Modulation: | Effective Radiate Power (ERP): |
| Specifications: | |

| Other Transmission Capabilities |
|---|
| Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? ☐ Yes ☒ No If Yes please describe below: |

| Hewlett-Packard Certificate of Volatility | | |
|---|---|---|
| Model:<br><br>**HP Color LaserJet Pro M454nw**<br>**HP Color LaserJet Pro M454dw** | Part Number:<br><br>W1Y43A<br><br>W1Y45A | Address:<br>Hewlett Packard Company<br>11311 Chinden Blvd<br>Boise, ID 83714 |

| Volatile Memory | | | | |
|---|---|---|---|---|
| Does the device contain volatile memory (Memory whose contents are lost when power is removed)?<br>☒ Yes  ☐ No  If Yes please describe the type, size, function, and steps to clear the memory below | | | | |
| Type (SRAM, DRAM, etc):<br>DRAM | Size:<br>512MB | User Modifiable:<br><br><br>☐Yes ☒No | Function: Used for temporary storage during the processing of jobs and for applications running on the OS | Steps to clear memory:<br>When the printer is powered OFF, the memory is erased. |
| Type (SRAM, DRAM, etc): | Size: | User Modifiable:<br><br><br>☐Yes ☐No | Function: | Steps to clear memory:<br><br><br>. |
| Type (SRAM, DRAM, etc): | Size: | User Modifiable:<br>☐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)?<br>☒ Yes  ☐ No  If Yes please describe the type, size, function, and steps to clear the memory below | | | | |
| Type (Flash, EEPROM, etc):<br>Flash | Size:<br>256MB for M454nw | User Modifiable:<br>☐Yes ☒No | Function: Device Firmware | Steps to clear memory:<br>NA |
| Type (Flash, EEPROM, etc):<br>Flash | Size:<br>512MB for M454dw | User Modifiable:<br><br><br>☐Yes ☒No | Function: Device Firmware | Steps to clear memory:<br>NA |
| Type (Flash, EEPROM, etc): | Size: | User Modifiable:<br>☐Yes ☐No | Function: | Steps to clear memory: |

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

| USB |
|---|
| Does the item accept USB input and if so, for what purpose (i.e. Print Jobs, device firmware updates, scan upload)?<br>☒ Yes  ☐ No  If Yes please describe below |
| The front USB host can accept print jobs and can be used to upload printer firmware. |
| Can any data other than scan upload be sent to the USB device)?<br>☒Yes ☐No If Yes please describe below |
| The rear USB host, when configured, will accept stored jobs, encrypted files stored and deleted by user. |

| RF/RFID | |
|---|---|
| Does the item use RF or RFID for receive or transmit of any data including remote diagnostics. (e.g. Cellular phone, Bluetooth) ☒ Yes ☐ No  If Yes please describe below | |
| Purpose: BLE (Bluetooth Low Energy) | |
| Frequency: BLE 2.4 to 2.485 GHz band | Bandwidth: 0.27 Mbit/s |
| Modulation: Gaussian frequency shift modulation | Effective Radiate Power (ERP): BT: 10mW max |
| Specifications: | |

| Other Transmission Capabilities | |
|---|---|
| Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? ☒ Yes ☐ No If Yes please describe below: | |
| Purpose: Wireless Network Connectivity | |
| Frequency: 2.4GHz and 5GHz Bands | Bandwidth: 20/40 MHz |
| Modulation: Multiple | Effective Radiate Power (ERP): 802.11n/g: 15+/- 1.5dbm 802.11b: 17+/- 1.5dbm |
| Specifications: 802.11 n/a/b/g | |

| Other Transmission Capabilities | |
|---|---|
| Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? ☐ Yes ☒ No If Yes please describe below: | |
| Purpose: | |
| Frequency: | Bandwidth: |
| Modulation: | Effective Radiate Power (ERP): |
| Specifications: | |

| Other Capabilities | |
|---|---|
| Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? ☐ Yes ☒ No If Yes please describe below: | |
| Purpose: | |
| Specifications: | |

| Author Information | | | |
|---|---|---|---|
| Name | Title | Email | Business Unit |
| Matt Tonning | Technical Marketing Eng | Technical.Marketing@hp.com | Office Printing Solutions (OPS) |
| Rob Conant | R&D Engineer | Technical.Marketing@hp.com | Office Printing Solutions (OPS) |
| Date Prepared: November 12, 2018 | | | |

| Hewlett-Packard Certificate of Volatility | | |
|---|---|---|
| Model:<br><br>**HP Color LaserJet Pro MFP M479fdn** | Part Number:<br><br>W1A79A | Address:<br>Hewlett Packard Company<br>11311 Chinden Blvd<br>Boise, ID 83714 |

| Volatile Memory | | | | |
|---|---|---|---|---|
| Does the device contain volatile memory (Memory whose contents are lost when power is removed)?<br>☒ Yes   ☐ No  If Yes please describe the type, size, function, and steps to clear the memory below | | | | |
| Type (SRAM, DRAM, etc):<br>DRAM | Size:<br>512MB | User Modifiable:<br><br><br>☐Yes ☒No | Function: Used for temporary storage during the processing of jobs and for applications running on the OS. | Steps to clear memory:<br>When the printer is powered OFF, the memory is erased. |
| Type (SRAM, DRAM, etc): | Size: | User Modifiable:<br><br><br>☐Yes ☐No | Function: | Steps to clear memory:<br><br>. |
| Type (SRAM, DRAM, etc): | Size: | User Modifiable:<br>☐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)?<br>☒ Yes   ☐ No  If Yes please describe the type, size, function, and steps to clear the memory below | | | | |
| Type (Flash, EEPROM, etc):<br>Flash | Size:<br>512MB | User Modifiable:<br>☐Yes ☒No | Function:<br>Device firmware, Fax system | Steps to clear memory:<br>NA |
| Type (Flash, EEPROM, etc): | Size: | User Modifiable:<br><br>☐Yes ☐No | Function: | Steps to clear memory: |
| Type (Flash, EEPROM, etc): | Size: | User Modifiable:<br>☐Yes ☐No | Function: | Steps to clear memory: |

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

| USB |
|---|
| Does the item accept USB input and if so, for what purpose (i.e. Print Jobs, device firmware updates, scan upload)?<br>☒ Yes   ☐ No  If Yes please describe below |
| The front USB host can accept print jobs, scan uploads, photos and can be used to upload printer firmware. |
| Can any data other than scan upload be sent to the USB device)?<br>☒Yes ☐No If Yes please describe below |
| The rear USB host, when configured, will accept stored jobs, encrypted files stored and deleted by user. |

| RF/RFID | |
|---|---|
| Does the item use RF or RFID for receive or transmit of any data including remote diagnostics. (e.g. Cellular phone, Bluetooth) ☐ Yes ☒ No  If Yes please describe below | |
| Purpose: | |
| Frequency: | Bandwidth: |
| Modulation: | Effective Radiate Power (ERP): |
| Specifications: | |

| Other Transmission Capabilities |
|---|
| Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? ☐ Yes ☒ No If Yes please describe below: |

| Purpose: | |
|---|---|
| Frequency: | Bandwidth: |
| Modulation: | Effective Radiate Power (ERP): |
| Specifications: | |

| Other Transmission Capabilities | |
|---|---|
| Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? ☐ Yes ☒ No If Yes please describe below: | |
| Purpose: | |
| Frequency: | Bandwidth: |
| Modulation: | Effective Radiate Power (ERP): |
| Specifications: | |

| Other Capabilities | |
|---|---|
| Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? ☒ Yes ☐ No If Yes please describe below: | |
| Purpose: Fax | |
| Specifications: V34, V32, V23, V21 | |

| Author Information | | | |
|---|---|---|---|
| Name | Title | Email | Business Unit |
| Matt Tonning | Technical Marketing Eng | Technical.Marketing@hp.com | Office Printing Solutions (OPS) |
| Rob Conant | R&D Engineer | Technical.Marketing@hp.com | Office Printing Solutions (OPS) |
| Date Prepared: November 12, 2018 | | | |

**Hewlett-Packard Certificate of Volatility**

| Model: HP Color LaserJet Pro MFP M479dw HP Color LaserJet Pro MFP M479fnw HP Color LaserJet Pro MFP M479fdw | Part Number: W1A77A W1A78A W1A80A | 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): DRAM | Size: 512MB | User Modifiable: ☐Yes ☒No | Function: Used for temporary storage during the processing of jobs and for applications running on the OS. | 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): Flash | Size: 512MB | User Modifiable: ☐Yes ☒No | Function: Device firmware, Fax system | Steps to clear memory: NA |
|---|---|---|---|---|
| Type (Flash, EEPROM, etc): | Size: | User Modifiable: ☐Yes ☐No | Function: | Steps to clear memory: |
| 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: |
|---|---|---|---|---|

**USB**

Does the item accept USB input and if so, for what purpose (i.e. Print Jobs, device firmware updates, scan upload)?
☒ Yes ☐ No  If Yes please describe below
The front USB host can accept print jobs, scan uploads, photos, and can be used to upload printer firmware.
Can any data other than scan upload be sent to the USB device)?
☒Yes ☐No If Yes please describe below
The rear USB host, when configured, will accept stored jobs, encrypted files stored and deleted by user.

**RF/RFID**

Does the item use RF or RFID for receive or transmit of any data including remote diagnostics. (e.g. Cellular phone, Bluetooth) ☒ Yes ☐ No  If Yes please describe below

| Purpose: BLE (Bluetooth Low Energy) | |
|---|---|
| Frequency: BLE 2.4 to 2.485 GHz band | Bandwidth: 0.27 Mbit/s |
| Modulation: Gaussian frequency shift modulation | Effective Radiate Power (ERP): BT: 10mW max |
| Specifications: | |

| Other Transmission Capabilities | |
|---|---|
| Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? ☒ Yes ☐ No If Yes please describe below: | |
| Purpose: Wireless Network Connectivity | |
| Frequency: 2.4GHz and 5GHz Bands | Bandwidth: 20/40 MHz |
| Modulation: Multiple | Effective Radiate Power (ERP): 802.11n/g: 15+/- 1.5dbm 802.11b: 17+/- 1.5dbm |
| Specifications: 802.11 n/a/b/g | |

| Other Transmission Capabilities | |
|---|---|
| Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? ☐ Yes ☒ No If Yes please describe below: | |
| Purpose: | |
| Frequency: | Bandwidth: |
| Modulation: | Effective Radiate Power (ERP): |
| Specifications: | |

| Other Capabilities | |
|---|---|
| Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? ☒ Yes ☐ No If Yes please describe below: | |
| Purpose: Fax | |
| Specifications: V34, V32, V23, V21 | |

| Author Information | | | |
|---|---|---|---|
| Name | Title | Email | Business Unit |
| Matt Tonning | Technical Marketing Eng. | Technical.Marketing@hp.com | Office Printing Solutions (OPS) |
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