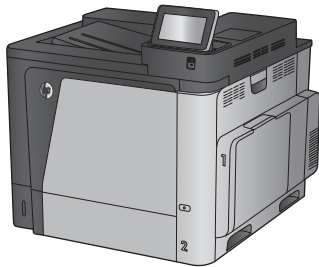




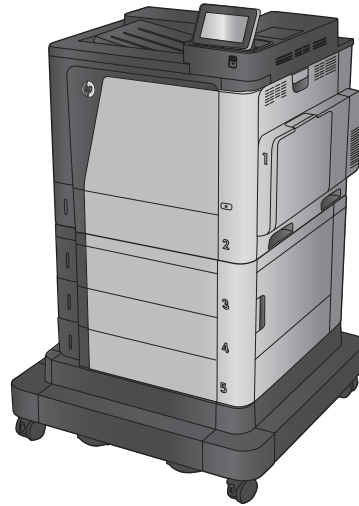
# Color LaserJet Enterprise M651

## Color LaserJet Enterprise MFP M680

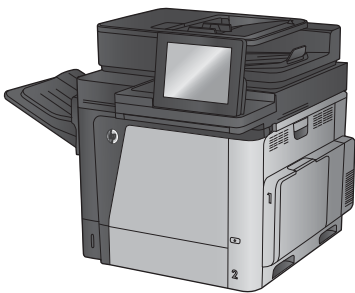
### Troubleshooting Manual



M651n  
M651dn



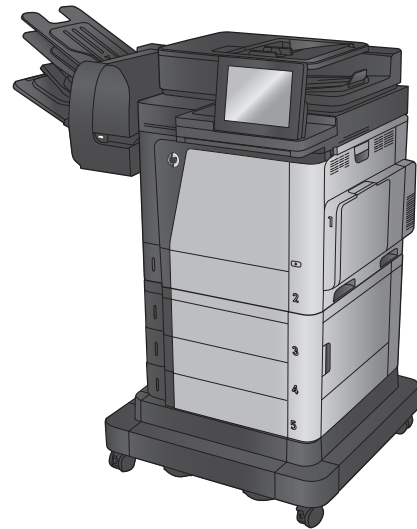
M651xh



M680dn



M680f



M680z



[www.hp.com/support/colorljM651](http://www.hp.com/support/colorljM651)  
[www.hp.com/support/colorljMFPM680](http://www.hp.com/support/colorljMFPM680)





# HP Color LaserJet Enterprise M651 and MFP M680

Troubleshooting Manual

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Edition 1, 4/2014


## Conventions used in this guide

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 **TIP:** Helpful hints or shortcuts.

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

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

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

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

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

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# 1 Theory of operation

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- [Engine-control system](#)
- [Laser/scanner system](#)
- [Image-formation system](#)
- [Pickup, feed, and delivery system](#)
- [Optional paper feeders](#)
- [Scanning/image capture system \(M680\)](#)
- [Stapling mailbox \(M680\)](#)

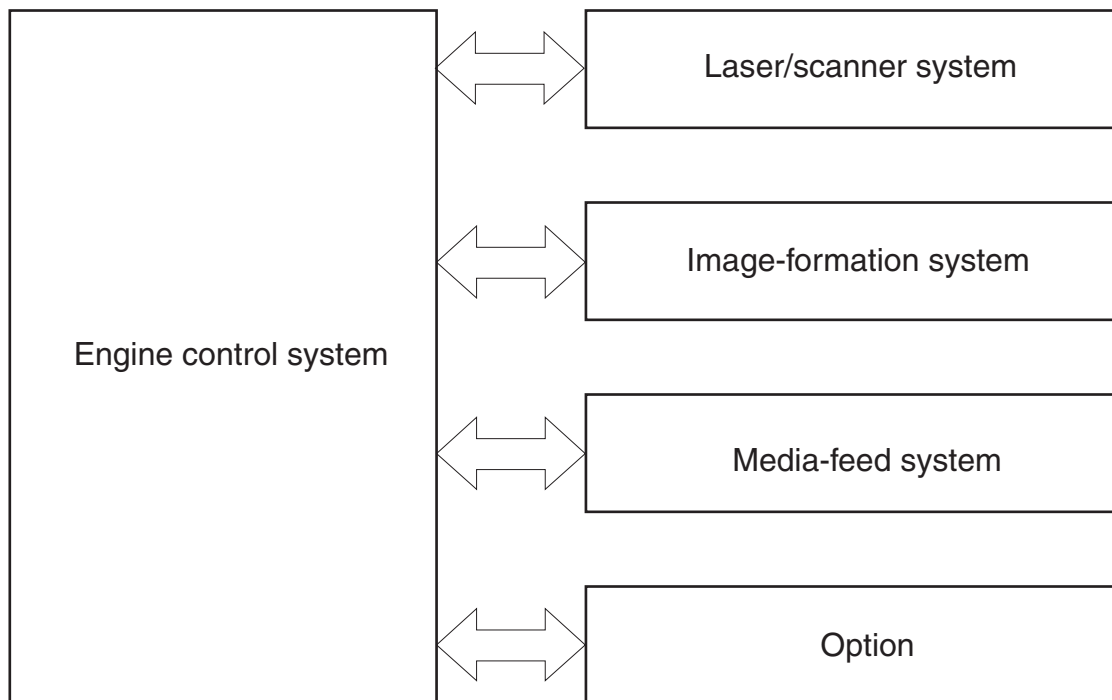
## Basic operation

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

The basic product operation comprises the following systems:

- The engine-control system, which includes the power supply and the DC controller printed circuit assembly (PCA)
- The laser/scanner system, which forms the latent image on the photosensitive drum
- The image-formation system, which transfers a toner image onto the paper
- The media feed system, which uses a system of rollers and belts to transport the paper through the product
- Option (optional paper feeder)

**Figure 1-1** Relationship between the main product systems



The interconnect board (ICB) provides connections from the formatter to the following components:

- DC controller (DCC)
- Scan control board (SCB)
- Control panel, USB walk-up port, USB hardware integration pocket through a USB cable

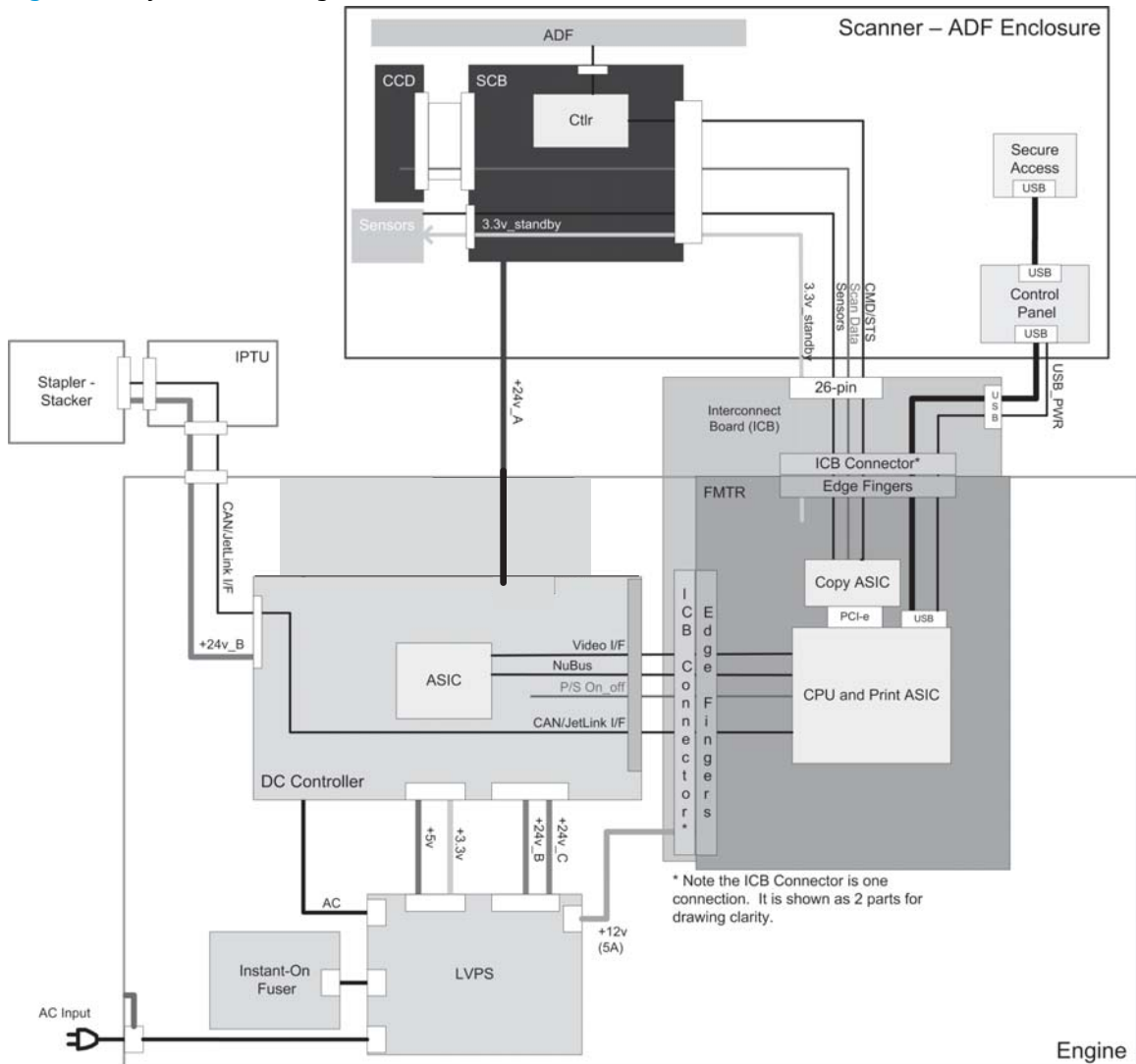
The formatter receives +12 volts from the low-voltage power supply (LVPS).

The automatic document feeder/scanner receives 24 volts from the scanner power supply, which is powered by an AC line from the LVPS.

The intermediate paper transport unit (IPTU) receives +24 volts and 3.3 volts from the DCC.

The stapling mailbox receives +24 volts and the JetLink control lines for communications from the DCC.

**Figure 1-2** System block diagram



## Sequence of operation

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

**Table 1-1 Sequence of operation**

Period	Duration	Description
Waiting	From the time the power is turned on, the door is closed, or when the product exits Sleep mode until the product is ready for printing	<ul style="list-style-type: none"> <li>• Heats the fuser sleeve in the fuser</li> <li>• Pressurizes the pressure roller in the fuser</li> <li>• Detects the toner cartridges</li> <li>• Moves the ITB and developing unit to the home position</li> <li>• Cleans the ITB and secondary transfer roller</li> </ul>
Standby	From the end of the waiting sequence, the last rotation until the formatter receives a print command, or until the product is turned off	<ul style="list-style-type: none"> <li>• The product is in the Ready state</li> <li>• The product enters Sleep mode if the sleep command is received from the formatter</li> <li>• The product calibrates if it is time for an automatic calibration</li> </ul>
Initial rotation	From the time the formatter receives a print command until the paper enters the paper path	<ul style="list-style-type: none"> <li>• Activates the high-voltage power supply</li> <li>• Prepares each laser/scanner unit</li> <li>• Warms the fuser to the correct temperature</li> </ul>
Printing	From the time the first sheet of paper enters the paper path until the last sheet has passed through the fuser	<ul style="list-style-type: none"> <li>• Forms the image on the photosensitive drums</li> <li>• Transfers the toner to the paper</li> <li>• Fuses the toner image onto the paper</li> </ul>
Last rotation	From the time the last sheet of paper exits the fuser until the motors stop rotating	<ul style="list-style-type: none"> <li>• Moves the last printed sheet into the output bin</li> <li>• Stops the high-voltage power supply</li> <li>• Stops each laser/scanner unit</li> <li>• If another print command is received, the product enters the initial rotation period when the last rotation is complete.</li> </ul>

# Formatter-control system

The formatter performs the following functions:

- Controlling sleep mode
- Receiving and processing print data from the various product interfaces
- Monitoring control panel functions and relaying product status information (through the control panel and the network or bi-directional interface)
- Developing and coordinating data placement and timing with the DC controller PCA
- Storing font information
- Communicating with the host computer through the network or the bidirectional interface

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

## Formatter hardware

The formatter system includes the following components.

**Table 1-2 Formatter hardware components**

Component	Function
Microprocessor	Stores fonts and microprocessor control programs.
RAM	Stores printing and font information and temporarily stores print-image data before it sent to the print engine. RAM data is lost when the product is turned off.
NVRAM	Stores configuration information. NVRAM is saved when the product is turned off.
USB	Sends and receives data through USB type B interface connector (connected to the host computer).
Hard disk drive (HDD) Solid state module (SSM)	The firmware is contained in the HDD or SSD. A remote firmware upgrade process is used to overwrite and upgrade the firmware on the HDD or SSM.
Real time clock	This clock is used for the Wake-up time feature. It includes a battery to supply power when the product is turned off.
HP Jetdirect Inside (JDI)	JDI is an Ethernet interface that is part of the formatter.

## Sleep mode



**NOTE:** In the [General Settings](#) menu (a submenu of the [Administration](#) menu), this item is termed [Sleep Timer Settings](#).

This feature conserves power after the product has been idle for an adjustable period of time. When the product is in [Sleep Mode](#), the control panel backlight is turned off, but the product retains all settings, downloaded fonts, and macros. The default setting is for [Sleep Mode](#) to be enabled, and the product enters Sleep Mode after a 30-minute idle time.

The product exits [Sleep Mode](#) and enters the warm-up cycle when any of the following events occur:

- A print job, valid data, or a PML or PJJ command is received
- A control panel button is pressed
- A cover is opened
- A paper tray is opened
- The engine-test switch is pressed



**NOTE:** Product error messages override the Sleep message. The product enters [Sleep Mode](#) at the appropriate time, but the error message continues to appear.



**TIP:** When the product is in [Sleep Mode](#), the sub power supply is off and the low-voltage power supply is on. The scanner can not be used when the product is in [Sleep Mode](#).

## Input/output

The product has three I/O interfaces:

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

## CPU

The formatter incorporates an 800 MHz processor.

## Memory

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



**NOTE:** If the product encounters a problem when managing available memory, a clearable warning message displays on the control panel display.

## Firmware

The hard disk drive (HDD) or solid state module (SSM) store the firmware. A remote firmware upgrade process is used to overwrite and upgrade the firmware on the HDD or SSM.

## Nonvolatile memory

The product uses nonvolatile random access memory (NVRAM) to store product and user configuration settings. The contents of NVRAM are retained when the product is turned off or disconnected.

## PJL overview

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

- Two-way communication with the host computer through a network connection or a USB connection. The product can inform the host about the control panel settings that can be changed from the host.
- Dynamic I/O switching. The product uses this switching to be configured with a host on each I/O. The product can receive data from more than one I/O simultaneously, until the I/O buffer is full. This can occur even when the product is offline.
- Context-sensitive switching. The product can automatically recognize the personality (PS or PCL) of each job and configure itself to serve that personality.
- Isolation of print environment settings from one print job to the next. For example, if a print job is sent to the product in landscape mode, the subsequent print jobs print in landscape mode only if they are formatted for landscape printing.

## PML

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

## Control panel

The control panel is an 20.3 cm (8 in) full-color SVGA (M680 model) or 10.9 cm (4.3 in) full-color SVGA (M651 model) with capacitive touchscreen and adjustable viewing angle. It includes an easy-access USB port for walk-up printing and a hardware integration pocket for third-party USB devices such as card readers.

The control panel has a diagnostic mode to allow testing of the touchscreen, [Home](#) button, and speaker. The control panel does not require calibration.

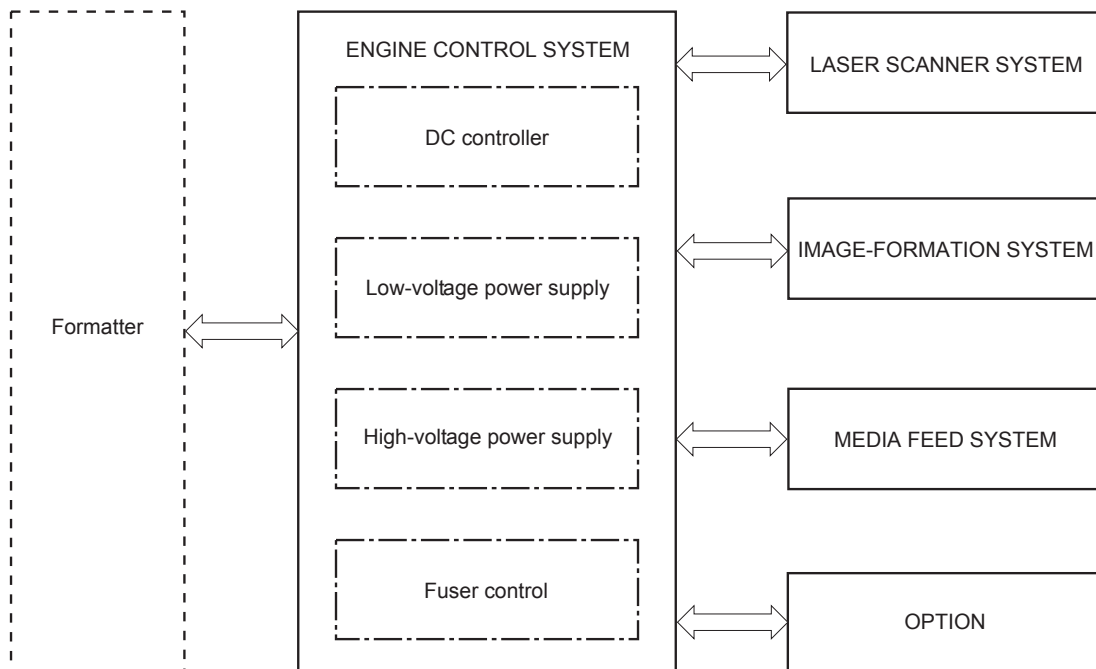
The M680z model has a QWERTY retractable keyboard beneath the control panel. The keys are mapped to a specific language in the same way the virtual keyboard on the product control panel is mapped. Selecting a different keyboard layout for the virtual keyboard remaps the keys on the physical keyboard to match the new settings.

# Engine-control system

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

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

**Figure 1-3** Engine-control system

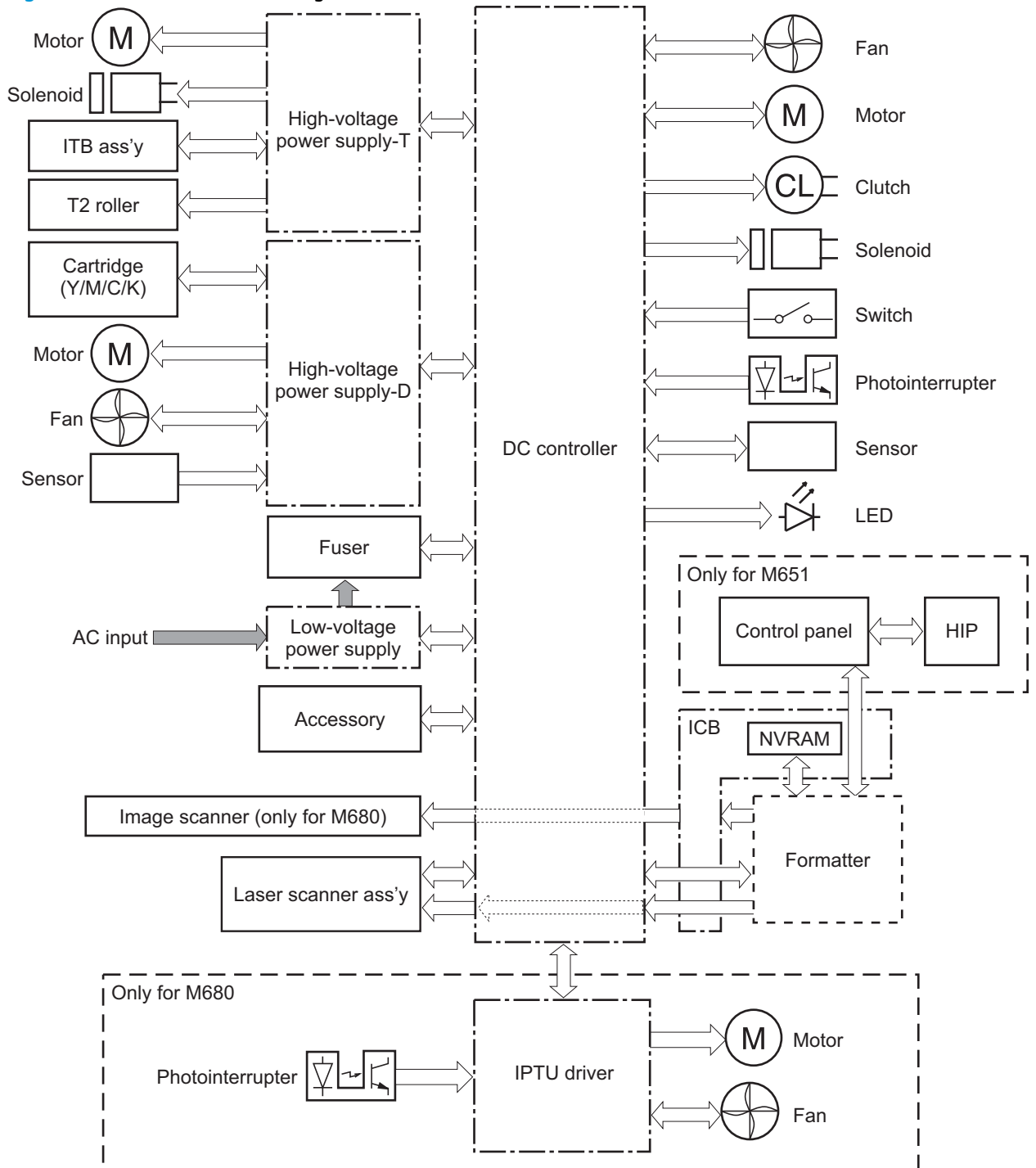




## DC controller

The DC controller controls the operational sequence of the product.

**Figure 1-4** DC controller block diagram



## Solenoids

**Table 1-3 Solenoids**

<b>Component abbreviation</b>	<b>Component name</b>
SL1	T1 alienation solenoid
SL2	Duplex switch back solenoid
SL3	Multipurpose-tray pickup solenoid
SL4	Cassette pickup solenoid

## Clutches

**Table 1-4 Clutches**

<b>Component abbreviation</b>	<b>Component name</b>
CL1	Duplex re-pickup clutch

## Switches

**Table 1-5 Switches**

<b>Component abbreviation</b>	<b>Component name</b>
SW1	5V interlock switch
SW2	24V interlock switch
SW3	Power switch
SW4	Cassette media size switch
SW5	Front door open detection switch
SW6	Right door open detection switch
	Test print switch

## Sensors

**Table 1-6 Sensors**

<b>Component abbreviation</b>	<b>Component name</b>
SR1	Yellow drum home position sensor
SR2	Magenta drum home position sensor
SR3	Cyan drum home position sensor
SR4	Black drum home position sensor
SR5	Fuser delivery sensor
SR6	Face-down tray media-full sensor (M651 only)
SR7	Fuser depressurization sensor
SR8	MP-tray-media-presence sensor
SR9	T1 alienation sensor
SR10	New ITB assembly detection sensor
SR11	Developer alienation sensor
SR14	Loop sensor 1
SR15	Loop sensor 2
SR20	Top of page (TOP) sensor
SR22	Duplex re-pickup media-feed sensor
SR23	Cassette media-surface sensor 1
SR24	Cassette media-surface sensor 2
SR25	Cassette media-presence sensor
SR26	Pre-registration media-feed sensor
SR101	IPTU media-full sensor (M680 only)
SR102	Image scanner assembly open detection sensor (M680 only)
SR103	IPTU media-feed sensor (M680 only)
	RD sensor
	Environment sensor (temperature and humidity)
	Media sensor
	Yellow toner-level sensor
	Magenta toner-level sensor
	Cyan toner-level sensor
	Black toner-level sensor
	Residual toner full sensor
	Laser scanner temperature sensor

## Motors

The product has 13 motors. The motors drive the components in the paper-feed and image-formation systems.

**Table 1-7 Motors**

Abbreviation	Name	Purpose	Failure detection
M1	ITB motor	Drives the ITB and residual toner feed screw	Yes
M2	Fuser motor	Drives the fuser sleeve, pressure roller, fuser pressure roller, and primary transfer roller disengagement	Yes
M3	Yellow drum motor	Drives the photosensitive drum (yellow), developing roller (yellow), and primary charging roller (yellow)	Yes
M4	Magenta drum motor	Drives the photosensitive drum (magenta), developing roller (magenta), and primary charging roller (magenta)	Yes
M5	Cyan drum motor	Drives the photosensitive drum (cyan), developing roller (cyan), and primary charging roller (cyan)	Yes
M6	Black drum motor	Drives the photosensitive drum (black), developing roller (black), and primary charging roller (black)	Yes
M7	Cassette lifter motor	Drives the lifter for the cassette	Yes
M8	Cyan/black scanner motor	Drives the scanner mirror in the cyan/black laser scanner	Yes
M9	Yellow/magenta scanner motor	Drives the scanner mirror in the yellow/magenta laser scanner	Yes
M10	Developer alienation motor	Drives the developing unit disengagement	No
M11	Duplex switch back motor	Drives the duplex reverse roller and duplex feed roller	No
M12	Residual toner-feed motor	Drives the residual toner feed screw	Yes
M13	Pickup motor	Drives the cassette pickup roller, MP tray pickup roller, feed roller, and cassette separation roller	No
M101	IPTU feed motor (M680 only)	Drives the IPTU feed rollers and IPTU delivery roller	No

### The DC controller detects a failure by monitoring a motor:

The DC controller determines if a motor has failed and notifies the formatter when it encounters the following conditions:

- Startup failure: the motor does not reach a specified speed within a specified time from when the motor starts.
- Rotational failure: the rotational speed of the motor is not in the specified range for a specified time after the motor reaches a specified speed.
- Lock detection (for the residual toner feed motor): the value of the motor drive signal voltage is not in the specified range for a specified time.

### The DC controller detects a failure by monitoring a part related to the motor:

The DC controller determines if a motor has failed and notifies the formatter when it encounters the following conditions:

- Developing disengagement motor: A specified signal is not detected from the developing disengagement sensor during a developing assembly operation.
- Lifter motor: The cassette media stack surface sensor does not detect the media surface within a specified time period after the lifter motor starts.
- Scanner motor: The scanner motor does not reach a specified speed within a specified period after the scanner assembly starts.
- A specified beam-detect (BD) interval is not detected during a print operation.

## Fans

The product has eight fans for preventing the temperature from rising in the product.

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

**Table 1-8 Fans**

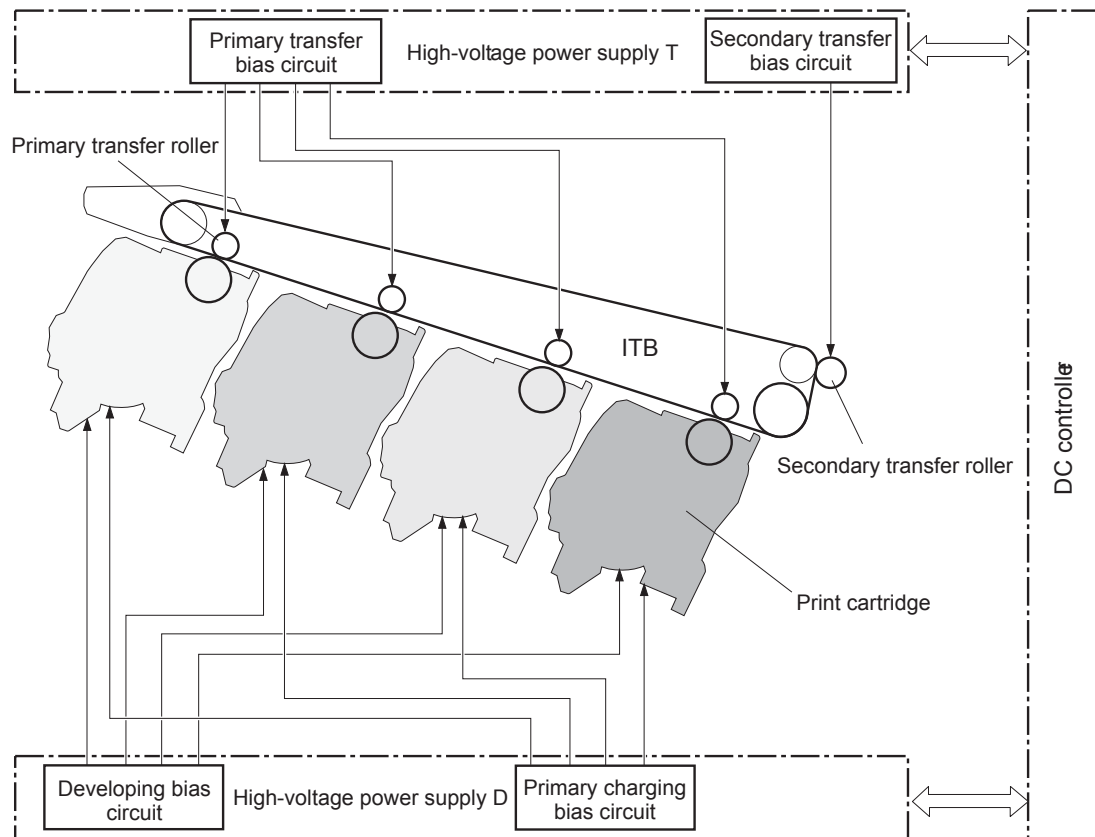
Abbreviation	Name	Cooling area	Type	Speed
FM1	Power supply fan	Around the power supply unit	Intake	Full/half
	Low-voltage power supply fan			
FM2	Cartridge fan	Around the cartridges	Intake	Full/half
FM3	Delivery fan (M651 only)	Around the delivery assembly	Exhaust	Full/half
	Exhaust fan 2 (M680 only)	Around the delivery assembly	Exhaust	Full/half
FM4	Exhaust fan 1	Around the cartridge	Exhaust	Full/half

## High-voltage power supply

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

- Primary-charging roller (in the cartridge)
- Developing roller (in the cartridge)
- Primary-transfer roller
- Secondary-transfer roller

**Figure 1-5** High-voltage power supply circuits



The high-voltage power supply contains several separate circuits.

**Table 1-9** High-voltage power supply circuits

Circuit	Description
Primary-charging-bias generation	The primary charging bias negatively charges the surface of the photosensitive drum to prepare for image formation. The primary-charging-bias circuit in the high-voltage power supply generates the biases for each color.
Developing-bias generation	The developing bias adheres toner to an electrostatic latent image formed on the photosensitive drum. The developing-bias circuit in the high-voltage power supply generates the biases for each color.

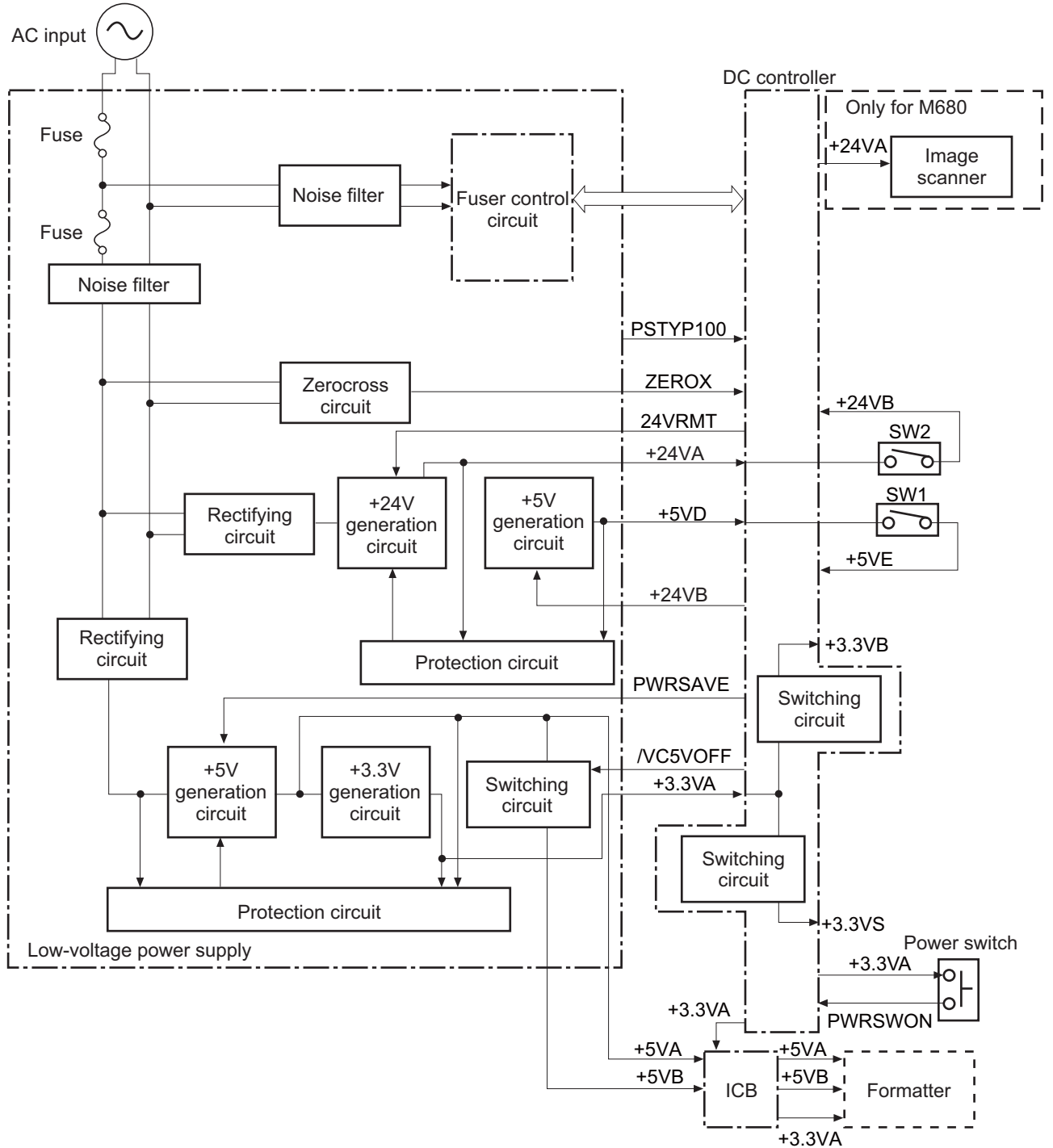
**Table 1-9 High-voltage power supply circuits (continued)**

<b>Circuit</b>	<b>Description</b>
Primary-transfer-bias generation	The primary transfer bias transfers the toner from each photosensitive drum onto the ITB. The primary transfer bias circuit in the high-voltage power supply generates the biases for each color.
Secondary-transfer-bias generation	The secondary transfer bias transfers the toner image from the ITB onto the paper. The secondary transfer bias circuit in the high-voltage power supply generates the bias. The reversed bias transfers residual toner on the secondary transfer roller back to the ITB. The residual toner on the ITB is deposited in the toner collection box.

## Low-voltage power supply

The low-voltage power-supply (LVPS) circuit converts the AC power from the wall receptacle into the DC voltage that the product components use. The product has two low-voltage power-supplies for 110 Volt or 220 Volt input.

**Figure 1-6** Low-voltage power-supply circuit



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



**Table 1-10** Converted DC voltages

Main DC voltage	Sub-voltage	Behavior
+24 V	+24 VA	Stopped during inactive OFF, active OFF, or Sleep mode
	+24 VB	Stopped during inactive OFF, active OFF, or Sleep mode Interrupted when the right door or the front door open (SW2)
+5 V	+5 VA	Constantly supplied
	+5 VB	Stopped during inactive OFF
	+5 VD	Stopped during inactive OFF, active OFF, or Sleep mode Interrupted when the right door or the front door open (SW1, SW2)
+3.3 V	+3.3 VA	Constantly supplied
	+3.3 VB	Stopped during inactive OFF or active OFF
	+3.3 VS	Stopped during inactive OFF

### Over-current/over-voltage protection

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

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

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

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

### Safety

For personal safety, the product interrupts +24VB, +5VD, and +5VE power when the interlock switch is turned off. Accordingly, the DC voltage to the following loads stops.

- Fuser motor
- Cassette lifter motor
- ITB motor
- Developer alienation motor
- Residual toner feed motor
- Duplex switch back motor

- T1 alienation solenoid
- Duplex switch back solenoid
- MP tray (Tray 1) pickup solenoid
- Cassette pickup solenoid
- Duplex re-pickup clutch
- High-voltage power supply
- Cartridge fan
- Exhaust fan
- Laser/BD PCA

The remote switch control circuit turns on or off the product power so that the AC power flows even the power switch is turned off. Unplug the power cord before disassembling the product.

## Function

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

**Table 1-11 Low-voltage power supply functions**

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

## Voltage detection

The product detects the power supply voltage that is connected to the product. The DC controller monitors the POWER SUPPLY VOLTAGE (PSTYP100) signal and detects power supply voltage, whether 100 V or 200 V, to control the fuser operation.

## Sleep (power save) mode

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

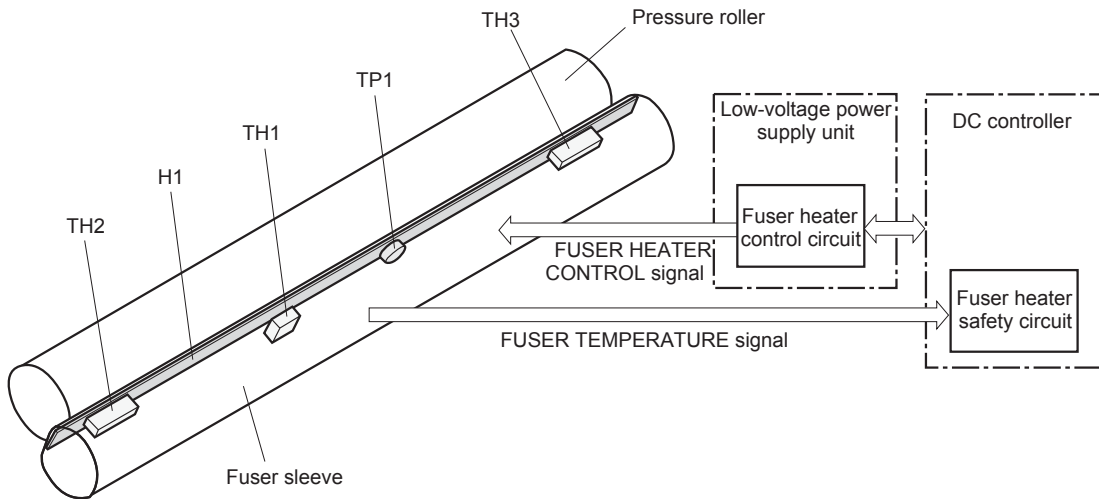
### Low-voltage power supply failure

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

### Fuser control

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

**Figure 1-7** Fuser components



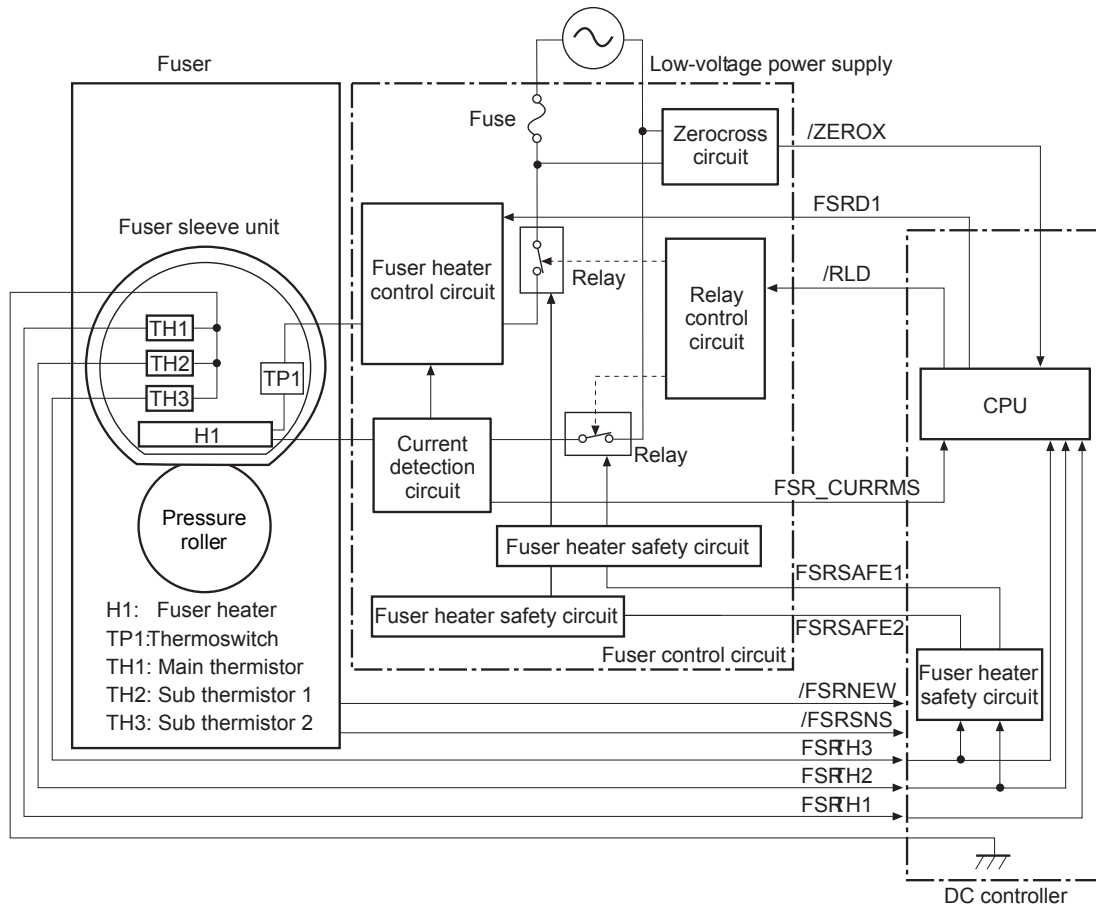
**Table 1-12** Fuser components

Type of component	Abbreviation	Name	Function
Heaters	H1	Fuser heater	Heats the fuser sleeve.
Thermistors (Contact type)	TH1	Main thermistor	Detects the center temperature of the fuser sleeve.
	TH2	Sub thermistor 1	Detects the temperature at one end of the fuser heater.
	TH3	Sub thermistor 2	
Thermoswitches (Contact type)	TP1	For the fuser heater	Opens in the event of high temperature fault

## Fuser temperature control

The fuser temperature control maintains the target surface temperature of the fuser sleeve.

**Figure 1-8** Fuser temperature-control circuit



## Fuser sleeve temperature protection

The fuser heater controls the temperature of the fuser sleeve. The DC controller detects the center area temperature by monitoring the main thermistor. The DC controller controls the FIXING HEATER CONTROL (FSRD1) signal, so that the fuser sleeve remains at the targeted temperature.

- **Protective function:** The protective function detects rising temperatures in the fuser and interrupts power to the fuser heater. The following four protective components prevent the fuser sleeve and pressure roller from excessive rising temperature:
  - DC controller
  - Fuser heater safety circuit
  - Current detection circuit
  - Thermoswitch
- **DC controller:** The DC controller monitors the detected temperature of the main thermistor and sub thermistors. The DC controller deactivates the FIXING HEATER CONTROL signal and releases the relay to interrupt power supply to the fuser heater under the following conditions:

- TH1: 230° C (446° F) or higher
- TH2: 285° C (545° F) or higher
- TH3: 285° C (545° F) or higher
- **Fuser-heater safety circuit:** The fuser heater safety circuit monitors the detected temperature of the sub thermistors. The fuser heater safety circuit releases the relay to interrupt power supply to the fuser heater under the following conditions:
  - TH2: 290° C (554° F) or higher
  - TH3: 290° C (554° F) or higher
- **Current-detection protection circuit:** The current detection circuit monitors the current flowing through the fuser heater control circuit. The current detection circuit deactivates the fuser heater control circuit to interrupt power supply to the fuser heater when it detects the current higher than a specified value.
- **Thermoswitch:** If the temperature in the heaters is abnormally high, and the temperature in the thermoswitches exceeds a specified value, the contact to the thermoswitch breaks. Following are the thresholds for each thermoswitch:
  - TP1: 270° C (518° F) or higher



**NOTE:** When the thermoswitches reach this temperature, the temperature on the fuser rollers is about 320° C (608° F).

## Failure detection

The DC controller determines a fuser unit failure, deactivates the FIXING HEATER CONTROL signal, releases the relay to interrupt power supply to the fuser heater, and notifies the formatter of a failure status when it encounters any of following conditions:

- **Abnormally high temperatures:** Temperatures are too high for any of the following components, at any time:
  - TH1: 230° C (446° F) or higher
  - TH2: 285° C (545° F) or higher
  - TH3: 285° C (545° F) or higher
- **Abnormally low temperatures:** Temperatures are too low at any of the following components after the product has initialized.
  - TH1: 120° C (248° F) or lower
  - TP2 or TP3: 100° C (212° F) or lower
- **Abnormal temperature rise:** The DC controller determines an abnormal temperature rise if the detected temperature of TH1 does not rise 2° C within a specified time after the fuser motor is turned on or if the detected temperature of the thermistors does not rise to a specified temperature for a specified time after the fuser motor is turned on.
- **Thermistor open:** The DC controller determines a thermistor open if:

- The detected temperature of TH1 is kept at 12° C (53° F) or lower for a specified time after the fuser motor is turned on.
- The detected temperature of TH2 is kept at 4° C (39° F) or lower for a specified time.
- The detected temperature of TH3 is kept at 4° C (39° F) or lower for a specified time.
- **Drive-circuit failure:** The DC controller determines a drive-circuit failure:
  - If the detected power supply frequency is out of a specified range when the product is turned on or during the standby period
  - If the current detection circuit detects a current value that is out of a specified range
- **Fuser discrepancy:** The DC controller determines a fuser type mismatch when it detects an unexpected power supply voltage.

### Fuser unit identification

The product detects the type and presence of the fuser. The DC controller detects whether the fuser is installed and its type by monitoring the FIXING UNIT IDENTIFICATION (FSRSNS) signal when the product is turned on or when the right door is closed. The DC controller determines a low-voltage power supply failure and notifies the formatter when it fails to detect the type or presence of the fuser.



**NOTE:** This product detects if the correct fuser for the product is installed. The fuser from a different product can be installed in this product, but it will not correctly function.

### Fuser unit life detection

The product detects the remaining life of a fuser. The DC controller recognizes a new fuser from the NEW FIXING UNIT (/FSRNEW) signal. The DC controller determines a fuser's end of life and then notifies the formatter when a specified number of pages has been printed after the fuser was replaced.



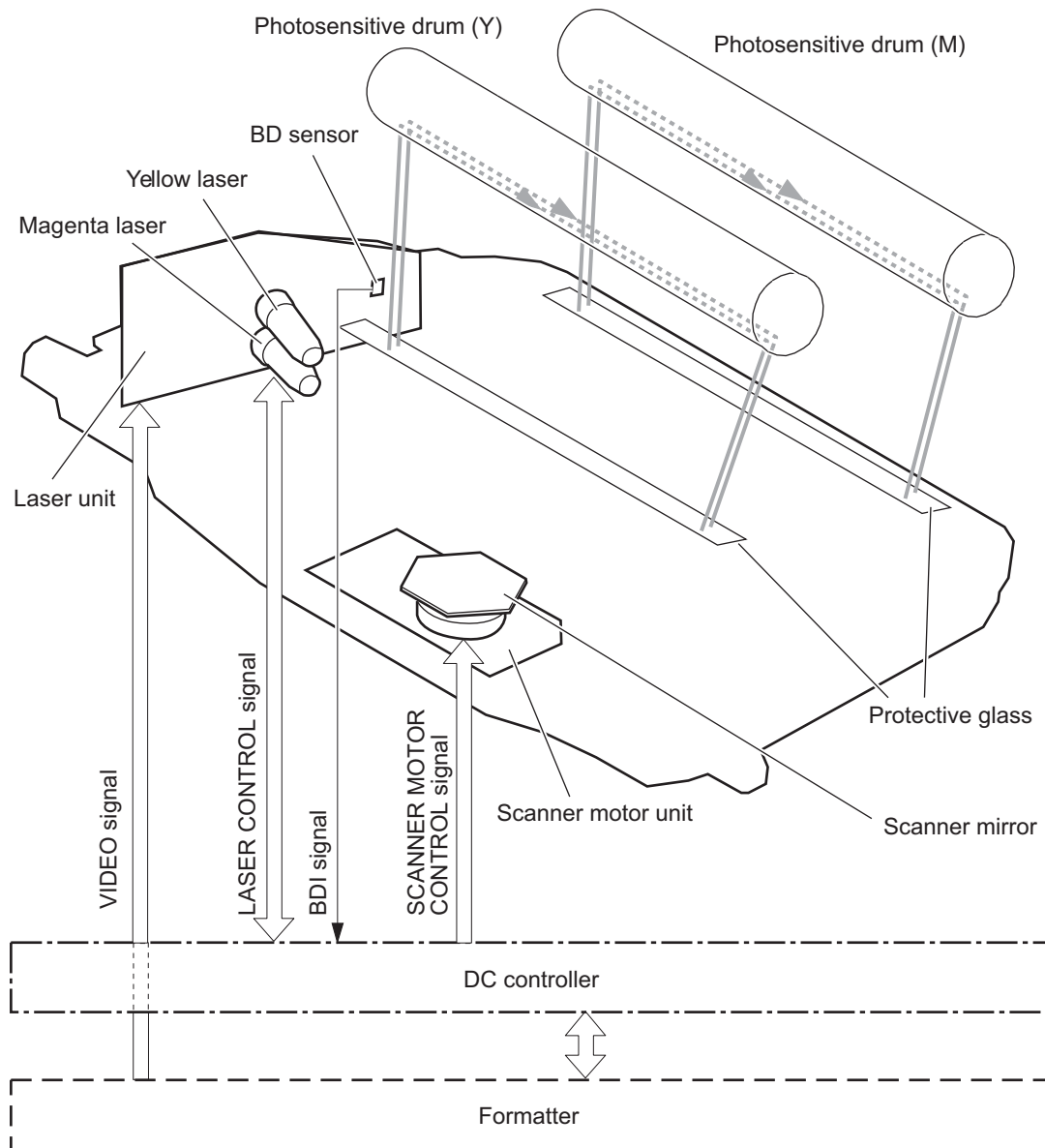
**NOTE:** The product detects a new fuser using a fusible link that breaks down after 100 pages of printing. If a new fuser is installed for troubleshooting purposes, be sure to remove it before printing 100 pages.

## Laser/scanner system

The laser/scanner system forms the latent electrostatic image on the photosensitive drums according to the VIDEO signals sent from the formatter. The product has two laser/scanners: one for yellow and magenta and the other for cyan and black.

The main components of the laser/scanner system are the laser unit and the scanner motor unit, which are controlled by the signals sent from the DC controller.

**Figure 1-9** Laser/scanner system



## Laser/scanner failure

The DC controller determines that a laser/scanner has failed when any of the following conditions occurs:


- **Laser failure:** The detected laser intensity does not match a specified value when the product initializes.
- **Scanner motor startup failure:** The scanner motor does not reach a specified rotation within a specified period from when the laser scanner starts driving.
- **Scanner-motor abnormal rotation:** When a specified BD interval is not detected during a print operation, a BD error is determined. If the BD interval does not recover within a specified period after the BD error occurs, the product determines a scanner motor abnormal rotation.

The laser/scanner system does not have a mechanical laser shutter. For safety reason, the product has a interlock switch. The interlock switch is turned off to interrupt +5 V power supply to the laser/scanner system, when the front or right door is open.



## Protective-glass cleaners

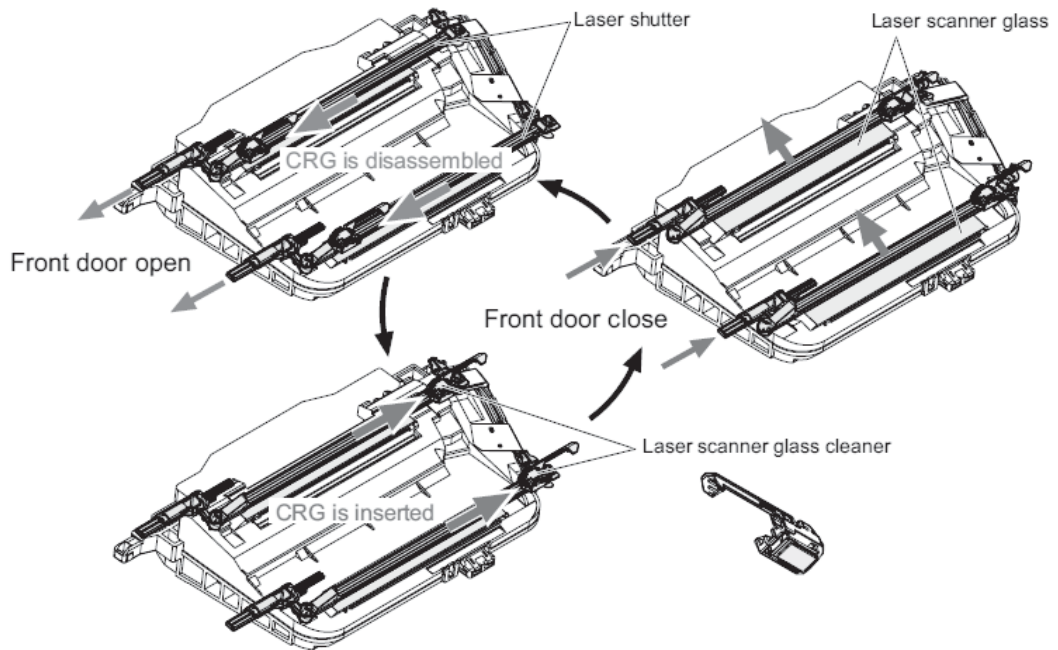
Each laser/scanner has two openings that allow the laser beam to pass to the surface of the photosensitive drum. These openings are covered by protective glass. When the protective glass gets dirty (for example, by paper dust or toner) a protective-glass cleaner (PGC) cleans them.

 **NOTE:** When a glass is dirty, streaks appear on the printed page in the process direction.

The PGC is a cleaning pad that slides along the laser shutter. With the front door open, the laser shutter is positioned over the glass. As a toner cartridge is inserted, the cleaning pad is pushed down and wipes the glass. When the front door is closed after cartridge insertion, the laser shutter (and PGC) move away from the glass that allows the laser beam to pass through the glass.

When the front door is opened, the laser shutter and PGC move back into position over the glass. When the cartridge is pulled out, the cleaning pad is returned to its starting position at the front of the cartridge opening.

**Figure 1-10** Protective-glass cleaners (PGCs)



# Image-formation system

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

- Toner cartridges
- ITB
- Secondary transfer roller
- Fuser
- Laser/scanner units

The DC controller controls the laser scanner unit and each of the high-voltage power supplies to form the toner image on the photosensitive drum surface, according to the VIDEO signals. The toner image is then transferred to the print-media and fused.

**Figure 1-11** Image-formation system

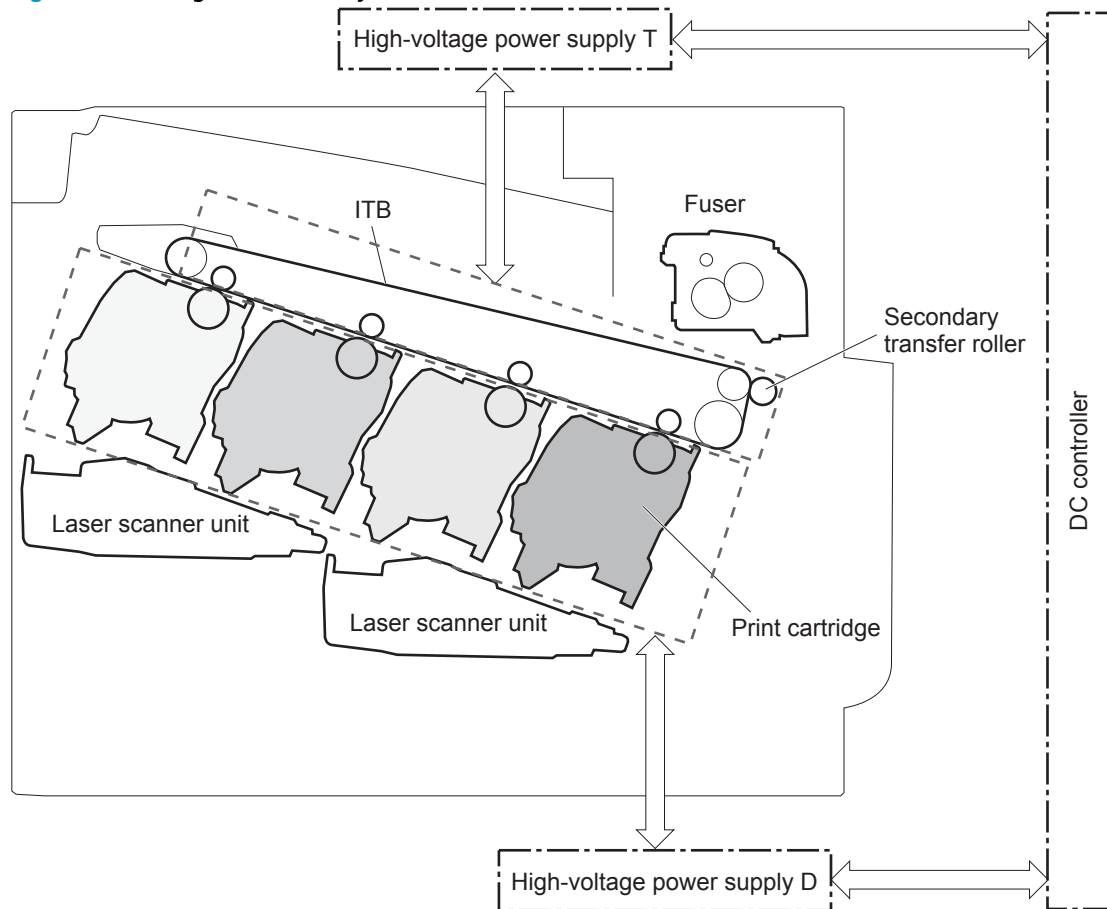
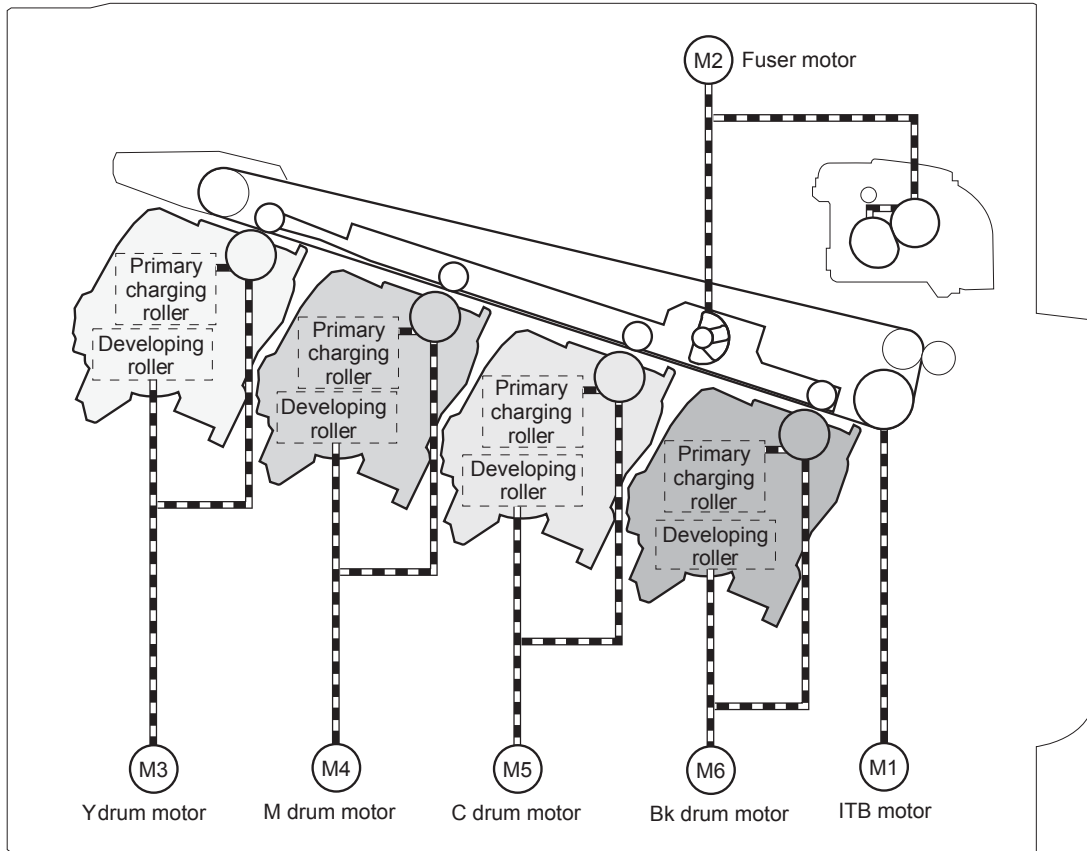


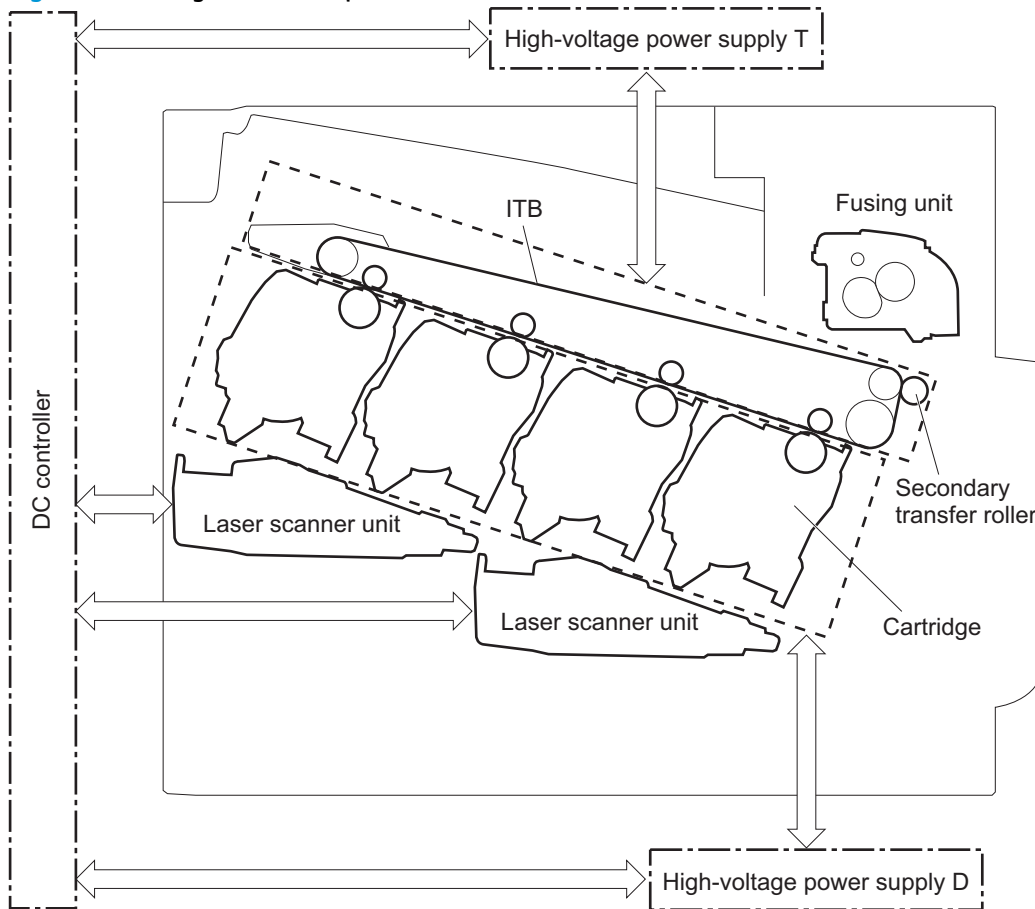
Figure 1-12 Image-formation drive system



## Image formation process

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

**Figure 1-13** Image-formation process



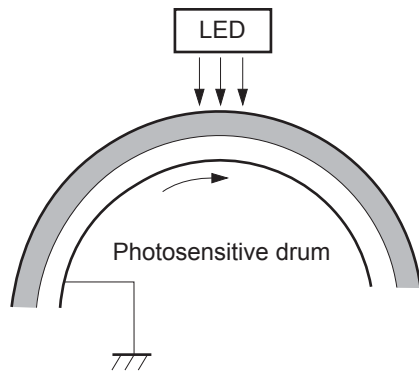
**Table 1-13** Image formation process

Functional block	Steps	Description
Latent image formation	1. Pre-exposure	An invisible latent image forms on the surface of the photosensitive drums.
	2. Primary charging	
	3. Laser-beam exposure	
Development	4. Development	Toner adheres to the electrostatic latent image on the photosensitive drums.
Transfer	5. Primary transfer	The toner image transfers to the ITB and later to the paper.
	6. Secondary transfer	
	7. Separation	
Fusing	8. Fusing	The toner fuses to the paper to make a permanent image.
ITB cleaning	9. ITB cleaning	Residual toner is removed from the ITB.
Drum cleaning	10. Drum cleaning	Residual toner is removed from the photosensitive drums.

## Step 1: Pre-exposure

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

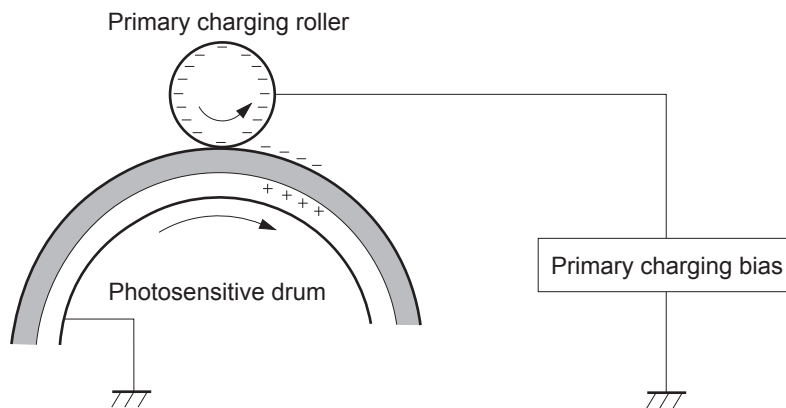
**Figure 1-14** Pre-exposure



## Step 2: Primary charging

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

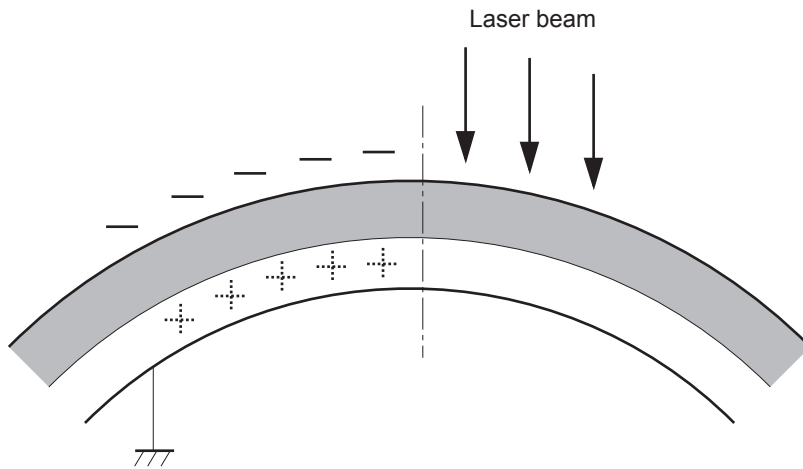
**Figure 1-15** Primary charging



### Step 3: Laser-beam exposure

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

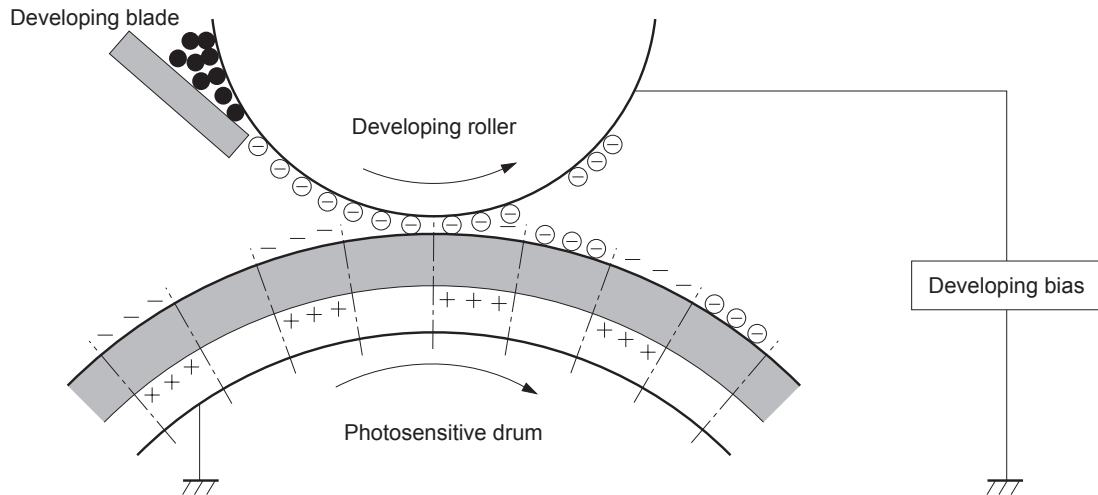
Figure 1-16 Laser-beam exposure



### Step 4: Development

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

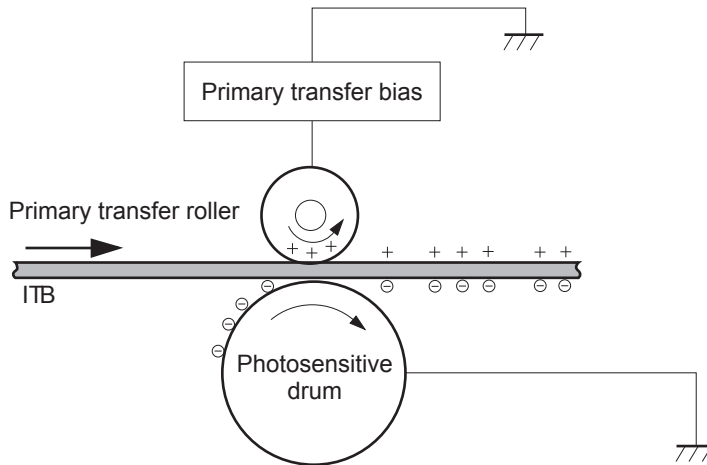
Figure 1-17 Development



## Step 5: Primary transfer

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

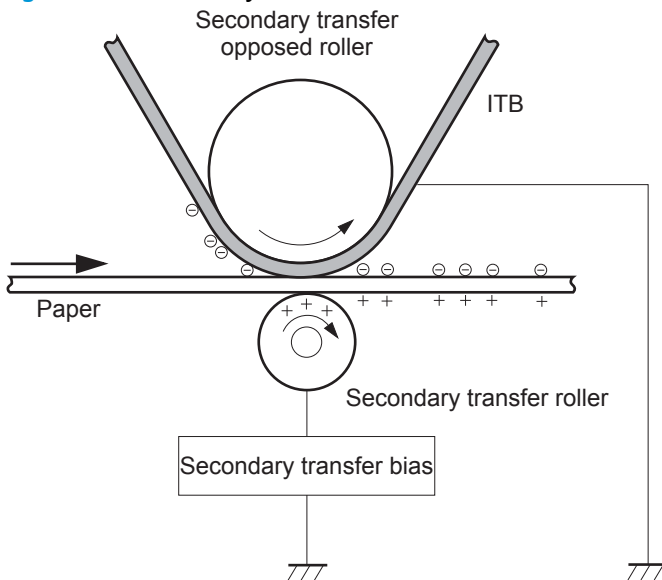
**Figure 1-18** Primary transfer



## Step 6: Secondary transfer

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

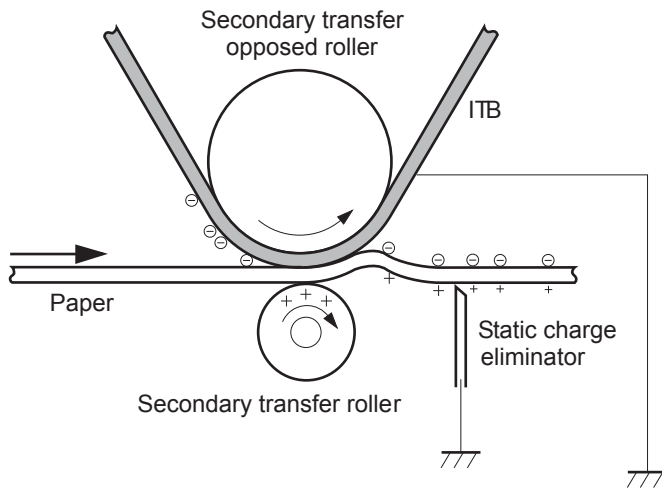
**Figure 1-19** Secondary transfer



## Step 7: Separation

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

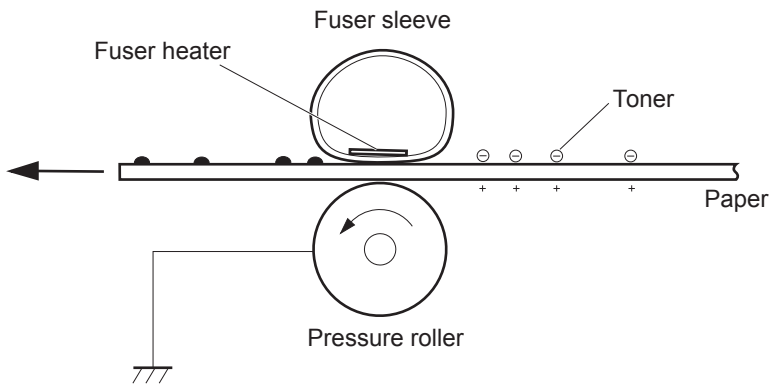
**Figure 1-20** Separation



## Step 8: Fusing

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

**Figure 1-21** Fusing



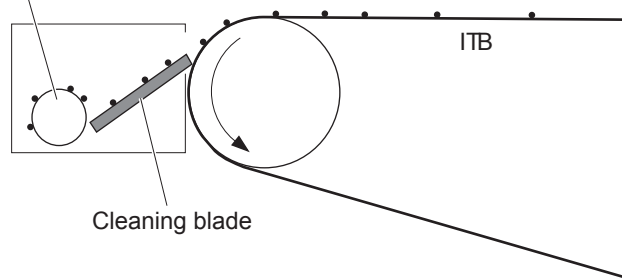


## Step 9: ITB cleaning

The cleaning blade scrapes the residual toner off the surface of the ITB. The residual toner feed screw deposits residual toner in the toner collection box.

**Figure 1-22** ITB cleaning

Residual toner feed screw

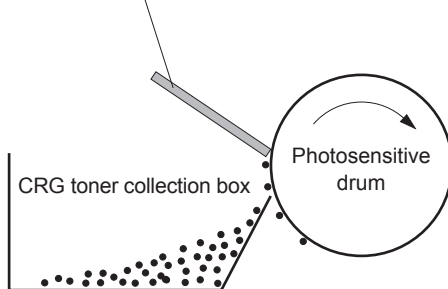


## Step 10: Drum cleaning

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

**Figure 1-23** Drum cleaning

Cleaning blade



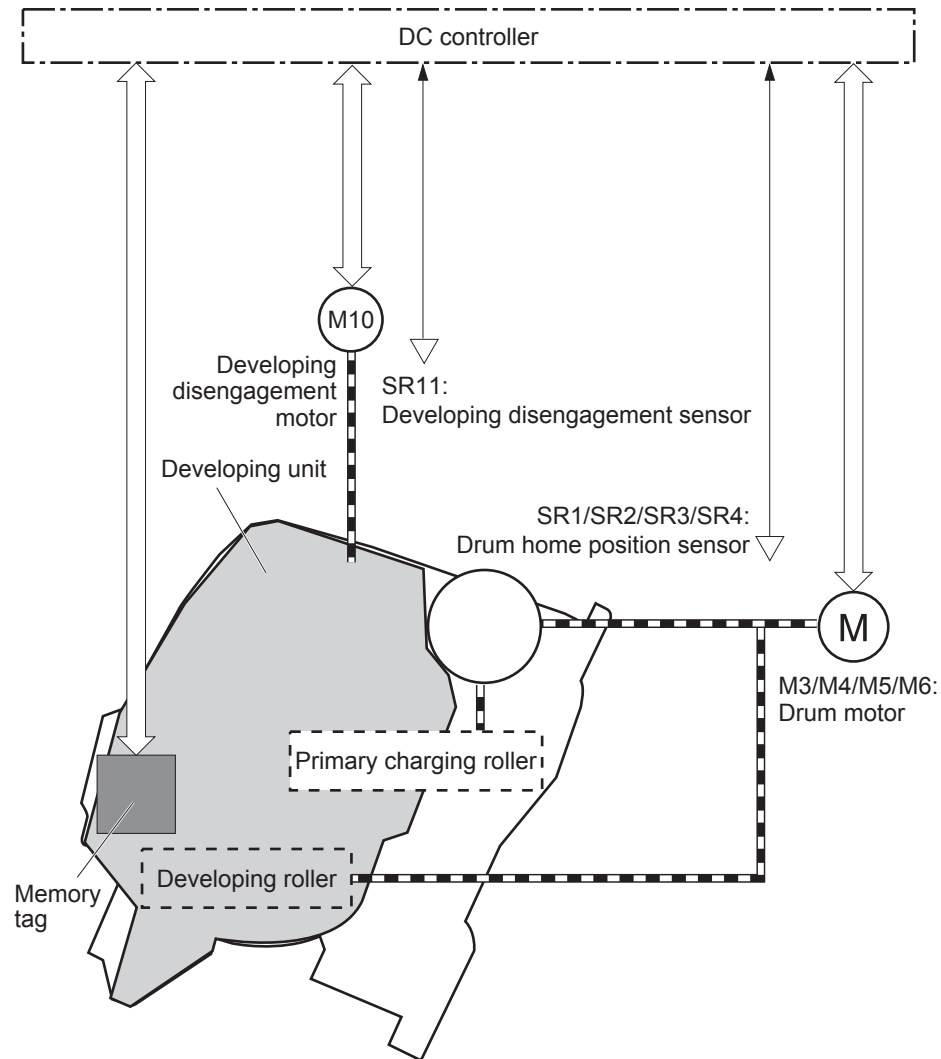
## Toner cartridges

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

- Photosensitive drum
- Developing unit
- Developing roller
- Primary-charging roller

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

**Figure 1-24** Toner cartridge system



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

## Memory tag

The memory tag is a non-volatile memory chip that stores information about the usage for the toner cartridge. The product reads and writes the data in the memory tag.

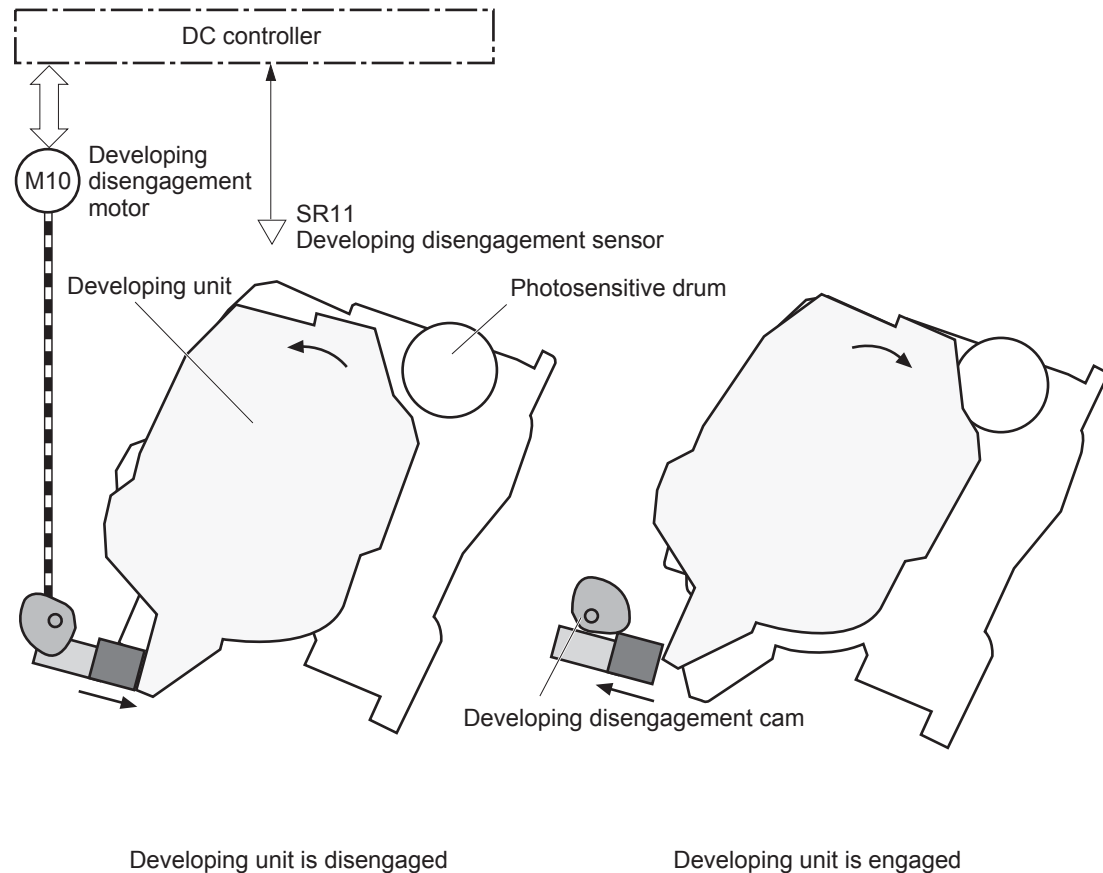
The DC controller determines a memory tag error and notifies the formatter when it fails to either read from or write to the memory tag.

- **Cartridge presence detection:** The DC controller detects the presence of the cartridges by monitoring the memory tag. The DC controller notifies the formatter when a cartridge is missing or installed in the incorrect slot.
- **Toner level detection:** The DC controller detects the remaining toner in a cartridge by the optical detection method and then notifies the formatter of the remaining toner level.
- **Cartridge life detection:** The DC controller detects the cartridge life by monitoring the total operating time or remaining toner level of the toner cartridge. The DC controller determines a cartridge end of life and notifies the formatter when total operating time of the cartridge reaches a specified time or the cartridge runs out of toner.

## Developing unit engagement and disengagement control

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

**Figure 1-25** Developing-roller engagement and disengagement control



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

- The drive of the developing disengagement motor rotates the developing 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 units engages with the drum.

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

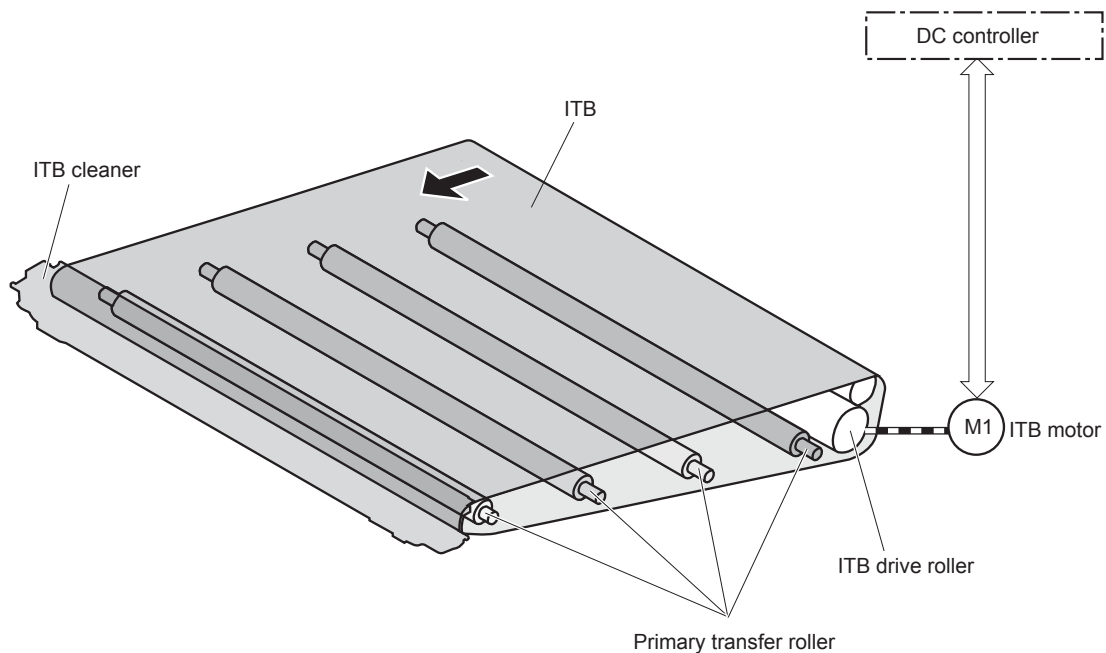
## Intermediate transfer belt (ITB) unit

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
- Primary-transfer roller
- ITB cleaner

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

**Figure 1-26** ITB unit



### Primary transfer roller engagement and disengagement control

The sequence of the primary-transfer roller engagement and disengagement control is as follows:

1. The fuser motor turns on the primary-transfer disengagement solenoid and rotates the primary-transfer roller disengagement cam.
2. As the cam rotates, the Y/M/C primary-transfer roller slide plate or the Bk primary-transfer roller slide plate moves to the right or left, which causes the primary-transfer roller to move up or down.
3. The ITB engages with or separates from the photosensitive drum depending on the movement of the primary-transfer rollers.

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

**Table 1-14 Primary-transfer roller engagement states**

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

The DC controller determines a primary-transfer roller disengagement failure and notifies the formatter when it does not detect a signal from the primary-transfer disengagement sensor even though the primary-transfer disengagement solenoid is turned on.

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

The DC controller detects whether the ITB unit is new by monitoring the new ITB unit sensor. The DC controller determines the ITB unit is at end of life and notifies the formatter when a specified number of pages are printed after the ITB unit is replaced. If swapping ITB units between two products for troubleshooting purposes, be sure to return the ITB units to their original products to maintain the correct life count.



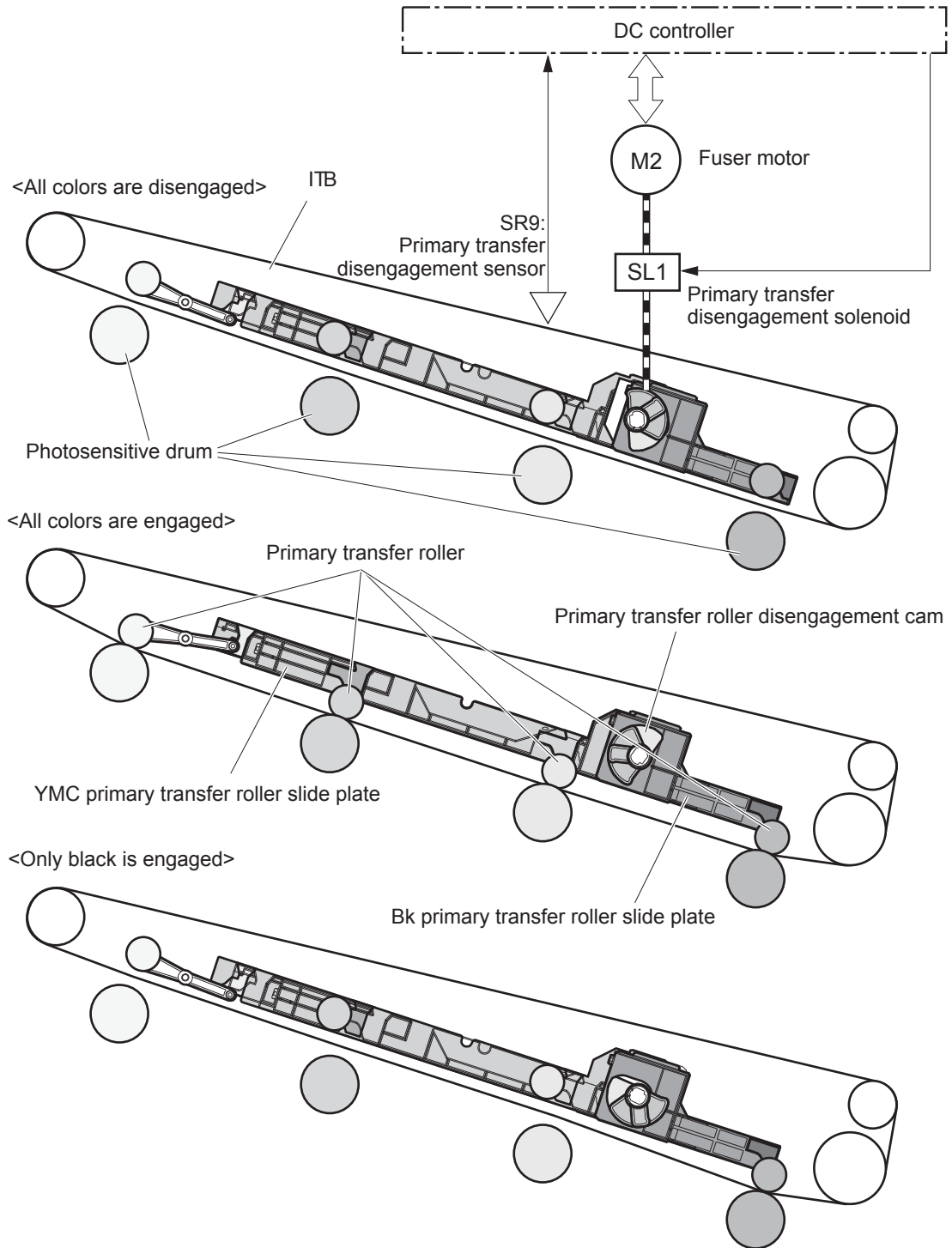
**NOTE:** A new ITB has a flag that causes the ITB life counter to be reset. When an ITB is installed in the product, it cannot be removed and used again as a new ITB.

The DC controller detects the presence of an ITB unit by monitoring the primary-transfer roller disengagement sensor. The DC controller turns on the primary-transfer disengagement solenoid for specified times during an initial rotation period when the following events occur:

- The product is turned on
- The product exits sleep mode
- The door is closed

The DC controller determines the absences of an ITB unit and notifies the formatter when it does not detect a specified signal from the new primary transfer-roller disengagement sensor.

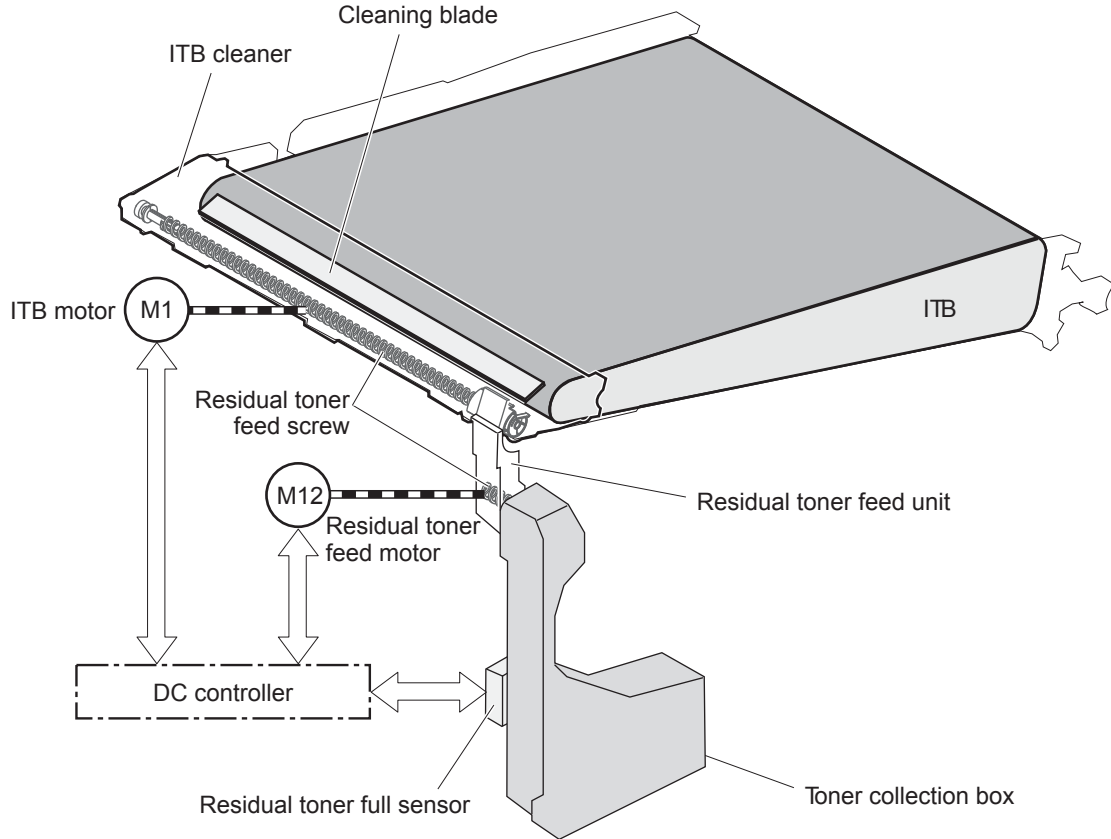
**Figure 1-27** Three states of primary-transfer roller engagement and disengagement



## ITB cleaning mechanism

The cleaning blade in the ITB cleaner scrapes the residual toner off the ITB surface. The residual toner feed screw deposits the residual toner to the residual toner feed unit. The ITB motor and the residual toner feed motor drive the screw. The DC control detects whether the toner collection box is full, using the residual-toner full sensor, and then notifies the formatter.

**Figure 1-28** ITB cleaning process



## Calibration

The product calibrates itself to maintain excellent print quality. Calibration corrects color-misregistration and color-density variation.

During calibration, the product places a specific pattern of toner on the surface of the ITB. Sensors at the end of the ITB read the toner pattern to determine if adjustments are necessary.



**NOTE:** The product performs a drum-speed adjustment (DSA) during the full calibration operation. The DSA compensates for variations between each drum and the speed of the ITB surface.



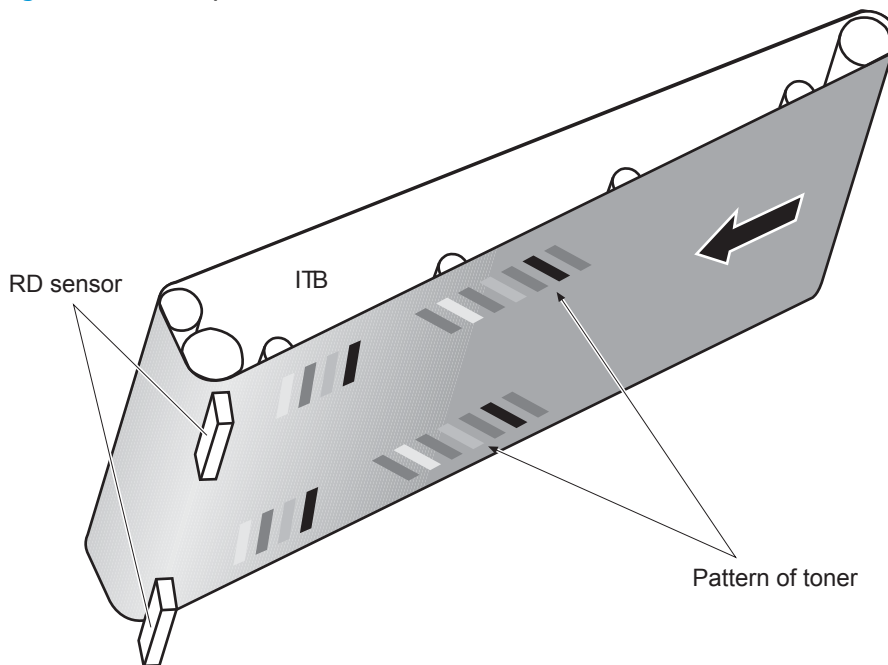
## Color-misregistration control

Internal variations in the laser/scanners can cause the toner images to become misaligned. The color-misregistration control corrects the following problems:

- Horizontal scanning start position
- Horizontal scanning magnification
- Vertical scanning start position

The DC controller forms a pattern of toner on the surface of the ITB and measures a misaligned length with the RD sensor.

**Figure 1-29** Toner patterns for calibration



The DC controller signals the formatter to perform the color-misregistration control when one of the following events occur:

- A cartridge or the ITB is replaced.
- A specified number of pages have printed.
- The formatter sends a command.

The DC controller determines an RD sensor failure and notifies the formatter if it detects data from the RD sensor that is not in a specified range, when the product is turned on or when the color-misregistration control starts.

## Image stabilization control



**NOTE:** The product contains a thermal sensor, located within the TCU level detection sensor, which monitors the temperature in the cartridge area and uses this information to make adjustments during CPR control.

Environmental changes or deterioration of the photosensitive drums and toner can cause variations in the image density. The image-stabilization control reduces these fluctuations.

**Table 1-15 Image-stabilization controls**

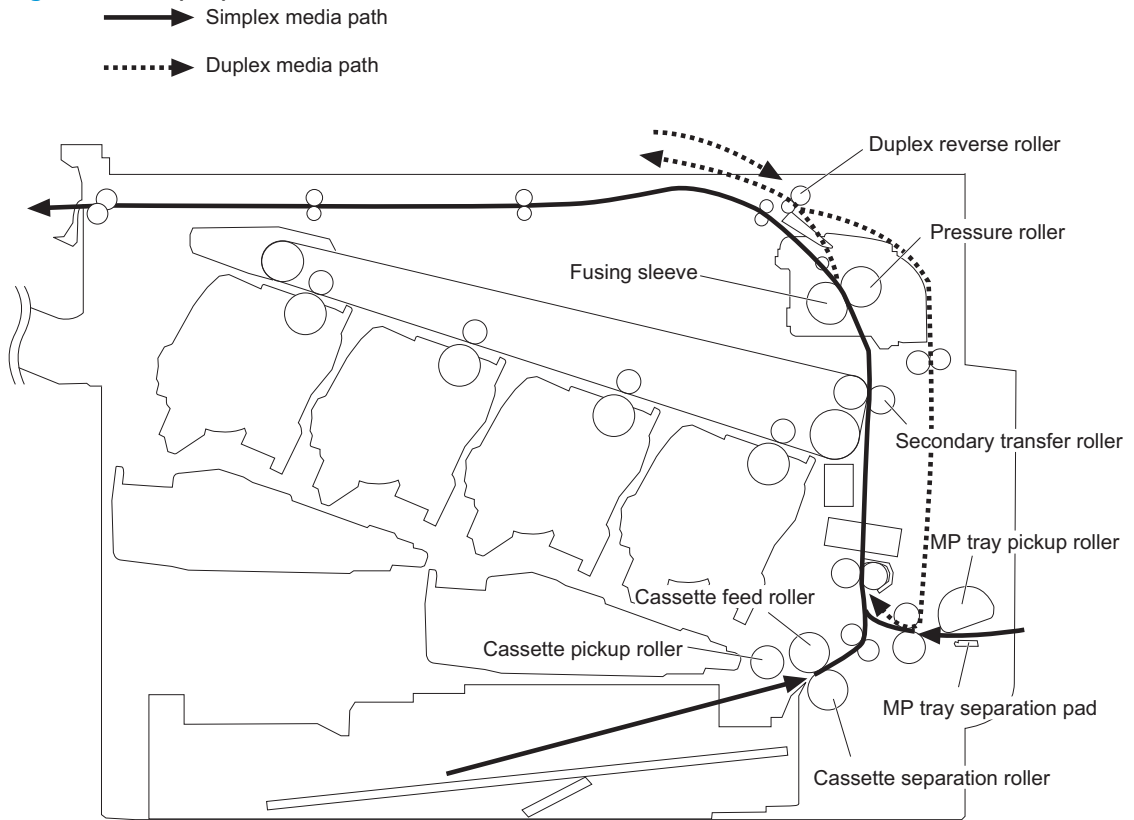
Image density control (DMAX)	<p>This control corrects variations in image density related to deterioration of the photosensitive drum or the toner. The DC controller adjusts the high-voltage biases to correct the problem under the following conditions:</p> <p>The image-stabilization control calibrates each high-voltage bias to stabilize the fluctuations in image density caused by deterioration of the photosensitive drums or toner or because of environmental changes. The DC controller determines the product's environment based on the surrounding temperature and humidity data from the environment sensor. The DC controller calibrates the biases according to the detected environment and usage condition of the toner cartridge to obtain an appropriate image. The DC controller determines an environment sensor failure and notifies the formatter when it detects environmental data from the environment sensor with out of specified value. The DC controller commands the formatter to control the image density under the following conditions</p> <ul style="list-style-type: none"><li>• The temperature of the main thermistor is too low when the product is turned on</li><li>• A toner cartridge or the ITB is replaced</li><li>• A specified number of pages have printed</li><li>• After a specific period of the completion of a previous DMAX</li><li>• The environment changes for a specified condition after a previous DMAX</li></ul>
Image halftone control (DHALF)	<p>The formatter performs this control to calibrate the halftone, based on the halftone-density measurements, under the following conditions:</p> <ul style="list-style-type: none"><li>• The formatter sends a command</li><li>• DMAX is completed</li></ul> <p>The DC controller determines an RD sensor failure and notifies the formatter if it detects data from the RD sensor out of a specified range.</p>

The DC controller determines a RD sensor failure and notifies the formatter if it detects an out-of-specified-data value from the RD sensor when the product is turned on or when the color misregistration control starts.

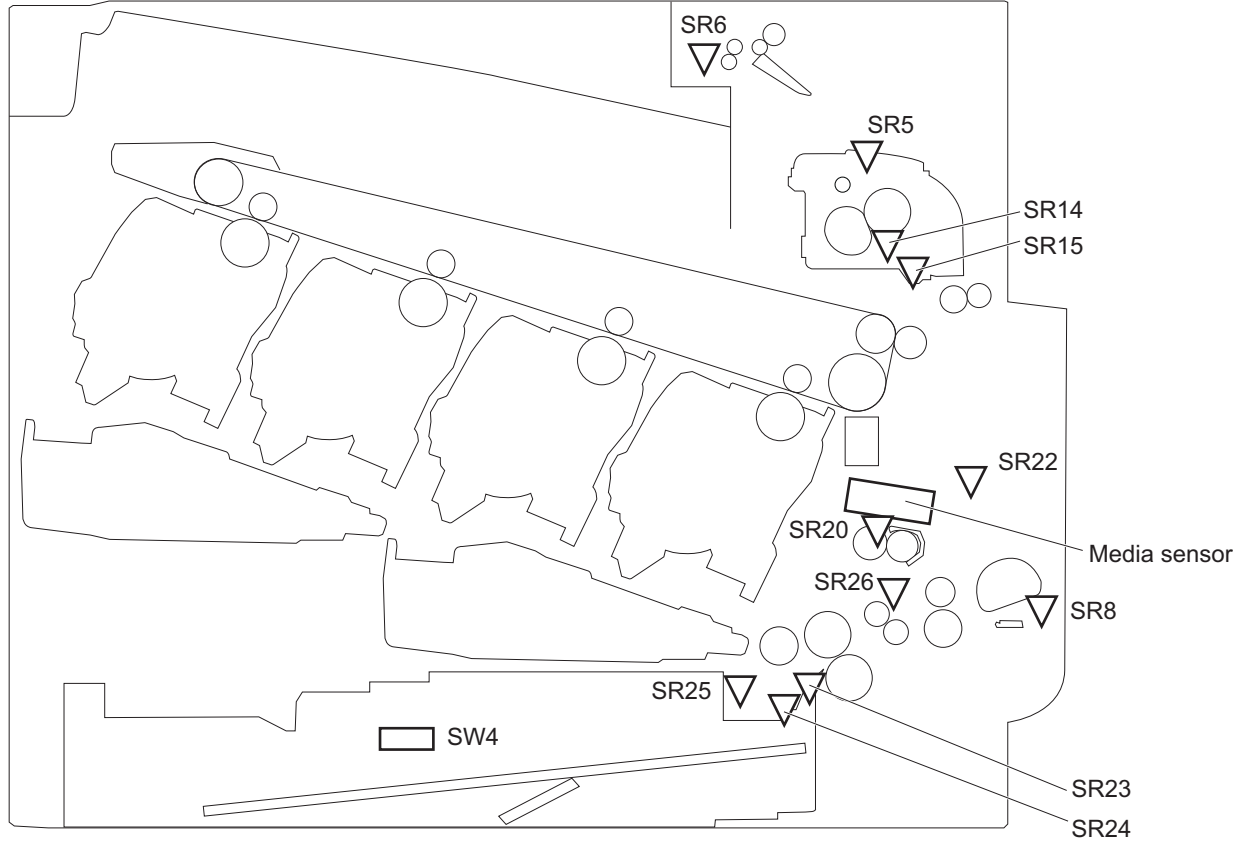
# Pickup, feed, and delivery system

The pickup, feed, and delivery system uses a series of rollers to move the paper through the product.

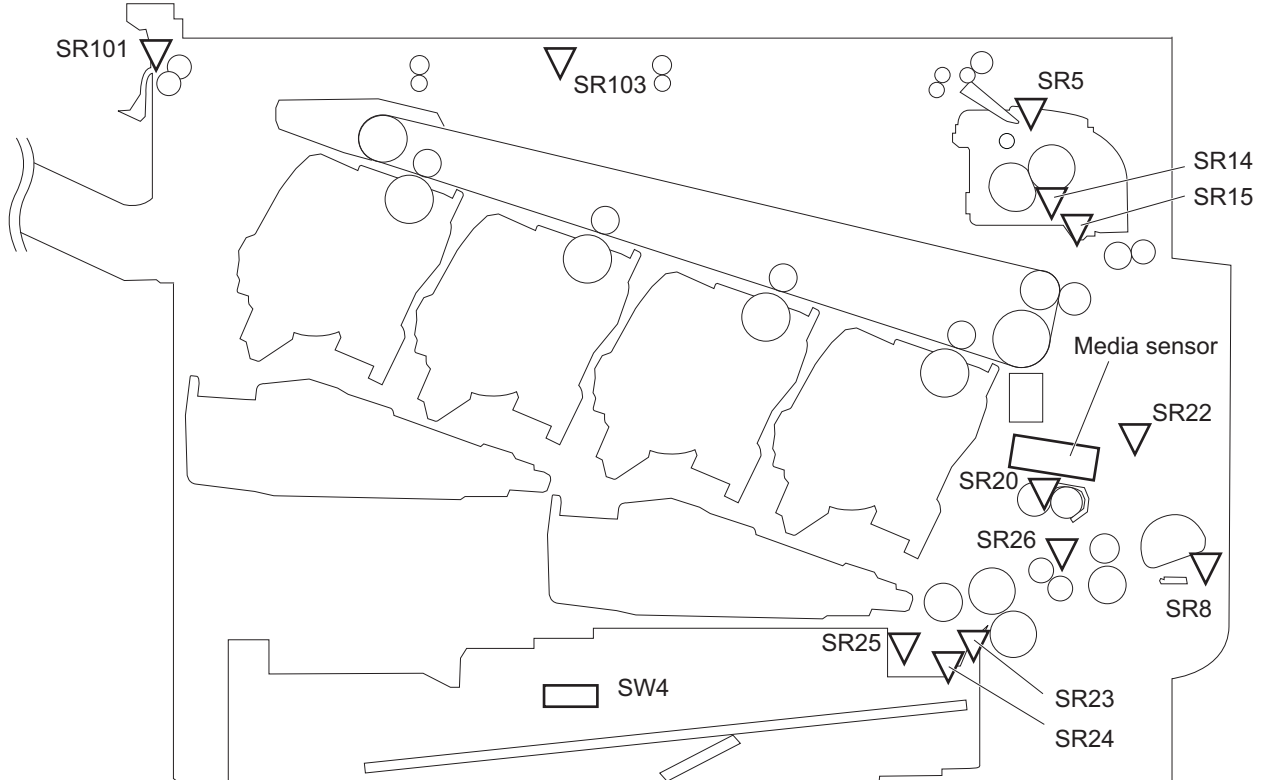
**Figure 1-30** Paper path



**Figure 1-31** Switches and sensors for the pickup, feed, and delivery system (M651 only)



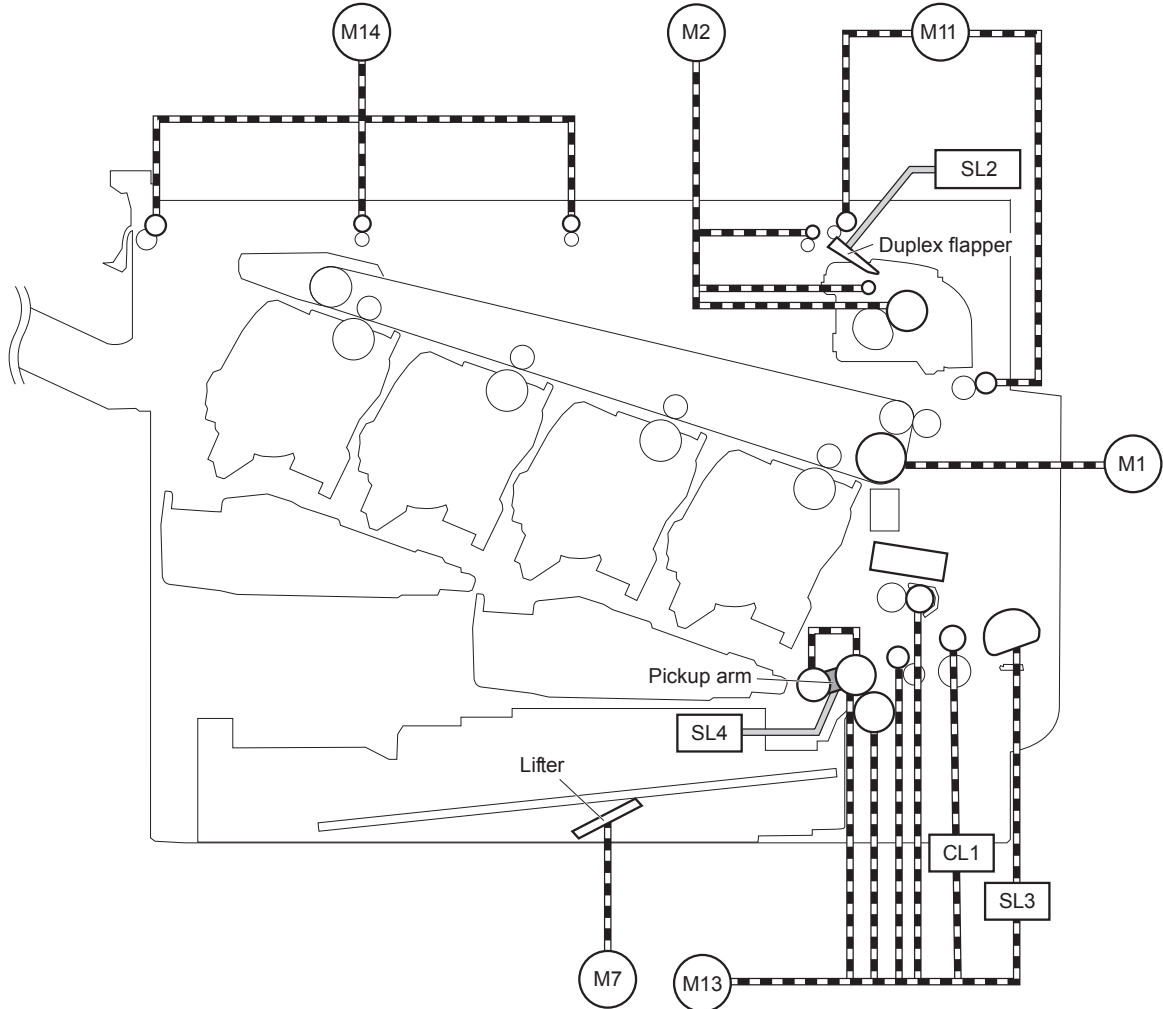
**Figure 1-32** Switches and sensors for the pickup, feed, and delivery system (M680 only)



**Table 1-16 Switches and sensors for the pickup, feed, and delivery system**

<b>Abbreviation</b>	<b>Component</b>
SW4	Cassette media size switch
SR5	Fuser delivery sensor
SR6	Face-down tray media-full sensor (M651 only)
SR8	MP tray media-presence sensor
SR14	Loop sensor 1
SR15	Loop sensor 2
SR20	Top of page (TOP) sensor
SR22	Duplex re-pickup sensor
SR23	Cassette media-surface sensor 1
SR24	Cassette media-surface sensor 2
SR25	Cassette media-presence sensor
SR26	Pre-registration media-feed sensor
SR101	IPTU media-full sensor (M680 only)
SR103	IPTU media-feed sensor (M680 only)
	Media sensor

**Figure 1-33** Motors and solenoids for the pickup, feed, and delivery system



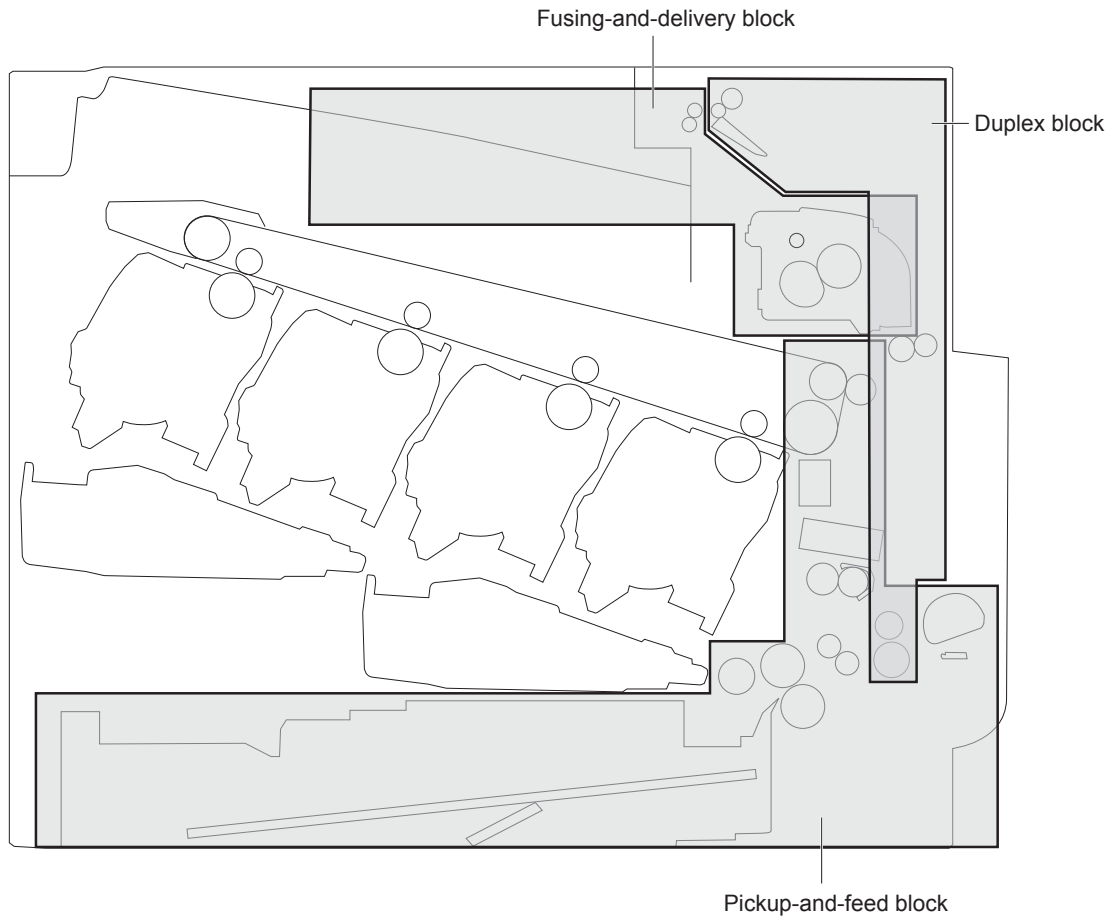
**Table 1-17** Motors and solenoids for the pickup, feed, and delivery system

Abbreviation	Component
M1	ITB motor
M2	Fuser motor
M7	Lifter motor
M11	Duplex reverse motor
M13	Pickup motor
M14	IPTU feed motor
CL1	Duplex re-pickup clutch
SL2	Duplex reverse solenoid
SL3	Multipurpose tray pickup solenoid
SL4	Cassette pickup solenoid
CL1	Duplex re-pick clutch

The pickup, feed, and delivery system is divided into the following three blocks:

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

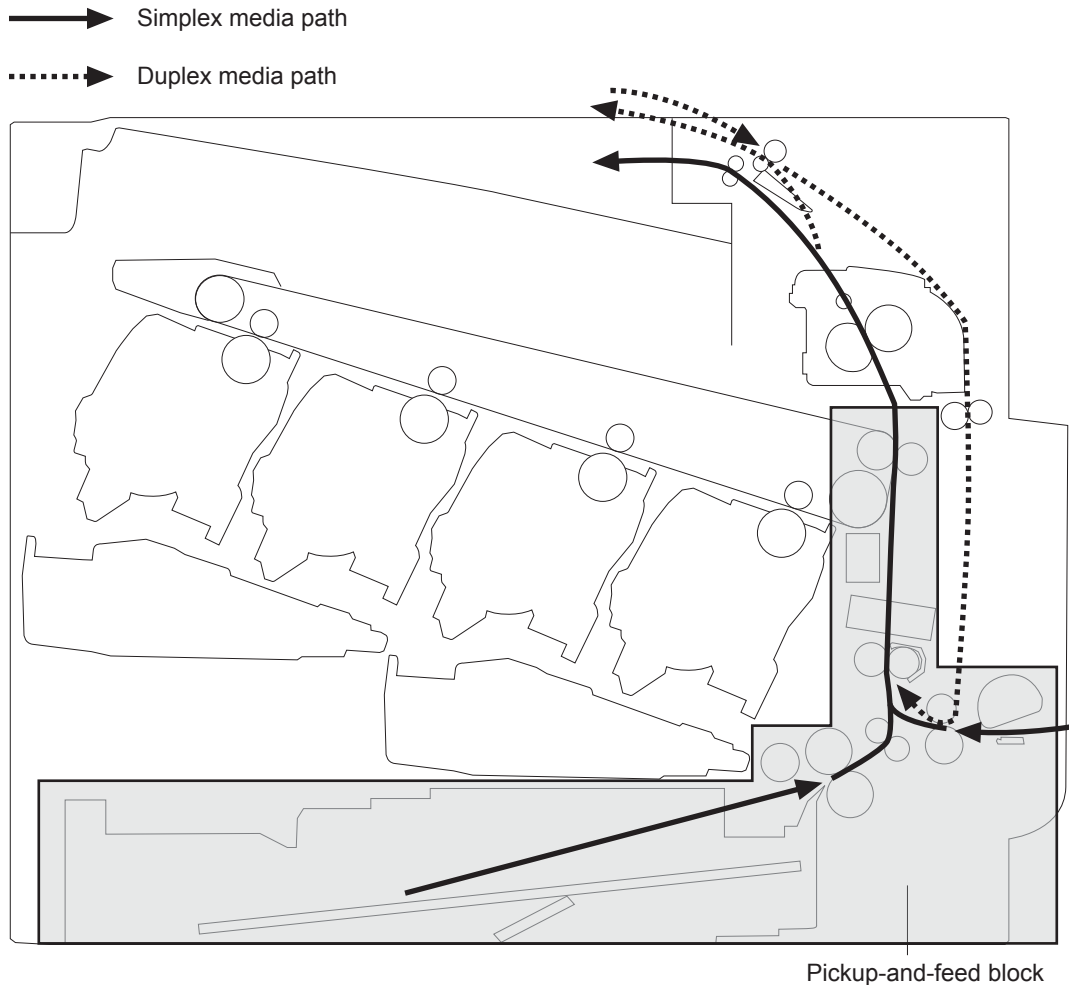
**Figure 1-34** Three main units of the pickup, feed, and delivery system



## Pickup-and-feed unit


The pickup-and-feed unit picks an individual sheet of paper from the multipurpose tray or the cassettes, carries it through the secondary-transfer unit, and feeds it into the fuser.

**Figure 1-35** Pickup-and-feed unit



## Cassette pickup

Following are the sequence of steps for the cassette-tray pickup operation.

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

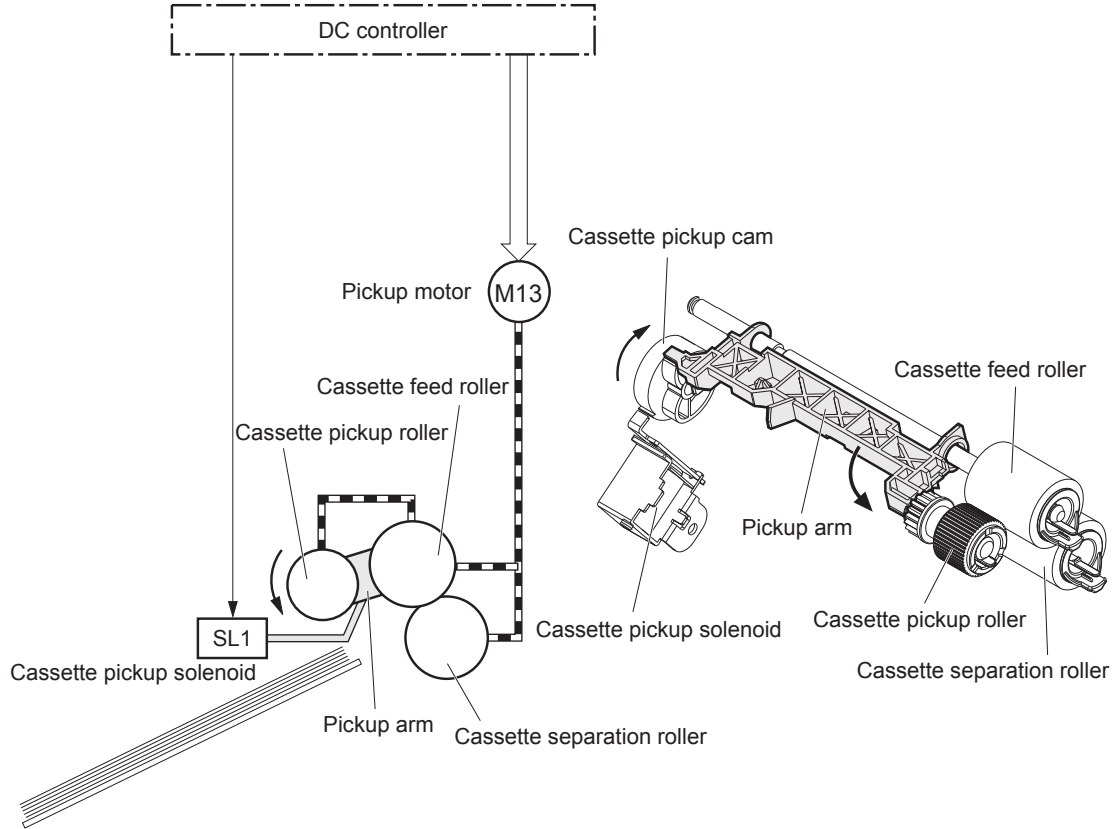
HP recommends using Tray 1 or Tray 2 if the product is experiencing excessive or reoccurring jams from trays other than Tray 1 and Tray 2, or for print jobs that require media other than 20lb plain paper.

1. The product is turned on or the cassette is inserted.
2. The cassette lift-up operation raises the lifting plate so paper can be picked up.
3. The pickup motor rotates when a print command is received from the formatter.



4. The cassette pickup roller, cassette feed roller, and cassette separation roller rotate.
5. The cassette pickup solenoid turns on at a specified time.
6. The cassette pickup cam rotates.
7. As the pickup arm lowers, the cassette pickup roller touches the surface of the paper stack.
8. One sheet of paper feeds into the product.

**Figure 1-36** Cassette-pickup mechanism



### Cassette-presence detection

The product detects the size of the paper loaded in the cassette and the presence of the cassette by monitoring the cassette media size switch. The DC controller notifies the formatter when it determines the absence of the cassette.

**Table 1-18** Cassette-presence detection

Paper size	Cassette media size switch		
	Top switch	Center switch	Bottom switch
Universal	ON	ON	ON
A5	OFF	OFF	ON
B5	OFF	ON	ON
Executive	ON	OFF	ON
Letter	OFF	ON	OFF

**Table 1-18** Cassette-presence detection (continued)

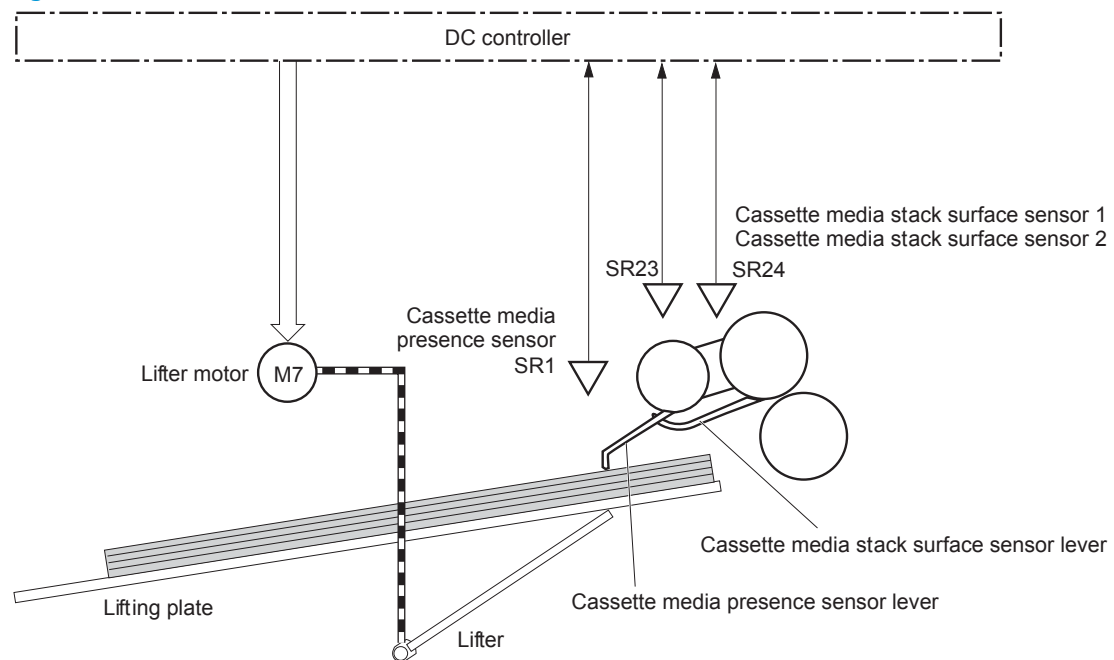
Paper size	Cassette media size switch		
	Top switch	Center switch	Bottom switch
A4	ON	OFF	OFF
Legal	ON	ON	OFF
Cassette absence	OFF	OFF	OFF

### Cassette lift operation and cassette paper-presence detection

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

- The product is turned on
- The cassette is inserted
- The paper stack surface in the cassette lowers

**Figure 1-37** Cassette lift mechanism



The operational sequence of the cassette lift-up is as follows:

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

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

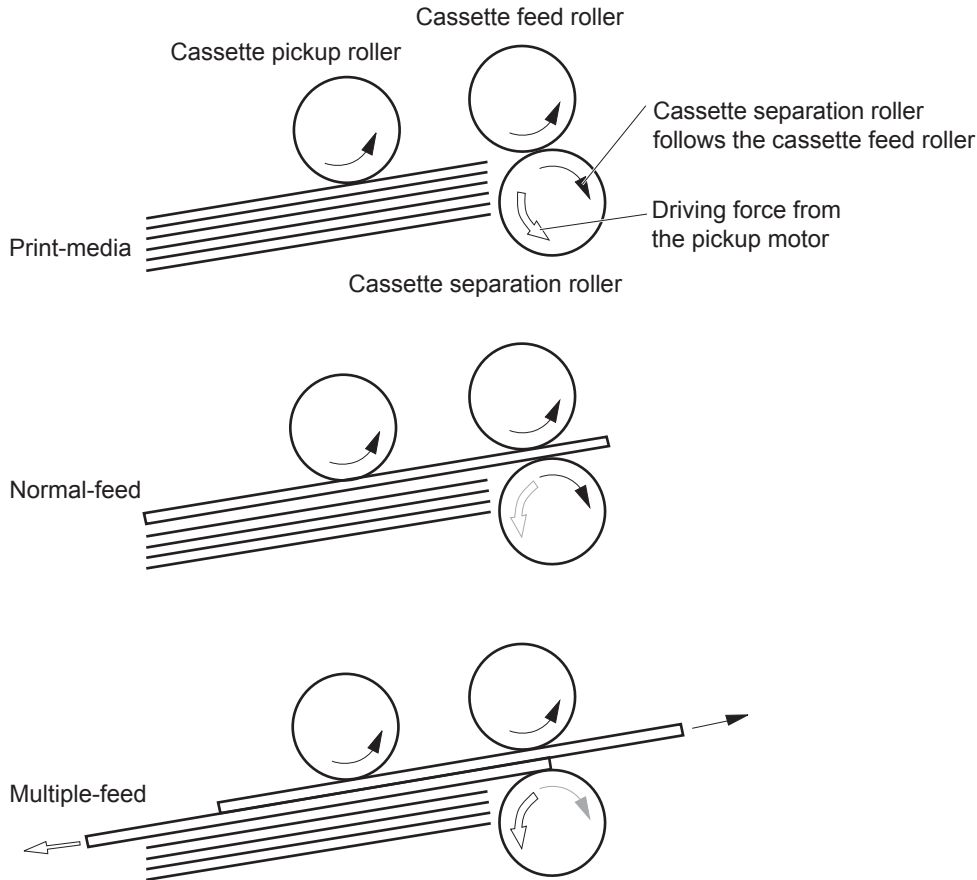
## Cassette multiple-feed prevention

In the cassette, a separation roller prevents multiple sheets of paper from entering the paper path. The cassette pickup roller drives the separation roller through a sheet of paper.

The rotation of the cassette feed roller through the sheet drives the cassette separation roller. Because it is equipped with a torque limiter, only one sheet is fed into the product.

The low friction force between the sheets weakens the driving force from the cassette feed roller. Therefore, the separation roller is driven by its own driving force and holds back any multiple-fed sheets from the cassette.


**Figure 1-38** Multiple-feed prevention



## Multipurpose tray pickup

The product picks up one sheet of paper from the multipurpose (MP) tray.

Following are the sequence of steps for the multipurpose tray pickup operation.

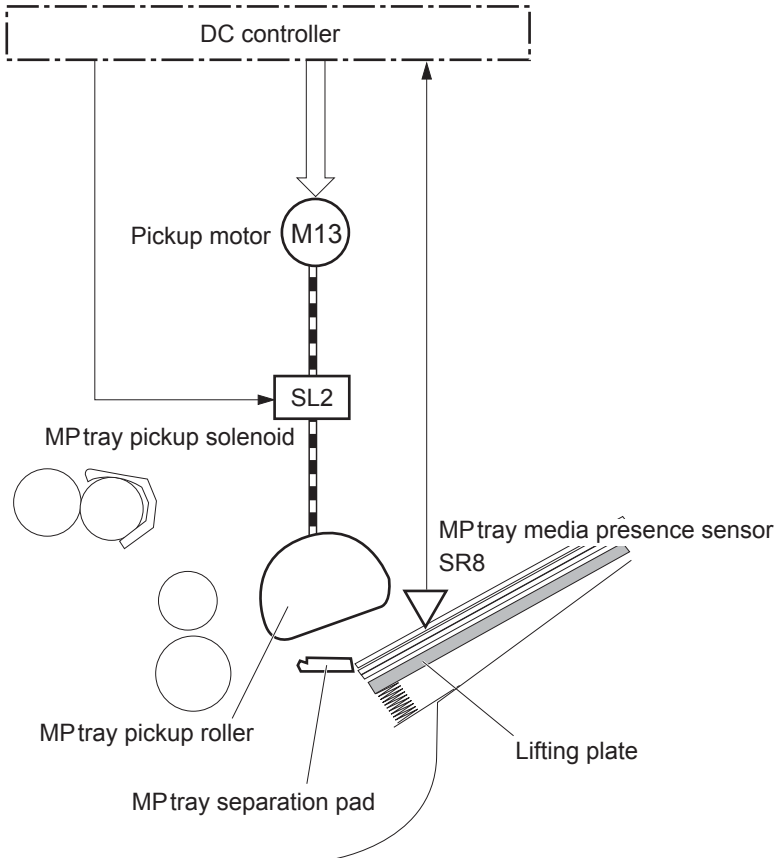
 **NOTE:** Tray 1 and Tray 2 are optimal for paper pickup when using special paper or media other than 20lb plain paper. For Tray 1 and Tray 2 the product increases the number of attempts to pickup a page, which increases the reliability of successfully picking the page from the tray and decreases the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

HP recommends using Tray 1 or Tray 2 if the product is experiencing excessive or reoccurring jams from trays other than Tray 1 and Tray 2, or for print jobs that require media other than 20lb plain paper.

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

The MP-tray media-presence sensor (SR8) detects whether paper is present in the MP tray.

**Figure 1-39** Multipurpose tray pickup mechanism



## Paper feed

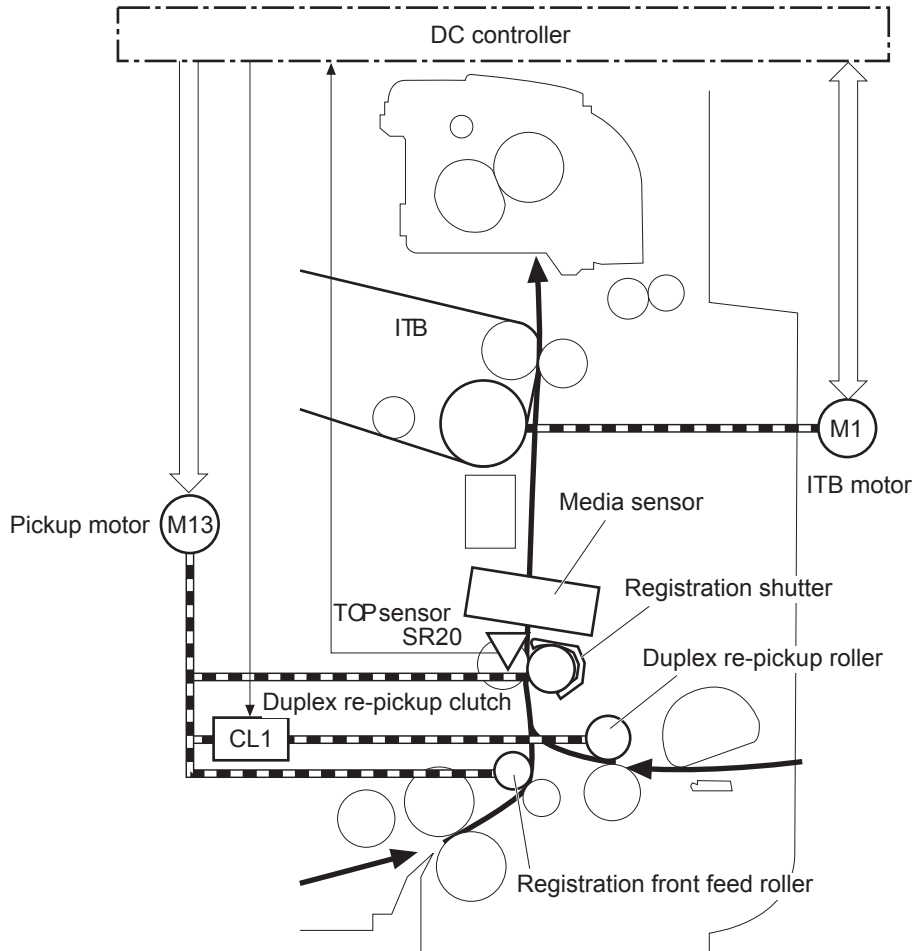
After the pickup operation, the paper feeds through the product and into the fuser.

1. The paper picked up from the cassette is fed to the registration unit as the pickup motor rotates. The paper picked up from the multipurpose tray is fed to the registration unit as the pickup motor rotates. The duplex model has the duplex feed clutch. The driving force of the pickup motor is transmitted to the duplex re-pickup roller by turning on the clutch.
2. The registration shutter corrects the skew-feed.
3. When the TOP sensor detects the leading edge of paper, the DC controller stops the paper so that the media sensor detects the type of paper.
4. The DC controller controls the rotational speed of the pickup motor to align the paper with the leading edge of the toner image on the ITB.

5. The ITB motor rotates the ITB.
6. The toner image on the ITB is transferred onto the paper, and the paper is fed to the fuser.

The DC controller notifies the formatter of a paper size mismatch error when the paper length detected by the TOP sensor does not match the paper size specified by the formatter.

**Figure 1-40** Paper-feed mechanism

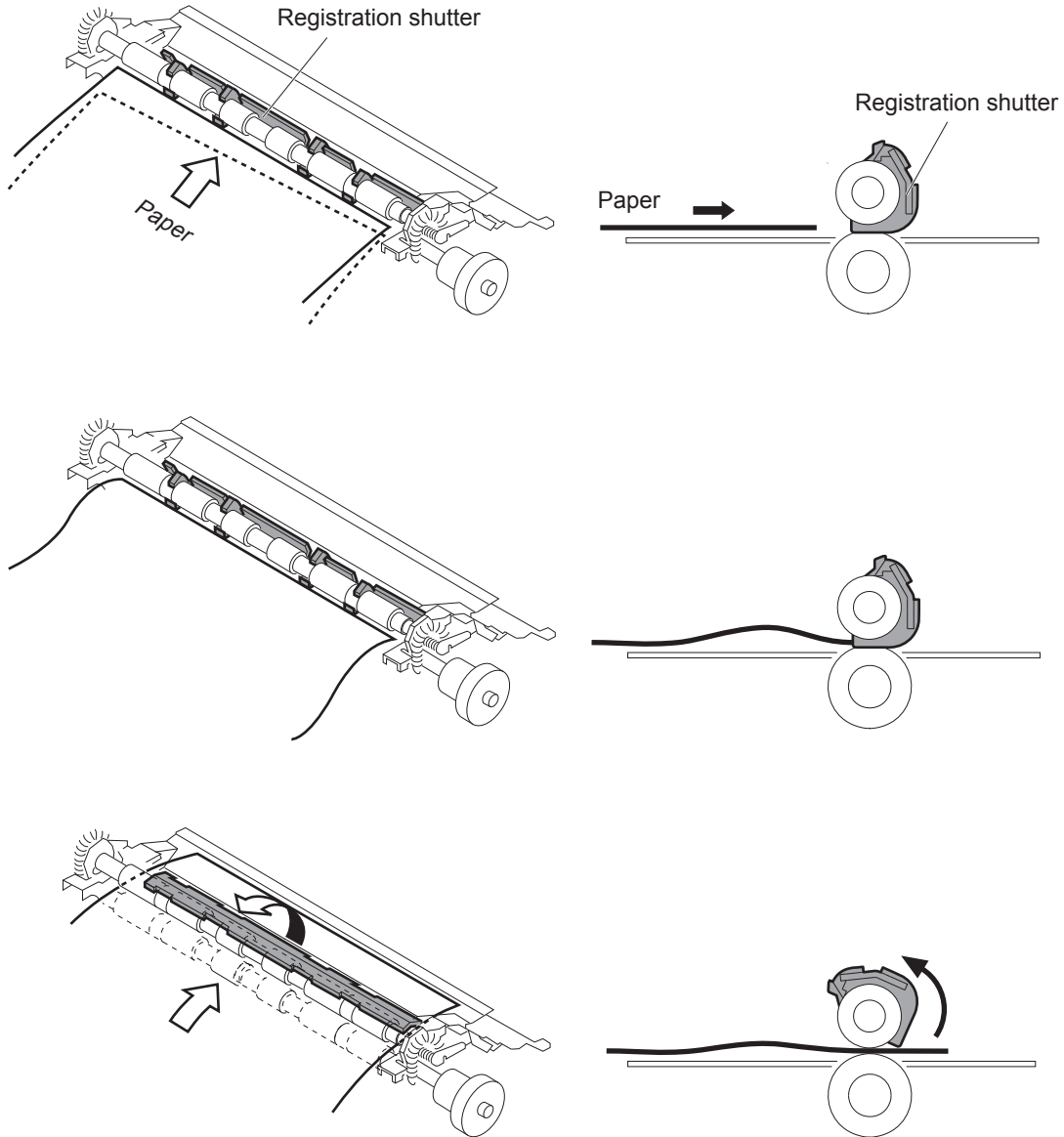


## Skew-feed prevention

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

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

**Figure 1-41** Skew-feed prevention



## Paper detection

The product detects the type of paper by monitoring the media sensor. The media sensor detects the glossiness of paper by the reflected light and the thickness of paper by transmitted light. The DC controller identifies the type of media (for example, plain paper, light paper, heavy paper, glossy paper, glossy film, or overhead transparency) and switches to the correct print mode. The DC controller determines a media mismatch error and notifies the formatter under the following condition:

## Simplex printing

- The specified print mode is overhead transparency (OHT), but the media sensor detects another paper type.
- The specified print mode is not auto or OHT, but the media sensor detects OHT.

## Duplex printing

- The media sensor detects OHT.

The DC controller flashes the media sensor during the initial rotation period under the following conditions:

- The product is turned on
- The product exits Sleep mode

When the light intensity is not a specified value, the DC controller determines a media-sensor failure and notifies the formatter.

## 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 1-19 Print mode and feed speed**

Print mode	Feed speed	Media sensor detection
Normal	1/1	Yes
Heavy media 1	3/4	No
Heavy media 2	1/2	Yes
Heavy media 3	1/3	Yes
Light media 1	1/1	Yes
Light media 2	1/1	Yes
Glossy media 1	1/3	Yes
Glossy media 2	1/3	Yes
Glossy media 3	1/4	Yes
Glossy film	1/4	Yes
Envelope 1	1/2	No
OHT	1/4	Yes

**Table 1-19 Print mode and feed speed (continued)**

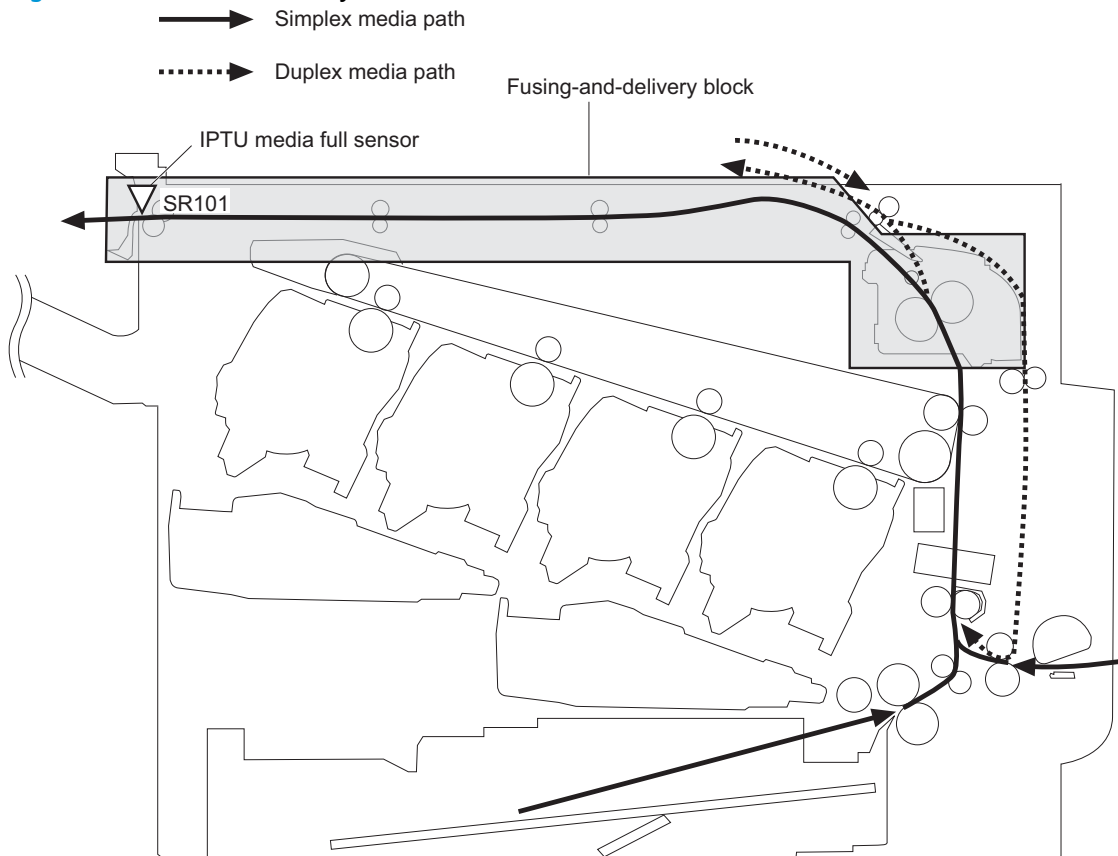
Print mode	Feed speed	Media sensor detection
Label	1/2	No
Designated media 1	1/2	No

## Fusing and delivery block

The fusing and delivery unit fuses the toner onto the paper and delivers the printed page into the output bin. The following controls ensure optimum print quality:

The face-down tray media full sensor on the output bin detects whether the tray is full of printed pages. The DC controller notifies the formatter when the sensor is on for a specified time.

**Figure 1-42 Fuser and delivery unit**



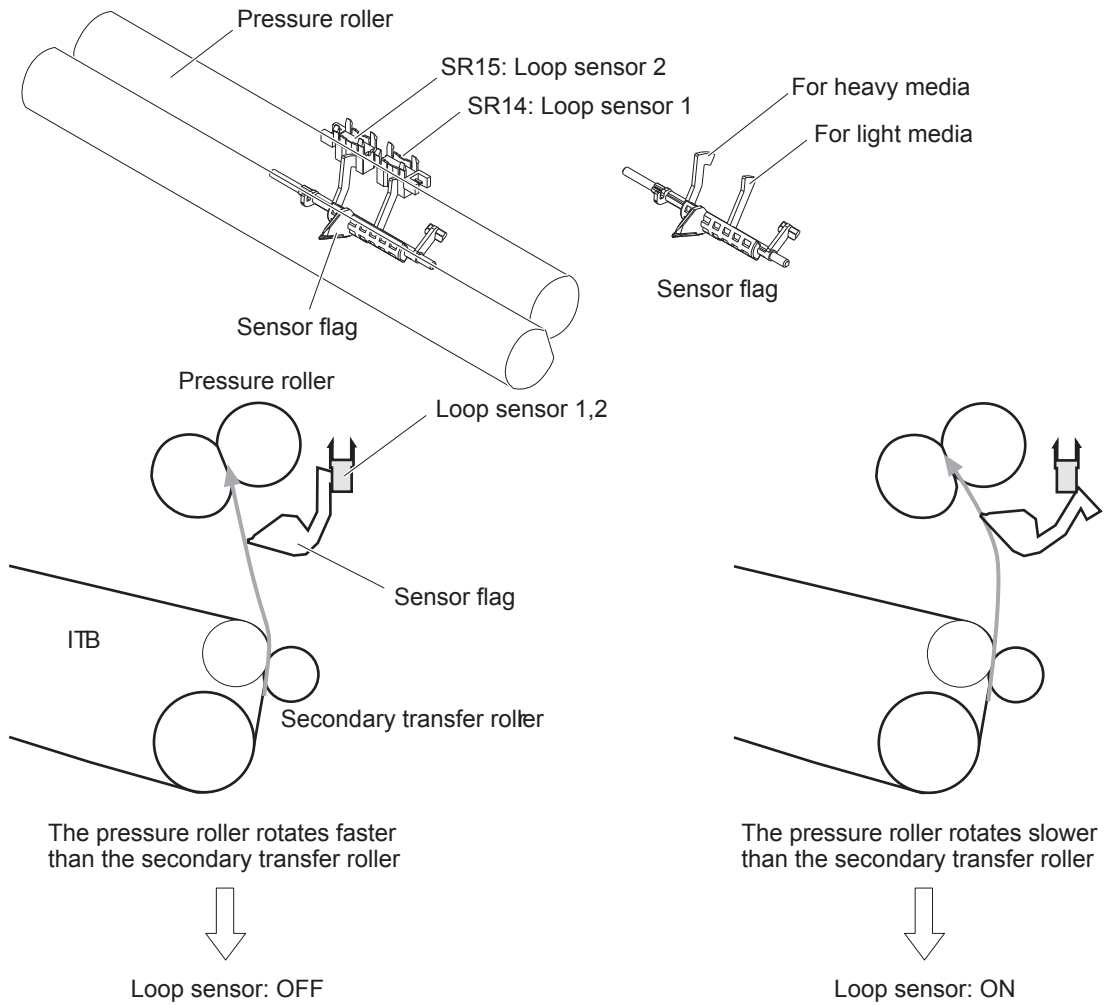


## Loop control

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

To prevent these problems, loop sensor 1 and loop sensor 2 detect the paper loop before the paper enters the fuser. The DC controller adjusts the rotational speed of the fuser motor according to the output signals from the loop sensors and maintains the paper loop. Loop sensor 1 is for light media, and loop sensor 2 is for heavy media. The DC controller slows the fuser motor when the sensor is off and speeds up the sensor when the sensor is on.

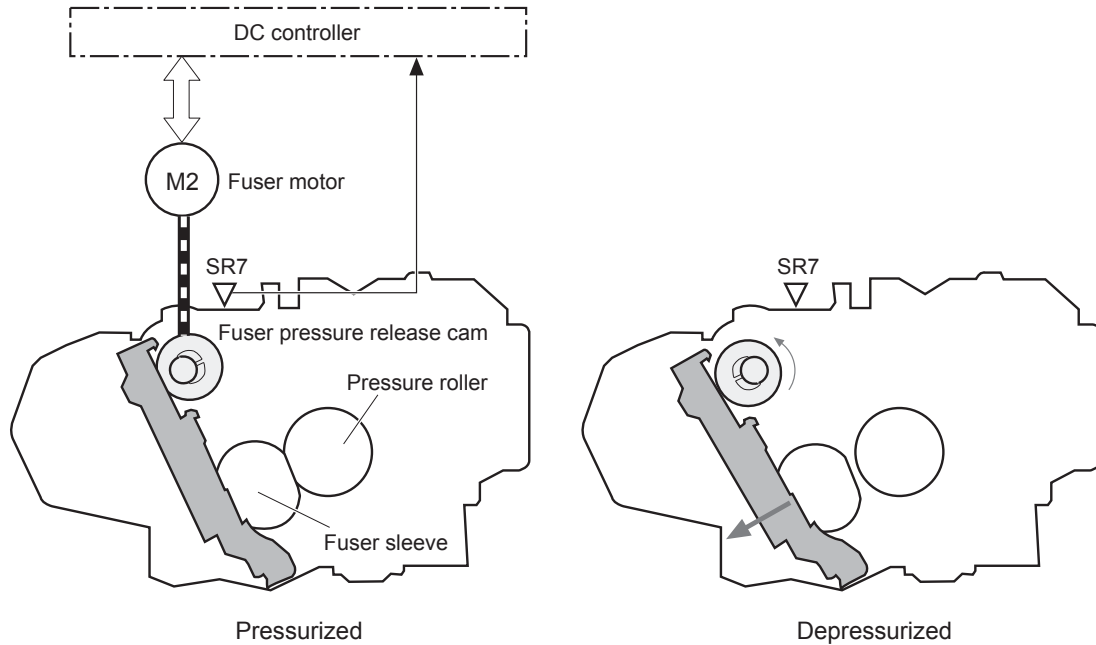
**Figure 1-43** Loop-control mechanism



## Pressure roller pressurization and depressurization control

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

**Figure 1-44** Pressure-roller pressurization control



The pressure roller depressurizes under the following conditions:

- The product is turned off
- Any failure occurs
- During power-save mode
- When a paper jam is detected

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

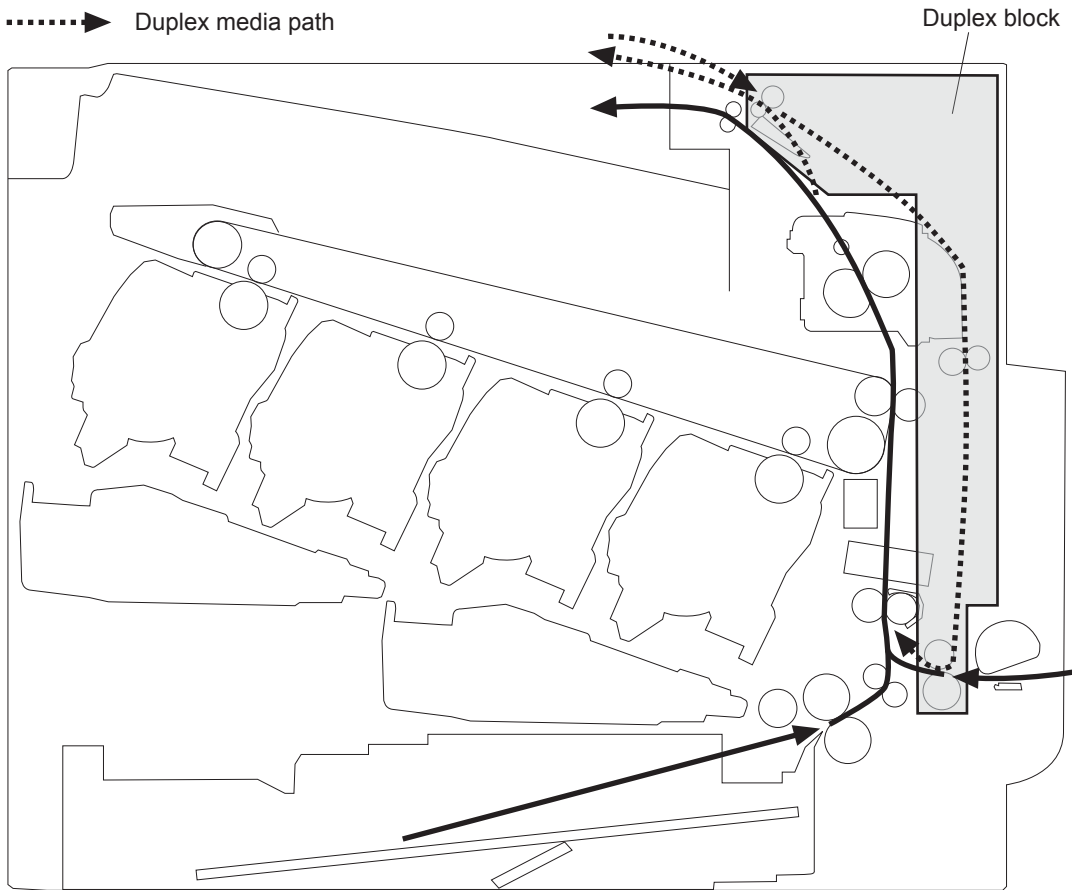
## Duplex Block

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

**Figure 1-45** Duplexing unit

—▶ Simplex media path

⋯▶ Duplex media path

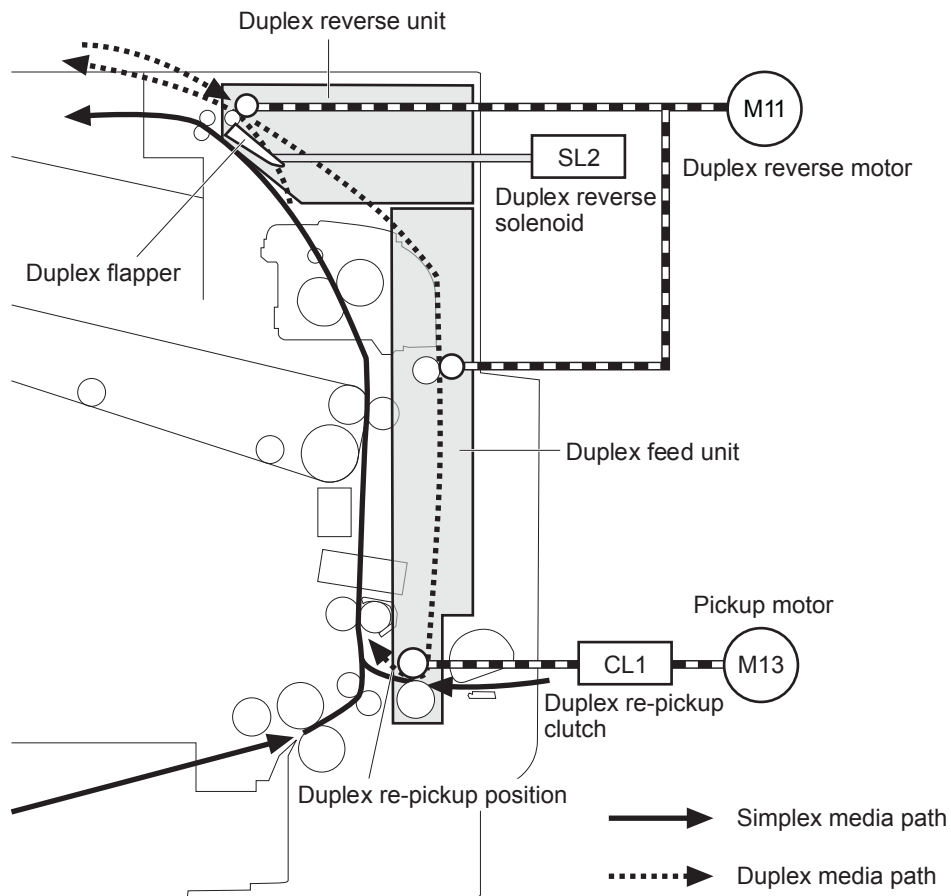


## Duplex reverse and duplex feed control

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

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

**Figure 1-46** Duplex reverse and feed control



## Duplex operation

The product 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

**Table 1-20 Paper sizes**

<b>Paper size</b>	<b>Duplex media feed mode</b>
A4	One-sheet operation
Letter	Two-sheet operation
B5	
Executive	
Legal	One-sheet operation

The formatter specifies the duplex-media-feed mode for each two-sided print job. Duplex printable paper size (A4, Letter, B5, Legal and Executive) and designated print mode (Auto, Normal, Heavy media 1, Heavy media 2 [120 g/m<sup>2</sup> or lighter], Glossy media 1, Glossy media 2, Glossy media 3, Glossy film, Designated media 1, and Designated media 2) must be specified.

## Jam detection

The product uses the following sensors to detect the paper as it moves through the paper path and to report to the DC controller if the paper has jammed.

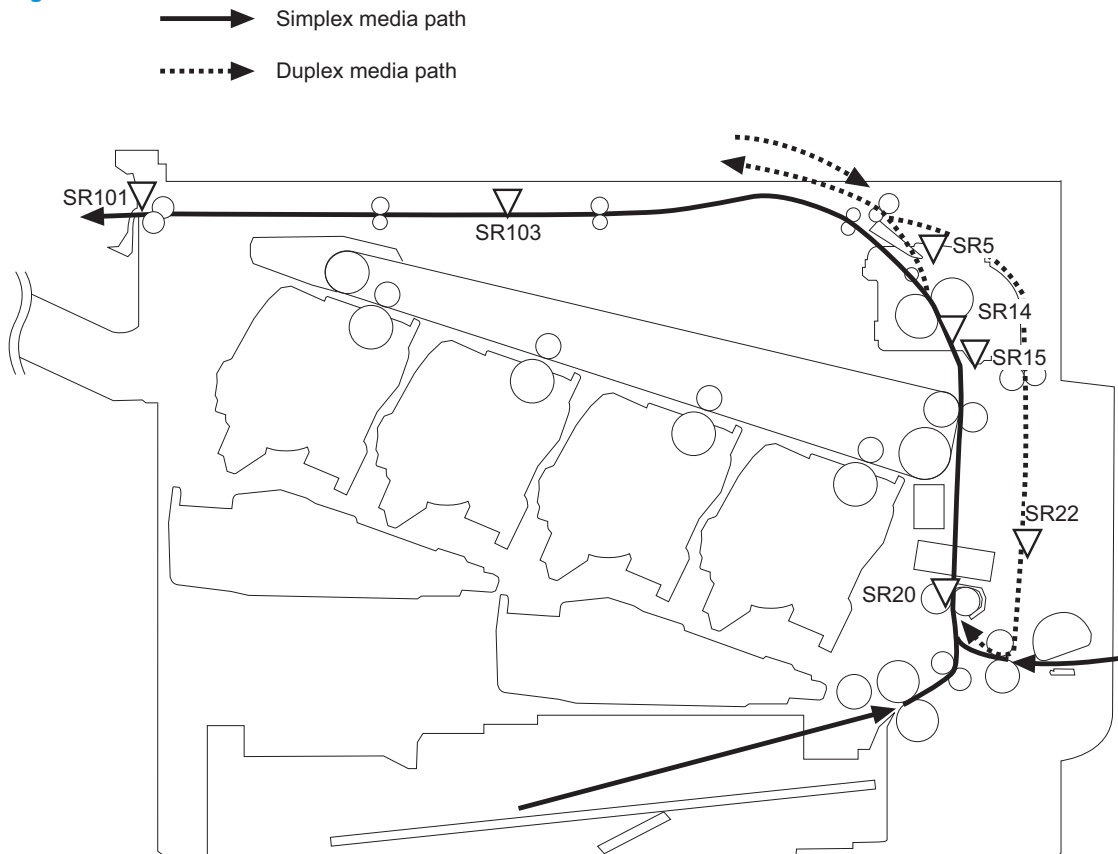
- Fuser delivery sensor (SR5)
- Top of page (TOP) sensor (SR20)
- Loop sensor 1 (SR14)
- Loop sensor 2 (SR15)
- Duplex re-pickup sensor (SR22)
- IPTU media full sensor (SR101)



**NOTE:** SR101 sensor is not used on products that have a stapling mailbox installed.

- IPTU media feed sensor (SR103)

**Figure 1-47** Jam detection sensors



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

**Table 1-21 Jams that the product detects**

<b>Jam</b>	<b>Description</b>
Pickup delay jam	The TOP sensor does not detect the leading edge of the paper within a specified time (including two retries) after the pickup operation from the cassette, multipurpose tray, or optional paper feeder starts.
Pickup stationary jam	The TOP sensor does not detect the trailing edge of the paper within a specified time from when it detects the leading edge.
Fuser delivery delay jam	The fuser delivery sensor does not detect the leading edge of the paper within a specified period after the TOP sensor detects the leading edge.
Fuser delivery stationary jam	The fuser delivery sensor does not detect the trailing edge of the paper within a specified period after it detects the leading edge.
Wrapping jam	After detecting the leading edge of the paper, the fuser delivery sensor detects the absence of paper, and it has not yet detected the trailing edge.
Residual paper jam	<p>One of the following sensors detects paper presence during the initialization sequence:</p> <ul style="list-style-type: none"> <li>• Fuser delivery sensor</li> <li>• Loop sensor 1</li> <li>• Loop sensor 2</li> </ul> <p>One of the following sensors detects paper presence during the an automatic delivery operation:</p> <ul style="list-style-type: none"> <li>• Fuser delivery sensor</li> <li>• TOP sensor</li> <li>• Loop sensor 1</li> <li>• Loop sensor 2</li> <li>• Duplex re-pickup sensor</li> <li>• IPTU media feed sensor</li> </ul>
Door open jam	A door is open while paper is moving through the product.
Duplexing re-pickup jam 1	The duplex re-pickup sensor does not detect the leading edge of the paper within a specified period after the media reverse operation starts in the duplex reverse unit.
Duplexing re-pickup jam 2	The TOP sensor does not detect the leading edge of the paper within a specified period after the paper is re-picked.
IPTU delivery delay jam 1	The IPTU media feed sensor does not detect the leading edge of paper within a specified time period after the fusing delivery sensor detects the leading edge.
IPTU delivery delay jam 2	The IPTU media full sensor does not detect the leading edge of paper within a specified period after the IPTU media feed sensor detects the leading edge.
IPTU delivery stationary jam 1	The IPTU media feed sensor does not detect the trailing edge of paper within a specified period after it detects the leading edge.
IPTU delivery stationary jam 2	The IPTU media feed sensor detects a paper absence yet it does not detect the trailing edge of paper after it detects the leading edge.

**Automatic delivery:** The product automatically clears paper if the TOP sensor, duplex re-pickup sensor, IPTU media feed sensor, or PD media feed sensors detect residual paper during initialization.

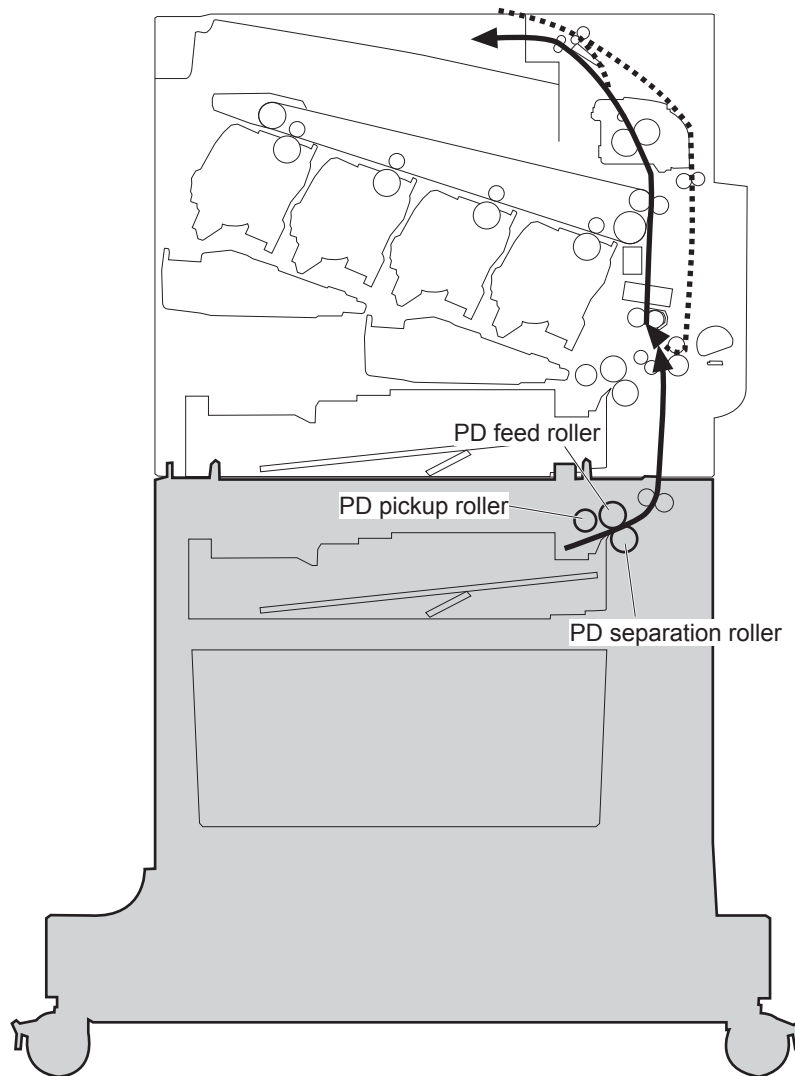
## Optional paper feeders

Three types of optional paper feeders are available for the product:

- 1 x 500 sheet paper feeder
- 1 x 500 sheet paper feeder with cabinet
- 2,500-sheet paper feeder high-capacity input (HCI)

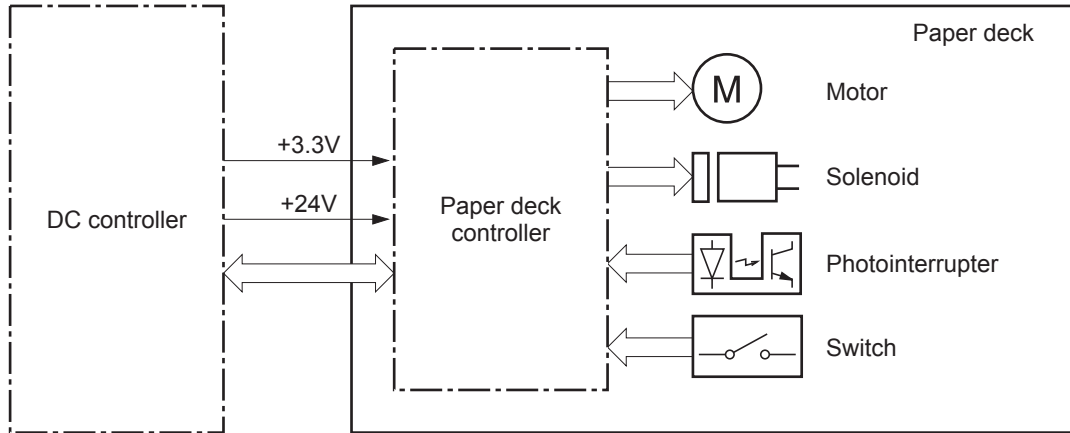
The operational sequence of the paper feeders is controlled by the paper feeder controller.

**Figure 1-48** 1 x 500 optional paper feeder





**Figure 1-49** Signals for the paper feeder

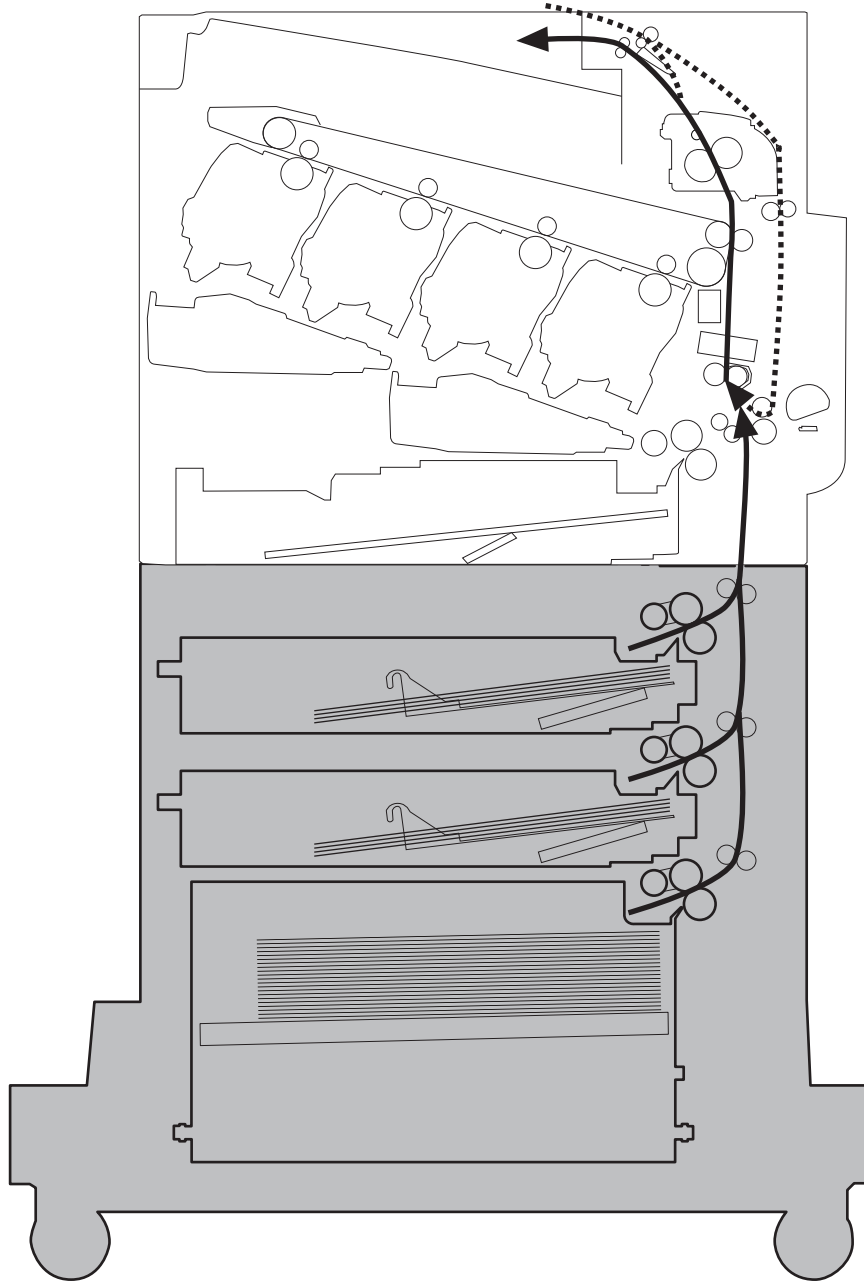


The input trays contain several motors, solenoids, sensors, and switches, as described in the following table.

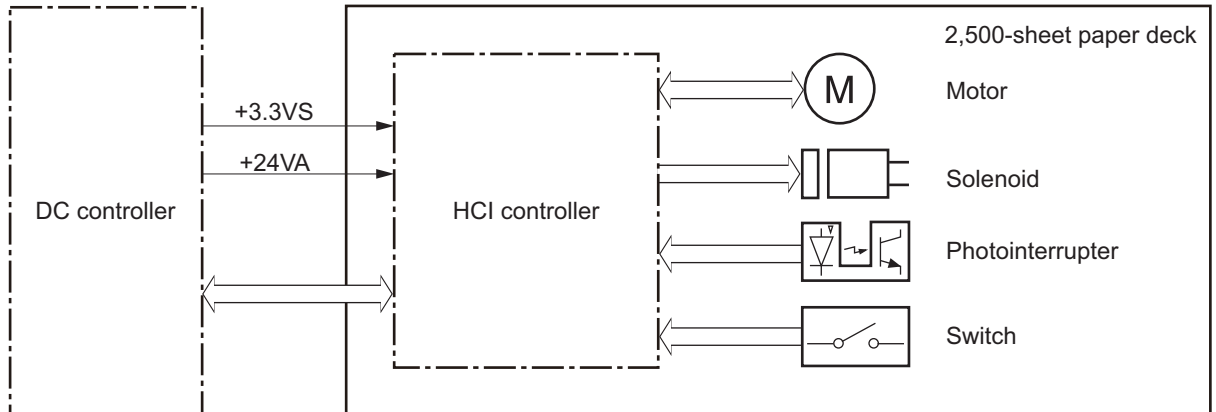
**Table 1-22** Electrical components for the paper feeder

Component type	Abbreviation	Component name
Motors	M1	PD lifter motor 1
	M2	PD pickup motor
Solenoids	SL1	PD pickup solenoid 1
Sensors	SR1	Tray 3 paper surface sensor 1
	SR2	Tray 3 paper surface sensor 2
	SR3	Tray 3 paper present presence sensor
	SR4	Tray 3 feed sensor
Switches	SW1	PD right door switch

Figure 1-50 2,500-sheet paper feeder HCI



**Figure 1-51** Signals for 2,500-sheet paper feeder HCI



The input trays contain several motors, solenoids, sensors, and switches, as described in the following table.

**Table 1-23** Electrical components for the 2,500-sheet paper feeder HCI

Component type	Abbreviation	Component name
Motor	M1	Cassette 1 (Tray 3) lifter motor
	M2	Pickup motor
	M3	Cassette 2 (Tray 4) lifter motor
	M4	Cassette 3 (Tray 5) lifter motor
Solenoid	SL1	Cassette 1 (Tray 3) pickup solenoid
	SL2	Cassette 2 (Tray 4) pickup solenoid
	SL3	Cassette 3 (Tray 5) pickup solenoid
Switch	SW1	Right door open detection switch
	SW2	Cassette 1 (Tray 3) media-size switch
	SW3	Cassette 2 (Tray 4) media-size switch
	SW4	Cassette 3 (Tray 5) media-size switch
Photointerrupter	SR1	Cassette 1 (Tray 3) media-surface sensor 1
	SR2	Cassette 1 (Tray 3) media-surface sensor 2
	SR3	Cassette 1 (Tray 3) media-presence sensor
	SR4	Cassette 1 (Tray 3) media-feed sensor
	SR5	Cassette 2 (Tray 4) media-surface sensor 1
	SR6	Cassette 2 (Tray 4) media-surface sensor 2
	SR7	Cassette 2 (Tray 4) media-presence sensor
	SR8	Cassette 2 (Tray 4) media-feed sensor
	SR9	Cassette 3 (Tray 5) media-surface sensor 1
	SR10	Cassette 3 (Tray 5) media-surface sensor 2
	SR11	Cassette 3 (Tray 5) media-presence sensor
	SR12	Cassette 3 (Tray 5) media-feed sensor

## Motor control

The 1x500-sheet paper feeder has two motors for feeding paper.

**Table 1-24 Motor control (1x500-sheet paper feeder)**

Component		Drives	Failure detection
M1	PD lifter motor 1	Lifter of the upper cassette	No
M2	PD pickup motor	PD pickup roller, PD feed roller, and PD separation roller	No

The 2,500-sheet paper feeder HCI has four motors for the paper-feed and cassette lift-up. The HCI signals a jam when the pickup motor fails.

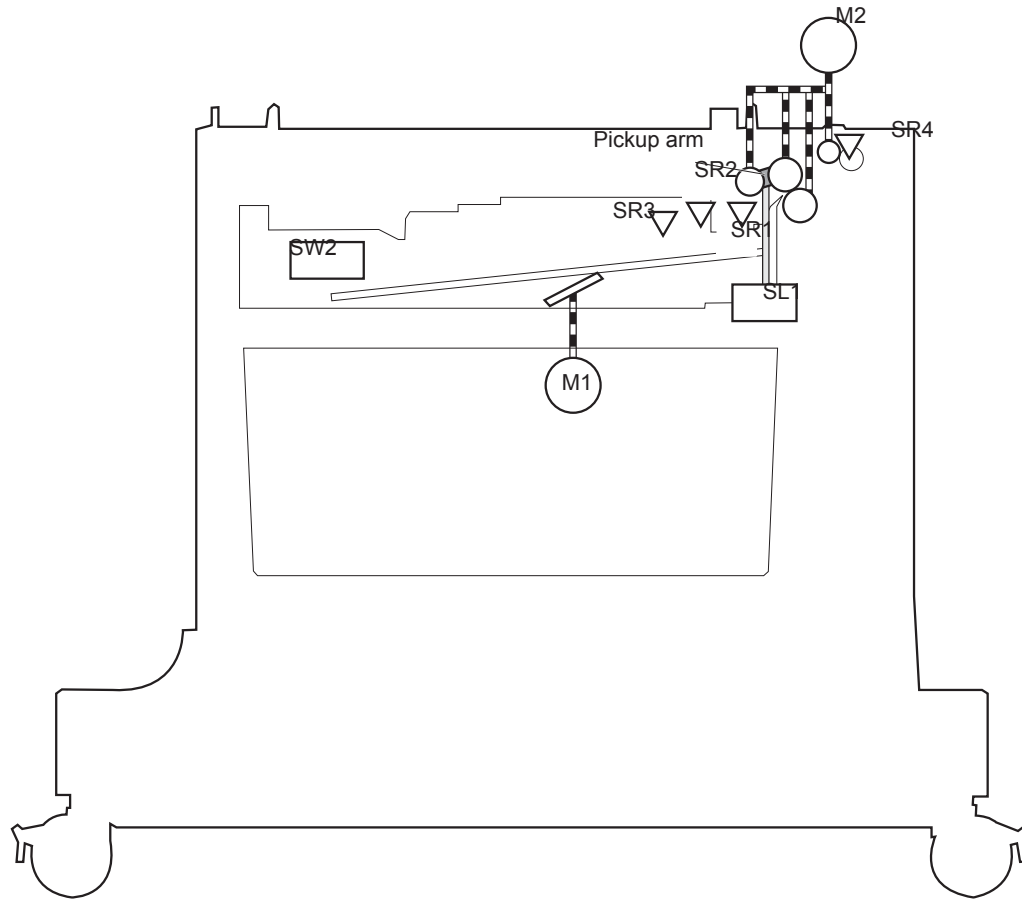
**Table 1-25 Motor control (2,500-sheet paper feeder HCI)**

Component		Drives	Failure detective
M1	Cassette 1 (Tray 3) lifter motor	Lifter for cassette 1 (Tray 3)	No
M2	Pickup motor	Pickup roller, separation roller and feed roller for cassette 1 to 3 (Tray 3 to Tray 5)	Yes
M3	Cassette 2 (Tray 4) lifter motor	Lifter for cassette 2 (Tray 4)	Yes
M4	Cassette 3 (Tray 5) lifter motor	Lifter for cassette 3 (Tray 5)	Yes

## Paper-feeder pickup and feed operation

The paper feeder picks up one sheet from the paper-feeder cassette and feeds it to the product.

**Figure 1-52** Paper-feeder pickup and feed operation (1x500-sheet paper feeder)

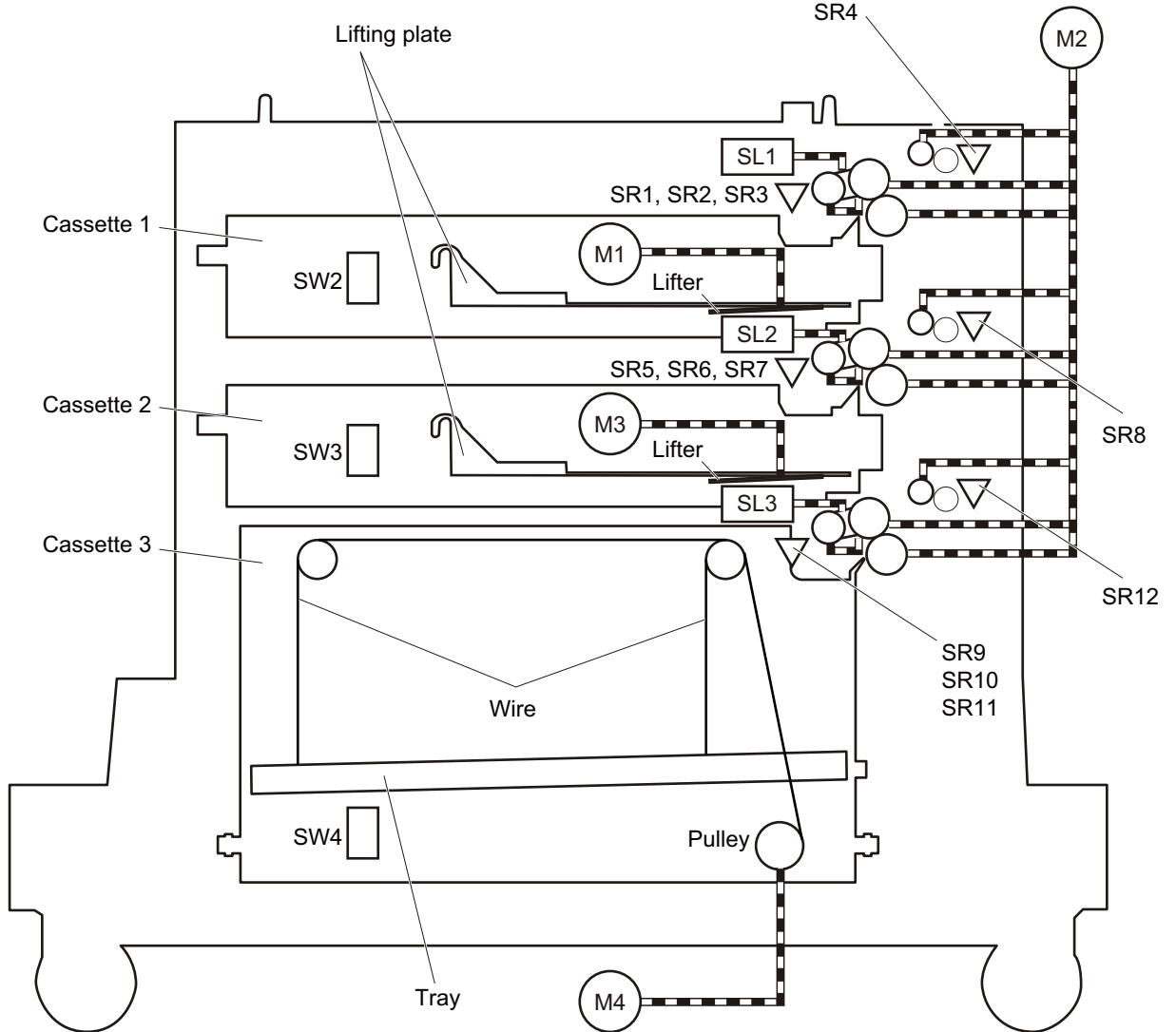


**Table 1-26** Pickup feed components (1x500-sheet paper feeder)

Abbreviation	Component
M1	PD lifter motor 1
M2	PD pickup motor
SL1	PD pickup solenoid 1
SR1	Tray 3 paper surface sensor 1
SR2	Tray 3 paper surface sensor 2
SR3	Tray 3 paper presence sensor
SR4	Tray 3 paper present sensor
SW2	Tray 3 paper size switches

The 2,500-sheet paper feeder HCI has three cassettes. The cassette 1 (Tray 3) and cassette 2 (Tray 4) operate in the same manner.

**Figure 1-53** Paper-feeder pickup and feed operation (2,500-sheet paper feeder HCI)



**Table 1-27** Pickup feed components (2,500-sheet paper feeder HCI)

Abbreviation	Component name
M1	Cassette 1 (Tray 3) lifter motor
M2	Pickup motor
M3	Cassette 2 (Tray 4) lifter motor
M4	Cassette 3 (Tray 5) lifter motor
SL1	Cassette 1 (Tray 3) pickup solenoid
SL2	Cassette 2 (Tray 4) pickup solenoid
SL3	Cassette 3 (Tray 5) pickup solenoid
SW2	Cassette 1 (Tray 3) media-size switch
SW3	Cassette 2 (Tray 4) media-size switch
SW4	Cassette 3 (Tray 5) media-size switch

**Table 1-27 Pickup feed components (2,500-sheet paper feeder HCI) (continued)**

Abbreviation	Component name
SR1	Cassette 1 (Tray 3) media-surface sensor 1
SR2	Cassette 1 (Tray 3) media-surface sensor 2
SR3	Cassette 1 (Tray 3) media-presence sensor
SR4	Cassette 1 (Tray 3) media-feed sensor
SR5	Cassette 2 (Tray 4) media-surface sensor 1
SR6	Cassette 2 (Tray 4) media-surface sensor 2
SR7	Cassette 2 (Tray 4) media-presence sensor
SR8	Cassette 2 (Tray 4) media-feed sensor
SR9	Cassette 3 (Tray 5) media-surface sensor 1
SR10	Cassette 3 (Tray 5) media-surface sensor 2
SR11	Cassette 3 (Tray 5) media-presence sensor
SR12	Cassette 3 (Tray 5) media-feed sensor

## Paper-size detection and cassette-presence detection

The paper feeder detects the size of paper loaded in the paper feeder and the presence of the cassette using the PD media size switch.

**Table 1-28 Paper-size detection and cassette-presence detection (1 x 500 paper feeder)**

Paper size	Paper-feeder cassette media-size switch settings		
	Top switch	Center switch	Bottom switch
Universal	On	On	On
A5	Off	Off	On
B5	Off	On	On
Executive	On	Off	On
Letter	Off	On	Off
A4	On	Off	Off
Legal	On	On	Off
No cassette	Off	Off	Off

The HCI controller detects the size of the paper loaded in the paper deck cassette and the presence of the cassette by monitoring the cassette media-size switch. The cassette media-size switch contains three sub-switches. The HCI controller detects the size of paper and the presence of cassette according to the combination of the sub-switches and notifies the formatter through the DC controller. It detects only the presence of cassette during Sleep mode.

**Table 1-29 Paper-size detection and cassette-presence detection (2,500-sheet paper feeder HCI)**

Paper size	Cassette media-size switch SW2, SW3			Cassette media-size switch SW4		
	Top	Center	Bottom	Top	Center	Bottom
Custom size	On	On	On	N/A	N/A	N/A
A5	On	On	Off	N/A	N/A	N/A
B5	Off	On	On	N/A	N/A	N/A
Executive	On	Off	On	N/A	N/A	N/A
Letter	Off	On	Off	Off	On	On
A4	On	Off	Off	On	Off	On
Legal	On	On	Off	Off	Off	On
Cassette absence	Off	Off	Off	Off	Off	Off



## Paper-feeder cassette lift operation

The paper feeder keeps the paper stack surface at the correct pickup position. The cassette lift operation occurs under the following conditions:

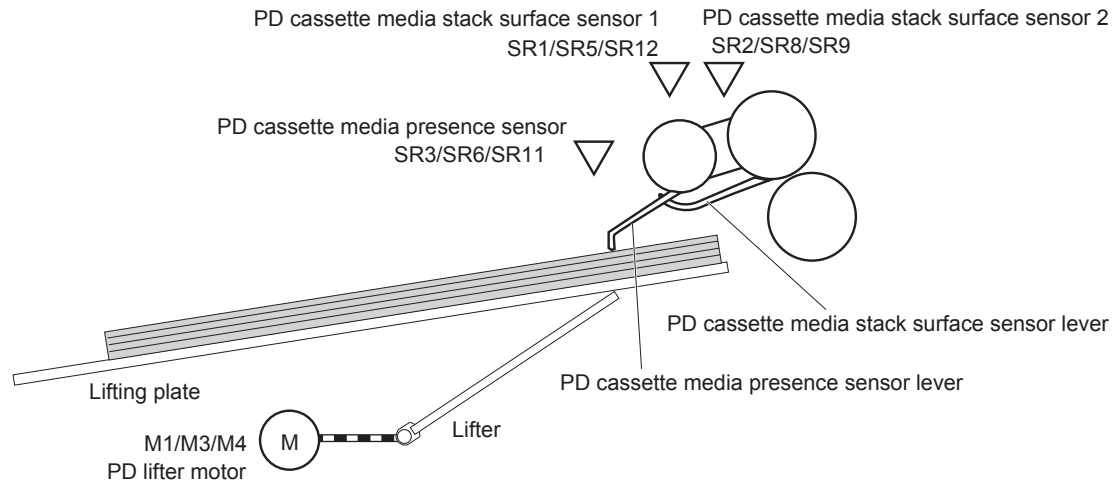
- The product is turned on.
- The cassette is inserted.
- The paper stack surface of the cassette lowers.

The sequence occurs as follows:

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

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

**Figure 1-54** Paper-feeder cassette lift

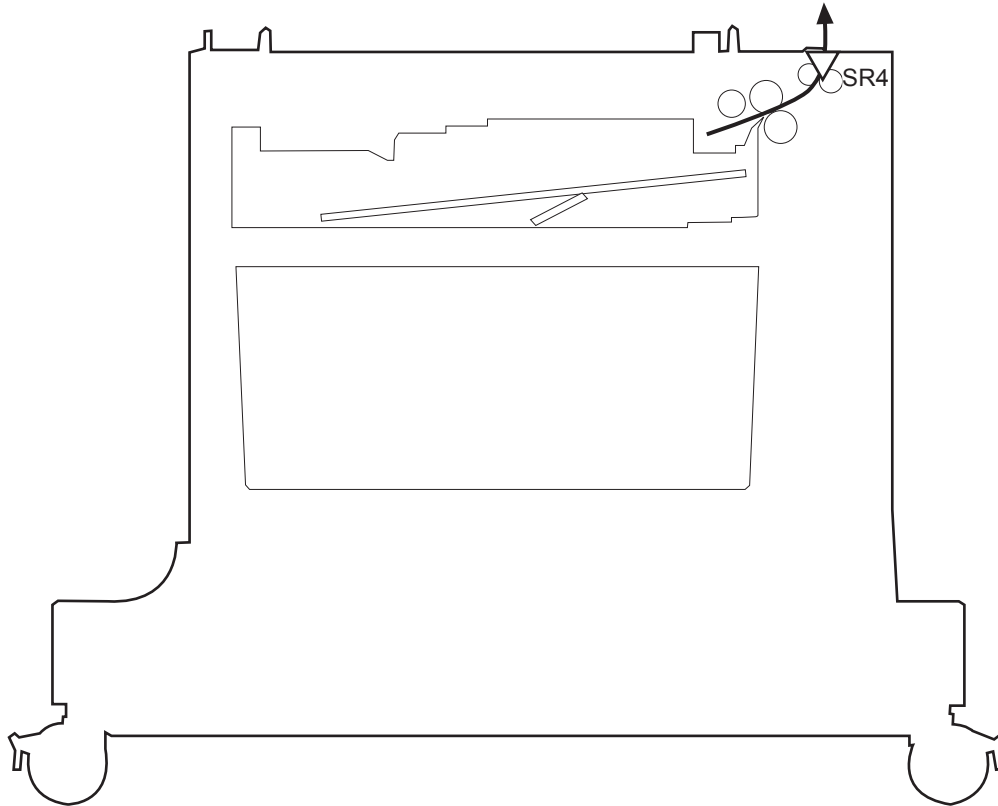


The paper-feeder driver notifies the formatter if either of the paper-feeder media-stack surface sensors fails to detect the stack surface within a specified period from when a lift-up operation starts.

## Paper feeder jam detection

The 1x500-sheet paper feeder uses the Tray 3 paper presence sensor (SR4) to detect the presence of paper and to check whether paper has jammed.

**Figure 1-55** Jam detection (1x500-sheet paper feeder)



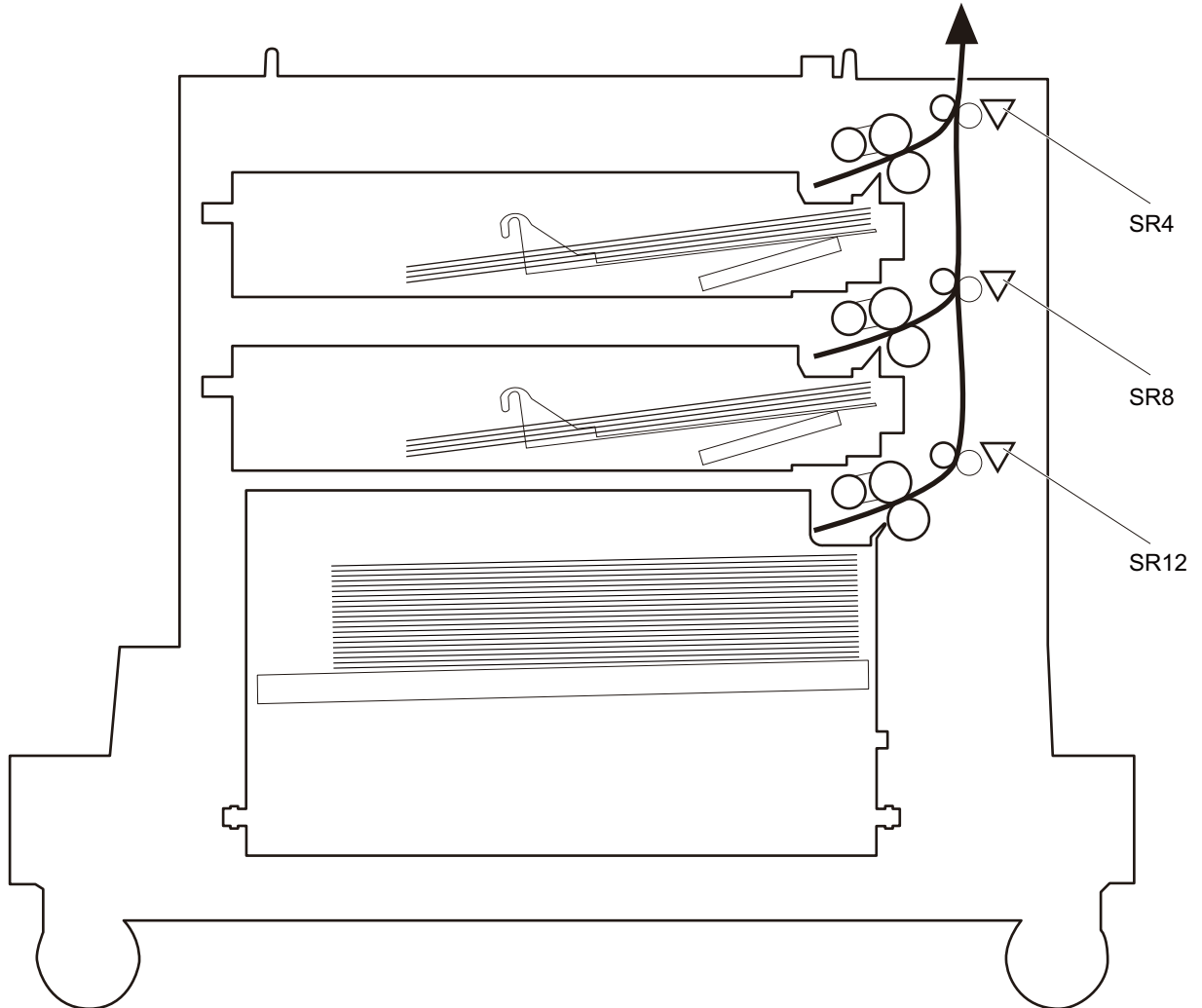
The 1x500-sheet paper feeder detects the following jams:

- **1x500-sheet PD pickup delay jam:** Tray 3 feed sensor does not detect the leading edge of paper within a specified time (including two retries) after the pickup operation starts.
- **1x500-sheet PD pickup stationary jam:** Tray 3 feed sensor does not detect the trailing edge of paper within a specified time after the sensor detects the leading edge.
- **1x500-sheet PD residual paper jam:** Tray 3 feed sensor detects the presence of paper for a specified time during an automatic delivery operation.

The 2,500-sheet paper feeder HCI uses the following sensors to detect the presence of the paper and to check whether the paper is being fed correctly or has jammed:

- Cassette 1 (Tray 3) media-feed sensor (SR4)
- Cassette 2 (Tray 4) media-feed sensor (SR8)
- Cassette 3 (Tray 5) media-feed sensor (SR12)

**Figure 1-56** 2,500-sheet paper feeder HCI media feed sensors



The 2,500-sheet paper feeder HCI detects the following jams.

- **No pick jam 1**
  - From cassette 1 (Tray 3): The cassette 1 (Tray 3) media-feed sensor does not detect the leading edge of paper within a specified period from when the cassette 1 (Tray 3) pickup solenoid is turned on.
  - From cassette 2 (Tray 4): The cassette 2 (Tray 4) media-feed sensor does not detect the leading edge of paper within a specified period from when the cassette 2 (Tray 4) pickup solenoid is turned on.
  - From cassette 3 (Tray 5): The cassette 3 (Tray 5) media-feed sensor does not detect the leading edge of paper within a specified period from when the cassette 3 (Tray 5) pickup solenoid is turned on.
- **No pick jam 3**

- From cassette 2 (Tray 4): The cassette 1 (Tray 3) media-feed sensor does not detect the leading edge of paper within a specified period from when the cassette 2 (Tray 4) media-feed sensor detects the leading edge.
- From cassette 3 (Tray 5): The cassette 1 (Tray 3) media-feed sensor does not detect the leading edge of paper within a specified period from when the cassette 3 (Tray 5) media-feed sensor detects the leading edge.
- **Pickup stay jam 2**
  - From cassette 1 (Tray 3): The cassette 1 (Tray 3) media-feed sensor does not detect the trailing edge of paper within a specified period from when it detects the leading edge.
  - From cassette 2 (Tray 4): The cassette 2 (Tray 4) media-feed sensor does not detect the trailing edge of paper within a specified period from when it detects the leading edge.
  - From cassette 3 (Tray 5): The cassette 3 (Tray 5) media-feed sensor does not detect the trailing edge of paper within a specified period from when it detects the leading edge.
- **Pickup stay jam 3**
  - From cassette 2 (Tray 4): The cassette 1 (Tray 3) media-feed sensor does not detect the trailing edge of paper within a specified period from when it detects the leading edge.
  - From cassette 3 (Tray 5): The cassette 1 (Tray 3) media-feed sensor does not detect the trailing edge of paper within a specified period from when it detects the leading edge.
- **Residual paper jam:** Any one of the following sensor detects a paper presence when the product is turned on, when the door is closed or when the product exits power-save mode (Sleep mode, active OFF, or inactive OFF).
  - Cassette 1 (Tray 3) media-feed sensor
  - Cassette 2 (Tray 4) media-feed sensor
  - Cassette 3 (Tray 5) media-feed sensor
- **Right door open jam**
  - The right door open is detected during a paper feed operation.

# Scanning/image capture system (M680)

## Scanner

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

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

## Document feed system

This section describes the following:

- Simplex single pass
- Electronic duplexing (e-duplex) single pass
- Legal-sensing flag
- Pick and feed roller assembly with separation pad
- Mechanical deskew
- Step glass for automatic document feeder scanning
- Jam clearance door with sensing
- LED indication when original is placed on input tray

The product supports single page pass electronic duplexing (e-duplex) copy jobs.

The product uses two separate scan modules to scan the front-side and back-side of an e-duplex copy job page in a single page pass through the automatic document feeder.

For specific e-duplex copy jobs, a background selector changes the reflective platen from a white strip to a black strip for page edge-to-edge recognition.

## Sensors in the automatic document feeder

The automatic document feeder (ADF) contains the following sensors:

- **ADF Y (length) sensor:** Detects whether there is a legal-size original.
- **ADF paper present sensor:** Detects whether a document is present in the ADF. If paper is present in the ADF when copies are made, the product scans the document using the ADF. If no paper is present when copies are made, the product scans the document using the scanner glass.
- **ADF multi-pick (ultra sonic) sensor:** Uses ultra sonic sound to detect a multi-page paper feed.



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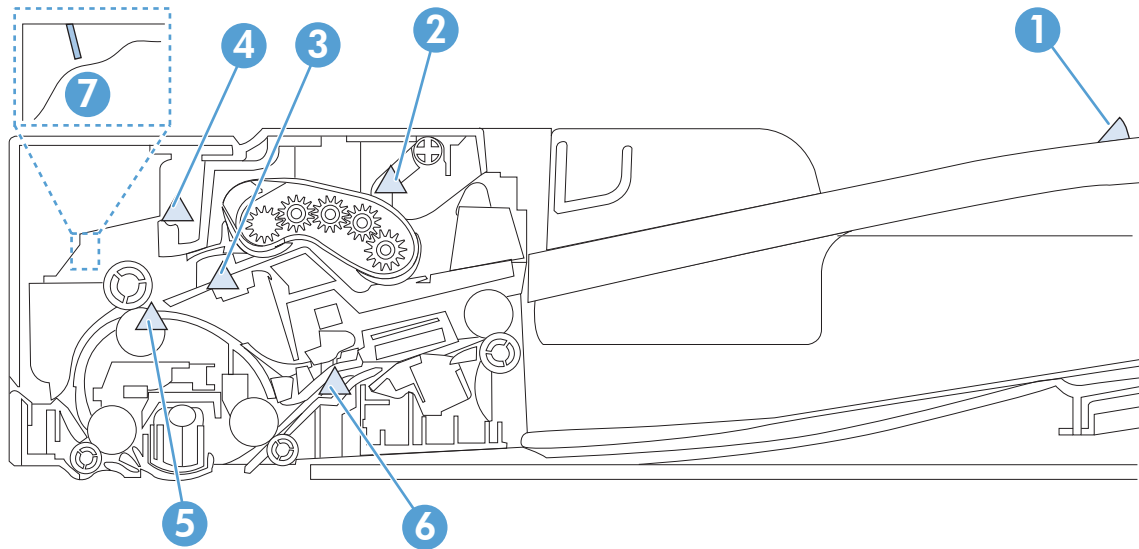
**NOTE:** This sensor also functions as the pick success sensor.

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- **ADF paper path deskew sensor:** Detects the top of the page as it enters the deskew rollers.
- **Prescan front-side sensor:** Detects the top of the page as it approaches the front-side scan module (automatic document feeder glass).

- **Prescan back-side sensor:** Detects the top of the page as it approaches the back-side scan module during e-duplex copy jobs.
- **ADF jam cover sensor:** Detects whether the document feeder cover is open or closed.

**Figure 1-57** Automatic document feeder sensors



**Table 1-30** Automatic document feeder sensors

Item	Description
1	ADF Y (length)
2	ADF paper present sensor
3	ADF multi-pick (ultra sonic) sensor
4	Prescan front-side sensor
	<b>NOTE:</b> For an e-duplex copy job (HP EveryPage), this sensor is used to activate the front-side scan module (this component is in the scanner base) and the front-side background selector (this component is in the automatic document feeder) if needed.
5	ADF paper path deskew
6	Prescan back-side sensor
	<b>NOTE:</b> For an e-duplex copy job, this sensor is used to activate the back-side scan module and the back-side background selector if needed (these components are in the automatic document feeder).
7	ADF jam cover sensor (open the jam access-cover and insert a folded piece of paper to activate flag)

## Automatic document feeder paper path

Figure 1-58 Automatic document feeder paper path

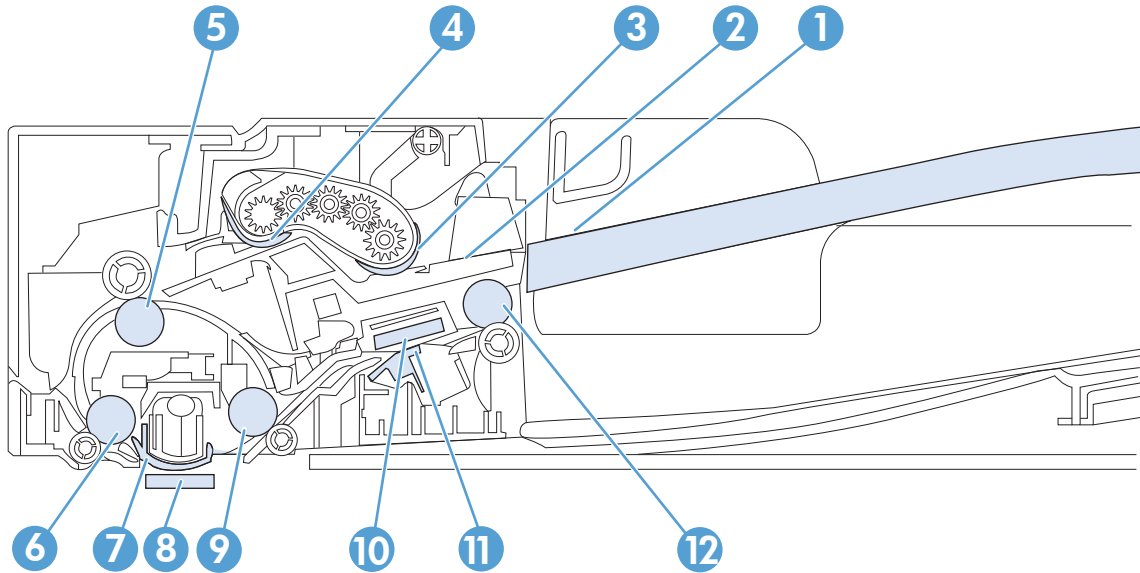


Table 1-31 Automatic document feeder paper path

Item	Description	Item	Description
1	Input tray	7	Front-side background selector
2	Separation pad	8	Front-side scan module
			<b>NOTE:</b> This scan module (automatic document feeder glass) is located in the scanner base.
3	Pick roller	9	Postscan drive roller
4	Feed roller	10	Back-side scan module
5	Deskew drive roller	11	Back-side background selector
6	Prescan drive roller	12	Exit drive roller

## Automatic document feeder simplex operation

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

1. ADF jam cover sensor cover door detects when cover door is in closed position.
2. The ADF paper present sensor activates when paper is loaded onto the input tray.
3. The pick motor rotates to lower the pick roller and starts to pick the loaded paper.
4. The ADF multi-pick (ultra sonic) sensor activates when the leading edge of the media is driven past the sensor. The product firmware registers a successful pick operation.
5. The ADF paper path deskew activates when the leading edge of the paper passes it. The product firmware registers the leading edge of the paper position.
6. The leading edge of the paper is driven into the nip point of the deskew drive roller and the deskew pinch rollers. A buckle of paper is created by the nip point for pick-skew correction.

7. The deskew motor rotates the deskew drive roller to pull the paper into the prescan drive roller.
8. The pick motor stops turning and allows both the pick and feed roller to turn freely while the paper is being pulled in by the deskew drive roller.
9. The feed motor rotates to drive the paper into the prescan front-side sensor. The firmware registers the leading edge position of the paper as the multi-pick sensor is activated.



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**NOTE:** If the copy job requires a reflective platen change, the front-side background selector is activated.

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10. The feed motor continues to rotate and drive the leading edge of the paper through the preset distance from the multi-pick sensor to the front-side scan zone. The scanner begins the scanning and data retrieval process.
11. The ADF multi-pick (ultra sonic) sensor deactivates when trailing edge of the paper passes the sensor. The firmware registers the trailing edge of the paper position.
12. The feed motor continues to rotate and drive the trailing edge of the paper through the preset distance from the ADF multi-pick (ultra sonic) sensor to the front-side scan zone. The scanner ends the scanning and data retrieval process.
13. The feed motor continues to rotate and ejects the trailing edge of the paper into the output bin.
14. One of the following occurs:
  - If the copy job is complete, the ADF paper present sensor is deactivated. The feed motor reverses rotation to raise the pick roller.
  - If the copy job is not complete, the ADF paper present sensor is active. The product firmware detects additional pages in the input tray and the process repeats.

## Automatic document feeder e-duplex operation

Following is the basic sequence of operation for an e-duplex job.



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

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1. The feed motor continues to drive the paper until the leading edge activates the prescan back-side sensor. The product firmware registers the position of the leading edge of the paper.



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**NOTE:** If the copy job requires a reflective platen change, the back-side background selector is activated.

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2. The feed motor continues to rotate to drive the leading edge of the paper through the preset distance from prescan back-side sensor to the back-side background selector scan zone. The back-side background scan module begins scanning and retrieval of the data.
3. The prescan back-side sensor is deactivated when the trailing edge of the paper passes it. The product firmware registers the trailing edge of the paper position.
4. The feed motor continues to rotate to drive the trailing edge of the paper edge pass the back-side background selector scan zone.
5. The feed motor continues to rotate and ejects the trailing edge of the paper into the output bin.
6. One of the following occurs:



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

## Front-side and back-side background selector



**NOTE:** The product automatically controls the operation of the front-side and back-side background selectors.

The background selectors change the reflective surface behind a duplex or simplex scanned page from white to black. Doing so allows the firmware to recognize the edges of a scanned page by passing it over a black background.

The product uses the background selectors for specific scan jobs. Scan jobs like optical character recognition (OCR) and scan to folder require a black reflective background so that the firmware can correctly scan the page from edge-to-edge.

The front-side background selector is a non removable component of the automatic document feeder. The back-side background selector assembly is located under the automatic document feeder input tray and is removable to allow access for cleaning the back-side scan module glass.

## Deskew operation

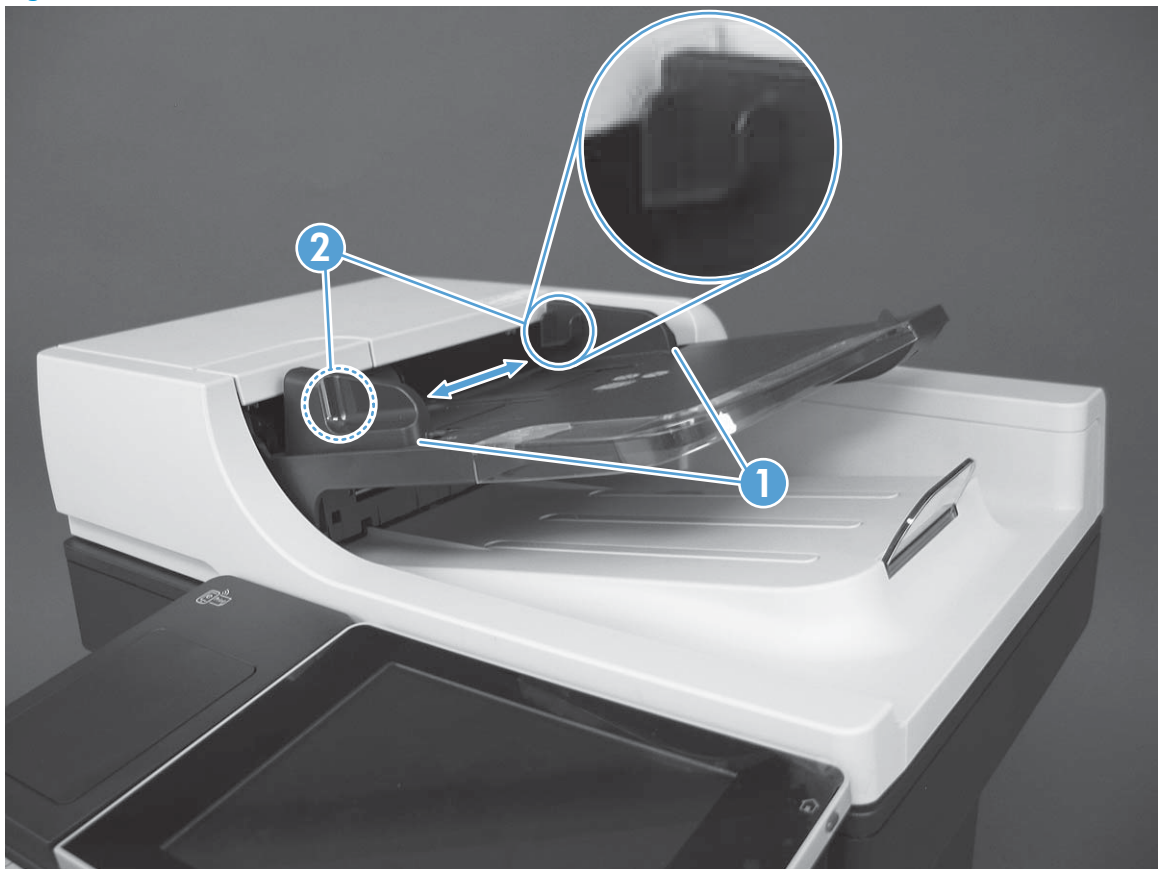
Sliding-side guides on the input tray make sure that the paper stack is correctly aligned at the center of the input tray when the tray is loaded with paper. The loaded paper is positioned parallel with the direction of travel into the automatic document feeder paper path.

Paper skew because of improper loading of paper on the input tray is further reduced by buckling the paper to create a paper buffer.

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

The stack-height limiter prevents incorrect insertion of the paper and limits the maximum amount (stacking height) of media that can be loaded on the input tray.

**Figure 1-59** Automatic document feeder deskew features



**Table 1-32** Automatic document feeder deskew features

Item	Description
1	Sliding-side guides
2	Stack-height limiter

## Automatic document feeder hinges

The automatic document feeder hinges allow the assembly to be positioned vertically above the scanner glass to accommodate the placement of books and other objects up to 40 mm (1.57 in) in height on the scanner glass. The automatic document feeder is still able to close (the bottom of the ADF is kept parallel to the scanner glass) and allow the product to operate.

The automatic document feeder hinges provide height adjustment of at least 40 mm (1.57 in) in when a maximum downward force of 5 kg (11 lb) is applied at front edge of the assembly, with the fulcrum (for example, the spine of a book) centered in the scanner glass and parallel to its long axis.

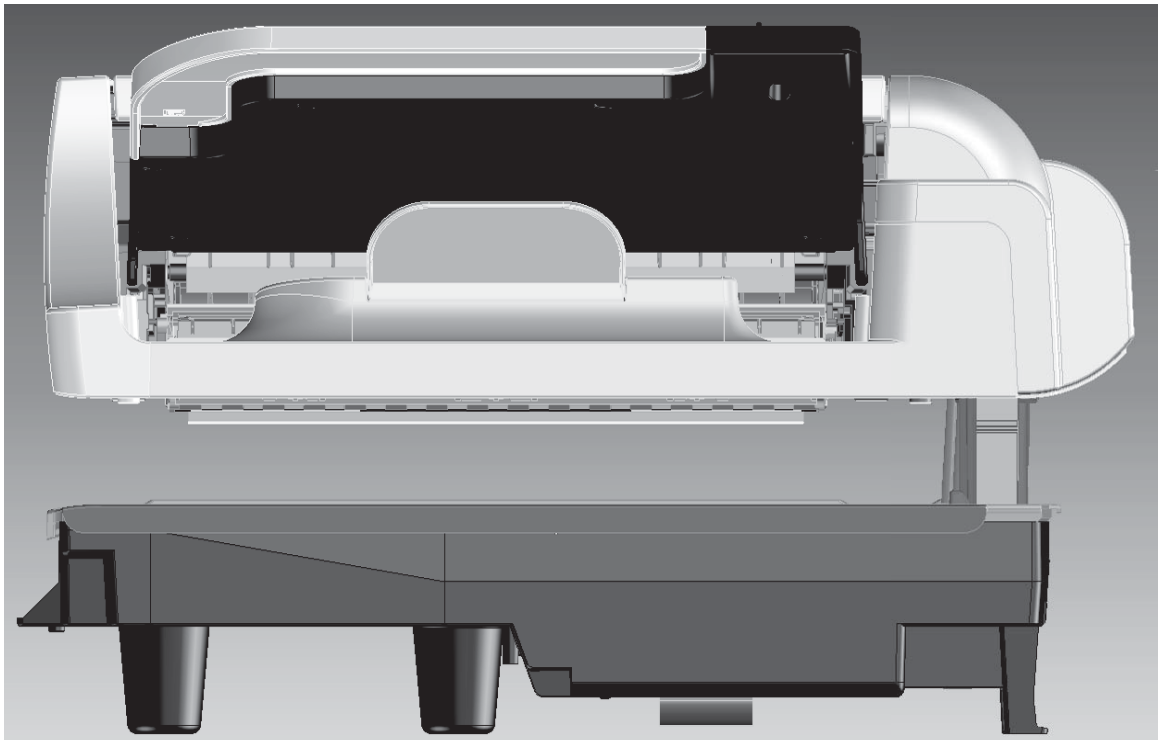
The automatic document feeder is able to withstand a downward force of at least 15 kg (33 lb) applied at the front edge center of the assembly, when the fulcrum (such as the spine of a book) is oriented parallel to the long axis of the scanner glass but located anywhere within the scan window, without breaking, deforming, detaching or experiencing performance degradation.

The automatic document feeder hinges support the assembly in the open position, and prevent the automatic document feeder from suddenly shutting in a damaging or loud manner.

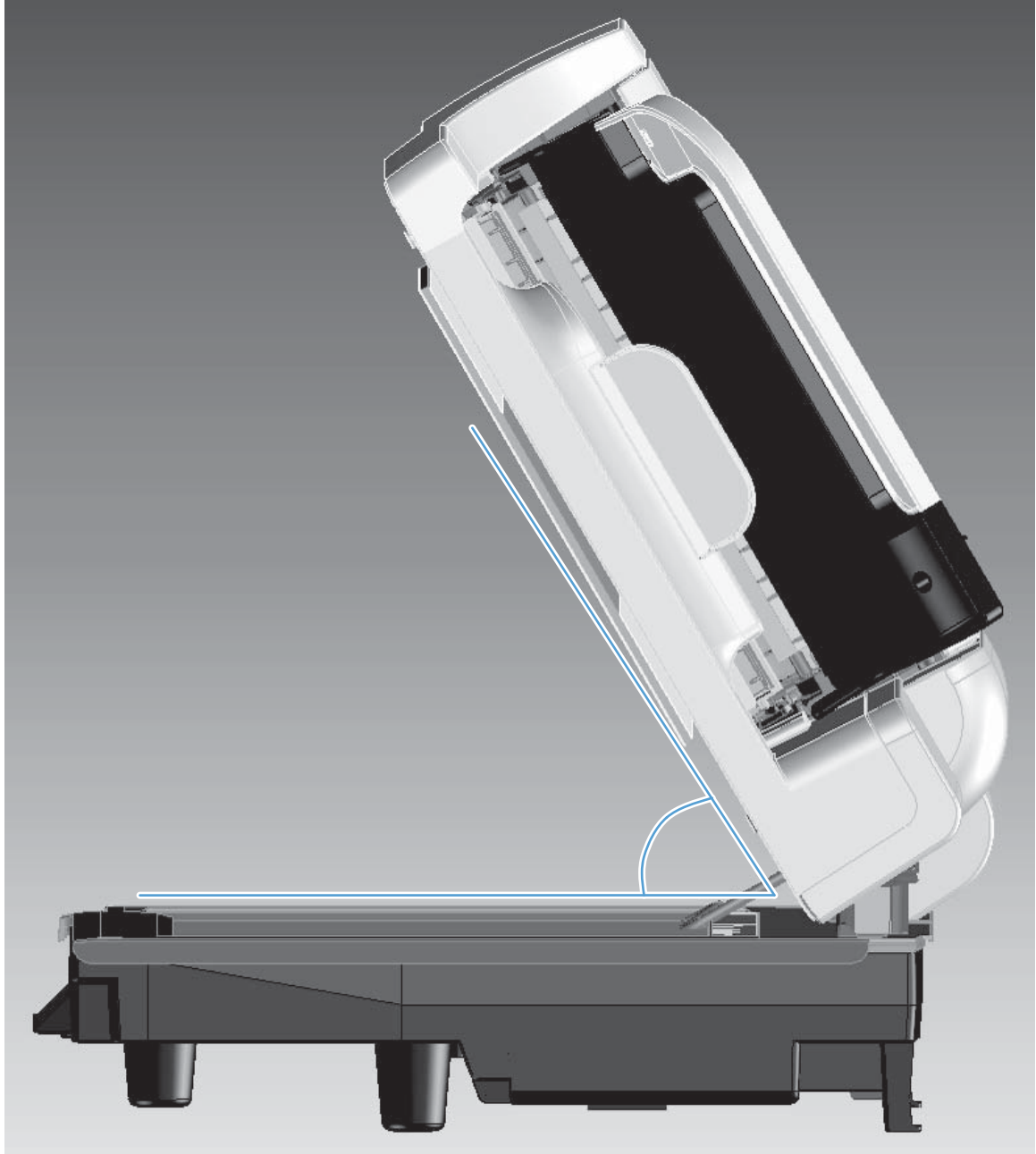
The hinges can hold the automatic document feeder static in all positions higher than 100 mm (3.93 in) (measured at the front of the assembly). Less than 2.3 kg (5 lb) is required to open or close the automatic document feeder.

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

**Figure 1-60** Automatic document feeder open (book mode)



**Figure 1-61** Automatic document feeder open (60° to 80°)



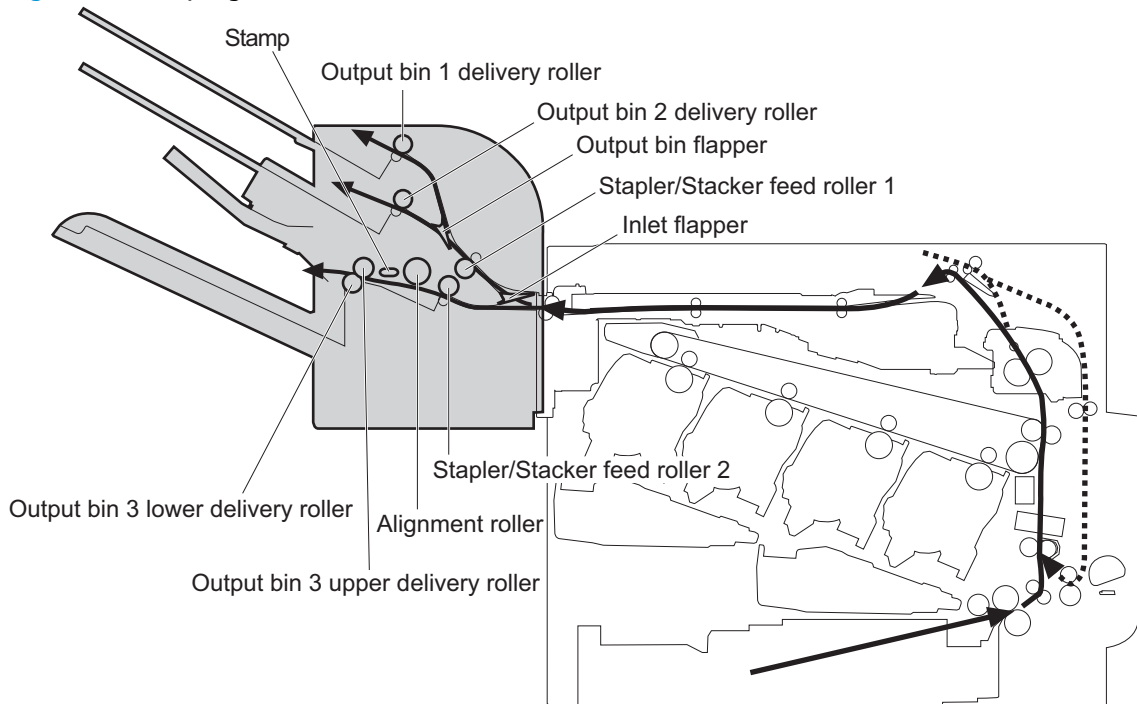
# Stapling mailbox (M680)

The stapling mailbox installs on the delivery assembly and delivers paper to the output bin. The stapling mailbox has two modes:

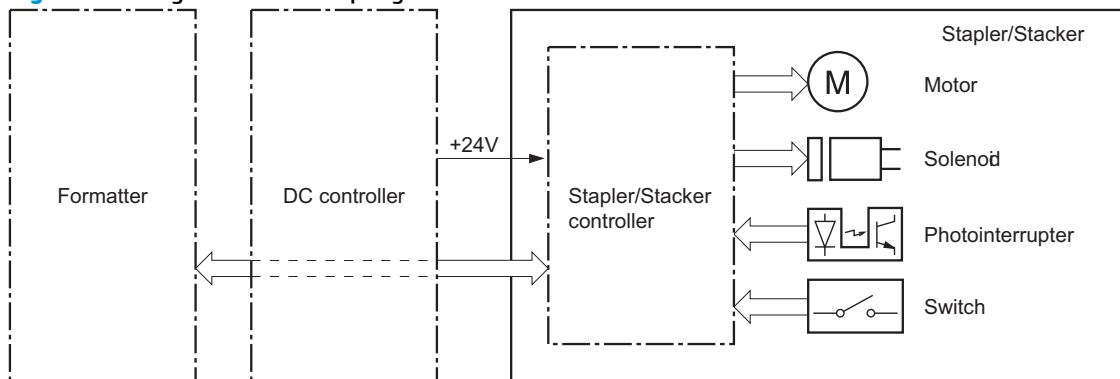
- Stacker mode
- Mailbox/job separator mode

Stapling is available for both modes.

**Figure 1-62** Stapling mailbox



**Figure 1-63** Signals for the stapling mailbox

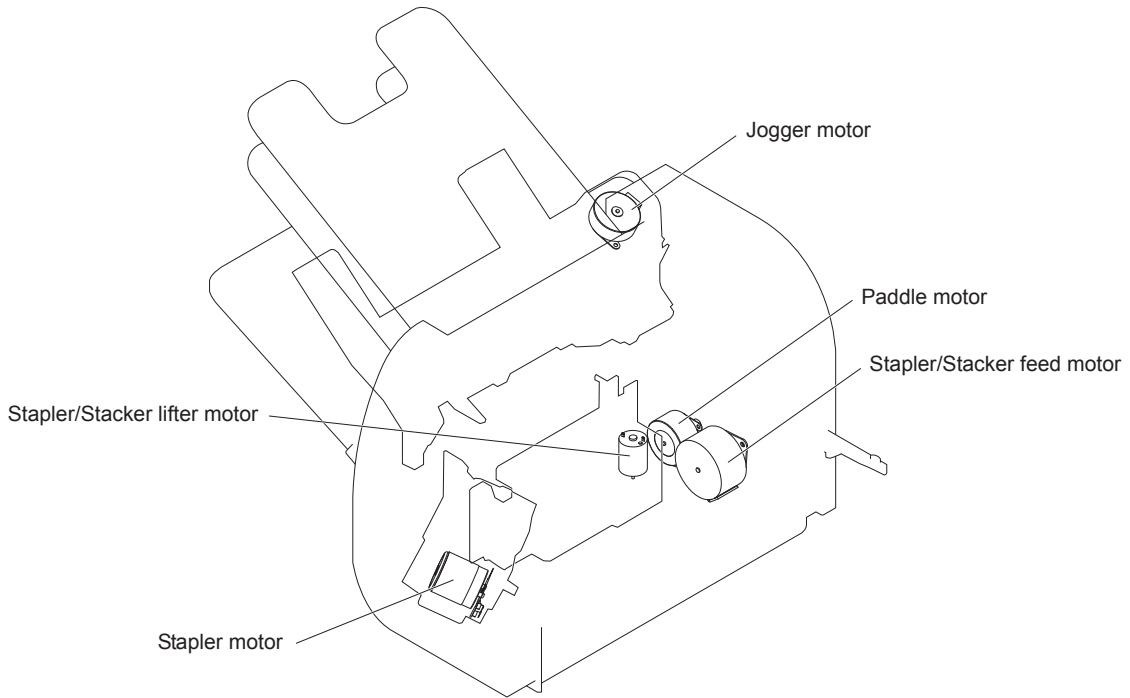


The stapling mailbox contains several motors, solenoids, sensors, and switches.

**Table 1-33 Electrical components for the stapling mailbox**

<b>Component type</b>	<b>Abbreviation</b>	<b>Component name</b>
Motors	M1	Stapler motor
	M3	Jogger motor
	M4	Paddle motor
	M5	Stapler/stacker feed motor
	M6	Stapler/stacker lifter motor
Solenoids	SL1	Stamp solenoid
	SL2	Inlet solenoid
	SL3	Output bin solenoid
Sensors	SR1	Output bin 3 delivery sensor
	SR2	Stapler/stacker media feed sensor 1
	SR3	Output bin 3 media full sensor
	SR4	Alignment roller sensor
	SR5	Stapler/stacker media feed sensor 2
	SR6	Jogger sensor
	SR7	Output bin 3 upper delivery roller sensor
	PS2501	Output bin 1 media presence sensor
	PS2502	Output bin 2 media full sensor
	PS2503	Output bin 2 media presence sensor
	PS2504	Output bin 1 media full sensor
	PS2601	Output bin 3 higher limit sensor
	PS2602	Output bin 3 lower limit sensor
		Stapler sensor
		Staple presence sensor
	Staple ready sensor	
Switches	SW1	Stapler/stacker door switch

## Motor control



The stapling mailbox has five motors for paper feed, paper delivery, and staple operation.

**Table 1-34 Motor control (stapling mailbox)**

Component		Drives	Failure detection <sup>1</sup>
Stapler motor	M1	Stapler	Yes (type 2)
Jogger motor	M3	Jogger guide	Yes (type 2)
Paddle motor	M4	Alignment roller, disengagement of the alignment roller, and disengagement of the output bin 3 lower delivery roller	Yes (type 2)
Stapler/stacker feed motor	M5	Stapler/stacker feed roller, stapler/stacker delivery roller, output bin 3 upper delivery roller, and the output bin 3 lower delivery roller	No When the motor fails a jam occurs.
Stapler/stacker lifter motor	M6	Output bin 3	Yes (type 2)

<sup>1</sup> There are two methods for detecting motor failure. Type 1 detects failure by monitoring the motor. Type 2 detects failure by monitoring a related part of the motor.

## Failure detection

The controller detects a motor failure by monitoring a part related to the motor. If the controller determines a motor failure or motor-related part failure, it notifies the formatter when it encounters the following conditions:

- **Stapler motor:** The stapler sensor is not sensed for a specified period of time after the stapler motor starts rotating.
- **Jogger motor:** The jogger sensor is not sensed for a specified period of time after the jogger motor starts rotating.

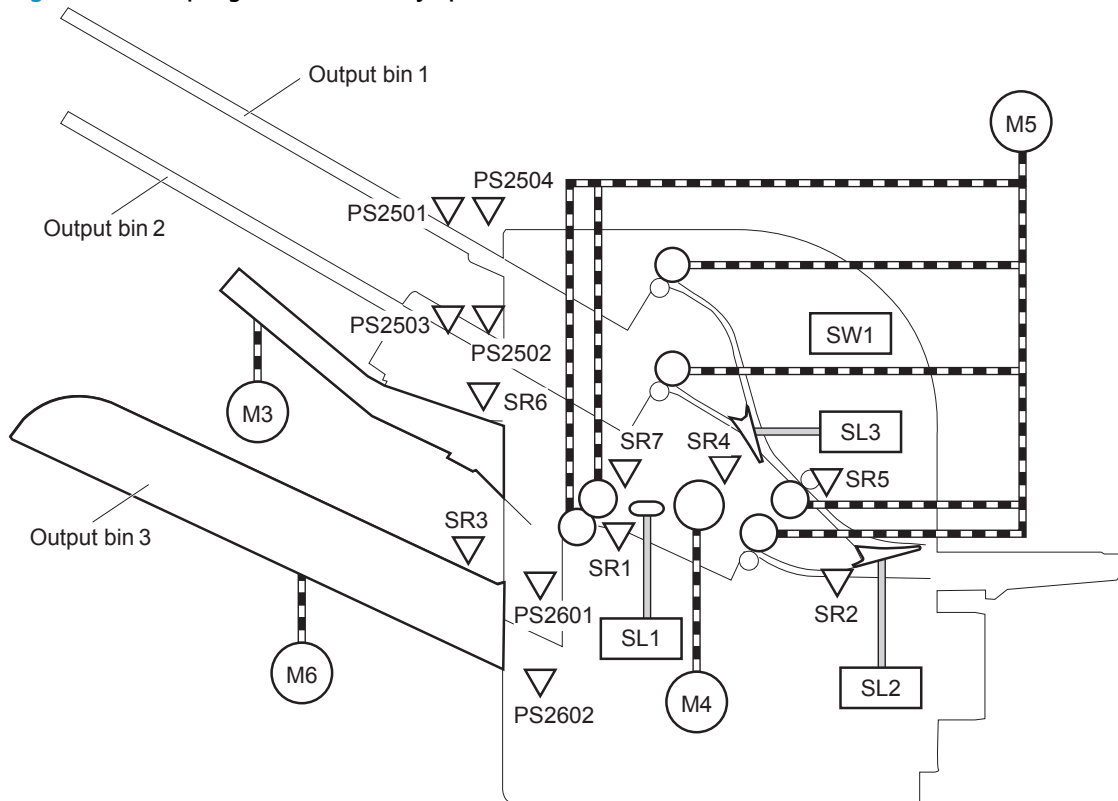
- **Paddle motor:** The output bin 3 upper delivery roller sensor is not sensed for a specified period of time after the paddle motor is rotated. The alignment roller sensor is not sensed for a specified period of time after the paddle motor is reversed.
- **Stapler/stacker lifter motor:** The output bin 3 higher limit sensor or output bin 3 media full sensor is not sensed for a specified period of time after the stapler/stacker lifter motor is rotated. The output bin 3 higher limit sensor, output bin 3 lower limit sensor, or output bin 3 media full sensor is not sensed for a specified period from when the stapler/stacker lifter motor is reversed.

## Delivery operation

The stapling mailbox has two modes.

- **Stacker mode:** The printed page is delivered to output bin 3 first and then delivered to the subsequent output bins.
- **Mailbox/job separator mode:** The printed page is delivered to the specified output bin for each print job.

**Figure 1-64** Stapling mailbox delivery operation



**Table 1-35** Delivery components (stapling mailbox)

Component Abbreviation	Component Name
M1	Stapler motor
M3	Jogger motor
M4	Paddle motor
M5	Stapler/stacker feed motor
M6	Stapler/stacker lifter motor



**Table 1-35 Delivery components (stapling mailbox) (continued)**

<b>Component Abbreviation</b>	<b>Component Name</b>
SL1	Stamp solenoid
SL2	Inlet solenoid
SL3	Output bin solenoid
SR1	Output bin 3 delivery sensor
SR2	Stapler/stacker media feed sensor 1
SR3	Output bin 3 media full sensor
SR4	Alignment roller sensor
SR5	Stapler/stacker media feed sensor 2
SR6	Jogger sensor
SR7	Output bin 3 upper delivery roller sensor
PS2501	Output bin 1 media presence sensor
PS2502	Output bin 2 media full sensor
PS2503	Output bin 2 media presence sensor
PS2504	Output bin 1 media full sensor
PS2601	Output bin 3 higher limit sensor
PS2602	Output bin 3 lower limit sensor
	Stapler sensor
	Staple presence sensor
	Staple ready sensor
SW1	Stapler/stacker door switch

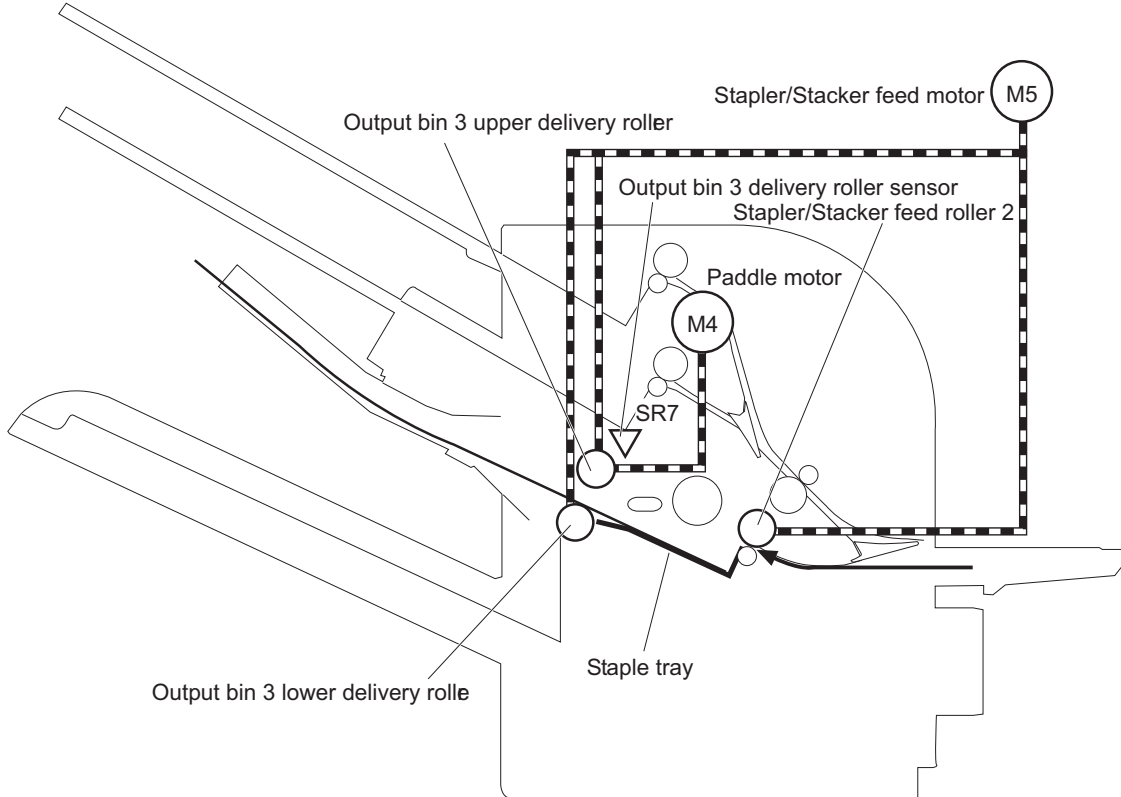
## Staple operation

The staple operation staples 2 to 30 sheets of printed pages together into one set and then delivers it to the output bin 3.

The staple sequence is as follows:

1. The stapler/stacker controller rotates the paddle motor to disengage the output bin 3 upper delivery roller from the output bin 3 lower delivery roller.
2. The printed page from the product is fed to the staple tray.

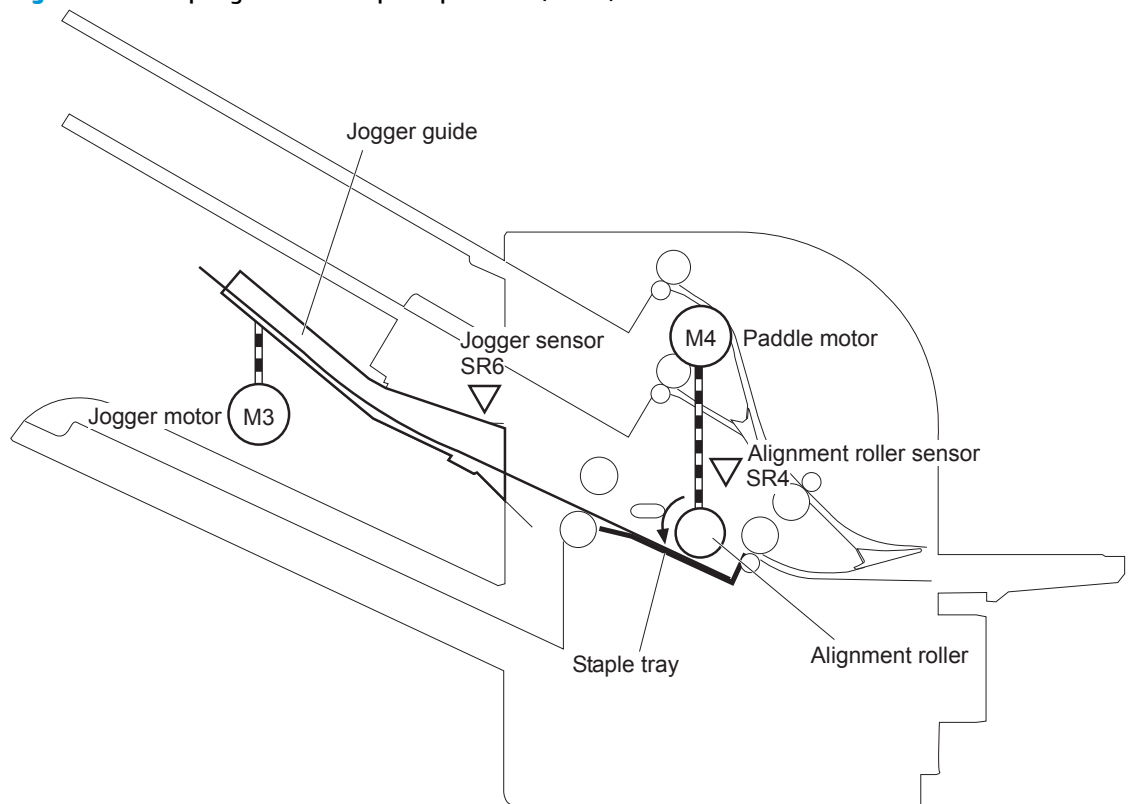
**Figure 1-65** Stapling mailbox stapler operation (1 of 4)



The controller determines an output bin 3 upper delivery roller failure and notifies the formatter through the DC controller when it does not detect the output bin 3 upper delivery roller sensor for a specified period after the paddle motor starts rotating.

3. The printed page on the staple tray is aligned. For horizontal alignment, the jogger motor rotates and moves the jogger guide. For vertical alignment, the paddle motor is reversed and the alignment roller pushes the page.

**Figure 1-66** Stapling mailbox stapler operation (2 of 4)

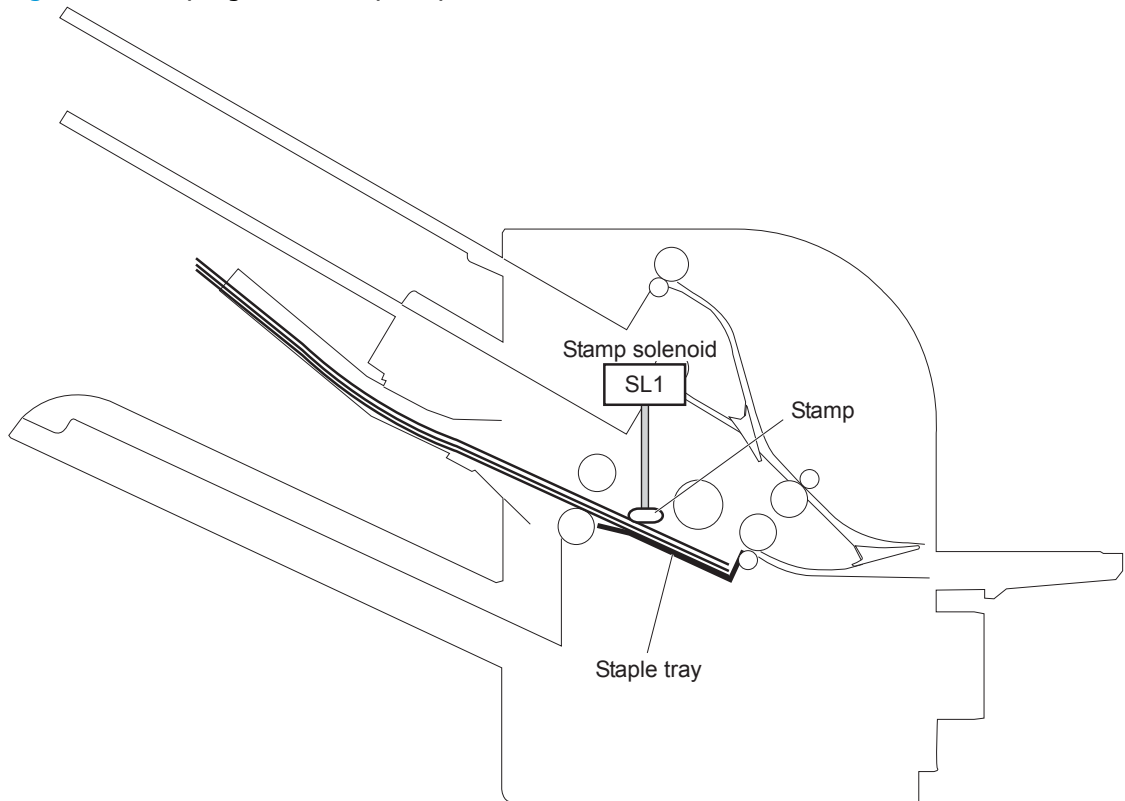


The controller determines a paddle motor failure and notifies the formatter through the DC controller when it does not detect the alignment roller sensor for a specified period after the paddle motor starts rotating.

4. After alignment, the stamp solenoid is driven and the stamp holds the page.
5. Steps 1 through 4 repeat for each page.

6. After all of the pages are aligned, the pages are stapled together while being held with the stamp.

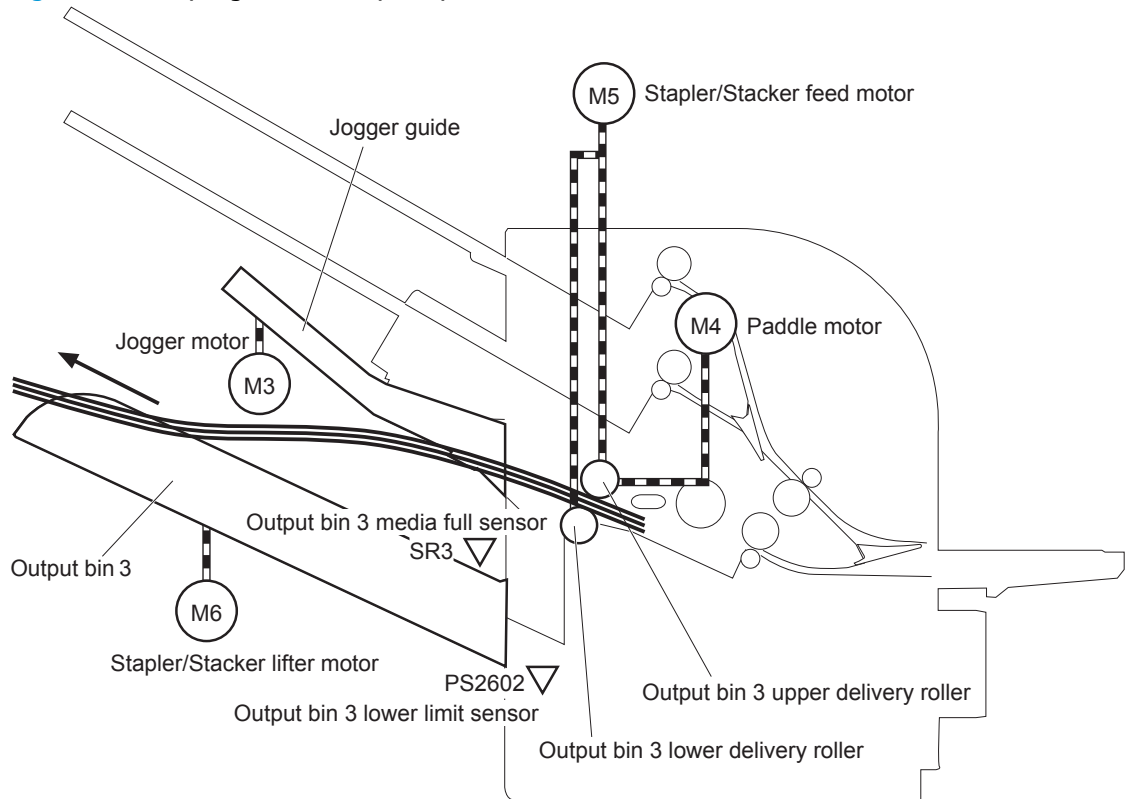
**Figure 1-67** Stapling mailbox stapler operation (3 of 4)



7. The paddle motor rotates, and the output bin 3 upper delivery roller touches the stapled pages.
8. The stapler/stacker feed motor rotates to rotate the output bin 3 upper delivery roller and the output bin 3 lower delivery roller. Accordingly, the set of printed-pages is delivered to output bin 3.

9. The stapler/stacker feed motor starts rotating while the jogger motor is reversed and the jogger guide moves to its home position.

**Figure 1-68** Stapling mailbox stapler operation (4 of 4)



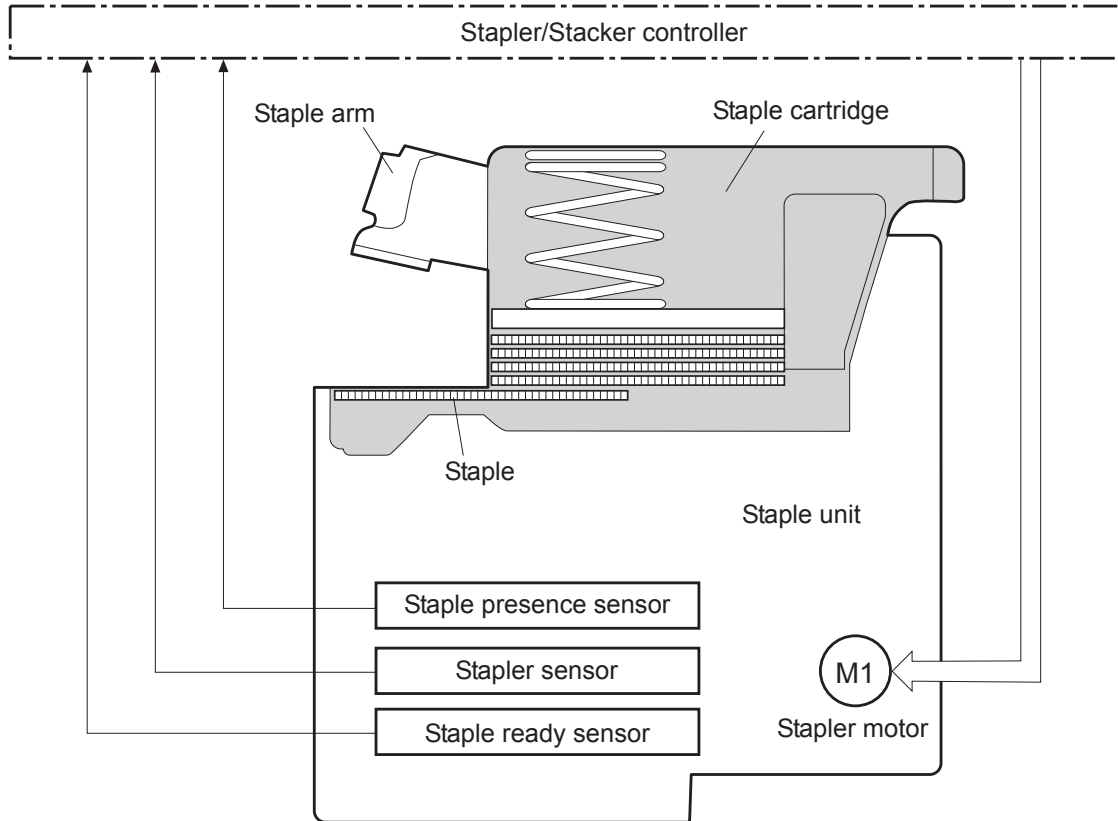
The output bin 3 media full sensor on output bin 3 detects whether the bin is full. The stapler/stacker controller determines that the media stack surface is high and reverses the stapler/stacker lifter motor to lower output bin 3 when the output bin 3 media full sensor is on for a specified period. If the output bin 3 lower limit sensor is turned on at this time, the stapler/stacker controller determines an output bin 3 media full and notifies the formatter through the DC controller.

The stapler/stacker controller determines a jogger motor failure and notifies the formatter through the DC controller when it does not detect the jogger sensor for a specified period after the jogger motor starts rotating.

## Stapler

The stapler consists of the staple cartridge and the stapler assembly. The staple cartridge holds up to 5,000 staples. The staple presence sensor detects the presence of staple. The staple ready sensor detects whether the stapler is in the correct position to staple. The staple assembly is equipped with the stapler motor. When the stapler/stacker controller rotates the stapler motor, the staple arm lowers and staple operation begins. The stapler sensor detects the position of the staple arm.

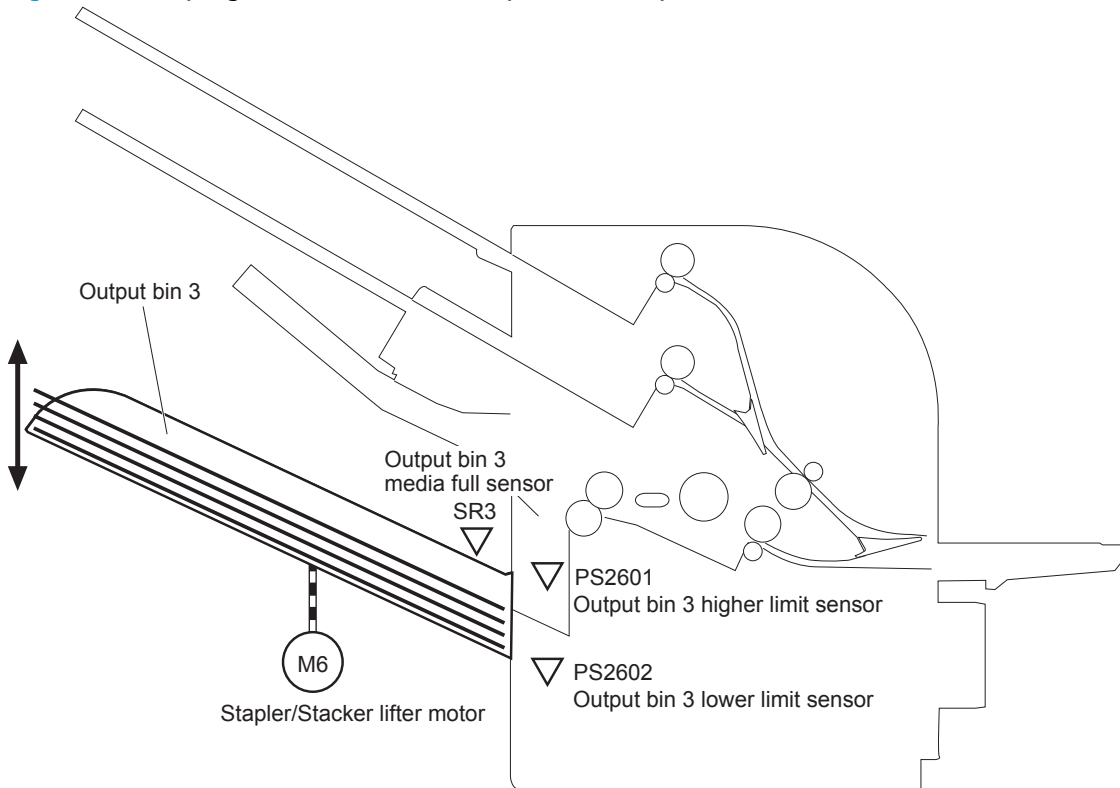
**Figure 1-69** Stapling mailbox sensors for the stapler



The stapler/stacker controller determines a stapler motor failure and notifies the formatter through the DC controller when it does not detect the stapler sensor for a specified period after the stapler motor starts rotating. The stapler/stacker controller determines a stapler jam and notifies the formatter through the DC controller if it senses the stapler sensor after a specified period of time from when the stapler motor starts rotating and then if the stapler sensor recovers within a specified period of time from when the stapler motor is reversed.

## Output bin 3 lift operation

**Figure 1-70** Stapling mailbox sensors for output bin 3 lift operation



The operational sequence of the output bin 3 lift operation is as follows:

1. The stapler/stacker lifter motor rotates if both the output bin 3 higher limit sensor and the output bin 3 media full sensor are off when the product is turned on until following conditions occur:
  - The output bin 3 higher limit sensor detects the output bin 3.
  - The output bin 3 media full sensor detects paper.

The stapler/stacker lifter motor is reversed if either the output bin 3 higher limit sensor, or the output bin 3 media full sensor is on, or if both sensors are on when the product is turned on to lower the output bin 3 to a specified level.

2. When the printed pages are stacked on the output bin 3, and the output bin 3 media full sensor detects the paper, the stapler/stacker lifter motor is reversed to lower the output bin 3 to a specified level.
3. The stapler/stacker controller notifies the formatter through the DC controller when the output bin 3 media full sensor detects paper. The output bin 3 lowers to the position of the output bin 3 lower limit sensor.

The stapler/stacker controller determines a stapler/stacker lifter motor failure. The controller notifies the formatter through the DC controller when it encounters the following conditions after the stapler/stacker lifter motor starts rotating:

- Output bin 3 does not reach the output bin 3 higher limit sensor within a specified period of time.
- The output bin 3 media full sensor does not detect paper

The stapler/stacker controller determines a stapler/stacker lifter motor failure. The controller notifies the formatter through the DC controller when the following sensor is not sensed after the stapler/stacker lifter motor is reversed:

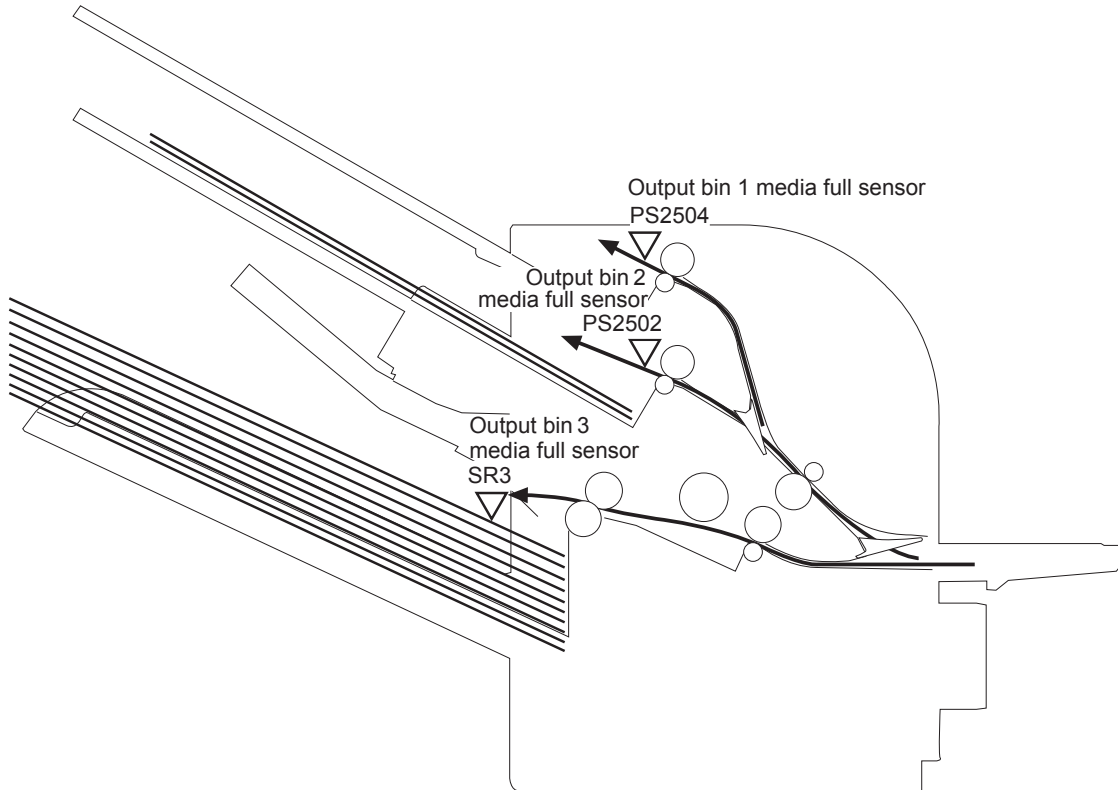
- Output bin 3 higher limit sensor
- Output bin 3 lower limit sensor
- Output bin 3 media full sensor

## Stacker mode

Stacker mode does not designate an output bin. It delivers the printed page to the output bin 3 first and then to the next bin up.

When the output bin 3 media full sensor detects that output bin 3 is full, the stapling mailbox delivers to output bin 2. When the output bin 2 media full sensor detects that the output bin 2 is full, the stapling mailbox delivers to output bin 1.

**Figure 1-71** Stapling mailbox sensors for stacker mode



The stapler/stacker controller determines if the stapling mailbox is full and notifies the formatter through the DC controller when it encounters the following condition:

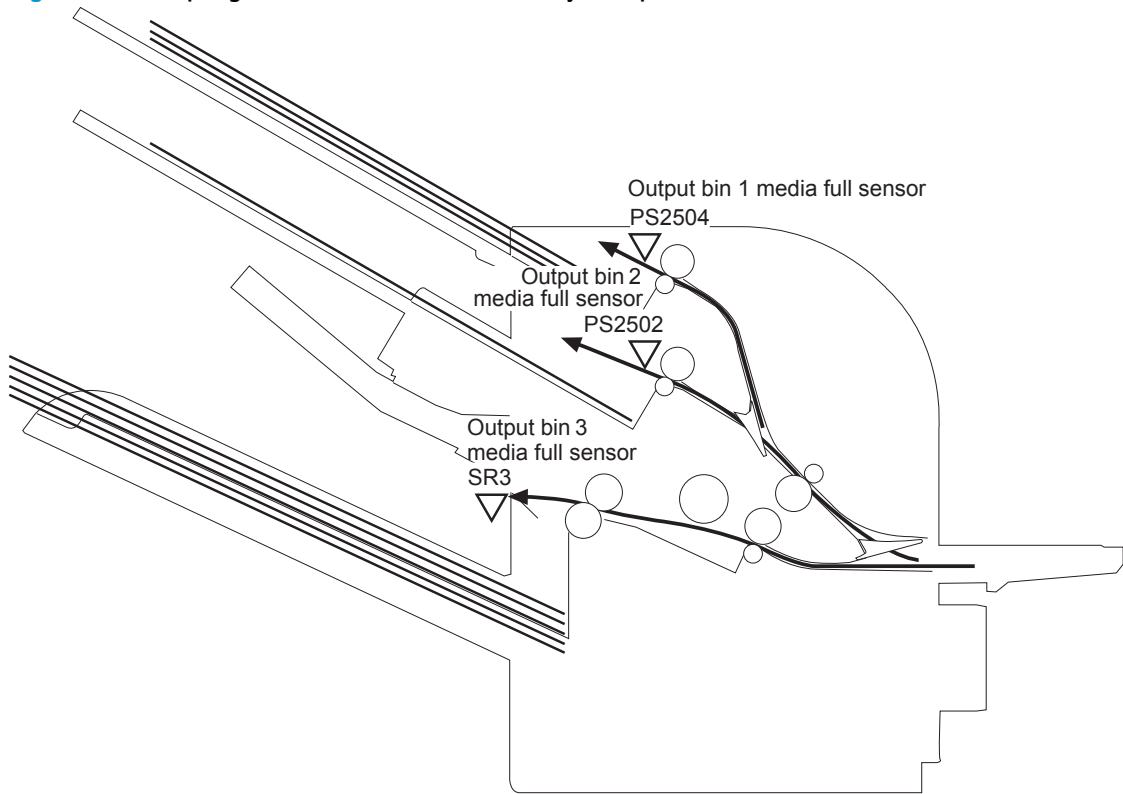
- The output bin 1 media full is detected.
- The staple operation is designated when the output bin 3 is full of paper.



## Mailbox/job separator mode

The mailbox/job separator mode delivers the printed page to the designated bin for each print job.

**Figure 1-72** Stapling mailbox sensors for mailbox/jam separation



The stapler/stacker controller determines if the stapling mailbox is full and notifies the formatter through the DC controller when it encounters the following condition:

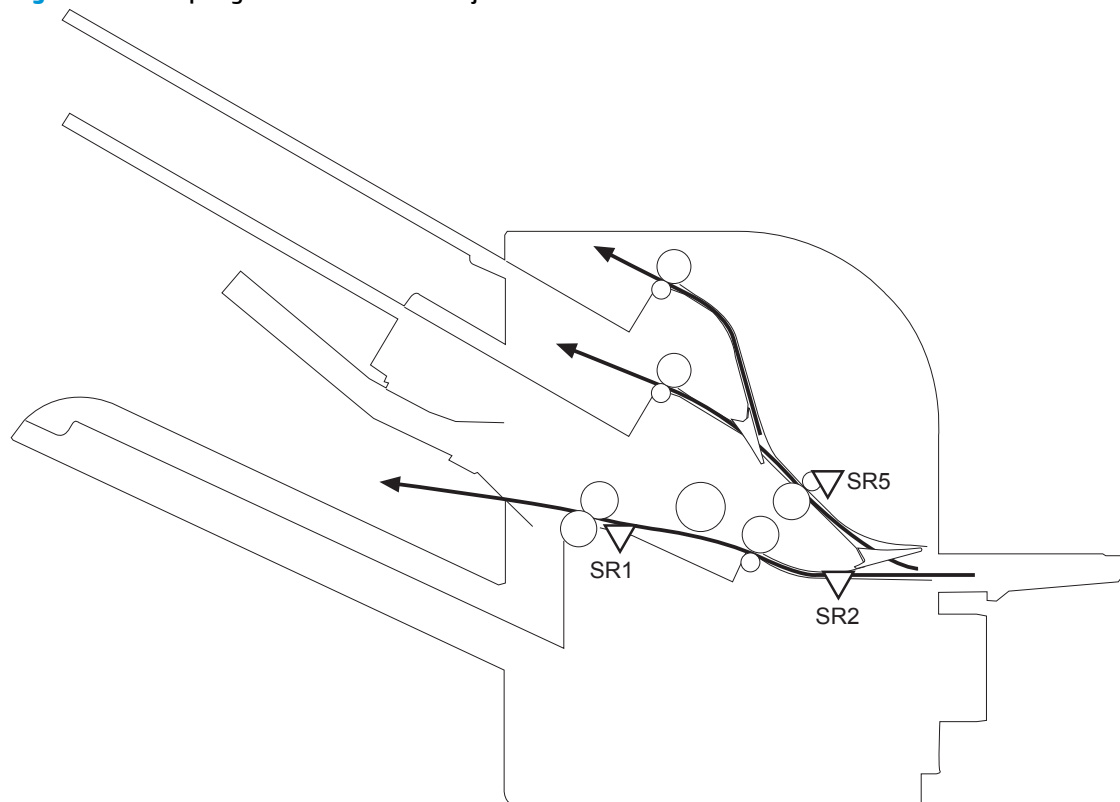
- The designated output bin media full is detected.
- The staple operation is designated when output bin 3 is full of paper.

## Jam detection

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

- Output bin 3 delivery sensor (SR1)
- Stapler/stacker media feed sensor 1 (SR2)
- Stapler/stacker media feed sensor 2 (SR5)

**Figure 1-73** Stapling mailbox sensors for jam detection



The stapler/stacker detects the following jams:

- **Stapler/stacker feed delay jam 1:** The stapler/stacker media feed sensor 1 does not detect the leading edge of paper within a specified period of time after the fixing delivery sensor in the product detects the leading edge.
- **Stapler/stacker feed delay jam 2:** The stapler/stacker media feed sensor 2 does not detect the leading edge of paper within a specified period of time after the fixing delivery sensor in the product detects the leading edge.
- **Stapler/stacker feed stationary jam 1:** The stapler/stacker media feed sensor 1 does not detect the trailing edge of paper within a specified period of time after it detects the leading edge.
- **Stapler/stacker feed stationary jam 2:** The stapler/stacker media feed sensor 2 does not detect the trailing edge of paper within a specified period of time after it detects the leading edge.

- **Stapler/stacker feed stationary jam 3:** The output bin 3 delivery sensor does not detect the trailing edge of paper within a specified period of time from when the stapler/stacker feed motor starts rotating after a staple operation.
- **Stapler/stacker residual paper jam:** Any one of the following sensors detects a presence of paper for a specified period of time during an automatic delivery operation:
  - Output bin 3 delivery sensor
  - Stapler/stacker media feed sensor 1
  - Stapler/stacker media feed sensor 2

## Automatic delivery

The stapler/stacker automatically clears the paper if any one of the following sensors detects the residual paper during the initial sequence after the stapler/stacker is turned on or after the door is closed.

- Output bin 3 delivery sensor
- Stapler/stacker media feed sensor 1
- Stapler/stacker media feed sensor 2



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## 2 Solve problems

- [Solve problems checklist](#)
- [Menu map](#)
- [Current settings pages](#)
- [Event log](#)
- [Pre-boot menu options](#)
- [Troubleshooting process](#)
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- [Clear jams](#)
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- [Solve fax problems \(M680\)](#)
- [Firmware upgrades](#)

## Solve problems checklist

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

**1.** If the control panel is blank or black, check the following before proceeding:

- Check the power cable.
- Check that the power is turned on.
- Make sure that the line voltage is correct for the product power configuration. (See the label that is on the back of the product for voltage requirements.) If a power strip is in use, and its voltage is not within specifications, connect the product directly into the electrical outlet. If it is already connected into the outlet, try a different outlet.

If the control panel is not responding to touch, or if it appears black or blank, look for the following conditions.



**NOTE:** The following conditions indicate that the product has halted while in Sleep mode.

- The control-panel home button LED is illuminated.
  - The power-switch LED flashes once every three to five seconds.
  - The product does not exit Sleep mode when a page is placed in the document feeder (M680).
  - The product does not exit Sleep mode when the document feeder is opened to place a page on the scanner flatbed (M680).
- a.** If the firmware upgrade fails to resolve the problem, and the product still halts while in Sleep mode, elevate the case after collecting the following info:
- Try printing to the product from a host computer. Does the product print a page?
  - Is the product HP Embedded Web Server (EWS) accessible?
  - Turn the product power off, and then on again. Save the product diagnostic file.
- b. M680 only:** If the product did not halt while in Sleep mode, verify that the control panel is correctly functioning by accessing the control panel diagnostics (see the Control-panel tests in the Component tests section of the product problem solving manual).
- If the control panel does not respond to the diagnostic button, try the following:
- Turn the product power off.
  - Reseat the cable connections on the bottom of the control-panel assembly.
  - Remove, and then reseat the formatter.
  - Turn the product power on, and then check for functionality of the control-panel.
- c.** If the error persists, replace the control-panel assembly.
- 2.** The control panel should indicate a **Ready**, **Paused**, or **Sleep mode on** status. If an error message displays, resolve the error.

- Use the Power-on checks section in the product troubleshooting service manual to solve the problem.
3. Check the cables.
    - a. Check the power and network cable connections between the product and the computer or network port. Make sure that the connections are secure.
    - b. Make sure that the cables are not faulty by trying different cables, if possible.
    - c. Check the network connection.
  4. Make sure that the selected paper size and type meet HP specifications. Also open the [Trays](#) menu on the product control panel and verify that the tray is configured correctly for the paper type and size.
  5. Print a configuration page. If the product is connected to a network, an HP Jetdirect page also prints.
    - a. From the [Home](#) screen on the product control panel, scroll to and touch the [Administration](#) button.
    - b. Open the following menus:
      - [Reports](#)
      - [Configuration/Status Pages](#)
      - [Configuration Page](#)
    - c. Touch the [Print](#) button to print the page.
      - If the pages do not print, check that at least one tray contains paper.
      - If the page jams in the product, follow the instructions on the control panel to clear the jam.
      - If the page does not print correctly, the problem is with the product hardware.
      - If the page prints correctly, the product hardware is working. The problem is with the host computer, with the print driver, or with the program.
  6. Print a supplies status page and then check that the maintenance items below are not at their end-of-life.



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

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- a. From the [Home](#) screen on the product control panel, scroll to and touch the [Administration](#) button.
- b. Open the following menus:
  - [Reports](#)
  - [Configuration/Status Pages](#)
  - [Supplies Status Page](#)
- c. Touch the [Print](#) button to print the page, and then check the following maintenance items:



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

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- Image transfer kit (includes the ITB, secondary transfer roller, Tray 1 pickup roller Tray 2 - Tray 5 feed and separation rollers; estimated life: 150,000 pages
    - CE249A
  - Fuser kit; estimated life: 150,000 pages
    - 110V CE246A
    - 220V CE247A
  - ADF maintenance kit; estimated life: 100,000 pages
    - L2718A
  - Toner collection unit (TCU); estimated life: 36,000 pages
    - CE265A
- 7.** Verify that the correct print driver for this product is installed. Check the program to make sure that the print driver for this product is used. The print driver is on the CD that came with the product, or can be downloaded from this Web site: [www.hp.com/support/colorljM651](http://www.hp.com/support/colorljM651) or [www.hp.com/support/colorljMFPM680](http://www.hp.com/support/colorljMFPM680).
- 8.** Print a short document from a different program that has worked in the past. If this solution works, the problem is with the program. If this solution does not work (the document does not print), complete these steps:
- a.** Try printing the job from another computer that has the product software installed.
  - b.** If the product is connected to the network, connect the product directly to a host computer with a USB cable. Redirect the product to the correct port, or reinstall the software (make sure to select the new connection type).



## Menu map

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

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

## Current settings pages

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

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

## Event log

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

### Print or view the event log from the Administration menu

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

### Print or view the event log from the Service menu

1. From the [Home](#) screen on the product control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the [Service](#) menu.
3. On the sign-in screen, select the [Service Access Code](#) option from the drop-down list.


4. Enter one of the following service access codes for the product:
  - **M651:** 04065114
  - **M680:** 04068014
5. Touch the [Print Event Log](#) or [View Event Log](#) item.

#### Clear the event log

1. From the [Home](#) screen on the product control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the [Service](#) menu.
3. On the sign-in screen, select the [Service Access Code](#) option from the drop-down list.
4. Enter one of the following service access codes for the product:
  - **M651:** 04065114
  - **M680:** 04068014
5. Select the [Clear Event Log](#) item, and then touch the [OK](#) button.

# Pre-boot menu options

If an error occurs while the product is initializing, an error message displays on the control-panel display. The user can open the [Pre-boot](#) menus. The error menu item will not be seen if an error did not occur.

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


 **TIP:** The Pre-boot menu can be remotely accessed by using a telnet network protocol to establish a administration connection to the product. See [Remote Admin on page 115](#).

## Open the Pre-boot menu using the product control panel

1. Turn the product on.
2. The HP logo displays on the product control panel. When a "1/8" with an underscore displays below the HP logo, touch the logo to open the [Pre-boot](#) menu.
3. Use the arrow buttons on the touchscreen to navigate the [Pre-boot](#) menu.
4. Touch the [OK](#) button to select a menu item.

## Cold reset using the Pre-boot menu from the product control panel

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

1. Turn the product on.
2. The HP logo displays on the product control panel. When a "1/8" with an underscore displays below the HP logo, touch the logo to open the [Pre-boot](#) menu.
3. Use the down arrow ▼ button to highlight the **+3:Administrator** item, and then touch the [OK](#) button.
4. Use the down arrow ▼ button to highlight the **+8:Startup Options** item, and then touch the [OK](#) button.
5. Use the down arrow ▼ button to highlight the **2☐Cold Reset** item, and then touch the [OK](#) button to select it.
6. Touch the Home  button to return to the main Pre-boot menu and highlight the **1:Continue** item, and then touch the [OK](#) button.

 **NOTE:** The product will initialize.

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

Menu option	First level	Second level	Third level	Description
<a href="#">Continue</a>				Selecting the <a href="#">Continue</a> item exits the <a href="#">Pre-boot</a> menu and continues the normal boot process.  If a selection is not made in the initial menu within 30 seconds, the product returns to a normal boot (the same as selecting <a href="#">Continue</a> ).  If the user navigates to another menu, the timeout does not apply.

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

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

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

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

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

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

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

Menu option	First level	Second level	Third level	Description	
Administrator (continued)	Configure LAN			The network can be configured to obtain the network settings from a DHCP server or as static.	
			IP Mode [DHCP]	Use this item for automatic IP address acquisition from the DHCP server.	
			IP Mode [STATIC]		Use this item to manually assign the network addresses.
				IP Address	Use this item to manually enter the IP addresses.
				Subnet Mask	Use this item to manually enter the subnet mask.
				Default Gateway	Use this item to manually enter the default gateway.
				Save	Select the <a href="#">Save</a> item to save the manual settings.

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

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Startup Options			Select the <a href="#">Startup Options</a> item to specify options that can be set for the next time the product is turned on and initializes to the <b>Ready</b> state.
			Show Revision	<b>Not currently functional:</b> Select the <a href="#">Show Revision</a> item to allow the product to initialize and show the firmware version when the product reaches the <b>Ready</b> state.  Once the product power is turned on the next time, the <a href="#">Show Revision</a> item is unchecked so that the firmware revision is not shown.
			Cold Reset	Select the <a href="#">Cold Reset</a> item to clear the IP address and all customer settings. (This item also returns all settings to factory defaults.)  <b>NOTE:</b> Items in the <a href="#">Service</a> menu are not reset.
			Skip Disk Load	Select the <a href="#">Skip Disk Load</a> item to disable installed third-party applications.
			Skip Cal	Select the <a href="#">Skip Cal</a> item to initialize the product the next time the power is turned on without calibrating.
			Lock Service	<b>CAUTION:</b> Select the <a href="#">Lock Service</a> item to lock the <a href="#">Service</a> menu access (both in the <a href="#">Pre-boot</a> menu and the <a href="#">Device Maintenance</a> menu).  Service personnel must have the administrator remove the <a href="#">Lock Service</a> setting before they can open the <a href="#">Service</a> menu.
			Skip FSCK	Select the <a href="#">Skip FSCK</a> item to disable Chkdisk/ScanVolume during startup.

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

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Startup Options (continued)	First Power		<p><b>Not currently functional:</b> This item allows the product to initialize as if it is the first time it has been turned on.</p> <p>For example, the user is prompted to configure first-time settings like date/time, language, and other settings.</p> <p>Select this item so that it is enabled for the next time the product power is turned on.</p> <p>When the product power is turned on the next time, this item is unchecked so that the pre-configured settings are used during configuration, and the first-time setting prompt is not used.</p>
		Embedded Jetdirect Off		<p>Select the <a href="#">Embedded Jetdirect Off</a> item to disable the embedded HP Jetdirect.</p> <p>By default this item is unchecked so that HP Jetdirect is always enabled.</p>
		WiFi Accessory		<p>Select the <a href="#">WiFi Accessory</a> item to enable the wireless accessory.</p>



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

Menu option	First level	Second level	Third level	Description	
Administrator (continued)	Diagnostics			Diagnostic items are useful to diagnose hardware components and their interface connections. Use these items to troubleshoot specific hardware components, and the interface between them and other components.	
		Memory	Do Not Run	Use the <b>Do Not Run</b> item to exclude the <b>Memory</b> diagnostic when executing multiple diagnostics.	
			Short	Use the <b>Short</b> item to select a brief memory test.  <b>NOTE:</b> This test requires about four minutes to execute.	
			Long	Use the <b>Long</b> item to select an extended memory test.  <b>NOTE:</b> This test requires about twenty minutes to execute.	
		Disk	Do Not Run	Use the <b>Do Not Run</b> item to exclude the <b>Disk</b> diagnostic when executing multiple diagnostics.	
			Short	Use the <b>Short</b> item to select a brief firmware self-test.  <b>NOTE:</b> This test requires about two or three minutes to execute.	
			Long	Use the <b>Long</b> item to select an extended firmware self-test.  <b>NOTE:</b> This test requires about sixty minutes to execute.	
			Optimized	Use the <b>Optimized</b> item to select a test that checks the active sectors on the disk.  <b>NOTE:</b> This test requires about thirty minutes to execute.	
			Raw	Use the <b>Raw</b> item to select a test that checks every sector on the disk.  <b>NOTE:</b> This test requires about fifty minutes to execute.	
			Smart	Use the <b>Smart</b> item to select a very brief test that checks the drive self-monitoring analysis and reporting technology (SMART) status—the drive detects and reports reliability indicators to help anticipate disk failures (SMART status).	
		ICB Connection			Use the <b>ICB</b> item to select a test that checks the communication between the formatter and interconnect board (ICB).
		CPB			Use the <b>CPB</b> item to verify the integrity of the copy processor board (CPB) and the formatter PCA connections.
		Interconnect			Use the <b>Interconnect</b> item to verify the integrity of the interconnect PCA (ICB) and its connections.
		Run Selected			Select the <b>Run Selected</b> item to execute a selected test.  <b>NOTE:</b> If more than one test is selected, they are executed in sequence.

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

Menu option	First level	Second level	Third level	Description
Administrator (continued)	Remote Admin	Start Telnet		<p>The <a href="#">Remote Admin</a> item allows a service technician to access to the product Pre-boot menu remotely, and to navigate the menu selections from a remote location.</p> <p><b>IMPORTANT:</b> A Remote Admin connection must be initiated by a person that is physically present at the product.</p> <p>This person will also need to provide a randomly generated PIN to the remote service technician.</p> <p><b>NOTE:</b> For more information about using the <a href="#">Remote Admin</a> function, see <a href="#">Remote Admin on page 115</a>.</p>
			Stop Telnet	
			Refresh IP	
	System Triage	Copy Logs		<p>If the device will not boot to the <b>Ready</b> state, or the diagnostic log feature found in the <a href="#">Troubleshooting</a> menu is not accessible, then use the <a href="#">System Triage</a> item to copy the diagnostic logs to a USB flash drive at the next product start up.</p> <p>The files can then be sent to HP to help determine the problem.</p>
Service Tools				<p>This item requires the service access code. If the product does not reach the <b>Ready</b> state, use this item to print the error logs. The logs can be copied to a USB storage accessory when the product is initialized. Send these files to HP to help troubleshoot the cause of the problem.</p>
			Reset Password	Use this item to reset the administrator password.
			Subsystems	For manufacturing use only. Do not change these values.
Developer Tools	Netexec			

## Remote Admin

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



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**IMPORTANT:** While the Remote Admin function allows remote access the Pre-boot menu, for security reasons the Remote Admin connection must be initiated by a person that is physically present at the product.

This section describes the following Remote Admin items.

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

### Required software and network connection

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



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


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

---

## Telnet client

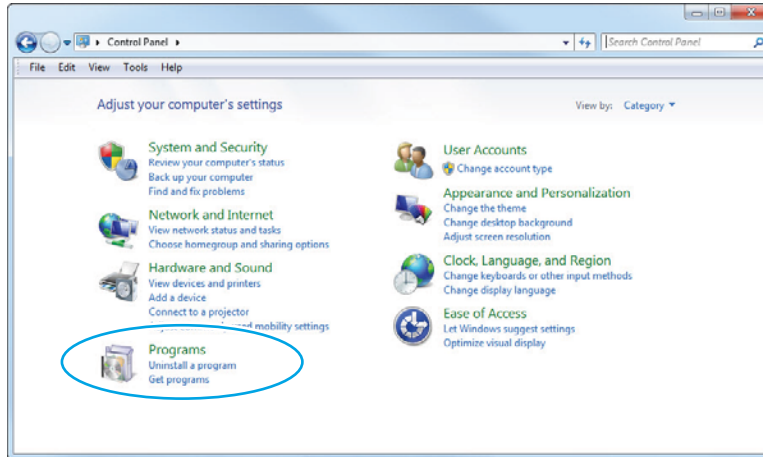
### Enable the Windows telnet client

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

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

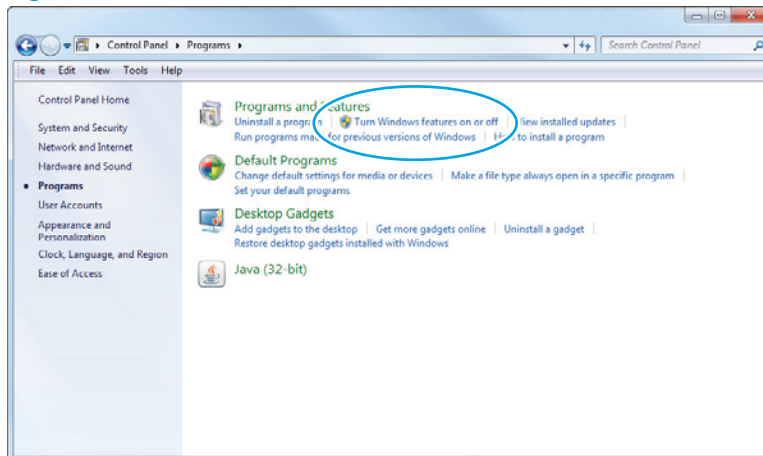
1. Use the **Start** menu to open the **Control Panel**, and then click the **Programs** item to select it.

**Figure 2-1** Open the Control Panel




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

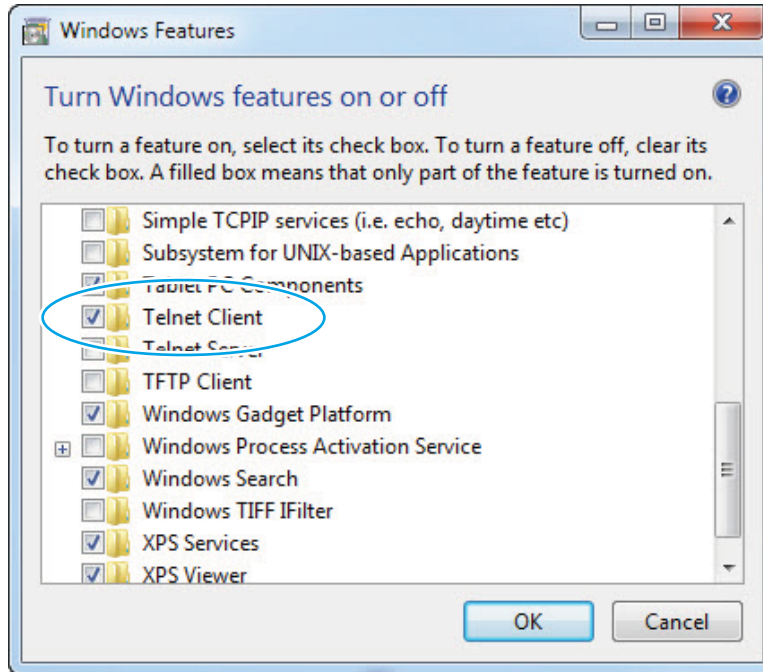
**Figure 2-2** Turn Windows features on or off



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

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

**Figure 2-3** Enable the telnet client feature



## Network connection


The remote telnet client computer must have direct network access to the product for the Remote Admin function to operate. This means that the telnet client computer must be on the same network as the product. The Remote Admin function cannot be accessed through a network firewall or other remote access network security programs.

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

## Connect a remote connection

### Start the telnet server function at the product

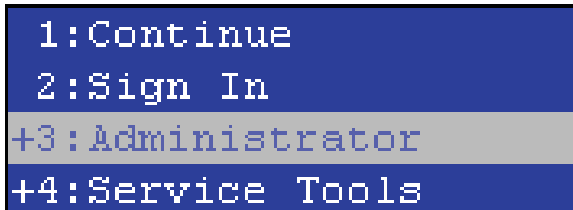
For security reasons the Remote Admin feature must be initiated by a person that is physically present at the product. The following steps must be performed by a person that is physically present at the product.

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

1. Turn the product on.
2. The HP logo displays on the product control panel. When a "1/8" with an underscore displays below the HP logo, touch the logo to open the **Pre-boot** menu.

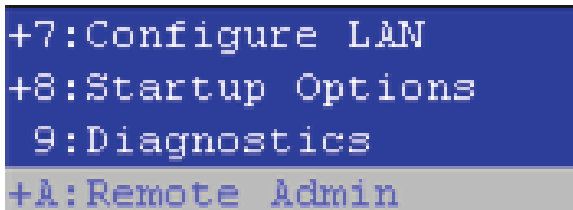
- Use the arrow buttons on the touchscreen to scroll down and highlight the **+3:Administrator** item, and then touch the **OK** button to select it.

**Figure 2-4** Select the +3:Administrator item



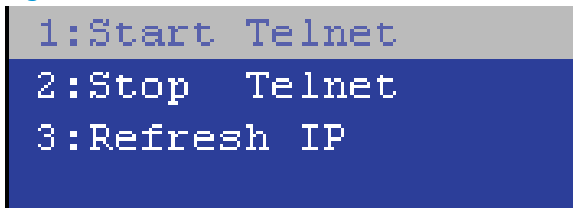
- Use the arrow buttons on the touchscreen to scroll down and highlight the **+A:Remote Admin** item, and then touch the **OK** button to select it.

**Figure 2-5** Select the +A:Remote Admin item



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

**Figure 2-6** Select the 1:Start Telnet item



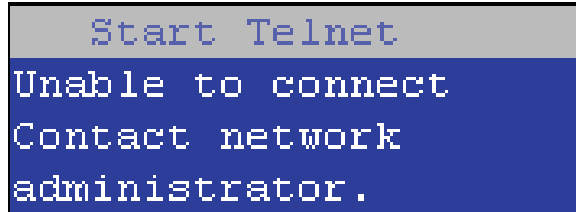
- Do one of the following
  - If a connecting message displays briefly, go to step [7](#).

**Figure 2-7** Telnet connecting message



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

**Figure 2-8** Telnet error message



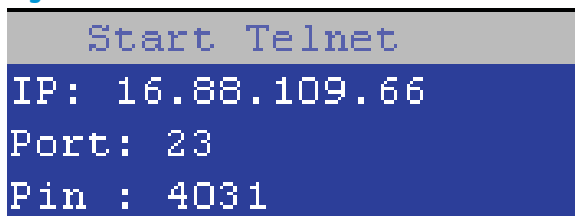
- a. The product network cable is not correctly connected.
  - b. The BIOS LAN settings are incorrect.
    - The product should be configured to use a static IP address, but is configured to use DHCP instead.
    - The product is configured to use a static IP address, but the IP address is incorrect.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



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

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

**Figure 2-9** Telnet server function initialized

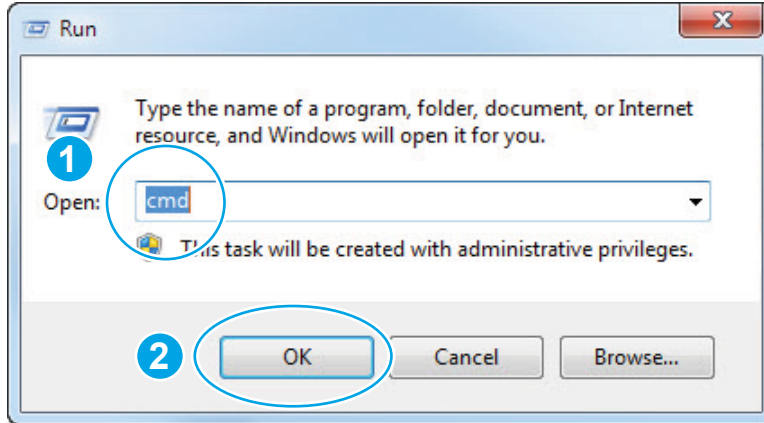


### Start the telnet client function at the remote computer

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

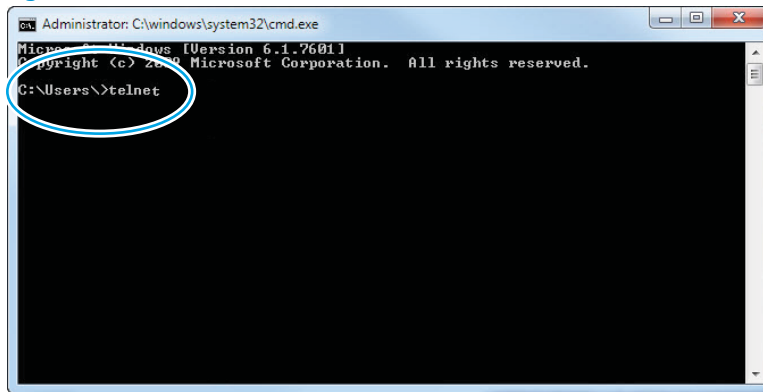
1. From the **Start** menu click **Run** to open a dialog box, type `cmd` in the **Open** field, and then click the **OK** button to open a Windows command window.

**Figure 2-10** Open a command window




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

**Figure 2-11** Start a telnet session

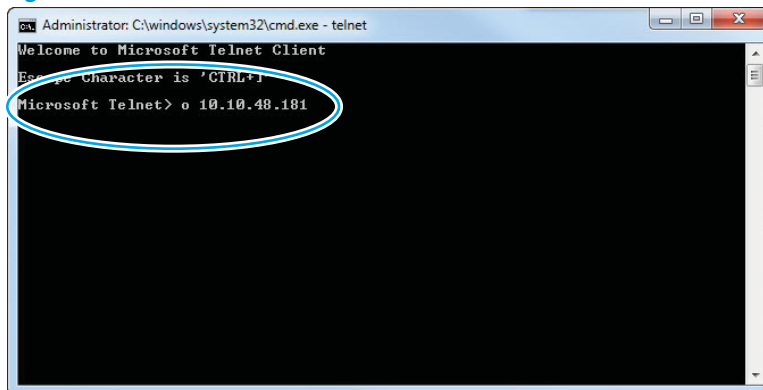


3. Type `<IP ADDRESS>` at the telnet prompt, and then press the **Enter** key.

 **NOTE:** For `<IP ADDRESS>`, substitute the IP address that was displayed in step 7 in [Start the telnet server function at the product on page 117](#).


 **TIP:** If the telnet connection fails to establish a connection, the product is probably behind a firewall or on a different network than the remote telnet client computer. See [Network connection on page 117](#).

**Figure 2-12** Establish a telnet connection

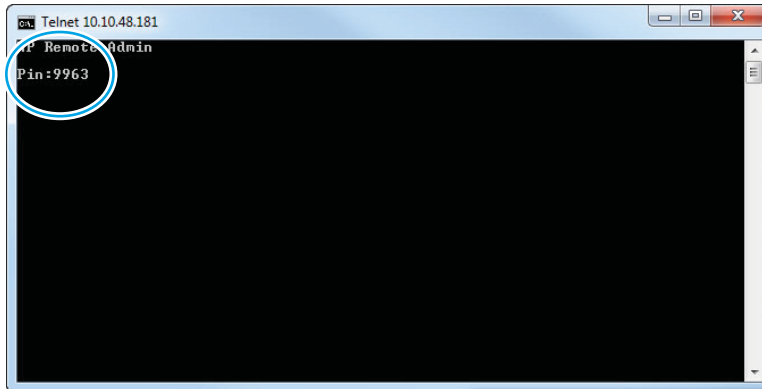





4. Type the PIN that was displayed in step 7 in [Start the telnet server function at the product on page 117](#) at the prompt, and then press the **Enter** key.

 **IMPORTANT:** Make sure to type the PIN correctly. After five incorrect PIN entries, the product terminates the Remote Admin connection. The Remote Admin feature must be re-initiated at the product. See [Start the telnet server function at the product on page 117](#).

**Figure 2-13** Enter the PIN

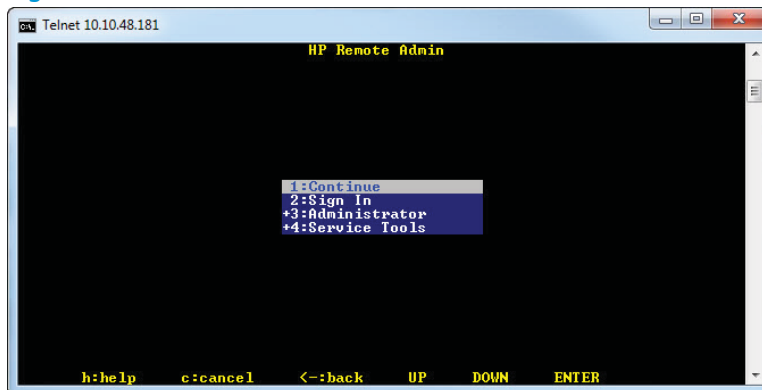


5. The following screen displays when the correct PIN is entered and the Remote Admin connection is successful. For information about the Pre-boot menu and options, see [Pre-boot menu options on page 107](#).

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


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

**Figure 2-14** Remote Admin window



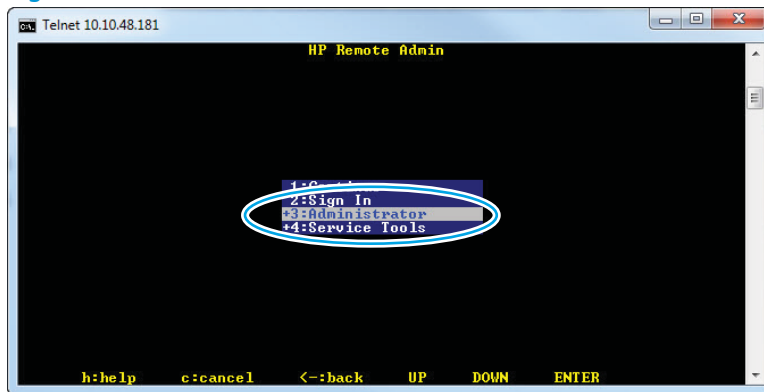
## Disconnect a remote connection

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

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

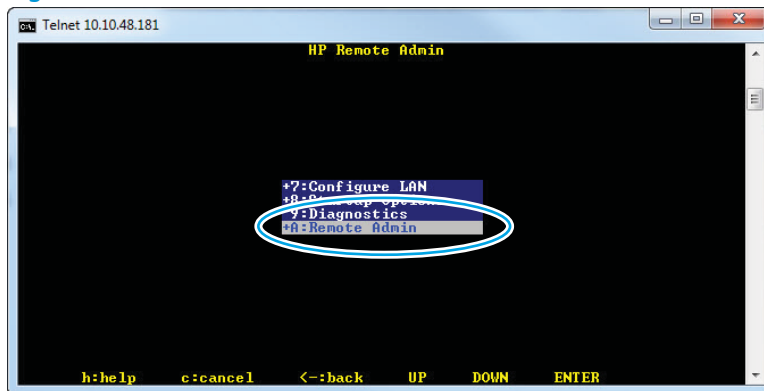
1. From the Pre-boot main menu, use the arrow buttons on the keyboard to scroll down to the **+3:Administrator** item, and then press the **Enter** key.

**Figure 2-15** Access the administrator menu




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

**Figure 2-16** Access the remote admin menu

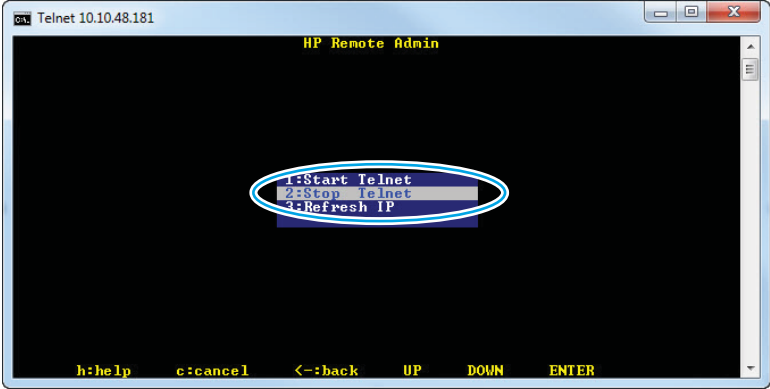


3. Use the arrow buttons on the keyboard to scroll down to the **2:Stop Telnet** item, and then press the **Enter** key. The Remote Admin connection between the product and the remote telnet client computer terminates.

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

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

**Figure 2-17** Terminate the telnet connection



# Troubleshooting process

## Determine the problem source

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

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

Before beginning any troubleshooting procedure, check the following issues:

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



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

## Troubleshooting flowchart

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

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

**Table 2-8 Troubleshooting flowchart**

<b>1</b> <b>Power on</b>	Is the product on and does a readable message display?		Follow the power-on troubleshooting checks. See <a href="#">Power subsystem on page 125</a> .
	Yes ↓	No →	After the control panel display is functional, see step 2.
<b>2</b> <b>Control panel messages</b>	Does the message <b>Ready</b> display on the control panel?		After the errors have been corrected, go to step 3.
	Yes ↓	No →	
<b>3</b> <b>Event log</b>	Open the <a href="#">Troubleshooting</a> menu and print an event log to see the history of errors with this product.  Does the event log print?		If the event log does not print, check for error messages.  If paper jams inside the product, see the jams section of the product service manual.  If error messages display on the control panel when trying to print an event log, see the control panel message section of the product troubleshooting service manual.  After successfully printing and evaluating the event log, see step 4.
	Yes ↓	No →	
<b>4</b> <b>Information pages</b>	Open the <a href="#">Reports</a> menu and print the configuration pages to verify that all the accessories are installed.  Are all the accessories installed?		If accessories that are installed are not listed on the configuration page, remove the accessory and reinstall it.  After evaluating the configuration pages, see step 5.
	Yes ↓	No →	

**Table 2-8 Troubleshooting flowchart (continued)**

<b>5</b> <b>Print quality</b>	Does the print quality meet the customer's requirements?		Compare the images with the sample defects in the image defect tables. See the images defects table in the product service manual.
	Yes ↓	No →	After the print quality is acceptable, see step 6.
<b>6</b> <b>Interface</b>	Can the customer print successfully from the host computer?		Verify that all I/O cables are connected correctly and that a valid IP address is listed on the HP Jetdirect configuration page.
	Yes. This is the end of the troubleshooting process.	No →	If error messages display on the control panel when trying to print an event log, see the control-panel message section of the product troubleshooting service manual.  When the customer can print from the host computer, this is the end of the troubleshooting process.

## Power subsystem

### Power-on checks

The basic product functions should start up when the product is connected into an electrical outlet and the power switch is pushed to the *on* position. If the product 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 product power is turned on. Place a hand over the vents in the left-side cover, above the formatter. When the fan is correctly operating, air passing out of the product is felt. Lean close to the product to hear the fan operating. Also place a hand over the vents on the right side of the rear cover. If the fan is correctly operating, air being drawn into the product is felt.

After the fan is operating, the main motor turns on (unless the right or front 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.

### Troubleshooting power on problems

1. Verify that power is available to the product. If the product is plugged into a surge protector or uninterruptible power supply (UPS), remove it, and then plug the product directly into a known operating wall receptacle (make sure that the wall receptacle provides the correct voltage and current for the product).  
  
Unplug any other devices on the same circuit that the product 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 product.
- 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 and illuminated lights on the control panel are not present, check the following:

- a. Turn the product off, and then remove the formatter.
- b. Turn the product on, and then listen for startup noises and illuminated lights on the control panel. If normal startup noises and lights are present, go to step [5](#).



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

- c. Turn the product off, and then remove any installed accessories (for example, envelope feeders, paper feeders, or output accessories).

Turn the product on, and then listen for startup noises and illuminated lights on the control panel. If normal startup noises and lights are present, the problem might be with one of the accessories.

- d. If normal startup noises and lights are still not present, replace the LVPS.
- e. 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).

5. Try printing an engine test page.

- a. Use a small pointed object to depress the test-page switch located on the rear of the product.



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



- b. 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 product off, remove the formatter, and then try the engine test again. If the page prints, the problem might be the formatter.

### Troubleshooting a blank control panel

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

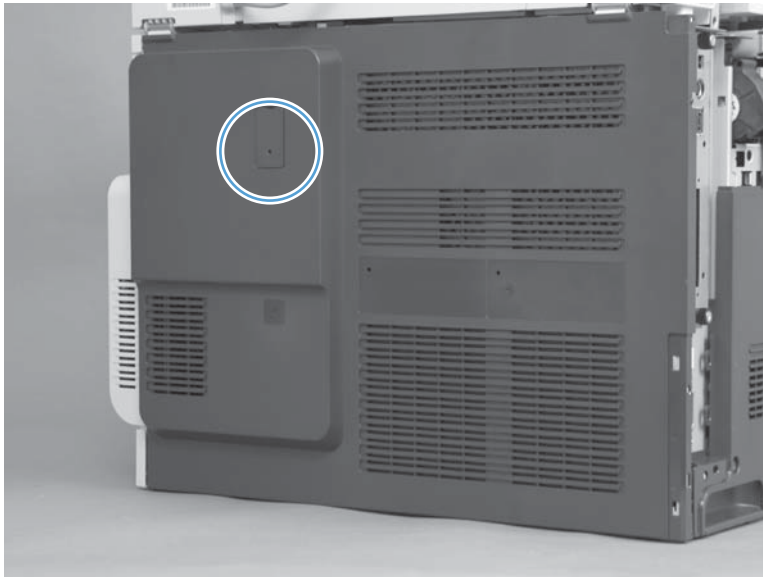
- No power to the product.
  - Power supply has tripped (over-current/over-voltage/temperature issue).
  - Formatter not fully seated.
  - Faulty component installed on the formatter (for example, memory DIMM or disk drive).
  - Control panel connector not fully seated.
  - Faulty formatter.
  - Faulty DC controller.
  - Faulty control panel.
1. Verify that power is available to the product. If the product is plugged into a surge protector or uninterruptible power supply (UPS), remove it, and then plug the product directly into a known operating wall receptacle (make sure that the wall receptacle provides the correct voltage and current for the product).
  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 product and remove the formatter. Reinstall the formatter, make sure the power switch is in the on position, and then verify that the heartbeat LED is blinking.
6. Remove any external solutions, and then try to turn the product on again.
7. Remove any external solutions, and then try to turn the product on again.
8. If the control panel display is blank, but the main cooling fan runs briefly after the product power is turned on, try printing an engine-test page to determine whether the problem is with the control-panel display, formatter, or other product assemblies.
  - a. Remove the formatter.
  - b. Use a small pointed object to depress the test-page switch located on the rear of the product.



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

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- c. If the engine test page prints, the print engine is operating normally (a failed engine test print page does not necessarily indicate that the print engine or DC controller is defective).
9. 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)
10. 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).

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## Scanning subsystem (M680)

### Calibrate the scanner

Use this procedure to properly position the copied image on the page.



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**TIP:** This adjustment might be required after the scanner or document feeder is replaced.

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1. From the [Home](#) screen on the product control panel, scroll to and touch the [Device Maintenance](#) button.
2. Touch the [Calibration/Cleaning](#) button.
3. Touch the [Calibrate Scanner](#) button, and then follow the instructions provided on the screen.

### Control panel checks

The product includes a diagnostic test mode for the control panel. This mode allows for troubleshoot issues with the touchscreen, the [Speaker](#), and the [Home](#) button.



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**NOTE:** Some of the diagnostic tests are for factory use only.

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**TIP:** To diagnose control panel problems, see [Control panel diagnostic flowcharts on page 133](#).

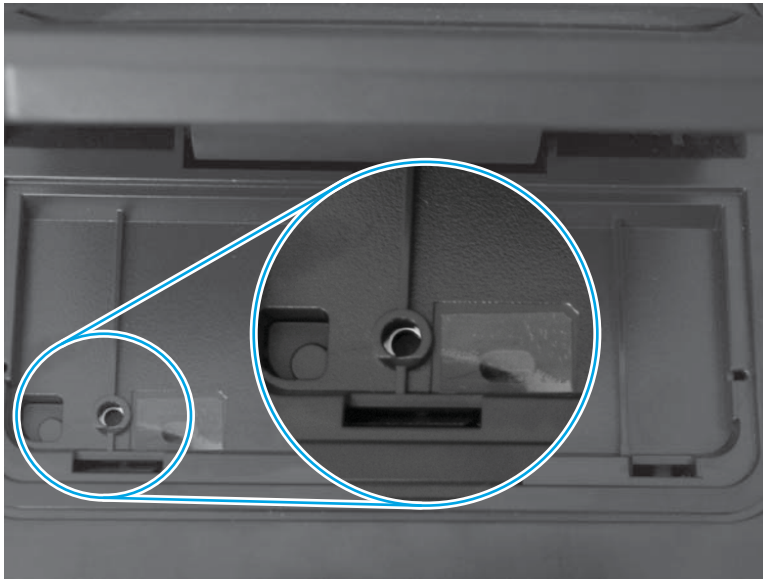
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### Open diagnostic mode

- Tilt the control panel forward, and then do one of the following:
  - **M680:** On the back side of the control panel, locate the round black-rubber cover near the center of the control panel. Press the button to access the diagnostic mode.

- **M651:** Remove the control panel cover plate (horizontal cover located under the control panel when it is in the down position). Locate the small round test button hole. Use a paper clip (or other small-pointed object) to press the button and access the diagnostic mode.


**Figure 2-18** M650 control-panel test button location





- Repeatedly pressing the button will scroll through additional screens on the control-panel display. Continue to press the button to scroll back to the diagnostic-mode main test screen.

### Exit diagnostic mode

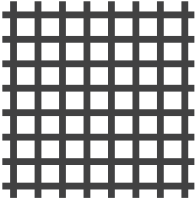




Do one of the following:

- Touch the **Cancel**  button.
- Wait 20 seconds. The control panel will return to the **Home** screen.

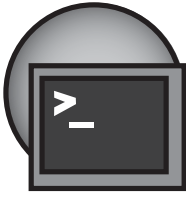
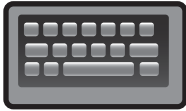
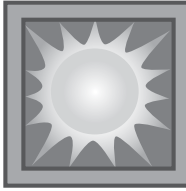
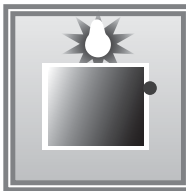






**Table 2-9** Control panel diagnostic functions

Item	Description	Remarks
	Exits a test	
Cancel button		
	Selects test settings in some of the test windows	
Keypad		

**Table 2-9 Control panel diagnostic functions (continued)**


Item	Description	Remarks
 Red-grid touch test	Verifies that all areas respond to a touch	<p>Use this item to check the accuracy of the touch screen.</p> <p>Use a finger or 3 mm (.118 in) conductive stylus to trace between the grid lines to check the accuracy of the touchscreen calibration.</p> <p><b>NOTE:</b> The gap between the grid lines is 6 mm (.236 in).</p> <p>When the screen is touched, a line or a dot displays on the screen (the X and Y coordinates of the position on the screen are also displayed).</p>
 Calibration touch test	Checks calibration	<p>Use this item to determine if the touchscreen calibration is within the acceptable range.</p> <p>When selected, ten target points (and the X and Y coordinates of the position of the target point) display on the screen.</p> <p>Touching a target causes the X and Y coordinate of that target to appear in the middle of the touchscreen (above the cancel button).</p> <p><b>NOTE:</b> The product automatically calibrates the touchscreen. A manual touchscreen calibration procedure is not available for this product.</p>
 Touchscreen LED display test	Selects a test pattern to view on the display.	<p>Use this item to identify touchscreen LED display problems.</p> <ol style="list-style-type: none"><li>1. Touch the icon.</li><li>2. Touch the up ▲ or down ▼ arrow buttons to scroll through touchscreen LED display test screens.</li></ol>
 Speaker test	Tests sounds	<p>Use this item to test audio functionality.</p> <ol style="list-style-type: none"><li>1. Touching this item causes the speaker to emit a tone.</li><li>2. Touch the 2 button on the keypad, and then touch this item to cause the speaker to emit a more complex tone.</li></ol>
 Firmware information	Shows the firmware version	Touch this item to display the control panel firmware version and firmware build date.

**Table 2-9 Control panel diagnostic functions (continued)**

Item	Description	Remarks
	Factory use only	
 Keyboard test	Tests the product keyboard <b>NOTE:</b> For products with a keyboard feature only.	When this item is selected, pressing a button on the keyboard causes the corresponding character to appear on the control-panel display.  <ol style="list-style-type: none"> <li>1. Touch the icon.</li> <li>2. Press a button on the keyboard. The corresponding character should appear on the control-panel display.</li> </ol>
 Backlight test	Adjusts the backlight	Use this item to adjust the brightness of the control-panel display.  <ol style="list-style-type: none"> <li>1. Touch the icon.</li> <li>2. Touch the up ▲ or down ▼ arrow buttons to adjust the backlight level.</li> </ol>
 Ambient-light sensor test	Checks the ambient light sensor	Use this item to test the ambient-light sensor functionality.  <ol style="list-style-type: none"> <li>1. Touch the icon.</li> <li>2. Shine a flashlight at the control panel to the left of, and down about 25.4 mm (1 in,) from the Home  button.</li> <li>3. The numbers displayed below the icon should be any value other than zero.</li> </ol>
 Home  button test	Tests the Home  button	Use this item to test the Home  button LED and switch functionality.  <ol style="list-style-type: none"> <li>1. Touch the icon.</li> <li>2. Press the Home  button on the right side of the control panel. The LED icon on the control-panel display illuminates if the button LED and switch are correctly functioning.</li> </ol>

## Control panel diagnostic flowcharts

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 **TIP:** Tilt the control panel forward. On the back side of the control panel, press the round black-rubber cover near the center of the control panel to access the diagnostic mode.

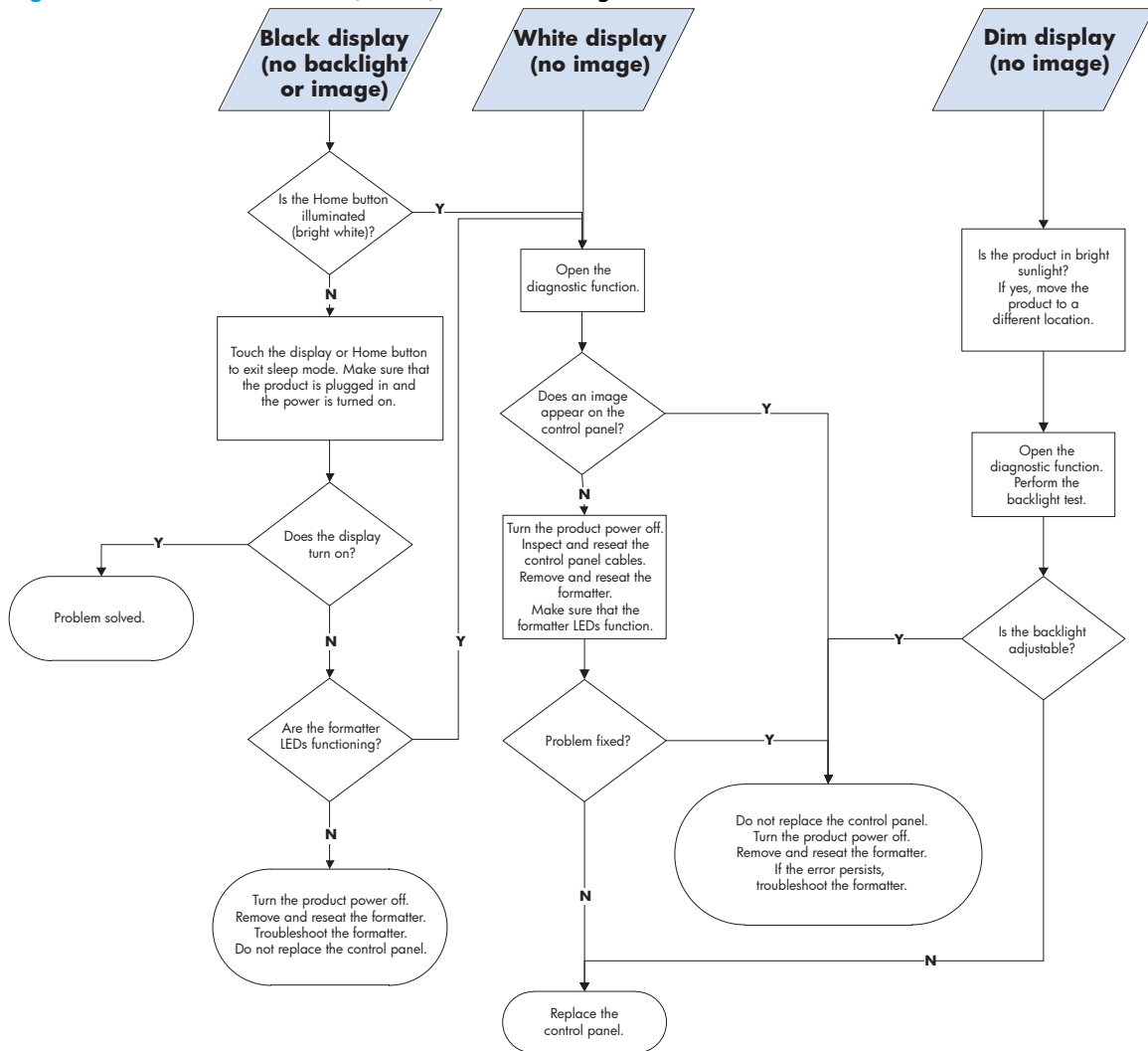
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Use the flowcharts in this section to troubleshoot the following control panel problems.

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

**Touchscreen black, white, or dim (no image)**

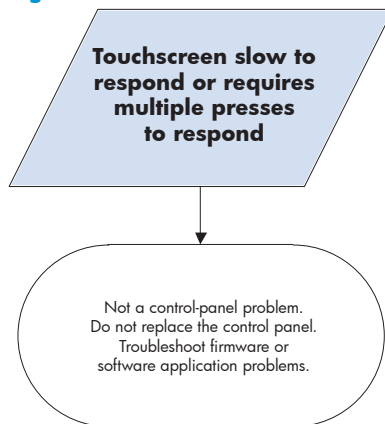
**Figure 2-19** Touchscreen blank, white, or dim (no image)



## Touchscreen is slow to respond or requires multiple presses to respond

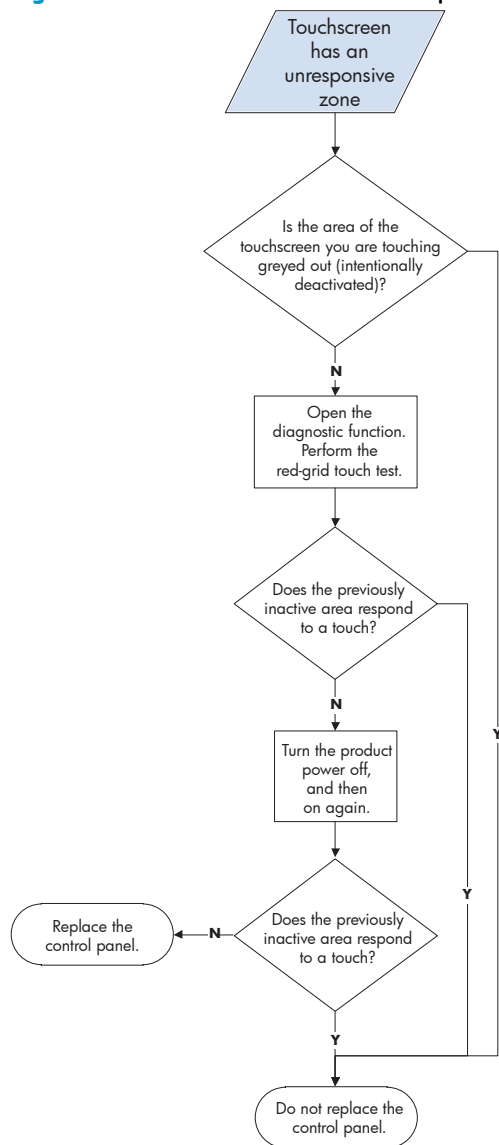
 **TIP:** Use the red-grid touch test to verify that all areas of the touchscreen are correctly functioning. See [Table 2-9 Control panel diagnostic functions on page 130](#).

**Figure 2-20** Touchscreen is slow to respond or requires multiple presses to respond



## Touchscreen has an unresponsive zone

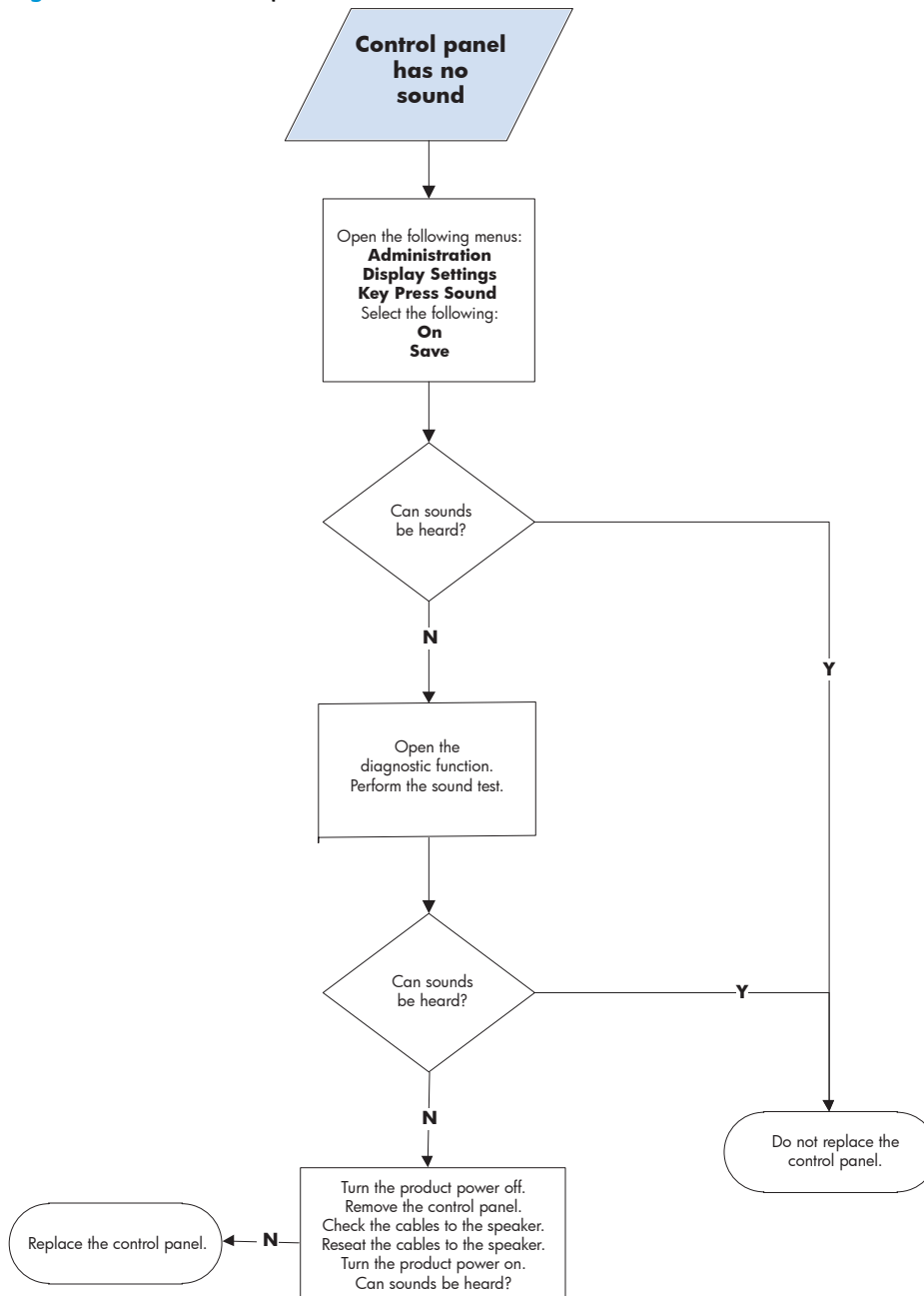
Figure 2-21 Touchscreen has an unresponsive zone





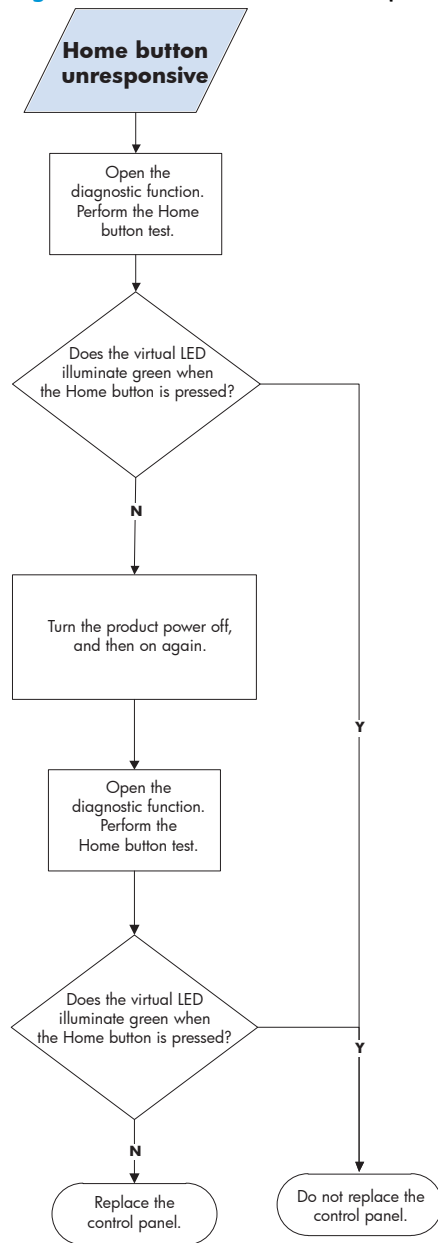
## No control panel sound

Figure 2-22 No control panel sound



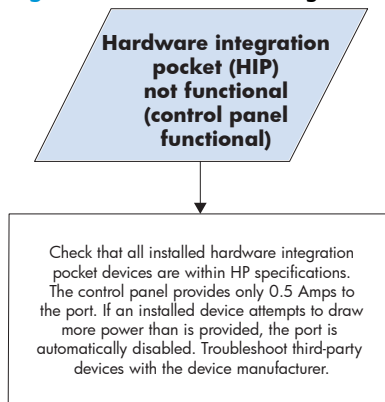
## Home button is unresponsive

Figure 2-23 Home button is unresponsive



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

**Figure 2-24** Hardware integration pocket (HIP) is not functioning (control panel functional)



# Tools for troubleshooting

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

## Individual component diagnostics

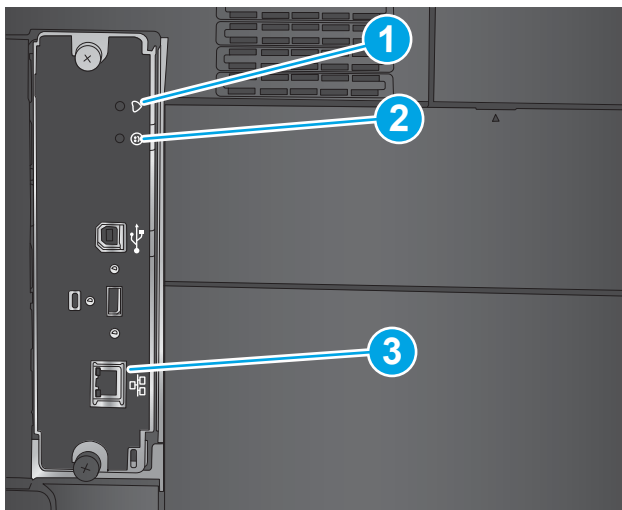
### LED diagnostics

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

#### Understand lights on the formatter

Three LEDs on the formatter indicate that the product is functioning correctly.


 **NOTE:** The formatter for the M651 product is shown in the figure below, but the LEDs are in the same position for the M680 product.



- 1 Heartbeat LED
- 2 Connectivity LED
- 3 HP Jetdirect LEDs


### Connectivity LED

The connectivity LED provides information about product operation. If a product error occurs, the formatter displays a message on the control-panel display. However, error situations can occur causing the formatter-to-control panel communication to be interrupted.

 **NOTE:** HP recommends fully troubleshooting the formatter and control panel before replacing either assembly. Use the connectivity LED to troubleshoot formatter and control panel errors to avoid unnecessarily replacing these assemblies.

## Formatter-to-control panel communication interruptions


- The firmware does not fully initialize and configure the control panel interface.
- The control panel is not functioning (either a failed assembly or power problem).
- Interface cabling between the formatter and control panel is damaged or disconnected.

 **TIP:** If the connectivity LED is illuminated—by an error condition or normal operation—the formatter is fully seated and the power is on. The pins for the LED circuit in the formatter connector are recessed so that this LED will not illuminate unless the formatter is fully seated.

The heartbeat LED operates according to the product state. When the product is initializing, see [Connectivity LED, product initialization on page 141](#). When the product is in **Ready** mode, see [Connectivity LED, product operational on page 143](#).

## Connectivity LED, product initialization

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

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

If after initialization, the connectivity LED is not solid green, see [Connectivity LED, product operational on page 143](#).

**Table 2-10 Connectivity LED, product initialization**

Product initializing state	Connectivity LED, normal state	Connectivity LED, error state
No power (power cable disconnected or power switch off)	Off	Not applicable
Power on (immediately after the power switch pressed)	Red, solid <ul style="list-style-type: none"><li>• Duration should be 1 second or less</li></ul>	Red, solid <ul style="list-style-type: none"><li>• Firmware error; problem finding hardware and booting the serial peripheral interface flash memory<ul style="list-style-type: none"><li>◦ Boot process halted</li></ul></li></ul> Replace the formatter.
Serial peripheral interface (SPI) flash memory boot	Green, solid	Red, solid <ul style="list-style-type: none"><li>• Firmware error; problem corrupt or missing SPI flash memory<ul style="list-style-type: none"><li>◦ Boot process halted</li></ul></li></ul> Replace the formatter.
HW checks on board DRAM	Green, solid	Red, solid <ul style="list-style-type: none"><li>• Power on self check failure<ul style="list-style-type: none"><li>◦ Boot process halted</li></ul></li></ul> Replace the formatter.

**Table 2-10 Connectivity LED, product initialization (continued)**

Product initializing state	Connectivity LED, normal state	Connectivity LED, error state
Control panel connection initializes	Green, solid  <b>NOTE:</b> Control panel communication successful. If an error occurs, a message should appear on the control-panel display.	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Formatter to control panel connection failed <ul style="list-style-type: none"> <li>◦ Boot process continues</li> </ul> </li> </ul> <p>Check the cables between the formatter and control panel for damage. Make sure that the cables are fully seated.</p>
Pre-boot menu available (including diagnostics)	Green, solid	Red, solid  <ul style="list-style-type: none"> <li>• Diagnostic failure <ul style="list-style-type: none"> <li>◦ Follow diagnostic instructions</li> </ul> </li> </ul> <p>Turn the power off, and then on again to restart the initialization process.</p>
Accessing disk for firmware image	Green, solid  <b>NOTE:</b> If applicable, disk error messages appear on the control-panel display.	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Control panel not connected</li> </ul>
Firmware boot	Green, solid  <b>NOTE:</b> If applicable, error messages appear on the control-panel display.	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Control panel not connected</li> </ul>
Product operational	Green, heartbeat blink  <b>NOTE:</b> If applicable, error messages appear on the control-panel display.	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Control panel not connected</li> </ul>
49.XX.YY error or initialization freezes	Not applicable	LED off  <b>NOTE:</b> An error message (for example, 49.XX.YY) might appear on the control-panel display.  Eventually a formatter connection missing message will appear.  Turn the power off, and then on again to restart the initialization process.  If the error persists, perform a firmware upgrade.
Control panel connection interrupted after the product is operational	Not applicable	Yellow, fast flash  <ul style="list-style-type: none"> <li>• Control panel not connected</li> </ul>
Sleep Mode	Green, slow blink	Not applicable
Approaching Sleep Mode	Green, slow blink	Not applicable
Wake up from Sleep Mode	Follows initialization progression	Follows initialization progression
Approaching wake up from Sleep Mode	Follows initialization progression	Follows initialization progression

## Connectivity LED, product operational

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

**Table 2-11 Connectivity LED, product operational**

LED color	Description
Green	<ul style="list-style-type: none"><li>• Normal operation<ul style="list-style-type: none"><li>◦ Formatter is operating normally</li><li>◦ Firmware is operating normally</li><li>◦ Control panel is connected</li></ul></li></ul>
Yellow	<ul style="list-style-type: none"><li>• Formatter cannot connect to the control panel<ul style="list-style-type: none"><li>◦ Check control panel connections</li><li>◦ Verify control panel functionality</li></ul></li></ul>
Red	<ul style="list-style-type: none"><li>• Formatter error or failure<ul style="list-style-type: none"><li>◦ Serial peripheral interface (SPI) flash memory boot error</li><li>◦ Power on self test (formatter) failed</li><li>◦ Diagnostic (formatter) failed</li></ul></li></ul>
Off	<p><b>TIP:</b> The connectivity LED is off if the power cable is disconnected, the product power switch is in the off position, or the product is in <a href="#">Sleep Mode</a>.</p> <ul style="list-style-type: none"><li>• Firmware or system freeze<ul style="list-style-type: none"><li>◦ Check control panel for an error message</li><li>◦ Control panel failure</li></ul></li></ul> <p><b>NOTE:</b> This condition is not usually caused by a formatter failure. Turn the power off, and then on again. If the error persists, perform a firmware upgrade.</p>

## Heartbeat LED

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

## HP Jetdirect LEDs

The embedded HP Jetdirect print server has two LEDs. The yellow LED indicates network activity, and the green LED indicates the link status. A blinking yellow LED indicates network traffic. If the green LED is off, a link has failed.

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

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

- [Network Settings](#)
  - [Embedded Jetdirect Menu](#)
  - [Link Speed](#)
3. Select the appropriate link speed, and then touch the **OK** button.



## Engine diagnostics

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

## Defeating interlocks

Different tests can be used to isolate different types of issues. For assembly or noise isolation, run the diagnostic test when the front and right doors are open. To operate the product with the doors open, the door switch levers must be depressed to simulate a closed-door position.

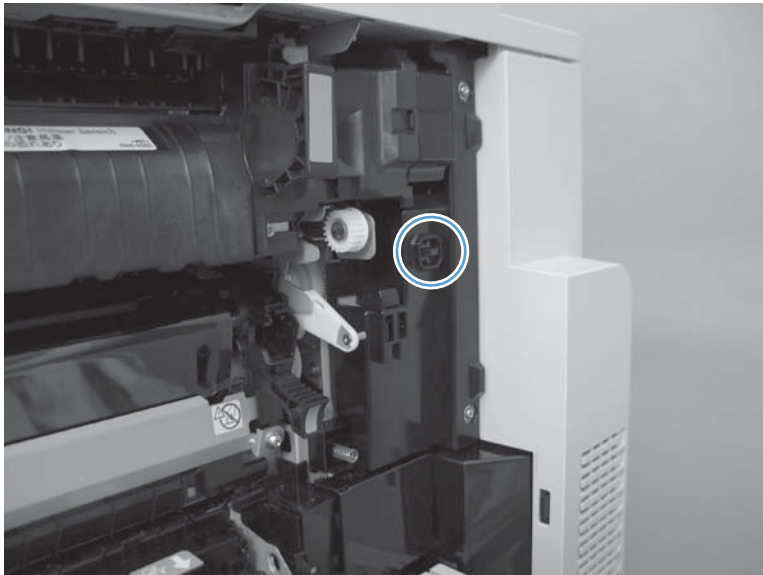
**⚠ WARNING!** Be careful when performing product diagnostics to avoid risk of injury. Only trained service personnel should open and run the diagnostics with the covers removed. Never touch any of the power supplies when the product is turned on.

**📝 NOTE:** The figures below look different than the M651 and M680 products. However, the procedure for defeating the door interlocks is correct for these products.


1. Open the right and front doors.
2. Use a piece of tape to defeat the right door logic switch.

**⚠ CAUTION:** Make sure to use a thin piece of paper to activate the sensor. Using too thick of a piece of paper, to activate this sensor, might dislodge the photo interrupter body from its internal mounting bracket.

**Figure 2-25** Defeating interlocks (1 of 2)



3. Insert a folded piece of paper into each slot to defeat the front and right door interlock switches.

 **TIP:** Fold a stiff piece of paper, for example a business card or index card, into a 10 mm (.375 in) strip with a bend at the end, and insert the strip into the opening at the front of the product to defeat the front door logic switch.

**Figure 2-26** Defeating interlocks (2 of 2)



### Disable cartridge check

Use this diagnostic test to print internal pages or send an external job to the product when one or more toner cartridges are removed or exchanged. Supply errors are ignored while the product is in this mode. When the product is in this mode, access the troubleshooting menus and print internal pages (the print quality pages will be the most useful). This test can be used to isolate problems, such as noise, and to isolate print-quality problems that are related to individual toner cartridges.

 **NOTE:** Cartridges are not keyed and can be interchanged. An error will display on the control panel if a toner cartridge is installed in the wrong position. The [Manage Supplies](#) menu explains which toner cartridge is misplaced.

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

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

## Engine test button

To verify that the product engine is functioning, print an engine test page. Use a small pointed object to depress the test-page switch located on the rear of the product. The test page should have a series of lines that are parallel to the short end of the page. The test page can use only Tray 2 as the paper source, so make sure that paper is loaded in Tray 2.

**Figure 2-27** Engine test button



## Paper path test

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

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

- **Print Test Page:** Run the paper-path test from the default settings: Tray 2, no duplex, and one copy. To specify other settings, scroll down the menu, and select the setting, and then scroll back up and select **Print Test Page** to start the test.
  - **Source Tray:** Select Tray 1, Tray 2, or the optional tray.
  - **Test Duplex Path:** Enable or disable two-sided printing.
  - **Number of Copies:** Set the numbers of copies to be printed; the choices are 1,10, 50, 100, or 500.
1. From the **Home** screen on the product control panel, scroll to and touch the **Administration** button.
  2. Open the following menus:
    - **Troubleshooting**
    - **Diagnostic Tests**
    - **Paper Path Test**
  3. Select the paper-path test options for the test.

## Paper path sensors test

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

1. From the **Home** screen on the product control panel, scroll to and touch the **Administration** button.
2. Open the following menus:
  - **Troubleshooting**
  - **Diagnostic Tests**
  - **Paper Path Sensors**



**NOTE:** Exiting the Paper path sensors menu and then reentering the test will clear the test values from the previous test.

The menu list of sensors and motors for the Paper path sensors test varies depending on which optional accessories are installed.

**Table 2-12 Paper-path sensors diagnostic tests**

Sensor name	Sensor/Switch number	Replacement part number	Descriptions
Tray 3 feed sensor	SR4	RM2-0341-000CN	Paper pickup assembly

**NOTE:** 1x500-sheet feeders, 2x500-paper feeder, and 2,500-sheet HCI.

**Table 2-12 Paper-path sensors diagnostic tests (continued)**

Sensor name	Sensor/Switch number	Replacement part number	Descriptions
Fuser delivery sensor	SR5	RM1-5654-000CN; 110V RM1-5655-000CN; 220V	Fuser assembly
Output bin full sensor	SR6	WG8-5696-000CN	Photo interrupter
<b>NOTE:</b> M651 only.			
Fuser pressure release sensor	SR7	WG8-5696-000CN	Photo interrupter
<b>NOTE:</b> M651 and M680.			
Tray 4 paper presence sensor	SR7	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-paper feeder, and 2,500-sheet HCI.			
Primary-transfer-roller disengagement sensor	SR9	WG8-5696-000CN	Photo interrupter
Tray 5 paper surface sensor	SR10	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-paper feeder, and 2,500-sheet HCI.			
Developer alienation sensor	SR11	CC493-67915	Main drive assembly
Loop sensor 1	SR14	RM1-5654-000CN; 110V RM1-5655-000CN; 220V	Fuser assembly
Loop sensor 2	SR15	RM1-5654-000CN; 110V RM1-5655-000CN; 220V	Fuser assembly
TOP sensor (top-of-page)	SR20	RM2-5777-000CN	Registration assembly
Duplex re-pickup sensor	SR22	RM2-5777-000CN	Registration assembly
Media sensor	NPLED	RM2-5777-000CN	Registration assembly

## Manual sensor and tray/bin manual sensor tests

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

### Manual sensor test

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

### Use the manual sensor test

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

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

For example, opening the front door increments the [PS14 Front door Toggle](#) item count two times—once when the door is opened, and once when the door is closed.
5. Touch the [Reset Sensors](#) button to reset the [Toggle](#) count item.

**-or-**

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

**Table 2-13** Manual sensor diagnostic tests

Sensor or switch	Replacement Part number	Description
<a href="#">SR4 Tray 3 feed sensor</a>	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 1x500-sheet feeders, 2x500-sheet feeder, and 2,500-sheet HCI.		
<a href="#">SR5 Fuser delivery sensor</a>	RM1-5654-000CN; 110V RM1-5655-000CN; 220V	Fuser assembly
<a href="#">SR6 Output bin full sensor</a>	WG8-5696-000CN	Photo interrupter
<b>NOTE:</b> M651 only.		

**Table 2-13 Manual sensor diagnostic tests (continued)**

Sensor or switch	Replacement Part number	Description
SR7 Fuser pressure release sensor	WG8-5696-000CN	Photo interrupter
<b>NOTE:</b> M651 and M680.		
SR7 Tray 4 paper presence sensor	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCL.		
SR9 Primary-transfer-roller disengagement sensor	WG8-5696-000CN	Photo interrupter
SR10 Tray 5 paper surface sensor 2	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCL.		
SR11 Developer alienation sensor	CC493-67915	Main drive assembly
SR14 Loop sensor 1	RM1-5654-000CN; 110V	Fuser assembly
	RM1-5655-000CN; 220V	
SR15 Loop sensor 2	RM1-5654-000CN; 110V	Fuser assembly
	RM1-5655-000CN; 220V	
SR20 TOP sensor (top-of-page)	RM2-5777-000CN	Registration assembly
SR22 Duplex re-pickup sensor	RM2-5777-000CN	Registration assembly
NPLED	RM2-5777-000CN	Registration assembly
SW5 Front door switch	WC2-5637-000CN	Switch, push
<b>NOTE:</b> Open/closed detection switch.		
SW5 Right door switch	WC2-5637-000CN	Switch, push
<b>NOTE:</b> Open/closed detection switch.		

## Tray/bin manual sensor test

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

### Use the tray/bin manual sensor test

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

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

For example, opening Tray 2 increments the [SW7,8 Tray 2 Paper Size Toggle](#) item count two times—once when the tray is opened, and once when the tray is closed.

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

**-or-**

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

**Table 2-14** Tray/bin manual sensors

Sensor or switch name	Replacement part number	Descriptions
<a href="#">SR2 Tray 3 paper surface sensor 2</a>	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 1x500-sheet feeders, 2x500-sheet feeder, and 2,500-sheet HCI.		
<a href="#">SR3 Tray 3 paper presence sensor</a>	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 1x500-sheet feeders, 2x500-sheet feeder, and 2,500-sheet HCI.		
<a href="#">SR4 Tray 3 feed sensor</a>	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 1x500-sheet feeders, 2x500-sheet feeder, and 2,500-sheet HCI.		



**Table 2-14 Tray/bin manual sensors (continued)**

Sensor or switch name	Replacement part number	Descriptions
SR6 Output bin full sensor	WG8-5696-000CN	Photo interrupter
<b>NOTE:</b> M651 only.		
SR6 Tray 4 paper surface sensor 2	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCI.		
SR7 Tray 4 paper presence sensor	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCI.		
SR8 Tray 1 media presence sensor	RM1-7647-000CN	Multi-purpose tray (Tray 1) assembly
<b>NOTE:</b> M651 and M680.		
SR8 Tray 4 feed sensor	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCI.		
SR9 Tray 5 paper surface sensor 1	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCI.		
SR10 Tray 5 paper surface sensor 2	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCI.		
SR11 Tray 5 paper presence sensor	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCI.		
SR12 Tray 5 feed sensor	RM2-0341-000CN	Paper pickup assembly
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCI.		
SR24 Tray 2 paper surface 2 sensor	RM1-5919-000CN	Paper pickup assembly
SR25 Tray 2 paper present sensor	RM1-5919-000CN	Paper pickup assembly
SR101 IPTU media-full sensor	RM2-0216-000CN	Intermediate paper feed assembly
SR103 IPTU media-feed sensor	RM2-0216-000CN	Intermediate paper feed assembly
SW2 Tray 3 paper size 1	RM1-5913-000CN	Lifter base assembly
SW2 Tray 3 paper size 2		
SW2 Tray 3 paper size 3		
<b>NOTE:</b> 1x500-sheet feeders, 2x500-sheet feeder, and 2,500-sheet HCI.		

**Table 2-14 Tray/bin manual sensors (continued)**

Sensor or switch name	Replacement part number	Descriptions
SW3 Tray 4 paper size 1	RM1-5913-000CN	Lifter base assembly
SW3 Tray 4 paper size 2		
SW3 Tray 4 paper size 3		
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCl.		
SW4 Tray 5 paper size 1	RM2-0350-000CN	Tray size sensor assembly
SW4 Tray 5 paper size 2		
SW4 Tray 5 paper size 3		
<b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCl.		
SW4 Tray 2 paper size 1	RM1-5913-000CN	Lifter base assembly
SW4 Tray 2 paper size 2		
SW4 Tray 2 paper size 3		
<b>NOTE:</b> M651 and M680.		

## Print/stop test

Use this diagnostic test to isolate the cause of problems such as image-formation defects and jams within the engine. During this test, stop the paper anywhere along the product paper path. The test can be programmed to stop printing internal pages or an external print job when the paper reaches a certain position. The test can also be programmed to stop from 0 to 60,000 ms. If the timer is set to a value that is greater than the job-print time, the product can recover in one of two ways.

1. From the [Home](#) screen on the product control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
  - [Troubleshooting](#)
  - [Diagnostic Tests](#)
  - [Print/Stop Test](#)
3. Enter a range, and then touch the [OK](#) button.
  - After the print job is completed press [OK](#) button to return to the [Troubleshooting](#) menu before the timer times out.
  - After the timer times out, touch the [Stop](#) button. Activate the door switch to restart the engine and return it to a normal state.



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

## Component tests

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

### Component test (special-mode test)

This test activates individual parts independently to isolate problems.

Each component test can be performed once or repeatedly. If the **Repeat** option is enabled from the drop-down menu, the test cycles the component on and off. This process continues for two minutes, and then the test terminates.



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

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

**Table 2-15** Component test details

Component test	Item tested	Replacement part number	Comments
ITB motor	M1	RM1-5777-000CN	Activates the ITB motor and residual toner feed screw.
		ITB motor assembly	Activates the specified items at a specific speed for 10 seconds.
Fuser motor	M2	RM1-4983-010CN	Activates the fuser sleeve, pressure roller, fuser pressure roller, and primary transfer roller disengagement.
		Fixing motor assembly	Activates the specified items for 10 seconds.
Tray 3 lifter motor	M2	RK2-5085-000CN	Activates the pickup roller, separation roller and feed roller for trays 3 to 5.
		Motor, DC assembly	Activates the specified items for 10 seconds.
Yellow drum motor	M3	RM1-5521-000CN	Activates the photosensitive drum (yellow), developing roller (yellow), and primary charging roller (yellow).
		Main DC motor assembly	Activates the specified items at a specific speed for 10 seconds.

**Table 2-15 Component test details (continued)**

Component test	Item tested	Replacement part number	Comments
Magenta drum motor	M4	RM1-5521-000CN Main DC motor assembly	Activates the photosensitive drum (magenta), developing roller (magenta), and primary charging roller (magenta).  Activates the specified items at a specific speed for 10 seconds.
Cyan drum motor	M5	RM1-5521-000CN Main DC motor assembly	Activates the photosensitive drum (cyan), developing roller (cyan), and primary charging roller (cyan).  Activates the specified items at a specific speed for 10 seconds.
Black drum motor	M6	RM1-5521-000CN Main DC motor assembly	Activates the photosensitive drum (black), developing roller (black), and primary charging roller (black).  Activates the specified items at a specific speed for 10 seconds.
Tray 2 lifter motor	M7	RM1-5914-000CN Lifter assembly	Activates the Tray 2 lifter assembly.
Cyan/black scanner motor	M8	RM1-5660-000CN Laser/scanner assembly	Activates the scanner mirror in the cyan/black laser scanner.
Yellow/magenta scanner motor	M9	RM1-5660-000CN Laser/scanner assembly	Activates the scanner mirror in the yellow/magenta laser scanner.
Developing disengagement motor	M10	RK2-2415-000CN DC stepping motor assembly	Activates developing unit disengagement.  Activates the motor at a specified speed for 10 seconds.
Duplex reverse motor	M11	RM1-5546-000CN; M680 RM1-4973-000CN; M651 Duplexing drive assembly	Activates the duplex reverse roller and duplex feed roller.  Activates the specified items at a specified speed for 10 seconds.
Residual toner-feed motor	M12	RM1-5605-000CN Waste toner motor assembly	Activates the residual toner feed screw.  Activates the specified item at a specified speed for 10 seconds.
Tray 1 and Tray 2 pickup motor	M13	RM1-5773-000CN Pickup motor assembly	Activates the Tray 2 pickup roller, MP tray pickup roller, feed roller, and Tray 2 separation roller.  Activates the specified items at a specified speed for 10 seconds.
Primary transfer roller disengagement solenoid	SL1	RM1-5656-000CN Fixing drive assembly	Activates the specified solenoid for 10 seconds.

**NOTE:** M651 and M680.

**Table 2-15 Component test details (continued)**

Component test	Item tested	Replacement part number	Comments
<b>Tray 3 pickup solenoid</b>  <b>NOTE:</b> 1x500-sheet feeders, 2x500-sheet feeder, and 2,500-sheet HCI.	SL1	RM2-0341-000CN  Paper pickup assembly	Activates the pickup cam rotation which causes the pickup arm to lower, the pickup roller touches the surface of the paper stack.  Activates the specified solenoid for 10 seconds.
<b>Stamp solenoid</b>  <b>NOTE:</b> 3-bin stapling mailbox accessory sensors and switches (M680).	SL1	RM1-6664-000CN  Solenoid, stam assembly	Activates the specified solenoid for 10 seconds.
<b>Duplex reverse solenoid</b>  <b>NOTE:</b> M651 and M680.	SL2	RM1-5546-000CN; M680  RM1-4973-000CN; M651  Duplexing drive assembly	Activates the specified solenoid for 10 seconds.
<b>Tray 4 pickup solenoid</b>  <b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCI.	SL2	RM2-0341-000CN  Paper pickup assembly	Activates the pickup cam rotation which causes the pickup arm to lower, the pickup roller touches the surface of the paper stack.  Activates the specified solenoid for 10 seconds.
<b>Tray 1 pickup solenoid</b>  <b>NOTE:</b> M651 and M680.	SL3	RM1-5546-000CN  Multi-purpose (Tray 1) tray assembly	Activates the Tray 1 pickup roller.  Activates the specified item for 10 seconds.
<b>Tray 5 pickup solenoid</b>  <b>NOTE:</b> 2x500-sheet feeder, and 2,500-sheet HCI.	SL3	RM2-0341-000CN  Paper pickup assembly	Activates the pickup cam rotation which causes the pickup arm to lower, the pickup roller touches the surface of the paper stack.  Activates the specified solenoid for 10 seconds.
<b>Output bin solenoid</b>  <b>NOTE:</b> 3-bin stapling mailbox accessory sensors and switches (M680).	SL3	RM1-5896-000CN  Solenoid, bin assembly	Activates the specified solenoid for 10 seconds.
<b>Tray 2 pickup solenoid</b>	SL4	RM1-5919-000CN  Paper pickup assembly	Activates the pickup cam rotation which causes the pickup arm to lower, the pickup roller touches the surface of the paper stack.  Activates the specified items for 10 seconds.
<b>Solenoid</b>	WU (whole unit)	CZ248-67902  3-bin stapling mailbox accessory sensors and switches (M680)	Activates the specified items for 10 seconds.

## Scanner tests (M680)

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

### Scanner tests


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

### Document feeder and image scanner sensor replacement parts


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

- Document feeder sensors
  - ADF assembly kit; CZ248-67916

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 **NOTE:** Includes the white foam backing.
  - Image scanner assembly kit; CZ248-67915

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 **NOTE:** Includes the white foam backing.

### Use the scanner tests

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

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

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

**-or-**

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

### Scanner tests sensors

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

## Diagrams

### Block Diagrams

Use the following diagrams to identify and locate major components of the product and accessories.

#### Sensors and switches

**Figure 2-28** Sensors and switches (paper path; M651)

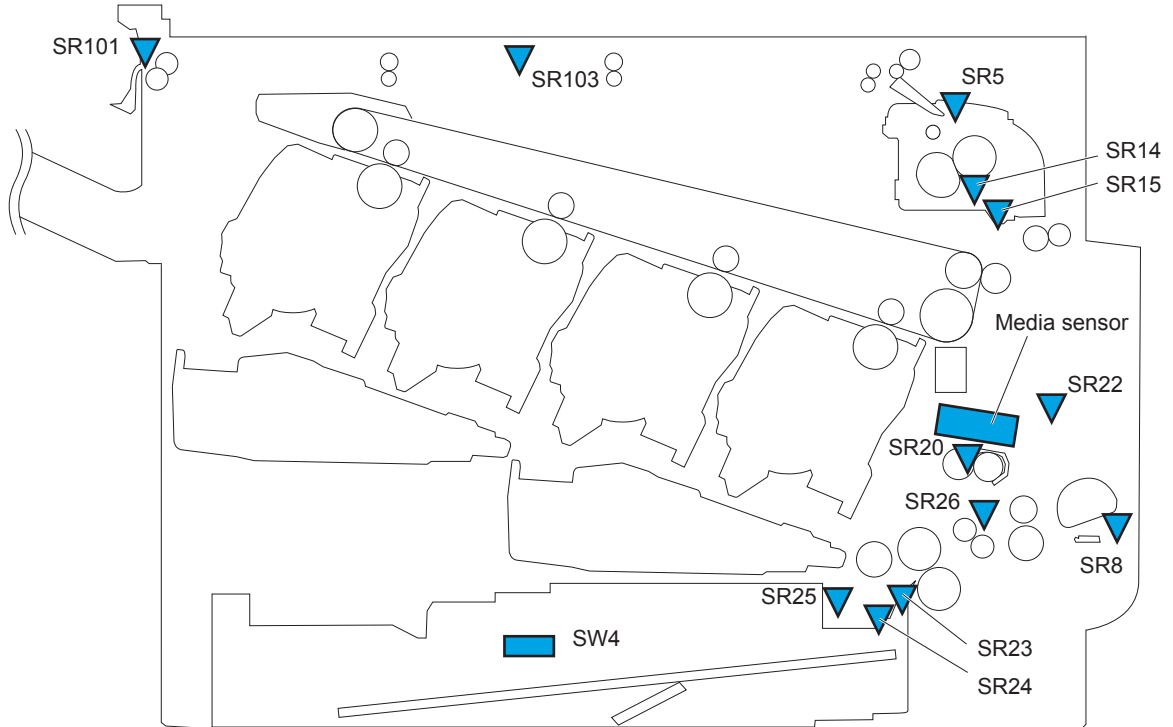


**Table 2-16** Sensors and switches (product; M651)

Item	Description	Item	Description
SW4	Cassette media-size switch	SR22	Duplex re-pickup media-feed sensor
SR5	Fuser delivery sensor	SR23	Tray 2 media-surface sensor 1
SR6	Face-down tray media-full sensor	SR24	Tray 2 media-surface sensor 2
SR8	Multipurpose (Tray 1) tray media-presence sensor	SR25	Tray 2 media-presence sensor
SR14	Fuser loop sensor 1	SR26	Preregistration media-feed sensor
SR15	Fuser loop sensor 2	NA	Media feed sensor
SR20	Top-of-page (TOP) sensor		



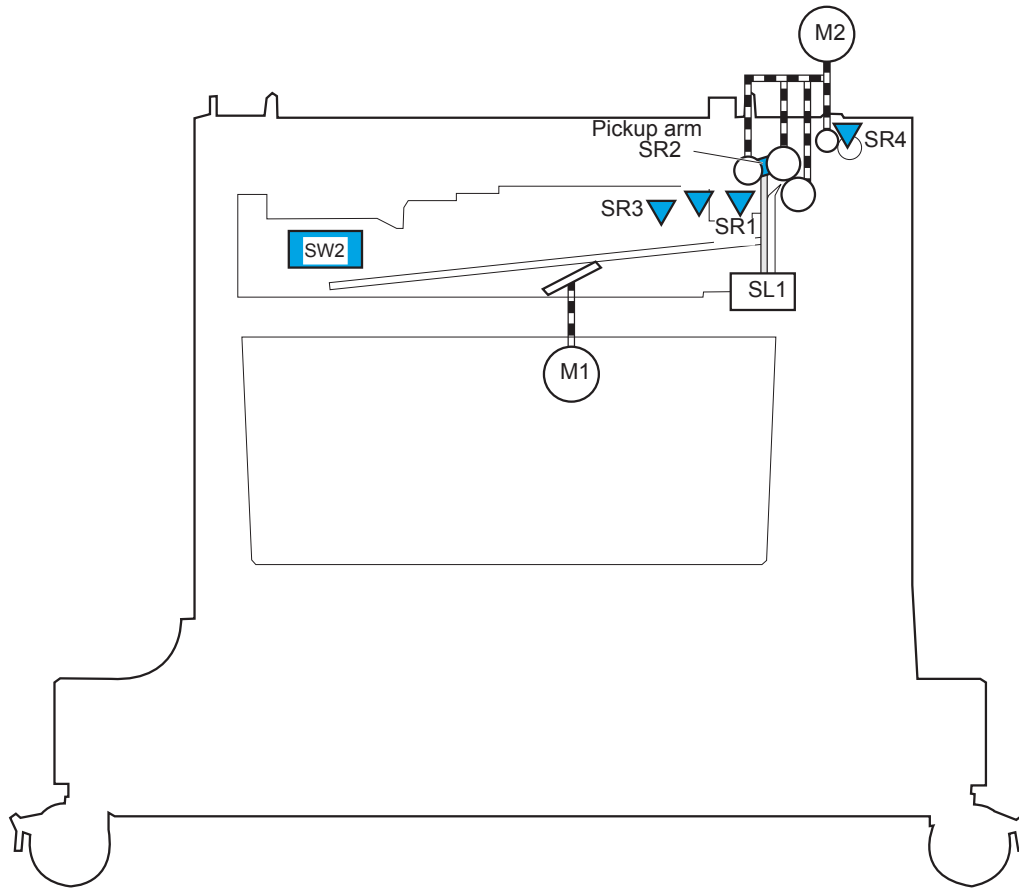
**Figure 2-29** Sensors and switches (paper path; M680)



**Table 2-17** Sensors and switches (product; M680)

Item	Description	Item	Description
SW4	Cassette media-size switch	SR23	Tray 2 media-surface sensor 1
SR5	Fuser delivery sensor	SR24	Tray 2 media-surface sensor 2
SR8	Multipurpose (Tray 1) tray media-presence sensor	SR25	Tray 2 media-presence sensor
SR14	Fuser loop sensor 1	SR26	Preregistration media-feed sensor
SR15	Fuser loop sensor 2	SR101	IPTU media-full sensor
SR20	Top-of-page (TOP) sensor	SR103	IPTU media-feed sensor (
SR22	Duplex re-pickup media-feed sensor	NA	Media feed sensor

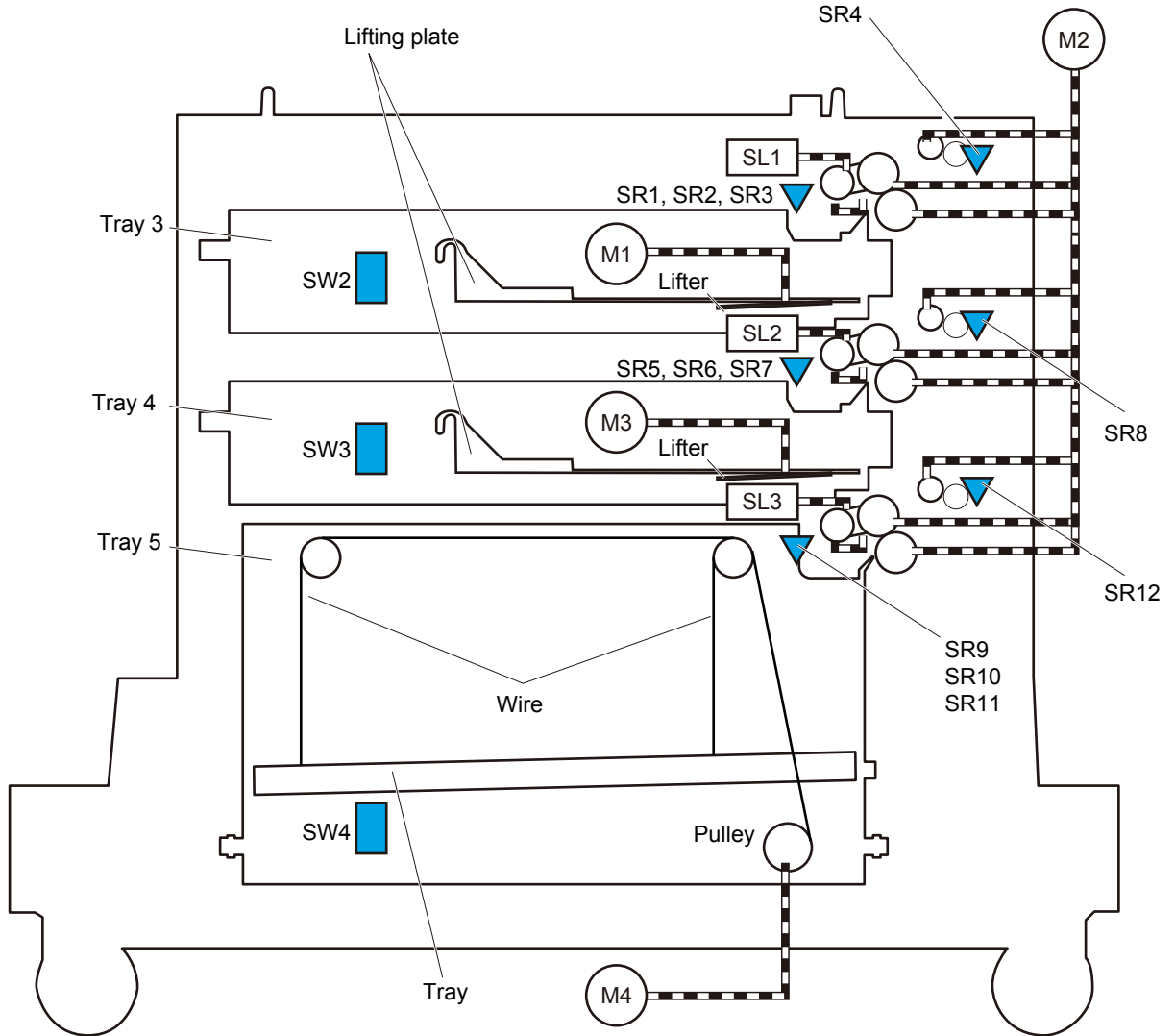
**Figure 2-30** 1x500-sheet paper-feeder and 1x500-sheet paper-feeder with storage cabinet sensors and switches



**Table 2-18** 1x500-sheet paper-feeder and 1x500-sheet paper-feeder with storage cabinet sensors and switches

Item	Description
SR1	Tray 3 paper surface sensor 1
SR2	Tray 3 paper surface sensor 2
SR3	Tray 3 paper presence sensor
SR4	Tray 3 paper present sensor
SW2	Tray 3 paper size switches

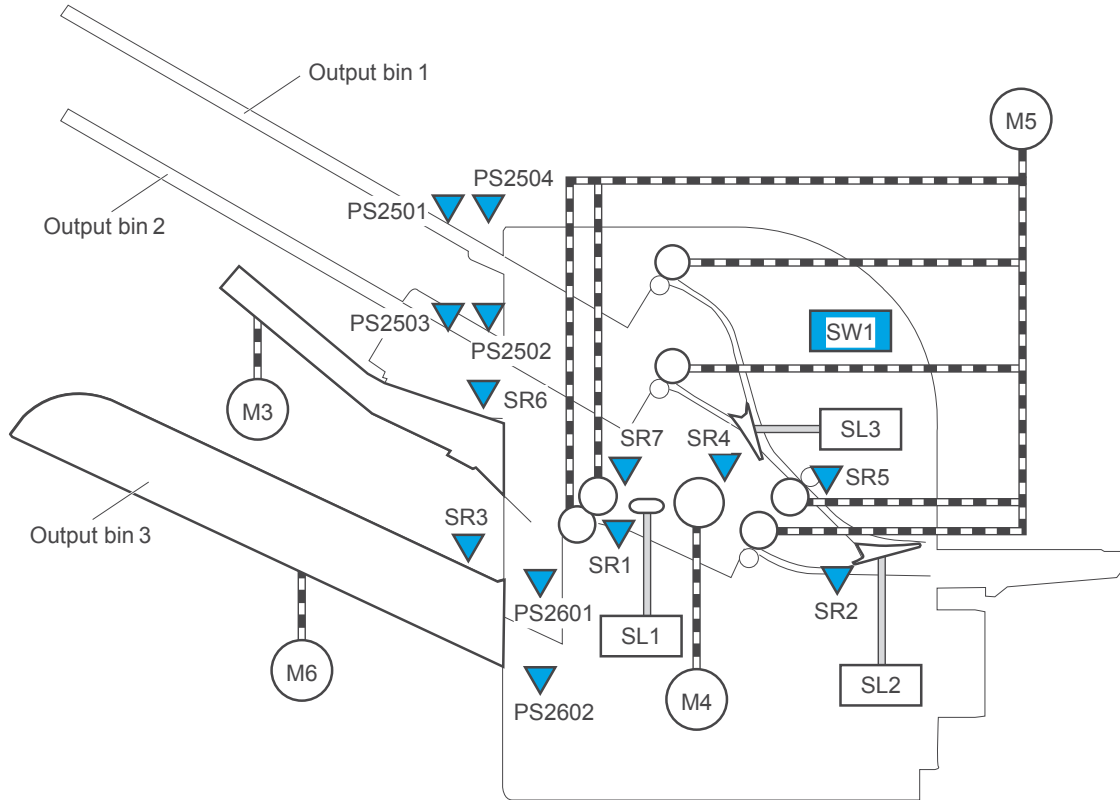
**Figure 2-31** 2,500-sheet high-capacity feeder (HCI) sensors and switches



**Table 2-19** 2,500-sheet paper deck (HCI) sensors and switches

Item	Description	Item	Description
SR1	Tray 3 paper surface sensor 1	SR9	Tray 5 paper surface sensor 1
SR2	Tray 3 paper surface sensor 2	SR10	Tray 5 paper surface sensor 2
SR3	Tray 3 paper presence sensor	SR11	Tray 5 paper present sensor
SR4	Tray 3 media-feed sensor	SR12	Tray 5 feed sensor
SR5	Tray 4 paper surface sensor 1	SW1	Tray 3, 4, and 5 right door switch
SR6	Tray 4 paper surface sensor 2	SW2	Tray 3 paper size switches
SR7	Tray 4 presence sensor	SW3	Tray 4 paper size switches
SR8	Tray 4 feed sensor	SW4	Tray 5 paper size switches

**Figure 2-32** 3-bin stapling mailbox accessory sensors and switches (M680)



**Table 2-20** 3-bin stapling mailbox accessory sensors and switches (M680)

Item	Description	Item	Description
SR1	Output bin 3 delivery sensor	PS2503	Output bin 2 media presence sensor
SR2	Stapler/Stacker media feed sensor 1	PS2504	Output bin 1 media full sensor
SR3	Output bin 3 media full sensor	PS2601	Output bin 3 higher limit sensor
SR4	Alignment roller sensor	PS2602	Output bin 3 lower limit sensor
SR5	Stapler/Stacker media feed sensor 2	NA	Stapler sensor
SR6	Jogger sensor	NA	Staple presence sensor
SR7	Output bin 3 upper delivery roller sensor	NA	Staple ready sensor
PS2501	Output bin 1 media presence sensor	SW1	Stapler/Stacker door switch
PS2502	Output bin 2 media full sensor		

## Cross section diagrams

Figure 2-33 Product base

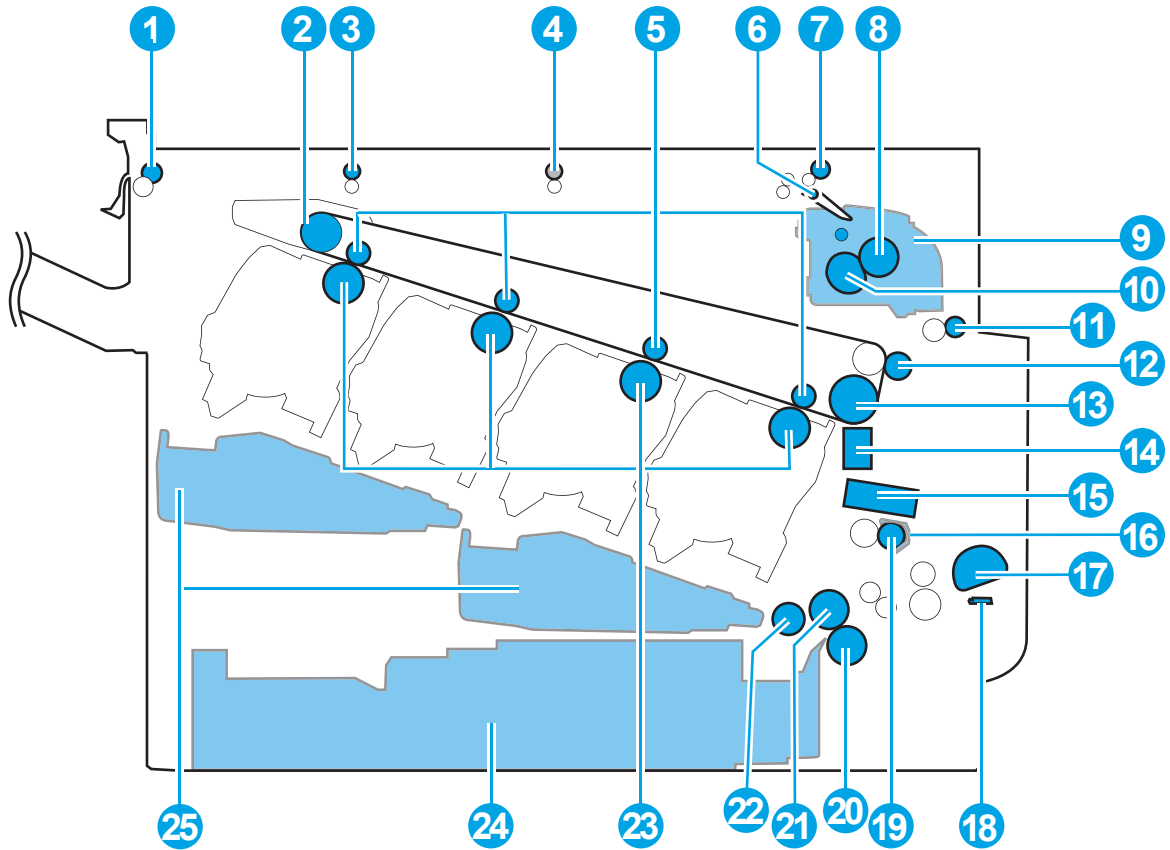
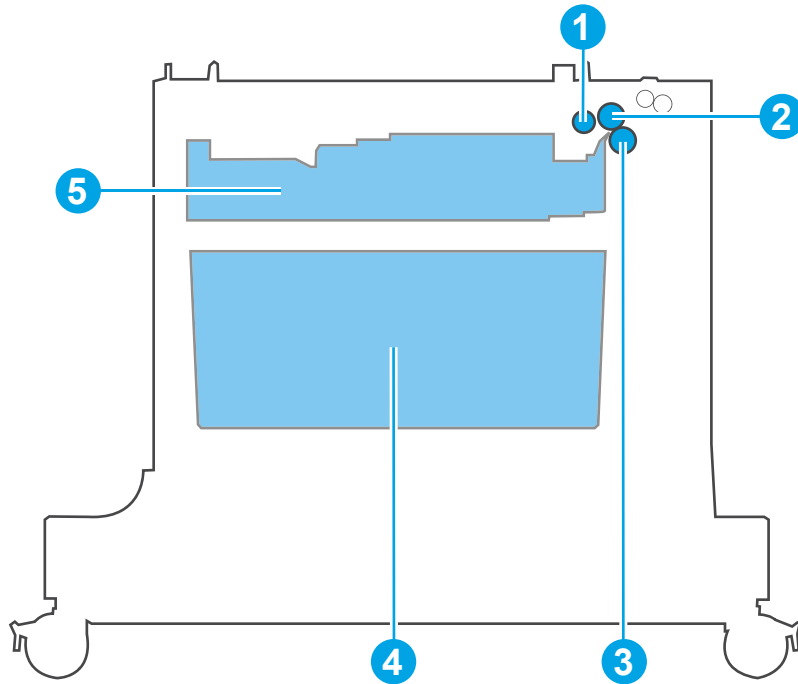


Table 2-21 Product base

Item	Description	Item	Description
1	ITB delivery roller	14	RD sensor
2	ITB	15	Media sensor
3	IPTU feed roller 2 (M680)	16	Registration shutter
4	IPTU feed roller 1 (M680)	17	Multipurpose (Tray 1) tray pickup roller
5	Primary transfer roller	18	Multipurpose (Tray 1) tray separation pad
6	Duplex flapper	19	Registration roller
7	Duplex reverse roller	20	Tray separation roller
8	Pressure roller	21	Tray feed roller
9	Fuser	22	Tray pickup roller
10	Fuser sleeve	23	Photosensitive drum
11	Duplex feed roller	24	Tray 2
12	Secondary transfer roller	25	Laser/scanner assemblies
13	ITB drive roller		

**Figure 2-34** 1x500-sheet paper-feeder and 1x500-sheet paper-feeder with storage cabinet



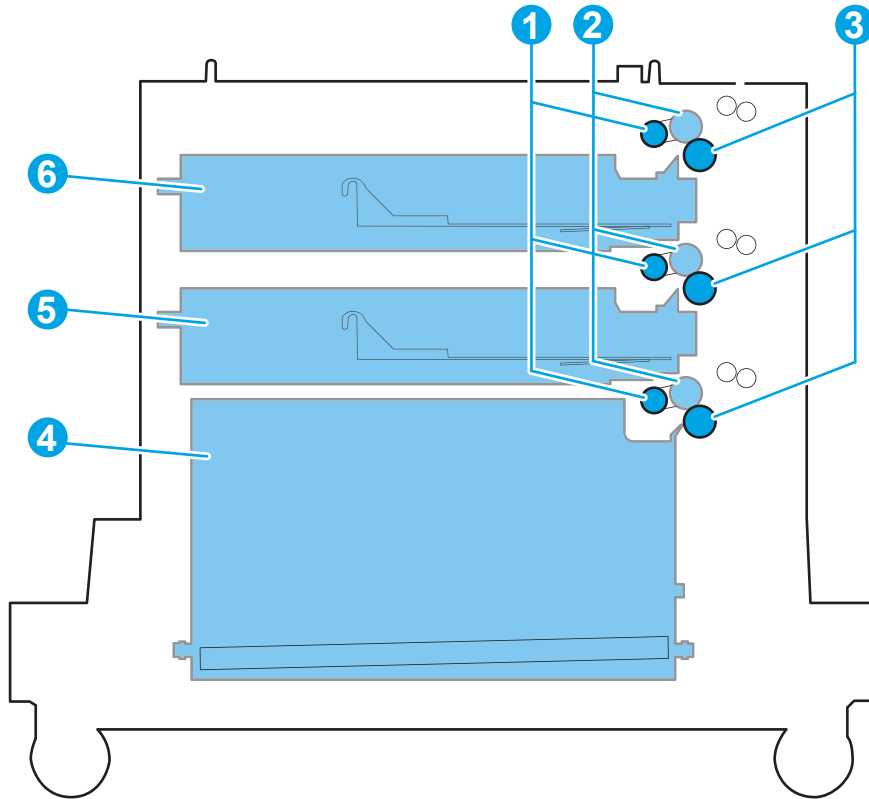
**Table 2-22** 1x500-sheet paper-feeder and 1x500-sheet paper-feeder with storage cabinet<sup>1</sup>

Item	Description	Item	Description
1	Pickup roller	4	Storage space
2	Feed roller	5	Tray 3
3	Separation roller		

**NOTE:** 1x500-sheet paper-feeder with storage cabinet only.

<sup>1</sup> The 1x500-sheet paper-feeder with storage cabinet is shown above, however the components are the same (unless noted) for the 1x500-sheet paper-feeder.

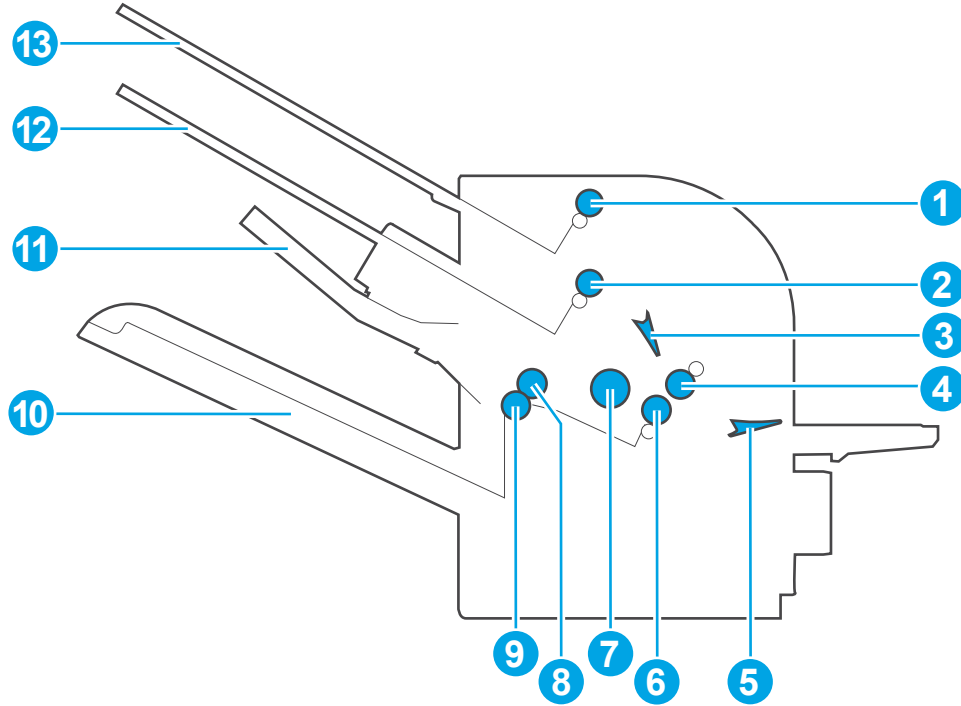
**Figure 2-35** 2,500-sheet high-capacity feeder (HCI) sensors and switches



**Table 2-23** 2,500-sheet high-capacity feeder (HCI) sensors and switches

Item	Description	Item	Description
1	Pickup roller	4	Tray 5
2	Feed roller	5	Tray 4
3	Separation roller	6	Tray 3

**Figure 2-36** 3-bin stapling mailbox accessory (M680)



**Table 2-24** 3-bin stapling mailbox accessory (M680)

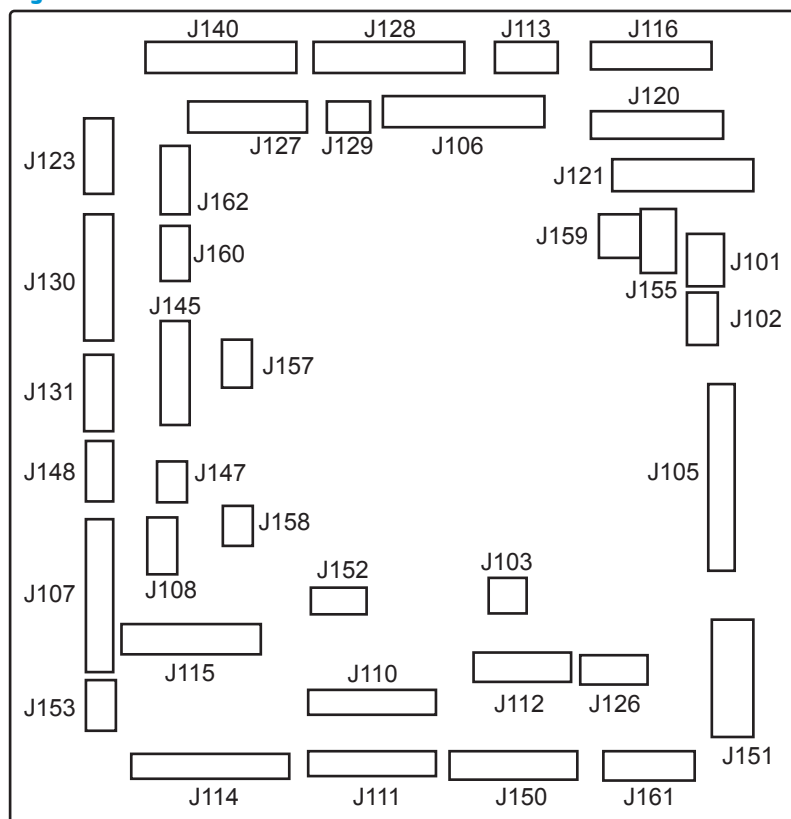
Item	Description	Item	Description
1	Output bin 1 delivery roller	8	Output bin 3 upper delivery roller
2	Output bin 2 delivery roller	9	Output bin 3 lower delivery roller
3	Output bin flapper	10	Output bin 3
4	Stapler/stacker feed roller 1	11	Jogger guide
5	Inlet flapper	12	Output bin 2
6	Stapler/stacker feed roller 2	13	Output bin 1
7	Alignment roller		



## Location of connectors

### DC controller PCA

**Figure 2-37** DC controller PCA



**Table 2-25** DC controller connectors

Item and description	Item and description
<b>J101</b> Not used	<b>J129</b> Front door open detection switch
<b>J102</b> Not used	<b>J130</b> RD sensor
<b>J103</b> Laser/scanner temperature sensor	<b>J131</b> Media sensor
<b>J105</b> Connector PCA	<b>J140</b> ITB motor Y drum home position sensor M drum home position sensor C drum home position sensor K drum home position sensor T1 alienation solenoid

**Table 2-25 DC controller connectors (continued)**

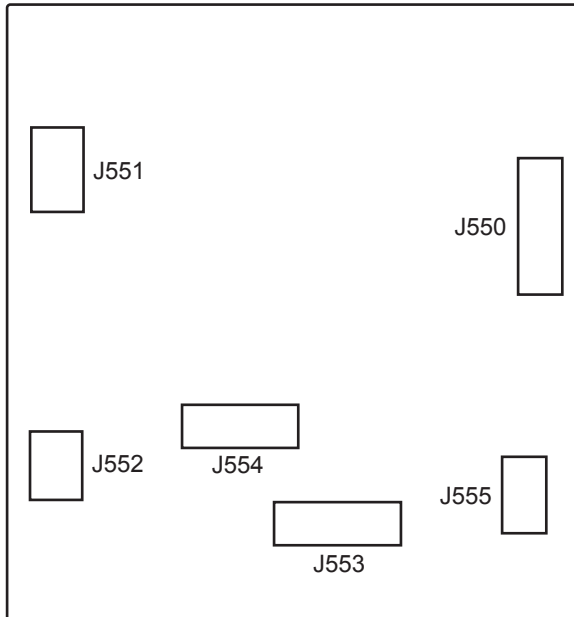
Item and description	Item and description
<b>J106</b>	<b>J145</b>
IPTU (M680)	Duplex re-pickup clutch
3-bin stapling mailbox accessory (M680)	TOP sensor
	Media sensor LED
	Duplex re-pickup media-feed sensor
<b>J107</b>	<b>J147</b>
Input accessory	Right door open detection switch
Tray 2 lifter motor	
Tray 2 media-size switch	
<b>J108</b>	<b>J148</b>
Environment sensor	Multipurpose (Tray 1) tray media-presence sensor
	Multipurpose (Tray 1) tray pickup solenoid
<b>J110</b>	<b>J150</b>
Y/M laser/scanner assembly	Low-voltage power supply
<b>J111</b>	<b>J151</b>
C/K laser/scanner assembly	Low-voltage power supply
	24V interlock switch
<b>J112</b>	<b>J152</b>
Developer alienation sensor	5V interlock switch
C/K scanner motor	
Y/M scanner motor	
<b>J113</b>	<b>J153</b>
High-voltage power supply T	Low-voltage power supply fan
<b>J114</b>	<b>J155</b>
High-voltage power supply D	Residual toner feed motor
	Delivery fan (M651)
	Delivery fan 2 (M680)
<b>J115</b>	<b>J157</b>
High-voltage power supply D	Pre-registration media-feed sensor
Cassette media-surface sensor 1	
Cassette media-surface sensor 2	
Cassette media-presence sensor	
Cassette pickup solenoid	

**Table 2-25 DC controller connectors (continued)**

<b>Item and description</b>	<b>Item and description</b>
<b>J120</b> Y drum motor M drum motor	<b>J158</b> Power switch
<b>J121</b> C drum motor K drum motor	<b>J159</b> Image scanner assembly (M680)
<b>J123</b> Fuser motor	<b>J160</b> Fuser
<b>J126</b> E-label PCA	<b>J161</b> Low-voltage power supply
<b>J127</b> Rear pre-exposure LED 1 to 4 Fuser delivery sensor ITB assembly detection sensor	<b>J162</b> Fuser
<b>J128</b> Face-down tray media-full sensor T1 alienation sensor Fuser depressurization sensor Front pre-exposure LED 1 to 4	

## Intermediate paper transport unit (ITPU) driver PCA (M680)

**Figure 2-38** Intermediate paper transport unit (ITPU) driver PCA (M680)



**Table 2-26** Intermediate paper transport unit (ITPU) driver PCA (M680)

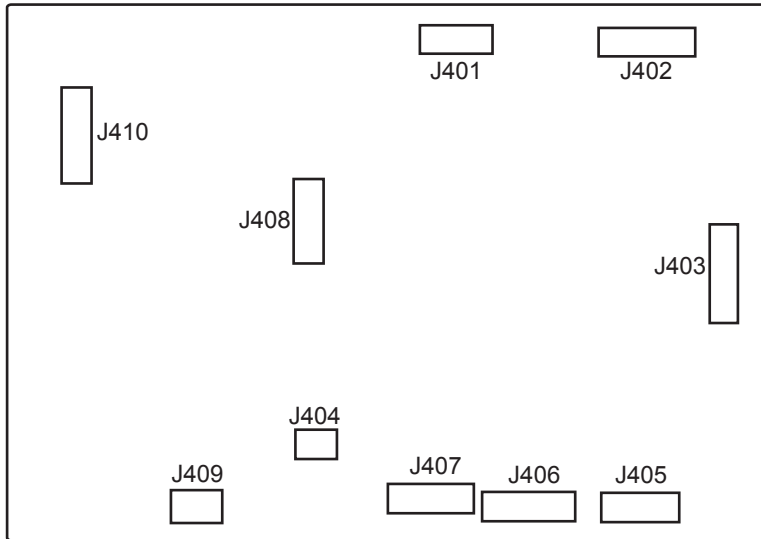
Item and description	Item and description
<b>J550</b> DC controller PCA	<b>J553</b> IPTU media-full sensor Image scanner assembly open detection sensor IPTU media-feed sensor
<b>J551</b> IPTU feed motor	<b>J554</b> Not used
<b>J552</b> IPTU fan 1	<b>J555</b> IPTU fan 2

## Accessories controller PCA

This controller PCA is for the following accessories:

- 1x500-sheet feeder
- 1x500-sheet paper feeder with storage cabinet
- 2,500-sheet high-capacity feeder (HCI)

**Figure 2-39** Accessories controller PCA



**Table 2-27** Accessories controller PCA

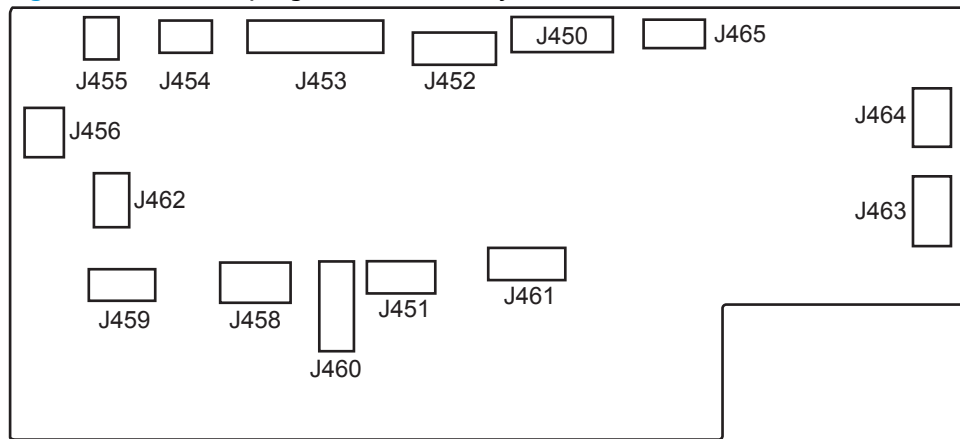
Item and description	Item and description
<b>J401</b>	<b>J406</b>
Not used	Tray 4 media-surface sensor 1 (HCI)
	Tray 4 media-surface sensor 2 (HCI)
	Tray 4 media-presence sensor (HCI)
	Tray 4 media-feed sensor (HCI)
	Tray 4 pickup solenoid (HCI)
<b>J402</b>	<b>J407</b>
Tray 5 lifter motor (HCI)	Tray 3 lifter motor
Tray 5 media-size switch (HCI)	Tray 3 media-size switch
<b>J403</b>	<b>J408</b>
Tray 5 media-surface sensor 1 (HCI)	Tray 3 media-surface sensor 1
Tray 5 media-surface sensor 2 (HCI)	Tray 3 media-surface sensor 2
Tray 5 media-presence sensor (HCI)	Tray 3 media-presence sensor
Tray 5 media-feed sensor (HCI)	Tray 3 media-feed sensor
Tray 5 pickup solenoid (HCI)	Tray 3 pickup solenoid

**Table 2-27 Accessories controller PCA (continued)**

Item and description	Item and description
<b>J404</b> Right door open detection switch (HCI)	<b>J409</b> Pickup motor
<b>J405</b> Tray 4 lifter motor (HCI) Tray 4 media-size switch (HCI)	<b>J410</b> DC controller PCA

**3-bin stapling mailbox accessory (M680)**

**Figure 2-40** 3-bin stapling mailbox accessory (M680)



**Table 2-28** 3-bin stapling mailbox accessory (M680)

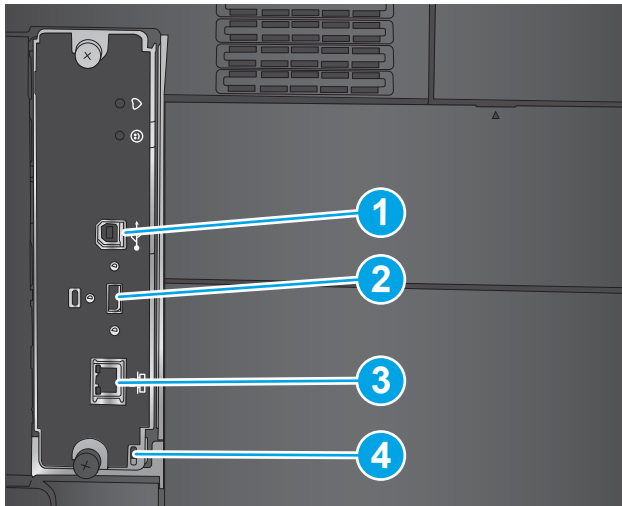
Item and description	Item and description
<b>J450</b> DC controller PCA	<b>J459</b> Jogger motor
<b>J451</b> Output bin 3 delivery sensor Stapling mailbox media-feed sensor 1	<b>J460</b> Not used
<b>J452</b> Output bin 1 media-presence sensor Output bin 2 media-full sensor Output bin 2 media-presence sensor Output bin 1 media-full sensor	<b>J461</b> Stapling mailbox feed motor

**Table 2-28 3-bin stapling mailbox accessory (M680) (continued)**

<b>Item and description</b>	<b>Item and description</b>
<b>J453</b>	<b>J462</b>
Output bin 3 media-full sensor	Stamp solenoid
Alignment roller sensor	Inlet solenoid
Stapling mailbox media-feed sensor 2	
Jogger sensor	
Output bin 3 upper delivery roller sensor	
<b>J454</b>	<b>J463</b>
Output bin 3 upper limit sensor	Stapler sensor
Output bin 3 lower limit sensor	Staple-presence sensor
	Staple ready sensor
<b>J455</b>	<b>J464</b>
Stapling mailbox lifter motor	Stapler motor
<b>J456</b>	<b>J465</b>
Output bin solenoid	Stapling mailbox door switch
<b>J458</b>	
Paddle motor	

## Formatter connections

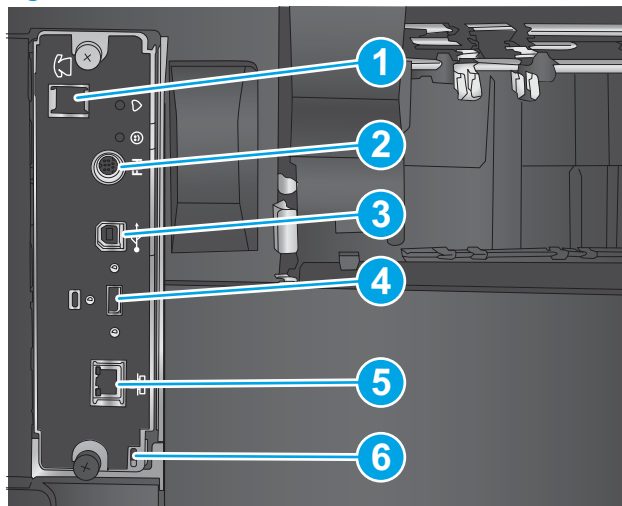
**Figure 2-41** Formatter connections (M651)



**Table 2-29** Formatter connections (M651)

Item	Description
1	Hi-Speed USB 2.0 printing port
<b>NOTE:</b> For Easy-access USB printing, use the USB port near the control panel.	
2	USB port for connecting external USB devices
3	Local area network (LAN) Ethernet (RJ-45) network port
4	Slot for a cable-type security lock

**Figure 2-42** Formatter connections (M680)



**Table 2-30** Formatter connections (M680)

Item	Description
1	Fax port



**Table 2-30 Formatter connections (M680) (continued)**

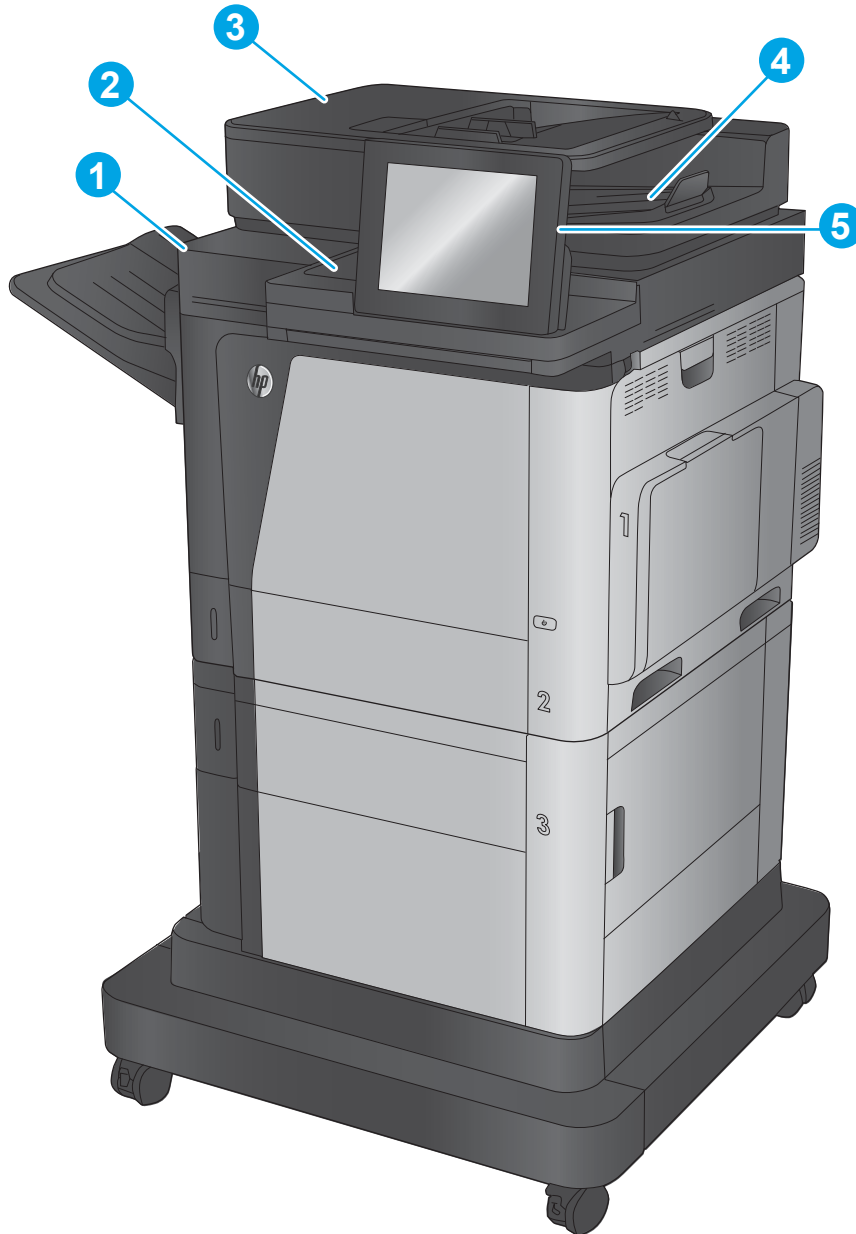
Item	Description
2	Foreign interface harness (for connecting third-party devices)
3	Hi-Speed USB 2.0 printing port
	<b>NOTE:</b> For Easy-access USB printing, use the USB port near the control panel.
4	USB port for connecting external USB devices (this port might be covered)
5	Local area network (LAN) Ethernet (RJ-45) network port
6	Slot for a cable-type security lock

## Location of major components

Use the diagrams to locate components.

### Base product

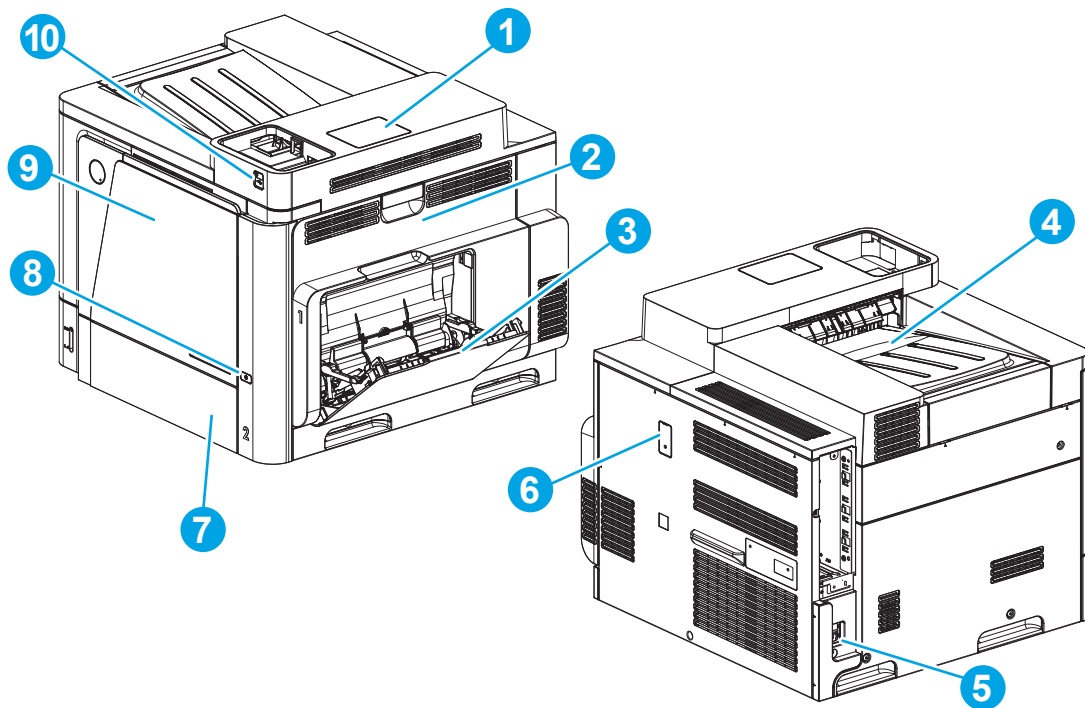
**Figure 2-43** M680 product integrated scanner assembly (ISA)



**Table 2-31** M680 product integrated scanner assembly (ISA)

Item	Description	Item	Description
1	Scanner assembly	4	ADF output bin
2	Hardware Integration Pocket (HIP) cover	5	Control-panel assembly
3	Automatic document feeder (ADF)		

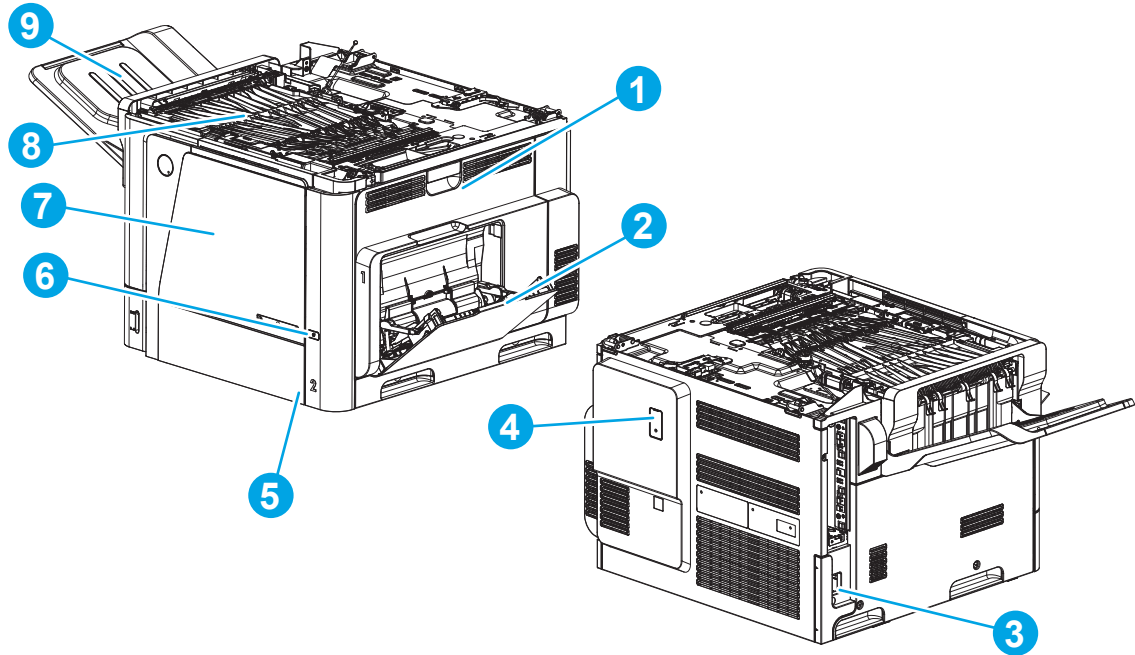
**Figure 2-44** Base product external view M651



**Table 2-32** Base product external view M651

Item	Description	Item	Description
1	Hardware integration pocket (HIP) cover	6	Engine test print switch
2	Right door	7	Tray 2
3	Multipurpose tray (Tray 1)	8	Power switch
4	Face-down tray (output bin)	9	Front door
5	Power receptacle	10	USB port

**Figure 2-45** Base product external view M680

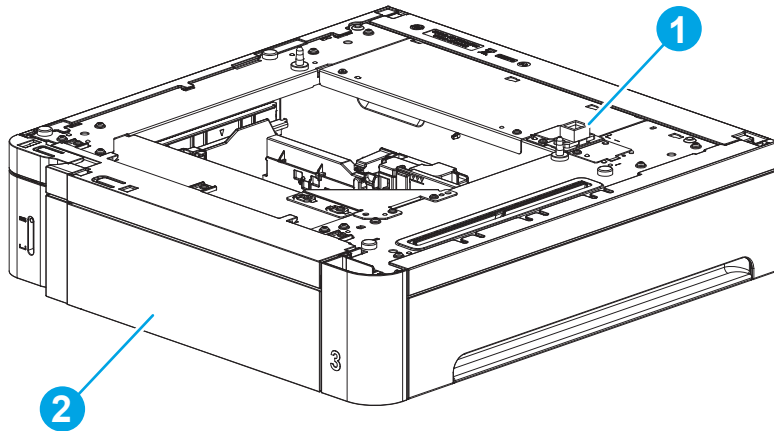


**Table 2-33** Base product external view M680

Item	Description	Item	Description
1	Right door	6	Power switch
2	Multipurpose tray (Tray 1)	7	Front door
3	Power receptacle	8	Intermediate paper transport unit (ITPU) door
4	Engine test print switch	9	Face-down tray (output bin)
5	Tray 2		

## 1x500-sheet paper feeder

**Figure 2-46** 1x500-sheet paper feeder



**Table 2-34** 1x500-sheet paper feeder

Item	Description
1	Connector
2	Tray 3

## 1x500-sheet paper deck

Figure 2-47 1x500-sheet paper deck

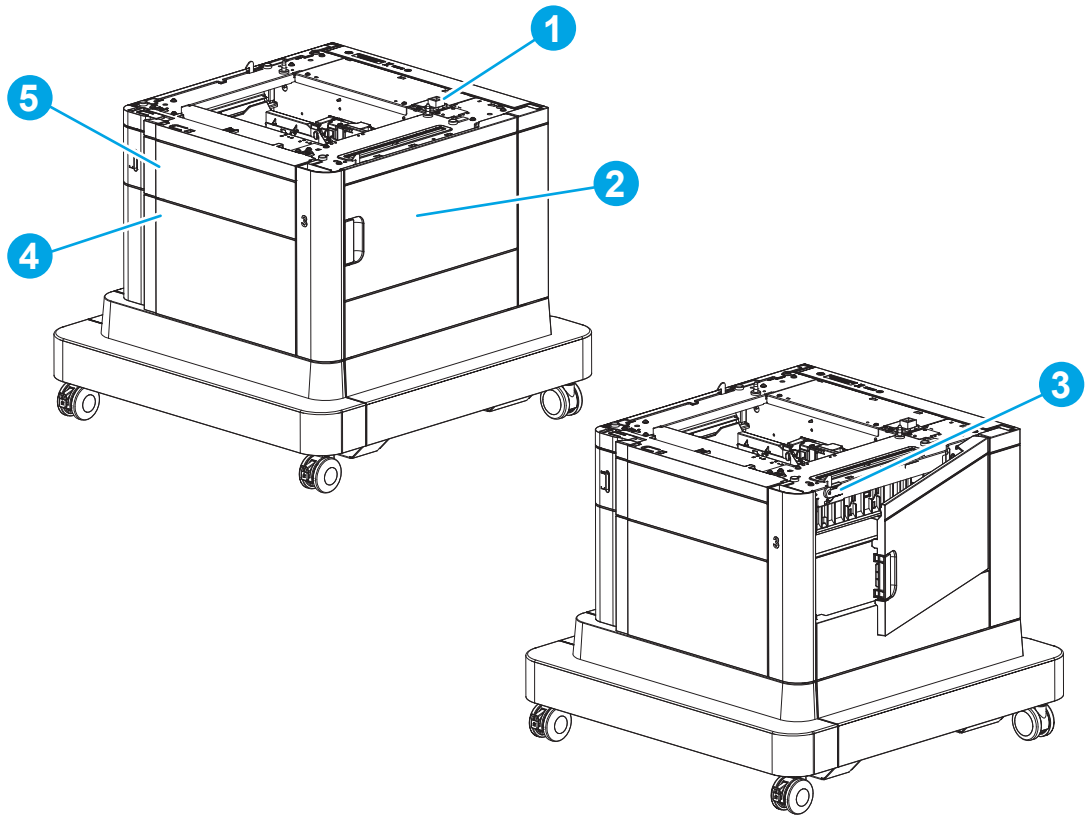


Table 2-35 1x500-sheet paper deck

Item	Description	Item	Description
1	Connector	4	Storage box door
2	Right door	5	Tray 3
3	Lock lever		

## 2,500-sheet high-capacity feeder (HCI)

Figure 2-48 2,500-sheet high-capacity feeder (HCI)

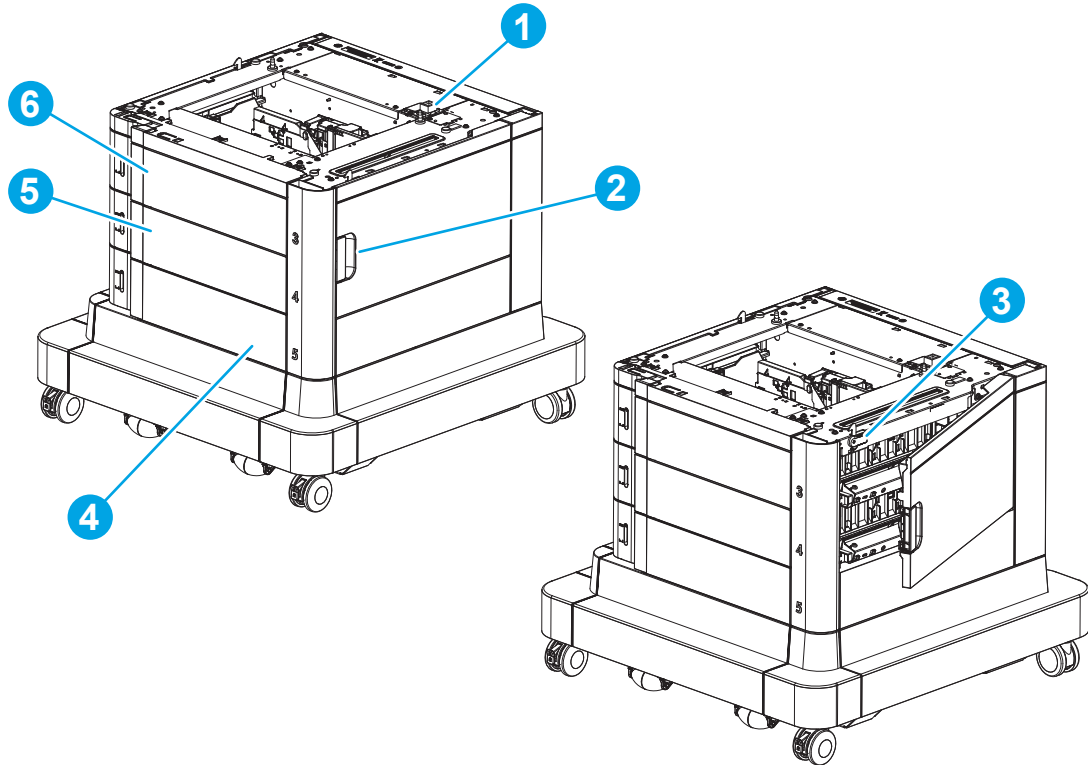


Table 2-36 2,500-sheet high-capacity feeder (HCI)

Item	Description	Item	Description
1	Connector	4	Tray 5
2	Right door	5	Tray 4
3	Lock lever	6	Tray 3

### 3-bin stapling mailbox accessory (M680)

Figure 2-49 3-bin stapling mailbox accessory (M680)

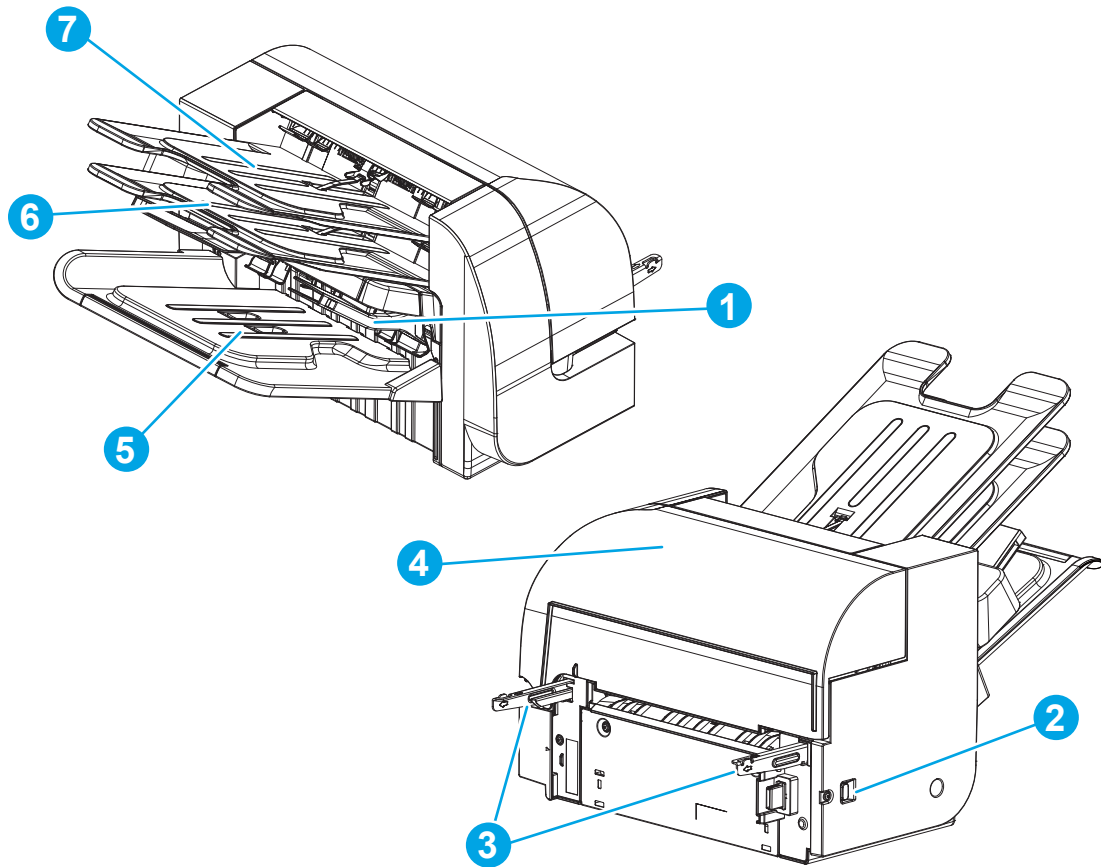


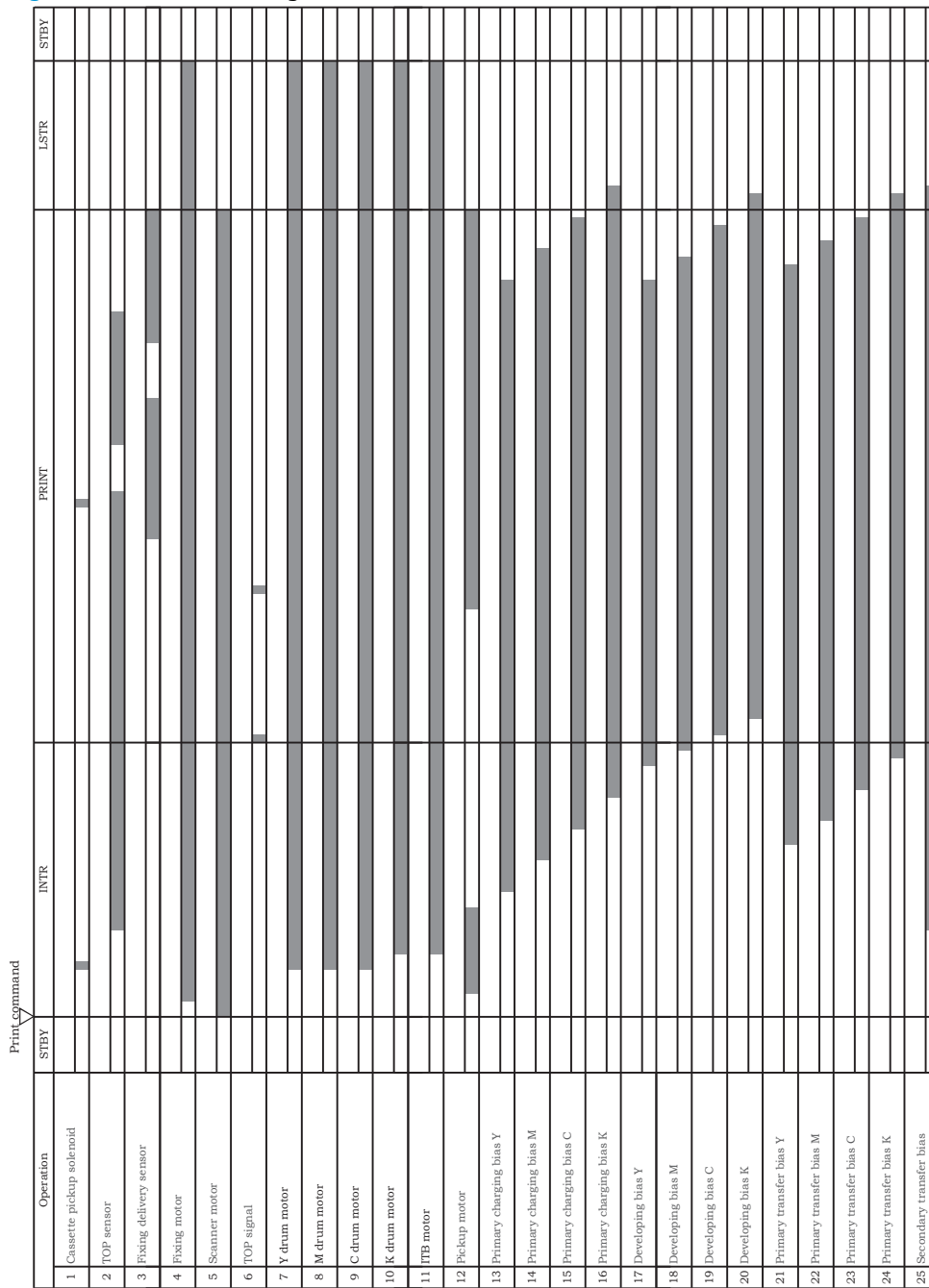
Table 2-37 3-bin stapling mailbox accessory (M680)

Item	Description	Item	Description
1	Jogger guide	5	Output bin 3
2	Removal button	6	Output bin 2
3	Positioning pole	7	Output bin 1
4	Top door		



# General timing chart

Figure 2-50 General timing chart



# Circuit diagrams

Figure 2-51 General circuit diagram (M651)

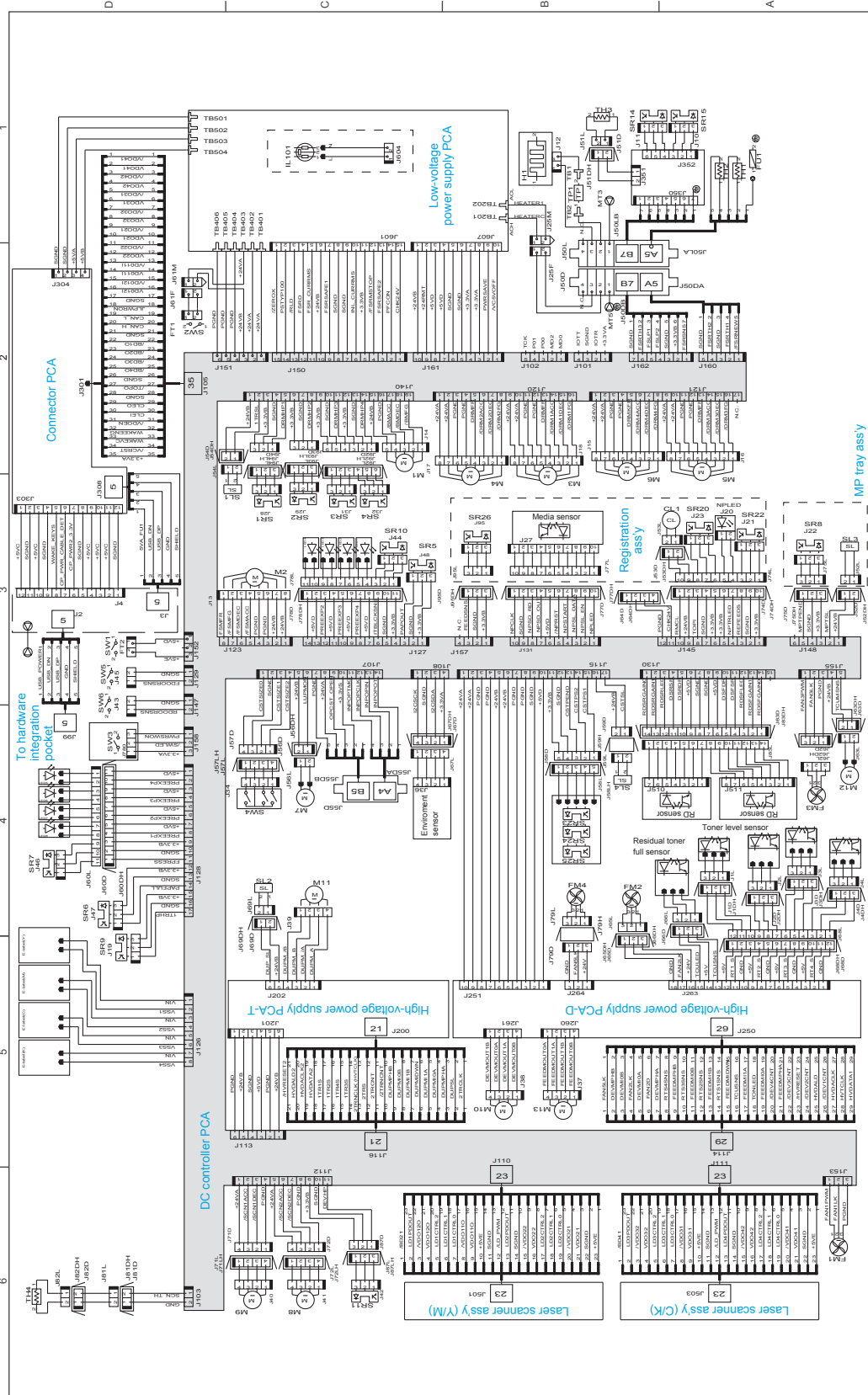


Figure 2-52 General circuit diagram (M680; 1 of 2)

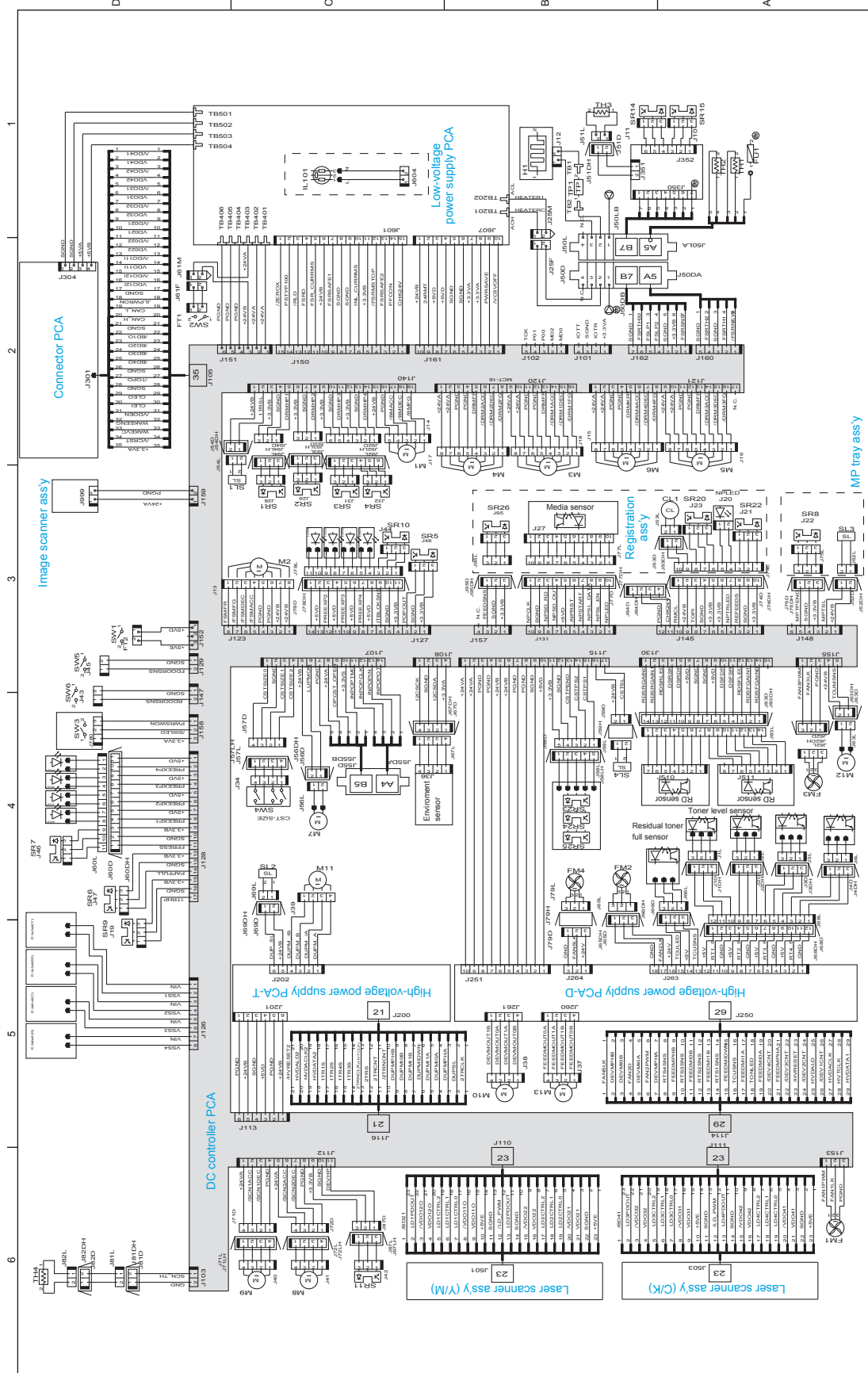
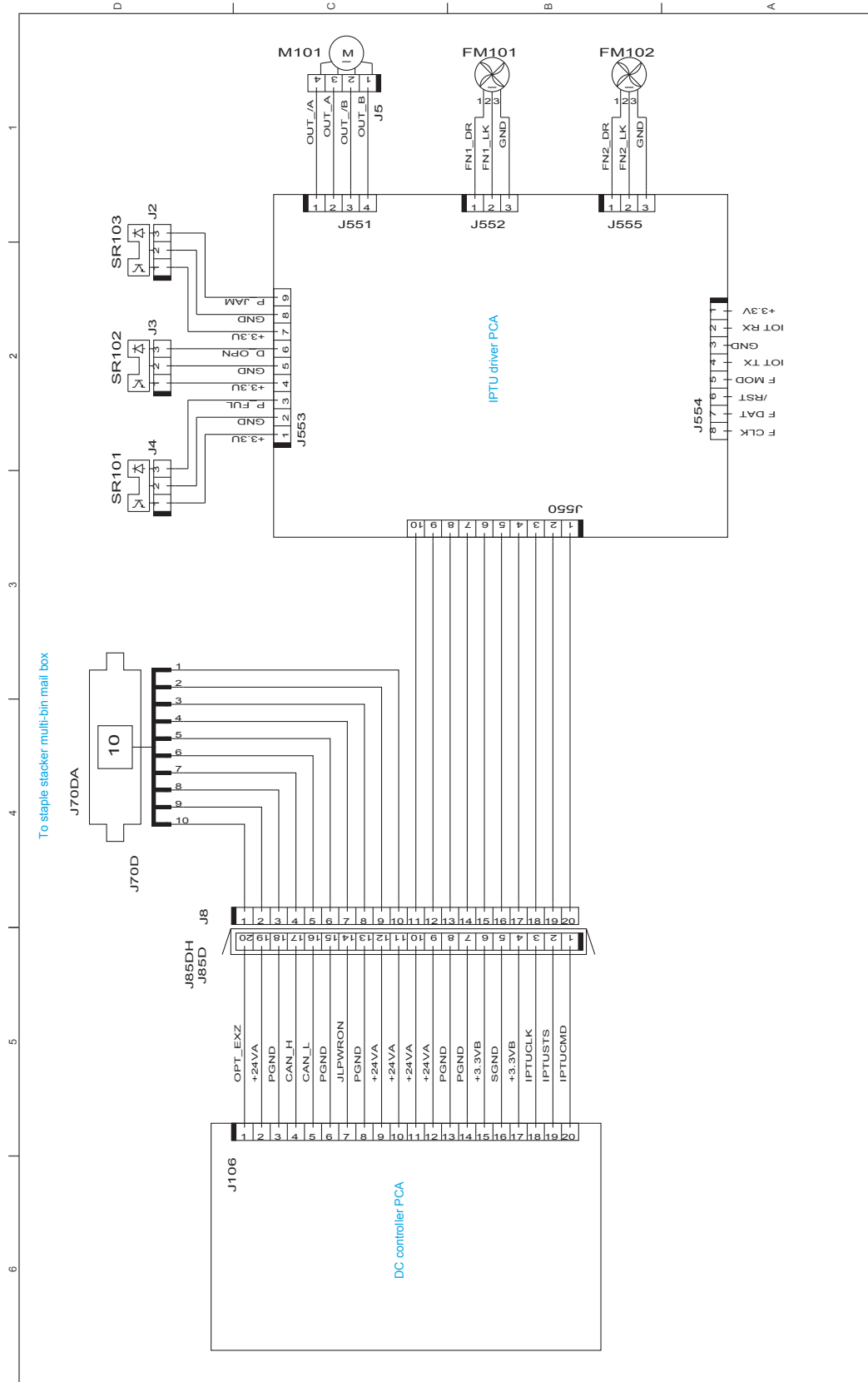
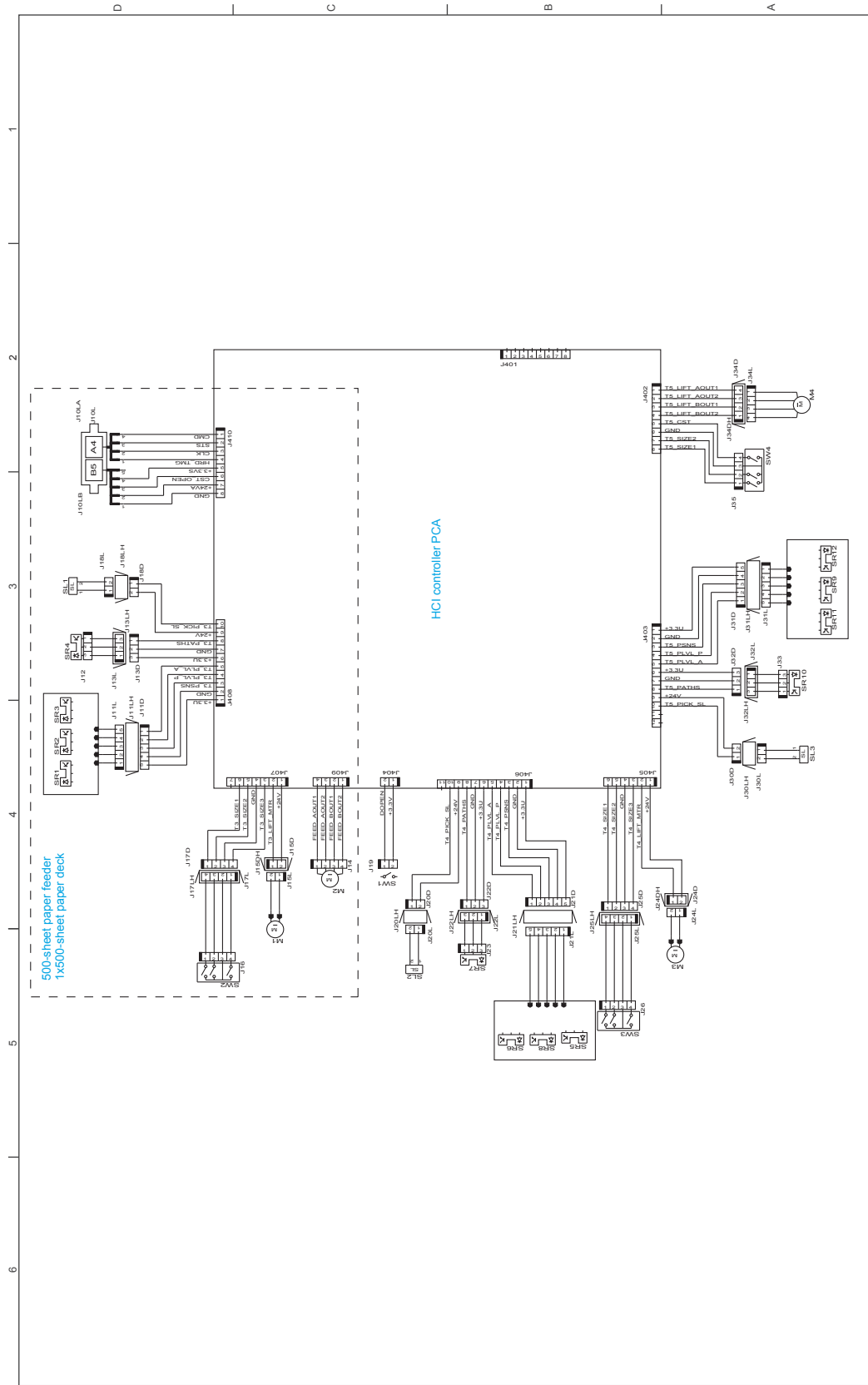


Figure 2-53 General circuit diagram (M680; 2 of 2)



**Figure 2-54** 1x500-sheet paper feeder, 1x500-sheet paper deck, and 2,500-sheet high-capacity feeder (HCI)





## Internal print-quality test pages

### Print quality troubleshooting pages

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

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

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

**Figure 2-56** Print-quality troubleshooting procedure



Figure 2-57 Yellow print-quality troubleshooting page

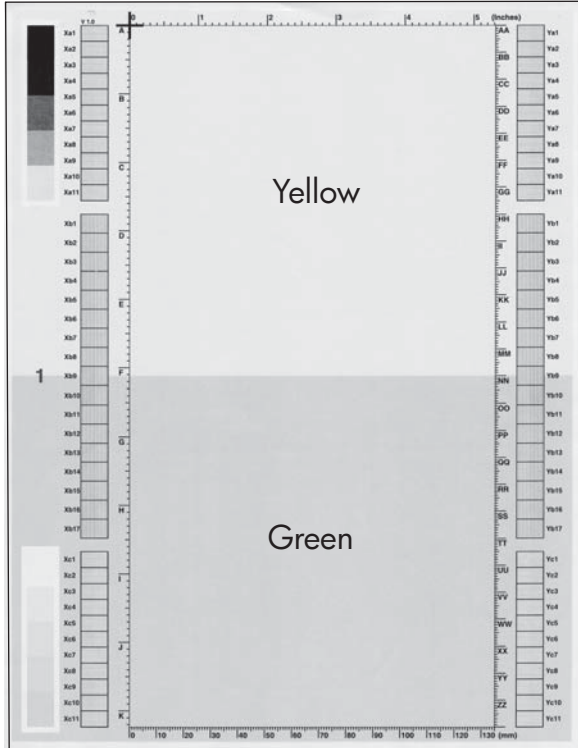
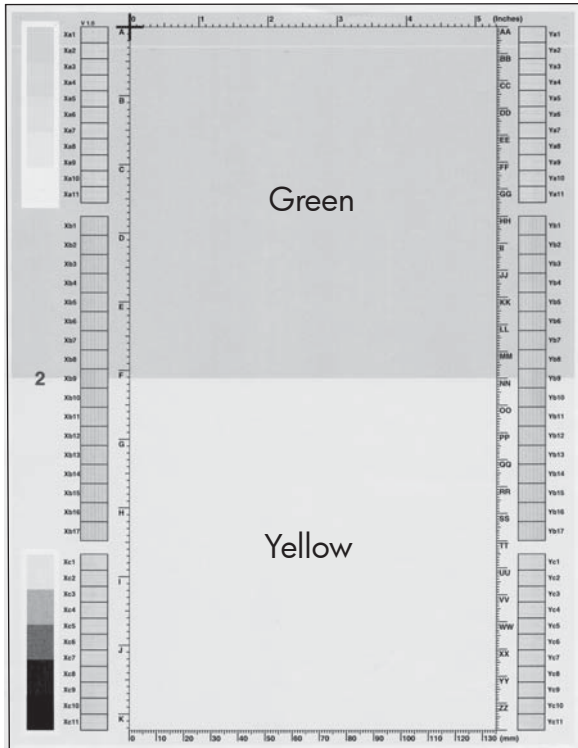


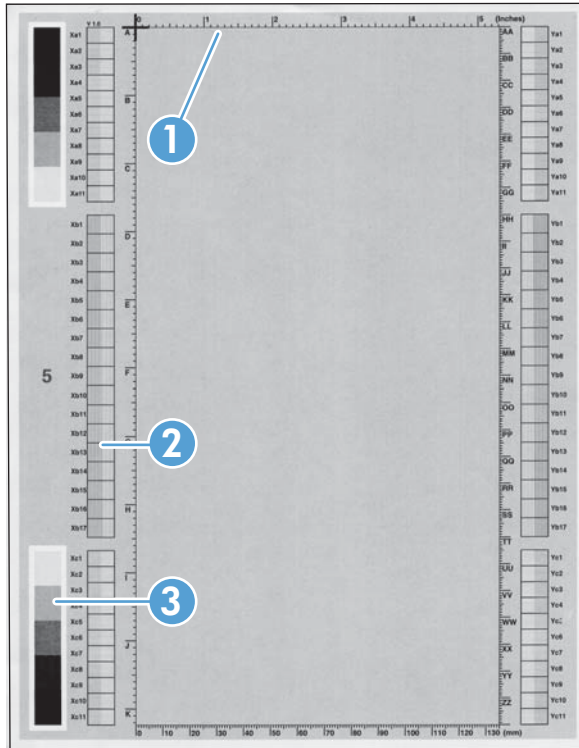
Figure 2-58 Yellow comparison page



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



**Figure 2-59** Black print-quality troubleshooting page



**1. Grids**

The grids are in inches and millimeters. They are labeled with letters and numbers so that defects can be described by position and by distance between repeats.

**2. Color plane registration (CPR) bars**

After printing, the box with no extra color in each area on each page shows how far off the CPR of that color is. Each page has two process direction areas and three scan direction areas that are labeled x and y and 1–11. The page should be fed by the long edge. Each square from the center equals 42 microns.

**3. Color ramp patches**

Used to detect offset for the OPC or developer in the image drum or offset in the fuser.

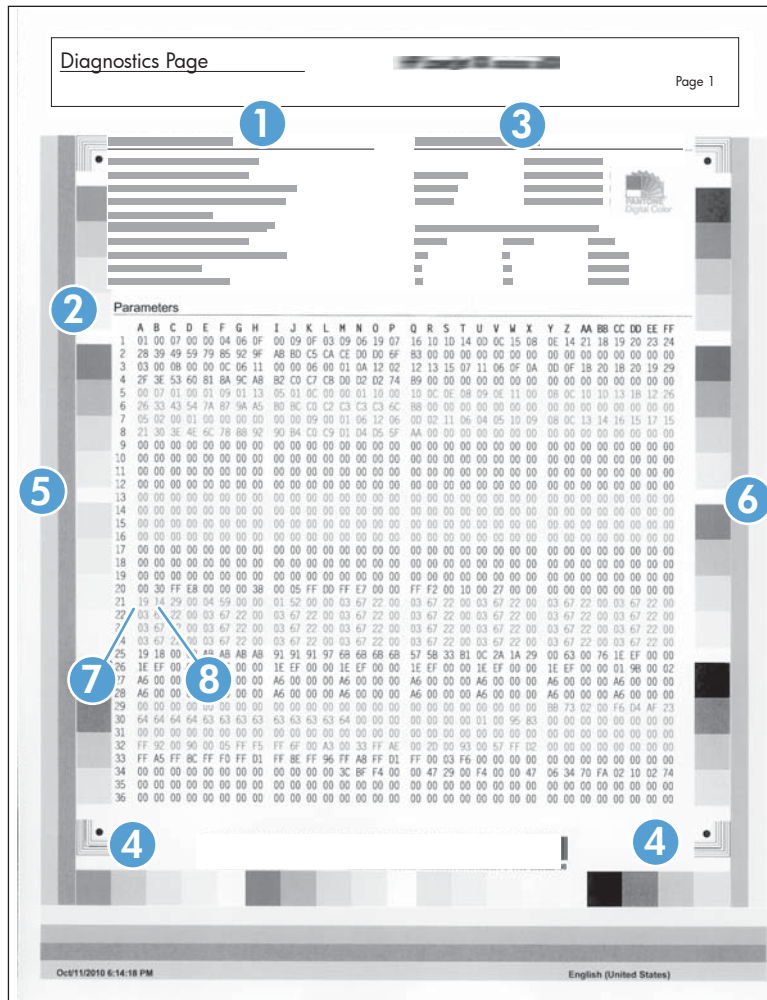


**NOTE:** To get further assistance in print quality troubleshooting, go to [www.hp.com/support/colorljM651](http://www.hp.com/support/colorljM651) or [www.hp.com/support/colorljMFPM680](http://www.hp.com/support/colorljMFPM680) and select PQ Troubleshooting Tools.

## Print quality assessment page

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

1. From the **Home** screen on the product control panel, scroll to and touch the **Administration** button.
2. Open the following menus:
  - **Troubleshooting**
  - **Print Quality Pages**
  - **Diagnostics Page**
3. Touch the **Print** button.



1	Calibration information
2	Parameters
3	Color density
4	Color plane registration

<b>5</b>	Primary colors
<b>6</b>	Secondary colors
<b>7</b>	Temperature values (21A)
<b>8</b>	Humidity values (21B)

## Cleaning page

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

## Enable and configure auto cleaning

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

### To enable the auto cleaning function

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

### To configure the auto cleaning function

1. From the [Home](#) screen on the product control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the following menus:
  - [Calibration/Cleaning](#)
3. Open one of the following menus:
  - [Cleaning Interval](#)  
Default setting: 1000 pages
  - [Auto Cleaning Size](#)  
Default setting: Letter
4. After selection an option item, touch the [Save](#) button.

## Print a configuration page

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

### Configuration page

Use the configuration page to view current product settings, to help troubleshoot product problems, or to verify installation of optional accessories, such as memory (DIMMs), paper trays, and product languages.

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



**NOTE:** The [View](#) button is available only on the M680 product.

---

**Figure 2-60** Configuration page

**Configuration Page**
**HP Color LaserJet M651**
Page 1

**1 Device Information**

Product Name: HP Color LaserJet M651  
 Device Name: HP Color LaserJet M651  
 Model Number: CXXXXA  
 DC Controller Version: 5.38  
 Optional Trays Version: 1.100  
 Device Serial Number: XXXXXXXXXXXX  
 Formatter Number: XXXXXXXXXXXX  
 Firmware Version: FutureSmart 3 Beta  
 (2354360\_388950)  
 Firmware Revision: 2354360\_388950  
 Firmware Datecode: 20130523  
 Service ID: 00000  
 PS wait Time-out: 300 seconds  
 Engine Cycles\*: 4  
 Color Engine Cycles\*: 0  
 \*Not weighted for billing

---

**2 Installed Personalities and Options**

PCL: 20010402  
 PCLXL: 20010402  
 POSTSCRIPT: 20010402  
 PDF: 20050131  
 AirPrint: 2040201  
 Internal Disk: Hard Disk: Enabled  
 Serial Number: 132015400205  
 Model: SanDisk SDSA6AM-008G-1006  
 Capacity: 7641 MB  
 Hard Disk Encryption Status: Disk cannot be encrypted  
 Embedded HP JetDirect J8028E: NP1D54FCD  
 Custom Color Table: Not Installed

---

**3 HP Web Services**

HP Web Services: Disabled  
 ePrint: Disabled

---

**4 Color Density**

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

**5 Calibration Information**

Last CPR (Engine Cycles): 2  
 Last CPR: 5/4/2012 1:13:49 AM  
 Last OMax/DHalf (Engine Cycles): 2  
 Last OMax/DHalf: 5/4/2012 1:15:35 AM

---

**6 Memory**

Total RAM: 1536 MB

---

**7 Event Log**

Number of Entries in Use: 156  
 Three Most Recent Entries:

Number	Cycles	Event
156	4	42.B0.01
155	4	42.B0.01
154	4	42.B0.01

---

**8 Security**

Hard Disk Encryption Status:  
 Internal Disk: Disk cannot be encrypted  
 Job Data Encryption Status: Encrypted (AES-128)  
 Job Data Persistence: Volatile (not persistent)  
 File Erase Mode: Non-Secure Fast Erase (No overwrite)  
 Control Panel Password: Disabled  
 Support Key: 52JJ-HF79-CP3Y  
 Host USB plug and play: Enabled  
 Device USB: Enabled

---

**9 Paper Trays and Options**

Default Paper Size: Letter  
 Tray 1 Size: Any Size  
 Tray 1 Type: Any Type  
 Tray 2 Size: A4  
 Tray 2 Type: Plain  
 Tray 3 Size: Letter  
 Tray 3 Type: Plain  
 Duplex Unit:  
 1: Output Bin 1, 300 Sheets.  
 [[cNoneNoneFacedown]]

May/3/2012 6:32:16 PM

XXXXXXXXXXCXXXX2343342

30409184623147100204121846315491002022418462317410091211685915100

English (United States)

**Table 2-38** Configuration page

Item	Description
1	Device information
2	Installed personalities and options
3	HP Web services
4	Color density

**Table 2-38 Configuration page (continued)**

<b>Item</b>	<b>Description</b>
<b>5</b>	Calibration information
<b>6</b>	Memory
<b>7</b>	Event log
<b>8</b>	Security
<b>9</b>	Paper trays and options

**HP embedded Jetdirect page**

The second configuration page is the HP embedded Jetdirect page, which contains the following information:  
 Always make sure the status line under the general information line indicates "**I/O Card Ready.**"

**Figure 2-61** Configuration page

**Embedded Jetdirect Page**
**HP Color LaserJet M651**
Page 1

<p><b>1</b> ----- General Information -----                  Status: I/O Card Not Ready                  LAN ERROR - LOSS OF CARRIER                  Model Number: J8028E                  Hardware Address: 2C59E5D54FCD                  Firmware Version: JD123S00252                  LAA: 2C59E5D54FCD                  Port Config: Disconnected                  Auto Negotiation: On                  Manufacturing ID: 5107510700****                  Date Manufactured: 02/2011                  WS Registration: Not Registered                   ePrint: Not Applicable                  Email: Not Applicable</p> <p><b>2</b> ----- Security Settings -----                  802.1X: Not Specified                  IPsec: Disabled                  Secure Web: HTTPS Required                  Cert Expires: 2016-02-01 00:00 UTC                  SNMP Versions: 1:2                  SNMP Set Cmty Name: Not Specified                  SNMP Get Cmty Name: Not Specified/Default                  Access List: Not Specified                   Admin Password: Not Specified                  Announcement Agent: Success</p> <p><b>3</b> ----- Network Statistics -----                  Total Packets Received: 0                  Unicast Packets Received: 0                  Bad Packets Received: 0                  Framing Errors Received: 0                  Total Packets Transmitted: 0                  Undeliverable Packets: 0                  Transmit Collisions: 0                  Transmit Late Collisions: 0                  Last Wake:                  000004C3000000000000000000000000                  00000000000000000000000000000000                  00000000000000000000000000000002</p>	<p><b>4</b> ----- TCP/IP -----                  IPv4: Enabled                  IPv6: Enabled                  Host Name: NPID54FCD                  IPv4 Domain Name: Not Specified                  IPv6 Domain Name: Not Specified                  Primary DNS Server: Not Specified                  Secondary DNS Server: Not Specified                  DNS(IPv6): Not Specified                  Not Specified                  Not Specified                  WINS Server: Not Specified                  Idle Timeout: 90 sec</p> <p><b>5</b> ----- IPv4 -----                  Status: Initializing                   IP Address: 0.0.0.0                  Subnet Mask: 0.0.0.0                  Default Gateway: 0.0.0.0                  Config By: Not Configured                  BOOTP/DHCP Server: 0.0.0.0                  TFTP Server: 0.0.0.0                  Bonjour Service Name: Not Specified</p> <p><b>6</b> ----- IPv6 -----                  Status: Ready                   Link-Local: Not Configured                  Stateless: Not Configured                   DHCPv6: Not Configured                  Manual: Not Configured</p>
--	--

May/3/2012 6:32:16 PM
English (United States)

<b>Item</b>	<b>Description</b>
-------------	--------------------



1	<b>General Information</b> indicates the product status, model number, hardware firmware version, port select, port configuration, auto negotiation, manufacturing identification, and manufactured date.
2	<b>Security Settings</b> information
3	<b>Network Statistics</b> indicates the total packets received, unicast packets received, bad packets received, framing errors received, total packets transmitted, unsendable packets, transmit collisions, and transmit late collisions.
4	<b>TCP/IP</b> information, including the IP address
5	<b>IPv4</b> information
6	<b>IPv6</b> information

## Finding important information on the configuration pages

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

**Table 2-40 Important information on the configuration pages**

Type of information	Specific information	Configuration page
<b>Firmware date codes</b>  When performing a remote firmware upgrade procedure, all of these firmware components are upgraded.	DC controller	Look on the main configuration page, under “Device Information.”
	Firmware datecode	Look on the main configuration page, under “Device Information.”
	HP embedded Jetdirect firmware version	Look on the HP embedded Jetdirect page, under “General Information.”
<b>Accessories and internal storage</b>  All optional devices that are installed on the product should be listed on the main configuration page.  In addition, separate pages print for the optional paper handling devices and the fax accessory. These pages list more-detailed information for those devices.	Embedded HP Jetdirect	Look on the main configuration page, under “Installed Personalities and Options.” Shows model and ID.
	Total RAM	Look on the main configuration page, under “Memory.”
	Duplex unit	Look on the main configuration page, under “Paper Trays and Options.”
Additional 500-sheet feeders	Additional 500-sheet feeders	Look on the main configuration page, under “Paper Trays and Options.”
<b>Engine cycles and event logs</b>  Total page counts and maintenance kit counts are important for ongoing product maintenance.  The configuration page lists only the three most recent errors. To see a list of the 50 most recent errors, print an event log from the <a href="#">Diagnostics</a> menu.	Engine cycles	Look on the main configuration page, under “Device Information.”
	Event-log information	Event-log information

## Color band test

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

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

- [Troubleshooting](#)
  - [Print Quality Pages](#)
  - [Color Band Test](#)
3. Touch the [View](#) button to view the information on the control panel, or touch the [Print](#) button to print the pages.

---

 **NOTE:** The [View](#) button is available only on the M680 product.

---

## Print quality troubleshooting tools

### Print quality troubleshooting tools: repetitive defects ruler

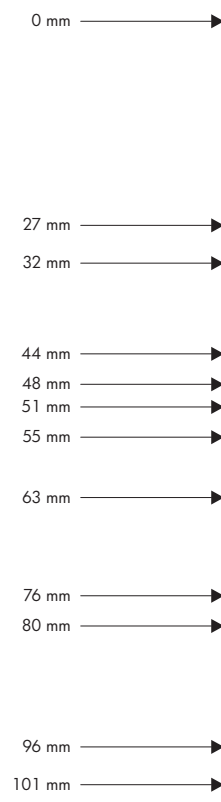
If defects repeat at regular intervals on the page, use this ruler to identify the cause of the defect. Place the top of the ruler at the first defect. The marking that is beside the next occurrence of the defect indicates which component needs to be replaced.

---

 **NOTE:** When printing this defect ruler, verify that any scaling options in the print driver are disabled.

---

**Figure 2-62** Repetitive defects ruler



Distance between defects	Product components that cause the defect
27 mm	Toner cartridge
32 mm	Toner cartridge
44 mm	Transfer unit

Distance between defects	Product components that cause the defect
48 mm	Toner cartridge
51 mm	Transfer roller
55 mm	Print engine
63 mm	Transfer unit
76 mm	Toner cartridge
76 mm	Fuser
80 mm	Fuser
96 mm	Print engine
101 mm	Print engine

## Calibrate the product to align the colors

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

1. From the Home screen on the product control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the following menus:
  - [Calibration/Cleaning](#)
  - [Full Calibration](#)
3. Touch the [Start](#) button to start the calibration process.
4. Wait while the product calibrates, and then try printing again.

## Control-panel menus

### Administration menu

Perform basic product setup by using the [Administration](#) menu. Use the HP Embedded Web Server for more advanced product setup. To open the HP Embedded Web Server, enter the product IP address or host name in the address bar of a Web browser.

### Reports menu

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

**Table 2-41 Reports menu**

First level	Second level	Values	Description
Configuration/Status Pages	Administration Menu Map	Print	Shows a map of the entire <a href="#">Administration</a> menu and the selected values for each setting.
		View	
	Current Settings Page	Print	Print a summary of the current settings for the product. This might be helpful when making changes and need a record of the current product configuration.
		View	
	Configuration Page	Print	Shows the product settings and installed accessories.
		View	
	How to Connect Page	Print	Shows network connection information.
		View	
	Supplies Status Page	Print	Shows the approximate remaining life for the supplies; reports statistics on total number of pages and jobs processed, serial number, page counts, and maintenance information.
		View	
Usage Page	Print	HP provides approximations of the remaining life for the supplies as a customer convenience. The actual remaining supply levels might be different from the approximations provided.	
	View		
File Directory Page	Print	Shows a count of all paper sizes that have passed through the product; lists whether they were simplex, duplex, monochrome, or color; and reports the page count.	
	View		
Web Services Status Page	Print	Shows the file name and folder name for files that are stored in the product memory.	
	View		
Color Usage Page	Print	Shows the detected Web Services for the product.	
	View		
Color Usage Page	Print	Shows the number of color and monochrome pages printed, and a list of users printing pages using the product.	
	View		

**Table 2-41 Reports menu (continued)**

<b>First level</b>	<b>Second level</b>	<b>Values</b>	<b>Description</b>
Fax Reports (M680 only)	Fax Activity Log	Print View	Contains a list of the faxes that have been sent from or received by this product.
	Billing Codes Report	Print View	Provides a list of billing codes that have been used for outgoing faxes. This report shows how many sent faxes were billed to each code.
	Blocked Fax List	Print View	A list of phone numbers that are blocked from sending faxes to this product.
	Speed Dial List	Print View	Shows the speed dials that have been set up for this product.
	Fax Call Report	Print View	A detailed report of the last fax operation, either sent or received.
Other Pages	Demonstration Page	Print	Prints a demonstration page.
	RGB Samples	Print	Prints color samples for different RGB values. Use the samples as a guide for matching printed colors.
	CMYK samples	Print	Prints color samples for different CMYK values. Use the samples as a guide for matching printed colors.
	PCL Font List	Print	Prints the available PCL fonts.
	PS Font List	Print	Prints the available PS fonts.

## General Settings menu

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

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

**Table 2-42 General Settings menu**

First level	Second level	Third level	Fourth level	Values	Description
Date/Time Settings	Date/Time Format	Date Format		DD/MMM/YYYY	Use the <a href="#">Date/Time Settings</a> menu to specify the date and time and to configure date/time settings.
				MMM/DD/YYYY	
				YYYY/MMM/DD	
		Time Format		12 hour (AM/PM)	Select the format that the product uses to show the date and time, for example 12-hour format or 24-hour format.
			24 hours		
		Date/Time	Time Zone		Select the time zone from a list.
			Date		Select the date from a pop-up calendar.
			Time		Select the time from a pop-up keypad.
			Adjust for Daylight Savings		Checkbox



**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Energy Settings M680 product	Sleep Schedule	A list of scheduled events displays.		+ (Add)	Use to configure the product to automatically wake up or go to sleep at specific times on specific days. Using this feature saves energy.  <b>NOTE:</b> Configure the date and time settings before using this feature.
				Edit	
				Delete	
			Event Type	Wake	
				Sleep	
			Event Time		
	Event Days	Select days of the week from a list.			
Sleep Timer Settings	Sleep Mode/Auto Off After			Range: 1 to 120 minutes Default = 60 minutes	Set the number of minutes after which the product enters Sleep or Auto Off mode. Use the arrow buttons on the control panel to increase or decrease the number of minutes.
Optimum Speed/ Energy Usage				Faster first page* Save energy Save more energy Save most energy	

**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Energy Settings M651 product	Sleep Timer Settings	Sleep/Auto Off Timer		Enabled* Disabled	Enable or disable the product sleep or auto off function.
		Sleep Mode/Auto Off After		Range: 1 to 120 minutes Default = 60 minutes	Set the number of minutes after which the product enters Sleep or Auto Off mode. Use the arrow buttons on the control panel to increase or decrease the number of minutes.
	Wake/Auto On to These Events			All Events* Network port Power button only	
		Optimum Speed/Energy Usage		Faster first page* Save energy Save more energy Save most energy	

**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Print Quality	Adjust Color	Highlights	Cyan	-5 to 5	<p>Use this item to set the default print-quality values and to trigger cleaning actions for optimum print quality. If specific types of paper are used, or using the product in extreme environments, adjustments in this menu might be required.</p> <p>Highlights are the brightest color-values in an image. For each color, select a setting to adjust the darkness or lightness of highlights on the printed page. Decrease the value to lighten the highlights. Increase the value to darken the highlights.</p> <p><b>Default:</b> Resets all the color-density settings to the factory default values.</p>
			Magenta		
			Yellow		
Black					
Default					
		Midtones	Cyan	-5 to 5	<p>Midtones are the middle-range color values in an image. For each color, select a setting to adjust the darkness or lightness of midtones on the printed page. Decrease the value to lighten the midtones. Increase the value to darken the midtones.</p>
		Magenta			
		Yellow			
		Black			
		Default			
		Shadows	Cyan	-5 to 5	<p>Shadows are the darkest color values in an image. For each color, select a setting to adjust the darkness or lightness of shadows on the printed page. Decrease the value to lighten the shadows. Increase the value to darken the shadows.</p>
		Magenta			
		Yellow			
		Black			
		Default			

**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Print Quality (continued)		Restore Color Values			Resets all the color-density settings to the factory default values.
	Image Registration	Adjust Tray <X>	Print Test Page		<p>Shift the margin alignment to center the image on the page from top to bottom and from left to right. This item can also align the image on the front with the image printed on the back.</p> <p>Use the <a href="#">Adjust Tray &lt;X&gt;</a> menu to adjust the registration settings for each tray. Before adjusting these values, print a registration test page. It provides alignment guides in the X and Y directions used to determine which adjustments are necessary. Adjust the values for X1 Shift, X2 Shift, Y1 Shift, and Y2 shift.</p> <p>Use the <a href="#">Print Test Page</a> option to print a page to test the image registration. It provides alignment guides in the X and Y directions used to determine which adjustments are necessary.</p>

**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Print Quality  (continued)			X1 Shift	-5.00 mm to 5.00 mm	<p>The direction that is perpendicular to the way the paper passes through the product is referred to as X. This is also known as the scan direction. X1 is the scan direction for a single-sided page or for the second side of a two-sided page. X2 is the scan direction for the first side of a two-sided page.</p> <p>The direction that the paper feeds through the product is referred to as Y. Y1 is the feed direction for a single-sided page or for the second side of a two-sided page. Y2 is the feed direction for the first side of a two-sided page.</p>
			Y1 Shift		
			X2 Shift		
			Y2 Shift		
	Auto Sense Mode	Tray 1 Sensing		Full sensing Expanded sensing* Transparency Only	<p>Use the <b>Auto Sense Mode</b> feature to configure which paper types the product should automatically sense. The following settings are available:</p> <p><b>Full sensing:</b> Use this setting to suppress media type misprints (might result in slower product performance and possible decreased cartridge life).</p> <p><b>Expanded sensing:</b> The product senses only the first page and assumes the rest of the pages are the same type.</p> <p><b>Transparency Only:</b> The product senses only the first page. The product distinguishes transparencies from other paper types.</p>

**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Print Quality (continued)		Tray X Sensing		Expanded sensing* Transparency Only	When configuring the <a href="#">Auto Sense Mode</a> option for Tray 1 and Tray 2, the <x> variable represents the highest number of trays installed on the product.
	<a href="#">Adjust Paper Types</a>	Select from a list of paper types that the product supports. The available options are the same for each paper type.	<a href="#">Print Mode</a>	Select from a list of print modes.	Changing the <a href="#">Print Mode</a> setting is usually the first thing to try to resolve print-quality problems. Problems can include toner not sticking well to the page, a faint image of the page repeated on the same or following page, incorrect gloss level, etc.
			<a href="#">Resistance Mode</a>	Normal Up Down	Use this setting to correct print quality problems in low-humidity environments and highly resistive paper. Use the <a href="#">Up</a> option to solve print quality problems that are related to poor toner-transfer. Use the <a href="#">Down</a> option in the event that small, “pin-hole” defects occur.
			<a href="#">Humidity Mode</a>	Normal Alternate 1 Alternate 2 Alternate 3	Use this setting to correct print quality problems in high humidity environments. Use the alternate settings if the product is in a high humidity environment and it is experiencing problems with low toner density on the first page of a job.
			<a href="#">Pre-Rotation Mode</a>	Off On*	

**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Print Quality (continued)			Fuser Temp Mode	Up Down Normal*	Use this feature to eliminate ghost images on printed pages.
			Paper Curl Mode	Normal* Reduced	Use this setting to reduce paper curl in print jobs.
	Optimize	Normal paper		Standard* Smooth	Use to optimize various print modes that address print quality issues.  Use the <b>Smooth</b> setting to correct print quality problems when using very smooth paper of normal weight.
		Heavy paper		Standard* Smooth	Use this setting to correct print quality problems when using very smooth, heavyweight paper 129-216 g/m <sup>2</sup> (32-58 lb). The <b>Smooth</b> setting should be used if the product is having print quality problems with very smooth, heavy paper.
		Best Normal		Normal* Reduced Temp	If envelopes are sticking together in the output bin, use this setting to reduce the fuser temperature.
		Environment		Normal* Reduced Temp	Enable if the product is operating in a low temperature environment and is having problems with print quality such as blisters in the printed image.
		Line Voltage		Normal* Low Voltage	Use this setting if there are scattered lines in printed pages.

**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Print Quality (continued)		Tray 1		Normal* Alternate	Affects how often the product performs an internal cleaning procedure. Use the <a href="#">Alternate</a> setting if the product is having problems with extra toner on pages. In this mode, the product performs the cleaning procedure after each job that is printed from Tray 1. Using this mode increases wear on all the toner cartridges.
		Background		Normal* Alternate 1 Alternate 2 Alternate 3	Use if pages are printing with a shaded background. Using this feature might reduce gloss levels. Use the <a href="#">Alternate 1</a> setting if the page shows a shaded background on the entire page. Use the <a href="#">Alternate 2</a> setting if the page is showing thin vertical lines on the background. The <a href="#">Alternate 3</a> setting applies the <a href="#">Alternate 1</a> setting and the <a href="#">Alternate 2</a> setting at the same time. Use this setting if the first two settings do not correct the problem.



**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Print Quality  (continued)		Uniformity control		Normal*	This setting might help correct uniformity in print quality issues, such as a mottled appearance due to poor transfer of toner onto the page. The <a href="#">Alternate 1</a> setting increases the T1 transfer bias and can be used for any media type. The <a href="#">Alternate 2</a> setting decreases the fuser temperature and reduces the throughput. Use this setting if the product is experiencing mottled output due to poor fusing on normal or light paper types. The <a href="#">Alternate 3</a> setting applies the <a href="#">Alternate 1</a> setting and the <a href="#">Alternate 2</a> setting at the same time. Use this setting if the first two settings do not correct the problem.
				<a href="#">Alternate 1</a>	
				<a href="#">Alternate 2</a>	
				<a href="#">Alternate 3</a>	
		Tracking control		On*	Normally, this setting should be set to <a href="#">On</a> . Tracking control algorithm is turned ON/OFF. It is not expected that the customer will ever need to change this setting.
				Off	
		Registration		Normal*	Use this setting if the product is having trouble with color-planes shifting or overlapping on the page. Use the <a href="#">Alternate</a> setting if the page has color mis-registration problems.
				<a href="#">Alternate</a>	

**Table 2-42 General Settings menu (continued)**

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

**Table 2-42 General Settings menu (continued)**

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

**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Jam Recovery				Auto* Off On	<p>This product provides a jam recovery feature that reprints jammed pages. Select one of the following options:</p> <p><b>Auto:</b> The product attempts to reprint jammed pages when sufficient memory is available. This is the default setting.</p> <p><b>Off:</b> The product does not attempt to reprint jammed pages. Because no memory is used to store the most recent pages, performance is optimal.</p> <p><b>NOTE:</b> When using this option, if the product runs out of paper and the job is being printed on both sides, some pages can be lost.</p> <p><b>On:</b> The product always reprints jammed pages. Additional memory is allocated to store the last few pages printed. This might cause a decrease in overall performance.</p>
Auto Recovery				Enabled Disabled*	<p>The product attempts to reprint jammed pages when sufficient memory is available. This is the default setting.</p>

**Table 2-42 General Settings menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Manage Stored Jobs	General Stored Job Settings			Job Name*	This option lists the jobs either alphabetically or chronologically.
				Date	
		Default Folder Name			Type the name for the stored jobs folder that is accessible to all users.
	Temporary Stored Jobs Settings	Delete Temporary Jobs After		Off* 1 Hour 4 Hours 1 Day 1 Week	Sets a maximum storage-time limit for stored jobs. If a stored job is not printed during this period, it is deleted.
	Temporary Stored Jobs Limit	Retain Temporary Jobs after Reboot	Do not retain Personal jobs only All temporary jobs	1-100 Default = 32	Configure global settings for jobs that are stored in the product memory.  This feature specifies the number of jobs that can be stored on the product. The maximum allowed value is 100.
Enable Retrieve from USB				Enabled Disabled*	Enables the product to open a file from a USB drive.
Hold Off Print Job				Enabled* Disabled	Enable this feature to prevent print jobs from starting while a user is initiating a copy job from the control panel. Held print jobs start printing after the copy job is finished, provided that no other copy job is in the print queue.
Enable Auto Send				Enabled* Disabled	Use this item to enable or disable the auto send feature.
M651 only					
Restore Factory Settings				Restore Cancel	Use to restore all product settings to their factory defaults.

## Copy Settings menu (M680 only)

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

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

**Table 2-43 Copy Settings menu (M680)**

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

**Table 2-43 Copy Settings menu (M680) (continued)**

First level	Second level	Third level	Values	Description
Sides  (continued)		2-Sided Format	<p>Book-style</p> <p>Flip-style</p> <p>Book-style original; Flip-style copy</p> <p>Flip-style original; Book-style copy</p>	<p>When making two-sided copies, select a 2-sided format option.</p> <p><b>Book-style:</b> The back side of the original is printed right-side-up, and the back side of the copy is printed the same way. Use this option for originals and copies that are bound along the left edge.</p> <p><b>Flip-style:</b> The back side of the original is printed upside-down, and the back side of the copy is printed the same way. Use this option for originals and copies that are to be bound along the top edge.</p> <p><b>Book-style original; Flip-style copy:</b> The back side of the original is printed right-side-up, but the back side of the copy is printed upside-down. Use this option when the original is bound along the left edge, but the print job requires copies that are bound along the top edge.</p> <p><b>Flip-style original; Book-style copy:</b> The back side of the original is printed upside-down, but the back side of the copy is printed right-side-up. Use this option when the original is bound along the top edge, but the print job requires copies that are bound along the left edge.</p>

**Table 2-43 Copy Settings menu (M680) (continued)**

First level	Second level	Third level	Values	Description
Color/Black			Automatically detect* Color Black	Select how the copy should be printed.  <b>Automatically detect:</b> Prints color documents in color, and black and white documents in black and white. For mixed documents, the product will determine whether to print in color or black and white.  <b>Color:</b> Prints documents in color.  <b>Black:</b> Prints documents in black and white.
Collate or Staple/Collate			Collate on (Sets in page order)* Collate off (Pages grouped) None Top Left Top Right  <b>NOTE:</b> The staple position items are displayed if the 3-bin stapling mailbox accessory (M680) is installed.	For print jobs with more than one copy, select the <b>Collate on (Sets in page order)</b> option to assemble the pages in the correct order in each set of copies.  Select the <b>Collate off (Pages grouped)</b> option to group the same pages together. For example, for a print job with five copies of an original document that has two pages, all five first pages are grouped together and all five second pages are grouped together.  Use the <b>Staple/Collate</b> item to set the default staple position.
Reduce/Enlarge	Scaling		Auto* 100% 75% 50% 125% 150% 200% Range X-Y (25-400%)	Use to scale the size of the document up or down. Select one of the predefined percentages, or select the <b>Scaling</b> field and type a percentage between 25 and 400. The <b>Auto</b> option automatically scales the image to fit the paper size in the tray.  <b>NOTE:</b> To reduce the image, select a scaling percentage that is less than 100. To enlarge the image, select a scaling percentage that is greater than 100.



**Table 2-43 Copy Settings menu (M680) (continued)**

First level	Second level	Third level	Values	Description
Reduce/Enlarge (continued)	Auto Include Margins			The product reduces the image slightly to fit the entire scanned image within the printable area on the page.
Paper Selection			Manually feed Automatic Tray 1: [Type], [Size] Tray <X>: [Type], [Size]	For the best color and image quality, select the appropriate paper type from the control panel menu or from the print driver.
Image Adjustment	Darkness		Select a value using the slide bar, or touch Automatic.	Use to improve the overall quality of the copy.  Adjust the <b>Darkness</b> setting to increase or decrease the amount of white and black in the colors.
	Contrast		Select a value using the slide bar, or touch Automatic.	Adjust the <b>Contrast</b> setting to increase or decrease the difference between the lightest and darkest color on the page.
	Background Cleanup		Select a value using the slide bar, or touch Automatic.	Adjust the <b>Background Cleanup</b> setting if the product is having trouble copying a faint image.
	Sharpness		Select a value using the slide bar, or touch Automatic.	Adjust the <b>Sharpness</b> setting to clarify or soften the image. For example, increasing the sharpness could make text appear crisper, but decreasing it could make photographs appear smoother.
	Default			Select this to make the selected <b>Image Adjustment</b> setting the default value.
Content Orientation	Orientation		Portrait* Landscape	For some features to work correctly, specify the way the content of the original document is placed on the page. Portrait orientation means the short edge of the page is along the top. Landscape orientation means the long edge of the page is along the top.
Output Bin				Automatic  Standard Bin Correct Order  Rear Bin Straightest Path

**Table 2-43 Copy Settings menu (M680) (continued)**

First level	Second level	Third level	Values	Description
Optimize Text/Picture	Manually adjust*		Optimize For slider	Use this setting to optimize the output for a particular type of content.
			Text	<b>Manually adjust:</b> Use to manually optimize the setting for each document.
			Printed picture	<b>Printed picture:</b> Use for line drawings and preprinted images, such as magazine clippings or pages from books. If bands of irregular color or intensity appear on the copies, try selecting the <b>Printed picture</b> setting to improve the quality.
			Photograph	<b>Photograph:</b> Use for photographic prints.
Pages per Sheet			One (1)	Copies multiple pages onto one sheet of paper.  <b>NOTE:</b> Before using this screen, use the <b>Content Orientation</b> screen to describe the original document orientation.
			Two (2)	
			Four (4)	
		Page Order	Right, then down	If printing four pages per sheet, select the page order. To print the pages in rows, select the <b>Right, then down</b> option. To print the pages in columns, select the <b>Down, then right</b> option.
		Down, then right		
	Add Page Borders			If printing two or more pages per sheet and the print job requires a border around each page, select the <b>Add Page Borders</b> option.
Original Size			Select from a list of sizes that the product supports.	Describes the page size of the original document.

**Table 2-43 Copy Settings menu (M680) (continued)**

First level	Second level	Third level	Values	Description
Booklet Format	Booklet		Booklet off	Use this item to copy two or more pages onto one sheet of paper (then the pages will fold so that they form a booklet. The product arranges the pages in the correct order. For example, if the original document has eight pages, the product prints pages 1 and 8 on the same sheet.
			Booklet on	
		Original Sides	1-sided	
			2-sided	Select the <b>2-sided</b> option if the original document is printed on two sides.
	Borders on Each Page			To print a border around each page, select the <b>Borders on Each Page</b> option.
Edge-to-Edge			Normal (recommended)*	Use to avoid shadows that can appear along the edges of copies when the original document is printed close to the edges. Combine with the <b>Reduce/Enlarge</b> feature to ensure that the entire page is printed on the copies. When the <b>Edge-to-Edge</b> feature is turned on, the product minimizes margins and prints as close to the edge of the paper as possible.
			Edge-to-Edge output	
Job Build			Job Build off*	Use to combine several original documents into one job. Also use this feature to scan an original document that has more pages than the document feeder can accommodate at one time. The product temporarily saves all the scanned images. After all the pages for the job are scanned, touch the <b>Finish</b> option to finish the job.
			Job Build on	

**Table 2-43 Copy Settings menu (M680) (continued)**

First level	Second level	Third level	Values	Description
2-Sided ID Scan			ID Scan Off* ID Scan On	Use this item to scan both sides of an identification card and place both images on a single sheet of paper.
Book Mode			Book Mode Off* Book Mode On	Use this item to scan pages from a book. When <b>Book Mode On</b> is selected, choose to scan just the right or left pages separately, or scan both pages as a single image.

## Scan/Digital Send Settings menu (M680)

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

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

**Table 2-44 Scan/Digital Send Settings menu (M680)**

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

**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

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

**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings		Document File Type		Select from a list of file types.	<p><b>PDF</b> provides the best overall image and text quality.</p> <p><b>JPEG</b> is a good choice for most graphics. Most computers have a browser that can view .JPEG files. This file type produces one file per page.</p> <p><b>TIFF</b> is a standard file format that many graphics programs support. This file type produces one file per page.</p> <p><b>MTIFF</b>: stands for multi-page TIFF. This file type saves multiple scanned pages in a single file.</p> <p><b>XPS</b> (XML Paper Specification) creates an XML file that preserves the original formatting of the document and supports color graphics and embedded fonts.</p> <p><b>NOTE:</b> OCR file types are not supported on this product unless attached to DSS.</p>
Default Save to Network Folder Options					
Default Save to USB Options					
(continued)					

**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings		Optimize Text/Picture		Manually adjust*	Use to optimize the output for a particular type of content.
Default Save to Network Folder Options				Text	Optimize the output for text, printed pictures, or a mixture.
Default Save to USB Options				Printed picture	
(continued)				Photograph	Manually adjust: Use to manually optimize the setting for text or for pictures.
					Text: Use to optimize the text portion of the copy when text and/or pictures are on the original.
					Printed picture: Use for line drawings and preprinted images, such as magazine clippings or pages from books.
					Photograph: Best suited for making copies of printed pictures.
		Output Quality		High (large file)	Use to select the quality for the output.
				Medium*	Higher-quality images require a larger file size than lower-quality images. Larger files take more time to send, and some recipients might have trouble receiving larger files.
				Low (small file)	



**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings		Original Sides		1-sided	Use to describe the layout for each side of the original document. First select whether the original document is printed on one side or both sides. Then touch the <b>Orientation</b> setting to indicate whether the original has portrait or landscape orientation. If it is printed on both sides, also select the 2-sided format that matches the original document.
Default Save to Network Folder Options				2-sided	
Default Save to USB Options					
(continued)					
			Orientation	Automatically detect	For some features to work correctly, specify the way the content of the original document is placed on the page. Portrait orientation means the short edge of the page is along the top. Landscape orientation means the long edge of the page is along the top. In the <b>Orientation</b> area, select whether the original document has a portrait or landscape orientation.
				Portrait*	
				Landscape	

**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings			2-Sided Format	Book-style	<p><b>Book-style:</b> The back side of the original is printed right-side-up, and the back side of the copy is printed the same way. Use this option for originals and copies that are bound along the left edge.</p> <p><b>Flip-style:</b> The back side of the original is printed upside-down, and the back side of the copy is printed the same way. Use this option for originals and copies that are to be bound along the top edge.</p>
Default Save to Network Folder Options				Flip-style	
Default Save to USB Options					
(continued)					
		Resolution		400 dpi	<p>Sets the resolution for sent documents. Higher resolution images have more dots per inch (dpi), so they show more detail. Lower resolution images have fewer dots per inch and show less detail, but the file size is smaller. Some file types, for example a file that will be processed with OCR, require a specific resolution. When these file types are selected, the <b>Resolution</b> setting might automatically change to a valid value.</p>
				300 dpi	
				200 dpi	
				150 dpi*	
				75 dpi	

**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings		Content Orientation	Orientation	Auto Detect	For some features to work correctly, specify the way the content of the original document is placed on the page. Portrait orientation means the short edge of the page is along the top. Landscape orientation means the long edge of the page is along the top. In the Orientation area, select whether the original document has a portrait or landscape orientation.
Default Save to Network Folder Options				Portrait*	
Default Save to USB Options				Landscape	
(continued)			2-Sided Format	Book-style*	Use to configure the default style for 2-sided print jobs. If the <a href="#">Book-style</a> option is selected, the back side of the page is printed the right way up. This option is for print jobs that are bound along the left edge. If the <a href="#">Flip-style</a> option is selected, the back side of the page is printed upside-down. This option is for print jobs that are bound along the top edge.
				Flip-style	

**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings		Color/Black		Automatically detect*	Use to enable or disable color scanning.
Default Save to Network Folder Options				Color	
Default Save to USB Options				Black/Gray	<b>Automatically detect:</b> Automatically scans documents in color if at least one page has color.
(continued)				Black	<b>Color:</b> Scans documents in color. <b>Black/Gray:</b> Scans documents in grayscale. <b>Black:</b> Scans documents in black and white with a compressed file size.
		Original Size		Select from a list of supported sizes.	Use to describe the page size of the original document.
		Notification		Do not notify*	Configure to receive notification about the status of a sent document.
				Notify when job completes	
				Notify only if job fails	<b>Do not notify:</b> Turns off this feature.
				Print	<b>Notify when job completes:</b> Select to receive notification for this job only.
				E-mail	<b>Notify only if job fails:</b> Select to receive notification only if the job is not sent successfully. <b>Print:</b> Select to print the notification at this product. <b>E-mail:</b> Select to receive the notification to an email account.

**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings			Include Thumbnail		<b>NOTE:</b> When sending an analog fax, select <b>Include Thumbnail</b> to receive a thumbnail image of the first page of the fax in your notification.
Default Save to Network Folder Options					
Default Save to USB Options					
(continued)			Notification E-mail address		<b>E-mail:</b> Select to receive the notification in an email. Touch the text box following <b>Email Address</b> , and then type the email address for the notification.
		Image Adjustment	Darkness		Use to improve the overall quality of the copy.  Adjust the <b>Darkness</b> setting to increase or decrease the amount of white and black in the colors.
			Contrast		Adjust the <b>Contrast</b> setting to increase or decrease the difference between the lightest and darkest color on the page.
			Background Cleanup		Adjust the <b>Background Cleanup</b> setting if the product is having trouble copying a faint image.
			Sharpness		Adjust the <b>Sharpness</b> setting to clarify or soften the image. For example, increasing the sharpness could make text appear crisper, but decreasing it could make photographs appear smoother.

**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings			Automatic Tone		The product automatically adjusts the <b>Darkness</b> , <b>Contrast</b> , and <b>Background Cleanup</b> settings to the most appropriate for the scanned document.
Default Save to Network Folder Options					
Default Save to USB Options					
(continued)			Default		Select this to make the selected <b>Image Adjustment</b> setting the default value.
		Job Build		Job Build off* Job Build on	Use this item to combine several original documents into one job. Also use this item to scan an original document that has more pages than the document feeder can accommodate at one time. The product temporarily saves all the scanned images. After scanning all the pages for the job, touch <b>Finish</b> to finish the job.
		Cropping Options		Do not crop* Crop to content	Use this menu item to automatically crop the scan for digital sending. Use the <b>Crop to content</b> option to scan the smallest possible area that has detectable content.
		Erase Edges		Use Inches Back side erase Front side erase	Use this menu item to remove blemishes, such as dark borders or staple marks, by cleaning the specified edges of the scanned image. In each of the text boxes enter the measurements, in millimeters or inches, for how much of the top edge, bottom edge, left edge, and right edge to clean.

**Table 2-44 Scan/Digital Send Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
E-mail Settings		Blank Page Suppression		Disabled*	Use to prevent blank pages in the original document from being included in the output document.
Default Save to Network Folder Options				Enabled	
Default Save to USB Options					
(continued)					
Digital Send Service Setup	Allow Usage of Digital Sending Software (DSS) Server			Enabled*	Configure how the product interacts with the HP Digital Sending Software (DSS) server. HP DSS handles digital sending tasks, such as faxing, emailing, and sending scanned documents to a network folder or USB storage device.  Use the <a href="#">Allow Usage of Digital Sending Software (DSS) Server</a> option to configure the product to use HP DSS.
				Disabled	
	Allow Transfer to New Digital Sending Software (DSS) Server			Enabled*	Use the <a href="#">Allow Transfer to New Digital Sending Software (DSS) Server</a> option to specify whether DSS management of a product is transferable to a different DSS.
				Disabled	

## Fax Settings menu (M680)

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

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

**Table 2-45 Fax Settings menu (M680)**

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



**Table 2-45 Fax Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings  (continued)			Redial on Busy	Range: 0 – 9  Default = 3	
		General Fax Send Settings	Fax Number Confirmation	Enabled Disabled*	If this feature is enabled, enter the fax number twice.
			PC Fax Send	Enabled* Disabled	Enables users who have the correct driver installed to send faxes through the product from their computers.
			JBIG Compression	Enabled* Disabled	The JBIG compression reduces fax-transmission time, which can result in lower phone charges. However, using JBIG compression sometimes causes compatibility problems with older fax machines. If this occurs, turn off the JBIG compression.
			Error Correction Mode	Enabled* Disabled	When error-correction mode is enabled and an error occurs during fax transmission, the product sends or receives the error portion again.
			Fax Header	Prepend* Overlay	Use to prepend or overlay the fax header page.
			Fax Number Speed Dial Matching	Enabled Disabled*	Use this item to match the typed fax number to numbers that are saved as a speed dial.

**Table 2-45 Fax Settings menu (M680) (continued)**

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

**Table 2-45 Fax Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings  (continued)	Default Job Options	Image Preview		Make optional*	Use the <a href="#">Image Preview</a> feature to scan a document and display a preview before completing the job. Select whether this feature is available on the product.  <a href="#">Make optional</a> : The feature is optional, depending on the user who is signed in.  <a href="#">Require preview</a> Previews are required for all users.  <a href="#">Disable preview</a> : Previews are disabled for all users.
				Require preview	
			Resolution	Standard (100 x 200dpi)*  Fine (200 x 200dpi)  Superfine (300 x 300dpi)	

**Table 2-45 Fax Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings  (continued)		Original Sides		1-sided*	Use to describe the layout for each side of the original document. First select whether the original document is printed on one side or both sides. Then touch the <b>Orientation</b> setting to indicate whether the original has portrait or landscape orientation. If it is printed on both sides, also select the 2-sided format that matches the original document.
				2-sided	
			Orientation	Portrait*  Landscape	For some features to work correctly, specify the way the content of the original document is placed on the page.  <b>Portrait:</b> This setting means the short edge of the page is along the top.  <b>Landscape:</b> This setting means the long edge of the page is along the top.
			2-Sided Format	Book-style*  Flip-style	<b>Book-style:</b> The back side of the original is printed right-side-up, and the back side of the copy is printed the same way. Use this option for originals and copies that are bound along the left edge.  <b>Flip-style:</b> The back side of the original is printed upside-down, and the back side of the copy is printed the same way. Use this option for originals and copies that are to be bound along the top edge.

**Table 2-45 Fax Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings  (continued)		Notification		Do not notify*	Use to receive notification about the status of a sent document.
				Notify when job completes	
				Notify only if job fails	<p><b>Do not notify:</b> Turns off this feature.</p> <p><b>Notify when job completes:</b> Select to receive notification for this job only.</p> <p><b>Notify only if job fails:</b> Select to receive notification only if the job is not sent successfully.</p>
				Print	<p><b>Print:</b> Select to print the notification at this product.</p> <p><b>E-mail:</b> Select to receive the notification in an email. Touch the text box following <b>Email Address</b>, and then enter the email address for the notification.</p>
				E-mail	
			Include Thumbnail		When sending an analog fax, select <b>Include Thumbnail</b> to receive a thumbnail image of the first page of the fax in your notification.
			Notification E-mail address		Provide the email address that will receive notifications.
		Content Orientation	Orientation	Portrait*	<p>For some features to work correctly, specify the way the content of the original document is placed on the page.</p> <p><b>Portrait:</b> This setting means the short edge of the page is along the top.</p> <p><b>Landscape:</b> This setting means the long edge of the page is along the top.</p>
				Landscape	

**Table 2-45 Fax Settings menu (M680) (continued)**

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

**Table 2-45 Fax Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Fax Send Settings  (continued)			Automatic Tone		The product automatically adjusts the <a href="#">Darkness</a> , <a href="#">Contrast</a> , and <a href="#">Background Cleanup</a> settings to the most appropriate for the scanned document.
			Default		Select this to make the selected <a href="#">Image Adjustment</a> setting the default value.
		Optimize Text/Picture	Manually adjust*	Optimize For Text Printed picture Photograph	Optimizes the output for a particular type of content. Optimize the output for text, printed pictures, or a mixture.  <a href="#">Manually adjust</a> : Use to manually optimize the setting for text or for pictures.  <a href="#">Text</a> : Use to optimize the text portion of the copy where text and/or pictures are on the original.  <a href="#">Printed picture</a> : Use for line drawings and preprinted images, such as magazine clippings or pages from books.  <a href="#">Photograph</a> : Best suited for making copies of printed pictures.

**Table 2-45 Fax Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description	
Fax Send Settings  (continued)		Job Build		Job Build off*	Use to divide a complex job into smaller segments. This is useful when copying or scanning an original document that has more pages than the document feeder can hold, or to combine pages that have different sizes into one job. Use either the glass or the document feeder to scan the original documents.	
				Job Build on		
		Blank Page Suppression		Disabled* Enabled	Prevents blank pages in the original document from being included in the output document.	
Fax Receive Settings	Fax Receive Setup	Ringer Volume		Off Low* High	Use to configure settings for receiving faxes.	
				Rings To Answer		Range: 1–6 Default = 1
				Fax Receive Speed		Fast* Medium Slow
			Ring Interval	Range: 220–600 ms Default = 600 ms		
			Ring Frequency	Range: 1–200 Default = 68hz		



**Table 2-45 Fax Settings menu (M680) (continued)**

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

**Table 2-45 Fax Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Fax Receive Settings (continued)	Blocked Fax Numbers	Fax Number to Block			<p>The blocked fax list can contain up to 30 numbers. When the product receives a call from one of the blocked fax numbers, it deletes the incoming fax. It also logs the blocked fax in the activity log along with job-accounting information.</p> <p>Add blocked numbers: Enter a fax number into the <a href="#">Fax Number to Block</a> field, and then touch the arrow button to add a new number to the blocked fax list.</p> <p>To remove blocked numbers: Select a number and touch the <a href="#">Delete</a> button to delete it from the blocked fax list.</p> <p>To clear all blocked numbers: Touch the <a href="#">Delete All</a> button to clear all of the numbers from the blocked fax list.</p> <p>Use the <a href="#">Blocked Fax List</a> report in the <a href="#">Information</a> menu to view the list of the fax numbers that have been blocked on this product.</p>

**Table 2-45 Fax Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Fax Receive Settings (continued)	Default Job Options	Notification		Do not notify*	Configure to receive notification about the status of a sent document.
				Notify when job completes	
				Notify only if job fails	Do not notify: Turns off this feature.  Notify when job completes: Select to receive notification for this job only.  Notify only if job fails: Select to receive notification only if the job is not sent successfully.
				Print	E-mail: Select to receive the notification in an email. Touch the text box following Email Address, and then enter the email address for the notification.
				E-mail*	
			Include Thumbnail		<b>NOTE:</b> When sending an analog fax, select <a href="#">Include Thumbnail</a> to receive a thumbnail image of the first page of the fax in your notification.
			Notification E-mail address		
		Stamp Received Faxes		Enabled	Use this option to add the date, time, sender's phone number, and page number to each page of the faxes that this product receives.
				Disabled*	
		Fit to Page		Enabled*	Use to shrink faxes that are larger than Letter-size or A4-size so that they can fit onto a Letter-size or A4-size page. If this feature set to <a href="#">Disabled</a> , faxes larger than Letter or A4 will flow across multiple pages.
				Disabled	

**Table 2-45 Fax Settings menu (M680) (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Fax Receive Settings (continued)		Paper Selection		Automatic*	Select from a list of the trays.
		Sides		1-sided* 2-sided	Use to describe the layout for each side of the original document. First select whether the original document is printed on one side or both sides. Then touch the <a href="#">Orientation</a> setting to indicate whether the original has portrait or landscape orientation. If it is printed on both sides, also select the <a href="#">2-sided</a> format that matches the original document.
Fax Forwarding	Enable Fax Forwarding			Disabled* Enabled	Use to forward received faxes to another fax machine.
		Type of Fax Job to Forward		All faxes Sent faxes Received faxes	
		Fax Forwarding Number			
	Clear Fax Activity Log				Clears all events from the <a href="#">Fax Activity Log</a> list.

## General Print Settings menu

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

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

**Table 2-46** General Print Settings menu

First level	Second level	Values	Description
Manual Feed		Enabled	Use to enable or disable the manual-feed feature, which allows the user to feed paper into the product by hand. When this feature is enabled, the user can select manual feed from the control panel as the paper source for a job. If a tray is not specified as part of a job, manual feed is selected.
		Disabled*	
Courier Font		Regular*	Select which version of the Courier font to use. The factory default setting is <a href="#">Regular</a> , which uses an average stroke width. The <a href="#">Dark</a> setting can be used if a heavier Courier font is needed.
		Dark	
Wide A4		Enabled	Changes the printable area of A4-size paper. When enabled, eighty 10-pitch characters can be printed on a single line of A4 paper.
		Disabled*	
Print PS Errors		Enabled	Use this feature to select whether a PostScript (PS) error page is printed when the product encounters a PS error.
		Disabled*	
Print PDF Errors		Enabled	Selects whether a PDF error page is printed when the product encounters a PDF error.
		Disabled*	
Personality		Auto*	Configures the default print language or personality for the product. Normally the product language should not be changed. If this item is changed to a specific product language, the product does not automatically switch from one language to another unless specific software commands are sent to it.
		PCL	
		POSTSCRIPT	
		PDF	

**Table 2-46 General Print Settings menu (continued)**

First level	Second level	Values	Description
PCL	Form Length	Range: 5 – 128 Default = 60	Controls the PCL print-command options. PCL is a set of product commands that Hewlett-Packard developed to provide access to product features.  Use the <a href="#">Form Length</a> feature to select the user-soft default vertical form length.
	Orientation	<a href="#">Portrait</a> * <a href="#">Landscape</a>	Select the orientation that is most often used for copy or scan originals. Select the <a href="#">Portrait</a> option if the short edge is at the top or select the <a href="#">Landscape</a> option if the long edge is at the top.
	Font Source	<a href="#">Internal</a> *	Selects the font source for the user-soft default font. The list of available options varies depending on the installed product options.
	Font Number	Range: 0 – 110 Default = 0	Specifies the font number for the user-soft default font using the source that is specified in the <a href="#">Font Source</a> menu. The product assigns a number to each font and lists it on the PCL font list. The font number displays in the Font # column of the printout.
	Font Pitch	Range: 0.44 – 99.99 Default = 10	If the <a href="#">Font Source</a> option and the <a href="#">Font Number</a> setting indicate a contour font, then use this feature to select a default pitch (for a fixed-spaced font).
	Font Point Size	Range: 4.00 – 999.75 Default = 12.00	If the <a href="#">Font Source</a> option and the <a href="#">Font Number</a> setting indicate a contour font, then use this feature to select a default point size (for a proportional-spaced font).
	Symbol Set	Select from a list of symbol sets.	Select any one of several available symbol sets from the control panel. A symbol set is a unique grouping of all the characters in a font. The factory default value for this option is PC-8. Either PC-8 or PC-850 are recommended for line-draw characters.

**Table 2-46 General Print Settings menu (continued)**

First level	Second level	Values	Description
PCL (continued)	Append CR to LF	No* Yes	Configure whether a carriage return (CR) is appended to each line feed (LF) encountered in backwards-compatible PCL jobs (pure text, no job control). Select <b>Yes</b> to append the carriage return. The default setting is <b>No</b> . Some environments, such as UNIX, indicate a new line by using only the line-feed control code. This option allows the user to append the required carriage return to each line feed.
	Suppress Blank Pages	No* Yes	This option is for users who are generating their own PCL, which could include extra form feeds that would cause blank pages to be printed. When the <b>Yes</b> option is selected, form feeds are ignored if the page is blank.
	Media Source Mapping	Standard* Classic	Use this item to select and maintain input trays by number when the product driver is not used, or when the software program has no option for tray selection. The following options are available:  <b>Standard:</b> Tray numbering is based on newer HP LaserJet models.  <b>Classic:</b> Tray numbering is based on HP LaserJet 4 and older models.

## Default Print Options menu

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

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

**Table 2-47 Default Print Options menu**

First level	Second level	Values	Description
Number of Copies		Range: 1–32000 Default = 1	Sets the default number of copies for a copy job. This default applies when the <a href="#">Copy</a> function or the <a href="#">Quick Copy</a> function is initiated from the product Home screen.
Default Paper Size		Select from a list of sizes that the product supports.	Configures the default paper size used for print jobs.
Default Custom Paper Size	X Dimension	Range: 3–8.5 inches Default = 8.5 inches	Configures the default paper size that is used when the user selects <b>Custom</b> as the paper size for a print job.
	Y Dimension	Range: 5–14 inches Default = 14 inches	
	Use Inches	Enabled* Disabled	
Sides		1-sided* 2-sided	Use this item to indicate whether the original document is printed on one or both sides, and whether the copies should be printed on one or both sides. For example, select the <a href="#">1-sided original, 2-sided output</a> option when the original is printed on one side, but the print job requires two-sided copies.  Select the <a href="#">Orientation</a> setting to specify portrait or landscape orientation and to select the way the second sides are printed.
Output Bin		Automatic* Upper-left bin Middle-left bin Lower-left bin	Use this item to select the default output bin.

**NOTE:** M680 (if installed).



**Table 2-47 Default Print Options menu (continued)**

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

## Display Settings menu

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

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

**Table 2-48 Display Settings menu**

First level	Second level	Values	Description
Display Brightness		Range: -10 to 10 The default value is 0.	Use to specify the intensity of the LCD control-panel display.
Key Press Sound		On*	Use to specify whether sounds are heard when touching the screen or pressing buttons on the control panel.
M680 only		Off	
Language Settings	Language	Select from a list of languages that the product supports.	Use this item to select a different language for control-panel messages, and to specify the default keyboard layout. When a new language is selected, the keyboard layout automatically changes to match the factory default for the selected language.
	Keyboard Layout M680 only	Each language has a default keyboard layout. To change it, select from a list of layouts.	Select the default keyboard layout that matches the desired language.
How to Connect Button		Display* Hide	Use this menu item to display or hide the <a href="#">How to Connect Button</a> on the Home screen.
M680 only			
Network Address Button		Display* Hide	Use this menu item to display or hide the IP address on the Home screen.
M651 only			
Date and Time		Show Date and Time* Hide Date and Time	Select whether to display or hide the date and time on the control panel Home screen.
M680 only			
Inactivity Timeout		Range: 10 – 300 seconds Default = 60 seconds	Specifies the amount of time that elapses between any activity on the control panel and when the product resets to the default settings. When the timeout expires, the control-panel display returns to the Home menu, and any user signed in to the product is signed out.

**Table 2-48 Display Settings menu (continued)**

First level	Second level	Values	Description
Clearable Warnings		On Job*	Use this feature to set the period that a clearable warning displays on the control panel. If the <a href="#">On</a> setting is selected, clearable warnings appear until the <a href="#">Clearable Warnings</a> button is pressed. If the <a href="#">Job</a> setting is selected, clearable warnings stay on the display during the job that generated the warning and disappear from the display when the next job starts.
Continuable Events		Auto-continue (10 seconds)* Touch OK to continue	Use this option to configure the product behavior when the product encounters certain errors. If the <a href="#">Auto-continue (10 seconds)</a> option is selected, the job will continue after 10 seconds. If the <a href="#">Touch OK to continue</a> option is selected, the job will stop and require the user to press the <a href="#">OK</a> button before continuing.

## Manage Supplies menu

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

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

**Table 2-49 Manage Supplies menu**

First level	Second level	Third level	Fourth level	Values	Description
Supplies Status				Print View (M680 only)	
Supply Settings	Black Cartridge	Low Threshold Settings		1-100% Default = 10%	Set the estimated percentage at which the product notifications appear when the toner cartridge is very low.
		Very Low Settings		Stop Prompt to continue* Continue	Specifies how the product notifications appear when the toner cartridge is very low.  <b>Stop:</b> The product stops until the toner cartridge is replaced.  <b>Prompt to continue:</b> The product stops and a prompt appears to replace the toner cartridge. Acknowledging the prompt to continue printing.  <b>Continue:</b> The product alerts the user that a toner cartridge is very low, but it continues printing.
	Color Cartridges	Low Threshold Settings	Cyan Magenta Yellow	1 - 100% Default = 10%	Set the estimated percentage at which product notification appears when the toner cartridge is very low. A different percentage for each color is allowed.
	Document Feeder Kit M680 only	Low Threshold Settings		1-100% Default = 10%	Set the percentage at which product notifications appear when a document feeder kit is needed.

**Table 2-49 Manage Supplies menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Supply Settings (continued)		Very Low Settings		Stop Prompt to continue* Continue	<p>Configure how the product responds when the document feeder kit is reaching the end of its estimated life.</p> <p><b>Stop:</b> The product stops until the document feeder kit is replaced.</p> <p><b>Prompt to continue:</b> The product stops and a prompt appears to replace the document feeder kit. Acknowledge the prompt to continue printing.</p> <p><b>Continue:</b> The product alerts the user that the document feeder kit is very low, but it continues printing.</p>

**Table 2-49 Manage Supplies menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Supply Settings (continued)	Restrict Color Use			Enable	Use this feature to enable, restrict, or disable color printing or copying.
				Disable color	
				Color if allowed*	
	Color/Black Mix			Auto*	Instructs the product when to switch between color and monochrome printing modes for the best overall performance.  <b>Auto:</b> Uses the mode that is appropriate for the first page of the job. If necessary, the product switches modes during the middle of a job and then stays in that mode until the job is finished.  <b>Mostly Color Pages:</b> The product uses color mode for all jobs, even if the job contains no color pages.  <b>Mostly Black Pages:</b> The product uses monochrome mode until it detects a color page. The product switches back to monochrome mode when it detects a sequence of several monochrome pages.
				Mostly Color Pages	
				Mostly Black Pages	
	Maintenance Kit M651 only	Low Threshold Settings		1-100% Default = 10%	Set the percentage at which product notifications appear when the maintenance kit is needed.

**Table 2-49 Manage Supplies menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Supply Settings (continued)		Very Low Settings		Stop Prompt to continue* Continue	<p>Configure how the product responds when the maintenance kit is reaching the end of its estimated life.</p> <p><b>Stop:</b> The product stops until the maintenance kit is replaced.</p> <p><b>Prompt to continue:</b> The product stops and a prompt appears to replace the maintenance kit. Acknowledge the prompt and continue printing.</p> <p><b>Continue:</b> The product alerts the user that the maintenance kit is very low, but it continues printing.</p>
	Toner Collection Unit	Very Low Settings		Stop Prompt to continue* Continue	<p>Configure how the product responds when the toner collection unit (TCU) is reaching the end of its estimated life.</p> <p><b>Stop:</b> The product stops until the TCU is replaced.</p> <p><b>Prompt to continue:</b> The product stops and a prompt appears to replace the TCU. Acknowledge the prompt and continue printing.</p> <p><b>Continue:</b> The product alerts the user that the TCU is almost full, but it continues printing.</p>
	Transfer Kit	Low Threshold Settings		1-100% Default = 10%	<p>Set the estimated percentage at which the product notification appears when the transfer kit is reaching the end of its estimated life.</p>

**Table 2-49 Manage Supplies menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Supply Settings (continued)		Very Low Settings		Stop Prompt to continue* Continue	<p>Configure how the product responds when the transfer kit is reaching the end of its estimated life.</p> <p><b>Stop:</b> The product stops until the transfer kit is replaced.</p> <p><b>Prompt to continue:</b> The product stops and a prompt appears to replace the transfer kit. Acknowledge the prompt and continue printing.</p> <p><b>Continue:</b> The product alerts the user that the transfer kit is almost full, but it continues printing.</p>
	Fuser Kit	Low Threshold Settings		1-100% Default = 10%	Set the estimated percentage at which the product notification appears when the fuser is low.
		Very Low Settings		Stop Prompt to continue* Continue	<p>Configure how the product responds when the fuser is reaching the end of its estimated life.</p> <p><b>Stop:</b> The product stops until the fuser is replaced.</p> <p><b>Prompt to continue:</b> The product stops and a prompts appears to replace the fuser. Acknowledge the prompt and continue printing.</p> <p><b>Continue:</b> The product alerts the user that the fuser is very low, but it continues printing.</p>



**Table 2-49 Manage Supplies menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Supply Settings (continued)	Store Usage Data			On supplies Not on supplies	The <b>Store Usage Data</b> menu provides a way to suppress the toner cartridges from storing most of the information gathered exclusively for the purpose of understanding the usage of the product. Select the <b>On supplies</b> setting to store the data on the toner cartridge memory chip. Select the <b>Not on supplies</b> setting to suppress the information from being stored on the memory chip.
Supply Messages		Low Message		On* Off	Use to configure whether a message displays on the control panel when supplies are getting low, but have not yet reached the low threshold.
Reset Supplies	New Document Feeder Kit (M680) New Maintenance Kit (M651)			Reset Cancel	Select this option when a new document feeder kit is installed.

## Manage Trays menu

**To display:** At the product control panel, select the **Administration** menu, and then select the **Manage Trays** menu.

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

**Table 2-50 Manage Trays menu**

First level	Values	Description
Use Requested Tray	Exclusively* First	Controls how the product handles jobs that have specified a specific input tray. Two options are available:  <b>Exclusively:</b> The product never selects a different tray when the user has indicated that a specific tray should be used, even if that tray is empty.  <b>First:</b> The product pulls from another tray if the specified tray is empty, even though the user specifically indicated a tray for the job.
Manually Feed Prompt	Always* Unless loaded	Indicate whether a prompt should appear when the type or size for a job does not match the specified tray and the product pulls from the multipurpose tray instead. Two options are available:  <b>Always:</b> A prompt always displays before using the multipurpose tray.  <b>Unless loaded:</b> A message displays only if the multipurpose tray is empty.
Size/Type Prompt	Display* Do not display	Controls whether the tray configuration message displays whenever a tray is closed. Two options are available:  <b>Display:</b> Shows the tray configuration message when a tray is closed. The user is able to configure the tray settings directly from this message.  <b>Do not display:</b> Prevents the tray configuration message from automatically appearing.
Use Another Tray	Enabled* Disabled	Use to turn on or off the control panel prompt to select another tray when the specified tray is empty. Two options are available:  <b>Enabled:</b> When this option is selected, the user is prompted either to add paper to the selected tray or to choose a different tray.  <b>Disabled:</b> When this option is selected, the user is not given the option of selecting a different tray. The product prompts the user to add paper to the tray that was initially selected.

**Table 2-50 Manage Trays menu (continued)**

First level	Values	Description
Alternative Letterhead Mode	Disabled* Enabled	Use this item to load letterhead or preprinted paper into the tray the same way for all print jobs (for printing either to one side of the sheet or to both sides of the sheet). When this option is selected, load the paper as if printing on both sides. See the user documentation that came with the product for instructions about loading letterhead for printing on both sides. When this option is selected, the product speed slows to the speed required for printing on both sides.
Duplex Blank Pages	Auto* Yes	Controls how the product handles two-sided jobs (duplexing). Two options are available:  <b>Auto:</b> Enables Smart Duplexing, which instructs the product not to process blank pages.  <b>Yes:</b> Disables Smart Duplexing and forces the duplexer to flip the sheet of paper even if it is printed on only one side. This might be preferable for certain jobs that use paper types such as letterhead or prepunched paper.
Override A4/Letter	Yes* No	Prints on letter-size paper when an A4 job is sent but no A4-size paper is loaded in the product (or to print on A4 paper when a letter-size job is sent but no letter-size paper is loaded). This option will also override A3 with ledger-size paper and ledger with A3-size paper.
Stapler/Stacker Settings		Use this item to set the stapler/stacker default behavior.
Operations Mode	Mailbox Stacker Function Separator	Use this item to set the accessory default behavior.
Stapling	None Top Left or Right Top Left Top Right	Use this item to set the staple location.
Staple Very Low	Continue Stop	Configure how the product responds when the staple cartridge is reaching the end of its estimated life.  <b>Continue:</b> The product alerts the user that the staple cartridge is very low, but it continues printing.  <b>Stop:</b> The product stops until the staple cartridge is replaced.

## Network Settings menu

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

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

**Table 2-51 Network Settings menu**

First level	Values	Description
I/O Timeout	Range: 5 – 300 sec Default = 15	Use to set the I/O timeout period in seconds. I/O timeout refers to the elapsed time before a print job fails. If the stream of data that the product receives for a print job is interrupted, this setting indicates how long the product will wait before it reports that the job has failed.
Jetdirect Menu	See <a href="#">Table 2-52 Jetdirect Menu on page 268</a> for details. These menus have the same structure. If an additional HP Jetdirect network card is installed in the EIO slot, then both menus are available.	

**Table 2-52 Jetdirect Menu**

First level	Second level	Third level	Fourth level	Values	Description
Information	Print Sec Report			Yes No*	Yes: Prints a page that contains the current security settings on the HP Jetdirect print server. No: A security settings page is not printed.
TCP/IP	Enable			On* Off	On: Enable the TCP/IP protocol. Off: Disable the TCP/IP protocol.
	Host Name			Use the arrow buttons to edit the host name. NPIXXXXXX*	An alphanumeric string, up to 32 characters, used to identify the product. This name is listed on the HP Jetdirect configuration page. The default host name is NPIxxxxxx, where xxxxxx is the last six digits of the LAN hardware (MAC) address.

**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
TCP/IP  (continued)	IPv4 Settings	Config Method		<a href="#">Bootp</a>  <a href="#">DHCP*</a>  <a href="#">Auto IP</a>  <a href="#">Manual</a>	<p>Specifies the method that TCP/IPv4 parameters will be configured on the HP Jetdirect print server.</p> <p><a href="#">Bootp</a> (Bootstrap Protocol): Use for automatic configuration from a BootP server.</p> <p><a href="#">DHCP</a> (Dynamic Host Configuration Protocol): Use for automatic configuration from a DHCPv4 server. If selected and a DHCP lease exists, the <a href="#">DHCP Release</a> menu and the <a href="#">DHCP Renew</a> menu are available to set DHCP lease options.</p> <p><a href="#">Auto IP</a>: Use for automatic link-local IPv4 addressing. An address in the form 169.254.x.x is assigned automatically.</p> <p>When this option is set to the <a href="#">Manual</a> setting, use the <a href="#">Manual Settings</a> menu to configure TCP/IPv4 parameters.</p>
			<a href="#">Manual Settings</a>	<a href="#">IP Address</a>	Enter the address.
			<a href="#">Subnet Mask</a>	Enter the address.	
			<a href="#">Default Gateway</a>	Enter the address.	

**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
TCP/IP (continued)		Default IP		Auto IP*  Legacy	Specify the IP address to default to when the print server is unable to obtain an IP address from the network during a forced TCP/IP reconfiguration (for example, when manually configured to use BootP or DHCP).  <b>NOTE:</b> This feature assigns a static IP address that might interfere with a managed network.  <b>Auto IP:</b> A link-local IP address 169.254.x.x is set.  <b>Legacy:</b> The address 192.0.0.192 is set, consistent with older HP Jetdirect products.
		Primary DNS		Range: 0 – 255  Default = <b>xxx.xxx.xx.xx</b>	Specify the IP address (n.n.n.n) of a Primary Domain Name System (DNS) Server.
		Secondary DNS		Range: 0 – 255  Default = <b>0.0.0.0</b>	Specify the IP address (n.n.n.n) of a Secondary DNS Server.
	IPv6 Settings	Enable		Off  On*	Use this item to enable or disable IPv6 operation on the print server.  <b>Off:</b> IPv6 is disabled.  <b>On:</b> IPv6 is enabled.
		Address	Manual Settings	Enable  Address	Use this item to enable and manually configure a TCP/IPv6 address.

**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
TCP/IP  (continued)		DHCPV6 Policy		Router Specified  Router Unavailable*  Always	<p><b>Router Specified:</b> The stateful auto-configuration method to be used by the print server is determined by a router. The router specifies whether the print server obtains its address, its configuration information, or both from a DHCPv6 server.</p> <p><b>Router Unavailable:</b> If a router is not available, the print server should attempt to obtain its stateful configuration from a DHCPv6 server.</p> <p><b>Always:</b> Whether a router is available, the print server always attempts to obtain its stateful configuration from a DHCPv6 server.</p>
	Proxy Server			Select from a provided list.	<p>Specifies the proxy server to be used by embedded applications in the product. A proxy server is typically used by network clients for Internet access. It caches Web pages, and provides a degree of Internet security for those clients.</p> <p>To specify a proxy server, enter its IPv4 address or fully-qualified domain name. The name can be up to 255 octets.</p> <p>For some networks, contact the Internet Service Provider (ISP) for the proxy server address.</p>

**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
TCP/IP  (continued)	Proxy Port			Default = <b>0080</b>	Enter the port number used by the proxy server for client support. The port number identifies the port reserved for proxy activity on the network, and can be a value from 0 to 65535.
	Idle Timeout			Default = <b>0270</b>	The time period, in seconds, after which an idle TCP print data connection is closed (default is 270 seconds, 0 disables the timeout).
Security	Secure Web			HTTPS Required*  HTTPS Optional	For configuration management, specify whether the HP Embedded Web Server will accept communications using HTTPS (Secure HTTP) only, or both HTTP and HTTPS.  <b>HTTPS Required:</b> For secure, encrypted communications, only HTTPS access is accepted. The print server will appear as a secure site.
		IPSEC		Keep  Disable*	Specify the IPsec status on the print server.  <b>Keep:</b> IPsec status remains the same as currently configured.  <b>Disable:</b> IPsec operation on the print server is disabled.



**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Security (continued)	802.1X			Reset	Specify whether the 802.1X settings on the print server are reset to the factory defaults.  <b>Reset:</b> The 802.1X settings are reset to the factory defaults.
				Keep*	<b>Keep:</b> The current 802.1X settings are maintained.
	Reset Security			Yes	Specify whether the current security settings on the print server will be saved or reset to factory defaults.  <b>Yes:</b> Security settings are reset to factory defaults.
				No*	

**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Diagnostics	Embedded Tests	LAN HW Test		Yes No*	<p>Provides tests to help diagnose network hardware or TCP/IP network connection problems.</p> <p>Embedded tests help to identify whether a network fault is internal or external to the product. Use an embedded test to check hardware and communication paths on the print server. After selecting and enabling a test, and setting the execution time, select the <b>Execute</b> option to initiate the test.</p> <p>Depending on the execution time, a selected test runs continuously until either the product is turned off, or an error occurs and a diagnostic page is printed.</p> <p><b>CAUTION:</b> Running this embedded test will erase the TCP/IP configuration.</p> <p>This test performs an internal loop-back test. An internal loop-back test will send and receive packets only on the internal network hardware. There are no external transmissions to the network.</p>

**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Diagnostics (continued)		HTTP Test		Yes No*	<p>This test checks operation of HTTP by retrieving predefined pages from the product, and tests the HP Embedded Web Server.</p> <p>Select the <b>Yes</b> option to choose this test, or the <b>No</b> option to not choose it.</p>
		SNMP Test		Yes No*	<p>This test checks operation of SNMP communications by accessing predefined SNMP objects on the product.</p> <p>Select the <b>Yes</b> option to choose this test, or the <b>No</b> option to not choose it.</p>
		Data Path Test		Yes No*	<p>This test helps to identify data path and corruption problems on an HP postscript level 3 emulation product. It sends a predefined PS file to the product, However, the test is paperless; the file will not print.</p> <p>Select the <b>Yes</b> option to choose this test, or the <b>No</b> option to not choose it.</p>
		Select All Tests		Yes No*	<p>Use this item to select all available embedded tests.</p> <p>Select the <b>Yes</b> option to choose all tests. Select the <b>No</b> option to select individual tests.</p>

**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Diagnostics  (continued)		Execution Time [H]		Range: 1 – 24 hours  Default = 1 hour	Specify the length of time (in hours) that an embedded test will be run. Select zero (0) to run the test runs indefinitely, until an error occurs or the product is turned off.  Data gathered from the HTTP, SNMP, and Data Path tests is printed after the tests have completed.
		Execute		No*  Yes	No: Do not initiate the selected tests.  Yes: Initiate the selected tests.
	Ping Test	Dest Type		IPv4  IPv6	This test is used to check network communications. It sends link-level packets to a remote network host, then waits for an appropriate response.  Specify whether the target product is an IPv4 or IPv6 node.
		Dest IPv4		Range: 0 – 255  Default = <b>127.0.0.1</b>	Enter the IPv4 address.
		Dest IPv6		Select from a provided list.  Default = <b>::1</b>	Enter the IPv6 address.
		Packet Size		Default = <b>64</b>	Specify the size of each packet, in bytes, to be sent to the remote host. The minimum is 64 (default) and the maximum is 2048.
		Timeout		Default = <b>001</b>	Specify the length of time, in seconds, to wait for a response from the remote host. The maximum is 100.

**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Diagnostics  (continued)		Count		Default = <b>004</b>	Specify the number of ping test packets to send for this test. Select a value from 0 to 100. To configure the test to run continuously, select 0.
		Print Results		Yes No*	
		Execute		Yes No*	No: Do not initiate the selected tests. Yes: Initiate the selected tests.
	Ping Results	Packets Sent		Default = <b>00000</b>	Shows the number of packets (0 - 65535) sent to the remote host since the most recent test was initiated or completed.
		Packets Received		Default = <b>00000</b>	Shows the number of packets (0 - 65535) received from the remote host since the most recent test was initiated or completed. The default is 0.
		Percent Lost		Default = <b>000</b>	Shows the percent (0 to 100) of ping test packets that were sent with no response from the remote host since the most recent test was initiated or completed.
		RTT Min		Default = <b>0000</b>	Shows the minimum detected roundtrip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		RTT Max		Default = <b>0000</b>	Shows the maximum detected roundtrip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.

**Table 2-52 Jetdirect Menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Diagnostics  (continued)		RTT Average		Default = <b>0000</b>	Shows the average round-trip-time (RTT), from 0 to 4096 milliseconds, for packet transmission and response.
		Ping In Progress		Yes No*	Shows whether a ping test is in progress. <b>Yes</b> Indicates a test in progress. <b>No</b> Indicates that a test completed or was not run.
		Refresh		Yes No*	When viewing the ping test results, this item upgrades the ping test data with current results. Select the <b>Yes</b> option to upgrade the data, or the <b>No</b> option to maintain the existing data. However, a refresh automatically occurs when the menu times out or the user manually returns to the main menu.

**Table 2-52 Jetdirect Menu (continued)**

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

## Troubleshooting menu

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

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

**Table 2-53 Troubleshooting menu**

First level	Second level	Third level	Fourth level	Values	Description
Event Log				<a href="#">View*</a> <a href="#">Print</a>	Use to print a list of the 1,000 most recent events in the Event Log. For each event, the printed log shows the error number, page count, error code, and description or personality.
Paper Path Page				<a href="#">View*</a> (M680 only) <a href="#">Print</a>	Shows how many pages were printed from each tray.



**Table 2-53 Troubleshooting menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Fax M680 only	Fax T.30 Trace	Print T.30 Report		Print	Use to print or configure the fax T.30 trace report. T.30 is the standard that specifies handshaking, protocols, and error correction between fax machines.
		When to Print Report		Never automatically print* Print after every fax Print only after fax send jobs Print after any fax error Print only after fax send errors Print only after fax receive errors	Configure the T.30 report to print after certain events. The user can choose to print the report after every fax job, every fax job sent, every fax job received, every send error, or every receive error.
	Fax V.34			Normal* Off	Use to disable V.34 modulations if several fax failures have occurred or if phone line conditions require it.
	Fax Speaker Mode			Normal* Diagnostic	Used by a technician to evaluate and diagnose fax issues by listening to the sounds of fax modulations.
	Fax Log Entries			On Off*	The standard fax log includes basic information such as the time and whether the fax was successful. The detailed fax log shows the intermediate results of the redial process not shown in the standard fax log.

**Table 2-53 Troubleshooting menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Print Quality Pages	Print PQ Troubleshooting Page			Print	Use this item to print pages that can help resolve problems with print quality.
	Diagnosics Page			Print	Use to print a diagnostics page. The page includes color swatches and a table of electrophotographic (EP) parameters.
	Color Band Test	Print Test Page		Print	Use to print a page to help identify arcing in the high-voltage power supply for each color. The page contains a series of colored bars. If streaks appear on a bar, the high-voltage power supply for the corresponding color might have a problem.
		Copies		Range: 1 – 30 Default = 1	Some problems with the high-voltage power supply do not appear until after several pages have been printed, so this test includes an option to print up to 30 pages.

**Table 2-53 Troubleshooting menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Diagnostic Tests	Paper Path Sensors			Select from a list of the product sensors.	Initiates a test of the paper path sensors.
		Paper Path Test	Print Test Page		
		Source Tray		Select from a list of the available trays.	Generates a test page for testing paper handling features. Test specific paper paths by choosing which path the product uses for the test.
		Output Bin (M680 only)		All Bins Face Down Face Up	
		Test Duplex Path		Off* On	
		Number of Copies		Range: 1–500 Default = 1	Sets the default number of copies for a copy job. This default applies when the Copy or Quick Copy function is initiated from the product Home screen. The factory default setting is 1.
	Manual Sensor Test			Select from a list of available components. Reset Sensors	Test the product sensors and switches for correct operation. Each sensor is displayed on the control-panel screen, along with its status. Manually trip each sensor and watch for it to change on the screen. Press the <b>Stop</b> button to abort the test.
Tray/Bin Manual Sensor Test			Select from a list of available components. Reset Sensors	Test the sensors in the trays and bins for correct operation. Each sensor is displayed on the control-panel screen, along with its status. Manually trip each sensor and watch for it to change on the screen. Press the <b>Stop</b> button to abort the test.	

**Table 2-53 Troubleshooting menu (continued)**

First level	Second level	Third level	Fourth level	Values	Description
Diagnostic Tests (continued)	Component Test			Select from a list of available components.	Use this item to exercise individual parts independently to isolate noise, leaking, or other issues. To start the test, select one of the components. The test will run the number of times specified by the <a href="#">Repeat</a> option. The user might be prompted to remove parts from the product during the test. Press the <a href="#">Stop</a> button to abort the test.
	Print/Stop Test				Specify the length of time in milliseconds (0-60,000).
	Continuous Scan (M680)			2-sided	
	Scanner Tests (M680)			Sensors	
Retrieve Diagnostic Data				Create device data file	Create files that contain information about the product that can help identify the cause of problems.
				Create zipped debug information file	
				Include crash dump files	
				Clean up debug information	
				Send to E-mail	
			Export to USB		
Generate Debug Data				Start	

## Device Maintenance menu

### Backup/Restore menu

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

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

**Table 2-54 Backup/Restore menu**

First level	Second level	Third level	Values	Description
Backup Data	Enable Scheduled Backups	Backup Time	Enter a time	Set a time for a scheduled backup to occur.

**Table 2-54 Backup/Restore menu (continued)**

First level	Second level	Third level	Values	Description
		Days Between Backups	Enter the number of days	Set an interval for a scheduled backup to occur.
	Backup Now			Initiate a backup.
	Export Last Backup			Export backup data.
Restore Data			Insert a USB drive that contains the backup file.	Restore data from an external source.

**Calibration/Cleaning menu (M680)**

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

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

**Table 2-55 Calibration/Cleaning menu (M680)**

First level	Second level	Values	Description
Cleaning Settings	Auto Cleaning	Off* On	Select the <a href="#">Auto Cleaning</a> menu or the <a href="#">Cleaning Interval</a> menu.
	Cleaning Interval	Select from a list of cleaning intervals.	Set the interval when the cleaning page should be printed. The interval is measured by the number of pages printed.
	Cleaning Size	Select from a list of support sizes.	Select the paper size to use for the cleaning page.
Cleaning Page		Print	Use to process the cleaning page that was created by using the <a href="#">Create Cleaning Page</a> menu. The process takes up to 1.5 minutes.
Quick Calibration		Start	The product automatically calibrates itself at various times. However, the user can calibrate the product immediately if the product experiences problems with print quality. Use this feature to perform a partial calibration. Use this calibration if color density or tone seem incorrect.  Before calibrating the product, make sure that the <b>Ready</b> indicator displays on the control-panel display. If a job is in progress, the calibration occurs when that job is complete.

**Table 2-55 Calibration/Cleaning menu (M680) (continued)**

First level	Second level	Values	Description
Full Calibration		Start	<p>The product automatically calibrates itself at various times. However, the user can calibrate the product immediately if the product experiences problems with print quality. Use this feature to perform a full calibration, which can take up to three minutes. Use this calibration if the color layers seem to be shifted on the page.</p> <p>Before calibrating the product, make sure that the <b>Ready</b> indicator displays on the control-panel display. If a job is in progress, the calibration occurs when that job is complete.</p>
Delay Calibration at Wake/Power On		Disabled Enabled*	<p>Controls the timing of power-on calibration when the product wakes up or is turned on.</p> <p><b>Wake:</b> Select this item to print jobs immediately when the product wakes up or is turned on, before calibration begins.</p> <p><b>No:</b> The product will calibrate immediately when it wakes up or is turned on. The product will not print any jobs until it finishes calibrating.</p> <p><b>Yes:</b> Enables the product that is asleep to accept print jobs before it calibrates. It might start calibrating before it has printed all the jobs it has received. This option allows quicker printing when coming out of sleep mode or when the product is turned on, but print quality might be reduced.</p> <p><b>NOTE:</b> For the best results, allow the product to calibrate before printing. Print jobs performed before calibration might not be of the highest quality.</p>
Calibrate Scanner			<p>Touch <b>Next</b> to calibrate the device scanner. Messages on the control-panel display prompt the user through the calibration process.</p>
Clean Rollers		Reset Cancel	<p><b>Maintenance History</b> screen is view only. There are two options: the <b>Reset</b> option to reset the page count, or the <b>Cancel</b> option to go back to the previous screen.</p>

**Table 2-55 Calibration/Cleaning menu (M680) (continued)**

<b>First level</b>	<b>Second level</b>	<b>Values</b>	<b>Description</b>
Clean Document Feeder Settings	Low Threshold Settings	Range: 0 – 100% Default = 10%	Configure cleaning settings for the document feeder.
	Very Low Settings	Stop Prompt to continue* Continue	Configure the product action if the document feeder requires cleaning.

## Calibration/Cleaning menu (M651)

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

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

**Table 2-56 Calibration/Cleaning menu (M651)**

First level	Second level	Values	Description
Auto Cleaning		Off* On	Set an automatic cleaning period for the product.
Cleaning Interval		Select from a list of cleaning intervals.	Set the interval when the automatic cleaning page should be printed. The interval is measured by the number of pages printed.
Auto Cleaning Size		Select from a list of support sizes.	Select the paper size to use for the automatic cleaning page.
Print Cleaning Page			Prints a page to clean the paper path. The process takes up to 1.5 minutes.



### USB Firmware Upgrade menu

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

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

### Service menu

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

The [Service](#) menu is locked and requires a PIN for access. This menu is intended for use by authorized service personnel. See the Service mode function section in the product troubleshooting manual.

# Print quality troubleshooting tools: interpret control-panel messages and event log entries

## Control-panel message types

The control-panel messages and event code entries indicate the current product status or situations that might require action.

---

 **NOTE:** Event log errors do not appear on the control-panel display. Open the event log to view or print the event log errors.

---

A control-panel message displays temporarily and might require the user to acknowledge the message by touching the **OK** button to resume printing or by touching the **Stop** button to cancel the job. With certain messages, the job might not finish printing or the print quality might be affected. If the message is related to printing and the auto-continue feature is on, the product will attempt to resume printing after the message has appeared for 10 seconds without acknowledgement.


For some messages, restarting the product might fix the problem. If a critical error persists, the product might require service.

## Control-panel messages and event log entries

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 **NOTE:** Some of the messages in the following sections only appear in the event log.

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 **TIP:** Some control-panel messages and event log entries refer to a specific product sensor or switch in the recommended action to solve the problem. See the diagrams in the clear jams section of the product troubleshooting manual for sensor and switch locations.

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### 10.XX.YZ Error Messages


#### Event log error message

##### 10.39.70 Document feeder kit very low

#### Description

The product indicates when a supply level is very low.

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 **NOTE:** After an HP supply has reached the very low threshold, the HP Premium Protection Warranty for that supply has ended.

---

#### Recommended action

Replace the document feeder kit.

### 10.0X.00 Supply memory error

#### Description

- 10.00.00 Black toner cartridge
- 10.01.00 Cyan toner cartridge
- 10.02.00 Magenta toner cartridge
- 10.03.00 Yellow toner cartridge

The product is unable to read the toner cartridge data. The toner cartridge is present but defective.

When this error occurs, a question mark appears on the gas gauge of the supply or supplies with the error.

If multiple supplies have this error, a 10.0X.Y0 error for the first supply detected with the error displays. After the user resolves the error that corresponds to the first supply, another 10.0X.00 error displays for the next supply. This continues for all supplies memory errors.

**Recommended action**

1. Open the front door and remove the toner cartridge suspected.
2. Check the supplies memory chip. If it is damaged, replace the toner cartridge.
3. Reinsert the toner cartridge.
4. Close the front door.
5. If the message displays again, turn the product off, then on again.
6. If the error persists, replace the toner cartridge suspected.

**10.0X.10 Supply memory error**

**Description**

The product is unable to read the toner cartridge data. The toner cartridge is present but defective.

When this error occurs, a question mark appears on the gas gauge of the supply or supplies with the error.

If multiple supplies have this error, a 10.0X.10 error for the first supply detected with the error displays. After the user resolves the error that corresponds to the first supply, another 10.0X.Y0 error displays for the next supply. This continues for all supplies memory errors.

- 10.00.10 : Black toner cartridge
- 10.01.10 : Cyan toner cartridge
- 10.02.10 : Magenta toner cartridge
- 10.03.10: Yellow toner cartridge

**Recommended action**

1. Open the front door and remove the toner cartridge.
2. Check the supplies memory chip. If it is damaged, replace the toner cartridge.
3. Reinsert the toner cartridge.
4. Close the front door. If the message reappears, turn the product off, and then on again.
5. If the error persists, replace the toner cartridge.

**10.0X.15 Install <supply>**

**Description**

A supply is either not installed or not correctly installed in the product.

The 10.XX.15 is an event log only message, it will not show on the control panel. The only message to display will be **Install <Supply>** message.

- 10.00.15: Black toner cartridge (event code)
- 10.01.15: Cyan toner cartridge (event code)
- 10.02.15: Magenta toner cartridge (event code)
- 10.03.15: Yellow toner cartridge (event code)

**Recommended action**

Replace or reinstall the toner cartridge correctly to continue printing.

**10.0X.25 Wrong cartridge in <color> slot**

**Description**

The product displays this message when a toner cartridge is installed in the wrong slot.

The 10.XX.25 is an event log only message, it will not show on the control panel. The only message to display will be **Wrong cartridge in <color> slot** message.

**The indicated cartridge is installed in the wrong position:**

- 10.00.25: Black toner cartridge (event code)
- 10.01.25: Cyan toner cartridge (event code)
- 10.02.25: Magenta toner cartridge (event code)
- 10.03.25: Yellow toner cartridge (event code)

**Recommended action**

From left to right, the toner cartridges should be installed in this order:

- Yellow
- Magenta
- Cyan
- Black

Reinstall the toner cartridges in the correct slots.

**10.0X.35 Incompatible <supply>**

**Description**

The product displays this message when the indicated supply is not compatible with this product.

The 10.XX.35 is an event log only message, it will not show on the control panel. The only message to display will be **Incompatible <supply>** message.

- 10.00.35: Black toner cartridge (event code)
- 10.01.35: Cyan toner cartridge (event code)

- 10.02.35: Magenta toner cartridge (event code)
- 10.03.35: Yellow toner cartridge (event code)

**Recommended action**

Install a supply that is designed for this product.

See the product repair and replacement service manual for the correct supply part numbers.

**10.0X.60 <Supply> low**

**Description**

The product indicates when a supply level is low. Actual toner cartridge life might vary. You do not need to replace the toner cartridge at this time unless print quality is no longer acceptable.

The 10.XX.60 is an event log only message, it will not show on the control panel. The only message to display will be **<Supply> low** message.

- 10.00.60: Black toner cartridge (event code)
- 10.01.60: Cyan toner cartridge (event code)
- 10.02.60: Magenta toner cartridge (event code)
- 10.03.60: Yellow toner cartridge (event code)

**Recommended action**

If print quality is no longer acceptable, replace the toner cartridge. Consider purchasing a replacement cartridge so it is available when the installed cartridge has reached the end of its estimated life.

**10.0X.69 <Supply> very low**

**Description**

The product indicates when a supply level is very low. Actual toner cartridge life might vary. Consider having a replacement toner cartridge available to install when print quality is no longer acceptable. You do not need to replace the toner cartridge at this time unless the print quality is no longer acceptable.

The 10.XX.69 is an event log only message, it will not show on the control panel. The only message to display will be **<Supply> very low** message.



**NOTE:** After an HP supply has reached the very low threshold, the HP Premium Protection Warranty for that supply has ended.

- 10.00.69: Black toner cartridge very low (event code)
- 10.01.69: Cyan toner cartridge very low (event code)
- 10.02.69: Magenta toner cartridge very low (event code)
- 10.03.69: Yellow toner cartridge very low (event code)

**Recommended action**

If print quality is no longer acceptable, replace the toner cartridge.

## 10.0X.70 Printing past very low

### Description

The product indicates when one of the consumables is very low. The actual remaining consumable life might vary. You do not need to replace the toner cartridge at this time unless the print quality is no longer acceptable.

The 10.XX.70 is an event log only message, it will not show on the control panel. The only message to display will be a warning message **<Supply> very low**.



**NOTE:** After an HP supply has reached the very low threshold, the HP Premium Protection Warranty for that supply has ended.

- 10.00.70: Black toner cartridge (event code)
- 10.01.70: Cyan toner cartridge (event code)
- 10.02.70: Magenta toner cartridge (event code)
- 10.03.70: Yellow toner cartridge (event code)

### Recommended action

If print quality is no longer acceptable, replace the toner cartridge.

## 10.0X.91 <supply> error

### Description

Toner cartridge motor stall.

- 10.00.91: Black toner cartridge
- 10.01.91: Cyan toner cartridge
- 10.02.91: Magenta toner cartridge
- 10.03.91: Yellow toner cartridge

### Recommended action

1. Check Event log for occurrences of 59.6X errors. If these are seen troubleshooting that error.
2. Perform the image-drum motors component test under the [Troubleshooting menu](#).
3. Replace the toner cartridge.

## 10.0X.92 <Cartridge> error

### Description

Toner cartridges not engaged.

- 10.00.92: Black toner cartridge
- 10.01.92: Cyan toner cartridge
- 10.02.92: Magenta toner cartridge
- 10.03.92: Yellow toner cartridge

**Recommended action**

1. Open front door, Remove and reinstall toner cartridge.
2. Check toner cartridge for any damage or defects.
3. Replace the toner cartridge.

**10.22.15 Install transfer unit****Description**

The transfer unit has been removed or is installed incorrectly.

**Recommended action**

Install the transfer unit. If already installed, remove the transfer unit and then reinstall it.

If the product could not find the ITB contact alienation home position, check the ITB alienation sensor (SR9).

Use the [ITB Contact/Alienation](#) in the [Component Test](#) to verify that the ITB alienation mechanism is functioning properly. If it is not, replace the fuser drive assembly.



---

**NOTE:** Replacing the fuser drive assembly involves removing the main drive assembly. Only perform this step after contacting HP support.

---

If the product has been serviced, reconnect the connector (J128) on the DC controller PCA.

**10.22.60 Transfer Kit low 10.22.69 Transfer Kit very low****Description**

The product indicates when a supply level is low or very low.

**Recommended action**

Replace the ITB kit when print quality becomes unacceptable.

**10.22.70 Transfer Kit Printing past very low****Description**

The product indicates when a supply level is very low.



---

**NOTE:** After an HP supply has reached the very low threshold, the HP Premium Protection Warranty for that supply has ended.

---

**Recommended action**

Replace the ITB kit.

**10.23.15 Install Fuser kit****Description**

The fuser is either not installed, or not correctly installed in the product.

**Recommended action**

---

**CAUTION:** Use caution when handling the fuser. The fuser might be hot when the product is operating.

---

Remove, and then reinstall the fuser. Make sure that the fuser is fully seated.

### 10.23.60 Fuser Kit low

#### Description

The product indicates when a supply level is low.

#### Recommended action

Replace the fuser kit.



**NOTE:** After replacing the fuser kit, reset the fuser page counter by selecting the [new fuser kit](#) in the [reset supplies](#) menu.

---

### 10.23.70 Replace Fuser Kit

#### Description

The product indicates when the fuser kit is at its estimated end of life. The actual life remaining might be different than the estimation. Have a replacement fuser kit available to install when print quality is no longer acceptable.

The fuser kit does not need to be replaced now unless the print quality is no longer acceptable.



**NOTE:** After the fuser kit reaches its approximated end of life, the HP Premium Protection Warranty on that fuser kit ends.

---

#### Recommended action

Replace the fuser kit.



**WARNING!** Use caution when handling the fuser. The fuser might be hot when the product is operating.

---

1. Open the right door.
2. Grasp the blue handles on both sides of the fuser and pull straight out to remove it.
3. Install the replacement fuser.
4. Close the right door.

### 10.31.60 Toner collection unit almost full

#### Description

Toner collection unit is almost full.

#### Recommended action

Replace the toner collection unit.

### 10.31.70 Replace Toner Collection Unit

#### Description

The product indicates when a toner collection unit is at its estimated end of life.



---


 **NOTE:** After a toner collection unit has reached its end of life, the HP Premium Protection Warranty on that toner collection unit ends.

---

**Recommended action**

Replace the toner collection unit.

---

 **NOTE:** Printing past the **Replace Toner Collection Unit** message is not a recommended option because of the risk of overfilling the toner collection unit, which could result in the need to service the product.

---

### 10.39.60 Document feeder kit low

**Description**

The product indicates when a supply level is low.

**Recommended action**

Replace the document feeder kit.

### 10.99.31 Non-HP supply in use.

**Description**


The product displays this message when a used supply (a remanufactured or refilled genuine HP or non-HP product) has been installed.


The 10.99.31 is an event log only message, it will not show on the control panel. The only message to display will be **Used supply in use** message.

**Recommended action**

The toner cartridge has been previously used. Touch the **OK** to continue.

---

 **NOTE:** Removing a cartridge from one product and then installing it in a different product (for testing functionality) will cause this event code.

 **NOTE:** If you believe you purchased a genuine HP supply, go to [www.hp.com/go/anticounterfeit](http://www.hp.com/go/anticounterfeit).

---

### 10.99.34 Used supply in use.

**Description**


The product displays this message when a used supply (a remanufactured or refilled genuine HP or non-HP product) has been installed.


The 10.99.34 is an event log only message, it will not show on the control panel. The only message to display will be **Used supply in use** message.

**Recommended action**

The toner cartridge has been previously used. Touch the **OK** to continue.

---

 **NOTE:** Removing a cartridge from one product and then installing it in a different product (for testing functionality) will cause this event code.

 **NOTE:** If you believe you purchased a genuine HP supply, go to [www.hp.com/go/anticounterfeit](http://www.hp.com/go/anticounterfeit).

---

### 10.99.40 Genuine HP supplies installed

#### Description

The product displays this message when a new cartridge has been installed and all cartridges are Genuine HP.

#### Recommended action

Touch the (OK) to continue.

### 10.99.41 Unsupported Supply in use

#### Description

The indicated toner cartridge is for a different product.

#### Recommended action

Remove the indicated toner cartridge, and then install the correct cartridge for this product.

---

 **TIP:** See the parts chapter in the product repair manual for the correct cartridge part number.

---

## 11.XX.YZ Error Messages

### 11.00.01 or 11.00.02 Internal clock error

#### Description

This message indicates a problem with the formatter's real time clock.

The product real time clock has experienced an error.

01=dead clock battery

02=dead real time clock

#### Recommended action

1. Whenever the product is turned off and then turned on again, set the time and date on the control panel.
2. If the error persists, you might need to replace the formatter.

## 13.WX.YZ Error Messages

### Event log error message

#### 13.84.A3

#### Description

A jam has occurred below the product's lower bin area.

#### Recommended action

1. Remove all paper from lower bin.
2. Open the left cover.
3. Remove all paper found, and then close the left cover.

### Event log error message

#### 13.89.33

#### Description

A jam has occurred in the staple cartridge.

#### Recommended action

1. Open the left cover.
2. Replace the staple cartridge.
3. Close left cover.

### 13.wx.ee Door Open Jam.

#### Event log error message

13.WX.EE

#### Description

This error occurs when a door is opened during printing.

- 13.AA.EE: Lower right door
- 13.BA.EE: Right door
- 13.EA.EE: Scanner cover



**NOTE:** This jam can occur if the scanner cover is not securely latched. The sensor is located on the front of the IPTU, and the flag is located on the bottom of the scanner.

- 13.8A.EE: Stapler/stacker
- 13.FF.EE: Multiple doors

#### Recommended action

Clear the jam and firmly close the door when finished. For instructions on clearing the jam, see the clear jams section of the product troubleshooting manual.

### 13.67.Az Jam in stapler/stacker connection

#### Description

Stay jam at stacker switchback entrance sensor.

This jam occurs when the paper stops at the stapler/stacker entrance sensor on the way to destination bin 'Z'.

- 13.67.A1 Destination bin 1.
- 13.67.A2 Destination bin 2.
- 13.67.A3 Destination bin 3.

**Recommended action**

1. Open the left cover.
2. Remove all paper found, and then close the left cover.

**13.67.Dz Jam in stapler/stacker connection****Description**

Delay jam at stacker switchback entrance sensor.

This jam occurs when the paper does not reach the entrance sensor of stapler/stacker on the way to destination bin 'Z'.

- 13.67.D1 Destination bin 1.
- 13.67.D2 Destination bin 2.
- 13.67.D3 Destination bin 3.

**Recommended action**

1. Open the left cover.
2. Remove all paper found, and then close the left cover.

**13.69.Az Jam in stapler/stacker connection****Description**

Stay jam at stacker switchback lower sensor.

This jam occurs when the paper stops at the stapler/stacker lower sensor on the way to destination bin 'Z'.

- 13.69.A1 Destination bin 1.
- 13.69.A2 Destination bin 2.
- 13.69.A3 Destination bin 3.

**Recommended action**

1. Open the left cover.
2. Remove all paper found, and then close the left cover.

**13.80.DZ or 13.80.FZ or 13.85.AZ or 13.85.DZ or 13.85.FZ****Description**

A jam has occurred below the product's left cover.

Stapler/stacker inlet sensor stay jam. The inlet sensor SR9 does not detect the trailing edge of paper within a specified period after it detects the leading edge.

- 13.80.AZ: Stopped at stapler/stacker jam.

This jam occurs when the paper stops at the stapler/stacker lower bin on the way to destination bin 'Z'.

- 13.80.DZ: Late to stapler/stacker jam

This jam occurs when the paper is late to the stapler/stacker lower bin on the way to destination bin 'Z'.

- 13.80.FZ: Power on or residual stapler/stacker jam.

This jam occurs when the product is turned on with paper in the lower bin on the way to destination bin 'Z' (power on jam). This jam can also occur if the stapler/stacker cover is closed with paper still at the sensor (residual jam).

- 13.85.AZ: Stopped at stapler/stacker jam.

This jam occurs when the paper stops at the stapler/stacker upper bin on the way to destination bin 'Z'.

- 13.85.DZ: Late to stapler/stacker jam

This jam occurs when the paper stops at the stapler/stacker upper bin on the way to destination bin 'Z'.

- 13.85.FZ: Power on jam at stapler/stacker

This jam occurs when the paper stops at the stapler/stacker upper bin on the way to destination bin 'Z'.

#### **Recommended action**

1. Open the left cover.
2. Remove all paper found, and then close the left cover.

### **13.A1.D1 Jam in Tray 1**

#### **Description**

Paper Delay Jam in Tray 1.

This jam occurs when the paper does not reach the TOP sensor (Registration sensor) (SR20) in designated amount of time after the start of paper pick-up from Tray 1.

This is a no-pick jam from tray 1 (MP Tray).

#### **Recommended action**

1. Clear the jam in the area indicated.
2. Close the door to allow the product to attempt to clear the jam.
3. Make sure that the MP tray paper guides are snug against the sides, and are not too tight or too loose against the stack of paper, and that the paper is not overload above the marking shown on the tray side guide
4. Check the Tray 1 pickup and feed rollers for wear, damage or paper dusk. Clean or replace the rollers as needed.
5. Perform a test print job, do the rollers turn and feed paper when the product tries to print from Tray 1?
  - IF YES:

Test the feed sensor using the sensor test under the- [Administration - Troubleshooting - Diagnostic Tests](#) menu to verify that the sensor is functioning properly.

- IF NO:

Run the Tray 1 pickup/feed motor drive test under the – [Administration - Troubleshooting - Diagnostic Tests](#)- menu to verify that the feed motor is functioning properly

If the rollers do not move or motor does not function properly replace right door assembly.

### 13.A1.FF Paper Jam

#### Description

Residual paper Jam in tray 1.

This jam occurs when residual paper is detected at the (Registration sensor) (SR20) at power on.

#### Recommended action

1. Clear the jam in the area indicated.
2. Close the door to allow the product to attempt to clear the jam.
3. Make sure sensor SR20 flag moves smoothly and that sensor is not damaged. If the flag is damaged replace the MP tray assembly.
4. Test the feed sensor using the sensor test under the - [Administration - Troubleshooting - Diagnostic Tests](#) menu to verify that the sensor is functioning properly.
5. If the sensor registration sensor is damaged or does not function correctly replace the registration sensor assembly.
6. If tray 1 does not function properly, replace the right door assembly.

### 13.A2.D2 Jam in tray 2

#### Description

This jam occurs when the paper does not reach the Registration sensor (SR20) in designated amount of time after the start of paper pick-up from Tray 2.

This is a no-pick jam from tray 2.

#### Recommended action

1. Open tray, remove any jammed paper, and then close the tray.
2. Open and close any door on the product to allow the product to attempt to clear the jam.
3. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on the tray.
4. Avoid loading paper that is damaged (ex. bent, torn, dusty, wrinkled, and curled) and or that is out of specification for the tray and product.
5. Verify that the Tray 2 pickup, feed, and separation rollers are correctly installed and that they are not worn or damaged. Clean or replace the rollers as needed.

6. Use the component tests to run the Tray 2 pickup/feed motor drive test. If the motor is not functioning properly, replace the pickup assembly.
7. Use the manual sensor tests to toggle the TOP sensor SR20. If the sensor is not functioning properly, replace the registration sensor assembly.
8. Check the connectors at the sensor and feed motor, and the DC controller PCA.
9. If the error persists, replace the paper pickup assembly.

### 13.A3.D3 Jam in tray 3

#### Description

Paper Delay Jam In Tray 3.

This jam occurs when the paper does not reach the Tray 3 feed sensor (SR4) in designated amount of time after the start of paper pick-up from Tray 3.

This is a no-pick jam from tray 3.

#### Recommended action

1. Open tray, remove any jammed paper, and then close the tray.
2. Open and close any door on the product to allow the product to attempt to clear the jam.
3. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
4. Avoid loading paper that is damaged (ex. bent, torn, dusty, wrinkled, and curled) and or out of specification for the product.
5. Verify that the Tray 3 pickup, feed, and separation rollers are correctly installed and that they are not worn or damaged. Clean or replace the rollers as needed.
6. Use the component tests to run the Tray 3 pickup/feed motor drive test. If the motor is not functioning properly, replace the Pick up Motor.
7. Use the manual sensor tests to toggle SR4. If the sensor is not functioning properly, replace the Tray 3 Pick up Assembly.
8. Check the following connectors for Tray 3 on the HCI controller and assembly. (J13, J408 Media feed sensor) (J18, J408 Pick up assembly (J14, J409 Pick up motor)
9. If the error persists, replace the Tray 3 paper pickup assembly.

### 13.A3.FF Paper Jam

#### Description

Residual paper jam in Tray 3.

This jam occurs when residual paper is detected at the Tray 3 feed sensor (SR4) at power on.

#### Recommended action

1. Open the tray, and right door and remove any jammed paper, and then close the tray.
2. Open and close any door on the product to allow the product to attempt to clear the jam.

3. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
4. Verify that the Tray 3 pickup, feed, and separation rollers are correctly installed and that they are not worn or damaged. Clean or replace the rollers as needed.
5. Use the manual sensor tests to toggle SR4. If the sensor is not functioning properly, replace the Tray 3 Pick up Assembly.
6. Check the following connectors for Tray 3 on the HCI controller and assembly. (J13, J408 Media feed sensor) (J18, J408 Pick up assembly) (J14, J409 Pick up motor)
7. If the error persists, replace the Tray 3 paper pickup assembly.

#### 13.A4.D4 Jam in tray 4

##### Description

Paper Delay Jam In Tray 4.

This jam occurs when the paper does not reach the Tray 4 feed sensor (SR8) in designated amount of time after the start of paper pick-up from Tray 4.

This is a no-pick jam from tray 4.

##### Recommended action

1. Open the tray, remove any jammed paper, and then close the tray.
2. Open and close any door on the product to allow the product to attempt to clear the jam.
3. Make sure that the tray width and length guides are set to the correct paper being installed into the tray, and that the tray is not over filled above fill mark on tray.
4. Avoid loading paper that is damaged (ex. bent, torn, dusty, wrinkled, and curled) and or out of specification.
5. Verify that the Tray 4 pickup, feed, and separation rollers are correctly installed and that they are not worn or damaged. Clean or replace the rollers as needed.
6. Use the component tests to run the Tray 4 pickup/feed motor drive test. If the motor is not functioning properly, replace the Pick up Motor.
7. Use the manual sensor tests to toggle SR8. If the sensor is not functioning properly, replace the Tray 4 pick up assembly.
8. Check the following connectors for Tray 4 on the HCI controller and assembly. (J22, J406 Media feed sensor) (J20 J406 Pick up assembly) (J14, J409 Pick up motor)
9. If the error persists, replace the Tray 4 paper pickup assembly.

#### 13.A4.FF Paper Jam

##### Description

Residual paper jam in Tray 4.

This jam occurs when residual paper is detected at the Tray 4 feed sensor (SR8) at power on.



**Recommended action**

1. Open Tray, and right door and remove any jammed paper, and then close the tray.
2. Open and close any door on the product to allow the product to attempt to clear the jam.
3. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
4. Verify that the Tray 4 pickup, feed, and separation rollers are correctly installed and that they are not worn or damaged. Clean or replace the rollers as needed.
5. Use the component tests to run the Tray 4 pickup/feed motor drive test. If the motor is not functioning properly, replace the Pick up motor.
6. Use the manual sensor tests to toggle SR8. If the sensor is not functioning properly, replace the Tray 4 pick up assembly.
7. Check the connectors for Tray 4 on the HCI controller and assembly. (J22, J406 Media feed sensor) (J20 J406 Pick up assembly)
8. If the error persists, replace the Tray 4 paper pickup assembly.

**13.A5.D5 Jam in tray 5****Description**

Paper Delay Jam In Tray 5.

This jam occurs when the paper does not reach the Tray 5 feed sensor (SR12) in designated amount of time after the start of paper pick-up from Tray 5.

This is a no-pick jam from tray 5.

**Recommended action**

1. Open the tray, remove any jammed paper, and then close the tray.
2. Open and close any door on the product to allow the product to attempt to clear the jam.
3. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
4. Avoid loading paper that is damaged (ex. bent, torn, dusty, wrinkled, and curled) and or out of specification
5. Verify that the Tray 5 pickup, feed, and separation rollers are correctly installed and that they are not worn or damaged. Clean or replace the rollers as needed.
6. Use the component tests to run the Tray 5 pickup/feed motor drive test. If the motor is not functioning properly, replace the Pick up Motor.
7. Use the manual sensor tests to toggle SR12. If the sensor is not functioning properly, replace the Tray 5 pick up assembly.
8. Check the connectors for Tray 5 on the HCI controller and assembly. (J32, J403 Media feed sensor) (J30, J403 Pick up assembly) (J14, J409 Pick up motor)
9. If the error persists, replace the Tray 5 paper pickup assembly.

### 13.A5.FF Paper Jam

#### Description

Residual paper jam in Tray 5.

This jam occurs when residual paper is detected at the Tray 5 feed sensor (SR12) at power on.

#### Recommended action

1. Open the tray, and right door and remove any jammed paper, and then close the tray.
2. Open and close any door on the product to allow the product to attempt to clear the jam.
3. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
4. Verify that the Tray 5 pickup, feed, and separation rollers are correctly installed and that they are not worn or damaged. Clean or replace the rollers as needed.
5. Use the manual sensor tests to toggle SR12. If the sensor is not functioning properly, replace the Tray 5 pick up assembly.
6. Check the connectors for Tray 5 on the HCI controller and assembly (J32, J403 Media feed sensor) (J30, J403 Pick up assembly)
7. If the error persists, replace the Tray 5 paper pickup assembly.

### 13.AA.EE Paper Jam

#### Description

HCI Door Open Jam.

This jam occurs when the HCI right door (SW1) is opened during printing.

#### Recommended action

1. Close the lower right door to allow the product to attempt to clear the jam.
2. Test SW1 using the manual sensor switch test under the – [Administration- Troubleshooting- Diagnostic Tests-](#) menu to verify that the switch is functioning properly.
3. Replace the SW1 sensor assembly.

### 13.B2.9C Jam in right door

#### Description

Page at duplex switchback jam.

The paper has stopped in the duplex switchback area on top of the IPTU.

#### Recommended action

Open the top cover below the control panel.

Remove all paper found, and then close the top cover.

### 13.B2.Az Paper Jam

#### Description

Paper stopped at the registration jam, from the tray indicated.

This jam occurs when the paper is present longer than "the expected paper length plus 50mm or more" when detected at the registration sensor SR20.



**NOTE:** Paper might also be found in the right door in the fuser area.

- 13.B2.A1 = Tray 1
- 13.B2.A2 = Tray 2
- 13.B2.A3 = Tray 3
- 13.B2.A4 = Tray 4
- 13.B2.A5 = Tray 5
- 13.B2.AD = Duplexer

#### Recommended action

1. Open the right door and clear the jam in the indicated area. Inspect the paper path and make sure that no paper is blocking the paper path.
2. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
3. Test TOP sensor/Registration Sensor (SR20) using the manual sensor test under the following:

[Administration](#)

[Troubleshooting](#)

[Diagnostic Test](#)

[Manual Sensor Test](#)

If sensor fails, replace the Registration Density (RD) sensor assembly.

4. If the sensor is functioning properly, run a few pages to check where the leading edge of the paper actually stops.
5. Check the area where the leading edge of the paper has stopped for blockage or damage. Remove any obstructions that are found.
6. If the sensor has failed, or the assembly is damaged, replace the Registration Density (RD) sensor assembly.

### 13.B2.Dz Jam in Right Door

#### Description

The product has a jam accessible from the right door.

This is a paper delay jam at registration sensor SR20.

- 13.B2.D3:

This jam occurs when the paper is picked from Tray 3 and SR4 is triggered, but SR20 is not triggered. Paper might also be in the fuser area.

- 13.B2.D4:

This jam occurs when the paper is picked from Tray 5 and SR8 is triggered, but SR20 is not triggered. Paper might also be in the fuser area.

- 13.B2.D5:

This jam occurs when the paper is picked from Tray 5 and SR12 is triggered, but SR20 is not triggered. Paper might also be in the fuser area.

- 13.D3.DZ: Late to duplex re-feed jam


This jam occurs when the paper is coming from the duplexer, and the fuser output SR5 is triggered, but the duplex re-feed SR22 is not triggered. Paper might also be in the fuser area.

- 13.B2.DD: Late to registration jam, from duplexer

This jam occurs when the paper is coming from the duplexer, and the duplex refeed SR22 is triggered, but the SR20 sensor is not triggered. Paper might also be in the fuser area.

### Recommended action

---

 **CAUTION:** Use caution when handling the fuser. The fuser might be hot when the product is operating.

---

1. Open the right door and lower right door and clear the jam in the indicated area. Inspect the paper path and make sure no paper blocking the paper path.
2. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
3. Test TOP sensor/Registration Sensor (SR20) using the manual sensor test under the following:

[Administration](#)

[Troubleshooting](#)

[Diagnostic Test](#)

[Manual Sensor Test](#)

If sensor fails, replace the Registration density (RD) sensor Assembly.

4. If the sensor is functioning properly, run a few pages to check where the leading edge of the paper actually stops.
5. Check the area where the leading edge of the paper has stopped for blockage or damage. Remove any obstructions that are found.
6. If the sensor has failed, or the assembly is damaged, replace the Registration density (RD) sensor Assembly or other appropriate assembly.

### 13.B2.FF Paper Jam

#### Description

Residual paper jam in the registration area.

This jam occurs when residual paper is detected at the registration sensor (SR2501) at power on.

**Recommended action**

1. Open the right door and clear the jam in the indicated area. Inspect the paper path and make sure no paper is blocking the paper path.
2. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
3. Test TOP sensor/Registration Sensor (SR20) using the manual sensor test under the [Administration-Troubleshooting-Diagnostic Tests](#) menu to verify that the sensor is functioning properly.

If sensor fails, replace sensor.

**13.B9.Az Fuser Jam**

**Description**

Fuser delivery stay.

This jam occurs when the fuser delivery sensor (SR5) does not detect the trailing edge of the paper within a specified period of time from when the sensor detected the leading edge.

This jam code might be caused by:

- An accordion jam at the fuser exit, something blocking the paper before the output rollers.
- The output bin rollers not turning, there is very little distance from the fuser exit and the output bin
- A sticky fuser exit flag, if it stuck or even delayed momentarily in the activated position.
- Issues with the duplexer — Error occurs only on Duplex jobs, Simplex jobs will print OK.

**MFP ONLY:**

The IPTU stalled, but would have to make the next sensor or you would get a late to that sensor jam first.

The rollers would either stop or slow to the point that the timing is off for exiting the fuser sensor.

Z = Fuser Mode

- **13.B9.A1**  
The fuser is printing in Auto-Sense mode Normal.
- **13.B9.A2**  
The fuser is printing in fuser mode Normal.
- **13.B9.A3**  
The fuser is printing in fuser mode Light 1 or Light 2.
- **13.B9.A4**  
The fuser is printing in fuser mode Heavy 1.
- **13.B9.A5**  
The fuser is printing in fuser mode Heavy 2.

- **13.B9.A6**  
The fuser is printing in fuser mode Heavy 3.
- **13.B9.A7**  
The fuser is printing in fuser mode Glossy media 1.
- **13.B9.A8**  
The fuser is printing in fuser mode Glossy media 2
- **13.B9.A9**  
The fuser is printing in fuser mode Glossy media 3.
- **13.B9.AB**  
The fuser is printing in fuser mode Transparency.
- **13.B9.AC**  
The fuser is printing in fuser mode Label.
- **13.B9.AD**  
The fuser is printing in fuser mode Envelope 1 or Envelope 2.

**Recommended action**

---

 **CAUTION:** Use caution when handling the fuser. The fuser might be hot when the product is operating.

---

1. Open the right door, and then clear any jammed paper.
2. Make sure that the paper meets HP specifications.
3. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
4. Remove the fuser, and then clear any jammed paper.
5. Verify there is no debris from a previous jam stuck in the fuser or rollers leading into or exiting the fuser.
6. Verify that the fuser exit flag (SR 5) moves freely and is not damaged.
7. Confirm the output bin rollers are turning.
8. Open the IPTU and inspect it for damage and debris.
9. Run the sensor test and confirm the fuser exit flag is functioning properly.
10. Replace the fuser.

**13.B9.Az Jam when Duplexing ONLY**

Simplex jobs print OK. Paper stops after exiting the fuser and during entry into the duplex paper path.

1. Remove any jammed paper from the device.
2. If the error persists, run the paper-path sensors test and verify the failure.

3. If the issue persists, replace the duplex registration assembly kit
4. If the issue persists, replace the delivery assembly
5. If the issue persists, replace DC controller PCA assembly

### 13.B9.Bz Jam in right door

#### Description

This jam occurs when a near complete overlap (less than 5 to 15 mm of non-overlap) multi-feed jam is detected.

- **13.B9.B1**  
Multi-Feed jam is detected when printing from Tray 1.
- **13.B9.B2**  
Multi-Feed jam is detected when printing from Tray 2.
- **13.B9.B3**  
Multi-Feed jam is detected when printing from Tray 3.
- **13.B9.B4**  
Multi-Feed jam is detected when printing from Tray 4.
- **13.B9.B5**  
Multi-Feed jam is detected when printing from Tray 5.

#### Recommended action

1. Remove any jammed paper from the device.
2. Make sure paper meets HP specifications and is loaded in trays correctly.
3. Make sure that the tray width and length guides are set to the correct paper size being installed into the tray and that the tray is not over filled above fill mark on tray.
4. Verify that the tray pickup, feed, and separation rollers are correctly installed and that they are not worn or damaged.
5. Clean or replace the pickup/feed rollers as needed

### 13.B9.Cz Fuser Wrap Jam

#### Description

This jam occurs when the paper disappears from the fuser output sensor (SR5) before a designated amount of time after the paper reached the fuser output sensor (SR5)

(It is determined that the paper is being wrapped around the fuser roller)

Z = Fuser Mode

- **13.B9.C1**

The fuser is printing in Auto-Sense mode Normal.

- **13.B9.C2**

The fuser is printing in fuser mode Normal.

- **13.B9.C3**

The fuser is printing in fuser mode Light 1 or Light 2.

- **13.B9.C4**

The fuser is printing in fuser mode Heavy 1.

- **13.B9.C5**

The fuser is printing in fuser mode Heavy 2.

- **13.B9.C6**

The fuser is printing in fuser mode Heavy 3.

- **13.B9.C7**

The fuser is printing in fuser mode Glossy media 1.

- **13.B9.C8**

The fuser is printing in fuser mode Glossy media 2.

- **13.B9.C9**

The fuser is printing in fuser mode Glossy media 3.

- **13.B9.CB**

The fuser is printing in fuser mode Transparency.

- **13.B9.CC**


The fuser is printing in fuser mode Label.

- **13.B9.CD**

The fuser is printing in fuser mode Envelope 1 or Envelope 2.

**Recommended action**

---

 **CAUTION:** Use caution when handling the fuser. The fuser might be hot when the product is operating.

---

1. Remove the fuser, and then remove any paper wrapped around the fuser roller.
2. Replace the fuser, and then close the door.
3. Perform a cleaning page procedure to make sure that all of the toner is removed from the fuser roller.
4. Use the manual sensor tests to toggle the fuser output sensor (SR5). If the sensor is not functioning properly, replace the fuser assembly.
5. If the error persists, the fuser roller or pressure roller might be damaged. Replace the fuser.



### 13.B9.Dz Jam in right door

#### Description

Fuser delivery delay jam.

This jam occurs when the paper does not reach the fuser output sensor (SR5) in designated amount of time after the Registration sensor (SR20) sensed the leading edge when printing.

Z = Tray Printing from.

- **13.B9.D1**  
Fuser delivery delay jam when printing from Tray 1.
- **13.B9.D2**  
Fuser delivery delay jam when printing from Tray 2.
- **13.B9.D3**  
Fuser delivery delay jam when printing from Tray 3.
- **13.B9.D4**  
Fuser delivery delay jam when printing from Tray 4.
- **13.B9.D5**  
Fuser delivery delay jam when printing from Tray 5.
- **13.B9.DD**  
Fuser delivery delay jam when printing from Duplexer.

#### Recommended action

1. Open right door and clear the jam in the indicated area.
2. Close the door so that the product attempts to clear the paper path.
3. Verify where the leading edge of the paper is when Jam occurs.

#### Paper stopped before fuser:

1. Thoroughly check the duplex paper path and the ITB/Transfer area for issues with rollers, jammed paper or any potential obstructions that might be causing the jam.
2. Close the door so that the product attempts to clear the paper path.
3. Verify where the leading edge of the paper is when the jam occurs.
4. Verify that the transfer roller is seated properly and not worn or deformed. Replaced it if necessary.
5. Inspect the transfer feed assembly for debris or damage. Replace the secondary transfer assembly.

#### Paper stopped in or at fuser

---

 **CAUTION:** Use caution when handling the fuser. The fuser might be hot when the product is operating.

---

1. Remove the fuser and inspect the fuser sleeve, pressure roller and delivery roller for blockage and/or damage. Replace fuser as needed.
2. Test fuser delivery sensor (SR5) using the Tray/bin manual sensor test in the [Administration, Troubleshooting, Diagnostic Tests](#) menu to verify that the sensor is functioning properly. If the sensor fails the test, replace the fuser.
3. Run the Fuser motor drive test under the [Administration, Troubleshooting, Diagnostic Tests, Component Test](#) menu to verify that the fuser drive and gears are functioning properly. If they are not, replace the fuser drive assembly.

### 13.B9.FF Jam in right door

#### Description

Residual paper jam fuser output sensor.

This jam occurs when residual paper is detected at the fuser output sensor (SR35) at power on.

#### Recommended action

1. Open right door and clear the jam in the indicated area.
2. Close the door so that the product attempts to clear the paper path.
3. Test Fuser Delivery sensor (SR5) using the Tray/Bin manual sensor test in the [Administration, Troubleshooting, Diagnostic Tests](#) menu to verify that the sensor is functioning properly, replace fuser if the sensor fails the test.

### 13.BA.EE Front Door Open

#### Description

Front door open jam. The front door was opened while there was a piece of paper in the path.

#### Recommended action

1. Did the customer open the front door during printer? If yes, then the 13.BA.EE is the expected behavior if paper is in the path.
2. Keep paper path closed while printing.
3. If the customer did not open the door, then use manual sensor test to see if the door switch or wiring to SW 5 is intermittent.

Replace the switch or DCC as needed as indicated by the manual sensor test.

### 13.BB.EE Right Door Open

#### Description

Right door open jam - the right door was opened while there was a piece of paper in the path.

### Recommended action

1. Did the customer open the right door during printing? If yes, then the 13.BB.EE is the expected behavior if paper is in the path.
2. Keep paper path closed while printing.
3. If the customer did not open the door, then use manual sensor test to see if the door switch or wiring to SW 6 is intermittent. The switch is connected to DCC at J147.

Replace the switch or DCC as needed as indicated by the manual sensor test.

### 13.D1.Az Jam in Right Door

#### Description

This jam occurs when the paper stays at the duplex switchback sensor (SR22) for designated amount of time after it has reached the duplex switchback sensor (SR22).

Z = Fuser Mode

- **13.D1.A1**  
The fuser is printing in Auto-Sense mode Normal.
- **13.D1.A2**  
The fuser is printing in fuser mode Normal.
- **13.D1.A3**  
The fuser is printing in fuser mode Light 1 or Light 2.
- **13.D1.A4**  
The fuser is printing in fuser mode Heavy 1.
- **13.D1.A5**  
The fuser is printing in fuser mode Heavy 2.
- **13.D1.A6**  
The fuser is printing in fuser mode Heavy 3.
- **13.D1.A7**  
The fuser is printing in fuser mode Glossy media 1.
- **13.D1.A8**  
The fuser is printing in fuser mode Glossy media 2.
- **13.D1.A9**  
The fuser is printing in fuser mode Glossy media 3.
- **13.D1.AB**  
The fuser is printing in fuser mode Transparency.
- **13.D1.AC**

The fuser is printing in fuser mode Label.

- **13.D1.AD**

The fuser is printing in fuser mode Envelope 1 or Envelope 2.

**Recommended action**

1. Follow the onscreen instructions to locate and remove the paper or obstruction.
2. Make sure the type and quality of the paper meets HP specifications for duplexing.
3. Check to make sure the duplex motor reverse and reefed motor functions properly.

**Duplexer reverse-motor test** [Administration](#) / [Troubleshooting](#) / [Diagnostic Test](#)

Duplexing reverse-motor test, Activates the duplexing reverse motor for 10 seconds.

4. If Motor tests passes, Check the following sensors SR 14, SR15 and SR22 using the sensor tests.
5. If sensor test still fails, the sensor may be defective Replace the sensor or the sensor assembly.
6. If this error is present after a previous service on the product, check connectors J145, and J202 for proper seating and connection.
7. Replace the right door assembly.

### **13.D1.Dz Jam in Right Door**

**Description**

This jam occurs when the paper does not reach the duplex switchback sensor (SR22) in designated amount of time after the fuser output sensor (SR5) detected the leading edge.

Z = Fuser Mode

- **13.D1.D1**

The fuser is printing in Auto-Sense mode Normal.

- **13.D1.D2**

The fuser is printing in fuser mode Normal.

- **13.D1.D3**

The fuser is printing in fuser mode Light 1 or Light 2

- **13.D1.D4**

The fuser is printing in fuser mode Heavy 1.

- **13.D1.D5**

The fuser is printing in fuser mode Heavy 2.

- **13.D1.D6**

The fuser is printing in fuser mode Heavy 3.

- **13.D1.D7**

- The fuser is printing in fuser mode Glossy media 1.

  - **13.D1.D8**

The fuser is printing in fuser mode Glossy media 2.

  - **13.D1.D9**

The fuser is printing in fuser mode Glossy media 3.

  - **13.D1.DB**

The fuser is printing in fuser mode Transparency.

  - **13.D1.DC**

The fuser is printing in fuser mode Label.

  - **13.D1.DD**

The fuser is printing in fuser mode Envelope 1 or Envelope 2.

**Recommended action**

1. Follow the onscreen instructions to locate and remove the paper or obstruction.
2. Make sure the type and quality of the paper meets HP specifications for duplexing.
3. Determine where the leading and trailing edge of the paper is during the error state.
  - Has it exited the Fuser?
    - Check the event log to find if there are paper jams related fuser wrap jam.
    - Check the life of the fuser unit.
    - Replace fuser unit as needed.
  - Stuck in diverter assembly?
    - Check right door assembly for blockage.
    - Check sensor in right door assembly using sensor test.
    - If faulty or damaged right door, replace the right-door subassembly.
  - Stopped at input of Duplexer?
    - Check to make sure the duplex motor reverse and refeed motor function properly.
    - Duplexer reverse-motor test**[Administration / Troubleshooting / Diagnostic Test](#).
    - Duplexing reverse-motor test, activates the duplexing reverse motor for 10 seconds.
    - Replace the duplexing drive unit.

**13.D1.FF Jam in Right Door**

**Description**

This jam occurs when residual paper is detected at the duplex switchback sensor (SR22) at power on.

**Recommended action**

1. Follow the on screen instructions to locate and remove the paper or obstruction.
2. Test duplexer sensor SR22.
3. Replace the sensor or the assembly containing the sensor.

**13.E2.DZ or 13.E5.DZ or 13.E5.AZ or 13.E2.CZ****Description**

A jam has occurred in the IPTU.

- 13.E2.DZ: Late to IPTU feed jam.

The paper has triggered the fuser output SR5 but IPTU feed SR27 has not been triggered.

- 13.E5.DZ: Late to IPTU feed jam.

The paper IPTU feed SR27 has IPTU bin full SR26 has not been triggered.

- 13.E5.AZ: Stopped at IPTU feed jam.

The paper stays at IPTU feed SR27.

- 13.E2.CZ: IPTU wrap jam.

This jam occurs when the paper leaves the IPTU feed SR27 before the designated amount of time after it has reached the IPTU feed SR27.

**Recommended action**

1. Open the top cover below the control panel.
2. Remove all paper found, and then close the top cover.

**20.XX.YY and 21.XX.YY****20.00.00 Insufficient memory <device>****Description**

Event log message 20.00.00.

The product does not have enough memory to print the page.

The product received more data than can fit in the available memory. You might have tried to transfer too many macros, soft fonts, or complex graphics.

**Recommended action**

Touch the **OK** button to print the transferred data. Some data might be lost. Reduce the page complexity or add product memory.

**21.00.00 Page Too Complex Event log error message 21.00.00.****Description**

The product displays this message to indicate that the page decompression process was too slow for the product.

### **Recommended action**

Touch the **OK** button to continue. There may be some data loss on the page that was being formatted when the error occurred.

## **30.XX.YZ Error Messages**

### **M680 product only**

#### **30.01.01**

##### **Description**

The flatbed cover sensor was interrupted.

The scanner flatbed cover is open.

Message appears only in the event log and is not posted on the control panel.

The control panel will read **Flatbed Cover Open**.

##### **Recommended action**

No action required.

This error message should automatically clear.

If the error persists, open the scanner tests to test the flatbed cover sensor.

1. If the cover is closed, check the cover sensor at the right rear of the scanner for correct mechanical functionality, using the scanner sensor test in the [Administration / Troubleshooting / Diagnostics / ScannerTests](#) Menu.
2. Check the connectors on the scanner control board (SCB) for loose connections.
3. Replace the lid-sensor assembly.
4. Replace the scanner control board (SCB).
5. Replace the image scanner assembly.

#### **30.01.02 Scanner calibration failure**

##### **Description**

The scanner calibration failed.

##### **Recommended action**

1. Turn the product off, and then on again.
2. After the product warms up, repeat the calibration process.
3. If the error persists, replace the image scanner assembly (ISA).

#### **30.01.06 Scanner Fan failure**

##### **Description**

A scan control board fan error has occurred.

The Copy, Fax and Send options will be grayed out or not present on the control panel and message will be posted in Event log.

**Recommended action**

1. Turn the product off, and then on again.
2. During the scanner assembly initialization sequence, listen to the fan to determine if it is operating.
3. If the error persists, turn the product off and then check the fan wire-harness connectors
4. If the error persists, replace the scan control board (SCB)
5. Replace the image scanner assembly (ISA)

**30.01.08 Home position error**

**Description**

The scanner optic failed to return to the home position.

**Recommended action**

1. Turn the product off, and then on again.
2. Observe the movement of the optics assembly.
3. If the error persists, run the scanner motor test under component test. [Administration / Troubleshooting / Scanner tests / Flatbed motor test](#).
4. If issue still remains and firmware has been upgraded replace scanner control board (SCB).
5. If the error persists, replace the image scanner assembly (ISA).

**30.01.14 Scan system EEPROM error**

**Description**

Scanner control board (SCB) EEPROM error.

**Recommended action**

1. Turn the product off, and then on again.
2. Make sure all connectors on the scanner control board (SCB) are seated fully.
3. Make sure the product has the latest scanner control board (SCB) firmware version.
4. Replace the scanner control board (SCB).

**30.01.15 Scanner error**

**Description**

Scanner did not initialize (internal error).

The scanner failed to be initialized due to an internal error.



**Recommended action**

1. Turn the product off, and then on again.
2. Make sure that all covers are installed correctly and that the document feeder and document feeder jam cover are closed.
3. Check all sensors on the scanner to make sure they are not blocked.
4. Look through the vents on back of scanner to see if the GREEN LEDs on the scanner control board (SCB) are illuminated.
5. Check all connections for scanner control board (SCB) to print engine.
6. Replace the scanner control board (SCB).

**30.01.18 Scanner Error****Description**

Scanner internal optical sensor error.

**Recommended action**

1. Turn the product off, and then on again.
2. Make sure that all the connectors on the scanner control board (SCB) are seated fully.
3. Make sure that the product has the latest scanner control board (SCB) firmware version.
4. Replace the scanner control board (SCB).
5. If the error persists, replace the image scanner assembly (ISA).

**30.01.19 Scanner lamp error****Description**

Scanner internal lamp sensor error.

**Recommended action**

1. Turn the product off, and then on again.
2. Verify that the scanner lamp turns on and off approximately 12 seconds after the product is turned on.
3. Test the lower lamp using the scanner test located in the [Diagnostics menu](#).
4. Re-seat the interconnect cables between the optical carriage and the scanner control board (SCB).
5. Replace the image scanner assembly (ISA).

**30.01.30 or 30.01.32****Description**

HP image ASIC error.

**Recommended action**

1. Turn the product off, and then on again.
2. Check the connections on the scanner control board (SCB).
3. Replace the scanner control board (SCB).

**30.01.36 Upgrade Error try downloading upgrade again****Description**

Scanner firmware upgrade error.

**Recommended action**

1. Re-send the scanner firmware upgrade.
2. If the error persists, replace the scanner control board (SCB).

**30.01.41 Scanner error****Description**

The formatter lost connections with the scanner control board (SCB) or communication was corrupted.

**Recommended action**

1. Turn the product off, and then on.
2. Remove and then re-seat the formatter.
3. Upgrade the firmware.
4. Verify that all cables are connected to the product and to the interconnect board, and scanner control board (SCB).
5. Verify that the scanner control board (SCB) has power.
6. Replace the scanner control board (SCB).
7. Replace the formatter.

**30.01.42 Scanner error****Description**

Internal product communication error.

**Recommended action**

1. Turn the product off, and then on again.
2. If the error persists, turn the product off, and then check the scanner control board (SCB) connectors.
3. If this error occurs after a formatter, fax card or hard disk has been replaced, check that the formatter is fully seated and the connectivity LED (smile face icon on the formatter) is illuminated. Check the fax card for proper seating on the formatter. (If fax card is not properly seated it can prevent the formatter from seating properly in the product..)
4. If the error persists, replace the scanner control board (SCB).

### 30.01.43 Scanner memory failure

#### **Description**

Scan memory error.

#### **Recommended action**

1. Turn the product off, and then on again.
2. If the error persists, turn the product off, and then re-seat the formatter.
3. If the error persists, replace the formatter.

### 30.01.44

#### **Description**

Copy processor board (CPB)/Scanner control board (SCB) communication error.

#### **Recommended action**

1. Turn the product off, and then on again.
2. If the error persists, turn the product off, and then check the scanner cable.
3. Upgrade the firmware.
4. If the error persists, turn the product off, and then re-seat the formatter.
5. If the error persists, replace the scanner control board (SCB) or the formatter.

### 30.01.45

#### **Description**

Internal Copy processor board (CPB) communication error.

CPB code assertion error for the copy processor board firmware.

#### **Recommended action**

1. Turn the product off, and then on again.
2. If the error persists, turn the product off, and then remove and then re-seat the formatter.
3. Upgrade the firmware.
4. If the error persists, replace the scanner control board (SCB).
5. If the error persists, replace the formatter.

### 30.01.46 Scanner Error

#### **Description**

The firmware cannot find the copy processor board.

**Recommended action**

1. Turn the product off, and then on again.
2. If the error persists, turn the product off, and then remove and then re-seat the formatter.
3. If the error persists, replace the scanner control board (SCB).

**30.01.48 Scanner error****Description**

Scanner error.

Scanner power is not connected.

**Recommended action**

1. Turn the product off, and then on again.
2. If the error persists, turn the product off, and then check the scanner wire-harness connectors and the scanner power supply fan.
3. If the error persists, replace image scanner assembly.

**30.01.50 Scanner error****Description**

Internal scanner control board (SCB) error.

**Recommended action**

1. Turn the product off, and then on again.
2. Upgrade the firmware.
3. If the error persists, replace the scanner control board (SCB).

**30.03.14****Description**

A non-fatal error has occurred.

A scanner EEPROM (NVM) error has occurred.

**Recommended action**

No action required.

**30.03.20****Description**

The copy processor board firmware cannot communicate with the PCA on the optical assembly.

**Recommended action**

1. Turn the product off, and then on again.
2. Verify that the FFCs between scanner and the scanner control board (SCB) are connected.
3. Replace the image scanner assembly.

**30.03.22 Scanner failure****Description**

Front side illumination calibration failure.

The scan module cannot see the illumination module, or marginal illumination.

The optical assembly may not be parked under the calibration strip.

**Recommended action**

1. Turn the product off, and then on again.
2. Upgrade the firmware.
3. Check the event log for other scanner errors, and then resolve those errors.
4. Check the scan module FFC connection.
5. Replace the image scanner assembly.

**30.03.23 Scanner failure****Description**

Flatbed alignment calibration error.

**Recommended action**

1. Turn the product off, and then on again.
2. Upgrade the firmware.
3. Replace the image scanner assembly.

**30.03.30 Scanner Failure****Description**

Flatbed motor shutdown.

The scanner control board (SCB) cannot communicate with the flatbed scanner motor.

**Recommended action**

1. Turn the product off, and then on again. As the product turns on, verify that the scan head moves.
2. Verify that the drive belt is in the correct position.
3. Run diagnostics on the flatbed scanner to see if the scan bar moves.

4. Check the cable connection to the scanner control board (SCB).
5. Replace the scanner.

### 30.03.45 Scanner Error To continue turn off then on

#### Description

Scanner control board (SCB) firmware assertion failure. SCB firmware assert controls the scan head motor.

#### Recommended action

1. Turn the product off, and then on again.
2. Upgrade the firmware.
3. Replace the scanner control board (SCB).
4. Replace the image scanner assembly.

### 31.XX.YZ Error Messages



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**NOTE:** M680 product only.

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### 31.01.03 Document feeder pick error

#### Description

The document feeder cannot pick up paper.

#### Recommended action

1. Verify that the paper meets the product specifications.
2. Make sure that the input tray is not overloaded and the tray guides are properly aligned to both edges of the paper.
3. Check and clean the rollers and separation pad, and test the registration sensor. If needed, replace pickup roller assembly, separation pad.
4. Open and close the top cover to see if the pick motor turns without posting this error. If the motor turns, then the motor is good.
5. Verify that the motor cables are connected.
6. Verify that the document feeder to scanner control board (SCB) connector is fully seated.
7. Replace the document feeder.

### 31.01.47 Document feeder not detected

#### Description

The document feeder was not detected, the document feeder might not be connected. The flatbed glass is still available for scanning.

**Recommended action**

1. Turn the product off and then on.
2. If error persists, replace document feeder.



**NOTE:** Before replacing the document feeder, technicians should verify that the connections between the document feeder and the product are fully seated.

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**31.03.14****Description**

Backside scanner EEPROM (NVM) error.

A non-fatal error has occurred.

**Recommended action**

No action required.

**31.03.20 backside scanner not detected****Description**

Backside scanner not detected.

**Recommended action**

1. Turn the product off, and then on.
2. Verify the cables between scanner and scanner control board (SCB) are connected.
3. Replace the document feeder assembly.

**31.03.22 Scanner calibration failure****Description**

Backside illumination calibration failure.

**Recommended action**

1. Turn the product off, and then on.
2. Upgrade the firmware.
3. Verify the cables between scanner and scanner control board (SCB) are connected.
4. Replace the document feeder assembly.

**31.03.30 Document feeder pick motor error****Description**

The document feeder pick motor is not turning.

**Recommended action**

1. Verify that the paper meets the product specifications.
2. Make sure that the input tray is not overloaded and the tray guides are properly aligned to both edges of the paper.
3. Check the event log for document feeder errors, and then resolve any errors first.
4. Open and close the top cover to see if the pick motor turns without posting this error. If the motor turns, then the motor is good.
5. Verify that the motor cables are connected.
6. Re-seat the document feeder to the scanner control board (SCB).
7. Replace the document feeder.

**31.03.31 Document feeder motor stall****Description**

The document feeder feed motor is not turning.

**Recommended action**

1. Verify that the paper meets the product specifications.
2. Make sure that the input tray is not overloaded and the tray guides are properly aligned to both edges of the paper.
3. Check the event log for document feeder errors, and then resolve those errors first.
4. Verify that the motor cables are connected.
5. Re-seat the document feeder to the scanner control board (SCB).
6. Replace the document feeder assembly.

**31.03.32****Description**

The document feeder de-skew motor is not turning.

**Recommended action**

1. Verify that the paper meets the product specifications.
2. Make sure that the input tray is not overloaded.
3. Check the event log for document feeder errors, and then resolve any errors first.
4. Verify that the motor cables are connected.
5. Re-seat the document feeder to scanner control board (SCB) cables.
6. Replace the document feeder assembly.



### 31.03.33 Backside scanner calibration area dirty

#### Description

The white area used for backside scanner calibration is dirty.

#### Recommended action

1. Remove the white backing and clean it.
2. Clean the backside scanner glass.
3. If issue remains replace the document feeder assembly.

### 31.03.34 Background missing

#### Description

The removable white backing for the backside scanner is either missing or not fully snapped into place.

#### Recommended action

1. Remove the white backing and clean it.
2. Clean the backside scanner glass.
3. If issue remains replace the document feeder assembly.

No action necessary.

### 31.13.00 Document feeder multi-pick error

#### Description

A multiple pick error was reported by the document feeder assembly.

#### Recommended action

1. Open the document feeder cover, pull all the sheets back into the tray and then resume the job.
2. Verify that the paper meets the product specifications.
3. Make sure that the input tray is not overloaded and the tray guides are properly aligned to both edges of the paper.
4. Check and clean the rollers and separation pad, and test the registration sensor. If needed, replace pickup roller assembly, separation pad.
5. Verify that the motor cables are connected.
6. Re-seat the document feeder to the scanner control board (SCB).
7. Replace the document feeder.

### 31.13.01

#### Description

document feeder job error, pick error.

Paper pick was initiated, but the page didn't did not make it to the pick success sensor.

**Recommended action**

1. Open the document feeder lid, pull sheets back into input tray, and then resume the job.
2. Check the paper guides and make sure that they are set to the correct paper width.
3. Make sure that the input tray is not overloaded and the tray guides are properly aligned to both edges of the paper.
4. Check the document feeder page count for roller life.
5. Verify that the paper meets the product specifications.
6. Clean the document feeder pick and feeder rollers and clean separation pad, if worn or damage replace roller kit.
7. Open the following menus:
  - [Administration](#)
  - [Troubleshooting](#)
  - [Diagnostic Tests](#)
  - [Scanner Tests](#)
8. Actuate the pick-success sensor. If the sensor does not show functionality when tested, replace the document feeder.
9. If sensor is not available for replacement or does not resolve issue, replace the document feeder assembly.

**31.13.02****Description**

Document feeder job error, feed jam.

The paper passed the pick success sensor, and then jammed in the document feeder paper path.

**Recommended action**

1. Clear the paper path and try feeding the page again.
2. Verify that the paper meets the product specifications.
3. Check the paper guides and make sure that they are set to the correct paper width.
4. Verify that the paper path is clear.
5. Clean the document feeder pick and feeder rollers and clean Separation pad. If worn or damage replace roller kit.
6. Open the following menus:
  - [Administration](#)
  - [Troubleshooting](#)

- [Diagnostic Tests](#)
  - [Scanner Tests](#)
7. Actuate the pick-success sensor. If the sensor does not show functionality when tested, replace the document feeder.
  8. If sensor is not available for replacement or does not resolve issue replace the document feeder assembly.

### 31.13.13

#### **Description**

The document feeder jam access door is open.

#### **Recommended action**

1. Verify that the jam access cover is closed.
2. Verify that the flag is not broken off.
3. Open the following menus:
  - [Administration](#)
  - [Troubleshooting](#)
  - [Diagnostic Tests](#)
  - [Scanner Tests](#)
4. Actuate the pick-success sensor. If the sensor does not show functionality when tested, replace the document feeder.
5. If the sensor is not available for replacement or does not resolve issue replace the document feeder assembly.

### 31.13.14

#### **Description**

Document feeder job error: over current.

This is a feed jam in the document feeder, and the motor is not turning.

#### **Recommended action**

1. Verify that the paper meets the product specifications.
2. Make sure that the document feeder input tray is not overloaded.
3. Check the event log for document feeder errors, and then resolve those errors first.
4. Open and close the top cover to see if the pick motor turns without posting this error. If there is no error, then the motor is good.
5. Verify that the motor cables are connected.

6. Re-seat the document feeder to the scanner control board (SCB).
7. Replace the document feeder.

### 31.13.15

#### Description

This is a duplex re-feed jam in the document feeder.

The paper jam occurs on the back-side copy. The duplex re-feed does not make it to the deskew sensor.

#### Recommended action

1. Remove the jammed paper.
2. Verify that there is nothing in the paper path of the duplex refeed area.
3. Retry the copy job.
4. Replace the document feeder assembly.

### 32.08.XX Error Messages

#### 32.08.A1, 32.08.A2, 32.08.A3

#### Description

##### 32.08.A1 (event code)

Shutdown event-boot after abnormal shutdown.

##### 32.08.A2 (event code)

Boot from normal shutdown event.

##### 32.08.A3 (event code)

Regular boot event.

#### Recommended action

No action necessary.

### 32.1C.XX

#### Description

##### 32.1C.05 (event code)

The restore job ticket was submitted with invalid credentials.

##### 32.1C.06 (event code)

The backup job ticket was submitted with invalid credentials.

##### 32.1C.07 (event code)

Backup restore permissions error.

There was an error during the creation, read, or write of the restore file.

**32.1C.08** (event code)

Not enough disk space to perform backup/restore or network share issue.

There was an error during the creation, read, or write of the backup file.

**32.1C.09** (event code)

Tried to restore a backup file that was not valid for this product.

The data in the backup file specified in the restore job ticket is no longer valid due to a corruption of the data or no longer present.

**32.1C.0A** (event code)

Backup file is invalid

The data in the backup file specified in the restore job ticket is no longer valid due to a corruption of the data or no longer present.

**32.1C.0D** (event code)

Backup/restore failed, auto-reboot failed, or the product might be busy.

**32.1C.11** (event code)

Backup/restore timeout while communicating with the engine.

The backup was aborted because the product is busy.

**32.1C.13** (event code) and **32.1C.14** (event code)

Not enough space exists to perform the backup.

The backup was aborted because the disk is at a critical level or full.

Scheduled backup failure.

**32.1C.15** (event code)

Restore aborted because the backup file was created by a previous version of firmware no longer supported by the feature.

**32.1C.2E** (event code)

The restore was aborted because the product is busy.

**32.1C.2F** (event code)

Reset failure.

**32.1C.40** (event code)

The backup operation completed successfully (informational).

**32.1C.41** (event code)

The backup operation encountered an error (informational).

**32.1C.42** (event code)

The backup operation completed, but with a warning message (informational).

**32.1C.43** (event code)

A component in the backup file is not supported by the current version of firmware and will not be restored (informational).

**32.1C.44** (event code)

A component in the backup file is not transferable to another product and will not be restored (informational).

**32.1C.45** (event code)

Some data was not included in the backup file (informational).

**32.1C.46** (event code)

An expected component could not be found and was thus not backed up. Because components should be known on backups, this code is a warning (informational).

**32.1C.47** (event code)

Some data was not restored from the backup file (informational).

**32.1C.48** (event code)

The backup job ticket was submitted using an invalid network path.

**32.1C.49** (event code)

The backup job ticket was submitted with a bad encryption.

**32.1C.4A** (event code)

An error occurred when creating the temporary directories used to store the backup files in transition to and from the compressed (ZIP) file.

**32.1C.56** (event code)

Reset aborted. Backup/restore in progress (informational).

**32.1C.57** (event code)

Reset aborted (informational).

**32.1C.58** (event code)

Unknown reset error (informational).

**32.1C.60** (event code)

The restore operation completed successfully (informational).

**32.1C.61** (event code)

The restore operation encountered an error.

**32.1C.62** (event code)

The restore operation completed, but with a warning message.

**32.1C.68** (event code)

The restore job ticket was submitted using an invalid network path.

**32.1C.69** (event code)

The restore job ticket was submitted with a bad encryption personal identification number (PIN).

**32.1C.6A** (event code)

An error occurred when creating the temporary directories used to store the restore files in transition to and from the compressed (ZIP) file.

**32.1C.6D** (event code)

An unusual error occurred when running the restore.

**Recommended action**

**32.1C.05** (event code)

Verify the credentials that were submitted. Check the domain, user name, and password.

**32.1C.06** (event code)

Verify the credentials that were submitted. Check the domain, user name, and password.

**32.1C.07** (event code)

Retry the job.

**32.1C.08** (event code)

- Retry the job.
- Remove stored jobs and retry.
- Use a larger capacity storage device.
- Check the network share.

Remove any stored jobs, and then retry.

If the error persists, try using a larger capacity storage device and check the network share settings.

**32.1C.09** (event code)

Use a valid backup file.

**32.1C.0A** (event code)

Use a valid backup file.

Reboot, and then observe the state of the product.

If the error persists, perform a partition clean from the **Preboot** menu.

**32.1C.0D** (event code)

Reboot, and then retry the backup/restore.

**32.1C.11** (event code)

Wait until the product is idle, and then try again.

**32.1C.13** (event code) and **32.1C.14** (event code)

Free up disk space, and then try again.

**32.1C.15** (event code)

- Use the current backup file.

**32.1C.2E** (event code)

Wait until the product is idle, and then try again.

Turn the product off then on, and then retry.

**32.1C.2F** (event code)

Turn the product off then on, and then retry.

**32.1C.40** (event code)

No action necessary.

**32.1C.41** (event code)

No action necessary.

**32.1C.42** (event code)

No action necessary.

**32.1C.43** (event code)

No action necessary.

**32.1C.44** (event code)

No action necessary.

**32.1C.45** (event code)

No action necessary.

**32.1C.46** (event code)

No action necessary.

**32.1C.47** (event code)

No action necessary.

**32.1C.48** (event code)

Check that a share was provided as part of the network path (not blank).

Check that the server and the share exists.

Check that the user has permission to access the share on the provided server.

**32.1C.49** (event code)

Verify that the encryption personal identification number (PIN) meets the restrictions for the product.



#### 32.1C.4A (event code)

Retry the job.

If this does not resolve the issue, turn the product off then on again and retry the job.

If the error persists, perform a **Partial Clean** using the **Preboot** menu.

#### 32.1C.56 (event code)

No action necessary.

#### 32.1C.57 (event code)

No action necessary.

#### 32.1C.58 (event code)

No action necessary.

#### 32.1C.60 (event code)

No action necessary.

#### 32.1C.61 (event code)

Review the error log to see specific details about the failure.

#### 32.1C.62 (event code)

Review the error log to see specific details about the failure.

#### 32.1C.68 (event code)

Check that a share was provided as part of the network path (not blank).

Check that the server and the share exist.

Check that the user has permission to access the share on the provided server.

Check that the path includes the compressed (ZIP) file name as part of the path.

#### 32.1C.69 (event code)

Verify the encryption personal identification number (PIN) is the same PIN used to encrypt the backup file.

#### 32.1C.6A (event code)

Retry the job.

#### 32.1C.6D (event code)

Retry the job.

### 33.XX.YZ Error Messages

#### 33.02.01 Used board/disk installed

##### Description

Used board disk installed.

An encrypted board or disk with existing data previously locked to a different product has replaced the original. If you continue, data is permanently lost.

**Recommended action**

1. Reinstall the used board or disk back into its original product.
2. To save the data on the board or disk, turn the product off. replace the board or disk with another board or disk.
3. To delete the data on the board or disk and continue, touch the **OK** button.

**33.03.03 Incompatible formatter installed.**

**Description**

This is and EFI BIOS event to prevent booting with the wrong formatter installed.

**Recommended action**

Turn the product off, and then install the correct formatter in the product.



**NOTE:** If it is believed that this formatter is the correct part number and model for this product, install a replacement formatter, and then return the formatter in question to HP for evaluation.

**33.03.XX**

**Description**

- 33.03.01: Save recover engine storage ID unexpected length.
- 33.03.02: Data size mismatch unable to recover DCC MVRAM.

**Recommended action**

Turn the product off, and then on again.

If the error persists, replace the image control board (ICB) and return to HP for evaluation.

**40.XX.YZ Error Messages**

**40.00.01 USB I/O buffer overflow To continue, touch “OK”**

**Description**

The USB buffer has overflowed.

**Recommended action**

1. Touch the **OK** button to print the transferred date (some data might be lost).
2. Check the host configuration.

**40.00.02 Embedded I/O buffer overflow To continue, touch “OK”**

**Description**

The product has experienced a JetDirect buffer overflow.

**Recommended action**

1. Touch the **OK** button to print the transferred data (some data might be lost).
2. Check the host configuration.

**40.00.03 EIO <X> buffer overflow To continue, touch “OK”****Description**

Too much data was sent to the EIO card in the specified slot (x). An incorrect communications protocol might be in use.

**Recommended action**

Touch the **OK** button to print the transferred data (some data might be lost).

**40.00.04 EIO <X> bad transmission To continue, touch “OK”****Description**

The connection between the product and the USB device has been broken.

**Recommended action**

1. Touch the **OK** button to clear the error message and continue printing.
2. Remove, and then reinstall the USB device.

**40.00.05 Embedded I/O bad transmission To continue, touch “OK”****Description**

The USB device has been removed.

**Recommended action**

1. Touch the **OK** button to clear the error message (data will be lost).
2. Install the USB device.

**40.08.0X USB storage accessory removed****Description**

X = 0 or ;1 information code.

Secure file erase is enabled.

**Recommended action**

No action necessary.

**40.0X.05 USB storage accessory removed****Description**

X = 1, 2, 3, 5, or 6; information code.

The USB storage accessory was removed.

## Recommended action

No action necessary.

## 41.XX.YZ Error Messages

### 41.01.YZ

#### Description

Event log error message: 41.01.YZ.

An unknown misprint error occurred on the product.

Y = Type, Z = Tray

- Y = 0: Photo Media (1, 2, or 3)
- Y = 1: Auto Sense (Normal)
- Y = 2: Normal (typed not from Auto Sense)
- Y = 3: Light media 1, 2, or 3 mode
- Y = 4: Heavy media 1
- Y = 5: Heavy media 2
- Y = 6: Heavy media 3
- Y = 7: Glossy media 1
- Y = 8: Glossy media 2
- Y = 9: Glossy media 3
- Y = A: Glossy film
- Y = B: OHT
- Y = C: Label
- Y = D: Envelope 1, 2, or 3 mode
- Y = E: Rough
- Y = F: Other mode
- Z = 0: From unknown tray
- Z = 1: From Tray 1
- Z = 2: From Tray 2
- Z = 3: From Tray 3
- Z = 4: From Tray 4
- Z = 5: From Tray 5
- Z = 6: From Tray 6

- Z = 7: From Tray 7
- Z = 8: From Tray 8
- Z = 9: From Tray 9
- Z = D: From duplex

**Recommended action**

1. Touch **OK** to clear the error.
2. If the error is not cleared, Turn the product off, and then on again.
3. If the error returns, check the wire harness from the laser scanner to the DC controller.
4. If the error persists, replace the affected laser/scanner.
5. Replace the DC controller.

**41.02.00**

**Description**

A beam detected misprint error.

**41.02.05** – Black station

**41.02.06** – Cyan station

**41.02.07** – Magenta station

**41.02.08** – Yellow station

**Recommended action**

1. To clear the error message, touch **OK**.
2. If the error persists, turn the product off, and then on again.
3. If the error returns, check the wire harness from the laser/scanners to the DC controller.
4. If the error continues, replace the affected laser/scanner

**41.03.FZ Unknown Misprint Error**

**Description**

This is a general misprint error. Either media is loaded off-center with the side guides in the tray or a media width sensor failure occurred from an unknown tray. The error will be one of the following:

- **41.03.F0**
- **41.03.F1**
- **41.03.F2**
- **41.03.F3**
- **41.03.F4**

- **41.03.F5**
- **41.03.FD**

**Recommended action**

1. Reload the tray, verifying that the guides in the tray are flush with the loaded media in the tray.
2. Try the print job again.

Watch the mechanism to see if it is functioning correctly. If the linkage is broken, replace the paper tray.

3. If the error persists, print a Configuration Page and note the paper size for the tray in question.
  - If the size is not reported correctly, run the tray size sensor test in the **Diagnostic** menu.
  - If the tray size sensors test as **GOOD**, replace the paper tray.
  - If the tray size sensors test as **BAD**, check the cable connections between the tray size sensor and the DC Controller.

If the cable connections are plugged in correctly and the cables are not compromised, replace the correct component that contains the tray size sensing switches.

**41.03.YZ Unexpected size in envelope feeder To use another tray, touch "Options "**

**Description**

The product detected a different paper size than expected.

Y = Type, Z = Tray

- Y = 0 Size mismatch. Detected media is longer or shorter than expected.
- Y = A Size mismatch. Detected media too long.
- Y = B Size mismatch. Detected media too short.
- Y = C Size mismatch. Inter-page gap error.
- Z = D Source is the duplexer.
- Z = E Source is the envelope feeder.
- Z = 2 Source is Tray 2.
- Z = 3 Source is Tray 3.
- Z = 4 Source is Tray 4.
- Z = 5 Source is Tray 5.

**Recommended action**

1. Touch **OK** to use another tray.
2. Make sure that the tray is loaded with the correct paper size and that the sliding paper guides are correctly adjusted.
3. Use the Tray/Bin manual sensor test to verify that the cassette media switch is correctly functioning.
4. Check all connections from DC controller to lifting drive assembly.

5. Reconnect the connectors for the media sensor, intermediate-transfer belt, and the DC controller PCA.
6. If the error persists, replace lifter assembly.

#### 41.03.YZ Unexpected size in tray <X>

##### Description

The product detected a different paper size than expected.

Y = Type, Z = Tray

- Y = 0 Size mismatch. Detected media is longer or shorter than expected.
- Y = A Size mismatch. Detected media too long.
- Y = B Size mismatch. Detected media too short.
- Y = C Size mismatch. Inter-page gap error.
- Z = D Source is the duplexer.
- Z = E Source is the envelope feeder.
- Z = 1 Source is Tray 1.
- Z = 2 Source is Tray 2.
- Z = 3 Source is Tray 3.
- Z = 4 Source is Tray 4.
- Z = 5 Source is Tray 5.

##### Recommended action

1. Touch **OK** to use another tray.
2. Make sure that the tray is loaded with the correct paper size and that the sliding paper guides are correctly adjusted.
3. Use the Tray/Bin manual sensor test to verify that the cassette media switch is correctly functioning.
4. Check all connections from DC Controller to lifting drive assembly.
5. Reconnect the connectors for the media sensor, intermediate-transfer belt, and the DC controller PCA.
6. If the error persists, replace lifter assembly.

#### 41.04.YZ Printer Error

##### Description

An unknown misprint error occurred on the product.

Y = Type, Z = Tray

- Y = 0: Photo Media (1, 2, or 3)
- Y = 1: Auto Sense (Normal)
- Y = 2: Normal (typed not from Auto Sense)

- Y = 3: Light media 1, 2, or 3 mode
- Y = 4: Heavy media 1
- Y = 5: Heavy media 2
- Y = 6: Heavy media 3
- Y = 7: Glossy media 1
- Y = 8: Glossy media 2
- Y = 9: Glossy media 3
- Y = A: Glossy film
- Y = B: OHT
- Y = C: Label
- Y = D: Envelope 1, 2, or 3 mode
- Y = E: Rough
- Y = F: Other mode
- Z = D Source is the duplexer.
- Z = 0 Source is the envelope feeder.
- Z = 1 Source is Tray 1.
- Z = 2 Source is Tray 2.
- Z = 3 Source is Tray 3.
- Z = 4 Source is Tray 4.
- Z = 5 Source is Tray 5.

**Recommended action**

1. Touch **OK** to clear the error .
2. If error does not clear, turn the product off, and then on again.
3. Swap out or re-seat each toner cartridge to test it.
4. Check the toner cartridges before replacing any other parts (HP original?, connectors, etc.).
5. Re-seat the connections to the laser/scanner and the DC controller.
6. If the error persists, replace the affected laser/scanner.
7. Replace the DC controller.

**41.05.YZ Unexpected type in tray <X>**

**Description**

The product can detect the type of paper in the paper path, and it adjusts the print mode accordingly.



The product uses two types of media sensors:

- **Reflection:** Detects the glossiness of the paper.
- **Transmission:** Detects the thickness of the paper.

Tray X is loaded with a media type (transparencies, envelopes, etc.) that is different than what they tray is configured to use.

Y = Expected type, Z = Detected type

- Y = 0: Photo Media (1, 2, or 3)
- Y = 1: Auto Sense (Normal)
- Y = 2: Normal (typed not from Auto Sense)
- Y = 3: Light media 1, 2, or 3 mode
- Y = 4: Heavy media 1
- Y = 5: Heavy media 2
- Y = 6: Heavy media 3
- Y = 7: Glossy media 1
- Y = 8: Glossy media 2
- Y = 9: Glossy media 3
- Y = A: Glossy film
- Y = B: OHT
- Y = C: Label
- Y = D: Envelope 1, 2, or 3 mode
- Y = E: Rough
- Y = F: Other mode
- Z = 0: Photo Media (1, 2, or 3)
- Z = 1: Auto Sense (Normal)
- Z = 2: Normal (typed not from Auto Sense)
- Z = 3: Light media 1, 2, or 3 mode
- Z = 4: Heavy media 1
- Z = 5: Heavy media 2
- Z = 6: Heavy media 3
- Z = 7: Glossy media 1
- Z = 8: Glossy media 2
- Z = 9: Glossy media 3

- Z = A: Glossy film
- Z = B: OHT
- Z = C: Label
- Z = D: Envelope 1, 2, or 3 mode
- Z = E: Rough
- Z = F: Other mode

**Recommended action**

1. Load the tray with the size and type of paper indicated, or use another tray if available.
2. If this message displays and the tray is loaded with the correct paper type, check the print driver settings to make sure they match the tray type settings.
3. Check all application and product settings to make sure that the **Type** setting is correct.

**41.07.YZ Error To continue, touch “OK”**

**Description**

A media transportation error has occurred. Optional input source delay.

Y= Media Type / Z= Tray

- Y = 0: Photo Media (1, 2, or 3)
- Y = 1: Auto Sense (Normal)
- Y = 2: Normal (typed not from Auto Sense)
- Y = 3: Light media 1, 2, or 3 mode
- Y = 4: Heavy media 1
- Y = 5: Heavy media 2
- Y = 6: Heavy media 3
- Y = 7: Glossy media 1
- Y = 8: Glossy media 2
- Y = 9: Glossy media 3
- Y = A: Glossy film
- Y = B: OHT
- Y = C: Label
- Y = D: Envelope 1, 2, or 3 mode
- Y = E: Rough
- Y = F: Other mode

- Z = 1 Source is Tray 1.
- Z = 2 Source is Tray 2.
- Z = 3 Source is Tray 3.
- Z = 4 Source is Tray 4.
- Z = 5 Source is Tray 5.
- Z = D Source is the duplexer.

**Recommended action**

1. Turn the product off and then on again.
2. Inspect the pick and feed rollers clean or replace as needed.
3. Check transport area for any damage of debris.

**41.XX.YZ Error To continue, touch “OK”**

**Description**

This section covers all other errors of the form 41.XX.YZ not covered in the previous sections.

A product error has occurred.

XX = error type

Y = fuser mode

Z = input tray

- XX = 02 Beam detect misprint
- XX = 08 Media transportation error
- XX = 09 Sub thermistor abnormally high
- XX = 10 Pickup failure.
- XX = 11 Illegal Duplex.
- XX = 18 Scan line inclination adjustment
- XX = 20 Image drum HV
- Y = 0: Photo Media (1, 2, or 3)
- Y = 1: Auto Sense (Normal)
- Y = 2: Normal (typed not from Auto Sense)
- Y = 3: Light media 1, 2, or 3 mode
- Y = 4: Heavy media 1
- Y = 5: Heavy media 2
- Y = 6: Heavy media 3

- Y = 7: Glossy media 1
- Y = 8: Glossy media 2
- Y = 9: Glossy media 3
- Y = A: Glossy film
- Y = B: OHT
- Y = C: Label
- Y = D: Envelope 1, 2, or 3 mode
- Y = E: Rough
- Y = F: Other mode
- Z = 0 Envelope feeder
- Z = 1 Tray 1
- Z = 2 Tray 2
- Z = 3 Tray 3
- Z = 4 Tray 4
- Z = 5 Tray 5
- Z = 6 Tray 6
- D Duplexer

**Recommended action**

1. To clear the message, touch the **OK** button.
2. If the message displays again, turn the product off, and then on again.
3. If the error persists, replace the DC Controller PCA.

**42.XX.YY Error Messages**

**42.XX.YY Error Event Log message**

**Description**

Internal system failure.

**Recommended action**

1. Turn the product off, then on, and then retry.
2. If the error persists, clear the firmware image from the active partition by using the **Partial Clean** item in the **Preboot** menu.

## 44.XX.XX Error Messages

### 44.01.XX Error Event log message (Multifunction product only.)

**Description**

A digital send error has occurred.

**Recommended action**

No action necessary. This error message should automatically clear.

### 44.03.XX Error Event log message (Multifunction product only.)

**Description**

A digital send error has occurred.

**Recommended action**

Try to send the job again.

### 44.10.XX Error Event log message (Multifunction product only.)

**Description**

A send to e-mail error has occurred.

**Recommended action**

No action necessary.

### 44.34.XX Error Event log message (Multifunction product only.)

**Description**

A fax error has occurred.

**Recommended action**

▲ Try to send the job again.

### 44.92.XX Error Event log message (Multifunction product only.)

**Description**

A fax error has occurred.

**Recommended action**

1. Try to send the job again.
2. Check the fax settings to make sure they are set to the proper settings for the environment.

## 47.XX.XX Error Messages

### 47.00.XX Error

#### Event log error message

47.00.XX

#### Description

A back channel internal error has occurred.

#### Recommended action

Turn the product off, and then on. Resend the job.

If the error persists, execute the [Partial Clean](#) item in the preboot menu.

### 47.01.XX Error

#### Event log error message

47.01.XX

#### Description

An image transformer internal error has occurred.

#### Recommended action

Turn the product off, and then on. Resend the job.

If the error persists, execute the [Partial Clean](#) item in the preboot menu.

### 47.02.XX Error

#### Event log error message

47.02.XX

#### Description

A job parser internal error has occurred.

#### Recommended action

Turn the product off, and then on. Resend the job.

If the error persists, execute the [Partial Clean](#) item in the preboot menu.

### 47.03.XX Error

#### Event log error message

47.03.XX

#### Description

A print job internal error has occurred.

**Recommended action**

Turn the product off, and then on. Resend the job.

If the error persists, execute the [Partial Clean](#) item in the preboot menu.

**47.04.XX Error****Event log error message**

47.04.XX

**Description**

A print spooler 9100 internal error has occurred.

**Recommended action**

Turn the product off, and then on. Resend the job.

If the error persists, execute the [Partial Clean](#) item in the preboot menu.

**47.06.XX Error****Event log error message**

47.06.XX

**Description**

A print app internal error has occurred.

**Recommended action**

Turn the product off, and then on. Resend the job.

If the error persists, execute the [Partial Clean](#) item in the preboot menu.

**47.WX.YZ Printer calibration failed To continue, touch “OK”****Event log error message**

47.WX.YZ

**Description**

The product is unable to access or implement one of the image pattern files.

**Y = calibration type, Z = event**

- 47.FC.00: Color plane registration (CPR) image not found at system initialization
- 47.FC.01: CPR Store Image failure
- 47.FC.02: CPR Image not found
- 47.FC.03: CPR Print engine execution failure
- 47.FC.10: Consecutive Dmax Dhalf Image not found at system initialization
- 47.FC.11: Consecutive Dmax Dhalf Store image failure

- 47.FC.12: Consecutive Dmax Dhalf Image not found
- 47.FC.13: Consecutive Dmax Dhalf Print engine execution failure
- 47.FC.20: Error Diffusion Image not found at system initialization
- 47.FC.21: Error Diffusion Store image failure
- 47.FC.22: Error Diffusion Image not found
- 47.FC.23: Error Diffusion Print engine execution failure
- 47.FC.30: Drum Speed Adjustment Image not found at system initialization
- 47.FC.31: Drum Speed Adjustment Store image failure
- 47.FC.32: Drum Speed Adjustment Image not found
- 47.FC.33: Drum Speed Adjustment Print engine execution failure
- 47.FC.40: Pulse Width Modulation Image not found at system initialization
- 47.FC.41: Pulse Width Modulation Store image failure
- 47.FC.42: Pulse Width Modulation Image not found
- 47.FC.43: Pulse Width Modulation Print engine execution failure

**Recommended action**

Turn the product off and then on.

If the error persists, reload the firmware.

**48.XX.YY Error Messages**

**48.01.XX Error**

**Event log error message**

48.01.XX

**Description**

A job framework internal error has occurred.

**Recommended action**

No action necessary.

**48.03.XX Error**

**Event log error message**

48.03.XX

**Description**

A job framework internal error has occurred.



**Recommended action**

No action necessary.

**48.05.XX Error****Event log error message**

48.05.XX

**Description**

A job framework internal error has occurred.

**Recommended action**

No action necessary.

**49.XX.YY Error Messages****49.XX.YY Error To continue turn off then on****Description**

A firmware error occurred. Corrupted print jobs, software application issues, non-product specific print drivers, poor quality USB or network cables, bad network connections or incorrect configurations, invalid firmware operations, or unsupported accessories can cause this error.

**Recommended action**

1. Turn the product off, and then on.
2. If the error persists, check the following:
  - The error might be caused by a network connectivity problem, such as a bad interface cable, a bad USB port, or an invalid network configuration setting.
  - The error might be caused by the print job, due to an invalid print driver, a problem with the software application, or a problem with the file being printed.
  - Upgrading the product firmware might help resolve the error. See the product user guide for more information.

When a 49 error occurs, the user sees a 49.XXXX message on the control panel (where XXXX is replaced by a combination of letters and numbers). A 49 error might happen at any time for multiple reasons. Although some types of 49 errors can be caused by hardware failures, it is more common for 49 errors to be caused by printing a specific document or performing some task on the product.

49 errors most often occur when a product is asked to perform an action that the product firmware is not capable of and might not have been designed to comply with, such as:

- Printing files with unsupported programming commands
- A unique combination of user environment and user interactions with the product
- Interfacing with a third-party solution that was not designed to work with the product
- Specific timing, network traffic, or concurrent processing of jobs

Each of these interactions could cause the product firmware to initiate an action that the product cannot accomplish. In situations like this, the product might present the error if it has no other option. When these errors occur, the only way to recover is to turn the product's power off and back on.



**NOTE:** LaserJet formatter PCAs are rarely the root cause of 49 service errors. Please do not replace the formatter or flash unless troubleshooting has identified the formatter as the root cause.

If the error persists, continue troubleshooting with the flowcharts for either Intermittent or Persistent 49 error troubleshooting (whichever is appropriate) in document c03122817, “HP LaserJet FutureSmart Devices - 49 Error Troubleshooting (Persistent and Intermittent)”.

## 50.WX.YZ Error Messages

### 50.1X.YZ or 50.2X.YZ Fuser error

#### Description

The product experienced a fuser error.

- X = fuser mode
- Y = previous product sleep state
- Z = next product sleep state

#### Recommended action

##### Low fuser temperature and fuser warm-up failure

1. Remove the fuser, and then reinstall the fuser. Make sure that there is no residual paper in the fuser. Make sure that the product is not located in front of a vent or window where cool air may interfere with the ability of the fuser to heat up.
2. Check the product power source. Make sure that the power source meets product requirements. Make sure that this is the only device using the circuit.
3. Replace the fuser.
4. Check the connector (J50) between the fuser and the product. If it is damaged, replace the fuser drive assembly or fuser.
5. If the error persists, replace the low-voltage power supply.
6. If this product has been previously serviced, check the connectors (J160 and J162) on the DC controller PCA and the connector (J25) on the power line between the low-voltage power supply assembly and the fuser.
7. Turn the product off, wait for 20 seconds, and then the product back on.

### 50.20.00 or 50.21.00 Fuser error

#### Description

Some jams at the fuser can cause the power to the fuser to be turned off to prevent possible damage. For example, if envelopes are being printed, multi-feeds can occur if the envelopes stick together. The multiple envelopes fed together can jam in the fuser.

The circuit which controls the power to the fuser must be reset before the condition can be cleared. The reset of this circuit requires that the MFP be powered off for longer than 15 seconds.

The following other fuser errors may be found in the event log when a 50.20.00, 50.21.00 or 50.22.00 occurs:

- 50.90.00
- 50.B0.00

**Recommended action**

If this occurs make sure to turn the product off, wait 20 seconds, and then turn the product on again.

**50.22.00**

**Description**

Some jams at the fuser can cause the power to the fuser to be turned off to prevent possible damage. For example, if envelopes are being printed, multifeeds can occur if the envelopes stick together. The multiple envelopes fed together can jam in the fuser.

The circuit which controls the power to the fuser must be reset before the condition can be cleared. The reset of this circuit requires that the MFP be powered off for longer than 15 seconds.

The following other fuser errors may be found in the event log when a 50.20.00, 50.21.00 or 50.22.00 occurs:

- 50.90.00
- 50.B0.00

**Recommended action**

1. Turn the product off, wait 20 seconds, and then turn the product on again.
2. Remove the fuser and make sure that all paper and debris from the jam have been removed.
3. Reinstall the fuser and retry.
4. If the error persists, replace the fuser.
5. If the error persists, replace the LVPS.

**50.3X.YZ Fuser error**

**Description**

The product experienced a fuser error.

- X = fuser mode
- Y = previous product sleep state
- Z = next product sleep state

**Recommended action**

**High fuser temperature**

1. Remove the fuser, and then reinstall the fuser.
2. Check the paper type setting using the product menus and in the printer driver. Make sure that they match and are correct for the type of media being used.
3. Replace the fuser.

4. If the error persists, replace the low-voltage power supply.
5. If this product has been previously serviced, check the connectors (J160 and J162) on the DC controller PCA.

#### 50.4X.YZ Fuser error

##### Description

The product experienced a fuser error.

- X = fuser mode
- Y = previous product sleep state
- Z = next product sleep state

##### Recommended action

##### Drive circuit fault

1. Check the power source. Make sure that the power source meets product requirements.



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**NOTE:** If the power source does not meet the power frequency requirement of 43 to 67Hz, the fuser temperature control does not work properly and causes this error.

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2. If the error persists, replace the low-voltage power supply.
3. If this product has been previously serviced, check the connectors (J160 and J162) on the DC controller PCA.

#### 50.4X.YZ Fuser error

##### Description

The product experienced a fuser error.

- X = fuser mode
- Y = previous product sleep state
- Z = next product sleep state

##### Recommended action

1. Check the power source. Make sure that the power source meets product requirements.
2. Reconnect the connector (J150) on the DC controller PCA.
3. If the error persists, replace the low-voltage power supply.

#### 50.7X.YZ Fuser error

##### Description

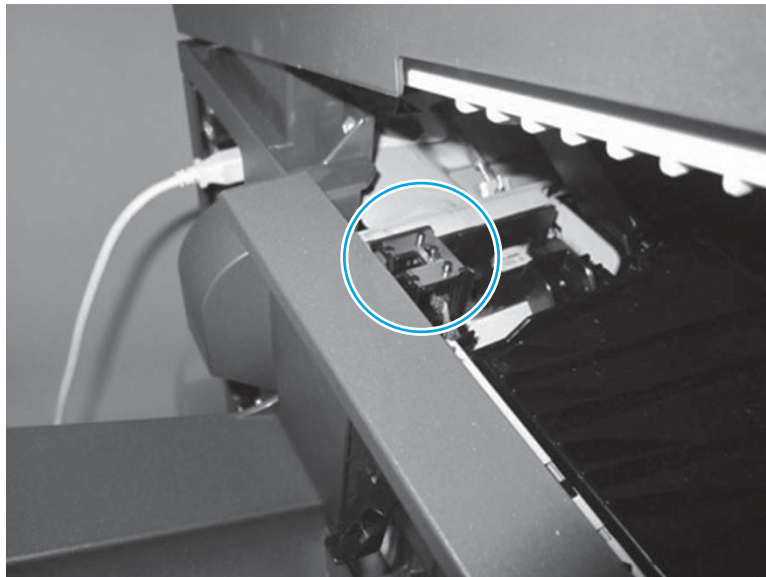
The product experienced a fuser error.

- X = fuser mode
- Y = previous product sleep state
- Z = next product sleep state

### Recommended action

#### Fuser pressure-release mechanism failure

1. Remove the fuser, and then reinstall the fuser. Make sure that there is no residual paper in the fuser.
  - a. Refer to image 1 below and ensure the black tab is not blocking the gear that drives the pressure release mechanism.
  - b. If it is, rotate the TAB upward about 90 degrees and it should snap into a detent in the chassis.
  - c. If the tab has been badly mangled due to contact with the gears, it will not snap into the detent and could fall down again the next time the fuser is removed replace the paper delivery assembly.



2. Check the fuser pressure-release sensor flag. If it is damaged, replace the fuser.
3. Use the sensor test in the manual sensor test to verify that the fuser pressure-release sensor (SR7) is properly functioning. If it is not, replace the sensor.
4. Use the fuser pressure-release drive test in the component test to verify that the fuser motor (M2) is properly functioning. If it is not, replace the fuser motor.
5. If this product has been previously serviced, check the connector (J128) on the DC controller PCA.
6. If the issue remains, replace the fuser.

### 50.8X.YZ Fuser Error

#### Description

The product experienced a fuser error.

- X = fuser mode
- Y = previous product sleep state
- Z = next product sleep state

**Recommended action**

**Low fuser temperature 2**

1. Remove the fuser, and then reinstall the fuser. Make sure that there is no residual paper in the fuser. Make sure that the product is not located in front of a vent or window where cool air may interfere with the ability of the fuser to heat up.
2. Check the product power source. Make sure that the power source meets product requirements. Make sure that this is the only device using the circuit.
3. Replace the fuser.
4. If the error persists, replace the low-voltage power supply.
5. Check the connector (J50) between the fuser and the product. If it is damaged, replace the fuser drive assembly or fuser.
6. If this product has been previously serviced, check the connectors (J160 and J162) on the DC controller PCA and the connectors (J25) on the power line between the low-voltage power supply assembly and the fuser.

**50.9X.YZ Fuser Error**

**Description**

The product experienced a fuser error.

High fuser temperature 2

- X = fuser mode
- Y = previous product sleep state
- Z = next product sleep state

This fuser error may accompany a 50.20.00, 50.21.00 or 50.22.00 error event log. See the recommended action for one of these errors

**Recommended action**

**High fuser temperature 2**

1. Remove the fuser, and then reinstall the fuser.
2. Check the paper type setting using the product menus and in the printer driver. Make sure that they match and are correct for the type of media being used.
3. Replace the fuser.
4. If this product has been previously serviced, check the connectors (J160 and J162) on the DC controller PCA.

## 50.AX.YZ Fuser error

### Description

The product experienced a fuser error.

Low fuser temperature 3

- X = fuser mode
- Y = previous product sleep state
- Z = next product sleep state

### Recommended action

#### Low fuser temperature 3

1. Remove the fuser, and then reinstall the fuser. Make sure that there is no residual paper in the fuser. Make sure that the product is not located in front of a vent or window where cool air may interfere with the ability of the fuser to heat up.
2. Check the product power source. Make sure that the power source meets product requirements. Make sure that this is the only device using the circuit.
3. Replace the fuser.
4. Check the connector (J50) between the fuser and the product. If it is damaged, replace the fuser drive assembly or fuser.
5. If this product has been previously serviced, check the connectors (J160 and J162) on the DC controller PCA and the connector (J25) on the power line between the low-voltage power supply assembly and the fuser.

## 50.BX.YZ Fuser error

### Description

The product experienced a fuser error.

High fuser temperature 3

- X = fuser mode
- Y = previous product sleep state
- Z = next product sleep state

### Recommended action

#### High fuser temperature 3

1. Remove the fuser, and then reinstall the fuser.
2. Check the paper type setting using the product menus and in the printer driver. Make sure that they match and are correct for the type of media being used.
3. Replace the fuser.

4. Check the connector (J50) between the fuser and the product. If it is damaged, replace the fuser drive assembly or fuser.
5. If this product has been previously serviced, check the connectors (J160 and J162) on the DC controller PCA.

## 51.XX.YZ, 52.XX.YZ Error Messages

### 51.00.YZ

#### Description

An error with the laser/scanner assembly has occurred in the product.

- **51.00.10:** Beam detect error
- **51.00.19:** Laser malfunction
- **51.00.20:** Black laser scanner error
- **51.00.21:** Cyan laser scanner error
- **51.00.22:** Magenta laser scanner error
- **51.00.23:** Yellow laser scanner error

#### Recommended action

1. Turn the product off, and then on.
2. If the error persists, check that the 5V Interlock Switch (SW1) is working correctly.



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**NOTE:** Both front and right doors share SW1. Make sure the flags that activate the switch are not broken. Replace the appropriate door if a broken flag is found.

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3. If the error persists, check the flat flexible cable connection at the laser scanner and DC controller.
4. If the error persists, check the motor connection at the laser scanner assembly
5. If the error persists, replace the affected laser/scanner.

### 52.00.00/52.00.20 Scanner Startup/Rotation error

#### Description

A laser/scanner startup (52.00.00) or rotation (52.00.20) error occurred.

#### Recommended action

1. Turn the product off, and then on again.
2. Perform the laser/scanner component tests in the Troubleshooting menu. Depending on the test result, do one of the following.
  - Laser malfunction of yellow or magenta:  
If the yellow or magenta component tests showed a startup failure, reconnect the connectors of the yellow/magenta scanner motor (J40 and J71) and the DC controller PCA (J110).
  - Laser malfunction of cyan or black:



If the cyan or black component tests showed a startup failure, reconnect the connectors of the cyan/black scanner motor (J41 and J72) and the DC controller PCA (J111).

3. If the error persists, replace the cyan/black laser scanner unit or the yellow/magenta laser scanner unit.

## 54.XX.YZ Error Messages

### 54.00.03

#### **Description**

The product experienced a sensor error.

#### **Recommended action**

#### **Environmental sensor failure**

1. Turn the product off and then on.
2. If the error persists, replace the environment sensor assembly.
3. If the environment sensor or cartridge fan assembly has been removed or replaced, check the sensor connector (J36), the inline connector (J67), and the connector (J108) on the DC controller PCA.

### 54.00.06

#### **Description**

The product experienced a sensor error.

#### **Recommended action**

#### **Registration density sensor failure**

1. Open and close the front door to clean the RD sensor assembly.
2. Open the right door and check the RD sensors for toner or paper dust.
3. If the error persists, replace the registration density sensor assembly.

### 54.00.35

#### **Description**

The product experienced a sensor error.

#### **Recommended action**

#### **Drum speed adjustment abnormal warning**

1. Turn the product off and then on.
2. Remove and reinstall the toner cartridges and retest the product.

### 54.01.05

#### **Description**

The product experienced a sensor error.

### **Recommended action**

#### **Media sensor is out of calibration range**

1. Turn the product off and then on.
2. If the error persists, replace the registration assembly.

### **54.OX.07**

#### **Description**

The product experienced a sensor error.

- X = 5: Black
- X = 6: Cyan
- X = 7: Magenta
- X = 8: Yellow

#### **Recommended action**

##### **Drum home position sensor failure**

1. Turn the product off and then on.
2. If the error persists, replace the main drive assembly.
3. If the product has had parts removed or replaced, check all the connectors on the main drive assembly, and check the connector (J140) on the DC controller PCA.

### **54.OX.0B or 54.OX.0C**

#### **Description**

The product experienced a sensor error.

- X = 0: Black
- X = 1: Cyan
- X = 2: Magenta
- X = 3: Yellow

#### **Recommended action**

##### **Density sensor out of range error or Dhalf calibration failure**

1. Check the supplies status page to make sure that the print cartridges are not past their useful life.
2. Check the ITB for damage.
3. Make sure that the CPR sensor is not contaminated with toner or paper dust. Clean the sensor with compressed air and a soft brush.
4. If the error persists, replace the density detect assembly.

## 54.0X.0D or 54.0X.0E

### Description

The product experienced a sensor error.

- X = 0: Black
- X = 1: Cyan
- X = 2: Magenta
- X = 3: Yellow

### Recommended action

#### Optical memory element abnormal or CPR sensor out of range

1. Check the supplies status page to make sure that the print cartridges are not past their estimated useful life.
2. Check the ITB for damage.
3. Make sure the CPR sensor is not contaminated with toner or paper dust. Clean the sensor with compressed air and a soft brush.
4. If the error persists, replace the density detect sensor assembly.

## 54.0X.1E or 54.1X.1E or 54.2X.1E

### Description

The product experienced a sensor error.

- X = 0: Black
- X = 1: Cyan
- X = 2: Magenta
- X = 3: Yellow

### Recommended action

#### Halftone calibration error

1. Check the supplies status page to make sure that the print cartridges are not past their estimated useful life.
2. Check the ITB for damage.
3. Make sure the CPR sensor is not contaminated with toner or paper dust. Clean the sensor with compressed air and a soft brush.
4. If the error persists, replace the density detect sensor assembly.

## 54.0X.1E or 54.1X.1E or 54.2X.1E

### Description

The product experienced a sensor error.

- X = 0: Black
- X = 1: Cyan
- X = 2: Magenta
- X = 3: Yellow

**Recommended action**

**Halftone calibration error**

1. Check the supplies status page to make sure that the print cartridges are not past their estimated useful life.
2. Check the ITB for damage.
3. Make sure the CPR sensor is not contaminated with toner or paper dust. Clean the sensor with compressed air and a soft brush.
4. If the error persists, replace the density detect sensor assembly.

**55.XX.YZ, 56.XX.YZ Error Messages**

**55.00.01, 55.00.03 or 55.00.04 DC Controller Error**

**Description**

The communication link between the formatter and DC controller was lost.

- 55.00.01–DC controller memory error.
- 55.00.03-DC controller no engine response
- 55.00.04-DC controller communications time out

**Recommended action**

Turn the product off and then on.

Verify that the connectors on the DC controller are seated correctly.

If the error persists, replace the DC controller.

**55.00.05 Engine Firmware RFU Error**

**Description**

The firmware upgrade failed.

**Recommended action**

Turn the product off and then on.

If issue remains re-send upgrade.

**56.00.01 Illegal Input Printer Error**

**Description**

The product experienced an illegal input.

**Recommended action**

Turn the product off, then on.

Remove any third-party hardware and test again

**56.00.YY****Description**

The product experienced a communication error with the optional paper trays.

**Recommended action**

Turn the product off, then on.

If the error persists, remove the optional paper trays and check the connector on the bottom of the engine and the connector on top of the input tray for damage. If a connector is damaged, replace the connector.

**57.XX.YZ Error Messages****57.00.01 Power supply fan (FM1) failure****Description**

The product experienced a power supply fan (FM1) error.

**Recommended action**

Turn the product off, then on.

Verify that the connector (J153) on the DC controller is seated correctly.

Replace the fan.

**57.00.02 Cartridge fan failure (FM2)****Description**

The product has experienced a cartridge fan (FM2) error.

**Recommended action**

1. Turn the product off, then on.
2. Open the front door and disable the interlocks. Use a light to inspect the fan, located below the magenta cartridge. If the fan is not moving, replace the fan.
3. If the fan has been removed or replaced, verify the following fan connectors are seated correctly and not damaged:
  - Cartridge fan assembly connector
  - Cartridge fan in-line connector
  - Cartridge fan connector at the DC controller

#### 57.00.04 Scanner power supply fan failure (FM5)

##### **Description**

The product has experienced a scanner power supply fan (FM5) error.

##### **Recommended action**

1. Turn the product off, then on.
2. Check the fan located at the right rear of the product.
3. Check the fan connection on the scanner power supply.
4. Replace the scanner power supply assembly.

#### 57.00.05 IPTU front fan failure (FM6)

##### **Description**

The product has experienced an IPTU front fan (FM6) error.

##### **Recommended action**

1. Turn the product off, then on.
2. While the product starts up, open the top cover and disable the sensor.
3. If the front fan does not operate as the IPTU initializes, replace the IPTU.
4. If the IPTU was removed or replaced, verify the connector at the rear of the IPTU is seated correctly and not damaged.

#### 57.00.06 Lower exhaust fan failure (FM4)

##### **Description**

The product has experienced a lower exhaust fan (FM4) error.

##### **Recommended action**

1. Turn the product off, then on.
2. While the product starts up, listen for fan noise at the lower-left side of the product, or use a light to look into the opening next to the power cord.
3. If the fan is not moving, check the fan connector on the high voltage power supply (HVPS-D) or replace the exhaust fan (FM6).

#### 57.00.07 Upper exhaust fan failure (FM3)

##### **Description**

The product has experienced an upper exhaust fan (FM3) error.

**Recommended action**

1. Turn the product off, then on.
2. While the product starts up, listen for fan noise at the upper-left side of the product.



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**NOTE:** This fan cannot be seen without removing the IPTU.

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3. If the fan is not moving, check the fan connector at the top of the main drive assembly or replace the fan. or use a flashlight to look into the vent opening next to the formatter.
4. Replace the fan FM3.

**57.00.08 IPTU internal fan failure (FM7)****Description**

The product has experienced an IPTU internal fan (FM7) error.

**Recommended action**

1. Turn the product off, and then on again.
2. If the IPTU has been removed or replaced, verify the connector at the rear of the IPTU (where it connects to the wiring harness from DC controller) is seated correctly and not damaged.
3. This fan is not visible without removing the IPTU. If the error continues, replace the IPTU.

**57.10.1 The fan has failed****Description**

The product has experienced a formatter fan error.



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**NOTE:** The formatter fan is located on the upper-left rear of the product.

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**Recommended action**

1. Turn the product off, then on.
2. Use a light through air vent at the top of the rear cover to see if the fan is operating.
3. Remove the formatter and verify the connector on the formatter is seated correctly and not damaged.
4. If the error persists, replace formatter fan.

**58.XX.YY & 59.XX.YZ Error Messages****58.00.04 Error****Description**

The product experienced a low voltage power supply unit malfunction.

**Recommended action**

Turn the product off, then on. If the error persists, replace the low voltage power supply.

#### 58.01.04 Error

##### Description

24V power supply error during operation.

During regular printing operation the 24V power supply experienced an error.

##### Recommended action

1. Power cycle printer. This error might be caused by brown out or low-voltage situation.
2. Determine whether the area the product is located is subject to power quality issues. If so, wait for power to stabilize. If power is stable and errors persist, replace the low voltage power supply.
3. If errors persist, replace the low voltage power supply.

#### 58.02.04 Error

##### Description

24V power supply error during boot or wake.

During product power on or when waking from sleep mode, the printer experienced an error with the 24V power supply.

##### Recommended action

1. Power cycle printer. This error might be caused by brown out or low-voltage situation.
2. Determine whether the area the product is located is subject to power quality issues. If so, wait for power to stabilize. If power is stable and errors persist, replace the low voltage power supply.
3. If errors persist, replace the low voltage power supply.

#### 59.00.30 or 59.00.40: Fuser error

##### Description

Fuser motor (M2) start up error or fuser motor (M2) rotational error.

##### Recommended action

1. Use the fuser motor (M2) drive test in the component test to verify that the fuser motor is properly functioning. If it is not, replace the fuser motor assembly.
2. If the product has been serviced, check the connectors at the fuser motor assembly and the DC controller. See the circuit diagram for details.
3. If the error occurred the first time the product was turned on, or after a fuser replacement, check the fuser bearings for damage.

#### 59.00.90 or 59.00.A0

##### Description

Image transfer belt (ITB) motor (M1) start up error or ITB motor (M1) abnormal rotational error.



### Recommended action

1. Remove the ITB and check for damage.
2. Use the ITB motor (M1) drive test in the component test to verify that the ITB motor is properly functioning. If it is not, replace the ITB motor assembly.
3. If the product has been serviced, check the connector on the ITB motor and the connector (J140) on the DC controller PCA.
4. Replace the ITB motor.

## 59.00.B0 Replace Toner Collection Unit

### Description

The cleaning motor is stuck, the waste toner chute is clogged, or the toner collection unit (TCU) is full.

### Recommended action

1. Check the toner collection unit. If the unit is full, replace it.



**NOTE:** Toner can clog the feed motor if the toner collection unit is full.

2. Perform the TCU Motor test. Under Diagnostics/Component Test, select TCU Motor and press OK. If this test fails, replace the Residual Toner Feed Motor.
3. If the TCU is not full, remove the TCU motor and check the rotation of the waste toner auger. Replace the TCU motor or the auger.
4. If the issue persists, check the gears and ducts of the Waste Toner Paper Feed assembly. If the gears are worn out, replace this component.

## 59.00.C0 Developer alienation motor (M10) error

### Description

Developer alienation motor (M10) error.

### Recommended action

1. Use the developer engagement and disengagement drive test in the component test to verify that the disengagement mechanisms are properly functioning. If they are not, replace the developer alienation motor.
2. Use the manual sensor test to verify that the developer disengagement sensor (SR11) is properly functioning. The sensor is located inside the main drive assembly and cannot be reached for testing. Disconnect the connector (J112) at the DC controller while in manual sensor test mode to verify the sensor operation. If it is not operating, replace the main drive assembly.
3. If the product has been serviced, check the intermediate connector (J87) of the developing disengagement sensor, the connector (J112) on the DC controller PCA, the connector (J38) of the developing disengagement motor, and the connector (J261) on the high-voltage power supply D PCA.
4. Replace the main drive assembly.

## 59.00.F0 T1 alienation mechanism failure

### Description

T1 alienation mechanism failure.

### Recommended action

1. Make sure that the ITB is correctly installed.
2. Use the manual sensor test to verify that the T1 roller alienation sensor (SR9) is properly functioning. If it is not, replace the sensor assembly.
3. Use the component tests T1 roller engagement and disengagement drive test to verify that the T1 roller disengagement mechanism is properly functioning. If it is not, remove the ITB and manually actuate the alienation mechanism. If it fails, replace the ITB. If the ITB is working correctly, replace the fuser drive assembly.
4. If the product has been serviced, check the connector (J128) on the DC controller PCA.
5. Replace the ITB alienation drive assembly.

## 59.0X.50 Motor error (59.05.50; 59.06.50; 59.07.50; 59.08.50 )

### Description

The product experienced a Drum Motor startup error.

#### 59.05.50 Black

#### 59.06.50 Cyan

#### 59.07.50 Magenta

#### 59.08.50 Yellow

### Recommended action

If the error occurs when the MFP is first turned on, follow the steps below.

1. Power down the MFP.
2. Swap the cartridge with another color (for example, if Magenta is failing, swap positions for Magenta and Cyan cartridges).
3. Power back on: does the error follow the cartridge? (is the Cyan motor now reporting the error?).
  - If YES, then replace the cartridge.
  - If NO, then replace the drum motor.



**NOTE:** Each cartridge slot has a drum motor. You can also use the disable cartridge check and run the drum motor component test with the print cartridge removed. If the test passes, replace the print cartridge. If the test fails, replace the drum motor. If the product has been serviced, check the connector at the drum motor assembly and the DC controller. See the circuit diagram in the Service Manual for details.

## 59.OX.60 Motor Error (59.05.60; 59.06.60; 59.07.60; 59.08.60 )

### Description

The product experienced a Drum Motor startup error

**59.05.60 Black**

**59.06.60 Cyan**

**59.07.60 Magenta**

**59.08.60 Yellow**

### Recommended action

If the error occurs when the MFP is first turned on, follow the steps below.

1. Power down the MFP.
2. Swap the cartridge with another color (for example, if Magenta is failing, swap positions for Magenta and Cyan cartridges).
3. Power back on: does the error follow the cartridge? (is the Cyan motor now reporting the error?).
  - If YES, then replace the cartridge.
  - If NO, then replace the drum motor.



**NOTE:** Each cartridge slot has a drum motor. You can also use the disable cartridge check and run the drum motor component test with the print cartridge removed. If the test passes, replace the print cartridge. If the test fails, replace the drum motor. If the product has been serviced, check the connector at the drum motor assembly and the DC controller. See the circuit diagram in the Service Manual for details.

## 60.00.0Y, 62.00.00 Error Messages

### 60.00.02 Tray 2 lifting error

#### Description

Tray 2 lifter motor error.

#### Recommended action

1. Remove the tray and manually rotate the gear on the rear of the tray to make sure that the lift mechanism is working.
2. With the tray removed, pressing any of the paper size switches will cause the tray lift motor to run. If the motor does not work, replace the lifter assembly.
3. Run the sensor test in the sensor monitor mode to verify that the cassette media surface sensor in Tray 2 is functioning properly. If it is not, replace the cassette pickup assembly.
4. Check the connections for the motor and the sensor. See the circuit diagram for details.
5. Replace the cassette lifter assembly.

### 60.00.03 Tray 3 lifting error

#### Description

Tray 3 lifter motor error.

#### Recommended action

Use the following to troubleshoot the error.

#### 2500-sheet paper deck:

1. Run the sensor test in the sensor monitor mode to verify that the cassette 1 media surface sensor 2 is functioning properly. If it is not, replace the cassette 1 pickup assembly.
2. Reconnect the intermediate connector (J11) and connector (J408) on the HCI controller PCA.
3. Replace the HCI cassette 1 pickup assembly.

### 60.00.04 Tray 4 lifting error

#### Description

Tray 4 lifter motor error.

#### Recommended action

Use the following to troubleshoot the error.

#### 2500-sheet paper deck:

1. Run the sensor test in the sensor monitor mode to verify that the cassette 2 media surface sensor 2 is functioning properly. If it is not, replace the cassette 2 pickup assembly.
2. Reconnect the intermediate connector (J21) and connector (J406) on the HCI controller PCA.
3. Replace the HCI cassette 2 pickup assembly.

### 60.00.05 Tray 5 lifting error

#### Description

Tray 5 lifter motor error.

#### Recommended action

#### 2500-sheet paper deck:

1. Run the sensor test in the sensor monitor mode to verify that the cassette 3 media surface sensor 2 is functioning properly. If it is not, replace the cassette 3 pickup assembly.
2. Reconnect the intermediate connector (J31) and connector (J403) on the HCI controller PCA.
3. Replace the HCI cassette 3 pickup assembly.

### 62.00.00 No system

#### Description

The product experienced an internal system failure.

### Recommended action

1. Turn the product off, then on.
2. If the error persists, reload the firmware. If the error still persists, perform a firmware upgrade.
3. If the firmware upgrade does not resolve the problem, replace the hard disk.

## 65.X0.AZ Error Messages

### 65.X0.AZ Output accessory Failure

#### Description

Output accessory disconnected.

An external paper handling accessory connection has been interrupted.

- **65.40.A0:** Punch Unit disconnected
- **65.50.A0:** Folding Unit disconnected
- **65.80.A0:** Stapler/Stacker disconnected
- **65.80.A1:** Stapler/Stacker Unit connection interrupted
- **65.90.A0:** Booklet Make disconnected

#### Recommended action

1. Make sure that the latest firmware updates are installed for the engine and finisher.
2. Make sure that the finisher is grounded correctly.
  - Make sure that the finisher is latched and locked to the engine by tightening the thumbscrew inside the front door.
  - Make sure that the grounding-frame assembly (the bar with the wheel located between the engine and the finisher) is in the down position with the wheel touching the floor and that the grounding plate is not damaged.



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**NOTE:** The grounding-frame assembly is in the up position when the finisher is shipped. It must be lowered when the finisher is installed.

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3. Make sure that the communication cable from the finisher to the engine is installed correctly.
4. Make sure that all packing materials have been removed from the paper handling accessory.
5. Make sure that the connectors on the PCA's for the device are fully seated and not damaged.
6. Only if the error persists and none of the previous steps correct the problem, replace the controller PCA in question.

## 70.XX.YY Error Messages

### 79.XX.YY Error

#### Description

This error can be caused by corrupted print jobs, software application issues, non-product-specific printer drivers, poor-quality USB or network cables, bad network connections, incorrect configurations, invalid firmware operations, or unsupported accessories.

#### Recommended action

1. Turn the product off, then on.
2. If the error persists, check the following items.
  - The error might be caused by a network connectivity problem, such as a bad interface cable, a bad USB port, or an invalid network configuration setting.
  - The error might be caused by the print job, such as an invalid printer driver, a problem with the software application, or a problem with the file that you are printing.
  - A firmware upgrade might help resolve the error.

## 80.XX.YY, 82.XX.YY Error Messages

### 80.0X.YY Embedded Jetdirect Error

#### Description

An Embedded HP JetDirect print server critical error has occurred.

- **80.01.80:** (event log) No heartbeat
- **80.01.81:** (event log) Reclaim timeout
- **80.01.82:** (event log) Invalid data length
- **80.01.8B:** (event log) Invalid max outstanding packet header field
- **80.01.8C:** (event log) Invalid channel mapping response
- **80.03.01:** (event log) No PGP buffers
- **80.03.02:** (event log) Channel table full
- **80.03.03:** (event log) Producer index not reset
- **80.03.04:** (event log) Consumer index not reset
- **80.03.05:** (event log) Queue position size too small
- **80.03.06:** (event log) Transport overflow
- **80.03.07:** (event log) No overflow packets
- **80.03.08:** (event log) Invalid identify response
- **80.03.09:** (event log) Invalid channel map return status
- **80.03.10:** (event log) Invalid reclaim return status

- **80.03.12:** (event log) Datagram invalid buffer
- **80.03.13:** (event log) Max stream channels
- **80.03.14:** (event log) Max datagram channels
- **80.03.15:** (event log) Card reset failed
- **80.03.16:** (event log) Self-test failure
- **80.03.17:** (event log) Unknown PGP packet
- **80.03.18:** (event log) Duplicate I/O channel

**Recommended action**

1. Turn the product off, and then on.
2. Remove the RJ45 cable.
3. Turn the product off, and then on again.
4. Reconnect the RJ45 cable.
5. If the error persists, replace the formatter.

**81.WX.YY EIO Error To continue turn off then on**

**Description**

An external I/O card has failed on the product.

**Recommended action**

Turn the product off and then on.

If the error persists, replace the EIO card.

**82.73.46, 82.73.47**

**Description**

A hard disk or compact flash disk cleaning failed. This error is usually caused by a failure of the disk hardware.

**Recommended action**

1. Turn the product off, and then on.
2. Use the **Clean Disk** item in the **Preboot** menu.
3. Reload the firmware.

**98.0X.0Y Error Messages**

**98.00.01 or 98.01.00 Corrupt data in firmware volume**

**Description**

Data corrupt has occurred in the firmware volume.

**Recommended action**

1. Turn the product off, and then on.
2. Use the **Clean Disk** item in the **Preboot** menu.
3. Reload the firmware.

**98.00.02 Corrupt data in the solutions volume****Description**

Data corrupt has occurred in the solutions volume.

**Recommended action**

1. Turn the product off, and then on.
2. Use the **Clean Disk** item in the **Preboot** menu.
3. Reload the firmware.

**98.00.03 Corrupt data in the configuration volume****Description**

Data corrupt has occurred in the configuration volume.

**Recommended action**

1. Turn the product off, and then on.
2. Download the firmware again, and then attempt the upgrade again.
3. Use the **Clean Disk** item in the **Preboot** menu.
4. Reload the firmware.

**98.00.04 Corrupt data in the job data volume****Description**

Data corrupt has occurred in the job data volume.

**Recommended action**

1. Turn the product off, and then on.
2. Rerun the file erase function.

**99.XX.YY Error Messages****99.00.01 Upgrade not performed file is corrupt****Description**

A remote firmware upgrade (RFU) was not performed.

This is a CRC error in the firmware image (bad image).



### **Recommended action**

Download the RFU file, and then attempt the upgrade again.

### **99.00.02 Upgrade not performed timeout during receive**

#### **Description**

A remote firmware upgrade (RFU) was not performed.

The issue is an I/O timeout when reading the header number and size. It indicates a problem with the network environment, not the product.

#### **Recommended action**

The most common cause is an issue with the network environment.

Make sure that there is a good network connection to the product, and then attempt the firmware upgrade again, or upgrade using the USB walk-up port.

### **99.00.03 Upgrade not performed error writing to disk**

#### **Description**

A remote firmware upgrade (RFU) was not performed.

This is a disk error. It might indicate a problem or a hard disk failure. It might be necessary to check the connection to the hard disk or replace the hard disk.

#### **Recommended action**

1. Download the RFU file, and then attempt the upgrade again.
2. If the error persists, run the **Clean Disk** process from the **Preboot** menu.  
You will need to download the firmware from the **Preboot** menu.
3. If the error persists, replace the hard disk.

### **99.00.04 Upgrade not performed timeout during receive**

#### **Description**

A remote firmware upgrade (RFU) was not performed.

The issue is an I/O timeout when reading the header.

#### **Recommended action**

The most common cause is an issue with the network environment.

Make sure that there is a good network connection to the product, and then attempt the firmware upgrade again, or upgrade using the USB walk-up port.

### **99.00.05 Upgrade not performed timeout during receive**

#### **Description**

A remote firmware upgrade (RFU) was not performed.

The issue is an I/O timeout when reading image data.

**Recommended action**

The most common cause is an issue with the network environment.

Make sure that there is a good network connection to the product, and then attempt the firmware upgrade again, or upgrade using the USB walk-up port.

**99.00.06 Upgrade not performed error reading upgrade****Description**

A remote firmware upgrade (RFU) was not performed.

The issue is an unexpected read error when reading the header number and size.

**Recommended action**

1. Download the RFU file, and then attempt the upgrade again.
2. If the error persists, replace the hard disk.

**99.00.07 Upgrade not performed error reading upgrade****Description**

A remote firmware upgrade (RFU) was not performed.

The issue is an unexpected read error when reading the rest of the header.

**Recommended action**

1. Download the RFU file, and then attempt the upgrade again.
2. If the error persists, replace the hard disk.

**99.00.08 Upgrade not performed error reading upgrade****Description**

A remote firmware upgrade (RFU) was not performed.

The issue is an unexpected read error when reading image data.

**Recommended action**

1. Download the RFU file, and then attempt the upgrade again.
2. If the error persists, replace the hard disk.

**99.00.09 Upgrade canceled by user****Description**

A remote firmware upgrade (RFU) was not performed.

The RFU was canceled by the user.

**Recommended action**

Resend the RFU.

#### 99.00.10 Upgrade canceled by user

##### **Description**

A remote firmware upgrade (RFU) was not performed.

The RFU was canceled by the user when reading the header number and size.

##### **Recommended action**

Resend the RFU.

#### 99.00.11 Upgrade canceled by user

##### **Description**

A remote firmware upgrade (RFU) was not performed.

The RFU was canceled by the user when reading the rest of the header.

##### **Recommended action**

Resend the RFU.

#### 99.00.12 Upgrade not performed the file is invalid

##### **Description**

A remote firmware upgrade (RFU) was not performed.

The header number is 1, but the header size does not match version 1 size.

##### **Recommended action**

Download the RFU file again.

Make sure that you download the file for the correct product model, and then resend the RFU.

#### 99.00.13 Upgrade not performed the file is invalid

##### **Description**

A remote firmware upgrade (RFU) was not performed.

The header number is 2, but the header size does not match version 2 size.

##### **Recommended action**

Download the RFU file again.

Make sure that you download the file for the correct product model, and then resend the RFU.

#### 99.00.14 Upgrade not performed the file is invalid

##### **Description**

A remote firmware upgrade (RFU) was not performed.

The file is invalid.

**Recommended action**

Download the RFU file again.

Make sure that you download the file for the correct product model, and then resend the RFU.

**99.00.2X****Description**

There is a compatibility issue with the firmware. The specific message varies depending on the cause, but the solution for each message is the same.

- **99.00.20** (event log)  
The bundle is not for this product.
- **99.00.21** (event log)  
The bundle is not signed with the correct signature, or the signature is invalid.
- **99.00.22** (event log)  
The bundle header version is not supported by this firmware.
- **99.00.23** (event log)  
The package header version is not supported by this firmware.
- **99.00.24** (event log)  
The format of the bundle is invalid.
- **99.00.25** (event log)  
The format of the package is invalid.
- **99.00.26** (event log)  
A CRC32 check did not pass.
- **99.00.27** (event log)  
An I/O error occurred while downloading the bundle.

**Recommended action**

Download the correct firmware file from [www.hp.com](http://www.hp.com), and then resend the firmware upgrade.

**99.00.27 only:**

1. Turn the product off, and then on.
2. Resend the firmware upgrade.
3. If the error persists, try installing the upgrade by another method (USB or Embedded Web Server).

## 99.01.XX

### Description

A firmware install error has occurred. The specific message varies depending on the cause, but the solution for each message is the same.

- **99.01.00**
- **99.01.10**
- **99.01.20**
- **99.01.21**

### Recommended action

Reload the firmware.

## 99.02.01

### Description

Firmware installation was successful.

### Recommended action

No action necessary.

## 99.02.09

### Description

Firmware upgrade cancelled by user.

### Recommended action

No action necessary.

## 99.09.60 Unsupported disk

### Description

This is a **Preboot** menu error.

The hard disk currently installed is not recognized or supported by the product.

### Recommended action

Install the correct hard disk for this product.

## 99.09.61 Unsupported disk

### Description

This is a **Preboot** menu error.

The installed disk is installed in a product configured for an encrypted hard disk..

**Recommended action**

Access the **Preboot** menu, and then select **Lock Disk** to lock the disk.

**99.09.62 Unknown disk****Description**

This error indicates that there is an encryption mismatch between the HDD and the formatter. This typically happens because an HDD was swapped into a device from another device.

**Recommended action**

Install a new disk or use the **Preboot** menu unlock the disk.

If a disk is to be reused in a different product, execute the **Clean Disk** procedure from the **Preboot**, and then reload the firmware and lock the disk.

**99.09.63 Incorrect disk****Description**

This error indicates that the expected encrypted HDD is not present.

This is expected behavior when installing a new HDD in a device where the previous HDD was encrypted.

**Recommended action**

Follow the procedure to load firmware on a new hard disk, and then lock the disk to this product.

**99.09.64 Disk malfunction****Description**

A fatal hard disk failure has occurred.

**Recommended action**

Replace the hard disk.

**99.09.65 Disk data error****Description**

Disk data corruption has occurred.

**Recommended action**

Use the **Clean Disk** procedure from the **Preboot** menu, and then resend the RFU.

**99.09.66 No disk installed****Description**

A disk drive is not installed in the product.

### Recommended action

1. Install a compatible hard disk drive.
2. If a compatible hard disk is installed, reseal the hard disk to make sure that it is connected correctly.
3. If the error persists, replace the hard disk drive.

### 99.09.67 Disk is not bootable please download firmware

#### Description

This is an error indicating that there is no firmware installed on the disk. This is usually the result of installing a new disk or performing a **Clean Disk** operation from the **Preboot** menu.

#### Recommended action

1. Press any button to continue to the main **Preboot** menu.
2. Press the Help button to see the help text for the error.
3. Select the **Administration** menu.



---

**NOTE:** If there is a password assigned to the Administrator, a prompt to enter the product displays. Enter the password to proceed.

---

4. Select the **Download** item, and then download the latest firmware.

The user can now download a new firmware bundle to the product.

### 99.09.67 Disk is not bootable please download firmware

#### Description

This is an error indicating that there is no firmware installed on the disk. This is usually the result of installing a new disk or performing a **Clean Disk** operation from the **Preboot** menu.

#### Recommended action

1. Press any button to continue to the main **Preboot** menu.
2. Press the Help button to see the help text for the error.
3. Select the **Administration** menu.



---

**NOTE:** If there is a password assigned to the Administrator, a prompt to enter the product displays. Enter the password to proceed.

---

4. Select the **Download** item, and then download the latest firmware.

The user can now download a new firmware bundle to the product.

### 99.XX.YY

#### Description

A message of this form indicates a firmware installation error.

### Recommended action

Reload the firmware.

## Alpha Error Messages

### <binname> full Remove all paper from bin

#### Description

The specified output bin is full.

#### Recommended action

Empty the bin to continue printing.



**NOTE:** The bin full sensor flag is part of the output bin bezel and is used only when the output bin is installed. If the stapler/stacker is installed, the bin full sensor is not used by the product.

Check the bin full flag for proper movement.

Replace the stapler/stacker.

### <Supply> very low OR Supplies very low

#### Description

The product indicates when a supply level, or more than one supply, is low. Actual toner cartridge life might vary. You do not need to replace the toner cartridge at this time unless print quality is no longer acceptable.

When multiple supplies are low, more than one event code is recorded.

- **10.00.70** (event code) Black print cartridge
- **10.01.70** (event code) Cyan print cartridge
- **10.02.70** (event code) Magenta print cartridge
- **10.03.70** (event code) Yellow print cartridge
- **10.22.70** : (event code) Transfer kit
- **10.23.70** : (event code) Fuser Kit

#### Recommended action

If print quality is no longer acceptable, replace the supply.

HP recommends that the customer have a replacement supply available to install when print quality is no longer acceptable.



**NOTE:** When an HP supply has reached its approximate end of life, the HP Premium Protection Warrant ends.

## Accept bad signature

#### Description

The product is performing a remote firmware upgrade, and the code signature is invalid.



Event Log will list 99.00.28.

**Recommended action**

Download the RFU file again. Make sure that you download the file for the correct product model. Attempt the firmware upgrade again.

**ADF not detected**

**Description**

The ADF was not detected when the product initialized.

**Recommended action**

Make sure that the document feeder cables are connected and fully seated.

**Authentication required**

**Description**

A user name and password are required.

**Recommended action**

Type the user name and password, or contact the network administrator.

**Bad optional tray connection**

**Description**

The optional tray is not connected properly.

**Recommended action**

1. Turn the product off.
2. If this is an out-of-box failure, remove the tray and thoroughly inspect the product for shipping damage. Pay close attention to the cover alignment and operation of Tray 2. If any of the covers are misaligned or Tray 2 scrapes on the frame and does not operate easily the product might have been damaged during shipping. If shipping damage is suspected, escalate the issue to your Global Business Unit (GBU).  
  
If shipping damage is not suspected, or failure is not out-of-box, continue with step 3.
3. Remove the tray and inspect the connectors on the tray and product for damage. If either of them are broken, have bent pins, or otherwise appear damaged, replace them.
  - VS1-7514-008CN is the tray connector on the engine side.
  - VS1-7500-008CN is the tray connector on the tray side.
4. Carefully reposition product base onto the optional tray. HP recommends that two people lift the product.
5. If the error persists, escalate the issue to your Global Business Unit (GBU).

## Calibrating

### Description

This message displays during the execution of a calibration. Inline engines perform calibrations on power-on, waking from sleep, at page-count limits (sometimes restricted to job boundaries), and environmental changes

### Recommended action

Touch the Hide button to remove this message

## Calibration reset pending

### Description

A calibration reset will occur when all jobs are processed.

### Recommended action

To begin the reset sooner, cancel all jobs by pressing the Stop button/Cancel button.

## Canceling

### Description

The product is canceling the current job.

### Recommended action

No action necessary.

## Canceling...<jobname>

### Description

The product is canceling the current job <jobname>.

### Recommended action

No action necessary.

## Card slot device failure

### Description

The specified device failed.

### Recommended action

Touch the **OK** button to clear the message.

## Card slot file system is full

### Description

The file system on a card installed in the card slot is full.

### Recommended action

Touch the **OK** button to clear the message.

### Card slot is write protected

**Description**

The card slot device is protected, and no new files can be written to it.

**Recommended action**

Use the embedded Web server or HP Web Jetadmin to initialize the component.

### Checking engine

**Description**

The product is conducting an internal test.

**Recommended action**

No action necessary.

### Checking paper path

**Description**

The product is checking for possible paper jams.

**Recommended action**

No action necessary.

### Chosen personality not available To continue, touch "OK"

**Description**

A print job requested a product language (personality) that is not available for this product. The job will not print and will be cleared from memory.

**Recommended action**

Print the job by using a print driver for a different language, or add the requested language to the product (if possible). To see a list of available personalities, print a configuration page.

### Cleaning

**Description**

A two-step cleaning page is being processed (after having been created) on the product. Products with duplexers that create and process the cleaning page in one step also display this message.

**Recommended action**

No action necessary.

### Cleaning disk <X>% complete Do not power off

**Description**

A storage device is being sanitized or cleaned.

**Recommended action**

Do not turn off the product. The product's functions are unavailable. The product will automatically restart when finished.

**Cleaning Page****Description**

The product is generating a fuser cleaning page.

**Recommended action**

No action necessary.

**Clear All Blocked Numbers****Description**

This message is displayed while the list of blocked numbers is cleared. The product exits the menus when finished.

**Recommended action**

No action necessary.

**Clear Event Log****Description**

This message is displayed while the event log is cleared. The product exits the menus when the event log has been cleared.

**Recommended action**

No action necessary.

**Clearing activity log****Description**

This message is displayed while the activity log is cleared. The product exits the menus when the log has been cleared.

**Recommended action**

No action necessary.

**Clearing event log****Description**

This message is displayed while the event log is cleared. The product exits the menus when the event log has been cleared.

**Recommended action**

No action necessary.

## Clearing paper path

### Description

The product is attempting to eject jammed paper.

paper is detected in the paper path. The product will attempt to eject it.

### Recommended action

No action necessary. Check the progress at the bottom of the control panel display.

If a jam is not cleared, remove the paper.

## Close Front door

### Description

The front door of the product is open.

### Recommended action

1. Close the door.
2. Run the switch test in the sensor monitor mode to verify that the front door open detection switch is functioning properly. If it is not, replace the front door open detection switch.
3. Reconnect the connector (J708) of the front door open detection switch and connector (J121) on the DC controller PCA.
4. Check the sensor flag on the front door open detection sensor. If the flag is damaged, replace the front door assembly.

## Close Lower Right door

### Description

The optional paper feeder right door is open.

### Recommended action

Close the door.

If the error persists, run the manual tray/bin sensor test SW1 right door opening/closing sensor. If the sensor fails, replace the right door switch.

If the error persists, check the right door sensor flag. If it is damaged, replace the right door.

## Close Right Door

### Description

A door on the right side of the product is open.

### Recommended action

1. Close the door.
2. If the error persists, run the manual sensor test SP15 right door opening/closing sensor. If the sensor fails, replace the right door switch.

3. If the error persists, check the right door sensor flag. If it is damaged, replace the right door.
4. If this product has been previously serviced, reconnect the connector (J708) on the 24V interlock switch and the connector (J181) on the DC controller PCA.

### Close top cover

#### Description

The scanner is open. Check the latch behind the control panel.

#### Recommended action

1. Use the sensors test to check the sensor located on the front of the IPTU.
2. Check the sensor flag located on the bottom of the scanner.
3. If the message continues even when the Top Cover is fully closed, continue with the remaining steps.
4. Verify the photo sensor is functioning by checking the flag and using a folded piece of paper to test the sensor.

### Close upper right door

#### Description

The upper right door is open.

#### Recommended action

1. Close the upper right door.
2. If the error persists, run the manual sensor test SP15 right door opening/closing sensor. If the sensor fails, replace the right door switch.
3. If the error persists, check the right door sensor flag. If it is damaged, replace the right door.
4. If this product has been previously serviced, reconnect the connector (J708) on the 24V interlock switch and the connector (J181) on the DC controller PCA.

### Code CRC error Send full RFU on <X> port

#### Description

The product displays this message before the firmware is loaded at startup when an error has occurred during a firmware upgrade.

#### Recommended action

Resend the upgrade using either a network cable or the walk-up USB port.

### Color RFU failed Send full RFU on <X> port

#### Description

The product displays this message before the firmware is loaded at startup when an error has occurred during a firmware upgrade.

### Recommended action

Resend the upgrade using either a network port or the walk-up USB port.

## Communication lost message appears on the control panel in five different languages

### Description

A Communication Lost message appears on the control panel in five different languages.

### Recommended action



---

**NOTE:** This error can occur when the Control Panel can no longer communicate with the formatter.

---

1. Power down the product and reseal the formatter.
2. Reseat the USB cable connection at the rear of the control panel (swing the control panel up 90 degrees for better access).
3. Turn the product off and then back on again.
4. Does the message reappear in 20 - 30 seconds?

5. If YES:

Check the Heartbeat LED on the formatter (is it flashing?).

If the Heartbeat LED is NOT flashing, replace the formatter.

If the formatter Heartbeat LED is flashing, then the Communication Lost message could also be caused by:

- Bad USB connection at the ICB
- Bad Control Panel
- Bad ICB

## Connect output accessory

### Description

The product has no output accessory connected and cannot print.

### Recommended action

1. Turn the product off
2. Connect an output accessory and reconnect any loose external accessory cables
3. Turn the product on



---

**NOTE:** To continue without an output accessory, turn the product off, remove the output accessory bridge, and then turn on the product.

---

## Data received

### Description

The product is waiting for more data to continue the print job. To print the remaining data, touch the Clear button. To close the dialog and wait for the command to print the last page, touch the **OK** button.

### Recommended action

No action necessary.

## Data received To print last page press “OK”

### Description

The product is waiting for the command to print the last page.

### Recommended action

Touch the OK button to print the last page of the job.

## Different paper sizes in job

### Description

A job being sent to the High Capacity Output (HCO) with a command for stapling or booklet making contains multiple sizes of paper.

### Recommended action

Send the job in **Stacker** mode.

Change the paper size of the pages.

## Digital send communication error

### Description

A digital send job failed and cannot be delivered.

### Recommended action

Touch the Hide button to remove this message.

## Digital send communication error

### Description

A digital send job failed and cannot be delivered.

### Recommended action

Try to send the job again.

## Document feeder bin full

### Description

Too many pages are in the document feeder.



**Recommended action**

Remove excess paper from document feeder output bin.

**Document feeder kit low****Description**

Event Log message 10.39.60.

The product indicates when a supply level is low.

**Recommended action**

Replace the document feeder kit.

**Document feeder kit very low****Description**

Event Log message 10.39.70.

The product indicates when a supply level is very low.



---

**NOTE:** After an HP supply has reached the very low threshold, the HP Premium Protection Warranty for that supply has ended.

---

**Recommended action**

Replace the document feeder kit.

**Document feeder top cover open****Description**

The document feeder jam access cover is open.

**Recommended action**

Close the cover.

**EIO <X> disk initializing****Description**

The specified EIO disk device is initializing.

**Recommended action**

No action necessary.

**EIO <X> disk not functional****Description**

Event log message 82.01.YY, 82.02.YY.

The specified EIO disk device is initializing. For example, if X = 1, the disk in slot 1 is not functional.

**Recommended action**

1. Turn the product off, and then on again.
2. If the error persists, turn the product off, and then remove and reinstall the disk.

**EIO <X> disk spinning up****Description**

The EIO disk in slot <X> is spinning up its platter. Jobs that require disk access must wait.

For example, if X = 1, the disk in slot 1 is spinning up.

**Recommended action**

No action necessary.

**EIO device failure****Description**

The EIO device file system must be initialized before it can be used.

**Recommended action**

Initialize the EIO file system.

**EIO device failure To clear touch “OK”****Description**

The specified device failed.

**Recommended action**

Touch the OK button to clear the message.

**EIO file operation failed****Description**

A PJI file system command attempted to perform an illogical operation, such as downloading a file to a directory that does not exist.

**Recommended action**

Touch the OK button to clear the message.

**EIO file system is full****Description**

A PJI file system command attempted to write data to the disk but was unsuccessful due to the disk being full.

**Recommended action**

Touch the OK button to clear the message.

### EIO is write protected

**Description**

The device is protected and no new files can be written to it.

**Recommended action**

Touch the OK button to clear the message.

### EIO not initialized

**Description**

The EIO disk file system must be initialized before it can be used.

**Recommended action**

Use the HP Embedded Web Server or HP Web Jetadmin to initialize the component.

### Event log is empty

**Description**

No product events are in the log.

**Recommended action**

No action necessary.

### Expected drive missing

**Description**

The product cannot find the encrypted hard drive.

**Recommended action**

Install the encrypted hard drive.

### External device initializing

**Description**

An external device is initializing.

**Recommended action**

No action necessary.

### Fax is disabled — ignoring call

**Description**

The product received a call, but the fax feature was not configured with the required settings (country/region, date/time, company name, fax number, etc.).

**Recommended action**

Use the **Administration** menu to configure the required fax settings.

### Finisher low on finishing agent

#### Description

A finishing device on the product is low on its supply material (for example, staples).

#### Recommended action

Refill the product finishing device supply.

### Finishing process not functional

#### Description

The finishing device indicates it cannot perform the requested finishing action (like stapling or binding).

#### Recommended action

The job proceeds without the finishing action being performed.

### Flatbed cover open or Close Flatbed cover

#### Description

The platen glass cover is open or the open/closed sensor is not functioning correctly.

#### Recommended action

1. Close the flatbed cover.
2. If the error persists, perform a Sensors diagnostic in the **Diagnostics** menu on the product control panel to test the flatbed open/closed sensor.
3. Clean, adjust, or replace the sensor as needed.

### Fuser Kit low

#### Description

**10.23.60** (event code)

The product indicates when a supply is low.

#### Recommended action

Replace the fuser.

After replacing the fuser, reset the fuser page counter by selecting **New Fuser Kit** in the **Reset Supplies** sub-menu.

### Fuser Kit very low To continue, touch “OK”

#### Description

**10.23.70** (event code)

The product indicates when a supply is very low.

After an HP supply has reached the very low threshold, the HP premium protection warranty for that supply has ended.

**Recommended action**

Replace the fuser.

After replacing the fuser, reset the fuser page counter by selecting **New Fuser Kit** in the **Reset Supplies** sub-menu.

**Gateways failed****Description**

There is an incorrect gateways configuration.

**Recommended action**

Use the **EIO <X> Jetdirect** menu to configure the default gateway.

**Genuine HP supply installed****Description**

**10.XX.40** (event code)

A new genuine HP toner cartridge has been installed.

- **10.00.40** (event code) - Black print cartridge
- **10.10.40** (event code) - Cyan print cartridge
- **10.02.40** (event code) - Magenta print cartridge
- **10.03.40** (event code) - Yellow print cartridge

**Recommended action**

Touch the Hide button to remove this message.

**HP Secure hard drive disabled****Description**

The HP high-performance hard disk is disabled, or the product does not recognize the hard disk.

After an encrypted hard disk is paired with a specific product, it cannot be used in another product unless it is re-initialized.



---

**NOTE:** After the encrypted hard disk is paired to the product, all other hard disks are disabled.

---

**Recommended action**

Remove the drive or use the HP Embedded Web Server for more information.

1. Open the embedded Web server by typing the product IP address into a Web browser.
2. Select the **Digital Sending** tab.
3. Select the **Security** link from the left navigation menu, and open the **Hard Disk and Mass Storage Security Settings** section.
4. The following options are available.

- **Disk Init** : This option does not affect the disk encryption status.
- **NVram Init** : This option does not affect the disk encryption status.
- **Disable Hard Disk Encryption and Reboot** : This option completely erases the hard disk including all stored jobs, digital-send settings, and authentication settings. All pre-loaded fonts, after-market fonts, and other programs must be reloaded.
- **Reinitialize Hard Disk** : This option has the same effect as the Disable Hard Disk Encryption and Reboot , but it does not restart the product.

### Incompatible <Supply>

#### Description

The indicated supply is not compatible with this product.

- **10.00.35:** (event code) Black toner cartridge
- **10.01.35:** (event code) Cyan toner cartridge
- **10.02.35:** (event code) Magenta toner cartridge
- **10.03.35:** (event code) Yellow toner cartridge
- **10.23.35:** (event code) Fuser kit

#### Recommended action

Replace the supply with one that is designed for this product.

### Incompatible supplies

#### Description

Print cartridges or other supply items are installed that were not designed for this product. The product cannot print with these supplies installed.

Event codes are supply specific.

#### Recommended action

Touch the **OK** button to identify the incompatible supplies.

Replace the supplies with those that are designed for this product.

### Initializing

#### Description

The product is starting.

#### Recommended action

No action necessary.

### Initializing scanner Please wait

#### Description

The product is waiting for the scanner to initialize.

**Recommended action**

No action necessary. Wait until the Ready message appears on the display.

**Install <color> cartridge****Description**

A supply item is either not installed or installed incorrectly.

- **10.00.15:** (event code) Black toner cartridge
- **10.01.15:** (event code) Cyan toner cartridge
- **10.02.15:** (event code) Magenta toner cartridge
- **10.03.15:** (event code) Yellow toner cartridge

**Recommended action**

Install the supply item or make sure that the installed supply item is fully seated.


**Install fuser unit****Description**

**10.23.15:** (event code) Fuser Kit

The fuser has been removed or installed incorrectly.

**Recommended action**

---

 **WARNING!** The fuser can be hot while the product is in use. Turn the product off, and then wait for the fuser to cool before handling it.

---

Replace or reinstall the print cartridge correctly to continue printing.

**Install Supplies****Description**

More than one supply is missing or is installed incorrectly.

- **10.00.15** (event code): Black print cartridge
- **10.01.15** (event code): Cyan print cartridge
- **10.02.15** (event code): Magenta print cartridge
- **10.03.15** (event code): Yellow print cartridge
- **10.23.15** (event code): Fuser kit
- **10.31.15** (event code): Toner collection unit

**Recommended action**

Touch the OK button to identify which supplies need to be replaced.

Touch the OK button a second time for more information about the specific supply.

Insert the supply item or make sure the installed supply item is fully seated.

### Install Transfer Unit

#### Description

**10.22.15** (event code)

The transfer unit has been removed or installed incorrectly.

#### Recommended action

1. Install the transfer unit. If already installed, remove and reinstall it.
2. If the product could not find the ITB contact alienation home position, check the ITB alienation sensor (SR9).
3. Run the ITB contact alienation test to verify that the ITB alienation mechanism is functioning properly. If it is not, replace the fuser drive assembly.
4. If the product has been serviced, reconnect the connector (J128) on the DC controller PCA.

### Internal disk device failure To clear touch “OK”

#### Description

**82.OX.YY** (event code)

The internal disk failed.

#### Recommended action

1. Touch the **OK** button to clear the error.
2. If the error persists, turn off the product, and then remove and reinstall the hard drive.
3. Turn on the product.
4. If the error persists, replace the internal hard drive.

### Internal disk file operation failed

#### Description

A P JL system command attempted to perform an invalid operation, such as downloading a file to a nonexistent directory.

#### Recommended action

Touch the **OK** button to clear the error.

### Internal disk file system is full

#### Description

A P JL system command attempted to write data to the internal disk, but failed because the disk is full.

#### Recommended action

Touch the **OK** button to clear the error.



### Internal disk is write protected

#### Description

The internal disk is write protected and no new files can be written to it.

#### Recommended action

Touch the **OK** button to clear the error.

### Internal disk not found

#### Description

The internal disk was not found at start up.

#### Recommended action

Turn the product off, and then on.

### Internal disk not functional

#### Description

**82.OX.YY** (event code)

The internal hard drive is not functioning properly.

#### Recommended action

1. Turn off the product, and then remove and reinstall the hard drive.
2. Turn on the product.
3. If the error persists, replace the internal hard drive.

### Internal disk not initialized

#### Description

The file system on the internal disk must be initialized before it can be used.

#### Recommended action

Initialize the file system on the internal disk.

### Internal disk spinning up

#### Description

The internal disk device is spinning up its platter. Jobs that require disk access must wait.

#### Recommended action

No action necessary.

### Jam in document feeder

#### Description

A document feeder jam has occurred.

**Recommended action**

Clear the jam. See the clear jams section in the product troubleshooting service manual.

**Job not stapled due to mixed sizes****Description**

This message displays when the job to staple has more than one paper size (paper width).

**Recommended action**

Paper with different widths cannot be stapled. Use the same width paper for the entire print job.

**Load Tray <X>: [Type], [Size] To use another tray, press “OK”****Description**

This message displays when the indicated tray is selected, but is not loaded, and other paper trays are available for use.

It also displays when the tray is configured for a different paper type or size than the print job requires.

**Recommended action**

1. Load the correct paper in the tray.
2. If prompted, confirm the size and type of paper loaded.
3. Otherwise, press the OK button to select another tray.
4. If error persists, use the cassette paper present sensor test in the Tray/bin manual sensor test to verify that the sensor is functioning correctly.
5. Make sure that the sensor flag on the paper presence sensor is not damaged and moves freely.
6. Reconnect the corresponding connector.
  - MP tray: connector (J736) on the MP tray paper out sensor and the connector (J152) on the DC controller PCA.
  - Product cassette: connectors (J739 and J742) on the cassette paper out sensor and the connector (J151) on the DC controller PCA.
  - 1X500-sheet paper feeder cassette: connector (J702D) on the paper feeder cassette paper out sensor and the connector (J2003) on the paper feeder controller PCA.
  - Paper deck cassette 1: connector (J702D) on the paper deck cassette 1 paper out sensor and connector (J2003) on the paper deck controller PCA 1.
  - Paper deck cassette 2: connector (J802D) on the paper deck cassette 2 paper out sensor and connector (J2003B) on the paper deck controller PCA 2.
  - Paper deck cassette 3: connector (J902D) on the paper deck cassette 3 paper out sensor and connector (J2003C) on the paper deck controller PCA 3.

## Loading program <XX>

### Description

Programs and fonts can be stored on the product's file system and are loaded into RAM when the product is turned on. The number <XX> specifies a sequence number indicating the current program being loaded.

### Recommended action

No action necessary.



**NOTE:** Do not turn the product off.

---

## Manually feed output stack Then touch "OK" to print second side

### Description

The first side of a manual duplex job printed and the product is waiting for the user to insert the output stack to complete the second side. For the normal Manually Feed message, printing continues automatically when the paper is reinserted. With this message, printing stops until the user touches the OK button, which allows time for straightening the output stack.

### Recommended action

1. Maintaining the same orientation, remove the pages from the output bin.
2. Flip the document printed side up.
3. Load the document in Tray 1.
4. Touch the OK button to print the second side of the job.

## Manually feed: <Type><Size> To use another tray, press "OK"

### Description

This message displays when manual feed is selected, Tray 1 is loaded, and other trays are available.

### Recommended action

1. Load tray with the requested paper.
2. If paper is already in tray, press the [Help](#) button to exit the message, and then press the [OK](#) button to print.
3. To use another tray, clear paper from Tray 1, press the [Help](#) button to exit the message, and then press the [OK](#) button.

## Moving solenoid and motor

### Description

The solenoid and a motor are moving as part of a component test.

### Recommended action

No action necessary.

To exit, press the [Stop](#) button .

### Moving solenoid To exit press

#### Description

The solenoid is moving as part of a component test.

#### Recommended action

No action necessary.

To exit, press the [Stop](#) button

### No job to cancel

#### Description

The user pressed the Stop button , but the product is not actively processing any jobs.

#### Recommended action

No action necessary.

### Non HP Supply Installed

#### Description

A non-HP supply is detected.

This message displays for 30 seconds, and then the product returns to a Ready state.

The product does not provide supply status messages for non-HP supplies.

#### Recommended action

Press OK to continue.

If you believe you purchased a genuine HP supply, go to [www.hp.com/go/anticounterfeit](http://www.hp.com/go/anticounterfeit).

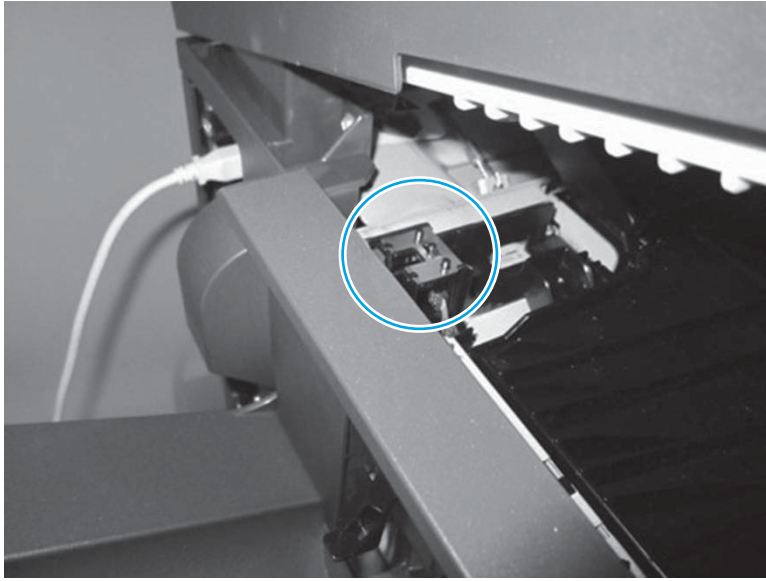
### Output Bin Full


#### Description

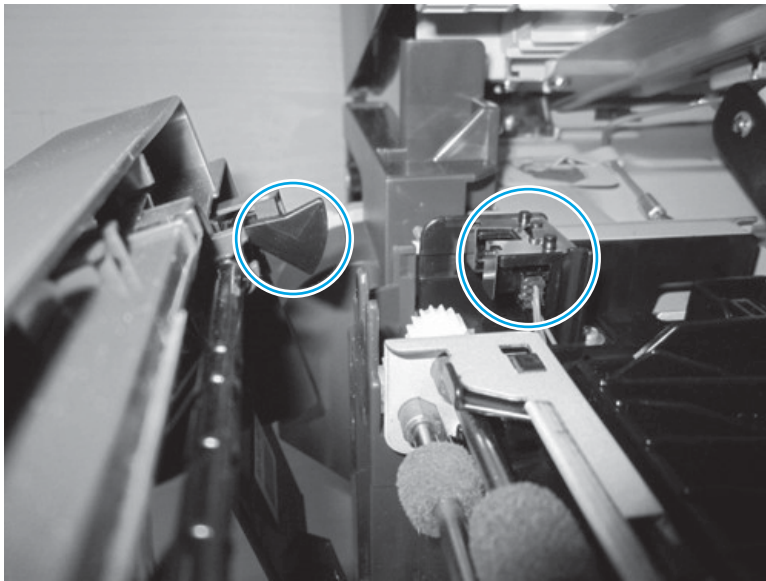
The **Output Bin Full** message displays when the output bin is full and paper must be removed before printing can continue.

#### Recommended action

1. Bin full is detected by sensor SR1 which is located under the top cover near the rear of the output bin bezel. See the following figures in this section.



 **NOTE:** In the following figure, the output bin bezel is shown released from the left side of the product to show the flag and the sensor.



2. When the output bin is full, the stack of pages causes the actuator to stay in the up position. When the actuator is in the up position the flag is moved out of the sensor, and the **Output Bin Full** displays on the control panel.
3. Use the manual sensor tests to test the sensor (SR1 IPTU bin full). See the following figure.



- To test the sensor, lift the bin full actuator up (see the following figure). As the actuator is lifted up, the green sensor state indicator clears, and the toggled counter increments. When the actuator is lowered, the state indicator illuminates green, and the toggled counter increments once more.



If the bin full sensor does not toggle, try removing the output bin bezel and testing the sensor with a piece of paper.

If the bin full sensor still fails to respond, replace the IPTU.

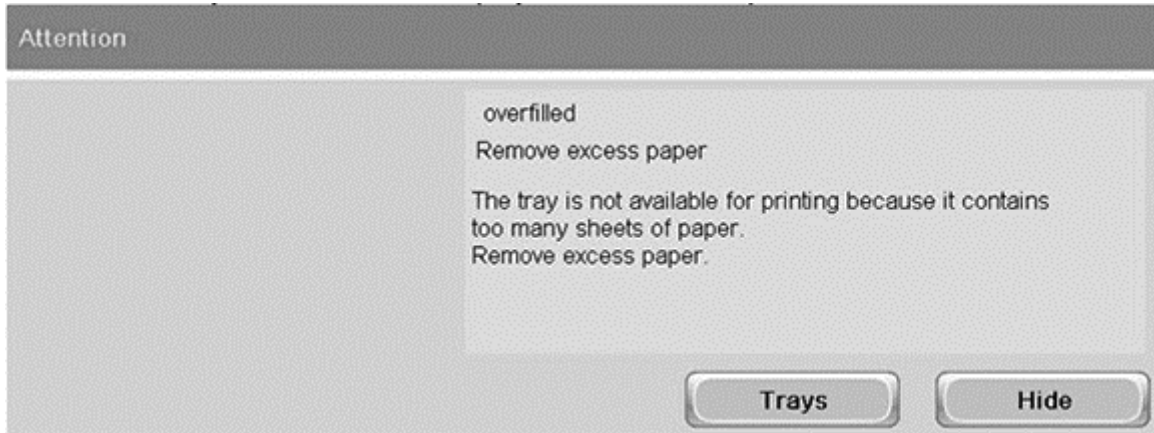
If the sensor responds correctly with the output bin bezel removed, examine the output bin bezel for proper movement of the flag and actuator assembly. If the assembly appears OK, try reinstalling the output bin bezel.

## Overfilled

### Description

A tray in the product is overfilled with paper.

Printing can continue from a different tray.



### Recommended action

1. Open the tray and remove paper until the tray filled indicators can be seen. The overfilled condition is sensed by the stack surface sensor when the tray is first closed. If the stack surface sensor does not move down (because the tray is too full), the **Overfilled** message displays on the control panel, and the tray is not be available for printing.
2. Try printing from the affected tray.
3. If the error persists after removing paper from the tray, the following parts might need to be replaced:
  - Paper pickup assembly
  - DC controller (DCC) PCA
4. **On-site technician:** perform a manual sensor test for SR24 tray2 paper surface sensor.
  - This test requires a service technician to actuate the tray closed lever, which releases the sensor arms for the paper surface sensors.
  - If the **Overfilled** message first appeared after replacing a paper pickup assembly, check the J58 connection to the assembly – a loose or missing connection will cause this error.
  - If the **Overfilled** message first appeared after replacing a DC controller PCA, check the connector at J115 on the PCA.

## Paperless Mode

### Description

This is a test mode used in manufacturing and should not be seen on a normally operating product.

### Recommended action

No Action necessary.

## Paused. Press to Resume

### Description

This message displays when the product is paused and shows the job queue. The product is paused, and there are no error messages pending at the display. The I/O continues receiving data until memory is full.

**Recommended action**

Press the [Stop](#) button

**Performing Color Band Test****Description**

The color-band test is being performed.

**Recommended action**

No action necessary.

**Performing Paper Path Test****Description**

The product is performing a paper-path test.

**Recommended action**

No action necessary.

**Please Wait...Canceling test****Description**

The product is performing an ITB contact, alienation drive, or fuser pressure release test.

**Recommended action**

No action necessary.

**Printing CMYK samples****Description**

The CMYK-samples page is being generated. The product will return to the Ready state when the page is complete.

**Recommended action**

No action necessary.

**Printing Color Usage Log****Description**

The color-usage-log page is being generated. The product will return to the Ready state when the page is complete.

**Recommended action**

No action necessary.



## Printing Configuration

### Description

The product is printing the Configuration page.

### Recommended action

No action necessary.

## Printing Demo Page

### Description

The demo page is being generated. The product will return to the Ready state when the page is complete.

### Recommended action

No action necessary.

## Printing Diagnostics Page

### Description

The diagnostics page is being generated. The product will return to the Ready state when the page is complete.

### Recommended action

No action necessary.

## Printing engine test

### Description

The product is printing an engine Test page.

### Recommended action

No action necessary.

## Printing Event Log

### Description

The product is printing the Event Log page.

### Recommended action

No action necessary.

## Printing File Directory

### Description

The product is printing the File Directory pages.

### Recommended action

No action necessary.

### Printing Font List

**Description**

The product is printing the Font List pages.

**Recommended action**

No action necessary.

### Printing Help Page

**Description**

The product is printing the Help page.

**Recommended action**

No action necessary.

### Printing Menu Map

**Description**

The product is printing the Menu Map pages.

**Recommended action**

No action necessary.

### Printing Registration Page

**Description**

The product is printing the registration page that is used to adjust image placement.

**Recommended action**

No action necessary.

### Printing RGB samples

**Description**

The print-quality troubleshooting test is being generated. The product will return to the Ready state when the test completes.

**Recommended action**

No action necessary.

### Printing stopped To continue, touch “OK”

**Description**

The product displays this message when a print/stop test is run and the time expires.

**Recommended action**

Touch the OK button to continue.

## Printing Supplies Status Page

### Description

The product is printing the Supplies Status page.

### Recommended action

No action necessary.

## Printing Usage Page

### Description

The product is printing the Usage page.

### Recommended action

No action necessary.

## Processing

### Description

The product is currently processing a job, but is not yet picking pages. When paper motion begins, this message is replaced by a message that indicates the tray the job is using.

### Recommended action

No action necessary.

## Processing job from tray <X>...Do not grab paper until job completes

### Description

The product is processing a job from the tray indicated.

### Recommended action

No action necessary.

## Processing...copy <X> of <Y>

### Description

The product is currently processing or printing collated copies. The message indicates that copy number <X> of total copies <Y> is currently being processed.

### Recommended action

No action necessary.

## RAM disk device failure To clear touch "OK"

### Description

The specified device failed.

### Recommended action

Touch the OK button to clear the error.

### RAM disk file operation failed To clear touch “OK”

#### Description

A PJI command was received that attempted to perform an invalid operation, such as downloading a file to a nonexistent directory.

#### Recommended action

Touch the OK button to clear the error.

### RAM disk file system is full To clear touch “OK”

#### Description

The hard disk is full.

#### Recommended action

Touch the OK button to clear the error.

### RAM disk is write protected To clear touch “OK”

#### Description

The RAM device is write protected and no new files can be written to it.

#### Recommended action

Touch the OK button to clear the error.

### RAM disk not initialized

#### Description

The file system on the RAM disk must be initialized before it can be used.

#### Recommended action

Initialize the file system on the RAM disk.

### Ready

#### Description

The product is online and ready for data. No status or product attendance messages are pending at the display.

#### Recommended action

No action necessary.

### Ready <IP Address>

#### Description

The product is online and ready for data. No status or product attendance messages are pending at the display. The product IP address displays.

**Recommended action**

No action necessary.

**Reattach output bin****Description**

This message displays when the standard output bin is detached at power-up or optional output bin (stapler/stacker) and does not have the Jetlink cable attached at power-up.

**Recommended action**

Touch the Hide button to remove this message.

**Receiving Upgrade****Description**

The product is receiving a firmware upgrade.

**Recommended action**

Do not turn the product off until it reaches the Ready state.

**Remove all print cartridges****Description**

The product is testing the transfer unit assembly.

**Recommended action**

To perform the test, remove all the print cartridges.

To cancel, press the [Stop](#) button.

**Remove at least one print cartridge****Description**

The product is testing the print-cartridge motor.

**Recommended action**

To perform the test, remove the print cartridge from the product.

To cancel, press the [Stop](#) button.

**Remove shipping sheet****Description**

The product displays this message if the user attempts to use the product without removing the transfer unit shipping sheet.

**Recommended action**

1. Open the front door.
2. Remove the shipping sheet.
3. Close the front door.

**Remove USB accessory****Description**

This message displays when an unsupported USB device is inserted into a host USB port on the product.

**Recommended action**

Remove the unsupported USB device.

**Replace <Supply>****Description**

This alert displays only if the product is configured to stop when a supply reaches the very low threshold. The product indicates when a supply level is at its estimated end of life. The actual life remaining might be different than estimated.

The supply does not need to be replaced now unless the print quality is no longer acceptable. HP recommends that the customer have a replacement supply available to install when print quality is no longer acceptable.

The product can be configured to stop when the supply level is very low. The supply might still be able to produce acceptable print quality.

When an HP supply has reached its approximated end of life, the HP Premium Protection Warranty on that supply ends.

- **10.00.70** : (event code) Black toner cartridge
- 10.01.70** : (event code) Cyan toner cartridge
- 10.02.70** : (event code) Magenta toner cartridge
- 10.03.70** : (event code) Yellow toner cartridge

**Recommended action**

Replace the specified supply.

Or, configure the product to continue printing using the [Manage Supplies](#) menu on the product control panel.

**Replace DIMM <MEM Test Failure>****Description**

The listed DIMM is not functioning properly and must be replaced.

**Recommended action**

Replace the DIMM.

## Replace Fuser Kit

### Description

The product indicates when the fuser kit is at its estimated end of life. The actual life remaining might be different than the estimation. Have a replacement fuser kit available to install when print quality is no longer acceptable.

The fuser kit does not need to be replaced now unless the print quality is no longer acceptable.



**NOTE:** After the fuser kit reaches its approximated end of life, the HP Premium Protection Warranty on that fuser kit ends.

- **10.23.70** : (event code) Fuser Kit

### Recommended action

Replace the fuser kit.



**CAUTION:** Use caution when handling the fuser. The fuser might be hot when the product is operating.

1. Open the right door.
2. Grasp the blue handles on both sides of the fuser and pull straight out to remove it.
3. Install the new fuser.
4. Close the right door.

## Replace staple cartridge

### Description

The staple cartridge is empty.

### Recommended action

Replace the staple cartridge located in the stapler/stacker.

1. Open the left cover.
2. Remove the staple cartridge.
3. Install a new staple cartridge.
4. Close the left cover.

## Replace Supplies

### Description

At least two supplies on the product have reached the At very low condition and the user has set the Very Low Settings menu item to **Stop**.

### Recommended action

Press the **OK** button to see which supplies need to be replaced, or configure the product to continue printing by using the **Manage Supplies** menu.

## Replace Toner Collection Unit

### Description

Event log message 10.31.70.

The product indicates when a toner collection unit (TCU) is at the end of its estimated life.

---

 **NOTE:** After a TCU has reached its end of life, the HP Premium Protection Warranty for that TCU ends.

---

### Recommended action

1. Replace the TCU.
2. If you want to operate the toner collection unit past its estimated life capacity, go to the [Manage supplies](#) menu, open the [Toner Collection Unit](#) and [Very Low Settings](#) submenus, and then select the [Continue](#) item.


---

 **NOTE:** HP does not recommended this option because of the risk of overfilling the TCU, which can result in the need to service the product.

---

3. If the TCU is new or newer, but the message does not clear or reappears too soon, use the following steps in this procedure to troubleshoot the error.
4. Remove, and then reinstall the TCU to reset it.
5. Check the TCU for any damage.
6. Check to see if the TCU is dirty on the outside in the circled area in the following figure. Wipe clean if necessary.

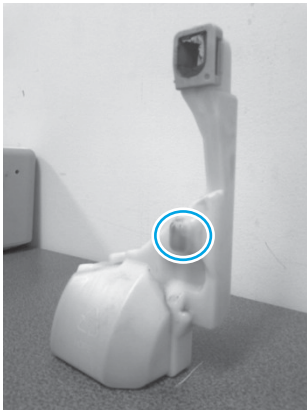
---

 **NOTE:** A TCU that continually gets dirty on the outside indicates a problem (for example, a leaking toner cartridge). Moving or shipping the product after it's been in use can also cause the outside of the TCU to get dirty.

---

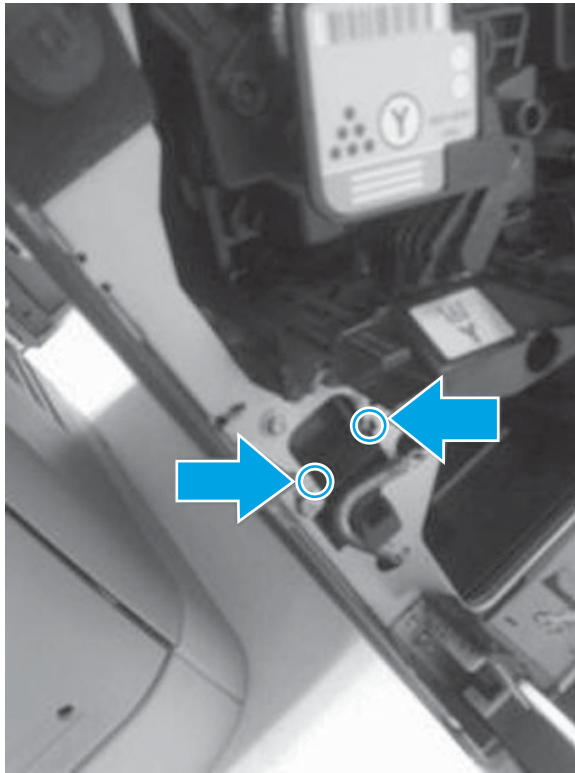
A TCU that is dirty on the inside in the circled area **must** be replaced.

---



7. Check to see if anything is blocking the sensor. The sensor has small lenses on both sides of the opening in the areas circled in the following figure.
8. Gently clean both lenses on the sensor with compressed air (or you can use cotton swab to carefully clean the lenses).





9. If the error persists, a service technician might need to replace the waste toner detect sensor assembly.

## Replace Transfer Kit


### Description

#### 10.22.70 Event log

The product indicates when a transfer kit is at its estimated end of life. The actual life remaining might be different than the estimation. Have a replacement transfer kit available to install when print quality is no longer acceptable.

The transfer kit does not need to be replaced now unless the print quality is no longer acceptable.

---

 **NOTE:** After a transfer kit has reached its approximated end of life, the HP Premium Protection Warranty on that transfer kit ends.

---

### Recommended action

Replace the transfer kit. Instructions are included with the transfer kit.

## Resend external accessory firmware

### Description

An external accessory requires a firmware upgrade. Printing can continue, but jams might occur if the job uses the external accessory.

### Recommended action

Perform a firmware upgrade.

## Resend Upgrade

### Description

A firmware upgrade did not complete successfully.

### Recommended action

Upgrade the firmware again.

## Restore Factory Settings

### Description

The product is restoring factory settings.

### Recommended action

No action necessary.

## Restricted from printing in color

### Description

The print job is being forced to print in black either because the product is set to print only in black or because the user ID and application ID do not have color printing permissions.

### Recommended action

To enable color printing for the product, change the [Restrict Color](#) setting in the [Manage Supplies](#) menu.

## RFU Load Error Send full RFU on <X> Port

### Description

The product displays this message before the firmware is loaded at initialization when an error has occurred during a firmware upgrade.

### Recommended action

Resend the firmware upgrade.

## ROM disk device failed To clear touch "OK"

### Description

The specified device failed.

### Recommended action

Touch the [OK](#) button to clear the error.

## ROM disk file operation failed To clear touch "OK"

### Description

A PJI command was received that attempted to perform an invalid operation, such as downloading a file to a nonexistent directory.

**Recommended action**

Touch the **OK** button to clear the error.

**ROM disk file system is full To clear touch “OK”****Description**

The hard disk is full.

**Recommended action**

Touch the **OK** button to clear the error.

**ROM disk is write protected To clear touch “OK”****Description**

The ROM device is write protected and no new files can be written to it.

**Recommended action**

Touch the **OK** button to clear the error.

**ROM disk not initialized To clear touch “OK”****Description**

The file system on the ROM disk must be initialized before it can be used.

**Recommended action**

Initialize the file system on the ROM disk.

**Rotating < color > Motor****Description**

A component test is in progress; the component selected is the indicated cartridge motor.

**Recommended action**

Press the Stop button, when ready to stop this test or exit.

**Rotating Motor****Description**

This message displays during the execution of a component test and the component that is moving is a single motor.

**Recommended action**

Touch the **Hide** button to remove this message.

**Sanitizing disk <X> % complete Do Not power off****Description**

The hard disk is being cleaned.

**Recommended action**

Contact the network administrator.

**Size mismatch in Tray <X>****Description**

The paper in the listed tray does not match the size specified for that tray.

**Recommended action**

1. Load the correct paper.
2. Make sure that the paper is positioned correctly.
3. Close the tray, and then make sure that the control panel lists the correct size and type for the specified tray.
4. If necessary, use the control panel menus to reconfigure the size and type settings for the specified tray.
5. If error persists, use the Tray/Bin manual sensor test to test the switch.

**Sleep mode on****Description**

The product is in sleep mode. Pressing a control panel button, receiving of a print job, or an error condition clears this message.

**Recommended action**

No action necessary.

**Staple Cartridge <X> low (warning)****Description**

The specified staple cartridge is at end of life.

After an HP supply has reached the very low threshold, the HP premium protection warranty ends.

**Recommended action**

Replace the staple cartridge.

**Staple Cartridge low****Description**

The product indicates when a supply level is low. 20 to 50 staples remain in the cartridge.

**Recommended action**

Replace the staple cartridge.

## Supplies low

### Description

Multiple supplies on the product have reached the user defined low threshold.

### Recommended action

Replace the supply when print quality is no longer acceptable.

## Supply Memory Warning

### Description

The product cannot read or write to the e-label or the e-label is missing.

### Recommended action

No action necessary.

## The Device Fan Has Failed – (Formatter fan failure)

### Description

The formatter fan has failed.

### Recommended action

1. Turn the product off then on.
2. Check the fan located on the upper left rear of the product. Use a flashlight to examine the fan; it can be seen through the air vent located at the top of the rear cover. Pull out the formatter and check the fan connector on the formatter.
3. If the issue persists, replace the formatter fan.

## The unit has corrupt data

### Description

Data corruption has occurred in the firmware volume.

- **98.00.01:** Corrupt data in the firmware volume
- **98.00.02:** Corrupt data in the solutions volume
- **98.00.03:** Corrupt data in the configuration volume
- **98.00.04:** Corrupt data in the job data volume

### Recommended action

For **98.00.01**, **98.00.02**, and **98.00.03**, perform the following steps:

1. Turn the product off, and then on again.
2. Use the **Clean Disk** item in the **Preboot** menu.
3. Reload the firmware.

For **98.00.04**, perform the following steps:

1. Turn the product off, and then on again.
2. Execute the file erase function.

### Toner collection unit almost full

#### Description

##### 10.31.60 Event log

Toner collection unit bottle is almost full.

#### Recommended action

Replace the toner collection unit.

### Too many jobs in queue

#### Description

This message displays when the user selects a USB file to print, and 100 files are already in the print queue.

#### Recommended action

To select another file, touch the **OK** button.

### Too many pages in job to staple

#### Description

The job contains more pages than can be stapled.

#### Recommended action

Send the job to the stacker bin or make the job page count smaller.

### Transfer Kit low

#### Description

##### 10.22.60 Event log

The product indicates when a supply level is low.

#### Recommended action

Replace the ITB kit.

### Transfer Kit very low

#### Description

##### 10.22.70 Event log

The product indicates when a supply level is very low.



**NOTE:** After an HP supply has reached the very low threshold, the HP Premium Protection Warranty for that supply has ended.

**Recommended action**

Replace the ITB kit

**Tray <X> [type] [size]****Description**

The paper in the specified tray is detected as the specified size and type.

The custom switch was not changed.

**Recommended action**

If the paper is a custom size or type, change the custom-size switch on the tray as necessary.

**Tray <X> empty: [Type], [Size]****Description**

The specified tray is empty and the current job does not need this tray to print.

- X = 1: Tray 1
- X = 2: Tray 2
- X = 3: Tray 3
- X = 4: Tray 4
- X = 5: Tray 5

**Recommended action**

Refill the tray at a convenient time.

This could be a false message. If the tray is loaded without removing the shipping lock, the product does not sense that the paper is loaded. Remove the shipping lock, and then load the tray.

**Tray <X> lifting****Description**

The product is in the process of lifting paper in the indicated tray.

- X = 2: Tray 2
- X = 3: Tray 3
- X = 4: Tray 4
- X = 5: Tray 5

**Recommended action**

No action necessary.

## Tray <X> open

### Description

The specified tray is open or not closed completely.

- X = 2: Tray 2
- X = 3: Tray 3
- X = 4: Tray 4
- X = 5: Tray 5

### Recommended action

1. Close the tray.
2. If this message displays after the lifter drive assembly was removed or replaced, make sure that the connector of the assembly is connected correctly and fully seated.
3. If the error persists, use the paper size switches in the [Tray/Bin manual sensor test](#) to test the switches.
4. If the switches do not respond, replace the associated lifter drive assembly.

## Tray <X> overfilled

### Description

The tray is filled above the stack-height mark.

- X = 2: Tray 2
- X = 3: Tray 3
- X = 4: Tray 4
- X = 5: Tray 5

The overfilled condition is sensed by the stack surface sensor when the tray is first closed. If the stack surface sensor does not move down (because the tray is too full), the overfilled message will be displayed and the tray will not be available for printing.



**NOTE:** See **Overfill** error for more information

### Recommended action

1. Open the tray and remove paper until the tray filled indicators can be seen.
2. Close the tray.
3. Make sure that all connections from the DCC to the paper pickup assembly and lifter drive assembly are fully seated and connected.
4. If the lifter drive assembly was removed or replaced, make sure that the connector on the assembly is connected correctly and fully seated.
5. If the error persists, perform a tray bin sensor test for the paper stack sensor of the specified tray. Replace sensors if necessary.
6. If the error persists, replace the paper pickup assembly.





---

### Type mismatch Tray <X>

#### Description

The specified tray contains a paper type that does not match the configured type.

#### Recommended action

The specified tray will not be used until this condition is addressed. Printing can continue from other trays.

1. Load the correct paper in the specified tray.
2. On the product control, make sure that the type loaded in the tray matches the specified setting for the tray.

### Unable to Install

#### Description

The product displays this message when one of the following conditions occurs during a firmware upgrade.

#### Recommended action

Remove paper from the bin to continue.

### Unsupported drive installed To continue, touch “OK”

#### Description

A non-supported hard drive has been installed. The drive is unusable by this product.

#### Recommended action

Refer to the walk-up help for each of these error conditions for specific instructions on resolving the error

### Unsupported supply in use OR Unsupported supply installed To continue, touch “OK”

#### Description

The product has one or more HP genuine supplies, designed for a different product, in use.

- **10.00.41** (event code): Black print cartridge
- **10.10.41** (event code): Cyan print cartridge
- **10.02.41** (event code): Magenta print cartridge
- **10.03.41** (event code): Yellow print cartridge

#### Recommended action

Turn off the product, and then replace the supply with a supply designed for the product.

### Unsupported tray configuration

#### Description

The product has too many optional trays installed.

**Recommended action**

Turn the product off, remove the unsupported trays, and then turn the product on.

**Unsupported USB accessory detected Remove USB accessory****Description**

A non-supported USB accessory has been connected.

**Recommended action**

Turn the product off, remove the USB accessory, and then turn the product on.

**Upgrade Error****Description**

There was a scanner control board (SCB) upgrade error.

**Recommended action**

1. Turn the product off, and then on.
2. Resend the upgrade.
3. If the error persists, replace the SCB.

**USB accessory not functional****Description**

A parameter in the USB accessory is not functioning correctly.

**Recommended action**

1. Turn the product off.
2. Remove the USB accessory.
3. Insert a replacement USB accessory.
4. Turn the product on.

**USB hubs are not fully supported Some operations may not work properly****Description**

Some USB hubs require more power than the product has available.

**Recommended action**

Remove the USB hub.

**USB is write protected To clear touch “OK”****Description**

The USB device is write protected and no new files can be written to it.

**Recommended action**

Touch the OK button to clear the error.

**USB needs too much power****Description**

Power requirements for the USB device attached to the product are beyond supported limits.

**Recommended action**

1. Remove the USB device.
2. Turn the product off, and then on.
3. Try a similar accessory that has its own power supply or requires less power.

**USB needs too much power Remove USB and Then Turn Off then On****Description**

A USB accessory is drawing too much electrical current. Printing cannot continue.

**Recommended action**

1. Turn the product off.
2. Remove the USB accessory.
3. Turn the product on.
4. Try a similar USB accessory that has its own power supply or requires less power.

**USB not initialized****Description**

The file system on the USB device must be initialized before it can be used.

**Recommended action**

Use the HP Embedded Web Server or HP Web Jetadmin to initialize the USB device.

**USB storage accessory removed Clearing any associated data****Description**

This message displays for about 6 seconds after a USB device is removed.

**Recommended action**

Touch the Hide button to remove this message.

**USB storage device failure To clear touch “OK”****Description**

The specified device failed.

**Recommended action**

Touch the OK button to clear this error.

**USB storage file operation failed To clear touch “OK”****Description**

A PJI file system command was received that attempted to perform an invalid operation, such as downloading a file to a nonexistent directory.

**Recommended action**

Touch the OK button to clear this error.

**USB storage file system is full To clear touch “OK”****Description**

The file system on the installed USB device is full.

**Recommended action**

Touch the OK button to clear this error.

**Used supply installed To continue, touch “OK” OR Used supply in use Description****Description**

One of the toner cartridges or supplies has been previously used.

**Recommended action**

If you believe you purchased a genuine HP supply, go to [www.hp.com/go/anticounterfeit](http://www.hp.com/go/anticounterfeit).

**Verifying, Please Wait****Description**

This message displays when the product is retrieving a print job from device memory, but can cause the product control panel to lock up.

The user enter the **Retrieve from Device Memory** menu to print a job. After selecting the desired print jobs, **Verifying, Please Wait** displays on the control panel. The status bar will move for a moment, and then lock up. Typically, if the user waits a few minutes, the error will clear and the job will print.

In rare cases, the message will lock up permanently and force the user to power cycle the product.

The event log might show the following errors as a result of power cycling the product during lockup:

- **48.05.05**
- **98.03.11**

**Recommended action**

Turn the product off and then on again.

Make sure the firmware is the latest revision.

### Waiting for Tray <X> to lift

#### **Description**

The specified tray is in the process of lifting paper to the top of the tray (so it can feed correctly).

#### **Recommended action**

No action necessary.

### Windows Login Required to Use this Feature

#### **Description**

Windows login is required for the selected feature or job.

#### **Recommended action**

Enter the necessary Windows login information.

### Wrong cartridge in <color> slot

#### **Description**

The indicated slot for a print cartridge contains a cartridge that is not the correct color.

From left to right, the print cartridges should be installed in the following order:

- Yellow **10.03.25** (Event Code)
- Magenta **10.02.25** (Event Code)
- Cyan **10.01.25** (Event Code)
- Black **10.00.25** (Event Code)

#### **Recommended action**

Remove the print cartridge from that slot, and install a cartridge that is the correct color.

From left to right, the print cartridges should be installed in this order: Yellow, Magenta, Cyan. Black.

## Print quality troubleshooting tools: event log messages

See the control-panel message and event-log entries section of the product troubleshooting manual for event-log entry descriptions and solutions. The event log shows the last 50 events in descending order.

**Figure 2-63** Sample event log

Event Log							
1 HP Color LaserJet MFP M680							Page 1
Device Information							
Device Serial 3 : XXXXXXX							
2	3	4	5	6	7	8	
Number	Date and Time	Cycles	Event	Firmware	Description or Personality	Consecutive Repeats	
50	1/2/2014 8:28:12 AM	62	40.08.00	2302176_420411	Secure file erase is disabled	0	
49	1/2/2014 8:27:41 AM	61	10.99.34	2302176_420411	Used supply in use	0	
48	1/2/2014 8:25:09 AM	0	32.08.A3	2302176_420411	Normal boot up	0	
47	1/2/2014 8:25:06 AM	0	33.02.02	2302176_420411	Save/Recover disabled	0	
46	1/2/2014 8:24:53 AM	0	99.06.01	2302176_420411	Finisher installation successful	0	
45	1/2/2014 8:21:43 AM	61	32.08.A2	2302176_420411	Normal shutdown	0	
44	12/19/2013 3:05:54 PM	61	10.99.34	2302176_420411	Used supply in use	0	
43	12/19/2013 2:59:26 PM	0	32.08.A3	2302176_420411	Normal boot up	0	
42	12/19/2013 2:59:24 PM	0	33.02.02	2302176_420411	Save/Recover disabled	0	
41	12/19/2013 2:59:11 PM	0	99.06.01	2302176_420411	Finisher installation successful	0	
40	12/19/2013 2:57:38 PM	61	32.08.A2	2302176_420411	Normal shutdown	0	
39	12/19/2013 2:53:14 PM	61	10.99.34	2302176_420411	Used supply in use	0	
38	12/19/2013 2:45:54 PM	0	32.08.A3	2302176_420411	Normal boot up	0	
37	12/19/2013 2:45:52 PM	0	33.02.02	2302176_420411	Save/Recover disabled	0	
36	12/19/2013 2:45:39 PM	0	99.06.01	2302176_420411	Finisher installation successful	0	
35	12/19/2013 2:44:05 PM	61	32.08.A2	2302176_420411	Normal shutdown	0	
34	12/19/2013 8:30:32 AM	60	40.08.00	2302176_420411	Secure file erase is disabled	0	
33	12/18/2013 2:05:44 PM	59	10.99.34	2302176_420411	Used supply in use	0	
32	12/18/2013 2:03:21 PM	0	32.08.A3	2302176_420411	Normal boot up	0	
31	12/18/2013 2:03:18 PM	0	33.02.02	2302176_420411	Save/Recover disabled	0	
30	12/18/2013 2:03:06 PM	0	99.06.01	2302176_420411	Finisher installation successful	0	
29	12/18/2013 2:01:32 PM	59	32.08.A2	2302176_420411	Normal shutdown	0	
28	12/18/2013 1:54:54 PM	59	10.99.34	2302176_420411	Used supply in use	0	
27	12/18/2013 1:47:09 PM	0	32.08.A3	2302176_420411	Normal boot up	0	
26	12/18/2013 1:47:07 PM	0	33.02.02	2302176_420411	Save/Recover disabled	0	
25	12/18/2013 1:46:54 PM	0	99.06.01	2302176_420411	Finisher installation successful	0	
24	12/18/2013 1:45:19 PM	59	32.08.A2	2302176_420411	Normal shutdown	0	

Jan/6/2014 2:10:37 PM English (United States)

- |   |                         |
|---|-------------------------|
| 1 | Product information     |
| 2 | Event number            |
| 3 | Date and time           |
| 4 | Engine cycles           |
| 5 | Event log code          |
| 6 | Firmware version number |

---

7	Description of personality
8	Consecutive Repeats

---

## Print or view an event log



**NOTE:** The event log in using the [Administration](#) menu shows only a subset of events. For a complete event log, use the [Service](#) menu.

---

### Print or view the event log from the Administration menu

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

### Print or view the event log from the Service menu

1. From the [Home](#) screen on the product control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the [Service](#) menu.
3. On the sign-in screen, select the [Service Access Code](#) option from the drop-down list.
4. Enter one of the following service access code for the product:
  - **M651:** 04065114
  - **M680:** 04068014
5. Touch the [Print Event Log](#) or [View Event Log](#) item.

### Clear the event log

1. From the [Home](#) screen on the product control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the [Service](#) menu.
3. On the sign-in screen, select the [Service Access Code](#) option from the drop-down list.
4. Enter one of the following service access code for the product:
  - **M651:** 04065114
  - **M680:** 04068014
5. Select the [Clear Event Log](#) item, and then touch the [OK](#) button.

# Clear jams

## Auto-navigation for clearing jams

The auto-navigation feature assists you in clearing jams by providing step-by-step instructions on the control panel. When you complete a step, the product displays instructions for the next step until you have completed all steps in the procedure.

## Experiencing frequent or recurring paper jams?

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



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

HP recommends using Tray 1 or Tray 2 if the product is experiencing excessive or reoccurring jams from trays other than Tray 1 and Tray 2, or for print jobs that require media other than 20lb plain paper.

1. Use only paper that meets HP specifications for this product.
2. Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.
3. Use paper that has not previously been printed or copied on.
4. Make sure the tray is not overfilled. If it is, remove the entire stack of paper from the tray, straighten the stack, and then return some of the paper to the tray.
5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides so they are touching the paper stack without bending it.
6. Make sure that the tray is fully inserted in the product.
7. When printing on heavy, embossed, or perforated paper, use the manual feed feature and feed sheets one at a time.
8. From the Home screen on the product control panel, scroll to and touch the **Trays** button. Verify that the tray is configured correctly for the paper type and size.
9. Make sure the printing environment is within recommended specifications.



## Jam sensor locations

Use the figures below to identify the locations of sensors or switches where reoccurring jams are found.

## Paper path sensor locations

Use the diagrams in this section to locate the paper path sensors in the product.

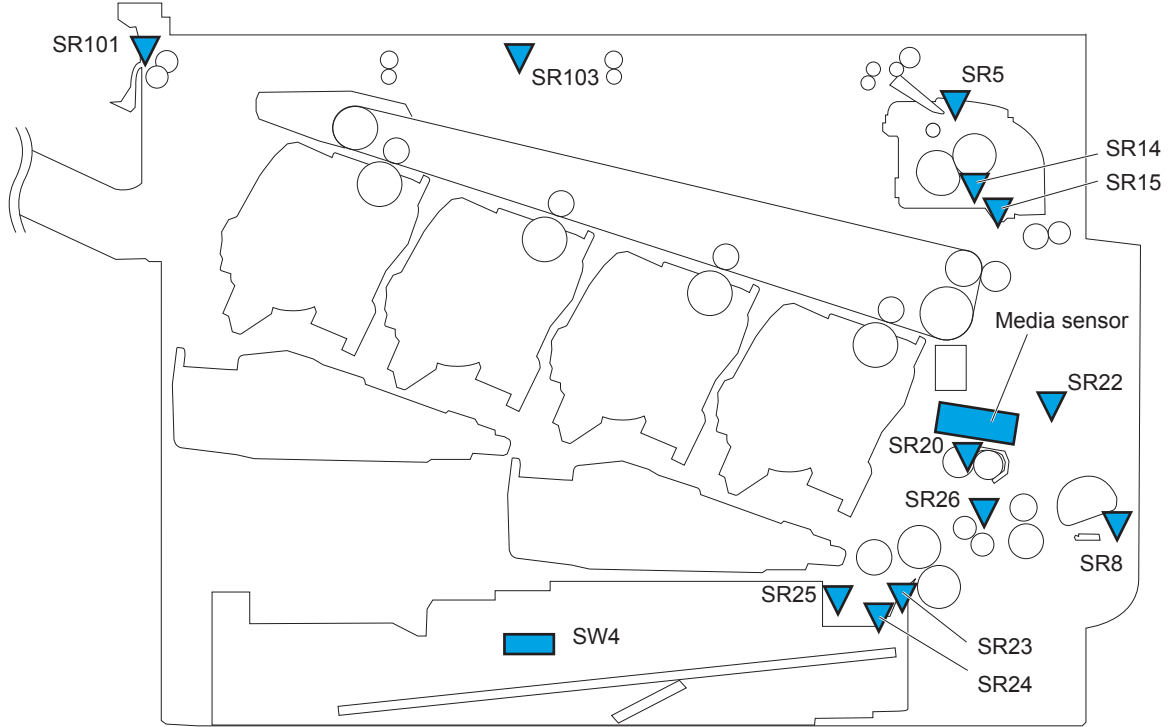
**Figure 2-64** Sensors and switches (paper path; M651)



**Table 2-57** Sensors and switches (product; M651)

Item	Description	Item	Description
SW4	Cassette media-size switch	SR22	Duplex re-pickup media-feed sensor
SR5	Fuser delivery sensor	SR23	Cassette media-surface sensor 1
SR6	Face-down tray media-full sensor	SR24	Cassette media-surface sensor 2
SR8	Multipurpose (Tray 1) tray media-presence sensor	SR25	Cassette media-presence sensor
SR14	Fuser loop sensor 1	SR26	Preregistration media-feed sensor
SR15	Fuser loop sensor 2	NA	Media feed sensor
SR20	TOP sensor		

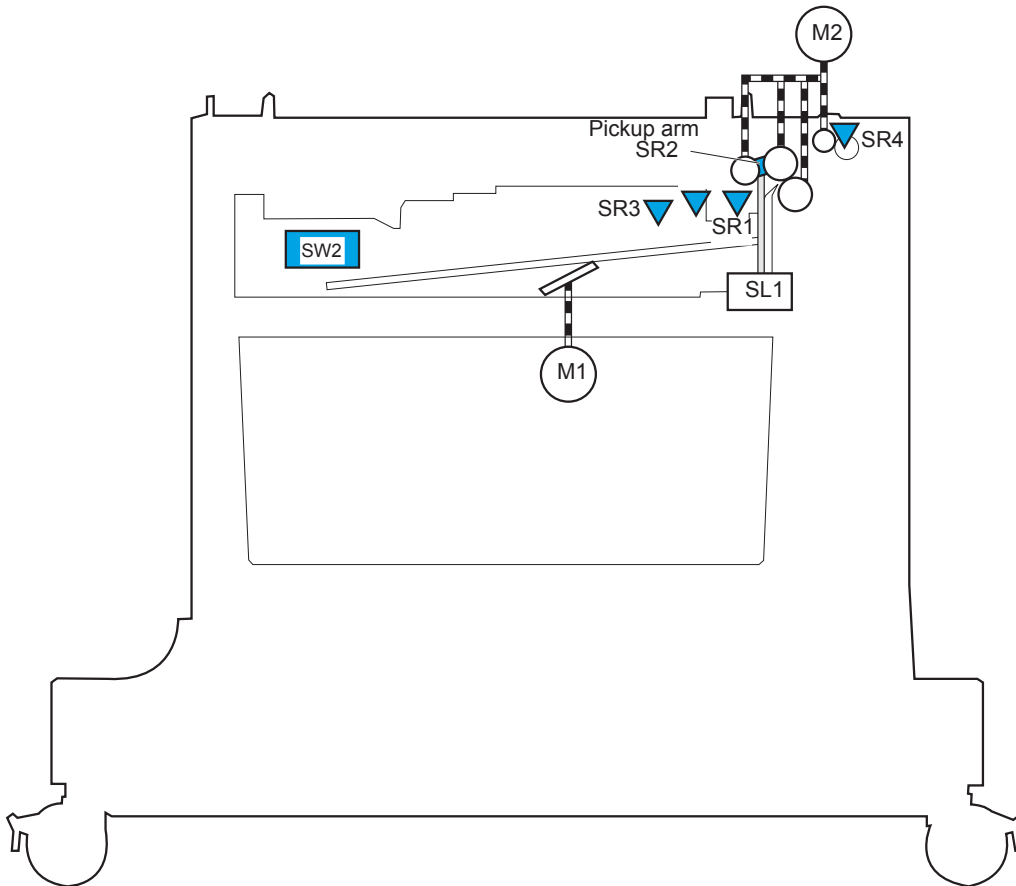
**Figure 2-65** Sensors and switches (paper path; M680)



**Table 2-58** Sensors and switches (product; M680)

Item	Description	Item	Description
SW4	Cassette media-size switch	SR23	Cassette media-surface sensor 1
SR5	Fuser delivery sensor	SR24	Cassette media-surface sensor 2
SR8	Multipurpose (Tray 1) tray media-presence sensor	SR25	Cassette media-presence sensor
SR14	Fuser loop sensor 1	SR26	Preregistration media-feed sensor
SR15	Fuser loop sensor 2	SR101	IPTU media-full sensor
SR20	TOP sensor	SR103	IPTU media-feed sensor (
SR22	Duplex re-pickup media-feed sensor	NA	Media feed sensor

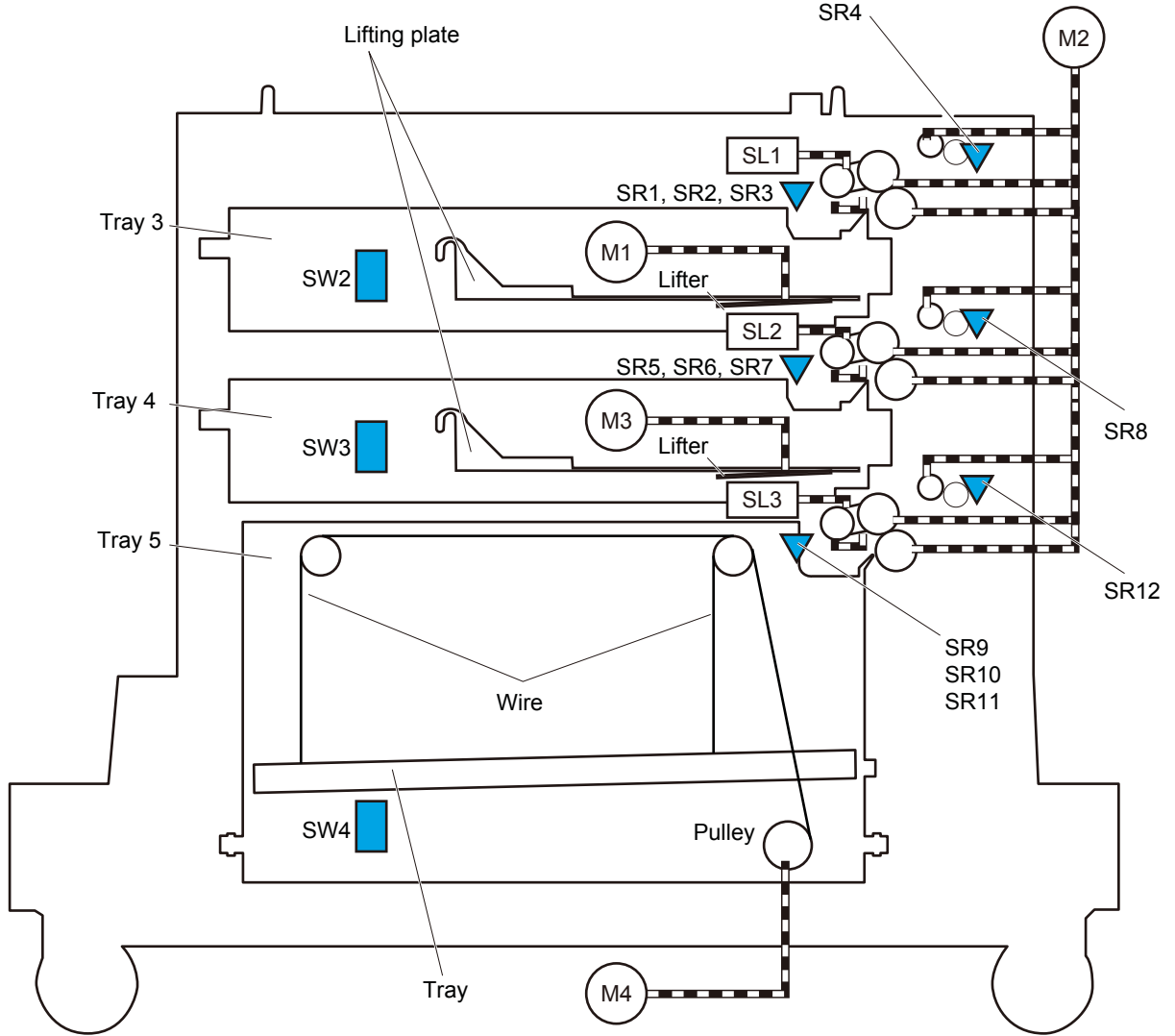
**Figure 2-66** 1x500-sheet paper-feeder and 1x500-sheet paper-feeder with storage cabinet sensors and switches



**Table 2-59** 1x500-sheet paper-feeder and 1x500-sheet paper-feeder with storage cabinet sensors and switches

Item	Description
SR1	Tray 3 paper surface sensor 1
SR2	Tray 3 paper surface sensor 2
SR3	Tray 3 paper presence sensor
SR4	Tray 3 paper present sensor
SW2	Tray 3 paper size switches

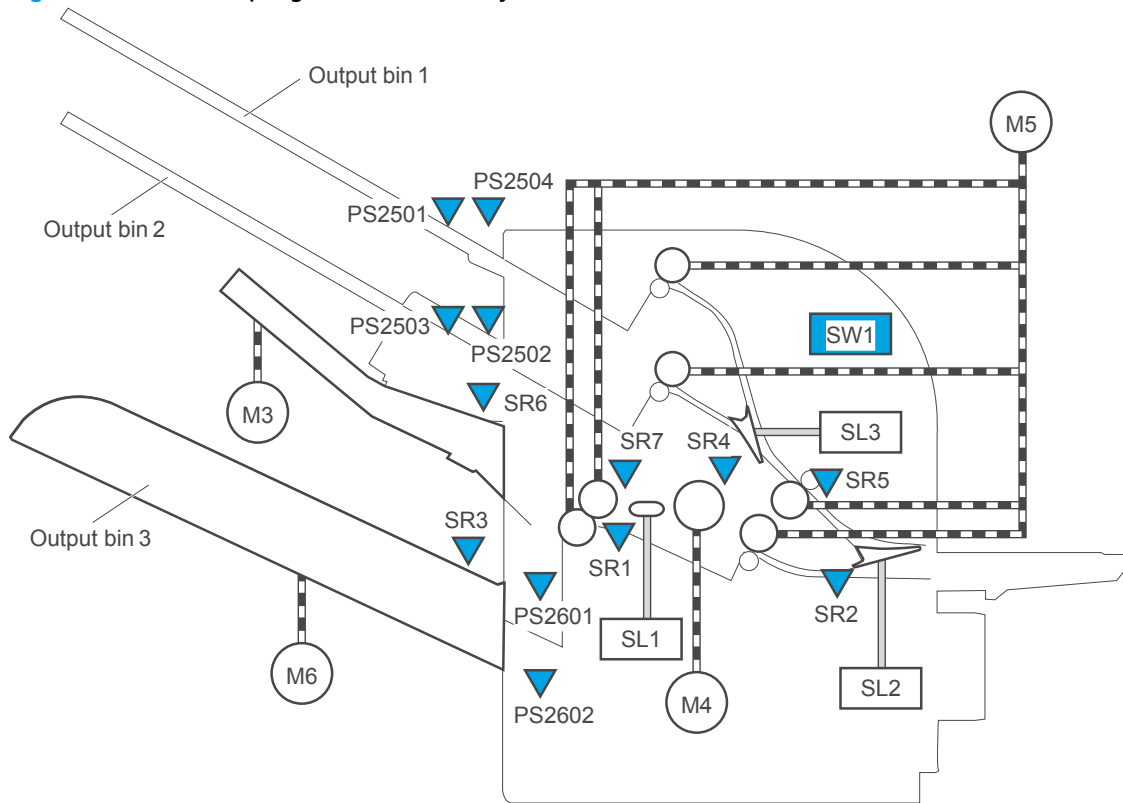
**Figure 2-67** 2,500-sheet high-capacity feeder (HCI) sensors and switches



**Table 2-60** 2,500-sheet paper deck (HCI) sensors and switches

Item	Description	Item	Description
SR1	Tray 3 paper surface sensor 1	SR9	Tray 5 paper surface sensor 1
SR2	Tray 3 paper surface sensor 2	SR10	Tray 5 paper surface sensor 2
SR3	Tray 3 paper presence sensor	SR11	Tray 5 paper present sensor
SR4	Tray 3 media-feed sensor	SR12	Tray 5 feed sensor
SR5	Tray 4 paper surface sensor 1	SW1	Tray 3, 4, and 5 right door switch
SR6	Tray 4 paper surface sensor 2	SW2	Tray 3 paper size switches
SR7	Tray 4 presence sensor	SW3	Tray 4 paper size switches
SR8	Tray 4 feed sensor	SW4	Tray 5 paper size switches

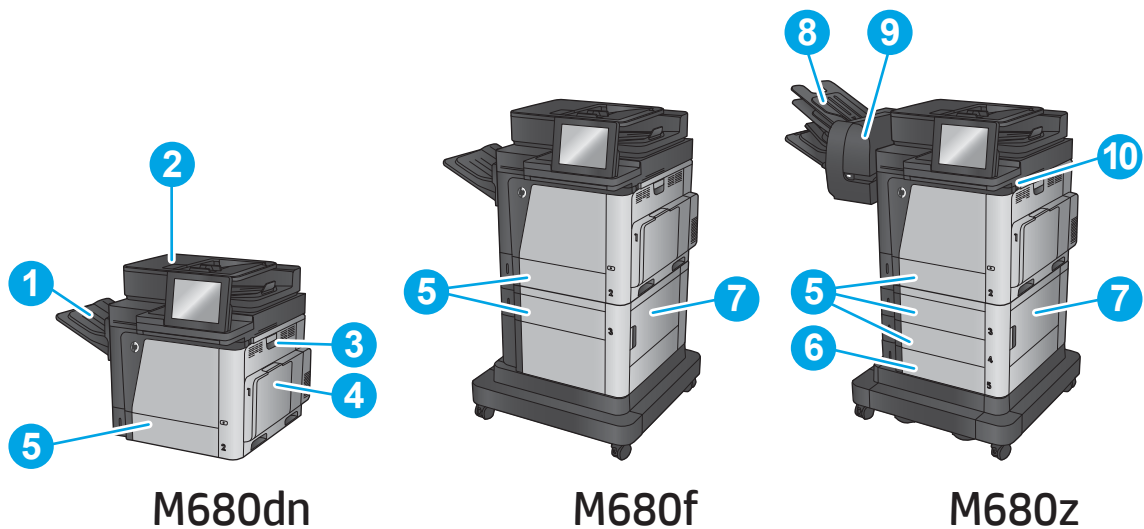
**Figure 2-68** 3-bin stapling mailbox accessory sensors and switches (M680)



**Table 2-61** 3-bin stapling mailbox accessory sensors and switches (M680)

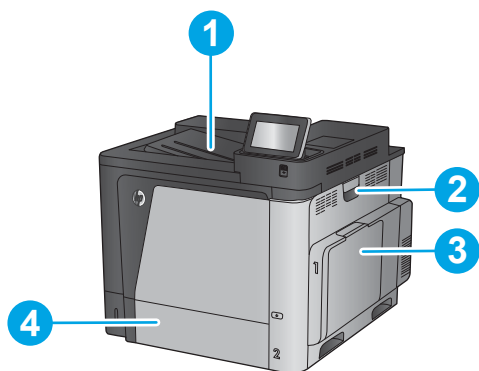
Item	Description	Item	Description
SR1	Output bin 3 delivery sensor	PS2503	Output bin 2 media presence sensor
SR2	Stapler/Stacker media feed sensor 1	PS2504	Output bin 1 media full sensor
SR3	Output bin 3 media full sensor	PS2601	Output bin 3 higher limit sensor
SR4	Alignment roller sensor	PS2602	Output bin 3 lower limit sensor
SR5	Stapler/Stacker media feed sensor 2	NA	Stapler sensor
SR6	Jogger sensor	NA	Staple presence sensor
SR7	Output bin 3 upper delivery roller sensor	NA	Staple ready sensor
PS2501	Output bin 1 media presence sensor	SW1	Stapler/Stacker door switch
PS2502	Output bin 2 media full sensor		

## Jam locations (M680)

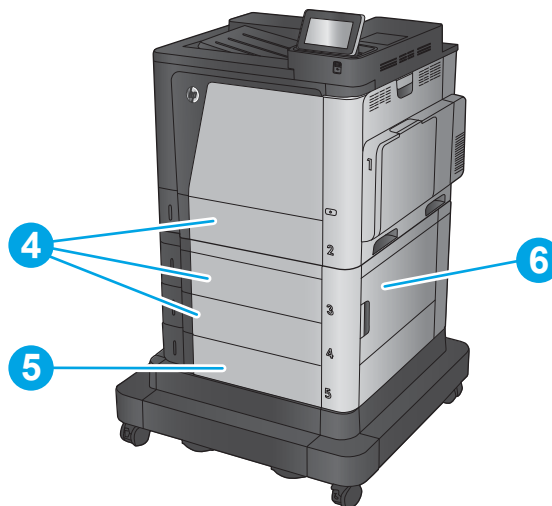


Item	Description	Recommended action
1	Output bin (M680)	See <a href="#">Clear jams in the output bin (M680) on page 460.</a>
2	Document feeder (M680)	See <a href="#">Clear jams in the document feeder (M680) on page 456.</a>
3	Right door and fuser area	See <a href="#">Clear jams in the right door and the fuser area on page 452.</a>
4	Tray 1	See <a href="#">Clear jams in Tray 1 on page 440.</a>
5	Tray 2 and the 500-sheet trays	See <a href="#">Clear jams in Tray 2 and the 500-sheet trays on page 442.</a>
6	1,500-sheet high-capacity input tray	See <a href="#">Clear jams in the 1,500-sheet high-capacity input tray and the lower-right door on page 447.</a>
7	Lower-right door	See <a href="#">Clear jams in the lower-right door on page 451.</a>
8	Stapling mailbox output bins (M680)	See <a href="#">Clear jams in the stapling mailbox accessory (M680) on page 461.</a>
9	Stapler (M680)	See <a href="#">Clear staple jams in the stapling mailbox accessory (M680) on page 463.</a>
10	Under the top cover (M680)	See <a href="#">Clear jams from under the top cover (M680) on page 455.</a>

## Jam locations (M651)



M651n  
M651dn



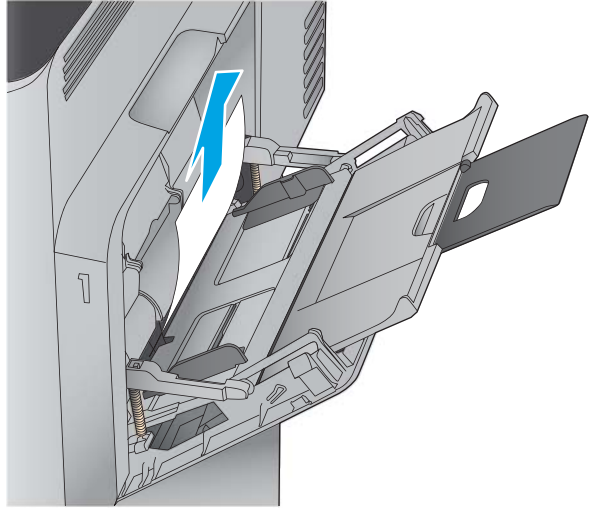
M651xh

1	Output bin (M651)	See <a href="#">Clear jams in the output bin (M651) on page 460.</a>
2	Right door and fuser area	See <a href="#">Clear jams in the right door and the fuser area on page 452.</a>
3	Tray 1	See <a href="#">Clear jams in Tray 1 on page 440.</a>
4	Tray 2 and the 500-sheet trays	See <a href="#">Clear jams in Tray 2 and the 500-sheet trays on page 442.</a>
5	1,500-sheet high-capacity input tray	See <a href="#">Clear jams in the 1,500-sheet high-capacity input tray and the lower-right door on page 447.</a>
6	Lower-right door	See <a href="#">Clear jams in the lower-right door on page 451.</a>

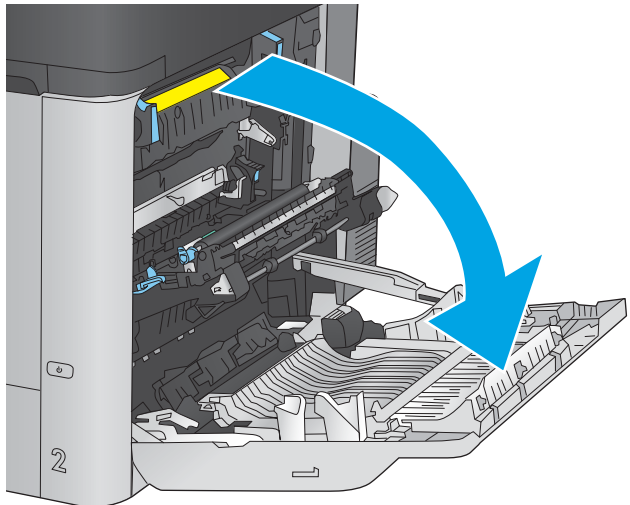
## Clear jams in Tray 1

When a jam occurs, the control panel displays an animation that assists in clearing the jam.

1. If jammed paper is visible in Tray 1, clear the jam by gently pulling the paper straight out. Touch the **OK** button to clear the message.

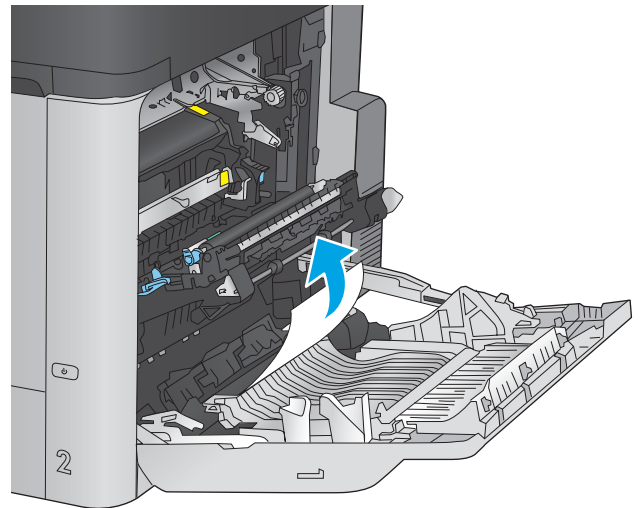


2. If the paper cannot be removed, or if no jammed paper is visible in Tray 1, close Tray 1 and open the right door.

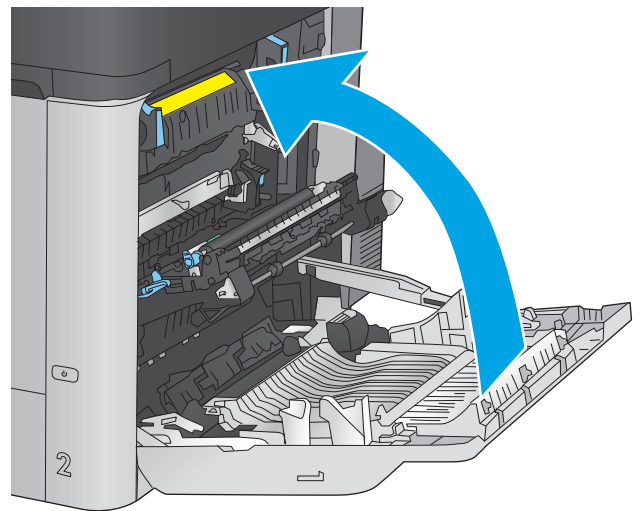




3. Gently pull the paper out of the pick up area.



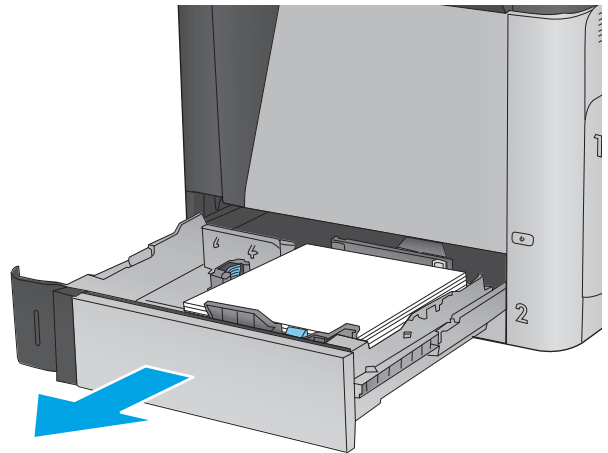
4. Close the right door.



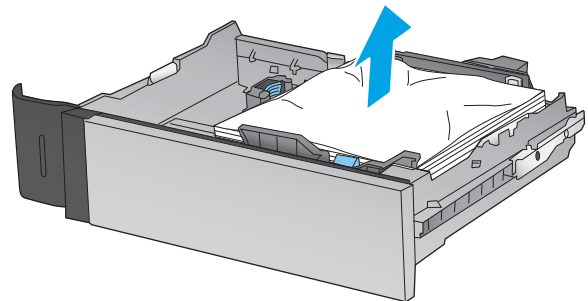
## Clear jams in Tray 2 and the 500-sheet trays

Use the following procedure to check for paper in all possible jam locations related to Tray 2 and the 500-sheet trays. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

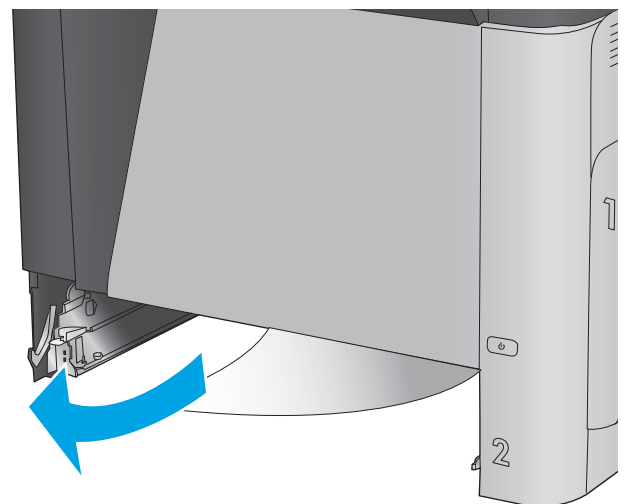
1. Pull the tray completely out of the product by pulling and lifting it up slightly.



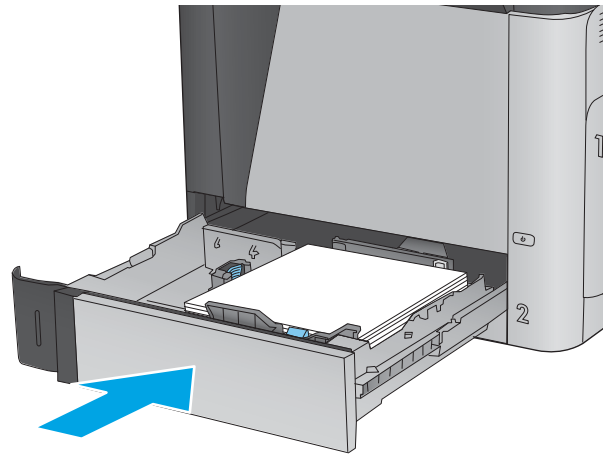
2. Remove any jammed or damaged sheets of paper.



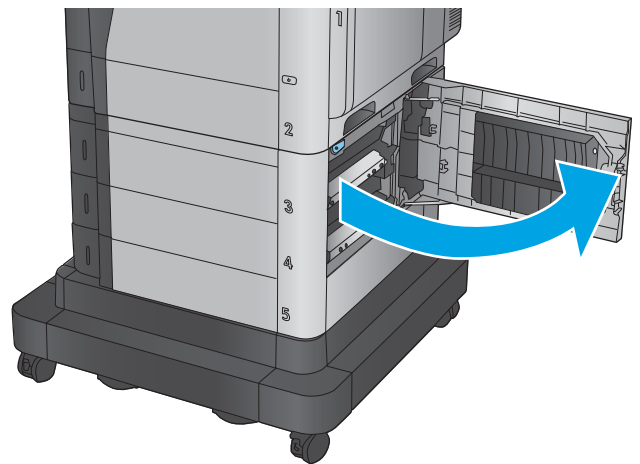
3. Remove any paper from the feed rollers inside the product.



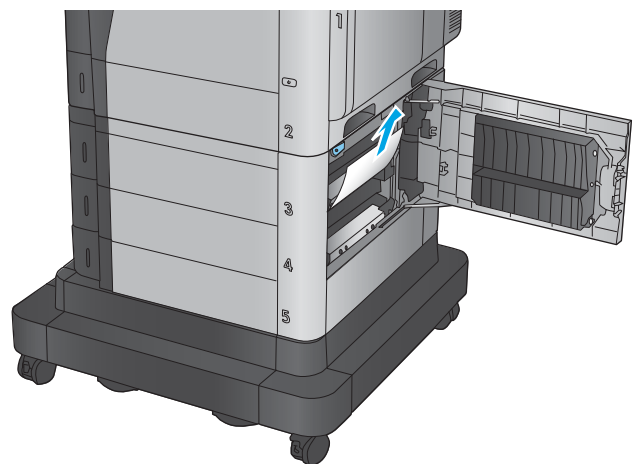
4. Reinsert and close the tray.



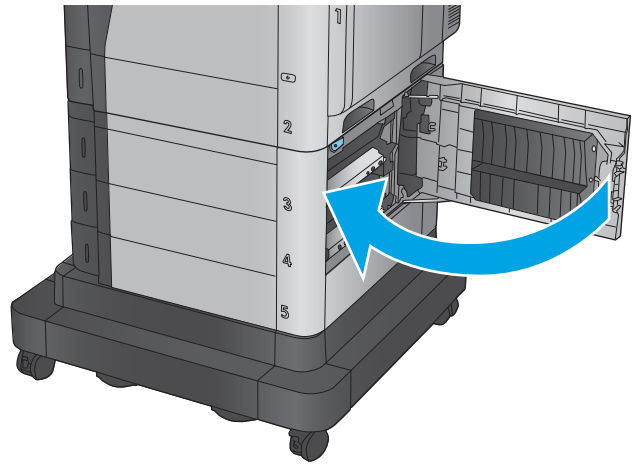
5. Open the lower-right door.



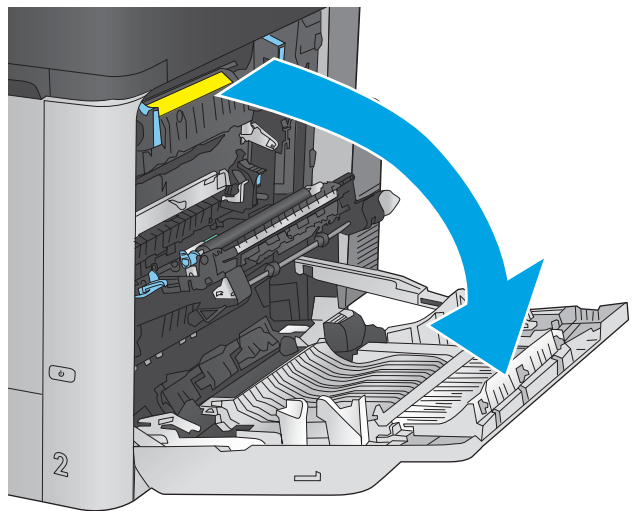
6. Gently pull out any jammed paper.



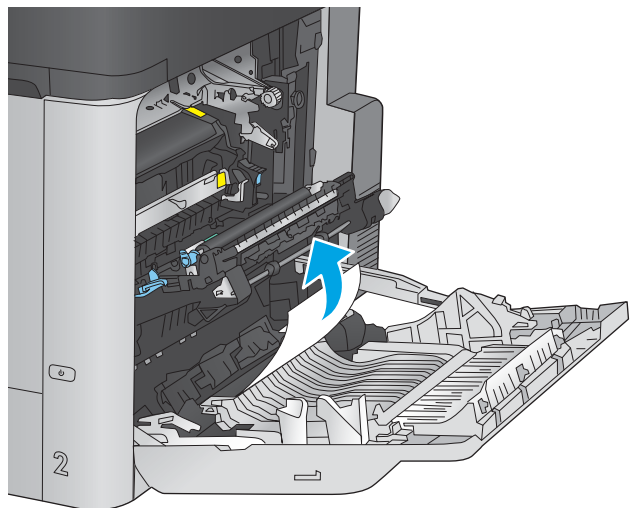
7. Close the lower-right door.



8. Open the right door.

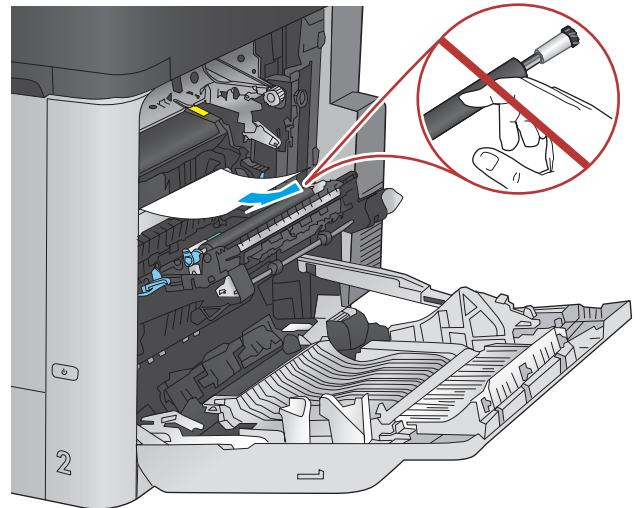


9. Gently pull out any jammed paper.

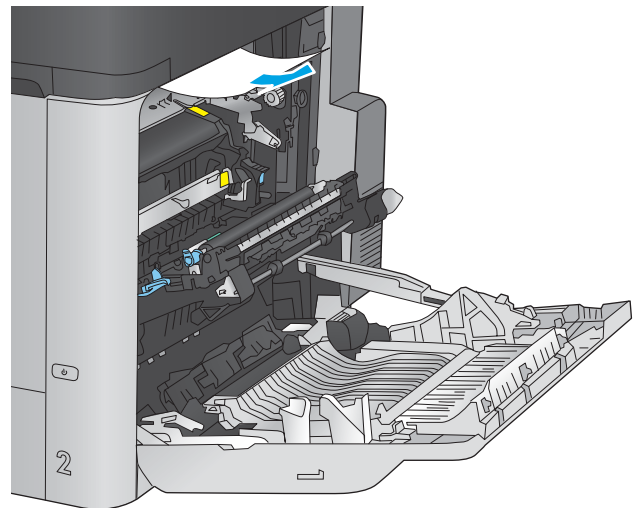


10. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.

**CAUTION:** Do not touch the rollers on the transfer roller. Contaminants can affect print quality.

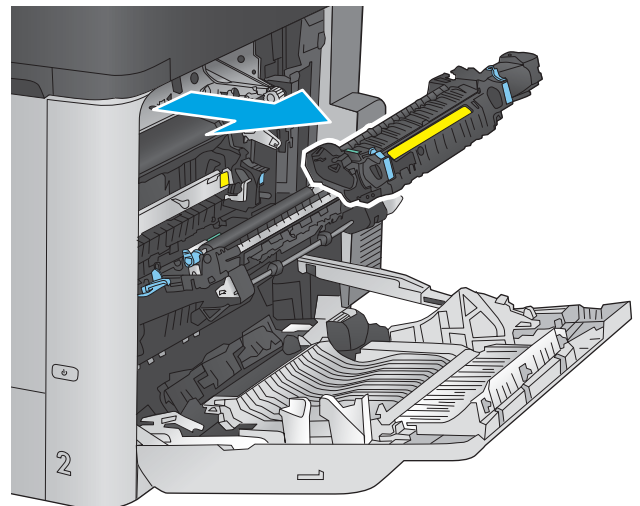


11. If paper is jammed as it enters the output bin, remove the fuser and gently pull the paper downward to remove it.



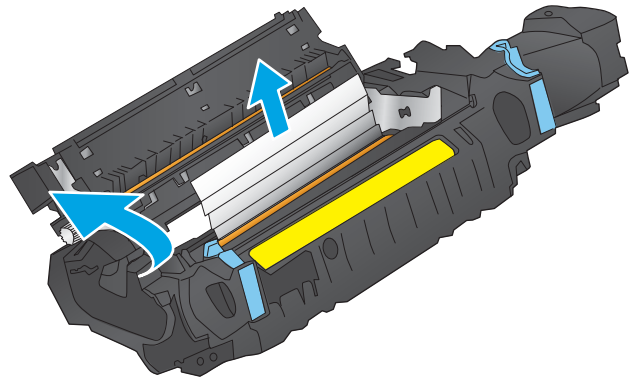
12. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, lift up slightly, and then pull straight out to remove the fuser.

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

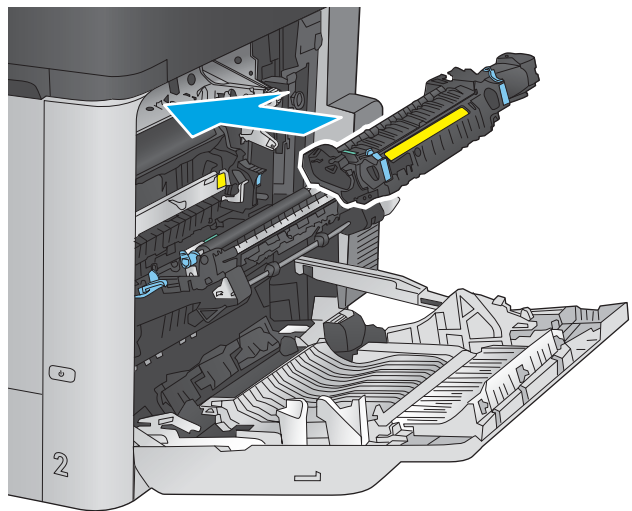


13. Open the jam-access door. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.

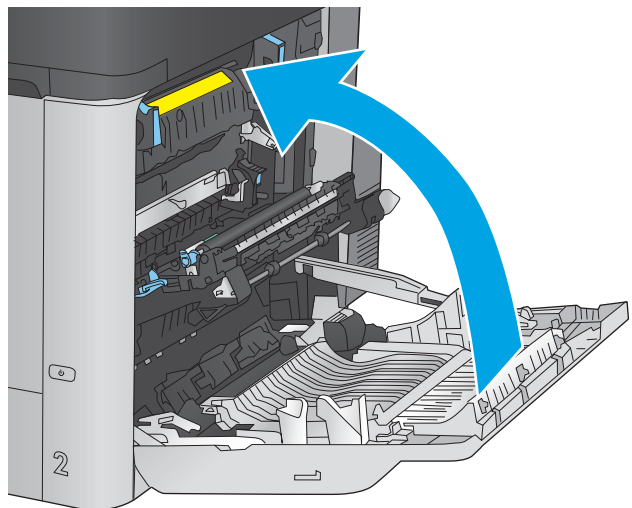
**CAUTION:** Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers until they have cooled.



14. Close the jam-access door, and push the fuser completely into the product.



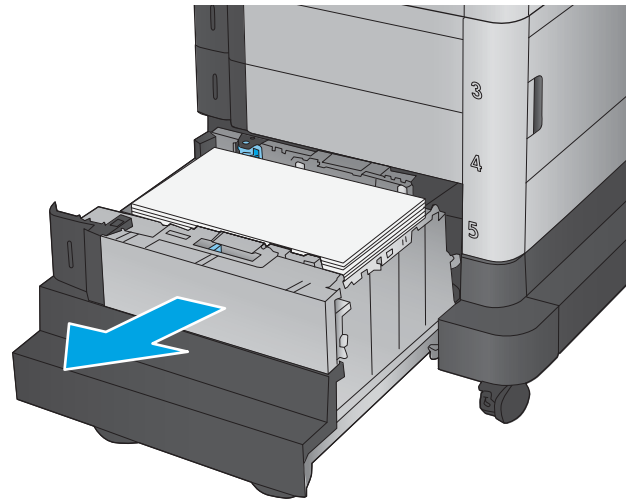
15. Close the right door.



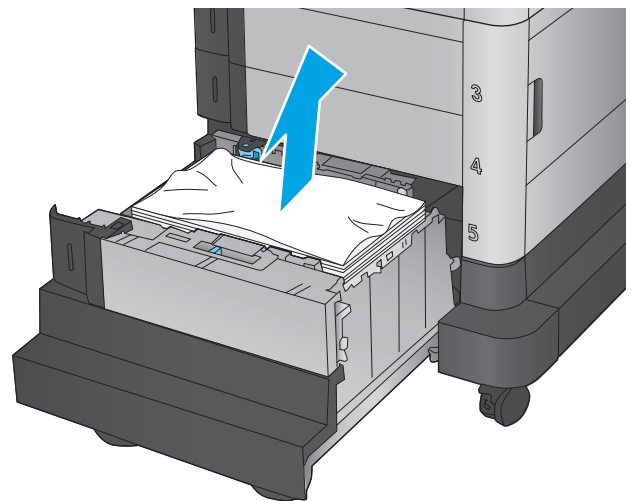
## Clear jams in the 1,500-sheet high-capacity input tray and the lower-right door

Use the following procedure to check for paper in all possible jam locations related to the 1,500-sheet high-capacity tray. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

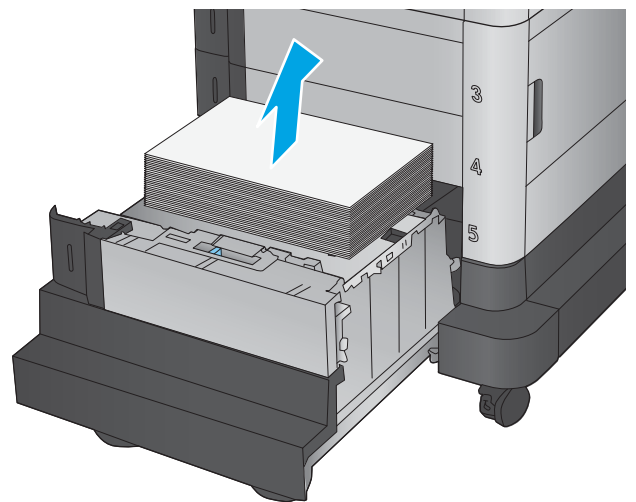
1. Open the 1,500-sheet high-capacity input tray.



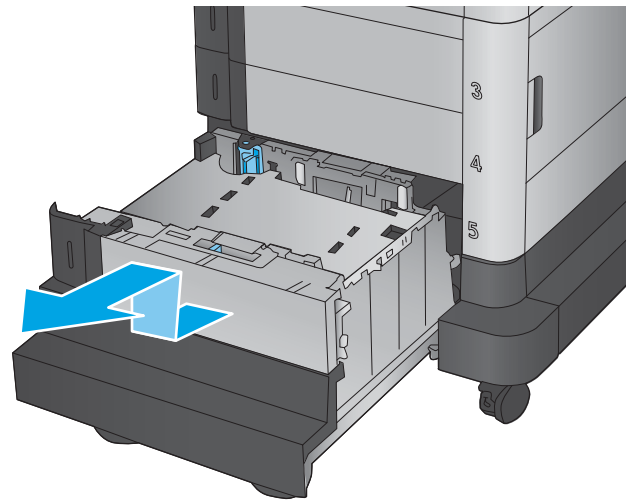
2. Remove and discard any damaged sheets.



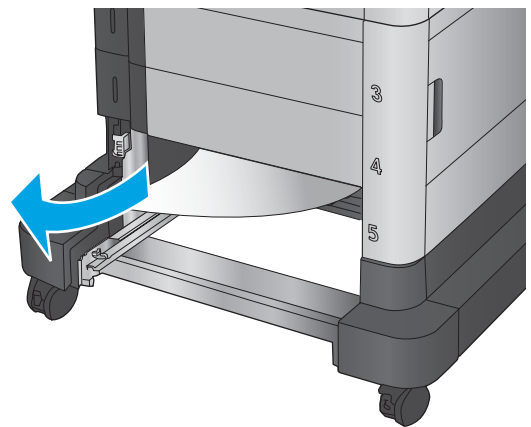
3. Remove the paper from the tray.



4. Lift the tray up and then pull it straight out to remove it.

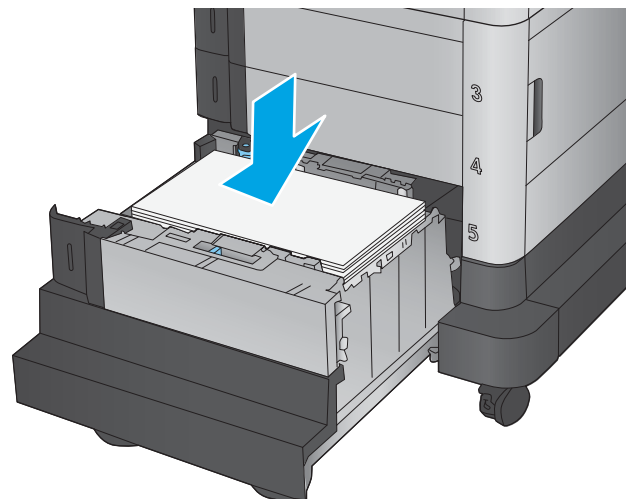


5. If jammed paper is in the feed area, pull it down to remove it.



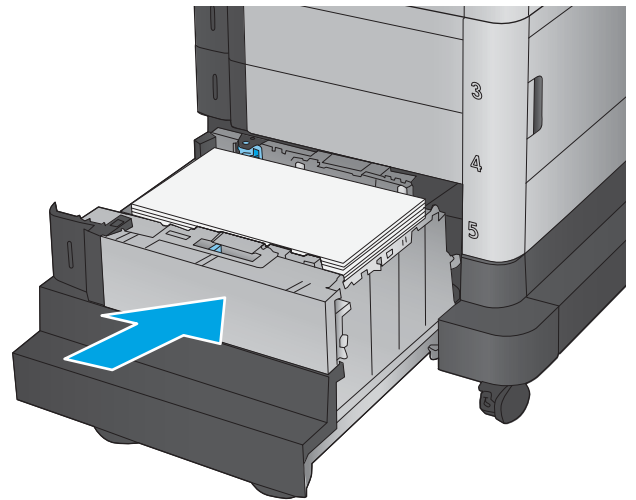
6. Reinstall the tray, and then load full reams of paper into the tray. The tray holds 1,500 sheets of paper.

**NOTE:** For best results, load full reams of paper. Avoid dividing reams into smaller sections.

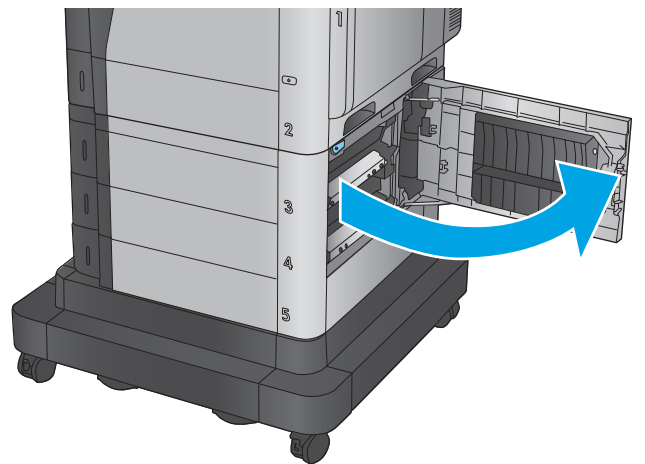




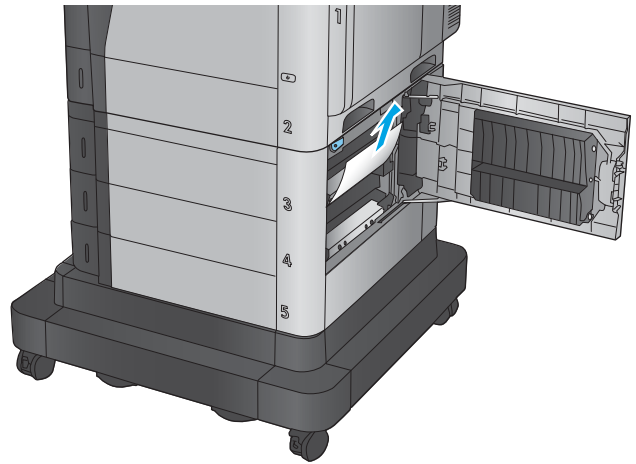
7. Close the tray.



8. Open the lower-right door.

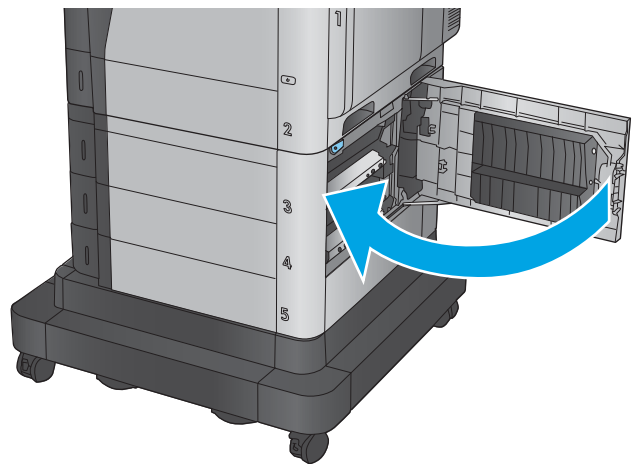


9. Remove any jammed paper.



10. Close the lower-right door.

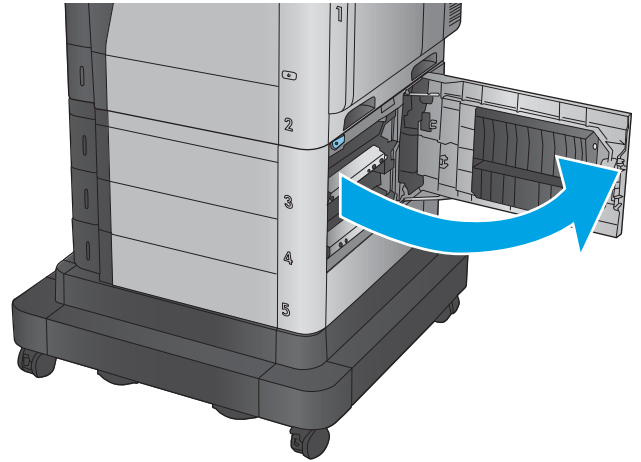
**NOTE:** If after clearing the jam the product control panel displays a message that there is no paper in the tray or the tray is over filled, remove the tray and look behind it for any remaining paper.



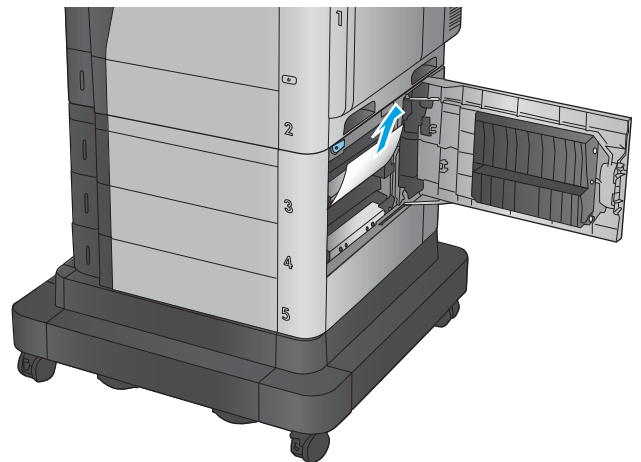
## Clear jams in the lower-right door

Use the following procedure to check for paper in the lower-right door. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

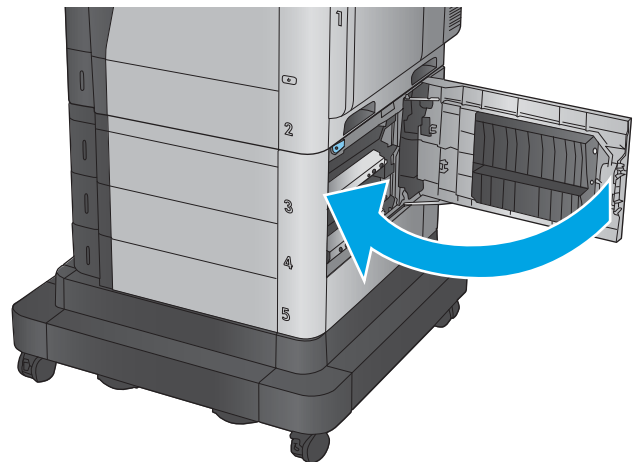
1. Open the lower-right door.



2. Remove any jammed paper.



3. Close the lower-right door.

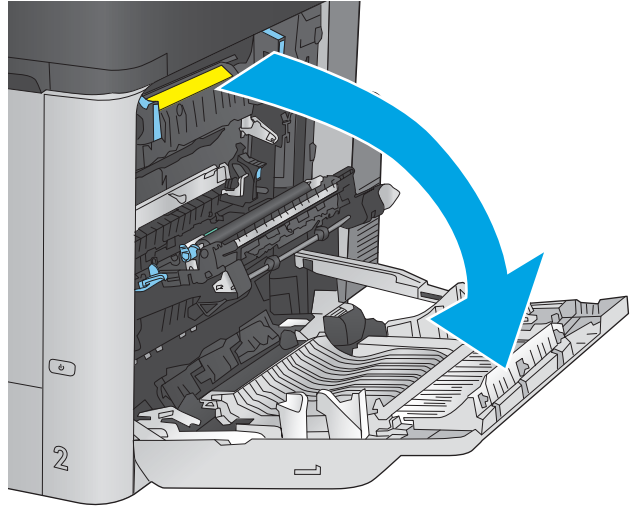


## Clear jams in the right door and the fuser area

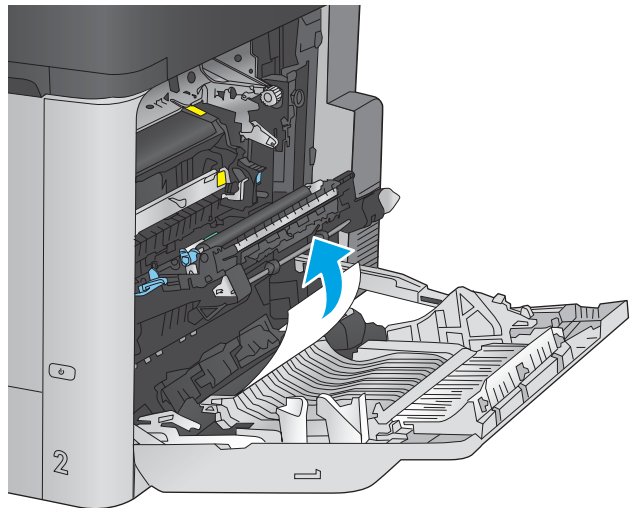
Use the following procedure to check for paper in all possible jam locations inside the right door. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

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

1. Open the right door.

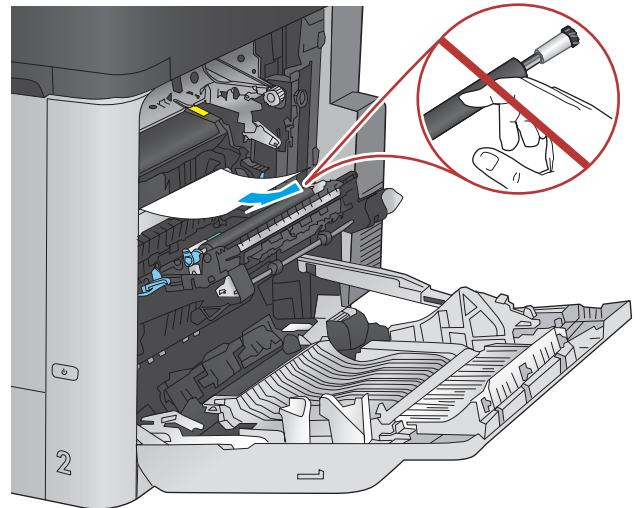


2. Gently pull out any jammed paper.

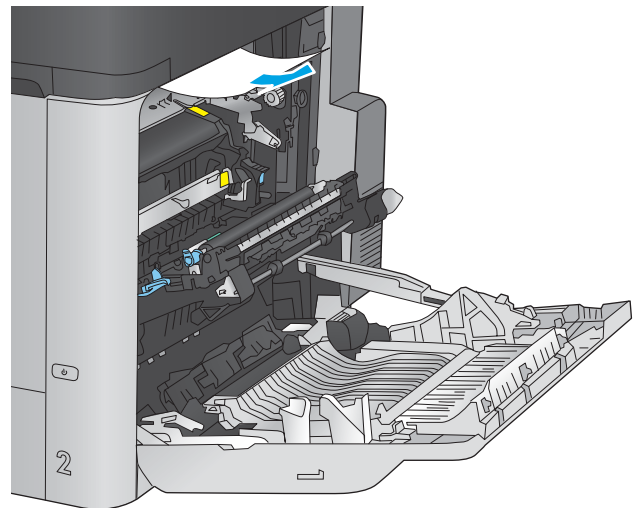


3. If paper is visible entering the bottom of the fuser, gently pull downward to remove it.

**CAUTION:** Do not touch the rollers on the transfer roller. Contaminants can affect print quality.

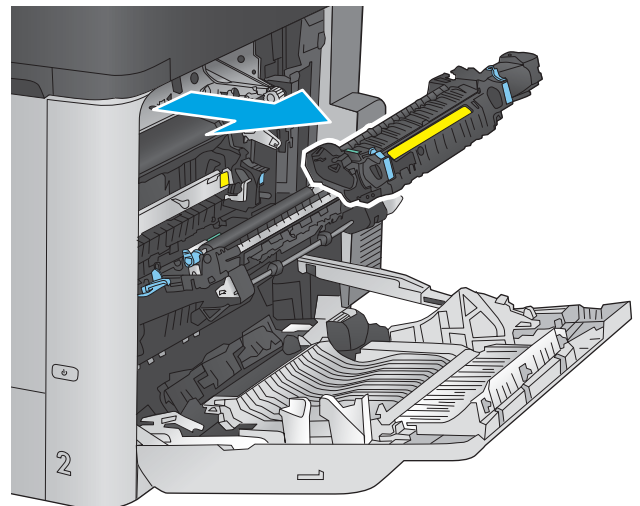


4. If paper is jammed as it enters the output bin, remove the fuser and gently pull the paper downward to remove it.



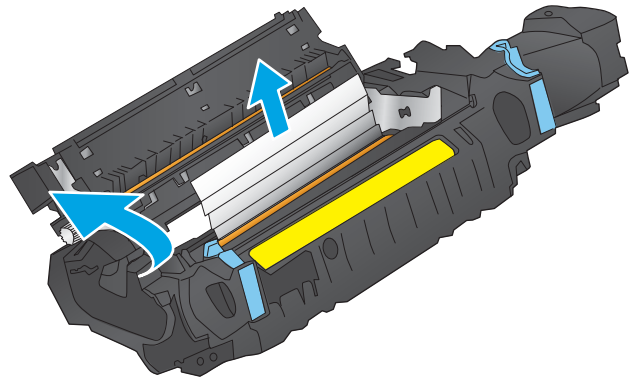
5. Paper could be jammed inside the fuser where it would not be visible. Grasp the fuser handles, lift up slightly, and then pull straight out to remove the fuser.

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

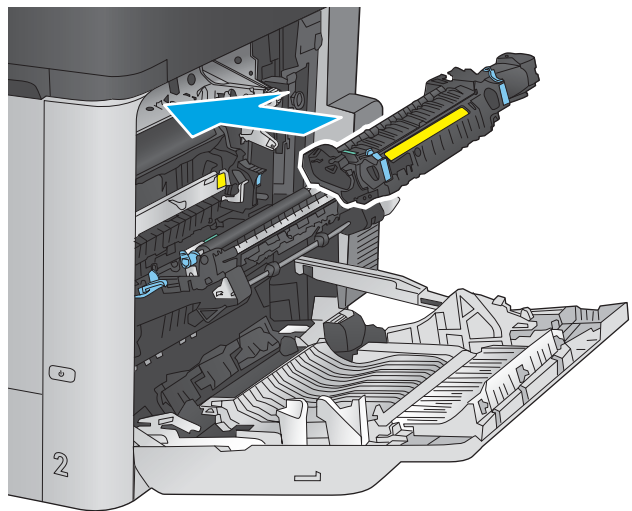


6. Open the jam-access door. If paper is jammed inside the fuser, gently pull it straight up to remove it. If the paper tears, remove all paper fragments.

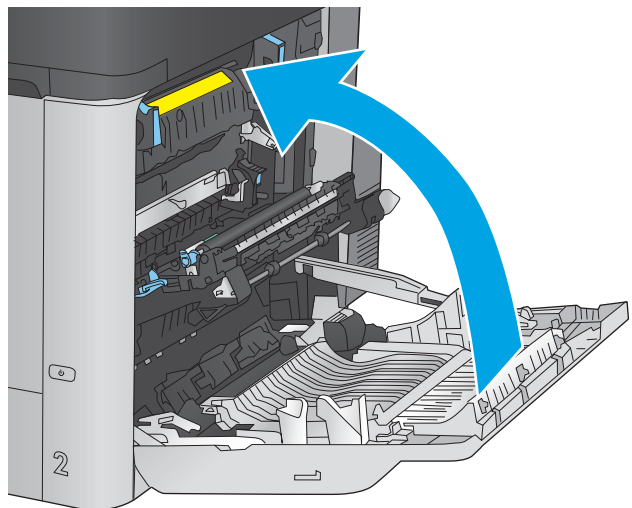
**CAUTION:** Even if the body of the fuser has cooled, the rollers that are inside could still be hot. Do not touch the fuser rollers until they have cooled.



7. Close the jam-access door, and push the fuser completely into the product.



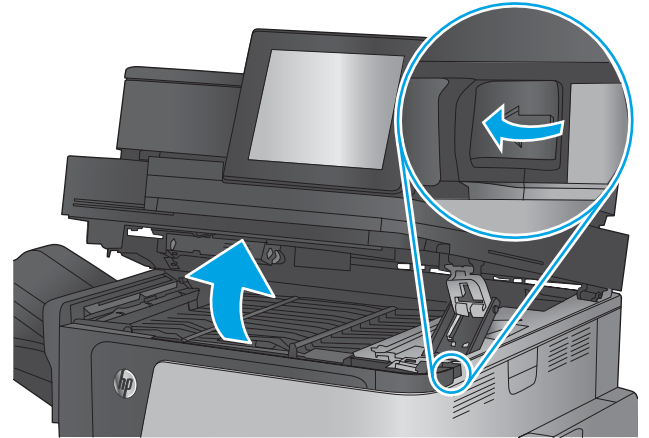
8. Close the right door.



## Clear jams from under the top cover (M680)

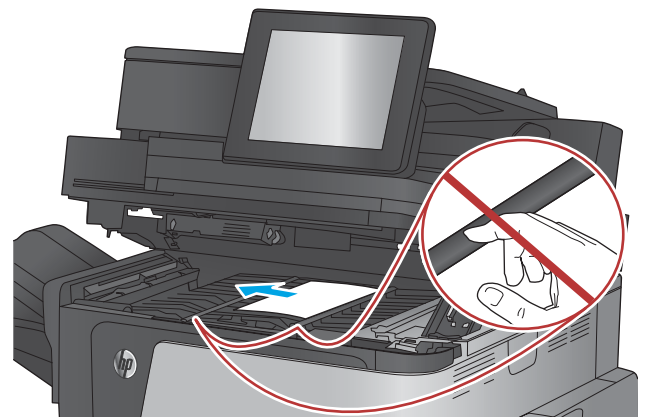
Use the following procedure to check for paper under the top cover. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

1. Pull the top-cover-release lever forward, and then lift the top cover up.

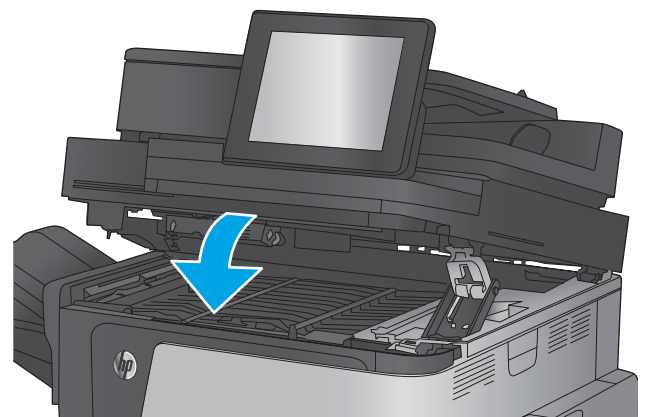


2. Remove any jammed paper.

**CAUTION:** Do not touch the foam rollers that are under the top cover. Contaminants can affect print quality.




3. Close the top cover.



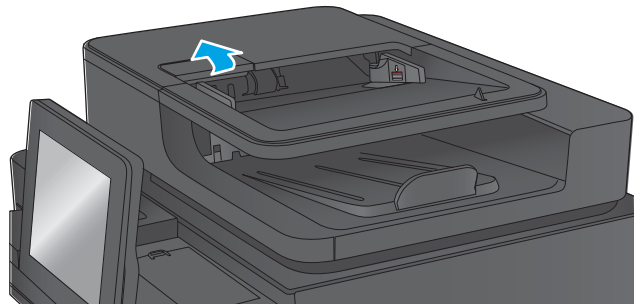
## Clear jams in the document feeder (M680)

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

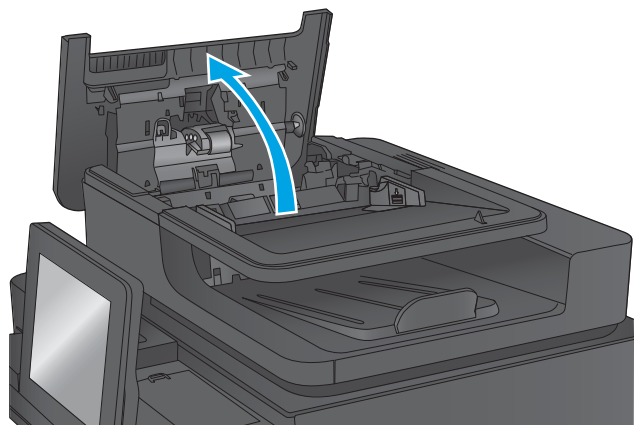
 **NOTE:** To avoid jams, make sure the guides in the document feeder input tray are adjusted tightly against the document. Remove all staples and paper clips from original documents.

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

1. Lift the latch to release the document-feeder cover.



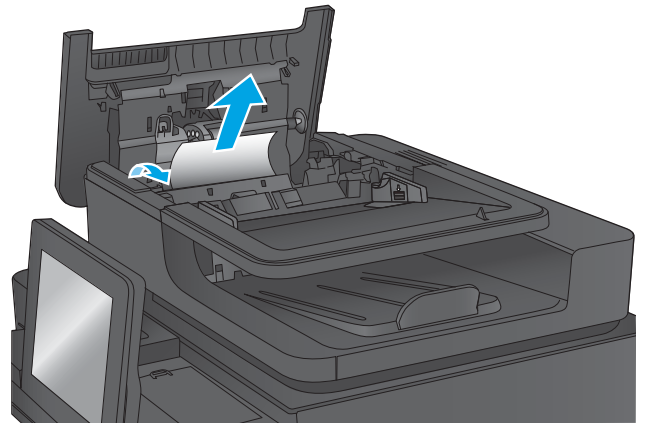
2. Open the document-feeder cover.



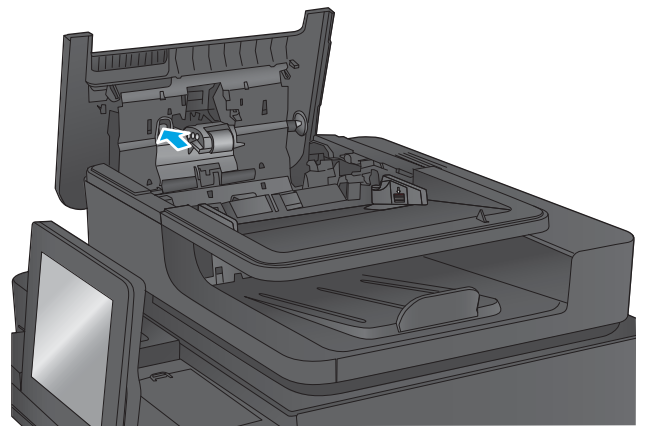


3. Lift the jam-access door, and remove any jammed paper.

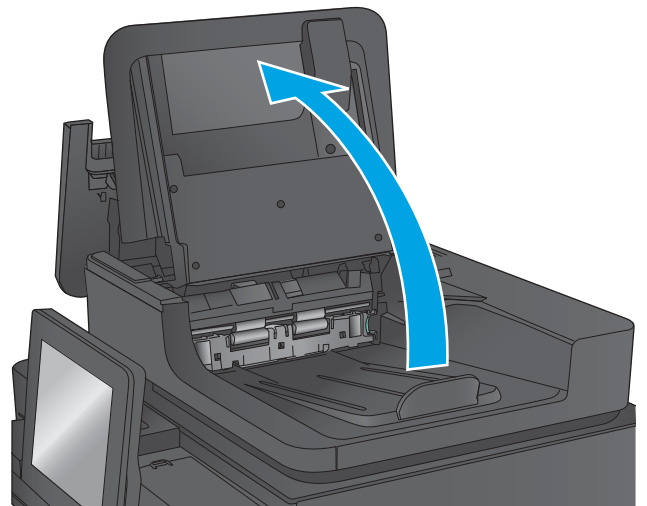
If necessary, rotate the green wheel at the front of the document feeder to remove jammed paper.



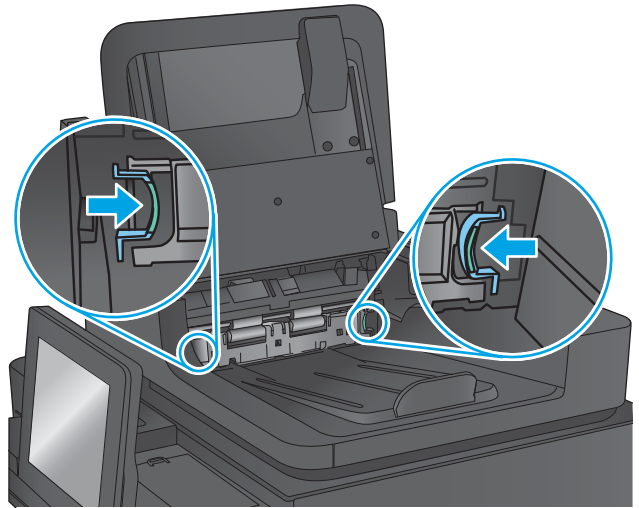
4. Press on the door next to the document-feeder rollers to make sure it is closed completely.



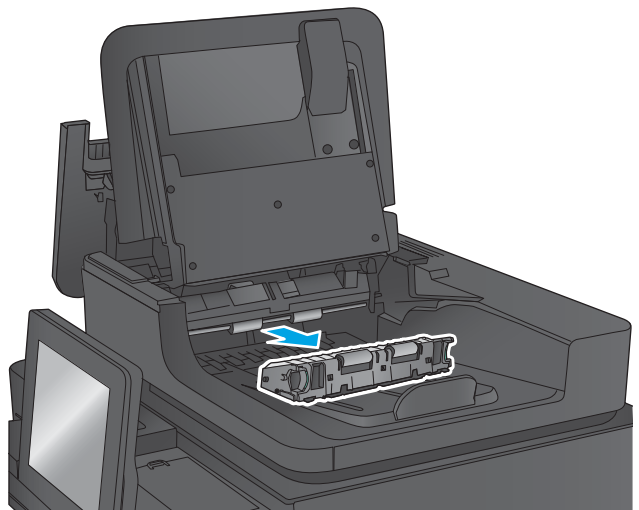
5. Lift the document feeder input tray.



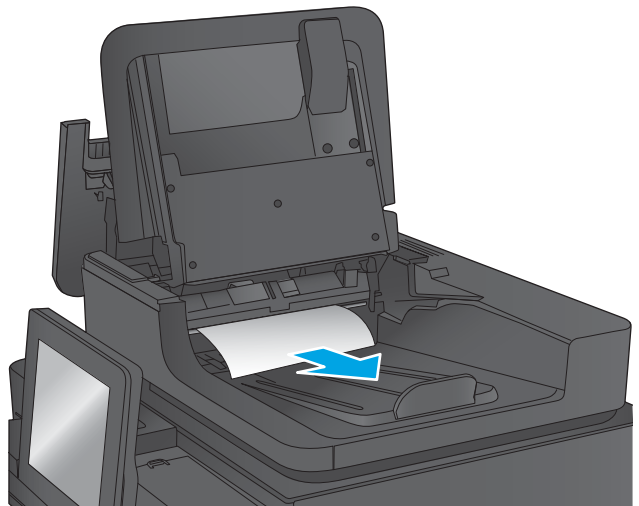
6. Squeeze inward on the two slots at each end of the backside-background selector assembly.



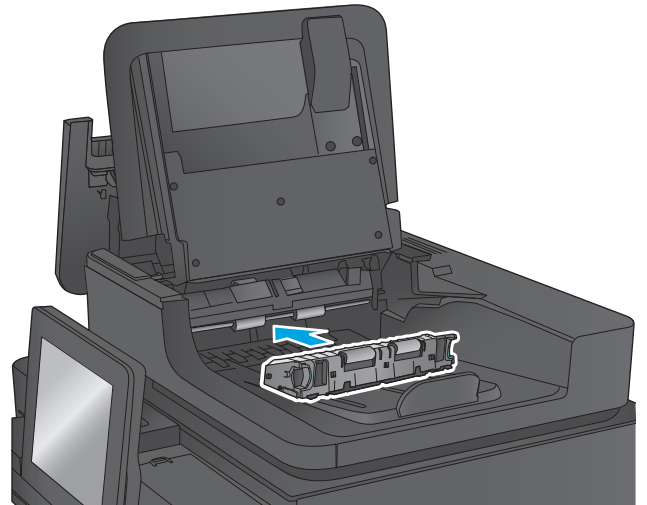
7. Remove the backside-background selector assembly by pulling it out.



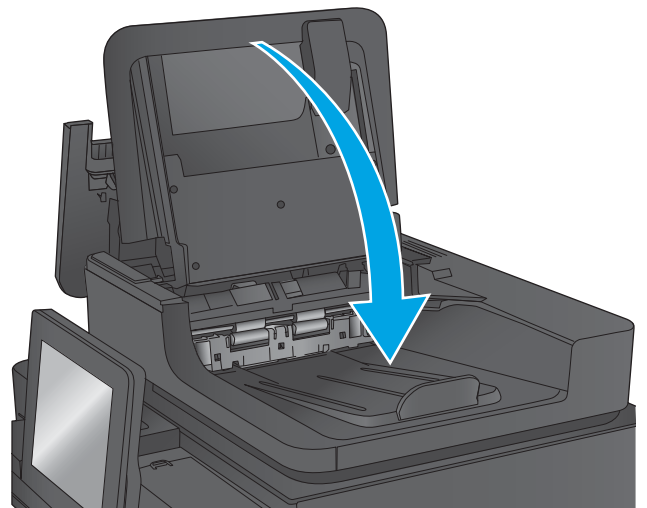
8. Remove any jammed paper.



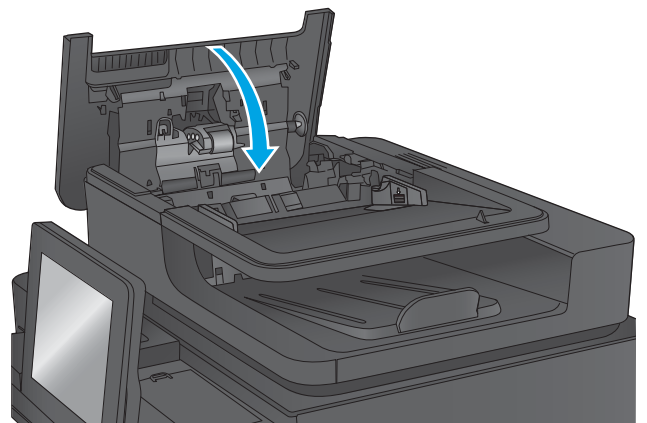
9. Reinstall the backside-background selector assembly by sliding it in until it locks into place.



10. Lower the document-feeder input tray.



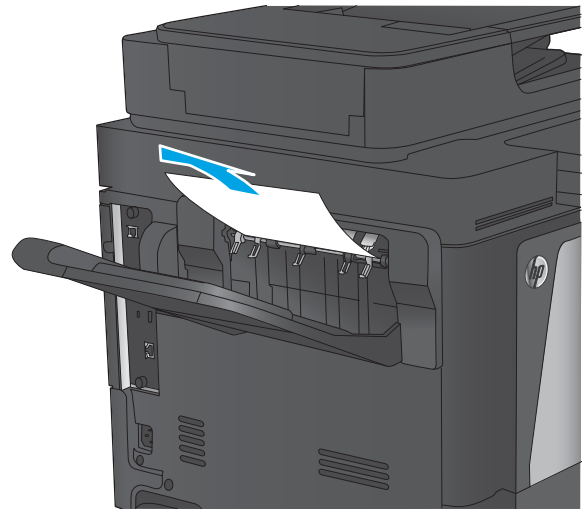
11. Close the document-feeder cover.



## Clear jams in the output bin (M680)

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.

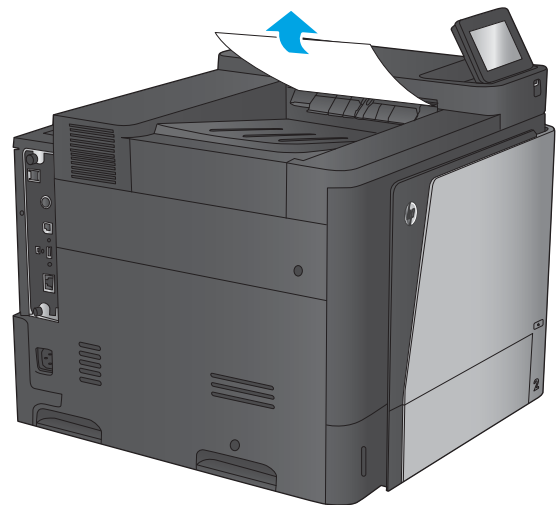
1. If paper is visible in the output bin, grasp the leading edge and remove it.



## Clear jams in the output bin (M651)

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.

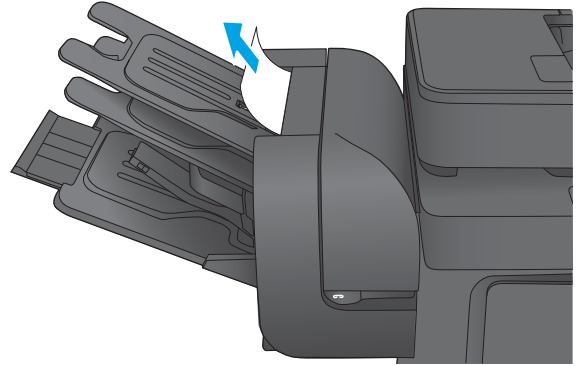
1. If paper is visible in the output bin, grasp the leading edge and remove it.



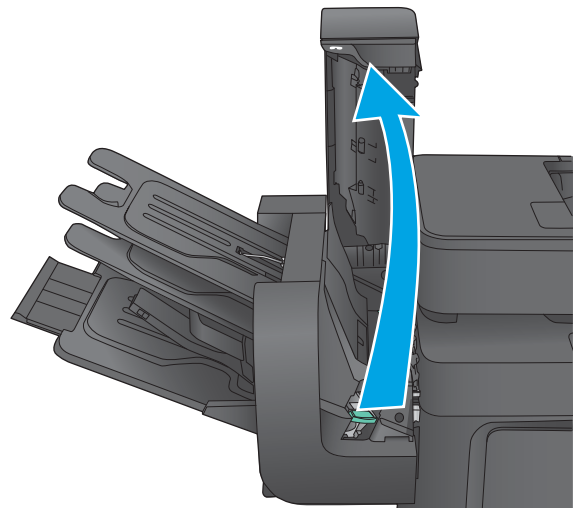
## Clear jams in the stapling mailbox accessory (M680)

Use the following procedure to check for paper in the stapling mailbox accessory. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

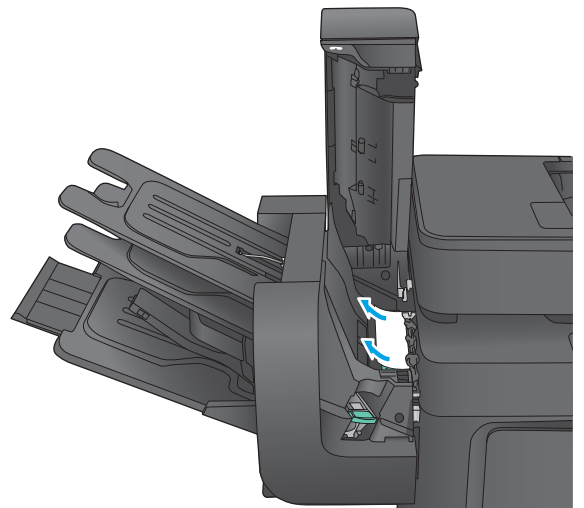
1. Remove any jammed paper from the mailbox bins.



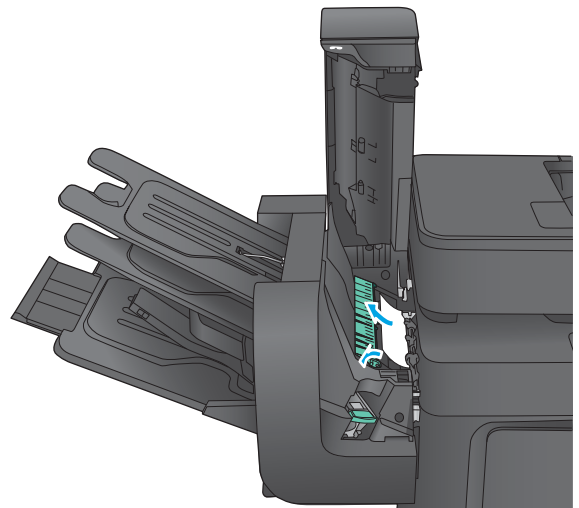
2. Lift the gray latch on the front of the stapler, and open the stapler cover.



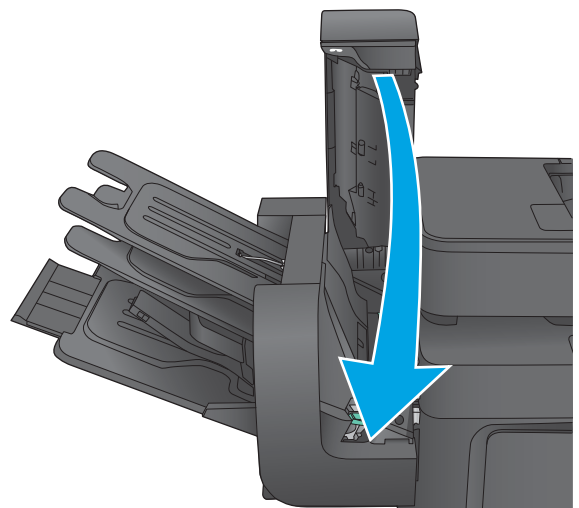
3. If jammed paper is visible underneath the paper guide, pull it straight out.



4. Lift the green jam-access door. If jammed paper is visible under the jam-access door, pull it straight out.



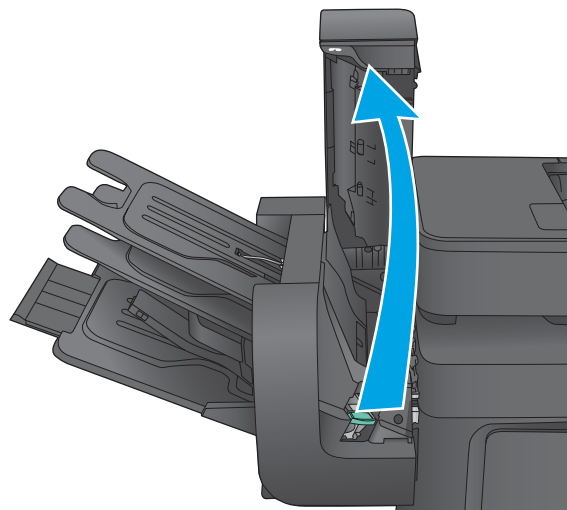
5. Close the stapler cover.



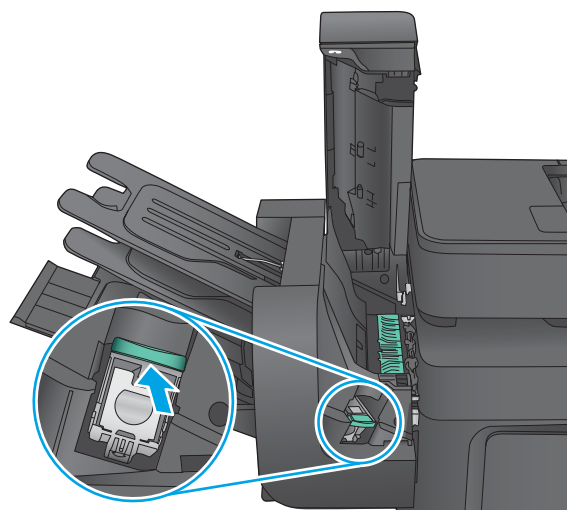
## Clear staple jams in the stapling mailbox accessory (M680)

Use the following procedure to check for staples jammed in the stapling mailbox accessory. When a jam occurs, the control panel displays an animation that assists in clearing the jam.

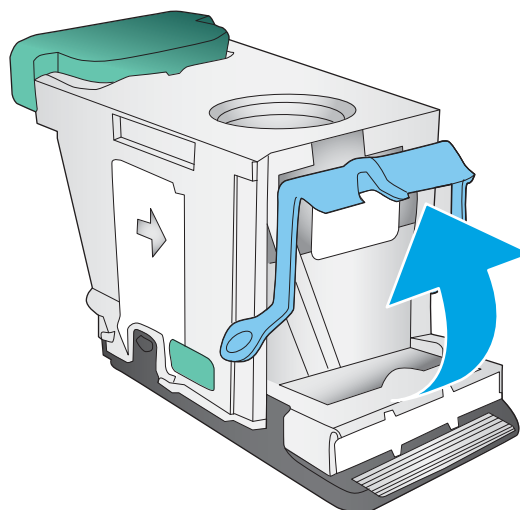
1. Lift the gray latch on the front of the stapler, and open the stapler cover.



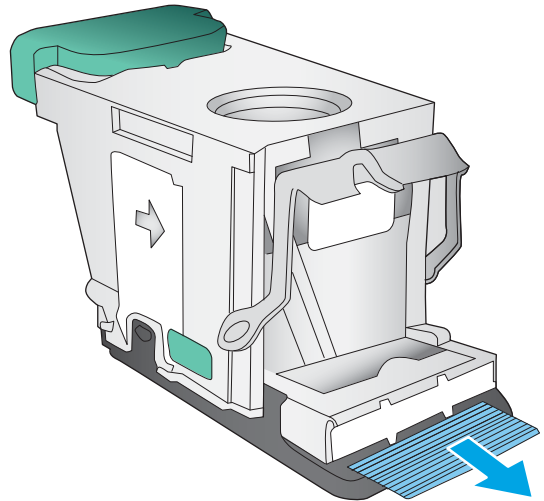
2. Lift the green tab on the staple cartridge up, and then pull the staple cartridge straight out.



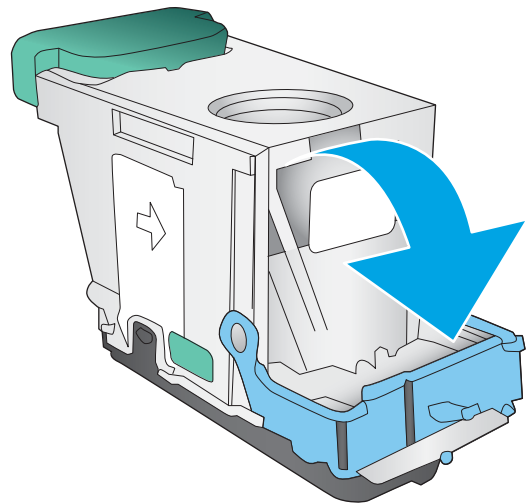
3. Lift up on the small lever at the back of the staple cartridge.



4. Remove the jammed staples.

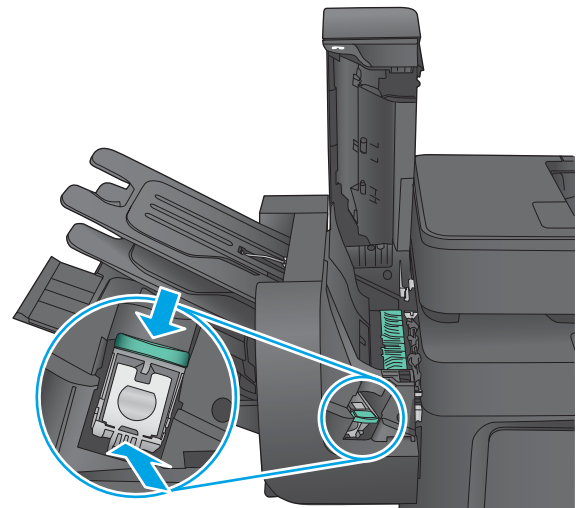


5. Close the lever at the back of the staple cartridge. Be sure that it snaps into place.

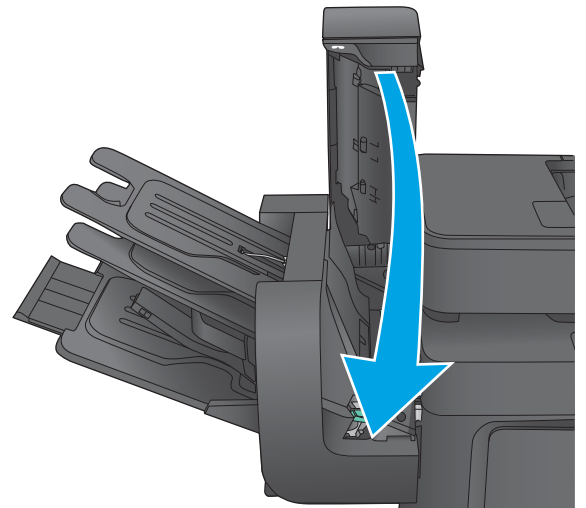




6. Insert the staple cartridge into the stapler and push down on the green handle until it snaps into place.




7. Close the stapler cover.



## Change jam recovery

This product provides a jam recovery feature that reprints jammed pages.

1. From the Home screen on the product control panel, scroll to and touch the [Administration](#) button.
  2. Open the [General Settings](#) menu, and then open the [Jam Recovery](#) menu.
  3. Select one of the following options:
    - **Auto** — The product attempts to reprint jammed pages when sufficient memory is available. This is the default setting.
    - **Off** — The product does not attempt to reprint jammed pages. Because no memory is used to store the most recent pages, performance is optimal.
- 
-  **NOTE:** Some pages can be lost if the product runs out of paper while printing a duplex job with Jam Recovery set to **Off**.
- 
- **On** — The product always reprints jammed pages. Additional memory is allocated to store the last few pages printed.

# Paper feeds incorrectly or becomes jammed

- [The product does not pick up paper](#)
- [The product picks up multiple sheets of paper](#)
- [The document feeder jams, skews, or picks up multiple sheets of paper \(M880\)](#)
- [Prevent paper jams](#)

## The product does not pick up paper

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



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

HP recommends using Tray 1 or Tray 2 if the product is experiencing excessive or reoccurring jams from trays other than Tray 1 and Tray 2, or for print jobs that require media other than 20lb plain paper.

1. Open the product 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 product control panel.
4. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides to the appropriate indentation in the tray.
5. Check the product control panel to see if the product is waiting for an acknowledgment to the feed the paper manually prompt. Load paper, and continue.
6. The rollers above the tray might be contaminated. Clean the rollers with a lint-free cloth dampened with warm water.

## The product picks up multiple sheets of paper

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

1. Remove the stack of paper from the tray and flex it, rotate it 180 degrees, and flip it over. *Do not fan the paper.* Return the stack of paper to the tray.
2. Use only paper that meets HP specifications for this product.
3. Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.
4. Make sure the tray is not overfilled. If it is, remove the entire stack of paper from the tray, straighten the stack, and then return some of the paper to the tray.
5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides to the appropriate indentation in the tray.
6. Make sure the printing environment is within recommended specifications.

## The document feeder jams, skews, or picks up multiple sheets of paper (M880)

- 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.
- **M880 product:** From the Home screen on the product control panel, scroll to and touch the [Supplies](#) button. Check the status of the document-feeder kit, and replace it if necessary.

## Prevent paper jams

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

1. Use only paper that meets HP specifications for this product.
2. Use paper that is not wrinkled, folded, or damaged. If necessary, use paper from a different package.
3. Use paper that has not previously been printed or copied on.
4. Make sure the tray is not overfilled. If it is, remove the entire stack of paper from the tray, straighten the stack, and then return some of the paper to the tray.
5. Make sure the paper guides in the tray are adjusted correctly for the size of paper. Adjust the guides so they are touching the paper stack without bending it.
6. Make sure that the tray is fully inserted in the product.
7. When printing on heavy, embossed, or perforated paper, use the manual feed feature and feed sheets one at a time.
8. From the Home screen on the product control panel, scroll to and touch the [Trays](#) button. Verify that the tray is configured correctly for the paper type and size.
9. Make sure the printing environment is within recommended specifications.

# Use manual print modes

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



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

HP recommends using Tray 1 or Tray 2 if the product is experiencing excessive or reoccurring jams from trays other than Tray 1 and Tray 2, or for print jobs that require media other than 20lb plain paper.

## Select a manual print mode

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

**Table 2-62 Print modes<sup>1</sup> under the Adjust Paper Types submenu**

Print Mode

- Any
- Plain
- HP EcoSMART 90g
- HP EcoSMART 120g
- HP EcoSMART 150g
- HP EcoSMART 200g
- HP Soft Gloss 120g
- HP Glossy 120g
- HP Glossy 150g
- HP Glossy 200g
- Lite 60-74g
- Intermediate 85-95g
- Mid-Weight 96-110g
- Heavy 111-130g
- Extra Heavy 131-175g
- Card Stock 176-220g
- MidWtGlossy 96-110g
- Heavy Glossy 111-130g
- XHvyGlossy 131-175g
- Card Glossy 176-220g
- Color Transparency
- Labels
- Letterhead
- Envelope
- Heavy Envelope
- Pre Printed
- Pre Punched
- Colored
- Bond
- Recycled

**Table 2-62 Print modes<sup>1</sup> under the Adjust Paper Types submenu (continued)**

Print Mode	<ul style="list-style-type: none"> <li>• Rough</li> </ul>
(continued)	<ul style="list-style-type: none"> <li>• Heavy Rough</li> <li>• Opaque Film</li> <li>• Restore Modes</li> </ul>

<sup>1</sup> Not all print modes are available for all paper types.

**Table 2-63 Print modes under the Optimize submenu**

Normal	Set to <b>Smooth</b> when printing on smooth paper of normal weight.
Heavy Paper	Set to <b>Smooth</b> when printing on smooth, heavy media types.
Best Normal	Enable this item to improve print quality of high toner coverage print jobs when <b>Plain</b> or <b>Any</b> paper type is selected
CaCO3	<p>Enable this item to reduce fuser contamination when using a media that has a high calcium-carbonate content.</p> <p><b>NOTE:</b> Enabling this item will reduce the expected life span of the fuser.</p>
Envelope Control	Set to <b>Reduced Temp</b> if envelopes are sticking due to moisture in the envelop adhesive.
Environment	Set to <b>Low Temp</b> if the product is operating in a low temperature environment and is experiencing problems with print quality, such as blisters in the printed image.
Line Voltage	Set to <b>Low Voltage</b> if the product is operating in a low-voltage environment and is experiencing problems with print quality, such as blisters in the printed image.
Tray 1	Set the mode to <b>Alternate</b> if marks appear on the back side of the paper when printing from Tray 1. This sets the product to initiate a clean sequence every time a job finishes when the product is set for <b>Any Size</b> and <b>Any Type</b> for Tray 1.
Background	<p>Set to <b>Alternate 1</b> when a background occurs all over the page.</p> <p>Set to <b>Alternate 2</b> when thin vertical lines appear on the page.</p> <p>Set to <b>Alternate 3</b> when the other alternatives do not correct the problem.</p>
Uniformity Control	<p>Set to <b>Alternate 1</b> to improve uniformity on any paper type.</p> <p>Set to <b>Alternate 2</b> to improve uniformity on normal and light paper types.</p> <p>Set to <b>Alternate 3</b> when the other alternatives do not correct the problem.</p>
Tracking Control	Improves color stability by adjusting the bias voltage. Make sure this mode is set to <b>On</b> .
Registration	Set to <b>Alternate</b> when color misregistration occurs.

**Table 2-63 Print modes under the [Optimize](#) submenu (continued)**

<a href="#">Transfer control</a>	<p>Set to <a href="#">Alternate 1</a> to reduce primary transfer bias and to resolve low density or blotchy images.</p> <p>Set to <a href="#">Alternate 2</a> to resolve ghosting outlines that look like a finger or fingers.</p> <p>Set to <a href="#">Alternate 3</a> when the other alternatives do not correct the problem.</p>
<a href="#">Fuser Temp</a>	<p>The default setting for this item is <a href="#">Normal</a>. Use the <a href="#">Alternate</a> setting to reduce the occurrence of first-page fuser wrinkle or toner blister.</p>
<a href="#">Restore Optimize</a>	<p>Use <a href="#">Restore Optimize</a> to reset the menu defaults.</p>




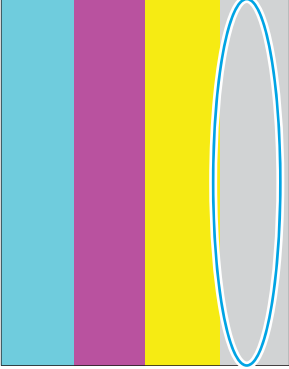
# Solve image quality problems

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



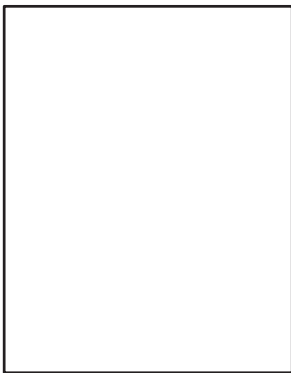
## Image defects table

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


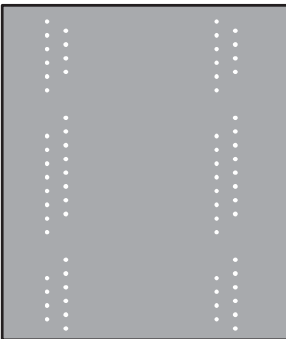
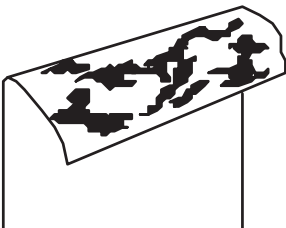
**Table 2-64 Image defects table**

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

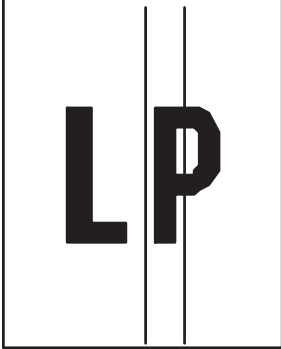
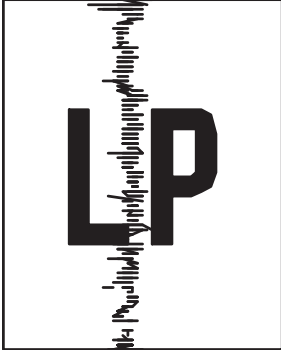
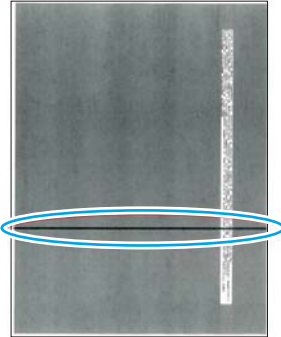
**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
<p>Light or missing toner.</p> <p><b>NOTE:</b> Orientation of the defect depends on which way the page travels through the paper path.</p> <p>In this example, the long edge of the page is the leading edge.</p>		<p>The image is placed too close to the leading edge of the page. As the transfer bias rises in this region of the page, poor transfer results.</p>	<p>Use the print driver to increase the margins on the page.</p>
<p>Print is too dark.</p>		<p>The CPR/density (RD) sensor is defective.</p>	<p>Replace the CPR/density sensor.</p>
<p>Page is blank.</p>		<p>The high-voltage power-supply lower is defective (no developing bias output).</p>	<p>Replace the high-voltage power supply.</p>



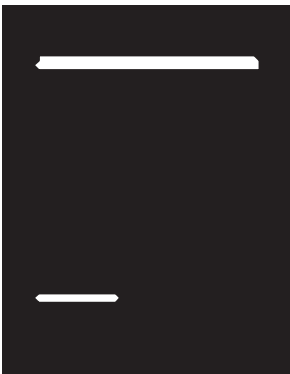
**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
The page is solid black or a solid color.		Poor contact exists in the primary charging bias or developing bias contacts between the toner cartridge and the product.	Clean each contact of the color that produces the all black or solid color. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts. Replace the affected toner cartridge.
White spots appear in the image.		The primary transfer roller is deformed or has deteriorated	Replace the ITB.
		The secondary transfer roller is deformed or has deteriorated.	Replace the secondary transfer roller assembly.
The back of the page is dirty.		The secondary transfer roller is dirty.	Replace the secondary transfer roller.
		The fuser inlet guide or separation guide is dirty.	Clean the dirty parts. If the dirt does not come off, replace the guide.
		The pressure roller is dirty.	Run the cleaning page several times. If the issue persists, replace the fuser.


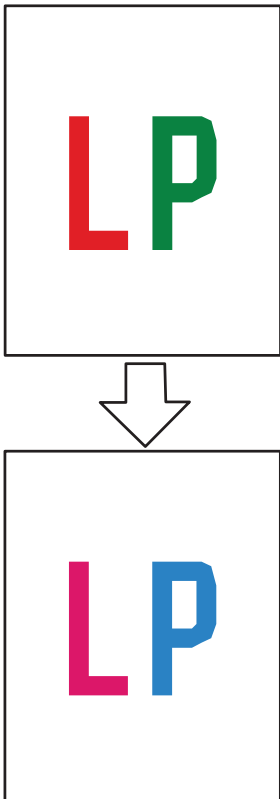
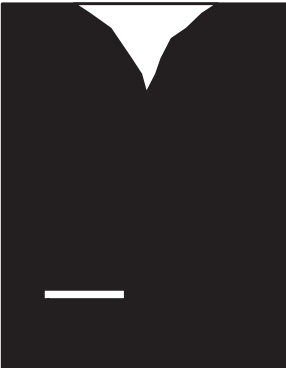
**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
Vertical streaks or bands appear on the page.		Scratches are present on the circumference of the developing cylinder or photosensitive drum.	Replace the toner cartridge of the color that matches the defect.
		Scratches are present on the circumference of the fuser roller.	Replace the fuser.
		Scratches are present on the circumference of the ITB.	Replace the ITB.
		The ITB drive roller is deformed or has deteriorated.	
		The ITB cleaning mechanism is malfunctioning.	
Streaks on document feeder scans (M680).		The ADF glass (small glass to the left of the flatbed glass) is contaminated.	Clean the glass with a water-dampened lint-free cloth.
			<p><b>TIP:</b> Align a printed page with the streak on it with the glass, to help find the location of the contamination.</p>
	Dark or light streak from leading edge to trailing edge on pages scanned through the ADF.		
	<p><b>NOTE:</b> For mono scans, the streak is dark. For color scans, the streak is the color of the contamination. For solid black fills, the streak might be green, blue, or white.</p>		

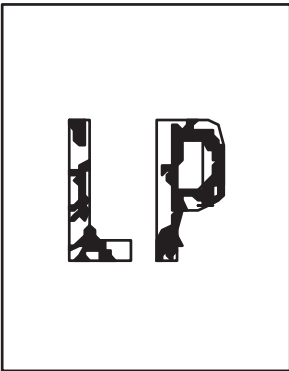

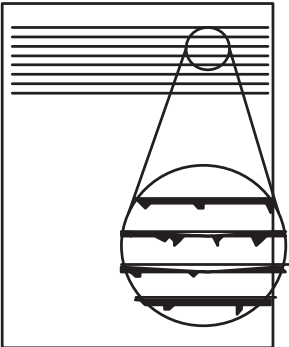
**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
Vertical white lines appear in a particular color.		A unknown substance has adhered to the laser beam window	Remove any unknown substances.
		Scratches are present on the circumference of the developing roller or photosensitive drum.	Remove the affected toner cartridge and re-install it. The PGCs will clean the glass.  If the problem persists, replace the affected toner cartridge.
		<b>M680 product only:</b> White scratch down the page could mean the scanner glass needs to be cleaned.	Clean the glass.
		The laser/scanner-unit mirror is dirty.	Replace the laser/scanner assembly.
Vertical white lines appear in all colors.		Horizontal scratches on the fuser roller.	Replace the fuser.
		Scratches are present on the circumference of the ITB.	Remove the affected toner cartridge and re-install it. The PGCs will clean the glass.
		White scratch down the page could mean the scanner glass needs to be cleaned.	Replace the ITB.
Horizontal lines appear on the page.		Repetitive horizontal lines appear.	Use the repetitive defects ruler to identify the dirty roller. Clean the roller. If the roller cannot be cleaned, replace the fuser.
		Horizontal scratches are present on the photosensitive drum.	Replace the toner cartridge of the color that matches the defect.
		Horizontal scratches are present on the fuser roller.	Replace the fuser.

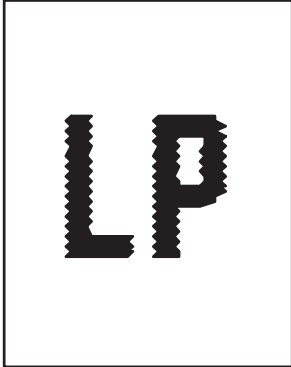


**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
A horizontal white line displays on the page.		Repetitive horizontal white lines appear.	Use the repetitive defects ruler to identify the dirty roller. Clean the roller. If the roller cannot be cleaned, replace the roller.
		Horizontal scratches are present on the photosensitive drum.	Replace the toner cartridge of the color that matches the defect.
		Scratches are present on the circumference of the ITB.	Replace the ITB.
Image in a particular color does not print in the correct color.		Poor contact exists in the primary charging bias or developing bias contacts between the toner cartridge and the product.	Clean each contact of the color that produces the missing color. If the problem remains after cleaning, check the contacts for damage. Replace any deformed or damaged parts.
		The toner cartridge (primary charging roller, developing roller, or photosensitive drum) is defective.	Replace the toner cartridge of the color that matches the defect.
		The high-voltage power-supply lower is defective (no primary charging bias or developing bias output).	Replace the high-voltage power supply.
		The laser/scanner unit is defective.	Replace the laser/scanner assembly.
Dropouts appear.		The secondary transfer roller is deformed or has deteriorated.	Replace the secondary-transfer-roller.
		The primary charging roller, developing roller, or photosensitive drum is deformed or has deteriorated.	Replace the toner cartridge.
		The fuser roller is deformed or has deteriorated.	Replace the fuser.
		The high-voltage power-supply PCA is defective (no transfer bias output).	Replace the high-voltage power-supply.

**Table 2-64 Image defects table (continued)**


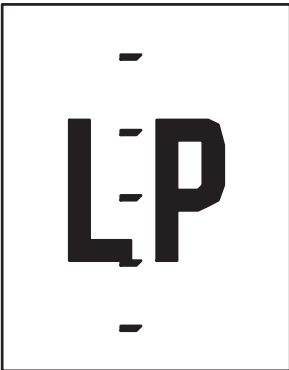
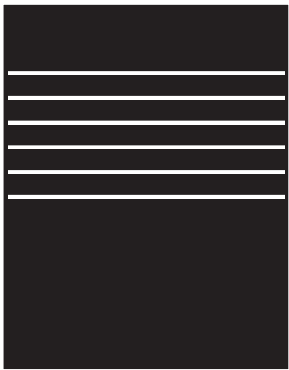
Problem	Sample	Cause	Solution
The toner is not fully fused to the paper.		<p>The fuser roller or pressure roller is scarred or deformed.</p> <p>The fuser control circuit is defective.</p> <p>The thermistor is defective.</p> <p>The fuser heater is defective.</p>	<p>Replace the fuser.</p> <p>Replace the fuser PCA.</p> <p>Replace the fuser.</p>
Some color is misregistered.		<p>The product is incorrectly calibrated.</p> <p>The ITB unit is defective.</p> <p>The drive gear of the ITB motor is worn or chipped.</p> <p>The CPR/density (RD) sensor is defective.</p> <p>The laser/scanner unit is defective.</p> <p>The toner cartridge is defective.</p>	<p>Calibrate the product.</p> <p>If the ITB does not rotate smoothly or a cleaning malfunction occurs (ITB is dirty), replace the ITB.</p> <p>Check each drive gear between the ITB drive roller and the ITB motor. If the gear is worn or chipped, replace the main drive assembly.</p> <p>Open and close the front door several times to clean the CPR/density (RD) sensor. If the problem persists, replace the CPR/density (RD) sensor.</p> <p>Replace the laser/scanner assembly.</p> <p>Replace the toner cartridge of the affected color.</p>
Toner smears appear on the paper.		<p>The product has residual paper.</p> <p>The fuser inlet guide is dirty.</p>	<p>Remove the residual paper.</p> <p>Clean the fuser inlet guide.</p>

**Table 2-64 Image defects table (continued)**

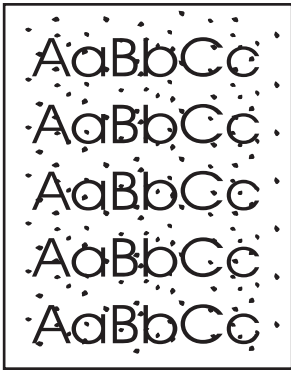
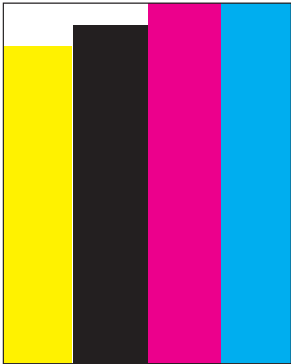

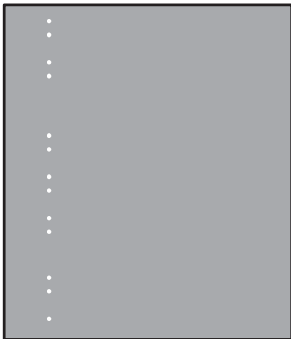
Problem	Sample	Cause	Solution
The printed page contains misformed characters.		<p>The product is experiencing page skew.</p> <p>The laser/scanner unit is defective.</p>	<p>See the “Text or graphics are skewed on the printed page” row in this table.</p> <p>Replace the laser/scanner assembly.</p>
Text or graphics are skewed on the printed page.		<p>The registration shutter spring is unhooked.</p> <p>The registration shutter spring is deformed.</p>	<p>Check the spring and place it in the correct position.</p> <p>Replace the secondary transfer assembly.</p>
Text or graphics are skewed on the printed page (M680).	 <p><b>TIP:</b> Make sure that the original image is not skewed.</p>	<p>The document feeder guides are not set correctly, pressed against the original.</p> <p>The scanner needs to be calibrated.</p>	<p>Make sure that the side guides are correctly set against the page.</p> <p>If the error persists and the defect is isolated to the document feeder, replace the document feeder.</p> <ol style="list-style-type: none"> <li>From the Home screen on the control panel, scroll to and touch the <b>Device Maintenance</b> button.</li> <li>Open the following menus: <ul style="list-style-type: none"> <li><a href="#">Calibration/Cleaning</a></li> <li><a href="#">Calibrate Scanner</a></li> </ul> </li> <li>Touch the <b>Next</b> button to start the calibration process. Follow the on-screen prompts.</li> <li>Wait while the product calibrates the scanner.</li> <li>If the error persists and the defect is isolated to the scanner, replace the scanner.</li> </ol>



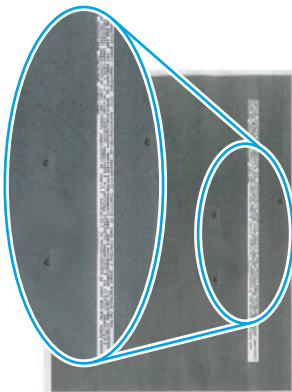

**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
<p>The printed page contains wrinkles or creases.</p> <p><b>NOTE:</b> Orientation of the defect depends on which way the page travels through the paper path.</p>		<p>The paper is too light weight.</p> <hr/> <p>The roller or paper feed guide is dirty.</p> <hr/> <p>A feed roller is deformed or has deteriorated.</p> <hr/> <p>The paper feed guide is damaged.</p> <hr/> <p>Damaged fuser or registration secondary transfer assembly.</p>	<p>If using paper lighter than 16lb/80gm), try using heavier paper.</p> <hr/> <p>Clean any dirty components.</p> <hr/> <p>Replace any deformed or deteriorated rollers.</p> <hr/> <p>Replace the paper-feed-guide unit.</p> <hr/> <p>Stop the product (by opening a door) as the page is going through the fuser. Check to see if the crease occurs before entering or after exiting the fuser, and then do one of the following:</p> <ul style="list-style-type: none"> <li>• If the creases occurs before the page enters the fuser, replace the registration secondary transfer assembly</li> <li>• If the creases occur as the page is going through the fuser, replace the fuser.</li> </ul>
<p>The front of the page is dirty.</p>		<p>The photosensitive drum is dirty.</p> <hr/> <p>The fuser roller or pressure roller is dirty.</p>	<p>Replace the toner cartridges.</p> <hr/> <p>Execute a <a href="#">Pressure roller clean mode</a> procedure. If the dirt does not come off, replace the fuser.</p> <p><b>NOTE:</b> Cleaning the fuser with HP tough paper provides better results than with plain paper. The cleaning process might need to be executed several times to remove all contaminants on the fuser.</p>
<p>Repetitive horizontal lines appear.</p>		<p>See repetitive image defect ruler.</p> <p>Clean the indicated roller. If the contaminant does not come off, replace appropriate roller or assembly.</p>	<p>See repetitive image defect ruler.</p> <p>Clean the indicated roller. If the contaminant does not come off, replace appropriate roller or assembly.</p>

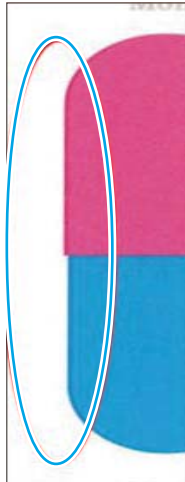
**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
Pages have flecks of toner on them.			<p>Execute a cleaning page to clean the contaminant off the fuser. The cleaning page might need to be run several times to clean the fuser. Do not replace the fuser.</p> <p><b>NOTE:</b> Cleaning the fuser with HP tough paper provides better results than with plain paper. The cleaning process might need to be executed several times to remove all contaminants on the fuser.</p>
Pages have one or more skewed color planes (can appear on the right or left side of the page).			<p>Remove, and then reinstall the toner cartridge associated with the defect.</p>
Vertical density variations appear in a particular color.		<p>The surface of the photosensitive drum has deteriorated.</p> <p>The laser/scanner is defective.</p>	<p>Replace the toner cartridge associated with the defect.</p> <p>Replace the laser/scanner assembly</p>
Repetitive white spots appear in the image.		<p>Repetitive white spots appear in the image.</p> <p>The secondary transfer roller is deformed or has deteriorated.</p> <p>An unknown substance has adhered to the primary charging roller or photosensitive drum.</p> <p>The ITB is dirty.</p> <p>The ITB is damaged.</p>	<p>See the repetitive image defect ruler. Clean the indicated roller. If the contaminant does not come off, replace appropriate roller or assembly.</p> <p>Replace the secondary transfer roller assembly.</p> <p>Replace the toner cartridge associated with the defect.</p> <p>Print approximately 20 pages with a solid colored image.</p> <p>Replace the ITB.</p>

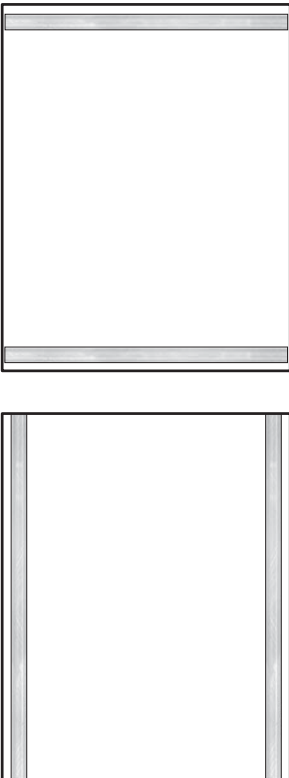
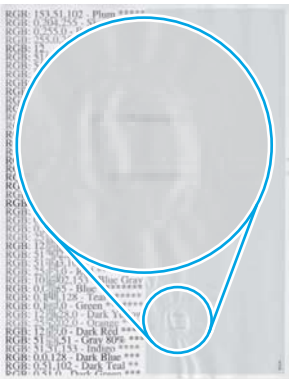
**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
Spots on a flatbed scan (M680).		The flatbed glass is contaminated.	Clean the glass with a water-dampened lint-free cloth.
All scans from the flatbed glass print with random dark or light spots. Every page has spots in the same place.	<p><b>NOTE:</b> For mono scans, the spots are dark. For color scans, the spots are the color of the contamination.</p>		
White halo of missing toner on the trailing edge of characters or graphics which have a light halftone as the background.		Missing toner areas are caused by toner depletion that occurs when the OPC and developer rollers transition from heavy to light coverage.	<p>The page must contain some color elements (text or graphics) for the following procedure to reduce or eliminate toner depletion.</p> <ol style="list-style-type: none"> <li>1. Use the print driver to open the <b>Color</b> tab.</li> <li>2. Select <b>Manual</b>, and then select <b>Settings</b>.</li> <li>3. Select <b>Manual</b>, and then select <b>Settings</b>.</li> <li>4. When the <b>Options</b> dialog box appears, select <b>Graphics</b> and then set the <b>Neutral Grays</b> to <b>4-Color</b>.</li> </ol> <p><b>TIP:</b> For the Mac OS, this setting is in the <b>Color Options</b> drop-down tab.</p>


**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
High-density toner on trailing edge.		<p>The trailing edges of images have an increase in toner density. This is most noticeable in transitions from heavy toner to white.</p> <p>Additional toner develops to the OPC in areas of transition from heavy density to white.</p>	<p>Do the following:</p> <ol style="list-style-type: none"><li>1. From the <b>Home</b> screen on the product control panel, scroll to and touch the <b>Administration</b> button.</li></ol> <p>Open the following menus:</p> <ul style="list-style-type: none"><li>• <a href="#">General Settings</a></li><li>• <a href="#">Print Quality</a></li><li>• <a href="#">Adjust paper type</a></li></ul> <ol style="list-style-type: none"><li>2. Select on of the following paper types:<ul style="list-style-type: none"><li>• <a href="#">Heavy 111-130g</a></li><li>• <a href="#">Extra Heavy 131-175g</a></li><li>• <a href="#">Card Stock 176-220g</a></li></ul></li><li>3. Resend the print job .</li></ol> <p><b>NOTE:</b> This might reduce the heavy density, but might not completely eliminate the problem.</p> <ol style="list-style-type: none"><li>4. If the error persists, adjust the layout of the page to avoid or minimize transitions from heavy toner to white background.</li></ol>

**Table 2-64 Image defects table (continued)**

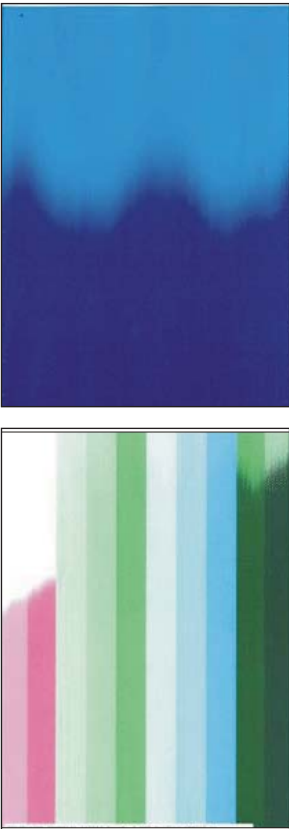

Problem	Sample	Cause	Solution
<p>ITB ghost image of calibration marks.</p> <p><b>NOTE:</b> Orientation of the marks depends on which way the page travels through the paper path.</p>		<p>This defect occurs at the top, bottom, or both areas of the page. The defect prints as a band/streak that stretches from the leading edge to the trailing edge of the page (process direction).</p> <p>The band/streak normally shows all color planes (CMYK) and most of the time has a ghost image of the calibration marks pattern in it.</p> <p>If the ITB is removed after performing a <a href="#">Full Calibrate Now</a> process, the surface of the ITB might show the same band/streak as that printed on the paper.</p> <p>The band/streak might disappear after printing 10 to 20 pages, but might return after the next calibration is performed.</p> <p><b>TIP:</b> The event log might contain a large number of <a href="#">54</a> errors. This indicates calibration failures. The product is using the factory calibration values and will print with an acceptable print quality.</p> <p>The ITB cleaning blade (which is part of the ITB) might not be making full contact with the ITB belt resulting in the ITB not being fully cleaned. A large amount of <a href="#">54</a> errors in the Event Log can indicate that the calibration sensors are contaminated with toner when the ITB is not properly cleaned.</p>	<ol style="list-style-type: none"> <li>1. Open, and then close the front door at least 5 times to clean the calibration sensors.</li> <li>2. Replace the ITB.</li> <li>3. If the error persists, escalate the problem to the Global Business Unit.</li> </ol>
<p>Bubbles or blisters on coated paper.</p>		<p>Often occurs on coated paper in a high humidity environment.</p> <p>Moisture between the paper and the coating pull apart during the fusing process.</p> <p><b>NOTE:</b> More likely to happen during a duplex print job.</p>	<p>Replace the paper with a unopened package of paper that is acclimated to the environment where the product is operating.</p> <p>Printing the job using an uncoated or different paper.</p> <p>Do the following:</p> <ol style="list-style-type: none"> <li>1. From the <b>Home</b> screen on the product control panel, scroll to and touch the <a href="#">Administration</a> button.</li> </ol>

**Table 2-64 Image defects table (continued)**

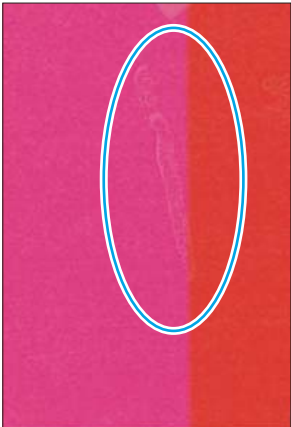
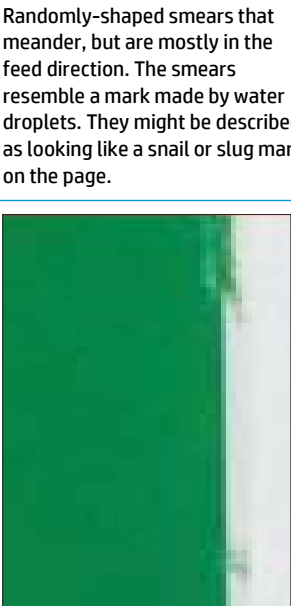
Problem	Sample	Cause	Solution
			<p>Open the following menus:</p> <ul style="list-style-type: none"> <li>• <a href="#">General Settings</a></li> <li>• <a href="#">Print Quality</a></li> <li>• <a href="#">Optimize</a></li> <li>• <a href="#">Environment</a></li> </ul> <p>2. Select the <a href="#">Reduce Temp</a> item.</p> <p>3. Resend the print job (using the coated paper).</p>
Missing one or more color planes.		A print cartridge is empty.	<p>Print a <a href="#">Supplies Status</a> page, and then confirm the supply is not empty.</p> <p>If necessary, replace the print cartridge.</p>
		Poor primary charging contacts or developing bias contacts exist between the HVPS and the imaging drum.	<p>Clean each contact on the print cartridge that produces the missing color.</p> <p>If the error persists after cleaning, check the contacts for damage.</p> <p>Replace the print cartridge if it has any damaged parts.</p>
		The laser/scanner is defective.	Replace the laser/scanner assembly

In this example, the magenta color is missing on the [Supplies Status](#) page.

**Table 2-64 Image defects table (continued)**



Problem	Sample	Cause	Solution
<p>Partial missing color plane (faded print).</p>		<p>The transfer roller in the ITB does not have even pressure across the belt due to a broken bushing, or the ITB transfer roller is partially alienated.</p>	<p>Remove the ITB, and then check the black or white bushings on the ends of the transfer rollers for damage. The bushings should all be in place and spring-loaded. If the ITB is damaged, replace it.</p>
<p>Missing trailing edge of document feeder (ADF) scans (M680).</p>		<p>The image in the print job is skewed.</p> <p>The copy image might be getting stopped early due to static interfering with the ADF paper path deskew sensor in the ADF.</p> <p><b>NOTE:</b> The page does not jam, but is skewed when printed.</p>	<p>Make sure that the image is properly placed on the page before the job is copied.</p> <p>Replace the document feeder.</p>

**Table 2-64 Image defects table (continued)**

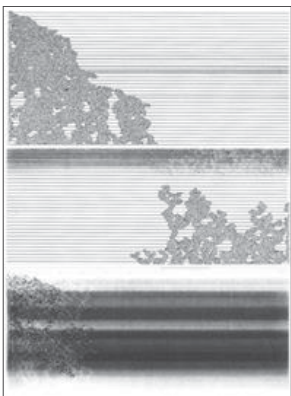
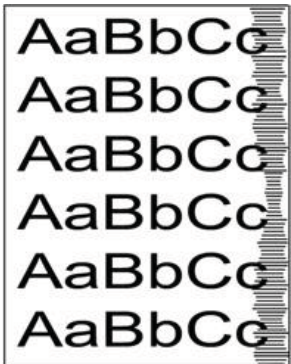
Problem	Sample	Cause	Solution
<p>Smearred toner or water-like marks.</p>		<p>Printing in a high temperature/ high humidity environment and/ or with paper which has been exposed to a high temperature/ high humidity environment.</p> <p>Paper acclimated to this type of environment has a high moisture content, which can cause the paper to curl as it enters the fuser.</p> <p><b>NOTE:</b> This is a color example of this defect. The defect can also effect mono print jobs.</p>	<p>Replace the paper with a unopened package of paper that is acclimated to the environment where the product is operating.</p> <p>Printing the job using different paper (75 g/m<sup>2</sup> or heavier).</p> <p>If the error persists, the product might need to be moved to an area of lower temperature/humidity.</p>
<p>Smearred toner on leading edge.</p> <p><b>NOTE:</b> Orientation of the marks depends on which way the page travels through the paper path.</p> <p>In this example, the long edge of the page is the leading edge.</p>		<p>This defect is associated with the media slapping against the ITB blade at secondary (T2) transfer.</p> <p>This typically happens when printing from Tray 1, but can also happen from trays 2-5.</p> <p><b>TIP:</b> This defect is more prevalent when using heavy paper.</p>	<p>If printing from Tray 1, try using a different tray.</p> <p>Use a different, lighter weight paper.</p> <p>Use the print driver to increase the margins on the page.</p>
	<p>A portion of the toner on the leading edge of the page is transferred closer to the leading edge.</p> <p>The defect might occur in only small areas, but happens when heavy amount of toner are placed very near the leading edge of the page.</p> <p><b>NOTE:</b> This is a color example of this defect. The defect can also effect mono print jobs.</p>		



**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
<p>Smeared toner (in the feed direction).</p> <p><b>NOTE:</b> Orientation of the marks depends on which way the page travels through the paper path.</p> <p>In this example, the long edge of the page is the leading edge.</p>		<p>The mylar strip near the secondary transfer (T2) area of the ITB is out of place and dragging across the toner on the ITB.</p> <p>This occurs more commonly after a paper jam, or the first printing in a high-temperature/high-humidity environment.</p> <p><b>NOTE:</b> Torn edges of paper caught in the ITB blade after a paper jam can cause this defect.</p>	<ol style="list-style-type: none"> <li>1. Print the PQ Troubleshooting pages to ensure the issue occurs across all color planes.</li> <li>2. If the defect started after a paper jam, check the ITB for torn pieces of paper.</li> <li>3. Print approximately 10 pages to see if the smear goes away.</li> <li>4. If the error persists, replace the ITB.</li> </ol>
<p>A portion of the image is smeared in the feed direction. The section that is smeared may be a narrow or wide streak, but is smeared from leading to trailing edge of the page.</p> <p><b>NOTE:</b> This is a color example of this defect. The defect can also effect mono print jobs.</p> <p><b>TIP:</b> The customer might describe the image as blurred.</p>			
<p>Shifted or cut-off scans (M680).</p>		<p>The document feeder guides are not set correctly, pressed against the original.</p> <p>The scanner needs to be calibrated.</p>	<p>Make sure that the side guides are correctly set against the page.</p> <p>If the error persists and the defect is isolated to the document feeder, replace the document feeder.</p> <ol style="list-style-type: none"> <li>1. From the Home screen on the control panel, scroll to and touch the <b>Device Maintenance</b> button.</li> <li>2. Open the following menus: <ul style="list-style-type: none"> <li>• <b>Calibration/Cleaning</b></li> <li>• <b>Calibrate Scanner</b></li> </ul> </li> <li>3. Touch the <b>Next</b> button to start the calibration process. Follow the on-screen prompts.</li> <li>4. Wait while the product calibrates the scanner.</li> <li>5. If the error persists and the defect is isolated to the scanner, replace the scanner.</li> </ol>

**Table 2-64 Image defects table (continued)**

Problem	Sample	Cause	Solution
Bubble or cloud print.	 <p>Customers might describe an image quality defect that resembles bubbles. This defect typically starts near the edges of the pages, but in severe cases it might cover most or all the page.</p>	Bubble print is most often related to poor grounding of the imaging drum and is typically caused by damaged grounding contacts.	<ol style="list-style-type: none"> <li>1. Inspect the grounding contacts inside the product. Look for damaged, loose, misaligned, contaminated, or obstructed contacts. Clean contaminated contacts. If possible, repair bent or mis aligned contacts.</li> <li>2. Verify that the grounding contacts or springs are properly positioned such that they make positive contact with the grounding point on the cartridge.</li> <li>3. Inspect the cartridge itself to make sure that the grounding points are not damaged, contaminated or obstructed. If damaged, replace the cartridge.</li> <li>4. If another cartridge is available, test the product using that cartridge.</li> <li>5. If the error persists, escalate the problem to the Global Business Unit.</li> </ol>
Tire Tracks.		This defect typically occurs when the toner cartridge has far exceeded its rated life.	Replace the toner cartridge.

## Clean the product

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

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

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

## Print a cleaning page

Print a cleaning page to remove dust and excess toner from the fuser if you are having any of the following problems:

- Specks of toner are on the printed pages.
- Toner is smearing on the printed pages.
- Repeated marks occur on the printed pages.

Use the following procedure to print a cleaning page.

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

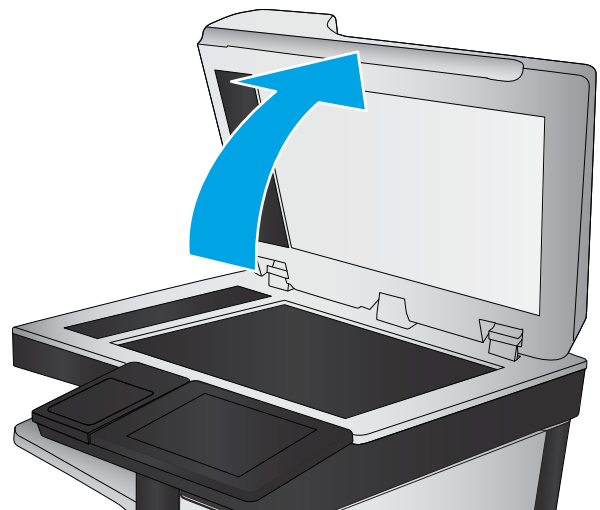
## Check the scanner glass for dirt or smudges (M680)

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



2. Open the scanner lid. Align paper that has copy defects with the scanner glass to identify the locations of dirt or smudges.



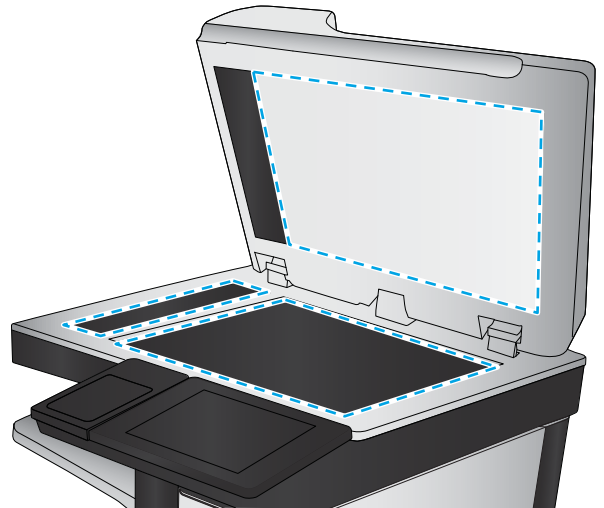
3. Clean the scanner glass, the document feeder strips, and the white plastic backing with a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.

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

**NOTE:** If the product is experiencing streaks on copies when using the document feeder, be sure to clean the small strip of glass on the left side of the scanner.

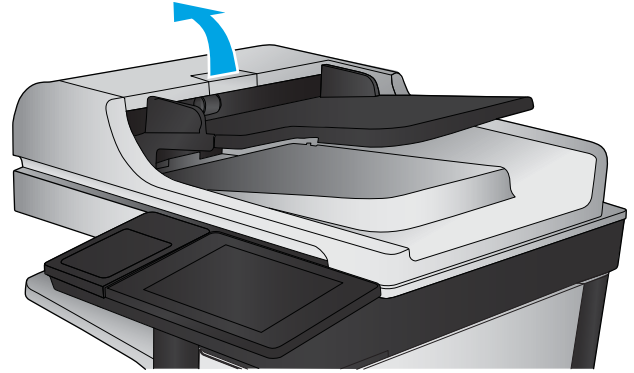
**TIP:** See this English-language video for a demonstration of how to identify and clean debris that causes streaks on copies:  
[www.youtube.com/watch?v=CGn7FJvH8sE](http://www.youtube.com/watch?v=CGn7FJvH8sE).

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

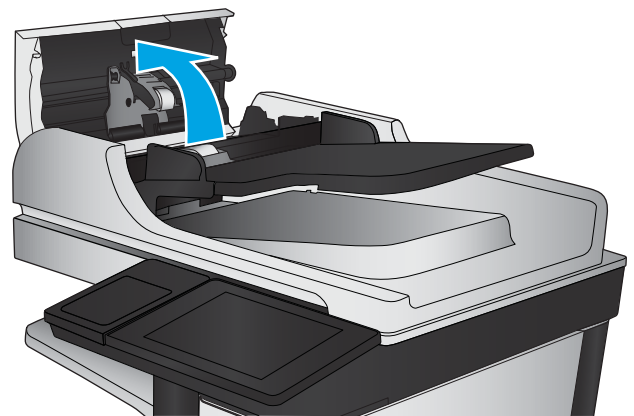


## Clean the pickup rollers and separation pad in the document feeder (M680)

1. Lift the document-feeder latch.

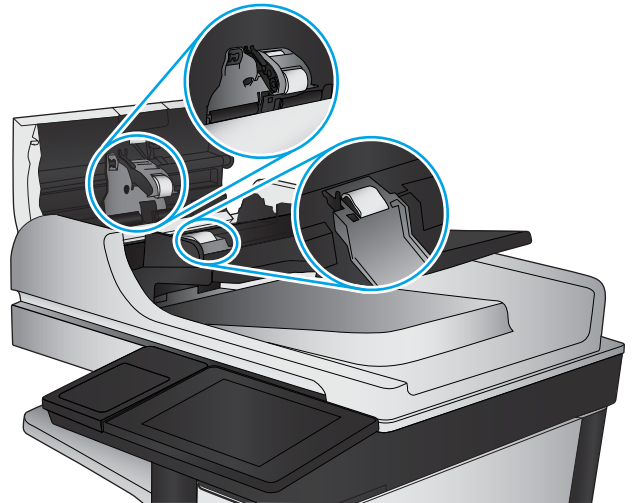


2. Open the document-feeder cover.



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


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



4. Close the document-feeder cover.

If the error persists, install a document feeder roller kit (L2718A).

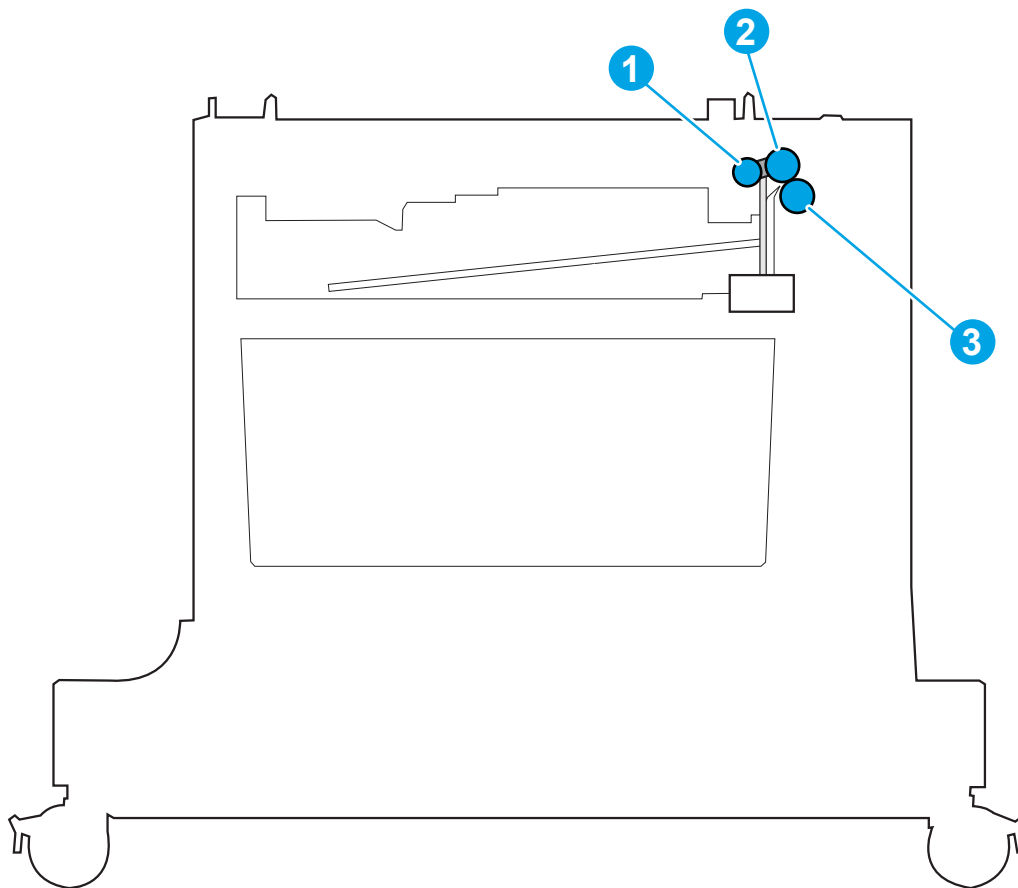
## Clean the pickup, feed, and separation rollers in the 1x500-sheet paper-feeder and 1x500-sheet paper-feeder with storage cabinet

 **NOTE:** The 1x500-sheet paper-feeder with storage cabinet is shown below, however, the rollers are in the same location in the 1x500-sheet paper-feeder.

Remove the tray and locate the rollers in the feeder.

- Pickup roller (callout 1)
- Feed roller (callout 2)
- Separation roller (callout 3)


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





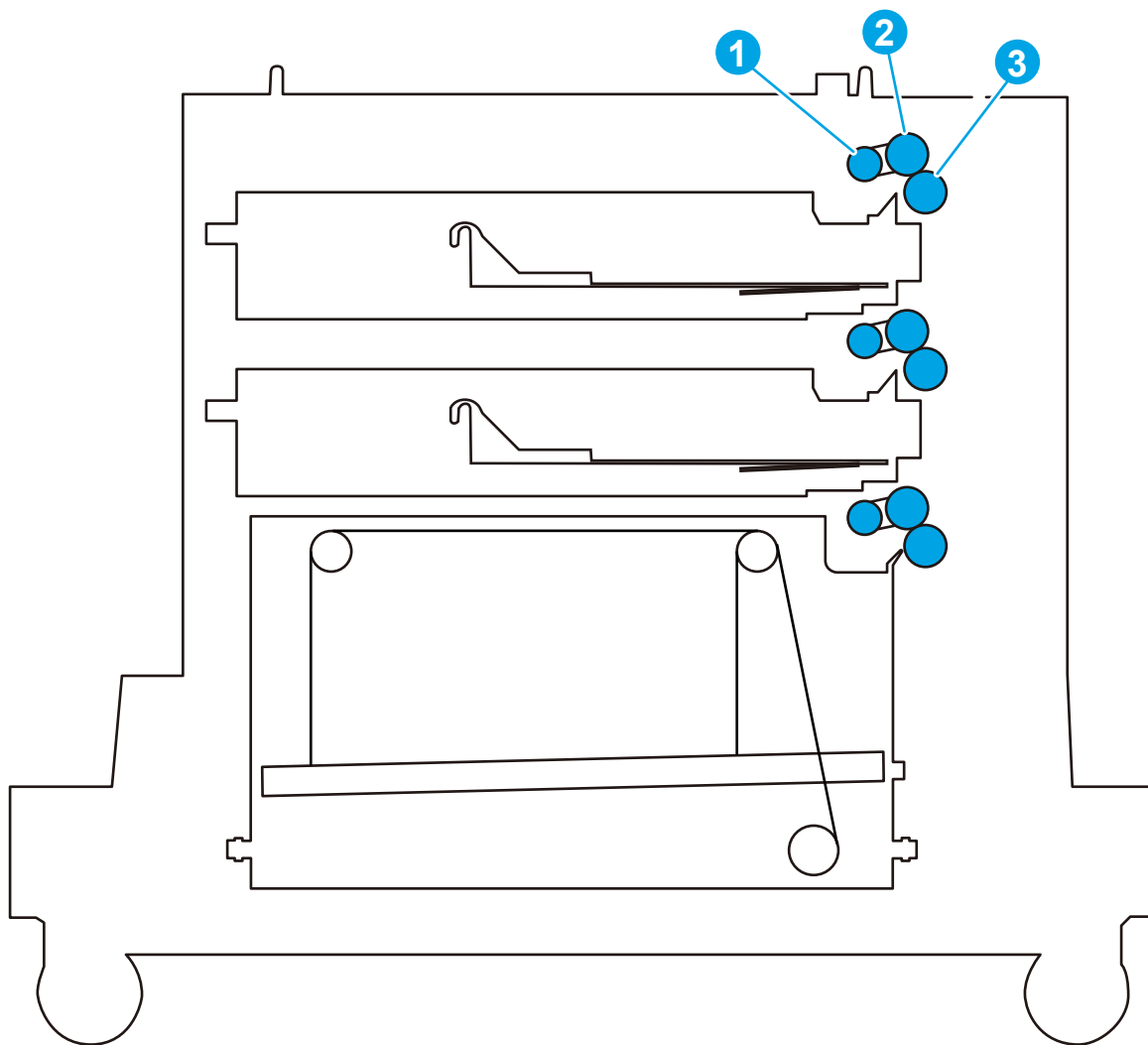
## Clean the pickup, feed, and separation rollers in the 2,500-sheet high-capacity feeder (HCI)

Remove the trays and locate the rollers in the feeder.

 **TIP:** There is one set of rollers for each tray.

- Pickup rollers (callout 1)
- Feed rollers (callout 2)
- Separation rollers (callout 3)

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



## Solve performance problems



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

HP recommends using Tray 1 or Tray 2 if the product is experiencing excessive or reoccurring jams from trays other than Tray 1 and Tray 2, or for print jobs that require media other than 20lb plain paper.

**Table 2-65 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 product might be malfunctioning.	To check the product, 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 product might not be pulling paper correctly.	Make sure paper is loaded in the tray correctly.
	The paper is jamming in the product.	Clear the jam.
	The USB cable might be defective or incorrectly connected.	<ul style="list-style-type: none"><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 product might not share a USB port. If an external hard drive or network switchbox is connected to the same port as the product, the other device might be interfering with the product. To connect and use the product, 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 product directly to a computer, check the cable.

- Verify that the cable is connected to the computer and to the product.
- Verify that the cable is not longer than 2 m (6.65 ft). Try using a shorter cable.
- Verify that the cable is working correctly by connecting it to another product. Replace the cable if necessary.

## Solve wired network problems

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

- [Poor physical connection](#)
- [The computer is using the incorrect IP address for the product](#)
- [The computer is unable to communicate with the product](#)
- [The product is using incorrect link and duplex settings for the network](#)
- [New software programs might be causing compatibility problems](#)
- [The computer or workstation might be set up incorrectly](#)
- [The product is disabled, or other network settings are incorrect](#)



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**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](http://www.microsoft.com).

---

### Poor physical connection

1. Verify that the product is attached to the correct network port using a cable of the correct length.
2. Verify that cable connections are secure.
3. Look at the network port connection on the back of the product, and verify that the amber activity light and the green link-status light are lit.
4. If the problem continues, try a different cable or port on the hub.

### The computer is using the incorrect IP address for the product

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

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

### The computer is unable to communicate with the product

1. Test network communication by pinging the network.
  - a. Open a command-line prompt on your computer. For Windows, click **Start**, click **Run**, type `cmd`, and then press **Enter**.
  - b. Type `ping` followed by the IP address for your product.  
  
For Mac OS X, open the Network Utility, and then supply the IP address in the correct field in the **Ping** pane.
  - c. If the window displays round-trip times, the network is working.
2. If the ping command failed, verify that the network hubs are on, and then verify that the network settings, the product, and the computer are all configured for the same network.

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

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

### New software programs might be causing compatibility problems

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

### The computer or workstation might be set up incorrectly

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

### The product is disabled, or other network settings are incorrect

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

# Service mode functions

## Service menu

The [Service](#) menu is PIN-protected for added security. Only authorized service people have access to the [Service](#) menu. When selecting [Service](#) from the list of menus, the product prompts the user to enter an eight-digit personal identification number (PIN).



**NOTE:** The product automatically exits the [Service](#) menu after about one minute if no items are selected or changed.

1. From the Home screen on the product control panel, scroll to and touch the [Device Maintenance](#) button.
2. Open the [Service](#) menu.
3. On the sign-in screen, select [Service Access Code](#) from the drop-down list.
4. Enter one of the following service access code for the product:
  - **M680:** 04068014
  - **M651:** 04065114

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

**Table 2-66 Service menu (M651 and M680)**

First level	Second level	Value	Description
Event Log		Print	This item allows printing or viewing the product event log.
		Cancel	
Clear Event Log			Use this item to clear the product event log.

**Table 2-66 Service menu (M651 and M680) (continued)**

<b>First level</b>	<b>Second level</b>	<b>Value</b>	<b>Description</b>
Cycle Counts	Total Engine Cycles		Set the page count that was stored in NVRAM prior to installing a new formatter.
	Mono Cycle Count		Set the number of monochrome print job pages printed.
	Color Cycle Count		Set the number of color print job pages printed.
	Refurbish Cycle Count		Use this item to record the page count when the product was refurbished.
	Document Feeder Kit Count (M680)		Total number of pages since the document feeder kit was replaced.
	Document Feeder Kit Interval (M680)		Use this item to set the interval that causes the product to prompt the customer to replace document feeder maintenance kit.
	Clean Roller Count (M680)		Total number of pages since the document feeder rollers were cleaned.
	Clean Roller Interval (M680)		Use this item to set the interval that causes the product to prompt the customer to clean the document feeder rollers and separation pad.
	ADF Count (M680)		Set the total pages fed through the document feeder.
	Flatbed Count (M680)		Set the total pages scanned from the flatbed.
	ADF Simplex Count (M680)		Set the total single-sided pages fed through the document feeder.
	ADF Duplex Count (M680)		Set the total two-sided pages fed through the document feeder.
	Copy Scan Count (M680)		Set the total copy pages that have been scanned.
Send Scan Count (M680)		Set the number of scanned pages sent to email.	
Fax Scan Count (M680)		Set the number of scanned pages that have been faxed.	

**Table 2-66 Service menu (M651 and M680) (continued)**

First level	Second level	Value	Description
Cycle Counts (continued)	Copy Pages Count (M680)		Set the number of scanned pages that have been printed.
	Duplex Feed Cycle Count		Reset the number of duplex pages that have been printed.
Scanner Settings (M680)	ADF Settings	Leading-edge	Set the calibration values.
		Trailing-edge	<b>WARNING!</b> Do not change these values unless instructed to do so.
		Left Side Front	
		Left Side Back	
	Glass Settings	Leading-edge Glass	Set the calibration values.
		Left Side Glass	<b>WARNING!</b> Do not change these values unless instructed to do so.
Serial Number		Set the serial number.	
Service ID		Use this item to show the date that the product was first used on the control panel. This eliminates the need for users to keep paper receipts for proof of warranty.	
Cold Reset Paper		When a cold reset executes, the paper size that is stored in NVRAM is reset to the default factory setting. When replacing a formatter board in a country/region that uses A4 as the standard paper size, use this menu to reset the default paper size to A4. LETTER and A4 are the only available values.	
New Registration Roller	Yes	Set this item to <b>Yes</b> if the registration assembly is replaced.	
	No		
Low Alerts	Enable	Use this item to enable or disable low alert messages.	
	Disable		
Reset Low Alerts Settings	Reset Level 1		
	Reset Level 2		
	Reset Level 3		
	Set to non-HP managed mode		

**Table 2-66 Service menu (M651 and M680) (continued)**

First level	Second level	Value	Description
Media Sensor Value			Use this item to record the media sensor value found on a replacement paper pickup assembly.
Test Support	Continuous Copy	2-sided	Service test options.
		Save to Disk	
	Continuous Print from USB		
	Automatic Calibrations	Disabled	
		Enabled*	
	Runtime Configuration	MercStine	
		Standard	
		StandardEIC	
		Workflow	
		WorkflowEIC	
Reconfigure			



**Table 2-67 Service menu (M680 only)**

First level	Second level	Value	Description
Cycle Counts	Document Feeder Kit Count		Total number of pages since the document feeder kit was replaced.
	Document Feeder Kit Interval		Use this item to set the interval that causes the product to prompt the customer to replace document feeder maintenance kit.
	Clean Rollers Count		Total number of pages since the document feeder rollers were cleaned.
	Clean Rollers Interval		Use this item to set the interval that causes the product to prompt the customer to clean the document feeder rollers and separation pad.
	ADF Count		Set the total pages fed through the document feeder.
	Flatbed Count		Set the total pages scanned from the flatbed.
	ADF Simplex Count		Set the total single-sided pages fed through the document feeder.
	ADF Duplex Count		Set the total two-sided pages fed through the document feeder.
	Copy Scan Count		Set the total copy pages that have been scanned.
	Send Scan Count		Set the number of scanned pages sent to email.
	Fax Scan Count		Set the number of scanned pages that have been faxed.
Scanner Settings	ADF Settings	Leading-edge	Set the calibration values.  <b>WARNING!</b> Do not change these values unless instructed to do so.
		Trailing-edge	
		Left Side Front	
		Left Side Back	
	Glass Settings	Leading edge glass	Set the calibration values.  <b>WARNING!</b> Do not change these values unless instructed to do so.
		Left Side Glass	

**Table 2-67 Service menu (M680 only) (continued)**

First level	Second level	Value	Description	
PTT Test Mode	Hook Operations	Off Hook	Test the internal modem for the analog fax accessory.	
		On Hook		
		Generate Random Data		Select a value from the list.
		Generate DTMF Tone Burst		Select a value from the list.
		Generate DTMF Continuous Tone		Select a value from the list.
		Generate Pulse Burst		Select a value from the list.
		Generate Tone Dial Number		Enter dial number.
		Generate Pulse Dial Number		Enter dial number.
		Generate Single Modem Tone		Range: 1100–2100 Hz  Default = 2100 Hz
		Line Measurements		
	Fax Transmit Signal Loss			
Test Support	Continuous Scan	2-sided	Service test options.	
		Save to Disk		
	Raw Scan	2-sided		
		Mechanical Calibration		

## Product resets

### Restore factory-set defaults

1. From the Home screen on the product control panel, scroll to and touch the **Administration** button.
2. Open the following menus:
  - **General Settings**
  - **Restore Factory Settings**
3. A verification message advises that completing the reset function might result in loss of data. Touch the **Reset** button to complete the process.



**NOTE:** The product restarts automatically after the reset operation completes.

## Restore the service ID

### Restore the service ID

When replacing the formatter, the date is lost. Use this menu item to reset the date to the original date that the product was first used. The date format is YYDDD. Use the following formula to calculate the dates:

1. To calculate YY, subtract 1990 from the calendar year. For instance, if the product was first used in 2002, calculate YY as follows:  $2002 - 1990 = 12$ .  $YY = 12$ .
2. Subtract 1 from 10 (October is the tenth month of the year):  $10 - 1 = 9$ .
  - Multiply 9 by 30:  $9 \times 30 = 270$  or add 17 to 270:  $270 + 17 = 287$ . Thus,  $DDD = 287$ .

### Convert the service ID to an actual date


Use the product Service ID number to determine whether the product is still under warranty. Use the following formula to convert the Service ID into the installation date as follows:

1. Add 1990 to YY to get the actual year that the product was installed.
2. Divide DDD by 30. If there is a remainder, add 1 to the result. This is the month.
3. The remainder from the calculation in step 2 is the date.

Using the Service ID 12287 as an example, the date conversion is as follows:

1.  $12 + 1990 = 2002$ , so the year is 2002.
2.  $287$  divided by  $30 = 9$  with a remainder of  $17$ . Because there is a remainder, add 1 to 9 to get 10, which represents October.
3. The remainder in step 2 is 17, so that is the date.
4. The complete date is 17-October-2002.


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 **NOTE:** A six-day grace period is built into the date system.

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## Product cold reset

### Cold reset using the Pre-boot menu

1. Turn the product on.
2. The HP logo displays on the product control panel. When an underscore displays below the HP logo, touch the logo to open the **Pre-boot** menu.
3. Use the down arrow ▼ button to highlight **Administrator**, and then touch the **OK** button.
4. Use the down arrow ▼ button to highlight **Startup Options** item, and then touch the **OK** button.
5. Use the down arrow ▼ button to highlight the **Cold Reset** item, and then touch the **OK** button.
6. Touch the Home  button to highlight **Continue**, and then touch the **OK** button.

---

 **NOTE:** The product will initialize.

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## Format Disk and Partial Clean functions

### Active and repository firmware locations

The firmware bundle consists of multiple parts. The main components are the Windows CE Operating System and the product/peripheral firmware files.


There are two locations/partitions on the hard drive where the firmware components are stored:

- The Active, where the operating system and firmware currently are executing.
- The Repository, the recovery location.

If the Active location is damaged, or a [Partial Clean](#) was performed, the product automatically copies over the OS and firmware files from the Repository location and the product recovers.

If both the Active and Repository locations are damaged, or a [Format Disk](#) was performed, then both locations are gone and the error message **99.09.67** displays on the control-panel display. The user must upload the firmware to the product in order for it to function again.

---

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

---

### Partial Clean

The [Partial Clean](#) option erases all partitions and data on the disk drive, except for the firmware repository where a backup copy of the firmware file is stored. This allows the disk drive to be reformatted without having to download a firmware upgrade file to return the product to a bootable state.

#### Characteristics of a Partial Clean

- Customer-defined settings, third-party solutions, firmware files, and the operating system are deleted.
- Rebooting the product restores the firmware files from the Repository location, but does not restore any customer-defined settings.
- For previous HP products, a Hard Disk Initialization is similar to executing the [Partial Clean](#) function for this product.

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 **CAUTION:** HP recommends backing-up product configuration data before executing a [Partial Clean](#) to retain customer-defined settings (if needed). See the [Backup/Restore](#) item in the [Device Maintenance](#) menu.

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#### Reasons for performing Partial Clean

- The product continually boots up in an error state.




**NOTE:** Try clearing the error prior to executing a [Partial Clean](#).

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- The product will not respond to commands from the control panel.
- Executing the [Partial Clean](#) function is helpful for troubleshooting hard disk problems.
- To reset the product by deleting all solutions and customer-defined settings.
- The product default settings are not properly working.

## Execute a Partial Clean

1. Turn the product on.
2. The HP logo displays on the product control panel. When an underscore displays below the HP logo, touch the logo to open the [Pre-boot](#) menu.
3. Touch the down arrow ▼ button to highlight [Administrator](#), and then touch the [OK](#) button.
4. Use the down arrow ▼ button to highlight [Partial Clean](#), and then touch the [OK](#) button.
5. Touch the [OK](#) button again.
6. Touch the Home  button to highlight [Continue](#), and then touch the [OK](#) button.

---

 **NOTE:** The product initializes.

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## Format Disk

The [Format Disk](#) option erases the entire disk drive.

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 **CAUTION:** After executing a [Format Disk](#) option, the product is *not* bootable.

---

### Characteristics of a Format Disk

- Customer-defined settings, third-party solutions, firmware files, and the operating system are deleted.


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 **NOTE:** Rebooting the product *does not* restore the firmware files.

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- Rebooting the product restores the firmware files from the Repository location, but does not restore any customer-defined settings.
- After executing the [Format Disk](#) function, the message **99.09.67** displays on the control panel.
- After executing the [Format Disk](#) function, the product firmware must be reloaded.

---

 **CAUTION:** HP recommends not using the [Format Disk](#) option unless an error occurs and the solution in the product service manual recommends this solution. After executing the [Format Disk](#) function, the product is unusable.

HP recommends backing-up product configuration data before executing a [Format Disk](#) to retain customer-defined settings (if needed). See the [Backup/Restore](#) item in the [Device Maintenance](#) menu.

---

### Reasons for performing Format Disk

- The product continually boots up in an error state.

---

 **NOTE:** Try clearing the error prior to executing a [Format Disk](#).

---

- The product will not respond to commands from the control panel.
- Executing the [Format Disk](#) function is helpful for troubleshooting hard disk problems.
- To reset the product by deleting all solutions and customer-defined settings.

## Execute a Format Disk

1. Turn the product on.
2. The HP logo displays on the product control panel. When an underscore displays below the HP logo, touch the logo to open the [Pre-boot](#) menu.
3. Use the down arrow ▼ button to highlight [Administrator](#), and then touch the [OK](#) button.
4. Use the down arrow ▼ button to highlight [Format Disk](#), and then touch the [OK](#) button.
5. Touch the [OK](#) button again.



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**NOTE:** When the [Format Disk](#) operation is complete, reload the product firmware.

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# Solve fax problems (M680)

## Checklist for solving fax problems

Use the following checklist to help identify the cause of any fax-related problems you encounter:

- **Are you using the fax cable supplied with the fax accessory?** This fax accessory has been tested with the supplied fax cable to meet RJ11 and functional specifications. Do not substitute another fax cable; the analog-fax accessory requires an analog-fax cable. It also requires an analog phone connection.
- **Is the fax/phone line connector seated in the outlet on the fax accessory?** Make sure that the phone jack is correctly seated in the outlet. Insert the connector into the outlet until it "clicks."



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**NOTE:** Verify that the phone jack is connected to the fax port rather than to the network port. The ports are similar.

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- **Is the phone wall jack working properly?** Verify that a dial tone exists by attaching a phone to the wall jack. Can you hear a dial tone, and can you make or receive a phone call?

## What type of phone line are you using?

- **Dedicated line:** A standard analog fax/phone line assigned to receive or send faxes.



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**NOTE:** The phone line should be for product fax use only and not shared with other types of telephone devices. Examples include alarm systems that use the phone line for notifications to a monitoring company.

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- **PBX system:** A business-environment phone system. Standard home phones and the fax accessory use an analog phone signal. Some PBX systems are digital and might not be compatible with the fax accessory. You might need an interfacing Analog Telephone Adapter (ATA) to connect the fax machine to digital PBX systems.
- **Roll-over lines:** A phone system feature where a new call "rolls over" to the next available line when the first incoming line is busy. Try attaching the product to the first incoming phone line. The fax accessory answers the phone after it rings the number of times set in the rings-to-answer setting.

## Are you using a surge-protection device?

A surge-protection device can be used between the wall jack and the fax accessory to protect the fax accessory against electrical power passed through the phone lines. These devices can cause some fax communication problems by degrading the quality of the phone signal. If you are having problems sending or receiving faxes and are using one of these devices, connect the product directly to the phone jack on the wall to determine whether the problem is with the surge-protection device.

## Are you using a phone company voice-messaging service or an answering machine?

If the rings-to-answer setting for the messaging service is lower than the rings-to-answer setting for the fax accessory, the messaging service answers the call, and the fax accessory cannot receive faxes. If the rings-to-answer setting for the fax accessory is lower than that of the messaging service, the fax accessory answers all calls.

## Does your phone line have a call-waiting feature?

If the fax telephone line has an activated call-waiting feature, a call-waiting notice can interrupt a fax call in progress, which causes a communication error. Ensure that a call-waiting feature is not active on the fax telephone line.

## Check fax accessory status

If the analog-fax accessory does not appear to be functioning, print a [Configuration Page](#) report to check the status.

1. From the Home screen, scroll to and touch the [Administration](#) button.
2. Open the following menus:
  - [Reports](#)
  - [Configuration/Status Pages](#)
  - [Configuration Page](#)
3. Touch the [Print](#) button to print the report, or touch the [View](#) button to view the report on the screen. The report consists of several pages.



**NOTE:** The product IP address or host name is listed on the Jetdirect Page.

On the Fax Accessory Page of the Configuration Page, under the Hardware Information heading, check the Modem Status. The following table identifies the status conditions and possible solutions.



**NOTE:** If the Fax Accessory Page does not print, there might be a problem with the analog fax accessory. If you are using LAN fax or Internet fax, those configurations could be disabling the feature.

Operational / Enabled <sup>1</sup>	The analog-fax accessory is installed and ready.
Operational / Disabled <sup>1</sup>	<p>The fax accessory is installed, but you have not configured the required fax settings yet.</p> <p>The fax accessory is installed and operational; however, the HP Digital Sending utility has either disabled the product fax feature or has enabled LAN fax. When LAN fax is enabled, the analog-fax feature is disabled. Only one fax feature, either LAN fax or analog fax, can be enabled at a time.</p> <p><b>NOTE:</b> If LAN fax is enabled, the <a href="#">Fax</a> feature is unavailable on the product control panel.</p>
Non-Operational / Enabled/Disabled <sup>1</sup>	The product has detected a firmware failure. Upgrade the firmware.
Damaged / Enabled/Disabled <sup>1</sup>	The fax accessory has failed. Reseat the fax accessory card and check for bent pins. If the status is still DAMAGED, replace the analog-fax accessory card.

<sup>1</sup> ENABLED indicates that the analog-fax accessory is enabled and turned on; DISABLED indicates that LAN fax is enabled (analog fax is turned off).



## General fax problems

The following are some common fax problems.

### The fax failed to send

JBIG is enabled, and the receiving fax machine does not have JBIG capability.

Turn off the JBIG setting.

### An Out of Memory status message displays on the product control panel

The product storage disk is full.

Delete some stored jobs from the disk. From the Home screen on the product control panel, touch the [Retrieve from Device Memory](#) button. Open the list of stored jobs or stored faxes. Select a job to delete, and then touch the [Delete](#) button.

### 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 [Photograph](#) setting.

### You touched the Stop 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.

### No fax address book button displays

The fax address book feature has not been enabled.

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

### Not able to locate the Fax settings in HP Web Jetadmin

Fax settings in HP Web Jetadmin are located under the device's 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 product appends the overlay header to the top of a page.

This is normal operation.

### A mix of names and numbers is in the recipients box

Names and numbers can both display, depending on where they are from. The fax address book lists names, and all other databases list numbers.

This is normal operation.

### **A one-page fax prints as two pages**

The fax header is being appended to the top of the fax, pushing text to a second page.

To print a one page fax on one page, set the overlay header to overlay mode, or adjust the fit-to-page setting.

### **A document stops in the document feeder in the middle of faxing**

A jam is in the document feeder.

Clear the jam, and send the fax again.

### **The volume for sounds coming from the fax accessory is too high or too low**

The volume setting needs to be adjusted.

Adjust the volume in the [Fax Send Settings](#) menu and the [Fax Receive Settings](#) 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 HP LaserJet Analog Fax Accessory 500 when it is connected to a VoIP service:**

- Begin with the fax speed set in Medium (V.17). This might be helpful in environments where a new VoIP networks 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 product. 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.

## Problems with receiving faxes

Problem	Cause	Solution
Incoming fax calls are not being answered by the fax accessory (no fax detected).	The rings-to-answer setting might not be set correctly.	Check the rings-to-answer setting.
	The fax cable might not be connected correctly, or the fax cable is not working.	Check the installation. Make sure to use the fax cable that came with the product or with the fax accessory.
	The phone line might not be working.	Disconnect the fax accessory from the phone jack, and then connect a phone. Try to make a phone call to ensure the phone line is working.
	If a PBX system is in use, the ring signals might not be configured correctly.	Check the ring-signal configuration on the PBX system.
	A voice-messaging service might be interfering with incoming faxes.	Do one of the following: <ul style="list-style-type: none"> <li>• Use a phone line dedicated to fax calls.</li> <li>• Decrease the rings-to-answer for the fax accessory to a number less than the rings-to-answer for the voice mail.</li> <li>• If the error persists, contact your Global Business Unit (GBU) for alternative workarounds to this problem.</li> </ul>
Faxes are being received very slowly.	The product might be receiving a complex fax, such as one with many graphics.	Complex faxes take longer to transmit.
	The sending fax machine might have a slow modem speed.	The fax accessory only receives the fax at the fastest modem speed the sending fax machine can use. Wait for the fax transmission to complete.
	The resolution at which the fax was sent or is being received is very high. A higher resolution typically results in better quality, but also requires a longer transmission time.	Ask the sender to decrease the resolution and resend the fax.
	If there is a poor phone-line connection, the fax accessory and the sending fax machine slow down the transmission to adjust for errors.	Ask the sender to resend the fax. Ask the phone company to check the phone line.

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Faxes are not printing on the product.	No paper is in the input tray.	Load paper. Any faxes received while the input tray is empty are stored and will print after the tray has paper.
	The <a href="#">Fax Printing Schedule</a> feature is in use.	Faxes print according to the schedule. To print faxes immediately, disable the <a href="#">Fax Printing Schedule</a> feature.
	The product is either low on toner or has run out of toner.	If configured, the product stops printing as soon as it is low on toner or runs out of toner. Any faxes received are stored in memory and print after the toner has been replaced.
	The incoming call might be a voice call.	Incoming voice calls usually show up in the call report as a <b>No Fax Detected</b> error. Because these are voice calls and not a fax error, no action is necessary.
	The incoming fax was interrupted.	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.
	The <a href="#">Fax Printing Schedule</a> feature is set to the <a href="#">Always store faxes</a> option.	Change the <a href="#">Fax Printing Schedule</a> setting to the <a href="#">Always print faxes</a> option.

## Problems with sending faxes

Problem	Cause	Solution
Faxes are transmitting very slowly.	The product might be sending a complex fax, such as one with many graphics.	Complex faxes take longer to transmit.
	The receiving fax machine might have a slow modem speed.	The fax accessory only sends the fax at the fastest modem speed the receiving fax machine can use. Wait for the fax transmission to complete.
	The resolution at which the fax was sent or is being received is very high. A higher resolution typically results in better quality, but also requires a longer transmission time.	Decrease the resolution and change the <a href="#">Optimize Text/Picture</a> option.
	If there is a poor phone-line connection, the fax accessory and the receiving fax machine slow down the transmission to adjust for errors.	Cancel and resend the fax. Ask the phone company to check the phone line.
	The document might have a gray background, which can increase fax transmission time.	Use the <a href="#">Image Adjustment</a> feature to clean up the background shading.
Faxes quit during sending.	The receiving fax machine might be malfunctioning.	Try sending to another fax machine.
	The phone line might not be working.	Disconnect the fax accessory from the phone jack, and connect a phone. Try to make a phone call to ensure 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. Use the <a href="#">Fax Dialing Settings</a> menu to set the fax speed for sending faxes.
	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.
The fax accessory is receiving faxes but is not sending them.	If the fax accessory is on a PBX system, the PBX system might be generating a dial tone the fax accessory cannot detect.	Disable the detect-dial-tone setting.
	There might be a poor phone connection.	Try again later.
	The receiving fax machine might be malfunctioning.	Try sending to another fax machine.
	The phone line might not be working.	Disconnect the fax accessory from the phone jack, and connect a phone. Try to make a phone call to ensure the phone line is working.
Outgoing fax calls keep dialing.	The fax accessory automatically redials a fax number if the <a href="#">Redial on Busy</a> option is on or if the <a href="#">Redial on No Answer</a> option is on.	This is normal operation. To prevent the fax from resending, set the <a href="#">Redial on Busy</a> option to 0, set the <a href="#">Redial on No Answer</a> option to 0, and set the <a href="#">Redial on Error</a> option to 0.

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Sent faxes are not arriving at the receiving fax machine.	The receiving fax machine might be turned off or might have an error condition, such as being out of paper.	Ask the recipient to make sure the fax machine is turned on and ready to receive faxes.
	A fax might be in memory because it is waiting to redial a busy number, or there are other jobs ahead of it waiting to be sent.	If a fax job is in memory for either of these reasons, an entry for the job displays in the fax log. Print the fax activity log, and check the <b>Result</b> column for jobs with a <b>Pending</b> designation.

## Fax error messages on the product control panel

If the fax process is interrupted or an error occurs during a fax transmission or reception, a two-part status/error description is generated by the fax subsystem on the product. Normal or successful faxes also generate messages indicating success. The message information consists of a text description and a numeric code (a few messages do not include numeric codes). Only the text part of the message is displayed on the product control panel; however, both the text message and numeric code are listed in the Fax Activity Report, Fax Call Report, and the Fax T.30 Trace. The numeric code is shown in parentheses after the text part of the message in the reports.

The fax modem generates the numeric code. Usually a numeric code of (0) indicates a normal modem response. Some messages always display a numeric code of (0), other messages can have a range of numeric codes, and a few messages have no numeric code. Usually a numeric code of (0) indicates an error was not associated with the fax modem, but occurred in another part of the fax system or other product system such as the printing system. Non-zero error codes give further detail into the particular action or process that the modem is executing, and they do not necessarily indicate that there is a problem with the modem.

Persistent error messages with numeric codes different than those listed here require assistance of customer support. Print a Fax T.30 Trace report before contacting customer support to help identify the problem. This report contains details of the last fax call.

1. From the Home screen on the product control panel, scroll to and touch the [Administration](#) button.
2. Open the following menus:
  - [Troubleshooting](#)
  - [Fax](#)
  - [Fax T.30 Trace](#)
3. Select the [Print T.30 Report](#) option to print the report.

## Send-fax messages

**Table 2-68 Send-fax messages**

Message	Error No.	Description	Action
<b>Cancelled</b>	0	Someone cancelled the fax at the product control panel.	None.
<b>Success</b>	n/a	The fax was sent successfully.	None.
<b>Fail Busy</b>	0	The receiving fax machine is busy.	The fax will be retired automatically (if configured), otherwise try resending fax later.
<b>No Answer</b>	0 or 17	The receiving fax machine is not answering the call, or a person answered the call.	The receiving fax machine might be disconnected or turned off; contact the receiver to check the machine. Try resending.
<b>No Dial</b>	0	No dial tone is detected when sending the fax.	Verify the phone line is active; set the sending fax to "not" to detect a dial tone.
<b>Failed</b>	Any	The fax might be corrupted or not sent.	Try resending fax.
<b>Failed</b>	0	Incompatible page width, or page had too many bad lines.	Try resending fax; if the error persists, contact service.
<b>Failed</b>	17 or 36	Lost telephone connection between sender and receiver. The issue might be due to voice calls interrupting the fax, or a person answering the call.	Try resending the fax.
<b>Failed or Communication Error</b>	Any besides 17 or 36	General communications issue where the fax transmission was interrupted or did not proceed as expected.	Try resending fax; if the error persists, contact support.
<b>Space Fail</b>	0	Unable to read or write the fax image file to disk; could be corrupt product disk or no space available on the product's disk.	Try resending fax; if the error persists, contact support.
<b>Memory Error</b>	0	Out of memory on product.	If the error persists, delete items from the product memory, such as stored jobs or saved faxes.
<b>Power Failure</b>	0	A power failure occurred on the sending fax product during the fax transmission.	Try resending the fax.



## Receive-fax messages

**Table 2-69** Receive-fax messages

Message	Error No.	Description	Action
<b>Success</b>	n/a	The fax transmission was successful.	None.
<b>Blocked</b>	n/a	The receiving fax machine is using the blocked-number feature and is blocking this fax.	None.
<b>Failed</b>	Any	The fax might be corrupted or not sent.	Ask the sender to resend the fax; if the error persists, contact support.
<b>Failed</b>	0	Incompatible page width or page had too many bad lines.	Ask the sender to resend the fax; if the error persists, contact support.
<b>Failed</b>	17, 36	Lost telephone connection or interruption between sender/ receiver.	Ask the sender to resend the fax (if the sending machine does not automatically retry).
<b>Failed</b>	Any besides 17 or 36	General communications issue where the fax transmission was interrupted or did not proceed as expected.	Ask the sender to resend the fax; if the error persists, contact support.
<b>Space Fail</b>	0	Unable to read or write image file to disk; could be corrupt product disk or no space on disk.	Ask the sender to resend the fax; if the error persists, contact support.
<b>Memory Error</b>	0	Out of memory on product.	If the error persists, delete items from the product memory, such as stored jobs or saved faxes.
<b>Print Fail</b>	0	The received image file cannot be decoded.	Ask the sender to resend the fax; enable Error Correction Mode if it is not already enabled.
<b>Power Failure</b>	0	A power failure occurred during the fax reception.	Ask the sender to resend the fax.
<b>No Fax Detected</b>	17, 36	A voice call was made to the fax.	None

## Service settings

These items in the control-panel menus are intended to be used when an HP service representative is assisting you.

### Settings in the Troubleshooting menu

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

---

#### Fax T.30 Trace

This is a printed report of all the communications between the sending and receiving fax machines for the last Fax transmission or reception. The report contains detailed error codes and other information that might be useful in troubleshooting a particular problem related to sending or receiving a fax. Print this report before contacting HP customer support.

---

#### Fax V.34

This setting controls the modem's method of transmission. The [Normal](#) setting allows the modem to select any of the supported fax speeds up to 33,600 bps. The [Off](#) setting sets the fax speed to 14,400 bps or lower, depending on the speed settings for sending and receiving.

---

#### Fax Speaker Mode

In [Normal](#) mode, the modem speaker is turned on during dialing, through the initial connection, and then it turns off. In [Diagnostic](#) mode, the speaker is turned on and remains on for all fax communications until the setting is returned to [Normal](#) mode.

---

#### Fax Log Entries

The [Standard](#) fax log includes basic information such as the time and whether the fax was successful. The [Detailed](#) fax log shows the intermediate results of the redial process not shown in the [Standard](#) fax log.

---

# Firmware upgrades

To download the most recent firmware upgrade for the product, go to:

- In the US, go to [www.hp.com/support/colorljM651](http://www.hp.com/support/colorljM651) or [www.hp.com/support/colorljMFPM680](http://www.hp.com/support/colorljMFPM680) . Click **Drivers & Software**.
- Outside the US, follow these steps:
  1. Go to [www.hp.com/support](http://www.hp.com/support).
  2. Select the appropriate country/region.
  3. Click **Drivers & Software**.
  4. Enter the product name (HP Color LaserJet Enterprise M651 and/or HP Color LaserJet Enterprise MFP M680), and then select **Search**.

## Determine the installed revision of firmware

Print a configuration page to determine the installed revision of firmware.

On the configuration page, look in the section marked Device Information for the firmware datecode and firmware revision.

### Firmware datecode and firmware revision examples


- 20100831 (firmware datecode)
- 103067\_104746 (firmware revision)

## Perform a firmware upgrade

The firmware bundle is a .bdl file. This file requires an interactive upgrade method. The traditional FTP, LPR or Port 9100 methods of upgrading are not available. Use one of the following methods to upgrade the firmware for this product.

### HP Embedded Web Server

---


 **NOTE:** The product should be at the **Ready** state.

The firmware update might take between 10 or more minutes based on the input/output (I/O) transfer rates and the time it takes for the product to reinitialize.

---

1. Open an Internet browser window.
2. Enter the product IP address in the URL line.
3. Select the **Firmware Upgrade** link from within the **Troubleshooting** tab.


---

 **NOTE:** If a warning screen appears, follow the instructions for setting an administrator password from the **Security** tab.

---

4. Browse to the location that the firmware upgrade file was downloaded to, and then select the firmware file—the file has a .bdl file extension. Select the **Install** button to perform the upgrade.

---

 **NOTE:** Do not close the browser window OR interrupt communication until the HP Embedded Web Server (EWS) displays the confirmation page.

---

5. Select **Restart Now** from the EWS confirmation page, or turn the product off, and then on again using the power switch.
6. After the product reinitializes, print a configuration page and verify that the latest firmware version has been installed.

## USB flash drive (Pre-boot menu)



**NOTE:** Make sure that the USB port is enabled.

1. Copy the .bdl file to a portable USB flash drive.
2. Turn the product on.
3. The HP logo displays on the product control panel. When an underscore displays below the HP logo, touch the logo to open the **Pre-boot** menu.
4. Touch the down arrow ▼ button to highlight **Administrator**, and then touch the **OK** button.
5. Touch the down arrow ▼ button to highlight **Download**, and then touch the **OK** button.
6. Insert the USB flash drive with the .bdl file on it.



**NOTE:** If the error message **No USB Thumbdrive Files Found** displays on the control-panel display, connect the storage device to the external USB connection on the formatter or try using a different portable storage device.

7. Touch the down arrow ▼ button to highlight **USB Thumbdrive**, and then touch the **OK** button.
8. Touch the down arrow ▼ button to highlight the .bdl file, and then touch the **OK** button.



**NOTE:** The upgrade process can take up to 10 minutes to complete.



**TIP:** If there is more than one .bdl file on the storage device, make sure to select the correct file for this product.

9. When the message **Complete** displays on the control-panel display, touch the back arrow ↩ button 3 times.
10. When the message **Continue** displays on the control-panel display, touch the **OK** button. The product will initialize.
11. When the upgrade process is complete, print a configuration page and verify that the upgrade firmware version was installed.

## USB flash drive (control-panel menu)

1. Copy the .bdl file to a portable USB flash drive.
2. Turn the product on, and then wait until it reaches the **Ready** state.
3. From the **Home** screen on the product control panel, scroll to and touch the **Device Maintenance** button.
4. Touch the **USB Firmware Upgrade** button.
5. Insert the portable USB storage device with the .bdl file on it into the USB port on the front of the product, and then touch the **OK** button.
6. Touch the .bdl file, and then touch the **Upgrade** button.



**TIP:** If there is more than one .bdl file on the storage device, make sure to select the correct file for this product.

---

7. When the product prompts a upgrade confirmation, touch the **Upgrade** button.

When the upgrade is complete, the product will initialize.



**NOTE:** The upgrade process can take up to 10 minutes to complete.

---

8. When the upgrade process is complete, print a configuration page and verify that the upgrade firmware version was installed.



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# A Product specifications

- [Product dimensions](#)
- [Product space requirements](#)
- [Power consumption, electrical specifications, and acoustic emissions](#)
- [Environmental specifications](#)
- [Certificate of Volatility](#)

# Product dimensions

**Table A-1 Physical specifications, with toner cartridges (M680)**

Product	Height	Depth	Width	Weight
M680dn	585 mm (23.0 in)	632 mm (25 in)	540 mm (21.3 in)	56.5 kg (124.3 lb)
M680f	1135 mm (44.7 in)	681 mm (26.8 in)	660 mm (26.0 in)	77.9 kg (171.4 lb)
M680z	1180 mm (46.5 in)	681 mm (26.8 in)	1020 mm (40.2 in)	87.0 kg (191.3 lb)

**Table A-2 Physical specifications, with toner cartridge (M651)**

Product	Height	Depth	Width	Weight
M651n	455 mm (17.9 in)	520 mm (20.5 in)	550 mm (21.7 in)	39.1 kg (86 lb)
M651dn	455 mm (17.9 in)	520 mm (20.5 in)	550 mm (21.7 in)	39.1 kg (86 lb)
M651xh	1000 mm (39.4 in)	665 mm (26.2 in)	660 mm (26.0 in)	69.6 kg (153 lb)

**Table A-3 Product dimensions with all doors, trays, and document feeder fully opened (M680)**

Product	Height	Depth	Width
M680dn	864 mm (34 in)	887 mm (34.9 in)	1162 mm (45.8 in)
M680f	1416 mm (55.8 in)	993 mm (39.1 in)	1245 mm (49.0 in)
M680z	1416 mm (55.8 in)	1010 mm (39.8 in)	1403 mm (55.3 in)

**Table A-4 Product dimensions with all doors and trays fully opened (M651)**

Product	Height	Depth	Width
M651n	521 mm (20.5 in)	864 mm (34.0 in)	819 mm (32.3 in)
M651dn	521 mm (20.5 in)	864 mm (34.0 in)	819 mm (32.3 in)
M651xh	1073 mm (42.3 in)	1010 mm (39.8 in)	1073 mm (42.3 in)

**Table A-5 Accessory dimensions**

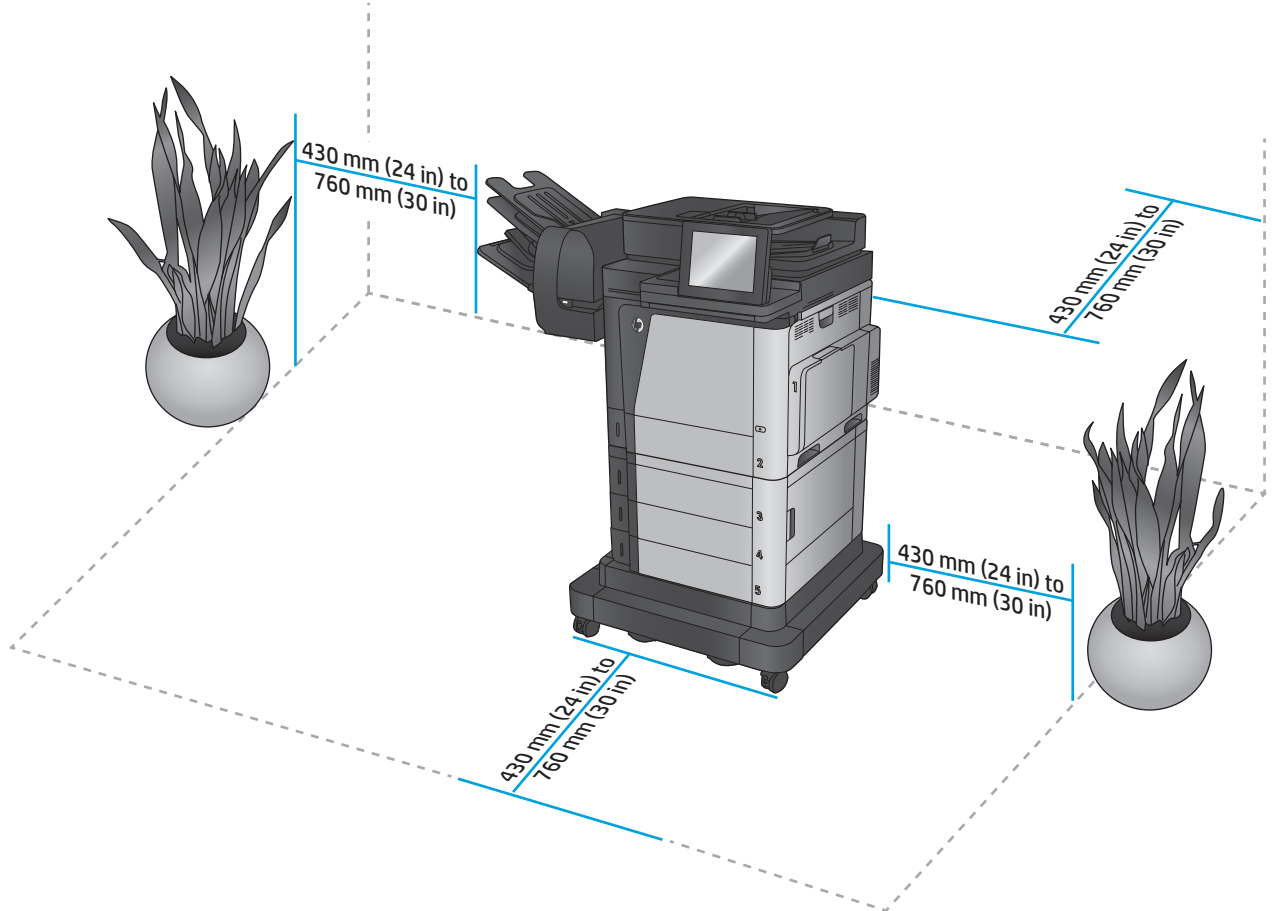
Product	Height	Depth	Width	Weight
1x500 sheet feeder	102 mm (4.0 in)	527 mm (20.8 in)	508 mm (20.0 in)	8.1 kg (17.8 lb)
1x500 sheet feeder with cabinet	546 mm (21.5 in)	676 mm (26.6 in)	660 mm (26.0 in)	21.4 kg (47.1 lb)
2,500-sheet high-capacity input tray	546 mm (21.5 in)	676 mm (26.6 in)	640 mm (26.0 in)	30.5 kg (67.0 lb)
3-bin stapling mailbox (M680)	368 mm (14.5 in)	400 mm (15.8 in)	445 mm (17.5 in)	8.0 kg (17.6 lb)



# Product space requirements

HP recommends that enough space is provided around the product to make sure there is sufficient space to open doors and covers, provide proper ventilation, and for service personnel to remove covers and internal assemblies.

**Figure A-1** Product space requirements



**Table A-6** Product space requirements

Item	Recommended spacing
From the left-side or right-side of the product, input accessory, or finishing accessory to an obstruction	430 mm (17 in) to 760 mm (30 in)
From the front-side of the product, input accessory, or finishing accessory to an obstruction	610 mm (24 in) to 1010 mm (40 in)
From the back-side of the product, input accessory, or finishing accessory to an obstruction	460 mm (18 in) to 760 mm (30 in)

# Power consumption, electrical specifications, and acoustic emissions

For more information, go to [www.hp.com/support/colorljM651](http://www.hp.com/support/colorljM651) and or [www.hp.com/support/colorljflowMFPM680](http://www.hp.com/support/colorljflowMFPM680). In the left-hand side navigation bar select **Learn and Use**, and then select **Specifications**.

**CAUTION:** Power requirements are based on the country/region where the product is sold. Do not convert operating voltages. This will damage the product and void the product warranty.

## Environmental specifications

**Table A-7 Operating-environment specifications**

Environment	Recommended	Allowed
Temperature	17° to 25°C (62.6° to 77°F)	15° to 30°C (59° to 86°F)
Relative humidity	30% to 70% relative humidity (RH)	10% to 80% RH
Altitude	Not applicable	0 to 3048 m (0 to 10,000 ft)

# Certificate of Volatility

**Figure A-2** Certificate of Volatility (M680; 1 of 2)

Hewlett-Packard Certificate of Volatility				
Model: HP Color LaserJet Enterprise Multifunction M680 Printer series		Part Number: M680dn – CZ248A M680f – CZ249A M680z – CZ250A		Address: Hewlett Packard Company 11311 Chinden Blvd Boise, ID 83714
Volatile Memory				
Does the device contain volatile memory (Memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (SRAM, DRAM, etc): DDR2 - DRAM	Size: 2 GB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Used for temporary storage during the process of jobs, and for applications that are 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: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
Non-Volatile Memory				
Does the device contain non-volatile memory (Memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (Flash, EEPROM, etc): SPI Flash	Size: 4 MB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Contains the boot code and factory product configuration data required for the device to function. User modifications are limited to downloading digitally signed HP firmware images.	Steps to clear memory: There are no steps to clear this data.
Type (Flash, EEPROM, etc): ICB EEPROM	Size: 32KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Backup device for critical system counters and product configuration information.	Steps to clear memory: There are no steps to clear this data.
Type (Flash, EEPROM, etc): None	Size:	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function:	Steps to clear memory:
Mass Storage				
Does the device contain mass storage memory (Hard Disk Drive, Tape Backup)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc): Self encrypting Hard drive, SATA2	Size: 320 GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Stores customer data, OS, applications, digitally signed firmware images, persistent data, and temporary data used for processing and system functions. HDD is standard on all models.	Steps to clear memory: There are several ways to erase this: 1. Erase and Unlock Encrypted Disk - This changes the encryption keys rendering all data unreadable. 2. Secure Storage Erase - Erases temporary files and job data by overwriting information one or three times 3. Secure Disk Erase - Industry standard ATA Secure Erase. Overwrites all data on the hard drive. 4. Secure File Erase - Erases files when jobs finish processing by overwriting them one or three times.

**Figure A-3 Certificate of Volatility (M680; 2 of 2)**

Type (HDD, Tape, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
<b>USB</b>				
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below				
Print jobs, HP digitally signed firmware upgrades, 3rd party application loading. Restore encrypted backed-up system settings. USB ports can be disabled.				
Can any data other than scan upload be sent to the USB device)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below				
Diagnostic service logs can be uploaded. Back-up of encrypted system settings.				
<b>RF/RFID</b>				
Does the item use RF or RFID for receive or transmit of any data including remote diagnostics. (e.g. Cellular phone, Bluetooth) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below				
Purpose:				
Frequency:		Bandwidth:		
Modulation:		Effective Radiate Power (ERP):		
Specifications:				
<b>Other Transmission Capabilities</b>				
Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:				
Purpose:				
Frequency:		Bandwidth:		
Modulation:		Effective Radiate Power (ERP):		
Specifications:				
<b>Other Capabilities</b>				
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below:				
Purpose: Fax modem for receipt and sending of faxes				
Specifications: 33.6 kbs				
<b>Author Information</b>				
Name:	Title: Technical Marketing Engineer	Email:	Business Unit: IPG	
				Date Prepared: 09-05-12

**Figure A-4** Certificate of Volatility (M651; 1 of 2)

Hewlett-Packard Certificate of Volatility				
Model: HP Color LaserJet Enterprise M651 Printer series		Part Number: M651n – CZ255A M651dn – CZ256A M651xh – CZ557A		Address: Hewlett Packard Company 11311 Chinden Blvd Boise, ID 83714
Volatile Memory				
Does the device contain volatile memory (Memory whose contents are lost when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (SRAM, DRAM, etc): DDR2 - DRAM	Size: 1.5 GB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Used for temporary storage during the process of jobs, and for applications that are 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: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
Type (SRAM, DRAM, etc):	Size:	User Modifiable: <input type="checkbox"/> Yes <input type="checkbox"/> No	Function:	Steps to clear memory:
Non-Volatile Memory				
Does the device contain non-volatile memory (Memory whose contents are retained when power is removed)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (Flash, EEPROM, etc): SPI Flash	Size: 4 MB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Contains the boot code and factory product configuration data required for the device to function. User modifications are limited to downloading digitally signed HP firmware images.	Steps to clear memory: There are no steps to clear this data.
Type (Flash, EEPROM, etc): ICB EEPROM	Size: 32KB	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function: Backup device for critical system counters and product configuration information.	Steps to clear memory: There are no steps to clear this data.
Type (Flash, EEPROM, etc): None	Size:	User Modifiable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Function:	Steps to clear memory:
Mass Storage				
Does the device contain mass storage memory (Hard Disk Drive, Tape Backup)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe the type, size, function, and steps to clear the memory below				
Type (HDD, Tape, etc): Self encrypting Hard drive, SATA2	Size: 320 GB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Stores customer data, OS, applications, digitally signed firmware images, persistent data, and temporary data used for processing and system functions. HDD is standard on CZ257A model.	Steps to clear memory: There are several ways to erase this: 1. Erase and Unlock Encrypted Disk - This changes the encryption keys rendering all data unreadable. 2. Secure Storage Erase - Erases temporary files and job data by overwriting information one or three times 3. Secure Disk Erase - Industry standard ATA Secure Erase. Overwrites all data on the hard drive. 4. Secure File Erase - Erases files when jobs finish processing by overwriting them one or three times.

**Figure A-5 Certificate of Volatility (M651; 2 of 2)**

Type (HDD, Tape, etc): Solid State Storage Device (SSD)	Size: 8 MB	User Modifiable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Function: Stores customer data, OS, applications, persistent data, and temporary data used for processing and system functions. User modifications are limited to downloading digitally signed HP firmware images. (Note: SSD is standard on CZ255A and CZ256A models.	Steps to clear memory: Industry standard ATA Secure
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USB	
Does the item accept USB input and if so, for what purpose (i.e Print Jobs, device firmware updates, scan upload)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below	
Print jobs, HP digitally signed firmware upgrades, 3rd party application loading. Restore encrypted backed-up system settings. USB ports can be disabled.	
Can any data other than scan upload be sent to the USB device)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below	
Diagnostic service logs can be uploaded. Back-up of encrypted system settings.	

RF/RFID	
Does the item use RF or RFID for receive or transmit of any data including remote diagnostics. (e.g. Cellular phone, Bluetooth) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below	
Purpose:	
Frequency:	Bandwidth:
Modulation:	Effective Radiate Power (ERP):
Specifications:	

Other Transmission Capabilities	
Does the device employ any other methods of non-wired access to transmit or receive any data whatsoever (e.g. anything other than standard hard wired TCP/IP, direct USB, or parallel connections)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please describe below:	
Purpose:	
Frequency:	Bandwidth:
Modulation:	Effective Radiate Power (ERP):
Specifications:	

Other Capabilities	
Does the device employ any other method of communications such as a Modem to transmit or receive any data whatsoever? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes please describe below:	
Purpose: Fax modem for receipt and sending of faxes	
Specifications: 33.6 kbs	

Author Information			
Name:	Title: Technical Marketing Engineer	Email:	Business Unit: IPG
			Date Prepared: 09-05-12

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## Symbols/Numerics

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