

**hp** LaserJet 9000  
9000n • 9000dn • 9000hns



i n v e n t

**service**





# HP LaserJet 9000 Series printer

**Service** \_\_\_\_\_

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# 1

# Product information

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## Product features



### HP LaserJet 9000 printer (C8519A)

The HP LaserJet 9000 printer comes standard with 64 MB RAM, wide-format printing, and two 500-sheet trays (tray 2 and tray 3).



### HP LaserJet 9000n printer (C8520A)

The HP LaserJet 9000n printer comes standard with 64 MB RAM, wide-format printing, two 500-sheet trays (tray 2 and tray 3), a 100-sheet multipurpose tray (optional tray 1), and an optional HP Jetdirect print server.



### HP LaserJet 9000dn printer (C8521A)

The HP LaserJet 9000dn printer comes standard with 64 MB RAM, wide-format printing, two 500-sheet trays (tray 2 and tray 3), a 100-sheet multipurpose tray (optional tray 1), an optional HP Jetdirect print server, and an optional duplex printing accessory (for printing on both sides of paper).



### HP LaserJet 9000hns printer (C8522A)

The HP LaserJet 9000hns printer contains the HP LaserJet 9000dn, a 2000-sheet feeder (optional tray 4), and an optional 3000-sheet stapler/stacker.

**Table 1. Features of the HP LaserJet 9000 Series printers**

<b>Speed</b>	<ul style="list-style-type: none"> <li>• 50 pages per minute (ppm) for letter-size print media and A4-size media.</li> <li>• First page out in less than 8 seconds.</li> <li>• Transmit Once, Raster Image Processing (RIP) Once technology.</li> </ul>
<b>Resolution</b>	<ul style="list-style-type: none"> <li>• 600 dots per inch (dpi) with Resolution Enhancement technology (REt).</li> <li>• HP FastRes 1200 (1200-dpi-like quality at up to 50 ppm letter and A4).</li> <li>• Up to 256 levels of gray.</li> </ul>
<b>Toner</b>	<ul style="list-style-type: none"> <li>• HP UltraPrecise print cartridge. Capacity rated at average 30,000 pages with 5 percent coverage.</li> <li>• EconoMode capability.</li> </ul>
<b>PCL printer language and fonts</b>	<ul style="list-style-type: none"> <li>• Fast printing performance, built-in Intellifont and TrueType™ scaling technologies, built-in HP-GL/2 vector graphics, and advanced imaging capabilities are benefits of the printer control language (PCL) 6 printer language. PCL 6 also includes 80 scalable TrueType fonts and one bitmapped Line Printer Font.</li> </ul>
<b>PS language and fonts</b>	<ul style="list-style-type: none"> <li>• PostScript® (PS) Level 3 emulation with 35 built-in PS language fonts included.</li> </ul>
<b>Automatic language switching</b>	<ul style="list-style-type: none"> <li>• The printer automatically determines and switches to the appropriate language for the print job.</li> </ul>
<b>Enhanced memory and memory expansion</b>	<ul style="list-style-type: none"> <li>• The HP LaserJet 9000 Series printers come with 64 MB of memory and can be expanded to 384 MB.</li> </ul>

**Table 1. Features of the HP LaserJet 9000 Series printers (continued)**

<b>Expandability</b>	<p>All models accept:</p> <ul style="list-style-type: none"><li>● Optional tray 1, a 100-sheet or 10-envelope multipurpose tray for automatic and manual feeding of envelopes, labels, transparencies, custom-sized media, 98 by 191 mm (3.8 by 7.5 in) to 312 by 470 mm (12.3 by 18.5 in), and heavy paper.</li><li>● Optional tray 4, a 2000-sheet tray that supports letter, legal, B4, A4, 11 by 17 in, A3, executive, B5, and custom 182 by 210 mm (7.2 by 8.3 in) to 297 by 431.8 mm (11.7 by 17 in) print media.</li><li>● Optional duplexer.</li><li>● Optional 3000-sheet stapler/stacker or 3000-sheet stacker.</li><li>● Enhanced input/output (EIO) cards.</li><li>● Dual inline memory module (DIMM) slots for adding memory and fonts.</li><li>● Hard disk for RIP Once capability, job retention features, and font storage.</li></ul>
<b>Wireless printing</b>	<ul style="list-style-type: none"><li>● The printer supports wireless printing with the installation of a Fast InfraRed Connect pod.</li></ul>
<b>Interface connection</b>	<ul style="list-style-type: none"><li>● Bidirectional ECP type-C parallel port (IEEE-1284 compliant).</li><li>● Three EIO slots for hard disk accessory or print server installation.</li><li>● Wireless Fast InfraRed port (IrDA compliant).</li><li>● Foreign interface connector.</li><li>● HP Jet-Link connector.</li></ul>
<b>Networking</b>	<ul style="list-style-type: none"><li>● Three EIO slots for hard disk accessory or print server installation.</li><li>● An HP 610N Jetdirect print server is included with HP LaserJet 9000n, 9000dn, and 9000hns.</li></ul>
<b>Duty cycle</b>	<ul style="list-style-type: none"><li>● 300,000 images per month.</li></ul>

# Product specifications

## Identification

The model number and printer serial number are listed on an identification label located on the rear cover. The model number is alphanumeric, such as C8519A.

The serial number contains information about the country of origin, the revision level, the production code, and production number of the printer. An example of a serial number is USBB123456.

The top label also contains power rating and regulatory information. See figure 1.

### Note

The power rating and regulatory information vary by region.

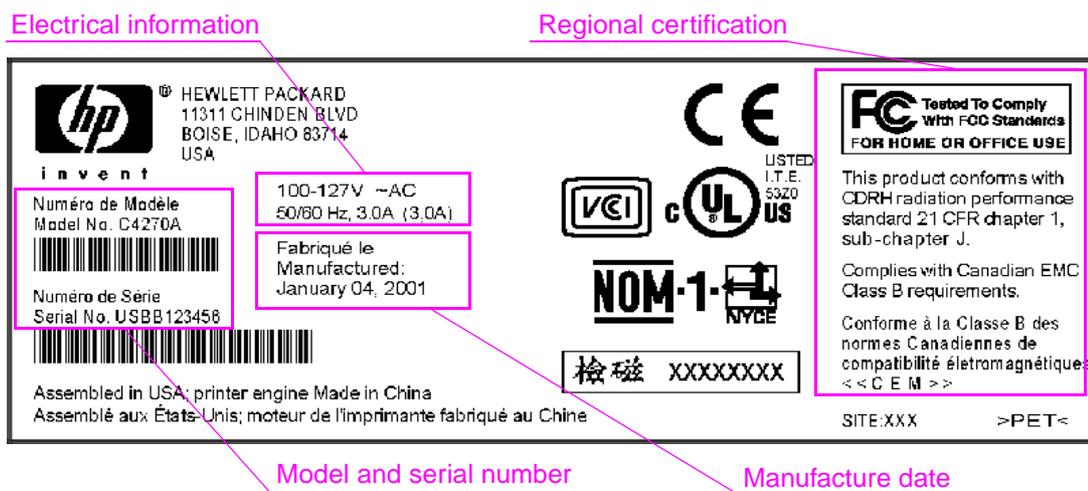


Figure 1.

Sample identification label

Table 2. Configuration comparison

	HP LaserJet 9000	HP LaserJet 9000n	HP LaserJet 9000dn	HP LaserJet 9000hns
Standard memory	64 MB	64 MB	64 MB	64 MB
Maximum memory	384 MB	384 MB	384 MB	384 MB
PS Level 3 emulation	Standard	Standard	Standard	Standard
Jetdirect print server	Optional	Standard	Standard	Standard
Optional duplexer	Optional	Optional	Standard	Standard
Optional tray 1, 100-sheet multipurpose tray	Optional	Standard	Standard	Standard
Optional tray 4, 2000-sheet feeder	Optional	Optional	Optional	Standard
Optional 3000-sheet stacker	Optional	Optional	Optional	Optional
Optional 3000-sheet stapler/stacker	Optional	Optional	Optional	Standard
Optional hard disk	Optional	Optional	Optional	Optional

**Table 3. Physical specifications**

	HP LaserJet 9000	HP LaserJet 9000n/ 9000dn	HP LaserJet 9000hns
Height	600 mm (23.6 in)	600 mm (23.6 in)	1036.4 mm (40.8 in)
Width	990.8 mm (39.0 in)	1115.8 mm (44.4 in)	1788.2 mm (70.4 in)
Depth	1001 mm (42.7 in)	1001 mm (42.7 in)	1001 mm (42.7 in)
Weight (without print cartridge)	63.5 kg (140 lb)	9000n, 69.4 kg (153 lb) 9000dn, 76.2 kg (158 lb)	76.2 kg (158 lb)

**Table 4. Electrical specifications**

Volts	Frequency	Amperes (A)	Watts (W) (typical)	Thermal units per hour (BTu/hr)
100-127 Vac ± 10 percent	50/60 Hz ± 2 Hz	Minimum recommended current capacity = 15 amp dedicated circuit	printing = 1040 W standby = 265 W PowerSave 1 = 40 W PowerSave 2 = 25 W off = 0 W	printing = 3550.36 BTu/hr standby = 904.71 BTu/hr PowerSave 1 = 136.56 BTu/hr PowerSave 2 = 85.35 BTu/hr off = 0 BTu/hr
220-240 Vac ± 10 percent	50/60 Hz ± 2 Hz	Minimum recommended current capacity = 6.5 amps	printing = 995 W standby = 265 W PowerSave 1 = 40 W PowerSave 2 = 25 W off = 0.2 W	printing = 3396.93 BTu/hr standby = 904.71 BTu/hr PowerSave 1 = 136.56 BTu/hr PowerSave 2 = 85.35 BTu/hr off = 0.69 BTu/hr

**WARNING!**

Power requirements are based on the region where the printer is sold. Do not convert operating voltages. This can damage the printer and void the product warranty.

The following environmental specifications must be maintained to ensure the correct operation of the printer. Consider the following points before installing the printer:

- Place the printer on a sturdy, level surface.
- Allow adequate space around the printer for unimpeded operation.
- Install the printer in a well-ventilated room.
- Prevent exposure to direct sunlight or chemicals, including ammonia-based cleaning solutions.
- Ensure that an adequate power supply is used.
- Install the printer in environment where no abrupt temperature or humidity changes occur.

**Table 5. Environmental specifications**

	Operating/printing	Storage/standby
Temperature (printer and print cartridge)	10 degrees to 32.5 degrees C (50 degrees to 90.5 degrees F)	-20 degrees to 40 degrees C (-4 degrees to 104 degrees F)
Relative humidity	20 percent to 80 percent	15 percent to 90 percent

**Table 6. Noise-level specifications**

	Operator position	Bystander (1m)	Sound power
Printing at 50 ppm	L <sub>Pam</sub> 59 db(A)	L <sub>Pam</sub> 55 db(A)	L <sub>WAd</sub> 7.1 db(A)
Idle	L <sub>Pam</sub> 43 db(A)	L <sub>Pam</sub> 41 db(A)	L <sub>WAd</sub> 6.0 db(A)
PowerSave	L <sub>Pam</sub> inaudible	L <sub>Pam</sub> inaudible	L <sub>WAd</sub> inaudible

**Note**

Testing per International Standards Organization (ISO) 9296.

# Product overview

## External assembly locations

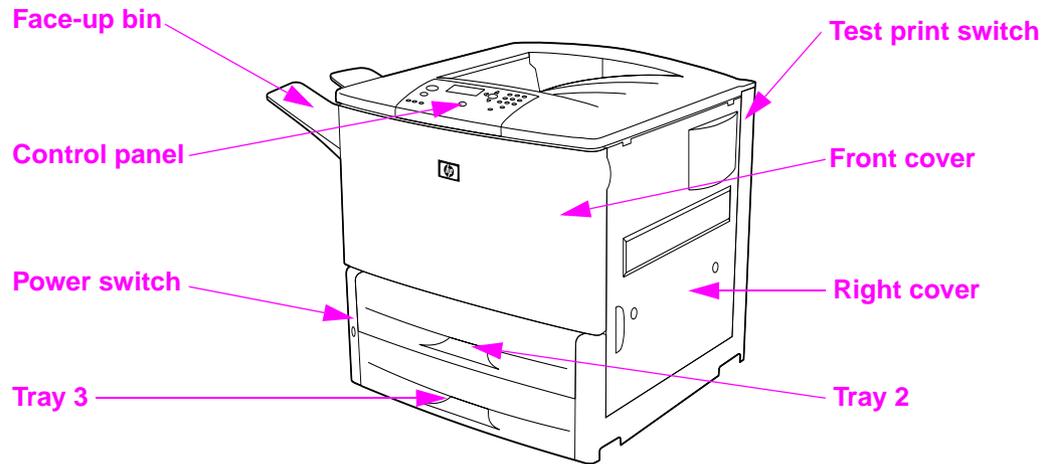


Figure 2. Front assembly locations

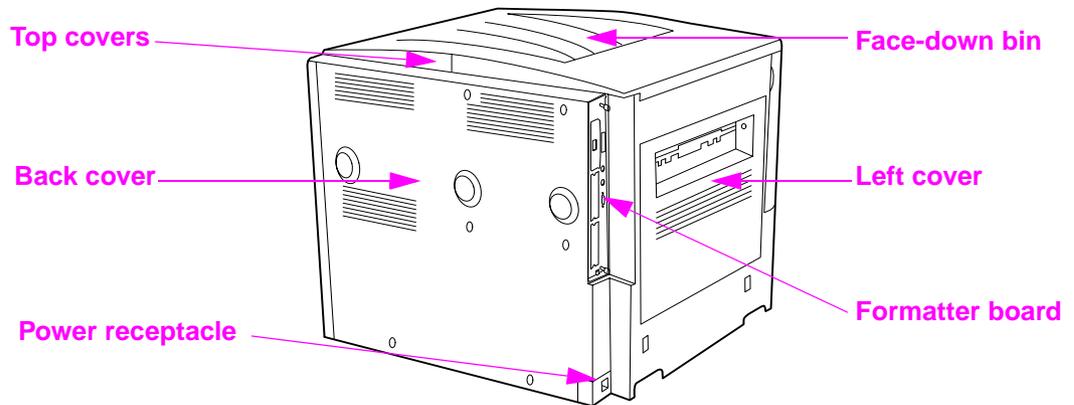


Figure 3. Back assembly locations

# Interface connections

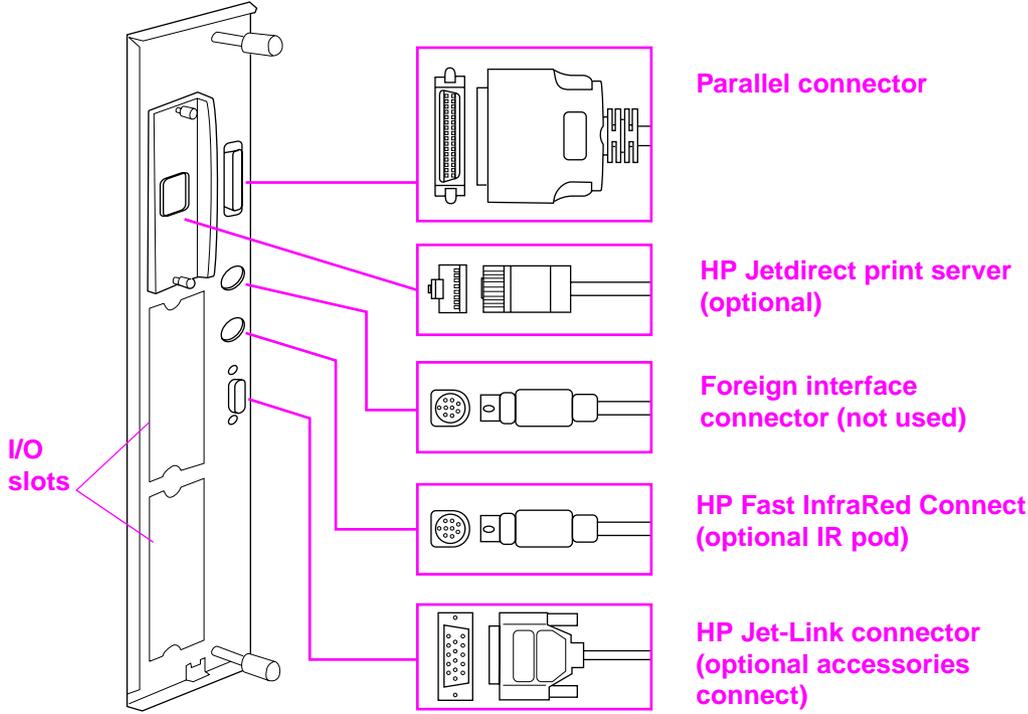
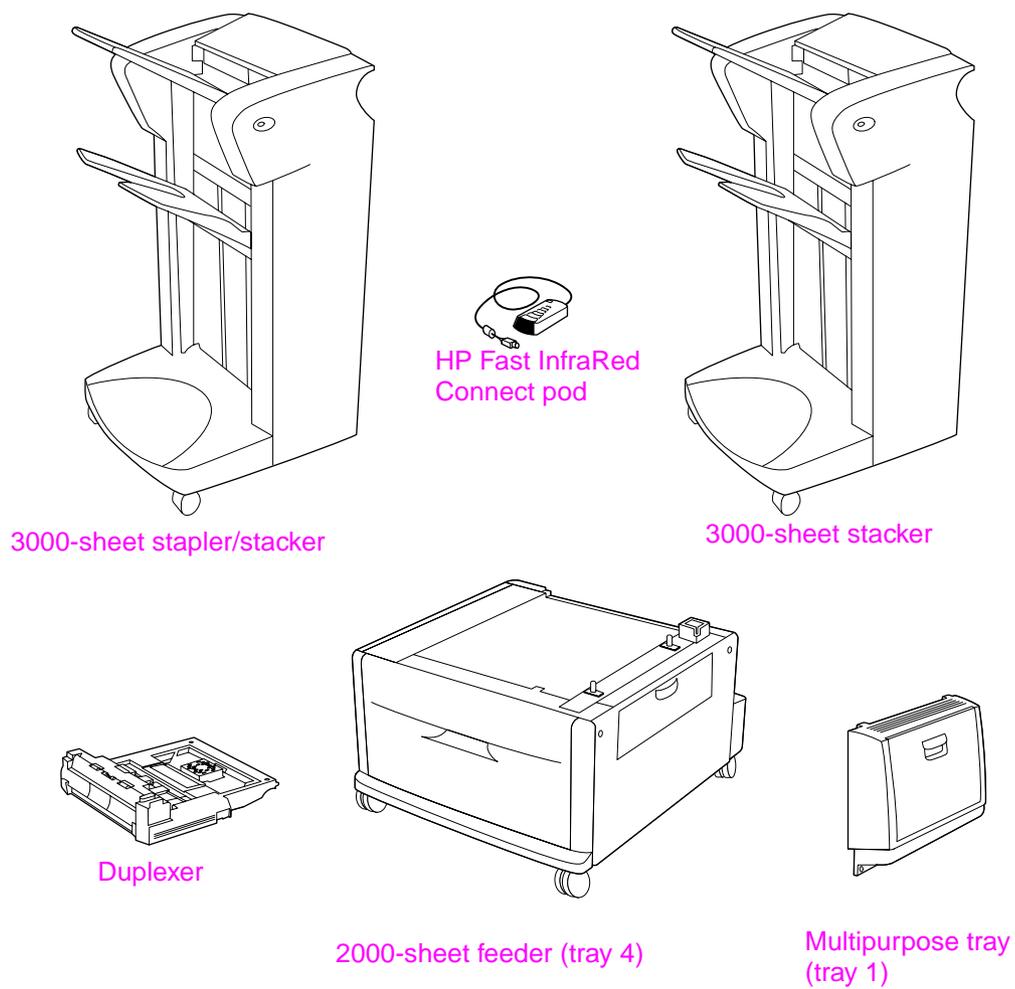


Figure 4. Interface connections

## Optional accessories



**Figure 5.** Optional accessories

# Regulatory information

## **Regulatory requirements**

For regulatory information and requirements, please see the Start guide.

## **FCC regulations**

For FCC regulations, please see the Start guide.

## **Declaration of conformity**

For declaration of conformity information, please see the Start guide.

## **Environmental product stewardship program**

For environmental product stewardship program information, please see the Use guide.

## Service approach

Repair of the printer normally begins with a three-step process:

- Isolate the problem to the major system (the host computer, the network and/or server, or the printer system).
- Determine whether the problem is located in one of the paper-handling devices or in the printer engine.
- Troubleshoot the problem using the procedures in chapter 7.

Once a faulty part is located, repair is usually accomplished by assembly level replacement of field replaceable units (FRUs). Some mechanical assemblies may be repaired at the subassembly level. Replacement of components on the printed circuit assemblies is not supported by Hewlett-Packard.

## Parts and supplies

### Ordering information

"Ordering parts" in chapter 8 of this manual contains FRU and replacement part numbers. Replacement parts can be ordered from the HP Customer Services and Support Organization (CSSO).

"Consumables, supplies, accessories, FRUs, and documentation" in chapter 8 of this manual contains accessories specifically designed for this printer. Order accessories from CSSO.

---

**Note**

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See "Worldwide service and support offices" on page 25 for a local HP office in the appropriate region.

### Phone listing

- CSSO (for U.S.)  
(1) (800) 752-0900
- CSSO (for Canada)  
(1) (800) 387-3867
- CSSO (for Europe)  
(49 7031) 142253

### Exchange program

HP offers remanufactured assemblies for some parts. These are identified in "Illustrations and parts lists" in chapter 8, and can be ordered through CSSO.

### Consumables

The printer has two consumable, the print cartridge, the preventive maintenance kit, and the stapler/stacker has one consumable, the staple cartridge. These are identified in "Illustrations and parts lists" in chapter 8, and can be ordered through CSSO.

### Warranty

For warranty information and requirements, see the Start guide.

### Limited warranty for print cartridge life

For print cartridge warranty information, see the Start guide.

## Service and support

### World Wide Web

Printer drivers, updated HP printer software, and product and support information can be obtained from the following URLs:

- U.S., <http://www.hp.com/support/lj9000>
- Europe, <http://www.hp.com/support/lj9000>
- China, <ftp://www.hp.com.cn/support/lj9000>
- Japan, <ftp://www.jpn.hp.com/support/lj9000>
- Korea, <http://www.hp.co.kr/support/lj9000>
- Taiwan, <http://www.hp.com.tw/support/lj9000>, or the local driver website, <http://www.dds.com.tw>

### HP support assistant CD-ROM

This support tool offers a comprehensive online information system designed to provide technical and product information about Hewlett-Packard products. To subscribe to this quarterly service in the U.S. or Canada, call (1) (800) 457-1762. In Hong Kong, Indonesia, Malaysia, or Singapore, call Mentor Media at (65) 740-4477.

### HP-authorized resellers and support

To locate HP-authorized resellers and support, call (1) (800) 243-9816 in the U.S. or (1) (800) 387-3867 in Canada.

### HP service agreements

Call (1) (800) 743-8305 in the U.S. or (1) (800) 268-1221 in Canada.

### Other areas

Outside of North America, contact your local HP sales office for assistance in obtaining technical support for resellers and service technicians. See "Worldwide service and support offices" below.

## Worldwide service and support offices

### Customer support and product repair assistance for the U.S. and Canada

- For the U.S., call (1) (208) 323-2551 Monday through Friday from 6 A.M. to 6 P.M., Mountain time.
- For Canada, call (1) (905) 206-4663 or (1) (800) 387-3867 Monday through Friday from 8 A.M. to 8 P.M., Mountain time.

Support is free of charge during the warranty period. However, your standard long-distance phone charges still apply. Before calling, have your system nearby and your serial number ready.

If you know your printer needs repair, call (1) (800) 243-9816 to locate your nearest HP-authorized service provider.

## Customer support and product repair assistance for other customers

HP provides a free telephone support service during the warranty period. By calling the appropriate telephone number for your country or region, you will be connected to a responsive team waiting to help you. If you require support after your warranty has expired, you can receive support for a fee through the same telephone number. The fee is charged on a per-incident basis. When calling HP, have the following information ready: product name and serial number, date of purchase, and description of the problem.

### Europe

- Austria: 43 (0)810 00 6080
  - Belgium
    - Dutch: 32 (0)2 626-8806
    - French: 32 (0)2 626-8806
  - Czech Republic: 42 (0)2 6130 7310
  - Denmark: +45 39 29 4099
  - International English: +44 (0)207 512 52 02
  - Finland: 358 (0)203 47 288
  - France: 33 (0)1 43 62 34 34
  - Germany: 49 (0)180 52 58 143
  - Greece: +30 (0)1 619 64 11
  - Hungary: +36 (0)1 382-1111
  - Ireland: +353 (0)1 662 5525
  - Italy: 39 02 264 10350
  - Netherlands: 31 (0)20 606 8751
  - Norway: 47 22 11 6299
  - Poland: +48 22 865 98 00
  - Portugal: 351 21 3176333
  - Romania: +40 1 315 44 42 (or 01 3154442)
  - Russian Federation
    - Moscow: +7 095 797 3520
    - St. Petersburg: +7 812 346 7997
  - Spain: +34 902 321 123
  - Sweden: +46 (0)8 619 2170
  - Switzerland: +41 (0)848 80 11 11
  - Turkey: +90 212 221 69 69
  - Ukraine: +7 (380-44) 490-3520
  - U.K.: +44 (0)207 512 52 02
- 

### Africa and Middle East

- Egypt: +202 7956222
  - International English: +44 (0)207 512 52 02
  - Israel: +972 (0)9 9524848
  - South Africa
    - Inside RSA: 086 000 1030
    - Outside RSA: +27-11 258 9301
  - United Arab Emirates, Bahrain, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Yemen: 971 4 883 8454
- 

### Asia-Pacific

- Australia: (03) 8877 8000
  - China: +86 (0)10 6564 5959
  - Hong Kong: +85 (2) 2802 4098
  - India: +91 11 682 6035
  - Indonesia: +62 (21) 350-3408
  - Japan: +81 3 3335-8333
  - Republic of Korea
    - Seoul: +82 (2) 3270-0700
    - Outside Seoul: 080 999-0700
  - Malaysia: +60 (3) 295 2566
  - New Zealand: +64 (9) 356 6640
  - Philippines: +63 (2) 867 3551
  - Singapore: +65 272 5300
  - Taiwan: +886 (2) 2717 0055
  - Thailand: +66 (2) 661 4000
  - Vietnam: +84 (0) 8 823 4530
- 

### Latin America

- Argentina: 0810-555-5520
  - Brazil
    - Greater Sao Paulo: (11) 3747-7799
    - Outside Greater Sao Paulo: 0800-157751
  - Chile: 800-22-5547
  - Guatemala: 800-999-5305
  - Mexico
    - Mexico City: 52-58-9922
    - Outside Mexico City: 01-800-472-6684
  - Peru: 0-800-10111
  - Puerto Rico: 1-877-2320-589
  - Venezuela
    - Caracas: 207 8488
    - Outside Caracas: 800 47 777
-

# 2

## Product requirements

### Chapter contents

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Space requirements . . . . .	29
Media specifications . . . . .	31
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Tools and suppliers . . . . .	39
Media input/output options . . . . .	40
Trays, bins, and paper handling . . . . .	40
Media sizes . . . . .	41

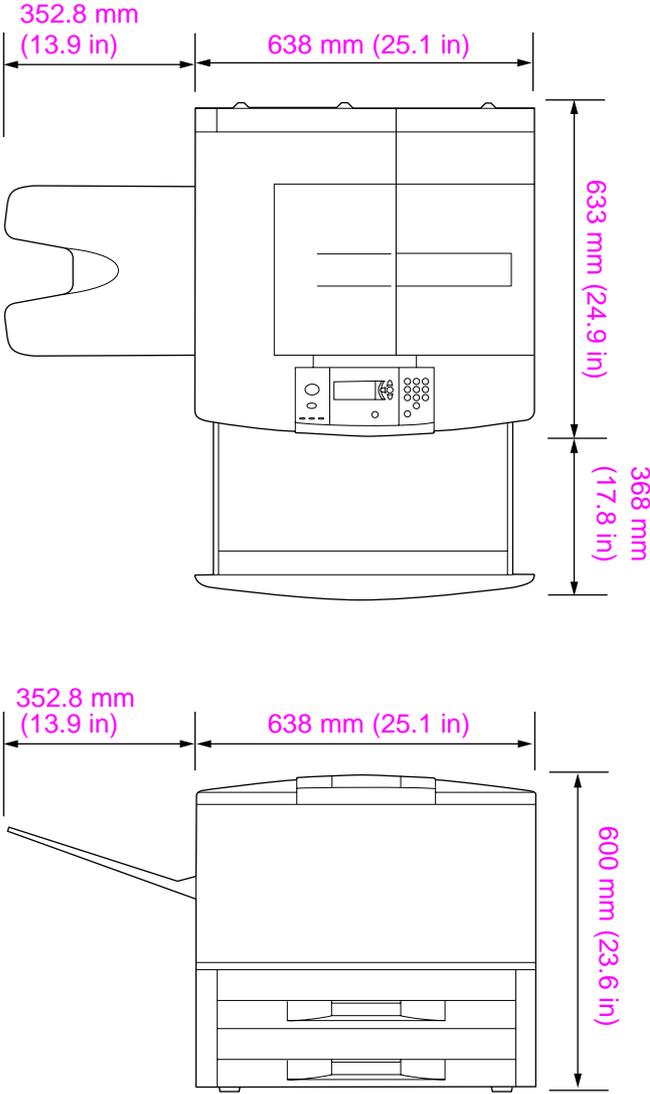
# Site requirements

## Operating environment

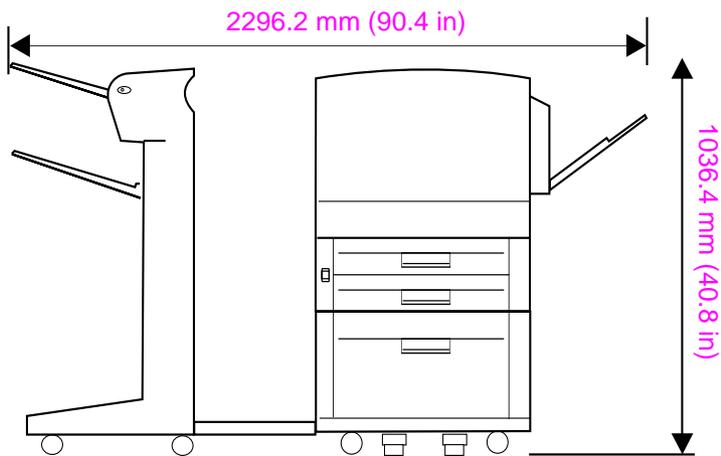
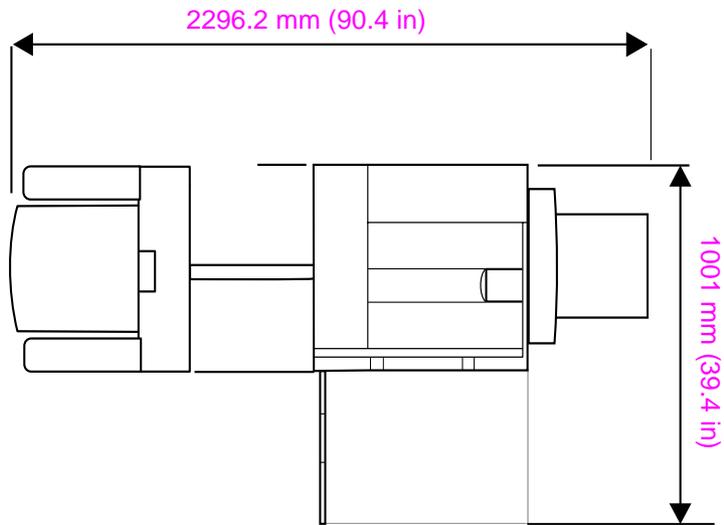
The electrical and environmental specifications must be maintained to ensure the proper operation of this printer. See "Product specifications" in chapter 1. Consider the following points before installing the printer:

- Install in a well-ventilated, dust-free area.
- Install on a level, flat surface that can support the printer size and weight. Make sure all four printer feet are level. Do not install on carpet or on other soft surfaces.
- Ensure adequate power supply circuitry. See "Product specifications" in chapter 1.
- Install where there is stable temperature and humidity, with no abrupt changes (away from water sources, humidifiers, air conditioners, refrigerators, or other major appliances). See "Product specifications" in chapter 1.
- Install away from direct sunlight, areas that experience vibration, open flames, ultrasonic heaters, ammonia fumes, or magnets and devices that emit a magnetic field. If the printer is placed near a window, make sure the window has a curtain or blind to block direct sunlight.
- Maintain enough space around the printer for proper access and ventilation. See "Space requirements" on page 29.

# Space requirements



**Figure 6.** Requirements for base model



**Figure 7.** Requirements with 3000-sheet stapler/stacker and 2000-sheet feeder installed

# Media specifications

---

## Note

Before purchasing large quantities of paper, make sure the paper meets the requirements specified in this service manual and in the *HP LaserJet Printer Family Print Media Guide*. See "Media input/output options" on page 40. Always test print media before buying large quantities.

---

## Note

HP neither warrants nor recommends the use of a particular brand of paper or print media. Media properties are subject to manufacturing changes, and Hewlett-Packard has no control over such changes. Although testing media helps to characterize the performance and process quality by the manufacturer, the customer assumes all responsibility for the quality and performance of media.

## Guidelines for selecting paper

For best results, use conventional 75 g/m<sup>2</sup> (20 lb) paper. Make sure the paper is of good quality, and free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, voids, and curled or bent edges.

---

## Note

Some print media might meet all of the guidelines in this manual and still not produce satisfactory results. This might be the result of improper handling, unacceptable temperature and humidity levels, or other variables over which Hewlett-Packard has no control.

If you are unsure what type of paper you are loading (such as bond or recycled), check the label on the package of paper.

- For information about measuring basis weight, see "Basis weight field test" on page 35.
- For information about measuring caliper, see "Caliper field test" on page 37.
- For information about smoothness, see "Paper finish field test" on page 37.

---

## Hint

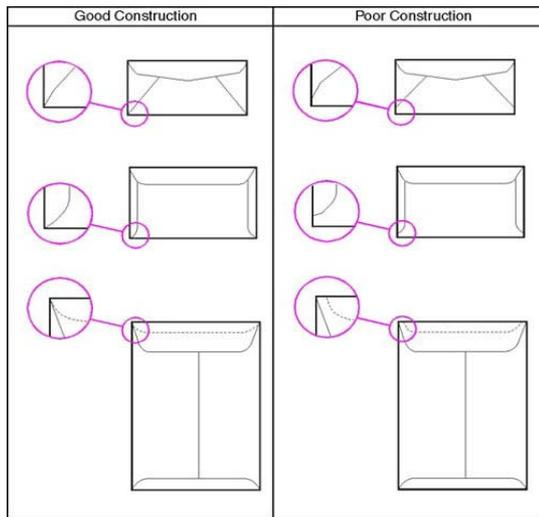
Do not purchase more media than can be easily used in a short time (about 3 months). Media stored for long periods experiences heat and moisture extremes that can be damaging. Planning is important to prevent damage to a large supply of media.

## Special media specifications

### Envelope specifications

Successful printing on envelopes depends upon the quality of the envelopes. Envelope fold lines can vary considerably, not only between manufacturers, but also within a box from the same manufacturer. When selecting envelopes, consider the following components:

- **Construction**—Prior to printing, envelopes should lie flat with less than 10 mm (0.39 in) curl, and have well-constructed seams.
- **Condition**—Envelopes should not be wrinkled, nicked, or otherwise damaged.
- **Temperature**—Envelopes should be compatible with the heat and pressure produced by the printer.



**Figure 8. Sample seams**

**Note** Print envelopes from optional tray 1 only. Send envelopes straight through the printer, entering at optional tray 1 and exiting from the face-up bin.

**Note** For the best print quality, position margins no closer than 15 mm (0.6 in) from the edges of the envelope. Avoid printing over the area where the envelope seams meet.

### Envelopes with adhesive strips or flaps

Check to make sure that envelopes with peel-off adhesive strips, or with more than one flap that folds over to seal, use adhesives compatible with the heat and pressure in the printer. The extra flaps and strips might cause wrinkling, creasing, jams, and can even damage the fuser.

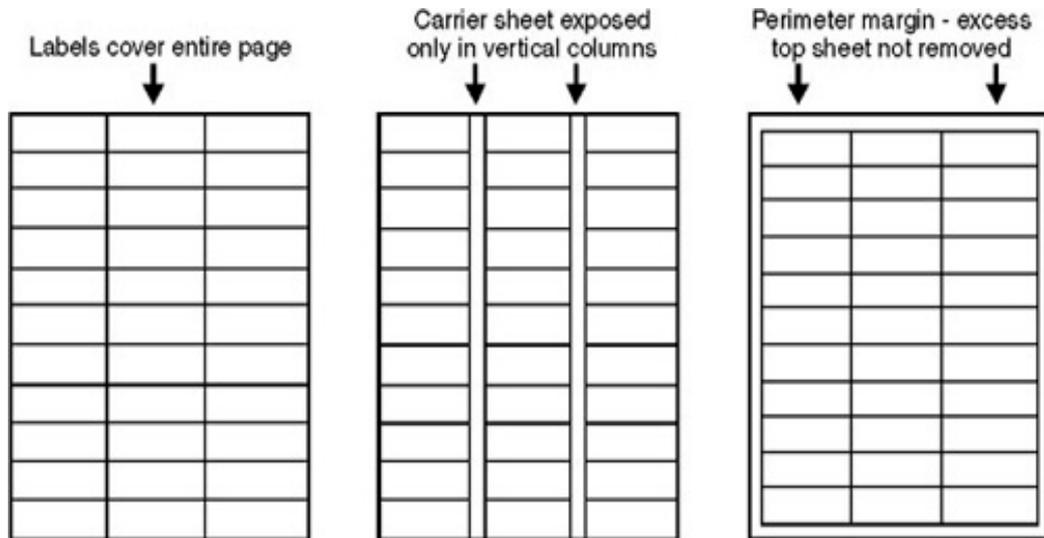
### Label specifications

**CAUTION** To avoid damaging the printer, use only labels recommended for laser printers. Never print on the same sheet of labels more than once and never print on a partial sheet of labels.

When selecting labels, consider the quality of each component:

- **Adhesives**—The adhesive material should be stable at 190 degrees C (374 degrees F), which is the printer fusing temperature.
- **Arrangement**—Do not use labels that have exposed backing between them. Labels can peel off sheets with spaces between the labels, causing jams.
- **Curl**—Prior to printing, labels must lie flat with no more than 10 mm (0.39 in) of curl in any direction.
- **Condition**—Do not use labels that have wrinkles, bubbles, or other indications of separation.

**Note** Use only optional tray 1 to print labels. Send labels straight through the printer, entering at optional tray 1 and exiting from the face-up bin.



**Figure 9.** Adhesive labels

### Transparency specifications

To avoid damaging the printer, use only transparencies recommended for use in laser printers.

- **Construction**—Prior to printing, transparencies should lie flat with less than 10 mm (0.39 in) curl.
- **Condition**—Transparencies should not be wrinkled, nicked, or otherwise damaged.
- **Temperature**—Transparencies should be stable at 190 degrees C (374 degrees F), which is the printer fusing temperature.

#### Note

If problems occur while printing transparencies, use optional tray 1. Send transparencies straight through the printer, entering at optional tray 1 and exiting from the face-up bin.

#### CAUTION

Transparencies used in the printer must be able to withstand 190 degrees C (374 degrees F), the printer fusing temperature.

### Preprinted forms and special letterhead

Many preprinted forms and special letterhead papers perform well in HP LaserJet printers. However, these papers undergo processes that alter their original characteristics, and care must be taken to ensure they conform to HP specifications. All special papers should be wrapped in moisture-proof wrapping when purchased from the paper converter or printing house.

Forms and letterhead must be printed with inks that conform to the following specifications:

- Only use ink that is heat-resistant, and that will not melt, scorch, or release hazardous emissions when subjected to 200 degrees C (392 degrees F) for 0.1 second.
- Inks must have resistance to silicon oils, and must not be affected by resin components in toner.
- Inks must not be flammable.
- Inks must not “offset” (transfer from the printed paper onto the printer, contaminating internal printer components). The principle cause of offset is ink that is not fully dried or that cannot withstand the printer fusing temperature.

#### Note

Do not use low-temperature inks (the kind used with thermography).

## Embossed media

Embossed media is not recommended for use in HP LaserJet printers. Media is embossed by stamping an image into the media by compressing the media fibers together at approximately 200 degrees C (392 degrees F), and sometimes by applying a thin metal foil to the surface. The printer fusing process can loosen the foil; loose foil can interfere with the mechanical and electronic operation of the printer.

Embossed paper, with or without foil, can also cause multifeed jams. Multiple embossed print media sheets tend to stick to one another.

## Media with cutouts or perforations

Avoid media with cutouts or perforations for these reasons:

- Cut fibers absorb more moisture and can increase waviness and media curl. This decreases the print quality near the cutout or perforated area.
- Cutting knives leave a sharp edge on the cutout or perforation. If the sharp edge is facing the print cartridge drum during printing, it can scratch the drum surface.
- If printing occurs over a cutout hole, the transfer roller is contaminated with unused toner, creating light streaks on the paper.

## Chemically treated media

Coatings such as lacquers, polymers, laminations, or other chemicals protect the paper, but can cause problems in the fuser and transfer areas of HP LaserJet printers. The surface resistivity and moisture content can be greatly altered, resulting in print-quality problems. Hard surface coatings increase wear on the rollers and media guides. All chemically treated media must meet Hewlett-Packard specifications for fusing compatibility.

## Synthetic media

Synthetic media (those manufactured from man-made fibers) do not perform as well as bond media in any printer, especially HP LaserJet printers. All synthetic media must meet Hewlett-Packard specifications, especially for caliper and fusing compatibility.

## Coated media

Do not use coated media. Most coated media does not meet specifications for fusing compatibility and other specifications for HP LaserJet printers.

## Other special media

- Odd sizes. Check minimum and maximum supported sizes in chapter 2.
- Carbonless media. Carbonless media (NCR) is not supported by HP LaserJet printers.
- Recycled media. Choose recycled media that meets Hewlett-Packard specifications. Note that recycled media might not be as bright as indicated in the specifications. Hewlett-Packard recommends that recycled media contain no more than 5 percent groundwood. See "Testing media specifications" on page 35.

## Storing print media

Ideally, the printing and media storage environment should be at or near room temperature, and should not be too dry or too humid. Remember that paper is hygroscopic; it absorbs and loses moisture rapidly.

Heat works with humidity to damage paper. Heat causes the moisture in paper to evaporate, while cold causes it to condense on the sheets. Heating systems and air conditioners remove most of the humidity from a room. As a paper package is opened and used, it loses moisture, causing streaks

and smudging. Humid weather or water coolers can cause the humidity in a room to increase. As a package of paper is opened and used, it absorbs any excess moisture, causing light print and dropouts. Also, as paper loses and gains moisture, it can distort. This can cause jams.

Therefore, paper storage and handling are as important as the paper-making process itself. Paper storage environmental conditions directly affect the feed operation.

Users should not purchase more paper than can easily be used in a short time (about three months). Paper stored for long periods might experience heat and moisture extremes, which can cause damage. Planning is important to prevent damage to a large supply of paper.

Unopened paper in sealed packages can remain stable for several months before use. Opened packages of paper have more potential for environmental damage, especially if they are not wrapped with a moisture-proof barrier.

The paper storage environment should be properly maintained to ensure optimum printer performance. The required condition is 20 degrees to 24 degrees C (68 degrees to 75 degrees F), with a relative humidity of 45 percent to 55 percent. The following guidelines should be helpful when evaluating the paper's storage environment:

- Paper should be stored at or near room temperature.
- The air should not be too dry or too humid (because of the hygroscopic properties of paper).
- The best way to store an opened package of paper is to rewrap it tightly in its moisture-proof wrapping. If the printer environment is subject to extremes, unwrap only the amount of paper to be used during the day's operation to prevent unwanted moisture changes.

## Envelope storage

Proper storage of envelopes contributes to good print quality. Envelopes should be stored flat. If air is trapped in an envelope, and creates an air bubble, then the envelope might wrinkle during printing.

## Testing media specifications

The following tests describe ways to evaluate media with respect to the specifications listed in this manual, and the *HP LaserJet Printer Family Print Media Guide*. See "Tools and suppliers" on page 39 for help obtaining tools needed to perform these tests.

### Basis weight field test

The basis weight should be indicated on the package label. If the label is not available, a simple field test can determine the basis weight of paper. The basis weight of paper is equal to the weight of 2000 sheets of paper, or four full packages. Weigh a full package on a postal scale and then multiply that weight by four. Or weigh 10 sheets of paper, divide that weight by 10, multiply by 2000, and then divide by 16.

---

#### Example

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10 sheets weigh 1.6 ounces  
0.16 ounce x 2000 = 320 ounces  
320 ounces ÷ 16 ounce/lb = 20 lb paper

**Table 7. Determining basis weight of paper**

Amount	Formula
4 packages	weight = basis weight
1 package	weight x 4 = basis weight
10 sheets	(weight divided by 10) x 2000 and then divided by 16 = basis weight

## Metric sizes

For metric-size paper (A4), use the following method to determine basis weight.

Take 16 sheets of A4 paper and weigh them. One square meter of paper contains approximately 16 A4 size sheets. Compare this weight to the appropriate weight in the "Paper weight equivalence table" on page 36.

## Paper weight equivalence table

Use this table to determine approximate equivalent points in weight specifications other than U.S. bond weight. For example, to determine the equivalent of 20 lb U.S. bond-weight paper in U.S. cover-weight paper, locate the bond weight (in row 3, second column) and scan across the row to the cover weight (in the fourth column). The equivalent is 28 lb. Shaded areas indicate a standard weight for that grade.

**Table 8. Paper weight equivalence**

U.S. post-card thickness (mm)	U.S. bond weight (lb)	U.S. text/book weight (lb)	U.S. cover weight (lb)	U.S. bristol weight (lb)	U.S. index weight (lb)	U.S. tag weight (lb)	Europe metric weight (g/m <sup>2</sup> )	Japan metric weight (g/m <sup>2</sup> )
	17	43	24	29	35	39	64	64
	20	50	28	34	42	46	75	75
	21	54	30	36	44	49	80	80
	22	56	31	38	46	51	81	81
	24	60	33	41	50	55	90	90
	27	68	37	45	55	61	100	100
	28	70	39	49	58	65	105	105
	32	80	44	55	67	74	120	120
	34	86	47	58	71	79	128	128
	36	90	50	62	75	83	135	135
0.18	39	100	55	67	82	91	148	148
0.19	42	107	58	72	87	97	157	157
0.20	43	110	60	74	90	100	163	163
0.23	47	119	65	80	97	108	176	176
	53	134	74	90	110	122	199	199
	54	137	75	93	113	125	203	203
	58	146	80	98	120	133	216	216
	65	165	90	111	135	150	244	244
	66	169	92	114	138	154	250	250
	67	171	94	115	140	155	253	253
	70	178	98	120	146	162	264	264
	72	183	100	123	150	166	271	271

### Note

The U.S. postcard measurements are approximate. Use for reference only.

## Caliper field test

The specified caliper differs according to the type of media used. See "Media specifications" on page 31. Caliper can be measured in the field using a micrometer.

### CAUTION

Never use the coarse adjustment end of the micrometer when measuring for caliper. The coarse adjustment will compress the paper fibers, resulting in an inaccurate reading. For example, if the fibers are compressed, 6 mil paper could measure as little as 3 mils. Always use the fine adjustment to measure caliper.

Using the fine adjustment, slide the micrometer along the edge of the paper and measure at one end. To double-check the accuracy of the reading, always measure again at the opposite end of the paper.

## Paper finish field test

Paper finish, or smoothness, can be accurately measured with a Sheffield meter. If this tool is not available, a new U.S. dollar bill can be used as a benchmark for comparing paper texture. A dollar bill has a finish of 350 Sheffields. If paper feels rougher than a dollar bill, it is recommended that users do not continually use this paper in the printer.

## Moisture content field test

Specification: Use paper with 4 percent to 6 percent moisture content.

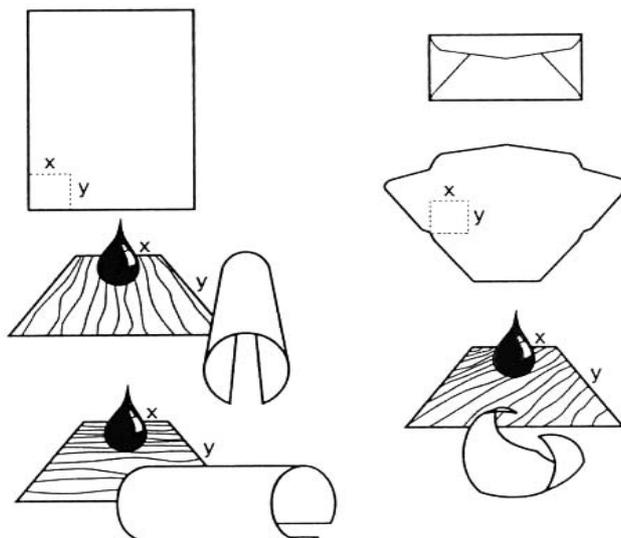
A package or a sheet of paper can be measured with a moisture meter. In general, only evaluate customer storage environment when trying to determine if excess moisture or dryness is the cause of a problem with paper.

## Grain field test

Grain direction is usually specified on the package label (written out "long" or "short"). The paper dimensions listed on the label also indicate grain direction. For example, short-grain letter-size paper will read "11 by 8.5," and long-grain paper will read "8.5 by 11."

If grain direction is not included on the package label, it can be determined by a simple wet test. Cut a small square from the corner of a sheet of paper, wet it, and observe the manner in which it curls.

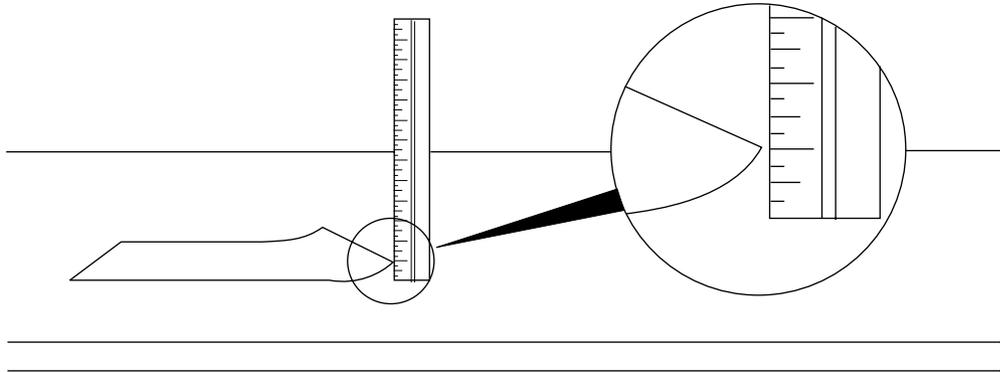
Envelopes should have a diagonal grain, which gives them the best stability. To determine this, cut a square section from one corner of an envelope. Wet this section and observe the manner in which it curls. On diagonal grain envelopes, the two opposite corners will curl toward each other.



**Figure 10.** Long, short, and diagonal grain curl

## Curl field test

To check for paper curl, place a single sheet of paper on a flat surface and measure curl at the greatest deflection, holding a ruler perpendicular to the flat surface.



**Figure 11.** Measuring curl

## Cut edge condition field test

The condition of the cut edge can be easily observed with an eye loop. Under magnification, a good edge will appear even. A poorly cut edge will show fraying, jagged edges, compressed fibers, and other damage.

## Furnish (fiber composition) field test

Use paper made from 100 percent chemical wood pulp and/or cotton fiber. Recycled paper made with no more than 5 percent groundwood is also acceptable.

Read the package label to determine the fiber composition of the paper. Paper is usually specified as xerographic bond (suitable for copiers or laser printers) or cotton bond. Cotton bond paper of 25 percent, 50 percent, or 100 percent will be indicated on a watermark. If paper is less than 25 percent cotton bond, the watermark will not indicate a percentage. A wood pulp test kit can also be used to test fiber composition.

## Fusing compatibility field test

Inspect the rollers for colored ink buildup from preprinted logos or letterhead, and for toner buildup or spots. Inspect printed output for repetitive defects and smearing. If necessary, have users contact the forms vendor to ensure paper fusing compatibility with HP LaserJet printers.

## Tools and suppliers

Hewlett-Packard neither warrants nor recommends a particular manufacturer, supplier, or tool. Products are subject to change, and HP has no control over such changes. However, the following table of tools and their suppliers is provided for convenience.

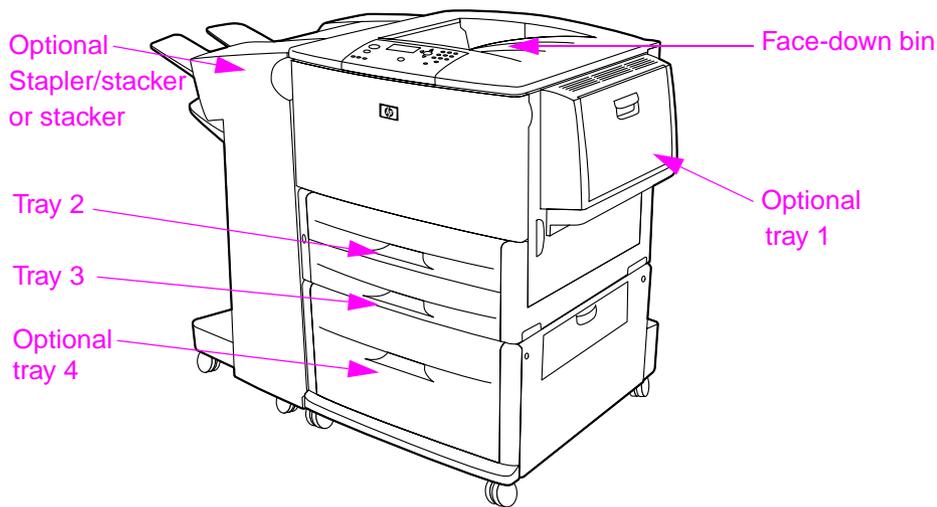
**Table 9. Tools and suppliers**

<b>Tool</b>	<b>Part Number</b>	<b>Supplier Address</b>
Paper moisture meter	2RRDMP	Mitchell Instrument 1570DDD Cherokee St. San Marcos, CA 92069-2433
Single-sheet clamp probe	2R43E	Mitchell Instrument 1570DDD Cherokee St. San Marcos, CA 92069-2433
Temperature/humidity meter	#3T331	Industrial Motor Service 2000 Albright Montgomery, IL 60538
Sheffield tester: precisionaire column	TM 58-25-01	TMI Testing Machines Inc. 400 Bayview Avenue Amityville, NY 11701 (516) 842-5400
Sheffield tester: smooth check gauge	TM 58-25-02	TMI Testing Machines Inc. 400 Bayview Avenue Amityville, NY 11701 (516) 842-5400
Wood pulp test kit	4280-2	Shape Products 1127 57th Avenue Oakland, CA 94621 (800) 444-0015
pH test kit	4360-2	Shape Products 1127 57th Avenue Oakland, CA 94621 (800) 444-0015
Resistivity test tool: precision current/resistance meter	278	Monroe Electronics 100 HouseI Avenue PO Box 100 Lyndonville, NY 14098 (800) 821-6001
Resistivity test tool: surface resistivity probe	96117-1	Monroe Electronics 100 HouseI Avenue PO Box 100 Lyndonville, NY 14098 (800) 821-6001

# Media input/output options

## Trays, bins, and paper handling

The base model printer comes with two built-in 500-sheet trays (tray 2 and tray 3). Optional tray 1 and tray 4 can be added to the printer. Special media (envelopes, labels) should only be loaded into optional tray 1. The printer comes with face-up and face-down bins, and an optional 3000-sheet stapler/stacker or 3000-sheet stacker can be installed.



**Figure 12.** Media trays, bins, and paper handling

### CAUTION

Using print media that does not meet HP specifications might cause problems for the printer, requiring repair. Such repair is not covered by the Hewlett-Packard warranty or service agreements.

The HP LaserJet 9000 Series printers accept a variety of media, such as cut-sheet paper (including up to 100 percent recycled fiber-content paper), envelopes, labels, transparencies, and custom-size paper. Properties such as weight, composition, grain, and moisture content are important factors affecting printer performance and output quality. Media that does not meet the guidelines outlined in this manual and in the print media guide can cause the following problems:

- poor print quality
- increased jams
- premature wear on the printer, requiring repair

## Media sizes

### Note

Optional tray 1 adjusts for sizes from 98 by 191 mm (3.8 by 7.5 in) to 312 by 470 mm (12.3 by 18.5 in). Optional tray 1 should be used when printing the following: envelopes, labels, and custom-sized media or cardstock.

**Table 10. Optional tray 1 media sizes**

Optional tray 1	Dimensions	Weight	Capacity
Plain paper minimum size (custom)	98 by 191 mm (3.8 by 7.5 in)	64 to 216 g/m <sup>2</sup> (17 to 53 lb bond)	100 sheets of 75 g/m <sup>2</sup> (20 lb bond) paper
Plain paper maximum size (custom)	312 by 470 mm (12.3 by 18.5 in)		
Labels	Letter, A4		Maximum height: 10 mm
Envelopes minimum size (custom)	98 by 191 mm (3.8 by 7.5 in)		10 envelopes
Envelopes maximum size (custom)	176 by 250 mm (6.9 by 9.8 in)		
Transparencies	Letter, A4		

**Table 11. Tray 2 and tray 3 media sizes**

Tray 2 and tray 3	Dimensions	Weight	Capacity
Letter	216 by 279 mm (8.5 by 11 in)	64 to 199 g/m <sup>2</sup> (17 to 53 lb bond)	500 sheets of 75 g/m <sup>2</sup> (20 lb bond) paper
A4	210 by 297 mm (8.3 by 11.7 in)		
B4	257 by 364 mm (10 by 14.3 in)		
Ledger	279 by 431.8 mm (11 by 17 in)		
A3	297 by 420 mm (11.7 by 16.5 in)		
Executive	191 by 267 mm (7.3 by 10.5 in)		
Legal	216 by 356 mm (8.5 by 14 in)		
B5	176 by 250 mm (6.9 by 9.9 in)		
A5	148 by 210 mm (5.8 by 8.2 in)		
Plain paper minimum size (custom)	148 by 297 mm (5.8 by 11.7 in)		
Plain paper maximum size (custom)	210 by 431.8 mm (8.3 by 17 in)		

**Table 12. Optional tray 4 paper sizes**

Tray 4	Dimensions	Weight	Capacity
Letter	216 by 279 mm (8.5 by 11 in)	64 to 199 g/m <sup>2</sup> (17 to 53 lb bond)	500 sheets of 75 g/m <sup>2</sup> (20 lb bond) paper
A4	210 by 297 mm (8.3 by 11.7 in)		
B4	257 by 364 mm (10 by 14.3 in)		
Ledger	279 by 431.8 mm (11 by 17 in)		
A3	297 by 420 mm (11.7 by 16.5 in)		
Executive	191 by 267 mm (7.3 by 10.5 in)		
Legal	216 by 356 mm (8.5 by 14 in)		
B5	176 by 250 mm (6.9 by 9.9 in)		
A5	148 by 210 mm (5.8 by 8.2 in)		
Plain paper minimum size (custom)	182 by 210 mm (7.2 by 8.3 in)		
Plain paper maximum size (custom)	297 by 431.8 mm (11.7 by 17 in)		

**Table 13. Duplexer paper sizes**

Duplexer	Dimensions	Weight
Letter	216 by 279 mm (8.5 by 11 in)	64 to 199 g/m <sup>2</sup> (17 to 53 lb bond)
A4	210 by 297 mm (8.3 by 11.7 in)	
Legal	216 by 356 mm (8.5 by 14 in)	
A3	297 by 420 mm (11.7 by 16.5 in)	
Ledger	279 by 431.8 mm (11 by 17 in)	
B4	257 by 364 mm (10 by 14.3 in)	
Executive	191 by 267 mm (7.3 by 10.5 in)	
B5	176 by 250 mm (6.9 by 9.9 in)	
A5	148 by 210 mm (5.8 by 8.3 in)	
Plain paper minimum size (custom)	148 by 210 mm (5.8 by 8.3 in)	
Plain paper maximum size (custom)	312 by 470 mm (12.3 by 18.5 in)	

**Table 14. 3000-sheet stapler/stacker and 3000-sheet stacker media sizes**

<b>Face-up bin</b>	<b>Dimensions</b>	<b>Weight</b>
Letter	216 by 279 mm (8.5 by 11 in)	64 to 199 g/m <sup>2</sup> (17 to 53 lb bond)
A4	210 by 297 mm (8.3 by 11.7 in)	
Legal	216 by 356 mm (8.5 by 14 in)	
A3	297 by 420 mm (11.7 by 16.5 in)	
Ledger	279 by 431.8 mm (11 by 17 in)	
B4	257 by 364 mm (10 by 14.3 in)	
Executive	191 by 267 mm (7.3 by 10.5 in)	
B5	176 by 250 mm (6.9 by 9.9 in)	
A5	148 by 210 mm (5.8 by 8.3 in)	
Envelopes minimum size (custom)	98 by 191 mm (3.8 by 7.5 in)	
Envelopes maximum size (custom)	176 by 250 mm (6.9 by 9.8 in)	
Plain paper minimum size (custom)	98 by 191 mm (3.8 by 7.5 in)	
Plain paper maximum size (custom)	312 by 470 mm (12.3 by 18.5 in)	
<b>Stapler or stacker bin</b>	<b>Dimensions</b>	
Letter	216 by 279 mm (8.5 by 11 in)	64 to 199 g/m <sup>2</sup> (17 to 53 lb bond)
Ledger	279 by 431.8 mm (11 by 17 in)	
Legal	216 by 356 mm (8.5 by 14 in)	
A5	148 by 210 mm (5.8 by 8.3 in)	
Plain paper minimum size (custom)	148 by 210 mm (5.8 by 8.3 in)	
Plain paper maximum size (custom)	312 by 470 mm (12.3 by 18.5 in)	

# 3

## Product configuration

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## Using the control panel

The control panel includes three LED indicator lights, four navigation keys, a help key, a message clear key, a pause/resume key, a cancel job key, a numeric key pad, and a graphical display (capable of displaying up to four lines of text).

The control panel graphical display provides both status and error messages by using distinct text and codes. See "Troubleshooting with control panel messages" in chapter 7.

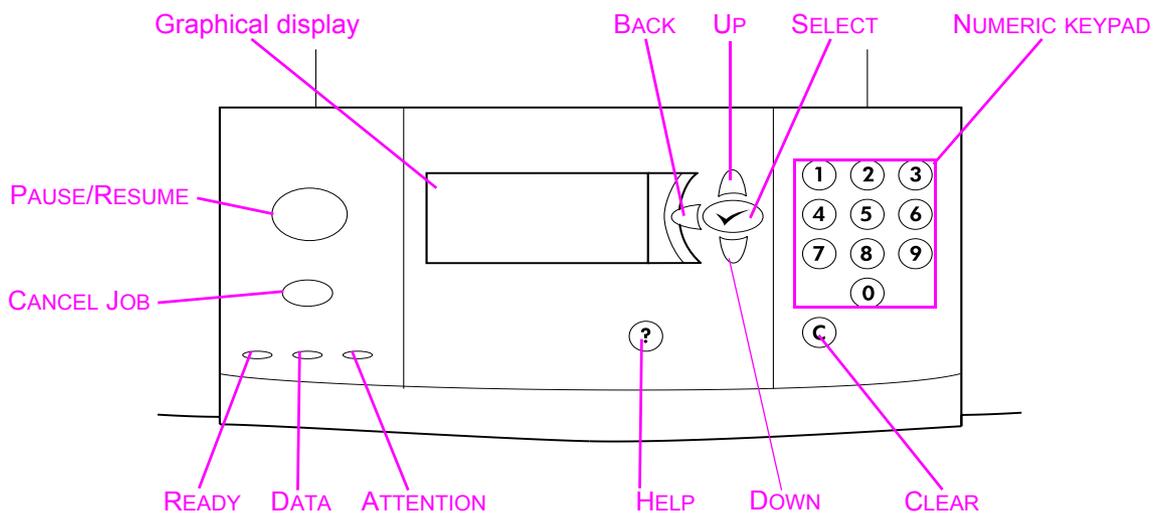


Figure 13. Control panel layout

## Control panel keys

Table 15. Control panel key functions

Key	Function
◀ (BACK ARROW)	<ul style="list-style-type: none"> <li>• Backs up one step from a selection or a 10-key entry.</li> </ul>
▲ (UP ARROW)	<ul style="list-style-type: none"> <li>• Navigates to the previous item in the list.</li> </ul>
✓ (SELECT)	<ul style="list-style-type: none"> <li>• Saves the selected value for that item. An asterisk ( * ) appears next to the selection, indicating that it is the new default. Default settings remain when the printer is switched off or is reset (unless you reset all factory defaults from the <i>Resets</i> menu).</li> <li>• Prints one of the printer information pages from the control panel.</li> </ul>
C (CLEAR)	<ul style="list-style-type: none"> <li>• Returns a numeric entry to its previous value.</li> </ul>
▼ (DOWN ARROW)	<ul style="list-style-type: none"> <li>• Navigates to the next item in the list.</li> </ul>
? (HELP)	<ul style="list-style-type: none"> <li>• Gets help on the message currently displayed.</li> </ul>
CANCEL JOB	<ul style="list-style-type: none"> <li>• Cancels the current print job. The time it takes to cancel depends on the size of the print job. (Press it only once.)</li> </ul>
PAUSE/RESUME	<ul style="list-style-type: none"> <li>• Returns to the ready or busy state from menus or online help.</li> <li>• Toggles between pause and resume.</li> </ul>
NUMERIC KEYPAD	<ul style="list-style-type: none"> <li>• Enters numeric values.</li> </ul>

## Numeric keypad commands

The **NUMERIC KEYPAD** is used to enter a numeric value. The **NUMERIC KEYPAD** will also provide a shortcut key to items in the menus if the device is in an idle state. Pressing the numbers that correspond with the position of the menu item will enter that menu. For example, to get a configuration page, the user would press 22. The first 2 is the Information Menu, which is the second menu. The second 2 is the “PRINT CONFIGURATION PAGE” command and is the second item in the list. The menus can change dynamically. The configure device menu has flexible menus to configure accessories depending on what accessories are available, so the number sequence might not be the same for all devices. Pressing a number should be the same as navigating to that item in the list and pressing ✓.

The exception to this is when the display is showing a list of values. In this case, entering the number moves to that item in the list but does not select the item. This is the same for continuous values that can be entered by using the **NUMERIC KEYPAD**. For example, to enter the number of copies, the user presses the number desired and then presses ✓.

The table below outlines the effect of a number key on certain printer states.

**Table 16. Printer state and numeric key effect**

<b>PowerSave</b>	<b>Idle/pause</b>	<b>Continuable error</b>	<b>Data</b>	<b>Processing job</b>	<b>In menus</b>	<b>In online information</b>
Exit the PowerSave mode	Used to enter menus. Each menu has an assigned number.	No effect.	No effect.	No effect.	Enters the numeric value.	No effect.

## Settings and defaults

The printer makes most printing decisions based on temporary settings or on factory (permanent) defaults.

---

### Note

Settings you send from software applications override printer defaults.

**Temporary settings** are the values set through your software application for the current print job. Temporary settings remain in effect until the current print job is finished.

**Control panel defaults** are the values entered by selecting a control panel item and pressing ✓. An asterisk ( \* ) next to the item name indicates that it is now the default. The printer retains default settings even when power is turned off.

**Factory defaults** are preset at the factory and are the permanent default values for each menu item. Factory default values are listed in table 17.

## Setting the display language

### Method 1

- 1 Press ✓ to enter the menus.
- 2 Press ▼ or ▲ to scroll to CONFIGURE DEVICE, and then press ✓.
- 3 Press ▼ or ▲ to scroll to SYSTEM SETUP, and then ✓.
- 4 Press ▼ or ▲ to scroll to LANGUAGE, and then ✓.
- 5 Press ▼ or ▲ to scroll to the desired language, and then ✓.

### Method 2

- 1 Press and hold ✓ while turning on the device.
- 2 Hold ✓ until all three error lights are illuminated at the same time.
- 3 Press ▼ or ▲ to scroll to the desired language, and then ✓.

---

### Note

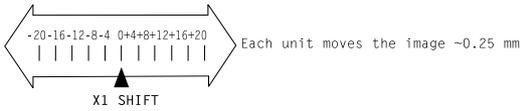
For Japanese, Turkish, Czech, Russian, Hungarian, and Polish, language selection will change the default symbol set for the specific language. For all other languages, the default symbol set is PC-8.

## Setting tray registration

- 1 Press ✓ to enter the menus.
- 2 Press ▼ or ▲ to scroll to CONFIGURE DEVICE, and then press ✓.
- 3 Press ▼ or ▲ to scroll to PRINT QUALITY, and then press ✓.
- 4 Press ▼ or ▲ to scroll to SET REGISTRATION, and then ✓.
- 5 Press ▼ or ▲ to scroll to PRINT TEST PAGE, and then ✓.
- 6 A registration page will print. See figure 14 for a sample registration page. Follow the instructions on the page to complete the registration setting.

How to center all jobs from tray2:

Step 1:  
 A. Examine the borders on the top and bottom of this page.  
 B. Note the Y SHIFT value necessary to move the border in the desired direction.

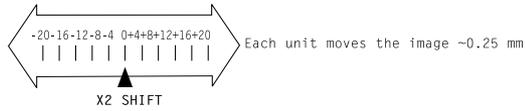


Step 2:  
 A. Examine the borders on the left and right of this page.  
 B. Note the X1 SHIFT value necessary to move the border in the desired direction.

Step 3:  
 A. Press the  key to enter the menus.  
 B. Use  and  to highlight **CONFIGURE DEVICE** and press  to select.  
 C. Use  and  to highlight **PRINT QUALITY** and press  to select.  
 D. Use  and  to highlight **SET REGISTRATION** and press  to select.  
 E. Use  and  to highlight **ADJUST TRAY2** and press  to select.  
 F. Use  and  to highlight **Y SHIFT** and press  to select.  
 G. Use  and  to locate the value you identified in step 1 and press  to select.  
 H. Use  and  to highlight **X1 SHIFT** and press  to select.  
 I. Use  and  to locate the value you identified in step 1 and press  to select.  
 J. Print another test page and repeat steps 1 & 2 to verify the border is properly centered.

Figure 14. Registration page (1 of 2)

Note: Y shift adjusts both sides.



Step 4:

- A. Examine the borders on the left and right of this page.
- B. Note the X2 SHIFT value necessary to move the border in the desired direction.

Step 5:

- A. Press the key to enter the menus.
- B. Use and to highlight CONFIGURE DEVICE and press to select.
- C. Use and to highlight PRINT QUALITY and press to select.
- D. Use and to highlight SET REGISTRATION and press to select.
- E. Use and to highlight ADJUST TRAY 2 and press to select.
- F. Use and to highlight X2 SHIFT and press to select.
- G. Use and to locate the value you identified in step 4 and press to select.
- H. Print another test page and repeat step 4 to verify the front and back of the page align.

Figure 15. Registration page (2 of 2)

## Printer driver information

When you change a setting from the printer control panel, the new setting becomes the printer default value. You can override any control panel setting through most software applications, as well as from the printer driver.

## Factory default settings

The following tables detail the default values for each menu item grouped by menu. Performing a Cold Reset or NVRAM INIT will restore the printer to these factory settings. See "Service mode" in chapter 7.

**Table 17. Factory default settings**

Menu item	Default value
Paper handling menu	
Tray 1 mode	First
Tray 1 size	Any  <b>Note</b> Not visible if tray 1 mode = first
Tray 1 type	Plain  <b>Note</b> Not visible if tray 1 mode = first
Tray 2 size	Cold reset paper size
Tray 2 type	Plain
Tray 3 size	Cold reset paper size
Tray 3 type	Plain
Tray 4 size	Cold reset paper size
Tray 4 type	Plain
Paper handling menu—fuser modes	
Plain	Auto
Preprinted	Auto
Letterhead	Auto
Transparency	Auto
Prepunched	Auto
Labels	Auto
Bond	Auto
Recycled	Auto
Color	Auto
Cardstock	Auto
Rough	Auto
User-type 1	Auto
User-type 2	Auto
User-type 3	Auto
User-type 4	Auto

**Table 17. Factory default settings (continued)**

User-type 5	Auto
Printing menu	
Copies	1
Default paper size	Letter
Default custom paper size	X = 265 mm Y = 216 mm
Paper destination	Standard output
Duplex	Off
Binding	Long edge
Override A4 with letter	No
Manual feed	Off
Edge-to-edge override	Off
Courier font	Regular
Wide A4	No
Print PS errors	Off
Printing menu—PCL	
Form length	60
Orientation	Portrait
Font source	Internal
Font number	0
Font pitch	10.00
Font point size	12.00
Symbol set	PC-8
Append CR to LF	No
Print quality	
Print quality—Set registration	
Source	Tray 2
Adjust tray 1 (If present)	
X 1 shift	0
X 2 shift	0
Y shift	0
Adjust tray 2	
X 1 shift	0
X 2 shift	0
Y shift	0
Adjust tray 3	
X 1 shift	0
X 2 shift	0
Y shift	0
Adjust tray 4 (If present)	
X 1 shift	0

**Table 17. Factory default settings (continued)**

X 2 shift	0
Y shift	0
Resolution	FastRes 1200
RET	Medium
EconoMode	Off
Toner density	3
Small paper mode	Normal
System setup	
Job storage limit	32
Job hold time-out	Off
PowerSave time	1 hour
Personality	Auto
Clearable warnings	Job
Auto continue	On
Cartridge low	Continue
Jam recovery	Auto
RAM disk	Auto
Language	English
I/O	
I/O time-out	270
I/O buffer	Auto
I/O—Parallel inputs	
High speed	Yes
Advanced	On
Infrared inputs	
Diagnostics	
Diagnostics—Set paper path test	
Source	Tray 1
Destination	Standard output
Duplex	Off
Copies	1
Service	
Total page count	0000000
Maintenance count	0
Maintenance interval	350000
Serial number	-
Cold reset paper	Depends on the country

## Control panel menus

Press ▼ or ▲ to cycle through the control panel menus. Each menu is described in a separate table in this section. Figure 16, "Menu map page 1 (common functions)" on page 55 provides a map of all the menus and their associated items. Menu items are displayed only if their associated option is installed, or their function is activated.

All menus and their associated items are accessible when the printer is online. In menu mode, if no keys are pressed for approximately 30 seconds, the system will automatically return to the top level and display either an existing error, or one of the following:

- READY, if the printer was online.
- OFFLINE, if the printer was offline.

---

### Note

---

Shaded items appear only when the associated option or function is installed and activated. Printer driver and software commands override the printer control panel settings.

From the control panel, you can print a menu map that shows the current printer configuration. See "Menu map" on page 55. Additional menu items can appear in the control panel, depending on the options currently installed in the printer. The following is a list of menus available from the control panel.

- "Retrieve job menu" on page 60.
- "Information menu" on page 60.
- "Paper handling menu" on page 60.
- "Configure device menu" on page 61.

## Using a menu map

To see the current settings for the menus and items available in the control panel, print a control panel menu map. Values that appear with an ( \* ) next to them are the currently selected values for a setting. Many of these values can be overridden from the print driver or a user program. You might want to store the menu map near the printer for reference.

The contents of the menu map varies, depending on the optional accessories currently installed in the printer. For a complete list of accessories or to change a control panel item and possible values, see "Control panel menus" on page 54.

### Select an item from the menu map

Press ✓ .

Press ▼ or ▲ to scroll to the required menu, and then press ✓ .

Press ▼ or ▲ to scroll to the page desired, and then press ✓ .

# Menu map

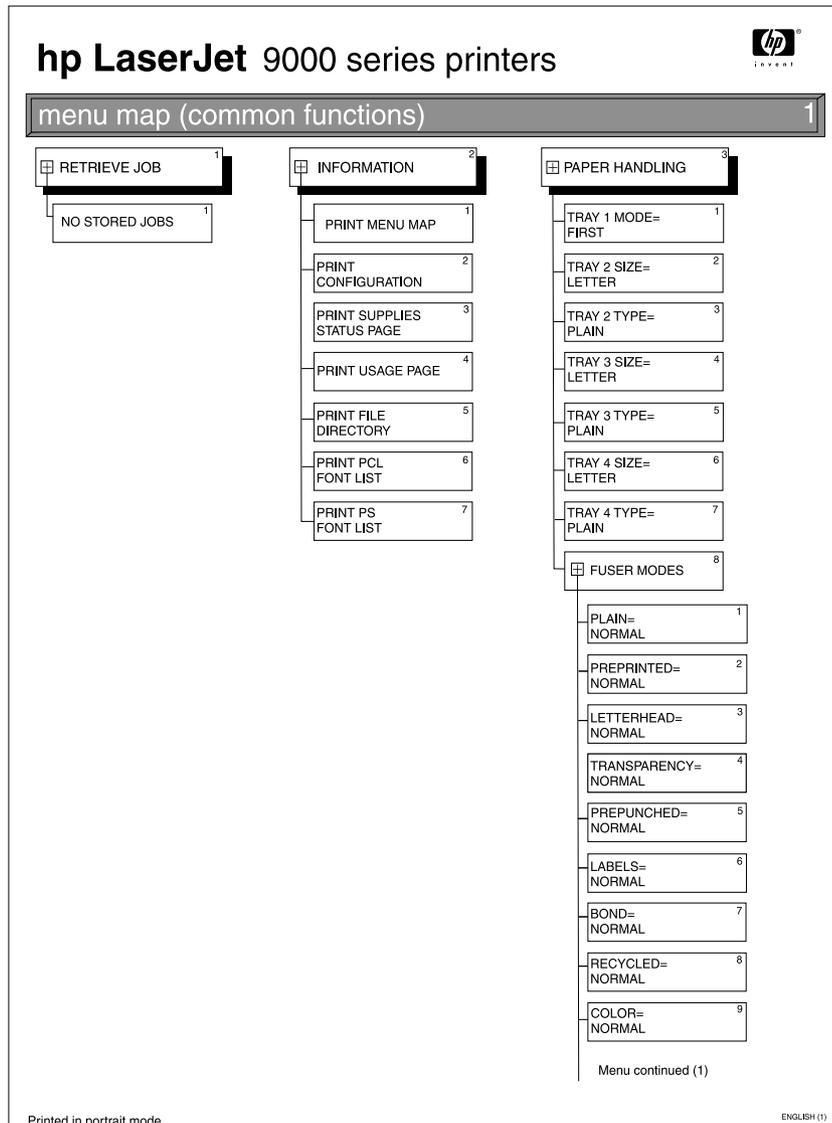


Figure 16. Menu map page 1 (common functions)



Menu continued (1)

CARDSTOCK= HIGH 1	10
ROUGH= HIGH 1	11

Figure 17. Menu map page 2 (common functions)

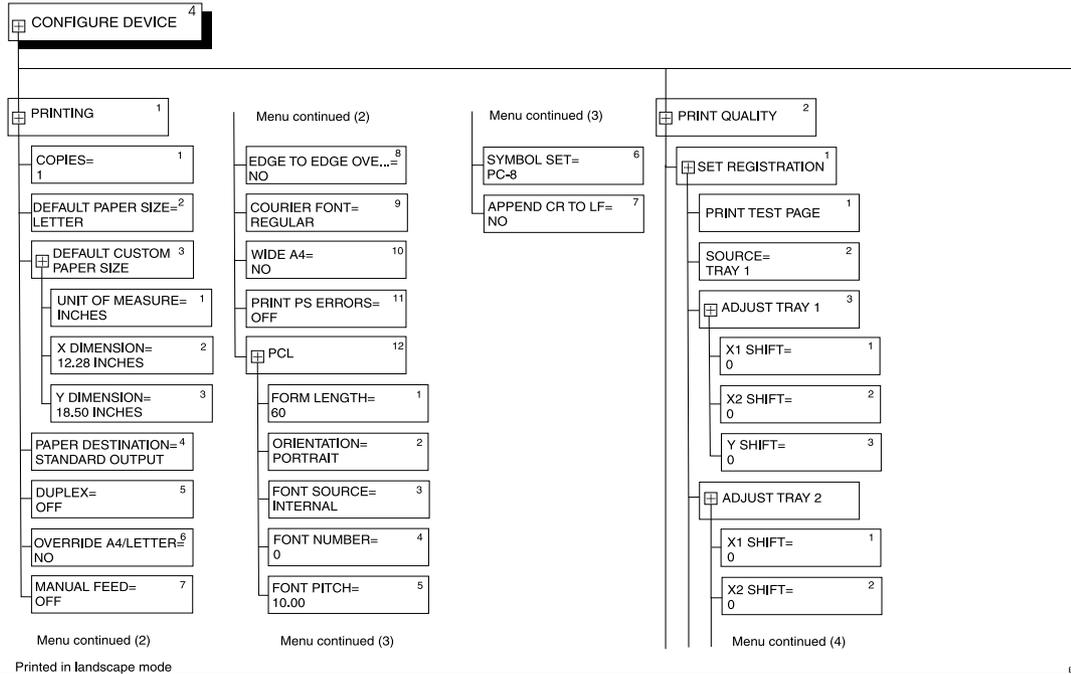


Figure 18. Menu map page 3 (administrative functions)

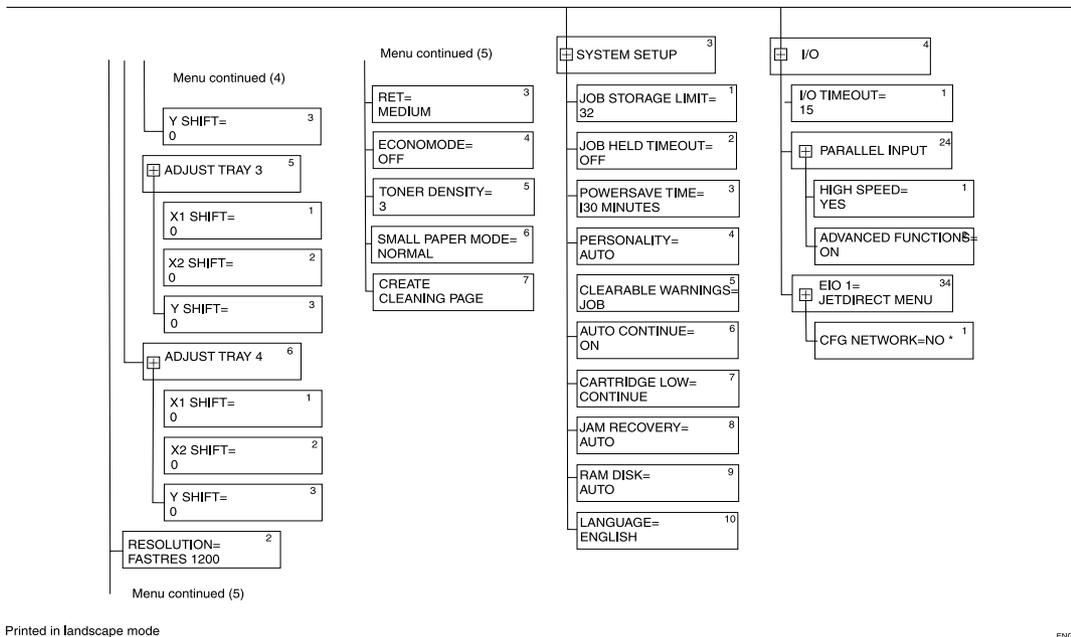
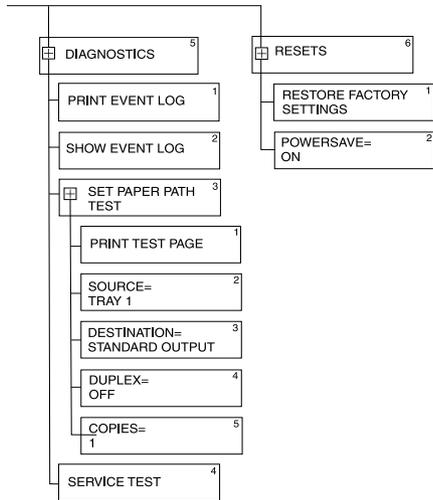


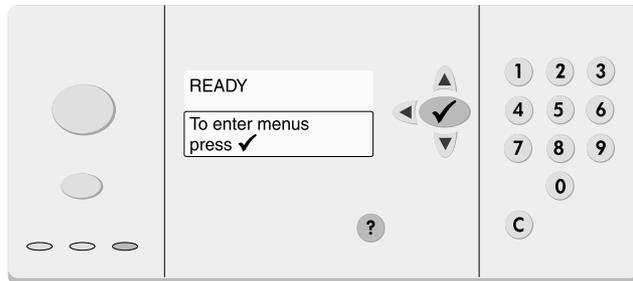
Figure 19. Menu map page 4 (administrative functions)



Printed in landscape mode

ENGLISH (1)

Figure 20. Menu map page 5 (administrative functions)



1. Use the ▲ and ▼ keys to move the highlight to the previous and next item in a list or scroll through a message that is no longer than one screen.
2. Use the ✓ key to enter menus and select a highlighted item. If a value is highlighted when ✓ is pressed, the value is saved and an asterisk is placed next to the value to mark it as the current setting.
3. Use the ◀ key to back up one step from a selection or a 10-key entry.
4. Use the number keys to enter numeric values or as a short cut to a menu item.
5. Use the C key (Clear) to return a numeric entry to its previous default value.
6. Use the ? key to view additional information about the currently displayed message.
7. Use **Cancel Job** to cancel the print job that the printer is currently processing. The time it takes to cancel depends on the size of the print job.
8. Use **Pause/Resume** to quickly leave the menus or to toggle between READY and PAUSED.

**Figure 21.** Menu map page 6, Control panel instructions

## Retrieve job menu

This menu contains stored job information.

**Table 18. Retrieve job menu**

Item	Explanation
NO STORED JOBS	This menu gives a listing of currently stored print jobs.

## Information menu

This menu contains printer information pages that give details about the printer and its configuration.

**Table 19. Information menu**

Item	Explanation
PRINT MENU MAP	The menu map shows the layout and current settings of the control panel menu item. See "Menu map" on page 55.
PRINT CONFIGURATION	The configuration page shows the current printer configuration. If an HP Jetdirect print server card is installed, a Jetdirect configuration page will print out as well. See "Configuration page" in chapter 7.
PRINT SUPPLIES PAGE	The print supplies page shows the number of pages remaining for the print cartridge and maintenance kit. Percent remaining as well as pages remaining for all consumables are shown on this page.
PRINT USAGE PAGE	Contains information that can be used for cost analysis and accounting.
PRINT FILE DIRECTORY	This item appears only when a mass storage device (such as an optional flash DIMM or hard disk) containing a recognized file system is installed in the printer. The file directory shows information for all installed mass storage devices. See "File directory page" in chapter 7.
PRINT PCL FONT LIST	The PCL font list shows all the PCL fonts currently available to the printer.
PRINT PS FONT LIST	The PS font list shows all the PS fonts currently available to the printer.

## Paper handling menu

When paper handling settings are correctly configured through the control panel, you can print by choosing the type and size of paper from the printer driver or software application.

Some items in this menu (such as duplex and manual feed) can be accessed from a software application or from the printer driver (if the appropriate driver is installed). Printer driver and software application settings override control panel settings.

**Table 20. Paper handling menu**

Item	Values	Explanation
TRAY 1 MODE= FIRST	ANY	If TRAY 1 MODE=ANY and paper is loaded in optional tray 1, the printer will pull paper from that tray first. Set the value to correspond with the paper size currently loaded in optional tray 1.
TRAY 2 SIZE= LETTER	LETTER	Set the value to correspond with the paper size currently loaded in tray 2.
TRAY 2 TYPE= PLAIN	PLAIN	Set the value to correspond with the paper type currently loaded in tray 2.

**Table 20. Paper handling menu (continued)**

Item	Values	Explanation
TRAY 3 SIZE= LETTER	LETTER	Set the value to correspond with the paper size currently loaded in tray 3.
TRAY 3 TYPE= PLAIN	PLAIN	Set the value to correspond with the paper type currently loaded in tray 3.
TRAY 4 SIZE= LETTER	LETTER	Set the value to correspond with the paper size currently loaded in tray 4.
TRAY 4 TYPE= PLAIN	PLAIN	Set the value to correspond with the paper type currently loaded in tray 4.
FUSER MODES	PLAIN PREPRINTED LETTERHEAD TRANSPARENCY PREPUNCHED LABELS BOND RECYCLED COLOR CARDSTOCK ROUGH	Configure the fuser mode associated with each paper type. The fuser mode can be changed only from this menu option in the control panel.
CONFIGURE EDGE TO EDGE=NO	NO YES	Configure the margin alignment for the tray you wish to print an edge-to-edge print job from. NO: The edge-to-edge configuration menu items are not accessible. YES: Additional edge-to-edge configuration menu items appear.

## Configure device menu

It is possible to gain access to some items in this menu either from a software application or from the printer driver (if the appropriate driver is installed). Printer driver and software application settings override control panel settings.

**Table 21. Configure device menu**

Item	Values	Explanation
PRINTING	COPIES DEFAULT PAPER SIZE DEFAULT CUSTOM PAPER SIZE PAPER DESTINATION DUPLEX OVERRIDE A4/LETTER MANUAL FEED EDGE-TO-EDGE COURIER FONT WIDE A4 PRINT PS ERRORS PCL	Set the default number of copies, standard and custom paper sizes, output destination, and the default overrides for A4/letter, edge-to-edge, and manual feed.

**Table 21. Configure device menu (continued)**

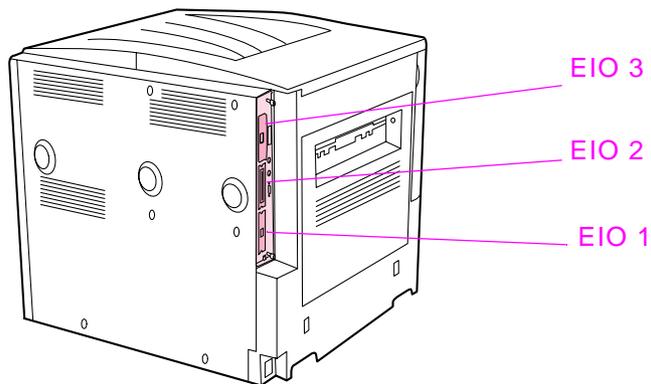
Item	Values	Explanation
PRINT QUALITY	SET REGISTRATION RESOLUTION RET ECONOMODE TONER DENSITY SMALL PAPER MODE CREATE CLEANING PAGE	Set the paper registration and print quality from this menu. Create a printer cleaning page and set EconoMode in the menu.
SYSTEM SETUP	JOB STORAGE LIMIT JOB HELD TIMEOUT POWERSAVE TIME PERSONALITY CLEARABLE WARNINGS AUTO CONTINUE CARTRIDGE LOW JAM RECOVERY RAM DISK NULL STRING	This menu is used to set time and quantities for warnings and limits.
I/O	I/O TIMEOUT EIO 1	This menu is used to set timings for the EIO slots.
DIAGNOSTICS	PRINT EVENT LOG SHOW EVENT LOG SET PAPER PATH TEST SERVICE TEST	This menu is used for printer and accessory diagnostics. A service test can be performed from this menu.
RESETS	RESTORE FACTORY SETTINGS POWERSAVE	Factory defaults are restored from this menu.

## Network and mass storage

Hewlett-Packard frequently introduces new software tools for use with your printer and accessories. Many of these tools are available from the Internet free of charge. See "World Wide Web" in chapter 1 for information about how to visit the HP website for more information.

### To install EIO cards and hard disks (mass storage)

- Turn off the printer and remove the power cord before installing the EIO cards or mass storage device.
- Use the graphic in figure 22 for the location of the EIO cards or optional mass storage device, such as a hard disk.
- Use HP Resource Manager to manage fonts on a mass storage device.



**Figure 22.** EIO slots

---

**Note** After you have installed a new device, print a configuration page to verify installation.

## Remote firmware upgrade (RFU)

The process for upgrading printer firmware remotely involves three steps:

- 1 Determine the current level of firmware installed on the printer.
- 2 Go to the [http://www.hp.com/go/lj9000\\_firmware](http://www.hp.com/go/lj9000_firmware) Web site and download the latest firmware.
- 3 Download the new firmware to the printer.

### Downloading the new firmware to the printer

You can send an RFU upgrade to a printer at any time; the printer will wait for all input/output channels to become idle before turning power off and back on.

---

**Note** If the firmware upgrade involves a change in the format of NVRAM, the NVRAM settings will be lost and must be set again by the customer.

---

### Windows systems

---

**Note** Some Windows systems may require the following command to be executed at the command prompt if the system receives a "time out" error during the printer upgrade process: "mode lpt1 :,,p".

---

If the printer is shared on the network, then the following command can be issued from a command prompt:

```
copy /b FILENAME \\SHARENAME\PRINTERNAME
```

where FILENAME is the name of the RFU file, SHARENAME is the name of the computer from which the printer is being shared, and PRINTERNAME is the printer share name.

If the printer is connected locally, then the RFU file can be sent directly to the printer with a COPY command from a command prompt or MS-DOS window:

```
copy /b FILENAME PROTNAME
```

where FILENAME is the name of the RFU file, and PORTNAME is the name of the appropriate printer port (such as LPT 1).

You can also send the file through a FIR port.

### UNIX systems

Any method that delivers the RFU file to the printer will work, including:

```
$ cp /home/yourmachine/FILENAME /dev/parallel
```

where /home/yourmachine/FILENAME contains the RFU file.

### Using HP Web JetAdmin

This procedure requires that Web JetAdmin version 6.1 or later be installed. Complete the following steps to upgrade a single printer through Web JetAdmin after downloading the RFU file from the HP Web site.

- 1 Start HP Web JetAdmin.
- 2 Enter the internet protocol (IP) address or IP hostname of the printer in the **Quick Device Find** field, and then click **Go**. The printer Status window appears.
- 3 Click the right arrow on the toolbar to display the **Update** button.
- 4 Click **Update**.

- 5 When prompted for the type of update to perform, click **Update Printers**, and then click **Continue**.
- 6 Under **Upload new firmware image:**, click **Browse** to locate the RFU file you downloaded from the [http://www.hp.com/go/ij9000\\_firmware](http://www.hp.com/go/ij9000_firmware) Web site.
- 7 Click **Upload** to move the RFU file from your hard drive to the HP Web JetAdmin server.
- 8 Refresh the browser.
- 9 Select the RFU file from the **Select new firmware version:** drop-down menu.
- 10 Click **Update Firmware**. HP Web JetAdmin sends the selected RFU file to the printer.

Also, HP Web JetAdmin 6.1 can be used to perform multiple or unattended installations:

- 1 Start HP Web JetAdmin.
- 2 Create a device group. A simple way to do this is to:
  - a. Click **Devices** on the 1. **Choose:** drop-down menu.
  - b. Click **Device Model** from the 2. **Filter:** drop-down menu.
  - c. Type iy9000lw in the 3. **Criteria (Optional):** field.
  - d. Click **Go**.
- 3 In the **Device List**, select the printers you want to include in the group and click **Create Group**.
- 4 When prompted, type a name for the new device group, and then click **OK**.
- 5 Click **Update**.
- 6 When prompted for the type of update to perform, click **Update Printers**, and then click **Continue**.
- 7 From the list of HP Devices, select the printers to be upgraded, or click **Select All**.
- 8 Click **Update** to install the new printer firmware.



# 4

## Product maintenance

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## Preventative maintenance

To ensure optimum print quality, the printer will prompt you to perform printer maintenance every 350,000 pages. When the `PERFORM PRINTER MAINTENANCE` message appears on the control panel, the customer needs to purchase and install a preventive maintenance kit. After a new maintenance kit is installed, the control panel displays `NEW MAINTENANCE KIT` and `NO` is highlighted. Use ▲ or ▼ to scroll to `YES` and press ✓. Print a configuration page to verify that the maintenance kit is reset to zero.

---

**Note**

---

The preventive maintenance kit is a consumable, and is not covered under warranty.

For more information about installing a preventive maintenance kit, see the installation guide that accompanies it.

### Preventive maintenance kit contents

The preventive maintenance kit, P/N C9152A (110 V), or C9153A (220 V), should be replaced after each 350,000 pages of use. The following parts are included in the preventive maintenance kit:

- fuser assembly (1 assembly)
- transfer roller assembly (1 assembly)
- feed rollers (tray 2 and tray 3) (4 rollers)
- pickup rollers (tray 2 and tray 3) (2 rollers)
- 2000-sheet feeder tray rollers (3 rollers)

Variables such as media, environment, and usage can cause premature wear of these parts. See "Media specifications" in chapter 2 or the *HP LaserJet Printer Family Print Media Guide* for information about suitable media, environment, and usage conditions.

# Cleaning the printer and accessories

To maintain superior print quality and performance, use the following procedures to clean the printer and the paper-handling accessories thoroughly every time you change the print cartridge or whenever print-quality problems occur.

## General cleaning

### WARNING!

In order to avoid shock hazard, turn the printer and the paper-handling accessories off and unplug all power cords before you begin these steps.

### CAUTION

Do not use ammonia-based cleaners on or around the products. While cleaning the printer, be careful not to touch the transfer roller (located underneath the print cartridge). Skin oils on the roller can cause print-quality problems.

To prevent damage, do not expose the print cartridge to direct light. Place a piece of paper over the top of the print cartridge to shield it while it is out of the printer.

- Clean the outside of the products with a water-dampened cloth.
- Clean the inside of the products with a dry, lint-free cloth.

## Cleaning spilled toner

Defective print cartridges can develop leaks. After a jam has occurred, some toner might remain on the rollers and guides inside the printer. The pages that print immediately after the jam can pick up this toner.

### Note

To clean skin and clothing of toner spills, remove as much toner as possible with dry tissue, then wash with cold water. Hot water causes toner to permanently set into clothing.

## Vacuum specifications

Do not vacuum the printer or any spilled toner using a conventional vacuum. Toner particles used in this product might be too fine for effective vacuuming and could result in damage to the conventional vacuum cleaner.

A vacuum cleaner specifically designed for cleaning toner can be used if it is capable of filtering fine particles (5 microns in diameter).

Dispose of waste toner in accordance with local requirements. Do not discharge toner particles in drains.

## First aid measures

- **Ingestion**—If toner is ingested, rinse mouth thoroughly with water and drink several glasses of water. If irritation occurs, consult a physician.
- **Inhalation**—If toner particles are inhaled, move to fresh air immediately. If irritation occurs, consult a physician.
- **Eye contact**—If toner comes in contact with the eyes, immediately flush with plenty of water for at least 15 minutes. If irritation occurs, consult a physician.
- **Skin contact**—If toner spills on skin, remove as much toner as possible using dry tissue (more than one may be needed), and then wash the affected area of the skin with cold water. If irritation occurs, consult a physician.

## Internal cleaning

During the printing process, paper, toner, and dust particles can accumulate inside the printer and the paper-handling accessories. Over time, this buildup can cause print-quality problems such as toner specks or smearing. Internal cleaning can assist in correction and prevention of these types of problems.

### CAUTION

Before you begin these steps, turn the printer off and unplug all power cords to avoid shock hazard.

- 1 Turn the printer off and unplug all power cords.

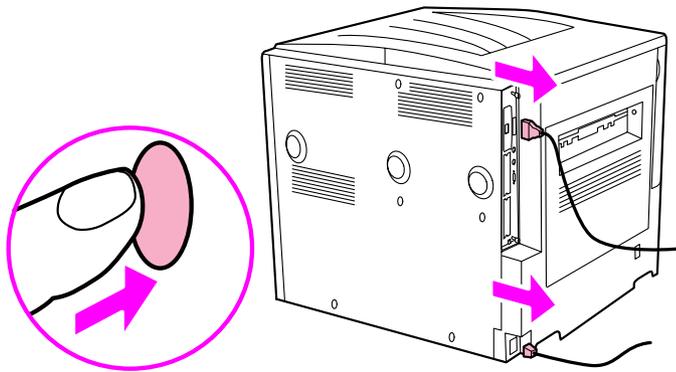


Figure 23. Remove power cord

### CAUTION

To prevent damage to the print cartridge, use two hands when removing it from the printer.

- 2 Open the front cover, turn the green lever counter clockwise to the unlocked position, and remove the print cartridge.

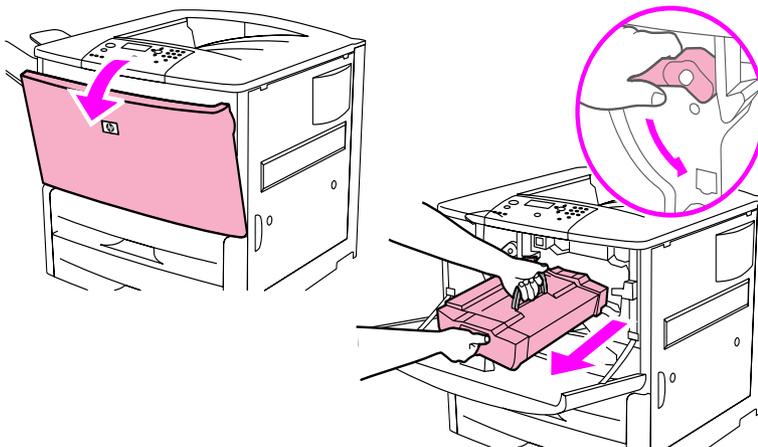
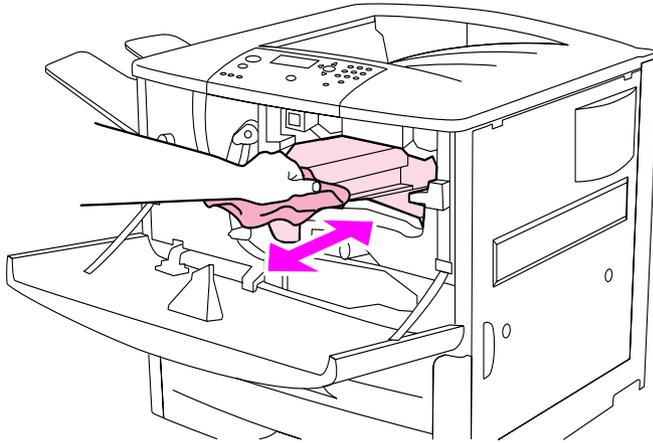


Figure 24. Remove print cartridge

### CAUTION

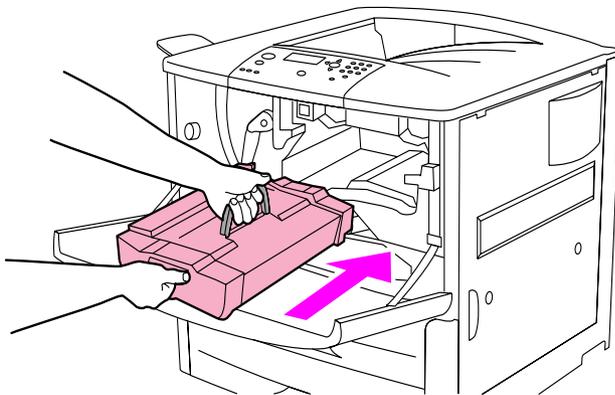
To prevent damage, do not expose the print cartridge to light; place a piece of paper on top of the print cartridge.

- 3 With a dry, lint-free cloth, wipe any residue from the paper-path area, registration roller, and the print cartridge cavity.



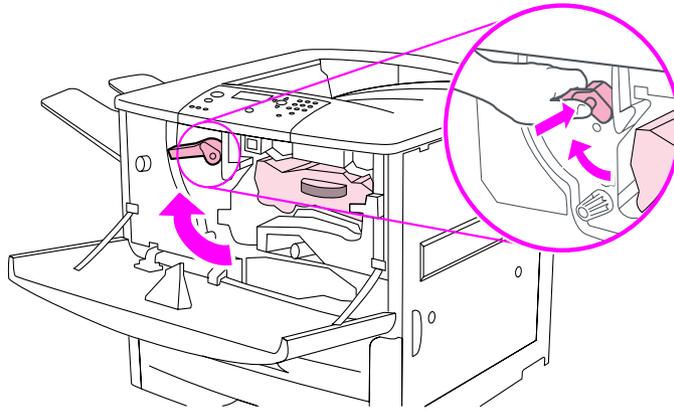
**Figure 25.** Wipe residue

- 4 Replace the print cartridge.



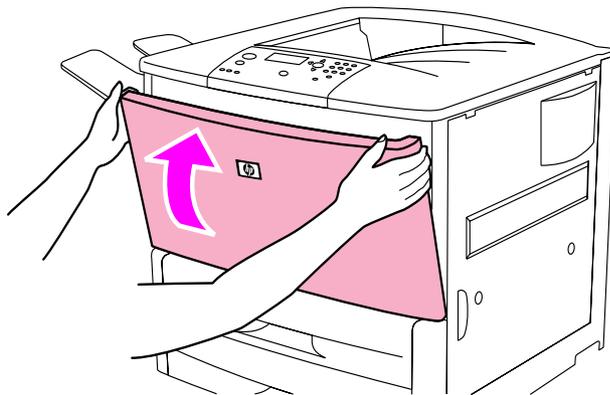
**Figure 26.** Replace print cartridge

- 5 Press the button on the green lever, then turn the lever clockwise to the locked position.



**Figure 27.** Lock print cartridge

- 6 Close the front cover. Plug in the power cable, and turn the printer on.



**Figure 28.** Close front cover

## Fuser cleaning

To complete internal cleaning, create and process a cleaning page.

### Create a cleaning page

Generating a cleaning page will clean the excess toner off the pressure roller in the fuser. The page has instructions printed on it that will walk the user through the process of inserting the page in a tray. If an optional tray 1 is installed, the instructions will indicate that the page should be placed face down in tray 1. If an optional tray 1 is not installed, the instructions will indicate that the page be placed face up in tray 2. The user is then instructed to select the `PROCESS CLEANING PAGE` on the control panel. A sample cleaning page is shown below. While the cleaning page is printing, the display will show `CREATING CLEANING PAGE`.

#### Note

For best results, use copier-grade paper with a smooth surface and a weight of 64 to 90 g/m<sup>2</sup> (17 to 24 lb); do not use bond or rough paper.

### Create/print a cleaning page

- 1 Press `✓`.
- 2 Press `▼` or `▲` to scroll to `CONFIGURE DEVICE` menu and press `✓`.
- 3 Press `▼` or `▲` to scroll to `PRINT QUALITY` and press `✓`.
- 4 Press `▼` or `▲` to scroll to `CREATE CLEANING PAGE` and press `✓`.
- 5 A cleaning page will print.

#### How to use this Cleaning Page

1. Load this sheet into Tray 1 before completing all steps
2. This side should be down with the arrow toward the printer
3. Press the `✓` key to enter the menus
4. Use `▲` and `▼` to highlight `CONFIGURE DEVICE` and press `✓`
5. Use `▲` and `▼` to highlight `PRINT QUALITY` and press `✓`
6. Use `▲` and `▼` to highlight `PROCESS CLEANING PAGE` and press `✓`

#### CAUTION

For best cleaning results:  
Use copier paper with smooth surface  
Weight: 64g/m<sup>2</sup> - 90g/m<sup>2</sup> (17 lb - 24 lb)

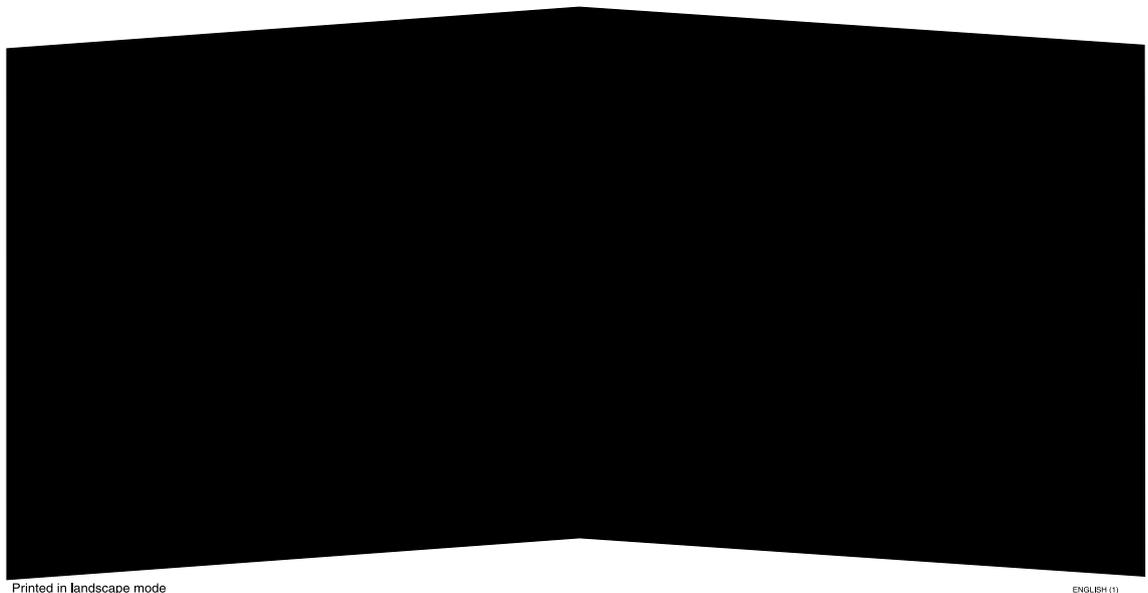


Figure 29.

### Sample cleaning page

## Process a cleaning page

Follow the instructions on the cleaning page to complete the cleaning process.

PROCESS CLEANING PAGE will only be visible to the user after they have generated a cleaning page using the CREATE CLEANING PAGE menu. Once the user has generated the page and placed it face down in tray 1, or face up in tray 2, the user will be instructed to select this menu item to complete the cleaning process. The device must check to make sure that letter or A4 paper is loaded with the long edge fed first. Once the user has completed these steps, this menu item will not be visible until another cleaning page has been created. While the cleaning page is being processed the display will show CLEANING.

---

### Note

When toner has been cleaned from inside the printer, shiny black spots will appear on the black strip. If white spots appear on the black strip, print another cleaning page.

---

### Note

To ensure good print quality with certain types of paper, use the cleaning page every time the print cartridge is replaced. If the cleaning page is frequently needed, try a different type of paper.

# Print cartridge information

Print cartridges contain components that are sensitive to light, temperature, and humidity. Make sure the user follows the recommendations in this section to ensure the highest quality and longest life of the print cartridge.

## Storage

The print cartridge (C8543X) should not be removed from its package until installation. The shelf life of a cartridge in an unopened package is approximately 2.5 years. The shelf life of a cartridge in an opened package is approximately 6 months. The expiration date of the print cartridge is stamped on the cartridge box.

If cartridges are stored, the storage environment should meet the conditions listed in the following table:

**Table 22. Storing print cartridges**

Category	Temperature	Humidity
Operating	10 degrees to 32.5 degrees C (50 degrees to 90.5 degrees F)	20 percent to 80 percent RH
Storage	0 degrees to 35 degrees C (32 degrees to 95 degrees F)	35 percent to 85 percent RH

If the print cartridge must be removed from the printer, always store the cartridge:

- inside the protective bag in which it was originally packaged.

### Note

If original package is not available, cover the top opening of the print cartridge with paper.

- in a dark cabinet, away from direct sunlight.
- correct side up and in a horizontal position (not standing on end).
- in a temperature listed in the table above.
- away from ammonia or other organic solvent fumes.

### CAUTION

Never ship the printer with a print cartridge installed. Excessive vibration during shipping can cause toner to leak, contaminating the printer.

Never expose the print cartridge to direct sunlight, or to room light. Bright light and direct sunlight can permanently damage a print cartridge.

## Handling instructions

- Do not touch the surface of the photosensitive drum in the cartridge. Protect the drum from light and contamination.
- Do not expose the cartridge to unnecessary vibrations or shock.
- Do not expose the photosensitive drum to strong light. Blurred areas on the page might indicate that the drum has been exposed to light for too long. This causes permanent damage to the photosensitive drum. If this occurs, replace the cartridge.
- Never manually rotate the drum, especially in the reverse direction; it can cause internal damage and toner spills.

## Refilled print cartridges

### HP policy about non-HP print cartridges

Hewlett-Packard Company cannot recommend using new, refilled, or remanufactured, non-HP print cartridges. Because they are not HP products, HP cannot influence their design or control their quality.

While Hewlett-Packard Company does not prohibit the use of refilled print cartridges during the warranty period or while under a maintenance contract, we do not recommend their use for the following reasons:

- Hewlett-Packard has no ability to ensure that a refilled print cartridge functions at the high level or reliability of a new HP print cartridge. Hewlett-Packard also cannot predict the long-term effect of the various toner formulations found in refilled cartridges.
- Hewlett-Packard has no control over the print quality of a refilled print cartridge. The print quality of HP print cartridges influences customer perception of the printer.
- Repairs resulting from the use of refilled print cartridges will not be covered under the HP warranty or maintenance contract.
- Smart cartridge features (cartridge out/low) are not available.

### Print cartridge weights

The approximate weight of a print cartridge when full and empty is as follows:

- full: 4220 grams (9.28 lb)
- empty: 2700 grams (5.94 lb)

### Print cartridge life expectancy

The life of the print cartridge depends on the amount of toner used in each print job. When printing text at 5 percent coverage, an HP LaserJet 9000 print cartridge lasts an average of 30,000 images. This life expectancy is estimated with the default print density setting, and EconoMode off (default settings).

### Saving toner with EconoMode

HP LaserJet 9000 print cartridge usage can be extended by using the printer EconoMode feature. EconoMode can be turned on or off through the driver or through HP LaserJet device configuration.

- Some software applications might refer to EconoMode as “draft mode.”
- EconoMode is only available if a genuine HP print cartridge is installed.

# 5

## Theory of operation

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# Basic operation

This chapter provides information about the following systems:

- engine control
- formatter
- laser/scanner
- image formation
- pickup and feed

Relationships among the five systems are represented in figure 30 below:

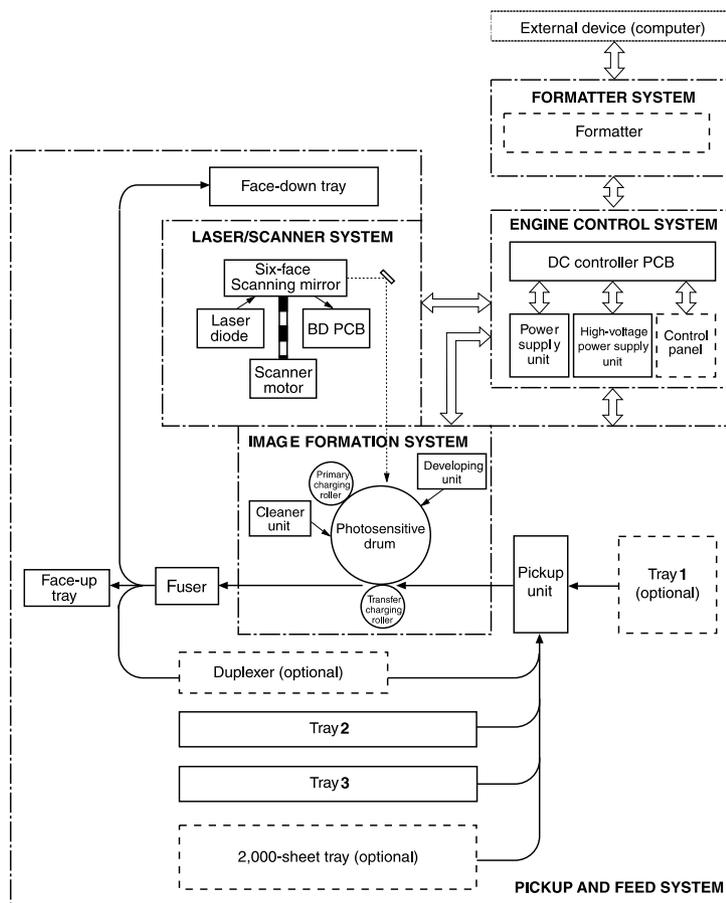


Figure 30. Printer systems

## Sequence of operation

Operational sequences are controlled by the engine control system. Table 23 describes the sequences.

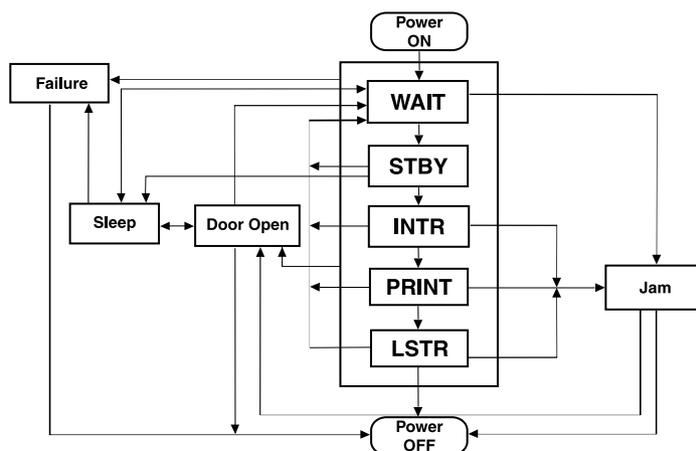


Figure 31. Sequence of operation block diagram

Table 23. Normal sequence of operation

State	Period	Operation
WAIT	From the time the power is switched on until the surface temperature of the fuser and pressure rollers reach their WAIT target value (four minutes or less.)	<ul style="list-style-type: none"> <li>power on, CPU, and ASIC initialize</li> <li>fan rotation (fans 1-6 for 30 seconds, duplexer fan for 3 seconds)</li> <li>formatter interface communication starts</li> <li>fuser heaters turn on</li> <li>cartridge check</li> <li>cartridge memory check for toner level</li> <li>optional interface communication (duplexer, tray 1, tray 4, paper handling)</li> <li>cassette checks (lifting and paper installed)</li> <li>jam check (auto flush/eject)</li> <li>fuser wrapping jam detect</li> <li>door open/sleep check</li> <li>fuser roller temperature control and delivery motor</li> </ul>
STBY (standby)	From the end of the WAIT period to the input of a print reservation command from the formatter. -or- From the end of the LSTR period until either a print reservation command is input from the formatter or until power is switched off.	<ul style="list-style-type: none"> <li>fuser control (fuser roller temperature—180 degrees C (356 degrees F)/pressure roller 140 degrees C (285 degrees F))</li> <li>print reservation command (awaits INTR sequence)</li> <li>fan motor drive control (fans 1-5 half speed rotation; fan 6 is off)</li> <li>fuser roller deformation prevention (fuser/delivery motor rotates every hour for &gt;8 seconds to prevent deforming the roller)</li> </ul>

**Table 23. Normal sequence of operation (continued)**

State	Period	Operation
INTR (initial rotation)	From the input of a print reservation command from the formatter until the laser/scanner enters a ready state.	<ul style="list-style-type: none"> <li>● scanner motor rotation</li> <li>● fuser/delivery motor rotation</li> <li>● drum motor rotation</li> <li>● high-voltage control (negative bias to transfer roller)</li> <li>● receives print command</li> <li>● fan motor 1-6 full speed rotation</li> <li>● pickup operation starts</li> <li>● high-voltage control bias applied to primary charging roller, developing roller, and transfer roller)</li> <li>● fuser control (fuser roller to 190 degrees C (374 degrees F), pressure roller 180 degrees C (356 degrees F))</li> <li>● initial rotation final check (high-voltage, scanner motor, pickup operation complete)</li> <li>● jam/door open/failure/sleep check</li> </ul>
PRINT	From the input of a print command until the primary DC bias is turned off.	<ul style="list-style-type: none"> <li>● fuser/delivery, drum, scanner, and fan motor rotations</li> <li>● fuser control (print temperature—fuser 190 degrees C (374 degrees F))</li> <li>● engine to formatter output signal</li> <li>● formatter to engine input signal</li> <li>● paper feed control</li> <li>● image control</li> <li>● high-voltage control (toner level-output separation bias and pressure roller bias)</li> <li>● next pickup control (calculates from paper size the speed to send paper through)</li> <li>● jam/door open/failure</li> </ul>
LSTR (last rotation)	From the time the primary charging roller is turned off until each of the motors stop.	<ul style="list-style-type: none"> <li>● fuser/delivery, drum, scanner, and fan motor rotations</li> <li>● high-voltage control completion</li> <li>● fuser control (print to standby temperature—180 degrees c (356 degrees f))</li> <li>● fan motor control (fan 1-6 full speed rotation)</li> <li>● fuser/delivery, drum, and scanner motor stop (writes in cartridge memory)</li> <li>● jam/door open/failure check</li> <li>● ready for next pickup</li> </ul>

**Table 24. Failure sequence of operation**

State	Period	Operation
JAM	From the time the power is switched on until the end of the LSTR period.	<ul style="list-style-type: none"> <li>● sensor check</li> <li>● drive stop (scanner motor, high-voltage, fuser control, and fuser/delivery motor stop)</li> <li>● status setting (jam status set)</li> <li>● door open check</li> </ul>
DOOR OPEN	From the time the power is switched on until the end of the LSTR period.	<ul style="list-style-type: none"> <li>● drive stop</li> <li>● status setting</li> <li>● door close (wait sequence)</li> </ul>
FAILURE	From the time the power is switched on until the end of the LSTR period.	<ul style="list-style-type: none"> <li>● drive stop</li> <li>● status setting (set)</li> </ul>
SLEEP	From the time the power is switched on until the end of the LSTR period.	<ul style="list-style-type: none"> <li>● drive stop (scanner motor, high-voltage control, fuser control, fuser/delivery motor, 24 v stop, 3.3 v sets PowerSave mode, fan motor stop)</li> <li>● status setting</li> <li>● door open check</li> </ul>

## Power-on sequence

The sequence from the time the power is turned on until the printer enters the standby state is shown below:

- 1 Power is turned on.
- 2 CPU and ASIC initialization.
- 3 Video interface communication start (formatter).
- 4 All fans are turned on.
- 5 Fuser and pressure roller heaters are turned on.
- 6 Cartridge presence check.
- 7 Cartridge memory check.
- 8 Initialization of optional accessories, if installed.
- 9 Pickup roller motor and cassette lifter motors are turned on.
- 10 Pickup roller motor and cassette lifter motors are turned off.
- 11 Fuser motor, drum motor, and transfer negative bias are turned on.
- 12 Pressure bias and jam detection lever drive solenoid (SL501) are turned on.
- 13 Developing AC bias is turned on (toner level detection).
- 14 Fuser reaches its target temperature.
- 15 Fuser motor, drum motor, transfer negative bias, pressure bias, and SL501 are turned off.
- 16 Standby.

# Timing chart

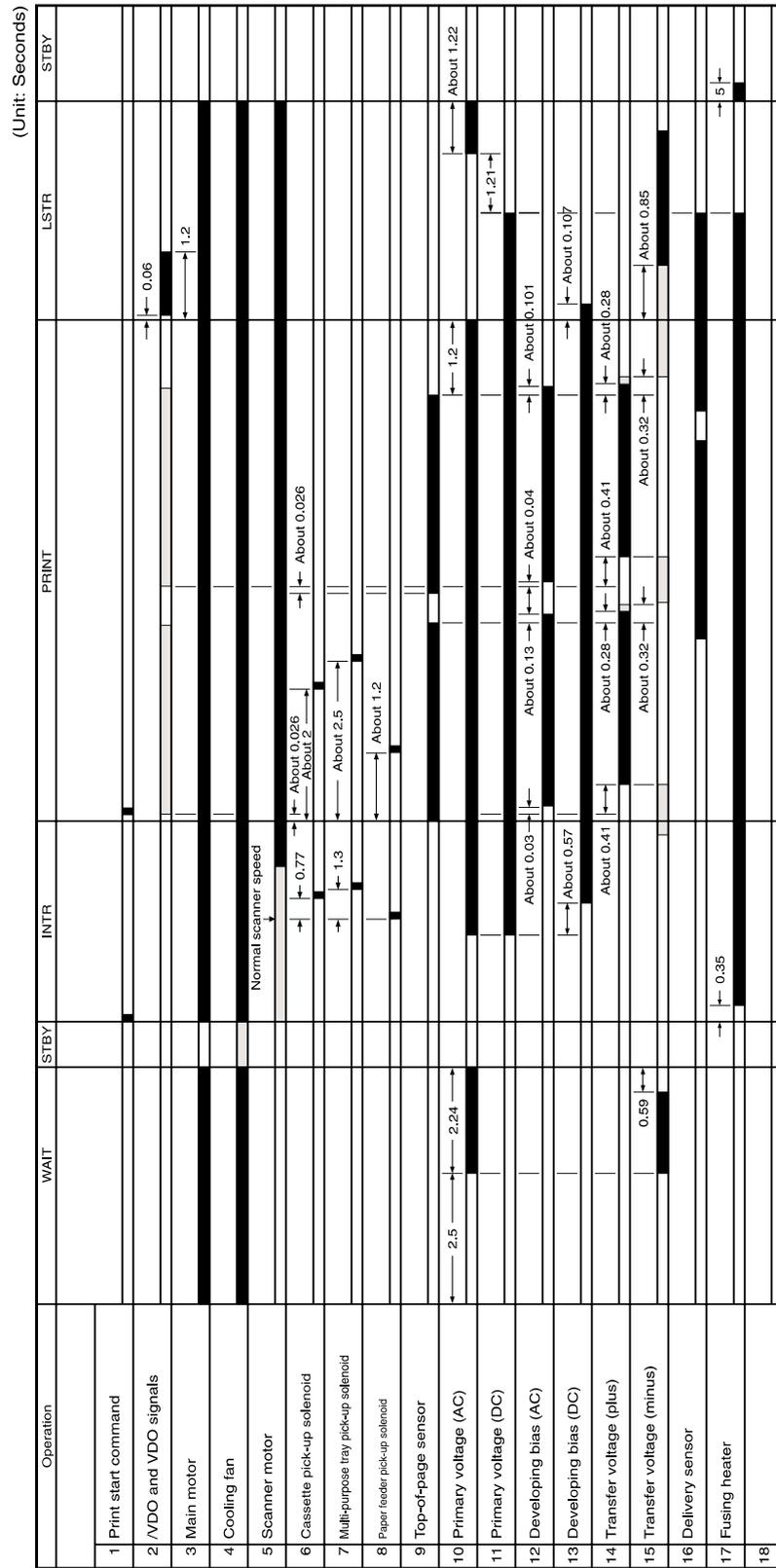
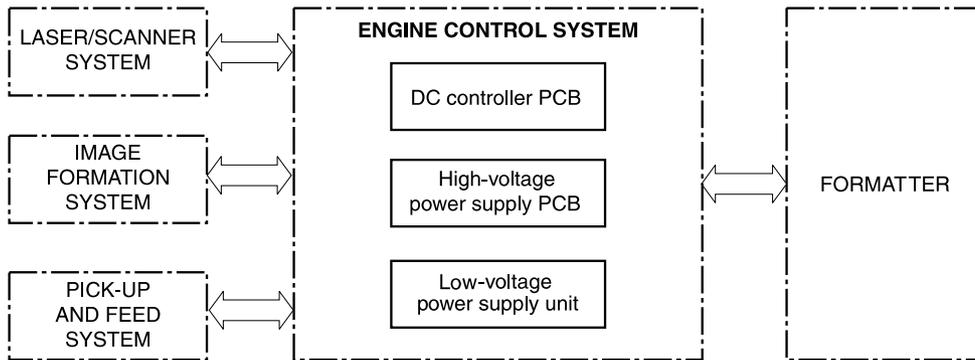


Figure 32. Timing diagram

# Engine control system

The engine control system coordinates the laser/scanner, image formation, and pickup and feed systems according to the instructions it receives from the formatter. The engine control system consists of the DC controller PCB, the high-voltage power supply circuit, and the low-voltage power supply unit.

Figure 33 shows a block diagram of the engine control system.



**Figure 33.** Engine control system block diagram

# DC controller PCB

The DC controller circuit controls operational sequences of the printer.

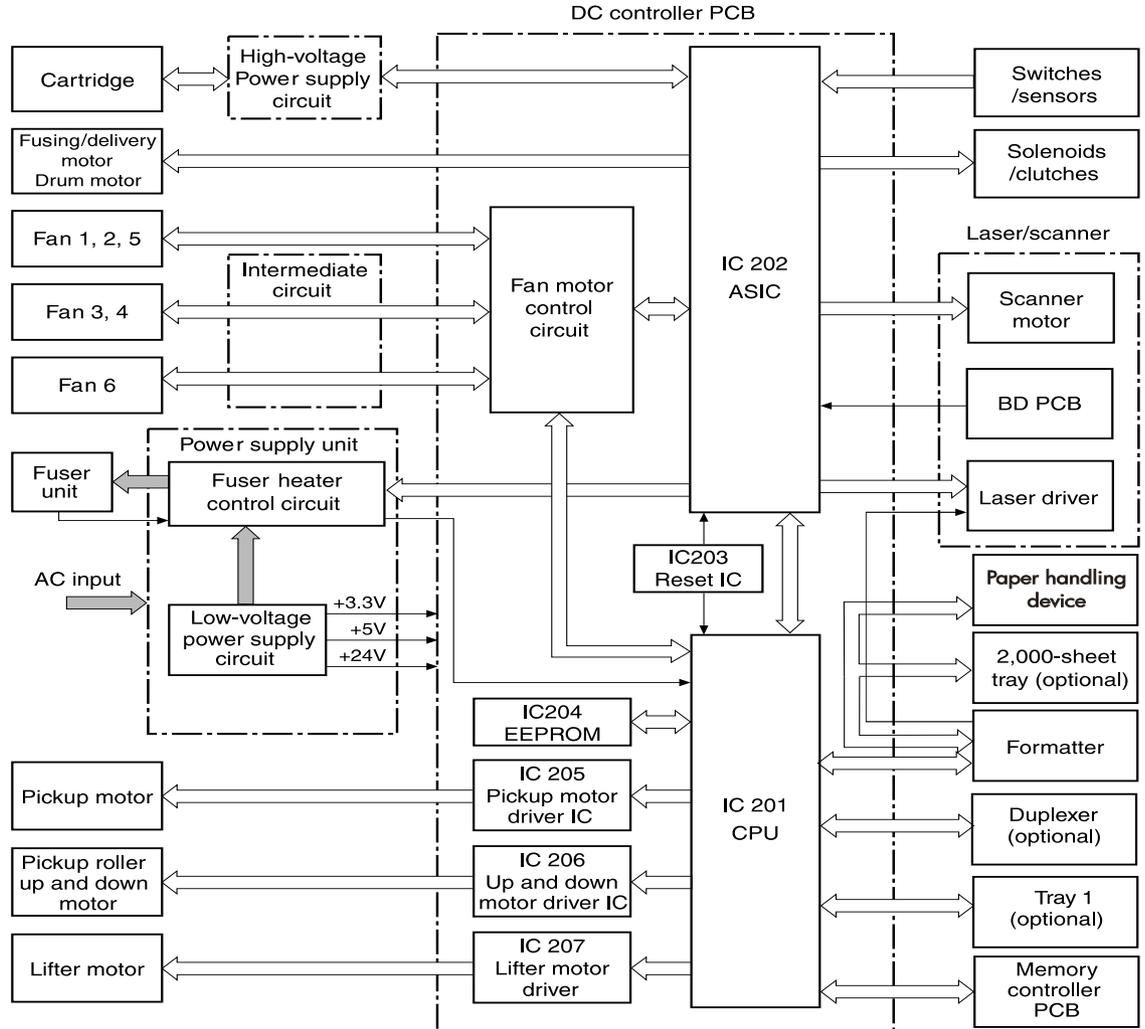


Figure 34. DC controller circuit block diagram

## DC controller operations

- The CPU (IC201) on the DC controller PCB controls the following printer operations:
  - sequence of the printer
  - communications with the formatter
  - high-voltage power supply circuit
  - rotation of the pickup motor, lifter motor, pickup roller motor, and fan motor 6
  - communication with the duplexer and the optional tray 1, if installed
  - fuser heater control circuit and fuser heater safety circuit
- ASIC (IC202) on the DC controller PCB controls the following printer operations, according to instructions from the CPU:
  - laser/scanner
  - rotation of fuser/delivery motor and drum motor
  - sensors and switches
  - clutches and solenoids
  - rotation of fan motors 1 through 5
- Reset IC (IC203) monitors +3.3 V and resets the CPU and ASIC at power on.
- EEPROM (IC204) stores backup data.
- Pickup motor driver IC (IC205) drives the pickup motor.
- Pickup roller up and down motor driver IC (IC206) drives the pickup roller up and down motor.
- Lifter motor driver IC (IC207) drives the lifter motor.
- Fan motor control circuit turns fans on and off.

# High-voltage power supply circuit

The high-voltage power supply circuit applies a high-voltage bias to the primary charging roller, the developing cylinder, the pre-transfer upper guide, the transfer charging roller, the separation static charge eliminator, and the pressure roller through the ASIC (IC 202), according to instructions it receives from the CPU (IC201) on the DC controller PCB. The high-voltage power supply circuit also detects the toner level.

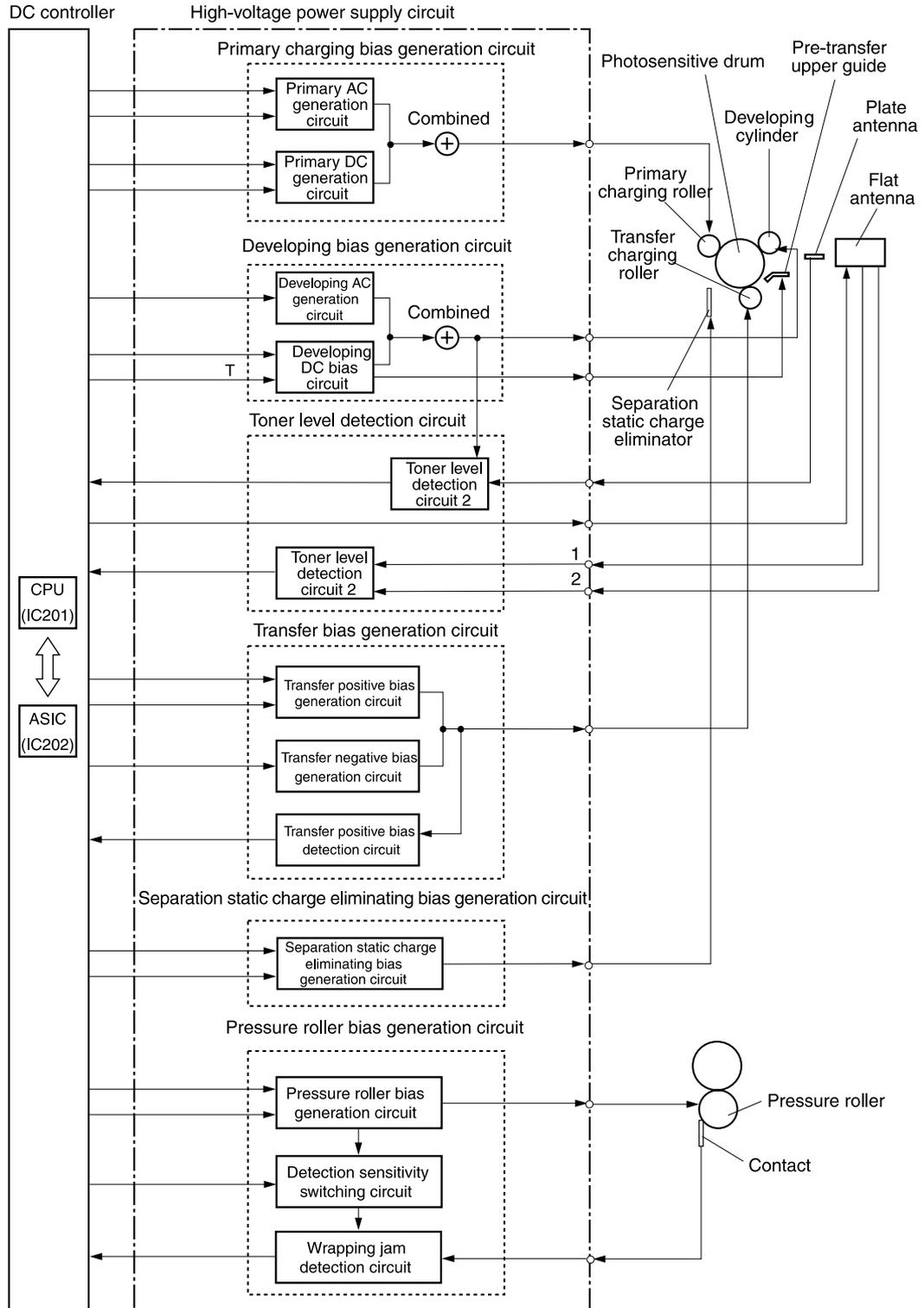


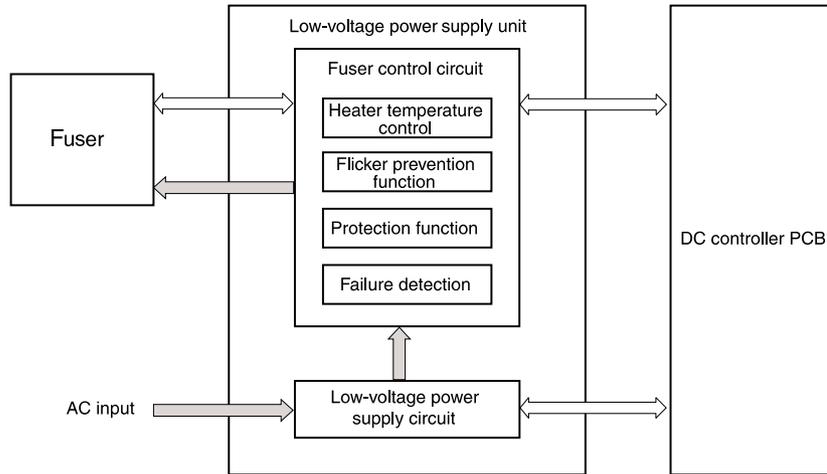
Figure 35. High-voltage power supply block diagram

Each of the bias generation circuits has a specific purpose:

- **Primary charging bias generation.** Applies bias to the primary charging roller to spread a uniform, negative charge on the photosensitive drum.
- **Developing bias generation.** Controls the amount of toner transferred onto latent images formed on the photosensitive drum.
- **Pre-transfer upper guide bias generation.** Prevents toner on the photosensitive drum from adhering to the pre-transfer upper guide.
- **Transfer bias generation.** Each of the three types of transfer bias (cleaning bias, between-page bias, and print bias), is applied to the transfer charging roller at specified intervals:
- **Cleaning bias.** Cleans the transfer charging roller by moving toner to the photosensitive drum.
- **Between-page bias.** Prevents residual toner on the photosensitive drum from adhering to the transfer charging roller between pages of a multi-page print job.
- **Print bias.** Transfers toner from the photosensitive drum to the print media.
- **Separation static charge eliminating bias.** Stabilizes media delivery.
- **Pressure roller bias generation.** Prevents toner from adhering to the fuser roller.
- **Toner level detection.** Monitors toner level through two antennae (plate antenna and flat antenna) in the toner cartridge.

## Low-voltage power supply unit

The low-voltage power supply unit consists of the fuser control circuit and the low-voltage power supply circuit.



**Figure 36.** Power supply block diagram

### Fuser control circuit

Three heaters heat the fuser roller and pressure roller. The main heater (H1) heats the center of the fuser roller; the sub-heater (H2) heats both ends of the fuser roller; and the lower heater (H3) heats the pressure roller.

Two thermistors monitor the surface temperature of the rollers. The upper thermistor (TH1) monitors the fuser roller surface temperature and the lower thermistor (TH2) monitors the pressure roller surface temperature.

Two thermal switches guard against overheating the three heaters by turning off power to the heaters when the temperature rises abnormally.

The printer is designed to prevent flicker. Lights attached to the same AC power source as the printer can flicker as a result of high-frequency noise. To control flicker, the printer gradually increases and decreases power to the heaters when they are turned on and off.

### Low-voltage power supply circuit

The low-voltage power supply circuit converts AC voltage from the power source to DC voltage when the printer is turned on. The AC power is converted as follows:

- +24VDC for motors, solenoids, clutches, and the high-voltage power supply circuit
- +5VDC for the laser/scanner PCB, the BD PCB, and the formatter
- +3.3VDC for the formatter, sensors, and the ICs on the DC controller PCB

# Formatter system

The formatter and DC controller exchange signals that allow the DC controller to begin the initial rotation period (INTR), turn on the registration roller drive clutch, and feed media into the printer. When media is positioned for printing, the formatter sends information through the DC controller to the laser/scanner, which then turns the laser diodes on and off. Laser beams emitted from the laser diodes are reflected by the laser/scanner mirror, scanning across the photosensitive drum to form a latent image on the drum.

The formatter system is responsible for the following:

- receiving and processing data from the various printer interfaces
- monitoring control panel input and relaying printer status information (through the control panel and the I/O)
- developing and coordinating data placement and timing with the print engine
- storing font information and macros
- communicating with the host computer

The formatter receives data from the I/O and converts it into a dot image. The formatter then sends a print signal to the engine controller assembly. The engine controller assembly synchronizes the image-formation system with the paper-feed system, and signals the formatter to send the print-image data. The formatter sends the print-image data (dots) in the form of a video signal, and the printing process begins.

## Formatter hardware

The formatter system includes the following:

- **ROM**—Stores the dot patterns of internal character sets (fonts), in addition to storing microprocessor control programs.
- **RAM**—Stores printing and font information received from the host system, and can also serve to temporarily store a full page of print-image data before the data is sent to the print engine. Increasing the RAM will increase graphic intense printing operations, but it will not increase the I/O buffer space or cause the printer to print more pages per minute.
- **NVRAM**—Stores information about the I/O and print environment configuration. The printer keeps the contents of NVRAM when the power is turned off or disconnected. (As in other HP LaserJet printers, downloaded fonts and macros are saved in conventional RAM and are lost when power is turned off.)
- **Interfaces**
  - **Parallel interface**—Receives incoming data through its IEEE-1284 B interface connector. The IEEE-1284 B interface provides high-speed, two-way communication between the printer and the host, letting the user change printer settings and monitor printer status from the host computer.
  - **USB**—Receives incoming data through its universal serial bus (USB) connector. The USB interface provides high-speed, two-way communication between the printer and the host, letting the user change printer settings and monitor printer status from the host computer.
  - **EIO**—Supports a wide range of print servers and other add-on devices through PCI-based EIO slots. HP Jetdirect EIO cards provide high-speed communication for network printing over Ethernet, Ethernet and LocalTalk, Token Ring, or Fast Ethernet networks.

## Formatter subsystem

### Resolution Enhancement technology

The formatter contains circuitry for Resolution Enhancement technology (REt), which modifies the standard video dot data on its way to the engine controller assembly to produce smoothed black-to-white boundaries. The default is on.

### Print density adjustment

Print density is the line width (boldness) of the print image. Adjustment of print density is accomplished by varying the developer DC bias, which controls the amount of toner applied to the photosensitive drum. Settings range from 1 (lightest) to 5 (darkest). The default is 3.

### EconoMode

When EconoMode is turned on, the printer uses approximately 50 percent less toner than standard mode printing by reducing the dot density. Users can select EconoMode, which can also be thought of as draft mode, through software applications. The default setting is off. EconoMode does not affect print speed or memory usage.

### Memory management

This printer uses various methods to conserve available memory. Several of these methods are explained below.

**Memory Enhancement technology (MEt).** MEt enhances standard printer memory through a variety of font and data compression methods. MEt also automatically compresses fonts for desktop publishing applications. MEt is available in all printing modes (PCL 5e, PCL 6, and HP PS emulation). When printing graphics, MEt analyzes each page as it is being printed and automatically applies a variety of compression techniques to print the complete page at the correct resolution.

**Page Protect.** Page complexity (rules, complex graphics, or dense text) might exceed the printer's ability to create the page image fast enough to keep pace with the printing process. If a page is too complex, it might print in parts (for example, the top half of data on one page and the bottom half on the next page). Some print data loss is likely in these instances, and the printer displays an error.

Page Protect allows the formatter to create the entire page image in memory before moving the paper through the printer. This process ensures that the entire page is printed. The default is off, which provides the best performance. Page Protect should only be enabled when necessary.

### Printer Job Language overview

Printer Job Language (PJL) is an integral part of the printer configuration, in addition to the standard Printer Command Language (PCL). PJL allows the printer to perform functions such as:

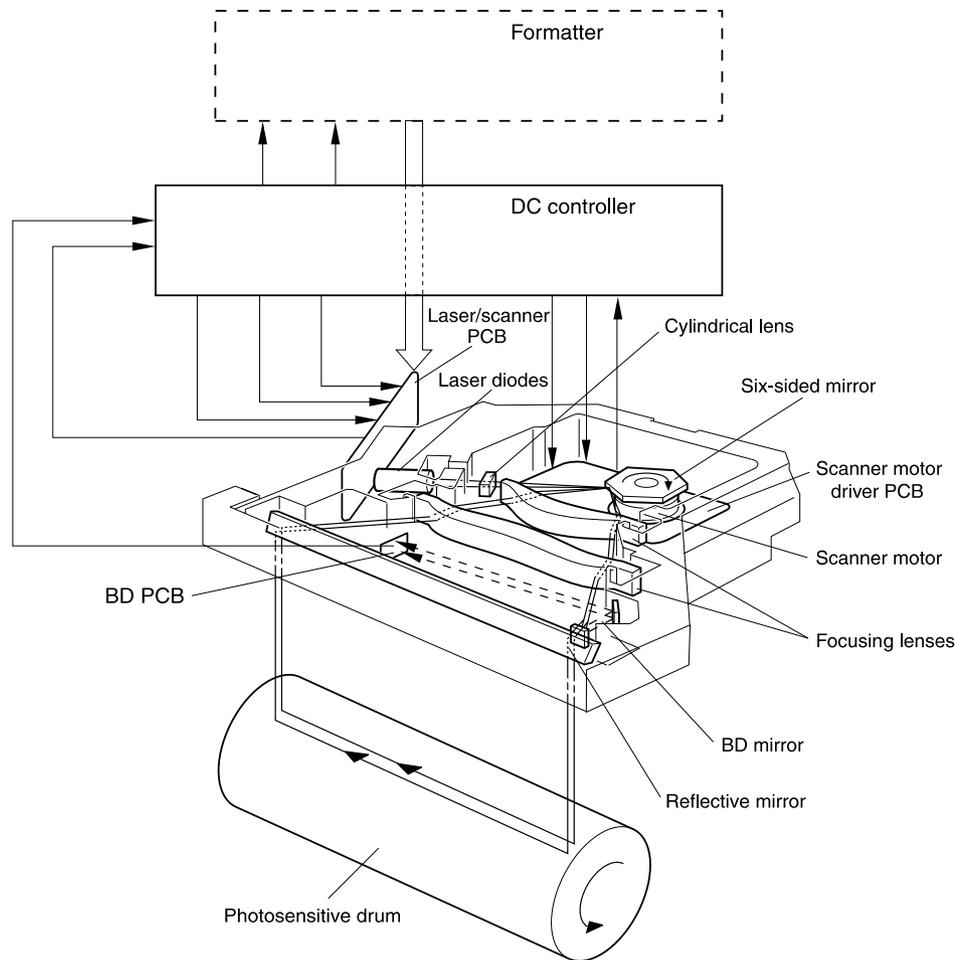
- **Two-way communication** with the host computer through an IEEE-1284 B interface connection. The printer can tell the host such things as the control panel settings and allow the control panel settings to be set from the host.
- **Dynamic I/O switching** allows the printer to be configured with a host on each I/O. The printer can receive data from more than one I/O simultaneously until the buffer is full. This can occur even when the printer is offline.
- **Context-sensitive switching** allows the printer to automatically recognize the personalities (PS or PCL) of each host and to configure itself to serve that personality.
- **Isolating print environment settings** from one print job to the next. For example, if a print job is sent to the printer in landscape mode, subsequent print jobs only print in landscape if they are formatted for landscape printing.

## Laser/scanner system

The laser/scanner unit of this printer contains two laser diodes in its laser unit. The printer employs the “twin beam method” which scans two lines simultaneously.

Based on signals it receives from the DC controller and the formatter, the laser/scanner PCB causes the two laser diodes to emit laser beams. The beams strike a six-sided mirror that rotates at a constant speed. The beams reflect off the mirror, pass through a focusing lens and a reflective mirror, and focus on the photosensitive drum.

The scanning mirror rotating at a constant speed allows the laser beams to scan across the drum at a constant speed. Finally, a latent image is formed on the drum surface by constant-speed rotation of the photosensitive drum and constant-speed scanning of the laser beams.



**Figure 37.** Laser/scanner system

# Image formation system

The image formation system consists of the cartridge, transfer charging roller, and fuser.

When a print command is sent from the formatter, the engine controller drives the main motor to rotate the photosensitive drum, primary charging roller, developing cylinder, transfer charging roller, and pressure roller.

The primary charging roller applies a uniform negative charge to the photosensitive drum surface. Laser beams, modulated by the signals from the formatter, focus on the photosensitive drum surface to form a latent image on the photosensitive drum.

Toner on the developing cylinder develops the latent image formed on the photosensitive drum into a visible image, which is transferred onto media by the transfer charging roller. The toner transferred is changed to a permanent image by heat and pressure in the fuser. The cleaning blade scrapes residual toner from the photosensitive drum, and the primary charging roller applies a uniform negative charge to the photosensitive drum surface in preparation for the next latent image.

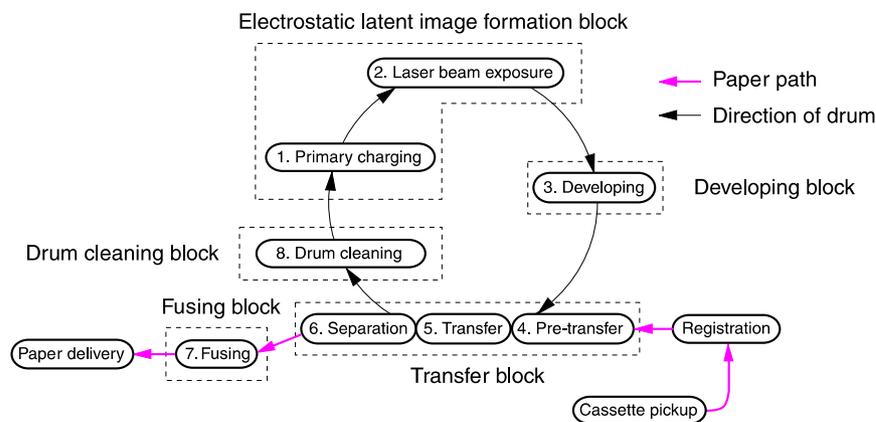


Figure 38. Image formation

## The eight processes of image formation

- 1 Conditioning (primary charging)**—This process consists of the application of a uniform negative charge to the surface of the drum with the primary charging roller located in the toner cartridge. The primary charging roller is made of conductive rubber. An AC bias is applied to the roller to erase any residual charges from any previous image. In addition, a negative DC bias is applied by the charging roller to create a uniform negative potential on the drum surface.
- 2 Writing (laser beam exposure)**—Two laser diodes project laser beams onto a rotating scanning mirror. As the mirror rotates, the beams reflect off the mirror, first through a set of focusing lenses, then off a mirror, and finally through a slot in the top of the toner cartridge, and onto the photosensitive drum. The twin beams sweep the drum from left to right, discharging the negative potential wherever the beams strike the surface. This creates a latent electrostatic image, which later is developed into a visible image.
- 3 Developing**—At this stage of the process, the latent electrostatic image is present on the drum. The toner particles obtain a negative surface charge by rubbing against the developing cylinder which is connected to a negative DC supply. The negatively charged toner is attracted to the discharged (exposed, grounded) areas of the drum, and is repelled from the negatively charged (unexposed) areas.
- 4 Pre-transfer**—Applies bias to prevent toner on the photosensitive drum from adhering to the pre-transfer upper guide.

- 5 **Transfer**—During the transfer process, the toner image on the drum surface is transferred to the paper. The transfer charging roller applies a positive charge to the back of the paper and causes the negatively charged toner on the drum surface to be attracted to the paper. After separation, the drum is cleaned and conditioned for the next image.
- 6 **Separation**—During the separating process, the paper separates from the drum. To stabilize the feed system and to prevent dropouts on the printed image at low temperature and humidity, the charge on the back of the paper is reduced by the static charge eliminator.
- 7 **Fusing**—During the fusing process, the toner is fused to the paper by heat and pressure to produce a permanent image. The paper passes between a heated fuser element and a soft pressure roller. This melts the toner and presses it into the paper.
- 8 **Drum cleaning**—The cleaning blade is in contact with the surface of the drum at all times. As the drum rotates during printing, excess toner is scraped off and stored in the waste toner receptacle.

## Print cartridge

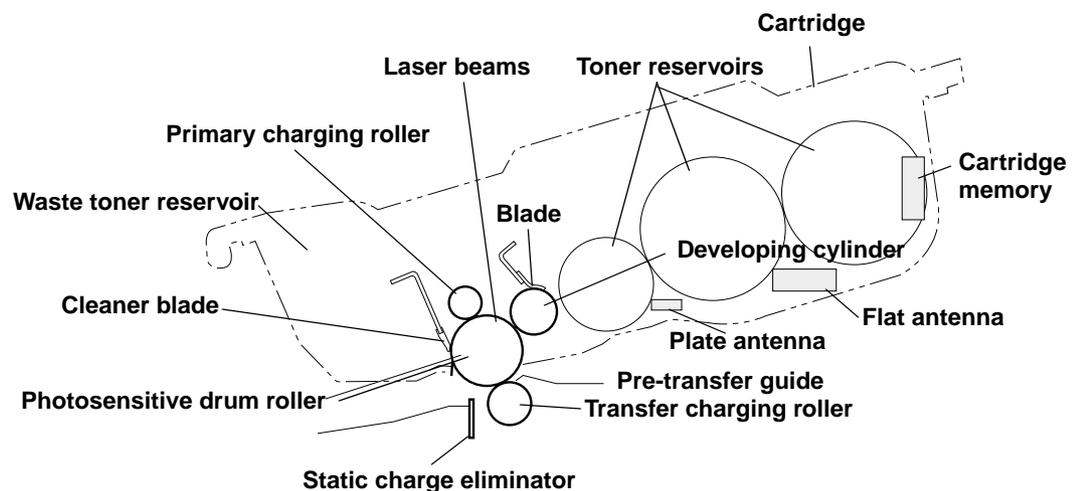


Figure 39. Cutaway view of print cartridge

### Cartridge design

The design of the print cartridge incorporates dramatic changes in the toner hopper geometry and stirrer design. There are three main interconnecting toner reservoir areas, each with a cylindrical shape. A cylindrically shaped hopper effectively eliminates the packing and accumulation of toner in areas where it will not reach the development area. Another key improvement was realized in the design of the toner stirrer, where stirrers rotating within each of the hopper cylinders unpack the toner, allowing it to be displaced easily into the cartridge development area.

### No shake toner

Shaking is not required at installation or end of cartridge life because the geometry of the hopper and stirrer design automatically redistributes and unpacks the toner. The overall design of the “no-shake” system is so efficient that when fading occurs for the first time, it is a sure indication that the cartridge has run out of toner. No need to shake the cartridge to get more toner for printing.

## Cartridge memory

The print cartridge comes with built-in RAM. The printer detects the cartridge condition by reading and writing to this memory. The read/write of the memory is performed by the memory controller after receiving instructions from the DC controller through the antenna unit.

The DC controller instructs the memory controller PCB to perform read/write at the following timing:

- Read
  - When the power is turned on.
  - When the door cover is closed.
  - When the DC controller receives a command from the formatter.
- Write
  - When a print operation is completed.
  - When the DC controller receives a command from the formatter.

The DC controller also detects cartridge memory failures. If the DC controller fails in a read/write attempt four times, it reports the failure to the formatter as a cartridge memory abnormality.

## Toner seal

This print cartridge has incorporated an automatic toner seal roll up. When a new print cartridge is installed, the DC controller detects a new cartridge and sends a signal to the drum motor to roll up the toner seal.

The following describes the operation of this function.

When a print cartridge is inserted, the power is turned on, or the door cover is closed, the DC controller monitors the toner seal opening detection signal and verifies whether or not the cartridge is new. If the cartridge is new, an open signal from the DC controller is sent to the drum motor. This reverses the drum motor rotation, which rolls up the toner seal. After a short period of time, the DC controller turns off the open signal, completing the roll up sequence.

The DC controller also monitors the printer for presence of a print cartridge. When a cartridge is inserted, the same signal that instructs the cartridge to roll up the seal is used as a detection signal.

## Toner level detection

The print cartridge has built-in toner level detection. The DC controller monitors the toner level using feedback signals received from two antennae (plate and flat) in the cartridge.

The following describes the operation of this function.

When the power is turned on, a door cover is closed, or a print operation is performed, the DC controller sets the developing bias signal, the developing AC bias circuit sends a signal to the toner level circuit 1 and the developing cylinder. This causes the plate antenna to feedback the output value to the toner level circuit 1. The toner level circuit 1 compares the two signals and sends the results to the DC controller as the toner level detection signal. At the same time, the DC controller turns on the frequency output signal to output the reference frequency to the flat antenna. This causes the flat antenna to feedback the output value to the toner level circuit 2. The toner level circuit 2 compares the two signals and sends the results to the DC controller as the toner level detection signal, toner level accuracy to within one percent from 0 to 100 percent, then reports the result to the formatter.

## Pickup and feed system

The pickup and feed system is divided into two blocks: pickup/feed and fuser/delivery. This printer contains two standard pickup sources (tray 2 and tray 3) and two delivery sources (face-up and face-down bins.)

The pickup unit picks up print paper one by one from tray 2 or tray 3. The feed unit transports the picked-up paper to the fuser unit.

When the printer is turned on, the paper is lifted by the lifter to where the paper pickup is enabled. When the DC controller receives a print command, the pickup roller starts rotating. This lowers the pickup roller down to the paper surface. A sheet of paper is fed to the feed rollers and the pre-registration roller. The pre-registration roller corrects the paper skew.

After a short period of time, the paper is transferred to the photosensitive drum. The image on the drum is transferred onto the paper and the paper is transported to the fuser.

### Media-size detection

Since this printer is capable of custom size media in all trays, the printer has a custom/standard switch and two size detection switches. The DC controller reads information from the two size detection switches in the trays to determine media width and length. If the switches are set to the custom size setting, the "X" and "Y" dimensions must be set in the control panel. The width detection switches also sense the presence of trays: if all of the width detection switches are off, the DC controller assumes that a tray is missing.

### Media-level detection

The media level in the trays is detected by the lifter that lifts the paper. The lifter contains a lifter blocking plate. This plate shuts off two sensors in each tray, allowing the lifter position to be detected. This detected position determines the media level.

Media level is based on approximate number of sheets in the tray. Depending on the lifter position, the sensors determine paper levels as full (200 or more sheets), high (100 to 200 sheets), middle (50 to 100 sheets), or low (less than 50 sheets).

### Multifeed prevention

The printer utilizes the separation roller method for its multiple feed prevention mechanism. This method drives the feed rollers and separation roller in the reverse direction from each other. The separation roller contains a torque limiter. When a multifeed occurs, the torque limiter allows the top sheet to feed into the printer, but returns the additional sheet to the tray.

### Overhead transparency detection

The overhead transparency sensor emits light through the media path and reads light reflected back from a prism. When plain paper passes through the media path, no light is reflected back, but when a transparency passes through the media path, the sensor can read the reflected light, indicating the presence of a transparency.

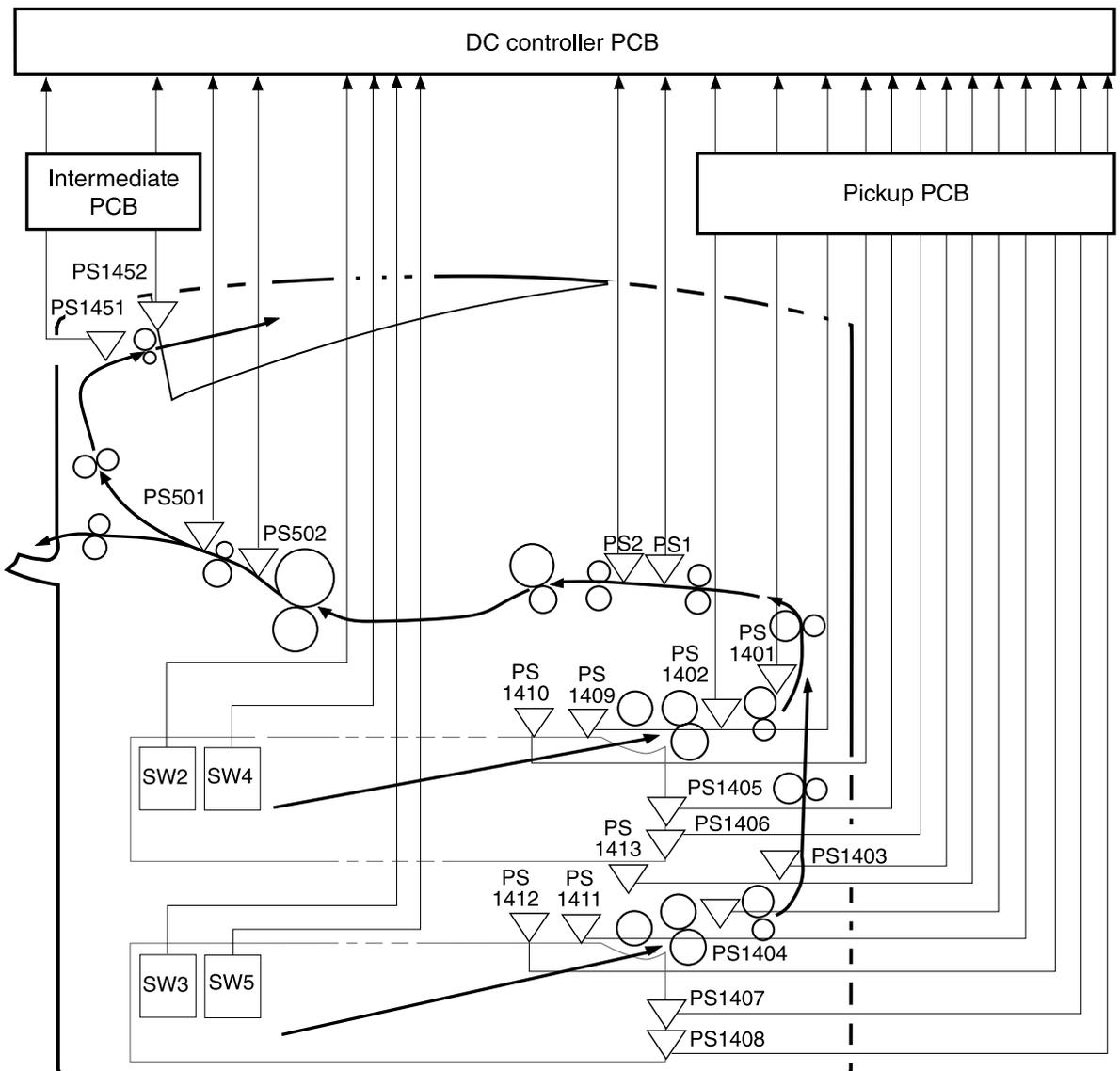
### Fuser wrapping jam detection

The printer contains a mechanism to detect wrapping jams in the fuser. The DC controller sends signals to the pressure roller bias generation circuit. The circuit applies the same bias values to the pressure roller and to the wrapping jam detection circuit. The jam detection lever solenoid monitors the pressure roller bias through contact with the pressure roller. The wrapping jam detection circuit compares the monitored value to the applied value for differences in the values. When they differ, the circuit determines that a wrapping jam has occurred, and signals the DC controller to stop the printer.

## Jam detection

The printer detects jams according to the following conditions:

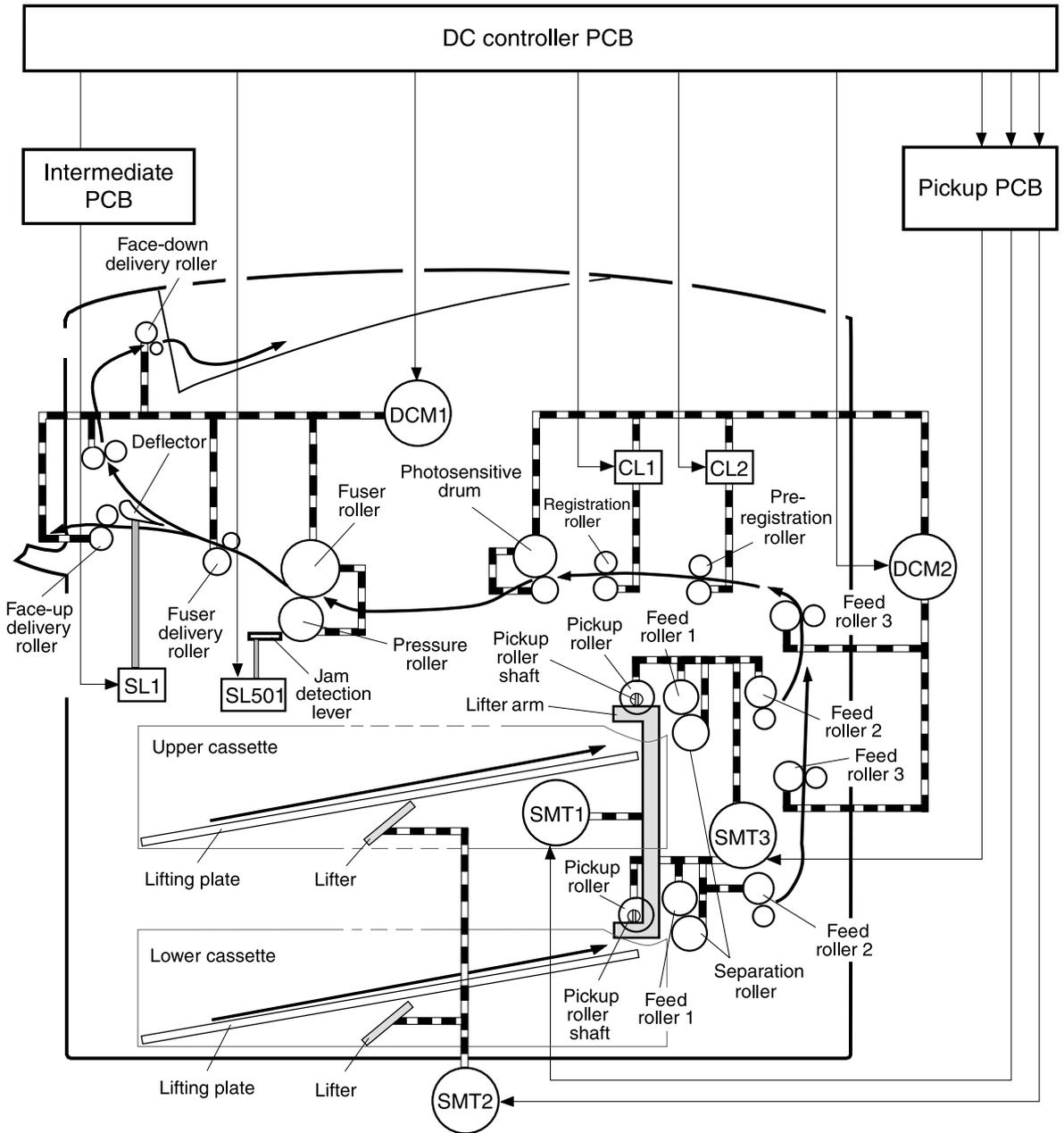
- **Pickup 1 delay jam.** Media does not reach the tray 2 feed sensor A (PS1402) or the tray 3 feed sensor A (PS1404) within 5.3 seconds after pickup begins.
- **Pickup 2 delay jam.**
  - Media does not reach the tray 2 feed sensor B (PS1401) or the tray 3 feed sensor B (PS1403) within 6.1 seconds after the tray 2 feed sensor A (PS1402) or the tray 3 feed sensor A (PS1404) detects the leading edge of the media.
  - Media does not reach the registration paper sensor (PS2) within 4.4 seconds after the tray 2 feed sensor B (PS1401) detected the leading edge of the media, or within 4.8 seconds after the tray 3 feed sensor B (PS1403) detected the leading edge of the media.
- **Fuser delivery 1 delay jam.** The leading edge of the media does not reach the fuser delivery sensor (PS502) within 1.4 seconds after the /VSYNC signal.
- **Fuser delivery 2 delay jam.** The leading edge of the media does not reach the fuser jam sensor (PS501) within 1.6 seconds after the /VSYNC signal.
- **Fuser delivery stationary jam.** The trailing edge of the media does not clear the fuser delivery sensor (PS502) within a specified time (3.4 seconds for A3 media, 2.5 seconds for A4 media) after the /VSYNC signal.
- **Face-down delivery delay jam.** The leading edge of the media does not reach the face-down bin delivery sensor (PS1451) within 2.4 seconds after the /VSYNC signal.
- **Face-down delivery stationary jam.** The leading edge of the media does not clear the face-down bin delivery sensor (PS1451) within a specified time (4.3 seconds for A3 media, 3.4 seconds for A4 media) after the /VSYNC signal.
- **Door open jam.** Any of the following sensors detect media upon opening or closing the door:
  - Fuser jam sensor (PS501)
  - Fuser delivery sensor (PS502)
  - Tray 2 feed sensor B (PS1401)
  - Tray 2 feed sensor A (PS1402)
  - Tray 3 feed sensor B (PS1403)
  - Tray 3 feed sensor A (PS1404)
  - Face-down bin delivery sensor (PS1451)
- **Residual jam.** Any of the following conditions determine a residual jam:
  - The fuser delivery sensor (PS502) and the fuser jam sensor (PS501) detect media when power to the printer is turned on.
  - Three minutes have passed since a jam that should contain an automatic delivery command was cleared, but the CPU on the DC controller PCB has not received the automatic delivery command.
  - A jam was cleared, jammed media was automatically delivered, power to the printer is on, and the fuser roller has reached its target temperature, but at least one of the following sensors detects media:
    - Registration paper sensor (PS2)
    - Fuser delivery sensor (PS502)
    - Fuser jam sensor (PS501)
    - Tray 2 feed sensor B (PS1401)
    - Tray 2 feed sensor A (PS1402)
    - Tray 3 feed sensor B (PS1403)
    - Tray 3 feed sensor A (PS1404)
    - Face-down bin delivery sensor (PS1451)



**Figure 40.** Pickup and feed system sensors and switches

**Table 25. Pickup and feed system sensors and switches**

<b>Sensor/switch</b>	<b>Description</b>
PS1	Overhead transparency sensor
PS2	Registration paper sensor
PS501	Fuser jam sensor
PS502	Fuser delivery sensor
PS1401	Tray 2 feed sensor B
PS1402	Tray 2 feed sensor A
PS1403	Tray 3 feed sensor B
PS1404	Tray 3 feed sensor A
PS1405	Tray 2 media-level sensor 1
PS1406	Tray 2 media-level sensor 2
PS1407	Tray 3 media-level sensor 1
PS1408	Tray 3 media-level sensor 2
PS1409	Tray 2 media-surface sensor
PS1410	Tray 2 empty sensor
PS1411	Tray 3 media-surface sensor
PS1412	Tray 3 empty sensor
PS1413	Pickup shaft home-position sensor
PS1451	Face-down bin delivery sensor
PS1452	Face-down bin full sensor
SW2	Tray 2 media-length detection switch
SW3	Tray 3 media-length detection switch
SW4	Tray 2 media-width detection switch
SW5	Tray 3 media-width detection switch



**Figure 41.** Pickup and feed system motors and solenoids

**Table 26. Pickup and feed system motors and solenoids**

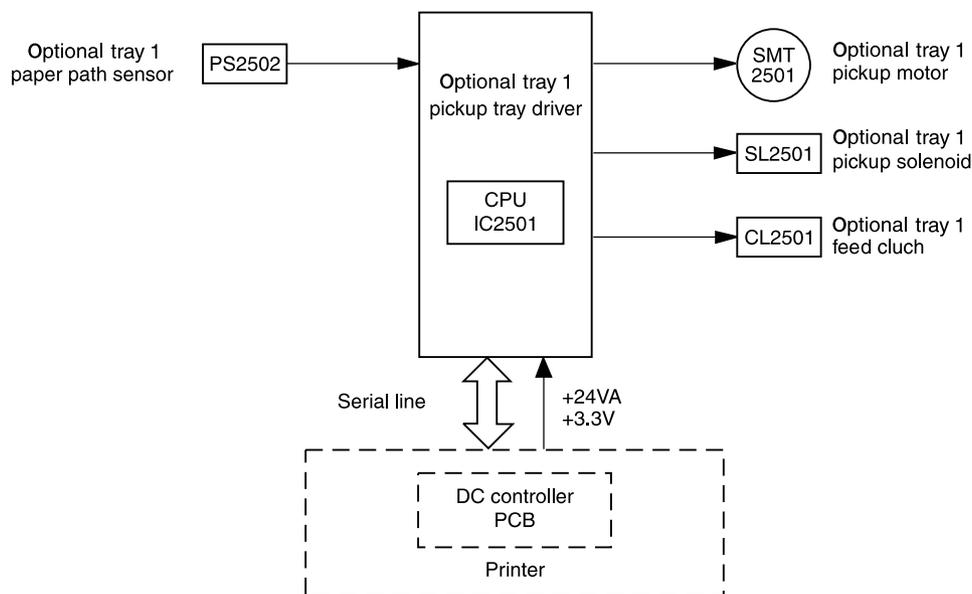
<b>Motor/solenoid</b>	<b>Description</b>
DCM1	Fuser/delivery motor
DCM2	Drum motor
SMT1	Pickup roller up and down motor
SMT2	Lifter motor
SMT3	Pickup motor
SL1	Face-up solenoid
SL501	Jam detection lever drive solenoid
CL1	Registration roller drive clutch
CL2	Pre-registration roller drive clutch

## Optional tray 1

The optional tray 1 is a multipurpose tray that picks up and feeds media into the printer.

### Tray 1 driver PCB

A driver PCB in the tray holds a four-bit microcomputer (CPU-IC2501) that controls its operational sequence and serial communications with the DC controller PCB. The CPU drives a motor, solenoid, and clutch according to commands sent from the DC controller PCB.



**Figure 42.** Optional tray 1 block diagram

### Power supply

The power supply is +24VDC supplied to drive the motor, solenoid, and clutch, and +3.3VDC for the IC and sensors.

### Sequence of operation

When the optional tray 1 is installed, the door is closed, or the printer returns from sleep mode, and the paper path sensor (PS2502) does not detect the presence of media, the tray 1 driver PCB rotates the motor to bring the pickup roller to its initial position. The tray proceeds with the following pickup sequence:

- 1 Receives a pickup command.
- 2 Turns on the pickup solenoid (SL2501), which brings the pickup roller in contact with the surface of the media.
- 3 Turns on the feed clutch (CL2501) to rotate the pickup roller and feed roller, picking up the media.
- 4 Feeds the media to the between-page adjustment position, turns off CL2501, and feeds media to the printer.
- 5 Receives a feed-stop command, stops the motor, and returns to a standby state.

## Pickup and feed

The tray 1 pickup unit picks up paper by bringing down the pickup roller onto the surface of the paper loaded in the tray and separating the roller from the paper surface.

The pickup roller is lifted up and down by the pickup cam. When the tray 1 pickup unit turns on the pickup solenoid, the stopper leaves from the cam, allowing the cam to rotate. This shifts the pickup roller up and down. After completing one rotation, the cam contacts the stopper and is held in so the pickup roller is brought to its initial position.

Tray 1 utilizes the separation roller method for its multiple feed prevention mechanism. This method drives the feed rollers and separation roller in the reverse direction from each other. The separation roller contains a torque limiter. When a multifeed occurs, the torque limiter allows the top sheet to feed into the printer, but returns the additional sheet to the tray.

## Jam detection

The optional tray 1 paper path sensor (PS2502) determines whether or not media is transported correctly to the printer. If the paper path sensor does not detect the leading edge of media within the specified length of time after turning on the pickup solenoid, the CPU stops the pickup operation and notifies the DC controller of a jam occurrence.

The CPU in the optional tray 1 detects the following jams:

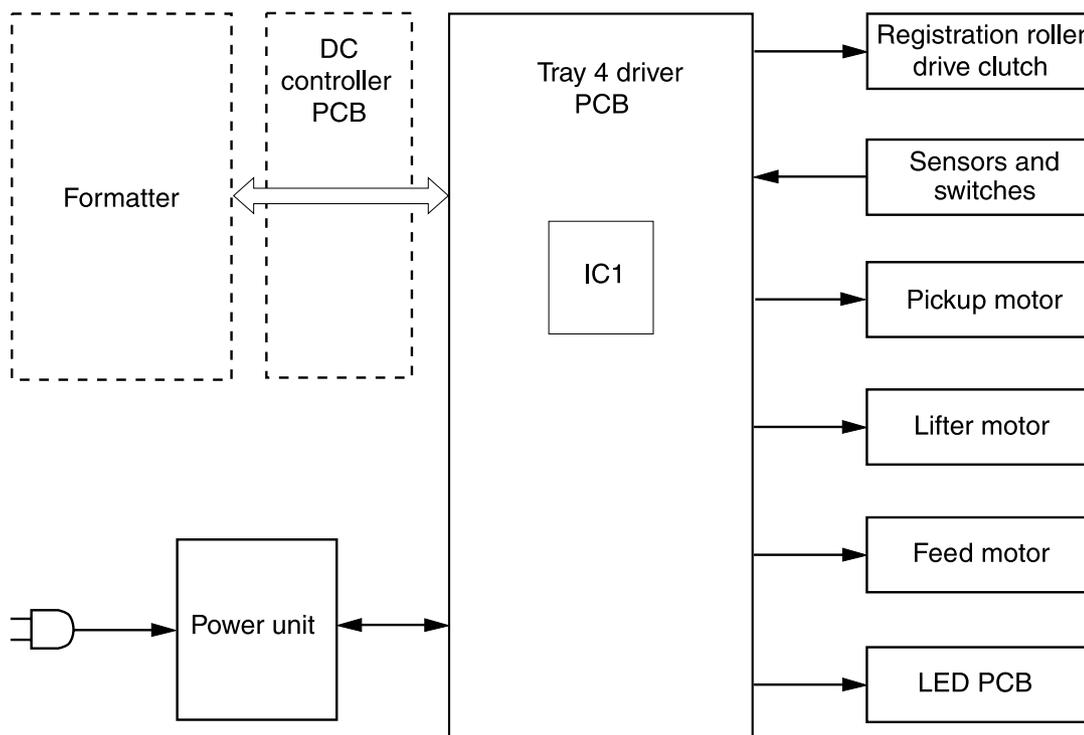
- **Pickup retry.** If the paper path sensor does not detect the leading edge of media one second after turning on the pickup solenoid, the CPU stops the motor once, and then restarts it. The CPU turns on the pickup solenoid 0.7 seconds after the start of the second motor rotation.
- **Pickup delay jam.** The paper path sensor (PS2502) does not detect the leading edge of media within three seconds of turning on the pickup solenoid.
- **Residual jam.** There is power to the optional tray 1, the top cover is closed (or when the tray returns from sleep mode), and the paper path sensor (PS2502) detects media.

## Optional tray 4

The optional tray 4 is a 2000-sheet feeder that picks up and feeds media into the printer.

### Tray 4 driver PCB

A driver PCB in the tray holds a 16-bit microcomputer (IC1) that controls its operational sequence and serial communications with the formatter. The driver PCB drives the motors and clutch according to commands sent from the formatter.



**Figure 43.** Optional tray 4 block diagram

### Power supply

Tray 4 employs a remote switch method for the power supply unit. The formatter sends a power-on signal to the power supply unit through the driver PCB. When the signal is received, the power supply unit supplies +24VDC and +5VDC to the driver PCB. +24V is then supplied to the lifter, feed, and pickup motors to drive them. The +5V is supplied to the sensors and also to the ICs on the driver PCB.

The power unit utilizes a stand-alone switch so that tray 4 can be powered on without turning on the printer. This switch is used for stand-alone diagnostics. See "Accessories diagnostics" in chapter 7.

### Sequence of operation

When tray 4 is loaded with paper and closed, the paper deck starts lifting the paper to the pickup position. When the formatter instructs tray 4 to deliver paper, the drive rollers pick up a sheet of paper and feed it to the registration assembly. The tray 4 registration assembly adjusts the skew and transports the paper to the printer.

## Pickup and feed

The formatter sends a signal to the driver PCB to start driving the pickup and feed motors. Rotated by the rollers, the pickup roller picks up a sheet of paper, the separation roller removes any excessive sheets, and the feed roller transports the paper to the registration roller unit.

After the paper enters the registration roller unit, the registration roller corrects the paper skew and the second feed roller feeds the paper to the printer.

When the paper reaches the merge-point in the printer, the driver PCB checks for a merge-point permission command sent from the formatter. If the signal is detected, tray 4 will continue feeding paper to the printer. If the signal is not detected, tray 4 stops feeding paper until the signal is received.

## Media level and size detection

The paper level is detected by the paper level sensors (PS21 to 23) on the paper level sensor PCB. The combination of these sensors determines the level of the print paper loaded in the tray.

The paper size is detected by the paper size detection switches (SW11 to 15) on the paper size detection switch PCB. The combination of these switches determines the paper size.

The tray sends the size and level information to the printer formatter.

## Jam detection

The tray determines a jam by monitoring the presence of paper in the sensor areas at specific times stored in the CPU. If the CPU determines a jam under the following conditions, the tray stops feeding operations and notifies the formatter.

- **Residual jam.** The registration paper sensor (PS11) or jam sensor (PS103) detects paper during the warm-up period.
- **Pickup delay jam.** The between page sensor (PS12) does not detect paper after receiving a print command or the PS12 sensor detects paper, but the registration paper sensor (PS11) does not.
- **Pickup stationary jam.** The edge does not clear the registration paper sensor (PS11) after the between page sensor (PS12) detects the trailing edge of the paper.
- **Feed delay jam.** The jam sensor (PS103) does not detect paper after the start of the registration rollers.
- **Feed stationary jam.** The trailing edge of the paper does not pass through the jam sensor (PS103) after the registration rollers are turned off.

## Optional 3000-sheet stapler/stacker

The 3000-sheet stapler/stacker is a multi-speed output device. It staples up to 50 sheets of plain paper at a time and can hold a total of 3125 sheets—3000 sheets in the stapler bin and 125 sheets, not stapled, in the face-up bin.

### Controller PCB

Communication and control of the 3000-sheet stapler/stacker is accomplished through the paper-handling controller embedded on the formatter in the printer. The 3000-sheet stapler/stacker has a controller board that receives signals and commands from the paper-handling controller and a power supply.

### Power supply

A universal power supply is activated when the printer's power switch is turned on. The printer's paper handling controller sends a power-on signal to the power supply through the controller PCB. The power supply provides +36 V for motors and +5 V for sensors and controller electronics. The power supply is also activated when the controller PCA is set to service mode.

### Power-on sequence

When the 3000-sheet stapler/stacker is turned on, or a door is opened and closed, the 3000-sheet stapler/stacker executes the initialization routines as follows:

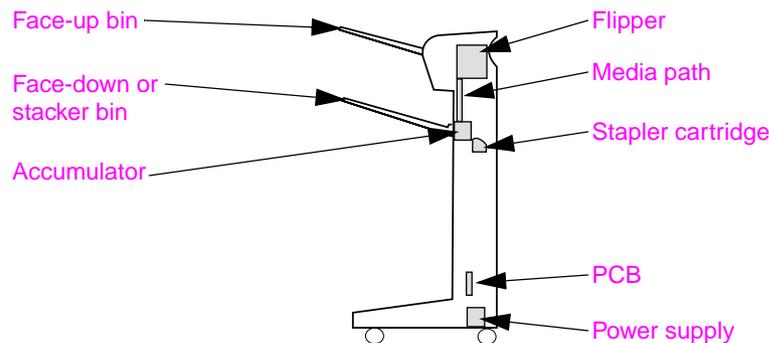
- Initialization in parallel for the paper path, accumulator, stack holder/tray, and the carriage.
- When the accumulator initialization is complete, the flipper will initialize.

After a successful power-on sequence, the error light is green. If the power-on sequence is not successful, a jam condition or a hardware malfunction is indicated through the printer control panel and the error light is amber.

## Main modules

The 3000-sheet stapler/stacker is made up of the following main modules:

- Face-up bin—This bin will collect the documents face up, with the printed information toward the user. Finished documents are not routed to this bin, yet the bin does give support to sheets being flipped to the face-down bin. This face-up bin has a capacity of 125 sheets of media (75 g/m<sup>2</sup>, 20 lb).
- Face-down (stacker) bin—Collated and stapled jobs will be routed to the face-down (stacker) bin. The bin has a capacity of 3000 sheets (75 g/m<sup>2</sup>, 20 lb) of letter/A4 paper or 1500 sheets (75 g/m<sup>2</sup>, 20 lb) of ledger/A3 paper.
- Accumulator—The accumulator collects the sheets in the accumulator bed and registers a whole job or copy. Additionally, the accumulator can transport the job to the stapler module when a stapling option is desired and offset print jobs. After finishing, the accumulator routes the print job to the face-down bin.
- Stack holder—The stack holder “holds” the sheets that are lying in the face-down bin.
- Flipper—The flipper module can flip sheets of paper from a face-up position to a face-down position. This function is necessary to accumulate the job properly and allow stapling.
- Path—The path module routes the print job after the media leaves the flipper module provided that the job is flipped face-down. If the media is face-up, the print job will be routed directly from the flipper module to the face-up bin.
- Stapler and carriage—This module provides for the stapling of a print job. The stapler is mounted in a carriage that moves from side-to-side. The side-to-side motion allows for stapling in various positions on the edge of the print job in the accumulator.
- Controller board—The controller board printed circuit assembly (PCB) controls the entire unit. All module cables of the stapler/stacker are connected to the controller board.
- Power supply—This is the main power supply for the device. The power supply is universal, which means that it can work from 220 VAC down to 100 VAC.

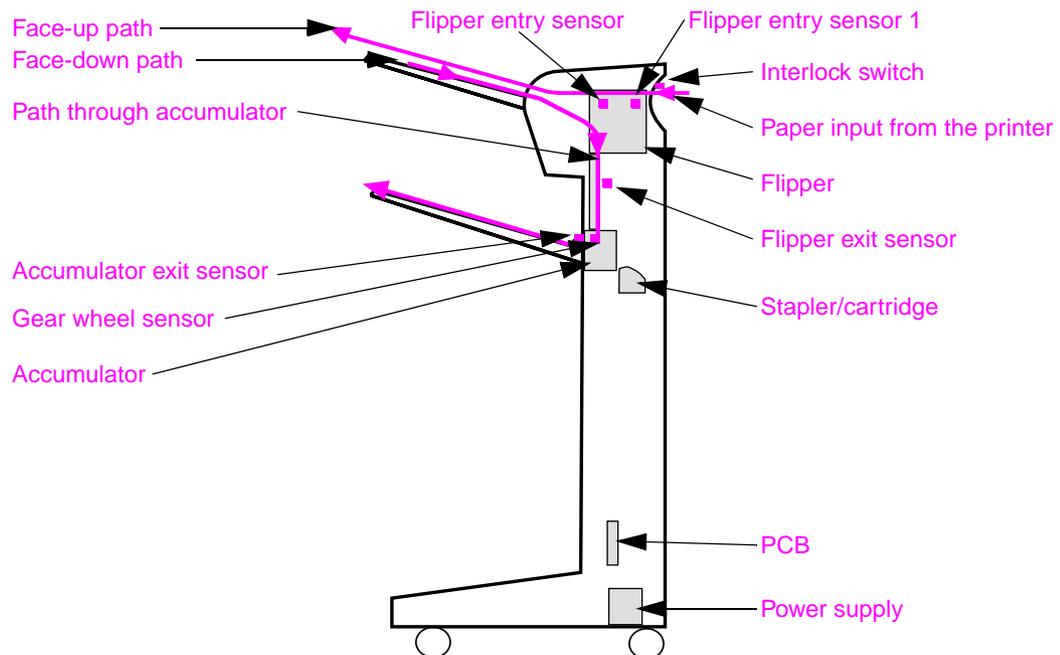


**Figure 44.** Stapler/stacker main modules

## Paper path and jam detection

- Paper input—The device receives paper from the HP LaserJet 9000 Series printer at 230 mm per second.
- Flipper—Paper arrival is sensed by FLEntry1, which activates the flipper motors. For face-up printing, the flipper delivers the paper sensed by FLEntry to the face-up bin. Otherwise, the flipper changes page orientation from face-up to face-down and delivers paper sensed by FLExit to the paper path module.
- Paper path—The transport flips face-down paper to the accumulator assembly. This module is bypassed if the destination is the face-up bin.
- Accumulator assembly—The accumulator assembly collects and registers print jobs from the flipper (sensed by GWSens), sends them to the carriage assembly for stapling, and delivers them to the stapler bin (sensed by ACExit).

The paper path sensors detect jams at the following locations:



**Figure 45.** Stapler/stacker jam detection

- flipper entry sensor 1 (FLEntry1) and flipper entry sensor (FLEntry)
- flipper exit sensor (FLExit)
- paper path sensor (Exit)
- gear wheel sensor (GWSens)
- accumulator entry sensor (ACEntry)
- accumulator exit sensor (ACExit)

## Stapler bin full condition

The stapler bin will signal a full condition when approximately:

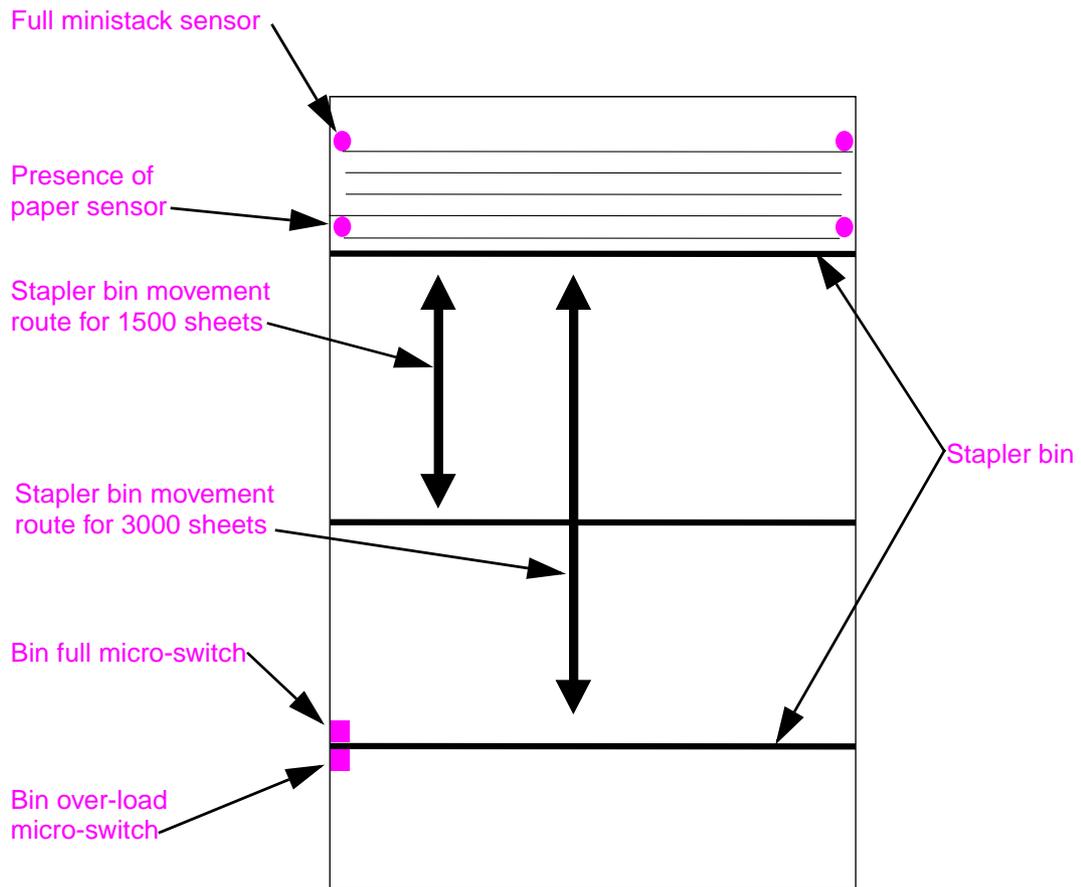
- 3000 sheets of letter/A4 have been collected in the stapler bin.
- 1500 sheets of ledger/A3 have been collected in the stapler bin.

### Note

A full bin condition is declared when the stapler bin contains 15 kg (33 lb) of paper.

**Full bin**—Optical sensors detect presence of paper and full mini stack condition. The stapler bin receives the first page, and continues receiving paper until a full mini stack condition (70 sheets of paper) is detected. At this time, the stapler bin receives a signal to move down and continue receiving paper. This cycle is repeated several times, until the stapler bin activates the full bin micro-switch located at the bottom of the unit. This micro-switch indicates a full bin condition when using letter/A4 or equivalent paper.

**Over-load**—Optical sensors detect presence of paper and full mini stack condition. The stapler bin receives the first page, and continues receiving paper until a full mini stack condition (70 sheets of paper) is detected. At this time, the stapler bin receives a signal to move down and continue receiving paper. When ledger/A3 or equivalent paper is used, the over-load micro-switch is activated when the weight of the paper stack reaches 15 kg (33 lb).



**Figure 46.** Full bin condition

## Optional 3000-sheet stacker

The 3000-sheet stacker is a multi-speed output device. The stacker stacks up to 3000 sheets of plain paper in the stacker bin, has job offset capabilities for easy handling, and has job separation (first page offset) for shared environments. The stacker includes a face-up bin that holds another 125 sheets.

### Controller PCB

Communication and control of the stacker is accomplished through the paper-handling controller embedded on the formatter in the printer. The stacker has a controller board that receives signals and commands from the paper-handling controller and a power supply.

### Power supply

A universal power supply is activated when the printer's power switch is turned on. The printer's paper handling controller sends a power-on signal to the power supply through the controller PCB. The power supply provides +26 V (volts) for motors and +5 V for sensors and controller electronics. The power supply is also activated when the controller PCA is set to service mode.

### Power-on sequence

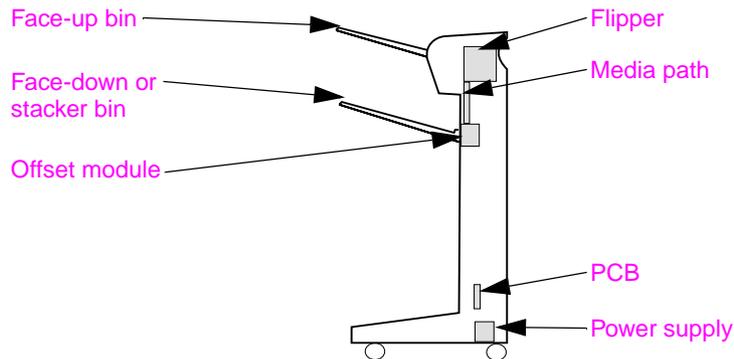
When the stacker is turned on, or a door is opened and closed, the stacker executes the initialization in parallel for the paper path, flipper, offset, and the tray.

After a successful power-on sequence, the error light is green. If the power-on sequence is not successful, a jam condition or a hardware malfunction is indicated through the printer control panel and the error light is amber.

## Main modules

The stacker is made up of the following main modules:

- Face-up bin—This bin will collect the documents face-up, with the printed information toward the user. Finished documents are not routed to this bin, yet the bin does give support to sheets being flipped to the face-down bin. This face-up bin has a capacity of 125 sheets of media (75 g/m<sup>2</sup>, 20 lb).
- Face-down (stacker) bin—The face-down bin can collect print jobs with or without offset. The bin has a capacity of 3000 sheets (75 g/m<sup>2</sup>, 20 lb) of letter paper or 1500 sheets (75 g/m<sup>2</sup>, 20 lb) of ledger paper.
- Offset module—The offset module can offset print requests on job-by-job basis as the print job is transported to the stacker bin.
- Flipper—The flipper module can flip sheets of paper from a face-up position to a face-down position. This function is necessary to route the jobs properly to the stacker bin.
- Path—The path module routes the print job after the media leaves the flipper module provided that the job is flipped face-down. If the media is face-up, the print job will be routed directly from the flipper module to the face-up bin.
- Controller board—The controller board printed circuit assembly (PCA) controls the entire unit. All module cables of the stacker are connected to the controller board.
- Power supply—This is the main power supply for the device. The power supply is universal, which means that it can work from 220 VAC down to 100 VAC.

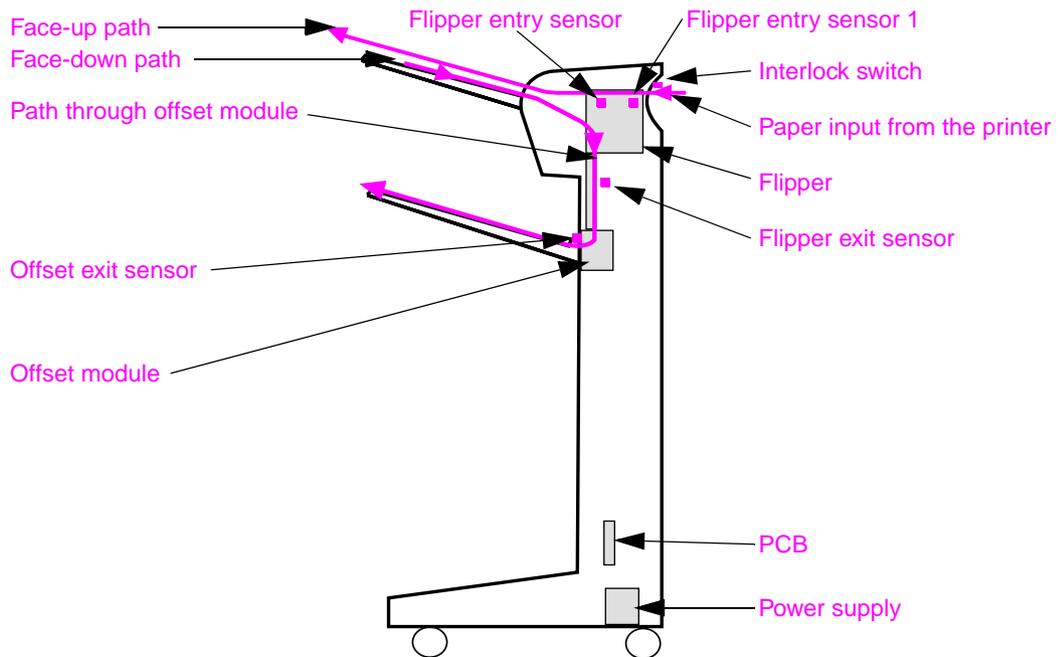


**Figure 47.** Stacker main modules

## Paper path and jam detection

- Paper input—The device receives paper from the HP LaserJet 9000 Series printer at 230 mm per second.
- Flipper—Paper arrival is sensed by FLEntry1, which activates the flipper motors. For face-up printing, the flipper delivers the paper sensed by FLEntry to the face-up bin. Otherwise, the flipper changes page orientation from face-up to face-down and delivers paper sensed by FLExit to the paper path module.
- Paper path—The transport flips face-down paper to the offset assembly. This module is bypassed if the destination is the face-up bin.
- Offset module —The offset module delivers face-down print jobs directly to the stacker bin (sensed by Exit). Jobs may be offset according to the print configuration.

The paper path sensors detect jams at the following locations:



**Figure 48. Stacker jam detection**

- Flipper entry sensor 1 (FLEntry1) and flipper entry sensor (FLEntry)
- Flipper exit sensor (FLExit)
- Paper path sensor (Exit)
- OMExit (Exit)-Stacker only

## Stacker bin full condition

The stacker bin will signal a full condition when approximately:

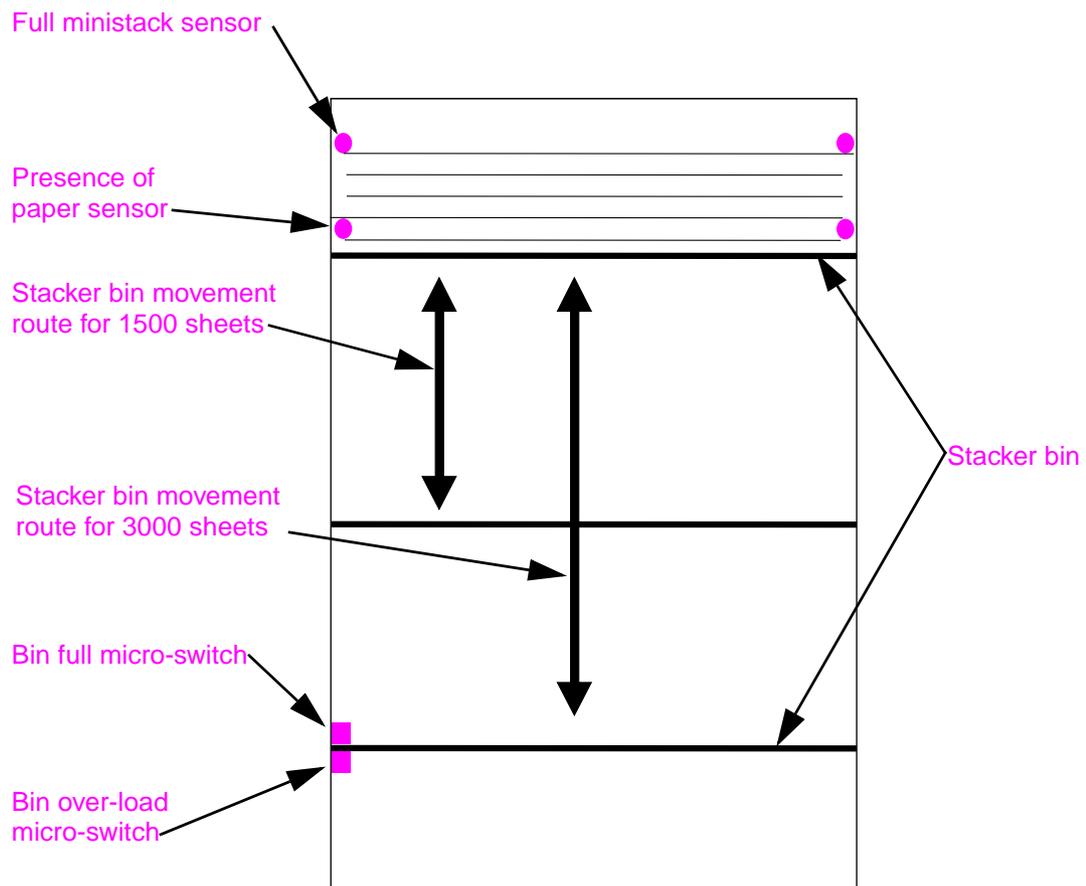
- 3000 sheets of letter/A4 have been collected in the stacker bin.
- 1500 sheets of ledger/A3 have been collected in the stacker bin.

### Note

A full bin condition is declared when the stacker bin contains 15 kg (33 lb) of paper.

**Full bin**—Optical sensors detect presence of paper and full mini stack condition. The stacker bin receives the first page, and continues receiving paper until a full mini stack condition (70 sheets of paper) is detected. At this time, the stacker bin receives a signal to move down and continue receiving paper. This cycle is repeated several times, until the stacker bin activates the full bin micro-switch located at the bottom of the unit. This micro-switch indicates a full bin condition when using letter/A4 or equivalent paper.

**Over-load**—Optical sensors detect presence of paper and full mini stack condition. The stacker bin receives the first page, and continues receiving paper until a full mini stack condition (70 sheets of paper) is detected. At this time, the stacker bin receives a signal to move down and continue receiving paper. When ledger/A3 or equivalent paper is used, the over-load micro-switch is activated when the weight of the paper stack reaches 15 kg (33 lb).



**Figure 49.** Full bin condition



# 6

## Removal and replacement

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# Introduction

## Removal and replacement strategy

This chapter documents removal and replacement of field replaceable units (FRUs) only.

Replace parts in the reverse order of their removal. Directions for difficult or critical replacement procedures are included.

## Repair notices

### WARNING!

The printer can have sharp sheet metal edges. Exercise caution when working on the printer.

### CAUTION

Always remove the print cartridge before removing or replacing assemblies and parts. (See page 135.) IMPORTANT: Put the print cartridge in the original print cartridge bag, or, if the bag is not available, cover it with a piece of paper. Light can damage the print cartridge.

To install a self-tapping screw, first turn it counter-clockwise to align it with the existing thread pattern, then carefully turn clockwise to tighten. Do not overtighten. If a self-tapping screw-hole becomes stripped, repair the screw-hole or replace the affected assembly.

### Note

Note the lengths, diameters, and locations of screws. Be sure to return each screw to its original location during reassembly.

Incorrectly routed or loose wire harnesses can interfere with other internal components and can become damaged or broken. Frayed or pinched harness wires can be difficult to locate. When replacing wire harnesses, always use the provided wire loops, lance points, or wire-harness guides.

## Electrostatic discharge (ESD)

### CAUTION

The printer contains parts that are sensitive to electrostatic discharge (ESD). Always service the printer at an ESD-protected workstation, or use an ESD mat.



Watch for the ESD symbol (shown at left) to identify the parts that are sensitive to ESD. Protect these parts by using an ESD wrist strap and protective ESD pouches.

## Required tools

The following tools are needed to service this printer:

- #2 Phillips-head screwdriver with magnetic tip
- T-10 Torx screwdriver
- T-20 Torx screwdriver
- small flatblade screwdriver
- small needle-nose pliers
- ESD mat
- penlight

### CAUTION

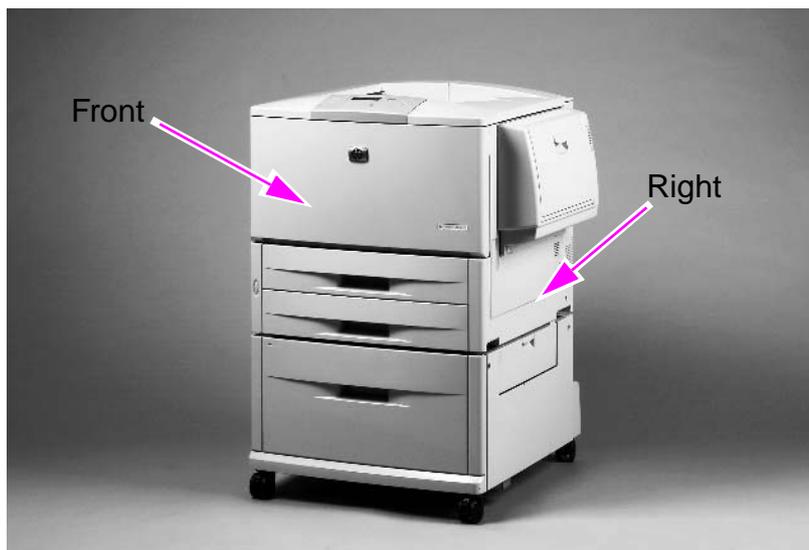
A PoziDriv screwdriver will damage screw heads on the printer. Use a #2 Phillips-head screwdriver.

If you have a multi-speed screwdriver, use a torque limiter.

## Orientation of the printer (with tray 4)

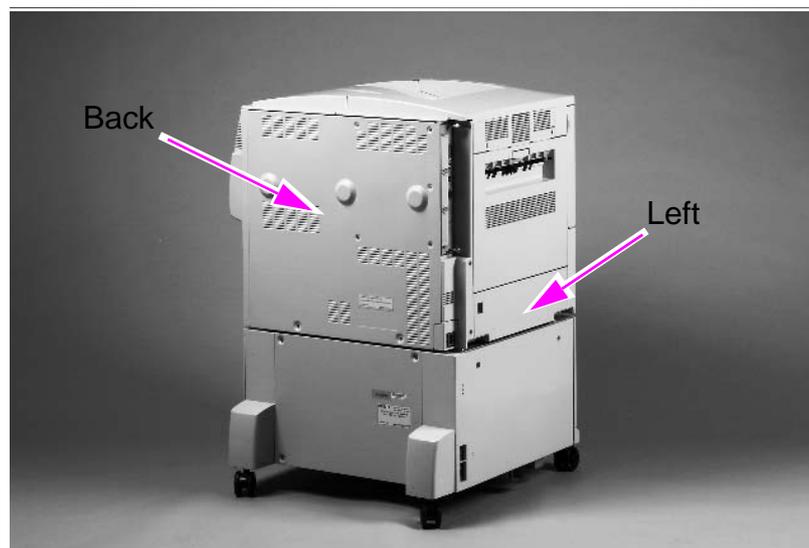
The printer is shown with the optional 2000-sheet feeder (tray 4) and the optional tray 1.

### Front and right side orientation



**Figure 50.** View of front and right side

### Back and left side orientation



**Figure 51.** View of back and left side

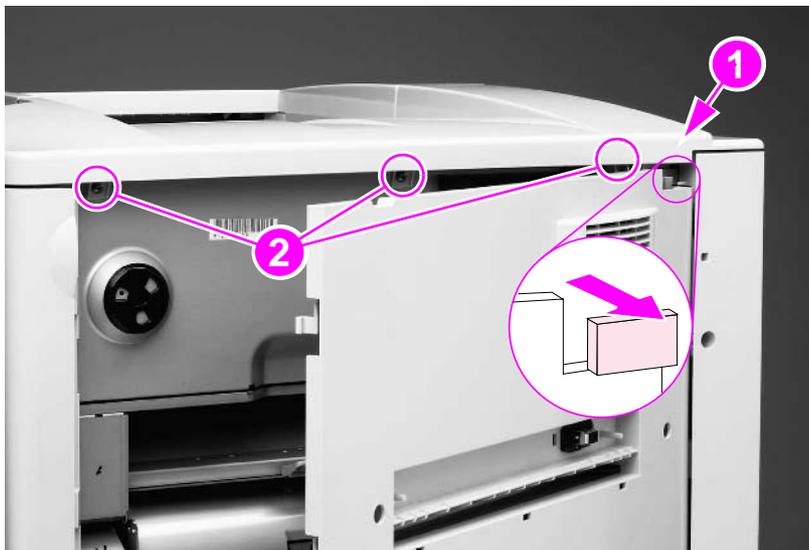
# Covers

The following covers can be removed from the printer:

- right top cover
- left top cover
- front cover
- right door
- right lower cover
- left door and diverter
- left back cover
- back cover
- rail cover

## Right top cover

- 1 Remove the control panel (page 128).
- 2 If tray 1 is installed, remove it (page 140).
- 3 Open the right door.
- 4 Remove the small plastic cover from the upper right side of the right door (callout 1) by releasing the tab on the inside of the door.
- 5 Remove three silver screws (callout 2).
- 6 Lift the right top cover up and away from the printer.



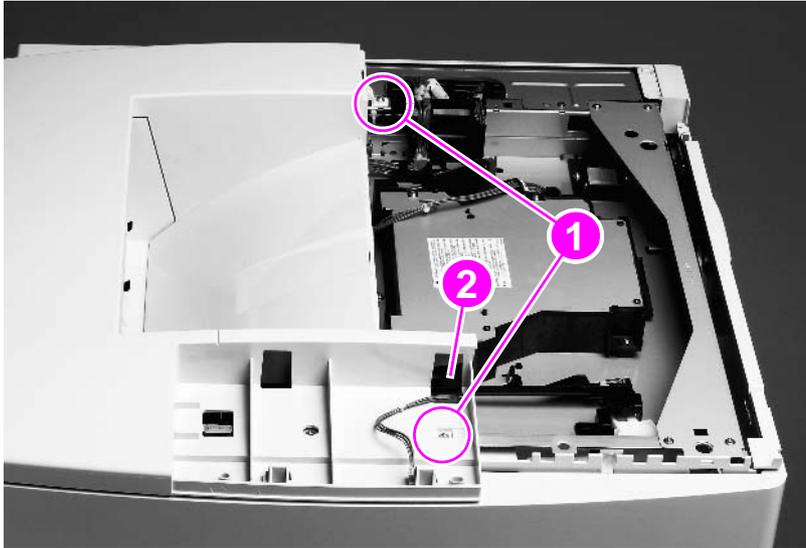
**Figure 52.** Removing the right top cover

### To reinstall

If the left top cover was removed (page 120), you must replace it before replacing the right top cover.

## Left top cover

- 1 Remove the control panel (page 128).
- 2 Remove the right top cover (page 119).
- 3 Remove two silver screws (callout 1).
- 4 Lift the left top cover up, and then pull it toward the right side of the printer to release two locating tabs (found on the underside of the cover, on the left edge).



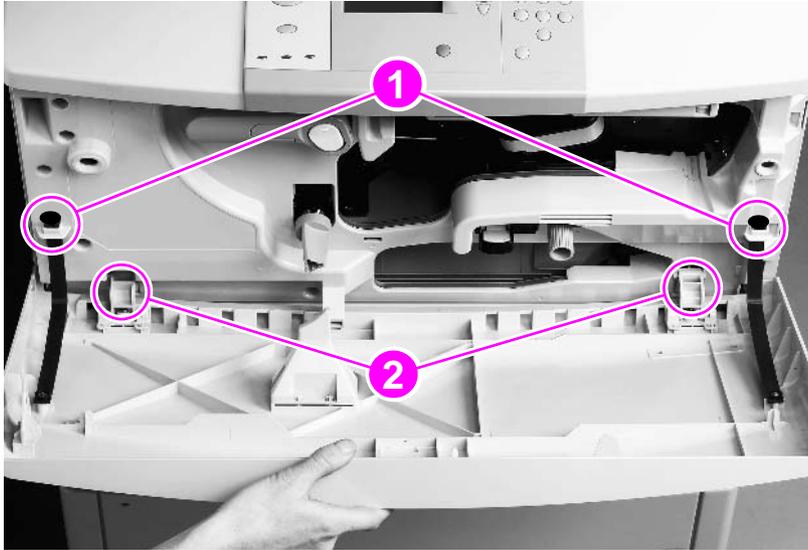
**Figure 53.** Removing the left top cover

### To reinstall

- Be sure to feed the control panel cable back up through the hole (callout 2) in the left top cover.
- Insert the two locating tabs (found on the underside of the cover, on the left edge) into the locating holes on the top of the printer.

## Front cover

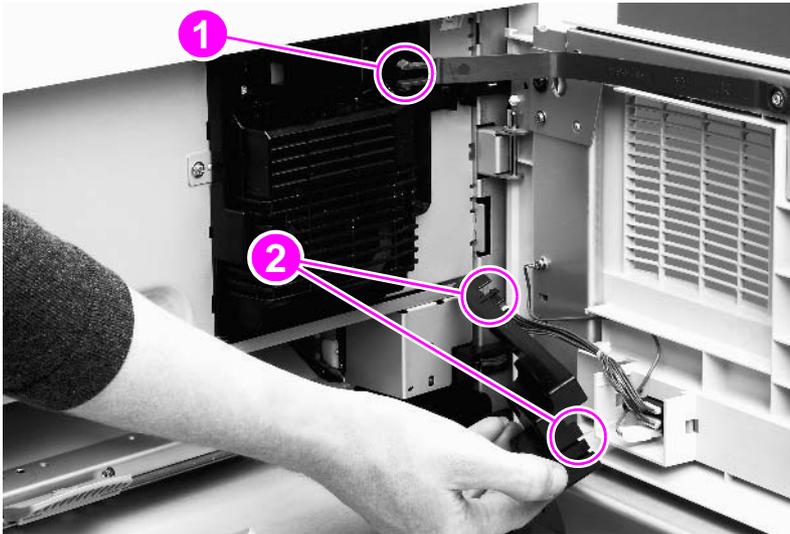
- 1 Remove two small plastic retaining cups (callout 1).
- 2 Pinch and release two tabs (below the retaining cups, callout 2) on the end of each black retaining strap to release the strap ends.
- 3 Remove the front cover from the hinges (callout 2).



**Figure 54.** Removing the front cover

## Right door

- 1 If tray 1 is installed, remove it (page 140).
- 2 Open the right door.
- 3 Pinch and then push the two tabs (callout 1) on the end of the black strap to release the strap ends. If you have difficulty, use needle-nose pliers.
- 4 Disconnect four locator tabs (callout 2) on the cable cover, and then remove the cable cover.



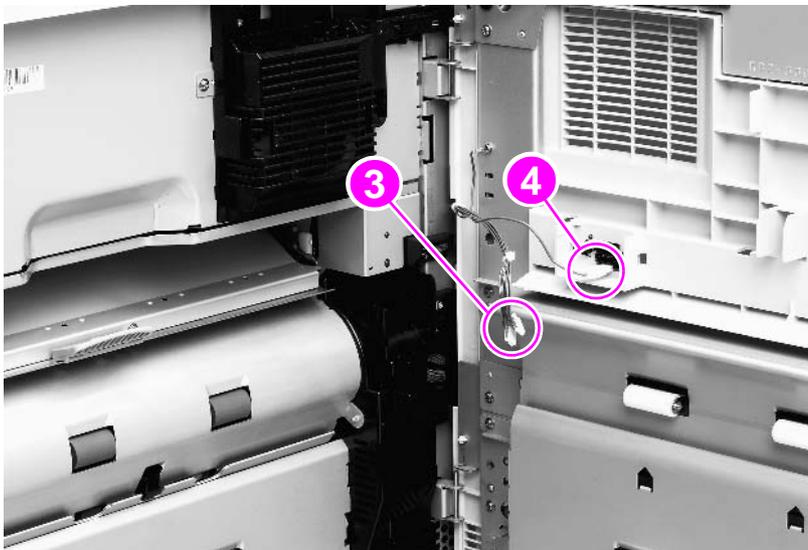
**Figure 55.** Removing the right door (1 of 2)

- 5 Unplug two multiple-wire cable connectors (callout 3).

### Note

Do not remove the single grounding cable (callout 4).

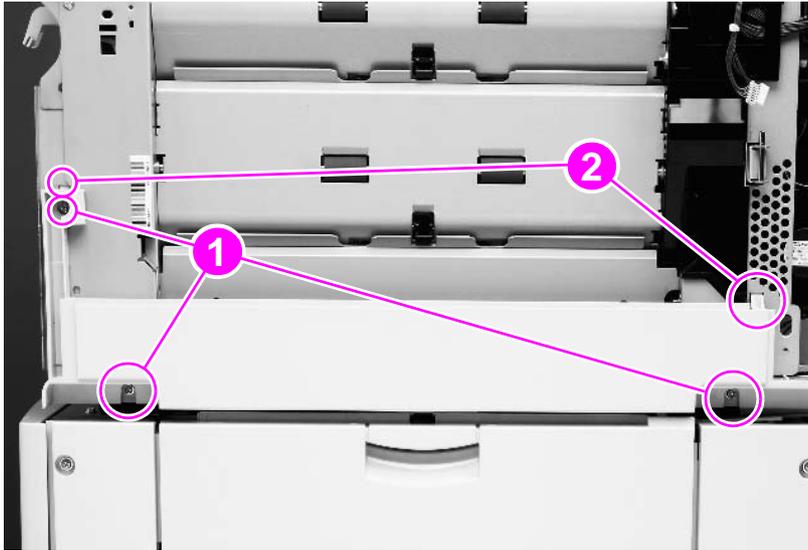
- 6 Lift the right door up and off the two hinges, and remove it from the printer.



**Figure 56.** Removing the right door (2 of 2)

## Right lower cover

- 1 Remove the right door (page 122) and the back cover (page 126).
- 2 Remove the right rail cover (page 127).
- 3 Remove three screws (callout 1).
- 4 Rotate the lower edge up to release two tabs (callout 2).
- 5 Remove the right lower cover.



**Figure 57.** Removing the right lower cover

## Left door and diverter

### Note

If the 3000-sheet stacker or 3000-sheet stapler/stacker is installed, move it away from the printer to gain access to the left door and diverter. See "Output accessory removal" on page 171.

- 1 Open the left door.

### CAUTION

Make sure you do not drop the pins (callout 1) on the end of each spring-loaded rod.

- 2 Grasp the two spring-loaded rods (callout 2), push them in toward the printer, and then pull them down and away from the printer.
- 3 Pull the left side of the door up and out of the left hinge (callout 3).
- 4 Slide the door toward the left and out of the right hinge (callout 4).

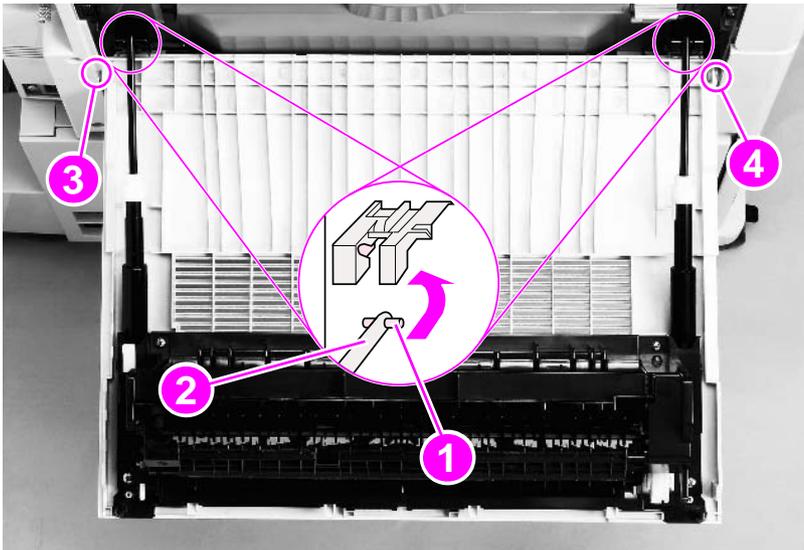
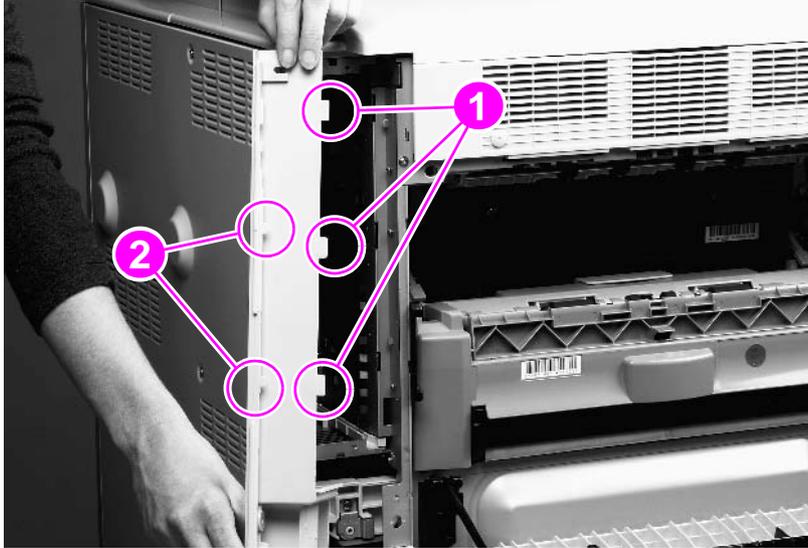


Figure 58. Removing the left door

## Left back cover

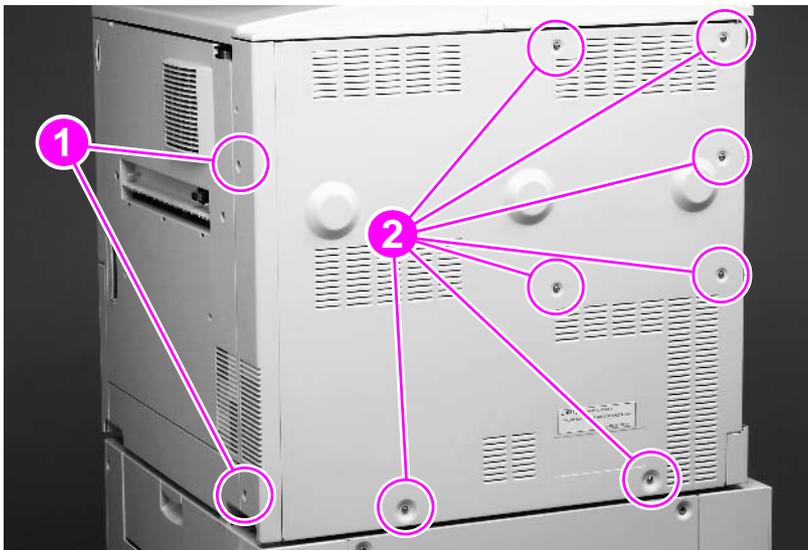
- 1 Remove the formatter (page 148).
- 2 Remove three silver screws (not shown) from the left back cover.
- 3 Rotate the left back cover toward the back of the printer to release the three tabs (callout 1) on the left side of the cover and the two tabs (callout 2) on the right side of the cover.



**Figure 59.** Removing the left back cover

## Back cover

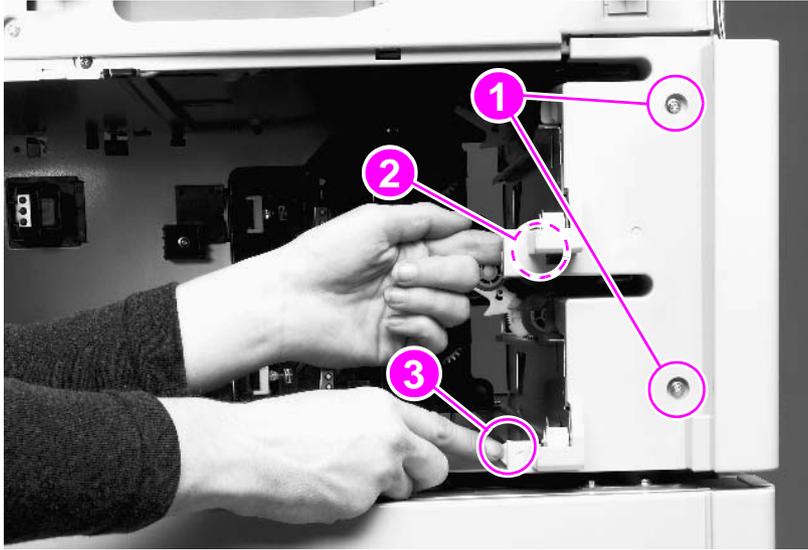
- 1 Remove two silver screws (callout 1) from the right back cover.
- 2 Remove seven gold screws (callout 2) from the back cover.
- 3 Remove the back cover and right back cover as one part.



**Figure 60.** Removing the back cover

## Rail covers

- 1 Remove trays 2 and 3 (page 136).
- 2 Remove two silver screws (callout 1) from the right rail cover.
- 3 Lift the upper tab (callout 2) to release it, and push the lower tab (callout 3) toward the right to release it.
- 4 Remove the right rail cover.
- 5 Repeat these steps to remove the left rail cover (not shown).



**Figure 61.** Removing the rail covers

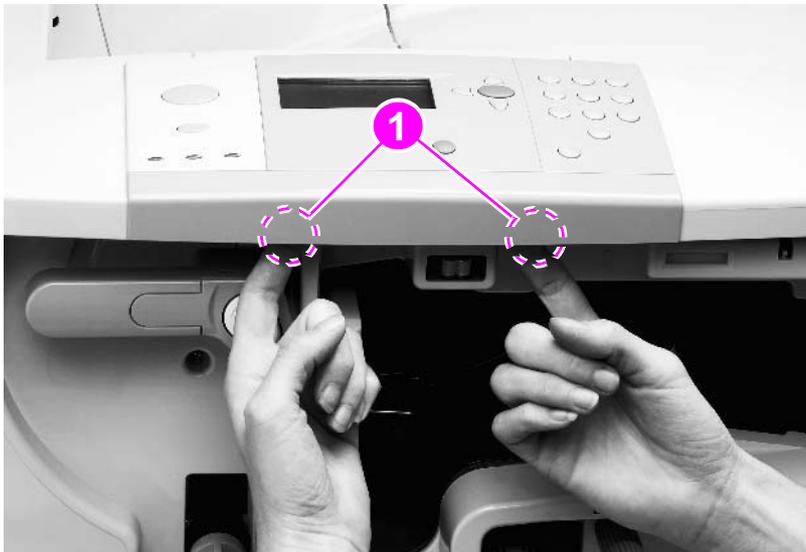
# Top assemblies

Gain access to the following assemblies from the top of the printer:

- control panel
- laser/scanner assembly
- delivery assembly
- delivery fan assembly
- delivery assembly fans and face-down bin fan
- delivery motor
- cartridge release lever

## Control panel

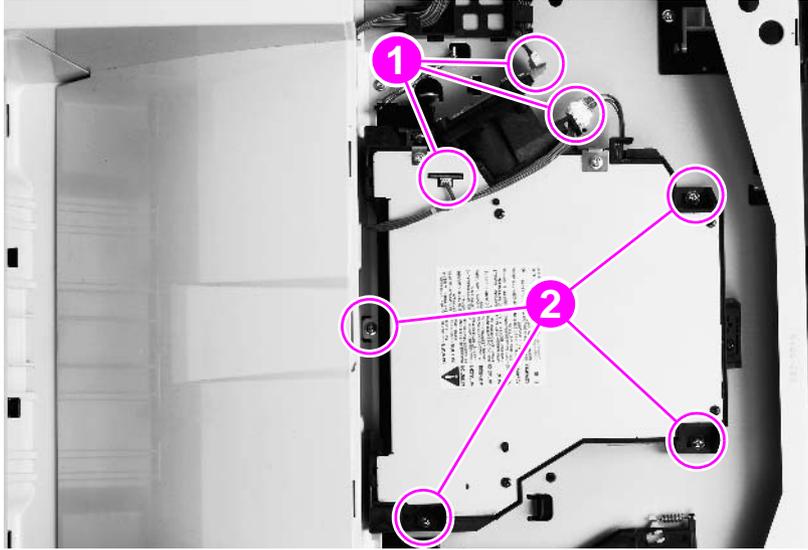
- 1 Open the front cover.
- 2 Release the two tabs (callout 1) on the underside of the control panel by pulling them toward the front of the printer.
- 3 Lift the control panel straight up.
- 4 Unplug the cable connector on the underside of the control panel, and remove the control panel from the printer.



**Figure 62.** Removing the control panel

## Laser/scanner assembly

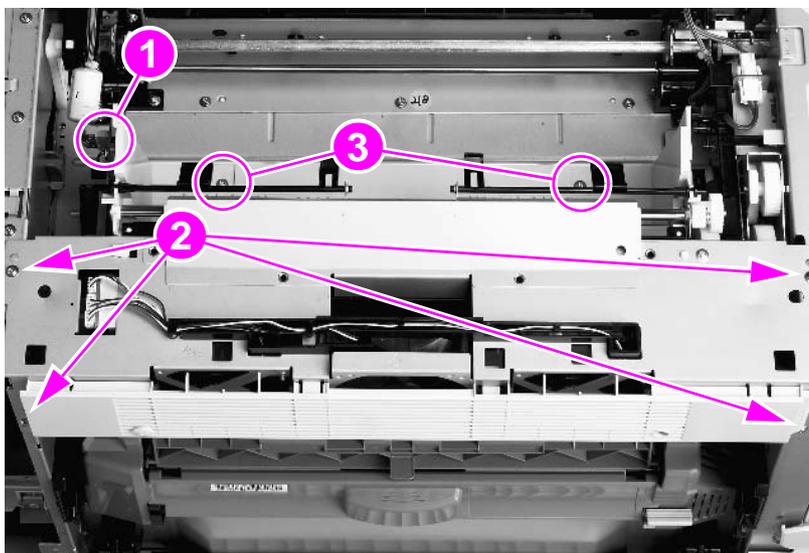
- 1 Remove the control panel (page 128).
- 2 Remove the right top cover (page 119).
- 3 Unplug three cable connectors (callout 1).
- 4 Remove four long gold screws (callout 2).
- 5 Lift the laser/scanner out of the printer.



**Figure 63.** Removing the laser/scanner assembly

## Delivery assembly

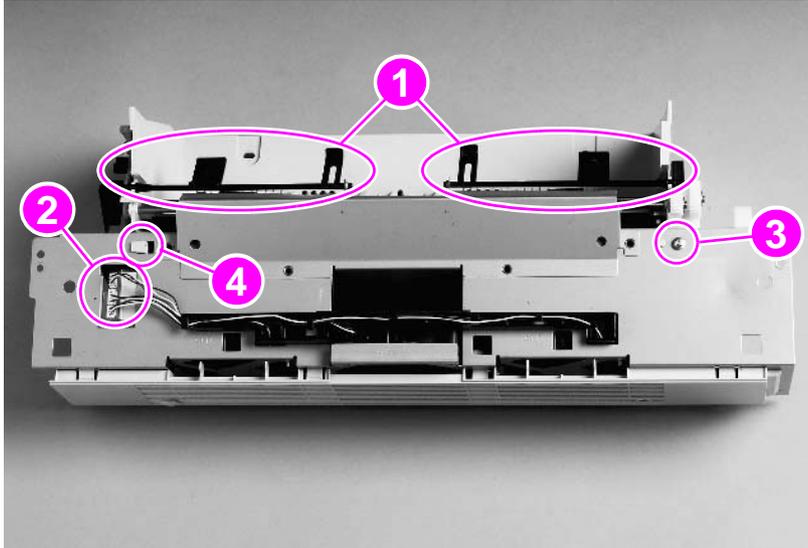
- 1 Remove the control panel (page 128).
- 2 Remove the right top cover (page 119), the left top cover (page 120), and the left back cover (page 125).
- 3 Open the left door.
- 4 Face the top of the printer from the left side.
- 5 Unplug one cable connector (callout 1).
- 6 Remove four gold screws (callout 2) and two silver screws (callout 3).
- 7 Lift the delivery assembly out of the printer.



**Figure 64.** Removing the delivery assembly

## Delivery fan assembly

- 1 Remove the delivery assembly (page 130).
- 2 Gently remove the two sensor flags (callout 1) from the holders.
- 3 Unplug three cable connectors (callout 2).
- 4 Remove one silver screw (callout 3).
- 5 Grasp the middle fan, and lift the left side of the metal casing to release the tab (callout 4).
- 6 Slide the fan assembly to the right, and gently separate the two parts.



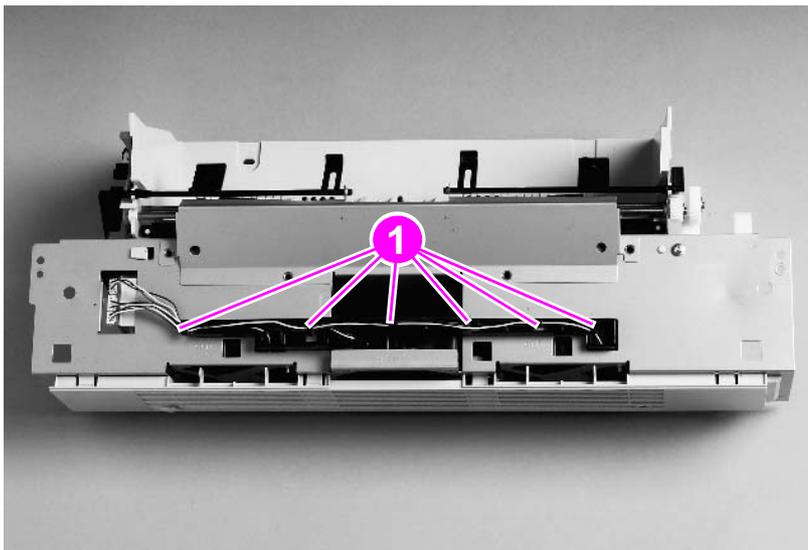
**Figure 65.** Removing the delivery fan assembly

### To reinstall

Make sure that you install the sensor flags with the correct side facing up.

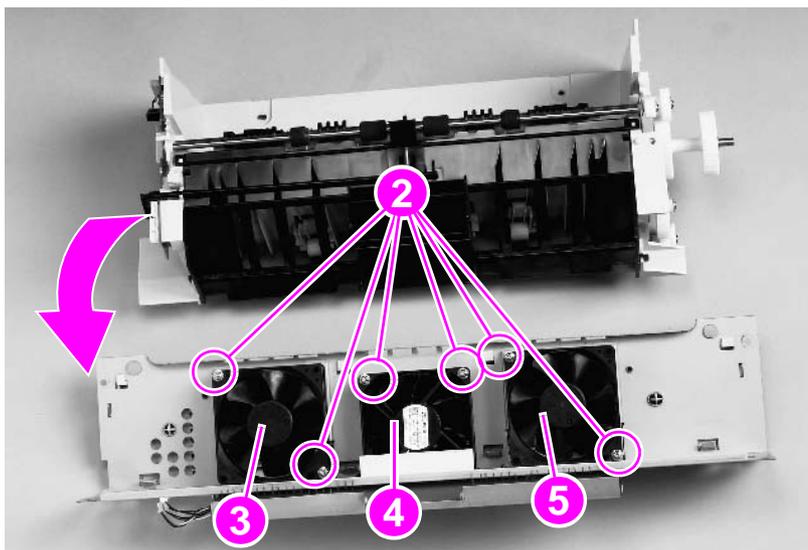
## Delivery assembly fans and face-down bin fan (fans #3, #6, and #4)

- 1 Remove the fan assembly (page 131).
- 2 Carefully unwind the fan cables from the cable guides (callout 1).



**Figure 66.** Removing the delivery assembly fans and face-down bin fan (1 of 2)

- 3 Remove six gold screws (callout 2).
- 4 Remove the three fans:
  - fan 3: delivery assembly back fan (callout 3)
  - fan 6: face-down bin fan (callout 4)
  - fan 4: delivery assembly front fan (callout 5)



**Figure 67.** Removing the delivery assembly fans and face-down bin fan (2 of 2)

### To reinstall

Be sure to replace each fan to the correct airflow position.

## Delivery motor

- 1 Remove the control panel (page 128).
- 2 Remove the right top cover (page 119) and the left top cover (page 120).
- 3 Remove the delivery assembly (page 130).

### WARNING!

The PCA board is fragile. To prevent damage, hold the PCA board when you remove or plug in the connector.

- 4 Hold the PCA board, and unplug one cable connector (callout 1)
- 5 Remove four silver screws (callout 2).

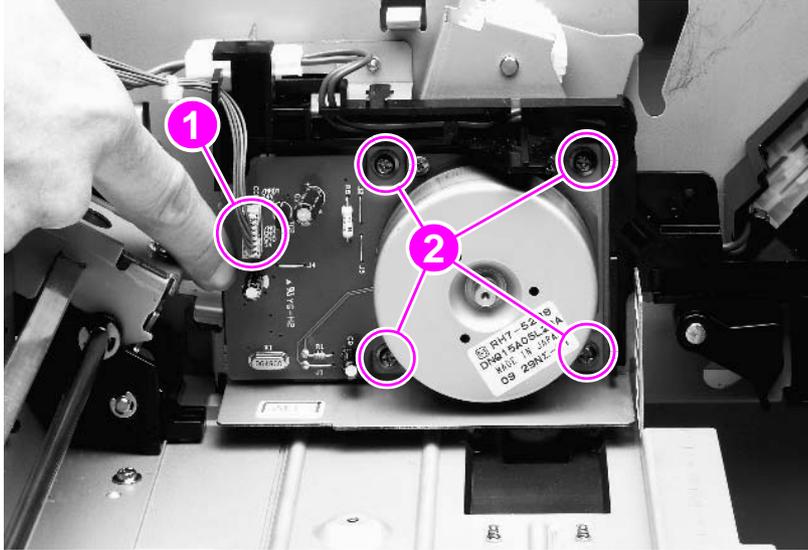


Figure 68. Removing the delivery motor

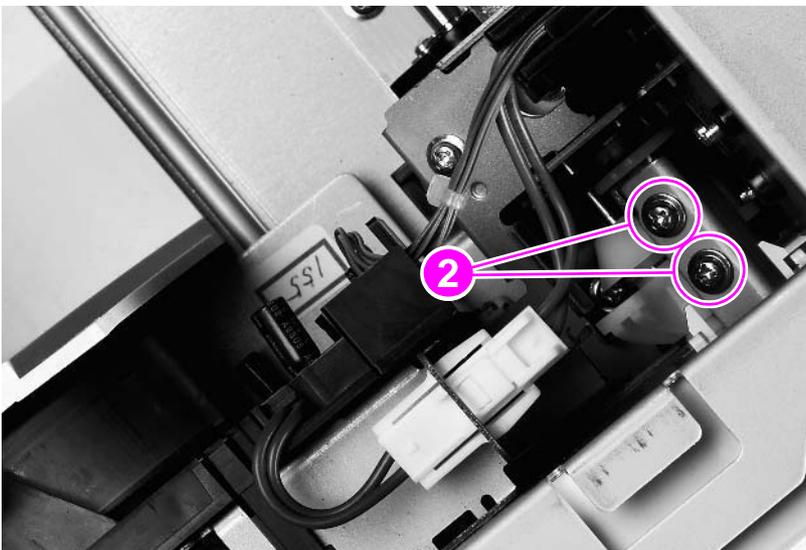
## Cartridge release lever

- 1 Remove the control panel (page 128).
- 2 Remove the right top cover (page 119) and the left top cover (page 120).
- 3 Open the front cover.
- 4 Rotate the cartridge release lever downward.
- 5 Remove the print cartridge (page 135).



**Figure 69.** Removing the cartridge release lever (1 of 2)

- 6 Face the top of the printer.
- 7 Remove two long screws (callout 2).
- 8 Face the front of the printer.
- 9 Slide the cartridge release handle away from the front of the printer.



**Figure 70.** Removing the cartridge release lever (2 of 2)

## Front assemblies

Gain access to the following assemblies from the front of the printer:

- print cartridge
- transfer roller assembly
- tray 2 and tray 3
- rollers (pickup, feed, and separation)
- fuser jam removal knob
- registration jam removal knob

### Print cartridge

#### WARNING!

To prevent damage, do not expose the print cartridge to light. Put it in the original print cartridge bag, or, if the bag is not available, cover it with a piece of paper.

- 1 Open the front cover of the printer.
- 2 Rotate the cartridge release lever (callout 1) downward.
- 3 Grasp the front handle (callout 2) with one hand, and pull the print cartridge out of the printer until the top handle (callout 3) is visible.
- 4 Grasp the top handle with your other hand, and continue pulling the print cartridge until it is out of the printer.

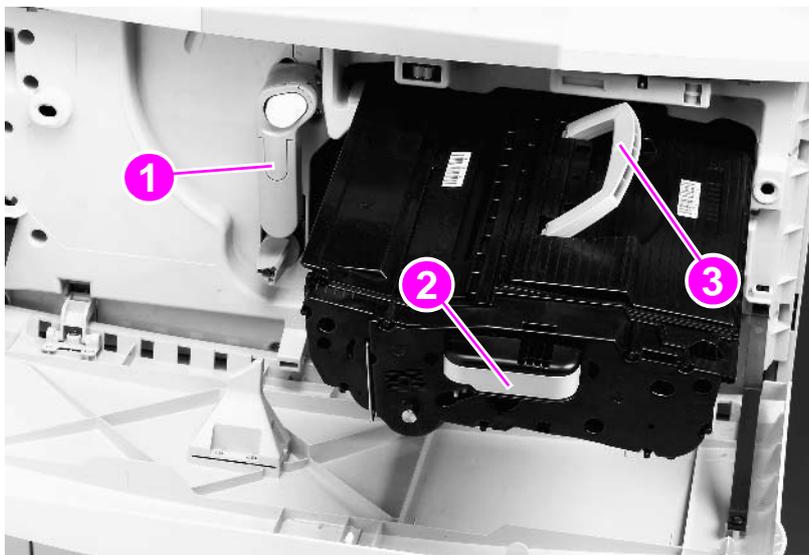


Figure 71. Removing the print cartridge

#### To reinstall

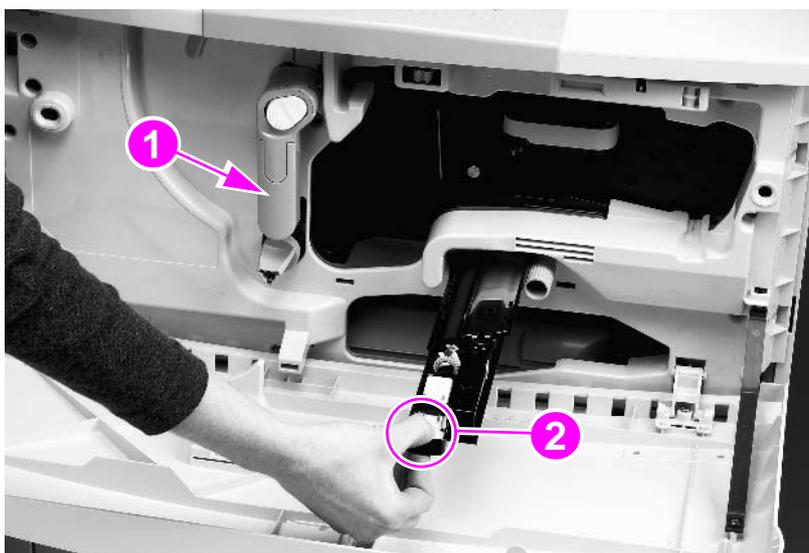
- Make sure the transfer roller assembly (page 136) is installed before you reinstall the print cartridge.
- Align the print cartridge with the print cartridge guides, and make sure you insert it completely.
- Press and hold the white button (on the green lever), and rotate the green lever clockwise until it locks into place.

## Transfer roller assembly

### **WARNING!**

Do not touch the black transfer roller, because skin oils can damage the roller.

- 1 Open the front cover.
- 2 Unlock the print cartridge by rotating the large green lever (callout 1) downward.
- 3 Pinch the blue tab (callout 2), and slowly pull the transfer roller assembly out of the printer.
- 4 Lift the assembly upward to release the catch on the underside, and remove the assembly from the printer.



**Figure 72.** Removing the transfer roller assembly

## Tray 2 or tray 3 (interchangeable)

- 1 Slide the tray open until it stops.
- 2 Grasp the sides of the tray.
- 3 Lift the tray up and remove it.



**Figure 73.** Removing tray 2 or tray 3

## Rollers (pickup, feed, or separation)

### CAUTION

Do not remove the black spacer from behind the separation roller. If the black spacer comes off, return it to the shaft metal edge first.

- 1 Remove tray 2 or tray 3 (page 136).
- 2 Locate the appropriate roller on the upper right side of the tray cavity. The pickup roller (callout 1) is a type 1 roller. The feed roller (callout 2) and the separation roller (callout 3) are type 2 rollers.
- 3 Pinch the tab on the end of each roller to release it.
- 4 Slide the roller off the shaft.

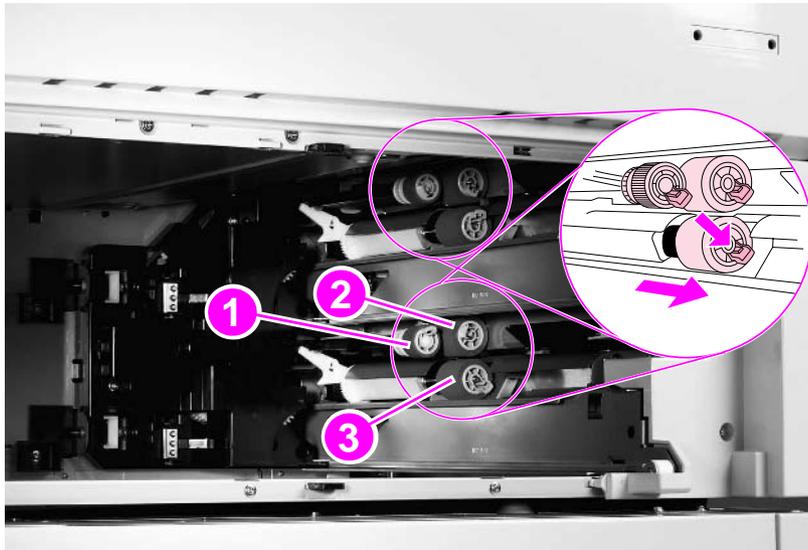


Figure 74.

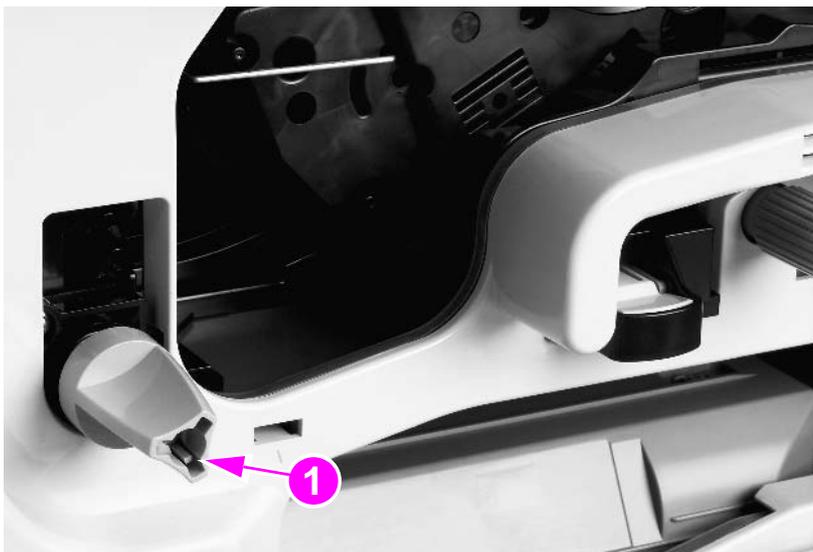
Removing the rollers

## Fuser jam removal knob

### CAUTION

Make sure you do not drop any of the internal parts from the fuser jam removal knob. Pay careful attention to the order of the parts in case you do drop them. This will make reassembly easier.

- 1 Open the front cover.
- 2 Release the tab (callout 1) with a small flatblade screwdriver.
- 3 Slowly remove the knob and internal parts (spring, pin, and bushing).



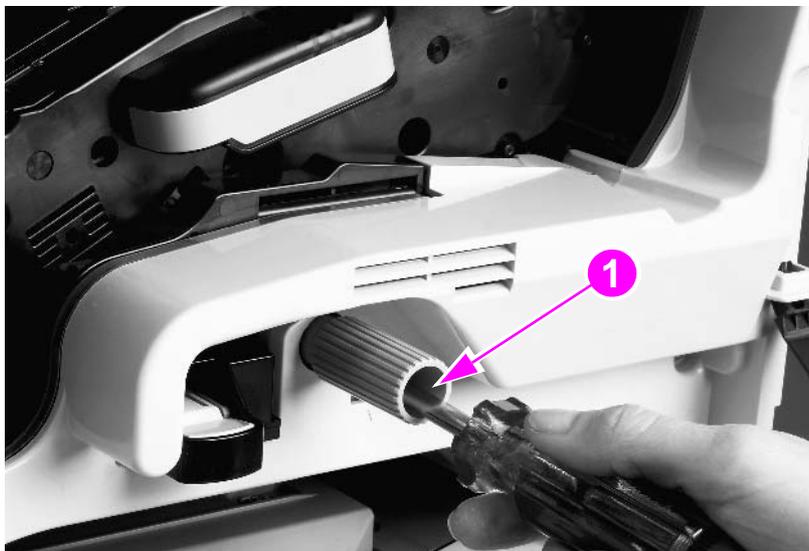
**Figure 75.** Removing the fuser jam removal knob

### To reinstall

Reinstall any dropped parts in the following order: bushing, pin, spring (spring-side facing in), knob.

## Registration jam removal knob

- 1 Open the front cover.
- 2 Hold the registration jam removal knob firmly, and remove the silver screw inside the knob (callout 1).
- 3 Pull the knob off the printer.



**Figure 76.**

**Removing the registration jam removal knob**

## Right assemblies

Gain access to the following assemblies from the right side of the printer:

- multipurpose tray (tray 1)
- paper input unit (PIU)
- registration assembly
- transfer guide assembly

### Tray 1

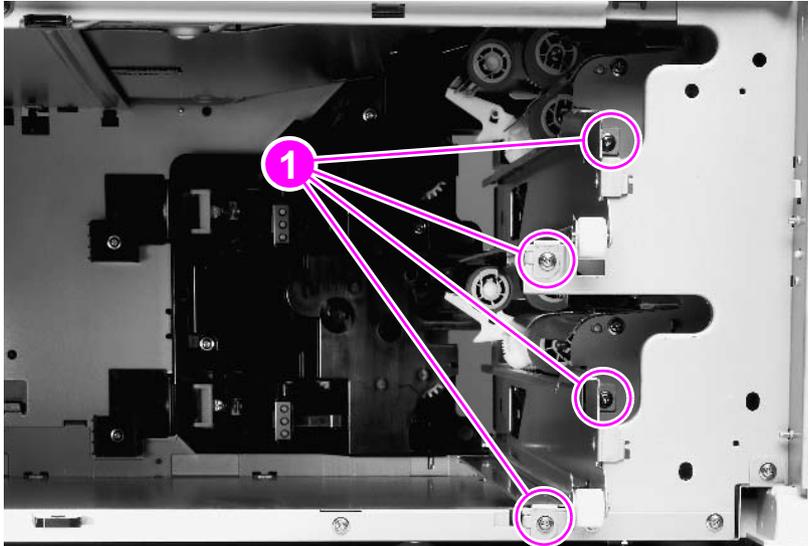
- 1 Unlock two locking pins (one shown, callout 1) at the bottom of tray 1.
- 2 Gently pull the bottom of the tray away from the printer.
- 3 Open the right door, and lift tray 1 off the door.



**Figure 77.** Removing tray 1

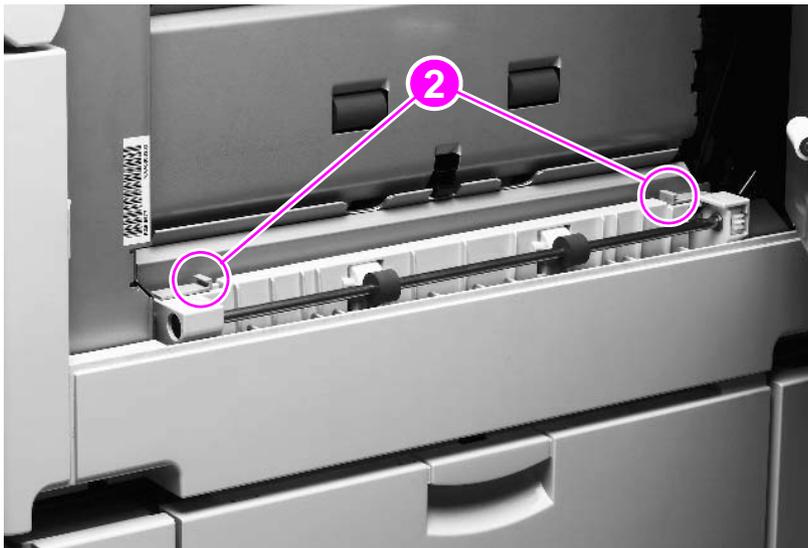
## Paper input unit (PIU)

- 1 Remove the right door (page 122), the back cover (page 126), and trays 2 and 3 (page 136).
- 2 Remove the right rail cover (page 127).
- 3 Remove four gold screws (callout 1), two from each rail.
- 4 Pull the rails out the front of the printer.



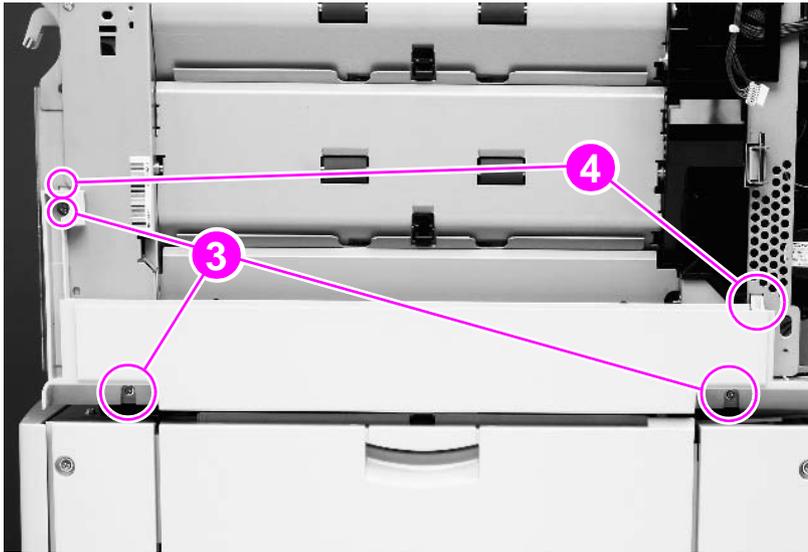
**Figure 78.** Removing the PIU (1 of 5)

- 5 Face the right side of the printer.
- 6 If the 2000-sheet feeder (tray 4) is installed, remove the paper connecting unit by sliding two levers (callout 2) toward the center of the unit.



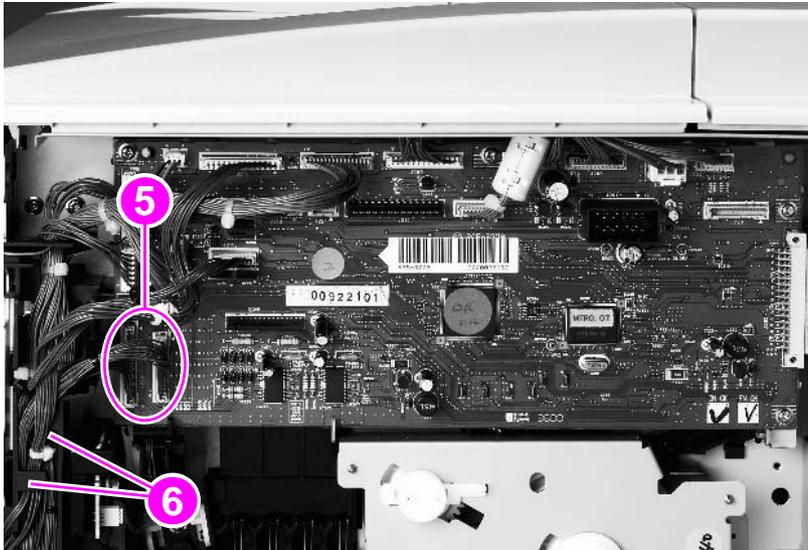
**Figure 79.** Removing the PIU (2 of 5)

- 7 Remove three screws (callout 3) from the right lower cover.
- 8 Rotate the lower edge up to release two tabs (callout 4).
- 9 Remove the right lower cover.



**Figure 80.** Removing the PIU (3 of 5)

- 10 Face the back of the printer.
- 11 Remove the J-220 and J-221 cable connectors (callout 5) from the DC controller, and carefully unwind the cables from the cable guides (callout 6).



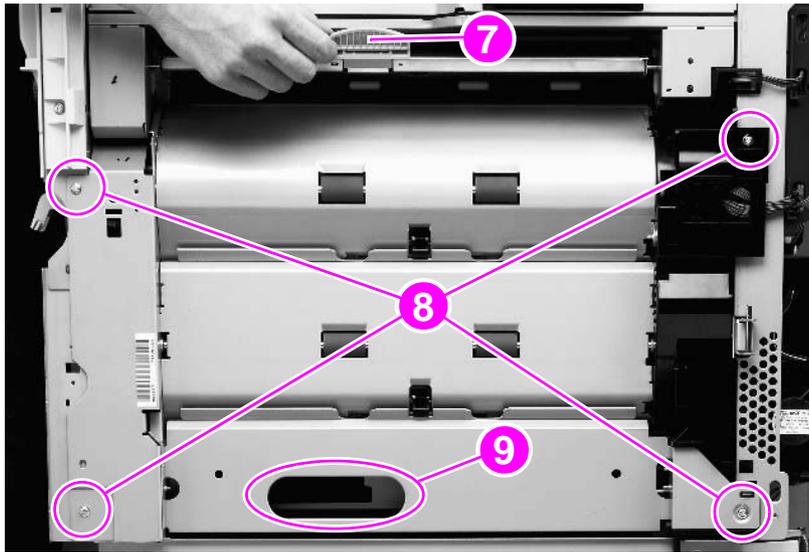
**Figure 81.** Removing the PIU (4 of 5)

- 12 Face the right side of the printer.
- 13 Push the green registration handle (callout 7) down slightly, and then pull it out to gain access to the PIU.
- 14 Remove four silver screws (callout 8).

**CAUTION**

The PIU is heavy.

- 15 Grasp the PIU handle (callout 9), and lift the PIU out of the printer.



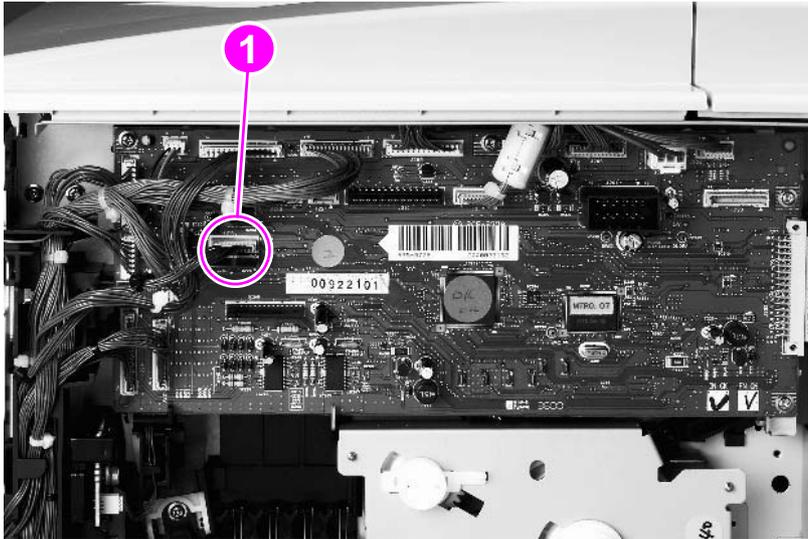
**Figure 82.** Removing the PIU (5 of 5)

**To reinstall**

- Make sure that the green handle on the registration assembly is up before you reinstall the PIU.
- Reinstall the right lower cover (figure 80 on page 142) before the right rail cover (figure 61 on page 127).

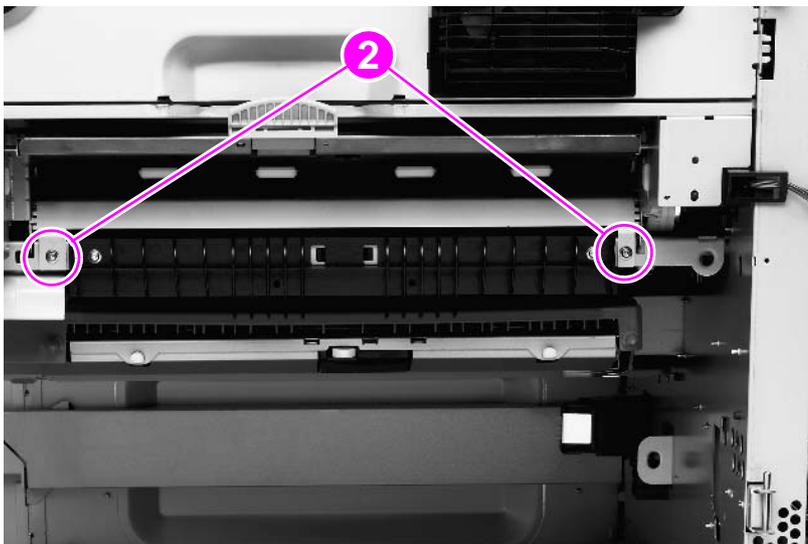
## Registration assembly

- 1 Remove the right door (page 122), the back cover (page 126), and trays 2 and 3 (page 136).
- 2 Remove the print cartridge (page 135).
- 3 Remove the registration jam removal knob (page 139).
- 4 Remove the PIU (page 141).
- 5 Unplug the J-215 cable connector (callout 1) from the DC controller.



**Figure 83.** Removing the registration assembly (1 of 2)

- 6 Remove two gold screws (callout 2) from the registration assembly.
- 7 Lift the registration assembly up slightly, and then rotate it downward until you can pull it from the chassis.



**Figure 84.** Removing the registration assembly (2 of 2)

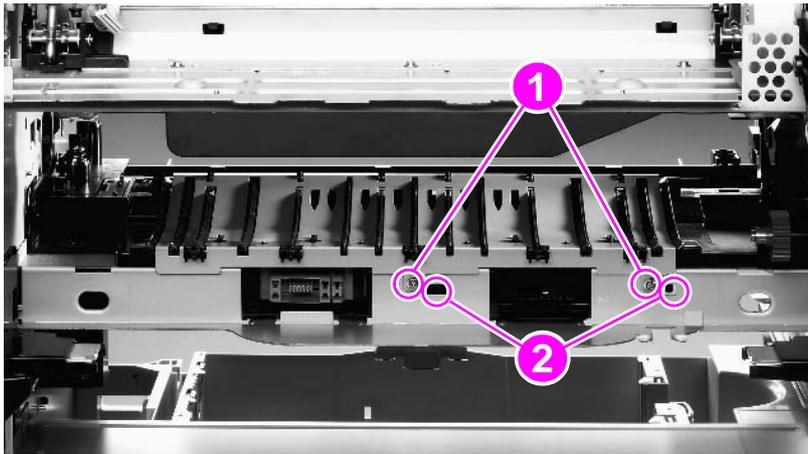
### To reinstall

#### **WARNING!**

Make sure that you do not scrape the top of the registration assembly against the chassis. Small black plastic pieces on top of the registration assembly can easily be damaged.

## Transfer guide assembly

- 1 Remove the right door (page 122), the back cover (page 126), and trays 2 and 3 (page 136).
- 2 From the back of the printer, remove the high-voltage power supply (page 150) and the drum motor (page 154).
- 3 From the front of the printer, remove the transfer roller assembly.
- 4 From the right side of the printer, remove the PIU (page 141) and the registration assembly (page 144).
- 5 Remove the fuser assembly (page 147).
- 6 Remove two gold screws (callout 1) from the transfer guide assembly.
- 7 Push in and release the two plastic tabs (callout 2) to the right of each screw.
- 8 Lift the transfer guide assembly up, rotate it forward slightly, and then pull it out of the printer.



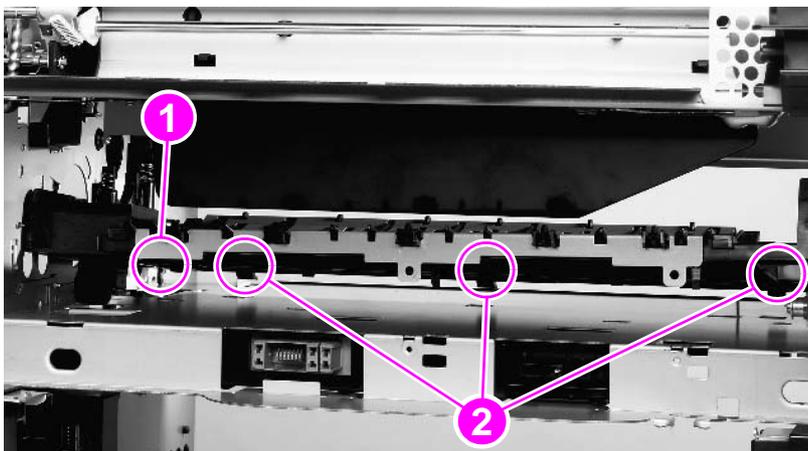
**Figure 85.** Removing the transfer guide assembly

### To reinstall

- 1 Face the right side of the printer, and reinsert the pin (callout 1) in the back left corner.
- 2 Rotate the transfer guide assembly upward, and slide the three back tabs (callout 2) into place.

### **WARNING!**

You must confirm that the tabs are securely in place before proceeding. Face the left side of the printer, and check the tabs.



**Figure 86.** Reinstalling the transfer guide assembly

## Left assemblies

### Note

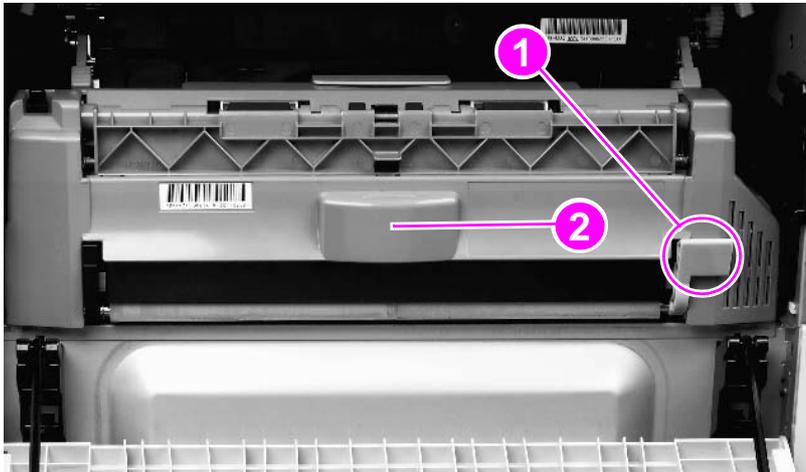
If the 3000-sheet stacker or 3000-sheet stapler/stacker is installed, move it away from the printer before you begin repairs to the left side of the printer. See "Output accessory removal" on page 171.

Gain access to the following assemblies from the left side of the printer:

- duplexer
- fuser assembly

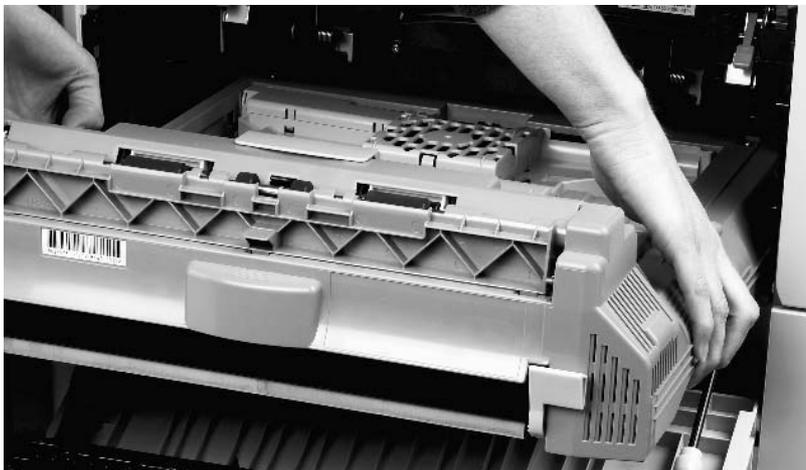
### Duplexer

- 1 Lift the left door handle, and then open the left door.
- 2 Push the green tab (callout 1) downward. This releases the duplexer and moves it forward slightly.
- 3 Pull the center handle (callout 2), and slide the duplexer from the printer until it locks.



**Figure 87.** Removing the duplexer (1 of 2)

- 4 Grasp the two handles that are on the sides of the duplexer.
- 5 Lift the duplexer up (to release two underside catches) and remove it out of the printer.



**Figure 88.** Removing the duplexer (2 of 2)

## Fuser assembly

### CAUTION

The fuser assembly can be hot. Use caution when removing it.

### Note

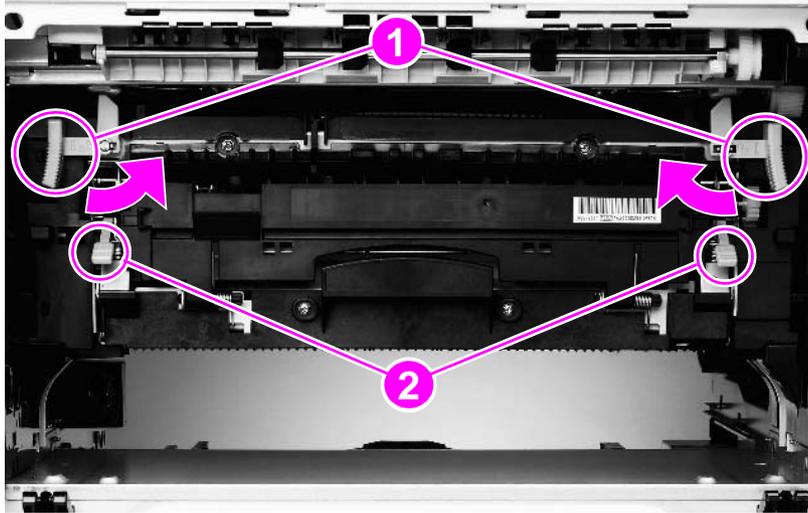
If an optional output accessory is installed, remove it. See page 171.

If a duplexer is installed, remove it. See page 146.

- 1 Lift the left door handle, and then open the left door.
- 2 Rotate the two blue locking tabs (callout 1) toward each other and downward to release them.

### Note

Do not release the T-shaped envelope levers (callout 2).



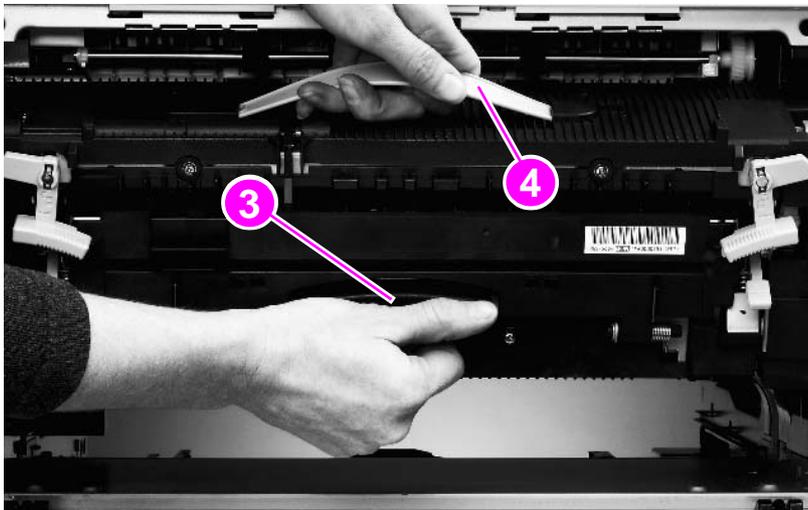
**Figure 89.** Removing the fuser assembly (1 of 2)

- 3 Pull the center handle (callout 3) to rotate the fuser assembly upward slightly, and then slide the fuser assembly outward until it locks.

### WARNING!

The fuser assembly is heavy. Grasp the blue handle firmly before attempting to lift the fuser assembly.

- 4 Firmly grasp the blue handle (callout 4), and lift the fuser assembly out of the printer.



**Figure 90.** Removing the fuser assembly (2 of 2)

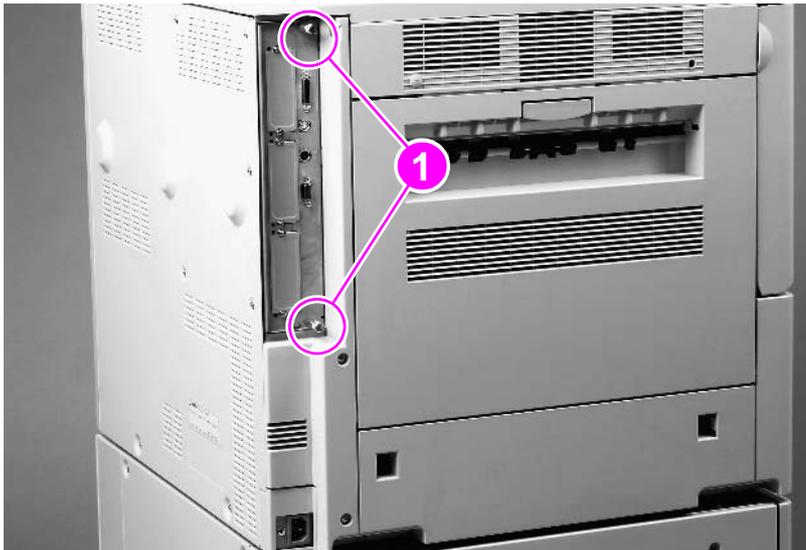
## Back assemblies

Gain access to the following assemblies from the back of the printer:

- formatter
- low-voltage power supply (LVPS)
- high-voltage power supply (HVPS)
- DC controller
- toner-sensor contact assembly
- cartridge memory PCA
- drum motor
- feed-drive assembly
- power supply fan (fan #1)
- cartridge fan (fan #5)
- controller fan (fan #2)

### Formatter

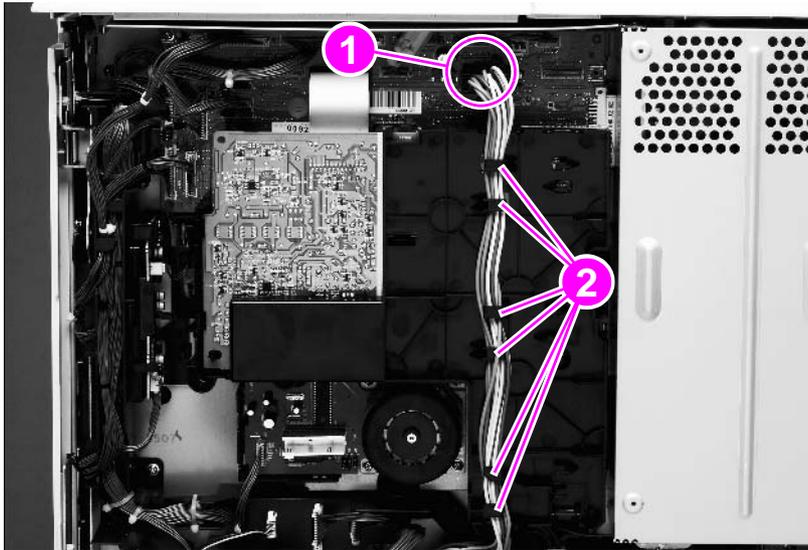
- 1 Turn the printer off.
- 2 Disconnect all cables from the formatter.
- 3 Loosen the two thumb screws (callout 1).
- 4 Grasp the thumb screws, and slide the formatter out of the printer.
- 5 Place the formatter on an ESD mat.



**Figure 91.** Removing the formatter

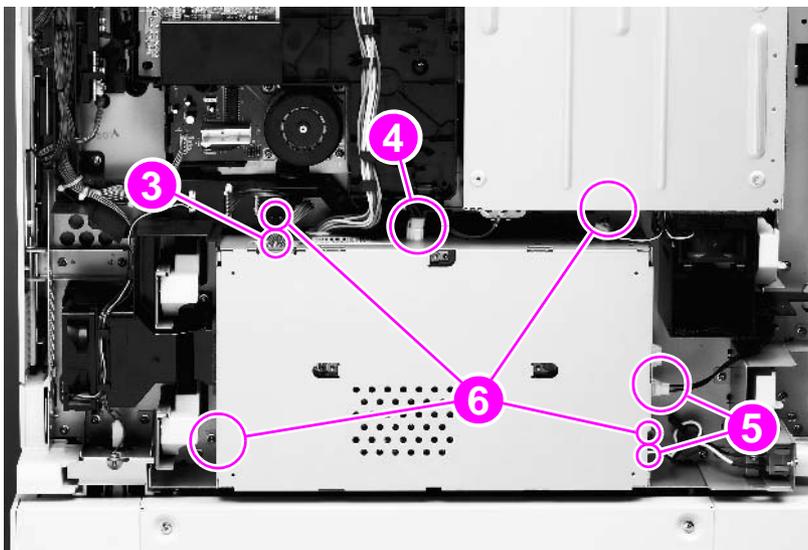
## Low-voltage power supply (LVPS)

- 1 Remove the back cover (page 126).
- 2 Remove the large cable connector (callout 1) from the DC controller.
- 3 Unroute the cable from the cable guides (callout 2).



**Figure 92.** Removing the LVPS (1 of 2)

- 4 Unplug one standard cable connector (callout 3) from the LVPS.
- 5 Unplug one molex cable connector (callout 4) by pulling and releasing the tab on the side of the connector.
- 6 Unplug two molex cable connectors (callout 5) by pressing and releasing the tabs on the side of the connectors.
- 7 Remove four gold screws (callout 6).
- 8 Lift the LVPS away from the printer.



**Figure 93.** Removing the LVPS (2 of 2)

## High-voltage power supply (HVPS)

- 1 Remove the back cover (page 126).

### WARNING!

The flat ribbon cable is fragile. Do not bend or fold it.



- 2 Remove the flat ribbon cable connector (callout 1) from the DC controller.
- 3 Unplug the low-voltage power supply cable connector (callout 2) from the DC controller, and unroute the cable from the cable guides (callout 3).

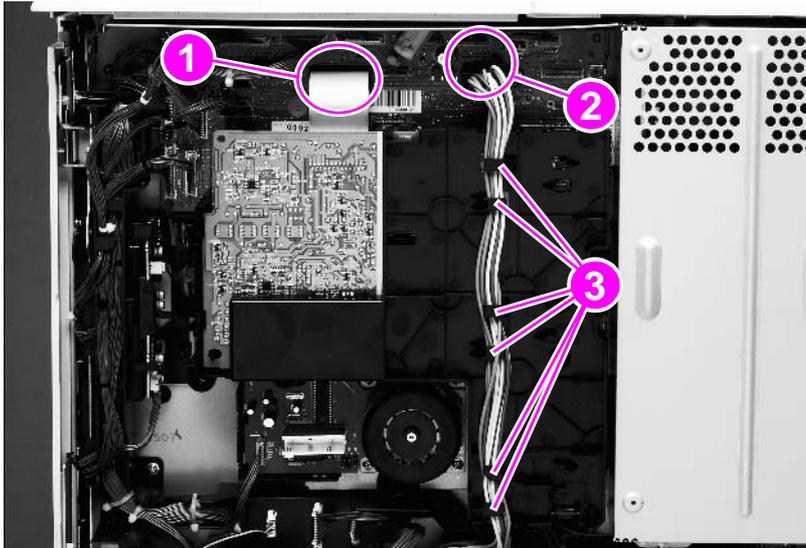


Figure 94. Removing the HVPS (1 of 2)

- 4 Remove three silver screws (callout 4).
- 5 Push the black locking tab (callout 5) away from the HVPS, and remove the HVPS.

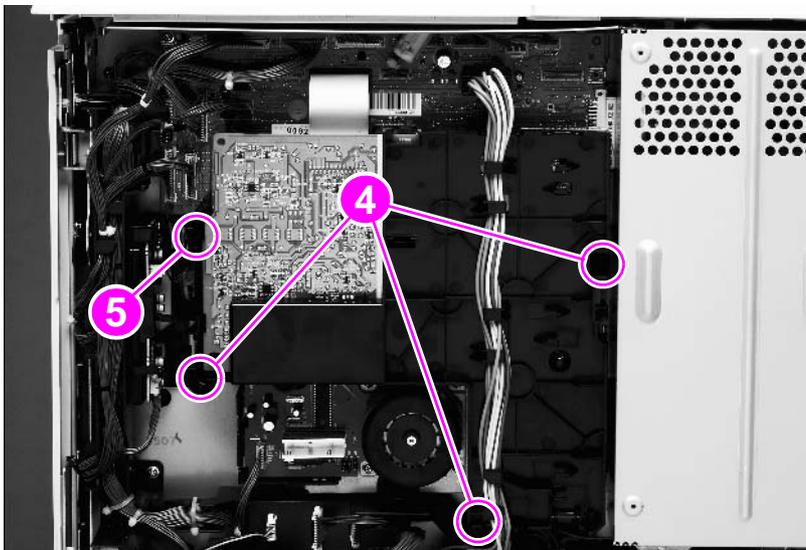


Figure 95. Removing the HVPS (2 of 2)

## DC controller

### CAUTION

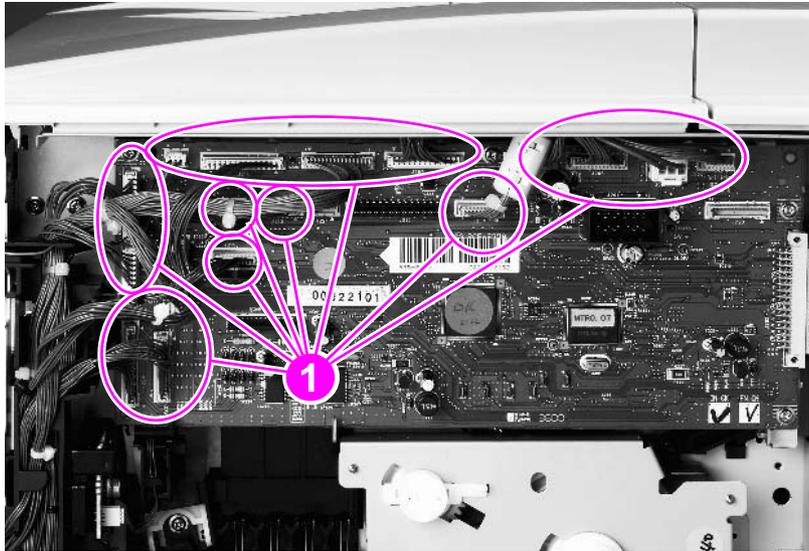
The DC controller is sensitive to electrostatic discharge (ESD). Always perform service work at an ESD-protected workstation, or use an ESD mat. For further precautions, see page 117.

- 1 Remove the back cover (page 126).
- 2 Remove the formatter (page 148) and the high-voltage power supply (HVPS) (page 150).

### CAUTION

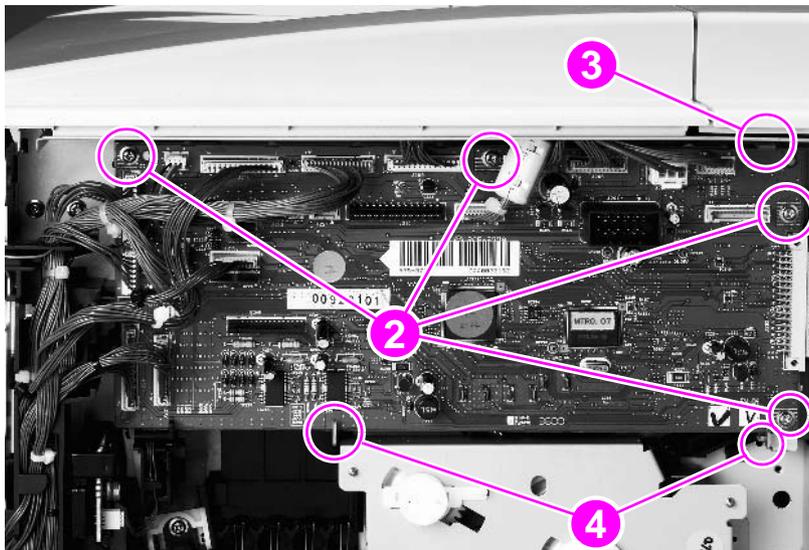
Use caution when removing cable connectors J-215, J-219, and J-213. Do not bend or break the component that is adjacent to these cable connectors.

- 3 Remove 17 cable connectors (callout 1).



**Figure 96.** Removing the DC controller (1 of 2)

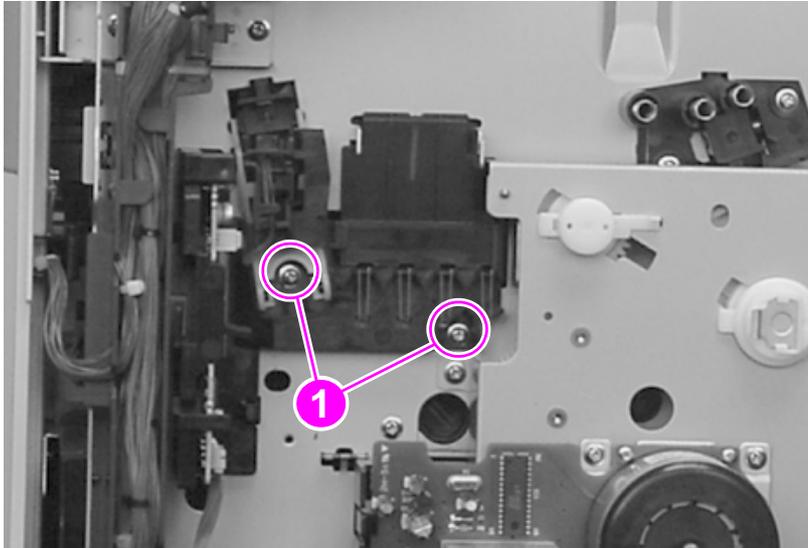
- 4 Remove four gold screws (callout 2).
- 5 Release the small tab (callout 3), and rotate the top edge of the DC controller away from the printer.
- 6 Remove the DC controller from the two metal holders (callout 4).



**Figure 97.** Removing the DC controller (2 of 2)

## Toner-sensor contact assembly

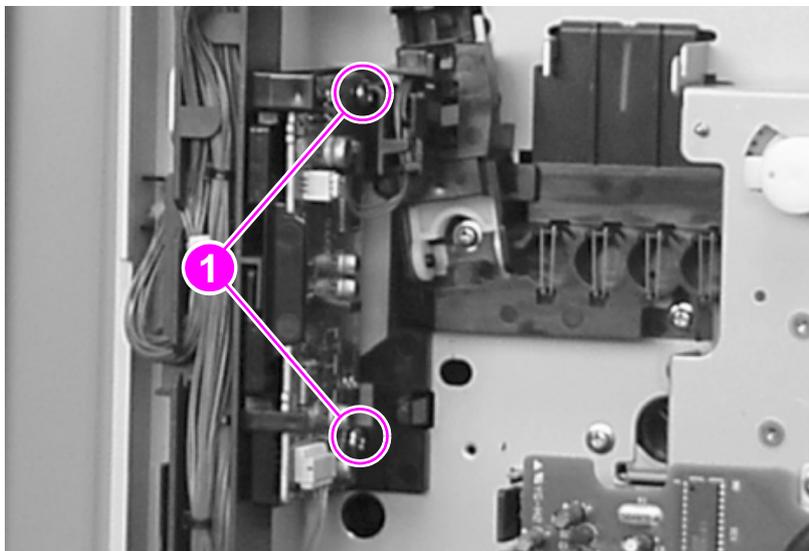
- 1 Remove the back cover (page 126).
- 2 Remove the high-voltage power supply (page 150) and the DC controller (page 151).
- 3 Remove two gold screws (callout 1).
- 4 Remove the toner-sensor contact assembly.



**Figure 98.** Removing the toner-sensor contact assembly

## Cartridge memory PCA

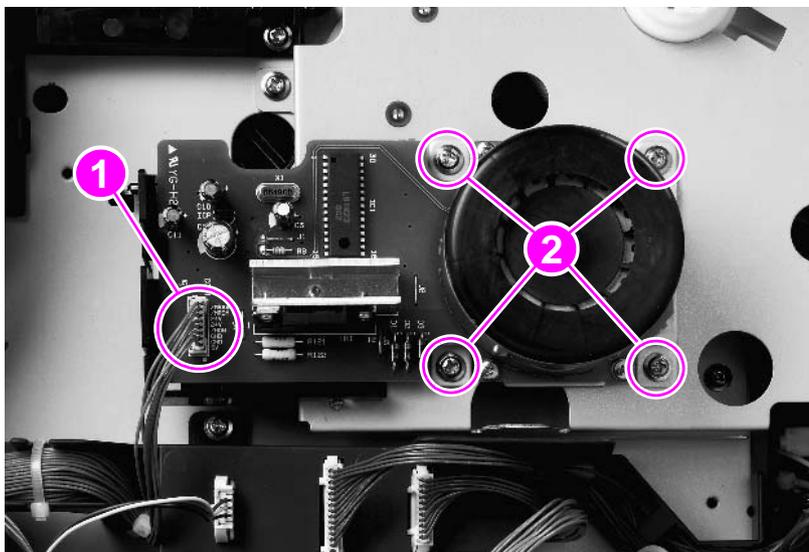
- 1 Remove the back cover (page 126).
- 2 Remove the high-voltage power supply (page 150) and the DC controller (page 151).
- 3 Remove two silver screws (callout 1).
- 4 Remove the cartridge memory PCA.



**Figure 99.** Removing the cartridge memory PCA

## Drum motor

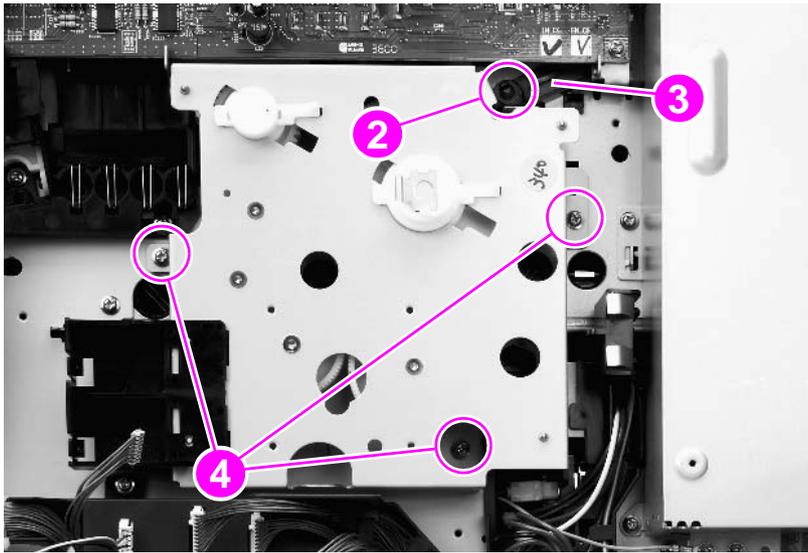
- 1 Remove the back cover (page 126).
- 2 Unplug one cable connector (callout 1).
- 3 Remove four gold screws (callout 2).
- 4 Pull the drum motor away from the printer.



**Figure 100.** Removing the drum motor

## Feed-drive assembly

- 1 Remove the back cover (page 126).
- 2 Remove the high-voltage power supply (page 150) and the drum motor (page 154).
- 3 Open the front cover.
- 4 Press the white button on the cartridge release lever (callout 1, page 135), and then rotate the lever clockwise until it locks into place.
- 5 Face the back of the printer.
- 6 Pinch the two black tabs (callout 2) together with needle-nose pliers to release the activation lever (callout 3).
- 7 Remove three gold screws (callout 4).
- 8 Remove the feed-drive assembly.



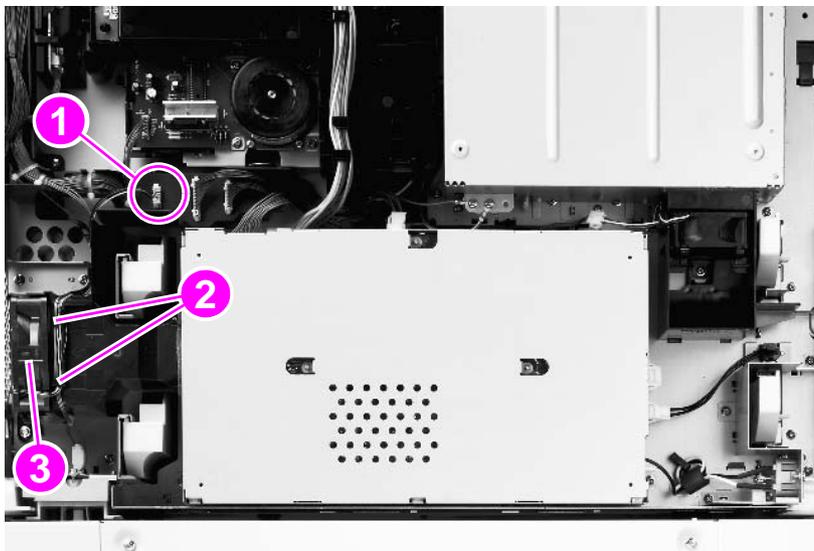
**Figure 101.** Removing the feed-drive assembly

### To reinstall

**WARNING!** Be sure to reconnect the activation lever.

## Power supply fan (fan #1)

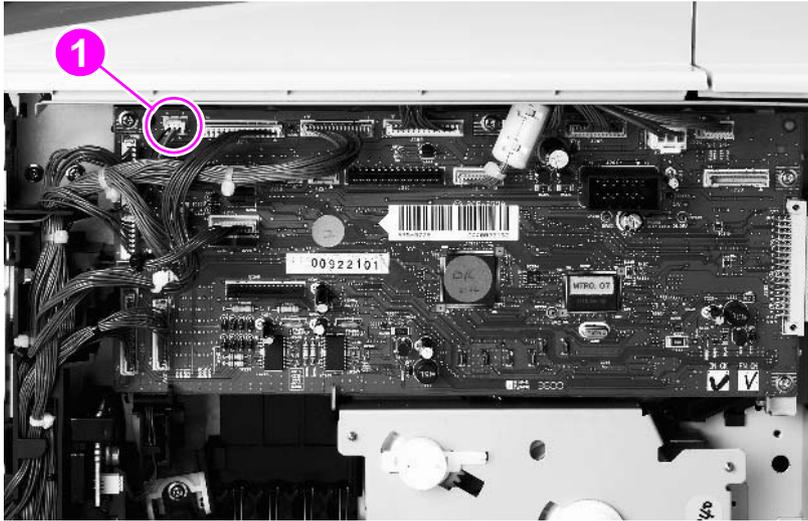
- 1 Remove the back cover (page 126).
- 2 Unplug the fan cable connector (callout 1), and carefully unwind the fan cables from the cable guides (callout 2).
- 3 Slide the power supply fan (callout 3) out of the printer.



**Figure 102.** Removing the power supply fan

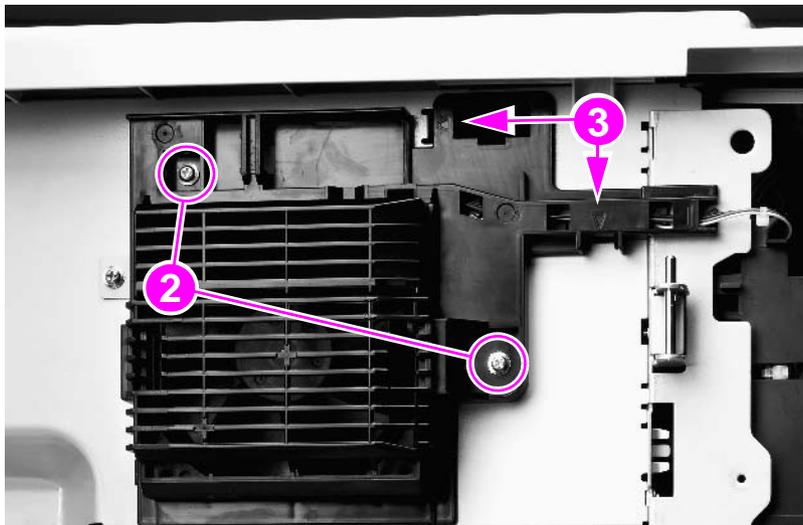
## Cartridge fan (fan #5)

- 1 Remove the back cover (page 126).
- 2 Remove the J-216 cable connector (callout 1) from the DC controller.



**Figure 103.** Removing the cartridge fan (1 of 2)

- 3 Remove tray 1 if it is installed (page 140).
- 4 Open the right door.
- 5 Release the strap by pinching and then pushing the two tabs (page 122, callout 1) on the end of the black strap.
- 6 Remove two silver screws (callout 2) from the cartridge fan.
- 7 Locate the two arrow-marked tabs (callout 3), and then press the arrow-marked area in the marked direction.
- 8 Slide the cartridge fan to the right to remove it.



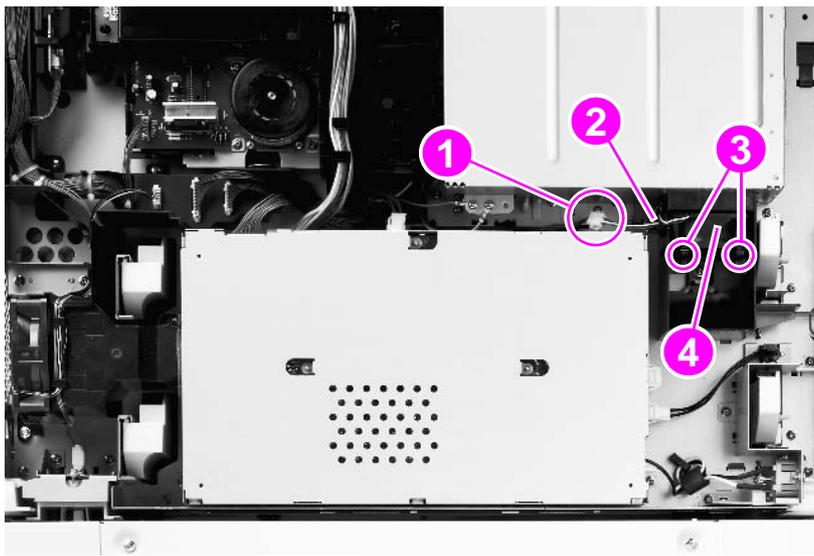
**Figure 104.** Removing the cartridge fan (2 of 2)

### To reinstall

Slide the tabs into the printer before you snap the fan into place.

## Controller fan (fan #2)

- 1 Remove the back cover (page 126).
- 2 Locate the controller fan below the formatter.
- 3 Unplug the fan cable connector (callout 1), and carefully unwind the fan cables from the cable guides (callout 2).
- 4 Release two black tabs (callout 3).
- 5 Slide the controller fan (callout 4) out of the printer.



**Figure 105.** Removing the controller fan

## 2000-sheet feeder (tray 4)

The following covers and assemblies can be removed from the 2000-sheet feeder:

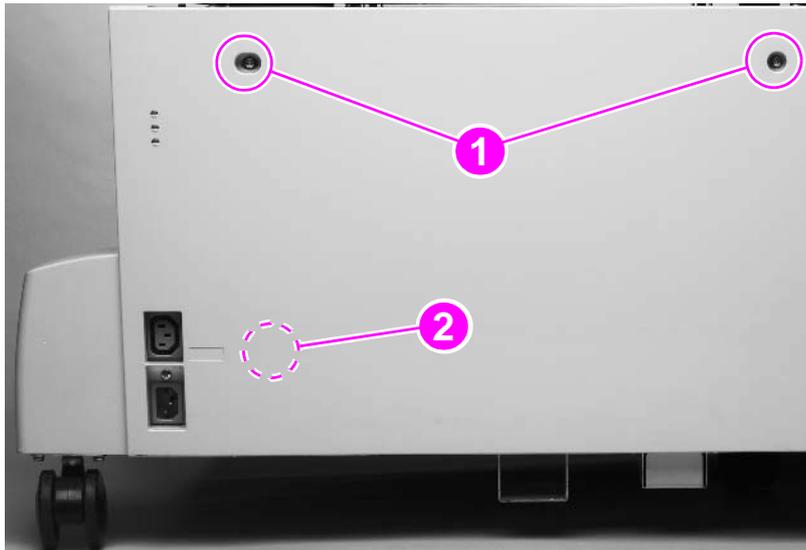
- left side cover
- right side cover
- back covers
- tray assembly
- tray 4 rollers (pickup, feed, and separation)
- registration assembly
- drive motor
- drive assembly
- controller board
- paper-size detection switch PCB
- power supply
- pickup assembly
- paper connecting unit

### Orientation

See "Orientation of the printer (with tray 4)" on page 118.

### Left side cover

- 1 Remove two screws (callout 1) from the left side cover.
- 2 Pull the top edge of the cover outward.
- 3 Lift the left side cover up and outward to remove it from the 2000-sheet feeder.



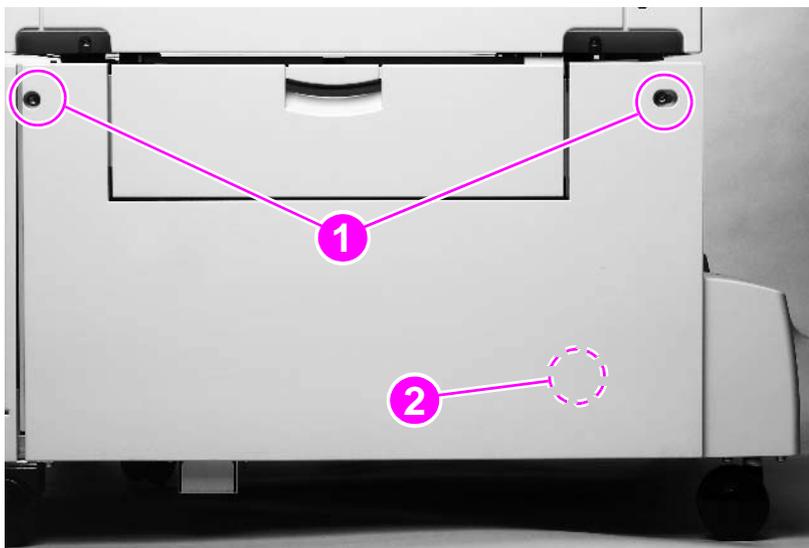
**Figure 106.** Removing the left side cover

### To reinstall

Make sure the hook (callout 2) on the inside of the cover connects correctly.

## Right side cover

- 1 Remove two screws (callout 1) from the right side cover.
- 2 Pull the top edge of the cover outward.
- 3 Lift the right side cover up and out to remove it from the 2000-sheet feeder.



**Figure 107.** Removing the right side cover

### To reinstall

Make sure the hook (callout 2) on the inside of the cover connects correctly.

## Back covers

### Center back cover

- 1 Remove four screws (callout 1) from the center back cover.
- 2 Remove the center back cover.

### Right back cover

- 1 Remove the center back cover.
- 2 Slide the right back cover (callout 2) toward the center to release an interior tab.
- 3 Lift the right back cover straight up to release a second interior tab.

---

**Note**

Be sure to keep the right back cover vertically aligned with the 2000-sheet feeder. Otherwise, the second interior tab will not release.

- 4 Pull the right back cover out to remove it.

### Left back cover

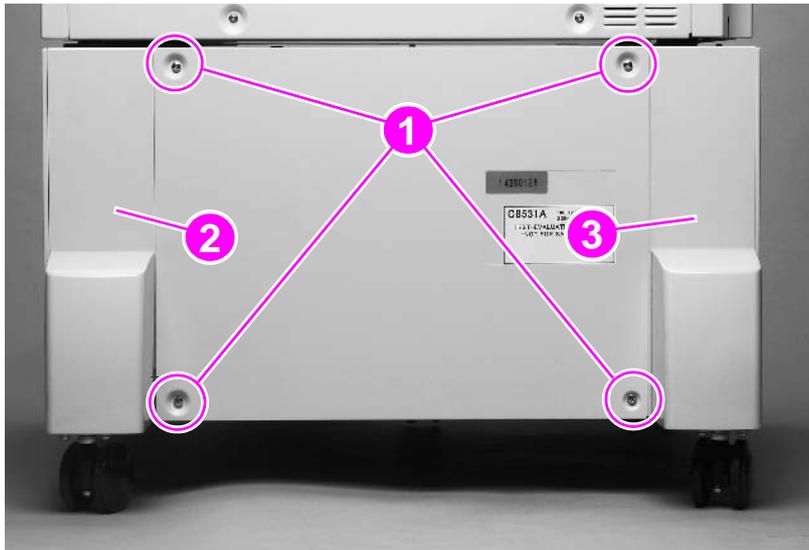
- 1 Remove the center back cover.
- 2 Slide the left back cover (callout 3) toward the center to release an interior tab.
- 3 Lift the left back cover straight up to release a second interior tab.

---

**Note**

Be sure to keep the left back cover vertically aligned with the 2000-sheet feeder. Otherwise, the second interior tab will not release.

- 4 Pull the left back cover out to remove it.



**Figure 108.** Removing the back covers

## Tray 4

### CAUTION

Tray 4 is heavy and can be damaged if dropped. Use both hands when removing the tray.

- 1 Open tray 4 (the tray assembly), and remove all paper.
- 2 Pull the tray assembly out until it stops.
- 3 Press the release button (callout 1) on the right side of the tray and the release button (not shown) on the left side of the tray.
- 4 Continue to press the two release buttons, and pull the tray assembly out of the chassis.

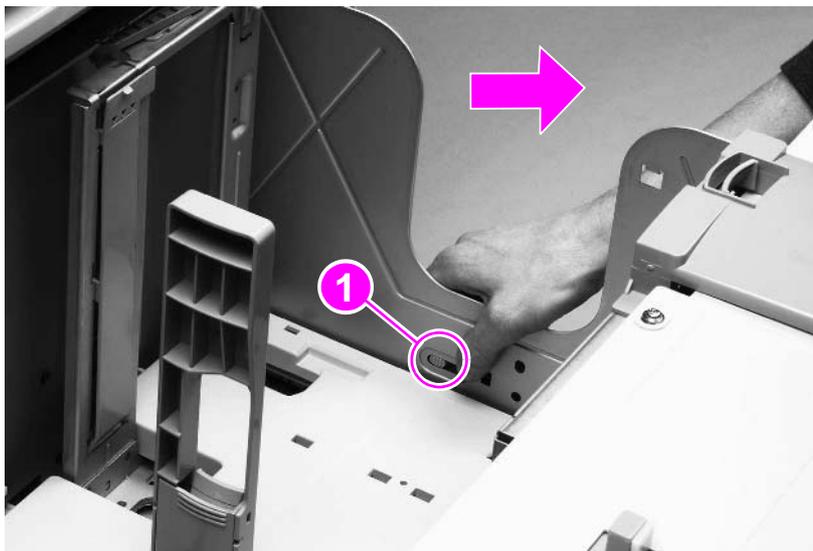


Figure 109. Removing tray 4

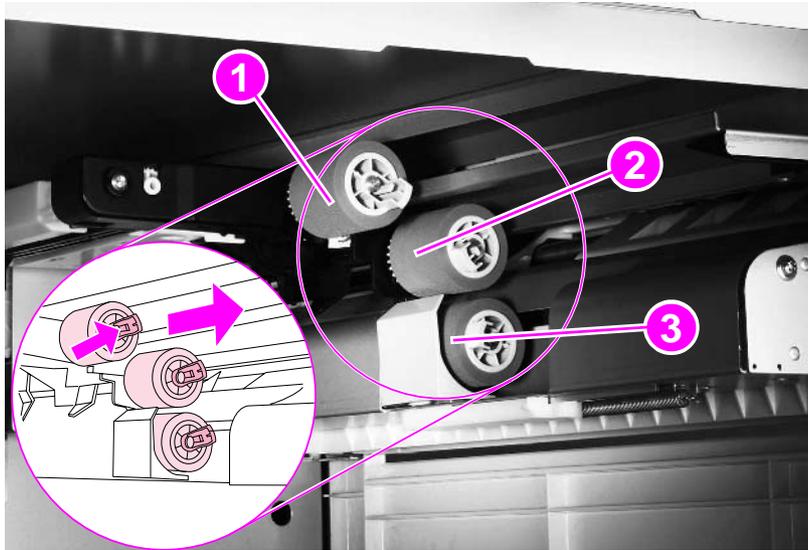
## Rollers (pickup, feed, and separation)

- 1 Remove tray 4 (page 162).
- 2 Locate the appropriate roller on the upper right side of the tray cavity. The pickup roller (callout 1), feed roller (callout 2), and separation roller (callout 3) are all type 2 rollers.

### Note

To gain access to the separation roller, slide the blue roller shield toward the back of the 2000-sheet feeder (as shown in figure 110).

- 3 Pinch the tab on the end of each roller to release it.
- 4 Slide the roller off the shaft.



**Figure 110.** Removing the rollers

### To reinstall

- You do not need to slide the blue shield back over the separation roller. It will reset automatically.
- Verify that each roller is locked in place by attempting to remove it without first pinching the tab.

## Registration assembly

- 1 Remove the right side cover (page 160).
- 2 Remove four screws (callout 1).

### CAUTION

Use care when following step 3. Three cables are connected to the registration assembly.

- 3 Gently lift the registration assembly off the 2000-sheet feeder, and unplug three connectors (callout 2) from the rear of the registration assembly.

### Note

If you cannot reach the three cable connectors, remove the center back cover (page 161), remove the right back cover (page 161), and unplug the connectors (figure 112, callout 3) from the back of the 2000-sheet feeder.

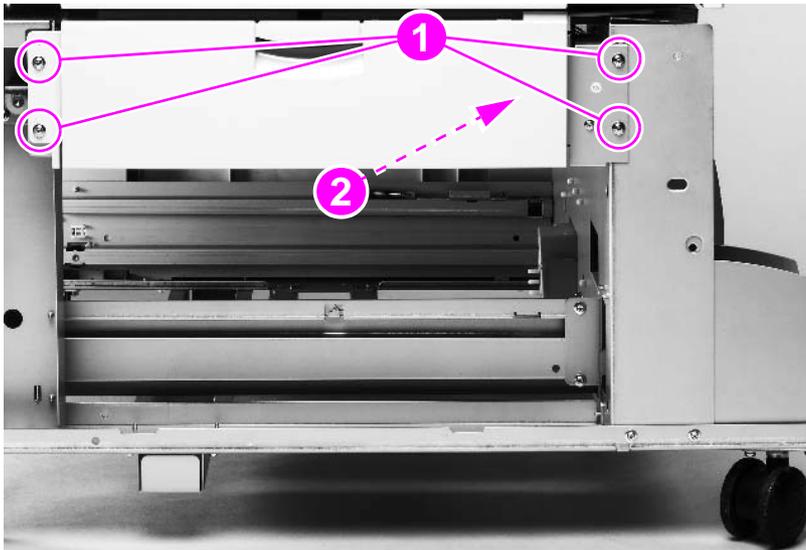


Figure 111. Removing the registration assembly (1 of 2)

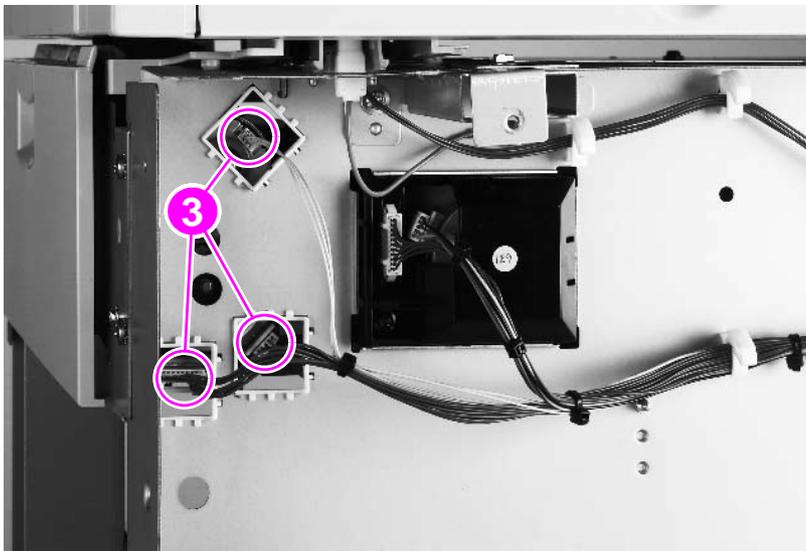
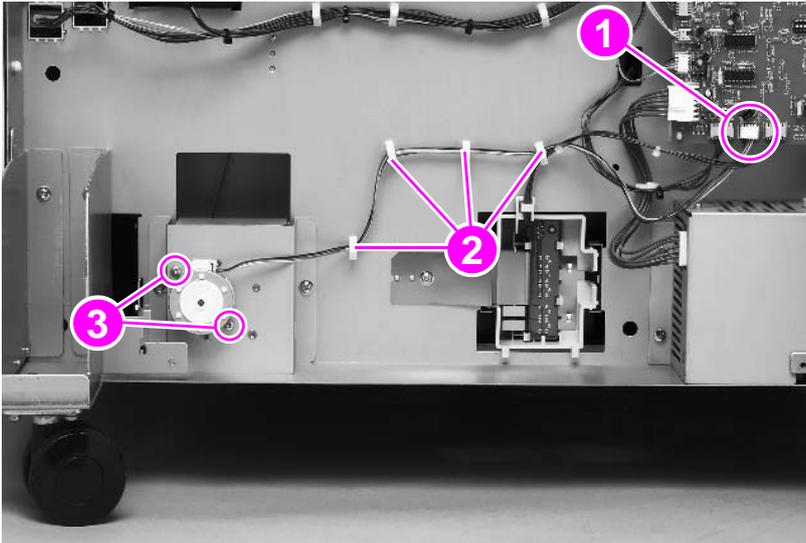


Figure 112. Removing the registration assembly (2 of 2)

## Drive motor

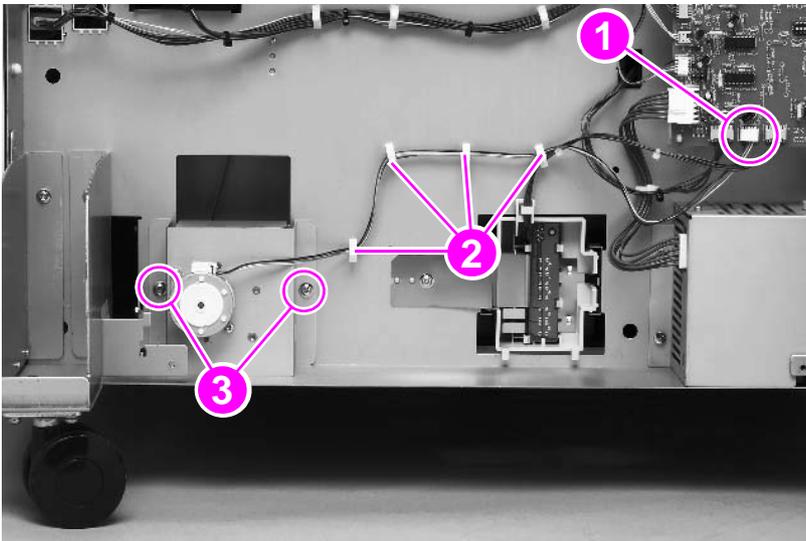
- 1 Remove the center back cover (page 161).
- 2 Unplug the cable connector (callout 1) from the controller board.
- 3 Carefully unwind the cable from the cable guides (callout 2).
- 4 Remove two screws (callout 3).
- 5 Remove the drive motor from the 2000-sheet feeder.



**Figure 113.** Removing the drive motor

## Drive assembly

- 1 Remove the center back cover (page 161).
- 2 Unplug the cable connector (callout 1) from the controller board.
- 3 Carefully unwind the cable from the cable guides (callout 2).
- 4 Remove two screws (callout 3).
- 5 Remove the drive assembly from the 2000-sheet feeder.



**Figure 114.** Removing the drive assembly

## Controller board

- 1 Remove the center back cover (page 161) and the left back cover (page 161).
- 2 Unplug eleven connectors (callout 1).

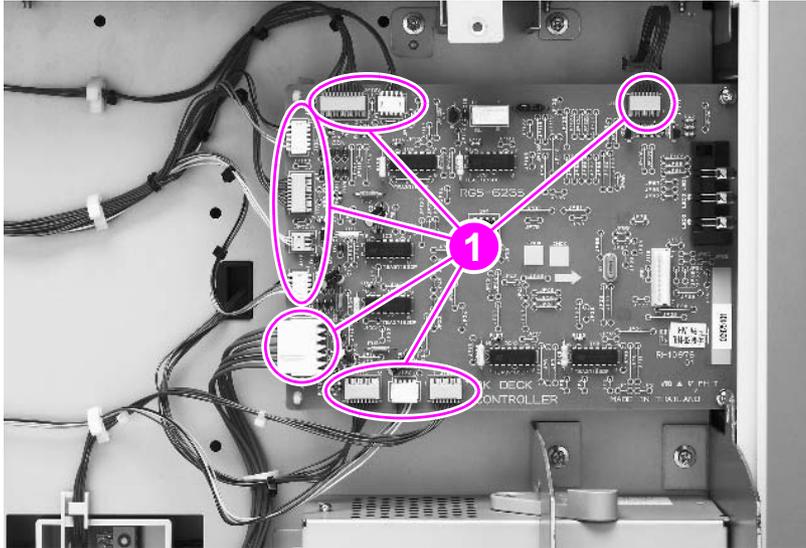


Figure 115. Removing the controller board (1 of 2)

- 3 Remove two screws (callout 2).
- 4 Release two holding pins (callout 3).
- 5 Remove the controller board from the 2000-sheet feeder.

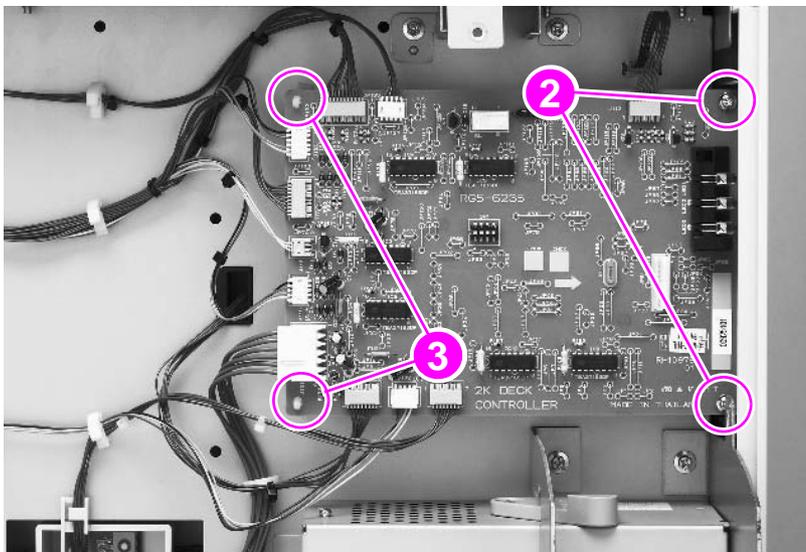
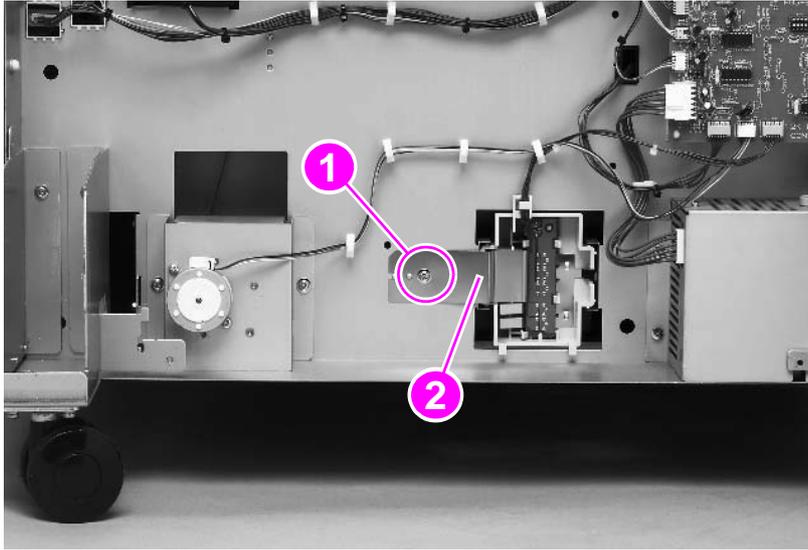


Figure 116. Removing the controller board (2 of 2)

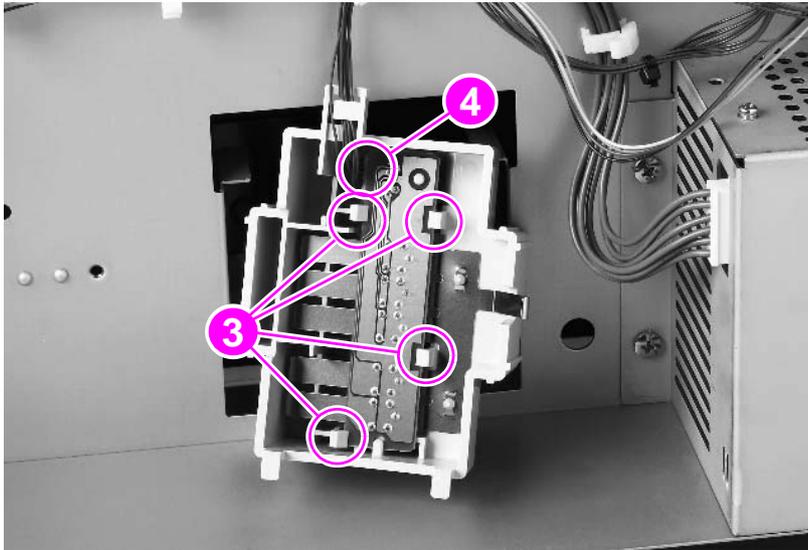
## Paper-size detection switch PCB

- 1 Remove the center back cover (page 161).
- 2 Remove one screw (callout 1) to remove the leaf spring (callout 2).



**Figure 117.** Removing the paper-size switch PCB (1 of 2)

- 3 Release four tabs (callout 3), and remove the PCB from the casing.
- 4 Unplug the cable connector (callout 4).



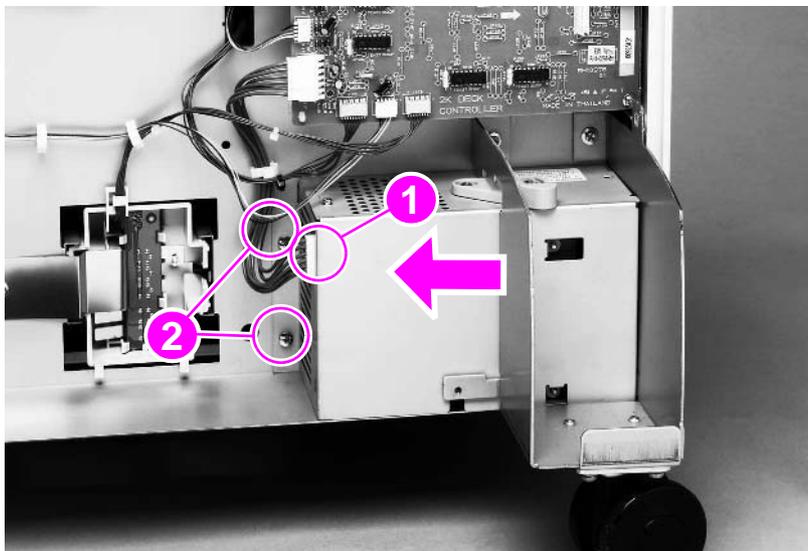
**Figure 118.** Removing the paper-size switch PCB (2 of 2)

### To reinstall

Open the paper tray (tray 4) slightly, so that it does not put pressure on the casing.

## Power supply

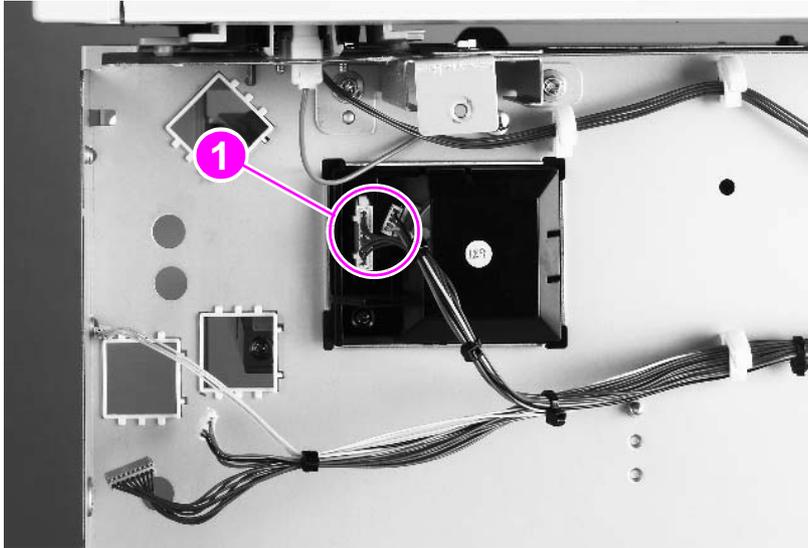
- 1 Remove the center back cover (page 161) and the left back cover (page 161).
- 2 Unplug one connector (callout 1).
- 3 Remove two screws (callout 2).
- 4 Slide the power supply to the left to remove it.



**Figure 119.** Removing the power supply

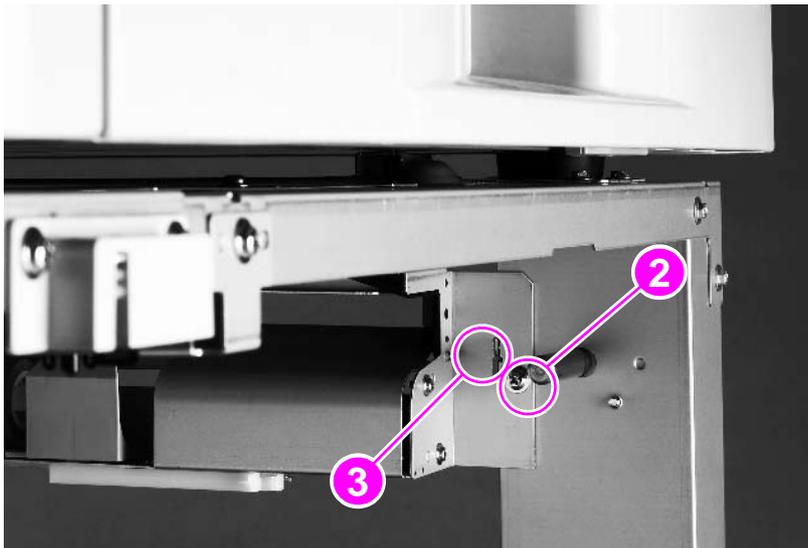
## Pickup assembly

- 1 Remove the tray assembly (page 162).
- 2 Remove the right side cover (page 160), the center back cover (page 161), and the right back cover (page 161).
- 3 Remove the registration assembly (page 164).
- 4 From the back of the 2000-sheet feeder, unplug two connectors (callout 1).



**Figure 120.** Removing the pickup assembly (1 of 2)

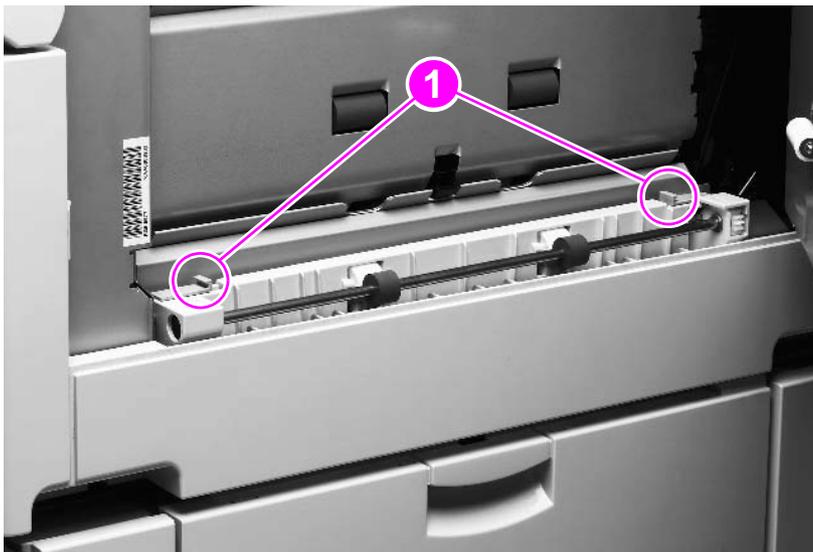
- 5 From the front of the 2000-sheet feeder, remove one screw (callout 2).
- 6 Lift the pickup assembly off the hook (callout 3) to remove it from the 2000-sheet feeder.



**Figure 121.** Removing the pickup assembly (2 of 2)

## Paper connecting unit

- 1 Release the two levers (callout 1) by pulling them toward the center of the paper connecting unit.
- 2 Lift the paper connecting unit straight up and remove it.



**Figure 122.** Removing the paper connecting unit

# 3000-sheet stapler/stacker and 3000-sheet stacker

## Output accessory removal

- 1 Turn the printer off and unplug the power cable.
- 2 Unplug the paper output accessory power cable from tray 4.
- 3 Unplug the paper output accessory interface cable from the printer formatter.
- 4 Hold the paper output accessory with one hand, and support the bottom side of the accessory with the other hand.
- 5 Pull the accessory away from the printer.
- 6 Push down on the end of the guide rail until it releases from the bracket on the 2000-sheet feeder.

## Parts removal

The following covers and assemblies can be removed from the 3000-sheet stapler/stacker and 3000-sheet stacker:

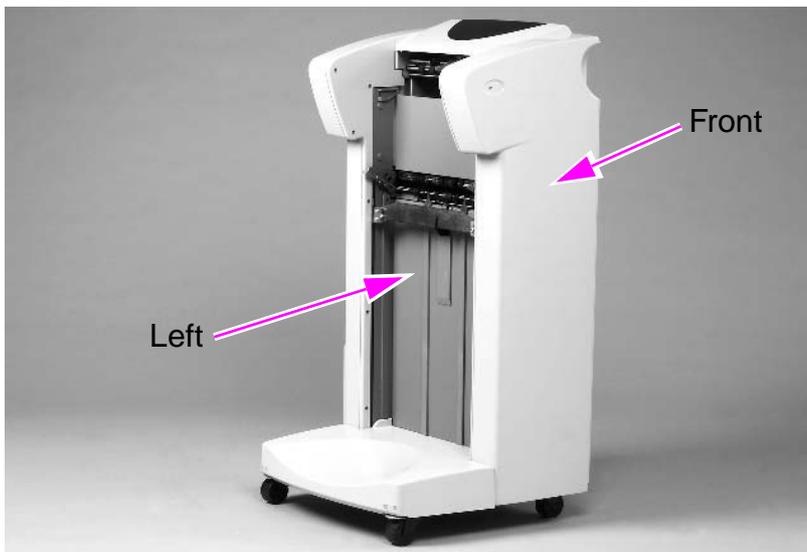
- face-up bin
- stapler/stacker bin<sup>1</sup>
- stacker bin<sup>2</sup>
- back inner and front inner covers
- front cover
- back cover
- foot cover
- door assembly
- controller PCA cover
- flipper assembly
- paper path assembly
- accumulator wings<sup>1</sup>
- paper stopper clips
- accumulator assembly<sup>1</sup>
- carriage assembly<sup>1</sup>
- offset module<sup>2</sup>
- stapler<sup>1</sup>
- controller PCA
- power supply
- LED PCA
- interlock switch
- safety switch assembly<sup>1</sup>
- optical sensors
- cable assembly
- casters

<sup>1</sup> 3000-sheet stapler/stacker only

<sup>2</sup> 3000-sheet stacker only

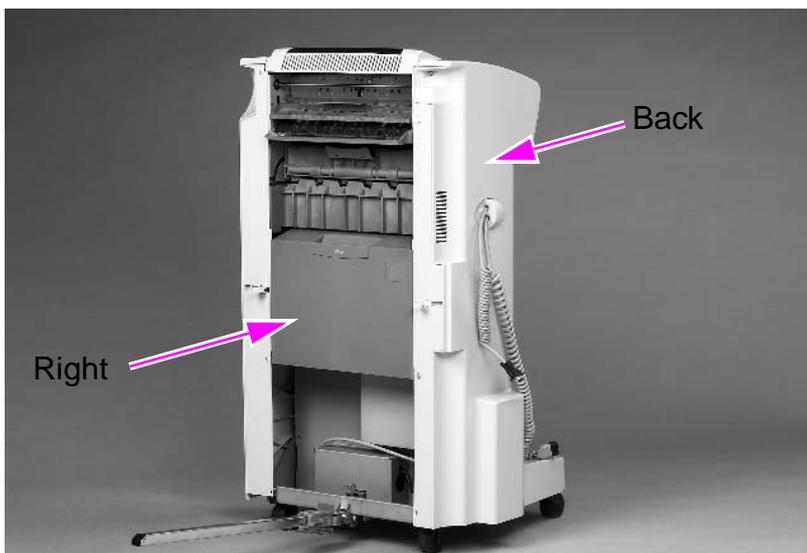
## Orientation of the stapler/stacker

### Front and left side orientation



**Figure 123.** View of front and left side

### Back and right side orientation



**Figure 124.** View of back and right side

## Face-up bin

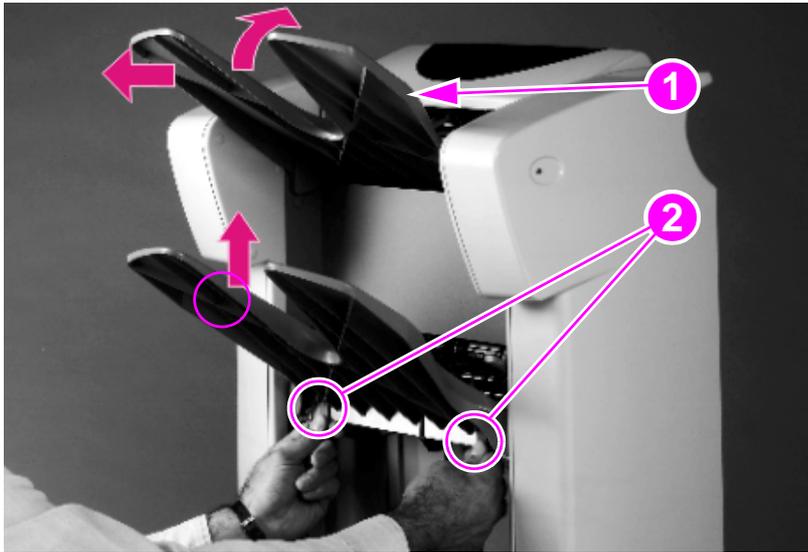
- 1 Tilt the end of the face-up bin upward (callout 1).
- 2 Pull the bin away from the product.

## Stapler/stacker bin (stapler/stacker only) or stacker bin (stacker only)

### Note

Throughout this chapter, this bin is called the “stapler/stacker bin.”

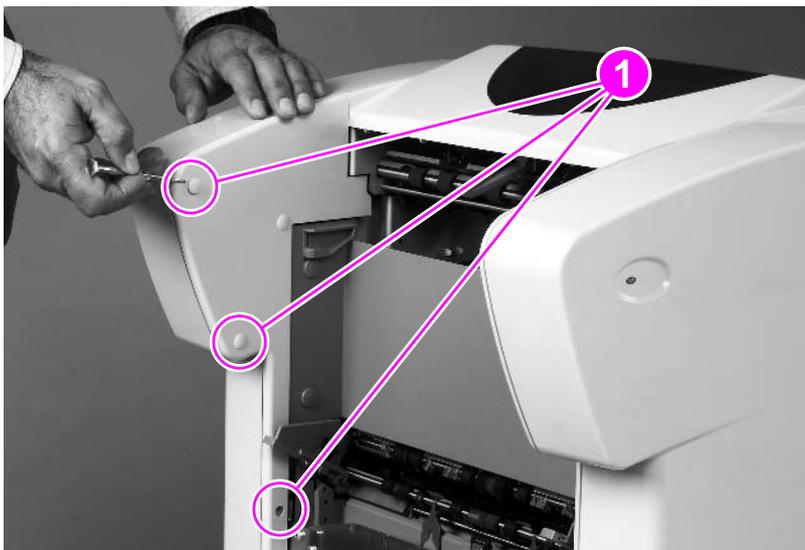
- 1 Unhook the plastic tabs under the bin (callout 2).
- 2 Move the bin up until it releases from the frame.



**Figure 125.** Removing the face-up bin and the stapler/stacker bin

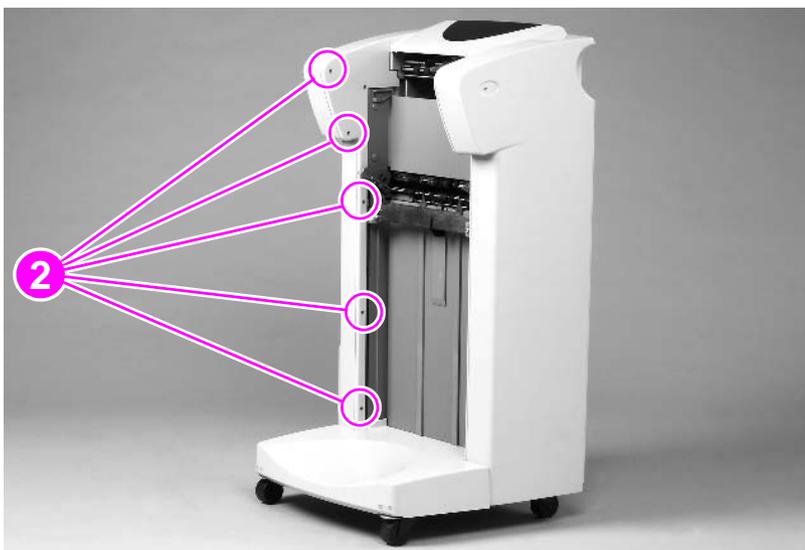
## Back inner cover and front inner cover

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Use a small flat screwdriver to remove five plastic screw caps (three shown, callout 1) from the back inner cover.



**Figure 126.** Removing the back inner cover and front inner cover (1 of 2)

- 3 Use a Phillips-head screwdriver to remove five screws from the back inner cover (callout 2).
- 4 Pull the back inner cover away from the back cover until it releases.
- 5 Lift the back inner cover up to remove it.

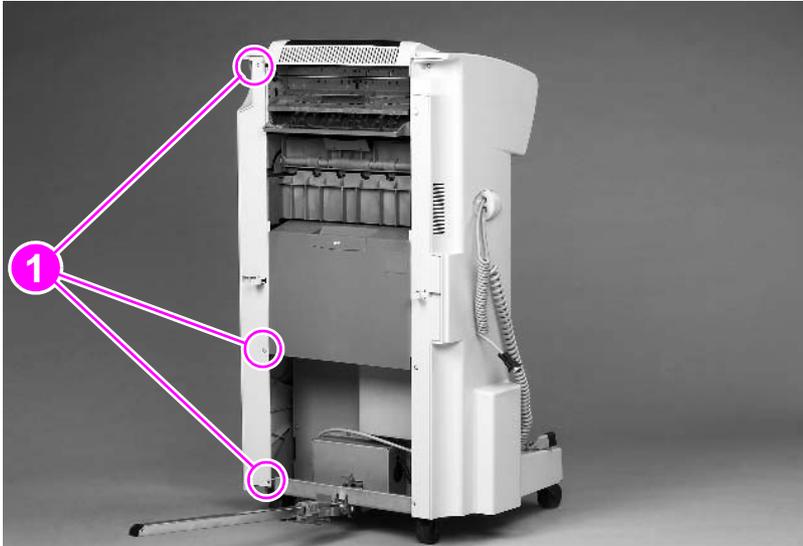


**Figure 127.** Removing the back inner cover and front inner cover (2 of 2)

- 6 Repeat steps 1 through 5 to remove the front inner cover.

## Front cover

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174).
- 3 Remove three TX-20 screws (callout 1).
- 4 Lift the cover up until it releases from the product.



**Figure 128.** Removing the front cover

### To reinstall

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#### CAUTION

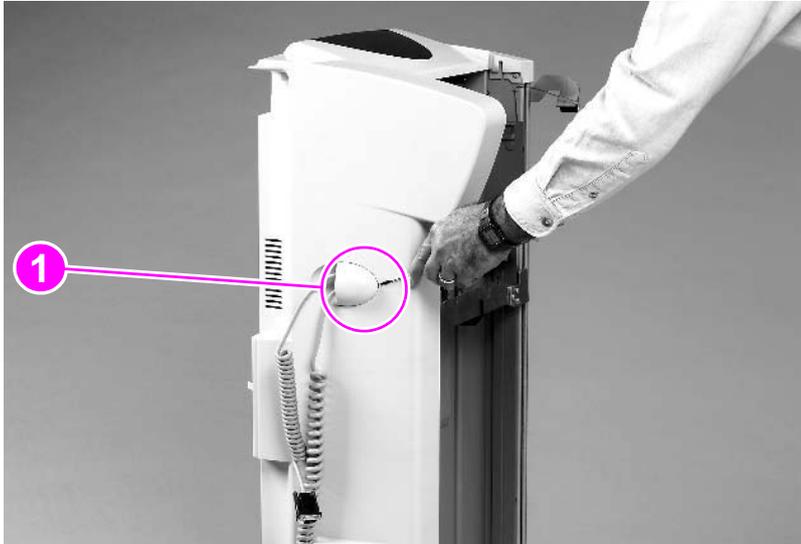
To prevent damage, make sure the three locking tabs (not shown) are locked into the product frame before you reinstall the screws.

---

Install the long screws in the top holes on the front cover.

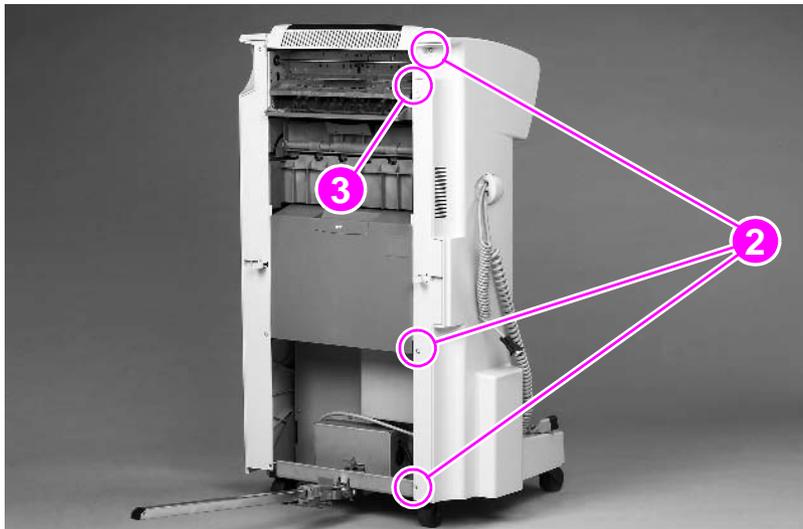
## Back cover

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174).
- 3 Use a small flat screwdriver to release the bubble cover.
- 4 Remove the cable cover (callout 1).



**Figure 129.** Removing the back cover (1 of 2)

- 5 Remove three TX-20 screws (callout 2).
- 6 Press and hold the interlock switch (callout 3) while lifting the cover upward until the cover releases from the product.
- 7 Guide both cables out of the cavity.



**Figure 130.** Removing the back cover (2 of 2)

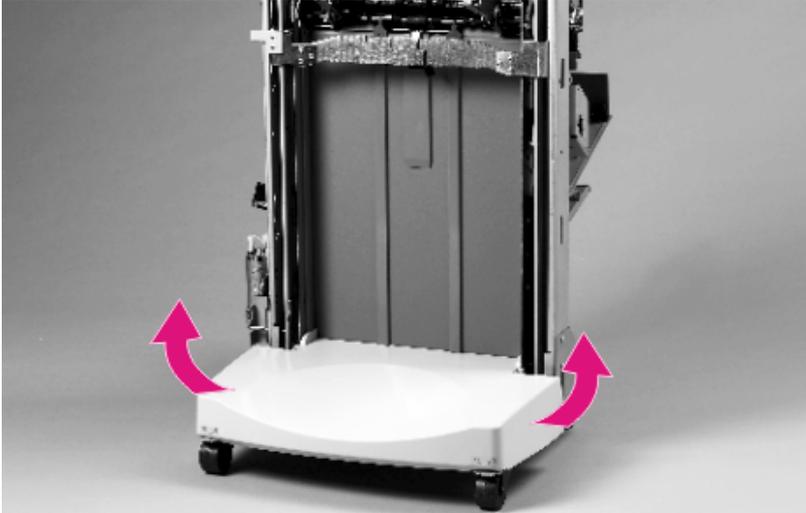
### To reinstall

#### **CAUTION**

To prevent damage, make sure the three locking tabs (not shown) are locked into the product frame before you reinstall the screws. Install the long screws in the top holes on the back cover.

## Foot cover

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174), the front cover (page 175), and the back cover (page 176).
- 3 Grasp the sides of the foot cover, and pull it out and up to clear the locating pin.
- 4 Remove the foot cover from the product.



**Figure 131.** Removing the foot cover

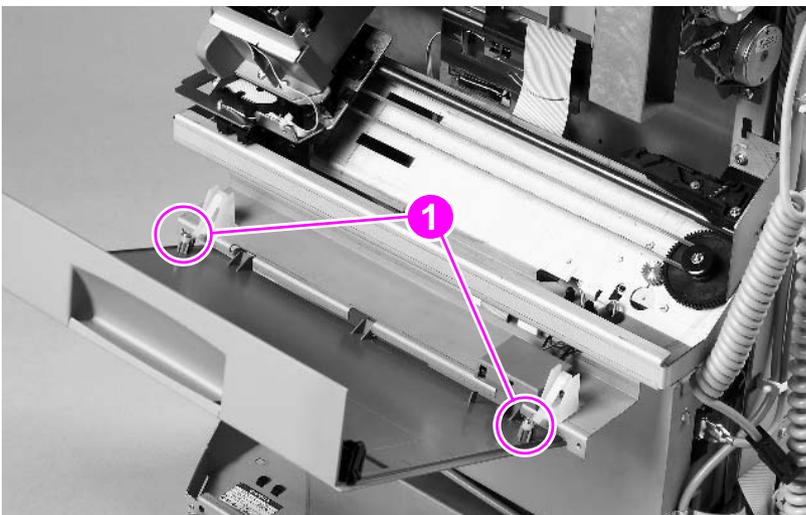
## Door assembly

- 1 Open the door assembly.
- 2 Remove two TX-20 screws (callout 1) from the plastic straps inside the door.

### Note

The screws remain attached to the plastic straps.

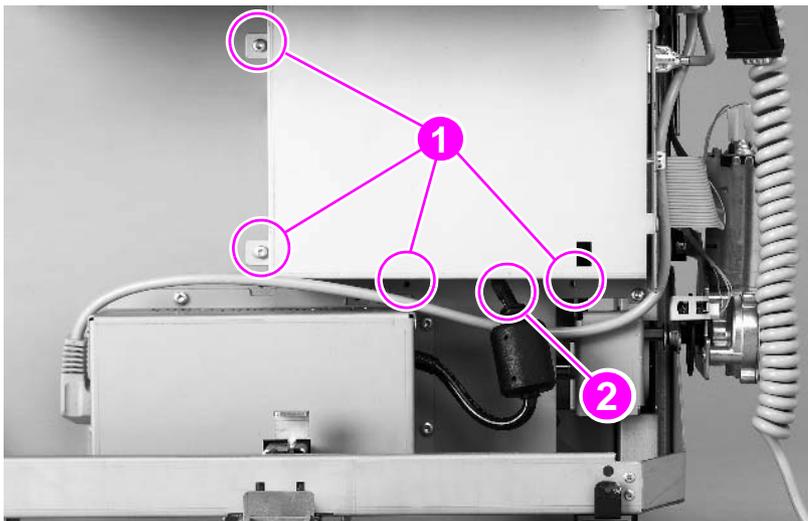
- 3 Rotate the door downward until the flat sides of the hinges are parallel to the floor.
- 4 Keep the door straight, and pull it away from the product.



**Figure 132.** Removing the stapler/stacker and stacker door assembly

## Controller PCA cover

- 1 Remove four TX-20 screws (callout 1) from the cover.
- 2 Rotate the cover to clear the tabs, and then lift the cover away from the product.



**Figure 133.** Removing the controller PCA cover

### To reinstall

Make sure you insert the power cord rubber grommet (callout 2) into the slot on the bottom of the cover.

---

#### Note

When properly installed, the rubber grommet is not visible.

## Flipper assembly

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174), the front cover (page 175), and the back cover (page 176).
- 3 Unplug the flipper ribbon cable (callout 1) by pressing the black tabs on the cable connector.

### CAUTION

To prevent damage to the flipper motor, use the long bit TX-20 screwdriver to remove the top right TX-20 mount screw. The long bit TX-20 screwdriver is shipped with the flipper assembly.

- 4 Remove four TX-20 mount screws (callout 2).

### CAUTION

To prevent damage to the face-up full-bin flag, use care when removing the flipper assembly.

- 5 Grasp the assembly on each side, and lift it up to clear the tabs.
- 6 Pull the assembly away from the product.

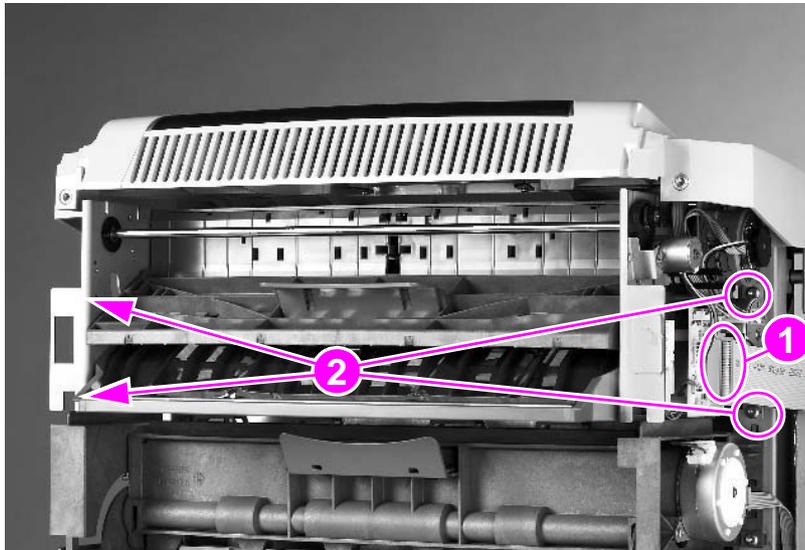
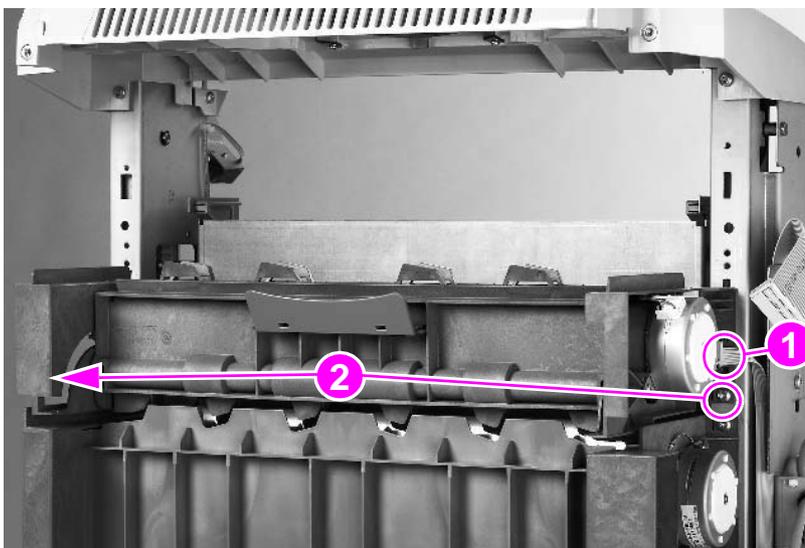


Figure 134. Removing the flipper assembly

## Paper path assembly

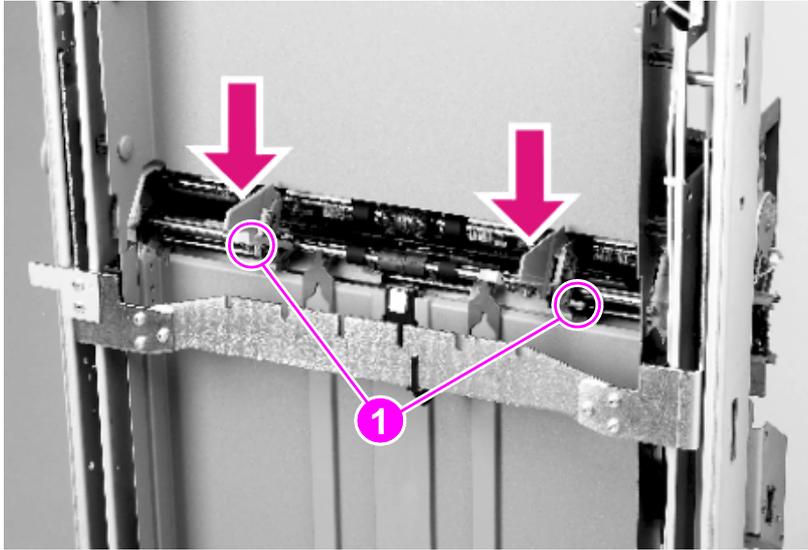
- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174), the front cover (page 175), and the back cover (page 176).
- 3 Unplug the paper-path ribbon cable (callout 1) by pressing the black tabs on the cable connector.
- 4 Remove two TX-20 mount screws (callout 2).
- 5 Grasp each side of the assembly, and lift it up to clear the tabs.
- 6 Pull the assembly away from the product.



**Figure 135.** Removing the paper path assembly

## Accumulator wings (stapler/stacker only)

- 1 Grasp each accumulator wing near the shaft.
- 2 Slide the wings toward the center of the shaft.
- 3 Apply slight downward pressure to disengage the wings.
- 4 Compress the locking tabs (callout 1) on the rotation pins, and push the pins out of the mounting holes.



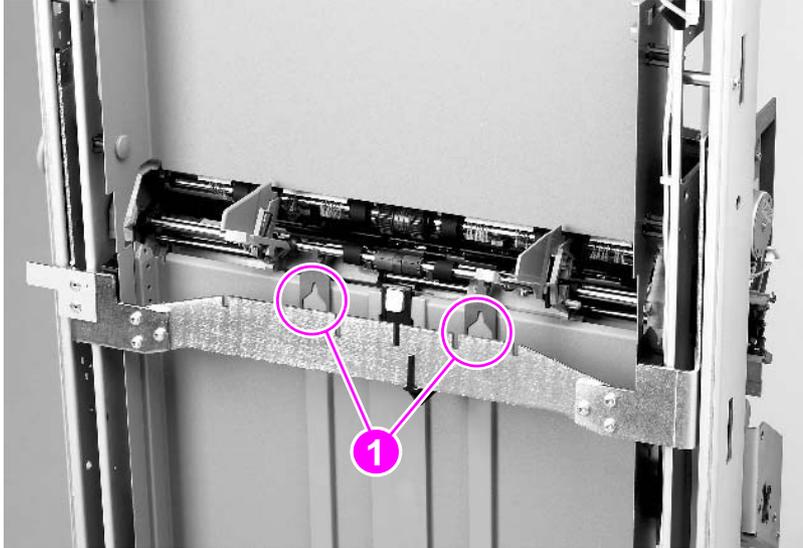
**Figure 136.** Removing the accumulator wings

### Reinstall note

To prevent malfunction, make sure you install the left wing and the right wing on the correct sides.

## Paper stopper clips

- 1 Use a small flat screwdriver to spread the paper stopper clips (callout 1) and to disengage the tabs.
- 2 Grasp the paper stopper clips and gently pull them away from the product to disengage the shaft.

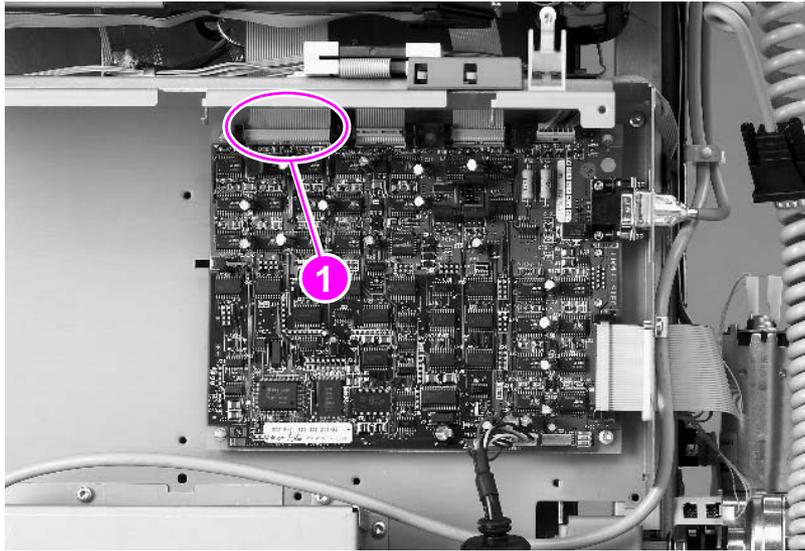


**Figure 137.** Removing the paper stopper clips

**Note** Paper stopper clips must be installed to prevent paper drops or jams.

## Accumulator assembly (stapler/stacker only)

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174), the front cover (page 175), and the back cover (page 176).
- 3 Remove the controller PCA cover (page 178).
- 4 Unplug the ribbon cable (callout 1) from the controller PCA by pressing the black tabs on the cable connector.

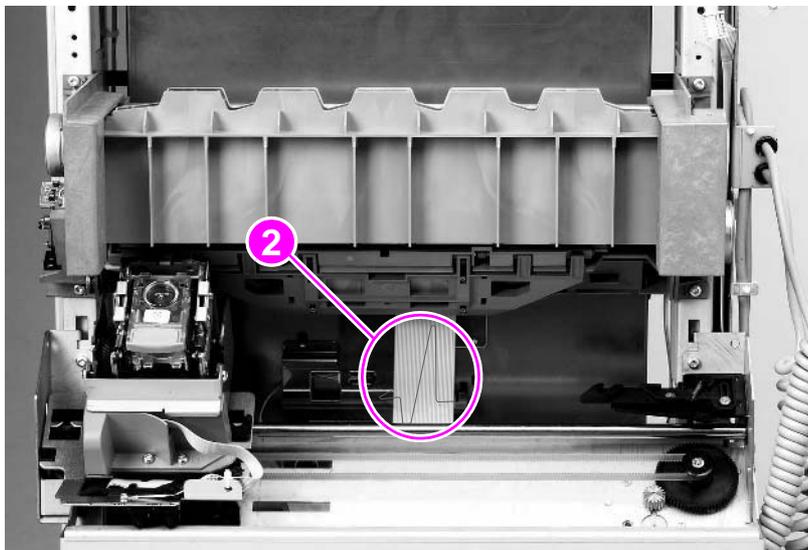


**Figure 138.** Removing the accumulator assembly (1 of 3)

- 5 Push the ribbon cable up through the hole.
- 6 Unlatch the ribbon retention wire (callout 2).

### Note

Do not remove the wire from the product when you unlatch it.



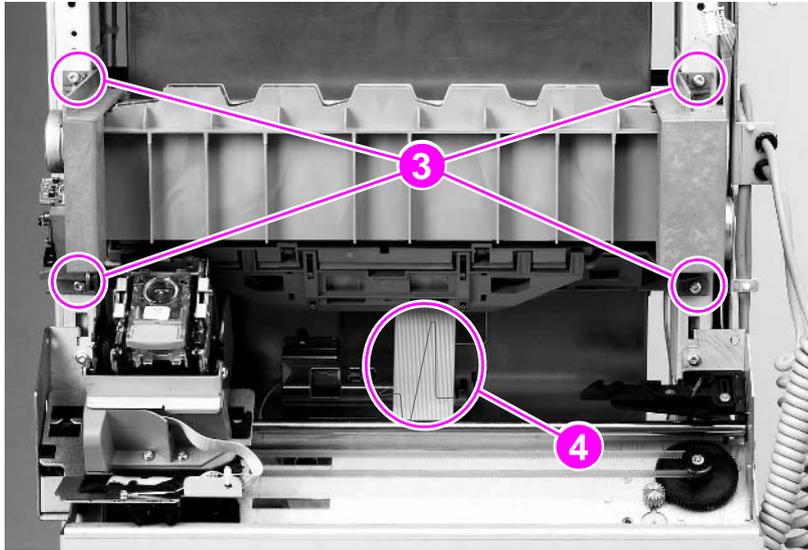
**Figure 139.** Removing the accumulator assembly (2 of 3)

---

**Hint**

Removal of the carriage assembly is not required, but removing it makes removing and installing the accumulator very easy. See "Carriage assembly (stapler/stacker only)" on page 185.

- 7 Remove four TX-20 mount screws (callout 3).
- 8 Grasp the assembly on each side and lift up to clear the tabs.
- 9 Pull the assembly away from the product.



**Figure 140.** Removing the accumulator assembly (3 of 3)

### To reinstall

---

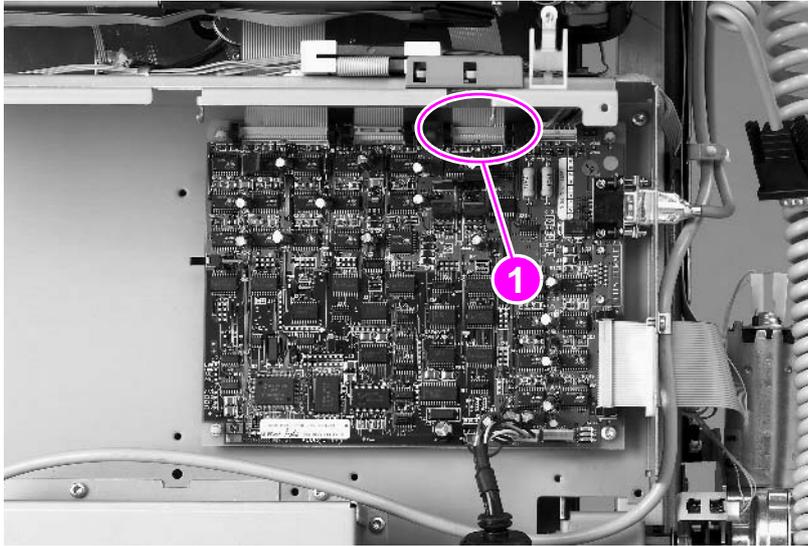
**Note**

To prevent ribbon or staple cartridge damage, make sure you correctly install the accumulator ribbon retention wire (callout 4).

---

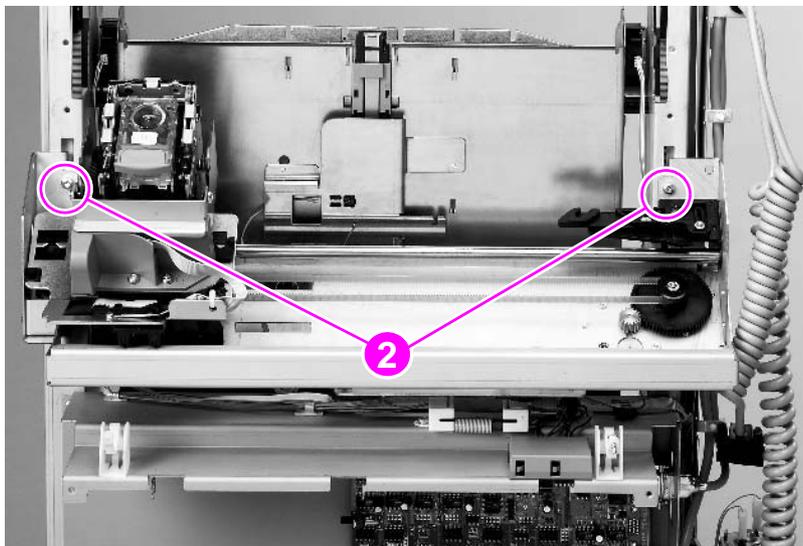
## Carriage assembly (stapler/stacker only)

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174), the front cover (page 175), and the back cover (page 176).
- 3 Remove the controller PCA cover (page 178).
- 4 Unplug the ribbon cable (callout 1) from the controller PCA by pressing the black tabs.



**Figure 141.** Removing the carriage assembly (1 of 2)

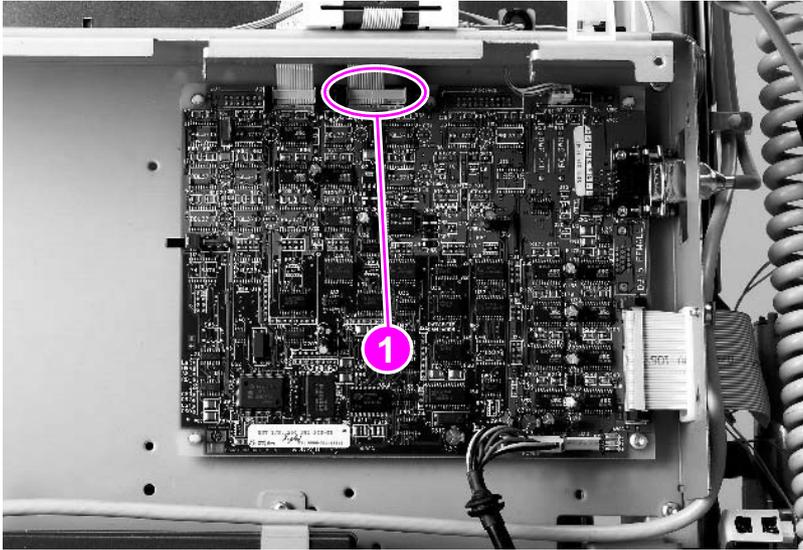
- 5 Push the ribbon cable up through the hole.
- 6 Remove two TX-20 mount screws (callout 2).
- 7 Grasp the assembly on each side and lift up to clear the tabs.
- 8 Pull the assembly away from the product.



**Figure 142.** Removing the carriage assembly (2 of 2)

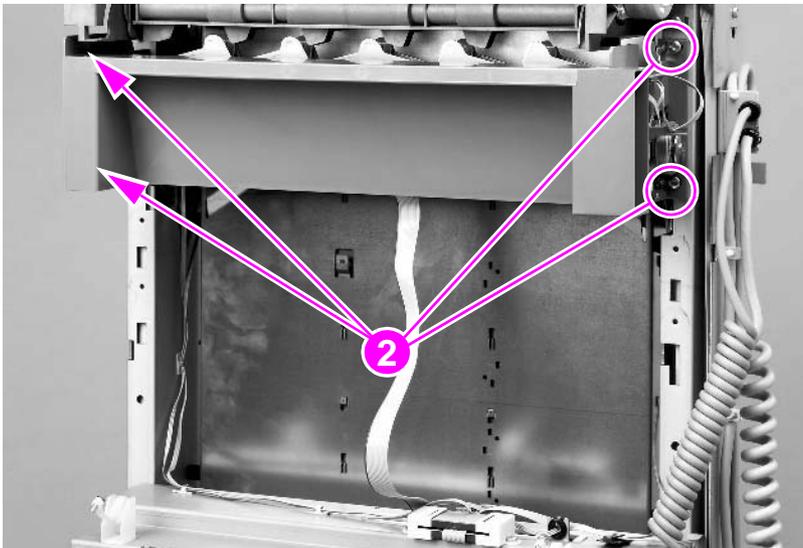
## Offset module (stacker only)

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174), the front cover (page 175), and the back cover (page 176).
- 3 Remove the controller PCA cover (page 178).
- 4 Unplug the ribbon cable (callout 1) from the controller PCA by pressing the black tabs.



**Figure 143.** Removing the offset module (1 of 2)

- 5 Push the ribbon cable up through the hole.
- 6 Remove four TX-20 mount screws (callout 2).
- 7 Grasp the assembly on each side and lift up to clear the tabs.
- 8 Pull the assembly away from the product.



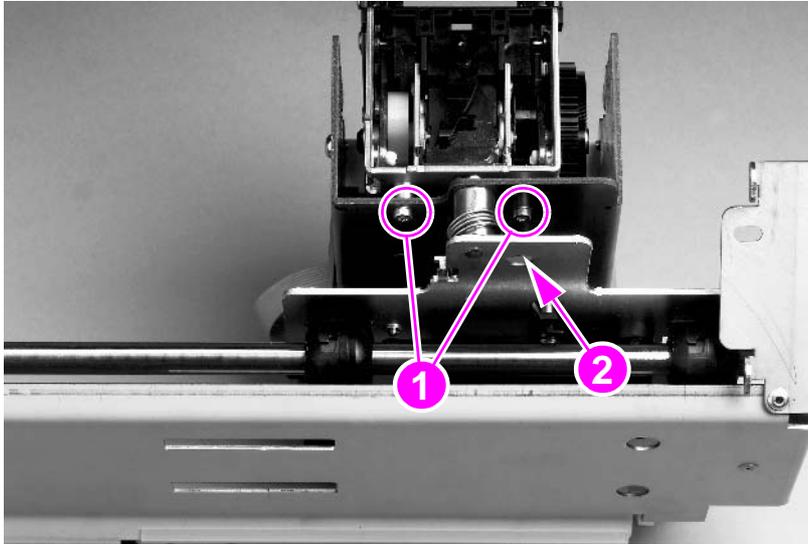
**Figure 144.** Removing the offset module (2 of 2)

## Stapler (stapler/stacker only)

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174), the front cover (page 175), and the back cover (page 176).
- 3 Remove the controller PCA cover (page 178) and the carriage assembly (page 185).
- 4 Remove the staple cartridge from the stapler.
- 5 Remove two TX-10 mount screws (callout 1).

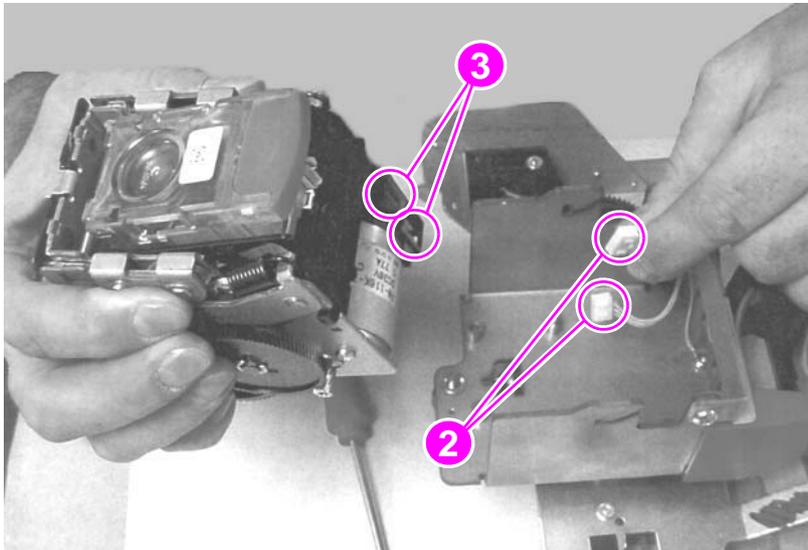
### Note

Gain access to one screw through the hole (callout 2) in the metal plate.



**Figure 145.** Removing the stapler (1 of 2)

- 6 Lift the stapler up and disconnect the cables (callout 2) from the connectors (callout 3).



**Figure 146.** Removing the stapler (2 of 2)

## Controller PCA

### Note

See figure 147 for the stapler/stacker or figure 148 for the stacker.



- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back inner cover (page 174) and the back cover (page 176).
- 3 Remove the controller PCA cover (page 178).
- 4 **Stapler/stacker:** Unplug four ribbon cables, the power cable, and the LED cable (upper photo, callout 1).  
**Stacker:** Unplug three ribbon cables, the power cable, and the LED cable (lower photo, callout 1).
- 5 Loosen two connector screws (callout 2) on the Jet-Link cable, and then disconnect the cable.
- 6 Remove four TX-20 mount screws (callout 3), and lift the controller PCA out of the product.

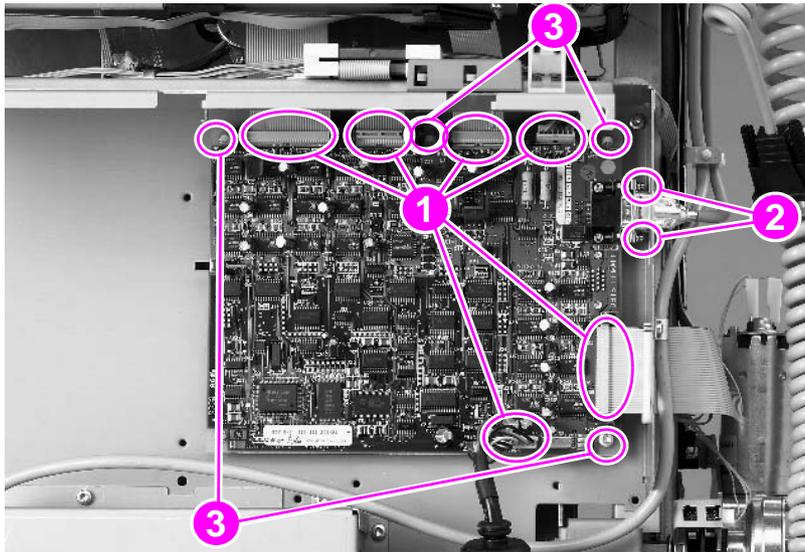


Figure 147. Removing the stapler/stacker controller PCA

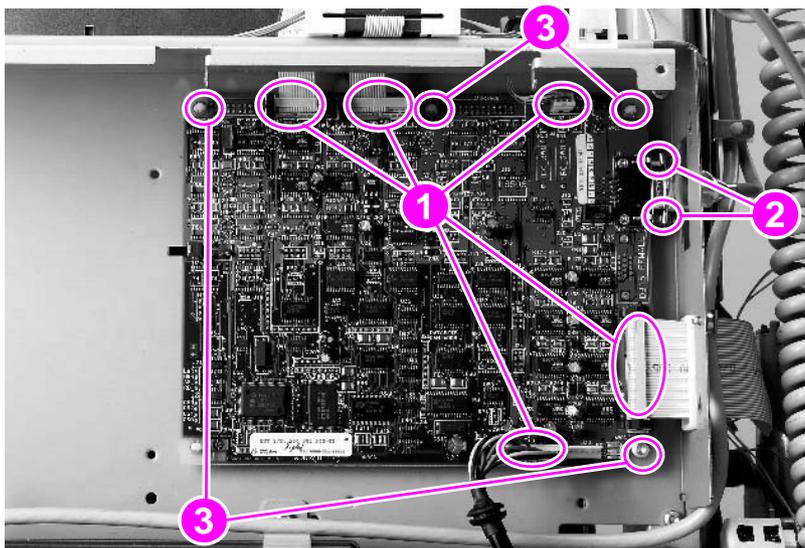


Figure 148. Removing the stacker controller PCA

## Power supply

### Note

See figure 149 for the stapler/stacker or figure 150 for the stacker



- 1 Remove the controller PCA cover (page 178).
- 2 Unplug the power cable (callout 1) from the power supply.
- 3 Unplug the cable from the controller PCA (callout 2).
- 4 **Stapler/stacker:** Remove eight TX-20 screws (callout 3) from the cover, and lift out the power supply and the cover.  
**Stacker:** Remove one TX-20 screw (callout 3) from the bracket, and lift out the power supply and the bracket.

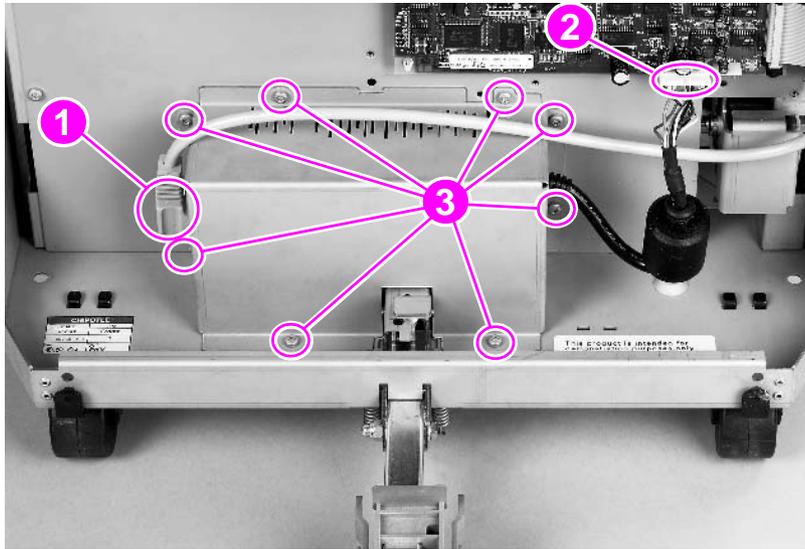


Figure 149. Removing the stapler/stacker power supply

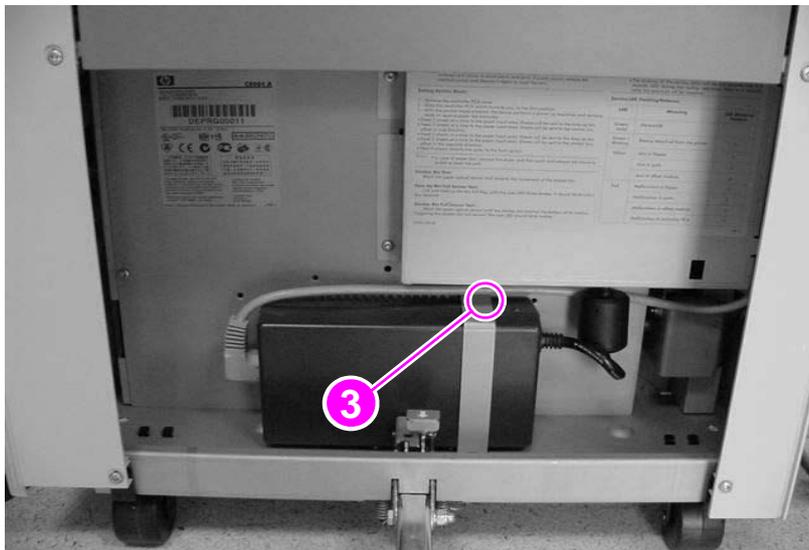
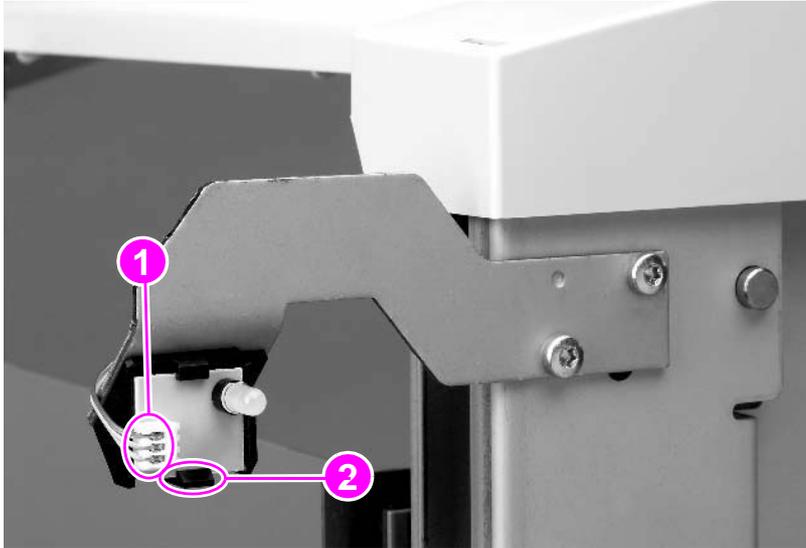


Figure 150. Removing the stacker power supply



## LED PCA

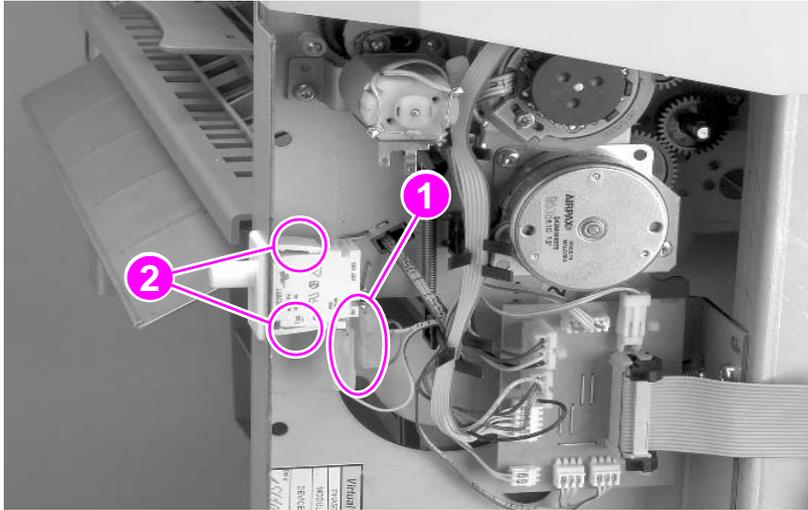
- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the front inner cover (page 174).
- 3 Remove the front cover (page 175).
- 4 Unplug one cable (callout 1) from the LED PCA.
- 5 Push the release tab (callout 2) and lift out the LED PCA.



**Figure 151.** Removing the LED PCA

## Interlock switch

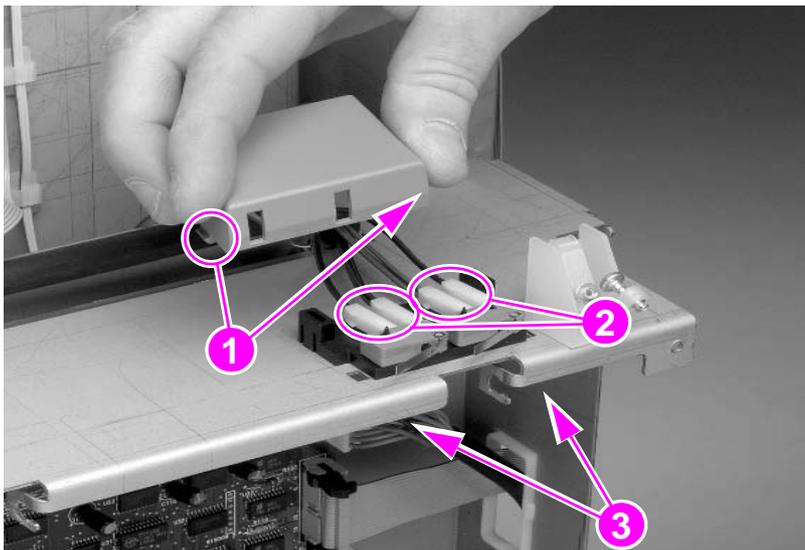
- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back inner cover (page 174) and the back cover (page 176).
- 3 Unplug two cable connectors (callout 1) from the interlock switch.
- 4 Squeeze the top and the bottom of the interlock switch (callout 2), and push the switch through the hole.



**Figure 152.** Removing the interlock switch

## Safety switch assembly (stapler/stacker only)

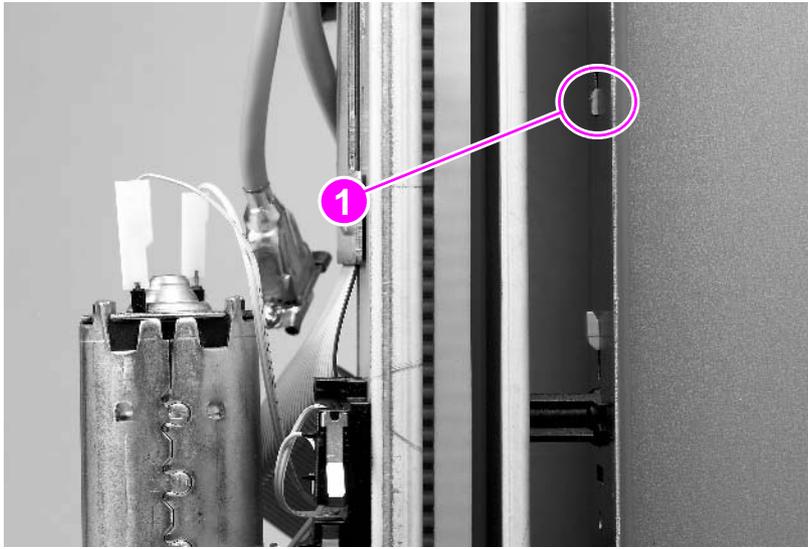
- 1 Press the two tabs on the sides of the safety switch assembly cover (callout 1) to release it from the frame.
- 2 Lift the cover away from the assembly.
- 3 Disconnect two cables (callout 2) from the safety switch assembly.
- 4 Press the tabs on the bottom of the safety switch assembly (callout 3), and lift the assembly away from the product.



**Figure 153.** Removing the safety switch assembly

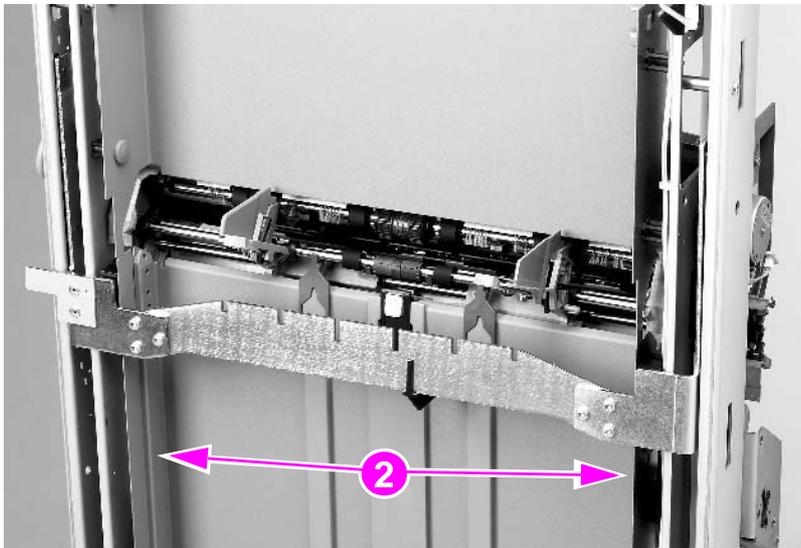
## Optical sensors

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back and front inner covers (page 174), the front cover (page 175), and the back cover (page 176).
- 3 Remove the controller PCA cover (page 178).
- 4 Remove the accumulator assembly (stapler/stacker only) (page 183).
- 5 Press the plastic track lock tab (callout 1) until it clears the product frame.
- 6 Slide the plastic track down and away from the product.



**Figure 154.** Removing the optical sensors (1 of 3)

- 7 Remove two plastic ribs (callout 2).

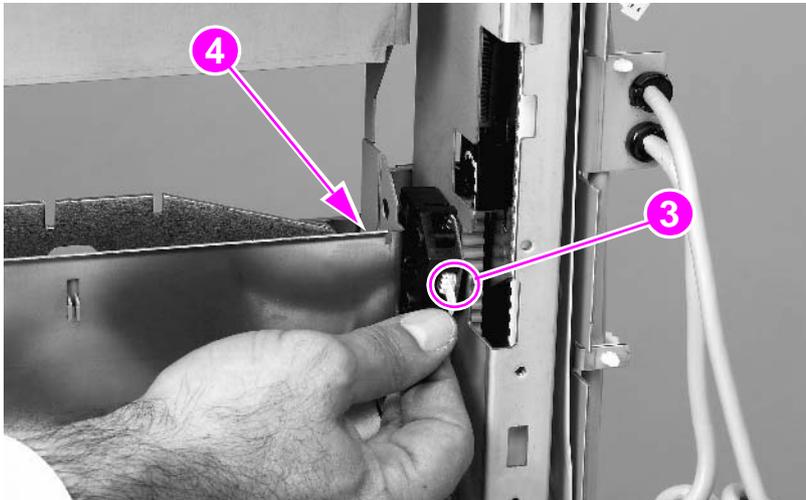


**Figure 155.** Removing the optical sensors (2 of 3)

- 8 Disconnect the cable from the optical sensor (callout 3).
- 9 Press the optical sensor lock tab (callout 4) until it clears the product frame. Pull the sensor out and away from the product.

**Note**

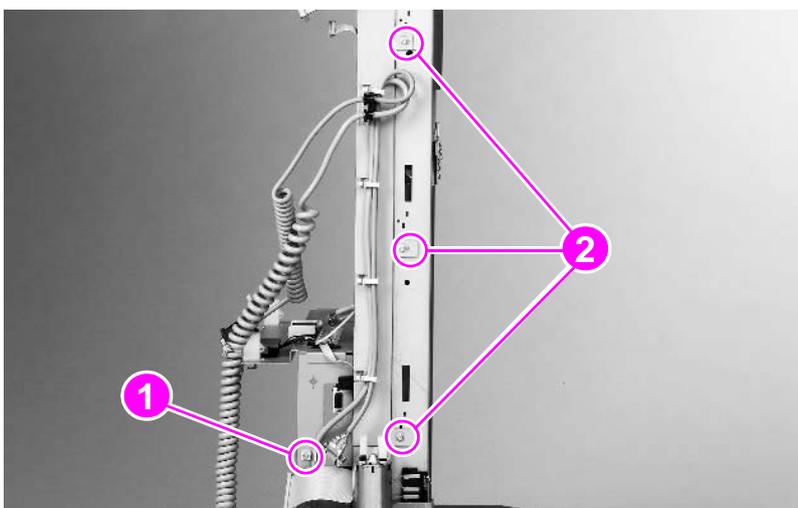
The sensor is secured with an adhesive strip. You must apply pressure to dislodge the sensor.



**Figure 156.** Removing the optical sensors (3 of 3)

### Cable assembly

- 1 Remove the face-up bin and the stapler/stacker bin (page 173).
- 2 Remove the back inner cover (page 174) and the back cover (page 176).
- 3 Remove the controller PCA cover (page 178).
- 4 Disconnect the ribbon cables from the flipper assembly, the path assembly, and the controller PCA.
- 5 Disconnect the power cable from the power supply.
- 6 Loosen two screws, and then disconnect the Jet-Link cable from the controller PCA.
- 7 Loosen one TX-20 screw (callout 1), remove three TX-20 screws (callout 2), and then lift the cable assembly away from the product.

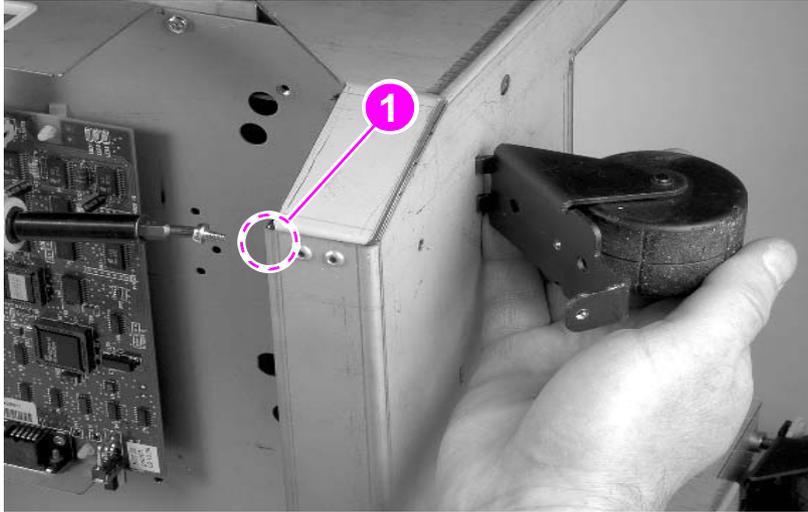


**Figure 157.** Removing the cable assembly

## Casters

### Stationary caster

- 1 Lay the product on the front or back side, so that the caster being replaced is off the floor.
- 2 Remove one TX-20 screw (callout 1) from the inside of the frame.
- 3 Rotate the caster 90° to clear the tabs and pull the caster away from the product.



**Figure 158.** Removing the stationary caster

### Adjustable caster

- 1 Lay the product on the front or back side, so that the caster being replaced is off the floor.
- 2 Use a flat blade screwdriver and snap the e-clip off of the adjusting knob (callout 1).
- 3 Slide the caster out of position and remove it.



**Figure 159.** Removing the adjustable caster



# 7

# Troubleshooting

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# Troubleshooting process

The troubleshooting process is a systematic approach that addresses the primary problems first, and then other problems to discover the causes for printer malfunctions and errors. The "Basic troubleshooting process flow" on page 200 illustrates the primary steps for troubleshooting the printing system. Each heading depicts a primary troubleshooting step. A "YES" answer to the questions allows troubleshooting to proceed to the next primary step.

A "NO" answer indicates that additional testing and correction is needed. Proceed to the referenced location in the chapter and follow the directions there. After completing the additional testing and correcting the problem, proceed to the next primary step.

---

**Note**

---

It is important to always follow this process in sequence. Failure to do so can result in increased repair time, difficulty, and expense.

This list describes the basic questions to answer and the corresponding troubleshooting sections to help quickly define the problem(s).

**Table 27. Primary steps for troubleshooting**

"Power-on" on page 206	Does the printer perform the initialization and power-on sequence?  This section contains the procedures for correcting power supply problems.
"Printer message tables" on page 211	Does the control panel indicate an error condition?  This section contains the procedures for clearing control panel messages.
"Paper path test" on page 238	Is it possible to perform a paper path test?  This section contains information about troubleshooting paper-path and print-media problems.
"Evaluate the information pages" on page 256	Is there information in the event log?  This section contains the procedures for printing the information pages and evaluating and correcting printer configuration.
"Image-formation troubleshooting" on page 263	Does the print quality meet customer expectations?  This section contains print cartridge checks, information about EconoMode, image defect examples, and the repeating defect ruler.
"Media troubleshooting" on page 274	Is the media being used acceptable for this printer?  This section contains information about how to determine print-media problems and correct them.
"Communication troubleshooting" on page 276	Can the customer print from the host system successfully?  This section describes how to determine whether the printer is communicating properly with the host system.

## Basic troubleshooting process flow

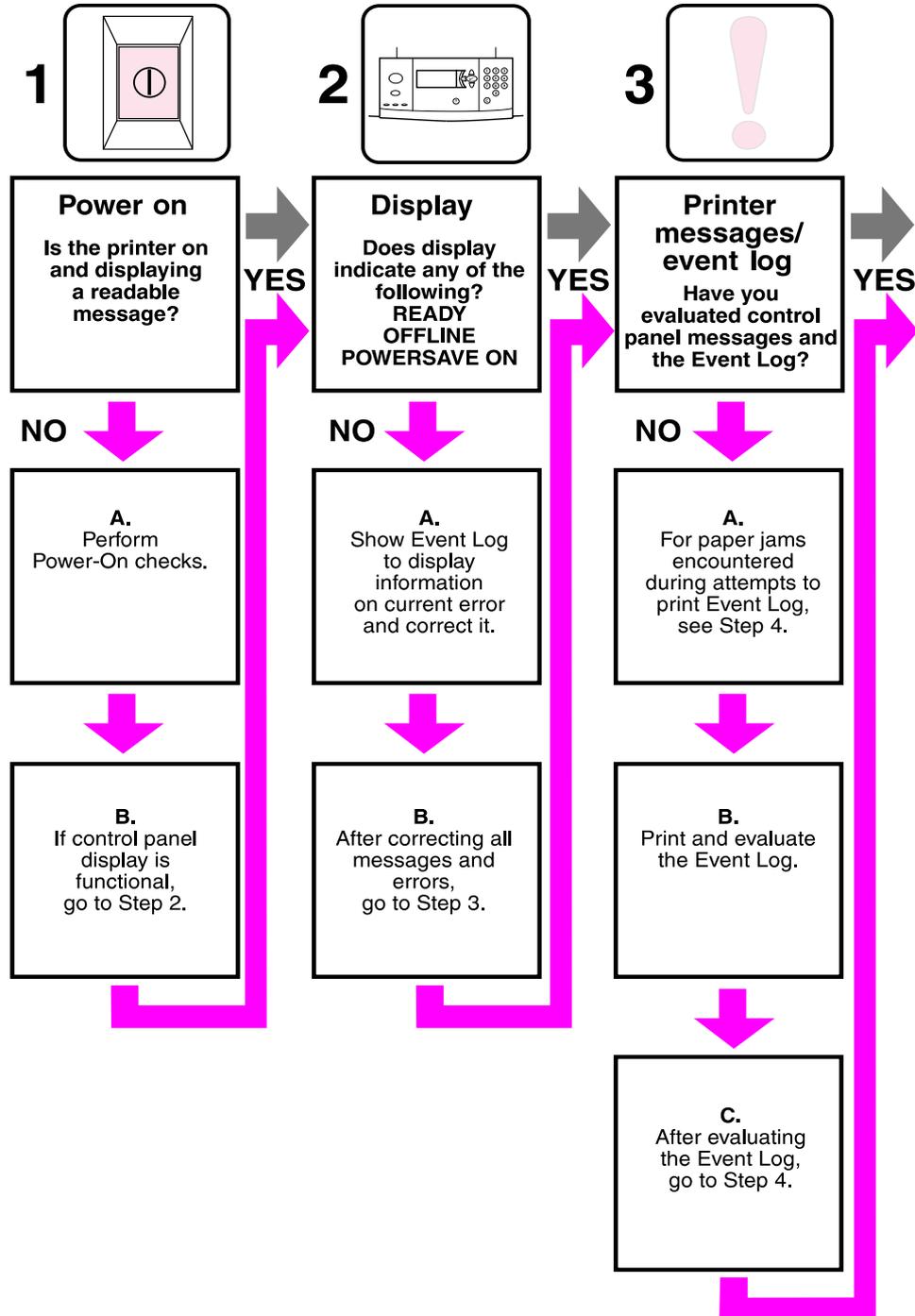


Figure 160. Basic troubleshooting process flow (1 of 2)

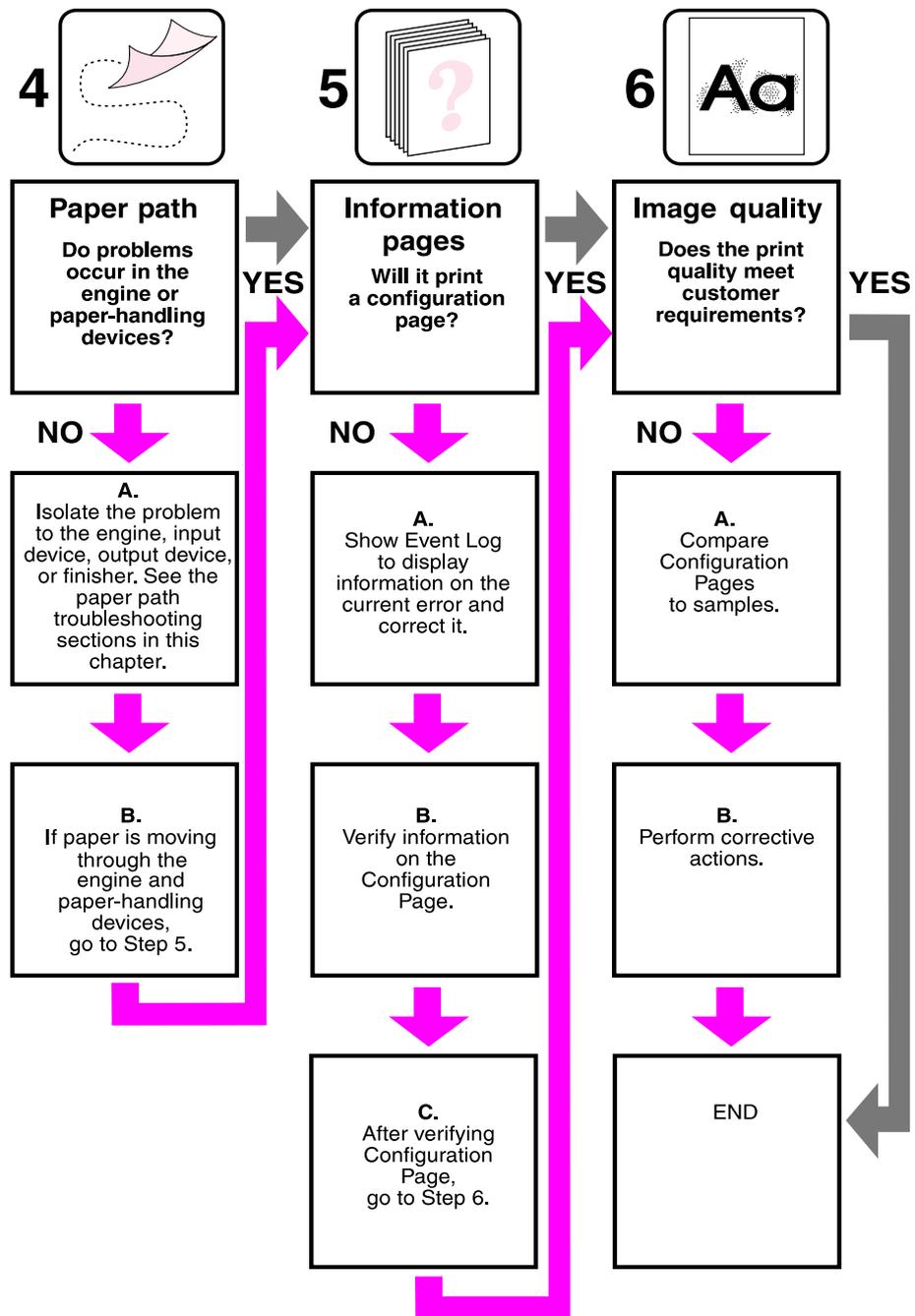


Figure 161. Basic troubleshooting process flow (2 of 2)

## Preliminary operating checks

Make sure that the following conditions are met before troubleshooting a specific printer problem:

- The printer is plugged in, and specified power is delivered.
- The selected tray contains media that has been properly loaded and adjusted.
- The print cartridge is installed properly.
- The printer receives maintenance on a regular basis.
- Any I/O devices are properly installed.
- The customer is using acceptable print media.
- The printer is positioned on a solid, level surface.
- The line voltage does not vary more than 10 percent from the nominal rated value specified on the power rating label.
- The operating environment for the printer is within the temperature and humidity specifications.
- The printer is never exposed to ammonia fumes.
- The printer is not exposed to direct sunlight.
- Non-HP components (such as refilled print cartridges, font DIMMs, and memory DIMMs) are removed from the printer.

---

### Note

Sudden changes in printer environment can cause image defects and media-handling problems. Always make sure the printer is not exposed to direct sunlight or to heating or cooling vents. Allow time for the printer and media to acclimate whenever changing environments (for example, moving from a cold environment to a warm one). Acclimation can take anywhere from 3 to 24 hours depending on the ambient conditions.

---

# General troubleshooting information

## Miscellaneous problems and solutions

The following lists symptoms and typical solutions to those problems.

### **Abnormal noises are evident, such as grinding or chattering when the main motor is energized.**

From the print cartridge area:

- If print cartridge is new, automatic seal roll-up will cause noise until seal removal is complete.
- If not new, replace the print cartridge.

From the fuser area:

- Reseat the fuser.
- Remove and reinstall the fuser.

From tray 2 or 3:

- Verify proper paper loading, acceptable media.
- Inspect the “fingers” on the paper trays to ensure proper paper size detection.

If installed, from 2000-sheet feeder:

- Verify proper paper loading, acceptable media.
- Replace the 2000-sheet feeder paper path connection unit.
- Replace the 2000-sheet feeder main drive assembly.

### **Media will not feed from tray x when printing from an application; the paper path test works fine.**

Verify the correct paper size:

- All trays: From the control panel.
- Tray 2, 3, or 4: Remove and reseat the paper guides in the correct position in the failing tray.
- Verify the custom size switch setting.

### **Media will not print from the 2000-sheet feeder.**

- Verify that power is supplied to the 2000-sheet feeder.
- Print the configuration page. Make sure that the 2000-sheet feeder is listed in the paper handling options section.
- Run a paper path test from tray 4. If the test is successful, the paper size detection switches may have failed or an incorrect size may be specified in the application software.
- Verify the custom size switch setting.

### **Stops printing and hangs on certain jobs.**

- Remove any non-HP memory DIMMs and retry.
- Resend print job.
- Send a print job from a different application.

## Wrinkling envelopes.

- Verify the input tray is tray 1.
- Verify the output destination is the face-up bin.
- Place the fuser levers in the up position and retry the envelopes.
- Try new media. Make sure that the envelopes are within specifications. See the *HP LaserJet Printer Family Print Media Guide*.

## Poor fusing.

- Make sure that the fuser levers are in the down position for cut sheet paper.
- Verify that all packing spacers have been removed from inside the printer.
- Try new media. Make sure that the media is within specifications. See the *HP LaserJet Printer Family Print Media Guide*.
- Verify that the proper fusing mode for the media is set in the control panel.
- Make sure that the AC power does not fluctuate out of range during the print cycle.

## Feeds from incorrect tray when selecting different media for the first page of the job.

- Determine if the problem is a hardware or a software issue. Run a paper path test from each paper tray to eliminate the hardware. See "Paper path test" on page 238.
- If the paper path test fails, troubleshoot the error message.
- Make sure that the most current printer driver is installed. Select the **Print Quality Tab** from the printer driver. Click **About**.
- Verify the custom size switch setting.
- If the paper path test works, the problem may be a software or user related issue. Perform the following steps:
  - Define the media types that are loaded in each paper tray. This can be done from HP Web JetAdmin if an HP Jetdirect print server is installed, or from the control panel.

*From HP Web JetAdmin:*

- 1 Select the **Trays** tab.
- 2 Select the correct media type for each tray listed.
- 3 Click **OK** to save your changes, and exit HP Web JetAdmin.

*From the control panel:*

### Tray 1

- 1 Press **✓**.
- 2 Use **▼** or **▲** to scroll to Paper Handling and press **✓**.
- 3 Use **▼** or **▲** to scroll to Tray 1 Size and press **✓**.
- 4 Use **▼** or **▲** to scroll to the size media loaded and press **✓**.
- 5 Press **PAUSE/RESUME** to exit the menu.

## Tray 2, tray 3, and optional tray 4

### Note

Standard sizes are automatically detected in these trays, so you do not need to set the size manually.

To set the size for custom paper in tray 2, tray 3, and optional tray 4:

- 1 Press **✓**.
- 2 Use **▼** or **▲** to scroll to **Paper Handling** and press **✓**.
- 3 Use **▼** or **▲** to scroll to **Tray X Size**, where X is the tray you are setting, and press **✓**.
- 4 Use **▼** or **▲** to scroll to **Custom** and press **✓**.
- 5 Use **▼** or **▲** to select the unit of measure (**Millimeters** or **Inches**) and press **✓**.
- 6 Use the keypad or the **▼** or **▲** to enter the X (front to back) dimension and press **✓**.
- 7 Use the keypad or the **▼** or **▲** to enter the Y (left to right) dimension and press **✓**.
- 8 Press **PAUSE/RESUME** to exit the menu.

# Power-on

It is important to have the printer control panel functional as soon as possible in the troubleshooting process so that the printer diagnostics can assist in locating printing errors.

**Table 28. Power-on defects or blank display**

Problem	Action
Is AC power available at the printer power receptacle?	Verify that power is available. See "Electrical specifications" in Chapter 1.
Is the printer on/off switch set to on?	Push the switch to the on position.
Are the printer fans on?	<p>Press <b>PAUSE/RESUME</b> to put the printer in the ready state.</p> <p><b>Note:</b> The fan operation is significant since all fans are controlled by the printer's DC controller PCA. Fans 1 through 6 will operate at full speed for 30 seconds during the WAIT period. Fans 1-5 will slow to half speed and fan 6 will stop during the STBY period, and when the printer is in PowerSave mode. Make sure that the printer is not in PowerSave mode.</p> <p>Operational fans indicate:</p> <ol style="list-style-type: none"> <li>1 AC power is present in the printer.</li> <li>2 DC power supply is functional (both 24V DC and 5V DC are being generated).</li> <li>3 DC controller PCA microprocessor is functional.</li> </ol>
<b>NO</b>	<p>If the fans are NOT working, turn off the printer and remove the printer formatter PCA. Disconnect all the printer paper handling options. Then turn on the printer and check the fans again. If the fans are still not working, perform the following steps:</p> <ol style="list-style-type: none"> <li>1 Verify that all fans are connected to the DC controller PCA.</li> <li>2 Perform an engine test.</li> </ol>
<b>YES</b>	<p>If the fans are working, but the printer control panel is blank, print an engine test. See "Engine test" on page 245. If the engine test is successful, perform the following steps:</p> <ol style="list-style-type: none"> <li>1 Reseat or replace the cable from the control panel that is connected to the DC controller PCA.</li> <li>2 Replace the control panel assembly.</li> <li>3 Verify that the latest firmware is installed.</li> <li>4 Replace the printer formatter PCA.</li> </ol> <p>If the engine test is not successful, verify that there is no paper in the paper path. Retry the engine test. If the engine test is still unsuccessful, perform the following steps:</p> <ol style="list-style-type: none"> <li>1 Verify that the latest firmware is installed.</li> <li>2 Replace the DC controller PCA.</li> </ol>

# Troubleshooting with control panel messages

## Control panel display

The control panel should display `READY`, `PAUSED`, or `POWERSAVE ON`. For information about errors displayed, see the event log. If the display is blank, see "Power-on" on page 206.

## Event log page

Use the event log to diagnose and troubleshoot printer errors and intermittent failures. You can either print or display the event log from the control panel. (Select `PRINT EVENT LOG` or `SHOW EVENT LOG`.)

The event log is a last in-first out (LIFO) ordered listing of the last 50 entries. The printed event log is printed in four columns showing event number, page count, error code, and description or personality.

The description or personality gives detail to the error messages. The information is more useful for troubleshooting.

Items that should be logged in the event log include the following:

- critical errors
- jams
- sensors sensing out of range
- deleted jobs
- unexpected paper size
- complex page
- buffer overflow
- NVRAM changes
- any diagnostics tests

## Print the event log

The printer internal event log stores the 50 most recent events, and can be printed at any time. To print the event log:

- 1 Press `✓`.
- 2 Use `▼` or `▲` to scroll to `CONFIGURE DEVICE` menu and press `✓`.
- 3 Use `▼` or `▲` to scroll to `DIAGNOSTICS` menu and press `✓`.
- 4 Use `▼` or `▲` to scroll to `PRINT EVENT LOG` and press `✓`.
- 5 The event log will print. The control panel will display `PRINTING EVENT LOG`.

## Interpret the event log

Each individual entry in the log is called an "error," while all errors occurring at the same page count are called an event. See "Printer message tables" on page 211 for each error comprising an event to better understand the event. Events usually conclude with a time-out or no response from the device (error `66.x9` in the event log). Turn the printer off, and then turn the printer on.

Use the event log tables in this section to associate errors in the event log with the control panel error message. Follow the recommended action listed in the event log table starting on page 211 for each error or event.

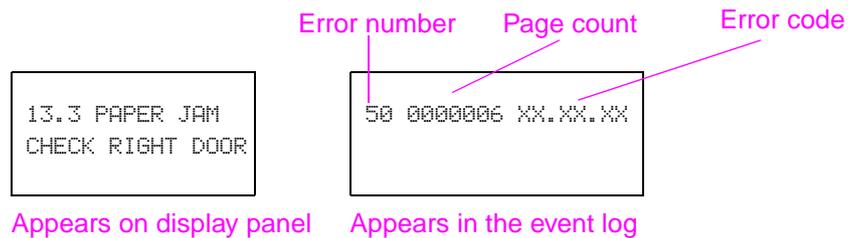


## Display the event log

The displayed event log allows the customer to scroll through the contents of the event log from the control panel. Selecting this will display the 50 most recent events, most recent first. Use ▼ or ▲ to scroll through the event log contents. If the event log is empty, the control panel will display `EVENT LOG IS EMPTY`.

Follow these steps to display the event log:

- 1 Press ✓.
- 2 Use ▼ or ▲ to scroll to `CONFIGURE DEVICE` menu and press ✓.
- 3 Use ▼ or ▲ to scroll to `DIAGNOSTICS` menu and press ✓.
- 4 Use ▼ or ▲ to scroll to `SHOW EVENT LOG` and press ✓.
- 5 The event log will be displayed.



**Figure 163.** Example of events

### Hint

Whenever a 13.xx appears on the control panel, a good practice is to clear the jammed paper from the printer, press **PAUSE/RESUME** to stop printing, and print the event log. If you cannot print the event log, you can still display it on the control panel.

## Control panel messages

Be sure to read the exact text of the control panel message, including the error message number and the text, in order to locate the error message in the tables. This control panel stores enhanced information.

Printer messages displayed on the control panel provide six categories of information. Each message category is assigned a priority. If more than one condition occurs at the same time, the highest priority message is displayed. When it has been cleared, the next priority message will be displayed, and so on. The displayed messages and their priorities are:

- **Status messages**—Status messages communicate the current state of the printer to the operator. Whenever the device is ready and online, the device status message `READY` is displayed unless warning messages are pending. When the device is performing a function, such as a reset or a test, the associated device status message is displayed. When the function execution is complete, the display returns to `READY` or `PAUSED`, depending on the current state of the printer.
- **Warning messages**—Warnings are messages that are important enough that the user must acknowledge them, but not serious enough to make the printer stop the printing process. They are usually transient in nature but affect the output, so some sort of record of their occurrence is important. Warnings generally alternate with the `READY` (or `PAUSED`) status message and remain on the display until the operator presses `✓`. Warnings appear in most recent order (LIFO) with duplicates removed.
- **Error messages**—Error messages communicate to the operator that some action must be performed, such as adding paper or clearing a paper jam. Some errors are considered auto-continuable, since the printer will show the error message on the display for 10 seconds and then clear the message and continue normal operation. Pressing a control panel key during the 10-second period will cancel the auto-continue feature. That key's expected functionality will take precedent in that case. Error messages are limited to 19 7-bit characters (or 9 two-byte characters) per line up to two lines. Unlike status and warning messages, error messages stop printing. The user has to either fix the problem or tell the device to do something else. If the user can continue past some error conditions without actually fixing the problem, the user should be able to perform the action by pressing `✓`. If only one option is available when the operator presses `✓`, printing should continue by applying the one option. If more than one option is available when the operator presses `✓`, the options are listed with the most logical value listed first and highlighted.
- **Critical error messages**—Critical error messages communicate printer failures to the operator. Generally, turning power off and then on is required for the printer to resume normal operation. If the critical error persists, then a call to service is required since the printer most likely requires maintenance. Critical errors are not auto-continuable.
- **External paper handling device warning messages**—Similar to warning messages described above, except that these messages deal with the optional external paper handling devices. By default, the message is all that will display by the engine if the accessory does not provide any additional help. If the accessory does not provide help, then the prompt at the bottom of the display panel will not be shown.
- **External paper handling device error messages**—Similar to error messages described above, except that these messages deal with the optional external paper handling devices. By default, the message is all that will display by the engine if the accessory does not provide any additional help. If the accessory does not provide help, then the prompt at the bottom of the display panel will not be shown.

## Control panel and event log message format

The format of control panel messages are:

- 13.XY.ZZ JAM INSIDE DUPLEXER
- WAITING FOR TRAY XX TO LIFT
- 40 EIO X BAD TRANSMISSION

The event log messages have the following format:

- 3 13.xy.zz 0 JAM INSIDE DUPLEXER
- 2 00.00.00 0 WAITING FOR TRAY XX TO LIFT
- 1 40.00.00 0 EIO X BAD TRANSMISSION

### Note

Be sure to print a configuration page to properly identify the input or output device configured. Notice that the error format only identifies the Jet-Link device number and the device type; it does not identify which input or output device is used in the system.

## Printer message tables

Within the groupings listed below, the alphabetic error messages are listed first, followed by the numeric error messages.

## Alphabetic error messages

Table 29. Alphabetic error messages

Control panel message	Event log error message	Description	Recommended action
[FS] DEVICE FAILURE To enter menus Press ✓ alternates with READY To enter menus Press ✓		<ul style="list-style-type: none"> <li>● The printer detected a device failure on the specified device.</li> </ul> [FS] will be: <ul style="list-style-type: none"> <li>• DISK</li> <li>• FLASH</li> <li>• ROM DISK</li> <li>• RAM DISK</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat the specified device.</li> <li>● Replace the specified device.</li> </ul>
[FS] FILE OPERATION FAILED To enter menus Press ✓ alternates with READY To enter menus Press ✓		<ul style="list-style-type: none"> <li>● A PJI file system command was received that attempted to perform an illogical operation.</li> </ul> [FS] will be: <ul style="list-style-type: none"> <li>• DISK</li> <li>• FLASH</li> <li>• ROM DISK</li> <li>• RAM DISK</li> </ul>	<ul style="list-style-type: none"> <li>● Verify PJI command.</li> </ul>

**Table 29. Alphabetic error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
<pre>[F5] FILE SYSTEM IS FULL To enter menus press ✓ alternates with READY To enter menus press ✓</pre>		<ul style="list-style-type: none"> <li>● A PJL file system command was received that attempted to store something on the file's system, but was unsuccessful.</li> </ul> <p>[F5] will be:</p> <ul style="list-style-type: none"> <li>• DISK</li> <li>• FLASH</li> <li>• ROM DISK</li> <li>• RAM DISK</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the file system.</li> <li>● Check with the system administrator.</li> </ul>
<pre>[F5] is write protected To enter menus press ✓ alternates with READY To enter menus press ✓</pre>		<ul style="list-style-type: none"> <li>● The file system device is protected, and no new files can be written to it.</li> </ul> <p>[F5] will be:</p> <ul style="list-style-type: none"> <li>• DISK</li> <li>• FLASH</li> <li>• ROM DISK</li> <li>• RAM DISK</li> </ul>	<ul style="list-style-type: none"> <li>● Remove the file system protection.</li> <li>● Check with the network administrator.</li> </ul>
<pre>&lt;BINNAME&gt; FULL Remove all paper from bin</pre>		<ul style="list-style-type: none"> <li>● The specified output bin is full.</li> </ul>	<ul style="list-style-type: none"> <li>● Empty the specified output bin.</li> <li>● Ensure the flag moves freely.</li> <li>● If continuous, perform the service test.</li> </ul>
<pre>ACCESS DENIED MENUS LOCKED</pre>		<ul style="list-style-type: none"> <li>● Security mechanism is enabled.</li> </ul>	<ul style="list-style-type: none"> <li>● Check with the network administrator.</li> </ul>
<pre>BAD DUPLEXER CONNECTION For help press ?</pre>		<ul style="list-style-type: none"> <li>● The duplexer is not connected properly.</li> </ul>	<ul style="list-style-type: none"> <li>● Ensure the correct duplexer is installed.</li> <li>● Reseat the duplexer.</li> <li>● Replace the duplexer.</li> </ul>
<pre>BAD OPTIONAL TRAY CONNECTION</pre>		<ul style="list-style-type: none"> <li>● An optional tray is not connected properly.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off.</li> <li>● Disconnect and reconnect the cables.</li> <li>● Turn the printer on.</li> </ul>
<pre>BAD TRAY 1 CONNECTION For help press ?</pre>		<ul style="list-style-type: none"> <li>● Tray 1 is not connected properly.</li> </ul>	<ul style="list-style-type: none"> <li>● Reinstall tray 1.</li> <li>● Replace tray 1.</li> </ul>
<pre>CANCELING</pre>		<ul style="list-style-type: none"> <li>● Printer is in the process of canceling a job.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
<pre>CARTRIDGE FAILURE For help press ? alternates with RETURN FOR REPLACEMENT For help press ?</pre>		<ul style="list-style-type: none"> <li>● Print cartridge is defective.</li> <li>● Toner sensor contact assembly is defective.</li> <li>● HVPS is defective.</li> </ul>	<ul style="list-style-type: none"> <li>● Remove and reinstall the print cartridge.</li> <li>● Replace cartridge.</li> <li>● Replace toner sensor contact assembly.</li> <li>● Replace the HVPS.</li> </ul>

**Table 29. Alphabetic error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
CARTRIDGE LOW-XXXX PAGES ESTIMATED FOR HELP PRESS ? alternates with TO CONTINUE PRESS ✓		<ul style="list-style-type: none"> <li>● A low toner situation has been encountered, and the “cartridge low” setting is set to stop.</li> <li>● The XXXX starts at 8 percent toner capacity remaining.</li> <li>● When estimated pages reaches 0, the message is replaced with “REPLACE CARTRIDGE.”</li> </ul>	<ul style="list-style-type: none"> <li>● Order print cartridge.</li> <li>● To continue press ✓ .</li> <li>● Replace cartridge.</li> <li>● Replace toner sensor contact assembly.</li> <li>● Replace the HVPS.</li> <li>● Replace the DC controller.</li> </ul>
CARTRIDGE OUT REPLACE CARTRIDGE For help press ?		<ul style="list-style-type: none"> <li>● The print cartridge has reached 0 percent of mechanical life.</li> </ul>	<ul style="list-style-type: none"> <li>● Replace print cartridge.</li> <li>● Replace toner sensor contact assembly.</li> <li>● Replace the HVPS.</li> <li>● Replace the DC controller.</li> </ul>
CARTRIDGE OUT REPLACE CARTRIDGE For help press ? alternates with READY To enter menus Press ✓		<ul style="list-style-type: none"> <li>● The toner in the cartridge has reached 0 percent.</li> <li>● The printer will continue to print until drum life has reached 0 percent.</li> </ul>	<ul style="list-style-type: none"> <li>● Replace the print cartridge.</li> </ul>
CHECKING PAPER PATH		<ul style="list-style-type: none"> <li>● The engine is rolling its rollers to check for media in the paper path.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
CHECKING PRINTER		<ul style="list-style-type: none"> <li>● The engine is doing an internal test.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
CHOSEN PERSONALITY NOT AVAILABLE For help press ? alternates with READY To enter menus Press ✓		<ul style="list-style-type: none"> <li>● The PJI encountered a request for a personality that did not exist in the printer.</li> <li>● The job is aborted. No pages will print.</li> </ul>	<ul style="list-style-type: none"> <li>● Change font request.</li> <li>● Install additional fonts.</li> </ul>
CLEANING		<ul style="list-style-type: none"> <li>● A cleaning page is being processed.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
CLEARING EVENT LOG		<ul style="list-style-type: none"> <li>● Event log is being cleared.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
CLEARING PAPER FROM PRINTER		<ul style="list-style-type: none"> <li>● Paper was detected in the paper path.</li> <li>● The printer will attempt to eject the paper.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> <li>● If jam does not clear, remove any paper from inside.</li> </ul>
CLOSE FRONT DOOR For help press ?		<ul style="list-style-type: none"> <li>● The front door is open.</li> </ul>	<ul style="list-style-type: none"> <li>● Close the front door.</li> <li>● If continuous, perform the service test.</li> </ul>
CLOSE FRONT OR LEFT DOOR For help press ?		<ul style="list-style-type: none"> <li>● The front door is open.</li> <li>● The left door is open.</li> </ul>	<ul style="list-style-type: none"> <li>● Close the front door.</li> <li>● Close the left door.</li> <li>● If continuous, perform the service test.</li> </ul>

**Table 29. Alphabetic error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
CLOSE RIGHT DOOR For help press ?		<ul style="list-style-type: none"> <li>The right door is open.</li> </ul>	<ul style="list-style-type: none"> <li>Close the right door.</li> <li>If continuous, perform the service test.</li> </ul>
CREATING CLEANING PAGE		<ul style="list-style-type: none"> <li>The cleaning page is being generated.</li> </ul>	<ul style="list-style-type: none"> <li>When the cleaning page is complete, follow the instructions on the page to process the cleaning page.</li> </ul>
DATA RECEIVED PRESS ✓ TO CONTINUE alternates with READY To enter menus press ✓		<ul style="list-style-type: none"> <li>The printer has received data.</li> </ul>	<ul style="list-style-type: none"> <li>Press ✓ to print last page.</li> </ul>
DELETING		<ul style="list-style-type: none"> <li>The printer is deleting the stored job.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
DETECTABLE SIZE IN TRAY XX For help press ? alternates with DETECTABLE SIZE IN TRAY XX Move switch to standard		<ul style="list-style-type: none"> <li>Standard size media is loaded in tray XX, but the switch is set for custom.</li> </ul>	<ul style="list-style-type: none"> <li>Set switch to standard.</li> </ul>
DIFFERENT PAPER SIZES IN JOB		<ul style="list-style-type: none"> <li>The current job has different paper sizes.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
DUPLEX ERROR REMOVE DUPLEXER Install duplexer with power off		<ul style="list-style-type: none"> <li>The duplexer was removed.</li> </ul>	<ul style="list-style-type: none"> <li>Turn the printer off.</li> <li>Remove and reinstall the duplexer.</li> <li>Turn the printer on.</li> </ul>
EIO DISK X NOT FUNCTIONAL For help press ?		<ul style="list-style-type: none"> <li>The hard disk in the EIO slot X is not working correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Reseat hard disk.</li> <li>Replace hard disk.</li> </ul>
EIO X DISK INITIALIZING		<ul style="list-style-type: none"> <li>The EIO hard disk in slot X is initializing.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
EIO X DISK SPINNING UP		<ul style="list-style-type: none"> <li>The EIO hard disk in slot X is spinning up its plater.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
EVENT LOG EMPTY		<ul style="list-style-type: none"> <li>No events are currently listed in the event log.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
EXTERNAL DEVICE INITIALIZING To enter menus press ✓		<ul style="list-style-type: none"> <li>The printer has just been turned on, or is coming out of PowerSave mode.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
FINISHER ALIGN ERROR		<ul style="list-style-type: none"> <li>An alignment error occurred in the external paper finishing device.</li> </ul>	<ul style="list-style-type: none"> <li>Job will not be finished.</li> </ul>
FLASH DISK X INITIALIZING		<ul style="list-style-type: none"> <li>A new flash DIMM has been installed and is initializing.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> <li>Do not turn power off during initialization.</li> </ul>

**Table 29. Alphabetic error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
INCORRECT PIN		<ul style="list-style-type: none"> <li>● The wrong PIN has been entered.</li> <li>● This message will only display for 2 seconds, then return to the previous screen so the user can re-enter the pin.</li> </ul>	<ul style="list-style-type: none"> <li>● Re-enter the PIN.</li> </ul>
INITIALIZING		<ul style="list-style-type: none"> <li>● The printer has just been turned on.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
INITIALIZING PERMANENT STORAGE		<ul style="list-style-type: none"> <li>● The printer has just been turned on.</li> <li>● Permanent storage is initializing.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
INPUT PAPER PATH OPEN		<ul style="list-style-type: none"> <li>● The paper path between the printer and the external paper handling input device is open.</li> </ul>	<ul style="list-style-type: none"> <li>● Close the input device paper path.</li> </ul>
INSERT OR CLOSE TRAY XX For help press ?		<ul style="list-style-type: none"> <li>● Tray XX must be inserted or closed.</li> </ul>	<ul style="list-style-type: none"> <li>● If tray XX is removed, install tray XX.</li> <li>● Close tray XX.</li> <li>● If continuous, perform the service test.</li> </ul>
INSTALL CARTRIDGE For help press ?		<ul style="list-style-type: none"> <li>● The print cartridge is missing, or is not correctly installed.</li> </ul>	<ul style="list-style-type: none"> <li>● Locate and install a print cartridge.</li> <li>● Reinstall the print cartridge.</li> <li>● Ensure the cartridge handle is in the locked position.</li> <li>● Replace the print cartridge.</li> </ul>
INSTALL CONNECTION UNIT For help press ?		<ul style="list-style-type: none"> <li>● The paper path connection unit was not installed in the right access door.</li> </ul>	<ul style="list-style-type: none"> <li>● Locate and install the paper path connection unit.</li> <li>● Reinstall the paper path connection unit.</li> <li>● Replace the connection unit.</li> </ul>
LOAD TRAY XX [TYPE] [SIZE] For help press ? alternates with To use another tray press ✓		<ul style="list-style-type: none"> <li>● Tray XX is configured for a specific type and size required for a job that has been sent; however, the tray is empty.</li> </ul>	<ul style="list-style-type: none"> <li>● Insert media into tray XX.</li> <li>● Select a different tray by pressing ✓.</li> <li>● Verify application settings.</li> </ul>
LOADING PROGRAM XX Do not power off		<ul style="list-style-type: none"> <li>● Programs or fonts are being loaded into RAM.</li> <li>● The process can take a long time to load into RAM, depending on the size of the entity.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> <li>● Do not turn power off during this process.</li> </ul>
MANUAL FEED [TYPE] [SIZE] For help press ? alternates with To use another tray press ✓		<ul style="list-style-type: none"> <li>● A job has been sent to the printer; however, the specified size media is not available.</li> </ul>	<ul style="list-style-type: none"> <li>● Insert correct media into tray 1.</li> <li>● Select a different tray.</li> </ul>

**Table 29. Alphabetic error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
MEMORY FULL STORED DATA LOST		<ul style="list-style-type: none"> <li>There is no available memory in the printer.</li> <li>The current job may not print correctly, and some resources (downloaded fonts) may have been lost.</li> </ul>	<ul style="list-style-type: none"> <li>Simplify job.</li> <li>Install additional memory.</li> </ul>
MEMORY SETTINGS CHANGED		<ul style="list-style-type: none"> <li>The resource saving or I/O buffering settings had to be changed by the printer. There was not enough memory to use the previous settings.</li> </ul>	<ul style="list-style-type: none"> <li>Verify application settings</li> <li>Simplify job.</li> <li>Install additional memory.</li> </ul>
MEMORY SHORTAGE JOB CLEARED For help press ? alternates with READY To enter menus press ✓		<ul style="list-style-type: none"> <li>The printer ran out of free memory. The remainder of the job will be canceled.</li> </ul>	<ul style="list-style-type: none"> <li>Add memory.</li> <li>Add hard disk.</li> <li>Verify job/application settings.</li> <li>Simplify job.</li> </ul>
MEMORY SHORTAGE PAGE SIMPLIFIED For help press ? alternates with READY To enter menus press ✓		<ul style="list-style-type: none"> <li>The printer adaptive data compression had to fit the raster graphics in the available memory.</li> </ul>	<ul style="list-style-type: none"> <li>Simplify job.</li> <li>Add memory.</li> <li>Add hard disk.</li> </ul>
NO JOB TO CANCEL		<ul style="list-style-type: none"> <li><b>CANCEL JOB</b> has been pressed, with no active job to cancel.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
NON HP CARTRIDGE DETECTED For help press ?		<ul style="list-style-type: none"> <li>A non-HP print cartridge has been installed.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul> <p><b>Note</b> This message will only display for 30 seconds, then return to the <code>READY</code> state.</p> <p><b>Note</b> Cartridge low/out message will not occur with non-HP print cartridges.</p>
OPTIONAL BIN 1 FULL Remove all paper from bin		<ul style="list-style-type: none"> <li>The face-up bin is full. More than 125 pages have been collected in the face-up bin.</li> </ul>	<ul style="list-style-type: none"> <li>Remove all media from the face-up bin.</li> </ul>
OPTIONAL BIN 2 FULL Remove all paper from bin		<ul style="list-style-type: none"> <li>The stapler bin is full. More than 3000 sheets of Letter/A4 media have been collected in the stapler bin.</li> </ul>	<ul style="list-style-type: none"> <li>Remove all media from the stapler bin.</li> </ul>
OUTPUT PAPER PATH OPEN		<ul style="list-style-type: none"> <li>The paper path between the printer and the external paper handling output device is open.</li> </ul>	<ul style="list-style-type: none"> <li>Close the output device paper path.</li> </ul>

**Table 29. Alphabetic error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
PAUSED To return to ready Press RESUME key		<ul style="list-style-type: none"> <li>● PAUSE/RESUME has been pressed. Printing has stopped but the job may still be received.</li> </ul>	<ul style="list-style-type: none"> <li>● Press PAUSE/RESUME to return the device to ready.</li> </ul>
PERFORM PRINTER MAINTENANCE For help press ?		<ul style="list-style-type: none"> <li>● The printer has reached its prescribed printed page threshold of 350,000 pages between maintenance periods.</li> </ul>	<ul style="list-style-type: none"> <li>● Perform printer maintenance.</li> </ul>
PERFORMING UPGRADE		<ul style="list-style-type: none"> <li>● A firmware upgrade is being received.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> <li>● Do not turn off power during this operation.</li> </ul>
PLEASE WAIT		<ul style="list-style-type: none"> <li>● The printer is in the process of deleting data so it can stop receiving I/O.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
POWERSAVE ON		<ul style="list-style-type: none"> <li>● The printer is in the PowerSave mode.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul> <p><b>Note</b> Press any key on the control panel to return the device to ready.</p>
PRINTING CONFIGURATION		<ul style="list-style-type: none"> <li>● The printer is producing a configuration page.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
PRINTING EVENT LOG		<ul style="list-style-type: none"> <li>● An event log is being generated.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
PRINTING FILE DIRECTORY		<ul style="list-style-type: none"> <li>● The printer is producing a file directory page.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
PRINTING FONT LIST		<ul style="list-style-type: none"> <li>● A PCL or PS personality typeface list is being generated.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
PRINTING MENU MAP		<ul style="list-style-type: none"> <li>● A menu map is being generated.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
PRINTING PAPER PATH TEST		<ul style="list-style-type: none"> <li>● The printer is performing a paper path test.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> <li>● Test generated to test the paper path.</li> </ul>
PRINTING REGISTRATION PAGE		<ul style="list-style-type: none"> <li>● The printer is producing a registration page.</li> </ul>	<ul style="list-style-type: none"> <li>● After printing of page is complete, adjust the settings to center the image on the page.</li> <li>● Follow the directions on the page.</li> </ul>
PRINTING SUPPLIES STATUS		<ul style="list-style-type: none"> <li>● A supplies status page is being generated.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
PRINTING USAGE PAGE		<ul style="list-style-type: none"> <li>● A usage page is being generated.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>
PROCESSING		<ul style="list-style-type: none"> <li>● The printer is processing the current job, but it has not begun to pick up pages yet.</li> </ul>	<ul style="list-style-type: none"> <li>● No action required.</li> </ul>

**Table 29. Alphabetic error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
PROCESSING COPY X OF Y		<ul style="list-style-type: none"> <li>The printer is currently processing or printing collated copies.</li> <li>The message indicates the copy X of Y copies is being processed.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
PROCESSING FROM TRAY X		<ul style="list-style-type: none"> <li>The printer is processing the current job.</li> <li>Paper is being pulled from tray X.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
READY To enter menus press ✓		<ul style="list-style-type: none"> <li>The printer is ready and online, waiting for data.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
RECEIVING UPGRADE		<ul style="list-style-type: none"> <li>The firmware is in the process of upgrading.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> <li>Do not turn power off during the upgrade.</li> </ul>
REQUEST ACCEPTED PLEASE WAIT		<ul style="list-style-type: none"> <li>A request to print an internal page has been accepted.</li> <li>The current print job must complete before the internal page will print.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
RESEND UPGRADE		<ul style="list-style-type: none"> <li>The firmware upgrade process was not completed.</li> </ul>	<ul style="list-style-type: none"> <li>Resend the upgrade.</li> <li>Do not turn power off during the upgrade.</li> </ul>
RESETTING FACTORY SETTINGS		<ul style="list-style-type: none"> <li>Restore factory settings has been selected.</li> <li>A cold reset has been performed.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> <li>Reset the configurations.</li> </ul>
ROTATE PAPER IN TRAY XX For help press ?		<ul style="list-style-type: none"> <li>A job requires booklet printing, but none of the trays has letter or A4 paper loaded in the proper orientation.</li> </ul>	<ul style="list-style-type: none"> <li>Rotate paper in tray.</li> <li>Verify application settings.</li> </ul>
ROTATE PAPER IN TRAY XX For help press ? alternates with READY To enter menus press ✓		<ul style="list-style-type: none"> <li>Tray XX has been loaded with Letter or A4 media in the portrait orientation, but the job that used the tray did not specify portrait.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> <li>Verify application settings.</li> <li>Verify tray settings.</li> </ul> <p><b>Note</b> To improve performance, rotate media.</p>
SETTING SAVED		<ul style="list-style-type: none"> <li>A value has been saved.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
SIZE MISMATCH TRAY XX = [SIZE] For help press ?		<ul style="list-style-type: none"> <li>Media loaded in tray is longer or shorter in the feed direction than the size the tray is configured for.</li> </ul>	<ul style="list-style-type: none"> <li>Verify tray settings.</li> <li>Set the tray switch to standard. If custom size media is used, set the X and Y values in the custom setting of the control panel.</li> </ul>
STAPLER ALIGN ERROR		<ul style="list-style-type: none"> <li>The paper in the external paper handling stapling device is unaligned.</li> </ul>	<ul style="list-style-type: none"> <li>Clean rollers at the accumulator.</li> </ul>

**Table 29. Alphabetic error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
STAPLER JAM For help press ?		<ul style="list-style-type: none"> <li>The stapler is jammed.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jammed staples.</li> </ul>
STAPLER LOW ON STAPLES For help press ? alternates with READY To enter menus Press ✓		<ul style="list-style-type: none"> <li>The stapler is running out of staples.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the staple cartridge.</li> </ul>
STAPLER OUT OF STAPLES For help press ?		<ul style="list-style-type: none"> <li>The stapler is out of staples.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the staple cartridge.</li> </ul>
STAPLING INTERRUPTION		<ul style="list-style-type: none"> <li>The stapler has an obstruction that must be removed before stapling can continue.</li> </ul>	<ul style="list-style-type: none"> <li>Remove the obstruction.</li> </ul>
TOO MANY PAGES IN JOB TO STAPLE For help press ?		<ul style="list-style-type: none"> <li>The external device received too many pages to perform the stapling process.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> <li>The pages will be ejected without being finished.</li> </ul>
TRAY XX CONTAINS UNKNOWN MEDIA		<ul style="list-style-type: none"> <li>The media type in the specified tray cannot be determined.</li> </ul>	<ul style="list-style-type: none"> <li>Verify tray settings.</li> <li>Be more specific in the media settings.</li> </ul>
TRAY XX EMPTY [TYPE] [SIZE] To enter menus Press ✓ alternates with READY To enter menus Press ✓		<ul style="list-style-type: none"> <li>The specified tray is empty, but the current job does not need this tray to print correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Load additional paper into tray.</li> </ul>
TRAY XX OPEN For help press ? alternates with READY To enter menus Press ✓		<ul style="list-style-type: none"> <li>The specified tray is open, but the current print job does not require this tray to print.</li> </ul>	<ul style="list-style-type: none"> <li>Close tray.</li> </ul>
TRAY XX SIZE=*DETECTED SIZE For help press ? alternates with TRAY X SIZE=*DETECTED SIZE To change, move switch in tray x		<ul style="list-style-type: none"> <li>The custom switch is in the "Standard" position, and the user selects a value from the menu.</li> </ul>	<ul style="list-style-type: none"> <li>Verify tray settings.</li> <li>Verify application settings.</li> <li>Set the tray switch to "Custom," or do not select a value from the menu.</li> </ul>
TRAY XX [TYPE] [SIZE] DETECTED SIZE		<ul style="list-style-type: none"> <li>Displays what size media has been detected in the tray XX, when the tray is closed and the custom switch has not been changed.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> <li>If custom size media is installed, change the custom switch to the correct position.</li> </ul>

**Table 29. Alphabetic error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
TYPE MISMATCH TRAY XX= [TYPE] For help press ?		<ul style="list-style-type: none"> <li>The system has detected a transparency in the paper path coming from tray XX.</li> </ul>	<ul style="list-style-type: none"> <li>Reconfigure the tray for transparencies.</li> <li>If no transparencies are installed, replace the OHT sensor (PS1).</li> </ul>
UNABLE TO STORE JOB		<ul style="list-style-type: none"> <li>A memory, disk, or configuration problem has prevented the job from being stored.</li> </ul>	<ul style="list-style-type: none"> <li>Check display panel for additional messages.</li> </ul>
UNSUPPORTED SIZE IN TRAY XX		<ul style="list-style-type: none"> <li>A job has been received that requires a specified size media that is not supported by the printer.</li> </ul>	<ul style="list-style-type: none"> <li>Reformat the print job to use a supported size.</li> <li>Cancel job.</li> </ul>
USE [TYPE] [SIZE] FROM TRAY N INSTEAD		<ul style="list-style-type: none"> <li>The requested paper size or type is not available. The printer asks if it should use another paper type or size instead.</li> </ul>	<ul style="list-style-type: none"> <li>Select a different type, size, or tray to use. Use ▲ and ▼ to view the available media in the printer and press ✓ to select the highlighted tray.</li> <li>Verify application settings.</li> </ul>
WAIT FOR PRINTER TO REINITIALIZE		<ul style="list-style-type: none"> <li>A RAM disk setting has been changed. The printer is automatically restarting.</li> <li>An external device setting has changed. The printer is automatically restarting.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> <li>Do not turn power off during initialization.</li> </ul>
WAITING FOR TRAY XX TO LIFT		<ul style="list-style-type: none"> <li>The tray number XX is in the process of lifting the media to the top of the tray for proper feeding.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>
WARMING UP		<ul style="list-style-type: none"> <li>The printer was turned on or is coming out of PowerSave mode.</li> </ul>	<ul style="list-style-type: none"> <li>No action required.</li> </ul>

## Numeric error messages

Table 30. Numeric error messages

Control panel message	Event log error message	Description	Recommended action
13.01.00 JAM IN TRAY 1 FOR HELP PRESS ?	13.01.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the tray 1 feed area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform the service test.</li> <li>● If the jam persists, replace the PIU.</li> <li>● Replace the tray 1 pickup rollers.</li> <li>● Replace tray 1.</li> </ul>
13.01.00 JAM IN TRAY X FOR HELP PRESS ?	13.01.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at tray X feed area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform the service test.</li> <li>● If the jam persists, replace the PIU.</li> <li>● Replace the tray 1 pickup rollers.</li> <li>● Replace tray 1.</li> </ul>
13.01.00 JAM INSIDE RIGHT DOOR FOR HELP PRESS ?	13.01.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the feed area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform the service test.</li> <li>● If the jam persists, replace the PIU.</li> <li>● Replace the tray 1 pickup rollers.</li> <li>● Replace tray 1.</li> </ul>
13.03.00 JAM IN TRAY 1 FOR HELP PRESS ?	13.03.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the tray 1 feed area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform the service test.</li> <li>● If the jam persists, replace the PIU.</li> <li>● Replace the tray 1 pickup rollers.</li> <li>● Replace tray 1.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
13.03.00 JAM IN TRAY X FOR HELP PRESS ?	13.03.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at tray X feed area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform the service test.</li> <li>● If the jam persists, replace the PIU.</li> <li>● Replace the tray 1 pickup rollers.</li> <li>● Replace tray 1.</li> </ul>
13.03.00 JAM INSIDE RIGHT DOOR FOR HELP PRESS ?	13.03.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the feed area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform the service test.</li> <li>● If the jam persists, replace the PIU.</li> <li>● Replace the tray 1 pickup rollers.</li> <li>● Replace tray 1.</li> </ul>
13.05.00 JAM INSIDE FRONT DOOR FOR HELP PRESS ?	13.05.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the fuser area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● If the jam persists, replace the print cartridge.</li> <li>● Replace the transfer roller assembly.</li> <li>● Replace the fuser.</li> </ul>
13.05.00 JAM INSIDE RIGHT DOOR FOR HELP PRESS ?	13.05.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the fuser area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● If the jam persists, replace the print cartridge.</li> <li>● Replace the transfer roller assembly.</li> <li>● Replace the fuser.</li> </ul>
13.06.00 JAM INSIDE FRONT DOOR FOR HELP PRESS ?	13.06.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the fuser area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● If the jam persists, replace the fuser.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
13.06.00 JAM INSIDE LEFT DOOR FOR HELP PRESS ?	13.06.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the fuser area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● If the jam persists, replace the fuser.</li> </ul>
13.09.00 JAM INSIDE FRONT DOOR For help press ?	13.09.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the face-down bin.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Reseat the connections to the DC controller.</li> <li>● Verify proper movement of the delivery flags.</li> <li>● If the jam persists, replace the delivery unit.</li> <li>● Replace the DC controller.</li> </ul>
13.09.00 JAM INSIDE LEFT DOOR For help press ?	13.09.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the face-down bin.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Reseat the connections to the DC controller.</li> <li>● Verify proper movement of the delivery flags.</li> <li>● If the jam persists, replace the delivery unit.</li> <li>● Replace the DC controller.</li> </ul>
13.0A.00 JAM INSIDE LEFT DOOR FOR HELP PRESS ?	13.0A.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path. Access through the left door.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● If the jam persists, replace the delivery unit.</li> <li>● Replace the diverter.</li> </ul>
13.0A.00 JAM IN TOP OUTPUT BIN For help press ?	13.0A.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the face-down bin.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● If the jam persists, replace the delivery unit.</li> <li>● Replace the diverter.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
13.10.00 JAM INSIDE DUPLExER DOOR For help press ?	13.10.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the reversing area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Reseat the connections to the DC controller.</li> <li>● If the jam persists, replace the duplexer.</li> </ul>
13.10.00 JAM INSIDE LEFT DOOR For help press ?	13.10.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the reversing area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Reseat the connections to the DC controller.</li> <li>● If the jam persists, replace the duplexer.</li> </ul>
13.11.00 JAM INSIDE DUPLExER DOOR For help press ?	13.11.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the reversing area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Reseat the connections to the DC controller.</li> <li>● If the jam persists, replace the duplexer.</li> </ul>
13.11.00 JAM INSIDE LEFT DOOR For help press ?	13.11.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the reversing area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Reseat the connections to the DC controller.</li> <li>● If the jam persists, replace the duplexer.</li> </ul>
13.11.05 JAM IN INPUT ACCESSORY For help press ?	13.11.05	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the registration area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform a paper path test.</li> <li>● If the jam persists, replace the paper pickup assembly.</li> </ul>
13.11.07 JAM IN INPUT ACCESSORY For help press ?	13.11.07	<ul style="list-style-type: none"> <li>● A page is jammed in the right door area.</li> <li>● A page is has stopped in the registration area</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● If the jam persists, replace the vertical transfer unit (VTU).</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
13.11.08 JAM IN INPUT ACCESSORY For help press ?	13.11.08	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the VTU registration area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Verify that the VTU sensor is functional.</li> <li>● If the jam persists, replace the VTU sensor.</li> <li>● Replace the VTU</li> </ul>
13.11.09 JAM IN INPUT ACCESSORY For help press ?	13.11.09	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the right door area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● If the jam persists, replace the diverter.</li> </ul>
13.12.00 JAM INSIDE DUPLEXER DOOR For help press ?	13.12.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the duplexer.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform a paper path test.</li> <li>● If the jam persists, replace the fuser.</li> <li>● Replace the duplexer.</li> <li>● Replace the diverter.</li> </ul>
13.12.00 JAM INSIDE LEFT DOOR For help press ?	13.12.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path at the duplexer.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform a paper path test.</li> <li>● If the jam persists, replace the fuser.</li> <li>● Replace the duplexer.</li> <li>● Replace the diverter.</li> </ul>
13.12.01 JAM IN LEFT ACCESSORY For help press ?	13.12.01	<ul style="list-style-type: none"> <li>● Media is present in the flipper when power is turned on.</li> <li>● An auto flush operation was not possible.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam.</li> <li>● Turn power off and back on.</li> <li>● Send two pages through for a test job.</li> <li>● Replace the flipper assembly.</li> </ul>
13.12.02 JAM IN LEFT ACCESSORY For help press ?	13.12.02	<ul style="list-style-type: none"> <li>● Media never reached the flipper input area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam.</li> <li>● Turn power off and back on.</li> <li>● Send two pages through for a test job.</li> <li>● Replace the flipper assembly.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
13.12.03 JAM IN LEFT ACCESSORY For help press ?	13.12.03	<ul style="list-style-type: none"> <li>● Media is jammed in the flipper entry area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam.</li> <li>● Turn power off and back on.</li> <li>● Send two pages through for a test job.</li> <li>● Replace the flipper assembly.</li> </ul>
13.12.04 JAM IN LEFT ACCESSORY For help press ?	13.12.04	<ul style="list-style-type: none"> <li>● Media is jammed in the flipper internal area.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam.</li> <li>● Turn power off and back on.</li> <li>● Send two pages through for a test job.</li> <li>● Replace the flipper assembly.</li> </ul>
13.12.10 JAM IN LEFT ACCESSORY For help press ?	13.12.0A	<ul style="list-style-type: none"> <li>● Media was present in the paper path when power was turned on.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam.</li> <li>● Check for mechanical interference in the flipper and paper path rollers.</li> <li>● Turn power off and back on.</li> <li>● Send two pages through for a test job.</li> <li>● Replace the paper path assembly.</li> </ul>
13.12.11 JAM IN LEFT ACCESSORY For help press ?	13.12.0B	<ul style="list-style-type: none"> <li>● Media stopped while flipping.</li> <li>● Media never reached the FLEXIT sensor.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam.</li> <li>● Check for mechanical interference in the flipper and paper path rollers.</li> <li>● Turn power off and back on.</li> <li>● Send two pages through for a test job.</li> <li>● Replace the paper path assembly.</li> </ul>
13.12.12 JAM IN LEFT ACCESSORY For help press ?	13.12.0C	<ul style="list-style-type: none"> <li>● Media has stopped in the paper path.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam.</li> <li>● Check for mechanical interference in the flipper and paper path rollers.</li> <li>● Turn power off and back on.</li> <li>● Send two pages through for a test job.</li> <li>● Replace the paper path assembly.</li> </ul>
13.12.13 JAM IN LEFT ACCESSORY For help press ?	13.12.0D	<ul style="list-style-type: none"> <li>● Media has stopped in the paper path.</li> <li>● Media is jammed entering the accumulator or offset module.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam.</li> <li>● Check for mechanical interference in the flipper and paper path rollers.</li> <li>● Check for jams at the accumulator or the offset module.</li> <li>● Turn power off and back on.</li> <li>● Send two pages through for a test job.</li> <li>● Replace the paper path assembly.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
13.12.20 JAM IN LEFT ACCESSORY For help Press ?	13.12.14	<ul style="list-style-type: none"> <li>Media is present in the accumulator when power was turned on.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Turn power off and back on.</li> <li>Send two pages through for a test job.</li> <li>Replace the accumulator assembly.</li> </ul>
13.12.21 JAM IN LEFT ACCESSORY For help Press ?	13.12.15	<ul style="list-style-type: none"> <li>Media is jammed in the accumulator entry area.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Turn power off and back on.</li> <li>Send two pages through for a test job.</li> <li>Replace the accumulator assembly.</li> </ul>
13.12.22 JAM IN LEFT ACCESSORY For help Press ?	13.12.16	<ul style="list-style-type: none"> <li>GW sensor never activated.</li> </ul> <p><b>Note</b> This jam might be a hardware malfunction if the failure persists consistently.</p>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Turn power off and back on.</li> <li>Send two pages through for a test job.</li> <li>Replace the accumulator assembly.</li> </ul>
13.12.23 JAM IN LEFT ACCESSORY For help Press ?	13.12.17	<ul style="list-style-type: none"> <li>Media is jammed in the accumulator exit area.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Turn power off and back on.</li> <li>Send two pages through for a test job.</li> <li>Replace the accumulator assembly.</li> </ul>
13.12.24 JAM IN LEFT ACCESSORY For help Press ?	13.12.18	<ul style="list-style-type: none"> <li>Retainer sensor does not activate.</li> </ul> <p><b>Note</b> This jam might be a hardware malfunction if the failure persists consistently.</p>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Turn power off and back on.</li> <li>Send two pages through for a test job.</li> <li>Replace the accumulator assembly.</li> </ul>
13.12.30 JAM IN LEFT ACCESSORY For help Press ?	13.12.1E	<ul style="list-style-type: none"> <li>The carriage hit the media.</li> <li>Media is jammed between the carriage and the stack of paper in the stapling area.</li> <li>The carriage motor does not detect movement; it should be finding the home position.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Perform a staple position calibration.</li> <li>Send a staple job to the stapler.</li> <li>Turn power off and back on.</li> <li>Replace the carriage assembly.</li> <li>Replace the stapler unit.</li> </ul>
13.12.31 JAM IN LEFT ACCESSORY For help Press ?	13.12.1F	<ul style="list-style-type: none"> <li>Media is jammed in the stapler unit.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Turn power off and back on.</li> <li>Send a staple job to the stapler.</li> <li>Replace the stapler unit.</li> <li>Replace the carriage assembly.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
13.12.40 JAM IN LEFT ACCESSORY For help press ?	13.12.28	<ul style="list-style-type: none"> <li>Media is present in the offset module when power is turned on.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Turn power off and back on.</li> <li>Send two pages through for a test job.</li> <li>Replace the offset assembly.</li> </ul>
13.12.41 JAM IN LEFT ACCESSORY For help press ?	13.12.29	<ul style="list-style-type: none"> <li>The offset module did not reach its target position.</li> </ul> <p><b>Note</b> This jam might be a hardware malfunction if the failure repeats five consecutive times.</p>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Turn power off and back on.</li> <li>Send two consecutive jobs for an offset test.</li> <li>Replace the offset assembly.</li> </ul>
13.12.42 JAM IN LEFT ACCESSORY For help press ?	13.12.2A	<ul style="list-style-type: none"> <li>Media is jammed in the offset module exit area.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam.</li> <li>Turn power off and back on.</li> <li>Send two pages through for a test job.</li> <li>Replace the offset assembly.</li> </ul>
13.13.00 JAM INSIDE DUPLXER DOOR For help press ?	13.13.00	<ul style="list-style-type: none"> <li>A page is jammed in the paper path at the duplexer.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam in the indicated area.</li> <li>Closing the door will cause the printer to attempt to clear the paper path.</li> <li>If the jam persists, replace the duplexer.</li> </ul>
13.13.00 JAM INSIDE LEFT DOOR For help press ?	13.13.00	<ul style="list-style-type: none"> <li>A page is jammed in the paper path at the duplexer.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam in the indicated area.</li> <li>Closing the door will cause the printer to attempt to clear the paper path.</li> <li>If the jam persists, replace the duplexer.</li> </ul>
13.20.00 JAM INSIDE FRONT DOOR For help press ?	13.20.00	<ul style="list-style-type: none"> <li>A page is jammed in the paper path.</li> <li>Paper is present in the printer.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the jam in the indicated area.</li> <li>Closing the door will cause the printer to attempt to clear the paper path.</li> <li>Verify proper seating of the leaf springs under the HVPS.</li> <li>If the jam persists, replace the fuser.</li> </ul> <p><b>Note</b> Perform a paper path test after performing these procedures.</p>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
13.20.00 JAM INSIDE LEFT DOOR For help press ?	13.20.00	<ul style="list-style-type: none"> <li>● A page is jammed in the paper path.</li> <li>● Paper is present in the printer.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Verify proper seating of the leaf springs under the HVPS.</li> <li>● If the jam persists, replace the fuser.</li> </ul> <p><b>Note</b> Perform a paper path test after performing these procedures.</p>
13.21.00 JAM INSIDE FRONT DOOR For help press ?	13.21.00	<ul style="list-style-type: none"> <li>● A door is open.</li> </ul>	<ul style="list-style-type: none"> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Clear the jam in the indicated area.</li> <li>● Perform a paper path test.</li> <li>● Perform a service test.</li> <li>● Verify that the interlock switches are working properly.</li> <li>● If the jam persists, replace the front door.</li> </ul>
13.21.00 JAM INSIDE LEFT DOOR For help press ?	13.21.00	<ul style="list-style-type: none"> <li>● A door is open.</li> </ul>	<ul style="list-style-type: none"> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Clear the jam in the indicated area.</li> <li>● Perform a paper path test.</li> <li>● Perform a service test.</li> <li>● Verify that the interlock switches are working properly.</li> <li>● If the jam persists, replace the left door.</li> </ul>
13.30.00 JAM IN TRAY 1 FOR HELP PRESS ?	13.30.00	<ul style="list-style-type: none"> <li>● A page is jammed in the pickup area of tray 1.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear the jam in the indicated area.</li> <li>● Closing the door will cause the printer to attempt to clear the paper path.</li> <li>● Perform the service test.</li> <li>● If the jam persists, replace the PIU.</li> <li>● Replace the tray 1 pickup rollers.</li> <li>● Replace tray 1.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
13.30.00 JAM IN TRAY X FOR HELP PRESS ?	13.30.00	<ul style="list-style-type: none"> <li>• A page is jammed in the pickup area of tray X.</li> </ul>	<ul style="list-style-type: none"> <li>• Clear the jam in the indicated area.</li> <li>• Closing the door will cause the printer to attempt to clear the paper path.</li> <li>• Perform the service test.</li> <li>• If the jam persists, replace the PIU.</li> <li>• Replace the tray X pickup rollers.</li> <li>• Replace tray X.</li> </ul>
13.30.00 JAM INSIDE RIGHT DOOR FOR HELP PRESS ?	13.30.00	<ul style="list-style-type: none"> <li>• A page is jammed in the pickup area of tray 1.</li> </ul>	<ul style="list-style-type: none"> <li>• Clear the jam in the indicated area.</li> <li>• Closing the door will cause the printer to attempt to clear the paper path.</li> <li>• Perform the service test.</li> <li>• If the jam persists, replace the PIU.</li> <li>• Replace the tray 1 pickup rollers.</li> <li>• Replace tray 1.</li> </ul>
13.31.00 JAM INSIDE FRONT DOOR For help press ?	13.31.00	<ul style="list-style-type: none"> <li>• A page is jammed in the paper path at the fuser area.</li> </ul>	<ul style="list-style-type: none"> <li>• Clear the jam in the indicated area.</li> <li>• Closing the door will cause the printer to attempt to clear the paper path.</li> <li>• If the jam persists, replace the fuser.</li> </ul>
13.31.00 JAM INSIDE LEFT DOOR For help press ?	13.31.00	<ul style="list-style-type: none"> <li>• A page is jammed in the paper path at the fuser area.</li> </ul>	<ul style="list-style-type: none"> <li>• Clear the jam in the indicated area.</li> <li>• Closing the door will cause the printer to attempt to clear the paper path.</li> <li>• If the jam persists, replace the fuser.</li> </ul>
13.32.00 JAM INSIDE RIGHT DOOR For help press ?	13.32.00	<ul style="list-style-type: none"> <li>• A page is jammed in the paper path at the feed area.</li> </ul>	<ul style="list-style-type: none"> <li>• Clear the jam in the indicated area.</li> <li>• Closing the door will cause the printer to attempt to clear the paper path.</li> <li>• If the jam persists, replace the PIU.</li> </ul>
20 INSUFFICIENT MEMORY For help press ? alternates with 20 INSUFFICIENT MEMORY To continue press ✓	20	<ul style="list-style-type: none"> <li>• More data has been received from the computer than fits in the printer internal memory.</li> </ul>	<ul style="list-style-type: none"> <li>• To continue printing, press ✓. Only the amount of data that fits in the internal memory is printed.</li> <li>• Simplify the print job.</li> <li>• Add memory.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
<p>21 PAGE TOO COMPLEX For help press ? alternates with 21 PAGE TOO COMPLEX To continue press ✓</p>	21	<ul style="list-style-type: none"> <li>• The page formatting process was too complex.</li> </ul>	<ul style="list-style-type: none"> <li>• To continue printing, press ✓. (Some data will be lost.)</li> <li>• Simplify the print job.</li> <li>• To print the job without losing data, set PAGE PROTECT=ON in the configuration menu. Do not leave the PAGE PROTECT=ON or print performance will degrade. Normal setting is PAGE PROTECT=AUTO.</li> <li>• Add memory.</li> </ul>
<p>22 EIO X BUFFER OVERFLOW To continue press ✓</p>	22	<ul style="list-style-type: none"> <li>• The printer EIO card in slot X has overflowed the I/O buffer during a busy state.</li> </ul>	<ul style="list-style-type: none"> <li>• To continue printing, press ✓. There will be some data loss.</li> <li>• Turn power off and then back on.</li> <li>• Move EIO card to a different slot.</li> <li>• Replace EIO card.</li> </ul>
<p>22 PARALLEL I/O BUFFER OVERFLOW For help press ? alternates with 22 PARALLEL I/O BUFFER OVERFLOW To continue press ✓</p>	22	<ul style="list-style-type: none"> <li>• The printer parallel buffer has overflowed during a busy state.</li> </ul>	<ul style="list-style-type: none"> <li>• To continue printing, press ✓. There will be some data loss.</li> <li>• Turn power off and then back on.</li> <li>• Reseat the parallel cable.</li> <li>• Replace the parallel cable.</li> <li>• Replace the formatter.</li> </ul>
<p>22 SERIAL I/O BUFFER OVERFLOW To continue press ✓</p>	22	<ul style="list-style-type: none"> <li>• The printer serial buffer has overflowed during a busy state.</li> </ul>	<ul style="list-style-type: none"> <li>• To continue printing, press ✓. There will be some data loss.</li> <li>• Turn power off and then back on.</li> <li>• Reseat the serial cable.</li> <li>• Replace the serial cable.</li> <li>• Move the EIO card to a different slot.</li> <li>• Replace the EIO card.</li> </ul>
<p>40 BAD SERIAL TRANSMISSION To continue press ✓</p>	40	<ul style="list-style-type: none"> <li>• A serial data error (parity, framing, or line overrun) has occurred during the reception of data.</li> </ul>	<ul style="list-style-type: none"> <li>• To continue printing, press ✓.</li> <li>• Turn power off and then back on.</li> <li>• Reseat the serial cable.</li> <li>• Replace the serial cable.</li> <li>• Move the EIO card to a different slot.</li> <li>• Replace the EIO card.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
<p>40 EIO X BAD TRANSMISSION To continue press ✓</p>	<p>40</p>	<ul style="list-style-type: none"> <li>• A connection with the EIO card in slot X has been abnormally interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>• To continue printing, press ✓.</li> <li>• Turn power off and then back on.</li> <li>• Reseat the serial cable.</li> <li>• Replace the serial cable.</li> <li>• Move the EIO card to a different slot.</li> <li>• Verify application settings.</li> <li>• Replace the EIO card.</li> </ul>
<p>41.3 UNEXPECTED SIZE TRAY XX For help press ? alternates with LOAD TRAY XX [TYPE] [SIZE] To change size press ✓</p>	<p>41.3</p>	<ul style="list-style-type: none"> <li>• Tray XX has been loaded with media that is longer or shorter in the feed direction than the size configured for the tray.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace the media with the correct size or reconfigure the tray to use the current size.</li> <li>• Press ✓ to select another tray.</li> <li>• Verify standard/custom switch setting.</li> <li>• Verify application settings.</li> </ul>
<p>41.5 UNEXPECTED TYPE TRAY XX For help press ? alternates with LOAD TRAY XX [TYPE] [SIZE] To change type press ✓</p>	<p>41.5</p>	<ul style="list-style-type: none"> <li>• Tray XX has been loaded with a media type (transparencies, envelopes) that is different than what the tray is configured to use.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace the media with the correct type or reconfigure the tray to use the current type.</li> <li>• Press ✓ to select another tray.</li> <li>• Verify application settings.</li> </ul>
<p>41.X PRINTER ERROR For help press ? alternates with To continue press ✓</p>	<p>41.X</p>	<ul style="list-style-type: none"> <li>• A printer error has occurred where X is detailed below.             <ol style="list-style-type: none"> <li>1 Unknown misprint error.</li> <li>2 Beam detect misprint error.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• To continue printing, press ✓.</li> <li>• Turn the printer off and back on to continue.</li> <li>• Resend the print job.</li> <li>• Reseat connections to the laser/scanner and DC controller.</li> <li>• If error persists, replace the laser/scanner.</li> <li>• Replace the upper cable guide assembly.</li> <li>• Replace the DC controller.</li> </ul>
<p>49.X PRINTER ERROR To continue cycle power</p>	<p>49.X</p>	<ul style="list-style-type: none"> <li>• A critical firmware error has occurred.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn the printer off and back on to continue.</li> <li>• Resend the job.</li> <li>• Update the firmware to the latest version.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
50.X FUSER ERROR For help press ?	50.X	<ul style="list-style-type: none"> <li>● A fuser error has occurred where X is detailed below.</li> <li>1 Low fuser temperature.</li> <li>2 Fuser warm up service.</li> <li>3 High fuser temperature.</li> <li>4 Faulty fuser.</li> <li>5 Inconsistent fuser.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat connections to the fuser and DC controller.</li> <li>● Reseat the fuser.</li> <li>● If error persists, replace the fuser.</li> <li>● Replace the upper cable guide assembly.</li> <li>● Replace the LVPS.</li> <li>● Replace the DC controller.</li> </ul>
51.X PRINTER ERROR For help press ? alternates with To continue cycle power	51.X	<ul style="list-style-type: none"> <li>● A printer error has occurred where X is detailed below.</li> <li>1 Beam detect error.</li> <li>2 Laser error.</li> </ul>	<ul style="list-style-type: none"> <li>● To continue, turn the printer off then on.</li> <li>● Reseat connections to the laser/scanner and DC controller.</li> <li>● If error persists, replace the laser/scanner.</li> <li>● Replace the upper cable guide assembly.</li> <li>● Replace the DC controller.</li> </ul>
52.X PRINTER ERROR For help press ? alternates with To continue cycle power	52.X	<ul style="list-style-type: none"> <li>● A printer error has occurred where X is detailed below.</li> <li>0 Scanner error.</li> <li>1 Scanner startup error.</li> <li>2 Scanner rotation error.</li> </ul>	<ul style="list-style-type: none"> <li>● To continue turn the printer off then on.</li> <li>● Reseat connections to the laser/scanner and DC controller.</li> <li>● If error persists, replace the laser/scanner.</li> <li>● Replace the upper cable guide assembly.</li> <li>● Replace the DC controller.</li> </ul>
53.XY.ZZ PRINTER ERROR For help press ?	53.XY.ZZ	<ul style="list-style-type: none"> <li>● A DIMM error has occurred where X is detailed below.</li> <li>X = DIMM type</li> <li>0 ROM</li> <li>1 RAM</li> <li>Y = Device location</li> <li>0 On board RAM/ROM</li> <li>1 DIMM slot 1</li> <li>2 DIMM slot 2</li> <li>3 DIMM slot 3</li> <li>4 DIMM slot 4</li> <li>ZZ = Error number</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat the specified DIMM.</li> <li>● Move DIMM to a different slot.</li> <li>● If the problem persists, replace the specified DIMM.</li> <li>● Replace the formatter.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
<p>55.X PRINTER ERROR For help press ? alternates with To continue press ✓</p>	<p>55.X</p>	<ul style="list-style-type: none"> <li>● A temporary printer error has occurred.</li> </ul>	<ul style="list-style-type: none"> <li>● To clear the error, press ✓ .</li> <li>● Turn power off and then on.</li> <li>● Verify that maintenance kit is not due.</li> <li>● Reseat the formatter, DIMMs, and EIO cards.</li> <li>● Perform an engine test.</li> <li>● Perform a service test.</li> <li>● Replace the DC controller</li> <li>● Replace the formatter.</li> </ul>
<p>56.X PRINTER ERROR For help press ? alternates with To continue cycle power</p>	<p>56.X</p>	<ul style="list-style-type: none"> <li>● A temporary printer error has occurred.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Check printer configuration.</li> <li>● Check application settings.</li> </ul>
<p>57.X PRINTER ERROR To continue cycle power</p>	<p>57.X</p>	<ul style="list-style-type: none"> <li>● A printer error has occurred where X is detailed below.</li> </ul> <ol style="list-style-type: none"> <li>1 Fan motor 1 error.</li> <li>2 Fan motor 2 error.</li> <li>3 Fan motor 3 error.</li> <li>4 Fan motor 4 error.</li> <li>5 Fan motor 5 error.</li> <li>6 Fan motor 6 error.</li> </ol>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat connections to the specified fan and DC controller.</li> <li>● If error persists, replace the specified fan.</li> <li>● Replace the DC controller.</li> </ul>
<p>58.X PRINTER ERROR For help press ? alternates with To continue cycle power</p>	<p>58.X</p>	<ul style="list-style-type: none"> <li>● A printer error has occurred.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Check printer configuration.</li> <li>● Replace the print cartridge.</li> <li>● Replace the toner sensor contact assembly.</li> <li>● Replace the DC controller.</li> </ul>
<p>59.X PRINTER ERROR For help press ? alternates with To continue cycle power</p>	<p>59.X</p>	<ul style="list-style-type: none"> <li>● A printer error has occurred where X is detailed below.</li> </ul> <ol style="list-style-type: none"> <li>0 Motor error.</li> <li>1 Motor startup error.</li> <li>2 Motor rotation error.</li> </ol>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat connections to the DC controller.</li> <li>● Replace the print cartridge.</li> <li>● Perform a service test.</li> <li>● Replace the main motor.</li> <li>● Replace the DC controller.</li> </ul>
<p>60.X PRINTER ERROR For help press ?</p>	<p>60.X</p>	<ul style="list-style-type: none"> <li>● Tray XX is in the process of lifting the media to the top of the tray for proper feeding, but something is preventing the lift process.</li> </ul>	<ul style="list-style-type: none"> <li>● Open tray XX.</li> <li>● Check tray XX for obstruction.</li> <li>● Replace tray XX.</li> <li>● Perform a service test.</li> <li>● Replace P14.</li> </ul>
<p>62.X PRINTER ERROR To continue cycle power</p>	<p>62.X</p>	<ul style="list-style-type: none"> <li>● A printer error has occurred where X is detailed below.</li> </ul> <ol style="list-style-type: none"> <li>1 Memory in DIMM slot 1</li> <li>2 Memory in DIMM slot 2</li> <li>3 Memory in DIMM slot 3</li> <li>4 Memory in DIMM slot 4</li> </ol>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat the DIMM.</li> <li>● Move DIMM to a different slot.</li> <li>● Replace DIMM.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
64 PRINTER ERROR For help press ? alternates with To continue cycle power	64	<ul style="list-style-type: none"> <li>Scan buffer error.</li> </ul>	<ul style="list-style-type: none"> <li>Turn the printer off and back on to continue.</li> <li>Reseat connections to the laser/scanner and DC controller.</li> <li>If error persists, replace the laser/scanner.</li> <li>Replace the DC controller.</li> </ul>
66.11.00 INPUT DEVICE FAILURE For help press ?	66.11.00	<ul style="list-style-type: none"> <li>A failure in an external input device has occurred.</li> </ul>	<ul style="list-style-type: none"> <li>Check connections.</li> <li>Turn the printer off and back on to continue.</li> <li>Send two pages through for a test job.</li> <li>Reseat the input device.</li> <li>Replace the input device.</li> </ul>
66.12.20 OUTPUT DEVICE FAILURE For help press ?	66.12.14	<ul style="list-style-type: none"> <li>The retainer sensor never activated.</li> <li>The retainer DC motor, located in the accumulator, is damaged.</li> <li>Device not able to finish power-on sequence.</li> </ul>	<ul style="list-style-type: none"> <li>Check cables.</li> <li>Turn the printer off and back on to continue.</li> <li>Send two pages through for a test job.</li> <li>Replace the accumulator assembly.</li> <li>Replace the output device controller PCA.</li> </ul>
66.12.21 OUTPUT DEVICE FAILURE For help press ? alternates with CHECK CABLES AND CYCLE POWER	66.12.15	<ul style="list-style-type: none"> <li>The bearing bracket is damaged.</li> <li>The accumulator wheel sensor is damaged.</li> <li>Device not able to finish power-on sequence.</li> </ul>	<ul style="list-style-type: none"> <li>Check cables.</li> <li>Turn the printer off and back on to continue.</li> <li>Send two pages through for a test job.</li> <li>Replace the accumulator assembly.</li> <li>Replace the output device controller PCA.</li> </ul>
66.12.40 OUTPUT DEVICE FAILURE For help press ? alternates with CHECK CABLES AND CYCLE POWER	66.12.28	<ul style="list-style-type: none"> <li>The offset module did not reach the offset position.</li> <li>The device firmware has detected five consecutive jams.</li> </ul>	<ul style="list-style-type: none"> <li>Check cables.</li> <li>Turn the printer off and back on to continue.</li> <li>Send two pages through for a test job.</li> <li>Replace the offset assembly.</li> <li>Replace the output device controller PCA.</li> </ul>
66.12.60 OUTPUT DEVICE FAILURE For help press ? alternates with CHECK CABLES AND CYCLE POWER	66.12.3C	<ul style="list-style-type: none"> <li>EEPROM error.</li> <li>EEPROM on the controller PCA is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>Check cables.</li> <li>Turn the printer off and back on to continue.</li> <li>Send two pages through for a test job.</li> <li>Replace the output device controller PCA.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
66.12.70 OUTPUT DEVICE FAILURE For help press ? alternates with CHECK CABLES AND CYCLE POWER	66.12.46	<ul style="list-style-type: none"> <li>● EEPROM error.</li> <li>● EEPROM on the controller PCA is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>● Check cables.</li> <li>● Turn the printer off and back on to continue.</li> <li>● Send two pages through for a test job.</li> <li>● Replace the output device controller PCA.</li> </ul>
68.X PERMANENT STORAGE WRITE FAIL For help press ? alternates with 68.X PERMANENT STORAGE WRITE FAIL To continue press ✓	68.X	<ul style="list-style-type: none"> <li>● The printer NVRAM or hard disk is failing to write.</li> <li>● Printing can continue but there might be unexpected responses because an error occurred in permanent storage.</li> </ul>	<ul style="list-style-type: none"> <li>● To clear the error, press ✓ .</li> <li>● Check printer configuration.</li> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat the hard disk.</li> <li>● Reinitialize the hard disk.</li> <li>● Replace the hard disk.</li> </ul>
68.0 PERMANENT STORAGE ERROR For help press ? alternates with To continue press ✓	68.0	<ul style="list-style-type: none"> <li>● One or more of the printer settings saved in the NVRAM or hard disk is invalid and has been reset to the factory default.</li> <li>● Printing can continue, but there might be unexpected responses because an error occurred in permanent storage.</li> </ul>	<ul style="list-style-type: none"> <li>● To clear the error, press ✓ .</li> <li>● Check printer configuration.</li> <li>● Turn the printer off and back on to continue.</li> <li>● Print a configuration page.</li> <li>● Perform a NVRAM initialization, and re-enter the configuration information.</li> <li>● Replace the formatter.</li> </ul>
68.1 PERMANENT STORAGE FULL For help press ? alternates with To continue press ✓	68.1	<ul style="list-style-type: none"> <li>● The printer NVRAM or hard disk is full.</li> <li>● Printing can continue but there might be unexpected responses because an error occurred in permanent storage.</li> </ul>	<ul style="list-style-type: none"> <li>● To clear the error, press ✓ .</li> <li>● Check printer configuration.</li> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat the hard disk.</li> <li>● Reinitialize the hard disk.</li> <li>● Replace the hard disk.</li> </ul>
69.X PRINTER ERROR To continue cycle power	69.X	<ul style="list-style-type: none"> <li>● A printer error has occurred where X is detailed below.</li> <li>0 The duplex mechanism has failed.</li> <li>1 The duplex slide adjust has failed.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat the duplexer.</li> <li>● Perform a service test.</li> <li>● Perform a paper path test.</li> <li>● If the error persists, replace the duplexer.</li> </ul>

**Table 30. Numeric error messages (continued)**

Control panel message	Event log error message	Description	Recommended action
<p>79.XXXX            PRINTER ERROR            To continue            cycle Power</p>	<p>79.XXXX</p>	<ul style="list-style-type: none"> <li>● A critical hardware error has occurred.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Try printing a job from a different software application. If the job prints, go back to the first application and try printing a different file. (If the message only appears with a certain software application or print job, contact the software vendor for assistance.)</li> <li>● If the message persists, try the following:               <ul style="list-style-type: none"> <li>• Turn power off and then on.</li> <li>• Reseat or replace the interface cable.</li> <li>• Remove the DIMMs one at time, turn power off and then on.</li> <li>• Try using the parallel interface.</li> <li>• Upgrade to the latest firmware.</li> <li>• Remove the EIO cards and perform a cold reset.</li> <li>• Remove the hard disk and turn the power off and then on.</li> <li>• If the error persists, replace the formatter.</li> </ul> </li> </ul>
<p>81 SERVICE            For help press ?</p>	<p>81</p>	<ul style="list-style-type: none"> <li>● A temporary error has occurred while testing the printer.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● If the error persists, replace the formatter.</li> </ul>
<p>80.XXXX            EIO ERROR</p>	<p>80.XXXX</p>	<ul style="list-style-type: none"> <li>● The EIO accessory card in slot X has encountered a critical error.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn the printer off and back on to continue.</li> <li>● Reseat the EIO card.</li> <li>● Move the EIO card to a different slot.</li> <li>● If the error persists, replace the EIO card.</li> </ul>
<p>99 SERVICE            For help press ?</p>	<p>99</p>	<ul style="list-style-type: none"> <li>● Firmware flash failure.</li> </ul>	<ul style="list-style-type: none"> <li>● Resend the flash upgrade.</li> <li>● Replace the flash DIMM.</li> </ul>

# User/service level diagnostics

## Paper path test

The paper path test can be used to verify that various paper paths are working properly or to troubleshoot problems with tray configuration.

### To print a paper path test

- 1 Press **✓**.
- 2 Use **▲** or **▼** to scroll to `CONFIGURE DEVICE`, and then press **✓**.
- 3 Use **▲** or **▼** to scroll to `DIAGNOSTICS`, and then press **✓**.
- 4 Use **▲** or **▼** to scroll to `SET PAPER PATH TEST`, and then press **✓**.
- 5 Use **▲** or **▼** to select the input tray you want to test, the output bin, the duplex printing accessory (if available), and number of copies.
- 6 Use **▲** or **▼** to scroll to `PRINT TEST PAGE`, and then press **✓** to start the paper path test.

## Service test

The service test verifies whether the print engine is functioning correctly. This test is very useful for isolating printer problems. The test can be performed with paper handling accessories attached, but it will not activate any of the accessories' motors, switches, or sensors.

### To perform a service test

- 1 Turn power off.
- 2 Ensure that the paper path of the printer is clear of all media, and the left, front, and right doors are closed.
- 3 Open tray 2 and tray 3.
- 4 Turn power on, and when the printer is ready press **✓** to enter menus.
- 5 Use **▲** or **▼** to scroll to `Configure Device`, and then press **✓**.
- 6 Use **▲** or **▼** to scroll to `Diagnostics`, and then press **✓**.
- 7 Use **▲** or **▼** to scroll to `Service Test`, and then press **✓**. The service test can take up to two minutes to complete. The control panel will display `PERFORMING SERVICE TEST`.
- 8 When the test is complete you will see `SERVICE TEST PASSED`, or up to five sets of four digit numbers on the display panel. If no abnormalities were noted, you will see (0000 0000 0000 0000 0000). If abnormalities were noted, the four digit code will show up in parentheses (0101 0111 0132 0000 0000). Write down these codes and match them to the table below. A code description and recommended FRU associated with the abnormality is listed.
- 9 Close tray 2 and tray 3.

**Table 31. Service test abnormality codes**

Code	Description	FRU
0101	Cassette pickup rod motor	Paper input unit
0102	Cassette feed motor	Paper input unit
0103	Cassette lifter motor	Paper input unit
0104	Tray 1 feed motor	Tray 1

**Table 31. Service test abnormality codes (continued)**

<b>Code</b>	<b>Description</b>	<b>FRU</b>
0105	Switchback motor	Duplexer
0106	Duplex feed motor	Duplexer
0107	Duplex feed motor 2	Duplexer
0108	Side registration motor	Duplexer
0109	Pre-registration roller clutch	Registration assembly
0110	Registration roller clutch	Registration assembly
0111	Tray 1 feed roller clutch	Tray 1
0112	Coil jam sensor solenoid	Fuser assembly
0113	Face-up flapper solenoid	Delivery assembly
0114	Tray 1 pickup solenoid	Tray 1
0115	Duplex deflector solenoid	Duplexer
0116	Duplex flapper solenoid	Duplexer
0117	Upper cassette paper out solenoid	Paper input unit
0118	Upper cassette lifter position sensor	Paper input unit
0119	Upper cassette paper level sensor A	Paper input unit
0120	Upper cassette paper level sensor B	Paper input unit
0121	Upper cassette feed sensor A	Paper input unit
0122	Upper cassette feed sensor B	Paper input unit
0123	Lower cassette paper out sensor	Paper input unit
0124	Lower cassette lifter position sensor	Paper input unit
0125	Lower cassette paper level sensor A	Paper input unit
0126	Lower cassette paper level sensor B	Paper input unit
0127	Lower cassette feed sensor A	Paper input unit
0128	Lower cassette feed sensor B	Paper input unit
0129	Registration paper sensor	Registration assembly
0130	Pickup rod home position sensor	Paper input unit
0131	Fusing unit delivery sensor A	Fuser assembly
0132	Fusing unit delivery sensor B	Fuser assembly
0133	Face-down bin delivery sensor	Delivery assembly
0135	Tray feed sensor	Tray 1
0136	Switchback sensor	Duplexer
0137	Duplex feed sensor	Duplexer
0138	Duplexer reaming paper sensor	Duplexer
0139	Face-down bin paper full sensor	Delivery assembly
0140	Right door sensor	Paper input unit
0141	Duplex feed roller 1 home position sensor	Duplexer
0142	Side registration guide home position sensor	Duplexer
0143	OHT sensor	Registration assembly
0144	Coil jam sensor	Fuser assembly

## Engine test

The engine test verifies that the print engine is functioning correctly. This test is very useful for isolating printer problems since the formatter is completely bypassed during an engine test. The engine test prints a full page of horizontal lines across the entire printable area.

### Note

Paper can be picked up from tray 2 or tray 3 if the formatter is installed. If the formatter is removed, the tray you do not want to print from must be open. Also, make sure that the print cartridge is installed in the printer.

### Test switch location

The test switch is located on the DC controller PCA. It is accessible through a hole (callout 1) at the right rear of the printer. See figure 166 below.

### Printing an engine test

Use a non-metallic object (such as a pencil) to press and hold the test print switch for five seconds. Release the switch and wait for the fuser to warm up. Press the switch again; a single test page will print. If the optional duplexer is installed, the test pattern is printed duplex.

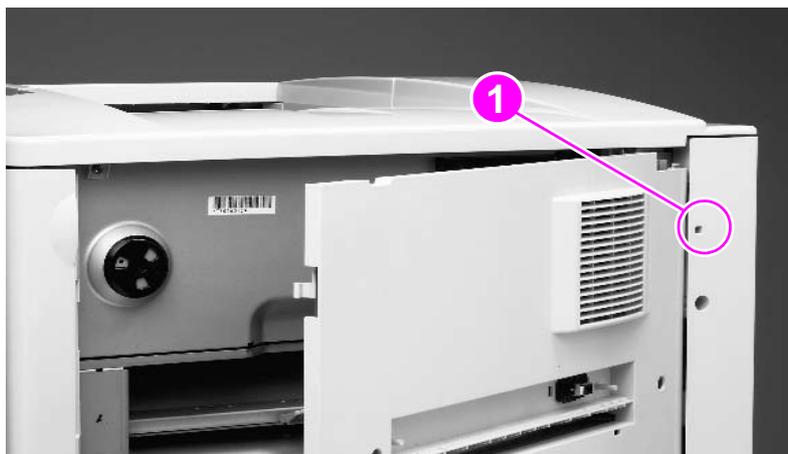


Figure 164. Test print switch location

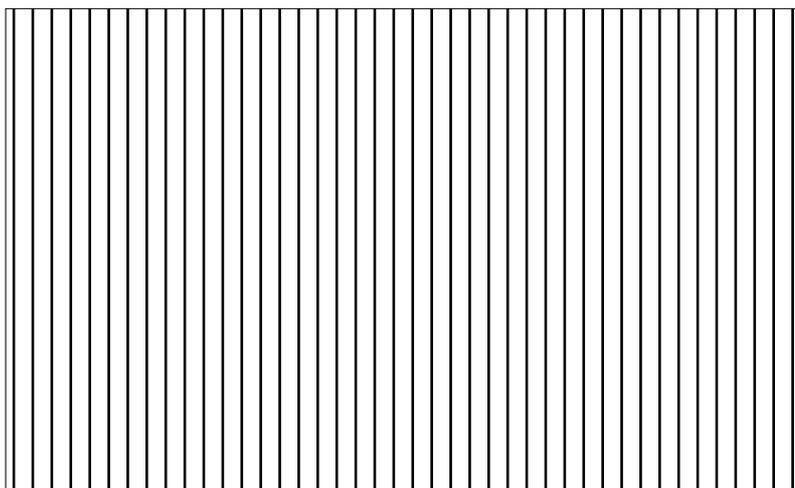


Figure 165. Sample test print page

## Setting the display language

- 1 Press **✓** to enter the menus.
- 2 Use **▼** or **▲** to scroll to **CONFIGURE DEVICE**, and then press **✓**.
- 3 Use **▼** or **▲** to scroll to **SYSTEM SETUP**, and then **✓**.
- 4 Use **▼** or **▲** to scroll to **LANGUAGE**, and then **✓**.
- 5 Use **▼** or **▲** to scroll to the desired language, and then **✓**.

## Re-initializing a hard disk

When a hard disk is installed, it must be initialized.

### Re-initialize a hard disk using PJI commands

Create the following PJI command in DOS EDIT:

```
Esc E Esc%-12345X@PJI FSINIT VOLUME = "1:"
```

Copy this to the printer using the DOS command:

```
copy/b.
```

---

**Note**

---

For this command to take effect, the printer must be turned off and on after sending the above command.

### Re-initialize a hard disk using the control panel

- 1 Turn the printer off.
- 2 Press and hold **PAUSE/RESUME** on the control panel and turn the printer on.
- 3 Hold **PAUSE/RESUME** down until all three error lights turn on, off, and then on.
- 4 Press **◀** until **INITIALIZE DISKS** appears in the display panel.
- 5 Press **✓**.
- 6 The printer will begin initializing the disk (this may take a moment). The control panel will display the HP event logo and eventually display **READY**.

---

**Note**

---

Both of the above methods set the hard disk to the required state of "VOLUME 0."

# Service level diagnostics

## Service menu

The service menu printer commands should be used only by authorized service personnel. The service menu can only be entered by using the PIN code 00900001. While in the service menu, you can:

- Clear the event log.
- Verify and set the page count and serial number. These are displayed on the configuration page.
- Change the maintenance intervals.
- Set the cold reset paper size.

If a stapler/stacker is installed:

- Calibrate the staple position.
  - Review and edit the serial number of the output device.
  - Review and edit the page count of the output device.

**Table 32. Service menu**

Item	Explanation
Clear event log	Clear the event log after maintenance or repairs have been accomplished.
Total page count	Reset the total page count.
Maintenance count	Reset the pages since the last maintenance count.
Maintenance interval	Change or reset the maintenance interval.
Serial number	Reset the printer serial number.
Cold reset paper	Set cold reset paper size.
Stapler/stacker	Perform a staple position calibration.

## Service mode

### Setting the display language

- 1 Turn off the printer.
- 2 Press and hold .
- 3 Turn on the printer.
- 4 Continue to hold  until all three control panel lights illuminate, then release .
- 5 When SELECT LANGUAGE appears on the display, press .
- 6 Use  or  to scroll to the desired language, and press .

## Cold reset

Cold reset clears all data from the printer memory and sets all the defaults back to the factory settings.

---

### CAUTION

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Performing a cold reset resets the Jetdirect configuration. To avoid making changes to your network configuration, remove the HP Jetdirect print server before performing a cold reset.

---

### Note

---

If possible, print a configuration page and menu map prior to performing a cold reset. This will document current settings for later reference.

#### To perform a cold reset

- 1 Turn off the printer.
- 2 Press and hold ✓ .
- 3 Turn on the printer.
- 4 Continue to hold ✓ until all three control panel lights illuminate, then release ✓ .
- 5 When `SELECT LANGUAGE` appears on the display, press ▼ .
- 6 `COLD RESET` will be displayed.
- 7 Press ✓ while `COLD RESET` is displayed. The cold reset is complete.

#### To reset maintenance kit count

- 1 Turn off the printer.
- 2 Press and hold ✓ .
- 3 Turn on the printer.
- 4 Continue to hold ✓ until all three control panel lights illuminate, then release ✓ .
- 5 When `SELECT LANGUAGE` appears on the display, press ▲ .
- 6 `MAINTENANCE KIT` will be displayed.
- 7 Press ✓ while `MAINTENANCE KIT` is displayed. The maintenance kit count is reset.

#### To skip disk

Selecting the skip disk function allows the printer to turn on without recognizing the hard disk. This is useful for troubleshooting problems with the hard disk without having to remove the hard disk.

- 1 Turn off the printer.
- 2 Press and hold ▼ .
- 3 Turn on the printer.
- 4 Continue to hold ▼ until all three control panel lights illuminate, then release ▼ .
- 5 Press ▲ and then **PAUSE/RESUME**.
- 6 When `SKIP DISK` appears on the display, press ✓ .
- 7 The printer will start without recognizing the hard disk.

## To initialize NVRAM

NVRAM initialization resets all the defaults back to the factory settings. NVRAM initialization should always be executed immediately after replacing the firmware or the formatter board. This procedure aligns the firmware with the formatter. Not performing NVRAM initialization could result in deterioration of print quality.

---

### Note

---

If possible, print a configuration page and menu map prior to performing a NVRAM initialization. This will document current settings for later reference.

- 1 Turn off the printer.
- 2 Press and hold ▼.
- 3 Turn on the printer.
- 4 Continue to hold ▼ until all three control panel lights illuminate, then release ▼.
- 5 Press ▲ and then PAUSE/RESUME.
- 6 When SKIP DISK appears on the display, press ▲.
- 7 When NVRAM INIT appears on the display, press ✓.
- 8 The printer will start without recognizing the hard disk.
- 9 Re-enter the serial number, page count, and maintenance count in service mode.

## Drum rotation functional check

The photosensitive drum, located in the print cartridge, must rotate in order for the print process to work. The photosensitive drum receives its drive from the main drive assembly. To verify whether the drum is rotating:

- 1 Open the front cover.
- 2 Remove the print cartridge.
- 3 Mark the cartridge drive gear with a felt-tipped marker. Note the position of the mark.
- 4 Install the print cartridge, and close the front cover. The start-up sequence should rotate the drum enough to move the mark.
- 5 Open the printer, and inspect the gear that was marked in step 3. Verify that the mark moved. If the mark did not move, inspect the main drive assembly to make sure that it is meshing with the print cartridge gears. If the drive gears appear functional, and the drum does not move, replace the print cartridge.

---

### Note

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This test is especially important if refilled print cartridges have been used.

## High-voltage power supply check

The high-voltage power supply PCA provides the necessary voltages for the electrophotographic processes. A method for verifying the high-voltage system is given below.

### Print cartridge connection points

Visually inspect the four connection points on the inside right end of the print cartridge. If they are dirty or corroded, clean the connections. If damaged, replace the print cartridge.

### High-voltage contacts

The high-voltage contact springs mount on the high-voltage power supply PCA and protrude through the print cartridge cavity to contact the print cartridge. Verify that the contacts are not dirty or corroded and that the spring action is functional. If damaged, replace the high-voltage power supply PCA.

## Engine test

The engine test verifies that the print engine is functioning correctly. This test is very useful for isolating printer problems since the formatter is completely bypassed during an engine test. The engine test prints a full page of horizontal lines across the entire printable area.

### Note

Paper can be picked up from tray 2 or tray 3 if the formatter is installed. If the formatter is removed, the tray you do not want to print from must be open. Also, make sure that the print cartridge is installed in the printer.

## Test switch location

The test switch is located on the DC controller PCA. It is accessible through a hole (callout 1) at the right rear of the printer. See figure 166 below.

## Printing an engine test

Use a non-metallic object (such as a pencil) to press and hold the test print switch for five seconds. Release the switch and wait for the fuser to warm up. Press the switch again; a single test page will print. If the optional duplexer is installed, the test pattern is printed duplex.

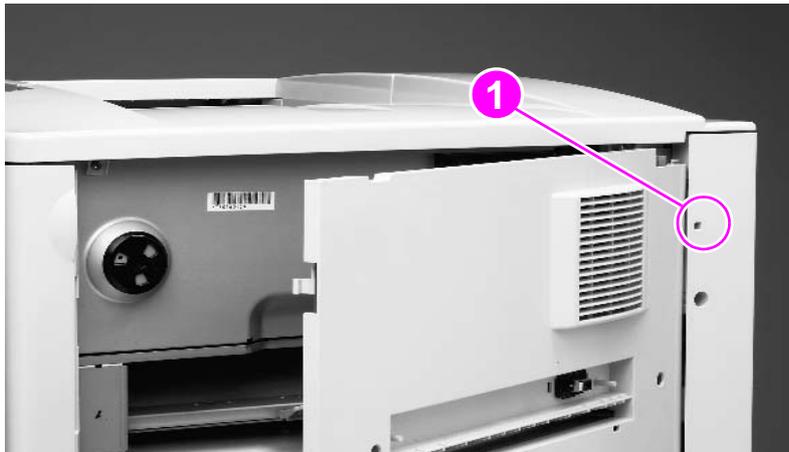


Figure 166. Test print switch location

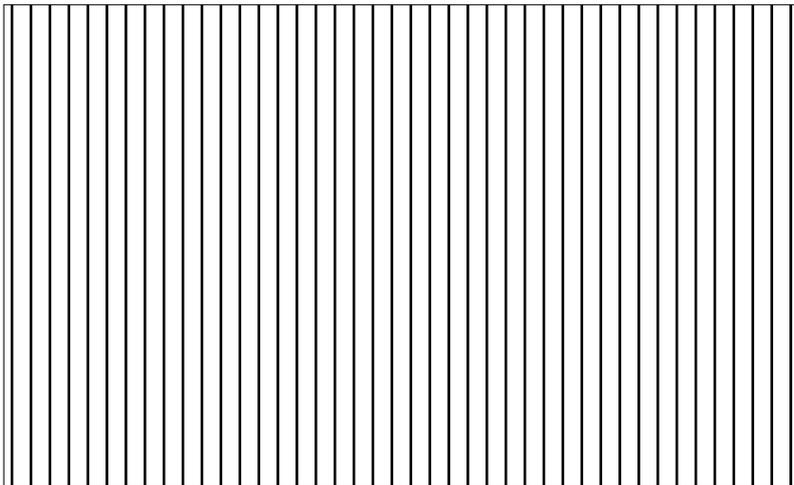


Figure 167. Sample test print page

## 2000-sheet feeder diagnostics

The 2000-sheet feeder can run stand-alone diagnostics to test the device motors, functionality, and sensors. You will need one power cord, one #2 Phillips screwdriver, and a small flat-blade screwdriver for the DIP switches.

## 2000-sheet feeder diagnostics label

The following label is on the inside of the 2000-sheet feeder back cover:

**C8531A 2000-Sheet Input Tray Service Diagnostics**  
Turn off power and set all DIP switches to the off position when finished.

**Motor test** This test verifies the functionality of the three motors on the unit.

- Open tray 4 and the VTU.
- Set the DIP switches for the desired motor test. (See table 1 for switch settings.)
- Turn on the unit power switch.
  - If working properly, the motors will start rotating.
  - If the rotation does not occur, replace the corresponding motor: paper pickup unit, paper delivery unit (VTU), or tray lifting motor.
- To stop the test, turn off the unit power switch and set all DIP switches to the off position.

**Standalone running test** This test checks for proper unit operation. See table 2 to diagnose problems with the unit.

- Ensure there is paper in the tray.
- Set the DIP switches for the desired standalone running mode. (See table 1 for switch settings).

Feed only 6 to 8 pages to prevent excessive paper jams when performing this test.

- Turn on the unit power switch.
  - If working properly, the unit pulls paper from the tray and ejects it, and the bottom green service LED lights.
  - If the unit is not working, then there is no paper movement and the service LEDs flash in red or yellow patterns that indicate the problem. (See table 2 for an explanation of the number of LED flashes).
- To stop the test, turn off the unit power switch and set all DIP switches to the off position. Open the VTU and remove any media from the paper path.

**Sensor test** This test checks the sensors for proper operation.

- Set the DIP switches for sensor test. (See table 1 for switch settings.)
- Open tray 4 and the VTU.
- Turn on the unit power switch and manually actuate the sensor to be tested.
  - When the paper level sensing lever is activated (lifted), all the service LEDs (red, yellow and green) light. When the lever is in the normal position, all LEDs are off.
  - When each of the other sensors are actuated, the green service LED lights. When the sensor levers are in the normal position, the LED is off.
  - If each service LED does not light, the corresponding sensor is faulty. Replace the sensor.
- To stop the test, turn off the unit power switch and set all DIP switches to the off position.



If you want to select another test or change DIP switch settings, turn off the unit power switch, reset DIP switches, then turn the unit power switch on to enable the new settings.

**Table 1. DIP switch settings for troubleshooting test procedures**

DIP switch	Normal settings	Standalone running test 1	Standalone running test 2	Standalone running test 3	Motor test 1	Motor test 2	Motor test 3	Sensor tests
1	Off	On	On	On	On	On	On	Off
2	Off	Off	Off	Off	On	On	On	Off
3	Off	Off	Off	On	Off	Off	On	On
4	Off	Off	On	Off	Off	On	Off	On

If working properly, the unit pulls paper from the tray and ejects it, and the green service LED flashes regularly every 0.5 seconds.

**Table 2. Patterns of LED flashing**

LED	Number of LED flashes	Abnormality	Recommended action
Green	(Always on)	Device OK	
	1	Paper size inconsistency	Set correct paper size and STD/Custom side switch properly.
	2	Tray open	Close tray
	3	Tray is paper empty	Load paper
	4	Tray is lifting paper	Wait until paper finishes lifting
	5	VTU door open	Close VTU door
Yellow	6	Under mechanical initialization	Wait until initialization is completed
	1	Registration sensor delay jam	Remove jammed paper from VTU door and tray
	2	Registration sensor stay jam	
	3	Registration sensor initial jam	
	4	VTU sensor delay jam	
	5	VTU sensor stay jam	
6	VTU sensor initial jam		
Red	1	Lifter malfunction	Verify motor 1 and lifting mechanism in tray
	2	Connection unit not installed	Properly install Connection Unit inside printer
	3	Communication error	Verify connectors in controller board
	4	EEPROM error	Replace controller board

R56-8435 >PET<

Figure 168. 2000-sheet feeder label

## 2000-sheet feeder motor test

This test verifies that the three motors on the 2000-sheet feeder are functioning properly.

- Identify the back cover (opposite from the tray door). Remove the four screws in the back cover. Remove the back cover.
- Pull open the paper tray.
- Set the DIP switches on the controller PCA to motor test mode.
- To turn the power supply switch to diagnostic mode, pull out on the blue handle.
  - If the motors are working properly, you will hear them as they rotate continuously.
  - If the motors do not rotate, replace the corresponding field replaceable unit: either the paper pickup assembly or the paper deck drive assembly.
- To stop the test, set the power switch back to operational mode (push in), and reset the DIP switches on the controller PCA to the off position.

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## 2000-sheet feeder stand-alone running test

This test verifies that the 2000-sheet feeder is functioning properly. For this test, use the LED located on the controller PCA on the 2000-sheet feeder.

### Note

If the 2000-sheet feeder is mounted underneath the printer, jams may occur because the printer will not pick up the paper. To prevent excessive jams during this test, feed only six to eight pages.

- 1 Make sure that paper is in the tray.
- 2 Set the DIP switches on the controller PCA for stand-alone running mode.
- 3 To set the power supply switch to diagnostic mode, pull the blue power supply switch outward. The motors will start. Paper should now be lifted from the tray.
  - If the unit does not work properly, the lower service LED on the controller PCA flashes in a pattern that indicates the problem. (See table 34 on page 248 for an interpretation of the LED patterns.)
- 4 To stop the test, set the power supply switch back to operational mode, and set the DIP switches on the controller PCA to the off position (see table 33). Open, and remove any media from the paper path.

## 2000-sheet feeder sensor test

This test manually activates the sensors on the 2000-sheet feeder to test if they are working properly.

- 1 Set the DIP switches on the controller PCA for sensor test mode.
- 2 For each paper sensor:
  - Pull open the paper tray.
  - Remove the metal spring that holds the sensor unit in place (secured by 1 screw).
  - Pull out the sensor unit.
- 3 To set the power supply switch to diagnostic mode, pull the blue power supply switch outward.
- 4 To manually activate each sensor, press it in with your finger.
  - When you activate the sensor, the bottom service LED on the controller PCA comes on. When you release the sensor, the LED goes off.
  - If the LED does not come on, there is a problem with the sensor. Replace the corresponding field replaceable unit.
- 5 To stop the test, set the power supply switch back to operational mode, and set the DIP switches on the controller PCA to the off position (see table 33).

**Table 33. DIP switch settings**

DIP switch	Normal	Motor test	Stand-alone running test	Sensor test
1	Off	On	On	Off
2	Off	On	Off	Off
3	Off	Off	Off	On
4	Off	On	On	On

### Note

Be sure to turn the power supply off and set all the DIP switches to the off position (normal settings) when you finish the diagnostics, or the unit will not work properly. Then, replace the back cover.

## 2000-sheet feeder light pattern interpretation

If the 2000-sheet feeder is working properly, it will pick up paper from the tray and feed it to the printer, and the bottom service light will flash regularly every 0.5 seconds.

**Table 34. 2000-sheet feeder light pattern interpretation**

Long (1 sec.)	Short (0.03 sec.)	Error number/ meaning	Recommended action
3	1	66.11.01 Lifter malfunction	Lift the tray by hand to make sure that it lifts freely. Make sure that the paper size plates are correctly installed (in the same corresponding slots) and are not bent. If neither of these is the problem, replace tray 4.
2	1	13.11.11 Registration sensor delay jam	The media does not reach the sensor. Open the door, and remove the media. Replace the paper pickup assembly.
2	2	13.11.3B Registration sensor station jam/initial jam	Open the door, and remove the media. Check the sensors, and replace the corresponding field-replaceable unit.
2	3	13.11.31 Jam sensor delay jam	The media did not reach the sensor. Open the door, and remove the media. Replace the paper pickup assembly.
2	4	13.11.21 13.11.2B Jam sensor stationary jam/initial jam	Open the door and remove the media.
1	1	Paper path door open	Close the door.
1	2	Paper tray open  Wrong size paper loaded	Close the tray.  Load the correct size of paper, or check the sensors.
1	3	No paper in tray	Load paper, or check the sensors.

### Note

If the LED does not come on, replace the paper deck PCA or the universal power supply assembly.

## 3000-sheet stapler/stacker and stacker diagnostics

### Setting the device to service mode

Perform the following steps to put the device into service mode:

---

**CAUTION**

Make sure the printer is turned off before performing this test. If the printer is on when service mode is enabled, damage to the device and/or the printer could occur.

- 1 Remove the controller PCB cover.
- 2 Slide the service mode switch on the controller PCB to the “ON” position (toward you).

---

**Note**

Once the device has entered service mode, a short self-test will be performed. The green error light will be blinking if no jams or malfunctions were detected.

### To exit service mode

- 1 Slide the service mode switch on the controller PCB back to the normal position.
- 2 Reinstall the controller PCB.

---

**Note**

Press the interlock switch during the test to perform a reset to start the test over.

# 3000-sheet stapler/stacker and stacker diagnostic labels

The following labels are on the stapler/stacker and stacker PCB covers:



**C8085A HP 3000-Sheet Stapler / Stacker Service Diagnostics**

- Be sure to turn the printer OFF before performing this operation.
- To run this test, you must use Letter or A4 size paper ONL Y. Feed paper straight, centered and slowly to avoid skews and jams. If a jam occurs, release the interlock switch and depress it again to reset the unit.

**Setting the Service Mode:**

- 1.- Remove the controller PCA cover .
- 2.- Slide the controller PCA switch towards you, to the ON position.
- 3.- With the service mode enabled, the device performs a power up sequence and remains ready to receive paper fed manually:
  - Feed 2 sheets at a time to the paper input area. Sheets will be sent to the face -up bin.
  - Feed 2 sheets at a time to the paper input area. Sheets will be sent to the stacker bin and will be stapled as follows:
    - Next 2 sheets: No staples
    - Next 2 sheets: 1 staple
    - Next 2 sheets: 2 staples
    - Next 2 sheets: 3 staples
    - Next 2 sheets: 6 staples
    - Next 2 sheets: 1 staple angled at 40 °
    - Next 2 sheets restarts the cycle, to the face -up bin.

- In case of paper jam, remove the paper and then push and release the interlock switch to reset the unit.

**Stacker Bin Test:**  
Block the upper optical sensor and observe the movement of the stacker bin.

**Face Up Bin Full Sensor Test:**  
Lift and hold up the bin full flag , until the user LED blinks Amber . It should blink within few seconds.

**Stacker Bin Full Sensor test:**  
Block the upper optical sensor until the stacker bin reaches the bottom of its motion, triggering the stacker bin full sensor . The user LED should blink Amber .

C8085-80100 >PET<

**Service LED Flashing Patterns:**

LED	Meaning	LED Blinking Pattern
Green/Solid	Device OK	
Green/Blinking	Device detached from the printer	1
	Stapler door open	2
Yellow	Jam in flipper	1
	Jam in path	2
	Jam in accumulator	3
	Jam in carriage/stapler	4
Red	Malfunction in flipper	1
	Malfunction in path	2
	Malfunction in accumulator	3
	Malfunction in carriage/stapler	4
	Malfunction in tray/stack holder	6
	Malfunction in controller PCA	7

Figure 169. Stapler/stacker label



**C8084A HP 3000-Sheet Stacker Service Diagnostics:**

- Be sure to turn the printer OFF before performing this operation.
- To run this test, you must use Letter or A4 size paper ONL Y. Feed paper straight, centered and slowly to avoid skews and jams. If a jam occurs, release the interlock switch and depress it again to reset the unit.

**Setting Service Mode:**

- 1.- Remove the controller PCA cover
- 2.- Slide the controller PCA switch towards you, to the ON position.
- 3.- With the service mode enabled, the device performs a power up sequence and remains ready to receive paper fed manually:
  - Feed 2 sheets at a time to the paper input area. Sheets will be sent to the face -up bin.
  - Feed 2 sheets at a time to the paper input area. Sheets will be sent to the stacker bin, offset in one direction.
  - Feed 2 sheets at a time to the paper input area. Sheets will be sent to the face -up bin.
  - Feed 2 sheets at a time to the paper input area. Sheets will be sent to the stacker bin, offset in the opposite direction.
  - Next 2 sheets restarts the cycle, to the face -up bin.

- In case of paper jam, remove the paper and then push and release the interlock switch to reset the unit.

**Stacker Bin Test:**  
Block the upper optical sensor and observe the movement of the stacker bin.

**Face Up Bin Full Sensor Test:**  
Lift and hold up the bin full flag , until the user LED blinks Amber . It should blink within few seconds.

**Stacker Bin Full Sensor Test:**  
Block the upper optical sensor until the stacker bin reaches the bottom of its motion, triggering the stacker bin full sensor . The user LED should blink Amber .

C8084-80100 >PET<

**Service LED Flashing Patterns:**

LED	Meaning	LED Blinking Pattern
Green / Solid	Device OK	
Green / Blinking	Device detached from the printer	1
Yellow	Jam in flipper	1
	Jam in path	2
	Jam in offset module	5
Red	Malfunction in flipper	1
	Malfunction in path	2
	Malfunction in offset module	5
	Malfunction in controller PCA	7

Figure 170. Stacker label

## Stapler test/stacker test

For the stapler test/stacker test, use letter- or A4-sized paper. Feed the paper straight, centered, and slowly to avoid skews and jams. If a jam occurs, release the interlock switch and depress it again to reset the device.

---

### Note

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Any stapler settings or offset settings configured at the printer control panel are ignored during the stapler test/stacker test.

- 1 Feed two sheets of paper into the paper input area. The sheets are sent to the face-up bin.
  - 2 Feed two sheets at a time into the paper input area.
- In the 3000-sheet stapler/stacker, the sheets are stapled as shown below and sent to the stacker bin:
    - next two sheets: **no staples**
    - next two sheets: **1 staple**
    - next two sheets: **2 staples**
    - next two sheets: **3 staples**
    - next two sheets: **6 staples**
    - next two sheets: **1 staple, angled at 40°**
    - next two sheets restart the cycle: **to the face-up bin**
  - In the 3000-sheet stacker, the sheets are routed as follows:
    - next two sheets: **to the stacker bin, offset in one direction**
    - next two sheets: **to the face-up bin**
    - next two sheets: **to the stacker bin, offset in the opposite direction**
    - next two sheets restart the cycle: **to the face-up bin**

## Stacker bin test

Block the upper optical sensor and observe the movement of the stacker bin.

## Face-up bin full sensor test

Lift and hold up the bin-full flag until the error light blinks amber. The error light should blink amber within a few seconds.

## Stacker bin full sensor test

Block the upper optical sensor until the stacker bin reaches the bottom of its motion, triggering the stacker bin full sensor; the error light should blink amber.

## 3000-sheet stapler/stacker staple position calibration

The staple position calibration can be used to verify that the stapler is working properly or to troubleshoot problems with stapler/stacker.

- 1 Press **✓**.
- 2 Use **▲** or **▼** to scroll to **Service** menu and press **✓**.
- 3 Enter the service mode PIN code, **00900001**, and then press **✓**.
- 4 Use **▲** or **▼** to scroll to **Stapler/stacker**, and press **✓**.
- 5 Use **▲** or **▼** to scroll to **%**, and press **✓**.
- 6 Use **▲** or **▼** to select the desired value, and press **✓**.
- 7 Use **▲** or **▼** to scroll to **‰**, and press **✓**.
- 8 Use **▲** or **▼** to select the desired value, and press **✓**.
- 9 Press **PAUSE/RESUME** to exit the menu and return the printer to ready.

## 3000-sheet stapler/stacker light pattern interpretation

### User light pattern interpretation

The blinking of the user LED is continuous.

**Table 35. Stapler/stacker and stacker user light pattern interpretation**

Color/state	Description
Off	The device is turned off or not properly connected.
Green/solid	The device is in normal state, with no malfunctions, jams, or operator errors.
Green/blinking	The device is in service mode; you should take it out from this state. See "Setting the device to service mode" on page 249.
Amber/blinking	A jam, open door, or bin full condition is present. A hardware malfunction at the warning level will also set the user light pattern to amber/blinking.
Amber/solid	A hardware malfunction is present in the device. If the malfunction is severe, the device will not operate anymore. Service is required.

## Service light pattern interpretation

The PCB of the stapler/stacker and stacker has three lights mounted. The lights are used to report abnormalities.

The lights are of three colors: green, yellow, and red. The following are the functionality of the lights:

- Green light functionality—solid green indicates the device is ok. If any of the doors are open, this light will be flashing. In the stapler/stacker, the light will blink once indicating the ILOOK sensor is open and twice indicating the stapler door is open. In the stacker, the light blinking once indicates an open door.
- Yellow light functionality—yellow blinking indicates a jam condition is present. The blinking of the light will be a code as follows:
  - Stapler/stacker and stacker—flipper jam - 1 blink
  - Stapler/stacker and stacker—path jam - 2 blinks
  - Stapler/stacker only—accumulator jam - 3 blinks (3 blinks code reserved on the stacker)
  - Stapler/stacker only—carriage/stapler jam - 4 blinks (4 blinks code reserved on the stacker)
  - Stacker only—offset jam - 5 blinks (5 blinks code reserved on the stapler/stacker)
- Red light functionality—red blinking indicates a malfunction condition is present. The blinking of the light will be a code as follows:
  - Stapler/stacker and stacker—flipper - 1 blink
  - Stapler/stacker and stacker—path - 2 blinks
  - Stapler/stacker only—accumulator - 3 blinks (3 blinks code reserved on the stacker)
  - Stapler/stacker only—carriage/stapler - 4 blinks (4 blinks code reserved on the stacker)
  - Stacker only—offset - 5 blinks (5 blinks code reserved on the stapler/stacker)
  - Stapler/stacker only—tray/stack holder - 6 blinks (6 blinks code reserved on the stacker)
  - Stapler/stacker and stacker—PCB - 7 blinks

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### Note

The blinking will be a period of 0.5 seconds and there will be a delay of two seconds to repeat the code. If there are two or more abnormal conditions, the priority will be from the first module that presented the problem to the last one.

---

## Jam troubleshooting

Media jams occur either when media does not reach or does not clear a photosensor along the printer paper path in a specific amount of time. If a paper jam occurs, a **13.xx PAPER JAM** message is displayed on the printer control panel. The following lists general questions you should ask and topics you should explore prior to troubleshooting:

**Table 36. General jam troubleshooting questions**

<b>Problem</b>	<b>Action</b>
What is the frequency of the jams (e.g. continuous, one jam per 100 pages, one jam per 1000 pages, etc.)?	Verify the frequency of the jam with the customer. Print or display the event log to determine jam history. See "Event log page" on page 207.
Do jams only occur when the paper is fed from a particular paper input source (e.g., tray 1, tray 2, tray 3, tray 4)?	See "Jams" on page 255 and "Paper path test" on page 238 to isolate the problem.
Do jams only occur when paper is output to a specific output bin (e.g., face-down bin, face-up bin, duplexer, stapler)?	See "Jams" on page 255 and "Paper path test" on page 238 to isolate the problem.
Do jams occur with a specific type of media?	Try known good media. See the <i>HP LaserJet Printer Family Print Media Guide</i> .
Where does the leading edge of the first sheet of paper in the printer's paper path stop when a jam occurs? Are any sheets of paper physically damaged or torn?	Attempt to duplicate. See "Paper path test" on page 238. Inspect the paper path and all paper path mechanical assemblies prior to the leading jam.
Is the customer loading the paper trays correctly?	Observe the customer loading the paper. See proper paper handling procedures in the <i>HP LaserJet Printer Family Print Media Guide</i> .
Is the customer overfilling the paper trays?	Make sure that the paper level is NOT above the maximum fill marks in the paper trays. Observe the customer loading paper in the trays.
Are the paper tray guides set correctly?	Make sure that the tray 2 and tray 3 paper guides are set correctly both at the front and rear of the tray. Make sure that the front fence is locked into the correct position. For tray 4, make sure that all adjustments are set correctly: front, back, and side at the top and bottom of the tray.
Does the printer need cleaning?	Inspect the paper path and paper path rollers. See "Internal cleaning" on page 70.
When was the user maintenance performed on the printer?	From the configuration page, determine the number of pages since the last maintenance. The preventive maintenance kit should be installed every 350,000 images.
Is the custom size switch set correctly?	Ensure the switch is set correctly for the media selected.

## Jams

Jams occur most often when:

- Paper trays are not correctly loaded. The print media does not meet the specifications listed in the *HP LaserJet Printer Family Print Media Guide*.
- The media is in poor condition.
- The printer needs cleaning.

If a jam occurs, the printer will display a `13.x PAPER JAM` message on the control panel. See "Printer message tables" on page 211 for detailed descriptions of the `13.x` messages and the recommended actions to resolve the errors.

## Customer print job

Ask the customer to send a print job from the problem source(s) to the problem destination(s). Try to recreate the jam errors by having the customer perform a paper path test. See "Paper path test" on page 238.

When verifying print jobs, make sure that all of the settings are selected as desired. Keep in mind that application settings take priority over driver settings, which take priority over the printer control panel settings. If a single setting is not present in the application, but is set in the driver, that will override the control panel settings.

---

### Note

HP Web JetAdmin does have capabilities to override paper types and sizes in certain conditions. See the *HP LaserJet 9000 Series Printer Use* guide for more information.

## Clearing jams

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### Note

Open and close all printer covers to clear the jam message. After removing a sheet of paper, you may need to check other areas for the presence of other paper.

All portions of a jammed piece of paper must be removed, or you may run into repeated jams.

If the jam persists, try the following:

- If PostScript is installed, use the `JAM RECOVERY=ON` menu item under the PostScript Menu. The printer will attempt to automatically recover from jams.
- Execute a form feed from the computer or the printer control panel. A form feed may flush any paper or envelopes left in the printer.
- Check to make sure you have located and removed all scraps of paper from inside the printer.

## Clearing repeated jams

- 1 Check to see that media is correctly loaded in trays and that all width guides are correctly set (not skewed).
- 2 Try turning over the stack of paper in the tray. If you are using letterhead paper, try printing from a different tray.
- 3 Do not use previously printed paper or torn, worn, or irregular paper.
- 4 Check the media specifications. If it is outside of the recommended specifications, problems may occur. See the *HP LaserJet Printer Family Print Media Guide*.
- 5 The printer may be dirty. See "Internal cleaning" in chapter 4.

## Evaluate the information pages

From the printer control panel, you can print pages that give details about the printer and its current configuration. The following information pages are described:

- Configuration page
  - If JetDirect card is installed, Jetdirect page
- File directory page
- Usage page
- File directory page

For a complete list of the printer information pages, print a menu map. See "Menu map" in chapter 3.

To select and print items from the information menu:

- 1 Press  to enter menus.
- 2 Use  or  to scroll to Information menu and press .
- 3 Use  or  to scroll to the information page desired and press .

### Configuration page

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

The content of the configuration page varies, depending on the options currently installed in the printer.

If any of the installed devices are not shown on the configuration page, verify that the Jet-Link cabling is correctly connected and functional and that DC power is available to the paper handling devices. Check and reseal suspect cable connections. If any of the cables are replaced, you must cycle the power to have the printer recognize the device again.

### Configuration page elements

- A Printer information
- B Event log
- C Installed personalities and options
- D Memory
- E Security
- F Paper trays and options

# HP LaserJet 9000 series printers



## configuration page

1

### Printer Information **A**

Product Name: HP LaserJet 9000 Series  
Printer Name: HP LaserJet 9000 Series  
Printer Number: 4  
Formatter Number: S46XXXXXXX  
Printer Serial Number: XXXXXXXXX  
Firmware Datecode: 20010409 01.032.4  
PS Wait Time-out: 300 seconds  
Page Count: 24  
Preventive Maintenance Interval: 350000  
Pages Since Last Maintenance: 22

### Memory **D**

Total Memory: 64 MB  
DWS: 20.87  
Automatic Resource Saving Enabled

### Event Log **B**

Number of Entries in Use: 3  
Maximum Number of Entries: 50  
Last Three Entries:

Number	Error	Page Count
3	88 0000	2
2	55 0492	0
1	55 0000	0

### Security **E**

Control Panel Lock: NONE  
Control Panel Password: DISABLED  
Write Protect: DISABLED

### Installed Personalities and Options **C**

PCL (20010402)  
PS (20010402)  
PCLXL (20010402)  
DIMM Slot 1: Side 1: 8 MB FLASH  
Side 2: 8 MB FLASH  
DIMM Slot 2: Side 1: 32 MB SDRAM  
Side 2: 32 MB SDRAM  
DIMM Slot 3: Empty  
DIMM Slot 4: Empty  
EIO 1: HP JetDirect J4169A  
EIO 2: Empty  
EIO 3: Empty  
RAM DISK Storage: 70 MB Capacity

### Paper Trays and Options **F**

Default Paper Size: LETTER  
Tray 2 (LETTER)  
Tray 3 (LETTER)  
Duplex Unit  
Device 1:  
HEWLETT-PACKARD  
2000 SHEETS INPUT TRAY [03.22] C8531A  
Input Trays:  
1: TRAY 4, 2000 Sheets  
Device 2:  
HEWLETT-PACKARD  
HP 3000-SHEET STAPLER STACKER [010406] C8085A  
Output Bins:  
1: OPTIONAL BIN 1, 125 Sheets, Face Up  
2: OPTIONAL BIN 2, 3000 Sheets, Face Down

ENGLISH(1)

**Figure 171.** Sample configuration page

#### Note

If an HP Jetdirect EIO card is installed, an HP Jetdirect configuration page will print out as well.

## Verify installed options

In the installed personalities and options section on the configuration page, look for options such as hard disk information, DIMM types (RAM or ROM), and DIMM sizes.

Verify that the options installed in the printer are reflected in the configuration page. If an installed device is not shown on the configuration page, see table 37 below for recommended actions.

The paper tray and options section of the configuration page identifies two types of paper handling devices that communicate or interact with the printer:

- Engine DC controller-driven devices
  - duplexer
  - tray 1
- Communication link devices (Jet-Link protocol)
  - input devices:
    - 2000-sheet feeder
  - output devices:
    - 3000-sheet stapler/stacker or 3000-sheet stacker

While the engine DC controller-driven devices draw power (24V DC) and control signals from the engine, the Jet-Link devices have their own power supply and controller board.

The information from the paper handling controller is carried by the Jet-Link cables that connect the controller board of all the Jet-Link protocol supported devices. The Jet-Link protocol supports up to 64 devices connected to the paper handling. Each device controller has an input or output port that provides flexible connections in different configurations.

**Table 37. Printer devices troubleshooting**

Device	Action if installed and undetected
Duplexer	<p>Print a configuration page to verify device installation.</p> <p>Turn the power off, reseal the duplexer, verify that the connector is not broken, and turn the printer on.</p> <p>If the connector is broken or if turning the printer on and off does not work, then replace the duplex cable and/or duplexer.</p>
Device 1 and 2	<p>Verify that AC power is present.</p> <p>Verify that the Jet-Link cables are installed correctly.</p> <p>Remove all Jet-Link connections, and visually inspect for connector damage on the cable pins and connector ends. Try using a different cable to connect the problem device directly to the paper handling controller. All Jet-Link cables are wired the same, but are different lengths.</p> <p>If a device is not recognized, replace the device controller or defective Jet-Link cable.</p>

## Jetdirect page

Use the Jetdirect page to view current network settings, to help troubleshoot printer problems, or to verify network statistics or protocol information.

### Jetdirect page elements

- A HP Jetdirect configuration
- B Network statistics
- C Protocol information

  
invent

## HP LaserJet 9000 series printers

**EIO 1 - JetDirect page** 1

**HP JetDirect Configuration** A

Status: I/O Card Not Ready	Port Config: Disconnected
LAN ERROR - LOSS OF CARRIER	Auto Negotiation: On
Model Number: J4169A	Manufacturing ID: 41004100902007
Hardware Address: 0001E627932EB4642	Date Manufactured: 01/2001
Firmware Version: L.20.24	SNMP Set Cmty Name: Not Specified
Port Select: None	

**Network Statistics** B

Total Packets Received: 0	Total Packets Transmitted: 0
Unicast Packets Received: 0	Unsendable Packets: 0
Bad Packets Received: 0	Transmit Collisions: 0
Framing Errors Received: 0	Transmit Late Collisions: 0

**Protocol Information** C

TCP/IP	Novell/Netware
Status: Initializing	Status: NOT CONFIGURED 16
Host Name: Not Specified	Node Name: NPI27932E
IP Address: 0.0.0.0	Netware Mode: Queue Server
Subnet Mask: 0.0.0.0	NDS Tree Name:
Default Gateway: 0.0.0.0	NDS Context:
Config By: Not Configured	Attached Server:
BOOTP/DHCP Server: 0.0.0.0	Queue Poll Interval: 2 sec
TFTP Server: 0.0.0.0	SAP Interval: 60 sec
Config File: Not Specified	
Domain Name: Not Specified	
DNS Server: Not Specified	
WINS Server: Not Specified	
Syslog Server: Not Specified	
Idle Timeout: 90 sec	
SLP: Enabled	
Access List: Not Specified	
Web JetAdmin URL: Not Specified	

IPX/SPX	AppleTalk
Status: Ready	Status: Initializing
Primary Frame Type: Auto Select	Name: *
Network Frame Type: Rcvd	Zone: HP LaserJet LaserWriter
	Type 1: 0
	Type 2: 0
	Network Number: 0
	Node Number: 0

DLC/LLC
Status: Ready

Figure 172. Sample Jetdirect configuration page

## Supplies status page

Use the supplies status page to view current printer supply status, to help troubleshoot printer problems, or to verify printer information.

### Supplies page elements

- A Supplies ordering information
- B Cartridge information
- C Other supplies information
- D Printer information

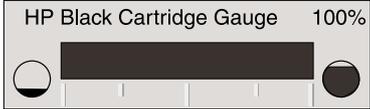


## HP LaserJet 9000 series printers

supplies status page1

Hewlett-Packard Supplies can be ordered on the internet at <https://www.hp.com/go/ordersupplies> or by calling Hewlett-Packard. (Please refer to your printer User Manual for the telephone number).  
For highest print quality always use genuine Hewlett-Packard LaserJet supplies.

### Cartridge Information



HP Black Cartridge Gauge 100%

HP Part Number:	C8543X
Cartridge Low Reached:	NO
Cartridge Out Reached:	NO
Estimated Pages Remaining:	30000
Total Pages Printed:	470
Page count by Paper Size:	
A3/Ledger:	0
Legal:	0
A4/Letter:	446
B5/Executive:	0
Envelope:	0
Custom/Other:	24
Number of Jobs Processed:	127
Cartridge Manufacture Date:	20001017
Cartridge Serial Number:	39
Marked as Reordered:	NO

Please return your used HP cartridge to Hewlett-Packard. For more information see <http://www.hp.com/go/recycle>

### Other Supplies Information



HP Maintenance Kit 100%

HP Part Numbers:	
110V	C9152A
220V	C9153A

### Printer Information

Total Printer Page Count:	71
Preventive Maintenance Interval:	350000
Pages Until Next Maintenance:	349940
Printer Serial Number:	XXXXXXXXXX

ENGLISH(1)

Figure 173. Sample supplies status page

## Usage page

The usage page is designed to fit into a pay-per-page (PPP) model. A reseller can configure the usage page with instructions for a user to send the information back to the reseller in order to prepare bills.

Print a usage page from the printer control panel (or access the information remotely from HP Web JetAdmin) to determine how many simplex or duplex pages of each paper size have been scanned on the copy module and printed on the printer. Average toner coverage is approximated by counting pixels. Jams are not counted. The data cannot be reset manually, and values such as total print and scan impressions, toner coverage, serial number, default language, and default paper size are backed up between the printer NVRAM and hard disk.



# HP LaserJet 9000 series printers

usage page (S/N XXXXXXXXXXX)
1

Product Name: HP LaserJet 9000 Series  
 Printer Name: HP LaserJet 9000 Series

Usage Totals

PRINTER Page Size	Count	SIMPLEX Units	Count	DUPLEX Units	Total
LETTER	1	1.0	0	2.0	1.0
LEGAL	0	1.3	0	2.6	0.0
A4	0	1.0	0	2.0	0.0
EXEC	0	0.8	0	1.6	0.0
11X17	0	2.0	0	4.0	0.0
A3	0	2.0	0	4.0	0.0
COM10	0	0.4	**	**	0.0
MONARC	0	0.3	**	**	0.0
C5	0	0.6	**	**	0.0
DL	0	0.4	**	**	0.0
JISB4	0	1.5	0	3.0	0.0
JISB5	0	0.7	0	1.4	0.0
B5	0	0.7	**	**	0.0
CUSTOM	0	1.0	0	2.0	0.0
JPOSTD	0	1.0	**	**	0.0
A5	0	0.5	0	1.0	0.0
A5	0	1.7	0	3.4	0.0
8K	0	0.8	0	1.6	0.0
16K	0	1.0	0	2.2	0.0
JEXEC	0	1.0	0	2.0	0.0
LTER-R	0	1.0	0	2.0	0.0
A4-R	0	1.0	0	2.0	0.0
ISOB5	0	1.0	0	2.0	0.0
<b>TOTAL PRINTER USAGE</b>					<b>2.0</b>

Coverage 4.365 (1)

ENGLISH(1)

Figure 174. Sample usage page

## File directory page

Use the file directory page to view current directory structures, to help troubleshoot printer problems, or to verify storage capabilities.

### File directory page elements

- A Directory information

**HP LaserJet 9000 series printers**

file directory page 1

Device Type: RAM DISK  
Device Capacity: 64 MB  
Free Space: 60 MB  
Write Protect: DISABLED

Permissions	Owner	File Size	Directory/File Name
drwxrwxrwx	0	Directory	0:
drwxrwxrwx	0	Directory	0:\PostScript
drwxrwxrwx	0	Directory	0:\Pjl

**Figure 175.** Sample file directory page

# Image-formation troubleshooting

When working with customers, obtain a print sample before troubleshooting the printer. Ask the customer to describe the quality expected from the printer. The print sample also helps clarify the customer's description of the problem.

Often an image-formation problem can be linked to media that is outside the specifications Hewlett-Packard has established for optimum printer performance. See "Media troubleshooting" on page 274 for help with persistent image-formation problems.

**Table 38. Image quality checks**

<b>Image quality checks</b>	<b>Action</b>
Does the problem repeat on the page?	Use the "Repeating defect ruler" on page 273.
Is the print cartridge full and is it manufactured by HP?	See "Check the print cartridge" on page 264.
Is the customer using print media that meets all HP specifications?	See "Trays, bins, and paper handling" in chapter 2.
Is the print sample similar to those in the image defect tables?	Compare the sample to the tables and perform the actions recommended in the "Image defect tables" on page 265.
Is the problem on the print cartridge or the transfer charging roller?	If a dark and distinct toner image is present on the drum surface, assume that the first four functions of the electrophotographic process are functioning (cleaning, conditioning, writing, and developing—See "Image formation system" in chapter 5), and troubleshoot the failure as a transfer or fusing problem.
Does the media meet HP standards?	See "Media troubleshooting" on page 274.

## Check the print cartridge

Image-formation defects are often the result of problems with the print cartridge. Use the following list to verify that the print cartridge is still operating correctly.

Perform all of the following checks before replacing the print cartridge.

- Verify that the print cartridge has toner.
  - Full print cartridge weight is approximately 4220 grams (9.28 lb).
  - Empty weight is approximately 2700 grams (5.94 lb).
- Check the print cartridge to see if it has been disassembled or refilled.
- Verify that the print cartridge is seated properly in the printer cavity.
- Inspect the cartridge for toner leaking through worn seals. (Manual rotation of the drum can cause internal damage, and toner spills can result.)

---

### Note

The print cartridge is rated for 30,000 images at 5 percent coverage for two-page jobs. Check the surface of the photosensitive drum in the cartridge to see if it has been damaged or scratched. Touching the drum will contaminate the photosensitive surface and may cause spotting and defects during printing.

- White areas on the page may indicate that the drum has been exposed to light for too long. If white areas appear, stop the printer and wait a few minutes. This should eliminate most defective images. If not, the print cartridge may be placed in a dark environment for several days, which may restore some life to the drum.

### EconoMode

EconoMode creates draft-quality printing by reducing the amount of toner on the printed page by up to 50 percent. Advise the customer to turn EconoMode on or off either from the printer driver or a software application.

## Image defect tables

The printer output quality is subject to user judgment. This section of the manual helps define print-quality defects and the factors that affect print quality.

The print samples shown in the following figures illustrate some print-quality defects. Keep copies of print-quality defects you encounter in the field and an explanation of their causes to use for future reference.

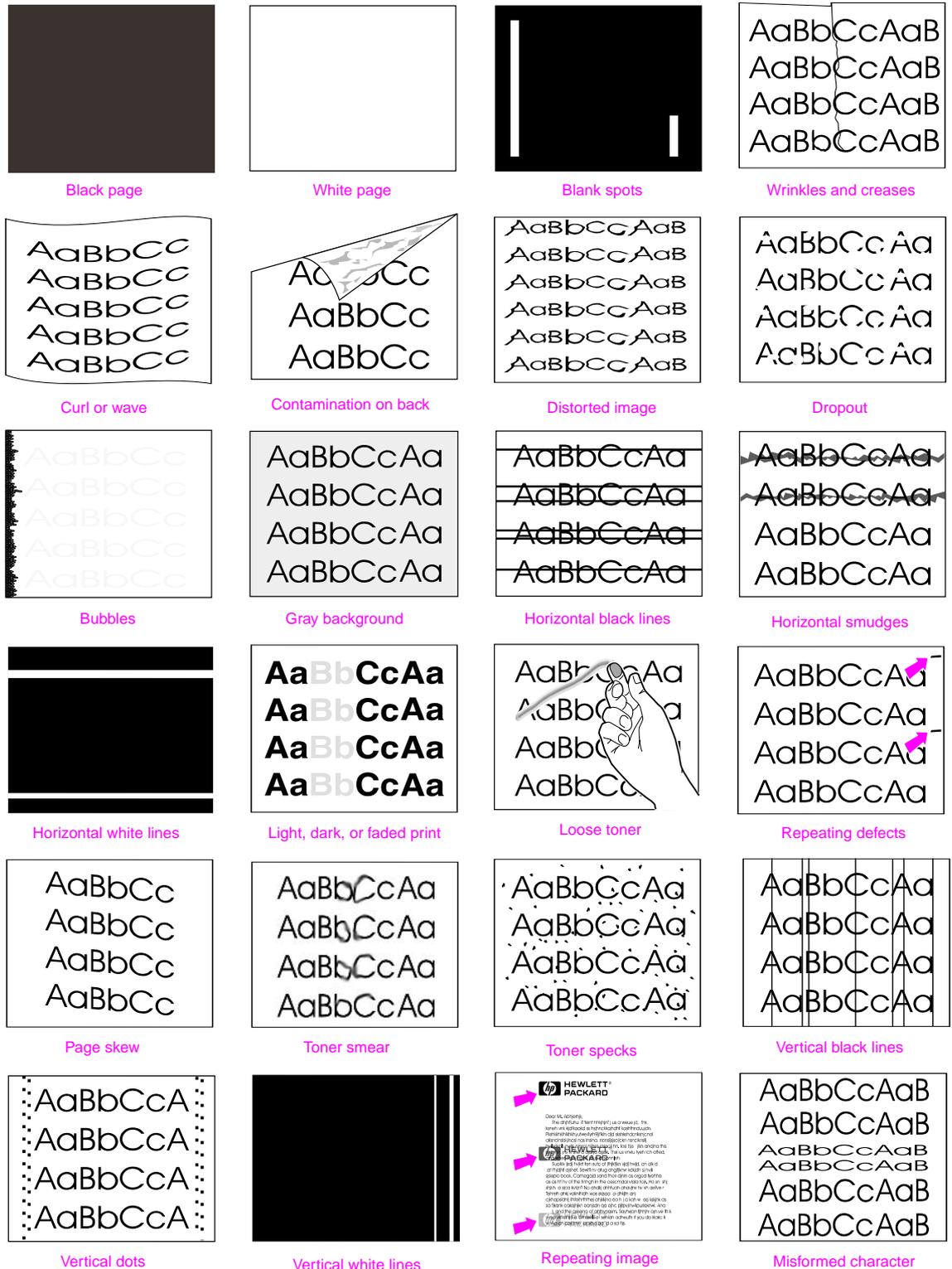
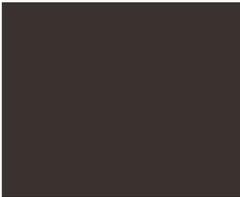
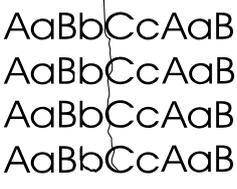
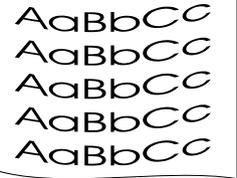


Figure 176. Image defect examples

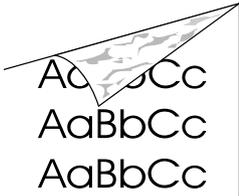
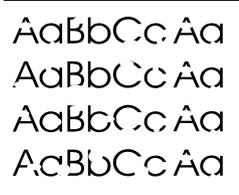
**Table 39. Image defects**

Problem	Cause	Solution
<p>Black page</p> 	<p>The high-voltage power supply connections are contaminated.</p> <p>The high-voltage power supply is installed improperly.</p> <p><b>Note</b> If the high-voltage power supply has been removed and replaced, it might not be seated properly.</p> <p>Defective primary charging roller.</p> <p>The laser drive circuitry is damaged on the DC controller board so that the laser is always on.</p>	<ul style="list-style-type: none"> <li>● Clean the high-voltage power supply terminals.</li> <li>● Clean the high-voltage springs where they contact the print cartridge.</li> <li>● Remove the high-voltage power supply and check the connectors and ribbon cable for damage.</li> <li>● Reseat the high-voltage power supply, being certain to fully seat the connectors and ribbon cable correctly.</li> <li>● Replace the print cartridge.</li> <li>● Replace the laser/scanner assembly and DC controller board, followed by the formatter, if necessary.</li> </ul>
<p>White page</p> 	<p>Print cartridge is out of toner.</p> <p>Defective laser shutter.</p> <p>No transfer charging roller voltage.</p> <p>No developing bias.</p> <p>Defective laser/scanner cable assembly.</p>	<ul style="list-style-type: none"> <li>● Replace the print cartridge.</li> <li>● Check the laser shutter for free operation when closing the front door with print cartridge installed.</li> <li>● Replace the transfer roller assembly if necessary.</li> <li>● Clean the high-voltage power supply contacts.</li> <li>● Replace the high-voltage power supply.</li> <li>● Replace the laser/scanner cable assembly.</li> </ul>
<p>Blank spots</p>  <p>Also see "Dropouts" on page 268.</p>	<p>Print media does not meet printer specifications or is stored improperly.</p> <p>Contaminated or deformed transfer charging roller.</p> <p>Defective print cartridge.</p>	<ul style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Turn over the stack of media in the tray. Also try rotating the media 180 degrees.</li> <li>● If the print media does not meet HP specifications, replace the media.</li> <li>● Replace the transfer charging roller.</li> <li>● Replace the print cartridge.</li> </ul>

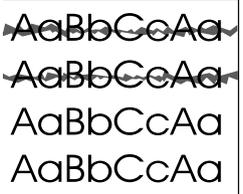
**Table 39. Image defects (continued)**

Problem	Cause	Solution
<p><b>Wrinkles or creases</b></p> 	<p>Print media does not meet printer specifications or is stored improperly.</p>	<ul style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Turn over the stack of media in the tray. Also try rotating the media 180 degrees.</li> <li>● If the print media does not meet HP specifications, replace the media.</li> </ul>
	<p>Printer operating environment does not meet specifications.</p>	<ul style="list-style-type: none"> <li>● Make sure the printer operating environment meets specifications.</li> </ul>
	<p>Print media is loaded incorrectly.</p>	<ul style="list-style-type: none"> <li>● Make sure print media is loaded correctly and that the guides fit properly against the media stack.</li> </ul>
	<p>Wrong tray.</p>	<ul style="list-style-type: none"> <li>● Print from a different tray (such as tray 1).</li> </ul>
	<p>Wrong output bin for print media type.</p>	<ul style="list-style-type: none"> <li>● Print to a different output bin (face-up or face-down bin).</li> </ul>
	<p>Obstruction in paper path.</p>	<ul style="list-style-type: none"> <li>● Check the paper path for print media debris.</li> <li>● Check for damaged components that could be creasing the media.</li> </ul>
	<p>Fuser levers are not in the correct position.</p>	<ul style="list-style-type: none"> <li>● Levers should be in the down position for all media except envelopes.</li> <li>● Levers are in the up position for envelopes.</li> </ul>
<p><b>Curl or wave</b></p>  <p>Also see "Dropouts" on page 268.</p>	<p>Print media does not meet printer specifications or is stored improperly.</p>	<ul style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Turn over the stack of media in the tray. Also try rotating the media 180 degrees.</li> <li>● If the print media does not meet HP specifications, replace the media.</li> </ul>
	<p>Printer operating environment does not meet specifications.</p>	<ul style="list-style-type: none"> <li>● Make sure the printer operating environment meets specifications.</li> </ul>
	<p>Wrong output bin.</p>	<ul style="list-style-type: none"> <li>● Print to a different output bin (face-up or face-down bin).</li> </ul>
	<p>Wrong fuser setting for print media type.</p>	<ul style="list-style-type: none"> <li>● From the paper handling menu on the control panel, change the fuser mode setting or choose another paper type from the printer driver.</li> </ul>

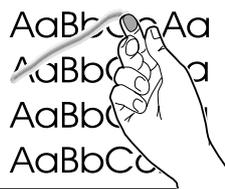
**Table 39. Image defects (continued)**

Problem	Cause	Solution
<p data-bbox="293 186 544 214">Contamination on back</p> 	<p data-bbox="564 186 965 275">Contamination inside printer (tray separation roller, feed roller, transfer charging roller, fuser, print cartridge).</p>	<ul data-bbox="979 186 1457 466" style="list-style-type: none"> <li>● Print at least 10 pages to see if the problem goes away.</li> <li>● Print a cleaning page. See "Create a cleaning page" in chapter 4.</li> <li>● Identify and clean the contaminated part according to the "Repeating defect ruler" on page 273. If contamination cannot be removed, replace the contaminated part.</li> <li>● Check for toner leaks.</li> </ul>
	<p data-bbox="564 485 965 537">Print media does not meet printer specifications or is stored improperly.</p>	<ul data-bbox="979 485 1457 667" style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Turn over the stack of media in the tray. Also try rotating the media 180 degrees.</li> <li>● If the print media does not meet HP specifications, replace the media.</li> </ul>
	<p data-bbox="564 686 965 739">Printer is due for preventive maintenance kit.</p>	<ul data-bbox="979 686 1457 766" style="list-style-type: none"> <li>● When printer reaches 350,000 pages printed, install the preventive maintenance kit.</li> </ul>
<p data-bbox="293 785 544 812">Distorted images</p> 	<p data-bbox="564 785 965 842">Print media does not meet printer specifications or is stored improperly.</p>	<ul data-bbox="979 785 1457 968" style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Turn over the stack of media in the tray. Also try rotating the media 180 degrees.</li> <li>● If the print media does not meet HP specifications, replace the media.</li> </ul>
	<p data-bbox="564 987 965 1039">Printer's operating environment does not meet specifications.</p>	<ul data-bbox="979 987 1457 1039" style="list-style-type: none"> <li>● Make sure the printer's operating environment meets specifications.</li> </ul>
	<p data-bbox="564 1064 965 1117">Media is not moving through the paper path correctly.</p>	<ul data-bbox="979 1064 1457 1117" style="list-style-type: none"> <li>● Check all rollers and motors for proper operation.</li> </ul>
	<p data-bbox="564 1142 965 1194">Poor connection of cables to the laser/scanner.</p>	<ul data-bbox="979 1142 1457 1194" style="list-style-type: none"> <li>● Reseat the cables connected to the laser/scanner.</li> </ul>
	<p data-bbox="564 1220 965 1272">Poor connection of cables to the DC controller board.</p>	<ul data-bbox="979 1220 1457 1272" style="list-style-type: none"> <li>● Reseat the cables connected to the DC controller board.</li> </ul>
	<p data-bbox="564 1297 965 1327">Defective laser/scanner.</p>	<ul data-bbox="979 1297 1457 1327" style="list-style-type: none"> <li>● Replace the laser/scanner.</li> </ul>
	<p data-bbox="564 1333 965 1362">Defective DC controller board.</p>	<ul data-bbox="979 1333 1457 1362" style="list-style-type: none"> <li>● Replace the DC controller board.</li> </ul>
<p data-bbox="293 1373 544 1400">Dropouts</p>  <p data-bbox="293 1772 544 1833">Also see "Blank spots" on page 266.</p>	<p data-bbox="564 1373 965 1402">Paper might be too smooth.</p>	<ul data-bbox="979 1373 1457 1430" style="list-style-type: none"> <li>● Check the paper (or other print media) type and quality.</li> </ul>
	<p data-bbox="564 1451 965 1503">Printer operating environment does not meet specifications.</p>	<ul data-bbox="979 1451 1457 1503" style="list-style-type: none"> <li>● Make sure the printer operating environment meets specifications.</li> </ul>
	<p data-bbox="564 1528 965 1558">Wrong toner density setting.</p>	<ul data-bbox="979 1528 1457 1608" style="list-style-type: none"> <li>● From the configure device menu on the control panel, adjust the toner density setting. Make sure EconoMode is off.</li> </ul>
	<p data-bbox="564 1627 965 1656">Wrong fuser setting for paper type.</p>	<ul data-bbox="979 1627 1457 1743" style="list-style-type: none"> <li>● From the paper handling menu on the control panel, change the fuser mode setting or choose another paper type from the printer driver.</li> </ul>
	<p data-bbox="564 1761 965 1791">Maintenance due.</p>	<ul data-bbox="979 1761 1457 1841" style="list-style-type: none"> <li>● When printer reaches 350,000 pages printed, install the preventive maintenance kit.</li> </ul>

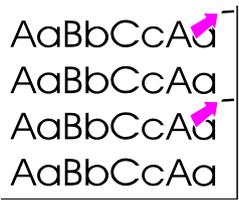
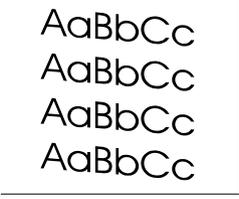
**Table 39. Image defects (continued)**

Problem	Cause	Solution
<p><b>Bubbles</b></p> 	<p>No drum ground path.</p>	<ul style="list-style-type: none"> <li>● Check the drum ground spring and reconnect it, if necessary.</li> <li>● Replace the high-voltage power supply.</li> </ul> <p><b>Note</b> With no ground path, the drum cannot discharge. The negative charge on the drum repels toner and leaves the page with bubble print.</p>
<p><b>Gray background</b></p> 	<p>Print media does not meet printer specifications or is stored improperly.</p> <p>Printer operating environment does not meet specifications.</p> <p>Wrong toner density setting.</p> <p>Faulty print cartridge.</p>	<ul style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Turn over the stack of media in the tray. Also try rotating the media 180 degrees.</li> <li>● If the print media does not meet HP specifications, replace the media.</li> <li>● Make sure the printer operating environment meets specifications.</li> <li>● From the configure device menu on the control panel, adjust the toner density setting. Make sure EconoMode is off.</li> <li>● Replace the print cartridge.</li> </ul>
<p><b>Horizontal black lines</b></p> 	<p>Defective laser/scanner assembly or DC controller board.</p>	<ul style="list-style-type: none"> <li>● See the "Repeating defect ruler" on page 273.</li> <li>● Reseat connectors on the laser/scanner and DC controller board.</li> <li>● Replace the laser/scanner assembly followed by the DC controller board, if necessary.</li> </ul>
<p><b>Horizontal smudges</b></p> 	<p>Paper path contamination or damage.</p>	<ul style="list-style-type: none"> <li>● See the "Repeating defect ruler" on page 273.</li> <li>● Check the print cartridge and replace, if necessary.</li> <li>● Check the fuser and replace, if necessary.</li> </ul>
<p><b>Horizontal white lines</b></p> 		<ul style="list-style-type: none"> <li>● Check the print cartridge and replace, if necessary.</li> <li>● Check the fuser and replace, if necessary.</li> <li>● Replace the laser/scanner assembly followed by the DC controller board, if necessary.</li> </ul>

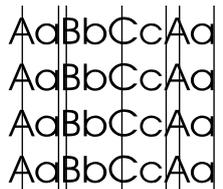
**Table 39. Image defects (continued)**

Problem	Cause	Solution
<p data-bbox="293 191 550 243">Light print, dark print, or fade</p>  <p data-bbox="293 999 533 1052">Also see "Bubbles" on page 269.</p>	Wrong toner density setting.	<ul style="list-style-type: none"> <li>● From the configure device menu on the control panel, adjust the toner density setting. Make sure EconoMode is off.</li> </ul>
	Transfer charging roller is defective.	<ul style="list-style-type: none"> <li>● Replace the transfer charging roller.</li> </ul>
	Print media does not meet printer specifications or is stored improperly.	<ul style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Turn over the stack of media in the tray. Also try rotating the media 180 degrees.</li> <li>● If the print media does not meet HP specifications, replace the media.</li> </ul>
	Poor contact to the high-voltage power supply.	<ul style="list-style-type: none"> <li>● Ensure that the drum ground spring is connected to the high-voltage power supply correctly.</li> <li>● Clean the contacts if they are contaminated. If the problem remains after cleaning, or if parts are damaged or deformed, replace them.</li> <li>● Replace the high-voltage power supply, if necessary.</li> </ul>
	Defective laser/scanner assembly.	<ul style="list-style-type: none"> <li>● Replace the laser/scanner assembly.</li> </ul>
	Defective DC controller PCA.	<ul style="list-style-type: none"> <li>● Replace the DC controller PCA.</li> </ul>
	Defective laser shutter.	<ul style="list-style-type: none"> <li>● Check laser shutter for free operation when installing the print cartridge.</li> </ul>
<p data-bbox="293 1073 424 1098">Loose toner</p> 	Contamination in the printer.	<ul style="list-style-type: none"> <li>● Ensure the envelope levers are set to the specified media.</li> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Clean the inside of the printer or use the printer cleaning page.</li> </ul>
	Print cartridge is defective.	<ul style="list-style-type: none"> <li>● Replace the print cartridge.</li> </ul>
	Paper might be too smooth.	<ul style="list-style-type: none"> <li>● Check the paper (or other print media) type and quality.</li> </ul>
	Wrong fuser setting for paper type.	<ul style="list-style-type: none"> <li>● From the paper handling menu on the control panel, change the fuser mode setting or choose another paper type from the printer driver.</li> </ul>
	Defective fuser.	<ul style="list-style-type: none"> <li>● Maintenance might be due. Check this by printing a copy of the supplies status page. If maintenance is due, order and install the preventive maintenance kit.</li> <li>● Replace the fuser.</li> </ul>

**Table 39. Image defects (continued)**

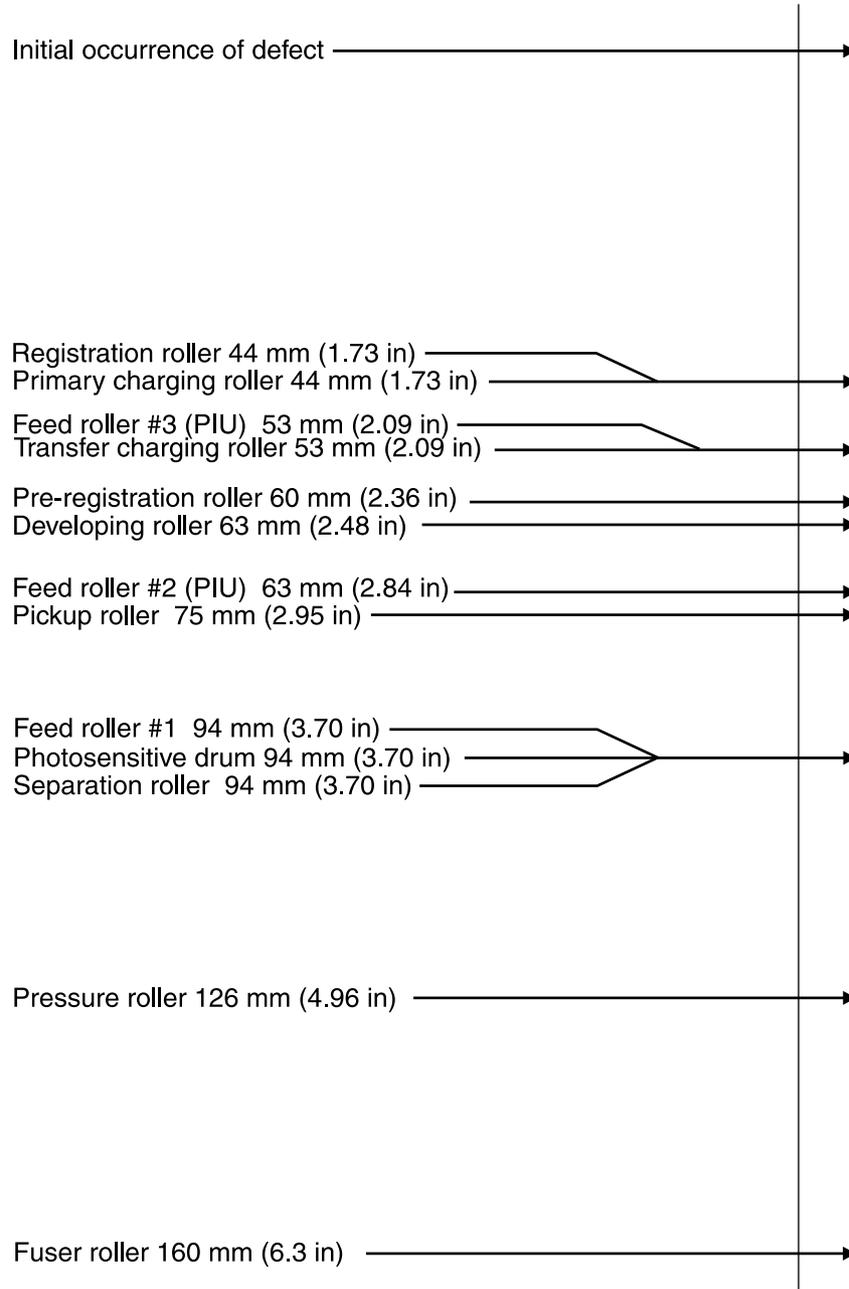
Problem	Cause	Solution
<p><b>Repeating defects</b></p> 	<p>Contamination or defect on a roller.</p>	<ul style="list-style-type: none"> <li>● See the "Repeating defect ruler" on page 273.</li> </ul>
<p><b>Page skew</b></p> 	<p>Print media does not meet printer specifications or is stored improperly.</p>	<ul style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Turn over the stack of media in the tray. Also try rotating the media 180 degrees.</li> <li>● If the print media does not meet HP specifications, replace the media.</li> </ul>
	<p>Print media is not loaded correctly or trays are not adjusted properly.</p>	<ul style="list-style-type: none"> <li>● Make sure print media is loaded correctly and that the guides fit properly against the media stack.</li> </ul>
	<p>Registration assembly is improperly installed.</p>	<ul style="list-style-type: none"> <li>● Be sure that the registration assembly is installed correctly.</li> </ul>
<p><b>Toner smears</b></p> 	<p>Contamination in printer.</p>	<ul style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Clean the inside of the printer or use the printer cleaning page.</li> </ul>
	<p>Paper might be too smooth.</p>	<ul style="list-style-type: none"> <li>● Check the paper (or other print media) type and quality.</li> </ul>
	<p>Print cartridge is defective.</p>	<ul style="list-style-type: none"> <li>● Replace the print cartridge.</li> </ul>
	<p>Wrong fuser setting for paper type.</p>	<ul style="list-style-type: none"> <li>● From the paper handling menu on the control panel, change the fuser mode setting or choose another paper type from the printer driver.</li> </ul>
<p><b>Toner specks</b></p> 	<p>Contamination in printer.</p>	<ul style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Clean the inside of the printer. See "Internal cleaning" in chapter 4.</li> <li>● Print a cleaning page. See "Create a cleaning page" in chapter 4.</li> </ul>
	<p>Print media does not meet printer specifications or is stored improperly.</p>	<ul style="list-style-type: none"> <li>● Print a few more pages to see if the problem corrects itself.</li> <li>● Turn over the stack of media in the tray. Also try rotating the media 180 degrees.</li> <li>● If the print media does not meet HP specifications, replace the media.</li> </ul>
	<p>Alternating small and standard print media (such as envelopes and letterhead).</p>	<ul style="list-style-type: none"> <li>● To alternate small and standard paper, from the paper handling menu on the control panel, set <code>SMALL PAPER SPEED=SLOW</code>.</li> </ul>

**Table 39. Image defects (continued)**

Problem	Cause	Solution
<p><b>Vertical black lines</b></p> 	<p>Defective print cartridge.</p> <p>Contaminated fuser entrance guide.</p> <p>Scratches on the fuser.</p> <p>Worn fuser film.</p>	<ul style="list-style-type: none"> <li>● Replace the print cartridge.</li> <li>● Clean the guide.</li> <li>● Replace the fuser.</li> <li>● Set the fuser to a lower temperature mode.</li> <li>● Replace the fuser.</li> </ul>
<p><b>Vertical dots</b></p> 	<p>Contaminated static charge eliminator teeth.</p> <p>Poor contact between the static charge eliminator and the high-voltage power supply.</p> <p>Deformed or deteriorated transfer charging roller.</p> <p>Defective high-voltage power supply.</p>	<ul style="list-style-type: none"> <li>● Clean the static charge eliminator.</li> <li>● Clean the contacts, if contaminated. If the problem remains after cleaning, or parts are damaged or deformed, replace them.</li> <li>● Replace the transfer charging roller.</li> <li>● Replace the high-voltage power supply.</li> </ul>
<p><b>Vertical white lines</b></p> 	<p>Faulty print cartridge.</p> <p>Contamination in the laser path.</p> <p>Defective fuser.</p>	<ul style="list-style-type: none"> <li>● Replace the print cartridge.</li> <li>● Clean the laser path. (Remove the laser/scanner assembly and clean the lens.)</li> <li>● Replace the laser/scanner assembly.</li> <li>● Replace the fuser assembly.</li> </ul>
<p><b>Repeating images</b></p> 	<p>This type of defect might occur when using preprinted forms, a large quantity of narrow media, or a fuser mode that is set too high for your media.</p> <p>Maintenance due.</p>	<ul style="list-style-type: none"> <li>● Print a few more pages and see if the problem corrects itself.</li> <li>● Make sure that print media type and quality meet HP specifications.</li> <li>● If you observe that this type of defect occurs on wide paper (such as letter or A4-size paper) just after printing on narrow media (such as envelopes), you can set <b>SMALL PAPER SPEED</b> on the paper handling menu to <b>SLOW</b>. Note that this will slow down printing.</li> <li>● Check your fuser mode.</li> <li>● Print a copy of the supplies status page. If maintenance is due, order and install the preventive maintenance kit.</li> </ul>
<p><b>Misformed characters</b></p> 	<p>Printer operating environment does not meet specifications.</p> <p>Maintenance due.</p>	<ul style="list-style-type: none"> <li>● Make sure the printer operating environment meets specifications.</li> <li>● Print a copy of the supplies status page. If maintenance is due, order and install the preventive maintenance kit.</li> </ul>

## Repeating defect ruler

Repetitive print defects are usually caused by a specific roller in the printer or the print cartridge. Use the figure below to isolate the cause of repetitive print defects. Align the first occurrence of the defect with the top of the “ruler” (at the top or bottom of the misprinted page), and measure to the next occurrence of the defect to determine the roller in question. When the defect pattern matches the pattern of the ruler, replace the indicated roller.



**Figure 177.** Repeating defect ruler

## Media troubleshooting

Media defects can cause jams and image defects. If the previously described conditions are corrected and do not eliminate the printing problem, continue to investigate the media as the source of the defect.

Problems with print media are sometimes difficult to detect. Follow a standard troubleshooting procedure to help isolate media-related problems. The steps to follow are:

- "Determine the problem source: print media or printer" on page 274.
- "Isolate a paper path" on page 274.
- "Isolate a media brand" on page 275.
- "Isolate a media type" on page 275.
- "Operating environment" in chapter 2.
- "Paper path test" on page 238.

### Determine the problem source: print media or printer

When determining the cause of a printer failure, a distinction must be made between problems that relate to the printer itself and those that involve print media. Often a problem that seems to be related to the printer is actually a matter of poor print-media selection or handling. To determine whether a problem is caused by the printer or by the media, try a few simple steps to remedy the situation:

- Turn media over in the tray to print on the reverse side.
- Rotate sheets 180 degrees (end to end) to feed with a different leading edge.

If the symptoms cease, or change in some way, assume that the problems are caused by the print media.

### Isolate a paper path

#### Try using the straightest paper path

Some problems can be avoided by using the straightest available paper path. Usually this means paper feeds from the upper paper tray or optional tray 1, and exits into the face-up bin. This path is recommended for envelopes and labels.

#### Determine if the problem is caused by the duplexing process

Paper that has just made a pass through the printer can show increased media curl. Media curl increases image dropout, and creates pickup and stacking problems. When the second pass is made, print media might not meet the specifications for moisture and curl. Dry paper can hold static charges that affect print quality and stacking of the duplexed page. Media shrinkage resulting from a second pass through the printer can cause image misalignment on the duplexed page.

#### Isolate the source of the jam

Define the source of the media that jams.

#### Determine where media jams occur

Check where media stops when a jam occurs.

## Determine whether the printer is experiencing misfeeds or multifeed jams

The following are some possible causes of misfeeds or multifeed jams:

- The media might be too heavy. Check basis weight and measure caliper. See "Basis weight field test" and "Caliper field test" in chapter 2.
- The paper might be too smooth. Check the finish. See "Paper finish field test" in chapter 2.
- The paper might be too heavy or too light. Check basis weight. See "Basis weight field test" in chapter 2.
- The customer might be attempting to print embossed paper, pre-printed forms, or perforated paper that does not meet HP specifications. See "Media specifications" in chapter 2.
- The paper might be loaded incorrectly. Turn over the sheets in the paper tray to determine if in-ream curl is causing misfeeds.
- The customer might be fanning media before loading it into the tray.
- The customer might be adding media in small amounts. Do not add small amounts of media or mix types of media in the tray.
- The printer or media storage environment might be too humid or too dry. See "Storing print media" in chapter 2.

## Isolate a media brand

If the printer jams with only one brand of media:

- Try switching media brands.
- If the paper ream in use appears to be old, open a fresh ream of the same paper and load it properly into the printer. If the problem disappears, investigate storage and handling conditions.

## Isolate a media type

When jams and other problems occur frequently, it is often because the customer is using a special paper. Customers must only use print media that conforms to all Hewlett-Packard specifications, and should always test media before purchasing large quantities. Media should be tested before storage to verify quality printing results. Then, if problems arise, storage or handling conditions can isolate the most likely cause. Some types of media that might cause problems are:

- adhesive labels
- envelopes
- transparencies
- preprinted forms and letterhead
- embossed media
- perforated paper
- chemically treated paper
- synthetic paper
- coated paper
- other special media

See "Media specifications" in chapter 2 for further information concerning these types of media.

# Communication troubleshooting

## Communications check

### Note

Communication problems are normally customer responsibility. Time spent attempting to resolve these problems might not be covered by the Hewlett-Packard warranty. Refer the customer to the network administrator for assistance in troubleshooting network problems.

### Test message

After the printer is installed, verify communications between the printer and the IBM-compatible computer. Enter the following at the DOS prompt:

```
C:\>DIR>LPT1 ENTER (for printing to parallel port #1)
```

The printer should print a directory listing of the C:\ directory.

### EIO troubleshooting

The Jetdirect configuration page shown in figure 172 on page 259 contains valuable information about the current status of the EIO accessories. Before attempting to troubleshoot a network problem or notifying your network consultant of a problem, always print a configuration page. If an EIO accessory is installed, the Jetdirect configuration page prints too.

See the *HP Jetdirect Network Interface Configuration Guide* for detailed explanations of network issues.

### Jetdirect configuration

- If the EIO Jetdirect print server has successfully turned on and completed its internal diagnostics, the I/O CARD READY message will appear. If communication is lost, an I/O NOT READY message appears followed by a two digit error code. Consult the *HP Jetdirect Network Interface Configuration Guide* for further details and recommended action.
- The “Network Statistics” column indicates the status of network activity. Bad packets, framing errors, un-sendable packets, and collisions should be minimal. If a high percentage (greater than one percent) of these occur, contact the network administrator. All of the statistics are set to zero when the printer is powered off.
- A “Novell Status” block should state the Novell printer server name to which the printer is connected. If the Node Name reads “NPIxxxxxx” (xxxxxx = last six digits of the EIO LAN address), the EIO card has not been configured for a Novell server. This could indicate that the card is operating under an IPX protocol other than Novell. Consult with the network administrator if the Node Name is not present.
- In the TCP/IP protocol block, the default IP address is “192.0.0.192.” It is acceptable to operate the printer with this default address. The error message ARP DUPLICATE IP ADDRESS may appear in this block. This is also an acceptable error code if the TCP/IP protocol is not being used. Please check with the network administrator to determine the correct IP address for the printer.

### Verify network and server operation

- Try to print the job to the printer parallel port.
- Try to print from the host system through the network to another printer. Contact the network administrator for assistance.

# Wiring diagram

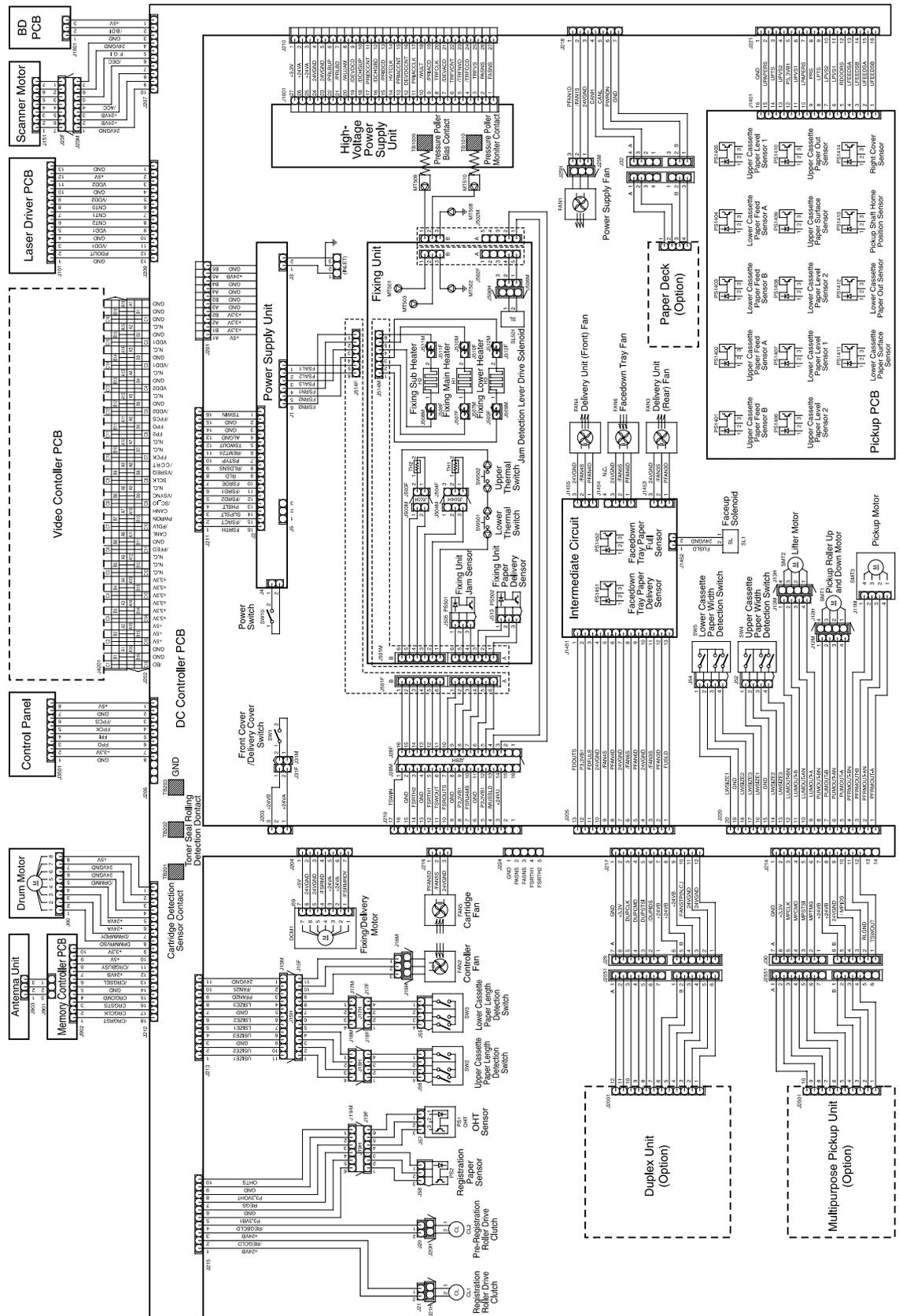


Figure 178. Wiring diagram



# 8

# Parts and diagrams

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# Introduction

The figures in this chapter illustrate the major subassemblies in the printer and their component parts. A table accompanies each exploded-view diagram. Each table lists the item number for the replaceable part, the associated part number for the item, the quantity, and a description of the part.

---

**Note**

---

When looking for a part number, pay careful attention to the voltage listed in the description column to ensure that the part number selected is for the correct printer model.

## Ordering parts

All standard part numbers listed are stocked and can be ordered from HP's Customer Services and Support Organization. See "Parts and supplies" in chapter 1.

Consumables and accessories like those listed in table 40 can be ordered from Hewlett-Packard. See "Parts and supplies" in chapter 1.

## Consumables, supplies, accessories, FRUs, and documentation

**Table 40. Consumables, supplies, accessories, FRUs, and documentation**

Product number	Service number	Exchange number	Description
<b>Consumables</b>			
C8543X			Print cartridge
C8091A			Staple cartridge
<b>Supplies</b>			
C9152A	C9152-67901	C9152-69001	PM kit/110 V
C9153A	C9153-67901	C9153-69001	PM kit/220 V
<b>FRUs</b>			
C7860A	C8519-67901	C8519-69001	Formatter assembly
RG5-5750-000CN		C8519-69002	Fuser assembly, 110 V
RG5-5751-000CN		C8519-69003	Fuser assembly, 220 V
RG5-5677-000CN		C8519-69004	Paper input unit (PIU)
RG5-5778-000CN		C8519-69005	DC controller
RG5-5728-000CN			High-voltage power supply
RG5-5730-000CN		C8519-69007	Low-voltage power supply, 110 V
RG5-5731-000CN		C8519-69008	Low-voltage power supply, 220 V
<b>Accessories</b>			
C9147A	C9147-67901		16 MB flash firmware DIMM
C7843A	C7843-67901		16 MB DIMM
C7845A	C7845-67901		32 MB DIMM
C7846A	C7846-67901		64 MB DIMM
C9121A	C9121-67901		128 MB DIMM
C4103A	C4103-67901		HP Fast InfraRed Connect pod
C4293A			Font DIMM—simplified Chinese
C4292A			Font DIMM—traditional Chinese
J6054A	J6054-61001		Hard disk
J4169A	J4169-61001	J4169-69001	HP Jetdirect 610N Fast Ethernet (10/100 Base-TX)
J4135A			HP Jetdirect Connectivity (USB)
C8568A	C8568-67901	C8568-69001	Tray 1
C8531A	C8531-67901	C8531-69001	2000-sheet feeder (tray 4)
RG5-6212-000CN		C8531-69002	2000-sheet feeder (tray 4) cassette only
C8084A			3000-sheet stacker
C8085A			3000-sheet stapler/stacker
C8532A	C8532-67901	C8532-69001	Duplexer
<b>Documentation</b>			
	5963-7863		HP LaserJet Printer Family Print Media Guide
	5969-6818		HP Jetdirect Print Server Administrator's Guide

**Table 40. Consumables, supplies, accessories, FRUs, and documentation (continued)**

Product number	Service number	Exchange number	Description
	5969-3412		HP Jetdirect Print Server JetAdmin Setup Guide
	C8519-90901		HP LaserJet 9000 Series Printer Start guide—U.S.
	C8519-90902		HP LaserJet 9000 Series Printer Start guide—Americas
	C8519-90903		HP LaserJet 9000 Series Printer Start guide—West Europe
	C8519-90904		HP LaserJet 9000 Series Printer Start guide—North Europe
	C8519-90905		HP LaserJet 9000 Series Printer Start guide—East Europe
	C8519-90906		HP LaserJet 9000 Series Printer Start guide—Asia
URL: <a href="http://www.hp.com/support/lj9000">www.hp.com/support/lj9000</a>			HP LaserJet 9000 Series Printer Use guide
	C8532-90901		Duplexer install guide
	C8568-90901		Tray 1 install guide
	C8531-90901		2000-sheet feeder install guide
	C8084-90900		Stapler/stacker and stacker install guide
	C8519-60102		HP LaserJet 9000 Series Printer software CD-ROM—Americas
	C8519-60104		HP LaserJet 9000 Series Printer software CD-ROM—Europe
	C8519-60105		HP LaserJet 9000 Series Printer software CD-ROM—Asia
	C8519-60106		HP LaserJet 9000 Series Printer Service CD-ROM (English version)
	C9152-90901		PM kit installation guide

## Common hardware

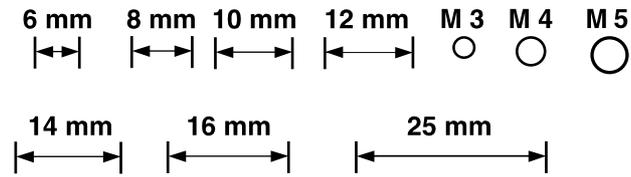


Table 41. Hardware table

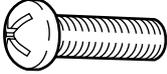
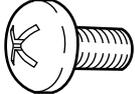
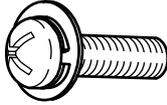
Example	Description	Sizes	Uses
	Screw	M3 by 6 mm M3 by 8 mm M4 by 8 mm M4 by 10 mm	
	Screw, tapping	M3 by 6 mm M3 by 8 mm M3 by 30 mm M4 by 6 mm M4 by 12 mm	To hold plastic to metal (excluding the control panel)
	Screw, pan head	M3 by 6 mm	To hold plastic to plastic
	Screw, w/washer	M3 by 6 mm M3 by 8 mm M3 by 7 mm M4 by 6 mm M4 by 12 mm	To hold plastic to metal (excluding the covers)
	E-ring	XD9-0136-000CN XD9-0134-000CN	To hold gears in place

Table 42. Common torque values

Material	HP recommended torque value
Plastic to metal	5.5 lb-in
Metal to metal	10 lb-in
PCBA	5.5 lb-in
Plastic to plastic	5.5 lb-in

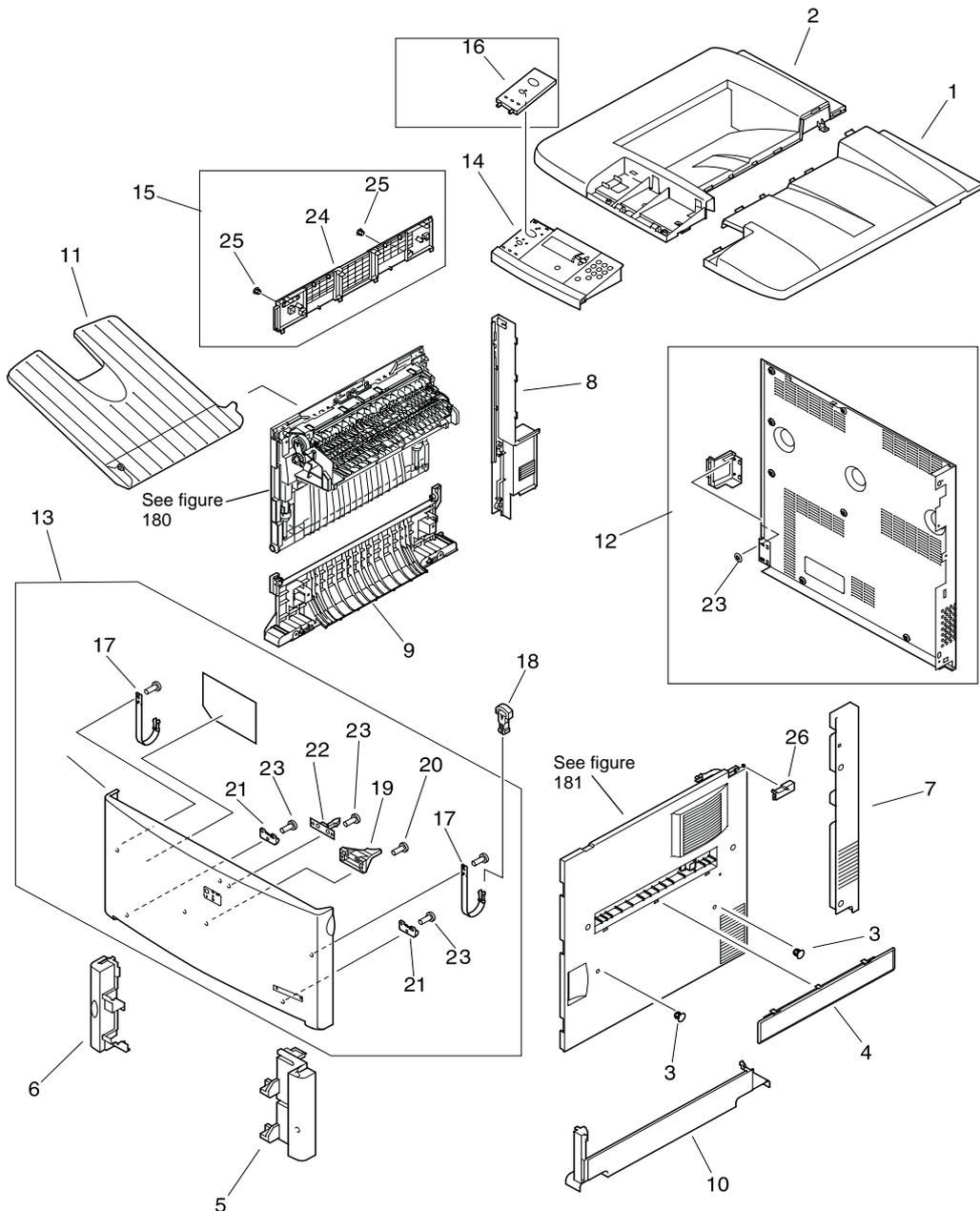
# Illustrations and parts lists

The following illustrations and parts tables list the field replaceable units (FRUs) for this printer. Two tables at the end of this chapter list all of the parts shown in this chapter: table 68, "Alphabetical parts list," on page 326 lists the parts in alphabetical order, and table 69, "Numerical parts list," on page 334 lists the parts in numerical order by part number. Both tables list the appropriate figure in this chapter that shows the part.

## Note

Parts that have no item number or part number listed are not field replaceable units (FRUs) and cannot be ordered.

## External covers and panels

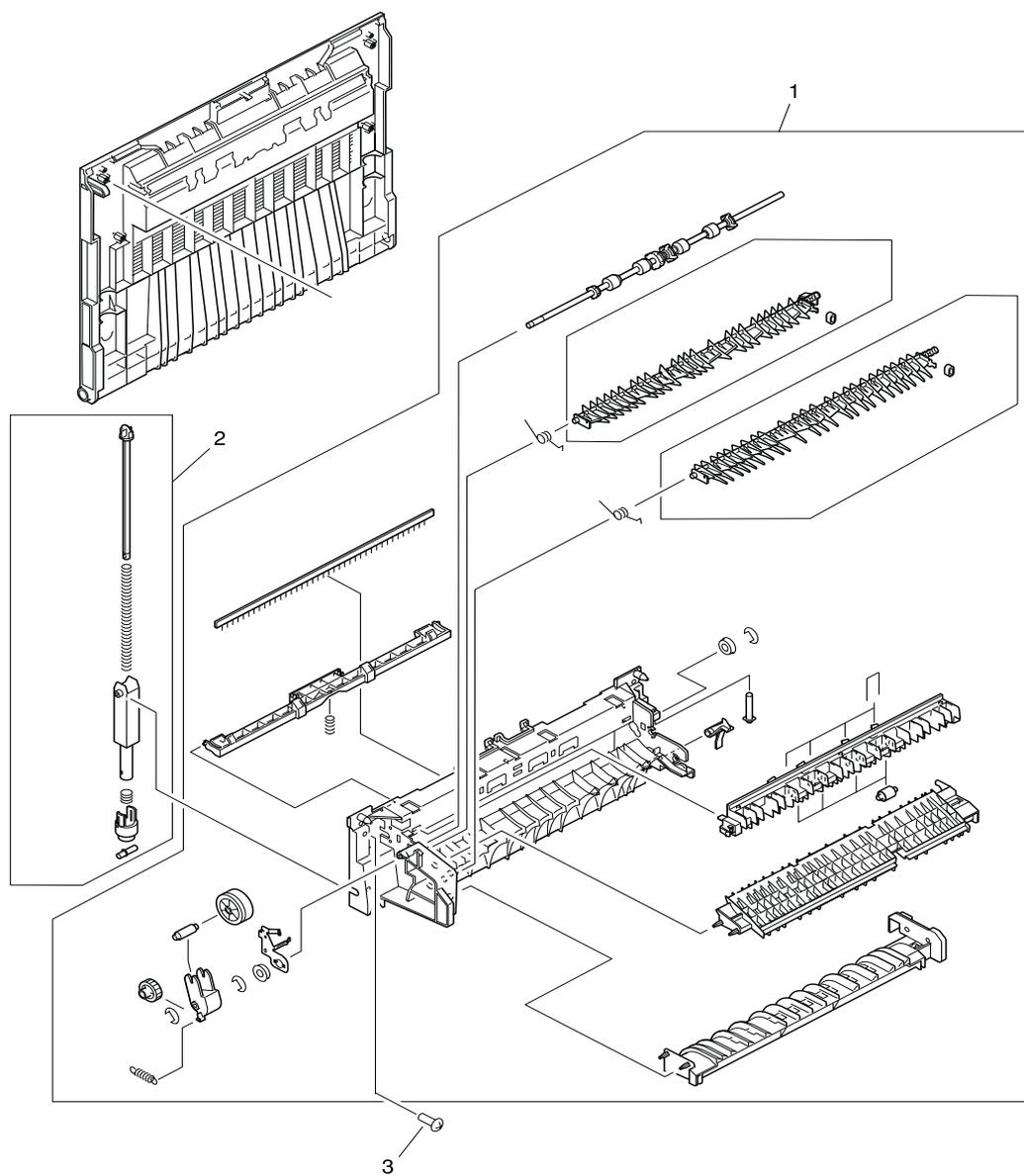


**Figure 179.** Printer external covers and panels

**Table 43. Printer external covers and panels**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
1	Cover, right, top	RB2-5659-000CN	1
2	Cover, left, top	RB2-5660-000CN	1
3	Cap, right cover	RB2-5675-000CN	2
4	Cover, tray 1 blanking	RB2-5676-000CN	1
5	Cover, right rail	RB2-5682-000CN	1
6	Cover, left rail	RB2-5683-000CN	1
7	Cover, right back	RB2-5684-000CN	1
8	Cover, left back	RB2-5685-000CN	1
9	Cover, left lower	RB2-5687-000CN	1
10	Cover, right lower	RB2-5689-000CN	1
11	Tray, face-up	RB2-5690-000CN	1
12	Back cover assembly	RG5-5701-000CN	1
13	Front cover assembly	RG5-5702-000CN	1
14	Control panel assembly	RG5-5703-000CN	1
15	Left upper cover assembly	RG5-5705-000CN	1
16	Cover, operation panel, 110 V	RB2-5701-000CN	1
16	Cover, operation panel, 220 V	RB2-5703-000CN	1
17	Tape cover, retaining strap	RB2-5653-000CN	2
18	Strap, rock block, retaining clip	RB2-5655-000CN	1
19	Pin	RB2-5656-000CN	1
20	Screw, M4 by 10	XA9-1189-000CN	
21	Bushing	RB2-5652-000CN	2
22	Latch, roller-action	RB2-5700-000CN	1
23	Push nut	XA9-0135-000CN	3
24	Cover, left upper	RB2-6491-000CN	1
25	Cap, right cover	RB2-5675-000CN	2
26	Plate, lock, right side	RB2-5679-000CN	1

## Left door and diverter

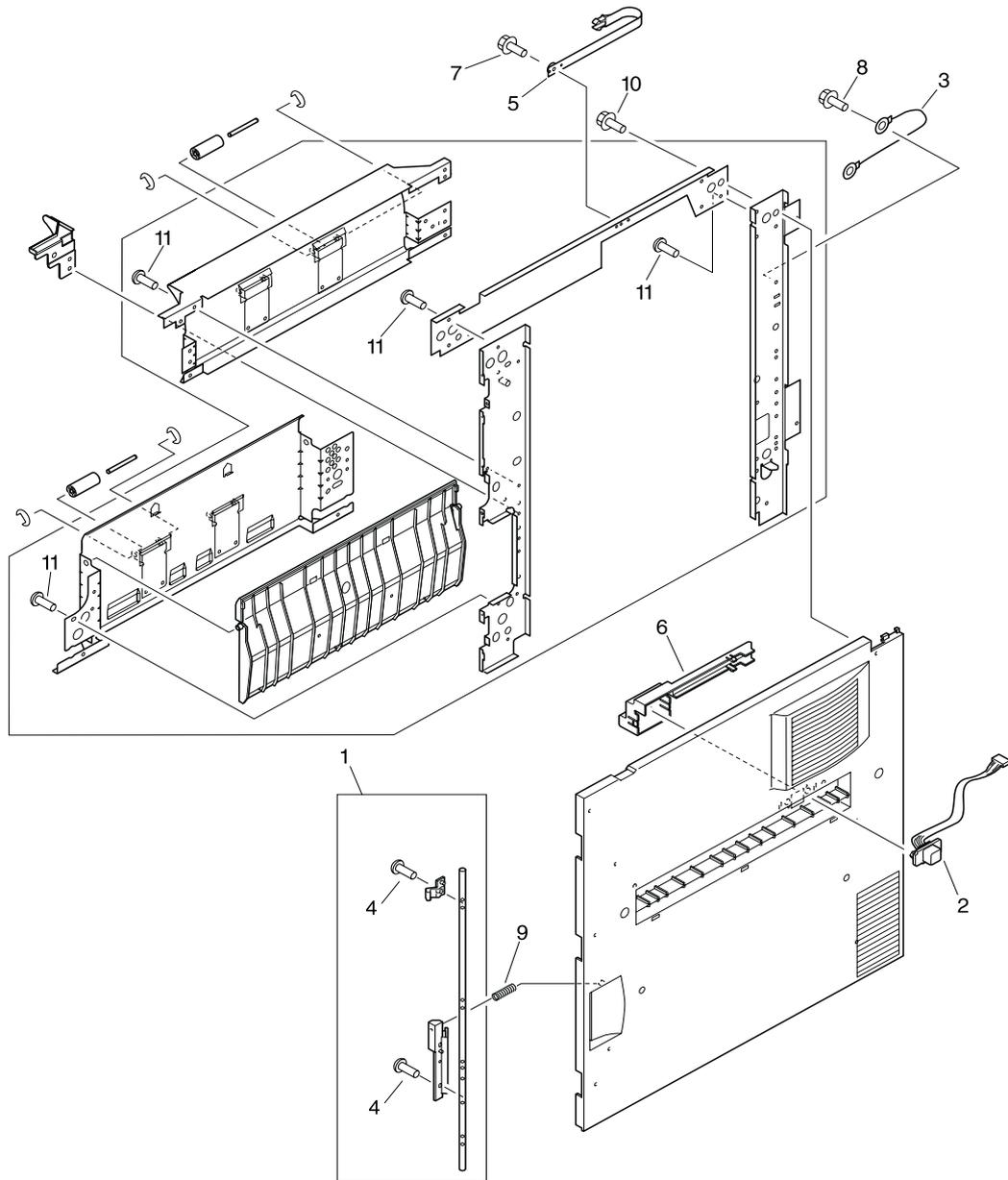


**Figure 180.** Left door and diverter

**Table 44. Left door and diverter**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
	Left door and diverter	RG5-5646-000CN	1
1	Face-up delivery assembly	RG5-5647-000CN	1
2	Damper assembly	RG5-5648-000CN	2
3	Screw, M4 by 10	XA9-1189-000CN	

## Right cover assembly



**Figure 181.** Right cover assembly

**Table 45. Right cover assembly**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
	Right cover assembly	RG5-5737-000CN	1
1	Right cover knob assembly	RG5-5740-000CN	1
2	Cable, tray 1	RG5-5763-000CN	1
3	Grounding cable, tray 1	RG5-5764-000CN	1
4	Screw, M3 by 8	XA9-1200-000CN	
5	Tape, cover (restraining strap)	RB2-5653-000CN	1
6	Cover, cable	RB2-5664-000CN	1
7	Screw, M3 by 8	XA9-1276-000CN	
8	Screw, M3 by 8	XA9-1200-000CN	
9	Spring, compression	RS6-2301-000CN	
10	Screw, M4 by 8	XA9-1277-000CN	
11	Screw, M4 by 12	XA9-1273-000CN	

# Internal components

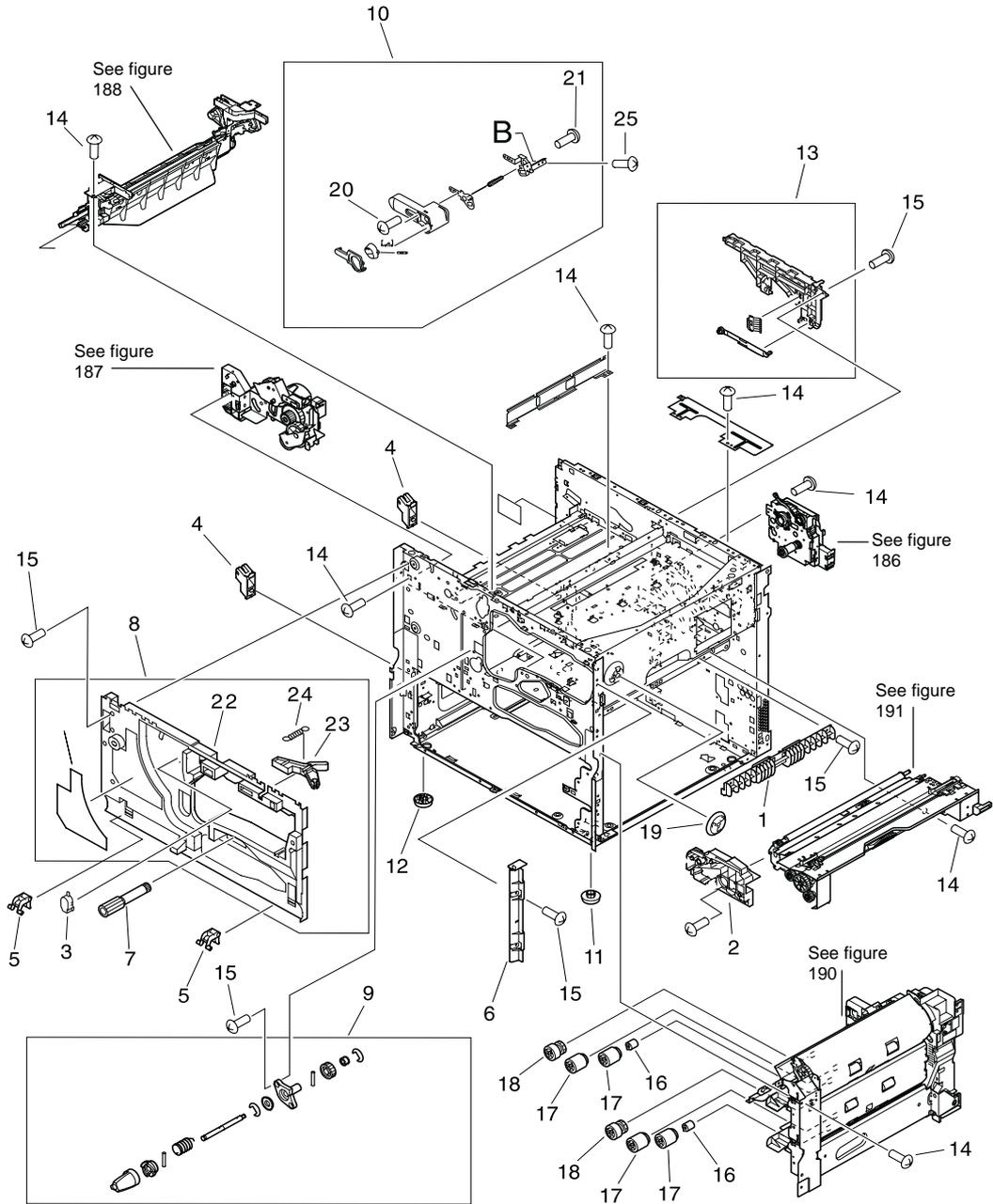
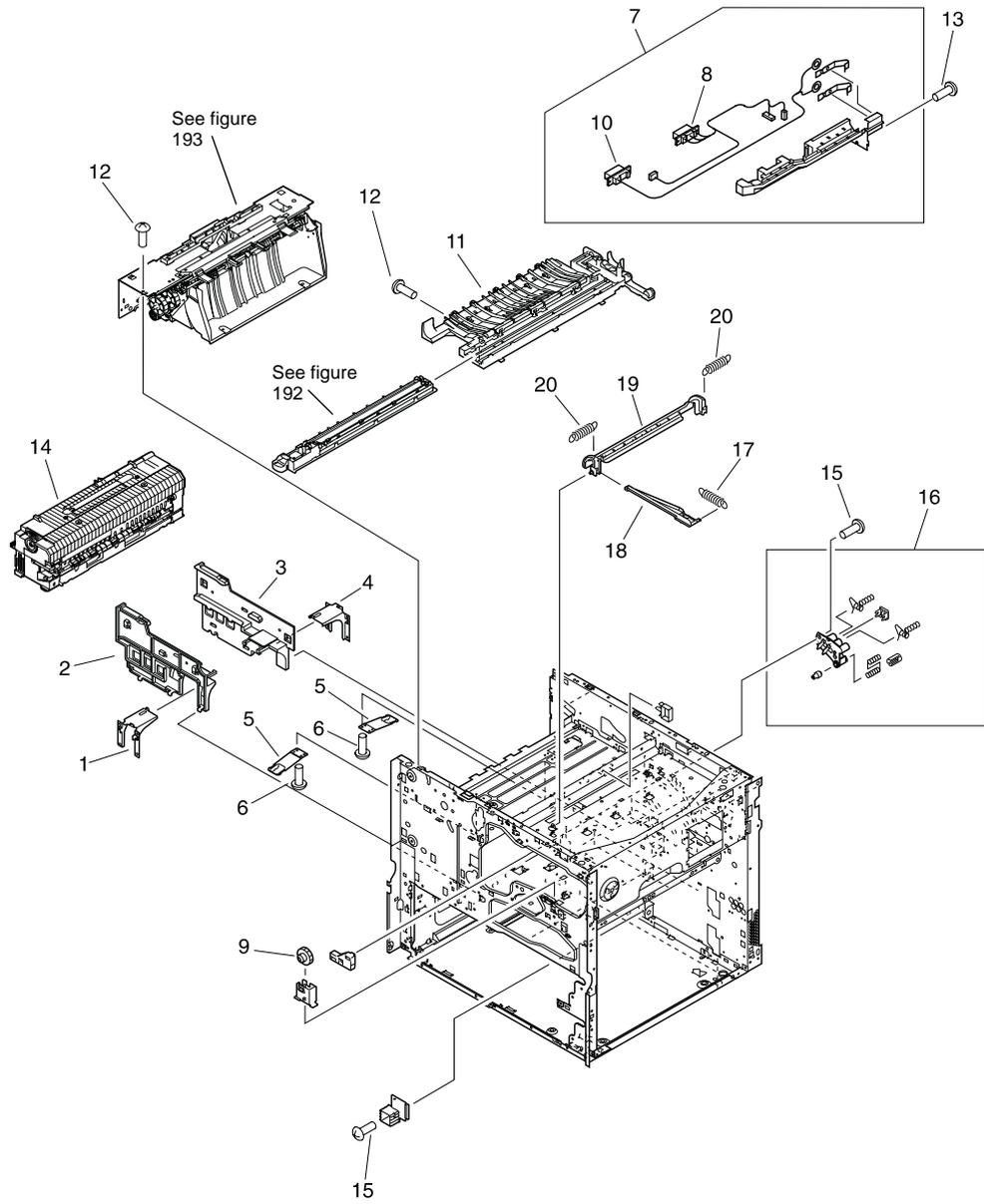


Figure 182. Internal components (1 of 4)

**Table 46. Internal components (1 of 4)**

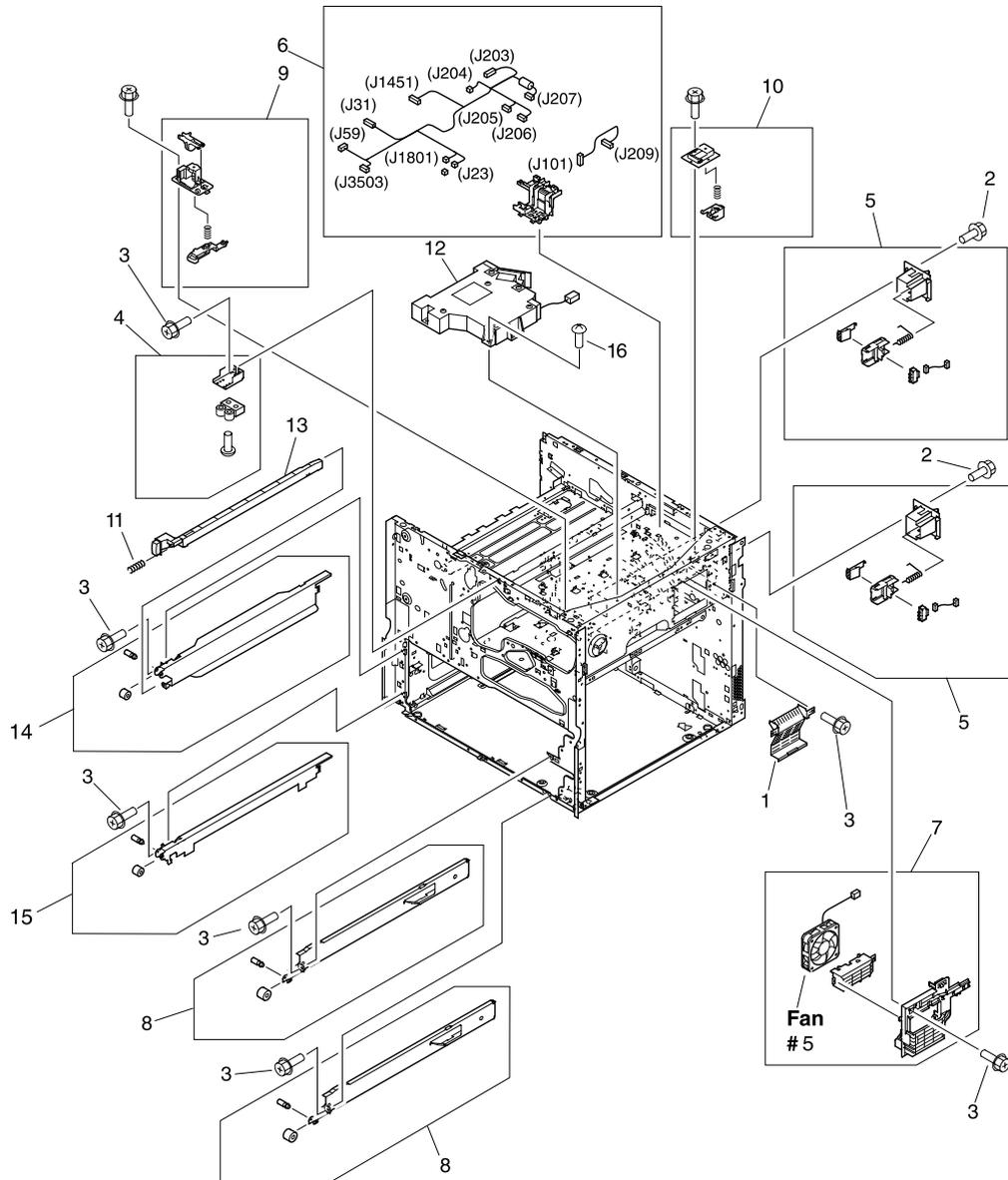
<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
1	Guide, pickup	RB2-5522-000CN	1
2	Guide, cartridge	RB2-5526-000CN	1
3	Cover, blanking	RB2-5531-000CN	1
4	Hinge mount, damper	RB2-5570-000CN	2
5	Hinge arm, front cover	RB2-5654-000CN	2
6	Cover, right door, inside	RB2-5697-000CN	1
7	Knob, registration, jam removal	RB2-5845-000CN	1
8	Front inside cover assembly	RG5-5721-000CN	1
9	Jam clearing assembly, fuser	RG5-5700-000CN	1
10	Lever assembly, cartridge release	RG5-5746-000CN	1
11	Foot, right side	RB1-6421-000CN	2
12	Foot, left side	RB2-5529-000CN	2
13	Guide rail, cartridge	RG5-5718-000CN	1
14	Screw, M3 by 6	XA9-1275-000CN	
15	Screw, M3 by 8	XA9-1276-000CN	
16	Torque limiter, spacer	RB2-5759-000CN	2
17	Roller, feed/separation	RF5-3338-000CN	4
18	Roller, PICK	RF5-3340-000CN	2
19	Collar	RB2-5547-000CN	1
20	Screw, M3 by 8	XB6-7300-805CN	
21	Screw, M3 by 6	XB6-7300-605CN	
22	Cover, front inside	RB2-5525-000CN	1
23	Link, connect	RB2-5528-000CN	1
24	Spring, tension	RS6-2285-000CN	1
25	Screw, M3 by 14	XB6-7301-405CN	



**Figure 183.** Internal components (2 of 4)

**Table 47. Internal components (2 of 4)**

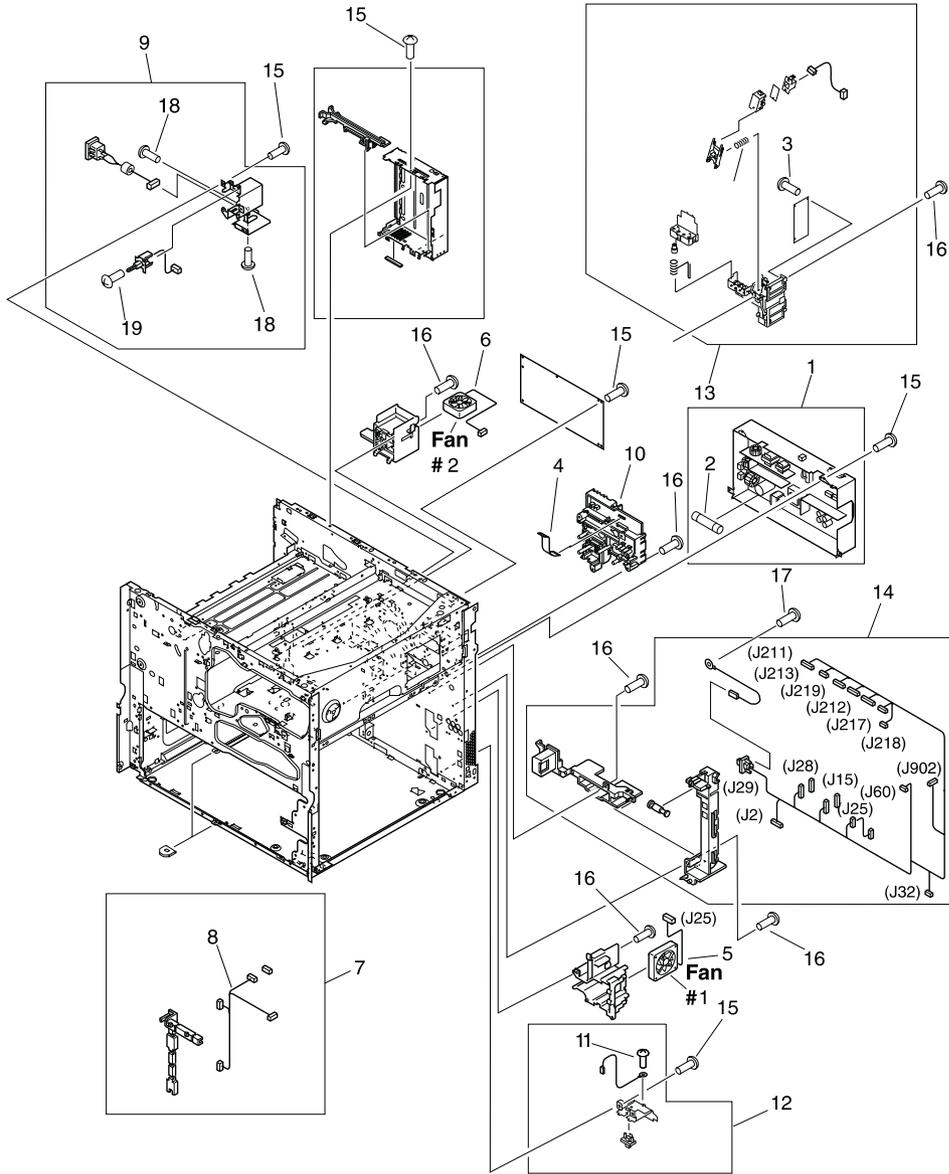
<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
1	Front fusing mount	RB2-5517-000CN	1
2	Front fusing rail	RB2-5515-000CN	1
3	Back fusing rail	RB2-5516-000CN	1
4	Back fusing mount	RB2-5518-000CN	1
5	Spring, leaf	RB2-5523-000CN	2
6	Screw, M3 by 6	XA9-1275-000CN	
7	Fuser connector holder assembly	RG5-5724-000CN	1
8	Fuser power cable	RG5-5771-000CN	1
9	Gear, 21T	RS5-0708-000CN	1
10	Fuser high-voltage cable	RG5-5772-000CN	1
11	Feed guide, transfer	RG5-5651-000CN	1
12	Screw, M3 by 6	XA9-1275-000CN	
13	Screw, M3 by 8	XA9-1276-000CN	
14	Fuser assembly, 110 V	RG5-5750-000CN	1
14	Fuser assembly, 220 V	RG5-5751-000CN	1
15	Screw, M3 by 8	XA9-1276-000CN	
16	Toner contact assembly	RG5-5717-000CN	1
17	Spring, tension	RS6-2299-000CN	
18	Arm, shutter	RB2-5639-000CN	1
19	Shutter, laser	RB2-5640-000CN	1
20	Spring, tension	RS6-2296-000CN	



**Figure 184.** Internal components (3 of 4)

**Table 48. Internal components (3 of 4)**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
1	Cover, fan	RB2-5607-000CN	1
2	Screw, M3 by 6	XA9-1275-000CN	
3	Screw, M3 by 8	XA9-1276-000CN	
4	Latch mount assembly	RG5-5704-000CN	1
5	End paper sensor assembly	RG5-5699-000CN	2
6	Upper cable guide assembly	RG5-5723-000CN	1
7	Fan, #5, cartridge fan	RG5-5729-000CN	1
8	Right rail assembly	RG5-5715-000CN	2
9	Cartridge, front pressure assembly	RG5-5709-000CN	1
10	Cartridge, back pressure assembly	RG5-5710-000CN	1
11	Spring, compression	RS6-2302-000CN	
12	Laser/scanner assembly	RG5-5826-000CN	1
13	Rod, switch, ON/OFF	RB2-5661-000CN	1
14	Left rail, upper	RG5-5713-000CN	1
15	Left rail, lower	RG5-5714-000CN	1
16	Screw, M3 by 18	XA9-12801-000CN	

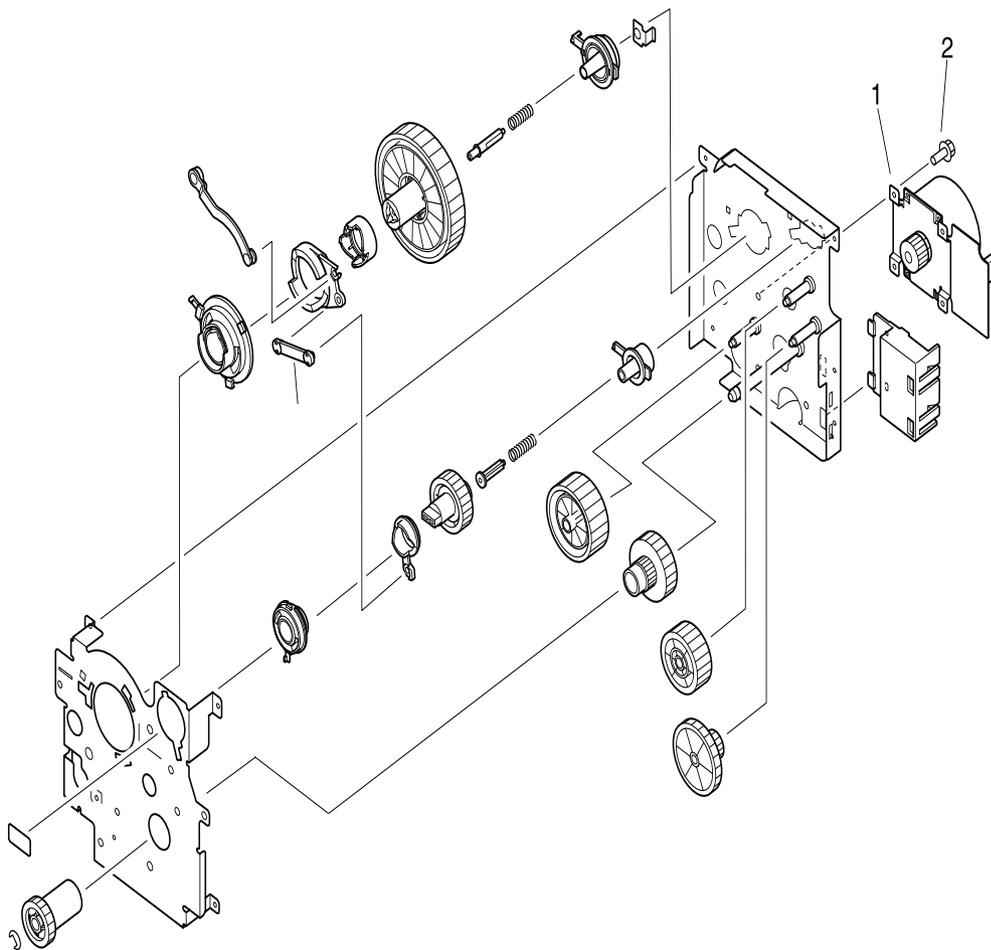


**Figure 185.** Internal components (4 of 4)

**Table 49. Internal components (4 of 4)**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
1	Low voltage power supply assembly 110 V	RG5-5730-000CN	1
1	Low voltage power supply assembly 220 V	RG5-5731-000CN	1
2	Fuse 110 V	VD5-0246-301CN	1
2	Fuse 220 V	VD7-0643-151CN	1
3	Screw, M3 by 8	XA9-1169-000CN	
4	Cable, HVPS flat ribbon	RH2-5445-000CN	1
5	Fan, #1, power supply	RH7-5294-000CN	1
6	Fan, #2, controller	RH7-5295-000CN	1
7	Back cable holder assembly	RG5-5725-000CN	1
8	Fan connecting cable	RG5-5759-000CN	1
9	Inlet assembly	RG5-5727-000CN	1
10	High voltage power supply assembly	RG5-5728-000CN	1
11	Screw, M3 by 8	XA9-1200-000CN	
12	Connector assembly	RG5-5779-000CN	1
13	Toner sensor contact, with memory	RG5-5719-000CN	1
14	Main cable harness assembly	RG5-5722-000CN	1
15	Screw, M3 by 6	XA9-1275-000CN	
16	Screw, M3 by 8	XA9-1276-000CN	
17	Screw, M3 by 8	XA9-1200-000CN	
18	Screw, M4 by 6	XA9-0265-000CN	
19	Screw, M3 by 6	XB1-1300-605CN	

## Drum feed drive assembly

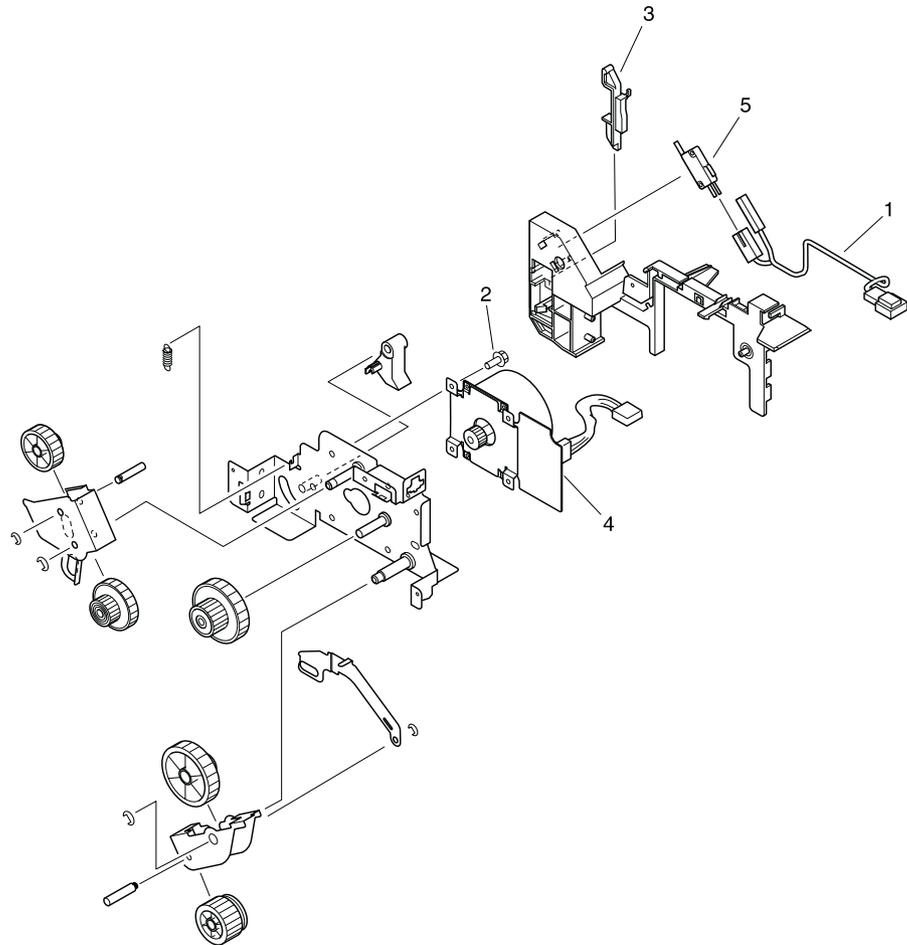


**Figure 186.** Drum feed drive assembly

**Table 50.** Drum feed drive assembly

Ref	Description	Part number	Qty
	Drum feed drive assembly	RG5-5656-000CN	1
1	Motor	RH7-5287-000CN	1
2	Screw, M3 by 6	XA9-1275-000CN	

## Fuser delivery drive assembly

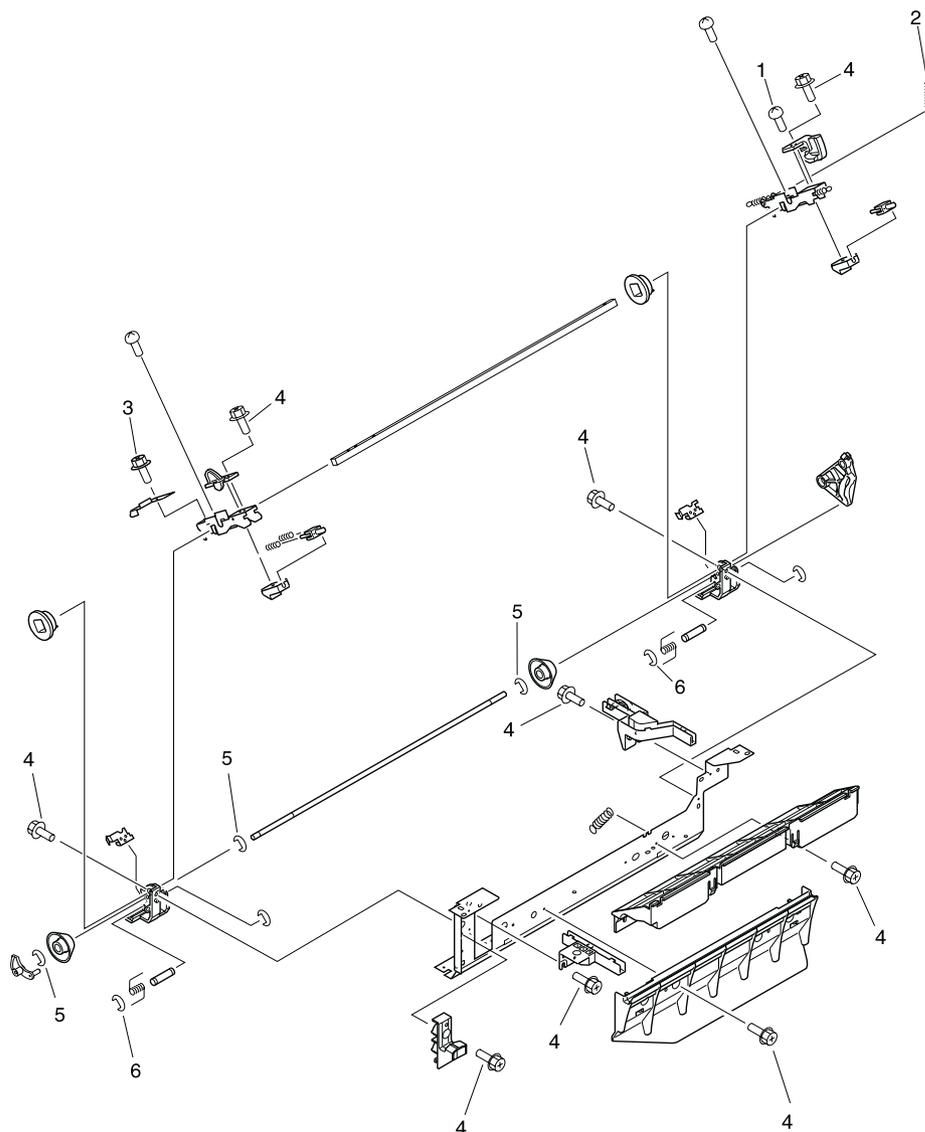


**Figure 187.** Fuser delivery drive assembly

**Table 51. Fuser delivery drive assembly**

Ref	Description	Part number	Qty
	Fuser delivery drive assembly	RG5-5659-000CN	1
1	Switch cable	RG5-5770-000CN	1
2	Screw, M3 by 6	XA9-1275-000CN	
3	Lever, switch	RB2-6077-000CN	1
4	Motor, DC, 24V	RH7-5288-000CN	1
5	Microswitch	WC4-5171-000CN	1

## Cartridge lifter assembly

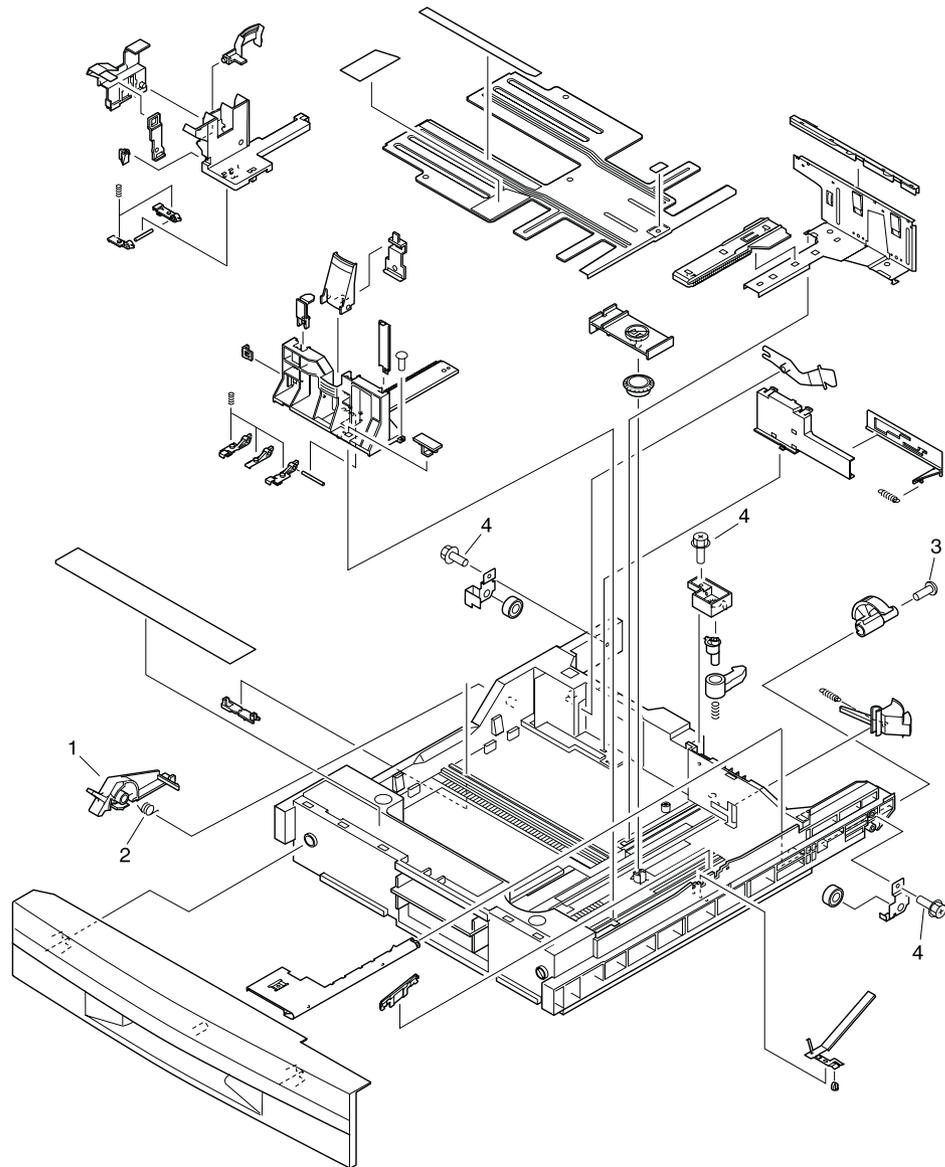


**Figure 188.** Cartridge lifter assembly

**Table 52.** Cartridge lifter assembly

Ref	Description	Part number	Qty
	Cartridge lifter assembly	RG5-5741-000CN	1
1	Screw, M3 by 6	XA9-0596-000CN	
2	Spring, tension	RS6-2298-000CN	1
3	Screw, M3 by 6	XA9-1275-000CN	
4	Screw, M3 by 8	XA9-1276-000CN	
5	E-ring	XD9-0136-000CN	
6	E-ring	XD9-0134-000CN	

## 500-sheet trays (tray 2 and 3)



**Figure 189.** 500-sheet trays (tray 2 and 3)

**Table 53.** 500-sheet trays (tray 2 and 3)

Ref	Description	Part number	Qty
	500-sheet trays	RG5-5635-000CN	1
1	Custom/standard switch	RB2-5813-000CN	1
2	Spring, torsion	RB2-5816-000CN	1
3	Screw, W/W, M3 by 29.5	XA9-0668-000CN	
4	Screw, M4 by 10	XA9-1189-000CN	

## Paper input unit (PIU)

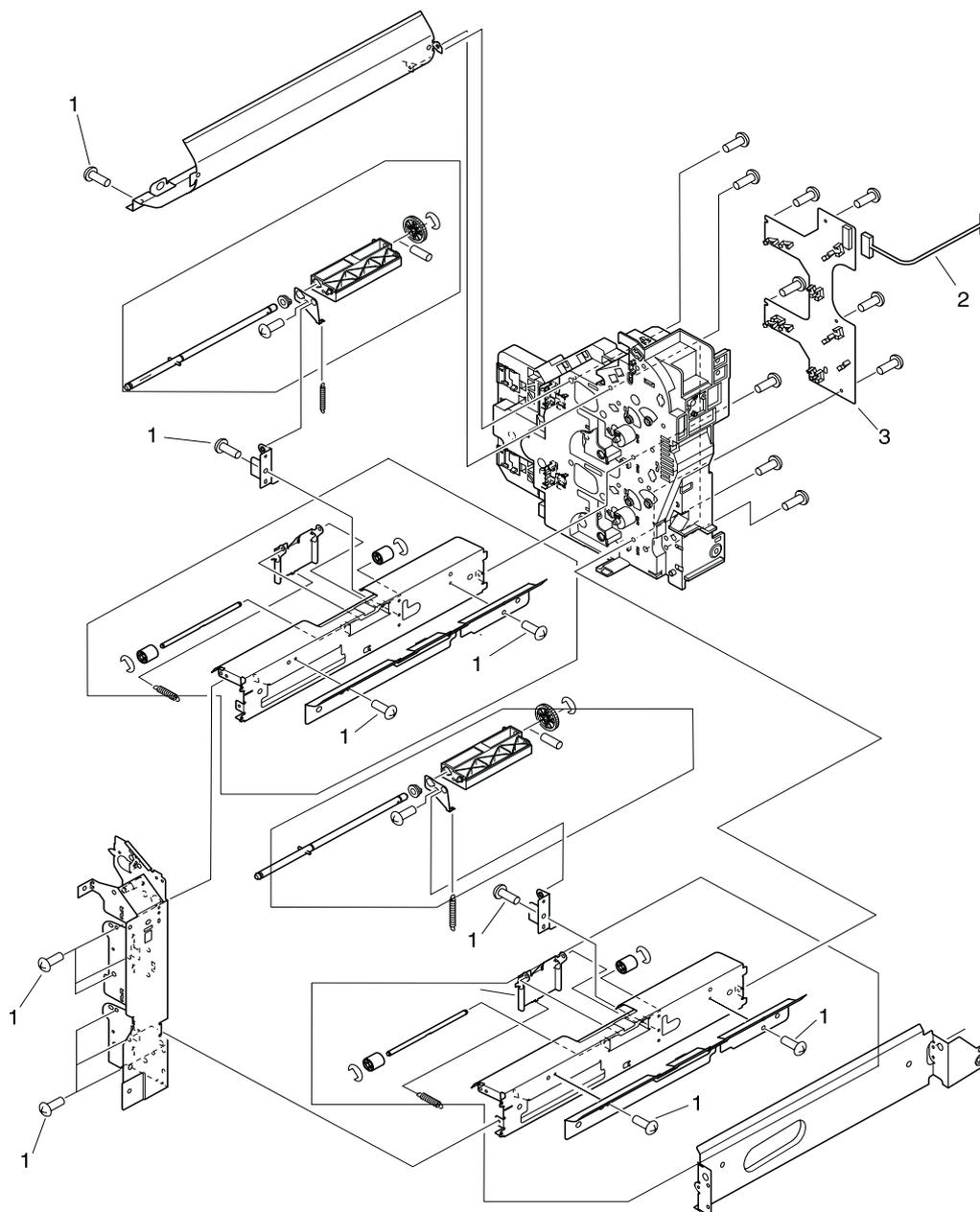
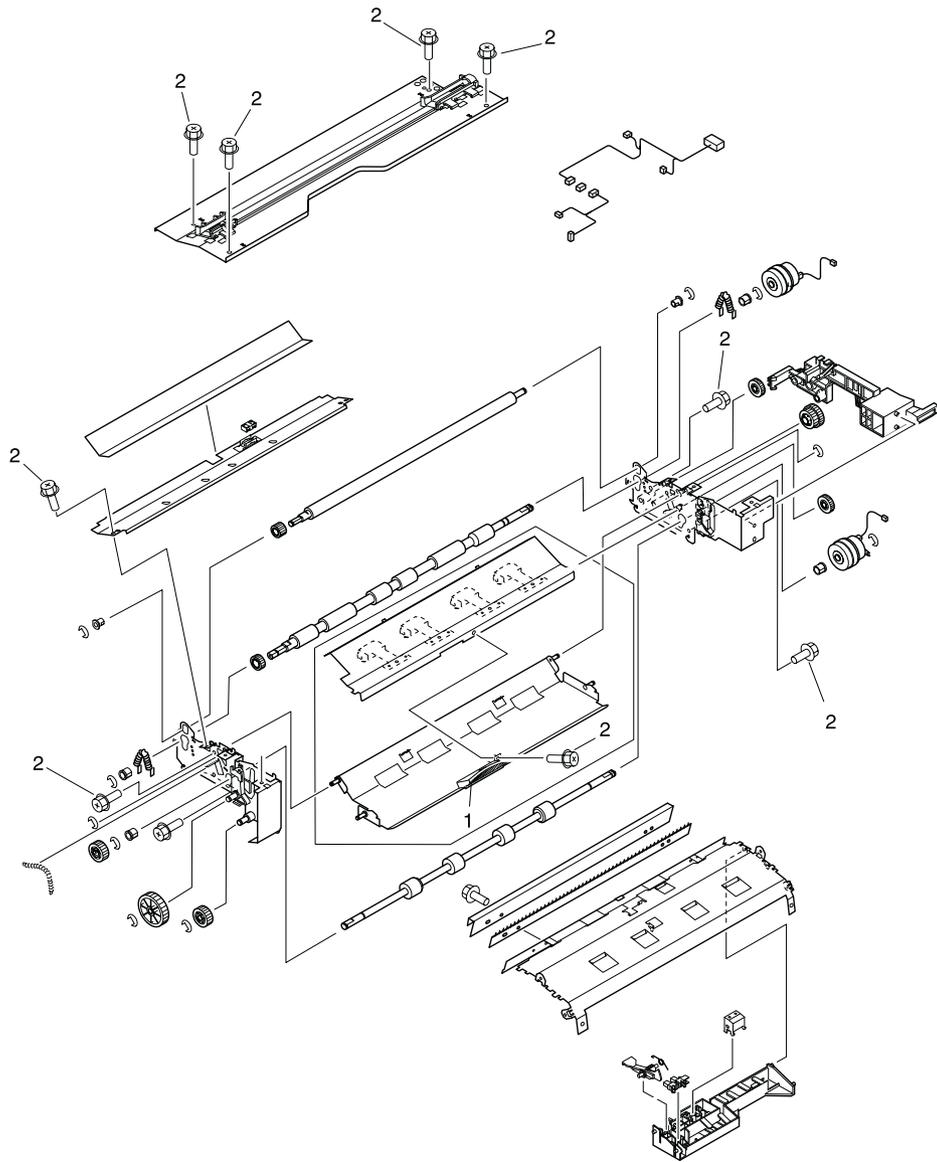


Figure 190. PIU

Table 54. PIU

Ref	Description	Part number	Qty
	Paper input unit	RG5-5677-000CN	1
1	Screw, M3 by 6	XA9-1275-000CN	
2	Paper pickup cable	RG5-5679-000CN	1
3	Paper pickup PCB	RG5-5678-000CN	1

# Registration assembly

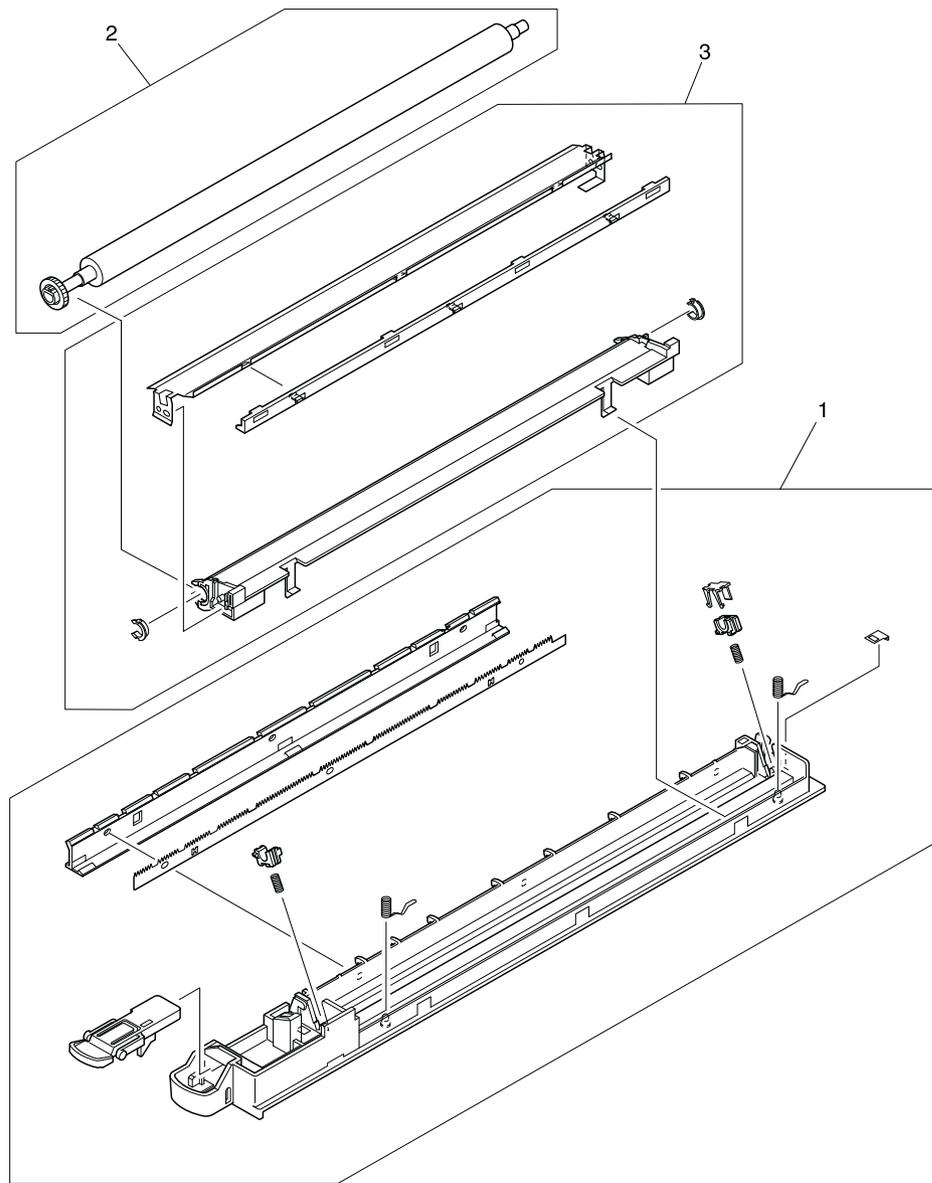


**Figure 191.** Registration assembly

**Table 55.** Registration assembly

Ref	Description	Part number	Qty
	Registration assembly	RG5-5663-000CN	1
1	Knob, guide	RB2-5828-000CN	1
2	Screw, M3 by 6	XA9-1275-000CN	

## Transfer roller assembly



**Figure 192.** Transfer roller assembly

**Table 56. Transfer roller assembly**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
	Transfer roller assembly	RG5-5662-000CN	1
1	Holder, transfer	RG5-5653-000CN	1
2	Roller, transfer	RG5-5650-000CN	1
3	Guide, transfer/pre transfer	RG5-5654-000CN	1

# Delivery assembly

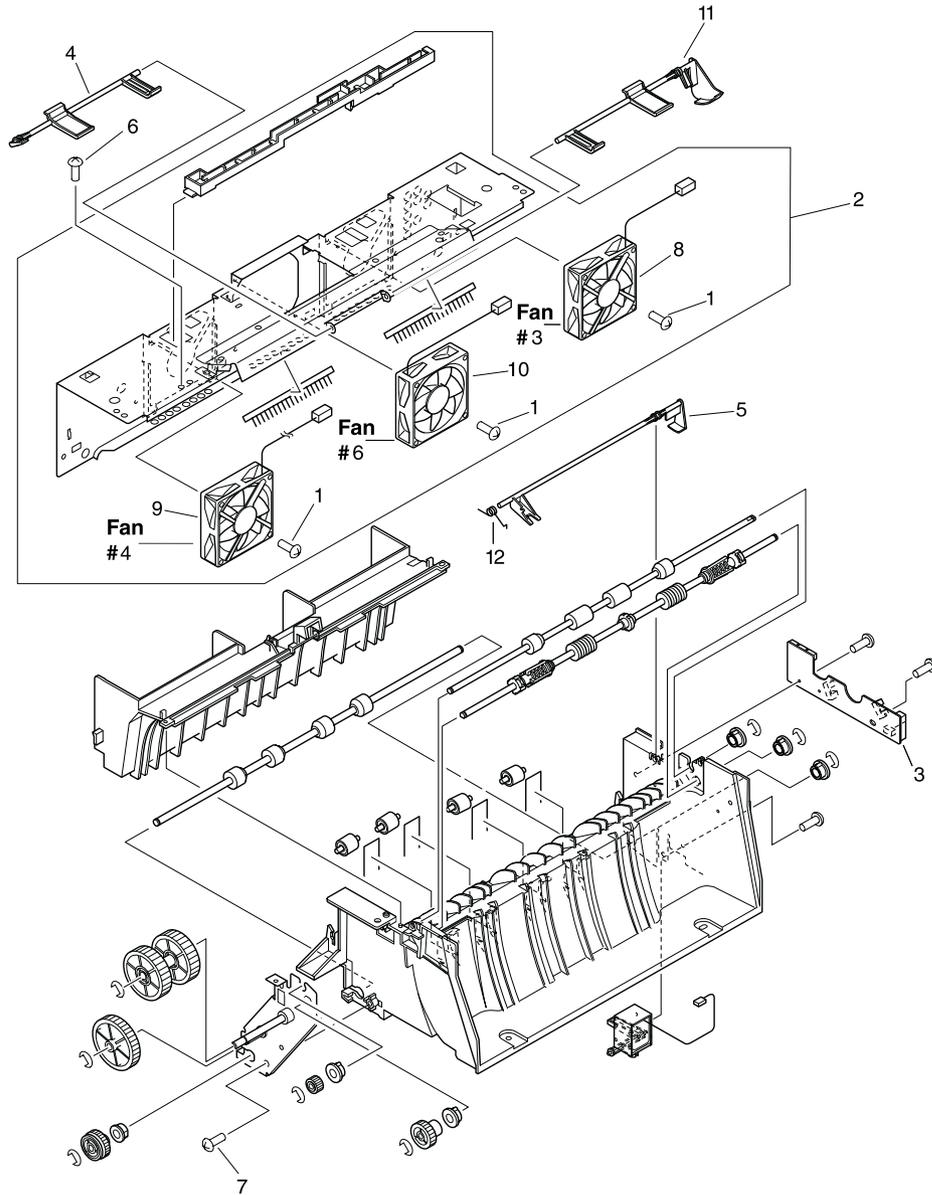
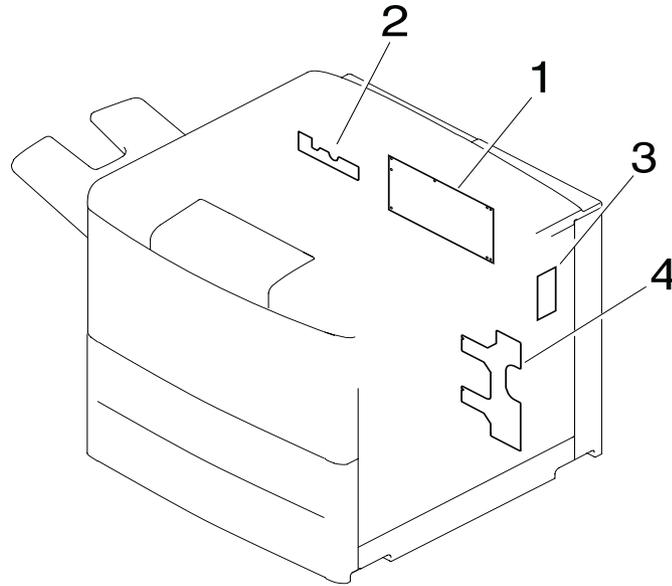


Figure 193. Delivery assembly

**Table 57. Delivery assembly**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
	Delivery assembly	RG5-5643-000CN	1
1	Screw, M3 by 30	XB6-7303-005CN	
2	Delivery cross member assembly	RG5-5645-000CN	1
3	Delivery PCB	RG5-5649-000CN	1
4	Flag, sensor	RB2-6037-000CN	1
5	Lever, sensor	RB2-6035-000CN	1
6	Screw, M4 by 10	XA9-1189-000CN	
7	Screw, M3 by 8	XA9-1276-000CN	
8	Fan, #3, rear delivery	RH7-5296-000CN	1
9	Fan, #4, front delivery	RH7-5297-000CN	1
10	Fan, #6, face down tray	RH7-5302-000CN	1
11	Lever, sensor	RB2-6036-000CN	1
12	Spring, tension	RB2-6042-000CN	1

## PCB assembly location



**Figure 194.** PCB assembly location

**Table 58. PCB assembly location**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
1	DC controller PCB	RG5-5778-000CN	1
2	Delivery PCB	RG5-5649-000CN	1
3	Memory controller PCB with toner sensor contact	RG5-5719-000CN	1
4	Paper pickup (PIU) PCB	RG5-5678-000CN	1

## 2000-sheet feeder (optional tray 4)

### 2000-sheet feeder (optional tray 4) main body

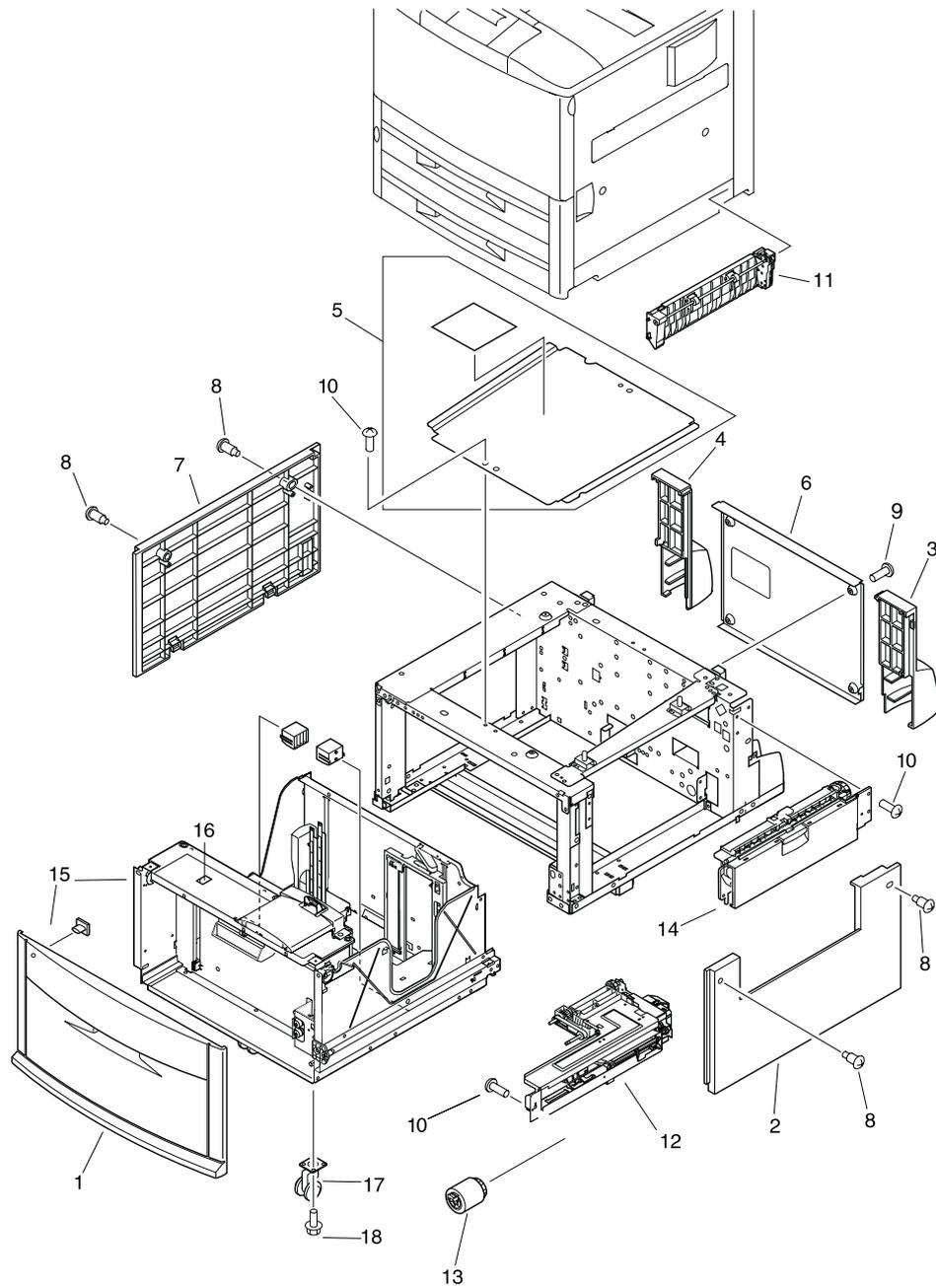
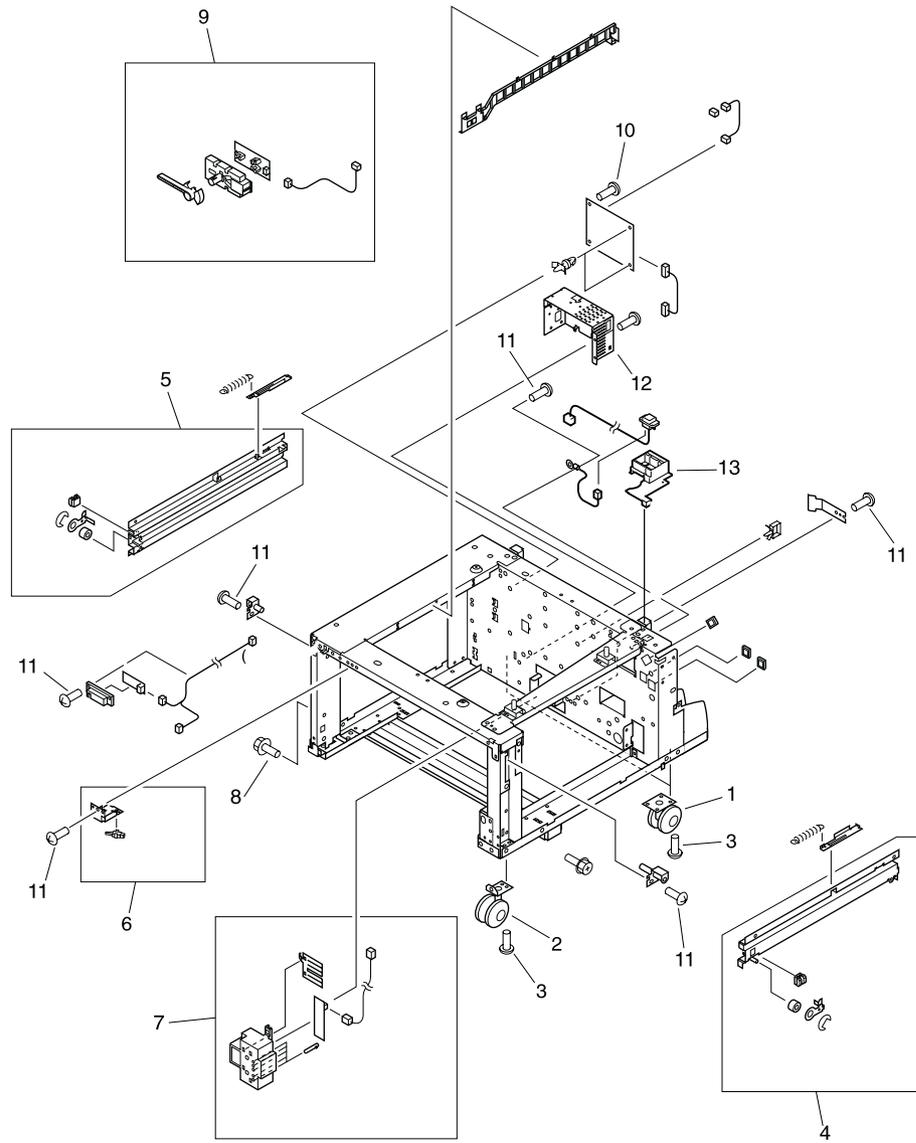


Figure 195. 2000-sheet feeder (optional tray 4) main body (1 of 2)

**Table 59. 2000-sheet feeder (optional tray 4) main body (1 of 2)**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
1	Cover, front	RB2-7648-000CN	1
2	Cover, right	RB2-7649-000CN	1
3	Cover, right back	RB2-7650-000CN	1
4	Cover, left back	RB2-7651-000CN	1
5	Cover, center	RB2-7652-000CN	1
6	Cover, back	RF5-3644-000CN	1
7	Cover, left	RF5-3645-000CN	1
8	Screw, stepped	RS5-9099-000CN	
9	Screw, W/W, M4 by 6	XA9-0499-000CN	
10	Screw, M4 by 6	XB6-7400-000CN	
11	Paper path connection unit	RG5-6227-000CN	1
12	Paper input unit (PIU)	RG5-6208-000CN	1
13	Feed/separation rollers	RF5-3338-000CN	1
14	Tray 4 vertical registration assembly	RG5-6225-000CN	1
15	Tray 4	RG5-6212-000CN	1
16	Lever, standard/custom switch	RB2-7762-000CN	1
17	Caster	RB2-7709-000CN	1
18	Screw, M4 by 8	XA9-0732-000CN	

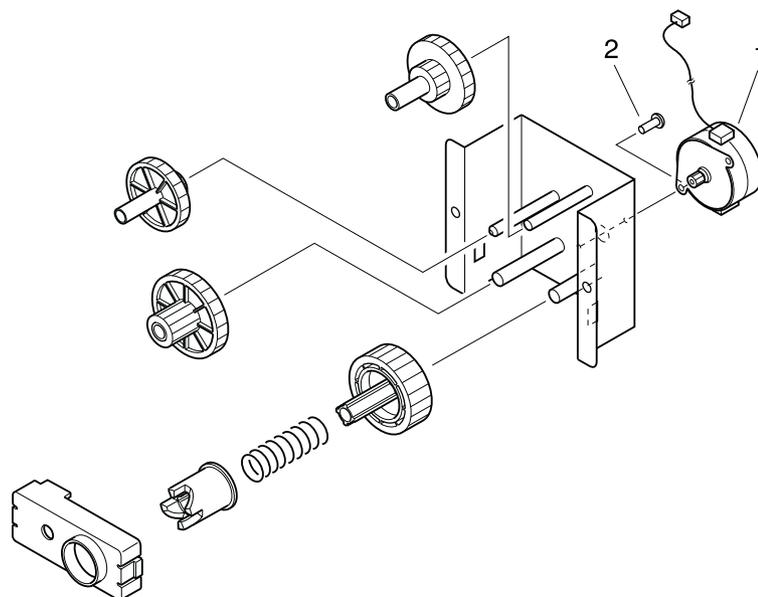


**Figure 196.** 2000-sheet feeder (optional tray 4) main body (2 of 2)

**Table 60. 2000-sheet feeder (optional tray 4) main body (2 of 2)**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
1	Caster, back	RB2-7678-000CN	2
2	Caster, front	RB2-7679-000CN	2
3	Screw, M5 by 12	XA9-0912-000CN	
4	Rail guide, right assembly	RG5-6204-000CN	1
5	Rail guide, left assembly	RG5-6205-000CN	1
6	Switch assembly	RG5-6206-000CN	1
7	Paper size sensing assembly	RG5-6207-000CN	1
8	Screws, M4 by 8	XA9-0732-000CN	
9	Paper volume sensing assembly	RG5-6229-000CN	1
10	Screw, M4 by 6	XB6-7300-607CN	
11	Screw, M4 by 6	XB6-7400-607CN	
12	Power supply	RG5-6250-000CN	1
13	Jetlink cable holder assembly	RG5-6203-000CN	1

## 2000-sheet feeder (optional tray 4) drive assembly

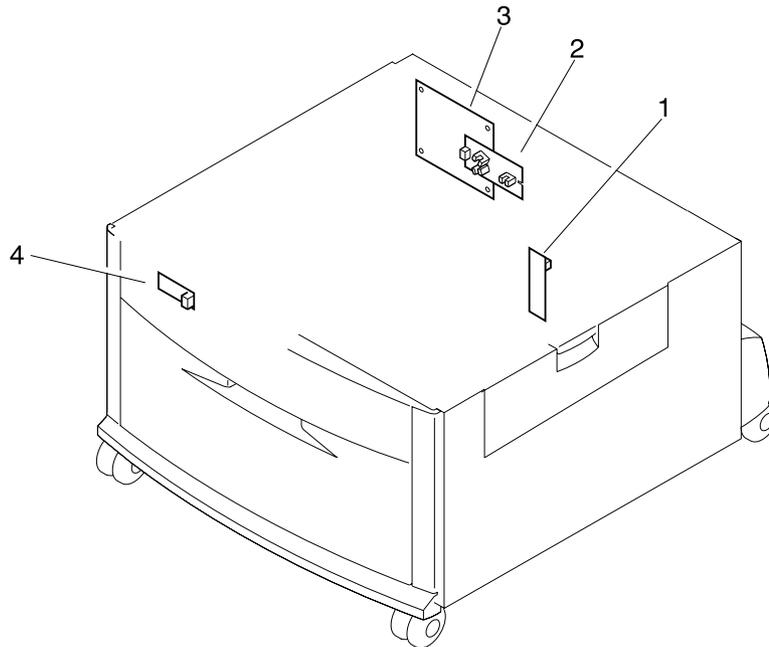


**Figure 197.** 2000-sheet feeder (optional tray 4) drive assembly

**Table 61.** 2000-sheet feeder (optional tray 4) drive assembly

Ref	Description	Part number	Qty
	2000-sheet feeder drive assembly	RG5-6228-000CN	1
1	Motor	RH7-1481-000CN	1
2	Screw, M3 by 6	XB2-6300-607CN	

## 2000-sheet feeder (optional tray 4) PCB location



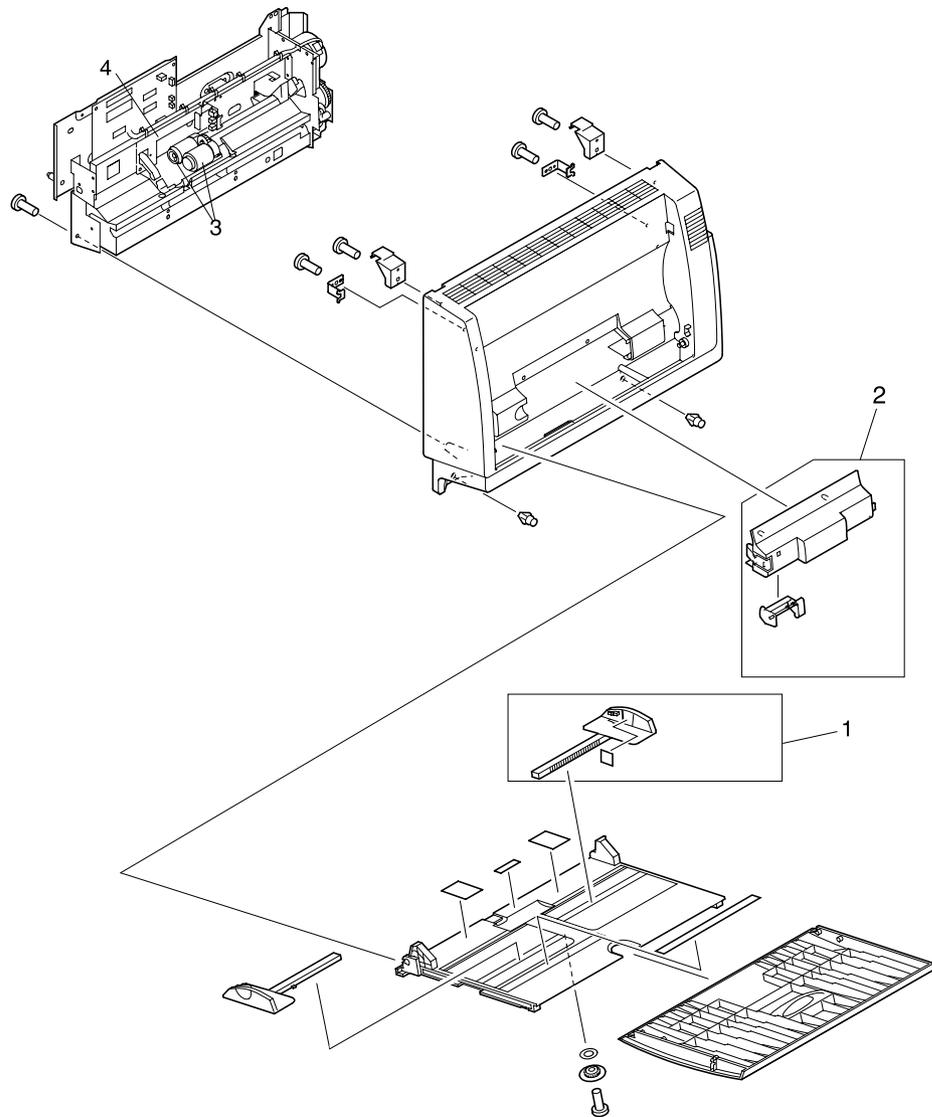
**Figure 198.** 2000-sheet feeder (optional tray 4) PCB location

**Table 62.** 2000-sheet feeder (optional tray 4) PCB location

Ref	Description	Part number	Qty
1	Paper size PCB assembly	RG5-6238-000CN	1
2	Paper volume PCB assembly	RG5-6237-000CN	1
3	Controller PCB assembly	RG5-6235-000CN	1
4	LED PCB assembly	RG5-6239-000CN	1

# Optional tray 1

## Optional tray 1 assembly



**Figure 199.** Optional tray 1 assembly

**Table 63. Optional tray 1 assembly**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
	Tray 1	C8568-67901	1
1	Rivet, case	RB2-6541-000CN	
2	Service cover assembly	RG5-5811-000CN	1
3	Roller, pickup	RF5-3403-000CN	1
4	Roller, separation	RF5-3404-000CN	1

# Paper handling output device

## 3000-sheet stapler/stacker

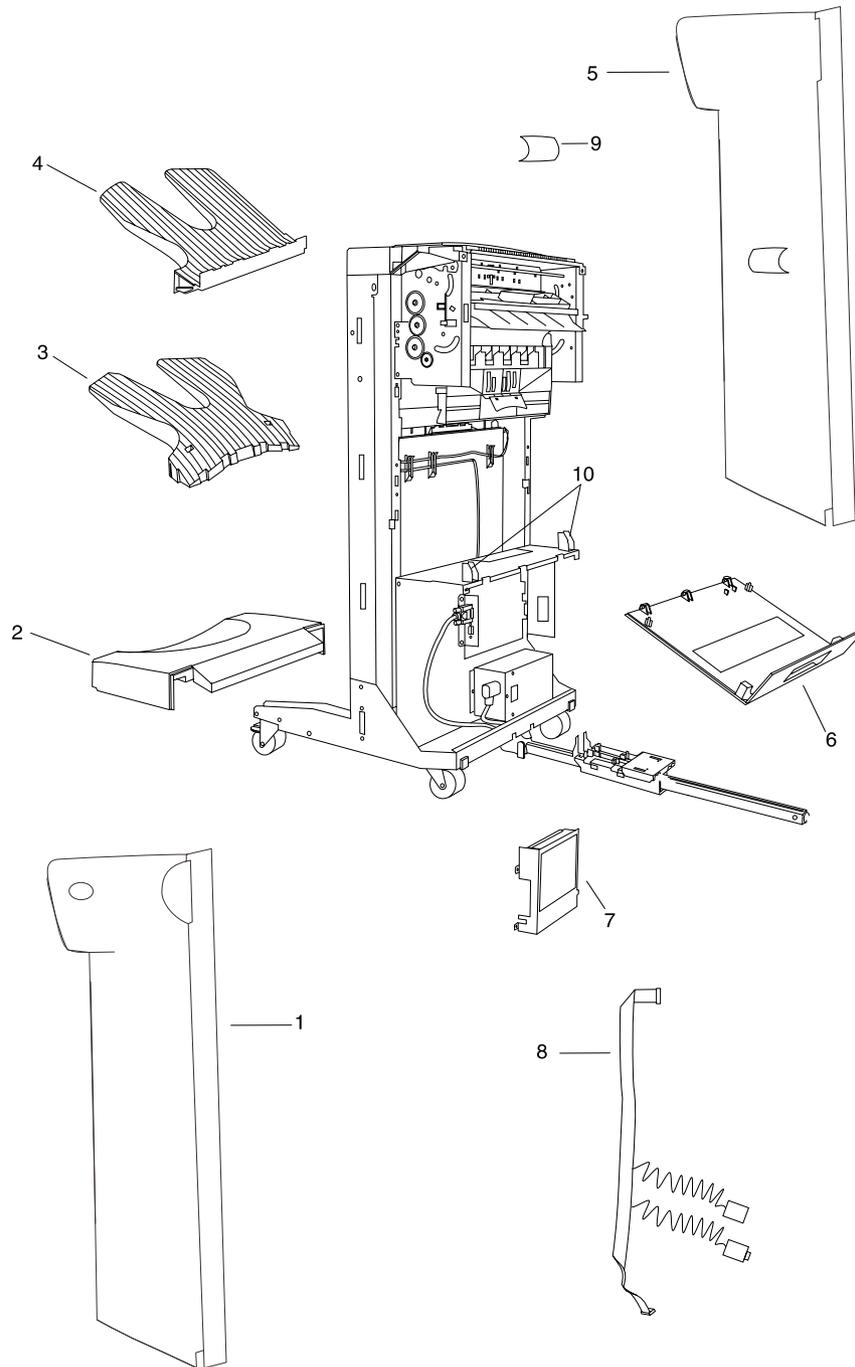
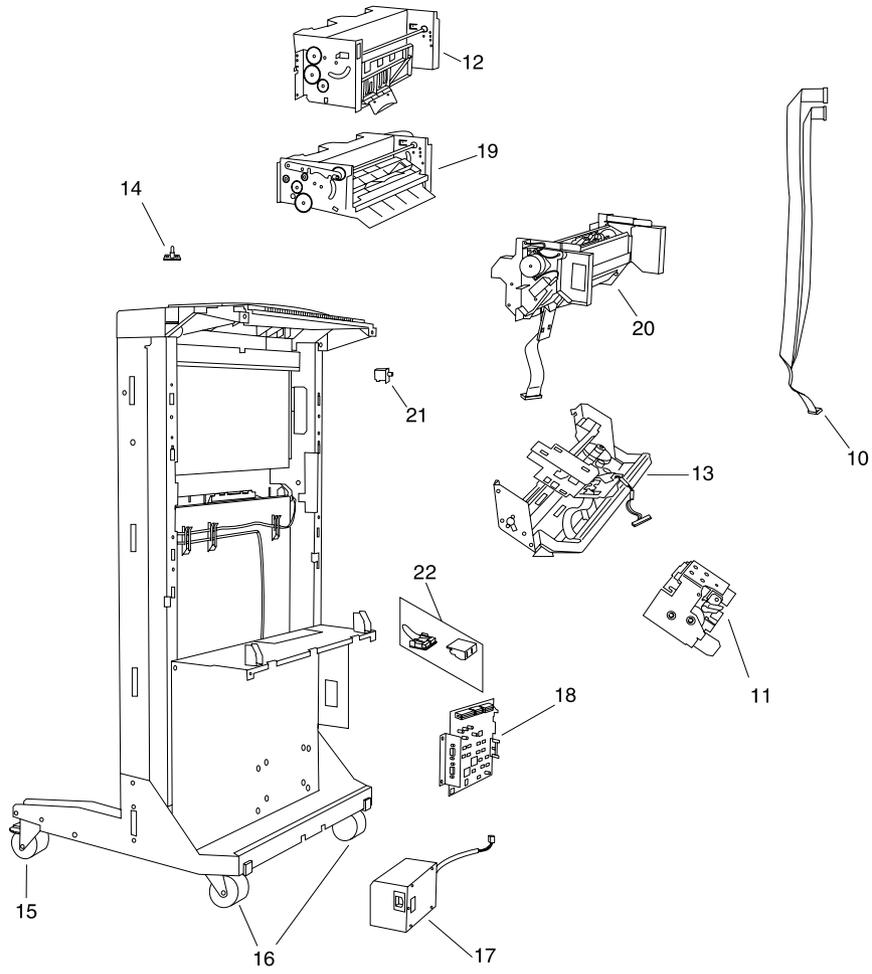


Figure 200. 3000-sheet stapler/stacker (1 of 2)

**Table 64. 3000-sheet stapler/stacker (1 of 2)**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
	3000-sheet stapler/stacker	C8085A	1
	Wings kit	C8085-60510	1
	Paper stopper clip kit	C4788-60527	1
	Screws kit	C8085-60512	1
	Stapler/stacker packaging kit	C8085-60513	1
	Optical sensors kit (two sensors)	C8085-60524	1
1	Front cover (includes front inner cover, screws, and screw caps)	C8085-60505	1
2	Foot cover	C8085-60516	1
3	Stapler bin	C4788-60513	1
4	Face-up bin	C4788-60512	1
5	Back cover (includes back inner cover, screws, and screw caps)	C8085-60504	1
6	Stapler door assembly with label	C8085-60506	1
7	Stapler controller PCA cover with label	C8085-60507	1
8	Jet-link cable and power cord assembly	C8085-60517	1
9	Bubbled cover	C8085-60520	1
10	Stapler plastic kit (cable holders, stapler door hinges, safety switch cover)	C8085-60523	1



**Figure 201.** 3000-sheet stapler/stacker (2 of 2)

**Table 65. 3000-sheet stapler/stacker (2 of 2)**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
10	Flipper and paper path ribbon cable	C8085-60515	1
11	Stapler unit	C8085-60522	1
12	Flipper assembly	C8085-60500	1
13	Carriage assembly	C8085-60503	1
14	LED PCA	C4788-60510	1
15	Casters adjustable with E-clips	C8085-60511	1
16	Casters stationary	C4788-60515	1
17	Stapler power supply	C8085-60509	1
18	Stapler controller PCA	C8085-60508	1
19	Paper path assembly	C8085-60501	1
20	Accumulator assembly	C8085-60502	1
21	Interlock switch	C4788-60514	1
22	Safety switch assembly	C4788-60517	1

# 3000-sheet stacker

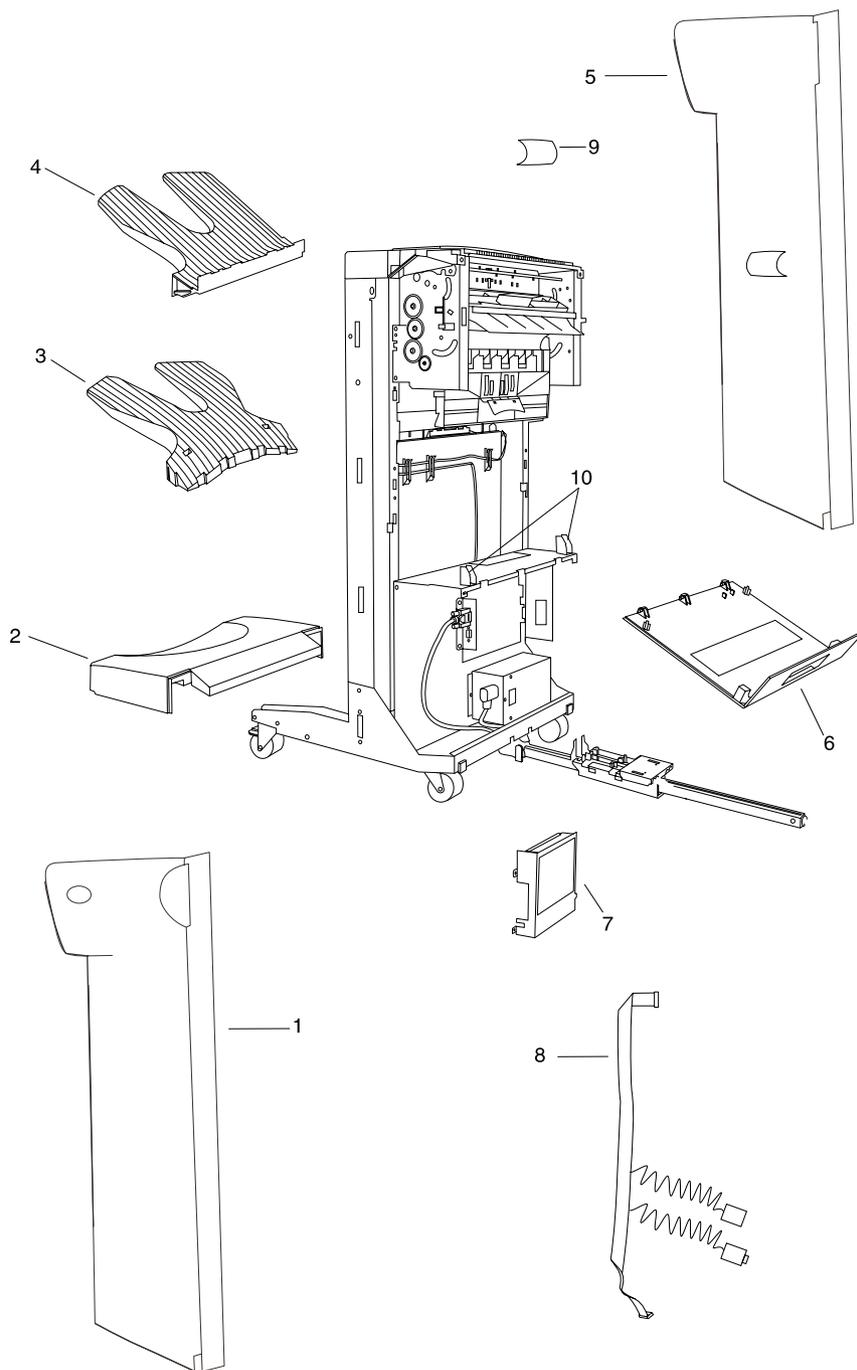
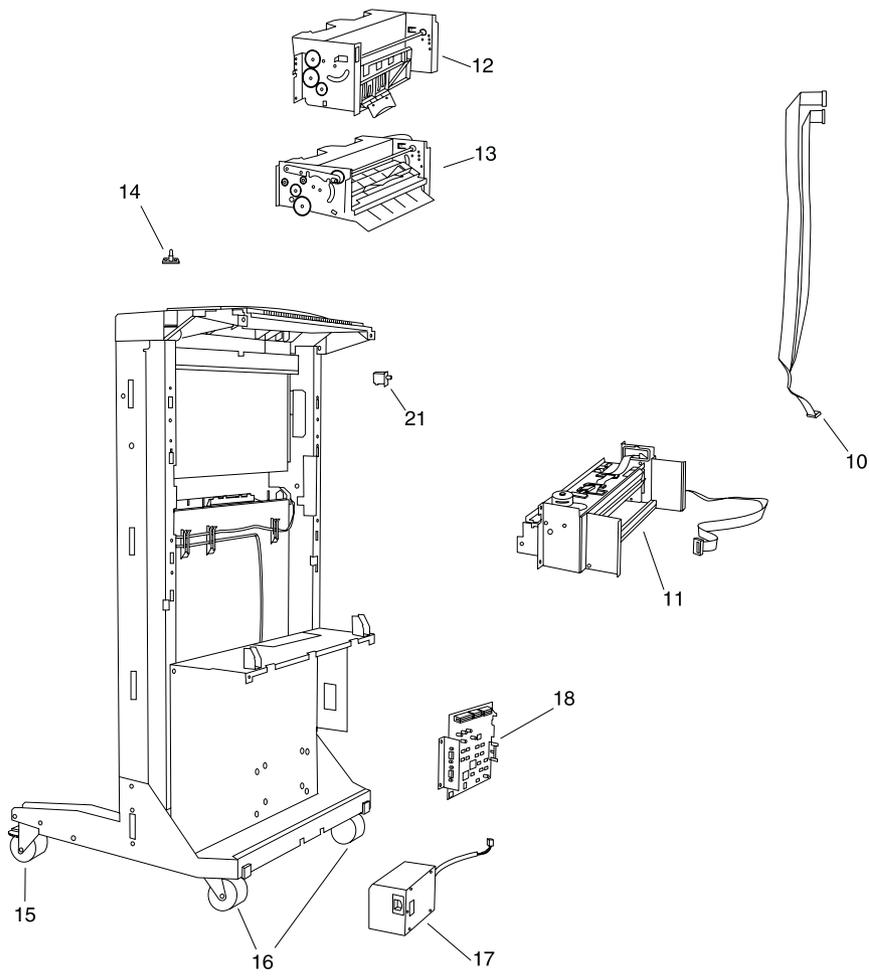


Figure 202. 3000-sheet stacker (1 of 2)

**Table 66. 3000-sheet stacker (1 of 2)**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
	3000-sheet stacker	C8084A	1
	Paper stopper clip kit	C4788-60527	1
	Screws kit	C8085-60512	1
	Stapler/stacker packaging kit	C8085-60513	1
	Optical sensors kit	C8085-60524	1
1	Front cover (includes front inner cover, screws, and screw caps)	C8085-60505	1
2	Foot cover	C8085-60516	1
3	Stacker bin	C4779-60505	1
4	Face-up bin	C4788-60512	1
5	Back cover (includes back inner cover, screws, and screw caps)	C8085-60504	1
6	Stacker door assembly with label	C4779-60502	1
7	Stacker controller PCA cover with label	C8084-60501	1
8	Jet-link cable and power cord assembly	C8085-60517	1
9	Bubbled cover	C8085-60520	1
10	Stacker plastic kit (cable holders, stapler door hinges, safety switch cover)	C8084-60505	1



**Figure 203.** 3000-sheet stacker (2 of 2)

**Table 67. 3000-sheet stacker (2 of 2)**

<b>Ref</b>	<b>Description</b>	<b>Part number</b>	<b>Qty</b>
10	Flipper ribbon cable	C8085-60515	1
11	Offset assembly	C8084-60500	1
12	Flipper assembly	C8085-60500	1
13	Paper path assembly	C8085-60501	1
14	LED PCA	C4788-60510	1
15	Casters adjustable with E-clips	C8085-60511	1
16	Casters stationary	C4788-60515	1
17	Stacker power supply	C8084-60504	1
18	Stacker controller PCA	C8084-60502	1
21	Interlock switch	C4788-60514	1

## Alphabetical parts list

**Table 68. Alphabetical parts list**

<b>Description</b>	<b>Part number</b>	<b>Figure and page</b>
3000-sheet stacker	C8084A	Figure 202 on page 322
3000-sheet stapler/stacker	C8085A	Figure 200 on page 318
Accumulator assembly	C8085-60502	Figure 200 on page 318
Arm, front cover	RB2-5654-000CN	Figure 182 on page 290
Arm, shutter	RB2-5639-000CN	Figure 183 on page 292
Back cable holder assembly	RG5-5725-000CN	Figure 185 on page 296
Back cover	C8085-60504	Figure 200 on page 318
Back cover	C8085-60504	Figure 202 on page 322
Back cover assembly	RG5-5701-000CN	Figure 179 on page 284
Bubbled cover	C8085-60520	Figure 200 on page 318
Bubbled cover	C8085-60520	Figure 202 on page 322
Bushing	RB2-5652-000CN	Figure 179 on page 284
Cable, flat	RH2-5445-000CN	Figure 185 on page 296
Cap, right cover	RB2-5675-000CN	Figure 179 on page 284
Cap, right cover	RB2-5675-000CN	Figure 179 on page 284
Carriage assembly	C8085-60503	Figure 201 on page 320
Cartridge lifter assembly	RG5-5741-000CN	Figure 188 on page 300
Casette	RG5-5635-000CN	Figure 189 on page 301
Caster	RB2-7678-000CN	Figure 196 on page 312
Caster	RB2-7679-000CN	Figure 196 on page 312
Caster	RB2-7709-000CN	Figure 196 on page 312
Castors adjustable with E-clips	C8085-60511	Figure 201 on page 320
Castors adjustable with E-clips	C8085-60511	Figure 203 on page 324
Castors stationary	C4788-60515	Figure 201 on page 320
Castors stationary	C4788-60515	Figure 203 on page 324
Collar	RB2-5547-000CN	Figure 182 on page 290
Connection assembly	RG5-6227-000CN	Figure 196 on page 312
Connector assembly	RG5-5779-000CN	Figure 185 on page 296
Control lever assembly	RG5-5746-000CN	Figure 182 on page 290
Control panel overlay	RB2-5703-000CN	Figure 179 on page 284
Cover, right	RB2-7649-000CN	Figure 195 on page 310
Cover, back	RF5-3644-000CN	Figure 195 on page 310
Cover, back left	RB2-7651-000CN	Figure 195 on page 310
Cover, back right	RB2-7650-000CN	Figure 195 on page 310
Cover, blanking	RB2-5531-000CN	Figure 182 on page 290
Cover, cable	RB2-5664-000CN	Figure 181 on page 288

**Table 68. Alphabetical parts list (continued)**

<b>Description</b>	<b>Part number</b>	<b>Figure and page</b>
Cover, fan	RB2-5607-000CN	Figure 184 on page 294
Cover, front	RB2-7648-000CN	Figure 195 on page 310
Cover, front inside	RB2-5525-000CN	Figure 182 on page 290
Cover, left	RF5-3645-000CN	Figure 195 on page 310
Cover, left rail	RB2-5683-000CN	Figure 179 on page 284
Cover, left lower	RB2-5687-000CN	Figure 179 on page 284
Cover, left upper	RB2-6491-000CN	Figure 179 on page 284
Cover, multipurpose blanking	RB2-5676-000CN	Figure 179 on page 284
Cover, operation panel, 100 - 127 V	RB2-5701-000CN	Figure 179 on page 284
Cover, left back	RB2-5685-000CN	Figure 179 on page 284
Cover, right	RB2-5662-000CN	Figure 181 on page 288
Cover, right back	RB2-5684-000CN	Figure 179 on page 284
Cover, right door	RB2-5697-000CN	Figure 182 on page 290
Cover, right rail	RB2-5682-000CN	Figure 179 on page 284
Cover, right lower	RB2-5689-000CN	Figure 179 on page 284
Cover, upper	RB2-7652-000CN	Figure 195 on page 310
Cover, left, top	RB2-5660-000CN	Figure 179 on page 284
Cover, right, top	RB2-5659-000CN	Figure 179 on page 284
Cartridge back pressure assembly	RG5-5710-000CN	Figure 184 on page 294
Fan, #5	RG5-5729-000CN	Figure 184 on page 294
Cartridge front pressure assembly	RG5-5709-000CN	Figure 184 on page 294
Damper assembly	RG5-5648-000CN	Figure 180 on page 286
DC controller PCB assembly	RG5-5778-000CN	Figure 194 on page 308
Deck controller PCB assembly	RG5-6235-000CN	Figure 198 on page 315
Delivery cross member assembly	RG5-5645-000CN	Figure 193 on page 306
Delivery feed assembly	RG5-5643-000CN	Figure 193 on page 306
Delivery PCB assembly	RG5-5649-000CN	Figure 193 on page 306
Delivery PCB assembly	RG5-5649-000CN	Figure 194 on page 308
Control panel assembly	RG5-5703-000CN	Figure 179 on page 284
Drum feed drive assembly	RG5-5656-000CN	Figure 186 on page 298
E ring	XD9-0136-000CN	Figure 188 on page 300
E ring	XD9-0134-000CN	Figure 188 on page 300
End paper sensor assembly	RG5-5699-000CN	Figure 184 on page 294
Face-up bin	C4788-60512	Figure 200 on page 318
Face-up bin	C4788-60512	Figure 202 on page 322
Face-up delivery assembly	RG5-5647-000CN	Figure 180 on page 286
Fan, #1	RH7-5294-000CN	Figure 185 on page 296
Fan, #2	RH7-5295-000CN	Figure 185 on page 296
Fan, #3	RH7-5296-000CN	Figure 193 on page 306
Fan, #4	RH7-5297-000CN	Figure 193 on page 306

**Table 68. Alphabetical parts list (continued)**

<b>Description</b>	<b>Part number</b>	<b>Figure and page</b>
Fan, #6	RH7-5302-000CN	Figure 193 on page 306
Fan connecting cable	RG5-5759-000CN	Figure 185 on page 296
Feed PCB assembly	RG5-5678-000CN	Figure on page 302
Feed PCB assembly	RG5-5678-000CN	Figure 194 on page 308
Fusing connector holder assembly	RG5-5724-000CN	Figure 183 on page 292
Fusing jam clearing assembly	RG5-5700-000CN	Figure 182 on page 290
Fusing power cable	RG5-5771-000CN	Figure 183 on page 292
Flag, sensor	RB2-6037-000CN	Figure 193 on page 306
Flipper assembly	C8085-60500	Figure 201 on page 320
Flipper assembly	C8085-60500	Figure 203 on page 324
Flipper ribbon cable	C8085-60515	Figure 201 on page 320
Flipper ribbon cable	C8085-60515	Figure 203 on page 324
Foot	RB1-6421-000CN	Figure 182 on page 290
Foot	RB2-5529-000CN	Figure 182 on page 290
Foot cover	C8085-60516	Figure 200 on page 318
Foot cover	C8085-60516	Figure 202 on page 322
Frame, delivery	RB2-6006-000CN	Figure 180 on page 286
Front cover	C8085-60505	Figure 200 on page 318
Front cover	C8085-60505	Figure 202 on page 322
Front cover assembly	RG5-5702-000CN	Figure 179 on page 284
Front inside cover assembly	RG5-5721-000CN	Figure 182 on page 290
Fuse 110 V	VD5-0246-301CN	Figure 185 on page 296
Fuse 220 V	VD7-0643-151CN	Figure 185 on page 296
Fuser assembly 110 V	RG5-5684-000CN	Figure 183 on page 292
Fuser assembly 220 V	RG5-5696-000CN	Figure 183 on page 292
Fuser delivery drive assembly	RG5-5659-000CN	Figure 187 on page 299
Fuser high-voltage cable	RG5-5772-000CN	Figure 183 on page 292
Gear, 21T	RS5-0708-000CN	Figure 183 on page 292
Guide rail upper assembly	RG5-5718-000CN	Figure 182 on page 290
Guide, Cartridge	RB2-5526-000CN	Figure 182 on page 290
Guide, pickup	RB2-5522-000CN	Figure 182 on page 290
Guide, transfer	RG5-5654-000CN	Figure 192 on page 304
Holder, transfer	RG5-5653-000CN	Figure 192 on page 304
HVT PCB assembly	RG5-5728-000CN	Figure 185 on page 296
Inlet assembly	RG5-5727-000CN	Figure 185 on page 296
Interlock switch	C4788-60514	Figure 201 on page 320
Interlock switch	C4788-60514	Figure 203 on page 324
Jet-link cable and power cord assembly	C8085-60517	Figure 201 on page 320
Jet-link cable and power cord assembly	C8085-60517	Figure 203 on page 324
Knob, cassette	RB2-5813-000CN	Figure 189 on page 301

**Table 68. Alphabetical parts list (continued)**

<b>Description</b>	<b>Part number</b>	<b>Figure and page</b>
Knob, guide	RB2-5828-000CN	Figure 191 on page 303
Knob, jam removal	RB2-5845-000CN	Figure 182 on page 290
Laser/scanner assembly	RG5-5826-000CN	Figure 184 on page 294
Latch mount assembly	RG5-5704-000CN	Figure 184 on page 294
Latch, roller-action	RB2-5700-000CN	Figure 179 on page 284
LED PCA	C4788-60510	Figure 201 on page 320
LED PCA	C4788-60510	Figure 203 on page 324
LED PCB assembly	RG5-6239-000CN	Figure 198 on page 315
Left door and diverter	RG5-5646-000CN	Figure 180 on page 286
Left upper cover assembly	RG5-5705-000CN	Figure 179 on page 284
Lever, custom	RB2-7762-000CN	Figure 195 on page 310
Lever, sensor	RB2-6035-000CN	Figure 193 on page 306
Lever, switch	RB2-6077-000CN	Figure 187 on page 299
Link, connect	RB2-5528-000CN	Figure 182 on page 290
Main cable harness holder assembly	RG5-5722-000CN	Figure 185 on page 296
Memory controller PCB assembly	RG5-5468-000CN	Figure 194 on page 308
Microswitch	WC4-5171-000CN	Figure 187 on page 299
Motor	RH7-5287-000CN	Figure 186 on page 298
Motor	RH7-1481-000CN	Figure 197 on page 314
Motor, DC, 24V	RH7-5288-000CN	Figure 187 on page 299
Mount, back fusing	RB2-5518-000CN	Figure 183 on page 292
Mount, damper	RB2-5570-000CN	Figure 182 on page 290
Mount, front fusing	RB2-5517-000CN	Figure 183 on page 292
Multi-purpose cable	RG5-5763-000CN	Figure 181 on page 288
Multi-purpose grounding cable	RG5-5764-000CN	Figure 181 on page 288
Offset module assembly	C8085-60500	Figure 203 on page 324
Optical sensors kit	C4788-60530	Figure 200 on page 318
Optical sensors kit	C4788-60530	Figure 202 on page 322
2000-sheet feeder drive assembly	RG5-6228-000CN	Figure 197 on page 314
Paper path assembly	C8085-60501	Figure 201 on page 320
Paper path assembly	C8085-60501	Figure 203 on page 324
Paper input unit (PIU)	RG5-5677-000CN	Figure 190 on page 302
Paper input unit (PIU)	RG5-6208-000CN	Figure 195 on page 310
Paper size PCB assembly	RG5-6238-000CN	Figure 198 on page 315
Paper stopper clip kit	C4788-60527	Figure 201 on page 320
Paper stopper clip kit	C4788-60527	Figure 203 on page 324
Paper volume PCB assembly	RG5-6237-000CN	Figure 198 on page 315
Paper volume sensing assembly	RG5-6229-000CN	Figure 196 on page 312
Paper-size sensing assembly	RG5-6207-000CN	Figure 196 on page 312
Pickup cable	RG5-5679-000CN	Figure 190 on page 302

**Table 68. Alphabetical parts list (continued)**

<b>Description</b>	<b>Part number</b>	<b>Figure and page</b>
Pin, fusing shutter	RB2-5656-000CN	Figure 179 on page 284
Power supply assembly	RG5-5730-000CN	Figure 185 on page 296
Power supply assembly	RG5-5731-000CN	Figure 185 on page 296
Power supply assembly	RF5-6250-000CN	Figure 198 on page 315
Push nut	XA9-0135-000CN	Figure 179 on page 284
Rail guide, left assembly	RG5-6205-000CN	Figure 196 on page 312
Rail guide, right assembly	RG5-6204-000CN	Figure 196 on page 312
Rail, back fusing	RB2-5516-000CN	Figure 183 on page 292
Rail, front fusing	RB2-5515-020CN	Figure 183 on page 292
Registration assembly	RG5-5663-000CN	Figure 191 on page 303
Right cover assembly	RG5-5737-000CN	Figure 181 on page 288
Right cover knob assembly	RG5-5740-000CN	Figure 181 on page 288
Right rail assembly	RG5-5715-000CN	Figure 184 on page 294
Rivet, case	RB2-6541-000CN	Figure 199 on page 316
Rod, switch	RB2-5661-000CN	Figure 184 on page 294
Roller, feed retard	RF5-3338-000CN	Figure 182 on page 290
Roller, feed retard	RF5-3338-000CN	Figure 196 on page 312
Roller, PIC	RF5-3340-000CN	Figure 182 on page 290
Roller, transfer	RG5-5650-000CN	Figure 192 on page 304
Safety switch assembly	C4788-60517	Figure 200 on page 318
Screw	XB2-2300-605CN	Figure 183 on page 292
Screw, B, M4 by 8	XA9-1277-000CN	Figure 181 on page 288
Screw, M3 by 6	XA9-0596-000CN	Figure 188 on page 300
Screw, M3 by 8	XA9-1200-000CN	Figure 181 on page 288
Screw, M3 by 8	XA9-1200-000CN	Figure 181 on page 288
Screw, M3 by 8	XA9-1200-000CN	Figure 185 on page 296
Screw, M3 by 8	XA9-1169-000CN	Figure 185 on page 296
Screw, M3 by 8	XA9-1200-000CN	Figure 185 on page 296
Screw, M4 by 10	XA9-1189-000CN	Figure 179 on page 284
Screw, M4 by 10	XA9-1189-000CN	Figure 180 on page 286
Screw, M4 by 10	XA9-1189-000CN	Figure 189 on page 301
Screw, M4 by 8	XA9-0615-000CN	Figure 188 on page 300
Screw, M3 by 6	XB1-1300-605CN	Figure 185 on page 296
Screw, M3 by 6	XA9-1275-000-CN	Figure 182 on page 290
Screw, M3 by 6	XA9-1275-000CN	Figure 183 on page 292
Screw, M3 by 6	XA9-1171-000CN	Figure 183 on page 292
Screw, M3 by 6	XA9-1275-000CN	Figure 183 on page 292
Screw, M3 by 6	XA9-1275-000CN	Figure 184 on page 294
Screw, M3 by 6	XA9-1275-000CN	Figure 185 on page 296
Screw, M3 by 6	XA9-1275-000CN	Figure 186 on page 298

**Table 68. Alphabetical parts list (continued)**

<b>Description</b>	<b>Part number</b>	<b>Figure and page</b>
Screw, M3 by 6	XA9-1275-000CN	Figure 186 on page 298
Screw, M3 by 6	XA9-1275-000CN	Figure 187 on page 299
Screw, M3 by 6	XA9-1275-000CN	Figure 188 on page 300
Screw, M3 by 6	XA9-1275-000CN	Figure 188 on page 300
Screw, M3 by 6	XA9-1275-000CN	Figure 190 on page 302
Screw, M3 by 6	XA9-1275-000CN	Figure 190 on page 302
Screw, M3 by 6	XA9-1275-000CN	Figure 191 on page 303
Screw, M3 by 6	XA9-1275-000CN	Figure 191 on page 303
Screw, M3 by 8	XA9-1276-000CN	Figure 181 on page 288
Screw, M3 by 8	XA9-1276-000-CN	Figure 182 on page 290
Screw, M3 by 8	XA9-1276-000CN	Figure 183 on page 292
Screw, M3 by 8	XA9-1276-000CN	Figure 183 on page 292
Screw, M3 by 8	XA9-1276-000CN	Figure 184 on page 294
Screw, M3 by 8	XA9-1276-000CN	Figure 185 on page 296
Screw, M3 by 8	XA9-1276-000CN	Figure 188 on page 300
Screw, M3 by 8	XA9-1276-000CN	Figure 188 on page 300
Screw, M3 by 8	XA9-1276-000CN	Figure 188 on page 300
Screw, M3 by 8	XA9-1276-000CN	Figure 193 on page 306
Screw, M4 by 10	XA9-1189-000CN	Figure 193 on page 306
Screw, M4 by 8	XA9-0732-000CN	Figure 196 on page 312
Screw, M4 by 8	XA9-0732-000CN	Figure 196 on page 312
Screw, stepped	RS5-9099-000CN	Figure 195 on page 310
Screw, TP M3 by 30	XB6-7303-005	Figure 193 on page 306
Screw, TP, M3 by 6	XB6-7300-605CN	Figure 182 on page 290
Screw, TP, M3 by 6	XB6-7300-609CN	Figure 193 on page 306
Screw, TP, M3 by 8	XB6-7300-805CN	Figure 182 on page 290
Screw, TP, M4 by 12	XA9-1273-000CN	Figure 181 on page 288
Screw, TP, M4 by 6	XB6-7400-000CN	Figure 195 on page 310
Screw, TP, M4 by 6	XB6-7300-607CN	Figure 196 on page 312
Screw, TP, M4 by 6	XB6-7400-607CN	Figure 196 on page 312
Screw, W/W, M3 by 29.5	XA9-0668-000CN	Figure 189 on page 301
Screw, W/W, M3 by 6	XB2-6300-607CN	Figure 197 on page 314
Screw, W/W, M4 by 6	XA9-0265-000CN	Figure 185 on page 296
Screw, W/W, M4 by 6	XA9-0499-000CN	Figure 195 on page 310
Screw, W/W, M5 by 12	XA9-0912-000CN	Figure 196 on page 312
Screws kit	C8085-60512	Figure 200 on page 318
Screws kit	C8085-60512	Figure 202 on page 322
Service cover assembly	RG5-5811-000CN	Figure 199 on page 316
Shutter, laser	RB2-5640-000CN	Figure 183 on page 292
Spring, compression	RS6-2301-000CN	Figure 181 on page 288

**Table 68. Alphabetical parts list (continued)**

<b>Description</b>	<b>Part number</b>	<b>Figure and page</b>
Spring, compression	RS6-2302-000CN	Figure 184 on page 294
Spring, leaf	RB2-5523-000CN	Figure 183 on page 292
Spring, tension	RS6-2285-000CN	Figure 182 on page 290
Spring, tension	RS6-2296-000CN	Figure 183 on page 292
Spring, tension	RS6-2299-000CN	Figure 183 on page 292
Spring, tension	RS6-2298-000CN	Figure 188 on page 300
Spring, tension	RS6-2294-000CN	Figure 188 on page 300
Spring, torsion	RB2-5816-000CN	Figure 189 on page 301
Stacker bin assembly	C4779-60505	Figure 202 on page 322
Stacker controller PCA cover with label	C8085-60501	Figure 203 on page 324
Stacker controller PCA, FWxxxx	C8085-60508	Figure 201 on page 320
Stacker controller PCA, FWxxxx	C8085-60502	Figure 203 on page 324
Stacker door assembly	C4779-60502	Figure 202 on page 322
Stacker plastic kit	C8085-60505	Figure 202 on page 322
Stacker power supply	C8085-60504	Figure 203 on page 324
Stapler bin assembly	C4788-60513	Figure 200 on page 318
Stapler controller PCA cover with label	C8085-60507	Figure 201 on page 320
Stapler door assembly with label	C8085-60506	Figure 201 on page 320
Stapler plastic kit	C8085-60523	Figure 200 on page 318
Stapler unit	C8085-60522	Figure 200 on page 318
Stapler/stacker packaging kit	C8085-60513	Figure 200 on page 318
Stapler/stacker packaging kit	C8085-60513	Figure 200 on page 318
Stapler/stacker power supply	C8085-60509	Figure 201 on page 320
Strap, rock block	RB2-5655-000CN	Figure 179 on page 284
Switch assembly	RG5-6206-000CN	Figure 196 on page 312
Switch cable	RG5-5770-000CN	Figure 187 on page 299
Tape cover	RB2-5653-000CN	Figure 179 on page 284
Tape, cover	RB2-5653-000CN	Figure 181 on page 288
Toner sensor contact	RG5-5719-000CN	Figure 185 on page 296
Toner contact assembly	RB2-5717-000CN	Figure 183 on page 292
Torque, limiter	RB2-5759-000CN	Figure 182 on page 290
Transfer guide assembly	RG5-5651-000CN	Figure 183 on page 292
Transfer roller assembly	RG5-5652-000CN	Figure 192 on page 304
Tray 1 assembly	RG5-5809-000CN	Figure 199 on page 316
Tray, face-up	RB2-5690-000CN	Figure 179 on page 284
Upper cable guide assembly	RG5-5723-000CN	Figure 184 on page 294
Vertical transfer assembly	RG5-6225-000CN	Figure 195 on page 310
Wings kit	C8085-60510	Table 64 on page 319



## Numerical parts list

**Table 69. Numerical parts list**

Part number	Description	Figure and page
C4779-60502	Stacker door assembly	Figure 202 on page 322
C4779-60505	Stacker bin assembly	Figure 202 on page 322
C4788-60510	LED PCA	Figure 200 on page 318
C4788-60510	LED PCA	Figure 202 on page 322
C4788-60512	Face-up bin	Figure 200 on page 318
C4788-60512	Face-up bin	Figure 202 on page 322
C4788-60513	Stapler bin assembly	Figure 200 on page 318
C4788-60514	Interlock switch	Figure 201 on page 320
C4788-60514	Interlock switch	Figure 202 on page 322
C4788-60515	Casters stationary	Figure 201 on page 320
C4788-60515	Casters stationary	Figure 203 on page 324
C4788-60517	Safety switch assembly	Figure 201 on page 320
C4788-60527	Paper stopper clip kit	Figure 201 on page 320
C4788-60527	Paper stopper clip kit	Figure 203 on page 324
C4788-60530	Optical sensors kit	Figure 200 on page 318
C4788-60530	Optical sensors kit	Figure 202 on page 322
C8084A	3000-sheet stacker	Figure 202 on page 322
C8085-60500	Flipper assembly	Figure 200 on page 318
C8085-60500	Flipper assembly	Figure 202 on page 322
C8085-60500	Offset module assembly	Figure 203 on page 324
C8085-60501	Paper path assembly	Figure 200 on page 318
C8085-60501	Paper path assembly	Figure 202 on page 322
C8085-60501	Stacker controller PCA cover with label	Figure 203 on page 324
C8085-60502	Accumulator assembly	Figure 201 on page 320
C8085-60502	Stacker controller PCA, FWxxxx	Figure 203 on page 324
C8085-60503	Carriage assembly	Figure 201 on page 320
C8085-60504	Back cover	Figure 200 on page 318
C8085-60504	Back cover	Figure 202 on page 322
C8085-60504	Stacker power supply	Figure 203 on page 324
C8085-60505	Front cover	Figure 200 on page 318
C8085-60505	Front cover	Figure 202 on page 322
C8085-60505	Stacker plastic kit	Figure 202 on page 322
C8085-60506	Stapler door assembly with label	Figure 201 on page 320
C8085-60507	Stapler controller PCA cover with label	Figure 201 on page 320

**Table 69. Numerical parts list (continued)**

<b>Part number</b>	<b>Description</b>	<b>Figure and page</b>
C8085-60508	Stacker controller PCA, FWxxxx	Figure 203 on page 324
C8085-60509	Stapler/stacker power supply	Figure 201 on page 320
C8085-60510	Wings kit	Figure 202 on page 322
C8085-60511	Casters adjustable with E-clips	Figure 201 on page 320
C8085-60511	Casters adjustable with E-clips	Figure 203 on page 324
C8085-60512	Screws kit	Figure 200 on page 318
C8085-60512	Screws kit	Figure 202 on page 322
C8085-60513	Stapler/stacker packaging kit	Figure 200 on page 318
C8085-60513	Stapler/stacker packaging kit	Figure 202 on page 322
C8085-60515	Flipper ribbon cable	Figure 201 on page 320
C8085-60515	Flipper ribbon cable	Figure 203 on page 324
C8085-60516	Foot cover	Figure 200 on page 318
C8085-60516	Foot cover	Figure 202 on page 322
C8085-60517	Jet-link cable and power cord assembly	Figure 201 on page 320
C8085-60517	Jet-link cable and power cord assembly	Figure 203 on page 324
C8085-60520	Bubbled cover	Figure 200 on page 318
C8085-60520	Bubbled cover	Figure 202 on page 322
C8085-60522	Stapler unit	Figure 201 on page 320
C8085-60523	Stapler plastic kit	Figure 201 on page 320
C8085A	3000-sheet stapler/stacker	Figure 200 on page 318
RB1-6421-000CN	Foot	Figure 182 on page 290
RB2-5515-020CN	Rail, front fusing	Figure 183 on page 292
RB2-5516-000CN	Rail, back fusing	Figure 183 on page 292
RB2-5517-000CN	Mount, front fusing	Figure 183 on page 292
RB2-5518-000CN	Mount, back fusing	Figure 183 on page 292
RB2-5522-000CN	Guide, pickup	Figure 182 on page 290
RB2-5523-000CN	Spring, leaf	Figure 183 on page 292
RB2-5525-000CN	Cover, front inside	Figure 182 on page 290
RB2-5526-000CN	Guide, Cartridge	Figure 182 on page 290
RB2-5528-000CN	Link, connect	Figure 182 on page 290
RB2-5529-000CN	Foot	Figure 182 on page 290
RB2-5531-000CN	Cover, blanking	Figure 182 on page 290
RB2-5547-000CN	Collar	Figure 182 on page 290
RB2-5570-000CN	Mount, damper	Figure 182 on page 290
RB2-5607-000CN	Cover, fan	Figure 184 on page 294
RB2-5639-000CN	Arm, shutter	Figure 183 on page 292
RB2-5640-000CN	Shutter, laser	Figure 183 on page 292
RB2-5652-000CN	Bushing	Figure 179 on page 284

**Table 69. Numerical parts list (continued)**

<b>Part number</b>	<b>Description</b>	<b>Figure and page</b>
RB2-5653-000CN	Tape cover	Figure 179 on page 284
RB2-5653-000CN	Tape, cover	Figure 181 on page 288
RB2-5654-000CN	Arm, front cover	Figure 182 on page 290
RB2-5655-000CN	Strap, rock block	Figure 179 on page 284
RB2-5656-000CN	Pin, fusing shutter	Figure 179 on page 284
RB2-5659-000CN	Cover, right, top	Figure 179 on page 284
RB2-5660-000CN	Cover, left, top	Figure 179 on page 284
RB2-5661-000CN	Rod, switch	Figure 184 on page 294
RB2-5662-000CN	Cover, right	Figure 181 on page 288
RB2-5664-000CN	Cover, cable	Figure 181 on page 288
RB2-5675-000CN	Cap, right cover	Figure 179 on page 284
RB2-5675-000CN	Cap, right cover	Figure 179 on page 284
RB2-5676-000CN	Cover, multipurpose blanking	Figure 179 on page 284
RB2-5682-000CN	Cover, right rail	Figure 179 on page 284
RB2-5683-000CN	Cover, left rail	Figure 179 on page 284
RB2-5684-000CN	Cover, right back	Figure 179 on page 284
RB2-5685-000CN	Cover, left back	Figure 179 on page 284
RB2-5687-000CN	Cover, left lower	Figure 179 on page 284
RB2-5689-000CN	Cover, right lower	Figure 179 on page 284
RB2-5690-000CN	Tray, face-up	Figure 179 on page 284
RB2-5697-000CN	Cover, right door	Figure 182 on page 290
RB2-5700-000CN	Latch, roller-action	Figure 179 on page 284
RB2-5701-000CN	Cover, operation panel, 100 - 127 V	Figure 179 on page 284
RB2-5703-000CN	Control panel overlay	Figure 179 on page 284
RB2-5717-000CN	Toner contact assembly	Figure 183 on page 292
RB2-5759-000CN	Torque, limiter	Figure 182 on page 290
RB2-5813-000CN	Knob, cassette	Figure 189 on page 301
RB2-5816-000CN	Spring, torsion	Figure 189 on page 301
RB2-5828-000CN	Knob, guide	Figure 191 on page 303
RB2-5845-000CN	Knob, jam removal	Figure 182 on page 290
RB2-6006-000CN	Frame, delivery	Figure 180 on page 286
RB2-6035-000CN	Lever, sensor	Figure 193 on page 306
RB2-6037-000CN	Flag, sensor	Figure 193 on page 306
RB2-6077-000CN	Lever, switch	Figure 187 on page 299
RB2-6491-000CN	Cover, left upper	Figure 179 on page 284
RB2-6541-000CN	Rivet, case	Figure 199 on page 316
RB2-7648-000CN	Cover, front	Figure 195 on page 310
RB2-7649-000CN	Cover, back	Figure 195 on page 310
RB2-7650-000CN	Cover, back right	Figure 195 on page 310
RB2-7651-000CN	Cover, back left	Figure 195 on page 310

**Table 69. Numerical parts list (continued)**

<b>Part number</b>	<b>Description</b>	<b>Figure and page</b>
RB2-7652-000CN	Cover, upper	Figure 195 on page 310
RB2-7678-000CN	Caster	Figure 196 on page 312
RB2-7679-000CN	Caster	Figure 196 on page 312
RB2-7709-000CN	Caster	Figure 195 on page 310
RB2-7762-000CN	Lever, custom	Figure 195 on page 310
RF5-3338-000CN	Roller, feed retard	Figure 182 on page 290
RF5-3338-000CN	Roller, feed retard	Figure 195 on page 310
RF5-3340-000CN	Roller, PIC	Figure 182 on page 290
RF5-3644-000CN	Cover, back	Figure 195 on page 310
RF5-3645-000CN	Cover, left	Figure 195 on page 310
RF5-6250-000CN	Power supply assembly	Figure 198 on page 315
RG5-5468-000CN	Memory controller PCB assembly	Figure 194 on page 308
RG5-5635-000CN	Cassette	Figure 189 on page 301
RG5-5643-000CN	Delivery feed assembly	Figure 193 on page 306
RG5-5645-000CN	Delivery cross member assembly	Figure 193 on page 306
RG5-5646-000CN	Left door and diverter	Figure 180 on page 286
RG5-5647-000CN	Face-up delivery assembly	Figure 180 on page 286
RG5-5648-000CN	Damper assembly	Figure 180 on page 286
RG5-5649-000CN	Delivery PCB assembly	Figure 193 on page 306
RG5-5649-000CN	Delivery PCB assembly	Figure 194 on page 308
RG5-5650-000CN	Roller, transfer	Figure 192 on page 304
RG5-5651-000CN	Transfer guide assembly	Figure 183 on page 292
RG5-5652-000CN	Transfer roller assembly	Figure 192 on page 304
RG5-5653-000CN	Holder, transfer	Figure 192 on page 304
RG5-5654-000CN	Guide, transfer	Figure 192 on page 304
RG5-5656-000CN	Drum feed drive assembly	Figure 186 on page 298
RG5-5659-000CN	Fuser delivery drive assembly	Figure 187 on page 299
RG5-5663-000CN	Registration assembly	Figure 191 on page 303
RG5-5677-000CN	Paper input unit (PIU)	Figure 190 on page 302
RG5-5678-000CN	Feed PCB assembly	Figure 194 on page 308
RG5-5679-000CN	Pickup cable	Figure 190 on page 302
RG5-5684-000CN	Fuser assembly 110 V	Figure 183 on page 292
RG5-5696-000CN	Fuser assembly 220 V	Figure 183 on page 292
RG5-5699-000CN	End paper sensor assembly	Figure 184 on page 294
RG5-5700-000CN	Fusing jam clearing assembly	Figure 182 on page 290
RG5-5701-000CN	Back cover assembly	Figure 179 on page 284
RG5-5702-000CN	Front cover assembly	Figure 179 on page 284
RG5-5703-000CN	Control panel assembly	Figure 179 on page 284
RG5-5704-000CN	Latch mount assembly	Figure 184 on page 294
RG5-5705-000CN	Left upper cover assembly	Figure 179 on page 284

**Table 69. Numerical parts list (continued)**

<b>Part number</b>	<b>Description</b>	<b>Figure and page</b>
RG5-5709-000CN	Cartridge front pressure assembly	Figure 184 on page 294
RG5-5710-000CN	Cartridge back pressure assembly	Figure 184 on page 294
RG5-5715-000CN	Right rail assembly	Figure 184 on page 294
RG5-5718-000CN	Guide rail upper assembly	Figure 182 on page 290
RG5-5719-000CN	Toner sensor contact	Figure 185 on page 296
RG5-5721-000CN	Front inside cover assembly	Figure 182 on page 290
RG5-5722-000CN	Main cable harness holder assembly	Figure 185 on page 296
RG5-5723-000CN	Upper cable guide assembly	Figure 184 on page 294
RG5-5724-000CN	Fusing connector holder assembly	Figure 183 on page 292
RG5-5725-000CN	Back cable holder assembly	Figure 185 on page 296
RG5-5727-000CN	Inlet assembly	Figure 185 on page 296
RG5-5728-000CN	HVT PCB assembly	Figure 185 on page 296
RG5-5729-000CN	Fan, #5	Figure 184 on page 294
RG5-5730-000CN	Power supply assembly	Figure 185 on page 296
RG5-5731-000CN	Power supply assembly	Figure 185 on page 296
RG5-5737-000CN	Right cover assembly	Figure 181 on page 288
RG5-5740-000CN	Right cover knob assembly	Figure 181 on page 288
RG5-5741-000CN	Cartridge lifter assembly	Figure 188 on page 300
RG5-5746-000CN	Control lever assembly	Figure 182 on page 290
RG5-5759-000CN	Fan connecting cable	Figure 185 on page 296
RG5-5763-000CN	Multi-purpose cable	Figure 181 on page 288
RG5-5764-000CN	Multi-purpose grounding cable	Figure 181 on page 288
RG5-5770-000CN	Switch cable	Figure 187 on page 299
RG5-5771-000CN	Fusing power cable	Figure 183 on page 292
RG5-5772-000CN	Fuser high-voltage cable	Figure 183 on page 292
RG5-5778-000CN	DC controller PCB assembly	Figure 194 on page 308
RG5-5779-000CN	Connector assembly	Figure 185 on page 296
RG5-5809-000CN	Tray 1 assembly	Figure 199 on page 316
RG5-5811-000CN	Service cover assembly	Figure 199 on page 316
RG5-5826-000CN	Laser/scanner assembly	Figure 184 on page 294
RG5-6204-000CN	Rail guide, right assembly	Figure 196 on page 312
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RS5-0708-000CN	Gear, 21T	Figure 183 on page 292
RS5-9099-000CN	Screw, stepped	Figure 195 on page 310
RS6-2285-000CN	Spring, tension	Figure 182 on page 290
RS6-2294-000CN	Spring, tension	Figure 188 on page 300
RS6-2296-000CN	Spring, tension	Figure 183 on page 292
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RS6-2299-000CN	Spring, tension	Figure 183 on page 292
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XA9-0596-000CN	Screw, M3 by 6	Figure 188 on page 300
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XA9-0732-000CN	Screw, RS, M4 by 8	Figure 195 on page 310
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XA9-1275-000CN	Screw, RS, M3 by 6	Figure 183 on page 292
XA9-1275-000CN	Screw, RS, M3 by 6	Figure 183 on page 292
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