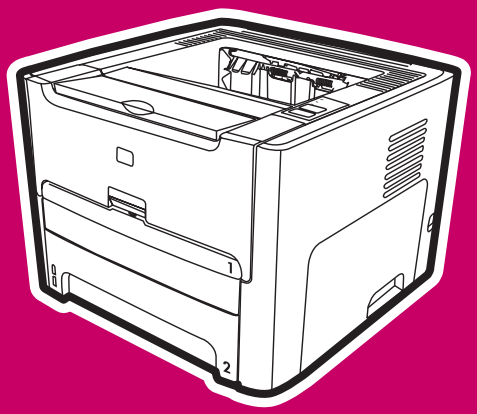

invent

service

hp LaserJet 1160 printer

hp LaserJet 1320 series printer

HP LaserJet 1160 printer and HP LaserJet 1320 Series printer

Service Manual

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Part number Q5927-90901

Edition 2, 9/2004

Safety information

WARNING!

Potential Shock Hazard

Always follow basic safety precautions when using this product to reduce risk of injury from fire or electric shock.

Read and understand all instructions in the user guide.

Observe all warnings and instructions marked on the product.

Use only a grounded electrical outlet when connecting the printer to a power source. If you do not know whether the outlet is grounded, check with a qualified electrician.

Do not touch the contacts on the end of any of the sockets on the printer. Replace damaged cords immediately.

Unplug this product from wall outlets before cleaning.

Do not install or use this product near water or when you are wet.

Install the product securely on a stable surface.

Install the product in a protected location where no one can step on or trip over the power cord and where the power cord will not be damaged.

If the product does not operate normally, see the online user guide.

Refer all servicing questions to qualified personnel.

Information regarding FCC Class B, Parts 15 and 68 requirements can be found in the user guide.

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Printer configurations

The HP LaserJet 1160 printer is only available in the base configuration.

The HP LaserJet 1320 Series printer is available in several configurations. The letters that follow the printer name indicate the differences between the configurations. Each letter refers to a specific feature. Use the information in this section to determine which features your model has.

Table 1-1. Feature designations for HP LaserJet 1320 Series printers

Printer Model	Description
HP LaserJet 1160	This is the base model. It includes an IEEE-1284B parallel port and a universal serial bus (USB) port.
HP LaserJet 1320	This is the base model. It includes an IEEE-1284B parallel port and a universal serial bus (USB) port.
HP LaserJet 1320n	The printer includes the same features as HP LaserJet 1320 with an internal HP Jetdirect network port instead of the IEEE-1284B parallel port
HP LaserJet 1320tn	This printer includes the same features as HP LaserJet 1320n and adds a 250-sheet input tray.
HP LaserJet 1320nw	This printer includes the same features as HP LaserJet 1320t and adds integrated 802.11b/g wireless connectivity. **NOTE** For more information about this product, see the HP LaserJet 1320nw wireless printer user guide.

HP LaserJet 1160 and HP LaserJet 1320 Series printers base models

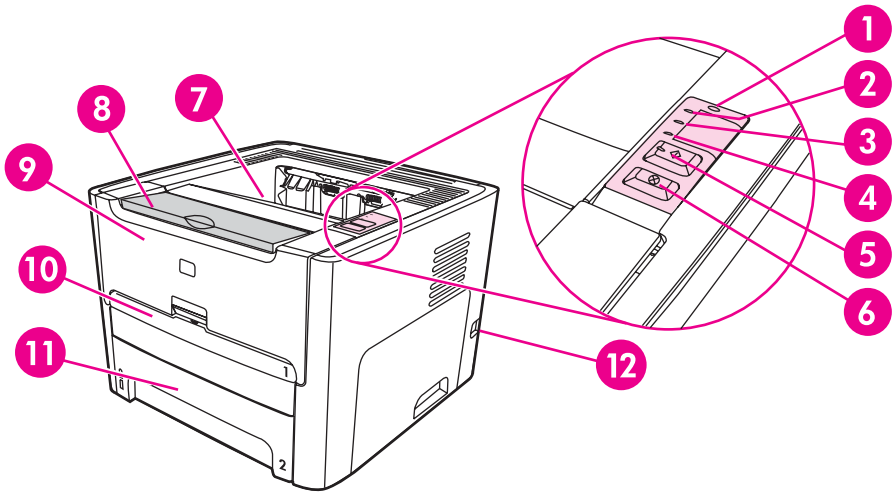

Figure 1-1. **Front/right-side view**

1 Wireless light (HP LaserJet 1320nw printer only)
2 Toner light
3 Attention light
4 Ready light
5 Go button and light
6 Cancel button
7 Output bin
8 Media support
9 Print-cartridge door
10 Single-sheet priority input slot (tray 1)
11 Main input tray (tray 2)
12 On/off switch

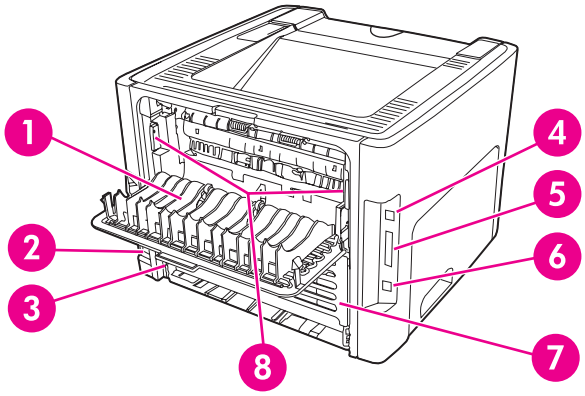

Figure 1-2. **Rear/left-side view**

1 Straight-through output door
2 Power receptacle
3 Automatic two-sided printing media-size selector
4 USB port
5 Parallel port (HP LaserJet 1160 and HP LaserJet 1320 printers)
6 Internal HP Jetdirect network port (HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers)
7 Rear automatic two-sided path door
8 Jam-clearing levers

Features

The following lists describe the features of HP LaserJet 1160 and HP LaserJet 1320 Series printers.

HP LaserJet 1160 printer

- 20 ppm (Letter), 19 ppm (A4)
- First page out in as little as 8.5 seconds
- 1200 dpi effective output quality (600 x 600 dpi with Resolution Enhancement technology [REt] with FastRes 1200)
- 250-sheet enclosed input tray (tray 2)
- Single-sheet priority input slot (tray 1)
- EconoMode (saves toner)
- The ability to print watermarks, booklets, and multiple pages per sheet (N-up), and to print the first page on different media from the remainder of the document
- 16 MB RAM
- 2,500-page print cartridge
- Host-based and PCL 5e (printer automatically determines and switches to the appropriate language)
- Compatible with USB 2.0 specifications
- IEEE-1284B parallel port
- Windows® 98, Windows Millennium Edition (Me), Windows NT® (parallel and printer driver only), Windows 2000, Windows Server 2003 (printer driver only), Windows XP 32-bit, Windows XP 64-bit (printer driver only)
- Mac OS 9.2 (printer driver only) and OS X V10.1.
- Power switch
- HP Toolbox (provides printer status information, troubleshooting information, and printer configuration information)
- 26 HP PCL fonts

HP LaserJet 1320 Series printer

- 22 ppm (letter), 21 ppm (A4)
- First page out in as little as 8.5 seconds
- ProRes 1200 (provides fine-line detail at 1200 x 1200 dpi)
- 600 dpi (provides 600 x 600 dpi output with Resolution Enhancement Technology [REt] for improved text)
- 250-sheet enclosed input tray (tray 2)
- Single-sheet priority input slot (tray 1)
- Optional additional 250-sheet input tray (tray 3) is available
- Automatic two-sided (duplex) printing

- EconoMode (saves toner)
- The ability to print watermarks, booklets, and multiple pages per sheet (N-up), and to print the first page on different media from the remainder of the document
- 16 MB RAM
- Memory is upgradeable to 144 MB
- 2,500- or 6,000-page print cartridge
- PCL 6, PCL 5e, and HP postscript Level 2 emulation (printer automatically determines and switches to the appropriate language)
- Compatible with USB 2.0 specifications
- IEEE-1284B parallel port
- Windows 98, Windows Me, Windows NT (parallel, network, and printer driver only), Windows 2000, Windows Server 2003 (printer driver only), Windows XP 32-bit, Windows XP 64-bit (printer driver only)
- Mac OS 9.1 and later (printer driver only)
- Mac OS X V10.1 (printer driver only), V10.2 and later
- Power switch
- HP Toolbox (provides printer status information, troubleshooting information, and configuration information)
- 46 HP PCL fonts
- 35 HP postscript fonts

HP LaserJet 1320n printer

- The HP LaserJet 1320n printer includes all of the features of the HP LaserJet 1320 printer.
- The HP LaserJet 1320n printer substitutes an internal HP Jetdirect network port for the IEEE-1284B parallel port found on HP LaserJet 1320 printers.

HP LaserJet 1320tn printer

- The HP LaserJet 1320tn printer includes all of the features of the HP LaserJet 1320n printer.
- The HP LaserJet 1320tn printer adds an optional 250-sheet tray (tray 3).

HP LaserJet 1320nw printer

- The HP LaserJet 1320nw printer includes all of the features of the HP LaserJet 1320n printer.
- The HP LaserJet 1320nw printer adds integrated 802.11b/g wireless connectivity

Specifications

Physical specifications

Table 1-2. Physical specifications

Dimensions	• Width: 350 mm (16.8 inches) • Depth: 352 mm (13.9 inches) • Height: 256 mm (10.0 inches)
Weight (2,500-page cartridge installed)	HP LaserJet 1160 printer: 10.7 kg (23.6 lb) HP LaserJet 1320 Series printer: 11.3 kg (24.9 lb)

NOTE Values are current as of April 1, 2004. Values are subject to change without notice. See http://www.hp.com/support/lj1160/ or http://www.hp.com/support/lj1320/ for current information.

Printer capacities and ratings

Table 1-3. Printer capacities and ratings

Print speed	HP LaserJet 1160 printer: • 20 ppm (Letter), 19 ppm (A4) • First page out in as few as 8.5 seconds HP LaserJet 1320 Series printer: • 22 ppm (Letter), 21 ppm (A4) • First page out in as few as 8.5 seconds
Main input tray (tray 2) capacity	250 sheets of 75 g/m^2 (20 lb) media
Single-sheet priority input slot (tray 1) capacity	1 sheet of media up to 163 g/m^2 (43 lb) media or 1 envelope
Optional input tray (tray 3) capacity (HP LaserJet 1320 Series printer or Q2485A)	250 sheets of 75 g/m^2 (20 lb) media
Top (face down) output bin capacity	125 sheets of regular weight 75 g/m^2 (20 lb) paper
Minimum media size	76 x 127 mm (3 x 5 inches)
Maximum media size	216 x 356 mm (8.5 x 14 inches)
Media weight	Output bin: 60 to 105 g/m^2 (16 to 28 lb) Straight through media path: 60 to 163 g/m^2 (16 to 43 lb)
Base memory	16 MB of RAM

Table 1-3. Printer capacities and ratings (continued)

Memory upgrade (HP LaserJet 1320 Series printer only)	One DIMM slot available for a 16, 32, 64, or 128 MB RAM DIMM
Print resolution	• **1200 dpi**: (HP LaserJet 1320 Series printer only) This setting uses ProRes 1200 to provide fine-line detail at 1200 x 1200 dpi. • **1200 effective dpi**: This setting provides 1200 dpi effective output quality using FastRes 1200. • **600 dpi**: This setting provides 600 x 600 dpi output with Resolution Enhancement technology (REt) for improved text.
Duty cycle	• 10,000 single-sided pages per month (maximum) • 1,000 single-sided pages per month (average)
PCL	PCL 5e, PCL 6
HP postscript (HPLJ 1320)	Level 2 emulation

Memory specifications

Table 1-4. Memory

Base memory	16 MB RAM
Memory upgrade	100-pin, 66 MHz minimum speed

Port availability

Table 1-5. Port availability

USB	Compatible with USB 2.0 specifications
Network (HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers only)	RJ-45, Ethernet 10/100
Wireless (HP LaserJet 1320nw printer only)	802.11b/g
Parallel (HP LaserJet 1160 and HP LaserJet 1320 printers only)	• IEEE-1284B receptacle • Set host computer to ECP

Electrical specifications

WARNING! Power requirements are based on the country/region where the printer is sold. Do not convert operating voltages. Doing so might damage the printer and void the product warranty.

Table 1-6. Electrical specifications, HP LaserJet 1160 printer

Power requirements, 110-127 V models	110-127 V (+/-10%), 50/60 Hz (+/-2)
Power requirements, 220-240 V models	220-240 V (+/-10%), 50/60 Hz (+/-2 Hz)
Power consumption	• During printing (20 ppm): 340 watts (average) • During Ready (Standby) and PowerSave (instant-on fuser technology) modes: 4 watts • Off: <1 watt
Minimum recommended circuit capacity for typical product	• 4.5 amps at 115 V • 2.6 amps at 230 V

Table 1-7. Electrical specifications, HP LaserJet 1320 printer

Power requirements, 110-127 V models	110-127 V (+/-10%), 50/60 Hz (+/-2)
Power requirements, 220-240 V models	220-240 V (+/-10%), 50/60 Hz (+/-2 Hz)
Power consumption	• During printing (22 ppm): 340 watts (average) • During Ready (Standby) and PowerSave (instant-on fuser technology) modes: 6 watts • Off: <1 watt
Minimum recommended circuit capacity for typical product	• 4.5 amps at 115 V • 2.6 amps at 230 V

Table 1-8. Electrical specifications, HP LaserJet 1320n printer

Power requirements, 110-127 V models	110-127 V (+/-10%), 50/60 Hz (+/-2)
Power requirements, 220-240 V models	220-240 V (+/-10%), 50/60 Hz (+/-2 Hz)
Power consumption	• During printing (22 ppm): 345 watts (average) • During Ready (Standby) and PowerSave (instant-on fuser technology) modes: 6 watts • Off: <1 watt
Minimum recommended circuit capacity for typical product	• 4.5 amps at 115 V • 2.6 amps at 230 V

Table 1-9. Electrical specifications, HP LaserJet 1320nw printer

Power requirements, 110-127 V models	110-127 V (+/-10%), 50/60 Hz (+/-2)
Power requirements, 220-240 V models	220-240 V (+/-10%), 50/60 Hz (+/-2 Hz)
Power consumption	• During printing (22 ppm): 345 watts (average) • During Ready (Standby) and PowerSave (instant-on fuser technology) modes: 6 watts • Off: <1 watt
Minimum recommended circuit capacity for typical product	• 4.5 amps at 115 Power requirements (110) • 2.6 amps at 230 Power requirements (110)

NOTE Values are current as of April 1, 2004. Values are subject to change without notice. See http://www.hp.com/support/lj1160/ or http://www.hp.com/support/lj1320/ for current information.

NOTE The power reported is the highest value measured for monochrome printing using all standard voltages.

NOTE The default time from Ready mode to PowerSave mode and the recovery time from PowerSave mode to the start of printing is negligible (less than 10 seconds) because of the instant-on fuser technology.

NOTE The heat dissipation in Ready mode is 20 BTU/hour.

Acoustic emissions

Declared per ISO 9296

Table 1-10. Acoustic emissions, HP LaserJet 1160 printer

Sound-power level	Printing (20 ppm): L_{WAd} = 6.2 Bels A and 62 dB (A) Ready and PowerSave: essentially inaudible
Sound-pressure level bystander position	Printing (20 ppm): L_{pAm} = 48 dB (A) Ready and PowerSave: essentially inaudible

Table 1-11. Acoustic emissions, HP LaserJet 1320 Series printer

Sound-power level	Printing (22 ppm): L_{WAd} = 6.2 Bels A and 62 dB (A) Ready and PowerSave: essentially inaudible
Sound-pressure level bystander position	Printing (22 ppm): L_{pAm} = 48 dB (A) Ready and PowerSave: essentially inaudible

NOTE Values are current as of April 1, 2004. Values are subject to change without notice. See http://www.hp.com/support/lj1160/ or http://www.hp.com/support/lj1320/ for current information.

NOTE The configuration that was tested to arrive at these values as an HP LaserJet 1320 printer (base model) with its standard tray, using A4 paper and simplex continuous printing.

Environmental specifications

Table 1-12. Environmental specifications

Operating environment	Printer plugged into an ac outlet: • Temperature: 10°C to 32.5°C (50°F to 90.5°F) • Humidity: 20% to 80% (no condensation)
Storage environment	Printer unplugged from an AC outlet: • Temperature: 0°C to 40°C (32°F to 104°F) • Humidity: 10% to 80% (no condensation)

NOTE Values are current as of April 1, 2004. Values are subject to change without notice. See http://www.hp.com/support/lj1160/ or http://www.hp.com/support/lj1320/ for current information.

Print media specifications

HP LaserJet printers produce excellent print quality. The printer accepts a variety of print media, such as cut-sheet paper (including recycled paper), envelopes, labels, transparencies, and custom-size paper. Properties such as weight, grain, and moisture content are important factors affecting printer performance and output quality.

The printer can use a variety of paper and other print media in accordance with the guidelines in this guide. Media that does not meet these guidelines might cause the following problems:

- Poor print quality
- Increased jams
- Premature wear on the printer, requiring repair

For best results, use only HP-brand paper and print media. Hewlett-Packard Company cannot recommend the use of other brands. Because they are not HP products, HP cannot influence or control their quality.

It is possible for media to meet all of the guidelines in this user guide and still not produce satisfactory results. This might be the result of incorrect handling, unacceptable temperature and humidity levels, or other variables over which HP has no control.

Before you purchase a large quantity of media, make sure that it meets the requirements specified in this user guide and in *HP LaserJet Printer Family Media Guide*. The guidelines can be downloaded from http://www.hp.com/support/ljpaperguide/. Always test media before you purchase a large quantity.

CAUTION Using media that does not meet Hewlett-Packard's specifications might cause problems for the printer, requiring repair. This repair is not covered by the Hewlett-Packard warranty or service agreements.

Supported media sizes

The following are the supported media sizes:

- **Minimum**: 76 x 127 mm (3 x 5 inches)
- **Maximum**: 216 x 356 mm (8.5 x 14 inches)

Also see Printer capacities and ratings

Hewlett-Packard limited warranty statement

HP PRODUCT	DURATION OF LIMITED WARRANTY
HP LaserJet 1160 and HP LaserJet 1320 Series printers	One year from date of purchase

HP warrants to you, the end-user customer, that HP hardware and accessories will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or equivalent in performance to new.

HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software which does not execute its programming instructions due to such defects.

HP does not warrant that the operation of HP products will be uninterrupted or error free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.

HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance.

HP's limited warranty is valid in any country/region or locality where HP has a support presence for this product and where HP has marketed this product. The level of warranty service you receive may vary according to local standards. HP will not alter form, fit or function of the product to make it operate in a country/region for which it was never intended to function for legal or regulatory reasons. TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE. Some countries/regions, states or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from country/region to country/region, state to state, or province to province.

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Print cartridge limited warranty

NOTE The following warranty applies to the print cartridge that came with this printer.

This HP product is warranted to be free from defects in materials and workmanship. This warranty does not apply to products that (a) have been refilled, refurbished, remanufactured or tampered with in any way, (b) experience problems resulting from misuse, improper storage, or operation outside of the published environmental specifications for the printer product or (c) exhibit wear from ordinary use. To obtain warranty service, please return the product to place of purchase (with a written description of the problem and the print samples) or contact HP customer support. At HP's option, HP will either replace products that prove to be defective or refund your purchase price. TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTY IS EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT ALLOWED BY LOCAL LAW, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR DIRECT, SPECIAL INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

HP LaserJet printing supplies

In many countries/regions, this product's printing supplies (for example, the print cartridge and fuser) can be returned to HP through the HP Printing Supplies Environmental Program. This easy-to-use and free take-back program is available in more than 30 countries/regions. Multilingual program information and instructions are included in every new HP LaserJet print-cartridge and supplies package.

HP Printing Supplies Returns and Recycling Program Information

Since 1992, HP has offered HP LaserJet supplies return and recycling free of charge in the world market where HP LaserJet supplies are sold. Postage-paid and pre-addressed labels are included within the instruction guide in most HP LaserJet print cartridge boxes. Labels and bulk boxes are also available through the Web site at http://www.hp.com/recycle. More than 10 million HP LaserJet print cartridges were recycled globally in 2002 through the HP Planet Partners supplies recycling program. This record number represents 26 million pounds of print cartridge materials that were diverted from landfills. Worldwide, HP recycled an average of 80% of the print cartridge by weight, consisting primarily of plastic and metals. Recycled plastics and metals are used to make new products, such as HP products, plastic trays, and spools. The remaining materials are disposed of in an environmentally responsible manner.

- **U.S. returns** For a more environmentally responsible return of used cartridges and supplies, HP encourages the use of bulk returns. Simply bundle two or more cartridges together and use the single, postage-paid, pre-addressed UPS label that is supplied in the package. For more information in the U.S., call 800-340-2445 or visit the HP LaserJet Supplies Web site at http://www.hp.com/recycle.
- **Non-U.S. returns** Non-U.S. customers should call the local HP Sales and Service Office or visit http://www.hp.com/recycle for further information regarding availability of the HP Supplies Returns and Recycling Program.
- **Material Safety Data Sheets (MSDSs)** For more information regarding toner safety, visit the http://www.hp.com/go/msds Web site.

Declaration of Conformity statements

Declaration of Conformity
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:	Hewlett-Packard Company
Manufacturer's Address:	11311 Chinden Boulevard Boise, Idaho 83714-1021, USA

declares that the product

Product Name:	HP LaserJet 1160 printer
Regulatory Model [3]:	BOISB-0402-02
Product Options:	ALL

conforms to the following Product Specifications:

Safety:	IEC 60950:1999 / EN 60950:2000 IEC 60825-1:1993 +A1:1997 +A2:2001 / EN 60825-1:1994 +A11:1996 +A2:2001 (Class 1 Laser/LED Product) GB4943-2001
EMC:	CISPR 22:1997 / EN 55022:1998 Class B[1] EN 61000-3-2:2000 EN 61000-3-3:1995 / A1 EN 55024:1998 FCC Title 47 CFR, Part 15 Class B[2] / ICES-003, Issue 3 GB9254-1998, GB17625.1-1998 / CNS13438

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC, and carries the CE-marking accordingly.

1) The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.

2) This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two Conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

3) For regulatory purposes, this product is assigned a Regulatory model number. This number should not be confused with the marketing name (HP LaserJet 1160 printer) or the product number (Q5933A).

Boise, Idaho 83714, USA

30 April 2004

For Regulatory Topics ONLY, contact:

Australia Contact:	Product Regulations Manager, Hewlett-Packard Australia Ltd., 31-41 Joseph Street, Blackburn, Victoria 3130, Australia
European Contact:	Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Straße 140, Böblingen, D-71034, Germany (FAX: +49-7031-14-3143)
USA Contact:	Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, Idaho 83707-0015, USA (Phone: 208-396-6000)

Declaration of Conformity
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:	Hewlett-Packard Company
Manufacturer's Address:	11311 Chinden Boulevard Boise, Idaho 83714-1021, USA

declares that the product

Product Name [4]:	HP LaserJet 1320 Series printer, HP LaserJet 1320n printer, HP LaserJet 1320tn printer, HP LaserJet 1320nw printer
Regulatory Model [3]:	BOISB-0402-00/BOISB-0402-01 Including Q5931A - Optional 250-Sheet Input Tray
Product Options:	ALL

conforms to the following Product Specifications:

Safety:	IEC 60950:1999 / EN 60950:2000 IEC 60825-1:1993 +A1:1997 +A2:2001 / EN 60825-1:1994 +A11:1996 +A2:2001 (Class 1 Laser/LED Product) GB4943-2001
EMC:	CISPR 22:1997 / EN 55022:1998 Class B[1] EN 61000-3-2:2000 EN 61000-3-3:1995 / A1 EN 55024:1998 FCC Title 47 CFR, Part 15 Class B[2] / ICES-003, Issue 3 GB9254-1998, GB17625.1-1998 / CNS13438

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC, and carries the CE-marking accordingly.

1) The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.

2) This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two Conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

3) For regulatory purposes, this product is assigned a Regulatory model number. This number should not be confused with the marketing name (HP LaserJet 1320 Series printers) or the product numbers (Q5927A, Q5928A, Q5929A, and Q5930A).

4) Regulatory information regarding radio module approvals for the HP LaserJet 1320nw (Regulatory Model Number: BOISB-0402-01) can be found in the wireless user guide for that product.

Boise, Idaho 83714, USA

30 April 2004

For Regulatory Topics ONLY, contact:

Australia Contact:	Product Regulations Manager, Hewlett-Packard Australia Ltd., 31-41 Joseph Street, Blackburn, Victoria 3130, Australia
European Contact:	Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Straße 140, Böblingen, D-71034, Germany (FAX: +49-7031-14-3143)
USA Contact:	Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, Idaho 83707-0015, USA (Phone: 208-396-6000)

Country/region-specific safety statements

Laser safety statement

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration has implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States. The printer is certified as a "Class 1" laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968.

Since radiation emitted inside the printer is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

WARNING! Using controls, making adjustments, or performing procedures other than those specified in this user guide could result in exposure to hazardous radiation.

Canadian DOC regulations

Complies with Canadian EMC Class B requirements.

«Conforme á la classe B des normes canadiennes de compatibilité électromagnétiques. «CEM».»

Korean EMI statement

사용자 안내문 (B 급 기기)

이 기기는 비업무용으로 전자파장해검정을 받은 기기로서, 주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

Laser statement for Finland

LASERTURVALLISUUS
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT
HP LaserJet 1160, HP LaserJet 1320, HP LaserJet 1320n, HP LaserJet 1320tn, HP LaserJet 1320nw -laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käytössä kirjoittimen suojakotelointi estää lasersäteen pääsyn laitteen ulkopuolelle.
Laitteen turvallisuusluokka on määritetty standardin EN 60825-1 (1994) mukaisesti.
VAROITUS!
Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.
VARNING!
Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.
HUOLTO
HP LaserJet 1160, HP LaserJet 1320, HP LaserJet 1320n, HP LaserJet 1320tn, HP LaserJet 1320nw -kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota väriainekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoistyökaluja.
VARO!
Mikäli kirjoittimen suojakotelo avataan, olet alttiina näkymättömälle lasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.
VARNING!
Om laserprinterns skyddshölje öppnas då apparaten är i funktion, utsättas användaren för osynlig laserstrålning. Betrakta ej strålen.
Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista:
Aallonpituus 785-800 nm
Teho 5 mW
Luokan 3B laser

2 Installation

Chapter contents

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Operating environment....22
Printer connections....22
Software....24
- Supported operating systems....24
- Software for Windows....25
- Software for Macintosh computers....27

Operating environment

Place the printer on a sturdy, level surface in a well-ventilated area that meets the following environmental requirements:

- Temperature: 15°C to 32.5°C (59°F to 90.5°F)
- Humidity: 10% to 80% relative humidity (no condensation)
- Away from direct sunlight, open flames, ammonia fumes, and air vents
- With sufficient space around the printer for access and ventilation (see Physical specifications for printer measurements).

Printer connections

All HP LaserJet 1160 and HP LaserJet 1320 Series printers support USB connections. The base models (HP LaserJet 1160 printer and HP LaserJet 1320 Series printer) also support parallel connections. HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers also support network connections.

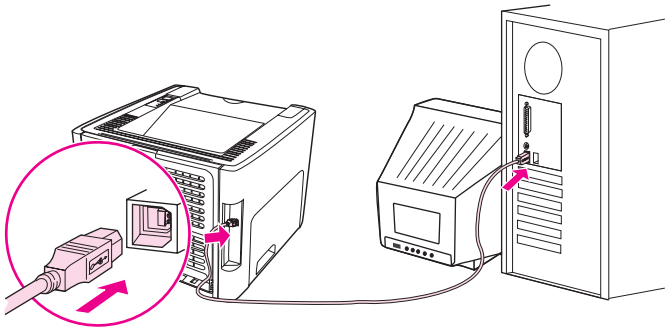

Figure 2-1. **USB connection**

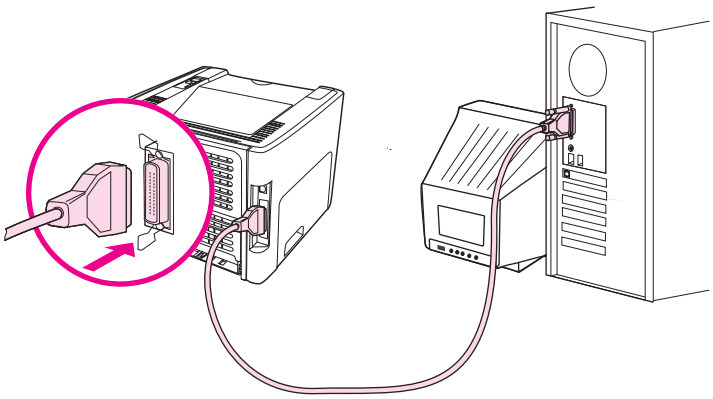

Figure 2-2. **Parallel connection**

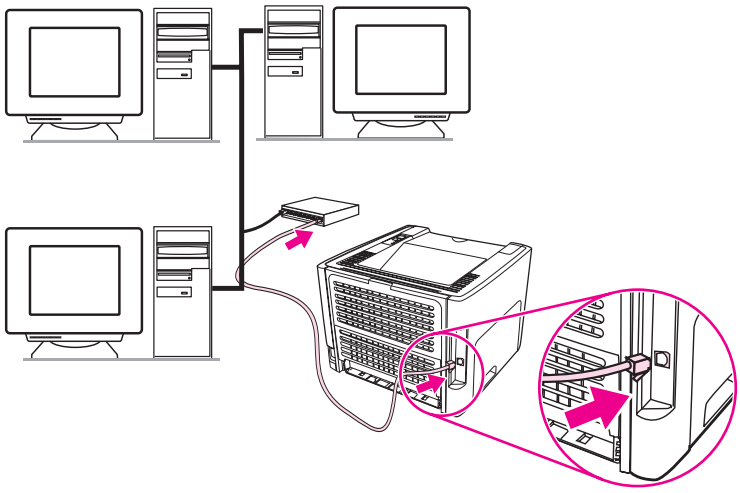

Figure 2-3. **Network connection**

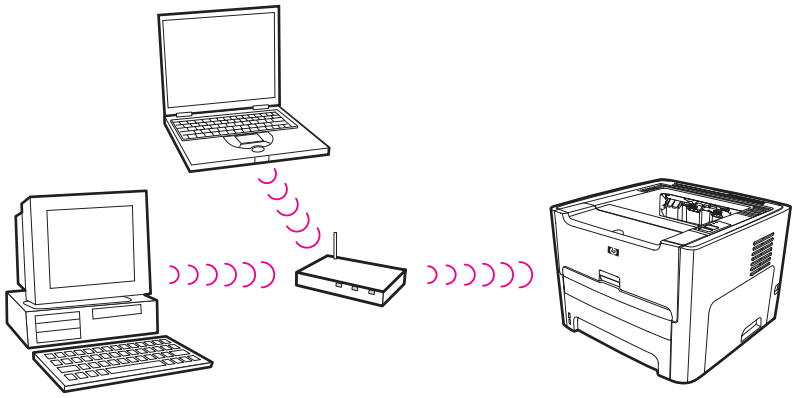

Figure 2-4. **Wireless connection, infrastructure mode**

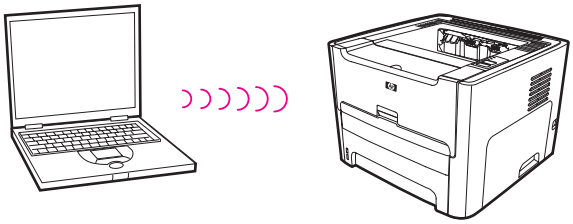

Figure 2-5. **Wireless connection, ad hoc mode**

Software

The following sections describe the software that is provided with the HP LaserJet 1160 and HP LaserJet 1320 Series printers.

Supported operating systems

For easy printer setup and access to the full range of printer features, HP strongly recommends that you install the software provided. Not all software is available in all languages. Install the software before setting up the printer. See the Readme for the latest software information.

The most recent drivers, additional drivers, and other software are available from the Internet and other sources.

The printer comes with software for the following operating systems:

- Windows 98, second edition
- Windows Me
- Windows NT (printer driver only)
- Windows 2000
- Windows Server 2003 (printer driver only)

  For more information about upgrading from Windows 2000 Server to Windows Server 2003, go to http://www.microsoft.com/windowsserver2003/.

  For more information about Windows Server 2003 Point and Print, go to http://www.microsoft.com/windowsserver2003/.

  For more information about Windows Server 2003 Terminal Services and Printing, go to http://www.microsoft.com/windowsserver2003/.
- Windows XP (32-bit)
- Windows XP (64-bit) (printer driver only)
- Mac OS 9.2 (printer driver only)
- Mac OS X V10.1 (printer driver only), V10.2 and later

NOTE Apple encourages OS X V10.0 users to upgrade to V10.1 or later.

Software for Windows

The following software is available:

Printer drivers

A printer driver is the software component that provides access to printer features and provides the means for the computer to communicate with the printer. Choose a printer driver based on the way you use the printer.

- Use the PCL 5e printer driver if you need print results to look consistent with those from older HP LaserJet printers. Certain features are not available in this printer driver. (Do not use the PCL 5e driver for this printer in other, older printers.)
- Use the PCL 6 printer driver to take full advantage of the printer features (HP LaserJet 1320 Series printer only). Unless complete backward compatibility with previous PCL drivers or older printers is necessary, the PCL 6 driver is recommended.
- Use the PS printer driver for compatibility with HP postscript level 2 emulation (HP LaserJet 1320 Series printer only). Certain printer features are not available in this printer driver.
- Use the host-based printer driver (HP LaserJet 1160 printer only).

The printer automatically switches between PS and PCL printer languages depending on the driver you have selected.

Available printer drivers

The following printer drivers are included with the printer.

Table 2-1. Available printer drivers

HP LaserJet 1160 printer	HP LaserJet 1320 Series printer
• PCL 5e • Host-based	• PCL 5e • PCL 6 • HP postscript level 2 emulation

HP Toolbox

NOTE This feature is not available for Windows Server 2003 and Windows XP (64-bit).

You can view the HP Toolbox when the printer is directly connected to your computer or when it is connected to a network. You must have performed a complete software installation to use the HP Toolbox.

The HP Toolbox is a Web-based program that you can use for the following tasks:

- Check the printer status.
- Configure the printer settings.
- View troubleshooting information.
- View online documentation.

See Using the HP Toolbox for more information.

Embedded Web server

NOTE This feature is available on the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers.

The embedded Web server is available for the HP LaserJet 1320 Series printer over the Internal HP Jetdirect network connection.

With the embedded Web server, you can gain access to the printer settings and information by typing an IP address or hostname of the printer in a Web browser (such as Netscape Navigator or Microsoft® Internet Explorer) on any computer. You can use the embedded Web server to configure the printer, view status information, and obtain troubleshooting information.

NOTE These settings can also be changed by using the HP Toolbox.

The embedded Web server works with the following supported Web browsers:

- Internet Explorer 5.5 and later
- Netscape Navigator 4.75 and later

See Using the embedded Web server for more information.

Software for Macintosh computers

The following sections describe the software for Macintosh computers that is available for the HP LaserJet 1160 and HP LaserJet 1320 Series printers.

HP LaserJet 1160 printer

The following sections describe how to gain access to the Macintosh software for the HP LaserJet 1160 printer.

Gaining access to the printer driver (Mac OS 9.2 and later)

1. From the **Apple** menu, select the **Chooser**.
2. On the top, left side of the **Chooser** dialog box, click **HP LaserJet**.
3. Select one of the following options, depending on how the computer and the printer are connected:
   - **TCP/IP**: In the dialog box, select **yes** to scan for TCP/IP network printers.
   - **USB**: Go to step 4.
4. On the right side of the **Chooser** dialog box, click **HP LaserJet 1160 printer**.
5. Close the **Chooser**.

Gaining access to the printer driver (Mac OS X V10.1 and later)

1. The Print Center should automatically start. If it does not start, perform the following steps:
   a. Double-click the hard-drive icon on the desktop.
   b. Open the Applications folder, and then open the Utilities folder.
   c. Double-click **Print Center** or **Printer Setup Utility**, depending on the operating system.
2. Click **Add**. The **Add Printer List** dialog box appears.
3. Select one of the following options from the top menu, depending on how the computer and the printer are connected:
   - **USB**
   - **TCP/IP**: For connecting to your TCP/IP printer in OS X V10.1, select **ip printing**.

     For OS X V10.2 and later, select **Rendezvous**.
4. Select the printer name from the printer list.
5. Click **Add**.

HP LaserJet 1320 Series printer

The following sections describe how to access the Macintosh software for the HP LaserJet 1320 Series printer.

Gaining access to the printer driver (Mac OS 9.2)

1. Double-click the hard-drive icon on the desktop.
2. Open the Applications folder, and then open the Utilities folder.
3. Start the **Desktop Printer Utility**.
4. Double-click **Printer (USB)**.
5. In the **USB Printer Selection** section of the dialog box, click **Change**.
6. Select **HP LaserJet 1320 Series printer**.
7. Click **Auto Setup**.
8. Click **Create**.
9. Click **Save**.

Gaining access to the printer driver (Mac OS X V10.1 and later)

1. The Print Center should automatically start. If it does not start, perform the following steps:
   a. Double-click the hard-drive icon on the desktop.
   b. Open the Applications folder, and then open the Utilities folder.
   c. Double-click **Print Center** or **Printer Setup Utility**, depending on the operating system.
2. Click **Add**. The **Add Printer List** dialog box appears.
3. Select one of the following options from the top menu, depending on how the computer and the printer are connected:
   - **USB**
   - **TCP/IP**: For connecting to your TCP/IP printer in OS X V10.1, select **ip printing**.

     For OS X V10.2 and later, select **Rendezvous**.
4. Select the printer name from the printer list.
5. Click **Add**.

PostScript Printer Description files (PPDs)

PPDs, in combination with the Apple printer driver, provide access to the printer features and allow the computer to communicate with the printer. An installation program for the PPDs is provided on the HP LaserJet 1320 Series printer CD.

3 Operation

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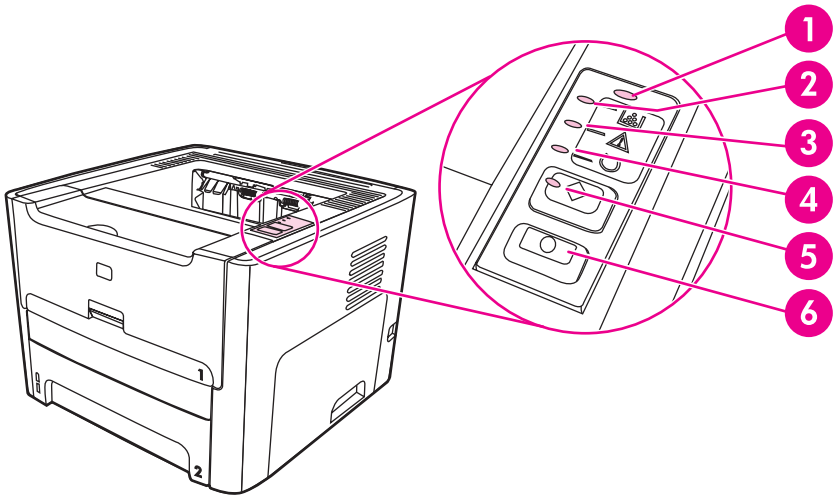
Printer control panel

The printer control panel is comprised of four lights and two buttons. The HP LaserJet 1320nw printer has an additional light at the top of the control panel. These lights produce patterns that identify your printer status.



1 **Wireless light** (HP LaserJet 1320nw printer only): When the Wireless light is on solid, a wireless connection has been established. When the Wireless light is off, wireless operation is disabled. When the Wireless light is flashing, the printer is trying to establish a wireless connection.

2 **Toner light**: When the toner is low, the Toner light is on solid. When the print cartridge is out of the printer or when the print cartridge is empty, the Toner light is flashing.

3 **Attention light**: Indicates that the input tray is empty, the print-cartridge door is open, or that other errors exist. See Printer information pages for more information.

4 **Ready light**: Indicates that the printer is ready to print.

5 Go **button and light**: To print a Demo page or to continue printing while in the manual feed mode, press and release the Go button. To print a configuration page, press and hold the Go button for 5 seconds.

6 Cancel **button**: To cancel the print job that is currently printing, press the Cancel button.

NOTE See Status-light patterns for a description of the light patterns.

Status-light patterns

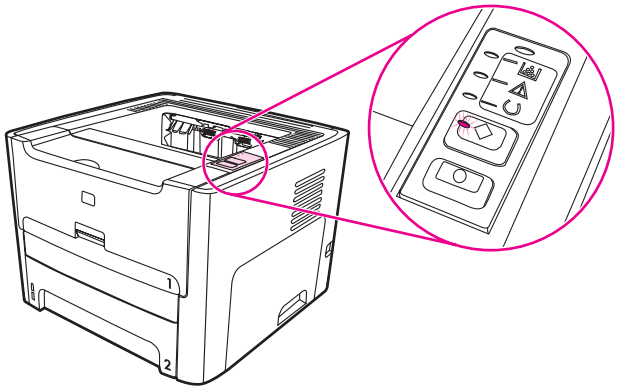


Table 3-1. Light status legend

	Symbol for "light off"
	Symbol for "light on"
	Symbol for "light blinking"

Table 3-2. Control-panel-light message

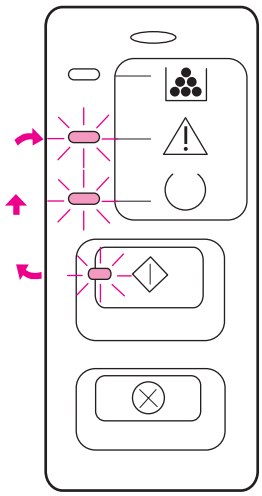
Light status	State of the printer	Action
	Initialization/Startup While in the Startup state, the Go, Ready, and Attention lights cycle (at the rate of 500 ms) one after another.	During the Initialization process, pressing buttons has no effect.

Table 3-2. Control-panel-light message (continued)

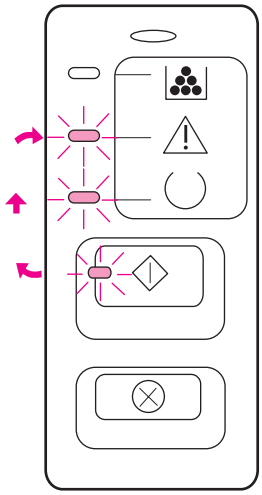
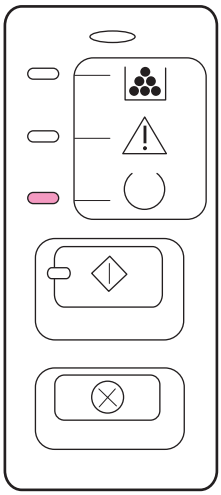
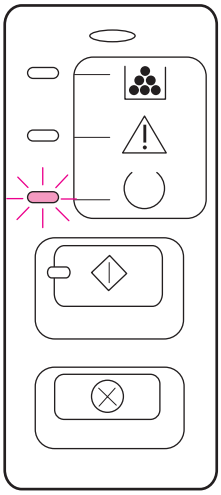
Light status	State of the printer	Action
	Reconfiguration Initialization During the printer start up, you can request special initialization sequences that reconfigure the printer. When one of the sequences is requested, such as a cold reset, the lights cycle as in the Initialization/Startup state.	During the Reconfiguration process, pressing buttons has no effect.
	Ready The printer is ready with no job activity.	To print a Configuration page, press and hold the GO button for 5 seconds. To print a Demo page, press and release the GO button.
	Processing Data The printer is processing or receiving data.	To cancel the current job, press the CANCEL button.

Table 3-2. Control-panel-light message (continued)

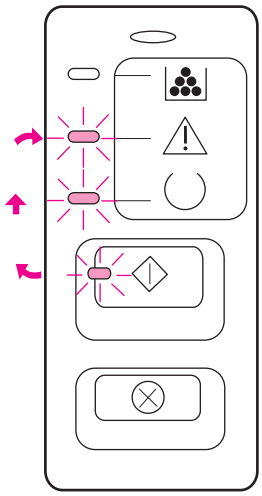
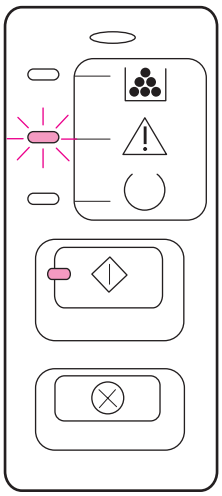
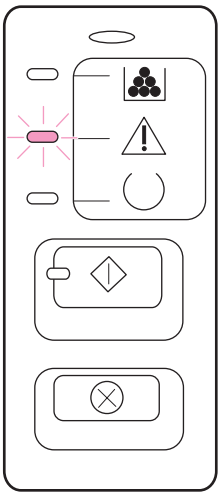
Light status	State of the printer	Action
	Job Cancel	Pressing the Go button has no effect. After the cancellation process is complete, the printer returns to the Ready state.
	Manual Feed or Continuable Error This state can occur in the following circumstances: • Manual feed • Input tray is empty • General continuable error • Memory-configuration error • Personality/job-related error	To recover from the error and print whatever data is possible, press the Go button. If the recovery is successful, the printer goes to the Processing Data state and completes the job. If the recovery is unsuccessful, the printer returns to the Continuable Error state.
	Attention This state can occur in the following circumstances: • Input tray is empty • Door is open • Jam • Misfeed from a tray	To reset the printer after a jam, press the Go button. You might need to clear the error manually, and press the Go button or close the top cover. If the error persists, the printer returns to the Attention state.

Table 3-2. Control-panel-light message (continued)

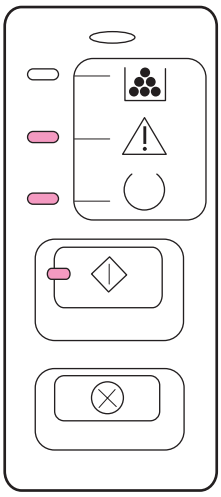
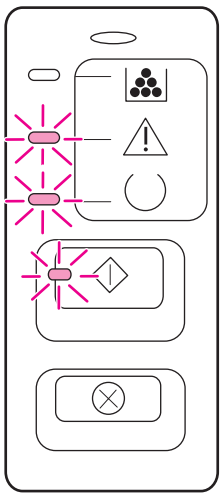
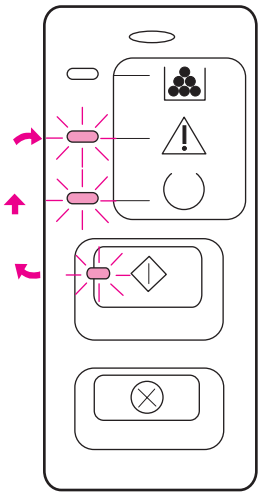
Light status	State of the printer	Action
	Fatal Error	Turn off the printer, wait 10 seconds, and turn on the printer. See Troubleshooting
	Accessory Error (HP LaserJet 1320 Series printer only)	To see additional error information, press the Go button. The light pattern changes. For more information about the light pattern that appears, see Troubleshooting. When you release the Go button, the printer returns to the initial Accessory Error state.
	Cleaning Page The cleaning page feature is not available through the control panel. The cleaning page can be activated using the HP Toolbox, which is included as part of the overall printer software package.	During cleaning mode, pressing buttons has no effect. The printer motor slows down and the printer prints a page.

Table 3-2. Control-panel-light message (continued)

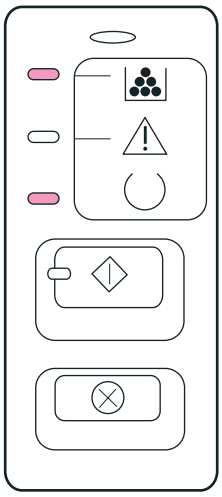
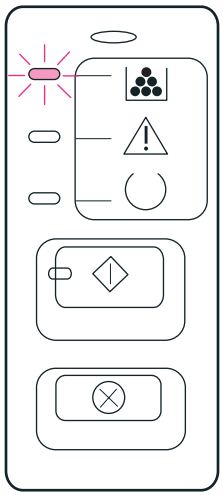
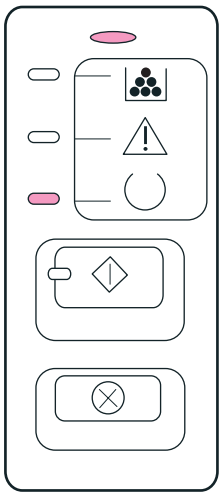
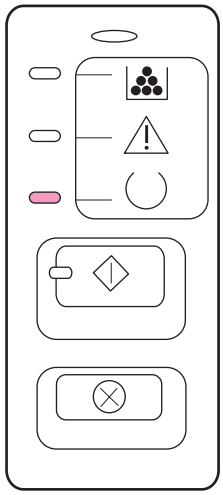
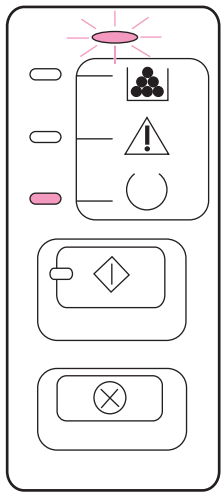
Light status	State of the printer	Action
	Toner Low The toner supply in the cartridge is running low. The Go, Ready, and Attention lights act independently of the Toner Low state.	It is necessary to purchase a new print cartridge. Replace the print cartridge when the print on the page begins to fade.
	Print Cartridge Missing The print cartridge has been removed from the printer.	Reinsert the print cartridge in the printer.
	Wireless Connection Established The Go, Ready, Attention, and Toner lights act independently of the Wireless light.	No action is necessary.

Table 3-2. Control-panel-light message (continued)

Light status	State of the printer	Action
	Wireless Disabled The Go, Ready, Attention, and Toner lights act independently of the Wireless light.	No action is necessary.
	Attempting to Establish Wireless Connection The Wireless light blinks at one-half second intervals. The Go, Ready, Attention, and Toner lights act independently of the Wireless light.	No action is necessary.

Printer information pages

Special pages reside within the memory of the printer. These pages help you to diagnose and solve problems with the printer.

Demo page

The Demo page contains examples of text and graphics. To print the Demo page, press and immediately release Go when the printer is ready (the Ready light on) and not printing.

Configuration page

The configuration page lists current settings and contains a status log report. You can print a configuration page from the printer, the embedded web server, or the HP Toolbox.

To print the configuration page from the printer, press Go for 5 seconds, until the yellow light comes on, when the printer is in the ready state.

NOTE Make sure that you hold the Go button for less than 10 seconds.

NOTE You can also get the information contained in the event log and the configuration page through the HP Toolbox without printing the pages. See Using the HP Toolbox for more information.

Supplies Status page

The Supplies Status page provides information about the print cartridge that is installed in the printer, the amount of toner that remains in the print cartridge, and the number of pages and print jobs that have been processed. The Supplies Status page also provides ordering and recycling information. The Supplies Status page automatically prints when you print a configuration page from the control panel.

Network Configuration page

NOTE The Network Configuration page is only available on the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers.

A Network Configuration page prints whenever a printer configuration page is printed. You can also print a Network Configuration page by pressing the network Reset button at the back of the printer (see Figure 7-4. Network Reset button).

The Network Configuration page provides information about the network configuration, including the IP address, firmware revision, network statistics, protocol information, and so on. The Network Configuration page automatically prints when you print a configuration page from the control panel.

Using the HP Toolbox

The HP Toolbox is a Web-based program that you can use for the following tasks:

- Check the printer status.
- Configure the printer settings.
- View troubleshooting information.
- View online documentation.

You can view the HP Toolbox when the printer is directly connected to your computer or when you are using a supported network connection. You must have performed a complete software installation to use the HP Toolbox.

NOTE

You do not have to have Internet access to open and use the HP Toolbox. However, if you click a link in the **Other Links** area, you must have Internet access in order to go to the site associated with the link. See Other links for more information.

To install the HP Toolbox, you must install the TCP/IP protocol and the most recent version of the Java™ Virtual Machine on the computer. You must also install the DOT4 protocol for all USB connections, LPT connections for Windows 2000 and Windows XP, and LPT1 connections for Windows 98 S.E., Windows Me, and Windows NT 4.0. See the system administrator or computer manufacturer's documentation for more information about installing the TCP/IP protocol and the DOT4 protocol. To download the most recent version of the Java Virtual Machine from Sun Microsystems, go to http://www.sun.com/.

Supported operating systems

HP Toolbox is supported for the following operating systems:

- Windows 98 SE, Windows 2000, Windows Me, and Windows XP
- Mac OS X V10.2 and later

Supported browsers

To use the HP Toolbox, you must have one of the following browsers:

- Microsoft Internet Explorer 5.5 or later
- Netscape Navigator 6.0 or later

To view the HP Toolbox on Windows systems

1. On the **Start** menu, point to **Programs** or **All Programs**, point to **HP LaserJet 1160** or **HP LaserJet 1320**, and then select the **HP Toolbox**.
2. The HP Toolbox opens in a Web browser.

NOTE After you open the URL, you can bookmark it so that you can return to it quickly in the future.

To view the HP Toolbox on Macintosh systems

1. Double-click the hard-drive icon on the desktop.
2. Click **Applications**, and then click **Utilities**.
3. Double-click **hp toolbox**.

HP Toolbox sections

The HP Toolbox software contains these sections:

- Status tab
- Troubleshooting tab
- Alerts tab
- Documentation tab
- Advanced Printer Settings window
- Network window (available only for the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers)

Other links

Each page in the HP Toolbox contains links to the HP Web site for product registration, product support, and for ordering supplies. You must have Internet access in order to use any of these links. If you use a dial-up connection and did not connect when you first opened the HP Toolbox, you must connect before you can visit these web sites.

Status tab

The **Status** tab has links to these main pages:

- **Device Status**. View printer status information. This page indicates printer conditions such as a jam or an empty tray. After you correct a problem with the printer, click the **Refresh** button to update the device status.
- **Supplies Status**. View detailed supplies status such as the percentage of toner remaining in the print cartridge and the number of pages that have been printed with the current print cartridge. This page also has links to order supplies and to find recycling information.
- **Print Info pages**. Print the configuration page and various other information pages that are available for the printer.

Troubleshooting tab

The **Troubleshooting** tab provides links to printer troubleshooting information. For example, these pages provide information about how to clear a jam, how to resolve print-quality problems, how to interpret the control-panel lights, and how to resolve other problems with the printer.

Alerts tab

Use the **Alerts** tab to configure the printer to automatically notify you of printer alerts. The **Alerts** tab has links to these main pages:

- Set up status alerts
- Set up e-mail alerts
- Administrative settings

Set up status alerts

On the **Set up status alerts** page you can turn alerts on or off, specify when the printer should send an alert, and choose from two different types of alerts:

- Pop-up message
- Task bar icon

Click **Apply** to activate the settings.

Set up e-mail alerts

Use this page to designate up to two e-mail addresses to receive printer-status alerts. Follow the instructions on the screen to set up e-mail alerts.

Administrative settings

Use this page to set how frequently the HP Toolbox checks for printer alerts. Three settings are available:

- **Less often**
- **Normal**
- **More often**

If you want to reduce network I/O traffic, reduce the frequency with which the printer checks for alerts.

Documentation tab

The **Documentation** tab contains links to these information sources:

- **User Guide**. Contains the information about the printer usage, warranty, specifications, and support. The user guide is available in both .html and .pdf format.
- **ReadMe**. Contains additional information that is not included in the user guide.

Advanced Printer Settings window

When you click the **Advanced Printer Settings** link, a new window opens. The Advanced Printer Settings window has two tabs:

- **Information** tab
- **Settings** tab

Information tab

The **Information** tab provides quick links to the following information:

- Device status
- Device configuration
- Supplies status
- Event log
- Print Info pages

Settings tab

The **Settings** tab has links to several pages that allow you to view and change the printer's configuration.

NOTE Driver settings can override settings made in the HP Toolbox.

- **Device Information**. View basic information about the printer.
- **Paper Handling**. View and change the settings for the input tray.
- **Printing**. View and change the default printer job settings.
- **PCL**. View and change the PCL font information.
- **PostScript**. This page is available for the HP LaserJet 1320 Series printer only. View and change the settings for PS errors and timeout.
- **Print Quality**. View and change the print quality settings.
- **Print Modes**. View and change the print modes for various media types.
- **System Setup**. View and change system information.
- **I/O**. View and change the I/O timeout setting.
- **Resets**. Return all of the printer settings to the factory default settings.

Network window

NOTE This option is only available for the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers.

When you click the **Network** link on the Advanced Printer Settings page, a new window opens. Use this section to configure network settings.

Using the embedded Web server

The embedded Web server can be directly accessed on the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers. The embedded Web server provides the same functions as the Advanced Printer Settings section of the HP Toolbox. Following are the main differences between using the embedded Web server and using the HP Toolbox:

- You do not have to install any software on the computer. You only need a supported Web browser. To use the embedded Web server, you must have Microsoft Internet Explorer 5.5 or later or Netscape Navigator 4.75 or later.
- The embedded Web server is available in English only.
- The embedded Web server does not provide e-mail or status alerts.

Use the embedded Web server to view printer and network status and to manage printing functions from your computer instead of from the printer control panel. The following are examples of what you can do using the embedded Web server:

- View printer status information
- View and print internal pages
- Determine the remaining life for all supplies and order new ones
- Set the size and type of media that is loaded in each tray
- View and change tray configurations
- View and change the printer default configuration settings
- View and change network configuration

The embedded Web server works when the printer is connected to an IP-based network. The embedded Web server does not support IPX-based printer connections.

NOTE You do not have to have Internet access to open and use the embedded Web server. However, if you click a link in the **Other Links** area, you must have Internet access in order to go to the site associated with the link.

To open the embedded Web server

1. In a supported Web browser, type the IP address or hostname for the printer. To find the IP address, print a configuration page at the printer by pressing and holding Go for 5 seconds, but less than 10 seconds.

NOTE After you open the URL, you can bookmark it so that you can return to it quickly in the future.

2. The embedded Web server has three tabs that contain settings and information about the printer: the **Information** tab, the **Settings** tab, and the **Networking** tab. Click the tab that you want to view.

Information tab

The Information tab consists of the following pages:

- **Device Status**. This page shows the printer status and shows the life remaining for HP supplies. This page also shows product information such as the network name, network address, and model information.
- **Configuration**. This page shows the information that is also found on the printer configuration page.
- **Supplies Status**. This page shows the life remaining for HP supplies and provides supplies part numbers.
  - To order new supplies, click **Order Supplies** in the **Other Links** area on the left side of the window.
  - To visit any Web site, you must have Internet access.
- **Event log**. This page shows a list of all printer events and errors.
- **Print Info Pages**. This page has links that you can use to print the various information pages that reside within the printer memory.

Settings tab

Use the **Settings** tab to configure the printer from your computer. If this printer is networked, always consult with the printer administrator before changing settings on this tab.

The **Settings** tab contains the following pages:

- **Device Information**. View and change basic information about the printer.
- **Paper Handling**. View and change the settings for the input tray.
- **Printing**. View and change the default printer job settings.
- **PCL**. View and change the PCL font information.
- **PostScript**. View and change the settings for PS errors and timeout.
- **Print Quality**. View and change the print quality settings.
- **Print Modes**. View and change the print modes for various media types.
- **System Setup**. View and change system information.
- **I/O**. View and change the I/O timeout setting.
- **Service**. Complete service tasks in the printer, such as changing all the printer settings back to the factory default settings.

Networking tab

NOTE This option is only available for the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers.

The network administrator can use this tab to control network-related settings for the printer when it is connected to an IP-based network.

Other links

This section contains links that connect you to the Internet. You must have Internet access in order to use any of these links. If you use a dial-up connection and did not connect when you first opened the embedded Web server, you must connect before you can visit these Web sites. Connecting might require that you close the embedded Web server and reopen it.

- **Product Registration**. Connects you to the product registration page on the HP Web site.
- **Order Supplies**. Click this link to connect to the Sure Supply Web site and order genuine HP supplies from HP or a reseller of your choice.
- **Product Support**. Connects to the support site for the HP LaserJet 1320 Series printer. You can search for help regarding general topics.

Wireless printing

Wireless networks offer a safe, secure, and cost-effective alternative to traditional wired network connections. The HP LaserJet 1320nw printer has built-in wireless connectivity.

IEEE 802.11b/g standard

With wireless IEEE 802.11b/g compliant connectivity, the printers can be placed in the office or home and connected to a wireless network running Microsoft, Apple, NetWare, UNIX®, or Linux network operating systems. This wireless technology provides a high-quality printing solution without the physical constraints of wiring. Peripherals can be conveniently placed in an office or home and can be easily moved without changing network cables.

Optional external HP Jetdirect 802.11b/g print servers are available for USB connections.

See the documentation that came with the HP LaserJet 1320nw printer for more information.

Bluetooth

Bluetooth wireless technology is a low-power, short-range radio technology that can be used to wirelessly connect computers, printers, personal digital assistants, cell phones, and other devices.

Unlike infrared technology, Bluetooth's reliance on radio signals means that devices do not have to be in the same room, office, or cubicle or have an unobstructed line of sight in order to communicate. This wireless technology increases portability and efficiency within business networks.

Bluetooth adapters are available for USB and parallel connections.

4 Maintenance

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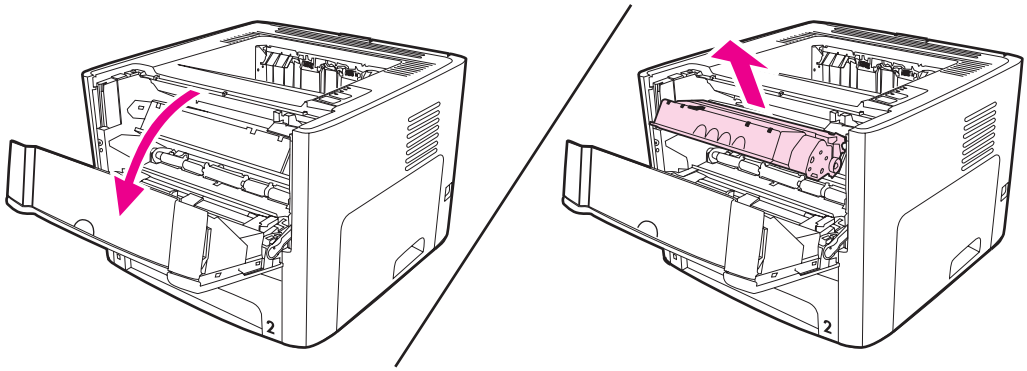
Replacing the print cartridge

Use the below instructions to remove or replace the print cartridge.

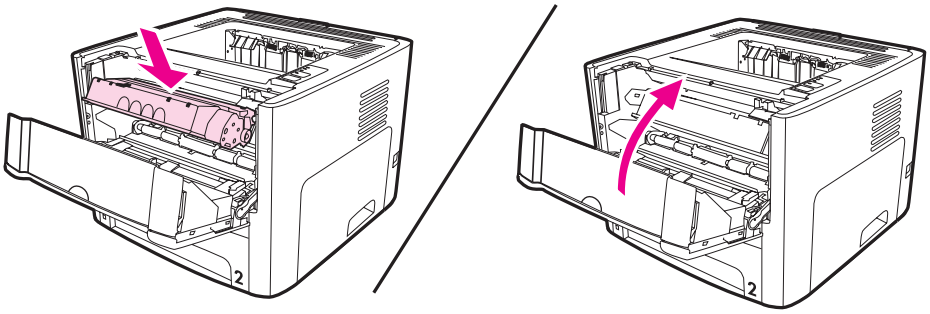
To replace the print cartridge

1. Open the print-cartridge door, and remove the print cartridge.



CAUTION To prevent damage, do not expose the print cartridge to light. Cover the print cartridge if necessary. Also, do not touch the black sponge transfer roller inside the printer. By doing so, you can damage the printer.

2. Remove the new print cartridge from the packaging.
3. Remove the sealing tape from the new print cartridge.
4. Reinstall the print cartridge, and then close the print-cartridge door.



5. Dispose of the old print cartridge according to the instructions that were shipped with the new print cartridge.

Cleaning the printer

Clean the outside of the printer with a clean, damp cloth when necessary.

WARNING! Before cleaning the printer, turn the printer off, unplug the power cord, and wait for the printer to cool.

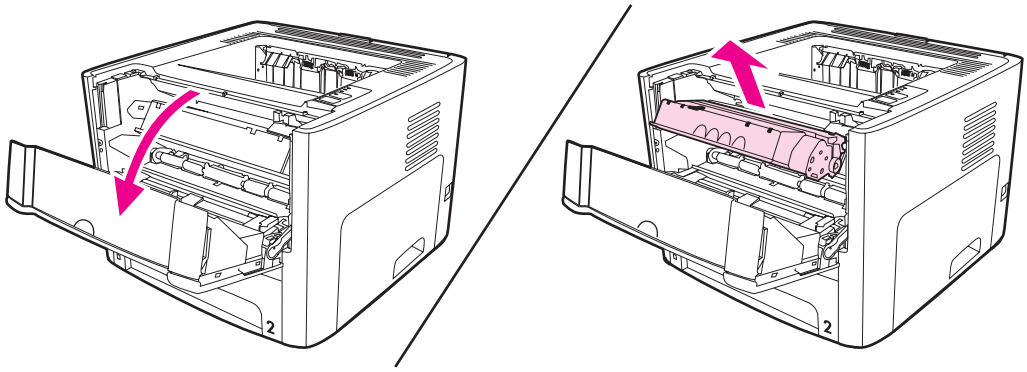
CAUTION Do not use ammonia-based cleaners on or around the printer.

Cleaning the print-cartridge area

During the printing process, paper, toner, and dust particles can accumulate inside the printer. Over time, this buildup can cause print-quality problems, such as toner specks or smearing, and jams. To correct and prevent these types of problems, you can clean the print-cartridge area and the printer media path.

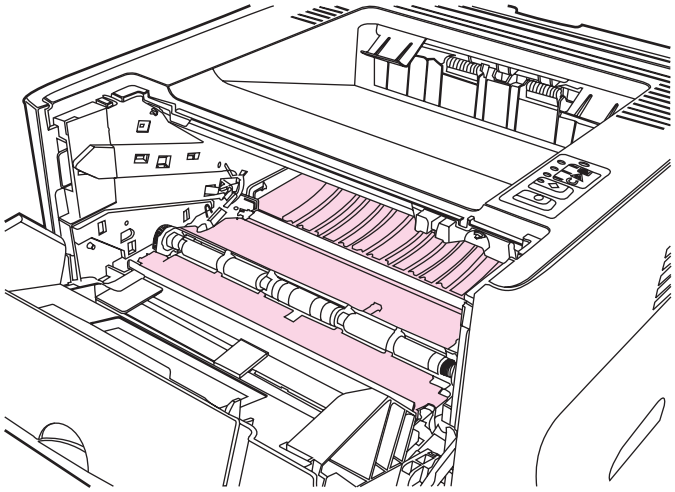
You do not have to clean the print-cartridge area often. However, cleaning this area can improve the quality of your printed sheets.

1. Open the print-cartridge door, and remove the print cartridge.

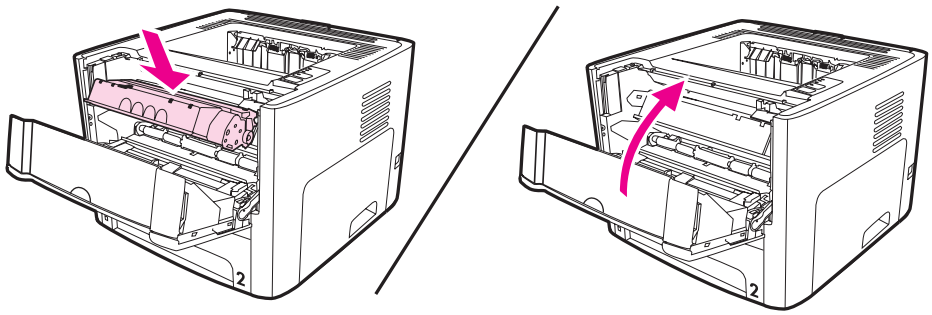


CAUTION To prevent damage, do not expose the print cartridge to light. Cover the print cartridge to shield it from light. Also, do not touch the black sponge transfer roller inside the printer. Touching the roller can damage the printer.

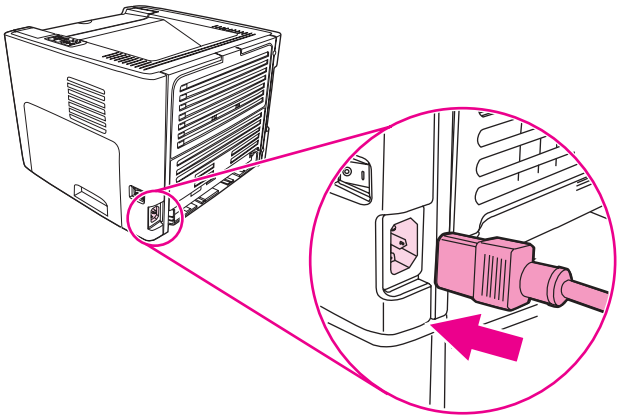
2. Using a dry, lint-free cloth, wipe any residue from the media path area and the print cartridge cavity.



3. Replace the print cartridge, and close the print-cartridge door.

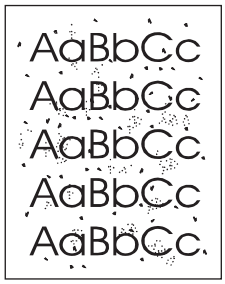


4. Plug the power cord into the printer and then turn on the printer.



Cleaning the printer media path

If you are experiencing toner specks or dots on the printouts, clean the printer media path. This process uses a transparency to remove dust and toner from the media path. Do not use bond or rough paper.



NOTE For best results use a sheet of transparency. If you do not have any transparencies, you can use copier grade paper (70 to 90 g/m^2 [(18 to 24 lb)]) that has a smooth surface.

1. Make sure that the printer is idle and the Ready light is on.
2. Load the transparency in the input tray.
3. Print a cleaning page by using one of the following methods:
   - Open the HP Toolbox. See Using the HP Toolbox for instructions. Click the **Troubleshooting** tab, and click **Print Quality Tools**. Select the cleaning page.
   - On the printer control panel, press and hold the Go button until all three lights illuminate (about 10 seconds). When all three lights illuminate, release the Go button.

NOTE The cleaning process takes approximately two minutes. The cleaning page stops periodically during the cleaning process. Do not turn the printer off until the cleaning process has finished. You might have to repeat the cleaning process several times to thoroughly clean the printer.

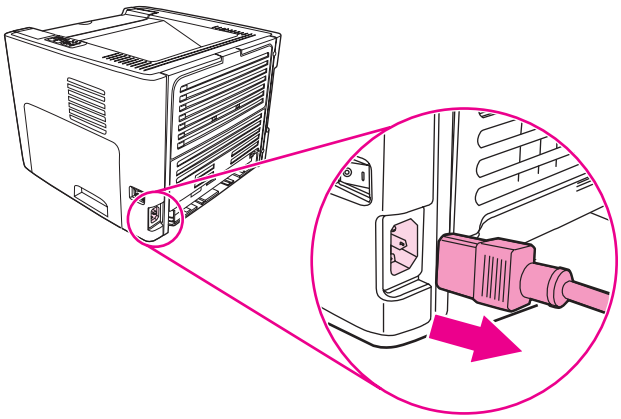
Changing the pickup roller

Normal use with good media causes wear. The use of poor media might require more frequent replacement of the pickup roller.

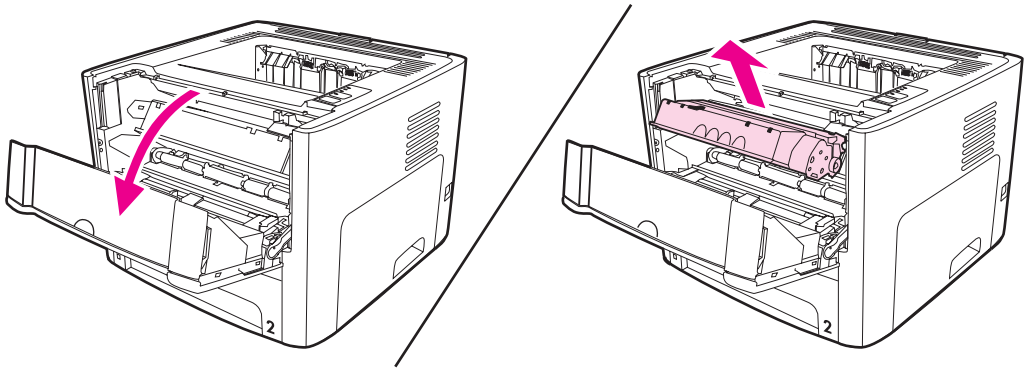
If the printer regularly mispicks (no media feeds through), you might need to change or clean the pickup roller. See Ordering parts and supplies to order a new pickup roller.

CAUTION Failure to complete this procedure might damage the printer.

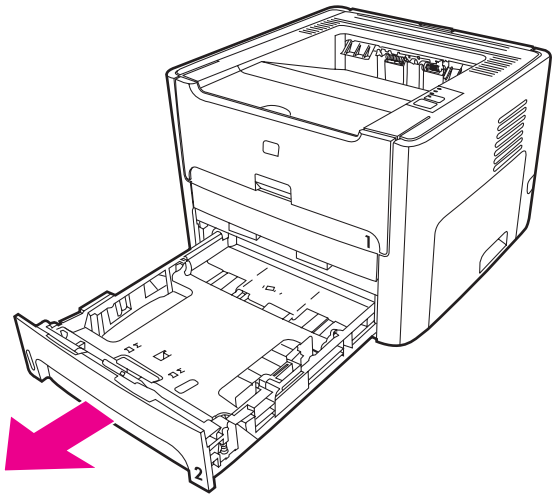
1. Turn off the printer, unplug the power cord from the printer, and then allow the printer to cool.



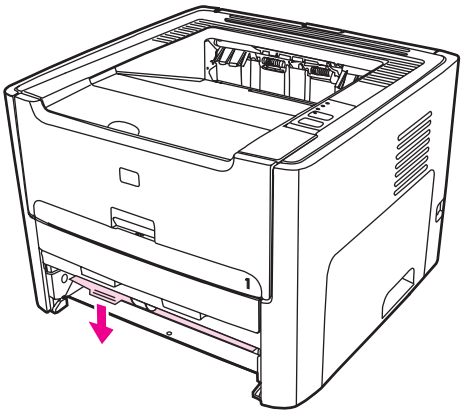
2. Open the print-cartridge door, and remove the print cartridge.



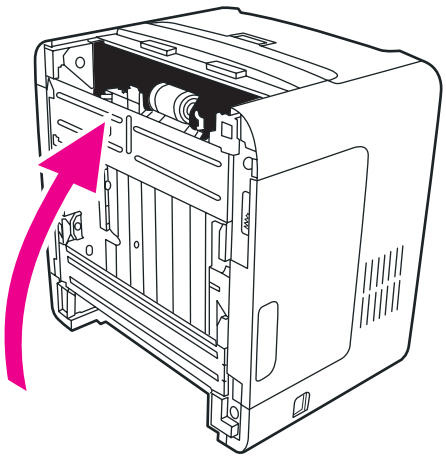
3. Remove tray 2.



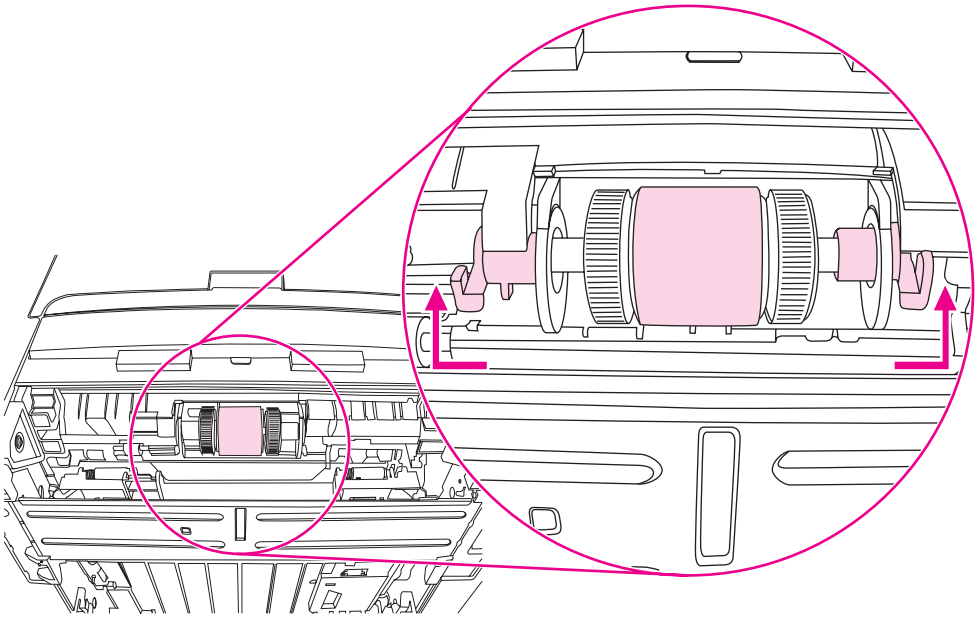
4. Open the front automatic two-sided-printing path door (HP LaserJet 1320 Series printer only).



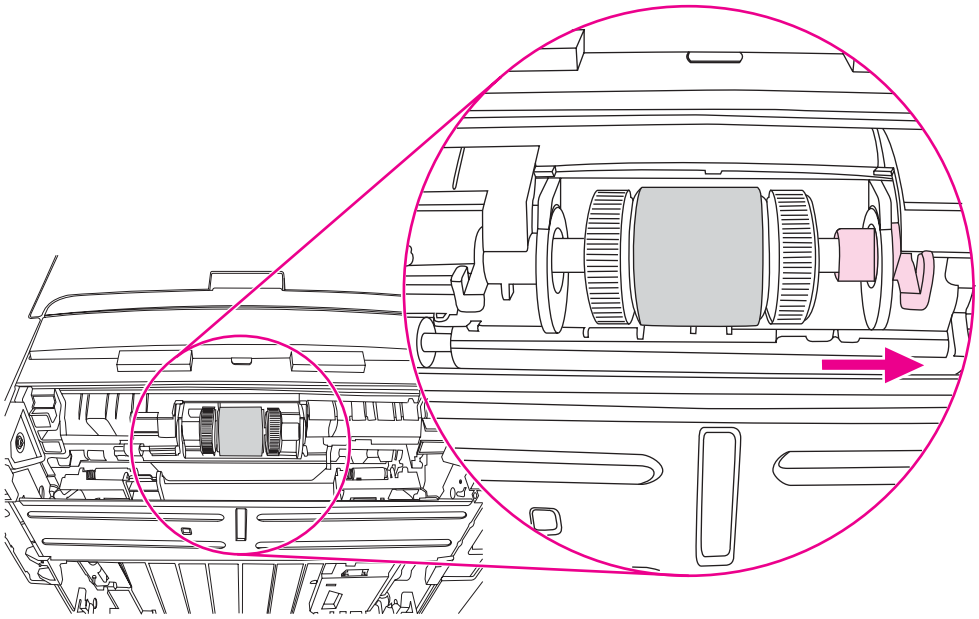
5. Place the printer on the work surface with the front of the printer facing up.



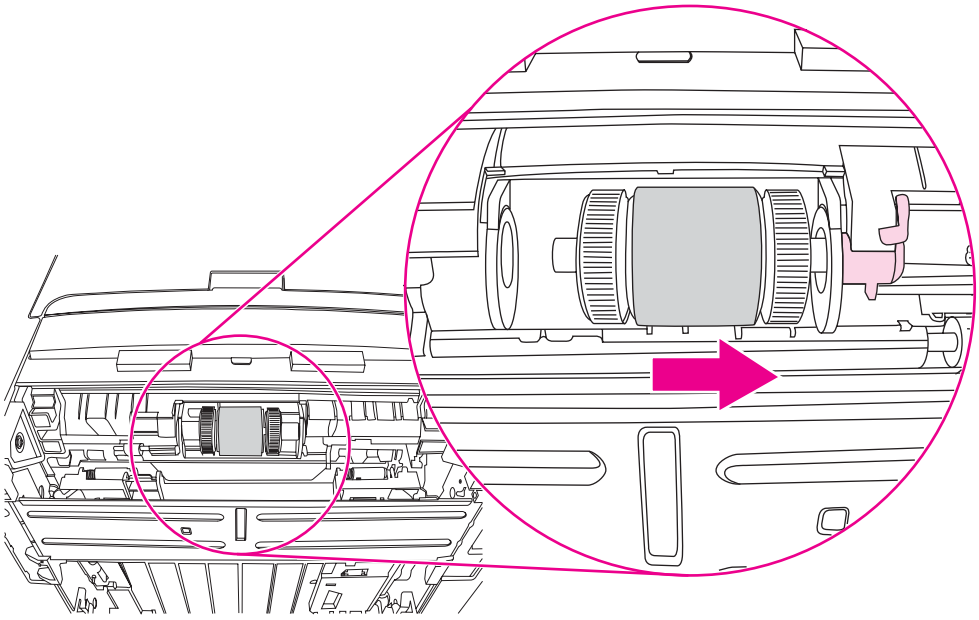
6. Pull the white tabs outward, and rotate the tabs up.



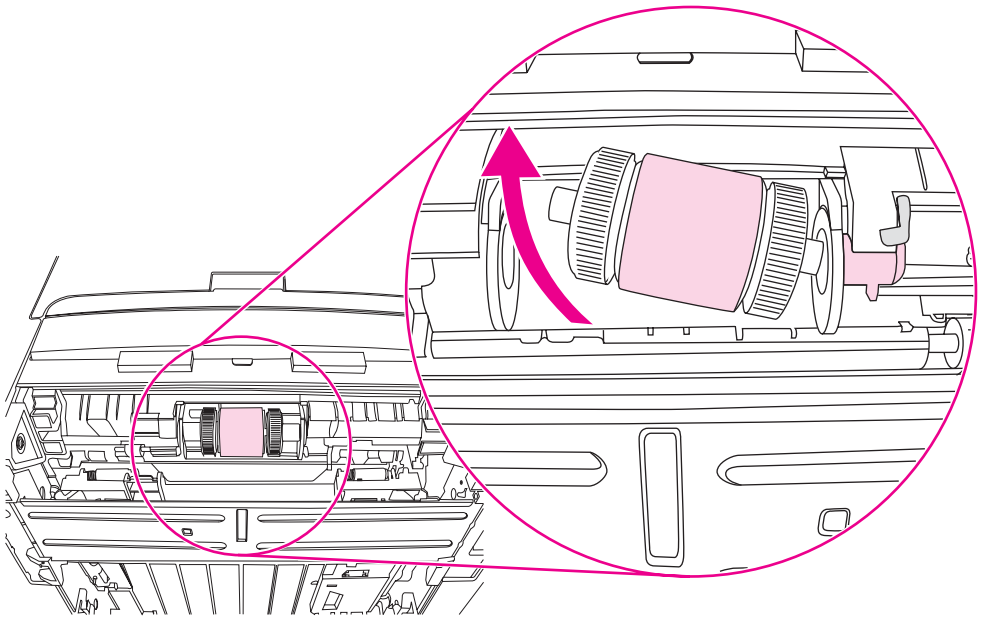
7. Slide the right tab to the right, and leave the tab in this position throughout the procedure.



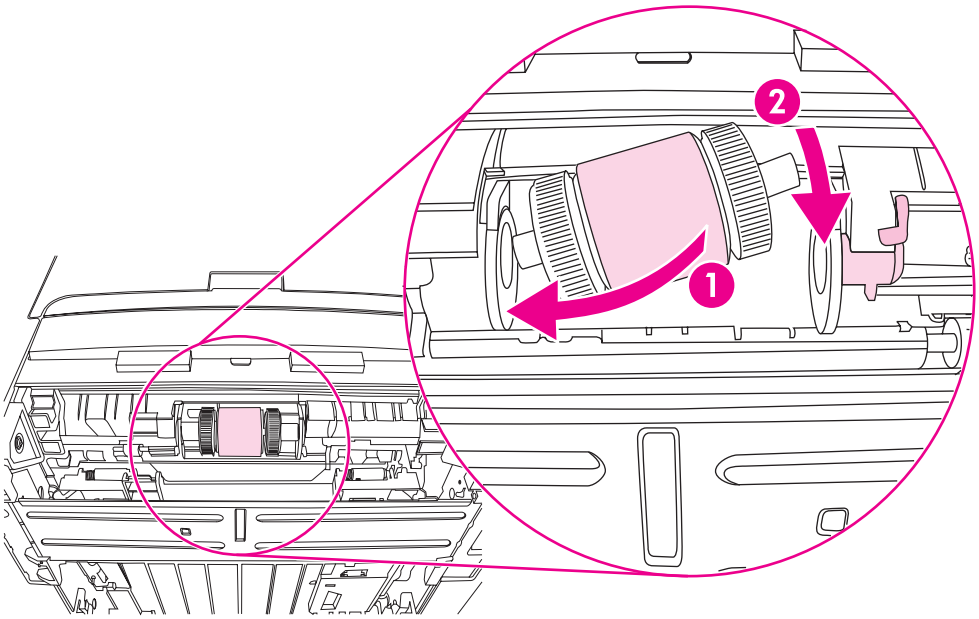
8. Slide the pickup roller assembly to the right, and remove the left end cap.



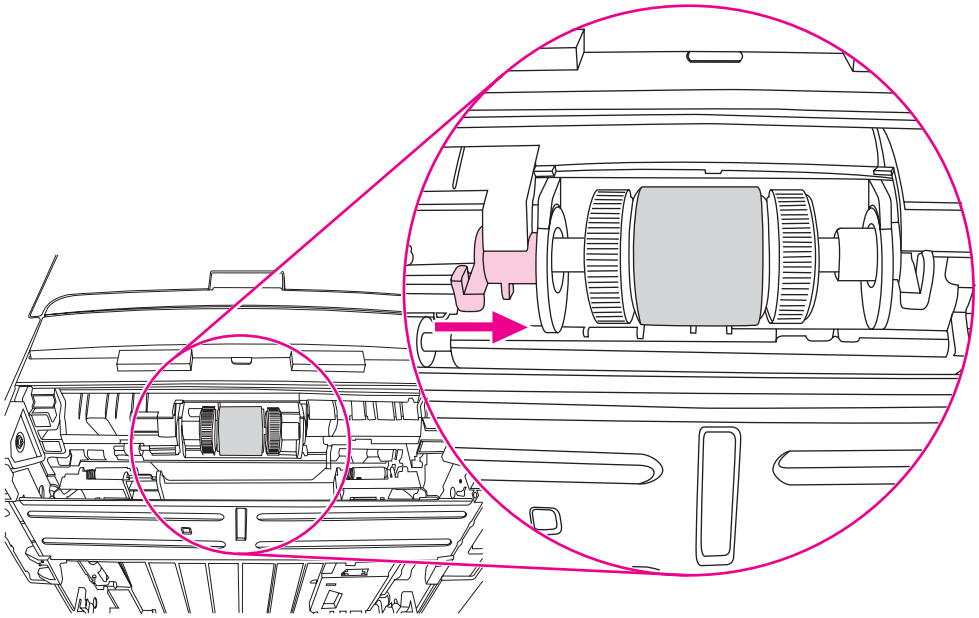
9. Remove the pickup roller.



10. Insert the left side of the new pickup roller into the left slot (1), and insert the right side (with notches in the shaft) into the right slot (2).

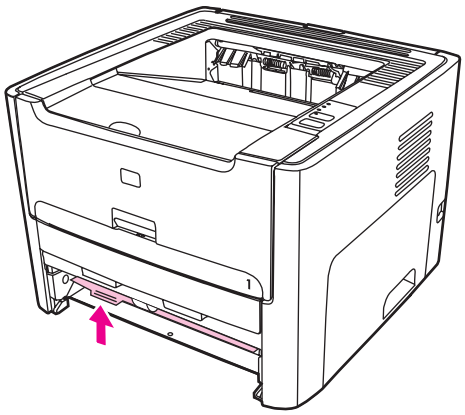


11. Rotate the shaft until the notches engage and the shaft clicks into place.
12. Place the end cap over the shaft on the left side, push the end cap to the right, and rotate the tab downward into position.

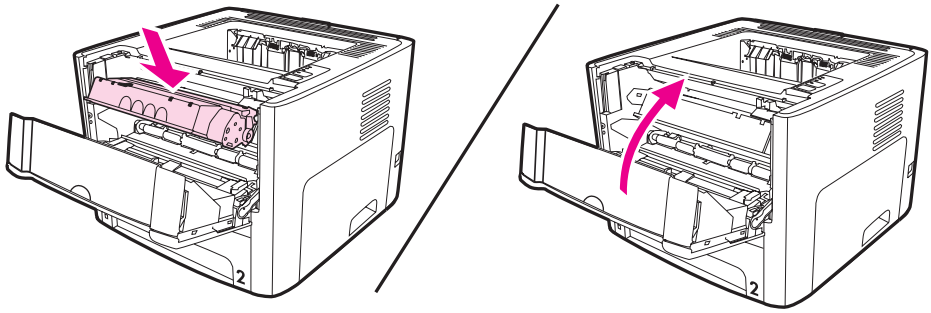


13. Push the right tab to the left, and rotate the tab downward into position.
14. Place the printer on the work surface with the top of the printer facing up.

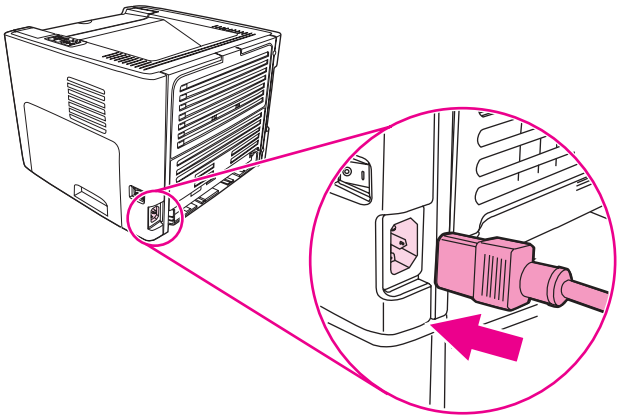
15. Close the front automatic two-sided-printing path door.



16. Reinstall the print cartridge, and close the print-cartridge door.



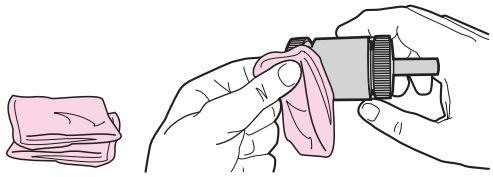
17. Plug the power cord into the printer and then turn on the printer.



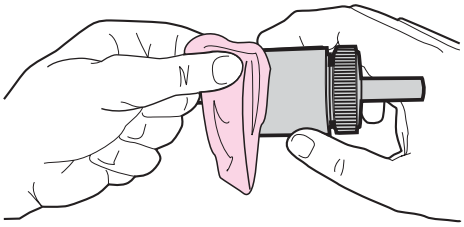
Cleaning the pickup roller

If you want to clean the pickup roller rather than replace it, follow these instructions:

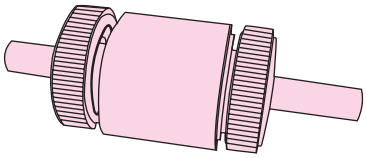
1. Remove the pickup roller as described in steps 1 through 9 of Changing the pickup roller.
2. Dab a lint-free cloth in water, and scrub the roller.



3. Using a dry, lint-free cloth, wipe the pickup roller to remove loosened dirt.



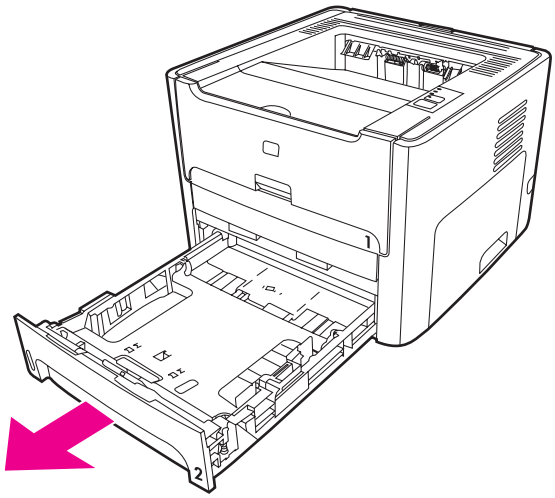
4. Allow the pickup roller to dry completely before you reinstall it in the printer (see steps 10 through 17 of Changing the pickup roller).



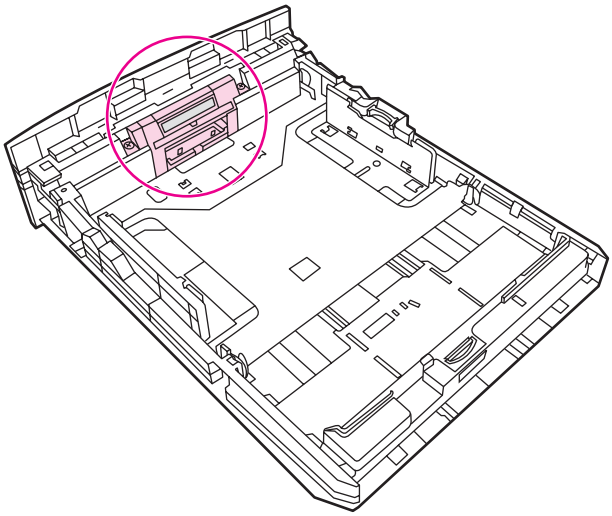
Changing the printer separation pad

Normal use with good media causes wear. The use of poor media might require more frequent replacement of the separation pad. If the printer regularly pulls multiple sheets of media at a time, you might need to change the separation pad.

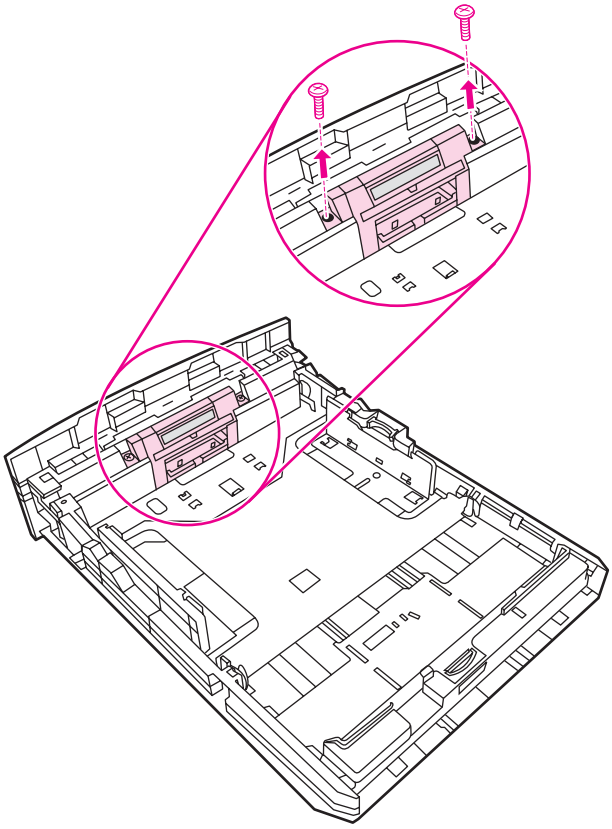
1. Remove the main input tray (tray 2).



2. Locate the separation pad.

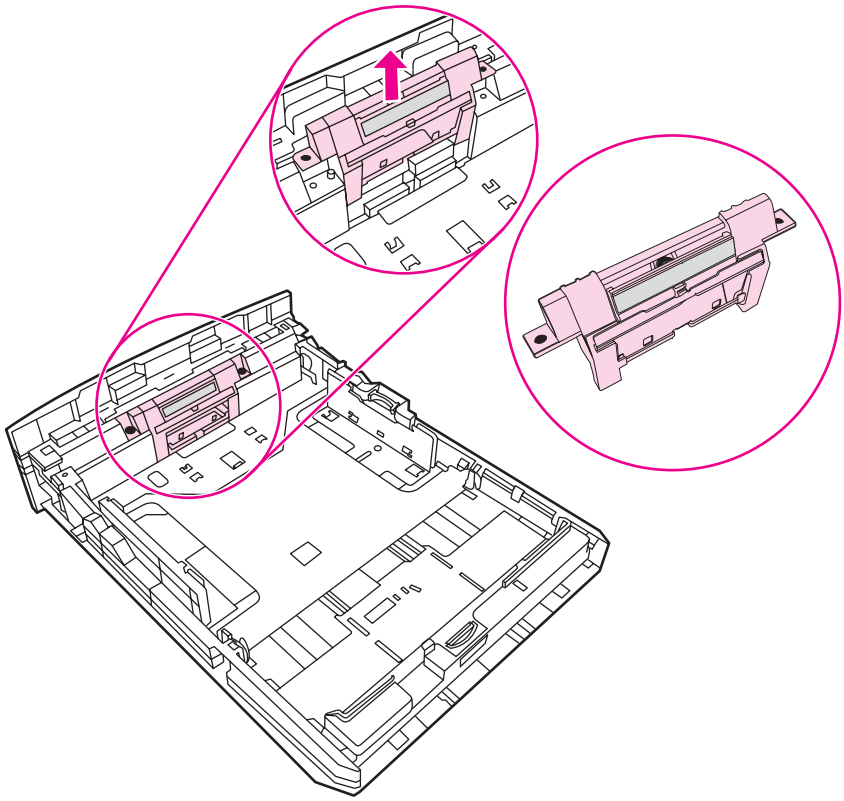


3. Remove the screws.

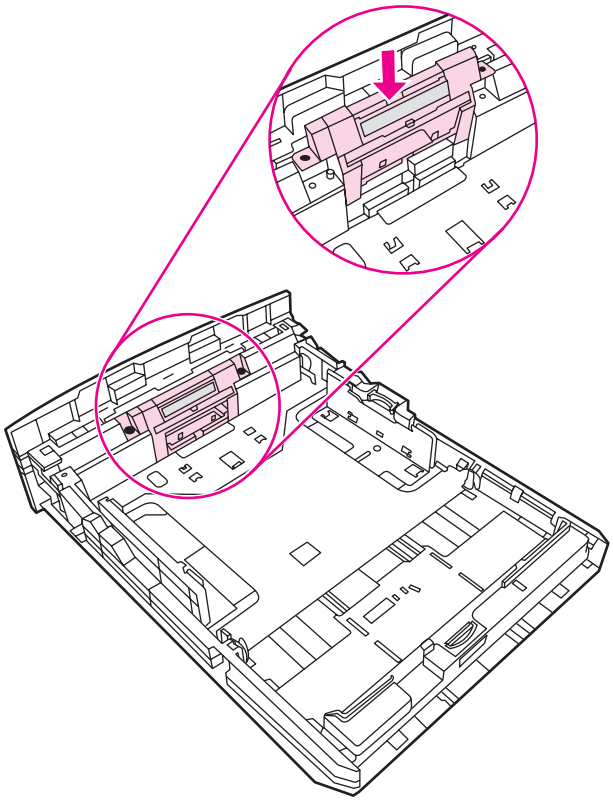


4. Remove the separation pad.

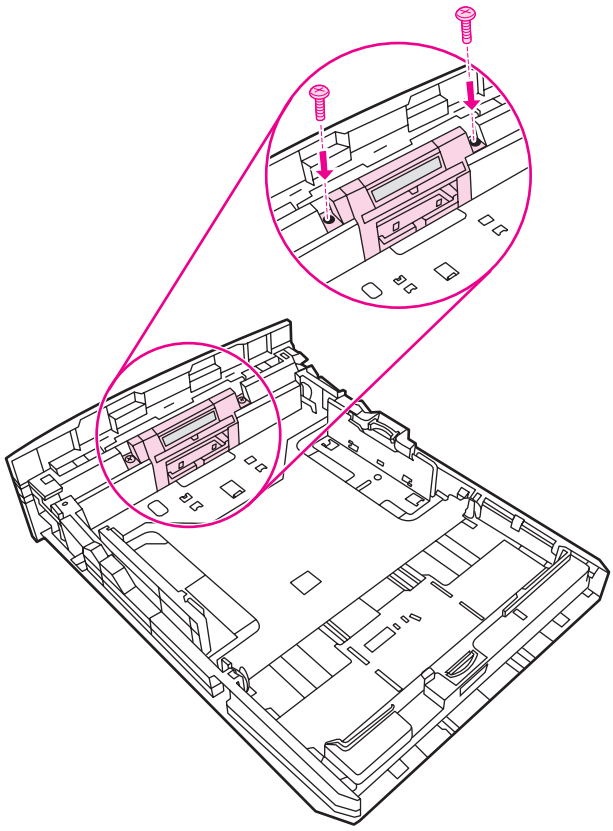
NOTE Before you proceed to step 4, examine the position of the separation pad in the tray.



5. Insert the new separation pad.



6. Replace the screws.



Cleaning the printer separation pad

If you want to clean the separation pad rather than replace it, follow the instructions below.

1. Remove the separation pad as described in steps 1 through 4 of Changing the printer separation pad.
2. Dab a lint-free cloth in water, and scrub the separation pad.
3. Using a dry, lint-free cloth, wipe the pickup roller to remove loosened dirt.
4. Allow the separation pad to dry completely before you reinstall it in the printer (see steps 5 and 6 of Changing the printer separation pad).

5 Theory of operation

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Pickup/feed/delivery system....73
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Introduction

This chapter presents an overview of the relationships between major components in the printer, and includes a detailed discussion of the image-formation system. The following systems are discussed:

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

Figure 5-1. Block diagram illustrates the relationships among the four systems.

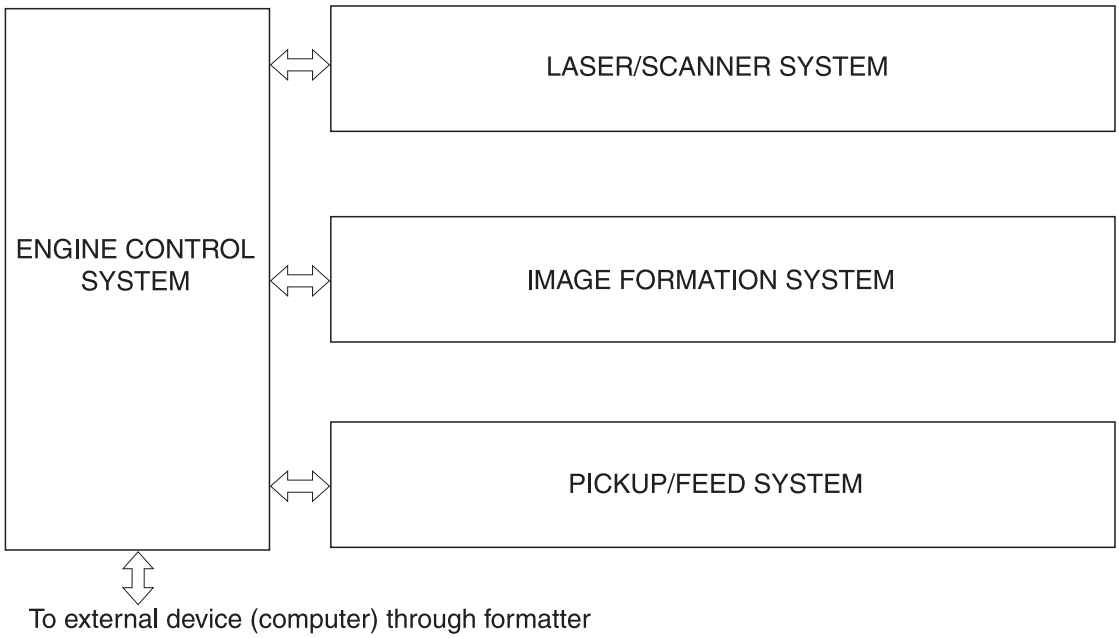

Figure 5-1. **Block diagram**

Internal components

Figure 5-2. Cross-section of printer highlights the major internal components.

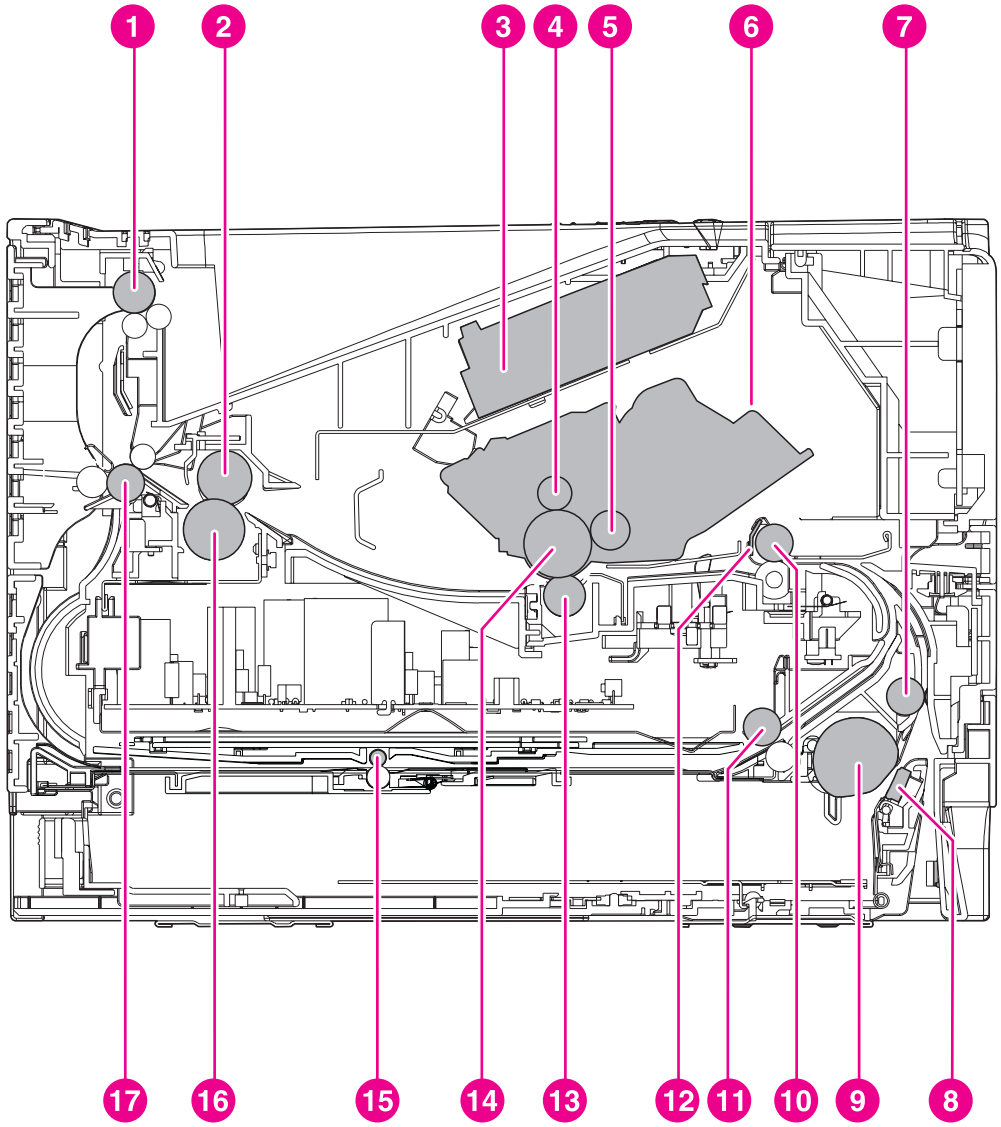

Figure 5-2. Cross-section of printer

1 Top output bin delivery roller
2 Fuser film
3 Laser/scanner
4 Primary charging roller
5 Developing cylinder
6 Print cartridge
7 Feed roller
8 Separation pad
9 Pickup roller
10 Registration roller
11 Duplexer pickup roller
12 Registration shutter
13 Transfer roller
14 Photosensitive drum
15 Duplexer feed roller
16 Pressure roller
17 Rear output bin delivery roller

Timing

Sequence of operation

Operation sequences are controlled by the microprocessor on the dc controller. Table 5-1. Sequence of operation describes engine operations for each period of a print operation.

Table 5-1. Sequence of operation

Name	Timing	Purpose
WAIT	From power-on until the end of the main motor initial drive	Detects presence of a print cartridge. Clears potential from the drum surface and cleans the transfer roller. See Table 5-2. Power-on sequence for a complete description of the WAIT (power-on) period. Also see General timing chart for detailed information about printer timing.
STBY (standby)	From the end of the WAIT or LSTR period until either a print command is sent from the formatter or the power is turned off.	Prepares the printer to receive print commands
INTR (initial rotation)	From the time of the print command until the pickup solenoid is turned on.	Prepares the photosensitive drum for printing.
PRINT	From the end of the INTR period until the primary high-voltage is turned off.	Forms the image on the photosensitive drum and transfers the toner image to the media.
LSTR (last rotation)	From the end of the PRINT period (when high-voltage is turned off) until the main motor stops rotating.	Delivers the last page of a print job. After LSTR, the printer either returns to STBY or, if another print command was sent from the formatter, enters INTR.

Power-on sequence

Table 5-2. Power-on sequence

Step	Action
1	Power-on
2	CPU initialization
3	Video interface communication start
4	Check sensors for residual media
5	Main motor initial drive
6	Fuser heater initial drive. The fuser heater reaches a surface temperature of 100 degrees C.
7	Laser/scanner motor initial drive

Table 5-2. Power-on sequence (continued)

Step	Action
8	High-voltage control Detect presence of a print cartridge Clean the transfer roller after the primary charging ac bias is turned on
9	Failure/abnormality check: detect laser/scanner failure, fuser failure, and open covers
10	Communication with the memory tag

Engine control system

The engine control system coordinates all printer functions, according to commands sent from the formatter. It drives the laser/scanner system, the image-formation system, and the pickup/feed/delivery system.

The engine control system contains the following components:

- Dc controller
- High-voltage PCA

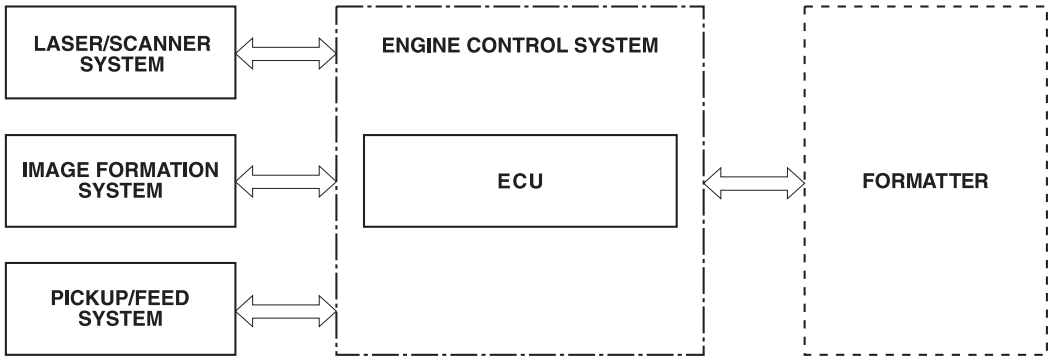

Figure 5-3. **Engine control system**

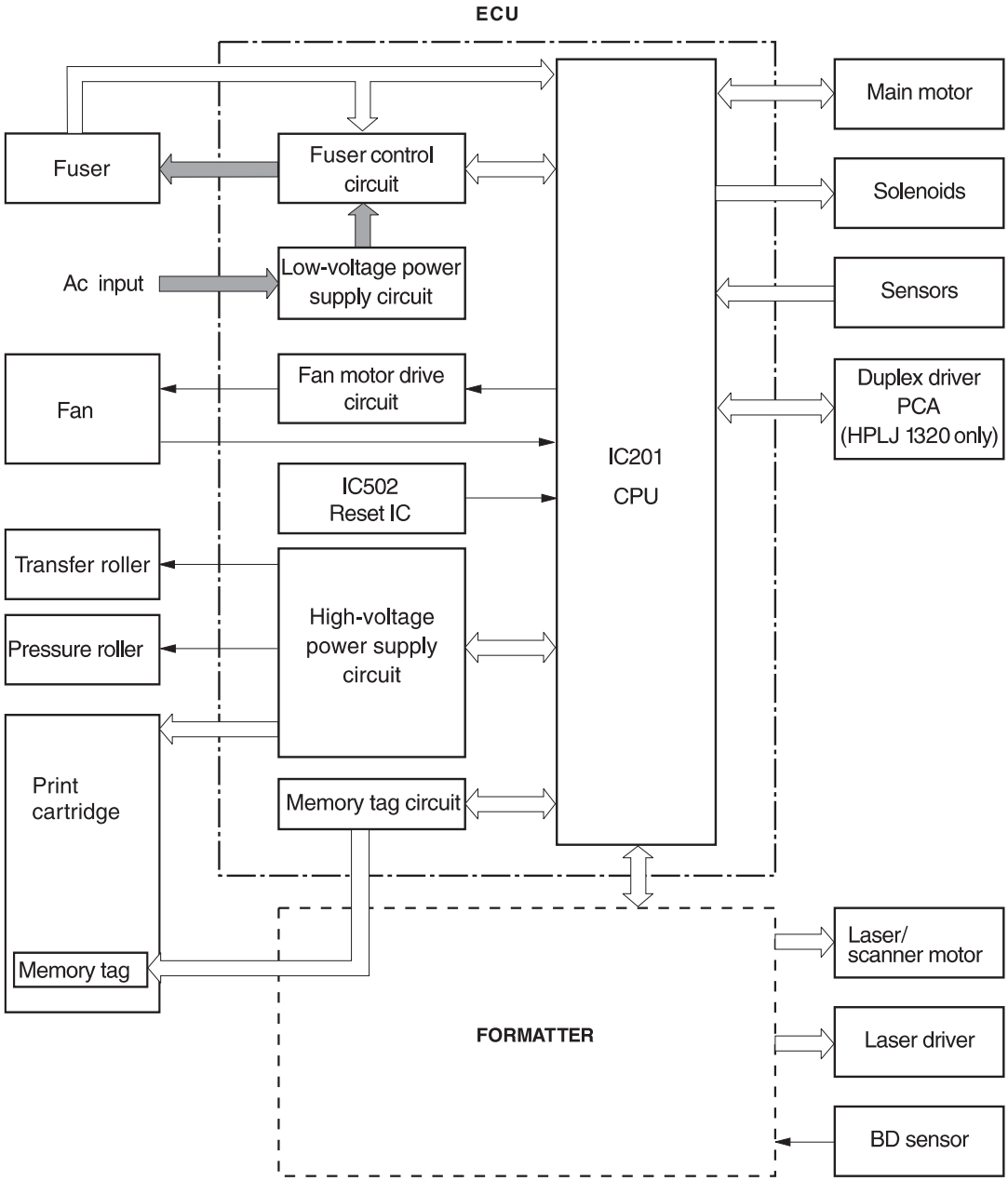

Figure 5-4. **Engine control system circuit diagram**

Laser/scanner system

The laser/scanner system receives video signals from the dc controller and the formatter and converts the signals into latent images on the photosensitive drum.

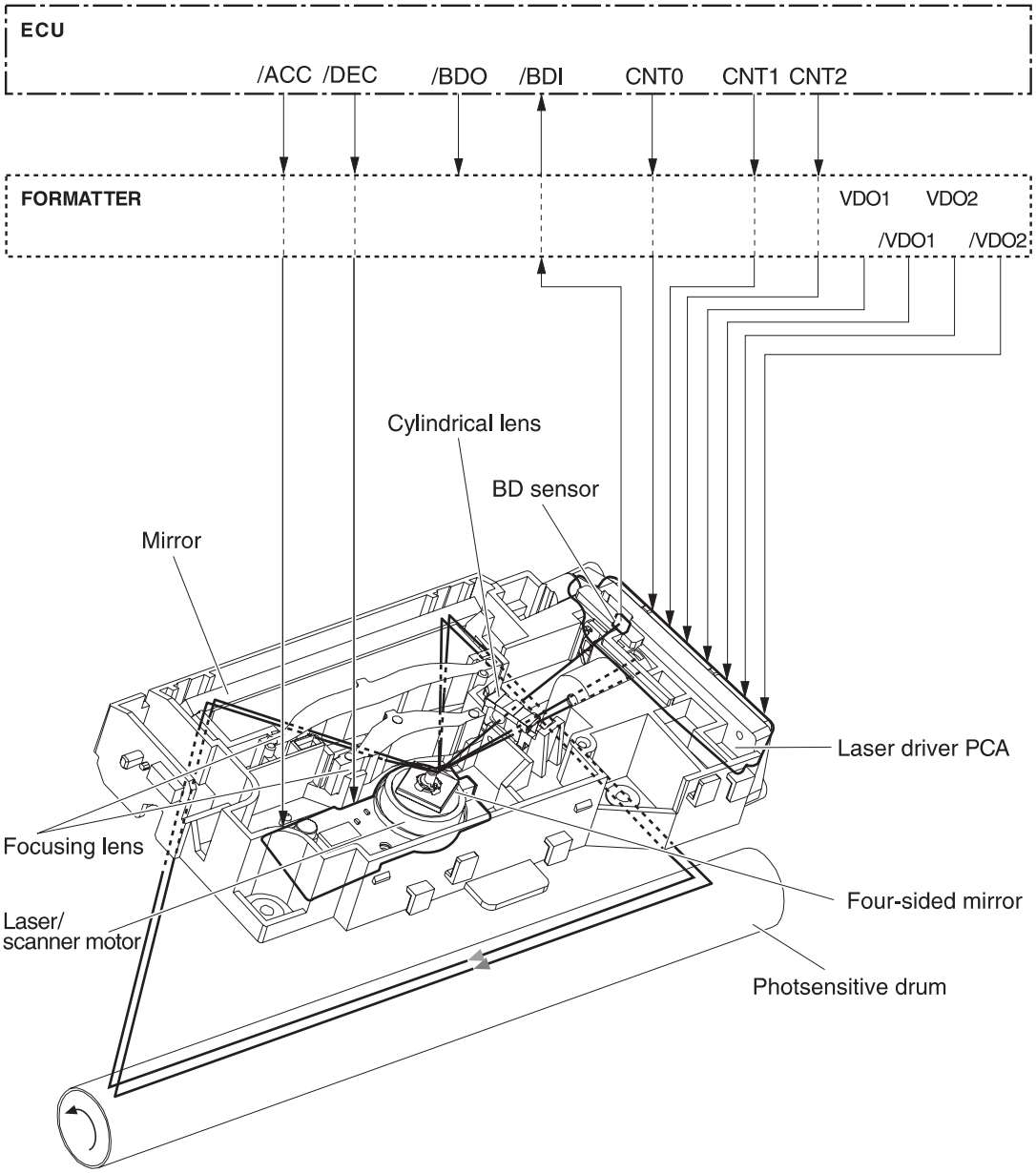

Figure 5-5. **Laser/scanner system**

Pickup/feed/delivery system

The pickup/feed/delivery system consists of several types of feed rollers and sensors. The dc controller uses two motors and two solenoids to drive the rollers. Three media-detection sensors detect media as it passes through the printer. If media does not reach or pass each sensor within a specified time period, the dc controller determines that a jam has occurred and alerts the formatter.

The following components are identified in Figure 5-6. Pickup/feed/delivery system:

- M1, main motor
- SL1, tray 2pickup solenoid
- SL2, tray 1pickup solenoid
- SL3, duplex solenoid (HPLJ 1320 only)
- PS911, tray 1 media sensor
- PS912, top-of-page sensor
- PS913, width-detection sensor
- PS914, tray 2 media sensor

- PS915, fuser delivery sensor
- PS915, duplex sensor (HPLJ 1320 only)

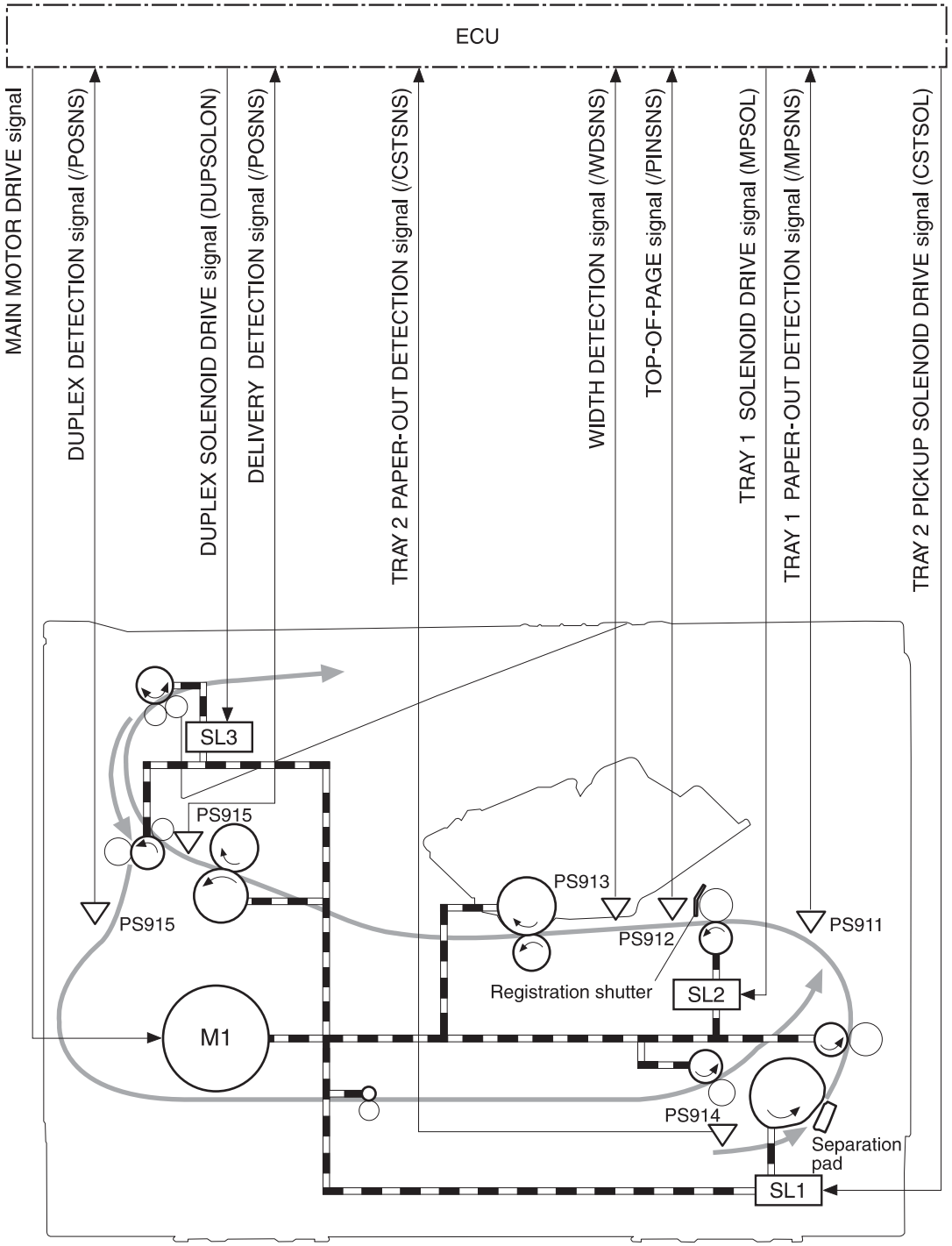

Figure 5-6. **Pickup/feed/delivery system**

Image-formation system

Laser printing requires the interaction of several different technologies, including electronics, optics, and electrophotographics, to provide a printed page. Each process functions independently and must be coordinated with the other printer processes. Image formation consists of the following five processes:

- electrostatic latent-image formation
- developing
- transfer
- fusing
- drum cleaning

The five processes contain eight steps, which are shown in Figure 5-7. Image-formation system and described in the following sections.

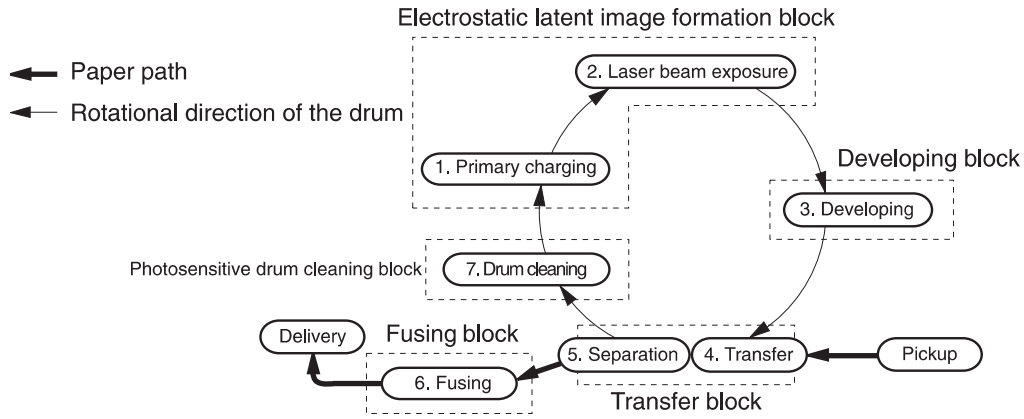

Figure 5-7. **Image-formation system**

Step 1: Primary charging

Dc and ac biases are applied to the primary charging roller, which transfers a uniform negative potential to the photosensitive drum.

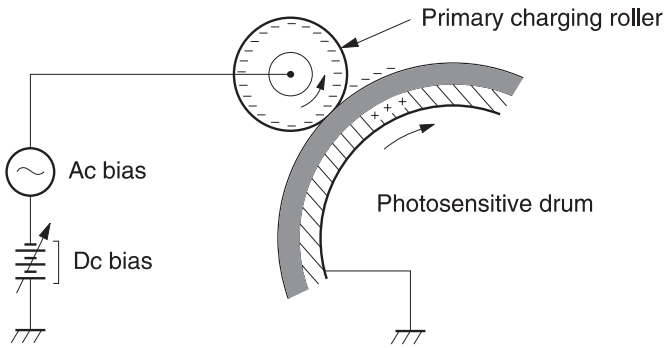

Figure 5-8. **Primary charging**

Step 2: Laser beam exposure

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

Step 3: Developing

The developing cylinder comes in contact with the photosensitive drum to deposit toner onto the electrostatic latent image.

NOTE The charges on the exposed area of the drum are shown as positive in Figure 5-9. Developing. The charges are actually negative, but they are more positive than the charges on the developing cylinder.

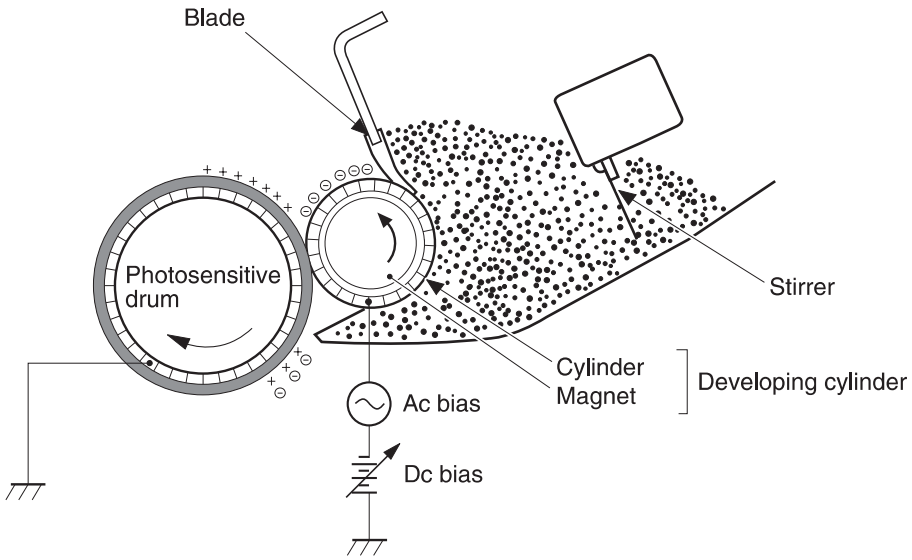

Figure 5-9. Developing

Toner acquires a negative charge through friction from the developing cylinder and the blade. When the negatively charged toner comes in contact with the drum, the toner adheres to the electrostatic latent image. The image on the drum becomes visible because of the toner.

Step 4: Transfer

The transfer charging roller, to which a dc positive bias is applied, imparts a positive charge on the print media. When the print media comes in contact with the photosensitive drum, the toner is transferred to the print media.

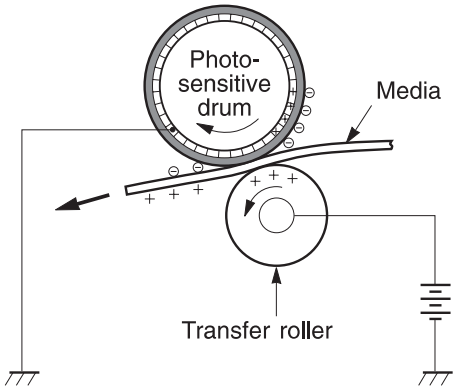

Figure 5-10. Transfer

Step 5: Separation

The elasticity of the print media causes its separation from the photosensitive drum. A static charge eliminator aids separation by weakening any electrostatic adhesion.

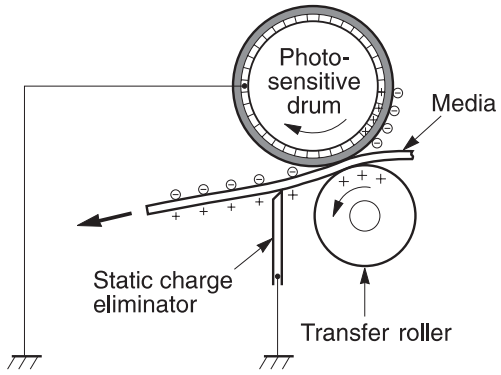

Figure 5-11. **Separation**

Step 6: Fusing

The dc negative bias applied to the fusing film strengthens the holding force of the toner on the print media and prevents the toner from scattering.

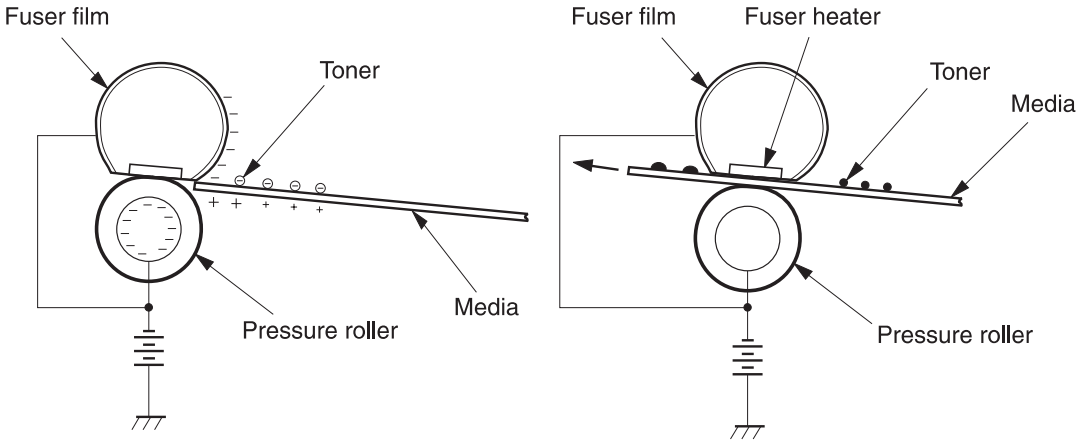

Figure 5-12. **Fusing**

Step 7: Drum cleaning

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

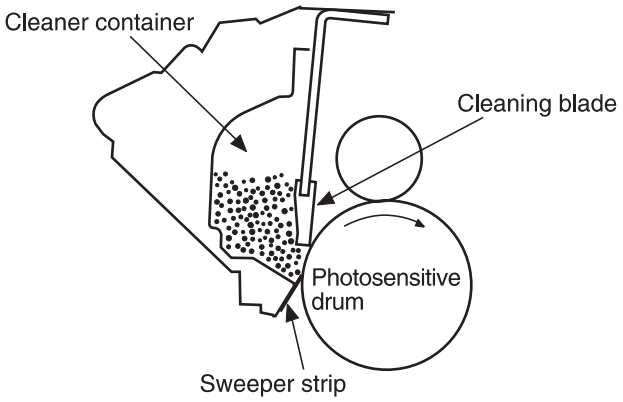

Figure 5-13. **Drum cleaning**

6 Removal and replacement

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Introduction

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

Removal and replacement strategy

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

WARNING! The sheet-metal edges of the product can be sharp. Use caution when working on the product.

NOTE Note the length, diameter, color, type, and location of each screw. 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

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

Watch for the ESD symbol to identify the parts that are sensitive to ESD. Protect these parts by using an ESD wrist strap and by placing ESD-sensitive parts into protective ESD pouches.

User-replaceable parts

To remove and replace the pickup roller or separation pad, see Maintenance.

Required tools

The following tools are needed to service this product:

- #2 Phillips screwdriver with magnetic tip
- Small flat blade screwdriver
- Small needle-nose pliers
- ESD mat
- Penlight

CAUTION A pozidrive screwdriver can damage the screw heads on the product. Use a #2 Phillips screwdriver.

If you use a multispeed screwdriver, use a torque limiter.

Before performing service

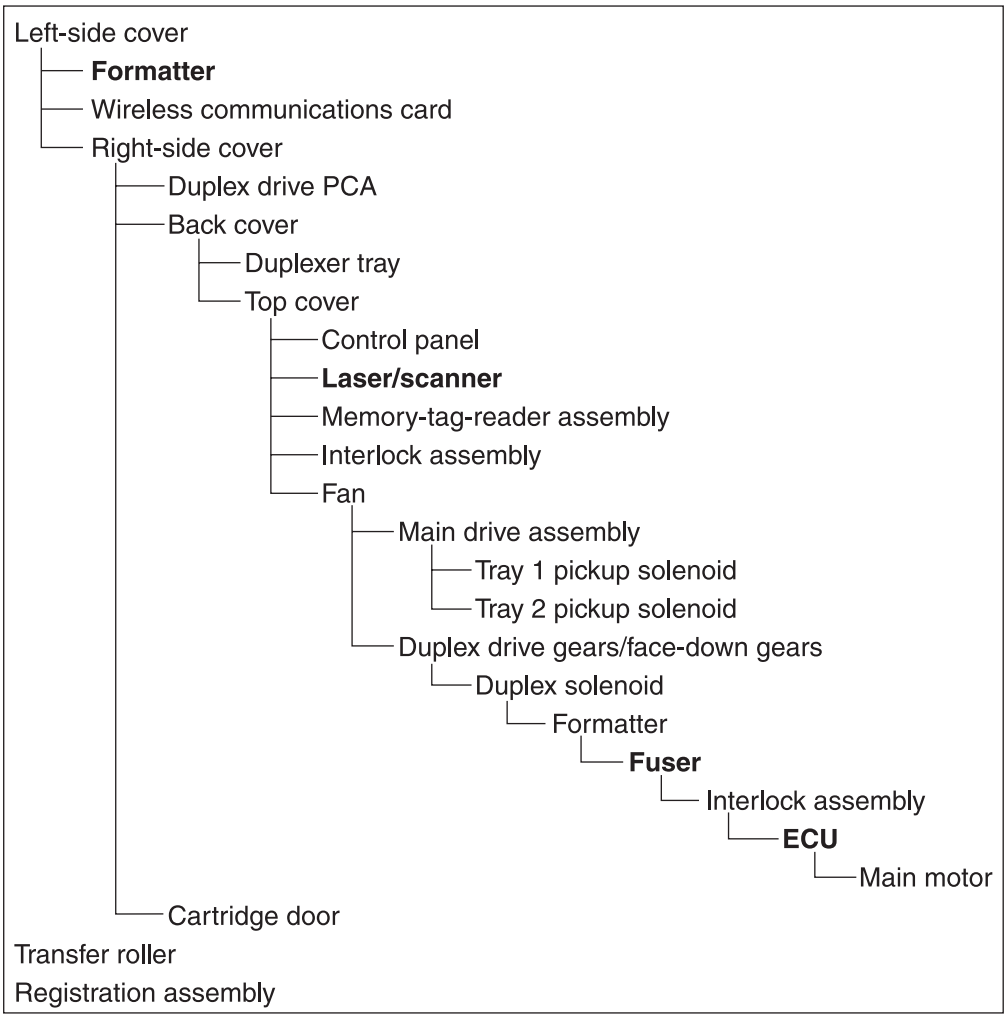
Follow the pre-service procedures before you perform service.

Pre-service procedures

1. Remove all media from the product.
2. Place the product on an ESD mat. If an ESD mat or an ESD-protected workstation is not available, discharge body static and ground the product chassis before servicing the product.
3. Remove the print cartridge, see Replacing the print cartridge.
4. Unplug the power cord and the interface cable.
5. Lift the printer (and optional tray 2) off of optional tray 3 (if it is installed).

Parts removal order

Use the following diagram to determine which parts must be removed before removing other parts.



Left-side cover

1. Open the print-cartridge door.
2. Release two tabs (callout 1) to pry the cover away at the back of the printer approximately 38 mm (1.5 inches).

NOTE A screwdriver is required to remove the left-side cover from an HP LaserJet 1160 printer.

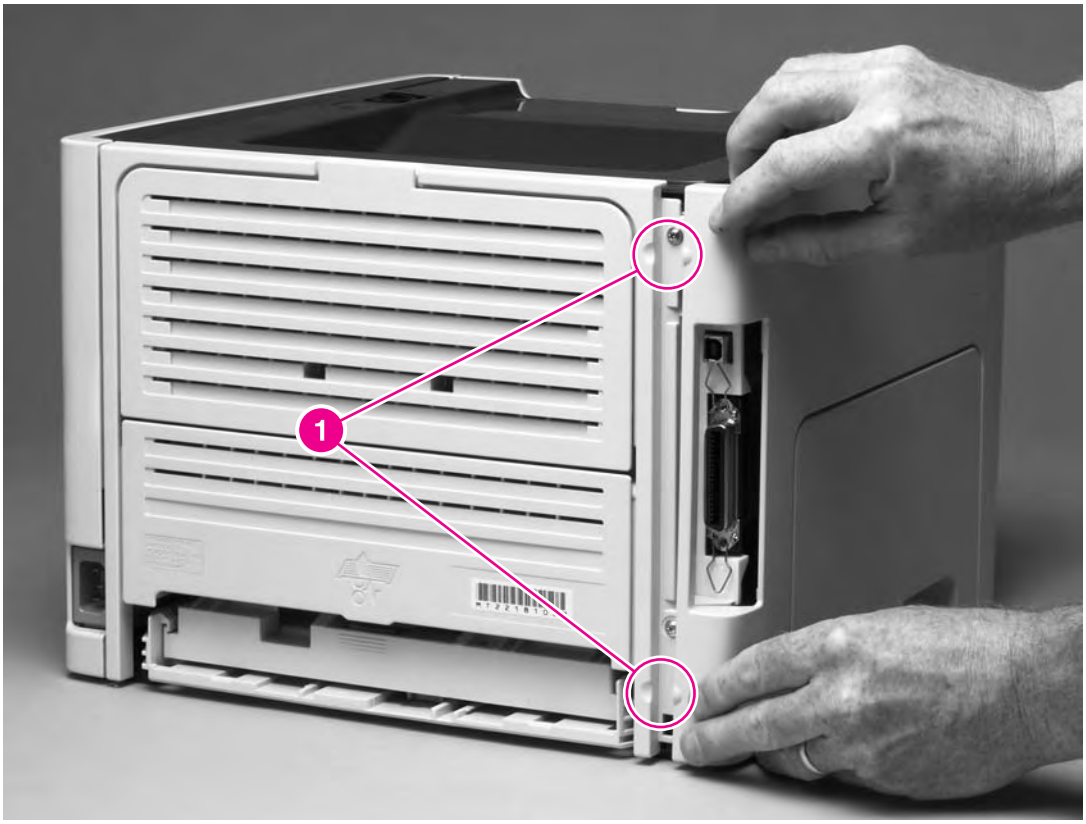


Figure 6-1. **Removing the left-side cover (1 of 2)**

3. Slide the cover toward the front of the printer to clear the interlock tab (callout 2).

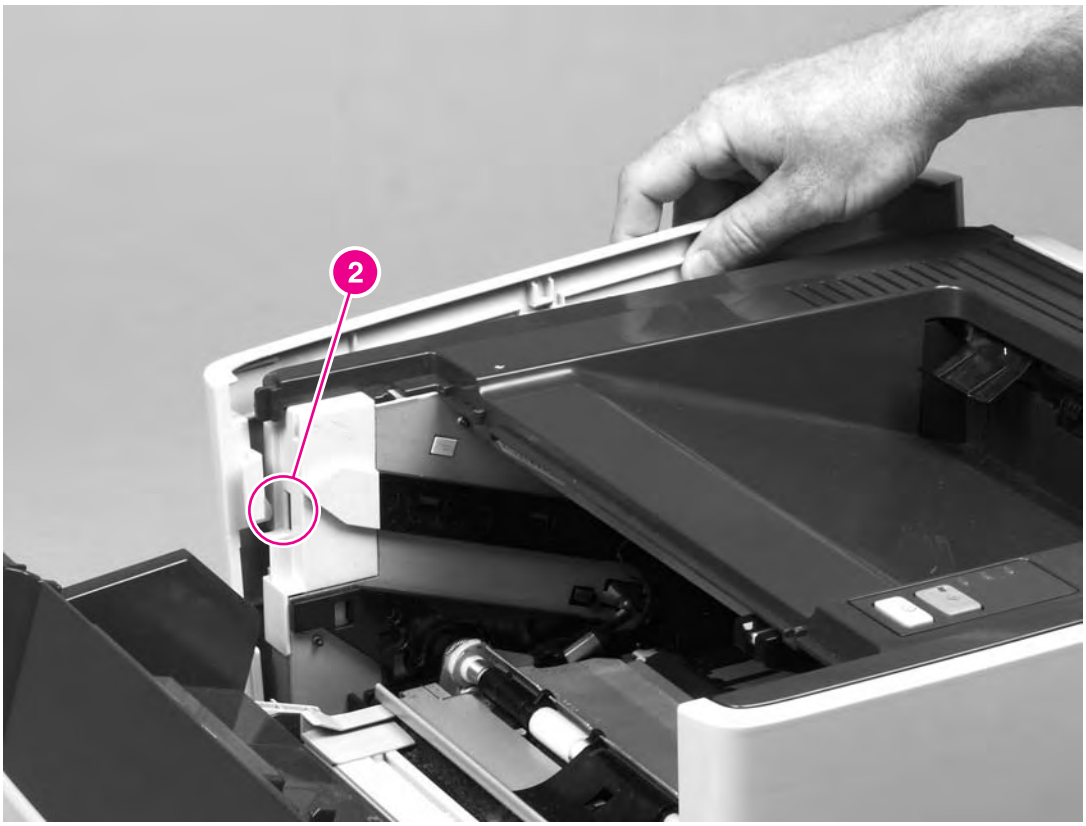


Figure 6-2. **Removing the left-side cover (2 of 2)**

4. Lift the cover away from the printer.

Right-side cover

1. Open the print-cartridge door.
2. Lift the back of the printer off of the workspace and use a flat blade screwdriver to pry the cover from the tab (callout 1) at the bottom of the printer.

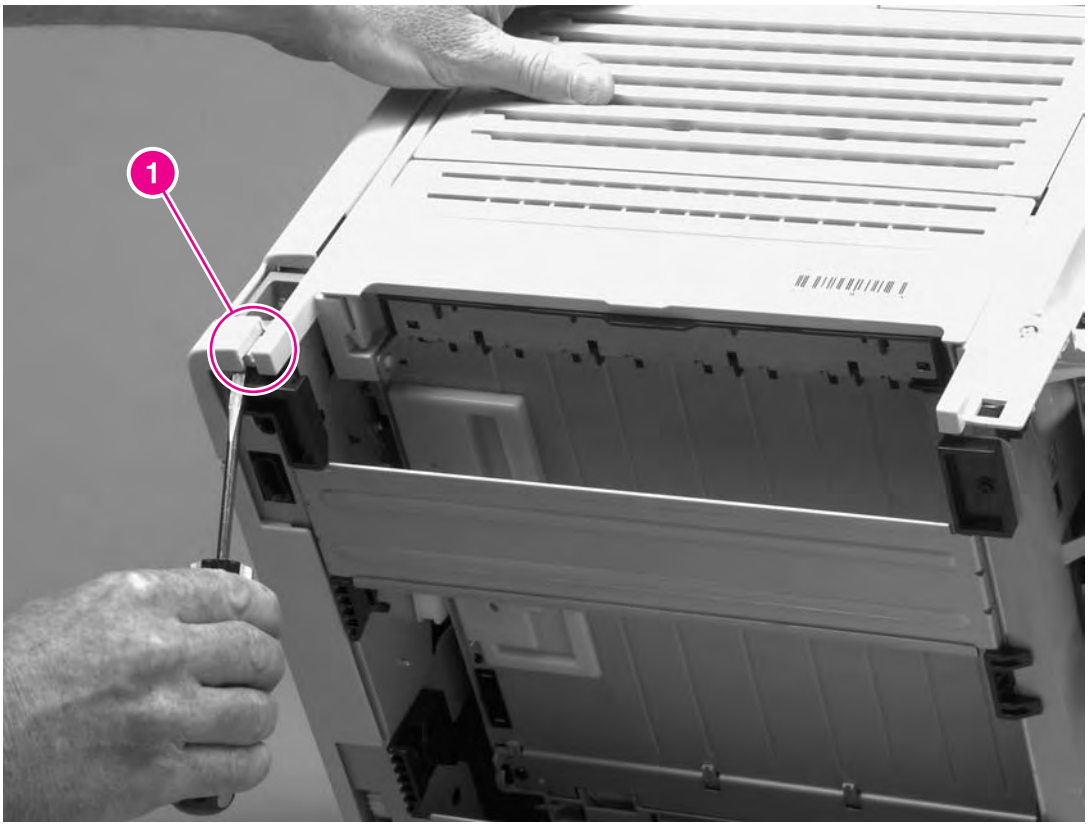


Figure 6-3. **Removing the right-side cover (1 of 2)**

3. Use a flat blade screwdriver to pry the cover at the back of the printer, releasing two internal tabs (callout 2).

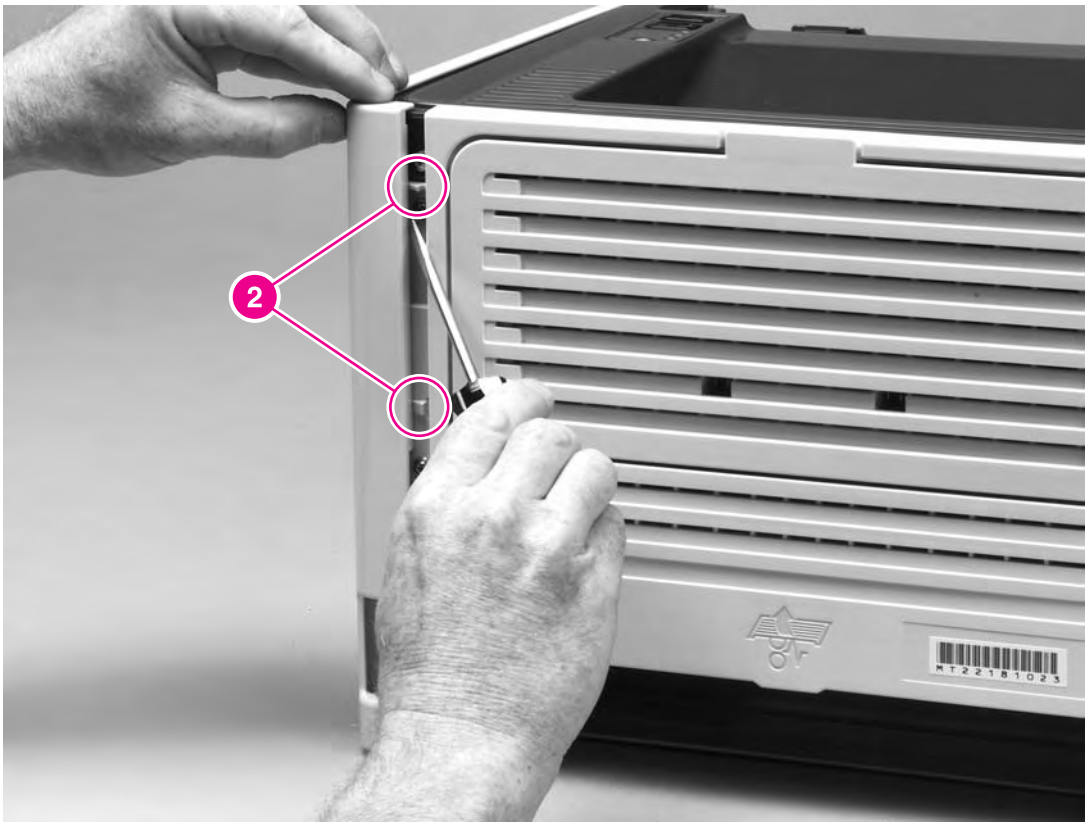


Figure 6-4. **Removing the right-side cover (2 of 2)**

4. Lift the cover away from the printer.

Back cover

1. Remove the left-side cover (see Left-side cover) and the right-side cover (see Right-side cover).
2. Remove four screws (callout 1).

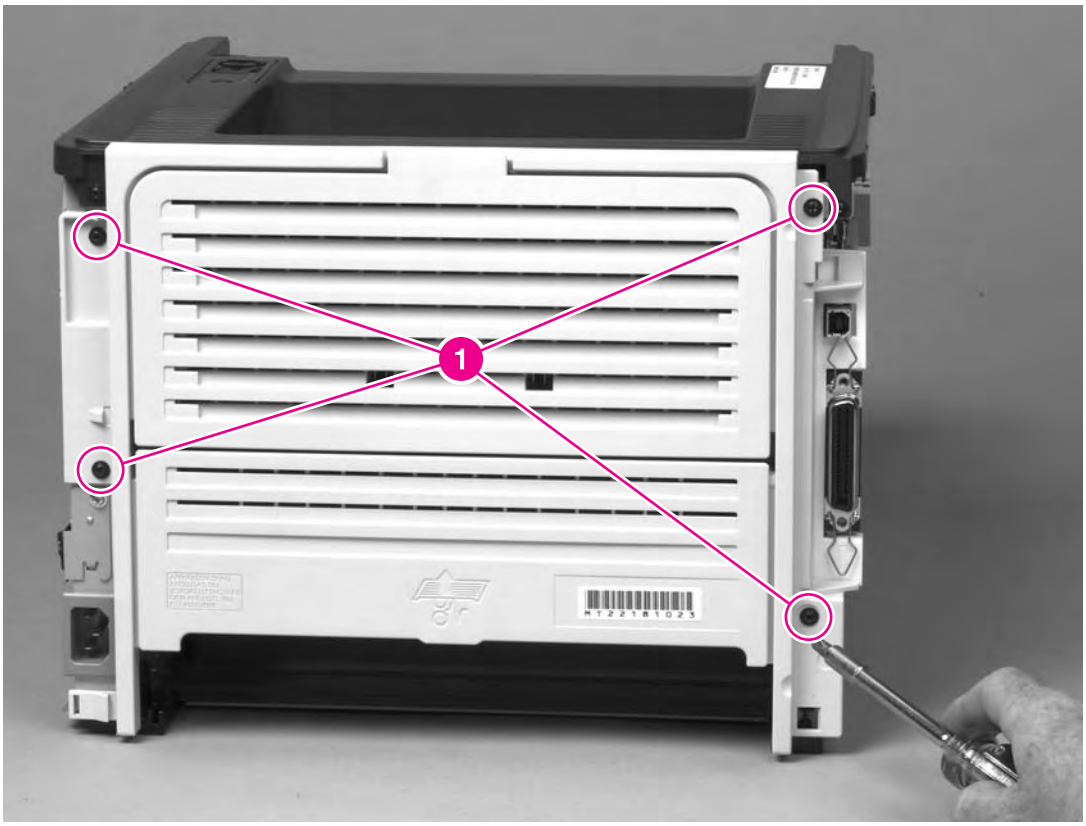


Figure 6-5. **Removing the back cover (1 of 2)**

3. Tip the printer so that it rests on its front.
4. Release the tab (callout 2) at the back of the printer on the right side of the printer.

5. Slide the cover toward the right side of the printer to clear the tab (callout 3) on the duplex tray.

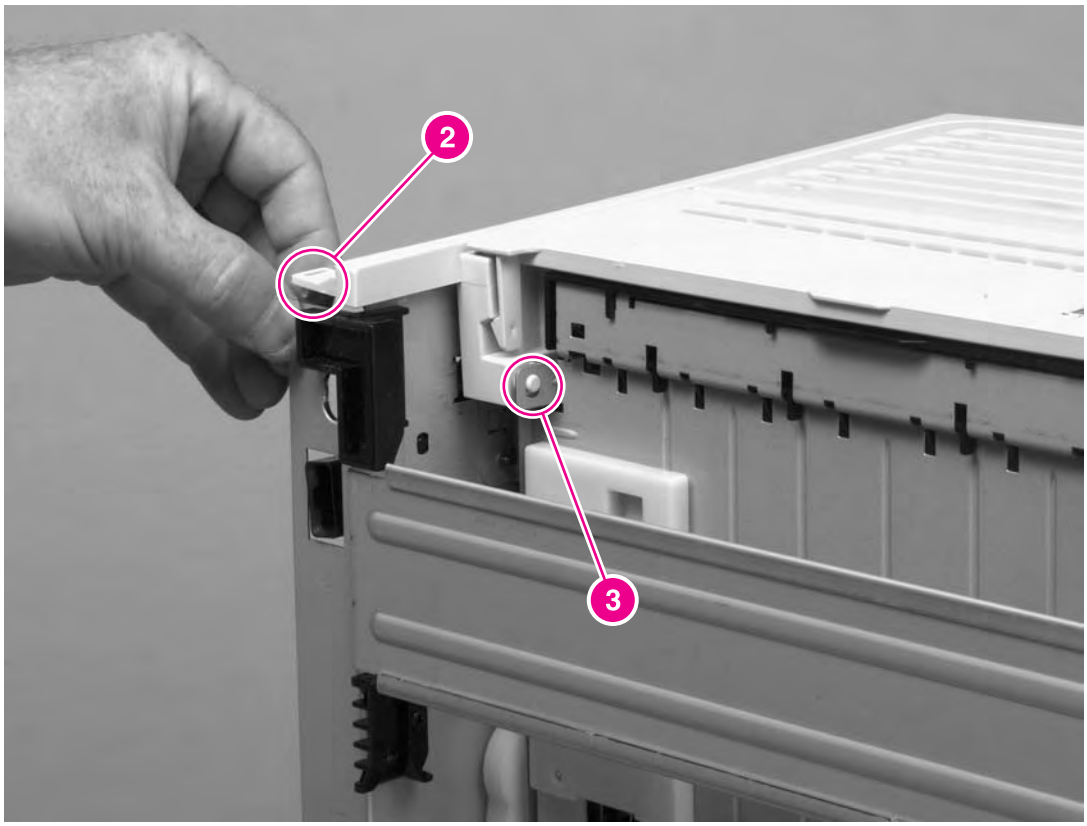


Figure 6-6. **Removing the back cover (2 of 2)**

6. Lift the cover straight up and away from the printer.

Reinstallation tip

Make sure that the flag (callout 1) and both of the fuser-release levers (callout 2) fit through the holes in the cover before attaching the cover.

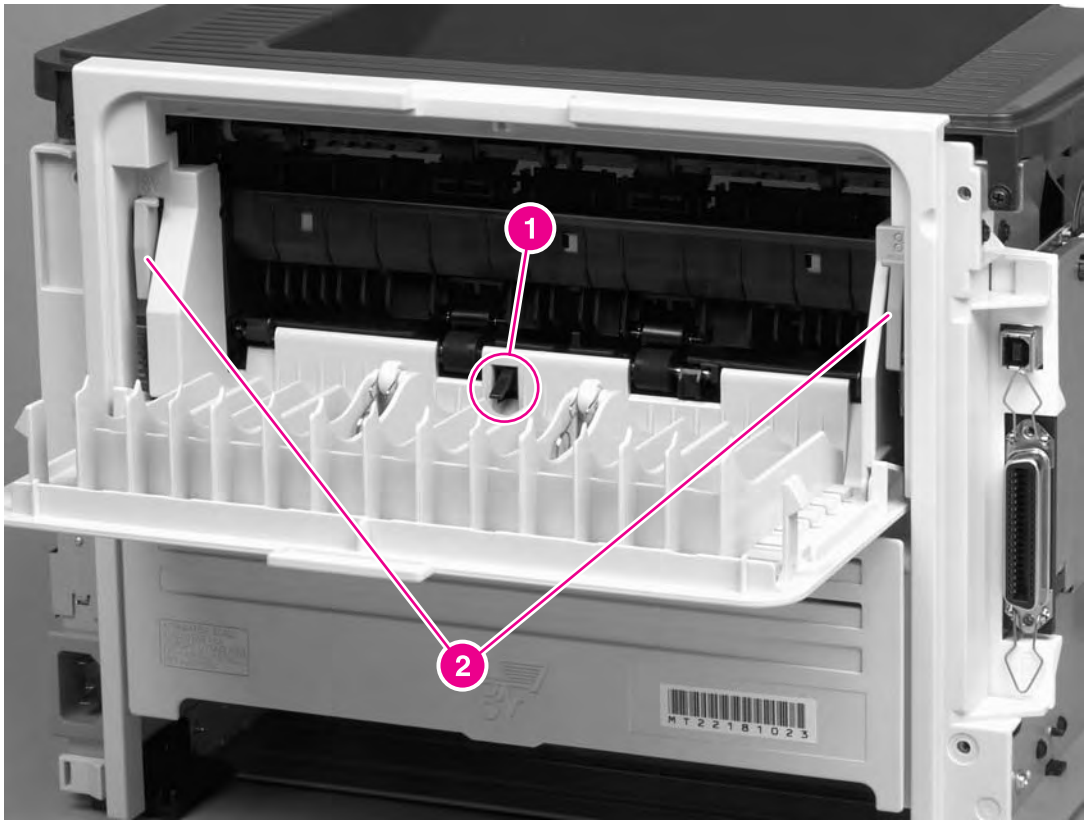


Figure 6-7. **Reinstalling the back cover**

Duplexer tray

1. Remove the left-side cover (see Left-side cover), the right-side cover (see Right-side cover), and the back cover (see Back cover).
2. Pull the duplexer tray release-tab (callout 1) to release the duplexer tray magnets.
3. Slide the duplexer tray toward the right side of the printer to release the tab (callout 2) at the back, left side.

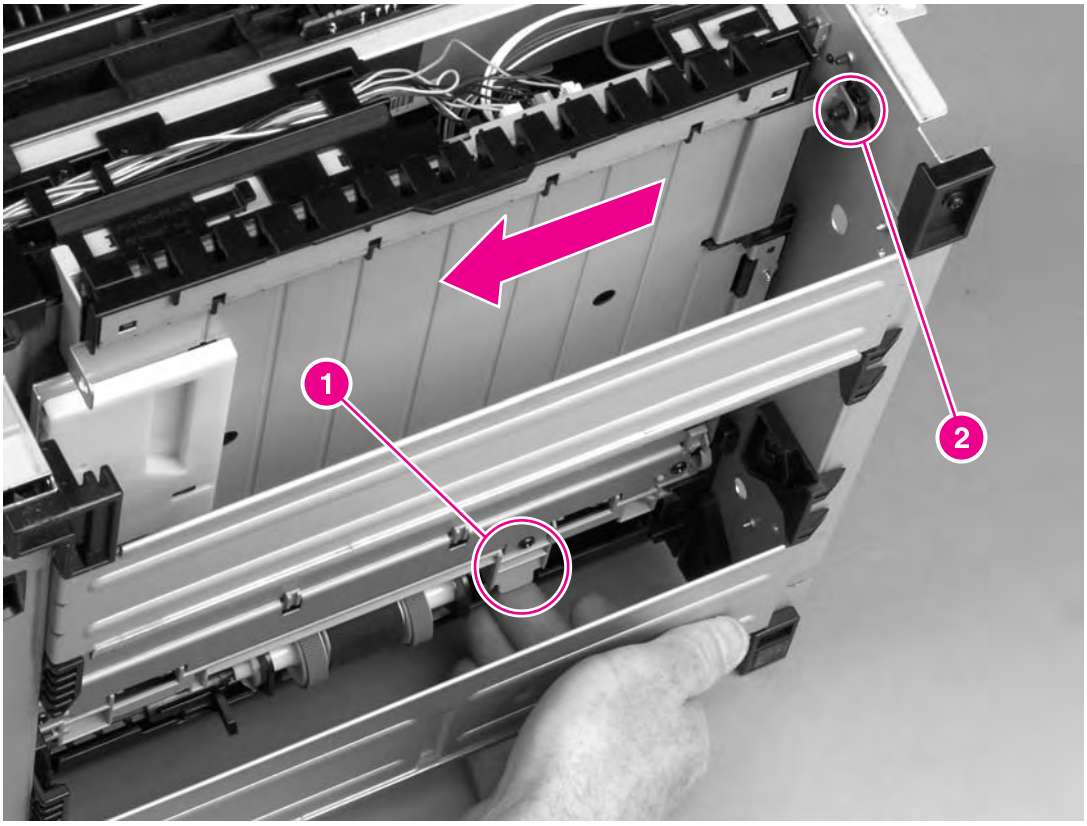


Figure 6-8. **Removing the duplexer tray**

Top cover

1. Remove the left-side cover (see Left-side cover), the right-side cover (see Right-side cover), the back cover (see Back cover), and the duplexer tray (see Duplexer tray).
2. Remove two screws (callout 1) at the back of the printer.

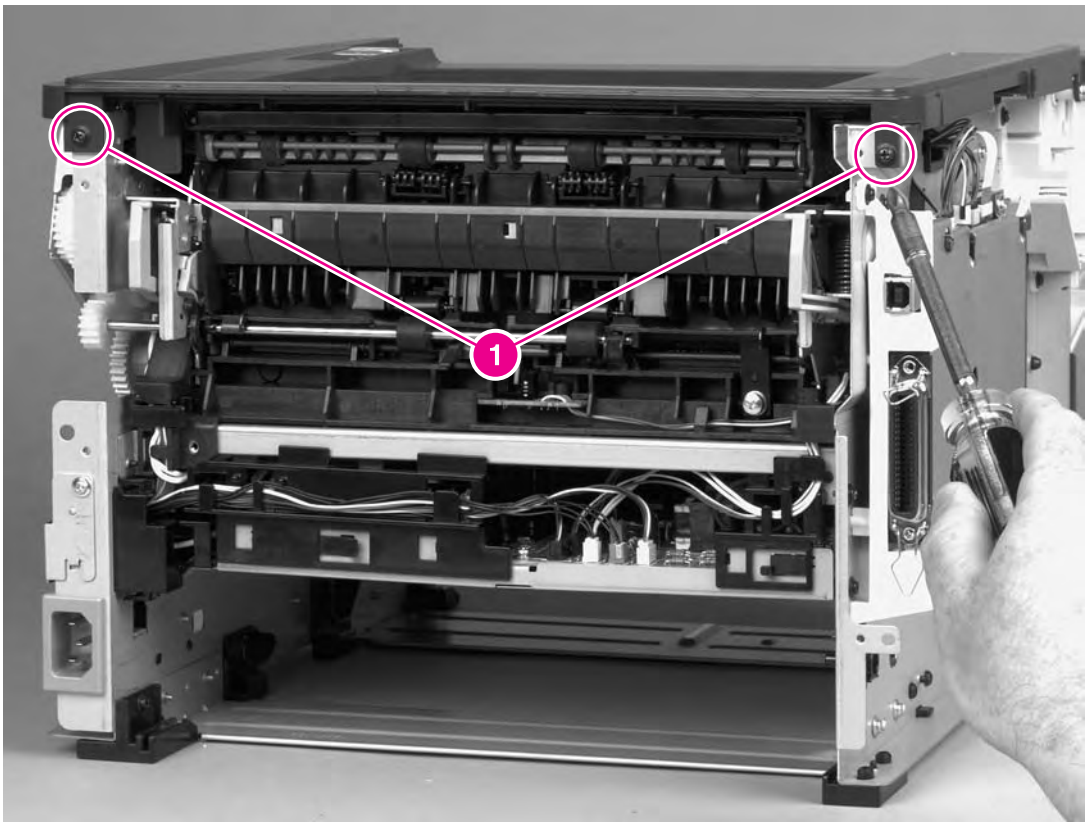


Figure 6-9. **Removing the top cover (1 of 3)**

3. Remove one screw (callout 3) at the left side of the printer and remove one screw (callout 4) from the front of the printer.

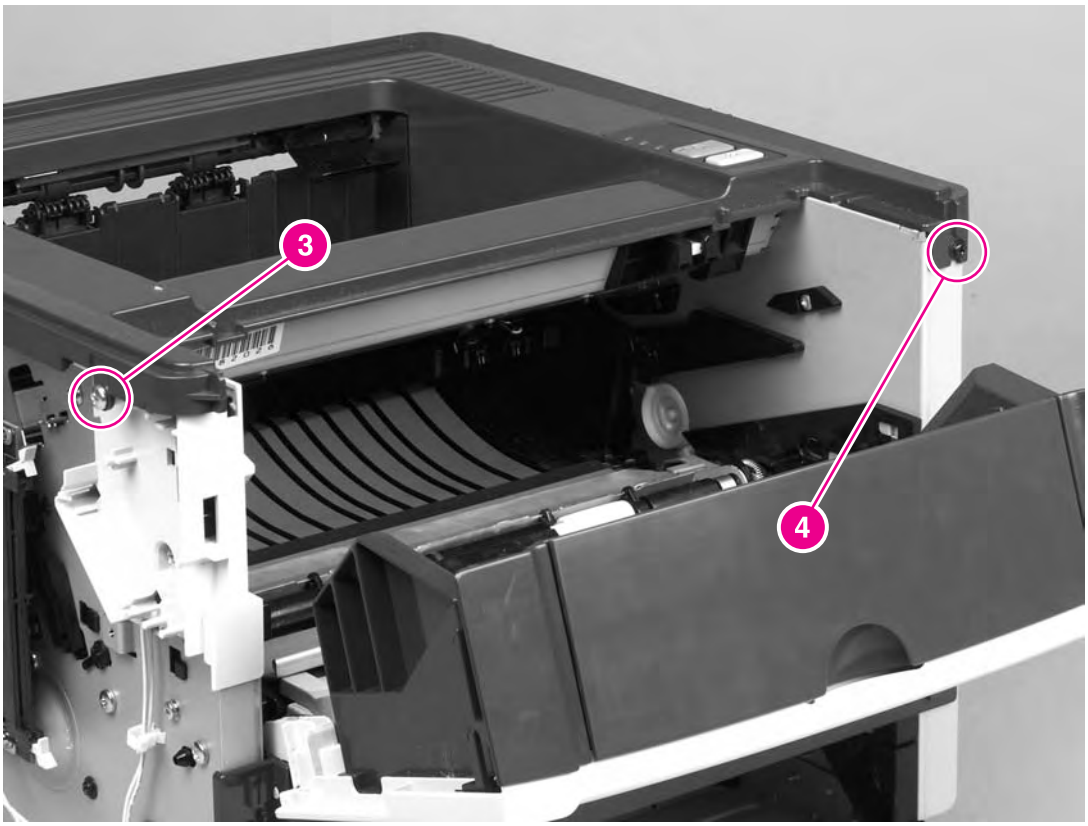


Figure 6-10. **Removing the top cover (2 of 3)**

4. Lift up the left side of the top cover and release the control-panel cable (callout 5) at the right side.

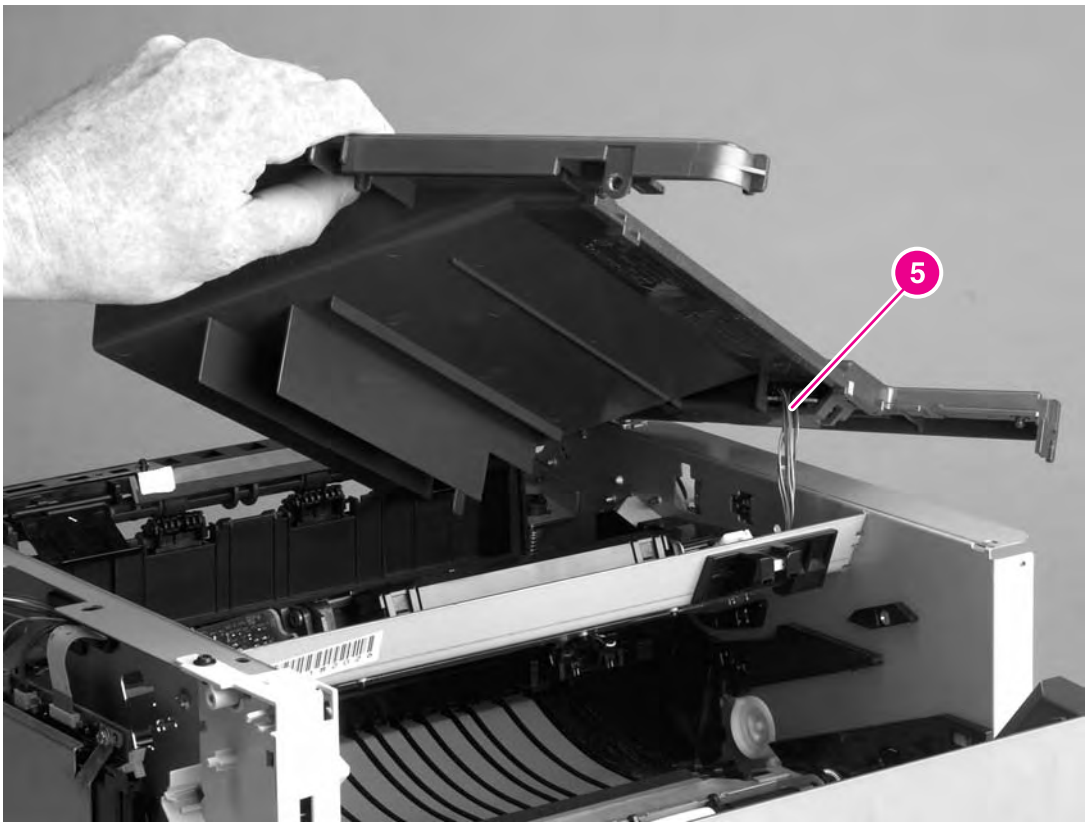


Figure 6-11. **Removing the top cover (3 of 3)**

5. Lift the top cover off of the printer.

Control panel

1. Remove all covers (see Covers).
2. Press a flat blade screwdriver into the gap at the control panel, and then use the screwdriver to pry the control panel out of the top cover.

Figure 6-12. Removing the control panel (1 of 2)

3. Use a flat blade screwdriver to press the securing tab, and then slide the blade under the control-panel PCA to lift it out.

Figure 6-13. **Removing the control panel (2 of 2)**

4. Slide the control-panel PCA toward the back of the top cover to clear the tab at the front, and then lift the control-panel PCA out of the top cover.

Formatter

1. Remove the left-side cover (see Left-side cover).
2. Disconnect one flat, flexible cable (callout 1) at the bottom of the formatter.

CAUTION Do not fold flat, flexible cables. Also, do not straighten pre-folds in flat, flexible cables.

3. Disconnect four cables (callout 2) at the top of the formatter.
4. Remove two screws (callout 3) from the I/O cover.
5. Remove six screws (callout 4) from the formatter plate.

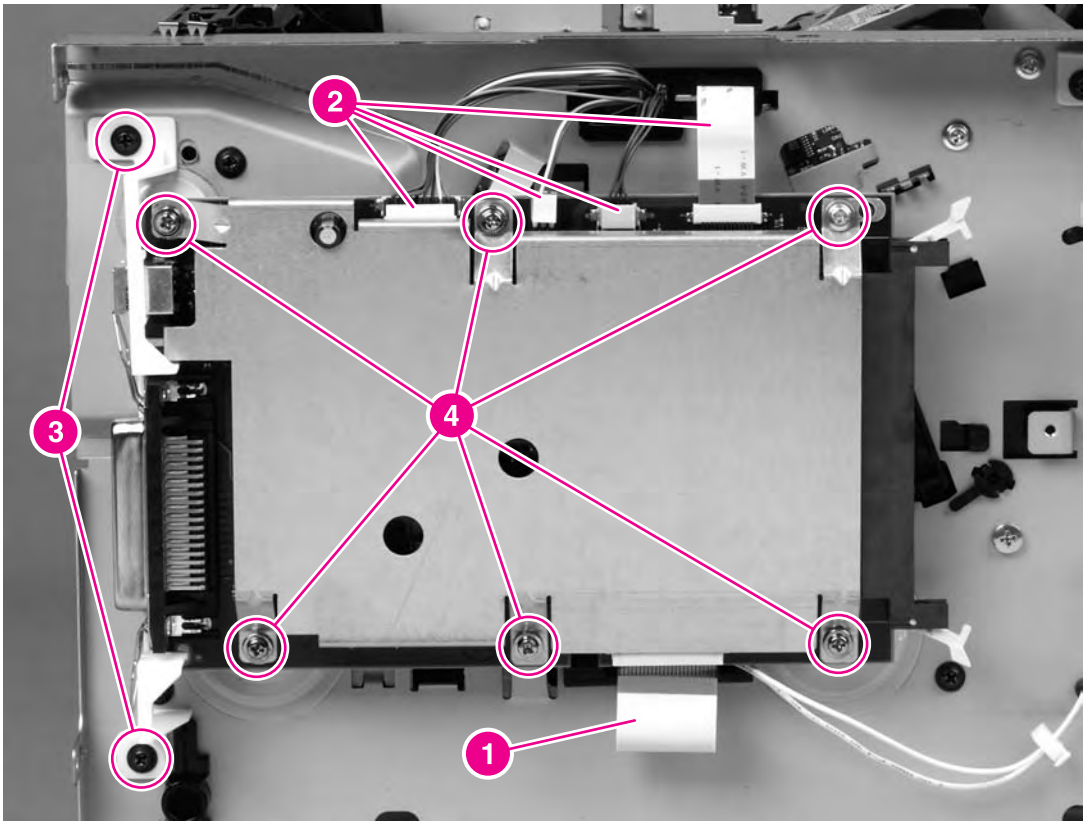


Figure 6-14. **Removing the formatter**

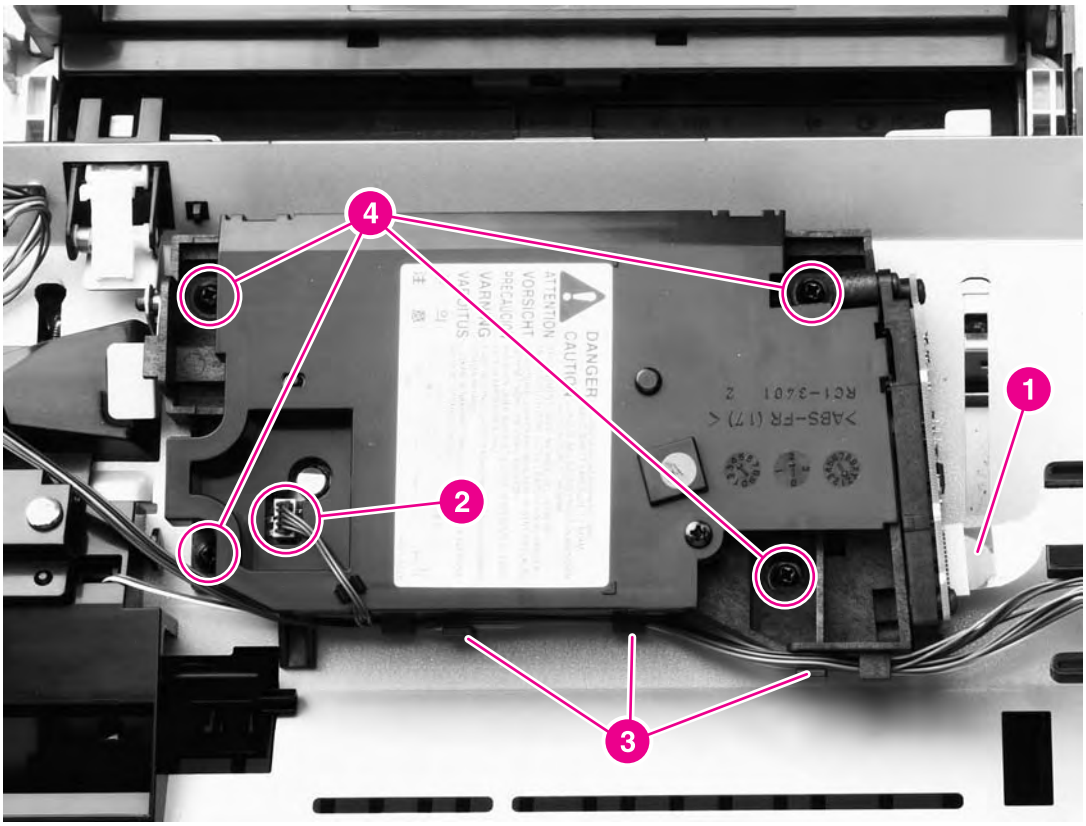
6. Lift the I/O cover, the formatter, and the formatter plate off of the printer and place them on an ESD mat.
7. Lift the formatter plate off of the formatter.
8. Rotate the I/O cover to clear its tabs and remove it from the formatter.

Laser/scanner

1. Remove all covers (see Covers).
2. Disconnect one flat, flexible cable (callout 1) from the laser/scanner PCA.
3. Disconnect one cable (callout 2) from the top of the laser/scanner.
4. Unthread all cables (callout 3) from the laser/scanner.

NOTE Examine the cable routing as you unthread the cables.

5. Remove four screws (callout 4).



6. Lift the laser/scanner out of the printer.

NOTE Examine the shutter switch as you lift the laser/scanner out of the printer.

CAUTION Do not fold flat, flexible cables. Also, do not straighten pre-folds in flat, flexible cables.

Memory-tag-reader assembly

1. Remove all covers (see Covers).
2. Remove the fan from the printer chassis (see steps 3 and 4 of Fan).
3. Remove one cable (callout 1) from the cable-holder on top of the memory-tag-reader cover.
4. Disconnect one cable from the formatter (callout 2).

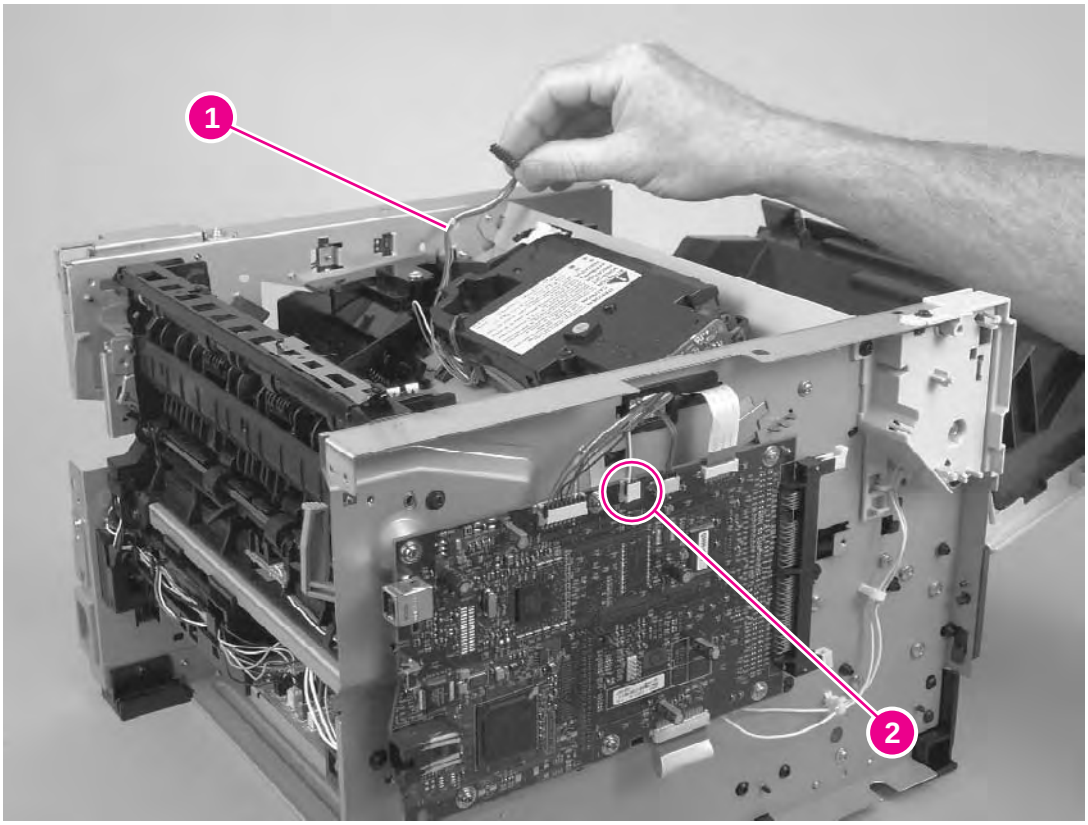


Figure 6-15. **Removing the memory-tag-reader assembly (1 of 2)**

5. Remove one screw (callout 3).

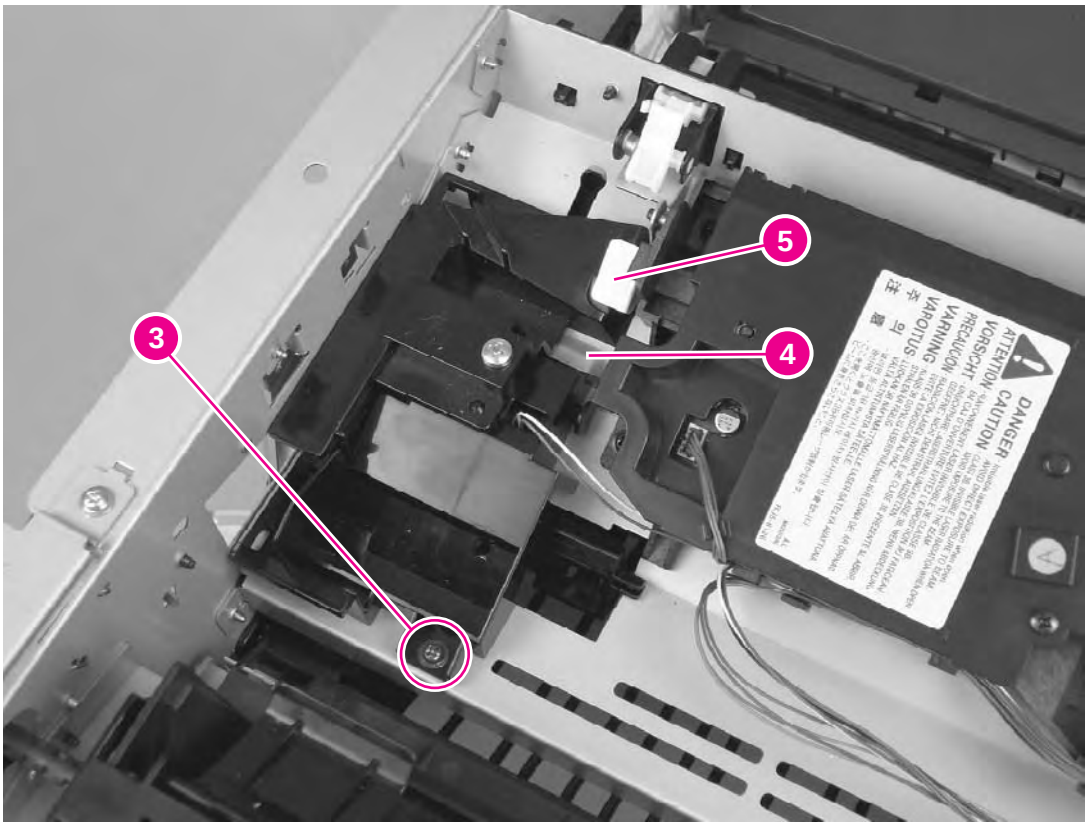


Figure 6-16. **Removing the memory-tag-reader assembly (2 of 2)**

6. Lift up slightly the back of the memory-tag-reader assembly and then slide the assembly toward the back of the printer, to release it from the laser/scanner plate.

Reinstallation tip

Make sure that the tab at the bottom of the assembly fits in the printer chassis (callout 4 in Figure 6-16. Removing the memory-tag-reader assembly (2 of 2)) and that the front of the assembly is under the laser/scanner shutter (callout 5).

Duplex-drive PCA

1. Remove all covers (see Covers).
2. Disconnect the duplex-drive cable (callout 1) at the ECU and route the cable through the hole in the chassis.

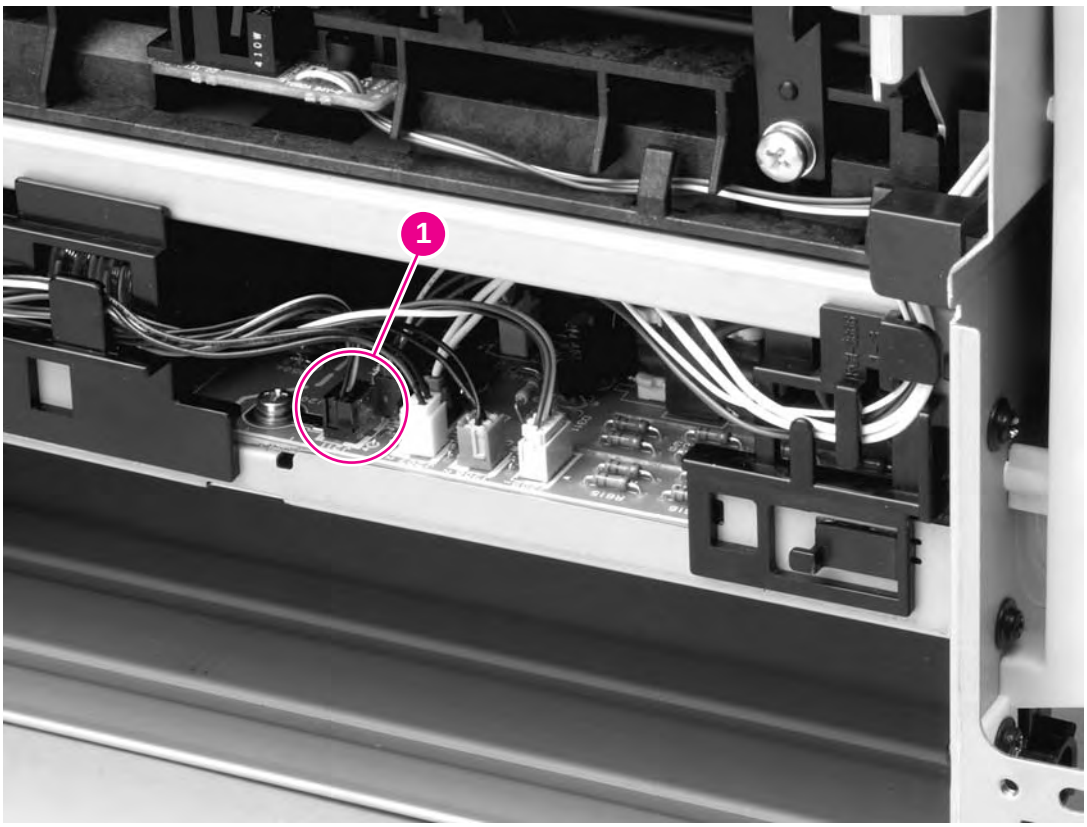


Figure 6-17. **Removing the duplex-drive PCA (1 of 2)**

3. Disconnect one cable (callout 2) from the duplex-drive PCA.

4. Remove one screw (callout 3) and then lift the duplex-drive PCA off of the printer.

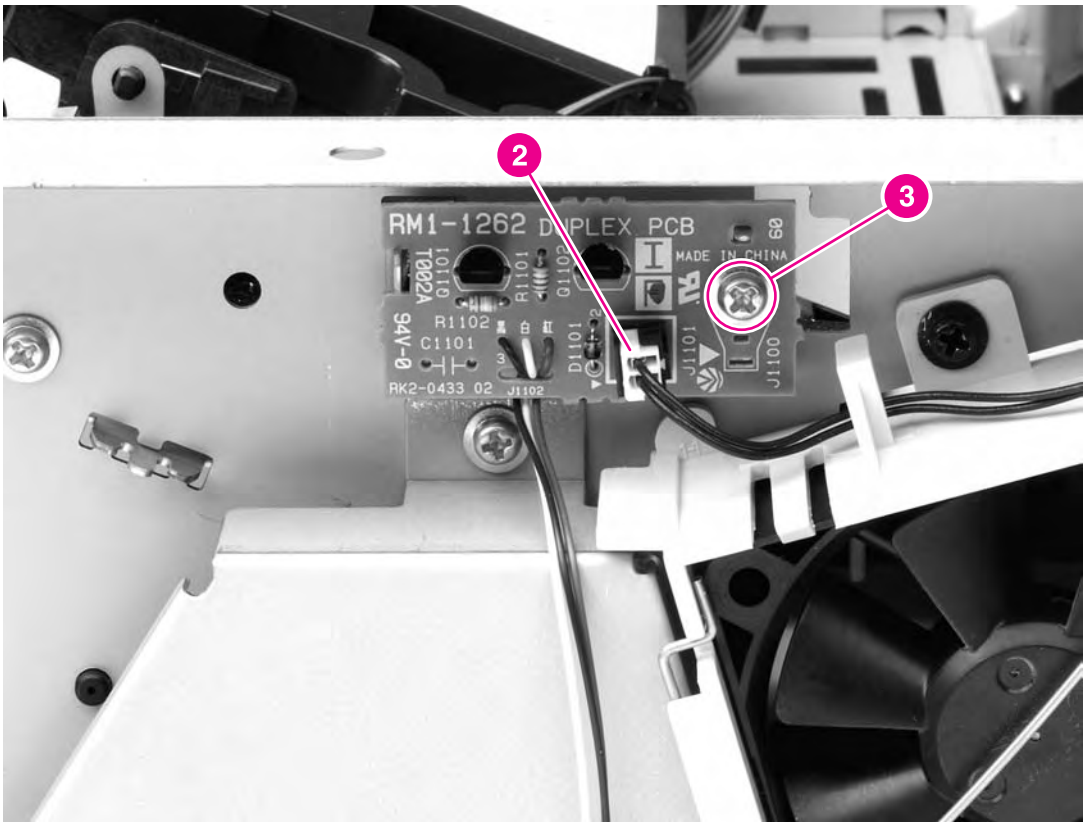


Figure 6-18. **Removing the duplex-drive PCA (2 of 2)**

Fuser

Several parts must be removed before you can remove the fuser. The following parts are included in this section about removing the fuser:

- Fan
- Duplex-drive gears/face-down gears
- Duplex solenoid
- Fuser

Fan

1. Remove all covers (see Covers).
2. Disconnect the fan cable (callout 1) at the ECU.

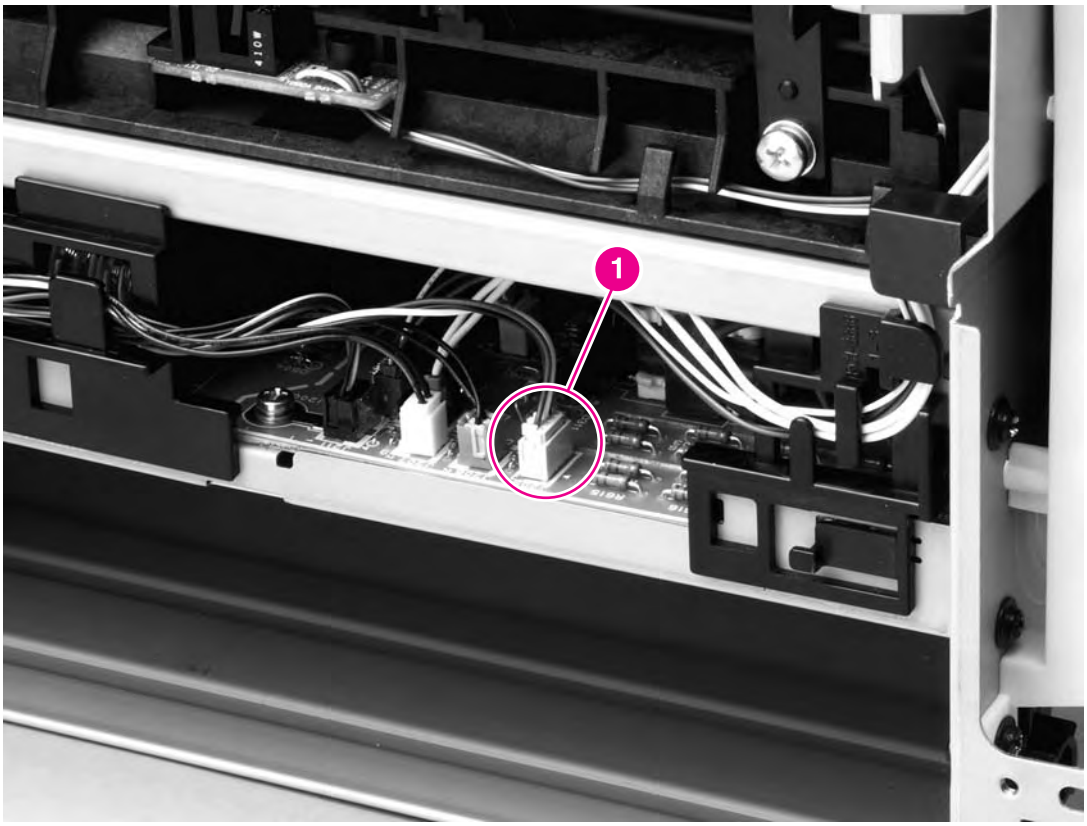
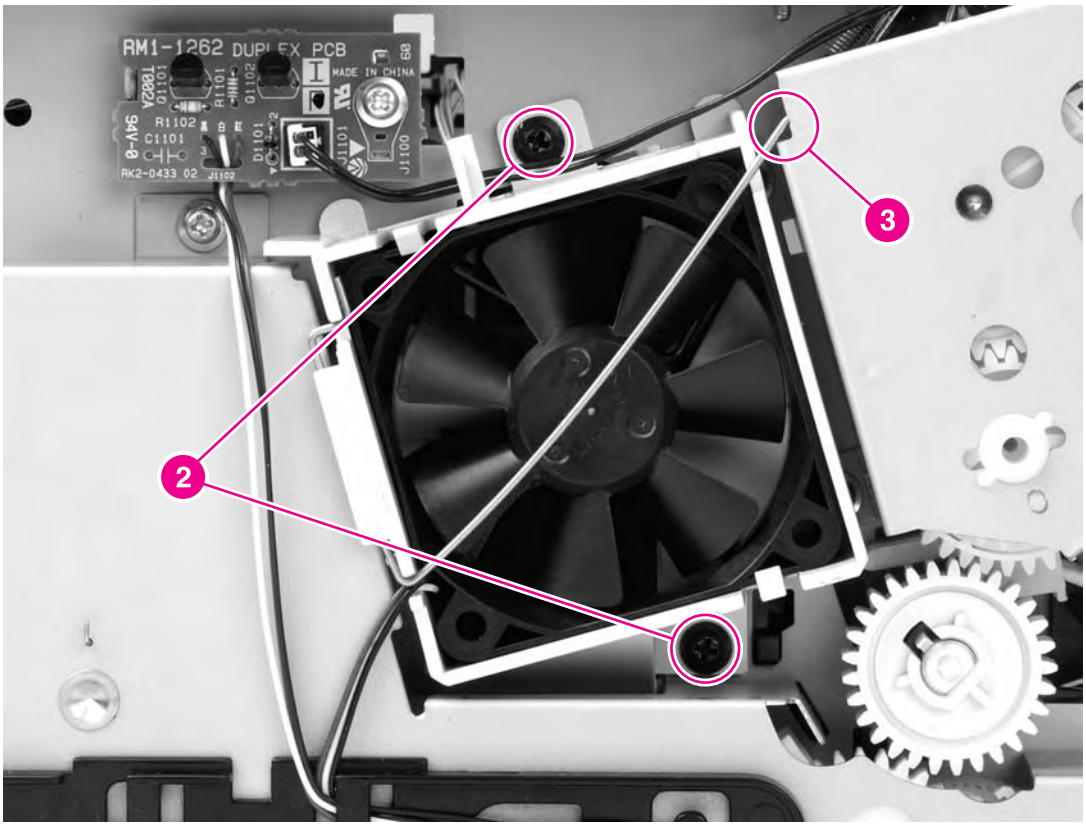


Figure 6-19. **Removing the fan (1 of 2)**

3. Remove two screws (callout 2).

4. Unhook the fan clip (callout 3) and then lift the fan off of the printer.



Reinstallation tip

Use the fan clip to hold the fan in place before replacing the screws.

Duplex-drive gears/face-down gears

NOTE HP LaserJet 1320 Series printers contain duplex-drive gears. HP LaserJet 1160 printers contain face-down gears.

1. Remove all covers (see Covers).
2. Remove the fan (see Fan).
3. Remove three screws (callout 1) and then lift the assembly away from the printer.

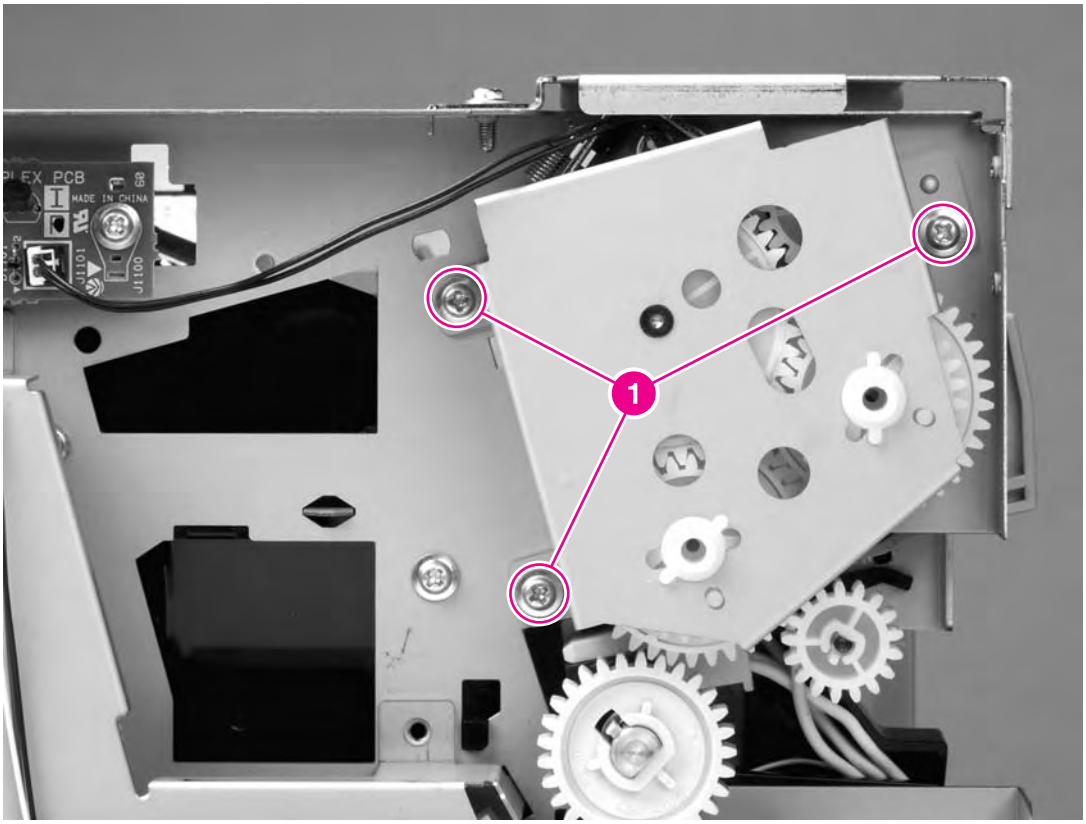


Figure 6-20. **Removing the duplex-drive gears/face-down gears**

NOTE The gears are not attached to the gear plate. Carefully remove the gear plate and the gears together to prevent them from falling out of the assembly.

Reinstallation tip

You might find it easier to replace the assembly if you place the two large gear-sets into their holes on the chassis first, and then line up the holes in the gear plate with the gears as you replace the gear plate.

Figure 6-21. Duplex-drive gears (HP LaserJet 1320 Series printers) and Figure 6-22. Face-down gears (HP LaserJet 1160 printers) show the differences between duplex-drive gears and face-down gears. For HP LaserJet 1320 Series printers, make sure that you replace the gears as shown in Figure 6-21. Duplex-drive gears (HP LaserJet 1320 Series printers).

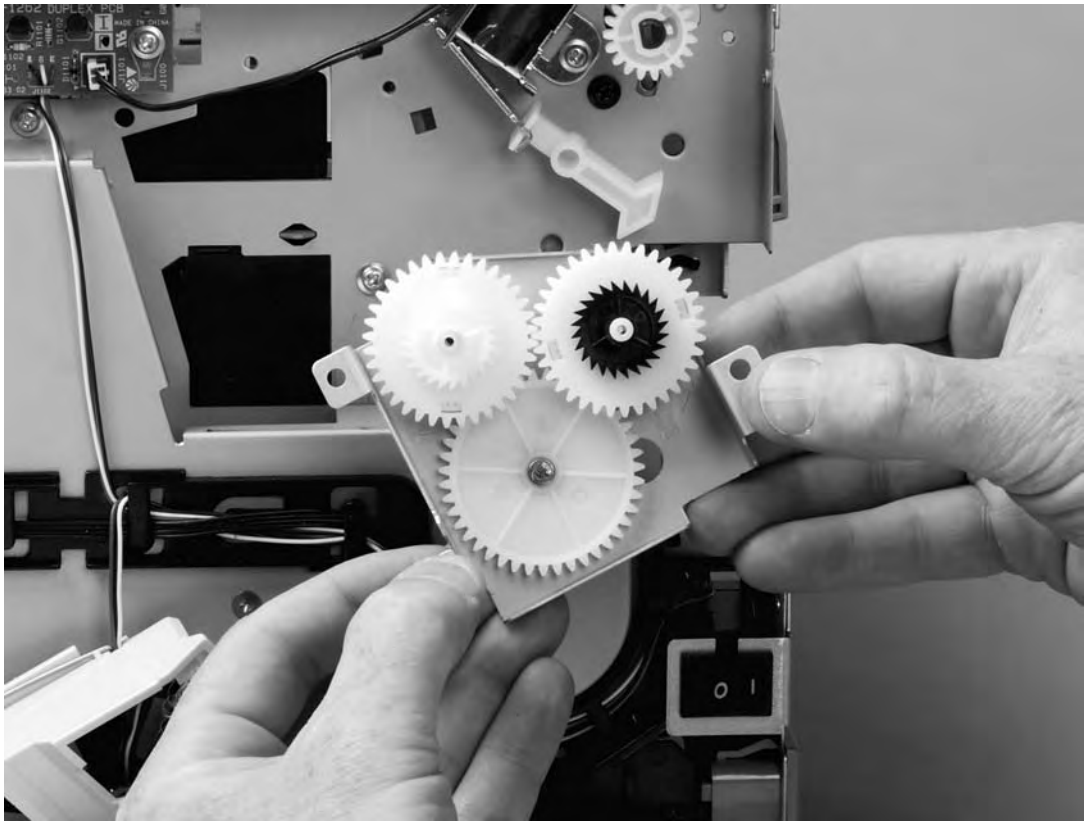


Figure 6-21. **Duplex-drive gears (HP LaserJet 1320 Series printers)**

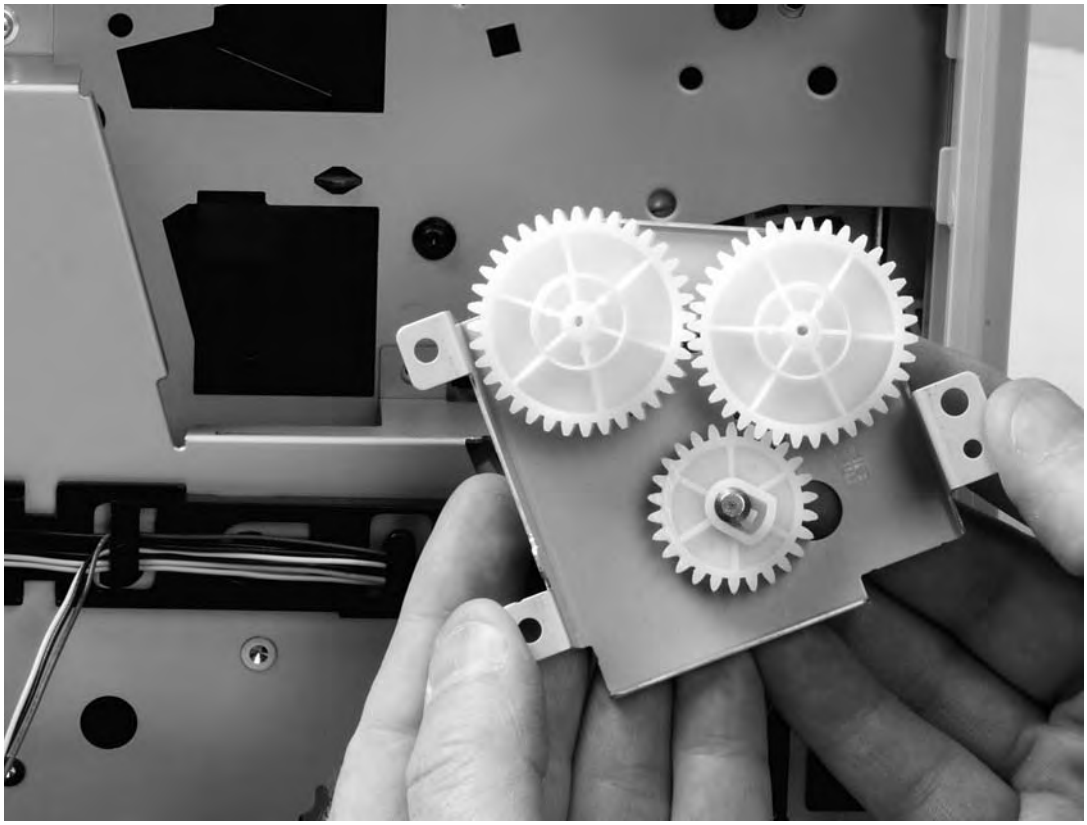


Figure 6-22. **Face-down gears (HP LaserJet 1160 printers)**

Duplex solenoid (SL3) (HP LaserJet 1320 Series printers only)

1. Remove all covers (see Covers).
2. Remove the fan (see Fan).
3. Remove the duplex-drive gears (see Duplex-drive gears/face-down gears).
4. Disconnect one cable (callout 1) at the duplex-drive PCA.
5. Remove one screw (callout 2) and lift the solenoid off of the printer chassis.

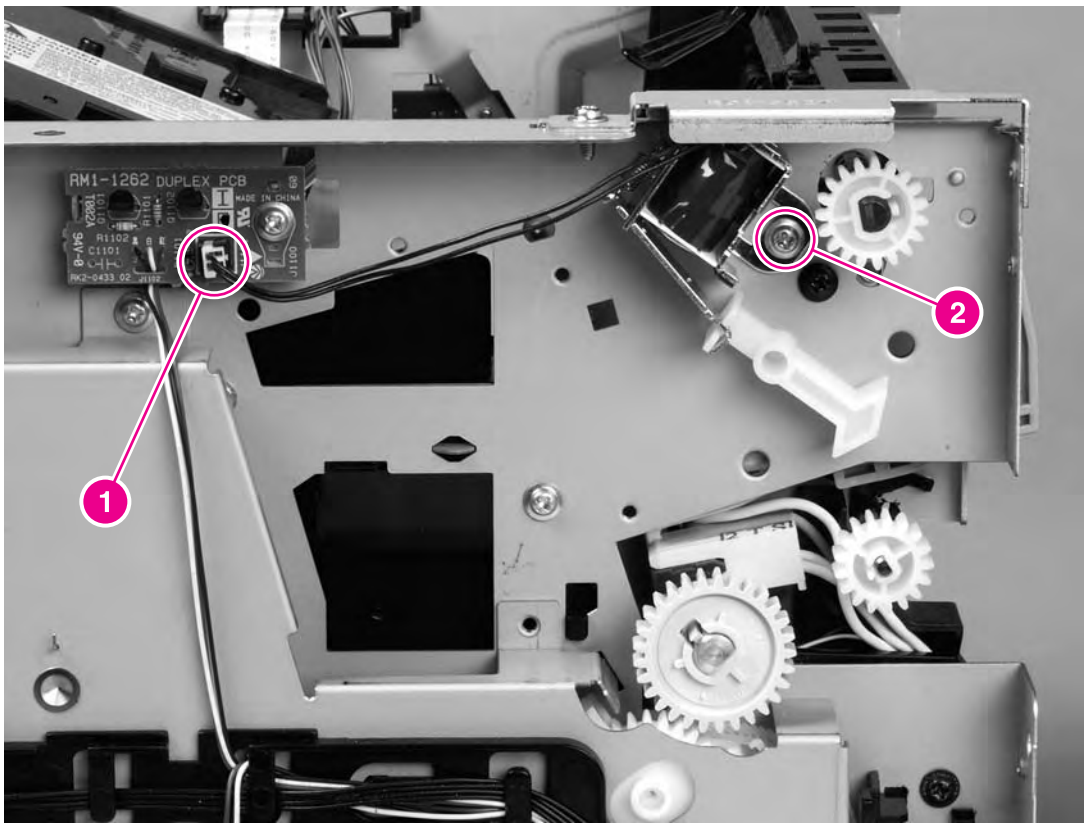


Figure 6-23. **Removing the duplex solenoid**

Fuser

1. Remove all covers (see Covers).
2. Remove the fan (see Fan).
3. Remove the duplex-drive gears or face-down gears (see Duplex-drive gears/face-down gears).
4. Remove the formatter (see Formatter).
5. On the right side of the printer, press the tabs on two gears (callout 1) to release the gears, and then slide the gears off of the shafts.
6. Disconnect one cable (callout 2) on the right side of the printer.

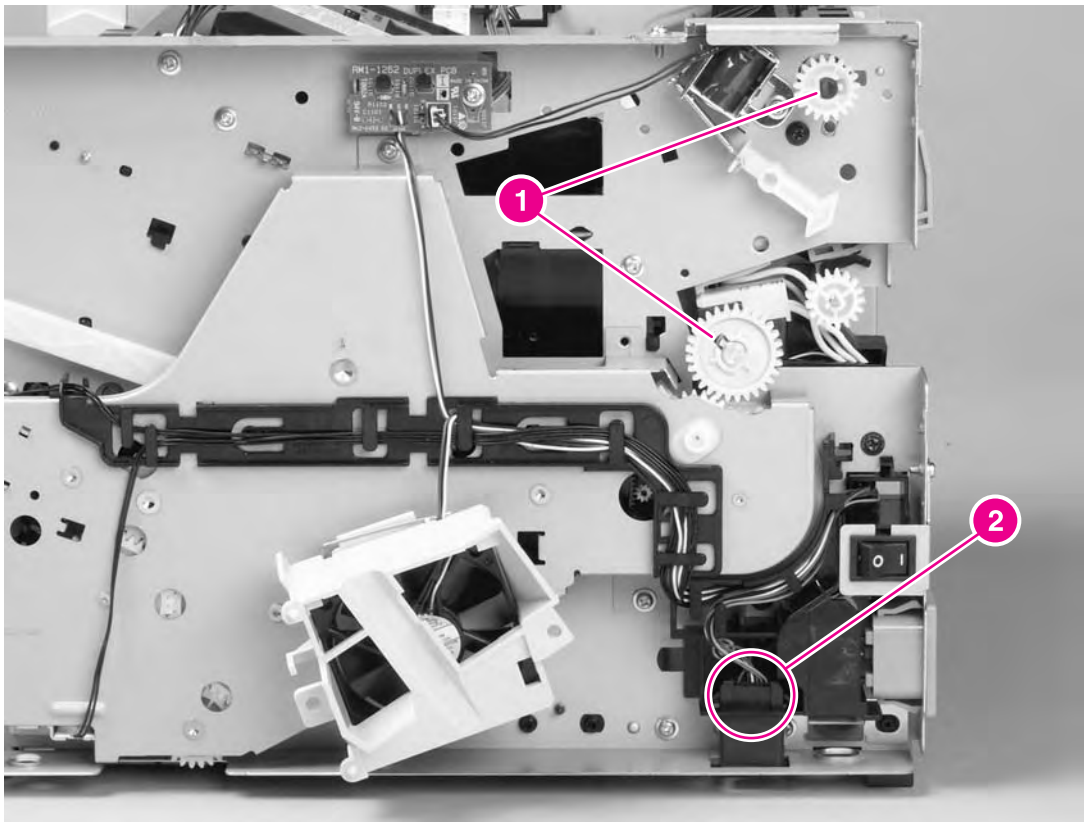


Figure 6-24. **Removing the fuser (1 of 10)**

7. Disconnect four cables (callout 3) from the ECU, and then disconnect two more cables (callout 4) that were behind the first set.

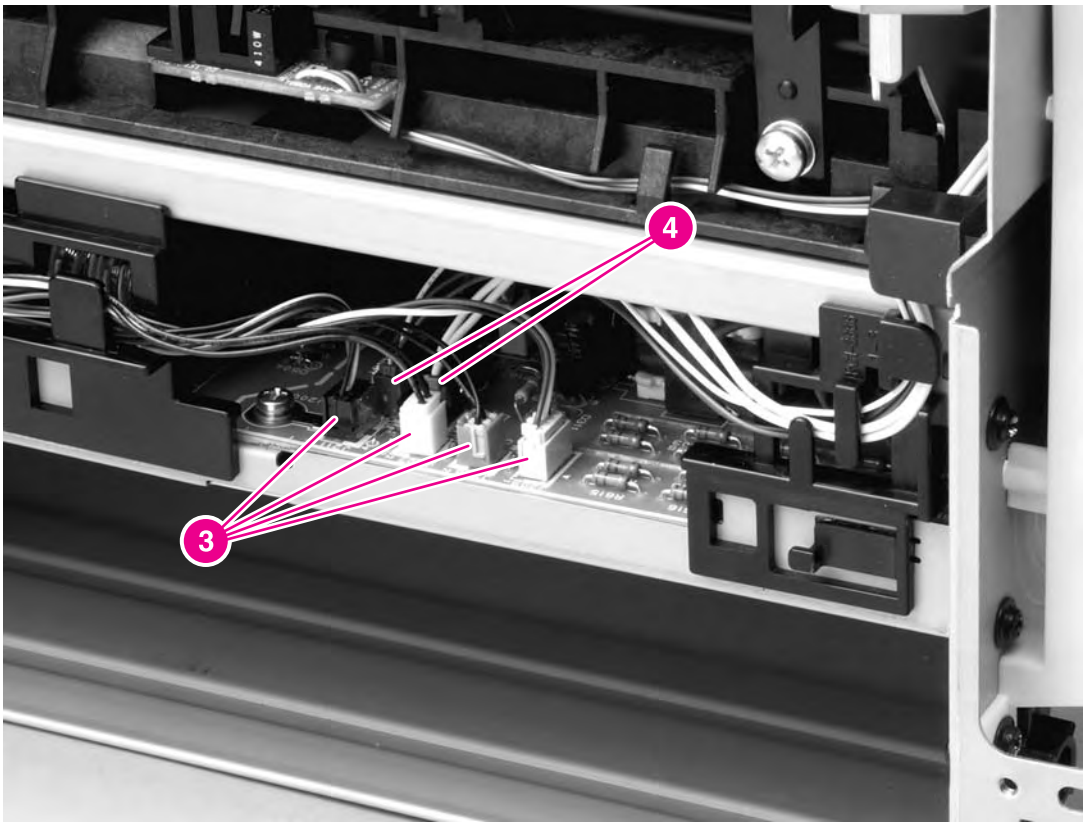


Figure 6-25. **Removing the fuser (2 of 10)**

8. Pull the tab on the cable holder (callout 5) at the left side of the printer and slide it toward the center to release it from the frame, and then unroute the cables.

9. Pull the tab on the cable holder (callout 6) at the right side of the printer and slide it toward the center to release it from the frame, and then unroute the cables.

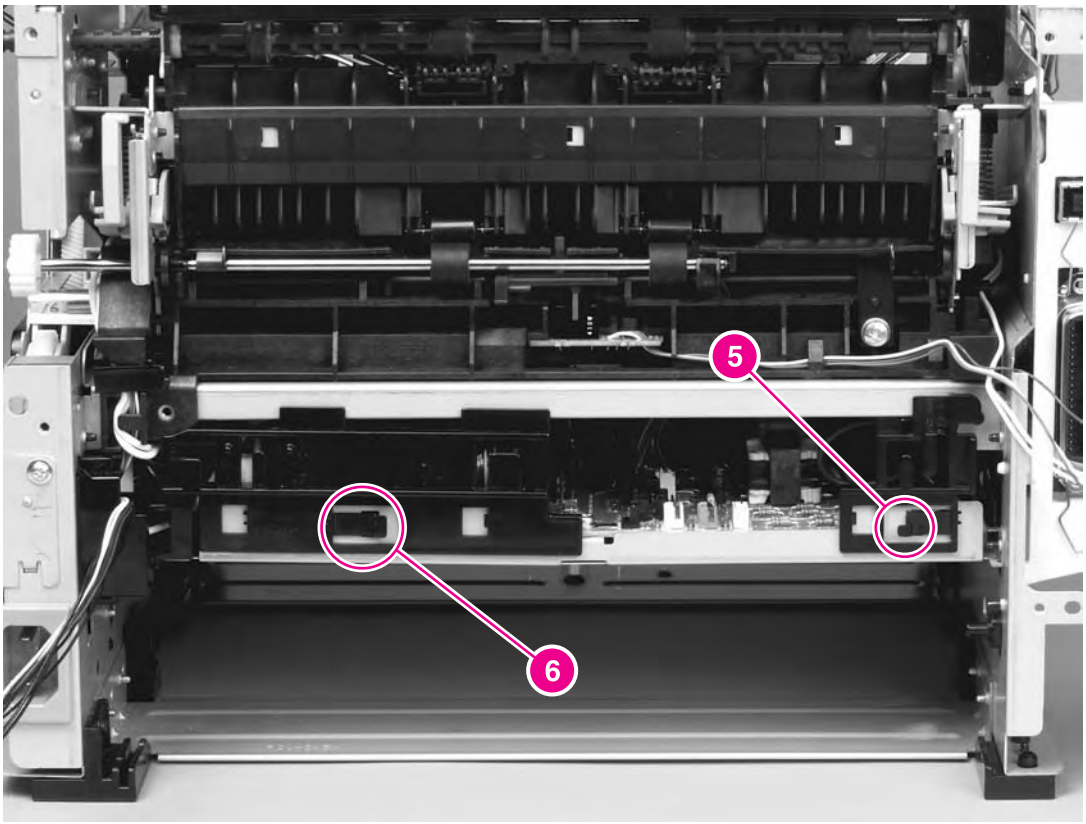


Figure 6-26. **Removing the fuser (3 of 10)**

10. Disconnect three cables (callout 7).

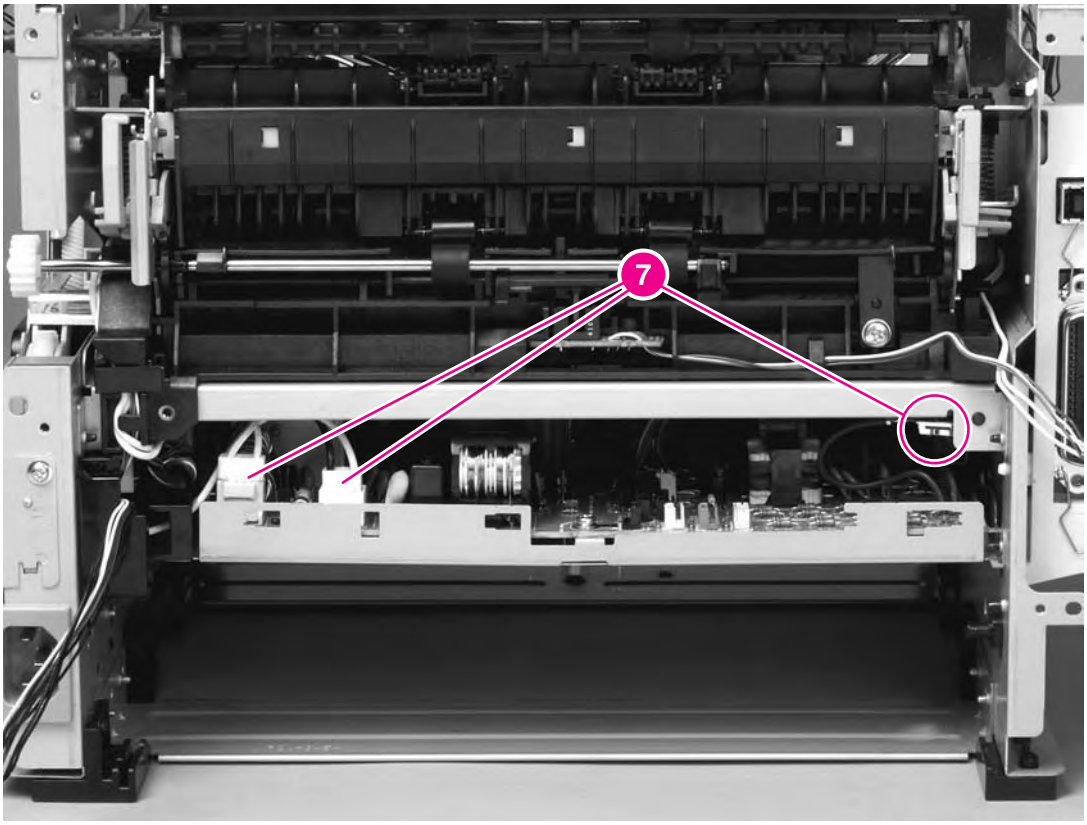


Figure 6-27. **Removing the fuser (4 of 10)**

11. Pull the cable holder (callout 8) straight back to remove it, and then unroute the cables.

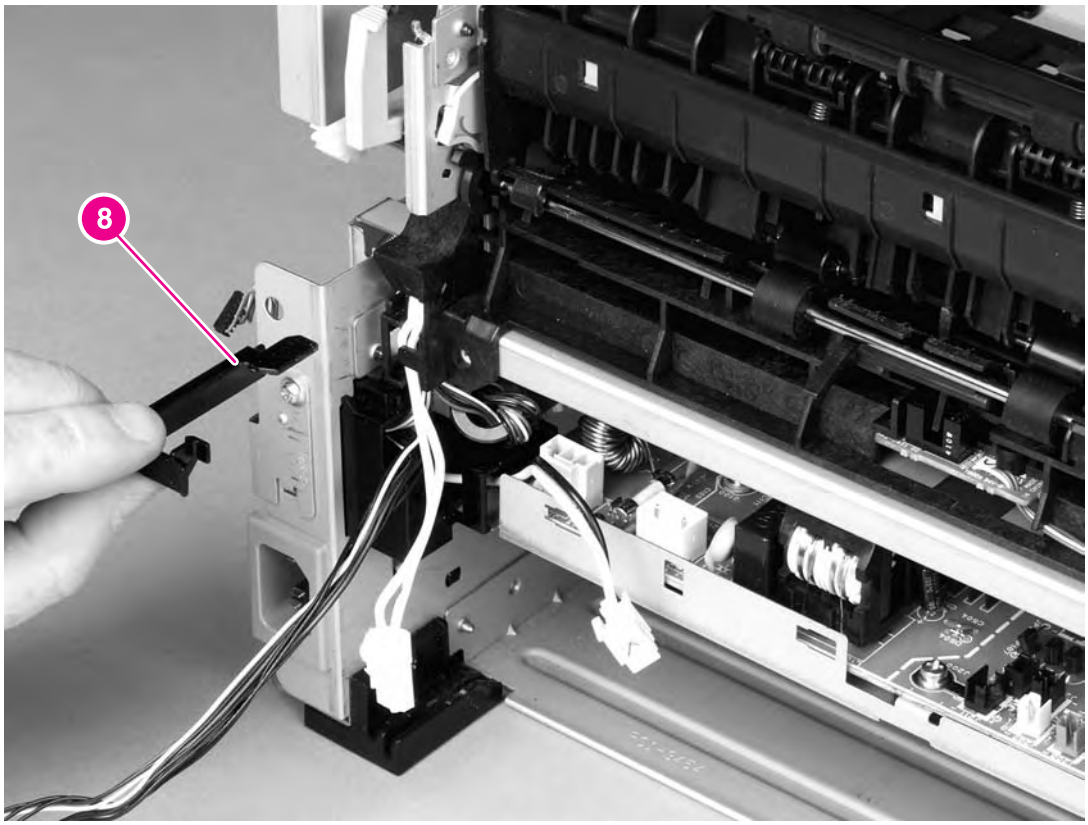


Figure 6-28. **Removing the fuser (5 of 10)**

Reinstallation tip

You might find it easier to reassemble the cables and the cable holder if you put the smaller cables back into place first.

12. Disconnect one cable (callout 9) and then unroute the cable from the cable guide.

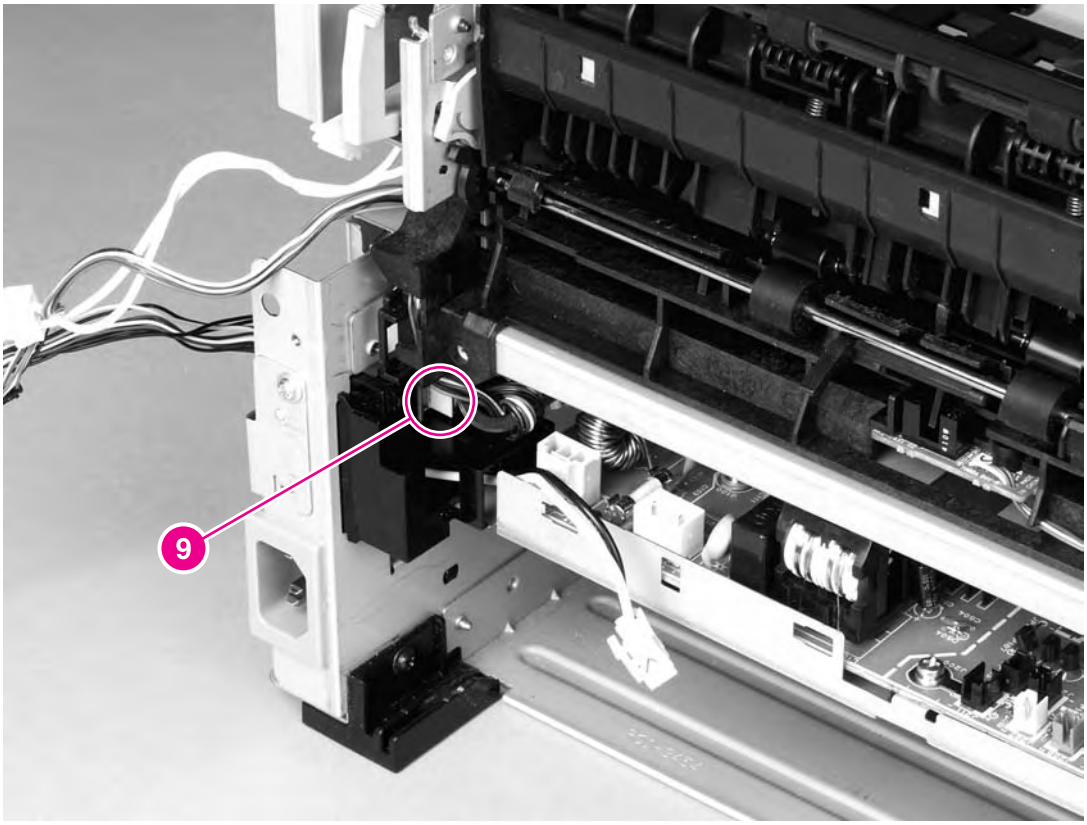


Figure 6-29. **Removing the fuser (6 of 10)**

NOTE Before you proceed to step 13, make sure that all cables disconnected in previous steps are free from any cable guides and cable holders.

13. Remove three screws (callout 10) on the right side of the printer.

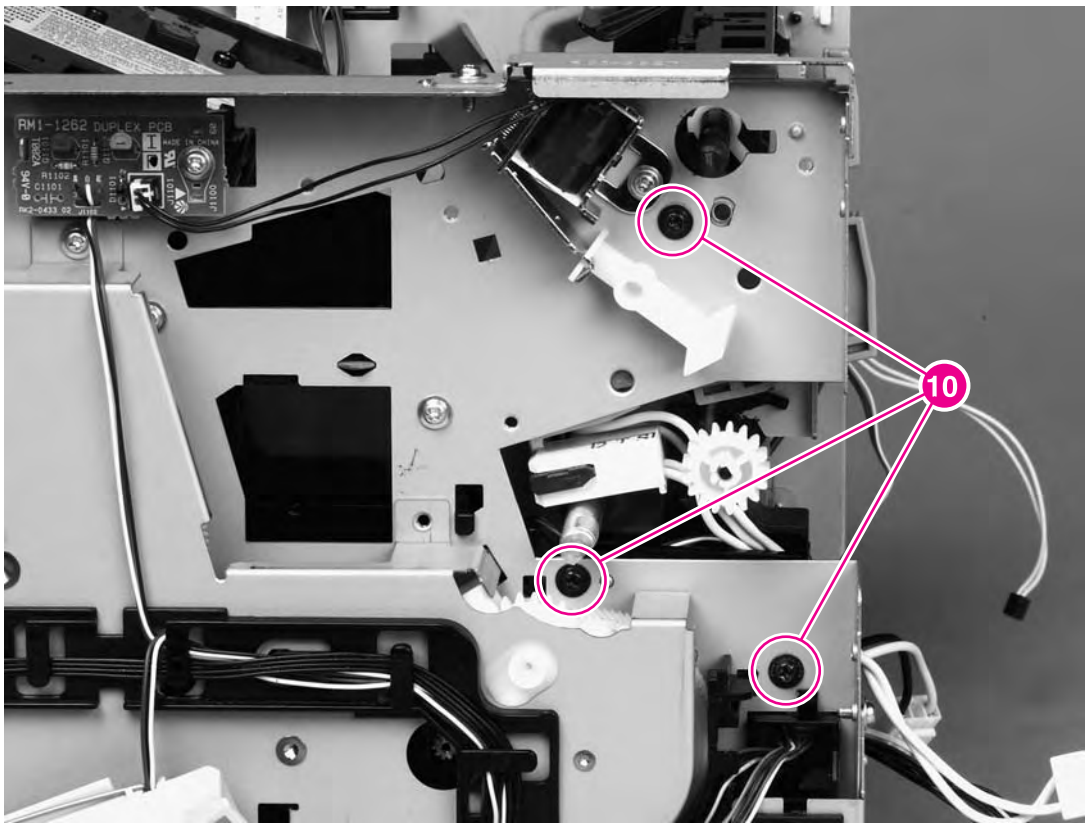


Figure 6-30. **Removing the fuser (7 of 10)**

14. Remove three screws (callout 11) from the left side of the printer.

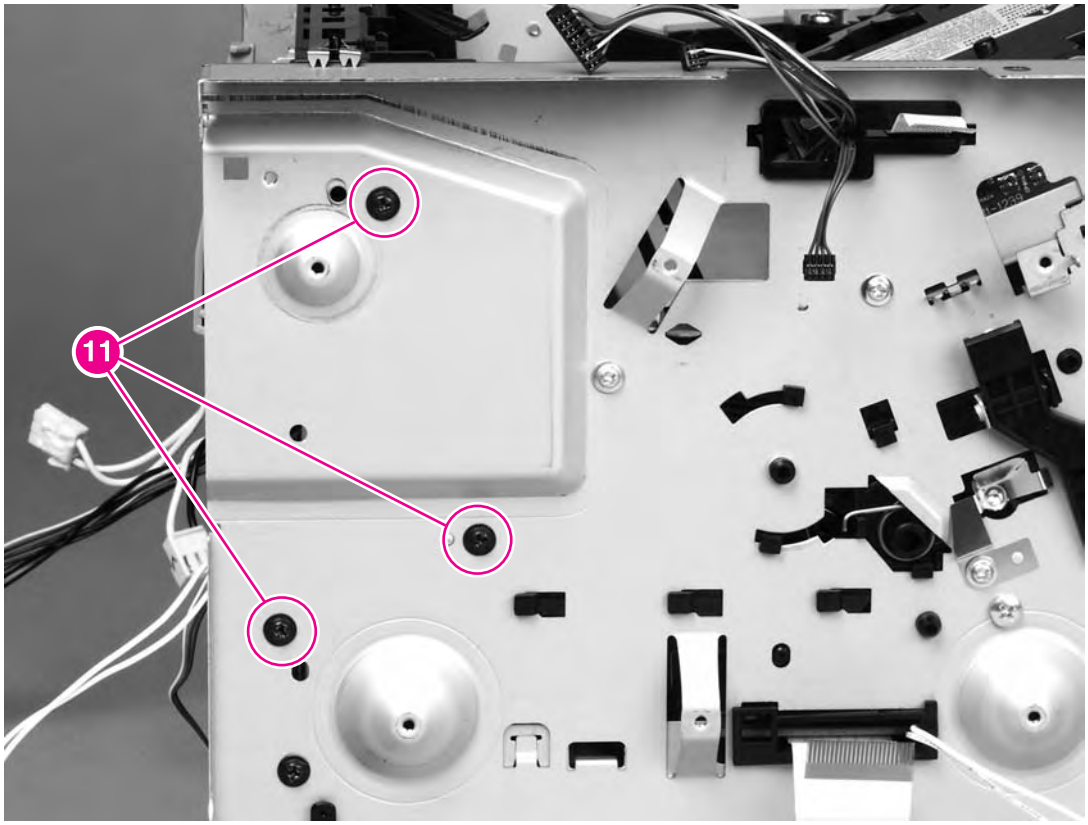


Figure 6-31. **Removing the fuser (8 of 10)**

15. At the left side of the printer, pull the printer chassis from the top to spread the printer frame and release the fuser from the frame.

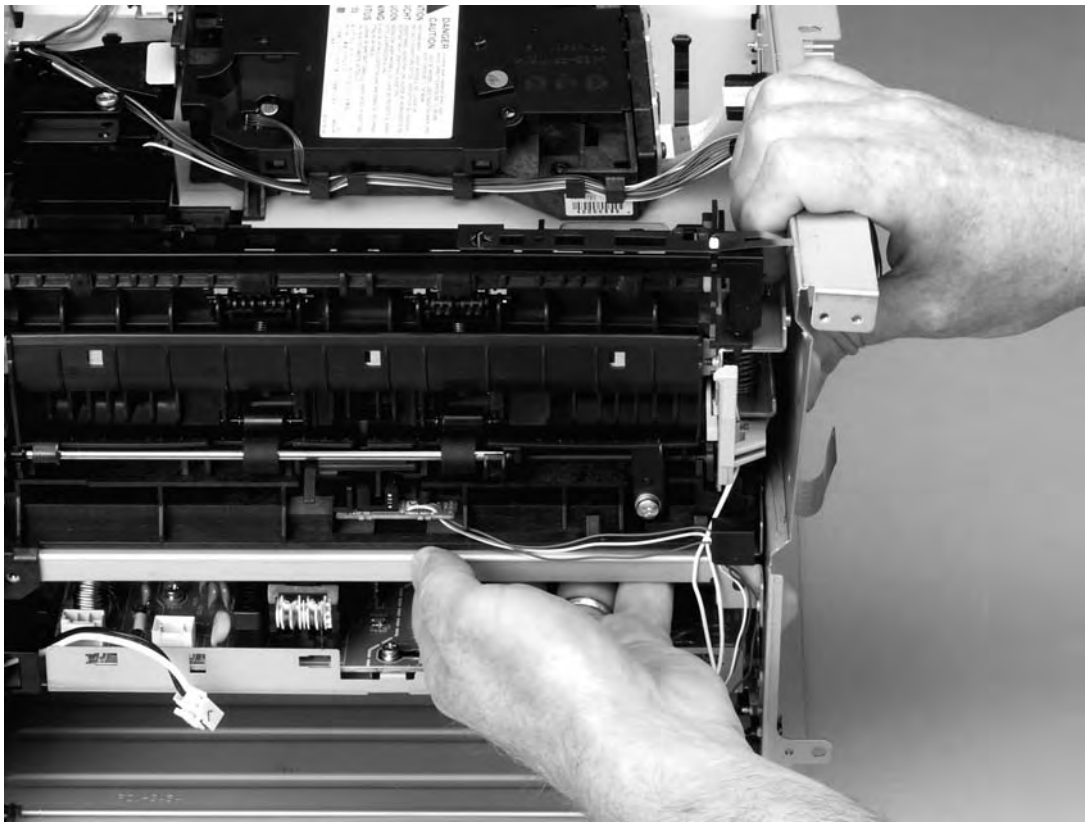


Figure 6-32. **Removing the fuser (9 of 10)**

16. Pull the fuser out of the printer at an angle so that the delivery roller shaft clears the hole (callout 12) in the chassis.

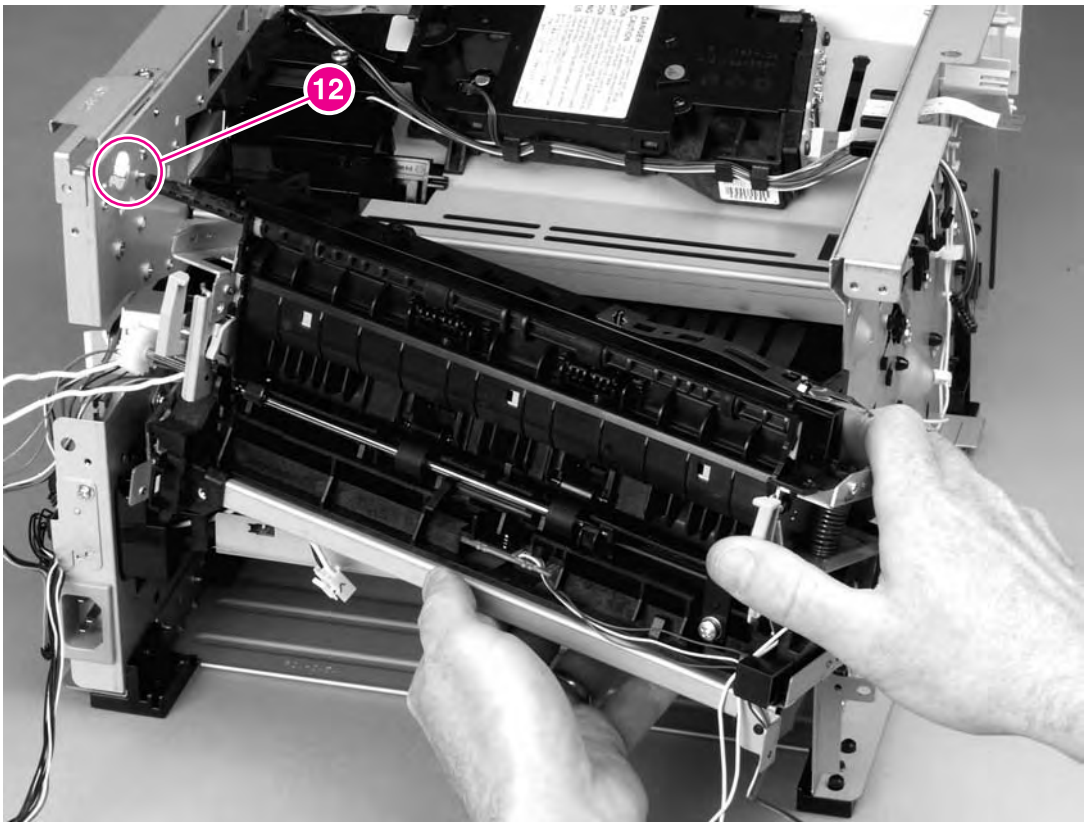


Figure 6-33. **Removing the fuser (10 of 10)**

Interlock assembly

NOTE

If a wireless communications card is installed in the printer, see Wireless communications card for information about removing the wireless communications card before you remove the interlock assembly.

1. Remove all covers (see Covers).
2. Remove two screws (callout 1) that secure the assembly to the left side of the printer chassis.
3. Remove one screw (callout 2) at the top of the assembly.

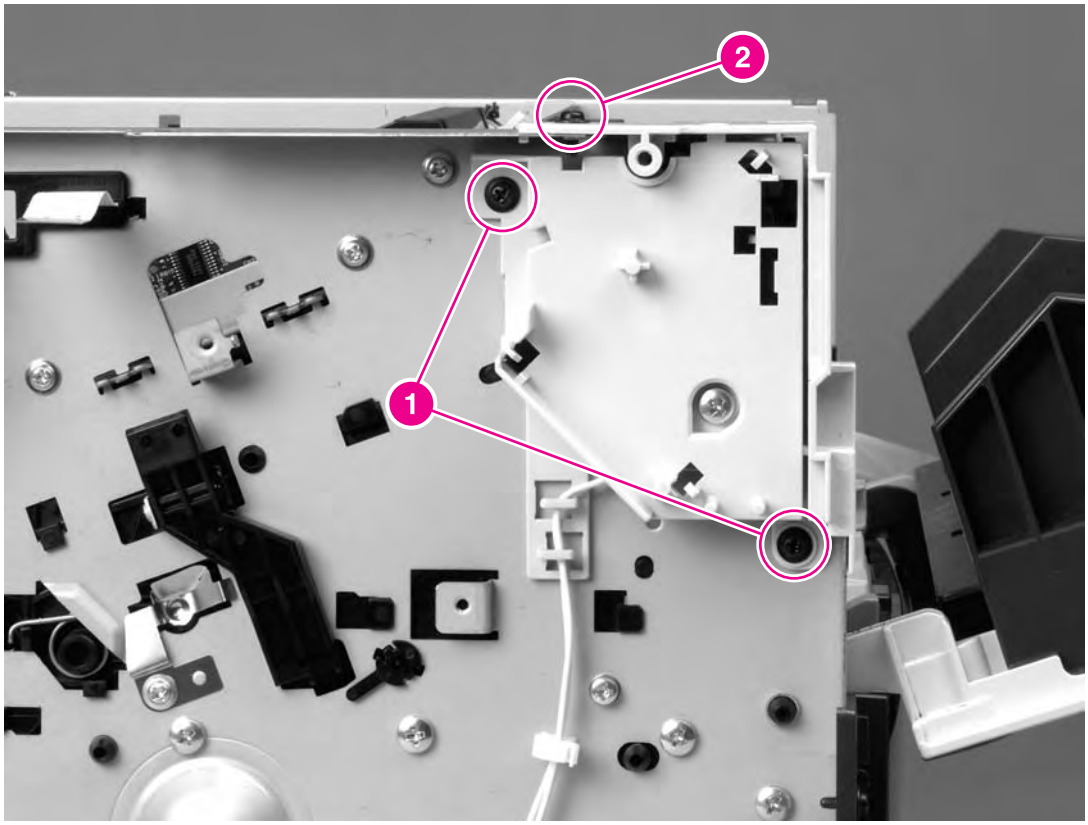


Figure 6-34. **Removing the interlock assembly (1 of 2)**

4. Lift the interlock assembly away from the printer.

5. Disconnect two cables (callout 3).

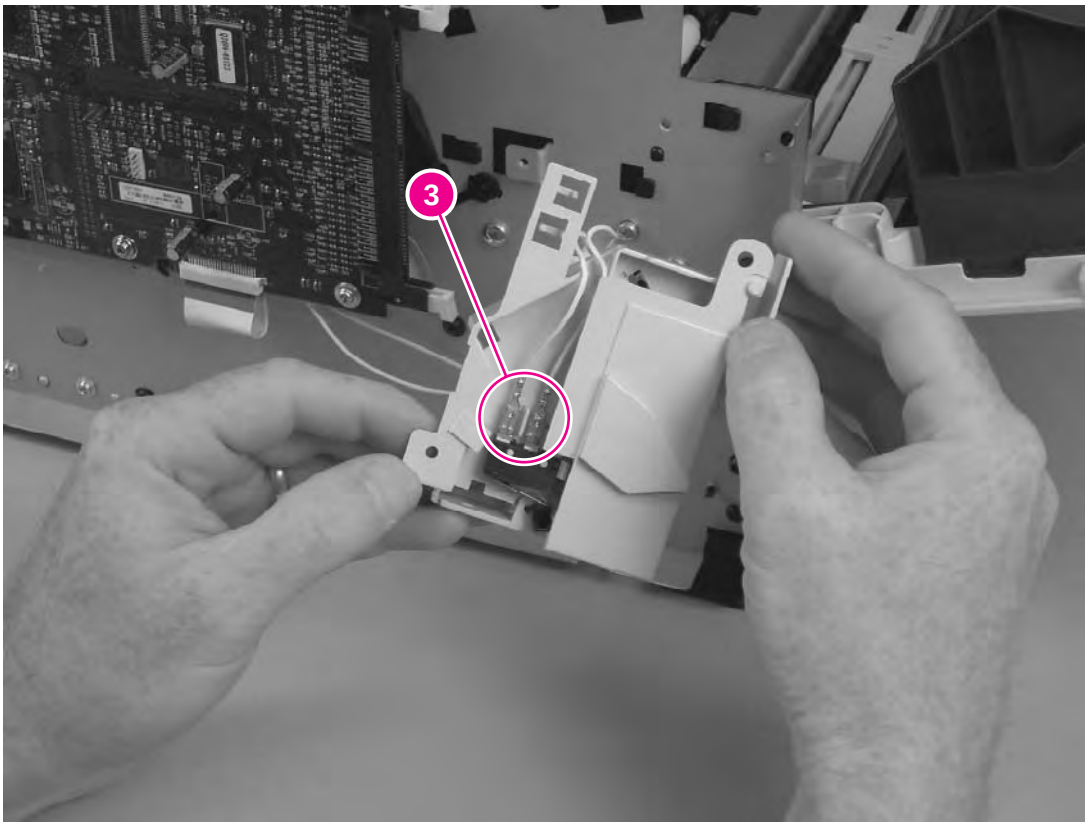


Figure 6-35. **Removing the interlock assembly (2 of 2)**

ECU

1. Remove all covers (see Covers).
2. Remove the fan (see Fan).
3. Remove the duplex-drive gears (see Duplex-drive gears/face-down gears).
4. Remove the formatter (see Formatter).
5. Remove the fuser (see Fuser).
6. Remove the interlock assembly (see Interlock assembly).
7. Remove cables from the cable clip under the feed plate (callout 1) and then remove the feed plate by lifting it and pulling it straight back.

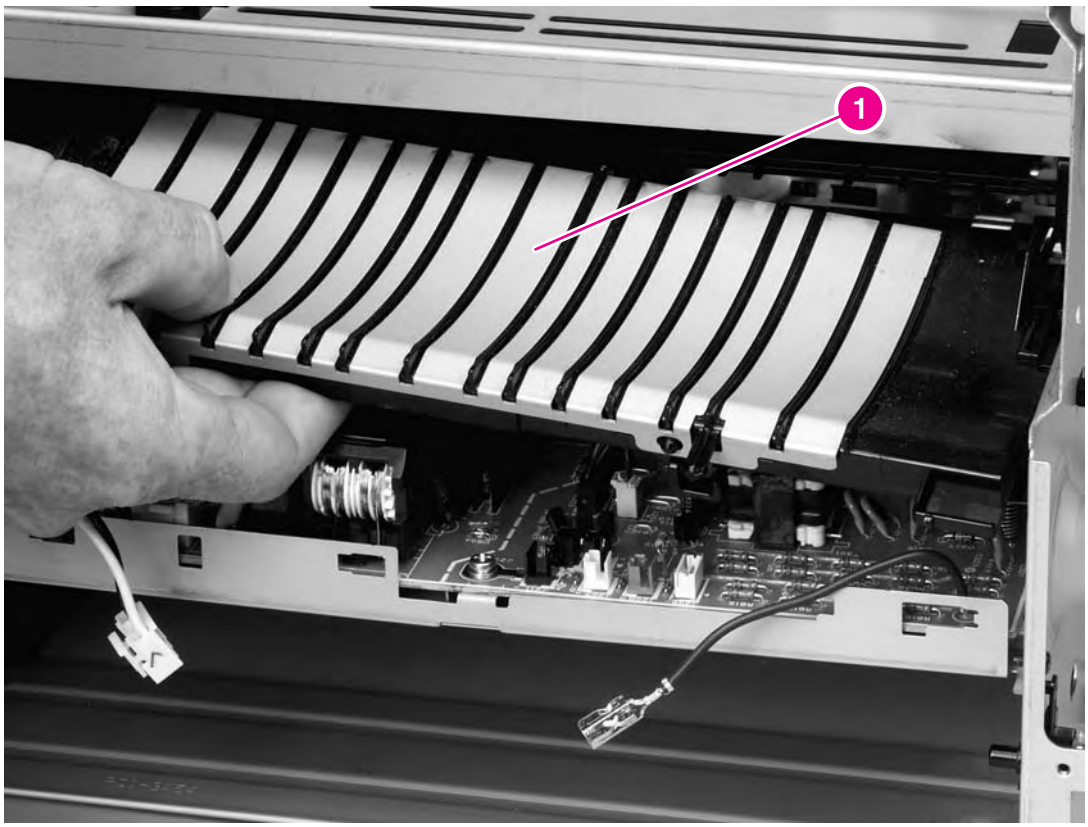


Figure 6-36. **Removing the ECU (1 of 8)**

8. Disconnect three cables (callout 2).

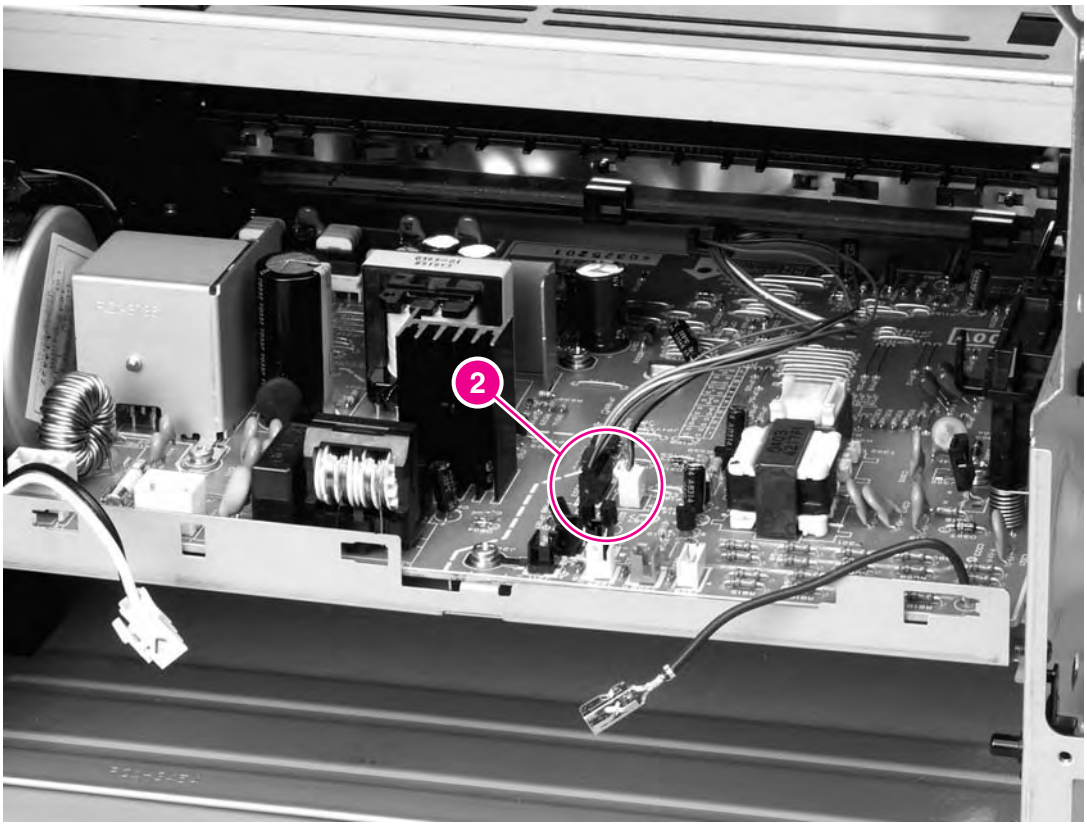


Figure 6-37. **Removing the ECU (2 of 8)**

9. Unroute the cables at the right side of the printer, releasing them from the cable stays (callout 3).

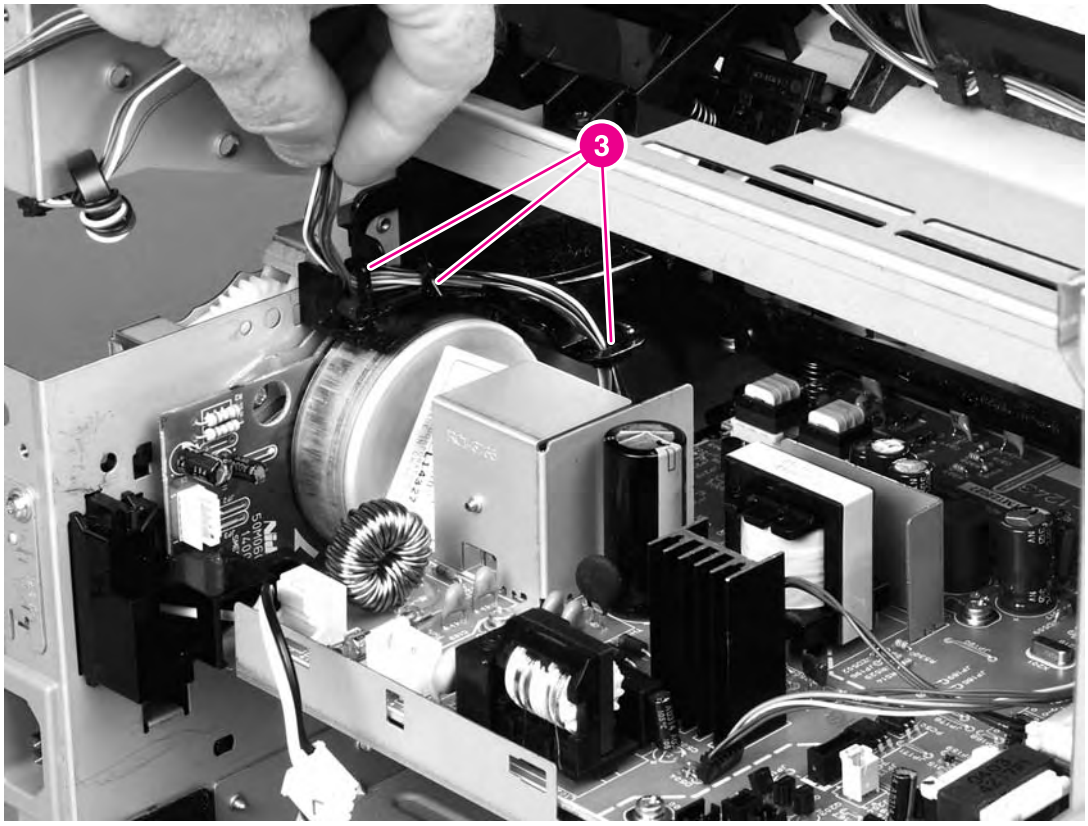


Figure 6-38. **Removing the ECU (3 of 8)**

10. Remove one screw (callout 4) from the right side of the printer.

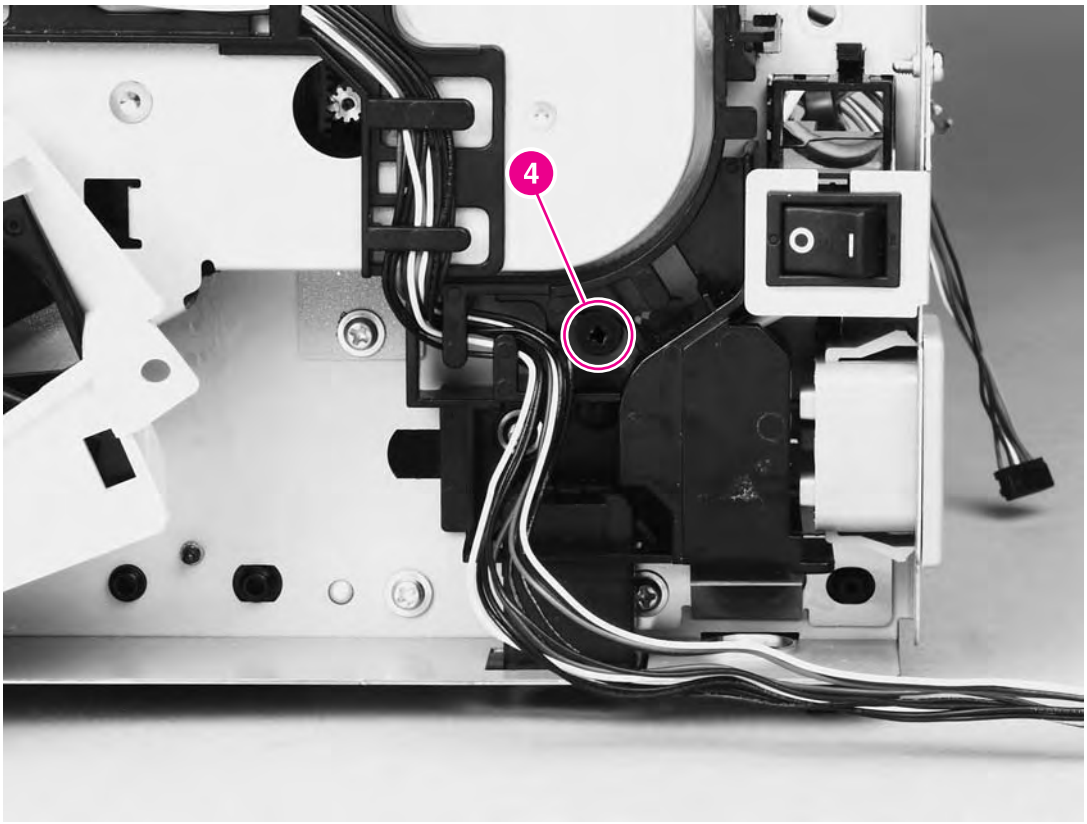


Figure 6-39. **Removing the ECU (4 of 8)**

11. Remove two screws (callout 5) from the left side of the printer, and then push the interlock cables and the formatter cable (callout 6) through the hole in the chassis.

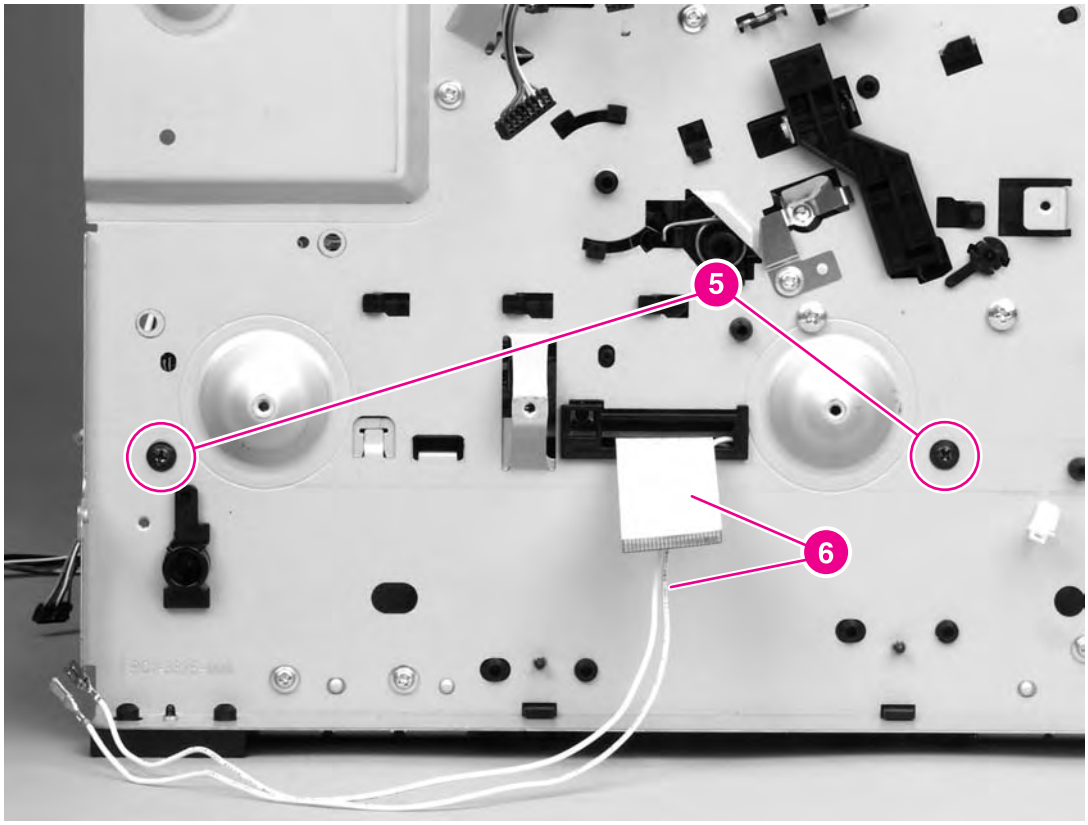


Figure 6-40. **Removing the ECU (5 of 8)**

12. Spread the printer frame at the right side of the printer to release the internal tabs that secure the ECU to the chassis.

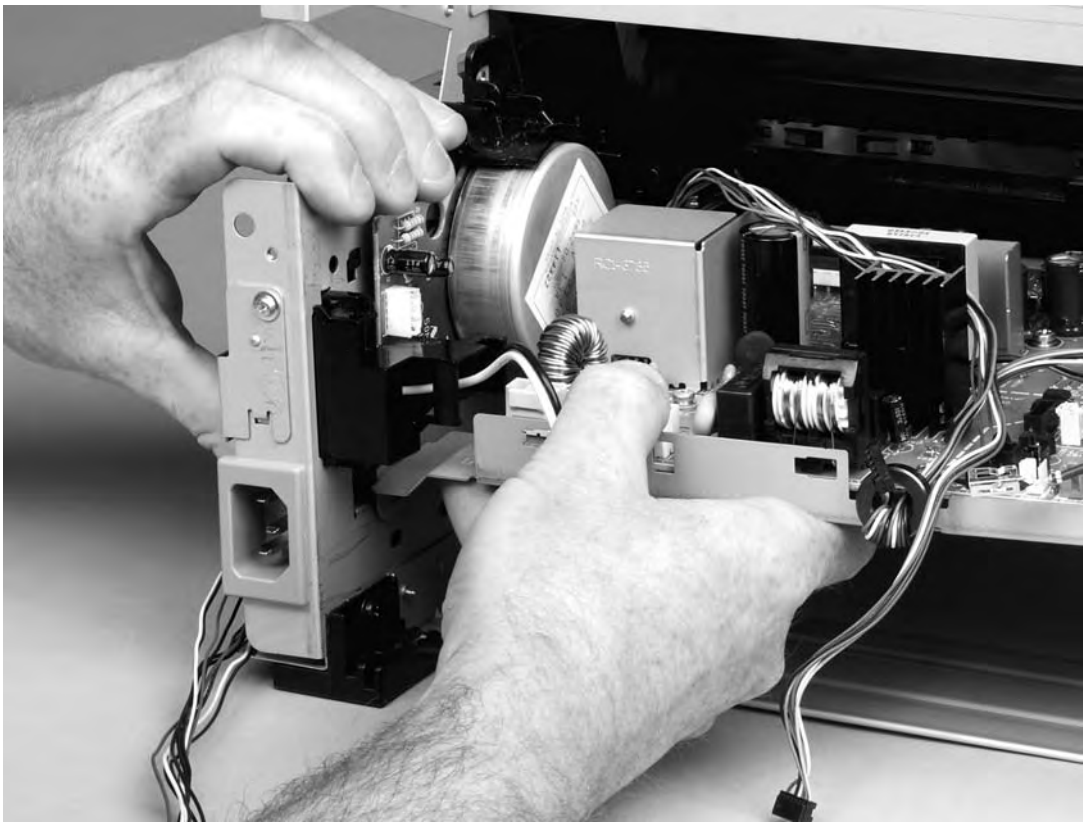


Figure 6-41. **Removing the ECU (6 of 8)**

13. Spread the printer frame at the left side of the printer to release the internal tabs, and then lower the ECU slightly and pull it straight back to remove it.

NOTE Make sure that cables do not become caught on the contact springs as you remove the ECU.

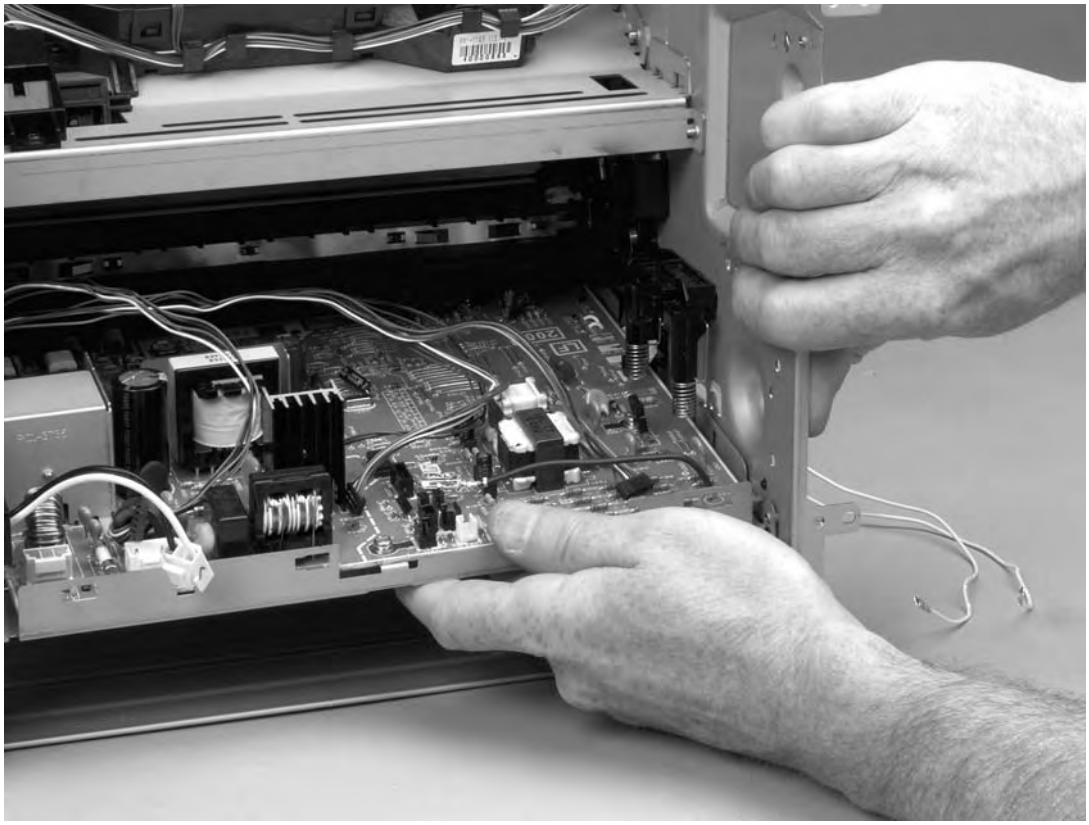


Figure 6-42. **Removing the ECU (7 of 8)**

Reinstallation tip

When replacing the ECU, you might find it easier to find the correct placement of the ECU pan in the printer if you tip the printer so that it rests on its front.

14. Remove four screws (callout 7) and then lift the ECU off of the ECU plate.

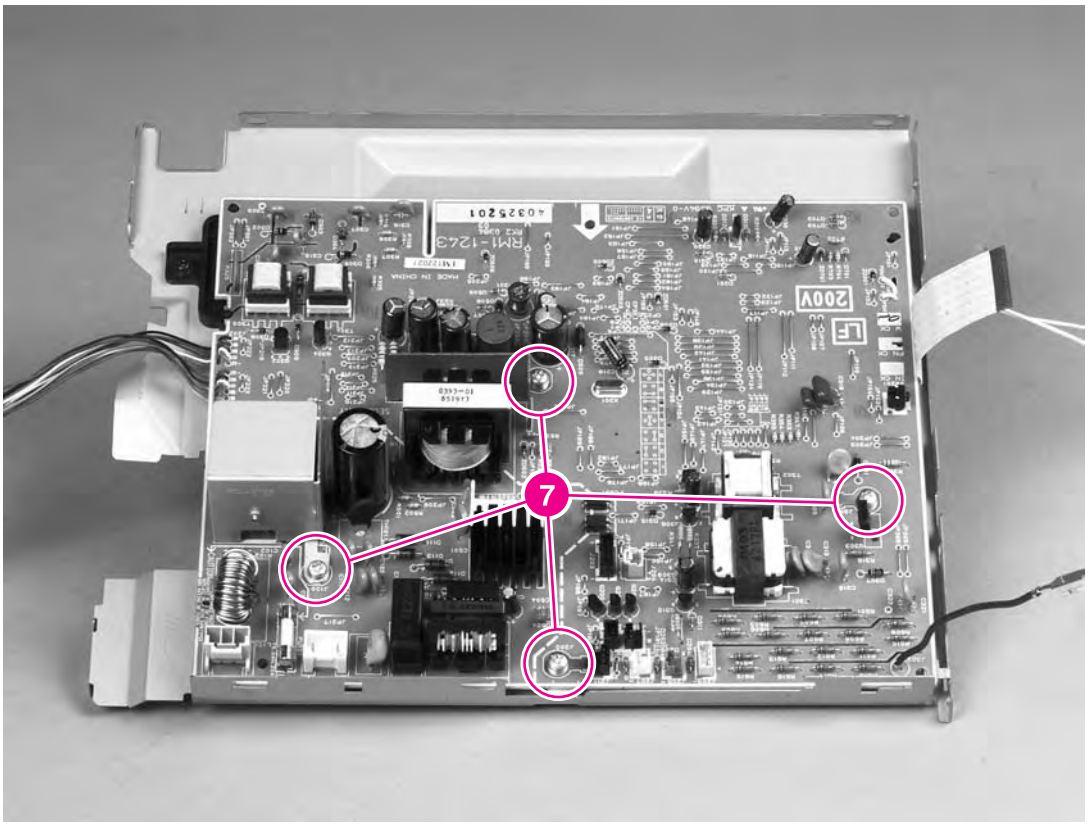


Figure 6-43. **Removing the ECU (8 of 8)**

Main motor

1. Remove all covers (see Covers).
2. Remove the fan (see Fan).
3. Remove the duplex-drive gears (see Duplex-drive gears/face-down gears).
4. Remove the formatter (see Formatter).
5. Remove the fuser (see Fuser).
6. Remove the interlock assembly (see Interlock assembly).
7. Remove the ECU (see ECU).
8. Remove three screws (callout 1).

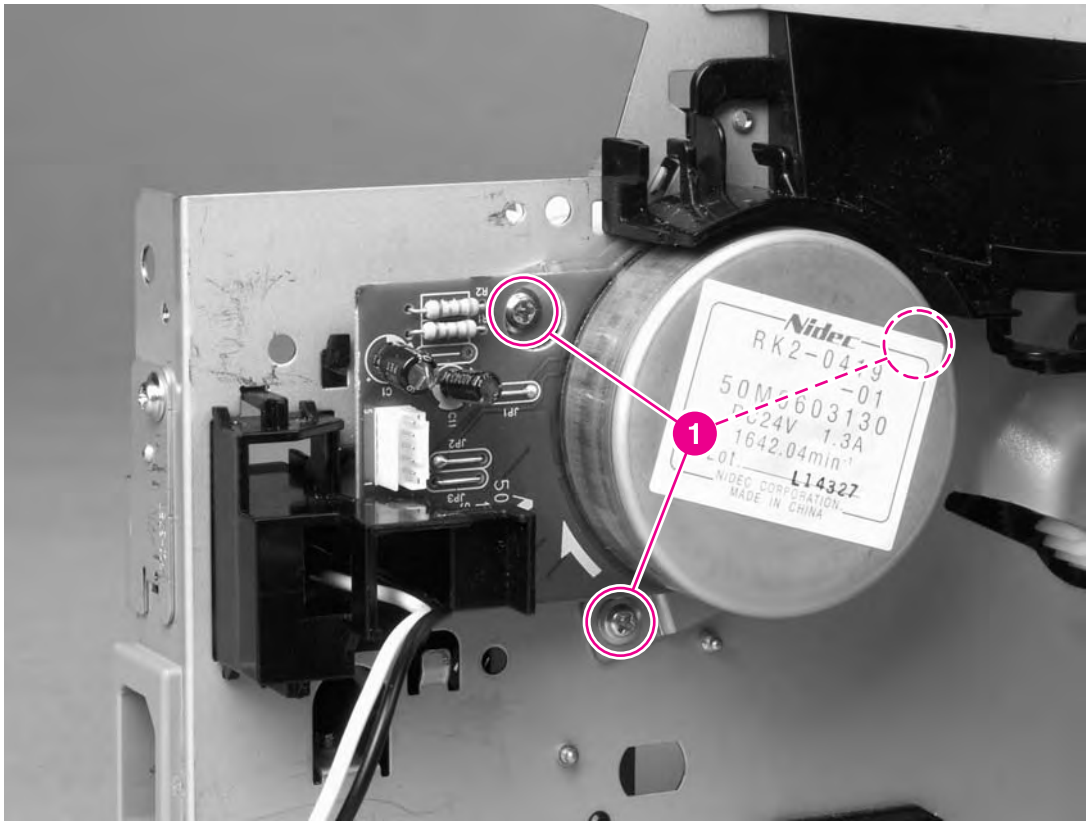


Figure 6-44. **Removing the main motor (1 of 2)**

9. Hold the motor while releasing the tabs (callout 2) on the cable guide, and then lift the motor and the cable guide out of the printer together.

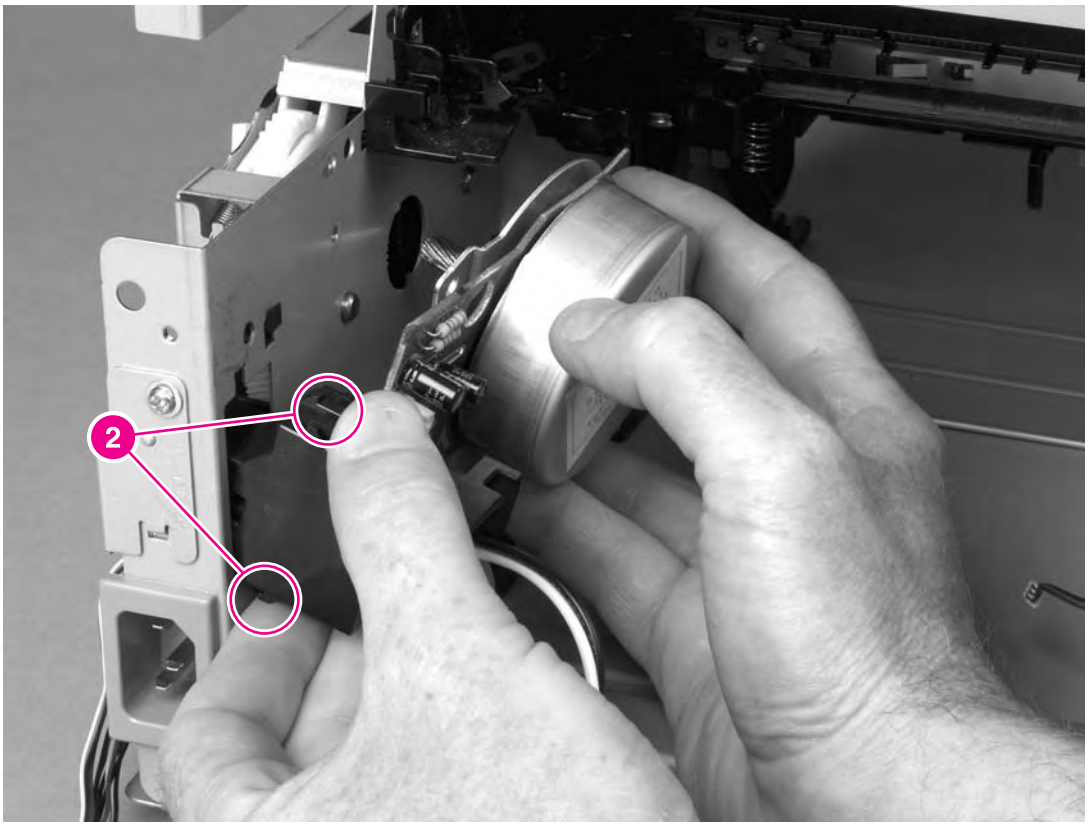


Figure 6-45. **Removing the main motor (2 of 2)**

Pickup and feed assemblies

This section covers the major assemblies of the pickup and feed system: the transfer roller and the registration assembly.

For information about replacing the pickup roller, see Changing the pickup roller.

For information about replacing the separation pad, see Changing the printer separation pad.

Transfer roller

NOTE

It is important to make sure that the transfer roller needs to be replaced before removing it. Excess handling can cause additional damage.

1. Open the print-cartridge door and remove the print cartridge, see Replacing the print cartridge.
2. Use needlenose pliers to release the transfer roller tabs at the end of the roller, near the right side of the printer.

CAUTION

Do not break the tabs and do not touch the rollers.

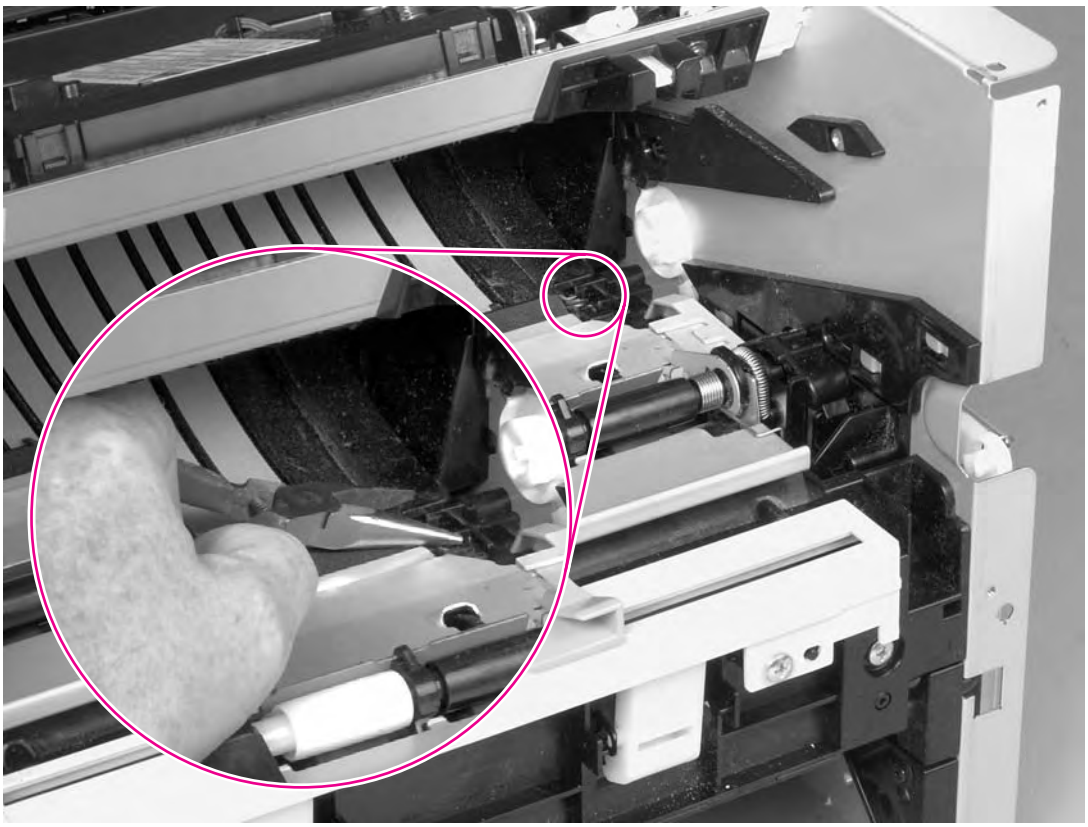


Figure 6-46. **Removing the transfer roller**

3. Lift up the end of the roller near the right side of the printer, and then slide it toward the right side of the printer while pulling it out of the printer.

Registration assembly

1. Remove five screws (callout 1).

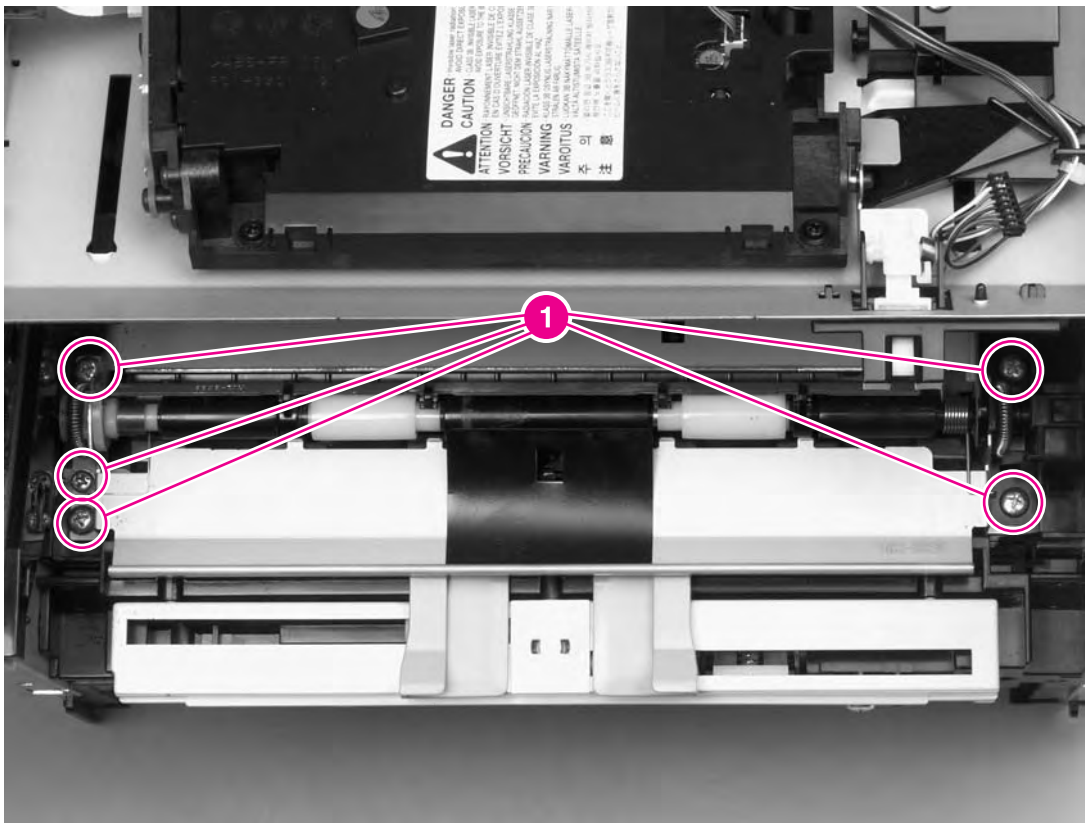


Figure 6-47. **Removing the registration assembly**

2. Lift the entire assembly out of the printer.

Main gear assembly/tray 2 pickup solenoid

1. Remove all covers (see Covers).
2. Remove the fan from the printer chassis (see steps 3 and 4 of Fan).
3. Disconnect one cable (callout 1) at the ECU.

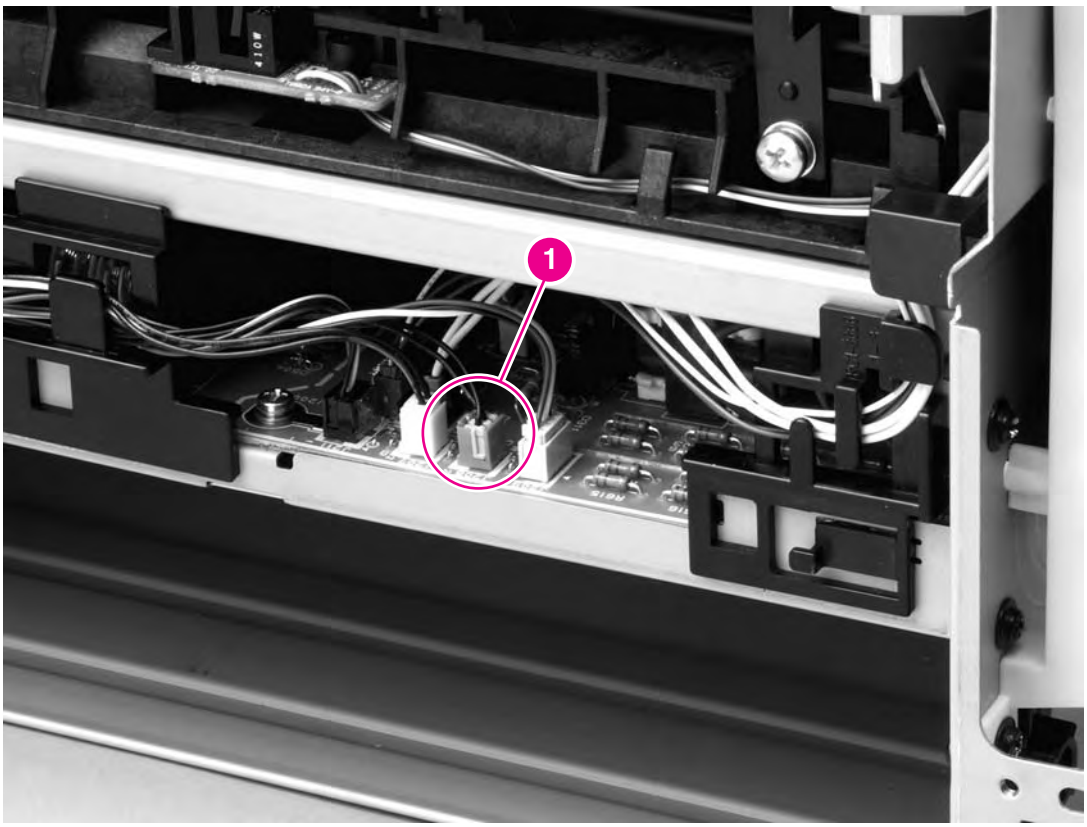


Figure 6-48. **Removing the main gear assembly (1 of 2)**

4. Remove the duplex-drive PCA from the printer chassis (see steps 3 and 4 of Duplex-drive PCA).
5. Release the tab on the gear (callout 2) and slide the gear off of the shaft.
6. Remove the cables from the cable guide (callout 3).

7. Remove four screws (callout 4).

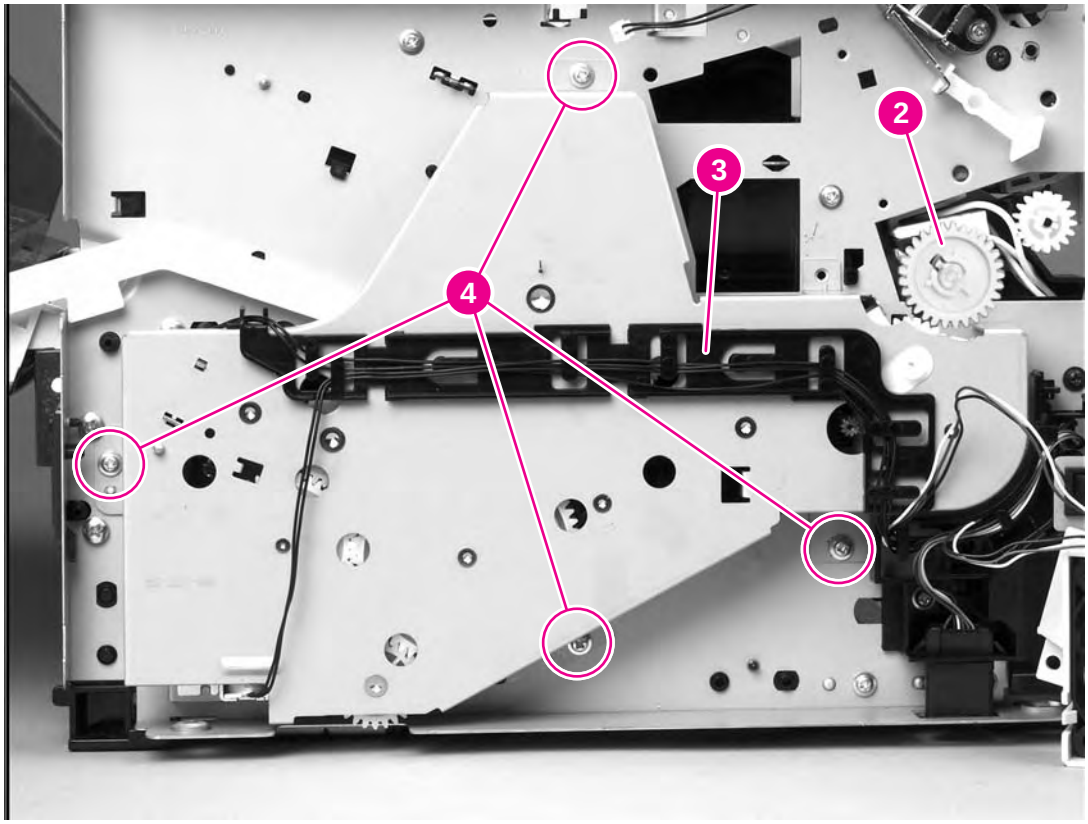


Figure 6-49. **Removing the main gear assembly (2 of 2)**

8. Pull the main gear assembly straight away from the printer.

9. To remove the tray 2 pickup solenoid, disconnect one cable (callout 5).

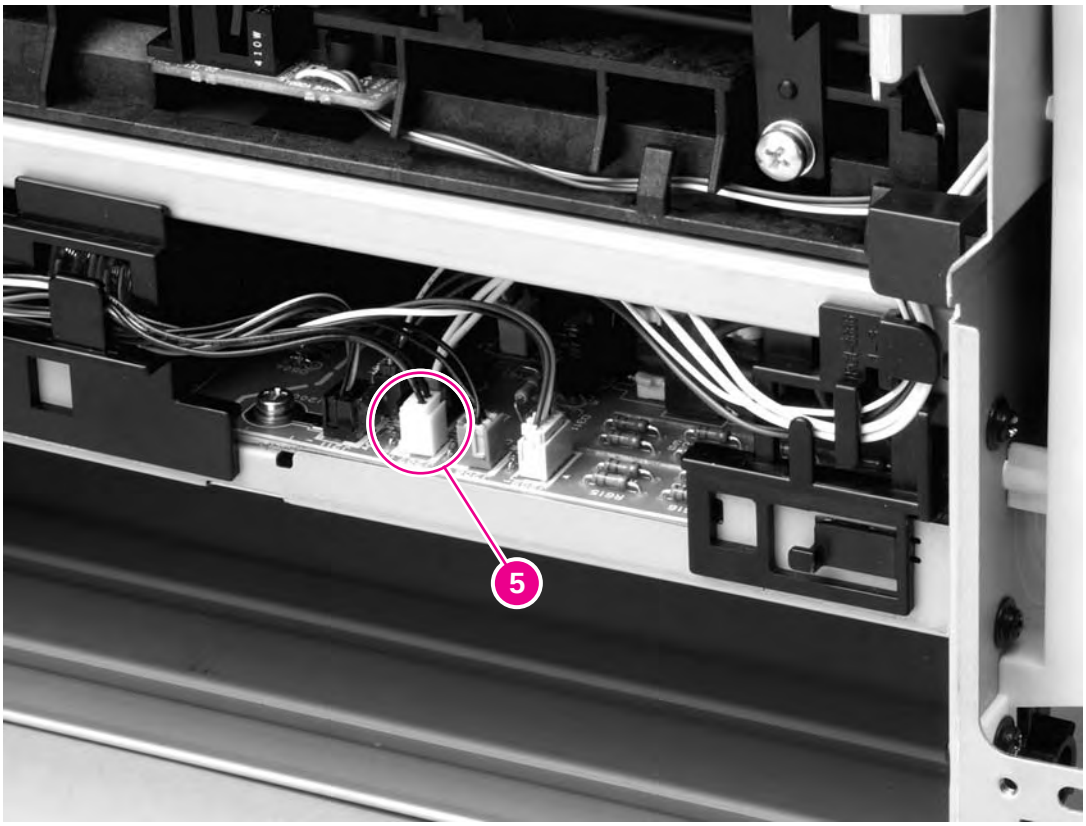


Figure 6-50. **Removing the tray 2 pickup solenoid (1 of 2)**

10. Remove one screw, and then lift the solenoid off of the printer.

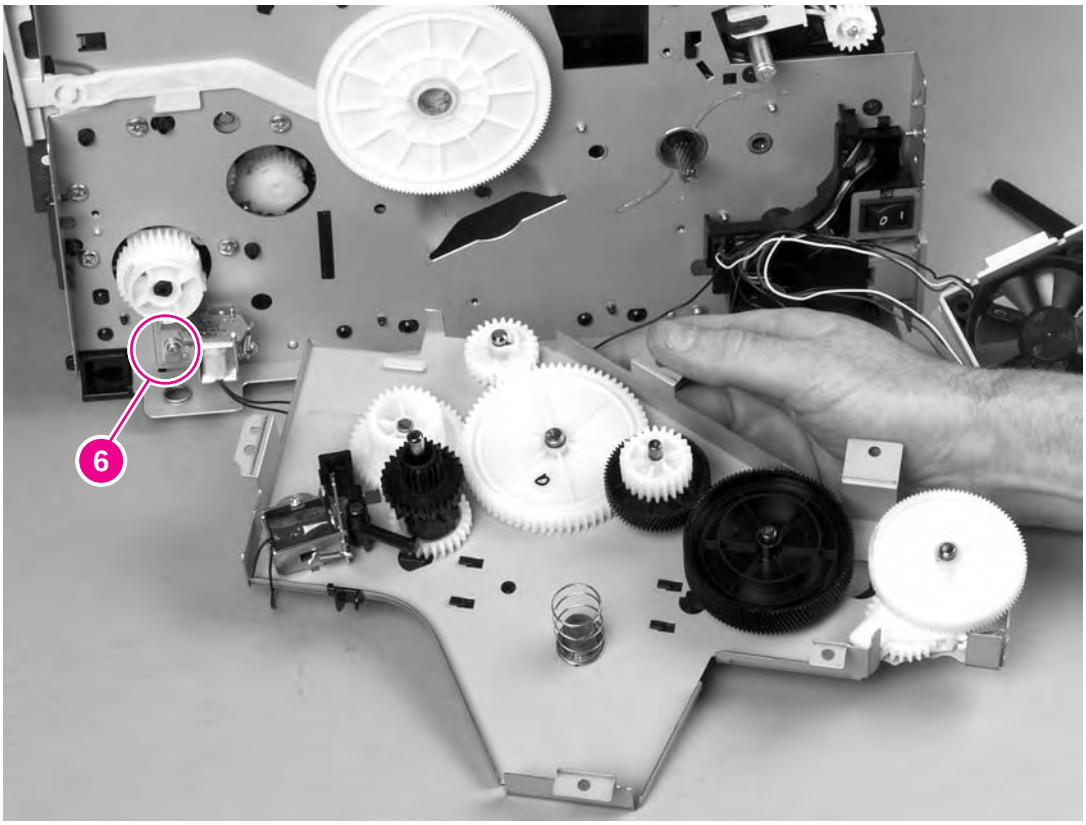


Figure 6-51. **Removing the tray 2 pickup solenoid (2 of 2)**

Print-cartridge door

1. Use a flat blade screwdriver to gently pry the cartridge-door arm off of the print-cartridge door.

CAUTION Be careful not to break the tabs.

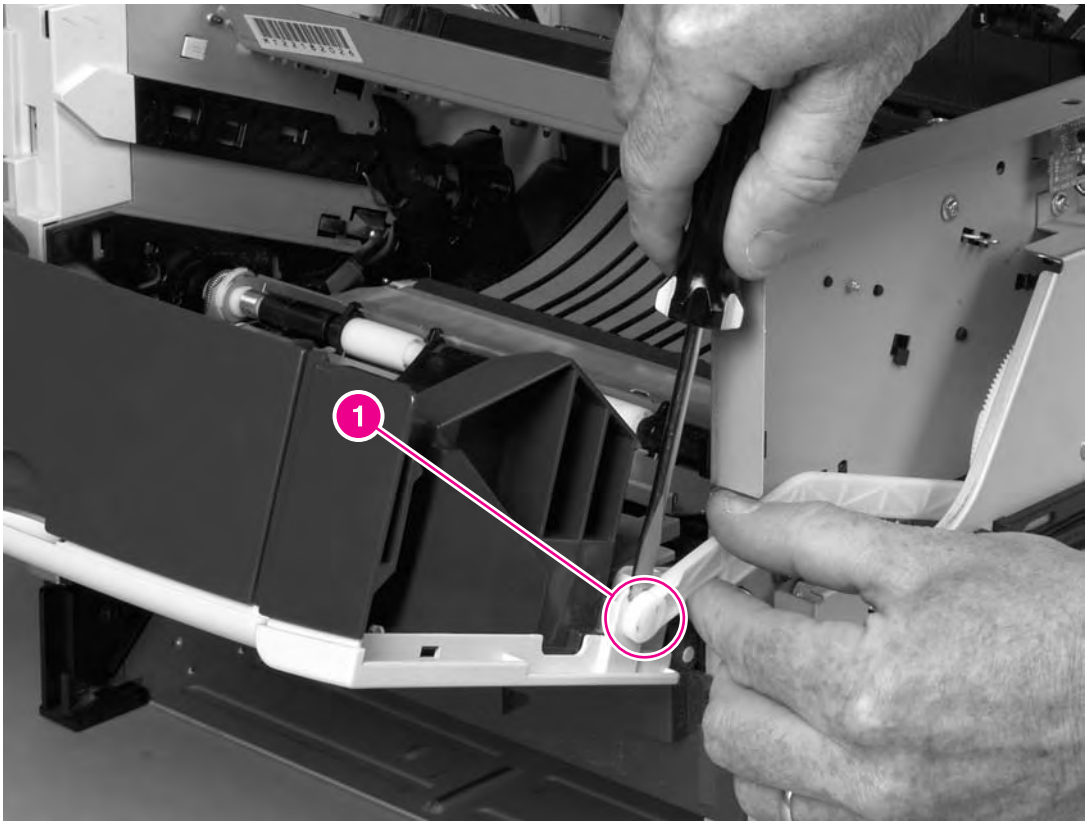


Figure 6-52. **Removing the print-cartridge door (1 of 2)**

2. Remove two screws (callout 2).

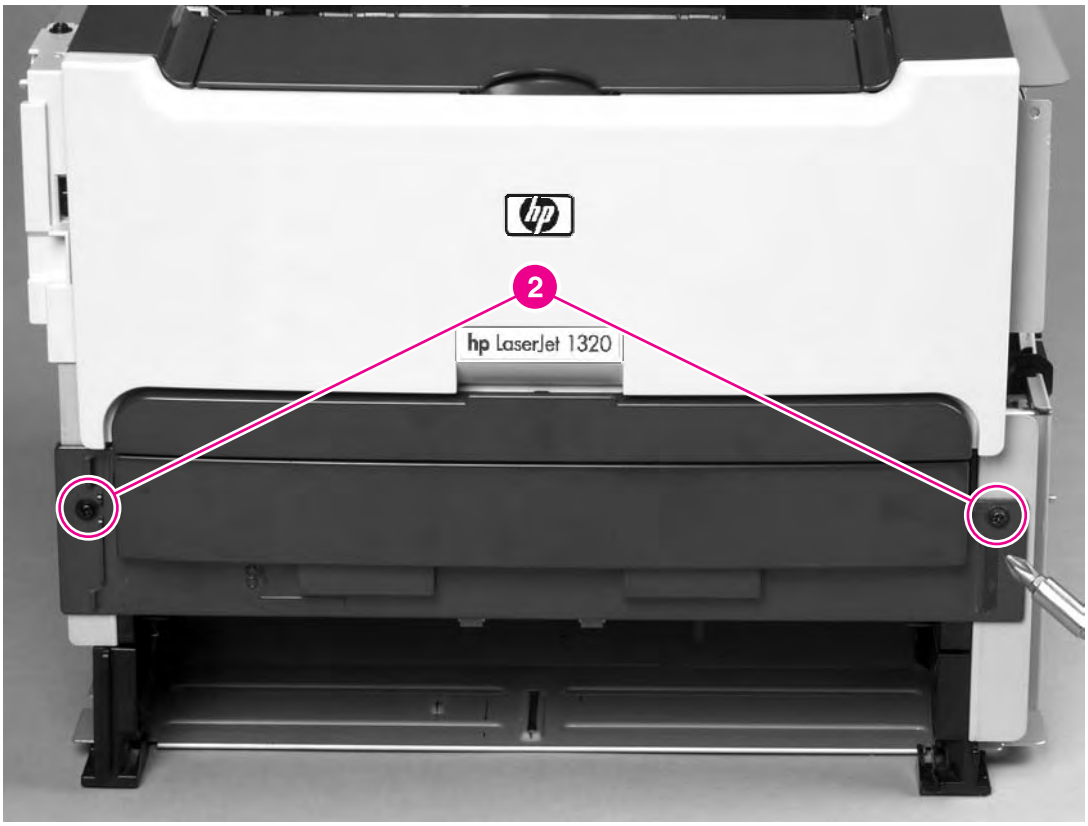


Figure 6-53. Removing the print-cartridge door (2 of 2)

3. Lift the cartridge-door assembly straight away from the printer.

Wireless communications card

1. Remove the left-side cover (see Left-side cover).
2. Release two tabs (callout 1) that secure the wireless communications card to the interlock assembly.

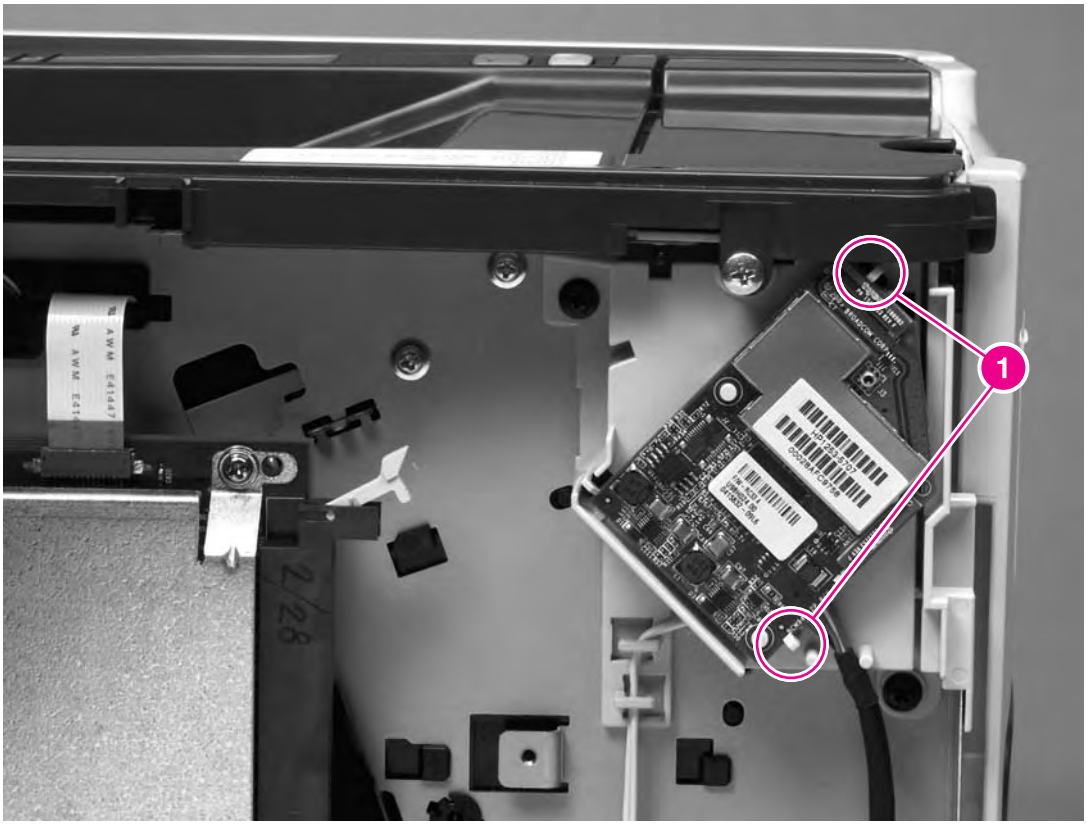


Figure 6-54. **Removing the wireless communications card (1 of 2)**

3. Turn the card over and then disconnect one connector (callout 2).

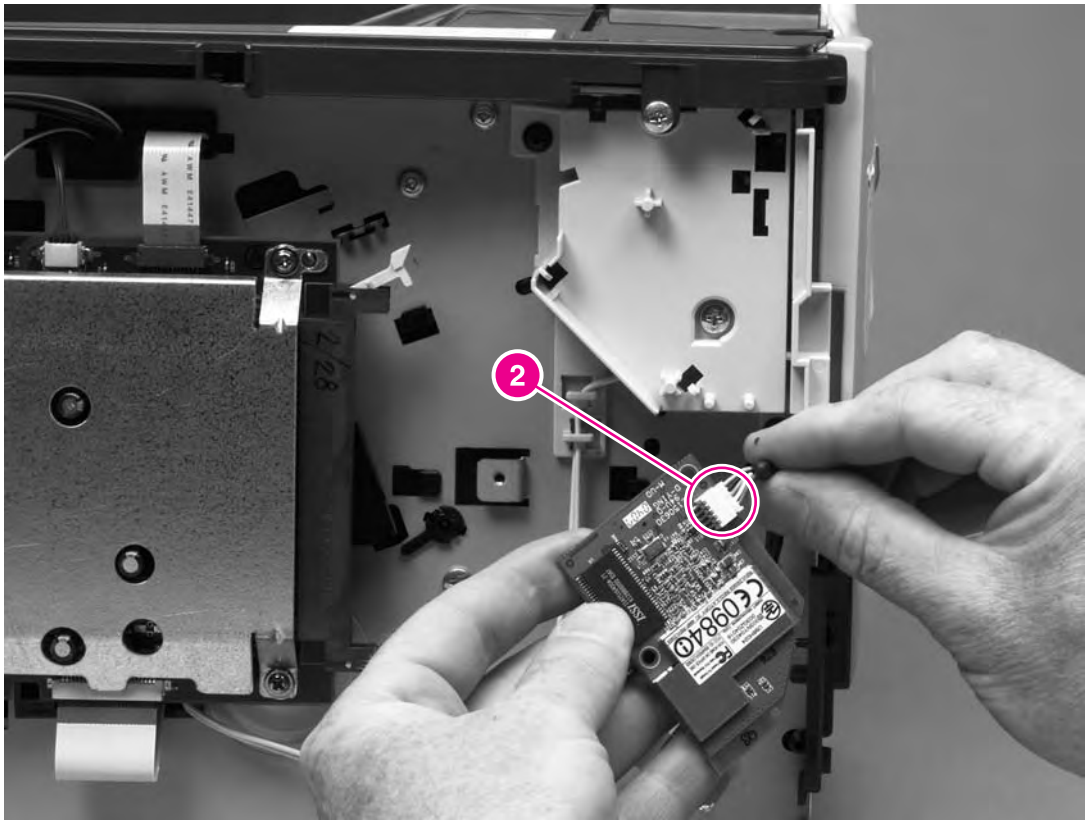


Figure 6-55. **Removing the wireless communications card (2 of 2)**

7 Troubleshooting

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Basic troubleshooting

Table 7-1. Basic troubleshooting

The printer doesn't turn on.

When the product is connected to a correctly grounded power source, the LEDs on the control panel do not light and the main motor does not rotate.

Cause	Solution
No power to the printer.	1. Verify that the power outlet has the correct voltage. 2. Verify that the power cable is correctly plugged into the outlet and the printer. 3. Verify that the power switch is turned on.
The power inlet/switch cable assembly is defective.	Replace the power inlet/switch cable assembly.
The ECU is defective.	Replace the ECU (see ECU).

The printer turns on, but the motor doesn't rotate.

When turned on, the LEDs on the control panel light up, but the main motor does not rotate.

Cause	Solution
The print cartridge door is open.	Close the print cartridge door.
Media is jammed in the paper path.	Clear all media from the paper path and make sure that all sensors are working correctly.
The motor cable is not connected correctly.	Reconnect the motor cable.
The motor is not mounted correctly in the printer chassis.	Verify that the motor is connected correctly and that it rotates freely.
A gear is damaged or jammed.	Replace the gear assembly (see Main gear assembly/tray 2 pickup solenoid).
The ECU is defective.	Replace the ECU (see ECU).
The main motor is defective.	Replace the motor (see Main motor).

The printer is unresponsive.

The printer turns on and the motor rotates, but none of the control panel lights turn on, and pressing the control panel buttons has no effect.

Cause	Solution
The control panel cable is not connected correctly.	Reconnect the control panel cable.

Table 7-1. Basic troubleshooting (continued)

The printer is unresponsive.

The printer turns on and the motor rotates, but none of the control panel lights turn on, and pressing the control panel buttons has no effect.

Cause	Solution
The control panel is defective.	Replace the control panel (see Control panel).
The formatter is defective.	Replace the formatter (see Formatter).

The printer is not "ready."

The printer is on, but the control panel lights indicate that the printer is not in the "ready" state.

Cause	Solution
The printer has an internal error that was detected during the power-on self-test sequence.	Consult the list of control panel light patterns to identify and correct the error (see Status light patterns and Fatal error secondary messages).

The printer does not print.

The printer turns on, the motor rotates, and the control panel indicates the "ready" state, but the printer does not print.

Cause	Solution
A printer component is defective.	Perform an engine test to verify print-engine components. 1. Press the engine test switch (see Figure 7-1. Location of engine-test switch) to print an engine test. 2. If the engine test page does not print, check all of the connectors on the ECU and reconnect any cables that are connected incorrectly. 3. If, after checking the connectors, the error persists, replace the ECU (see ECU).
The formatter is defective.	Press the Go button to print a Demo page. If the Demo page does not print, replace the formatter (see Formatter).

The printer does not print from a computer.

The printer prints the engine test and the Demo page, but does not print jobs sent from a computer.

Cause	Solution
The cable is not connected correctly.	Reconnect the cable.
An incorrect printer driver is selected.	Select the correct printer driver.

Table 7-1. Basic troubleshooting (continued)

The printer does not print from a computer.

The printer prints the engine test and the Demo page, but does not print jobs sent from a computer.

Cause	Solution
The printer driver is not installed correctly.	Uninstall and then reinstall the printer software. Make sure that you use the correct procedure and port setting.
Other devices are connected to the printer (for example, through a switch or hub) that are interfering with the computer-printer communications.	Disconnect the other devices, switches, or hubs.
There is a computer-port communications problem.	Reset the computer port settings (see the computer user guide for more information).
The formatter is defective.	Replace the formatter (see Formatter).

Paper-handling problems

Choose the item that best describes the problem:

- Paper jam
- Print is skewed (crooked)
- More than one sheet of media feeds through the printer at one time
- Printer does not pull media from the media input tray
- Printer curled the media
- Printed media does not exit to the correct path
- Print job is extremely slow

Paper jam

- See Clearing jams for more information.
- Make sure that you are printing with media that meets specifications.
- Make sure that you are printing with media that is not wrinkled, folded, or damaged.
- Make sure that the printer is clean. See Maintenance for more information.
- If you are printing to the straight-through output path, close and open the door again to make sure that the green release levers are closed.
- If you are using the automatic two-sided printing feature, make sure that the media indicator is set to the correct paper size.

Print is skewed (crooked)

A small amount of skew is normal and might become obvious when using preprinted forms.

- See Table 7-2. Solving print paper-feed problems and Table 7-8. Solving print image-quality problems for more information.
- Adjust the media guides to the width and length of the media that you are using and try reprinting.

More than one sheet of media feeds through the printer at one time

- The media input tray might be too full.
- Make sure that the media is not wrinkled, folded, or damaged.
- Try paper from a new ream. Do not fan the paper before loading it into the input tray.
- The printer separation pad might be worn.

Printer does not pull media from the media input tray

- Make sure that the printer is not in manual feed mode. See Status light patterns for more information.
- Make sure that the media guides are adjusted properly.
- The pickup roller might be dirty or damaged.

Printer curled the media

- See Table 7-2. Solving print paper-feed problems and Table 7-8. Solving print image-quality problems for more information.
- Open the straight-through output door to print straight through.

Printed media does not exit to the correct path

Open or close the straight-through output door to reflect the output path that you want to use.

Print job is extremely slow

The maximum speed of the printer is up to 20 pages per minute for the HP LaserJet 1160 printer and up to 22 pages per minute for the HP LaserJet 1320 Series printer. Your print job might be very complex. Try the following:

- Reduce the complexity of your document (for example, reduce the number of multiple graphics).
- In the printer driver, set the media type to plain paper.

NOTE This can cause toner to fuse poorly if using heavy media.

- Add printer memory.
- Narrow media or heavy media slows printing. Use normal media.

Paper-path troubleshooting

Use the following table to solve problems related to moving paper or documents through the product.

CAUTION Failure to solve paper-feed problems can result in damage to the printer. Damage resulting from high jam-rates from any of the causes shown in this section can void the printer warranty.

Solving print paper-feed problems

Table 7-2. Solving print paper-feed problems

Pages are coming out curled or wrinkled.

Cause	Solution
Paper curl is inherent to the laser printing processes, and occurs when media is subjected to heat. Curl tends to relax as the paper cools while resting on a flat surface.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Media Guide*.
Media is curled or wrinkled when using the top output bin.	Open the straight-through output door on the back of the printer to change the media path. Reset the fuser mode to the default.
Paper is not stored properly.	Whenever possible, store paper in its sealed ream at room temperature.
The media is too long for the printer output bin.	Use the long media extension.
The fuser temperature is too high.	Select **Type is:** in the **Paper/Quality** tab of the printer driver. Make sure that it is set for the appropriate media.

Print is misaligned on the page (skewed pages).

Cause	Solution
The main input tray is overfilled.	Remove some of the media.
The media guides are not set correctly, are broken, or are missing.	Make sure that you center the media with the side media guides. Verify that the guides are not adjusted too tightly or too loosely against the media. Check for broken or missing guides and replace them as needed.
The media's weight or surface finish does not meet HP's specifications.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Media Guide*.

Table 7-2. Solving print paper-feed problems (continued)

The printer feeds multiple sheets or jams frequently from the main input tray.

Cause	Solution
Paper guides are not adjusted correctly.	Slide the guides against the sides of the stack in the main input tray or the priority input slot to center the media. Make sure that the guides are not adjusted too tightly.
Media was not removed from the main input tray before refilling the tray.	Always remove media from the main input tray before you refill it.
The main input tray is overfilled.	Remove some of the sheets. The main input tray can hold up to 250 sheets of 20-lb. (75 g/m^2) bond weight paper (or fewer pages of heavier media, a stack no higher than 25 mm).
The paper was poorly cut by the manufacturer and is sticking together.	“Break” the ream of paper by curving it into an upside-down u-shape (do not "fan" the paper); this can effectively decrease multifeeds. Also try turning the paper around to feed the opposite end first, or use a different type of paper.
The media does not meet HP's specifications for print media.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Media Guide*.
The output capacity was exceeded in the top output bin.	Do not allow more than 125 sheets of 20-lb. (75 g/m^2) bond weight paper (less for heavier paper) to fill the top output bin.
The pickup roller is dirty.	Clean the pickup roller.
The pickup roller is damaged.	Replace the pickup roller.
The separation pad is dirty.	Clean the separation pad.
The separation pad is damaged.	Replace the separation pad.
A sensor is not operating correctly.	Check the sensors to make sure that none of them are jammed. Replace sensors as needed.
Media has already been printed using a laser printer and is now being re-used.	Do not re-use media.

Printed page is different than what appeared on screen

Choose the item that best describes the problem:

- Garbled, incorrect, or incomplete text
- Missing graphics or text, or blank pages
- Page format is different than on another printer
- Graphics quality

Garbled, incorrect, or incomplete text

- The wrong printer driver might have been selected when the software was installed. Make sure that the HP LaserJet 1160 or HP LaserJet 1320 printer driver is selected in the printer Properties.
- If a specific file prints garbled text, there might be a problem with that specific file. If a specific application prints garbled text, there might be a problem with that application. Make sure that the appropriate printer driver is selected.
- There might be a problem with your software application. Try printing from another software application.
- The parallel cable might be loose or defective. Try the following:
  - Disconnect the cable and reconnect it at both ends.
  - Try printing a job that you know works.
  - If possible, attach the cable and printer to another computer, and try printing a job that you know works.
  - Try using a new IEEE-1284B compliant parallel cable that is 3 m (10 ft) or less.
  - Turn off the printer and the computer. Remove the parallel cable, and inspect both ends of the cable for damage. Reconnect the parallel cable, making sure that the connections are tight. Make sure that the printer is directly connected to the computer. Remove any switchboxes, tape backup drives, security keys, or any other devices that are attached between the parallel port on the computer and the printer. These devices can sometimes interfere with communication between the computer and the printer. Restart the printer and the computer.

Missing graphics or text, or blank pages

- Make sure that your file does not contain blank pages.
- The sealing tape might still be in the print cartridge. Remove the print cartridge, and pull the tab on the end of the cartridge until the entire length of the tape is removed. Reinstall the print cartridge. To check the printer, print a Demo page by pressing the Go button.
- The graphic settings in the printer Properties might not be correct for the type of job that you are printing. Try a different graphic setting in the printer Properties. See Advanced Printer Settings window for more information.
- Clean the printer, particularly the contacts between the print cartridge and the power supply.

Page format is different than on another printer

If you used an older or different printer driver (printer software) to create the document or the printer Properties settings in the software are different, the page format might change when you try to print using your new printer driver or settings. To help eliminate this problem, try the following:

- Create documents and print them using the same printer driver (printer software) and printer Properties settings regardless of which HP LaserJet printer you use to print them.
- Change the resolution, paper size, font settings, and other settings. See Advanced Printer Settings window for more information.

Graphics quality

The graphics settings might be unsuitable for your print job. Check the graphic settings, such as resolution, in the printer Properties and adjust them as necessary.

NOTE Some resolution might be lost when converting from one graphics format to another.

Status light patterns

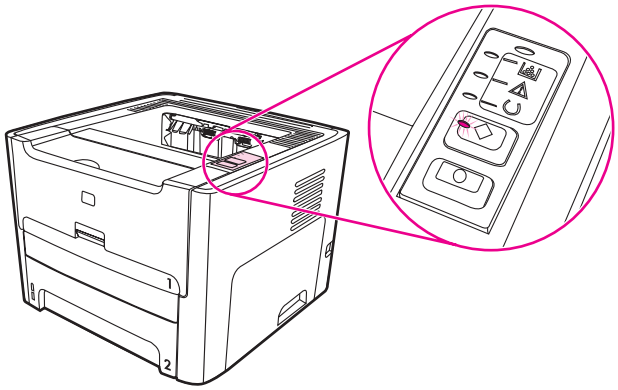


Table 7-3. Light status legend

	Symbol for "light off"
	Symbol for "light on"
	Symbol for "light blinking"

Table 7-4. Control panel light message

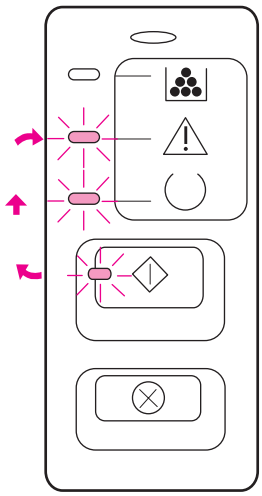
Light status	State of the printer	Action
	**Initialization/Startup** While in the Startup state, the Go, Ready, and Attention lights cycle (at the rate of 500 ms) one after another.	During the Initialization process, pressing buttons has no effect.

Table 7-4. Control panel light message (continued)

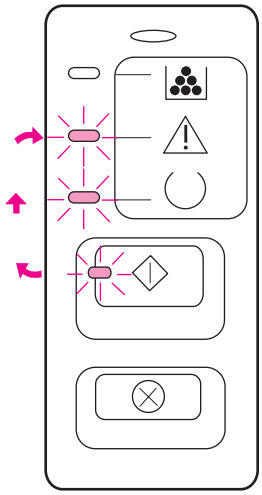
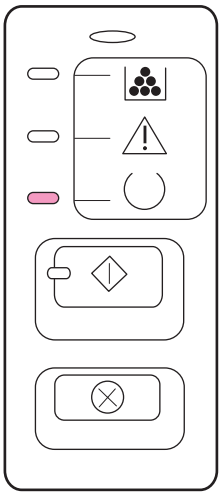
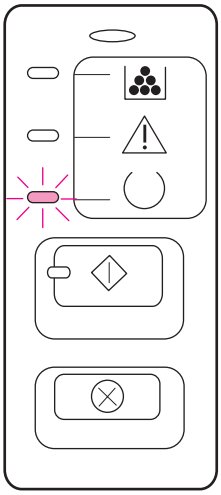
Light status	State of the printer	Action
	**Reconfiguration Initialization** During the printer start up, you can request special initialization sequences that reconfigure the printer. When one of the sequences is requested, such as a cold reset, the lights cycle as in the Initialization/Startup state.	During the Reconfiguration process, pressing buttons has no effect.
	**Ready** The printer is ready with no job activity.	To print a Configuration page, press and hold the GO button for 5 seconds. To print a Demo page, press and release the GO button.
	**Processing Data** The printer is processing or receiving data.	To cancel the current job, press the CANCEL button.

Table 7-4. Control panel light message (continued)

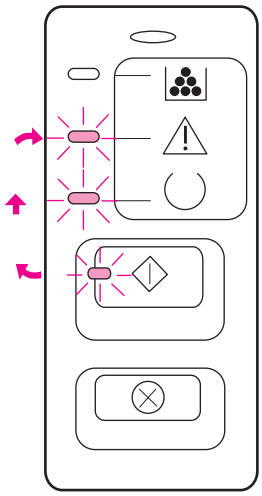
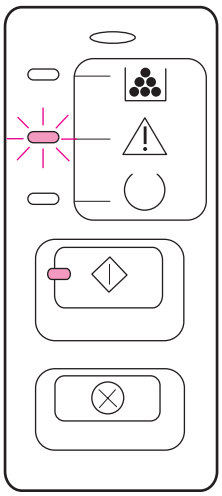
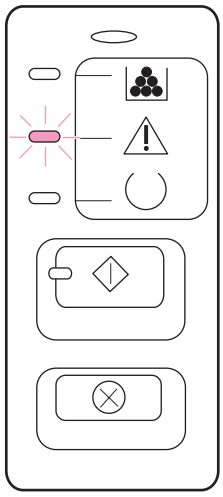
Light status	State of the printer	Action
	**Job Cancel**	Pressing the Go button has no effect. Once the cancellation process has been completed, the printer returns to the Ready state.
	**Manual Feed or Continuable Error** This state can be reached in the following circumstances: • Manual feed • Out of paper for the specified tray • General continuable error • Memory configuration error • Personality/Job related error	To recover from the error and print whatever data is possible, press the Go button. The printer might print a partial page, or the quality might be lower than normal. If the page is too complex, the printer might be out of memory. Try reducing the complexity of the page or try adding more memory. If the recovery is successful, the printer goes to the Processing Data state and completes the job. If the recovery is unsuccessful, the printer returns to the Continuable Error state.
	**Attention** This state can be reached in the following circumstances: • Paper tray is empty • Door open • Paper jam • Misfeed from tray	1. Verify that the print cartridge is present and that the print-cartridge door is closed correctly. 2. Verify that media is present in the input tray. 3. Clear any jams and perform paper-path functional checks. 4. Make sure that the interlocks are operating correctly. To reset the printer after a jam, press the Go button.

Table 7-4. Control panel light message (continued)

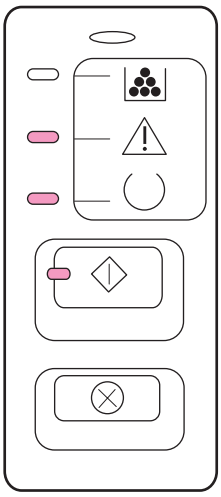
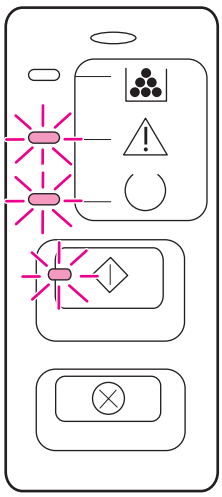
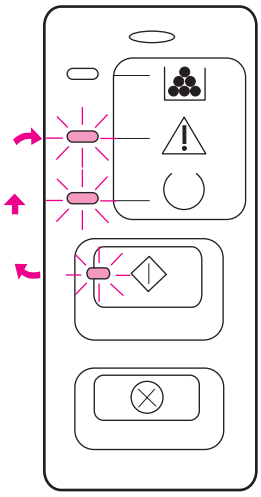
Light status	State of the printer	Action
	**Fatal Error**	1. Turn off the printer, wait 10 seconds, and turn on the printer. 2. Unplug the printer for five minutes, and then plug it back in and turn it on. 3. If the printer still has an error, press the Go button and consult the list of secondary messages.
	**Accessory Error** (HP LaserJet 1320 Series printer only)	To display additional error information, press the Go button. The light pattern changes. For more information about the light pattern now displayed, see Accessory error secondary messages. When you release the Go button, the printer returns to the initial Accessory Error state.
	**Cleaning Page** The cleaning page feature is not available through the control panel. The cleaning page can be activated using the HP Toolbox, which is included as part of the overall printer software package.	During cleaning mode, pressing buttons has no effect. The printer motor slows down and the printer prints a page.

Table 7-4. Control panel light message (continued)

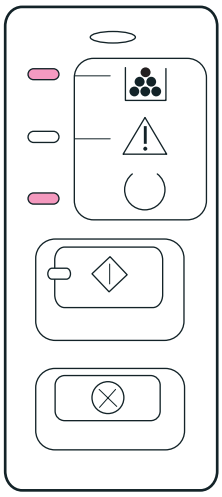
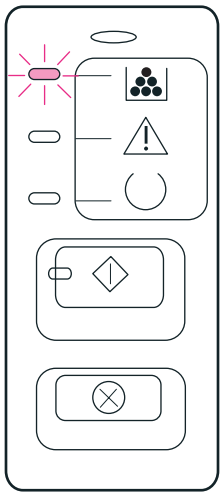
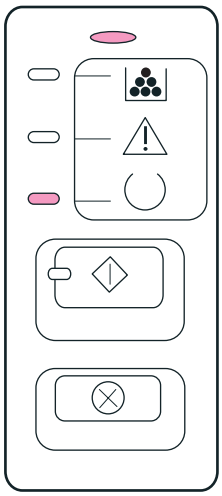
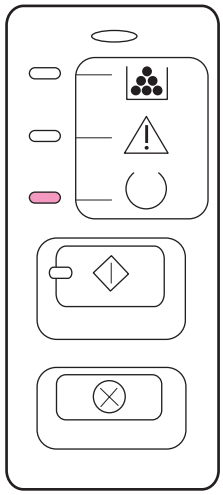
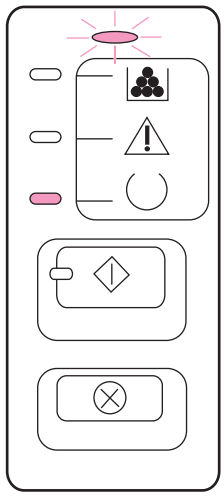
Light status	State of the printer	Action
	**Toner Low** The Go, Ready, and Attention lights act independently of the Toner Low state.	Insert a new print cartridge.
	**Toner Missing** The print cartridge has been removed from the printer.	Reinsert the print cartridge in the printer.
	**Wireless Connection Established** The Go, Ready, Attention, and Toner lights act independently of the Wireless light.	No action is necessary.

Table 7-4. Control panel light message (continued)

Light status	State of the printer	Action
	**Wireless Disabled** The Go, Ready, Attention, and Toner lights act independently of the Wireless light.	No action is necessary.
	**Attempting to Establish Wireless Connection** The Wireless light blinks at one-half second intervals. The Go, Ready, Attention, and Toner lights act independently of the Wireless light.	No action is necessary.

Fatal error secondary messages

If the printer has a fatal error, press and hold the Go button to see a secondary error message.

Table 7-5. Fatal error secondary messages

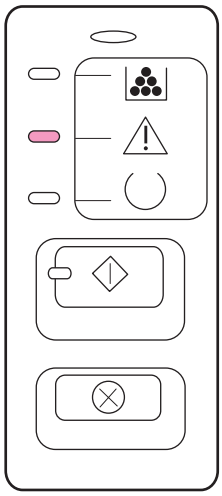
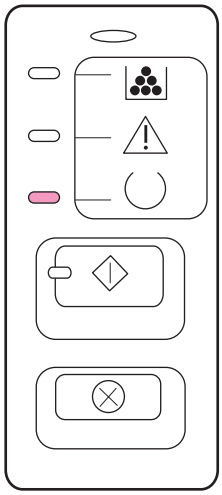
Message	Cause	Solution
	**Engine error.** The formatter and engine are not communicating.	1. Unplug the printer and then plug it back in. 2. Reseat the formatter cable in the ECU. 3. If the error persists, replace the formatter. 4. If, after replacing the formatter, the error persists, replace the ECU.
	**Laser/scanner error.** The laser/scanner has a malfunction.	1. Check the laser/scanner cable connections. 2. If the error persists, replace the laser/scanner.

Table 7-5. Fatal error secondary messages (continued)

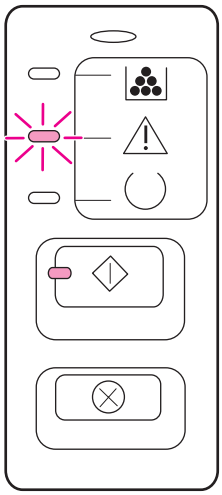
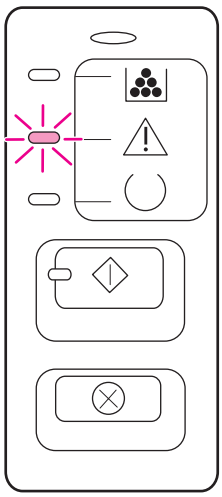
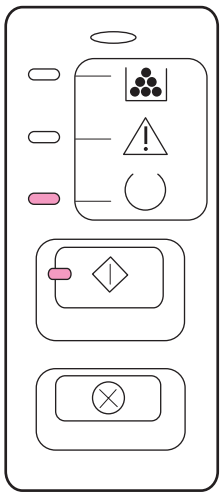
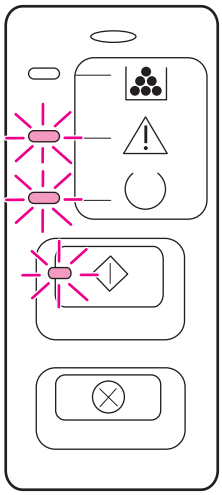
Message	Cause	Solution
	**Beam error**	1. Check the laser/scanner cable connections. 2. If the error persists, replace the laser/scanner.
	**Motor error.**	1. Check the motor cable connections. 2. If the error persists, replace the motor.
	**Fuser error.** The fuser has a malfunction.	1. Unplug the printer for at least ten minutes. 2. Verify that the fuser connector and thermistor connector are both firmly seated in the ECU 3. Perform a heating element resistance check. 4. If the resistance readings are correct, but the error persists, replace the fuser.

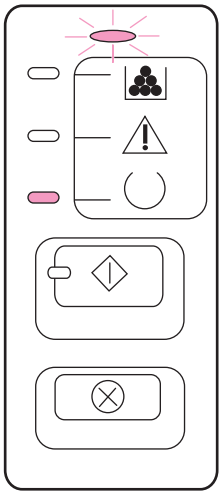
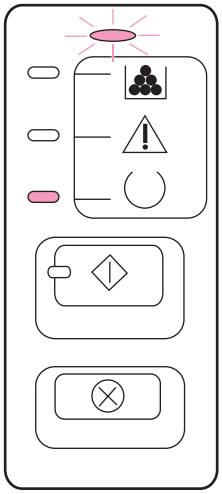
Table 7-5. Fatal error secondary messages (continued)

Message	Cause	Solution
	**General fatal error.**	1. Turn the printer off, and then turn the printer back on. 2. If the error persists, disconnect the I/O cable and print an engine test. If the self-test is successful, reconnect the I/O cable. 3. If the error persists, replace the formatter.

Accessory error secondary messages

If the printer has an accessory error (indicated by all lights blinking), press and hold the Go button to see the secondary error message.

Table 7-6. Accessory error secondary messages

Message	Cause	Solution
	**Internal Jetdirect error.**	1. Perform a Jetdirect cold reset (see Wired network setup problemsolving). 2. If the error persists, replace the formatter.
	**DIMM slot error.**	1. Verify that the DIMM is correctly seated. 2. If the error persists, replace the DIMM.

Troubleshooting postscript (PS) errors

The following situations are PS language specific and might occur when several printer languages are being used.

NOTE To receive a printed or screen displayed message when PS errors occur, open the Print Options dialog box and click the desired selection next to the PS Errors section. You can also access this from the embedded Web server.

Table 7-7. PS errors

Symptom	Possible cause	Solution
The job prints in Courier (the printer's default typeface) instead of the typeface you requested.	The requested typeface is not downloaded. A personality switch might have been performed to print a PCL job just before the PS printing job was received.	Download the desired font and send the print job again. Verify the type and location of the font. Download to printer if applicable. Check with the software documentation.
A legal page prints with clipped margins.	Print job too complex.	You might need to print your job at 600 dots per inch, reduce the complexity of the page, or install more memory.
A PS error page prints.	Print job might not be PS.	Make sure the print job is a PS job. Check to see whether the software application expected a setup or PS header file to be sent to the printer.
Limit Check Error	Print job is too complex.	You might need to print your job at 600 dots per inch, reduce the complexity of the page, or install more memory.
VM Error	Font Error	Select unlimited downloadable fonts from printer driver.
Range Check	Font Error	Select unlimited downloadable fonts from printer driver.

Print cartridge problems

Checking the print cartridge

Image formation defects are frequently the result of problems in the print cartridge. If there is any doubt, always replace the print cartridge before troubleshooting image defects.

Use the following checklist to make sure that the print cartridge is still operable.

- Make sure that the print cartridge is installed properly and the shipping tape is removed.
- Inspect the print cartridge for toner level.
- Check the expiration date stamped on the print cartridge box.
- Check the print cartridge to see if it has been disassembled or refilled.
- Inspect the print cartridge to see if toner is leaking through worn seals.
- Check the surface of the photosensitive drum in the cartridge to see if it has been damaged or scratched. Touching the drum contaminates the photosensitive surface and can cause spotting and image defects.
- Blurred areas on printed pages indicate that the photosensitive drum in the cartridge has been overexposed to light. Because overexposure to light causes permanent damage to the photosensitive drum, the cartridge should be replaced.

NOTE A standard-capacity print cartridge weighs approximately 765 grams (1.69 lb) when full and approximately 675 grams (1.49 lb) when empty. An extra-capacity print cartridge weighs approximately 986 grams (2.17 lb) when full and approximately 766 grams (1.69 lb) when empty. These values are subject to change without notice.

To redistribute toner in the print cartridge

Before installing a new print cartridge or when toner begins to run low, redistribute the toner by rotating the cartridge back and forth five or six times.

Solving image-quality problems

Use the following tables to help solve problems with printed pages.

If the problem occurs when printing, see Table 7-8. Solving print image-quality problems.

Also, see Table 7-2. Solving print paper-feed problems.

Solving print image-quality problems

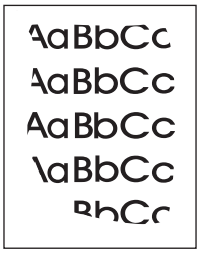
Table 7-8. Solving print image-quality problems

Pages do not print or pages are blank.

Cause	Solution
The printer is not plugged in or power switch is off.	Make sure that the printer is plugged into a live wall outlet or power strip and that the printer is turned on.
The computer cable is loose.	Check that the cable between the printer and the computer is securely connected.
The tape was not removed from the print cartridge.	Remove the print cartridge, remove the tape, and return the print cartridge.
The print cartridge is out of toner.	Replace the print cartridge.
The media does not meet HP's specifications	Make sure that media meets the specifications detailed in the *HP LaserJet Printer Family Media Guide*.
The print cartridge is damaged.	Replace the cartridge.
The contacts on the print cartridge or the ECU are dirty.	Clean the contacts.
The contacts on the print cartridge or the ECU are damaged.	Replace the print cartridge. If the problem persists, replace the ECU (see ECU).

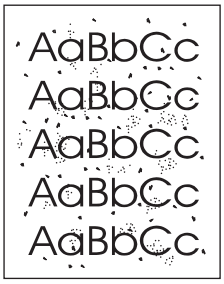
Table 7-8. Solving print image-quality problems (continued)

Parts of the page around the edges are not printing.



Cause	Solution
The printer cannot print all the way to the edge of the paper. The printer has minimum margins on each edge of approximately 4.23 mm ((0.167 inches)).	To get the image to fit into the printable area, slightly reduce the size of the image.
The reduction setting is incorrect.	Check the reduction setting in the "Print" or "Setup" window from within the program that you are using.

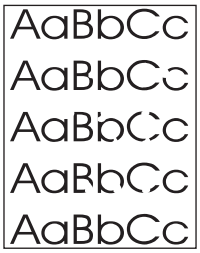
Toner specks appear on the printed page.



Cause	Solution
The media you are using does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Media Guide*.
The printer needs to be cleaned.	Clean the printer (see Cleaning the printer).
The transfer roller is damaged.	Replace the transfer roller (see Transfer roller).
The ECU is defective.	Replace the ECU (see ECU).

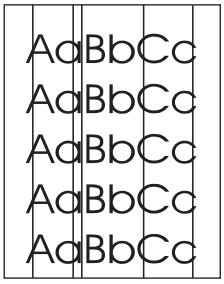
Table 7-8. Solving print image-quality problems (continued)

Characters are only partially printed (also referred to as dropouts).



Cause	Solution
A single sheet of paper is defective.	Try reprinting the job.
The print density needs to be adjusted.	Adjust the print density from the device configuration utility.
The moisture content of the paper is inconsistent, or the paper has moist or wet spots on the surface.	Make sure that the media meets HP's specifications.
The paper was damaged by inconsistent manufacturing processes.	Make sure that the media meets HP's specifications.
EconoMode is selected in the software.	Try the normal or best setting.
The print cartridge is defective.	Replace the print cartridge.
The print cartridge is depleted or damaged.	Replace the print cartridge.
The transfer roller is damaged.	Replace the transfer roller (see Transfer roller.
The ECU is defective.	Replace the ECU (see ECU).

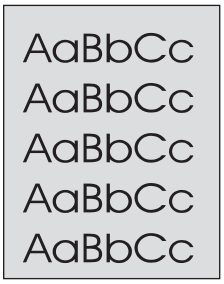
Vertical black lines appear on the printed page.



Cause	Solution
The photosensitive drum inside the print cartridge is scratched.	Replace the print cartridge.
The fuser is defective.	Replace the fuser (see Fuser).

Table 7-8. Solving print image-quality problems (continued)

The printed page has a gray background.



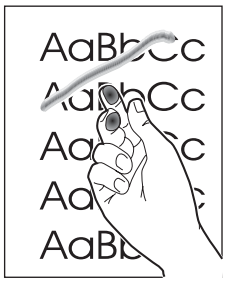
Cause	Solution
The print density setting is too high.	Decrease the amount of background shading through the device configuration utility.
The media basis weight is too high.	Change the media to a lower basis weight.
The humidity level is too low.	Very low humidity can increase the amount of background shading. Move the printer to a different location, or decrease the background shading through the device configuration utility.
The print cartridge is worn or damaged.	Replace the print cartridge.

Toner smears appear on the printed page.

Cause	Solution
If the toner smears appear on the leading edge of the media, the media guides are dirty.	Wipe the media guides with a dry, lint-free cloth.
The media you are using does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Media Guide*.
The print cartridge is worn or damaged.	Replace the print cartridge.
The pressure roller in the fuser is damaged.	Replace the fuser (see Fuser).
The fuser temperature is too low.	Select **Type is:** in the **Paper/Quality** tab of the printer driver. Make sure that it is set for the appropriate media. If the problem persists, replace the fuser (see Fuser).

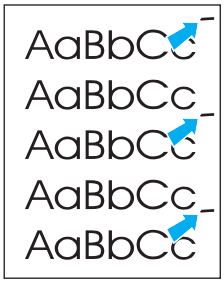
Table 7-8. Solving print image-quality problems (continued)

The toner is loose, and it does not stay attached to the printed page.



Cause	Solution
The inside of the printer is dirty.	Clean the printer (see Cleaning the printer).
The media you are using does not meet HP's specifications. (For example, it is too moist or too rough.)	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Media Guide*.
The print cartridge needs to be replaced.	Replace the print cartridge.
The printer driver is not set for the correct media.	Select the correct media through either the device configuration utility or under **Type is:** in the **Paper/Quality** tab of the printer driver.
The power strip is not working correctly.	Plug the printer directly into an ac outlet.
The pressure roller in the fuser is damaged.	Replace the fuser (see Fuser).
The fuser temperature is too low.	Select **Type is:** in the **Paper/Quality** tab of the printer driver. Make sure that it is set for the appropriate media. If the problem persists, replace the fuser (see Fuser).

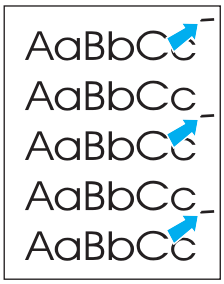
Repetitive vertical defects appear on the printed page.



Cause	Solution
If the repetitive mark occurs at equal distance between marks, either the print cartridge or a printer roller is damaged.	Use the repetitive image defects table to identify the spacing (Repetitive image defects). Check the appropriate component and replace it if necessary.
The internal parts have toner on them.	If the defects occur on the back of the page, the problem will probably correct itself after a few more printed pages. Otherwise, clean the printer. (See Cleaning the printer.)

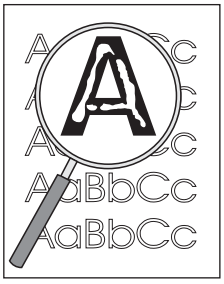
Table 7-8. Solving print image-quality problems (continued)

Repetitive vertical defects appear on the printed page.



Cause	Solution
The printer driver is not set for the correct media.	Select the correct media through either the device configuration utility or under **Type is:** in the **Paper/Quality** tab of the printer driver.

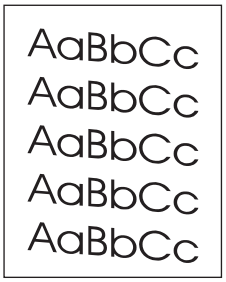
Characters are misformed and are producing hollow images.



Cause	Solution
The media is too slick.	Try a different media. Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Media Guide*.
The printer driver is not set for the correct media.	Select the correct media through either the device configuration utility or under **Type is:** in the **Paper/Quality** tab of the printer driver.
Cables on the laser/scanner are not connected correctly.	Disconnect and then reconnect the laser/scanner cables.
Cables on the formatter are not connected correctly.	Disconnect and then reconnect the formatter cables.
Cables on the ECU are not connected correctly.	Disconnect and then reconnect the ECU cables.
The laser/scanner is defective.	Replace the laser/scanner (see Laser/scanner).
The ECU is defective.	Replace the ECU (see ECU).

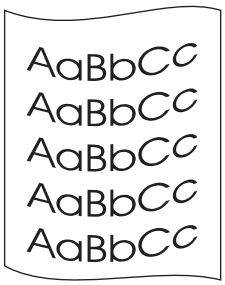
Table 7-8. Solving print image-quality problems (continued)

Pages are skewed.



Cause	Solution
The media is loaded incorrectly.	Reload the media, and make sure that the media guides are not too tight or too loose against the media stack.
The input tray is too full.	Remove some of the sheets. The main input tray can hold up to 250 sheets of 20-lb. (75 g/m^2) bond weight paper (or fewer pages of heavier media, a stack no higher than 25 mm).
The media you are using does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Media Guide*.

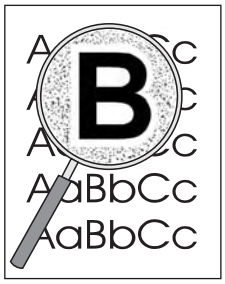
The printed page has curls or waves.



Cause	Solution
The printer is operating in humidity or temperature conditions that are not within the recommended ranges.	Move the printer to a different location.
The media was in the input tray for too long.	Turn the stack of media over and put it back in the tray. Rotate the media 180° and put it back in the tray.
The standard paper path is not working correctly.	Open the straight-through output door on the back of the printer to change paper paths.
The fuser temperature is too high.	Select the correct media through either the device configuration utility or under **Type is:** in the **Paper/Quality** tab of the printer driver.

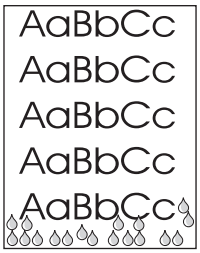
Table 7-8. Solving print image-quality problems (continued)

Large amounts of toner are scattered around the characters.



Cause	Solution
The media is resisting the toner.	1. Use a different media. Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Media Guide*. 2. Turn the stack of media over and put it back in the tray. 3. Use media that is designed for laser printers.

Droplets of water are deposited on the trailing edge



Cause	Solution
Moisture in the printer is condensing on the fuser assembly and dropping onto the media. In excessively hot and humid areas, media retains moisture.	Try a different media. Store media in airtight containers to minimize absorption of moisture. **NOTE** Water droplets do not damage the printer.

Clearing jams

Occasionally, media becomes jammed during a print job. You are notified of a media jam by an error in the software and the printer control panel lights. See Status light patterns for more information.

The following are some of the causes of media jams:

- The input trays are loaded improperly or too full.

NOTE When you add new media, always remove all of the media from the input tray and straighten the stack of new media. This helps prevent multiple sheets of media from feeding through the printer at one time, reducing media jams.

- The media does not meet HP specifications.
- The printer might need to be cleaned to remove paper dust and other particles from the paper path. See Cleaning the printer for instructions.

There might be loose toner in the printer after a media jam. This toner clears up after a few sheets print.

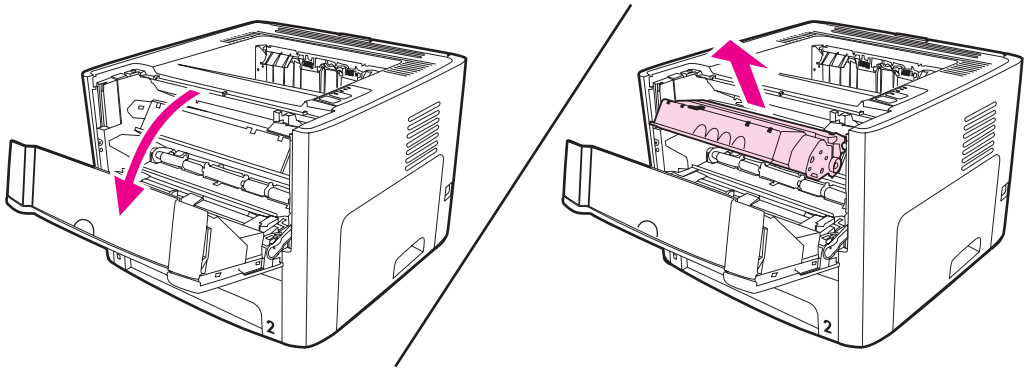
CAUTION Media jams might result in loose toner on the page. If you get any toner on your clothes, wash them in cold water. **Hot water permanently sets toner into fabric.**

Print-cartridge area

To clear a jam in the print-cartridge area, perform the following steps:

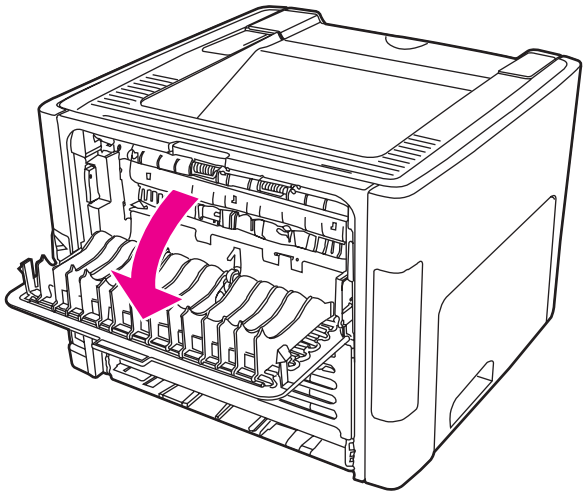
CAUTION Do not use sharp objects, such as tweezers or needlenose pliers, to remove jams. Damage caused by sharp objects is not covered by the warranty.

1. Open the print-cartridge door, and remove the print cartridge.



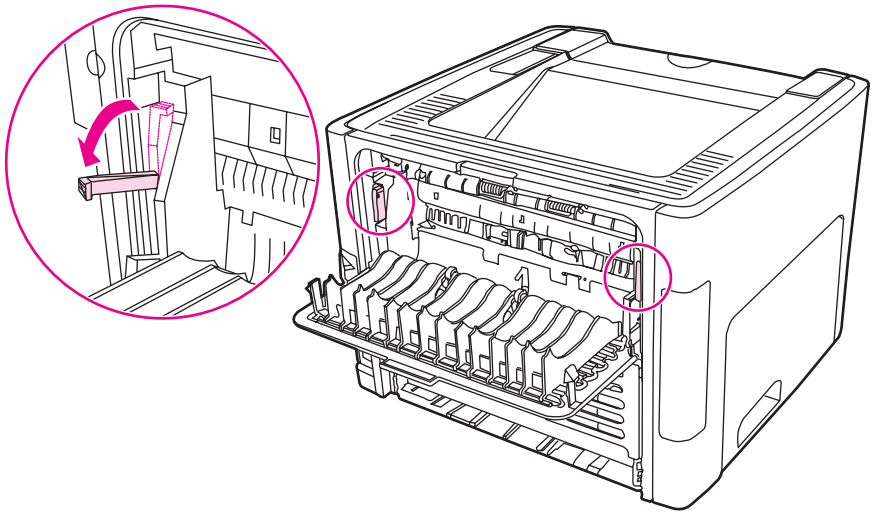
CAUTION To prevent damage to the print cartridge, minimize its exposure to direct light.

2. Open the straight-through output door.

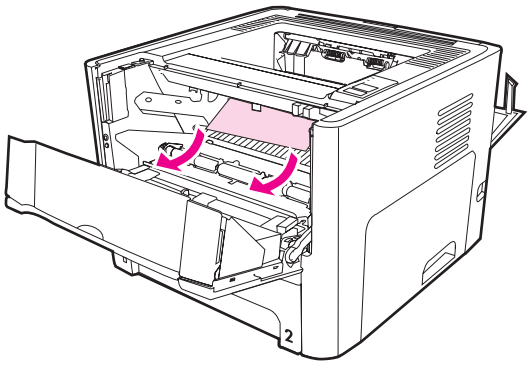


3. Rotate the green pressure release levers downward.

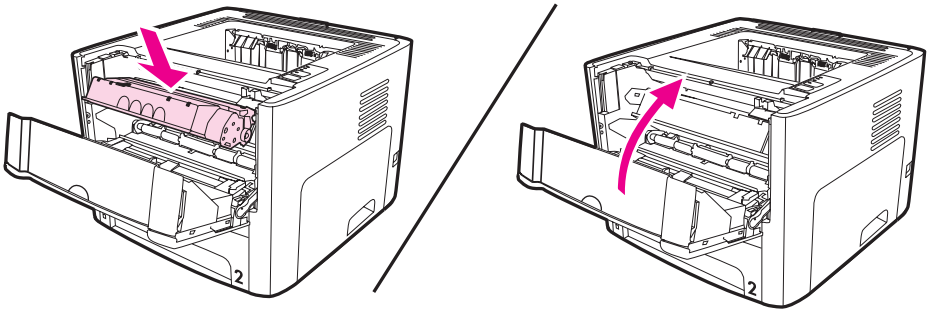
CAUTION Severe damage to the printer can result from failure to rotate the pressure release levers. Such damage is not covered under the printer warranty.



4. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



5. Replace the print cartridge, and close the print-cartridge door.

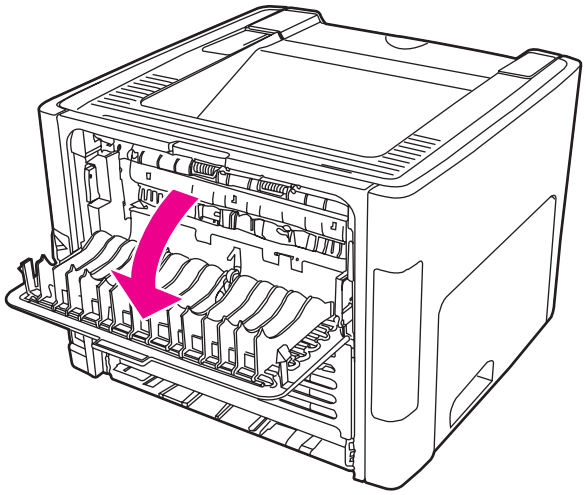


Input trays

To clear a jam in the input trays, perform the following steps:

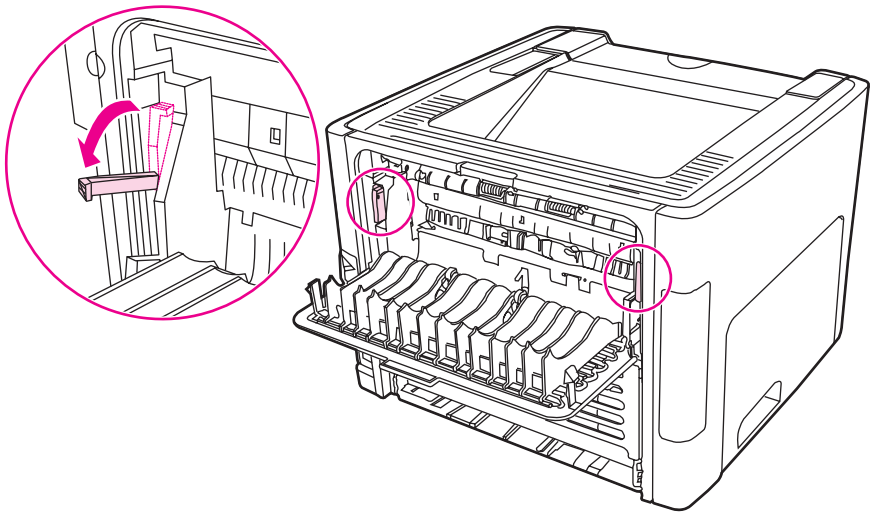
CAUTION Do not use sharp objects, such as tweezers or needlenose pliers, to remove jams. Damage caused by sharp objects is not covered by the warranty.

1. Open the straight-through output door.

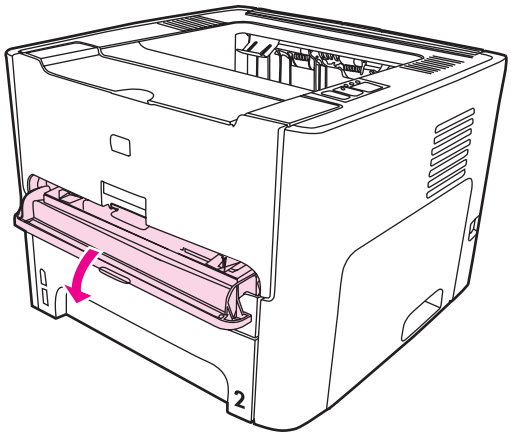


2. Rotate the green pressure release levers downward.

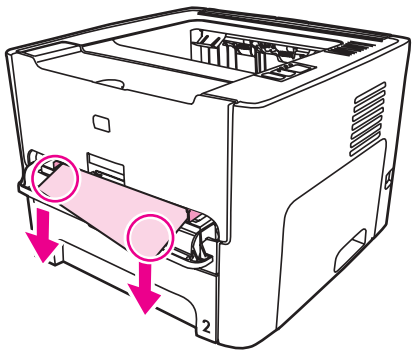
CAUTION Severe damage to the printer can result from failure to rotate the pressure release levers. Such damage is not covered under the printer warranty.



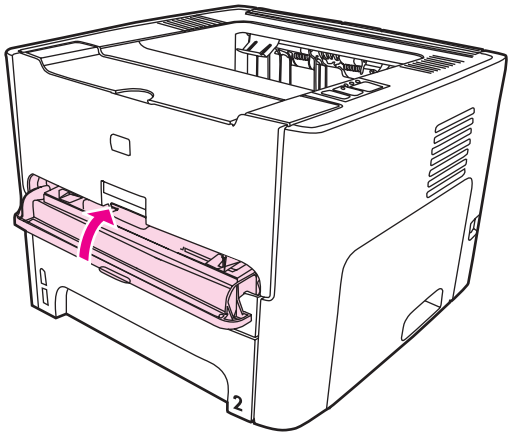
3. Open the single-sheet priority input slot (tray 1) door.



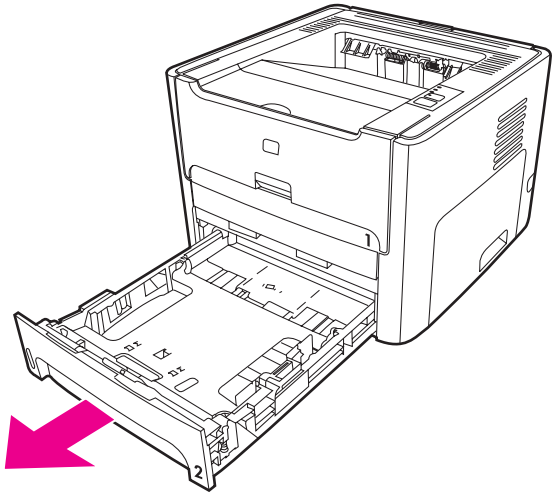
4. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



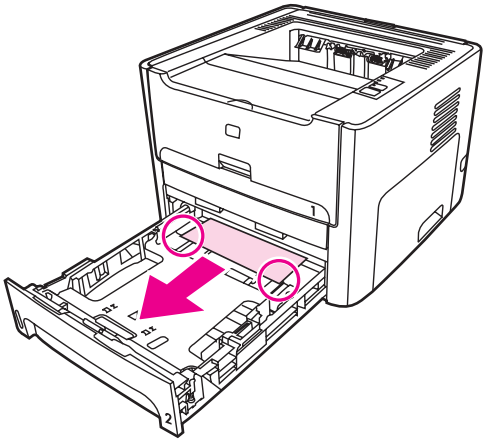
5. Close the single-sheet priority input slot (tray 1) door.



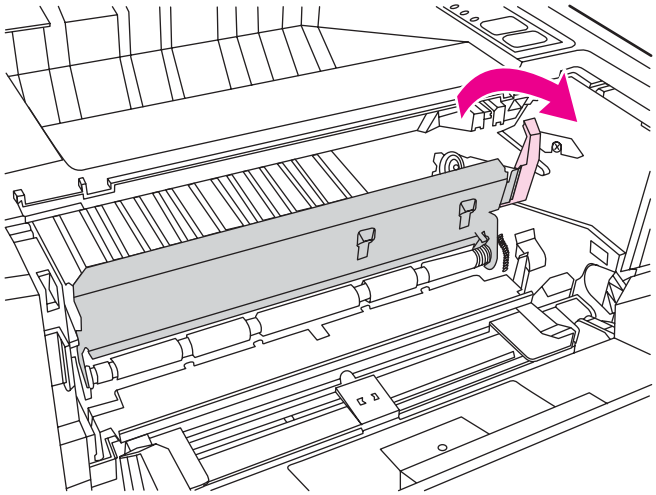
6. Open the main input tray (tray 2).



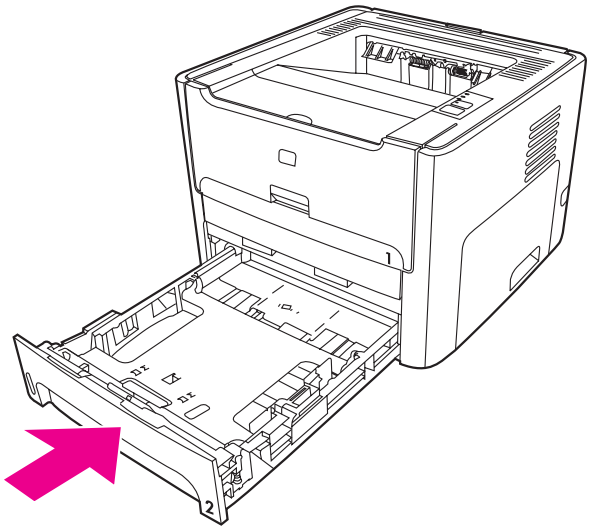
7. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



8. If no media is visible, open the print-cartridge door, remove the print cartridge, and rotate the upper media guide. Carefully pull the media up and out of the printer.



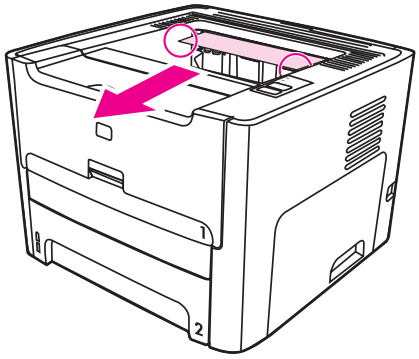
9. Close the main input tray (tray 2).



Output bin

CAUTION Do not use sharp objects, such as tweezers or needlenose pliers, to remove jams. Damage caused by sharp objects is not covered by the warranty.

With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.

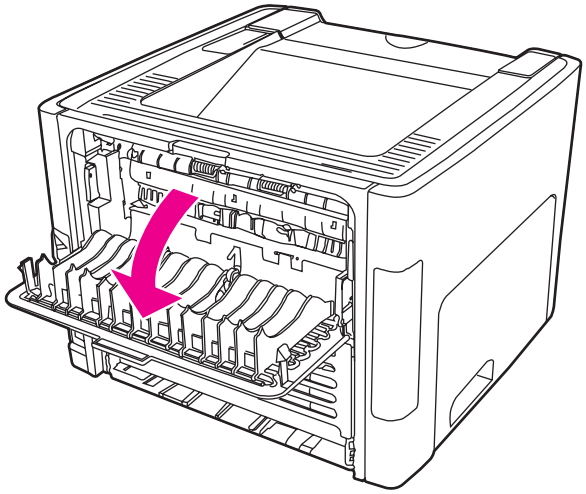


Straight-through output path

To clear a jam in the straight-through output path, perform the following steps:

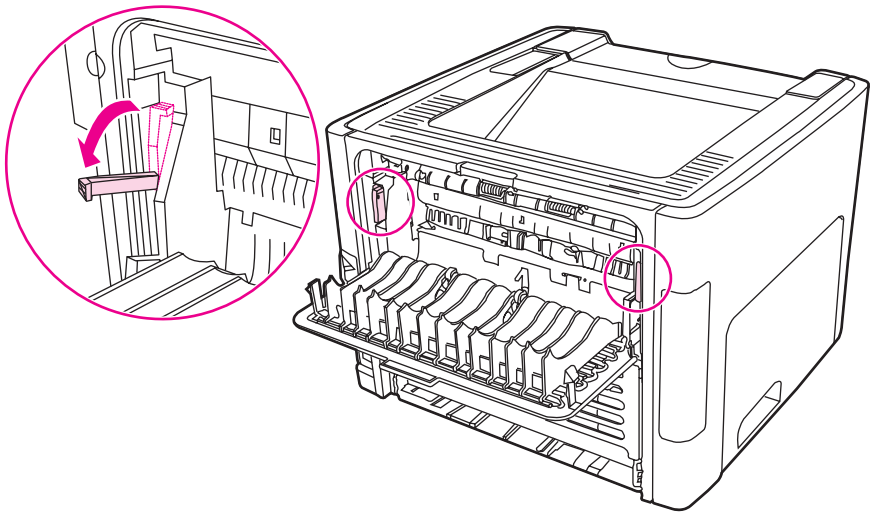
CAUTION Do not use sharp objects, such as tweezers or needlenose pliers, to remove jams. Damage caused by sharp objects is not covered by the warranty.

1. Open the straight-through output door.

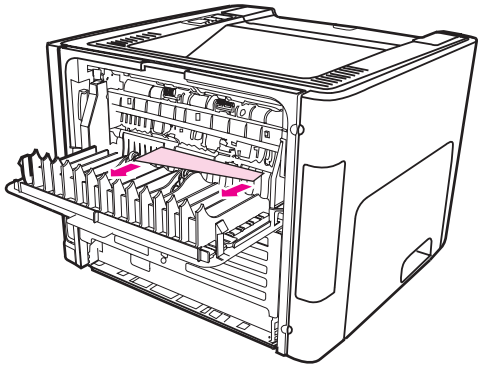


2. Rotate the green pressure release levers downward.

CAUTION Severe damage to the printer can result from failure to rotate the pressure release levers. Such damage is not covered under the printer warranty.

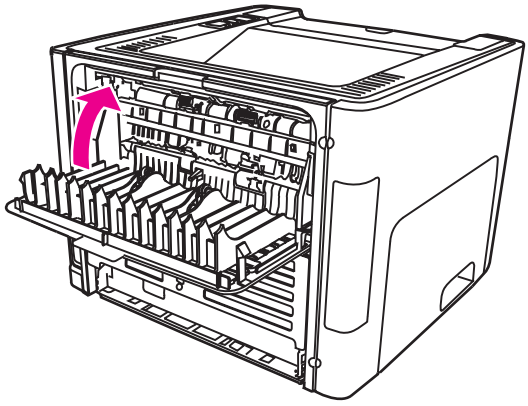


3. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



NOTE If you cannot grasp the media with your hands, perform the procedure in Print-cartridge area.

4. Close the straight-through output door.



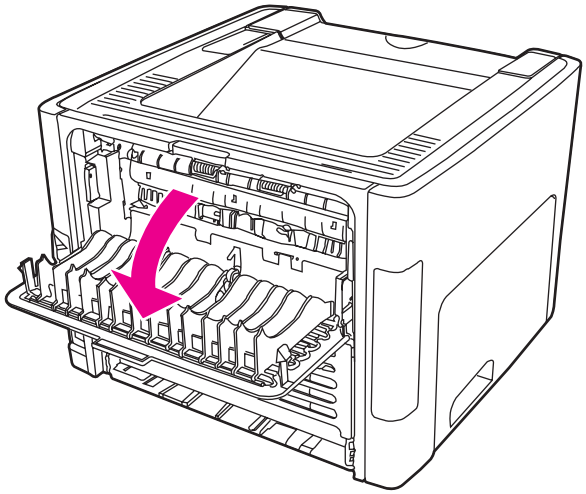
NOTE The pressure release levers automatically close when you close the straight-through output door.

Automatic two-sided printing (duplexing) path

To clear a jam in the automatic two-sided path, perform the following steps:

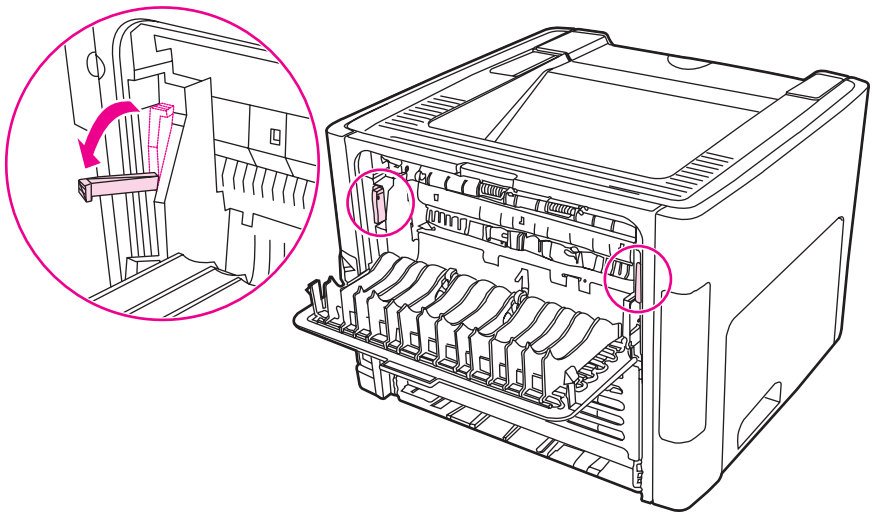
CAUTION Do not use sharp objects, such as tweezers or needlenose pliers, to remove jams. Damage caused by sharp objects is not covered by the warranty.

1. Open the straight-through output door.

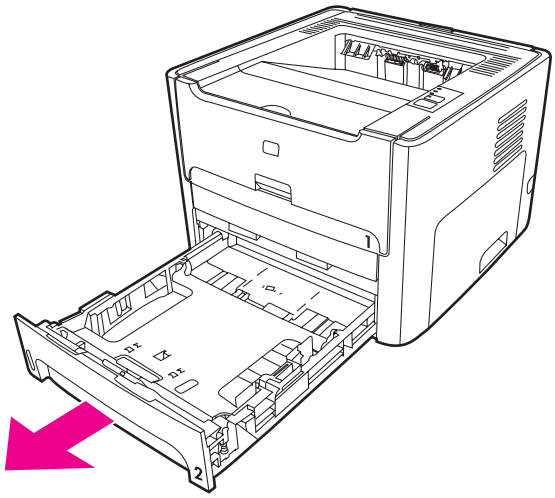


2. Rotate the green pressure release levers downward.

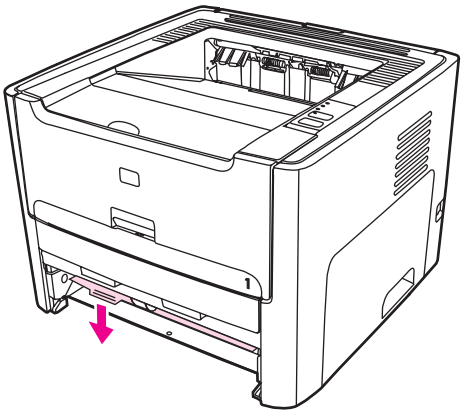
CAUTION Severe damage to the printer can result from failure to rotate the pressure release levers. Such damage is not covered under the printer warranty.



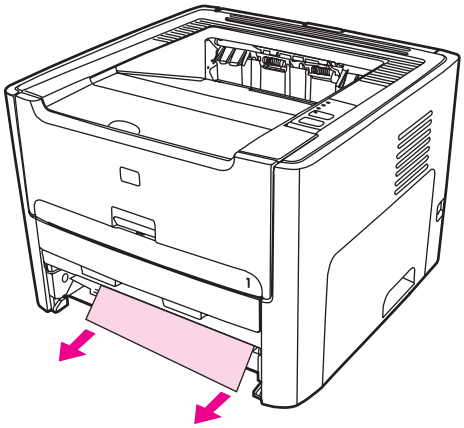
3. Remove the main input tray (tray 2).



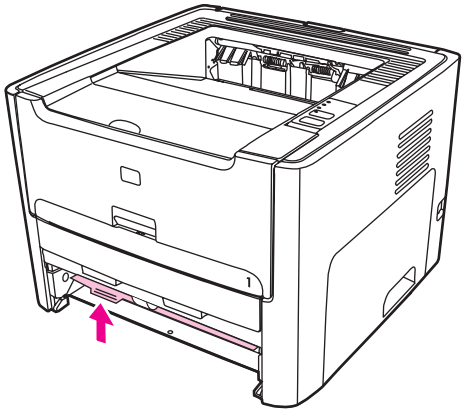
4. Push down on the green lever on the automatic two-sided path door on the front of the printer.



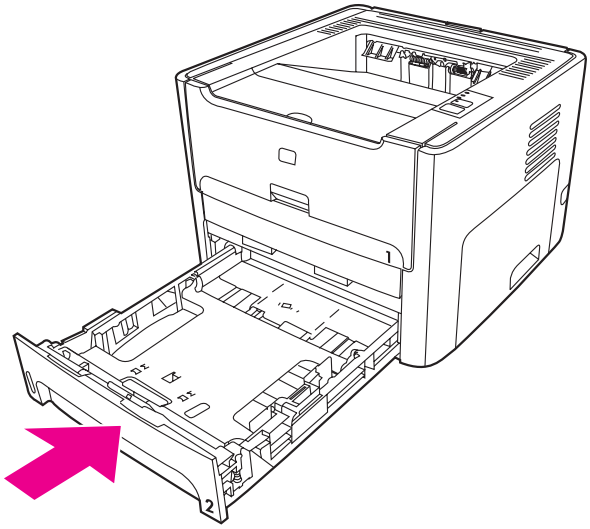
5. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



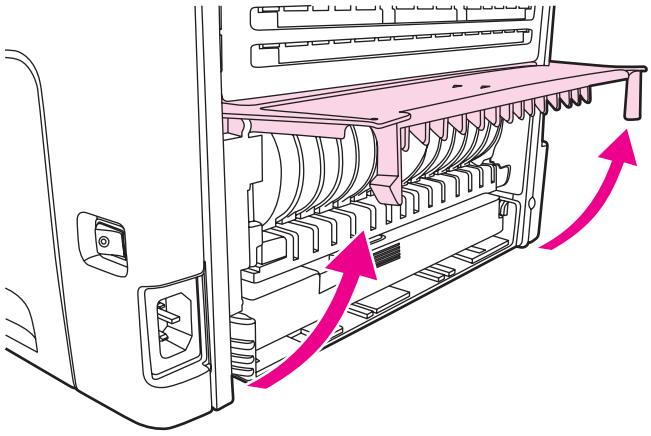
6. Close the automatic two-sided path door.



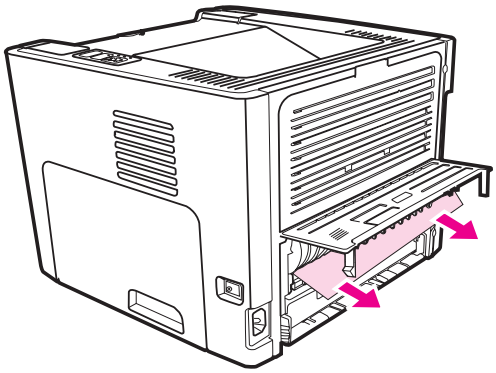
7. Reinsert the main input tray (tray 2).



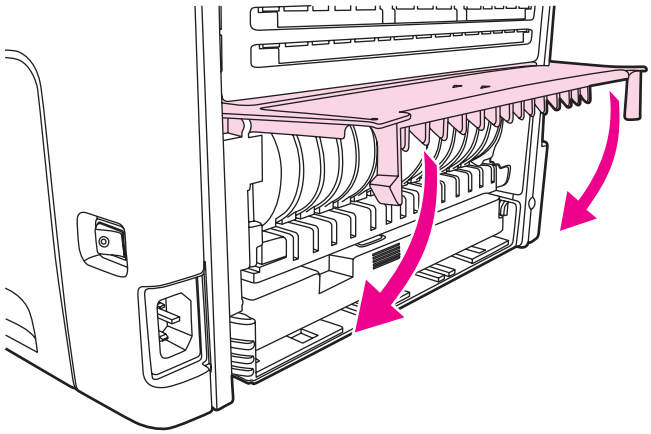
8. Open the automatic two-sided path door on the back of the printer.



9. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



10. Close the automatic two-sided path door.



Functional checks

This section includes five functional checks for troubleshooting.

Engine test

The engine test is used to verify that the print engine is functioning correctly. The formatter is bypassed during an engine test, so the engine test is useful for isolating printer problems. The engine test prints horizontal lines down the entire printable area of a page and is also useful for checking and adjusting registration.

Printing an engine test

NOTE The formatter must be connected to the ECU to perform an engine test.

The engine-test switch is inside the left cover, below the formatter. To print an engine test, remove the left side cover (see Left-side cover), override the door interlock (SW 301), and then press the engine-test switch (callout 1 in Figure 7-1. Location of engine-test switch). A single test page prints.

NOTE Printing a configuration page verifies that the formatter is working correctly.

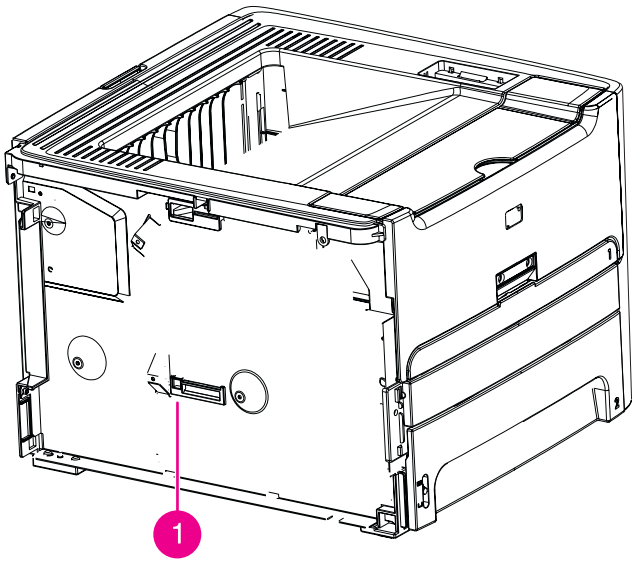


Figure 7-1. **Location of engine-test switch**

Half self-test functional check

The print process can be subdivided into the following stages:

- image formation stage (charges the drum and writes a latent image to the drum with the laser)
- development stage (forms a toner image on the drum)
- transfer stage (transfers the image to paper)
- cleaning stage (removes excess toner from the drum)
- fusing stage (applies heat and pressure to make the image on paper permanent)

To perform a half self-test check

The purpose of the half self-test check is to determine which process is malfunctioning.

1. Print a configuration page.
2. Open the print cartridge access door after the paper advances halfway through the printer (approximately five seconds after the motor begins rotating). The leading edge of the paper should have advanced past the print cartridge.
3. Remove the print cartridge.
4. Open the print cartridge drum shield to view the drum surface. If a dark and distinct toner image is present on the drum surface, assume that the first two functions of the electrophotographic process are functioning (image formation and development). Troubleshoot the failure as a transfer or fusing problem.

To perform other checks

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

1. Make sure you removed the entire length of the sealing tape from the print cartridge before you installed the cartridge.
2. Perform a drum rotation functional check to ensure that the drum is rotating (see Drum rotation functional check).
3. Perform a high-voltage power-supply check. (See below.)

Drum rotation functional check

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

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

1. Open the print-cartridge door.
2. Remove the print cartridge.
3. Mark the drive gear on the cartridge with a felt-tipped marker. Note the position of the mark.
4. Install the print cartridge and close the print-cartridge door. The startup sequence should rotate the drum enough to move the mark.
5. Open the print-cartridge door and inspect the gear that was marked in step 3. Verify that the mark moved.

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

Heating element check

Paper passes between the heating element and a soft pressure roller to fuse toner to the paper.

1. Unplug the printer for at least ten minutes.
2. Verify that the thermistor connector is seated into both the printer chassis and the ECU.
3. Remove the heating element connector from the ECU. To measure the continuity of the heating element, measure the resistance between the two pins at the end of the cable.

NOTE Normal resistance is 25 ohms +/- 10 ohms for the 110 V printer and 80 ohms +/- 20 ohms for the 220 V printer.

If no resistance is measured, replace the fuser.

4. Remove the thermistor connector, and then measure the resistance between J206 pins one and two and between J206 pins three and four.

NOTE Normal resistance between both pairs of pins is 370K ohms +/- 50K ohms at 20° C (68° F).

5. If no resistance is measured, replace the fuser.

High-voltage contacts check

The high-voltage contacts in the printer must have a good connection with the contacts on the print cartridge to provide the necessary voltages for the electrophotographic processes.

To check the print cartridge contacts

Remove the print cartridge and visually inspect the three connection points on the ends of the print cartridge: drum ground (callout 1), charging (callout 2), and developing roller (callout 3). If they are dirty or corroded, clean the connection. If they are damaged, replace the print cartridge.

NOTE Use only isopropyl alcohol to clean the connections.

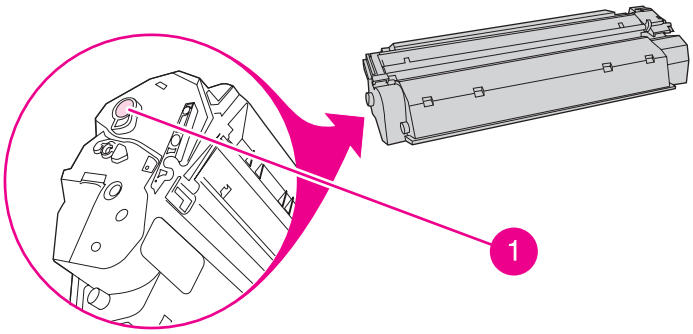


Figure 7-2. **Print cartridge high-voltage connection points (right side)**

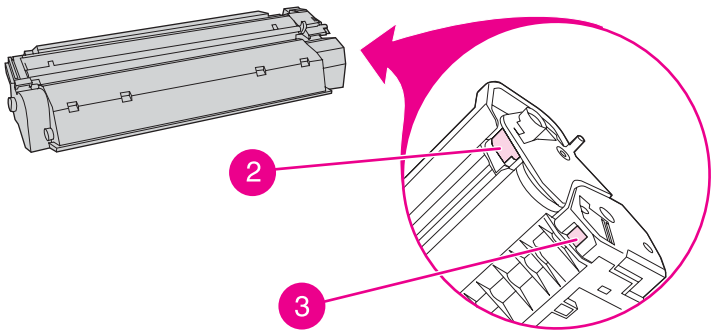


Figure 7-3. **Print cartridge high-voltage connection points (left side)**

To check the high-voltage connector assembly

Visually inspect the cartridge connection points inside the printer to make sure that that they are not dirty or corroded. If the pins are dirty, clean them using isopropyl alcohol only.

Wired network setup problemsolving

If the computer is unable to discover the HP LaserJet 1320n, HP LaserJet 1320tn, or HP LaserJet 1320nw printer, perform the following steps:

1. Check the cables to ensure that they are properly connected. Check all of the following connections:
   - Power cables
   - Cables between the printer and the hub or switch
   - Cables between the hub or switch and the computer
   - Cables to and from the modem or Internet connection, if applicable
2. To verify that the network connection is active, perform the following steps:
   - Check the network light on the network (RJ-45) connector on the back of the printer.
   - If one of the lights is on solid, the printer is connected to the network.
   - If both network lights are off, check the cable connections from the printer to the gateway, switch, or hub to ensure that the connections are secure.
   - If the connections are secure, turn off the power to the printer for at least 10 seconds, and then turn on the power to the printer.
3. To print a Network Configuration page, press the network Reset button located on the back of the printer.

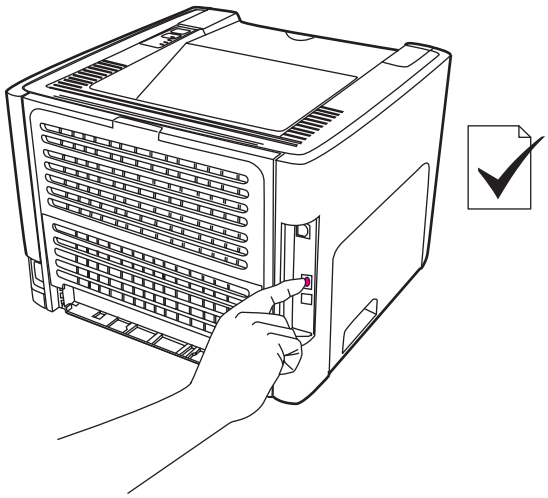


Figure 7-4. **Network Reset button**

- On the Network Configuration page, check to see if a non-zero IP address is assigned to the printer.
- If the Network Configuration page does not have a valid, non-zero IP address, reset the Internal HP Jetdirect print server to the factory defaults. To cold reset the Internal HP Jetdirect print server, turn off the printer. While pressing the Reset button on the back of the printer, turn on the printer. Continue to press the Reset button until the printer is in the Ready state (from 5 to 30 seconds).
- Five minutes after the printer reaches the Ready state, print another Network Configuration page, and check to see if a valid IP address is assigned to the printer.
- If after 30 minutes the IP address still shows zeros, replace the formatter.

NVRAM initialization

CAUTION Only perform the following procedure if absolutely necessary. Performing an NVRAM initialization resets some parameters that cannot be restored later.

NVRAM initialization sets all default variables stored in NVRAM back to factory default values or to a default ROM value, depending on the variable. It also performs a system reset.

NVRAM initialization resets the following:

- All menu settings to factory default values
- Factory settings such as formatter number, page counts, and factory paper settings

To perform NVRAM initialization

1. Turn the printer off.
2. Press and hold down the Go button.
3. Turn the printer on, and continue to hold the Go button for at least 20 seconds. During this process, the Go button, Attention, and Ready LEDs each turn on.
4. Release the Go button.

The printer LEDs will begin cycling. The NVRAM-unit process runs until the printer is in the ready state.

Cold reset

A cold reset changes most system parameters in NVRAM to the factory defaults. However, unlike NVRAM initialization, a cold reset does not reset the page count, the paper tray sizes, language, or formatter number.

NOTE A cold reset also resets all the HP Jetdirect settings as well as the printer settings.

To perform a cold reset

1. Turn the printer off.
2. Press and hold down the Go button.
3. Turn the printer on, and continue to hold the Go button for at least 5 seconds, but not longer than 15 seconds. During this process, the Attention LED turns on.
4. Release the Go button.

NOTE If both the Attention and the Ready LEDs turn on before you release the Go button, you must start the procedure again with step 1.

The printer's LEDs begin cycling. The cold-reset process runs until completion, and the printer returns to the ready state.

Repetitive image defects

If the printer output has a consistent, repetitive defect, then use Table 7-9. Repetitive image defects to determine which part needs to be replaced based on the measured distance between the repetitions of the defect.

Table 7-9. Repetitive image defects

Distance between identical defects	Dirty or damaged roller	Solution
37.7 mm (1.48 inches)	Primary charging roller	Replace the print cartridge.
43.0 mm (1.69 inches)	Registration roller	Replace the registration assembly (see Registration assembly).
44.0 mm (1.73 inches)	Developing cylinder	Replace the print cartridge.
46.2 mm (1.82 inches)	Transfer roller	Replace the transfer roller (see Transfer roller).
56.5 mm (2.22 inches)	Fuser film	Replace the fuser (see Fuser).
69.0 mm (2.72 inches)	Pressure roller	Replace the fuser (see Fuser).
75.4 mm (2.97 inches)	Photosensitive drum	Replace the print cartridge.

General timing chart

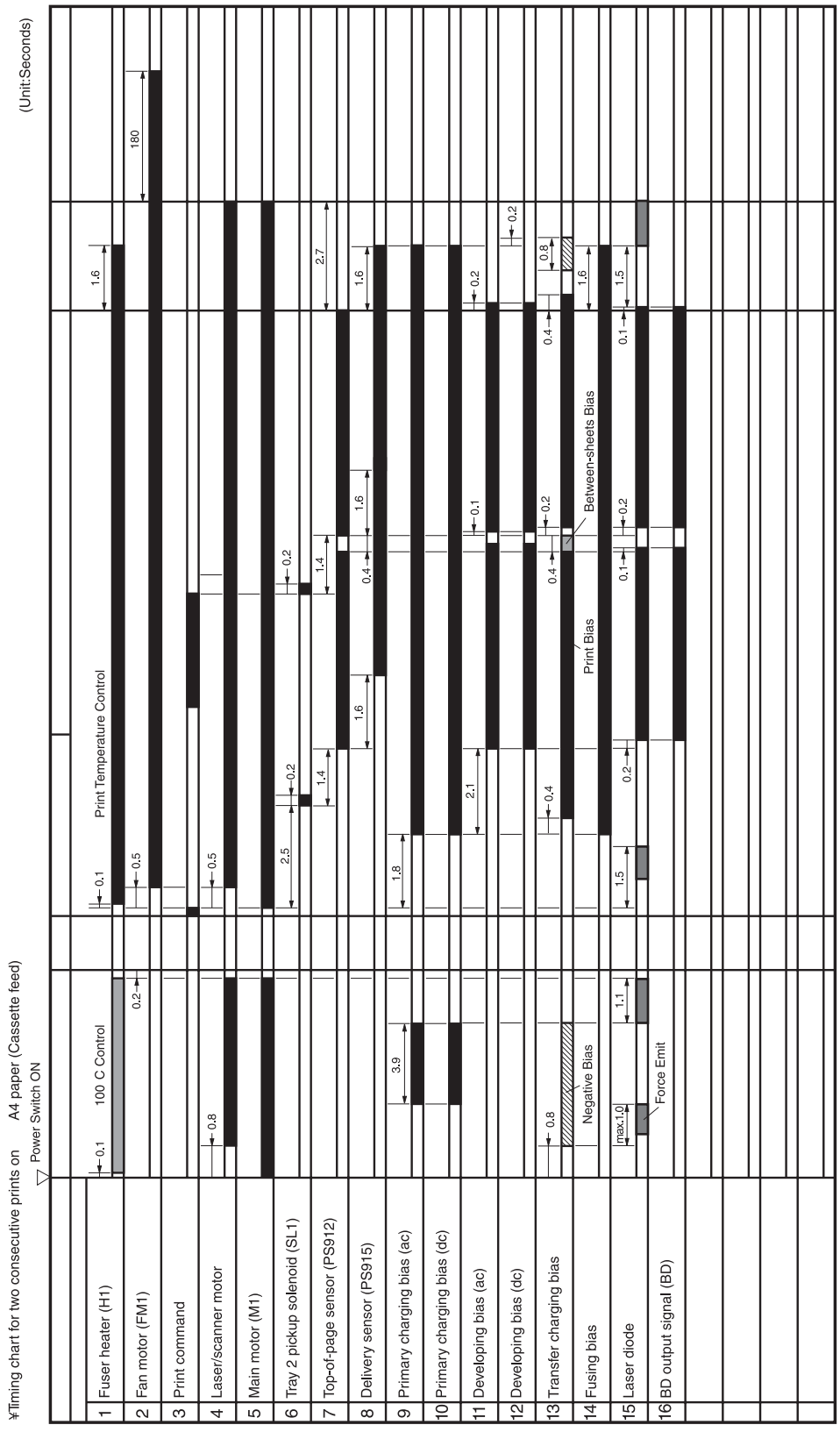


Figure 7-5. **General timing chart**

Circuit diagram

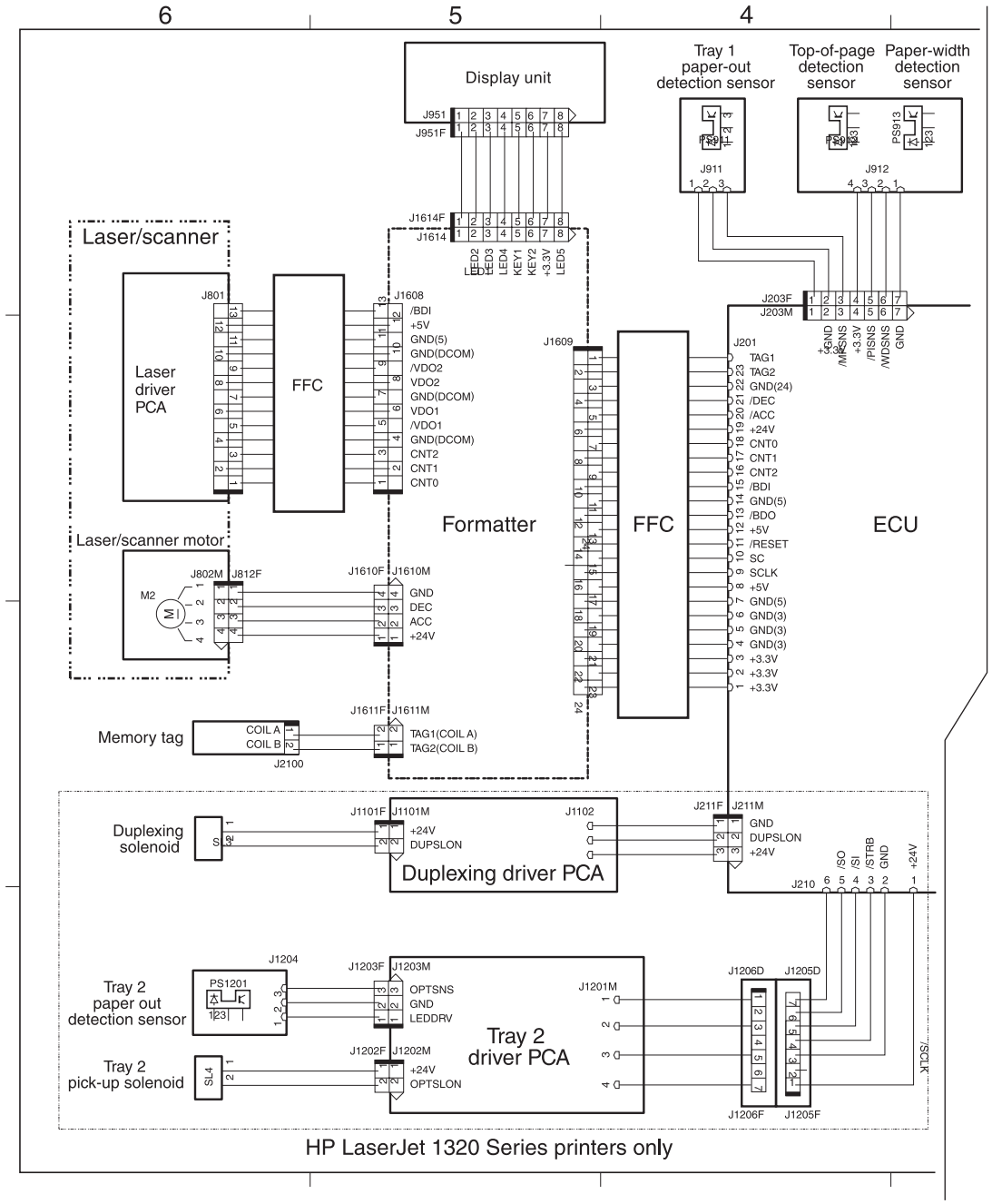


Figure 7-6. **Circuit diagram (1 of 2)**

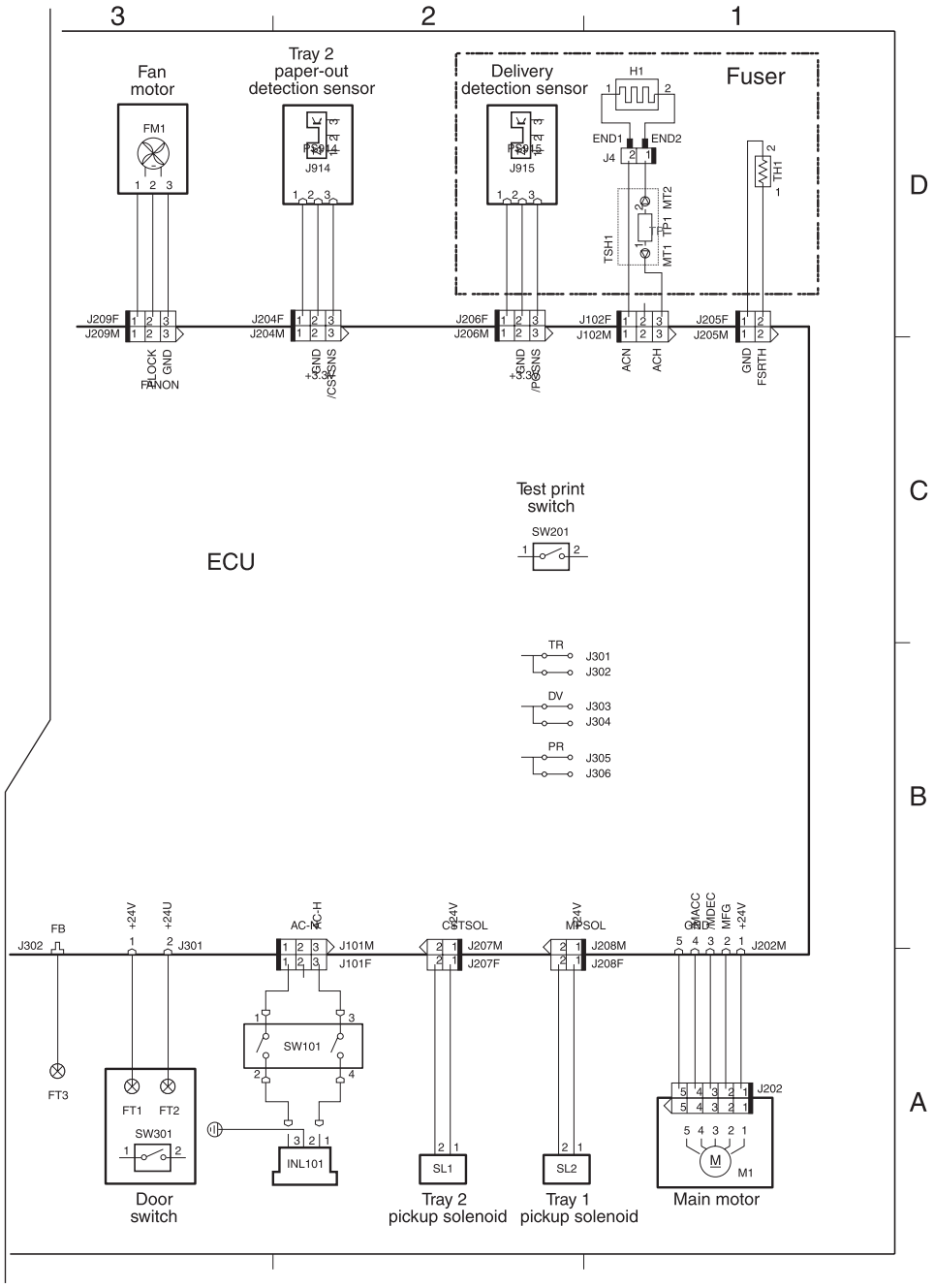


Figure 7-7. **Circuit diagram (2 of 2)**

Solenoids

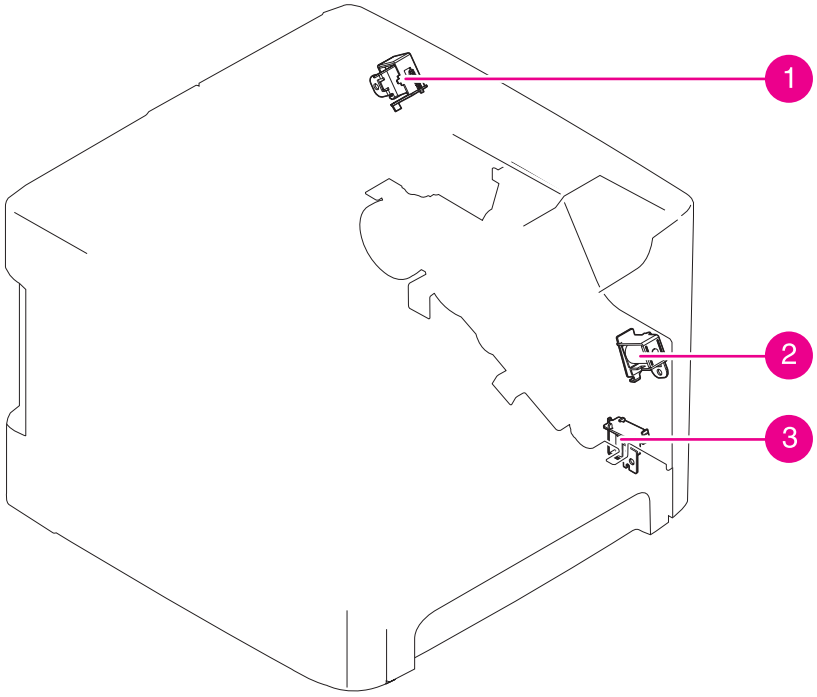


Figure 7-8. **Solenoids**

1 Duplex solenoid
2 Tray 1 pickup solenoid
3 Tray 2 pickup solenoid

Switches and sensors

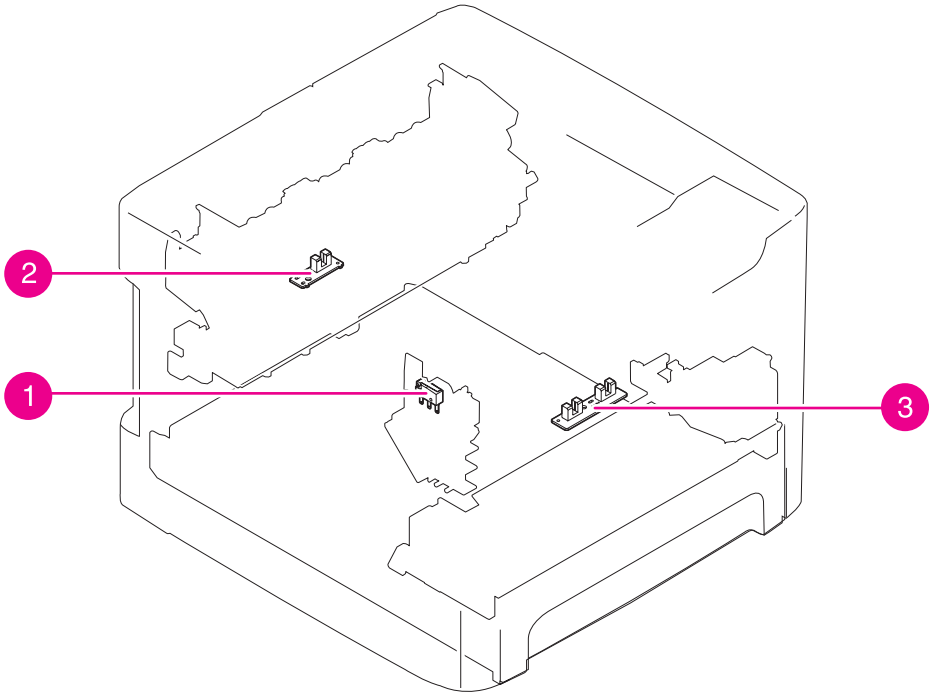


Figure 7-9. Switches and sensors

1 Interlock switch
2 Delivery sensor
3 Top-of-page sensor

Rollers and pads

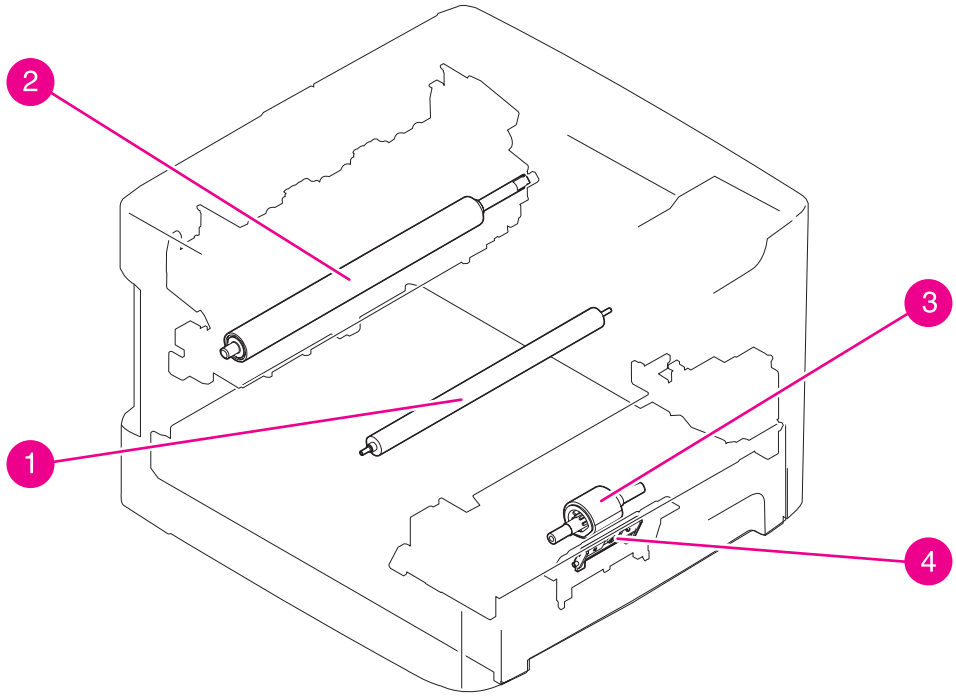


Figure 7-10. **Rollers and pads**

1 Transfer roller
2 Pressure roller
3 Pickup roller
4 Separation pad

8 Parts and diagrams

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Ordering parts and supplies

Parts

Order replacement parts from the following Web sites:

h30074.www3.hp.com/csn-aux/srvcdlvry/epdo/default/ePDOLogin.asp (technicians)

h20141.www2.hp.com/hpparts (customers)

Related documentation and software

Order documentation and software from the companies listed in the following table; some documentation and software is available at the following Web sites.

Table 8-1. Technical support Web sites

HP Customer Care Online Software drivers, support documentation, and answers to frequently asked questions	www.hp.com/support
HP Technical Training (North America) Classes and schedules	education.itrc.hp.com/TrainerII/en-US/index.jsp

Supplies

Printer supplies are listed in this chapter. Consumables are available directly from HP at the following numbers.

- US: 800-538-8787
- Canada: 800-387-3154 (in Toronto: 416-671-8383)
- United Kingdom: 0734-441212
- Germany: 0130-3322

Contact your local HP Parts Coordinator for other local phone numbers.

Consumables and accessories

Product name	Description	Product number	Part number
Print cartridges			
UltraPrecise print cartridge	2,500-page print cartridge for the HP LaserJet 1160 printer	Q5949A	Q5949A
UltraPrecise print cartridge	2,500-page print cartridge for the HP LaserJet 1320 Series printer	Q5949A	Q5949A
UltraPrecise print cartridge	6,000-page print cartridge for the HP LaserJet 1320 Series printer	Q5949X	Q5949X
Pickup roller	Tray 2 pickup roller	RL1-0540-000CN	RL1-0540-000CN
Separation pad	Separation pad for 250-sheet feeder	RM1-1298-000CN	RM1-1298-000CN
Tray 2	Tray 2 for HP LaserJet 1160 printers	RM1-1322-000CN	RM1-1322-000CN
Tray 2	Tray 2 for HP LaserJet 1320 Series printers	RM1-1292-000CN	RM1-1292-000CN
250-sheet paper feeder (tray 3)	Optional 250-sheet paper feeder for HP LaserJet 1320 Series printers	Q5931A	Q5931A
HP Jetdirect 175x fast-Ethernet external print server (value line, USB port)	Jetdirect print server Must be version C or later.	J6035C	J6035C
HP Jetdirect 300x print server for fast Ethernet (parallel port)	Jetdirect print server	J3263A	J3263A
HP Jetdirect 500x print server for fast Ethernet (parallel port)	Jetdirect print server	J3265A	J3265A
HP Jetdirect 380x 802.11b wireless external print server (full featured, USB port)	Jetdirect print server	J6061A	J6061A
HP Jetdirect en3700 fast Ethernet print server	Jetdirect print server	J7942A	J7942A

Product name	Description	Product number	Part number
HP Jetdirect ew2400 802.11b/g	Jetdirect print server	J7951A	J7951A
HP bt1300 Bluetooth Wireless Printer Adapter (both USB and parallel)	Jetdirect print server	J6072A	J6072A

Assembly locations

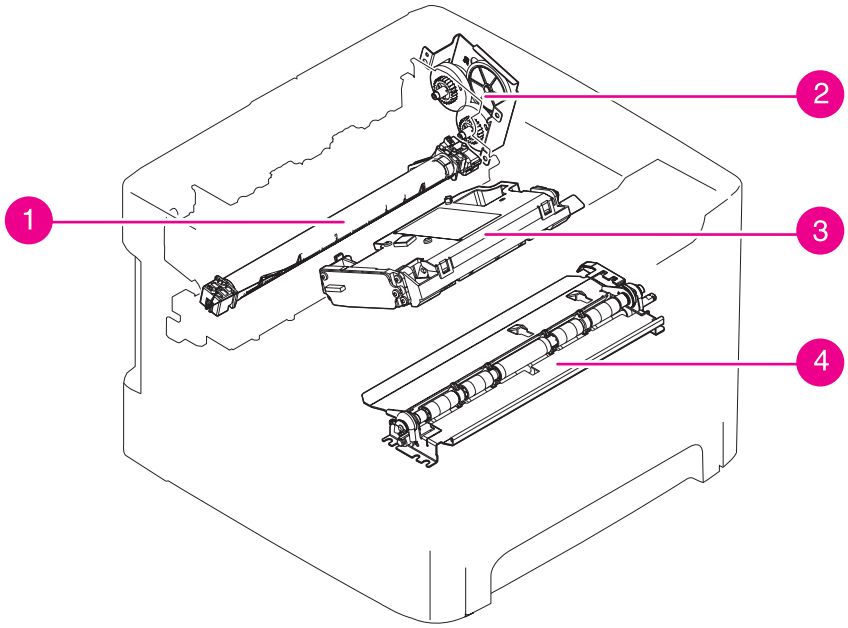

Figure 8-1. **Assembly locations (1 of 2)**

Table 8-2. Assembly locations (1 of 2)

Ref	Description	Part number	Qty
1	Fuser film	(Contained in fuser.)	N/A
2	Gear assembly, top output bin (HP LaserJet 1160 printers)	RM1-1305-000CN	1
2	Duplex-drive assembly (HP LaserJet 1320 Series printers)	RM1-1302-000CN	1
3	Laser/scanner	RM1-1470-000CN	1
4	Registration assembly	RM1-1281-000CN	1

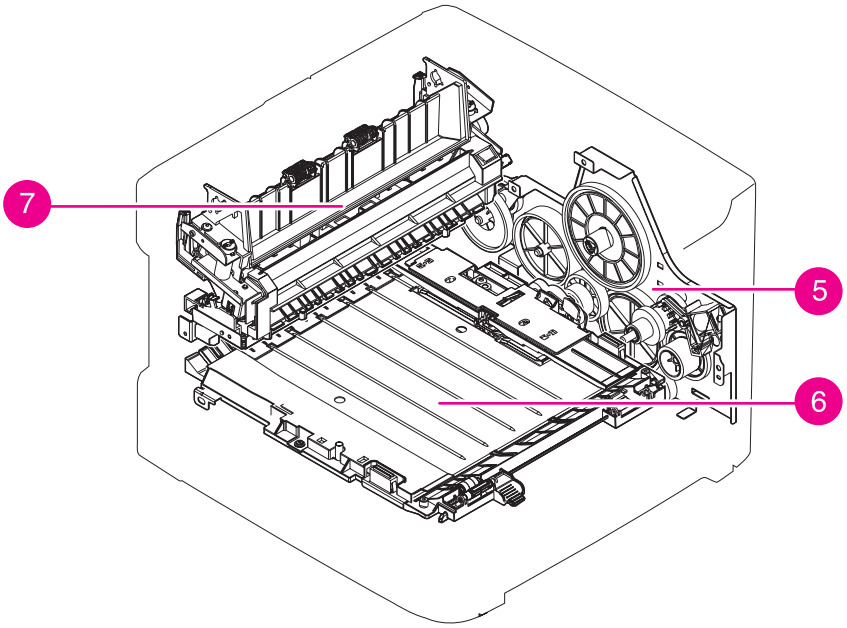

Figure 8-2. **Assembly locations (2 of 2)**

Table 8-3. Assembly locations (2 of 2)

Ref	Description	Part number	Qty
5	Main gear assembly	RM1-1299-000CN	1
6	Duplexer (HPLJ 1320)	RM1-1313-000CN	1
7	Fuser, 110-127 V	RM1-2325-000CN	1
7	Fuser, 220-240 V	RM1-2326-000CN	1

Covers

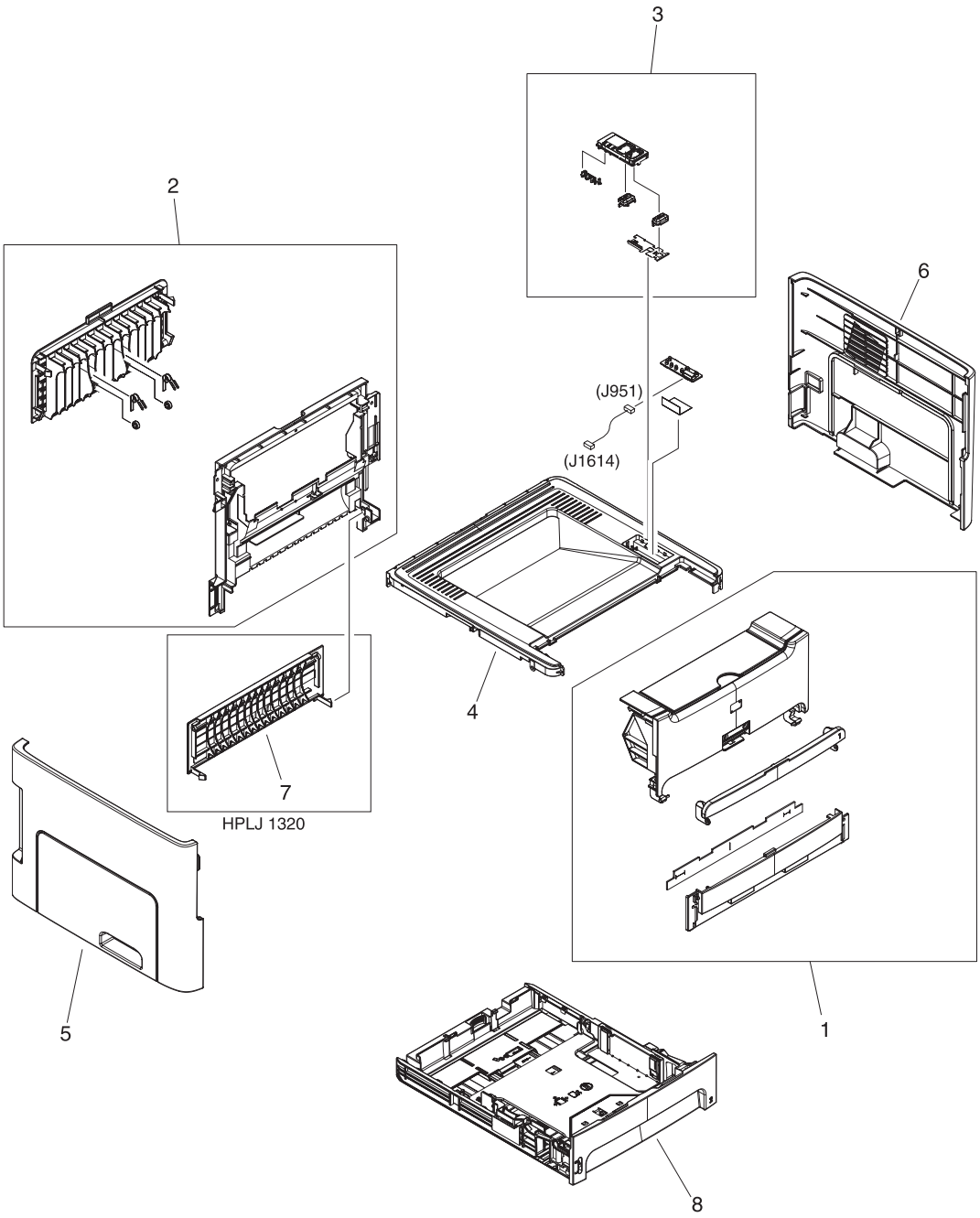

Figure 8-3. **Covers**

Table 8-4. Covers

Ref	Description	Part number	Qty
1	Front cover assembly (HPLJ 1320)	RM1-1307-000CN	1
1	Front cover assembly (HPLJ 1160)	RM1-1324-000CN	1
2	Rear cover assembly (HPLJ 1320)	RM1-1308-000CN	1
2	Rear cover assembly (HPLJ 1160)	RM1-1325-000CN	1
3	Control panel assembly (HPLJ 1160)	RM1-1311-000CN	1
3	Control panel assembly (HPLJ 1320)	RM1-1312-000CN	1
4	Cover, top (HPLJ 1320)	RC1-3800-000CN	1
4	Cover, top (HPLJ 1160)	RC1-3801-000CN	1
5	Cover, left	RC1-3812-000CN	1
6	Cover, right	RC1-3814-000CN	1
7	Cover, rear, duplexer (HPLJ 1320)	RC1-3819-000CN	1
8	Tray 2 (HPLJ 1160)	RM1-1322-000CN	1
8	Tray 2 (HPLJ 1320)	RM1-1292-000CN	1

Internal assemblies

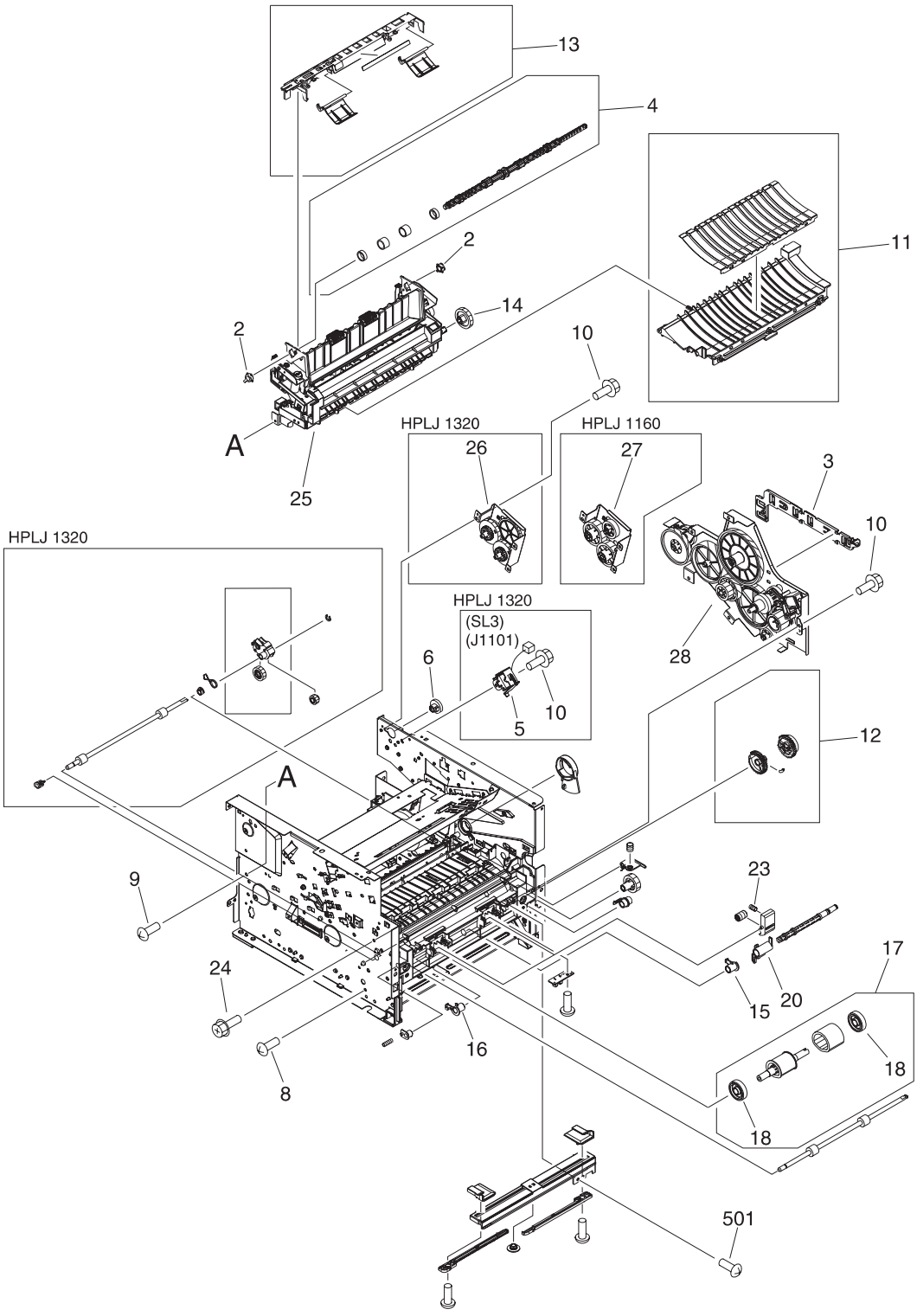

Figure 8-4. **Internal components (1 of 4)**

Table 8-5. Internal components (1 of 4)

Ref	Description	Part number	Qty
2	Bushing	RC1-3665-000CN	2
3	Guide, dc cable	RC1-3731-000CN	1
4	Roller, top output bin	RL1-0527-000CN	1
5	Solenoid (SL3) (HPLJ 1320)	RK2-0420-000CN	1
6	Gear, 19t	RU5-0332-000CN	1
8	Screw, RS, m3x6	XA9-1495-000CN	7
9	Screw, TP, m3x6	XA9-1503-000CN	5
10	Screw, RS, m3x8	XA9-1504-000CN	17
11	Feed guide assembly	RM1-1286-000CN	1
12	Pickup gear assembly	RM1-1301-000CN	1
13	Retaining assembly	RM1-1306-000CN	1
14	Gear, 29t	RU5-0331-000CN	1
15	Bushing, right	RB2-2895-000CN	1
16	Bushing, left	RB2-2896-000CN	1
17	Roller, pickup	RL1-0540-000CN	1
18	Roller, pickup idler	RC1-3470-000CN	2
20	Flag, media sensing	RC1-3472-000CN	1
23	Spring, compression	RU5-2323-000CN	2
25	Fuser, 110-127 V	RM1-2325-000CN	1
25	Fuser, 220-240 V	RM1-2326-000CN	1
26	Duplex-drive assembly (HPLJ 1320)	RM1-1302-000CN	1
27	Gear assembly, top output bin (HPLJ 1160)	RM1-1305-000CN	1
28	Main gear assembly	RM1-1299-000CN	1
501	Screw, tapping, truss head m4x10	XB4-7401-005CN	5
(not shown)	Formatter, HP LaserJet 1160 printer	Q3698-67901	1
(not shown)	Formatter, HP LaserJet 1320 (base) and 1320n printers	Q3696-67901	1
(not shown)	Formatter, HP LaserJet 1320tn printer	Q3990-67901	1
(not shown)	Formatter, HP LaserJet 1320nw printer	Q3697-67901	1

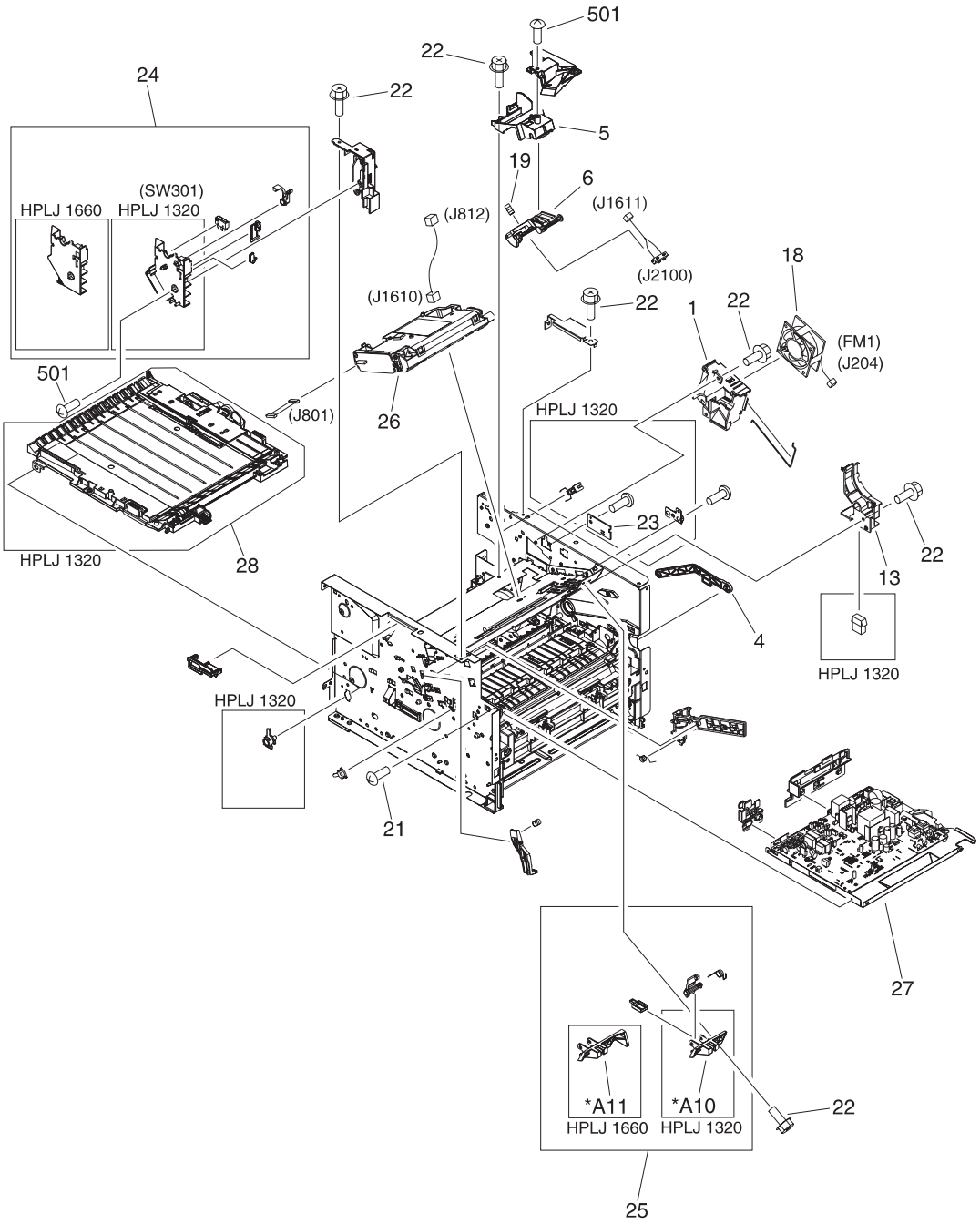

Figure 8-5. **Internal components (2 of 4)**

Table 8-6. Internal components (2 of 4)

Ref	Description	Part number	Qty
1	Holder, fan	RC1-3537-000CN	1
4	Cam arm	RC1-3544-000CN	1
5	Holder, tag arm	RC1-3550-000CN	1
6	Tag arm	RC1-3551-000CN	1
13	Holder, drawer	RC1-3728-000CN	1
18	Fan	RK2-0428-000CN	1
19	Spring, compression, tag	RU5-2335-000CN	1
21	Screw, TP, m3x6	XA9-1503-000CN	4
22	Screw, RS, m3x8	XA9-1504-000CN	15
23	Duplex-drive PCA (HPLJ 1320)	RM1-1262-000CN	1
24	Interlock assembly (HPLJ 1320)	RM1-1320-000CN	1
24	Interlock assembly (HPLJ 1160)	RM1-1467-000CN	1
25	Shutter link assembly (HPLJ 1320)	RM1-1321-000CN	1
25	Shutter link assembly (HPLJ 1160)	RM1-1464-000CN	1
26	Laser/scanner	RM1-1470-000CN	1
27	ECU PCA 110v	RM1-1242-000CN	1
27	ECU PCA, 220v	RM1-1243-000CN	1
28	Duplexer (HPLJ 1320)	RM1-1313-000CN	1
501	Screw, tap, binding	XB4-7300-809CN	1
502	Screw, tapping, truss head m4x10	XB4-7401-005CN	13

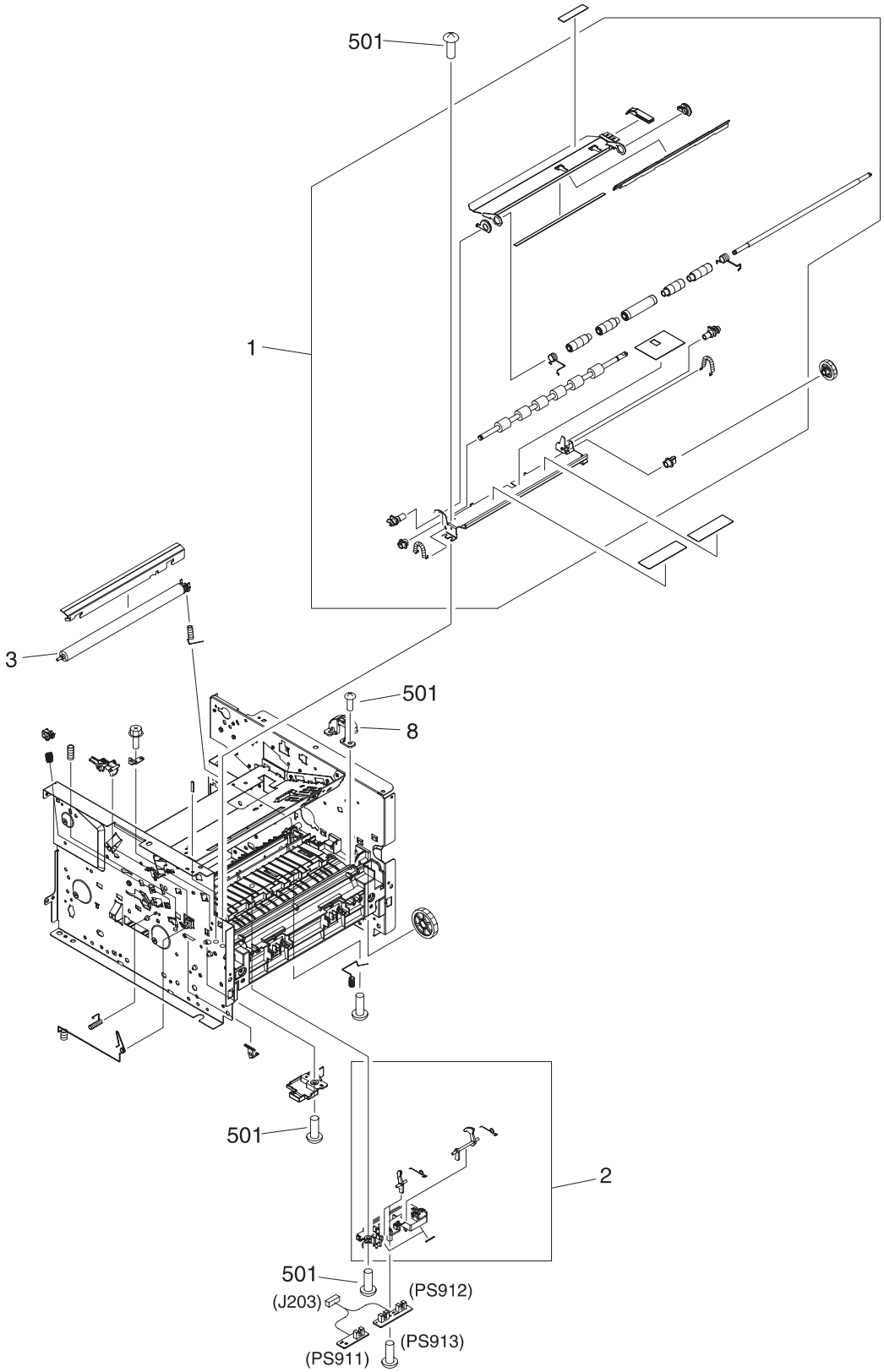

Figure 8-6. **Internal components (3 of 4)**

Table 8-7. Internal components (3 of 4)

Ref	Description	Part number	Qty
1	Registration assembly	RM1-1281-000CN	1
2	Sensor assembly, top	RM1-1283-000CN	1
3	Roller, transfer	RC1-3705-000CN	1
501	Screw, tapping, truss head m4x10	XB4-7401-005CN	1

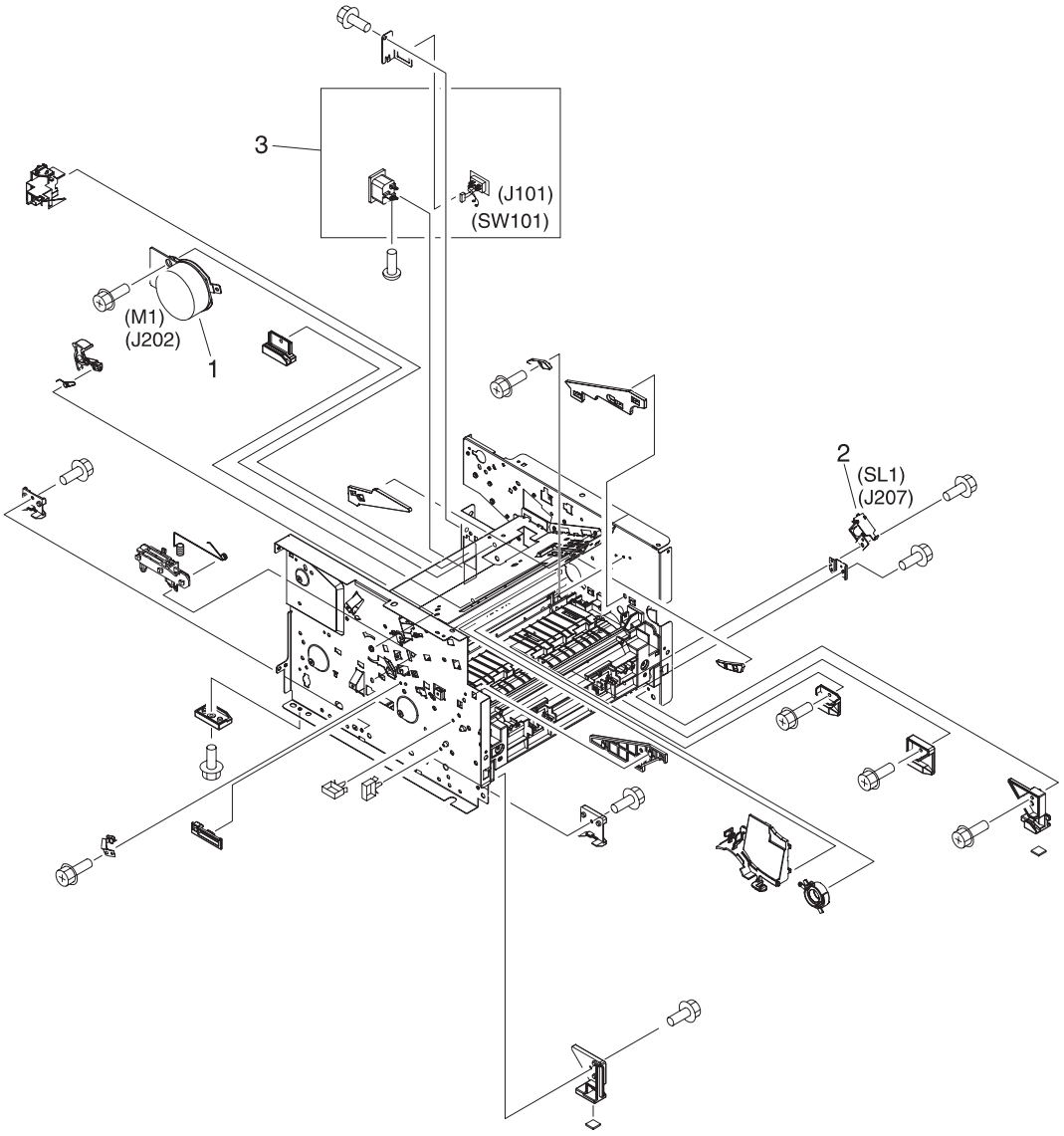

Figure 8-7. **Internal components (4 of 4)**

Table 8-8. Internal components (4 of 4)

Ref	Description	Part number	Qty
1	Motor, dc	RK2-0418-000CN	1
2	Solenoid (SL1) tray 2 pickup	RK2-0424-000CN	1
3	Power inlet/switch cable assembly	RM1-1249-000CN	1

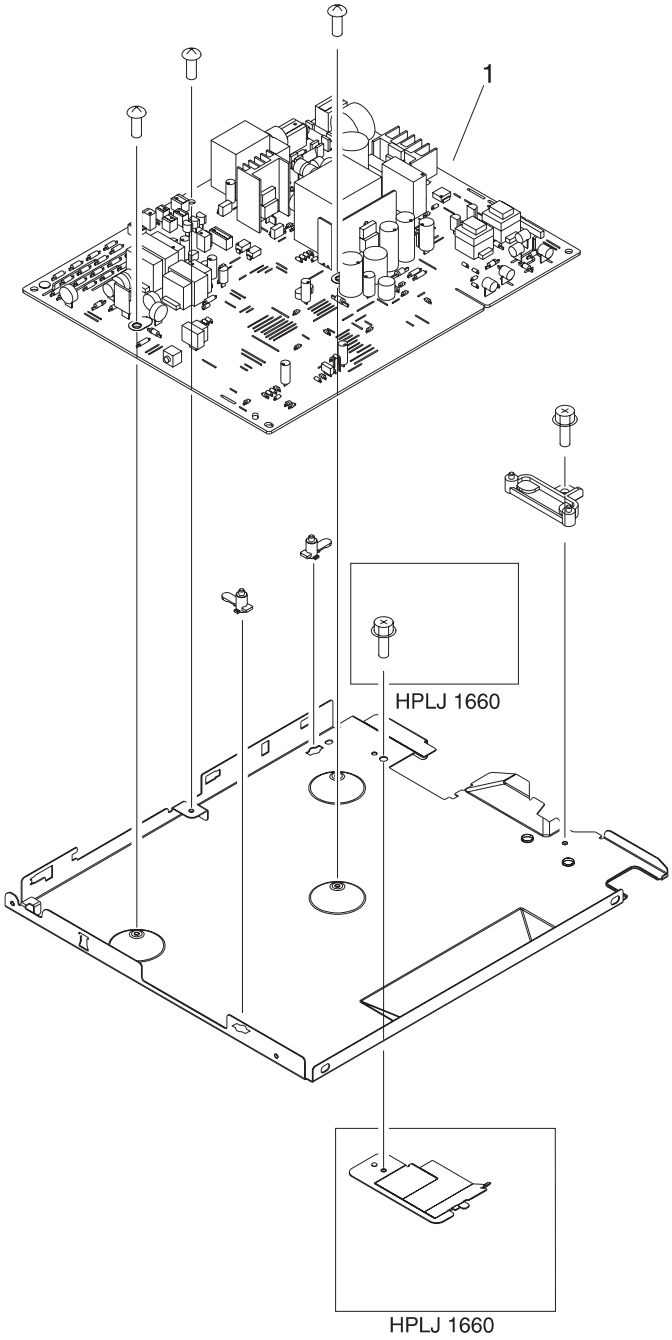

Figure 8-8. **ECU assembly**

Table 8-9. ECU assembly

Ref	Description	Part number	Qty
	ECU PCA 110v	RM1-1242-000CN	1
	ECU PCA, 220v	RM1-1243-000CN	1
1	ECU assembly, 110v (HPLJ 1160)	RM1-1327-000CN	1
1	ECU assembly, 220v (HPLJ 1160)	RM1-1463-000CN	1
1	ECU assembly, 110v (HPLJ 1320)	RM1-1300-000CN	1
1	ECU assembly, 220v (HPLJ 1320)	RM1-1462-000CN	1

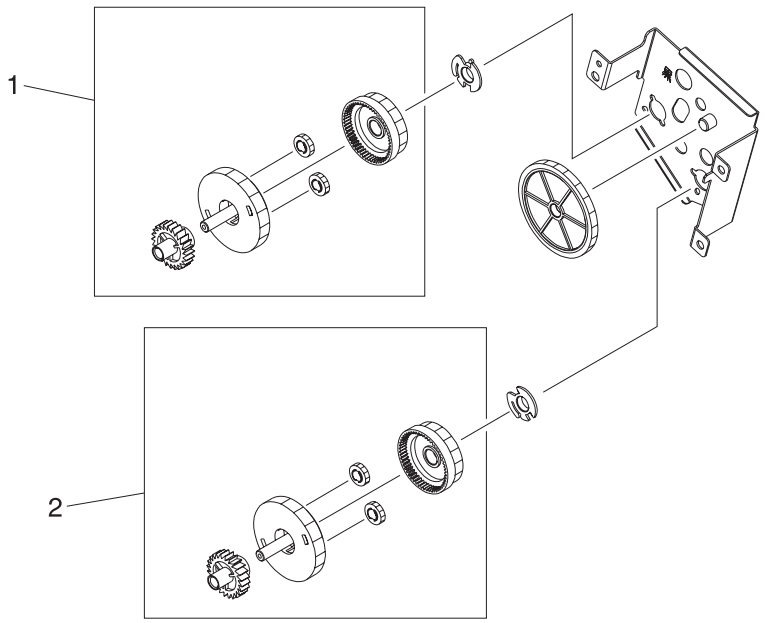

Figure 8-9. **Duplex-drive assembly**

Table 8-10. Duplex-drive assembly

Ref	Description	Part number	Qty
	Duplex-drive assembly (HPLJ 1320)	RM1-1302-000CN	1
1	Normal-rotation drive assembly (HPLJ 1320)	RM1-1303-000CN	1
2	Reverse-rotation drive assembly (HPLJ 1320)	RM1-1304-000CN	1

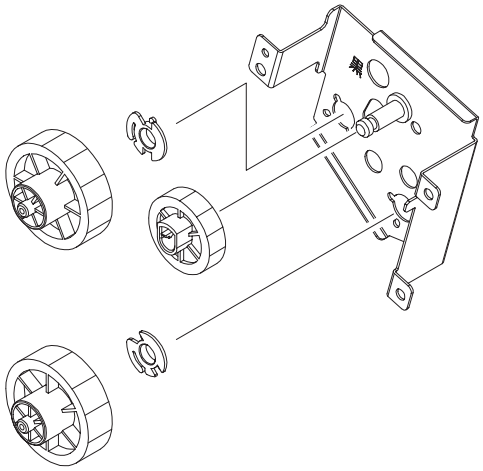

Figure 8-10. **Top output bin gear assembly**

Table 8-11. Top output bin gear assembly

Ref	Description	Part number	Qty
	Gear assembly, top output bin (HPLJ 1160)	RM1-1305-000CN	1

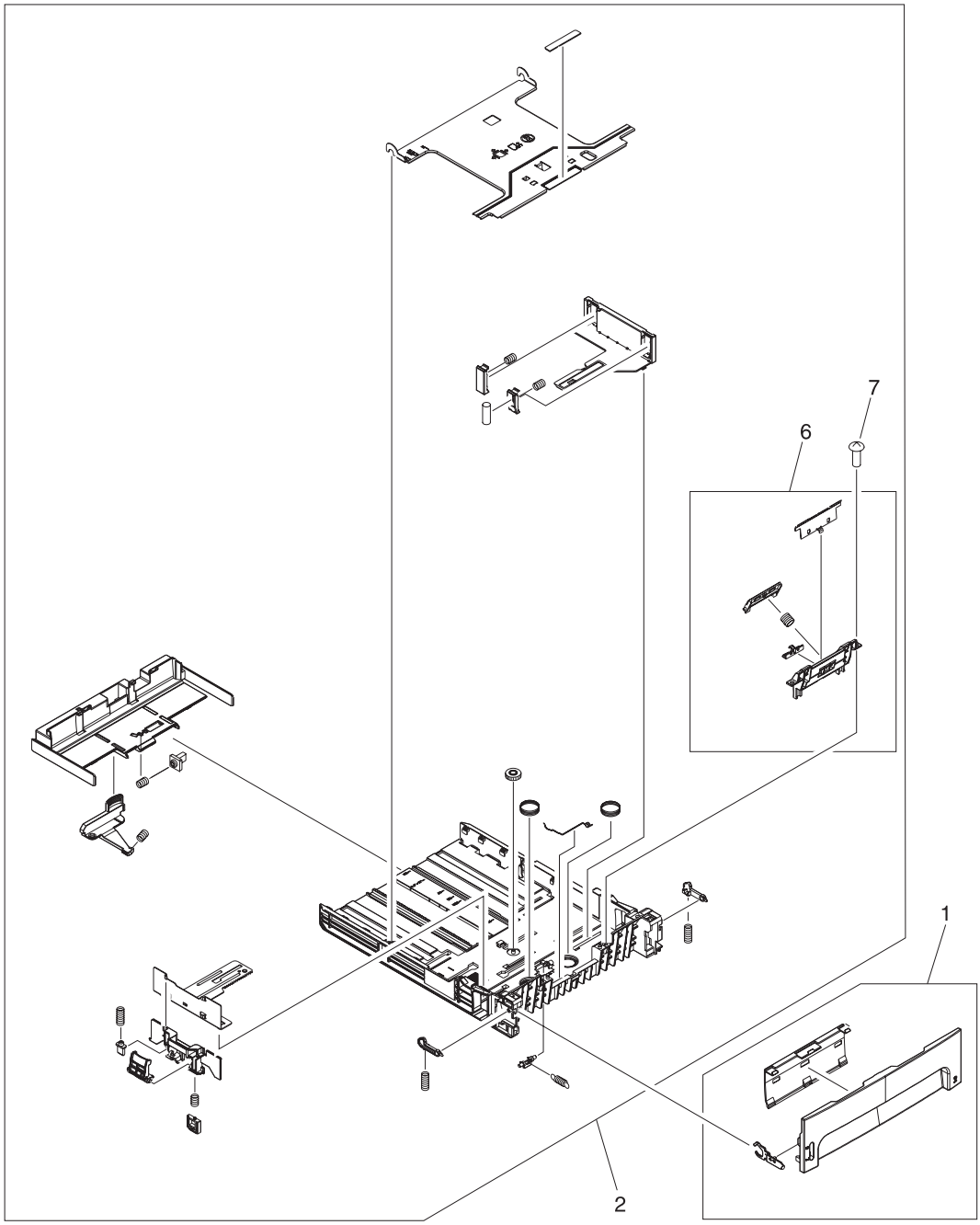

Figure 8-11. **Tray 2 assembly**

Table 8-12. Tray 2 assembly

Ref	Description	Part number	Qty
	Tray 2 (HPLJ 1160)	RM1-1322-000CN	1
	Tray 2 (HPLJ 1320)	RM1-1292-000CN	1
1	Tray 2 cover assembly (HPLJ 1160)	RM1-1323-000CN	1
1	Tray 2 cover assembly (HPLJ 1320)	RM1-1293-000CN	1
2	Tray 2 body assembly	RM1-1294-000CN	1
6	Separation pad assembly	RM1-1298-000CN	1
7	Screw, m4x8	XB4-7400-805CN	2

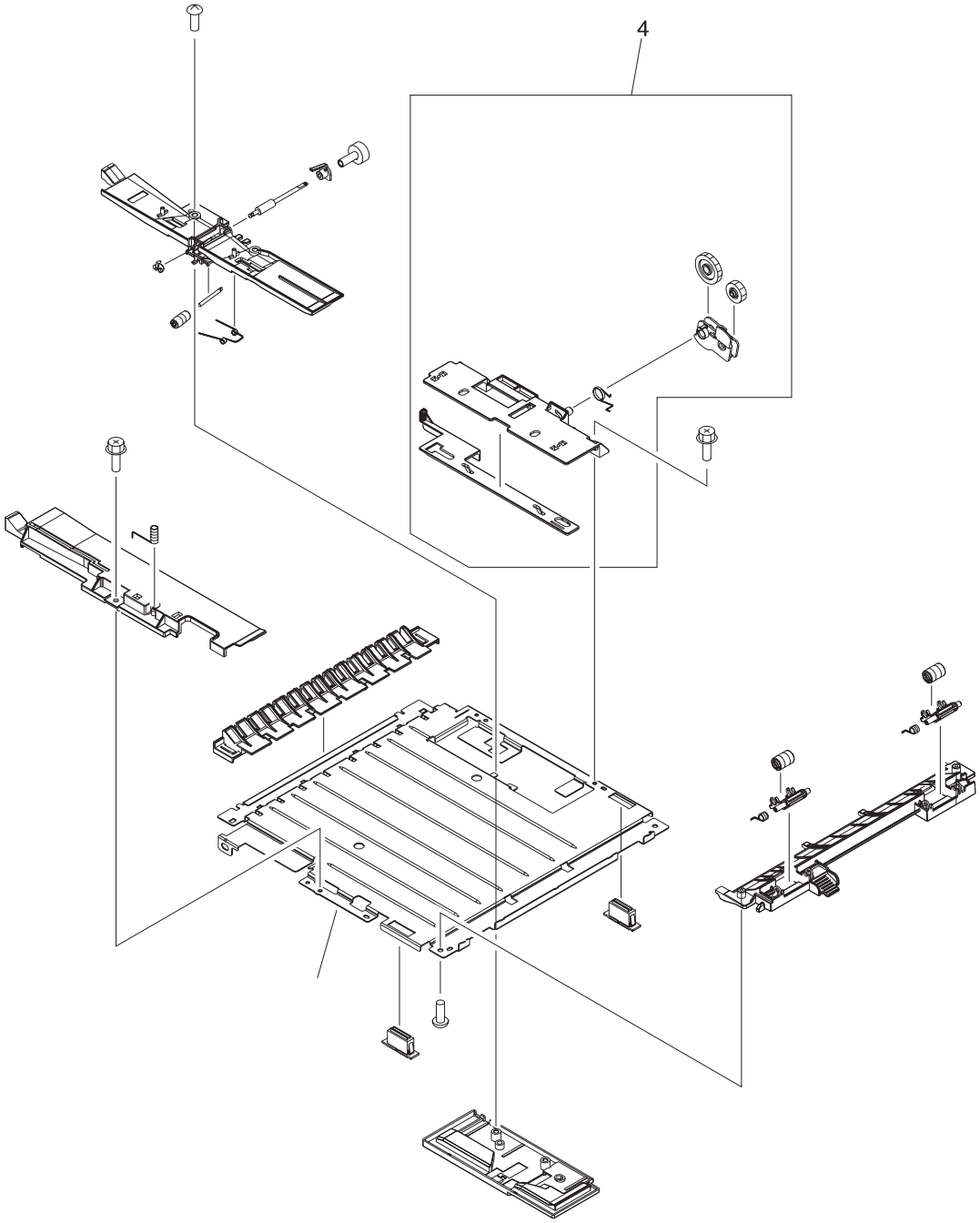

Figure 8-12. **Duplexer**

Table 8-13. Duplexer

Ref	Description	Part number	Qty
	Duplexer (HPLJ 1320)	RM1-1313-000CN	1
4	Size-change assembly	RM1-1318-000CN	1

Alphabetical parts list

Table 8-14. Alphabetical parts list

Description	Part number	Table and page
Bushing	RC1-3665-000CN	Table 8-5 on page 209
Bushing, left	RB2-2896-000CN	Table 8-5 on page 209
Bushing, right	RB2-2895-000CN	Table 8-5 on page 209
Cam arm	RC1-3544-000CN	Table 8-6 on page 211
Control panel assembly (HPLJ 1160)	RM1-1311-000CN	Table 8-4 on page 207
Control panel assembly (HPLJ 1320)	RM1-1312-000CN	Table 8-4 on page 207
Cover, left	RC1-3812-000CN	Table 8-4 on page 207
Cover, rear, duplexer (HPLJ 1320)	RC1-3819-000CN	Table 8-4 on page 207
Cover, right	RC1-3814-000CN	Table 8-4 on page 207
Cover, top (HPLJ 1160)	RC1-3801-000CN	Table 8-4 on page 207
Cover, top (HPLJ 1320)	RC1-3800-000CN	Table 8-4 on page 207
Duplex-drive assembly (HPLJ 1320)	RM1-1302-000CN	Table 8-5 on page 209
Duplex-drive assembly (HPLJ 1320)	RM1-1302-000CN	Table 8-10 on page 219
Duplex-drive assembly (HP LaserJet 1320 Series printers)	RM1-1302-000CN	Table 8-2 on page 203
Duplex-drive PCA (HPLJ 1320)	RM1-1262-000CN	Table 8-6 on page 211
Duplexer (HPLJ 1320)	RM1-1313-000CN	Table 8-3 on page 205
Duplexer (HPLJ 1320)	RM1-1313-000CN	Table 8-6 on page 211
Duplexer (HPLJ 1320)	RM1-1313-000CN	Table 8-13 on page 225
ECU assembly, 110v (HPLJ 1160)	RM1-1327-000CN	Table 8-9 on page 217
ECU assembly, 110v (HPLJ 1320)	RM1-1300-000CN	Table 8-9 on page 217
ECU assembly, 220v (HPLJ 1160)	RM1-1463-000CN	Table 8-9 on page 217
ECU assembly, 220v (HPLJ 1320)	RM1-1462-000CN	Table 8-9 on page 217
ECU PCA 110v	RM1-1242-000CN	Table 8-6 on page 211
ECU PCA 110v	RM1-1242-000CN	Table 8-9 on page 217
ECU PCA, 220v	RM1-1243-000CN	Table 8-6 on page 211
ECU PCA, 220v	RM1-1243-000CN	Table 8-9 on page 217
Fan	RK2-0428-000CN	Table 8-6 on page 211
Feed guide assembly	RM1-1286-000CN	Table 8-5 on page 209

Table 8-14. Alphabetical parts list (continued)

Description	Part number	Table and page
Flag, media sensing	RC1-3472-000CN	Table 8-5 on page 209
Formatter, HP LaserJet 1160 printer	Q3698-67901	Table 8-5 on page 209
Formatter, HP LaserJet 1320 (base) and 1320n printers	Q3696-67901	Table 8-5 on page 209
Formatter, HP LaserJet 1320nw printer	Q3697-67901	Table 8-5 on page 209
Formatter, HP LaserJet 1320tn printer	Q3990-67901	Table 8-5 on page 209
Front cover assembly (HPLJ 1160)	RM1-1324-000CN	Table 8-4 on page 207
Front cover assembly (HPLJ 1320)	RM1-1307-000CN	Table 8-4 on page 207
Fuser film	(Contained in fuser.)	Table 8-2 on page 203
Fuser, 110-127 V	RM1-2325-000CN	Table 8-5 on page 209
Fuser, 110-127 V	RM1-2325-000CN	Table 8-3 on page 205
Fuser, 220-240 V	RM1-2326-000CN	Table 8-3 on page 205
Fuser, 220-240 V	RM1-2326-000CN	Table 8-5 on page 209
Gear assembly, top output bin (HPLJ 1160)	RM1-1305-000CN	Table 8-5 on page 209
Gear assembly, top output bin (HPLJ 1160)	RM1-1305-000CN	Table 8-11 on page 221
Gear assembly, top output bin (HP LaserJet 1160 printers)	RM1-1305-000CN	Table 8-2 on page 203
Gear, 19t	RU5-0332-000CN	Table 8-5 on page 209
Gear, 29t	RU5-0331-000CN	Table 8-5 on page 209
Guide, dc cable	RC1-3731-000CN	Table 8-5 on page 209
Holder, drawer	RC1-3728-000CN	Table 8-6 on page 211
Holder, fan	RC1-3537-000CN	Table 8-6 on page 211
Holder, tag arm	RC1-3550-000CN	Table 8-6 on page 211
Interlock assembly (HPLJ 1160)	RM1-1467-000CN	Table 8-6 on page 211
Interlock assembly (HPLJ 1320)	RM1-1320-000CN	Table 8-6 on page 211
Laser/scanner	RM1-1470-000CN	Table 8-2 on page 203
Laser/scanner	RM1-1470-000CN	Table 8-6 on page 211
Main gear assembly	RM1-1299-000CN	Table 8-3 on page 205
Main gear assembly	RM1-1299-000CN	Table 8-5 on page 209
Motor, dc	RK2-0418-000CN	Table 8-8 on page 215
Normal-rotation drive assembly (HPLJ 1320)	RM1-1303-000CN	Table 8-10 on page 219
Pickup gear assembly	RM1-1301-000CN	Table 8-5 on page 209

Table 8-14. Alphabetical parts list (continued)

Description	Part number	Table and page
Power inlet/switch cable assembly	RM1-1249-000CN	Table 8-8 on page 215
Rear cover assembly (HPLJ 1160)	RM1-1325-000CN	Table 8-4 on page 207
Rear cover assembly (HPLJ 1320)	RM1-1308-000CN	Table 8-4 on page 207
Registration assembly	RM1-1281-000CN	Table 8-2 on page 203
Registration assembly	RM1-1281-000CN	Table 8-7 on page 213
Retaining assembly	RM1-1306-000CN	Table 8-5 on page 209
Reverse-rotation drive assembly (HPLJ 1320)	RM1-1304-000CN	Table 8-10 on page 219
Roller, pickup	RL1-0540-000CN	Table 8-5 on page 209
Roller, pickup idler	RC1-3470-000CN	Table 8-5 on page 209
Roller, top output bin	RL1-0527-000CN	Table 8-5 on page 209
Roller, transfer	RC1-3705-000CN	Table 8-7 on page 213
Screw, m4x8	XB4-7400-805CN	Table 8-12 on page 223
Screw, RS, m3x6	XA9-1495-000CN	Table 8-5 on page 209
Screw, RS, m3x8	XA9-1504-000CN	Table 8-5 on page 209
Screw, RS, m3x8	XA9-1504-000CN	Table 8-6 on page 211
Screw, tap, binding	XB4-7300-809CN	Table 8-6 on page 211
Screw, tapping, truss head m4x10	XB4-7401-005CN	Table 8-5 on page 209
Screw, tapping, truss head m4x10	XB4-7401-005CN	Table 8-6 on page 211
Screw, tapping, truss head m4x10	XB4-7401-005CN	Table 8-7 on page 213
Screw, TP, m3x6	XA9-1503-000CN	Table 8-5 on page 209
Screw, TP, m3x6	XA9-1503-000CN	Table 8-6 on page 211
Sensor assembly, top	RM1-1283-000CN	Table 8-7 on page 213
Separation pad assembly	RM1-1298-000CN	Table 8-12 on page 223
Shutter link assembly (HPLJ 1160)	RM1-1464-000CN	Table 8-6 on page 211
Shutter link assembly (HPLJ 1320)	RM1-1321-000CN	Table 8-6 on page 211
Size-change assembly	RM1-1318-000CN	Table 8-13 on page 225
Solenoid (SL1) tray 2 pickup	RK2-0424-000CN	Table 8-8 on page 215
Solenoid (SL3) (HPLJ 1320)	RK2-0420-000CN	Table 8-5 on page 209
Spring, compression	RU5-2323-000CN	Table 8-5 on page 209
Spring, compression, tag	RU5-2335-000CN	Table 8-6 on page 211

Table 8-14. Alphabetical parts list (continued)

Description	Part number	Table and page
Tag arm	RC1-3551-000CN	Table 8-6 on page 211
Tray 2 (HPLJ 1160)	RM1-1322-000CN	Table 8-4 on page 207
Tray 2 (HPLJ 1320)	RM1-1292-000CN	Table 8-4 on page 207
Tray 2 (HPLJ 1160)	RM1-1322-000CN	Table 8-12 on page 223
Tray 2 (HPLJ 1320)	RM1-1292-000CN	Table 8-12 on page 223
Tray 2 body assembly	RM1-1294-000CN	Table 8-12 on page 223
Tray 2 cover assembly (HPLJ 1160)	RM1-1323-000CN	Table 8-12 on page 223
Tray 2 cover assembly (HPLJ 1320)	RM1-1293-000CN	Table 8-12 on page 223

Numerical parts list

Table 8-15. Numerical parts list

Part number	Description	Table and page
(Contained in fuser.)	Fuser film	Table 8-2 on page 203
Q3696-67901	Formatter, HP LaserJet 1320 (base) and 1320n printers	Table 8-5 on page 209
Q3697-67901	Formatter, HP LaserJet 1320nw printer	Table 8-5 on page 209
Q3698-67901	Formatter, HP LaserJet 1160 printer	Table 8-5 on page 209
Q3990-67901	Formatter, HP LaserJet 1320tn printer	Table 8-5 on page 209
RB2-2895-000CN	Bushing, right	Table 8-5 on page 209
RB2-2896-000CN	Bushing, left	Table 8-5 on page 209
RC1-3470-000CN	Roller, pickup idler	Table 8-5 on page 209
RC1-3472-000CN	Flag, media sensing	Table 8-5 on page 209
RC1-3537-000CN	Holder, fan	Table 8-6 on page 211
RC1-3544-000CN	Cam arm	Table 8-6 on page 211
RC1-3550-000CN	Holder, tag arm	Table 8-6 on page 211
RC1-3551-000CN	Tag arm	Table 8-6 on page 211
RC1-3665-000CN	Bushing	Table 8-5 on page 209
RC1-3705-000CN	Roller, transfer	Table 8-7 on page 213
RC1-3728-000CN	Holder, drawer	Table 8-6 on page 211
RC1-3731-000CN	Guide, dc cable	Table 8-5 on page 209
RC1-3800-000CN	Cover, top (HPLJ 1320)	Table 8-4 on page 207
RC1-3801-000CN	Cover, top (HPLJ 1160)	Table 8-4 on page 207
RC1-3812-000CN	Cover, left	Table 8-4 on page 207
RC1-3814-000CN	Cover, right	Table 8-4 on page 207
RC1-3819-000CN	Cover, rear, duplexer (HPLJ 1320)	Table 8-4 on page 207
RK2-0418-000CN	Motor, dc	Table 8-8 on page 215
RK2-0420-000CN	Solenoid (SL3) (HPLJ 1320)	Table 8-5 on page 209
RK2-0424-000CN	Solenoid (SL1) tray 2 pickup	Table 8-8 on page 215
RK2-0428-000CN	Fan	Table 8-6 on page 211
RL1-0527-000CN	Roller, top output bin	Table 8-5 on page 209
RL1-0540-000CN	Roller, pickup	Table 8-5 on page 209
RM1-1242-000CN	ECU PCA 110v	Table 8-6 on page 211

Table 8-15. Numerical parts list (continued)

Part number	Description	Table and page
RM1-1242-000CN	ECU PCA 110v	Table 8-9 on page 217
RM1-1243-000CN	ECU PCA, 220v	Table 8-6 on page 211
RM1-1243-000CN	ECU PCA, 220v	Table 8-9 on page 217
RM1-1249-000CN	Power inlet/switch cable assembly	Table 8-8 on page 215
RM1-1262-000CN	Duplex-drive PCA (HPLJ 1320)	Table 8-6 on page 211
RM1-1281-000CN	Registration assembly	Table 8-2 on page 203
RM1-1281-000CN	Registration assembly	Table 8-7 on page 213
RM1-1283-000CN	Sensor assembly, top	Table 8-7 on page 213
RM1-1286-000CN	Feed guide assembly	Table 8-5 on page 209
RM1-1292-000CN	Tray 2 (HPLJ 1320)	Table 8-4 on page 207
RM1-1292-000CN	Tray 2 (HPLJ 1320)	Table 8-12 on page 223
RM1-1293-000CN	Tray 2 cover assembly (HPLJ 1320)	Table 8-12 on page 223
RM1-1294-000CN	Tray 2 body assembly	Table 8-12 on page 223
RM1-1298-000CN	Separation pad assembly	Table 8-12 on page 223
RM1-1299-000CN	Main gear assembly	Table 8-3 on page 205
RM1-1299-000CN	Main gear assembly	Table 8-5 on page 209
RM1-1300-000CN	ECU assembly, 110v (HPLJ 1320)	Table 8-9 on page 217
RM1-1301-000CN	Pickup gear assembly	Table 8-5 on page 209
RM1-1302-000CN	Duplex-drive assembly (HP LaserJet 1320 Series printers)	Table 8-2 on page 203
RM1-1302-000CN	Duplex-drive assembly (HPLJ 1320)	Table 8-5 on page 209
RM1-1302-000CN	Duplex-drive assembly (HPLJ 1320)	Table 8-10 on page 219
RM1-1303-000CN	Normal-rotation drive assembly (HPLJ 1320)	Table 8-10 on page 219
RM1-1304-000CN	Reverse-rotation drive assembly (HPLJ 1320)	Table 8-10 on page 219
RM1-1305-000CN	Gear assembly, top output bin (HP LaserJet 1160 printers)	Table 8-2 on page 203
RM1-1305-000CN	Gear assembly, top output bin (HPLJ 1160)	Table 8-5 on page 209
RM1-1305-000CN	Gear assembly, top output bin (HPLJ 1160)	Table 8-11 on page 221
RM1-1306-000CN	Retaining assembly	Table 8-5 on page 209
RM1-1307-000CN	Front cover assembly (HPLJ 1320)	Table 8-4 on page 207
RM1-1308-000CN	Rear cover assembly (HPLJ 1320)	Table 8-4 on page 207
RM1-1311-000CN	Control panel assembly (HPLJ 1160)	Table 8-4 on page 207
RM1-1312-000CN	Control panel assembly (HPLJ 1320)	Table 8-4 on page 207
RM1-1313-000CN	Duplexer (HPLJ 1320)	Table 8-3 on page 205

Table 8-15. Numerical parts list (continued)

Part number	Description	Table and page
RM1-1313-000CN	Duplexer (HPLJ 1320)	Table 8-6 on page 211
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RM1-1318-000CN	Size-change assembly	Table 8-13 on page 225
RM1-1320-000CN	Interlock assembly (HPLJ 1320)	Table 8-6 on page 211
RM1-1321-000CN	Shutter link assembly (HPLJ 1320)	Table 8-6 on page 211
RM1-1322-000CN	Tray 2 (HPLJ 1160)	Table 8-4 on page 207
RM1-1322-000CN	Tray 2 (HPLJ 1160)	Table 8-12 on page 223
RM1-1323-000CN	Tray 2 cover assembly (HPLJ 1160)	Table 8-12 on page 223
RM1-1324-000CN	Front cover assembly (HPLJ 1160)	Table 8-4 on page 207
RM1-1325-000CN	Rear cover assembly (HPLJ 1160)	Table 8-4 on page 207
RM1-1327-000CN	ECU assembly, 110v (HPLJ 1160)	Table 8-9 on page 217
RM1-1462-000CN	ECU assembly, 220v (HPLJ 1320)	Table 8-9 on page 217
RM1-1463-000CN	ECU assembly, 220v (HPLJ 1160)	Table 8-9 on page 217
RM1-1464-000CN	Shutter link assembly (HPLJ 1160)	Table 8-6 on page 211
RM1-1467-000CN	Interlock assembly (HPLJ 1160)	Table 8-6 on page 211
RM1-1470-000CN	Laser/scanner	Table 8-2 on page 203
RM1-1470-000CN	Laser/scanner	Table 8-6 on page 211
RM1-2325-000CN	Fuser, 110-127 V	Table 8-3 on page 205
RM1-2325-000CN	Fuser, 110-127 V	Table 8-5 on page 209
RM1-2326-000CN	Fuser, 220-240 V	Table 8-3 on page 205
RM1-2326-000CN	Fuser, 220-240 V	Table 8-5 on page 209
RU5-0331-000CN	Gear, 29t	Table 8-5 on page 209
RU5-0332-000CN	Gear, 19t	Table 8-5 on page 209
RU5-2323-000CN	Spring, compression	Table 8-5 on page 209
RU5-2335-000CN	Spring, compression, tag	Table 8-6 on page 211
XA9-1495-000CN	Screw, RS, m3x6	Table 8-5 on page 209
XA9-1503-000CN	Screw, TP, m3x6	Table 8-5 on page 209
XA9-1503-000CN	Screw, TP, m3x6	Table 8-6 on page 211
XA9-1504-000CN	Screw, RS, m3x8	Table 8-5 on page 209
XA9-1504-000CN	Screw, RS, m3x8	Table 8-6 on page 211
XB4-7300-809CN	Screw, tap, binding	Table 8-6 on page 211
XB4-7400-805CN	Screw, m4x8	Table 8-12 on page 223
XB4-7401-005CN	Screw, tapping, truss head m4x10	Table 8-5 on page 209

Table 8-15. Numerical parts list (continued)

Part number	Description	Table and page
XB4-7401-005CN	Screw, tapping, truss head m4x10	Table 8-6 on page 211
XB4-7401-005CN	Screw, tapping, truss head m4x10	Table 8-7 on page 213

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