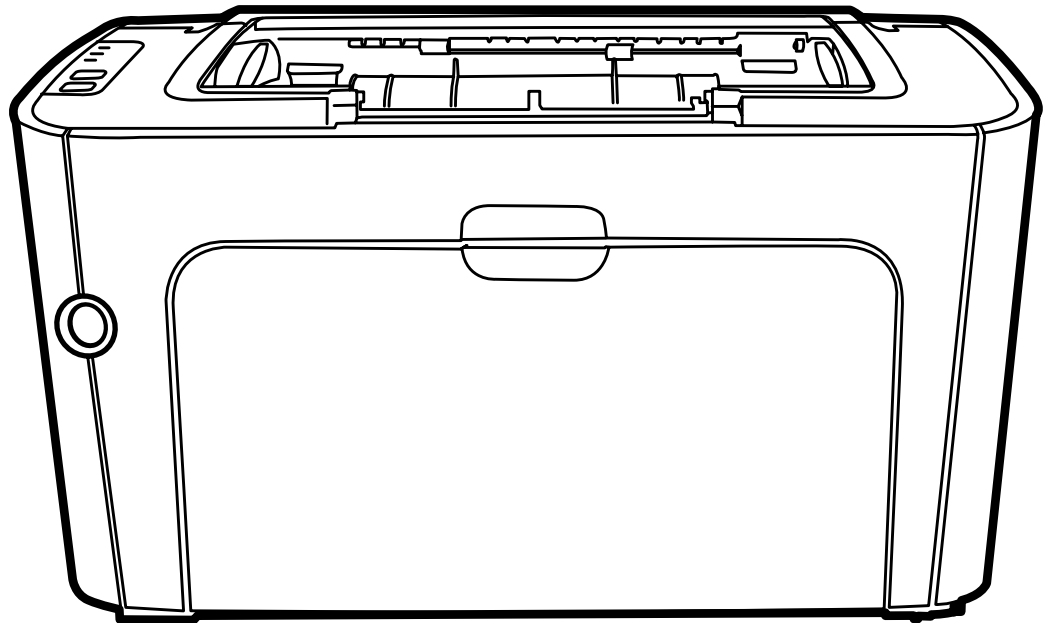


HP LaserJet P1500 Series Service Manual



HP LaserJet P1500 Series Service Manual



Copyright information

© 2007 Copyright Hewlett-Packard Development Company, L.P.

Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.

The information contained herein is subject to change without notice.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Part Number: CB412-90910

Edition 1, 07/2007

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.

Trademark credits

PostScript® 3™ is a trademark of Adobe Systems Incorporated.

Microsoft®, Windows®, and Windows XP® are U.S. registered trademarks of Microsoft Corporation.

Energy Star® and the Energy Star logo® are U.S. registered marks of the United States Environmental Protection Agency.



Table of contents

1 Product information

Product configuration	2
Product features	3
Identify product parts	4

2 Managing and maintenance

Replace the print cartridge	6
Printer information pages	8
Demo page	8
Configuration page	8
Supplies Status page	8
Embedded Web server (HP LaserJet P1500 network models only)	9
Open the embedded Web server	9
Information tab	9
Settings tab	10
Networking tab	10
Links	10
Manage supplies	11
Supplies life	11
Check and order supplies	11
Supplies storage guidelines	11
Replace and recycle supplies	11
HP policy on non-HP supplies	12
Reset the device for non-HP supplies	12
HP anti-counterfeit supplies Web site	12
Clean the device	13
Clean the print-cartridge area	13
Clean the device paper path	15
Change the pickup roller	16
Clean the pickup roller	19
Change the printer separation pad	20
EconoMode	22

3 Theory of operation

Introduction	24
Internal components	25
Timing	26
Engine control system	27
Laser/scanner system	29

Pickup/feed/delivery system	30
Image-formation system	31
Step 1: Primary charging	31
Step 2: Laser beam exposure	32
Step 3: Developing	32
Step 4: Transfer	33
Step 5: Separation	33
Step 6: Fusing	34
Step 7: Drum cleaning	34

4 Removal and replacement

Introduction	36
Removal and replacement strategy	36
Electrostatic discharge	36
Required tools	36
Before performing service	37
Pre-service procedures	37
Parts removal order	37
Covers	38
Left cover	38
Right cover	40
Front cover	42
Control panel	42
Top cover and back cover	43
Formatter	48
ECU	50
Fuser	55
Laser/scanner	59
Drive Belt	63
Main motor	68

5 Problem solving

Problem-solving checklist	76
Step 1: Is the device set up correctly?	76
Step 2: Is the Ready light on?	76
Step 3: Can you print a configuration page?	76
Step 4: Is the print quality acceptable?	77
Step 5: Is the device communicating with the computer?	77
Step 6: Does the printed page look like you expected?	77
Contact HP support	77
Status-light patterns	78
Clearing jams	81
Typical media jam locations	81
Removing a jammed page	81
Improve print quality	84
Light print or faded	84
Toner specks	84
Dropouts	84
Vertical lines	85
Gray background	85

Toner smear	85
Loose toner	86
Vertical repetitive defects	86
Misformed characters	86
Page skew	86
Curl or wave	87
Wrinkles or creases	87
Toner-scatter outline	87
Media problem-solving	88
Printed page is different from what appeared on screen	89
Garbled, incorrect, or incomplete text	89
Missing graphics or text, or blank pages	89
Page format is different than on another HP LaserJet printer	89
Graphics quality	90
Printer software problems	91
Common Macintosh problems	92
Network-setup problem-solving	94

6 Parts and diagrams

Assembly locations	96
Covers	98
Internal assemblies	100
Alphabetical parts list	106
Numerical parts list	109

Appendix A Service and support

Hewlett-Packard limited warranty statement	114
Customer self repair warranty service	115
Hewlett-Packard software license agreement	116
Limited warranty for print cartridges and image drums	117
HP Customer Care	118

Appendix B Device specifications

Appendix C Regulatory information

FCC compliance	124
Declaration of Conformity statements for HP LaserJet P1500 Series	125
Regulatory statements	126
Laser safety statement	126
Canadian DOC regulations	126
Korean EMI statement	126
Laser statement for Finland	127
Substances Table (China)	128
Environmental product stewardship program	129
Protecting the environment	129
Ozone production	129
Power consumption	129
Toner consumption	129
Paper use	129

Plastics	129
HP LaserJet print supplies	129
Return and recycling instructions	130
United States and Puerto Rico	130
Multiple returns (two to eight cartridges)	130
Single returns	130
Shipping	130
Non-US returns	130
Paper	130
Material restrictions	130
Disposal of waste equipment by users in private households in the European Union	131
Material Safety Data Sheet (MSDS)	131
For more information	131

Index	133
--------------------	------------

List of tables

Table 3-1	Sequence of operation	26
Table 5-1	Status-light legend	78
Table 5-2	Control-panel light messages	78
Table 5-3	Printer software problems	91
Table 5-4	Problems with Mac OS X	92
Table 6-1	97
Table 6-2	HP LaserJet P1500 Series covers	99
Table 6-3	Internal components (1 of 3)	101
Table 6-4	Internal components (2 of 3)	103
Table 6-5	Internal components (3 of 3)	105
Table 6-6	Alphabetical parts list	106
Table 6-7	Numerical parts list	109
Table B-1	Physical specifications	121
Table B-2	Electrical specifications	121
Table B-3	Power consumption (average, in Watts)	121
Table B-4	Acoustic emissions	122
Table B-5	Environmental specifications	122
Table C-1	有毒有害物质表	128

List of figures

Figure 1-1	HP LaserJet P1500 Series	2
Figure 1-2	HP LaserJet P1500 Series, front view (HP LaserJet P1505n shown)	4
Figure 1-3	HP LaserJet P1500 Series, back view (HP LaserJet P1505n shown)	4
Figure 3-1	Block diagram	24
Figure 3-2	Cross-section of printer	25
Figure 3-3	Engine control system	27
Figure 3-4	Engine control system circuit diagram	28
Figure 3-5	Laser/scanner system	29
Figure 3-6	Pickup/feed/delivery system	30
Figure 3-7	Image-formation system	31
Figure 3-8	Primary charging	31
Figure 3-9	Laser beam exposure	32
Figure 3-10	Developing	32
Figure 3-11	Transfer	33
Figure 3-12	Separation	33
Figure 3-13	Fusing	34
Figure 3-14	Drum cleaning	34
Figure 4-1	Remove left cover (1 of 2)	38
Figure 4-2	Remove left cover (2 of 2)	39
Figure 4-3	Remove right cover (1 of 2)	40
Figure 4-4	Remove right cover (2 of 2)	41
Figure 4-5	Remove right cover (2 of 2)	41
Figure 4-6	Remove front cover (1 of 1)	42
Figure 4-7	Remove control panel (1 of 1)	43
Figure 4-8	Remove top cover and back cover (1 of 4)	44
Figure 4-9	Remove top cover and back cover (2 of 4)	45
Figure 4-10	Remove top cover and back cover (3 of 4)	46
Figure 4-11	Remove top cover and back cover (4 of 4)	47
Figure 4-12	Remove formatter (1 of 2)	48
Figure 4-13	Remove formatter (2 of 2)	49
Figure 4-14	Remove ECU (1 of 5)	50
Figure 4-15	Remove ECU (2 of 5)	51
Figure 4-16	Remove ECU (3 of 5)	52
Figure 4-17	Remove ECU (4 of 5)	53
Figure 4-18	Remove ECU (5 of 5)	54
Figure 4-19	Remove fuser (1 of 5)	55
Figure 4-20	Remove fuser (2 of 5)	56
Figure 4-21	Remove fuser (3 of 5)	57
Figure 4-22	Remove fuser (4 of 5)	57

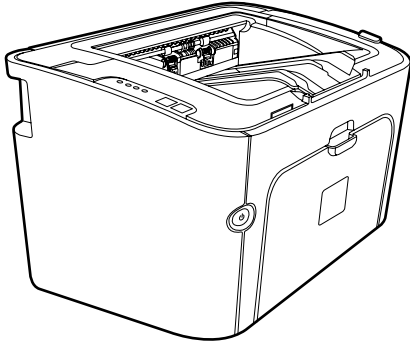
Figure 4-23	Remove fuser (5 of 5)	58
Figure 4-24	Remove laser/scanner (1 of 5)	59
Figure 4-25	Remove laser/scanner (2 of 5)	60
Figure 4-26	Remove laser/scanner (3 of 5)	61
Figure 4-27	Remove laser/scanner (4 of 5)	62
Figure 4-28	Remove laser/scanner (5 of 5)	62
Figure 4-29	Remove drive belt (1 of 5)	63
Figure 4-30	Remove drive belt (2 of 5)	64
Figure 4-31	Remove drive belt (3 of 5)	65
Figure 4-32	Remove drive belt (4 of 5)	66
Figure 4-33	Remove drive belt (5 of 5)	67
Figure 4-34	Remove main motor (1 of 6)	68
Figure 4-35	Remove main motor (2 of 6)	69
Figure 4-36	Remove main motor (3 of 6)	70
Figure 4-37	Remove main motor (4 of 6)	71
Figure 4-38	Remove main motor (5 of 6)	72
Figure 4-39	Remove main motor (6 of 6)	73
Figure 6-1	Assembly locations (1 of 1)	96
Figure 6-2	HP LaserJet P1500 Series covers	98
Figure 6-3	Internal components (1 of 3)	100
Figure 6-4	Internal components (2 of 3)	102
Figure 6-5	Internal components (3 of 3)	104

1 Product information

- [Product configuration](#)
- [Product features](#)
- [Identify product parts](#)

Product configuration

Figure 1-1 HP LaserJet P1500 Series



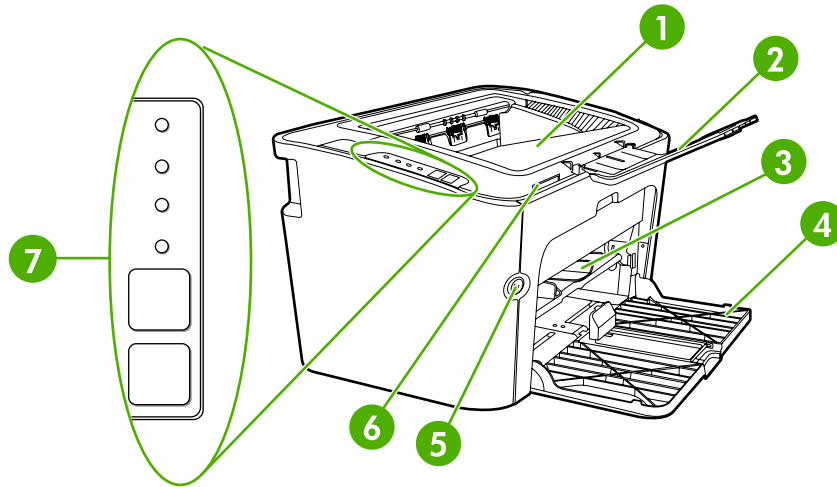
- **First Page Out:** < 6 seconds
- **Speed:** 22 A4 pages per minute (ppm), 23 Letter-size ppm.
- **Trays:** 10 sheet priority feed slot and a 250 sheet universal tray
- **Connectivity:** Hi-Speed USB 2.0 port. On-board networking (HP LaserJet P1500 network models only).

Product features

Benefit	Supporting features
Excellent print quality	<ul style="list-style-type: none">● HP print cartridges.● True 600 by 600 dots per inch (dpi) text and graphics.● Adjustable settings to optimize print quality.
Ease of use	<ul style="list-style-type: none">● The print cartridge is easy to install.● Convenient access to the print cartridge and to the paper path through the cartridge door.● Adjust paper tray with one hand.
Flexible paper handling	<ul style="list-style-type: none">● Main tray for letterhead, envelopes, labels, transparencies, custom-sized media, postcards, and heavy paper.● Priority feed slot for letterhead, envelopes, labels, transparencies, custom-sized media, postcards, and heavy paper.● A 125-sheet top output bin.● Print on Both Sides (manually).
Interface connections	<ul style="list-style-type: none">● Hi-Speed 2.0 USB port.● Built-in internal print server for connecting to a 10/100Base-T network. (HP LaserJet P1500 network models only)
Energy savings	<ul style="list-style-type: none">● The device automatically conserves electricity by substantially reducing power consumption when it is not printing.
Economical printing	<ul style="list-style-type: none">● N-up printing (printing more than one page on a sheet) and Printing on Both Sides features save paper.
Archive printing	<ul style="list-style-type: none">● When printing pages that are to be stored long-term, this option sets the device to a mode that reduces toner smearing and dusting.● Select Archive as the paper type.
Supplies	<ul style="list-style-type: none">● A Supplies Status page with print cartridge gauges that estimate remaining supply level. Not available for non-HP supplies.● No-shake cartridge design.● Authentication for original HP print cartridges.● Easy ordering for replacement supplies.
Accessibility	<ul style="list-style-type: none">● Online user guide compatible with text screen-readers.● All doors and covers can be opened with one hand.
Security	<ul style="list-style-type: none">● Kensington lock receptacle on back of device.

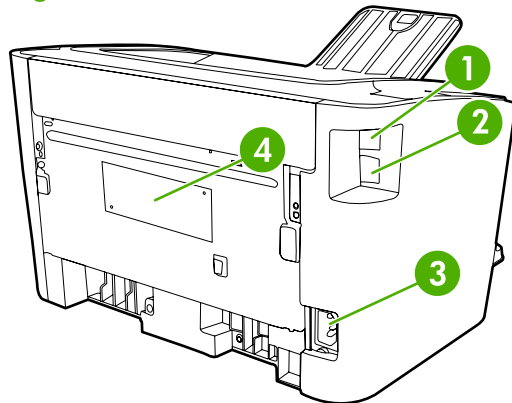
Identify product parts

Figure 1-2 HP LaserJet P1500 Series, front view (HP LaserJet P1505n shown)



1	Output bin
2	Foldable Output Tray Extension
3	Priority feed slot
4	Input tray
5	Power button
6	Cartridge door lift-tab
7	Control panel

Figure 1-3 HP LaserJet P1500 Series, back view (HP LaserJet P1505n shown)



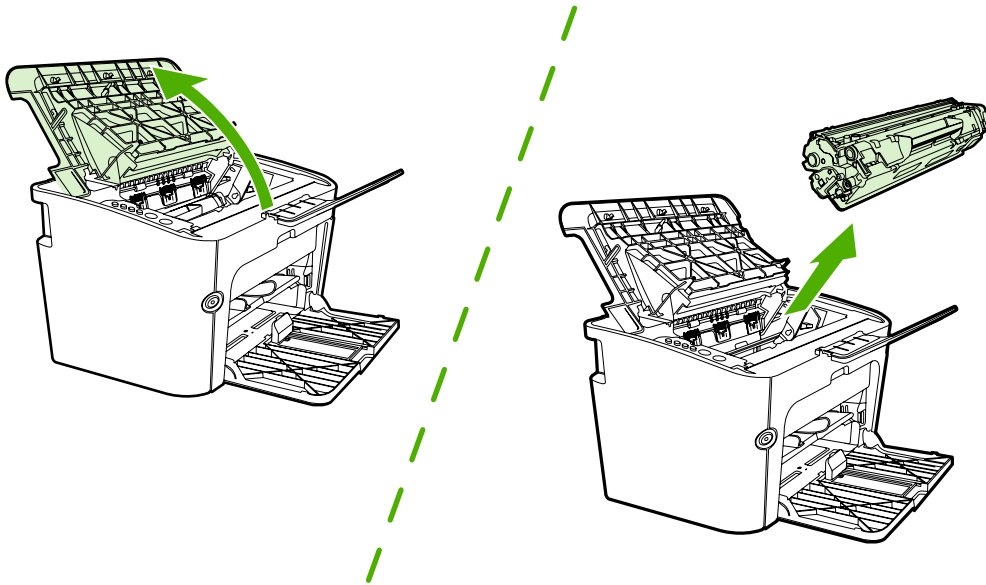
1	USB Port
2	HP internal network port (HP LaserJet P1500 network models only)
3	Power receptacle
4	Serial Number

2 Managing and maintenance

- [Replace the print cartridge](#)
- [Printer information pages](#)
- [Embedded Web server \(HP LaserJet P1500 network models only\)](#)
- [Manage supplies](#)
- [Clean the device](#)
- [Change the pickup roller](#)
- [Clean the pickup roller](#)
- [Change the printer separation pad](#)
- [EconoMode](#)

Replace the print cartridge

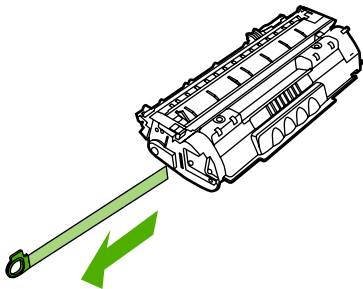
1. Open the print-cartridge door, and remove the old print cartridge. See the recycling information inside the print-cartridge box. To prevent damage to the print cartridge, minimize its exposure to direct light by covering it with a sheet of paper.



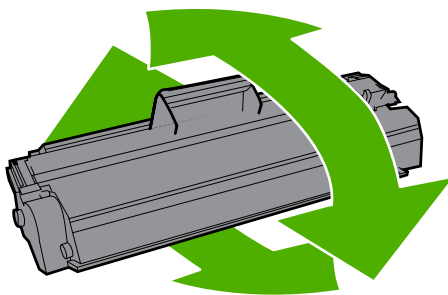
2. Remove the new print cartridge from the packaging.

△ **CAUTION:** To prevent damage to the print cartridge, hold the print cartridge at each end.

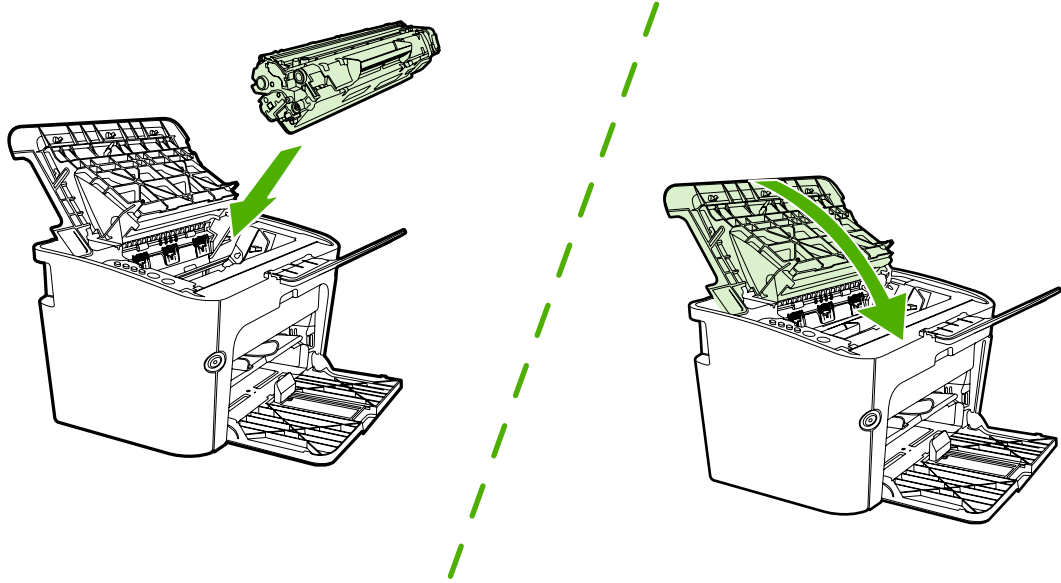
3. Pull the tab until all the tape is removed from the cartridge. Put the tab in the print-cartridge box to return for recycling.



4. Gently rock the toner cartridge from front to back to distribute the toner evenly inside the cartridge.



5. Insert the print cartridge in the device and close the print-cartridge door.



△ **CAUTION:** If toner gets on your clothing, wipe it off with a dry cloth and wash the clothing in cold water. *Hot water sets toner into the fabric.*

📄 **NOTE:** When toner is low, faded or light areas appear on the printed page. You might be able to temporarily improve print quality by redistributing the toner. To redistribute the toner, remove the cartridge from the device and gently rock it from front to back.

Printer information pages

Demo page

The Demo page contains examples of text and graphics. To print the Demo page, select it from the **Print Information Pages** drop-down on the **Services** tab in **Printer Preferences**.

Configuration page

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

- Press the **Go** button when the device Ready light is on and no other jobs are printing (HP LaserJet P1500 Series only).
- Select it from the **Print Information Pages** drop-down on the **Services** tab in **Printer Preferences**.

Supplies Status page

You can print the Supplies Status page by selecting it from the **Print Information Pages** drop-down on the **Services** tab in **Printer Preferences**. The Supplies Status page provides the following information:

- The estimated percentage of toner remaining in the print cartridge
- The number of pages and print jobs that have been processed
- Ordering and recycling information

Embedded Web server (HP LaserJet P1500 network models only)


Use the embedded Web server (EWS) to view device and network status and to manage printing functions from your computer.

- View device status information
- Determine the remaining life on all supplies and order new ones
- View and change the device default configuration settings
- View and change network configuration

You do not need to install any software on the computer. You only need to use one of these supported Web browsers:

- Internet Explorer 6.0 (and later)
- Netscape Navigator 7.0 (and later)
- Firefox 1.0 (and later)
- Mozilla 1.6 (and later)
- Opera 7.0 (and later)
- Safari 1.2 (and later)
- Konqueror 3.2 (and later)

The embedded Web server works when the device is connected to a TCP/IP-based network. The embedded Web server does not support IPX-based connections or direct USB connections.

 **NOTE:** You do not have to have Internet access to open and use the embedded Web server. However, if you click a link on any of the pages, you must have Internet access in order to go to the site associated with the link.

Open the embedded Web server

To open the embedded Web server, type the IP address or hostname of the device in the address field of a supported Web browser. To find the IP address, print a Configuration page at the device by pressing the **Go** button when the Ready light is on and no other jobs are printing.

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

The embedded Web server has three tabs that contain settings and information about the device: the **Information** tab, the **Settings** tab, and the **Networking** tab.

Information tab

The Information pages group consists of the following pages:

- **Device Status** displays the status of the device and HP supplies.
- **Device Configuration** shows the information found on the Configuration page.

- **Supplies Status** shows the status of HP supplies and provides supplies part numbers. To order new supplies, click **Order Supplies** in the upper-right part of the window.
- **Network Summary** shows the information found on the Network Summary page.

Settings tab

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

The **Settings** tab contains the **Printing** page where you can view and change the default print job settings and PCL 5e settings.

Networking tab

Network administrators can use this tab to control network-related settings for the device when it is connected to an IP-based network.

Links

Links are located in the upper-right part of the Status pages. 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.

- **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 product support site. You can search for help regarding general topics.

Manage supplies

For warranty information about these supplies, see [Service and support on page 113](#).

Supplies life


HP LaserJet P1500 Series: Average yield for the replacement standard black print cartridge is 2000 pages in accordance with ISO/IEC 19752. Actual yield depends on specific use.

Check and order supplies

Check the supplies status from the control panel by printing a Supplies Status page from the device software. Hewlett-Packard recommends placing an order for a replacement print cartridge when the Low message for a print cartridge first appears. For typical use, the Order message indicates that approximately two weeks of life remain.

When using authentic HP print cartridges, you can obtain the following types of supplies information:

- Amount of cartridge remaining
- Estimated number of pages remaining
- Number of pages printed
- Other supplies information

 **NOTE:** When toner supply levels are low, an alert appears on the computer screen during printing.

If the supplies levels are low, reorder supplies through the local HP dealer, by telephone, or online. See <http://www.hp.com/go/ljsupplies> to order online.

Supplies storage guidelines

Follow these guidelines for storing print cartridges:

- Do not remove the print cartridge from its package until it is ready for use.
- To prevent damage, do not expose the print cartridge to light for more than a few minutes.
- See [Table B-5 Environmental specifications on page 122](#) for operating and storage temperature ranges.
- Store the supply in a horizontal position.
- Store the supply in a dark, dry location away from heat and magnetic sources.

Replace and recycle supplies

When installing a new HP print cartridge, follow the instructions included on the print-cartridge box, or see the *Getting Started Guide*.

Recycling supplies:

- Place the used supply in the box in which the new supply arrived
- Complete the enclosed return label
- Send the used supply to HP for recycling

For complete information, see the recycling guide included with each new HP supply item. See [Return and recycling instructions on page 130](#) for more information about HP's recycling program.

HP policy on non-HP supplies

Hewlett-Packard Company cannot recommend the use of non-HP supplies, either new or remanufactured. When they are not HP products, HP cannot influence the product design or quality. Service or repair required as a result of using a non-HP supply is *not* covered under the device warranty.

Reset the device for non-HP supplies

When a non-HP print cartridge is installed, a message appears on your PC. To print, press **OK** the first time this non-HP supply is installed.

△ **CAUTION:** Because the status gauges do not indicate when a non-HP supply is low or empty, the device might not stop printing. device damage can occur if the device prints with an empty print cartridge.

HP anti-counterfeit supplies Web site

Visit the HP anti-counterfeit supplies Web site at <http://www.hp.com/go/anticounterfeit> if the supplies status gauges indicate that the print cartridge is not an HP print cartridge and you think that it is genuine.

Clean the device

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

△ **CAUTION:** Do not use ammonia-based cleaners on or around the device.

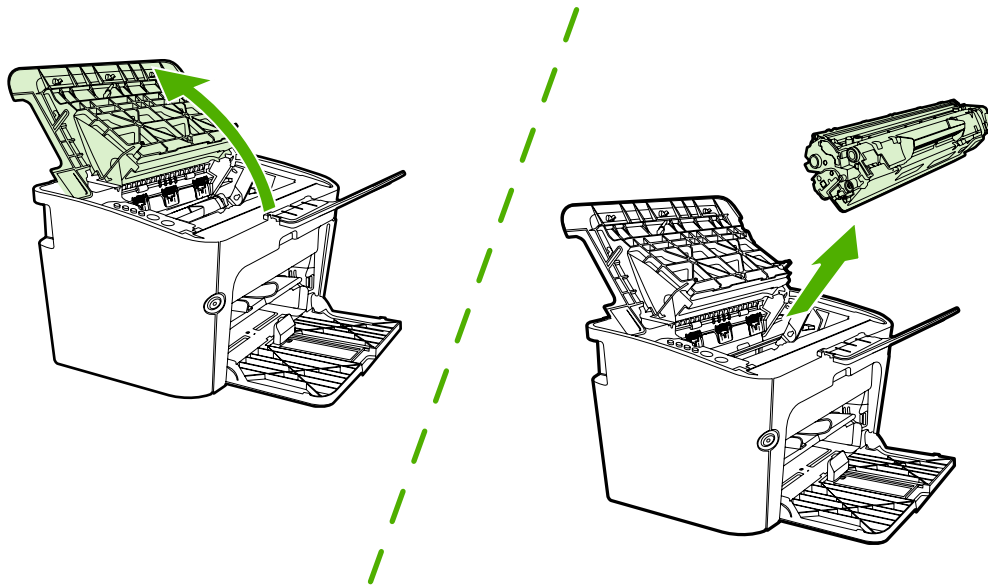
During the printing process, paper, toner, and dust particles can accumulate inside the device. Over time, this buildup can cause print quality problems, such as toner specks or smearing, and paper jams. To correct and prevent these types of problems, clean the print cartridge area and the device media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

Clean the print-cartridge area

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

△ **WARNING!** Before cleaning the device, turn the device off by unplugging the power cord, and wait for the device to cool.

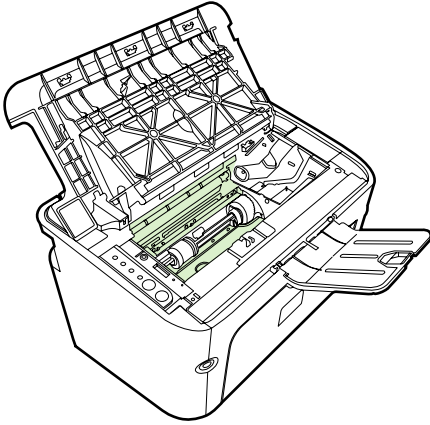
1. Unplug the power cord from the device. Open the print-cartridge door, and remove the print cartridge.



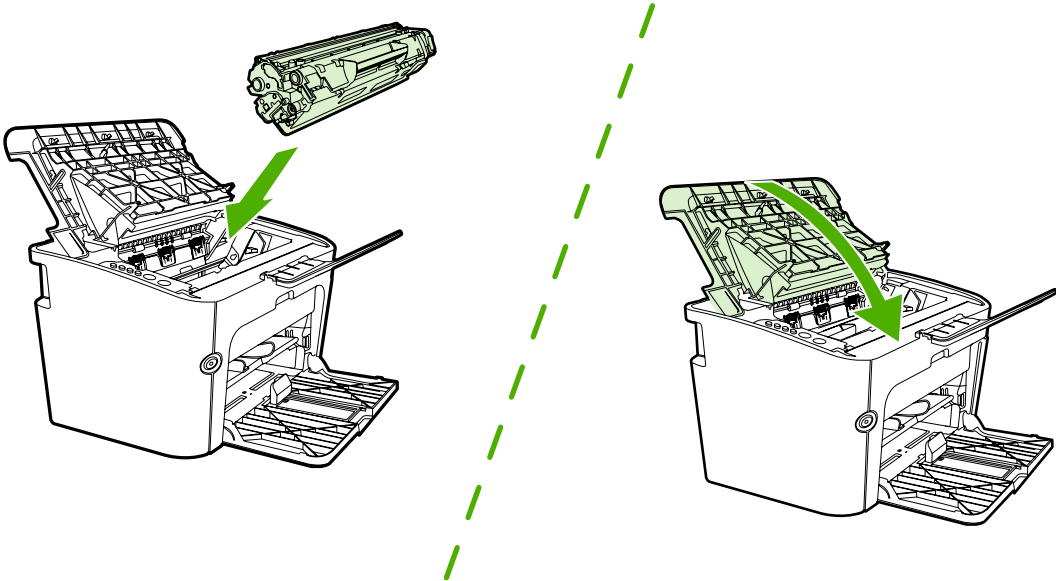
△ **CAUTION:** Do not touch the black-sponge transfer roller inside the device. Doing so can damage the device.

CAUTION: To prevent damage, do not expose the print cartridge to light. Cover it with a piece of paper.

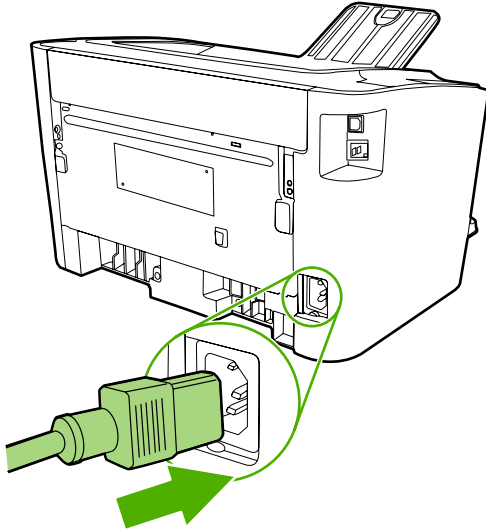
2. With a dry, lint-free cloth, wipe any residue from the paper-path area and the print-cartridge cavity.



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

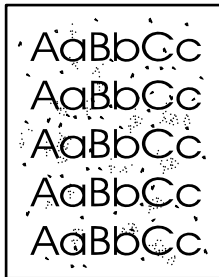



4. Plug the power cord into the device.




Clean the device paper path

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



 **NOTE:** For best results use a sheet of transparency. If you do not have any transparencies, you can use copier-grade media (70 to 90 g/m² (18 to 24 lb.)) that has a smooth surface.

1. Make sure that the device is idle and the Ready light is on.
2. Load the media in the input tray.
3. Print a cleaning page. Access the **Device Settings** tab in printer **Properties**.

 **NOTE:** The cleaning process takes approximately 2 minutes. The cleaning page will stop periodically during the cleaning process. Do not turn the device off until the cleaning process has finished. You might need to repeat the cleaning process several times to thoroughly clean the device.

Change the pickup roller

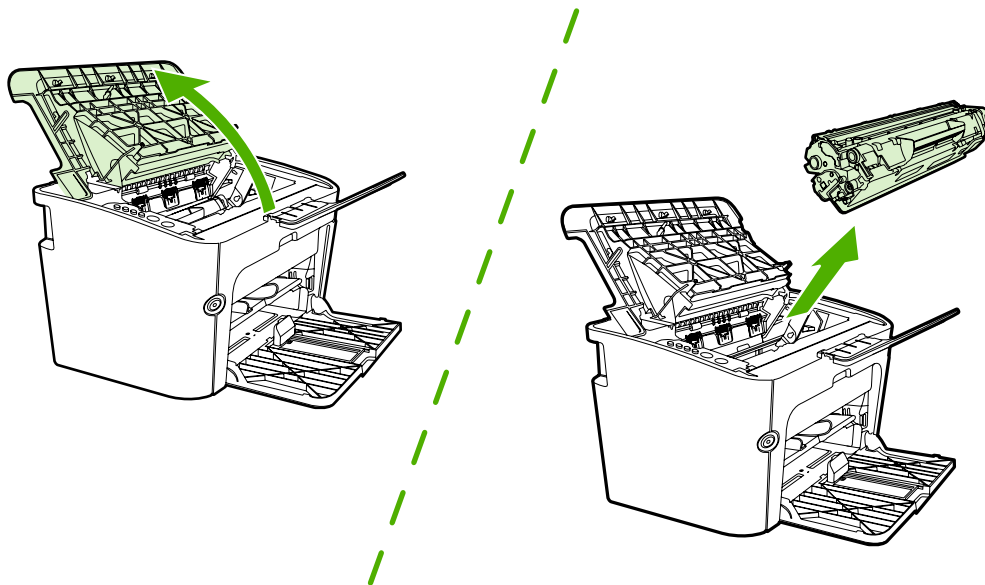
Normal use with good media causes wear. The use of poor media might require more frequent replacement of the pickup roller.

If the device regularly mispicks (no media feeds through), you might need to change or clean the pickup roller. See [Clean the pickup roller on page 19](#) to order a new pickup roller.

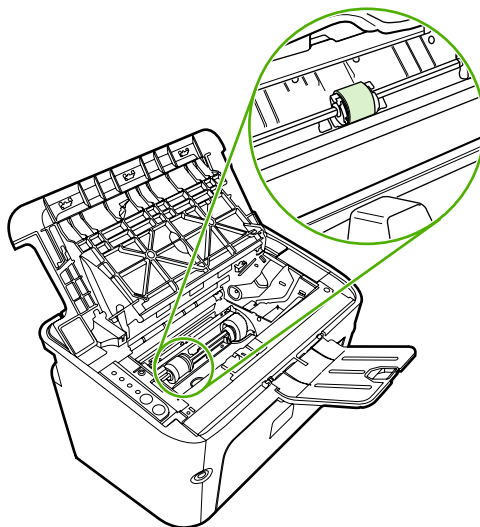
△ **CAUTION:** Failure to complete this procedure might damage the device.

1. Open the print-cartridge door, and remove the old print cartridge. See the recycling information inside the print-cartridge box.

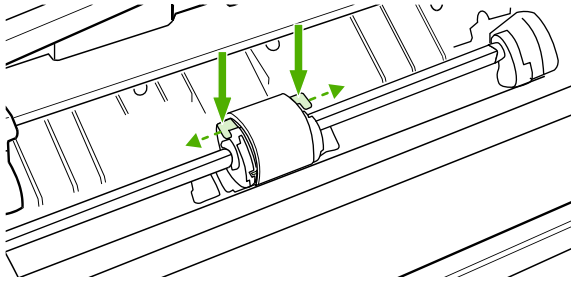
△ **CAUTION:** To prevent damage to the print cartridge, minimize its exposure to direct light. Cover the print cartridge with a sheet of paper.



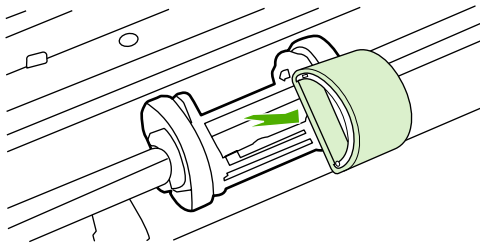
2. Find the pickup roller.



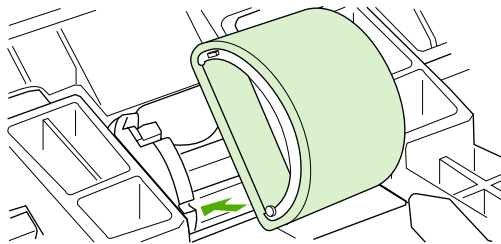
3. Release the small, white tabs on each side of the pickup roller, and rotate the pickup roller toward the front.



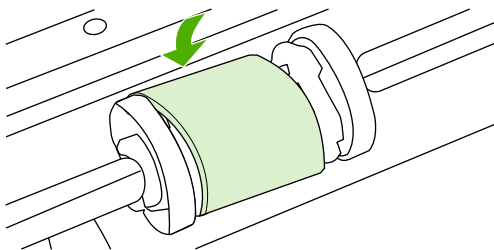
4. Gently pull the pickup roller up and out.



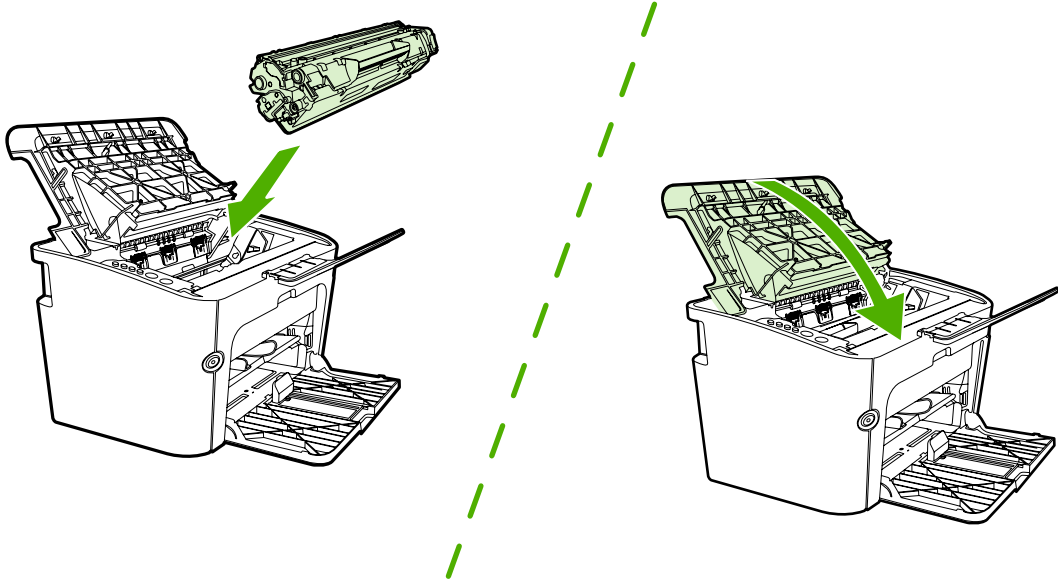
5. Position the new pickup roller in the slot. The circular and rectangular slots on each side prevent you from installing the roller incorrectly.



6. Rotate the top of the new pickup roller away from you until both sides snap into place.



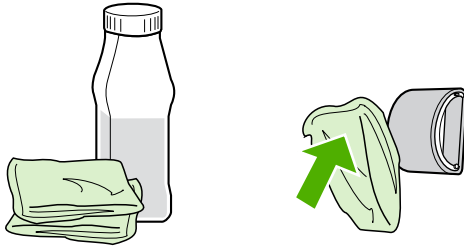
7. Insert the print cartridge in the device and close the print-cartridge door.



Clean the pickup roller

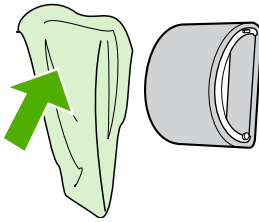
If you want to clean the pickup roller before deciding to replace it, follow these instructions:

1. Unplug the power cord from the device and remove the pickup roller as described in steps 1 through 5 of [Change the pickup roller on page 16](#)
2. Dab a lint-free cloth in isopropyl alcohol, and scrub the roller.

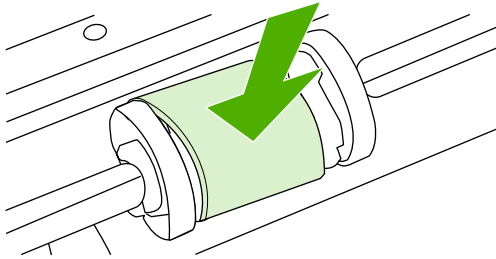


⚠ WARNING! Alcohol is flammable. Keep the alcohol and cloth away from an open flame. Before you close the device and plug in the power cord, allow the alcohol to dry completely.

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 device.





5. Plug the power cord into the device.

Change the printer separation pad

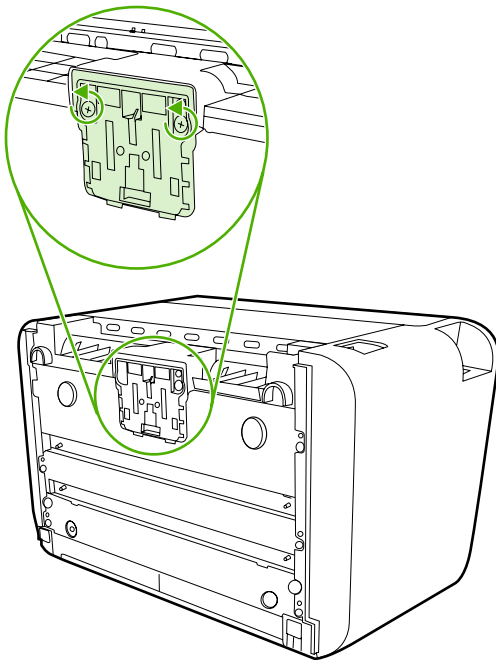
Normal use with good media causes wear. The use of poor media might require more frequent replacement of the separation pad.

If the device regularly pulls multiple sheets of media at a time, you might need to change the separation pad.

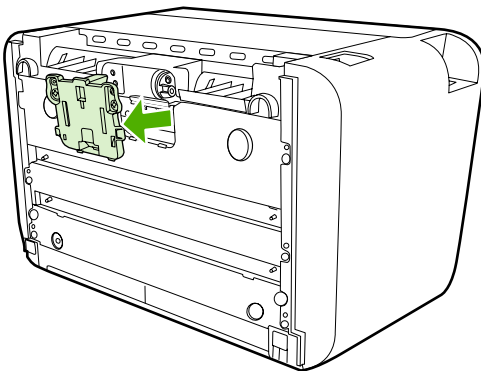
 **NOTE:** Before you change the separation pad, clean the pickup roller. See [Clean the pickup roller on page 19](#).

 **WARNING!** Before changing the printer separation pad, turn the device off by unplugging the power cord, and wait for the device to cool.

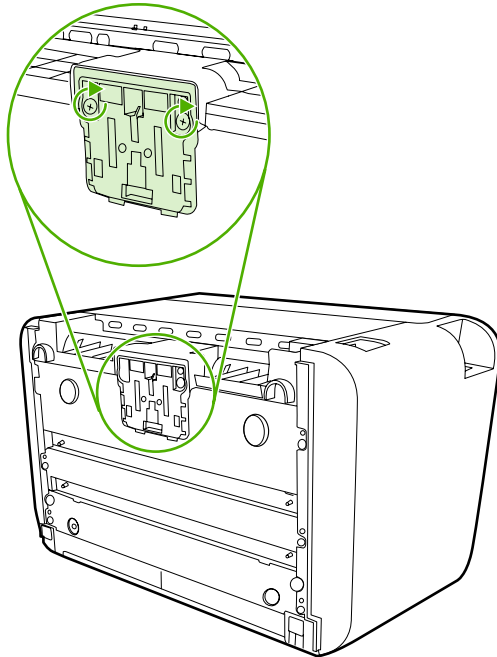
1. Unplug the device from the wall outlet.
2. Remove paper and close main input tray. Set device on its front.
3. At the bottom of the device, unscrew the two screws holding the separation pad in place.



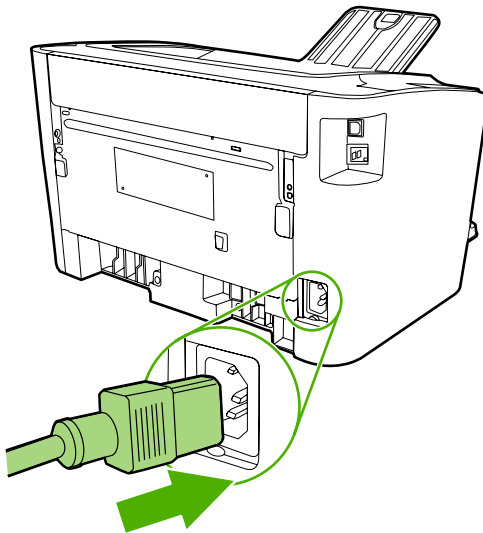
4. Remove the separation pad.



5. Insert the new separation pad, and screw it into place.



6. Plug the device into the wall outlet, and turn on the device.




EconoMode

With EconoMode, the device uses less toner per page. Selecting this option can extend the life of the print cartridge and reduce your cost per page. However, it also reduces print quality. The printed image is lighter, but it is adequate for printing drafts or proofs.

HP does not recommend the full-time use of EconoMode. If EconoMode is used full-time, the toner supply might outlast the mechanical parts in the print cartridge. If print quality begins to degrade under these circumstances, you must install a new print cartridge even if toner remains in the cartridge.

1. To use EconoMode, open the printer **Properties** (or **Printing Preferences** in Windows 2000 and XP).
2. On the **Paper/Quality** tab or the **Finishing** tab (the **Paper Type/Quality** tab for some Mac drivers), select the **EconoMode** check box.

 **NOTE:** Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that driver.

3 Theory of operation

- [Introduction](#)
- [Internal components](#)
- [Timing](#)
- [Engine control system](#)
- [Laser/scanner system](#)
- [Pickup/feed/delivery system](#)
- [Image-formation system](#)

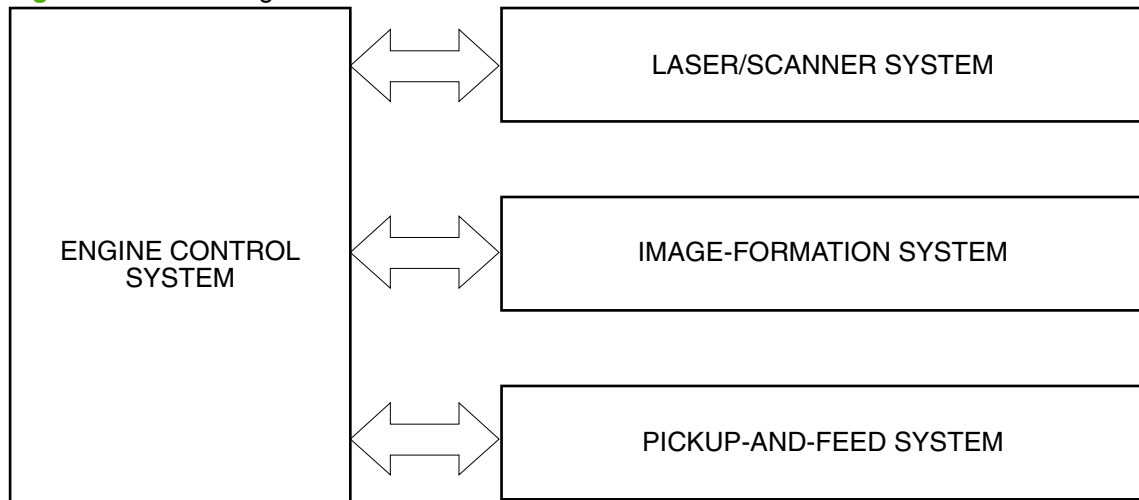
Introduction

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 3-1 Block diagram on page 24](#) illustrates the relationships among the four systems.

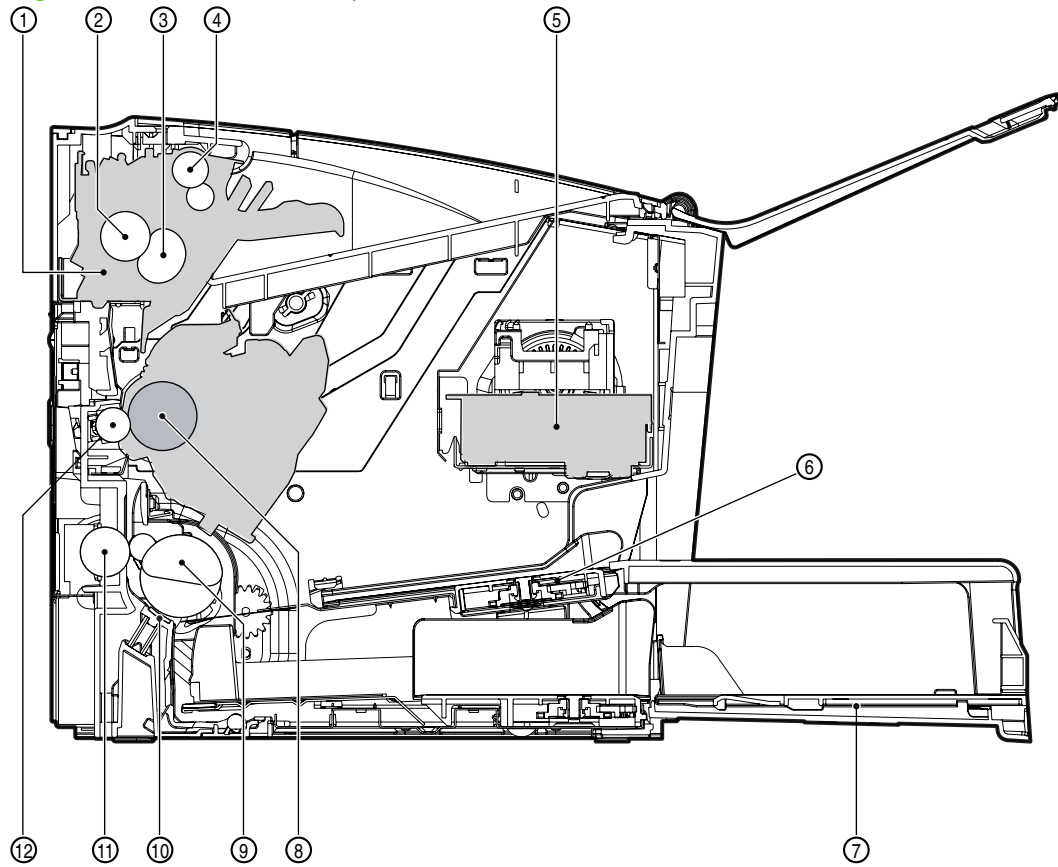
Figure 3-1 Block diagram



Internal components

Figure 3-2 Cross-section of printer on page 25 highlights the major internal components.

Figure 3-2 Cross-section of printer



1	Fusing unit
2	Pressure roller
3	Fusing sleeve
4	Delivery roller
5	Laser/scanner unit
6	Single-sheet-feed slot
7	Multi-purpose tray
8	Photosensitive drum
9	Pickup roller
10	Separation pad
11	Feed roller
12	Transfer roller

Timing

Sequence of operation

Operation sequences are controlled by the microprocessor on the DC controller. [Table 3-1 Sequence of operation on page 26](#) describes engine operations for each period of a print operation.

Table 3-1 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.
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 last page completes the fusing operation.	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 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.

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
- Low-voltage power supply
- High-voltage power supply
- Fusing control

Figure 3-3 Engine control system

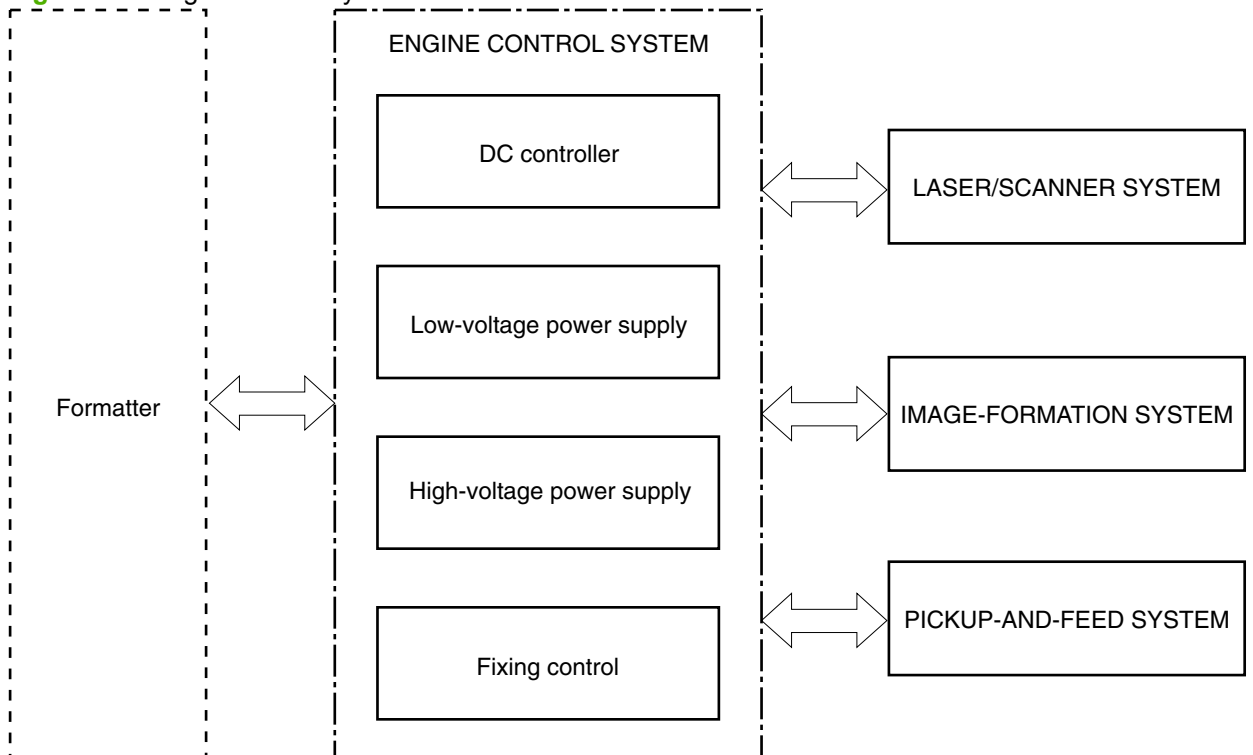
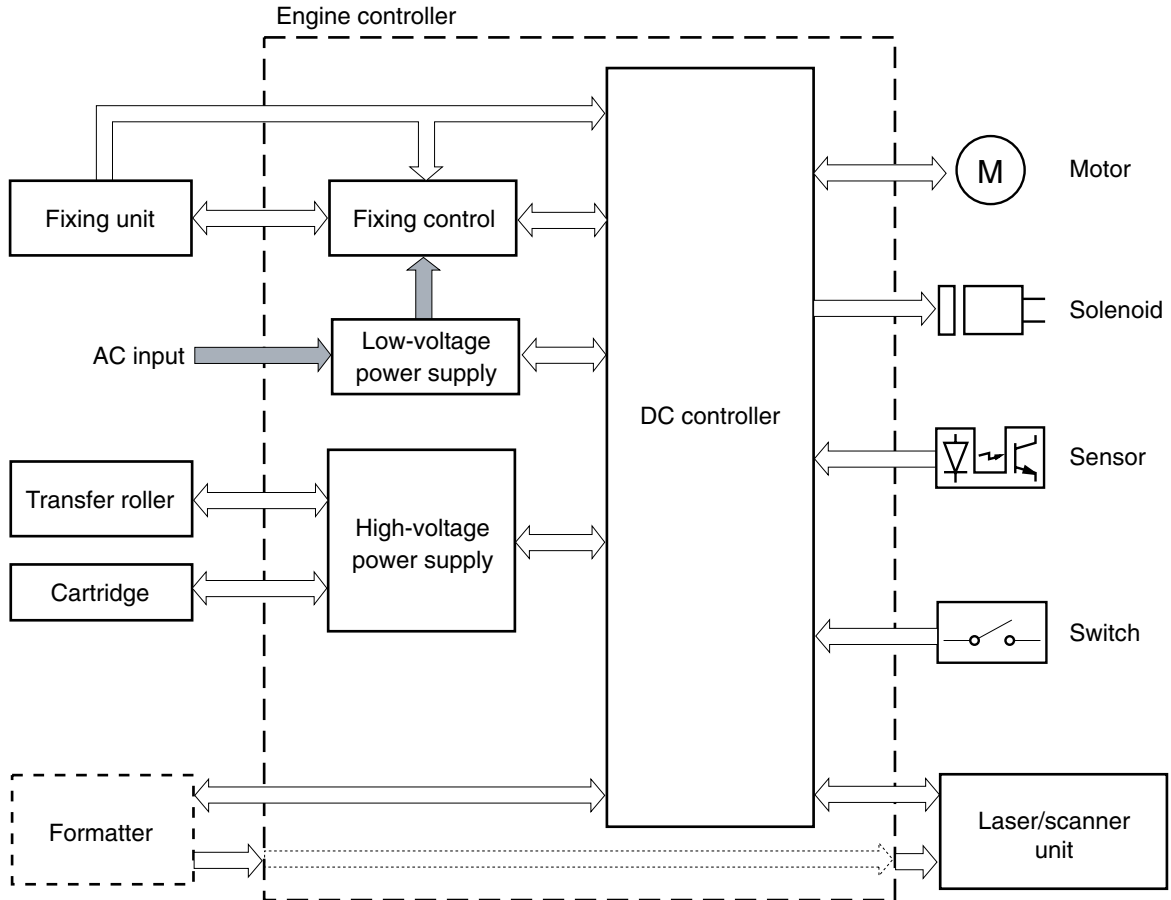


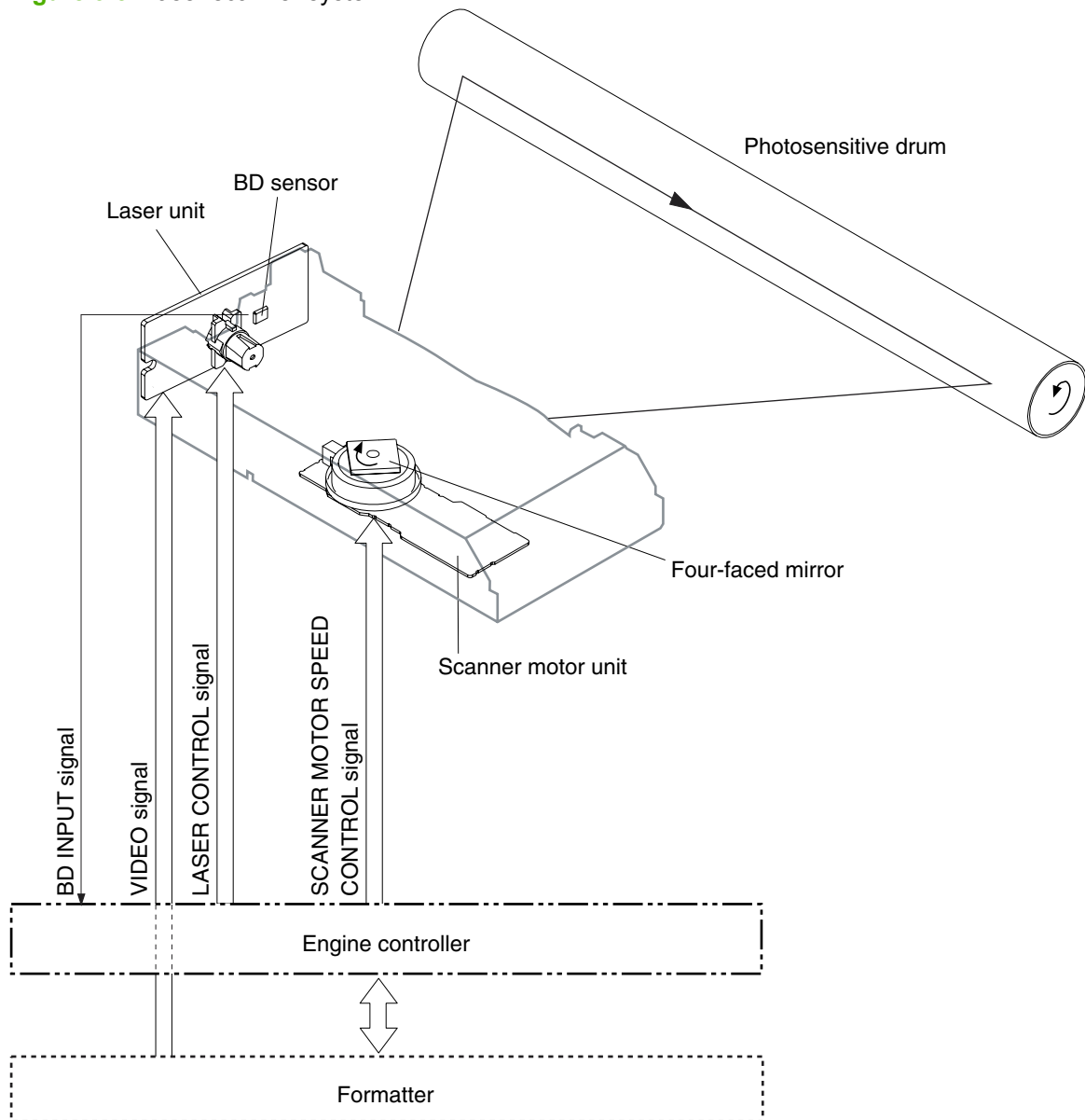
Figure 3-4 Engine control system circuit diagram



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 3-5 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 3-6 Pickup/feed/delivery system on page 30](#):

- M1, main motor
- SL1, pickup solenoid
- PS701, fuser delivery sensor
- PS702, media-width sensor
- PS751, top-of-page sensor

Figure 3-6 Pickup/feed/delivery system

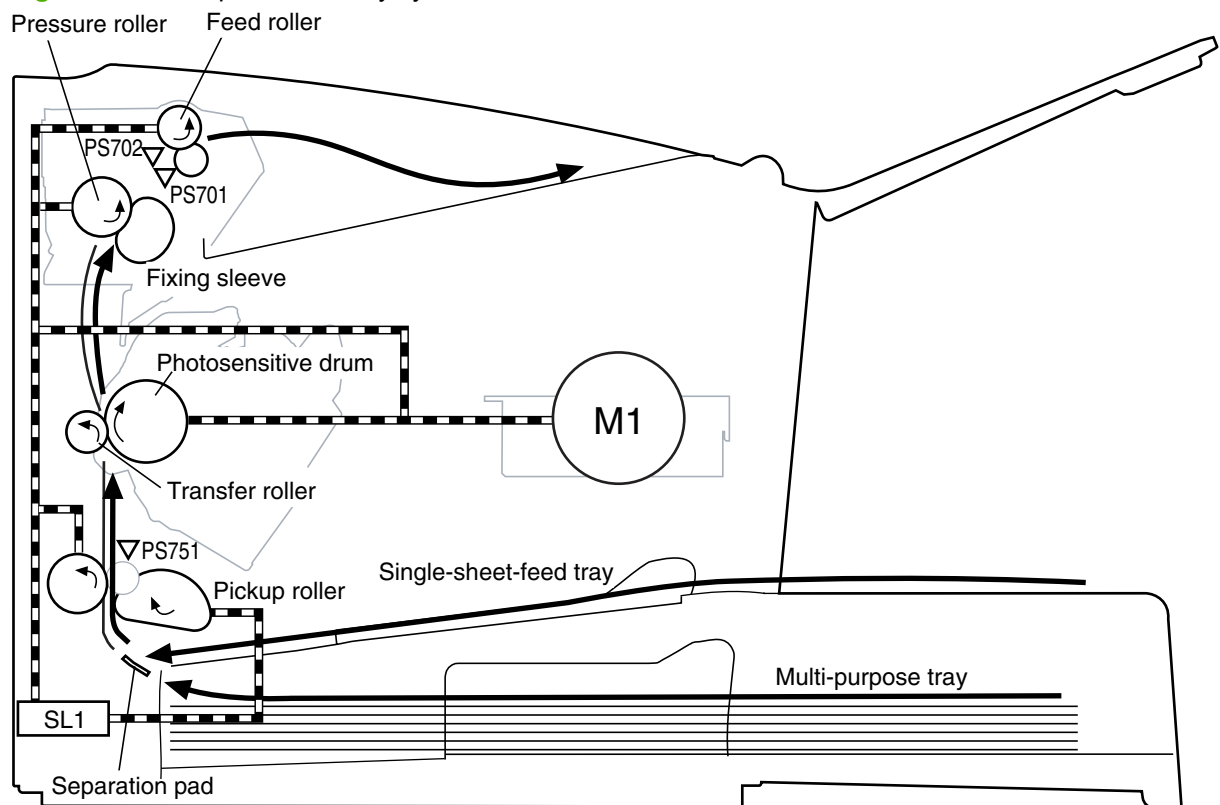


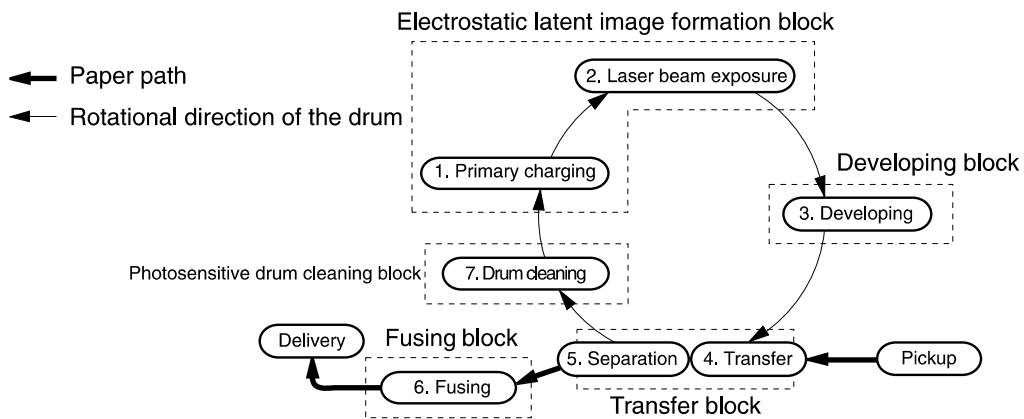
Image-formation system

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.

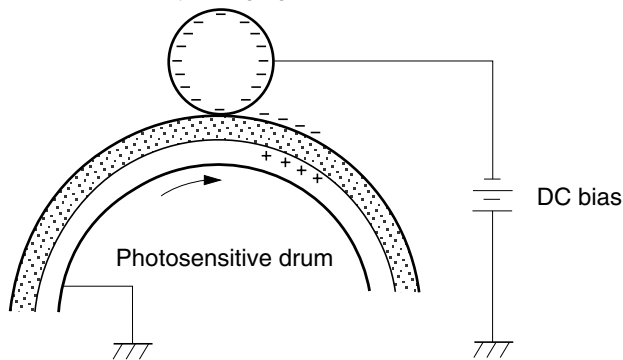
Figure 3-7 Image-formation system



Step 1: Primary charging

The DC bias is applied to the primary charging roller, which transfers a uniform negative potential to the photosensitive drum.

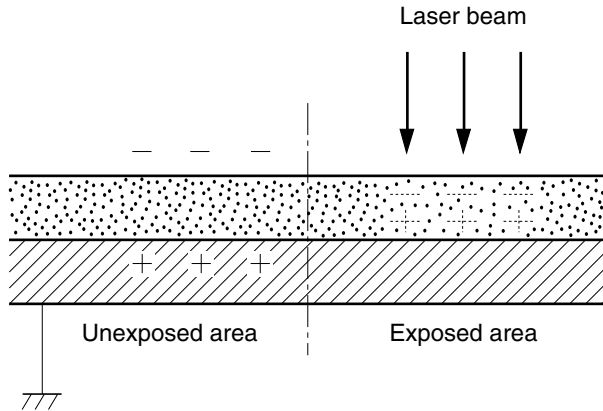
Figure 3-8 Primary charging



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.

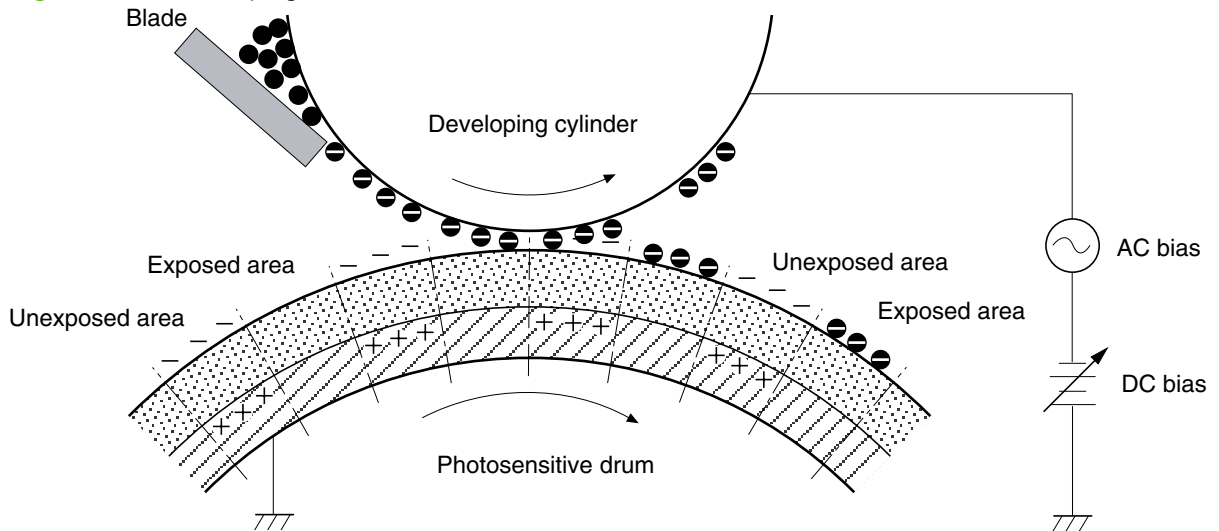
Figure 3-9 Laser beam exposure



Step 3: Developing

The toner acquires a negative charge from the friction that occurs when the developing cylinder rotates against the developing blade. When the negatively charged toner comes in contact with the drum, it adheres to the electrostatic latent image because the drum surface has a higher potential. The image on the drum becomes visible because of the toner. The AC bias that is superimposed over the developing negative DC bias is applied to the developing cylinder.

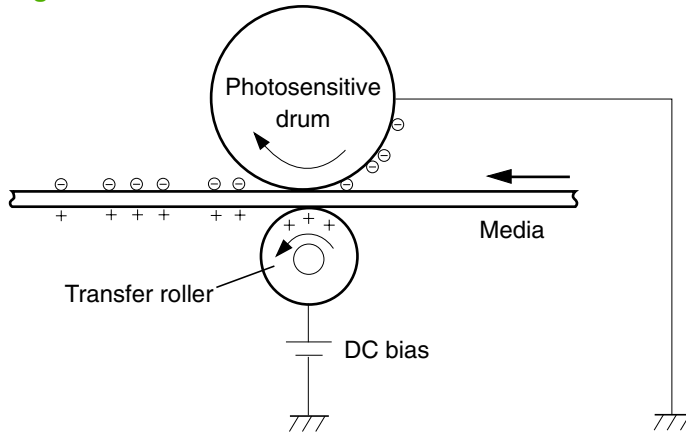
Figure 3-10 Developing



Step 4: Transfer

The positive DC bias is applied to the transfer roller. As the media passes between the transfer roller and the photosensitive drum, the transfer roller applies a positive DC bias to the media. The positively charged media attracts the negatively charged toner from the drum surface.

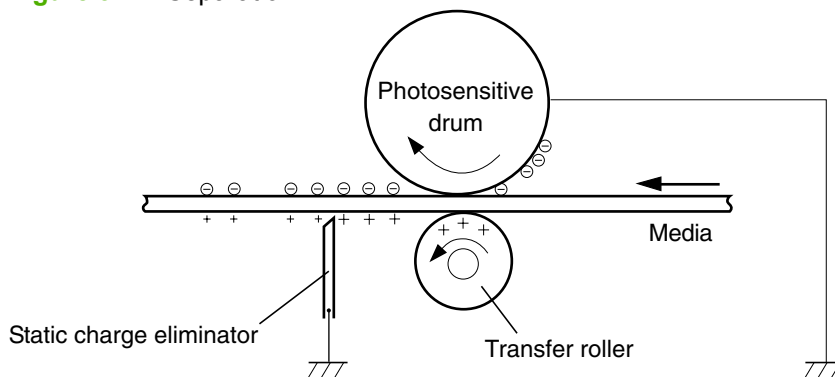
Figure 3-11 Transfer



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.

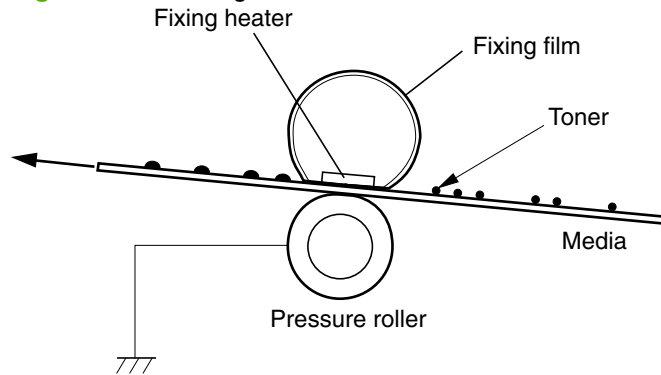
Figure 3-12 Separation



Step 6: Fusing

The printer uses the on-demand fusing method to permanently fuse the toner image to the media using heat and pressure.

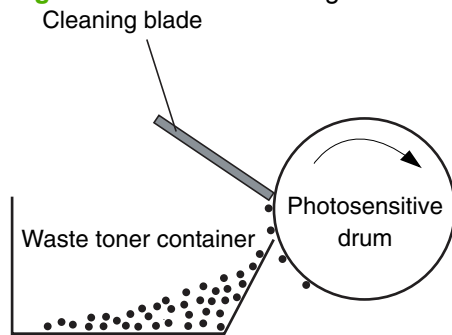
Figure 3-13 Fusing



Step 7: Drum cleaning

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

Figure 3-14 Drum cleaning



4 Removal and replacement

- [Introduction](#)
- [Before performing service](#)
- [Covers](#)
- [Formatter](#)
- [ECU](#)
- [Fuser](#)
- [Laser/scanner](#)
- [Drive Belt](#)
- [Main motor](#)

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.



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

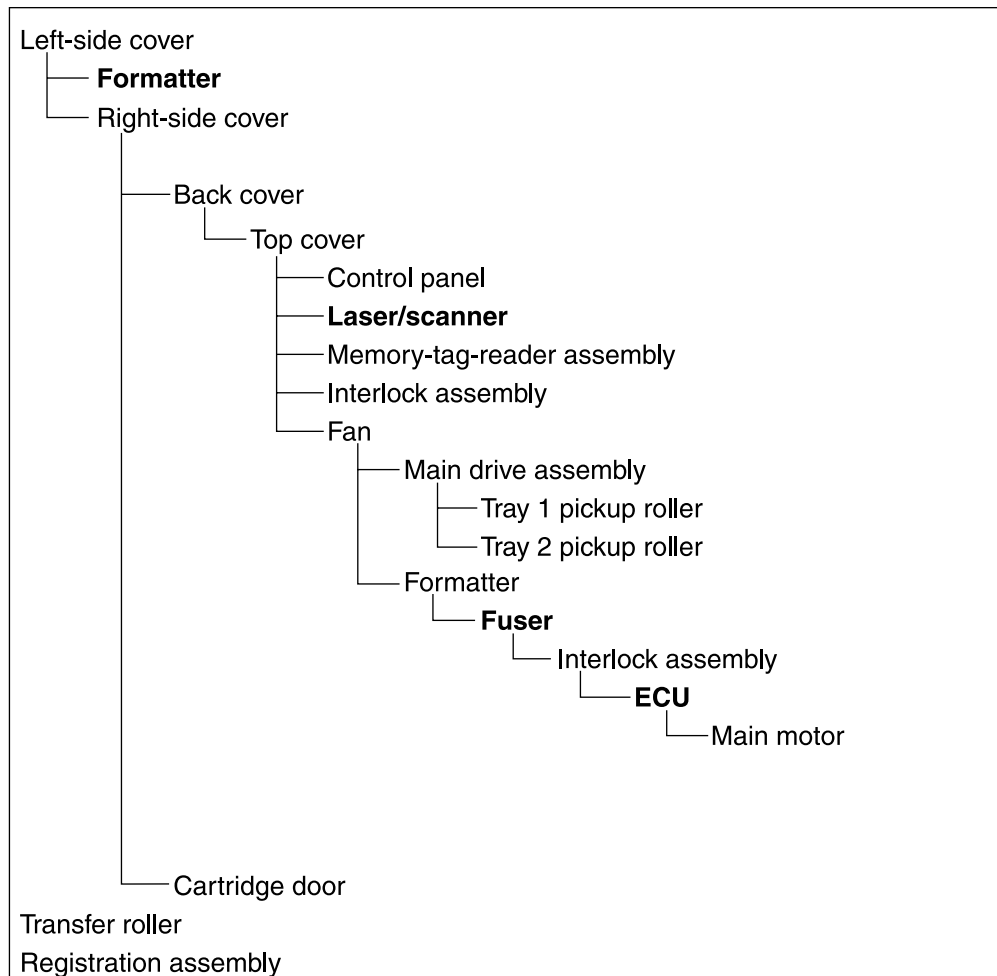
Follow the pre-service procedures before you perform service.

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.
4. Unplug the power cord and the interface cable.

Parts removal order

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



Covers

Left cover

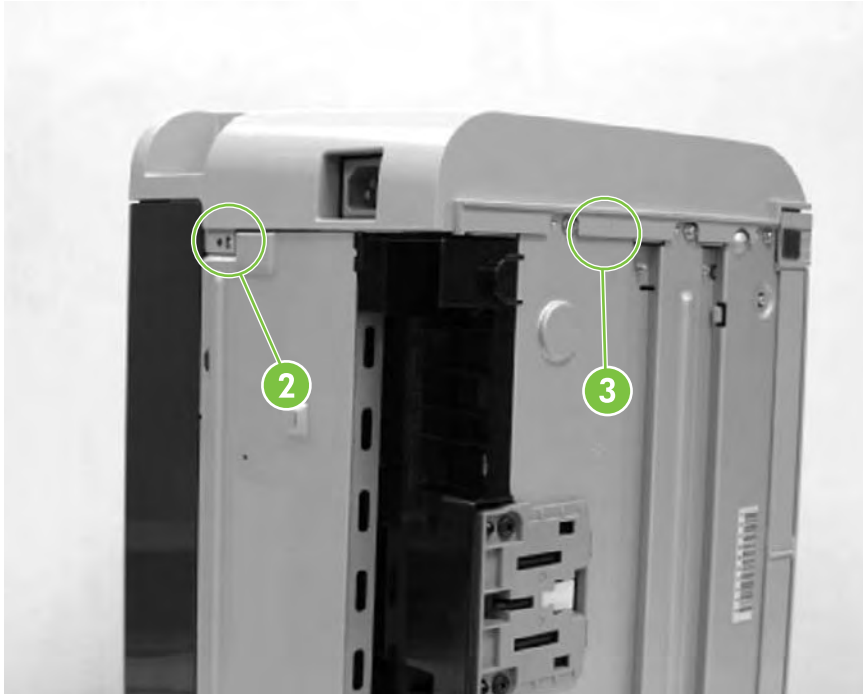
1. Remove one screw (callout 1).

Figure 4-1 Remove left cover (1 of 2)



2. Turn the device on its right side. There are two catches that must be released. Use a small flat blade screwdriver to release the catch on the back of the printer (callout 2) and the bottom of the printer (callout 3). With both catches are released, rotate the cover towards the front of the device and remove it.

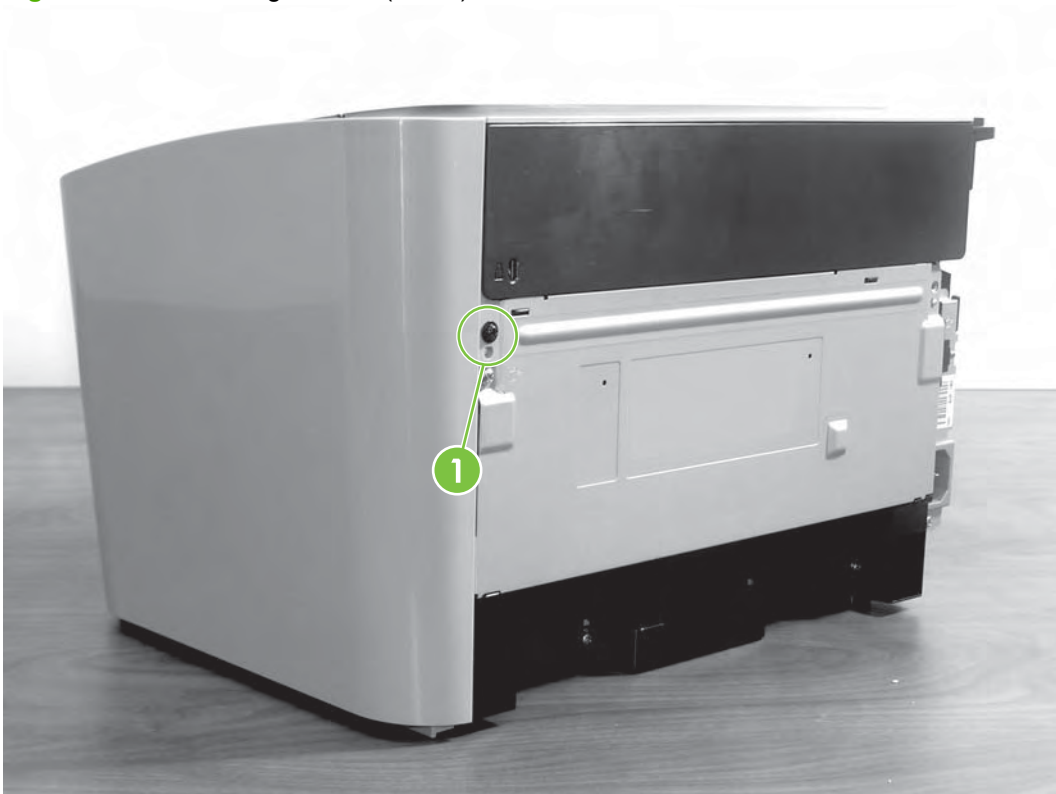
Figure 4-2 Remove left cover (2 of 2)



Right cover

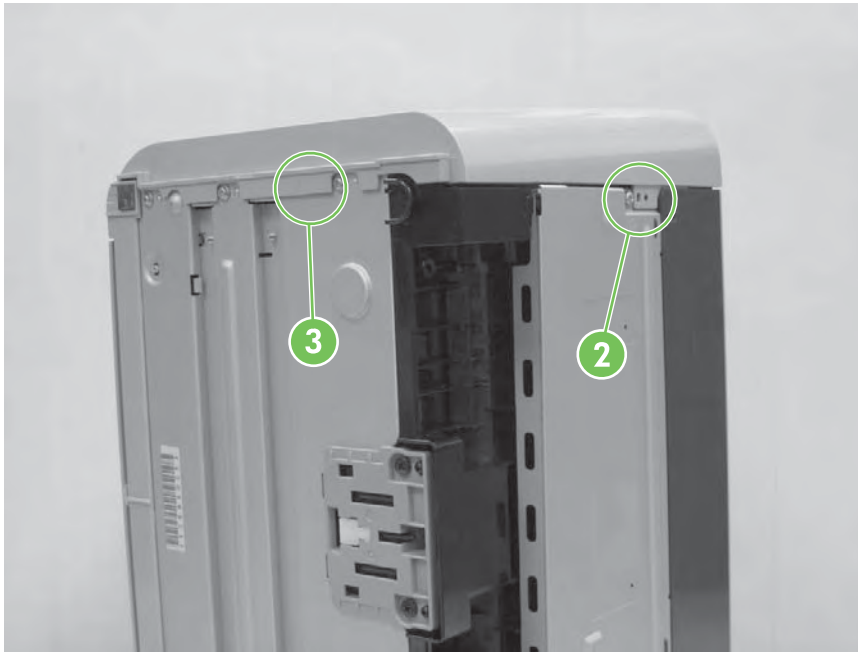
1. Remove one screw (callout 1) from back of printer

Figure 4-3 Remove right cover (1 of 2)



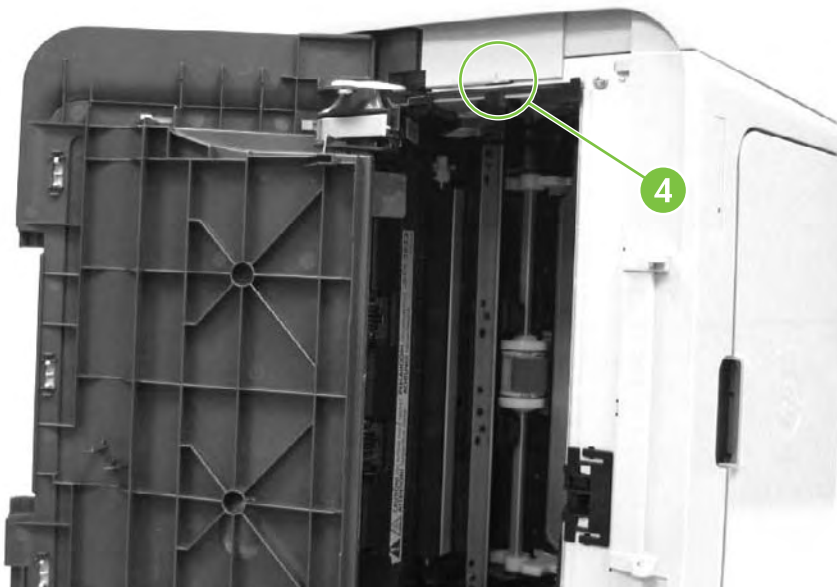
2. Turn the device on its left side. There are three catches that must be released. Use a small flat blade screwdriver to release the catch on the back of the printer (callout 2) and the bottom of the printer (callout 3).

Figure 4-4 Remove right cover (2 of 2)



3. Open the top of the printer and release the catch on the inside (callout 4). Once all three catches are released, rotate the cover towards the front of the device and remove it.

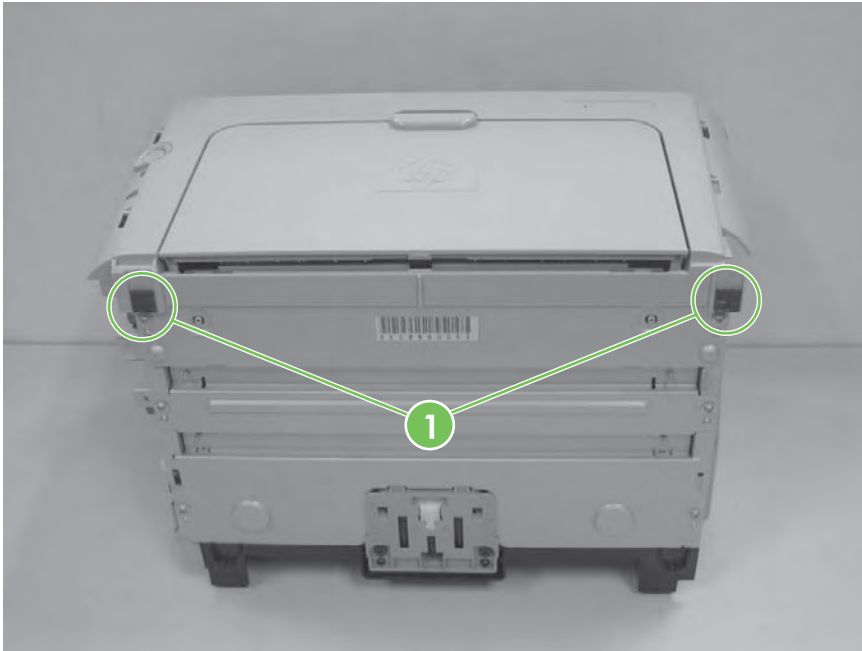
Figure 4-5 Remove right cover (2 of 2)



Front cover

1. Remove the side covers. See [Left cover on page 38](#) and [Right cover on page 40](#).
2. Use a small flat blade screwdriver to release the catches on the bottom of the printer (callout 1). Then rotate the front cover up and out (it is hinged in slots at the top).

Figure 4-6 Remove front cover (1 of 1)

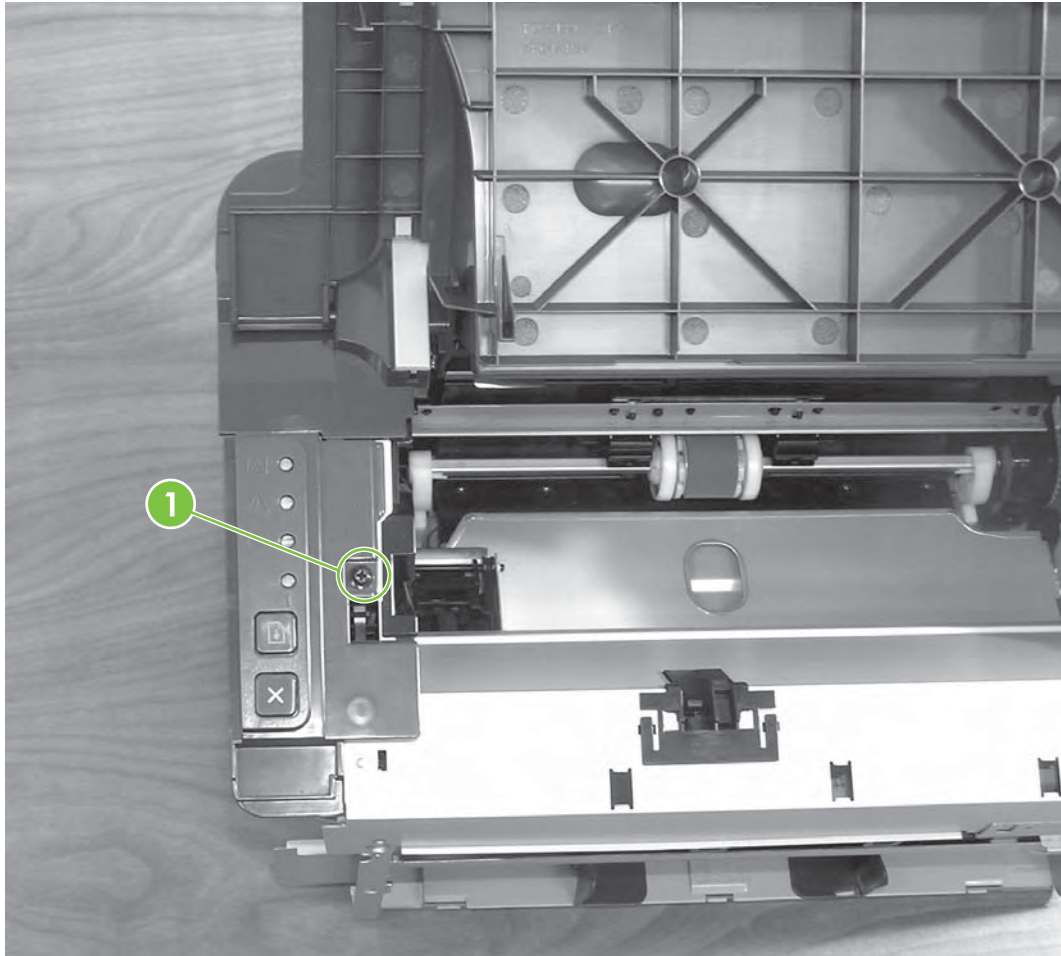


Control panel

1. Remove the side covers. See [Left cover on page 38](#) and [Right cover on page 40](#).
2. Remove the front cover. See [Front cover on page 42](#).

3. Remove one screw (callout 1).

Figure 4-7 Remove control panel (1 of 1)



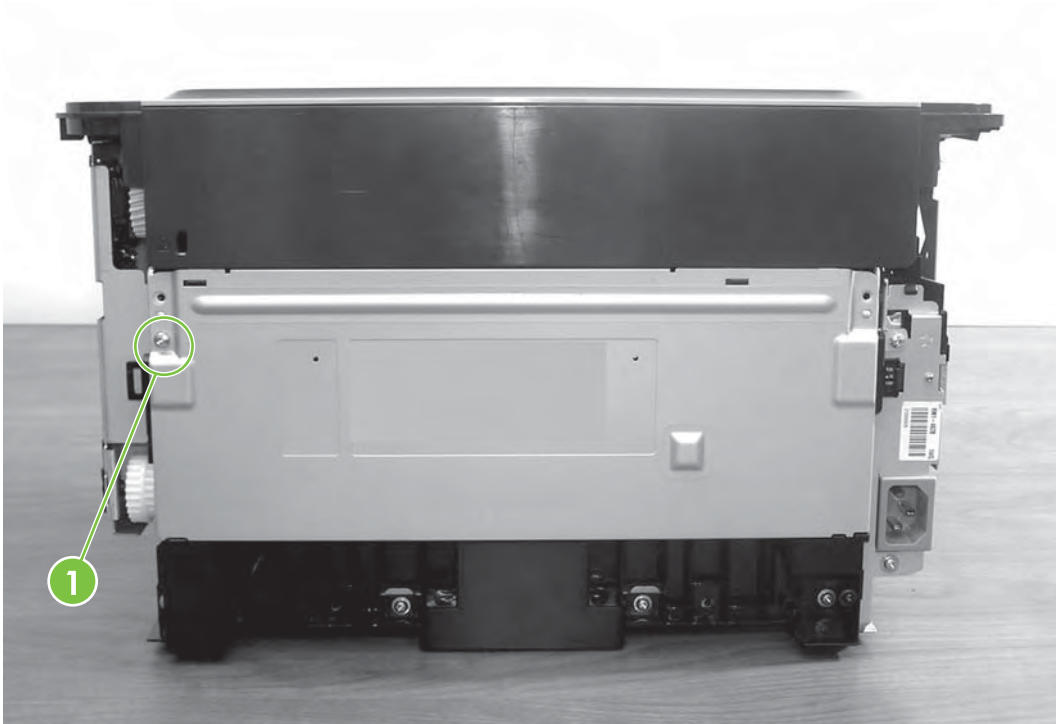
4. Remove control panel.

Top cover and back cover

1. Remove the side covers. See [Left cover on page 38](#) and [Right cover on page 40](#).
2. Remove the front cover. See [Front cover on page 42](#).
3. Remove the control panel. See [Control panel on page 42](#).

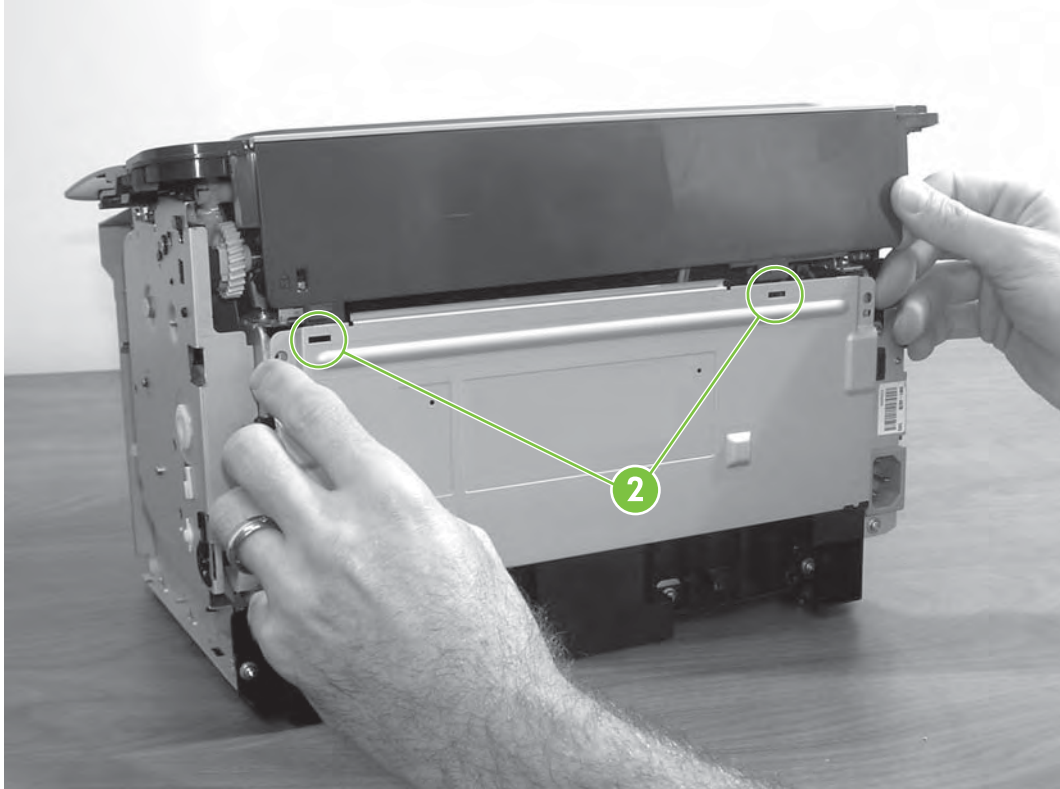
4. Remove one star screw (callout 1).

Figure 4-8 Remove top cover and back cover (1 of 4)



5. Separate the top cover from the back cover by pressing the notches on the top cover (callout 2) inward and lifting up.

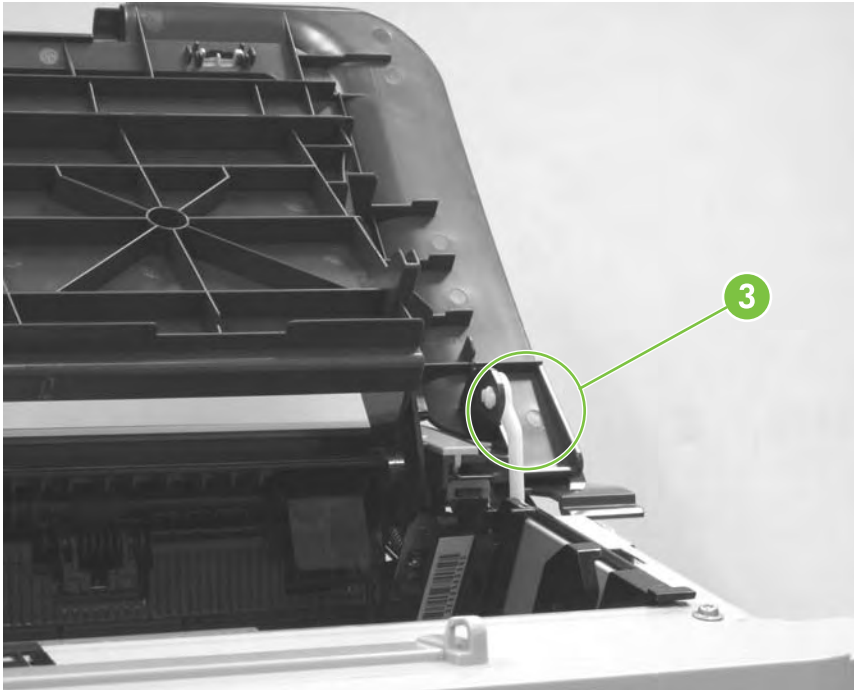
Figure 4-9 Remove top cover and back cover (2 of 4)



6. Remove back cover.

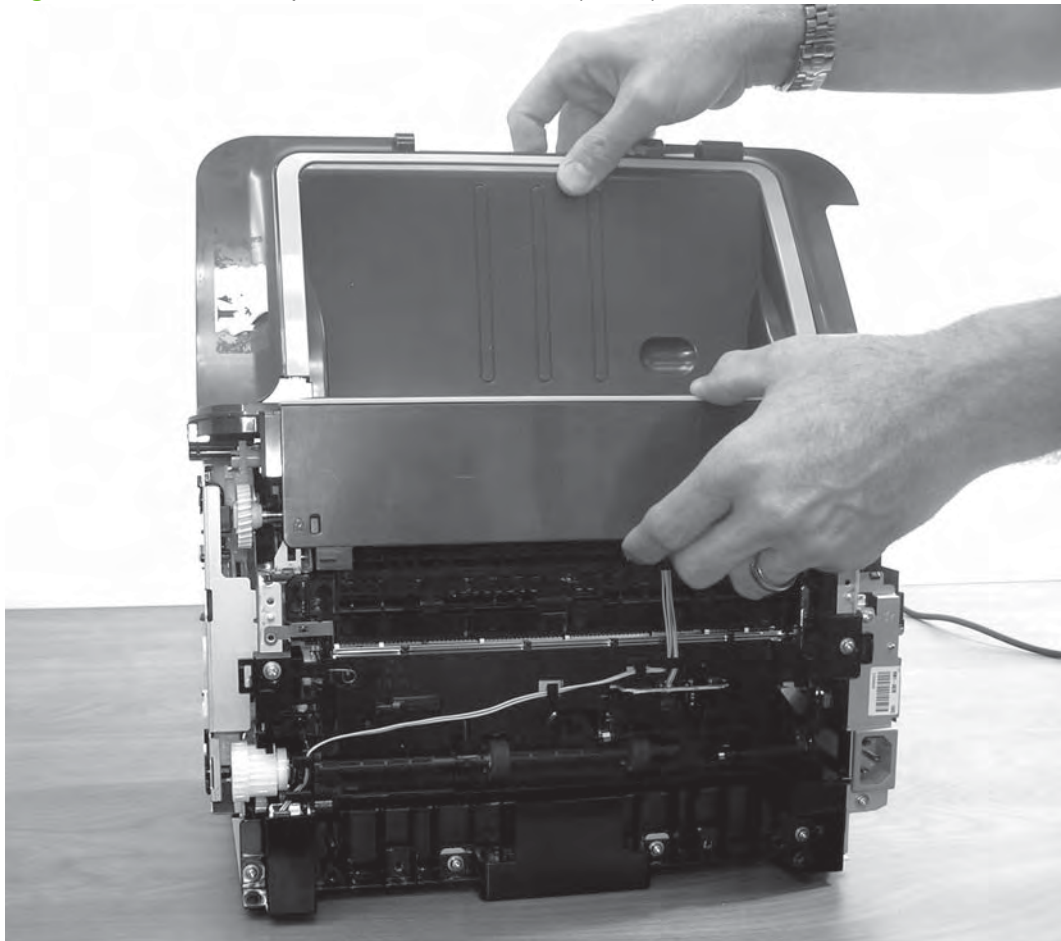
7. Open the top cover and separate the tabs (callout 3) on the right side of the cover.


Figure 4-10 Remove top cover and back cover (3 of 4)



8. Rotate the top cover up and lift it off of the printer.

Figure 4-11 Remove top cover and back cover (4 of 4)

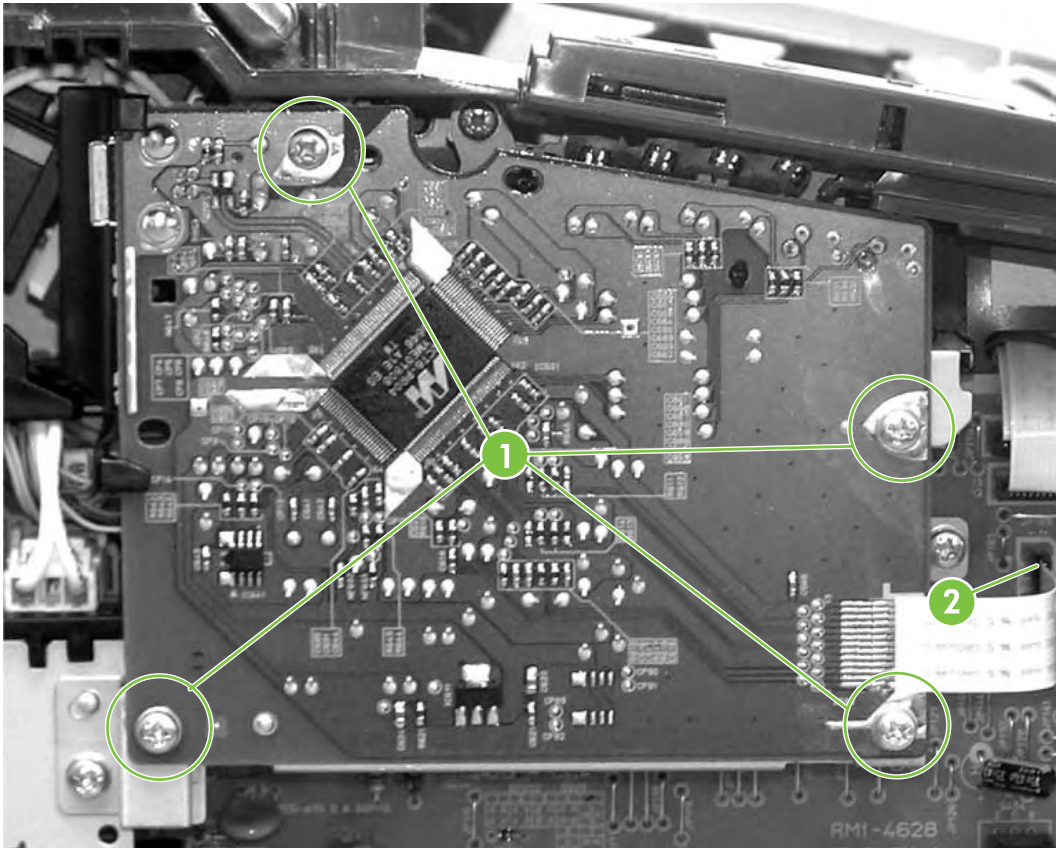


 **NOTE:** There are two link arms that slide through slots in the top cover. They are disengaged when the cover is removed. Be sure to feed the link arms back through the slots when reinstalling the top cover.

Formatter

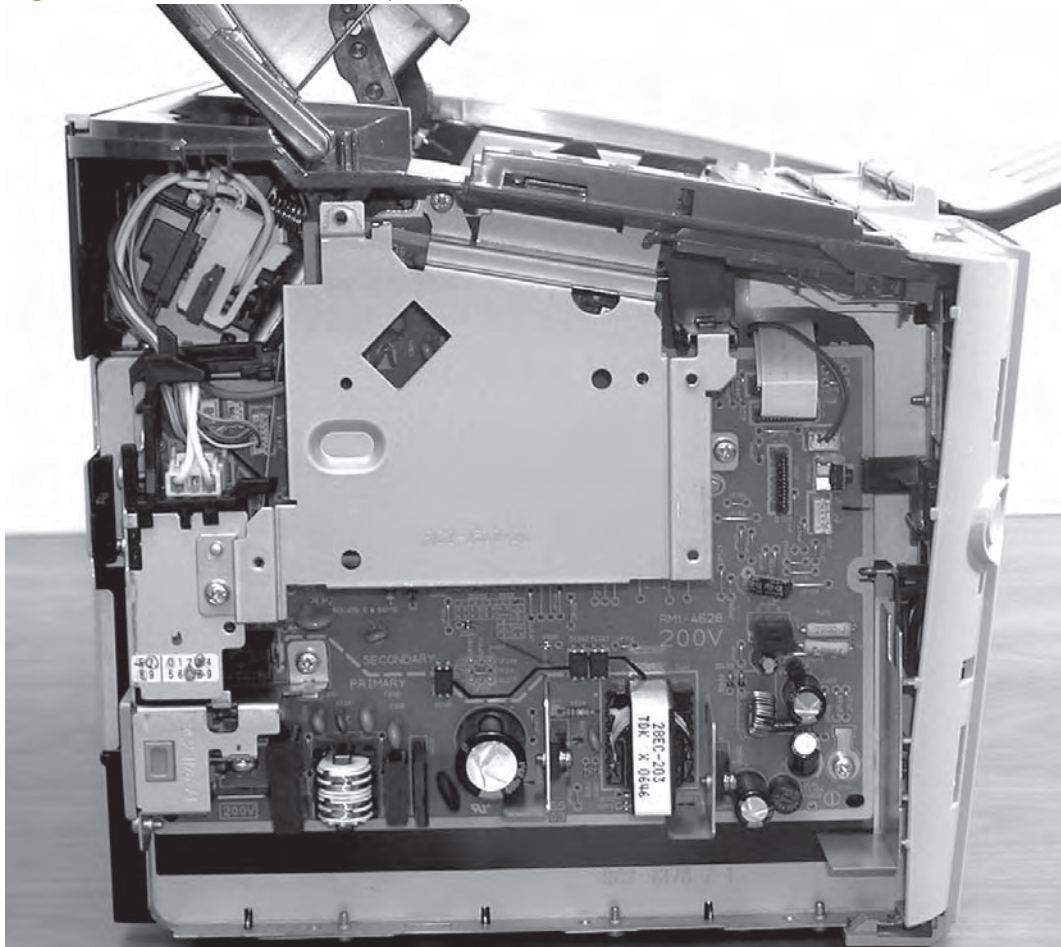
1. Remove the side covers. See [Left cover on page 38](#) and [Right cover on page 40](#).
2. Remove the front cover. See [Front cover on page 42](#).
3. Remove the control panel. See [Control panel on page 42](#).
4. Remove four grounded screws (callout 1) and unplug one cable (callout 2).

Figure 4-12 Remove formatter (1 of 2)



5. Remove the formatter.

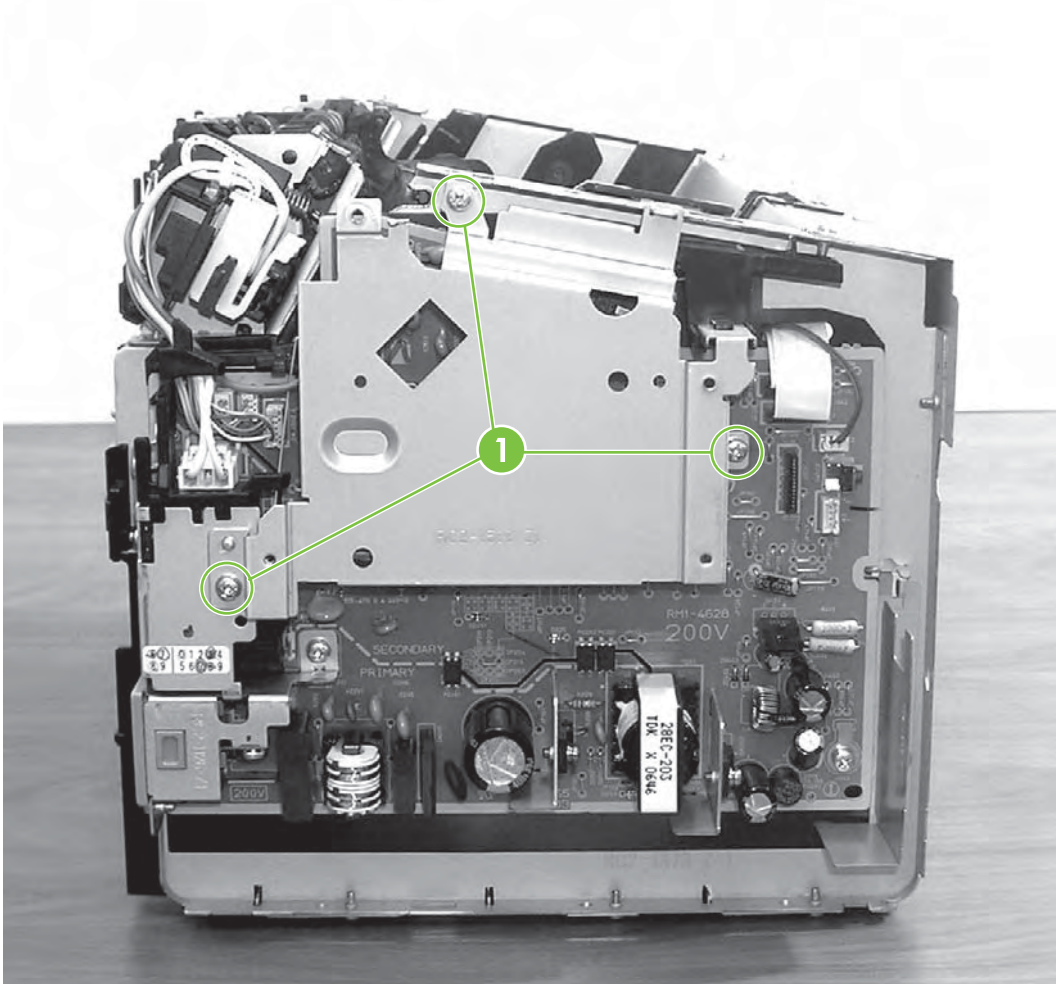
Figure 4-13 Remove formatter (2 of 2)



ECU

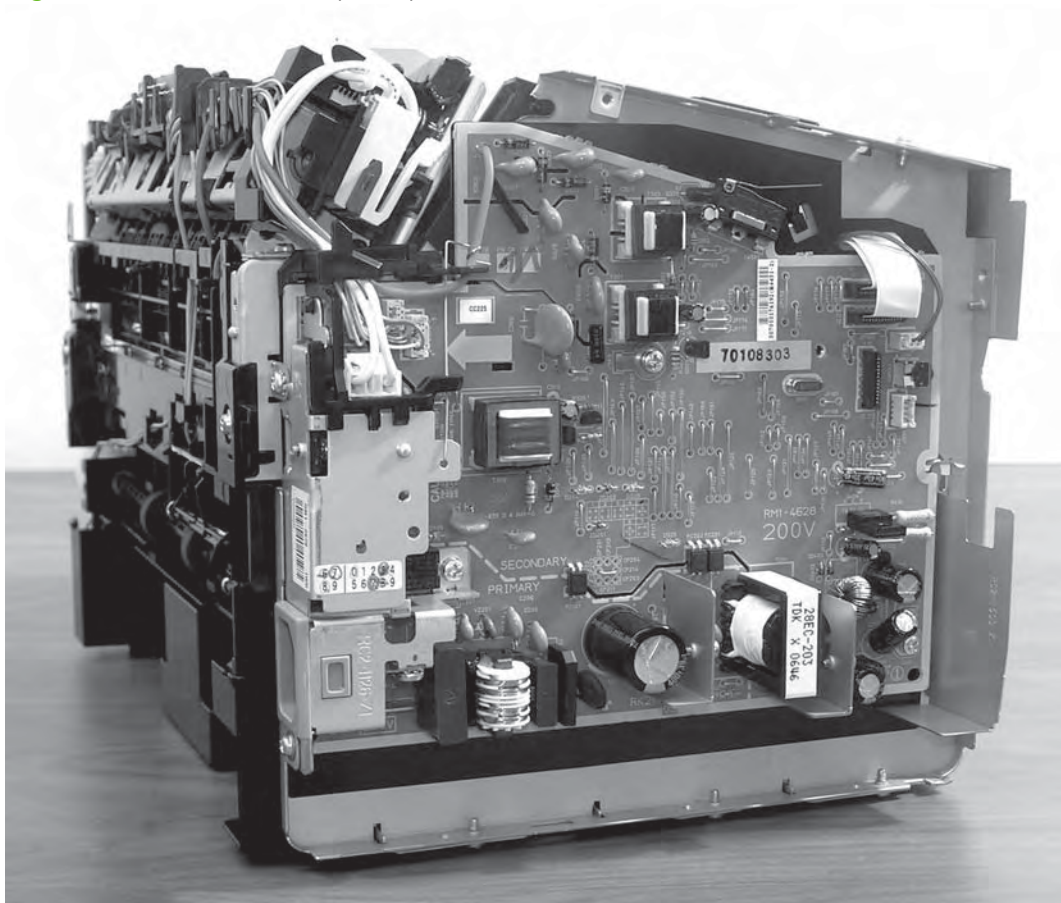
1. Remove the side covers. See [Left cover on page 38](#) and [Right cover on page 40](#).
2. Remove the front cover. See [Front cover on page 42](#).
3. Remove the control panel. See [Control panel on page 42](#).
4. Remove the formatter. See [Formatter on page 48](#).
5. Remove three screws from the formatter mounting bracket (callout 1).

Figure 4-14 Remove ECU (1 of 5)



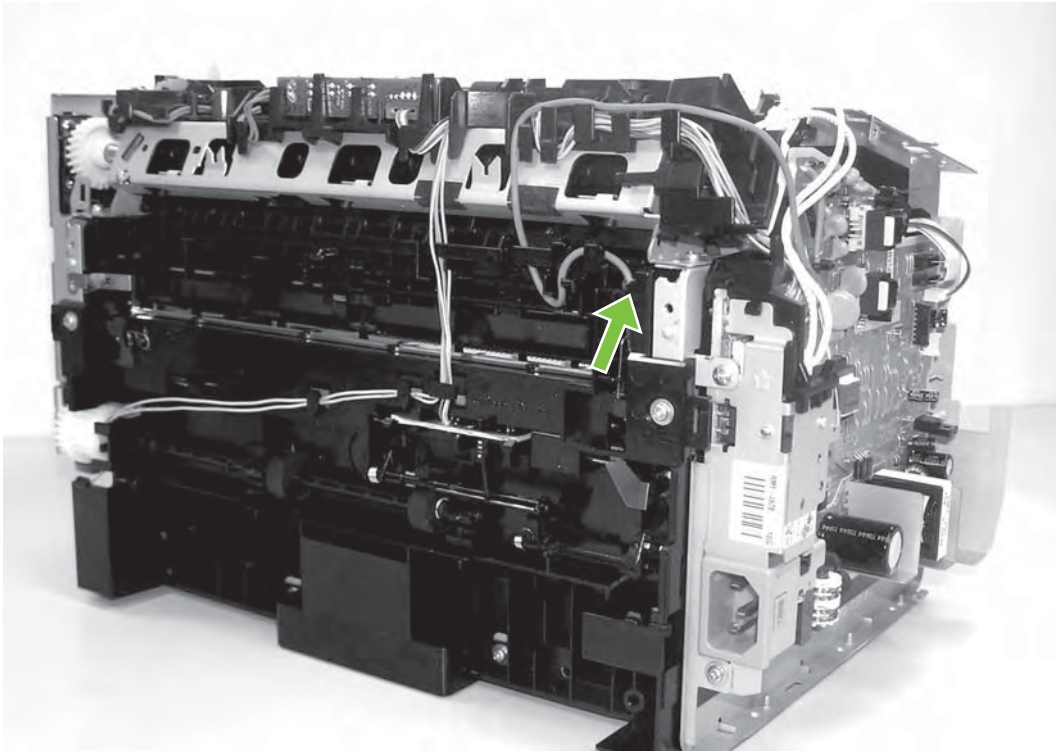
6. Remove the bracket.


Figure 4-15 Remove ECU (2 of 5)



7. Unplug and unthread the grounding cable from the retaining clips.

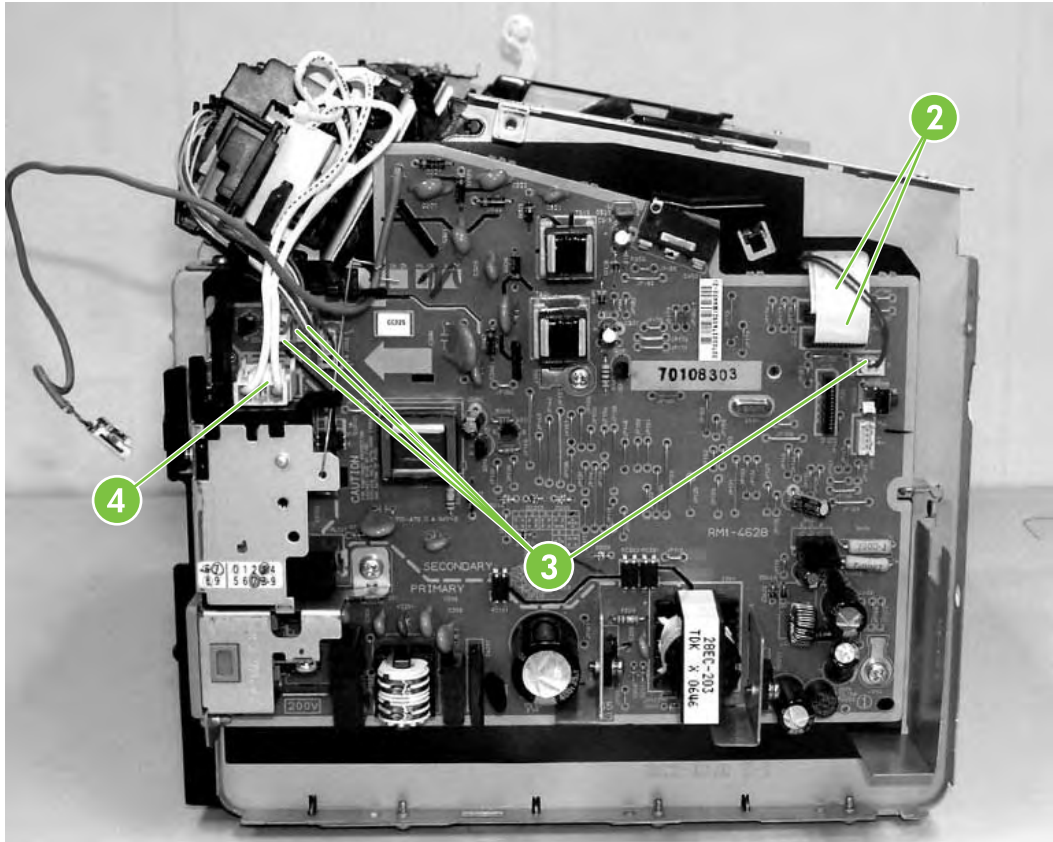
Figure 4-16 Remove ECU (3 of 5)



 **NOTE:** Note the routing of the grounding cable. When the ECU is replaced, the grounding cable must be routed correctly.

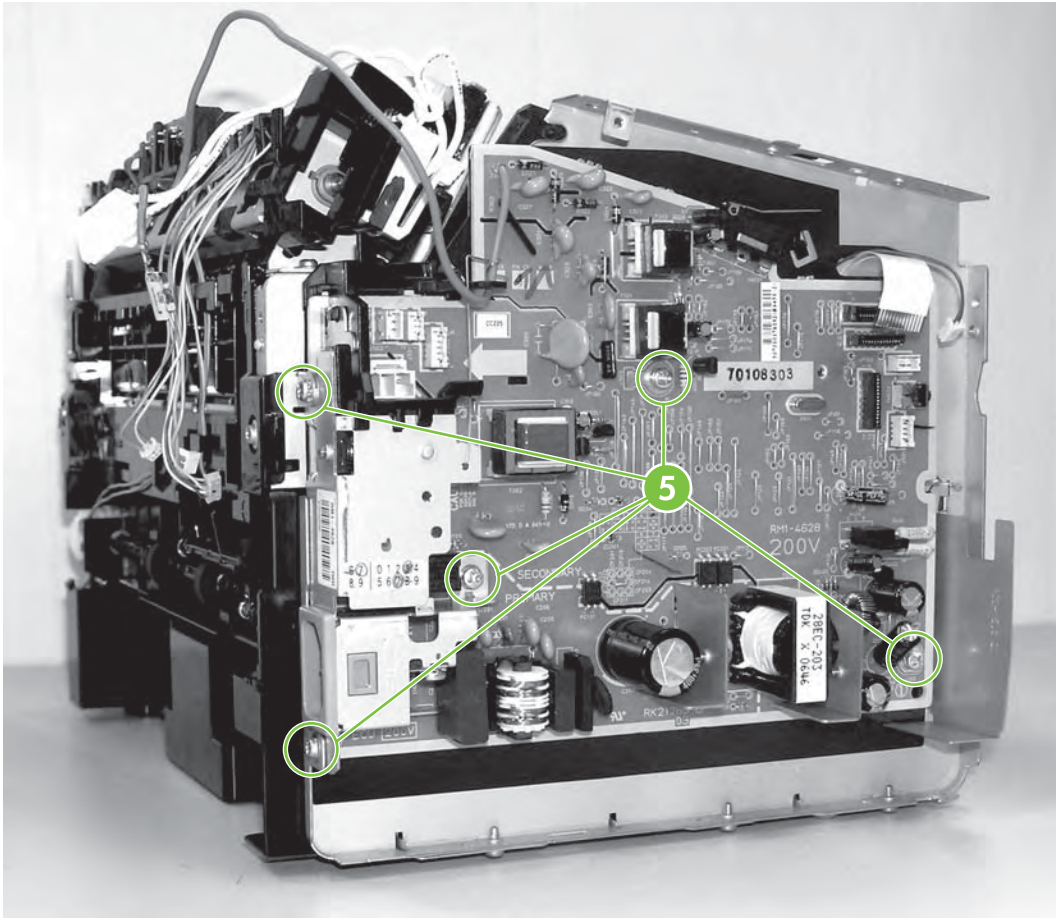
8. Unplug two ribbon cables (callout 2), four small cables (callout 3), and the power connector (callout 4).

Figure 4-17 Remove ECU (4 of 5)



9. Remove five screws (callout 5).

Figure 4-18 Remove ECU (5 of 5)

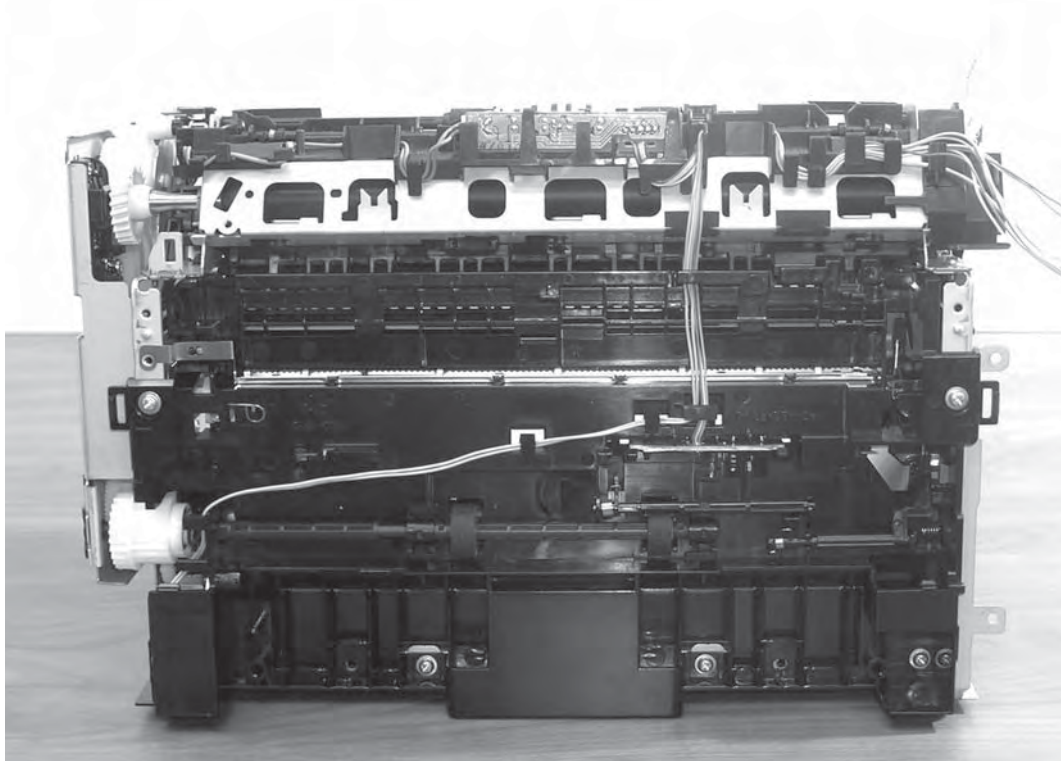


10. Remove the ECU.

Fuser

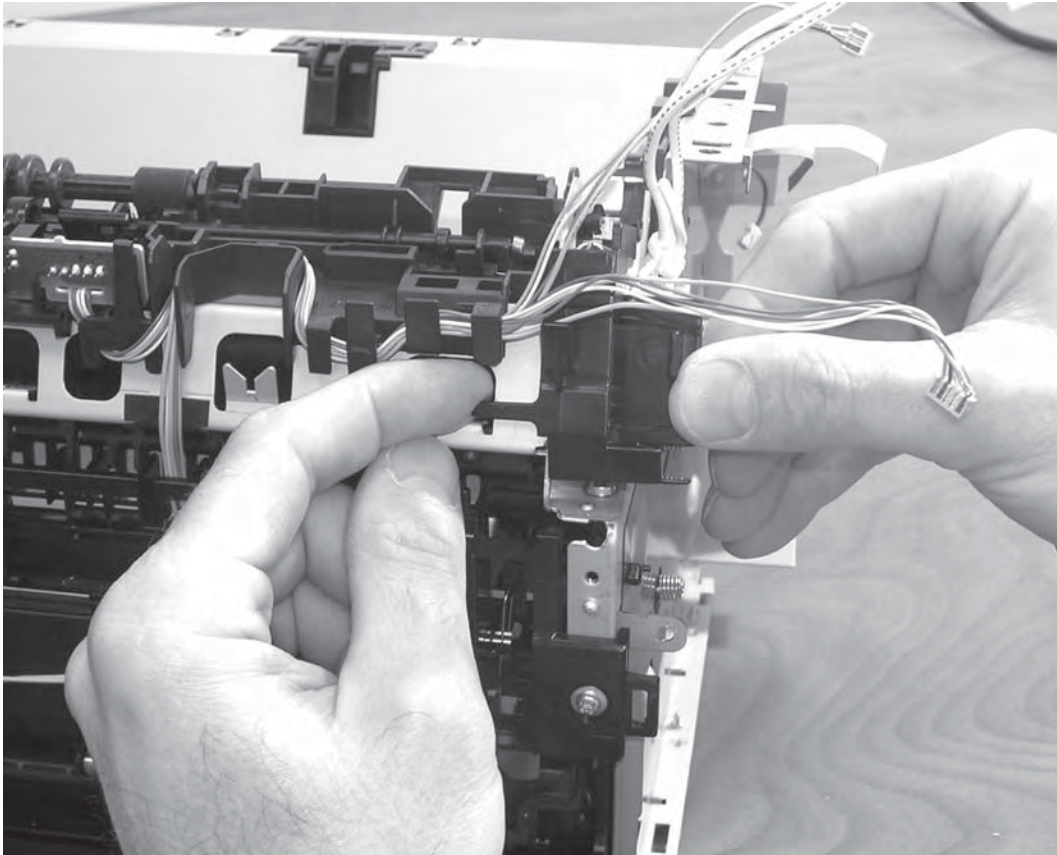
1. Remove the side covers. See [Left cover on page 38](#) and [Right cover on page 40](#).
2. Remove the front cover. See [Front cover on page 42](#).
3. Remove the control panel. See [Control panel on page 42](#).
4. Remove the top cover and the back cover. See [Top cover and back cover on page 43](#).
5. All cables to the ECU must be unplugged. See steps 7 and 8 in [ECU on page 50](#).

Figure 4-19 Remove fuser (1 of 5)



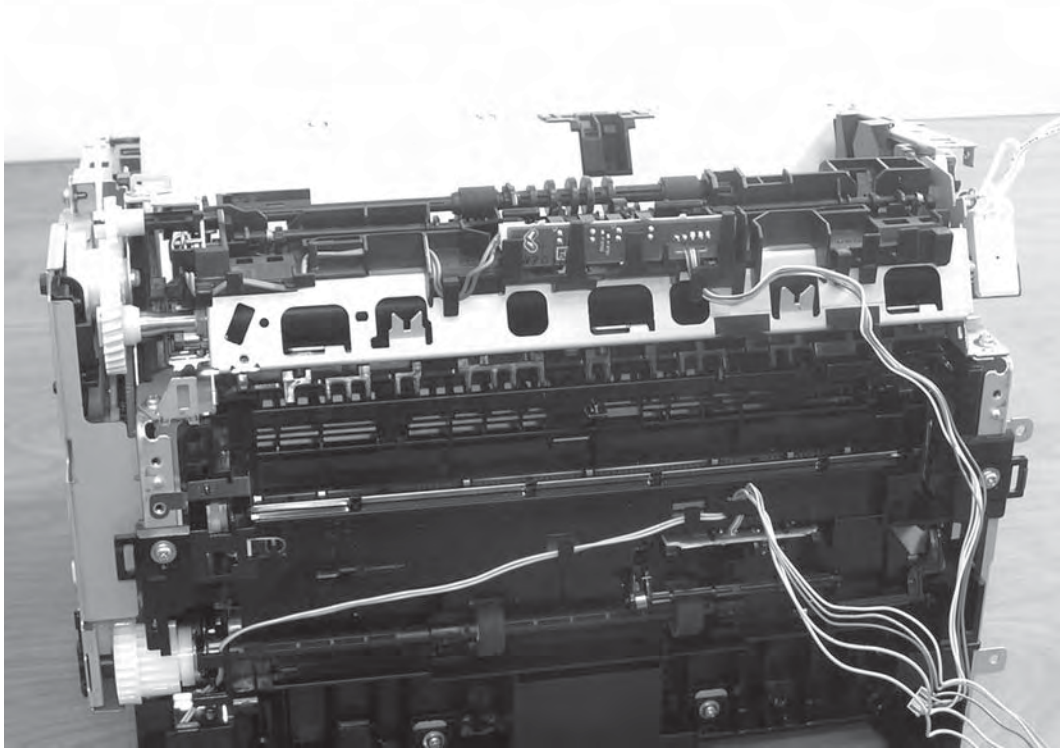
6. Remove plastic bracket from top right edge of printer (near power cable outlet)

Figure 4-20 Remove fuser (2 of 5)



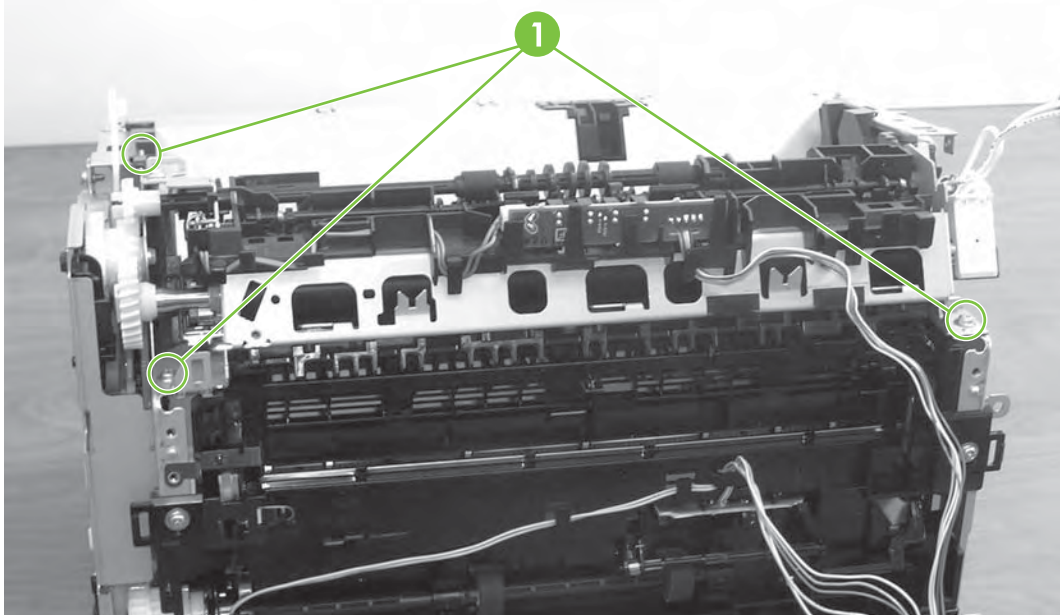
7. Unthread the cables from the ECU

Figure 4-21 Remove fuser (3 of 5)



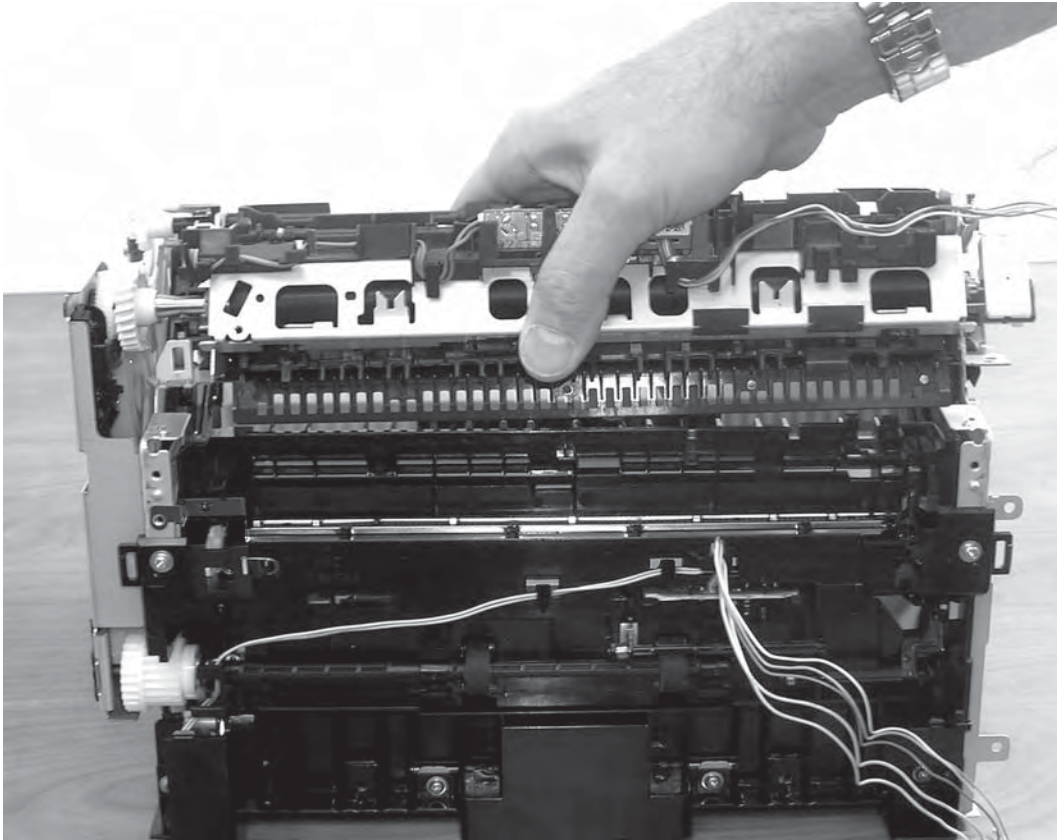
8. Remove three screws (callout 1).

Figure 4-22 Remove fuser (4 of 5)



9. Lift the fuser assembly straight up and out of printer.

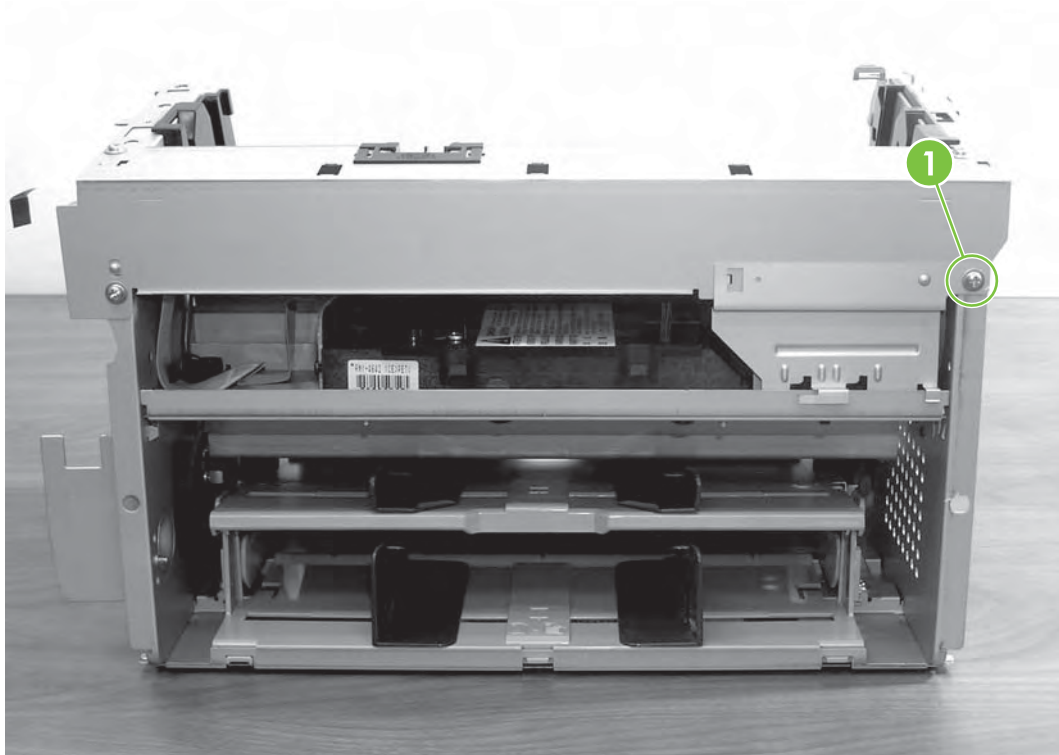
Figure 4-23 Remove fuser (5 of 5)



Laser/scanner

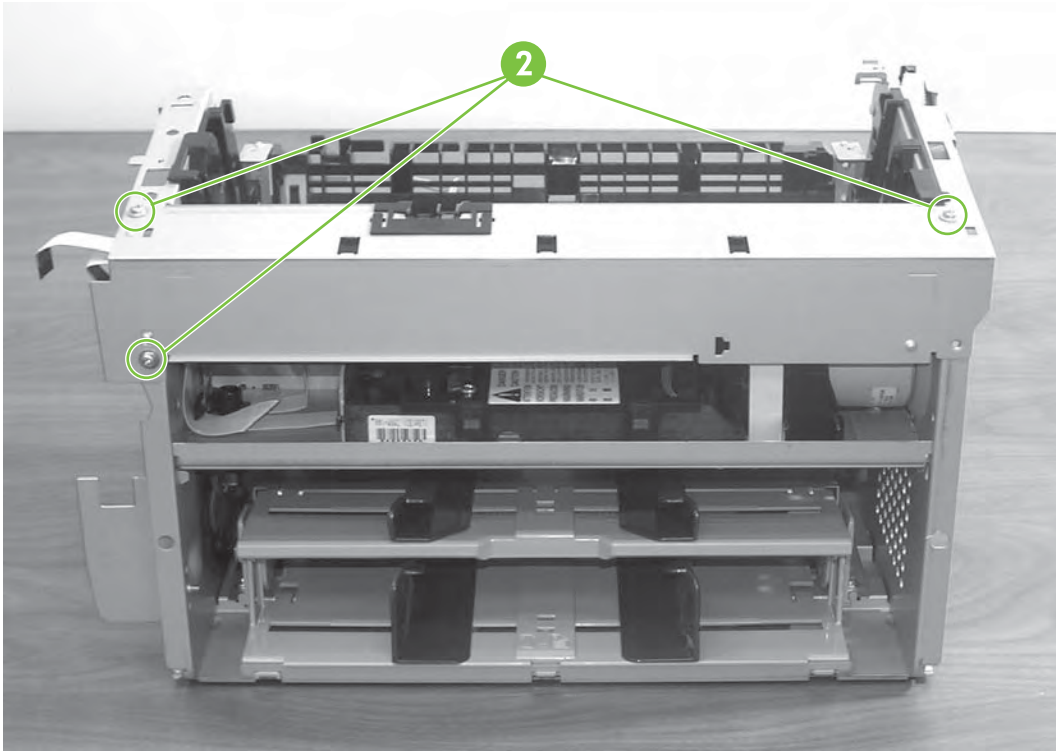
1. Remove the side covers. See [Left cover on page 38](#) and [Right cover on page 40](#).
2. Remove the front cover. See [Front cover on page 42](#).
3. Remove the control panel. See [Control panel on page 42](#).
4. Remove one screw from motor shield plate (callout 1) and remove the plate.

Figure 4-24 Remove laser/scanner (1 of 5)



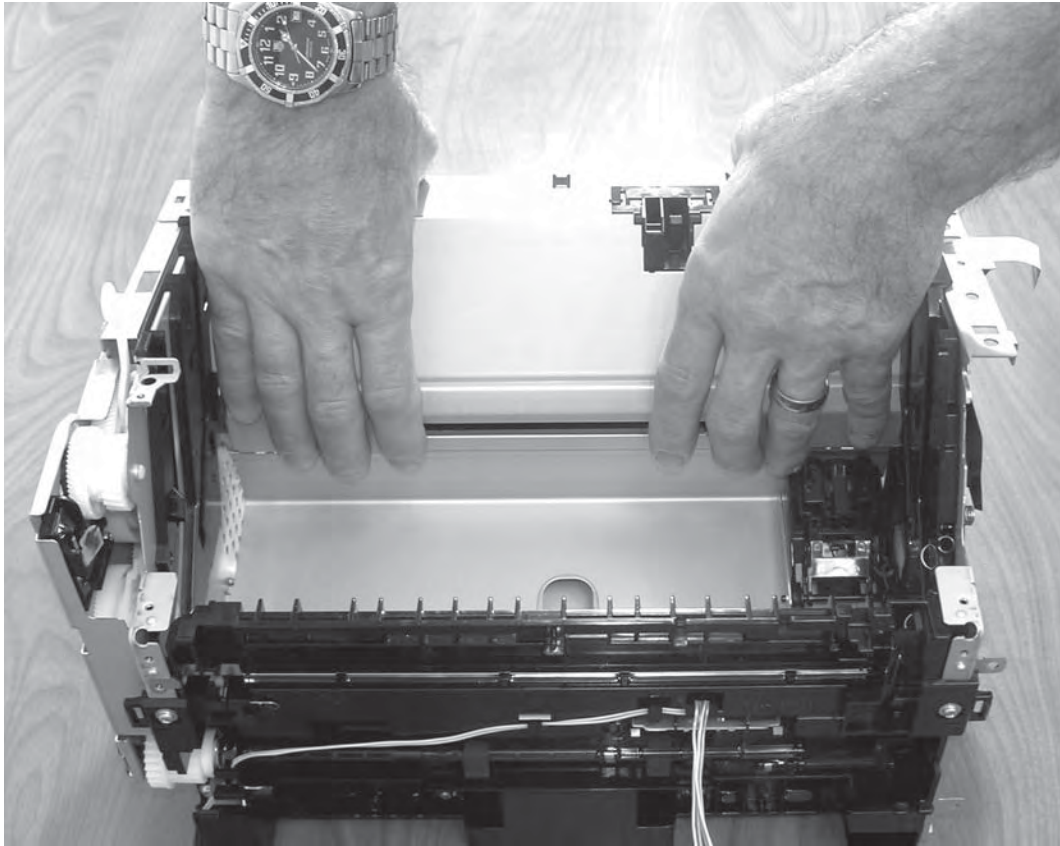
5. Remove three screws from the laser/scanner cover plate (callout 2).


Figure 4-25 Remove laser/scanner (2 of 5)



6. Rotate the cover plate out and remove it.

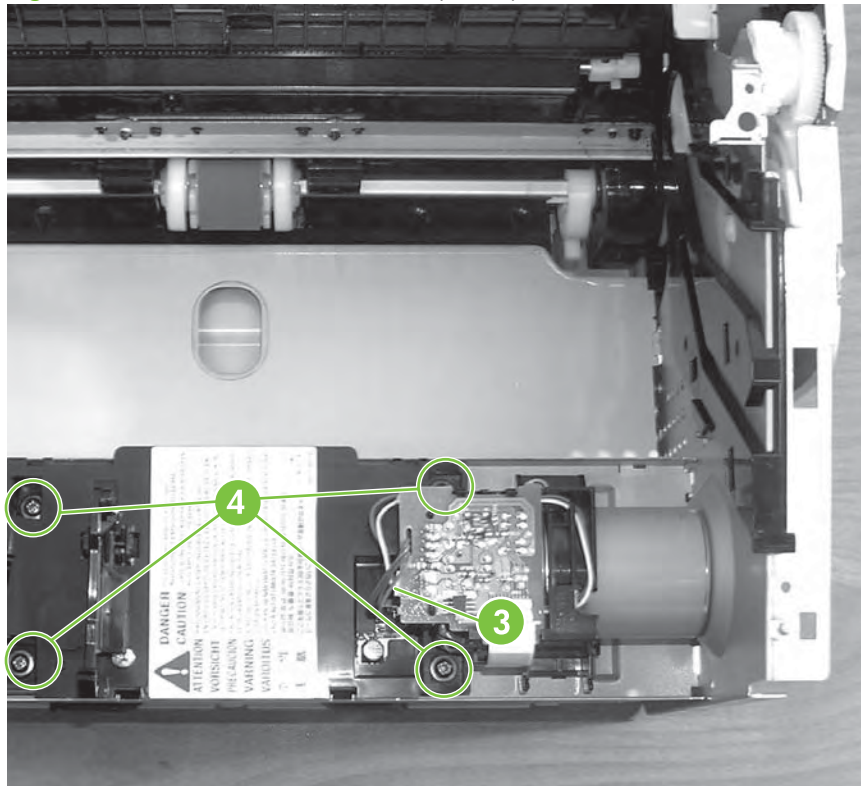
Figure 4-26 Remove laser/scanner (3 of 5)



 **NOTE:** When replacing the laser/scanner cover plate, be sure to feed the laser/shutter lever through the cover before securing it into place

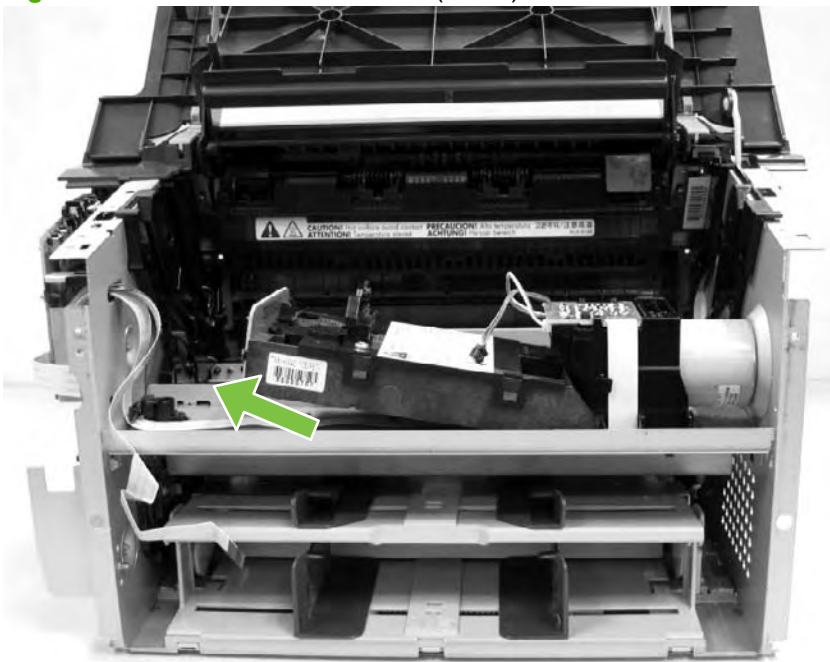
7. Unplug cable from motor (callout 3) and remove four screws (callout 4).

Figure 4-27 Remove laser/scanner (4 of 5)



8. Unplug the ribbon cable from the left side of the laser/scanner.
9. Remove laser/scanner by lifting the left side up first and sliding it out.

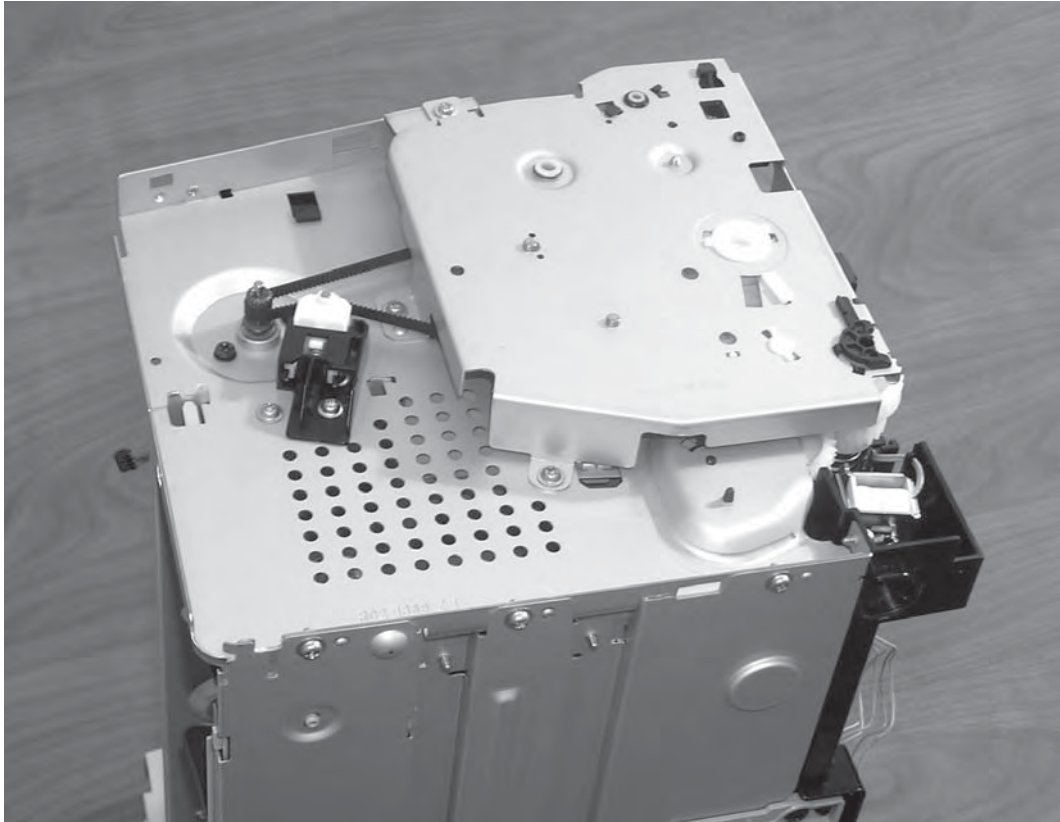
Figure 4-28 Remove laser/scanner (5 of 5)



Drive Belt

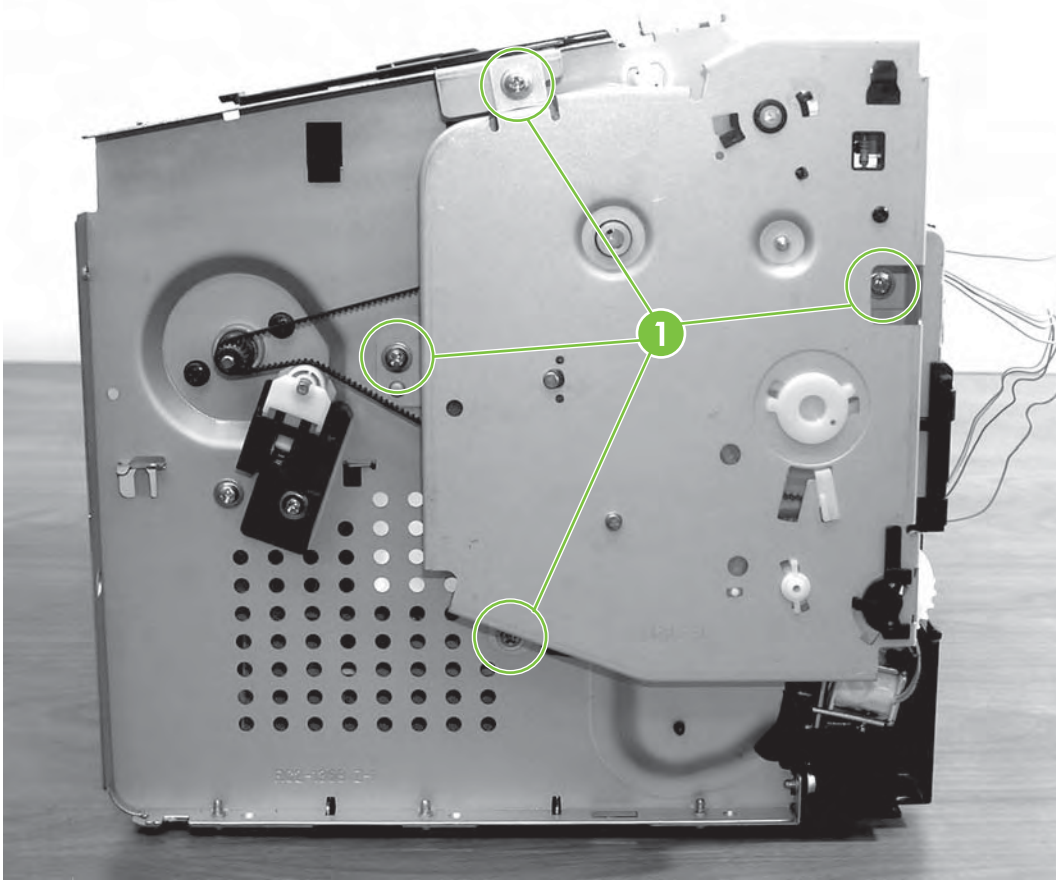
1. Remove the right side cover. See [Right cover on page 40](#).
2. Tip printer up on its left side.

Figure 4-29 Remove drive belt (1 of 5)



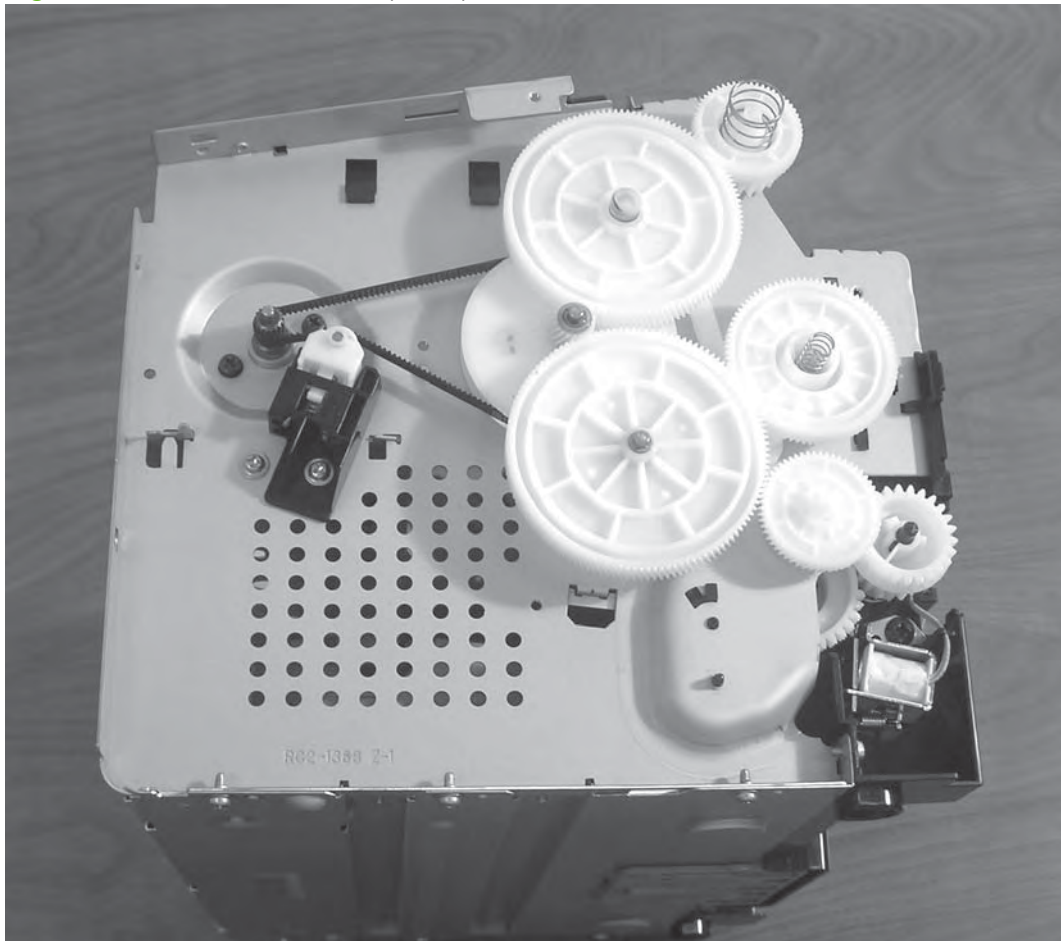
3. Remove four screws from the gear assembly plate (callout 1).

Figure 4-30 Remove drive belt (2 of 5)



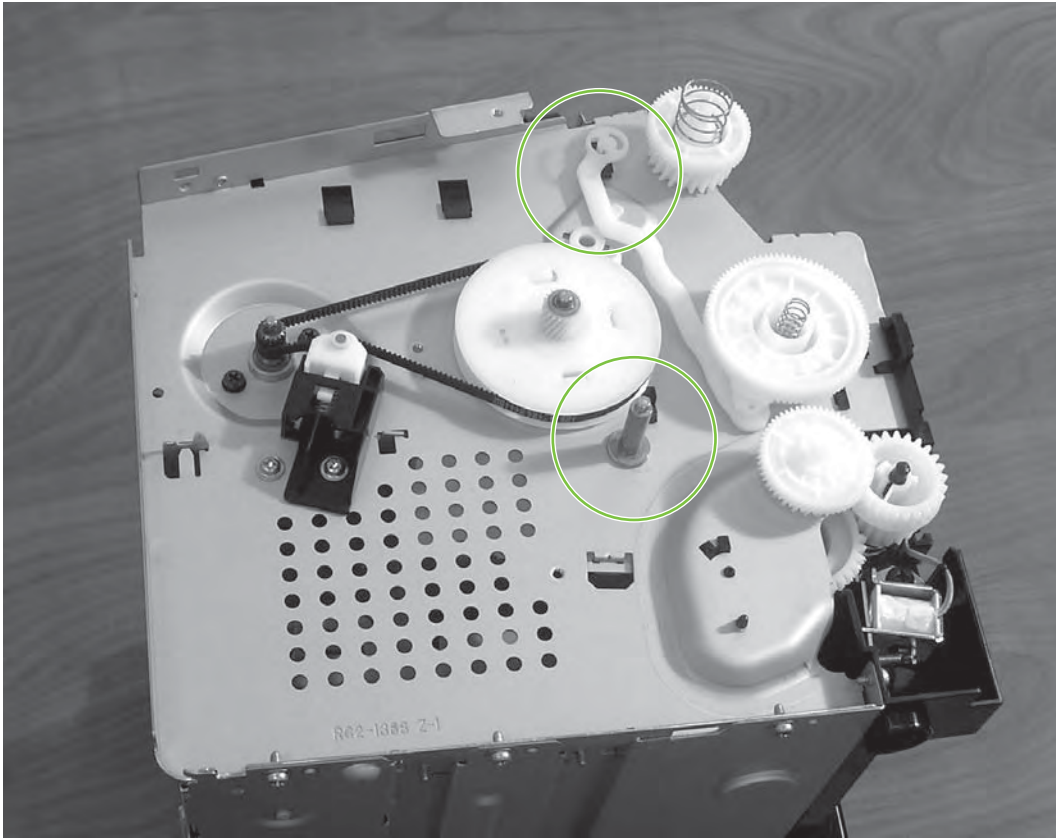
- Carefully lift the plate off. Make sure the two loose springs stay in place.

Figure 4-31 Remove drive belt (3 of 5)



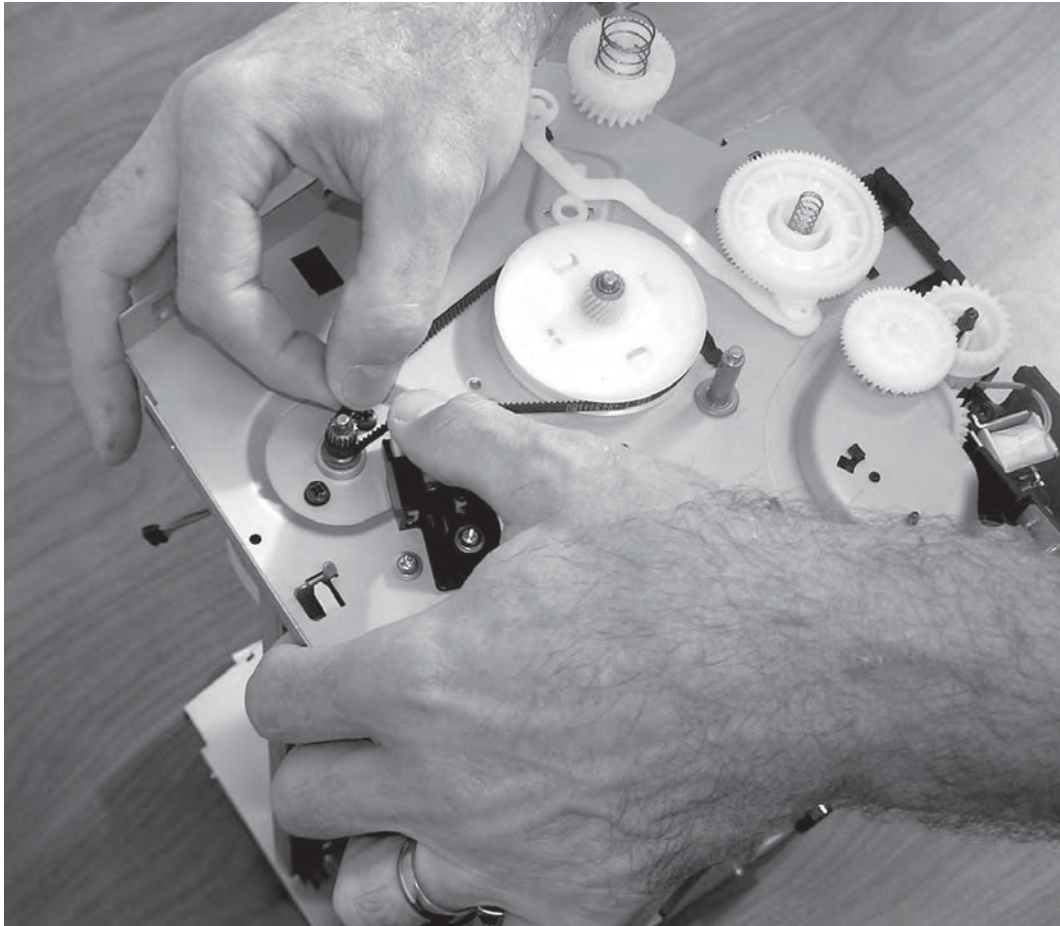
5. Remove two largest adjacent gears.

Figure 4-32 Remove drive belt (4 of 5)



6. Pinch belt guide down and carefully remove drive belt.

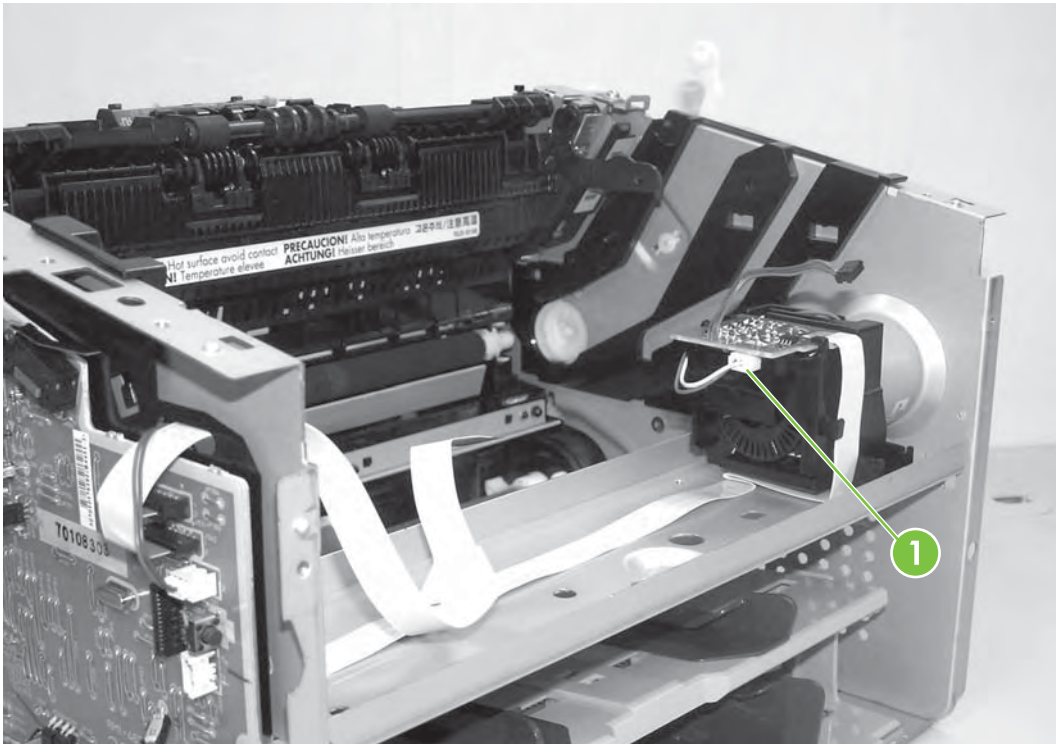
Figure 4-33 Remove drive belt (5 of 5)



Main motor

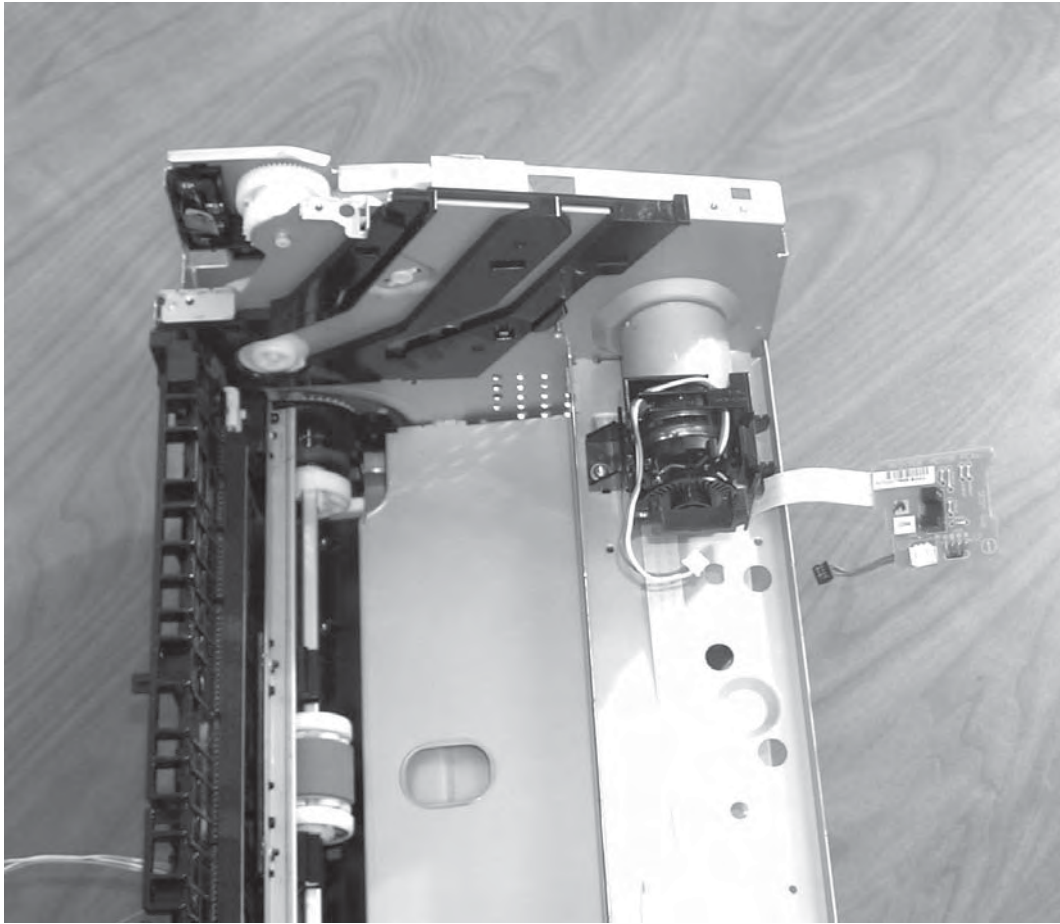
1. Remove the side covers. See [Left cover on page 38](#) and [Right cover on page 40](#).
2. Remove the front cover. See [Front cover on page 42](#).
3. Remove the laser/scanner assembly. See [ECU on page 50](#).
4. Unplug motor control cable (callout 1).

Figure 4-34 Remove main motor (1 of 6)



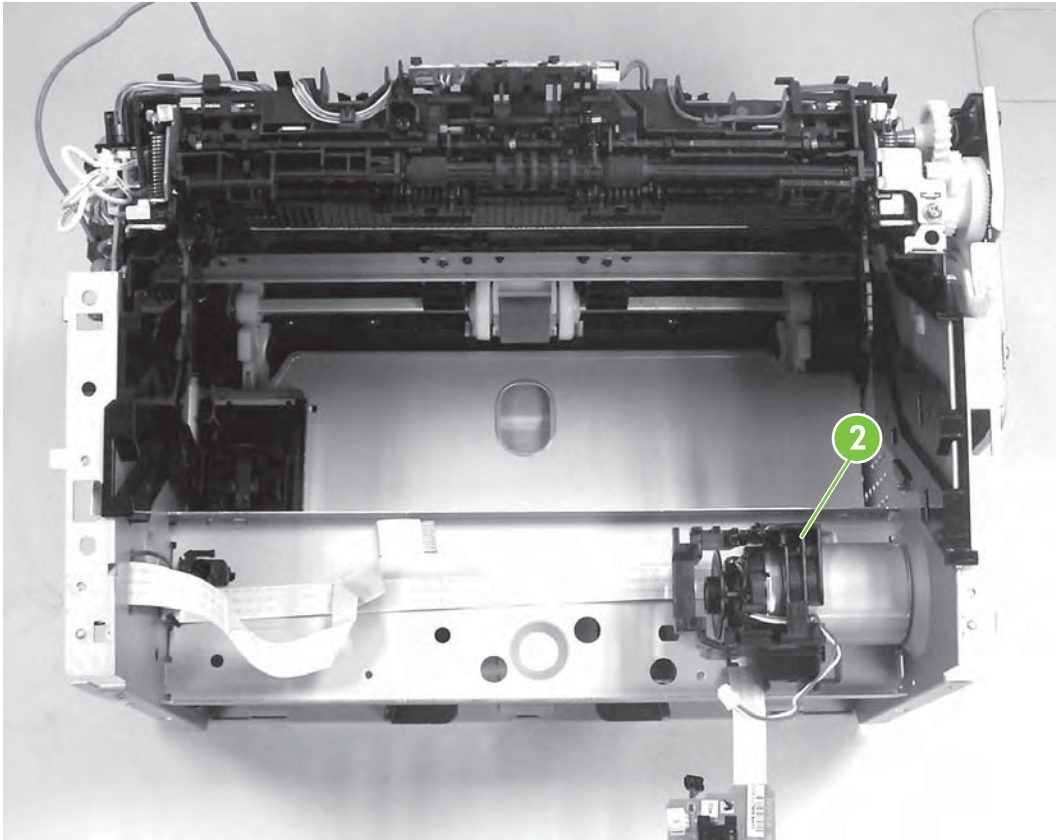
5. Pinch and remove motor-control card (it will hang by a soldered ribbon cable).

Figure 4-35 Remove main motor (2 of 6)



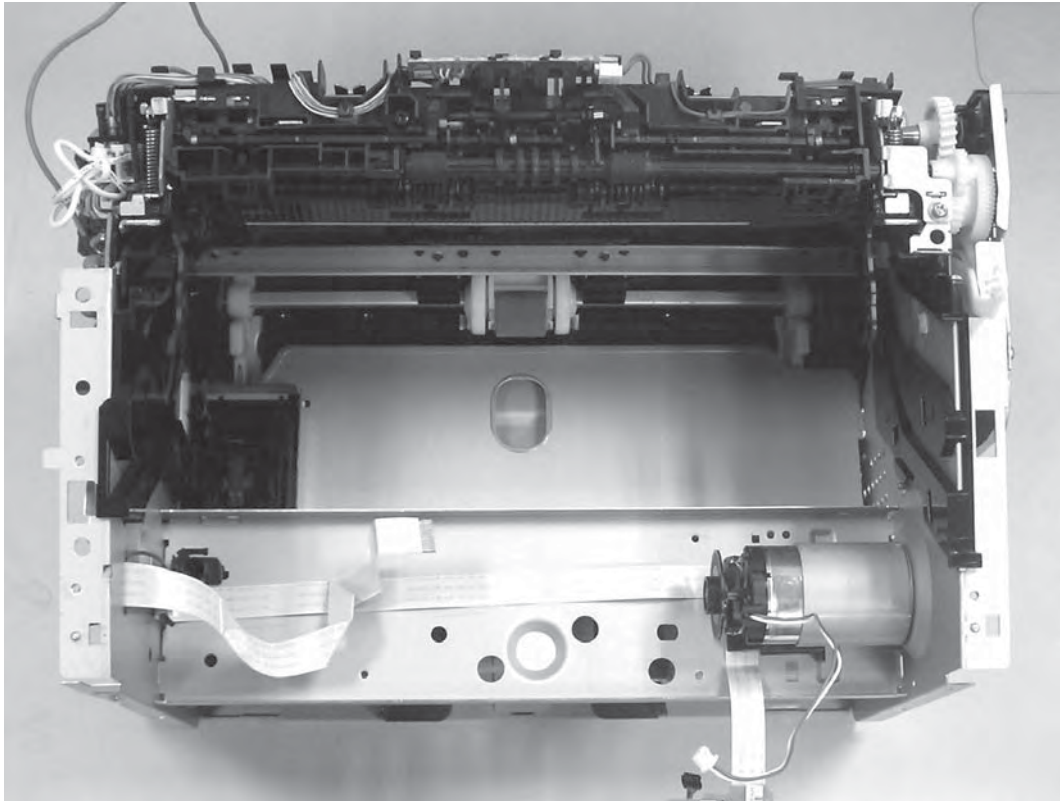
6. Unthread motor control cable from bracket. Remove one screw from the plastic motor bracket (callout 2).

Figure 4-36 Remove main motor (3 of 6)



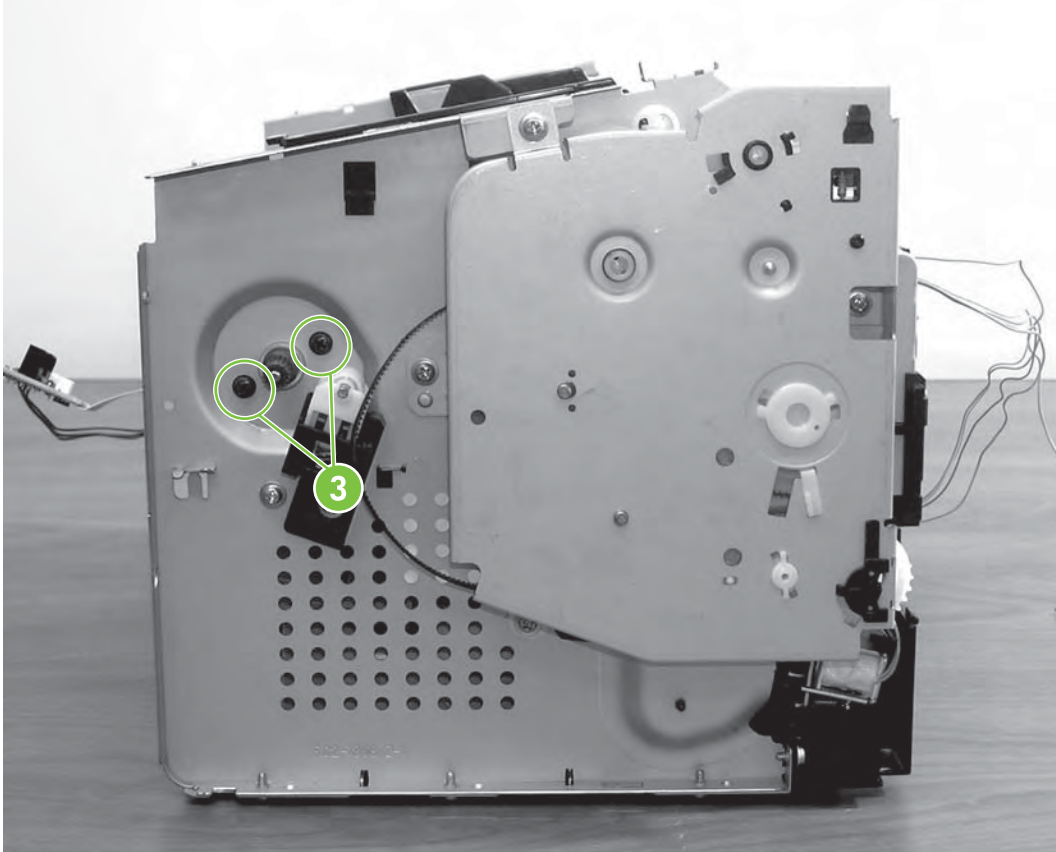
7. Remove the plastic motor bracket.

Figure 4-37 Remove main motor (4 of 6)



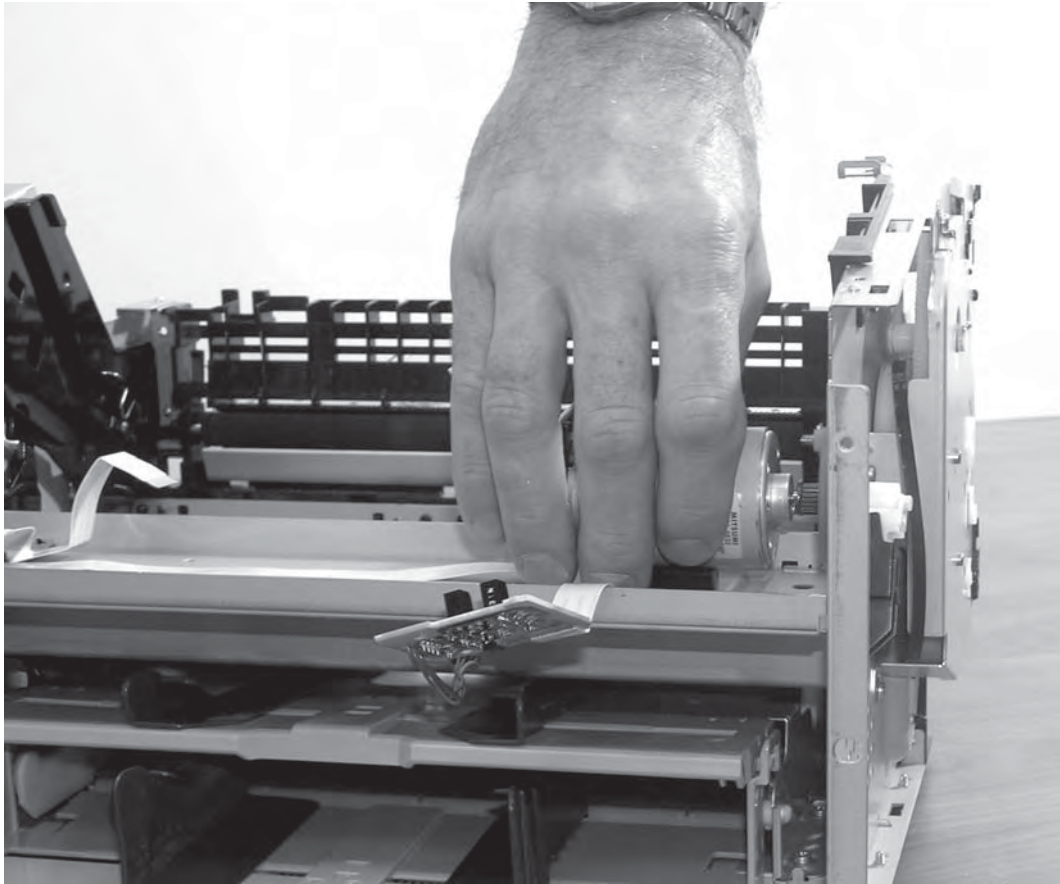
8. Uncouple the drive belt from the side of the printer. Remove two screws from the motor (callout 3). Hold the motor securely while removing the screws to prevent it from falling out.


Figure 4-38 Remove main motor (5 of 6)



9. Remove the motor.

Figure 4-39 Remove main motor (6 of 6)



 **NOTE:** When replacing the motor, make sure the wires on the motor are facing up.

5 Problem solving

- [Problem-solving checklist](#)
- [Status-light patterns](#)
- [Clearing jams](#)
- [Improve print quality](#)
- [Media problem-solving](#)
- [Printed page is different from what appeared on screen](#)
- [Printer software problems](#)
- [Common Macintosh problems](#)
- [Network-setup problem-solving](#)

Problem-solving checklist

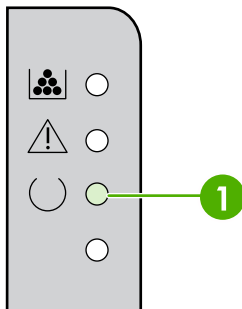
Step 1: Is the device set up correctly?

- Is the device plugged into a power outlet that is known to work?
- Is the on/off button in the on position?
- Is the print cartridge properly installed? See [Replace the print cartridge on page 6](#).
- Is paper properly loaded in the input tray?

Yes	If you answered yes to the questions above, go to Step 2: Is the Ready light on? on page 76
No	If the device will not turn on, Contact HP support on page 77 .

Step 2: Is the Ready light on?

Verify that the Ready light (1) is illuminated on the control panel.



Yes	Go to Step 3: Can you print a configuration page? on page 76
No	If the control panel lights do not look like the picture above, see Status-light patterns on page 78 . If you are unable to resolve the problem, Contact HP support on page 77 .

Step 3: Can you print a configuration page?

To print a configuration page, do one of the following:

- Press the **Go** button when the device Ready light is on and no other jobs are printing (HP LaserJet P1500 Series only).
- Select it from the **Print Information Pages** drop-down on the **Services** tab in **Printer Preferences**.

Yes	If the configuration page printed, go to Step 4: Is the print quality acceptable? on page 77
No	If no paper came out, see Media problem-solving on page 88 . If you are unable to resolve the problem, Contact HP support on page 77 .

Step 4: Is the print quality acceptable?

Yes	If the print quality is acceptable, go to Step 5: Is the device communicating with the computer? on page 77
No	If the print quality is poor, see Improve print quality on page 84 . Verify that the print settings are correct for the media you are using. If you are unable to resolve the problem, Contact HP support on page 77 .

Step 5: Is the device communicating with the computer?

Try printing a document from a software application.

Yes	If the document prints, go to Step 6: Does the printed page look like you expected? on page 77
No	If the document does not print, see Printer software problems on page 91 . If you are using a Macintosh computer, see Common Macintosh problems on page 92 . If you are unable to resolve the problem, Contact HP support on page 77 .

Step 6: Does the printed page look like you expected?

Yes	The problem should be resolved. If it is not resolved, Printed page is different from what appeared on screen on page 89 .
No	If you are unable to resolve the problem, Contact HP support on page 77 .

Contact HP support

- In the United States, see <http://www.hp.com/support/ljp1500> for the HP LaserJet P1500 Series.
- In other locations, see <http://www.hp.com/>.

Status-light patterns

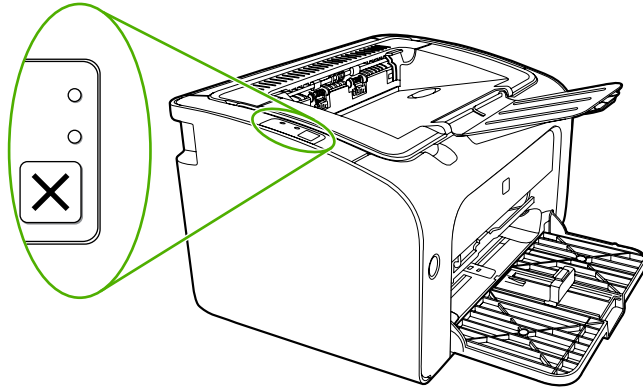


Table 5-1 Status-light legend

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

NOTE: When the device displays any status light errors, check the computer for any additional error messages that may have appeared. These messages may provide additional information on the status of the device.

Table 5-2 Control-panel light messages

HP LaserJet P1500 Series light status	State of the device	Action
	<p>Initialization/Startup</p> <p>While in the Startup state, the Go, Ready, and Attention lights cycle (at the rate of 500 ms) one after another.</p>	<p>During the Initialization and Job Cancel processes, pressing buttons has no effect.</p>
	<p>Reconfiguration Initialization: During the device start up, you can request special initialization sequences that reconfigure the device. The lights then cycle as in the Initialization Startup state.</p>	
	<p>Job Cancel</p> <p>After the cancellation process is complete, the device returns to the Ready state.</p>	

Table 5-2 Control-panel light messages (continued)

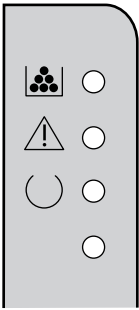
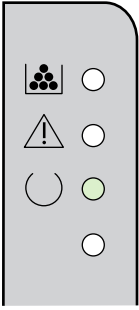
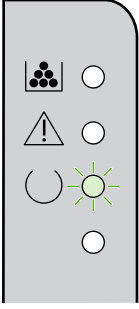
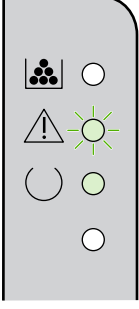
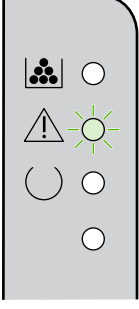
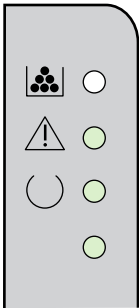
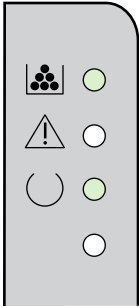
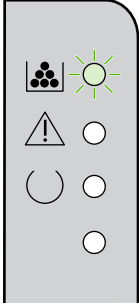
HP LaserJet P1500 Series light status	State of the device	Action
	<p>Blank Display</p>	<p>Verify the formatter connection to the Engine Controller PCA is seated and secure (J531).</p>
	<p>Ready</p> <p>The device is ready with no job activity.</p>	<p>To print a Configuration page, press and release the Go button.</p>
	<p>Processing Data</p> <p>The device is processing or receiving data.</p>	<p>To cancel the current job, press the Cancel button.</p>
	<p>Manual Feed or Continuable Error</p> <p>This state occurs in the following circumstances:</p> <ul style="list-style-type: none"> • Manual feed • General continuable error 	<p>To recover from the error and print the available data, press the Go button.</p> <p>If the recovery is successful, the device continues to the Processing Data state and completes the job.</p> <p>If the recovery is unsuccessful, the device continues to the Continuable Error state. Try removing any media from the media path and cycling the device power.</p>
	<p>Attention</p> <ul style="list-style-type: none"> • Print-cartridge door is open • Paper jam • Paper out 	<p>Close the print-cartridge door, remove the paper jam, install the cartridge, or add paper.</p>

Table 5-2 Control-panel light messages (continued)


HP LaserJet P1500 Series light status	State of the device	Action
	<p>Fatal Error</p> <p>The device has encountered a non-recoverable error.</p>	<ul style="list-style-type: none"> ● Turn off the device, wait 10 seconds, and turn on the device. ● Verify that all connectors to the Engine Controller PCB are securely seated. ● Verify that the motor rotates for approximately six seconds during power up. <ul style="list-style-type: none"> ○ If the motor does not rotate during power up, check all motor drive PCB connections. ○ If the motor only rotates for approximately three seconds, check the laser/scanner unit connections. ○ If the motor runs for 30 or more seconds during power up, verify all connections in the fusing assembly circuitry are connected correctly. ● If you cannot resolve the problem, see HP Customer Care on page 118.
	<p>Toner Low</p> <p>The Go, Ready, and Attention lights act independently of the Toner Low state (HP LaserJet P1500 Series only).</p>	<p>Order a new print cartridge and have it ready.</p>
	<p>Toner Missing</p> <p>The print cartridge has been removed from the device (HP LaserJet P1500 Series only).</p>	<p>Reinsert the print cartridge in the device.</p>

Clearing jams

Occasionally, media becomes jammed during a print job. You are notified through the control panel lights.

The following are some of the causes of jams:

- The input trays are loaded incorrectly or are too full.

 **NOTE:** When you add new media, always remove all of the media from the input tray and straighten the entire stack. This helps prevent multiple feeds and reduces media jams.


- The media does not meet HP specifications.
- The device might need to be cleaned to remove paper dust and other particles from the paper path.

Loose toner might remain in the device after a media jam. This toner clears up after a few sheets print.

△ **CAUTION:** If you get any toner on your clothes, wash them in cold water. *Hot water will permanently set the toner into the fabric.*

Typical media jam locations

- **Print cartridge area:** See [Removing a jammed page on page 81](#).
- **Input tray areas:** If the page is still sticking out of the input tray, gently try to remove it from the input tray without tearing the page. If you feel resistance, see [Removing a jammed page on page 81](#).
- **Output path:** If the page is sticking out of the output bin, see [Removing a jammed page on page 81](#).

 **NOTE:** Loose toner might remain in the device after a media jam. This toner clears up after a few sheets are printed.

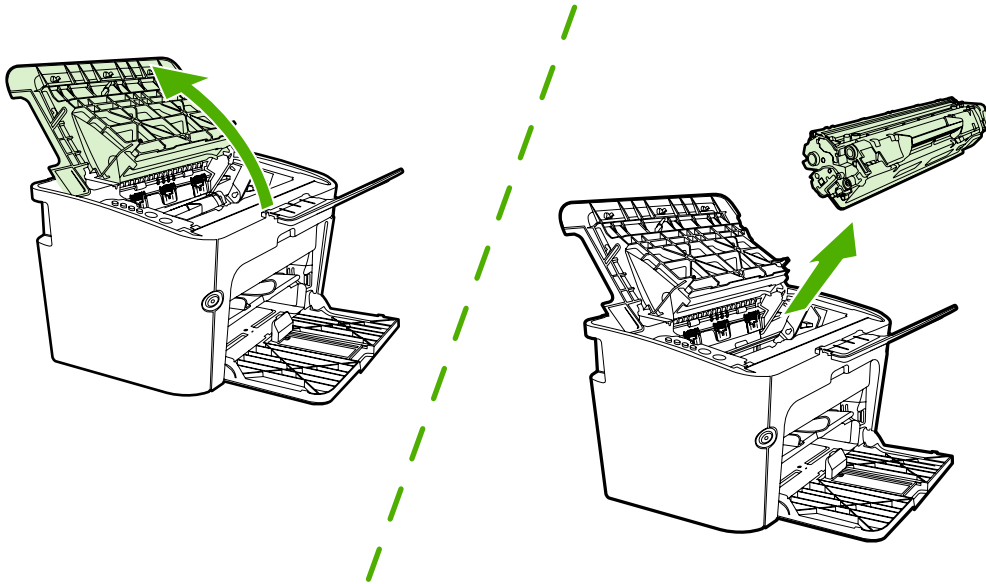
Removing a jammed page

△ **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 will permanently set the toner into the fabric.*

To clear a jam in the print-cartridge area

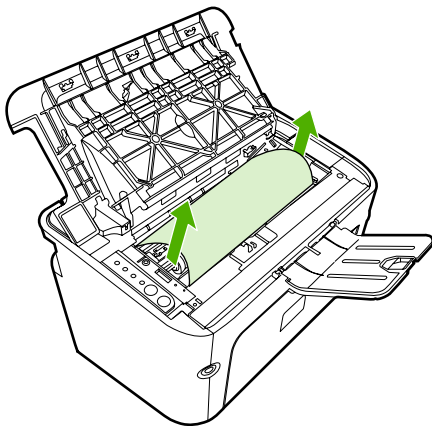
△ **CAUTION:** Do not use sharp objects, such as tweezers or needle-nose pliers, to remove jams. Damage they cause is not covered by the warranty.

1. Open the print-cartridge door, and then remove the print cartridge from the device.

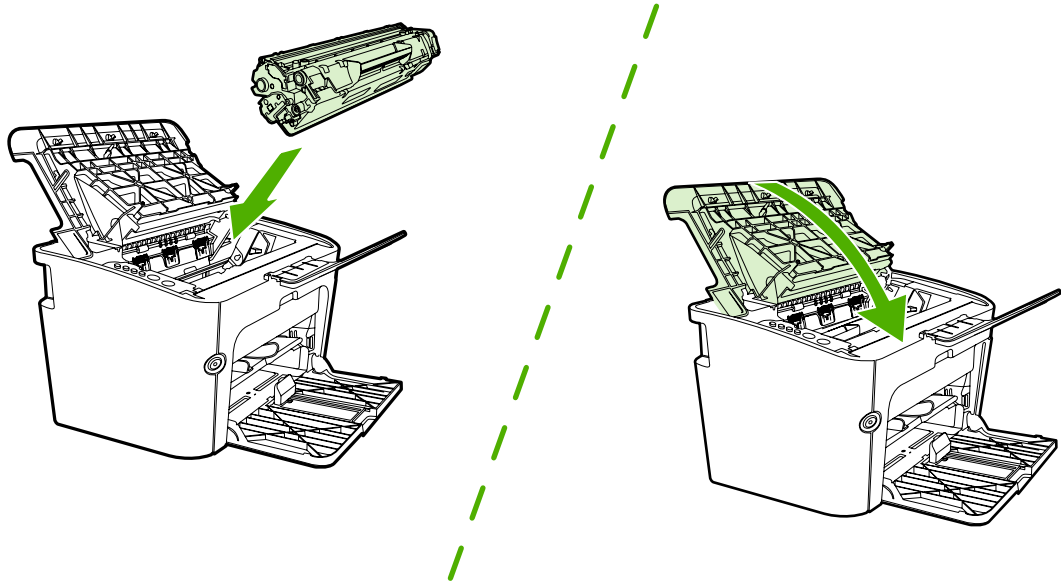



△ **CAUTION:** To prevent damage to the print cartridge, minimize its exposure to direct light.

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




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



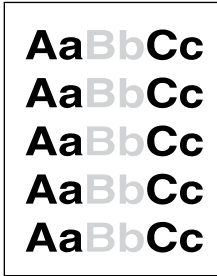
 **NOTE:** When you add new media, remove all the media from the input tray and straighten the entire stack.

Improve print quality

This section provides information about identifying and correcting print defects.

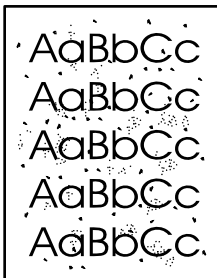
 **NOTE:** If these steps do not correct the problem, contact an HP-authorized dealer or service representative.

Light print or faded



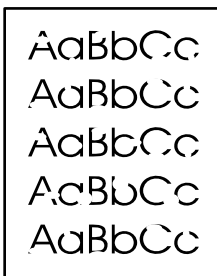
- The print cartridge is nearing end of life.
- The media might not meet Hewlett-Packard's media specifications (for example, the media is too moist or too rough).
- If the whole page is light, the print density adjustment is too light or EconoMode might be turned on. Adjust the print density, and disable EconoMode in the printer Properties.

Toner specks



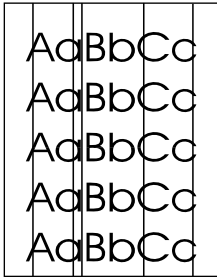
- The media might not meet Hewlett-Packard's media specifications (for example, the media is too moist or too rough).
- The device might need to be cleaned. See [Clean the device on page 13](#)

Dropouts



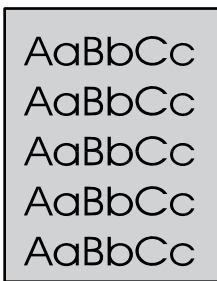
- A single sheet of media might be defective. Try reprinting the job.
- The media moisture content is uneven or the media has moist spots on its surface. Try printing with new media.
- The media lot is bad. The manufacturing processes can cause some areas to reject toner. Try a different type or brand of media.
- The print cartridge might be defective.

Vertical lines



The photosensitive drum inside the print cartridge has probably been scratched. Install a new HP print cartridge. See [Replace the print cartridge on page 6](#).

Gray background



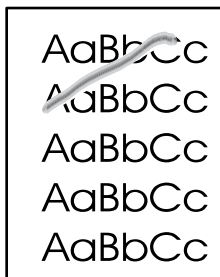
- Make sure that tray 1 is in place.
 - Decrease the print density setting through the embedded Web server. This decreases the amount of background shading.
 - Change the media to a lighter basis weight.
 - Check the device environment. Very dry (low humidity) conditions can increase the amount of background shading.
 - Install a new HP print cartridge. See [Replace the print cartridge on page 6](#).
-

Toner smear



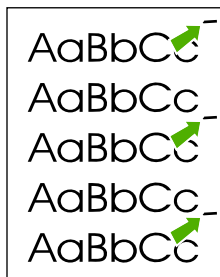
- If toner smears appear on the leading edge of the media, the media guides might be dirty. Wipe the media guides with a dry, lint-free cloth
 - Check the media type and quality.
 - Try installing a new HP print cartridge. See [Replace the print cartridge on page 6](#).
 - The fuser temperature might be too low. In your printer driver, make sure the appropriate media type is selected.
-

Loose toner



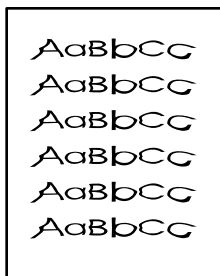
- Clean the inside of the device. See [Clean the device on page 13](#).
- Check the media type and quality.
- Try installing a new HP print cartridge. See [Replace the print cartridge on page 6](#)].
- In your printer driver, make sure the appropriate media type is selected.
- Plug the device directly into an AC outlet instead of into a power strip or surge protector.

Vertical repetitive defects



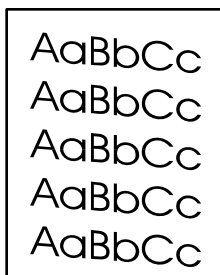
- The print cartridge might be damaged. If a repetitive mark occurs at the same spot on the page, install a new HP print cartridge. See [Replace the print cartridge on page 6](#).
- The internal parts might have toner on them. If the defects occur on the back of the page, the problem will probably correct itself after a few more printed pages.
- In your printer driver, make sure the appropriate media type is selected.

Misformed characters



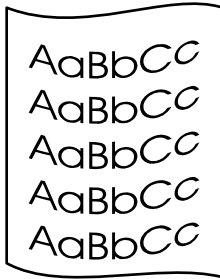
- If characters are improperly formed, producing hollow images, the media stock might be too slick. Try a different media.
- If characters are improperly formed, producing a wavy effect, the device might need service. Print a configuration page. If the characters are improperly formed, contact an HP-authorized dealer or service representative. See [Contact HP support on page 77](#).

Page skew



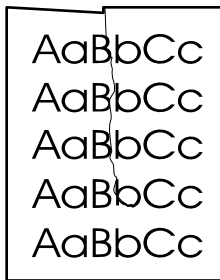
- Make sure that the media is loaded correctly and the media guides are not too tight or too loose against the media stack.
- The input bin might be too full.
- Check the media type and quality.

Curl or wave



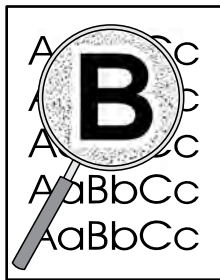
- Check the media type and quality. Both high temperature and humidity cause media to curl.
 - The media might have been in the input tray too long. Turn over the stack of media in the tray. Also, try rotating the media 180° in the input tray.
 - The fuser temperature might be too high. In your printer driver, make sure the appropriate media type is selected. If the problem persists, select a media type that uses a lower fuser temperature, such as transparencies or light media.
-

Wrinkles or creases



- Make sure that media is loaded properly.
 - Check the media type and quality.
 - Turn over the stack of media in the tray. Also, try rotating the media 180° in the input tray.
 - For envelopes, this can be caused by air pockets inside the envelope. Remove the envelope, flatten the envelope, and try printing again.
-

Toner-scatter outline



- If large amounts of toner have scattered around the characters, the media might be resisting the toner. (A small amount of toner scatter is normal for laser printing.) Try a different media type.
 - Turn over the stack of media in the tray.
 - Use media designed for laser printers.
-

Media problem-solving

The following problems with media cause print-quality deviations, jamming, or damage to the device.

Problem	Cause	Solution
Poor print quality or toner adhesion	The paper is too moist, too rough, too heavy or too smooth, or it is embossed or from a faulty paper lot.	Try another kind of paper, between 100 and 250 Sheffield, with 4% to 6% moisture content.
Dropouts, jamming, or curl	The paper has been stored incorrectly.	Store paper flat in its moisture-proof wrapping.
	The paper has variability from one side to the other.	Turn the paper over.
Excessive curl	The paper is too moist, has the wrong grain direction, or is of short-grain construction	Use long-grain paper.
	The paper varies from side-to-side.	Turn the paper over.
Jamming, damage to device	The paper has cutouts or perforations.	Use paper that is free of cutouts or perforations.
Problems with feeding	The paper has ragged edges.	Use high-quality paper that is made for laser printers.
	The paper varies from side-to-side.	Turn the paper over.
	The paper is too moist, too rough, too heavy or too smooth, has the wrong grain direction, or is of short-grain construction or it is embossed or from a faulty paper lot.	Try another kind of paper, between 100 and 250 Sheffield, 4% to 6% moisture content. Use long-grain paper.
Print is skewed (crooked).	The media guides might be incorrectly adjusted.	Remove all media from the input tray, straighten the stack, and then load the media in the input tray again. Adjust the media guides to the width and length of the media that you are using and try printing again.
More than one sheet feeds at one time.	The media tray might be overloaded.	Remove some of the media from the tray.
	The media might be wrinkled, folded, or damaged.	Verify that the media is not wrinkled, folded, or damaged. Try printing on media from a new or different package.
The device does not pull media from the media input tray.	The device might be in manual-feed mode.	Verify that the device is not in manual feed mode and print your job again.
	The pickup roller might be dirty or damaged.	Contact HP Customer Care. See Contact HP support on page 77 or the support flyer that came in the box.
	The paper-length adjustment control in main tray is set at a length that is greater than the media size.	Adjust the paper-length adjustment control to the correct length.

Printed page is different from what appeared on screen

Garbled, incorrect, or incomplete text

- The wrong printer driver might have been selected when the software was installed. Make sure that the correct printer driver is selected in the printer **Properties**.
- If a specific file prints garbled text, a problem might exist with that specific file. If a specific application prints garbled text, a problem might exist with that application. Make sure that the appropriate printer driver is selected.
- A problem might exist with your software application. Try printing from another software application.
- The USB cable might be loose or defective.
 - Disconnect the cable and reconnect it at both ends.
 - Try printing a job that you know works.
 - If possible, attach the cable and device to another computer, and try printing a job that you know works.
 - Try using a new USB 2.0 cable that is 3 m (10 ft) or less in length.
 - Turn off the device and the computer. Remove the USB cable, and inspect both ends of the cable for damage. Reconnect the cable, making sure that the connections are tight. Make sure that the device is directly connected to the computer. Remove any switchboxes, tape backup drives, security keys, or any other devices that are attached between the USB port on the computer and the device. These devices can sometimes interfere with communication between the computer and the device. Restart the device 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. See [Replace the print cartridge on page 6](#) for instructions. To check the device, print a configuration page. See [Configuration page on page 8](#) for instructions on how to print a configuration page.
- 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.
- Clean the device, particularly the contacts between the print cartridge and the power supply.


Page format is different than on another HP LaserJet printer

If you used an older or different HP LaserJet printer driver (printer software) to create the document, or if 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.

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:** You might lose some resolution when converting from one graphics format to another.

Printer software problems

Table 5-3 Printer software problems

Problem	Solution
The printer icon is not visible in the Printer folder	<ul style="list-style-type: none">● Reinstall the printer software. In the Windows task bar, click Start, click Programs, click HP, click your printer, and click Uninstall. Install the printer software from the CD-ROM. <p>NOTE: Close any applications that are running. To close an application that has an icon in the system tray, right-click the icon, and select Close or Disable.</p> <ul style="list-style-type: none">● Try plugging the USB cable into a different USB port on the PC.
An error message was displayed during the software installation	<ul style="list-style-type: none">● Reinstall the printer software. In the Windows task bar, click Start, click Programs, click HP, click your printer, and click Uninstall. Install the printer software from the CD-ROM. <p>NOTE: Close any applications that are running. To close an application that has an icon in the task bar, right-click the icon, and select Close or Disable.</p> <ul style="list-style-type: none">● Check the amount of free space on the drive where you are installing the printer software. If necessary, free up as much space as you can, and reinstall the printer software.● If necessary, run the Disk Defragmenter, and reinstall the printer software.
The printer is in Ready mode, but nothing prints	<ul style="list-style-type: none">● Print a Configuration page from the control panel of the printer, and verify the printer functionality.● Verify that all of the cables are properly seated and within specifications. This includes the USB, network, and power cables. Try a new cable.

Common Macintosh problems

Table 5-4 Problems with Mac OS X

The printer driver is not listed in the Print Center or Printer Setup Utility.

Cause	Solution
The software might not have been installed or was installed incorrectly.	Make sure that the PM and PE plug-ins are in the following hard-drive folder: <code>Library/Printers/hp/laserjet/<product_name></code> . If necessary, reinstall the software. See the <i>Getting Started Guide</i> .

The device name, IP address, or Rendezvous or Bonjour host name does not appear in the printer list in the Print Center or Printer Setup Utility.

Cause	Solution
The device might not be ready.	Make sure that the cables are connected correctly, the device is on, and the ready light is on. If you are connecting through a USB or Ethernet hub, try connecting directly to the computer or use a different port.
The wrong connection type might be selected.	Make sure that USB, IP Printing, or Rendezvous or Bonjour is selected, depending on the type of connection that exists between the device and the computer.
The wrong device name, IP address, or Rendezvous or Bonjour host name is being used.	Print a configuration page to check the device name, IP address, or Rendezvous or Bonjour host name. Verify that the name, IP address, or Rendezvous or Bonjour host name on the configuration page matches the device name, IP address, or Rendezvous or Bonjour host name in the Print Center or Printer Setup Utility.
The interface cable might be defective or of poor quality.	Replace the interface cable. Make sure to use a high-quality cable.

The printer driver does not automatically set up your selected device in the Print Center or Printer Setup Utility.

Cause	Solution
The device might not be ready.	Make sure that the cables are connected correctly, the device is on, and the ready light is on. If you are connecting through a USB or Ethernet hub, try connecting directly to the computer or use a different port.
The software might not have been installed or was installed incorrectly.	Make sure that the printer PPD is in the following hard-drive folder: <code>Library/Printers/PPDs/Contents/Resources/<lang>.lproj</code> , where <code><lang></code> is the two-letter language code for the language that you are using. If necessary, reinstall the software. See the <i>Getting Started Guide</i> .
The PostScript Printer Description (PPD) file is corrupt.	Delete the PPD file from the following hard-drive folder: <code>Library/Printers/PPDs/Contents/Resources/<lang>.lproj</code> , where <code><lang></code> is the two-letter language code for the language that you are using. Reinstall the software. See the <i>Getting Started Guide</i> .
The device might not be ready.	Make sure that the cables are connected correctly, the device is on, and the ready light is on. If you are connecting through a USB or Ethernet hub, try connecting directly to the computer or use a different port.
The interface cable might be defective or of poor quality.	Replace the interface cable. Make sure to use a high-quality cable.

Table 5-4 Problems with Mac OS X (continued)

A print job was not sent to the device that you wanted.

Cause	Solution
The print queue might be stopped.	Restart the print queue. Open print monitor and select Start Jobs .
The wrong device name or IP address is being used. Another device with the same or similar name, IP address, or Rendezvous or Bonjour host name might have received your print job.	Print a configuration page to check the device name, IP address, or Rendezvous or Bonjour host name. Verify that the name, IP address, or Rendezvous or Bonjour host name on the configuration page matches the device name, IP address, or Rendezvous or Bonjour host name in the Print Center or Printer Setup Utility.

You are unable to print from a third-party USB card.

Cause	Solution
This error occurs when the software for USB printers is not installed.	When adding a third-party USB card, you might need the Apple USB Adapter Card Support software. The most current version of this software is available from the Apple Web site.

When connected with a USB cable, the device does not appear in the Print Center or Printer Setup Utility after the driver is selected.

Cause	Solution
This problem is caused by either a software or a hardware component.	<p>Software troubleshooting</p> <ul style="list-style-type: none">● Check that your Macintosh supports USB.● Verify that your Macintosh operating system is Mac OS X V10.2 or later.● Ensure that your Macintosh has the appropriate USB software from Apple. <p>Hardware troubleshooting</p> <ul style="list-style-type: none">● Check that the device is turned on.● Verify that the USB cable is connected correctly.● Check that you are using the appropriate high-speed USB cable.● Ensure that you do not have too many USB devices drawing power from the chain. Disconnect all of the devices from the chain, and connect the cable directly to the USB port on the host computer.● Check to see if more than two nonpowered USB hubs are connected in a row on the chain. Disconnect all of the devices from the chain and connect the cable directly to the USB port on the host computer. <p>NOTE: The iMac keyboard is a nonpowered USB hub.</p>

Network-setup problem-solving

If the computer cannot discover the networked device, 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 device 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. Verify that the computer's network connections are working properly (Windows only):
 - On the Windows desktop, double-click **My Network Places** or **Network Neighborhood**.
 - Click the **Entire Network** link.
 - Click the **Entire Contents** link.
 - Double-click one of the network icons, and make sure that some devices are listed.
3. Verify that the network connection is active:
 - Check the network light on the network (RJ-45) connector on the back of the device.
 - If one of the lights is on solid, the device is connected to the network.
 - If both network lights are off, check the cable connections from the device to the gateway, switch, or hub to ensure that the connections are secure.
 - If the connections are secure, turn off the power to the device for at least 10 seconds, and then turn on the power to the device.
4. Print a Network Configuration page. See [Configuration page on page 8](#).
 - On the Network Configuration page, see if a non-zero IP address is assigned to the device.
 - If the Network Configuration page does not have a valid, non-zero IP address, reset the HP internal network port to the factory defaults by pressing the **Go** and **Cancel** buttons at the same time.

After the Attention, Ready, and Go lights finish cycling, the device returns to a Ready state and the reset is complete.
 - Two minutes after the device reaches the Ready state, print another Network Configuration page, and check to see if a valid IP address is assigned to the device.
 - If the IP address is still zeros, contact HP support. See [HP Customer Care on page 118](#).

6 Parts and diagrams

- [Assembly locations](#)
- [Covers](#)
- [Internal assemblies](#)
- [Alphabetical parts list](#)
- [Numerical parts list](#)

Assembly locations

Figure 6-1 Assembly locations (1 of 1)

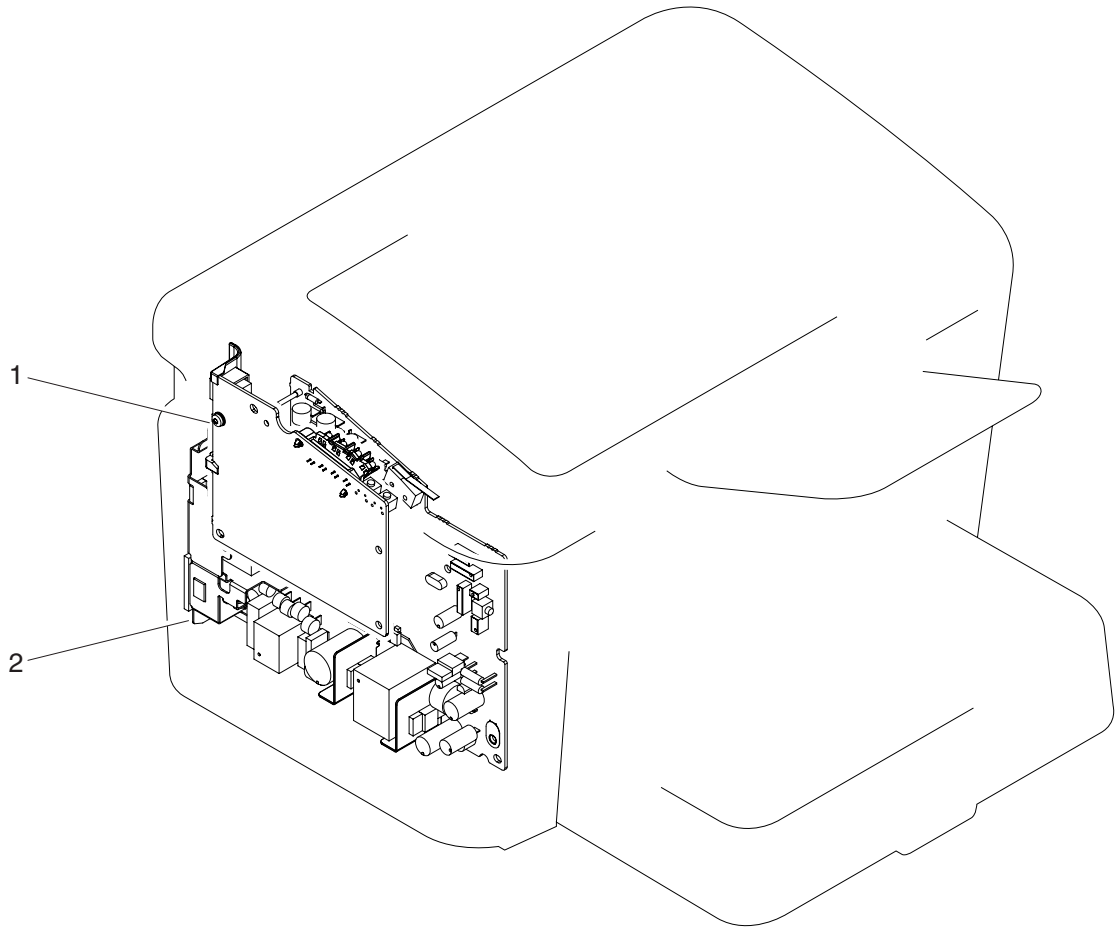


Table 6-1

Ref	Description	Part number	Qty
1	Formatter PCB assembly	RM1-4216-000	1
1	Formatter PCB assembly	RM1-4217-000	1
2	Engine control PCB assembly	RM1-4627-000	1
2	Engine control PCB assembly	RM1-4628-000	1

Covers

Figure 6-2 HP LaserJet P1500 Series covers

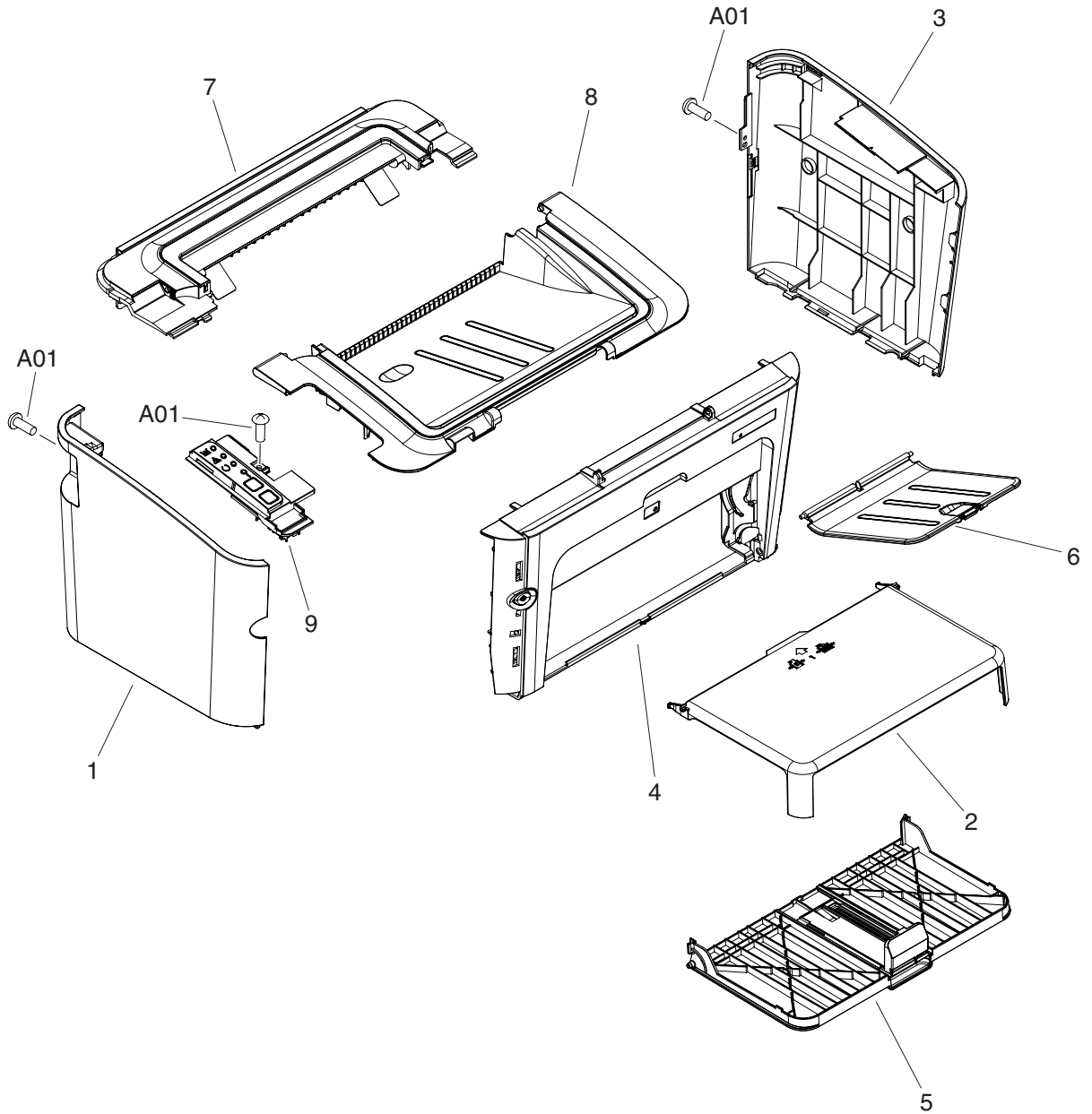


Table 6-2 HP LaserJet P1500 Series covers

Ref	Description	Part number	Qty
1	Left cover	RC2-1401-000	1
2	Dust cover	RC2-1405-000	1
3	Right cover	RC2-1400-000	1
4	Front cover assembly	RL1-1506-000	1
5	Paper pick-up tray assembly	RM1-4191-000	1
6	Paper delivery tray assembly	RM1-4192-000	1
7	Face-down cover assembly	RM1-4193-000	1
8	Cartridge door assembly	RM1-4194-000	1
9	Control panel assembly	RM1-4195-000	1
A01	Screw, RS, M3X8	XA9-1504-000	3

Internal assemblies

Figure 6-3 Internal components (1 of 3)

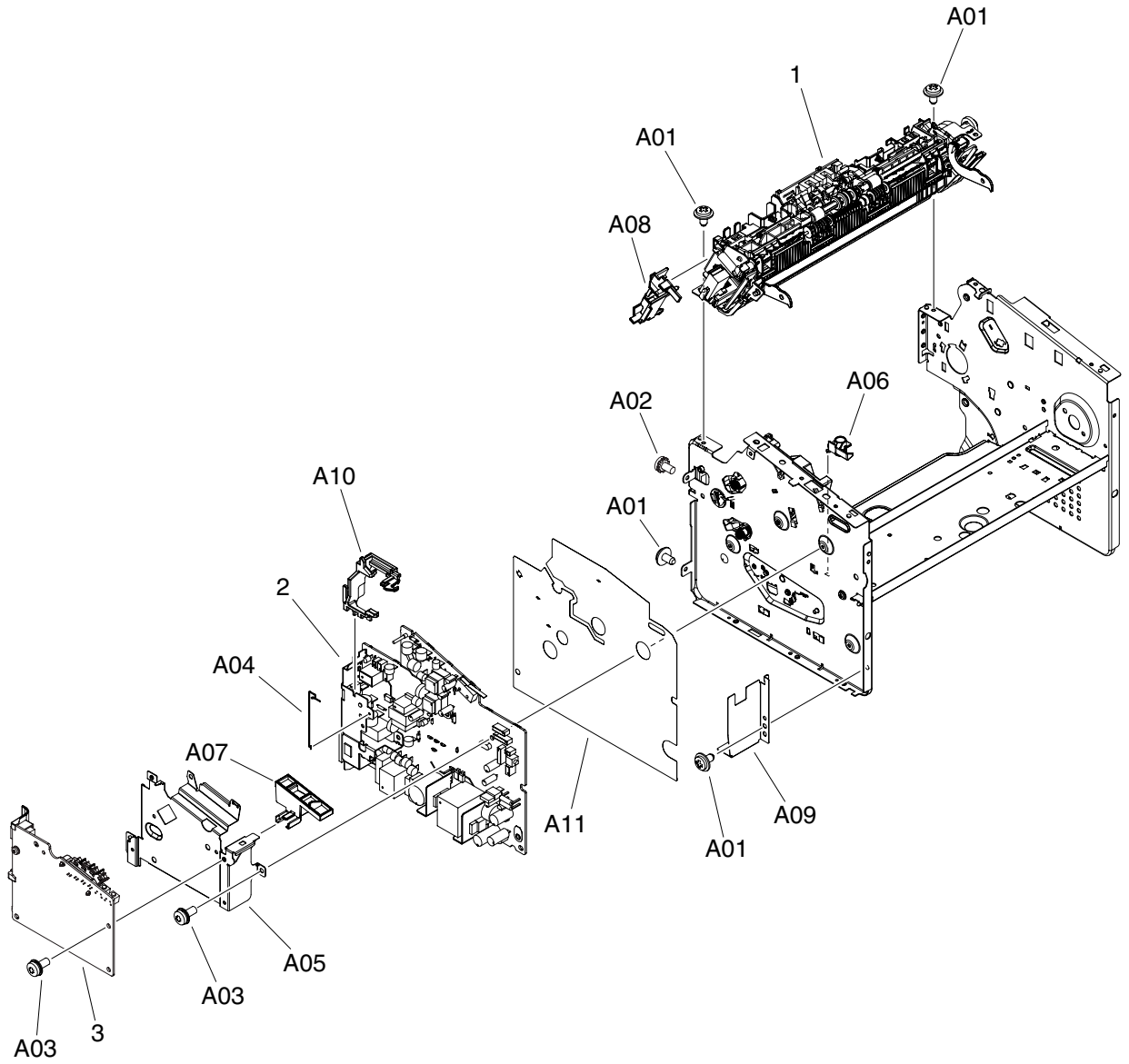


Table 6-3 Internal components (1 of 3)

Ref	Description	Part number	Qty
1	Fusing assembly	RM1-4208-000	1
1	Fusing assembly	RM1-4209-000	1
2	Engine control PCB assembly	RM1-4627-000	1
2	Engine control PCB assembly	RM1-4628-000	1
3	Formatter PCB assembly	RM1-4216-000	1
3	Formatter PCB assembly	RM1-4217-000	1
A01	Screw, D, M3X6	XA9-1670-000	5
A02	Screw, w/washer, M3X6	XB2-7300-605	1
A03	Screw, w/washer, M3X8	XA9-1420-000	10
A04	Cable contact	RU5-2953-000	1
A05	Formatter crossmember	RC2-1513-000	1
A05	Formatter crossmember	RC2-1377-000	1
A06	Tag cable guide	RC2-1189-000	1
A07	Dust cover	RC2-1495-000	1
A08	Cable guide	RC2-1511-000	1
A09	PCB plate	RC2-1503-000	1
A10	Cable guide	RC2-1375-000	1
A11	Insulating sheet	RC2-1376-000	1

Figure 6-4 Internal components (2 of 3)

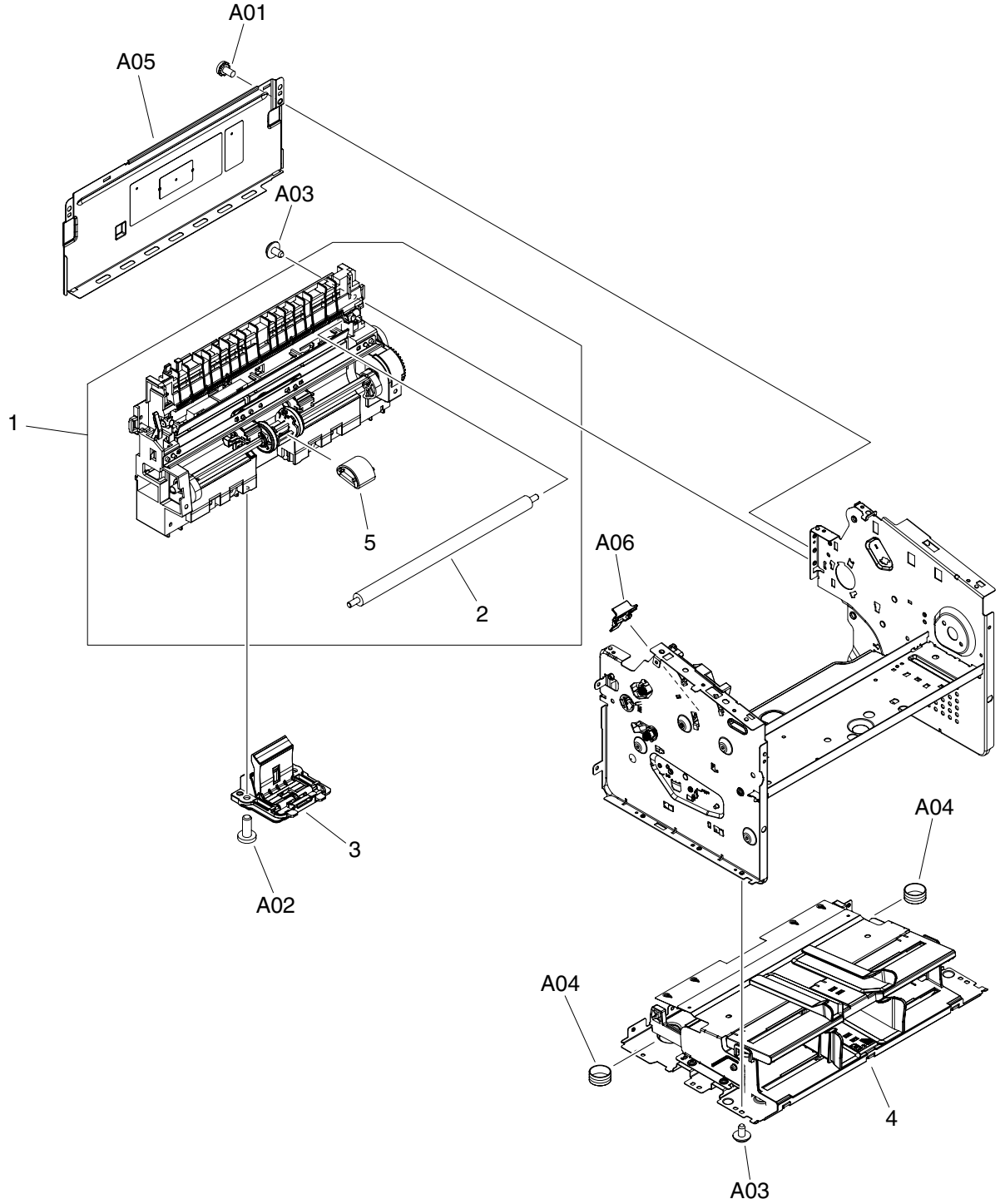


Table 6-4 Internal components (2 of 3)

Ref	Description	Part number	Qty
1	Paper pick-up assembly	RM1-4204-000	1
2	Transfer roller	RC2-1483-000	1
3	Separation pad assembly	RM1-4207-000	1
4	Base plate assembly	RM1-4199-000	1
5	Pick-up roller	RL1-1497-000	1
A01	Screw, w/washer, M3X6	XB2-7300-605	1
A02	Screw, Tap, M4X10	XB4-5401-009	2
A03	Screw, D, M3X6	XA9-1670-000	12
A04	Compression spring	RU5-2972-000	2
A05	Rear panel	RC2-1435-000	1
A06	Tag cover	RC2-1205-000	1

Figure 6-5 Internal components (3 of 3)

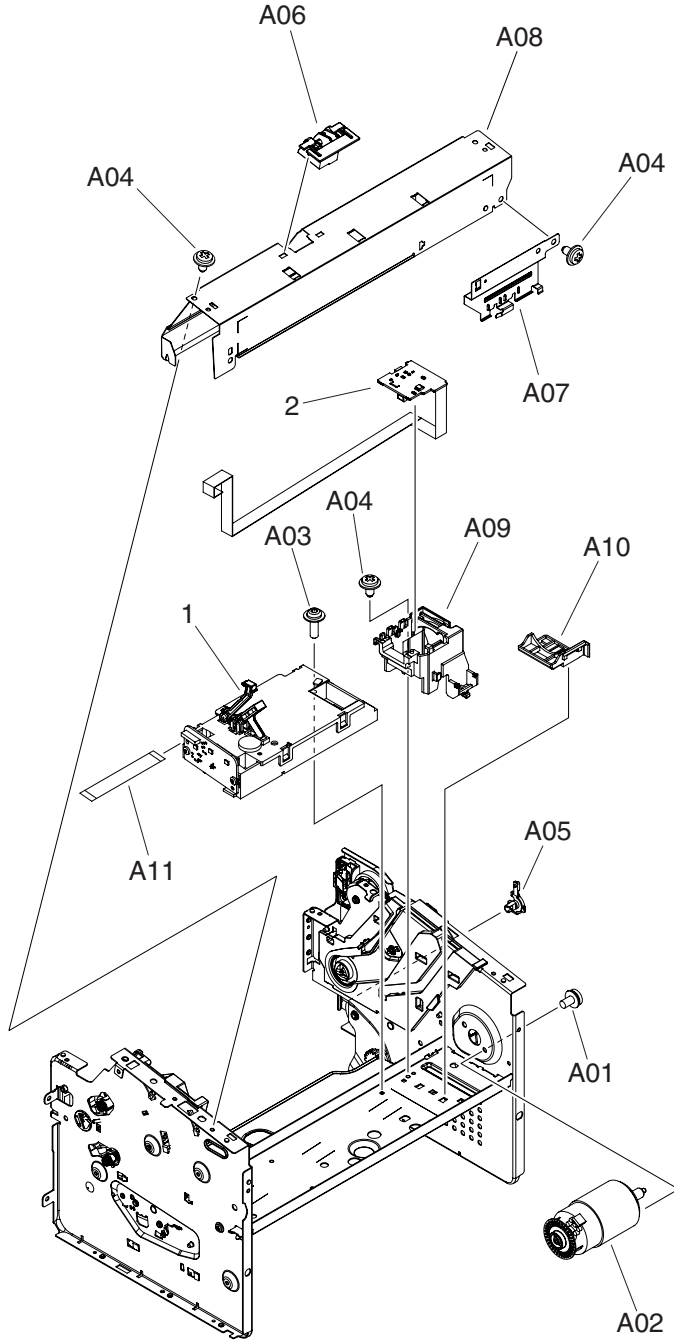


Table 6-5 Internal components (3 of 3)

Ref	Description	Part number	Qty
1	Laser scanner assembly	RM1-4184-000	1
2	Motor control PCB assembly	RM1-4635-000	1
A01	Screw, RS, M3X6	XB2-8300-609	2
A02	DC24V motor	RM1-4196-000	1
A03	Screw, RS, M3X10	XA9-1501-000	4
A04	Screw, D, M3X6	XA9-1670-000	5
A05	Shaft support	RC2-1236-000	1
A06	Door hook	RC2-1463-000	1
A07	RFI plate	RC2-1527-000	1
A08	Scanner cover	RC2-1381-000	1
A09	Motor crossmember	RC2-1505-000	1
A10	Motor crossmember	RC2-1223-000	1
A11	Flat cable	RK2-1757-000	1

Alphabetical parts list

Table 6-6 Alphabetical parts list

Description	Part number	Table and page
Base plate assembly	RM1-4199-000	Internal components (2 of 3) on page 103
Cable contact	RU5-2953-000	Internal components (1 of 3) on page 101
Cable guide	RC2-1511-000	Internal components (1 of 3) on page 101
Cable guide	RC2-1375-000	Internal components (1 of 3) on page 101
Cartridge door assembly	RM1-4194-000	HP LaserJet P1500 Series covers on page 99
Compression spring	RU5-2972-000	Internal components (2 of 3) on page 103
Control panel assembly	RM1-4195-000	HP LaserJet P1500 Series covers on page 99
DC24V motor	RM1-4196-000	Internal components (3 of 3) on page 105
Door hook	RC2-1463-000	Internal components (3 of 3) on page 105
Dust cover	RC2-1405-000	HP LaserJet P1500 Series covers on page 99
Dust cover	RC2-1495-000	Internal components (1 of 3) on page 101
Engine control PCB assembly	RM1-4627-000	on page 97
Engine control PCB assembly	RM1-4628-000	on page 97
Engine control PCB assembly	RM1-4627-000	Internal components (1 of 3) on page 101
Engine control PCB assembly	RM1-4628-000	Internal components (1 of 3) on page 101
Face-down cover assembly	RM1-4193-000	HP LaserJet P1500 Series covers on page 99
Flat cable	RK2-1757-000	Internal components (3 of 3) on page 105
Formatter crossmember	RC2-1513-000	Internal components (1 of 3) on page 101
Formatter crossmember	RC2-1377-000	Internal components (1 of 3) on page 101
Formatter PCB assembly	RM1-4216-000	on page 97
Formatter PCB assembly	RM1-4217-000	on page 97
Formatter PCB assembly	RM1-4216-000	Internal components (1 of 3) on page 101

Table 6-6 Alphabetical parts list (continued)

Description	Part number	Table and page
Formatter PCB assembly	RM1-4217-000	Internal components (1 of 3) on page 101
Front cover assembly	RL1-1506-000	HP LaserJet P1500 Series covers on page 99
Fusing assembly	RM1-4208-000	Internal components (1 of 3) on page 101
Fusing assembly	RM1-4209-000	Internal components (1 of 3) on page 101
Insulating sheet	RC2-1376-000	Internal components (1 of 3) on page 101
Laser scanner assembly	RM1-4184-000	Internal components (3 of 3) on page 105
Left cover	RC2-1401-000	HP LaserJet P1500 Series covers on page 99
Motor control PCB assembly	RM1-4635-000	Internal components (3 of 3) on page 105
Motor crossmember	RC2-1505-000	Internal components (3 of 3) on page 105
Motor crossmember	RC2-1223-000	Internal components (3 of 3) on page 105
Paper delivery tray assembly	RM1-4192-000	HP LaserJet P1500 Series covers on page 99
Paper pick-up assembly	RM1-4204-000	Internal components (2 of 3) on page 103
Paper pick-up tray assembly	RM1-4191-000	HP LaserJet P1500 Series covers on page 99
PCB plate	RC2-1503-000	Internal components (1 of 3) on page 101
Pick-up roller	RL1-1497-000	Internal components (2 of 3) on page 103
Rear panel	RC2-1435-000	Internal components (2 of 3) on page 103
RFI plate	RC2-1527-000	Internal components (3 of 3) on page 105
Right cover	RC2-1400-000	HP LaserJet P1500 Series covers on page 99
Scanner cover	RC2-1381-000	Internal components (3 of 3) on page 105
Screw, D, M3X6	XA9-1670-000	Internal components (1 of 3) on page 101
Screw, D, M3X6	XA9-1670-000	Internal components (2 of 3) on page 103
Screw, D, M3X6	XA9-1670-000	Internal components (3 of 3) on page 105

Table 6-6 Alphabetical parts list (continued)

Description	Part number	Table and page
Screw, RS, M3X10	XA9-1501-000	Internal components (3 of 3) on page 105
Screw, RS, M3X6	XB2-8300-609	Internal components (3 of 3) on page 105
Screw, RS, M3X8	XA9-1504-000	HP LaserJet P1500 Series covers on page 99
Screw, Tap, M4X10	XB4-5401-009	Internal components (2 of 3) on page 103
Screw, w/washer, M3X6	XB2-7300-605	Internal components (1 of 3) on page 101
Screw, w/washer, M3X6	XB2-7300-605	Internal components (2 of 3) on page 103
Screw, w/washer, M3X8	XA9-1420-000	Internal components (1 of 3) on page 101
Separation pad assembly	RM1-4207-000	Internal components (2 of 3) on page 103
Shaft support	RC2-1236-000	Internal components (3 of 3) on page 105
Tag cable guide	RC2-1189-000	Internal components (1 of 3) on page 101
Tag cover	RC2-1205-000	Internal components (2 of 3) on page 103
Transfer roller	RC2-1483-000	Internal components (2 of 3) on page 103

Numerical parts list

Table 6-7 Numerical parts list

Part number	Description	Table and page
RC2-1189-000	Tag cable guide	Internal components (1 of 3) on page 101
RC2-1205-000	Tag cover	Internal components (2 of 3) on page 103
RC2-1223-000	Motor crossmember	Internal components (3 of 3) on page 105
RC2-1236-000	Shaft support	Internal components (3 of 3) on page 105
RC2-1375-000	Cable guide	Internal components (1 of 3) on page 101
RC2-1376-000	Insulating sheet	Internal components (1 of 3) on page 101
RC2-1377-000	Formatter crossmember	Internal components (1 of 3) on page 101
RC2-1381-000	Scanner cover	Internal components (3 of 3) on page 105
RC2-1400-000	Right cover	HP LaserJet P1500 Series covers on page 99
RC2-1401-000	Left cover	HP LaserJet P1500 Series covers on page 99
RC2-1405-000	Dust cover	HP LaserJet P1500 Series covers on page 99
RC2-1435-000	Rear panel	Internal components (2 of 3) on page 103
RC2-1463-000	Door hook	Internal components (3 of 3) on page 105
RC2-1483-000	Transfer roller	Internal components (2 of 3) on page 103
RC2-1495-000	Dust cover	Internal components (1 of 3) on page 101
RC2-1503-000	PCB plate	Internal components (1 of 3) on page 101
RC2-1505-000	Motor crossmember	Internal components (3 of 3) on page 105
RC2-1511-000	Cable guide	Internal components (1 of 3) on page 101
RC2-1513-000	Formatter crossmember	Internal components (1 of 3) on page 101
RC2-1527-000	RFI plate	Internal components (3 of 3) on page 105
RK2-1757-000	Flat cable	Internal components (3 of 3) on page 105

Table 6-7 Numerical parts list (continued)

Part number	Description	Table and page
RL1-1497-000	Pick-up roller	Internal components (2 of 3) on page 103
RL1-1506-000	Front cover assembly	HP LaserJet P1500 Series covers on page 99
RM1-4184-000	Laser scanner assembly	Internal components (3 of 3) on page 105
RM1-4191-000	Paper pick-up tray assembly	HP LaserJet P1500 Series covers on page 99
RM1-4192-000	Paper delivery tray assembly	HP LaserJet P1500 Series covers on page 99
RM1-4193-000	Face-down cover assembly	HP LaserJet P1500 Series covers on page 99
RM1-4194-000	Cartridge door assembly	HP LaserJet P1500 Series covers on page 99
RM1-4195-000	Control panel assembly	HP LaserJet P1500 Series covers on page 99
RM1-4196-000	DC24V motor	Internal components (3 of 3) on page 105
RM1-4199-000	Base plate assembly	Internal components (2 of 3) on page 103
RM1-4204-000	Paper pick-up assembly	Internal components (2 of 3) on page 103
RM1-4207-000	Separation pad assembly	Internal components (2 of 3) on page 103
RM1-4208-000	Fusing assembly	Internal components (1 of 3) on page 101
RM1-4209-000	Fusing assembly	Internal components (1 of 3) on page 101
RM1-4216-000	Formatter PCB assembly	on page 97
RM1-4216-000	Formatter PCB assembly	Internal components (1 of 3) on page 101
RM1-4217-000	Formatter PCB assembly	on page 97
RM1-4217-000	Formatter PCB assembly	Internal components (1 of 3) on page 101
RM1-4627-000	Engine control PCB assembly	on page 97
RM1-4627-000	Engine control PCB assembly	Internal components (1 of 3) on page 101
RM1-4628-000	Engine control PCB assembly	on page 97
RM1-4628-000	Engine control PCB assembly	Internal components (1 of 3) on page 101
RM1-4635-000	Motor control PCB assembly	Internal components (3 of 3) on page 105

Table 6-7 Numerical parts list (continued)

Part number	Description	Table and page
RU5-2953-000	Cable contact	Internal components (1 of 3) on page 101
RU5-2972-000	Compression spring	Internal components (2 of 3) on page 103
XA9-1420-000	Screw, w/washer, M3X8	Internal components (1 of 3) on page 101
XA9-1501-000	Screw, RS, M3X10	Internal components (3 of 3) on page 105
XA9-1504-000	Screw, RS, M3X8	HP LaserJet P1500 Series covers on page 99
XA9-1670-000	Screw, D, M3X6	Internal components (1 of 3) on page 101
XA9-1670-000	Screw, D, M3X6	Internal components (2 of 3) on page 103
XA9-1670-000	Screw, D, M3X6	Internal components (3 of 3) on page 105
XB2-7300-605	Screw, w/washer, M3X6	Internal components (1 of 3) on page 101
XB2-7300-605	Screw, w/washer, M3X6	Internal components (2 of 3) on page 103
XB2-8300-609	Screw, RS, M3X6	Internal components (3 of 3) on page 105
XB4-5401-009	Screw, Tap, M4X10	Internal components (2 of 3) on page 103

A Service and support

Hewlett-Packard limited warranty statement

HP PRODUCT

HP LaserJet P1500 Series printers

DURATION OF LIMITED WARRANTY

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.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some countries/regions, states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

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.

Customer self repair warranty service

HP products are designed with many Customer Self Repair (CSR) parts to minimize repair time and allow for greater flexibility in performing defective parts replacement. If during the diagnosis period, HP identifies that the repair can be accomplished by the use of a CSR part, HP will ship that part directly to you for replacement. There are two categories of CSR parts: 1) Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service. 2) Parts for which customer self repair is optional. These parts are also designed for Customer Self Repair. If, however, you require that HP replace them for you, this may be done at no additional charge under the type of warranty service designated for your product.

Based on availability and where geography permits, CSR parts will be shipped for next business day delivery. Same-day or four-hour delivery may be offered at an additional charge where geography permits. If assistance is required, you can call the HP Technical Support Center and a technician will help you over the phone. HP specifies in the materials shipped with a replacement CSR part whether a defective part must be returned to HP. In cases where it is required to return the defective part to HP, you must ship the defective part back to HP within a defined period of time, normally five (5) business days. The defective part must be returned with the associated documentation in the provided shipping material. Failure to return the defective part may result in HP billing you for the replacement. With a customer self repair, HP will pay all shipping and part return costs and determine the courier/carrier to be used.

Hewlett-Packard software license agreement

ATTENTION: USE OF THE SOFTWARE IS SUBJECT TO THE HP SOFTWARE LICENSE TERMS SET FORTH BELOW. USING THE SOFTWARE INDICATES YOUR ACCEPTANCE OF THESE LICENSE TERMS.

HP SOFTWARE LICENSE TERMS

The following License Terms govern your use of the accompanying Software unless you have a separate signed agreement with Hewlett-Packard.

License Grant. Hewlett-Packard grants you a license to use one copy of the Software. "Use" means storing, loading, installing, executing, or displaying the Software. You may not modify the Software or disable any licensing or control features of the Software. If the Software is licensed for "concurrent use," you may not allow more than the maximum number of authorized users to Use the Software concurrently.

Ownership. The Software is owned and copyrighted by Hewlett-Packard or its third-party suppliers. Your license confers no title to, or ownership in, the Software and is not a sale of any rights in the Software. Hewlett-Packard's third-party suppliers may protect their rights in the event of any violation of these License Terms.

Copies and Adaptations. You may only make copies or adaptations of the Software for archival purposes or when copying or adaptation is an essential step in the authorized Use of the Software. You must reproduce all copyright notices in the original Software on all copies or adaptations. You may not copy the Software onto any public network.

No Disassembly or Decryption. You may not disassemble or decompile the Software unless HP's prior written consent is obtained. In some jurisdictions, HP's consent may not be required for limited disassembly or decompilation. Upon request, you will provide HP with reasonably detailed information regarding any disassembly or decompilation. You may not decrypt the Software unless decryption is a necessary part of the operation of the Software.

Transfer. Your license will automatically terminate upon any transfer of the Software. Upon transfer, you must deliver the Software, including any copies and related documentation, to the transferee. The transferee must accept these License Terms as a condition to the transfer.

Termination. HP may terminate your license upon notice for failure to comply with any of these License Terms. Upon termination, you must immediately destroy the Software, together with all copies, adaptations, and merged portions in any form.

Export Requirements. You may not export or re-export the Software or any copy or adaptation in violation of any applicable laws or regulations.

U.S. Government Restricted Rights. The Software and any accompanying documentation have been developed entirely at private expense. They are delivered and licensed as "commercial computer software" as defined in DFARS 252.227-7013 (Oct 1988), DFARS 252.211-7015 (May 1991), or DFARS 252.227-7014 (Jun 1995), as a "commercial item" as defined in FAR 2.101(a) (Jun 1987), or as "Restricted computer software" as defined in FAR 52.227-19 (Jun 1987) (or any equivalent agency regulation or contract clause), whichever is applicable. You have only those rights provided for such Software and any accompanying documentation by the applicable DFARS or FAR clause or the HP standard software agreement for the product involved.

Limited warranty for print cartridges and image drums

This HP Print Cartridge is warranted to be free from defects in materials and workmanship.

This warranty does not apply to print cartridges 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 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 Customer Care

Online services

For 24-hour access to information by using a modem or Internet connection

World Wide Web: Updated HP product software, product and support information, and printer drivers in several languages can be obtained from <http://www.hp.com/support/ljp1500> (The site is in English.)

Online troubleshooting tools

HP Instant Support Professional Edition (ISPE) is a suite of Web-based problem solving tools for desktop computing and printing products. ISPE helps you quickly identify, diagnose, and resolve computing and printing problems. The ISPE tools can be accessed from <http://instantsupport.hp.com>.

Telephone support

Hewlett-Packard provides free telephone support during the warranty period. When you call, you will be connected to a responsive team that is waiting to help you. For the telephone number for your country/region, see the flyer that came in the box with the product, or visit <http://www.hp.com> then click **Contact HP**. Before calling HP, have the following information ready: product name and serial number, date of purchase, and description of the problem.

You can also find support on the Internet at <http://www.hp.com/support/ljp1500>. Click the **support & drivers** block.

Software utilities, drivers, and electronic information

Go to <http://www.hp.com/support/ljp1500>. (The sites are in English, but printer drivers can be downloaded in several languages.)

For information over the telephone, see the flyer that came in the box with the device.

HP direct ordering for accessories or supplies

Order supplies from the following Web sites:

North America: <https://www.hp.com/post-embed/ordersupplies-na>

Latin America: <https://www.hp.com/post-embed/ordersupplies-la>

Europe and Middle East: <https://www.hp.com/post-embed/ordersupplies-emea>

Asia Pacific countries/regions: <https://www.hp.com/post-embed/ordersupplies-ap>

Order accessories from <http://www.hp.com> and click **Supplies & Accessories**.

To order supplies or accessories over the telephone, call the following numbers:

United States: 1-800-538-8787

Canada: 1-800-387-3154

To find the telephone numbers for other countries/regions, see the flyer that came in the box with the device.

HP service information

For service for your HP product in other countries/regions, call the HP Customer Support telephone number for your country/region. See the flyer that came in the box with the device.

HP service agreements

Call: 1-800-HPINVENT [1-800-474-6836 (U.S.)] or 1-800-268-1221 (Canada).

Out-of-Warranty Service: 1-800-633-3600.

Extended Service: Call 1-800-HPINVENT 1-800-474-6836 (U.S.) or 1-800-268-1221 (Canada). Or, go to the HP Supportpack and Carepaq™ Services Web site at <http://www.hpexpress-services.com/10467a>.

B Device specifications

Table B-1 Physical specifications¹

Specification	HP LaserJet P1500 Series
Device weight (without cartridge)	5.4 kg (11.9 lbs)
Device weight, including cartridge	5.9 kg (13 lbs)
Device height	225 mm (8.9 inches)
Device depth, with paper tray closed	245 mm (9.6 inches)
Device depth, with paper tray extended for letter size paper	355 mm (14 inches)
Device depth, with paper tray extended for A4 size paper	355 mm (14 inches)
Device depth, with paper tray full extended for legal size paper	413 mm (16.3 inches)
Device width	379 mm (14.9 inches)

¹ Values are based on preliminary data. See <http://www.hp.com/support/ljp1500> for current information.

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

Table B-2 Electrical specifications¹

Item	110 Volt models	220 Volt models
Power requirements	100-127V (+/-10%), 50/60 Hz (+/- 2 Hz)	220-240V (+/-10%), 50/60 Hz (+/- 2 Hz)
Rated current for the HP LaserJet P1500 Series	4.9 amps	2.9 amps

¹ Values are based on preliminary data. See <http://www.hp.com/support/ljp1500> for current information.

Table B-3 Power consumption (average, in Watts)¹

Product model	Printing ²	Ready ²	PowerSave	Off
HP LaserJet P1500 Series	380 Watts	5 Watts	5 Watts	0.8 Watt

¹ Values are based on preliminary data. See <http://www.hp.com/support/ljp1500> for current information.

² Power reported is highest values measured for monochrome printing using all standard voltages.

³ Recovery time from Power Save to start of printing: < 8 seconds

⁴ Maximum heat dissipation for all models in Ready Mode = 62 BTU/Hour

Table B-4 Acoustic emissions¹

Sound Power Level for the HP LaserJet P1500 Series	Declared Per ISO 9296¹
Printing (22 PPM) ²	$L_{WA} = 6.3$ Bels (A) [63 dB (A)]
Ready	Inaudible
Sound Pressure Level (SPL)-Bystander Position for the HP LaserJet P1500 Series	Declared Per ISO 9296
Printing (22 PPM) ²	$L_{pAm} = 50$ dB(A)
Ready	Inaudible

¹ Values are based on preliminary data. See <http://www.hp.com/support/ljp1500> for current information.

² Configuration tested: HP LaserJet P1500 Series, continuous monochrome printing on A4 paper at 22 PPM.

Table B-5 Environmental specifications

	Recommended¹	Operating¹	Storage¹
Temperature	17.5°C to 25°C (63.5°F to 77°F)	10°C to 32.5°C (50°F to 90.5°F)	0°C to 40°C (32°F to 104°F)
Relative Humidity	30% to 70% (no condensation)	10% to 90% (no condensation)	10% to 90% (no condensation)

¹ Values are based on preliminary data. See <http://www.hp.com/support/ljp1500> for current information.


C Regulatory information

- [FCC compliance](#)
- [Declaration of Conformity statements for HP LaserJet P1500 Series](#)
- [Regulatory statements](#)
- [Environmental product stewardship program](#)

FCC compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between equipment and receiver.
- Connect equipment to an outlet on a circuit different from that to which the receiver is located.
- Consult your dealer or an experienced radio/TV technician.

 **NOTE:** Any changes or modifications to the printer that are not expressly approved by Hewlett-Packard could void the user's authority to operate this equipment.

Use of a shielded interface cable is required to comply with the Class B limits of Part 15 of FCC rules.

Declaration of Conformity statements for HP LaserJet P1500 Series

Declaration of Conformity

according to ISO/IEC Guide 17050-1 and EN 17050-1

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 P1503/P1504/P1505/P1506 Series
Regulatory Model ³⁾: BOISB-0604-00
Product Options: ALL

Toner Cartridge: CB436A

conforms to the following Product Specifications:

Safety: IEC 60950-1:2001 / EN 60950-1:2001 +A11
IEC 60825-1:1993 +A1 +A2/EN 60825-1:1994 +A1 +A2 (Class 1 Laser/LED Product)
GB4943-2001

EMC: CISPR 22:2005 / EN 55022:2006 Class B¹⁾
EN 61000-3-2:2000 + A2
EN 61000-3-3:1995 + A1
EN 55024:1998 +A1 +A2
FCC Title 47 CFR, Part 15 Class B²⁾ / ICES-003, Issue 4
GB9254-1998, GB17625.1-2003

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC, 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 product name or the product number(s).

Boise, Idaho 83714, USA

June 14, 2006

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, D-71034 Böblingen, 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)

Regulatory 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 à la classe B des normes canadiennes de compatibilité électromagnétiques (CEM). »

Korean EMI statement

B급 기기 (가정용 정보통신기기)

이 기기는 가정용으로 전자파적합등록을 한 기기로서
주거지역에서는 물론 모든지역에서 사용할 수 있습니다.

Laser statement for Finland

LASERTURVALLISUUS

LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

HP LaserJet P1000- ja P1500-sarjat -laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalisissa käytössä kirjoittimen suojakotelointi estää lasersäteiden 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 P1000- ja P1500-sarjat -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

Substances Table (China)


根据中国电子信息产品污染控制管理办法的要求而出台

Table C-1 有毒有害物质表

部件名称	有毒有害物质和元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
打印引擎	X	O	X	X	O	O
控制面板	O	O	O	O	O	O
塑料外壳	O	O	O	O	O	O
格式化板组件	X	O	O	O	O	O
碳粉盒	X	O	O	O	O	O

O:表示在此部件所用的所有同类材料中，所含的此有毒或有害物质均低于 SJ/T11363-2006 的限制要求。

X:表示在此部件所用的所有同类材料中，至少一种所含的此有毒或有害物质高于 SJ/T11363-2006 的限制要求。

 **NOTE:** 引用的“环保使用期限”是根据在正常温度和湿度条件下操作使用产品而确定的。

Environmental product stewardship program

Protecting the environment

Hewlett-Packard Company is committed to providing quality products in an environmentally sound manner. This product has been designed with several attributes to minimize impacts on our environment.

Ozone production

This product generates no appreciable ozone gas (O₃).

Power consumption

Power usage drops significantly while in Ready/Sleep mode, which saves natural resources and saves money without affecting the high performance of this product. To determine the ENERGY STAR® qualification status for this product see the Product Data Sheet or Specifications Sheet. Qualified products are also listed at:

<http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html>

Toner consumption

Economode uses significantly less toner, which might extend the life of the print cartridge.

Paper use

This product's manual/optional automatic duplex feature (two-sided printing) and N-up printing (multiple pages printed on one page) capability can reduce paper usage and the resulting demands on natural resources.


Plastics

Plastic parts over 25 grams are marked according to international standards that enhance the ability to identify plastics for recycling purposes at the end of the product's life.

HP LaserJet print supplies

It's easy to return and recycle your empty HP LaserJet print cartridges—free of charge—with HP Planet Partners. Multilingual program information and instructions are included in every new HP LaserJet print cartridge and supplies package. You help reduce the toll on the environment further when you return multiple cartridges together rather than separately.

HP is committed to providing inventive, high-quality products and services that are environmentally sound, from product design and manufacturing to distribution, customer use and recycling. When you participate in the HP Planet Partners program, we ensure your HP LaserJet print cartridges are recycled properly, processing them to recover plastics and metals for new products and diverting millions of tons of waste from landfills. Since this cartridge is being recycled and used in new materials, it will not be returned to you. Thank you for being environmentally responsible!

 **NOTE:** Use the return label to return original HP LaserJet print cartridges only. Please do not use this label for HP inkjet cartridges, non-HP cartridges, refilled or remanufactured cartridges or warranty returns. For information about recycling your HP inkjet cartridges please go to <http://www.hp.com/recycle>.

Return and recycling instructions

United States and Puerto Rico

The enclosed label in the HP LaserJet toner cartridge box is for the return and recycling of one or more HP LaserJet print cartridges after use. Please follow the applicable instructions below.

Multiple returns (two to eight cartridges)

1. Package each HP LaserJet print cartridge in its original box and bag.
2. Tape up to eight single boxes together using strapping or packaging tape (up to 70 lbs).
3. Use a single pre-paid shipping label.

OR

1. Use your own suitable box, or request a free bulk collection box from the <http://www.hp.com/recycle> or 1-800-340-2445 (holds up to eight HP LaserJet print cartridges).
2. Use a single pre-paid shipping label.

Single returns

1. Package the HP LaserJet print cartridge in its original bag and box.
2. Place the shipping label on the front of the box.

Shipping

For all HP LaserJet print cartridge recycling returns, give the package to UPS during your next delivery or pickup, or take it to an authorized UPS drop-off center. For the location of your local UPS drop-off center, call 1-800-PICKUPS or visit <http://www.ups.com>. If you are returning via USPS label, give the package to a U.S. Postal Service carrier or drop off at a U.S. Postal Service Office. For more information, or to order additional labels or boxes for bulk returns, visit <http://www.hp.com/recycle> or call 1-800-340-2445. Requested UPS pickup will be charged normal pickup rates. Information subject to change without notice.

Non-US returns

To participate in HP Planet Partners return and recycling program, just follow the simple directions in the recycling guide (found inside the packaging of your new printer supply item) or visit <http://www.hp.com/recycle>. Select your country/region for information on how to return your HP LaserJet printing supplies.

Paper

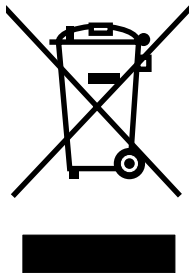
This product is capable of using recycled papers when the paper meets the guidelines outlined in the *HP LaserJet Printer Family Print Media Guide*. This product is suitable for the use of recycled paper according to EN12281:2002.

Material restrictions

This HP product does not contain added mercury.

This HP product does not contain a battery.

Disposal of waste equipment by users in private households in the European Union



This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Material Safety Data Sheet (MSDS)

Material Safety Data Sheets (MSDS) for supplies containing chemical substances (for example, toner) can be obtained by contacting the HP Web site at www.hp.com/go/msds or www.hp.com/hpinfo/community/environment/productinfo/safety.

For more information

To obtain information about these environmental topics:

- Product environmental profile sheet for this and many related HP products
- HP's commitment to the environment
- HP's environmental management system
- HP's end-of-life product return and recycling program
- Material Safety Data Sheets

Visit www.hp.com/go/environment or www.hp.com/hpinfo/globalcitizenship/environment.

Index

B

batteries included 130
bins, output
 features 3
blank pages 89
block diagram 24

C

cartridges
 HP fraud hotline 12
 life expectancy 11
 recycling 129
 replacing 11
cartridges, print
 warranty 117
change
 pickup roller 16
 separation pad 20
clean
 pickup roller 19
cleaning
 media path 15
 printer 13
clearing jams 81
Configuration page 8
consumables
 life expectancies 11
control panel
 status-light patterns 78
covers
 part numbers 98
crooked pages 88

D

dc controller 27
Demo page 8
device
 specifications 121
disposal, end-of-life 130

dots per inch (dpi)
 specifications 3
dpi (dots per inch)
 specifications 3
driver
 Macintosh, problem
 solving 92

E

EconoMode 22
electrostatic discharge (ESD) 36
embedded Web server
 Configuration page 9
 device status 9
 Information tab 9
 Networking tab 10
 order supplies 10
 product support 10
 Settings tab 10
 supplies status 10
 using 9
end-of-life disposal 130
engine control system 24, 27
Environmental Product
 Stewardship Program 129
errors
 software 91
ESD (electrostatic discharge) 36
European Union, waste
 disposal 131
EWS. See embedded Web server

F

FCC compliance 124
feeding problems, solving 88
fraud hotline 12

G

garbled text 89

graphics
 missing 89
 poor quality 90

H

high-voltage PCA 27
HP customer care 118
HP fraud hotline 12

I

image-formation system
 block diagram 24
 operations 31
improving print quality 84
information pages
 Configuration page 8
 Demo page 8
 Supplies Status page 8
Information tab (embedded Web
server) 9
input trays
 features 3
interface ports
 types included 3
internal components 25, 100
IP address 92

J

jams
 detection operations 30
jams, clearing 81

L

laser/scanner
 operations 24, 29
license, software 116
life expectancies, supplies 11
light patterns 78

- M**
- Macintosh
 - driver, problem solving 92
 - problems, solving 92
 - USB card, troubleshooting 93
- maintenance
 - replacing print cartridges 11
- material restrictions 130
- Material Safety Data Sheet (MSDS) 131
- media
 - clearing jams 81
 - feeding operations 30
- media path, cleaning 15
- mercury-free product 130
- missing
 - graphics 89
 - text 89
- N**
- Networking tab (embedded Web server) 10
- non-HP print cartridges 12
- O**
- online customer support 118
- operations
 - block diagram 24
 - engine control system 27
 - image-formation system 31
 - laser/scanner system 29
 - pickup/feed/delivery system 30
 - sequence of 26
- output bin
 - features 3
- overview, printer 4
- P**
- pages, skewed 88
- paper
 - feeding operations 30
- paper input trays
 - features 3
 - feeding problems, solving 88
- paper output bin
 - features 3
- part numbers
 - covers 98
 - internal components 100
- parts
 - removing and replacing 36, 37
- phone numbers
 - HP fraud hotline 12
 - support 118
- pickup roller
 - change 16
 - clean 19
- pickup/feed/delivery system 24, 30
- ports
 - types included 3
- ports, troubleshooting
 - Macintosh 93
- power
 - high-voltage PCA 27
- print cartridges
 - HP fraud hotline 12
 - life expectancy 11
 - recycling 129
 - replacing 11
 - warranty 117
- print quality
 - creases 87
 - curl 87
 - dropouts 84
 - EconoMode 22
 - gray background 85
 - light or faded print 84
 - loose toner 86
 - misformed characters 86
 - page skew 86
 - specifications 3
 - toner scatter outline 87
 - toner smear 85
 - toner specks 84
 - vertical lines 85
 - vertical repetitive defects 86
 - wave 87
 - wrinkles 87
- printer
 - cleaning 13
 - overview 4
 - software problems 91
- printer information pages
 - Configuration page 8
 - Demo page 8
 - Supplies Status page 8
- printing
 - Configuration page 8
 - Demo page 8
 - Supplies Status page 8
- problem solving
 - contacting HP support 77
 - demo page 76
 - device setup 76
 - device-computer communication 77
 - print quality 77
 - printed page and expectations 77
 - Ready light 76
- Q**
- quality
 - specifications 3
- R**
- rear output door
 - features 3
- recycling
 - HP printing supplies returns and environmental program 130
- refilled print cartridges 12
- regulatory statements
 - Canadian DOC regulations 126
 - declaration of conformity statements 125
 - environmental product stewardship program 129
 - FCC compliance 124
 - Korean EMI statement 126
 - laser statement for Finland 127
- removing a jammed page 81
- removing parts 36, 37
- replacing
 - parts 36, 37
- replacing print cartridges 11
- resolution
 - specifications 3
- resolve problems
 - replacing print cartridges 11
- rollers
 - locating 25
- S**
- screws, replacing 36

- sensors, media detection 30
- separation pad
 - change 20
- sequence of operations 26
- Settings tab (embedded Web server) 10
- skewed pages 88
- software
 - problems 91
 - software license agreement 116
- solving
 - blank pages 89
 - creases 87
 - curl 87
 - dropouts 84
 - feeding problems 88
 - garbled text 89
 - gray background 85
 - incomplete text 89
 - light or faded print 84
 - loose toner 86
 - Macintosh problems 92
 - misformed characters 86
 - missing graphics or text 89
 - page skew 86
 - poor graphics quality 90
 - printed page differs from onscreen page 89
 - printer software problems 91
 - skewed pages 88
 - toner scatter outline 87
 - toner smear 85
 - toner specks 84
 - vertical lines 85
 - vertical repetitive defects 86
 - wave 87
 - wrinkles 87
- specifications
 - device features 3
- static precautions 36
- status-light patterns 78
- storing
 - print cartridges 11
- supplies
 - life expectancies 11
 - recycling 129
- Supplies Status page 8

T

- telephone numbers
 - HP fraud hotline 12
 - support 118
- text
 - garbled 89
 - missing 89
- toner
 - loose toner 86
 - low 84
 - scatter outline 87
 - smear 85
 - specks 84
- tools, required 36
- top output bin
 - features 3
- trays
 - features 3
 - feeding operations 30

U

- USB port
 - troubleshooting Macintosh 93
 - type included 3

W

- warranty
 - Customer self repair 115
 - license 116
 - print cartridge 117
 - product 114
- Web server, embedded 9
- Web sites
 - customer support 118
 - Material Safety Data Sheet (MSDS) 131
- wire harnesses, replacing 36



CB412-90910

