HEWLETT® PACKARD

LaserJet 3100

Product Service Manual

HP LaserJet 3100 Product

Service Manual

Copyright Information

Part Number: C3948-90957

First Edition, March 1998

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Hewlett-Packard Company
11311 Chinden Boulevard
Boise, Idaho 83714 U.S.A.

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1 Product Information

Chapter contents

Introduction

The HP LaserJet 3100 product is a powerful business tool with the capabilities of a full range of office equipment. With the HP LaserJet 3100 product, you can:

- Print—Easily print documents with the laser quality you have come to expect from an HP LaserJet printer.
- Fax—Use the HP LaserJet 3100 product as a standalone fax machine to send and receive faxes, as well as perform advanced tasks such as forwarding faxes to other locations. Use the software to send faxes from and receive them to your computer.
- Copy—Make superior laser-quality copies. You can make up to 99 copies of a 30-page original. You can also enlarge, reduce, adjust contrast and collate.
- Scan—Scan important documents to create electronic files.
- Use Software—Use the software to print, fax, copy, or scan. Also use the software to store and organize scanned documents.

Product features

Table 1. Product features

Feature	Description
Print speed	6 pages per minute (ppm)
Copy speed	6 ppm
Fax transmission speed	6 seconds per page
Margins for scanned items	0.16 in (4.06 mm) at leading and trailing edges 0.12 in (3.05 mm) at sides
Margins for printed pages	0.20 in (5.08 mm) at sides 0.25 in (6.35 mm) at leading and trailing edges
Fax compatibility	International Telecommunications Union (ITU) Group 3
Fax coding schemes	MR, MMR, MH, and JBIG
Modem speed	14,400 bits per second (bps)
Speed dialing	Yes
Distinctive ring detect	Yes
Multiple copies	Up to 99 per job
Copy Reduction/ Enlargement	50% to 200%
Memory	2 megabytes (MB) (approximately 150 pages)
Printer Duty Cycle	6,000 single-sided pages per month
Document Scanner Duty Cycle	2,500 single-sided items per month

Product specifications

Table 2. Physical specifications

Category	Specification
Height	10.71 in (272 mm) without supports attached; 15.91 in (404 mm) with supports attached
Depth	15.36 in (390 mm) without supports attached; 23.55 in (598 mm) with supports attached
Width	15.12 in (384 mm)
Weight (cartridge installed)	23.37 pounds (10.6 kilograms)

Table 3. Performance specifications

Category	Specification
Print resolution	600 dots per inch (dpi)
Scan resolution	600 dpi enhanced; 300 dpi optical, with 256 levels of gray
Fax resolution	Standard: 203 by 98 dpi Fine: 203 by 196 dpi Superfine: 300 by 300 dpi (no halftone) Photo: 300 by 300 dpi (halftone enabled)
Print speed	6 ppm
Copy speed	6 ppm

Table 4. Power specifications

Category	Specification
Power requirements	100 to 127 Volts alternating current (Vac) +/-10%; 50 to 60 hertz 220 to 240 Vac +/-10%; 50 hertz
Power consumption (in continuous copy mode)	135 watts
Power consumption (idle)	9 watts
Minimum recommended circuit capacity	4.2 amps (110 volts) 2 amps (220 volts) (4.2 amps maximum pull)

Table 5. Operating acoustical emissions (per International Standards Organization 9296) specifications

Category	Specification
Sound Power Level, L_{WAd} (1 bel = 10 decibels)	5.7 bels (B)
Sound Pressure Level, L_{pAm} (Operator Position)	52 decibels (dB)
Sound Pressure Level, L_{pAm} (Bystander Position)	43 dB

Model and serial numbers

The model number and serial number are listed on an identification label located on the back of the printer. The model number of the HP LaserJet 3100 product is C3948A.

The serial number contains information about the Country of Origin, the Revision Level, the Production Code, and production number of the HP LaserJet 3100 product.

The label also contains power rating and regulatory information.

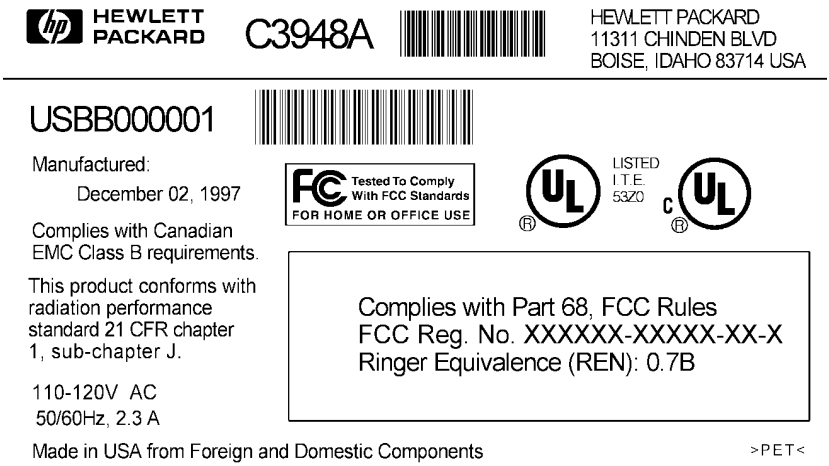


Figure 1. Model and serial number label

Product overview

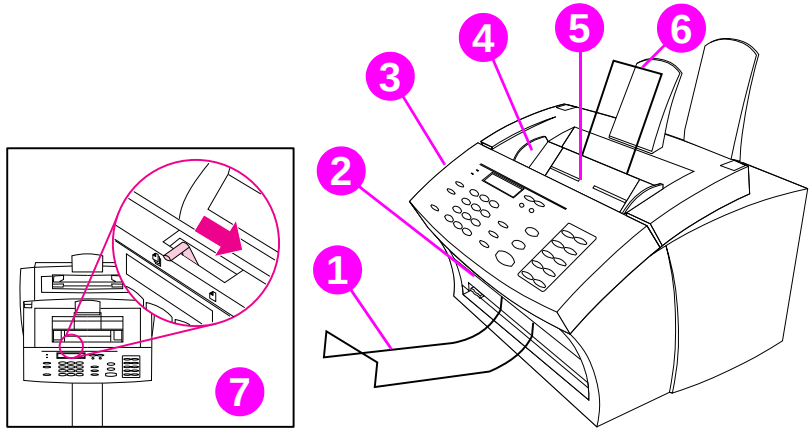


Figure 2. Document scanner path

1 Document output support

2 Document output slot

3 Document release door/control panel

4 Document feeder tray guides

5 Document feeder tray

6 Document feeder support

7 Special media lever

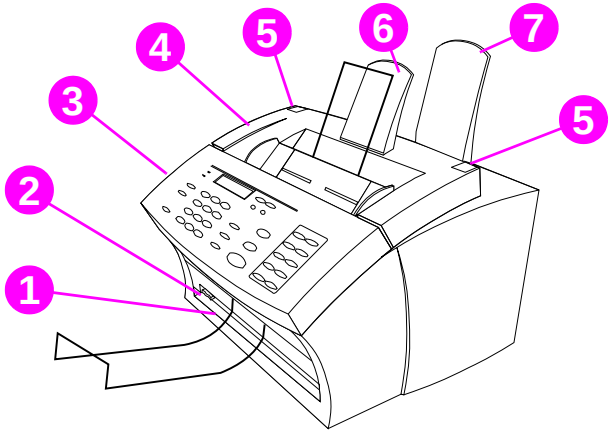


Figure 3. Printer path (1 of 2)

1 Front paper output

2 Paper path lever

3 Control panel

4 Printer door

5 Printer door release latches

6 Paper output support

7 Paper input support

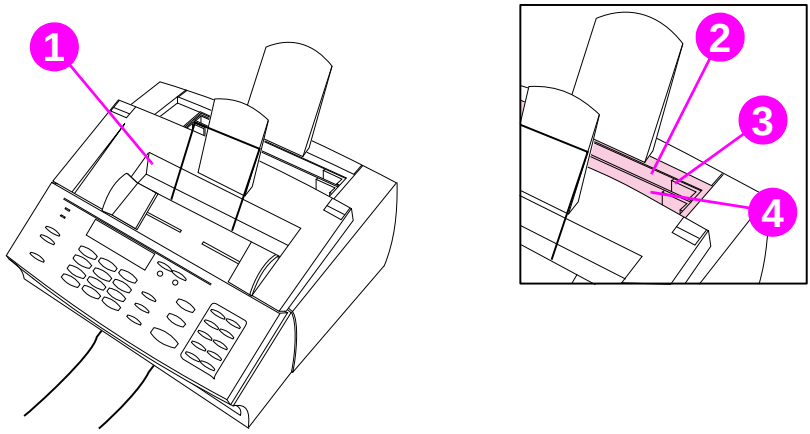


Figure 4. Printer path (2 of 2)

1 Output bin

2 Input bin

3 Paper guides

4 Single-sheet input slot

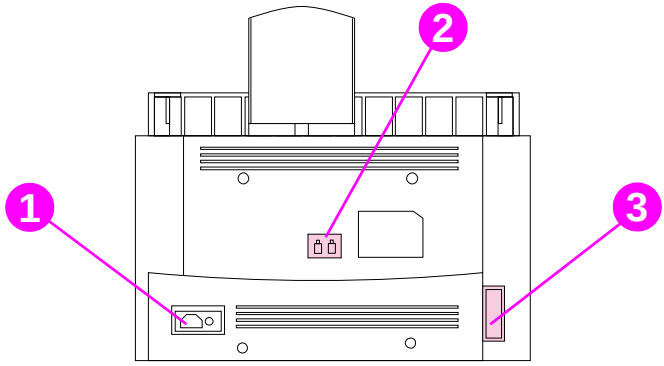


Figure 5. Rear view

1 Power cable connector

2 Phone line connector (or connectors, depending on country)

3 Parallel cable connector

Regulatory information

Safety

Transportation

Non-operating Magnetic Field Emissions, IATA Packaging Instructions 902

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. This 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 this 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 manual may result in exposure to hazardous radiation.

Laser statement for Finland

Luokan 1 laserlaite

Klass 1 Laser Apparat

HP LaserJet 3100 laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käytössä kirjoittimen suojakotelointi estää lasersäteen pääsyn laitteen ulkopuolelle.Laitteen turvallisuusluokka on määritetty standardin EN 60825-1 (1994) mukaisesti.

Varoitus!

Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

Varning!

Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

HUOLTO
HP LaserJet 3100 -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 775-795 nm
Teho 5 mW
Luokan 3B laser

FCC regulations

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 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 HP could void the user's authority to operate this equipment.

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

FCC part 68 requirements

This equipment complies with FCC rules, Part 68. On the back of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all, areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

This equipment uses the following USOC jacks:

RJ11C

An FCC-compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant.

This equipment cannot be used on telephone company-provided coin service. Connection to Party Line Service is subject to state tariffs.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please see the numbers in the front of this manual for repair and (or) warranty information.

If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved.

The following repairs can be done by the customer:

Replace any original equipment that came with the HP LaserJet 3100 product. This includes the toner cartridge, the supports for trays and bins, the power cord and the telephone cord.

It is recommended that the customer install an AC surge arrestor in the AC outlet to which this device is connected. This is to avoid damage to the equipment caused by local lightning strikes and other electrical surges.

Telephone consumer protection act (U.S.)

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.)

In order to program this information into your facsimile, please see “Setting the fax header” and “Setting the time and date” in the user guide.

IC CS-03 requirements

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirement document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Ringer Equivalence Number (REN) of this device is 0.7.

NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Number of all the devices does not exceed 5.

The standard connecting arrangement code (telephone jack type) for equipment with direct connections to the telephone network is CA11A.

Declaration of conformity

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Hewlett-Packard Company

Manufacturer's Address: 11311 Chinden Boulevard
Boise, Idaho 83714-1021, USA

declares, that the product

Product Name: HP LaserJet 3100 product

Model Number: C3948A

Product Options: ALL

conforms to the following Product Specifications:

Safety: IEC 950:1991+A1+A2+A3 / EN 60950:1992+A1+A2+A3
EN 41003:1993
IEC 825-1:1993 / EN 60825-1:1994 Class 1 (Laser/LED)

EMC: CISPR 22:1993+A1 / EN 55022:1994 Class B[1]
EN 50082-1:1992
IEC 801-2:1991 / prEN 55024-2:1992-3kV CD, 8kV AD
IEC 801-3:1984 / prEN 55024-3:1991-3 V/m
IEC 801-4:1988 / prEN 55024-4:1992-0.5 kV Signal Lines
1.0 kV Power Lines
IEC 1000-3-2:1995 / EN61000-3-2:1995
IEC 1000-3-3:1994 / EN61000-3-3:1995
FCC Title 47 CFR, Part 15 Class B[2] / ICES-003, Issue 2
AS / NZS 3548:1995 / CISPR 22:1993 Class B[1]

Supplementary Information:

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

[1]This 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.

March 25, 1997

For Compliance Information 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 130, D-71034 Böblingen (FAX: +49-7031-14-3143)

USA Contact: Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, ID, 83707-0015 (Phone: 208-396-6000)

Canadian DOC regulations

Complies with Canadian EMC Class B requirements.

Conforme á la classe B des normes canadiennes de compatibilité électromagnétiques. << CEM>>.

Environmental product stewardship program

Protecting the environment

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

This HP LaserJet printer design eliminates:

Ozone production

The printer does not use high-voltage corona wires in the electrophotographic process and therefore generates no appreciable ozone gas (O_3). Instead, this printer uses charging rollers in the toner cartridge and in the print engine.

This HP LaserJet printer design reduces:

Energy consumption

Energy usage drops to as little as 9 watts while in idle mode. Not only does this save natural resources, but it also saves money without affecting the high performance of this product. This product qualifies for the ENERGY STAR Program (U.S. and Japan). ENERGY STAR is a voluntary program established to encourage the development of energy-efficient office products. ENERGY STAR is a U.S. registered service mark of the U.S. Environmental Protection Agency.

As an ENERGY STAR partner, Hewlett-Packard Company has determined that this product meets ENERGY STAR Guidelines for energy efficiency.

Toner consumption

Depending on the type of printer driver you have, you may be able to select a “draft” mode which uses about 50% less toner, thereby extending the life of the toner cartridge. This is only available using printer driver properties when printing or making copies from the software.

Paper use

Depending on the type of program you use, you may be able to print 2 or 4 document pages on each printed page. This “N-up” printing practice and the printer’s manual duplex capability (two-sided printing) reduce paper usage and the resulting demands on natural resources.

The design of this HP LaserJet printer facilitates the recycling of:

Plastics

Plastic parts have marking according to international standards that enhance the ability to identify plastics for recycling purposes at the end of the product’s life. The plastics used in the product housing and chassis are technically recyclable.

HP toner cartridges/photoconductive drum

In many countries, this product’s toner cartridge/drum can be returned to HP using the prepaid shipping label and instructions included inside each new HP toner cartridge box. If your country is not listed in the recycling guide, call your local HP Sales and Service Office for further instructions.

HP cartridge recycling program

Since 1990, the HP LaserJet Toner Cartridge Recycling Program has collected more than 12 million cartridges that otherwise would have been discarded into landfills or similar facilities. Once a cartridge is returned through the prepaid return program, it is disassembled, and reusable components and the plastic housing are cleaned and inspected for quality conformance. After passing strict inspection procedures, materials such as nuts, screws, and clips are reclaimed and used to produce new cartridges. Remaining materials are melted down and used as raw materials for a variety of other products. Over 95 percent of the weight of returned materials is recycled. For more information in the U.S., contact the HP LaserJet Supplies Website at: http://LJsupplies.com/planetpartners
International customers can call the local HP Sales and Service Office for further information regarding the HP Toner Cartridge Recycling Program.

Printer and parts

Design for recycling has been incorporated into this printer and its accessories. The number of materials has been kept to a minimum while ensuring proper functionality and high product reliability. Dissimilar materials have been designed to separate easily. Fasteners and other connections are easy to locate, access, and remove with common tools. High priority parts have been designed to be accessed quickly for efficient disassembly and repair. Plastic parts have been primarily designed in two colors to enhance recycling options. A few small parts are colored specifically to highlight customer access points.

HP provides a product return system for customers in Germany. Many of the functional parts are recovered, tested, and reused as fully warranted service parts. Used parts are not placed into new product manufacturing. Remaining product parts are recycled, if possible. For product return information, contact:

Hewlett-Packard GmbH
Wertstoffzentrum
Fronackerstr .30
71063 Sindelfingen

Paper

This printer is suited for the use of recycled papers when the paper meets the guidelines outlined in the HP LaserJet Printer Family Paper Specification Guide, HP part number 502-8956. This printer is suited for the use of recycled paper according to DIN 19 309.

To ensure longevity of your HP LaserJet printer, HP provides the following:

Extended warranty

HP SupportPack provides coverage for the HP hardware product and all HP-supplied internal components. The hardware maintenance covers a three-year period from date of the HP product purchase. HP SupportPack must be purchased by the customer within 90 days of the HP product purchase. Information on HP SupportPack is available in a fax format by calling the U.S. HP FIRST (Fax Information Retrieval Support Technology) at (800) 333-1917. After connecting, press 1, and then press 1 again. The document number is 9036. International customers can contact the nearest HP-authorized reseller about this service.

Spare parts and consumables availability

Spare parts and consumable supplies for this product will be made available for at least five years after production has stopped.

Material safety data sheet

The Material Safety Data Sheet for the toner can be obtained by calling U.S. HP FIRST (Fax Information Retrieval Support Technology) at (800) 231-9300. After connecting, press 1. Then, request document number 10164.

2 Installation and operation

Chapter contents

Operating environment

The environmental requirements listed below must be maintained to ensure the proper operation of the HP LaserJet 3100 product.

Table 6. Environmental requirements

Category	Requirement
Operating (working or standby)	Temperature: 59 to 90.5 degrees Fahrenheit (15 to 32.5 degrees Celsius) Humidity: 10 to 80 percent relative humidity (no condensation)
Non-operating	Temperature (toner cartridge): -4 to 104°F (-20 to 40°C); Temperature (product): -4 to 140°F (-20 to 60°C) Humidity: 10 to 90 percent relative humidity (no condensation)
Normal storage	Temperature: 32 to 95°F (0 to 35°C) Humidity: 35 to 85 percent relative humidity

Consider the following before installing the printer:

- Install in a well-ventilated, dust-free area.
- Install on a hard, flat, continuous surface, with all four feet level. Do not install on carpet or other soft surfaces.
- Ensure adequate power is supplied. Uninterruptible power supplies (UPS) should not be used with the HP LaserJet 3100 product.

CAUTION Using uninterruptible power supplies can damage the fuser.

- Install away from direct sunlight, open flames, or ammonia fumes. If the HP LaserJet 3100 product is placed near a window, make sure the window has a curtain or blind to block direct sunlight.
- Install with enough space around the product for proper access and ventilation.
- Install away from the direct flow of exhaust from air ventilation systems.

Media requirements

Media must be in good condition. Do not use media that is torn, worn, or irregular. The table below details media requirements of the HP LaserJet 3100 product.

Table 7. Media requirements

Input for paper input bin and single-sheet input slot (for printer path)	
Media size	Maximum: 8.5 by 14 in (216 by 356 mm) Minimum: 3 by 5 in (76.2 by 127 mm)
Media weight	For paper output bin: 16 to 28 lb; (60 to 105 g/m^2) For front output slot: 16 to 42 lb (60 to 157 g/m^2)
Paper input bin capacity	Up to 100 sheets of media at 20 lb (75 g/m^2) weight or lighter (fewer than 100 sheets of heavier media) or up to 10 envelopes
Input for document feeder tray (for document scanner path)	
Item size	Maximum width: 8.5 in (216 mm) Maximum length: 39 in (991 mm); up to 118 in (2997.2 mm) with “long pages” enabled Minimum size: 2 by 3.5 in (51 by 89 mm)
Item weight	Maximum: 28 lb (105 g/m^2) for normal use; up to 67 lb (252 g/m^2) when using special media lever Minimum: 12 lb (44 g/m^2)
Document feeder tray capacity	Up to 30 pages of an item at 20 lb (75 g/m^2) weight or lighter Fewer than 30 pages of items up to 28 lb (105 g/m^2) weight One page at a time of 12 to 67 lb (44 to 252 g/m^2) weight using special media lever
Output capacities	
Paper output bin	Up to 100 sheets of 20 lb (75 g/m^2) or lighter paper
Front paper output slot	Up to 20 pages of 20 lb (75 g/m^2) or lighter paper
Document output tray	Up to 30 pages of an item at 28 lb (105 g/m^2)

Toner cartridge information

Toner cartridges contain components that are sensitive to light, temperature, and humidity. Follow the recommendations in this section to ensure the highest quality and longest life of HP toner cartridges.

Keep the HP LaserJet 3100 product within the following environmental conditions for optimum performance.

Storage conditions

Toner cartridges are affected by their environment. Packaging protects toner cartridges from light and increases storage life. It is important to store cartridges in their original packaging until ready for installation.

When storing cartridges in a warehouse or work area, make sure the storage place meets the conditions specified in Table 6.

Storing opened toner cartridges

Because cartridges do not have shutters to cover the laser beam access slot, they should be kept inside the HP LaserJet 3100 product until empty. Toner cartridges that have had the toner sealing tape removed are also more vulnerable to environmental extremes.

If a toner cartridge must be removed from the HP LaserJet 3100 product, always store the cartridge:

- Inside the protective bag in which it was originally packaged.
- In a dark cabinet, away from direct sunlight.
- Correct side up and in a horizontal position (not standing on end).
- Away from ammonia or organic solvent fumes.

CAUTION Never ship the HP LaserJet 3100 product with a toner cartridge installed. Excessive vibration during shipping can cause toner to leak, contaminating the product and possibly damaging the drum. Never expose a cartridge to direct sunlight or to room light for more than a few minutes. Bright light can permanently damage a toner cartridge.

Toner Recycling

See recycling information in Chapter 1.

Control panel

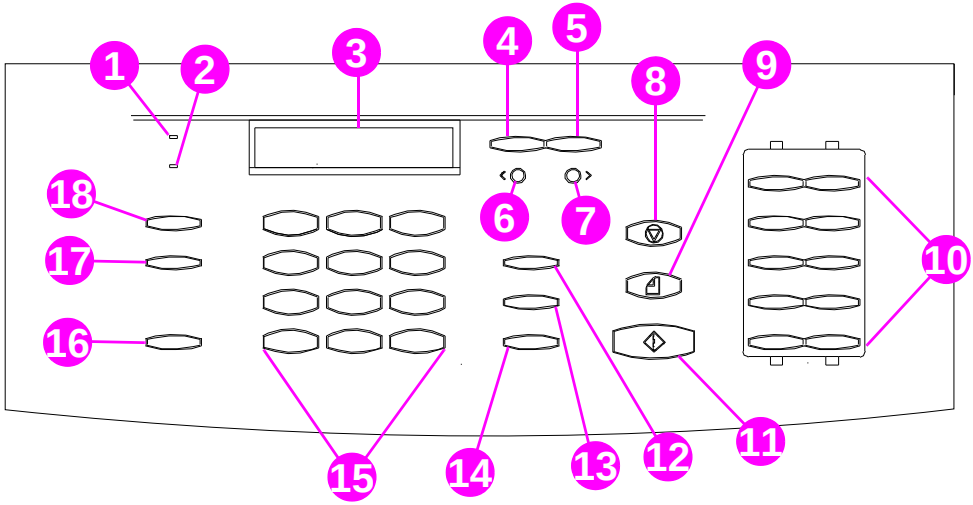


Figure 6. Control panel layout

1. Ready light
2. Error light
3. Control panel display
4. Enter/menu key
5. Backspace key
6. Back arrow key
7. Forward arrow key
8. Stop/clear key
9. Copy key
10. One-touch keys
11. Start key
12. Manual dial key
13. Speed-dial key
14. Redial/pause key
15. Numeric keys
16. Volume key
17. Resolution key
18. Contrast key

Control panel messages

These control panel messages are listed alphabetically, and are accompanied by the cause for the message and steps to take to resolve the problem.

Table 8. Control panel messages

Message	Cause	Solution
(number) is a Group Group not Allowed	The group-dial code you entered is assigned to a group, but a group cannot be dialed at this point. Entries assigned as groups cannot be assigned into other groups.	Enter a different one-touch key or speed-dial code that is not assigned.
Already in Group	While programming a group-dial code, you have tried to add a fax number that is already in the group.	Continue by adding the next fax number you want to the group.
Blacklisted (France only)	The fax number you are trying to dial has received a voice answer or no answer, was busy on the first dial and redials, or was busy with redials pending.	To clear the blacklist, unplug the fax machine's power cord from the power strip or outlet and plug it back in.
Busy	While sending a fax, receiving fax line was busy for all redial attempts.	Check the fax number and try resending the fax. If the message appears again, try sending to another fax machine or try again later.
Cancel Group Edit ENTER to Confirm	You pressed Back Space while in a group-dial code in the Group Dial Setup Menu level.	Press START to return to the group-dial code and continue editing. Press ENTER/MENU to go to the Group Dial Setup level of the Menu. (Press ENTER/MENU again to choose a different group-dial code.) Press STOP/CLEAR to exit the Menu settings.

Table 8. Control panel messages

Message	Cause	Solution
Clear Document From Scanner	Your document jammed while being fed through the document feeder tray or the HP LaserJet 3100 product loaded multiple sheets of the document.	Pull the document release door open, remove the jammed item, and then close the door.
	The special media lever was in the wrong position for the document you sent.	Remove the jammed item as detailed above. Then, check the special media lever. It should be to the left for regular-weight items or to the right for thick items, which must be fed one at a time.
	The control panel configuration was set incorrectly.	Check the control panel configuration for outgoing faxes, including the “send long pages” setting.

Table 8. Control panel messages

Message	Cause	Solution
Communication Error	An error occurred while trying to transmit a fax. Brief descriptions of communication errors are listed below: 60 no RTC at end of fax 81 memory filled up 82 fax was too short 84 power fail while receiving 85 failed to train 86 in ECM, fax data had error(s) 87 NEC failed to decode (T.4 or T.6 coding error 88 received scan line exceeds 13 sec (T.4-3.2) 89 modem setup timeout 90 low speed command time out 91 bad low speed command 92 transmit error: no DIS 93 transmit error: no answer 94 transmit error: canceled by operator 95 transmit error: failed to train 96 transmit error: busy 97 transmit error: no dial tone 100 poll-in error: no document to poll 101 document jam 102 receive error: too many mailbox logs 103 receive error: had poll document but no memory for receive 104 transmit error: no MCF 105 image processing chip fell behind 106 transmit: modem output buffer error 107 PIN received 108 RR/RNR timeout 109 generic ECM error 110 possible missing/partial pages in ECM 111 T4 bit not set in DIS 112 wrong password 113 communications error in remote setup (JetFax only) 114 fax document was lost (JetFax only) 115 blacklist 116 SUB/PWD error 117 timeout waiting for image processing chip 118 no fax detected 119 remote access 120 caller disconnected prematurely	Try resending the fax. If the call fails again, check that the telephone cord is securely connected. Then, check for a dial tone on the phone line by pressing MANUAL DIAL. Wait and try resending the fax later.

Table 8. Control panel messages

Message	Cause	Solution
Configuration Err # (number 1-4)	An error was detected in the static random-access memory (SRAM).	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, see Chapter 6, “Troubleshooting.”
Config. Stuck Addr	In Service Mode only, SRAM stuck address test.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, see Chapter 6, “Troubleshooting.”
Config. Tied Addr.	In Service Mode only, SRAM tied address test.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, see Chapter 6, “Troubleshooting.”
Decoding Error #(number 1-3)	There was an error in decoding with the image processing chip.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, see Chapter 6, “Troubleshooting.”
Documents Were Lost START to Continue	Power to the HP LaserJet 3100 product was interrupted, and documents in memory were lost.	Press START. The HP LaserJet 3100 product prints a report. Check the fax log status column for the “Fax Document was Lost” message. Resend the associated outgoing faxes and, for incoming faxes, ask the sender to resend them.
Encoding Error	There was an error in encoding with the image processing chip.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, see Chapter 6, “Troubleshooting.”
Errors Likely in Pages: (page range)	The fax transmission was completed, but there are likely to be errors in the pages specified.	Try resending the fax or asking the sender to resend the fax to you.

Table 8. Control panel messages

Message	Cause	Solution
Fax Document was Lost	Faxes in memory were lost due to a power failure.	If you set up faxes to be sent at a future time or to be polled, print a fax log to identify which faxes were lost. Then, enter the faxes again. If the HP LaserJet 3100 product was set to receive faxes to memory (instead of printing), any documents received to memory also have been lost. Check with the sender and request that the fax be resent.
Fax Memory Error #(number 1-5)	An error was detected in dynamic random-access memory (DRAM).	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, service may be required. See Chapter 6, “Troubleshooting.” If you set up faxes to be sent at a future time or to be polled, print a fax log to identify which faxes may have been lost. Then, re-enter the faxes. If the HP LaserJet 3100 product was set to receive faxes to memory (instead of printing), any documents received to memory also may have been lost. If you were expecting a fax, check with the sender and request that the fax be resent.
Group is Empty, Use ONE-TOUCH/ SPEED DIAL	Appears when you are creating a group-dial code.	Begin adding fax numbers the group-dial code by pressing each number’s one-touch key or pressing SPEED DIAL, entering the fax number’s speed-dial code, and pressing ENTER/MENU.
Input Limit Reached	Too many fax numbers were dialed when trying to send to an ad-hoc group.	The maximum number of fax numbers that can be added to an ad-hoc group is 100. Resend the fax, but only to 100 fax numbers or fewer.
Invalid Date or Time	An invalid time or date was entered, such as 25:99 PM or June 35	Re-enter the date and time. If the error persists, see Chapter 6, “Troubleshooting.”
Keypad Test Failed	In Service Mode only, the keypad test failed.	Try running the keypad test again.

Table 8. Control panel messages

Message	Cause	Solution
Long Page? START to Continue	The HP LaserJet 3100 product senses a document over 39 inches (991 mm), such as a banner, may be feeding through the document feeder tray or that a paper jam has occured.	Press START to continue scanning. If you do not press START within three seconds, the message disappears and the document scanner stops scanning because it thinks the page has jammed. If you are sending a fax or copying a document longer than 39 inches (991 mm), you can also set the control panel configuration to “Send long pages,” which ensures that long pages feed without having to monitor the task and press START before the document scanner shuts off.
Memory Full - Send Unscanned Pages	During the fax job the memory filled. All pages of the fax have to be in memory for a fax job to work correctly. Only the pages that fit into memory were sent.	Reload the unscanned pages and re-send them to finish the fax job. Or, scan the unscanned pages to the computer and fax them from the computer.
Memory is Full	The HP LaserJet 3100 product’s memory has been completely filled during a copy or a scan.	This message should clear automatically when the next task starts (for example when you start a copy or receive a fax).
Modem Error # (number 1-3)	An error was detected with the modem.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord.
No Answer	You tried to send a fax, but the receiving fax line did not answer for all redial attempts.	Check the fax number and try resending the fax. If the message appears again, try sending to another fax machine or try again later.
No Dial Tone	You tried to send a fax, but your phone line is not operational.	Check that the telephone cord is securely connected. Then, check for a dial tone on the phone line by pressing MANUAL DIAL. If necessary, check the wall outlet by plugging in a phone and attempting to place a phone call.
No Fax in (number) Tries	The HP LaserJet 3100 product failed to connect to the receiving fax machine in the number of redials specified.	Check the fax number and try resending the fax. If the message appears again, try sending to another fax machine or try again later.

Table 8. Control panel messages

Message	Cause	Solution
No Memory for Report Erase/Print Document	Memory needed to print a report may be being used to store faxes that have been received to memory.	Print faxes that have been received to memory.
	Needed memory may be being used to store faxes set up to be sent at a future time or to be polled.	If you have several faxes set up to be sent at a future time or to be polled, try clearing these faxes using job status.
No Modem Installed	There is a problem with the line interface unit (LIU).	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, see Chapter 6, “Troubleshooting.”
No Room in Fax Log	The fax log was unable to print due to an error, such as out of paper.	Load paper in the paper input bin so the HP LaserJet 3100 product can print the log.
Not Enough Memory	There is not enough memory to complete the job indicated.	Try resending the job. If the error persists, try reducing the amount of activity on the HP LaserJet 3100 product and cancel jobs in memory before resending the job.
Out of Memory Switching to ONE COPY	The HP LaserJet 3100 product does not have enough memory to complete the copy job.	The HP LaserJet product continues to copy, but only one copy is output. Divide the copy job into smaller sections and then try copying again. If you are collating the job, turn off the collation feature, only make one copy of the document at a time, or see the user guide for instructions about using the Document Assistant to make the copies.
No Fax Pages in Memory to Reprint	The HP LaserJet 3100 product attempted to execute “Reprint Last Fax” when nothing was in memory.	Wait for a fax, then as soon as a fax is in the memory, the HP LaserJet 3100 product will reprint the fax.
Nov-22-93 06:30 PM (This date is incorrect.)	The battery inside the HP LaserJet 3100 product has failed, causing all Menu features to revert to the factory settings. Settings that contained alphabetic and numeric characters you entered, such as header information and speed-dial names and numbers, have been erased.	The battery should be replaced. You can continue to use the HP LaserJet 3100 product without replacing the battery, but if you re-enter the Menu settings and then turn off the power, the settings are erased again.

Table 8. Control panel messages

Message	Cause	Solution
Paper Bin is Empty Please Add Paper	The paper input bin is empty.	Load paper. If paper is already loaded, remove it. Check for and remove any jammed sheets and discard them. Then, reload the paper.
Password must be 4 Digits	Attempt was made to enter a password that was not four digits.	Re-enter four-digit password.
Paused (Memory Full)	The HP LaserJet 3100 product's memory is full, and the current job in the document feeder tray is paused to wait for memory to become available.	Reduce activity on the HP LaserJet 3100 product, or wait for other jobs to finish so memory will be freed. If there are faxes set up to be polled or sent at a future time, you may want to cancel these jobs to free memory.
PC Print Timed Out	The print job took too long to print, and the HP LaserJet 3100 product timed out.	Let the "print jobs retry" continue for five minutes. If the HP LaserJet 3100 product still does not print, resend the print job.
Phone Number Error	Too many characters were entered when dialing a phone number.	The maximum number of characters that can be entered is 40. If you have a number longer than 40 characters, break the number into smaller chunks. Enter the first part of the number, and press REDIAL/PAUSE as the last character in the first number. Then, enter the second part of the number as if it were a second number going to a group. When the product dials, it will treat both numbers as if they are one.
Polling-In Error	The HP LaserJet 3100 product tried to poll another fax machine. The poll failed because there was no answer, the line was busy, or the other fax machine was not ready to be polled.	Make sure the sender's fax machine is ready to be polled, and check the fax number. Then, set up to poll again.

Table 8. Control panel messages

Message	Cause	Solution
Printer Comm Error	There was an error in communicating with the HP LaserJet 3100 product.	Check that the parallel cable is securely connected between the HP LaserJet 3100 product and the computer. If the problem persists, unplug the HP LaserJet 3100 product's power cord from the power source for 5 seconds, and then replug it in. If neither of these solutions works, see Chapter 6, "Troubleshooting."
Printer Comm Error ^1	In Service Mode only. There was an error in communicating with the HP LaserJet 3100 product.	Check that the parallel cable is securely connected between the HP LaserJet 3100 product and the computer. If the problem persists, unplug the HP LaserJet 3100 product's power cord from the power source for 5 seconds, and then replug it in. If neither of these solutions works, see Chapter 6, "Troubleshooting."
Printer Cover Open or No Cartridge	The printer door is open or the toner cartridge is not installed properly.	Make sure the printer door is closed. Check the toner cartridge for proper installation.
Printer Fixing Error Replace Fixing Unit	There is an error with the print engine.	See Chapter 6, "Troubleshooting."
Printer is Busy	The HP LaserJet 3100 product is temporarily unavailable for other types of printing (such as printing faxes or copies).	No action is needed. If you already started another job, such as you sent a copy job through the document feeder tray and it was scanned in or you requested a report to print, the job will be completed when the HP LaserJet 3100 product becomes available.
Printer Laser Error Call for Service	The printer door is partially open. A problem has occurred with the print engine.	Open and reclose the printer door. Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, see Chapter 6, "Troubleshooting."

Table 8. Control panel messages

Message	Cause	Solution
Printer Motor Error Call for Service	A problem has occurred with the print engine.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, see Chapter 6, “Troubleshooting.”
Printer Paper Jam Check Paper Path	A paper jam has occurred.	Check the input areas, the output areas, and the interior for the jam and then clear the jam. The job should continue to print. If it doesn’t, try reprinting the job.
Printer signal error	The printer door is partially open. There was an error in the HP LaserJet 3100 product print unit.	Open and reclose the printer door. Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, see Chapter 6, “Troubleshooting.”
Receive Error	An error occurred while the HP LaserJet 3100 product was receiving a fax.	Call the sender and ask him or her to resend the fax.
Redial Failed	Attempts to redial a fax number failed.	Try resending the fax. If the fax still fails to transmit, call the recipient to check that his or her fax machine is on and working and to verify the fax number.
Remote Fax was Busy	The fax number dialed was busy.	Try resending the fax. If the fax still fails to transmit, call the recipient to check that his or her fax machine is on and working and to verify the fax number.
Scan Reference Error	There was an error detected in the HP LaserJet 3100 product.	Recalibrate the document scanner.
Scanner Error #1	An error has occurred with in the SRAM.	Press and hold down the STOP/CLEAR key for 7 seconds. This resets the HP LaserJet 3100 product. If the error persists, unplug the power cord from its power source for 10 seconds, and then replug it in. If neither of these methods clears the error, see Chapter 6, “Troubleshooting.”

Table 8. Control panel messages

Message	Cause	Solution
Scanner isn't Available	The document scanner mechanism is in use.	Wait until the document scanner has finished the current job before sending the next job.
Scanner Jam - Reload	A document has jammed in the document scanner area.	Pull open the document release door and then remove the jammed document.
Speed Dial (number) is not Assigned	You tried to dial a speed-dial code that doesn't have a fax number stored in it or you assigned a non-defined one-touch key to a group.	Choose a speed-dial code to which you have already assigned a fax number.
System Error	An error has occurred that may require servicing. In some cases, the error can be cleared by turning off the power, then turning it on again.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the message is no longer displayed, the problem has been solved and you can continue to use the HP LaserJet 3100 product normally. If the message is still displayed, record the three-digit error number in the message and see Chapter 6, "Troubleshooting."
There are No Documents in Memory	HP LaserJet 3100 product tried to print faxes from memory when no faxes had been received to memory.	No action is required. There are no faxes to retrieve.
Unrecognized Format	When printing, the incorrect printer driver was selected or an error occured on the parallel interface.	After selecting the **Print** command in the program from which you are printing, select the **HP LaserJet 3100** as the printer. Reprint the job.
Unsuccessful Call	The fax number entered could not be reached.	Check the fax number and try resending the fax. If the message appears again, try sending to another fax machine or try again later.

Menu tree

The following page shows the layout of the menu settings in a hierarchical diagram. You may want to refer to this menu tree before making changes to settings and features. To see the current settings, print a configuration report. Current settings are marked with an asterisk (*).

The service menu and the extended service menu are discussed in Chapter 6, “Troubleshooting.”

To print a menu tree

1. Press ENTER/MENU.
2. Use the < and > keys to select `Reports` and press ENTER/MENU.
3. Use the < and > keys to select `Print the Menu` and press ENTER/MENU.

The HP LaserJet 3100 product exits the menu settings and prints the menu tree.

Table 9. Menu tree

Press ENTER/MENU to access the Menu.	Use the < and > keys to select one of the choices below and press ENTER/MENU.	Use the < and > keys to select one of the choices below and press ENTER/MENU.	Use the < and > keys to select one of the choices below and press ENTER/MENU, or see the display.
	Job Status		
	Fax Functions	Delayed Fax	
		Reprint Last Faxes	
		Print Faxes	
		Clear Memory	
		Send Confirmation	
		Polling	Receive
			Send
	Time/Date, Header	Time/Date	
		Fax Header	
	Reports	Fax Log	Print Fax Log
			Automatic Log
		Transmission Reports	
		Phonebook	
		Print the Menu	
		Print Config Report	
		Self Test	
		Print All	
	Copy Settings	Default Collation	
		Next Copy Size	
	Fax Settings	Phonebook	Speed Dial Setup
			Group Dial Setup
		Outgoing Faxes	Dialing Mode
			Number of Redials
			Time Between Redials
			Dial Symbols
			Send Long Pages
		Incoming Faxes	Answer Mode
			Rings to Answer
			Distinctive Ring
			Extension Phone
			Silence Detection
			Auto Reduction
			Stamp Received Faxes
			Pager Notification
			Memory Receive
			Fax Forwarding
		All Faxes	Error Correction
			Remote Retrieval
	User Defaults	Language	
		Default Resolution	
		Default Contrast	
		Copy Size	
		Paper Size	
		Print Density	
		Volume Settings	Alarm Volume
			Front Panel Keys
		Restore Defaults	

3 Maintenance

Chapter contents

Life expectancies of consumables

Inspect the consumables when servicing the HP LaserJet 3100. Replace consumables as needed, based on failures or wear, not strictly on usage.

The following table lists approximate schedules for replacing consumables.

Table 10. Life expectancies of consumables

Description	Part number	Estimated life (pages)	Remarks
Toner cartridge (user replaceable)	C3906A	2,500*	When print becomes faint, redistribute toner in the cartridge.
Printer transfer roller	RG5-3452-000CN (Transfer guide assembly)	50,000	Can affect print quality and/or paper movement.
Printer pickup roller assembly	RG5-3486-000CN	50,000	Look for glazing and/or cracks.
Printer separation pad and subpads	RB1-7181-000CN (Separation arm assembly)	50,000	Can affect paper movement.
Heating element	RG5-4678-000CN (110V) RG5-4681-000CN (220V)	50,000	Can affect print quality and/or paper movement.
Pressure roller	RF5-2362-000CN	50,000	Look for marks on pressure roller or upper Teflon sleeve.
Document scanner pickup roller assembly	RG5-4688-000CN	25,000	Look for glazing and/or cracks.
Document scanner separation pad	RB2-3430-000CN	25,000	Can affect document movement.
Document scanner feed roller and document scanner delivery roller	RG5-4223-000CN (Document scanner assembly)	25,000	Can affect document movement.

* The estimated toner cartridge life is based on Letter- or A4-sized paper with an average of 5% toner coverage and a medium density setting. Toner cartridge life can be extended further by conserving toner using draft mode settings.

Cleaning and maintaining the equipment

WARNING! Before you perform these steps, unplug the printer to avoid shock hazard.

To maintain quality, thoroughly clean the HP LaserJet 3100 product:

- Any time a new toner cartridge is installed.
- After printing approximately 2,500 pages.
- Whenever print quality problems appear.

Clean the outside of the printer with a slightly water-dampened cloth. Clean the inside with only a dry, lint-free cloth (such as lens tissues).

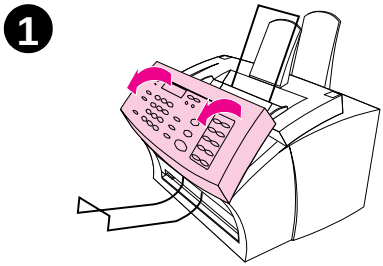
To avoid permanent damage to the toner cartridge, do not use ammonia-based cleaners on or around the HP LaserJet 3100 product.

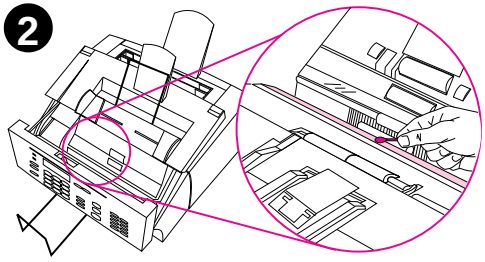
WARNING! When cleaning around the printer door area, avoid touching the heating element. It might be very hot and can cause burns.

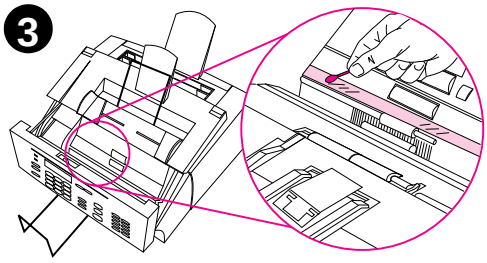
CAUTION Do not touch the surface of the transfer roller. Contaminants on the roller can cause print quality problems.

Note Be careful not to touch the glass surface of the image sensor. If you inadvertently touch the glass, clean it according to the instructions on the following pages.

Cleaning the document scanner path







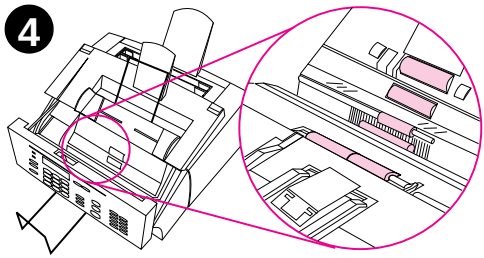
Clean parts of the document scanner if the ink on items you are scanning can be smudged with your hand, or if the parts have excessive amounts of dust or dirt on them. Also clean these parts if there are smudges or other marks on documents or scans of documents.

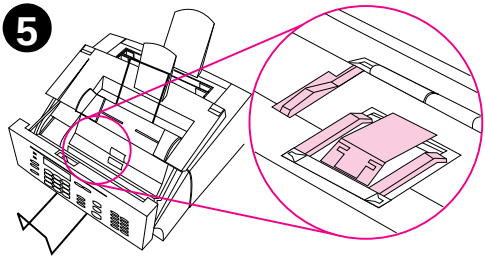
WARNING!
Before cleaning the HP LaserJet 3100 product, disconnect it from the power source.

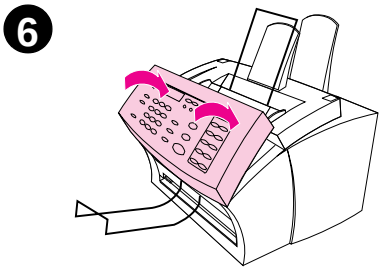
1. Open the document release door.
2. If the white sheet is dirty, clean it with a dry cotton swab. If there is still something on the white sheet, dab a swab in a small amount of isopropyl alcohol and gently clean the white sheet.

CAUTION
When you use alcohol, only use a very small amount. Exposing internal parts to dripping alcohol can damage them.

3. If the glass surface of the contact image sensor is dirty, clean it with a dry cotton swab. If there is still something on the glass, dab a swab in a small amount of isopropyl alcohol and gently clean the glass.







4 Inspect each of the six rollers in the document scanner area for dirt or debris. Using a lint-free cloth dampened with a small amount of isopropyl alcohol, wipe any dirty rollers using a side-to-side motion.

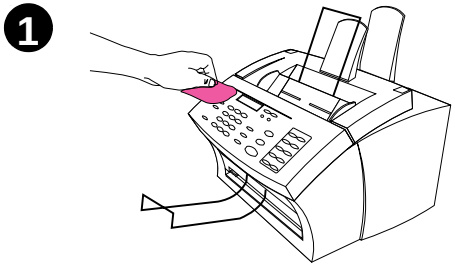
CAUTION
Do not spray alcohol or any other liquid directly into the HP LaserJet 3100 product. Doing so can damage the product.

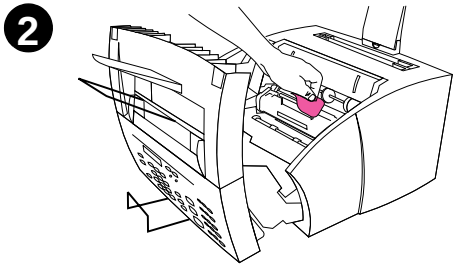
CAUTION
As much as possible, avoid touching the white sheet and the glass surface with alcohol.

5 Near the top, inside edge of the document release door, inspect the three pressure feet and pad for dirt or debris. If they are dirty, clean them with a lint-free cloth dampened with a small amount of alcohol.

6 Close the document release door after allowing alcohol to dry.

Cleaning the print path





Clean the print path to re-establish print quality if you frequently duplex or if you notice other marks on printed pages.

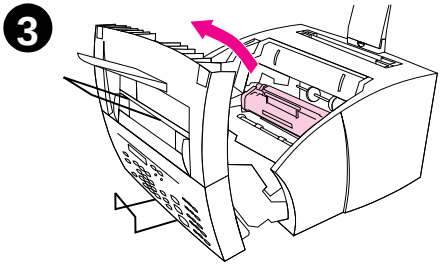
WARNING!
Before cleaning the HP LaserJet 3100 product, disconnect it from the power source.

1 Clean the outside of the device with a slightly damp cloth (use only water).

CAUTION
Using ammonia-based cleaners on or around the HP LaserJet 3100 product can damage it.

2 Use the two latches on the printer door to open it. Clean the inside of the HP LaserJet 3100 product with a dry, lint-free cloth. Remove all dust, spilled toner, and particles of paper.

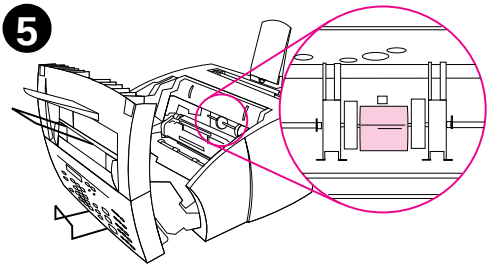
CAUTION
Only use a dry, lint-free cloth to remove dust and toner. Using a vacuum or other device to clean inside the product can damage it. Also, do not touch the transfer roller. Touching it can reduce the print quality of output.



Note
If toner gets on your clothing, wipe it off with a dry cloth and wash clothing in cold water. Hot water and the heat of the dryer set toner into the fabric.

3 Remove the toner cartridge.

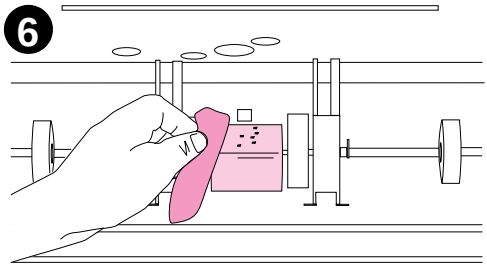
Note
If you notice excessive amounts of toner inside the HP LaserJet 3100 product, the toner cartridge may be defective. Use HP LaserJet toner cartridges to ensure high-quality printing and to reduce incidence of excessive toner.

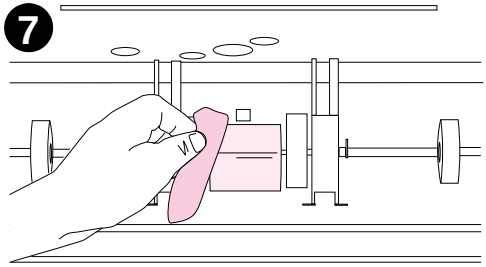


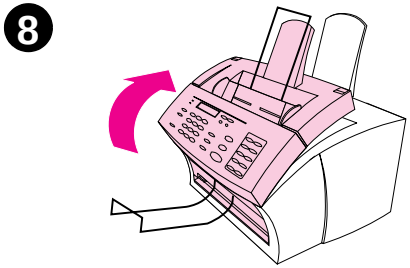
4 Dab a lint-free cloth in isopropyl alcohol.

5 Locate the light gray pickup roller near the center in the opening.

Note
Do not touch the transfer roller. Touching it can reduce the print quality of output.





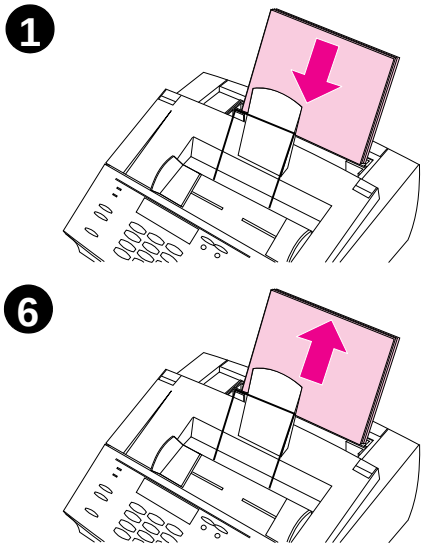


6 Scrub the exposed area (top and front) of the pickup roller using a side-to-side motion. Do not rotate the roller to clean the unexposed sides.

7 Using a dry, lint-free cloth, dry the exposed area of the pickup roller using a side-to-side motion.

8 After the alcohol inside the product has dried completely, replace the toner cartridge and close the printer door.

Using a cleaning page



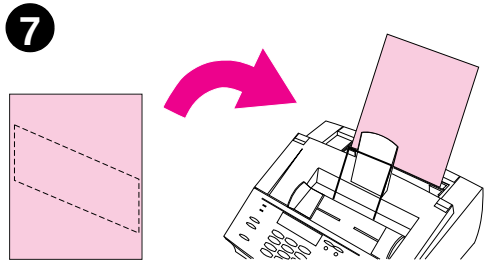
After you have cleaned the printer parts, use this procedure to print and use a cleaning page, if needed. This cleaning page can help remove toner specks on your printed pages.

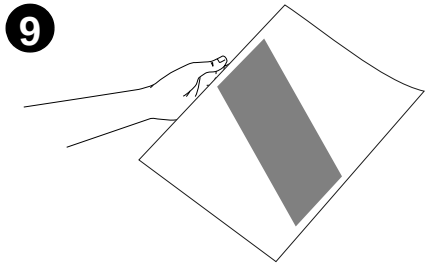
To use a cleaning page

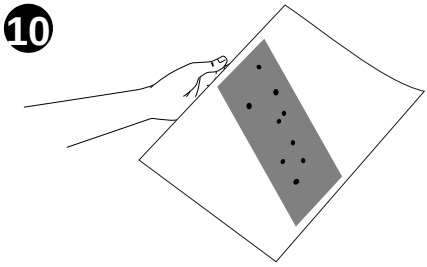
1. Place a stack of plain letter- or A4-sized paper into the paper input bin. (Do not use thick or rough paper.)
2. For Windows 95, open Windows Explorer.
   - Or -
   For Windows 3.1*x*, open File Manager.
3. Open the JetSuite folder (if the JetSuite Pro software was installed to the default location, the path is “C:\JetSuite”).

Note
If you do not have access to JetSuite Pro software, a cleaning page is available from the HP LaserJet 3100 product web address:
http://www.hp.com/support/lj3100

4. Double-click **CleanPg.jsd** to open the cleaning page.
5. When the document opens in the JetSuite Pro software, click **Print** in the link icon bar at the bottom of the dialog.
6. After the cleaning page has printed, remove the stack of paper from the paper input bin.







7 Place the cleaning page into the paper input bin, top first, face down.

8 Print a different file.

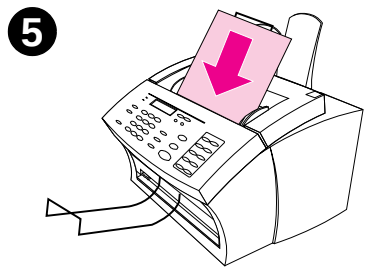
9 Inspect the page. If there are no shiny, black spots on the page's black strip, the print path is clean. Discard the page, and the procedure has been completed.

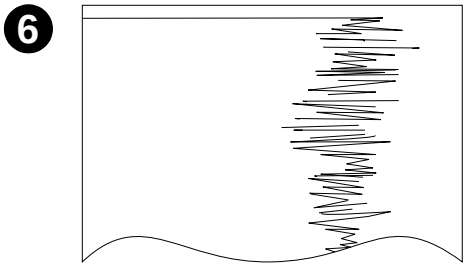
10 If there are shiny, black spots on the page's black strip, toner has been cleaned from the print path. Discard the page. Repeat steps 1 through 9 until there are no shiny, black spots on the page.

Note

If toner specks appear often and there is a frequent need to clean the print path, try using a different type of paper, and make sure the paper meets HP paper specifications. If the problem persists, see Chapter 6, "Troubleshooting," for detailed information about repetitive defects and other image quality problems.

Recalibrating the document scanner





Recalibrate the document scanner if you notice that copies, items scanned to the computer, or faxes you send have black or white lines running through them.

To recalibrate the document scanner

1. Clean the HP LaserJet 3100 product before recalibrating it. (See “Cleaning the HP LaserJet 3100 product” earlier in this chapter.)
2. On the control panel, press ENTER/MENU.
3. Press < once to display `Service` and press ENTER/MENU.
4. Use the < and > keys to select `Scan Correction` and press ENTER/MENU.
5. Insert a blank, bright white piece of letter-sized paper into the document feeder tray.
6. The HP LaserJet 3100 product pulls the piece of paper through and then prints a recalibration test page. Discard this page. The recalibration procedure is complete.

4 Functional overview

Chapter contents

Basic functions

This chapter presents a functional overview of the HP LaserJet 3100 product's processes. The following systems are discussed:

- optical system (document scanner)
- ECU (engine controller unit) system/power system
- formatter system
- image formation system
- paper feed system (printer) and document feed system (document scanner)
- laser/scanner system
- telecommunications system/line interface unit (LIU)

The HP LaserJet 3100 product consists of the printer and the document scanner. Operation sequences of the printer are controlled by the ECU. Operation sequences of the document scanner are controlled by the video controller.

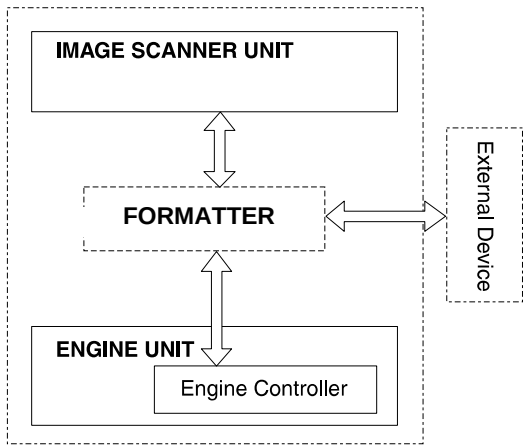


Figure 7. Basic configuration

Printer functions

Printer functions are divided into four groups:

- engine control
- image formation
- printer laser/scanner
- pickup/feed

The following figure is a block diagram of the printer unit:

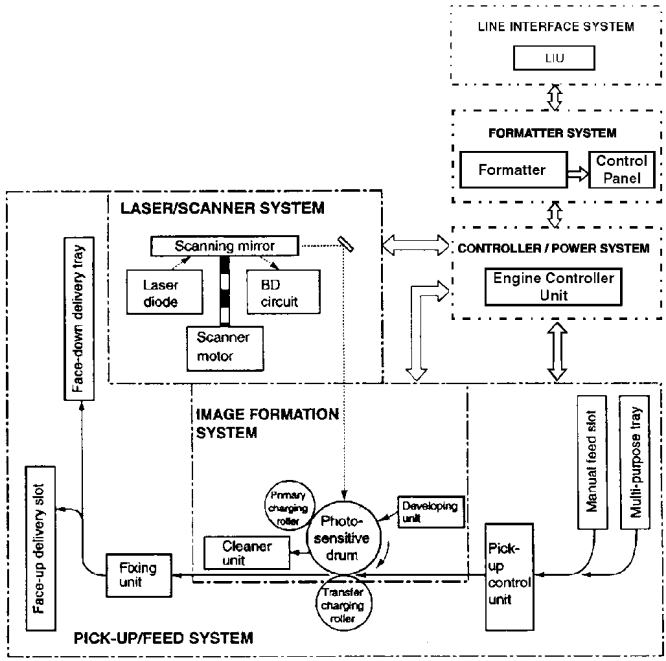


Figure 8. Printer unit functional block diagram

ECU/power system

The ECU coordinates all print engine activities, drives the laser, and coordinates print data from the formatter with the image formation process. The ECU also includes power supply and distribution circuitry. The ECU controls the following systems and functions:

- print engine control
  - laser/scanner drive
  - paper motion photosensors (paper out, paper registration, and paper exit sensors)
  - motor
- power system
  - AC power distribution
  - DC power distribution
  - overcurrent/undervoltage protection
  - high-voltage power distribution

The following figure shows the various ECU loads:

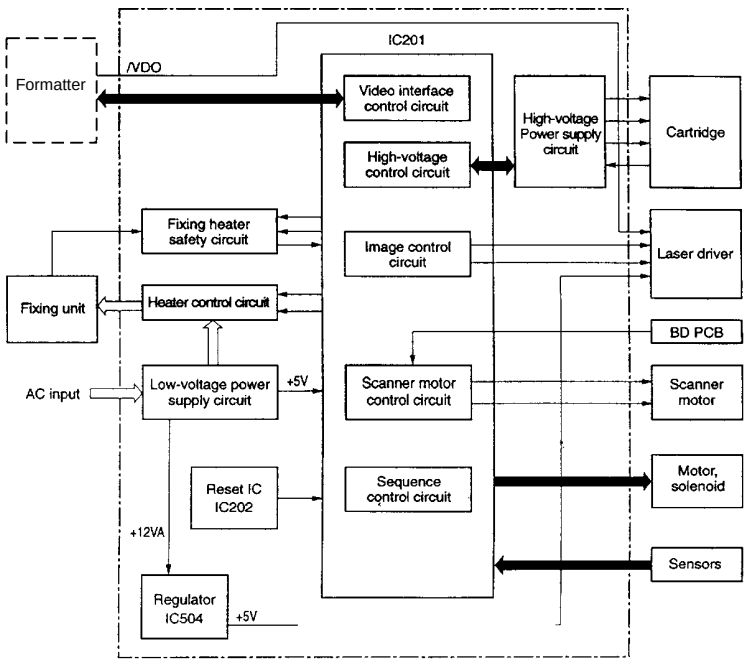


Figure 9. ECU loads

Print engine control system

Printer laser/scanner drive

Based on information received from the formatter, the ECU sends signals to the laser/scanner assembly to modulate the laser diode “on” and “off” and to drive the laser/scanner motor. For more information, see “Image formation system” later in this chapter.

Paper motion monitoring and control

The ECU controls paper motion by continuously monitoring the various paper sensors and coordinating the timing with the other print processes.

For a detailed explanation of paper movement, and the interaction of photosensors and solenoid with the paper movement process, see the “Printer feed system” section later in this chapter.

12-volt DC power shutoff switch

The 12-volt DC power shutoff switch (SW101), located on the top of the printer, is activated by the printer door. The front door must be closed before the printer can resume printing.

Engine test switch

The engine test switch (SW201), located on the ECU, is activated manually from the bottom of the HP LaserJet 3100 product. The switch causes the print engine to perform a self-diagnostic which bypasses the formatter and prints a full page of black vertical lines. This test is useful for troubleshooting printer problems because it isolates the print engine from the formatter. (See the “Engine test” section of Chapter 6, “Troubleshooting,” for more information about engine tests.)

Motor

The motor is controlled by the ECU. The motor provides all of the printer's paper movement.

Power system (on ECU)

The AC, DC, and high-voltage power supply circuits are all contained within the ECU.

AC power distribution

The AC power circuitry supplies AC voltage whenever the power cord is connected to the AC power source. AC voltage is distributed to the DC power supply circuitry and to the AC driver circuitry, which controls AC voltage to the fusing assembly's heating element.

DC power distribution

The DC power distribution circuitry, located on the ECU, distributes +5 V DC and +12 V DC as follows:

Table 11. DC power distribution

+5 V DC:	Formatter Photosensors DC Controller Circuitry Laser/Beam Detect Circuitry
+12 V DC:	Motor Scanner Motor Solenoid
+12VA DC:	High Voltage Power Supply

Overcurrent/overvoltage

There are two overvoltage devices in this printer:

- Fuse F101 provides overcurrent protection for the fixing system circuitry. To check or replace the fuse requires the removal of the ECU. Fuse 102 (found only on 110V units) provides overcurrent protection to the printer DC power supply circuitry.
- In addition, the +12V DC and +5V DC power circuitry contains an overcurrent protection circuit which automatically shuts off the output voltage when an overcurrent condition occurs due to a short or abnormal voltage on the load side.

High-voltage power distribution

The high-voltage power supply PCA applies an overlap of DC and AC voltage to the primary charging roller and the developing roller. This circuit also applies a positive or negative DC voltage to the transfer roller according to the instructions from the ECU.

This circuit also controls the image density by changing the primary AC voltage and the developing AC bias according to the print density setting.

High voltage is disabled when SW101 is open (in other words, when the printer door is open).

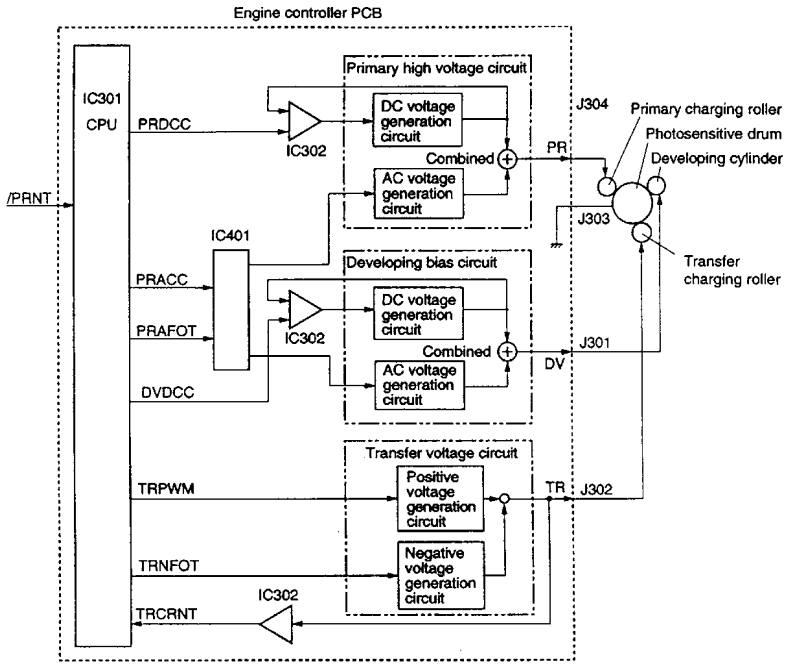


Figure 10. High-voltage power supply circuit

Formatter system

The formatter is responsible for the following:

- controlling the document scanner
- formatting and controlling faxes
- formatting and controlling copies
- receiving and processing print data from the printer interface
- monitoring the control panel and relaying printer status information
- developing and coordinating data placement and timing with the print engine
- communicating with the host computer through the bidirectional interface

The formatter receives print data from the bidirectional ECP interface and converts it into a dot image. The ECU synchronizes the image formation system with the paper feed system and signals the formatter to send the print image data. The formatter sends the print image data (dots) in the form of a video signal and the printing process begins.

Central processing unit

The formatter incorporates a Motorola 68030 custom microprocessor operating at 25.2 megahertz (MHz).

Memory

Memory can be cleared by removing the formatter board. For information about removing the formatter board, see Chapter 5, “Removal and replacement.”

Read-only memory (ROM)

- Flash ROM stores the microprocessor control program.
- Masked ROM, also known as Boot ROM, stores startup sequences, commands, and the demo page.

Random-access memory (RAM)

- One bank of RAM, which is battery-backed, stores parameters. Another two banks of RAM are used for temporary storage.
- DRAM (Dynamic RAM) provides temporary storage of fax, copy, scan, and print data.

Parallel interface

The formatter receives incoming data through its bidirectional ECP interface. This interface provides high speed and two-way communication between the printer and the host, allowing the user to change printer settings and monitor printer status from the host computer.

Control panel

- two front panel status lights
- control panel keyboard
- control panel display

Draft mode

Depending on the printer driver, selecting a “draft” or “economy” mode from the printer driver allows the HP LaserJet 3100 product to use approximately 50% less toner, extending the life of the toner cartridge. This is only available using printer driver properties when printing or making copies from the software.

Image formation system

Laser printing requires the interaction of several different technologies (such as 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 six processes:

- Step 1. Primary charging
- Step 2. Scanning exposure
- Step 3. Developing
- Step 4. Transferring
- Step 5. Separating
- Step 6. Drum cleaning

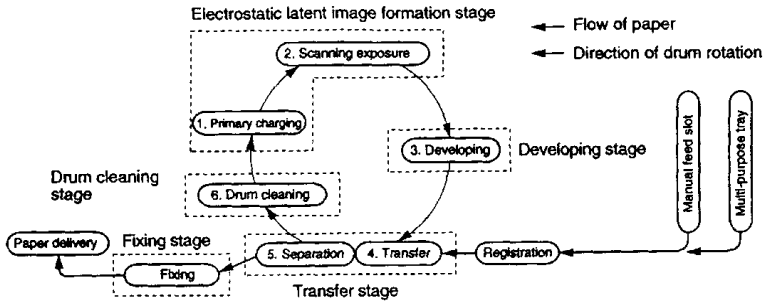


Figure 11. Image formation block diagram

Toner cartridge

As the heart of the image formation system, the toner cartridge houses the cleaning, conditioning, and developing steps of the process. The toner cartridge contains the photosensitive primary charging roller, developing station, toner cavity, and cleaning station. Including these components (which wear, degrade, or are consumed) in the replaceable toner cartridge eliminates the need for a service call when replacement is required. The special photosensitive properties of the drum allow an image to be formed on the drum surface and then transferred to paper.

CAUTION The printer's toner cartridge does not include a light-blocking shutter. Be careful to avoid exposing the drum to light, which can permanently damage the drum. Protect the cartridge whenever removing it from the printer.

Step 1: Primary charging

This process consists of applying a uniform negative charge to the surface of the drum with the primary charging roller, located in the toner cartridge. The primary charging roller is coated with conductive rubber. An AC bias is applied to the roller to erase any residual charges from any previous image. In addition, a negative DC bias is applied by the charging roller to create a uniform negative potential on the drum surface. The amount of DC voltage is modified by the print density setting.

Step 2: Scanning exposure

During this process, a modulated laser diode projects the beam onto a rotating scanning mirror. As the mirror rotates, the beam reflects off the mirror, first through a set of focusing lenses, then off a mirror, and finally through a slot in the top of the toner cartridge, and onto the photosensitive drum. The beam sweeps the drum from left to right, discharging the negative potential wherever the beam strikes the surface. This creates a latent electrostatic image, which later is developed into a visible image.

Because the beam is sweeping the entire length of the drum and the drum is rotating, the entire surface area of the drum can be covered. At the end of each sweep, the beam strikes the beam detect lens, generating the beam detect signal (BD signal). The BD signal is sent to the ECU, where it is converted to an electrical signal used to synchronize the output of the next scan line of data.

Step 3: Developing

At this stage of the process, the latent electrostatic image is present on the drum. The toner particles obtain a negative surface charge by rubbing against the developing cylinder which is connected to a negative DC supply. The negatively charged toner is attracted to the discharged (exposed, grounded) areas of the drum, and repelled from the negatively charged (unexposed) areas.

Step 4: Transferring

During the transferring process, the toner image on the drum surface is transferred to the paper. A positive charge applied to the back of the paper by the transfer roller causes the negatively charged toner on the drum surface to be attracted to the paper. After separation, the drum is cleaned and conditioned for the next image.

Step 5: Separating

During the separating process, the paper separates from the drum. To stabilize the feed system and prevent dropouts on the printed image at low temperature and humidity, the charge on the back of the paper is reduced by the static charge eliminator.

Step 6: Drum cleaning

The cleaning blade is in contact with the surface of the drum at all times. As the drum rotates during printing, excess toner is wiped off and stored in the waste toner receptacle.

Fixing stage

During the fixing process, the toner is fused into the paper by heat and pressure to produce a permanent image. The paper passes between a heated fusing element and a soft pressure roller. This melts the toner and presses it into the paper.

Printer feed system

Both the paper input bin and the single-sheet input slot merge into one, main input area. Paper placed in either of these areas enables the paper-out sensor (PS202), which informs the ECU that paper is present.

When the printer receives a print job and is ready to print, the ECU enables the laser/scanner assembly and the motor. Paper motion begins when the ECU energizes solenoid SL1. This causes the paper pickup roller to rotate once. Two actions occur as a result of this rotation. First, the paper kick plate pushes the paper against the pickup roller. Second, the pickup roller grabs the top sheet and advances it to the feed assembly drive rollers. To ensure that only one sheet is fed, a main separation pad and two subpads hold the remainder of the stack in place.

The feed assembly drive rollers advance the paper to the paper registration photosensor (PS203). This sensor informs the ECU of the exact location of the paper's leading edge, so that the image being written on the photosensitive drum can be precisely positioned on the page. The feed assembly drive rollers then advance the paper to the transfer area where the toner image on the photosensitive drum is transferred to paper.

After the image is transferred, the paper enters the fusing assembly where heat from the fuser and pressure from the pressure roller permanently bond the toner image to paper. The paper exit sensor (PS201) determines that paper has successfully moved out of the fusing area. The fusing assembly exit rollers deliver paper to either the paper output bin or the front paper output slot, depending upon the position of the face-up/face-down lever.

The following figure shows a simplified printer paper path.

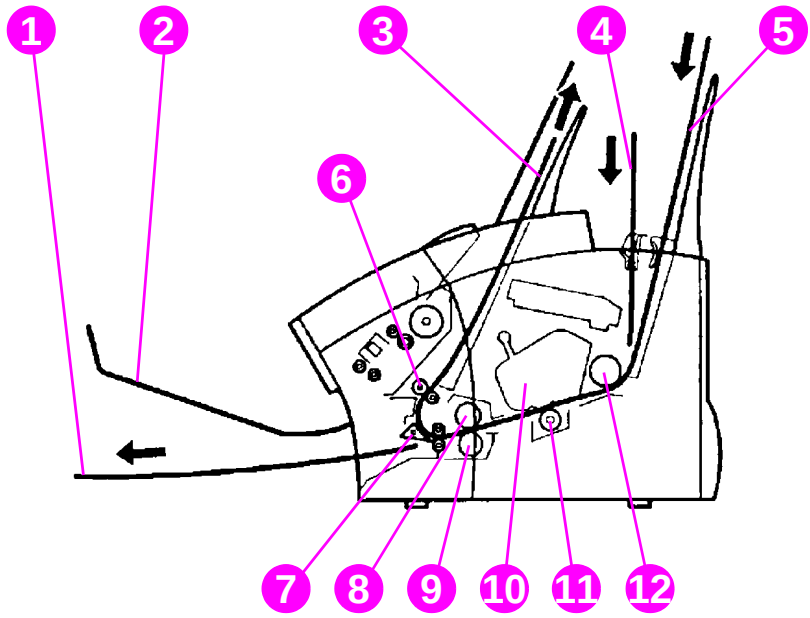


Figure 12. Simplified paper path

1 Face-up output path

2 Document output support

3 Face-down output path

4 Single-sheet input slot

5 Paper input bin

6 Delivery roller

7 Face-up/face-down lever

8 Fixing unit

9 Pressure roller

10 Toner cartridge

11 Transfer roller

12 Pickup roller

Paper jam detection

The paper out sensor (PS202), paper registration sensor (PS203), and the paper exit sensor (PS201) detect paper moving through the HP LaserJet 3100 product. If a paper jam is detected, the ECU immediately stops the printing process and displays a paper jam message on the control panel.

A paper jam can be detected under any of the following conditions:

- Power-on jams. Paper is present under either PS201 or PS203 at power-on.
- Pickup jams. Paper does not reach and clear photosensor PS203 within a specified period of time. The time period begins when the Paper Pickup Solenoid (SL1) is energized.
- Delay jams. Paper does not reach or clear a specific photosensor within a specified period of time.

Solenoid, photosensors, and switches

The following figure shows the locations of the solenoid, photosensors, and switches.

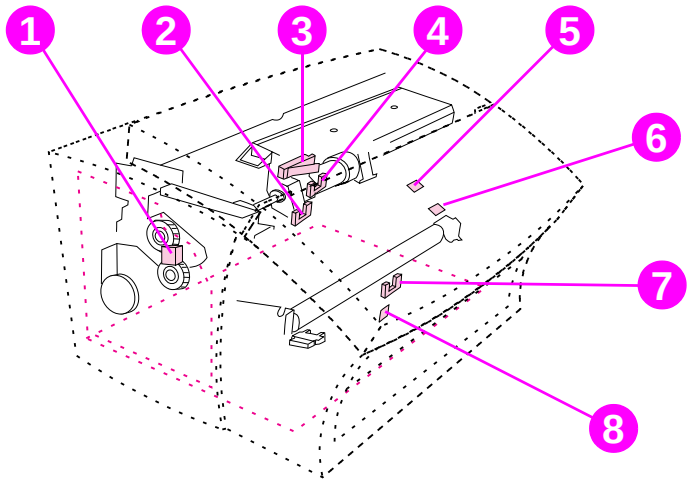


Figure 13. Solenoid, photosensors, and switches

1	Pickup solenoid (SL1).	Enables the pickup roller.
2	Paper registration sensor (PS203).	Detects the leading and trailing edges of the paper. Synchronizes the photosensitive drum and the top of the paper.
3	Door open/cartridge sensor (SW101).	Detects whether or not the printer door is closed and the toner cartridge is present. Printing cannot continue until the printer door is closed and the toner cartridge is in its correct position.
4	Paper out sensor (PS202).	If the sensor does not sense paper in the paper input bin or the single-sheet input slot, the control panel displays the paper-out message. Paper must be loaded before printing can resume.
5	Document sensor (PS801)	Detects the presence of a document in the document input bin.
6	Edge of document sensor (PS802)	Detects the leading edge of a document in the document scanner path.
7	Paper exit sensor (PS201).	Senses when paper has successfully moved out of the fixing area.
8	Engine test switch (SW201).	See Chapter 6, “Troubleshooting,” for information about engine tests.

Document scanner system

The document scanner system consists of the optical system and document pickup and feed systems.

The optical system, also known as the contact image sensor, contains the following:

- light-emitting diode (LED) array
- contact glass
- rod lens array
- phototransistor array

The LED array, which emits light from two types of LEDs, is controlled by the formatter. The contact glass refracts the light to documents. Light reflected from documents passes through the rod lens array to the phototransistor array.

The phototransistor array consists of 2,574 phototransistors: 11 driver circuits that amplify the light reception output in units of 234 phototransistors. The image data is converted and sent from the driver circuits to the formatter.

The document pickup and feed systems contain a pickup roller, a feed roller, and a delivery roller, all of which are driven by the document scanner motor. There are also two photosensors in the document path. PS801 detects the presence of a document and PS802 detects the leading edge of a document.

The following figure shows a simplified Document scanner document path.

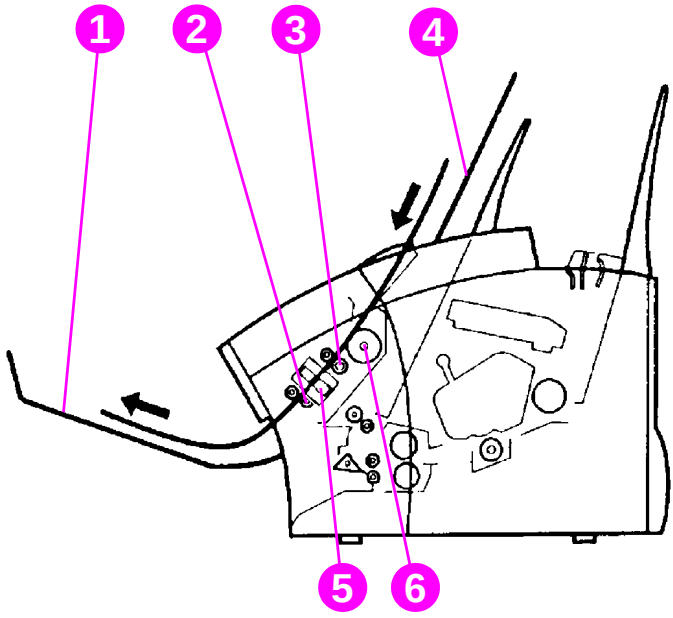


Figure 14. Simplified document path

1 Document output support

2 Document delivery roller

3 Document feed roller

4 Document input bin

5 Contact image sensor

6 Document pickup roller

Basic sequence of operation (formatter-to-printer)

The formatter and the ECU share information during printer operation. The ECU-to-formatter connector (J201) forms a link which operates as a serial data bus. This allows printer status, command information, and dot-image data to be passed between the two. The following events take place during normal printer operation:

Table 12. Timing

Period	Purpose	Remarks
WAIT (WAIT period) From power ON to the end of the initial rotation of the main motor.	To clear the drum surface of its charge and to clean the transfer charging roller.	
STBY (STANDBY) From the end of the WAIT period or the LSTR period until the input of the /PRNT signal from the video controller. Or from the end of the LSTR period until power OFF.	To maintain the printer in ready mode.	
INTR (INITIAL ROTATION period) From the input of the /PRNT signal from the video controller until the end of the APC operation.	To stabilize the photosensitive drum sensitivity in preparation for printing. Also to clean the transfer charging roller.	
PRINT (print) From the end of initial rotation until the motor stops.	To form images on the photosensitive drum based on the /VDO signal from the video controller and transfers the toner image to paper.	
LSTR (LAST ROTATION period) From when the primary high voltage (DC) goes OFF until the main motor stops.	To deliver the last page. Also to clean the transfer charging roller.	The printer enters the INTR period when the /PRNT signal is sent from the video controller.

C. Basic Sequence of Operation

• Timing chart for printing two A4-size sheets continuously

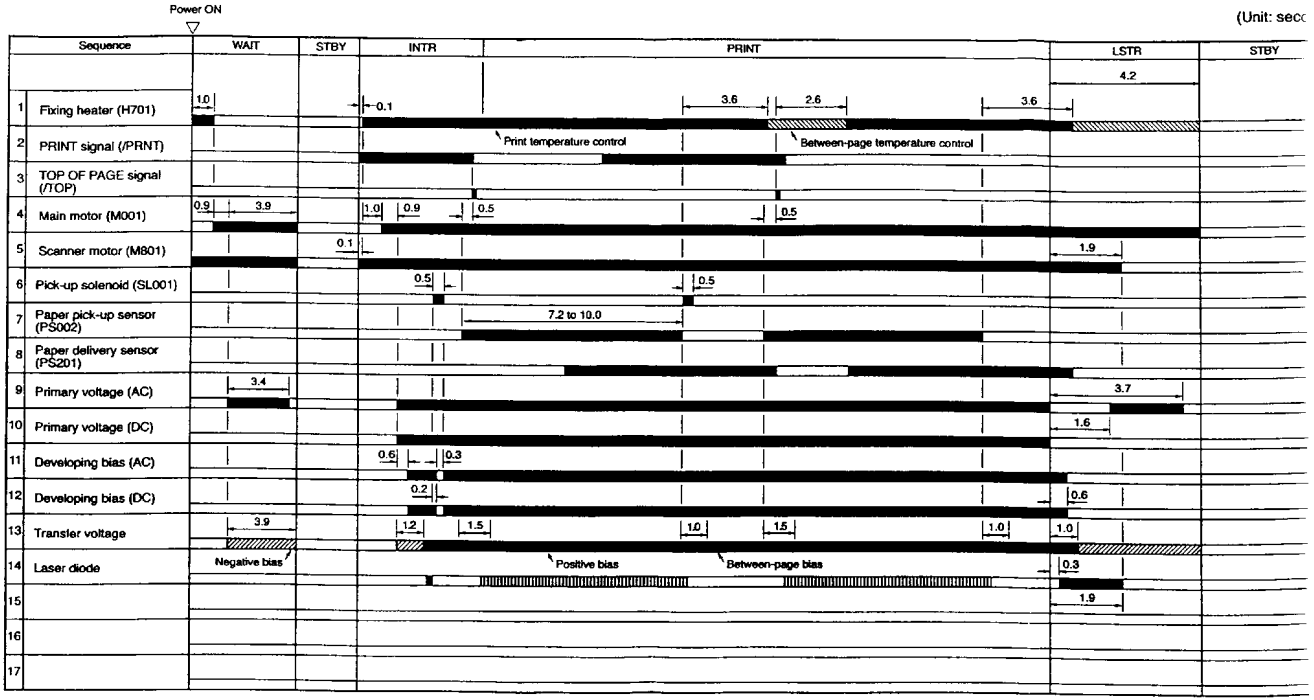


Figure 15. General timing diagram

5 Removal and replacement

Chapter contents

Removal and replacement strategy

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

Replacement is generally the reverse of removal. Occasionally, notes are included to provide direction for difficult or critical replacement procedures.

WARNING! Unplug the power cord from the power outlet before attempting to service the HP LaserJet 3100 product. If this warning is not followed, severe injury can result. Certain functional checks must be performed during troubleshooting with power supplied to the product. However, the power supply should be disconnected during disassembly.

Never operate or service the HP LaserJet 3100 product with the protective cover removed from the laser/scanner assembly. The reflected beam, although invisible, can damage your eyes.

The sheet metal edges of the HP LaserJet 3100 product can be sharp. Exercise caution when working the HP LaserJet 3100 product.

CAUTION The HP LaserJet 3100 product contains parts that are electrostatic discharge (ESD) sensitive. Always perform servicing at an ESD-protected workstation.

CAUTION If possible, print the configuration report before working on the product. Removing the screws from the formatter board clears the settings in memory. Clearing the settings can render the product illegal or inoperable. The list of configuration settings can assist in restoring the settings.

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

Note Always remove the toner cartridge before removing or replacing parts.

Required tools

- #1 Phillips screwdriver with a magnetic tip
- #2 Phillips screwdriver with a magnetic tip
- small flatblade screwdriver
- needlenose pliers
- ESD mat

A 5.5 mm hexhead nutdriver might also prove useful, but is not required.

CAUTION A Posidriv screwdriver will damage screw heads on the HP LaserJet 3100 product. Use Phillips only.

Back cover

1. Unplug the power cord and phone cord(s) and remove the parallel cable from the back of the printer.
2. Remove all supports and bins.
3. Press the printer door release latches and open the printer door.
4. Remove the toner cartridge.
5. Rotate the HP LaserJet 3100 product so that you face the back of the product.
6. Remove the four (4) screws (callout 1) from the back cover.

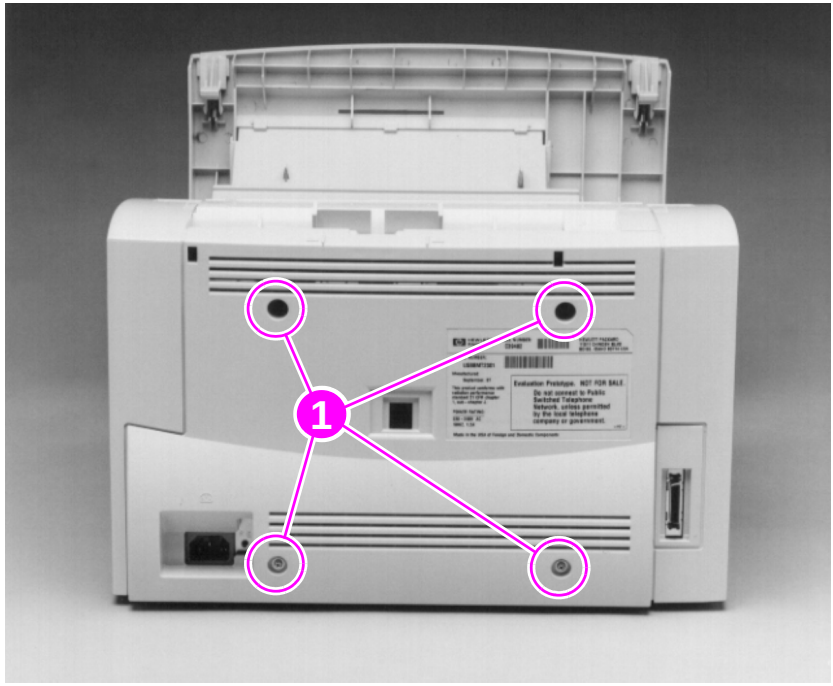


Figure 16. Back cover removal (1 of 2)

7 Insert the small flatblade screwdriver into the openings (callout 1) at the top of the back cover to pop the upper corners.

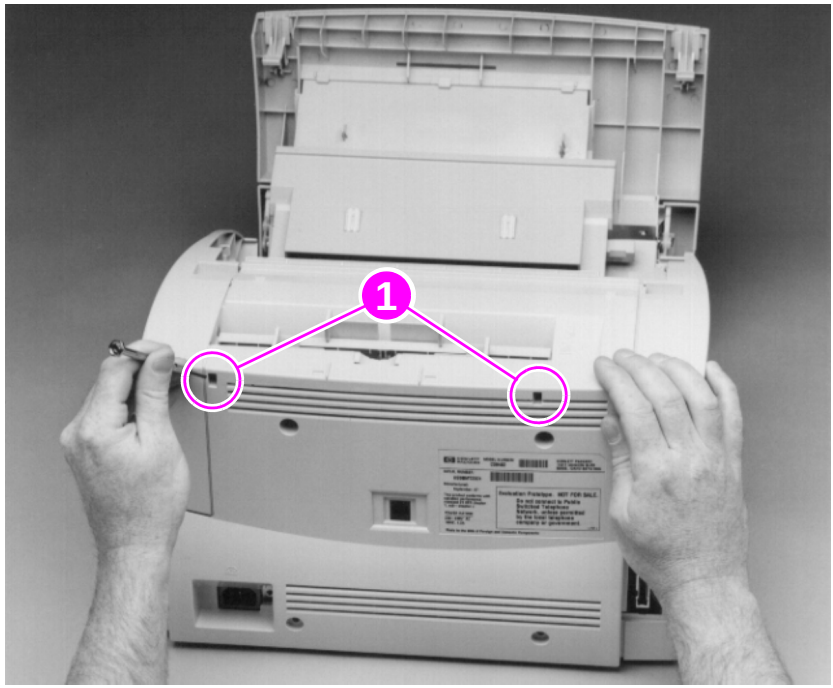


Figure 17. Back cover removal (2 of 2)

8 Remove the back cover by grabbing it on both sides and pulling it away.

To reinstall

After placing the back cover in its correct position, squeeze the back cover and the paper input tray together to secure the back cover.

Right side cover

1. Remove the back cover.
2. Rotate the HP LaserJet 3100 product so that you face its right side.
3. Remove one (1) screw (callout 1) from the top of the right side cover.

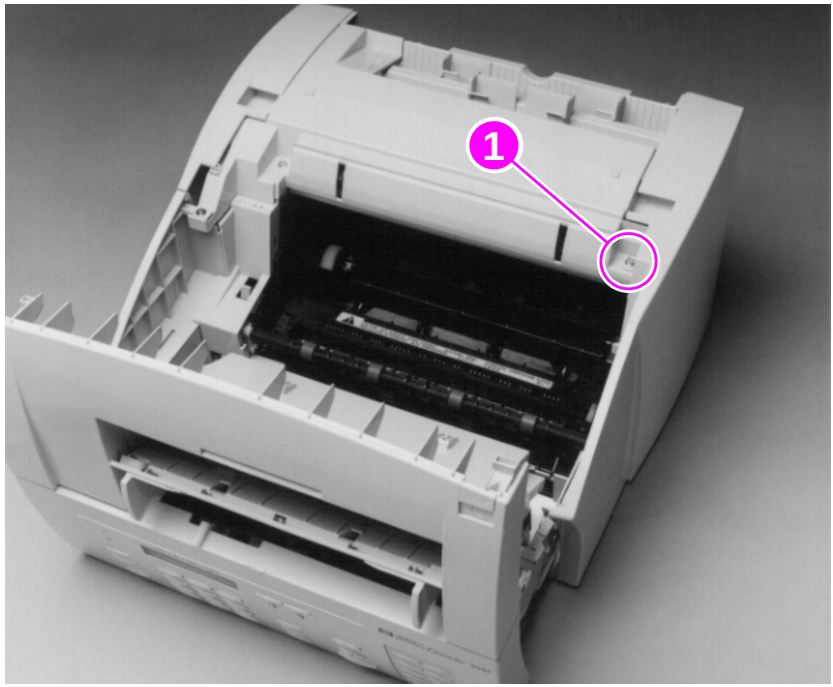


Figure 18. Right side cover removal

4. Pop the latches at the top of the cover.
5. Remove the cover by lifting it up and off the latches at the bottom of the cover.

To reinstall

Attach the cover at the bottom latches before repositioning the cover.

Left side cover

1 Remove the back cover.

2 Rotate the HP LaserJet 3100 product so that you face the back of the product.

3 Pop the latches at the top and bottom (callout 1), at the back of the product.

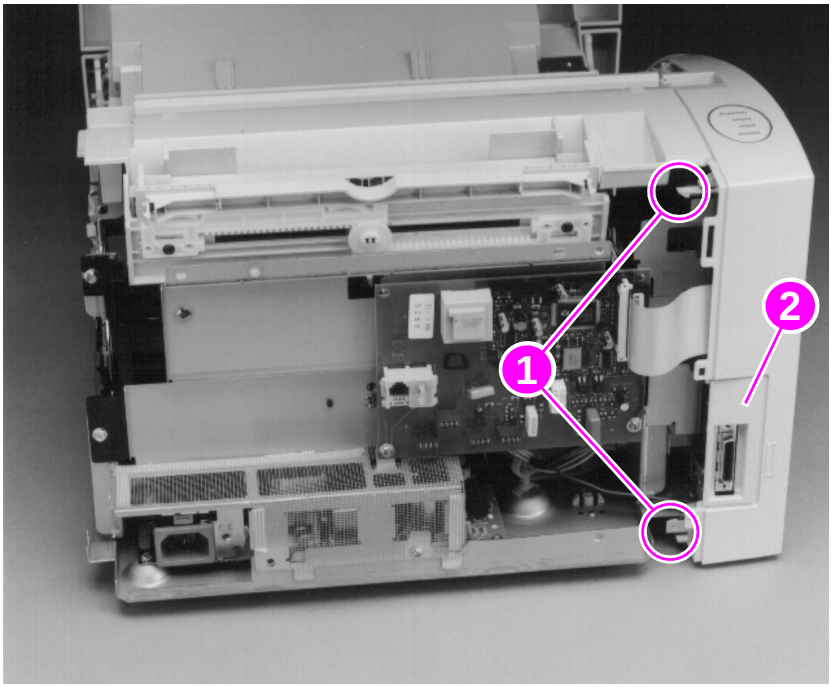


Figure 19. Left side cover removal

4 Remove the left side cover by rotating it away from and toward the front of the product.

The I/O bezel (callout 2) separates from the left side cover as the cover is removed.

To reinstall

Place the I/O bezel on the parallel connector first, and then slide the left side cover into position around the bezel.

Left front cover

1. Remove the back cover and the left side cover.
2. Rotate the HP LaserJet 3100 product so that you face its left side.
3. Remove the pressure release lever cover by inserting the small flatblade screwdriver into the slot (callout 1) to release the latch, and then pressing up from the left side of the product.
4. Remove one (1) screw (callout 2) from the top of the left front cover.

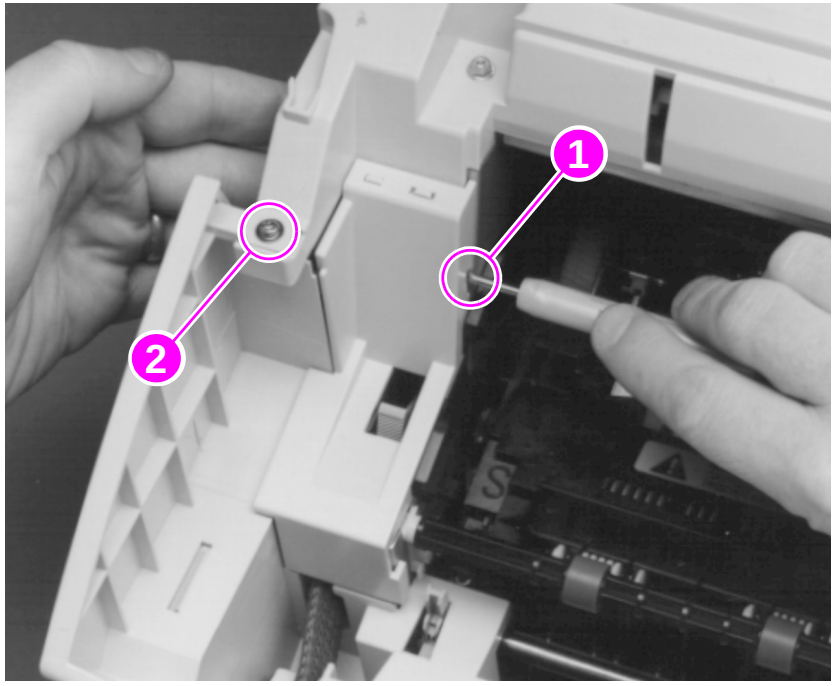


Figure 20. Left front cover removal

5. Remove the cover by popping the tab at the top and lifting the cover up and away from the HP LaserJet 3100 product.

Top cover

1 Remove the back cover, the right side cover, the left side cover, and the left front cover.

2 Remove one (1) screw (callout 1) from the top of the top cover.

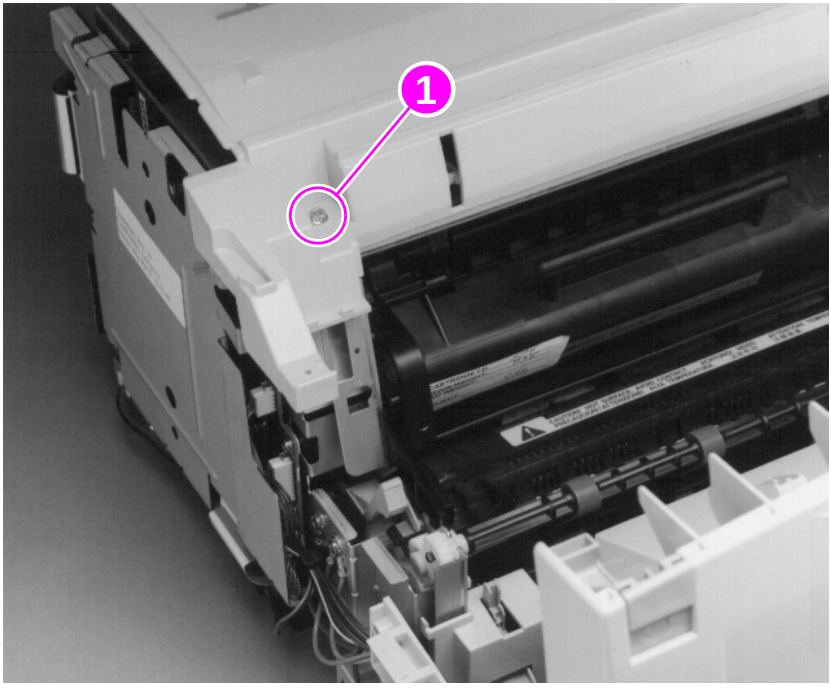


Figure 21. Top cover removal

3 Lift the top cover off the product.

4 Lift the input bin straight up and away from the product.

RFI shield

1 Remove all covers.

2 Remove the five (5) screws (callout 1) from the RFI shield.

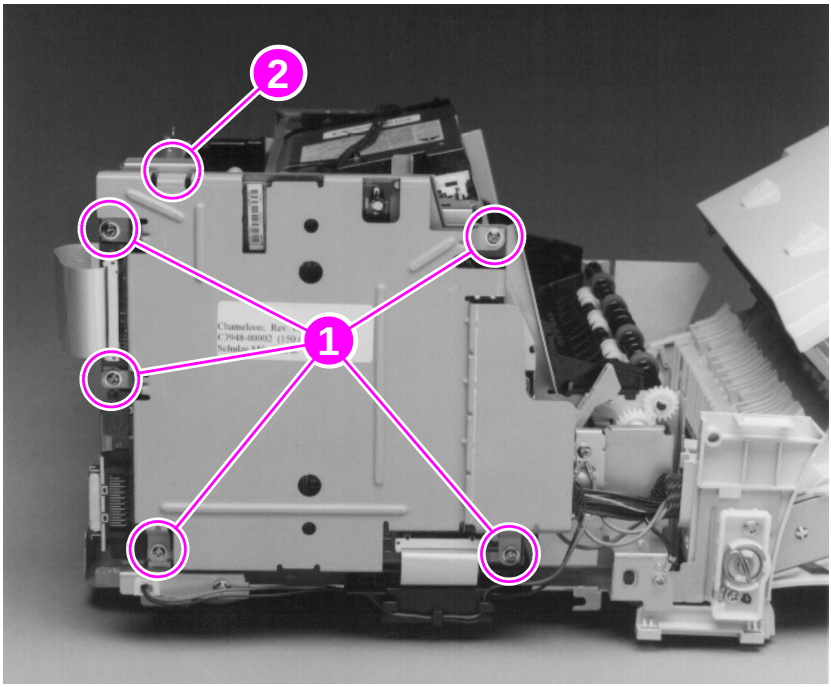


Figure 22. RFI shield removal

3 Remove the RFI shield by lifting the shield up and off the hook (callout 2).

Printer door

1. Press the printer door release latches and open the printer door.
2. Remove all covers and the RFI shield.
3. Pull the four (4) cables (callout 1) from the connectors aligned vertically along the right side of the formatter board, and then open tie-wrap that holds all four cables to release the cables.
4. Remove the three (3) grounding screws (callout 2).

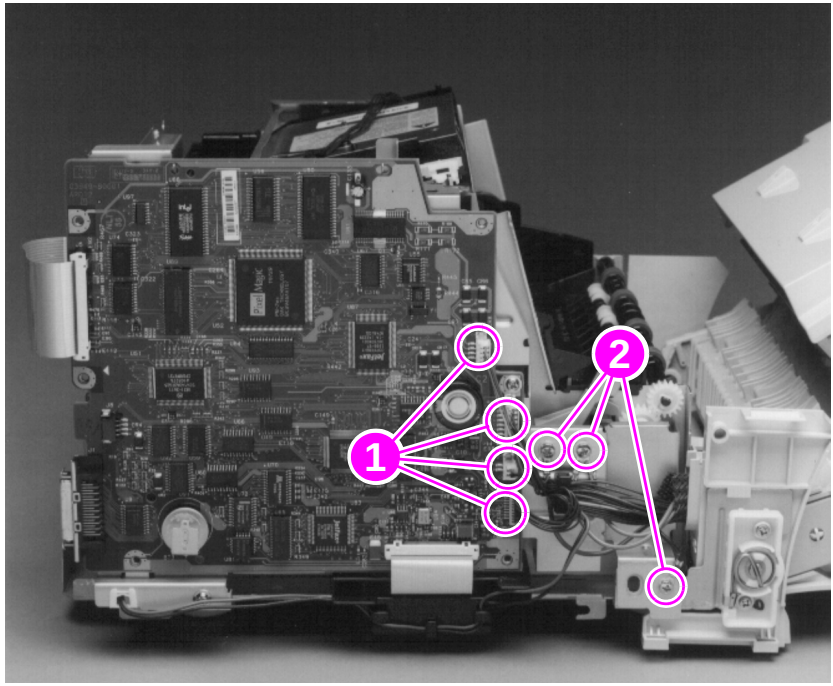


Figure 23. Printer door removal (1 of 3)

Note Upon reinstallation, make sure that you reinstall the grounding wires to their correct locations.

5 Remove the printer door cable guide (callout 1) by rocking it free and lifting it out.

6 Remove the spacer (callout 2) by releasing the latch at one end and then lifting it out.

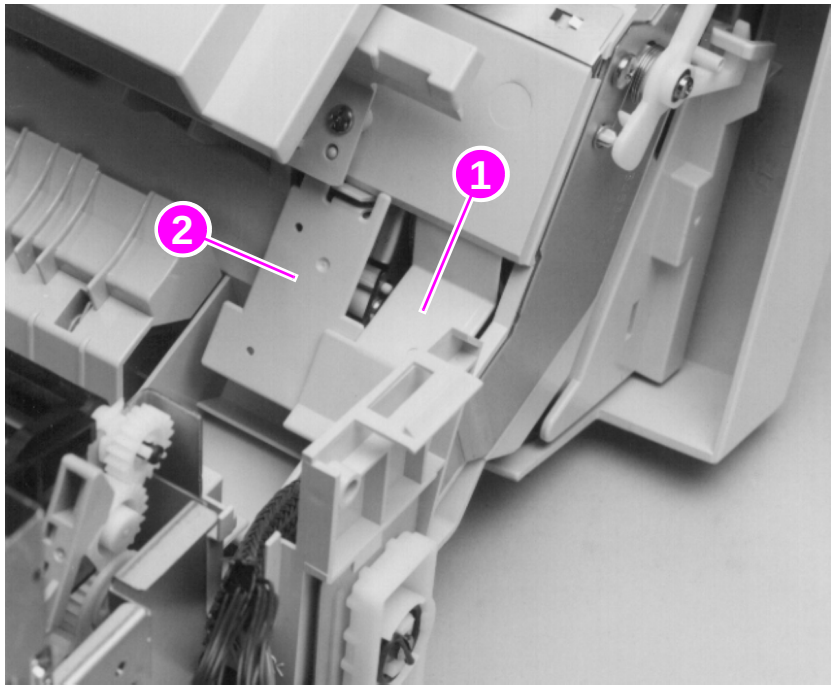


Figure 24. Printer door removal (2 of 3)

7 Rotate the HP LaserJet 3100 product so that you face the front.

Tabs on the printer door hinge covers prevent the hinge covers from becoming dislodged. The tabs flex inward (toward the middle of the product) to release the hinge covers.

8 Beginning with the left hinge cover, use the small flatblade screwdriver to pry the tab inward.

9 When the hinge cover is released from the printer door, rotate the hinge cover up and then slide it off the hinge.

Figure 25. Printer door removal (3 of 3)

10 Repeat the procedure to remove the right hinge cover.

11 Lift the printer door off the hinges.

Document release door

Note Although it is possible to separate the document release door from the printer door without opening or removing the printer door, HP recommends that you remove the printer door before replacing components of the document release door.

1. Remove the printer door from the HP LaserJet 3100 product.
2. Release the interlocks (callout 1) on each side of the document release door and lift open the door (callout 2).

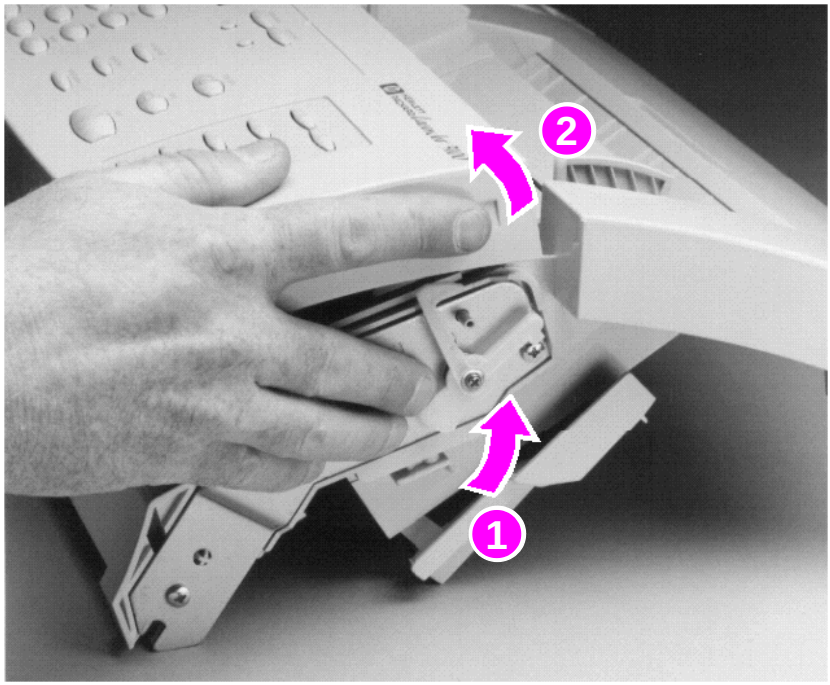


Figure 26. Document release door removal (1 of 2)

3. Rotate the strap on the left side of the printer door to unhook the strap.

4 To release the right hinge of the document release door from the printer door, use one hand to simultaneously press the right side of the document release door toward the left and pull the printer door frame to the right.

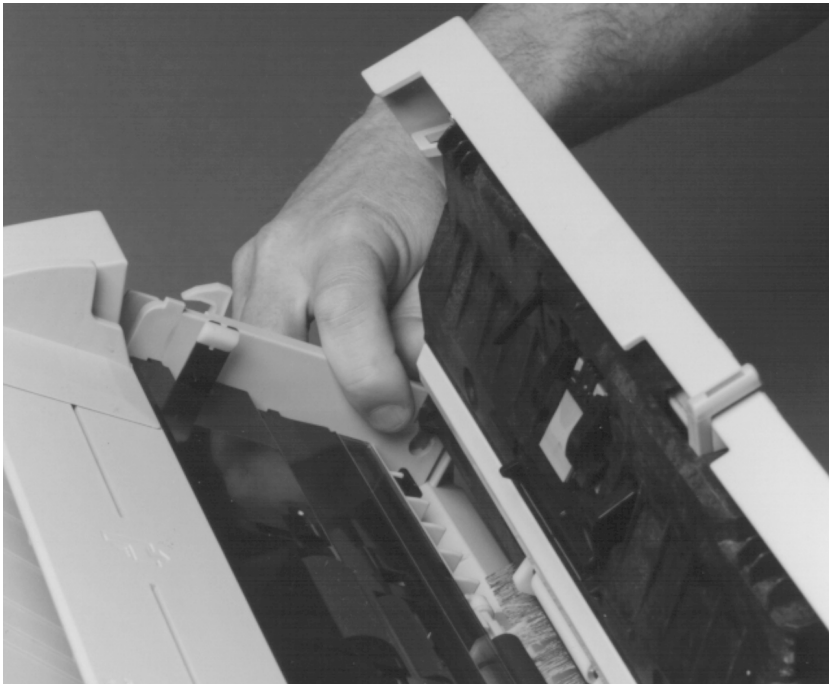


Figure 27. Document release door removal (2 of 2)

5 Lift out the right side of the document release door, and then slide it to the right to release the left hinge.

Upper guide assembly

1. Remove the four (4) screws (callout 1) from the upper guide assembly.
2. Lift up and rotate the assembly toward you.

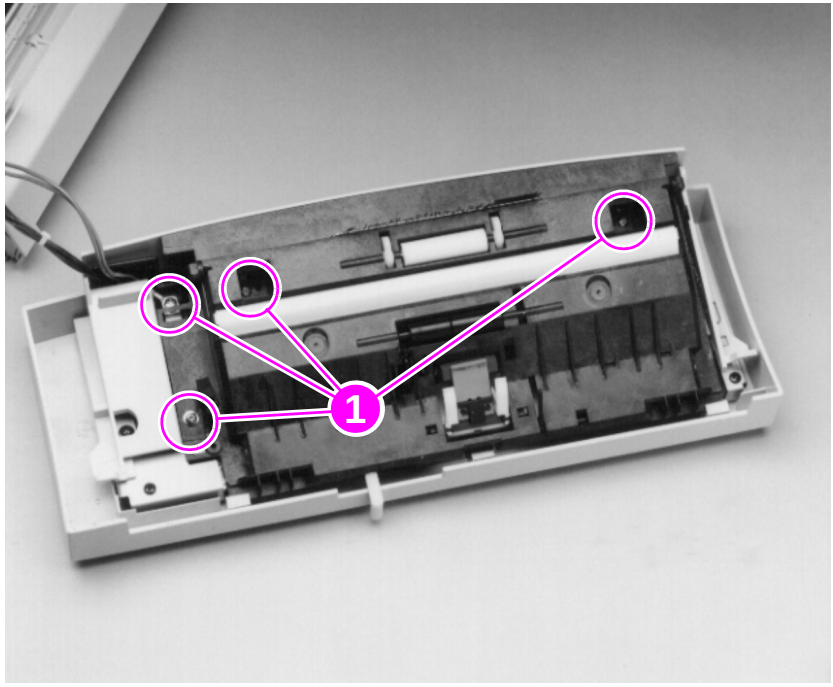


Figure 28. Upper guide assembly removal (1 of 2)

3 Remove the screw (callout 1) from one of the small printed circuit boards.

4 Release two (2) cables (callout 2) from their connectors, one on each of the small printed circuit boards.

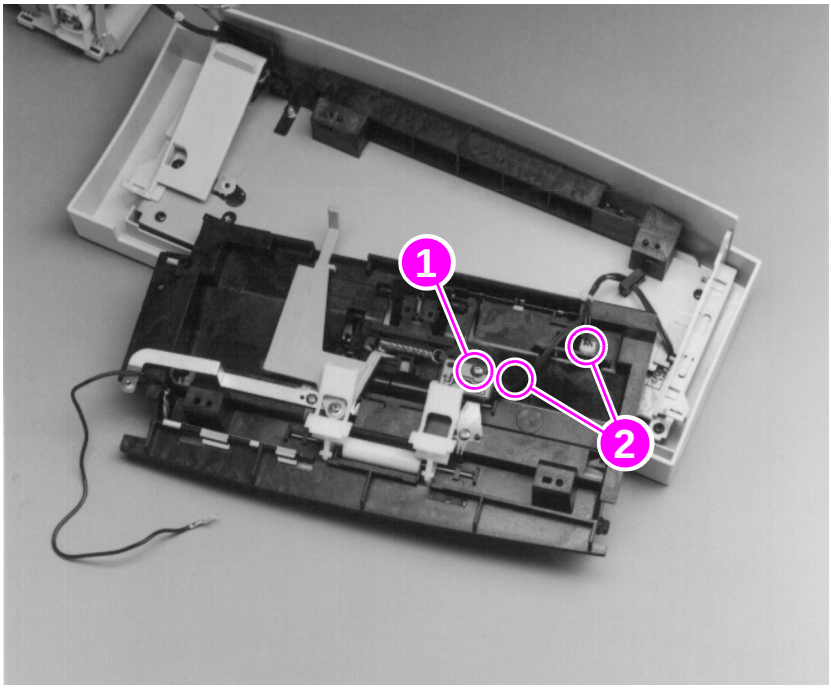


Figure 29. Upper guide assembly removal (2 of 2)

To reinstall

Make sure that the assembly is inserted correctly into the three notches.

Contact image sensor

1 Remove the document scanner guide by lifting it up while pressing the two tabs at the left side of the assembly.

Figure 30. Contact image sensor removal (1 of 2)

2 Release the contact image sensor and its mounting plate by removing the two (2) screws (callout 1) from the mounting plate.

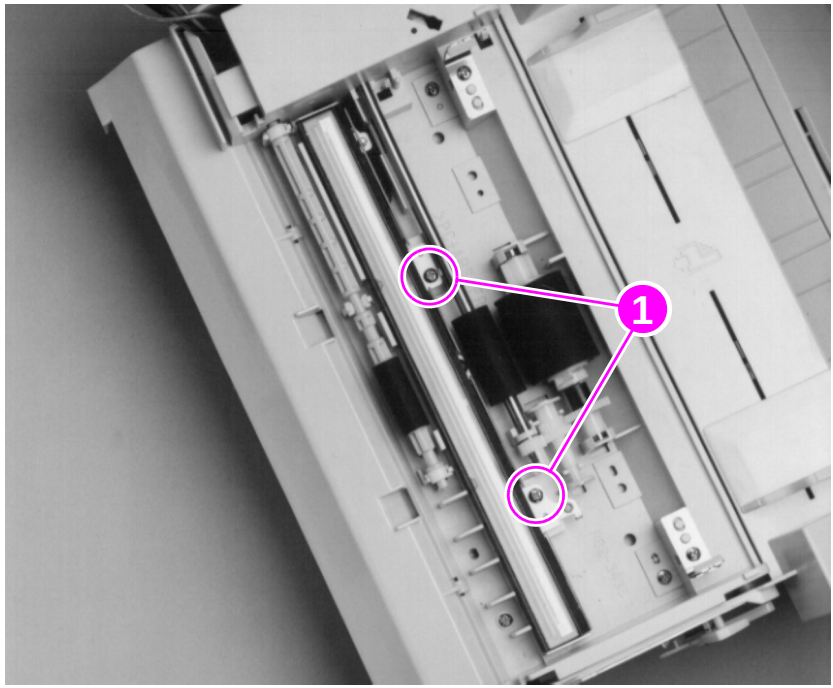


Figure 31. Contact image sensor removal (2 of 2)

3 Lift up the contact image sensor and its mounting plate together.

4 Remove the grounding screw and the cable from the bottom of the contact image sensor.

Note Clean the scanner glass after the contact image sensor is reinstalled.

Document scanner assembly/motor

1 Remove the document scanner guide by lifting it up while pressing the two tabs at the left side of the assembly (see Figure 30).

2 Remove the two (2) screws (callout 1) from the document scanner assembly.

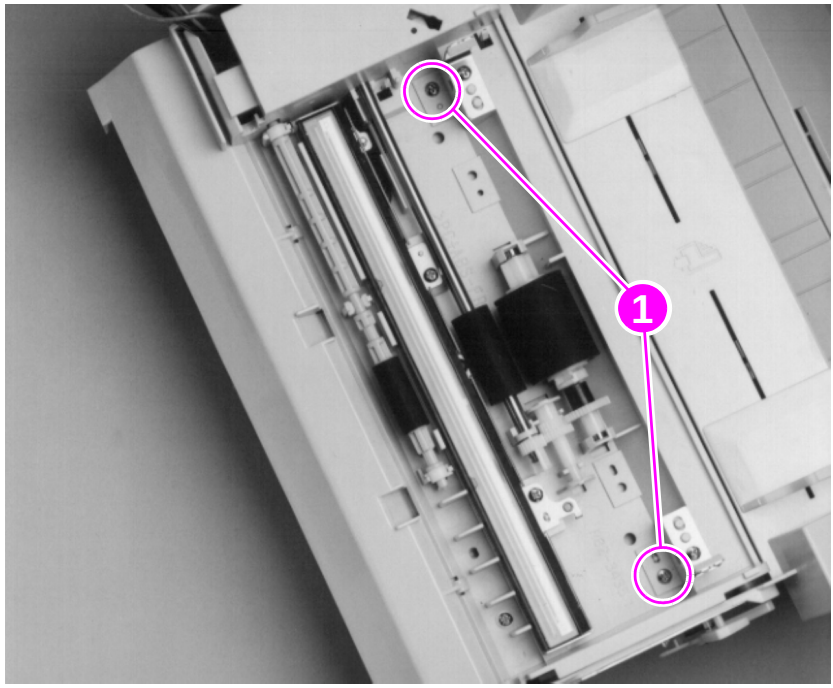


Figure 32. Document scanner assembly/motor removal (1 of 2)

3 Use firm pressure to lift the document scanner assembly while sliding it in the direction of the input bins to release the document scanner assembly.

The scanner motor is located on the left side of the document scanner assembly.

4 Remove the two (2) screws (callout 1) from the document scanner motor.

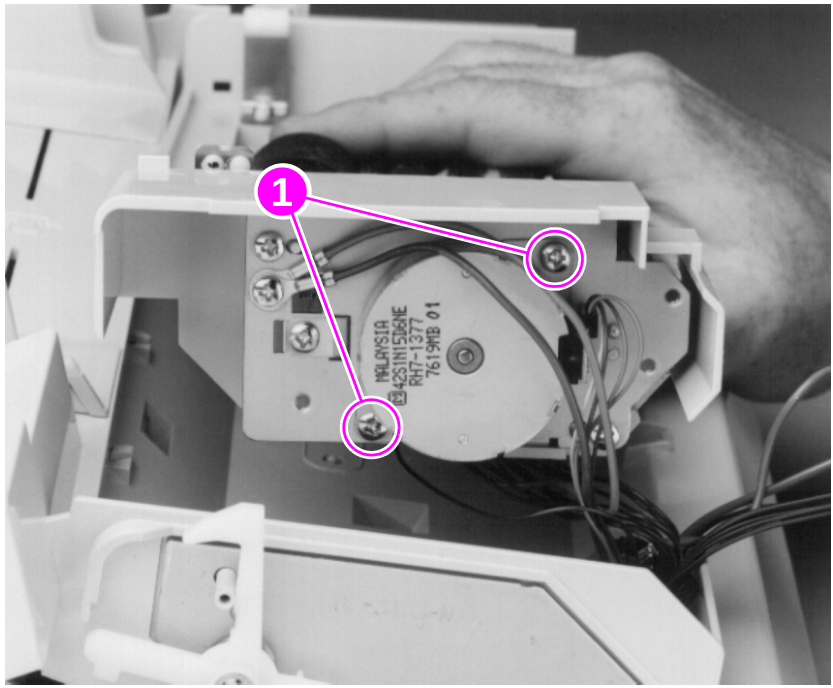


Figure 33. Document scanner assembly/motor removal (2 of 2)

5 Lift the document scanner motor straight out.

To reinstall

Reinstall the document scanner motor to the same position as before its removal. if the motor is not reinstalled to the same position, the cables might not reach their connectors.

Document scanner pickup roller

It is possible to remove the document scanner pickup roller without removing the document release door. However, the steps below detail pickup roller removal with the assumption that the document release door has already been removed.

1 Remove the document scanner guide by lifting it up while pressing the two tabs at the left side of the assembly (see Figure 30).

2 Use the small flatblade screwdriver to pry the right end of the pickup roller shaft from its plastic mounting.

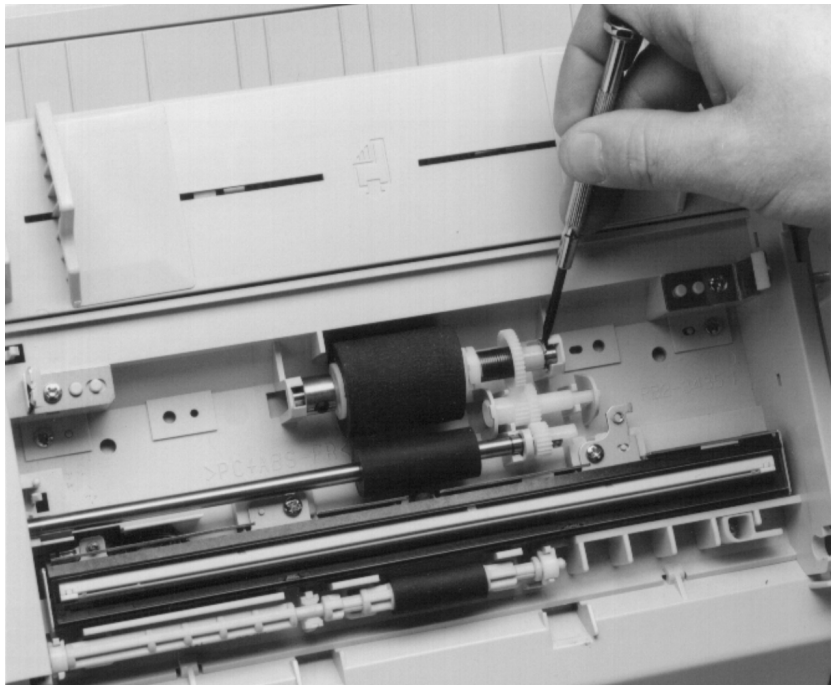


Figure 34. Document scanner pickup roller removal

3 Lift the right end of the pickup roller shaft out of its mounting; the left end should follow easily.

Note Once the pickup roller shaft has been removed, parts can easily fall off of the shaft. Upon reinstallation, make sure that all of the parts have been replaced on the shaft in the correct order.

LIU board

1 Remove the back cover.

2 Pull out slightly the connector for the flat, flexible cable (callout 1) to release the cable and disconnect the cable from the LIU board.

3 Remove the three (3) screws (callout 2) from the LIU board.

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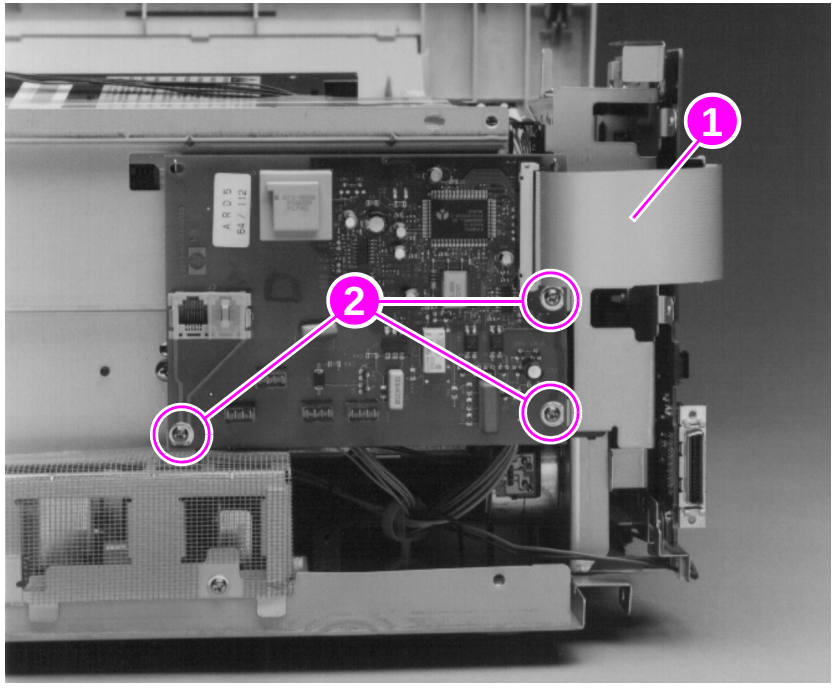


Figure 35. LIU board removal

4 Remove the LIU board by rotating the board up and off the hooks.

Formatter board

1. Remove all covers and the RFI shield.
2. If the LIU board has not been removed from the product, pull out slightly the connector for the flat, flexible cable (callout 1) at the left side of the formatter board to release the cable, and then disconnect the cable from the formatter board.
3. Pull out slightly the connector for the flat, flexible cable (callout 2) at the bottom of the formatter board to release the cable, and then disconnect the cable from the formatter board.

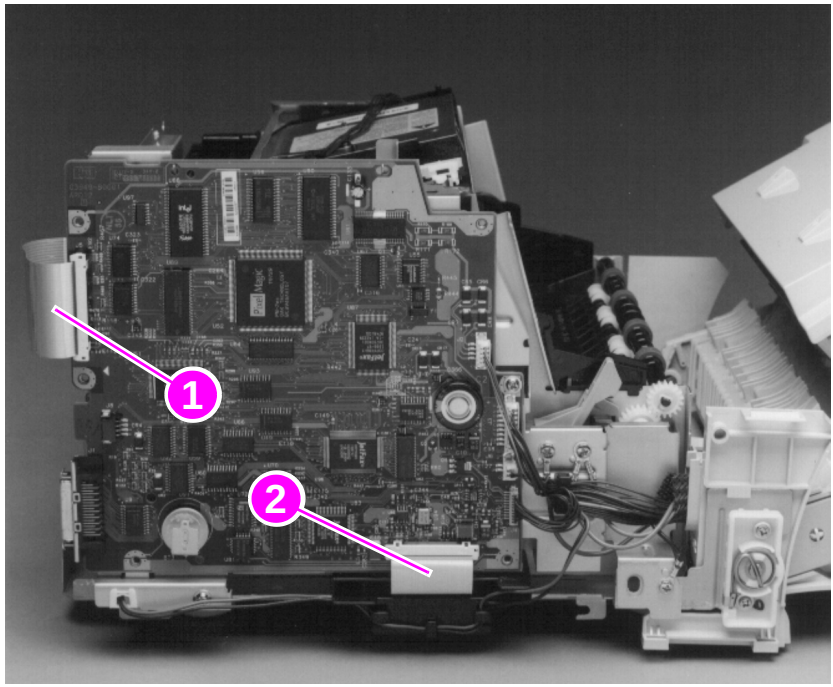


Figure 36. Formatter board removal (1 of 2)

4 Pull the four (4) cables from the connectors (callout 1) aligned vertically along the right side of the formatter board, and then open the tie-wrap that holds all four cables to release the cables.

CAUTION When step 5 below is performed, all memory is cleared from the formatter, including country-specific settings. Clearing memory can render the product illegal or inoperable. See the section in Chapter 6, “Troubleshooting,” about softswitches to restore the country code.

5 Remove the remaining screw from the formatter board (callout 2).

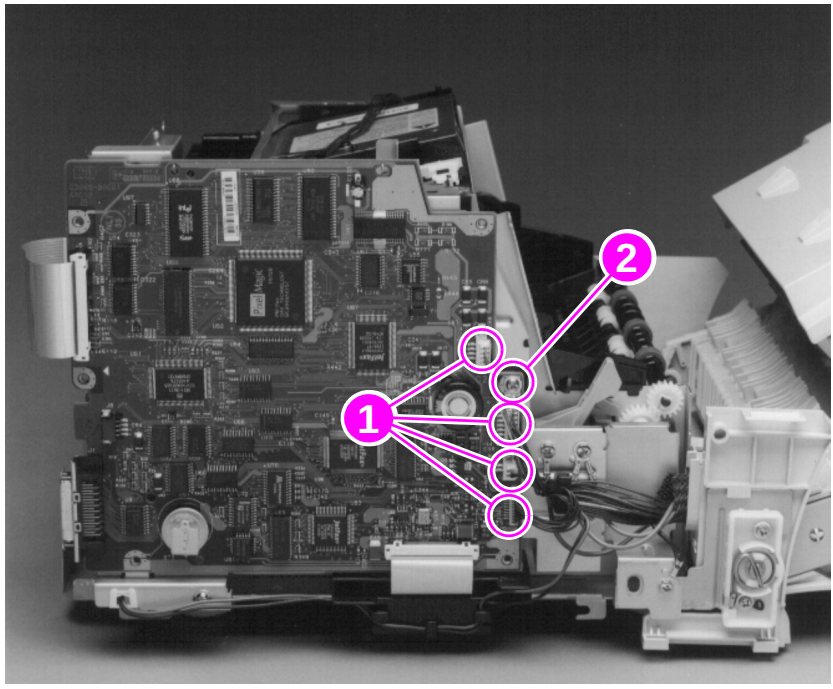


Figure 37. Formatter board removal (2 of 2)

6 Remove the formatter board by lifting it up and off the hooks.

CAUTION Placing the formatter board on a conductive surface can damage the board. Place the formatter board on an ESD mat.

Metal side plate

1 Remove all covers, the LIU board, the RFI shield, and the formatter board.

2 Remove the two (2) screws (callout 1) from the grounding plate and lift the grounding plate from the product.

3 Remove the three (3) grounding screws (callout 2).

Note Upon reinstallation, make sure that you reinstall the grounding wires to their correct locations.

4 Release the cable guide from the frame (callout 3).

5 Remove the remaining two (2) screws (callout 4) from the metal side plate.

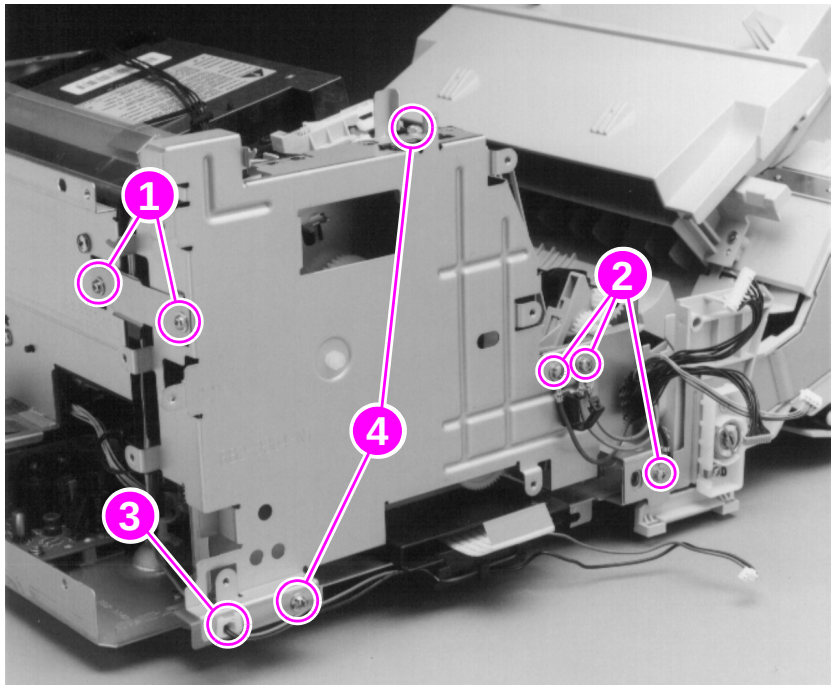


Figure 38. Metal side plate removal

6 Remove the metal side plate by popping the latch on top, near the back, and lifting it away.

Exit roller

1 Remove all covers, the RFI shield, and the printer door.

2 Pry in the tab at the lower end of the left exit roller bushing and pull it inward.

3 Release the exit roller by rotating the tab up.

Figure 39. Exit roller removal

4 Remove the exit roller by lifting up the left end; the right end follows easily.

Delivery assembly

1. Remove all covers, the RFI shield, the printer door, and the exit roller.
2. Remove the cartridge guide by pressing in the tab (callout 1) and sliding the guide toward the front of the HP LaserJet 3100 product (callout 2).

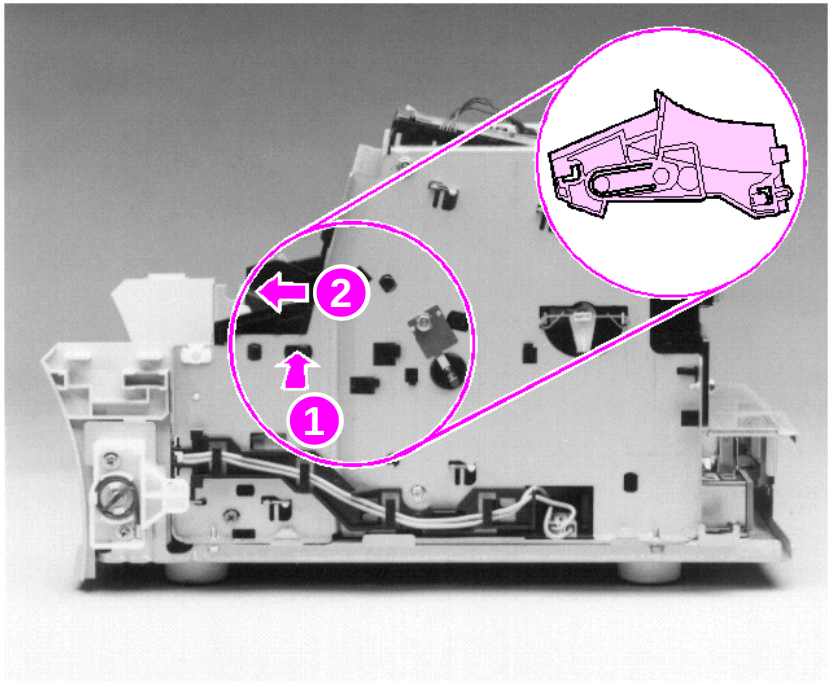


Figure 40. Delivery assembly removal (1 of 2)

3 Use the magnetic screwdriver to remove the two (2) screws (callout 1).

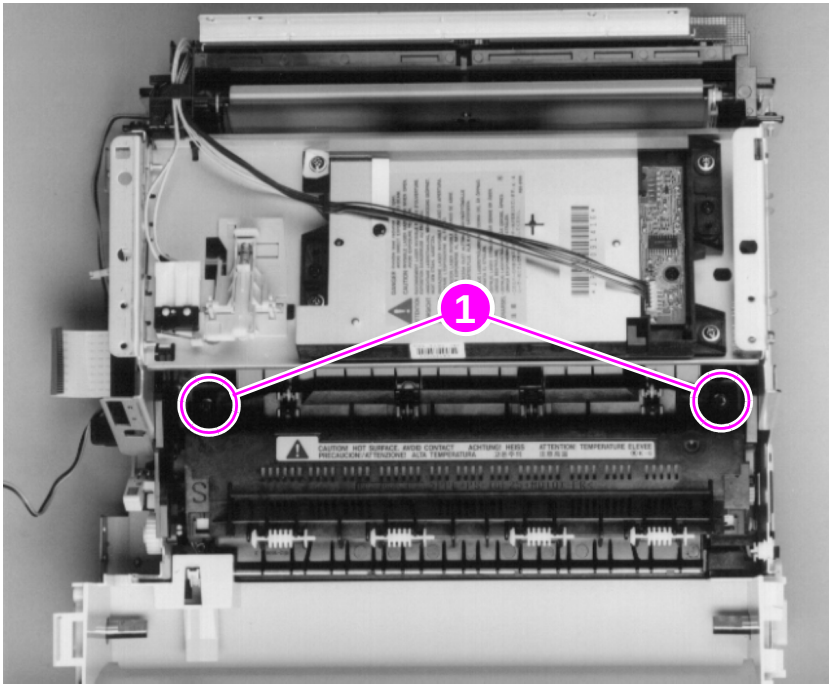


Figure 41. Delivery assembly removal (2 of 2)

4 Rotate the rear of the delivery assembly up and forward and lift it out of the printer.

Note Upon reinstallation, the tabs on the front end of the delivery assembly must fit under the sheet metal fuser plate below to correctly reseat the delivery assembly.

Fuser pressure plate

1. Remove all covers, the RFI shield, the printer door, the exit roller, and the delivery assembly.
2. Remove the two (2) screws (callout 1).
3. Press the fuser plate retainer clips out (callout 2) to release the pressure plate.
4. Rotate the plate around and toward the back (callout 3) and lift up to remove it.

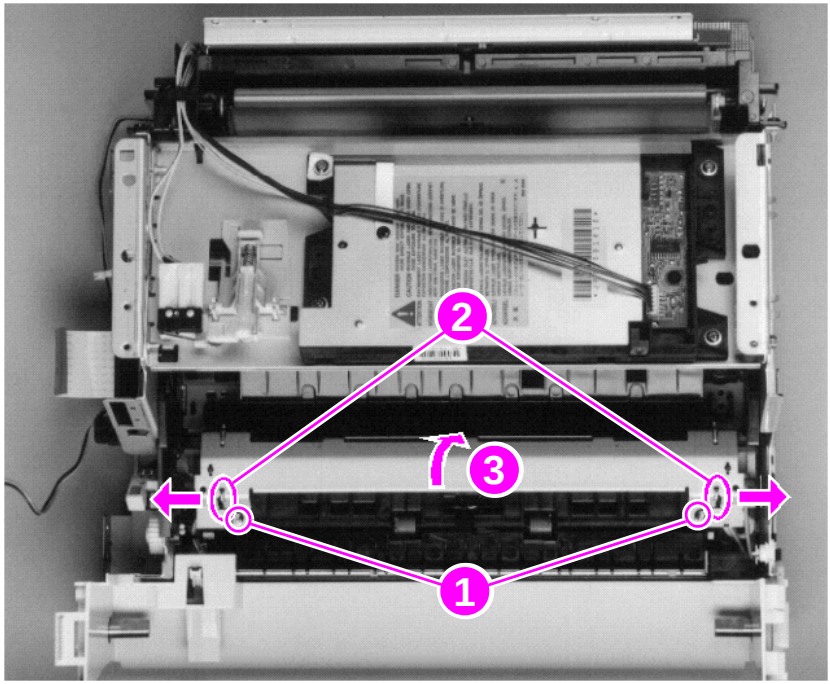


Figure 42. Fuser pressure plate removal

To reinstall

The fuser pressure plate is held in place by four locking mechanisms in each corner. Place the rear slits in the plate over the rear brackets that hold the fusing assembly (callout 1). Lower the plate over the retaining clips, pressing on both sides of the fuser pressure plate (callout 2). It is important that the spring is placed over the positioning pin (callout 3) because inadequate pressure will cause fusing problems. Replace the screws.

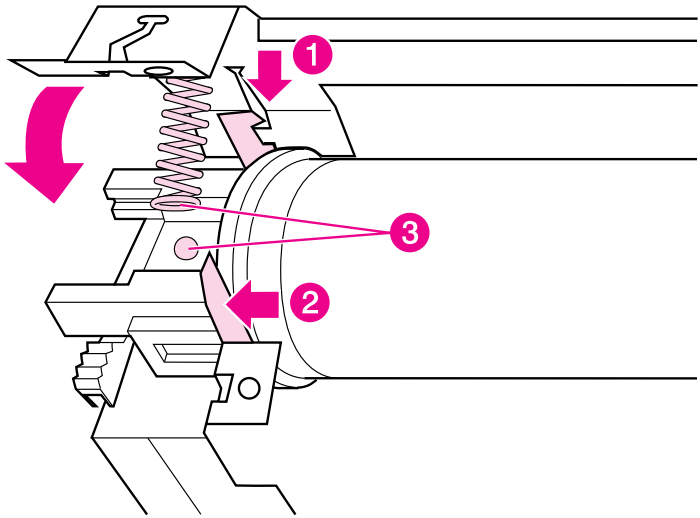


Figure 43. Fuser pressure plate replacement

Front casing

1 Remove all covers, the RFI shield, and the printer door.

2 Remove the two (2) screws (callout 1) from the right hinge holder.

Note The lower screw on each of the hinge holders secures a small metal grounding plate. Upon reinstallation, make sure the grounding plates are in the correct position.

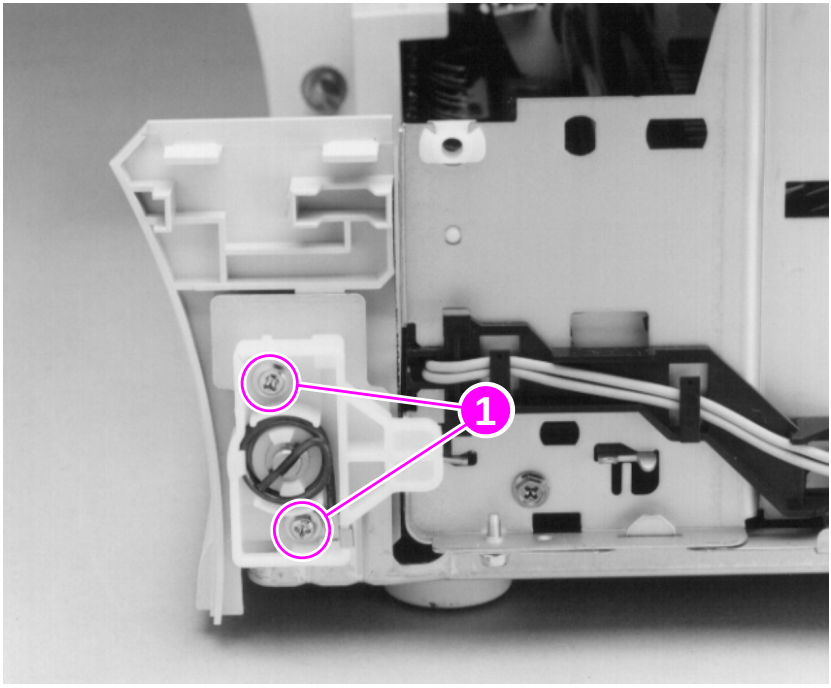


Figure 44. Front casing removal

3 Lift the right hinge holder from the frame.

4 Repeat the procedure to remove the left hinge holder.

5 Lift the front of the product up slightly and press the tabs at the bottom of the product to release the front casing.

6 Lift the front casing away from the product.

To reinstall

Make sure that the paper path lever hooks into the face-up/face-down lever correctly.

Heating element

1 Remove all covers, the RFI shield, the printer door, the exit roller, the delivery assembly, the fuser pressure plate, and the front casing.

2 Disconnect the AC voltage to the heating element by releasing the connector located on the ECU. Press down on the connector release with the small flatblade screwdriver (callout 1). (Because this is a small space, it is much easier to reach the connector with a screwdriver.) Pull the connector straight out (callout 2).

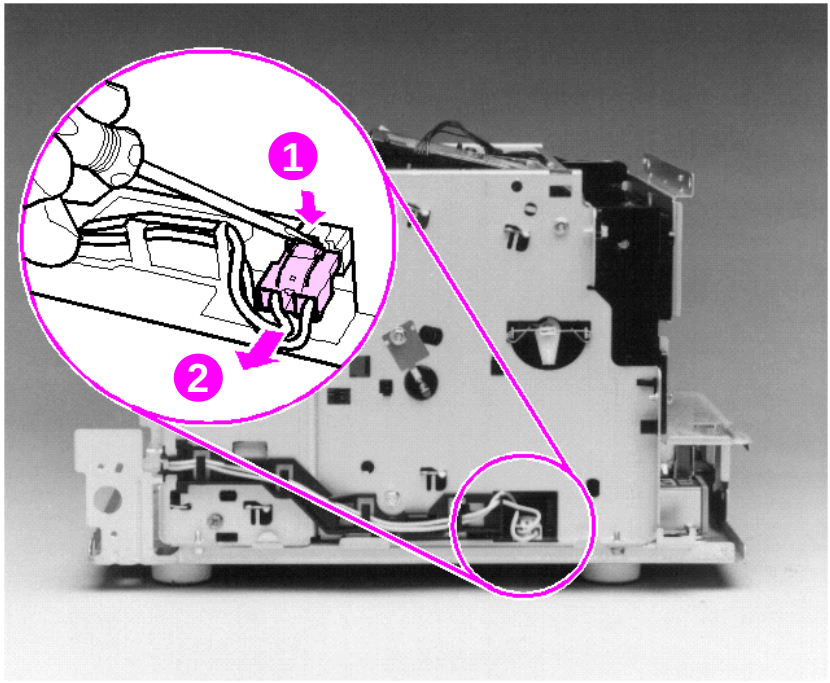


Figure 45. Heating element removal (1 of 2)

3 Remove the wire from the wire guides along the right side of the printer.

4 Disconnect the thermistor feedback connector (callout 1) in the left, front side of the fusing assembly.

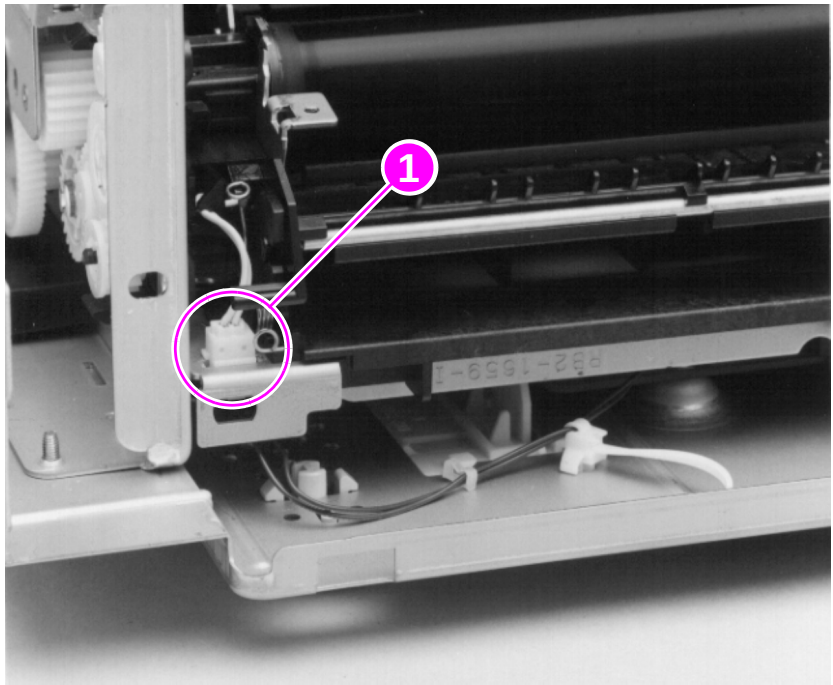


Figure 46. Heating element removal (2 of 2)

5 Lift the heating element out.

To reinstall

Make sure the connectors are properly reattached and that the thermistor feedback cable is routed behind the face-up/face-down lever.

Pressure roller

1 Remove all covers, the RFI shield, the printer door, the exit roller, the delivery assembly, the fuser pressure plate, the front casing, and the heating element.

2 Remove the pressure roller guide by lifting the edge (callout 1) and then rolling it gently backward (callout 2).

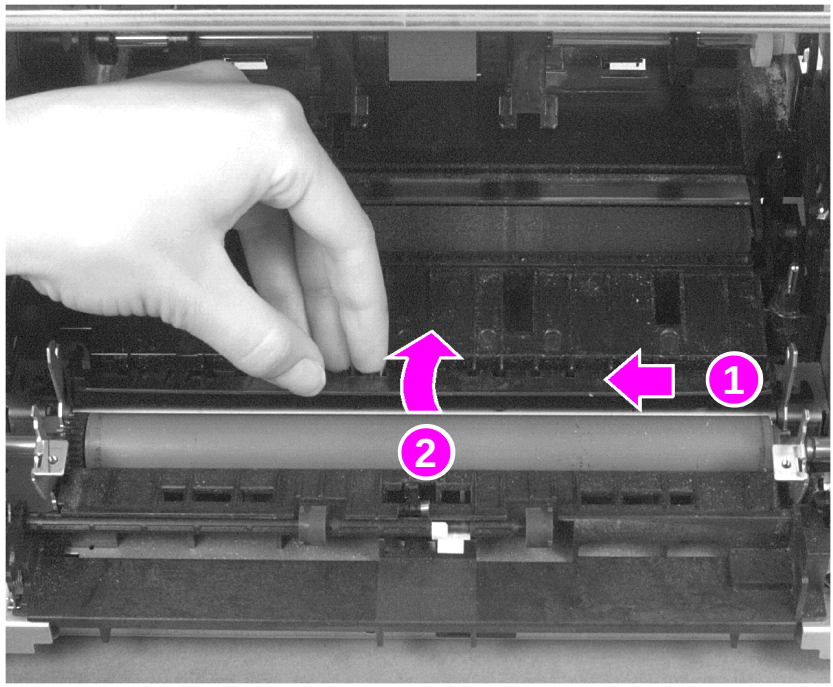


Figure 47. Pressure roller guide removal

3 Lift the right end of the pressure roller up and out of the printer chassis.

Note The right end of the pressure roller is greased.

4 The left side will follow easily with the pressure roller gear still attached.

Note When reinstalling the pressure roller, apply a drop of pressure roller grease to the grounding plate on the right end of the shaft. See Chapter 7, “Parts and diagrams,” for information about ordering pressure roller grease.

Face-up/face-down lever

1 Remove all covers, the RFI shield, the printer door, the exit roller, the delivery assembly, the fuser pressure plate, the front casing, the heating element, and the pressure roller.

2 Rotate the lever forward 90 degrees (past the spring) and pull it straight out the front of the printer.

To reinstall

1 Make sure the lever arm is on the left and is initially pointing downward.

2 Pull the spring forward using needlenose pliers.

3 Slide the short, round tabs into the grooves on the separation guide assembly. The machined ridges on the lever will face you.

4 Release the spring so it falls in place in front of the square tab.

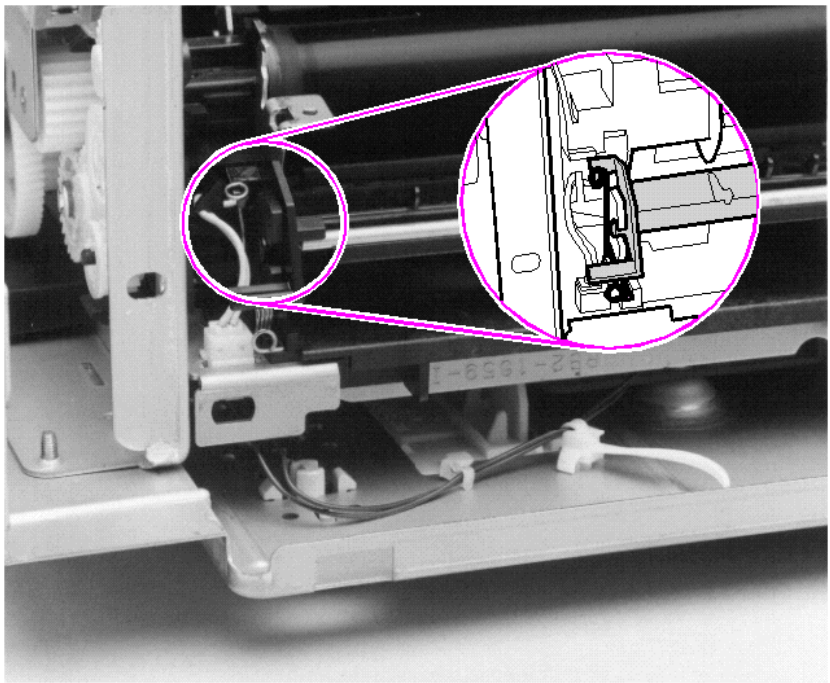


Figure 48. Face-up/face-down lever replacement

Note You can tell when the lever is in place because there are two plastic grooves that fit precisely in front of the exit rollers, and you should be able to feel the spring's release mechanism.

Fuser exit roller assembly

1. Remove all covers, the RFI shield, the printer door, the exit roller, the delivery assembly, the fuser pressure plate, the front casing, the heating element, the pressure roller, and the face-up/face-down lever.
2. Remove the gear from the left end of the roller shaft by pressing down on the catching mechanism with the small flatblade screwdriver and pulling the gear away.
3. Remove the exit roller assembly by pressing the small, white tab upward (callout 1) and rotating it around (callout 2).
4. Slide the exit roller assembly forward and out to the right of the printer.

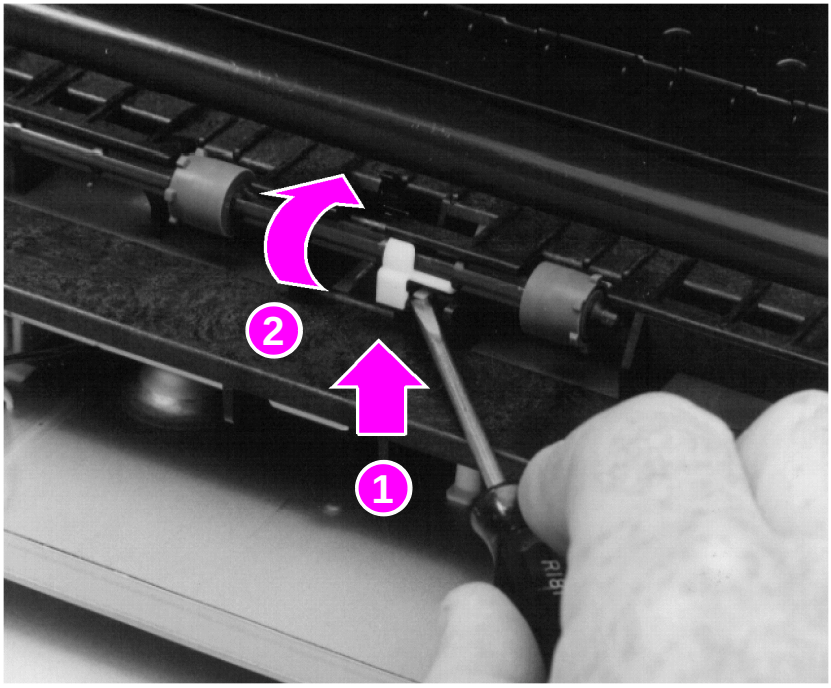


Figure 49. Fuser exit roller assembly removal

Paper exit sensor flag

1 Remove all covers, the RFI shield, the printer door, the exit roller, the delivery assembly, and fuser pressure plate.

Note

Before proceeding, examine the paper exit sensor flag. It is important to note the position of the spring mechanism on the flag. The spring must be reinstalled to exactly this position, because installing it incorrectly will cause a control panel error message.

2 Remove the paper exit sensor flag by pressing down on the left side and pulling up on the right side.

To reinstall

Place the left side of the flag in the correct position first, then slide the right side into place, making certain the spring is on top of the flag. If the spring exerts no pressure on the flag, it may require respringing by giving the spring an extra turn before reinstalling. The flag should fit snugly in place.

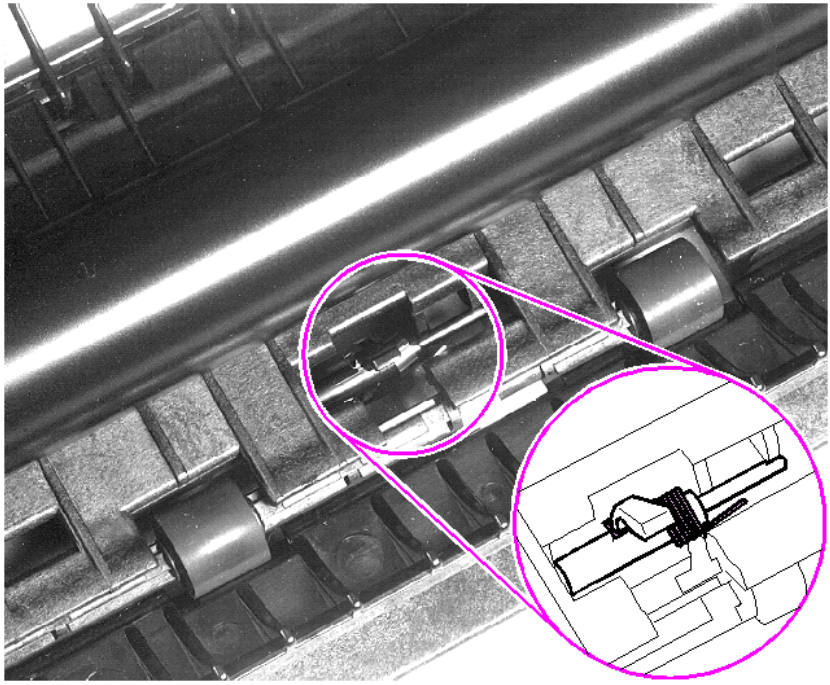


Figure 50. Paper exit sensor flag replacement

Laser/scanner assembly

1. Remove all covers.
2. Remove both laser/scanner connectors.
3. Remove the four (4) screws (callout 1).
4. Lift the assembly straight off.

Note

One of the four screws is longer than the other three. Upon reinstallation, the longer screw must be replaced in its original location.

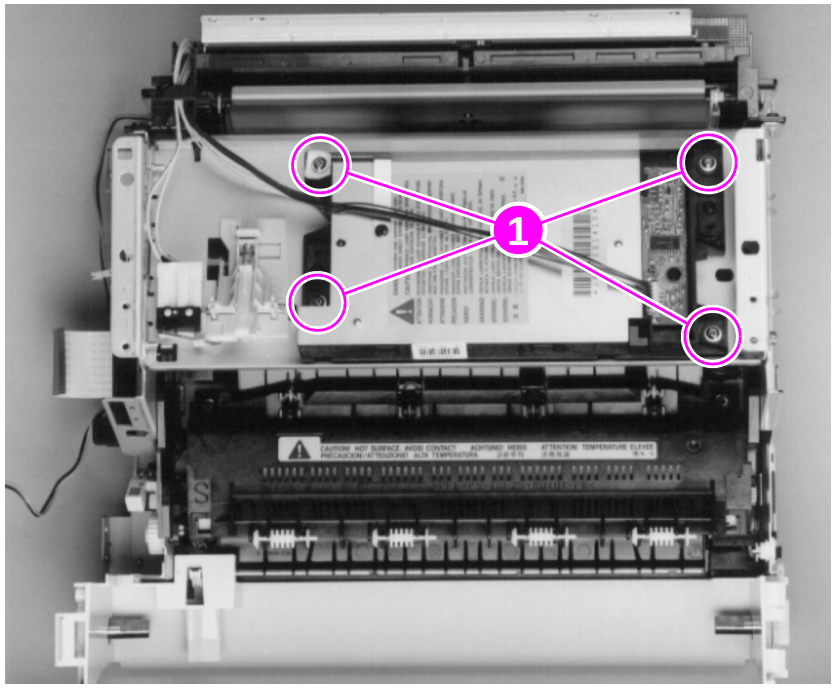


Figure 51. Laser/scanner assembly removal

Solenoid

1 Remove all covers, the RFI shield, the LIU board, the formatter board, and the metal side plate.

2 On the left side of the printer, remove the paper pickup gear (callout 1) by pressing the tabs in the center of the gear outward and pulling the gear off.

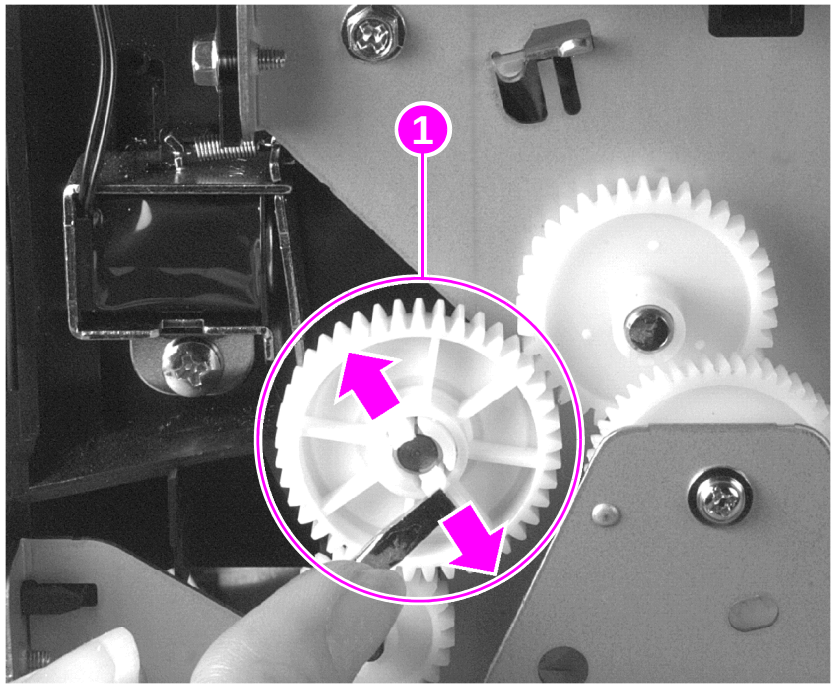


Figure 52. Solenoid removal (1 of 2)

3 Remove the solenoid connector (callout 1) from the ECU.

4 Remove the self-tapping screw (callout 2) that holds the solenoid in place.

5 Unthread the wires from the printer chassis.

6 Lift the solenoid off.

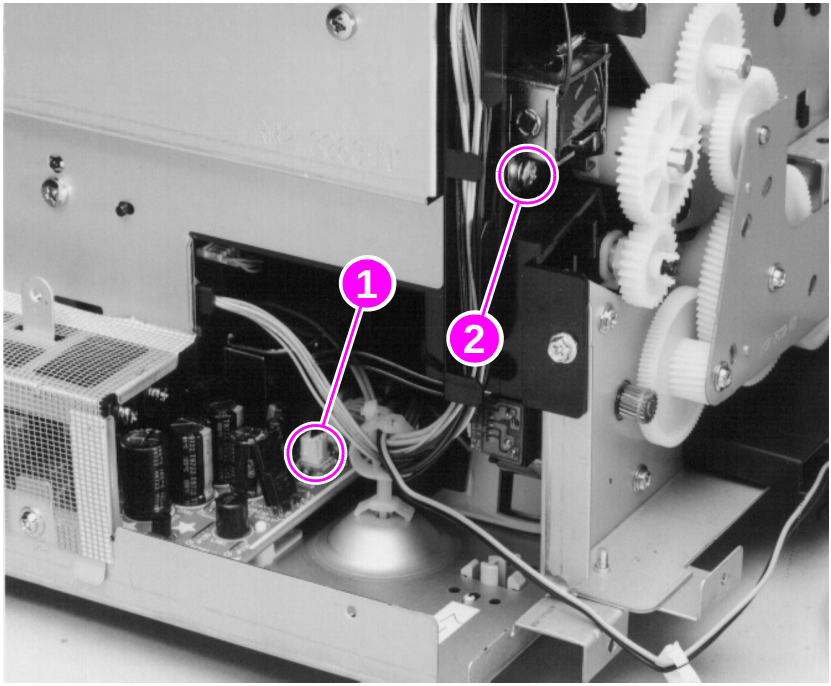


Figure 53. Solenoid removal (2 of 2)

To reinstall

The paper pickup gear is keyed to go on the shaft in only one way.

Pickup roller assembly

1. Remove all covers, the RFI shield, the printer door, the LIU board, the formatter board, the metal side plate, and the paper pickup gear.
2. Remove the pickup roller grounding clip on the right of the printer by lifting each end of the clip up and over the two metal guides and sliding the clip off.

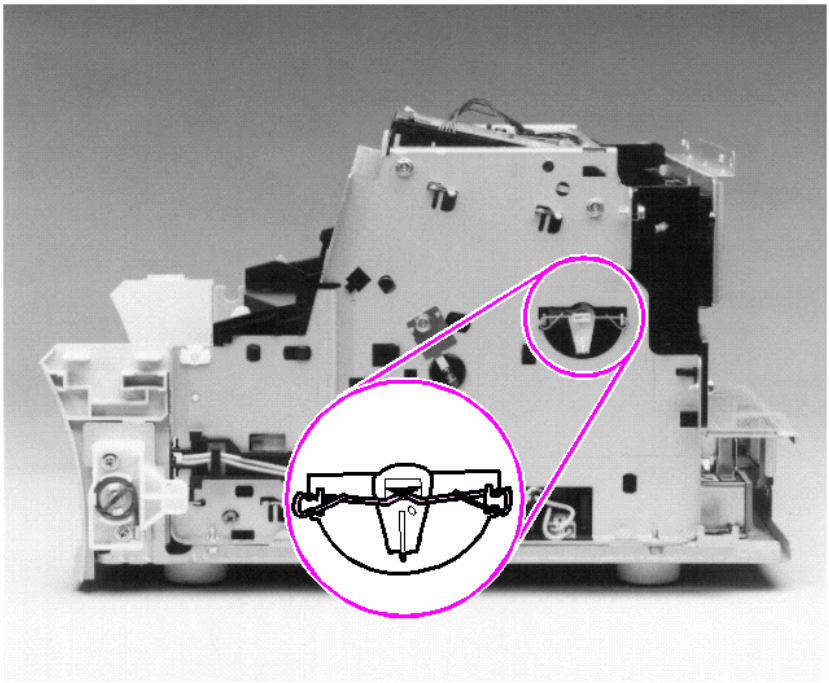


Figure 54. Pickup roller assembly removal (1 of 2)

3 Using needlenose pliers, pull the bottom of the bushing out (callout 1), then turn it counterclockwise (callout 2) to release it.

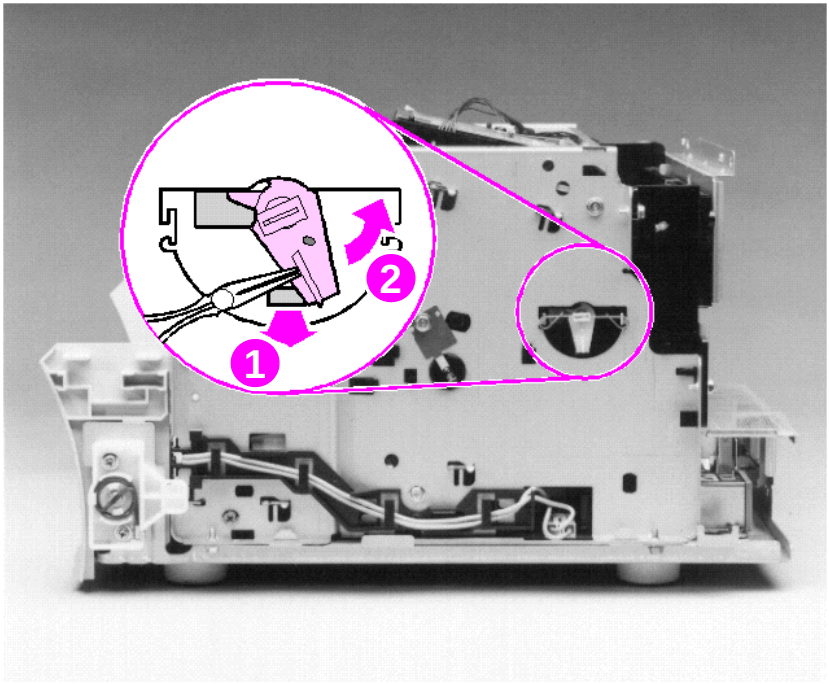


Figure 55. Pickup roller assembly removal (2 of 2)

4 Lift the bushing out.

5 From inside the front of the printer, slide the right side of the pickup roller assembly forward, then lift the left side out.

To reinstall

After placing the pickup roller shaft through on the left side, line up the idler roller tabs while repositioning the right side. Rock the shaft back and forth until the pickup roller and the idler roller tabs are correctly reinstalled.

Note

It is important that the pickup roller is placed back in with the two idler roller tabs up, so that they fit into the underside of the metal chassis behind the laser/scanner assembly.

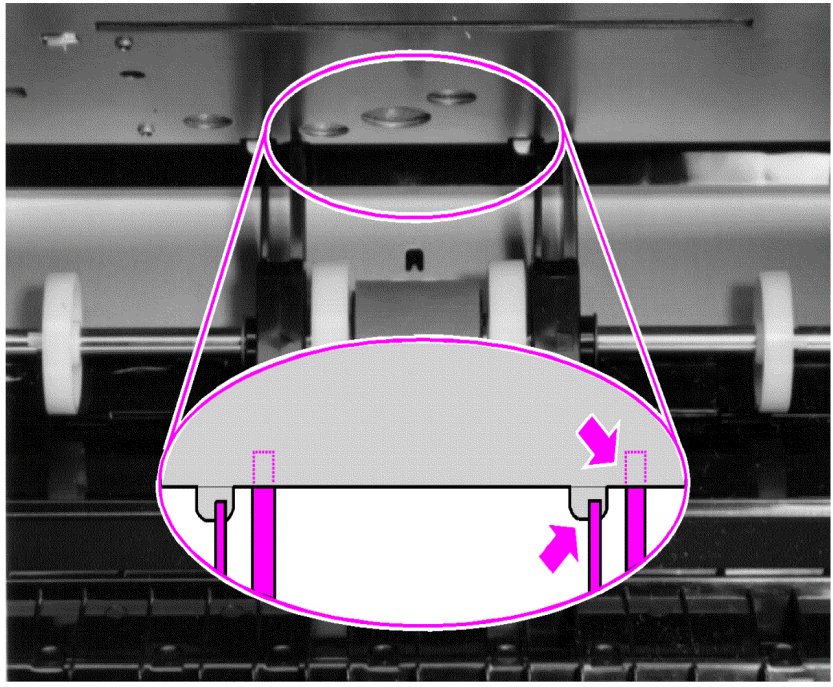


Figure 56. Paper pickup roller assembly replacement

Paper feed frame

1. Remove all covers, the RFI shield, the printer door, the LIU board, the formatter board, the metal side plate, the paper pickup gear, and the pickup roller assembly.
2. Disconnect the following:
   - Solenoid from the ECU at J204 (see Figure 54, callout 1)
   - Two connectors from the laser/scanner and the connector from SW101 (callout 1).

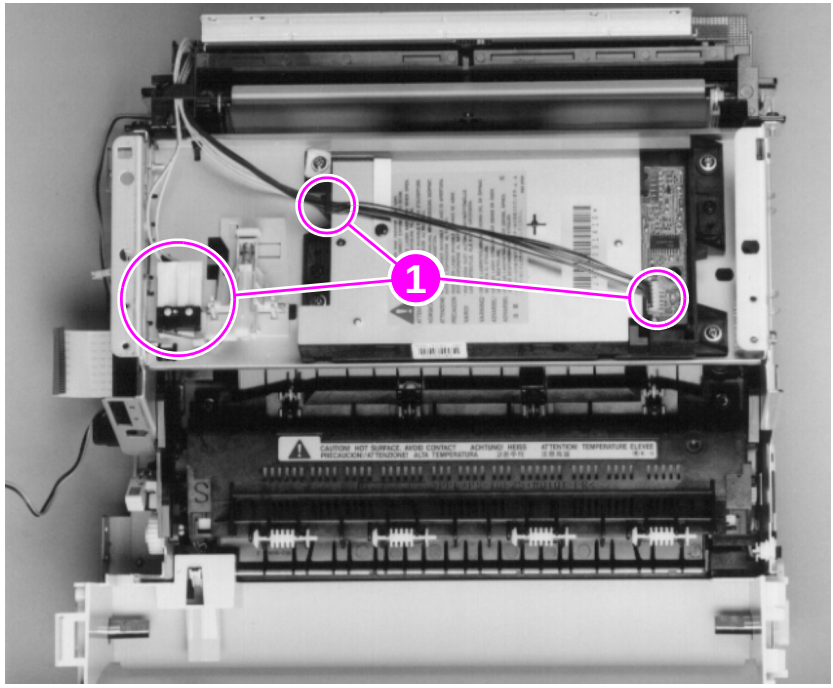


Figure 57. Paper feed frame removal (1 of 3)

3 Remove the four (4) screws (callout 1) from the back sheet metal plate and lift it off.

4 Remove the four (4) screws (callout 2) from the paper feed frame.

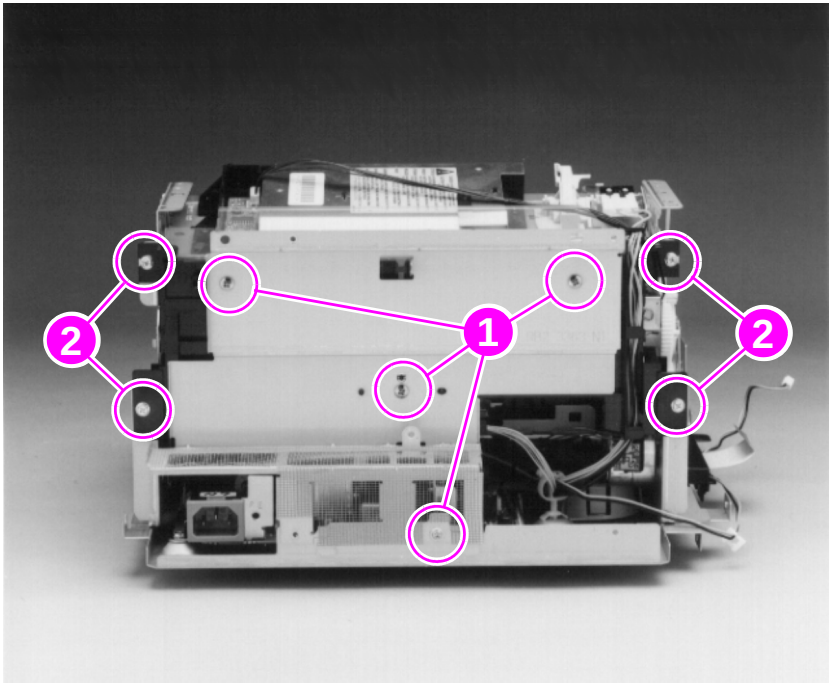


Figure 58. Paper feed frame removal (2 of 3)

5 Release the sensor unit connector (callout 1).

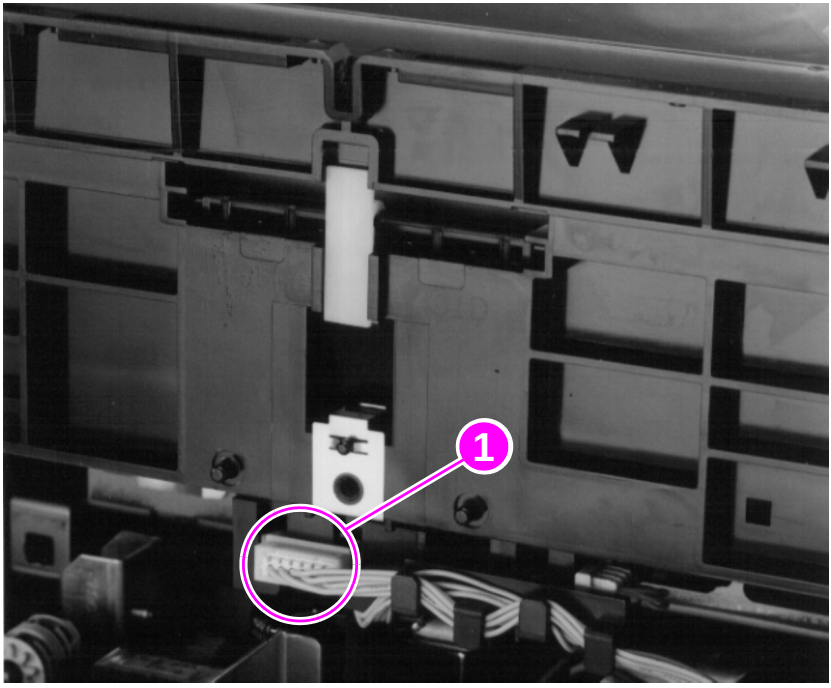


Figure 59. Paper feed frame removal (3 of 3)

6 Verify that all cables are clear of the frame and pull the frame straight back to remove it.

To reinstall

The paper feed frame may be easier to reinstall if you place the printer on its front, so that you can apply pressure while putting the screws back in place.

Transfer roller guide and transfer roller

1 Remove all covers, the RFI shield, the printer door, the LIU board, the formatter board, the metal side plate, the paper pickup gear, the pickup roller assembly, and the paper feed frame.

2 Looking at the back of the printer, note the two small, hook-shaped release tabs on each end of the transfer roller guide. Using the small flatblade screwdriver, carefully pry each tab outward to release it.

3 Roll the released portion of the guide up. To remove the transfer roller guide, pull it off each end of the transfer roller shaft. This exposes the transfer roller.

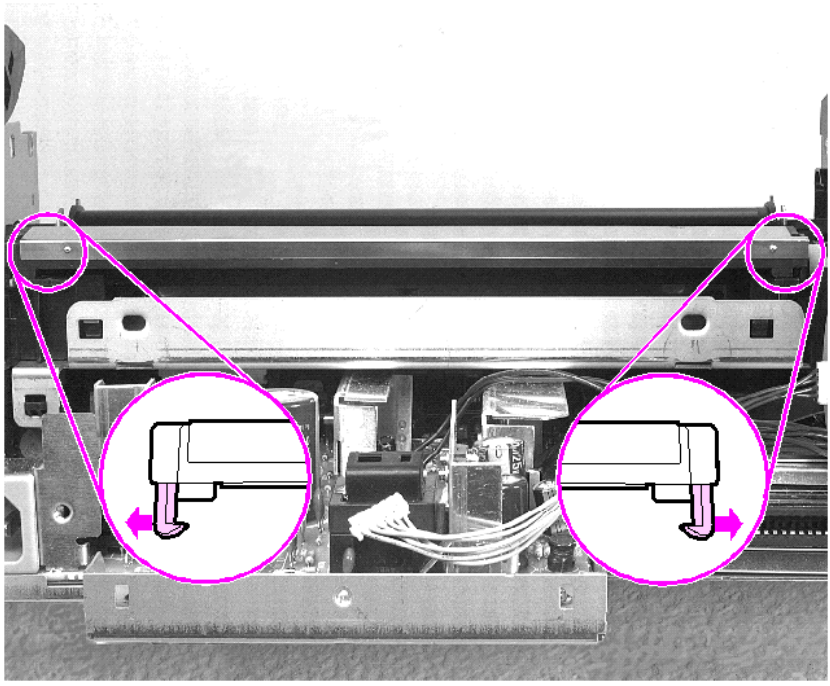


Figure 60. Transfer roller guide and transfer roller removal

CAUTION Do not touch the transfer roller or otherwise allow it to be contaminated.

4 Working from the front of the printer, gently pry the gear side of the transfer roller out first, then slide the other side out of its socket.

Kick plate

CAUTION Be careful working with the kick plate and separation pad. The spring underneath the kick plate might stay attached to the kick plate, but it is also likely to spring away from the kick plate. Place the spring aside for separation pad disassembly.

1. Remove all covers, the RFI shield, the printer door, the LIU board, the formatter board, the metal side plate, the paper pickup gear, and the pickup roller assembly.
2. Press the separation pad.
3. Allow the kick plate to pivot upward (a spring underneath will push it up) and lift the kick plate off its mounting pins.

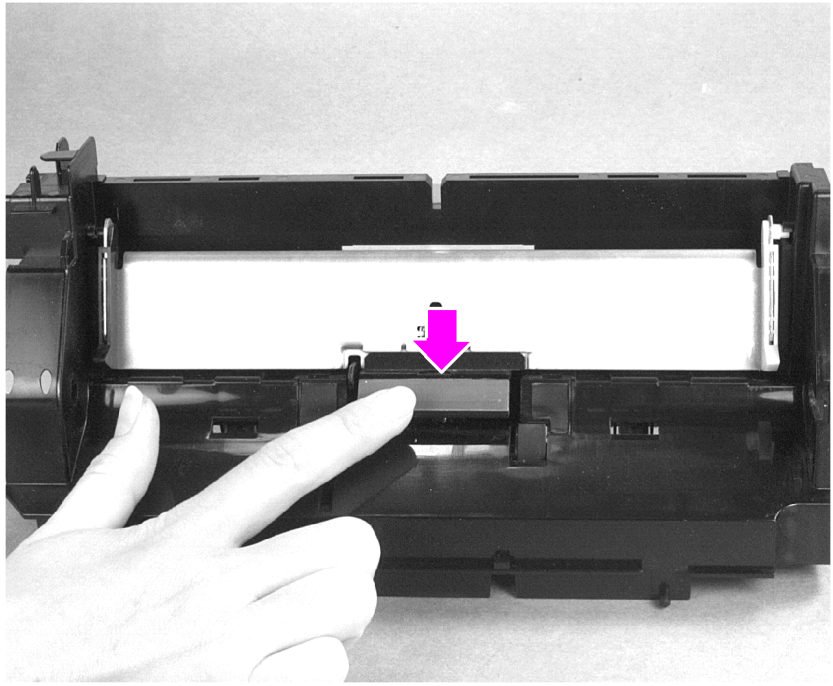


Figure 61. Kick plate removal

To reinstall

If the spring on the kick plate does not remain attached to the kick plate, replace the spring, making certain the diameter of the spring surrounds two lower pins on the kick plate and rests inside the third pin. Use needlenose pliers to place the spring correctly.

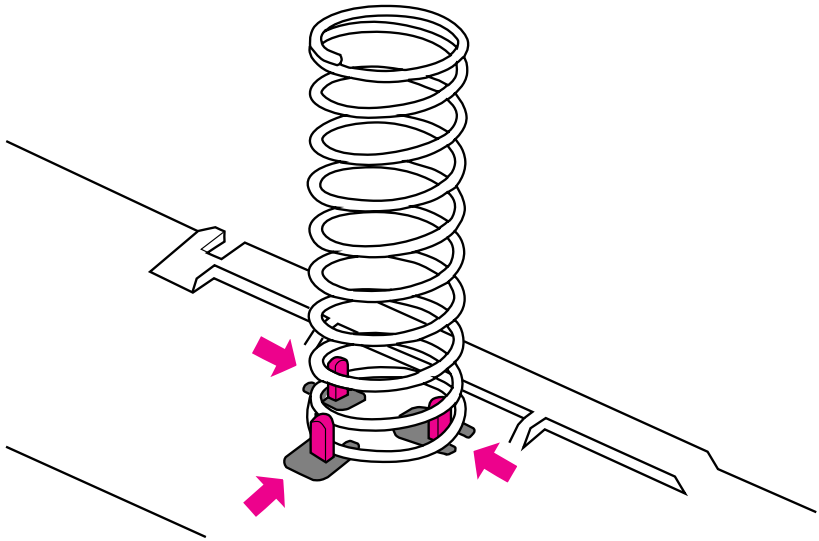


Figure 62. Kick plate spring replacement

While rotating the kick plate into place, guide the other end of the spring onto the silver grounding plate located on the paper feed frame.

Separation pad

1. Remove all covers, the RFI shield, the printer door, the LIU board, the formatter board, the metal side plate, the paper pickup gear, the pickup roller assembly, and the kick plate.
2. Lift the bottom of the white plastic tab (callout 1) on the rear of the paper feed frame up slightly and slide it up, toward the top of the paper feed frame. This will release the separation pad.
3. Lift the separation pad 90 degrees and slide its mounting pins out of their retainers.

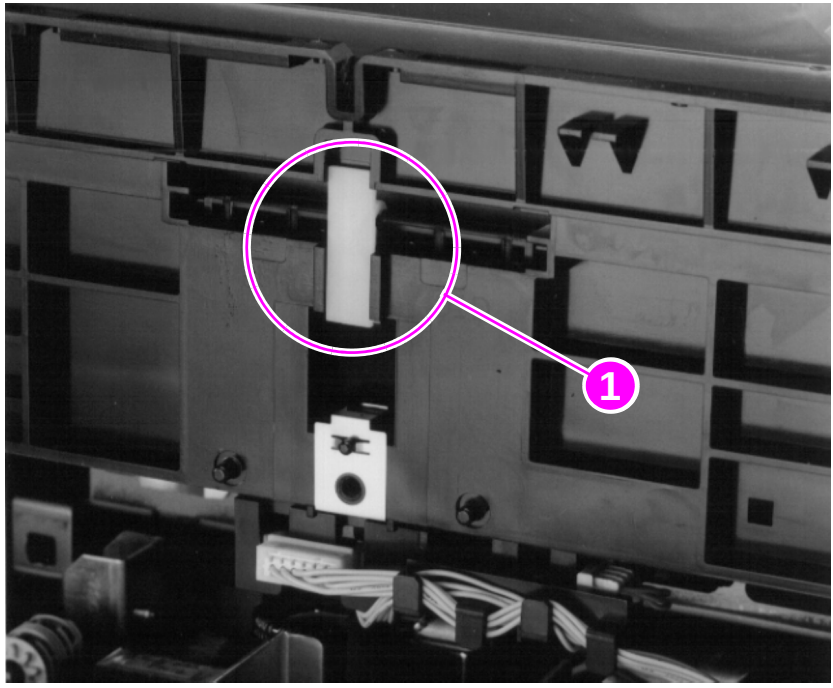


Figure 63. Separation pad removal

Subpads

Note When you replace the separation pad, you should also replace the smaller subpads.

1. Place your index finger on the subpad.
2. Press toward the top of the printer.

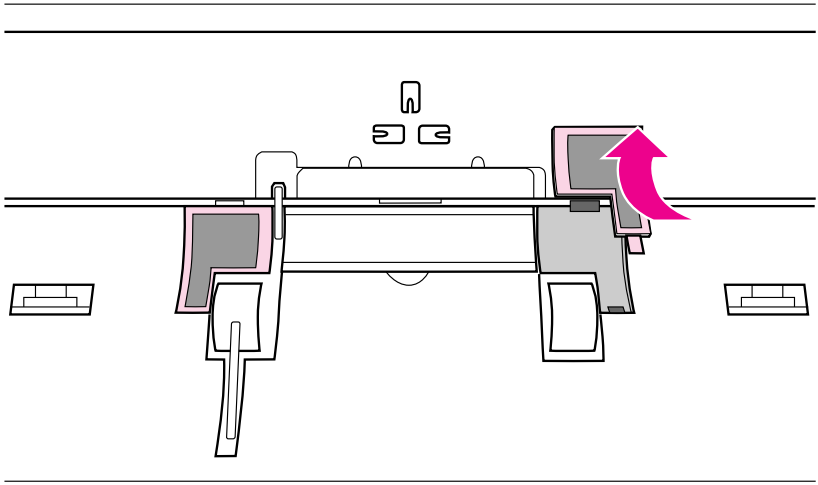


Figure 64. Subpad removal

Feed assembly

The feed assembly is located in the paper feed frame.

1. Remove all covers, the RFI shield, the printer door, the LIU board, the formatter board, the metal side plate, the paper pickup gear, the pickup roller assembly, and the paper feed frame.
2. Turn the paper feed frame upside down.
3. Remove the feed roller shaft by lifting the plastic tab up (callout 1) and sliding it out the side (callout 2) of the paper feed frame.

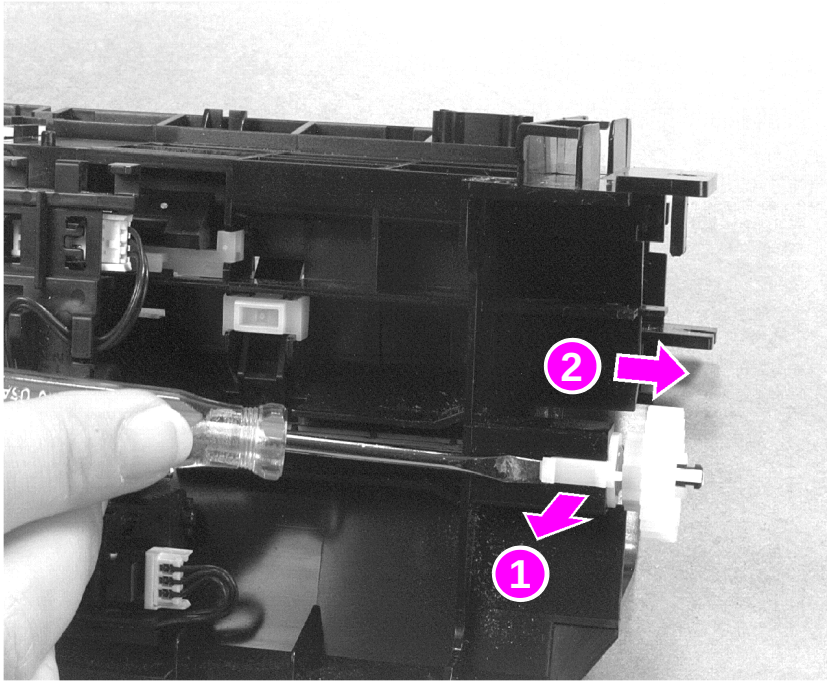


Figure 65. Feed assembly removal (1 of 3)

4 Remove the self-tapping screw (callout 1) that holds the feed assembly in place.

Note

Before proceeding, examine the tabs and how they fit into their slots (callout 2). The tabs must be reinstalled to exactly this position.

5 Remove the feed assembly.

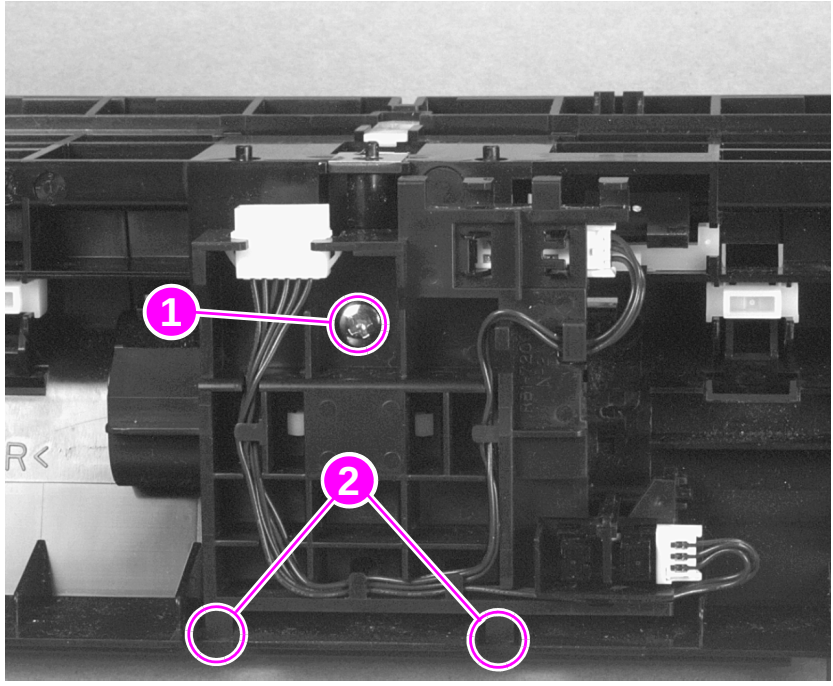


Figure 66. Feed assembly removal (2 of 3)

6 Turn the feed assembly over and place it in one hand with the roller-side down. Pop one of the tabs on the other side and the feed roller should fall into your hand.

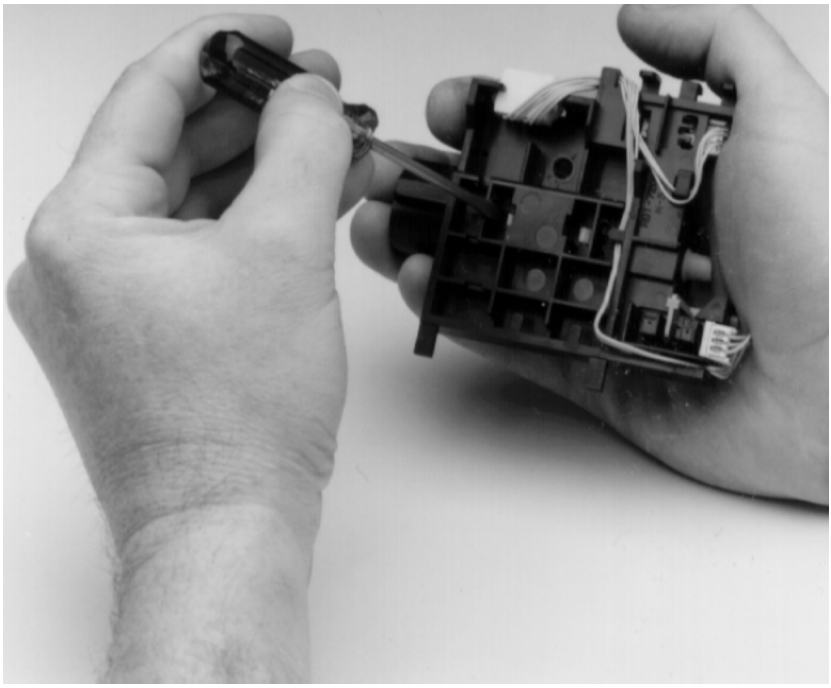


Figure 67. Feed assembly removal (3 of 3)

To reinstall

Before securing the screw, ensure the tabs on the feed assembly are positioned in their slots on the paper feed frame. Failure to do so will cause paper feed problems.

Cable guide

1. Remove all covers, the RFI shield, the printer door, the LIU board, the formatter board, and the metal side plate.
2. Two tabs hold the cable guide on the printer chassis. Press each tab inward.
3. Pull the cable guide out.

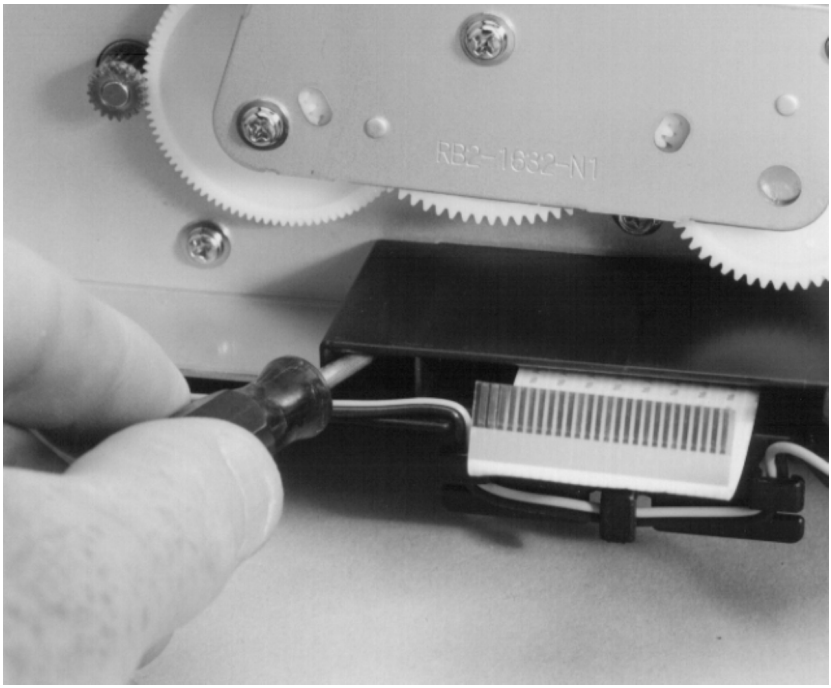


Figure 68. Cable guide removal

Main Motor

1. Remove all covers, the RFI shield, the printer door, the LIU board, the formatter board, and the metal side plate.
2. Remove the motor connector (callout 1).
3. Remove two (2) motor screws (callout 2).
4. Lift the motor out.

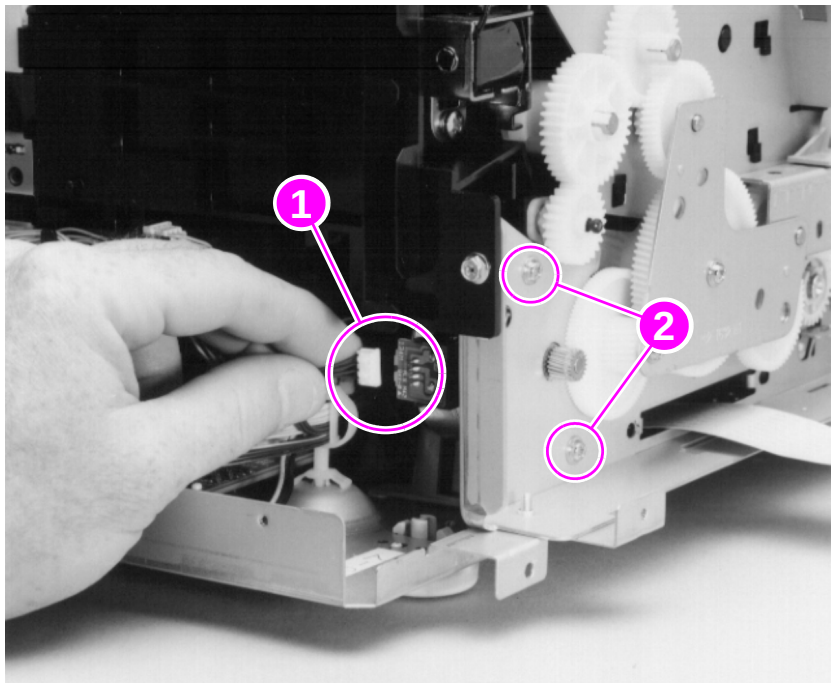


Figure 69. Motor removal

ECU

Remove all covers, the RFI shield, the printer door, the LIU board, the formatter board, the metal side plate, and the front casing.

1. Disconnect the motor connector from the motor.
2. Release all connectors from the ECU.
3. Tip the printer on its top, with the front facing you.
4. Remove the five (5) screws (callout 1) from the bottom plate.

One of the screws is a grounding screw. The location of the grounding screw is marked by a star etched into the bottom plate.

Note Make certain when you reinstall the ECU that the grounding screw with the washer is replaced in the same location.

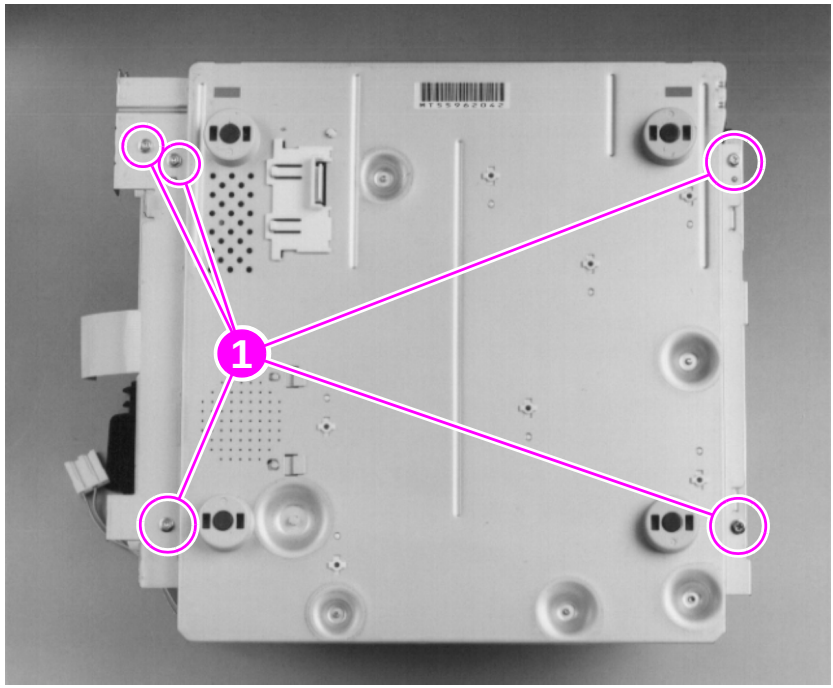


Figure 70. ECU removal (1 of 4)

5 Lift the bottom plate and release the fusing assembly connector (callout 1).

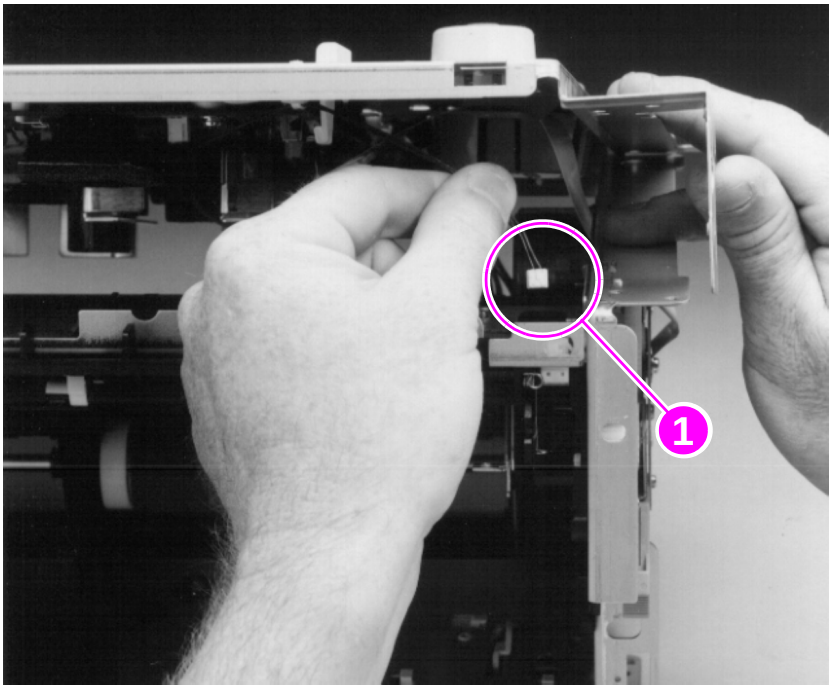


Figure 71. ECU removal (2 of 4)

6 Lift the bottom plate from the product and place it on its feet.

CAUTION Placing the ECU on a conductive surface can damage the unit. Place the ECU on an ESD mat.

7 Squeeze the speaker cover to release it from the bottom plate and lift it off the bottom plate.

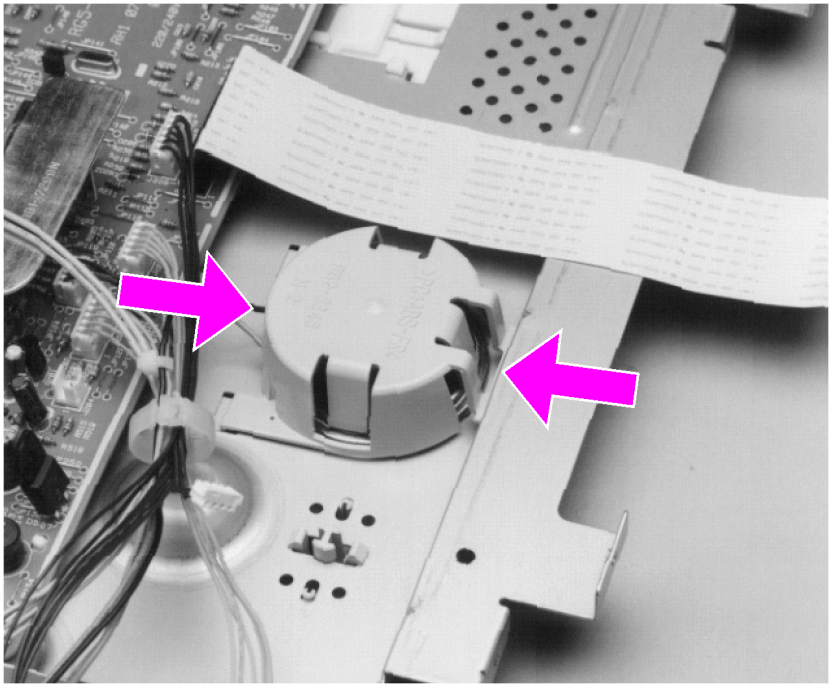


Figure 72. ECU removal (3 of 4)

8 Remove the (7) remaining cables.

9 Remove the screws (5) that secure the ECU to the bottom plate.

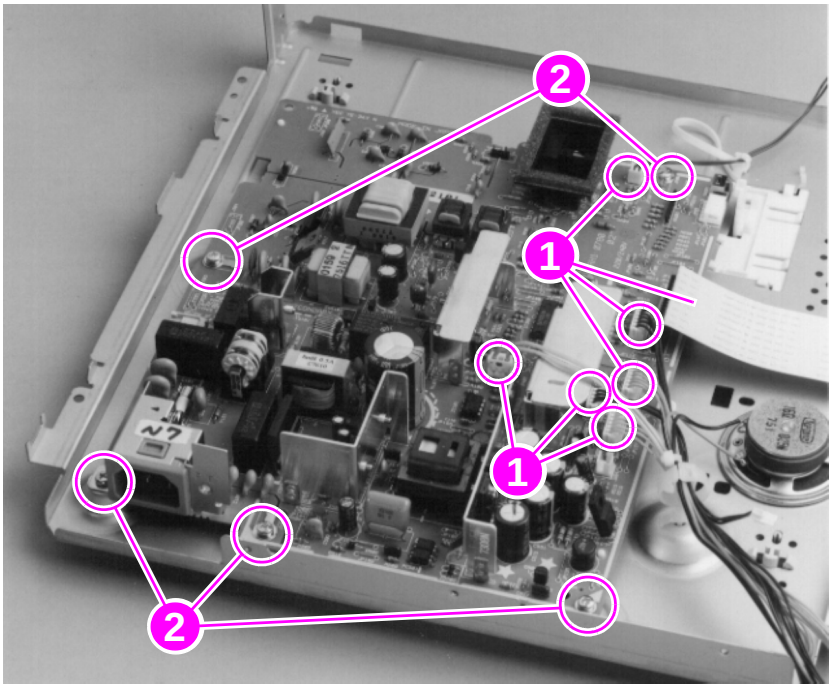


Figure 73. ECU removal (4 of 4)

10 Remove the ECU by lifting gently on the side opposite the formatter, then sliding it out.

Note When ordering, the ECU does not come with any cables. Reuse the cables from the product on which you are working or see Chapter 7, “Parts and diagrams,” for ordering information.

Feet

1 Insert the small flatblade screwdriver into the foot to release the tab.

2 Lift off the foot.

Figure 74. Feet removal

6 Troubleshooting

Chapter contents

Basic troubleshooting

Verification steps	Possible problems	Solutions
Is Power On successful? When the product is connected to a grounded power source, the printer motor should rotate for approximately six seconds and the document scanner motor should rotate for approximately two seconds.	No power.	1. Verify that the product is plugged in. 2. Verify that the power cable is functional. 3. Verify that FU102 on the ECU is not open. 4. If all of these conditions are correct, replace the ECU.
	Printer motor does not rotate.	1. Verify that the toner cartridge is present. 2. Verify that the printer door is closed. 3. Verify that paper is loaded in the paper input bin. 4. Verify that printer path paper sensors are functional. 5. Verify that the motor connector J1 is seated into J401 of the ECU. 6. Verify that the motor is correctly mounted to the printer chassis. 7. If all of these conditions are correct, replace the ECU. 8. If, after replacing the ECU, the printer motor still does not rotate, replace the motor.
	Document scanner motor does not rotate.	1. Verify that the document scanner motor connector is seated in the formatter. 2. Verify that the document scanner motor is correctly mounted in the document scanner assembly. 3. If these conditions are met, replace the document scanner motor. 4. If, after replacing the motor, the document scanner motor still does not rotate, replace the formatter. 5. If, after replacing the formatter, the document scanner motor still does not rotate, replace the ECU.

Verification steps	Possible problems	Solutions
Is the product ready? The control panel should function without error messages.	Control panel display an error message, such as "Encoding Error."	Consult the list of common messages later in this chapter to correct the error.
	Control panel is not functional.	Verify that the control panel cable is seated into both the control panel at J9 and the formatter board at J3. If the cable is connected correctly, replace the control panel.
	Control panel does not function correctly.	1. Verify that the control panel cable is seated into both the control panel at J9 and the formatter board at J3. 2. Use the extended service menu, if available, to run control panel tests. 3. If, after running control panel tests, the control panel still does not function correctly, replace the control panel. 4. If after replacing the control panel, the control panel still does not function correctly, perform an engine test, which is discussed later in this chapter. 5. If the engine test is not successful, replace the ECU. -Or- If the engine test is successful, replace the formatter.
Do engine tests and internal reports print? Print an engine test, which is discussed later in this chapter. The engine test should print without paper feed problems or print quality problems. Also print internal reports (follow the instructions under "To print all reports at once" later in this chapter). The product will print a phone book report, a menu report, a fax activity report, a configuration report, and a test report. The test report contains an error log, which documents recent error messages. The error log can be helpful in verifying operation of the product. All internal reports should print without paper feed problems or print quality problems.	Engine test is not successful.	Replace the ECU.
	Internal reports do not print.	If the engine test is successful, but internal reports do not print, replace the formatter.
	Poor print quality.	See "Solving image defects" later in this chapter.
	Paper does not move smoothly through the printer paper path.	Isolate printer paper path problems by performing a paper path check, which is discussed later in this chapter.
	Control panel displays an error message.	Consult the list of common messages in Chapter 2 to correct the error.

Verification steps	Possible problems	Solutions
Is the copy function operational? Place the reports into the document scanner input bin and copy them to the printer. Reports should feed smoothly through the document scanner path and copies should print without print quality problems.	Poor copy quality.	If the print quality from the internal reports and engine test was acceptable, but the print quality of the copies is not, clean the contact image sensor and the white sheet, and then recalibrate the document scanner. (See Chapter 3, “Maintenance,” for cleaning and recalibration procedures.) If, after performing the maintenance, the problem persists, replace the contact image sensor.
	Paper does not move smoothly through the document scanner path.	Clear the document scanner path of obstructions. Check photosensors PS801 and PS802 to make sure that they operate correctly. If the problem persists, replace document scanner rollers or guides as appropriate.
	Configuration set incorrectly.	Review and reset configuration.
Does the product send a fax? Connect the phone line and verify the dial tone (using a hand set, if necessary). Attempt to send a fax.	Telephone line is not operational or the product is not plugged into the telephone line.	Make sure that the product is plugged into a telephone line that you know works. Press MANUAL DIAL and listen for the dial tone to check the line.
	The telephone cord is plugged into the wrong connector.	In some countries, the HP LaserJet 3100 product has two connectors. Try plugging the phone cord into the other connector.
	Product’s fax settings are set incorrectly.	Review and reset the product’s fax settings.
	The LIU is not operational.	Replace the LIU.
Does the product receive a fax? Use another fax machine to send a fax to the product.	Too many telephone devices are plugged in, or telephone devices are not connected in the correct order.	Make the HP LaserJet 3100 product the only device on the telephone line and try again to receive the fax.
	Product’s fax settings are set incorrectly.	Review and reset the product’s fax settings.
	The LIU is not operational.	Replace the LIU.
Is the software installed correctly?	Software is not installed or an error occurred during software installation.	Uninstall the software. Find and delete the file named “Jetsuite.Ini.” Reload the product’s software. Make sure you use a bidirectional port setting.

Verification steps	Possible problems	Solutions
Does the product print from the computer? Connect the parallel cable to the product and the computer. Use a word processing application to send a print job to the printer.	The parallel cable is not connected.	Connect the cable.
	An incorrect printer driver is selected.	Reset the printer driver.
	Other devices are connected to the parallel port.	Disconnect the other devices and try again to print.
	There is an LPT port driver problem in Windows 95.	Reset the computer's port settings.
Does the product scan to the computer? Initiate a scan from either the computer's basic desktop software or from the product.	Other devices are connected to the parallel port.	Disconnect the other devices and try again to scan.
	The BIOS settings for the parallel port are set incorrectly.	Reset the computer's port settings. If the problem persists, reset the BIOS settings in CMOS. (See the user's guide for more information about BIOS settings.)
	The computer's parallel port hardware is not bidirectional.	Check hardware documentation to see if the port configuration can be changed.
Does the product send a fax from the computer? Initiate a fax from the computer's basic desktop software. Initiate another fax, this time using a "print to fax" command from an application.	An incorrect fax driver is selected.	Reset the fax driver.

Error messages

These control panel messages are listed alphabetically and are accompanied by the cause for the message and steps to take to resolve the problem.

Message	Cause	Solution
Configuration Err # (number 1-4)	An error was detected in the SRAM.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the formatter.
Config. Stuck Addr	In Service Mode only, SRAM stuck address test.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the formatter.
Config. Tied Addr.	In Service Mode only, SRAM tied address test.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the formatter.
Decoding Error #(number 1-3)	There was an error in decoding with the image processing chip.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the formatter.
Encoding Error	There was an error in encoding with the image processing chip.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the formatter.
Fax Memory Error #(number 1-5)	An error was detected in DRAM.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the formatter.

Message	Cause	Solution
Keypad Test Failed	In Service Mode only, the keypad test failed.	Check the cabling connections and run the keypad test again. If the error persists, replace the control panel. Run the keypad test again. If, after replacing the control panel, the error persists, replace the formatter.
Modem Error # (number 1-3)	An error was detected with the modem.	Check the cabling connections. If the error persists, unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the LIU. If, after replacing the LIU, the error persists, replace the formatter.
No Modem Installed	There is a problem in the LIU.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the LIU. If, after replacing the LIU, the error persists, replace the formatter.
Nov-22-93 06:30 PM (or any other incorrect date that cannot be reset to the correct date)	The battery inside the HP LaserJet 3100 product has failed, causing all Menu features to revert to the factory settings. Settings that contained alphabetic and numeric characters you entered, such as header information and speed-dial names and numbers, have been erased.	Replace the formatter.
Printer Fixing Error Replace Fixing Unit	There is an error in the print engine.	Check the cabling connections to the heating element. Perform the “Heating element check,” which is discussed later in this chapter. If the error persists, replace the heating element. If, after replacing the heating element, the error persists, replace the ECU.

Message	Cause	Solution
Printer Comm Error	There was an error in communicating with the HP LaserJet 3100 product.	Check that the parallel cable is securely connected between the HP LaserJet 3100 product and the computer. Use the clips to clip the cable to its connector. If the error persists, unplug the power cord from the power source for 5 seconds, and then replug it in. If neither of these solutions works, replace the formatter.
Printer Comm Error ^1	In Service Mode only. There was an error in communicating with the HP LaserJet 3100 product.	Check that the parallel cable is securely connected between the HP LaserJet 3100 product and the computer. Use the clips to clip the cable to its connector. If the error persists, unplug the power cord from the power source for 5 seconds, and then replug it in. If neither of these solutions works, replace the formatter.
Printer Laser Error Call for Service	The printer door is open or has been damaged.	Open the printer door and examine the door for damage. If the printer door is not damaged, close the door, making sure both of the release latches are closed correctly.
	A problem has occurred with the print engine.	Check the cabling connections to the laser/scanner. If the error persists, unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the laser/scanner.
Printer Motor Error Call for Service	A problem has occurred with the print engine.	Check the cabling connections to the motor. If the error persists, unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the motor. If, after replacing the motor, the error persists, replace the ECU.

Message	Cause	Solution
Printer signal error	The printer door is open or has been damaged.	Open the printer door and examine the door for damage. If the printer door is not damaged, close the door, making sure both of the release latches are closed correctly.
	There was an error in the HP LaserJet 3100 product print unit.	Check the cabling connections to the ECU. If the error persists, unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the ECU.
Scan Reference Error	There was an error detected in the HP LaserJet 3100 product.	Check the cabling connections to the contact image sensor. If the error persists, recalibrate the document scanner. If the error persists after recalibration, replace the contact image sensor.
Scanner Error #1	An error has occurred in the document scanner.	Press and hold down the STOP/CLEAR key for 7 seconds. This resets the HP LaserJet 3100 product. If the error persists, check the cabling connections. If the error persists, unplug the power cord from its power source for five seconds, and then replug it in. If none of these methods clears the error, replace the contact image sensor. If, after replacing the contact image sensor, the error persists, replace the formatter.
System Error	An error has occurred that may require servicing.	Unplug the power cord from the power source, wait 10 seconds, and replug in the power cord. If the error persists, replace the formatter.

Image formation troubleshooting

Check the toner cartridge

Image formation defects are many times the result of toner cartridge problems. If there is any doubt, always replace the toner cartridge before troubleshooting image defects.

Use the following checklist to ensure that the toner cartridge is still operable.

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

Note A toner cartridge weighs 730 grams (26.1 ounces) when it is full and 640 grams (22.7 ounces) when it is empty.

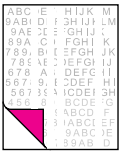
To redistribute toner in the cartridge

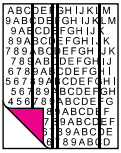
Before installing a new cartridge, or when toner begins to run low, redistribute the toner by rotating the cartridge back and forth five or six times.

Solving image quality problems

Use the following table to help solve problems with printed pages. See also “Solving paper feed problems” in this chapter.

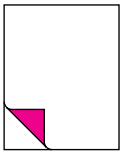
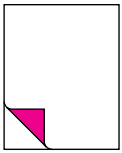
Problem	Cause	Solution
Parts of the page around the edges aren’t printing. 	The HP LaserJet 3100 product cannot print to the edge of the paper. The HP LaserJet 3100 product has minimum margins on each edge of 0.25 in (6.4 mm).	To get the image to fit into this printable area, slightly reduce the size of the image.
	If printing or copying, the reduction setting is set incorrectly.	For printing, check the reduction setting in the “Print” or “Setup” window from within the program you are using. For copying, check the reduction setting on the control panel or from the auto prompt.
Images will not print.	The HP LaserJet 3100 product is not plugged in.	Make sure that the HP LaserJet 3100 product is plugged into a live wall outlet or power strip.
	The parallel cable is loose.	Check that the parallel cable is securely connected between the HP LaserJet 3100 product and the computer.
Faxes you send, copies, or scanned images are too light or too dark. 	The contrast is not set correctly.	Adjust the contrast and resolution settings from the control panel or the Document Assistant.
	The original image is very light or very dark.	Adjust the resolution and/or contrast setting(s) from the dialog box that appears after you click **Scan** on the Document Assistant.
	The scanned image is too light or too dark because the original was on a colored paper.	If the original was on a colored paper, including a brown recycled paper, the text may not be clear. Adjust the resolution, contrast, and/or brightness settings from the dialog box that appears after you click **Scan** on the Document Assistant.
	The HP LaserJet 3100 product needs to be recalibrated.	Recalibrate the product.

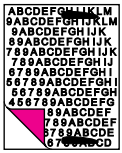
Problem	Cause	Solution
Print is faded or you notice a block of vertically aligned white streaks,  or print is not faded, but vertical white stripes appear on the page. 	The toner cartridge is getting low on toner.	Redistribute the toner or replace the toner cartridge.
	The HP LaserJet 3100 product needs to be cleaned.	See the appropriate sections of Chapter 3, “Maintenance.”
	The paper you are using does not meet HP’s paper specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in HP’s media specifications guide.
	Toner density setting is not adjusted correctly.	Adjust the setting from the control panel.
	A part of the HP LaserJet 3100 product is damaged.	Follow the steps in “Basic troubleshooting” to isolate the problem.
	The internal mirror or optics are contaminated.	Clean the mirror by blowing air through the laser/scanner to remove any dust particles.
	The laser/scanner is damaged.	Replace the laser/scanner.
	The document scanner needs to be recalibrated.	Follow the instructions in Chapter 3, “Maintenance,” to recalibrate the document scanner.
	There is a problem in the contact image sensor.	Replace the contact image sensor
	There is a problem in the formatter.	Replace the formatter.
Stains or smudges appear as small, round, black dots on the front or back of a page. Sometimes inconsistent stains appear. 	The paper you are using does not meet HP’s paper specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in HP’s media specifications guide.
	You are printing on the wrong side of the paper.	Remove the paper from the paper input bin and turn it over. (The wrapper on many reams of paper has an arrow indicating the print side.)
	The HP LaserJet 3100 product needs to be cleaned.	See Chapter 3, “Maintenance,” for instructions on cleaning the product and using a cleaning page.
	The toner cartridge is damaged.	Replace the toner cartridge if maintenance procedures do not improve print quality.

Problem	Cause	Solution
Vertically-aligned black streaks or smears appear on successive pages. 	The HP LaserJet 3100 product needs to be cleaned.	See the appropriate sections of Chapter 3, “Maintenance.”
	The toner cartridge is damaged.	Replace the toner cartridge if maintenance procedures do not improve print quality.
	There is a problem in the heating element.	Perform the “Heating element check,” which is discussed later in this chapter.
	If scanned images have unwanted lines through them:	
	There is ink, glue, white-out, or some other substance on the contact image sensor.	See the appropriate sections of Chapter 3, “Maintenance.”
	Slick paper caused the document scanner trouble in scanning.	Use a carrier sheet to send the item.
	The HP LaserJet 3100 product needs to be recalibrated.	Recalibrate the product.
Horizontally aligned black streaks or smears appear. 	The toner cartridge was improperly installed.	Make sure you removed the entire length of the sealing tape from the toner cartridge before you installed it.
	The toner cartridge is defective.	Replace the toner cartridge.
	The HP LaserJet 3100 product needs to be cleaned.	See the appropriate sections of Chapter 3, “Maintenance.”
	There is a problem in the heating element.	Perform the “Heating element check,” which is discussed later in this chapter.
	A gear is damaged.	Perform the “Drum rotation functional check,” which is discussed later in this chapter.
	There is a problem in the laser/scanner.	Replace the laser/scanner.
	If horizontal lines appear in margins and across entire pages on faxes you send:	
	The HP LaserJet 3100 product needs to be cleaned.	See the appropriate sections of Chapter 3, “Maintenance.”
	There is a problem in the contact image sensor.	Replace the contact image sensor.

Problem	Cause	Solution
Light character shadows or repetitive marks appear on the page. 	A roller is damaged.	Use the “Repetitive image defect ruler” later in this chapter to determine which roller is damaged. Replace the roller.
	The HP LaserJet 3100 product needs to be cleaned.	See the appropriate sections of Chapter 3, “Maintenance.”
	If you are using transparencies, they do not meet HP’s specifications.	Make sure that the media meets specifications detailed in HP’s media specifications guide.
	The paper’s texture is too coarse.	Try changing to a paper with a smoother finish.
	The toner cartridge is damaged, causing a repetitive black flaw on every printout.	Replace the toner cartridge.
	The toner cartridge’s photosensitive drum has been overexposed to bright light, causing repetitive defects (usually a fuzzy black area).	Replace the toner cartridge.
Character voids appear (white areas within the parts of characters that should be solid black). 	The paper or transparencies do not meet HP’s specifications.	Make sure that the media meets specifications detailed in HP’s media specifications guide.
	You are printing on the wrong surface of the paper.	Remove the paper and turn it around. (The wrapper on many reams of paper has an arrow indicating the print side.)
Background scatter appears on a printed page. 	Background scatter results from bits of toner distributed on the front or back of a printed page. Background scatter often is isolated to a specific area of the page.	Try changing the print density setting. If that doesn’t work, change the paper type, weight, or surface finish. If background scatter occurs on an envelope, try moving the text to an area with no seams. Printing on seams can cause this problem.
	Toner has spilled inside the product.	See the appropriate sections of Chapter 3, “Maintenance.”
	The pickup roller is dirty.	See the appropriate sections of Chapter 3, “Maintenance.”

Problem	Cause	Solution
The page is completely black. 	The toner cartridge was improperly installed.	Remove the cartridge and reinstall it.
	The toner cartridge is defective.	Replace the toner cartridge.
	Discontinuities exist in the high-voltage contact points.	Perform the “High-voltage power supply check,” which is discussed later in this chapter.
	There is a problem in the ECU or the laser/scanner.	Follow the steps in “Basic troubleshooting” to isolate the problem. Replace the ECU or the laser/scanner, as needed.
Characters are only partially printed (also referred to as dropouts). 	A single sheet of paper is defective.	Try reprinting the job.
	The print density needs to be adjusted.	Adjust the print density from the control panel.
	The moisture content of the paper is inconsistent or the paper has moist or wet spots on the surface.	Make sure that the media meets specifications detailed in HP’s media specifications guide.
	The paper was damaged by inconsistent manufacturing processes.	Make sure that the media meets specifications detailed in HP’s media specifications guide.
	A “draft mode” or “economy mode” is selected in the software.	Try a “normal” or “best” setting.
The bottom of the printed page is blank or part of a graphic’s image is cut off. 	The page is too complex. (There is not enough memory to process the page.)	Set the resolution to 300 dpi through your software or printer driver. See the online help for printer driver issues.

Problem	Cause	Solution
Blank pages print occasionally. 	Page length and margins are not set correctly for the paper size.	If you are printing on small paper and your page is blank, try printing on larger paper to see where the image is printing. Adjust the margins accordingly.
	Your HP LaserJet 3100 product is feeding two or more sheets of paper at a time because the paper is difficult to separate.	Remove the paper from the paper input bin and align the edges of the paper. “Break” the ream of paper by curving it into an upside-down u-shape. Try turning the paper around to feed the other end first, or use a different type of paper. Clean the pickup roller and the separation pad. If the problem persists, replace the separation pad.
	Your software application is sending an extra page-eject command.	Check your software’s printing configuration information. If you are using a word-processing program, check for a natural page break and a forced page break that are close to each other.
Blank pages are always printing 	The toner cartridge was improperly installed.	Make sure you removed the entire length of the sealing tape from the toner cartridge before you installed it.
	The toner cartridge is completely out of toner.	Replace the toner cartridge.
	Discontinuities exist in the high-voltage contact points.	Perform the “High-voltage power supply check,” which is discussed later in this chapter.
	There is a problem in a part of the product.	Print a self-test page. If the page is blank, follow the steps in “Basic troubleshooting” to isolate the problem. Replace the laser/scanner or the ECU as needed.
Print is misaligned on the page (skewed pages). 	The paper input bin is overfilled.	Remove some of the paper.
	The guides are adjusted improperly.	Be sure to center the paper with the paper guides. Also, verify that the paper guides are not adjusted too tightly or too loosely against the paper.
	The paper’s weight or surface finish does not meet HP’s specifications.	Make sure that the media meets specifications detailed in HP’s media specifications guide.

Problem	Cause	Solution
Scanned images have black dots or streaks in top and bottom margins. 	There is ink, glue, white-out, or some other substance on the contact image sensor.	See the appropriate sections of Chapter 3, “Maintenance.”
	There is a problem in the contact image sensor.	Replace the contact image sensor.
Scanned text is not clear. 	The contrast, resolution, or brightness needs to be adjusted before scanning.	Adjust the resolution, contrast and/or brightness setting(s) from the dialog box that appears after you click **Scan** on the Document Assistant.
	The original is on colored paper.	If the original was on a colored paper, including a brown recycled paper, the text may not be clear. Try adjusting the resolution, contrast, and/or brightness settings from the dialog box that appears after you click **Scan** on the Document Assistant.
	There is a problem in the contact image sensor.	Replace the contact image sensor.
Scanned images print at a reduced size. 	The JetSuite Pro software reduced the image.	If necessary, the JetSuite Pro software automatically reduces the size of the image to fit it on the page. For example, if you scan an 8.5- by 11-inch (215.9- by 279.4-mm) page, then the image in the JetSuite Pro software will be exact same size edge to edge. However, most printers cannot print right up to the edge of the paper. To get the image to fit into this printable area, you must slightly reduce the size of the image.

Solving paper feed problems

Use the following table to solve problems related to moving paper or documents through the HP LaserJet 3100 product.

Problem	Cause	Solution
Pages are coming out curled or wrinkled from the HP LaserJet 3100 product.	Paper is curled or wrinkled when using the paper output bin.	Use the front paper output slot by pushing the paper path lever to the lower position.
	Paper is not stored properly.	Whenever possible, store paper in its sealed ream at room temperature.
	There is debris in the fixing unit.	See the appropriate sections of Chapter 3, “Maintenance.”
Long pages stop feeding through the document scanner.	The document feeder tray guides are not set correctly, are broken, or are missing.	Check for broken or missing document feeder tray guides and replace as necessary.
	The maximum scannable page length is 39 inches (991 mm). If the page is longer, scanning stops at 39 inches (991 mm).	Do not try to pull the page out because you may damage the document scanner. To remove the page, open the document release door and remove the jammed media. Then, rescan the page. When the document scanner reaches the 39 inches (991 mm) mark, the control panel displays `Long Page? START to Continue` for a few moments only. Quickly press START to continue scanning. If you do not, the message disappears and the document scanner stops scanning because it thinks the page has jammed. If you are sending a fax or copying a document longer than 39 inches (991 mm), you can also set the control panel configuration to “Send long pages,” which ensures that long pages feed without having to monitor the task and press START before the document scanner shuts off.

Problem	Cause	Solution
Print is misaligned on the page (skewed pages).	The paper input bin is overfilled.	Remove some of the paper.
	The paper guides are not set correctly, are broken, or are missing.	Be sure to center the paper with the guides. Verify that the guides are not adjusted too tightly or too loosely against the paper. Check for broken or missing paper guides and replace as necessary.
	The paper's weight or surface finish does not meet HP's specifications.	Make sure that the media meets specifications detailed in HP's media specifications guide.
Scanned items are crooked.	The document feeder tray guides are not adjusted properly.	Be sure to center the paper with the guides. Also, verify that the guides are not adjusted too tightly or too loosely against the paper. Check for broken or missing document feeder tray guides and replace as necessary.

Problem	Cause	Solution
The HP LaserJet 3100 product is feeding multiple sheets or jams frequently from the paper input bin or single-sheet input slot.	Paper guides are not adjusted properly.	Slide the guides against the sides of the stack in the paper input bin or against the single sheet in the single-sheet input slot to center the paper. Make sure the guides are not adjusted too tightly.
	Paper was not removed from the paper input bin before filling the bin.	Always remove paper from the paper input bin before refilling the bin.
	The paper input bin is overfilled.	Remove some of the sheets. The paper input bin can hold up to 100 sheets of 20-lb (75g/m^2) bond weight paper (less for heavier paper) or up to 7 to 10 envelopes.
	More than one sheet was placed in the single-sheet input slot.	Place only one sheet at a time in the single-sheet input slot.
	The paper was poorly cut by the manufacturer and is sticking together.	“Break” the ream of paper by curving it into an upside-down u-shape; this may effectively decrease multifeeds. Also try turning the paper around to feed the opposite end first, or use a different type of paper.
	The paper does not meet HP’s specifications for print media.	Make sure that the media meets specifications detailed in HP’s media specifications guide.
	The output capacity was exceeded in the paper output bin or front paper output slot.	Do not allow more than 100 sheets of 20-lb (75g/m^2) bond weight paper (less for heavier paper) to fill the paper output bin. Do not allow more media to stack up in front of the front paper output slot.
	The pickup roller is dirty.	See the appropriate sections of Chapter 3, “Maintenance.”
	The pickup roller is damaged.	Replace the pickup roller.
	The separation pad is dirty.	Clean the separation pad.
	The separation pad is damaged.	Replace the separation pad.
	A sensor isn’t operating properly.	Check the sensors to make sure that none of them are jammed. If a sensor cannot be “unjammed,” replace the sensor.
	There is a problem in the paper path.	Perform the “Paper path check,” which is discussed later in this chapter, to determine which parts should be replaced.

Problem	Cause	Solution
The HP LaserJet 3100 product is feeding multiple sheets or jams frequently from the document feeder tray.	The special media lever is in the incorrect position.	The special media lever should be to the left to send regular-weight documents. The lever should be to the right to send thick documents, which can only be loaded one page at a time.
	Guides are not adjusted properly.	Remove the document from the document feeder tray. Straighten the item, then reinsert it. Slide the guides against the sides of the item to center it. Make sure the guides are not adjusted too tightly.
	The document feeder tray is overfilled.	Remove some of the sheets. The document feeder tray can hold up to 30 pages, depending on the thickness of the pages.
	The item was too thick, too slick, or otherwise did not meet specifications.	Make sure that the media meets specifications detailed in HP's media specifications guide.
	The output capacity was exceeded in the document output tray.	Do not allow more than 30 pages to stack up in the document output tray.
	The document scanner pickup roller or separation pad is dirty and cannot feed the document.	See the appropriate sections of Chapter 3, "Maintenance."
	The document scanner pickup roller or separation pad is damaged or worn.	Replace the roller or pad.
	A sensor isn't operating properly.	Check the sensors to make sure that none of them are jammed. If a sensor cannot be "unjammed," replace the sensor.
	There is a problem in the document scanner path.	Check the path for obstructions. Replace any damaged parts, including damaged gears.
Items loaded in the document feeder tray fall forward out of the tray.	The item is on a very lightweight media.	Do not try to pull the page out because you may damage the document scanner. Open the document release door and remove the jammed media. Then, curl or roll the item in the direction of the printed side, unroll it, and reload the item.

Engine test

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

Engine test button location

The engine test switch is accessible without removing the covers. It is located on the bottom of the HP LaserJet 3100 product.

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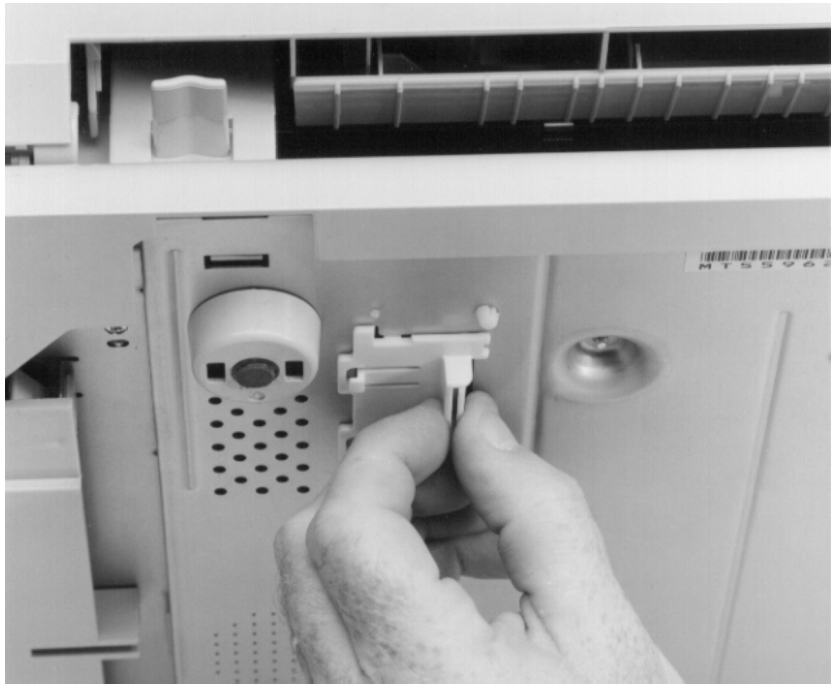


Figure 75. Engine test switch location

Printing an engine test

To print an engine test, lift the front of the product and squeeze the engine test switch. A single test page is printed.

Internal reports

Use the control panel to print configuration reports and self-test reports. The configuration report shows the settings selected from the control panel. The self-test report contains results of the completed self-test, including modem speed, number of pages printed, and recent error messages.

To print a configuration report

1. Press ENTER/MENU.
2. Use the < and > keys to select `Reports` and press ENTER/MENU.
3. Use the < and > keys to select `Print Config Report` and press ENTER/MENU.

To run a self-test and print a self-test report

1. Press ENTER/MENU.
2. Use the < and > keys to select `Reports` and press ENTER/MENU.
3. Use the < and > keys to select `Self Test` and press ENTER/MENU.

Printing all reports at once

When you print all reports at once, the following reports are printed:

- **Fax activity report**—recent faxes sent and received, and status.
- **Configuration report**—current control panel settings, including the following sections:
  - System information
  - Reports
  - Fax settings
  - User defaults
  - Service
  - Softswitch settings
  - Page counts
- **Test report**—results of self-tests, including the following sections:
  - System information
  - Self-test results
  - Most recent error messages
  - Page counts
- **Menu report**—the control panel menu tree
- **Phonebook report**—one-touch keys and speed dials

To print all reports at once

1 Press ENTER/MENU.

2 Use the < and > keys to select `Reports` and press ENTER/MENU.

3 Use the < and > keys to select `Print All` and press ENTER/MENU.

Half-self test functional check

The electrophotographic process can be subdivided into the following stages:

- Image formation stage (charges the drum and writes a latent image to the drum with the laser)
- Development stage (forms a toner image on the drum)
- Transfer stage (transfers the image to paper)
- Cleaning stage (removes excess toner from the drum)
- Fixing stage (applies heat and pressure to make the image on paper permanent)

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

1. Initiate a self test.
2. Open the printer door after the paper advances half-way through the printer (about 8 seconds after the motor begins rotation). The leading edge of the paper should have advanced past the toner cartridge.
3. Remove the toner cartridge.
4. Open the toner cartridge drum shield to view the drum surface. If a dark and distinct toner image is present on the drum surface, assume that the first two functions of the electrophotographic process are functioning (image formation and development). Troubleshoot the failure as a transfer or fixing problem.

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

1. Make sure you have removed the entire length of the sealing tape from the toner cartridge before you installed the cartridge.
2. Perform a drum rotation functional check.
3. Perform a high-voltage power supply check.

Drum rotation functional check

The photosensitive drum, located in the toner cartridge, must rotate for the print process to work. The photosensitive drum receives its drive from the main drive assembly. To verify that the drum is rotating:

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

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

Note This test is especially important if refilled toner cartridges have been used.

Heating element check

1. Paper passes between the heating element and a soft pressure roller to fuse toner to the paper. To verify that the heating element is functioning correctly:
2. Unplug the HP LaserJet 3100 product for at least ten minutes.
3. Verify that the thermistor connector (see Figure 47) is seated into both the printer chassis and J206 of the ECU.
4. Remove the heating element connector (see Figure 46) from the ECU. To measure the continuity of the heating element, measure the resistance between pins one and two of the cable.

Note Normal resistance is 30 ohms +/- 10 ohms.

5. If no resistance is measured, replace the heating element.
6. Remove the thermistor connector (see Figure 47) and measure the resistance between pins one and two.

Note Normal resistance is 440K ohms +/- 30K ohms at 68° F (20° C).

7. If no resistance is measured, replace the heating element.

High-voltage power supply check

The high-voltage power supply PCA provides the necessary voltages for the electrophotographic processes.

Checking the toner cartridge connection points

Visually inspect the three connection points on the underside, right end of the toner cartridge: charging (callout 1), drum ground (callout 2), and developing roller (callout 3). If they are dirty or corroded, clean the connections, or, if they are damaged, replace the toner cartridge.

Note Use only alcohol to clean the connections.

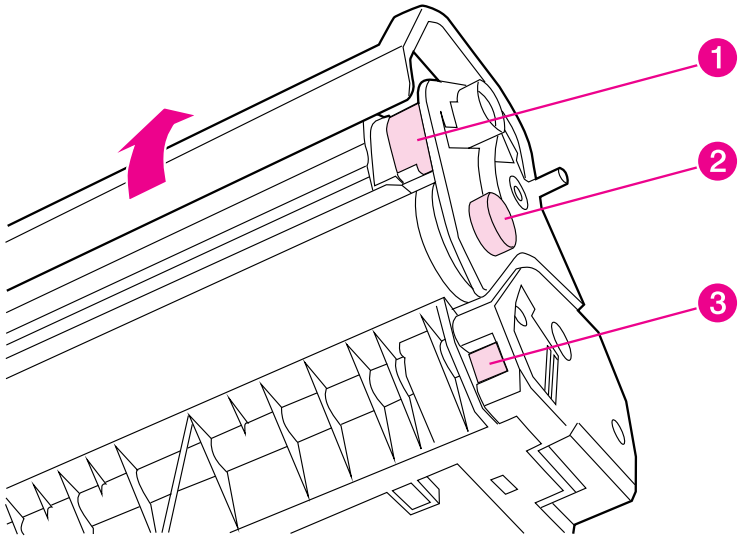


Figure 76. Toner cartridge high-voltage connection points

Checking the high-voltage connector assembly

The assembly uses three spring-loaded pins to contact the toner cartridge: charging (callout 1), drum ground (callout 2), and developing roller (callout 3). Verify that the pins are not dirty or corroded and that the spring-loading action is functional. If the pins are dirty, clean them using alcohol only. If they are damaged, replace the high voltage connector assembly.

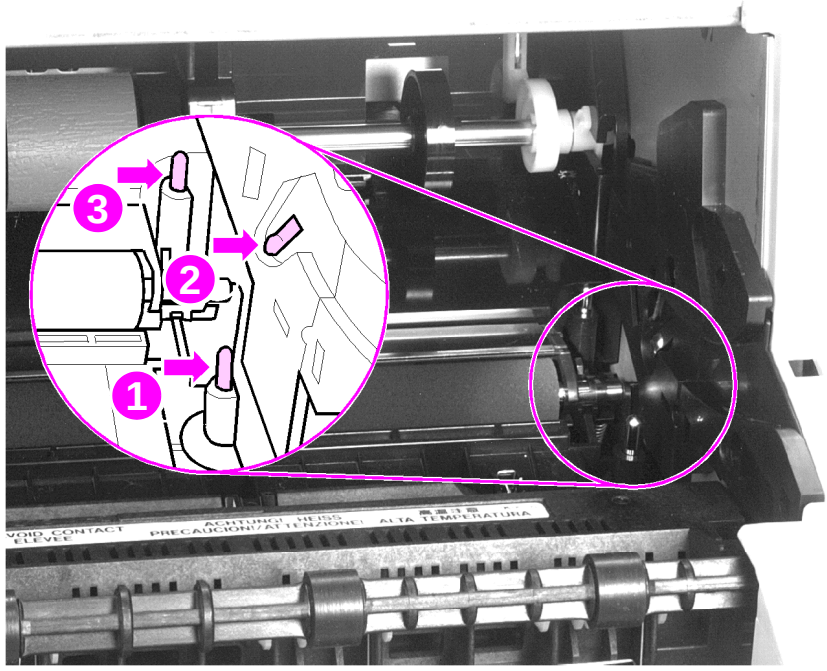


Figure 77. High-voltage connector assembly

Paper curl

Paper curl is inherent to the laser printing processes, and occurs when paper is subjected to heat. Paper curl tends to relax as the paper cools while resting on a flat surface. The specification for maximum paper curl when the paper is lying flat before print is 0.2 inches (5 mm).

Paper path check

If paper is not being picked up or is not moving through the paper path, you may want to observe all of the paper motion activities. Overriding SW101 allows you to observe:

- Motor rotation
- Solenoid action
- Kick plate motion
- Paper pickup roller motion
- Drive roller, transfer roller, fuser roller and gear, and delivery roller motion

To override SW101

1 Remove the covers.

2 Press SW101 (callout 1).

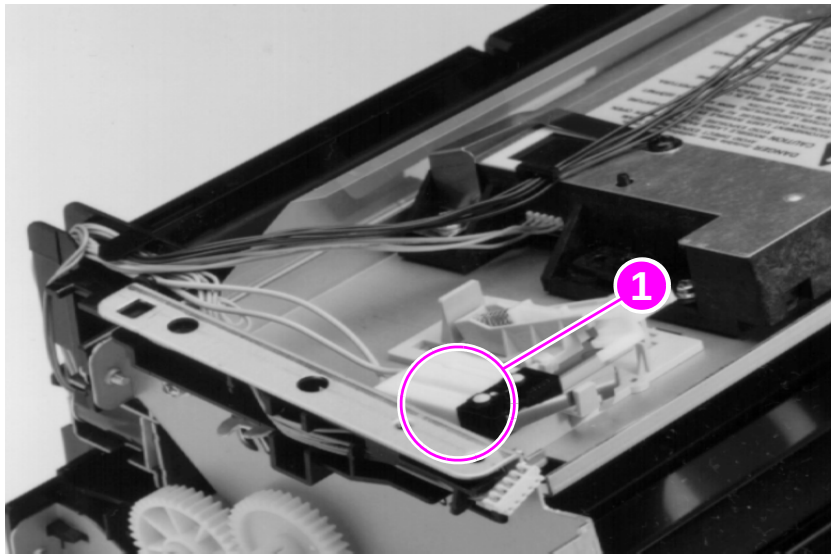


Figure 78. Overriding SW101

3 While SW101 is engaged, perform an Engine Test to observe paper motion. (See procedures earlier in this chapter.)

Paper path and components

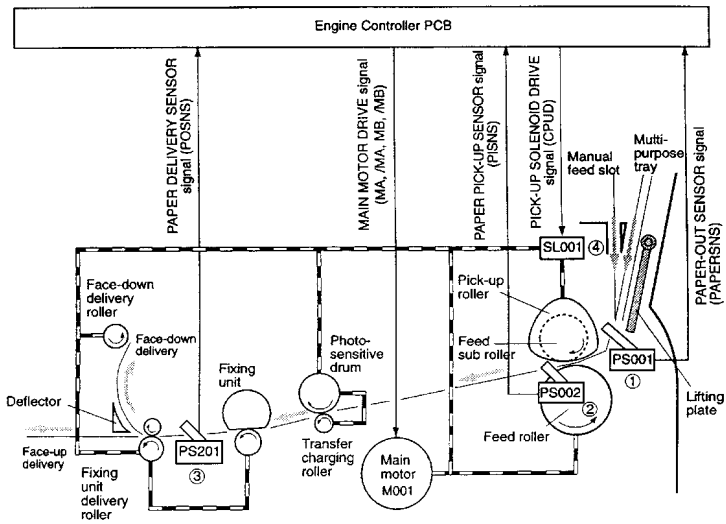


Figure 79. Paper path and components

Document path and components

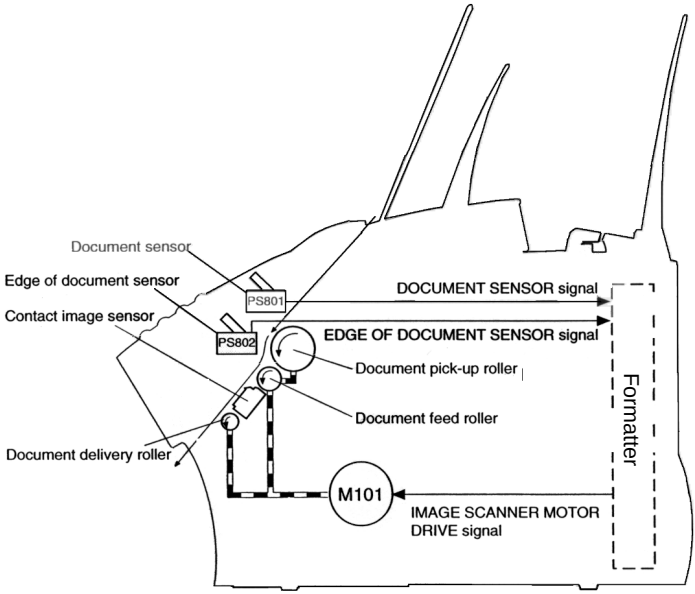


Figure 80. Document path and components

Repetitive image defect ruler

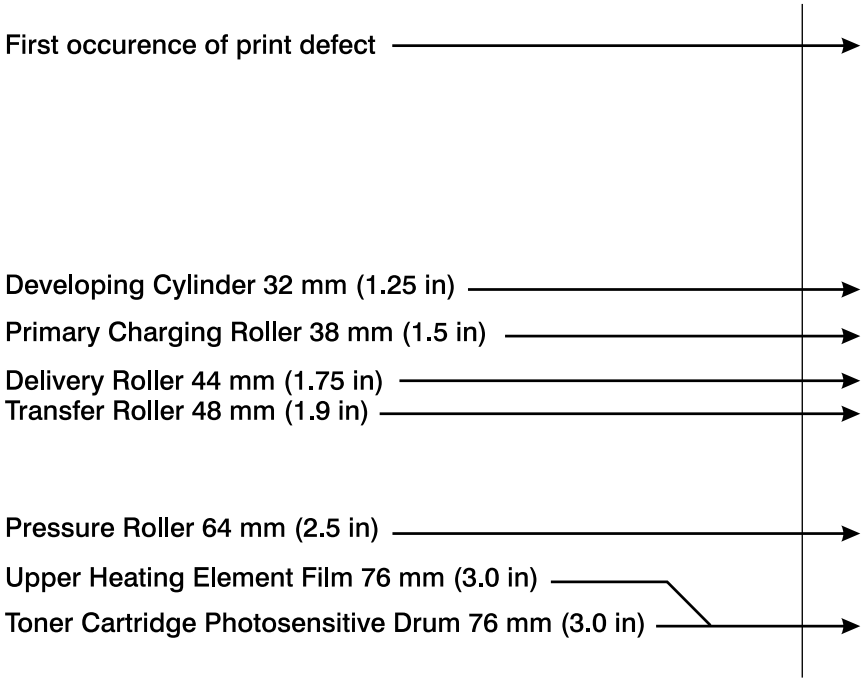


Figure 81. Repetitive image defect ruler

Main wiring

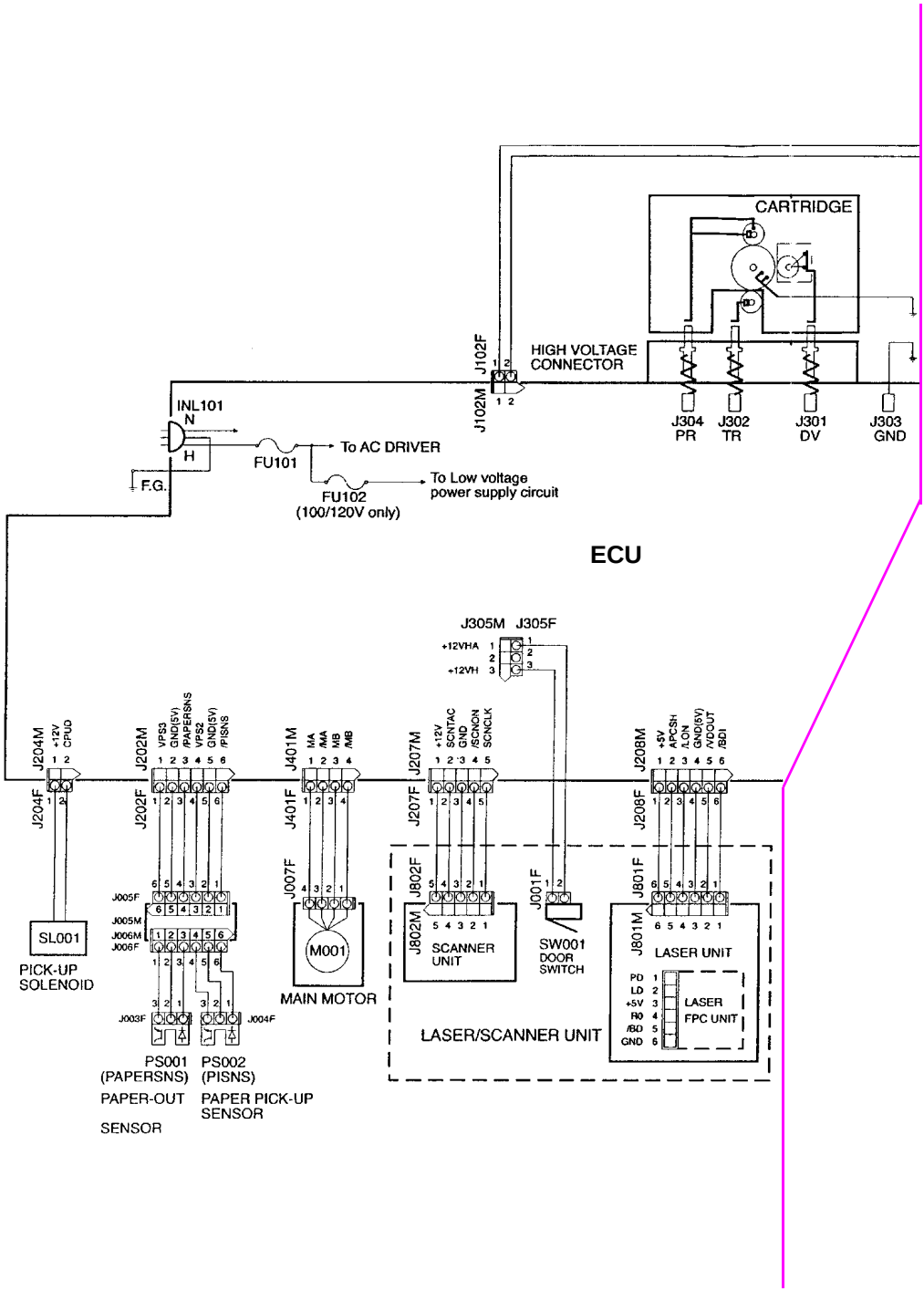


Figure 82. General circuit diagram (1 of 2)

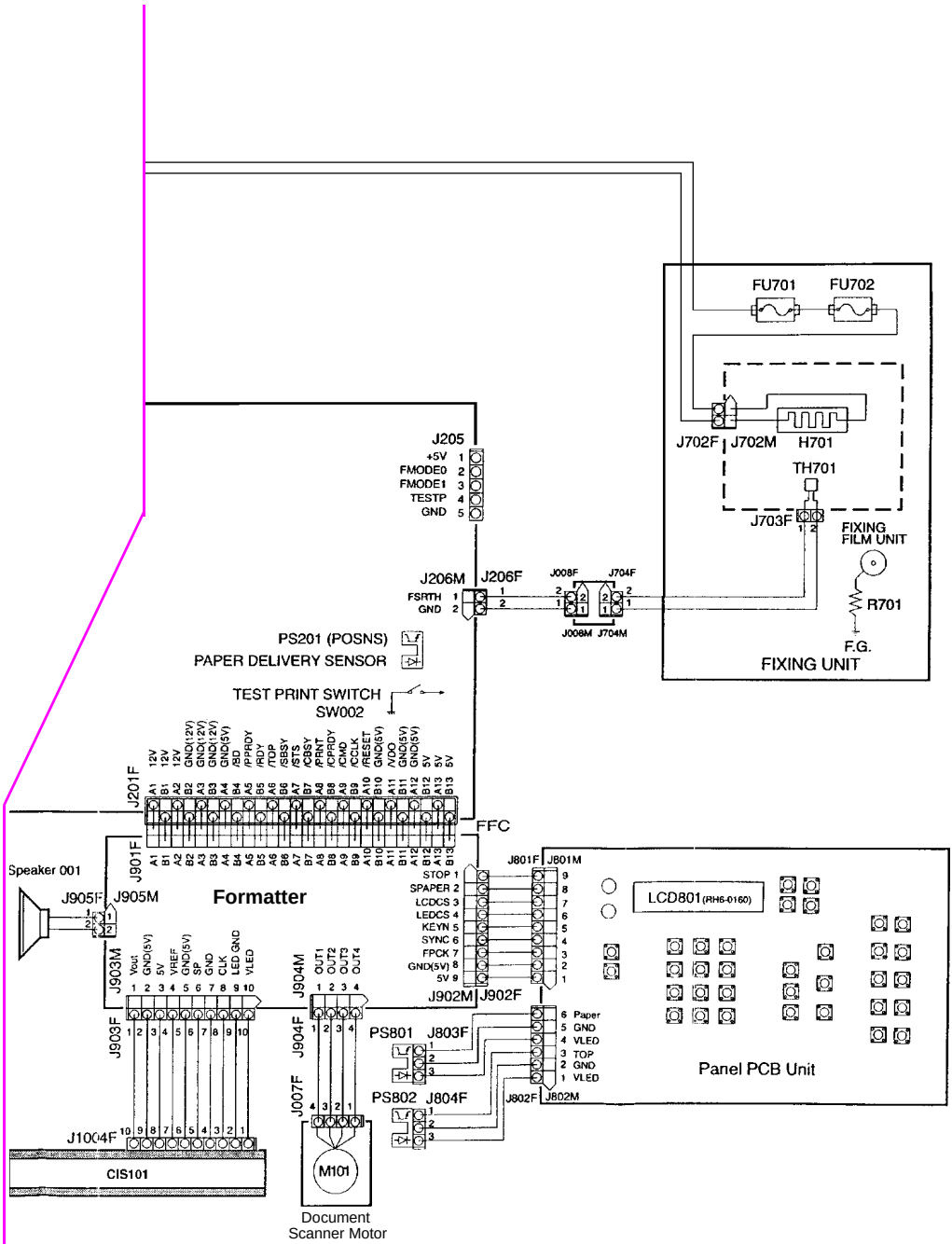


Figure 83. General circuit diagram (2 of 2)

Service menus

Control panel service menu

Use the control panel menu, under “service,” to set up remote servicing and to recalibrate the document scanner.

The service portion of the control panel menu is shown below in a hierarchical diagram:

Table 13. Control panel service menu

Press ENTER/MENU to access the control panel menu.	Use the < and > keys to select “Service” and press ENTER/MENU.	Use the < and > keys to select one of the choices below and press ENTER/MENU.	Use the < and > keys to select one of the choices below and press Enter/Menu, or see the display.
	Service	Remote test	
		Remote setup	Receive setup
			Send setup
		T.30 protocol trace	
		Scan correction	

Tests in control panel service mode

Brief explanations of tests in the control panel service mode are shown below:

- `Remote test` sets up the product to test through the fax line.
- `Remote setup`, followed by `Receive setup` or `Send setup` allows for softswitch settings to be sent or received through the fax line.
- `T.30 protocol trace` allows you to set how often the test is run.

Extended service menu

Use the extended service mode to run various self-tests and to change softswitch settings, such as the country code softswitch setting.

The following page shows the layout of the extended service menu settings in a hierarchical diagram.

Table 14. Extended service menu tree

Press BACKSPACE#** to access the extended service menu.	Use the < and > keys to select one of the choices below and press ENTER/MENU.	Use the < and > keys to select one of the choices below and press ENTER/MENU.	See the display for further instructions. Notes about some of the menu choices are shown below:
	Reports		
		Help	**Help** prints a menu report for the product.
		T.30 protocol trace	
		SRAM dump	
		Scanner plots	
		Log debug report	
		Task stacks	
		Translations	
		Printer fonts	
	Memory/softswitch		
		Softswitches	See “To change the country code softswitch” on the following pages.
		Clear memory	
		Check documents	
		Edit SRAM	
		SRAM dump	
		Firmware version	
	Control panel		Various tests under **Control panel** can assist in troubleshooting the product.
		Keypad test	
		LCD test	
		Control panel test	
		Sensor states	
		Speaker test	
		All LCD characters	
	Scanner		
		Scanner plots	
		Scanner LED	**Scanner LED** is the contact image sensor light bar test.
		ADF feed test	**ADF feed test** runs the document feeder pickup rollers once.
		ADF motor test	**ADF motor test** runs the document scanner motor.
		Do TWAIN scan	
		White ref summary	
	Self test		
		Burn-in	**Burn-in** prints a report after running the following tests: Program test, Configuration test #1, Fax memory test #2, Modem test #2, Scanner test #1, Scanner LED.
		Individual diag	
		System reset	
	Modem/PTT		
		Modem tone	
		Modem modulation	
		Modem type	

Self-test in extended service mode

If you perform a self-test from the extended service menu, the printed report will also show firmware revision number and details.

Note Print the internal reports before performing extended service mode tests. The reports contain a record of all settings and can assist you in restoring the product to its settings.

The table below lists the tests that are performed during a self-test and the actions to take when tests fail:

Table 15. Extended service mode self-test failures

Test	If the test fails, take these actions:
Configuration test #1	Replace the formatter.
Fax memory test #1	
Program test #1	1. Cycle power by unplugging the power cord from the power source, waiting 10 seconds, and replugging in the power cord. 2. If the test fails again, clear all memory (see the extended service menu tree). 3. If the test fails again, replace the formatter.
Configuration test #2	
Configuration test #3	
Configuration test #4	
Fax memory test #2	
Fax memory test #3	
Fax memory test #4	
Fax memory test #5	
Modem 1 test #1	
Modem 1 test #2	
Modem 1 test #3	
Modem 1 dial tone detect	1. Make sure that the telephone cable is plugged into the correct connector on the product and that the telephone line is operational (use a telephone to test the line). 2. If the test fails again, check the configuration settings in the control panel. 3. If the test fails again, replace the LIU.
Scanner test #1	This test fails under normal conditions if the document scanner is busy. If the document scanner is not busy: 1. Cycle power by unplugging the power cord from the power source, waiting 10 seconds, and replugging in the power cord. 2. If the test fails again, clear all memory (see the extended service menu tree). 3. If the test fails again, replace the formatter.

Other tests in extended service mode

The chart below shows tests that can be performed in extended service mode and a brief explanation of each test:

Table 16. Extended service mode tests

Test	Explanation
Keypad test	Tests all keypad keys by pressing in sequence.
LCD test	Tests the control panel display.
Control panel test	Tests the control panel lights
Sensor states	Shows current detector activation levels. Detector 1 and detector 2 are paper size detectors. The control panel display shows the percentage of time each detector is activated.
All LCD characters	Scrolls through the full list of control panel display characters.
Scanner plots	Tests and recalibrates the document scanner.
Scanner LED	After selecting this menu item, lift the document release door and verify that all of the LEDs in the contact image sensor are lit.
ADF feed test	Runs the document scanner pickup rollers once.
ADF motor test	Runs the document scanner motor.
Individual diagnostics	Run individual tests from the self-test sequence (see Table 15).
Modem tone	Generates tones with various frequencies from 300 Hz to 2425 Hz.
Modem modulation	Generates various fax identification signals.

Reports in extended service mode

The chart below shows reports that can be printed from extended service mode and a brief explanation of each report:

Table 17. Extended service mode reports

Report	Explanation
T.30 protocol trace	Prints a report of the G3 protocol transmissions and receptions.
SRAM dump	Prints SRAM address values in an address range you select.
Scanner plots	Prints the calibration page.
Log debug report	Prints detailed fax and memory address information. Fax information includes job number, start time used, fax ID, transmission type, pages, communication mode, and status.
Task stacks	Prints address locations of various tasks.
Translations	Prints text strings used in the display, beginning with the number you select. These text strings are printed in the language currently in use by the product. You can compare the numbers in this report to the numbers in an English report to translate non-English messages on the display.
Printer fonts	Prints all characters of fonts available in memory.
Firmware version (under “memory/ softswitch”)	Shows firmware revision information on the control panel display.
White reference summary (under “scanner”)	Displays average, minimum, and maximum white reference values.

Clear memory in extended service mode

CAUTION Clearing memory clears all parameters, which can render the product illegal or inoperable. Print the internal reports before clearing memory in extended service mode. The reports contain a record of all settings and can assist you in restoring the product to its settings.

To perform a system reset, use extended service mode to choose `Memory/softswitch`, and then choose `Clear memory`. Use the < and > keys to select the memory you want to clear:

- `Documents (and log)` deletes all documents stored in memory and all log information.
- `Phonebook` deletes all numbers stored in the phonebook.
- `Configuration` resets all menu settings printed in the configuration report to their defaults.
- `Softswitches` resets all softswitches to their defaults.
- `Counters` resets all page counts except the total number of pages printed. These page counts are printed at the end of the configuration report.
- `Everything` deletes and resets all of the above. Information retained includes white reference curve, total page count, and serial number.

Softswitches

Any time the formatter board is replaced or otherwise removed from the product, or when softswitches are reset to defaults, the country code softswitch must be reset.

Extended service mode allows you to change softswitches on the product. A softswitch is a set of one to eight bits (a sequence of eight 1's and 0's), as needed. See the software technical reference for a complete list of softswitches.

To change the country code softswitch

1. Enter Backspace#** to access the extended service menu.
2. Press < or > until `Memory/Softswitches` appears below `Service` on the control panel.
3. Press the Enter/Menu.
4. If `Softswitches` does not appear below `Memory/Softswitches` on the control panel, press < or > until it appears.
5. Press Enter/Menu.
6. Use the keypad to enter 101 (the “country code” softswitch).
7. Press Enter/Menu.

8 Use the keypad to enter the sequence that corresponds to the country in which the product is used, according to the table below:

Table 18. Country code softswitch sequences

Denmark	00001100 (0C hex)
Finland	00001000 (08 hex)
France	00000111 (07 hex)
Germany	00000110 (06 hex)
Netherlands	00001101 (0D hex)
Norway	00000101 (05 hex)
Sweden	00000100 (04 hex)
United Kingdom	00000001 (01 hex)
United States	00000000 (00 hex)
Canada	00101001 (29 hex)

9 Press Enter/Menu to complete the softswitch change.

10 Press Stop/Clear.

The product will exit extended service mode within a few minutes.

Firmware download

Newer versions of the firmware for the HP LaserJet 3100 product can be downloaded to the product.

To perform a firmware download

1. Restart the computer in MS-DOS mode (do not use an MS-DOS window).
2. Press down and hold Stop/Clear while performing step 3.
3. Cycle power by unplugging the power cord from the power source, and then replugging in the power cord.
4. Type the following, substituting the current version of the firmware for XXX:
   `Copy /b leonXXX.rom lpt1:`

7 Parts and diagrams

Chapter contents

How to use the parts lists and diagrams

The figures in this chapter illustrate the major subassemblies in the printer and their component parts. A table (material list) follows each exploded assembly diagram. Each table lists the reference designator, the associated part number for the item, and a description of the part.

While looking for a part number, pay careful attention to the voltage listed in the description column to make sure that the part number selected is for the correct model of printer.

Ordering parts

All standard part numbers listed are stocked and may be ordered from HP's Support Materials Organization (SMO), or Support Materials, Europe (SME).

- Hewlett-Packard Co.
  Support Materials Organization
  8050 Foothills Blvd.
  Roseville, CA 95678
  Parts Direct Ordering: (800) 227-8164 (U.S. Only)
- Hewlett-Packard Co.
  Support Materials, Europe
  Wolf-Hirth Strasse 33
  D-7030 Boblingen, Germany
  (49 7031) 14-2253

You can also contact Hewlett-Packard at (916) 783-0804 to find out part numbers for the HP LaserJet 3100 product. Contact a local HP Parts Coordinator for other local phone numbers.

Consumables and accessories

The following items are available through a local authorized HP dealer. To find a dealer near you (or if your dealer is temporarily out of stock), call the HP Customer Information Center at (800) 752-0900.

Table 19. Consumables and accessories

Item	Product number	Description
Toner cartridge	C3906A	Replacement toner cartridge
Parallel cable (IEEE-1284)	C2945A	2 meter, A to C

Ordering consumables

The consumables and accessories listed in Table 13 may be ordered from Hewlett-Packard.

The phone numbers are:

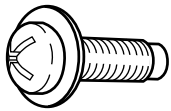
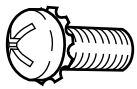
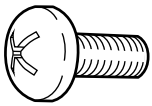
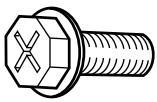
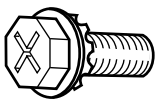
- U.S.: (800) 538-8787
- Canada: (800) 387-3154 (Toronto: (516) 671-8383)
- United Kingdom: 0734-441212
- Germany: 0130-3322

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

Parts that have no reference designator or part number are not field replacement parts and cannot be ordered through SMO.

Common hardware

Table 20. Common fasteners

Example	Description
	Screw, machine, truss head
	Screw, star
	Screw, self-tapping
	Screw, hex-head
	Screw, hex-head, star

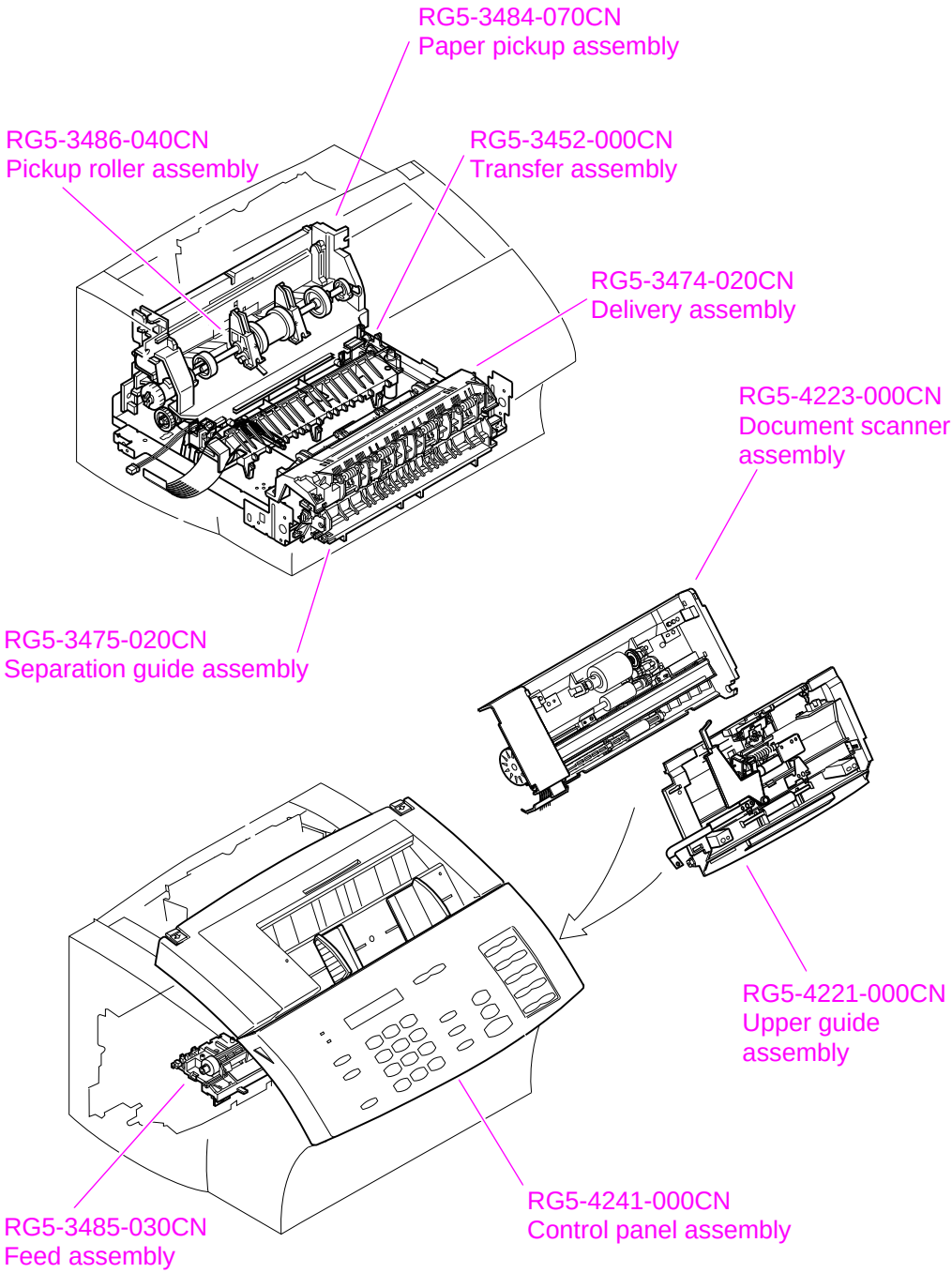


Figure 84. Major assembly locations

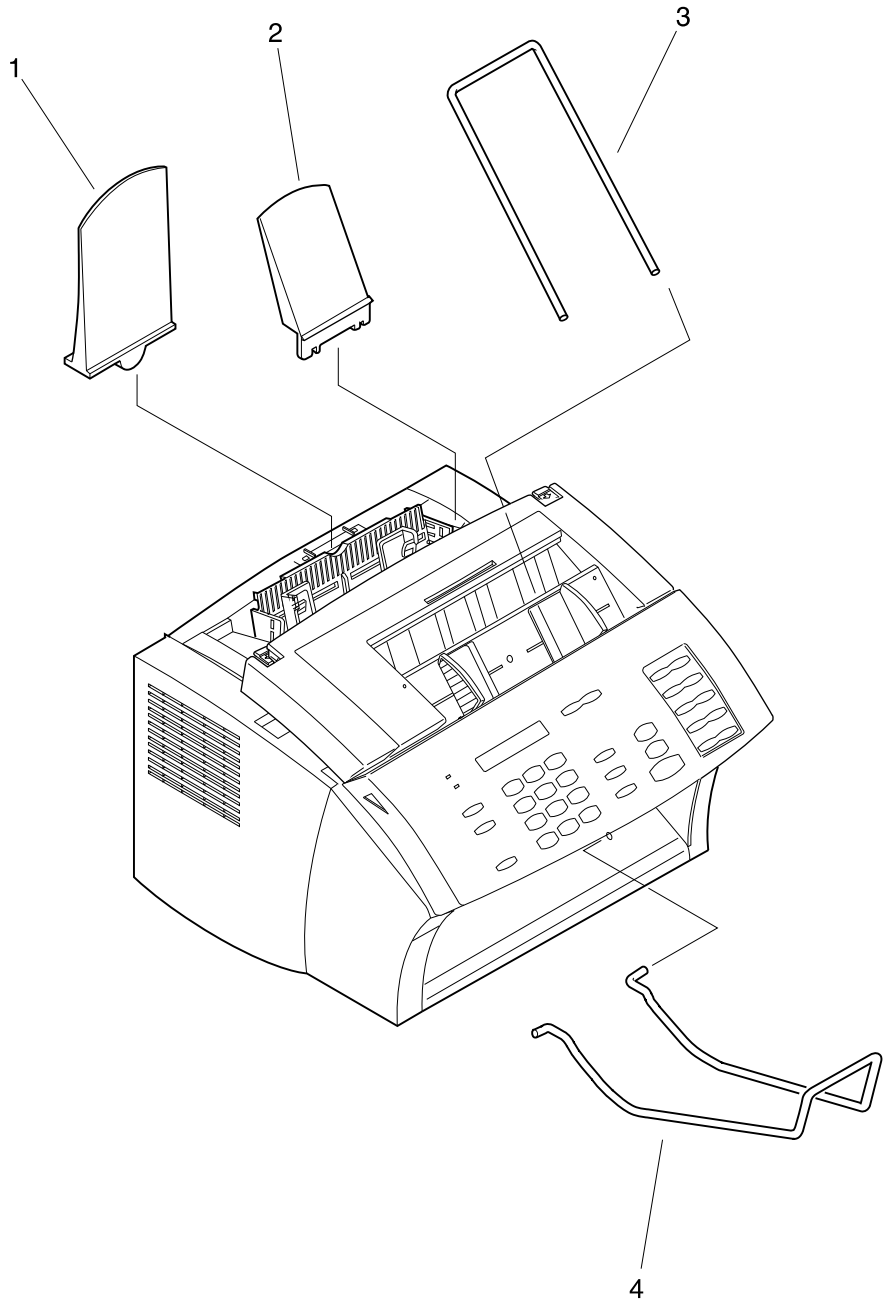


Figure 85. Supports

Table 21. Supports

Reference	Part number	Description
1	RB2-3362-000CN	Paper input support
2	RB2-3410-000CN	Paper output support
3	RB2-3455-000CN	Document feeder support
4	RB2-3470-000CN	Document output support

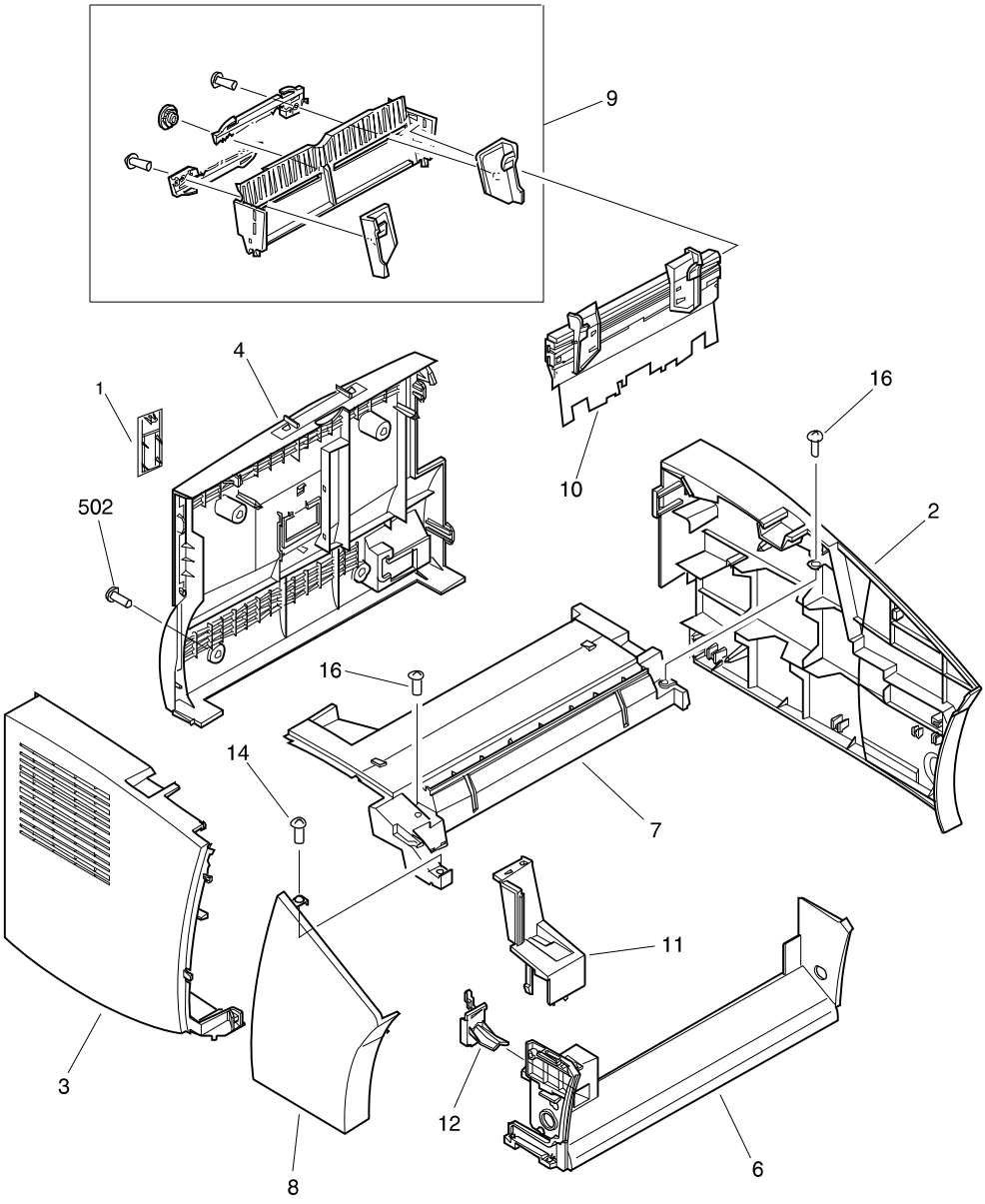


Figure 86. External covers and panels

Table 22. External covers and panels

Reference	Part number	Description
1	C3948-40010	I/O bezel
2	RB2-3341-000CN	Right cover
3	RB2-3360-000CN	Left cover
4	RB2-3361-000CN	Rear cover
6	RB2-3349-000CN	Front casing
7	RB2-3450-000CN	Top cover
8	RB2-3451-000CN	Left front cover
9	RG5-3488-000CN	Input bin assembly
10	RG5-4763-000CN	Single-sheet input slot assembly
11	RB2-3452-000CN	Pressure release lever cover
12	RB2-3453-000CN	Paper path lever
14	XA9-0476-000CN	Screw, TP, M3X8
16	XA9-0724-000CN	Screw, M3X8 (2)
502	XA9-0497-000CN	Screw, M4X6 (4)

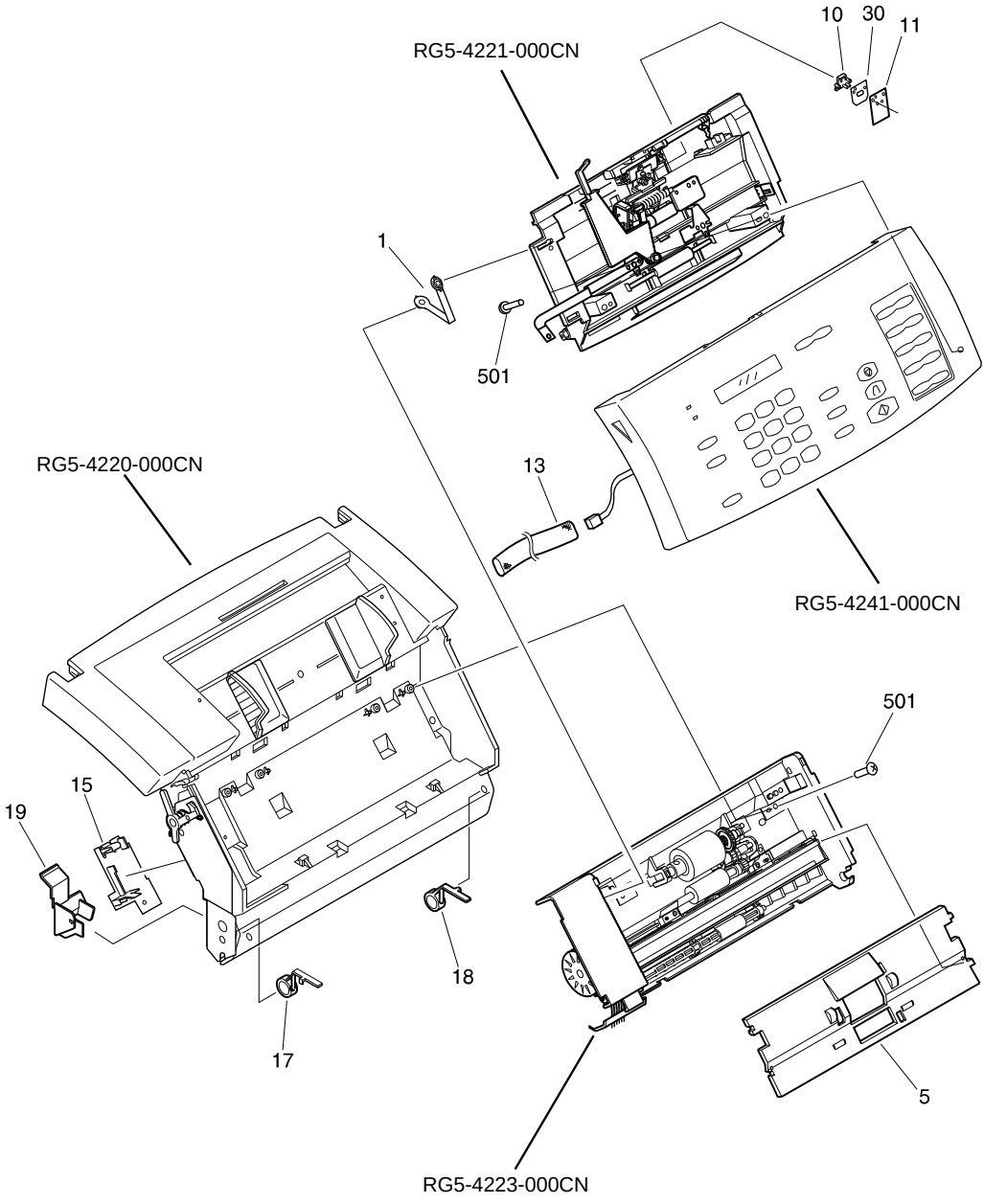


Figure 87. Printer door (1 of 2)

Table 23. Printer door (1 of 2)

Reference	Part number	Description
	RG5-4220-000CN	Printer door assembly
	RG5-4221-000CN	Upper guide assembly
	RG5-4223-000CN	Document scanner assembly
	RG5-4241-000CN	Control panel assembly
1	HB1-2867-000CN	Strap
5	RB2-3436-000CN	Document scanner guide
10	HB1-2895-000CN	Cover, arm
11	RB2-3430-000CN	Document scanner separation pad
13	RB2-3351-000CN	Cable tube
15	RB2-3454-000CN	Spacer
17	RB2-3468-000CN	Left hinge cover
18	RB2-3469-000CN	Right hinge cover
19	RB2-3409-000CN	Cable guide
30	RB2-4114-000CN	Sheet, pad
501	XB4-7300-807CN	Screw, tapping, truss head, M3X8 (7)

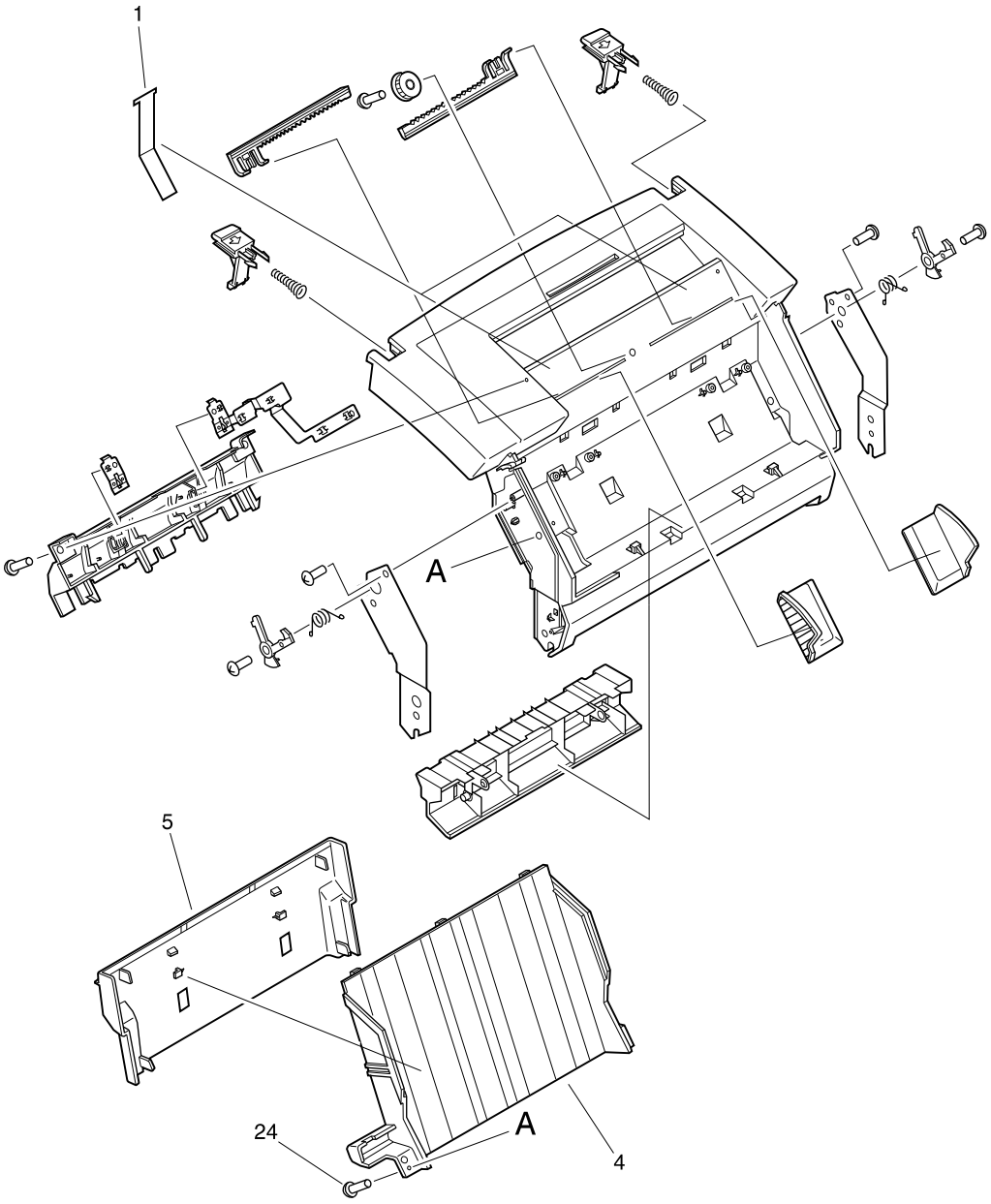


Figure 88. Printer door (2 of 2)

Table 24. Printer door (2 of 2)

Reference	Part number	Description
	RG5-4220-000CN	Printer door assembly
1	RB2-3365-000CN	Sheet, arching (2)
4	RB2-3401-000CN	Duct, 1
5	RB2-3402-000CN	Duct, 2
24	XA9-0614-000CN	Screw, M3X8 (4)

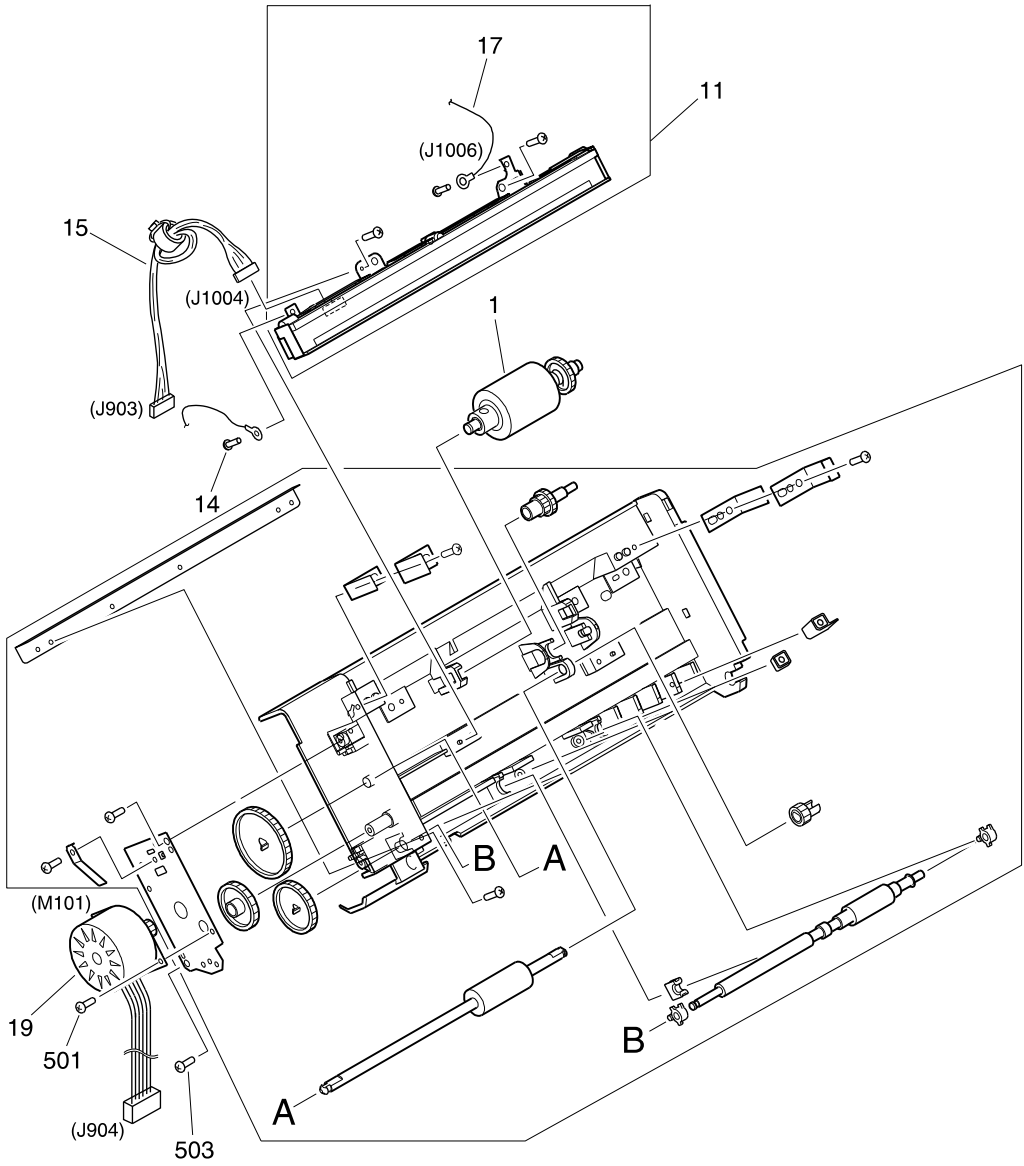


Figure 89. Document scanner assembly

Table 25. Document scanner assembly

Reference	Part number	Description
	RG5-4223-000CN	Document scanner assembly
1	RG5-4688-000CN	Pickup roller assembly, document scanner
11	RG5-4239-000CN	Contact image sensor assembly
14	FA9-1449-000CN	Screw
15	RG5-4233-000CN	Cable, contact image sensor (J1004 to J903)
17	RG5-4238-000CN	Cable, CIS grounding
19	RH7-1376-000CN	Motor, AC 1.08W
503	XB4-7300-807CN	Screw, M3X8

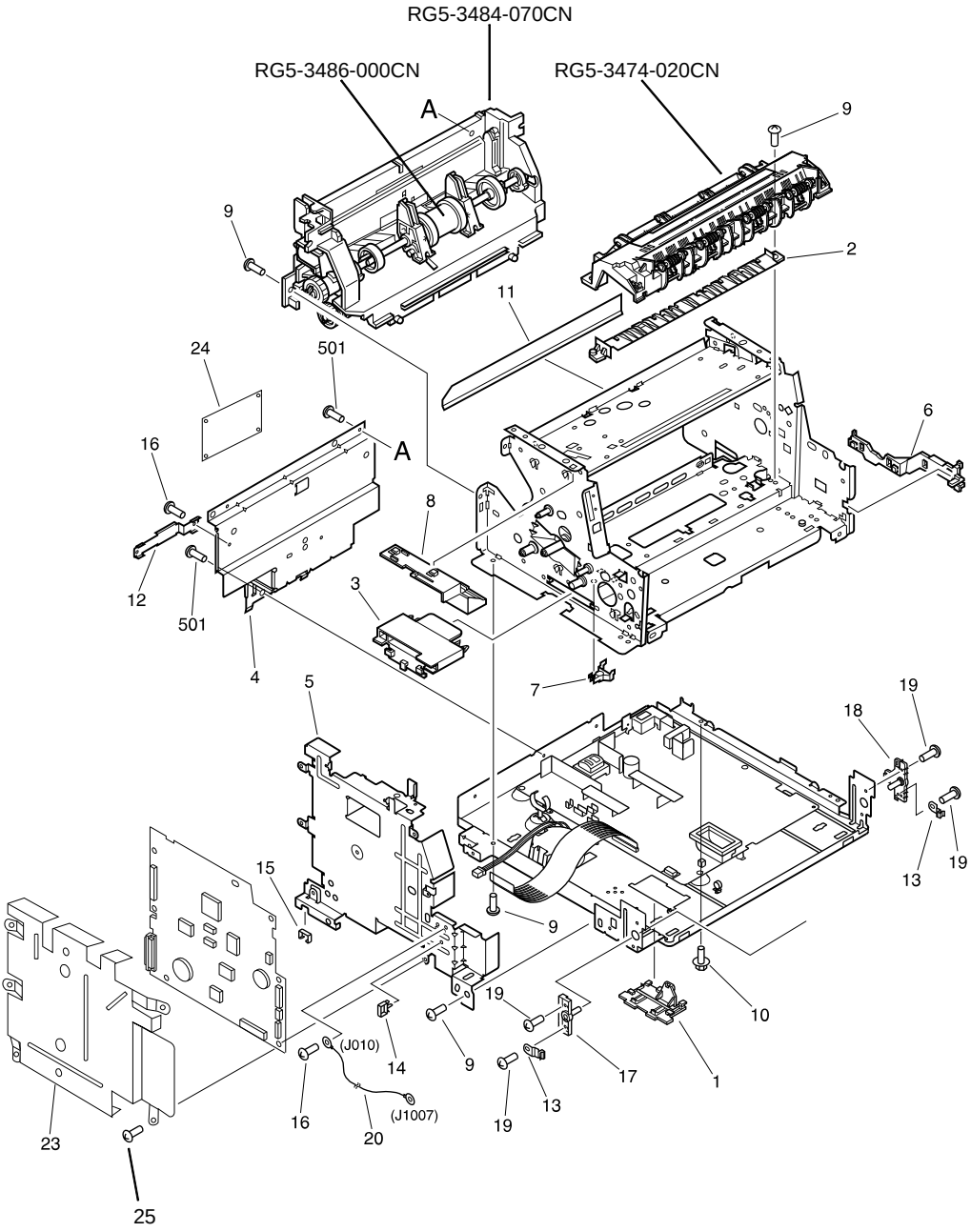


Figure 90. Internal components (1 of 3)

Table 26. Internal components (1 of 3)

Reference	Part number	Description
	RG5-3484-070CN	Paper pickup assembly
	RG5-3486-000CN	Pickup roller assembly
	RG5-3474-020CN	Delivery assembly
1	RB2-3345-000CN	Cap
2	RB1-7247-000CN	Paper guide
3	RB2-3350-000CN	Cable guide, formatter
4	RF5-2664-000CN	Reinforcement plate
5	RB2-3364-000CN	Metal plate
6	RB1-7130-020CN	Cable guide
7	RB1-7234-000CN	Cap
8	RB2-3366-000CN	Cable guide holder, formatter
9	XA9-0724-000CN	Screw M3X8 (11)
10	XA9-0855-000CN	Screw, RS, with washer, M3X8
11	RB1-7176-000CN	Guide sheet
12	RB2-4118-000CN	Grounding plate
13	RB2-3467-000CN	Grounding plate (2)
14	WT2-0317-000CN	Cable guide, control panel
15	WT2-5498-000CN	Cable guide, frame
16	RB2-3409-000CN	Cable mount
17	RB2-3465-000CN	Left hinge holder
18	RB2-3466-000CN	Right hinge holder
19	XA9-0434-000CN	Screw, TP, M3X4 (4)
20	RG5-4237-000CN	Cable, grounding, document scanner motor
21	FA9-1449-000CN	Screw, truss head, with washer (4)
22	C3949-67901	Formatter
23	C3948-00002	RFI shield
24	C3948-67903	LIU board (U.S.)
24	C3948-67904	LIU board (worldwide)
25	0515-2672	Screw, M3X6 (9)
501	XB4-7400-807CN	Screw, tapping, truss head, M4X8 (3)

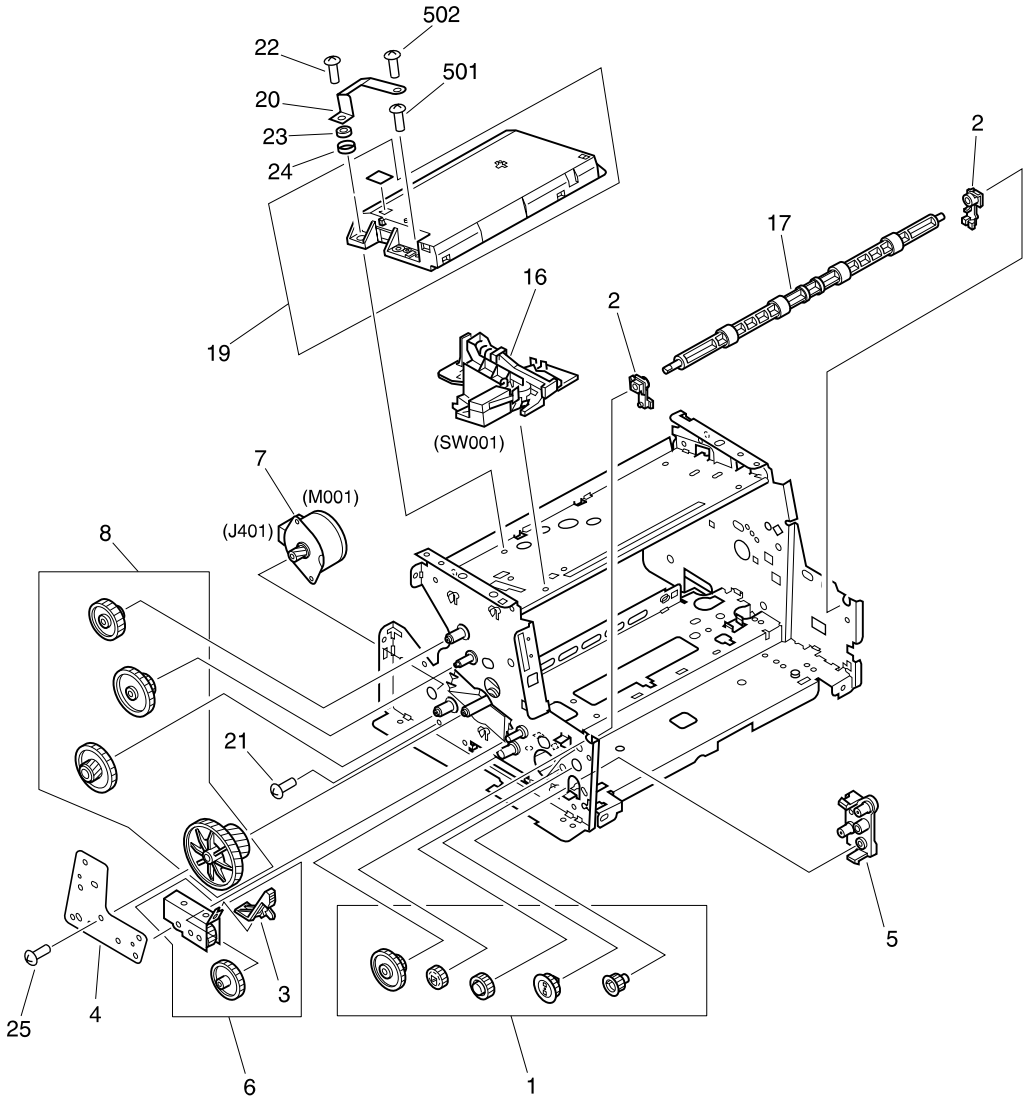


Figure 91. Internal components (2 of 3)

Table 27. Internal components (2 of 3)

Reference	Part number	Description
1	RY7-5005-000CN	Gear kit #1
2	RB1-7288-020CN	Bushing (2)
3	RB1-7105-000CN	Pressure release lever
4	RB2-1632-000CN	Gear support plate
5	RB1-7107-000CN	Gear holder
6	RY7-5007-000CN	Fuser release kit
7	RH7-1320-000CN	Motor, DC 12V
8	RY7-5036-000CN	Gear kit #2
16	RG5-3453-000CN	Switch lever assembly
17	RF5-2367-000CN	Exit roller
19	RG5-3494-050CN	Laser/scanner assembly
20	RB1-7385-020CN	Grounding spring
21	XA9-0267-000CN	Screw, TP, M3X6 (2)
22	XA9-0382-000CN	Screw, TP, M3X12
23	WE8-5192-000CN	Ferrite ring core
24	RB9-0227-000CN	Spacer
25	XA9-0267-000CN	Screw, TP, M3X6 (2)
501	XB6-7300-807CN	Screw, TP, M3X8 (5)
502	XB4-7300-809CN	Screw, tapping, truss head, M3X8

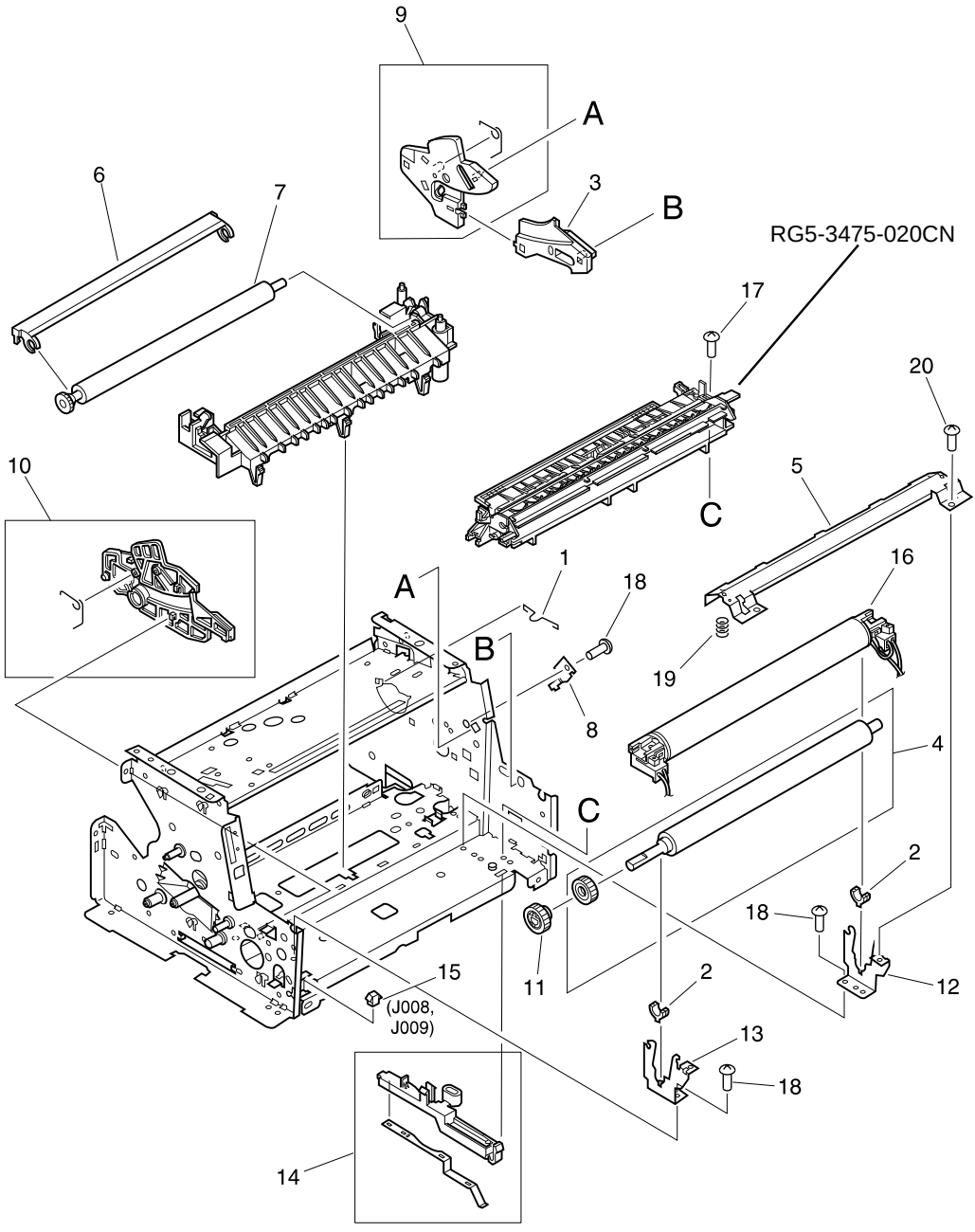


Figure 92. Internal components (3 of 3)

Table 28. Internal components (3 of 3)

Reference	Part number	Description
	RG5-3475-020CN	Separation guide assembly
1	RB1-7223-000CN	Grounding clip
2	RB1-7246-000CN	Bushing (2)
3	RB1-7341-030CN	Right cartridge guide #1
4	RF5-2362-000CN	Pressure roller
5	RF5-1517-020CN	Pressure plate
6	RF5-2358-000CN	Transfer guide
7	RF5-1534-000CN	Transfer roller
8	RB1-7129-000CN	Grounding metal
9	RF5-1515-020CN	Right cartridge guide #2
10	RF5-1514-020CN	Left cartridge guide
11	RS5-0796-000CN	Pressure roller gear (27T)
12	RB1-7256-000CN	Right side plate
13	RB1-7255-000CN	Left side plate
14	RF5-1533-000CN	Pressure roller ground guide
15	VS1-5057-002CN	Fuser connector (2P)
16	RG5-4678-000CN	Fixing assembly, 110 V
16	RG5-4681-000CN	Fixing assembly, 220 V
19	RS5-2508-000CN	Spring, compression
20	XA9-0824-000CN	Screw, RS, M3X10
21	XA9-0686-000CN	Screw, M3X6
22	XA9-0724-000CN	Screw, M3X8
23	RG5-3452-000CN	Transfer guide assembly
	CK-8006-000CN	Pressure roller grease

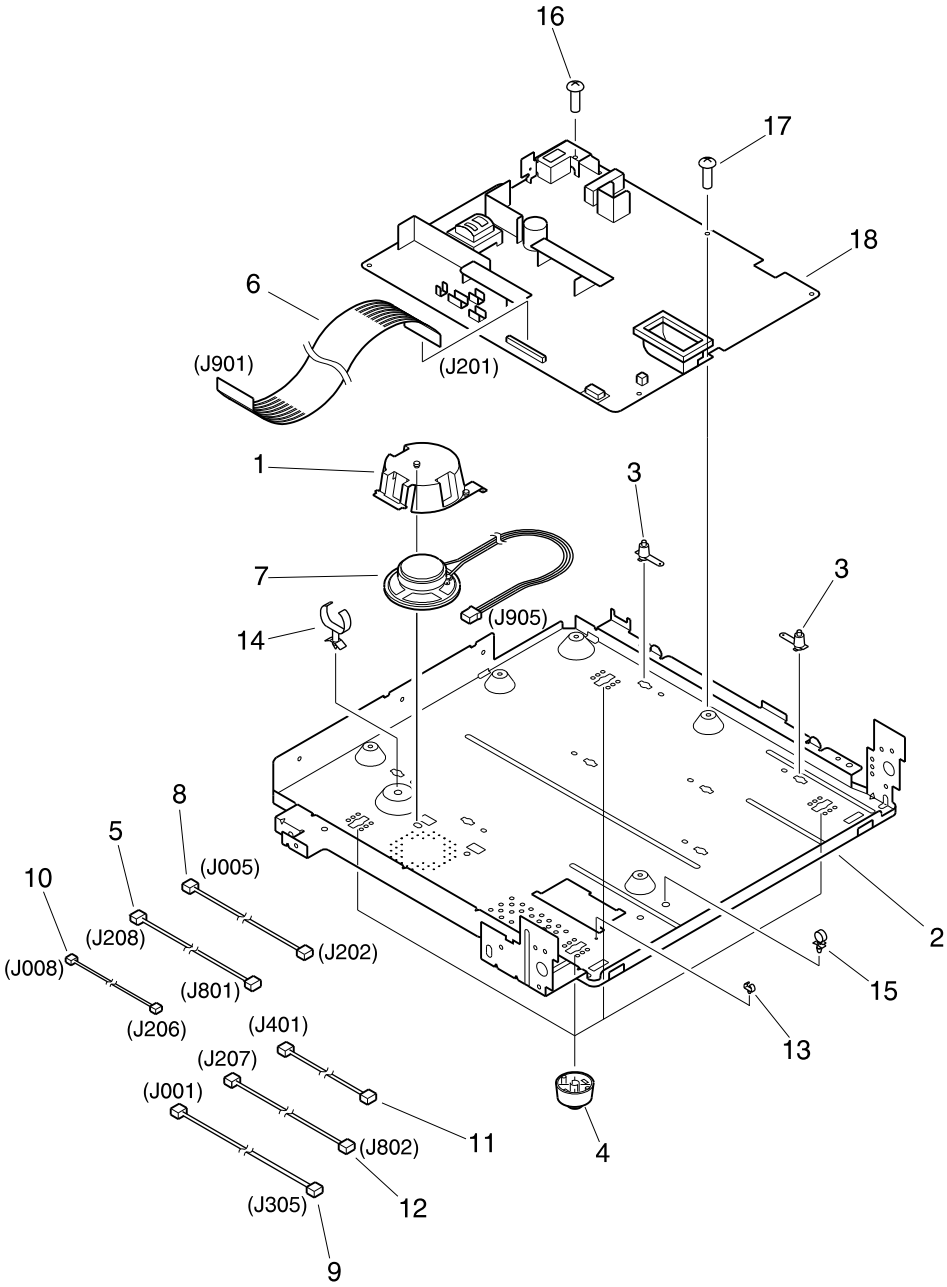


Figure 93. Electrical components assembly

Table 29. Electrical components assembly

Reference	Part number	Description
1	RB2-3346-000CN	Speaker mount
2	RB2-3342-000CN	Bottom plate
3	RB2-3347-000CN	Spacer, PCB (7)
4	RF5-2663-000CN	Foot (4)
5	RG5-2035-000CN	Cable, laser
6	RH2-5346-000CN	Cable, formatter
7	RH6-3845-000CN	Speaker
8	RG5-2029-000CN	Cable, paper pickup
9	RG5-3662-000CN	Cable, door switch
10	RG5-2032-000CN	Cable, thermistor
11	RG5-2033-000CN	Cable, motor
12	RG5-3661-000CN	Cable, scanner
13	WT2-0276-000CN	Clamp, wire
14	WT2-0367-000CN	Clamp, cable
15	WT2-5178-000CN	Clamp, cable
16	XA9-0828-000CN	Screw, with star washer, M3X4
17	XA9-0890-000CN	Screw, with washer, M3X6 (4)
18	RG5-4690-000CN	ECU, 110 V
18	RG5-4691-000CN	ECU, 220 V

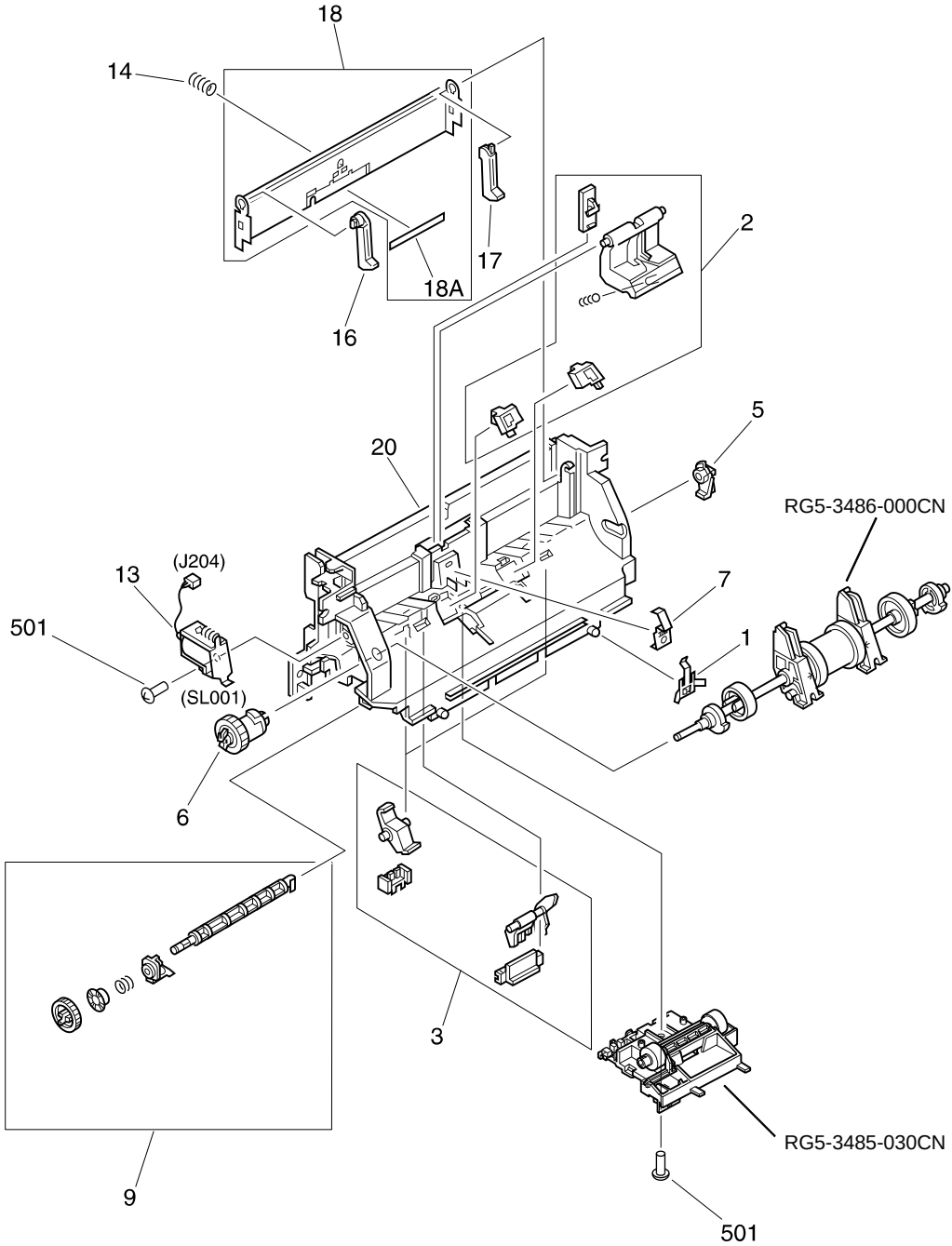


Figure 94. Paper pickup assembly

Table 30. Paper pickup assembly

Reference	Part number	Description
	RG5-3484-000CN	Paper pickup assembly
	RG5-3485-030CN	Feed assembly
	RG5-3486-040CN	Pickup roller assembly
1	RB1-7172-000CN	Spring, grounding
2	RB1-7181-000CN	Separation arm assembly
3	RB1-7182-000CN	Input sensor assembly
5	RB1-7184-000CN	Bushing
6	RB1-7197-020CN	Clutch
7	RB1-7199-000CN	Spring, grounding
9	RG5-1947-000CN	Paper feed drive assembly
13	RH7-5139-000CN	Solenoid
14	RS5-2501-000CN	Spring, compression
16	RB1-7185-000CN	Arm, plate, left
17	RB1-7186-000CN	Arm, plate, right
18	RF5-2372-000CN	Plate, middle
20	RB1-7177-000CN	Frame, paper feed
501	XB4-7401-000CN	Screw, tapping, pan head, M4X10 (2)

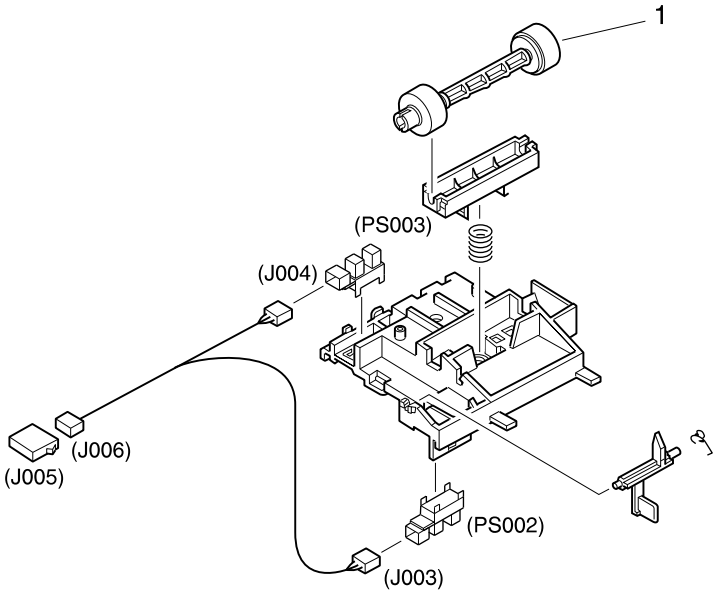


Figure 95. Feed assembly

Table 31. Feeder assembly

Reference	Part number	Description
	RG5-3485-030CN	Feed assembly
1	RB2-1699-000CN	Feed roller

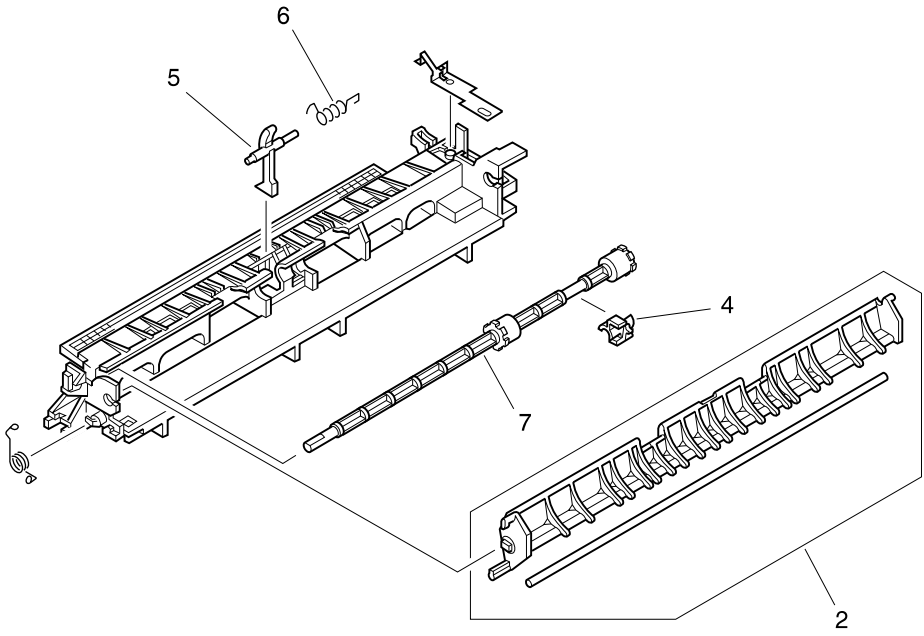


Figure 96. Separation guide assembly

Table 32. Separation guide assembly

Reference	Part number	Description
	RG5-3475-020CN	Separation guide assembly
2	RG5-3476-000CN	Face-up/face-down lever
4	RB2-1690-000CN	Fuser roller bushing
5	RB1-7293-000CN	Lever, sensor
6	RB1-7294-000CN	Spring, torsion
7	RF5-2368-000CN	Fuser exit roller assembly

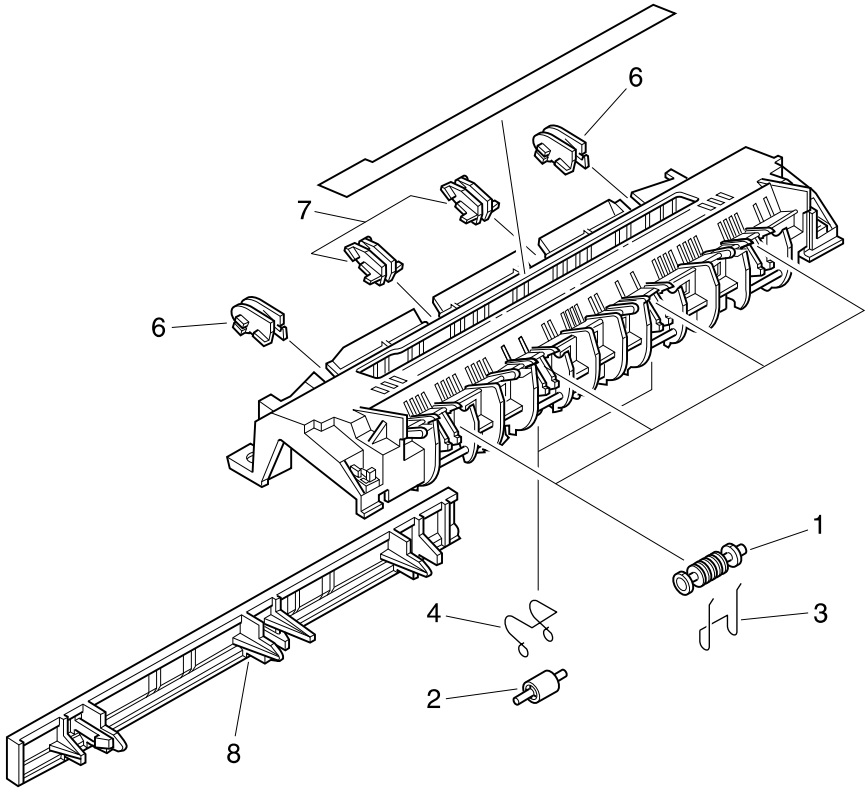


Figure 97. Delivery assembly

Table 33. Delivery assembly

Reference	Part number	Description
	RG5-3474-020CN	Delivery assembly
1	RB1-7284-020CN	Delivery roller #1 (4)
2	RB2-1685-000CN	Delivery roller #2 (2)
3	RB1-7286-000CN	Delivery spring #1 (4)
4	RB1-7287-000CN	Delivery spring #2 (2)
6	RG5-3479-000CN	Spur assembly outside (2)
7	RG5-3478-000CN	Spur assembly inside (2)
8	RB1-7334-000CN	Jammed paper protector

Alphabetical parts list

Table 34. Alphabetical parts list

Part name	Part number	Figure #	Reference
Arm, plate, left	RB1-7185-000CN	94	16
Arm, plate, right	RB1-7186-000CN	94	17
Bottom plate	RB2-3342-000CN	93	2
Bushing	RB1-7184-000CN	94	5
Bushing (2)	RB1-7246-000CN	92	2
Bushing (2)	RB1-7288-020CN	91	2
Cable guide	RB1-7130-020CN	90	6
Cable guide	RB2-3409-000CN	87	19
Cable guide holder, formatter	RB2-3366-000CN	90	8
Cable guide, control panel	WT2-0317-000CN	90	14
Cable guide, formatter	RB2-3350-000CN	90	3
Cable guide, frame	WT2-5498-000CN	90	15
Cable tube	RB2-3351-000CN	87	13
Cable, CIS grounding	RG5-4238-000CN	89	17
Cable, contact image sensor (J1004 to J903)	RG5-4233-000CN	89	15
Cable, door switch	RG5-3662-000CN	93	9
Cable, formatter	RH2-5346-000CN	93	6
Cable, grounding, document scanner motor	RG5-4237-000CN	90	20
Cable, laser	RG5-2035-000CN	93	5
Cable, motor	RG5-2033-000CN	93	11
Cable, paper pickup	RG5-2029-000CN	93	8
Cable, scanner	RG5-3661-000CN	93	12
Cable, thermistor	RG5-2032-000CN	93	10
Cap	RB1-7234-000CN	90	7
Cap	RB2-3345-000CN	90	1
Clamp, cable	WT2-0367-000CN	93	14
Clamp, cable	WT2-5178-000CN	93	15
Clamp, wire	WT2-0276-000CN	93	13

Table 34. Alphabetical parts list

Part name	Part number	Figure #	Reference
Clutch	RB1-7197-020CN	94	6
Contact image sensor assembly	RG5-4239-000CN	89	11
Control panel assembly	RG5-4241-000CN	87	
Cover, arm	HB1-2895-000CN	87	10
Delivery assembly	RG5-3474-020CN	90	
Delivery assembly	RG5-3474-020CN	97	
Delivery roller #1 (4)	RB1-7284-020CN	97	1
Delivery roller #2 (2)	RB2-1685-000CN	97	2
Delivery spring #1 (4)	RB1-7286-000CN	97	3
Delivery spring #2 (2)	RB1-7287-000CN	97	4
Document feeder support	RB2-3455-000CN	85	3
Document output support	RB2-3470-000CN	85	4
Document scanner assembly	RG5-4223-000CN	87	
Document scanner assembly	RG5-4223-000CN	89	
Document scanner guide	RB2-3436-000CN	87	5
Document scanner separation pad	RB2-3430-000CN	87	11
Duct, 1	RB2-3401-000CN	88	4
Duct, 2	RB2-3402-000CN	88	5
ECU, 110 V	RG5-4690-000CN	93	18
ECU, 220 V	RG5-4691-000CN	93	18
Exit roller	RF5-2367-000CN	91	17
Face-up/face-down lever	RG5-3476-000CN	96	2
Feed assembly	RG5-3485-030CN	94	
Feed assembly	RG5-3485-030CN	95	
Feed roller	RB2-1699-000CN	95	1
Ferrite ring core	WE8-5192-000CN	91	23
Fixing assembly, 110 V	RG5-4678-000CN	92	16
Fixing assembly, 220 V	RG5-4681-000CN	92	16
Foot (4)	RF5-2663-000CN	93	4
Formatter	C3949-67901	90	22
Frame, paper feed	RB1-7177-000CN	94	20

Table 34. Alphabetical parts list

Part name	Part number	Figure #	Reference
Front casing	RB2-3349-000CN	86	6
Fuser connector (2P)	VS1-5057-002CN	92	15
Fuser exit roller assembly	RF5-2368-000CN	96	7
Fuser release kit	RY7-5007-000CN	91	6
Fuser roller bushing	RB2-1690-000CN	96	4
Gear holder	RB1-7107-000CN	91	5
Gear kit #1	RY7-5005-000CN	91	1
Gear kit #2	RY7-5036-000CN	91	8
Gear support plate	RB2-1632-000CN	91	4
Grounding clip	RB1-7223-000CN	92	1
Grounding metal	RB1-7129-000CN	92	8
Grounding plate	RB2-4118-000CN	90	12
Grounding plate (2)	RB2-3467-000CN	90	13
Grounding spring	RB1-7385-020CN	91	20
Guide sheet	RB1-7176-000CN	90	11
I/O bezel	C3948-40010	86	1
Input bin assembly	RG5-3488-000CN	86	9
Input sensor assembly	RB1-7182-000CN	94	3
Jammed paper protector	RB1-7334-000CN	97	8
Laser/scanner assembly	RG5-3494-050CN	91	19
Left cartridge guide	RF5-1514-020CN	92	10
Left cover	RB2-3360-000CN	86	3
Left front cover	RB2-3451-000CN	86	8
Left hinge cover	RB2-3468-000CN	87	17
Left hinge holder	RB2-3465-000CN	90	17
Left side plate	RB1-7255-000CN	92	13
Lever, sensor	RB1-7293-000CN	96	5
LIU board (U.S.)	C3948-67903	90	24
LIU board (worldwide)	C3948-67904	90	24
Metal plate	RB2-3364-000CN	90	5
Motor, AC 1.08W	RH7-1376-000CN	89	19

Table 34. Alphabetical parts list

Part name	Part number	Figure #	Reference
Motor, DC 12V	RH7-1320-000CN	91	7
Paper feed drive assembly	RG5-1947-000CN	94	9
Paper guide	RB1-7247-000CN	90	2
Paper input support	RB2-3362-000CN	85	1
Paper output support	RB2-3410-000CN	85	2
Paper path lever	RB2-3453-000CN	86	12
Paper pickup assembly	RG5-3484-000CN	94	
Paper pickup assembly	RG5-3484-070CN	90	
Pickup roller assembly	RG5-3486-000CN	90	
Pickup roller assembly	RG5-3486-040CN	94	
Pickup roller assembly, document scanner	RG5-4688-000CN	89	1
Plate, middle	RF5-2372-000CN	94	18
Pressure plate	RF5-1517-020CN	92	5
Pressure release lever	RB1-7105-000CN	91	3
Pressure release lever cover	RB2-3452-000CN	86	11
Pressure roller	RF5-2362-000CN	92	4
Pressure roller gear (27T)	RS5-0796-000CN	92	11
Pressure roller grease	CK-8006-000CN	92	
Pressure roller ground guide	RF5-1533-000CN	92	14
Printer door assembly	RG5-4220-000CN	87	
Printer door assembly	RG5-4220-000CN	88	
Rear cover	RB2-3361-000CN	86	4
Reinforcement plate	RF5-2664-000CN	90	4
RFI shield	C3948-00002	90	23
Right cartridge guide #1	RB1-7341-030CN	92	3
Right cartridge guide #2	RF5-1515-020CN	92	9
Right cover	RB2-3341-000CN	86	2
Right hinge cover	RB2-3469-000CN	87	18
Right hinge holder	RB2-3466-000CN	90	18
Right side plate	RB1-7256-000CN	92	12
Screw	FA9-1449-000CN	89	14

Table 34. Alphabetical parts list

Part name	Part number	Figure #	Reference
Screw M3X8 (11)	XA9-0724-000CN	90	9
Screw, M3X6 (9)	0515-2672	90	25
Screw, M3X6	XA9-0686-000CN	92	21
Screw, M3X8	XA9-0724-000CN	92	22
Screw, M3X8	XB4-7300-807CN	89	503
Screw, M3X8 (2)	XA9-0724-000CN	86	16
Screw, M3X8 (4)	XA9-0614-000CN	88	24
Screw, M4X8 (4)	XA9-0497-000CN	86	502
Screw, RS, M3X10	XA9-0824-000CN	92	20
Screw, RS, with washer, M3X8	XA9-0855-000CN	90	10
Screw, tapping, pan head, M4X10 (2)	XB4-7401-000CN	94	501
Screw, tapping, truss head, M3X8	XB4-7300-809CN	91	502
Screw, tapping, truss head, M3X8 (7)	XB4-7300-807CN	87	501
Screw, tapping, truss head, M4X8 (3)	XB4-7400-807CN	90	501
Screw, TP, M3X12	XA9-0382-000CN	91	22
Screw, TP, M3X4 (4)	XA9-0434-000CN	90	19
Screw, TP, M3X6 (2)	XA9-0267-000CN	91	21
Screw, TP, M3X6 (2)	XA9-0267-000CN	91	25
Screw, TP, M3X8	XA9-0476-000CN	86	14
Screw, TP, M3X8 (5)	XB6-7300-807CN	91	501
Screw, truss head, with washer (4)	FA9-1449-000CN	90	21
Screw, with star washer, M3X4	XA9-0828-000CN	93	16
Screw, with washer, M3X6 (4)	XA9-0890-000CN	93	17
Separation arm assembly	RB1-7181-000CN	94	2
Separation guide assembly	RG5-3475-020CN	92	
Separation guide assembly	RG5-3475-020CN	96	
Sheet, arching (2)	RB2-3365-000CN	88	1
Sheet, pad	RB2-4114-000CN	87	30
Single-sheet input slot assembly	RG5-4763-000CN	86	10
Solenoid	RH7-5139-000CN	94	13
Spacer	RB2-3454-000CN	87	15

Table 34. Alphabetical parts list

Part name	Part number	Figure #	Reference
Spacer	RB9-0227-000CN	91	24
Spacer, PCB (7)	RB2-3347-000CN	93	3
Speaker	RH6-3845-000CN	93	7
Speaker mount	RB2-3346-000CN	93	1
Spring, compression	RS5-2501-000CN	94	14
Spring, compression	RS5-2508-000CN	92	19
Spring, grounding	RB1-7172-000CN	94	1
Spring, grounding	RB1-7199-000CN	94	7
Spring, tension	RB1-7294-000CN	96	6
Spur assembly inside (2)	RG5-3478-000CN	97	7
Spur assembly outside (2)	RG5-3479-000CN	97	6
Strap	HB1-2867-000CN	87	1
Switch lever assembly	RG5-3453-000CN	91	16
Top cover	RB2-3450-000CN	86	7
Transfer guide	RF5-2358-000CN	92	6
Transfer guide assembly	RG5-3452-000CN	92	23
Transfer roller	RF5-1534-000CN	92	7
Upper guide assembly	RG5-4221-000CN	87	

Numerical parts list

Table 35. Numerical parts list

Part number	Part name	Figure #	Reference
0515-2672	Screw, M3X6 (9)	90	25
C3948-00002	RFI shield	90	23
C3948-40010	I/O bezel	86	1
C3948-67903	LIU board (U.S.)	90	24
C3948-67904	LIU board (worldwide)	90	24
C3949-67901	Formatter	90	22
CK-8006-000CN	Pressure roller grease	92	
FA9-1449-000CN	Screw	89	14
FA9-1449-000CN	Screw, truss head, with washer (4)	90	21
HB1-2867-000CN	Strap	87	1
HB1-2895-000CN	Cover, arm	87	10
RB1-7105-000CN	Pressure release lever	91	3
RB1-7107-000CN	Gear holder	91	5
RB1-7129-000CN	Grounding metal	92	8
RB1-7130-020CN	Cable guide	90	6
RB1-7172-000CN	Spring, grounding	94	1
RB1-7176-000CN	Guide sheet	90	11
RB1-7177-000CN	Frame, paper feed	94	20
RB1-7181-000CN	Separation arm assembly	94	2
RB1-7182-000CN	Input sensor assembly	94	3
RB1-7184-000CN	Bushing	94	5
RB1-7185-000CN	Arm, plate, left	94	16
RB1-7186-000CN	Arm, plate, right	94	17
RB1-7197-020CN	Clutch	94	6
RB1-7199-000CN	Spring, grounding	94	7
RB1-7223-000CN	Grounding clip	92	1
RB1-7234-000CN	Cap	90	7
RB1-7246-000CN	Bushing (2)	92	2
RB1-7247-000CN	Paper guide	90	2

Table 35. Numerical parts list

Part number	Part name	Figure #	Reference
RB1-7255-000CN	Left side plate	92	13
RB1-7256-000CN	Right side plate	92	12
RB1-7284-020CN	Delivery roller #1 (4)	97	1
RB1-7286-000CN	Delivery spring #1 (4)	97	3
RB1-7287-000CN	Delivery spring #2 (2)	97	4
RB1-7288-020CN	Bushing (2)	91	2
RB1-7293-000CN	Lever, sensor	96	5
RB1-7294-000CN	Spring, torsion	96	6
RB1-7334-000CN	Jammed paper protector	97	8
RB1-7341-030CN	Right cartridge guide #1	92	3
RB1-7385-020CN	Grounding spring	91	20
RB2-1632-000CN	Gear support plate	91	4
RB2-1685-000CN	Delivery roller #2 (2)	97	2
RB2-1690-000CN	Fuser roller bushing	96	4
RB2-1699-000CN	Feed roller	95	1
RB2-3341-000CN	Right cover	86	2
RB2-3342-000CN	Bottom plate	93	2
RB2-3345-000CN	Cap	90	1
RB2-3346-000CN	Speaker mount	93	1
RB2-3347-000CN	Spacer, PCB (7)	93	3
RB2-3349-000CN	Front casing	86	6
RB2-3350-000CN	Cable guide, formatter	90	3
RB2-3351-000CN	Cable tube	87	13
RB2-3360-000CN	Left cover	86	3
RB2-3361-000CN	Rear cover	86	4
RB2-3362-000CN	Paper input support	85	1
RB2-3364-000CN	Metal plate	90	5
RB2-3365-000CN	Sheet, arching (2)	88	1
RB2-3366-000CN	Cable guide holder, formatter	90	8
RB2-3401-000CN	Duct, 1	88	4
RB2-3402-000CN	Duct, 2	88	5

Table 35. Numerical parts list

Part number	Part name	Figure #	Reference
RB2-3409-000CN	Cable guide	87	19
RB2-3410-000CN	Paper output support	85	2
RB2-3430-000CN	Document scanner separation pad	87	11
RB2-3436-000CN	Document scanner guide	87	5
RB2-3450-000CN	Top cover	86	7
RB2-3451-000CN	Left front cover	86	8
RB2-3452-000CN	Pressure release lever cover	86	11
RB2-3453-000CN	Paper path lever	86	12
RB2-3454-000CN	Spacer	87	15
RB2-3455-000CN	Document feeder support	85	3
RB2-3465-000CN	Left hinge holder	90	17
RB2-3466-000CN	Right hinge holder	90	18
RB2-3467-000CN	Grounding plate (2)	90	13
RB2-3468-000CN	Left hinge cover	87	17
RB2-3469-000CN	Right hinge cover	87	18
RB2-3470-000CN	Document output support	85	4
RB2-4114-000CN	Sheet, pad	87	30
RB2-4118-000CN	Grounding plate	90	12
RB9-0227-000CN	Spacer	91	24
RF5-1514-020CN	Left cartridge guide	92	10
RF5-1515-020CN	Right cartridge guide #2	92	9
RF5-1517-020CN	Pressure plate	92	5
RF5-1533-000CN	Pressure roller ground guide	92	14
RF5-1534-000CN	Transfer roller	92	7
RF5-2358-000CN	Transfer guide	92	6
RF5-2362-000CN	Pressure roller	92	4
RF5-2367-000CN	Exit roller	91	17
RF5-2368-000CN	Fuser exit roller assembly	96	7
RF5-2372-000CN	Plate, middle	94	18
RF5-2663-000CN	Foot (4)	93	4
RF5-2664-000CN	Reinforcement plate	90	4

Table 35. Numerical parts list

Part number	Part name	Figure #	Reference
RG5-1947-000CN	Paper feed drive assembly	94	9
RG5-2029-000CN	Cable, paper pickup	93	8
RG5-2032-000CN	Cable, thermistor	93	10
RG5-2033-000CN	Cable, motor	93	11
RG5-2035-000CN	Cable, laser	93	5
RG5-3452-000CN	Transfer guide assembly	92	23
RG5-3453-000CN	Switch lever assembly	91	16
RG5-3474-020CN	Delivery assembly	90	
RG5-3474-020CN	Delivery assembly	97	
RG5-3475-020CN	Separation guide assembly	92	
RG5-3475-020CN	Separation guide assembly	96	
RG5-3476-000CN	Face-up/face-down lever	96	2
RG5-3478-000CN	Spur assembly inside (2)	97	7
RG5-3479-000CN	Spur assembly outside (2)	97	6
RG5-3484-000CN	Paper pickup assembly	94	
RG5-3484-070CN	Paper pickup assembly	90	
RG5-3485-030CN	Feed assembly	94	
RG5-3485-030CN	Feed assembly	95	
RG5-3486-000CN	Pickup roller assembly	90	
RG5-3486-040CN	Pickup roller assembly	94	
RG5-3488-000CN	Input bin assembly	86	9
RG5-3494-050CN	Laser/scanner assembly	91	19
RG5-3661-000CN	Cable, scanner	93	12
RG5-3662-000CN	Cable, door switch	93	9
RG5-4220-000CN	Printer door assembly	87	
RG5-4220-000CN	Printer door assembly	88	
RG5-4221-000CN	Upper guide assembly	87	
RG5-4223-000CN	Document scanner assembly	87	
RG5-4223-000CN	Document scanner assembly	89	
RG5-4233-000CN	Cable, contact image sensor (J1004 to J903)	89	15

Table 35. Numerical parts list

Part number	Part name	Figure #	Reference
RG5-4237-000CN	Cable, grounding, document scanner motor	90	20
RG5-4238-000CN	Cable, CIS grounding	89	17
RG5-4239-000CN	Contact image sensor assembly	89	11
RG5-4241-000CN	Control panel assembly	87	
RG5-4678-000CN	Fixing assembly, 110 V	92	16
RG5-4681-000CN	Fixing assembly, 220 V	92	16
RG5-4688-000CN	Pickup roller assembly, document scanner	89	1
RG5-4690-000CN	ECU, 110 V	93	18
RG5-4691-000CN	ECU, 220 V	93	18
RG5-4763-000CN	Single-sheet input slot assembly	86	10
RH2-5346-000CN	Cable, formatter	93	6
RH6-3845-000CN	Speaker	93	7
RH7-1320-000CN	Motor, DC 12V	91	7
RH7-1376-000CN	Motor, AC 1.08W	89	19
RH7-5139-000CN	Solenoid	94	13
RS5-0796-000CN	Pressure roller gear (27T)	92	11
RS5-2501-000CN	Spring, compression	94	14
RS5-2508-000CN	Spring, compression	92	19
RY7-5005-000CN	Gear kit #1	91	1
RY7-5007-000CN	Fuser release kit	91	6
RY7-5036-000CN	Gear kit #2	91	8
VS1-5057-002CN	Fuser connector (2P)	92	15
WE8-5192-000CN	Ferrite ring core	91	23
WT2-0276-000CN	Clamp, wire	93	13
WT2-0317-000CN	Cable guide, control panel	90	14
WT2-0367-000CN	Clamp, cable	93	14
WT2-5178-000CN	Clamp, cable	93	15
WT2-5498-000CN	Cable guide, frame	90	15
XA9-0267-000CN	Screw, TP, M3X6 (2)	91	21
XA9-0267-000CN	Screw, TP, M3X6 (2)	91	25
XA9-0382-000CN	Screw, TP, M3X12	91	22

Table 35. Numerical parts list

Part number	Part name	Figure #	Reference
XA9-0434-000CN	Screw, TP, M3X4 (4)	90	19
XA9-0476-000CN	Screw, TP, M3X8	86	14
XA9-0497-000CN	Screw, M4X8 (4)	86	502
XA9-0614-000CN	Screw, M3X8 (4)	88	24
XA9-0686-000CN	Screw, M3X6	92	21
XA9-0724-000CN	Screw M3X8 (11)	90	9
XA9-0724-000CN	Screw, M3X8	92	22
XA9-0724-000CN	Screw, M3X8 (2)	86	16
XA9-0824-000CN	Screw, RS, M3X10	92	20
XA9-0828-000CN	Screw, with star washer, M3X4	93	16
XA9-0855-000CN	Screw, RS, with washer, M3X8	90	10
XA9-0890-000CN	Screw, with washer, M3X6 (4)	93	17
XB4-7300-807CN	Screw, M3X8	89	503
XB4-7300-807CN	Screw, tapping, truss head, M3X8 (7)	87	501
XB4-7300-809CN	Screw, tapping, truss head, M3X8	91	502
XB4-7400-807CN	Screw, tapping, truss head, M4X8 (3)	90	501
XB4-7401-000CN	Screw, tapping, pan head, M4X10 (2)	94	501
XB6-7300-807CN	Screw, TP, M3X8 (5)	91	501

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