



Brother Laser Printer

HL-1435 User's Guide

A grayscale line drawing of the Brother HL-1435 laser printer, shown from a three-quarter perspective. The printer is a compact, boxy design with a paper tray on the front and a paper output tray on the top.

For visually-impaired users

Please see the two HTML files, `index_win.html` and `index_mac.html`, on the supplied CD-ROM. You can read them with Screen Reader 'text-to-speech' software.

You must set up the hardware and install the driver before you can use the printer.

Please use the Quick Setup Guide to set up the printer. You can find a printed copy in the box or view it on the CD-ROM we have supplied.

Please read this User's Guide thoroughly before you use the printer. Keep the CD-ROM in a convenient place so you can use it quickly if you need to.

Please visit our web site at <http://solutions.brother.com> where you can get answers to Frequently Asked Questions (FAQs), Product Support and Technical Questions, and the latest Driver Updates and Utilities.

brother®

Laser printer

HL-1435 series

User's Guide

Definitions of warnings, cautions, and notes

We use the following terms throughout this User's Guide:



You must follow these warnings to prevent possible personal injury.



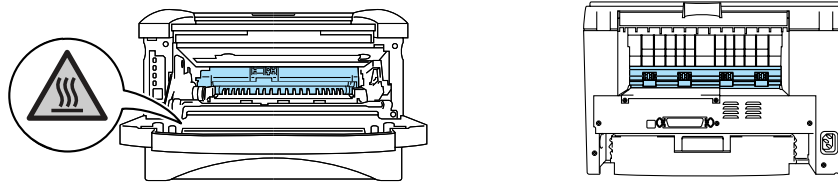
You must follow these instructions to make sure you use the printer properly and do not damage it.



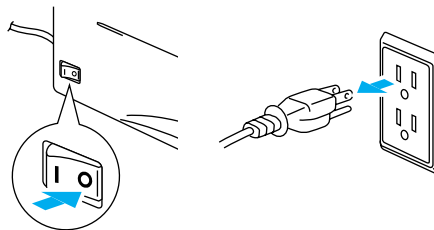
Remember these useful tips when you use the printer.

To use the printer safely

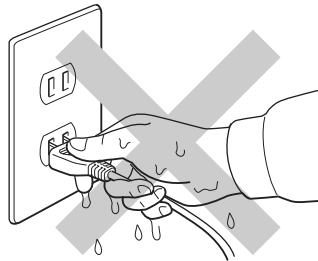
- !** After you have just used the printer, some parts inside the printer will be extremely hot. When you open the front or rear cover of the printer, never touch the shaded parts shown in the illustrations below.



There are high voltage electrodes inside the printer. Before you clean the printer, clear a paper jam or replace parts, make sure you have turned off the power switch and unplugged the printer from the AC power outlet.



Do not handle the plug with wet hands - it might give you an electrical shock.



! **Caution**

Use water or neutral detergents for cleaning. Cleaning with volatile liquids such as thinner or benzene will damage the surface of the printer.

Do not use cleaning materials that contain ammonia. They will damage the printer and the toner cartridge.

Brother Numbers (USA and Canada)

IMPORTANT: For technical help you must call the country where you bought the Printer. Calls must be made **from within** that country.

Register your product

By registering your product with Brother International Corporation, you will be recorded as the original owner of the product. Your registration with Brother:

- may serve as a confirmation of the purchase date of your product should you lose your receipt;
- may support an insurance claim by you in the event of product loss covered by insurance; and,
- will help us notify you of enhancements to your product and special offers.

Please complete the Brother Warranty Registration or, for your convenience and most efficient way to register your new product, register on-line at

www.registermybrother.com

Frequently asked questions (FAQs)

The Brother Solutions Center is our one-stop resource for all your Printer needs. You can download the latest software and utilities, read FAQs and troubleshooting tips, and go to the 'Solutions' section to learn how to get the most from your Brother product.

<http://solutions.brother.com>

You can check here for the Brother driver updates.

Customer Service

In USA 1-800-276-7746

In Canada 1-877-BROTHER
(514) 685-6464 (**In Montreal**)

If you have any comments or suggestions, please write to us at:

In USA Printer Customer Support
Brother International Corporation
15 Musick
Irvine CA 92618

In Canada Brother International Corporation (Canada), Ltd.
- Marketing Dept.
1, rue Hôtel de Ville
Dollard-des-Ormeaux, PQ, Canada H9B 3H6

Service center locator (USA only)

For the location of a Brother authorized service center, call 1-800-284-4357.

Service center locations (Canada only)

For the location of a Brother authorized service center, call 1-877-BROTHER.

Brother fax back system (USA only)

Brother has an easy-to-use fax back system so you can get instant answers to common technical questions and product information. This is available 24 hours a day, 7 days a week. You can use the system to send the information to any fax machine.

Call the number below and follow the recorded instructions to receive a fax about how to use the system and an Index of the subjects you can get information about.

In USA only 1-800-521-2846

Internet addresses

Brother Global Web Site:

<http://www.brother.com>

For Frequently Asked Questions (FAQs), Product Support and Technical Questions, and Driver Updates and Utilities:

<http://solutions.brother.com>

(In USA Only) For Brother Accessories & Supplies:

<http://www.brothermall.com>

Important information: Regulations

Federal Communications Commission (FCC) Declaration of Conformity (For USA)

Responsible Party: Brother International Corporation
100 Somerset Corporate Boulevard
P.O. Box 6911
Bridgewater, NJ 08807-0911
USA
Telephone: (908) 704-1700

declares, that the products

Product name: Laser Printer HL-1435
Model number: HL-14

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.

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 and, if not installed and used in accordance with the instructions, 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 the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Important

A shielded interface cable should be used in order to ensure compliance with the limits for a Class B digital device.

Changes or modifications not expressly approved by Brother Industries, Ltd. could void the user's authority to operate the equipment.

Industry Canada Compliance Statement (For Canada)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Radio interference (220 to 240 volt model only)

This printer follows EN55022 (CISPR Publication 22)/Class B.

Before you use this product, make sure that you use a double-shielded interface cable with twisted-pair conductors and that it is marked "IEEE1284 compliant". The cable must not be more than 2 metres long.

International ENERGY STAR® Compliance Statement

The purpose of the International ENERGY STAR® Program is to promote the development and popularization of energy-efficient office equipment.

As an ENERGY STAR® Partner, Brother Industries, Ltd. has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.



Laser Safety (100 to 120 volt model only)

This printer is certified as a Class I 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. This means that the printer does not produce hazardous laser radiation.

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

FDA Regulations (100 to 120 volt model only)

U.S. Food and Drug Administration (FDA) has implemented regulations for laser products manufactured on and after August 2, 1976. Compliance is mandatory for products marketed in the United States. One of the following labels on the back of the printer indicates compliance with the FDA regulations and must be attached to laser products marketed in the United States.

MANUFACTURED:

Brother Industries, Ltd.,
15-1 Naeshiro-cho Mizuho-ku Nagoya, 467-8561 Japan
This product complies with FDA radiation performance standards, 21 CFR subchapter J.

MANUFACTURED:

Brother Corporation (Asia) Ltd. Brother Buji Nan Ling Factory
Gold Garden Ind., Nan Ling Village, Buji, Rong Gang, Shenzhen, CHINA
This product complies with FDA radiation performance standards, 21 CFR Subchapter J

Caution: Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

IEC 60825 specification (220 to 240 volt model only)

This printer is a Class 1 laser product as defined in IEC 60825 specifications. The label shown below is attached in countries where it is needed.



This printer has a Class 3B laser diode which produces invisible laser radiation in the scanner unit. You should not open the scanner unit under any circumstances.

Caution: Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

Internal laser radiation

Maximum radiation power: 5 mW
Wave length: 760 - 810 nm
Laser class: Class IIIb (Accordance with 21 CFR Part 1040.10)
Class 3B (Accordance with IEC 60825)

IMPORTANT - For Your Safety

To ensure safe operation the supplied three-pin plug must be inserted only into a standard three-pin power outlet that is properly grounded through the standard electrical wiring.

Extension cords used with this printer must be three-pin plug type and correctly wired to provide proper grounding. Incorrectly wired extension cords may cause personal injury and equipment damage.

The fact that the equipment operates satisfactorily does not imply that the power is grounded and that the installation is completely safe. For your safety, if in any doubt about the effective grounding of the power, call a qualified electrician.

Disconnect device

You must install this printer near a power outlet that is easily accessible. In case of an emergency, you must disconnect the power cord from the power outlet to shut off the power completely.

Caution for LAN connection

Connect this product to a LAN connection that is not subjected to overvoltages.

Trademarks

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ENERGY STAR is a U.S. registered mark.

All other terms and brand and product names mentioned in this User's Guide are registered trademarks of their respective companies.

Compilation and Publication Notice

Under the supervision of Brother Industries Ltd., this manual has been compiled and published, covering the latest product's descriptions and specifications.

The contents of this manual and the specifications of this product are subject to change without notice.

Brother reserves the right to make changes without notice in the specifications and materials contained herein and shall not be responsible for any damages (including consequential) caused by reliance on the materials presented, including but not limited to typographical and other errors relating to the publication.

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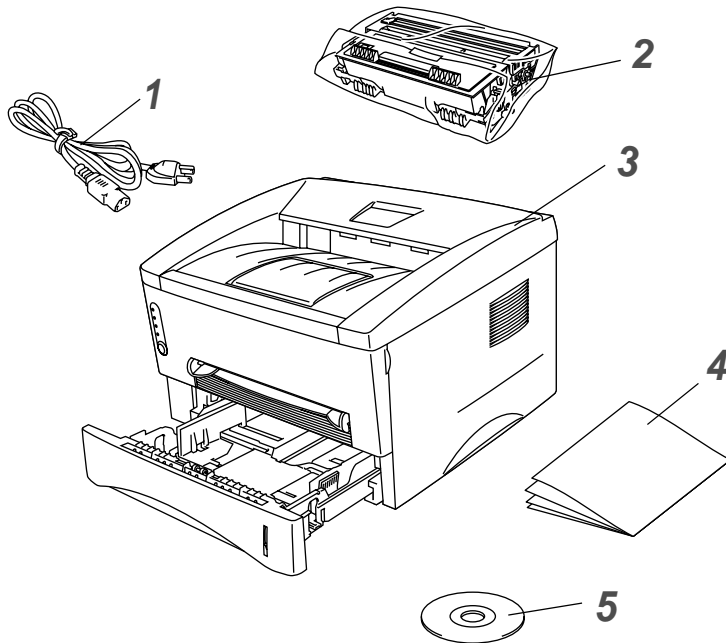
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1 About this printer

What is in the box?

When you unpack the printer, check to see that you have all of the following parts.



- 1 AC Power Cord
- 2 Drum Unit Assembly
(with Toner Cartridge included)
- 3 Printer
- 4 Quick Setup Guide
- 5 CD-ROM



- Components may differ from one country to another.
- The power cord may be slightly different than the one in the figure above, depending on which country the printer was bought in.

Interface cable

- An interface cable is not a standard accessory. Please purchase the appropriate cable for the interface you intend to use.
- It is recommended to use a Parallel interface cable or USB interface cable that is no longer than 6 feet (2 metres).
- For Parallel interface cable use a shielded interface cable that is IEEE 1284-compliant.
- Do not connect the USB cable to the front of your PC or to the iMac's keyboard.

Front view

Front View

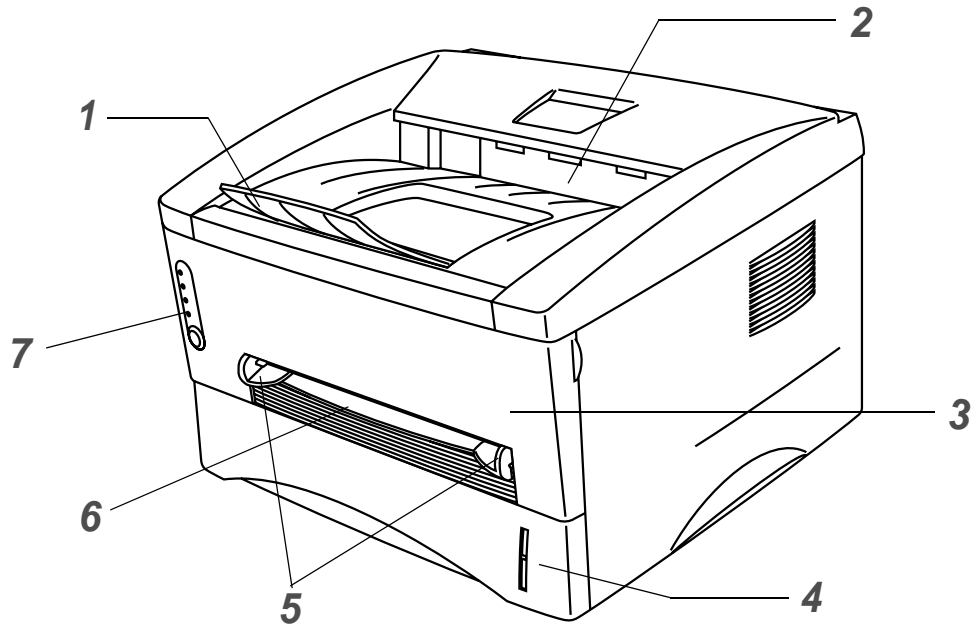


Figure 1-1

- 1** Face-down Output Tray Support Flap (Support Flap)
- 2** Face-down Output Tray (Top Output Tray)
- 3** Front Cover
- 4** Paper Tray
- 5** Manual Feed Paper Guides
- 6** Manual Feed Slot
- 7** Control Panel

Back view

Back view

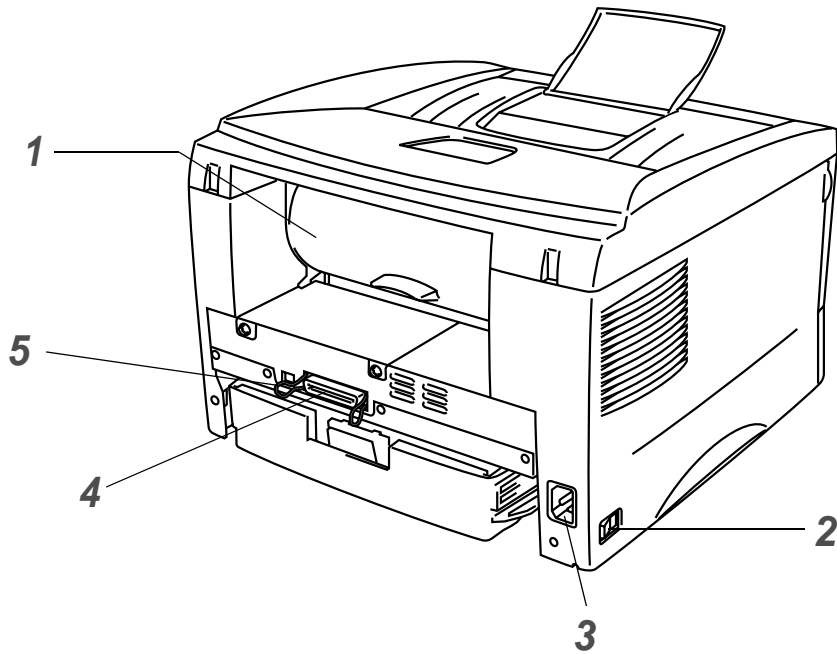


Figure 1-2

- 1 Rear Cover
- 2 Power Switch
- 3 AC Power Connector
- 4 Parallel Interface Connector
- 5 USB Interface Connector

Positioning the printer

Please read the following before you use the printer.

Power supply

Use the printer within the recommended power range.

Power source: USA and Canada: AC 110 to 120 V, 50/60 Hz
Europe and Australia: AC 220 to 240 V, 50/60 Hz

The power cord, including extensions, should be no longer than 5 metres (16½ feet).

Do not share the same power circuit with other high-power appliances, such as an air conditioner, copier, shredder and so on. If you cannot avoid using the printer with these appliances, we recommend that you use a voltage transformer or a high-frequency noise filter.

Use a voltage regulator if the power source is not stable.

Environment

- Make sure that the power outlet is near the machine and is easy to get to so that, if there is an emergency, it can be easily unplugged.
- Only use the printer within the following ranges of temperature and humidity:

Temperature: 10 °C to 32.5 °C (50 °F to 90.5 °F)

Humidity: 20% to 80% (without condensation)

- To avoid ozone building up, put this machine in a large well-ventilated room.
- Put the printer on a flat, horizontal surface.
- Keep the printer clean. Do not put the printer in a dusty place.
- Do not put the printer where the ventilation hole of the printer is blocked. Keep a gap of approximately 100 mm (4 in.) between the ventilation hole and the wall.
- Do not put the printer in direct sunlight. If you have to put it near a window, use a blind or a heavy curtain to protect the printer from direct sunlight.
- Do not put the printer near devices that contain magnets or generate magnetic fields.
- Do not subject the printer to strong physical shocks or vibrations.
- Do not expose the printer to open flames or salty or corrosive gasses.
- Do not put objects on top of the printer.
- Do not put the printer near an air conditioner.
- Keep the printer horizontal when you carry it.

What kind of paper can I use?

Type and size of paper

The printer loads paper from the installed paper tray or manual feed slot.

The names for the paper trays in the printer driver and this Guide are as follows:

Paper tray	Tray 1
Manual feed slot	Manual

While looking at this page on the PDF, you can jump to the page for each printing method by clicking ⓘ in the table.

Media type	Tray 1	Manual feed slot	Select the Media type from the printer driver
Plain paper 60 g/m ² to 105 g/m ² (16 to 28 lb)	ⓘ	ⓘ	Plain paper
Recycled paper	ⓘ	ⓘ	
Bond paper		ⓘ	Bond paper
Thick paper 105 g/m ² to 161 g/m ² (28 to 43 lb)		ⓘ	Thick paper or Thicker paper
Transparency	ⓘ Up to 10 sheets A4 or Letter	ⓘ A4 or Letter	Transparencies
Labels		ⓘ A4 or Letter	Thick paper
Envelopes		ⓘ	Thicker paper
Card stock		ⓘ	Thick paper or Thicker paper

	Tray 1	Manual feed slot
Paper size	A4, Letter, Legal (US and Canada only), B5 (ISO), Executive, A5, A6, B6(ISO),	Width: 69.8 to 216 mm (2.75 to 8.5 in.) Length: 116 to 406.4 mm (4.57 to 16.0 in.)
Number of sheets	250 sheets (80 g/m ² or 21 lb)	Single sheet

Recommended paper

	Europe	USA
Plain paper	Xerox Premier 80 g/m ² Xerox Business 80 g/m ² Modo DATACOPY 80 g/m ² IGEPA X-Press 80 g/m ²	Xerox 4200DP 20 lb Hammermill Laser Paper 24 lb
Recycled paper	Xerox RECYCLED SUPREMES	
Transparency	3M CG 3300	3M CG 3300
Labels	Avery laser label L7163	Avery laser label #5160

- Before you buy a lot of paper, please test some to make sure that the paper is suitable.
- Use paper that is made for plain-paper copying.
- Use paper that is 75 to 90 g/m² (20 to 24 lb).
- Use neutral paper. Do not use acidic or alkaline paper.
- Use long-grain paper.
- Use paper with a moisture content of approximately 5%.

Caution

Do not use ink jet paper, or it may cause a paper jam and damage your printer.

To help you choose which paper to use with this printer, see *Important information for choosing your paper on page A-3*.

Printable area

When using Brother GDI printer driver emulation, the edges of the paper that cannot be printed on are shown below.

Portrait

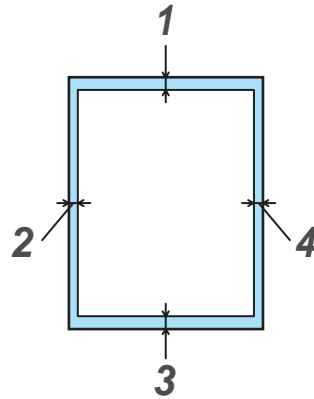


Figure 1-3

	A4	Letter	Legal	B5 (ISO)	Executive	A5	A6	B6 (ISO)
1	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)
2	6.01 mm (0.24 in.)	6.35 mm (0.25 in.)	6.35 mm (0.25 in.)	6.01 mm (0.24 in.)	6.35 mm (0.25 in.)	6.01 mm (0.24 in.)	6.01 mm (0.24 in.)	6.01 mm (0.24 in.)
3	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)
4	6.01 mm (0.24 in.)	6.35 mm (0.25 in.)	6.35 mm (0.25 in.)	6.01 mm (0.24 in.)	6.35 mm (0.25 in.)	6.01 mm (0.24 in.)	6.01 mm (0.24 in.)	6.01 mm (0.24 in.)

Landscape

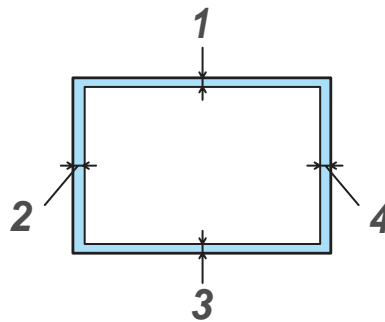


Figure 1-4

	A4	Letter	Legal	B5 (ISO)	Executive	A5	A6	B6 (ISO)
1	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)
2	5.0 mm (0.19 in.)	5.08 mm (0.2 in.)	5.08 mm (0.2 in.)	5.0 mm (0.19 in.)	5.08 mm (0.2 in.)	5.0 mm (0.19 in.)	5.0 mm (0.19 in.)	5.0 mm (0.19 in.)
3	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)	4.2 mm (0.17 in.)
4	5.0 mm (0.19 in.)	5.08 mm (0.2 in.)	5.08 mm (0.2 in.)	5.0 mm (0.19 in.)	5.08 mm (0.2 in.)	5.0 mm (0.19 in.)	5.0 mm (0.19 in.)	5.0 mm (0.19 in.)

Printing methods

Printing on plain paper

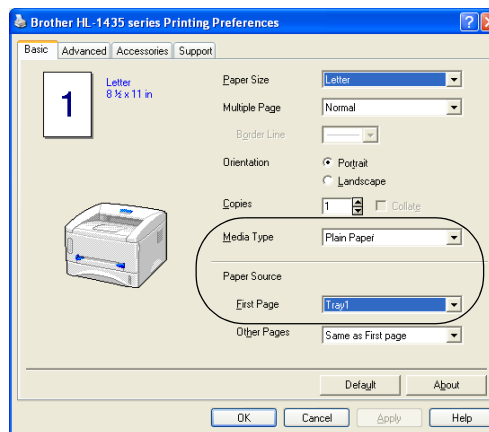
You can print on plain paper from the paper tray or manual feed slot. For the paper you want to use, please see *What kind of paper can I use?* in this chapter.

Printing on plain paper from the paper tray

- 1 Select the **Paper Size**, **Media Type**, **Paper Source**, and other settings in the printer driver.

Media Type: Plain Paper

Paper Source: Tray1



- 2 Pull the paper tray completely out of the printer.

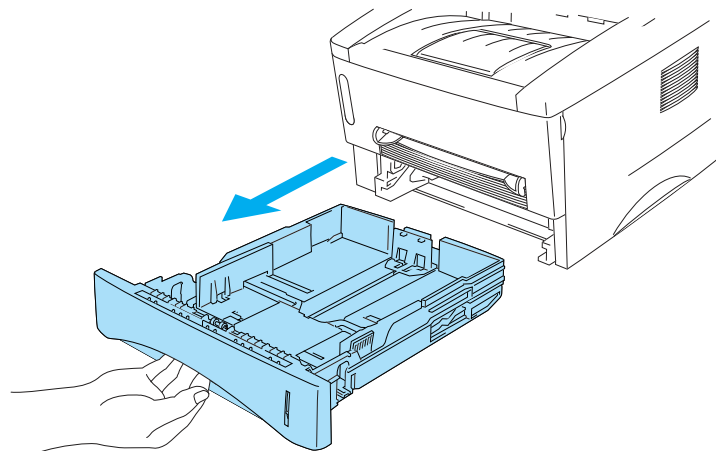


Figure 1-5

- 3** While pressing the blue paper-guide release lever, slide the paper guides to fit the paper size. Check that the guides are firmly in the slots.

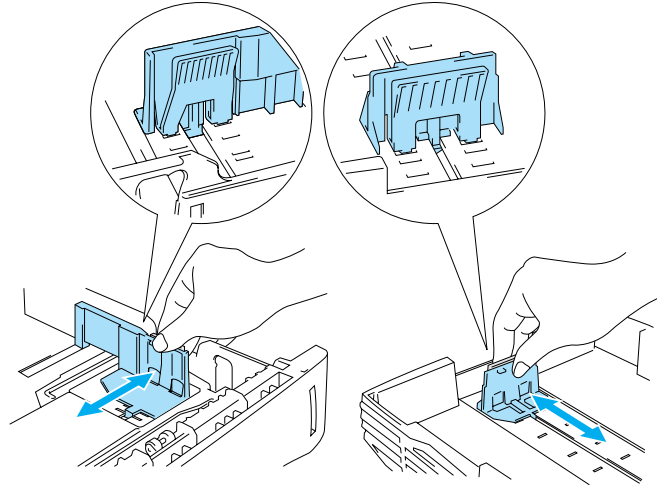


Figure 1-6

- 4** Put paper in the tray. Check that the paper is flat in the tray at all four corners.

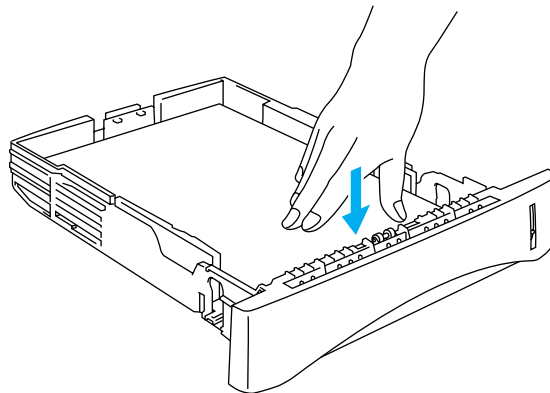



Figure 1-7

 Do not put more than 250 sheets of paper (80 g/m²) in the tray, or paper jams may occur. Check that paper is below the maximum paper mark (▼).

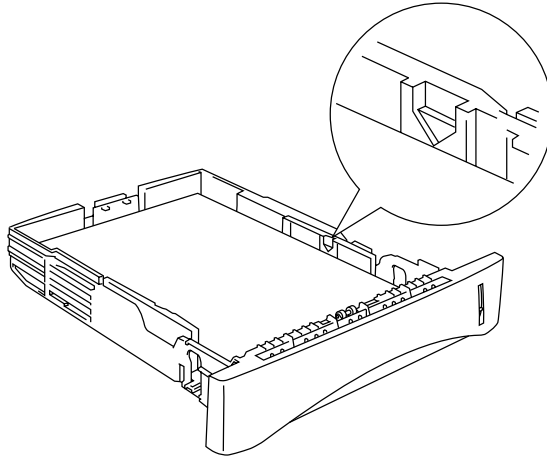



Figure 1-8

For two-sided printing, put the side that is going to be printed on (blank side) face down, with the top of the paper at the front of the tray.

5 Put the paper tray firmly back in the printer. Check that it is inserted fully into the printer.

 Pull up the support flap to prevent paper from sliding off the top output tray.

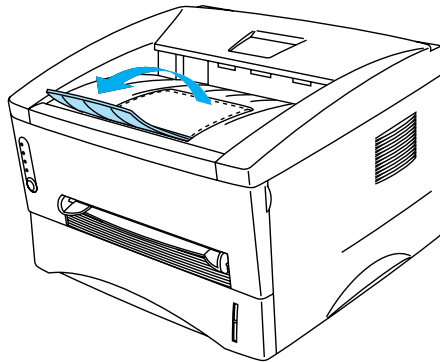



Figure 1-9

If you choose not to pull out the support flap, we recommend that you remove printed pages immediately after they come out of the printer.

6 Send the print data to the printer.

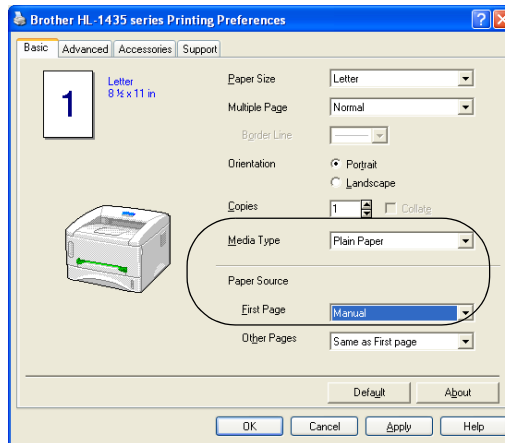
Printing on plain paper from the manual feed slot

 The printer automatically turns on the Manual Feed mode when you put paper into manual feed slot.


- 1 Select the **Paper Size**, **Media Type**, **Paper Source**, and other settings in the printer driver.

Media Type: Plain Paper

Paper Source: Manual



- 2 Send the print data to the printer.

 A **NO PAPER** message is shown in the Status Monitor and indicated by the control panel LEDs until you put a sheet of paper in the manual feed slot.

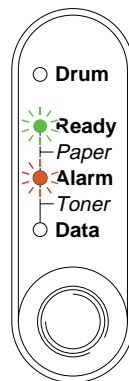


Figure 1-10

- Using both hands, slide the manual feed slot paper guides to the paper width to be used.

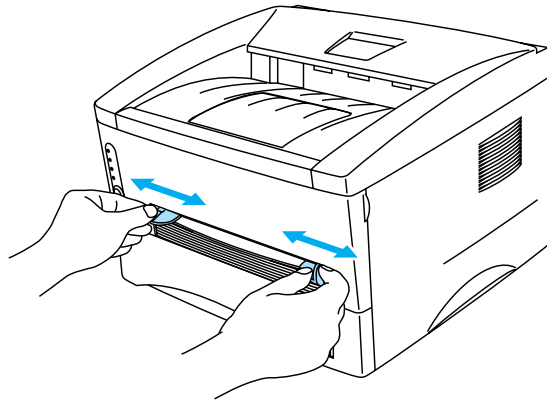



Figure 1-11

-  Pull up the support flap to prevent paper from sliding off the top output tray.

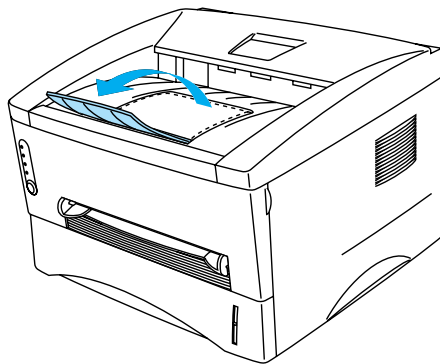


Figure 1-12

If you choose not to pull out the support flap, we recommend that you remove printed pages immediately after they come out of the printer.

- Using both hands, insert the paper into the manual feed slot until the front edge of the paper touches the paper feed roller. Hold the paper in this position until the printer automatically feeds the paper in for a short distance, and then let go of the paper.

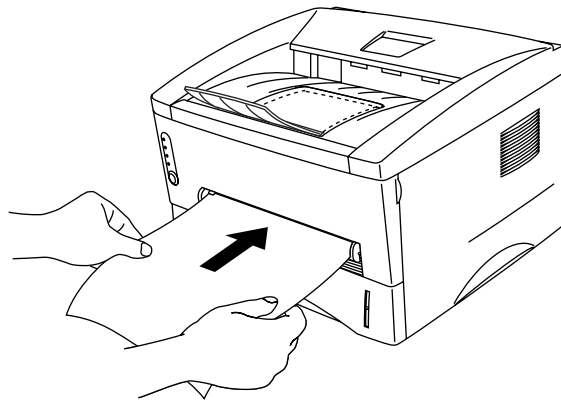


Figure 1-13



- Put the paper into the manual feed slot with the side to be printed face up.
 - Make sure that the paper is straight and in the proper position on the manual feed slot. If it is not, the paper may not be fed properly, resulting in a skewed printout or a paper jam.
 - Do not put more than one piece of paper in the manual feed slot at any one time, or it may cause a jam.
- 5** After the printed page comes out of the printer, put in the next sheet of paper as in Step 4 above. Repeat for each page that you want to print.

Printing on thicker paper and card stock

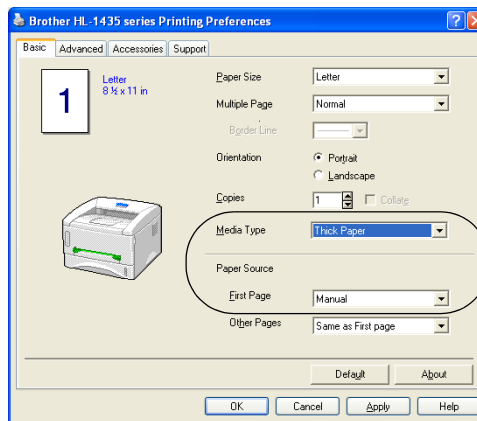
When the rear cover is lifted up, the printer has a straight paper path from the manual feed slot to the back of the printer. Use this paper feed and output method when you want to print on thicker paper or card stock.

When you select the paper you want to use, please see *What kind of paper can I use?* in this chapter.

- 1 Select the **Paper Size**, **Media Type**, **Paper Source**, and other settings in the printer driver.

Media Type: Thick paper or Thicker paper

Paper Source: Manual



- 2 Open the rear cover.

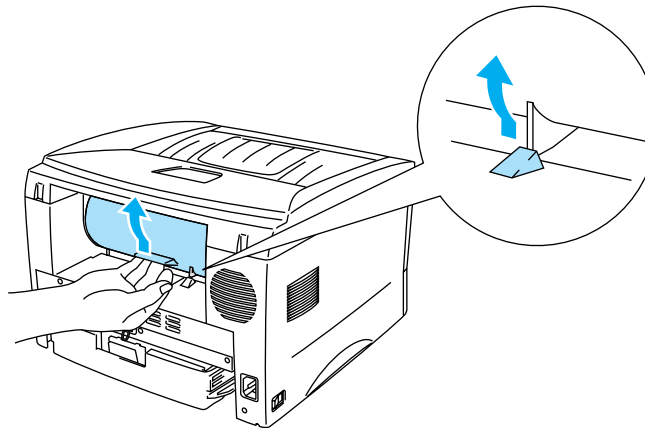



Figure 1-14

3 Send the print data to the printer.

 A **NO PAPER** status is shown by the control panel LEDs until you put a sheet of paper in the manual feed slot.

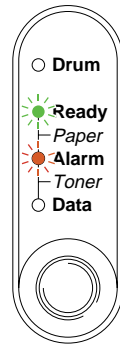


Figure 1-15

4 Using both hands, set the width of the manual feed paper guides to the paper width you want to use.

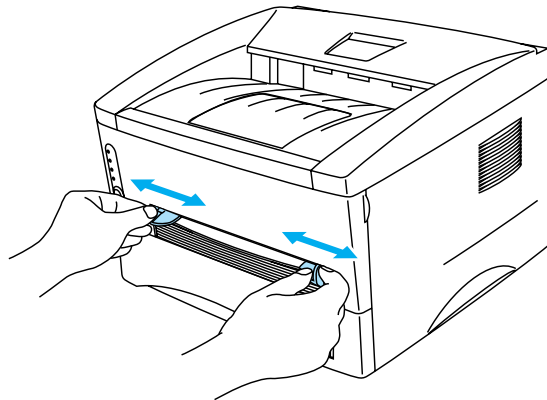


Figure 1-16

5 Using both hands, insert the paper into the manual feed slot until the front edge of the paper touches the paper feed roller. Hold the paper in this position until the printer automatically feeds the paper in for a short distance, and then let go of the paper.

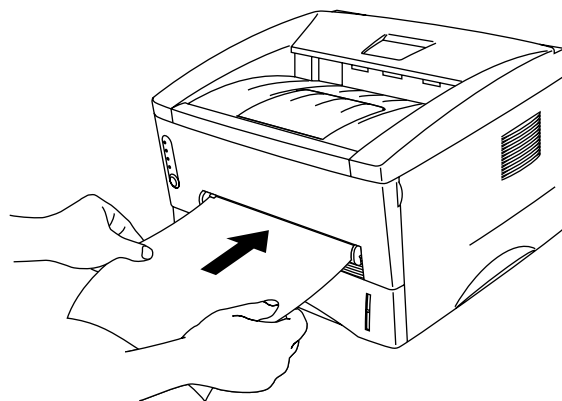


Figure 1-17

- Put the paper into the manual feed slot with the side to be printed face up.
 - Make sure that the paper is straight and in the proper position in the manual feed slot. If it is not, the paper may not be fed properly, resulting in a skewed printout or a paper jam.
 - Do not put more than one piece of paper in the manual feed slot at any one time, or it may cause a jam.
- 6** After the printed page comes out of the printer, put in the next sheet of paper as in Step 5 above. Repeat for each page that you want to print.
- 7** Close the rear cover.

! Caution

Remove each sheet immediately after printing. Stacking the sheets may cause a paper jam or the paper to curl.

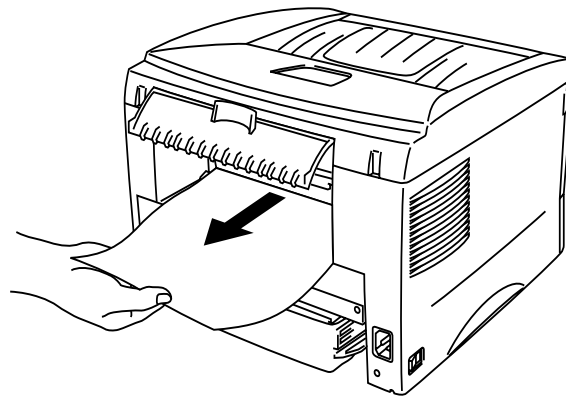


Figure 1-18

Printing on envelopes

Types of envelopes to avoid

Do not use envelopes:

- that are damaged, curled, wrinkled, or an unusual shape
- that are extremely shiny or textured
- with clasps, snaps or tie strings
- with self-adhesive closures
- that are of a baggy construction
- that are not sharply creased
- that are embossed (have raised writing on them)
- that were previously printed by a laser printer
- that are pre-printed on the inside
- that cannot be arranged when put in a pile
- that are made of paper that weighs more than the paper weight specifications for the printer
- that have been badly made, with edges that are not straight or consistently square or
- with windows, holes, cutouts or perforations

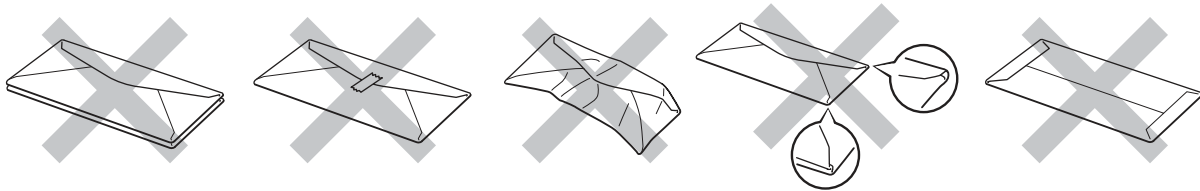




Figure 1-19

IF YOU USE ANY OF THE TYPES OF ENVELOPES LISTED ABOVE, THEY MAY DAMAGE YOUR PRINTER. THIS DAMAGE IS NOT COVERED UNDER ANY BROTHER WARRANTY OR SERVICE AGREEMENT.


-  ■ Before you print envelopes, you must 'fan' the stack to avoid paper jams and misfeeds.
- Do not put different types of paper in the paper tray at the same time because it may cause paper jams or misfeeds.
- Do not print envelopes using manual duplex printing.
- For proper printing, you must choose the same paper size from your software application as the paper in the tray.
- See *What kind of paper can I use?* in this chapter.

Most envelopes will be suitable for your printer. However, some envelopes will have feed and print-quality problems because of the way they have been made. A suitable envelope should have edges with straight, well-creased folds and the leading edge should not be thicker than two pieces of paper. The envelope should lie flat and not be of baggy or flimsy construction. You should buy quality envelopes from a supplier who understands that you will be using the envelopes in a laser printer. Before you print a lot of envelopes, test one to make sure that the print results are what you want.

-  ■ Brother will not recommend a particular envelope because envelope manufacturers may change the envelope specifications. You are responsible for the quality and performance of the envelopes you use.

Printing on envelopes from the manual feed slot

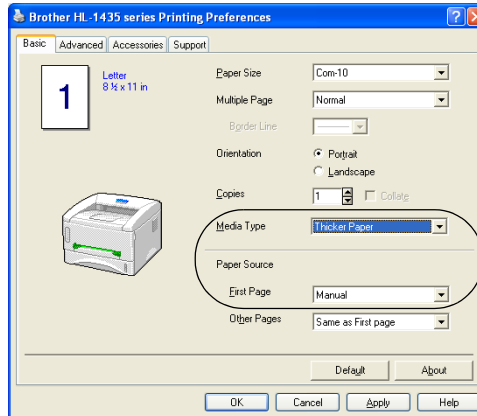
When the rear cover is lifted up, the printer has a straight paper path from the manual feed slot to the back of the printer. Use this paper feed and output method when you want to print envelopes.

 The printer automatically turns on the Manual Feed mode when you put paper in the manual feed slot.

- 1 Select the **Paper Size**, **Media Type**, **Paper Source**, and other settings in the printer driver.

Media Type: Thicker paper

Paper Source: Manual



- 2 Open the rear cover.

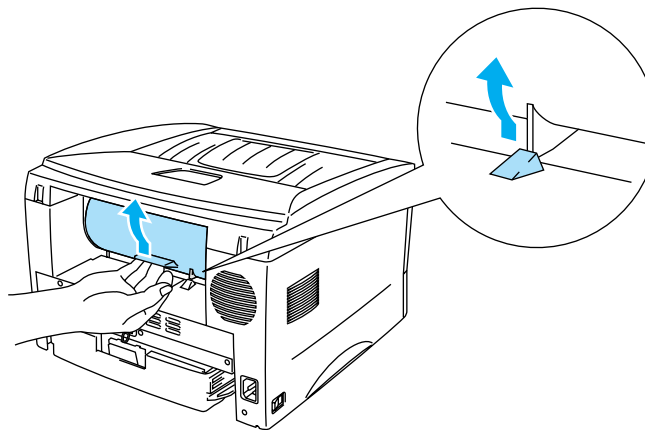


Figure 1-20

3 Send the print data to the printer.

 A **NO PAPER** status is shown by the control panel LEDs until you put a sheet of paper in the manual feed slot.

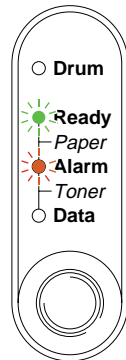


Figure 1-21

4 Using both hands, set the width of the manual feed paper guides to the envelope width.

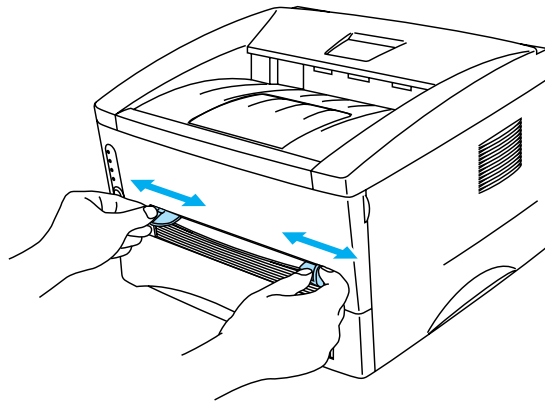


Figure 1-22

5 Using both hands put the envelope in the manual feed slot until the front edge of the envelope touches the paper feed roller. Hold the envelope in this position until the printer automatically feeds it in for a short distance, and then let go of the envelope.

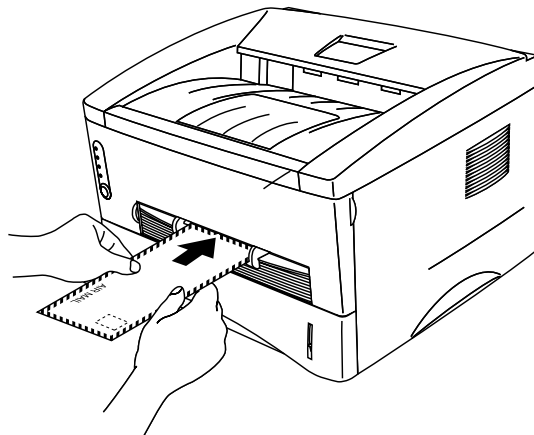


Figure 1-23



- Make sure the envelope is straight as you insert it sideways in the manual feed slot. If it is not, the envelope may not be fed properly, resulting in a skewed printout or a jam.
- Do not put more than one envelope in the manual feed slot at any one time, or it may cause a jam.
- Put the envelope in the manual feed slot with the side to be printed face up.

6 After the printed envelope comes out of the printer, the printer will wait until you put in the next envelope. Repeat Step 5 for each envelope you want to print.

7 After you finish the print job, close the rear cover.



- Envelope joints that are sealed by the manufacturer should be secure.
- All sides should be properly folded without wrinkles or creases.

Printing on transparencies

You can print on transparencies from the paper tray, manual feed slot.

Printing on transparencies from the paper tray

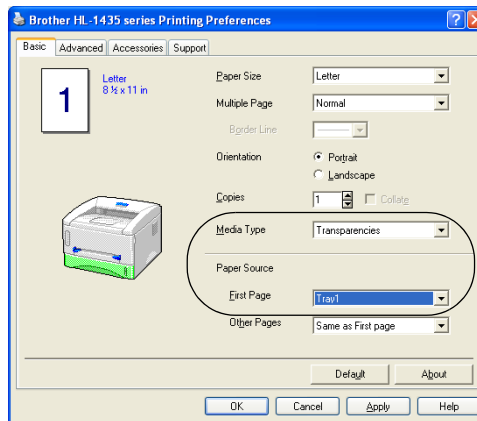


■ Do not put more than 10 transparencies in the paper tray.

1 Select the **Paper Size**, **Media Type**, **Paper Source**, and other settings in the printer driver.

Media Type: Transparencies

Paper Source: Tray1



2 Pull the paper tray completely out of the printer.

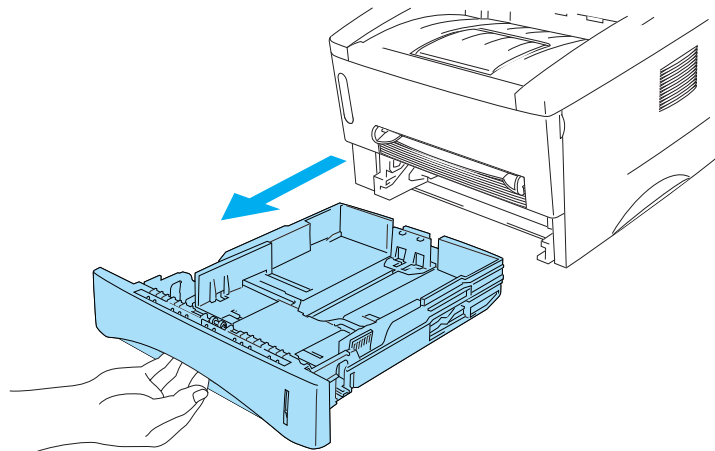


Figure 1-24

- 3** While pressing the blue paper-guide release levers, slide the paper guides to fit the transparency size. Check that the guides are firmly in the slots.

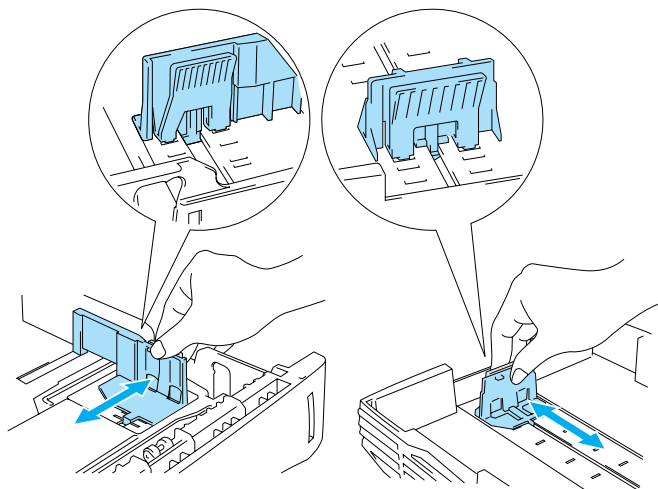


Figure 1-25

- 4** Put transparencies in the tray. Check that the transparencies are flat and below the maximum paper mark (▼). Do not put more than 10 transparencies in the tray at any one time, or it may cause a jam.

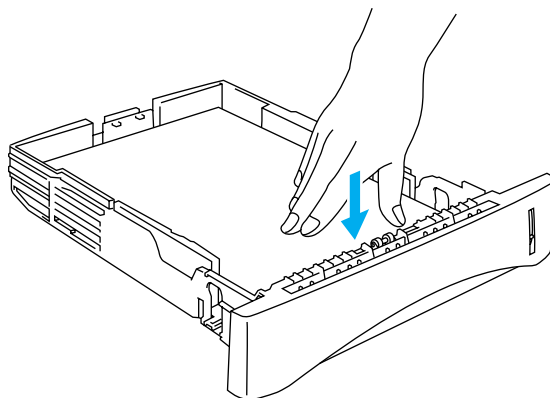



Figure 1-26

5 Put the paper tray firmly back in the printer.

 Pull out the support flap to prevent transparencies from sliding off the top output tray.

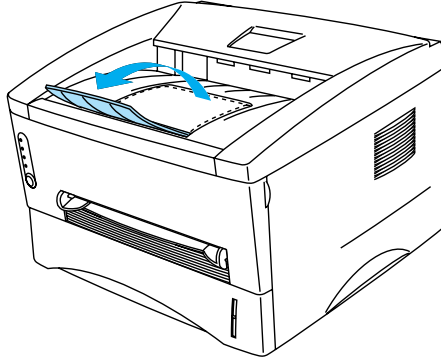


Figure 1-27

6 Send the print data to the printer.

 **Caution**

Remove each transparency immediately.

Printing on transparencies from the manual feed slot

When the rear cover is lifted up, the printer has a straight paper path from the manual feed slot to the back of the printer.

- 1 Select the **Paper Size**, **Media Type**, **Paper Source**, and other settings in the printer driver.

Media Type: Transparencies

Paper Source: Manual

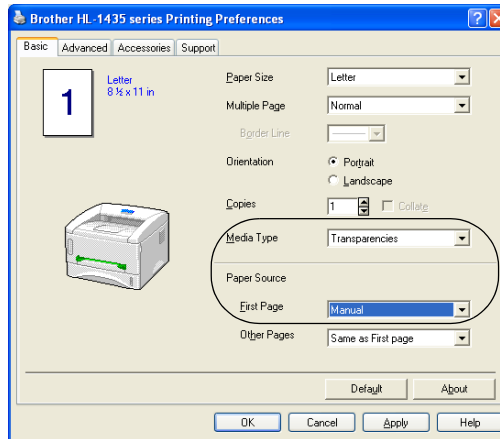


Figure 1-28

- 2 Open the rear cover.

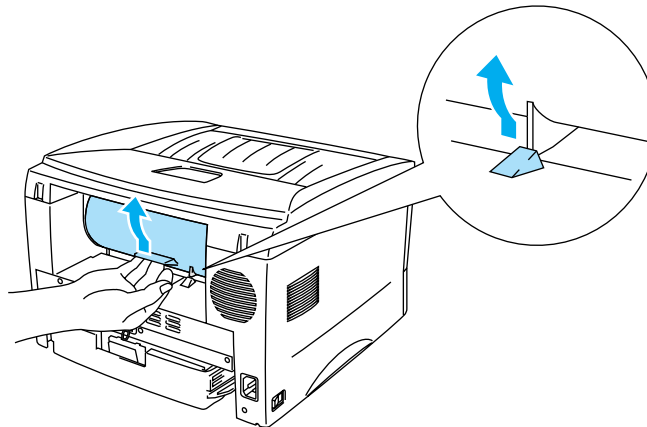



Figure 1-29

3 Send the print data to the printer

 A **NO PAPER** status is shown by the control panel LEDs until you put a transparency in the manual feed slot.

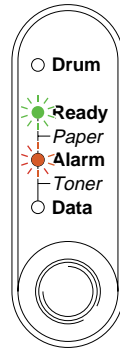


Figure 1-30

4 Using both hands, slide the manual feed paper guides to the transparency width.

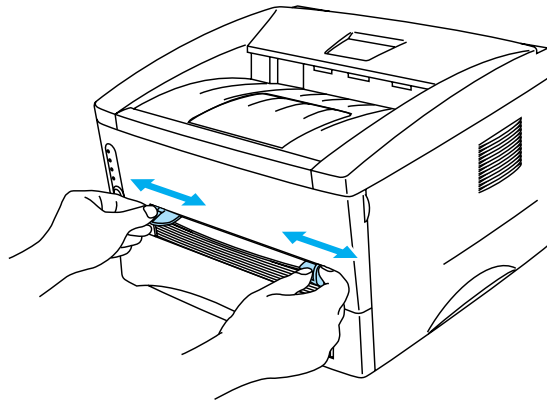


Figure 1-31

5 Using both hands put the transparency in the manual feed slot until its front edge touches the paper feed roller. Hold the transparency in this position until the printer automatically feeds it in for a short distance, and then let go of the transparency.

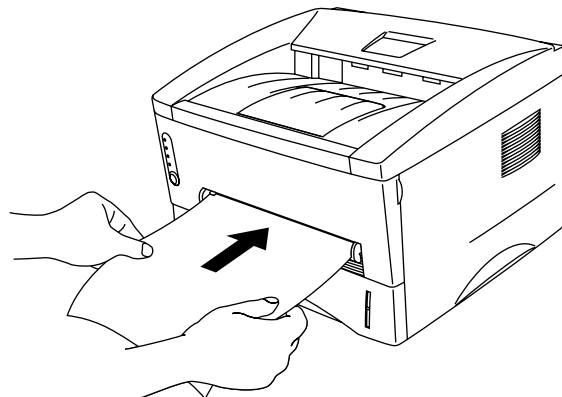


Figure 1-32



- Put the transparency into the manual feed slot with the side to be printed face up.
 - Make sure that the transparency is straight and in the proper position on the manual feed slot. If it is not, the transparency may not be fed properly, resulting in a skewed printout or a jam.
 - Do not put more than one transparency in the manual feed slot at any one time, or it may cause a jam.
- 6** After the printed transparency comes out of the printer, put in the next transparency as described in Step 5 above. Repeat for each transparency that you want to print
- 7** After you finish the print job, close the rear cover.

! **Caution**

Remove each transparency immediately after printing. Stacking the printed transparencies may cause a paper jam or the transparency to curl.

Printing on both sides of the paper (Manual duplex printing)

The supplied printer drivers for Windows® 95/98/Me, Windows NT® 4.0, Windows® 2000/XP, Mac® OS 8.6 to 9.2 and Mac® OS X 10.1 enable manual duplex printing. For more information about how to choose the settings, see the **Help** text in the printer driver.

Manual duplex printing from the paper tray

- 1 Choose the **Duplex** printing mode from the **Advanced** tab in the printer driver.

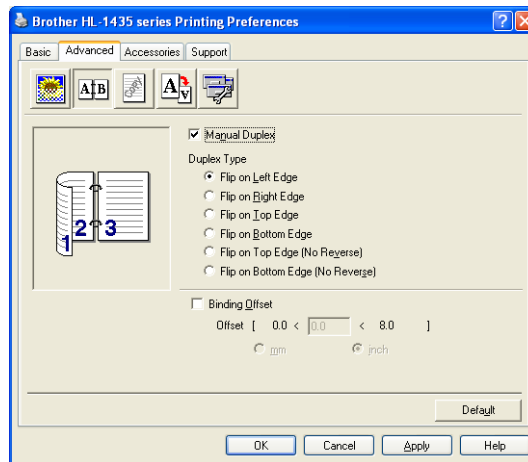


Figure 1-33

- 2 Select the **Paper Size**, **Media Type**, **Paper Source**, and other settings in the printer driver.
- 3 The printer will automatically print all the even-numbered pages on one side of the paper first.

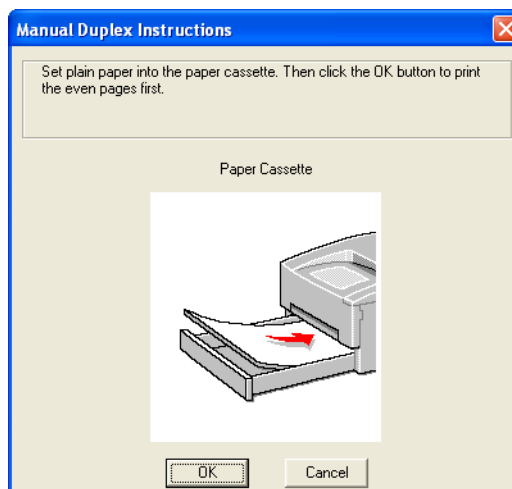


Figure 1-34

- 4 Remove the printed even-numbered pages from the output tray and put them back in the paper tray, placing the paper with the side to be printed on (blank side) face down. Follow the instructions on the computer screen.

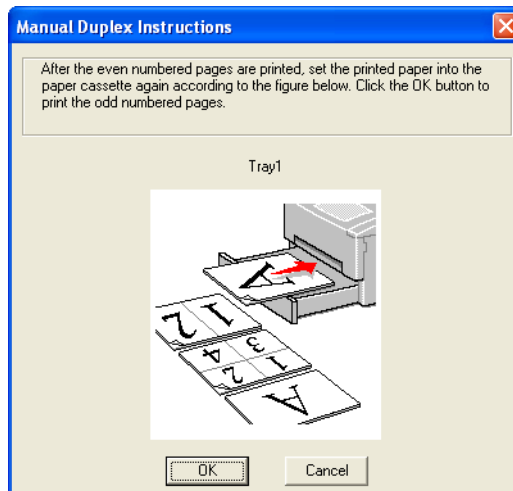


Figure 1-35

- 5 The printer will now automatically print all the odd-numbered pages on the other side of the paper.

Manual Duplex printing from the manual feed slot

- Before you put the sheets back in the manual feed slot, you will have to straighten them, or you may get paper jams.
- You should not use very thin or very thick paper.
- When you use the manual duplex function, it is possible that there may be paper jams or poor print quality. If there is a paper jam, see *Paper jams and how to clear them on page 6-5*.

1 Choose the **Duplex** printing mode from the **Advanced** tab in the printer driver.

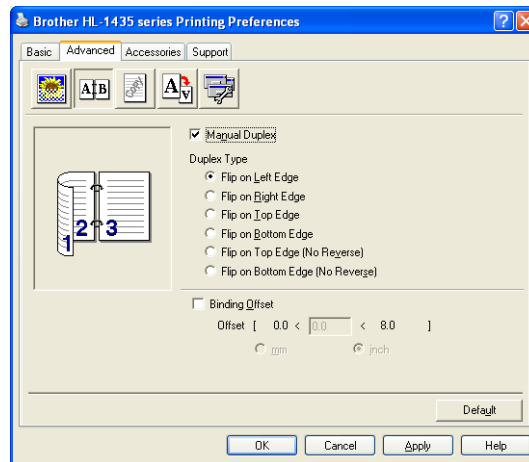


Figure 1-36

- 2 Select the **Paper Size**, **Media Type**, **Paper Source**, and other settings in the printer driver.
- 3 Using both hands put the paper in the manual feed slot with the side to be printed on first facing up. Follow the instructions on the computer screen. Repeat this step until you have printed all the even-numbered pages.

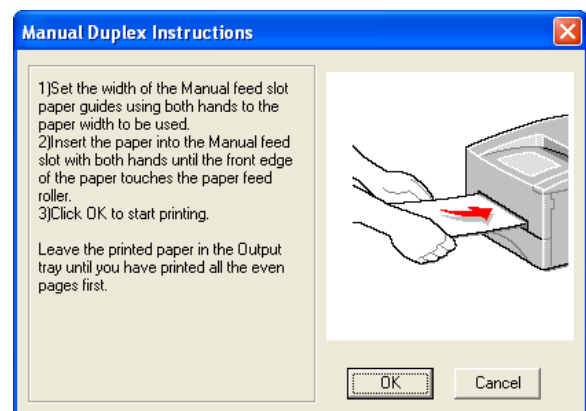
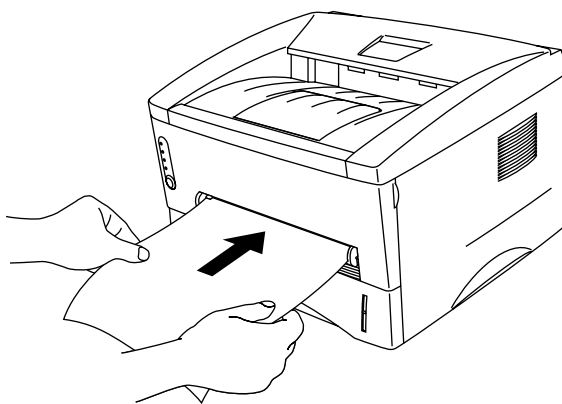


Figure 1-37

- 4 Remove the printed even-numbered pages from the output tray and put them in the same order back into the manual feed slot. Place the paper with the side that is going to be printed on (the blank side) face up. Follow the instructions on the computer screen.

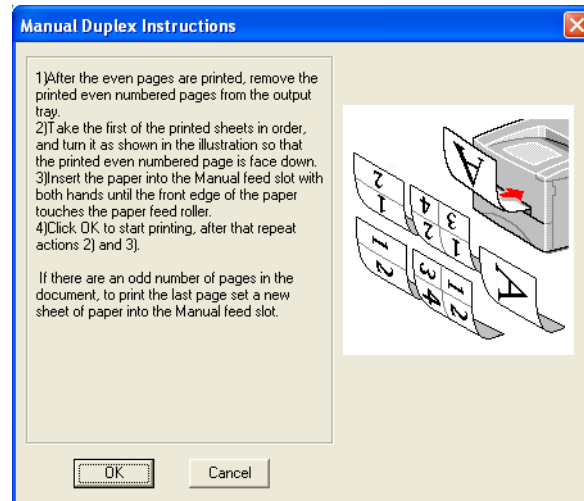


Figure 1-38

- 5 Repeat Step 3 until you have printed all the odd-numbered pages on the other side of the paper.

Guidelines for printing on both sides of the paper

- If the paper is thin, it may wrinkle.
- If paper is curled, straighten it and then put it back in the paper tray.
- You should use regular paper. Do not use bond paper.
- When you put paper in the paper tray, first empty the tray then put the printed page in it, with the printed side face up. (Do not add the printed pages to the top of the stack of unprinted paper.)
- If the paper is not feeding properly, it may be curled. Remove the paper and straighten it.

Paper orientation for printing on both sides of the paper

The printer prints the second page first.

If you print 10 pages on 5 sheets of paper, it will print page 2 then page 1 on the first sheet of paper.

It will print page 4 then page 3 on the second sheet of paper.

It will print page 6 then page 5 on the third sheet of paper, and so on.

When doing manual duplex printing, the paper must be put in the paper tray in the following way:

- For the upper paper tray (tray1):

Put the side to be printed on first, face down, with the leading edge (top) of the paper at the front of the tray.

To print the second side, put the paper face up, with the leading edge (top) of the paper at the front of the tray.

If letter head paper is used, this would be put in the paper tray with the heading face up, and at the front of the tray.

To print the second page, put the heading face down and at the front of the tray.

- For the manual feed slot

Put the side to be printed on first, in face-up, with the leading edge (top) of the paper in first.

To print the second side, put the paper face down, with the leading edge (top) of the paper in first.

If letterhead paper is used, this would be put in with the heading face down, and in first.

To print the second side, put the heading face up and in first.

2 Driver and software

Printer driver

A printer driver is software that translates data from the format used by a computer to the format that a particular printer needs. Typically, this format is a printer command language or page description language.

The printer drivers for the following operating systems are on the CD-ROM that we have supplied. You can also download the latest printer driver from the Brother Solutions Center at <http://solutions.brother.com>

You can see the operations and detailed information in the **Install Software** section of the supplied CD-ROM.

For Windows® 95/98/Me, Windows NT® 4.0 and Windows® 2000/XP

- Brother GDI Printer driver for Windows®


For Mac® OS 8.6 to 9.2 and Mac® OS X 10.1 to 10.2

- Brother Laser driver for Macintosh®


For Windows®

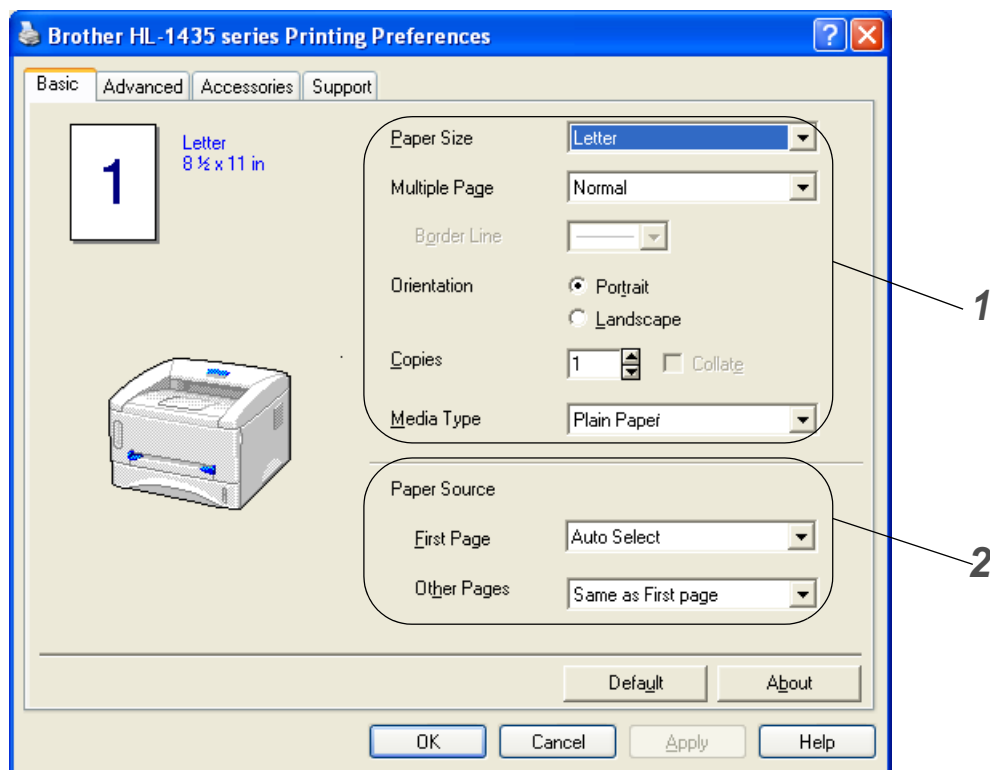
Features in the Brother printer driver

You can also change settings by clicking the illustration on the left side of the **Basic** tab in the **Properties** dialog box.

 The screens in this section are from Windows® XP. The screens on your PC will vary depending on your Operating System.


Basic tab

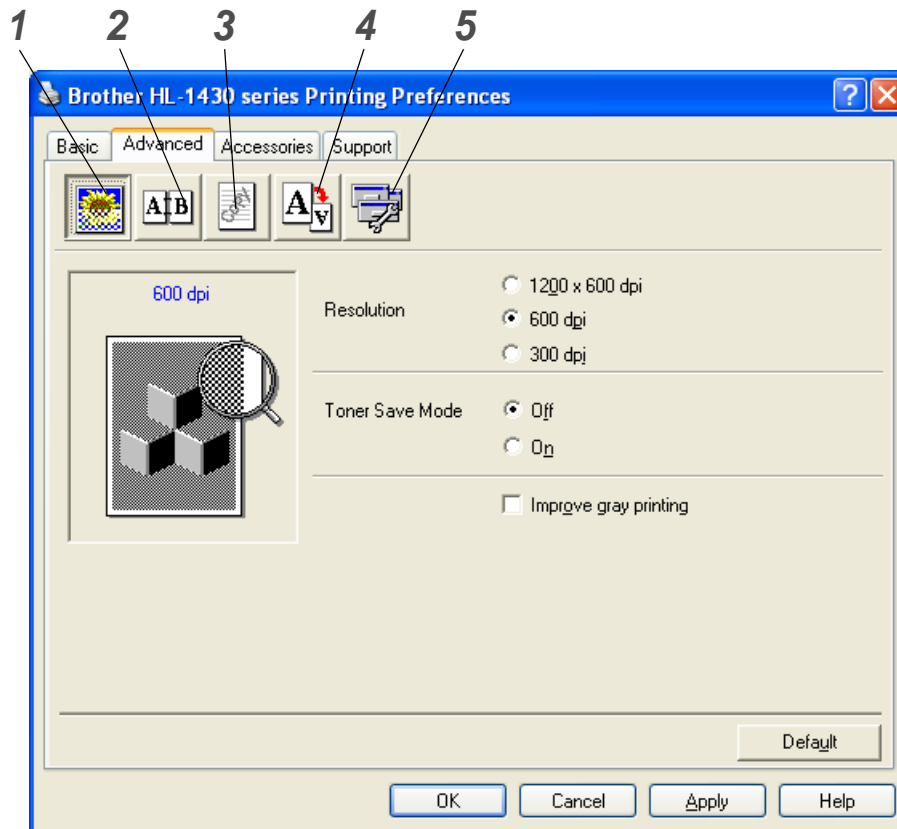
 If you are using Windows NT® 4.0, Windows® 2000 or XP, you can access the **Basic** tab by clicking **Printing Preferences...** in the **General** tab of the **Brother HL-1435 series Properties** screen.



- 1 Select the **Paper Size, Multiple Page, Orientation** and so on.
- 2 Select the **Paper Source** and so on.

Advanced tab

 If you are using Windows NT® 4.0, Windows® 2000 or XP, you can access the **Advanced** tab by clicking **Printing Preferences...** in the **General** tab of the **Brother HL-1435 series Properties** screen.



Change the tab settings by clicking the following icons:

- 1 Print Quality
- 2 Duplex
- 3 Watermark
- 4 Page Setting
- 5 Device Options

1 Print Quality

Select the resolution, toner save and print settings or gray printing setting.

Resolution

You can change the resolution as follows:

- 1200 dpi x 600 dpi
- 600 dpi
- 300 dpi

Toner Save Mode

You can save running costs by turning on the toner save mode, which reduces the print density.

Print Setting (For Windows® 95/98/Me users only)

You can manually change the brightness, contrast and other settings.

2 Duplex

If you select the **Duplex** button, the dialog box for the manual duplex settings appears. Six types of manual duplex binding directions are available for each orientation.

3 Watermark

You can place a watermarked logo or text into your documents.

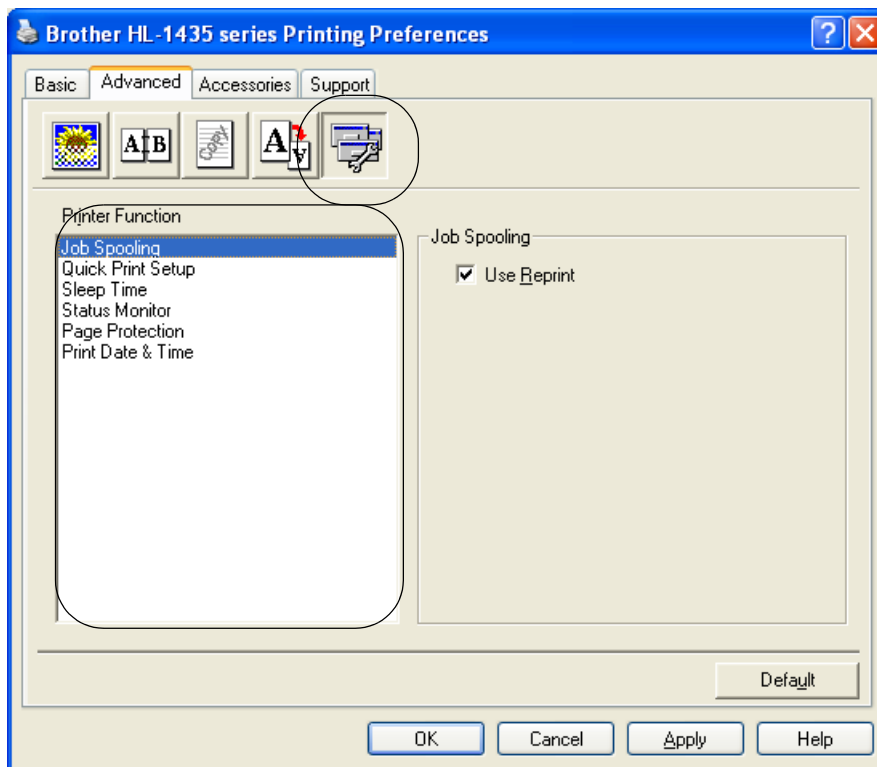
When you use a bitmap file as a watermark, you can change the size of the watermark and place it anywhere you like on the page.

When you use text as a watermark, you can change the font, darkness and angle settings.

4 Page Setting

You can change the print image scaling and select **Mirror / Reverse print** options.

5 Device Options



You can set the following **Printer Function** modes in this tab:

(You can jump to the page for each **Printer Function** by clicking the function name in the list below.)

- Job Spooling
- Quick Print Setup
- Sleep Time
- Status Monitor
- Page Protection
- Print Date & Time

Job Spooling

The printer saves data that you want reprinted.

You can reprint a document without sending the data again from your PC. To reprint press and hold down the **Control Panel** button until all four LED's are lit and then release the **Control Panel** button.



If you want to prevent other people from printing your data using the Reprint function, clear the **Use Reprint** check box in the job spooling settings.

Quick Print Setup

You can turn the Quick Print Setup function ON or OFF. A small selection window appears on your computer. This will then let you make changes to the settings of the following functions:

- Multiple Page
- Manual Duplex
- Toner Save Mode
- Paper Source
- Media Type

Sleep Time

When the printer does not receive data for a certain period of time (timeout), it enters sleep mode. Sleep mode acts as though the printer was turned off. The default timeout is 5 minutes. When **Intelligent Sleep Mode** is selected, it is automatically adjusted to the most suitable time-out setting depending on the frequency of your printer use. While the printer is in sleep mode, all the LEDs are off, but the printer can still receive data from the computer. Receiving a print file or document automatically wakes up the printer to start printing. Pressing one of the buttons will also wake up the printer.

Status Monitor

This reports the printer status (any errors that may happen with the printer) when printing. The default setting for the Status Monitor is off. If you would like to turn the status monitor on, go the **Advanced** tab, select **Device options** and then select **Status monitor**.

Page Protection

'Page Protection' refers to a setting that reserves additional memory for the creation of full page images. Selections are AUTO, OFF, LTR (Letter-size paper), A4 or LGL (legal-size-paper).

The page protection feature allows the printer to create the full page image to be printed in memory before physically moving the paper through the printer. When the image is very complicated and the printer has to wait to process the image before printing, use this function.

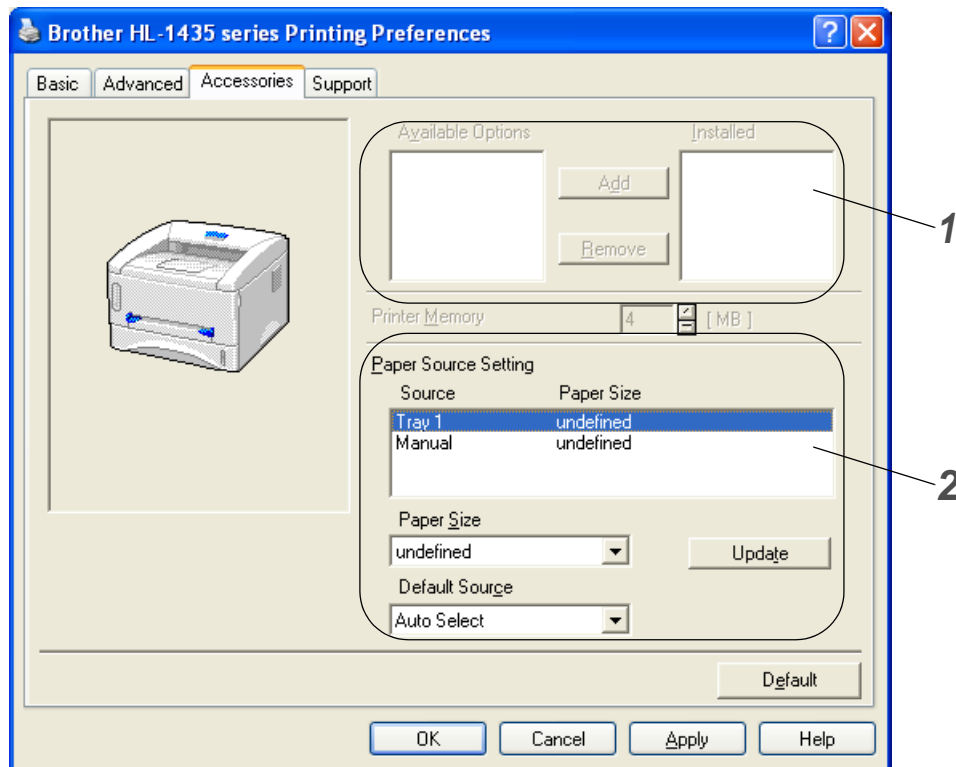
Print Date & Time

Date: Specifies the format of the date.

Time: Specifies the format of the time.

Accessories tab

When you install some options, you can add it and select its settings in the **Accessories** tab as follows.



- 1** You can manually add and remove the options for any optional unit device that is installed on the printer. Tray settings will match the installed options.
- 2** Paper Source Setting
This feature recognizes the paper size in each paper tray.

Support tab

- You can download the latest driver by accessing the Brother Solutions Center at <http://solutions.brother.com>
- You can see the printer driver version.
- You can check the current driver settings.



For Macintosh®

This printer supports Mac® OS 8.6 to 9.2 and Mac® OS X 10.1 to 10.2.

You can download the latest driver by accessing the Brother Solutions Center at <http://solutions.brother.com>

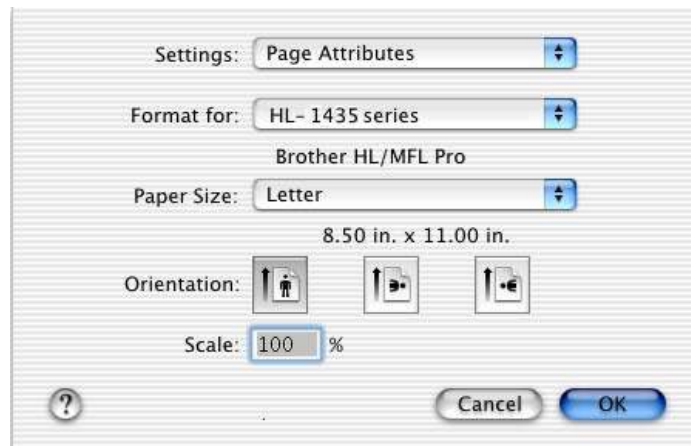


The screens in this section are from Mac® OS X 10.1

The screens on your Macintosh® will vary depending on your Operating System.

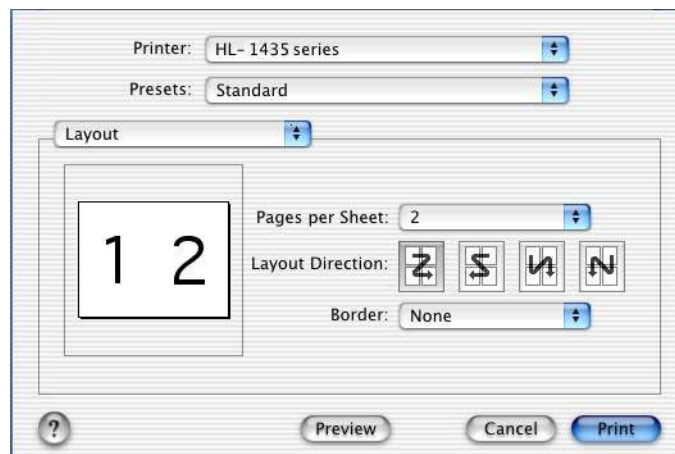
Page setup

You can set the **Paper size**, **Orientation** and **Scale**.



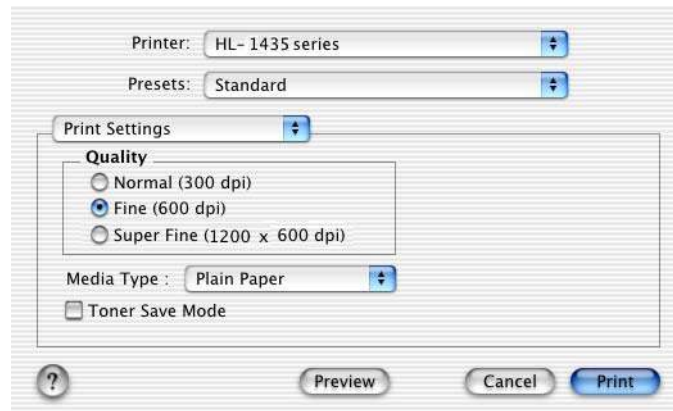
Layout

Set the **Layout**, **Pages per Sheet** and other settings.



Specific settings

Set the **Media Type**, **Resolution**, **Toner Save**, and other settings.



3 Control panel

This section refers to the Light Emitting Diodes (LEDs) and **Control panel** button on the control panel.

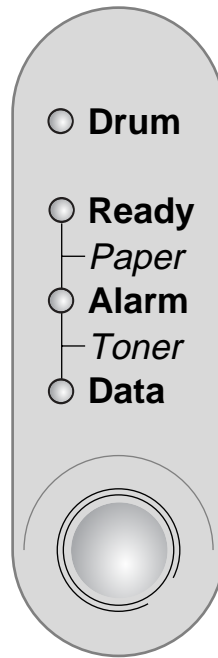




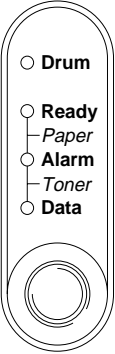
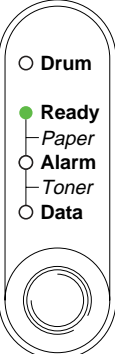
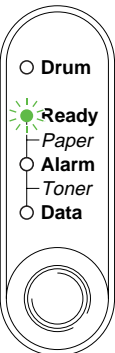
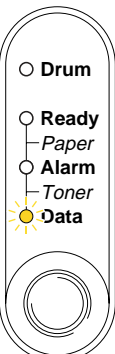


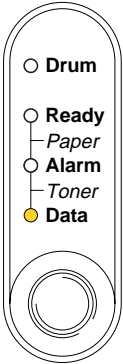
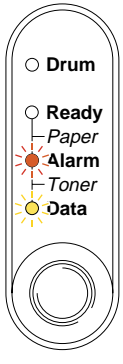
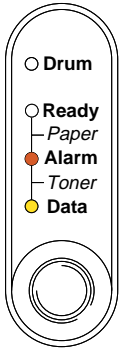
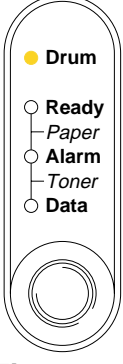
Figure 3-1

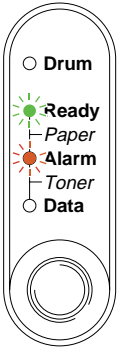
The LED indications shown in the table below are used in the illustrations in this chapter.

	LED is off
	LED is on
	LED is blinking

 When the power switch is off or the printer is in Sleep mode, all the LEDs are off.

LED	Printer status
 <p>Figure 3-2</p>	<p>Sleep mode The power switch is off or the printer is in Sleep mode. Pressing the Control panel button wakes up the printer from Sleep mode to Ready mode.</p>
 <p>Figure 3-3</p>	<p>Ready to print The printer is ready to print. Pressing Control panel button wakes up the printer to Ready mode.</p>
 <p>Figure 3-4</p>	<p>Warming up (Blinking at 1 second intervals) The printer is warming up.</p> <p>Cooling down or stop printing (Blinking at 2 second intervals) The printer is cooling down and stops printing until the internal temperature of the printer lowers.</p>
 <p>Figure 3-5</p>	<p>Receiving data The printer is either receiving data from the computer, processing data in memory or printing the data.</p>

LED	Printer status
 <p>Figure 3-6</p>	<p>Data remaining in memory Print data remains in the printer memory. If the Data LED is on for a long time and nothing has printed, press the Control panel button to print the remaining data.</p>
 <p>Figure 3-7</p>	<p>Toner low Indicates that the toner cartridge is nearly empty. Purchase a new toner cartridge and have it ready for when Toner Empty is indicated.</p>
 <p>Figure 3-8</p>	<p>Toner empty Replace the toner cartridge with a new one. See <i>Replacing the toner cartridge on page 5-3</i>.</p>
 <p>Figure 3-9</p>	<p>Drum unit near end of life The drum unit is near the end of its life. We recommend that you buy a new drum unit to replace the current one. See <i>Replacing the drum unit on page 5-9</i>.</p>

LED	Printer status
 <p data-bbox="256 583 418 619">Figure 3-10</p>	<p>Paper jam Clear the paper jam. See <i>Paper jams and how to clear them</i> on page 6-5. If the printer does not start printing, press the Control panel button.</p>
	<p>No paper Put paper in the printer. See <i>Printing on plain paper</i> on page 1-8. Then press the Control panel button.</p>
	<p>Misfeed Put the paper back in properly, and then press the Control panel button. The printer will start printing again.</p>

Service call indications

If there is an error that cannot be corrected, the printer will show that a service call is needed by lighting up all the LEDs and then alternating the following combination as shown in *Table 1: LED indications when the service error occurs* on page 3-6.

If you see the service call indication above, turn off the power switch, wait a few seconds, and then turn it back on and try to print again.

If you cannot clear the error and see the same service call indication after turning the printer back on, call your dealer or a Brother authorized service center.

For example, the LED indication below shows a Fuser Malfunction.

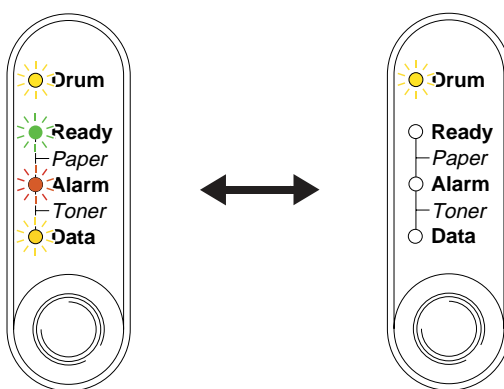














































Figure 3-11

Table 1: LED indications when the service error occurs

LEDs	Fuser Malfunction	Laser BD Malfunction	Scanner Malfunction	ROM Error	D-RAM Error	Service A
Drum						
Ready						
Alarm						
Data						

LEDs	Service B	Engine Interface Error	NV-RAM Error	Main Motor Malfunction	CPU Runtime Error
Drum					
Ready					
Alarm					
Data					

Make a note of the indication and report the error status to your dealer or a Brother authorized service center by referring to the above table.



Make sure that the front cover is fully closed before you report a service call.

Control panel buttons

The control panel buttons have the following functions:

Cancel printing

If you press the **Control panel** button while printing, the printer will immediately stop printing and will then eject the paper.

Wake-up

If the printer is in Sleep mode, press the **Control panel** button to wake the printer up and go to the Ready state. It will take up to 25 seconds for the printer to reach the Ready state.

Form feed

If the orange **Data** LED is on, press the **Control panel** button. The printer will print any data that is left in the printer memory.

Error recovery

If there is an error, the printer will recover automatically from some errors. If an error is not automatically cleared, press the **Control panel** button to clear the error, and then continue to use the printer.

Reprint

If you want to reprint a document that has just been printed, you can do this by pressing and holding down the **Control panel** button until all four LEDs are lit and then release the **Control panel** button.

Print a test page

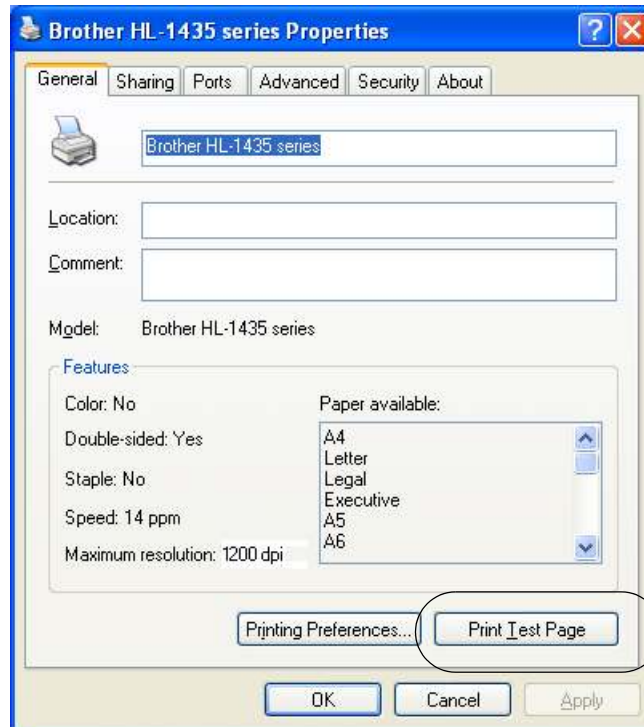
You can use the **Control panel** button or the printer driver to print a test page.

Using Control panel button

- 1 Turn off the printer.
- 2 Make sure that the front cover is closed and the power cord is plugged in.
- 3 Hold down the **Control panel** button as you turn on the power switch. All the LEDs light up and then go off again. Keep the **Control panel** button pressed down until the **Drum** LED comes on. When the **Drum** LED comes on, release the **Control panel** button.
- 4 Press the **Control panel** button again. The printer will print a test page.

Using the printer driver

If you are using Brother's Windows® printer driver, click the **Print Test Page** button. It is usually in the **General** tab of the Windows® printer driver.



4 Options

Print server (NC-2100p) (For Windows® only)

An optional network print server (NC-2100p) allows you to connect to your network through the parallel interface.

To install the print server, please see the instructions supplied with the NC-2100p. For more information, see Network User's Guide on the supplied CD-ROM with the NC-2100p.

- TCP/IP, NetBIOS and AppleTalk protocols
- Superior network and printer management:
 - BRAdmin Professional Windows®-based Management utility.
 - SNMP MIB I and MIB II over IP or IPX
 - Remote console management via DEC NCP, TELNET or NetWare.
 - Embedded web server support.
- Flash memory for easy updating of firmware.

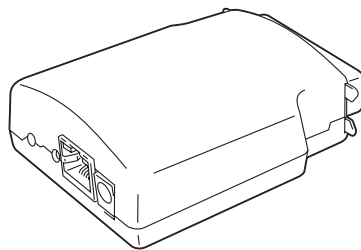


Figure 4-1

Ir-DA Interface (IR-1000) (For Windows® only)

IR-1000 connects to any printer and prints data without using connecting cables.

- Supports IrDA1.1 infrared communication standard.
- Fully compatible with Windows® 95/98/Me, Windows NT® 4.0 and Windows® 2000 infrared printer device.
- Transmits and receives data at up to 4 Mbits/sec.
- Connects to the PC parallel port and connects to the Centronics parallel port on the printer.
- Allows a printer to communicate with an infrared-equipped portable computer.
- Transmission range: 1 cm (3.9 inch) up to 100 cm (39 inch), meets the IrDA standard.
- 30 degree cone angle.
- Selects between infrared or parallel port.

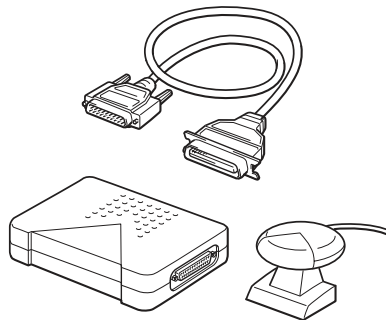
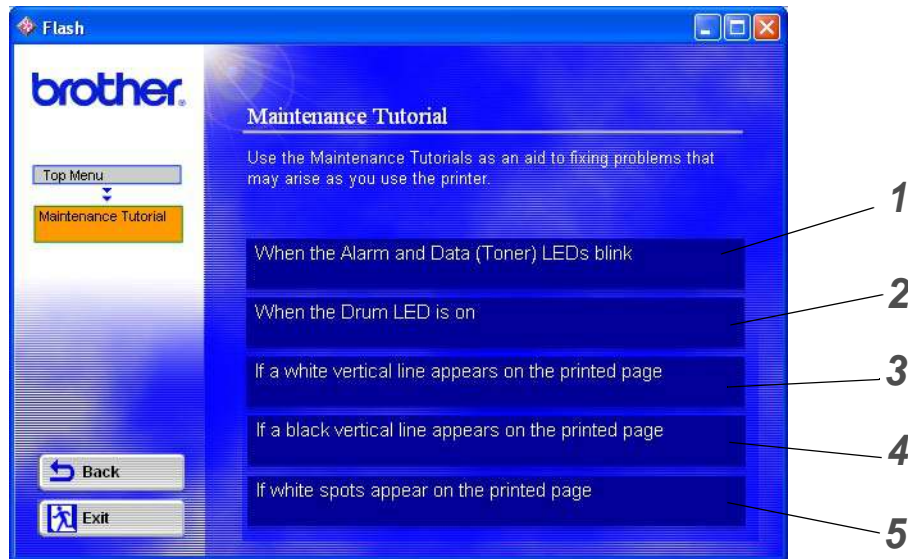


Figure 4-2

5 Routine maintenance

You will need to replace certain parts and clean the printer on a regular basis.

You can see the maintenance video in the **Maintenance Tutorial** section of the CD-ROM we have provided with the printer.



- 1 You can see how to replace the toner cartridge.
- 2 You can see how to replace the drum unit.
- 3 You can see how to clean the scanner window.
- 4 You can see how to clean the corona wire in the drum unit.
- 5 You can see how to clean the surface of the OPC in the drum unit.

These instructions are also included in *Improving the print quality on page 6-10*.

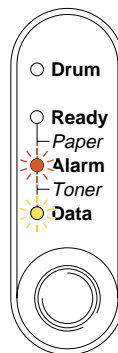
Toner cartridge

A new toner cartridge contains enough toner to print *up to 3,000* (TN-standard cartridge) or *up to 6,000* (TN-high yield cartridge) A4 or Letter-size single-sided pages at about 5% coverage.



- The amount of toner used varies according to what is printed on the page and the print density setting.
- The more that is printed, the more toner will be used.
- If you change the print density setting for lighter or darker printing, the amount of toner that is used will change.
- Wait to unpack the toner cartridge until immediately before you install it in the printer.

Toner Low message



Blinking every 5 seconds.

Figure 5-1

If the LED shows this message, the toner cartridge has nearly run out of toner. Buy a new toner cartridge and have it ready before you get a Toner Empty message. To put in the toner cartridge, see *Replacing the toner cartridge* on page 5-3



- Both Alarm and Data (Toner) LEDs will blink continuously to indicate that the toner cartridge is nearly empty. This blinking will not stop until you have installed a new toner cartridge.

Toner Empty message

If the LED shows the message below, the printer has run out of toner or the toner is not evenly distributed inside the cartridge.

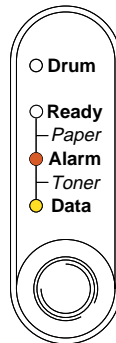




Figure 5-2

Replacing the toner cartridge

 To make sure you get high quality print, use quality toner cartridges. When you want to buy toner cartridges, call the dealer you bought the printer from.

 We recommend that you clean the printer when you replace the toner cartridge. see *Cleaning* on page 5-12.

Follow these steps to replace the toner cartridge. You can also view the toner cartridge replacement method in the instructional video on the supplied CD-ROM:

- 1 Open the front cover of the printer.
- 2 Pull out the drum unit assembly.

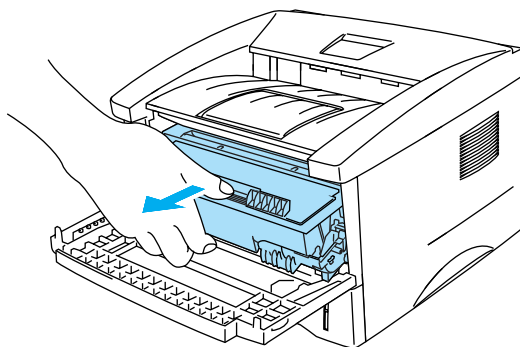


Figure 5-3

! Caution

- We recommend that you place the drum unit assembly on a piece of disposable paper or cloth in case you accidentally spill or scatter toner.
- To prevent damage to the printer from static electricity, do not touch the electrodes shown in Figure 5-4.

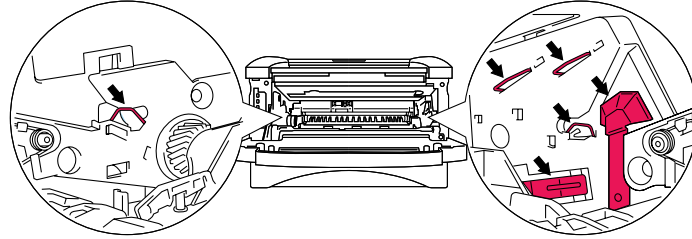


Figure 5-4

- 3** Hold down the blue lock lever and take the toner cartridge out of the drum unit assembly.

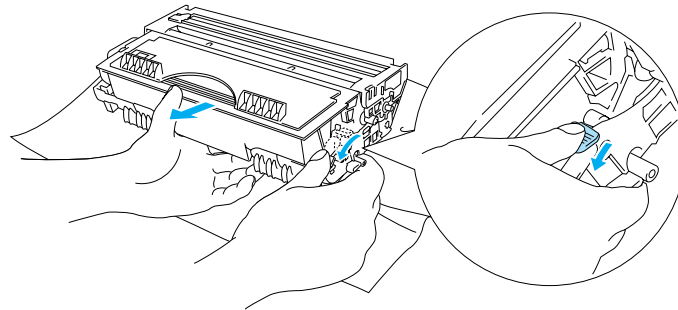


Figure 5-5

! Caution

Handle the toner cartridge carefully. If toner scatters on your hands or clothes, immediately wipe or wash it off with cold water.



- Be sure to seal up the toner cartridge tightly so that toner powder does not spill out of the cartridge.
- Discard the used toner cartridge according to local regulations, keeping it separate from domestic waste. If you have questions, call your local waste disposal office.

- 4** Unpack the new toner cartridge. Hold the cartridge level with both hands and gently rock it from side to side five or six times to spread the toner evenly inside the cartridge.

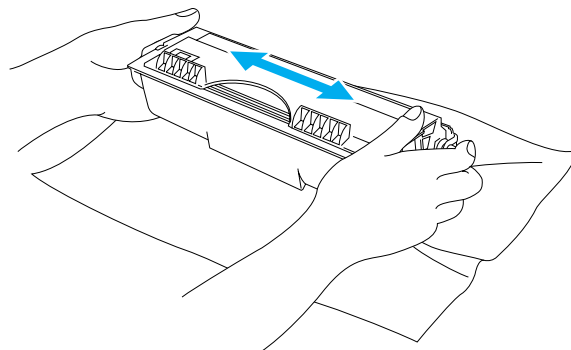


Figure 5-6

! Caution

- Wait to unpack the toner cartridge until immediately before you put it in the printer. If toner cartridges are left unpacked for a long time the toner life will be shortened.
- If an unpacked drum unit is put in direct sunlight or room light, the unit may be damaged.
- Brother strongly recommends that you do not refill the toner cartridge provided with your printer. We also strongly recommend that you continue to use only Genuine Brother Brand replacement toner cartridges. Using or attempting to use potentially incompatible toner and /or toner cartridges in your printer may cause damage to the printer itself and/or it may result in unsatisfactory print quality. Our warranty coverage does not apply to any problem that wa caused by the use of unauthorized third party toner and toner cartridges. To protect your investment and guarantee your print quality, please continue to replace consumed toner cartridges with only Genuine Brother Branded Supplies.
- Printing with a third-party toner or third-party toner cartridge may reduce not only the print quality but also the quality and life of the printer itself. It may also cause serious damage to the performance and life of a drum unit. Warranty coverage does not apply to problems caused by the use of third-party toner or third-party toner cartridges.

5 Pull off the protective cover.

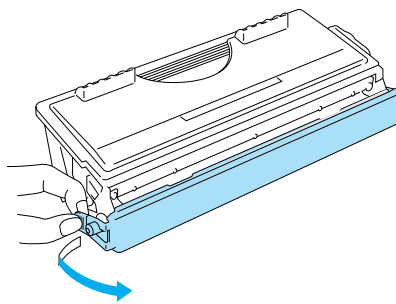


Figure 5-7

! Caution

Put the toner cartridge in the drum unit immediately after you have removed the protective cover. Do not touch the shaded parts shown in Figure 5-8 and Figure 5-9 to prevent any degradation to the print quality.

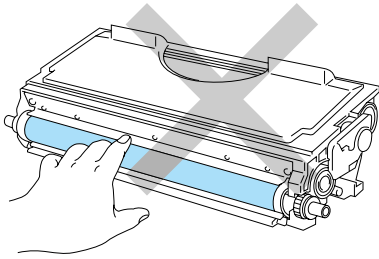


Figure 5-8

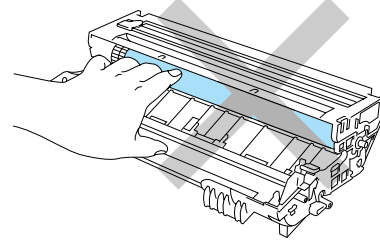


Figure 5-9

- 6** Put the new toner cartridge firmly into the drum unit until you hear it lock into place. If you put it in properly, the lock lever will lift automatically.

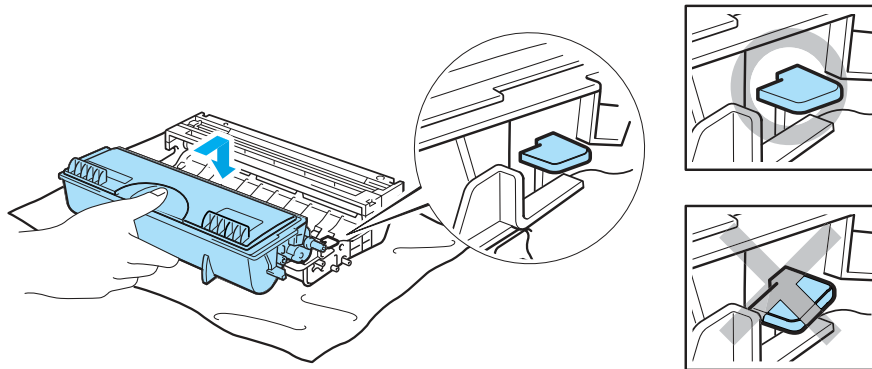


Figure 5-10

! Caution

Make sure you fit the toner cartridge properly or it may separate from the drum unit.

- 7 Clean the primary corona wire inside the drum unit by gently sliding the blue tab from right to left and left to right several times. Return the tab to the home position (▲) before you put the drum unit assembly back in the printer. If you do not, printed pages may have a vertical stripe.

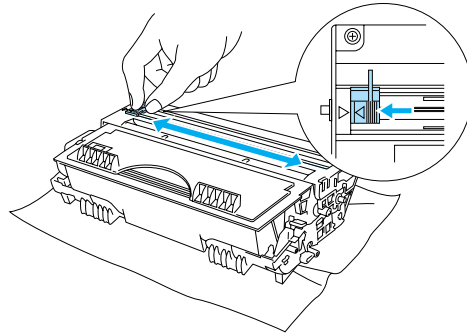


Figure 5-11

- 8 Put the drum unit assembly back in the printer. Close the front cover of the printer.

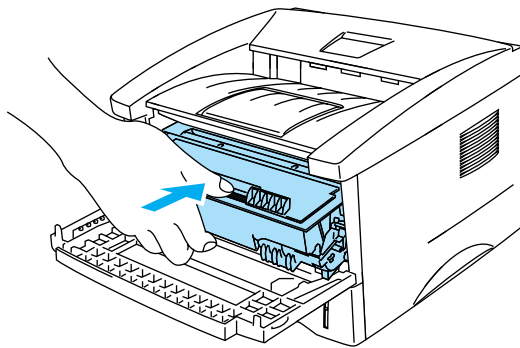


Figure 5-12

Drum unit

This printer can print up to 20,000 pages* with one drum unit.

* At 5% print coverage (A4 or Letter size). The actual number of printed pages will vary depending on the average type of print job and paper.



- There are many factors that determine the actual drum life, such as the temperature, humidity, type of paper, type of toner used, number of pages per print job and so on. Under ideal conditions, the average drum life is estimated at up to 20,000 pages. The actual number of pages that your drum will print may be significantly less than this estimate. Because we have no control over the many factors that determine the actual drum life, we cannot guarantee a minimum number of pages that will be printed by your drum.
- Printing with a third-party drum unit may reduce not only the print quality but also the quality and life of the printer itself. Warranty coverage does not apply to problems caused by the use of third-party drum unit.
- For best performance, use only genuine Brother drum and toner. The printer should be used only in a clean, dust-free environment with adequate ventilation.

Change Drum message

If the LED shows the message below, it means the drum unit is near the end of its life. We recommend that you replace the drum unit with a new one before there is a noticeable deterioration in the print quality.

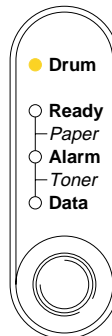



Figure 5-13

! Caution

- While removing the drum unit, handle it carefully because it may contain toner.
- Every time you replace the drum unit, you should clean the inside of the printer. see *Cleaning* on page 5-12

Replacing the drum unit

 We recommend that you clean the printer when you replace the drum unit. See *Cleaning* in this chapter.

Follow these steps to replace the drum unit. You can also view the drum unit replacement method in the instructional video on the supplied CD-ROM:

- 1 Open the front cover of the printer.
- 2 Pull out the drum unit assembly.

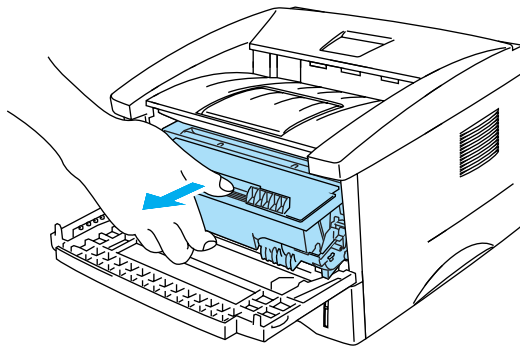


Figure 5-14

Caution

- We recommend that you place the drum unit assembly on a piece of disposable paper or cloth in case you accidentally spill or scatter toner.
- To prevent damage to the printer from static electricity, do not touch the electrodes shown in Figure 5-15.

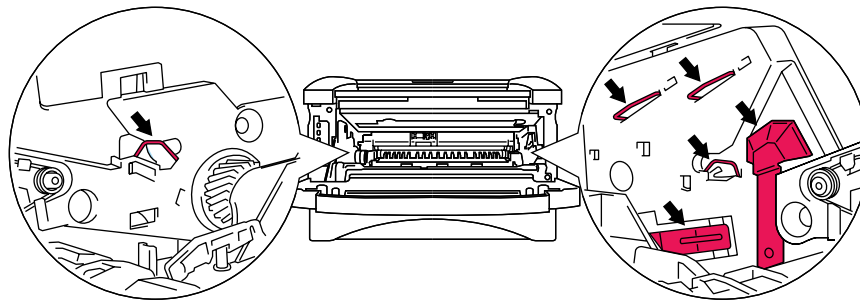


Figure 5-15

- 3 Hold down the blue lock lever and take the toner cartridge out of the drum unit assembly.

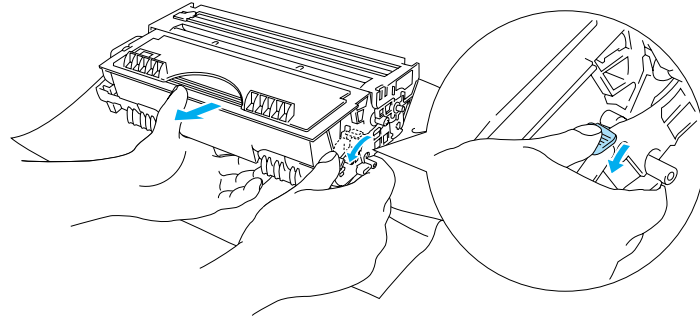


Figure 5-16

! Caution

Handle the toner cartridge carefully. If toner scatters on your hands or clothes, immediately wipe or wash it off with cold water.



- Discard the used drum unit according to local regulations, keeping it separate from domestic waste. If you have questions, call your local waste disposal office.
- Be sure to seal up the drum unit tightly in a bag so that toner powder does not spill out of the unit.

- 4 Unpack the new drum unit.

! Caution

Wait to unpack a drum unit until immediately before you put it in the printer. Exposure to direct sunlight or room light may damage the drum unit.

- 5 Put the toner cartridge in the new drum unit until you hear it lock into place with a click. If you put the cartridge in properly, the blue lock lever is lifted automatically.

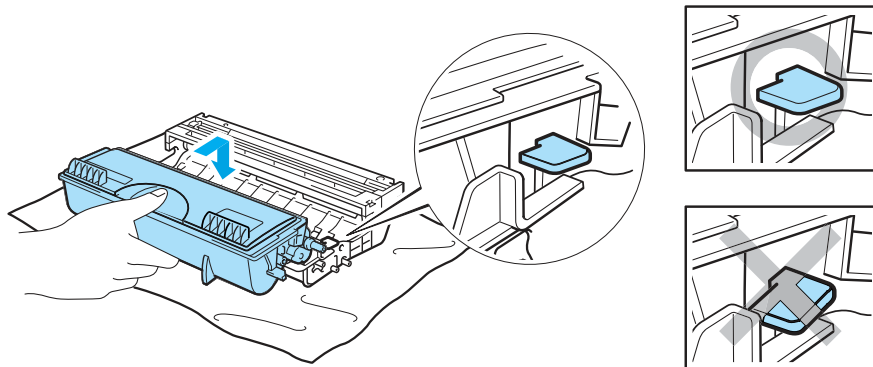


Figure 5-17

! Caution

Make sure you fit the toner cartridge properly, or it may separate from the drum unit when you pick up the drum unit assembly.

- 6 Put the drum unit assembly in the printer.
Make sure that the printer is turned on, the front cover is open and the **Drum** and **Alarm** LED are lit.

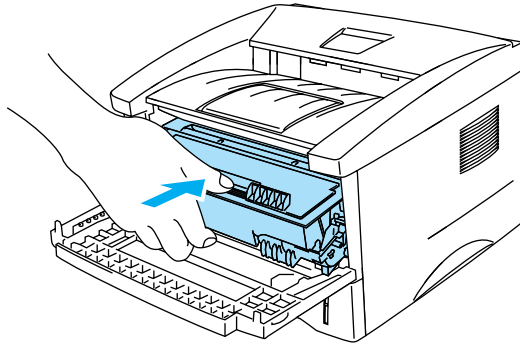


Figure 5-18

- 7 Reset the drum counter. See the instructions supplied with the new drum unit.

Caution

- The **Drum** LED indication does not disappear until you reset the drum counter.
- Do not reset the drum counter when you replace only the toner cartridge.

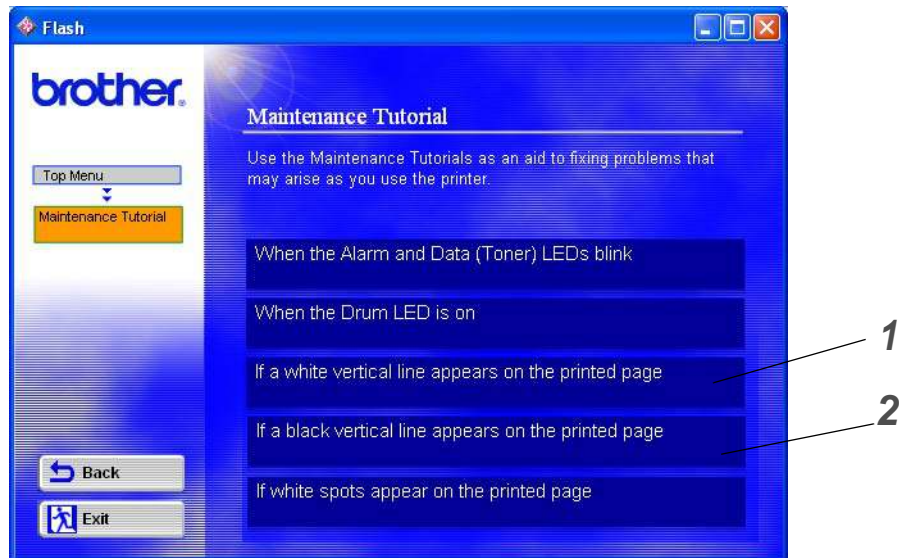
- 8 Close the front cover.

- 9 Make sure that the **Drum** LED is now off.

Cleaning

Clean the outside and inside of the printer regularly with a dry soft cloth. When you replace the toner cartridge or the drum unit, make sure you clean the inside of the printer. If printed pages are stained with toner, clean the inside of the printer with a dry soft cloth.

See the **Maintenance Tutorial** section in the supplied CD-ROM. You can see instructional videos on your computer screen, showing you how to perform these tasks.



- 1 You can see how to clean the scanner window.
- 2 You can see how to clean the corona wire in the drum unit.

Replacing maintenance parts

You need to replace the maintenance parts regularly to maintain print quality. You should replace the units listed below after printing the following number of pages.

Item	Approximate Life	To Purchase Replacement
Fixing unit	50,000 pages *	Call Customer Service
Separator pad holder assembly	50,000 pages *	Call Customer Service
Pick up roller assembly	50,000 pages *	Call Customer Service

* The actual number of printed pages may vary depending on your average type of print job and paper. These figures are based on 5% coverage per page.

6 Troubleshooting

Identifying your problem

First, check the following:

- The power plug is connected properly and the printer is turned on.
- All of the protective parts have been removed.
- The toner cartridge and drum unit are installed properly.
- The front cover is fully closed.
- Paper is inserted properly in the paper tray.
- The interface cable is securely connected to the printer and the computer.
- The correct driver for the printer is installed and selected.
- The PC is set up to connect to the correct printer port.

Printer does not print:

If you did not solve your problem with the above checks, please find your problem and then go to the section listed:

Printer LED is blinking

See *Control panel buttons* on page 3-7.

Status Monitor Error Message appears

See *Error messages in the status monitor* on page 6-2.

Printer printed an Error Message

See *Error message printouts* on page 6-3.

Paper handling

See *Paper handling* on page 6-4 or See *Paper jams and how to clear them* on page 6-5.

Other problems

See *Other problems* on page 6-10.

Pages are printed, however there are problems with:

Print quality

See *Improving the print quality* on page 6-10.

Printout is incorrect

See *Solving print problems* on page 6-15.

Error messages in the status monitor

The Status Monitor will report problems with the printer. Take the corrective actions listed in the following table for the error message that the Status Monitor reports.

The default setting for the Status Monitor is off. If you would like to turn the Printer Status on, you can change the setting of the Status Monitor in the **Device Options** of the **Advanced** tab. See *Device Options* on page 2-5.

Error message	Action
Cover Open	<ul style="list-style-type: none"> ■ Close the front cover of the printer.
Memory Full	<ul style="list-style-type: none"> ■ Press the Control panel button to print the data remaining in the printer. ■ Reduce the print resolution or reduce the complexity of your document.
No Paper	<ul style="list-style-type: none"> ■ The paper tray may be out of paper or not properly installed. If it is empty, put a new stack of paper in the paper tray.
Misfeed	<ul style="list-style-type: none"> ■ If there is paper in the paper tray, make sure it is straight. If the paper is curled, straighten it before printing. Sometimes it is helpful to remove the paper, turn the stack over and put it back in the paper tray. ■ Reduce the amount of paper in the paper tray, and then try again. ■ Make sure you use paper that meets Brother's recommended paper specifications. See <i>What kind of paper can I use?</i> on page 1-5.
Paper Jam	<ul style="list-style-type: none"> ■ Take out the jammed paper from the indicated area. See <i>Paper jams and how to clear them</i> on page 6-5.
Print Overrun	<ul style="list-style-type: none"> ■ Press the Control panel button to print the data left in the printer. ■ If this does not clear the error, reduce the complexity of your document or reduce the print resolution.
Resolution Adapted (The printer has printed the document at a reduced resolution)	<ul style="list-style-type: none"> ■ Reduce the complexity of your document before you print to prevent automatic reduction of the resolution.
Toner Empty	<ul style="list-style-type: none"> ■ See <i>Replacing the toner cartridge</i> on page 5-3.
Toner Low	<ul style="list-style-type: none"> ■ Purchase a new toner cartridge and have it ready for when the Toner Empty status is indicated.

Error message printouts

The printer will report problems by printing an error message as defined in the following table. Take the corrective actions for the error message.

Error message	Action
Memory Full	<ul style="list-style-type: none">■ Press the Control panel button to print the data left in the printer.■ Reduce the print resolution or reduce the complexity of your document.
Print Overrun	<ul style="list-style-type: none">■ Press the Control panel button to print the data left in the printer.■ If this does not clear the error, reduce the complexity of your document or reduce the print resolution.
Resolution Adapted (The printer has printed the document at a reduced resolution)	<ul style="list-style-type: none">■ Reduce the complexity of your document before you print to prevent automatic reduction in the resolution.

Paper handling

First, make sure that you are using paper that meets Brother recommended paper specifications. See *What kind of paper can I use? on page 1-5*.

Problem	Recommendation
The printer does not feed paper from the tray1.	<ul style="list-style-type: none"> ■ The paper tray may be out of paper or not properly installed. If it is empty, put a new stack of paper in the paper tray. ■ If there is paper in the paper tray, make sure it is straight. If the paper is curled, you should straighten it before printing. Sometimes it is helpful to remove the paper, turn the stack over and put it back in the paper tray. ■ Reduce the amount of paper in the paper tray, and then try again. ■ Check that manual feed mode is not selected in the printer driver.
The printer does not feed paper from the manual feed slot.	<ul style="list-style-type: none"> ■ Re-insert the paper firmly, one sheet at a time. ■ Make sure that manual feed mode is selected in the printer driver.
The printer will not feed envelopes.	<ul style="list-style-type: none"> ■ The printer can feed envelopes from the manual feed slot. Your application software must be set up correctly to print on the envelope size you are using. This is usually done in the page setup or document setup menu of your software. Please see your software application manual.
A paper jam has occurred.	<ul style="list-style-type: none"> ■ Clear the jammed paper. Please see <i>Paper jams and how to clear them</i> or the paper jam instructional video on the CD-ROM.
The printer does not print to the top output tray.	<ul style="list-style-type: none"> ■ Close the rear cover.
The printer does not print on the specified paper.	<ul style="list-style-type: none"> ■ Make sure that the cable is connected to the printer. ■ Make sure that the appropriate printer driver is selected.

Paper jams and how to clear them

When a paper jam occurs, the printer indicates it by lighting the control panel LEDs as shown below.

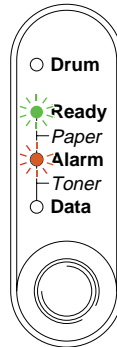


Figure 6-1

⚠ After you have just used the printer, some parts inside the printer are extremely **hot**. When you open the front cover or rear cover of the printer, never touch the shaded parts shown in Figure 6-2.

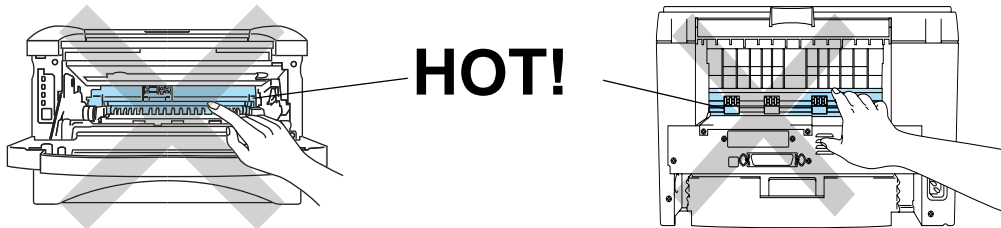


Figure 6-2

Clear the jammed paper as follows.

If the jammed paper is removed completely by using the information in the following steps, you can install the paper tray first, and then close the front cover and the printer will resume printing automatically.

If the printer does not start printing automatically, press the **Control panel** button. If the printer still does not start printing, please check that all the jammed paper has been removed from the printer. Then try printing again.



- Always remove all paper from the paper tray and straighten the stack when you add new paper. This helps prevent multiple sheets of paper from feeding through the printer at one time and reduces paper jams.

- 1 Pull the paper tray completely out of the printer.

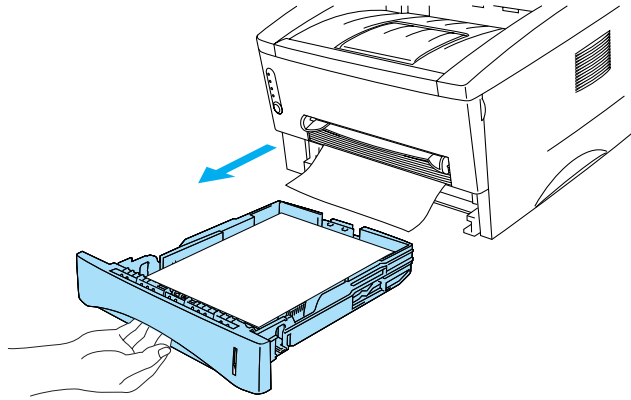


Figure 6-3

- 2 Pull the jammed paper up and out of the printer.

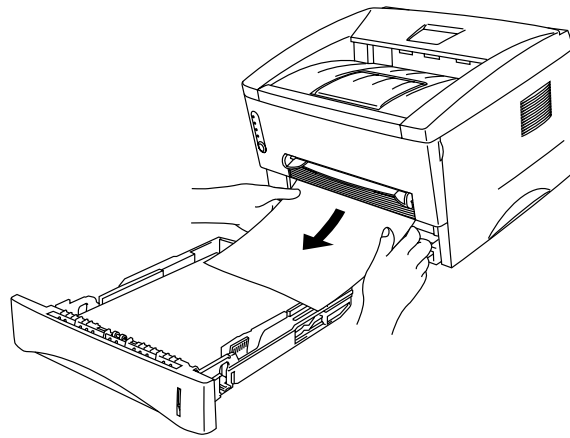


Figure 6-4

- 3 Open the front cover.

- 4 Pull out the drum unit assembly. Pull the jammed paper up and out of the printer. If you cannot remove the drum unit assembly easily at this time, do not use extra force. Instead, pull the edge of the jammed paper from the paper tray.

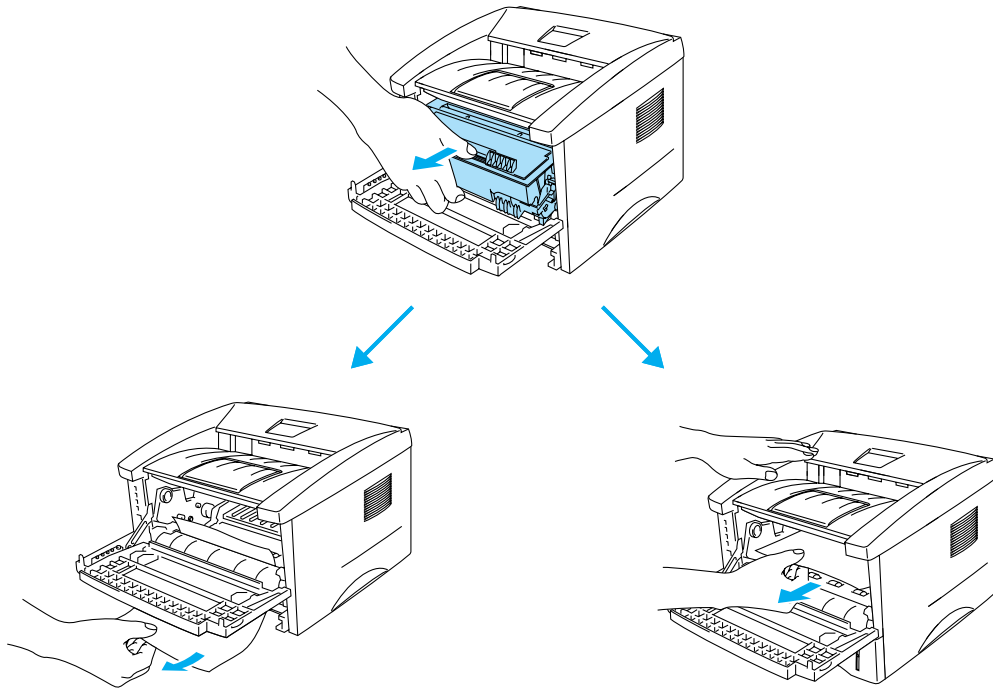


Figure 6-5

! Caution

To prevent damage to the printer caused by static electricity, do not touch the electrodes shown in Figure 6-6.

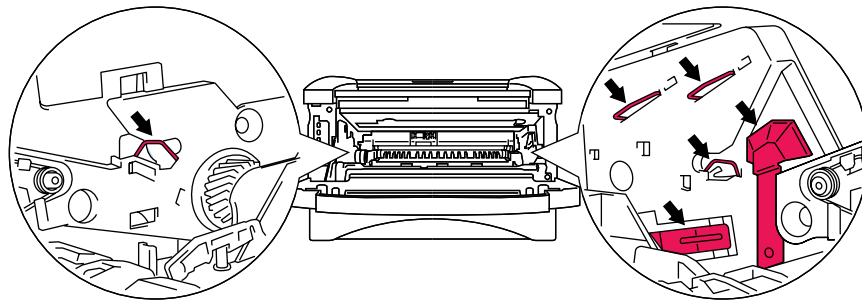


Figure 6-6

- 5 Open the rear cover. Pull the jammed paper out of the fuser unit.

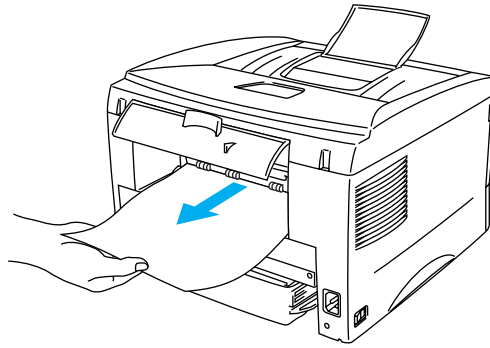



Figure 6-7

 If you have to pull the paper toward the back of the printer, the fuser may get dirty with toner powder and it may scatter on the next printouts. Print a few copies of the test page until the scattering of toner stops.

 **Caution**

After you have just used the printer, some internal parts of the printer are extremely hot! Wait for the printer to cool down before you touch the internal parts of the printer.

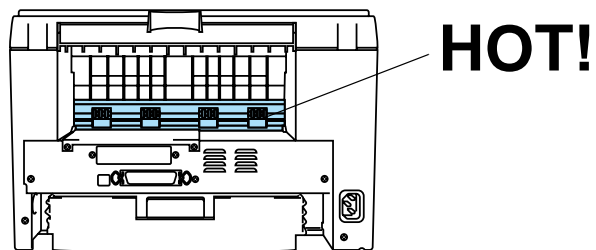


Figure 6-8

- 6 Close the rear cover.

- 7 Push the lock lever down and take the toner cartridge out of the drum unit assembly. Take out the jammed paper if there is any inside the drum unit.

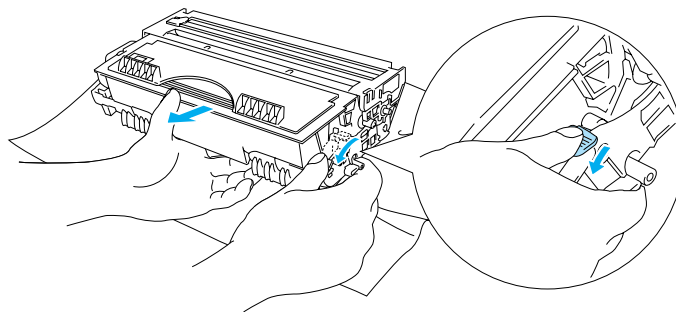


Figure 6-9

- 8 Put the drum unit assembly back in the printer.
- 9 Put the paper tray in the printer.
- 10 Close the front cover.

Other problems



Problem	Recommendation
The printer cannot print. There was an error writing to LPT1: (or BRUSB) for the printer error message occurs on your PC.	<ul style="list-style-type: none"> ■ Check that the printer cable is not damaged or broken. ■ If you have an interface-switching device, make sure the correct printer is selected.

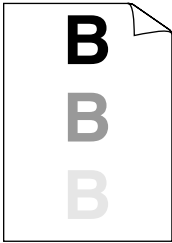
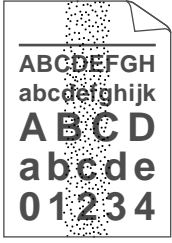
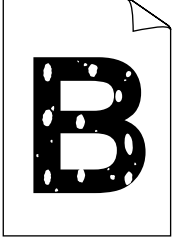
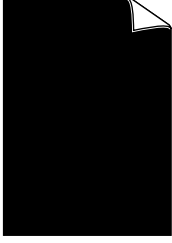
For Macintosh® with USB

Problem	Recommendation
HL-1435 does not appear in Chooser .	<ul style="list-style-type: none"> ■ Check that the printer is turned on. ■ Check that the USB interface cable is connected correctly. ■ Check the printer driver is installed correctly.
Unable to print from application software.	<ul style="list-style-type: none"> ■ Make sure that the supplied Macintosh® printer driver is installed in the System Folder and that it is selected with Chooser.

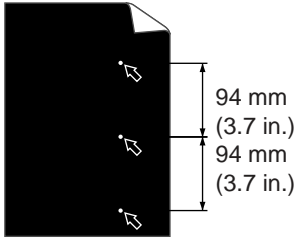
Improving the print quality

This section provides information on the following topics:

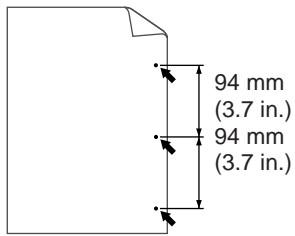
Examples of poor print quality	Recommendation
 <p style="text-align: center;">Faint</p>	<ul style="list-style-type: none"> ■ Check the printer's environment. Conditions such as humidity, high temperatures, and so on may cause this print fault. See <i>Positioning the printer in Chapter 1</i>. ■ If the whole page is too light, Toner Save mode may be on. Turn off Toner Save mode in the printer Properties tab of the driver. ■ Try installing a new toner cartridge. See <i>Replacing the toner cartridge on page 5-3</i>. ■ Try installing a new drum unit. See <i>Replacing the drum unit on page 5-9</i>.
 <p style="text-align: center;">Gray background</p>	<ul style="list-style-type: none"> ■ Make sure that you use paper that meets the recommended specifications. See <i>What kind of paper can I use? on page 1-5</i>. ■ Check the printer's environment - high temperatures and high humidity can increase the amount of background shading. See <i>Positioning the printer on page 1-4</i>. ■ Use a new toner cartridge. See <i>Replacing the toner cartridge on page 5-3</i>. ■ Use a new drum unit. See <i>Replacing the drum unit on page 5-9</i>.

Examples of poor print quality	Recommendation
 <p data-bbox="298 506 378 531">Ghost</p>	<ul style="list-style-type: none"> <li data-bbox="537 233 1455 321">■ Make sure you use paper that meets our specifications. Rough-surfaced paper or thick print media may cause this problem. See <i>What kind of paper can I use?</i> on page 1-5. <li data-bbox="537 323 1455 380">■ Make sure that you choose the appropriate media type in the printer driver. See <i>What kind of paper can I use?</i> on page 1-5. <li data-bbox="537 382 1382 413">■ Try using a new drum unit. See <i>Replacing the drum unit</i> on page 5-9.
 <p data-bbox="253 821 423 846">Toner specks</p>	<ul style="list-style-type: none"> <li data-bbox="537 548 1455 636">■ Make sure that you use paper that meets our specifications. Rough-surfaced paper may cause the problem. See <i>What kind of paper can I use?</i> on page 1-5. <li data-bbox="537 638 1455 695">■ The drum unit may be damaged. Put in a new drum unit. See <i>Replacing the drum unit</i> on page 5-9.
 <p data-bbox="253 1136 423 1161">Hollow print</p>	<ul style="list-style-type: none"> <li data-bbox="537 863 1455 919">■ Make sure that you use paper that meets our specifications. See <i>What kind of paper can I use?</i> on page 1-5. <li data-bbox="537 921 1455 978">■ Choose Thick paper mode in the printer driver, or use thinner paper than you are currently using. <li data-bbox="537 980 1455 1037">■ Check the printer's environment because conditions such as high humidity can cause hollow print. See <i>Positioning the printer</i> on page 1-4.
 <p data-bbox="282 1451 394 1476">All black</p>	<ul style="list-style-type: none"> <li data-bbox="537 1178 1455 1266">■ You may clear the problem by cleaning the primary corona wire inside the drum unit by sliding the blue tab. Make sure you return the blue tab to the home position (▲). See <i>Cleaning</i> on page 5-12. <li data-bbox="537 1268 1455 1325">■ The drum unit may be damaged. Put in a new drum unit. See <i>Replacing the drum unit</i> on page 5-9.

Examples of poor print quality



White Spots on black text and graphics at 94 mm (3.7 in.) intervals



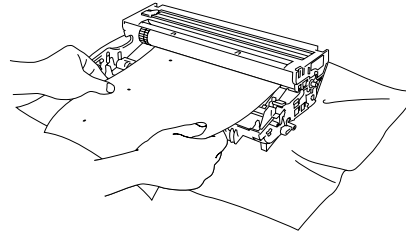
Black Spots at 94 mm (3.7 in.) intervals

Recommendation

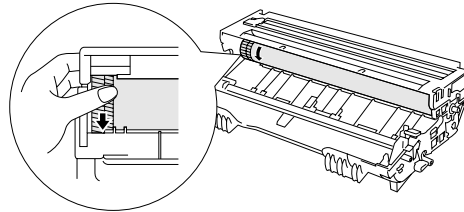
- If the problem is not solved after printing a few pages, the drum unit may have glue from label stock on the OPC drum surface.

Clean the drum unit as follows:

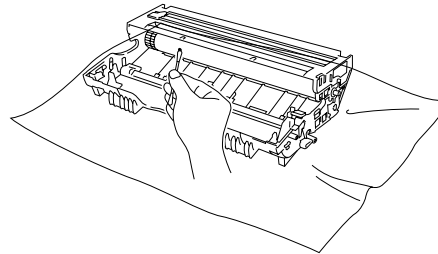
- 1** Position the print sample in front of the drum unit, and find the exact position of the poor print.



- 2** Turn the drum unit gear by hand while looking at the surface of the OPC drum.



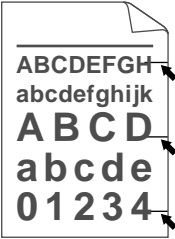



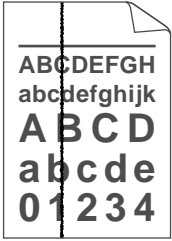
- 3** When you find the mark on the drum that matches the print sample, wipe the surface of the OPC drum with a cotton swab until the dust or paper powder on the surface comes off.




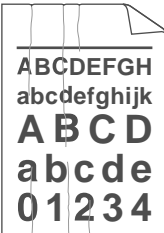


! Caution

Do not try to clean the surface of the photosensitive drum with a sharp object, such as a ball-point pen.

- The drum unit may be damaged. Put in a new drum unit. See *Replacing the drum unit* on page 5-9.

Examples of poor print quality	Recommendation
 <p data-bbox="175 541 505 600">Black toner marks across the page</p>	<ul style="list-style-type: none"> <li data-bbox="537 233 1458 289">■ The drum unit may be damaged. Put in a new drum unit. See <i>Replacing the drum unit on page 5-9</i>. <li data-bbox="537 296 1458 352">■ Make sure that you use paper that meets our specifications. See <i>What kind of paper can I use? on page 1-5</i>.  <ul style="list-style-type: none"> <li data-bbox="574 407 1458 464">■ If you use label sheets, the glue from the sheets may sometimes stick to the OPC drum surface. Clean the drum unit. See <i>Cleaning on page 5-12</i>. <li data-bbox="574 470 1458 527">■ Do not use paper that has clips or staples because they will scratch the surface of the drum. <li data-bbox="574 533 1458 590">■ If the unpacked drum unit is in direct sunlight or room light, the unit may be damaged.
 <p data-bbox="164 921 513 953">White lines across the page</p>	<ul style="list-style-type: none"> <li data-bbox="537 613 1458 669">■ Make sure that you use paper that meets our specifications. A rough surfaced paper or thick print media can cause the problem. <li data-bbox="537 676 1458 707">■ Make sure that you select the appropriate media type in the printer driver. <li data-bbox="537 714 1458 770">■ The problem may disappear by itself. Try printing multiple pages to clear this problem, especially if the printer has not been used for a long time. <li data-bbox="537 777 1458 833">■ The drum unit may be damaged. Put in a new drum unit. See <i>Replacing the drum unit on page 5-9</i>.
 <p data-bbox="196 1274 480 1306">Lines across the page</p>	<ul style="list-style-type: none"> <li data-bbox="537 963 1458 1020">■ Clean the inside of the printer and the primary corona wire in the drum unit. See <i>Cleaning on page 5-12</i>. <li data-bbox="537 1026 1458 1083">■ The drum unit may be damaged. Put in a new drum unit. See <i>Replacing the drum unit on page 5-9</i>.
 <p data-bbox="168 1625 505 1709">Black lines down the page Printed pages have toner stains down the page.</p>	<ul style="list-style-type: none"> <li data-bbox="537 1314 1458 1346">■ Clean the primary corona wire of the drum unit. See <i>Cleaning on page 5-12</i>. <li data-bbox="537 1352 1458 1383">■ Make sure the primary corona wire cleaner is at the home position (▲). <li data-bbox="537 1390 1458 1446">■ The drum unit may be damaged. Install a new drum unit. See <i>Replacing the drum unit on page 5-9</i>. <li data-bbox="537 1453 1458 1530">■ The toner cartridge may be damaged. Put in a new toner cartridge. See <i>Replacing the toner cartridge on page 5-3</i>. Make sure that a torn piece of paper is not inside the printer covering the scanner window. <li data-bbox="537 1537 1458 1568">■ The fixing unit may be smudged. Call Customer Service.

Examples of poor print quality	Recommendation
 <p data-bbox="168 541 505 569">White lines down the page</p>	<ul style="list-style-type: none"> <li data-bbox="537 233 1446 289">■ You may clear the problem by wiping the scanner window with a soft cloth. See <i>Cleaning on page 5-12</i>. <li data-bbox="537 296 1406 352">■ The toner cartridge may be damaged. Put in a new toner cartridge. See <i>Replacing the toner cartridge on page 5-3</i>.
 <p data-bbox="253 892 423 919">Page skewed</p>	<ul style="list-style-type: none"> <li data-bbox="537 583 1463 640">■ Make sure the paper or other print media is loaded properly in the paper tray and that the guides are not too tight or too loose against the paper stack. <li data-bbox="537 646 1463 703">■ Set the paper guides correctly. See <i>Printing on plain paper from the paper tray on page 1-8</i>. <li data-bbox="537 709 1430 766">■ If you are using the manual feed slot, see <i>Printing on plain paper from the manual feed slot on page 1-11</i>. <li data-bbox="537 772 1463 829">■ The paper tray may be too full. See <i>Printing on plain paper from the paper tray on page 1-8</i>. <li data-bbox="537 835 1463 892">■ Check the paper type and quality. See <i>What kind of paper can I use? on page 1-5</i>.
 <p data-bbox="256 1243 418 1270">Curl or wave</p>	<ul style="list-style-type: none"> <li data-bbox="537 934 1446 991">■ Check the paper type and quality. High temperatures and high humidity will cause paper to curl. See <i>What kind of paper can I use? on page 1-5</i>. <li data-bbox="537 997 1463 1081">■ If you don't use the printer very often, the paper may have been in the paper tray too long. Turn over the stack of paper in the paper tray. Also, try fanning the paper stack and then rotating the paper 180° in the paper tray. <li data-bbox="537 1087 1463 1171">■ Try printing using the straight-through output path. See <i>Printing on plain paper from the paper tray on page 1-8</i>, or see <i>Printing on transparencies on page 1-21</i>.
 <p data-bbox="212 1560 464 1587">Wrinkles or creases</p>	<ul style="list-style-type: none"> <li data-bbox="537 1285 1463 1341">■ Make sure that paper is loaded properly. See <i>Printing on plain paper from the paper tray on page 1-8</i>. <li data-bbox="537 1348 1463 1404">■ Check the paper type and quality. See <i>What kind of paper can I use? on page 1-5</i>. <li data-bbox="537 1411 1463 1495">■ Try printing using the straight-through output path. See <i>Printing on plain paper from the manual feed slot on page 1-11</i> or see <i>Printing on transparencies on page 1-21</i>. <li data-bbox="537 1501 1446 1558">■ Turn over the stack of paper in the tray or try rotating the paper 180° in the input tray.

Solving print problems

Problem	Recommendation
<p>The printer prints unexpectedly or it prints garbage data.</p>	<ul style="list-style-type: none"> ■ Make sure the printer cable is not too long. We recommend that you use a parallel cable of less than 2 metres (6 feet) in length. ■ Make sure that the printer cable is not damaged or broken. ■ If you are using an interface-switching device, remove it. Connect your computer directly to your printer, and then try again. ■ Check that you have chosen the appropriate printer driver with 'Set as Default'. ■ Make sure that the printer is not connected to the same port that is also connected to a storage device or scanner. Take away all other devices and connect the port only to the printer. ■ Turn off Printer Status Monitor in the Device Options tab in the printer driver.
<p>The printer cannot print full pages of a document. An error message PRINT OVERRUN is printed.</p>	<ul style="list-style-type: none"> ■ Press the Control panel button to print the data left in the printer. ■ If this does not clear the error, reduce the complexity of your document or reduce the print resolution.
<p>The printer cannot print full pages of a document. An error message MEMORY FULL is printed.</p>	<ul style="list-style-type: none"> ■ Press the Control panel button to print the data left in the printer. ■ Reduce the print resolution or reduce the complexity of your document.
<p>My headers or footers appear when I view my document on the screen but they do not show up when I print it.</p>	<ul style="list-style-type: none"> ■ Most laser printers have a restricted area that cannot be printed on. This unprintable area is usually the first two lines and the last two lines of a page (leaving 62 printable lines). Adjust the top and bottom margins of your document to allow for this.

A Appendix

Printer specifications

Engine

Technology	Electrophotographic
Print speed	Up to 15 ppm when printing on Letter size paper Up to 14 ppm when printing on A4 size paper
First print time^{*1}	Less than 15 sec
Resolution	1200 dpi x 600 dpi 600 dpi x 600 dpi 300 dpi x 300 dpi

*1 From standard paper tray

Controller

Processor	Fujitsu MB86833 66MHz	
Memory	Standard	4MB
	Option	N/A
Interface	Standard	USB, Parallel
	Option	Optional Ir-DA (IR-1000) ^{*2}
Network Connectivity^{*3}	Interface	Optional 10/100Base TX (NC-2100p)
	Protocol for optional 10/100Base TX (NC-2100p)	TCP/IP, NetBEUI
Emulation	GDI	

*2) Not available on Windows[®] XP and Mac[®] OS

*3) Not available on Mac[®] OS

Software

Printer driver	For Windows [®]	Brother GDI Printer Driver for Windows [®] 95/98 /Me, Windows NT [®] 4.0, Windows [®] 2000 and Windows [®] XP
	For Macintosh [®]	Brother Laser Driver for Mac [®] OS 8.6 to 9.2 and Mac [®] OS X 10.1 to 10.2
Utilities	Interactive Help ^{*4}	

*4) Instructional movie for the solution when any error message appears on the Status Monitor.

Control panel

LED	4 LEDs
Button	1 button

Paper handling

Paper Input ^{*5}	Manual feed slot	1 Sheet
	Paper tray	250 Sheets
Paper Output ^{*5}	Face-down	150 Sheets
	Face-up	1 Sheet
Duplex		Manual Duplex ^{*6}

*5) Calculated with 80 g/m² paper

*6) Not available on Mac[®] OS X 10.2

Media specifications

Media types	Manual feed slot	Plain paper, Bond paper, Recycled paper, Envelope, Labels, and Transparency
	Paper tray (Standard)	Plain paper, Recycled paper, and Transparencies ^{*7}
Media weights	Manual feed slot	60 to 161 g/m ² (16 to 43 lb)
	Paper tray (Standard)	60 to 105 g/m ² (16 to 28 lb)
Media sizes	Manual feed slot	Width: 69.8 to 216 mm (2.75 to 8.7 in.) Length: 116 to 356 mm (4.57 to 14.0 in.)
	Paper tray (Standard)	A4, Letter, Legal, B5(ISO), A5, B6(ISO), A6, Executive

*7) Up to 10 sheets

Supplies

Toner	Standard yield cartridge	3,000 pages A4/Letter pages @5% coverage
	High yield cartridge	6,000 pages A4/Letter pages @5% coverage
Drum		20,000 A4/Letter pages (1 page / job)

Dimensions / Weights

Dimensions (W × D × H)	For USA/Canada/Latin America	360 × 430 × 235 mm (14.2 × 16.9 × 9.3 in.)
	For other countries	360 × 370 × 235 mm (14.2 × 14.6 × 9.3 in.)
Weights		Approx.9.2 kg (20.3 lb) including the drum unit and toner cartridge

Other

Power consumption	Printing	Less than 340 W at 25 °C (77 °F)
	Standby	Less than 70 W at 25 °C (77 °F)
	Sleep	Less than 5 W
Noise level	Printing	Less than 50 dB
	Standby	Less than 30 dB
Ecology	Power save	Yes
	Toner save	Yes

Important information for choosing your paper

This section provides information to help you choose paper to use with this printer.

Before you purchase a large quantity of paper

Make sure the paper is suitable for the printer.

Paper for plain paper copies

Paper is divided by usage, such as paper for printing and paper for copying. The usage is usually specified on the paper's package. Check the package to see whether it is suitable for laser printers. Use paper that is suitable for laser printers.

Basis weight

The basis weight of the paper in general use varies in different countries. We recommend that you use paper that weighs 75 g/m² to 90 g/m² (20 to 24 lb), although this printer is able to cope with thinner or thicker paper than these weights.

Unit	Europe	USA
g/m ²	80 to 90	75 to 90
lb		20 to 24

Long grain and short grain

The pulp fiber of the paper is aligned during paper manufacture. What we call long grain paper is paper where the fiber is parallel to the paper carriage direction of the paper.

Paper can be classified into two types, long grain and short grain. Long grain paper's fiber direction is parallel to the carriage direction of the paper in the printer. Short grain paper's fiber direction is vertical to the carriage direction of the paper in the printer. Though most plain paper for copying is long grain, some is short grain. We recommend that you use long grain paper for this printer. Short grain paper is too weak for the paper carriage of the printer.

Acid paper and neutralized paper

Paper can be classified as either acid paper or neutralized paper.

Though modern paper manufacture methods started with acid paper, recently neutralized paper is taking the place of acid paper because of environment or preservation issues.

However, many forms of acid paper can be found in recycled paper. We recommend that you use neutralized paper for this printer.

You can use an acid paper check pen to distinguish acid paper from neutral paper.

Print surface

The characteristics may differ a little between the face side and reverse side of a sheet of paper.

Usually, the opening side of the ream of paper package is the print side. Follow any indication of the print side on the paper package. Typically, the print side is indicated by an arrow.

Moisture content

Moisture content is the amount of water left in the paper after manufacture. It is one of the important characteristics of the paper. This can change greatly depending on the storage environment, although usually paper contains about 5% water by weight. Because paper often absorbs water, the amount of water can sometimes be about 10% in a high humidity environment. When the amount of water increases, the characteristic of the paper changes greatly. The fixing of the toner may become worse. For storage of the paper and during use, we recommend that the humidity of the surrounding environment is between 50% and 60%.

Rough estimate of basis weight

g/m ²	lb	
	Bond	Index
60	16	
64	17	
75	20	
90	24	
105	28	
120	32	
135	36	
161	43	90
200	53	110

Paper size

Letter		8.5 × 11 in.
Legal		8.5 × 14 in.
Executive		7.25 × 10.5 in.
A4	210 × 297 mm	
A5	148 × 210 mm	
A6	105 × 148 mm	
B5 (ISO)	201 × 276 mm	
Envelope Monarch		3.875 × 7.5 in.
Envelope #9		3.875 × 8.9 in.
Envelope #10		4.12 × 9.5 in.
Envelope #11		4.5 × 10.375 in.
Envelope DL	110 × 220 mm	
Envelope C5	162 × 229 mm	
Envelope C6	114 × 162 mm	
Envelope B5	176 × 250 mm	
Envelope B6	176 × 125 mm	
Folio		

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