

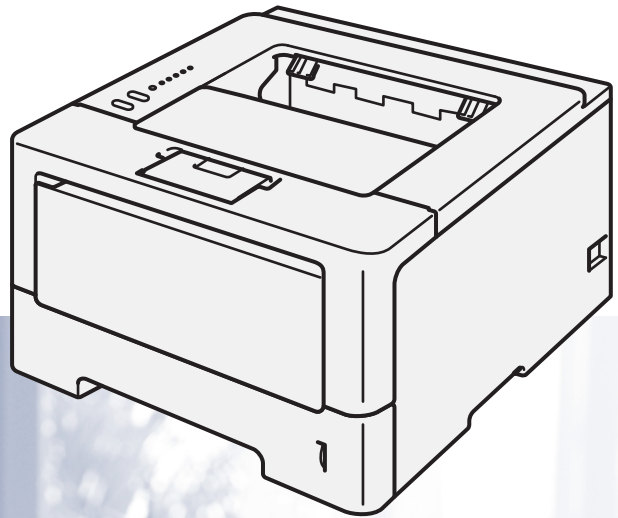
# User's Guide

Brother Laser Printer

HL-5440D

HL-5445D

HL-5450DN



## **For visually-impaired users**

You can read this manual with Screen Reader 'text-to-speech' software.

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

Please use the Quick Setup Guide to set up the machine. You can find a printed copy in the box.

Please read this User's Guide thoroughly before you use the machine.

Please visit us at <http://solutions.brother.com/> where you can get product support, the latest driver updates and utilities, and answers to frequently asked questions (FAQs) and technical questions.

## To create a better environment

Please cooperate

Firstly, thank you very much indeed for using our Brother products!

Brother focuses on the earth environment concerned. And make a basic policy which is to concern about the earth environment, including any workflow from product development to discard. The local citizen should be responsible for local society and its environment during these environment protection activities.

Therefore, we hope you'll take part in this environment plan, and pay attention to environment protection points as below while discarding used consumables.

- 1 Please deliver the used package materials to relevant waste disposal office for recycle.
- 2 When you discard used consumables, please follow and carry on relevant local regulations properly. If you have questions, call your local sales dealer.
- 3 When the machine need replacing parts for the maintenance and repair, please discard used circuit boards, used electrical parts and products as disposed electrical materials.
- 4 The power consumption is 0 W after you turn off the machine and unplug it from the AC outlet.
- 5 Some parts in the machine can be used on the same series model machines which produced by the same factory.

Note: If you want to replace the parts, please contact your local Brother repair station.

## User's Guides and where to find them?

| Which manual?  | What's in it?   | Where is it?   |
|--|---|--|
| <b>Product Safety Guide</b>  | Read this Guide first. Please read the Safety Instructions before you set up your machine. See this Guide for trademarks and legal limitations.   | For Chinese:<br>Printed / In the box<br><br>For English:<br>PDF file / CD-ROM / In the box                       |
| <b>Quick Setup Guide</b>   | Follow the instructions for setting up your machine and installing the drivers and software for the operating system and connection type you are using.   | For Chinese:<br>Printed / In the box<br><br>For English:<br>PDF file / CD-ROM / In the box                       |
| <b>User's Guide</b>  | Learn the print operations, how to replace consumables, and performing routine maintenance. See troubleshooting tips.   | PDF file / CD-ROM / In the box   |
| <b>Network User's Guide</b><br>(HL-5450DN only)                                | This Guide provides useful information about wired network settings and security settings using the Brother machine. You can also find supported protocol information for your machine and detailed troubleshooting tips.                                     | PDF file / CD-ROM / In the box   |
| <b>Google Cloud Print Guide</b><br>(HL-5450DN only)                            | This Guide provides details on how to configure your Brother machine to a Google account and use Google Cloud Print services for printing over the Internet from devices using Gmail™ for mobile, GOOGLE DOCS™ for mobile and applications for the Chrome OS. | PDF file / Brother Solutions Center at <a href="http://solutions.brother.com/">http://solutions.brother.com/</a> |
| <b>Mobile Print/Scan Guide for Brother iPrint&amp;Scan</b><br>(HL-5450DN only) | This Guide provides useful information about printing JPEG and PDF <sup>1</sup> files from your mobile device and scanning <sup>2</sup> from your Brother machine to your mobile device when connected on a Wi-Fi network.                                    | PDF file / Brother Solutions Center at <a href="http://solutions.brother.com/">http://solutions.brother.com/</a> |

<sup>1</sup> PDF printing is not supported on Windows® Phone.

<sup>2</sup> HL-5450DN does not support the scanning feature.

# Using the documentation

Thank you for buying a Brother machine! Reading the documentation will help you make the most of your machine.

## Symbols and conventions used in the documentation

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The following symbols and conventions are used throughout the documentation.

 **WARNING**

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injuries.

 **Important**

Important indicates a potentially hazardous situation which, if not avoided, may result in damage to property or loss of product functionality.



Prohibition icons indicate actions that must not be performed.



Electrical Hazard icons alert you to possible electrical shock.



Fire Hazard icons alert you to the possibility of fire.



Hot Surface icons warn you not to touch machine parts that are hot.



**Note**

Notes tell you how you should respond to a situation that may arise or give tips about how the operation works with other features.

**Bold**

Bold style identifies keys on the machine control panel or computer screen.

*Italics*

Italicized style emphasizes an important point or refers you to a related topic.

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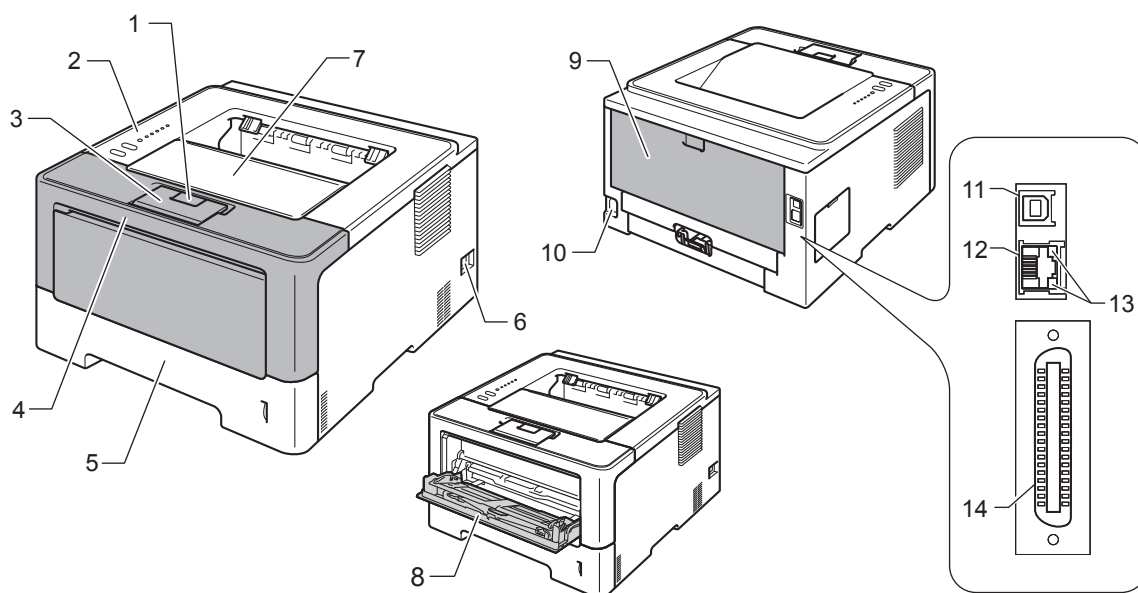
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# 1

## Printing Methods

### About this Machine

#### Front view and Back view



- 1 Front cover release button
- 2 Control panel
- 3 Face-down output tray support flap (support flap)
- 4 Front cover
- 5 Paper tray
- 6 Power switch
- 7 Face-down output tray
- 8 Multi-purpose tray (MP tray)
- 9 Back cover (Face-up output tray when open)
- 10 AC power connector
- 11 USB port
- 12 10BASE-T / 100BASE-TX port (HL-5450DN only)
- 13 Network status LEDs (HL-5450DN only)
- 14 Parallel port (HL-5440D and HL-5445D only)



#### Note

Most of the illustrations in this User's Guide show the HL-5450DN.



## Acceptable paper and other print media

Print quality may vary according to the type of paper you are using.

You can use the following types of print media: plain paper, thin paper, thick paper, thicker paper, bond paper, recycled paper, labels or envelopes.

For best results, follow the instructions below:

- DO NOT put different types of paper in the paper tray at the same time because it may cause paper jams or misfeeds.
- For correct printing, you must choose the same paper size from your software application as the paper in the tray.
- Avoid touching the printed surface of the paper immediately after printing.
- Before you buy a lot of paper, test a small quantity to make sure that the paper is suitable.

## Recommended Paper

---

|             |   |
|-------------|---|
| Plain paper | APP Blue Flag Ship 70g/m <sup>2</sup><br>APP Gold Flag Ship 80g/m <sup>2</sup><br>Advanced Agro Double A 80g/m <sup>2</sup> |
|-------------|---|

## Type and size of paper

The machine feeds paper from the installed standard paper tray, multi-purpose tray or optional lower tray. The names for the paper trays in the printer driver and this Guide are as follows:

| Tray and optional unit   | Name    |
|--------------------------|---------|
| Paper tray               | Tray 1  |
| Optional lower tray unit | Tray 2  |
| Multi-purpose tray       | MP Tray |

### Paper capacity of the paper trays

|                                 | Paper size  | Paper types  | No. of sheets                                   |
|---------------------------------|---|--|---|
| Paper Tray<br>(Tray 1)          | A4, Letter, Legal,<br>B5 (ISO/JIS), Executive, A5,<br>A5 (Long Edge), A6,<br>B6 (ISO), Folio <sup>1</sup> ,<br>16K(195x270mm),<br>16K(184x260mm),<br>16K(197x273mm) | Plain paper, Thin paper and<br>Recycled paper  | up to 250 sheets (80 g/m <sup>2</sup> )         |
| Multi-purpose Tray<br>(MP Tray) | Width:<br>76.2 to 215.9 mm<br><br>Length:<br>127 to 355.6 mm  | Plain paper, Thin paper,<br>Thick paper, Thicker paper,<br>Bond paper, Recycled paper,<br>Envelopes and Labels | 50 sheets (80 g/m <sup>2</sup> )<br>3 Envelopes |
| Optional Lower Tray<br>(Tray 2) | A4, Letter, Legal,<br>B5 (ISO/JIS), Executive, A5,<br>B6 (ISO), Folio <sup>1</sup> ,<br>16K(195x270mm),<br>16K(184x260mm),<br>16K(197x273mm)                        | Plain paper, Thin paper and<br>Recycled paper  | up to 500 sheets (80 g/m <sup>2</sup> )         |

<sup>1</sup> Folio size is 215.9 mm x 330.2 mm.

## Recommended paper specifications

The following paper specifications are suitable for this machine.

|                     |  |
|---------------------|--|
| Basis weight        | 70-90 g/m <sup>2</sup>                     |
| Thickness           | 80-110 μm                                  |
| Roughness           | Higher than 20 sec.                        |
| Stiffness           | 90-150 cm <sup>3</sup> /100                |
| Grain direction     | Long grain                                 |
| Volume resistivity  | 10e <sup>9</sup> -10e <sup>11</sup> ohm    |
| Surface resistivity | 10e <sup>9</sup> -10e <sup>12</sup> ohm-cm |
| Filler              | CaCO <sub>3</sub> (Neutral)                |
| Ash content         | Below 23 wt%                               |
| Brightness          | Higher than 80%                            |
| Opacity             | Higher than 85%                            |

- Use paper that is made for plain-paper copying.
- Use paper that is 70 to 90 g/m<sup>2</sup>.
- Use long grain paper with a neutral Ph value, and a moisture content of approx. 5%.
- This machine can use recycled paper that meets DIN 19309 specifications.

(To help you choose which paper to use with this machine, see *Important information for choosing your paper* >> page 153.)

## Handling and using special paper

The machine is designed to work well with most types of xerographic and bond paper. However, some paper variables may have an effect on print quality or handling reliability. Always test samples of paper before purchasing to ensure desirable performance. Store paper in its original packaging and keep it sealed. Keep the paper flat and away from moisture, direct sunlight and heat.

Some important guidelines when selecting paper are:

- DO NOT use inkjet paper because it may cause a paper jam or damage your machine.
- Preprinted paper must use ink that can withstand the temperature of the machine's fusing process 200 °C.
- If you use bond paper, paper having a rough surface or paper that is wrinkled or creased, the paper may exhibit degraded performance.

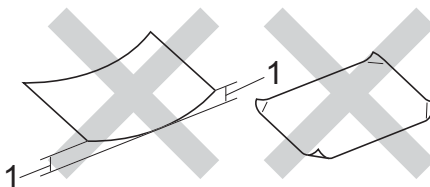
### Types of paper to avoid

#### ! Important

Some types of paper may not perform well or may cause damage to your machine.

DO NOT use paper:

- that is highly textured
- that is extremely smooth or shiny
- that is curled or warped



#### 1 A curl of 2 mm or greater may cause jams to occur.

- that is coated or has a chemical finish
- that is damaged, creased or folded
- that exceeds the recommended weight specification in this guide
- with tabs and staples
- with letterheads using low temperature dyes or thermography
- that is multipart or carbonless
- that is designed for inkjet printing

If you use any of the types of paper listed above, they may damage your machine. This damage is not covered under any Brother warranty or service agreement.

## Envelopes

Most envelopes designed for laser printers will be suitable for your machine. However, some envelopes may 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. 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 machine.

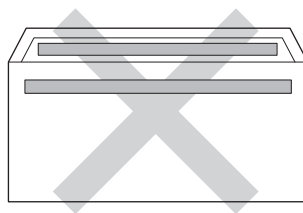
We recommend that you print a test envelope to make sure the print results are what you want.

### Types of envelopes to avoid

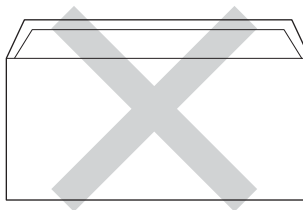
#### ❗ Important

DO NOT use envelopes:

- that are damaged, curled, wrinkled or an unusual shape
- that are extremely shiny or textured
- with clasps, staples, 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 machine
- that are pre-printed on the inside
- that cannot be arranged neatly when stacked
- that are made of paper that weighs more than the paper weight specifications for the machine
- with edges that are not straight or consistently square
- with windows, holes, cut-outs or perforations
- with glue on surface as shown in figure below

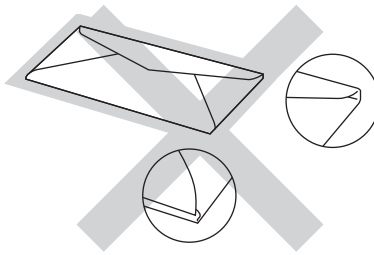


- with double flaps as shown in figure below



- with sealing flaps that are not folded down when purchased

- with each side folded as shown in figure below



If you use any of the types of envelopes listed above, they may damage your machine. This damage may not be covered under any Brother warranty or service agreement.

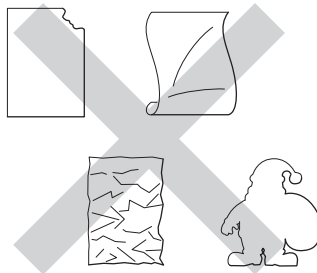
## Labels

The machine will print on most types of labels designed for use with a *laser* machine. Labels should have an adhesive that is acrylic-based since this material is more stable at the high temperatures in the fuser unit. Adhesives should not come in contact with any part of the machine, because the label stock may stick to the drum unit or rollers and cause jams and print quality problems. No adhesive should be exposed between the labels. Labels should be arranged so that they cover the entire length and width of the sheet. Using labels with spaces may result in labels peeling off and causing serious jams or print problems.

All labels used in this machine must be able to withstand a temperature of 200 °C for a period of 0.1 seconds.

## Types of labels to avoid

Do not use labels that are damaged, curled, wrinkled or an unusual shape.

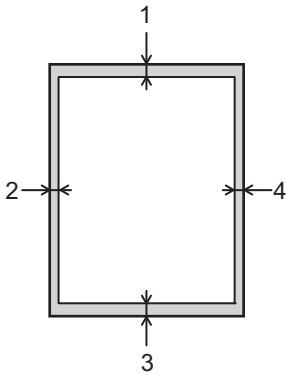


### ! Important

- DO NOT feed part used label sheets. The exposed carrier sheet will damage your machine.
- Label sheets should not exceed the paper weight specifications described in this User's Guide. Labels exceeding this specification may not feed or print correctly and may cause damage to your machine.
- DO NOT reuse or insert labels that have previously been used or are missing a few labels on the sheet.

## Unprintable area when printing from a computer

The figures below show maximum unprintable areas. The unprintable areas may vary depending on the paper size or settings in the application you are using.



| Usage | Document Size | Top (1)<br>Bottom (3) | Left (2)<br>Right (4) |
|-------|---------------|-----------------------|-----------------------|
| Print | Letter        | 4.23 mm               | 6.35 mm               |
|       | A4            | 4.23 mm               | 6.01 mm               |
|       | Legal         | 4.23 mm               | 6.35 mm               |



**Note**

When using BR-Script3 emulation, the unprintable area around the edges of the paper is 4.23 mm.

# Loading paper

## Loading paper and print media

---

The machine can feed paper from the standard paper tray, optional lower tray or multi-purpose tray.

When you put paper into the paper tray, note the following:

- If your application software supports paper size selection on the print menu, you can select it through the software. If your application software does not support it, you can set the paper size in the printer driver or by using the control panel keys.

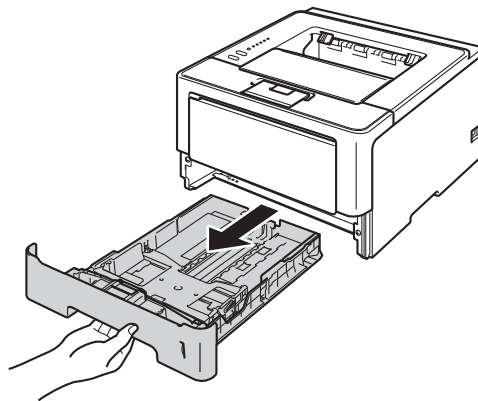
## Loading paper in the standard paper tray and the optional lower tray

---

You can load up to 250 sheets of paper in the standard paper tray (Tray 1). You can also load up to 500 sheets in the optional lower tray (Tray 2). Paper can be loaded up to the maximum paper mark (▼▼▼) which is identified on the right-hand side of the paper tray. (For the recommended paper to use, see *Acceptable paper and other print media* ►► page 2.)

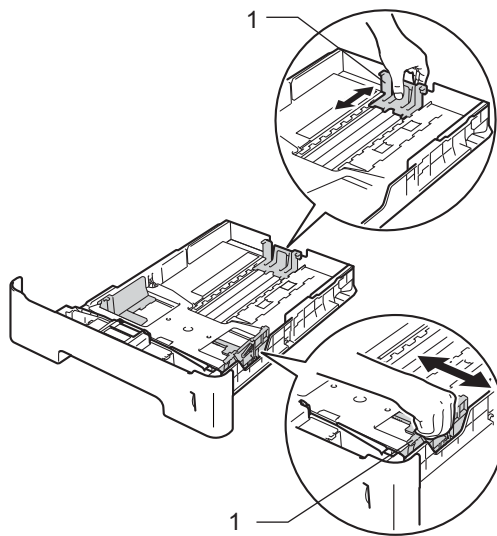
## Printing on plain paper, thin paper or recycled paper from Tray 1 and Tray 2

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

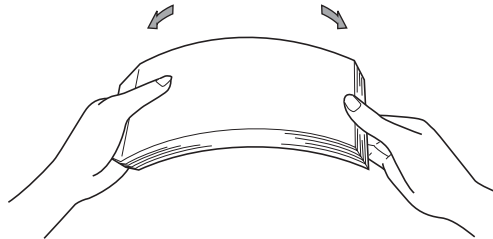




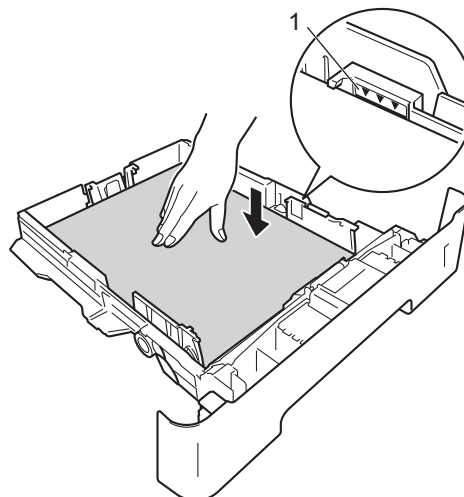
- 2 While pressing the green paper-guide release lever (1), slide the paper guides to fit the paper you are loading in the tray. Make sure that the guides are firmly in the slots.



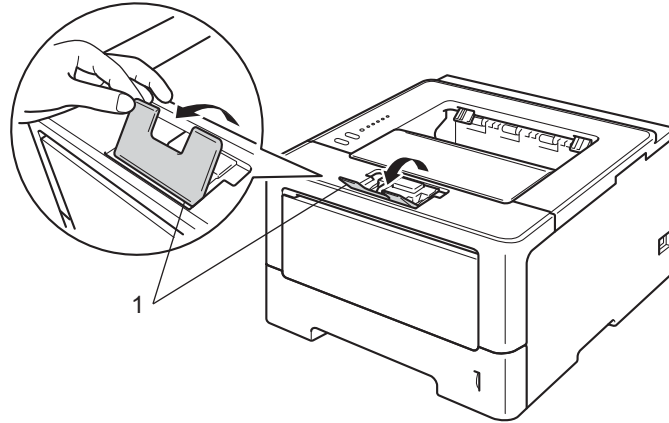
- 3 Fan the stack of paper well to avoid paper jams and misfeeds.



- 4 Put paper in the tray and make sure:
- The paper is below the maximum paper mark (▼▼▼) (1).  
Over filling the paper tray will cause paper jams.
  - The side to be printed on must be face down.
  - The paper guides touch the sides of the paper so it will feed correctly.



- 5 Put the paper tray firmly back in the machine. Make sure that it is completely inserted into the machine.
- 6 Lift up the support flap (1) to prevent paper from sliding off the face-down output tray, or remove each page as soon as it comes out of the machine.



- 7 Choose the following settings from each drop-down list of the printer driver.

■ Paper Size

|               |               |                                       |                         |                       |
|---------------|---------------|---------------------------------------|-------------------------|-----------------------|
| <b>A4</b>     | <b>Letter</b> | <b>Legal</b>                          | <b>Executive</b>        | <b>A5</b>             |
| <b>B5</b>     | <b>B6</b>     | <b>16K(195x270mm)</b>                 | <b>16K(184x260mm)</b>   | <b>16K(197x273mm)</b> |
| <b>JIS B5</b> | <b>Folio</b>  | <b>A5 Long Edge<br/>(Tray 1 only)</b> | <b>A6 (Tray 1 only)</b> |                       |

For the acceptable paper sizes, see *Type and size of paper* >> page 3.

■ Media Type

|                    |                   |                       |
|--------------------|-------------------|-----------------------|
| <b>Plain Paper</b> | <b>Thin Paper</b> | <b>Recycled Paper</b> |
|--------------------|-------------------|-----------------------|

■ Paper Source

|              |                             |
|--------------|-----------------------------|
| <b>Tray1</b> | <b>Tray2 (if available)</b> |
|--------------|-----------------------------|

For any other settings, see *Driver and Software* in Chapter 2.



**Note**

The name of options in the drop-down lists may vary depending on your operating system and its version.

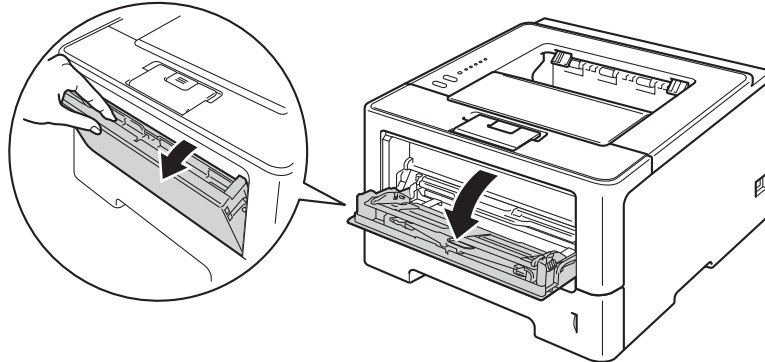
- 8 Send the print data to the machine.

## Loading paper in the multi-purpose tray (MP tray)

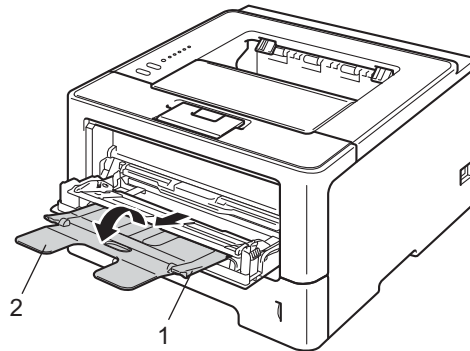
You can load up to 3 envelopes or special print media in the MP tray or up to 50 sheets of plain paper. Use this tray to print on thick paper, bond paper, labels or envelopes. (For the recommended paper to use, see *Acceptable paper and other print media* >> page 2.)

### Printing on plain paper, thin paper, recycled paper and bond paper from the MP tray

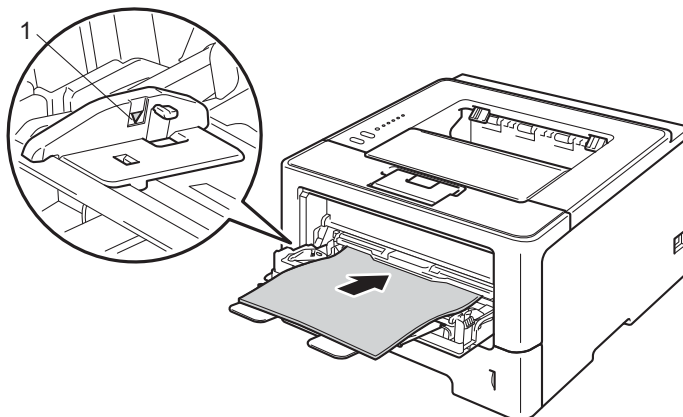
- 1 Open the MP tray and lower it gently.



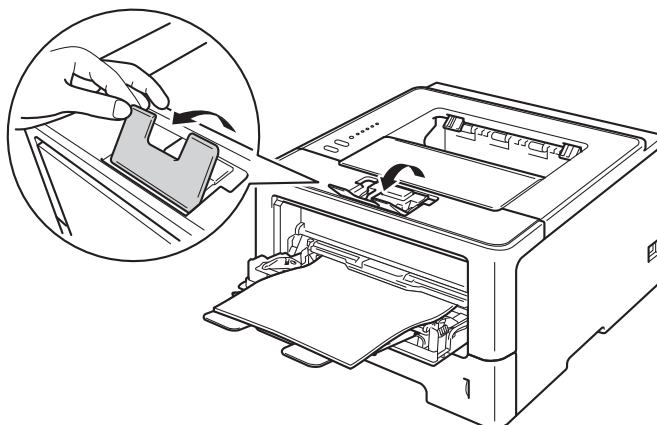
- 2 Pull out the MP tray support (1) and unfold the flap (2).



- 3 Put paper in the MP tray and make sure:
- The paper stays under the maximum paper mark (1).
  - The side to be printed on must be face up with the leading edge (top of the paper) in first.
  - The paper guides touch the sides of the paper so it will feed correctly.



- 4 Lift up the support flap to prevent paper from sliding off the face-down output tray, or remove each page as soon as it comes out of the machine.



5 Choose the following settings from each drop-down list of the printer driver.

■ Paper Size

|                       |                                    |              |                  |                       |
|-----------------------|------------------------------------|--------------|------------------|-----------------------|
| <b>A4</b>             | <b>Letter</b>                      | <b>Legal</b> | <b>Executive</b> | <b>A5</b>             |
| <b>A5 Long Edge</b>   | <b>A6</b>                          | <b>B5</b>    | <b>B6</b>        | <b>16K(195x270mm)</b> |
| <b>16K(184x260mm)</b> | <b>16K(197x273mm)</b>              | <b>3 x 5</b> | <b>JIS B5</b>    | <b>Folio</b>          |
| <b>270mm Paper</b>    | Customized paper size <sup>1</sup> |              |                  |                       |

<sup>1</sup> You can define your original paper size by choosing **User Defined...** in Windows® printer driver, **PostScript Custom Page Size** in BR-Script printer driver for Windows®, or **Custom Page Sizes** in Macintosh printer drivers.

For the acceptable paper sizes, see *Type and size of paper* >> page 3.

■ Media Type

|                    |                   |                       |                   |
|--------------------|-------------------|-----------------------|-------------------|
| <b>Plain Paper</b> | <b>Thin Paper</b> | <b>Recycled Paper</b> | <b>Bond Paper</b> |
|--------------------|-------------------|-----------------------|-------------------|

■ Paper Source

**MP Tray**

For any other settings, see *Driver and Software* in Chapter 2.



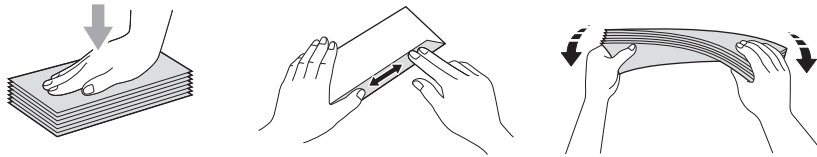
**Note**

The name of options in the drop-down lists may vary depending on your operating system and its version.

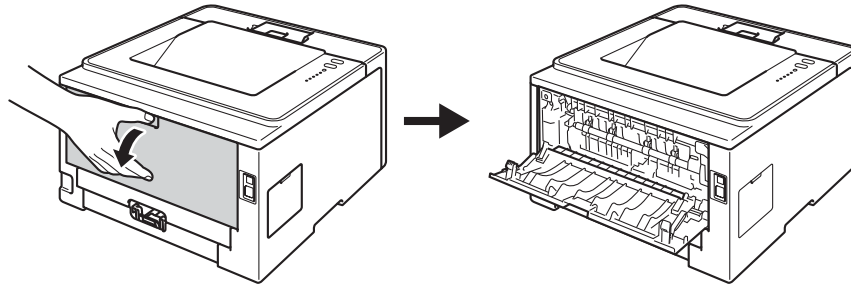
6 Send the print data to the machine.

## Printing on thick paper, labels and envelopes from the MP tray

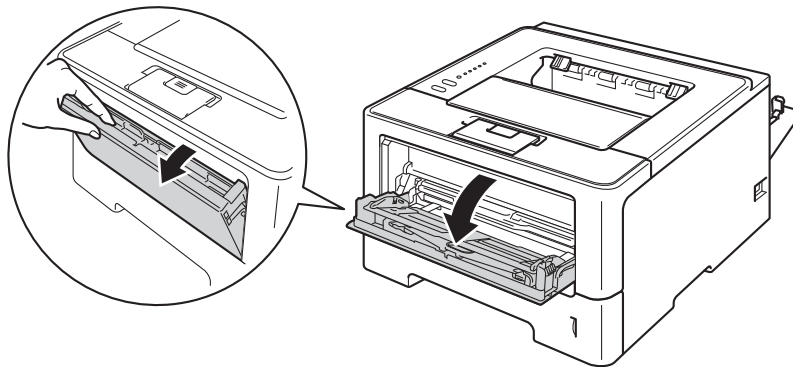
Before loading, press the corners and sides of the envelopes to make them as flat as possible.



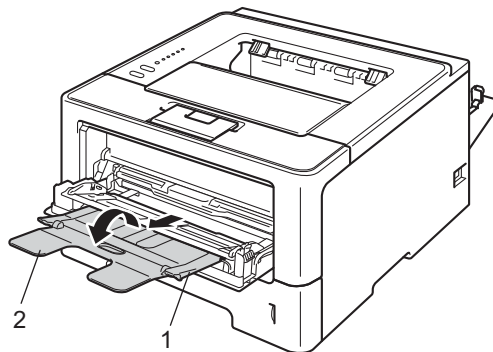
- 1 Open the back cover (face-up output tray).



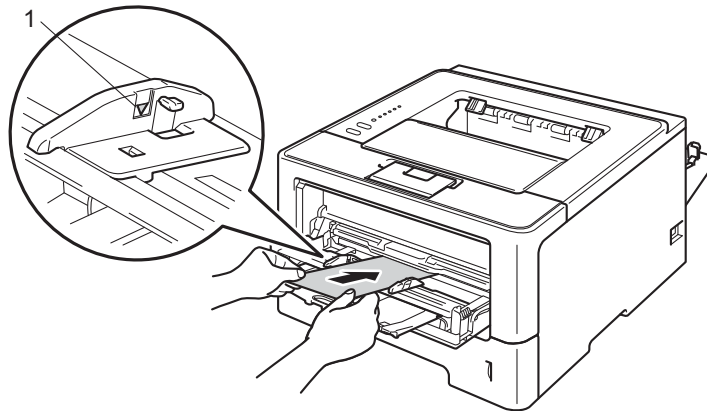
- 2 Open the MP tray and lower it gently.



- 3 Pull out the MP tray support (1) and unfold the flap (2).



- 4 Put paper, labels or envelopes in the MP tray. Make sure:
- The number of envelopes in the MP tray does not exceed 3.
  - The paper, labels or envelopes stay under the maximum paper mark (1).
  - The side to be printed on must be face up.



- 5 Choose the following settings from each drop-down list of the printer driver.

■ **Paper Size**

<For printing thick paper or labels>

|                       |                                    |              |                  |                       |
|-----------------------|------------------------------------|--------------|------------------|-----------------------|
| <b>A4</b>             | <b>Letter</b>                      | <b>Legal</b> | <b>Executive</b> | <b>A5</b>             |
| <b>A5 Long Edge</b>   | <b>A6</b>                          | <b>B5</b>    | <b>B6</b>        | <b>16K(195x270mm)</b> |
| <b>16K(184x260mm)</b> | <b>16K(197x273mm)</b>              | <b>3 x 5</b> | <b>JIS B5</b>    | <b>Folio</b>          |
| <b>270mm Paper</b>    | Customized paper size <sup>1</sup> |              |                  |                       |

<For Printing envelopes>

|                                    |           |           |                |
|------------------------------------|-----------|-----------|----------------|
| <b>Com-10</b>                      | <b>DL</b> | <b>C5</b> | <b>Monarch</b> |
| Customized paper size <sup>1</sup> |           |           |                |

<sup>1</sup> You can define your original paper size by choosing **User Defined...** in Windows® printer driver, **PostScript Custom Page Size** in BR-Script printer driver for Windows®, or **Custom Page Sizes** in Macintosh printer drivers.

For the acceptable paper sizes, see *Type and size of paper* >> page 3.

### ■ Media Type

<For printing thick paper>

**Thick Paper**      **Thicker Paper**

<For printing labels>

**Label**

<For Printing envelopes>

**Envelopes**      **Env. Thin**      **Env. Thick**

### ■ Paper Source

**MP Tray**

For any other settings, see *Driver and Software* in Chapter 2.



#### Note

- The name of options in the drop-down lists may vary depending on your operating system and its version.
- When you use Envelope #10, choose **Com-10** (for Windows<sup>®</sup>) or **#10 Envelope** (for Macintosh) from the **Paper Size** drop-down list.
- For other envelopes that are not listed in the printer driver, such as Envelope #9 or Envelope C6, choose **User Defined...** (for Windows<sup>®</sup> printer driver), **PostScript Custom Page Size** (for BR-Script printer driver for Windows<sup>®</sup>) or **Custom Page Sizes** (for Macintosh printer driver).

- 6 Send the print data to the machine.



#### Note

- Remove each envelope as soon as it has been printed. Stacking the envelopes may cause them to jam or curl.
- If envelopes or thick paper get smudged during printing set the **Media Type** to **Env. Thick** or **Thicker Paper** to increase the fixing temperature.
- If the envelopes are creased after they are printed, see *Improving the print quality* ►► page 139.
- If your thick paper curls during printing, put only one sheet at a time in the MP tray.
- Envelope joints that are sealed by the manufacturer should be secure.
- All sides of the envelope should be correctly folded without wrinkles or creases.

- 7 Close the back cover (face-up output tray).



## Duplex (2-sided) printing

The supplied printer drivers all enable duplex printing. For more information about how to choose the settings, see the **Help** text in the printer driver.

### Guidelines for printing on both sides of the paper

---

- If the paper is thin, it may wrinkle.
- If paper is curled, straighten it and put it back in the paper tray. If the paper continues to curl, replace the paper.
- If the paper is not feeding correctly, it may be curled. Remove the paper and straighten it. If the paper continues to curl, replace the 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* >> page 125. If you have a print quality problem, see *Improving the print quality* >> page 139.)



#### Note

---

Make sure that the paper tray is completely inserted in the machine.

---

## Automatic duplex printing (Only for A4)

---

If you are using the Macintosh Printer Driver, see *Duplex (2-sided) Printing* >> page 62.

1

### Automatic duplex printing with the Windows® printer driver

1 Choose the following settings from each menu of the printer driver.

■ **Paper Size**

A4

■ **Media Type**

Plain Paper

Recycled Paper

Thin Paper

■ **Paper Source**

Tray1

MP Tray

Tray2 (if available)

■ **Duplex / Booklet**

Duplex

■ **Duplex Type in Duplex Settings**

There are four options for each orientation. (See *Duplex / Booklet* >> page 29.)

■ **Binding Offset in Duplex Settings**

You can specify the offset for binding. (See *Duplex / Booklet* >> page 29.)



**Note**

---

- You should use plain paper, recycled paper or thin paper. Do not use bond paper.
  - The name of options in the drop-down lists may vary depending on your operating system and its version.
- 

For any other settings, see *Driver and Software* in Chapter 2.

2 Send the print data to the machine. The machine will print on both sides of the paper automatically.

## Automatic duplex printing with the BR-Script printer driver for Windows®

1 Choose the following settings from each menu of the printer driver.

■ **Paper Size**

A4

■ **Media Type**

Plain Paper

Recycled Paper

Thin Paper

■ **Paper Source**

Tray1

MP Tray

Tray2 (if available)

■ **Print on Both sides**

Flip on Short Edge

Flip on Long Edge

■ **Page Order**

Front to Back

Back to Front



**Note**

- 
- You should use plain paper, recycled paper or thin paper. Do not use bond paper.
  - The name of options in the drop-down lists may vary depending on your operating system and its version.
- 

For any other settings, see *Driver and Software* in Chapter 2.

2 Send the print data to the machine. The machine will print on both sides of the paper automatically.

## Manual duplex printing

---

The BR-Script printer driver for Windows® does not support manual duplex printing. If you are using the Macintosh Printer Driver, see *Manual Duplex Printing* >> page 62.

### Manual duplex printing with the Windows® printer driver

1 Choose the following settings from each drop-down list of the printer driver.

- **Paper Size**

You can use all the paper sizes specified for the tray you are using.

- **Media Type**

You can use all the media types that are specified for the tray you are using, except envelopes and labels which have only one print side.

- **Paper Source**

Tray1                      MP Tray                      Tray2 (if available)

- **Duplex / Booklet**

Duplex (Manual)

- **Duplex Type in Duplex Settings**

There are four options for each orientation. (See *Duplex / Booklet* >> page 29.)

- **Binding Offset in Duplex Settings**

You can specify the offset for binding. (See *Duplex / Booklet* >> page 29.)

For any other settings, see *Driver and Software* in Chapter 2.

2 Send the print data to the machine. The machine will print all the even-numbered pages on one side of the paper first. Then, the Windows® driver instructs you (with a pop-up message) to reinsert the paper to print the odd-numbered pages.



#### Note

Before reinserting the paper, straighten it well, or you may get a paper jam. Very thin or thick paper is not recommended.

---

## 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 page description language (PDL).

The printer drivers for the supported versions of Windows® and Macintosh are on the CD-ROM we have supplied or on the Brother Solutions Center website at <http://solutions.brother.com/>. Install the drivers by following the steps in the Quick Setup Guide. The latest printer drivers can be downloaded from the Brother Solutions Center website at:

<http://solutions.brother.com/>

### For Windows®

- Windows® printer driver (the most suitable printer driver for this product)
- BR-Script3 printer driver (PostScript® 3™ language emulation) <sup>1</sup>

<sup>1</sup> Install the driver using the Custom Install from the CD-ROM.

### For Macintosh

- Macintosh printer driver (the most suitable printer driver for this product)
- BR-Script3 printer driver (PostScript® 3™ language emulation) <sup>1</sup>

<sup>1</sup> For the installation instruction of the driver, visit us at <http://solutions.brother.com/>.

### For Linux® <sup>1 2</sup>

- LPR printer driver
- CUPS printer driver

<sup>1</sup> For more information and to download the printer driver for Linux please visit your model page at <http://solutions.brother.com/> or use the link on the CD-ROM we have supplied.

<sup>2</sup> Depending on Linux distributions, the driver may not be available or it may be released after the initial release of your model.

## Printing a document

---

When the machine receives data from your computer, it begins printing by picking up paper from the paper tray. The paper tray can feed many types of paper and envelopes. (See *Paper capacity of the paper trays* >> page 3.)

- 1 From your application, choose the Print command.  
If any other printer drivers are installed on your computer, choose **Brother HL-XXXX series** (Where XXXX is your model name.) as your printer driver from the Print or Print Settings menu in your software application, and then click **OK** or **Print** to begin printing.
- 2 Your computer sends the data to the machine. The **Ready** LED will blink.
- 3 When the machine finishes printing all the data, the **Ready** LED finishes blinking.



### Note

---

- You can choose the paper size and orientation in your application software.
  - If your application software does not support your custom paper size, choose the next largest paper size.
  - Then adjust the print area by changing the right and left margins in your application software.
-

## Printer driver settings

---

You can change the following printer settings when you print from your computer:

- Paper Size
- Orientation
- Copies
- Media Type
- Resolution
- Print Settings
- Multiple Page
- Duplex <sup>4</sup> / Booklet <sup>2 4</sup>
- Paper Source
- Scaling
- Reverse Print
- Use Watermark <sup>1 2</sup>
- Header-Footer Print <sup>1 2</sup>
- Toner Save Mode
- Administrator <sup>1 2</sup>
- User Authentication <sup>1 2</sup> (HL-5450DN only)
- Use Reprint <sup>1 2</sup>
- Sleep Time
- Macro <sup>1 2</sup>
- Density Adjustment
- Error Message Printout <sup>1 2</sup>
- Improve Print Output
- Skip Blank Page <sup>1 3</sup>
- Print Profile <sup>1 2</sup>

<sup>1</sup> These settings are not available with the BR-script printer driver for Windows®.

<sup>2</sup> These settings are not available with the Macintosh printer driver and the BR-Script printer driver for Macintosh.

<sup>3</sup> These settings are not available with the BR-Script printer driver for Macintosh.


<sup>4</sup> Manual duplex printing / Manual booklet printing are not available with the BR-script printer driver for Windows®.


# Windows®

## Accessing the printer driver settings

---

- 1 (For Windows® XP and Windows Server® 2003)  
Click **Start**, and then **Printers and Faxes**.  
(For Windows Vista® and Windows Server® 2008)

Click the  button, **Control Panel, Hardware and Sound**, and then **Printers**.  
(For Windows® 7 and Windows Server® 2008R2)

Click the  button, and then click **Devices and Printers**.
- 2 Right-click the **Brother HL-XXXX series** icon (where XXXX is your model name) and select **Properties** (**Printer properties**, and **Brother HL-XXXX series** if necessary). The printer properties dialog box appears.
- 3 Choose the **General** tab and then click **Printing Preferences... (Preferences...)**. To configure the tray settings, choose the **Accessories** tab.



## Features in the Windows® printer driver

For more information, see the **Help** text in the printer driver.

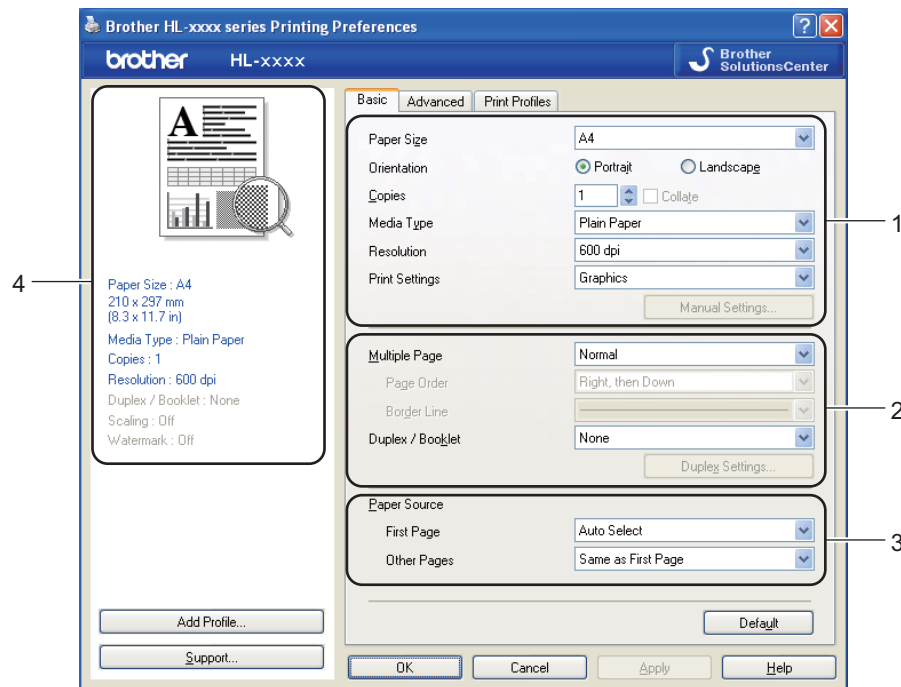


### Note

- The screens in this section are from Windows® XP. The screens on your PC will vary depending on your operating system.
- To access the printer driver settings, see *Accessing the printer driver settings* >> page 25.

## Basic tab

You can also change the Page Layout settings by clicking the illustration on the left side of the **Basic** tab.




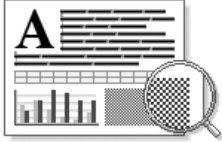
- 1 Choose the **Paper Size, Orientation, Copies, Media Type, Resolution** and **Print Settings** (1).
- 2 Choose **Multiple Page** and **Duplex / Booklet** (2).
- 3 Choose the **Paper Source** (3).
- 4 Confirm your current settings in the window (4).
- 5 Click **OK** to apply your chosen settings.  
To return to the default settings, click **Default**, then **OK**.

### Paper Size

From the drop-down box choose the Paper Size you are using.

### Orientation

Orientation selects the position of how your document will be printed (**Portrait** or **Landscape**).

| Portrait (Vertical)   | Landscape (Horizontal)  |
|---|---|
|  |  |

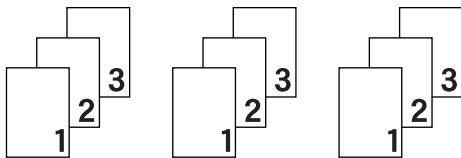
### Copies

The copies selection sets the number of copies that will be printed.

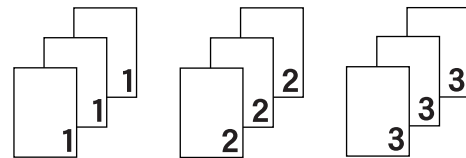
#### ■ Collate

With the Collate check box selected, one complete copy of your document will be printed and then repeated for the number of copies you selected. If the Collate check box is not selected, then each page will be printed for all the copies selected before the next page of the document is printed.

Collate checked



Collate non-checked



### Media Type

You can use the following types of media in your machine. For the best print quality, select the type of media that you wish to use.

- Plain Paper
- Thin Paper
- Thick Paper
- Thicker Paper
- Bond Paper
- Envelopes
- Env. Thick
- Env. Thin
- Recycled Paper
- Label

**Note**

- When using heavier weight paper or rough paper choose **Thick Paper** or **Thicker Paper**. For bond paper, choose **Bond Paper**.
- When you use envelopes, choose **Envelopes**. If the toner is not fixed to the envelope correctly when **Envelopes** has been selected, choose **Env. Thick**. If the envelope is crumpled when **Envelopes** has been selected, choose **Env. Thin**. For more information, see *Paper capacity of the paper trays* >> page 3.

**Resolution**

You can choose the resolution as follows.

- **300 dpi**
- **600 dpi**
- **HQ 1200**
- **1200 dpi**

**Note**

The print speed will change depending on what print quality setting you choose. Higher print quality takes longer to print, while lower print quality takes less time to print.

**Print Settings**

You can change the print settings as follows:

- **Graphics**

This is the best mode for printing documents that contain graphics.

- **Text**

This is the best mode for printing text documents.

- **Manual**

You can change the settings manually by choosing **Manual** and clicking the **Manual Settings...** button. You can set brightness, contrast and other settings.

**Multiple Page**

The Multiple Page selection can reduce the image size of a page allowing multiple pages to be printed on one sheet of paper or enlarge the image size for printing one page on multiple sheets of paper.

- **Page Order**

When N in 1 option is selected, the page order can be selected from the drop-down list.

- **Border Line**

When printing multiple pages onto one sheet, with the Multiple Page feature, you can choose to have a solid border, dash border or no border around each page on the sheet.

- **Print cut-out line**

When 1 in NxN pages option is selected, the **Print cut-out line** option can be selected. This option allows you to print a faint cut-out line around the printable area.

## Duplex / Booklet

When you want to print a booklet or do duplex printing, use this function.

- **None**

Disable duplex printing.

- **Duplex / Duplex (Manual)**

When you want to do duplex printing, use these options.

- **Duplex**

The machine prints on both sides of the paper automatically.

- **Duplex (Manual)**

The machine prints all the even numbered pages first. Then the printer driver will stop and show the instructions required to re-insert the paper. When you click **OK** the odd numbered pages will be printed.

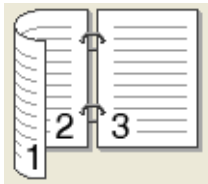
When you choose **Duplex** or **Duplex (Manual)**, the **Duplex Settings...** button becomes available to choose. You can set following settings in the **Duplex Settings** dialog box.

- **Duplex Type**

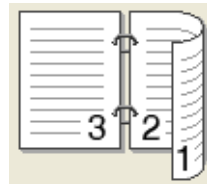
There are four types of duplex binding directions available for each orientation.

### Portrait

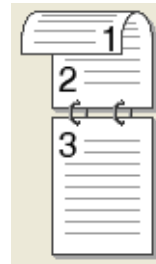
**Long Edge (Left)**



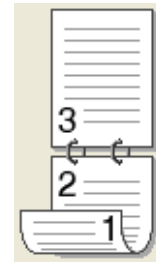
**Long Edge (Right)**



**Short Edge (Top)**



**Short Edge (Bottom)**



### Landscape

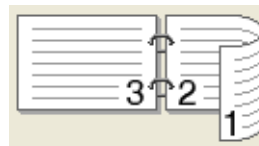
**Long Edge (Top)**



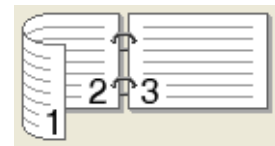
**Long Edge (Bottom)**



**Short Edge (Right)**



**Short Edge (Left)**



- **Binding Offset**

When you check **Binding Offset**, you can also specify the offset for binding in inches or millimetres.

## ■ Booklet / Booklet (Manual)

Use this option to print a document in booklet format using duplex printing; it will arrange the document according to the correct page number and allows you to fold at the centre of the print output without having to change the order of the page number.

- **Booklet**

The machine prints on both sides of the paper automatically.

- **Booklet (Manual)**

The machine prints all the even numbered sides first. Then the printer driver will stop and show the instructions required to re-install the paper. When you click **OK** the odd numbered sides will be printed.

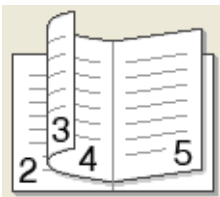
When you choose **Booklet** or **Booklet (Manual)**, the **Duplex Settings...** button becomes available to choose. You can set the following settings in the **Duplex Settings** dialog box.

- **Duplex Type**

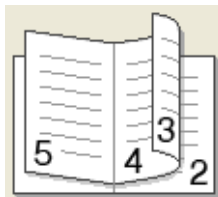
There are two types of duplex binding directions available for each orientation.

### Portrait

#### Left Binding



#### Right Binding



### Landscape

#### Top Binding



#### Bottom Binding



- **Booklet Printing Method**

When **Divide into Sets** is selected:

This option allows you to print the whole booklet into smaller individual booklet sets, it still allows you to fold at the center of the smaller individual booklet sets without having to change the order of the page number. You can specify the number of sheets in each smaller booklet set, from 1 to 15. This option can help when folding the printed booklet that has a large number of pages.

- **Binding Offset**

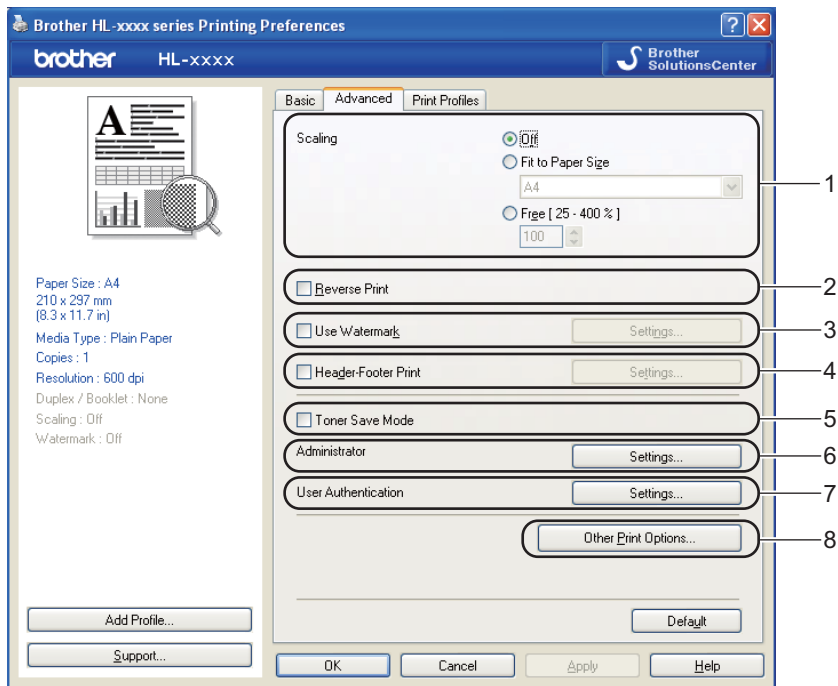
When you check **Binding Offset**, you can also specify the offset for binding in inches or millimetres.

## Paper Source

You can choose **Auto Select**, **Tray1**, **Tray2**<sup>1</sup>, **MP Tray** or **Manual** and specify separate trays for printing the first page and for printing from the second page onwards.

<sup>1</sup> Available if the optional tray is installed.

## Advanced tab



Change the tab settings by clicking one of the following selections:

- **Scaling (1)**
- **Reverse Print (2)**
- **Use Watermark (3)**
- **Header-Header Print (4)**
- **Toner Save Mode (5)**
- **Administrator (6)**
- **User Authentication (7)** (HL-5450DN only)
- **Other Print Options (8)**

### Scaling

You can change the print image scaling.

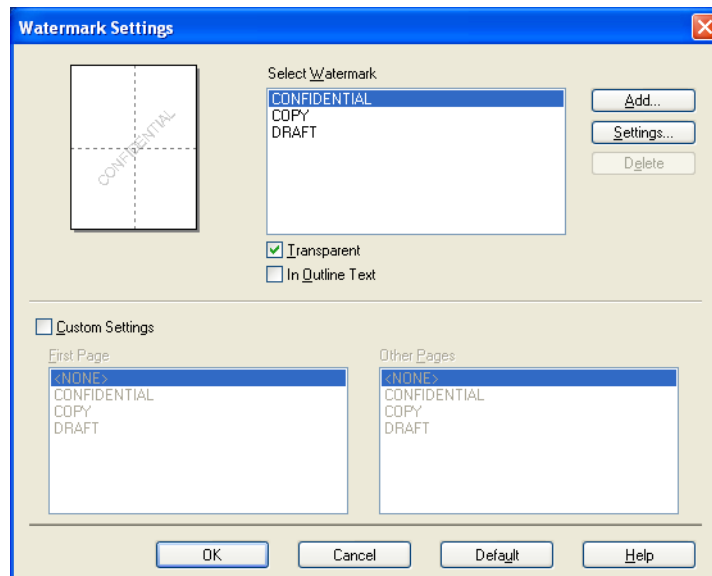
### Reverse Print

Check **Reverse Print** to reverse the data from up to down.

## Use Watermark

You can put a logo or text into your document as a watermark. You can choose one of the preset Watermarks, or you can use a bitmap file that you have created. Check **Use Watermark** and then click the **Settings...** button.

## Watermark Settings



### ■ Transparent

Check **Transparent** to print the watermarked image in the background of your document. If this feature is not checked then the watermark will be printed on top of your document.

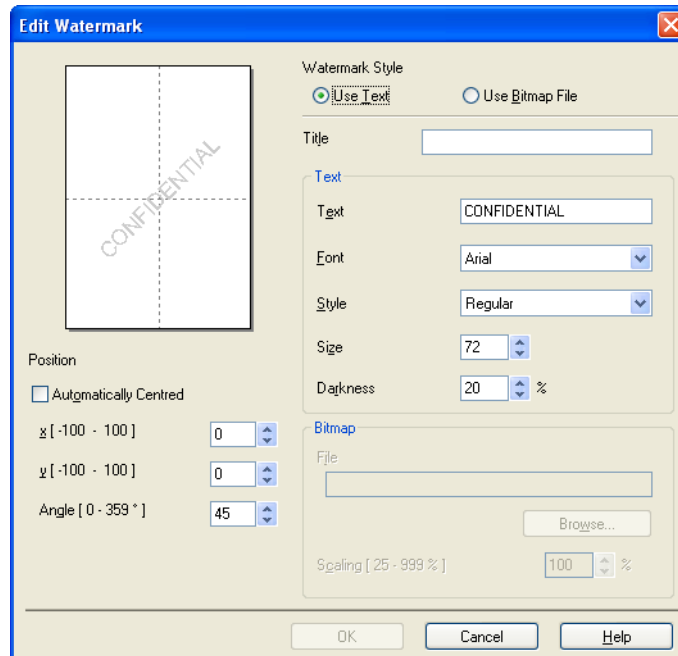
### ■ In Outline Text

Check **In Outline Text** if you only want to print an outline of the watermark. It is available when you choose a text watermark.

### ■ Custom Settings

You can choose to print which watermark to be printed on the first page or on the other pages.

Click the **Add** button to add the watermark settings and then choose **Use Text** or **Use Bitmap File** in **Watermark Style**.



- **Title**

Enter a suitable title into the field.

- **Text**

Enter your Watermark Text into the **Text** box, and then choose the **Font**, **Style**, **Size** and **Darkness**.

- **Bitmap**

Enter the file name and location of your bitmap image in the **File** box, or click **Browse** to search for the file. You can also set the scaling size of the image.

- **Position**

Use this setting if you want to control the position of the watermark on the page.



## Header-Header Print

When this feature is enabled, it will print the date and time on your document from your computer's system clock and the PC login user name or the text you entered. By clicking **Settings**, you can customize the information.

### ■ ID Print

If you select **Login User Name**, your PC login user name will print. If you select **Custom** and enter the text in the **Custom** edit box, the text you entered will print.

## Toner Save Mode

You can conserve toner use with this feature. When you set **Toner Save Mode** to On, prints appears lighter. The default setting is Off.

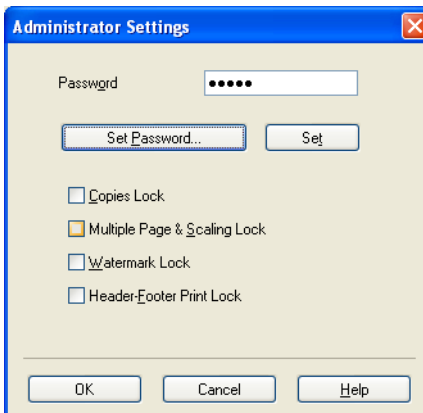


### Note

- 
- We do not recommend **Toner Save Mode** for printing photo or Greyscale images.
  - **Toner Save Mode** is not available for **HQ 1200** and **1200 dpi** resolutions.
-

## Administrator

Administrators have the authority to limit access to functions such as scaling and watermark.



### ■ Password

Enter the password into this box.



#### Note

Click **Set Password...** to change the password.

### ■ Copies Lock

Lock the copy pages selection to prevent multiple copy printing.

### ■ Multiple Page & Scaling Lock

Lock the scaling setting and multiple page setting.

### ■ Watermark Lock

Lock the current settings of the Watermark option to prevent changes being made.

### ■ Header-Footer Print Lock

Lock the current settings of the Header-Footer Print option to prevent changes being made.

## User Authentication (HL-5450DN only)

If you are restricted from PC Print by the Secure Function Lock 2.0 feature, you need to set your ID and PIN in the **User Authentication Settings** dialog. Click **Settings** of the **User Authentication** and enter your ID and PIN. If your PC login name is registered to Secure Function Lock 2.0, you can check the **Use PC Login Name** box instead of entering your ID and PIN.

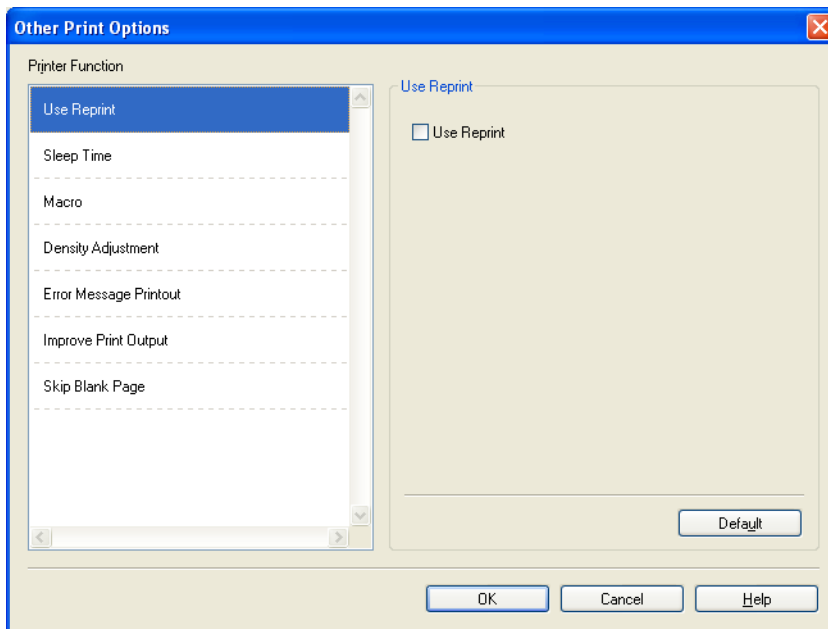
More information about Secure Function Lock 2.0 >> Network User's Guide



#### Note

- When you use the machine through a network you can see the information of your ID such as the status of restricted features and the number of remaining pages you are allowed to print by clicking the **Check Print Status**. The **Authentication result** dialog will appear.
- When you use the machine through a network, you can make the **Authentication result** dialog appear each time you print by checking the **Show print status before printing**.
- If you want to enter your ID and PIN each time you print, check the **Enter ID Name/PIN for each print job**.

## Other Print Options



You can set the following in Printer Function:

- **Use Reprint**
- **Sleep Time**
- **Macro**
- **Density Adjustment**
- **Error Message Printout**
- **Improve Print Output**
- **Skip Blank Page**

### Use Reprint

The machine keeps the print job sent to it in memory. You can reprint the last job without sending the data again from your computer. For more information about the Reprint function, see *Control panel keys* >> page 81.



#### Note

If you want to prevent other people from printing your data using the reprint function, uncheck the **Use Reprint** check box.

## Sleep Time

When the machine does not receive data for a certain period of time, it enters sleep mode. In sleep mode, the machine acts as though it were turned off. When you choose Printer Default, the timeout setting will be reset to the specific time set at the factory; this can be altered in the driver. Intelligent Sleep Mode automatically adjusts to the most suitable timeout setting depending on the frequency of your machine use.

While the machine is in Sleep Mode, the **Ready** LED is dimmed, but the machine can still receive data. Receiving a print job will automatically wake up the machine to start printing.

## Macro

You can save a page of a document as a macro to the machine's memory. You can also execute the saved macro (you can use the saved macro as an overlay on any document). This will save time and increase print speed for often used information such as forms, company logos, letterhead formats or invoices.

## Density Adjustment

Increase or decrease the print density.

## Error Message Printout

You can choose whether the machine reports problems by printing an error page.

Selections are **Printer Default**, **On** or **Off**.

## Improve Print Output

This feature allows you to improve a print quality problem.

### ■ Reduce Paper Curl

If you choose this setting, the paper curl may be reduced.

If you are printing only a few pages, you do not need to choose this setting. We recommend that you change the printer driver setting in **Media Type** to a thin setting.



### Note

---

This operation will decrease the temperature of the machine's fusing process.

---

### ■ Improve Toner Fixing

If you choose this setting, the toner fixing capabilities may be improved. If this selection does not provide enough improvement, change the printer driver setting in **Media Type** to a thick setting.



### Note

---

This operation will increase the temperature of the machine's fusing process.

---

### ■ Reduce Ghosting

If you are using the machine in a high humidity environment this setting may reduce ghosting on the paper. Do not use this setting if the ambient humidity is below 30% or ghosting may increase.



### Note

---

This feature may not reduce ghosting for all types of paper. Before you buy a lot of paper, test a small quantity to make sure that the paper is suitable.

---

## Skip Blank Page

If **Skip Blank Page** is checked, the printer driver automatically detects blank pages and excludes them from printing.



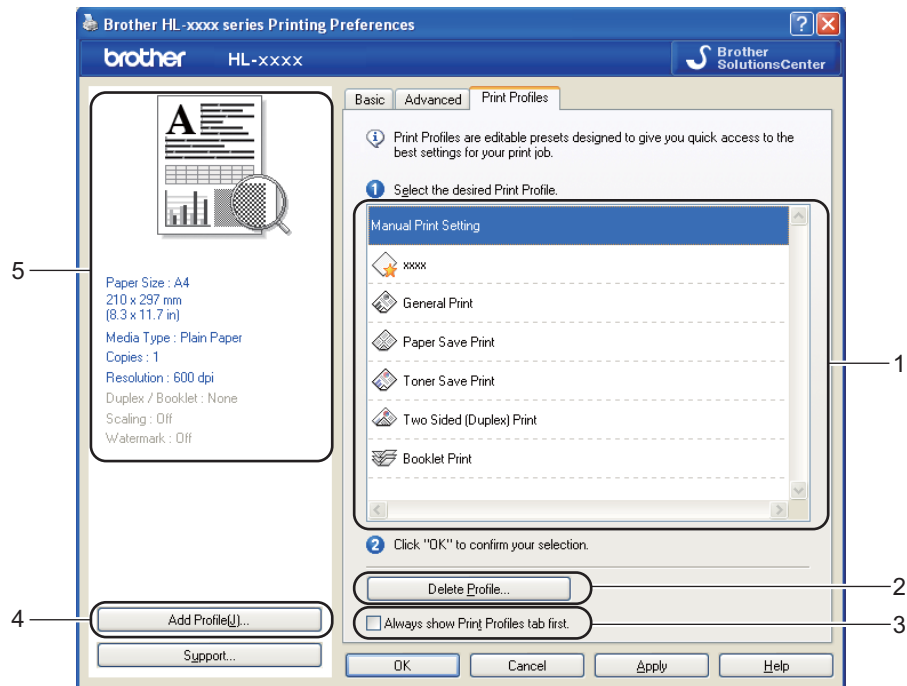
### Note

This option does not work when you choose the following options:

- **Use Watermark**
- **Header-Footer Print**
- **N in 1** and **1 in NxN Pages** in **Multiple Page**
- **Duplex (Manual)**, **Booklet**, **Booklet (Manual)** and **Duplex with Binding Offset** in **Duplex / Booklet**

## Print Profiles tab

**Print Profiles** are editable presets designed to give you quick access to frequently used printing configurations.



- **Print profile list box (1)**
- **Delete Profile (2)**
- **Always show Print Profiles tab first (3)**
- **Add Profile (4)**
- **Current print profile view (5)**

- 1 Choose your profile from the print profile list box.
- 2 If you want to display the **Print Profiles** tab at the front of the window from the next time you print, check **Always show Print Profiles tab first**.
- 3 Click **OK** to apply your chosen profile.

### Add Profile

The **Add Profile** dialog appears by clicking **Add Profile**. You can add 20 new profiles with your preferred settings.

- 1 Enter the desired title in **Name**.
- 2 Choose an icon you want to use from the Icon list, then click **OK**.
- 3 The current settings shown on the left side of the printer driver window will be saved.

## Delete Profile

The **Delete Profile** dialog appears by clicking **Delete Profile**. You can delete any of the profiles you have added.

- 1 Choose your profile from the print profile list box.
- 2 Click **Delete**.
- 3 The selected profile will be deleted.

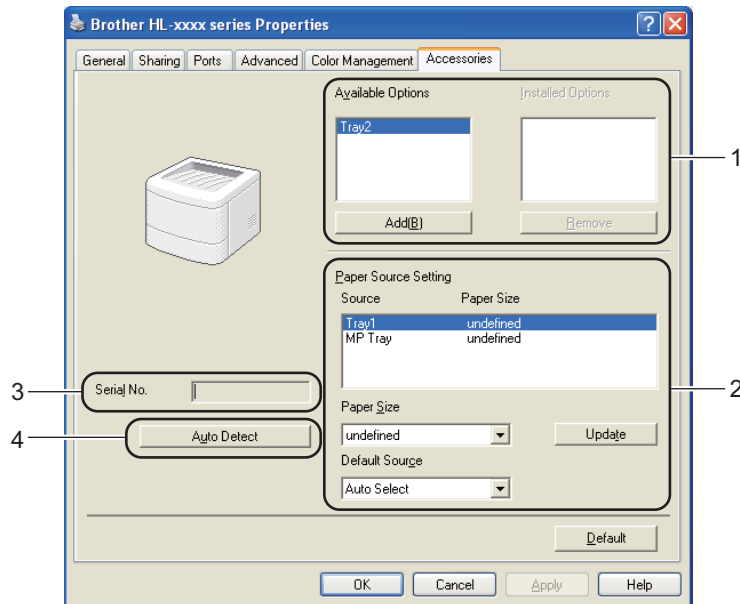
## Accessories tab



### Note

To access the **Accessories** tab, see *Accessing the printer driver settings* >> page 25.

You can define the paper size for each paper tray and auto detect the serial number in the **Accessories** tab as follows.



### ■ Available Options / Installed Options (1)

You can manually add and remove the options that are installed on the machine. Tray settings will match the installed options.

### ■ Paper Source Setting (2)

This feature identifies the paper size defined for each paper tray.

#### • Paper Size

This setting allows you to define which paper size is used for each tray. Highlight the tray you want to define and then choose the paper size from the pull-down menu. Click **Update** to apply the setting to the tray. When using more than one paper size you must define the paper size for each tray so the paper is pulled from the correct tray.

#### • Default Source

This setting allows you to choose the default paper source that your document will be printed from. Choose the **Default Source** from the pull-down menu and click Update to save your setting. The **Auto Select** setting will automatically pull paper from any tray that has a defined paper size that matches your document.

### ■ Serial No. (3)

By clicking **Auto Detect** (4), the printer driver will probe the machine and display its serial number. If it fails to receive the information, the screen will display “-----”.



### ■ **Auto Detect (4)**

The **Auto Detect** function finds the currently installed optional devices and shows the available settings in the printer driver. When you click **Auto Detect**, option tray that is installed on the machine will be listed in **Available Options (1)**. You can manually add or remove the options by choosing an optional device you want to add or remove, and then clicking **Add** or **Remove**.



#### **Note**

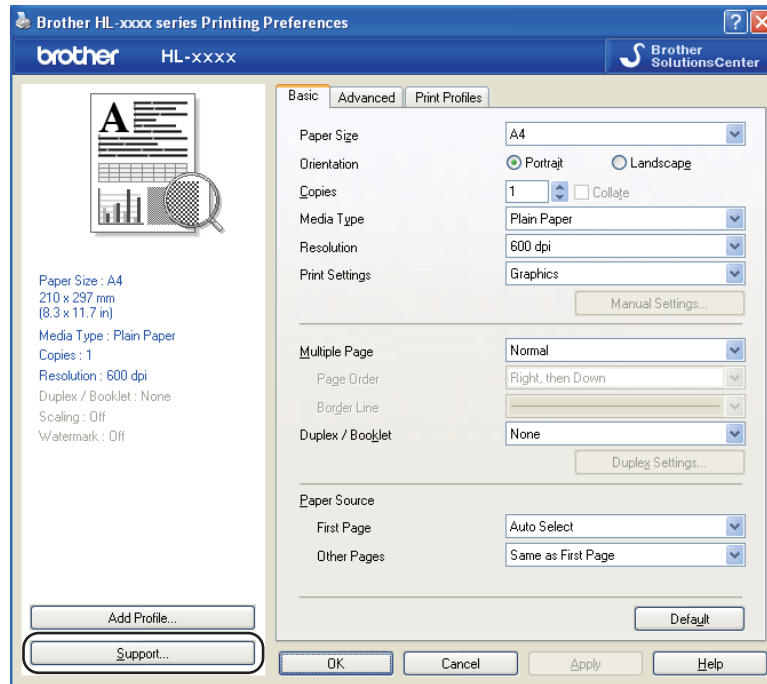
---

The **Auto Detect (4)** function is not available under the following machine conditions:

- The machine power switch is off.
  - The machine is in an error state.
  - The machine is connected to the print server using a USB or parallel cable in a shared network environment.
  - The cable is not connected to the machine correctly.
-

## Support

Click **Support...** in the **Printing Preferences** dialog box.



### ■ Brother Solutions Center (1)

The Brother Solutions Center (<http://solutions.brother.com/>) is a website offering information about your Brother product including FAQs (Frequently Asked Questions), User's Guides, driver updates and tips for using your machine.

■ **Genuine Supplies Website** (2)

You can visit our website for original/genuine Brother supplies by clicking this button.

■ **Brother CreativeCenter** (3)

You can visit our website for free and easy online solutions for business and home users by clicking this button.

■ **Print Settings** (4)

This button will print the pages that show how the internal settings of the machine have been configured.

■ **Check Setting...** (5)

You can check the current driver settings.

■ **About...** (6)

This button will list the printer driver files and version information.

■ **Print Fonts** (7)

This button will print the pages that show all the internal fonts of the machine.

## Features in the BR-Script3 printer driver (PostScript® 3™ language emulation)



### Note

The screens in this section are from Windows® XP. The screens on your PC may vary depending on your operating system.

2

## Printing Preferences

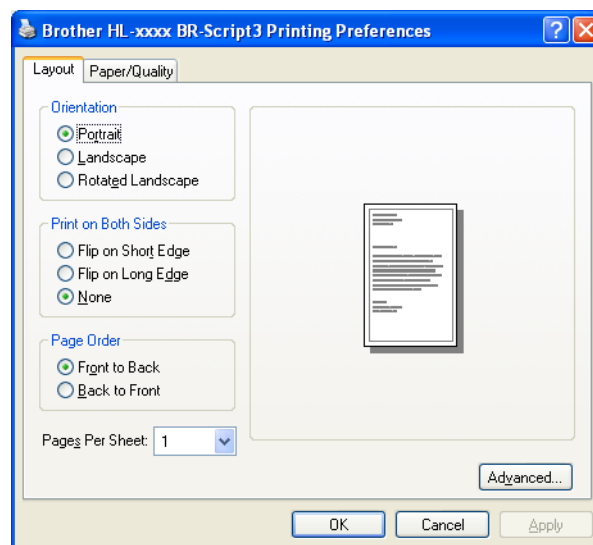


### Note

You can access the **Printing Preferences** dialog box by clicking **Printing Preferences...** in the **General** tab of the **Brother HL-XXXX BR-Script3 Properties** dialog box.

### ■ Layout tab

You can change the layout setting by choosing the settings for **Orientation**, **Print on Both Sides** (Duplex), **Page Order** and **Pages Per Sheet**.



- **Orientation**

Orientation selects the position of how your document will be printed.

(**Portrait**, **Landscape** or **Rotated Landscape**)

- **Print on Both Sides**

If you want to do duplex printing, choose **Flip on Short Edge** or **Flip on Long Edge**.

- **Page Order**

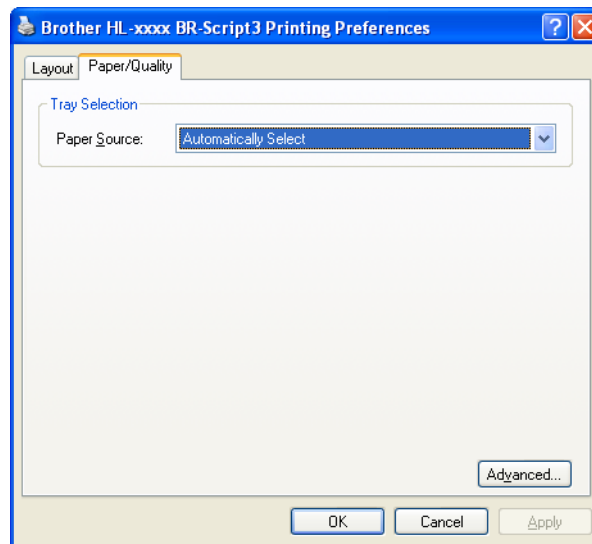
Specifies the order in which the pages of your document will be printed. **Front to Back** prints the document so that page 1 is on top of the stack. **Back to Front** prints the document so that page 1 is on the bottom of the stack.

- **Pages Per Sheet**

The **Pages Per Sheet** selection can reduce the image size of a page by allowing multiple pages to be printed on one sheet of paper. Also, you can print a document in the booklet style automatically when you choose **Booklet**.

- **Paper/Quality tab**

Choose the **Paper Source**.



- **Paper Source**

You can choose **Automatically Select**, **Auto Select**, **Tray1**, **Tray2**<sup>1</sup>, **MP Tray** or **Manual Feed**.

#### **Automatically Select**

This setting will automatically pull paper from any paper source that has a paper size defined in the printer driver that matches your document.

#### **Auto Select**

This setting will automatically pull paper from any paper source that has a paper size defined in the machine that matches your document.

#### **Tray1**

This setting will pull paper from Tray 1.

#### **Tray2**

This setting will pull paper from Tray 2. (Available if the optional tray is installed.)

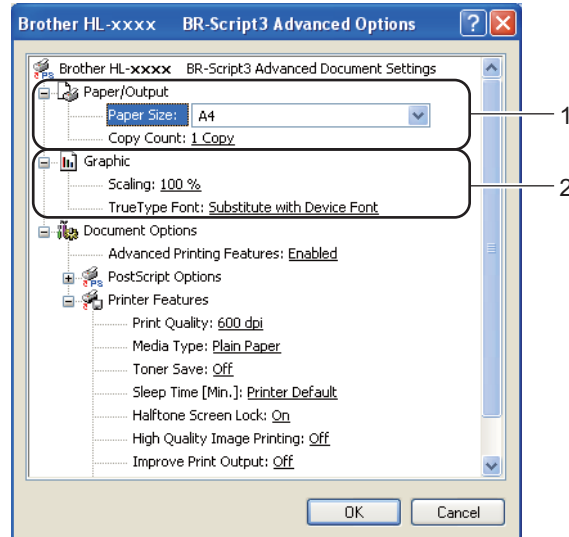
#### **MP Tray**

This setting will pull paper from the MP Tray. The paper size needs to match the defined paper size.

<sup>1</sup> Available if the optional tray is installed.

## Advanced options

You can access the **Advanced options** by clicking the **Advanced...** button on the **Layout** tab or **Paper/Quality** tab.



### 1 Choose the **Paper Size** and **Copy Count** (1).

#### ■ **Paper Size**

From the drop-down box choose the Paper Size you are using.

#### ■ **Copy Count**

The copy selection sets the number of copies that will be printed.

### 2 Set the **Scaling** and **TrueType Font** settings (2).

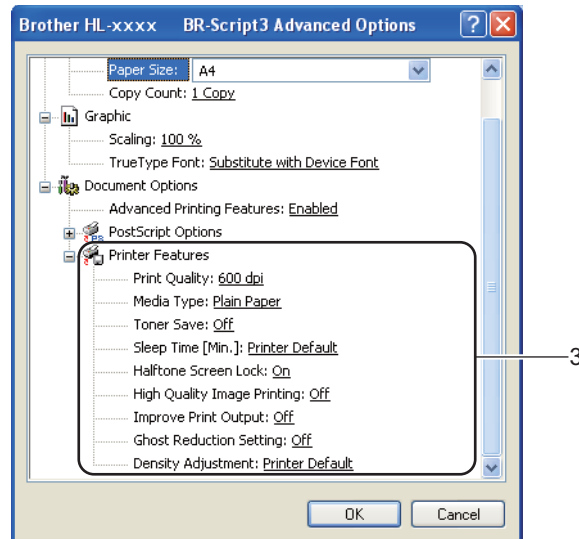
#### ■ **Scaling**

Specifies whether to reduce or enlarge documents, and by what percentage.

#### ■ **TrueType Font**

Specifies the TrueType font options. Click **Substitute with Device Font** (the default) to use equivalent printer fonts for printing documents that contain TrueType fonts. This will permit faster printing; however, you might lose special characters not supported by the printer font. Click **Download as Softfont** to download TrueType fonts for printing instead of using printer fonts.

- 3 You can change settings by choosing a setting in the **Printer Features** list (3):



### ■ Print Quality

You can choose the following print quality settings.

- 300 dpi
- 600 dpi
- HQ 1200
- 1200 dpi

### ■ Media Type

You can use the following types of media in your machine. For the best print quality, select the type of media that you wish to use.

- Plain Paper
- Thin Paper
- Thick Paper
- Thicker Paper
- Bond Paper
- Envelopes
- Env. Thick
- Env. Thin
- Recycled Paper
- Label

### ■ Toner Save

You can conserve toner use with this feature. When you set **Toner Save** to **On**, print appears lighter. The default setting is **Off**.



#### Note

- We do not recommend **Toner Save** for printing Photo or Greyscale images.
- **Toner Save** is not available for **HQ 1200** and **1200 dpi** resolutions.

### ■ Sleep Time [Min.]

When the machine does not receive data for a certain period of time, it enters sleep mode. In sleep mode, the machine acts as though it were turned off. When you choose Printer Default, the timeout setting will be reset to the specific time set at the factory; this can be altered in the driver. Intelligent Sleep Mode automatically adjusts to the most suitable timeout setting depending on the frequency of your machine use.

While the machine is in Sleep Mode, the **Ready** LED is dimmed, but the machine can still receive data. Receiving a print job will automatically wake up the machine to start printing.

### ■ Halftone Screen Lock

Stops other applications from modifying the Halftone settings. The default setting is **On**.

### ■ High Quality Image Printing

You can get high quality image printing. If you set **High Quality Image Printing** to **On**, the print speed will be slower.

### ■ Improve Print Output

This feature allows you to improve a print quality problem.

#### • Reduce Paper Curl

If you choose this setting, the paper curl may be reduced. If you are printing only a few pages, you do not need to choose this setting. We recommend that you change the printer driver setting in **Media Type** to a thin setting.



#### Note

This operation will decrease the temperature of the machine's fusing process.

#### • Improve Toner Fixing

If you choose this setting, the toner fixing capabilities may be improved. If this selection does not provide enough improvement, change the printer driver setting in **Media Type** to a thick setting.



#### Note

This operation will increase the temperature of the machine's fusing process.



■ **Ghost Reduction Setting**

If you are using the machine in a high humidity environment this setting may reduce ghosting on the paper. Do not use this setting if the ambient humidity is below 30% or ghosting may increase.



**Note**

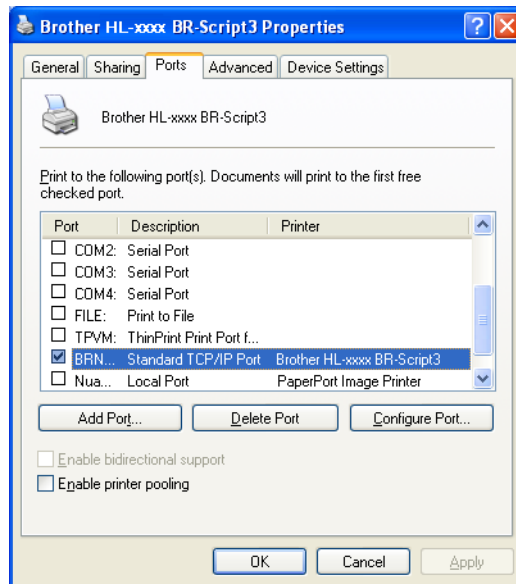
This feature may not reduce ghosting for all types of paper. Before you buy a lot of paper, test a small quantity to make sure that the paper is suitable.

■ **Density Adjustment**

Increase or decrease the print density.

**Ports tab**

If you want to change the port where your machine is connected or the path to the network machine you are using, choose or add the port you want to use.



## Uninstalling the printer driver

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You can uninstall the printer driver that you have installed with the following steps.



### Note

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- This is not available if you originally installed the printer driver from the Windows **Add a printer** function.
  - After uninstalling, we recommend that you restart your computer to remove files that were in use during the uninstall.
- 

- 1 Click the **Start** button, point to **All Programs**, **Brother**, and then to your machine name.
- 2 Click **UnInstall**.
- 3 Follow the instructions on the screen.

## Status Monitor



The **Status Monitor** utility is a configurable software tool for monitoring the status of one or more devices, allowing you to get immediate notification of error messages such as paper empty or paper jam.



You can check the device status at anytime by double-clicking the icon in the taskbar or by choosing **Status Monitor** located in **Start/All Programs/Brother/HL-XXXX** on your PC.

(Windows® 7)

If you have set the **Enable Status Monitor on startup** during installation, you will find the  button or **Status Monitor** icon on the taskbar.

To show the **Status Monitor** icon on your taskbar, click the  button. The **Status Monitor** icon will appear in the small window. Then drag the  icon to the taskbar.



There is also a link to the **Troubleshooting** and Brother Original Supplies website. Click **Visit the Original Supplies website** button for more information on Brother original supplies.



### Note

- For more information about using the Status Monitor software, right-click the **Status Monitor** icon and choose **Help**.
- The automatic software update feature is active when the status monitor feature is active.

## Monitoring the machine's status

The Status Monitor icon will change colour depending on the machine status.

- A green icon indicates the normal stand-by condition.



- A yellow icon indicates a warning.



- A red icon indicates a printing error has occurred.



There are two locations where you can display the **Status Monitor** on your PC - in the tasktray or on the desktop.

# Macintosh

## Features in the printer driver (Macintosh)

This machine supports Mac OS X 10.5.8 - 10.6.x - 10.7.x.



### Note

The screens in this section are from Mac OS X 10.5. The screens on your Macintosh will vary depending on your operating system version.

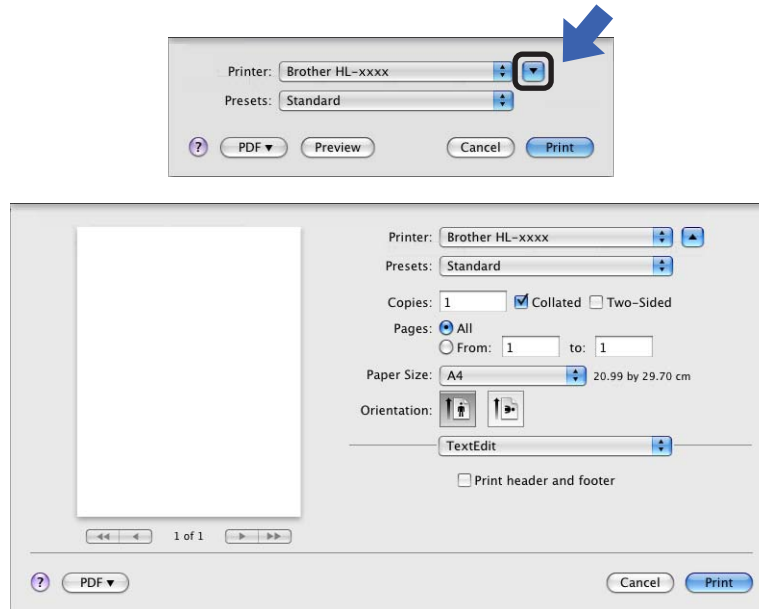
## Choosing page setup options

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

- 1 From an application such as TextEdit, click **File**, then **Page Setup**. Make sure **Brother HL-XXXX** (where XXXX is your model name.) is chosen in the **Format for** pop-up menu. You can change the settings for **Paper Size**, **Orientation** and **Scale**, then click **OK**.



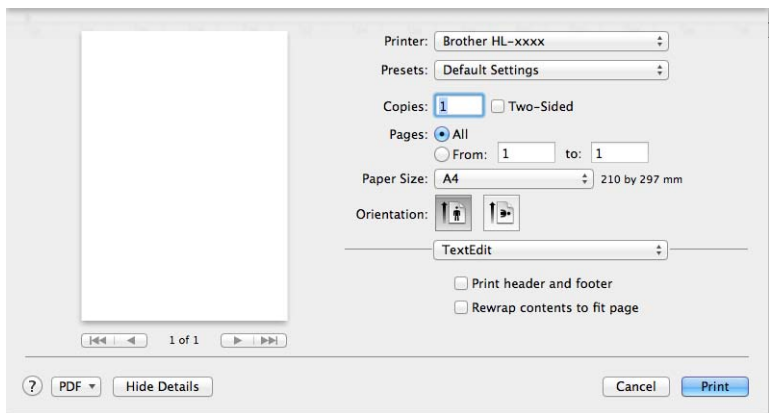
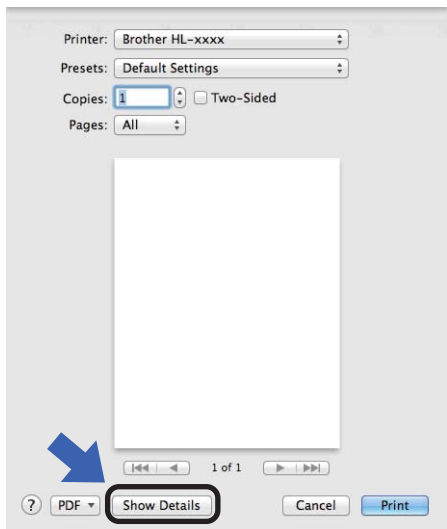
- 2 From an application such as TextEdit, click **File**, then **Print** to start printing.
  - (For Mac OS X 10.5.8 and 10.6.x)  
For more page setup options, click the disclosure triangle beside the Printer pop-up menu.



**Note**

You can save the current settings as a preset by choosing **Save As** from the **Presets** drop-down list.

- (For Mac OS X 10.7.x)  
For more page setup options, click the **Show Details** button.

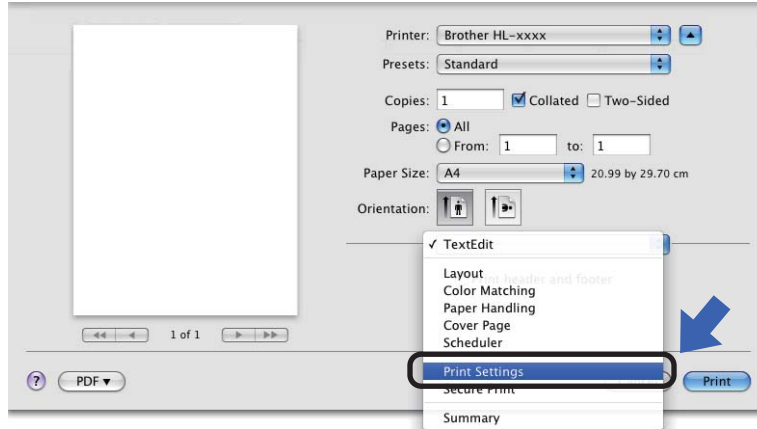


**Note**

You can save the current settings as a preset by choosing **Save Current Settings as Preset...** from the **Presets** drop-down list.

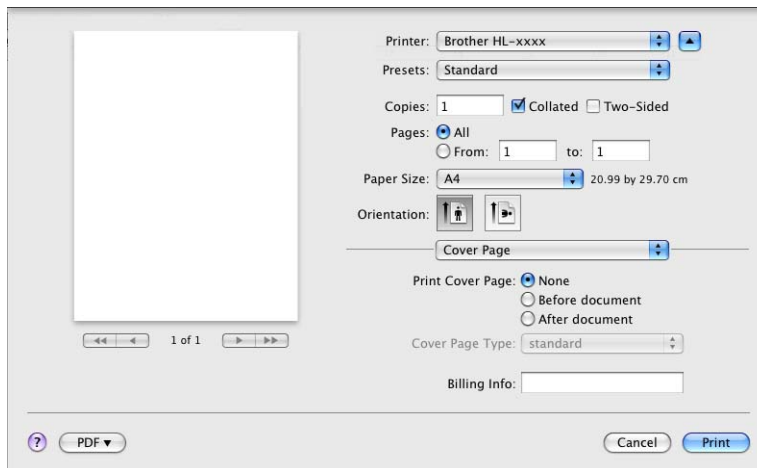
## Choosing printing options

To control special printing features, choose **Print Settings** from the Print dialog box. For the details of available options, see the following descriptions of each option.



## Cover Page

You can choose the following cover page settings:



### ■ Print Cover Page

If you want to add a cover page to your document, use this function.

### ■ Cover Page Type

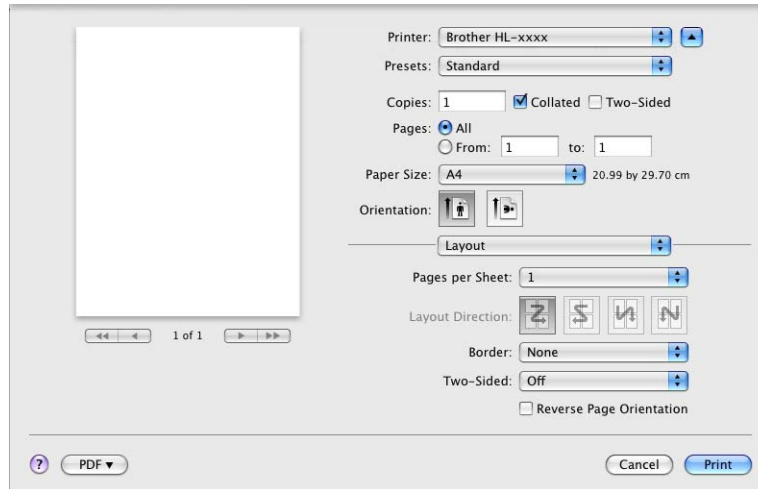
Choose a template for the cover page.

### ■ Billing Info

If you want to add the billing information to the cover page, enter text in the **Billing Info** box.



## Layout



### ■ Pages per Sheet

The **Pages per Sheet** selection can reduce the image size of a page by allowing multiple pages to be printed on one sheet of paper.

### ■ Layout Direction

When you specify the pages per sheet, you can also specify the direction of the layout.

### ■ Border

If you want to add a border, use this function.

### ■ Two-Sided

See *Duplex (2-sided) Printing* >> page 62.

### ■ Reverse Page Orientation

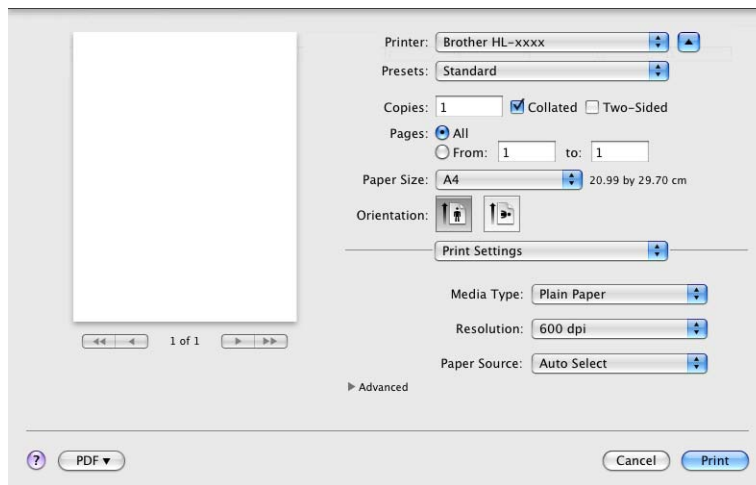
Check **Reverse Page Orientation** to reverse the data from up to down.

### ■ Flip horizontally (Mac OS X 10.6.x and 10.7.x)

Check **Flip horizontally** to print as a reflection flipped left-to-right.

## Print Settings

You can change settings by choosing a setting in the **Print Settings** list:



### ■ Media Type

You can change the media type to one of the following:

- Plain Paper
- Thin Paper
- Thick Paper
- Thicker Paper
- Bond Paper
- Envelopes
- Env. Thick
- Env. Thin
- Recycled Paper
- Label

### ■ Resolution

You can change the resolution as follows:

- 300 dpi
- 600 dpi
- HQ 1200
- 1200 dpi

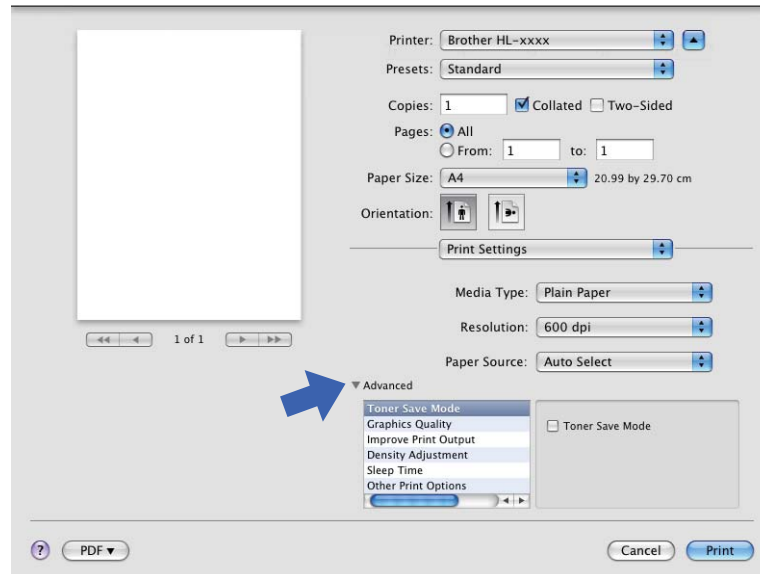
### ■ Paper Source

You can choose **Auto Select**, **Tray1**, **Tray2**<sup>1</sup>, **MP Tray** or **Manual**.

<sup>1</sup> Available if the optional tray is installed.

## Advanced print settings

When you click the triangle mark (▶) beside **Advanced**, the advanced print settings appear.



### ■ Toner Save Mode

You can conserve toner use with this feature. When you set **Toner Save Mode** to On, print appears lighter. The default setting is Off.

#### Note

- We do not recommend **Toner Save Mode** for printing Photo or Greyscale images.
- **Toner Save Mode** is not available for **HQ 1200** and **1200 dpi** resolutions.

### ■ Graphics Quality

You can change the print quality as follows:

#### • Graphics

This is a graphics mode (contrast priority). Choose this setting for printing text and figures, such as business and presentation documents. You can represent sharp contrasts between shaded areas.

#### • Text

This is the best mode for printing text documents.

### ■ Improve Print Output

This feature allows you to improve a print quality problem.

#### • Reduce Paper Curl

If you choose this setting, the paper curl may be reduced.

If you are printing only a few pages, you do not need to choose this setting. We recommend that you change the printer driver setting in **Media Type** to a thin setting.

#### Note

This operation will decrease the temperature of the machine's fusing process.

- **Improve Toner Fixing**

If you choose this setting, the toner fixing capabilities may be improved. If this selection does not provide enough improvement, change the printer driver setting in **Media Type** to a thick setting.



**Note**

This operation will increase the temperature of the machine's fusing process.

- **Reduce Ghosting**

If you are using the machine in a high humidity environment this setting may reduce ghosting on the paper. Do not use this setting if the ambient humidity is below 30% or ghosting may increase.



**Note**

This feature may not reduce ghosting for all types of paper. Before you buy a lot of paper, test a small quantity to make sure that the paper is suitable.

- **Density Adjustment**

Increase or decrease the print density.

- **Sleep Time**

When the machine does not receive data for a certain period of time, it enters sleep mode. In sleep mode, the machine acts as though it were turned off. When you choose **Printer Default**, the timeout setting will be reset to the specific time set at the factory; this can be altered in the driver. If you want to change the Sleep Time, choose **Manual** and then enter the time in the text box on the driver.

While the machine is in Sleep Mode, the **Ready** LED is dimmed, but the machine can still receive data. Receiving a print job will automatically wake up the machine to start printing.

- **Other Print Options**

- **Skip Blank Page**

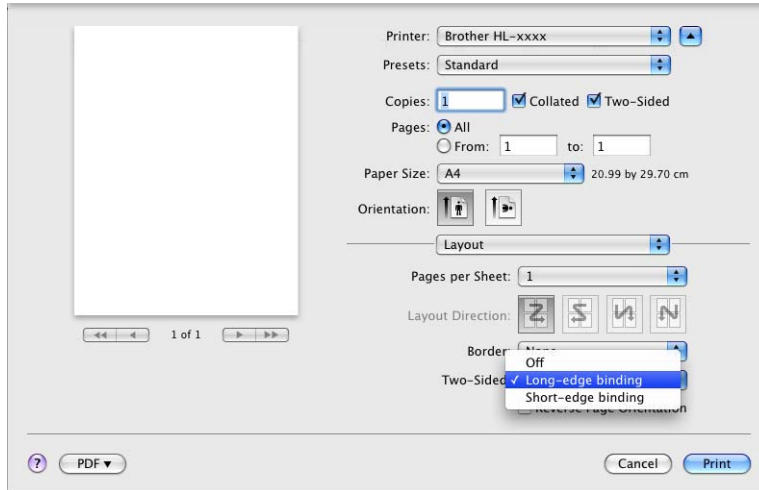
If **Skip Blank Page** is checked, the printer driver automatically detects blank pages and excludes them from printing.

## Duplex (2-sided) Printing

### ■ Automatic Duplex Printing

Select **Layout**.

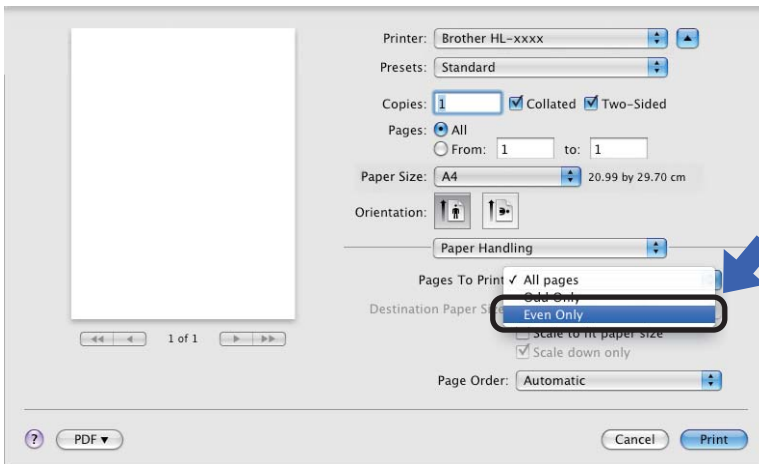
Choose **Long-edge binding** or **Short-edge binding** in **Two-Sided**.



### ■ Manual Duplex Printing

Select **Paper Handling**.

- Choose **Even Only** and **Print**. Reload the printed paper into the tray (blank side face down in Tray 1 or Tray 2, or blank side face up in MP tray). Choose **Odd Only** and **Print**.



## Features in the BR-Script3 printer driver (PostScript® 3™ language emulation)

This section introduces the distinctive operations of the BR-Script3 printer driver. For the basic operations of the BR-Script3 printer driver, see *Features in the printer driver (Macintosh)* >> page 54 for **Page Setup**, **Cover Page**, **Paper Source** and **Layout**.

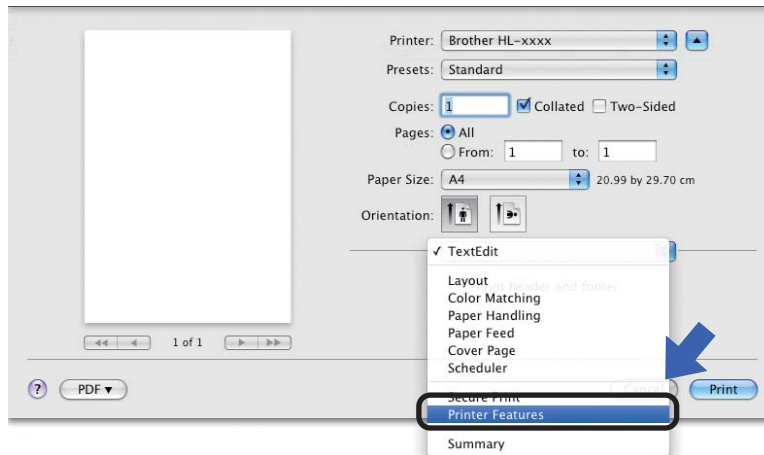


### Note

If you want to setup the PS driver (BR-Script3 printer driver), please go to the Brother Solutions Center at <http://solutions.brother.com/> and visit FAQ's on your model page for instructions.

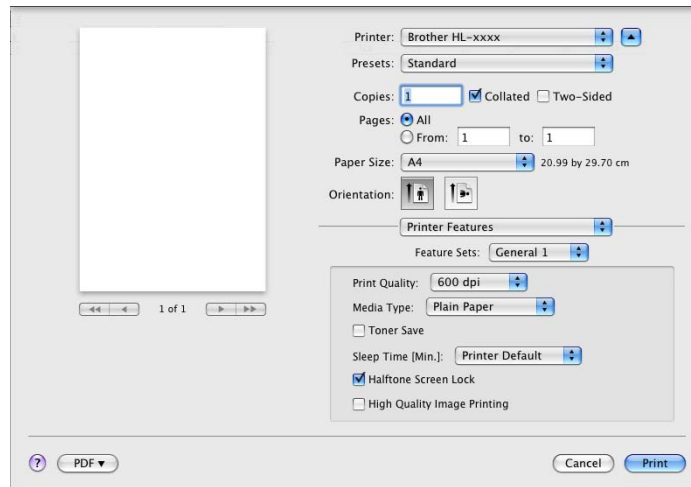
## Choosing printing options

To control special printing features, choose **Printer Features** from the Print dialog box.



## Printer Features

### Feature Sets: General 1



#### ■ Print Quality

You can change the resolution as follows:

- 300 dpi
- 600 dpi
- HQ 1200
- 1200 dpi

#### ■ Media Type

You can change the media type to one of the following:

- Plain Paper
- Thin Paper
- Thick Paper
- Thicker Paper
- Bond Paper
- Envelopes
- Env. Thick
- Env. Thin
- Recycled Paper
- Label
- Hagaki<sup>1</sup>

<sup>1</sup> Postcard with the size specified by Japan Post Service Co., LTD

### ■ Toner Save

You can conserve toner using this feature. When you check **Toner Save**, your prints appear lighter. The default setting is Off.



#### Note

- We do not recommend **Toner Save** for printing Photo or Greyscale images.
- **Toner Save** is not available for **HQ 1200** and **1200 dpi** resolutions.

### ■ Sleep Time [Min.]

When the machine does not receive data for a certain period of time, it enters sleep mode. In sleep mode, the machine acts as though it were turned off. When you choose **Printer Default**, the timeout setting will be reset to the specific time set at the factory; this can be altered in the driver. If you want to change the Sleep Time, choose **2**, **10** or **30**.

While the machine is in Sleep Mode, the **Ready** LED is dimmed, but the machine can still receive data. Receiving a print job will automatically wake up the machine to start printing.

### ■ Halftone Screen Lock

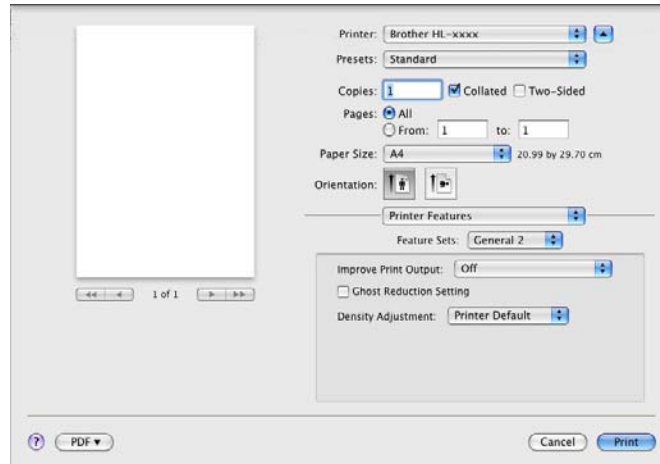
Stops other applications from modifying the Halftone settings. The Default setting is on.

### ■ High Quality Image Printing

You can increase the quality of image printing. If you set **High Quality Image Printing** to On, the print speed will be slower.



## Feature Sets: General 2



### ■ Improve Print Output

This feature allows you to improve a print quality problem.

#### • Reduce Paper Curl

If you choose this setting, the paper curl may be reduced.

If you are printing only a few pages, you do not need to choose this setting. We recommend that you change the printer driver setting in **Media Type** to a thin setting.



#### Note

This operation will decrease the temperature of the machine's fusing process.

#### • Improve Toner Fixing

If you choose this setting, the toner fixing capabilities may be improved. If this selection does not provide enough improvement, change the printer driver setting in **Media Type** to a thick setting.



#### Note

This operation will increase the temperature of the machine's fusing process.

### ■ Ghost Reduction Setting

If you are using the machine in a high humidity environment this setting may reduce ghosting on the paper. Do not use this setting if the ambient humidity is below 30% or ghosting may increase.



#### Note

This feature may not reduce ghosting for all types of paper. Before you buy a lot of paper, test a small quantity to make sure that the paper is suitable.

### ■ Density Adjustment

Increase or decrease the print density.

## Removing the printer driver

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- 1 Log in as an 'Administrator'.
- 2 From the Apple menu, choose **System Preferences**. Click **Print & Fax**<sup>1</sup>, then choose the printer you want to remove and remove it by clicking the - button.
- 3 Click **OK**<sup>2</sup>.

<sup>1</sup> **Print & Scan** for Mac OS X 10.7.x users

<sup>2</sup> **Delete Printer** for Mac OS X 10.6.x and 10.7.x users

## Status Monitor

The **Status Monitor** utility is a configurable software tool for monitoring the status of the machine, letting you see error messages such as paper empty or paper jam at pre-set update intervals.

You can also access the web based management (HL-5450DN only).

You can check the device status by launching Brother Status Monitor following these steps:

■ For Mac OS X 10.5.8

- 1 Run the **System Preferences**, select **Print & Fax**, then choose the machine.
- 2 Click the **Open Print Queue...**, then click **Utility**. Status Monitor will start up.

■ For Mac OS X 10.6.x

- 1 Run the **System Preferences**, select **Print & Fax**, then choose the machine.
- 2 Click the **Open Print Queue...**, then click **Printer Setup**. Select the **Utility** tab then click **Open Printer Utility**. Status Monitor will start up.

■ For Mac OS X 10.7.x

- 1 Run the **System Preferences**, select **Print & Scan**, then choose the machine.
- 2 Click the **Open Print Queue...**, then click **Printer Setup**. Select the **Utility** tab then click **Open Printer Utility**. Status Monitor will start up.

### Updating the machine's status

If you want the latest machine status while the **Status Monitor** window is open, click the Refresh  icon.

You can set the interval at which the software will update the machine status information. Go to the menu bar, **Brother Status Monitor** and choose **Preferences**.



## Hiding or showing the window

After starting the **Status Monitor**, you can hide or show the window. To hide the window, go to the menu bar, **Brother Status Monitor** and choose **Hide Status Monitor**. To show the window, click the **Brother Status Monitor** icon in the dock.



## Quitting the window

Click **Brother Status Monitor** in the menu bar and then choose **Quit Status Monitor** from the pop-up menu.

## Web Based Management (For HL-5450DN in network connection)

You can access the Web Based Management System by clicking the machine icon on the **Status Monitor** screen. A standard Web Browser can be used to manage your machine using HTTP (Hyper Text Transfer Protocol).

More information on the Web Based Management System >> Network User's Guide: *Web Based Management*

# Software

## Software for networks

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For the information about network utility software >> Network User's Guide: *Network features*

## Remote Printer Console (Windows® only)

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Remote Printer Console is software to change many of the printer settings independently of your application. For example, you can change the settings for printer margin, sleep mode, character set and so on. These settings are then remembered and used by the machine. The application and printer driver settings will take priority over the Remote Printer Console settings.

### How to use and install the Remote Printer Console software

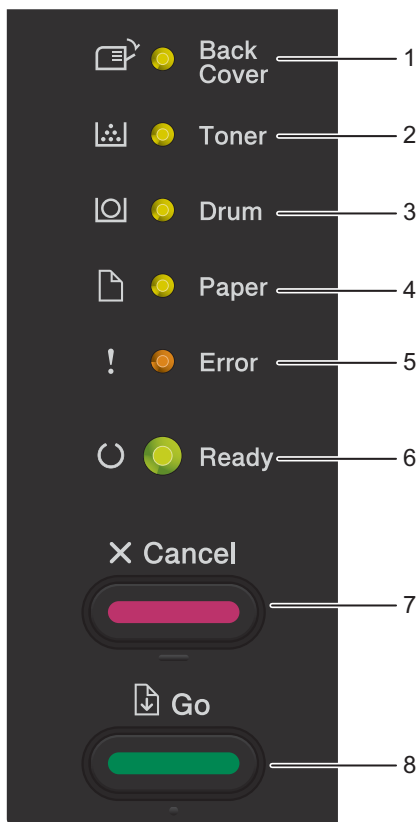
To use the Remote Printer Console software, follow the steps below.

- 1 Put the supplied installation CD-ROM into your CD-ROM drive and close the opening screen when it appears.
- 2 Open Windows® Explorer and choose the CD-ROM drive.
- 3 Double-click the **tools** folder.
- 4 Double-click the **RPC** folder.
- 5 Refer to the **RPC\_User's\_Guide.pdf** for how to install and use the Remote Printer Console.

## Control panel

### LEDs (Light Emitting Diodes)

This section refers to six LEDs and two keys on the control panel.



#### 1 **Back Cover** LED

The **Back Cover** LED indicates when the errors occur in the back of the machine or the duplex tray.

#### 2 **Toner** LED

The **Toner** LED indicates that the Toner is low.

#### 3 **Drum** LED

The **Drum** LED indicates that the Drum will need to be replaced soon.

#### 4 **Paper** LED

The **Paper** LED indicates when the machine has errors relating to paper feeding.

#### 5 **Error** LED

The **Error** LED indicates that the machine is in error state. Also, the **Error** LED indicates the kind of error in combination with other LEDs.

#### 6 **Ready** LED

The **Ready** LED will blink depending on the machine status.

#### 7 **Cancel** Key



















1 Job Cancel / All Jobs Cancel



















#### 8 **Go** Key

Error recovery / Form feed / Reprint



















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

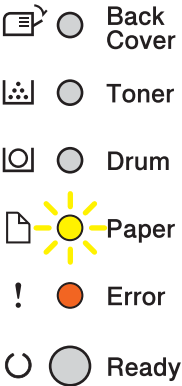
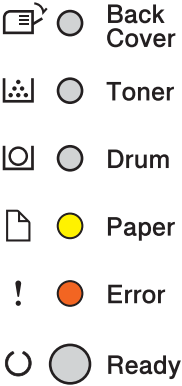
|  |                  |
|--|------------------|
|  | LED is off.      |
|  | LED is on.       |
|  | LED is dimmed.   |
|  | LED is blinking. |



















| LEDs  | Machine Status   |
|---|--|
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input type="radio"/> Error</li> <li> <input checked="" type="radio"/> Ready</li> </ul>             | <p><b>Sleep</b></p> <p>The machine is in Sleep Mode (Power Save mode). While the machine is in Sleep Mode, the <b>Ready</b> LED is dimmed, but the machine can still receive data. Receiving a print job will automatically wake up the machine to start printing.</p> <p>For more information, see <i>Sleep Time</i> &gt;&gt; page 86.</p> <hr/> <p><b>Deep Sleep</b></p> <p>The machine is in Deep Sleep Mode, reducing more power consumption than Sleep mode. While the machine is in Deep Sleep Mode, the <b>Ready</b> LED is dimmed, but the machine can still receive data. Receiving a print job will automatically wake up the machine to start printing.</p> <p>For more information, see <i>Deep Sleep mode</i> &gt;&gt; page 86.</p> |
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input type="radio"/> Error</li> <li> <input checked="" type="radio"/> Ready</li> </ul>      | <p><b>Ready</b></p> <p>The machine is ready to print.</p> <hr/> <p><b>Printing</b></p> <p>The machine is printing.</p>   |
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input type="radio"/> Error</li> <li> <input checked="" type="radio"/> Ready</li> </ul> | <p><b>Please Wait</b></p> <p>The machine is warming up.</p> <hr/> <p><b>Cooling Down</b></p> <p>The machine is cooling down. Wait for a few seconds until the inside of the machine has cooled down.</p> <hr/> <p><b>Receiving Data</b></p> <p>The machine is either receiving data from the computer or processing data in the memory.</p> <hr/> <p><b>Data Remaining</b></p> <p>There is remaining print data in the machine's memory. If the <b>Ready</b> LED is blinking for a long time and nothing has printed, press <b>Go</b> to print the remaining data in the memory.</p>   |



















| LEDs   | Machine Status  |
|--|---|
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input checked="" type="radio"/> Toner</li> <li> <input type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input type="radio"/> Error</li> <li> <input checked="" type="radio"/> Ready</li> </ul>             | <p><b>Toner Low</b></p> <p>The toner cartridge will need to be replaced soon. Buy a new toner cartridge and have it ready for when <b>Replace Toner</b> is indicated.</p> <p>The <b>Toner</b> LED will turn on for 2 seconds and off for 3 seconds.</p>   |
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input checked="" type="radio"/> Toner</li> <li> <input type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input checked="" type="radio"/> Error</li> <li> <input type="radio"/> Ready</li> </ul>        | <p><b>Replace Toner</b></p> <p>Replace the toner cartridge with a new one.</p> <p>See <i>Replacing the toner cartridge</i> &gt;&gt; page 94.</p>  |
|  | <p><b>No Toner</b></p> <p>Remove the drum unit and toner cartridge assembly, remove the toner cartridge from the drum unit, and re-install the toner cartridge back into the drum unit again. Re-install the drum unit and toner cartridge assembly back in the machine. If the problem continues, replace the toner cartridge.</p> <p>See <i>Replacing the toner cartridge</i> &gt;&gt; page 95.</p> |
|  | <p><b>Cartridge Error</b></p> <p>The drum unit and toner cartridge assembly is not installed correctly. Take the drum unit and toner cartridge assembly out of the machine and put it back in.</p>  |
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input checked="" type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input type="radio"/> Error</li> <li> <input checked="" type="radio"/> Ready</li> </ul> | <p><b>Drum End Soon</b></p> <p>The drum unit will need to be replaced soon. We recommend that you get a new drum unit to replace the current one.</p> <p>See <i>Replacing the drum unit</i> &gt;&gt; page 103.</p> <p>The <b>Drum</b> LED will turn on for 2 seconds and off for 3 seconds.</p>   |









| LEDs   | Machine Status  |
|--|---|
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input checked="" type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input type="radio"/> Error</li> <li> <input checked="" type="radio"/> Ready</li> </ul>             | <p><b>Replace Drum</b></p> <p>Replace the drum with a new one.<br/>See <i>Replacing the drum unit</i> &gt;&gt; page 103.</p>  |
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input checked="" type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input checked="" type="radio"/> Error</li> <li> <input type="radio"/> Ready</li> </ul>       | <p><b>Drum Error</b></p> <p>The corona wire needs to be cleaned. See <i>Cleaning the corona wire</i> &gt;&gt; page 110.</p> <p>If the toner cartridge is placed in the machine without the drum unit, put the toner cartridge into the drum unit, and then reinstall the drum unit and toner cartridge assembly in the machine.</p> |
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input checked="" type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input checked="" type="radio"/> Error</li> <li> <input type="radio"/> Ready</li> </ul> | <p><b>Drum Stop</b></p> <p>Replace the drum with a new one.<br/>See <i>Replacing the drum unit</i> &gt;&gt; page 103.</p>   |

| LEDs  | Machine Status  |
|---|---|
|    | <p><b>Cover is Open</b></p> <p>Close the fuser cover located behind the back cover of the machine.</p> <p>Make sure paper is not jammed inside the back of the machine, and then close the fuser cover and press <b>Go</b>.</p>   |
|   | <p><b>No Tray</b></p> <p>The machine cannot detect the standard paper tray (Tray 1). Re-install the standard paper tray (Tray 1), or ensure it is installed correctly.</p>  |
|   | <p><b>Jam MP Tray / Jam Tray 1 / Jam Tray 2 / Jam Inside</b></p> <p>Clear the paper jam.</p> <p>See <i>Jam MP Tray / Jam Tray 1 / Jam Tray 2 / Jam Inside</i> &gt;&gt; page 125.</p> <p>If the machine does not start printing, press <b>Go</b>.</p> <p>If the toner cartridge is placed in the machine without the drum unit, put the toner cartridge into the drum unit, and then reinstall the drum unit and toner cartridge assembly in the machine.</p>                  |
|   | <p><b>Size Error DX</b></p> <p>There are two possible causes:</p> <ul style="list-style-type: none"> <li>■ The paper size defined in the printer driver is not available for automatic duplex printing. Press <b>Cancel</b>. Please choose A4 size for automatic duplex printing.</li> <li>■ The paper in the tray is not correct size and is not available for automatic duplex printing. Please load A4 size of paper in the tray for automatic duplex printing.</li> </ul> |
|  | <p><b>Size Mismatch</b></p> <p>Put the same size paper in the paper tray that is selected in the printer driver, and then press <b>Go</b>, or select the size of paper that you loaded in the paper tray.</p>   |
|   | <p><b>No Paper</b></p> <p>Put paper in the paper tray you are using.</p> <p>See <i>Loading paper</i> &gt;&gt; page 9.</p> <p><b>Manual Feed</b></p> <p><b>Manual</b> was selected as the paper source when there was no paper in the MP tray. Place paper in the MP tray. If the machine does not start printing, press <b>Go</b>.</p>  |

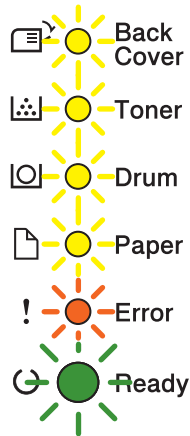
| LEDs   | Machine Status  |
|--|---|
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input checked="" type="radio"/> Error</li> <li> <input type="radio"/> Ready</li> </ul>  | <p><b>Cover is Open</b></p> <p>Close the front cover of the machine.</p>  |
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input checked="" type="radio"/> Error</li> <li> <input type="radio"/> Ready</li> </ul>  | <p><b>Log Access Error</b> (HL-5450DN only)</p> <p>The machine could not access the print log file in the server. Contact your administrator to check the Store Print Log to Network settings.</p>  |
|  | <p><b>Out of Memory</b></p> <p>Reduce the complexity of your document or reduce the print resolution.<br/>Add more memory (HL-5450DN only).<br/>(See <i>Installing extra memory</i> &gt;&gt; page 91.)</p>  |
|  | <p><b>Access Denied</b> (HL-5450DN only)</p> <p>Printing is restricted by Secure Function Lock 2.0.<br/>Contact your administrator to check your Secure Function Lock Settings.</p>   |
|  | <p><b>Limit Exceeded</b> (HL-5450DN only)</p> <p>The number of pages you are allowed to print has been exceeded. The print job will be cancelled.<br/>Contact your administrator to check your Secure Function Lock Settings.</p>   |
| <ul style="list-style-type: none"> <li> <input checked="" type="radio"/> Back Cover</li> <li> <input checked="" type="radio"/> Toner</li> <li> <input checked="" type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input checked="" type="radio"/> Error</li> <li> <input type="radio"/> Ready</li> </ul> | <p><b>DIMM Error</b> (HL-5450DN only)</p> <p>The DIMM (Dual In-Line Memory Module) is not installed correctly. Or the DIMM is broken or does not meet the required specifications.<br/>Turn off the machine and remove the DIMM.<br/>(See <i>Installing extra memory</i> &gt;&gt; page 91.)<br/>Confirm that the DIMM meets the required specifications.<br/>(For details, see <i>SO-DIMM types</i> &gt;&gt; page 90.)<br/>Re-install the DIMM correctly. Wait a few seconds, and then turn the machine on again.<br/>If this indication continues, replace the DIMM with a new one.<br/>(See <i>Installing extra memory</i> &gt;&gt; page 91.)</p> |

| LEDs  | Machine Status   |
|---|--|
| <ul style="list-style-type: none"> <li> <input type="radio"/> Back Cover</li> <li> <input checked="" type="radio"/> Toner</li> <li> <input checked="" type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input checked="" type="radio"/> Error</li> <li> <input type="radio"/> Ready</li> </ul>             | <p><b>Main PCB Failure</b></p> <p>Turn off the power switch, and then turn it back on and try to print again.<br/>If the error occurs again, call your dealer or Brother Customer Service.</p>                 |
| <ul style="list-style-type: none"> <li> <input checked="" type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input type="radio"/> Drum</li> <li> <input type="radio"/> Paper</li> <li> <input checked="" type="radio"/> Error</li> <li> <input type="radio"/> Ready</li> </ul>                 | <p><b>Cover is Open</b></p> <p>Close the fuser cover located behind the back cover of the machine.</p> <hr/> <p><b>Duplex Disabled</b></p> <p>Put the duplex tray in the machine and close the back cover.</p> |
| <ul style="list-style-type: none"> <li> <input checked="" type="radio"/> Back Cover</li> <li> <input type="radio"/> Toner</li> <li> <input type="radio"/> Drum</li> <li> <input checked="" type="radio"/> Paper</li> <li> <input checked="" type="radio"/> Error</li> <li> <input type="radio"/> Ready</li> </ul> | <p><b>Jam Rear / Jam Duplex</b></p> <p>Clear the paper jam.<br/>See <i>Jam Rear / Jam Duplex</i> ►► page 129.<br/>If the machine does not start printing, press <b>Go</b>.</p>                                 |

| LEDs   | Machine Status   |
|--|--|
| <p> <input type="radio"/> Back Cover</p> <p> <input type="radio"/> Toner</p> <p> <input type="radio"/> Drum</p> <p> <input type="radio"/> Paper</p> <p> <input checked="" type="radio"/> Error</p> <p> <input type="radio"/> Ready</p> | <p><b>Cancel Printing / Cancel All Jobs</b></p> <p>The machine is canceling the job.</p> |

## Service call indications

If there is an error that cannot be cleared by the user, the machine will show that a service call is needed by lighting up all the LEDs as shown below.



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

If the error is not cleared after turning the power switch off and then back on, press **Go** and **Cancel** together, the LEDs will light up as shown in the following table to identify the error.

### LED error indication

| LEDs       | Main PCB failure | Fuser unit failure <sup>1</sup> | Laser unit failure | Main motor failure | High voltage failure | FAN failure | Zero Cross error |
|------------|------------------|---------------------------------|--------------------|--------------------|----------------------|-------------|------------------|
| Back Cover | ○                | ○                               | ○                  | ○                  | ○                    | ○           | ○                |
| Toner      | ●                | ●                               | ○                  | ○                  | ○                    | ○           | ●                |
| Drum       | ●                | ○                               | ●                  | ○                  | ●                    | ○           | ●                |
| Paper      | ○                | ○                               | ○                  | ●                  | ●                    | ○           | ●                |
| Error      | ●                | ●                               | ●                  | ●                  | ●                    | ●           | ●                |
| Ready      | ○                | ○                               | ○                  | ○                  | ○                    | ○           | ○                |

<sup>1</sup> If this error occurs, turn off the machine's power switch, wait a few seconds, and then turn it on again. Leave the machine for approx. 15 minutes with the power on. If the error occurs again, call your dealer or Brother Customer Service.

For example, the LED indication below shows a fuser unit failure.

  Back Cover

  Toner

  Drum

  Paper

  Error

  Ready

Make a note of the indication, referring to *LED error indication* >> page 79, and report the error status to your dealer or Brother Customer Service.



**Note**

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

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## Control panel keys

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The control panel keys have the following functions:

### Cancel key

#### ■ Cancel printing

Cancel the current job being printed: If you press **Cancel** while printing, the machine will immediately stop printing and will then eject the paper. The **Ready** and **Error** LEDs will blink as the job is being canceled.

Cancel all the received jobs: To delete all jobs, press and hold **Cancel** for about 4 seconds until all the LEDs light up and then release it. The **Ready** and **Error** LEDs will blink as the job(s) is being canceled.

### Go key

#### ■ Error recovery

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

#### ■ Form feed

If the **Ready** LED blinks for a long time, press **Go**. The machine will print any data that is left in the machine's memory.

#### ■ Reprint

To reprint the last document, press **Go** for about 4 seconds until all the LEDs light up and then release it. Within 2 seconds press **Go** the number of times you want to reprint. If you don't press **Go** within 2 seconds, a single copy will be printed.

If you print with the Windows<sup>®</sup> printer driver we have supplied with the machine, the settings for Use Reprint in the printer driver will take priority over the settings made on the control panel. (For more information, see *Use Reprint* >> page 36.)



## Print a test page

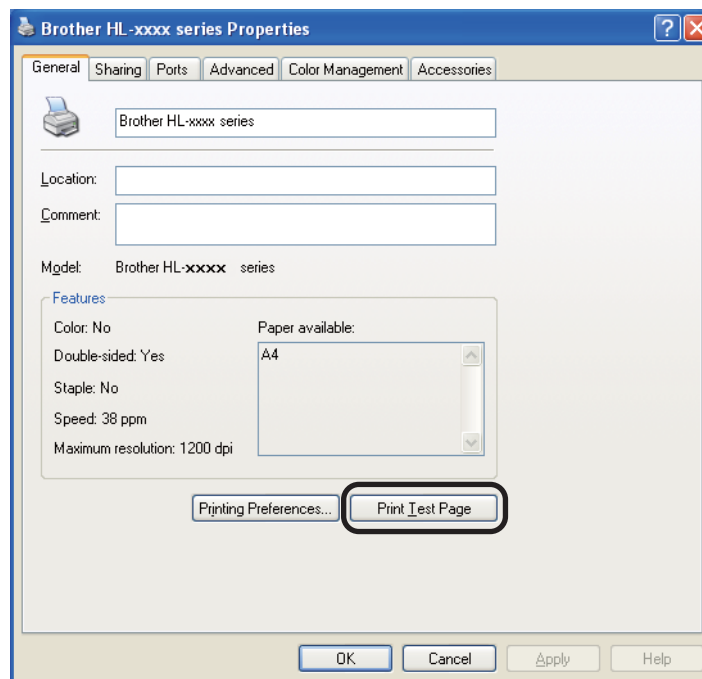
You can use **Go** or the printer driver to print a test page.

### Using the Go key

- 1 Turn off the machine.
- 2 Make sure that the front cover is closed and the power cord is plugged in.
- 3 Hold down **Go** as you turn on the power switch. Keep **Go** pressed down until all the LEDs light up and then the Ready LED turns off.
- 4 Release **Go**. Make sure that all the LEDs turn off.
- 5 Press **Go** again. The machine will print a test page.

### Using the printer driver

If you are using the Windows® printer driver, click the **Print Test Page** button in the **General** tab of the printer driver.



## Print a Printer Settings page

You can print the current settings using the control panel button or printer driver.

### Using the Go key

- 1 Make sure that the front cover is closed and the power cord is plugged in.
- 2 Turn on the machine and wait until the machine is in Ready mode.
- 3 Press **Go** three times. The machine will print the current printer settings page.

### Using the printer driver

If you are using the Windows® printer driver, you can print the current printer settings page by clicking the **Print Settings** button in the **Support** dialog.



## Print Fonts

You can print a list of the internal fonts using the control panel button or printer driver.

### Using the Go key

- 1 Turn off the machine.
- 2 Make sure that the front cover is closed and the power cord is plugged in.
- 3 Hold down **Go** as you turn on the power switch. Keep **Go** pressed down until all the LEDs light up and then the Ready LED turns off.
- 4 Release **Go**. Make sure that all the LEDs turn off.
- 5 Press **Go** twice. The machine will print a list of the internal fonts.

### Using the printer driver

If you are using the Brother's Windows® printer driver, you can print a list of the internal fonts by clicking the **Print Fonts** button in the **Support** dialog.



## Security features

### Secure Function Lock 2.0 (HL-5450DN only)

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Secure Function Lock lets you restrict Public access to the Print function <sup>1</sup>.

This feature also prevents users from changing the Default settings of the machine by limiting access to the Menu settings. Before using the security features you must first enter an administrator password. Access to restricted operations can be enabled by creating a restricted user. Restricted users must enter a user password to use the machine. Secure Function Lock can be set by using Web Based Management and BRAdmin Professional 3 (Windows<sup>®</sup> only). (▶▶ Network User's Guide)

<sup>1</sup> Print function includes print jobs via Google Cloud Print and Brother iPrint&Scan.



#### Note

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- Make a careful note of your password. If you forget it, you will have to reset the password stored in the machine. For information about how to reset the password call Brother call center for service.
  - Only administrators can set limitations and make changes for each user.
-

## Ecology features

### Toner Save

---

You can save toner using this feature. When you set Toner Save to on, prints appear lighter. The default setting is off.

You can change the toner save mode setting on the printer driver.

To change the toner save mode setting, see the following:

- *Advanced tab* >> page 31 (Windows® printer driver)
- *Advanced options* >> page 47 (BR-Script3 printer driver for Windows®)
- *Print Settings* >> page 59 (Macintosh printer driver)
- *Printer Features* >> page 64 (BR-Script3 printer driver for Macintosh)

### Sleep Time

---

The Sleep mode setting can reduce power consumption. When the machine is in Sleep Mode (Power Save mode) it acts as though it were turned off. The machine will wake up and start printing when it receives a print job.

You can choose how long the machine must be idle before it goes into Sleep mode. When the machine receives a print file or document, the timer will be reset. The default setting is 3 minutes. While the machine is in Sleep mode the **Ready** LED glows dimly.

You can change the sleep mode time setting on the printer driver.

To change the sleep mode time setting, see the following:

- *Advanced tab* >> page 31 (Windows® printer driver)
- *Advanced options* >> page 47 (BR-Script3 printer driver for Windows®)
- *Print Settings* >> page 59 (Macintosh printer driver)
- *Printer Features* >> page 64 (BR-Script3 printer driver for Macintosh)

### Deep Sleep mode

---

If the machine is in Sleep mode and does not receive any jobs for a certain length of time, the machine will go into Deep Sleep mode automatically and the **Ready** LED glows dimly. Deep Sleep mode uses less power than Sleep Mode. The machine will wake up, when the machine receives a print job.

## Quiet mode feature

The Quiet mode setting can reduce printing noise. When Quiet Mode is turned on, the print speed becomes slower. The default setting is Off.

### Turning Quiet mode on/off

---

- 1 Make sure that the front cover is closed and the power cord is plugged in.
- 2 Turn on the machine and wait until the machine is in the Ready mode.
- 3 Press **Go** nine times to change between On and Off.  
All the LEDs blink twice when you turn on the Quiet mode.  
All the LEDs blink once when you turn off the Quiet mode.



#### Note

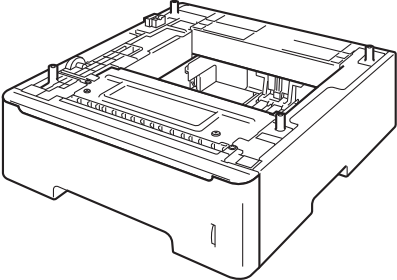
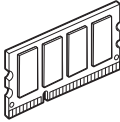
You can also change the Quiet mode setting through the Remote Printer Console. For details of the Remote Printer Console, see *Remote Printer Console (Windows® only)* >> page 70.

---

# 4

## Options

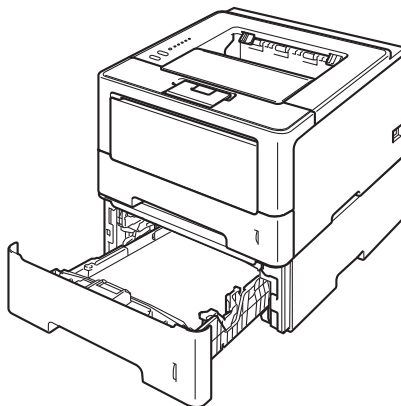
This machine has the following optional accessories. You can increase the capabilities of the machine with these items.

| Lower tray  | SO-DIMM memory <sup>1</sup>   |
|---|---|
| LT-5400   |   |
|  |  |
| See <i>Lower tray (LT-5400)</i><br>>> page 89.                                    | See <i>SO-DIMM (HL-5450DN only)</i><br>>> page 90.                                |

<sup>1</sup> The optional memory is available for HL-5450DN.

## Lower tray (LT-5400)

One optional lower tray (Tray 2) can be installed on HL-5440D, HL-5445D and HL-5450DN, and the lower tray can hold up to 500 sheets of 80 g/m<sup>2</sup> paper. When the optional lower tray is installed, the machine can hold up to 800 sheets of plain paper. If you want to buy the optional lower tray unit, call Brother call center.



For setup, see the User's Guide that we have supplied with the lower tray unit.

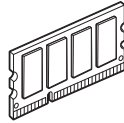
### **⚠ WARNING**

If you use a Lower Tray, DO NOT carry the machine with the Lower Tray as you may be injured or cause damage to the machine because it is not attached to the Lower Tray.



## SO-DIMM (HL-5450DN only)

The machine has 64 MB of standard memory and one slot for optional memory expansion. You can increase the memory up to a maximum of 320 MB by installing one SO-DIMM (Small Outline Dual In-line Memory Module).



### SO-DIMM types

---

You can install the following SO-DIMMs:

- 256 MB Kingston KTH-LJ2015/256
- 256 MB Transcend TS256MHP423A



#### Note

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- For more information, visit the Kingston Technology's website at <http://www.kingston.com/>.
  - For more information, visit the Transcend website at <http://www.transcend.com.tw/>.
- 

In general, the SO-DIMM must have the following specifications:

Type: 144-pin and 16-bit output

CAS latency: 4

Clock frequency: 267 MHz (533 Mb/s/pin) or more

Capacity: 256 MB

Height: 30.0 mm (1.18 in.)

DRAM type: DDR2 SDRAM



#### Note

---

- There might be some SO-DIMMs that will not work with the machine.
  - For more information, call Brother call center.
-

## Installing extra memory

---

- 1 Turn off the machine.
- 2 Disconnect the interface cables from the machine, and then unplug the power cord from the electrical socket.

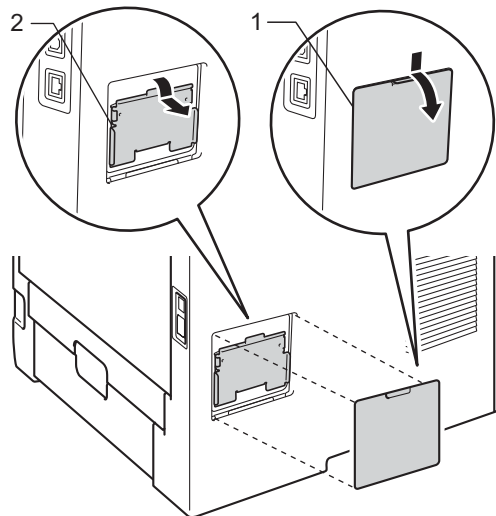


### Note

Always turn off the machine power switch before installing or removing the SO-DIMM.

---

- 3 Remove the plastic (1) and then the metal (2) SO-DIMM covers.



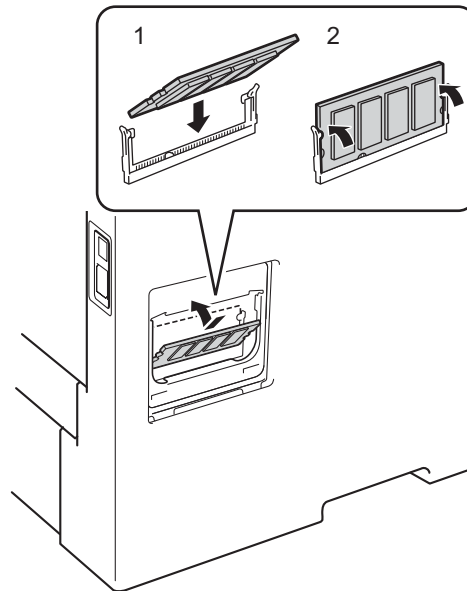
- 4 Unpack the SO-DIMM and hold it by its edges.

### Important

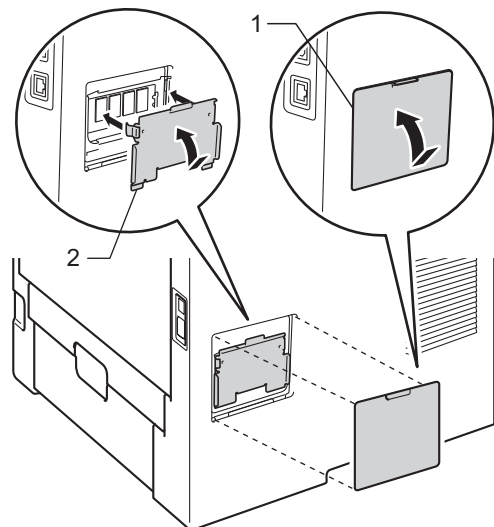
To prevent damage to the machine from static electricity, DO NOT touch the memory chips or the board surface.

---

- 5 Hold the SO-DIMM by the edges and align the notches in the SO-DIMM with the protrusions in the slot. Insert the SO-DIMM diagonally (1), then tilt it toward the interface board until it clicks into place (2).



- 6 Put the metal (2) and then the plastic (1) SO-DIMM covers back on.



- 7 Plug the machine's power cord back into the electrical socket first, and then connect the interface cables.  
8 Turn on the machine.

**Note**

To make sure that you have installed the SO-DIMM correctly, you can print the printer settings page that shows the current memory size. (See *Print a Printer Settings page* >> page 83.)

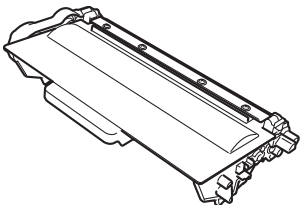
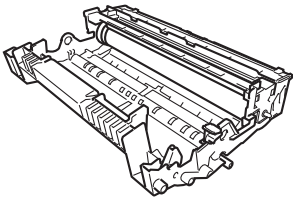
## Replacing consumable items

You will need to replace the consumable items when the machine indicates that the life of the consumable is over. You can replace the following consumable items by yourself:



### Note

The drum unit and toner cartridge are two separate parts.

| Toner cartridge  | Drum unit   |
|--|---|
| See <i>Replacing the toner cartridge</i> >> page 94.<br>Model Name: TN-3335, TN-3385 | See <i>Replacing the drum unit</i> >> page 103.<br>Model Name: DR-3350              |
|     |  |



### Note

- Discard used consumable items according to local regulations, keeping it separate from domestic waste. If you have questions, call your local waste disposal office. Be sure to reseal the consumable items tightly so that the material inside does not spill.
- We recommend placing used consumable items on a piece of paper to prevent accidentally spilling or scattering the material inside.
- Availability of toner cartridges differs from one country to another. Visit the Brother Solutions Center at <http://solutions.brother.com/> or contact your local Brother office for further details.

## Replacing the toner cartridge

Model Name: TN-3335 <sup>1</sup>, TN-3385 <sup>2</sup>

The Standard toner cartridge can print approximately 3,000 pages <sup>3</sup>. The High Yield toner cartridge can print approximately 8,000 pages <sup>3</sup>. Actual page count will vary depending on your average type of document.

The toner cartridge that comes supplied with the machine will need to be replaced after approximately 3,000 pages <sup>3</sup>.

<sup>1</sup> Standard toner cartridge

<sup>2</sup> High yield toner cartridge

<sup>3</sup> Approx. cartridge yield is declared in accordance with ISO/IEC 19752.



### Note

- It is a good idea to keep a new toner cartridge ready for use when you see the Toner Low warning.
- To ensure high quality printing, we recommend that you use only Brother Original toner cartridges. When you want to buy toner cartridges, please call your Brother dealer.
- If you print graphics, bold text, charts, web pages with borders, or other types of printouts that consist of more than simple text, the amount of toner used will increase.
- We recommend that you clean the machine when you replace the toner cartridge. See *Cleaning and Checking the machine* >> page 108.
- If you change the print density setting for lighter or darker printing, the amount of toner used will change.
- Wait to unpack the toner cartridge until immediately before you put it into the machine.

## Toner Low

  Back Cover

  Toner

  Drum

  Paper

  Error

 Ready

The **Toner** LED will turn on for 2 seconds and off for 3 seconds, and then repeats this pattern.







If the LEDs show this indication, the toner is low. Buy a new toner cartridge and have it ready before you get a Replace Toner indication.



### Note

- The **Toner** LED will blink continuously if the toner is low.
- If the printout is faint, hold the drum unit and toner cartridge assembly level with both hands and gently shake it from side to side several times to spread the toner evenly inside the cartridge.

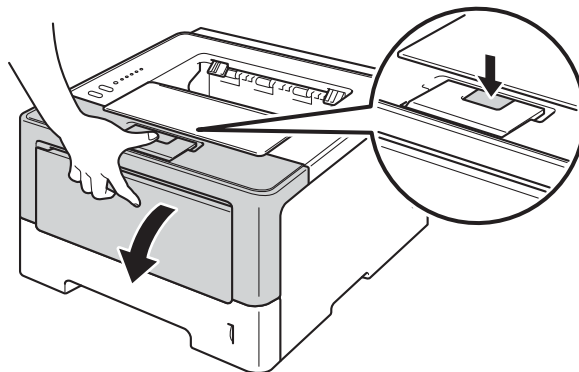
## Replace Toner

-   Back Cover
-   Toner
-   Drum
-   Paper
-   Error
-   Ready

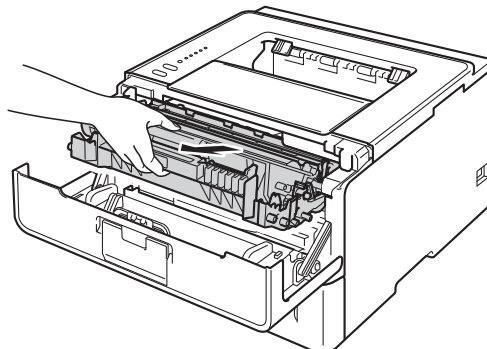
The machine will stop printing until you replace the toner cartridge. A new Brother Original toner cartridge will reset the Replace Toner mode.

### Replacing the toner cartridge

- 1 Make sure that the machine is turned on. Leave the machine for at least 10 minutes to cool down.
- 2 Press the front cover release button and then open the front cover.



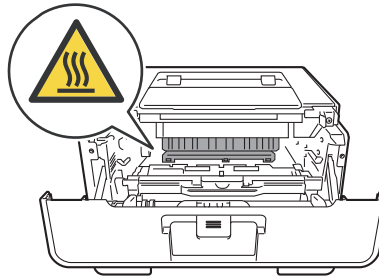
- 3 Take out the drum unit and toner cartridge assembly.



## WARNING



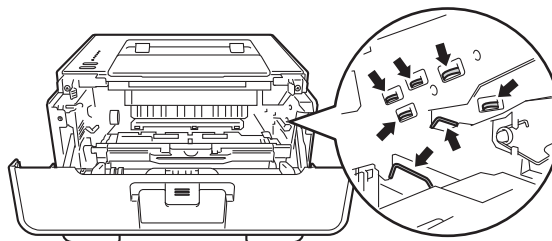
After you have just used the machine, some internal parts of the machine will be extremely hot. Wait for the machine to cool down before you touch the internal parts of the machine.



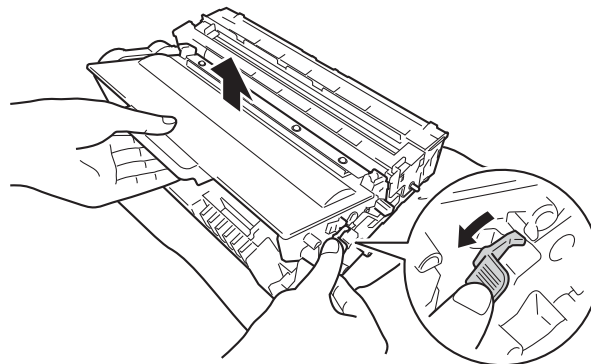
5

### Important

- We recommend that you place the drum unit and toner cartridge assembly on a clean, flat surface with a piece of disposable paper underneath it in case you accidentally spill or scatter toner.
- To prevent damage to the machine from static electricity, DO NOT touch the electrodes shown in the illustration.



- 4 Push down the green lock lever and take the toner cartridge out of the drum unit.



## ⚠ WARNING



- DO NOT put a toner cartridge or a toner cartridge and drum unit assembly into a fire. It could explode, resulting in injuries.
- DO NOT use flammable substances, any type of spray, or an organic solvent/liquid containing alcohol or ammonia to clean the inside or outside of the machine. Doing so could cause a fire or electrical shock. Instead, use only a dry, lint-free cloth.

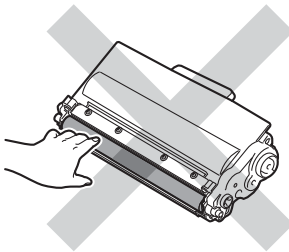
(>> Product Safety Guide: *General precautions*)



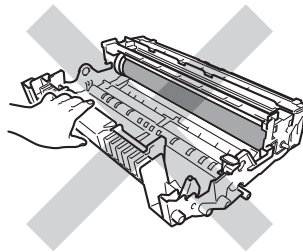
### ⓘ Important

- Handle the toner cartridge carefully. If toner scatters on your hands or clothes, immediately wipe or wash it off with cold water.
- To avoid print quality problems, DO NOT touch the shaded parts shown in the illustrations.

<Toner cartridge>



<Drum unit>



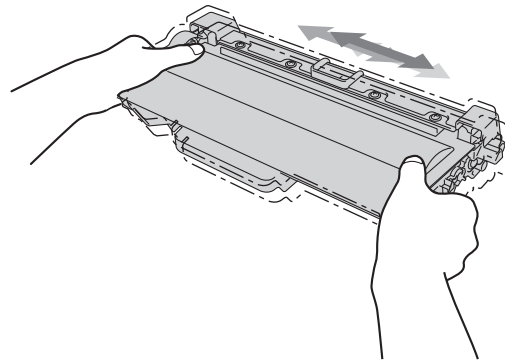
- We recommend that you place the toner cartridge on a clean, flat, level, stable surface with a sheet of disposable paper or cloth underneath it in case you accidentally spill or scatter toner.

### 📝 Note

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



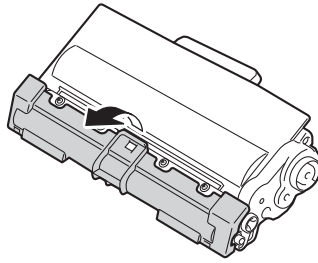
- 5 Unpack the new toner cartridge. Hold the cartridge level with both hands and gently shake it from side to side several times to spread the toner evenly inside the cartridge.



**!** Important

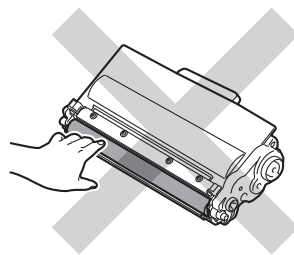
- Unpack the toner cartridge just before you put it in the machine. If a toner cartridge is left unpacked for a long time, the toner life will be shortened.
- If an unpacked drum unit is put in direct sunlight or room light, the unit may be damaged.
- Brother machines are designed to work with toner of a particular specification and will work to a level of optimum performance when used with Brother Original toner cartridges. Brother cannot guarantee this optimum performance if toner or toner cartridges of other specifications are used. The machine may not detect toner or toner cartridges of other specifications correctly but may instead detect such items as standard yield toner cartridges. Brother does not therefore recommend the use of cartridges other than Brother Original cartridges with this machine, or the refilling of empty cartridges with toner from other sources. If damage is caused to the drum unit or other part of this machine as a result of the use of toner or toner cartridges other than Brother Original products due to the incompatibility or lack of suitability of those products with this machine, any repairs required as a result may not be covered by the warranty.

- 6 Pull off the protective cover.

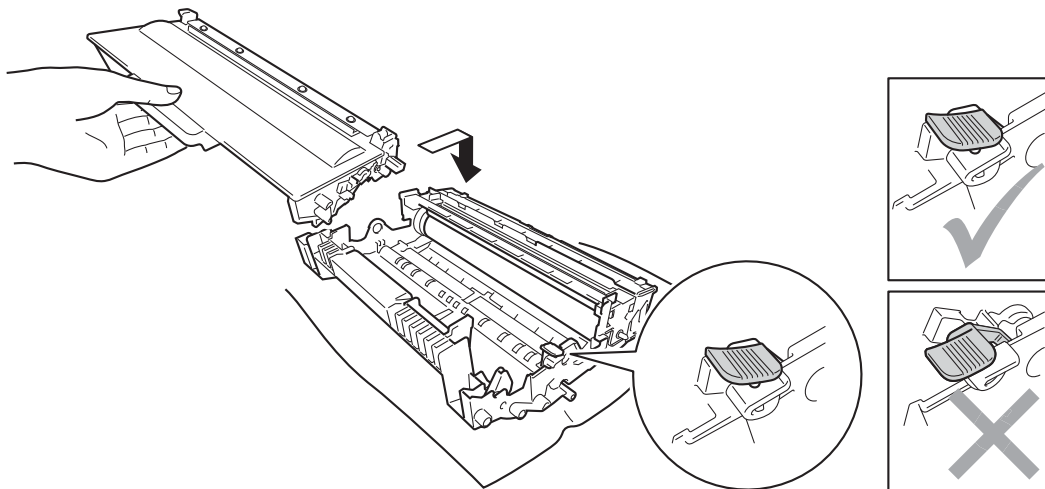


**!** Important

Put the toner cartridge in the drum unit immediately after you have removed the protective cover. To prevent any degradation to the print quality, DO NOT touch the shaded parts shown in the illustrations.



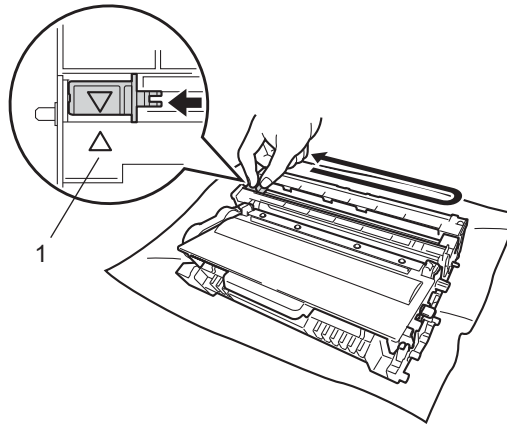
- 7 Put the new toner cartridge firmly into the drum unit until you hear it lock into place. If you put it in correctly, the green lock lever on the drum unit will lift automatically.



**Note**

Make sure that you put in the toner cartridge properly or it may separate from the drum unit.

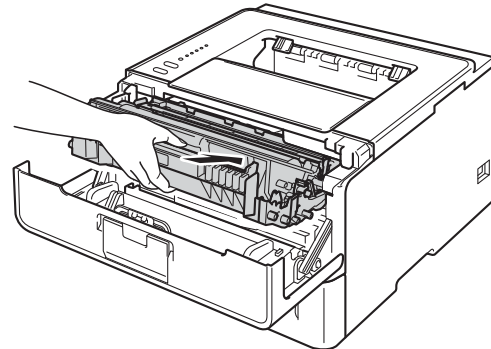
- 8 Clean the corona wire inside the drum unit by gently sliding the green tab from left to right and right to left several times.



**Note**

Be sure to return the tab to the home position (▲) (1). If you do not, printed pages may have a vertical stripe.

- 9 Put the drum unit and toner cartridge assembly back into the machine.



- 10 Close the front cover of the machine.



**Note**

DO NOT turn off the machine or open the front cover until the **Ready** LED lights up.

## Replacing the drum unit

---

Model Name: DR-3350

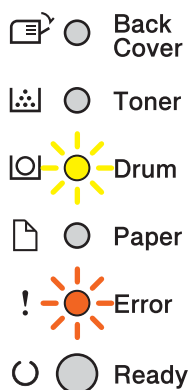
A new drum unit can print approximately 30,000 A4 or Letter size single-sided pages.

### ! Important

For best performance, use a Brother Original drum unit and Brother Original toner units. Printing with a third-party drum unit or toner unit may reduce not only the print quality but also the quality and life of the machine itself. Warranty coverage may not apply to problems caused by the use of a third-party drum unit or toner unit.

---

## Drum Error



The corona wire has become dirty. Clean the corona wire in the drum unit. (See *Cleaning the corona wire* >> page 110.)

If you cleaned the corona wire and Drum Error was not cleared then the drum unit is at the end of its life. Replace the drum unit with a new one.

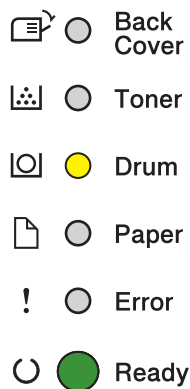
## Drum End Soon



The drum unit is nearing the end of its rated life and will require replacement. We recommend you keep a Brother Original drum unit ready for installation.

Clean the corona wire in the drum unit. If you don't, printed pages may have a vertical stripe or Drum Error may occur. (See *Cleaning the corona wire* ►► page 110.)






## Replace Drum



The drum unit has exceeded its rated life. Please replace the drum unit with a new one. We recommend a Brother Original drum unit be installed at this time.

After replacement, reset the drum counter by following the instructions included with the new drum unit.

## Drum Stop

-   Back Cover
-   Toner
-   Drum
-   Paper
-   Error
-   Ready

We cannot guarantee the print quality. Please replace the drum unit with a new one. We recommend a Brother Original drum unit be installed at this time.

After replacement, reset the drum counter by following the instructions included with the new drum unit.

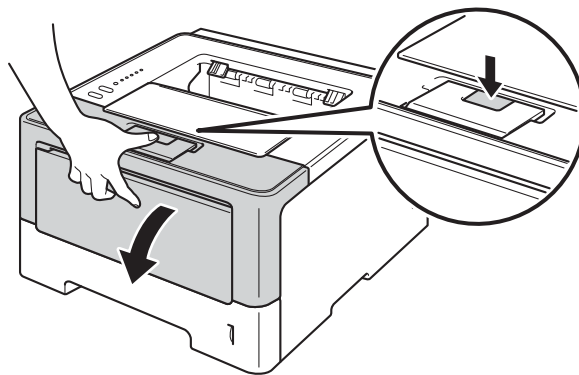
### Replacing the drum unit

#### **!** Important

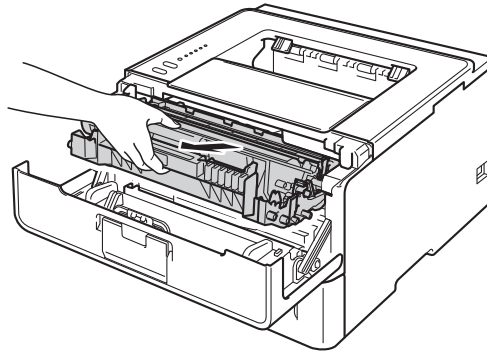
- While removing the drum unit, handle it carefully because it may contain toner. If toner scatters on your hands or clothes, immediately wipe or wash it off with cold water.
- Every time you replace the drum unit, clean the inside of the machine. (See *Cleaning and Checking the machine* >> page 108.)

When you replace the drum unit with a new one, you need to reset the drum counter by completing the following steps:

- 1 Make sure that the machine is turned on. Leave the machine for at least 10 minutes to cool down.
- 2 Press the front cover release button and then open the front cover.



- 3 Take out the drum unit and toner cartridge assembly.

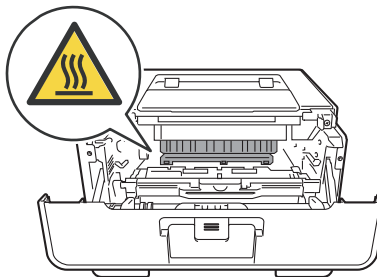


## ! WARNING

5

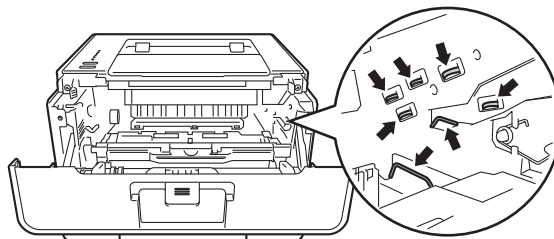


After you have just used the machine, some internal parts of the machine will be extremely hot. Wait for the machine to cool down before you touch the internal parts of the machine.

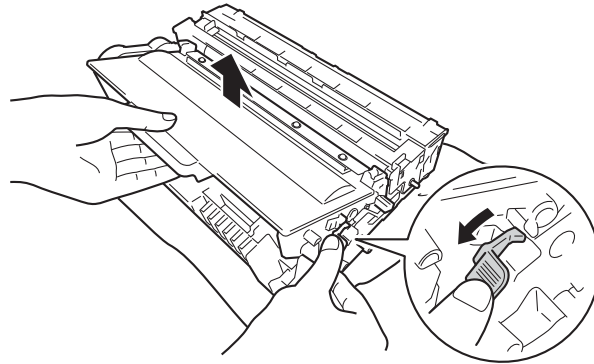


## ! Important

- We recommend that you place the drum unit and toner cartridge assembly on a clean, flat surface with a piece of disposable paper underneath it in case you accidentally spill or scatter toner.
- To prevent damage to the machine from static electricity, DO NOT touch the electrodes shown in the illustration.



- 4 Push down the green lock lever and take the toner cartridge out of the drum unit.



## ⚠ WARNING

5



- DO NOT put a toner cartridge or a toner cartridge and drum unit assembly into a fire. It could explode, resulting in injuries.
- DO NOT use flammable substances, any type of spray, or an organic solvent/liquid containing alcohol or ammonia to clean the inside or outside of the machine. Doing so could cause a fire or electrical shock. Instead, use only a dry, lint-free cloth.

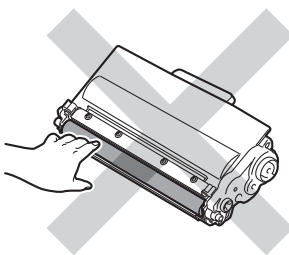
(>> Product Safety Guide: *General precautions*)



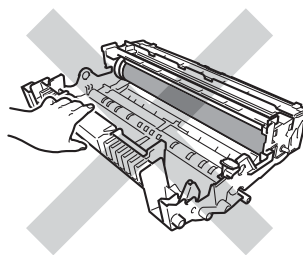
## ⓘ Important

- Handle the toner cartridge carefully. If toner scatters on your hands or clothes, immediately wipe or wash it off with cold water.
- To avoid print quality problems, DO NOT touch the shaded parts shown in the illustrations.

<Toner cartridge>



<Drum unit>



- We recommend that you place the toner cartridge on a clean, flat, level, stable surface with a sheet of disposable paper or cloth underneath it in case you accidentally spill or scatter toner.

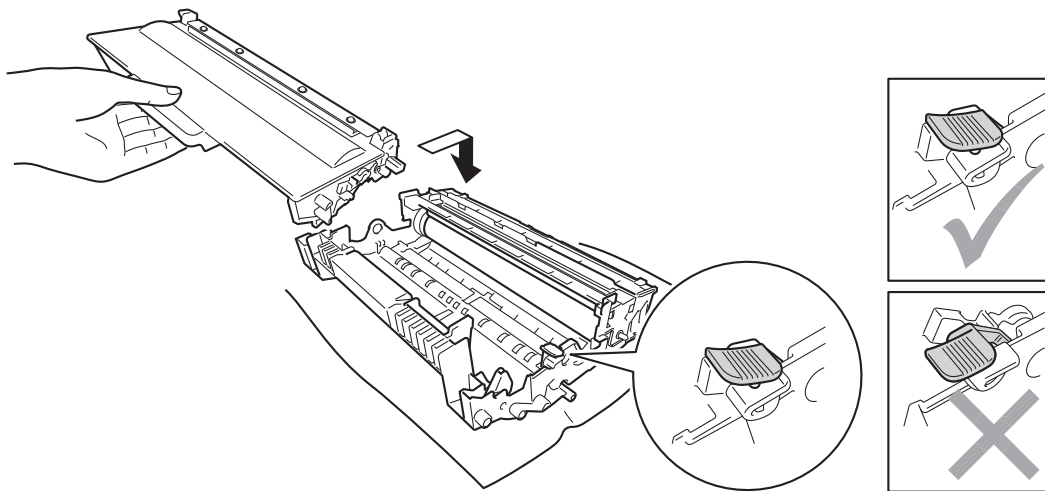




**Note**

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

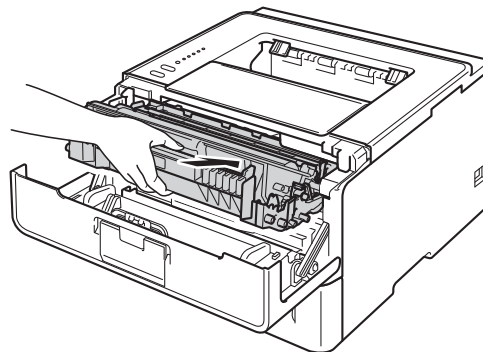
- 5 Unpack the new drum unit.
- 6 Put the toner cartridge firmly into the new drum unit until you hear it lock into place. If you put the cartridge in correctly, the green lock lever on the drum unit will lift automatically.



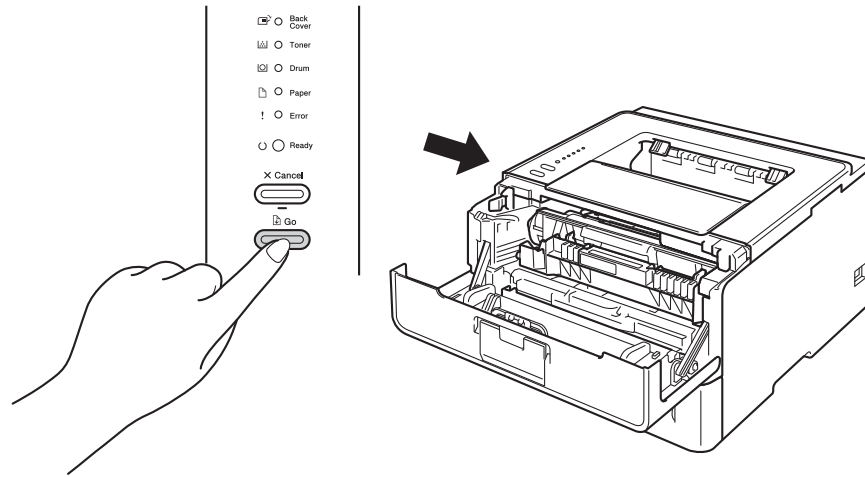
**Note**

Make sure that you put in the toner cartridge properly or it may separate from the drum unit.

- 7 Put the drum unit and toner cartridge assembly back into the machine.



- 8 When you *replace* the drum unit with a new one, you need to reset the drum counter. To do this, press and hold down the **Go** for about 4 seconds until all the LEDs light up. Once all six LEDs are lit, release **Go**.



**!** Important

Do not reset the drum counter when you only replace the toner cartridge.

- 9 Close the front cover of the machine.
- 10 Make sure that the **Drum** LED is now off.

## Cleaning and Checking the machine

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

### **WARNING**



- DO NOT put a toner cartridge or a toner cartridge and drum unit assembly into a fire. It could explode, resulting in injuries.
- DO NOT use flammable substances, any type of spray, or an organic solvent/liquid containing alcohol or ammonia to clean the inside or outside of the machine. Doing so could cause a fire or electrical shock. Instead, use only a dry, lint-free cloth.

(>> Product Safety Guide: *General precautions*)

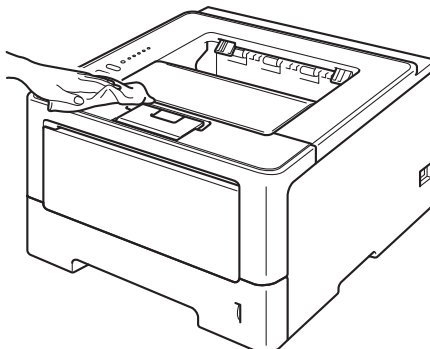


### **Important**

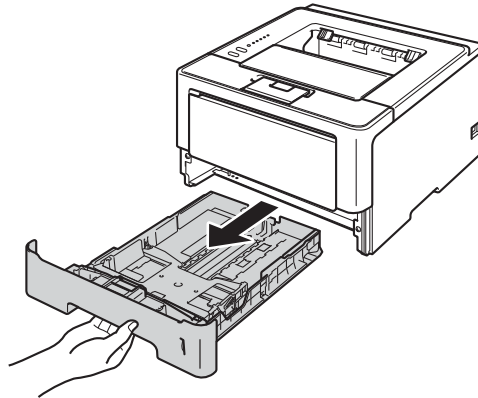
Use neutral detergents. Cleaning with volatile liquids such as thinner or benzine will damage the surface of the machine.

## Cleaning the outside of the machine

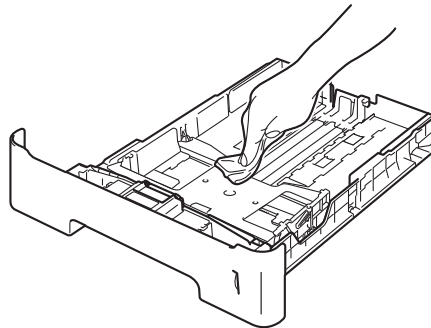
- 1 Turn off the machine.
- 2 Disconnect the interface cables from the machine, and then unplug the power cord from the electrical socket.
- 3 Wipe the outside of the machine with a dry, lint-free cloth to remove dust.



- 4 Pull the paper tray completely out of the machine.



- 5 If paper is loaded in the paper tray, remove it.
- 6 Remove anything that is stuck inside the paper tray.
- 7 Wipe the inside and the outside of the paper tray with a dry, lint-free cloth to remove dust.

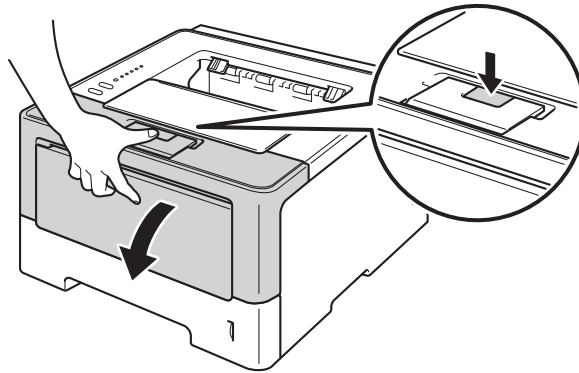


- 8 Re-load the paper and put the paper tray firmly back in the machine.
- 9 Plug the machine's power cord back into the electrical socket first, and then connect the interface cables.
- 10 Turn on the machine.

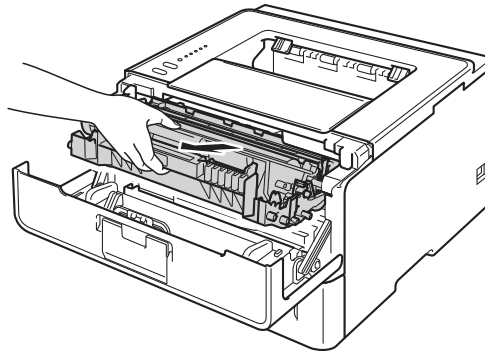
## Cleaning the corona wire

If you have print quality problems, clean the corona wire as follows:

- 1 Leave the machine turned on for 10 minutes for the internal fan to cool the extremely hot parts inside the machine.
- 2 Press the front cover release button and then open the front cover.



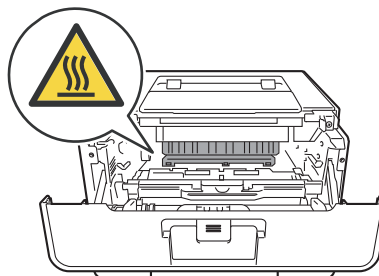
- 3 Take out the drum unit and toner cartridge assembly.



### WARNING

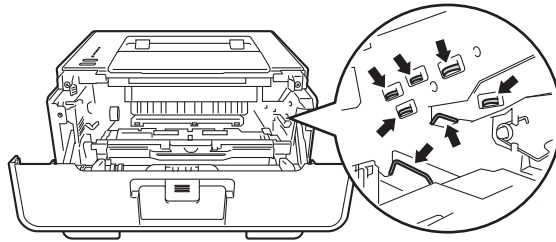


After you have just used the machine, some internal parts of the machine will be extremely hot. Wait for the machine to cool down before you touch the internal parts of the machine.

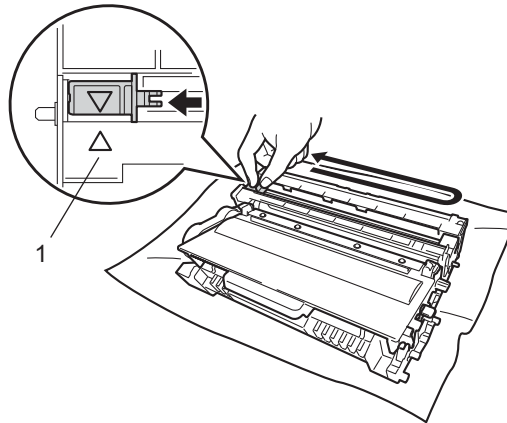


**! Important**

- We recommend that you put the drum unit and toner cartridge assembly on a piece of disposable paper or cloth in case you accidentally spill or scatter toner.
- Handle the drum unit and toner cartridge assembly carefully. If toner scatters on your hands or clothes, immediately wipe or wash it off with cold water.
- To prevent damage to the machine from static electricity, **DO NOT** touch the electrodes shown in the illustration.



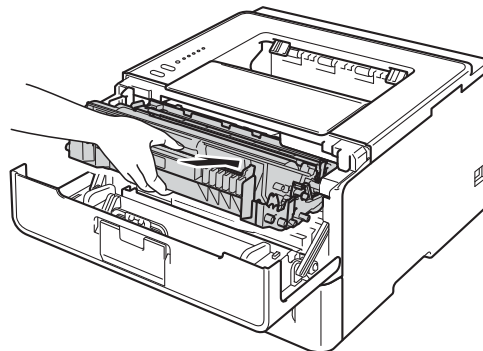
- 4 Clean the corona wire inside the drum unit by gently sliding the green tab from left to right and right to left several times.



**Note**

Be sure to return the tab to the home position (▲) (1). If you do not, printed pages may have a vertical stripe.

- 5 Put the drum unit and toner cartridge assembly back into the machine.

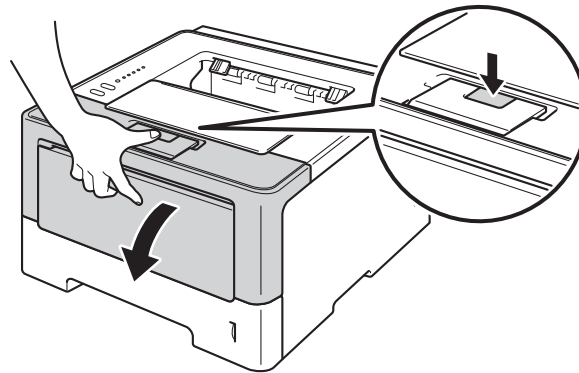


- 6 Close the front cover of the machine.

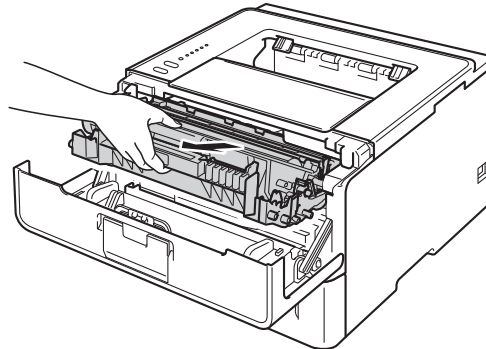
## Cleaning the drum unit

If your printout has white or black dots at 94 mm intervals, the drum may have foreign material, such as glue from a label stuck on the drum surface. Follow the steps below to solve the problem.

- 1 Make sure that the front cover is closed and the power cord is plugged in.
- 2 Turn on the machine and wait until the machine is in Ready mode.
- 3 Press **Go** two times. The machine will print the drum dot check sheet.
- 4 Leave the machine turned on for 10 minutes for the internal fan to cool the extremely hot parts inside the machine.
- 5 Turn off the machine.
- 6 Press the front cover release button and then open the front cover.



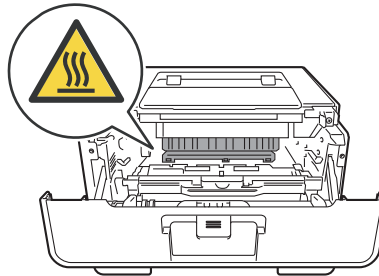
- 7 Take out the drum unit and toner cartridge assembly.



## WARNING



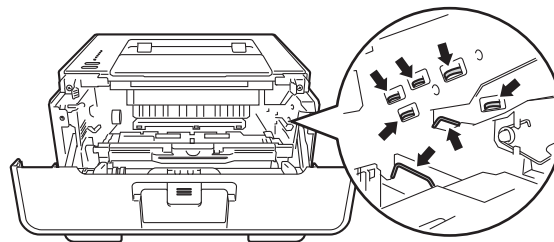
After you have just used the machine, some internal parts of the machine will be extremely hot. Wait for the machine to cool down before you touch the internal parts of the machine.



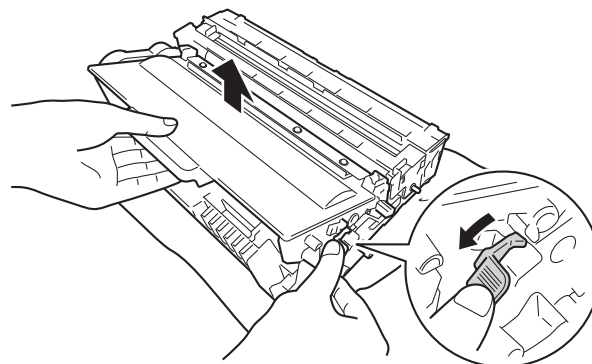
5

### Important

- We recommend that you put the drum unit and toner cartridge assembly on a piece of disposable paper or cloth in case you accidentally spill or scatter toner.
- Handle the drum unit and toner cartridge assembly carefully. If toner scatters on your hands or clothes, immediately wipe or wash it off with cold water.
- To prevent damage to the machine from static electricity, DO NOT touch the electrodes shown in the illustration.

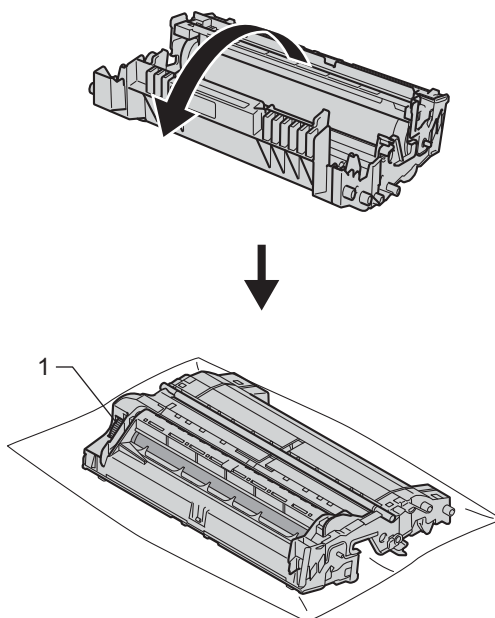


- 8 Push down the green lock lever and take the toner cartridge out of the drum unit.

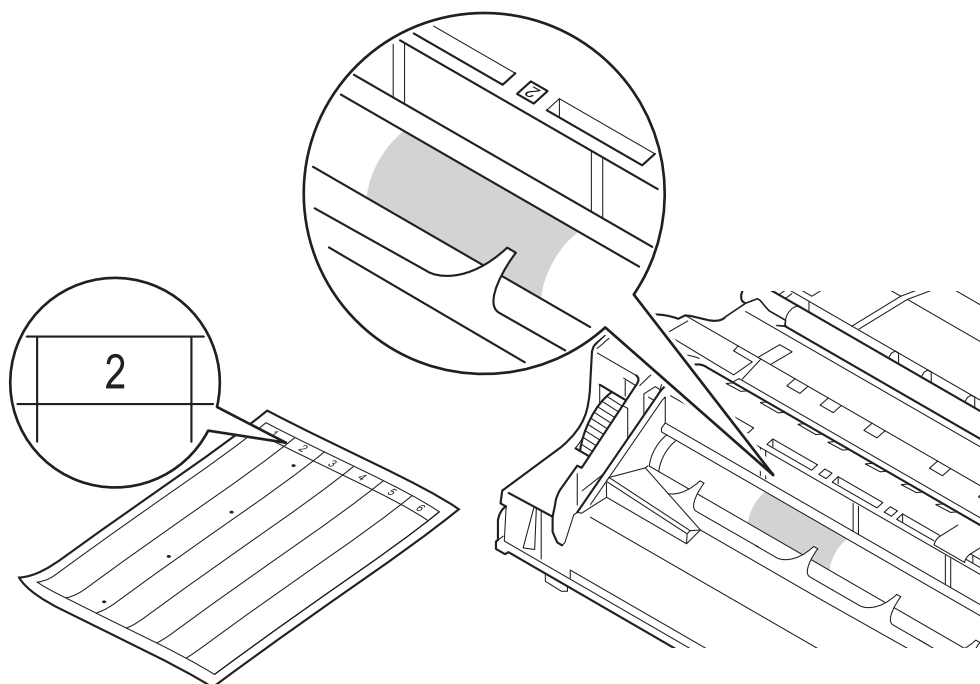




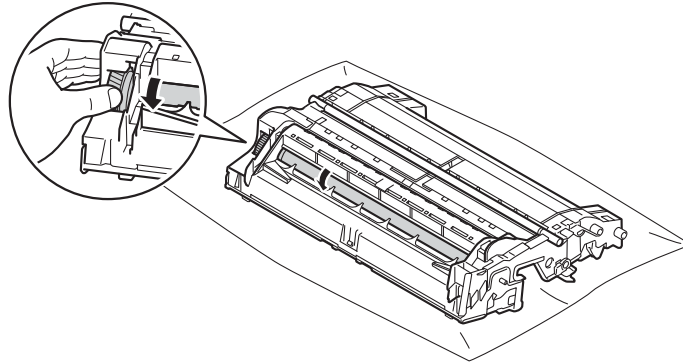
- 9 Turn the drum unit as shown in the illustration. Make sure that the drum unit gear (1) is on the left hand side.



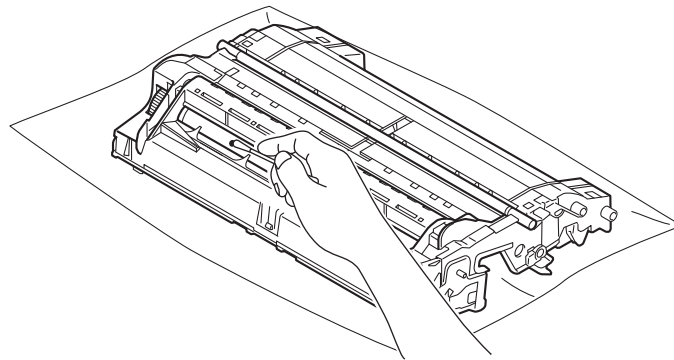
- 10 Use the numbered markers next to the drum roller to find the mark. For example, a dot in column 2 on the check sheet would mean that there is a mark in the “2” region of the drum.



- 11 Turn the drum unit gear toward you by hand while looking at surface of the suspected area.



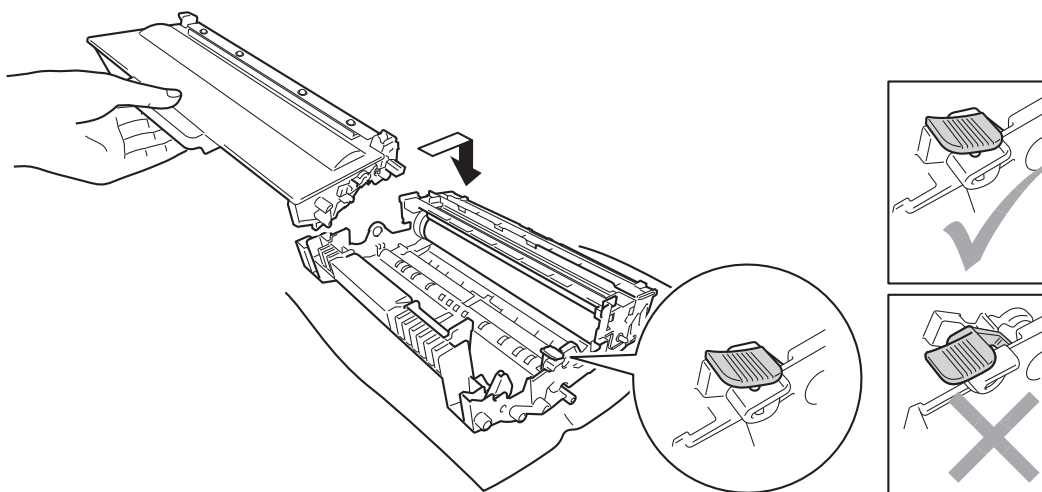
- 12 When you have found the mark on the drum that matches the drum dot check sheet, wipe the surface of the drum gently with a cotton swab until the mark on the surface comes off.



**!** Important

DO NOT clean the surface of the photosensitive drum with a sharp object or any liquids.

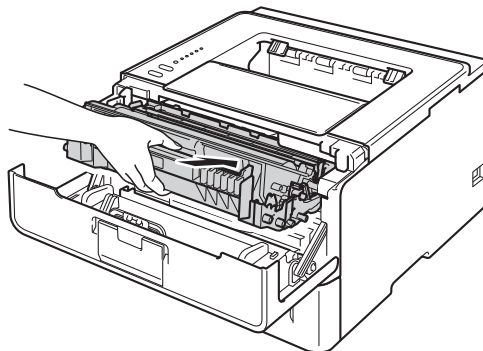
- Put the toner cartridge back into the drum unit until you hear it lock into place. If you put the cartridge in correctly, the green lock lever on the drum unit will lift automatically.



**Note**

Make sure that you put in the toner cartridge properly or it may separate from the drum unit.

- Put the drum unit and toner cartridge assembly back into the machine.



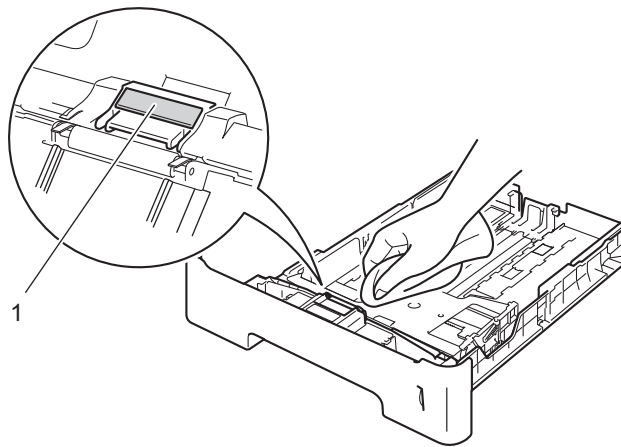
- Close the front cover of the machine.

- Turn on the machine.

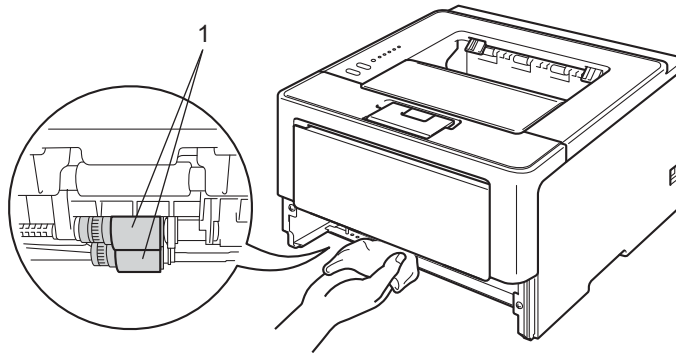
## Cleaning the paper pick-up roller

Cleaning the paper pick-up roller periodically may prevent paper jams by insuring the proper feeding of paper.

- 1 Turn off the machine.
- 2 Disconnect the interface cables from the machine, and then unplug the power cord from the electrical socket.
- 3 Pull the paper tray completely out of the machine.
- 4 Tightly wring out a lint-free cloth soaked in lukewarm water, and then wipe the separator pad (1) of the paper tray with it to remove dust.



- 5 Wipe the two pick-up rollers (1) inside of the machine to remove dust.



- 6 Put the paper tray back in the machine.
- 7 Plug the machine's power cord back into the electrical socket first, and then connect the interface cables.
- 8 Turn on the machine.

## Packing and shipping the machine

### **⚠ WARNING**

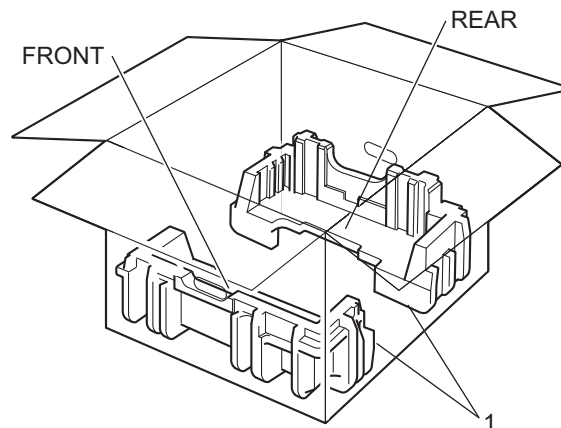
If you use a Lower Tray, DO NOT carry the machine with the Lower Tray as you may be injured or cause damage to the machine because it is not attached to the Lower Tray.



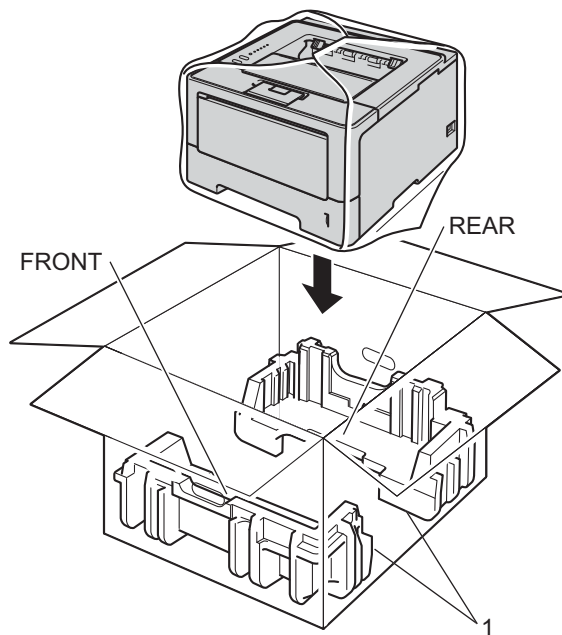
### **Note**

If for any reason you must ship your machine, carefully repack the machine in the original packaging to avoid any damage during transit. The machine should be adequately insured with the carrier.

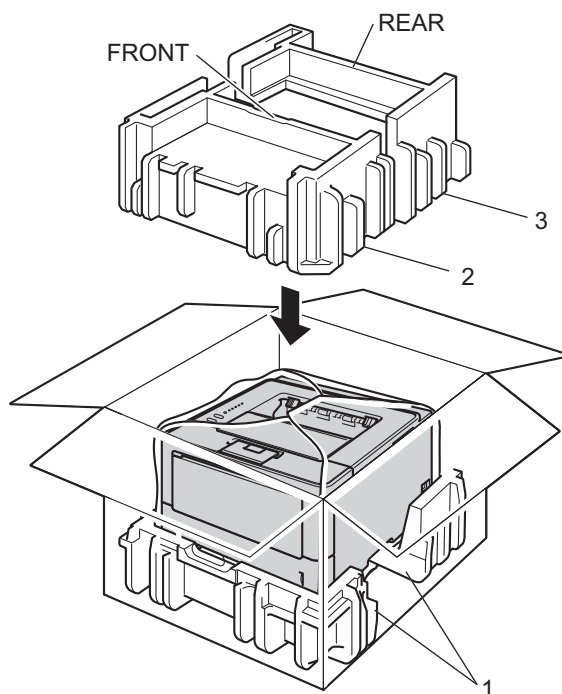
- 1 Turn off the machine. Leave the machine turned off for at least 10 minutes to cool down.
- 2 Disconnect all the cables, and then unplug the power cord from the electrical socket.
- 3 Put the packing material (1) into the carton.



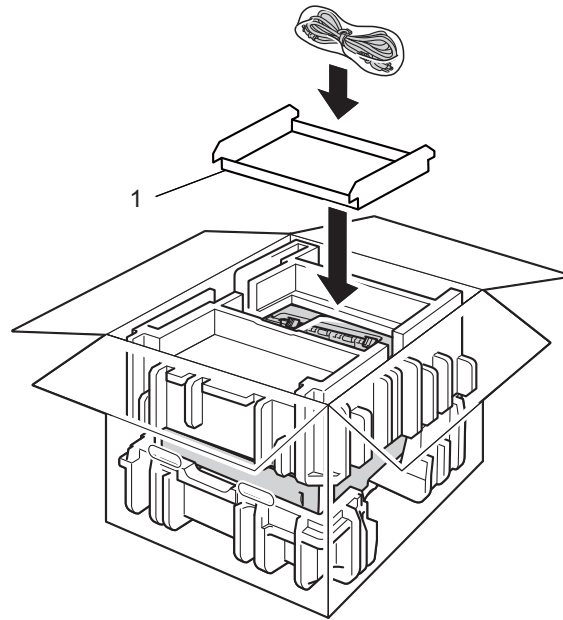
- 4 Wrap the machine in a plastic bag, then put it on the bottom packing material (1).



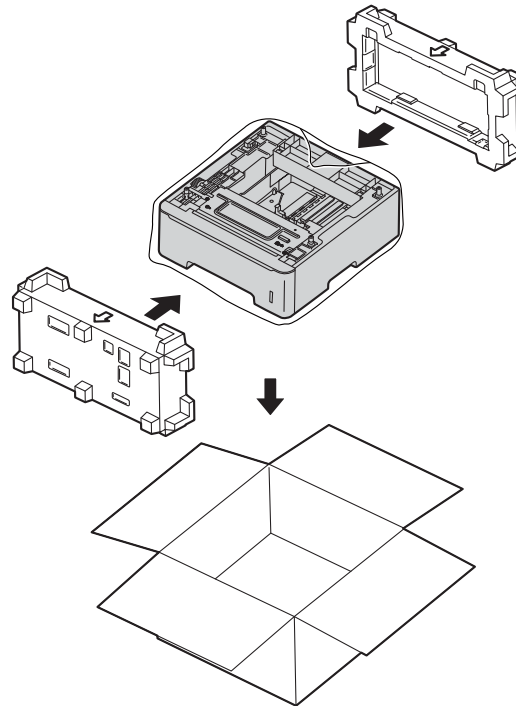
- 5 Put the packing material (2) marked "FRONT" on the front of the machine. Put the packing material (3) marked "REAR" on the back of the machine.



- Put the cardboard tray (1) on the top and put the power cord in it.



- Close the carton and tape it shut.
- <If you have a Lower Tray> Repack the lower tray as shown in the illustration.



If you think there is a problem with your machine, check each item below first and follow the troubleshooting tips. Most problems can be easily resolved by yourself.

## Identifying your problem

First, check the following.

- The machine's power cord is connected correctly and the machine's power switch is turned on. If the machine does not turn on after connecting the power cord, see *Other difficulties* >> page 138.
- All of the protective parts have been removed.
- Paper is inserted correctly in the paper tray.
- The interface cables are securely connected to the machine and the computer, or wireless connection is set up on both the machine and your computer.
- Error messages  
(See *Error messages in the Status Monitor* >> page 122.)

If you did not solve your problem with the above checks, identify your problem and then go to the page suggested below.

Machine does not print.

- Paper handling  
(See *Paper handling difficulties* >> page 136.)

Pages are printed, but there are still problems.

- Print quality  
(See *Improving the print quality* >> page 139.)
- Printout is incorrect  
(See *Printing difficulties* >> page 135.)

Network and other problems:

- *Network difficulties (HL-5450DN only)* >> page 137
- *Other difficulties* >> page 138



## Error messages in the Status Monitor

As with any sophisticated office product, errors may occur and consumable items may need to be replaced. If this happens, your machine identifies the error or required routine maintenance and shows the appropriate message. The most common error and maintenance messages are shown below.

You can clear most errors and perform routine maintenance by yourself. If you need more help, the Brother Solutions Center offers the latest FAQs and troubleshooting tips:

Visit us at <http://solutions.brother.com/>.

The Status Monitor will report problems with the machine. Take the proper action by referring to the following table. If you want to turn the status monitor on, see *Status Monitor* >> page 52 (For Windows® users) or *Status Monitor* >> page 68 (For Macintosh users).

| Error message          | Cause   | Action   |
|------------------------|---|--|
| <b>Cartridge Error</b> | The toner cartridge is not installed correctly.   | Pull out the drum unit and toner cartridge assembly, take out the toner cartridge, and put it back into the drum unit again. Put the drum unit and toner cartridge assembly back in the machine. If the problem continues, call your dealer or Brother Customer Service.     |
| <b>Cover is Open</b>   | The front cover is not closed completely.   | Close the front cover of the machine.  |
|                        | The fuser cover is not closed completely or paper was jammed in the back of the machine when you turned on the power. | <ul style="list-style-type: none"> <li>■ Close the fuser cover of the machine.</li> <li>■ Make sure paper is not jammed inside the back of the machine, and then close the fuser cover and press <b>Go</b>. (See <i>Jam Rear / Jam Duplex</i> &gt;&gt; page 129.)</li> </ul> |
| <b>Drum End Soon</b>   | The drum unit is near the end of its life.  | Order a new drum unit now so a replacement drum unit will be available when the <b>Status Monitor</b> indicates <b>Replace Drum</b> . (See <i>Drum End Soon</i> >> page 102.)  |
| <b>Drum Error</b>      | The corona wire on the drum unit needs to be cleaned.   | Clean the corona wire. (See <i>Cleaning the corona wire</i> >> page 110.)  |
|                        | The toner cartridge is placed in the machine without the drum unit.   | Put the toner cartridge into the drum unit, and then re-install the drum unit and toner cartridge assembly in the machine.   |
| <b>Drum Stop</b>       | It is time to replace the drum unit.  | Replace the drum unit. (See <i>Replacing the drum unit</i> >> page 103.)   |
| <b>Duplex Disabled</b> | The back cover of the machine is not closed completely.   | Close the back cover of the machine.   |
|                        | The duplex tray is not installed or not installed correctly.  | Re-install the duplex tray.  |
| <b>Fuser Error</b>     | The temperature of the fuser unit does not rise to a specified temperature within the specified time.                 | Turn the power switch off, wait a few seconds, and then turn it on again. Leave the machine for 15 minutes with the power on.  |
|                        | The fuser unit is too hot.  |  |

| Error message                               | Cause   | Action   |
|---|---|--|
| <b>Jam Duplex</b>                           | The paper is jammed in the duplex tray or the fuser unit.                                     | See <i>Jam MP Tray / Jam Tray 1 / Jam Tray 2 / Jam Inside</i> >> page 125.   |
| <b>Jam Inside</b>                           | The paper is jammed inside the machine.   | See <i>Jam Rear / Jam Duplex</i> >> page 129.  |
|   | The toner cartridge is placed in the machine without the drum unit.                           | Put the toner cartridge into the drum unit, and then re-install the drum unit and toner cartridge assembly in the machine.   |
| <b>Jam MP Tray</b>                          | The paper is jammed in the MP tray of the machine.  | See <i>Jam MP Tray / Jam Tray 1 / Jam Tray 2 / Jam Inside</i> >> page 125.   |
| <b>Jam Rear</b>                             | The paper is jammed in the back of the machine.   | See <i>Jam Rear / Jam Duplex</i> >> page 129.  |
| <b>Jam Tray 1</b><br><b>Jam Tray 2</b>      | The paper is jammed in the paper tray of the machine.   | See <i>Jam MP Tray / Jam Tray 1 / Jam Tray 2 / Jam Inside</i> >> page 125.   |
| <b>Log Access Error</b><br>(HL-5450DN only) | The machine could not access the print log file in the server.                                | Contact your administrator to check the Store Print Log to Network settings.<br><br>(For detailed information >> Network User's Guide: Store Print Log to Network)   |
| <b>Manual Feed</b>                          | <b>Manual</b> was selected as the paper source when there was no paper in the MP tray.        | Place paper in the MP tray. If the machine does not start printing, press <b>Go</b> . (See <i>Loading paper in the multi-purpose tray (MP tray)</i> >> page 12.)   |
| <b>No Paper</b>                             | The machine is out of paper or paper is not correctly loaded in the specified paper tray.     | Put paper in the tray you are using.<br><br>Make sure the paper guides are set to the correct size.  |
| <b>No Toner</b>                             | The toner cartridge or the drum unit and toner cartridge assembly is not installed correctly. | Remove the drum unit and toner cartridge assembly, remove the toner cartridge from the drum unit, and re-install the toner cartridge back into the drum unit again. Re-install the drum unit and toner cartridge assembly back in the machine. If the problem continues, replace the toner cartridge. (See <i>Replacing the toner cartridge</i> >> page 95.) |
| <b>Out of Memory</b>                        | The machine's memory is full.   | Reduce the complexity of your document or reduce the print resolution.<br><br>Add more memory (HL-5450DN only). See <i>Installing extra memory</i> >> page 91.   |
| <b>Print Unable</b>                         | The machine has a mechanical problem.   | Turn the power switch off, wait a few minutes, and then turn it on again.<br><br>If the problem continues, call your dealer or Brother Customer Service.   |
| <b>Replace Drum</b>                         | It is time to replace the drum unit.  | Replace the drum unit. (See <i>Replacing the drum unit</i> >> page 103.)   |
|   | The drum unit counter was not reset when a new drum was installed.                            | Reset the drum unit counter. (See <i>Replacing the drum unit</i> >> page 103.)   |
| <b>Replace Fuser</b>                        | It is time to replace the fuser unit.   | Call Brother customer service or a Brother Authorized Service Center to replace the fuser unit.  |

| Error message   | Cause  | Action  |
|---|--|---|
| <b>Replace Laser</b>  | It is time to replace the laser unit.  | Call Brother customer service or a Brother Authorized Service Center to replace the laser unit.   |
| <b>Replace PF Kit1</b><br><b>Replace PF Kit2</b><br><b>Replace PF KitMP</b> | It is time to replace the paper feeding kit.   | Call Brother customer service or a Brother Authorized Service Center to replace the PF Kit.   |
| <b>Replace Toner</b>  | The toner cartridge is at the end of its life. The machine will stop all print operations.   | Replace the toner cartridge. (See <i>Replacing the toner cartridge</i> >> page 95.)   |
| <b>Size Error DX</b>  | The paper size defined in the printer driver is not available for automatic duplex printing.   | Press <b>Cancel</b> . Choose a paper size which is supported by the duplex tray.<br>The paper size you can use for automatic duplex printing is A4. |
|   | The paper in the tray is not correct size and is not available for automatic duplex printing.  | Load the correct size of paper in the tray.<br>The paper size you can use for automatic duplex printing is A4.                                      |
| <b>Toner Low</b>  | If the <b>Status Monitor</b> shows <b>Toner Low</b> you can still print; however, the machine is telling you that the toner cartridge is near the end of its life. | Order a new toner cartridge now so a replacement toner cartridge will be available when the <b>Status Monitor</b> shows Replace Toner.              |

## Paper jams

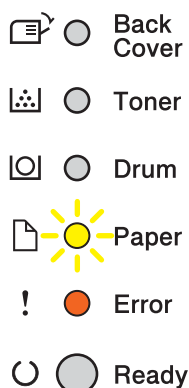


### Note

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 machine at one time and prevents paper jams.

### Jam MP Tray / Jam Tray 1 / Jam Tray 2 / Jam Inside

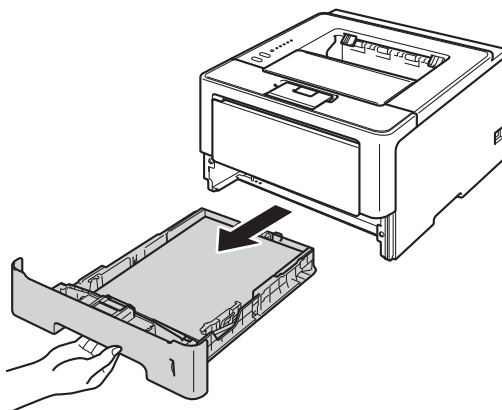
If a paper jam occurs inside the machine, the MP tray or paper tray, the **Error** LED will turn on and the **Paper** LED will blink.



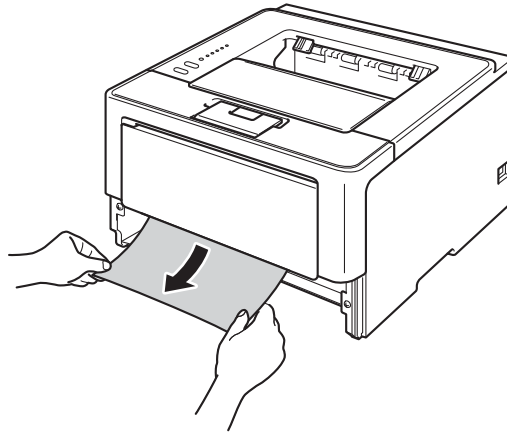
If you have printed using the MP Tray, start at step ❶.

If you have printed using Tray 1 or Tray 2, start at step ❸.

- ❶ Remove the paper from the MP tray.
- ❷ Remove any jammed paper from in and around the MP Tray. Press **Go**.  
If you still have the error indication, continue with the following steps.
- ❸ Leave the machine turned on for 10 minutes for the internal fan to cool the extremely hot parts inside the machine.
- ❹ Pull the paper tray completely out of the machine.



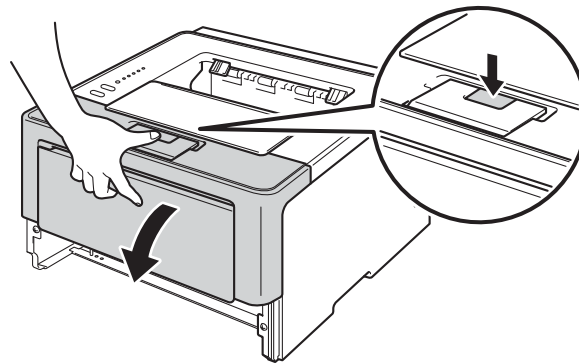
- 5 Use both hands to slowly pull out the jammed paper.



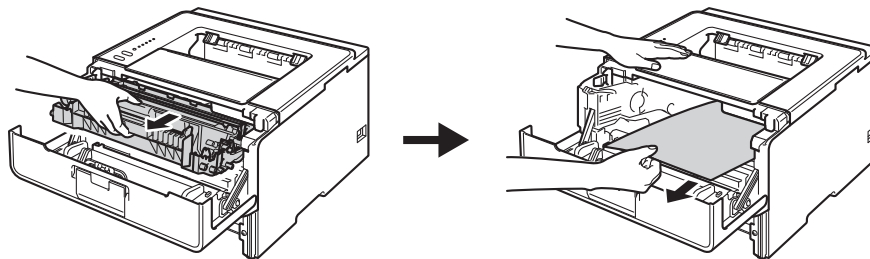
**Note**

Pulling out the jammed paper downward allows you to remove the paper more easily.

- 6 Press the front cover release button and then open the front cover.



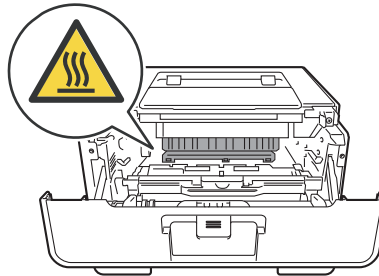
- 7 Slowly take out the drum unit and toner cartridge assembly. The jammed paper may be pulled out with the drum unit and toner cartridge assembly, or this may release the paper so you can pull it out from inside of the machine.



## WARNING



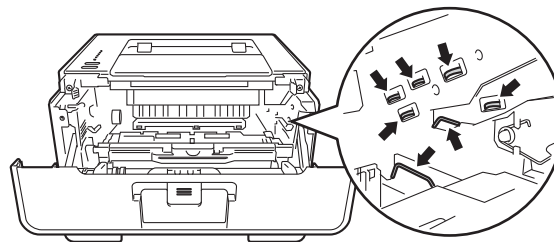
After you have just used the machine, some internal parts of the machine will be extremely hot. Wait for the machine to cool down before you touch the internal parts of the machine.



6

### Important

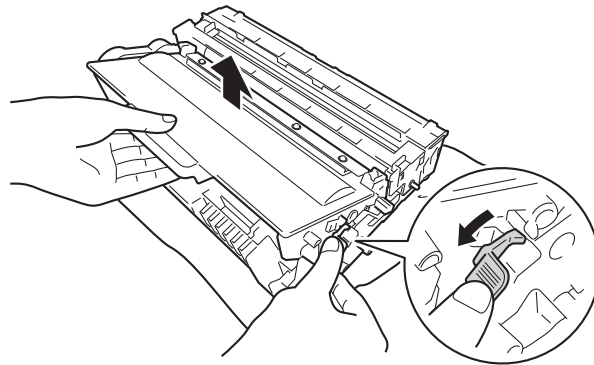
- We recommend that you put the drum unit and toner cartridge assembly on a piece of disposable paper or cloth in case you accidentally spill or scatter toner.
- Handle the drum unit and toner cartridge assembly carefully. If toner scatters on your hands or clothes, immediately wipe or wash it off with cold water.
- To prevent damage to the machine from static electricity, DO NOT touch the electrodes shown in the illustration.



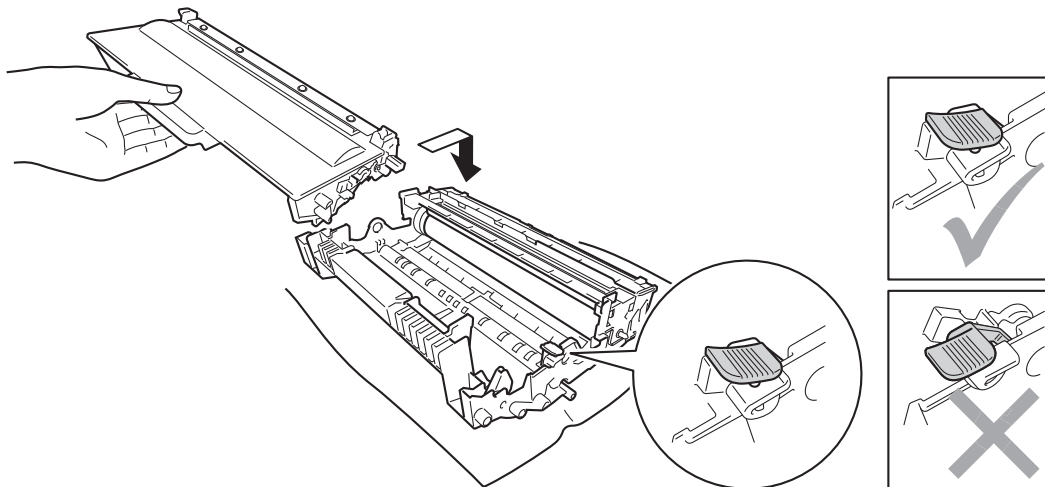
### Note

The drum unit and toner cartridge are two separate parts. Make sure both are installed as an assembly. If the toner cartridge is placed in the machine without the drum unit, the messages Drum Error or Jam Inside may be indicated.

- 8 Push down the green lock lever and take the toner cartridge out of the drum unit. Remove the jammed paper if there is any inside the drum unit.



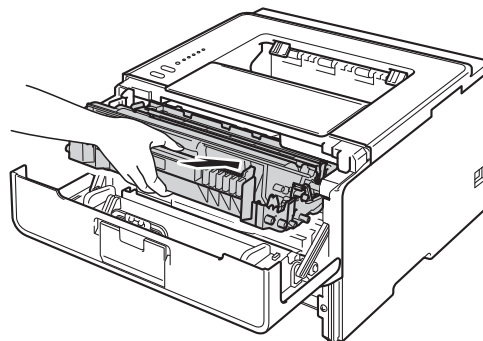
- 9 Put the toner cartridge back into the drum unit until you hear it lock into place. If you put the cartridge in correctly, the green lock lever on the drum unit will lift automatically.



 **Note**

Make sure that you put in the toner cartridge properly or it may separate from the drum unit.

- 10 Put the drum unit and toner cartridge assembly back into the machine.



- 11 Close the front cover of the machine.

- 12 Make sure that the paper is below the maximum paper mark (▼▼▼) in the paper tray. While pressing the green paper-guide release lever, slide the paper guides to fit the paper size. Make sure that the guides are firmly in the slots.
- 13 Put the paper tray firmly back in the machine.



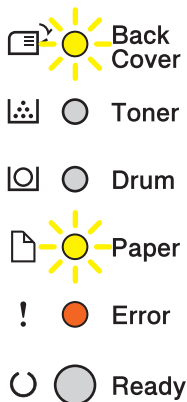
**Note**

If you turn off the machine during paper jam, the machine will print incomplete data from your computer. Before you turn on the machine, delete the print spool job on your computer.

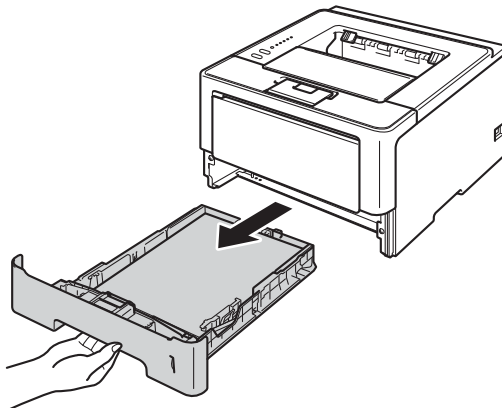
- 14 Make sure that the **Paper** and **Error** LEDs are off and that the **Ready** LED is green.

**Jam Rear / Jam Duplex**

If a paper jam occurs behind the back cover (face-up output tray) or inside the duplex tray, the **Error** LED will turn on and the **Back Cover** and **Paper** LEDs will blink.

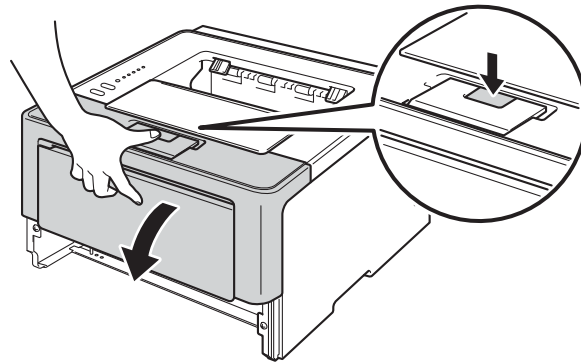


- 1 Leave the machine turned on for 10 minutes for the internal fan to cool the extremely hot parts inside the machine.
- 2 Pull the paper tray completely out of the machine.

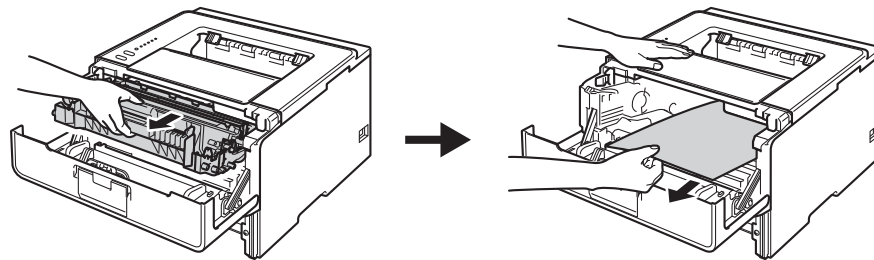




- 3 Press the front cover release button and then open the front cover.



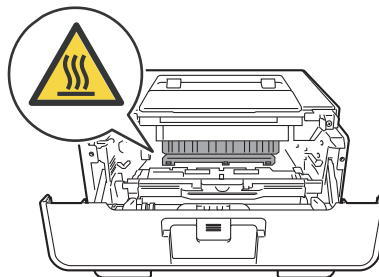
- 4 Slowly take out the drum unit and toner cartridge assembly. The jammed paper may be pulled out with the drum unit and toner cartridge assembly, or this may release the paper so you can pull it out from inside of the machine.



**! WARNING**

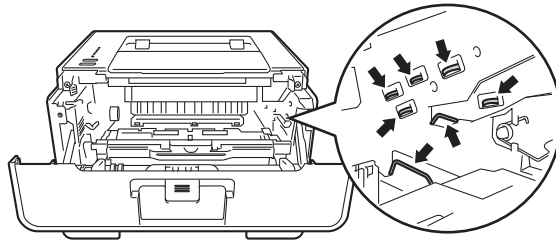


After you have just used the machine, some internal parts of the machine will be extremely hot. Wait for the machine to cool down before you touch the internal parts of the machine.

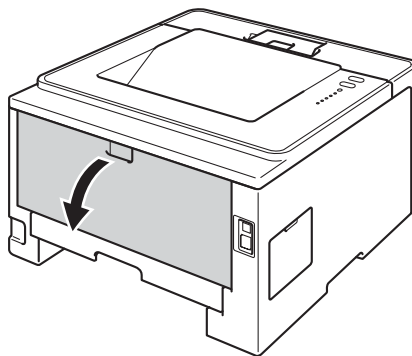


**!** Important

- We recommend that you put the drum unit and toner cartridge assembly on a piece of disposable paper or cloth in case you accidentally spill or scatter toner.
- Handle the drum unit and toner cartridge assembly carefully. If toner scatters on your hands or clothes, immediately wipe or wash it off with cold water.
- To prevent damage to the machine from static electricity, **DO NOT** touch the electrodes shown in the illustration.



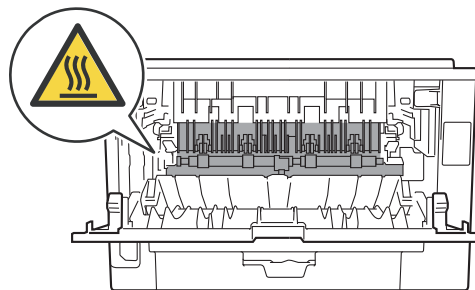
- 5** Open the back cover.



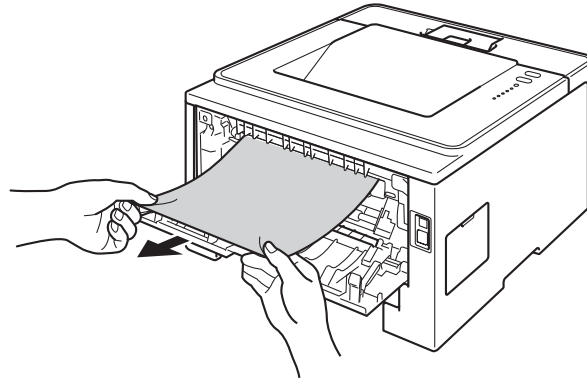
**!** WARNING



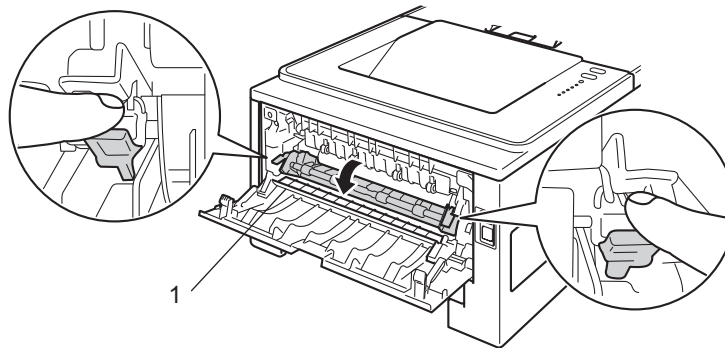
After you have just used the machine, some internal parts of the machine will be extremely hot. Wait for the machine to cool down before you touch the internal parts of the machine.



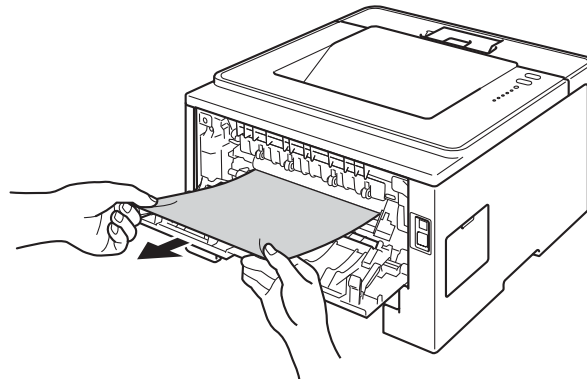
- Using both hands, gently pull the jammed paper out of the back of the machine.



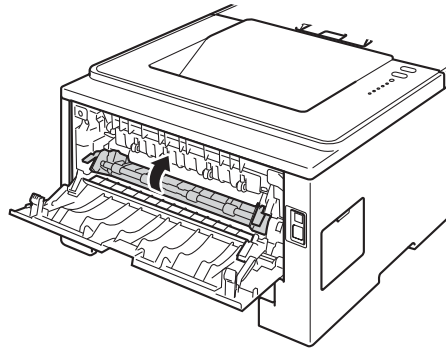
- Pull the green tabs at the left and right hand sides toward you and fold down the fuser cover (1).



- Using both hands, gently pull the jammed paper out of the fuser unit.

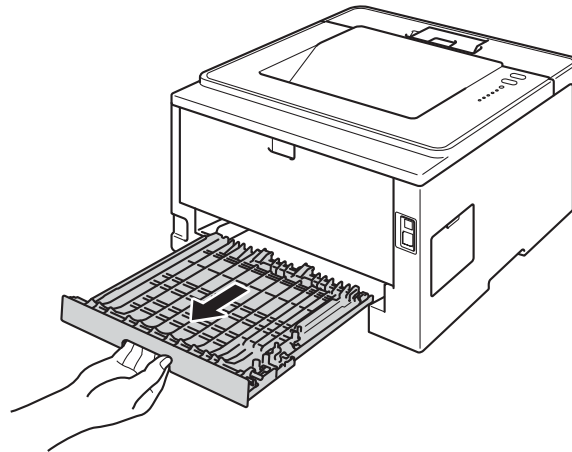


- 9 Close the fuser cover.

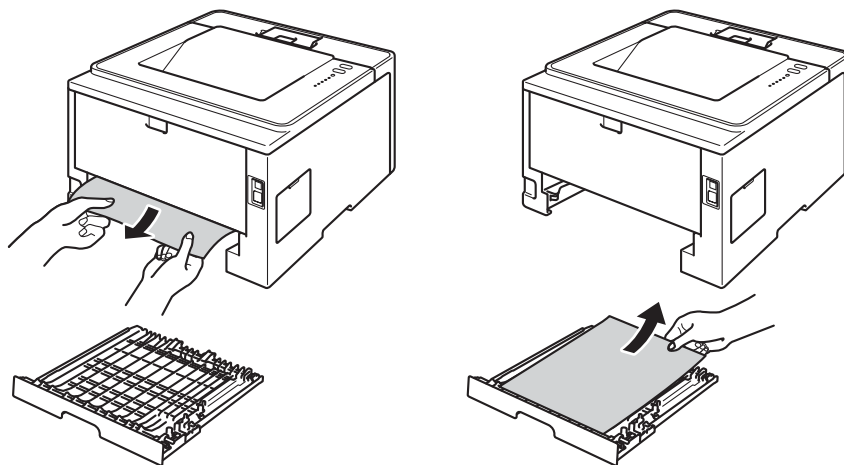


- 10 Close the back cover.

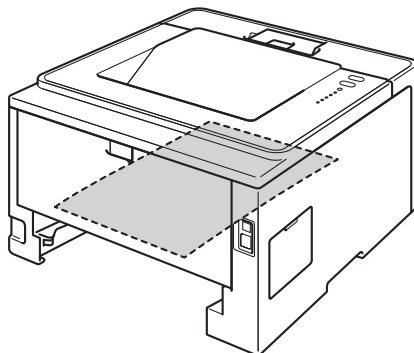
- 11 Pull the duplex tray completely out of the machine.



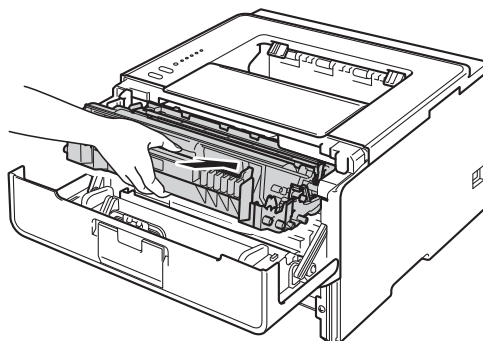
- 12 Pull the jammed paper out of the machine or out of the duplex tray.



- 13 Make sure that the jammed paper does not remain under the machine from static electricity.



- 14 Put the duplex tray back into the machine.
- 15 Put the drum unit and toner cartridge assembly back into the machine.



- 16 Close the front cover of the machine.
- 17 Put the paper tray firmly back in the machine.
- 18 Make sure that the **Back Cover**, **Paper** and **Error** LEDs are off and that the **Ready** LED is green.

## If you are having difficulty with your machine

### ! Important

- For technical help, you must call the country where you bought the machine. Calls must be made from within that country.
- If you think there is a problem with your machine, check the chart below and follow the troubleshooting tips. Most problems can be easily resolved by yourself.
- If you need additional help, the Brother Solutions Center offers the latest FAQs and troubleshooting tips. Visit us at <http://solutions.brother.com/>.

### Printing difficulties

| Difficulties   | Suggestions   |
|--|---|
| No printout.   | Check that the correct printer driver has been installed and chosen.  |
|  | Check to see if the LEDs are indicating any error.<br>(See <i>LEDs (Light Emitting Diodes)</i> >> page 71 and <i>Error messages in the Status Monitor</i> >> page 122.)   |
|  | Check the machine is online:<br>(Windows® 7 and Windows Server® 2008 R2)<br>Click the <b>Start</b> button and <b>Devices and Printers</b> . Right-click <b>Brother HL-XXXX series</b> and click <b>See What's Printing</b> . Click <b>Printer</b> and make sure <b>Use Printer Offline</b> is unchecked.<br>(Windows Vista® and Windows Server® 2008)<br>Click the <b>Start</b> button, <b>Control Panel</b> , <b>Hardware and Sound</b> , and then <b>Printers</b> . Right-click <b>Brother HL-XXXX series</b> . Make sure that <b>Use Printer Offline</b> is unchecked. |
|  | (Windows® XP and Windows Server® 2003)<br>Click the <b>Start</b> button and choose <b>Printers and Faxes</b> . Right-click <b>Brother HL-XXXX series</b> . Make sure that <b>Use Printer Offline</b> is unchecked.  |
|  | Contact your administrator to check your Secure Function Lock settings.<br>(HL-5450DN only)   |
| The machine is not printing or has stopped printing.   | Press <b>Cancel</b> .<br>The machine will cancel the print job and clear it from the memory. The printout may be incomplete.  |
| The headers or footers appear when the document displays on the screen but they do not show up when it is printed. | There is an unprintable area on the top and bottom of the page. Adjust the top and bottom margins in your document to allow for this.<br>(See <i>Unprintable area when printing from a computer</i> >> page 8.)   |
| The machine prints unexpectedly or it prints garbage.  | Press <b>Cancel</b> to cancel print jobs.   |
|  | Check the settings in your application to make sure it is set up to work with your machine.   |


### Printing difficulties (continued)

| Difficulties   | Suggestions  |
|--|--|
| The machine prints the first couple of pages correctly, then some pages have text missing. | Check the settings in your application to make sure that it is set up to work with your machine.   |
|  | Your computer is not recognising the machine's input buffer's full signal. Make sure that you connected the interface cable correctly.<br>(▶▶ Quick Setup Guide) |
| Cannot perform 'Page Layout' printing.   | Check that the paper size setting in the application and in the printer driver are the same.   |
| Print speed is too slow.   | Try changing the printer driver setting. The highest resolution needs longer data processing, sending and printing time.   |
|  | Check that the back cover is firmly closed and the duplex tray is firmly installed.  |
|  | If the machine is in Quiet mode, print speed is slower. Check the Quiet mode setting.<br>(See <i>Turning Quiet mode on/off</i> ▶▶ page 87.)                      |
| The machine does not print from Adobe® Illustrator®.                                       | Reduce the print quality.<br>(See <i>Basic tab</i> ▶▶ page 26 (for Windows®))<br>(See <i>Print Settings</i> ▶▶ page 59 (for Macintosh))                          |
| Poor print quality   | See <i>Improving the print quality</i> ▶▶ page 139.  |

### Paper handling difficulties

| Difficulties                                      | Suggestions  |
|---|--|
| The machine does not feed paper.                  | If there is no paper, load a new stack of paper into 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. Sometimes it is helpful to remove the paper, turn the stack over and put it back into the paper tray.   |
|   | Reduce the amount of paper in the paper tray, and then try again.  |
|   | Make sure that manual feed mode is not chosen in the printer driver.   |
|   | Clean the paper pick-up roller.<br>(See <i>Cleaning the paper pick-up roller</i> ▶▶ page 117.)   |
| The machine does not feed paper from the MP tray. | Make sure that <b>MP Tray</b> is chosen in the printer driver.   |
|   | Fan the paper well and put it back in the tray firmly.   |
| How do I print on envelopes?                      | You can load envelopes in the MP tray. Your application must be set up to print the envelope size you are using. This is usually done in the Page Setup or Document Setup menu of your application.<br><br>(See your application's manual for more information.) |

### Network difficulties (HL-5450DN only)

| Difficulties   | Suggestions  |
|--|--|
| <p>Cannot print over a wired Network.</p>  | <p>If you are having Network problems &gt;&gt; Network User's Guide.</p> <p>Make sure your machine is powered on and is on-line and in Ready mode. Print the Printer Settings page to verify your Network settings are correct.</p> <p>(See <i>Print a Printer Settings page</i> &gt;&gt; page 83.)</p> <p>Reconnect the LAN cable to the hub to verify that the cable and network connections are good. If possible, try connecting the machine to a different port on your hub using a different cable. You can check the current wired network status from the Printer Settings page.</p> |
| <p>The Brother software cannot be installed.</p>   | <p><b>(Windows®)</b><br/>If the Security Software warning appears on the PC screen during the installation, change the Security Software settings to permit the Brother product setup program or other program to run.</p> <p><b>(Macintosh)</b><br/>If you are using a firewall function of anti-spyware or antivirus security software, temporarily disable it and then install the Brother software.</p>  |
| <p> For other problems concerning using your machine on a Network &gt;&gt; Network User's Guide</p> |  |



## Other difficulties

| Difficulties  | Suggestions  |
|---|--|
| <p>The machine will not turn on.</p>  | <p>Adverse conditions on the power connection (such as lightning or a power surge) may have triggered the machine's internal safety mechanisms. Turn the machine off and unplug the power cord. Wait for ten minutes, then plug in the power cord and turn the machine on.</p> <p>If the problem is not solved, turn off the machine. If you are using a power breaker, disconnect it to make sure it is not the problem. Plug the machine's power cord directly into a different known working wall electrical socket and turn on the machine. If there is still no power, try a different power cable.</p>   |
| <p>The machine cannot print EPS data that includes binary with the BR-Script3 printer driver.</p> | <p><b>(Windows®)</b><br/>           You need the following settings to print EPS data:</p> <ol style="list-style-type: none"> <li>1 For Windows® 7 and Windows Server® 2008 R2:<br/>               Click the <b>Start</b> button and <b>Devices and Printers</b>.<br/>               For Windows Vista® and Windows Server® 2008:<br/>               Click <b>Start</b> button, <b>Control Panel</b>, <b>Hardware and Sound</b>, and then <b>Printers</b>.<br/>               For Windows® XP and Windows Server® 2003:<br/>               Click <b>Start</b> button, and select <b>Printers and Faxes</b>.</li> <li>2 Right-click the <b>Brother HL-XXXX BR-Script3</b> icon and select <b>Properties</b> <sup>1</sup>.</li> <li>3 From the <b>Device Settings</b> tab, choose <b>TBCP</b> (Tagged binary communication protocol) in <b>Output Protocol</b>.</li> </ol> <p><b>(Macintosh)</b><br/>           If your machine is connected to a computer with a USB interface, you cannot print EPS data that includes binary. You can print the EPS data at the machine through a network. For installing BR-Script3 printer driver through the network, visit the Brother Solutions Center at <a href="http://solutions.brother.com/">http://solutions.brother.com/</a>.</p> |

<sup>1</sup> **Printer properties** for Windows® 7 and Windows Server® 2008 R2 users

## Improving the print quality


If you have a print quality problem, print a test page first (see *Print a test page* >> page 82). If the printout looks good, the problem is probably not the machine. Check the interface cable or try the machine on another computer. If the printout has a quality problem, check the following steps first. And then, if you still have a print quality problem, check the chart below and follow the recommendations.


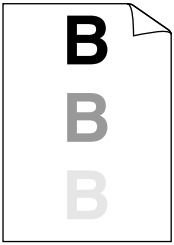




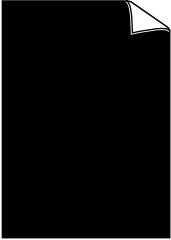

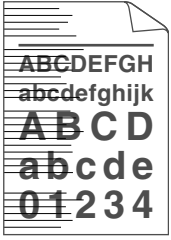
### Note


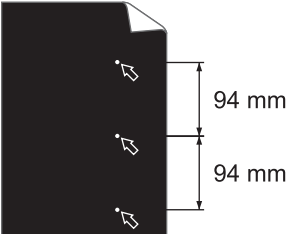
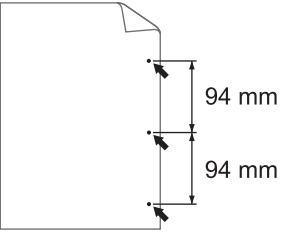
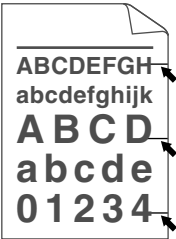
Brother does not recommend the use of cartridges other than genuine Brother Original cartridges or the refilling of used cartridges with toner from other sources.

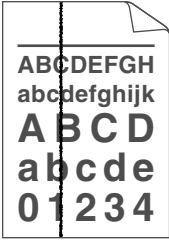


- 1 To get the best print quality, we suggest using the recommended paper. Check that you are using paper that meets our specifications. (See *Acceptable paper and other print media* >> page 2.)
- 2 Check that the drum unit and toner cartridge are installed correctly.

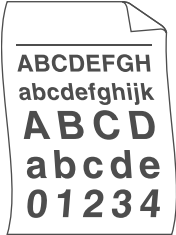
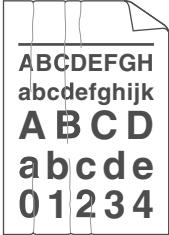

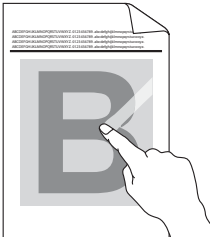
| Examples of poor print quality  | Recommendation  |
|---|---|
|  <p style="text-align: center;">Faint</p> | <ul style="list-style-type: none"> <li>■ Take out the drum unit and toner cartridge assembly. Hold the assembly level with both hands and gently shake it from side to side several times to spread the toner evenly inside the cartridge.</li> <li>■ If the LEDs indicate <b>Replace Toner</b>, put in a new toner cartridge.                     <ul style="list-style-type: none"> <li>&gt;&gt; <i>Replacing the toner cartridge</i> &gt;&gt; page 95</li> </ul> </li> <li>■ Check the machine's environment. Conditions such as humidity, high temperatures, and so on, may cause this print fault.                     <ul style="list-style-type: none"> <li>&gt;&gt; <i>Product Safety Guide: Choose a safe location for your product</i></li> </ul> </li> <li>■ If the whole page is too light, Toner Save may be turned on. Turn off <b>Toner Save Mode</b> in the <b>Advanced</b> tab (For Windows®) or the <b>Advanced</b> print settings of <b>Print Settings</b> (For Macintosh) of the driver.</li> <li>■ Clean the corona wire of the drum unit.                     <ul style="list-style-type: none"> <li>&gt;&gt; <i>Cleaning the corona wire</i> &gt;&gt; page 110</li> </ul> </li> <li>■ Put in a new toner cartridge.                     <ul style="list-style-type: none"> <li>&gt;&gt; <i>Replacing the toner cartridge</i> &gt;&gt; page 95</li> </ul> </li> <li>■ Put in a new drum unit.                     <ul style="list-style-type: none"> <li>&gt;&gt; <i>Replacing the drum unit</i> &gt;&gt; page 103</li> </ul> </li> </ul> |


| Examples of poor print quality   | Recommendation  |
|--|---|
|  <p data-bbox="240 554 457 583"><b>Grey background</b></p>  | <ul style="list-style-type: none"> <li>■ Make sure that you use paper that meets our specifications.                             <ul style="list-style-type: none"> <li>➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2</li> </ul> </li> <li>■ Check the machine's environment. Conditions such as high temperatures and high humidity can increase the amount of background shading.                             <ul style="list-style-type: none"> <li>➤➤ <i>Product Safety Guide: Choose a safe location for your product</i></li> </ul> </li> <li>■ Put in a new toner cartridge.                             <ul style="list-style-type: none"> <li>➤➤ <i>Replacing the toner cartridge</i> ➤➤ page 95</li> </ul> </li> <li>■ Put in a new drum unit.                             <ul style="list-style-type: none"> <li>➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> </ul>   |
|  <p data-bbox="310 942 388 972"><b>Ghost</b></p>            | <ul style="list-style-type: none"> <li>■ Make sure that you use paper that meets our specifications. Rough-surfaced paper or thick paper may cause this problem.                             <ul style="list-style-type: none"> <li>➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2</li> </ul> </li> <li>■ Make sure that you choose the appropriate media type in the printer driver.                             <ul style="list-style-type: none"> <li>➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2</li> </ul> </li> <li>■ Choose <b>Reduce Ghosting</b> mode in the printer driver.                             <ul style="list-style-type: none"> <li>➤➤ <i>Other Print Options</i> ➤➤ page 36 (For Windows®)</li> <li>➤➤ <i>Print Settings</i> ➤➤ page 59 (For Macintosh)</li> </ul> </li> <li>■ Put in a new drum unit.                             <ul style="list-style-type: none"> <li>➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> <li>■ Put in a new toner cartridge.                             <ul style="list-style-type: none"> <li>➤➤ <i>Replacing the toner cartridge</i> ➤➤ page 95</li> </ul> </li> <li>■ The fuser unit may be contaminated. Call your Brother customer service for support.</li> </ul> |
|  <p data-bbox="261 1551 436 1581"><b>Toner specks</b></p> | <ul style="list-style-type: none"> <li>■ Make sure that you use paper that meets our specifications. Rough-surfaced paper may cause the problem.                             <ul style="list-style-type: none"> <li>➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2</li> </ul> </li> <li>■ Clean the corona wire of the drum unit.                             <ul style="list-style-type: none"> <li>➤➤ <i>Cleaning the corona wire</i> ➤➤ page 110</li> </ul> </li> <li>■ The drum unit may be damaged. Put in a new drum unit.                             <ul style="list-style-type: none"> <li>➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> <li>■ The fuser unit may be contaminated. Call your Brother customer service for support.</li> </ul>   |

| Examples of poor print quality   | Recommendation  |
|--|---|
|  <p data-bbox="269 552 428 583"><b>Hollow print</b></p>                   | <ul style="list-style-type: none"> <li data-bbox="581 289 1312 321">■ Make sure that you use paper that meets our specifications.                             <ul style="list-style-type: none"> <li data-bbox="610 333 1256 365">➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2</li> </ul> </li> <li data-bbox="581 380 1495 443">■ Choose <b>Thick Paper</b> mode in the printer driver or use thinner paper than you are currently using.</li> <li data-bbox="581 457 1463 520">■ Check the machine's environment. Conditions such as high humidity can cause hollow print.                             <ul style="list-style-type: none"> <li data-bbox="610 533 1390 564">➤➤ <i>Product Safety Guide: Choose a safe location for your product</i></li> </ul> </li> <li data-bbox="581 579 1273 611">■ The drum unit may be damaged. Put in a new drum unit.                             <ul style="list-style-type: none"> <li data-bbox="610 623 1101 655">➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> </ul> |
|  <p data-bbox="290 930 407 961"><b>All black</b></p>                      | <ul style="list-style-type: none"> <li data-bbox="581 667 1495 730">■ Clean the corona wire inside the drum unit by sliding the green tab. Be sure to return the green tab to the home position (▲).                             <ul style="list-style-type: none"> <li data-bbox="610 743 1114 774">➤➤ <i>Cleaning the corona wire</i> ➤➤ page 110</li> </ul> </li> <li data-bbox="581 789 1273 821">■ The drum unit may be damaged. Put in a new drum unit.                             <ul style="list-style-type: none"> <li data-bbox="610 833 1101 865">➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> </ul>  |
|  <p data-bbox="172 1234 526 1266"><b>White lines across the page</b></p> | <ul style="list-style-type: none"> <li data-bbox="581 972 1495 1035">■ Make sure that you use paper that meets our specifications. A rough surfaced paper or thick print media can cause this problem.                             <ul style="list-style-type: none"> <li data-bbox="610 1047 1263 1079">➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2.</li> </ul> </li> <li data-bbox="581 1094 1490 1125">■ Make sure that you choose the appropriate media type in the printer driver.</li> <li data-bbox="581 1140 1495 1203">■ The problem may disappear by itself. Print multiple blank pages to clear this problem, especially if the machine has not been used for a long time.</li> <li data-bbox="581 1218 1273 1249">■ The drum unit may be damaged. Put in a new drum unit.                             <ul style="list-style-type: none"> <li data-bbox="610 1262 1101 1293">➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> </ul>   |
|  <p data-bbox="215 1566 483 1598"><b>Line across the page</b></p>       | <ul style="list-style-type: none"> <li data-bbox="581 1304 1114 1335">■ Clean the corona wire inside the drum unit.                             <ul style="list-style-type: none"> <li data-bbox="610 1348 1114 1379">➤➤ <i>Cleaning the corona wire</i> ➤➤ page 110</li> </ul> </li> <li data-bbox="581 1394 1273 1425">■ The drum unit may be damaged. Put in a new drum unit.                             <ul style="list-style-type: none"> <li data-bbox="610 1438 1101 1470">➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> </ul>   |

| Examples of poor print quality  | Recommendation   |
|---|--|
|  <p data-bbox="164 552 532 615"><b>White lines, bands or ribbing across the page</b></p>   | <ul style="list-style-type: none"> <li>■ Check the machine's environment. Conditions such as high humidity and high temperatures may cause this print quality problem.                             <ul style="list-style-type: none"> <li>➤➤ Product Safety Guide: <i>Choose a safe location for your product</i></li> </ul> </li> <li>■ If the problem is not solved after printing a few pages, put in a new drum unit.                             <ul style="list-style-type: none"> <li>➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> </ul>  |
|  <p data-bbox="155 884 537 947"><b>White Spots on black text and graphics at 94 mm intervals</b></p>  <p data-bbox="151 1213 545 1245"><b>Black Spots at 94 mm intervals</b></p> | <ul style="list-style-type: none"> <li>■ If the problem is not solved after printing a few pages, the drum unit may have foreign material, such as glue from a label, stuck on the drum. Clean the drum unit.                             <ul style="list-style-type: none"> <li>➤➤ <i>Cleaning the drum unit</i> ➤➤ page 112</li> </ul> </li> <li>■ The drum unit may be damaged. Put in a new drum unit.                             <ul style="list-style-type: none"> <li>➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> </ul>   |
|  <p data-bbox="164 1518 532 1581"><b>Black toner marks across the page</b></p>   | <ul style="list-style-type: none"> <li>■ If you use label sheets for laser printers, the glue from the sheets may sometimes stick to the OPC drum surface. Clean the drum unit.                             <ul style="list-style-type: none"> <li>➤➤ <i>Cleaning the drum unit</i> ➤➤ page 112</li> </ul> </li> <li>■ Make sure that you use paper that meets our specifications.                             <ul style="list-style-type: none"> <li>➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2</li> </ul> </li> <li>■ Do not use paper that has clips or staples because they will scratch the surface of the drum.</li> <li>■ If the unpacked drum unit is in direct sunlight or room light, the unit may be damaged.</li> <li>■ The toner cartridge may be damaged. Put in a new toner cartridge.                             <ul style="list-style-type: none"> <li>➤➤ <i>Replacing the toner cartridge</i> ➤➤ page 95</li> </ul> </li> <li>■ The drum unit may be damaged. Put in a new drum unit.                             <ul style="list-style-type: none"> <li>➤➤ <i>Replacing the drum unit</i> ➤➤ page 103</li> </ul> </li> </ul> |

| Examples of poor print quality   | Recommendation  |
|--|---|
|  <p><b>Black lines down the page</b><br/><b>Printed pages have toner stains down the page</b></p> | <ul style="list-style-type: none"> <li>■ Clean the corona wire inside the drum unit by sliding the green tab.<br/>    &gt;&gt; <i>Cleaning the corona wire</i> &gt;&gt; page 110</li> <li>■ Make sure the green tab of the corona wire is at the home position (▲).</li> <li>■ The toner cartridge may be damaged. Put in a new toner cartridge.<br/>    &gt;&gt; <i>Replacing the toner cartridge</i> &gt;&gt; page 95</li> <li>■ The drum unit may be damaged. Put in a new drum unit.<br/>    &gt;&gt; <i>Replacing the drum unit</i> &gt;&gt; page 103</li> <li>■ The fuser unit may be contaminated. Call your Brother customer service for support.</li> </ul>  |
|  <p><b>White lines down the page</b></p>  | <ul style="list-style-type: none"> <li>■ Make sure that foreign material such as a torn piece of paper, sticky notes or dust is not inside the machine and around the drum unit and toner cartridge.</li> <li>■ The toner cartridge may be damaged. Put in a new toner cartridge.<br/>    &gt;&gt; <i>Replacing the toner cartridge</i> &gt;&gt; page 95</li> <li>■ The drum unit may be damaged. Put in a new drum unit.<br/>    &gt;&gt; <i>Replacing the drum unit</i> &gt;&gt; page 103</li> </ul>  |
|  <p><b>Image skewed</b></p>  | <ul style="list-style-type: none"> <li>■ Make sure that the paper or other print media is loaded correctly in the paper tray and that the guides are not too tight or too loose against the paper stack.</li> <li>■ Set the paper guides correctly.<br/>    &gt;&gt; <i>Printing on plain paper, thin paper or recycled paper from Tray 1 and Tray 2</i> &gt;&gt; page 9</li> <li>■ If you are using the MP tray, see <i>Printing on plain paper, thin paper, recycled paper and bond paper from the MP tray</i> &gt;&gt; page 12.</li> <li>■ The paper tray may be too full.<br/>    &gt;&gt; <i>Loading paper and print media</i> &gt;&gt; page 9</li> <li>■ Check the paper type and quality.<br/>    &gt;&gt; <i>Acceptable paper and other print media</i> &gt;&gt; page 2</li> <li>■ Check for loose objects such as torn paper inside the machine.</li> <li>■ If the problem only occurs during duplex printing, check for torn paper in the duplex tray, verify that the duplex tray is inserted completely and verify that the back cover is closed completely.</li> </ul> |

| Examples of poor print quality   | Recommendation   |
|--|--|
|  <p data-bbox="251 548 444 579"><b>Curled or wavy</b></p>         | <ul style="list-style-type: none"> <li>■ Check the paper type and quality. High temperatures and high humidity will cause paper to curl.                             <ul style="list-style-type: none"> <li>➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2</li> <li>➤➤ <i>Product Safety Guide: Choose a safe location for your product</i></li> </ul> </li> <li>■ If you do not use the machine often, the paper may have been in the paper tray too long. Turn over the stack of paper in the paper tray. Also, fan the paper stack and then rotate the paper 180° in the paper tray.</li> <li>■ Open the back cover (face-up output tray) to let the printed paper exit onto the face-up output tray.</li> <li>■ Choose <b>Reduce Paper Curl</b> mode in the printer driver when you do not use our recommended paper.                             <ul style="list-style-type: none"> <li>➤➤ <i>Other Print Options</i> ➤➤ page 36 (For Windows®)</li> <li>➤➤ <i>Print Settings</i> ➤➤ page 59 (For Macintosh)</li> </ul> </li> </ul> |
|  <p data-bbox="220 1073 475 1104"><b>Wrinkles or creases</b></p> | <ul style="list-style-type: none"> <li>■ Make sure that paper is loaded correctly.                             <ul style="list-style-type: none"> <li>➤➤ <i>Printing on plain paper, thin paper or recycled paper from Tray 1 and Tray 2</i> ➤➤ page 9</li> </ul> </li> <li>■ Check the paper type and quality.                             <ul style="list-style-type: none"> <li>➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2</li> </ul> </li> <li>■ Turn over the stack of paper in the tray or rotate the paper 180° in the input tray.</li> </ul>   |
|  <p data-bbox="232 1339 464 1371"><b>Envelope Creases</b></p>   | <ul style="list-style-type: none"> <li>■ Make sure that envelopes are printed with the back cover (face-up output tray) opened.                             <ul style="list-style-type: none"> <li>➤➤ <i>Printing on thick paper, labels and envelopes from the MP tray</i></li> <li>➤➤ page 15</li> </ul> </li> <li>■ Check the envelope type and quality.                             <ul style="list-style-type: none"> <li>➤➤ <i>Acceptable paper and other print media</i> ➤➤ page 2</li> </ul> </li> <li>■ Make sure envelopes are fed only from the MP tray.                             <ul style="list-style-type: none"> <li>➤➤ <i>Loading paper in the multi-purpose tray (MP tray)</i> ➤➤ page 12</li> </ul> </li> </ul>   |
|  <p data-bbox="277 1707 417 1738"><b>Poor fixing</b></p>        | <ul style="list-style-type: none"> <li>■ Choose <b>Improve Toner Fixing</b> mode in the printer driver.                             <ul style="list-style-type: none"> <li>➤➤ <i>Other Print Options</i> ➤➤ page 36 (For Windows®)</li> <li>➤➤ <i>Print Settings</i> ➤➤ page 59 (For Macintosh)</li> </ul> </li> </ul> <p>If this selection does not provide enough improvement, change the printer driver setting in <b>Media Type</b> to a thick setting.</p>  |

| Examples of poor print quality  | Recommendation   |
|---|--|
|  <p data-bbox="305 562 391 588">Curled</p> | <ul style="list-style-type: none"> <li data-bbox="581 289 1256 319">■ Choose <b>Reduce Paper Curl</b> mode in the printer driver.</li> <li data-bbox="610 340 1227 369">    &gt;&gt; <i>Other Print Options</i> &gt;&gt; page 36 (For Windows®)</li> <li data-bbox="610 390 1159 420">    &gt;&gt; <i>Print Settings</i> &gt;&gt; page 59 (For Macintosh)</li> <li data-bbox="581 436 1484 495">■ Open the back cover (face-up output tray) to let the printed paper exit onto the face-up output tray.</li> </ul> |



# Machine Information

## Default settings

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The machine has three levels of default settings; the default settings have been set at the factory before shipment.

- Network (HL-5450DN only)
- Factory Reset
- Settings Reset



### Note

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- You cannot modify the preset default settings.
  - Page counters can never be changed.
- 

## Network default settings (HL-5450DN only)

If you want to reset only the print server back to its default settings (by resetting all network information such as the password and IP address), follow these steps:

- 1 Turn off the machine.
- 2 Make sure that the front cover is closed and the power cord is plugged in.
- 3 Hold down **Go** as you turn on the power switch. Keep **Go** pressed down until all the LEDs light up and then the Ready LED turns off.
- 4 Release **Go**. Make sure that all the LEDs turn off.
- 5 Press **Go** six times. Make sure that all the LEDs light up to indicate the print server has been reset to its factory default settings. The machine will restart.

## Factory Reset

You can partially reset the machine back to its default printer settings. The network settings will not be reset:

- 1 Turn off the machine.
- 2 Make sure that the front cover is closed and the power cord is plugged in.
- 3 Hold down **Go** as you turn on the power switch. Keep **Go** pressed down until all the LEDs light up and then the Ready LED turns off.
- 4 Release **Go**. Make sure that all the LEDs turn off.
- 5 Press **Go** eight times. Make sure that all the LEDs light up to indicate the machine has been reset to its factory default settings (except the network settings). The machine will restart.

## Settings Reset

This operation will reset all the machine settings back to the settings that were set at the factory:

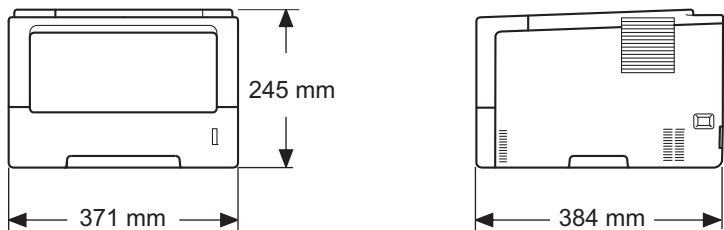
- 1 Disconnect the network cable from the machine; otherwise the network settings (such as IP address) will not be reset.
- 2 Turn off the machine.
- 3 Make sure that the front cover is closed and the power cord is plugged in.
- 4 Hold down **Go** as you turn on the power switch. Keep **Go** pressed down until all the LEDs light up and then the Ready LED turns off.
- 5 Release **Go**. Make sure that all the LEDs turn off.
- 6 Press **Go** ten times. The machine will automatically restart.

# A

## Appendix

### Machine specifications

#### General

| Model  | HL-5440D   | HL-5445D               | HL-5450DN                                   |
|--|--|------------------------|---|
| <b>Printer Type</b>                                | Laser  |                        |   |
| <b>Print Method</b>                                | Electrophotographic Laser Printer  |                        |   |
| <b>Memory Capacity</b>                             | Standard   | 64 MB                  |   |
|  | Optional   | -                      | 1 slot: DDR2 SO-DIMM (144-pin) up to 256 MB |
| <b>Power Source</b>                                | 220 - 240 V AC 50/60 Hz  |                        |   |
| <b>Power Consumption</b> <sup>1</sup><br>(Average) | Peak   | Approx. 1200 W         |   |
|  | Printing   | Approx. 665 W at 25 °C |   |
|  | Printing (Quiet Mode)  | Approx. 332 W at 25 °C |   |
|  | Ready  | Approx. 4.7 W at 25 °C |   |
|  | Deep Sleep   | Approx. 0.7 W          | Approx. 0.6 W                               |
| <b>Dimensions</b>                                  |  |                        |   |
| <b>Weights (with consumables)</b>                  | 10.4 kg  |                        | 10.5 kg                                     |

<sup>1</sup> USB connections to PC

| Model              |                | HL-5440D              | HL-5445D                         | HL-5450DN |
|--------------------|----------------|-----------------------|----------------------------------|-----------|
| <b>Noise Level</b> | Sound Pressure | Printing              | LPAM = 59 dB (A)                 |           |
|                    |                | Ready                 | LPAM = 34 dB (A)                 |           |
|                    |                | Printing (Quiet Mode) | LPAM = 54 dB (A)                 |           |
|                    | Sound Power    | Printing              | LWAd = 6.79 B (A)                |           |
|                    |                | Ready                 | LWAd = 4.70 B (A)                |           |
|                    |                | Printing (Quiet Mode) | LWAd = 6.4 B (A)                 |           |
| <b>Temperature</b> |                | Operating             | 10 to 32.5 °C                    |           |
|                    |                | Storage               | 0 to 40 °C                       |           |
| <b>Humidity</b>    |                | Operating             | 20 to 80% (without condensation) |           |
|                    |                | Storage               | 10 to 90% (without condensation) |           |

## Print media

| Model                    |                              | HL-5440D  | HL-5445D  | HL-5450DN |
|--------------------------|------------------------------|---|---|-----------|
| Paper Input <sup>1</sup> | Paper Tray (Standard)        | Paper Type  | Plain paper, Thin paper, Recycled paper   |           |
|                          |                              | Paper Size  | A4, Letter, B5 (ISO/JIS), A5, A5 (Long Edge), B6 (ISO), A6, Executive, Legal, Folio                                   |           |
|                          |                              | Paper Weight  | 60 to 105 g/m <sup>2</sup>  |           |
|                          |                              | Maximum Paper Capacity                                  | Up to 250 sheets of 80 g/m <sup>2</sup> Plain paper   |           |
|                          | Multi-purpose tray (MP tray) | Paper Type  | Plain paper, Thin paper, Thick paper, Thicker paper, Recycled paper, Bond paper, Label, Envelope, Env.Thin, Env.Thick |           |
|                          |                              | Paper Size  | Width: 76.2 to 215.9 mm<br>Length: 127.0 to 355.6 mm  |           |
|                          |                              | Paper Weight  | 60 to 163 g/m <sup>2</sup>  |           |
|                          |                              | Maximum Paper Capacity                                  | Up to 50 sheets of 80 g/m <sup>2</sup> Plain paper  |           |
|                          | Paper Tray 2 (Optional)      | Paper Type  | Plain paper, Thin paper, Recycled paper   |           |
|                          |                              | Paper Size  | A4, Letter, B5 (ISO/JIS), A5, B6 (ISO), Executive, Legal, Folio   |           |
|                          |                              | Paper Weight  | 60 to 105 g/m <sup>2</sup>  |           |
|                          |                              | Maximum Paper Capacity                                  | Up to 500 sheets of 80 g/m <sup>2</sup> Plain paper   |           |
|                          | Paper Output <sup>1</sup>    | Face-Down Output Tray                                   | Up to 150 sheets of 80 g/m <sup>2</sup> Plain paper (face-down delivery to the face-down output paper tray)           |           |
| Face-Up Output Tray      |                              | One sheet (face-up delivery to the face-up output tray) |   |           |
| Duplex                   | Automatic Duplex Printing    | Paper Type  | Plain paper, Thin paper, Recycled paper   |           |
|                          |                              | Paper Size  | A4  |           |
|                          |                              | Paper Weight  | 60 to 105 g/m <sup>2</sup>  |           |

<sup>1</sup> For labels, we recommend removing the printed sheets from the output paper tray immediately after they exit the machine to avoid the possibility of smudging.

## Printer

| Model                                   | HL-5440D   | HL-5445D  | HL-5450DN |
|---|--|---|-----------|
| <b>Automatic 2-sided (Duplex) Print</b> | Yes  |   |           |
| <b>Emulation</b>                        | PCL6, BR-Script3 (PostScript® 3™), IBM ProPrinter XL, EPSON FX-850 |   |           |
| <b>Resolution</b>                       | 1200 × 1200 dpi<br>HQ1200 quality<br>600 × 600 dpi                 |   |           |
| <b>Print Speed</b> <sup>1</sup>         | Single side print  | Up to 38 ppm (A4 size)<br>Up to 40 ppm (Letter size)                |           |
|   | Duplex Print   | Up to 18 sides per minute (9 sheets per minute) (A4 or Letter size) |           |
| <b>First Print Time</b> <sup>2</sup>    | Less than 8.5 seconds at 23 °C / 230 V                             |   |           |

<sup>1</sup> The print speed may change depending on the type of document you print.

<sup>2</sup> From Ready mode and standard tray

## Interface

| Model                        | HL-5440D  | HL-5445D | HL-5450DN   |
|------------------------------|---|----------|---|
| <b>USB</b>                   | Hi-Speed USB 2.0 <sup>1 2</sup><br>It is recommended you use a USB 2.0 cable (Type A/B) that is no more than 2.0 metres long. |          |   |
| <b>Ethernet</b> <sup>3</sup> | -   |          | 10BASE-T / 100BASE-TX<br>Use a straight-through Category 5 (or greater) twisted-pair cable. |
| <b>Parallel</b>              | IEEE 1284 Centronics (Type B)   |          | -   |

<sup>1</sup> Your machine has a Hi-Speed USB 2.0 interface. The machine can also be connected to a computer that has a USB 1.1 interface.

<sup>2</sup> Third party USB ports are not supported.

<sup>3</sup> For detailed network specifications, see *Network (LAN)* >>> page 156 and >>> Network User's Guide

## Computer requirements

| Computer Platform & Operating System Version |                                      | Processor Minimum Speed  | Minimum RAM                    | Recommended RAM                | Hard Disk Space to install | Supported PC Interface <sup>1</sup>  |
|--|--------------------------------------|--|--------------------------------|--------------------------------|----------------------------|--|
| <b>Windows® Operating System</b>             | Windows® XP Home Edition             | Intel® Pentium® II or equivalent   | 128 MB                         | 256 MB                         | 80 MB                      | USB,<br>10Base-T/<br>100Base-TX/<br>(Ethernet) <sup>2</sup> ,<br>Parallel <sup>3</sup> |
|  | Windows® XP Professional             |  |                                |                                |                            |  |
|  | Windows® XP Professional x64 Edition | 64-bit (Intel® 64 or AMD64) supported CPU                                    | 256 MB                         | 512 MB                         |                            |  |
|  | Windows Vista®                       | Intel® Pentium® 4 or equivalent<br>64-bit (Intel® 64 or AMD64) supported CPU | 512 MB                         | 1 GB                           |                            |  |
|  | Windows® 7                           | Intel® Pentium® 4 or equivalent<br>64-bit (Intel® 64 or AMD64) supported CPU | 1 GB (32-bit)<br>2 GB (64-bit) | 1 GB (32-bit)<br>2 GB (64-bit) |                            |  |
|  | Windows Server® 2003                 | Intel® Pentium® III or equivalent  | 256 MB                         | 512 MB                         |                            |  |
|  | Windows Server® 2003 x64 Edition     | 64-bit (Intel® 64 or AMD64) supported CPU                                    |                                |                                |                            |  |
|  | Windows Server® 2008                 | Intel® Pentium® 4 or equivalent<br>64-bit (Intel® 64 or AMD64) supported CPU | 512 MB                         | 2 GB                           |                            |  |
|  | Windows Server® 2008 R2              | 64-bit (Intel® 64 or AMD64) supported CPU                                    |                                |                                |                            |  |
| <b>Macintosh Operating System</b>            | OS X 10.5.8                          | PowerPC G4/G5<br>Intel® Processor  | 512 MB                         | 1 GB                           | 80 MB                      |  |
|  | OS X 10.6.x                          | Intel® Processor   | 1 GB                           | 2 GB                           |                            |  |
|  | OS X 10.7.x                          | Intel® Processor   | 2 GB                           | 2 GB                           |                            |  |

<sup>1</sup> Third party USB ports are not supported.

<sup>2</sup> Ethernet is available for HL-5450DN.

<sup>3</sup> Parallel is available for HL-5440D and HL-5445D.

For the latest driver updates, visit <http://solutions.brother.com/>.

## Important information for choosing your paper

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The information in this section will help you choose paper to use with this machine.



### Note

If you use paper that is not recommended, a paper jam or misfeed may occur in the machine.

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### Before you buy a large quantity of paper

Make sure that the paper is suitable for the machine.

### Paper for plain paper copies

Paper is divided by usage, such as paper for printing and paper for copying. The usage is usually written 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 70 to 90 g/m<sup>2</sup>, although this machine is able to cope with thinner or thicker paper than these weights.

### Long grain and short grain

The pulp fiber of the paper is aligned during paper manufacturing. And paper can be classified into two types, long grain and short grain.

Long grain paper fibers run in the same direction as the long edge of the paper. Short grain paper fibers run perpendicular to the long edge of the paper. Though most plain paper for copying is long grain, some is short grain. We recommend that you use long grain paper for this machine. Short grain paper is too weak for the paper transport of the machine.

### 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, neutralized paper is recently taking the place of acid paper because of environmental issues.

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

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

### Print surface

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

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



## Symbol and character sets

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For the HP LaserJet, IBM Proprinter XL, and EPSON FX-850 emulation modes, you can choose the symbol and character sets using a Web Based Management (Web browser) <sup>1</sup> or the Remote Printer Console.

<sup>1</sup> HL-5450DN only

### How to use Web Based Management (Web browser) (HL-5450DN only)

To use Web Based Management (Web browser), follow the steps below.



#### Note

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We recommend Windows® Internet Explorer® 7.0/8.0 or Firefox® 3.6 for Windows® and Safari 4.0/5.0 for Macintosh. Please also make sure that JavaScript and cookies are always enabled in whichever browser you use. To use a Web browser, you will need to know the IP address of the print server.

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- 1 Start your Web browser.
- 2 Type “http://machine’s IP address/” into your browser. (Where “machine’s IP address” is the machine’s IP address)
  - For example:  
http://192.168.1.2/



#### Note

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- If you have edited the hosts file on your computer or are using a Domain Name System (DNS), you can also enter the DNS name of the print server.
  - For Windows® users, as the print server supports TCP/IP and NetBIOS, you can also enter the NetBIOS name of the print server. The NetBIOS name can be seen on the Printer Settings page. The NetBIOS name assigned is the first 15 characters of the node name and by default it will appear as “BRNxxxxxxxxxxx” for a wired network or “BRWxxxxxxxxxxx” for a wireless network.
  - For Macintosh users, you can also have easy access to Web Based Management by clicking the machine icon on **Status Monitor** screen.
- 

- 3 No password is required by default. Enter a password if you have set one and press .
- 4 Click **Print**.
- 5 Choose the **HP LaserJet** tab and click **Font Setup**. Choose a symbol set you want to use from the **Symbol Set** list box.

### How to use and install the Remote Printer Console software

To use and install the Remote Printer Console software, see *Remote Printer Console (Windows® only)* >> page 70.

## Consumable Items

| Model           |            | HL-5440D  | HL-5445D | HL-5450DN | Model Name |
|-----------------|------------|---|----------|-----------|------------|
| Toner Cartridge | Inbox      | Approx. 3,000 pages A4 or Letter page <sup>1</sup>                  |          |           | -          |
|                 | Standard   | Approx. 3,000 pages A4 or Letter page <sup>1</sup>                  |          |           | TN-3335    |
|                 | High Yield | Approx. 8,000 pages A4 or Letter page <sup>1</sup>                  |          |           | TN-3385    |
| Drum Unit       |            | Approx. 30,000 pages A4 or Letter pages (1 page / job) <sup>2</sup> |          |           | DR-3350    |

<sup>1</sup> Approx. cartridge yield is declared in accordance with ISO/IEC 19752.

<sup>2</sup> Drum life is approximate and may vary by type of use.



### Note

- Availability of toner cartridges differs from one country to another. Visit the Brother Solutions Center at <http://solutions.brother.com/> or contact your local Brother office for further details.
- Brother does not recommend the use of consumables other than genuine Brother consumables.
- Your machine warranty may not cover any damage arising from the use of non genuine Brother consumables.

## Network (LAN)

| Model                     |       | HL-5440D | HL-5445D | HL-5450DN  |
|---------------------------|-------|----------|----------|--|
| <b>LAN</b>                |       | -        |          | You can connect your machine to a network for Network Printing.<br><br>Also included is Brother BRAdmin Light <sup>1 2</sup> Network Management software.  |
| <b>Protocols</b>          | IPv4  | -        |          | ARP, RARP, BOOTP, DHCP, APIPA(Auto IP), WINS/NetBIOS name resolution, DNS Resolver, mDNS, LLNMR responder, LPR/LPD, Custom Raw Port/Port9100, IPP/IPPS, FTP Server, TELNET Server, HTTP/HTTPS server, TFTP client and server, SMTP Client, SNMPv1/v2c/v3, ICMP, Web Services (Print), CIFS client, SNTP client |
|                           | IPv6  | -        |          | NDP, RA, DNS resolver, mDNS, LLNMR responder, LPR/LPD, Custom Raw Port/Port9100, IPP/IPPS, FTP Server, TELNET Server, HTTP/HTTPS server, TFTP client and server, SMTP Client, SNMPv1/v2c/v3, ICMPv6, Web Services (Print), CIFS Client, SNTP Client  |
| <b>Security Protocols</b> | Wired | -        |          | APOP, POP before SMTP, SMTP-AUTH, SSL/TLS (IPPS, HTTPS, SMTP, POP), SNMP v3, 802.1x (EAP-MD5, EAP-FAST, PEAP, EAP-TLS, EAP-TTLS), Kerberos   |

<sup>1</sup> (For Windows® users) Brother BRAdmin Light is available from the CD-ROM provided with the machine.  
(For Macintosh users) Brother BRAdmin Light is available as a download from <http://solutions.brother.com/>.

<sup>2</sup> (For Windows® users) If you require more advanced printer management, use the latest Brother BRAdmin Professional utility version that is available as a download from <http://solutions.brother.com/>.

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