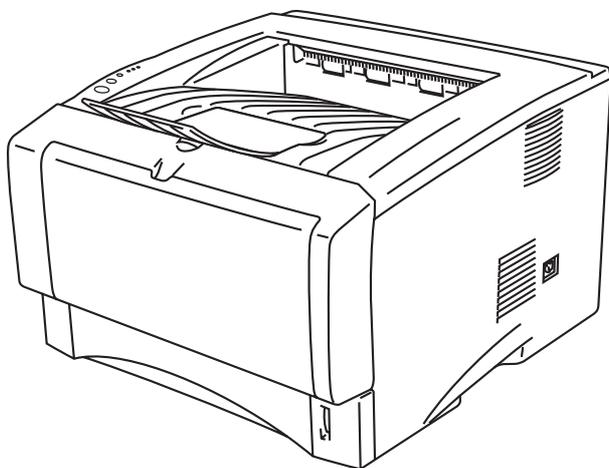




Brother Laser Printer **SERVICE MANUAL**

MODEL: HL-5030/5040/5050/5070N



Read this manual thoroughly before maintenance work.

Keep this manual in a convenient place for quick and easy reference at all times.

January 2003
SM-PRN035

Product: 2003 Brother HL-5030/5040/5050/5070N Laser Printer Service Repair Workshop Manual
Full Download: <https://www.arepairmanual.com/downloads/2003-brother-hl-5030-504050505070n-laser-printer-service-repair-workshop-manual/>

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PREFACE

This service manual contains basic information required for after-sales service of the laser printer (hereinafter referred to as "this machine" or "the printer"). This information is vital to the service technician to maintain the high printing quality and performance of the printer.

This service manual covers the **HL-5030/5040/5050/5070N** printers.

This manual consists of the following chapters:

CHAPTER 1: GENERAL

Features, specifications, etc.

CHAPTER 2: INSTALLATION AND BASIC OPERATION

Installation conditions, Installation procedures, basic operation of the printer etc.

CHAPTER 3: THEORY OF OPERATION

Basic operation of the mechanical system, the electrical system and the electrical circuits and their timing information.

CHAPTER 4: DISASSEMBLY AND RE-ASSEMBLY

Procedures for disassembling and re-assembling the mechanical system.

CHAPTER 5: PERIODIC MAINTENANCE

Periodical replacements parts, consumable parts, etc.

CHAPTER 6: TROUBLESHOOTING

Reference values and adjustments, troubleshooting image defects, troubleshooting malfunctions, etc.

CHAPTER 7: SERVICE SUPPORT SOFTWARE

Test print mode and Service menu mode, etc.

APPENDICES: PCB circuit diagrams, etc.

Information in this manual is subject to change due to improvement or redesign of the product. All relevant information in such cases will be supplied in service information bulletins (Technical Information).

A thorough understanding of this printer, based on information in this service manual and service information bulletins, is required for maintaining its print quality performance and for improving the practical ability to find the cause of problems.

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REGULATION

LASER SAFETY (110 - 120V MODEL ONLY)

This printer is certified as a Class I laser product under the US Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation.

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

FDA REGULATIONS (110 - 120V MODEL ONLY)

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

The label for Japanese manufactured products

MANUFACTURED: BROTHER INDUSTRIES, LTD. 15-1, Naeshiro-cho, Mizuho-ku, Nagoya 467-8561, Japan. This product complies with FDA radiation performance standards, 21 CFR Subchapter J.	K
---	---

The label for Chinese manufactured products

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

Caution

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

IEC 825 (220-240V MODEL ONLY)

This printer is a Class I laser product as defined in IEC 825 specifications. The label shown below is attached in countries where required.



This printer has a laser diode which emits invisible laser radiation in the Laser Unit. The Laser Unit should not be opened without disconnecting the two connectors connected with the AC power supply and laser unit. Since the variable resistor in the laser unit is adjusted in accordance with the standards, never touch it.

Caution

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

For Finland and Sweden

LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

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

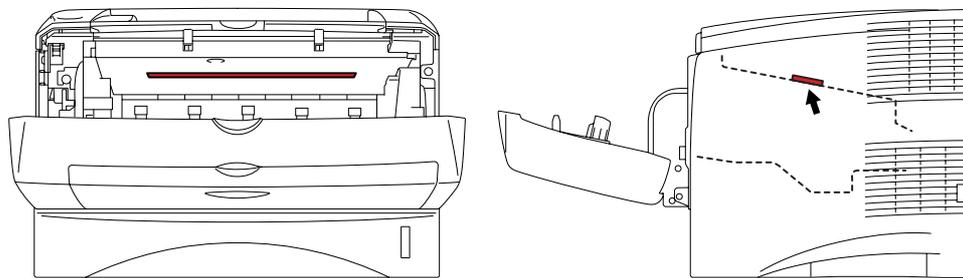
Varning – Om apparaten används på annat sätt än i denna Bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

SAFETY INFORMATION

CAUTION FOR LASER PRODUCT (WARNHINWEIS FÜR LASER DRUCKER)

- CAUTION:** When the machine during servicing is operated with the cover open, the regulations of VBG 93 and the performance instructions for VBG 93 are valid.
- CAUTION:** In case of any trouble with the laser unit, replace the laser unit itself. To prevent direct exposure to the laser beam, do not try to open the enclosure of the laser unit.
- ACHTUNG:** Im Falle von Störungen der Lasereinheit muß diese ersetzt werden. Das Gehäuse der Lasereinheit darf nicht geöffnet werden, da sonst Laserstrahlen austreten können.

<Location of the laser beam window>



ADDITIONAL INFORMATION

When servicing the optical system of the printer, be careful not to place a screwdriver or other reflective object in the path of the laser beam. Be sure to take off any personal accessories such as watches and rings before working on the printer. A reflected beam, though invisible, can permanently damage the eyes.

Since the beam is invisible, the following caution label is attached on the laser unit.



DEFINITIONS OF WARNINGS, CAUTIONS AND NOTES

The following conventions are used in this service manual:



Indicates warnings that must be observed to prevent possible personal injury.



Indicates cautions that must be observed to service the printer properly or prevent damage to the printer.

NOTE:

Indicates notes and useful tips to remember when servicing the printer.

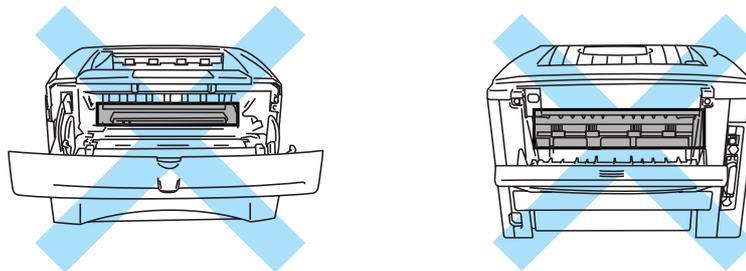
**Listed below are the various kinds of “WARNING” messages included in this manual.



Always turn off the power switch and unplug the power cord from the power outlet before accessing any parts inside the printer.



Some parts inside the printer are extremely hot immediately after the printer is used. When opening the front cover or back cover to access any parts inside the printer, never touch the shaded parts shown in the following figures.



If you analyze malfunctions with the power plug inserted into the power outlet, special caution should be exercised even if the power switch is OFF because it is a single pole switch.

CHAPTER 1 GENERAL

1. FEATURES

This printer has the following features;

High Resolution and Fast Print Speed

True 600 x 600 dots/ true 300 x 300 dots per inch (dpi) and HQ1200 (HL5040/5050/5070N only) for graphics with microfine toner and up to 16 pages per minute (ppm) print speed for A4 and 17 pages per minute (ppm) print speed for Letter- size paper.

Versatile Paper Handling

The printer loads paper automatically from the paper cassette. The paper cassette can hold A4, letter, B5 (ISO), A5, B6 (ISO), A6, Executive and Legal size of paper. The manual feed tray (HL-5030/5040) allows manual paper loading sheet by sheet so you can use a variety of types and sizes of paper. The multi-purpose tray (HL-5050/5070N) also allows you to use a variety of types and sizes of paper.

Front Operation

Basic operation of the printer can be controlled from the control panel.

Enhanced Printing Performance and User-Friendly Operation for Windows®

The dedicated printer driver for Microsoft® Windows® 95/98/Me, Windows® NT 4.0 and Windows® 2000/XP are available on the CD-ROM supplied with your printer. You can easily install them into your Windows® system using our installer program. The driver supports our unique compression mode to enhance printing speed in Windows® applications and allows you to choose various printer settings including toner save mode, custom paper size, sleep mode, gray scale adjustment, resolution, water mark and many layout functions. You can easily setup these print options through the Printer Setup Menu.

Printer Status Monitor with Bi-directional Parallel Interface (HL-5040/5050/5070N only)

The printer driver can monitor the status of your printer using bi-directional parallel communications. IEEE-1284 bi-directional parallel printer cable is recommended.

The printer status monitor program can show the current status of your printer. When printing, the animated dialog box appears on your computer screen to show the current printing process. If an error occurs, a dialog box will appear to let you know what to correct. If you have turned on the interactive Help (Windows only) you can get visual guidance on your PC screen on the actions in the event of certain printer errors.

Quick Print Setup

The Quick Print Setup is a convenient utility to allow you to make changes to frequently used driver settings easily without having to open the printer properties selection box every time. It is launched automatically when this printer driver is selected. You can change the settings by clicking on the icon with the right mouse button.

Enhanced Memory Management

The printer provides its own data compression technology in its printer hardware and the supplied printer driver software, which can automatically compress graphic data and font data efficiently into the printer's memory. You can avoid memory errors and print most full page 600 dpi graphic and text data, including large fonts, with the standard printer memory.

USB Interface (for Windows® 98/Me/2000/XP, iMac and Power Macintosh)

The printer can be connected using the Universal Serial Bus (USB) interface to a PC or Mac which has a USB interface. Drivers that allow you to use the USB port are provided on the CD-ROM supplied with the printer.

Popular Printer Emulation Support (HL-5040/5050/5070N only)

These printers support the following printer emulation modes;
HP LaserJet (PCL6), PostScript® Level 3 language emulation (Brother BR-Script Level 3),
Epson FX-850 and IBM Proprinter XL.
HL-5040:only HP LaserJet (PCL6)

When you use DOS application software or Windows® version 3.0 or earlier, you can use any of these emulations to operate the HL-5050/5070N printers. The printers also support auto-emulation switching between HP, Brother BR-Script 3 and Epson or HP, BR-Script 3 and IBM. If you want to set the printer emulation, you can do it using the Remote Printer Console Program.

High Resolution Control

High Resolution Control (HRC) technology provides clear and crisp printouts. Use this function to get smooth text print quality. (300 dpi, 600dpi only)

Environment-Friendly

<Economy Printing Mode>

This feature will cut your printing cost by saving toner. It is useful for obtaining draft copies for proof-reading. You can select the toner saving economy mode through the Windows® printer driver supplied with your printer.

<Sleep Mode (Power Save Mode)>

Sleep mode automatically reduces power consumption when the printer is not in use for a certain period of time. The printer consumes less than 5W(HL-5030/5040/5050), 6W(HL-5070N) when in sleep mode.

<Low Running Cost>

Since the toner cartridge is separate from the drum unit, you need to replace only the toner cartridge after printing around 6,500 (High-yield toner cartridge)/ 3,300 (Standard toner cartridge) pages at 5% coverage for A4 paper for the standard cartridge, which is both cost effective and ecologically friendly.

Bar Code Print (HL-5040/5050/5070N only)

The printer can print the following 11 types of bar codes;

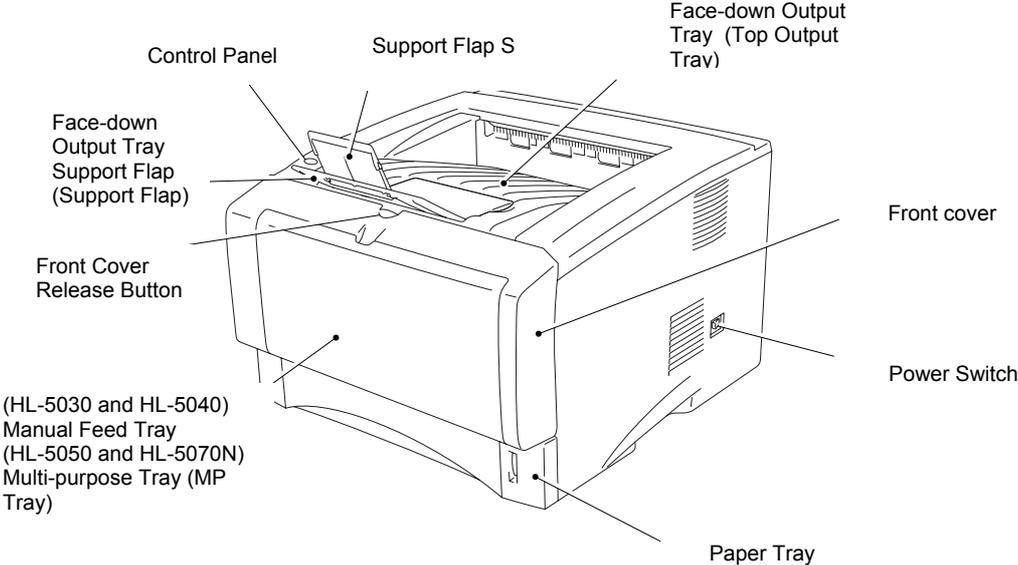
- Code 39
- Code 128
- Interleaved 2 of 5
- Codabar
- US-PostNet
- ISBN
- UPC-A
- UPC-E
- EAN-8
- EAN-13
- EAN-128

Network Feature (for HL-5070N only)

The Brother printer has built in multi protocol network capability as standard. This allows multiple host computers to share the printer on a 10/100Mbit Ethernet network. Any users can print their jobs as if the printer was directly connected to their computer. Users on Windows® 95/98/Me, Windows® NT, Windows® 2000/XP, UNIX, Novell, Apple Macintosh, LAN server and OS/2 Warp server computer simultaneously can access this printer. For further information, see the Network User's Guide supplied with the printer.

2. OVERVIEW

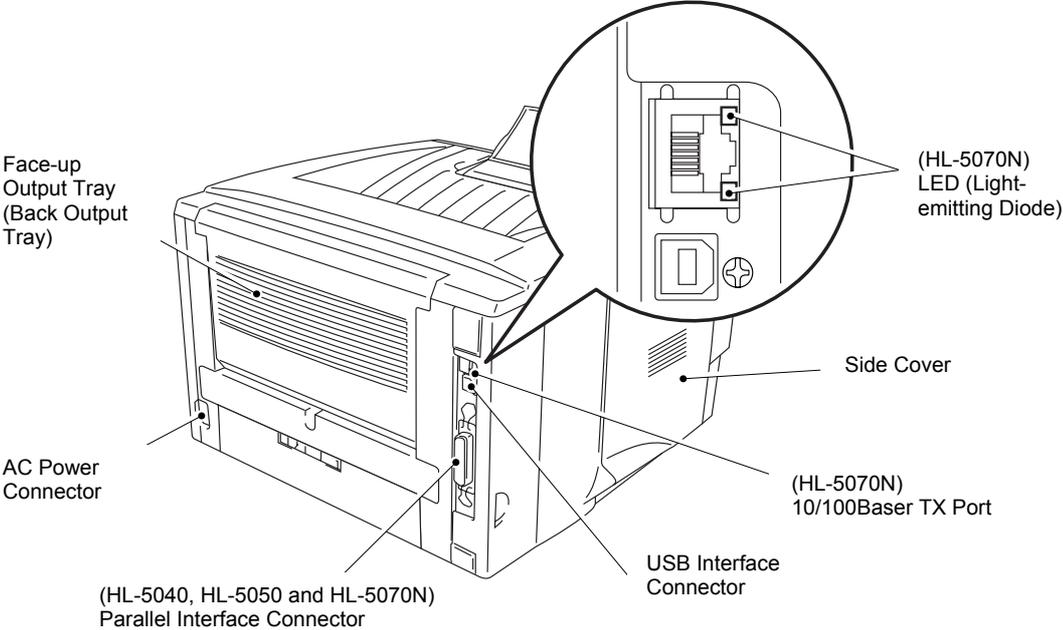
<Front View>



*The printer illustration is based on HL-5050 and HL-5070N.

Fig. 1-1

<Rear View>



*The printer illustration is based on HL-5070N.

Fig. 1-2

3. SPECIFICATIONS

3.1 Printing

Print method	Electrophotography by semiconductor laser beam scanning
Laser	Wavelength: 780 nm Output: 5mW max
Resolution	(HL-5030) 600 dpi (for Windows® 98/Me, Windows®2000/XP, and Mac OS) 300 dpi (for Windows® 98/Me, Windows® 2000/XP, and Mac OS) (HL-5040/5050/5070N) HQ1200 (for Windows® 95/98/Me, WindowsNT® 4.0, Windows® 2000/XP, and Mac OS) 600 dpi (for Windows® 95/98/Me, WindowsNT® 4.0, Windows® 2000/XP, DOS and Mac OS) 300 dpi (for Windows® 95/98/Me, WindowsNT® 4.0, Windows® 2000/XP, and Mac OS)
Print quality	Normal printing mode Economy printing mode (Toner saving mode)
Print speed	Normal: Up to 16 pages/minute (A4) Up to 17 pages/minute (Letter-size paper)
Warm-up	Max. 18 seconds at 23°C (73.4°F)
First print	Max. 12 seconds (when loading A4 or Letter-size paper from the standard paper cassette.)
Consumables	Toner cartridge Life expectancy: (Standard cartridge) 3,300 pages/cartridge (High yield cartridge) 6,500 pages/cartridge (when printing A4 or Letter-size paper at 5% print coverage) Drum unit Life expectancy: 20,000 pages/drum unit

***NOTE:**

Print speed varies depending on the paper size or media type. For details, refer to 3.7 'PRINT SPEEDS WITH VARIOUS SETTINGS' in this chapter.

3.2 Functions

CPU	Fujitsu SPARClite 133MHz
Emulation	<HL-5030> GDI <HL-5040> HP LaserJet (PCL level 6) <HL-5050/5070N> Automatic emulation selection among HP LaserJet (PCL level 6), Brother BR-Script Level 3, EPSON FX-850 or IBM Proprinter XL
Printer driver	<PCL Driver> Windows® 95/98/Me, Windows® NT 4.0, Windows® 2000/XP driver, supporting Brother Native Compression mode <PS Driver> PPD file driver for Windows® 95/98/Me, Windows NT® 4.0, Windows® 2000/XP driver and Macintosh driver <Others> <ul style="list-style-type: none"> • iMac, Power Macintosh with USB printer driver • Optional Macintosh driver available for System 6.0.7 or higher
Interface	<ul style="list-style-type: none"> • Bi-directional parallel (HL-5040/5050/5070N only) • High-Speed USB 2.0 • 10/100 BaseTX Ethernet network interface (optional for HL-5040/5050, standard for HL-5070N)
Memory	HL-5030: 4 Mbytes HL-5040: 8 Mbytes HL-5050/5070N: 16 Mbytes Expandable up to 136 Mbytes for HL-5040 and 144 Mbytes for HL-5050/5070N by installing an industry standard DIMM*
Control Panel	<ul style="list-style-type: none"> • Display LED: 4 LEDs • Buttons 2 buttons
Diagnostics	Self-diagnostic program

***NOTE:**

The DIMM must have the following specifications;

<i>Type:</i>	<i>100 pin</i>
<i>Access time:</i>	<i>60 nsec - 80 nsec</i>
<i>Capacity:</i>	<i>16, 32, 64, 128 Mbyte</i>
<i>Height:</i>	<i>35.0 mm (1.38 inches) or less</i>
<i>Output:</i>	<i>32 bit or 36 bit (independent of parity)</i>

3.3 Electrical and Mechanical

Power source	U.S.A. and Canada: AC 110 to 120V, 50 Hz/60 Hz Europe and Australia: AC 220 to 240V, 50 Hz/60 Hz
Power consumption	Printing (average): 460 W or less Standing by: 75 W or less Sleep*: 5 W or less (for HL-5030/5040/5050) 6 W or less (for HL-5070N)
Noise	Printing: 50dB Standing by: 30dB A or less
Temperature	Operating: 10 to 32.5°C (50 to 90.5°F) Non operating: 0 to 40°C (38 to 104°F) Storage: -20 to 40°C (-4 to 104°F)
Humidity	Operating: 20 to 80% (non condensing) Storage: 10 to 85% (non condensing)
Dimensions (W x D x H)	382 x 383 x 252 mm (HL-5030/5040) (15.0x 15.1 x 9.9 inches)
(W x D x H)	382 x 401 x 252 mm (HL-5050/5070N) (15.0x 15.8 x 9.9 inches)

*When the lower tray is installed, the total height (printer + lower tray) will be 353mm.

Weight	HL-5030/5040: Approx. 10.5 kg (Included Toner and Drum) Approx. 9.1 kg (Excluded Toner and Drum) HL-5050/5070N: Approx. 11.5 kg (Included Toner and Drum) Approx. 10.1 kg (Excluded Toner and Drum)
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***NOTE:**

- *The power consumption figure quoted for sleep mode is when the fan has stopped.*

3.4 Network

Type / Speed	10/100 Base TX Ethernet Automatic negotiation
Protocols	TCP/IP (RARP, BOOTP, DHCP, APIPA, NetBIOS, WINS, SSDP, Rendezvous, LPR/LPD, Port9100, POP3/SMTP, SMB, IPP, FTP, TELNET, SNMP, HTTP, TFTP), Netware IPX/SPX (Bindery and NDS), Appletalk, DLC/LLC
Management	<ul style="list-style-type: none"> • Web Based Management (HTTPD) • BRAdmin Professional (using TCP/IP protocol or IPX/SPX) • SNMP, MIB II as well as Brother private MIB • TELNET command console • Web BRAdmin
Firmware update	Flash ROM based for Network module <ul style="list-style-type: none"> • Can be upgraded using TFTP/FTP • Can be upgraded using IPX/SPX • Easy upgrade using Brother BRAdmin Professional Utility
Supplied software	<ul style="list-style-type: none"> • BRAdmin Professional (for Windows® 95/98/ME, Windows® NT 4.0/Windows® 2000/XP) • Port driver for Windows® 95/98/ME, Windows® NT 4.0/Windows® 2000 <ul style="list-style-type: none"> LPR port driver (for Windows® 95/98/ME/NT4.0) NetBIOS port driver (for Windows® 95/98/ME/NT4.0/2000/XP) SMTP port driver (for Windows® 95/98/ME/NT4.0/2000/XP) • Web BRAdmin Professional (NOT supplied with CD-ROM. Available only on Web page. For more information on Web BRAdmin Professional, go to http://solutions.brother.com)

3.5 Paper

3.5.1 Feedable paper

(1) Paper type

Paper type	Tray1	Manual feed tray	MP tray	Tray 2	Select the paper type from the printer driver
Plain paper 60 g/m ² to 105 g/m ² (16 to 28 lbs.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Plain paper
Recycled paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Plain paper
Bond paper		<input type="radio"/>	<input type="radio"/>		Bond paper
Thick paper 105 g/m ² to 161 g/m ² (28 to 43 lbs.)		<input type="radio"/>	<input type="radio"/>		Thick paper or thicker paper
Transparency	<input type="radio"/> Up to 10 sheets	<input type="radio"/> Only A4 or Letter size	<input type="radio"/> Only A4 or Letter size		Transparencies
Label		<input type="radio"/> Only A4 or Letter size	<input type="radio"/> Only A4 or Letter size		Thicker paper
Envelope		<input type="radio"/>	<input type="radio"/>		Envelopes or Env.Tick or Env.Thin
Card		<input type="radio"/>	<input type="radio"/>		Thick paper or thicker paper

(2) Paper size

	Tray 1	Manual feed tray	MP tray	Tray 2
Paper size	A4, Letter, Legal, , B5 (ISO), Executive, A5, A6, B6	Width: 69.8 to 220 mm (2.75 to 8.66 in.) Length: 116 to 406.4 mm (4.57 to 16.0 in.)	Width: 69.8 to 220 mm (2.75 to 8.66 in.) Length: 116 to 406.4 mm (4.57 to 16.0 in.)	A4, Letter, Legal, B5(ISO), B5, Executive, A5

(3) Other paper specifications

<Paper cassette>

	Cut sheet
Basis weight	60 to 105 g/m ² (16 to 28 lb.)
Caliper	0.08 to 0.13 mm (0.003 to 0.005 in.)
Moisture content	4% to 6% by weight

<Multi-purpose tray>

	Cut sheet	Envelope
Basis weight	60 to 161 g/m ² (16 to 43 lb.)	75 to 90 g/m ² (20 to 24 lb.) single thickness
Caliper	0.08 to 0.2 mm (0.003 to 0.008 in.)	0.084 to 0.14 mm (0.003 to 0.005 in.) single thickness
Moisture content	4% to 6% by weight	4% to 6% by weight

(4) Recommended paper

	Europe	USA
Plain paper	Xerox Premier 80 g/m ² Xerox Business 80 g/m ² Modo DATACOPY 80 g/m ² IGEPA X-Press 80 g/m ²	Xerox 4200DP 20 lb Hammermill Laser Paper 24 lb
Recycled paper	Xerox Recycled Supreme	
Transparency	3M CG3300	3M CG 3300
Label	Avery laser label L7163	Avery laser label #5160

*This printer can use recycled paper that meets the DIN 19309 specification.



CAUTION:

When you are choosing print media, be sure to follow the information given below to prevent any paper jams, print quality problems or printer damage;

- It is recommended to use long-grained paper for the best print quality. If short-grained paper is being used, it might be the cause of paper jams.
- Use neutral paper. Do not use acid paper to avoid any damage to the drum unit.
- Avoid using coated paper such as vinyl coated paper.
- Avoid using preprinted or highly textured paper.
- It is recommended to use labels or transparencies which are designed for use in laser printers.
- Avoid feeding labels with the carrier sheet exposed, or the printer will be damaged.
- Before loading paper with holes such as organizer sheets, be sure to fan the stack well.
- Do not use organizer sheets that are stuck together. The glue that is used might caused damaged to the printer.
- When printing on the back of pre-printed paper, if the paper is curled, be sure to straighten the paper as much as possible.
- Different types of paper should not be loaded at the same time in the paper cassette to avoid any paper jams or misfeeds.

3.5.2 Paper cassette capacity

	Tray 1	MP tray	Tray 2
Paper Capacity	250 sheets (80 g/m ² or 20 lbs.)	50 sheets (80 g/m ²)	250 sheets (80 g/m ² or 20 lbs.)

* Manual feed tray: Single sheet

3.5.3 Print delivery

- (1) Face down output tray
 capacity: Maximum 150 sheets (80 g/m²)
 face down only
- (2) Face up output tray
 capacity: (HL-5050/5070N)
 Maximum 25 sheets (80 g/m²)
 face up only
 (HL-5030/5040)
 Single sheet

NOTE:

Face-down: Delivery with the printed face of the paper downwards.

Face-up: Delivery with the printed face of the paper upwards.

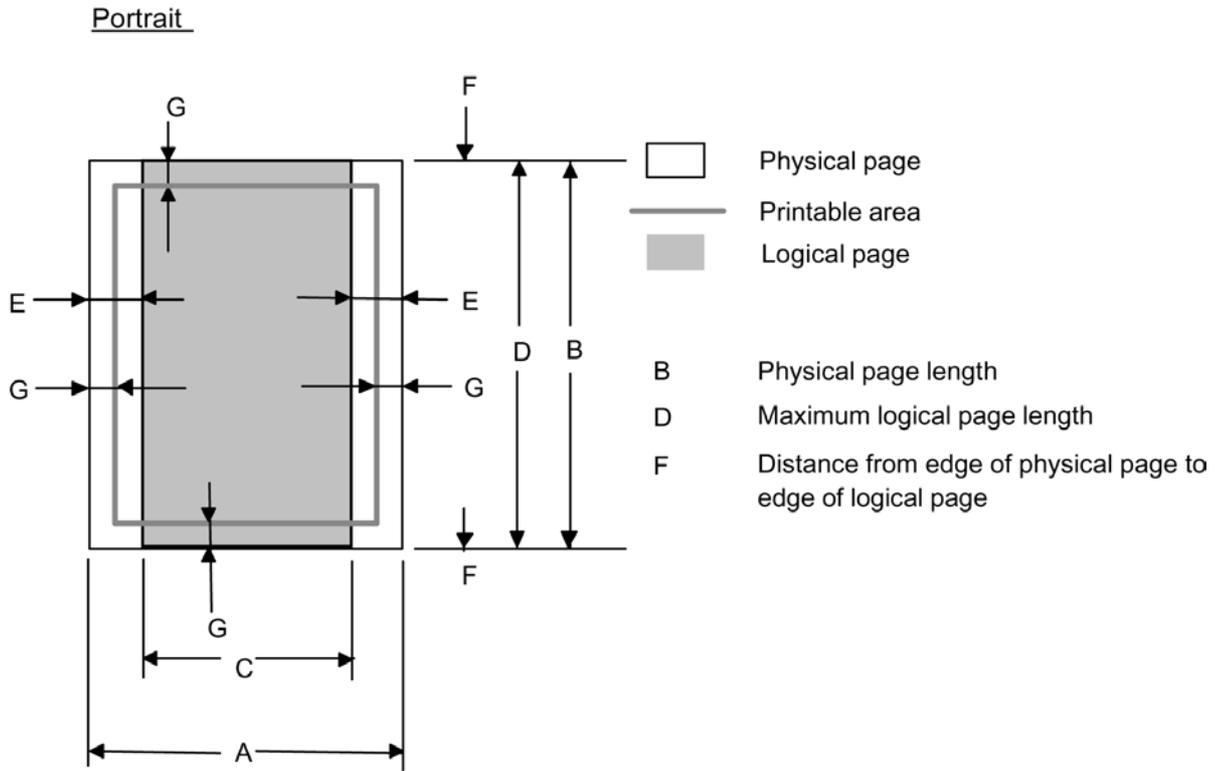
(3) We recommend the following print methods (output tray) for each paper media type.

Media type	Paper output	
	Face down	Face up
Plain paper	○	○
Thick paper		○
Recycled paper	○	○
Transparency	○	
Label		○
Envelope		○
Card		○

3.6 Printable Area

3.6.1 PCL5e/EPSON/IBM emulation

The figure below shows the printable area each emulation guarantees when printing on Portrait and Landscape.



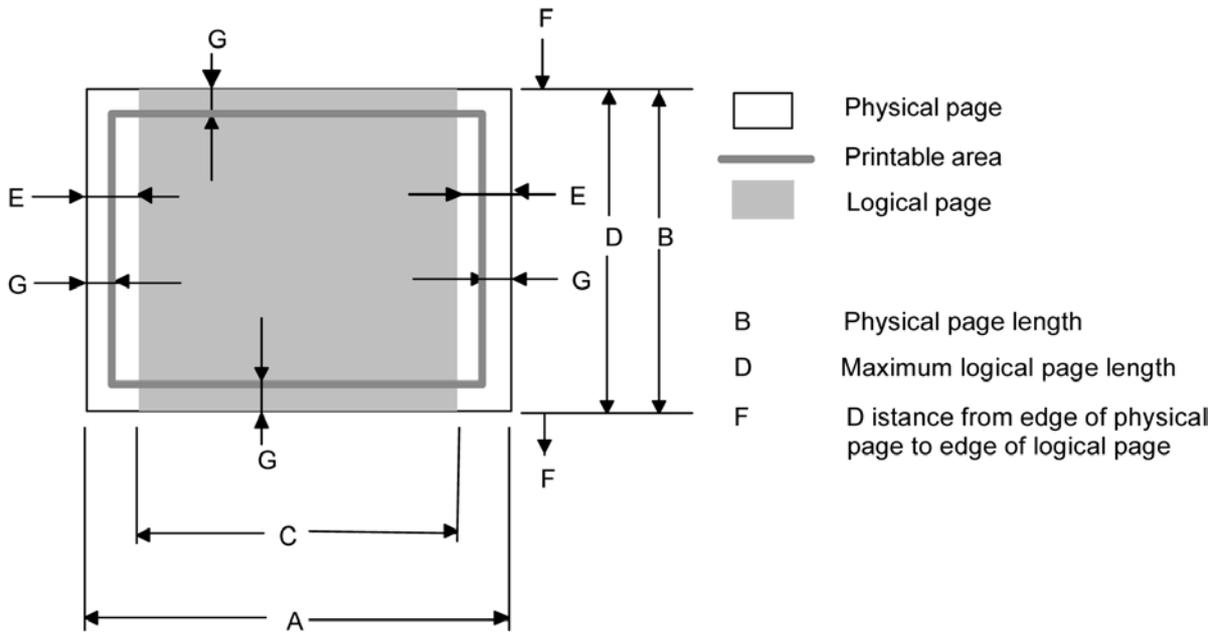
The table below shows the printable areas when printing on Portrait for each paper size.

Size	A	B	C	D	E	F	G
Letter	215.9 mm 8.5" (2,550 dots)	279.4 mm 11.0" (3,300 dots)	203.2 mm 8.0" (2,400 dots)	279.4 mm 11.0" (3,300 dots)	6.35 mm 0.25" (75 dots)	0 mm	4.2 mm 0.16" (50 dots)
Legal	215.9 mm 8.5" (2,550 dots)	355.6 mm 14.0" (4,200 dots)	203.2 mm 8.0" (2,400 dots)	355.6 mm 14.0" (4,200 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
Folio	215.9 mm 8.5" (2,550 dots)	330.2mm 13.0" (3,900 dots)	203.2 mm 8.0" (2,400 dots)	330.2mm 13.0" (3,900 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
Executive	184.15 mm 7.25" (2,175 dots)	266.7 mm 10.5" (3,150 dots)	175.7 mm 6.92" (2,025 dots)	266.7 mm 10.5" (3,150 dots)	6.35 mm 0.25" (75 dots)	0 mm	4.2 mm 0.16" (50 dots)
A 4	210.0 mm 8.27" (2,480 dots)	297.0 mm 11.69" (3,507 dots)	198.0 mm 7.79" (2,338 dots)	297.0 mm 11.69" (3,507 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
A 5	148.5 mm 5.85" (1,754 dots)	210.0 mm 8.27" (2,480 dots)	136.5 mm 5.37" (1,612 dots)	210.0 mm 8.27" (2,480 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
A 6	105.0 mm 4.13" (1,240 dots)	148.5 mm 5.85" (1,754 dots)	93.0 mm 3.66" (1,098 dots)	148.5 mm 5.85" (1,754 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
B 5 (JIS)	182.0 mm 7.1" (2,130 dots)	257.0 mm 10.11" (3,033 dots)	170.0 mm 6.69" (2,007 dots)	257.0 mm 10.11" (3,033 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
B 5 (ISO)	176.0 mm 6.93" (2,078 dots)	250.0 mm 9.84" (2,952 dots)	164.0 mm 6.46" (1,936 dots)	250.0 mm 9.84" (2,952 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
B 6	125.0 mm 4.92" (1,476 dots)	176.0 mm 6.93" (2,078 dots)	164.0 mm 4.44" (1,334 dots)	176.0 mm 6.93" (2,078 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
COM10	104.78 mm 4.125" (1,237 dots)	241.3 mm 9.5" (2,850 dots)	92.11 mm 3.63" (1,087 dots)	241.3 mm 9.5" (2,850 dots)	6.35 mm 0.25" (75 dots)	0 mm	4.2 mm 0.16" (50 dots)
MONARCH	98.43 mm 3.875" (1,162 dots)	190.5 mm 7.5" (2,250 dots)	85.7 mm 3.37" (1,012 dots)	190.5 mm 7.5" (2,250 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
C 5	162.0 mm 6.38" (1,913 dots)	229.0 mm 9.01" (2,704 dots)	150.0 mm 5.9" (1,771 dots)	229.0 mm 9.01" (2,704 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
DL	110.0 mm 4.33" (1,299 dots)	220.0 mm 8.66" (2,598 dots)	98.0 mm 3.86" (1,157 dots)	220.0 mm 8.66" (2,598 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
DL L	220.0 mm 8.66" (2,598 dots)	110.0 mm 4.33" (1,299 dots)	207.4 mm 8.17" (2,450 dots)	110.0 mm 4.33" (1,299 dots)	6.27 mm 0.25" (74 dots)	0 mm	6.27 mm 0.25" (74 dots)

NOTE:

- The paper sizes indicated here should confirm to the nominal dimensions specified by JIS except B5 (ISO).
- The dot size is based on 300 dpi resolution.

Landscape



The table below shows the printable areas when printing on Landscape for each paper size.

Size	A	B	C	D	E	F	G
Letter	279.4 mm 11.0" (3,300 dots)	215.9 mm 8.5" (2,550 dots)	269.3 mm 10.6" (3,180 dots)	215.9 mm 8.5" (2,550 dots)	5.0 mm 0.2" (60 dots)	0 mm	4.2 mm 0.16" (50 dots)
Legal	355.6 mm 14.0" (4,200 dots)	215.9 mm 8.5" (2,550 dots)	345.5 mm 13.6" (4,080 dots)	215.9 mm 8.5" (2,550 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
Folio	330.2mm 13.0" (3,900 dots)	215.9 mm 8.5" (2,550 dots)	320.0mm 12.6" (3,780 dots)	215.9 mm 8.5" (2,550 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
Executive	266.7 mm 10.5" (3,150 dots)	184.15 mm 7.25" (2,175 dots)	256.6 mm 10.1" (3,030 dots)	184.15 mm 7.25" (2,175 dots)	5.0 mm 0.2" (60 dots)	0 mm	4.2 mm 0.16" (50 dots)
A 4	297.0 mm 11.69" (3,507 dots)	210.0 mm 8.27" (2,480 dots)	287.0 mm 11.2" (3,389 dots)	210.0 mm 8.27" (2,480 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
A 5	210.0 mm 8.27" (2,480 dots)	148.5 mm 5.85" (1,754 dots)	200.0mm 7.87" (2,362 dots)	148.5 mm 5.85" (1,754 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
A 6	148.5 mm 5.85" (1,754 dots)	105.0 mm 4.13" (1,240 dots)	138.5 mm 5.45" (1,636 dots)	105.0 mm 4.13" (1,240 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
B 5 (JIS)	257.0 mm 10.11" (3,033 dots)	182.0 mm 7.1" (2,130 dots)	247.0 mm 9.72" (2,916 dots)	182.0 mm 7.1" (2,130 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
B 5 (ISO)	250.0 mm 9.84" (2,952 dots)	176.0 mm 6.93" (2,078 dots)	240.0 mm 9.44" (2,834 dots)	176.0 mm 6.93" (2,078 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
B 6	176.0 mm 6.93" (2,078 dots)	125.0 mm 4.92" (1,476 dots)	166.4 mm 6.55" (1,960 dots)	125.0 mm 4.92" (1,476 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
COM10	241.3 mm 9.5" (2,850 dots)	104.78 mm 4.125" (1,237 dots)	231.1 mm 9.1" (2,730 dots)	104.78 mm 4.125" (1,237 dots)	5.0 mm 0.2" (60 dots)	0 mm	4.2 mm 0.16" (50 dots)
MONARCH	190.5 mm 7.5" (2,250 dots)	98.43 mm 3.875" (1,162 dots)	180.4 mm 7.1" (2,130 dots)	98.43 mm 3.875" (1,162 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
C 5	229 mm 9.01" (2,704 dots)	162 mm 6.38" (1,913 dots)	219.0 mm 8.62" (2,586 dots)	162 mm 6.38" (1,913 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
DL	220 mm 8.66" (2,598 dots)	110 mm 4.33" (1,299 dots)	210.0 mm 8.26" (2,480 dots)	110 mm 4.33" (1,299 dots)	↑	0 mm	4.2 mm 0.16" (50 dots)
DL L	110 mm 4.33" (1,299 dots)	220 mm 8.66" (2,598 dots)	97.5 mm 3.84" (1,151 dots)	220 mm 8.66" (2,598 dots)	6.27 mm 0.25" (74 dots)	0 mm	6.27 mm 0.25" (74 dots)

NOTE:

- The paper sizes indicated here should confirm to the nominal dimensions specified by JIS except B5 (ISO).
- The dot size is based on 300 dpi resolution.

3.6.2 PCL6/BR-Script3 emulation

You can not print within 4.2 mm (50dots in 300 dpi mode) on all four sides of the paper.

3.7 Print Speeds with Various Settings

Print speed of the HL-5030/5040/5050/5070N printers is up to 16/17 ppm when loading A4 or Letter size paper from the paper tray in the plain paper mode.

Actual print speed varies depending on the media type or paper size as shown in the tables below;

<A4 / Letter size>

Media type setting	All models
Transparencies	Up to 16/17 ppm
Thin Paper	Up to 16/17 ppm
Plain paper, Env.Thin	Up to 16/17 ppm
Thick Paper, Envelopes	Up to 16/17 ppm
Thicker/Bond Paper, Env.Thick	4 ppm *

<Smaller size than A4 or Letter>

Media type setting	All models
Transparency	Up to 16/17 ppm
Thin Paper	Up to 16/17 ppm
Plain paper, Env.Thin	8 ppm after 5 min. have passed.
Thick Paper, Envelopes	8 ppm after 30 sec. have passed.
Thicker/Bond Paper, Env.Thick	4 ppm *

**The print speed may vary according to conditions, such as paper size and paper tray.*

NOTE:

- *When a smaller size paper than A4 or Letter is printed, the temperature on both edges of the fixing unit is much higher than the temperature on the center of the unit where the paper is fed depending on the setting or model. Therefore, the print speed is slowed in order to decrease the temperature on the edges after the specified time, it is maximum print speed when you first start printing.*
- *Max. speed is 16/17 ppm or more. It varies depending on the paper size.*

3.8 Toner Cartridge Weight Information

Toner Cartridge Weight (approx weight)

	TN7600/TN560	TN7300/TN530
Brand new Toner Cartridge Weight	827.5g	772.5g
Toner Weight at Brand New Toner Cartridge	197.5±2.5g	142.5±2.5g
Toner Cartridge Weight at Toner Near Empty	720-725g	720-725g
Remain Toner Weight at Toner Near Empty	90-95g	90-95g
Toner Cartridge Weight at Toner Empty	710-715g	710-715g
Remain Toner Weight at Toner Empty	80-85g	80-85g
You can print 500 to 600 pages with 10g toner.		

*Without yellow protector

*Toner cartridge weight may vary within 2 to 3g depending on the cartridge weight.

