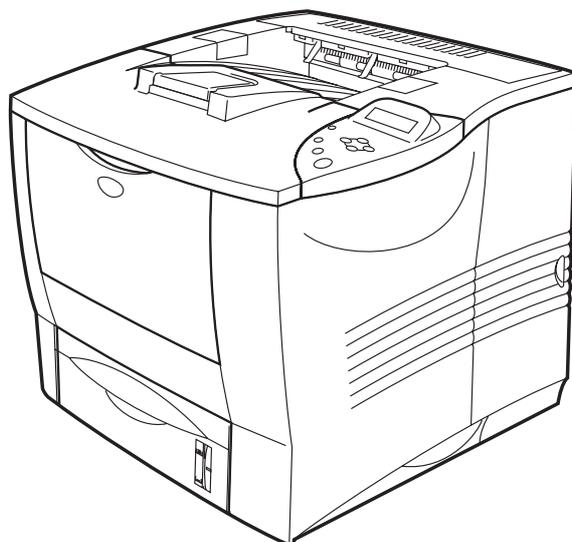




Brother Laser Printer **SERVICE MANUAL**

MODEL: HL-7050/7050N



Read this manual thoroughly before maintenance work.

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

Sep. 2002
SM-PRN031

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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-7050/7050N** 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: MAINTENANCE

Periodical replacements parts, consumable parts, etc.

CHAPTER 6: TROUBLESHOOTING

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

CHAPTER 7: HIDDEN FUNCTIONS

Professional Menu mode and Service Menu mode, etc.

APPENDICES: Serial No. descriptions, page counter, Diameter / circumference of rollers, Connection diagrams, 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.

TABLE OF CONTENTS

REGULATION.....	viii
SAFETY INFORMATION.....	x
CHAPTER 1 GENERAL	1-1
1. FEATURES	1-1
2. OVERVIEW	1-3
3. SPECIFICATIONS.....	1-4
3.1 Printing	1-4
3.2 Functions.....	1-5
3.3 Options.....	1-5
3.4 Electrical and Mechanical	1-6
3.5 Network	1-7
3.6 Paper.....	1-8
3.6.1 Feedable paper.....	1-8
3.6.2 Print delivery	1-11
3.7 Printable Area.....	1-13
3.7.1 PCL5e/EPSON/IBM emulation.....	1-13
3.7.2 PCL6/BR-Script3 emulation.....	1-16
CHAPTER 2 INSTALLATION AND BASIC OPERATION	2-1
1. CONDITIONS REQUIRED FOR INSTALLATION.....	2-1
1.1 Power Supply	2-1
1.2 Environment.....	2-1
1.3 System Requirements for Brother Printer Solution for Windows®.....	2-2
2. UNPACKING	2-3
3. INSTALL THE PRINTER	2-4
3.1 For All Users	2-4
3.1.1 Remove the protective parts.....	2-5
3.1.2 Install the drum unit assembly	2-5
3.1.3 Load paper into the paper tray.....	2-6
3.1.4 Print a test page.....	2-8
3.2 For Parallel Interface Cable Users (for Windows® users only).....	2-8
3.3 For USB Interface Cable Users (for Windows® users only)	2-11
3.3.1 Install the driver & connect the printer to your PC	2-11
3.3.2 Setting Your Printer as the Default Printer.....	2-12
3.3.3 Installing the Driver (For Mac OS 8.6 to 9.2 Users).....	2-12
3.3.4 Setting Your Printer as the Default Printer (For Mac OS 8.6 to 9.2 Users).....	2-13
3.3.5 Connecting the Printer to Your Macintosh & Installing the BR-Script PPD File.....	2-13
3.4 For Network Users	2-13
3.4.1 For the administrator.....	2-14
3.4.2 Installing the driver for Windows® users only.....	2-15

3.4.3	Installing the driver for Macintosh® users only	2-17
4.	PRINTING METHODS.....	2-19
4.1	Printing from the Paper Tray (Face down printing)	2-19
4.2	Printing from the MP Tray	2-20
4.3	Printing on Envelopes (Face up printing)	2-22
4.4	Printing on Label, Transparency, etc.	2-26
4.5	Printing to the Face up Output Tray (Face up printing).....	2-30
4.6	Manual Feed	2-30
5.	CONTROL PANEL OPERATION.....	2-31
5.1	Data LED Indications	2-31
5.2	Panel Buttons Functions	2-32
5.2.1	Go button	2-32
5.2.2	Job Cancel button.....	2-32
5.2.3	Reprint button	2-33
5.2.4	+ & - button	2-37
5.2.5	Set button	2-37
5.2.6	Back button.....	2-37
5.3	LCD Display	2-38
5.3.1	Backlights	2-38
5.3.2	LCD message	2-38
5.4	How to Use the Control Panel.....	2-39
5.5	Control Panel Setting Menu	2-41
5.5.1	Information.....	2-42
5.5.2	Paper	2-43
5.5.3	Quality.....	2-43
5.5.4	Setup	2-44
5.5.5	Print menu.....	2-46
5.5.6	Network.....	2-50
5.5.7	Interface	2-51
5.5.8	Reset menu.....	2-52
5.5.9	Set date and time.....	2-53
5.5.10	Set IP address	2-54
5.5.11	About emulation modes	2-55
5.5.12	List of factory settings	2-56
5.6	Other Control Features	2-62
5.6.1	Sleep mode.....	2-62
5.6.2	Inspection mode	2-62
6.	NETWORK BOARD OPERATION.....	2-63
6.1	Installing the Network Board	2-63
6.2	Functions.....	2-65
6.2.1	LED functions	2-65
6.2.2	Factory default setting	2-65
CHAPTER 3 THEORY OF OPERATION		3-1
1.	ELECTRONICS	3-1
1.1	General Block Diagram	3-1
1.2	Main PCB	3-2

1.2.1	Outline	3-2
1.2.2	Circuit.....	3-4
1.3	Engine PCB.....	3-6
1.4	Power Supply	3-6
1.4.1	Low-voltage power supply	3-6
1.4.2	High-voltage power supply	3-8
2.	MECHANICS	3-9
2.1	Overview of Printing Mechanism.....	3-9
2.2	Paper Transfer	3-11
2.2.1	Paper supply	3-11
2.2.2	Paper registration	3-11
2.2.3	Paper eject.....	3-12
2.3	Sensors	3-13
2.3.1	Cover open sensor	3-13
2.3.2	Multi paper tray paper empty sensor	3-13
2.3.3	Tray paper empty sensor	3-14
2.3.4	Face up open sensor / Fuser exit sensor	3-14
2.3.5	Full stack sensor.....	3-15
2.3.6	Eject sensor	3-15
2.3.7	Paper size sensor / Tray ID sensor	3-16
2.3.8	Toner sensors.....	3-16
2.4	Drum Unit	3-17
2.4.1	Photosensitive drum	3-17
2.4.2	Primary charging roller.....	3-17
2.4.3	Transfer roller	3-17
2.4.4	Cleaner	3-17
2.5	Toner cartridge.....	3-17
2.6	Print Process.....	3-18
2.6.1	Charging	3-18
2.6.2	Exposure stage.....	3-18
2.6.3	Developing.....	3-20
2.6.4	Transfer	3-20
2.6.5	Cleaning.....	3-21
2.6.6	Fixing stage	3-21
	CHAPTER 4 DISASSEMBLY AND RE-ASSEMBLY.....	4-1
1.	SAFETY PRECAUTIONS	4-1
2.	DISASSEMBLY FLOW	4-6
3.	DISASSEMBLY PROCEDURE.....	4-7
3.1	AC Cord	4-7
3.2	Drum unit assembly	4-7
3.3	Paper Tray	4-8
3.4	MP Tray.....	4-14
3.5	FU Protection Cover.....	4-16
3.6	Side Cover L / R.....	4-17
3.7	Switch Panel.....	4-19
3.8	Open Cover / Top Cover	4-21

3.9	Back Cover ASSY	4-26
3.10	Fixing Unit	4-28
3.11	Paper Eject.....	4-37
3.12	Laser Unit.....	4-40
3.13	Front Cover 1 / Front Cover 2	4-41
3.14	MP Tray Unit	4-43
3.15	Fan Motor 80.....	4-48
3.16	Main Motor ASSY.....	4-50
3.17	Feeding Motor ASSY A/B.....	4-51
3.18	Drive Unit	4-52
3.19	Electromagnetic Clutch Regist	4-55
3.20	Main PCB	4-56
3.21	Engine PCB.....	4-57
3.22	Base Plate	4-57
3.23	Low-voltage Power Supply PCB ASSY / High-voltage Power Supply PCB ASSY	4-58
3.24	Front Guide ASSY.....	4-60
3.25	Transfer Base ASSY	4-61
3.26	Paper Feed	4-67
3.27	Size SW PCB.....	4-75
3.28	Fan Motor 60.....	4-77
3.29	Ejection Gear Unit.....	4-78
4.	LUBRICATION	4-79
5.	PACKING	4-84

CHAPTER 5 PERIODIC MAINTENANCE..... 5-1

1.	CONSUMABLE PARTS.....	5-1
1.1	Drum Unit.....	5-1
1.2	Toner Cartridge.....	5-3
2.	PERIODICAL REPLACEMENT PARTS.....	5-6
3.	PERIODICAL CLEANING.....	5-7
3.1	Cleaning the Printer Exterior.....	5-7
3.2	Cleaning the Printer Interior	5-8
4.	MTBF / MTTR.....	5-9

CHAPTER 6 TROUBLESHOOTING..... 6-1

1.	INTRODUCTION	6-1
1.1	Initial Check.....	6-1
1.2	Warnings for Maintenance Work.....	6-2
1.3	Identify the Problem	6-3
2.	OPERATOR CALLS & SERVICE CALLS	6-4
2.1	Operator Call Messages	6-4
2.2	Service Call Messages.....	6-7
3.	PAPER PROBLEMS.....	6-11

3.1	Paper Loading Problems.....	6-11
3.2	Paper Jams.....	6-12
3.2.1	Clearing jammed paper.....	6-14
3.2.2	Countermeasures for paper jams.....	6-22
3.3	Paper Feeding Problems.....	6-23
4.	SOFTWARE SETTING PROBLEMS.....	6-25
5.	MALFUNCTIONS.....	6-28
6.	IMAGE DEFECTS.....	6-34
6.1	Image Defect Examples.....	6-34
6.2	Troubleshooting Image Defect.....	6-35
6.3	Location of Grounding Contacts.....	6-54
6.3.1	Drum unit.....	6-54
6.3.2	Printer body & Paper tray.....	6-54
7.	INCORRECT PRINTOUT.....	6-55
8.	NETWORK PROBLEM.....	6-58
8.1	Installation Problem.....	6-58
8.2	Intermittent Problem.....	6-59
8.3	TCP/IP Troubleshooting.....	6-60
8.4	UNIX Troubleshooting.....	6-60
8.5	Windows NT/LAN Server (TCP/IP) Troubleshooting.....	6-61
8.6	Windows 95/98/Me Peer to Peer Print (LPR) Troubleshooting.....	6-61
8.7	Windows 95/98/Me Peer to Peer (HP JetAdmin Compatible Method) Troubleshooting.....	6-62
8.8	Windows 95/98/Me/NT 4.0/2000/XP Peer to Peer Print (NetBIOS) Troubleshooting....	6-62
8.9	Internet Print (TCP/IP) Troubleshooting.....	6-62
8.10	Windows 95/98/Me/2000/XP IPP Troubleshooting.....	6-63
8.11	Novell Netware Troubleshooting.....	6-63
8.12	AppleTalk Troubleshooting.....	6-64
8.13	Apple TCP/IP Printing (System 8.6 or later).....	6-64
8.14	DLC/LLC Troubleshooting.....	6-64
8.15	LAT Troubleshooting.....	6-64
8.16	Banyan VINES Troubleshooting.....	6-66
8.17	Web Browser Troubleshooting (TCP/IP).....	6-66
9.	INSPECTION MODE.....	6-67
9.1	Before the Operation.....	6-67
9.2	Line Inspection Mode Procedure.....	6-67
CHAPTER 7	HIDDEN FUNCTIONS.....	7-1
1.	ENTERING HIDDEN FUNCTION MENU MODES.....	7-1
2.	PROFESSIONAL MENU MODE.....	7-2
2.1	Enabling and Disabling Professional Menu Mode.....	7-2
2.2	Function Table.....	7-3
3.	SERVICE MENU MODE.....	7-9
3.1	Entering the Service Menu Mode.....	7-9
3.2	Function Table.....	7-9

4. OTHER HIDDEN FUNCTION MENUS	7-13
4.1 Hidden Function Menus Enabled by Pressing Switch(es) When Turning the Machine on	7-13
4.2 Parts life Reset Function	7-14

APPENDICES

1. CONNECTION DIAGRAM, HL-7050	A-1
2. MAIN PCB CIRCUIT DIAGRAM, HL-7050 (1/9)	A-2
3. MAIN PCB CIRCUIT DIAGRAM, HL-7050 (2/9)	A-3
4. MAIN PCB CIRCUIT DIAGRAM, HL-7050 (3/9)	A-4
5. MAIN PCB CIRCUIT DIAGRAM, HL-7050 (4/9)	A-5
6. MAIN PCB CIRCUIT DIAGRAM, HL-7050 (5/9)	A-6
7. MAIN PCB CIRCUIT DIAGRAM, HL-7050 (6/9)	A-7
8. MAIN PCB CIRCUIT DIAGRAM, HL-7050 (7/9)	A-8
9. MAIN PCB CIRCUIT DIAGRAM, HL-7050 (8/9)	A-9
10. MAIN PCB CIRCUIT DIAGRAM, HL-7050 (9/9)	A-10
11. ENGINE PCB CIRCUIT DIAGRAM, HL-7050 (1/3).....	A-11
12. ENGINE PCB CIRCUIT DIAGRAM, HL-7050 (2/3).....	A-12
13. ENGINE PCB CIRCUIT DIAGRAM, HL-7050 (3/3).....	A-13
14. LOW-VOLTAGE POWER SUPPLY PCB CIRCUIT DIAGRAM (100V), HL-7050 (1/2)	A-14
15. LOW-VOLTAGE POWER SUPPLY PCB CIRCUIT DIAGRAM (200V), HL7050 (2/2).....	A-15
16. SERIAL NO. DESCRIPTIONS.....	A-16
17. DIAMETER / CIRCUMFERENCE OF ROLLERS.....	A-18
18. PRINT SPEEDS WITH VARIOUS SETTINGS.....	A-19
19. HOW TO KNOW PAGE COUNTER & PARTS LIFE.....	A-21
20. HOW TO USE THE SELF-DIAGNOSTICS TOOLS	A-23
21. NVRAM DEFAULT VALUE.....	A-27
22. PAPER TRAY INFORMATION (FOR EUROPE ONLY).....	A-28
23. GUIDELINES FOR LEAD FREE SOLDER	A-29
24. TONER CARTRIDGE WEIGHT INFORMATION	A-32

INDEX

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. Shenzen Buji Nan Ling Factory Gold Garden Ind., Nan Ling Village, Buji, Rong Gang, Shenzen, 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.

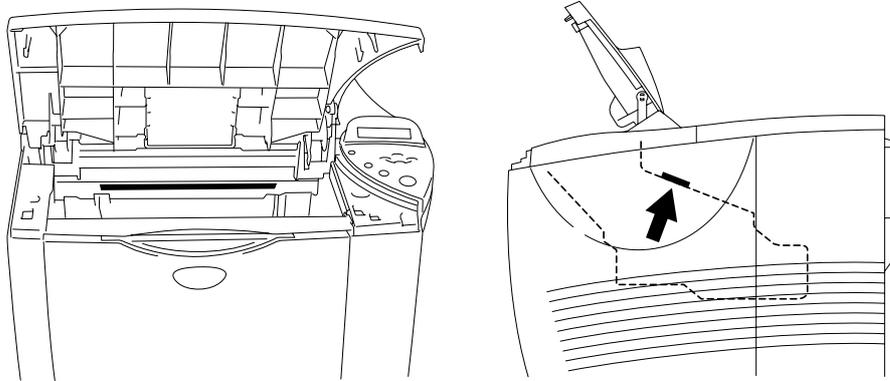
Varning – Om apparaten används på annat sätt än i denna Bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

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>



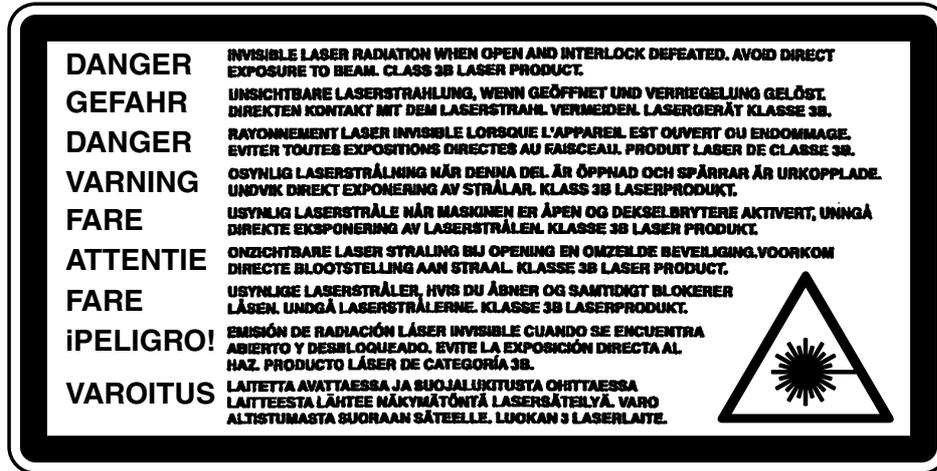
LITHIUM BATTERIES

- CAUTION:** DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
- VORSICHT:** EXPLOSIONSGEFAHR BEI UNSACHGEMÄßEM AUSTAUSCH DER BATTERIE. ERSATZ NUR DURCH DENSELBE ODER EINEN VOM HERSTELLER EMPFOHLENEÄHNLICHEN TYP. ENTSORGUNG GEBRAUCHTER BATTERIEN NACH ANGABEN DES HERSTELLERS.

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.

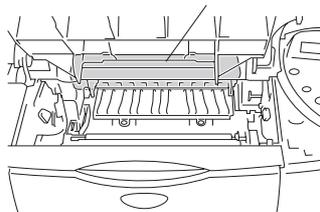


Always turn off the power switch and unplug the power cord from the power outlet before accessing any parts inside the printer.

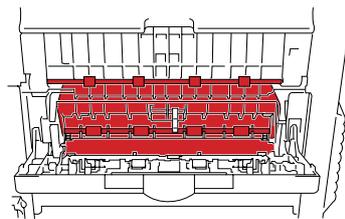


Some parts inside the printer are extremely hot immediately after the printer is used. When opening the front cover or rear cover to access any parts inside the printer, never touch the red colored parts shown in the following figures.

Fuser is HOT!



Inside the printer



Open the face-up output tray



If malfunctions with the power plug inserted into the power outlet, special caution should be exercised even if the power switch is you analyze 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 1200 X 1200 dots per inch (dpi), 600 x 600 dots per inch (dpi) and true 300 x 300 dots per inch (dpi) for graphics with microfine toner and up to 28 pages per minutes (ppm) print speed (A4) and 30 pages per minutes (ppm) print speed (Letter paper).

Versatile Paper Handling

The printer loads paper automatically from the paper tray. The paper tray can hold A4, letter, B5 (ISO), B5 (JIS), A5, B6 (ISO), A6, Executive and Legal size paper. The manual feed tray allows manual paper loading sheet by sheet so you can use a variety of types and sizes of paper.

Front Operation

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

Enhanced Printing Performance and User-Friendly Operation for Windows®

The dedicated printer driver for Microsoft® Windows® 95/98/Me and Windows® NT 4.0/2000/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 allows you to choose various printer settings including toner save mode, custom paper size, sleep mode, gray scale adjustment, resolution, watermark and many other layout functions. You can easily setup these print options through the Printer Setup Menu.

Printer Status Monitor

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, you can get visual guidance on your PC screen on the actions to take 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 1200 dpi graphic and text data, including large fonts, with the standard printer memory.

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

The printer can be connected using the Universal Serial Bus (USB) interface to a PC or Macintosh, which has the 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

The printer supports the following printer emulation modes; HP LaserJet (PCL6), Epson FX-850, IBM Proprinter XL, HP-GL and PostScript® Level 3 language emulation (Brother BR-Script Level 3).

When you use DOS application software or Windows® version 3.0 or earlier, you can use any of these emulations to operate the printer. The printer also supports auto-emulation switching between HP, Brother BR-Script 3, HP-GL and Epson or HP, BR-Script 3, HP-GL and IBM. If you want to set the printer emulation, you can do it by operating the front panel.

High Resolution Control & Advanced Photoscale Technology

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

Advanced Photoscale Technology (APT) enables the printer to print graphics in 256 grayscales, producing nearly photographic quality. Use this function when you want to print photographic images.

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.

<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 16W when in sleep mode.

Bar Code Print

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

The Brother network printer has a 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/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>

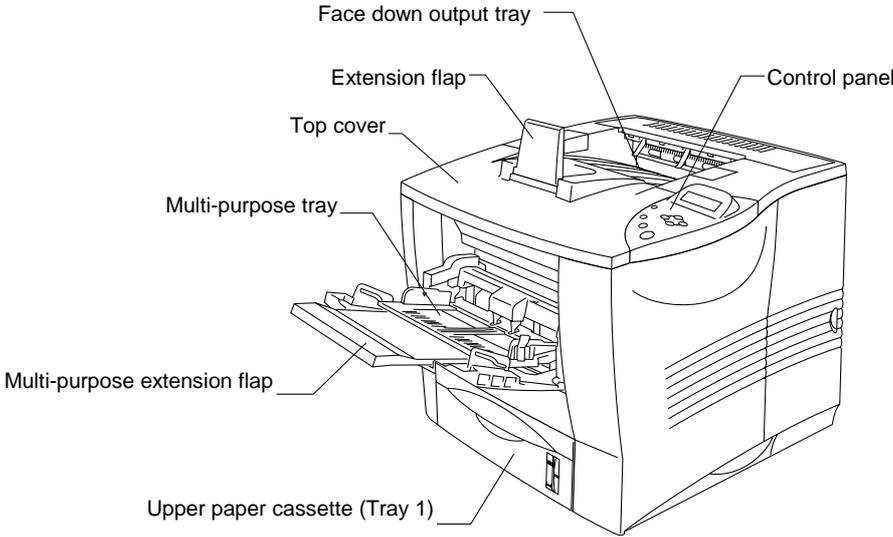


Fig. 1-1

<Rear View>

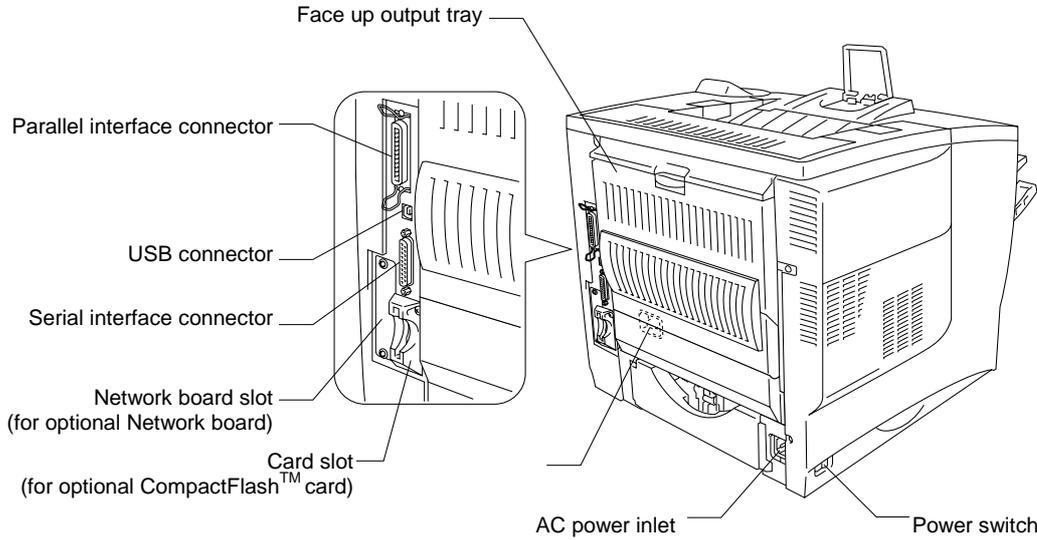


Fig. 1-2

3. SPECIFICATIONS

3.1 Printing

Print method	Electrophotography (single-component dry toner)
Laser	Semiconductor laser Wave length: 788 nm Output: 15mW max
Resolution	1200dpi (for Windows® 95/98/Me, WindowsNT® 4.0, Windows® 2000, Windows® XP and Mac OS) 600 dpi (for Windows® 95/98/Me, WindowsNT® 4.0, Windows® 2000, Windows® XP, DOS and Mac OS) 300 dpi (for Windows® 95/98/Me, WindowsNT® 4.0, Windows® 2000, Windows® XP and Mac OS)
Print quality	Normal printing mode Economy printing mode (up to 20% toner saving)
Print speed	Up to 28 ppm* (When loading A4) Up to 30 ppm* (When loading Letter-size paper.)
Warm-up	Max. 20 seconds at 23°C (68°F)
First print	Approx. 11 seconds (When loading A4 or Letter-size paper using face down print delivery from the paper tray.)
Consumables	Toner cartridge Life expectancy: 12,000 single-sided pages/cartridge Drum unit Life expectancy: 40,000 single-sided pages/unit (When printing A4 or Letter-size paper with the print density set at level 0 with about 5% print coverage)

***NOTE:**

Print speed varies depending on the paper size or print paper type. For details, refer to [APPENDIX 18 'PRINT SPEEDS WITH VARIOUS SETTINGS'](#).

3.2 Functions

CPU	Toshiba TMPR4955 266MHz
Emulation	Brother Printing Solution for Windows® Automatic emulation selection among HP LaserJet 5(PCL 6), Brother BR-Script 3, HP-GL, EPSON FX-850 or IBM Proprinter XL
Printer driver	<PCL Driver> Windows® 95/98/Me, Windows® NT 4.0/2000/XP driver, supporting Brother Native Compression mode <PS Driver> PPD file driver for Windows® 95/98/Me, Windows NT® 4.0/2000/XP driver and Macintosh driver
Interface	<ul style="list-style-type: none"> • Bi-directional parallel • Universal Serial Bus (USB) • RS-232C • Network
Memory	HL7050/HL7050N : 32.0 Mbytes* ¹ Expandable up to 288 Mbytes by installing an industry standard DIMM* ²
Control Panel	<ul style="list-style-type: none"> • Display LCD: 2 lines by 16-column liquid crystal display with a three color back light LED: 1 LED • Buttons: 7 buttons
Diagnostics	Self-diagnostic program

¹NOTE:

The standard memory installed varies depending on the country.

²NOTE:

The DIMM (Dual in Line Memory Module) must have the following specifications: -

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

3.3 Options

Paper handling	<ul style="list-style-type: none"> • Lower tray unit (LT-7000); Maximum 500 sheets x 3 trays • Duplex unit for duplex printing (DX-7000) • Mailbox unit for output source (MX-7000 series)
Stabilizer	Stabilizer for safe installation of the printer with options fitted (SB-4000)
Storage Device	Hard Disk Drive (HD-EX), CompactFlash Card (Not provided by Brother)

3.4 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): 690 W or less (when printing plain paper at 25°C) Standing by: 110 W or less (at 25°C) Sleep* ¹ : 16 W or less (default activation time: 30 min.)
Noise	Printing: L _{wad} = about 67 dB (A) * ² L _{wad} = about 48 dB (A)
Temperature	Operating: 10 to 32.5°C (50 to 90.5°F) Storage: 0 to 35°C (38 to 95°F)
Humidity	Operating: 20 to 80% (non condensing) Storage: 10 to 80% (non condensing)
Dimensions	Printer: 485 x 480 x 421 mm (W x D x H) (19.1 x 18.9 x 16.6 inches) Carton: 575 x 665 x 570 mm (W x D x H) (22.6 x 26.2 x 22.4 inches)
Weight	Printer: Approx. 24.1 kg (53.1 lb.) (Excluded Toner and Drum) Carton: Approx. 30.6 kg (67.5 lb.) (Included Toner, Drum and Carton)

*¹NOTE:

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

*²NOTE:

You might want to install printers with a sound power level of L_{wad} 63 dB (A) or more in a separate room or cubicle.

3.5 Network

Type / Speed	Ethernet 10BaseT/100BaseTX Print server (NC-4100h) Auto speed detection
Protocols	TCP/IP (DHCP, BOOTP, RARP, APIPA, NetBIOS over IP LPR/LPD, Port9100, Custom Port, POP3/SMTP, SMB Print TELNET, SNMP, HTTP, TFTP, FTP, IPP, SSDP), EtherTalk, IPX/SPX, DEC LAT, Banyan VINES, NetBEUI, DLC/LLC
Management	<ul style="list-style-type: none">• Web Based Management• BRAdmin Professional Windows® based management utility• Web BRAdmin Server Software
Firmware update	4MB flash ROM. Use BRAdmin Professional when upgrading print server software or FTP, TFTP PUT/GET or IPX for Netware.
Supplied software	<ul style="list-style-type: none">• BRAdmin Professional management utility (for Windows® 95/98/NT 4.0/2000/XP)• Port driver for Windows® 95/98/Me/NT 4.0/2000/XP LPR port driver (for Windows® 95/98/Me/NT4.0 only) NetBIOS port driver, SMTP port driver• Web BRAdmin Server Software

3.6 Paper

3.6.1 Feedable paper

We recommend the following paper types and sizes for each paper tray or print method.

(1) Paper type

Paper type	Tray 1 60- 105 g/m ² (16 - 28 lbs.)	MP tray 60- 200 g/m ² (16 - 53 lbs.)	Tray 2/3/4 60- 105 g/m ² (16 - 28 lbs.)	DX 60- 105 g/m ² (16 - 28 lbs.)	MX 60- 105 g/m ² (16 - 28 lbs.)	Select the media type from the printer driver
Plain paper	✓	✓	✓	✓	✓	Plain paper
Thin paper	✓	✓	✓	✓	✓	Thin paper
Recycled paper	✓	✓	✓	✓	✓	Plain paper
Bond paper	✓	✓	✓		✓	Bond paper
Thick paper		✓				Thick paper or thicker paper
Transparency		✓ Only A4 or Letter size				Transparency
Labels		✓ Only A4 or Letter size				Thick paper
Envelope		✓				Envelope
Card stock		✓				Thick paper or thicker paper

(2) Paper size

	Tray 1	MP tray	Tray 2/3/4	DX	MX
Paper size	A4, Letter, Legal, B5(JIS), B5(ISO), Executive, A5, A6, B6	A4, Letter, Legal, B5(JIS), B5(ISO), Executive, A5, A6, B6, COM-10, Monarch, C5, DL Width: 105 to 216 mm (4.13 to 8.5 in.) Height: 148.5 to 356 mm (5.85 to 14.0 in.)	A4, Letter, Legal, B5(JIS), B5(ISO), Executive, A5	A4, Letter, Legal, B5(JIS), Executive	A4, Letter, B5(JIS), B5(ISO), Executive
Capacity	500 sheets (80 g/m ² or 20 lbs.)	100 sheets (80 g/m ² or 20 lbs.) Transparencies: 10 sheets Envelopes: 10 sheets Label stock: 10 sheets	500 sheets (80 g/m ² or 20 lbs.)		100 sheets per bin (80 g/m ² or 20 lbs.)

(3) Other paper specifications

Paper Tray

	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

MP Tray

	Cut sheet	Envelope
Basis weight	60 to 200 g/m ² (16 to 53 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 4200DP 20 lb.
Transparency	3M CG3300	3M CG3300
Label	Avery laser label L7163	Avery laser label #5160

* Recommended paper should have the following technical specifications:

- Basis Weight 75-90 (g/m²)
- Thickness 80-110 (micrometer)
- Roughness Higher than 20 (sec.)
- Stiffness 90-150 (cm³/100)
- Grain Direction Long Grain
- Volume Resistivity 10e⁹ – 10 e¹¹ (ohm)
- Surface Resistivity 10e¹⁰ – 10 e¹² (ohm-cm)
- Filler CaCO₃ (Neutral)
- Ash Content below 23 (wt%)
- Brightness higher than 80 (%)
- Opacity higher than 85 (%)

As a general guidance, paper that is suitable for a photocopier is generally suitable.

! **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 cause damage 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 tray to avoid any paper jams or misfeeds.*

3.6.2 Print delivery

(1) Face down output tray

Capacity: Maximum 500 sheets (80 g/m²)
Face down only

(2) Face up output tray

Capacity: 100 sheet ****Thicker paper printing is recommended.**
Face up only

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 type.

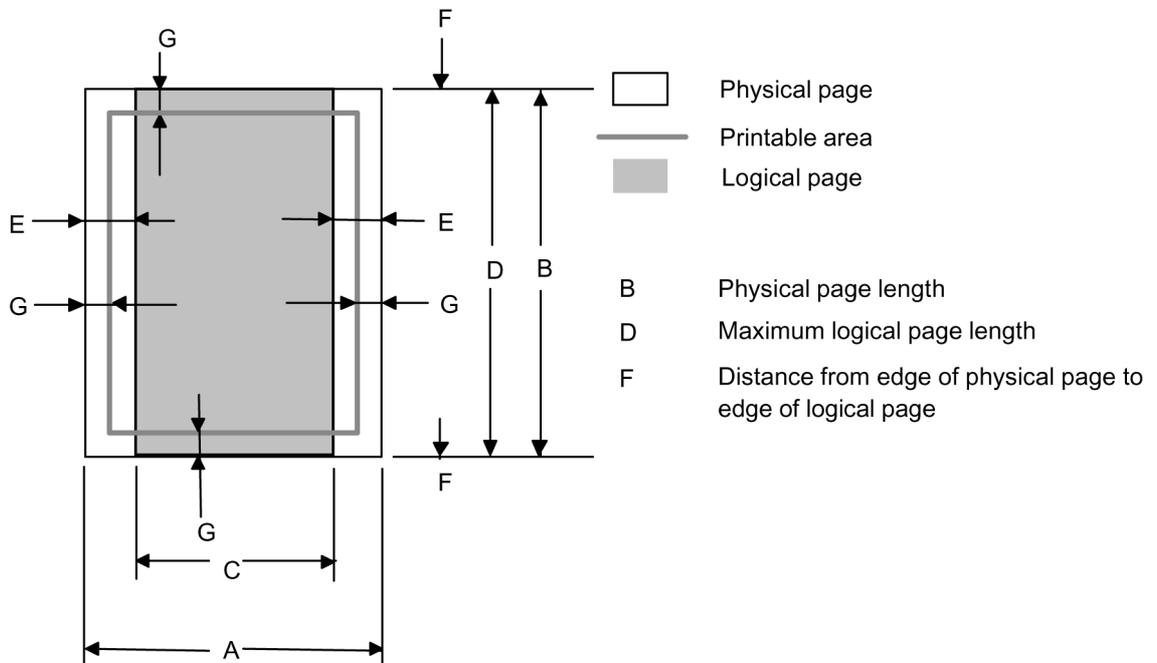
Paper type	Paper output		Notes
	Face down	Face up	
Plain paper	✓	✓	70g/m ² to 90 g/m ² (19 to 24lb.)
Thin paper	✓	✓	60g/m ² to 70 g/m ² (16 to 19lb.)
Recycled paper	✓	✓	
Bond paper	✓	✓	Rough paper – 60g/m ² to 200 g/m ² (16 to 53lb.)
Thick paper	✓	✓	90g/m ² to 120 g/m ² (24 to 32lb.)
Thicker paper	✓	✓	120g/m ² to 200 g/m ² (32 to 53lb.)
Transparency	✓	✓	Overhead projector film
Labels		✓	
Envelope		✓	
Card stock		✓	

3.7 Printable Area

3.7.1 PCL5e/EPSON/IBM emulation

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

Portrait



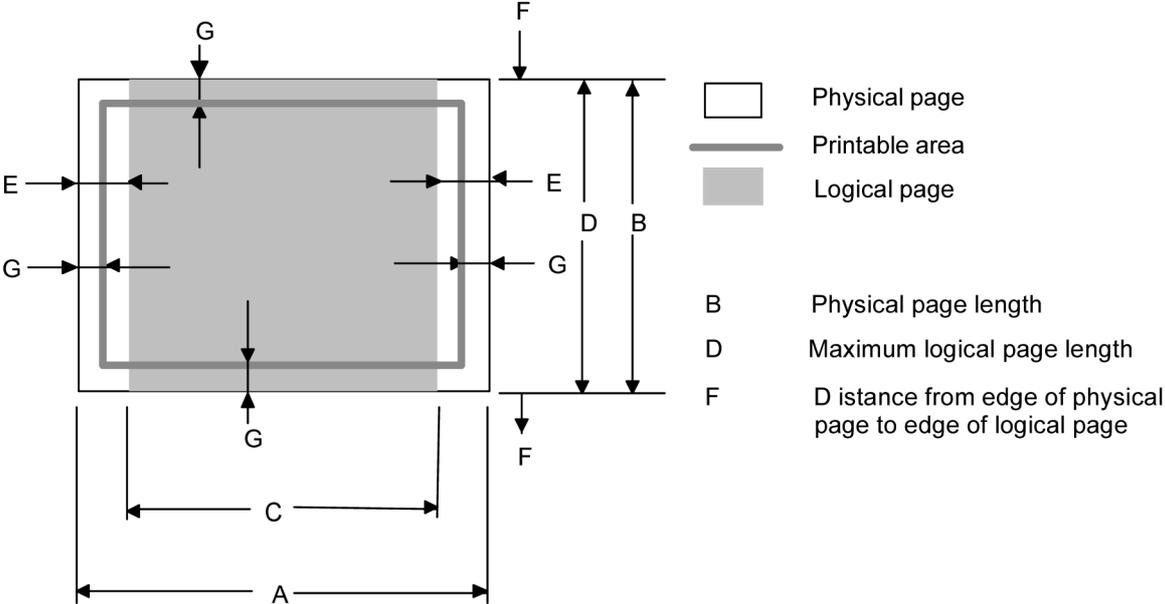
The table below shows the printable areas when printing on Portrait for each paper size.

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)
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)

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)
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)	200.0 mm 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)

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.

3.7.2 PCL6/BR-Script3 emulation

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